Alcoa Power Generating Inc.
Yadkin Division

Yadkin Project Relicensing (FERC No. 2197)

Project-Wide Aesthetic Study

Draft Report

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Prepared by
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EXECUTIVE SUMMARY

The Yadkin Hydroelectric Project consists of four developments (High Rock, Tuckertown, Narrows, and Falls) located along the Yadkin River in central North Carolina. Alcoa Power Generating Inc. (APGI) is the licensee for the Project. The Project is currently licensed by the Federal Energy Regulatory Commission (FERC No. 2197) and the existing license expires on April 30, 2008. As part of the relicensing process, APGI must assess the effects of the Project on a variety of resources, including aesthetics.

The purpose of this aesthetics study is to collect, analyze, and provide information regarding aesthetics at the Yadkin Project. The objectives of the study are to:

- Generally characterize the aesthetic character of the Project area,
- Characterize the aesthetic character of Project facilities, and
- Evaluate the effect of existing and alternative Project facilities and operations on aesthetics in the Project area.

This aesthetic study included both a technical analysis, based on evaluating the views from 42 Key Observation Points (KOPs) during different seasons and varying water levels, and a constituent (user) analysis, based on the responses from surveys of visitors, waterfront residents, and non-waterfront residents of private communities regarding Project aesthetics. Table ES-1 summarizes the results of the constituent analysis in terms of overall reservoir scenic quality.

Table ES-1 Comparison of Responses Regarding Reservoir Scenic Quality

Reservoir	# of Respondents	Average Score	Ratings/Scores				
			1	2	3	4	5
			Very Unattractive	Somewhat Unattractive	Average	Somewhat Attractive	Very Attractive
High Rock	1,559	3.7	4%	5%	36%	29%	26%
Tuckertown	215	4.1	1%	2%	29%	18%	49%
Narrows	915	4.3	5%	2%	15%	20%	58%
Falls	17	3.8	0%	12%	29%	29%	29%

These analyses are derived from methodologies in the U.S. Forest Service's Scenery Management System (1995). The effects of Project facilities on aesthetics are evaluated using a scenic integrity concept as a frame of reference. Scenic integrity is a continuum ranging over five levels of integrity from very high (unaltered) to very low (heavily altered). For purposes of this analysis, a completely intact, unaltered, natural landscape is considered the baseline (i.e., Very High Scenic Integrity), with scenic integrity ratings generally corresponding with the degree of alteration from a natural setting.

The conclusions of the aesthetics evaluation regarding Project facilities and operation are presented below for each reservoir.

High Rock Development

The High Rock Development is the most developed of the four Project reservoirs with approximately 35 percent of the shoreline developed. The majority of the development is concentrated along the middle and lower portions of the reservoir. There are over 2,000 private piers and docks along the shoreline. Overall the area surrounding High Rock Reservoir is moderately altered and therefore it received a Low (moderately altered) Scenic Integrity rating.

Over half of the respondents rated High Rock Reservoir as "very attractive" or "somewhat attractive", with only nine percent of respondents rating it as "very unattractive" or "unattractive". Floating debris was indicated as the greatest detractor of scenic quality at the High Rock Development by 75 percent of the respondents. Muddy water, exposed lake bottom, and eroding shoreline were also identified by recreational users as the primary detractors from scenic quality. The exposed lake bottom (identified as a detractor by 49 percent of responders) is at least partially attributable to Project operations. Project facilities (e.g., High Rock Dam, electric transmission lines, High Rock Reservoir) were identified as detractors by less than 10 percent of respondents.

Overall, existing Project facilities are consistent with the moderately altered Scenic Integrity rating of the area. Project operations that result in significant water level drawdown adversely affect the visual quality of the Project area. The large number of viewers (over 2,000 waterfront residences), magnitude of the drawdown (average annual maximum drawdown is twelve feet), and duration of drawdown (usually several months) collectively increase the severity of this aesthetic impact.

Tuckertown Development

The Tuckertown Development is relatively undeveloped with nearly 90 percent of the shoreline in forest or agricultural uses. Although there are waterfront homes along Tuckertown Reservoir, there are no private piers or docks that intrude into the reservoir. Tuckertown Reservoir is operated in a run-of-river mode with relatively little water level fluctuation. The presence of overhead transmission lines alters the otherwise natural landscape and therefore, the Tuckertown Reservoir area received a Moderate (slightly altered) Scenic Integrity rating.

Two-thirds of the respondents rated Tuckertown Reservoir as "very attractive" or "somewhat attractive", with only three percent of respondents rating it as "very unattractive" or "unattractive". Floating debris was indicated as the greatest detractor of scenic quality at the High Rock Development by 52 percent of the respondents. Muddy water and eroding shorelines were also identified by recreational users as primary detractors from scenic quality. Project facilities (e.g., Tuckertown Dam, electric transmission lines, Tuckertown Reservoir) and operations (e.g., exposed lake bottom) were identified as detractors by less than 15 percent of respondents. Overhead electric transmission lines cross the Yadkin River immediately downstream of Tuckertown Dam and a regional transmission line runs along the west side of Tuckertown Reservoir and crosses Flat Creek and Riles Creek. Nevertheless, only about 13 percent of respondents identified electric transmission lines as aesthetic detractors.

Overall, Project facilities and operations at Tuckertown Reservoir are consistent with the slightly altered Scenic Integrity rating of the area.

Narrows Development

The Narrows Development is moderately developed with over 40 percent of the shoreline classified as residential. Overhead transmission lines and a railroad trestle cross the reservoir. Conversely, much of the eastern shoreline is within the Uwharrie National Forest and is undeveloped. The Narrows Development is generally operated as a run-of-river facility with annual maximum water level fluctuations generally less than three feet. During this study period, however, Narrows Reservoir was drawn down over 16 feet between Thanksgiving and Christmas, 2003 in order to conduct several relicensing studies. Overall, the area surrounding the Narrows Development is slightly to moderately altered and therefore received a Low-Moderate Scenic Integrity rating.

Despite the effects of shoreline development, overhead transmission lines, and the railroad trestle, 78 percent of the constituents rated Narrows Reservoir as "very attractive" or "somewhat attractive". Nearly 60 percent of respondents rated Narrows Reservoir as "very attractive", while only seven percent of respondents rated the reservoir as "very unattractive" or "somewhat unattractive". Floating debris was indicated as the greatest detractor of scenic quality at the Narrows Development by 54 percent of the respondents to the constituent analysis. Muddy water, timber harvesting, and eroding shoreline were identified by recreational users as primary detractors from scenic quality. Project facilities (e.g., Narrows Dam, electric transmission lines, Narrows Reservoir) were identified as detractors by less than 15 percent of respondents. The technical analysis identified the view of Narrows Dam from the tailwaters as being only somewhat compatible with the Low-Moderate Scenic Integrity rating of the surrounding area. The scale of the dam dominates the view from downstream. This impact is offset to some extent by the relatively small number of recreation users who view the dam from this perspective.

Under existing Project operations, water levels within Narrows Reservoir generally only fluctuate approximately 3 feet annually. Nevertheless, exposed lake bottom was identified by 14 percent of survey respondents as a detractor from scenic quality. This result may be at least partially attributable to a significant drawdown (approximately 16 feet) that occurred between Thanksgiving and Christmas 2003 to allow a relicensing study to be performed. This magnitude of drawdown resulted in significant dewatering of several coves and exposed large expanses of muddy lake bottom. Drawdown of this magnitude is not compatible with the Low to Moderate Scenic Integrity rating of this area.

Overall, Project facilities and operations at Narrows Reservoir are consistent with the slightly to moderately altered Scenic Integrity rating of the area.

Falls Development

The Falls Development is the least developed of the four Yadkin developments with no waterfront residences and the Uwharrie National Forest encompassing the eastern half of

the Falls Reservoir shoreline. Falls Reservoir is operated in a run-of-river mode with relatively little water level fluctuation. Although Falls Dam and Reservoir represent man-made deviations from a natural landscape, the overall effect is still quite natural and the setting appears unaltered. Therefore, the Falls Reservoir area received a High Scenic Integrity rating.

The technical analysis of the KOPs identified views of Falls Dam (from both upstream and the tailwaters) and the overhead electric transmission lines as Project features that are only somewhat compatible with the High Scenic Integrity rating of the surroundings. Approximately 60 percent of the respondents rated Falls Reservoir as "very attractive" or "somewhat attractive", although there were not sufficient responses to ensure a statistically valid response. Floating debris was indicated as the greatest detractor of scenic quality at the High Rock Development by 71 percent of the respondents. Eroding shorelines and muddy water were also identified by recreational users as the primary detractors from scenic quality. Project facilities (e.g., Falls Dam, electric transmission lines, Falls Reservoir) and operations (e.g., exposed lake bottom) were identified as detractors by less than 15 percent of respondents.

Overall, Project facilities and operations at Falls Dam are generally compatible with the High Scenic Integrity rating of the area.

Alternative Project Operations

High Rock Reservoir is currently operated in a store and release mode that results in reservoir drawdowns, especially during the fall and winter, with an annual maximum drawdown of approximately 12 feet. This drawdown adversely affects the aesthetics of the Project area by revealing a muddy lake bottom. Nearly 50 percent of survey respondents (and over 55 percent of waterfront and non-waterfront residents) identified exposed lake bottom as detracting from visual quality. To evaluate the effect of alternative Project operations on aesthetics in the Project area, ERM considered three different water level scenarios for High Rock Reservoir. These alternatives included: 1) maintaining the reservoir "near-full" (within 3 feet of full) year round, 2) extending the season during which the reservoir is maintained "near-full" and reducing the total magnitude of the winter drawdown, and 3) increasing the winter drawdown and maintaining summer levels within 5 feet of full in order to use additional storage.

Two of these alternatives (Alternatives 1 and 2) would reduce both the duration and magnitude of reservoir drawdown relative to existing conditions, which would improve the visual appearance of High Rock Reservoir. The other alternative (Alternative 3) would significantly detract from the scenic quality of the reservoir by increasing the magnitude and duration of reservoir drawdown at High Rock. Table ES-2 compares the three alternatives.

Table ES-2 Comparison of High Rock Water Level Alternatives

Alternatives	Number of Viewers	Magnitude of Maximum Seasonal Drawdown	Duration of Maximum Seasonal Drawdown	Percent of Rec Days Affected by Seasonal Drawdown	Compatibility
Existing Conditions	Large	3 -12 feet	5 months	37%	Somewhat Compatible
Alternative 1	Large	3 feet	0 months	0%	Compatible
Alternative 2	Large	3 – 12 feet	3 months	8%	Somewhat Compatible
Alternative 3	Large	5 – 20 feet	5 months	37%	Not Compatible

In addition to evaluating the potential effects of these alternative water level scenarios on Project aesthetics at High Rock Reservoir, a drawdown at Narrows Reservoir in the winter of 2003 to conduct a fish and aquatics relicensing study provided an opportunity to document the impacts of a drawdown on Project aesthetics at Narrows Reservoir should alternative Project operations at Narrows Reservoir be contemplated in the future.

Conclusions

Overall, existing Yadkin Project facilities and reservoir operations are generally consistent with the existing Scenic Integrity of the Project area. Those Project facilities or reservoir operations that are only somewhat compatible are listed below:

- High Rock Development – reservoir operations, which generally results in exposed lake bottom for several months a year is only somewhat compatible with the area's Low Scenic Integrity rating.
- Tuckertown Development – views of the overhead transmission lines that cross the Yadkin River immediately downstream of Tuckertown Dam are only somewhat compatible with the area's Moderate Scenic Integrity rating.
- Narrows Development – views of the overhead transmission lines that cross the reservoir near the Town of Badin, Narrows Dam from the tailwaters, and the Cove Boat Landing (during construction) are only somewhat compatible with the area's Low to Moderate Scenic Integrity rating.
- Falls Development – views of Falls Dam from both upstream and downstream, the overhead transmission lines, the Deepwater Cove Trail recreation area, and the Falls Reservoir Boat Access are only somewhat compatible with the area's High Scenic Integrity rating.

There is little opportunity for APGI to modify the visual effect of the existing dams and powerlines. However, two of the three alternative water level scenarios (Alternatives 1 and 2) would reduce both the duration and magnitude of reservoir drawdown relative to existing conditions, which would improve the visual appearance of High Rock Reservoir.

The winter 2003 drawdown of Narrows Reservoir for the purpose of conducting a relicensing study provided the opportunity to evaluate the impact of such a drawdown on aesthetics at Narrows Reservoir. Narrows Reservoir was drawn down approximately 16-feet below normal full pool, which exposed a large amount of shoreline and lake bottom. The scenic quality of Narrows Reservoir appears highly altered during a drawdown of this magnitude.

1.0 INTRODUCTION

The Yadkin Hydroelectric Project (Project) is located along a 38-mile stretch of the Yadkin River, in Montgomery, Stanly, Davidson, Davie, and Rowan Counties, North Carolina. The Project consists of four developments: High Rock, Tuckertown, Narrows, and Falls. Alcoa Power Generating Inc. (APGI) is the licensee for the Yadkin Hydroelectric Project. The Project is currently licensed by the Federal Energy Regulatory Commission (FERC) as Project No. 2197 and the existing license expires on April 30, 2008. The Project generates electricity to support the power needs of Alcoa's Badin Works, to support its other aluminum operations, or is sold on the open market.

The purpose of this aesthetics study is to collect, analyze, and provide information regarding aesthetics at the Yadkin Project as part of the Project's relicensing process. The objectives of the study are to:

- Generally characterize the aesthetic character of the Project area,
- Characterize the aesthetic character of Project facilities, and
- Evaluate the effect of existing and alternative Project facilities and operations on aesthetics in the Project area.

The geographic scope of this study is the area within the viewshed of the four Project reservoirs and other Project facilities.

A three-part approach to meeting the study objectives was taken:

1. Describe the Project's regional setting and the Project facilities at each reservoir as a framework for analysis.
2. Identify Key Observation Points (KOPs) of Project facilities and evaluate them in terms of their visual character and the effect of the Project facilities and operations on this character.
3. Conduct a constituent analysis to obtain input on users' perception of the scenic quality of the Project.

Section 2.0 provides a detailed description of this approach.

2.0 METHODOLGY

This section describes the methodology used to collect and analyze aesthetics information for the Yadkin Hydroelectric Project. Two major collection methods were used to obtain aesthetic information:

- Photo documentation from 42 KOPs showing representative views of Project facilities and operations and the aesthetics of the area during various seasons and reservoir water levels.
- Responses from surveys of visitors, waterfront residents, and non-waterfront residents of private communities regarding Project aesthetics.

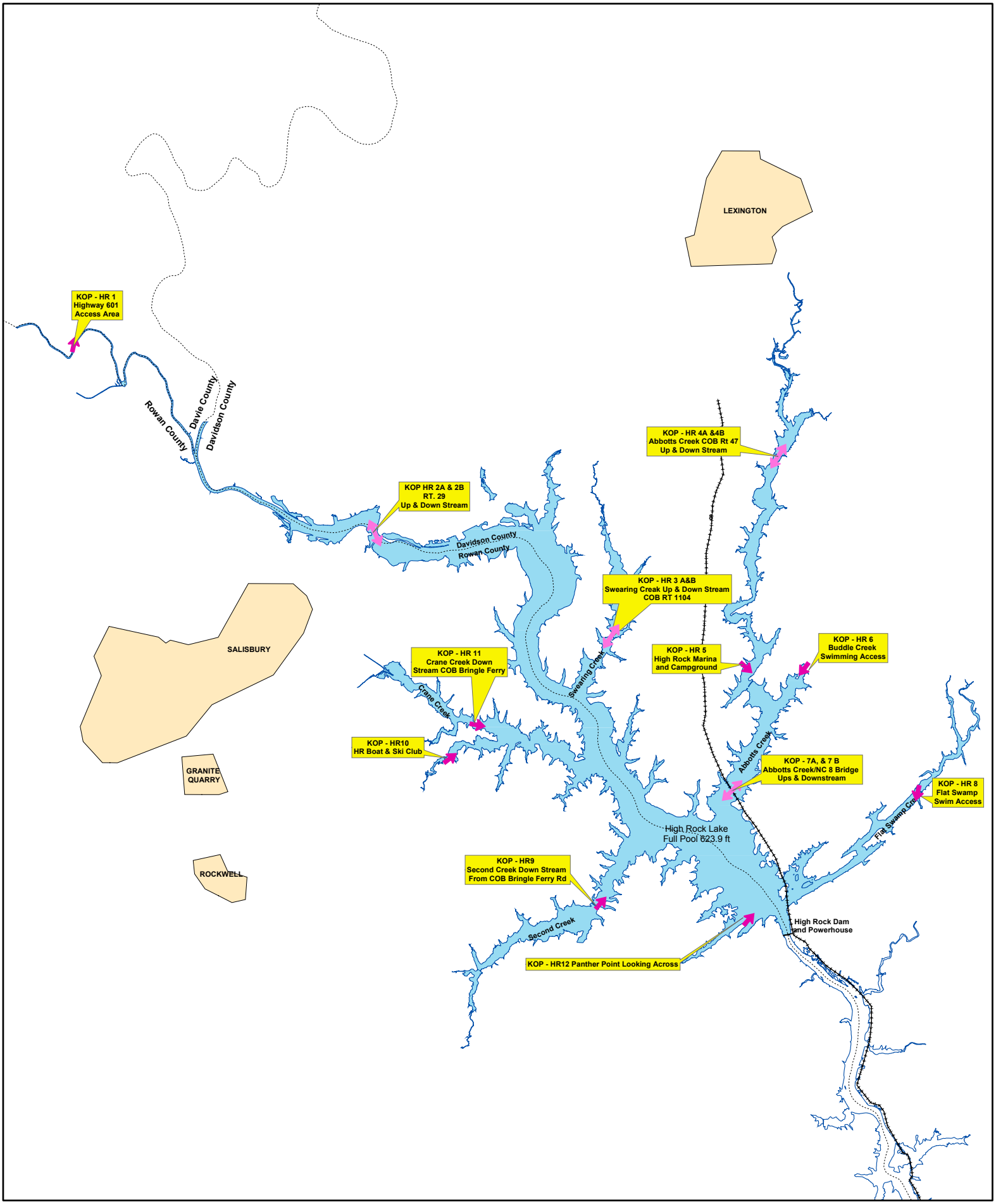
2.1 KOP Photo Documentation

The purpose of establishing the KOPs is to identify representative views of Project facilities and operations and the aesthetics of the area in order to evaluate their aesthetic character. An initial list of 60 KOPs was proposed. The Yadkin Hydroelectric Project Recreation, Aesthetics, and Shoreline Management Issue Advisory Group (RASM IAG) evaluated the list and reduced the number to a final total of 42 KOPs with a total of 51 views (several of the KOPs have multiple views from the same KOP). Table 2-1 summarizes the KOPs by reservoir. The KOPs are from public access recreation areas, roads, scenic overlooks, and other public vantage points. Figures 2-1, 2-2, and 2-3 show the location of each KOP. Section 4.0 shows the views from the KOPs.

Table 2-1 Number of KOPs and Views by Reservoir

Reservoir	Number of KOPs	Number of Views
High Rock	12	18
Tuckertown	8	11
Narrows	16	16
Falls	6	6
Total	**42**	**51**

Photographs were taken from each KOP at different times of the year during 2003 and 2004 to assess seasonal changes and water level variations. Photographs were taken during the winter (February), spring (March-April), and summer (May-August). Narrows Reservoir (Badin Lake) was photographed again during December in order to assess the effects of winter drawdown that occurred for purposes of other relicensing studies. Table 2-2 details the photo dates for each reservoir.



Legend

Railroads

County Lines

High Rock Reservoir

Cities

Figure 2-1
Key Observation Points
High Rock Reservoir

14,000 7,000 0 14,000 Feet

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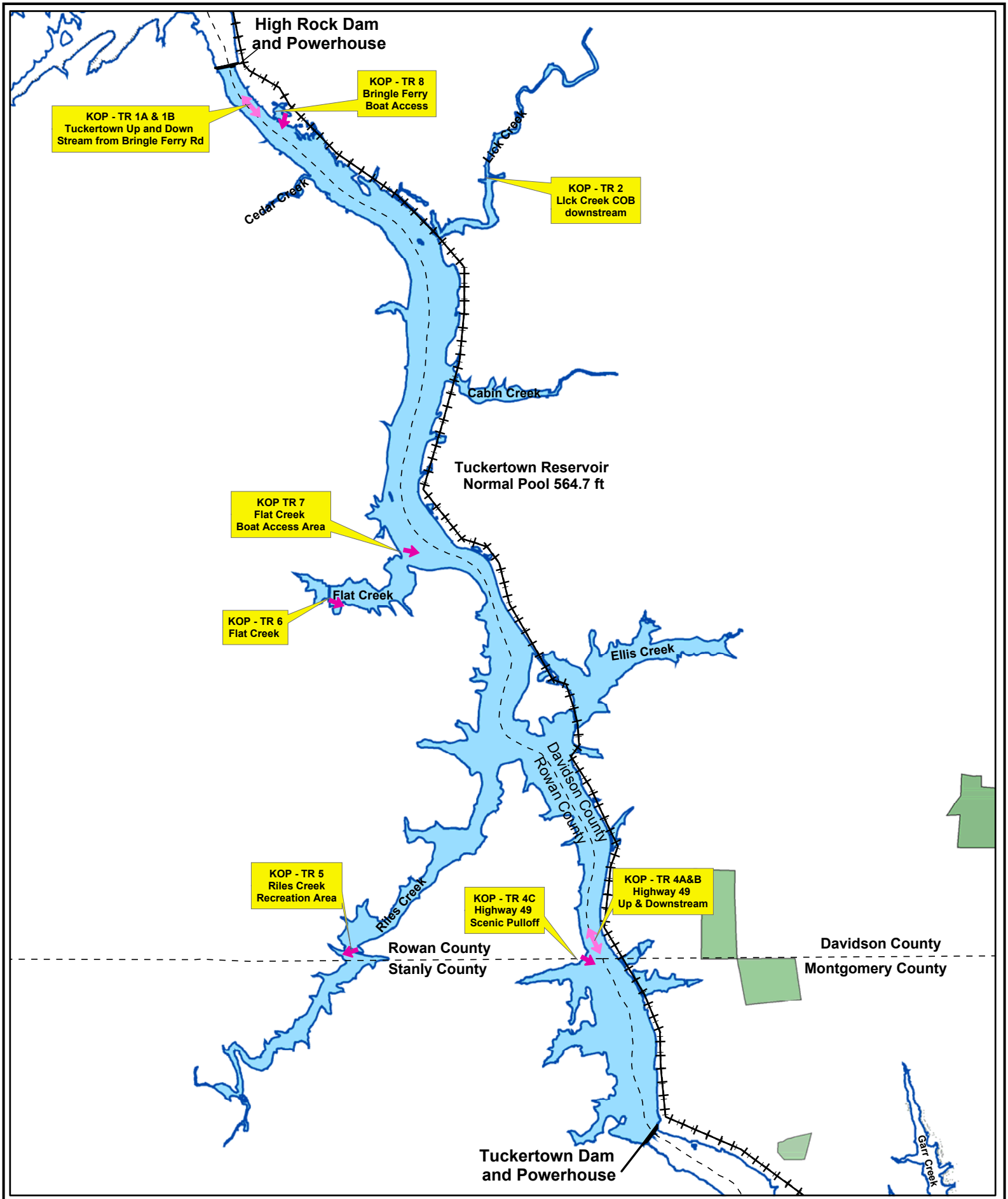
PB ERM

Date: November 2004

N W E S

I:/gis/projects/yadkin/reservoir.mxd ISMLI 112204



Legend

- Railroads
- County Lines
- Tuckertown Reservoir
- National Forest

Figure 2-2
Key Observation Points
Tuckertown Reservoir

5,000 2,500 0 5,000 Feet

Alcoa Power Generating Inc.
Yadkin Division

PB ERM

Date: November 2004

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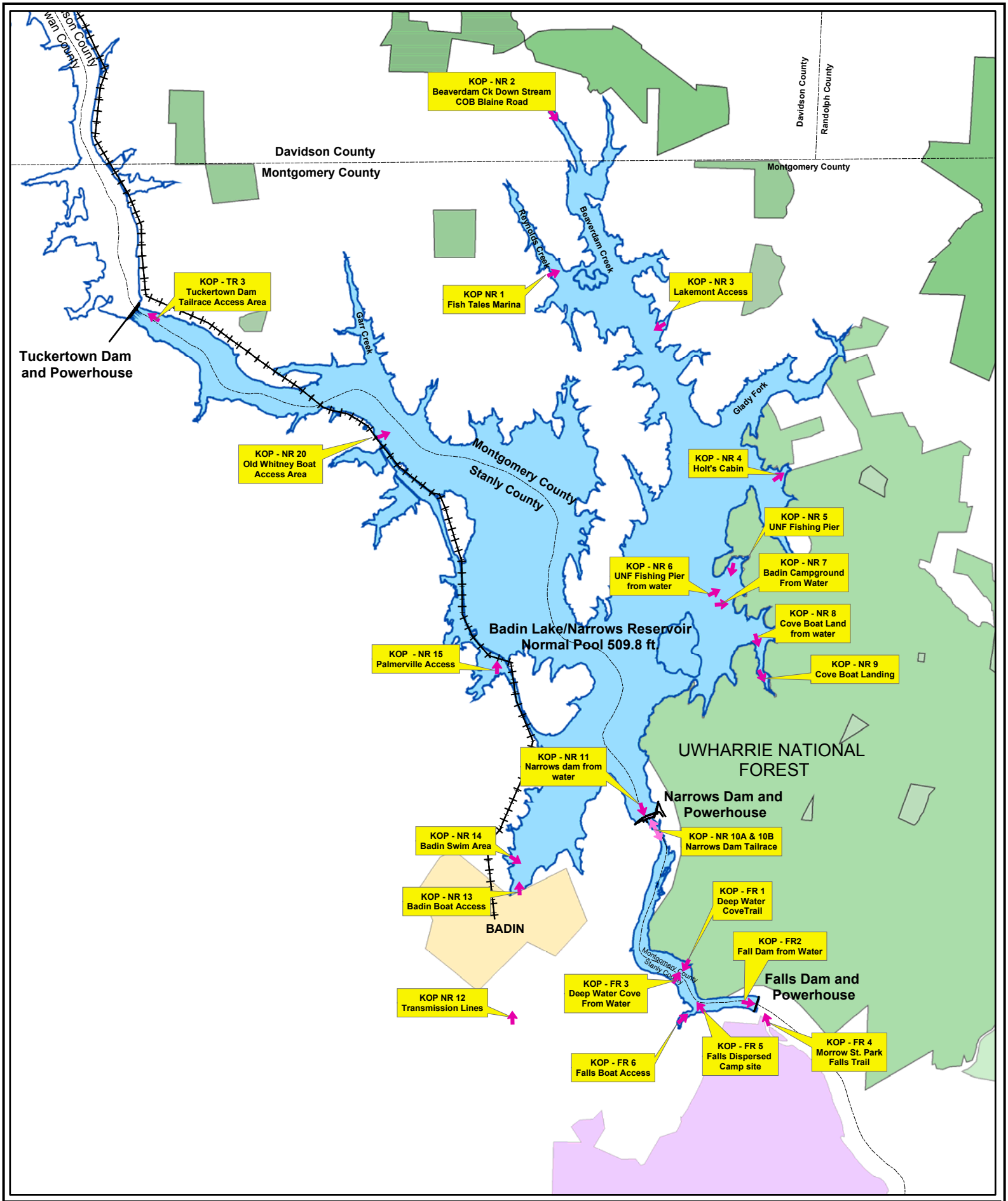

Legend

- Railroads
- County Lines
- Cities
- Narrows & Falls Reservoirs
- National Forest
- Morrow Mountain

Figure 2-3
Key Observation Points
Narrows and Falls Reservoir

6,000 3,000 0 6,000 Feet

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PB 100 YEARS ERM

Date: November 2004

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Table 2-2 Photo Documentation Dates by Reservoir

Reservoir	Photo Dates			
	Winter	***Spring***	***Summer***	***Fall***
High Rock	February, 2004	March or April, 2004	June, July, or August, 2003	October, 2003
Tuckertown	February, 2004	March or April, 2004	June, July, or August, 2003	October or December, 2003
Narrows	December 2003 or February, 2004	March or April, 2004	May, June, July, or August, 2003	
Falls	February, 2004	April, 2004	May, June, July, or August, 2003	

The view from each KOP is first described using five standard descriptors: distance zone, orientation, field of view, duration of view, and number of viewers (Table 2-3). The view is then evaluated using three "modifier rating" criteria in order to assess the visual effect of the Project facilities in relation to the character of the landscape. These modifier ratings are for spatial dominance, scale contrast, and compatibility (Table 2-4).

Table 2-3 KOP Evaluation Criteria

View Description	Definition	Description/Rating
Distance Zone	The distance from the KOP to the project feature. Distance zones can be described as foreground, middleground, or background.	Foreground- 0 –1/2 mile
		Middleground- 1/2 – 1 mile
		Background- >1 mile
Orientation	The degree to which the project feature is visible to the viewer. Orientation can be described as direct, indirect or peripheral.	Direct- clear, unobstructed, focused view of the features.
		Indirect- the feature is visible outside the line of focus.
		Peripheral- project features are visible in the outer fringes of the field of view.
Field of View	The degree of width of the view. The field of view can be described as wide, medium or narrow.	Wide- > 90 degrees of view
		Medium- 45 –90 degrees of view
		Narrow- <45 degrees of view
Duration of View	The length of time that the project element is visible to the primary viewer group. Duration can be described as long, moderate or short.	Long- >5 seconds
		Moderate- 3-5 seconds
		Short- 1-2 seconds
Number of Viewers	The estimated average annual daily number of viewers. Number of viewers is described as high, moderate or low.	High- >20 viewers
		Moderate- 5-20 viewers
		Low- 1- 5 viewers

Table 2-4 KOP Modifier Ratings

Modifier Rating	Definition	Description/Rating
Spatial Dominance	The prevalent occupation of a space in a landscape by an object(s) or landscape element. Spatial dominance can be described in terms of being Dominant, Co-dominant, or Subordinate.	Dominant – the feature is the major object or area in a confined setting and occupies a large part of the setting.
		Co-dominant – the feature is one of the major objects or areas in the confined setting, and its features are of equal visual importance.
		Subordinate – the feature is insignificant and occupies a minor part of the setting.
Scale Contrast	The difference in absolute or relative scale in relation to other distinct objects or areas in the landscape. Scale contrast can be described in terms of being Severe, Moderate, or Minimal.	Severe – the feature is much larger than the surrounding objects.
		Moderate – the feature is slightly larger than the surrounding objects.
		Minimal – the feature is much smaller than the surrounding objects.
Compatibility	The degree to which landscape elements and characteristics are still unified within their setting. Compatibility can be described in terms of being Compatible, Somewhat Compatible, or Not Compatible.	Compatible – The feature is harmonious within the setting.
		Somewhat Compatible – The feature is more or less harmonious within the setting.
		Not Compatible – The feature is not harmonious within the setting.

Note: Modifier ratings are adapted from USACE, 1988.

2.2 Constituents (Users) Input

Three surveys were conducted for the Yadkin Hydroelectric Project and designed to reach three different user groups: a visitor use survey (VUS), a waterfront resident use survey (RUS), and a private community's use survey (PCUS). Two questions on the surveys addressed scenic quality and were used to collect information on attitudes and opinion regarding aesthetics among the three user groups. Table 2-5 provides a summary of the surveys used to collect data on aesthetic resources at the Yadkin Project.

Table 2-5 Summary of Data Collection Methods

Instrument	User Category	Type of Survey	Estimated Population	Number of Responses	Response Rate	Confidence Level
Visitor Use Survey	Public Access Recreation Area Visitors	On-site contact survey	~200,000 groups[1]	966	0.5%	97%
Resident Use Survey	Waterfront Residents	Mail back survey	3,729 residences	1,764	47%	98%
Private Community Use Survey	Private Community (non-waterfront) Residents	Mail back Survey	~7,471 residences[2]	125	2%	92%

[1] Based on 1996 Form 80 visitor use estimate of 534,749 recreation days and an average group (person per vehicle) size of 2.65.

[2] Estimated by assuming that 80 percent of waterfront residences are located within private waterfront communities. There are 10,455 parcels within the private waterfront communities. The number of non-waterfront residences in these private waterfront communities is 10,455 – 2,984 = 7,471

2.2.1 Visitor Use Surveys

The purpose of the VUS was to obtain information on recreational "visitor" characteristics, activities, concerns, and overall recreational and aesthetic experience. Although referred to as a Visitor Use Survey, this survey was intended to survey all users of the public access recreation areas, including non-locals (tourists), local residents who do not own waterfront property, and even some waterfront property owners who occasionally use the public access recreation areas for various reasons (e.g., to put their boats in or take their boats out of the reservoir at the beginning and end of the recreation season).

This contact survey was administered on-site by trained survey technicians at 40 public access recreation areas. The survey technicians asked visitors to participate in the VUS and the surveys were self-administered (i.e., the recreational user filled out the survey themselves rather than responding to questions by the survey technician). Only one person per group was given the survey to avoid group bias and only adults (i.e., over 16 years of age) were asked to complete the survey. The survey was not given to visitors

just arriving at the site because several questions on the survey asked about their experience at the site.

A standardized survey form was developed and used (see Appendix A). The VUS was also available in Spanish because there is a significant Hispanic population that uses the reservoirs (see Appendix A). The survey form had twelve questions with two of the questions addressing aesthetics. The first question asked how the users rated the scenic quality of the reservoir and the second question asked users to identify elements they thought detracted from the scenic quality of the reservoir. Other questions in the survey form were related to recreational use.

The majority of the surveys were collected between May and August of 2003. A total of 966 VUS were completed. Ten percent of surveys were collected during holiday periods, 56 percent on weekend days, and 34 percent on weekdays (Table 2-6).

Table 2-6 Number of Visitor Use Surveys by Month and Day of Week

Month	Sun.	Mon.	Tues.	Weds.	Thurs.	Fri.	Sat.	Holiday	Total
May	12	10	12	20	9	15	25	44	147
June	89	15	12	24	19	27	72	NA	258
July	49	12	21	20	14	20	67	44	247
August	33	7	1	3	3	18	30	10	105
September	13	7	0	3	2	2	23	2	52
October	11	3	1	0	0	4	15	NA	34
November	10	0	0	1	0	1	4	NA	16
December	2	0	2	0	0	0	2	NA	6
January	1	0	0	0	0	0	3	NA	4
February	2	0	1	0	1	1	1	NA	6
March	22	0	1	0	2	0	5	NA	30
April	6	2	6	0	6	2	39	NA	61
Total	**250**	**56**	**57**	**71**	**56**	**90**	**286**	**100**	**966**

NA = Not Applicable

Visitor Use Surveys were collected at each of the four reservoirs as follows:

High Rock Reservoir – 39 percent
Tuckertown Reservoir – 23 percent
Narrows Reservoir – 35 percent
Falls Reservoir – 2 percent

2.2.2 Resident Use Survey

The purpose of the RUS was to obtain information on waterfront resident recreational use characteristics, activities, concerns, and overall recreational and aesthetics experience. A non-contact mail-back survey was developed and sent to 3,729 waterfront residents with APGI pier permits on High Rock and Narrows reservoirs. Although there are adjacent property owners on Tuckertown Reservoir, there are no private recreational facilities

(e.g., piers) allowed, so for purposes of this study it was assumed that there are no waterfront property owners on Tuckertown Reservoir. There are no waterfront residents on Falls reservoirs. A cover letter was sent with each survey explaining the purpose of the survey (see Appendix B). The surveys were distributed 9 times (once a month for the period of March through October and once for the collective period of November through February). Each residence was randomly selected to receive one of the 9 mailings requesting information on their recreational use of the reservoirs over the prior month.

A standardized survey form was used (see Appendix B). The survey form had twelve questions with two of the questions addressing aesthetics. The first question asked how the user's rated the scenic quality of the reservoir and the second question asked users to identify elements they thought detracted from the scenic quality of the reservoir. Other questions in the survey form were related to recreational use.

Table 2-7 lists the responses to the mail back survey. The overall response rate was 47 percent, which is excellent for a mail back survey. This response rate enables a 98 percent confidence level with these data. A few surveys (30) were returned by the post office as undeliverable because of incorrect address. Some surveys (23) were returned by the residents, but none of the survey questions were answered. Finally, some surveys were returned partially complete, but the resident did not answer the question as to which reservoir they lived on, so these responses could not be attributed to a specific reservoir and were not included in the data analysis.

Table 2-7 Waterfront Resident Use Survey Responses

Reservoir	Surveys Mailed	Surveys Returned Complete	Surveys Returned Incomplete	Returned Unknown Reservoir	Surveys Returned Undeliverable	Surveys Not Returned
High Rock	2,722	1,243 (47%)	NA	NA	NA	NA
Narrows	1,007	521 (52%)	NA	NA	NA	NA
Total	**3,729 (100%)**	**1,764 (47%)**	**23 (1%)**	**39 (1%)**	**30 (1%)**	**1,872 (50%)**

NA = Not available

The response rate for each mailing was good and ranged from a high of 60 percent for High Rock Reservoir in June and 60 percent for Narrows Reservoir in September to a low of 35 percent for High Rock Reservoir in May and 39 percent for Narrows Reservoir in April. Table 2-8 lists the response rate for each reservoir for each month.

Table 2-8 Waterfront Resident Use Survey Response Rate by Month

Month	High Rock Reservoir		Narrows Reservoir	
	# of Responses	*Response Rate*	*# of Responses*	*Response Rate*
May	105	35%	65	59%
June	179	60%	61	55%
July	125	42%	57	51%
August	135	45%	60	54%
September	142	47%	67	60%
October	139	46%	57	51%
Nov, Dec, Jan, Feb	159	49%	65	54%
March	126	42%	57	51%
April	122	41%	43	39%
Total	**1,243**	**47%**	**521**	**52%**

2.2.3 Private Communities Use Survey

The purpose of the PCUS was to collect information regarding recreational use and overall recreational and aesthetic experience of non-waterfront residents of private communities with access to Yadkin reservoirs via private community boat launches, marinas, or piers. Based on a search of tax records in Davidson, Rowan, and Montgomery counties by APGI, it is estimated that there are approximately 4,976 parcels in private communities with access to High Rock Reservoir and 5,479 parcels in private communities with access to Narrows Reservoir. There are no private communities with access to Tuckertown or Falls reservoirs. These estimates of parcels include both waterfront and non-waterfront parcels. Information is not readily available on the number of these parcels that are improved (i.e., a residence that has been constructed versus simply an undeveloped lot) or how many of the parcels are waterfront.

For purposes of this analysis, it was assumed that approximately 80 percent of High Rock waterfront residences with pier permits from APGI (2,722 waterfront residences x 80 percent = 2,178 waterfront residences) and 80 percent of Narrows waterfront residents with pier permits from APGI (1,007 waterfront residences x 80 percent = 806 waterfront residences) are located within these private communities. Subtracting the number of waterfront residences in these private communities from the total number of residences leaves the number of non-waterfront residences as follows:

	High Rock	**Narrows**
# of Private Community parcels	4,976	5,479
# of Waterfront residences	- 2,178	- 806
# of Non-Waterfront residences	2,798	4,673

A mail back survey was conducted of a stratified random sample of 1,568 residents within private communities with boat launches using a mailing list provided by APGI. Property owners received one of four equal mailings (392 properties per mailing)

requesting information on their recreational use of the reservoirs over the prior season, as defined as:

Spring – March, April, and May
Summer – June, July, and August
Autumn – September, October, and November
Winter – December, January, and February.

A standardized survey form was used (see Appendix C). A cover letter was sent with each survey explaining the purpose of the survey (see Appendix C). The survey form was nearly identical to the RUS form having twelve questions with two of the questions regarding the Project area aesthetics. The first question asked how the user's rated the scenic quality of the reservoir and the second question asked users to identify elements they thought detracted from the scenic quality of the reservoir. Other questions in the survey form were related to recreational use.

There were 446 responses received for this survey, or a 28 percent response rate (Table 2-9). However, many of these responses (321) either indicated that they owned waterfront property or did not indicate whether they owned waterfront property. It was not possible to determine prior to the mailing, which properties were waterfront properties and were already included in the Resident Use Survey. Therefore the survey asked whether the respondent was a waterfront property owner. Those responses indicating they were waterfront property owners and those that did not indicate whether they were waterfront owners were not included in this analysis because this survey focused on non-waterfront property owners. Table 2-9 lists the non-waterfront responses to the mail back survey. The overall non-waterfront response rate was 8 percent of the total surveys mailed and 2 percent of the estimated 7,471 non-waterfront residences. This response rate enables a 92 percent confidence level with these data.

Table 2-9 Non-Waterfront Private Community Resident Survey Responses

Reservoir	Surveys Returned Completed	
	All Private Community Residents	Non-Waterfront Private Community Residents Only
High Rock	224	45
Narrows	222	80
Total	**446**	**125**

2.2.4 Summary of Survey Responses

Table 2-10 compares the total surveys completed with the respondents to the two questions on aesthetics. A total of 2,855 surveys were completed. Of these, 2,706 users or 95 percent of the total respondents responded to the first question and 1,993 users or 70 percent of the total respondents responded to the second question. Of the three surveys, the RUS had the highest number of total surveys completed (1,764 or 62 percent

of the total surveys). Of these, 1,649 users or 94 percent responded to the first question and 1,549 users or 88 percent responded to the second question.

Table 2-10 Comparison Between Total Surveys Completed and Number of Respondents to the Aesthetics Questions

Surveys	Total Surveys Completed		Responses to Question on Scenic Quality of Area		Response to Question on Detracting Elements	
	No. of Responses	*Percent of Total*	*No. of Responses*	*Response Rate*	*No. of Responses*	*Response Rate*
VUS	966	34%	946	98%	352	36%
RUS	1,764	62%	1,650	94%	1,550	88%
PCUS	125	4%	110	88%	91	73%
Total	**2,855**	**100%**	**2,706**	**95%**	**1,993**	**70%**

3.0 AESTHETIC SETTING

3.1 Regional Setting

This Section describes the regional setting of the Yadkin Project and the Project facilities and operations at each reservoir.

The Project is located in the Piedmont province of central North Carolina, along the Yadkin River, approximately 60 miles northeast of Charlotte. The Yadkin River and its tributaries are part of the Yadkin River Basin, which extends from the Blue Ridge Mountains to the Atlantic coast near Georgetown, South Carolina. Along the border between the Piedmont and the Coastal Plain, elevations range from 300 to 600 feet above sea level. To the west, elevations gradually rise to about 1,500 feet above sea level at the foot of the Blue Ridge Mountains. The Piedmont is characterized by gently rolling, well-rounded hills and long low ridges, and also includes some relatively low mountains including the South Mountains and the Uwharrie Mountains, with elevations up to approximately 900 feet above sea level.

The Yadkin River basin has a drainage area of 4,190 square miles above Falls Dam, the most downstream of the Project developments. A majority of the drainage area is located in the northern Piedmont of North Carolina, with a small portion extending into southern Virginia. Land use in the drainage basin is approximately 51 percent forested, 30 percent agricultural, 11 percent urban, and 2 percent federal. The remaining 5 percent is in pasture and in an "other" category, which includes rural transportation (roads, right land uses (NCDENR, 1997).

The area immediately surrounding the Project is predominately rural, although several small cities (populations ranging from 1,000 to 35,000), including Albemarle, Badin, Lexington, Mocksville, Salisbury, and Troy, are located within 30 miles of the Project. Some of North Carolina's largest cities, with populations ranging from 200,000 to 540,000, such as Charlotte, Winston-Salem, and Greensboro, are located within a one-hour drive from the Project.

3.2 Project Area

The Project is located in the Yadkin River Basin in Stanley, Montgomery, Davidson, Davie and Rowan Counties, North Carolina. The Project area is typical of the central North Carolina Piedmont Province and is characterized by gently rolling, well-rounded hills and long, low ridges. The Uwharrie Mountains, with elevations reaching approximately 1,000 feet, lie to the east of the Project area and the landscape surrounding Narrows and Falls Reservoirs is more rugged compared to the two upper reservoirs. Public lands near the Project include the Uwharrie National Forest, Morrow Mountain State Park, and Boone's Cave State Park. Elevations within the Project area decrease from a high point of approximately 620 feet at High Rock Reservoir to below 300 feet at the Falls Reservoir Tailrace.

The gentle topography in the Project area results in views of Project facilities that are generally from the same elevation as the facilities. Slightly elevated views of facilities occur from bridges and scenic pull offs, but there are no overviews or overlooks of Project facilities except from Morrow Mountain State Park.

The predominant land use around the reservoirs was historically agricultural or forested. Farms and timberland are still common in this area, but residential development, particularly along the shorelines of High Rock and Narrows reservoirs, has increased significantly in the past 10 years.

3.2.1 Scenic Integrity

Scenic integrity is a measure of the degree to which a landscape is visually perceived to be whole, intact, and complete. The highest scenery ratings are given to those landscapes that have little or no deviation from the character valued by constituents for its aesthetic appeal. Scenic integrity can be used to describe an existing situation, serve as a standard for management, or represent a desired future condition. As part of the U.S. Forest Service's Scenery Management System (U.S. Forest Service, 1995) scenic integrity levels are established as a frame of reference for measuring achievement of scenic integrity. Scenic integrity is a continuum ranging over five levels of integrity from very high to very low (see box on next page).

This scenic integrity concept is applied below to the area surrounding each development as a frame of reference for evaluating the effects of Project facilities on aesthetics. For purposes of this analysis, a completely intact, unaltered, natural landscape is considered the baseline (i.e., Very High Scenic Integrity), with scenic integrity ratings generally corresponding with the degree of alteration from a natural setting.

Scenic Integrity Levels

The frame of reference for measuring achievement of scenic integrity levels is the valued attributes of the "EXISTING" landscape character "BEING VIEWED". In Natural or Natural Appearing character, this is limited to natural or natural appearing vegetative patterns and features, water, rock and landforms. Direct human alterations may be included if they have become accepted over time as positive landscape character attributes.

Scenic integrity is a continuum ranging over five levels of integrity from very high to very low. Corresponding levels of existing scenic conditions and visual quality levels from the Forest Service's original Visual Management System are shown to the right of each level.

VERY HIGH …….(Unaltered) ……. Preservation

VERY HIGH scenic integrity refers to landscapes where the valued landscape character "is" intact with only minute if any deviations. The existing landscape character and sense of place is expressed at the highest possible level.

HIGH ……(Appears Unaltered) …….. Retention

HIGH scenic integrity refers to landscapes where the valued landscape character "appears" intact. Deviations may be present but must repeat the form, line, color, texture, and pattern common to the landscape character so completely and at such scale that they are not evident.

MODERATE (Slightly Altered) ..... Partial retention

MODERATE scenic integrity refers to landscapes where the valued landscape character "appears slightly altered." Noticeable deviations must remain visually subordinate to the landscape character being viewed.

LOW……(Moderately Altered)……Modification

LOW scenic integrity refers to landscapes where the valued landscape character "appears moderately altered." Deviations begin to dominate the valued landscape character being viewed but they borrow valued attributes such as size, shape, edge effect and pattern of natural openings, vegetative type changes or architectural styles outside the landscape being viewed. They should not only appear as valued character outside the landscape being viewed but compatible or complimentary to the character within.

VERY LOW……. (Heavily Altered) ……..Maximum modification

VERY LOW scenic integrity refers to landscapes where the valued landscape character "appears heavily altered." Deviations may strongly dominate the valued landscape character. They may not borrow from valued attributes such as size, shape, edge effect and pattern of natural openings, vegetative type changes or architectural styles within or outside the landscape being viewed. However deviations must be shaped and blended with the natural terrain (landforms) so that elements such as unnatural edges, roads, landings, and structures do not dominate the composition.

UNACCEPTABLY LOW scenic integrity refers to landscapes where the valued landscape character being viewed appears extremely altered. Deviations are extremely dominant and borrow little if any form, line, color, texture, pattern or scale from the landscape character. Landscapes at this level of integrity need rehabilitation. This level should only be used to inventory existing integrity. It must not be used as a management objective.

Source: U.S. Forest Service, 1995.

High Rock Reservoir Area

The land around High Rock Reservoir ranges from flat to gently rolling hills. High Rock Reservoir is the most developed of the four Project reservoirs with approximately 35 percent of the shoreline developed for primarily residential, but also some commercial and industrial development. There are well over 2,000 private piers and docks that strongly influence the visual character of much of the reservoir's shoreline. Forested areas occur mainly on the upper, more riverine end of the reservoir. Most of the residential development is concentrated in the middle and lower sections of High Rock Reservoir below Swearing Creek. Overall the area surrounding High Rock Reservoir is moderately altered and therefore receives a Low scenic integrity rating according to the Scenery Management System.

Tuckertown Reservoir Area

Steep banks border the east side of Tuckertown Reservoir and the rest of the shoreline is low rolling terrain. Tuckertown Reservoir is relatively undeveloped with nearly 90 percent of the shoreline in forest or agricultural uses. Although there are waterfront homes along Tuckertown Reservoir, there are no private piers or docks that intrude into the reservoir. Overhead electric transmission lines cross the Yadkin River immediately downstream from Tuckertown Dam and are visible from the reservoir. A regional overhead transmission line extends along the west side of the reservoir and is visible at several locations along the reservoir. Overall the area surrounding the Tuckertown Reservoir is slightly altered and therefore receives a Moderate scenic integrity rating according to the Scenery Management System.

Narrows Reservoir Area

The land surrounding Narrows Reservoir is made up of gently rolling terrain with some steep slopes. Narrows Reservoir is relatively developed with over 40 percent of the shoreline classified as residential. Overhead transmission lines cross the reservoir near its upstream end just below Tuckertown Dam and near the City of Badin. A rail line also parallels much of the western shore of Narrows Reservoir and crosses the reservoir on a trestle near the upper end of the reservoir. Much of the eastern shoreline, however, is within the Uwharrie National Forest and is undeveloped other than for recreational facilities. The area surrounding Narrows Reservoir is diverse, but overall appears slightly to moderately altered and receives a Low-Moderate scenic integrity rating according to the Scenery Management System.

Falls Reservoir Area

Falls Reservoir is set within the Uwharrie Mountains and the surrounding area is characterized by steep, rugged terrain. Falls Reservoir is the least developed of the four Project reservoirs with nearly all (about 94 percent) of the shoreline forested. There is no residential or commercial development along the shoreline and no private piers or docks on the reservoir. The Uwharrie National Forest constitutes the eastern side of Falls Reservoir, and Morrow Mountain State Park is immediately downstream of the Project on the west side. The viewshed from the reservoir is completely natural other than for Narrows Dam on the upstream end and Falls Dam on the downstream end of the reservoir. Although these dams and Falls Reservoir represent man-made deviations from

a purely natural landscape, the overall effect is still quite natural and the setting appears unaltered. Therefore, the Falls Reservoir area receives a High scenic integrity rating according to the Scenery Management System.

Summary

Table 3-1 summarizes the existing scenic integrity levels for the four Project reservoirs.

Table 3-1 Scenic Integrity Levels of the Project Reservoir Areas

Reservoir Area	Scenic Integrity Level
High Rock	Low (moderately altered)
Tuckertown	Moderate (slightly altered)
Narrows	Low-Moderate (slightly to moderately altered)
Falls	High (appears unaltered)

3.3 Existing Project Facilities and Operations

The Project facilities located at each of the four Project developments and current Project operations are briefly described below as well as the regional electric transmission lines that occur in or near the Project boundary.

3.3.1 High Rock Development

Project facilities at the High Rock Development include High Rock Reservoir, dam, intake structures, and powerhouse. Construction of High Rock Reservoir was completed in 1927. The main body of the reservoir is approximately two miles across at its widest point. Creeks extend east and west off the main stem of the reservoir as it extends upstream about 19 miles to Yadkin North Fork and Hanna's Ferry. At full pool elevation, the reservoir has a surface area of approximately 15,180 acres (23.7 square miles).

High Rock Dam is a concrete structure approximately 936 feet long with a maximum height of approximately 101 feet (base of dam to walkway). The dam is comprised of two short non-overflow sections, a gated controlled spillway section, and an integral intake/powerhouse section. The non-overflow sections are located at the east end of the powerhouse and at the west end of the gate-controlled spillway. The gate-controlled spillway section is approximately 550 feet long.

The intake structure includes trashracks and motor operated headgates. The powerhouse is a red-brick structure approximately 178 feet long, located immediately downstream of the intake structure.

The High Rock Development is operated in a store and release mode in accordance with a series of operating guides. The operating guides were established in 1968. Within the limits of available streamflow, the operating guides are designed to maintain higher water elevations from mid-May to mid-September followed by a fall – winter drawdown to allow for refill during the late winter and spring. In addition, an existing Headwater Benefits Agreement requires that APGI discharge a minimum amount of water to satisfy downstream needs from early March to mid-September. Because of these minimum water discharge requirements, extensive drawdowns of the reservoir can occur, particularly during drought conditions. Based on historical data, the operating guides will normally limit drawdown of High Rock Reservoir to five feet or less, greater than 95 percent of the time between Memorial Day and Labor Day.

High Rock Reservoir has an average daily water level fluctuation of less than one foot and a maximum daily fluctuation of 2 to 4 feet. Between 1986 and 2002, the maximum winter drawdown averaged approximately 12 feet, the maximum spring drawdown averaged 8 feet, the maximum summer drawdown averaged 5 feet, and the maximum fall drawdown averaged 10 feet.

3.3.2 Tuckertown Development

Project facilities at the Tuckertown Development include Tuckertown Reservoir, dam, intake structures, and powerhouse. Construction of Tuckertown Dam was completed in 1962. The Tuckertown Reservoir is a narrow, winding water body covering approximately 8.6 miles and is 1.2 miles across at its widest point. Several creeks extend east and west off the main body of the reservoir. At full pool, the surface area of the reservoir is approximately 2,560 acres (4.0 square miles).

Tuckertown Dam includes concrete gravity sections, a rockfill section, and an earthfill section. The dam totals approximately 1,370 feet in length with a maximum height of approximately 76 feet. The dam consists of two embankments, three non-overflow gravity sections, a gated spillway section, and an integral intake/powerhouse section. The rockfill embankment is located between the east non-overflow section and an east abutment. The earthfill embankment is a homogenous earthfill section at the west abutment. The non-overflow gravity sections are located at the east end of the powerhouse. The gate controlled spillway section is approximately 480 feet long.

The intake structure includes trashracks and six, fixed-wheel headgates. The powerhouse is a 204-foot-long grey, metal building on a concrete foundation and is located immediately downstream of the intake structure between the east non-overflow and middle non-overflow gravity sections.

The Tuckertown Development is operated as a run-of-river facility. It has an average daily water level fluctuation of less than one foot and a maximum daily fluctuation of 1 to 3 feet. There is no seasonal drawdown at Tuckertown Reservoir.

3.3.3 Narrows Development

Project facilities at the Narrows development include Narrows Reservoir (Badin Lake), a dam, spillway, and powerhouse. Construction of Narrows Dam was completed in 1917. At full pool, the surface area of the reservoir is approximately 5,355 acres (8.4 square miles). The reservoir is approximately 6 miles long and is a narrow, winding water body, approximately 1 mile across, until the two large branches immediately upstream of the Narrows Dam where the reservoir expands to 2.9 miles across.

Narrows Dam consists of a main dam section and a bypass spillway section. The main dam section is a concrete gravity structure approximately 1,144 feet long with a maximum height of approximately 201 feet. The bypass spillway section is approximately 520 feet long. The main dam consists of a non-overflow gravity section, a gate-controlled spillway section, an intake section, a downstream powerhouse, and four steel penstocks. The non-overflow gravity section extends from the gated spillway section to the west river abutment. A training (wing) wall separates the non-overflow gravity section and the gate controlled spillway section. The gate-controlled spillway section is approximately 640 feet long with a trash gate at the northeast end.

The bypass spillway section is comprised of a non-overflow gravity section and a gate-controlled spillway section. The non-overflow gravity section extends from the bypass spillway to the east river abutment. The gate-controlled spillway section is approximately 430 feet long with a trash gate at the south end.

The powerhouse is a 213-foot-long, red-brick structure located immediately downstream of the intake section.

The Narrows Development is generally operated as a run-of-river facility. Narrows Reservoir (Badin Lake) has a normal daily water level fluctuation of less than one foot and a maximum daily fluctuation of 1 to 2 feet. Historically, the maximum annual drawdown at Narrows Reservoir has averaged approximately 3 feet. Narrows Reservoir does have available storage, which may be used during periods of very low streamflow to maintain the required minimum downstream releases.

3.3.4 Falls Development

Project facilities at the Falls Development include a reservoir, dam, intake structures and powerhouse. Construction of Falls Dam was completed in 1919. The surface area of the reservoir at full pool is approximately 204 acres (0.3 square miles). The reservoir is a narrow riverine water body approximately 2.5 miles long with a maximum width of 1,000 feet.

Falls Dam is a concrete gravity structure approximately 750 feet long with a maximum height of approximately 112 feet. The dam consists of a non-overflow gravity section, a gate-controlled spillway section, and an integral intake/powerhouse section. The non-overflow gravity section extends from the north end of the spillway section to the northern river abutment. The spillway section is approximately 525 feet long with a single trash gate.

The intake structure includes trashracks and vertical lift headgates. The powerhouse is a 189-foot long, red-brick structure located immediately downstream of the intake structure between the gate-controlled spillway section and river abutment.

Falls Development is operated as a run-of-river facility. It has an average daily water level fluctuation of approximately one foot and a maximum daily fluctuation of 3 to 4 feet. There is no seasonal drawdown at Falls Reservoir.

3.3.5 Transmission Lines

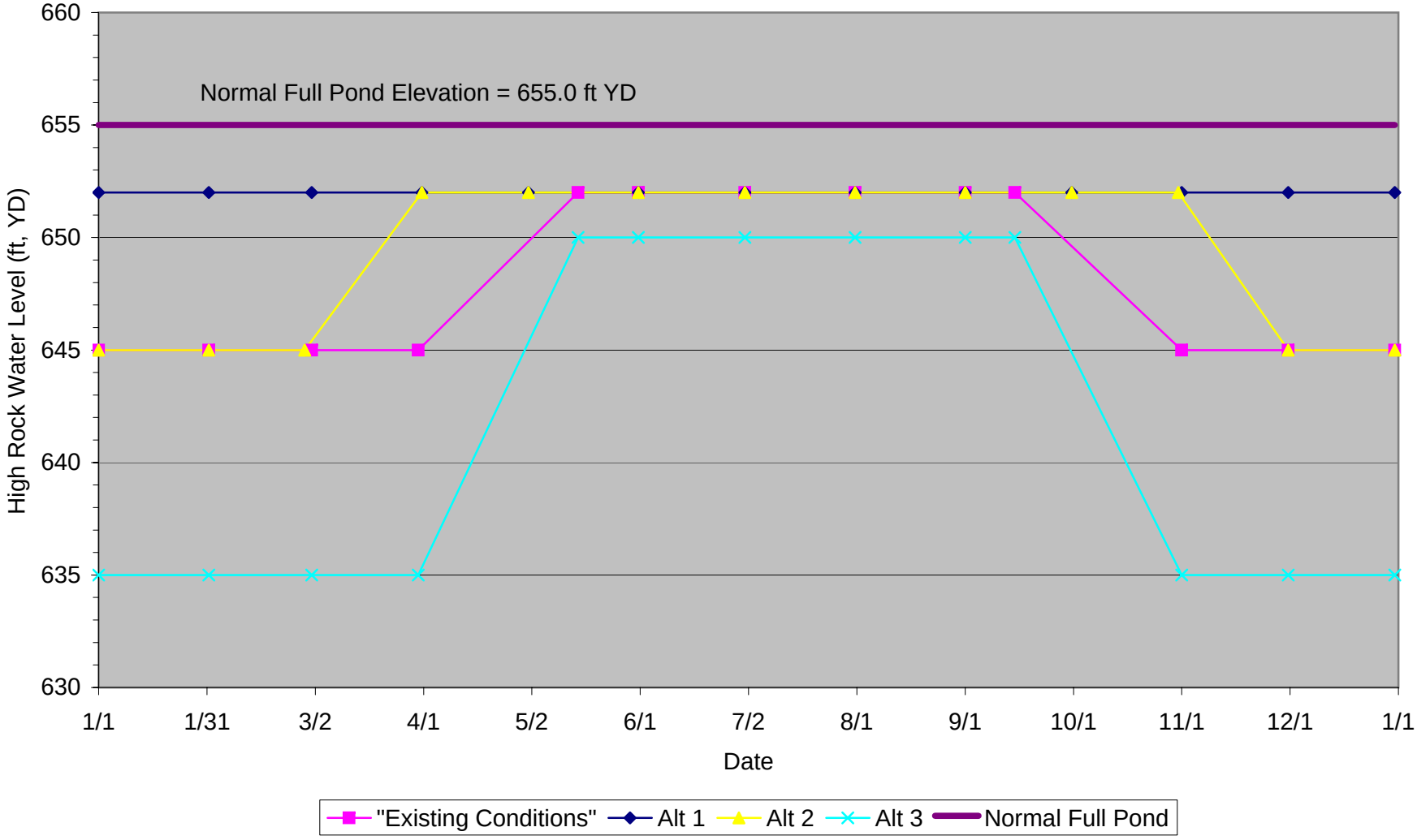
A Duke Power Company transmission line crosses High Rock Dam as an overhead line from east to west and joins the Yadkin Project transmission line (also called the regional transmission line). This regional transmission line runs parallel to the reservoir system along its western side between High Rock Reservoir and the City of Badin. It crosses Flat Creek and Riles Creek along the western side of Tuckertown Reservoir. Two other electrical transmission lines also converge in Badin: the Narrows Reservoir transmission line and Falls Reservoir transmission line.

3.4 Potential Alternative Project Operations

To evaluate the effect of alternative Project operations on aesthetics in the Project area, ERM examined three different water level scenarios for High Rock Reservoir. Figure 3-1 presents the three alternative water level scenarios in comparison with "existing conditions" and normal full pond.

As Figure 3-1 indicates, Alternative 1 would maintain relatively high water levels year-round at approximately 3 feet below normal full pond. Alternative 2 would result in higher water levels in March, April, October, and November than existing conditions. Conversely, Alternative 3 would result in lower water levels all year than existing conditions and the winter drawdown would be approximately 10-foot lower than existing conditions.

Figure 3-1
High Rock Water Level Alternatives



4.0 AESTHETIC EVALUATION

Section 4.1 presents the technical analysis of the KOPs of the project area. Section 4.2 presents the constituent analysis from the scenic quality surveys.

4.1 Technical Analysis

This section provides a technical analysis of the 42 KOPs identified in Section 2.0. These KOPs are discussed by reservoir and evaluated using consistent criteria described in Table 2-3.

4.1.1 High Rock Reservoir KOPs

KOP HR 1: Highway 601 Access Area

The Highway 601 Access Area is peripherally visible in the foreground to motorists for a short duration. Boaters and anglers have a direct, long duration view of High Rock Reservoir from this KOP, but the reservoir at this location retains more of a riverine character. The reservoir, as viewed from this KOP, is narrow with forested shorelines and vegetation overhanging the river. At this location the river flow determines the river characteristics. Higher water levels and increased turbidity occur in periods of high rainfall and are apparent in the spring and summer.

High Rock Reservoir viewed from this KOP is co-dominant and compatible with the natural surroundings. The reservoir retains a riverine character and creates a natural and aesthetically pleasing view.

View Description										Modifier Rating		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Group**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
HR 1	Highway 601 access point	High Rock Reservoir	View from major roadway to reservoir with forested banks.	Motorists, boaters, anglers	Low	Short-motorists Long-anglers/boaters	Foreground	Peripheral-motorists, Direct-boaters/anglers	Narrow	Co-Dominant	Minimal	Compatible

High Rock Reservoir
KOP HR 1: Highway 601 Access Area

February

April

August

KOP HR 2A: Route 29 Center of Bridge Upstream

The view from this KOP provides a wide foreground view of the High Rock Reservoir upstream. Thick, forested shorelines frame the reservoir creating a pleasing view. Motorists have a short duration, peripheral view of the reservoir, while boaters and anglers have a long, direct view of the reservoir. A small shoal vegetated with grasses and deciduous trees is visible in the foreground. Water levels are slightly lower in the winter months and water turbidity slightly increases in the summer.

The Project facilities viewed from this KOP are compatible with the natural landscape, since they are at the same level of the adjacent forested shorelines. Despite moderate seasonal variations in water levels and clarity the Project facilities blend well with the surrounding landscape and create a natural and aesthetically pleasing view.

View Description										Modifier Rating		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Group**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
HR 2A	Route 29 Center of Bridge facing upstream.	High Rock Reservoir	View from major roadway to Tuckertown Reservoir with forested shorelines	Motorists, boaters, anglers	High	Short-motorists Long-anglers/boaters	Foreground	Peripheral-motorists, Direct-boaters/anglers	Wide	Co-Dominant	Minimal	Compatible

High Rock Reservoir
KOP HR 2A: Route 29 Center of Bridge Upstream

February

April

August

KOP HR 2B: Route 29 Center of Bridge Downstream

The view from this KOP provides a narrow foreground view of High Rock Reservoir and the Interstate 85 Bridge. Thick, forested shorelines frame the reservoir which creates an aesthetically pleasing view. Motorists have short duration, peripheral views, while anglers and boaters have a long, direct view of the lake.

The Project facilities viewed from this KOP are co-dominant to the landscape and are compatible with the natural setting. The reservoir appears natural and creates a pleasing view from this location. The bridge has only a minor impact on the aesthetics of the area since it is below the horizon and does not significantly restrict the view.

View Description										Modifier Rating		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Group**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
HR 2B	Route 29 Center of Bridge facing downstream.	High Rock Reservoir	View from roadway to Lick Creek with forested shoreline.	Motorists, boaters, anglers	Moderate	Short- motorists Long- anglers/boaters	Foreground to Middleground	Peripheral- motorists, Direct- boaters/anglers	Narrow	Co-Dominant	Moderate	Compatible

High Rock Reservoir
KOP HR 2B: Route 29 Center of Bridge Downstream

February

April

KOP HR 3A: Swearing Creek Upstream, Center of Bridge Route 1104

The view from this KOP provides a wide foreground view of High Rock Reservoir. The background view is of forested shorelines interspersed with homes and boat docks. Motorists have short duration, peripheral views of the facilities, while boaters and anglers have a long, more direct view. Low water levels during the winter reveal red clay shorelines and lake bottoms, detracting from the scenic quality of the views.

The Project facilities viewed from this KOP are compatible with the landscape and, with the exception of the winter drawdown, create an aesthetically pleasing view.

View Description										Modifier Rating		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Group**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
HR 3A	Route 1104 Center of Bridge over Swearing Creek facing upstream.	Swearing Creek	View of dam, tailrace and opposite shore; overhead powerlines.	Motorists, boaters, anglers	Moderate	Short-motorists Long-anglers/boaters	Foreground to background	Peripheral-motorists, Direct-boaters/anglers	Wide	Dominant	Moderate	Compatible, Winter drawdown is not compatible

High Rock Reservoir
KOP HR 3A: Swearing Creek Upstream, Center of Bridge Route 1104

February

April

August

KOP HR 3B: Swearing Creek Downstream Center of Bridge Route 1104

Swearing Creek is indirectly visible in the foreground to background to passing motorists. Boaters and anglers have a long, direct view of the Project facilities from this KOP. Forested shorelines interspersed with houses and boat docks border the narrow view of the reservoir. Water levels drop in the late winter revealing the shoreline and portions of the lake bottom.

The Project facilities viewed from this KOP are compatible with the landscape for most of the year. The Project facilities blend well with the developed shorelines to create an aesthetically pleasing view. The winter drawdown is not compatible with the scenic integrity of the area.

View Description										Modifier Rating		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Group**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
HR 3B	Route 1104 Center of Bridge over Swearing Creek facing downstream.	Swearing Creek	View from major highway of Tuckertown reservoir with forested shorelines.	Motorists, boaters, anglers	Moderate	Short-motorists Long-anglers/ boaters	Foreground to background	Peripheral-motorists, Direct-boaters/ anglers	Narrow	Dominant	Moderate	Compatible, Winter drawdown not compatible

High Rock Reservoir
KOP HR 3B: Swearing Creek Downstream Center of Bridge Route 1104

February

April

August

KOP HR 4A: Abbotts Creek Center of Bridge Route 47 Downstream

Abbotts Creek is peripherally visible for a short duration in the foreground to background by passing motorists. Boaters and anglers have a direct, long duration view of the Project facilities from this KOP. The shorelines of the narrow creek are heavily forested throughout the entire depth of view. High levels of water turbidity are apparent throughout much of the year and during the summer, higher water levels and streamside vegetation conceal a thin strip of otherwise exposed creek bank.

The Project facilities are co-dominant and fully compatible within the setting. Abbotts Creek is an attractive, natural setting that contributes to the aesthetics of the view.

View Description										Modifier Rating		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Group**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
HR 4A	Route 47 Center of Bridge over Abbotts Creek facing downstream.	Abbotts Creek	View from major highway of Tuckertown reservoir with forested shorelines.	Motorists, boaters, anglers	High	Short-motorists Long-anglers/boaters	Foreground to middleground	Peripheral-motorists, Direct-boaters/anglers	Narrow	Co-Dominant	Moderate	Compatible

High Rock Reservoir
KOP HR 4A: Abbotts Creek Center of Bridge Route 47 Downstream

February

April

August

KOP HR 4B: Abbotts Creek Center of Bridge Route 47 Upstream

This KOP provides a narrow foreground view of Abbotts Creek upstream from the center of the Route 47 Bridge. Forested shorelines border the creek and create a natural appearance. Motorists have a short duration, peripheral view upstream, while boaters and anglers have a long, direct view of the creek. Low lake levels in late winter reveal steep streambanks in the foreground and shallow lake bottom areas in the middleground. Higher levels of water turbidity are apparent throughout the spring and summer. Overhead power lines crossing the creek adjacent to the bridge are visible but do not detract from the views from this KOP.

The Project facilities viewed from this KOP are dominant and compatible with the surrounding environment for most of the year. The Project facilities combined with the natural appearance of the shoreline creates and aesthetically pleasing view. Seasonal fluctuations in water turbidity do not significantly detract from the aesthetics of the view at this KOP. Winter drawdowns are somewhat compatible with the Scenic Integrity of the area.

View Description										Modifier Rating		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Group**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
HR 4B	Route 47 Center of Bridge over Abbotts Creek facing upstream.	Abbotts Creek	View of Tuckertown Reservoir with forested shorelines from major highway scenic pulloff area.	Motorists, boaters, anglers	High	Short-motorists Long-anglers/boaters	Foreground to middleground	Peripheral-motorists, Direct-boaters/anglers	Narrow	Dominant	Moderate	Compatible, Winter drawdown is somewhat compatible

High Rock Reservoir
KOP HR 4B: Abbotts Creek Center of Bridge Route 47 Upstream

February

April

August

KOP HR 5: High Rock Marina and Campground

Visitors to this KOP are provided a wide view across the reservoir with the opposite shoreline in the background. Motorists and recreational users have long duration views of a wooden dock, picnic facilities, and wooden swing in the foreground. Forested shorelines visible in the distance are dotted with houses and boat docks. The winter drawdown reveals portions of the opposite shore but is not significant because of the distance from the viewer.

The Project facilities viewed from this KOP are somewhat compatible with the landscape. The Project facilities combined with the panoramic view of distant forested shorelines creates an aesthetically pleasing view. Winter drawdowns are somewhat compatible with the Scenic Integrity of the area.

View Description										Modifier Rating		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Group**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
HR 5	High Rock Marina and Campground facing SE.	High Rock Reservoir and High Rock Marina and Campground	View from bridge of fishing access area, trees, turf and trash containers.	Motorists, recreational users	Moderate	Long	Foreground to middleground	Direct	Narrow	Co-Dominant	Moderate	Compatible, Winter drawdown is somewhat compatible

High Rock Reservoir
KOP HR 5: High Rock Marina and Campground

February

April

August

KOP HR 6: Buddle Creek Swimming Access

Buddle Creek Swimming Access is directly visible in the foreground from this KOP. High Rock Lake narrows at this location and is bordered by heavily forested shorelines. Recreational users, boaters, and anglers have long duration views of the Project facilities. Visitor numbers are high at this KOP, with use being greatest during peak recreational seasons. Seasonal fluctuations in water levels are drastic and the winter drawdown nearly dewaters the lake at this location.

When the lake is at or near full pool the Project facilities viewed from this KOP are compatible and harmonious with the setting. The winter drawdown is not compatible with the Scenic Integrity of the area and has an adverse effect on the aesthetics of the setting.

View Description										Modifier Rating		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Group**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
HR 6	Buddle Creek Swimming Access facing SW.	High Rock Reservoir and Buddle Creek Swimming Access	View of Flat Creek and surrounding forested shorelines.	Recreational users, boaters, anglers	High	Long	Foreground	Direct	Narrow	Co-Dominant	Moderate	Compatible, Somewhat compatible in winter but not used at that time

High Rock Reservoir
KOP HR 6: Buddle Creek Swimming Access

February

August

KOP HR 7A: Abbotts Creek/NC 8 Center of Bridge Upstream

High Rock Lake is peripherally visible for a short duration from the foreground to background to passing motorists from this KOP. Boaters and anglers have a direct, long duration view of the Project facilities from this KOP. Tree covered shorelines lined with houses are faintly visible in the distance. The winter drawdown exposes the lake bottom near the shorelines.

The Project facilities viewed from this KOP are compatible with the landscape for most of the year. The winter drawdown combined with the developed shorelines gives the appearance of a slightly altered landscape. Therefore the winter drawdown is somewhat compatible with the Scenic Integrity of the area.

View Description										Modifier Rating		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Group**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
HR 7A	NC 8 Center of Bridge over Abbotts Creek facing upstream.	Abbotts Creek	View from boat access area across Tuckertown Reservoir to forested opposite shore.	Motorists, boaters, anglers	Low	Short-motorists Long-anglers/boaters	Foreground to middleground	Peripheral-motorists, Direct-boaters/anglers	Wide	Dominant	Moderate	Compatible, Winter drawdown is somewhat compatible

High Rock Reservoir
KOP HR 7A: Abbotts Creek/NC 8 Center of Bridge Upstream

February

April

August

KOP HR 7B: Abbotts Creek/NC 8 Center of Bridge Downstream

Abbotts Creek is peripherally visible for a short duration to passing motorists while boaters and anglers have a long duration, direct view from this KOP. The view of the creek extends from the foreground to middleground. The undeveloped, heavily forested shorelines create a natural appearance to the setting. The winter drawdown reveals portions of distant shorelines.

The Project facilities viewed from this KOP are fully compatible with the landscape. The Project facilities combined with the natural appearance of the shoreline creates and aesthetically pleasing view. The lake drawdown only moderately alters the aesthetics due to the distance of the shorelines from the viewer.

View Description										Modifier Rating		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Group**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
HR 7B	NC 8 Center of Bridge over Abbotts Creek facing downstream.	Abbotts Creek	View of boat ramp, dock, and reservoir surrounded by forested shorelines.	Motorists, boaters, anglers	Low	Short-motorists Long-anglers/boaters	Foreground to middleground	Peripheral-motorists, Direct-boaters/ anglers	Wide	Dominant	Moderate	Compatible

High Rock Reservoir
KOP HR 7B: Abbotts Creek/NC 8 Center of Bridge Downstream

February

April

August

KOP HR 8: Flat Swamp Swim Access

Flat Swamp Swim Access area is indirectly visible in the foreground for a short duration to motorists crossing the Route 8 Bridge. Recreational users, boaters and anglers have direct, long duration views of the project facilities from this KOP. The view includes a sand beach and small gravel parking lot backed by thick forest. Signs and parking barriers separate the beach and parking area and a floating barrier and buoys outline the swim area. The winter drawdown drains most of the swim area and reveals the maintained sand substrate of the swim area.

The Project facilities viewed at from this KOP are fully compatible and harmonious with the setting for most of the year. The winter lake drawdown has a minor effect on the aesthetics of the view from this KOP and is somewhat compatible with the Scenic Integrity of the area. Overall, the Project features combine with the surrounding setting to create an aesthetically pleasing view.

View Description										Modifier Rating		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Group**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
HR 8	NC 8 Bridge over Flat Swamp Creek facing Flat Swamp Swim Access Area	High Rock Reservoir and Flat Swamp Swim Access	View from bridge of Flat Swamp Swimming area and beach.	Recreational users, motorists, boaters, anglers	High	Short-motorists Long-anglers/boaters, rec. users	Foreground	Indirect-motorists, Direct-boaters/anglers, rec. users	Wide	Co-Dominant	Moderate	Compatible, Somewhat compatible in winter, but area not used at that time

High Rock Reservoir
KOP HR 8: Flat Swamp Swim Access

February

April

August

KOP HR 9A: Second Creek Center of Bridge Bringle Ferry Road Upstream

Second Creek is peripherally visible in the foreground to middleground to motorists crossing the Bringle Ferry Road Bridge. A high number of motorists cross the bridge with short duration views. Boaters and anglers visiting the site have a more direct, long duration view of the project facilities. Forested shorelines dotted with several houses border the upstream view of Second Creek. The winter drawdown is not readily apparent due to the distance of the shorelines from the viewer.

The Project facilities viewed from this KOP are co-dominant and are compatible with the setting. The Project facilities combined with the surrounding landscape creates an aesthetically pleasing view.

View Description										Modifier Rating		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Group**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
HR 9A	Bringle Ferry Rd Center of Bridge over Second Creek facing SW.	Second Creek	View of Second Creek from bridge.	Motorists, boaters, anglers	High	Short-motorists Long-anglers/boaters	Foreground to middleground	Peripheral-motorists, Direct-boaters/anglers	Wide	Dominant	Moderate	Compatible

High Rock Reservoir
KOP HR 9A: Second Creek Center of Bridge Bringle Ferry Road Upstream

February

August

KOP HR 9B: Second Creek Downstream from Bringle Ferry Road Bridge

This KOP provides an aesthetically pleasing downstream view of Second Creek. A few houses occupy the forested shorelines visible in the distance. Second Creek is directly visible in the foreground to middleground for long durations by boaters and anglers. Motorists have short duration peripheral views of the Project facilities from this KOP. The winter drawdown reveals a large segment of the lake bottom in the foreground. Exposed shorelines in the distance are not as noticeable.

The Project facilities are dominant and compatible within the setting. Winter drawdowns alter the view but do not significantly detract from the aesthetics of the area. Overall, Second Creek is an attractive, natural setting that contributes to the aesthetics of the view.

View Description										Modifier Rating		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Group**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
HR 9A	Bringle Ferry Rd Center of Bridge over Second Creek facing NE.	Second Creek	View of Second Creek from bridge.	Motorists, boaters, anglers	High	Short-motorists Long-anglers/boaters	Foreground to middleground	Peripheral-motorists, Direct-boaters/anglers	Wide	Dominant	Moderate	Compatible

High Rock Reservoir
KOP HR 9B: Second Creek Downstream from Bringle Ferry Road Bridge

February

August

KOP HR 10: High Rock Boat and Ski Club

High Rock Lake is directly visible in the foreground from this KOP. A forested shoreline broken up by homes and yards is visible across the lake on the opposite shore. Boaters and recreational users are the primary viewers from this location. The winter drawdown completely dewaters this section of the lake revealing a large expanse of mud lake bottom. Higher levels of water turbidity are apparent in the spring.

The winter lake drawdown has an adverse affect on the aesthetics of the area viewed from this KOP and is somewhat compatible with the Scenic Integrity of the area. With the exception of the winter drawdown, the Project facilities viewed from this KOP are compatible with the setting. The Project facilities create an attractive scene that blends well with the developed shorelines and contributes to the aesthetics of the area.

View Description										Modifier Rating		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Group**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
HR 10	High Rock Boat and Ski Club	High Rock Reservoir	View of High Rock Reservoir from High Rock Boat and Ski Club.	Boaters, Recreational users	High	Long	Foreground to Middleground	Direct	Wide	Dominant	Moderate	Compatible, Winter drawdown is somewhat compatible.

High Rock Reservoir
KOP HR 10: High Rock Boat and Ski Club

February

April

August

KOP HR 11: Crane Creek from Center of Route 2168 Bridge Looking Downstream

The view from this KOP provides a wide foreground to middleground downstream view of Crane Creek. The view of the creek is framed in the distance by forested shorelines interspersed with houses. Motorists have short, peripheral views of the creek, while boaters and anglers have longer, direct views of the facilities. Minor seasonal variations in water levels and turbidity do not impact the aesthetic qualities of the view.

The Project facilities are dominant and compatible within the setting. Crane Creek is an attractive, natural setting that contributes to the aesthetically pleasing view.

View Description										Modifier Rating		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Group**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
HR 11A	Center of Bridge	Crane Creek Upstream	View of Crane Creek with forested shorelines.	Motorists, boaters, anglers	Low	Short-motorists Long-anglers/boaters	Foreground to Middleground	Peripheral-motorists, Direct-boaters/anglers	Wide	Dominant	Moderate	Compatible

High Rock Reservoir
KOP HR 11: Crane Creek from Center of Route 2168 Bridge Looking Downstream

April

October

August

KOP HR 12: Panther Point

Panther Point and High Rock Reservoir are directly visible from this KOP. This KOP provides a wide view across the lake to forested shorelines in the distance. Boaters and anglers are the primary viewers with the view durations being long. The number of viewers at this KOP is moderate with most visits occurring in the spring and summer during peak recreational periods. The winter lake drawdowns expose more of the shoreline around lake but do not significantly detract from the aesthetics of the view.

The Project features dominate the view from this KOP. Project facilities and operations are compatible with the setting and seasonal variations have a very minor effect on the aesthetics of the view.

View Description										Modifier Rating		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Group**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
HR 12	Panther Point facing NE	High Rock Reservoir	View of High Rock Lake and distant forested shorelines.	Boaters, anglers	Moderate	Long	Foreground to background	Direct	Wide	Dominant	Moderate	Compatible, Winter drawdown is somewhat compatible

High Rock Reservoir
KOP HR 12: Panther Point

February

April

August

4.1.2 Tuckertown Reservoir KOPs

KOP T 1A: Tuckertown Reservoir Upstream from Center of Bringle Ferry Road Bridge

The High Rock Dam and Powerhouse are visible from the center of Bringle Ferry Road Bridge in a setting of low wooded hills. The dam and powerhouse are located approximately 1,500 feet upstream of the bridge and visible peripherally to passing motorists. The duration of motorist's views varies from short to moderate depending on speed. Boaters and anglers have direct, long duration views. Seasonal variations in the aesthetics of the Project facilities are limited to increases in water turbidity, which are particularly prevalent in late winter.

The High Rock Dam and Powerhouse viewed from this KOP are compatible and harmonious with the setting, since they are at or below the height of the adjacent forested hillsides and are of equal visual importance to the surrounding landscape.

View Description										Modifier Ratings		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Groups**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
T 1A	Bringle Ferry Road center of bridge over Tuckertown Res. Facing upstream	High Rock Dam and powerhouse	Forested shorelines and hillsides	Motorists, boaters, anglers	High	Motorists-short, boaters and anglers-long	Foreground	Motorists-peripheral, Boaters and Anglers-Direct to Peripheral	Wide	Co-Dominant	Moderate	Compatible

Tuckertown Reservoir
KOP T 1A: Tuckertown Reservoir Upstream from Center of Bringle Ferry Road Bridge

February

April

August

KOP T 1B: Tuckertown Reservoir Downstream from Center of Bringle Ferry Road Bridge

Tuckertown Reservoir is visible in the foreground and middleground with middleground and background views of the surrounding forested shorelines. Tuckertown Reservoir is indirectly to peripherally visible for a short duration to passing motorists. Boaters and anglers have a more direct, long duration, downstream view of the reservoir from this location. Seasonal fluctuations in water levels and turbidity occur, but the fluctuations are slight and have a minimal effect on the aesthetics of the area.

Tuckertown Reservoir viewed from this KOP is fully compatible with the setting. The reservoir combined with the surrounding setting creates an attractive scene.

View Description										Modifier Ratings		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Groups**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
T 1B	Bringle Ferry Road Center of bridge over Tuckertown Reservoir facing downstream	Tuckertown Reservoir	Forested shorelines	Motorists, boaters, anglers	High	Motorists-short, boaters and anglers-long	Foreground to Background	Motorists-peripheral, boaters and anglers-Direct to Peripheral	Wide	Dominant	Moderate	Compatible

Tuckertown Reservoir
KOP T 1B: Tuckertown Reservoir Downstream from Center of Bringle Ferry Road Bridge

February

April

August

KOP T 2: Lick Creek Center of Bridge Facing Downstream

Passing motorists have short peripheral views of Lick Creek. Anglers and boaters have a direct, long duration views. The foreground view from this KOP is of a narrow creek with forested banks. Lower winter water levels expose portions of the stream banks but overhanging shoreline trees and vegetation screen much of the exposed banks and the fluctuations do not adversely impact the aesthetics of the area.

Lick Creek viewed from this KOP is fully compatible with the setting. Lick Creek and the surrounding landscape combine to create a natural and visually pleasing scene.

View Description										Modifier Ratings		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Groups**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
T 2	Rt. 2501 Center of bridge over Lick Creek facing downstream	Lick Creek	Forested shorelines	Motorists, boaters, anglers	Moderate	Motorists-short, boaters and anglers-long	Foreground	Motorists-peripheral, boaters and anglers-direct to peripheral	Narrow	Co-dominant	Minimal	Compatible

Tuckertown Reservoir
KOP T 2: Lick Creek Center of Bridge Facing Downstream

February

April

August

KOP T 3: Tuckertown Dam Tailrace Access Area

The Tuckertown Dam Tailrace Access Area provides anglers and boaters with a long duration, direct, foreground view of the dam and tailrace from this KOP. A rocky shoreline and the forested shoreline on the opposite bank are visible from this location. The amount of shoreline visible to viewers varies with lower water levels in the winter and higher levels in the spring. Increased water turbidity is apparent in late winter. The number of viewers at the KOP is moderate with higher visits in the spring and summer during peak recreational periods.

The Project facilities dominate the view from the KOP, but are somewhat compatible within the setting, because of the high bank to the west of the dam. The power lines, while visible, do not intrude on the view, primarily because no transmission towers are readily visible

View Description										Modifier Ratings		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Groups**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
T 3	Tuckertown Road along path to tailrace fishing access.	Tuckertown Dam Tailrace Access with overhead powerlines	Rocky shoreline and forested banks	Anglers, boaters	Low	Long	Foreground	Direct	Wide	Dominant	Moderate	Somewhat Compatible

Tuckertown Reservoir
KOP T 3: Tuckertown Dam Tailrace Access Area


February


April


August


December

KOP T 4A: Highway 49 Upstream

The view from this KOP provides a narrow, foreground to background view of Tuckertown Reservoir. Gradually sloping forested shorelines frame the reservoir and enhance the scenic visual quality. Motorists have a short duration, indirect to peripheral view upstream. Boaters and anglers have more direct, long duration views. Seasonal variations in the view of the Project facilities are limited to a slight increase in water turbidity in late winter.

Tuckertown Reservoir viewed from this KOP dominates the landscape and are fully compatible with the setting. The Project facilities are harmonious with the surrounding areas and combine to create an attractive and aesthetically pleasing view.

View Description										Modifier Ratings		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Groups**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
T 4A	Highway 49 at Tuckertown Res. center of bridge upstream	Tuckertown Reservoir	Forested shorelines	Motorists, boaters, anglers	High	Motorists-short Boaters/anglers-long	Foreground to background	Motorists-peripheral, boaters and anglers-direct to peripheral	Narrow	Dominant	Minimal to moderate	Compatible

Tuckertown Reservoir
KOP T 4A: Highway 49 Upstream

February

April

August

KOP T 4B: Highway 49 Downstream

The view from this KOP provides a wide foreground to background view of Tuckertown Reservoir. Low forested hills in the background and forested shorelines provide a low, distant frame to the view. Motorists have short duration, indirect to peripheral views. Boaters and anglers have direct, long duration views. Seasonal variations in the view of the Project facility are limited to a slight increase in water turbidity in late winter that does not impact the aesthetic qualities of the view.

Tuckertown Reservoir dominates the landscape and is fully compatible with the setting. Scale contrast is minimal and the Project facility is harmonious with the surrounding areas combining to create an attractive and aesthetically pleasing view.

View Description										Modifier Ratings		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Groups**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
T 4B	Highway 49 bridge at Tuckertown Res. center of bridge downstream.	Tuckertown Reservoir	Low forested shorelines	Motorists, boaters, anglers	High	Motorists-short, boaters and anglers-long	Foreground to background	Motorists-peripheral, boaters and anglers-direct to peripheral	Wide	Dominant	Minimal	Compatible

Tuckertown Reservoir
KOP T 4B: Highway 49 Downstream

February

April

August

KOP T 4C: Highway 49 Scenic Pull-off

This KOP provides an aesthetically pleasing view of Tuckertown Reservoir with forested shorelines in the background. Motorists are the primary viewers from this area with direct, short to long duration of views depending on length of stay. Seasonal variations in the view of the Project facilities are limited to a slight increase in water turbidity in late winter that does not impact the aesthetic qualities of the view.

Tuckertown Reservoir dominates the view and appears natural and blends harmoniously with the setting. Tuckertown Reservoir is fully compatible within the surroundings, combining to create an attractive and pleasing view.

View Description										Modifier Ratings		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Groups**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
T 4C	Highway 49 Scenic Pulloff E bound. facing Tuckertown Reservoir. downstream.	Tuckertown Reservoir	Forested shorelines	Motorists	High	Short to long	Foreground to background	Direct	Wide	Dominant	Minimal	Compatible

Tuckertown Reservoir
KOP T 4C: Highway 49 Scenic Pull-off

February

April

August

KOP T 5: Riles Creek Recreation Area

The Riles Creek Recreation Area is directly visible in the foreground from the bridge on Stokes Ferry Road. The view is attractive and pleasing across Riles Creek to a wooded park with picnic tables and small trash receptacles. Seasonal fluctuations in water levels occur, with lower levels in the summer, but the fluctuations are slight and do not significantly adversely affect the aesthetics of the area as the exposed shore is vegetated. A high number of motorists cross the bridge with short to moderate duration views.

The Project facilities viewed from this KOP are fully compatible with the setting. The Project facilities are an attractive, well-managed area that contributes to the pleasing aesthetics of the area.

View Description										Modifier Ratings		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Groups**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
T 5	Stokes Ferry Road at Riles Creek from center of bridge upstream.	Riles Creek Recreation Area	Surrounding forest	Motorists, boaters, anglers	High	Motorists-short, boaters and anglers-long	Foreground	Motorists-peripheral, boaters and anglers-direct to peripheral	Narrow	Dominant	Minimal	Compatible

Tuckertown Reservoir
KOP T 5: Riles Creek Recreation Area


February


April


August

KOP T 6: Flat Creek to East

Flat Creek is peripherally visible in the foreground to motorists crossing the River Road Bridge. A high number of motorists cross the bridge with short to moderate duration views. Boaters and anglers visiting this site have more direct, long duration views. The view from the bridge is attractive and pleasing across Flat Creek. Seasonal fluctuations in water turbidity occur, with higher turbidity in the winter, but the fluctuations are slight and do not adversely affect the aesthetics of the area.

Flat Creek viewed from this KOP is fully compatible with the setting. Flat Creek combined with the forested shoreline creates a pleasant and natural view that contributes to the attractive aesthetics of the area.

View Description										Modifier Ratings		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Groups**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
T 6	River Road at Flat Creek, center of bridge downstream.	Flat Creek	Forested shorelines	Motorists, boaters, anglers	Low	Motorists-short, boaters and anglers-long	Foreground to middleground	Motorists-peripheral, boaters and anglers-direct to peripheral	Narrow	Co-Dominant	Minimal	Compatible

Tuckertown Reservoir
KOP T 6: Flat Creek to East

February

April

August

KOP T 7: Flat Creek Boat Access Area

Tuckertown Reservoir is directly visible in the foreground from the Flat Creek Boat Access area located at the mouth of Flat Creek. Forested shorelines and low wooded hills are visible in the middleground across Tuckertown Reservoir. Boaters and anglers are the primary viewers at this KOP. View durations are long and the number of viewers is high. Moderate seasonal fluctuations in water levels occur, but are do not adversely affect the aesthetics of the area.

Tuckertown Reservoir viewed from this KOP is fully compatible with the setting. The Project facility combined with the forested shoreline creates a pleasant, natural appearance that contributes to the attractive aesthetics of the area.

View Description										Modifier Ratings		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Groups**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
T 7	Rte 2191 near confluence of Flat Creek and Tuckertown Reservoir..	Tuckertown Reservoir	Forested hills.	Boaters, anglers	High	Long	Foreground to middleground	Direct	Wide	Dominant	Minimal	Compatible

Tuckertown Reservoir
KOP T 7: Flat Creek Boat Access Area

February

April

August

KOP T 8: Bringle Ferry Boat Access

The Bringle Ferry Boat Access and Tuckertown Reservoir are directly visible in the foreground from this KOP. A gravel drive and boat ramp bordered by a small wooden dock are located in the foreground with forested shorelines extending from the foreground to middleground. Moderate increases in turbidity occur in the winter and spring but they are typical for the time of year and do not significantly detract from the aesthetics of the area.

Tuckertown Reservoir is compatible with the surroundings as the scale contrast of the access area is minimal. The reservoir combined with the surrounding forested shorelines creates a scenic, attractive view. The minor visible impacts from erosion in the parking lot (as seen in the April photo) appear to have been corrected through the addition of gravel (as seen in the August photo). The gravel access road and boat ramp, while not natural, does blend into the Piedmont landscape.

View Description										Modifier Ratings		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Groups**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
T 8	Bringle Ferry Boat Access	Tuckertown Reservoir, Boat access	Forested shorelines.	Boaters, anglers	High	Long	Foreground to middleground	Direct	Narrow	Dominant	Minimal	Compatible

Tuckertown Reservoir
KOP T 8: Bringle Ferry Boat Access

February

April

August

4.1.3 Narrows Reservoir (Badin Lake) KOPs

KOP NR 1: Fish Tails Marina

Fish Tails Marina and Narrows Reservoir are directly visible in the foreground of this KOP. Several small wooden docks and a single gas pump are located in the foreground with forested shorelines extending from the foreground to middleground. The number of viewers at this KOP is moderate with higher visits in the spring and summer during peak recreational periods.

The Project facilities viewed are co-dominant and somewhat compatible with the natural surroundings as the scale contrast of the access area is moderate. The December 2003 drawdown of the reservoir (for the purpose of conducting a relicensing study) exposed a large amount of shoreline and lake bottom, which detracts from the aesthetics of the view. Narrows Reservoir appears highly altered during a drawdown.

	View Description									**Modifier Rating**		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Group**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
NR 1	Fish Tails Marina facing NE	Narrows Reservoir	View from parking lot to floating docks, fuel pumps and reservoir.	Boaters, anglers	Moderate	Long	Foreground to middleground	Direct	Moderate	Co-Dominant	Moderate	Somewhat Compatible, not compatible during December drawdown

Narrows Reservoir
KOP NR 1: Fish Tails Marina

February

April

August

December

KOP NR 2: Beaverdam Creek Downstream Center of the Blain Road Bridge

The view from this KOP provides a narrow foreground view of the Narrows Reservoir. Thick, forested shorelines frame the reservoir which allow for an aesthetically pleasing view. Motorists have a short duration and peripheral view downstream. Boaters and anglers have a longer, more direct view of the creek. The number of viewers at this KOP is moderate with higher visits in the spring and summer during peak recreational periods. Several small wooden docks are visible along the banks of the creek. Increases in water turbidity are evident in late winter (February).

The Project facilities viewed from this KOP are subordinate to the landscape and are fully compatible with the natural setting, since they are at the same level of the adjacent forested shorelines and blend well with the surrounding landscape. Increased turbidity in the winter slightly detracts from the aesthetics.

	View Description									**Modifier Rating**		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Group**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
NR 2	Center of Bridge on Blain Road over Beaverdam Creek facing downstream.	Beaverdam Creek	View from bridge of Beaverdam Creek with surrounding forested shorelines.	Motorists, boaters, anglers	Moderate	Short-motorists, long-boaters/anglers	Foreground	Peripheral-motorists, direct-boaters anglers	Narrow	Subordinate	Minimal	Compatible

Narrows Reservoir
KOP NR 2: Beaverdam Creek Downstream Center of the Blain Road Bridge

February

April

August

KOP NR 3: Lakemont Access Area

Narrows Reservoir can be viewed in the foreground from the Lakemont Access Area. Distant forested shorelines accent the background landscape. The foreground shows a shoreline with access to wooden boat docks and a minimally vegetative shoreline. View durations are short to long and the number of viewers is moderate. Seasonal fluctuations in water levels are moderate and do not adversely affect the aesthetics of the area.

The Project facilities viewed from this KOP are compatible with the low to moderate scenic integrity of the area. The Project facilities combined with the natural appearance of the shoreline creates an aesthetically pleasing view for most of the year. The December 2003 drawdown of the reservoir (for the purpose of conducting a relicensing study) exposed all of the docks and a large portion of the reservoir bottom in the area. This type of drawdown is not compatible with the Scenic Integrity of the area.

	View Description									**Modifier Rating**		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Group**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
NR 3	Lakemont Access Area facing SW.	Narrows Reservoir and Lakemont Access Area	View from access area of boat docks, reservoir and distant forested shoreline.	Boaters, Anglers	Moderate	Short to Long	Foreground	Direct	Narrow	Co-dominant	Moderate	Compatible, December drawdown is not compatible

Narrows Reservoir
KOP NR 3: Lakemont Access Area


February


April


August


December

KOP NR 4: UNF Holt's Cabin

Narrows Reservoir is directly visible from the foreground from this KOP. The view is attractive and pleasing across the reservoir where there is a lush cover of thick vegetation. A low number of boaters and anglers view this KOP with short to long duration views.

Due to the lake depths at this KOP the normal Project operations only expose a small amount of the reservoir bottom and do not severely impact the aesthetics of the view. The Project facilities viewed from this KOP are fully compatible with this setting. The Project facilities are an attractive, natural area that contributes to the landscape. A drawdown, similar to the 16-ft drawdown in December 2003 conducted as part of a fish and aquatics relicensing study, is not compatible with the Scenic Integrity of the area.

	View Description									Modifier Rating		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Group**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
NR 4	Narrows Reservoir offshore of Holt's Cabin facing NE.	Narrows Reservoir and UNF Holt's Cabin recreation area	View of UNF Holt's Cabin and surrounding forests from the reservoir.	Anglers, boaters	Low	Short to long	Foreground	Direct	Wide	Subordinate	Minimal	Compatible, December drawdown is not compatible

Narrows Reservoir
KOP NR 4: UNF Holt's Cabin

February

April

August

December

KOP NR 5: UNF Fishing Pier

Narrows Reservoir is directly visible from the foreground to the middleground of this KOP if viewing from the UNF landward of the fishing pier and facing SSW. This KOP provides a narrow, short to long duration view of the reservoir to the recreational users, boaters and anglers. A view from this KOP shows the UNF fishing pier and Narrows Reservoir, with a heavily forested shoreline dominated by coniferous trees.

The Project facilities combined with the natural appearance of the shoreline creates an aesthetically pleasing view for most of the year. The Project facilities are well-managed and blend well with the area contributing to the aesthetic view. A drawdown, similar to the 16-ft drawdown in December 2003 conducted as part of a fish and aquatics relicensing study, is not compatible with the Scenic Integrity of the area.

	View Description									**Modifier Rating**		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Group**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
NR 5	UNF landward of fishing pier facing SSW.	Narrows Reservoir and UNF Fishing Pier	View of UNF Fishing Pier, reservoir and distant forested shorelines.	Recreational users, boaters, anglers	Moderate	Short to long	Foreground to middleground	Direct	Narrow	Subordinate	Minimal	Compatible, December drawdown is not compatible

Narrows Reservoir
KOP NR 5: UNF Fishing Pier

February

April

August

December

KOP NR 6: UNF Fishing Pier from Water

The UNF fishing pier and Narrows Reservoir offshore are directly visible from this KOP. Boaters and anglers are the primary viewers with the view durations ranging from short to long depending on the length of stay. The number of viewers at this KOP is moderate with most visits occurring in the spring and summer during peak recreational periods. A wide, forested shoreline frames the UNF fishing pier. Seasonal fluctuations of the shoreline occur in the winter months and expose the reservoir bottom. The steep drop-offs of the shoreline minimize the amount of lake bottom exposed during a drawdown.

The Project features are subordinate with the view from this KOP. For most of the year the Project features blend harmoniously with the setting to create an aesthetically pleasing view. A drawdown, similar to the 16-ft drawdown in December 2003 conducted as part of a fish and aquatics relicensing study, is not compatible with the Scenic Integrity of the area.

	View Description									**Modifier Rating**		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Group**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
NR 6	Narrows Reservoir offshore of UNF Fishing Pier facing NE.	Narrows Reservoir and UNF Fishing Pier	View of UNF Fishing Pier and surrounding forest from Narrows Reservoir.	Boaters, anglers	Moderate	Short to long	Foreground	Direct	Wide	Subordinate	Minimal	Compatible, December drawdown is not compatible

Narrows Reservoir
KOP NR 6: UNF Fishing Pier from Water

February

April

August

December

KOP NR 7: UNF Badin Campground from Water

The Badin Campground can be directly seen in the foreground from the water. The campground is surrounded by a thick forested shoreline of the Narrows Reservoir. The primary viewers are boaters and anglers and duration of view ranges from short to long. The view is natural and for much of the year natural vegetation screens most of the campground from view.

The Project facilities from this KOP appear natural and are compatible with the surrounds for most of the year. The campground is almost entirely hidden from view by the densely forested shoreline and this creates a natural and aesthetically pleasing view. At a 16-ft drawdown a rocky beach and eroded shoreline are exposed. A drawdown, similar to the 16-ft drawdown in December 2003 conducted as part of a fish and aquatics relicensing study, is not compatible with the Scenic Integrity of the area.

	View Description									**Modifier Rating**		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Group**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
NR 7	Narrows Reservoir offshore of Badin Campground facing E.	Narrows Reservoir and UNF Badin Campground	View of UNF Badin Campground and surrounding forest from Narrows Reservoir.	Boaters, anglers	Moderate	Short to long	Foreground	Direct	Wide	Subordinate	Minimal	Compatible, December drawdown is not compatible

Narrows Reservoir
KOP NR 7: UNF Badin Campground from Water

April

August

December

KOP NR 8: Cove Boat Landing from Water

Narrows Reservoir and the Cove Boat Landing are directly visible from the foreground to the middleground from this KOP. There is a wide view of the thick forested shorelines on either side of the reservoir with low, rolling hills in the distance. Boaters and anglers are the primary viewers from the KOP and view durations are short to long with a moderate number of viewers especially in peak recreational seasons.

The reservoir appears natural and is fully compatible with the surroundings for most of the year. The reservoir combines harmoniously with the setting to create an attractive view. At a 16-ft drawdown, the lake bottom is exposed along the shorelines. A drawdown, similar to the 16-ft drawdown in December 2003 conducted as part of a fish and aquatics relicensing study, is not compatible with the Scenic Integrity of the area.

	View Description									**Modifier Rating**		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Group**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
NR 8	Narrows reservoir offshore of Cove Boat Landing facing SSE.	Narrows Reservoir and Cove Boat Landing	View of Cove Boat landing from Narrows Reservoir	Boaters, anglers	Moderate	Short to long	Foreground to middleground	Direct	Wide	Subordinate	Minimal	Compatible, December drawdown is not compatible

Narrows Reservoir
KOP NR 8: Cove Boat Landing from Water

February

April

August

December

KOP NR 9: Cove Boat Landing

The Cove Boat Landing is directly visible in the foreground from Narrows Reservoir. Boaters and anglers are the primary viewing group and the use at this KOP is moderate. The landscape shows distinct changes within the spring and winter months with the removal of trees along the shoreline and the upgrading of the boat landing facilities. The shoreline is lined with sparse trees, but thicker vegetation lies further inland. Under current Project operations, there is little fluctuation in lake water levels.

The Project facilities viewed from the KOP are subordinate and somewhat compatible within the setting. For most of the year the reservoir appears natural within the setting. A 16-ft drawdown reveals steep, rocky banks near the shoreline, the boat ramp, and mud flats further offshore. This creates a disturbed appearance that dramatically alters the setting and detracts from the aesthetic quality of the view from this KOP. The construction at the boat landing also had a temporary negative impact on the aesthetics of the view.

	View Description									**Modifier Rating**		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Group**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
NR 9	Narrows reservoir offshore of Cove Boat Landing facing SSE.	Narrows Reservoir and Cove Boat Landing	View of Cove Boat landing from Narrows Reservoir	Boaters, anglers	Moderate	Short to long	Foreground	Direct	Wide	Subordinate	Minimal	Somewhat Compatible, December drawdown is not compatible

Narrows Reservoir
KOP NR 9: Cove Boat Landing

February

April

August

December

KOP NR 10: Narrows Dam Tailrace from Water

The Narrows Dam Tailrace, Powerhouse and an access bridge are directly visible in the foreground from this KOP. Boaters and anglers are the primary viewers with view durations ranging from short to long depending on length of stay. The number of viewers at this KOP is low with most visits occurring in the spring and summer during peak recreational periods. Rocky shorelines and steep tree covered banks frame the view of the dam and powerhouse.

The Project features are co-dominant with the view from this KOP and are somewhat compatible with the setting, since they are at or below the height of the adjacent forested hillside and are of equal visual importance to the surrounding landscape.

	View Description									**Modifier Rating**		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Groups**	**Number of Viewers**	**Duration of View**	**Distance zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
FR 2	Downstream of Narrows Dam facing upstream.	Narrows Dam Tailrace	View of Narrows Dam from downstream of Dam	Boaters, anglers	Low	Short to long	Foreground	Direct	Moderate	Co-Dominant	Moderate	Somewhat Compatible

Narrows Reservoir
KOP NR 10: Narrows Dam Tailrace from Water

February

April

August

KOP NR 11: Narrows Dam from Water

The Narrows Dam is directly visible in the foreground from this KOP. The dam is located in a setting of low, rolling, forested hillsides. Anglers and motorists have a wide and direct view of the dam from this KOP. View durations range from short to long, depending on the length of stay. The number of viewers is moderate, with most visits occurring in peak recreational seasons. Seasonal variations in the aesthetics of the Project facilities are limited to a slight increase in water turbidity.

The Project facilities viewed from this KOP are compatible and harmonious with the setting, since they are at or below the height of the adjacent forested hillsides and are of equal visual importance to the surrounding landscape. A drawdown, similar to the 16-ft drawdown in December 2003 conducted as part of a fish and aquatics relicensing study, has only a minor effect on the aesthetics viewed from this KOP because steep banks and quick drop-offs minimize the amount of shoreline exposed.

	View Description									Modifier Rating		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Group**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
NR 11	Narrows Reservoir upstream of Narrows Dam facing S.	Narrows Dam and Reservoir	View of Narrows Dam	Boaters, Anglers	Moderate	Short to long	Foreground	Direct	Wide	Co-dominant	Moderate	Compatible

Narrows Reservoir
KOP NR 11: Narrows Dam from Water


February


April


August


December

KOP NR 12: The Narrows Transmission Line

The Narrows transmission line, for a short duration, is indirectly visible in the foreground to passing motorists along Highway 740. The number of viewers is moderate. The area below the Narrows transmission line is a landscape of mowed grass interspersed with tree cover. A paved road and sidewalk trail are located within this setting also. A drainage ditch is located directly under the power lines traveling perpendicular to them. Seasonal changes have no affect on the transmission line structures.

The Project Facilities viewed from this KOP and are somewhat compatible and harmonious to the setting. The power lines, while visible, do not intrude on the landscape view.

	View Description									**Modifier Rating**		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Group**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
NR 12	South of the town of Badin, facing north	Transmission Lines	View of Transmission lines	Motorists	Moderate	Short	Foreground	Indirect	Narrow	Co-dominant	Moderate	Somewhat compatible

Narrows Reservoir
KOP NR 12: Transmission Lines

February

April

August

KOP NR 13: Badin Boat Access

Narrows Reservoir and Badin Boat Access are directly visible from the foreground to the background from this KOP. Boaters and anglers are the primary viewers from the KOP and visitor use is high during peak recreational seasons. A parking lot, wooden boat dock, and overhead power lines are visible in the foreground with the reservoir and rolling foothills visible in the background. Forested shorelines frame this wide view to the reservoir from this location.

The Project facilities viewed from this KOP are co-dominant and somewhat compatible within the setting. The reservoir appears natural within the setting and the boat access does not adversely impact the aesthetic quality of the view. A drawdown, similar to the 16-ft drawdown in December 2003 conducted as part of a fish and aquatics relicensing study, exposes large amounts of the lake bottom and is not compatible with the Scenic Integrity of the area.

	View Description									**Modifier Rating**		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Group**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
NR 13	Badin Boat Access facing N.	Narrows Reservoir and Badin Boat Access	View of Badin Boat Access with docks and overhead power lines.	Boaters, Anglers	High	Short to long	Foreground to background	Direct	Wide	Co-dominant	Moderate	Somewhat compatible, December drawdown is not compatible

Narrows Reservoir
KOP NR 13: Badin Boat Access

February

April

August

December

KOP NR 14: Badin Swim Area

The Badin Swim Area is directly visible in the foreground from this KOP. Narrows Reservoir can be seen from the foreground to the background with forested shorelines and hillsides bordering the reservoir in the background. The primary viewers include boaters, anglers, and recreational users in peak recreational seasons, especially the summer months. The number of viewers is high and has a short to long view duration depending on the length of stay.

The Project facilities viewed from this KOP are compatible and harmonious with the setting for most of the year. The project feature combined with the surrounding environment creates an attractive and pleasing view. A drawdown, similar to the 16-ft drawdown in December 2003 conducted as part of a fish and aquatics relicensing study, reveals more of the reservoir bottom and is not compatible with the Scenic Integrity of the area.

	View Description									**Modifier Rating**		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Group**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
NR 14	Badin Swim Area facing SE.	Narrows Reservoir and Badin Swim Area	View of Narrows Reservoir Badin Swim Area.	Boaters, Anglers, Recreational users	High	Short to long	Foreground to Background	Direct	Wide	Subordinate	Minimal	Compatible, December drawdown is not compatible

Narrows Reservoir
KOP NR 14: Badin Swim Area

February

April

August

December

KOP NR 15: Palmerville Access

Palmerville Access is directly visible to boaters and anglers from this KOP. The foreground consists of a gravel boat ramp and a sandy-gravel shoreline interspersed with vegetative cover. Narrows Reservoir is visible from the foreground to background and is framed by low rolling tree-covered hills. A number of homes are visible across the reservoir on the opposite shore. This access area has a low number of viewers with a short to long view duration.

The Project facilities viewed from this KOP are somewhat compatible with the setting for most of the year. A drawdown, similar to the 16-ft drawdown in December 2003 conducted as part of a fish and aquatics relicensing study, reveals most of the reservoir bottom with only a narrow strip of water occurring between the KOP and the opposite shoreline. A 16-ft drawdown has dramatic effects on the aesthetics of the area and is not compatible with the Scenic Integrity of the area.

	View Description									**Modifier Rating**		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Group**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
NR 15	Palmerville Access facing N.	Narrows Reservoir and Palmerville Access	View of Palmerville Access Area.	Boaters, anglers	Low	Short to long	Foreground to background	Direct	Wide	Subordinate	Minimal	Somewhat Compatible, December drawdown is not compatible

Narrows Reservoir
KOP NR 15: Palmerville Access

February

April

August

December

KOP NR 16: Old Whitney Boat Access

The Old Whitney Boat Access is directly visible in the foreground from this KOP. The middleground view shows Narrows Reservoir directly behind the boat access with a forested shoreline on the opposite side of the reservoir. Primary viewers consist of boaters and anglers. The view durations are long and this KOP revives a high number of viewers, especially in peak recreational months.

The Project facilities viewed from this KOP are subordinate and compatible within the setting. For most of the year the reservoir appears natural within the setting and the boat access does not adversely impact the aesthetic quality of the view. A drawdown, similar to the 16-ft drawdown in December 2003 conducted as part of a fish and aquatics relicensing study, reveals a large shoal slightly offshore of the boat access as well as a larger portion of the opposite shoreline. A 16-ft drawdown adversely impacts the aesthetics and detracts from the scenic quality of the view from this KOP.

	View Description									**Modifier Rating**		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Group**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
NR 16	Old Whitney Boat Access facing NE.	Narrows Reservoir and Old Whitney Boat Access	View of Old Whitney Boat Access, floating dock and Alcoa sign.	Boaters, anglers	High	Long	Foreground to middleground	Direct	Moderate	Subordinate	Minimal	Compatible, December drawdown is not compatible

Narrows Reservoir
KOP NR 16: Old Whitney Boat Access

February

April

August

December

4.1.4 Falls Reservoir KOPs

KOP FR 1: Uwharrie National Forest Deep Water Cove Trail

This KOP provides an aesthetically pleasing view of Falls Reservoir and the surrounding forested shorelines. Anglers and recreational users are the primary viewers from this KOP with direct, long duration views. Falls Reservoir viewed from this KOP is fully compatible with the setting. The Project facility combines with the setting to create an attractive and natural scene that contributes to the pleasing aesthetics of the area.

	View Description									Modifier Rating		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Groups**	**Number of Viewers**	**Duration of View**	**Distance zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
FR 1	Deep Water Cove Trail facing across reservoir.	Falls Reservoir	View from shoreline of Falls Reservoir with surrounding forest.	Boaters, anglers, campers, recreational users.	Low	Long	Foreground to middleground	Direct	Moderate	Co-Dominant	Minimal	Compatible

Falls Reservoir
KOP FR 1: Uwharrie National Forest Deep Water Cove Trail

February

April

August

KOP FR 2: Narrows Dam Tailrace Downstream

The Narrows Dam Tailrace is visible downstream from this KOP site in a setting of low wooded hills and rocky shorelines. A steel overhead bridge, the red brick powerhouse, and the river are directly visible in the foreground from this KOP. A moderate number of boaters and anglers view the facilities from this KOP, with view durations ranging from short to long. Seasonal variations in the aesthetics of the Project facilities are limited to a slight increase in water turbidity in late winter.

The Project facilities viewed from this KOP are somewhat compatible and harmonious to the setting, since they are at or below the height of the adjacent forested hillsides and are of equal visual importance to the surrounding landscape.

	View Description									**Modifier Rating**		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Group**	**Number of Viewers**	**Duration of View**	**Distance Zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
NR 10B	Downstream of Narrows Dam Tailrace facing Downstream.	Narrows Dam Tailrace	View of River and Bridge.	Boaters, Anglers	Moderate	Short to long	Foreground	Direct	Narrow	Dominant	Moderate	Somewhat compatible

Falls Reservoir
KOP FR 2: Narrows Dam Tailrace Downstream

April

August

KOP FR 3: Uwharrie National Forest Deepwater Cove Trail from Water

The Deepwater Cove Trail is directly visible in the foreground from this KOP. The trail is a gravel road that ends at the waters edge and is surrounded by forested shorelines. The primary viewers are boaters and anglers and duration of view ranges from short to long. The view is natural and for much of the year natural vegetation screens most of the trail from view. The extent of disturbed land near the lakeshore is apparent and detracts from the otherwise natural view. There are no apparent seasonal variations in water levels or turbidity visible from this KOP.

The Deepwater Trail from this KOP appears disturbed and are is somewhat compatible with the surroundings.

	View Description									**Modifier Rating**		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Groups**	**Number of Viewers**	**Duration of View**	**Distance zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
FR 3	Falls Reservoir facing toward Deepwater Cove Trail	Deepwater Cove Trail and Falls Reservoir	Forested Shoreline	Boaters, anglers	Low	Short to long	Foreground	Direct to indirect	Wide	Co-Dominant	Minimal	Somewhat compatible

Falls Reservoir
KOP FR 3: Uwharrie National Forest Deepwater Cove Trail from Water

February

April

August

KOP FR 4: Morrow Mountain State Park Trail

The Falls Dam Tailrace is directly visible in the foreground from Morrow Mountain State Park Trail. This KOP receives moderate use and viewers have long duration views of the Project facilities. Steep sloping forested hillsides dominate the opposite shoreline and make the dam appear relatively small in comparison to the surroundings. The color of the dam blends well with the surrounding rocks and boulders and gives a natural, harmonious appearance. Nevertheless, the dam does represent an engineered fixture in an otherwise natural setting.

The Project features are co-dominant to subordinate with the view and are somewhat compatible with the setting.

	View Description									Modifier Rating		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Groups**	**Number of Viewers**	**Duration of View**	**Distance zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
FR 4	Morrow Mountain State Park Trail	Falls Dam and Tailrace	Wooded hillsides	Hikers, Anglers, Boaters	Moderate	Long	Foreground	Direct	Moderate	Co-dominant to subordinate	Minimal	Somewhat compatible

Falls Reservoir
KOP FR 4: Morrow Mountain State Park Trail

February

August

KOP FR 5: Falls Reservoir Dispersed Camp Site

Falls Reservoir is directly visible from the foreground to middleground from this KOP. There is a narrow upstream view of the reservoir with steep, rocky, forested shorelines on either side of the reservoir and low rolling hills in the background. Campers, anglers and boaters are the primary viewers from the KOP and view durations are long. This KOP receives little use and viewer numbers are low.

Falls Reservoir is natural and fully compatible with the surroundings. The reservoir combines harmoniously with the setting to create an attractive view.

	View Description									**Modifier Rating**		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Groups**	**Number of Viewers**	**Duration of View**	**Distance zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
FR 5	Falls Reservoir Dispersed Camp site	Falls Reservoir.	Steep forested shorelines and low wooded hills	Campers, anglers, boaters	Low	Long	Foreground to middleground	Direct	Wide	Dominant	Minimal	Compatible

Falls Reservoir
KOP FR 5: Falls Reservoir Dispersed Camp Site

February

April

August

KOP FR 6: Falls Reservoir Boat Access

Falls Reservoir and Falls Reservoir Boat Access are directly visible in the foreground from this KOP. Boaters and anglers are the primary viewers from the KOP and use is moderate. An asphalt boat ramp with a low concrete ramp is visible in the near foreground with the reservoir visible to the rear. Forested shorelines frame a narrow view to the reservoir from this location.

The Project facilities viewed from this KOP are co-dominant and somewhat compatible within the setting. The reservoir appears natural within the setting and the boat access does not significantly adversely impact the aesthetic quality of the view.

	View Description									**Modifier Rating**		
KOP	**Viewer Location**	**Project Feature**	**Setting**	**Primary Viewer Groups**	**Number of Viewers**	**Duration of View**	**Distance zone**	**Orientation**	**Field of View**	**Spatial Dominance**	**Scale Contrast**	**Compatibility**
FR 6	Falls Reservoir boat ramp and barge launch.	Falls Reservoir and Boat Access	Wooded shorelines and hillsides	Anglers, boaters	Moderate	Long	Foreground	Direct	Narrow	Co-Dominant	Moderate	Somewhat compatible

Falls Reservoir

KOP FR 6: Falls Reservoir Boat Access

February

August

4.2 Constituent (User) Analysis

This section analyzes recreational user responses to the survey questions relating to aesthetics. The first question asked how the user rated the scenic quality of the area. These responses were scored on a scale of 1 to 5, with 1 = very unattractive, 2 = somewhat unattractive, 3 = average, 4 = somewhat attractive, 5 = very attractive. Responses to the five scenic quality ratings were calculated in percentages based on each scenic quality response and on the total number of respondents to each survey. An average score for each survey was calculated based on the five response scores and their corresponding percentage ratings. A weighted average score was also calculated for the total number of respondents based on the number of respondents for each survey.

The second question asked users to identify elements they thought detracted from the scenic quality of the project area. There were fifteen element options to choose from including a "none" option, and an "other" option, which allowed a respondent to name an element not on the list provided. Respondents could name or select as many elements as they wanted. Responses to the second question were calculated in percentages based on each identified element and on the total number of respondents. Weighted averages of the fifteen elements were also calculated in percentages for the total number of respondents for the three surveys because the total number of respondents for each survey varied. Among all the completed surveys, some recreationists did not respond to any of the questions on aesthetics.

4.2.1 High Rock Reservoir

Scenic Quality

A total of 1,559 respondents to the VUS, RUS, and PCUS rated the scenic quality of High Rock Reservoir. Of these, 55 percent rated it as "somewhat attractive" or "very attractive", 36 percent rated it as "average", and only 9 percent rated it as "somewhat unattractive" or "very unattractive". The average score was 3.7 out of 5 (Table 4-1). Results were similar for all survey groups. The VUS had the fewest (3 percent) of respondents rating the reservoir as "very unattractive" or "unattractive" as compared to the 12 percent for both the PCUS and RUS respondents. Of the three surveys, the PCUS had the highest percentage (68 percent) of respondents rating the reservoirs as attractive.

Table 4-1 Responses to the Scenic Quality of High Rock Reservoir

Surveys	# of Respondents	Average Score	Ratings/Scores				
			1	2	3	4	5
			Very Unattractive	Somewhat Unattractive	Average	Somewhat Attractive	Very Attractive
VUS	375	3.7	1%	2%	45%	31%	21%
RUS	1,152	3.7	6%	6%	33%	28%	28%
PCUS	32	3.9	3%	9%	19%	34%	34%
Total # of Respondents	**1,559**	**3.7**	**4%**	**5%**	**36%**	**29%**	**26%**

Elements Thought to be Detractors

A total of 1,327 respondents to the VUS, RUS, and PCUS identified elements that detracted from the scenic quality of High Rock Reservoir (Table 4-2). Floating debris, muddy water, exposed lake bottom, and eroding shoreline were all cited by at least 20 percent of respondents as major detractors. All of the other potential elements were cited by less than 10 percent of respondents.

In terms of Project facilities and operations, only exposed lake bottom (which is related to Project operations) was cited by more than 10 percent of respondents as detracting from visual quality. Electric transmission lines (7 percent), High Rock Dam (1 percent), and High Rock Reservoir (<1 percent) were very infrequently cited as visual detractors.

Table 4-2 Elements thought to be Detractors from the Scenic Quality of High Rock Reservoir

Detractors	VUS		RUS		PCUS		Total	
	# of Responses	Response Rate	# of Responses	Response Rate	# of Responses	Response Rate	# of Responses	Response Rate
Floating Debris	86	57%	890	78%	20	69%	**996**	**75%**
Muddy Water	82	55%	789	69%	17	56%	**888**	**67%**
Exposed Lake Bottom	8	5%	630	55%	16	59%	**654**	**49%**
Eroding Shoreline	19	13%	287	25%	8	25%	**314**	**24%**
Timber Harvesting	2	1%	116	10%	6	19%	**124**	**9%**
Lack of Landscaping	9	6%	87	8%	7	22%	**103**	**8%**
Docks/Piers	8	5%	89	8%	2	6%	**99**	**7%**
Electric Transmission Lines	6	4%	78	7%	3	9%	**87**	**7%**
Waterfront Housing	7	5%	63	6%	1	6%	**71**	**5%**
Other	7	5%	48	4%	1	3%	**56**	**4%**
Bulkheads/ Rip Rap	2	1%	28	2%	2	6%	**32**	**2%**
None	1	<1%	25	2%	0	0%	**26**	**2%**
Roads	0	0%	23	2%	2	6%	**25**	**2%**
Project Dams	0	0%	12	1%	0	0%	**12**	**1%**
Reservoirs	1	<1%	6	<1%	0	0%	**7**	**<1%**
Total responses	**238**	**158%**	**3,171**	**278%**	**85**	**286%**	**3,494**	**263%**

Note:
1. # of respondents is 150 for VUS, 1,145 for RUS, 32 for PCUS, and 1,327 for the total surveys at High Rock Reservoir. For the total project area, the percentage of each identified detractor is weighted and therefore calculated based on the number of responses in each survey.

2. Columns do not add up to 100 percent or add up to the # of respondents for each survey because respondents were able to select multiple detractors.

4.2.2 Tuckertown Reservoir

Scenic Quality

At Tuckertown Reservoir, only the VUS was administered. A total of 215 respondents rated the scenic quality of Tuckertown Reservoir. Of these, 67 percent rated it as "somewhat attractive" or "very attractive", 29 percent rated it as "average", and 3 percent rated it as "somewhat unattractive" or "very unattractive". The average score was 4.1 out of 5 (Table 4-3).

Table 4-3 Responses to the Scenic Quality of Tuckertown Reservoir

Surveys	# of Respondents	Average Score	Ratings/Scores				
			1	2	3	4	5
			Very Unattractive	Somewhat Unattractive	Average	Somewhat Attractive	Very Attractive
VUS	215	4.1	1%	2%	29%	18%	49%
RUS	NA	NA	NA	NA	NA	NA	NA
PCUS	NA	NA	NA	NA	NA	NA	NA
Total # of Respondents	**215**	**4.1**	**1%**	**2%**	**29%**	**18%**	**49%**

Elements Thought to be Detractors

A total of 61 respondents to the VUS identified elements that detracted from the scenic quality of Tuckertown Reservoir (Table 4-4). Floating debris, muddy water, and eroding shoreline were all cited by at least 20 percent of respondents as detracting from the visual quality of the area. All of the other potential elements were cited by less than 15 percent of respondents.

In terms of Project facilities and operations, electric transmission lines was cited by approximately 13 percent of respondents as detracting from visual quality. Overhead electric transmission cross the Yadkin River immediately downstream of Tuckertown Dam and crosses several of the tributaries on the west side of Tuckertown Reservoir. Tuckertown Dam (5 percent) and exposed lake bottom (3 percent) were very infrequently cited as visual detractors.

Table 4-4 Responses to the Elements thought to be Detractors from the Scenic Quality of Tuckertown Reservoir

Detractors	VUS		RUS		PCUS		Total	
	# of Responses	Response Rate	# of Responses	Response Rate	# of Responses	Response Rate	# of Responses	Response Rate
Floating Debris	32	52%	NA	NA	NA	NA	**32**	**52%**
Muddy Water	19	31%	NA	NA	NA	NA	**19**	**31%**
Eroding Shoreline	13	21%	NA	NA	NA	NA	**13**	**21%**
Electric Transmission Lines	8	13%	NA	NA	NA	NA	**8**	**13%**
Timber Harvesting	5	8%	NA	NA	NA	NA	**5**	**8%**
Other	5	8%	NA	NA	NA	NA	**5**	**8%**
Lack of Landscaping	3	5%	NA	NA	NA	NA	**3**	**5%**
Project Dams	3	5%	NA	NA	NA	NA	**3**	**5%**
Exposed Lake Bottom	2	3%	NA	NA	NA	NA	**2**	**3%**
Docks/Piers	2	3%	NA	NA	NA	NA	**2**	**3%**
Waterfront Housing	2	3%	NA	NA	NA	NA	**2**	**3%**
Bulkheads/ Rip Rap	2	3%	NA	NA	NA	NA	**2**	**3%**
None	1	2%	NA	NA	NA	NA	**1**	**2%**
Roads	1	2%	NA	NA	NA	NA	**1**	**2%**
Reservoirs	0	0%	NA	NA	NA	NA	**0**	**0%**
Total responses	**98**	**159%**	**NA**	**NA**	**NA**	**NA**	**98**	**159%**

Note:
1. NA = Not Applicable

2. # of respondents is 61 for VUS, which represents the total survey at Tuckertown Reservoir. For this reservoir, the total percentage of each identified detractor is weighted and therefore calculated based on the number of responses in the VUS.

3. Columns do not add up to 100 percent or add up to the # of respondents for the VUS because respondents were able to select multiple detractors.

4.2.3 Narrows Reservoir

Scenic Quality

A total of 915 respondents to the VUS, RUS, and PCUS rated the scenic quality of Narrows Reservoir. Of these, 78 percent rated it as “somewhat attractive” or “very attractive”, 15 percent rated it as “average”, and 7 percent rated it as “somewhat unattractive” or “very unattractive”. The average score was 4.3 out of 5 (Table 4-5). Results were similar for all survey groups. The VUS had the fewest (5 percent) respondents rating the reservoir as unattractive as compared with the RUS (7 percent) and PCUS (10 percent) respondents. Of the three surveys, the RUS had the highest percentage (80 percent) of respondents rating the reservoir as attractive.

Table 4-5 Responses to the Scenic Quality of Narrows Reservoir

Surveys	# of Respondents	Average Score	Ratings/Scores				
			1	2	3	4	5
			Very Unattractive	Somewhat Unattractive	Average	Somewhat Attractive	Very Attractive
VUS	339	4.3	3%	2%	16%	24%	55%
RUS	498	4.3	5%	2%	12%	18%	62%
PCUS	78	4.0	6%	4%	23%	21%	46%
Total # of Respondents	**915**	**4.3**	**5%**	**2%**	**15%**	**20%**	**58%**

Elements Thought to be Detractors

A total of 598 respondents to the VUS, RUS, and PCUS identified elements that detracted from the scenic quality of Narrows Reservoir (Table 4-6). Floating debris, muddy water, timber harvesting, and eroding shoreline were all cited by at least 20 percent of respondents as detracting from the visual quality of the area. All of the other potential elements were cited by less than 15 percent of respondents.

In terms of Project facilities and operations, only exposed lake bottom (which is related to Project operations) was cited by more than 10 percent of respondents as detracting from the visual quality of the area. Electric transmission lines (6 percent), Narrows Dam (2 percent), and Narrows Reservoir itself (1 percent) were very infrequently cited as visual detractors.

Table 4-6 Responses to the Elements thought to be Detractors from the Scenic Quality of Narrows Reservoir

Detractors	VUS		RUS		PCUS		Total	
	# of Responses	Response Rate	# of Responses	Response Rate	# of Responses	Response Rate	# of Responses	Response Rate
Floating Debris	66	49%	225	56%	32	54%	**323**	**54%**
Muddy Water	34	25%	150	37%	27	46%	**211**	**35%**
Timber Harvesting	17	13%	126	31%	14	24%	**157**	**26%**
Eroding Shoreline	22	16%	95	23%	8	14%	**125**	**21%**
Exposed Lake Bottom	9	7%	63	16%	13	22%	**85**	**14%**
Docks/Piers	14	10%	49	12%	8	14%	**71**	**12%**
Lack of Landscaping	17	13%	40	10%	6	10%	**63**	**11%**
Waterfront Housing	11	8%	31	8%	5	8%	**47**	**8%**
Other	12	9%	23	6%	3	5%	**38**	**6%**
Electric Transmission Lines	11	8%	20	5%	6	10%	**37**	**6%**
None	1	<1%	25	6%	0	0%	**26**	**4%**
Roads	6	4%	15	4%	4	7%	**25**	**4%**
Bulkheads/ Rip Rap	4	3%	14	3%	3	5%	**21**	**4%**
Project Dams	7	5%	3	<1%	0	0%	**10**	**2%**
Reservoirs	4	3%	2	<1%	0	0%	**6**	**1%**
Total responses	**235**	**174%**	**881**	**218%**	**129**	**219%**	**1,245**	**208%**

Note:
1. # of respondents is 134 for VUS, 405 for RUS, 59 for PCUS, and 598 for the total surveys at Narrows Reservoir. For the total project area, the percentage of each identified detractor is weighted and therefore calculated based on the number of responses in each survey.

2. Columns do not add up to 100 percent or add up to the # of respondents for each survey because respondents were able to select multiple detractors.

4.2.4 Falls Reservoir

Scenic Quality

At Falls Reservoir, only the VUS was administered. A total of 17 visitors rated the scenic quality of this reservoir. Of these, 58 percent rated it as "somewhat attractive" or "very attractive", 29 percent rated it as "average", and 12 percent rated it as "somewhat unattractive". The average score was 3.8 out of 5 (Table 4-7). None of the respondents rated it as "very unattractive".

Table 4-7 Responses to the Scenic Quality of Falls Reservoir

Surveys	# of Respondents	Average Score	Ratings/Scores				
			1	2	3	4	5
			Very Unattractive	Somewhat Unattractive	Average	Somewhat Attractive	Very Attractive
VUS	17	3.8	0%	12%	29%	29%	29%
RUS	NA	NA	NA	NA	NA	NA	NA
PCUS	NA	NA	NA	NA	NA	NA	NA
Total # of Respondents	**17**	**3.8**	**0%**	**12%**	**29%**	**29%**	**29%**

It should be noted that because of the low response rate at Falls Reservoir, there is less confidence in these results.

Elements Thought to be Detractors

A total of only 7 respondents to the VUS identified elements that detracted from the scenic quality of Falls Reservoir (Table 4-8). Floating debris and eroding shoreline were cited by over 70 percent of respondents as detracting from the visual quality of the area. All of the other potential elements were cited by less than 15 percent of respondents.

In terms of Project facilities, Falls Dam, Falls Reservoir, and electric transmission lines were each identified by 14 percent (one out of seven) of the respondents as detracting from the scenic quality of the area. No respondents identified exposed lake bottom as a detractor because Falls Reservoir is maintained at a relatively constant water elevation year round.

It should be noted that because of the low response rate at Falls Reservoir, there is less confidence in these results.

Table 4-8 Responses to the Elements thought to be Detractors from the Scenic Quality of Falls Reservoir

Detractors	VUS		RUS		PCUS		Total	
	# of Responses	Response Rate	# of Responses	Response Rate	# of Responses	Response Rate	# of Responses	Response Rate
Floating Debris	5	71%	NA	NA	NA	NA	**5**	**71%**
Eroding Shoreline	5	71%	NA	NA	NA	NA	**5**	**71%**
Muddy Water	4	57%	NA	NA	NA	NA	**4**	**57%**
Electric Transmission Lines	1	14%	NA	NA	NA	NA	**1**	**14%**
Timber Harvesting	1	14%	NA	NA	NA	NA	**1**	**14%**
Project Dams	1	14%	NA	NA	NA	NA	**1**	**14%**
Docks/Piers	1	14%	NA	NA	NA	NA	**1**	**14%**
Waterfront Housing	1	14%	NA	NA	NA	NA	**1**	**14%**
Reservoirs	1	14%	NA	NA	NA	NA	**1**	**14%**
Lack of Landscaping	0	0%	NA	NA	NA	NA	**0**	**0%**
Exposed Lake Bottom	0	0%	NA	NA	NA	NA	**0**	**0%**
Bulkheads/ Rip Rap	0	0%	NA	NA	NA	NA	**0**	**0%**
None	0	0%	NA	NA	NA	NA	**0**	**0%**
Roads	0	0%	NA	NA	NA	NA	**0**	**0%**
Other	0	0%	NA	NA	NA	NA	**0**	**0%**
Total responses	**20**	**283%**	**NA**	**NA**	**NA**	**NA**	**20**	**283%**

Note:
1. NA = Not Applicable

2. # of respondents is 7 for VUS, which represents the total survey at Falls Reservoir. For this reservoir, the total percentage of each identified detractor is weighted and therefore calculated based on the number of responses in the VUS.

3. Columns do not add up to 100 percent or add up to the # of respondents for the VUS because respondents were able to select multiple detractors.

4.2.5 Comparison of Results

Table 4-9 compares the responses from the four developments regarding reservoir scenic quality. The majority of respondents rated each reservoir as "somewhat attractive" or "attractive", ranging from a low of 55 percent for High Rock Reservoir to a high of 78 percent for Narrows Reservoir. Falls Reservoir was the only reservoir to have more than 10 percent of respondents rate it as "very unattractive" or "somewhat unattractive". This is surprising since it is the most natural and least developed of the four reservoirs. This rating may not be representative, however, in that it is based on only 17 responses.

Table 4-9 Comparison of Responses regarding Reservoir Scenic Quality

Reservoir	# of Respondents	Average Score	Ratings/Scores				
			1	2	3	4	5
			Very Unattractive	Somewhat Unattractive	Average	Somewhat Attractive	Very Attractive
High Rock	1,559	3.7	4%	5%	36%	29%	26%
Tuckertown	215	4.1	1%	2%	29%	18%	49%
Narrows	915	4.3	5%	2%	15%	20%	58%
Falls	17	3.8	0%	12%	29%	29%	29%

Table 4-10 compares the responses from the four developments regarding elements that are detracting from the area's visual quality. Floating debris, muddy water, and eroding shorelines were consistently rated as the most common detractors of visual quality across the four developments. As would be expected, exposed lake bottom was identified as a problem at High Rock (49 percent of respondents) and Narrows (14 percent of respondents) where Project operations result in water level fluctuations, while very few respondents identified it as a problem at Tuckertown (3 percent of respondents) or Falls (0 percent of respondents) reservoirs, where water levels fluctuate very little.

Project facilities (dams, reservoirs, electric transmission lines) were not identified as a major detractor of visual quality at any of the developments. Across all four developments, only approximately 1 percent of respondents identified dams or the reservoirs themselves as a visual detractor. Overhead electric transmission lines were only identified as a visual detractor by over 10 percent of respondents at Tuckertown (13 percent) and Falls (14 percent) developments. Transmission lines are visually apparent at the Tuckertown Development as they cross the Yadkin River immediately downstream from Tuckertown Dam and are visible from the reservoir. A regional overhead transmission line extends along the west side of the reservoir and is visible at several locations along Tuckertown Reservoir. The powerlines at Falls Reservoir are not readily visible from the reservoir and this result may not be representative in that it is based on only 7 responses.

Development related elements (e.g., waterfront housing, docks/piers, bulkhead/rip rap, roads, lack of landscaping) are most common at High Rock and Narrows reservoirs where waterfront development occurs. These elements were generally not identified as significant detractors of visual quality, although respondents at Narrows Reservoir tended to be more sensitive to these

features than at High Rock Reservoir. Respondents were more apt to identify timber harvesting as a visual detractor than these development related elements.

Table 4-10 Comparison of Responses to the Elements thought to be Detractors from Scenic Quality

Detractors	High Rock		Tuckertown		Narrows		Falls	
	# of Responses	Response Rate	# of Responses	Response Rate	# of Responses	Response Rate	# of Responses	Response Rate
Floating Debris	996	75%	32	52%	323	54%	5	71%
Muddy Water	888	67%	19	31%	211	35%	4	57%
Exposed Lake Bottom	654	49%	2	3%	85	14%	0	0%
Eroding Shoreline	314	24%	13	21%	125	21%	5	71%
Timber Harvesting	124	9%	5	8%	157	26%	1	14%
Electric Transmission Lines	87	7%	8	13%	37	6%	1	14%
Project Dams	12	1%	3	5%	10	2%	1	14%
Docks/Piers	99	7%	2	3%	71	12%	1	14%
Waterfront Housing	71	5%	2	3%	47	8%	1	14%
Reservoirs	7	<1%	0	0%	6	1%	1	14%
Lack of Landscaping	103	8%	3	5%	63	11%	0	0%
Bulkheads/ Rip Rap	32	2%	2	3%	21	4%	0	0%
Roads	25	2%	1	2%	25	4%	0	0%
Other	56	4%	5	8%	38	6%	0	0%
None	26	2%	1	2%	26	4%	0	0%

5.0 SUMMARY AND CONCLUSIONS

The conclusions of the aesthetics evaluation of Project facilities and operations are presented below by reservoir. These conclusions are based on both the technical analysis of the KOPs and the constituent (users) analysis of survey responses and are compared against the Scenic Integrity rating of each reservoir area. Scenic integrity is a continuum ranging over five levels of integrity from very high (unaltered) to very low (heavily altered).

5.1 High Rock Development

The High Rock Development is the most developed of the four Project reservoirs with approximately 35 percent of the shoreline developed. The majority of the development is concentrated along the middle and lower portions of the reservoir. There are over 2,000 private piers and docks along the shoreline. Overall the area surrounding High Rock Reservoir is moderately altered and therefore it received a Low (moderately altered) Scenic Integrity rating.

Over half of the respondents rated High Rock Reservoir as "very attractive" or "somewhat attractive", with only nine percent of respondents rating it as "very unattractive" or "unattractive". Floating debris, muddy water, exposed lake bottom, and eroding shoreline were identified by recreational users as the primary detractors from scenic quality. The exposed lake bottom (identified as a detractor by 49 percent of responders) is primarily attributable to Project operations. Project facilities (e.g., High Rock Dam, electric transmission lines, High Rock Reservoir) were identified as detractors by less than 10 percent of respondents.

Table 5-1 summarizes the aesthetic effects of Project features. Overall, Project facilities are consistent with the moderately altered Scenic Integrity rating of the area. Project operations that result in significant water level drawdown adversely affect the visual quality of the Project area. The large number of viewers (over 2,000 waterfront residences), magnitude of the drawdown (average annual maximum drawdown is twelve feet), and duration of drawdown (usually several months) collectively increase the severity of this aesthetic impact.

5.2 Tuckertown Development

The Tuckertown Development is relatively undeveloped with nearly 90 percent of the shoreline in forest or agricultural uses. Although there are waterfront homes along Tuckertown Reservoir, there are no private piers or docks that intrude into the reservoir. The presence of overhead transmission lines alters the otherwise natural landscape and therefore, the Tuckertown Reservoir area received a Moderate (slightly altered) Scenic Integrity rating.

Table 5-1 High Rock Development Aesthetic Summary

Project Facility or Operational Effect	Technical Analysis (based on KOPs)	Constituent Analysis (based on surveys)	Comments
High Rock Reservoir	Compatible with Low Scenic Integrity rating and surrounding landscape	Rated as "Somewhat attractive" (Scenic Quality rating of 3.8/5.0). <1% identified as scenic detractor	Reservoir blends harmoniously into landscape and is compatible with Low (moderately altered) Scenic Integrity rating for surrounding area.
High Rock Dam (viewed from upstream)	Compatible with Low Scenic Integrity rating and surrounding landscape	1% identified as scenic detractor	Dam does not dominate view and is compatible in scale with surrounding landscape. Not identified as a primary scenic detractor by recreation users.
High Rock Dam (viewed from tailrace)	Large structure that dominates view	1-5% identified as scenic detractor	Dam is large structure that dominates view from tailwaters. Not identified as a primary scenic detractor by recreational users. Overall compatible with Low (moderately altered) Scenic Integrity rating of surrounding area.
Electric Transmission Lines	Compatible with Low Scenic Integrity rating and surrounding landscape	7% identified as scenic detractor	An overhead electric transmission line crosses the Yadkin River immediately below High Rock Dam, but is only visible from a limited number of locations and was not identified as a primary scenic quality detractor by recreational users. Overall the transmission line is compatible with the Low (moderately altered) Scenic Integrity rating of surrounding area.
Exposed Lake Bottom	Somewhat compatible with Low Scenic Integrity rating and surrounding landscape	49% identified as scenic detractor	Exposed lake bottom, which is primarily attributable to Project operations, adversely affects visual quality. The large number of viewers (over 2,000 waterfront residences), magnitude of drawdown (average annual maximum drawdown is 8 feet), and duration (often months) increase severity of impact.

Two-thirds of the respondents rated Tuckertown Reservoir as "very attractive" or "somewhat attractive", with only three percent of respondents rating it as "very unattractive" or "unattractive". Floating debris, muddy water, and eroding shorelines were identified by recreational users as the primary detractors from scenic quality. Project facilities (e.g., Tuckertown Dam, electric transmission lines, Tuckertown Reservoir) and operations (e.g., exposed lake bottom) were identified as detractors by less than 15 percent of respondents. Overhead electric transmission lines cross the Yadkin River immediately downstream of Tuckertown Dam and a regional transmission line runs along the west side of Tuckertown Reservoir and crosses Flat Creek and Riles Creek. Nevertheless, only about 13 percent of respondents identified electric transmission lines as aesthetic detractors.

Table 5-2 summarizes the aesthetic effects of Project features. Overall, Project facilities and operations at Tuckertown Reservoir are consistent with the slightly altered Scenic Integrity rating of the area.

5.3 Narrows Development

The Narrows Development is moderately developed with over 40 percent of the shoreline classified as residential. Overhead transmission lines and a railroad trestle cross the reservoir. Conversely, much of the eastern shoreline is within the Uwharrie National Forest and is undeveloped. Overall, the area surrounding the Narrows Development is slightly to moderately altered and therefore received a Low-Moderate Scenic Integrity rating.

Despite the effects of shoreline development, overhead transmission lines, and the railroad trestle, 78 percent of the respondents rated Narrows Reservoir as "very attractive" or "somewhat attractive". Nearly 60 percent of respondents rated Narrows Reservoir as "very attractive", while only seven percent of respondents rated the reservoir as "very unattractive" or "somewhat unattractive". Floating debris, muddy water, timber harvesting, and eroding shoreline were identified by recreational users as the primary detractors from scenic quality. Project facilities (e.g., Narrows Dam, electric transmission lines, Narrows Reservoir) were identified as detractors by less than 15 percent of respondents. The technical analysis identified the view of Narrows Dam from the tailwaters as being only somewhat compatible with the Low-Moderate Scenic Integrity rating of the surrounding area. The scale of the dam dominates the view from downstream. This impact is offset to some extent by the relatively small number of recreation users who view the dam from this perspective.

Water levels within Narrows Reservoir generally only fluctuate approximately 3 feet annually. Nevertheless, exposed lake bottom was identified by 14 percent of survey respondents as a detractor from scenic quality. This result may be at least partially attributable to a significant drawdown (approximately 16 feet) that occurred between Thanksgiving and Christmas 2003 to allow a fish and aquatics relicensing study to be performed. This magnitude of drawdown resulted in significant dewatering of several coves and exposed large expanses of muddy lake bottom. Drawdown of this magnitude is not compatible with the Low to Moderate Scenic Integrity rating of this area.

Table 5-3 summarizes the aesthetic effects of Project features. Overall, Project facilities and operations at Narrows Reservoir are consistent with the slightly to moderately altered Scenic Integrity rating of the area.

5.4 Falls Development

The Falls Development is the least developed of the four Yadkin developments with no waterfront residences and the Uwharrie National Forest encompassing the eastern half of the Falls Reservoir shoreline. Although Falls Dam and Reservoir represent man-made deviations from a natural landscape, the overall effect is still quite natural and the setting appears unaltered. Therefore, the Falls Reservoir area received a High Scenic Integrity rating.

The technical analysis of the KOPs identified views of Falls Dam (from both upstream and the tailwaters) and the overhead electric transmission lines as Project features that are only somewhat compatible with the High Scenic Integrity rating of the surroundings. Approximately 60 percent of the respondents rated Falls Reservoir as "very attractive" or "somewhat attractive", although there were not sufficient responses to ensure a statistically valid response. Floating debris, eroding shorelines, and muddy water were identified by recreational users as the primary detractors from scenic quality. Project facilities (e.g., Falls Dam, electric transmission lines, Falls Reservoir) and operations (e.g., exposed lake bottom) were identified as detractors by less than 15 percent of respondents.

Table 5-4 summarizes the aesthetic effects of Project features. Overall, Project facilities and operations at Falls Dam are generally compatible with the High Scenic Integrity rating of the area.

Table 5-2 Tuckertown Development Aesthetic Summary

Project Facility or Operational Effect	Technical Analysis (based on KOPs)	Constituent Analysis (based on surveys)	Comments
Tuckertown Reservoir	Compatible with Moderate Scenic Integrity rating and surrounding landscape	Rated as "somewhat attractive" (Scenic Quality rating of 4.1/5.0). 0% identified as scenic detractor	Reservoir blends harmoniously into landscape and is compatible with the Low to Moderate (slightly to moderately altered) Scenic Integrity rating for surrounding area.
Tuckertown Dam (viewed from upstream)	Compatible with Moderate Scenic Integrity rating and surrounding landscape	5% identified as scenic detractor	Tuckertown Dam does not dominate view and is compatible in scale with the surrounding landscape. Not identified as a primary scenic detractor by recreation users.
Tuckertown Dam (viewed from tailrace)	Somewhat compatible with Moderate Scenic Integrity rating and surrounding landscape	2-5% identified as scenic detractor	The tailwaters of Tuckertown Dam provide recreational users with long duration, direct, foreground view of the dam. The dam tends to dominate the view from this location, although the relatively low scale of the dam mitigates this effect to some extent. Overall, the dam is somewhat compatible with the Low to Moderate (slightly to moderately altered) Scenic Integrity rating for the surrounding area.
Electric Transmission Lines	Somewhat compatible with Moderate Scenic Integrity rating and surrounding landscape	13% identified as scenic detractor	Project overhead transmission lines cross the Yadkin River immediately downstream of dam and a non-Project transmission line crosses several tributaries on the west side of Tuckertown Reservoir. The Project transmission line, while visible, does not intrude on the view. Therefore, the transmission line is somewhat compatible with the Low to Moderate (slightly to moderately altered) Scenic Integrity rating for the surrounding area.
Exposed Lake Bottom	Compatible with Moderate Scenic Integrity rating and surrounding landscape	3% identified as scenic detractor	Under current operations, reservoir water levels fluctuate very little so there is little exposed lake bottom. Current operations are compatible with the surrounding landscape. During the study period Narrows Reservoir was drawn down approximately 16 feet below the full pool level. This magnitude of drawdown resulted in significant dewatering of several coves and exposed large expanses of muddy lake bottom. Drawdown of this magnitude is not compatible with the Low to Moderate Scenic Integrity rating of this area.

Table 5-3 Narrows Development Aesthetic Summary

Project Facility or Operational Effect	Technical Analysis (based on KOPs)	Constituent Analysis (based on surveys)	Comments
Narrows Reservoir	Compatible with Low-Moderate Scenic Integrity rating and surrounding landscape	Rated as "somewhat attractive" (Scenic Quality rating of 4.3/5.0). 1% identified as scenic detractor	Reservoir blends harmoniously into landscape and is compatible with Low-Moderate (slightly to moderately altered) Scenic Integrity rating of the surrounding area.
Narrows Dam (viewed from upstream)	Compatible with Low-Moderate Scenic Integrity rating and surrounding landscape	2% identified as scenic detractor	Dam does not dominate view and is compatible in scale with surrounding landscape. Not identified as a primary scenic detractor by recreation users.
Narrows Dam (viewed from tailrace)	Somewhat compatible with Low-Moderate Scenic Integrity rating and surrounding landscape	2-14% identified as scenic detractor	Narrows Dam viewed from the tailrace is a large and imposing structure. Further, a bridge and powerlines cross the Yadkin River immediately downstream of Narrows Dam. The scale of this structure dominates the field of view. Overall, Narrows Dam, as viewed from its tailwaters, is somewhat compatible with the Low-Moderate (slightly to moderately altered) Scenic Integrity rating of the surrounding area.
Electric Transmission Lines	Compatible with Low-Moderate Scenic Integrity rating and surrounding landscape	6% identified as scenic detractor	Overhead electric transmission lines cross reservoir near City of Baden, but are not visible from most of the reservoir. The transmission line is compatible with Low-Moderate (slightly to moderately altered) Scenic Integrity rating of surrounding area.
Exposed Lake Bottom	Compatible with Low-Moderate Scenic Integrity rating and surrounding landscape	14% identified as scenic detractor	Exposed lake bottom, which is at least partially attributable to Project operations, adversely affects visual quality. The large number of viewers (over 1,000 waterfront residences) increases severity of impact. Significance of impact offset to some extent by magnitude of drawdown (average annual maximum only approximately 3 feet) and by Low-Moderate (slightly to moderately altered) Scenic Integrity rating of surrounding area. Overall reservoir is compatible with the surrounding area.

Table 5-4 Falls Development Aesthetic Summary

Project Facility or Operational Effect	Technical Analysis (based on KOPs)	Constituent Analysis[1] (based on surveys)	Comments
Falls Reservoir	Compatible with High Scenic Integrity rating and surrounding landscape	Rated as "somewhat attractive" (Scenic Quality rating of 3.8/5.0). 14% identified as scenic detractor	Reservoir blends harmoniously into landscape and is compatible with High (appears unaltered) Scenic Integrity rating of the surrounding area.
Falls Dam (viewed from upstream)	Somewhat compatible with High Scenic Integrity rating and surrounding landscape	14% identified as scenic detractor	Falls Dam does not dominate view and is compatible in scale with the surrounding landscape. However, it deviates from the natural landscape character by introducing a man-made feature with engineered lines and artificial colors and textures. Therefore, it is somewhat compatible with the High (appears unaltered) Scenic Integrity rating for the surrounding area.
Falls Dam (viewed from tailrace)	Somewhat compatible with High Scenic Integrity rating and surrounding landscape	14% identified as scenic detractor	Falls Dam does not dominate view and is compatible in scale with surrounding landscape. However, it deviates from the natural landscape character by introducing a man-made feature with engineered lines and artificial colors and textures. Therefore, it is somewhat compatible with the High (appears unaltered) Scenic Integrity rating for the surrounding area.
Electric Transmission Lines	Somewhat compatible with High Scenic Integrity rating and surrounding landscape	14% identified as scenic detractor	Overhead electric transmission lines cross Falls Reservoir immediately downstream of Narrows Dam and across one tributary on the west side of Falls Reservoir. The transmission lines are not readily apparent, but are visible. The transmission line is somewhat compatible with the High (appears unaltered) Scenic Integrity rating for the surrounding area.
Exposed Lake Bottom	Compatible with High Scenic Integrity rating and surrounding landscape	0% identified as scenic detractor	Reservoir water levels fluctuate very little, so there is little exposed lake bottom. Compatible with the surrounding landscape.

[1] Low number of survey responses weakens confidence in the Falls Development results.

5.5 Alternative Project Operations

High Rock Reservoir is operated in a store and release mode that results in reservoir drawdowns, especially during the fall and winter, with an average annual maximum drawdown of approximately 12 feet. This drawdown adversely affects the aesthetics of the Project area by revealing a muddy lake bottom. Nearly 50 percent of survey respondents (and over 55 percent of waterfront and non-waterfront residents) identified exposed lake bottom as detracting from visual quality. To evaluate the effect of alternative Project operations on aesthetics in the Project area, ERM considered three different water level scenarios for High Rock Reservoir. These alternatives included: 1) maintaining the reservoir "near-full" (within 3 feet of full) year round, 2) extending the season during which the reservoir is maintained "near-full" and reducing the total magnitude of the winter drawdown, and 3) increasing the winter drawdown and maintaining summer levels within 5 feet of full in order to use additional storage. Each of these alternatives is evaluated below.

Alternative 1 would maintain relatively high water levels year-round at with a maximum drawdown of approximately 3 feet below normal full pond. This would significantly reduce the magnitude of drawdown at High Rock Reservoir and eliminate seasonal drawdowns. Reservoir operations at High Rock would be similar to those that currently occur at Narrows Reservoir. Only about 14 percent of survey respondents identified exposed lake bottom as a visual detractor at the Narrows Development, significantly less than at High Rock Reservoir. Alternative 1 would improve the aesthetics of the reservoir from "somewhat compatible" to "compatible" with the area's Scenic Integrity rating of Low.

Alternative 2 is a modification of existing reservoir operations. Under this alternative, APGI would raise water levels earlier in the spring (early March rather than early April) and would maintain the higher water levels later into the fall (early November rather than mid- September) before beginning the seasonal drawdown. By extending the period of higher water levels, APGI would provide relatively high water levels (maximum of three-foot drawdown) for about 92 percent of the annual recreational use at High Rock Reservoir, versus 63 percent under existing conditions (see ERM, 2004). This alternative would still retain, however, the same magnitude of seasonal drawdown (12 feet), albeit for a shorter duration, as existing conditions. This seasonal drawdown still adversely affects the aesthetics of the reservoir, especially for year-round waterfront residents (approximately 55 percent of total waterfront residents). Alternative 2 would improve the aesthetics of the reservoir, but the reservoir would remain only "somewhat compatible" with the area's Scenic Integrity rating of Low.

Alternative 3 could potentially result in lower water levels during the entire year in comparison with existing conditions. The potential magnitude of the drawdown would increase from about 12 feet to as much as 20 feet during the fall and winter (November thru March), and from about 3 feet to as much as 5 feet during the spring and summer (May thru September). The large number of viewers (over 2,000 waterfront residences and 1.2 million recreation days), the magnitude of the seasonal drawdown (20 feet), the extent of the potential summer drawdown when recreational use is high (5 feet), and the duration of the drawdown collectively increase the severity of the aesthetic impact.

Water level Alternative 3 would degrade the aesthetics of the reservoir from "somewhat compatible" to "not compatible" with the area's Scenic Integrity rating.

Table 5-5 compares each of the three alternatives to existing conditions.

Table 5-5 Comparison of High Rock Water Level Alternatives

Alternatives	Number of Viewers	Magnitude of Maximum Seasonal Drawdown	Duration of Maximum Seasonal Drawdown	Percent of Rec Days Affected by Seasonal Drawdown	Compatibility
Existing Conditions	Large (over 2,000 households and 1.2 million recreation days)	3 -12 feet	5 months	37%	Somewhat Compatible
Alternative 1	Large (over 2,000 households and 1.2 million recreation days)	3 feet	0 months	0%	Compatible
Alternative 2	Large (over 2,000 households and 1.2 million recreation days)	3 – 12 feet	3 months	8%	Somewhat Compatible
Alternative 3	Large (over 2,000 households and 1.2 million recreation days)	5 – 20 feet	5 months	37%	Not Compatible

5.6 Conclusions

Overall, existing Yadkin Project facilities and reservoir operations are generally consistent with the existing Scenic Integrity of the Project area. Those Project facilities or reservoir operations that are only somewhat compatible are listed below:

- High Rock Development – reservoir operations, which generally results in exposed lake bottom for several months a year is only somewhat compatible with the area's Low Scenic Integrity rating.
- Tuckertown Development – views of the overhead transmission lines that cross the Yadkin River immediately downstream of Tuckertown Dam are only somewhat compatible with the area's Moderate Scenic Integrity rating.
- Narrows Development – views of the overhead transmission lines that cross the reservoir near the Town of Badin, Narrows Dam from the tailwaters, and the Cove Boat Landing (during construction) are only somewhat compatible with the area's Low to Moderate Scenic Integrity rating.
- Falls Development – views of Falls Dam from both upstream and downstream, the overhead transmission lines, the Deepwater Cove Trail recreation area, and the Falls Reservoir Boat Access are only somewhat compatible with the area's High Scenic Integrity rating.

There is little opportunity for APGI to modify the visual effect of the existing dams and powerlines. However, two of the alternative water level scenarios (Alternatives 1 and 2) would reduce both the duration and magnitude of reservoir drawdown relative to existing conditions, which would improve the visual appearance of High Rock Reservoir. The other alternative (Alternative 3) would significantly detract from the scenic quality of the reservoir by increasing the magnitude and duration of reservoir drawdown at High Rock.

In addition to evaluating the potential effects of these alternative water level scenarios on Project aesthetics at High Rock Reservoir, a drawdown at Narrows Reservoir in the winter of 2003 to conduct a fish and aquatics relicensing study provided ERM an opportunity to document the impacts of a drawdown on Project aesthetics at Narrows Reservoir, should alternative Project operations at Narrows Reservoir be contemplated in the future. The December 2003 drawdown of Narrows Reservoir was approximately 16-ft below normal full pool and exposed a large amount of shoreline and lake bottom. The scenic quality of Narrows Reservoir appears highly altered during a drawdown of this magnitude.

6.0 REFERENCES

ERM, 2004. Draft Yadkin Hydroelectric Project Recreation Use Assessment, December 2004. Prepared by ERM, Annapolis, MD.

U.S. Forest Service, 1995. Landscape Aesthetics, A Handbook for Scenery Management. Agriculture Handbook Number 701.

Appendix A

Standardized Visitor Use Survey forms

- English
- Spanish

Interviewer: _____
Location: _____

YADKIN PROJECT
VISITOR USE SURVEY

Date: _____
Time: _____

The Yadkin Division of Alcoa Power Generating Inc., which manages this reservoir, has hired ERM to conduct a recreation use survey at High Rock, Tuckertown, Narrows (Badin Lake), and Falls reservoirs. This information will be used to help improve recreation opportunities. Please take a few minutes to answer these questions. Your experience and opinions are important to us.

THE FOLLOWING QUESTIONS RELATE TO YOUR TRIP TO THE RESERVOIR *TODAY*.

1. Please check all of the activities that you have participated in, or will participate in, during your trip to the reservoir ***today***.

motor boating	_____	swimming	_____	picnicking	_____	camping	_____
boat fishing	_____	jet skiing	_____	sun bathing	_____	hunting	_____
bank fishing	_____	water skiing	_____	sailing	_____	hiking	_____
canoeing/kayaking	_____	windsurfing	_____	other	_____		

2. From the list above, which one was your primary activity (the main reason for your trip to the reservoir) ***today***? _____

3. How many people came in your vehicle to the reservoir ***today***, including yourself?
   Number of adults (16 years or older) _____
   Number of children (less than 16 years) _____

4. How long will you be staying at the reservoir ***today***?
   _____ Day Trip – How many hours do you plan to spend at the reservoir today? _____ hours
   _____ Overnight – How many nights do you plan to stay at the reservoir on this trip? _____ nights

   If you are staying overnight, please indicate below where you are staying:

Staying at my house	_____	Local hotel/motel	_____
Staying at my vacation home	_____	Tent camping	_____
Staying at a friend's house	_____	Trailer or RV camping	_____
Renting a house near the reservoir	_____	Other	

5. We would like to know whether you have encountered certain conditions at this reservoir that interfered with your recreation experience ***today***. Please check whether each of the following was a big, moderate, slight, or not a problem on your trip ***today***.

	Big Problem	Moderate Problem	Slight Problem	Not a Problem
Too many people along the shoreline	☐	☐	☐	☐
Crowded conditions at boat launches	☐	☐	☐	☐
Crowded parking conditions	☐	☐	☐	☐
Too many watercraft on this reservoir	☐	☐	☐	☐
Low water levels at this reservoir	☐	☐	☐	☐
Improper disposal of litter, trash, or toilet paper	☐	☐	☐	☐
Conflicts with other recreational users	☐	☐	☐	☐
Loud, rude or inconsiderate behavior by other users	☐	☐	☐	☐
Boating hazards (e.g., stumps, shallow areas)	☐	☐	☐	☐
Lack of sanitary facilities (Port-a-johns)	☐	☐	☐	☐

6. How crowded was this reservoir ***today***? (circle number)

Not Crowded				Very Crowded
1	2	3	4	5

7. Please estimate the total expenditures that will be made by all members of your group ***today***, or will be made before you get home, on the following items. Include all expenses incurred for the purposes of making this trip.

Restaurants and drinking places	$ _____	Gasoline (car/boat)	$ _____
Food stores (i.e., groceries)	$ _____	Equipment Rental	$ _____
Other recreation services (e.g., fishing guide, boat tour)	$ _____	General merchandise stores (misc. supplies)	$ _____
Bait/Tackle	$ _____	Repair Service (car/boat)	$ _____
Lodging (motel/house rental)	$ _____	Other _____	$ _____

THE FOLLOWING QUESTIONS RELATE TO YOUR GENERAL EXPERIENCE AT THIS RESERVOIR, BUT ARE *NOT* *LIMITED TO TODAY*.

8. Please evaluate the condition of each of the following facilities at this reservoir. (check appropriate box)

	Excellent	Very Good	Acceptable	Mostly inadequate	Totally Inadequate	Don't know/ Not applicable
Boat ramps/docks						
Parking areas						
Marinas						
Campgrounds						
Swimming beaches						
Toilets (Port-a-johns)						
Fishing Piers						
Lighting						
Informational Signage						
Picnic Tables/Grills Trash Receptacles						

If you feel any of the facilities at this reservoir are "mostly inadequate" or "totally inadequate", please explain why. _____

_____

9. Are there any other activities or services that are currently not available, but that would improve your recreational experience?

_____

10. How would you rate the scenic quality of this reservoir area? (circle answer below)

Very Unattractive Somewhat Unattractive Average Somewhat Attractive Very Attractive

11. Please circle any of the following that detract from the scenic quality of this area?

Project dams Waterfront housing Electric transmission lines Exposed lake bottom Reservoirs

Docks/piers Timber harvesting Floating debris/trash Bulkheads/rip rap Muddy water

Lack of landscaping at public access areas Roads Eroding shoreline Other _____ None

THE FOLLOWING ARE SOME GENERAL BACKGROUND QUESTIONS

12. What is the zip code of your primary residence? _____

13. Do you own waterfront property on any of the Yadkin Project reservoirs? No ( )
Yes, at High Rock Reservoir ( ) Yes, at Tuckertown Reservoir ( ) Yes, at Narrows Reservoir/Badin Lake ( )

15. Please circle below the type and number of watercraft that you brought with you to the reservoir today.

Powerboats 0 1 2 3 Jet skis 0 1 2 3 Canoe/kayaks 0 1 2 3 Sailboats/boards 0 1 2 3

16. What is your age? less than 16 ☐ 16-21 ☐ 22-45 ☐ 46-65 ☐ over 65 ☐

Are you male _____ or female _____?

17. Do you have any other comments regarding your recreation experience at this reservoir?

Thank you for taking the time to complete this survey!!!

ALCOA

Entrevistador: _____
Lugar: _____

PROYECTO YADKIN
ENCUESTA DE USO POR VISITANTES

Fecha: _____
Hora: _____

La División Yadkin de Alcoa Power Generating Inc., que maneja esta represa, ha contratado a ERM para conducir una encuesta de uso de recreo en las represas High Rock, Tuckertown, Narrows (Lago Badin) y Falls. Esta información será utilizada para ayudar a mejorar las oportunidades de recreo. Favor de tomar unos minutos para contestar estas preguntas. Su experiencia y opiniones son importantes para nosotros.

LAS SIGUIENTES PREGUNTAS ESTÁN RELACIONADAS CON SU VISITA A LA REPRESA *HOY*.

1. Favor de marcar todas las actividades en las cuales usted ha participado o participará durante su visita a la represa ***hoy***.

correr bote a motor	_____	nadar	_____	picnic	_____	acampar	_____
pescar desde un bote	_____	correr jet ski	_____	tomar sol	_____	cazar	_____
pescar desde la orilla	_____	esquiar	_____	navegar	_____	caminar	_____
pasear en canoa / kayak	_____	hacer windsurfing	_____	otro	_____		

2. De la lista anterior, ¿cuál fue su actividad primaria (la razón principal por su visita a la represa) ***hoy***? _____

3. ¿Cuantas personas viajaron en su vehículo a la represa *hoy*, incluyendo a usted?
   Número de adultos (16 años o mayor) _____
   Número de niños (menor de 16 años) _____

4. ¿Cuánto tiempo se quedará en la represa *hoy*?
   _____ Viaje de un solo día – ¿Cuántas horas piensa pasar en la represa hoy? _____ horas
   _____ Pasar la noche – ¿Cuántas noches piensa pasar en la represa durante este viaje? _____ noches

   Si usted se pasará la noche, favor de indicar abajo en donde se quedará:

en mi casa	_____	hotel/ motel local	_____
en mi casa de vacaciones	_____	acampar en caseta	_____
en la casa de un amigo	_____	acampar en trailer o RV	_____
en una casa alquilada cerca a la represa	_____	otro	

5. Nos gustaría saber si usted ha encontrado ciertas condiciones en esta represa que han interferido con su experiencia de recreo *hoy*. Favor de marcar si lo siguiente fue un problema mayor, moderado o menor, o ningún problema para su visita *hoy*.

	Problema Mayor	Problema Moderado	Problema Menor	Ningún Problema
Demasiadas personas en la orilla	☐	☐	☐	☐
Condiciones sobrecargadas en las botaduras de botes	☐	☐	☐	☐
Demasiados botes en esta represa	☐	☐	☐	☐
Nivel de agua bajo en esta represa	☐	☐	☐	☐
Disposición inadecuada de basura o papel sanitario	☐	☐	☐	☐
Conflictos con otros visitantes	☐	☐	☐	☐
Comportamiento alborotoso, ofensivo o desconsiderado de otros visitantes a la represa	☐	☐	☐	☐
Peligros para botes (cepas, áreas de poca profundidad)	☐	☐	☐	☐
Disponibilidad de facilidades sanitarias (letrinas portátiles)	☐	☐	☐	☐

6. ¿Cuán llena de personas estaba la represa *hoy*? (haga un círculo al número apropiado)

No lleno				Muy lleno
1	2	3	4	5

7. Favor de estimar los gastos totales de todos los miembros de su grupo *hoy*, o antes de llegar a casa, en las siguientes cosas. Favor de incluir todos los gastos incurridos relacionados con este viaje.

Restaurantes y locales de beber	$ _____	Gasolina (auto/ bote)	$ _____
Tiendas de comida (comestibles)	$ _____	Alquiler de equipo	$ _____
Otros servicios de recreo (guía de pescar, tour en bote)	$ _____	Tienda de mercancía general (provisiones misc.)	$ _____
Carnada / aparejo	$ _____	Reparaciones (auto/ bote)	$ _____
Hospedaje (hotel / alquiler casa)	$ _____	Otro _____	$ _____

LAS SIGUIENTES PREGUNTAS ESTÁN RELACIONADAS A SU EXPERIENCIA GENERAL EN ESTA REPRESA, PERO *NO ESTÁN LIMITADAS A HOY*

8. Favor de evaluar la condición de cada una de las instalaciones en esta represa (marcar caja apropiada)

	Excelente	Muy bueno	Aceptable	Mayormente inadecuado	Totalmente inadecuado	No sé/ No aplica
Botaduras/ muelles						
Estacionamientos						
Marinas						
Áreas de acampar						
Playas de nadar						
Servicios sanitarios (letrinas portátiles)						
Muelles para pescar						
Alumbramiento						
Letreros de información						
Mesas de picnic/ parillas Receptáculos para basura						

Si usted opina que algunas de las instalaciones de esta represa están "mayormente inadecuadas" o "totalmente inadecuadas" favor de explicar porqué._____

_____

9. ¿Hay algunas actividades o servicios que no están actualmente disponible, pero que mejorarían su experiencia recreativa?

_____

10. ¿Cómo calificaría usted la calidad pintoresca de esta área de represa? (favor de hacer un círculo a su contestación abajo)

Muy feo Un poco feo Promedio Atractivo Muy atractivo

11. Favor de marcar en las siguientes las cosas que quitan la calidad a las vistas del área.

Diques	Casas frente al agua	Líneas eléctricas	Fondo de lago expuesto	Represas
Muelles	Corte de árboles	Basura flotante	Mamparas / escollo	Agua fangosa
Falta de jardinería ornamental en áreas públicas	Carreteras	Erosión de orillas	Otro _____	

LAS SIGUIENTES SON ALGUNAS PREGUNTAS GENERALES

12. ¿Cuál es el código postal de su residencia principal? _____

13. ¿Es usted es dueño de alguna propiedad frente al agua de alguna represa del Proyecto Yadkin?
Sí en la Represa High Rock ( ) Sí en la Represa Tuckertown ( ) Sí en la Represa Narrows/ Lago Badin ( ) No ( )

15. Favor de marcar abajo el tipo y número de embarcaciones que usted trajo a la represa hoy.

Bote con motor 0 1 2 3 Jet ski 0 1 2 3 Canoa/ kayak 0 1 2 3 Velero/ tabla de vela 0 1 2 3

16. ¿Cuántos años tiene? Menos de 16 ☐ 16-21 ☐ 22-45 ☐ 46-65 ☐ Más de 65 ☐

Sexo: masculino _____ femenino _____

17. ¿Tiene algún otro comentario relacionado con su experiencia recreativa en esta represa?

¡Gracias por tomar el tiempo para completar esta encuesta!

ALCOA

Appendix B

Residential Use Survey form

- Cover Letter
- Standardized RUS form

PLEASE READ THIS IF YOU LIVE OR OWN PROPERTY ADJACENT TO A YADKIN PROJECT RESERVOIR (LAKE)

YADKIN HYDROELECTRIC PROJECT (FERC No. 2197)
RESIDENT USE SURVEY

The Yadkin Division of Alcoa Power Generating Inc. (Yadkin), a subsidiary of Alcoa, has initiated the relicensing process for the Yadkin Hydroelectric Project. The Yadkin Project is currently licensed by the Federal Energy Regulatory Commission (FERC). This license expires in 2008 and Yadkin must file a new license application with FERC in 2006 to continue operation of the Project. The Yadkin Project consists of four reservoirs (lakes), dams, and powerhouses, High Rock Reservoir (High Rock Lake), Tuckertown Reservoir (Tuckertown Lake), Narrows Reservoir (Badin Lake), and Falls Reservoir (Falls Lake).

The relicensing process must consider a variety of resources, including recreational use of the Project lands and reservoirs (lakes). Yadkin has hired a consulting firm, ERM, to conduct a recreation use survey at the Yadkin Project. In order to better assess recreational use of the Project reservoirs (lakes), Yadkin permit holders will be sent this Resident Use Survey. This information will be used to help assess and possibly enhance recreational use and opportunities at the Yadkin Project.

In this survey, you are being asked to provide information on your recreational use of the Project reservoirs (lakes) ***for just last month.*** Yadkin permit holders will receive one of 12 monthly mailings asking about their recreational use of the Project reservoirs (lakes) for the past month. You have been randomly selected to receive this survey this month. Please do not be concerned if your neighbors did not also receive a survey this month. The intent is to try to survey all Yadkin permit holders, so eventually all permit holders should receive the survey, if they have not already.

The reason you are only being asked about recreational use for the past month is to help make this survey as accurate as possible. The accuracy of the survey is greatly enhanced using this approach, since it only requires the person answering the survey to recall one month's worth of recreational activity. The results of the survey responses will be used to estimate total annual recreational use for ***all*** Yadkin permit holders. Ultimately, recreation use estimates will be used by FERC to evaluate the recreational value of the Yadkin Project when considering a new license for the Project.

Please be as accurate as you can about your ***actual*** recreational use last month, even if it reflects more or less recreational use than normal. Your individual responses are important and will be kept completely confidential. If you have any questions regarding this survey, please do not hesitate to contact Karen Wilson at (410) 266-0006 during normal working hours or via email at karen.wilson@erm.com. ***Please return this survey as soon as possible.*** A stamped addressed return envelope has been provided for your convenience.

THANK YOU!!!!!

David W. Blaha, AICP
ERM
200 Harry S. Truman Parkway, Annapolis, MD 21401

YADKIN PROJECT
RESIDENT USE SURVEY

The Yadkin Division of Alcoa Power Generating Inc. has hired ERM to conduct a recreation use survey at High Rock, Tuckertown, Narrows (Badin Lake), and Falls Reservoirs (collectively the Yadkin reservoirs). This information will be used to help improve recreation opportunities. Please take a few minutes to answer these questions. Your experience and opinions are important to us.

1. Check the reservoir on which you own waterfront property. ( ) High Rock ( ) Tuckertown ( ) Narrows (Badin Lake)

2. Approximately how many days during *March 2004* did you spend at your waterfront home?
   _____ days (maximum of 31 days)

3. How many people usually stayed at your waterfront home during *March 2004*?
   Number of adults (16 years or older) _____
   Number of children (less than 16 years) _____
   Please also estimate the number of "visitor days" (the sum of each guest that you had times the number of days each guest stayed at your waterfront home and used the reservoir during *March 2004*).
   Number of guests during *March 2004*: _____ guests. Total number of visitor days during *March 2004:* _____ "visitor days"

4. **Please have the adult and child (if applicable) in your household whose birthdays are closest to July 1st answer this survey question.** About how many days during *March 2004* did this adult and this child (together with other household members, or individually) participate in the following activities, as their *principal recreational activity*, on the reservoir? For example, let's say both the adult and child answering this question went motor boating on a Project reservoir about 21 times during *March 2004.* If fishing was their principal recreational activity (e.g., the reason they went out on their boat) 12 of these times, and the other 9 times they simply went boating, then you would write in "12" next to boat fishing and a "9" next to motor boating in both the adult and child columns below. ***Please estimate the number of days of participation in each recreational activity. Please always estimate a number – do not write in "a lot".***

Recreational Activity	Number of days the **adult** with the birthday closest to July 1st participated in the following recreational activities during *March 2004*.	Number of days the **child** with the birthday closest to July 1st participated in the following recreational activities during *March 2004*.
motor boating		
boat fishing		
bank fishing		
canoeing/kayaking		
swimming		
jet skiing		
water skiing		
camping		
windsurfing		
picnicking		
hiking		
sun bathing		
sailing		
other (please list)		

5. How crowded was the reservoir where you live on a typical Saturday or Sunday during *March 2004*?

(circle number).

Not Crowded ⟷ Very Crowded
1 2 3 4 5

6. We would like to know whether you have encountered certain conditions at this reservoir that interfered with your recreation experience. Please check whether each of the following is a big, moderate, slight, or not a problem.

	Big Problem	Moderate Problem	Slight Problem	Not a Problem
Too many people along the shoreline	☐	☐	☐	☐
Too many watercraft on this reservoir	☐	☐	☐	☐
Low water levels at this reservoir	☐	☐	☐	☐
Improper disposal of litter, trash, or toilet paper	☐	☐	☐	☐
Conflicts with other recreation users	☐	☐	☐	☐
Loud, rude or inconsiderate behavior by other users	☐	☐	☐	☐
Boating hazards (e.g., stumps, shallow areas)	☐	☐	☐	☐

7. If your waterfront home is your primary residence, please provide the information requested in section **A**. If you use this waterfront home for seasonal or weekend use, and it is not your primary residence, or if you are renting this home for the purpose of vacation or recreation, please provide the information requested in section **B**.

A. ***If your waterfront home is your primary residence,*** please estimate the total expenditures that were made by all members of your household during *March 2004* for the following recreational or entertainment activities that were conducted at the Yadkin Reservoirs. Please do **NOT** include normal household expenditures for daily activities that are not associated with recreation on the Yadkin reservoirs

Restaurants and drinking places (only if at a lakeview establishment)	$	Gasoline (boat)	$
Use fees (e.g., launch fees, slip rental)	$	Equipment Rental	$
Other reservoir-related recreation services (e.g., fishing guides, boat tours)	$	General merchandise stores (recreational supplies only)	$
Bait/Tackle/ammunition	$	Repair Service (boat)	$
Seasonal boat rental fee	$	Guide/Outfitters services	$
		Other	$

B. ***If you use your waterfront home for seasonal or weekend use,*** please estimate the total expenditures that were made by all members of your household during *March 2004*. Include all expenses incurred during your stay at your waterfront home during *March 2004*.

Restaurants and drinking places	$	Gasoline (car/boat)	$
Food stores (i.e., groceries)	$	Equipment Rental	$
Other recreation services (e.g., fishing guides, boat tours, movies)	$	General merchandise stores (misc. supplies)	$
Bait/Tackle/ammunition	$	Repair Service (car/boat)	$
Lodging	$	Guide/Outfitter services	$
Use fees (i.e., boat launch, slip rental)	$	Other _____	$

8. How often do you use any public boat launch areas? Frequently ( ) Commonly ( ) Occasionally ( ) Rarely ( )

9. Please circle below the type and number of watercraft that you keep at your waterfront home.

Powerboats 0 1 2 3 Jet skis 0 1 2 3 Canoe/kayaks 0 1 2 3 Sailboats/boards 0 1 2 3

10. How would you rate the scenic quality of this reservoir (circle answer below)?

Very Unattractive Somewhat Unattractive Average Somewhat Attractive Very Attractive

11. Please circle any of the following that detract from the scenic quality of this area. (circle answers below)

Project dams Waterfront housing Electric transmission lines Exposed lake bottom Reservoirs

Docks/piers Timber harvesting Floating debris/trash Bulkheads/rip rap Muddy water

Lack of landscaping at public recreation areas Roads Eroding shoreline None Other _____

12. What is your age? less than 16 ☐ 16-21 ☐ 22-45 ☐ 46-65 ☐ over 65 ☐

Are you male _____ or female _____?

Do you have any other comments regarding your recreation experiences at this reservoir?

Thank you for taking the time to complete this survey!!! Please return this survey in the enclosed stamped envelope.

If you have any questions regarding this survey, please contact Karen Wilson at karen.wilson@erm.com or (410) 266-0006.

Appendix C

Private Communities Use Survey form

- Cover Letter
- Standardized PCUS form

PLEASE READ THIS IF YOU LIVE OR OWN PROPERTY IN A WATERFRONT COMMUNITY ON A YADKIN PROJECT RESERVOIR (LAKE)

YADKIN HYDROELECTRIC PROJECT (FERC No. 2197)
PRIVATE COMMUNITY RESIDENT USE SURVEY

The Yadkin Division of Alcoa Power Generating Inc. (Yadkin), a subsidiary of Alcoa, has initiated the relicensing process for the Yadkin Hydroelectric Project. The Yadkin Project is currently licensed by the Federal Energy Regulatory Commission (FERC). This license expires in 2008 and Yadkin must file a new license application with FERC in 2006 to continue operation of the Project. The Yadkin Project consists of four reservoirs (lakes), dams, and powerhouses, High Rock Reservoir (High Rock Lake), Tuckertown Reservoir (Tuckertown Lake), Narrows Reservoir (Badin Lake), and Falls Reservoir (Falls Lake).

The relicensing process must consider a variety of resources, including recreational use of the Project lands and reservoirs (lakes). Yadkin has hired a consulting firm, ERM, to conduct a recreation use survey at the Yadkin Project. In order to better assess recreational use of the Project reservoirs (lakes), residents in private communities will be sent this Waterfront Community Resident Use Survey. This information will be used to help assess and possibly enhance recreational use and opportunities at the Yadkin Project.

You have been randomly selected to receive this survey. Please do not be concerned if your neighbors did not also receive a survey. The intent is to survey a random sample of all private community residents.

In this survey, you are being asked to provide information on your recreational use of the Project reservoirs (lakes) for a three month period**.** The reason you are only being asked about recreational use for these three months is to help make this survey as accurate as possible. Studies show that people's recollections of activities over longer periods (for example an entire year) are not as accurate. The accuracy of the survey is greatly enhanced using this approach. The results of the survey responses will be used to estimate total annual recreational use for ***all*** Yadkin private community residents. Ultimately, recreation use estimates will be used by FERC to evaluate the recreational value of the Yadkin Project when considering a new license for the Project.

Please be as accurate as you can about your ***actual*** recreational use during these three months, even if it reflects more or less recreational use than normal. Your individual responses are important and will be kept completely confidential. If you have any questions regarding this survey, please do not hesitate to contact Karen Wilson at (410) 266-0006 during normal working hours or via email at karen.wilson@erm.com. ***Please return this survey as soon as possible.*** A stamped addressed return envelope has been provided for your convenience.

THANK YOU!!!!!

David W. Blaha, AICP
ERM
200 Harry S. Truman Parkway, Annapolis, MD 21401

YADKIN PROJECT
PRIVATE COMMUNITY RESIDENT USE SURVEY

The Yadkin Division of Alcoa Power Generating Inc. has hired ERM to conduct a recreation use survey at High Rock, Tuckertown, Narrows (Badin Lake), and Falls Reservoirs (collectively the Yadkin reservoirs). This information will be used to help improve recreation opportunities. Please take a few minutes to answer these questions. Your experience and opinions are important to us.

1. Please indicate the name of your community. _____
   Please check which reservoir your community is on ( ) High Rock ( ) Tuckertown ( ) Narrows (Badin Lake)

2. Do you own waterfront property on a Yadkin reservoir (lake)? Yes ( ) No ( )

3. Approximately how many days in March, April and May did you spend at your Yadkin reservoir home?
   _____ days (maximum of 92 days)

   If this is not your primary residence, please provide the zip code of your primary residence _____.

4. How many people usually stayed at your Yadkin reservoir home during March, April and May?
   Number of adults (16 years or older) _____
   Number of children (less than 16 years) _____

5. **Please have the adult and child (if applicable) in your household whose birthdays are closest to July 1st answer this survey question.** About how many days during March, April and May did this adult and this child (together with other household members, or individually) participate in the following activities, as their *principal recreational activity*, on the reservoir? For example, let's say both the adult and child answering this question went motor boating on a Project reservoir about 21 times during this period. If fishing was their principal recreational activity (e.g., the reason they went out on their boat) 12 of these times, and the other 9 times they simply went boating, then you would write in "12" next to boat fishing and a "9" next to motor boating in both the adult and child columns below. ***Please estimate the number of days of participation in each recreational activity. Please always estimate a number – do not write in "a lot".***

Recreational Activity	Number of days the **adult** with the birthday closest to July 1st participated in the following recreational activities during March, April and May	Number of days the **child** with the birthday closest to July 1st participated in the following recreational activities during March, April and May
motor boating		
boat fishing		
bank fishing		
canoeing/kayaking		
swimming		
jet skiing		
water skiing		
camping		
windsurfing		
picnicking		
hiking		
sun bathing		
sailing		
other (please list)		

6. How crowded was the reservoir where you live on a typical Saturday or Sunday during the spring of 2004 (circle number).

   Not Crowded ← → Very Crowded
   1 2 3 4 5

7. How often do you use any boat launches other than those in your waterfront community?
   Frequently ( ) Commonly ( ) Occasionally ( ) Rarely ( )

8. Please circle below the type and number of watercraft that you keep at your Yadkin reservoir home.

   Powerboats 0 1 2 3 Jet skis 0 1 2 3 Canoe/kayaks 0 1 2 3 Sailboats/boards 0 1 2 3

9. We would like to know whether you have encountered certain conditions at this reservoir that interfered with your recreation experience. Please check whether each of the following is a big, moderate, slight, or not a problem at this reservoir.

	Big Problem	Moderate Problem	Slight Problem	Not a Problem
Too many people along the shoreline	☐	☐	☐	☐
Crowded conditions at boat launches	☐	☐	☐	☐
Too many watercraft on this reservoir	☐	☐	☐	☐
Low water levels at this reservoir	☐	☐	☐	☐
Improper disposal of litter, trash, or toilet paper	☐	☐	☐	☐
Conflicts with other recreational users	☐	☐	☐	☐
Loud, rude or inconsiderate behavior by other users	☐	☐	☐	☐
Boating hazards (e.g., stumps, shallow areas)	☐	☐	☐	☐

10. If your Yadkin reservoir home is your primary residence, please provide the information requested in section **A**. If you use your Yadkin reservoir home for seasonal or weekend use, and it is not your primary residence, please provide the information requested in section **B**.

A. ***If your Yadkin reservoir home is your primary residence,*** please estimate the total expenditures that were made by all members of your household during ***just*** the month of April 2004 for the following recreational or entertainment activities that were conducted at the Yadkin Reservoirs. Please do **NOT** include normal household expenditures for daily activities that are not associated with recreation on the Yadkin reservoirs

Restaurants and drinking places (only if at a lakeview establishment)	$ _____	Gasoline (boat)	$ _____
Other reservoir-related recreation services (e.g., fishing guides)	$ _____	General merchandise stores (recreational supplies only)	$ _____
Bait/Tackle/ammunition	$ _____	Equipment Rental	$ _____
Use fees (i.e., boat launch, slip rental)	$ _____	Repair Service (boat)	$ _____
Guide/Outfitter services	$ _____	Other _____	$ _____

B. ***If you use your Yadkin reservoir home for seasonal or weekend use,*** please estimate the total expenditures that were made by all members of your household during ***just*** the month of April 2004 on the following items. Include all expenses incurred during your stay at your reservoir home during April 2004.

Restaurants and drinking places	$ _____	Gasoline (car/boat)	$ _____
Food stores (i.e., groceries)	$ _____	Equipment Rental	$ _____
Other recreation services (e.g., fishing guides, boat tours, movies)	$ _____	General merchandise stores (misc. supplies)	$ _____
Bait/Tackle/ammunition	$ _____	Repair Service (car/boat)	$ _____
Lodging	$ _____	Guide/Outfitter services	$ _____
Use fees (i.e., boat launch, slip rental)	$ _____	Other	$ _____

11. How would you rate the scenic quality of this reservoir (circle answer below)

Very Unattractive Somewhat Unattractive Average Somewhat Attractive Very Attractive

12. Please circle any of the following that you think detract from the scenic quality of this reservoir (circle answers below)

Project dams Waterfront housing Electric transmission lines Exposed lake bottom Reservoirs
Docks/piers Timber harvesting Floating debris/trash Bulkheads/rip rap Muddy water
Lack of landscaping at public recreation areas Roads Eroding shoreline None Other _____

13. What is your age? less than 16 ☐ 16-21 ☐ 22-45 ☐ 46-65 ☐ over 65 ☐
Are you male _____ or female _____?

14. Do you have any other comments regarding your recreation experiences at this reservoir?

Thank you for taking the time to complete this survey!!! Please return this survey in the enclosed stamped envelope.

If you have any questions regarding this survey, please contact Karen Wilson at karen.wilson@erm.com or (410) 266-0006.