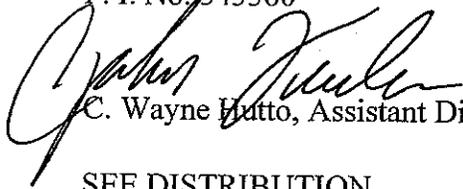


D.O.T. 66

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA**

**INTERDEPARTMENT CORRESPONDENCE**

**FILE** BRST-0532(13) Webster County **OFFICE** Preconstruction  
P. I. No. 343360  
**DATE** October 30, 2001  
**FROM**  C. Wayne Hutto, Assistant Director of Preconstruction  
**TO** SEE DISTRIBUTION

**SUBJECT PROJECT CONCEPT REPORT APPROVAL**

Attached for your files is the approval for subject project.

CWH/cj

Attachment

**DISTRIBUTION:**

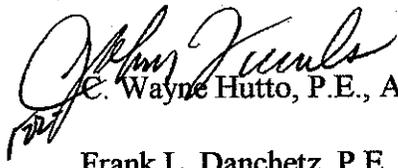
Tom Turner  
David Mulling  
Harvey Keeper  
Jerry Hobbs  
Herman Griffin  
Michael Henry  
Phillip Allen  
Marta Rosen  
Paul Liles  
Jimmy Chambers  
Glenn Durrence  
BOARD MEMBER

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA**

**INTERDEPARTMENT CORRESPONDENCE**

**FILE** BRST-0532(13) Webster County **OFFICE** Preconstruction  
P.I. No. 343360

**DATE** October 19, 2001

**FROM**  E. Wayne Hutto, P.E., Assistant Director of Preconstruction

**TO** Frank L. Danchetz, P.E., Chief Engineer

**SUBJECT** PROJECT CONCEPT REPORT

This project is the replacement of a structurally deficient bridge on SR 41 over Bear Creek, 1.8 miles north of Weston, Georgia. The existing bridge, constructed in 1949, is load limited with a sufficiency rating of 46. State Route 41 at this location is a rural two lane roadway with 12' travel lanes with rural shoulders. State Route 41 is functionally classified as a rural major collector and is a designated school bus route. Traffic is projected to be 2,100 VPD and 2,800 VPD in the years 2004 and 2024 respectively. The posted speed and the design speed are 55 MPH.

The construction proposes to construct a new 90' x 40' concrete bridge over Bear Creek at the existing bridge site. The approaches will consist of two, 12' lanes with 10' rural shoulders (2' paved). Traffic will be maintained during construction utilizing an on-site detour.

Environmental concerns include requiring a COE 404 Permit; a Categorical Exclusion will be prepared; a public hearing is not required; time saving procedures are appropriate.

The estimated costs for this project are:

	<u>PROPOSED</u>	<u>APPROVED</u>	<u>PROG DATE</u>	<u>LET DATE</u>
Construction (includes E&C and inflation)	\$881,000	\$1,100,000	2004	03-07
Right-of-Way	\$ 13,000	\$ 10,000		
Utilities*	LGPA	LGPA		

\*Webster County signed LGPA for utilities 8-17-99.

Frank L. Danchetz

Page 2

BRST-0532(13) Webster

October 19, 2001

This project is in the STIP. I recommend this project concept be approved.

CWH:JDQ/cj

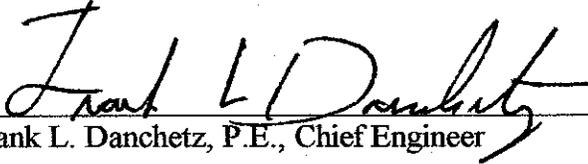
Attachment

CONCUR



Thomas L. Turner, P.E., Director of Preconstruction

APPROVE



Frank L. Danchetz, P.E., Chief Engineer

DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA

-----  
INTERDEPARTMENTAL CORRESPONDENCE

**FILE:** BRST-0532(13) Webster  
P.I. Number 343360-

**OFFICE:** Engineering Services

**DATE:** October 10, 2001

**FROM:** David Mulling, <sup>DM</sup> Project Review Engineer

**TO:** Wayne Hutto, Assistant Director of Pre-construction

**SUBJECT: CONCEPT REPORT**

We have reviewed the concept report submitted by the letter from James R. Chambers dated September 19, 2001, and have no comment.

The costs for the project are:

Construction	\$720,000
Inflation	\$ 72,000
E&C	\$ 89,000
Reimbursable Utilities	\$ 30,000
Right of Way	\$ 13,000

DTM

c: Jim Chambers – Office of Consultant Design

## SCORING RESULTS AS PER MOG 2440-2

<b>Project Number:</b> BRST-0532(13)		<b>County:</b> WEBSTER		<b>PI No.:</b> 343360-	
<b>Report Date:</b> 9/19/01		<b>Concept By:</b> DOT Office: CONSULTANT DESIGN			
<input checked="" type="checkbox"/> CONCEPT		Consultant: LPA GROUP			
<b>Project Type:</b> Choose One From Each Column		<input type="checkbox"/> Major <input checked="" type="checkbox"/> Minor	<input type="checkbox"/> Urban <input checked="" type="checkbox"/> Rural	<input type="checkbox"/> ATMS <input checked="" type="checkbox"/> Bridge <input type="checkbox"/> Building <input type="checkbox"/> Interchange <input type="checkbox"/> Intersection <input type="checkbox"/> Interstate <input type="checkbox"/> New Location <input type="checkbox"/> Widening & Reconstruction <input type="checkbox"/> Miscellaneous	
<b>FOCUS AREAS</b>	<b>SCORE</b>	<b>RESULTS</b>			
<b>Presentation</b>	100%				
<b>Judgement</b>	100%				
<b>Environmental</b>	100%				
<b>Right of Way</b>	100%				
<b>Utility</b>	100%				
<b>Constructability</b>	100%				
<b>Schedule</b>	100%				

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA**

**INTERDEPARTMENT CORRESPONDENCE**

**FILE**     **BRST-0532(13) Webster County**  
          SR 41 over Bear Creek 1.8 mi N of Weston  
          P.I. No. 343360-

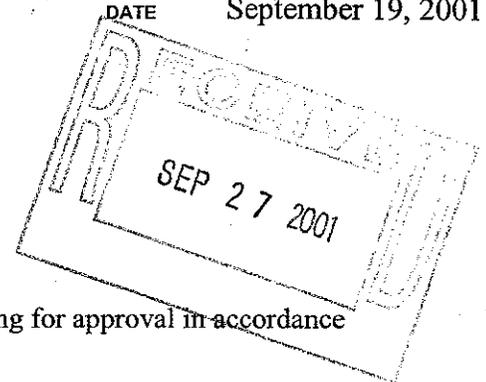
**OFFICE**   Atlanta

**FROM**     *for*  
          James R. Chambers, State Consultant Design Engineer

**DATE**     September 19, 2001

**TO**        Wayne Hutto, Assistant Director of Preconstruction

**SUBJECT**   **PROJECT CONCEPT REPORT**



Attached is the original copy of the Concept Report for your further handling for approval in accordance with the Plan Development Process (PDP).

Those on the distribution list below should review the Concept Report and send comments and/or the signature page to the Preconstruction Office within 10 days as per the PDP.

If you have any questions or require further information please call Otis Clark at (404) 463-6265 or Al Bowman of LPA Group, Inc. at (770) 263-9118.

*Distribution:*

David Mulling, Project Review Engineer  
Harvey Keeper, State Environmental/Location Engineer  
Phillip Allen, State Traffic Safety and Design Engineer  
Marta Rosen, State Transportation Planning Administrator  
Herman Griffin, State Transportation Programming Engineer  
Glenn Durrence, District Engineer – Thomaston  
Paul Liles, State Bridge & Structural Engineer

JRC: OC

cc: LPA Group, Inc.

**DEPARTMENT OF TRANSPORTATION**  
**STATE OF GEORGIA**  
Office of Consultant Design

Project Number: BRST-0532 (13)  
County: Webster  
P. I. Number: 343360

Federal Route Number: N/A  
State Route Number: 41

**PROJECT CONCEPT REPORT**  
**S.R. 41 over Bear Creek**

PROJECT LOCATION MAP: See Page 2

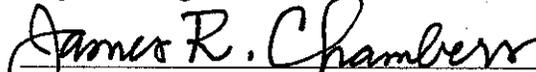
Recommendation for approval:

DATE 9-19-01

DATE 9-19-01



Project Manager – Otis Clark

  
State Consultant Design Engineer

The concept as presented herein and submitted for approval is consistent with that which is included in the State Transportation Improvement Program (STIP).

DATE \_\_\_\_\_

State Transportation Planning Administrator

DATE \_\_\_\_\_

State Transportation Programming Engineer

DATE \_\_\_\_\_

State Environmental/Location Engineer

DATE \_\_\_\_\_

State Traffic Safety and Design Engineer

DATE \_\_\_\_\_

District 3 Engineer

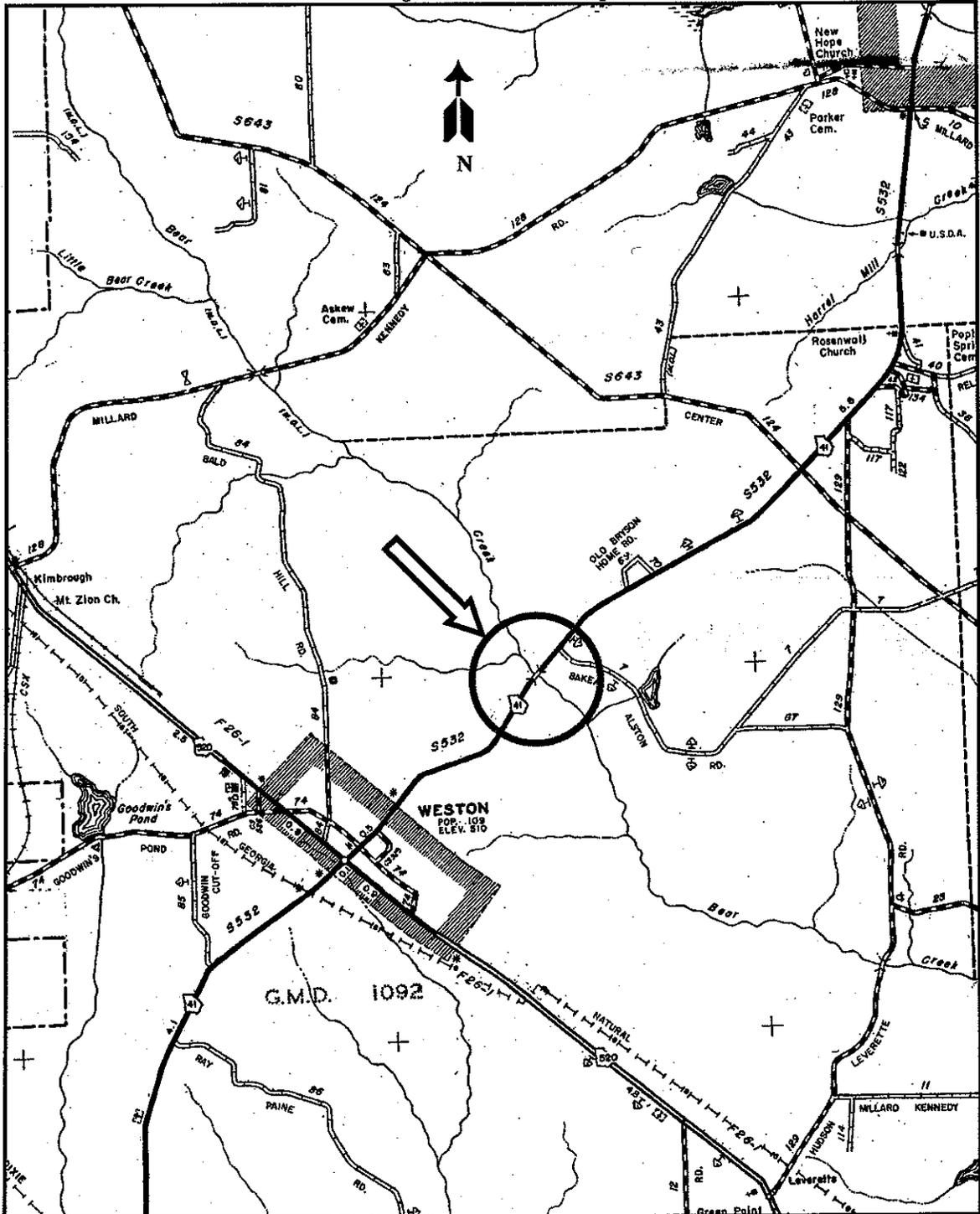
DATE \_\_\_\_\_

Project Review Engineer

DATE \_\_\_\_\_

State Bridge and Structural Design Engineer

### Project Location Map



Scale: 1 inch = 1 mile

**Project:** BRST-0532 (13) Webster County PI No.: 343360-  
**Description:** SR 41 over Bear Creek 1.8 mi N of Weston

Project Concept Report page 3  
Project Number: BRST- 0532(13)  
P. I. Number: 343360  
County: Webster

**NEED AND PURPOSE**  
**PROJECT BRST-0532 (13) WEBSTER COUNTY**  
**P. I. NO 343360**  
**Bridge Replacement**

Project Number BRST-0532 (13) will replace the existing, structurally deficient bridge located on State Route (SR) 41 over Bear Creek in Webster County approximately 1.8-miles north of Weston , Georgia.

This bridge was constructed in 1949 and its sufficiency rating is 46.1. The Office of Bridge and Structural Design has determined that any structure with a sufficiency rating of less than 50 should be replaced rather than improved. This project will replace the existing bridge with a structurally adequate bridge.

State Route 41 is functionally classified as a rural major collector and is designated as a school bus route. The posted speed limit is 55 miles per hour. The Average Daily Traffic (ADT) along this section of roadway has been projected to be 2100 in 2004 and 2800 in 2024 with 8 percent trucks. There are no other projects within the immediate project area that are in the Department's Long Range Construction Work Program. SR 41 is neither on the National Highway System nor in Georgia Bicycle Statewide Network. Sidewalks are not proposed for this bridge. Replacing this bridge will bring it up to current design standards and will improve the operation and safety of this roadway.

**Description of the proposed project:**

This project proposes to replace the structurally deficient S.R. 41 Bridge over Bear Creek. The bridge is located in Webster County approximately 1.8 miles north of Weston. The proposed bridge would be constructed on existing alignment with an onsite detour to maintain traffic. To accommodate the length of the proposed on-site detour, the project will begin approximately 600 feet south of Bear Creek and end approximately 600 feet north of the creek. The total length of this project is approximately 0.25 miles.

Is the project located in a Non-attainment area?        Yes        **X** No

**PDP Classification:** Minor

Full Oversight ( ), Exempt(X), State Funded( ), or Other ( )

**Functional Classification:** Rural Major Collector

**U. S. Route Number(s):** N/A

**State Route Number(s):** 41

**Traffic (AADT):**

Current Year: (2004) 2100 Design Year: (2024) 2800

**Existing design features:**

- **Typical Section:**  
The existing roadway has two 12-foot travel lanes with 6-foot grass shoulders.
- **Posted speed:** 55 mph **Maximum degree of curvature:** 2°00'
- **Maximum grade:** 4.6%
- **Width of right of way:** 100 feet
- **Major structures:** Two lane concrete bridge constructed in 1949.  
Length: 81 feet  
Width: 24 feet  
Sufficiency rating: 46.1
- **Major interchanges or intersections along the project:** None

**Proposed Design Features:**

- **Proposed typical section(s):** The proposed roadway will consist of two 12-foot travel lanes with eight-foot shoulders that will include a two-foot paved shoulder (see attached typical section).
- **Proposed Design Speed Mainline:** 55 mph
- **Proposed Maximum grade Mainline:** 4.6% **Maximum grade allowable:** 5.5 %
- **Proposed Maximum grade Side Street:** N/A **Maximum grade allowable:** 5.5 %
- **Proposed Maximum degree of curve:** 2°00' **Maximum degree allowable:** 6°00'
- **Right of way**
  - **Width:** 80 ft Minimum
  - **Easements:** Temporary (X), Permanent ( ), Utility ( ), Other (X)
  - **Type of access control:** Full ( ), Partial ( ), By Permit (X), Other ( ).
  - **Number of parcels:** 3 **Number of displacements:** 0
    - **Business:** 0
    - **Residences:** 0
    - **Mobile homes:** 0
    - **Other:** 0
- **Structures:**
  - **Bridges** – The proposed bridge will be 40 feet wide and approximately 90 feet long. The proposed structure will carry two 12-foot travel lanes with eight-foot shoulders.
  - **Retaining walls** – None anticipated.
- **Major intersections and interchanges:** None
- **Traffic control during construction:** Existing two-way traffic will be maintained on an onsite temporary detour that will be constructed to the north west of the existing roadway.

**Design Exceptions to controlling criteria anticipated:** None

	UNDETERMINED	YES	<u>NO</u>
HORIZONTAL ALIGNMENT:	( )	( )	(X)
ROADWAY WIDTH:	( )	( )	(X)
SHOULDER WIDTH:	( )	( )	(X)
VERTICAL GRADES:	( )	( )	(X)
CROSS SLOPES:	( )	( )	(X)
STOPPING SIGHT DISTANCE:	( )	( )	(X)
SUPERELEVATION RATES:	( )	( )	(X)
HORIZONTAL CLEARANCE:	( )	( )	(X)
SPEED DESIGN:	( )	( )	(X)
VERTICAL CLEARANCE:	( )	( )	(X)
BRIDGE WIDTH:	( )	( )	(X)
BRIDGE STRUCTURAL CAPACITY:	( )	( )	(X)

- **Design Variances:** None
  
- **Environmental concerns:** Anticipate COE and 404 permit. Bridge will be investigated for possible historical considerations. Do not anticipate any UST, hazardous waste, archaeological, etc impacts.
  
- **Level of environmental analysis:** CE - Anticipated
  - Are Time Saving Procedures appropriate? Yes (X), No ( ),
  - Categorical exclusion (X),
  - Environmental Assessment/Finding of No Significant Impact (FONSI) ( ), or
  - Environmental Impact Statement (EIS) ( ).
  
- **Utility involvement:**
  - Overhead utility lines located along the west side of the roadway.

**Project responsibilities:**

- Design - GDOT
- Right of Way Acquisition - GDOT
- Relocation of Utilities - Webster County
- Letting to contract - GDOT
- Supervision of construction - GDOT
- Providing material pits - Contractor
- Providing detours - Contractor

**Coordination**

- Concept meeting date and brief summary – July 18, 2001 - See attached meeting minutes.
- P. A. R. meetings, dates and results- Not Applicable
- FEMA, USCG, and/or TVA- None Anticipated
- Public involvement – None Anticipated.
- Local government comments – None
- Other projects in the area – BRST- 030-1(26)

**Scheduling – Responsible Parties' Estimate**

- Time to complete the environmental process: 6 Months
- Time to complete preliminary construction plans: 3 Months
- Time to complete right of way plans: 3 Months
- Time to complete the Section 404 Permit: 3 Months
- Time to complete final construction plans: 3 Months
- Time to complete to purchase right of way: 8 Months
- List other major items that will affect the project schedule: N/A

Project Concept Report page  
Project Number: BRST- 0532(13)  
P. I. Number: 343360  
County: Webster

- **Alternates considered:** (1) Construct proposed bridge on existing alignment using an onsite temporary detour to maintain existing traffic. (2) Stage construct proposed bridge on shifted alignment while maintaining traffic on existing roadway. (3) Construct proposed bridge on existing alignment utilizing an offsite detour route to maintain existing traffic. (4) No Build.
- **Comments:** Alternate (1) was chosen as the preferred Alternate due to its overall lower construction costs (See attached Alternate 1 Cost Estimate). Alternate (2) was not chosen due to the length and cost of the additional approach work that would be required to achieve desirable horizontal geometry (See attached Alternate 2 Cost Estimate). Alternate (3) was not considered because an offsite detour using state and county routes would be approximately 9 miles in length and would require making approximately \$350,000 in roadway improvements on the county routes to bring them up to acceptable state route standards. Alternate (4) was not chosen because of the substandard condition of the existing bridge and the long-term maintenance cost of retaining the deficient structure.

**Attachments:**

1. Cost Estimates
2. Typical sections
3. Bridge Inventory Sheet
4. Location and Design Notice
5. Concept Team Meeting Minutes

Project Concept Report page 8  
Project Number: BRST- 0532(13)  
P. I. Number: 343360  
County: Webster

**PRELIMINARY COST ESTIMATE  
(ALTERNATE 1)**

DATE: September 11, 2001  
PROJECT NO.: BRST-0532 (13)  
P.I. NO.: 343360

PREPARED BY: The LPA Group, Inc.  
LENGTH: 0.25 miles

PROJECT DESCRIPTION: S.R. 41 @ Bear Creek

**PROJECT COSTS**

**A. RIGHT OF WAY**

1. Property (Land & Easement)	<u>\$3,000</u>
2. Displacements; Res: 0, Bus: 0, M.H.: 0	<u>\$0</u>
3. Other Cost (Adm./Cost, Inflation)	<u>\$5,000</u>
4. Detour ( Temporary Easement )	<u>\$5,000</u>
Subtotal: A	<b>\$13,000</b>

**B. REIMBURSEABLE UTILITIES**

1. Railroad; (None)	<u>\$0</u>
2. Transmission Lines;	<u>\$0</u>
3. Services:	<u>\$30,000</u>
Subtotal: B	<b>\$30,000</b>

**C. CONSTRUCTION**

1. Major Structures			<u>\$234,000</u>
a. Bridges;	3,600 sft	@ \$65 sft	<u>\$0</u>
b. Retaining Walls;	(None)		<u>\$0</u>
c. Box Culvert;	(None)		<u>\$38,880</u>
d. Removal of existing bridge;			<u>\$272,880</u>
Subtotal:C-1			<b>\$272,880</b>
2. Grading and Drainage:			
a. Earthwork;	3,000 cy	@ \$4 cy	<u>\$12,000</u>
b. Drainage;			
1) Cross Drain Pipe (exclude box culverts) (None)			<u>\$0</u>
2) Curb and Gutter		(None - Rural)	<u>\$0</u>
3) Longitudinal System (include catch basin (None - Rural)			<u>\$0</u>
Subtotal:C-2			<b>\$12,000</b>

3. Base and Paving

a. Aggregate Base;	( 650 tons	@ \$17 tn )	\$11,050
b. Asphalt Paving;			
1) Surface (	150 tons	@ \$47 tn )	<u>\$7,050</u>
2) Binder (	120 tons	@ \$47 tn )	<u>\$5,640</u>
3) Base (	235 tons	@ \$45 tn )	<u>\$10,575</u>
c. Concrete Paving;	(None)		<u>\$0</u>
d. Other;	(None)		<u>\$0</u>
			<b>Subtotal: C-3      \$34,315</b>

4. Lump Items:

a. Traffic Control;			<u>\$40,000</u>
b. Clearing & Grubbing;			<u>\$3,600</u>
c. Grassing;			<u>\$3,600</u>
d. Erosion Control;			<u>\$4,500</u>
			<b>Subtotal: C-4      \$51,700</b>

5. Miscellaneous:

a. Lighting;	(None)		<u>\$0</u>
b. Striping - (5 in yellow);	1000 ft	@ \$0.50 ft	<u>\$500</u>
c. Striping - (5 in white);	1000 ft	@ \$0.50 ft	<u>\$500</u>
d. Guardrail			<u>\$13,000</u>
e. Sidewalk - Median Barrier;			<u>\$0</u>
			<b>Subtotal: C-5      \$14,000</b>

6. Special Features (None)

**Subtotal: C-6      \$0**

7. Detour

a. Detour Bridge;	2,160 sft	@ \$40 sft	<u>\$86,400</u>
b. Earth Work;	30,000 cy	@ \$4 cy	<u>\$120,000</u>
c. GAB;	1,179 tons	@ \$17 tn	<u>\$20,043</u>
d. Surface;	1,376 tons	@ \$47 tn	<u>\$64,672</u>
e. Binder;	282 tons	@ \$47 tn	<u>\$13,254</u>
f. Clearing & Grubbing;			<u>\$8,500</u>
g. Grassing;			<u>\$8,500</u>
h. Erosion Control;			<u>\$10,000</u>
i. Striping	8000 ft	@ \$0.50 ft	<u>\$4,000</u>
			<b>Subtotal: C-6      \$335,369</b>

Project Concept Report page 10  
Project Number: BRST- 0532(13)  
P. I. Number: 343360  
County: Webster

A. Right-of-Way \$13,000

B. Reimbursable Utilities \$30,000

C. Construction

1. Major Structures \$272,880

2. Grading and Drainage \$12,000

3. Base and Paving \$34,315

4. Lump Items \$51,700

5. Miscellaneous \$14,000

6. Special Features \$0

7. Detour \$335,369

Subtotal Construction Cost \$720,264

E & C (10%) \$72,026

Inflation (5% per year for 2 years) \$73,827

Total Construction Cost \$866,117

**GRAND TOTAL PROJECT COST \$909,117**

**PRELIMINARY COST ESTIMATE**  
(ALTERNATE 2)

DATE: September 11, 2001

PREPARED BY: The LPA Group, Inc.

PROJECT NO.: BRST-0532 (13)

P.I. NO.: 343360

LENGTH: 0.57 miles

PROJECT DESCRIPTION: S.R. 41 @ Bear Creek

**PROJECT COSTS**

**A. RIGHT OF WAY**

1. Property (Land & Easement)	<u>\$15,000</u>
2. Displacements; Res: 0, Bus: 0, M.H.: 0	<u>\$0</u>
3. Other Cost (Adm./Cost, Inflation)	<u>\$5,000</u>
4. Detour ( Temporary Easement )	<u>\$0</u>
Subtotal: A	<b>\$20,000</b>

**B. REIMBURSEABLE UTILITIES**

1. Railroad; (None)	<u>\$0</u>
2. Transmission Lines;	<u>\$0</u>
3. Services:	<u>\$30,000</u>
Subtotal: B	<b>\$30,000</b>

**C. CONSTRUCTION**

1. Major Structures			
a. Bridges;	3,600 sft	@ \$65 sft	<u>\$234,000</u>
b. Retaining Walls;	(None)		<u>\$0</u>
c. Box Culvert;	(None)		<u>\$0</u>
d. Removal of existing bridge;			<u>\$48,600</u>
Subtotal:C-1			<b>\$282,600</b>
2. Grading and Drainage:			
a. Earthwork;	52,000 cy	@ \$4 cy	<u>\$208,000</u>
b. Drainage;			
1) Cross Drain Pipe (exclude box culverts) (None)			<u>\$0</u>
2) Curb and Gutter		(None - Rural)	<u>\$0</u>
3) Longitudinal System (include catch basin (None - Rural)			<u>\$0</u>
Subtotal:C-2			<b>\$208,000</b>

3. Base and Paving

a. Aggregate Base;	(	5,060 tons	@ \$17 tn )	<u>\$86,020</u>
b. Asphalt Paving;				
1) Surface	(	726 tons	@ \$47 tn )	<u>\$34,122</u>
2) Binder	(	968 tons	@ \$47 tn )	<u>\$45,496</u>
3) Base	(	1,936 tons	@ \$45 tn )	<u>\$87,120</u>
c. Concrete Paving;		(None)		<u>\$0</u>
d. Other;		(None)		<u>\$0</u>
				Subtotal: C-3 <u>\$252,758</u>

4. Lump Items:

a. Traffic Control;				<u>\$40,000</u>
b. Clearing & Grubbing;				<u>\$12,000</u>
c. Grassing;				<u>\$12,000</u>
d. Erosion Control;				<u>\$15,000</u>
				Subtotal: C-4 <u>\$79,000</u>

5. Miscellaneous:

a. Lighting;		(None)		<u>\$0</u>
b. Striping - (5 in yellow);	8000 ft	@ \$0.50 ft		<u>\$4,000</u>
c. Striping - (5 in white);	8000 ft	@ \$0.50 ft		<u>\$4,000</u>
d. Guardrail				<u>\$13,000</u>
e. Sidewalk - Median Barrier;				<u>\$0</u>
				Subtotal: C-5 <u>\$21,000</u>

6. Special Features (None)

Subtotal: C-6 \$0

7. Detour (None)

Subtotal: C-7 \$0

A. Right-of-Way

13,000  
\$20,000

B. Reimbursable Utilities

\$30,000

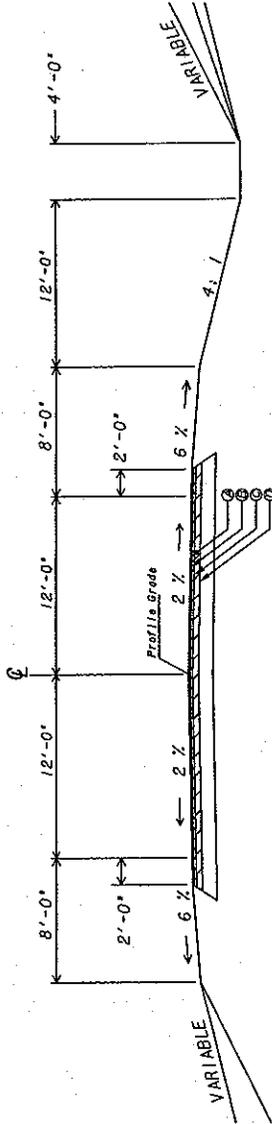
C. Construction

1. Major Structures	<u>\$282,600</u>
2. Grading and Drainage	<u>\$208,000</u>
3. Base and Paving	<u>\$252,758</u>
4. Lump Items	<u>\$79,000</u>
5. Miscellaneous	<u>\$21,000</u>
6. Special Features	<u>\$0</u>
7. Detour	<u>\$0</u>
Subtotal Construction Cost	<u>\$843,358</u>
E & C (10%)	<u>\$84,336</u>
Inflation (5% per year for 2 years)	<u>\$86,444</u>
Total Construction Cost	<u>\$1,014,138</u>

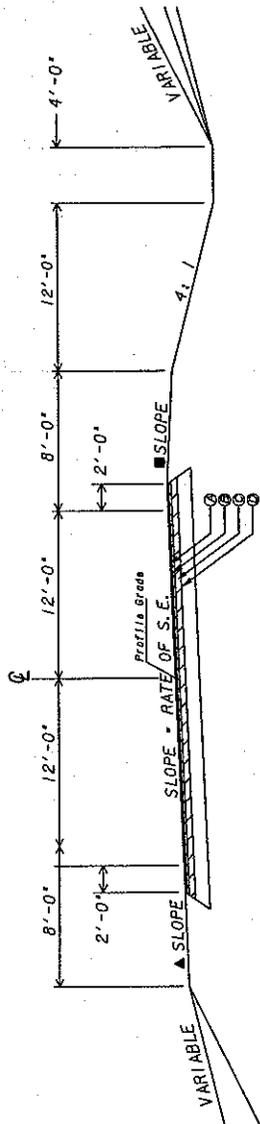
**GRAND TOTAL PROJECT COST**

\$1,064,138

STATE	COUNTY	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.	WEBSTER	BRST-0532(13)		



TANGENT SECTION



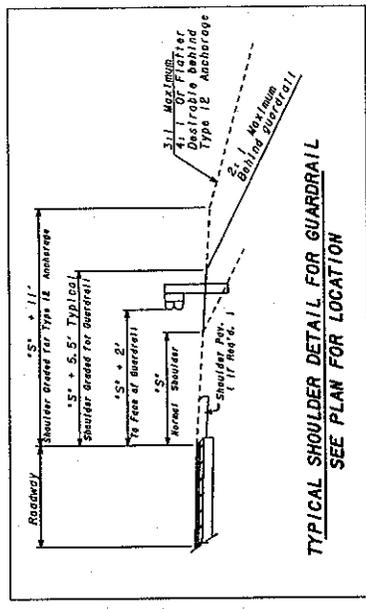
SUPERELEVATED SECTION

SLOPE SELECTION
SLOPE CUT FILL
4:1 0'-10' 10'-10'
2:1 10+ 10+

- ▲ SEE GEORGIA STANDARD 9028C - NOTE (d)
- SEE GEORGIA STANDARD 9028C - NOTE (e)
- ▲ SLOPE 1/4' / 1'-0" OR RATE OF S.E. WHICHEVER IS GREATER
- SLOPE AS FOLLOWS:
  - S.E. RATE OF 0.03'/FT OR LESS USE 1/4" IN 1'-0"
  - S.E. RATE OF 0.04'/FT, USE 1/2" IN 1'-0"
  - S.E. RATE OF 0.05'/FT, USE 3/4" IN 1'-0"
  - S.E. RATE OF 0.06'/FT, USE 1" IN 1'-0"
  - S.E. RATE OF 0.07'/FT, USE 1 1/4" IN 1'-0"
  - S.E. RATE OF 0.08'/FT, USE 1 1/2" IN 1'-0"

- REQUIRED PAVEMENT
- (A) ASPHALTIC CONCRETE 9.5 MM SUPERPAVE, 165 LBS./S.Y.
  - (B) ASPHALTIC CONCRETE 19 MM SUPERPAVE, 220 LBS./S.Y.
  - (C) ASPHALTIC CONCRETE 25 MM SUPERPAVE, 660 LBS./S.Y.
  - (D) GRADED AGGREGATE BASE, 10"
- SUPERPAVE MIX DESIGN LEVEL B

ALGEBRAIC DIFFERENCE IN PAVING AND SHOULDER SLOPES NOT TO EXCEED 0.07'/FT



TYPICAL SHOULDER DETAIL FOR GUARDRAIL  
SEE PLAN FOR LOCATION

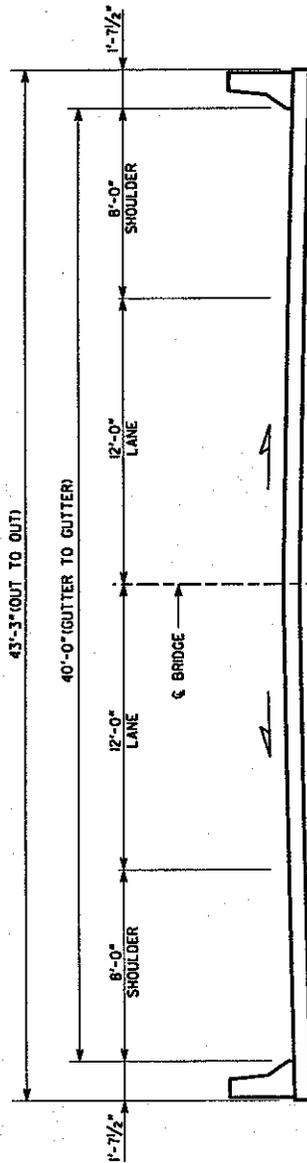
PROJECT NO. :	AT258313	DATE
DESIGNED BY :		
DRAWN BY :		
CHECKED BY :		
SUPERVISED BY :		

THE LPA GROUP INCORPORATED  
TRANSPORTATION CONSULTANTS  
3595 ENGINEERING DRIVE  
NORCROSS, GEORGIA 30092  
(770) 263-9118

STATE OF GEORGIA  
DEPARTMENT OF TRANSPORTATION

ROADWAY TYPICAL SECTION  
S. R. 41 OVER BEAR CREEK  
WEBSTER CO.  
BRST-0532(13)

STATE	COUNTY	PROJECT NUMBER	SHEET TOTAL NO. SHEETS
GA.	WEBSTER	BRST-0532(13)	



BRIDGE TYPICAL SECTION

SCALE: 1/8" = 1'-0"

PROJECT NO. :	AT258317	DATE	
DESIGNED BY :			
DRAWN BY :			
CHECKED BY :			
SUPERVISED BY :	ALBERT W. BOWMAN, P. E.		

  
**THE LPA GROUP**  
 INCORPORATED  
 TRANSPORTATION CONSULTANTS  
 5255 TRIANGLE PARKWAY, SUITE 300  
 NORCROSS, GEORGIA 30092  
 (770) 263-9118

STATE OF GEORGIA  
 DEPARTMENT OF TRANSPORTATION

BRIDGE TYPICAL SECTION  
 S. R. 41 OVER BEAR CREEK  
 WEBSTER CO. BRST-0532(13)

# BRIDGE INVENTORY DATA LISTING GEORGIA DEPARTMENT OF TRANSPORTATION

Structure ID: 307-0008-0

Webster County

SUFF. RATING: 46.1

## Location & Geography

\* Structure I.D. No.: 307-0008-0  
 \* 200 Bridge Information: 06  
 \* 6A Feature Int.: BEAR CREEK  
 \* 6B Critical Bridge: 0  
 \* 7A Route Number Carried: SR00041  
 \* 7B Facility Carried: SR 41  
 \* 9 Location: 1.8 MI N OF WESTON  
 2 DOT District: 3  
 207 Year Photo: 1997

\* 91 Inspection Frequency: 24 Date: 07/21/1999  
 92A Fract Crt Insp Freq: 0 00 Date: 0000  
 92B Underwater Insp Freq: 1 60 Date: 10/08/1997  
 92C Other Spc. Insp Freq: 0 00 Date: 0000

\* 4 Place Code: 00000  
 \* 5 Inventory Route (O/L): 1  
 Type: 3  
 Designator: 1  
 Number: 00041  
 Direction: 0

\* 16 Latitude: 31-59.6  
 \* 17 Longitude: 84-35.6

98 Border Bridge: 000 %Shared: 00  
 99 ID Number: 0000000000000000

\* 100 Defense Highway: 0  
 \* 101 Parallel Structure: N  
 \* 102 Direction of Traffic: 2  
 264 Road Inventory Mile Post: 005.90

\* 208 Inspection Area: 08 Initials: JLA  
 \* Location I.D. No: 307-00041D-006.10N  
 \* XReferen I.D. No: 000-000000-000.000

Report Date: 02/05/2001

## Signs & Attachments

\* 104 Highway System: 0  
 \* 26 Functional Classification: 07  
 \* 204 Federal Route Type: S No: 00532  
 \* 110 Truck Route: 0  
 206 School Bus Route: 1  
 217 Benchmark Elevation: 416.80  
 218 Datum: 2  
 \* 19 Bypass Length: 13  
 \* 20 Toll: 3  
 \* 21 Maintenance: 01  
 \* 22 Owner: 01

\* 31 Design Load: 2  
 37 Historical Significance: 5  
 205 Congressional District: 02  
 \* 27 Year Constructed: 1949  
 106 Year Reconstructed: 0000  
 33 Bridge Median: 0  
 34 Skew: 00  
 35 Structure Flared: 0  
 38 Navigation Control: 0  
 213 Special Steel Design: 0  
 267 Type of Paint: 2

\* 42 Type Service Onr: 1  
 Under: 5  
 214 Movable Bridge: 00  
 203 Type Bridge: E-N-M-O  
 259 Pile Encasement: 1  
 \* 43 Structure Type Main: 4 02  
 45 No. Spans Main: 003  
 44 Structure Type Appr: 0 0  
 46 No. Spans Appr: 0000  
 226 Bridge Curve Horiz: 0 Vert: 1  
 111 Pier Protection: 0  
 107 Deck Structure Type: 1

108 Wearing Surface Type: 6  
 Membrane: 0  
 Protection: 0

223 Expansion Joint Type: 02  
 242 Deck Drains: 1

243 Parapet Location: 0  
 Height: 0  
 Width: 0

238 Curt: 1.0 1  
 239 Handrail: 1 1  
 \* 240 Median Barrier Rail: 0

241 Bridge Median Height: 0  
 Width: 0

\* 230 Guardrail Loc Dir Rear: 3  
 Fwrd: 3  
 Oppo Dir Rear: 0  
 Fwrd: 0

244 Approach Slab: 3  
 224 Retaining Wall: 0

233 Posted Speed Limit: 55  
 236 Warning Sign: 0  
 234 Delineator: 1  
 235 Hazard Boards: 1

237 Utilities Gas: 00  
 Water: 00  
 Electric: 00  
 Telephone: 31  
 Sewer: 00

247 Lighting Street: 0  
 Navigation: 0  
 Aerial: 0

\* 248 County Continuity No: 00

# BRIDGE INVENTORY DATA LISTING GEORGIA DEPARTMENT OF TRANSPORTATION

Structure ID: 307-0008-0

Webster County

SUFF. RATING: 46.1

## Programming Data

201 Project No: FAS 224 (1)  
 202 Plans Available: 2  
 249 Prop. Proj No: BRST-0532 (13)  
 250 Approval Status: 0000  
 251 P.I. No: 343360  
 252 Contract Date: 02/01/2004  
 260 Seismic No: 00000  
 75 Type Work: 00 0  
 94 Bridge Imp. Cost: \$ 0  
 95 Roadway Imp. Cost: \$ 0  
 96 Total Imp. Cost: \$ 0  
 76 Imp. Length: 000000  
 97 Imp. Year: 0000  
 114 Future ADT: 001350 Year: 2018

## Hydraulic Data

215 Waterway Data  
 Highwater Elev: 0000.0 Year: 0000  
 Flood Elev: 0000.0 Freq: 00  
 Avg. Streambed Elev: 0000.0  
 Drainage Area: 00000  
 Area of Opening: 000000  
 113 Scour Critical: 6  
 216 Water Depth: 06.5 Br Height: 14.0  
 222 Slope Protection: 1  
 221 Spur Dikes Rear: 0 Fwd: 0  
 219 Fender System: 0  
 220 Dolphin: 0  
 223 Culvert Cover: 0000  
 Type: 0  
 No Barrels: 0  
 Width: 0.0  
 Height: 0.0  
 Length: 0  
 Apron: 0  
 \* 265 U/W Insp. Area: 2 Diver: TSP

## Measurements

\* 29 ADT: 000900 Year: 1998  
 109 % Trucks: 16  
 \* 28 Lanes On: 02 Under: 00  
 210 No. Tracks On: 00 Under: 00  
 \* 48 Max. Span Length: 0027  
 \* 49 Structure Length: 81  
 51 Br. Rdwy. Width: 24.0  
 52 Deck Width: 30.1  
 \* 47 Tot. Horz. Cl: 24.0  
 50 Curb/Sdewlk Width: 2.0/2.0  
 32 Approach Rdwy Width: 024  
 \* 229 Shlder Width:  
 Rear Lt: 6.0 Type: 8 Rt: 6.0  
 Fwd Lt: 4.0 Type: 8 Rt: 6.0  
 Pvmnt Width:  
 Rear: 24.0 Type: 2  
 Fwd: 24.0 Type: 2  
 Intersection Rear: 0 Fwd: 0  
 36 Safety Features Br. Rail: 2  
 Transition: 2  
 App. G. Rail: 2  
 App. Rail End: 2  
 53 Minimum Cl. Over: 99' 99"  
 Under: N 00' 00"  
 \* 228 Min. Vert. Cl

## Ratings

66 Inventory Type: 2 Rating: 13  
 64 Operating Type: 2 Rating: 29  
 231 Calculated Loads  
 H-Modified: 14 1  
 HS-Modified: 22 1  
 Type 3: 18 1  
 Type 3S2: 33 1  
 Timber: 25 1  
 Piggyback: 00 0  
 261 H Inventory Rating: 10  
 262 H Operating Rating: 15  
 67 Structural Evaluation: 2  
 58 Deck Condition: 7  
 59 Superstructure Condition: 7  
 \* 227 Collision Damage: 0  
 60A Substructure Condition: 6  
 60B Scour Condition: 5  
 60C Underwater Condition: 5  
 71 Waterway Adequacy: 8  
 61 Channel Protection Cond: 7  
 68 Deck Geometry: 4  
 69 UnderClr. Horz/Vert: N  
 72 Appr. Alignment: 8  
 62 Culvert: N

## Posting Data

70 Bridge Posting Required: 3  
 41 Struct Open, Postd. Cl: P  
 \* 103 Temporary Structure: T  
 232 Posted Loads H-Modified: 14  
 HS-Modified: 22  
 Type 3: 18  
 Type 3S2: 33  
 Timber: 25  
 Piggyback: 00  
 253 Notification Date: 0000  
 253 Fed Notify Date: 0000  
 2

## NOTICE OF LOCATION AND DESIGN APPROVAL

**Project No. BRST-0532(13), Webster County  
P.I. No. 343360**

Notice is hereby given in compliance with Georgia code 22-2-109 that the Georgia Department of Transportation has approved the Location and Design of the above project.

Date of Location Approval: *OCTOBER 30, 2001*

This project is located on S.R. 41 at Bear Creek, located in Webster County, 18<sup>th</sup> Land District, Land Lots 65 & 96.

This project consists of replacing the existing 24 ft X 81 ft structurally deficient S.R. 41 Bridge over Bear Creek with a new structure. The new bridge will be 40 ft wide and approximately 90 ft in length.

Drawings and/or maps, and/or plats of the proposed project, as approved, are on file and are available for public inspection at the Georgia Department of Transportation:

Andy Lindsey  
Area 2 Engineer  
Andy.Lindsey@dot.state.ga.us  
1557 E. Lamar Street (SR 27)  
Americus, Georgia 31709  
(912) 931-2434 / (912) 931-2435

Any interested party may obtain a copy of the drawings or maps or plats or portions thereof by paying a nominal fee and requesting in writing to:

Jimmy Chambers  
State Consultant Design Engineer  
jimmy.chambers@dot.state.ga.us  
Georgia Department of Transportation  
No. 2 Capitol Square  
Atlanta, Georgia 30334  
(404) 463-6133

Any written request or communication in reference to this Notice SHOULD include the PROJECT and P.I. NUMBERS as noted at the top of this notice.

July 23, 2001

Meeting notes from the July 18, 2001 concept meeting at the Thomaston archive building for the following projects:

BRST-0532(13) SR 41 over Bear Creek.  
BRST-0532(12) SR 41 over Kinchafoonee Creek.  
BRST-1518(11) SR 45 over Kinchafoonee Creek and O/F.  
BRST-1169(8) SR 153 over Lannahassee Creek.

Attendees:

Tom Queen	GDOT – District 3 Preconstruction	(706) 646-6591
Andy Lindsey	GDOT – Area Engineer	(229) 931-2434
Katie Mullins	GDOT - Office of Programming	(404) 651-7043
Kerry Gore	GDOT – District 3 Utilities	(706) 646-6552
Scott Parker	GDOT – District 3 Traffic Operations	(706) 646-6561
Wayne King	Alltel	(478) 988-4043
John Weingard	The LPA Group Incorporated	(770) 263-9118
Al Bowman	The LPA Group Incorporated	(770) 263-9118

Meeting Notes:

General Comments For All Projects:

It may be necessary to purchase additional Right-of-Way for relocation of Utility lines. Additional Temporary easement may be necessary on the opposite side of the Detour for construction of the bridges. LPA will check on this when existing Right-of-Way data (survey) becomes available.

It was asked if utilities could be located on the proposed bridges. GDOT prefers not to have utilities located on their bridges, but will make accommodations if necessary.

BRST-0532(13) SR 41 over Bear Creek.

The proposed bridge will be constructed on existing alignment with an onsite detour to maintain traffic. The onsite detour is proposed for the upstream side. It was asked if the detour could be moved to the downstream side to avoid utility relocation. It was shown that the proposed location for the detour is the best choice because it fits better with the curve off the west end of the bridge. Shifting the detour to the downstream side would require a longer detour to achieve desirable geometry at the tie-in on the west end of the project. The project limits would need to be extended approximately 350 feet to the west to accommodate the detour.

BRST-0532(12) SR 41 over Kinchafoonee Creek.

The proposed bridge will be constructed on new alignment with traffic maintained on the existing roadway. It was noted that there is a stream gauge attached to the existing bridge that will require coordination with the USGS Department. LPA will coordinate with USGS on the removal and possible relocation of the stream gauge on to the proposed bridge. It was mentioned that the existing roadbed that is no longer needed due to the new alignment should be removed down to natural ground. LPA concurred.

BRST-1518(11) SR 45 over Kinchafoonee Creek and O/F.

The proposed bridges will be constructed on new alignment with traffic maintained on the existing roadway. It was mentioned that there is an existing boat ramp on Kinchafoonee Creek near the bridge. It was noted that the boat ramp and access to the ramp from SR 45 must be maintained. LPA concurred.

BRST-1169(8) SR 153 over Lannahassee Creek.

The proposed bridge will be constructed on existing alignment with an onsite detour to maintain traffic. It was mentioned that this bridge has been moved up in the programming schedule, and that Right-of-Way must be purchased in this fiscal year (2002). Accordingly, LPA will make it a high priority.

This is our understanding of the concept meeting on July 18, 2001. If you have any further comments or questions please call (770) 263-9118.

Al Bowman, P.E.  
The LPA Group Incorporated  
3595 Engineering Drive  
Norcross, Georgia 30092

**DEPARTMENT OF TRANSPORTATION**  
**STATE OF GEORGIA**  
Office of Consultant Design

Project Number: BRST-0532 (13)  
County: Webster  
P. I. Number: 343360

Federal Route Number: N/A  
State Route Number: 41

**PROJECT CONCEPT REPORT**  
**S.R. 41 over Bear Creek**

PROJECT LOCATION MAP: See Page 2

Recommendation for approval:

DATE 9-19-01

DATE 9-19-01



Project Manager - Otis Clark



State Consultant Design Engineer

The concept as presented herein and submitted for approval is consistent with that which is included in the State Transportation Improvement Program (STIP).

DATE \_\_\_\_\_

State Transportation Planning Administrator

DATE \_\_\_\_\_

State Transportation Programming Engineer

DATE \_\_\_\_\_

State Environmental/Location Engineer

DATE \_\_\_\_\_

State Traffic Safety and Design Engineer

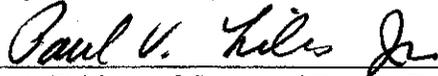
DATE \_\_\_\_\_

District 3 Engineer

DATE \_\_\_\_\_

Project Review Engineer

DATE 9/28/01

  
State Bridge and Structural Design Engineer

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA**  
Office of Consultant Design

Project Number: BRST-0532 (13)  
County: Webster  
P. I. Number: 343360

Federal Route Number: N/A  
State Route Number: 41

**PROJECT CONCEPT REPORT  
S.R. 41 over Bear Creek**

PROJECT LOCATION MAP: See Page 2

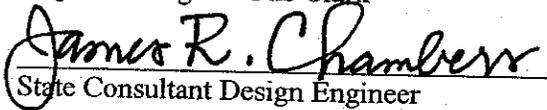
Recommendation for approval:

DATE 9-19-01

DATE 9-19-01



Project Manager - Otis Clark



State Consultant Design Engineer

The concept as presented herein and submitted for approval is consistent with that which is included in the State Transportation Improvement Program (STIP).

DATE \_\_\_\_\_

DATE 9/27/01

DATE \_\_\_\_\_

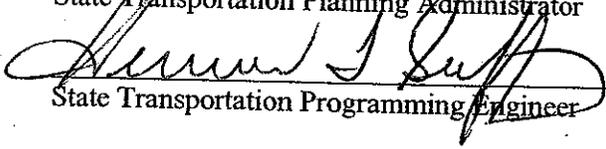
DATE \_\_\_\_\_

DATE \_\_\_\_\_

DATE \_\_\_\_\_

DATE \_\_\_\_\_

State Transportation Planning Administrator



State Transportation Programming Engineer

State Environmental/Location Engineer

State Traffic Safety and Design Engineer

District 3 Engineer

Project Review Engineer

State Bridge and Structural Design Engineer

**DEPARTMENT OF TRANSPORTATION**  
**STATE OF GEORGIA**  
Office of Consultant Design

Project Number: BRST-0532 (13)  
County: Webster  
P. I. Number: 343360

Federal Route Number: N/A  
State Route Number: 41

**PROJECT CONCEPT REPORT**  
**S.R. 41 over Bear Creek**

PROJECT LOCATION MAP: See Page 2

Recommendation for approval:

DATE 9-19-01



Project Manager -- Otis Clark

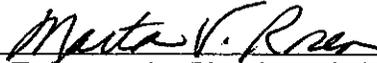
DATE 9-19-01



State Consultant Design Engineer

The concept as presented herein and submitted for approval is consistent with that which is included in the State Transportation Improvement Program (STIP).

DATE 10/5/01



State Transportation Planning Administrator

DATE \_\_\_\_\_

State Transportation Programming Engineer

DATE \_\_\_\_\_

State Environmental/Location Engineer

DATE \_\_\_\_\_

State Traffic Safety and Design Engineer

DATE \_\_\_\_\_

District 3 Engineer

DATE \_\_\_\_\_

Project Review Engineer

DATE \_\_\_\_\_

State Bridge and Structural Design Engineer

**DEPARTMENT OF TRANSPORTATION**  
**STATE OF GEORGIA**  
Office of Consultant Design

Project Number: BRST-0532 (13)  
County: Webster  
P. I. Number: 343360

Federal Route Number: N/A  
State Route Number: 41

**PROJECT CONCEPT REPORT**  
**S.R. 41 over Bear Creek**

PROJECT LOCATION MAP: See Page 2

Recommendation for approval:

DATE 9-19-01



Project Manager - Otis Clark

DATE 9-19-01



State Consultant Design Engineer

The concept as presented herein and submitted for approval is consistent with that which is included in the State Transportation Improvement Program (STIP).

DATE \_\_\_\_\_

State Transportation Planning Administrator

DATE \_\_\_\_\_

State Transportation Programming Engineer

DATE \_\_\_\_\_

State Environmental/Location Engineer

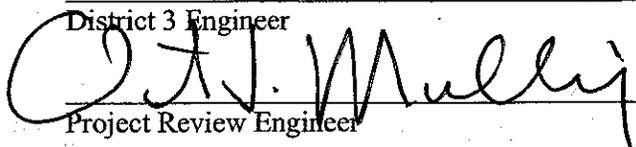
DATE \_\_\_\_\_

State Traffic Safety and Design Engineer

DATE \_\_\_\_\_

District 3 Engineer

DATE 10/10/01



Project Review Engineer

DATE \_\_\_\_\_

State Bridge and Structural Design Engineer

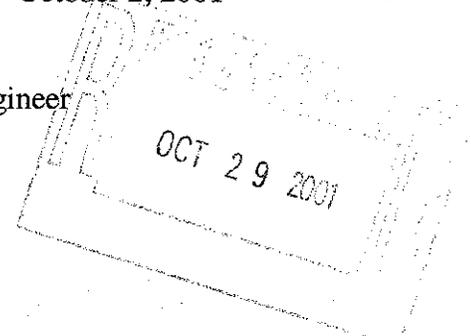
Department of Transportation  
State of Georgia

INTERDEPARTMENTAL CORRESPONDENCE

File: BRST - 0532 (13) / Webster County  
P.I. No. 343360

Office: Traffic Safety & Design  
Atlanta, Georgia  
Date: October 2, 2001

*PMA*  
From: Phillip M. Allen, State Traffic Safety and Design Engineer  
To: Wayne Hutto, Assistant Director of Preconstruction  
Subject: Project Concept Report Review



We have reviewed the above referenced concept report for the replacement of the structurally deficient bridge on SR 41 over Bear Creek. This project is located 1.8 miles north of Weston.

The existing structure is 24 feet wide with a sufficiency rating of 46.1. The concept proposes to construct a new structure 40 feet wide for the two-lane roadway. The current ADT is 2100 vehicles and the design year ADT is projected to be 2800 vehicles. The proposed bridge width is in accordance with MOG 4265-10 for this type of roadway.

We believe this concept will improve safety and traffic operations within this area, therefore find this report satisfactory for approval.

PMA/bm

Attachment (signature page)

Cc: Harvey Keepler, State Environment/Location Engineer  
James Chambers, State Consultant Design Engineer  
Attention: Oits Clark  
David Mulling, State Review Engineer, w/ attachment  
Marta Rosen, State Transportation Planning Administrator  
Paul Liles, State Bridge & Structural Design Engineer  
Chuck Hasty, TMC  
General Files  
Office Files

**DEPARTMENT OF TRANSPORTATION**  
**STATE OF GEORGIA**  
Office of Consultant Design

Project Number: BRST-0532 (13)  
County: Webster  
P. I. Number: 343360

Federal Route Number: N/A  
State Route Number: 41

**PROJECT CONCEPT REPORT**  
**S.R. 41 over Bear Creek**

PROJECT LOCATION MAP: See Page 2

Recommendation for approval:

DATE 9-19-01

  
\_\_\_\_\_  
Project Manager -- Otis Clark

DATE 9-19-01

  
\_\_\_\_\_  
State Consultant Design Engineer

The concept as presented herein and submitted for approval is consistent with that which is included in the State Transportation Improvement Program (STIP).

DATE \_\_\_\_\_

\_\_\_\_\_  
State Transportation Planning Administrator

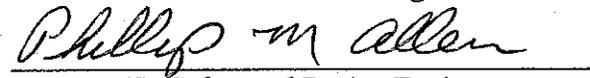
DATE \_\_\_\_\_

\_\_\_\_\_  
State Transportation Programming Engineer

DATE \_\_\_\_\_

\_\_\_\_\_  
State Environmental/Location Engineer

DATE 10-15-01

  
\_\_\_\_\_  
State Traffic Safety and Design Engineer

DATE \_\_\_\_\_

\_\_\_\_\_  
District 3 Engineer

DATE \_\_\_\_\_

\_\_\_\_\_  
Project Review Engineer

DATE \_\_\_\_\_

\_\_\_\_\_  
State Bridge and Structural Design Engineer

**DEPARTMENT OF TRANSPORTATION**  
**STATE OF GEORGIA**  
Office of Consultant Design

Project Number: BRST-0532 (13)  
County: Webster  
P. I. Number: 343360

Federal Route Number: N/A  
State Route Number: 41

**PROJECT CONCEPT REPORT**  
**S.R. 41 over Bear Creek**

PROJECT LOCATION MAP: See Page 2

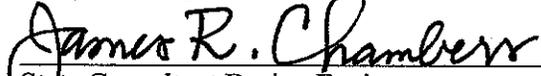
Recommendation for approval:

DATE 9-19-01



Project Manager -- Otis Clark

DATE 9-19-01

  
State Consultant Design Engineer

The concept as presented herein and submitted for approval is consistent with that which is included in the State Transportation Improvement Program (STIP).

DATE \_\_\_\_\_

\_\_\_\_\_  
State Transportation Planning Administrator

DATE \_\_\_\_\_

\_\_\_\_\_  
State Transportation Programming Engineer

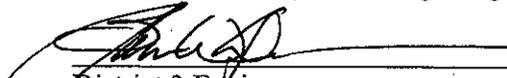
DATE \_\_\_\_\_

\_\_\_\_\_  
State Environmental/Location Engineer

DATE \_\_\_\_\_

\_\_\_\_\_  
State Traffic Safety and Design Engineer

DATE 10/10/01

  
District 3 Engineer

DATE \_\_\_\_\_

\_\_\_\_\_  
Project Review Engineer

DATE \_\_\_\_\_

\_\_\_\_\_  
State Bridge and Structural Design Engineer

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA**

**INTERDEPARTMENT CORRESPONDENCE**

**FILE: P.I. No. 343360**

**OFFICE: Environment/Location**

**DATE: October 23, 2001**

*Harvey D. Keeper*

**FROM: Harvey D. Keeper, State Environmental/Location Engineer**

**TO: Wayne Hutto, P.E., Assistant Director of Preconstruction**

**SUBJECT: PROJECT CONCEPT REPORT  
BRST-0532(13), WEBSTER COUNTY**

The above subject concept report has been reviewed. COE permit is a 404. A nationwide 23 section 404 permit from the COE is anticipated. Will need to survey for endangered mussels -- detour and bridge will require coordination if mussels present.

If you have any questions, please contact me at (404) 699-4401.

HDK/rtt

Attachment

cc: David Mulling  
James Chambers, P.E.