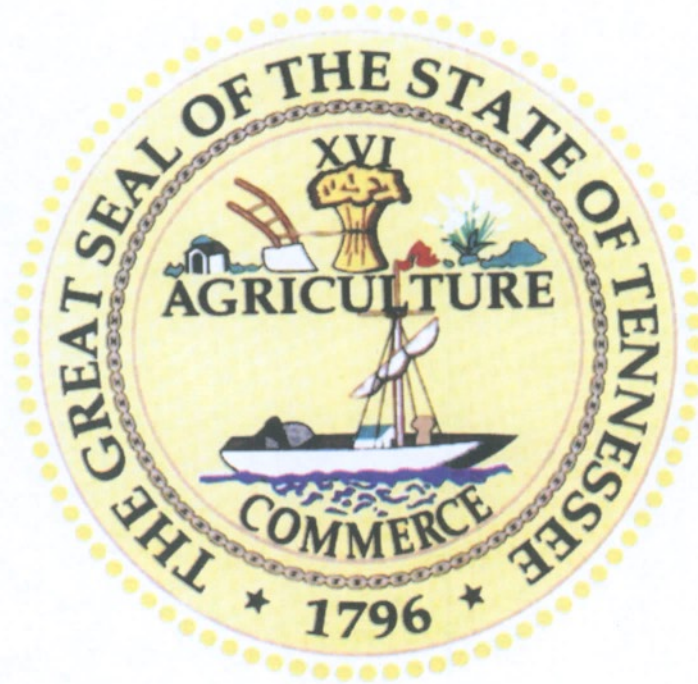


TRANSPORTATION PLANNING REPORT

STATE ROUTE 46
BRIDGE OVER BRANCH AT L.M. 15.74
Dickson County
PIN: 117433.01

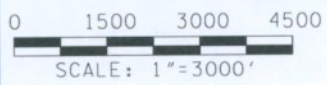
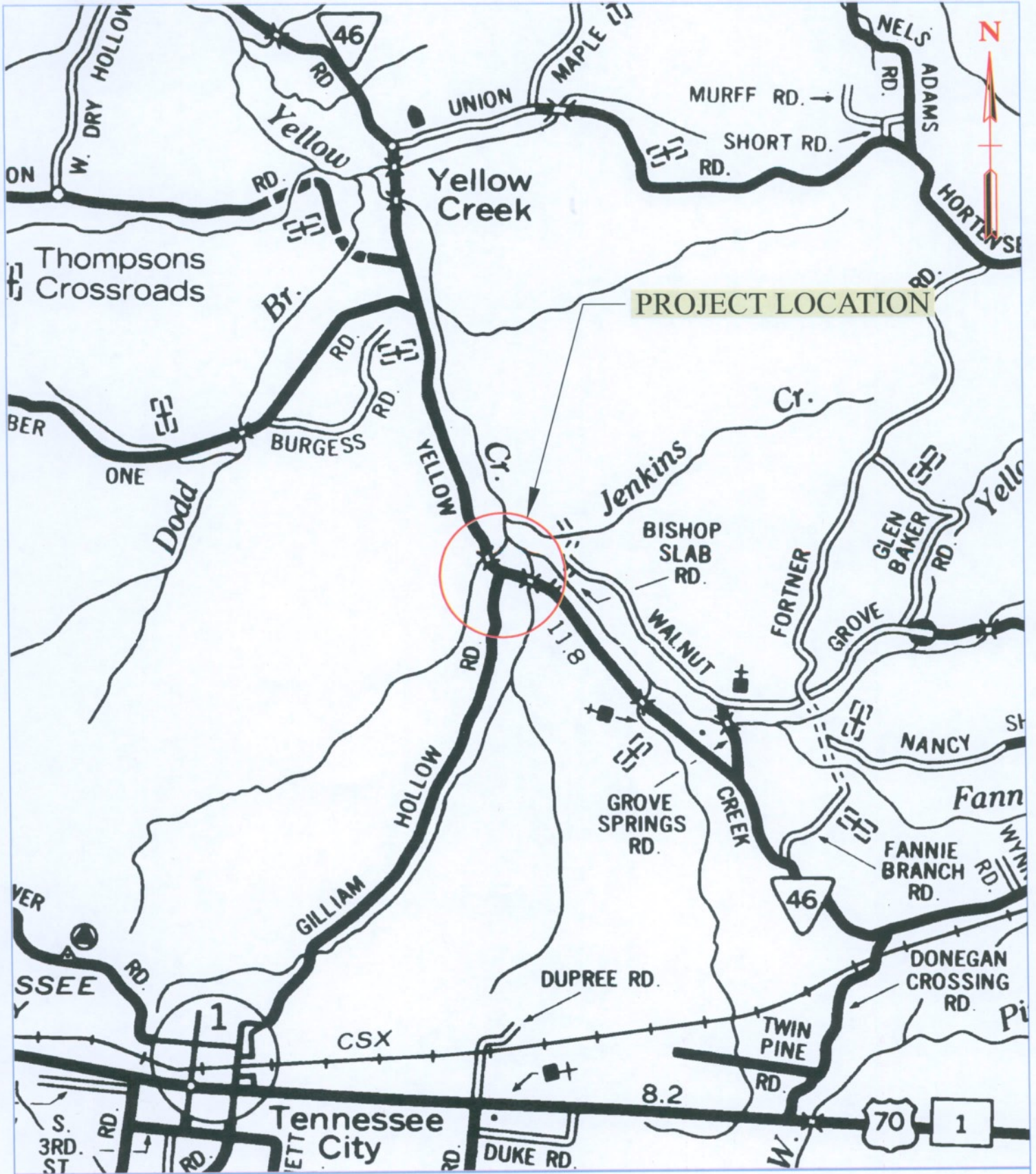


PREPARED BY
FLORENCE & HUTCHESON
FOR THE
TENNESSEE DEPARTMENT OF TRANSPORTATION

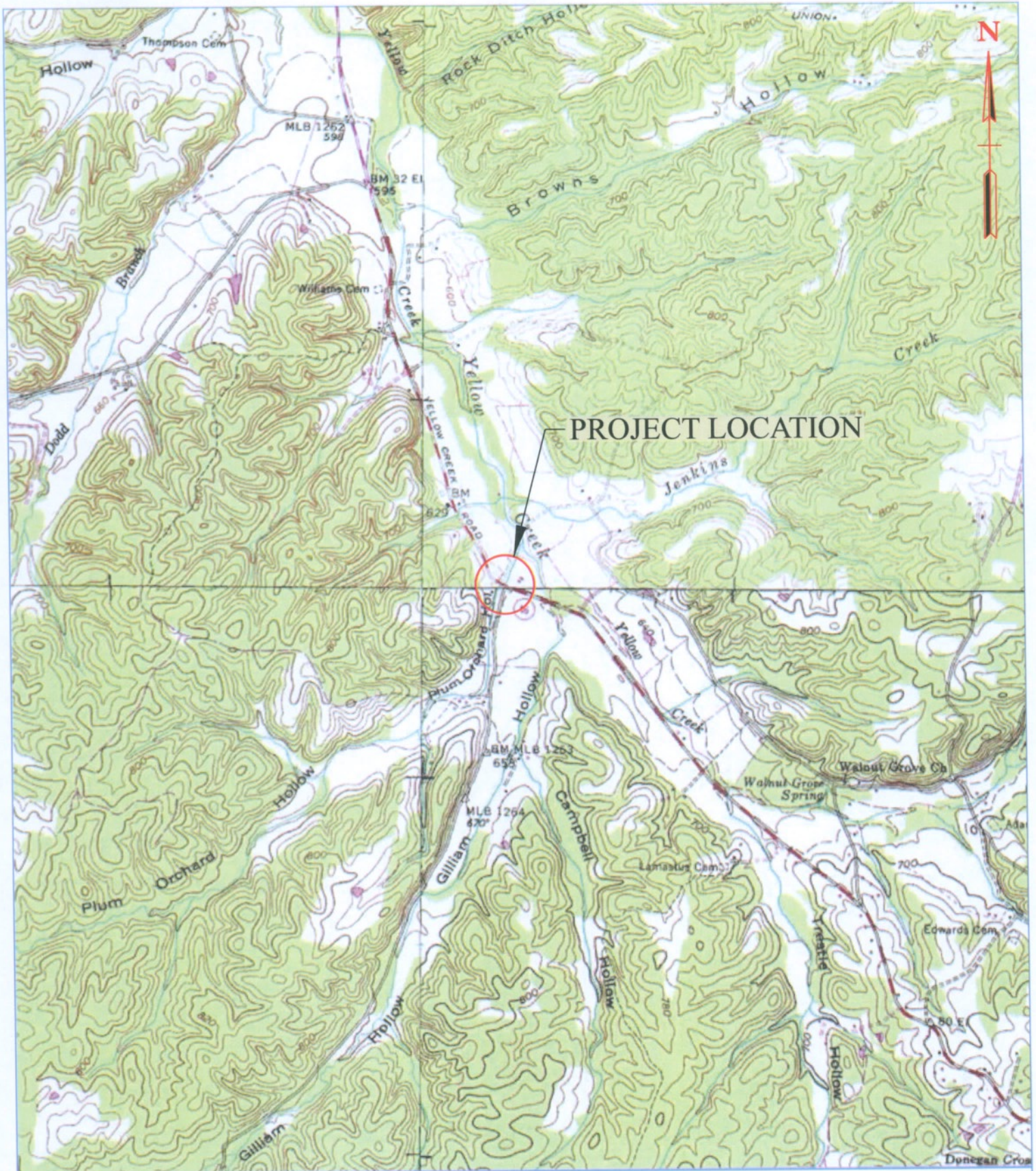
Approved by [Signature] Date 7/29/13 Approved by Paul Doye Date 8/12/13
Chief of Environment and Planning Deputy Commissioner and Chief Engineer

Approved by:	Signature:	Date:
Transportation Director Project Planning Division	<u>[Signature]</u>	7-22-13
Engineering Director Design Division	<u>Frederick M. Miller</u> <i>for</i>	7/26/13
Engineering Director Structures Division	<u>Wayne G. Seger</u>	7/29/13

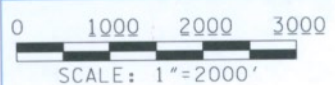
This document is covered by 23 USC § 409 and its production pursuant to fulfilling public planning requirements does not waive the provisions of § 409.



AREA MAP
 STATE ROUTE 46 (SR046) DICKSON COUNTY
 BRIDGE OVER BRANCH @ L.M. 15.74
 BRIDGE ID 22S61430005



PROJECT LOCATION



PROJECT MAP
STATE ROUTE 46 (SR046) DICKSON COUNTY
BRIDGE OVER BRANCH @ L.M. 15.74
BRIDGE ID 22S61430005



PROJECT LOCATION

SR 46

GILLIAM
HOLLOW RD.

0 100 200 300
SCALE: 1"=200'

AERIAL MAP
STATE ROUTE 46 (SR046) DICKSON COUNTY
BRIDGE OVER BRANCH @ L.M. 15.74
BRIDGE ID 22S61430005

**TRANSPORTATION PLANNING WORKSHEET
BRIDGE REPLACEMENT ANALYSIS, NEEDS, AND COSTS**

County: Dickson Route: State Route 46 Log Mile: 15.74
 Feature Crossed: Branch System: STP
 Functional Class: Rural Major Collector Bridge ID: 22-SR46-15.74

EXISTING CONDITIONS

2017 AADT: 2,010 App. Cross Section: 22'/26'/44' No. Lanes: 2
 Approach Alignment: tangent/curve Year Built: 1917 Load Limit: 15 tons
 Width (out to out): 23'-7" Sidewalks: Right none Left none Length: 43'
 No. Spans: Approach: -- Main: 1
 Substructure: Girder Vertical Clearance: 10'-2" Sufficiency Rating: 53.0
 Other: _____

PROPOSED IMPROVEMENTS

STANDARDS FROM RD01-TS-2 Type of Work: Replace
 Design Year: 2037 Design AADT: 2,410 Terrain Level ADL (F): - (R): -
 Project Length: 1000' Bridge Length: 57 ft Approach Length: 440' (NB)/500' (SB)
 Design Speed (MPH): 45 Posted Speed (MPH): 45
 Approach Width: 24'/40'/As Req'd Bridge Width (O to O): 43 ft No. Lanes: 2
 Right-of-Way Required: 2 Tract(s) (1.2 ac) Structure Type: Box Bridge

MAINTENANCE OF TRAFFIC

Temporary Detour: Temporary Runaround: Stage Construct:
 Alternate Route: _____

Remarks: Construct new bridge and shifted alignment while maintaining traffic on existing roadway. Once construction of the new alignment is complete, shift traffic to newly constructed roadway and demolish existing bridge and scarify existing roadway approaches.

ESTIMATED COST

Right-of-Way: \$12,000 Approaches: \$437,400 Structure: \$409,300
 Preliminary Engineering: \$115,300 Utilities: \$600 Misc./Cont.: \$243,700
 Mobilization: \$49,900 Total: \$1,268,200

Remarks: Estimate is based on preliminary recommendations. Final determination of structure type and size to be made by TDOT Structures.

Field Investigation by: Matthew Goette, Gabriel Moore, Sharon Bridges, Gena Gilliam, Terry Arnold, Scott Johnson David Duncan, and Antonio Johnson

Route:	State Route 46
Description:	Bridge Replacement - State Route 46 Bridge over Branch L.M. 15.74
County:	Dickson
Length:	0.19 mile
Date:	April 19, 2013

<u>DESCRIPTION</u>	<u>LOCAL</u>	<u>STATE</u>	<u>FEDERAL</u>	<u>TOTAL</u>
Right-of-Way	\$ -	\$ 1,200	\$ 10,800	\$ 12,000
Clearing and Grubbing	\$ -	\$ 700	\$ 6,500	\$ 7,200
Earthwork	\$ -	\$ 21,600	\$ 194,400	\$ 216,000
Railroad Crossing or Separation	\$ -	\$ -	\$ -	\$ -
Drainage	\$ -	\$ -	\$ -	\$ -
Utilities	\$ -	\$ 100	\$ 500	\$ 600
Structures	\$ -	\$ 40,900	\$ 368,400	\$ 409,300
Pavement Removal	\$ -	\$ 800	\$ 6,800	\$ 7,600
Paving	\$ -	\$ 18,400	\$ 166,100	\$ 184,500
Roadway and Pavement Appurtenances	\$ -	\$ -	\$ -	\$ -
Retaining Walls	\$ -	\$ -	\$ -	\$ -
Topsoil	\$ -	\$ 200	\$ 1,800	\$ 2,000
Seeding	\$ -	\$ 60	\$ 540	\$ 600
Sodding	\$ -	\$ -	\$ -	\$ -
Rip-Rap or Slope Protection	\$ -	\$ -	\$ -	\$ -
Fencing	\$ -	\$ -	\$ -	\$ -
Signing	\$ -	\$ -	\$ -	\$ -
Pavement Markings	\$ -	\$ 400	\$ 3,900	\$ 4,300
Lighting	\$ -	\$ -	\$ -	\$ -
Signalization	\$ -	\$ -	\$ -	\$ -
Guardrail	\$ -	\$ 1,500	\$ 13,700	\$ 15,200
Pay Item Quantity Adjustment (15%) ¹	\$ -	\$ 12,800	\$ 116,000	\$ 128,800
Maintenance of Traffic	\$ -	\$ 1,000	\$ 9,000	\$ 10,000
Mobilization (5%)	\$ -	\$ 5,000	\$ 44,900	\$ 49,900
CONSTRUCTION COST (rounded)	\$ -	\$ 104,700	\$ 943,300	\$ 1,048,000
Engineering and Contingency (10%)	\$ -	\$ 10,500	\$ 94,400	\$ 104,900
TOTAL CONSTRUCTION COST (rounded)	\$ -	\$ 115,200	\$ 1,037,700	\$ 1,152,900
Preliminary Engineering (10%)	\$ -	\$ 11,500	\$ 103,800	\$ 115,300
PROJECT COST ²(rounded)	\$ -	\$ 126,700	\$1,141,500	\$1,268,200

¹ For estimating purposes pay items are adjusted for fluxuation of cost based on quantity.

² For estimating future project costs, a compounded inflation rate of 7 % should be applied from the date of this estimate.

TDOT PAY ITEM	TDOT DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
-	Right-of-Way (1.2 acres)	LS	LS	\$ 12,000.00	\$ 12,000
RIGHT-OF-WAY TOTAL (ROUNDED)					\$ 12,000
201-01	Clearing and Grubbing	LS	LS	\$ 7,200.00	\$ 7,200
CLEAR AND GRUBBING TOTAL (ROUNDED)					\$ 7,200
203-03	Borrow Excavation (Unclassified)	CY	14400	\$ 15.00	\$ 216,000
EARTHWORK TOTAL (ROUNDED)					\$ 216,000
202-03.01	Removal of Asphalt Pavement	SY	1,202	\$ 5.00	\$ 6,010
415-01.02	Cold Planning Bituminous Pavement	SY	430	\$ 3.50	\$ 1,505
PAVEMENT REMOVAL TOTAL (ROUNDED)					\$ 7,600
DRAINAGE TOTAL (ROUNDED)					\$ -
	Above Ground Utilities	LF	60	\$ 10.00	\$ 600
UTILITIES TOTAL (ROUNDED)					\$ 600
202-04.01	Removal of Structures (Existing Bridge)	LS	LS	\$ 15,225.00	\$ 15,225
604-02.01	Class A Concrete (Box Bridges)	CY	747	\$ 372.03	\$ 277,906
604-02.02	Steel Bar Reinforcement (Box Bridges)	LB	136,690	\$ 0.85	\$ 116,187
STRUCTURES TOTAL (ROUNDED)					\$ 409,300
RAILROAD CROSSING OR SEPARATION TOTAL (ROUNDED)					\$ -

L.M. 15.74 (Bridge Replacement)

TDOT PAY ITEM	TDOT DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
Asphalt					
303-01	Mineral Aggregate, TY A Base, Grading D	TON	2038.0	\$ 18.08	\$ 36,847
307-01.01	Asp. Conc. Mix (PG64-22) (BPMB-HM) Gr. A	TON	848.0	\$ 78.41	\$ 66,492
307-02.08	Asphalt Conc Mx (PG70-22) (BPMB-HM) Gr B-M2	TON	555.0	\$ 77.65	\$ 43,096
402-01	Bituminous Material for Prime Coat (PC)	TON	8.0	\$ 508.44	\$ 4,068
402-02	Aggregate for Cover Material	TON	30.0	\$ 23.27	\$ 698
403-01	Bituminous Material for Tack Coat (TC)	TON	4	\$ 571.21	\$ 2,285
403-02	Asphalt Cement for Tack Coat (TC)	TON	2.0	\$ 653.00	\$ 1,306
411-03.10	ACS Mix (PG76-22) Grading D	TON	326.0	\$ 91.03	\$ 29,676
PAVING TOTAL (ROUNDED)					\$ 184,500
ROADWAY AND PAVEMENT APPURTENANCES TOTAL (ROUNDED) \$ -					
RETAINING WALLS TOTAL (ROUNDED) \$ -					
712-01	Traffic Control	LS		\$ 10,000.00	\$ 10,000
MAINTENANCE OF TRAFFIC TOTAL (ROUNDED)					\$ 10,000
203-07	Furnishing & Spreading Topsoil	CY	200	\$ 10.00	\$ 2,000
TOPSOIL TOTAL (ROUNDED)					\$ 2,000
801-01	Seeding (With Mulch)	UNIT	14	\$ 40.00	\$ 560
801-03	Water	MG	2	\$ 7.00	\$ 14
SEEDING TOTAL (ROUNDED)					\$ 600
SODDING TOTAL (ROUNDED) \$ -					
SIGNING TOTAL (ROUNDED) \$ -					

TDOT PAY ITEM	TDOT DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
716-02.05	Plastic Pavement Marking (Stop Line)	LF	14	\$ 12.41	\$ 174
716-01.21	Snowplowable Pvmnt Mkrs (Bl-Dir, 1 Color)	EACH	13	\$ 27.47	\$ 357
411-12.03	Scoring Rumble Strip (8")	LM	0.38	\$ 679.50	\$ 258
716-12.01	Enhanced Flatline Thermo Pvmnt Mkrng (4" Line)	LM	0.890	\$ 4,000.00	\$ 3,560
PAVEMENT MARKINGS TOTAL (ROUNDED)					\$ 4,300
LIGHTING TOTAL (ROUNDED)					\$ -
SIGNALIZATION TOTAL (ROUNDED)					\$ -
FENCE TOTAL (ROUNDED)					\$ -
705-04.21	Guardrail Delineation Enhancement	LF	282	\$ 1.50	\$ 423
705-04.03	Guardrail Terminal (Type 13)	EACH	1	\$ 519.90	\$ 520
705-04.05	Guardrail Terminal (Type-In-Line)	EACH	1	\$ 472.00	\$ 472
706-01	Guardrail Removed	LF	60	\$ 2.00	\$ 120
705-04.07	Type 38 End Terminal	EACH	3	\$ 2,500.00	\$ 7,500
705-01.01	Guardrail at Bridge Ends	LF	108	\$ 56.85	\$ 6,140
GUARDRAIL TOTAL (ROUNDED)					\$ 15,200
RIP-RAP OR SLOPE PROTECTION TOTAL (ROUNDED)					\$ -



**STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION**

JOHN C. SCHROER
COMMISSIONER

BILL HASLAM
GOVERNOR

TO: Project Planning Office

FROM: Matthew Goette, PE
Florence & Hutcheson

DATE: June 4, 2013

SUBJECT: TPR Field Review (Special Bridge Replacement Program)
State Route 46 over Branch @ L.M. 15.74
Dickson County
PIN 117433.01

This project was initiated based on findings from a Road Safety Audit Review (RSAR) site visit conducted on July 30, 2012. The estimated costs associated with the replacement of this bridge will be provided by the Planning Division Project Safety Office based on the findings of the initial RSAR. A subsequent field review for the bridge site was held for the above-mentioned project on April 12, 2013.

The existing structure is a one (1) span concrete deck girder bridge with the natural channel within the superstructure. The bridge has an out-to-out width of 23.6 feet and a total length of 43 feet. The sufficiency rating for the existing bridge is 53. The 10-year and 100-year discharges and depths of flow for the drainage basin were determined using the appropriate regression equations. The 10-year flood depth is 6.0 feet and the 100-year flood depth is 8.3 feet.

The existing bridge is located between the intersection of State Route 46 and Gilliam Hollow Road to the east and a sharp horizontal curve to the west. The replacement structure for the existing bridge is proposed to the north of the existing structure to allow for geometric improvements for the horizontal curve west of the existing structure along State Route 46. The vertical clearance will improved from 10.2 feet to 16.1 feet due to the raising of the grade two (2) feet and the use of a box bridge in place of the existing span bridge.

During construction of the proposed box bridge, traffic will be maintained on the existing route. Once the construction of the proposed bridge and approaches are complete, traffic will be shifted to the new alignment. The existing bridge will then be demolished and its roadway approaches scarified, topsoiled, and seeded. For the construction of the realigned road and new bridge, acquisition of 1.2 acres of Right-of-Way will be required. The only apparent utility conflict observed in the field was a low overhead utility wire across State Route 46 east of the existing bridge.

The roadway segment of State Route 46 has a base year (2017) Average Annual Daily Traffic (AADT) of 2,010 and a design year (2037) AADT of 2,410. The bridge over Branch will be designed to meet TDOT Standard Drawing RD01-TS-2. The structure is to consist of a reinforced concrete box bridge with three (3) barrels at eighteen (18) feet with seventeen (17) feet of clearance. The total length of the box bridge with be 57 feet.

The required approach work, estimated replacement, utility relocation, right-of-way acquisition, and preliminary engineering costs for the bridge are approximately \$1,268,200.

cc: FILE

CHECK LIST OF DETERMINANTS FOR LOCATION STUDY

If any of the following facilities or ESE categories are located within the project area or corridor, place an "x" in the blank opposite the item. Where more than one alternate is to be considered, place its letter designation in the blank.

1. Agricultural land usage	X
2. Airport (existing or proposed)	
3. Commercial area, shopping center	
4. Floodplains	X
5. Forested land	X
6. Historical, cultural, or natural landmark	
7. Industrial park, factory	
8. Institutional usages	
a. School or other educational institution	
b. Church or other religious institution (Cemetery)	
c. Hospital or other medical facility	
d. Public building, e.g., fire station	
e. Defense installation	
9. Recreation usages	
a. Park or recreational area	
b. Game preserve or wildlife area	
10. Residential establishment	
11. Urban area, town, city, or community	
12. Waterway, lake, pond, river, stream, spring	X
Permit required:	
Coast Guard	
Section 404	
TVA Section 26a review	
NPDES	
Aquatic Resource Alteration	
13. Other	
14. Location coordinated with local officials	
15. Railroad crossings	
16. Hazardous materials site	

**TENNESSEE DEPARTMENT OF TRANSPORTATION
PROJECT PLANNING DIVISION**

PROJECT NO.: 22004-0247-94 ROUTE: S.R. 46
 COUNTY: DICKSON CITY: _____
 PROJECT PIN NUMBER: 117433.01
 PROJECT DESCRIPTION: BRIDGE AND APPROACHES OVER BRANCH @ L.M. 15.74.

DIVISION REQUESTING:

MAINTENANCE PAVEMENT DESIGN
 PLANNING STRUCTURES
 PROG. DEVELOPMENT & ADM. SURVEY & DESIGN
 PUBLIC TRANS. & AERO. TRAFFIC SIGNAL DESIGN
 OTHER _____
 YEAR PROJECT PROGRAMMED FOR CONSTRUCTION: _____
 PROJECTED LETTING DATE: _____

TRAFFIC ASSIGNMENT:

BASE YEAR		DESIGN YEAR					DESIGN ROADWAY % TRUCKS		DESIGN AVERAGE DAILY LOADS	
AADT	YEAR	AADT	DHV	%	YEAR	DIR.DIST.	DHV	AADT	FLEX	RIGID
2,010	2017	2,410	241	10	2037	65-35	3	5		

REQUESTED BY: NAME LISA REANEY DATE 3/27/13
 DIVISION PROJECT PLANNING
 ADDRESS 1000 J. K. POLK BUILDING
NASHVILLE TN 37243

REVIEWED BY: TONY ARMSTRONG Tony Armstrong DATE 3-27-13
 TRANSPORTATION MANAGER 1
 SUITE 1000, JAMES K. POLK BUILDING

APPROVED BY: DUDLEY DANIEL Bill Hart DATE 3/27/13
 TRANSPORTATION MANAGER 2
 SUITE 1000, JAMES K. POLK BUILDING

COMMENTS:

THIS TRAFFIC IS BASED ON 2012 CYCLE COUNTS. THE FUTURE TRAFFIC IS BASED ON 1% PER YEAR GROWTH RATE DUE TO NEGATIVE GROWTH FROM THE ADAM COMPUTER PROGRAM.

DHV'S ARE NOT REQUIRED FOR SIDE ROADS LESS THAN 1000 AADT.

NOTE: FOR BRIDGE REPLACEMENT PROJECTS, ADLs ARE NOT REQUIRED FOR ADTs OF 1000 OR LESS AND PERCENTAGE OF TRUCKS OF 7% OR LESS.
 SEE ATTACHMENTS FOR TURNING MOVEMENTS AND/OR OTHER DETAILS.

(REV. 4/10/12)

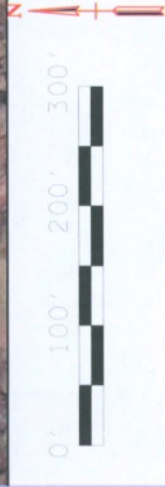
FILE NO.	YEAR	COUNTY	PROJECT NO.
BRIDGE 2013	2013	DICKSON	1



OFFICE OF TRANSPORTATION
 BRIDGE PLANNING DIVISION
 PROJECT PLANNING DIVISION

BRIDGE REPLACEMENT
 STATE ROUTE 46
 BRIDGE ID 22561430005 (L.M. 15.74)
 DICKSON COUNTY

FIGURE 1
 S.R. 46
 L.M. 15.74



SCALE: 0.01"
 PROJECT PLANNING DIVISION
 FILE NO.

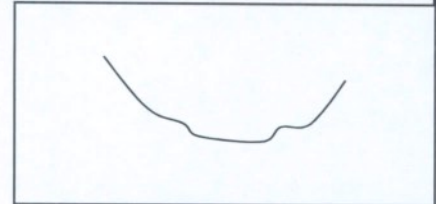
4/30/2013
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SITE INSPECTION

INSPECTION MADE BY: Matt Goette, Gabriel Moore BRIDGE ID: 22S61430005 COUNTY: Dickson
 Date: 4/12/13 Route Name: State Route 46 Stream Name: Branch @ L.M. 15.74

CHANNEL

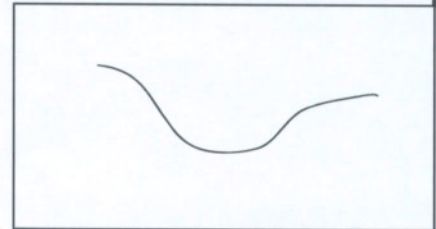
Approx depth and width of channel: Horizontal: 17'-6" Vertical: 0'-9"
 Depth of normal flow: _____ In Reservoir: Yes No
 Depth of Ordinary High Water: ---
 Type of material in stream bed: Gravel
 Type of vegetation on banks: Low Growth/Large Timber
 "N" factor of the channel: 0.035
 Are channel banks stable: Yes No
 If the streambed is gravel: D₃₀ = - D₈₅ = -
 Skew of the channel with the roadway: 75°



Channel Shape Sketch

FLOODPLAIN

Is the skew same as the channel? Yes No
 Is it symmetrical about the channel? Yes No
 Type of vegetation in the floodplain and "N" factors
 Left U.S.: Brush (0.050) Right U.S.: Brush (0.050)
 Left D.S.: Brush (0.050) Right D.S.: Pasture/Farm (0.030)
 Are roadway approaches lower than the structure? Yes No
 Are there any buildings in the floodplain? Yes No
 Approx. floor elevations: ---
 Flood information from local residents:
 (elevations & dates) ---



Floodplain Sketch

EXISTING STRUCTURE

Length: 43' No. of spans: 1 Structure type: Deck Girder No. of lanes: 2 Skew: 75°
 Width (out to out): 23'-7" Width (curb to curb): 20'-0" Approach: paved graveled
 Sidewalks on Structure: Yes No Bridgerail type: Concrete Bridgerail height = 2'-6"
 Superstructure depth: 4'-9" Finished Grade to low girder = 1'-7" Girder depth = 3'-2"
 Are any substructures in the channel? Yes No Vertical Clearance = 10 ft
 Indications of overtopping: None observed
 High water marks: None observed
 Local scour: Yes, _____ No
 Any signs of stream aggradation or _____ degradation? _____
 Any drift or drift potential? Yes, _____ No
 Any obstructions (pipes, stock fences, etc.)? None observed

PROPOSED STRUCTURE

Replacement Rehabilitate Widening New Location
 Bridge length: 57 ft Bridge type: Box Span arrangement: 3 @ 18'x17' Skew: 60°
 Bridge width: 43.0 ft Sidewalks: none Design Speed (MPH): 45 ADT (2037) = 2,410
 Proposed grade: Raise +2.0' Proposed alignment: Shift to north
 Method of maintaining traffic: Stage construction On site detour Close road Shift Centerline
 Cost of proposed Structure: \$161 per ft² X 57 / 43.0 length (ft) / width (ft) Cost = \$394,100
 Cost of bridge removal: \$15 per ft² X 43 / 23.6 length (ft) / width (ft) Cost = \$15,200
 Detour structure: Type and size = N/A Cost = \$0

Total Structure Cost = \$409,300

**Bridge TPR Flow Calculations
For Hydrologic Area 2
Area > 300 Acres**

County: Dickson
 Bridge ID: 22S61430005
 Route: State Route 46
 Feature Crossed: Branch
 Log Mile: 15.74

By: MEG
 Date: 4/12/13
 PIN: 117433.01

DRAINAGE BASIN

Measurement from quad = 1,146 acres
 Contributing Drainage Area, CDA = acres/640 = 1.79 sq. mi.

USGS REGRESSION EQUATIONS FOR FLOW

$Q_2 = 207(CDA)^{0.725} =$ 316 cfs
 $Q_5 = 344(CDA)^{0.715} =$ 522 cfs
 $Q_{10} = 444(CDA)^{0.711} =$ 672 cfs
 $Q_{25} = 578(CDA)^{0.708} =$ 873 cfs
 $Q_{50} = 682(CDA)^{0.706} =$ 1,029 cfs
 $Q_{100} = 788(CDA)^{0.705} =$ 1,188 cfs

DEPTH OF FLOW EQUATIONS

10-Year Flood Depth = $5.33(CDA)^{0.197} =$ 6.0 ft
 100-Year Flood Depth = $7.43(CDA)^{0.181} =$ 8.3 ft

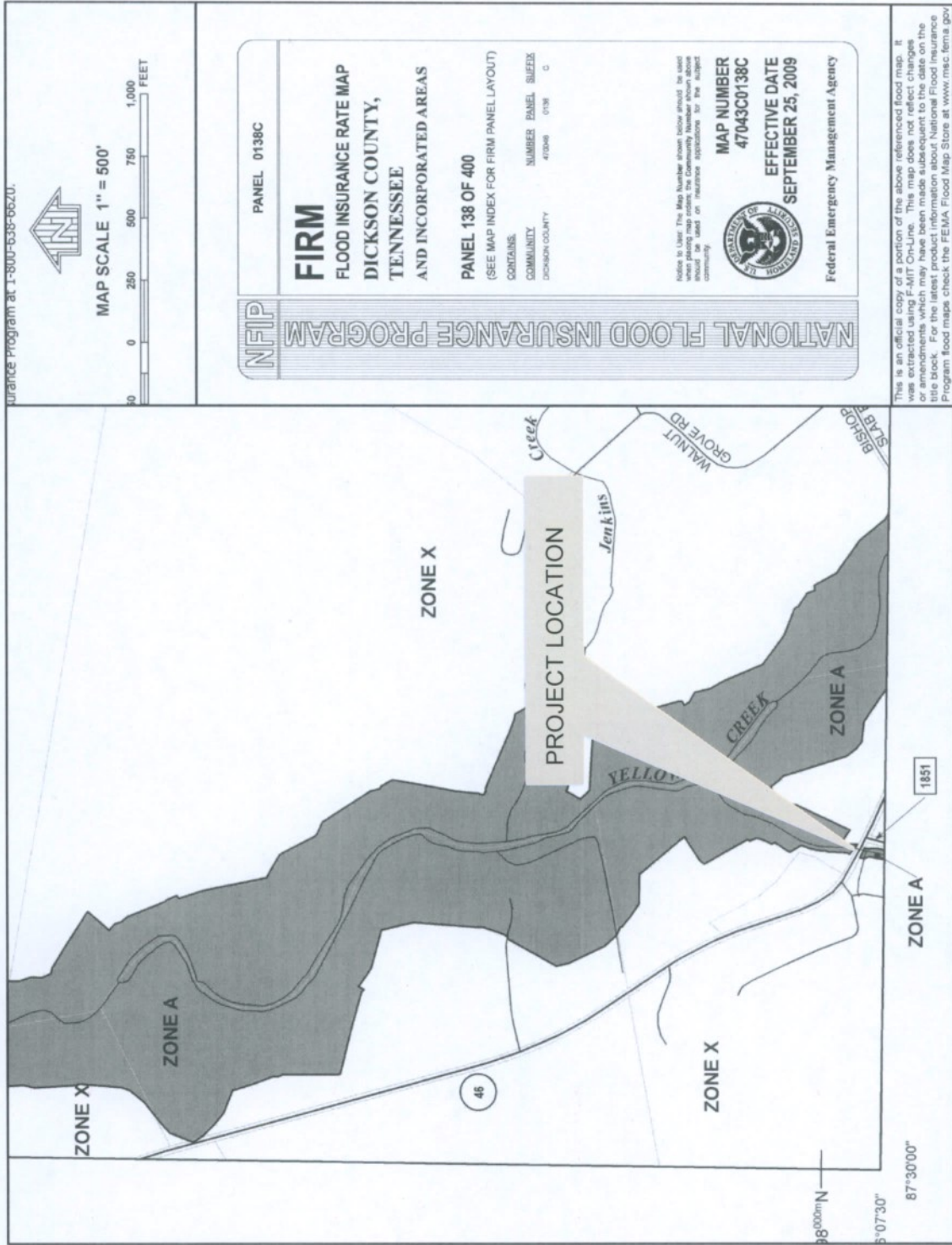
AREAS

Existing Area Below Low Chord = 400 ft²
 Proposed Area Below Low Chord = 918 ft²
 Proposed 10-Year Flood Area, $A_{10} =$ 324 ft²
 Proposed 100-Year Flood Area, $A_{100} =$ 448 ft²

VELOCITIES

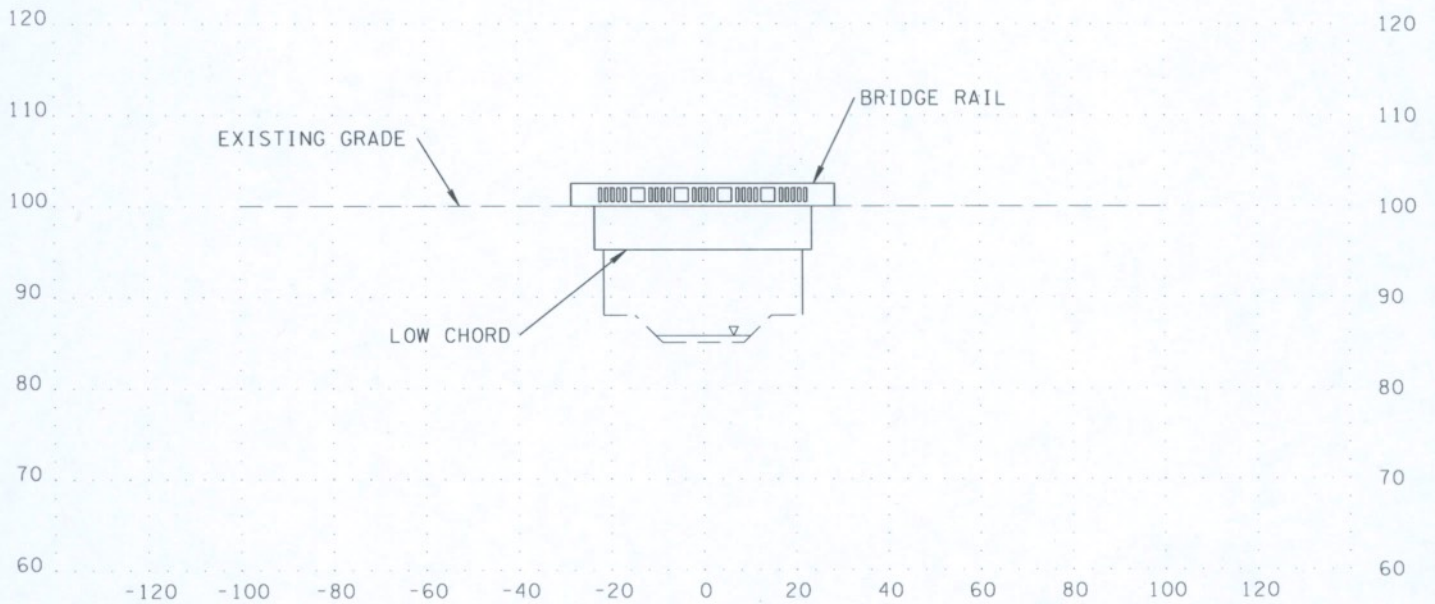
Proposed 10-Year Flood Velocity, $V_{10} = Q_{10}/A_{10} =$ 2.1 fps
 Proposed 100-Year Flood Velocity, $V_{100} = Q_{100}/A_{100} =$ 2.7 fps

**Bridge Transportation Planning Report
Dickson County, State Route 46, L.M. 15.74, PIN 117433.01**

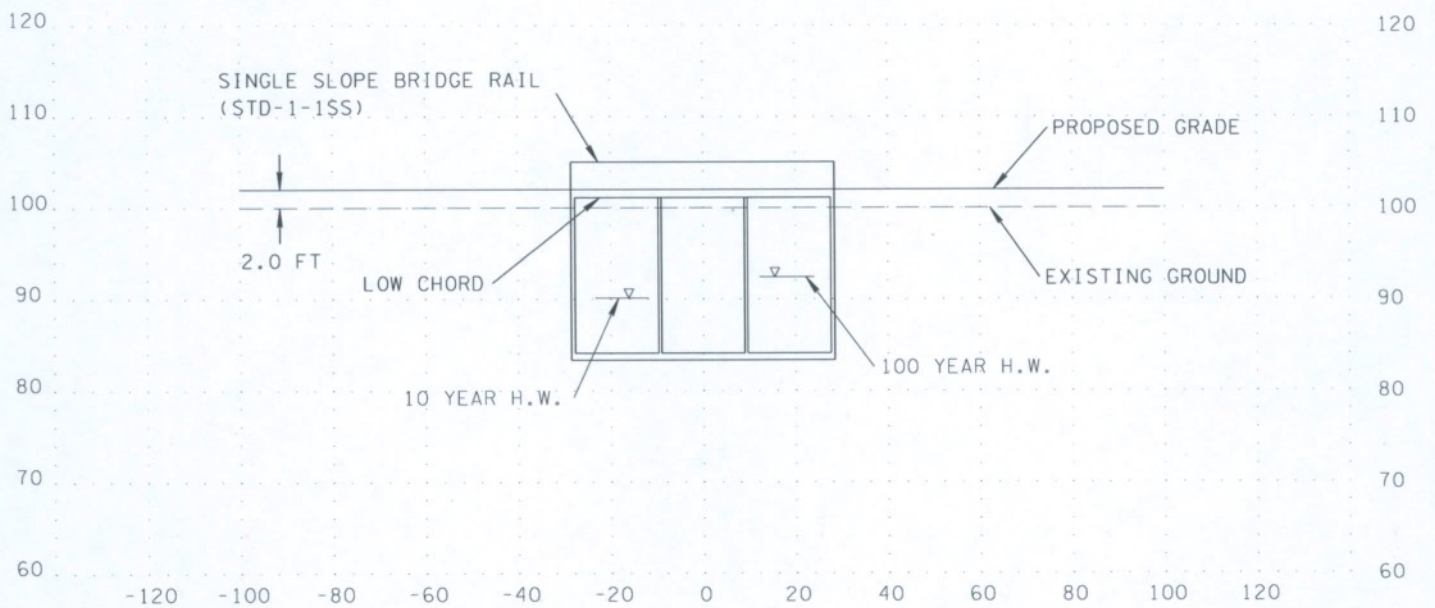


Source: FEMA Map No. 47043C0138C, Not to Scale

EXISTING STRUCTURE



PROPOSED STRUCTURE

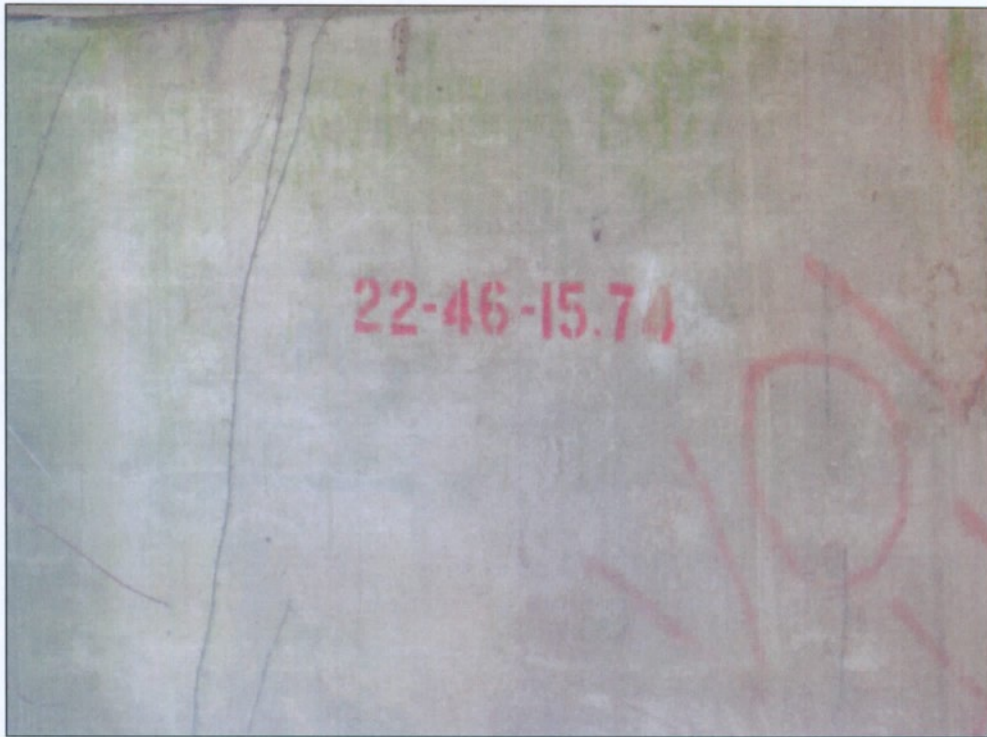


SCALE: 1" = 40' HOR.
1" = 20' VERT.

BRIDGE SECTIONS
STATE ROUTE 46 (SR046) DICKSON COUNTY
BRIDGE OVER BRANCH @ L.M. 15.74
BRIDGE ID 22S61430005

Special Bridge Replacement Program TPR
Dickson County, SR 46 over Branch, Bridge ID 22S61430005, L.M. 15.74, PIN 117433.01

SITE PHOTOS (3/12/13) – BANKS ARE REFERENCED WITH RESPECT TO DIRECTION OF FLOW



BRIDGE LOCATION NUMBER



BRIDGE INLET (SOUTH SIDE OF STATE ROUTE 46)



BRIDGE OUTLET (NORTH SIDE OF STATE ROUTE 46)



BRANCH UPSTREAM OF THE EXISTING BRIDGE



BRANCH DOWNSTREAM OF THE EXISTING BRIDGE



BRANCH LEFT UPSTREAM OF THE EXISTING BRIDGE



BRANCH RIGHT UPSTREAM OF THE EXISTING BRIDGE



BRANCH LEFT DOWNSTREAM OF THE EXISTING BRIDGE



BRANCH RIGHT DOWNSTREAM OF THE EXISTING BRIDGE



STATE ROUTE 46 WESTBOUND APPROACH FROM BRIDGE

Special Bridge Replacement Program TPR
Dickson County, SR 46 over Branch, Bridge ID 22S61430005, L.M. 15.74, PIN 117433.01



STATE ROUTE 46 EASTBOUND APPROACH FROM BRIDGE



STATE ROUTE 46 WESTBOUND APPROACH TO BRIDGE

Special Bridge Replacement Program TPR
Dickson County, SR 46 over Branch, Bridge ID 22S61430005, L.M. 15.74, PIN 117433.01



STATE ROUTE 46 EASTBOUND APPROACH TO BRIDGE



CRACKED WINGWALL ON LEFT UPSTREAM SIDE OF EXISTING BRIDGE

Special Bridge Replacement Program TPR
Dickson County, SR 46 over Branch, Bridge ID 22S61430005, L.M. 15.74, PIN 117433.01



REPLACED BRIDGE RAIL ON UPSTREAM SIDE OF EXISTING BRIDGE



RECASTED WINGWALL ON RIGHT UPSTREAM SIDE OF EXISTING BRIDGE



SUBSTRUCTURE CRACKING ON DOWNSTREAM SIDE OF EXISTING BRIDGE