



*Heartland Corridor, Walton Virginia to
Columbus Ohio*

Preliminary Engineering Phase Report



ANTLER NO. 2
TUNNEL –
MP N405.71
MOHEGAN, WV

October 14, 2005, Rev. 2



Preliminary Engineering Phase Report

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October 14, 2005

Norfolk Southern Railway
Heartland Corridor, Walton VA to Columbus OH

Antler No. 2 Tunnel – MP N405.07

Statistics: Pocahontas Division
Double-width Tunnel for Main #1 and Main #2
Length = 613'
Concrete lined
Degree of Curvature = 6.0 RT (per Track Chart)
Superelevation = 3.5” (per Track Chart)

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1. EXISTING CONDITIONS

1.1 Background

Valuation Maps V-13WV/31 & 32 (16287 & 16288) for the Antler No.2 Tunnel are dated June 30, 1916. Parcels for the tunnel were acquired in 1903. Therefore the tunnel is suspected to have been constructed in 1903 or shortly afterwards. Additional information on this tunnel was obtained from various sources such as topographic maps, aerial photos, inspection reports, track charts, and field investigations that were performed on March 22, June 13, and July 10, 2005.

1.2 General Area

The tunnel is located in a lightly populated area of the Town of Mohegan, McDowell County, West Virginia. Nearby land use includes a residential area near the east portal. There is a staging area located in close proximity of the east portal. The tunnel may be accessed from Route 7. There is a rail bridge in close proximity to the west portal crossing the Tug Fork River. A rail greaser is located outside of the east portal for tracks 1 and 2.

1.3 Structural Conditions

The tunnel is 613' long with a concrete lining and a width of approximately 29'. It is a double-width tunnel for two tracks. There are no signs of buried utilities inside of the tunnel, however track circuits could be buried in ballast. There are drainage ditches along each wall and in between the tracks. No utilities are mounted to the tunnel lining. The concrete liner is in generally good, dry condition. Some leaking was noted at the 6th joint from the east portal and the last four joints from the west portal have some minor spalling and cracks. The west portal concrete face is spalling. The depth to the bottom of footing is unknown. The top of rock is exposed at the north ditch line and is 12" below the top of foundation.

Liner cores were taken on July 10, 2005. Cores were drilled into the liner at locations 150' and 550' into the tunnel from the east portal. The cores were taken at the 7, 10 and 12 o'clock positions at each location. A borescope was inserted into the holes to view inside the liner. The video from the borescope was recorded onto a DVD. The liner probe investigation is summarized in the table below:

Summary of Antler No. 2 Tunnel Liner Core Investigation			
Distance from East Portal	Position	Liner Thickness	Notes
150'	7 o'clock	34"	No void behind liner.
150'	10 o'clock	39"	Void behind liner filled with boulders and cobbles. No wood

Summary of Antler No. 2 Tunnel Liner Core Investigation			
Distance from East Portal	Position	Liner Thickness	Notes
150'	12 o'clock	39"	Void behind liner.
550'	7 o'clock	39"	No void behind liner.
550'	10 o'clock	38"	No void behind liner.
550'	12 o'clock	38"	5"-6" void behind liner, boulders and cobbles, no wood.

Excavation was done to expose a small portion of the tunnel liner footing. The footing thickness was found to be 9". The vertical distance from the top of rail to the base of the footing was measured at 22.5".

The bridge outside of the west portal of the tunnel was investigated on June 13, 2005. The bridge is a 3-span timber deck girder. The girders are built-up steel plate girders with the south pair of girders carrying Main #1, and the north pair carrying Main #2. The girders sit on 2" thick bearing plates on the abutments. The bridge spans the Tug Fork River. The structure type of the bridge and the site geometry, coupled with the proximity of rock below the rail make track lowering a difficult and expensive option.

1.4 Track

The track is continuous welded rail of conventional design with wooden cross ties at approximately 19" on center and a stone ballast section. The ballast is approximately 1.5' below top of tie and is generally clean with no pumping of fines observed. The rail is typically 132RE on 15" tie plates and fastened with rail spikes and anchors at every tie in the tunnel. The track curves right 6 degrees with a superelevation of 3.5" on both tracks throughout the length of the tunnel.

1.5 Geotechnical

The tunnels in the east-central part of the Pocahontas Division (including Antler No. 2) are located in the Appalachian Plateaus Physiographic Province, a region characterized by deeply incised plateaus underlain by flat-lying sedimentary rock. The tunnel itself is lined and no rock was exposed. The description of the site geology at each tunnel is based on our observations of the rockmass at the portals and adjacent cuts and the 1968 West Virginia Geologic Map prepared by the West Virginia Geologic and Economic Survey.

The tunnel was excavated through the medium- to thick-bedded fine- to medium grained sandstone of the New River Formation. The sandstone is locally interbedded with thin-bedded sandstone, siltstone, shale, and coal. Bedding is subhorizontal and gently rolls back and forth

towards the northwest and southeast. Beds of thin-bedded sandstone and shale up to five feet thick were infrequently noted within the sandstone.

Coal beds and coaly shale beds up to five feet thick were noted along several County Route 7 road cuts located above and adjacent to the Antler No.1 and No. 2 Tunnels. The coal beds appear to be locally mined out from the road cut surface and the excavation extends several tens of feet back from the cut face. Joints in the rock cuts are typically steeply dipping and widely spaced. A sample of rock was taken from the portal and tested. Most joints are less than 15 feet in length and are not through-going across the exposure face.

The rock quality designation, Q, at the portals was determined to be 23. A Q rating between 10 and 40 is considered “Good” with 10 bordering on “Fair” and 40 bordering on “Very Good.” A sample of rock was taken from the portal and tested.

The geoprobes indicate that the top of rock is located between 2.3’ to 3.0’ (averaging 2.5’) below the top of ballast throughout the tunnel for Main #1 and between 2.0’ to 2.9’ (averaging about 2.3’) below the top of ballast throughout the tunnel for Main #2. Top of ballast is typically about 0.8’ below top of low rail. Top of rock is exposed along the north ditch line approximately 12” below the top of foundation

1.6 Clearances

The laser car measurements indicate that the existing tunnel has adequate horizontal clearance for both the “High-Wide Load” and the “Double-Stack Load” portions of the composite clearance envelope on the right wall throughout the entire tunnel. For vertical clearance, the “Double Stack” portion of the envelope encroaches on the sides of the tunnel crown by an average of about 16” on the left wall and 22” on the right wall, and varies up to 26”. The “High-Wide” portion of the envelope encroaches on the sides of the tunnel crown by an average of about 7” on the left wall and 16” on the right wall, and varies up to 18”, at points lower than that of the “Double Stack” envelope. Cross sections of the tunnel clearance encroachments are shown in the drawings at the end of this report. The maximum vertical encroachments are summarized in the table below:

Distance (ft) from East Portal	Crown Encroachment (radial inches)	
	Left Side	Right Side
0	22	25
100	17	26
200	16	24
300	17	22
400	17	22
501	16	22
600	15	24
609	16	24

2. CLEARANCE IMPROVEMENT ALTERNATIVES

Given the magnitude of the vertical clearance deficiency, there are several general alternatives that can be used to obtain the clearance; replacing the lining, notching the lining or using steel ties to lower the track. Combinations of the general methods may be required to obtain a design that is cost effective and that can be constructed within reasonable track outages. Track lowering by excavating or undercutting does not appear feasible due to the proximity of the top of rock to the surface.

2.1 Liner Replacement

To obtain the desired clearance, the concrete roof must be demolished, the native rock excavated to the clearance limits plus the new liner thickness, and a new concrete roof installed. This method appears necessary considering that the amount of encroachment is nearly equal to the entire thickness of the liner for most of the right side of the tunnel crown.

2.2 Notching the Crown

Notching in the upper quadrants of the tunnel crown may not cut entirely through the liner and could be an alternative to complete liner replacement. However, on the right side of the tunnel crown, the encroachment is large enough that a minimum liner thickness of at least 10" might not be maintained. The six cores taken in July 2005 varied in thickness from 34" - 39", which is more than the minimum thickness of 26" at crown and 34" minimum in the sidewalls that was indicated on drawings for adjacent tunnels. However, additional investigations would be required before the apparent additional thickness of concrete can be relied on in the reconstruction. Therefore, deep notching of the tunnel crown will no longer be considered as a viable alternative for achieving the necessary vertical clearance, unless additional investigations in the Final Design Phase conclude that an adequate thickness can be maintained..

2.3 Steel Ties

Substitution of steel ties for the standard wood ties will permit the rails to be lowered about 6 inches. Transition sections would be constructed at the tunnel approaches for the vertical curves and for a gradual transition in track stiffness. A proper drainage system is required to minimize corrosion of the ties.

Steel ties would not be sufficient to fix the entire clearance deficiencies, but in some cases could be used in conjunction with another method to provide a more economical solution. However, in this tunnel, steel ties would have to reduce the encroachment to under 16" in order to make deep notching a viable alternative, and such a large reduction is not possible. In addition, steel ties would require the lowering of the rail bridge outside the west portal. Also, lateral shifting of the track is a concern when using steel ties. For these reasons, steel ties do not provide any significant advantages that would warrant their expense. Therefore, they will no longer be considered as a viable alternative.

3. PREFERRED ALTERNATIVE

Given the magnitude of the vertical encroachment, liner replacement at the tunnel crown is necessary to achieve the required clearance on the right side of the tunnel. Additional investigations in the final design phase may determine that notching is possible for some of the tunnel. Drainage improvements are also recommended.

3.1 Preliminary Design

The preliminary design uses replacement of the liner crown. The existing track structure is planned to be flooded with ballast to the top of the rail to provide access into the tunnel for the contractor to work and to protect the track during the construction. The preliminary design also proposes to install a new drainage system and undercut the track to replace the fouled ballast.

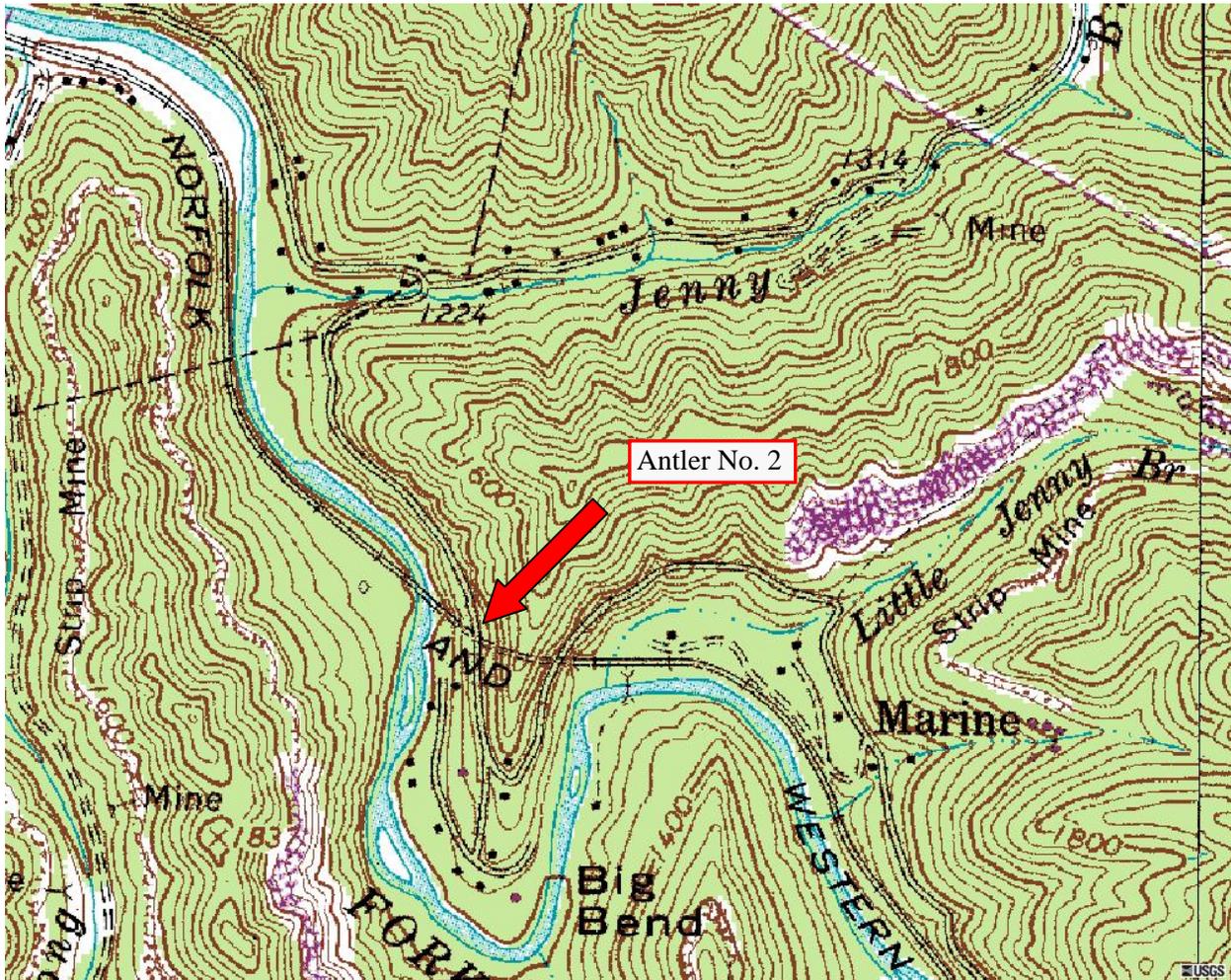
3.2 Schedule

The estimated schedule for completing improvements on this tunnel is twenty-five (25) weeks from mobilization to demobilization. The schedule assumes one track being closed at a time, for eight hours, five days a week. The schedule assumes 12' of crown removal each day, with concrete removal, rock removal, installation of rock dowels and installation of shotcrete all occurring on the same day for each 12' segment. Drainage improvement operations would be undertaken at the same time as the crown removal, but at different locations in the tunnel.

3.3 Estimate

The total estimated cost for achieving clearance at this location is \$4.5 million (2005 rates) or \$7,394 per foot of tunnel. The work items include mobilization, surveying, liner removal, rock removal, rock dowels, crown installation, rock cut for drainage trench, tunnel drainage system, ballast cleaning, and demobilization. The total cost is made up of tunnel, track, signal, and site work items at \$2.8 million, plus a 30% construction contingency, a 10% engineering allowance, and a 14% construction management allowance.

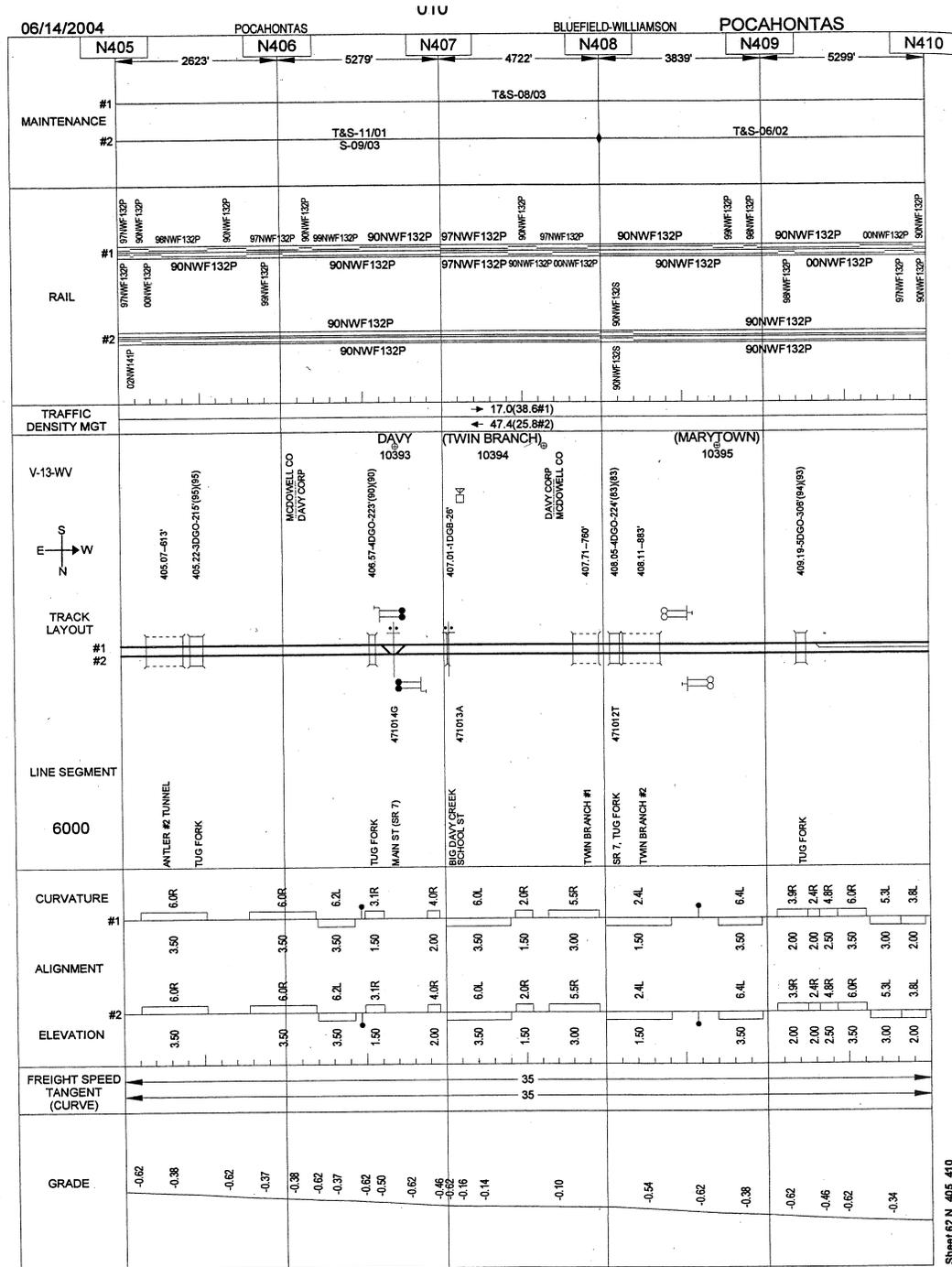
4. USGS TOPOGRAPHIC MAP



5. AERIAL PHOTO



6. TRACK CHART



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7. PHOTOS



Photo No. 1 – East Portal



Photo No. 2 – Spalling at East Portal



Photo No. 3. – West Portal



Photo No. 4. – Looking from West Portal



Photo No. 5. – Spall in Wall With Footer Showing



Photo No. 6. – Spall at Horizontal Construction Joint

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8. ESTIMATE
Antler No. 2

Tunnel Length **613** ft
 Tunnel Width **29.5** ft
 # of Tracks **2**

	Contractor		Railroad	
Work Window	10	hrs	10	hrs
Setup & Demobilization Allowance	2	hrs	2	hrs
Production Time	8	hrs	8	hrs

Tunnel Work Items	UOM	Quantity	Unit Rate	Total
Mobilization	%	5%		\$117,680.52
Surveying	DY	5	\$1,300.00	\$6,500.00
Rock Dowels 14' with Chain Link Mesh - Crown	EA	1022	\$604.43	\$617,525.87
Crown Removal	SF	28887	\$16.21	\$468,279.20
Rock Removal - Crown	CY	1070	\$428.06	\$457,979.20
Crown Installation	SF	28887	\$24.46	\$706,446.38
Rock Cut Drainage Trench	LF	713	\$94.41	\$67,315.20
Tunnel Drainage	LF	713	\$18.44	\$13,148.64
Demobilization	DY	5	\$3,283.20	\$16,416.00
Total Tunnel Work Items	LF	613	\$4,031.47	\$2,471,291.02

Trackwork Items	UOM	Quantity	Unit Rate	Total
Mobilization	DY			
Undercutting	PF	1300	\$20.02	\$26,029.72
Surfacing & Lining	PF	3900	\$2.64	\$10,304.06
Ballasting Track	TN	1300	\$39.41	\$51,231.32
Demobilization	DY			
Total Trackwork Items				\$87,565.10

Signal Items	UOM	Quantity	Unit Rate	Total
Mobilization	DY			
Relocate Cables / Track Leads	LF	613	\$14.21	\$8,710.18
Demobilization	DY			
Total Signal Items				\$8,710.18

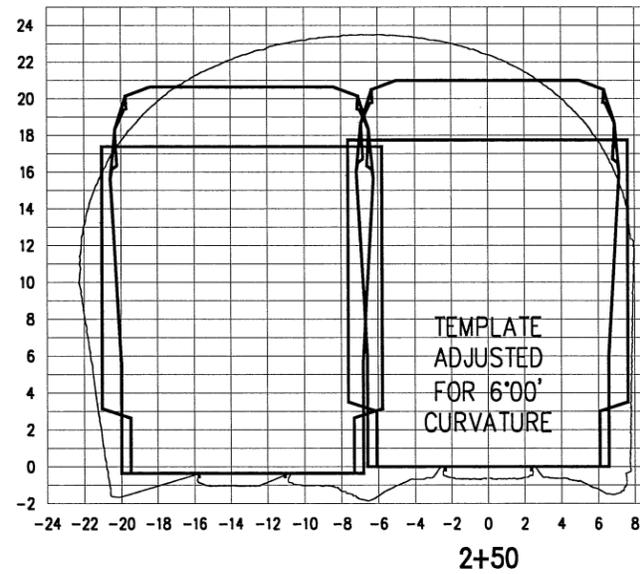
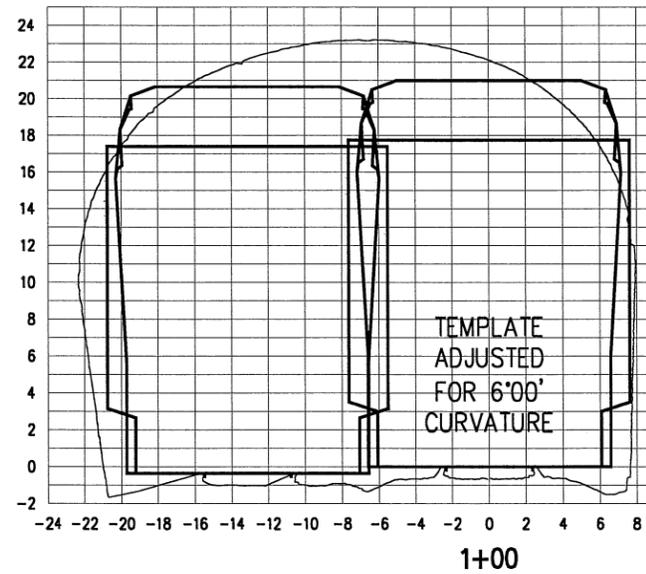
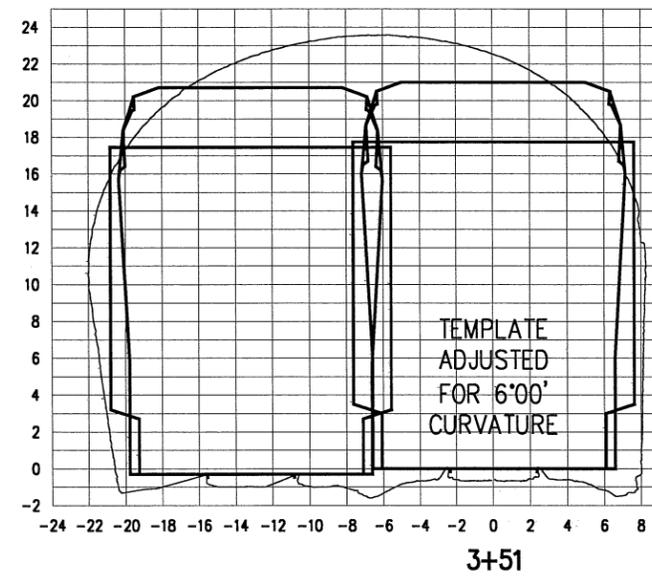
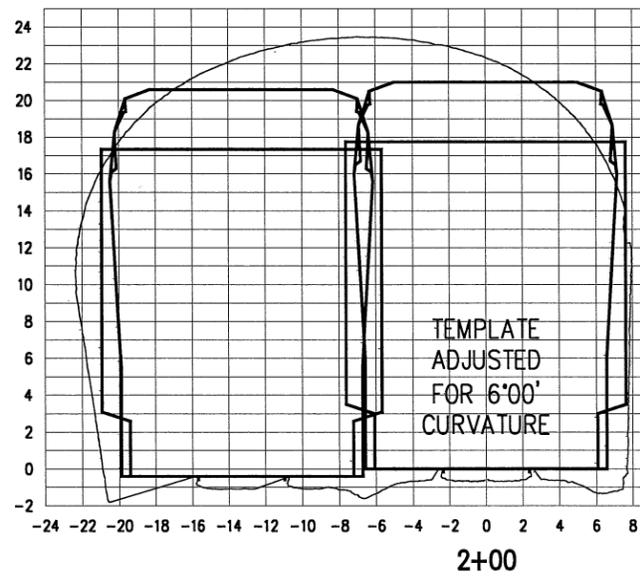
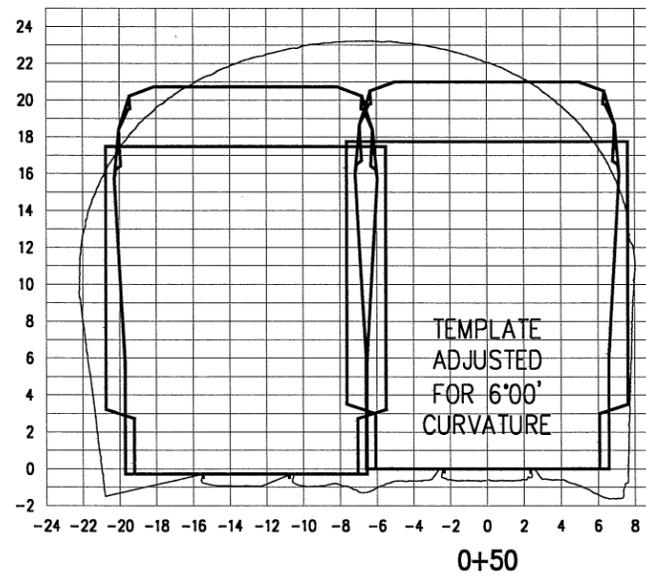
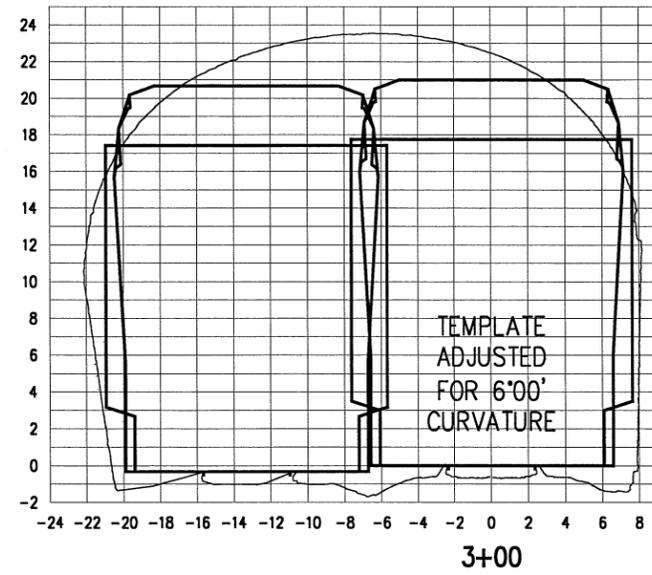
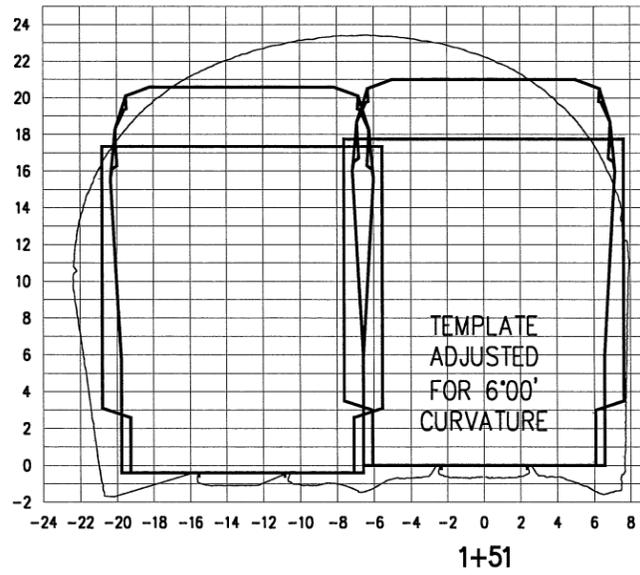
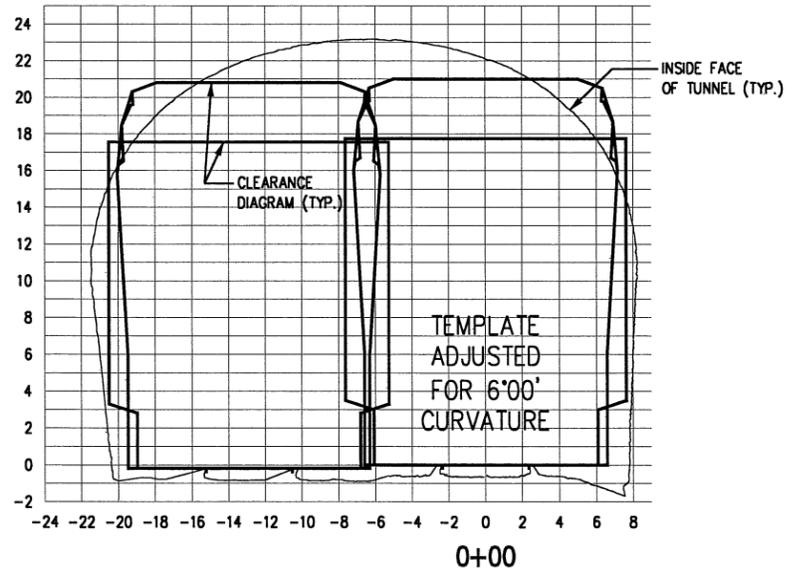
*Preliminary Engineering Phase Report
MP N-405.07-Antler No. 2*

Site Items	UOM	Quantity	Unit Rate	Total
Mobilization	DY	1	\$2,483.60	\$2,483.60
Erosion & Sedimentation Control	EA	1	\$11,958.80	\$11,958.80
Demobilization	DY			
Total Site Items				\$14,442.40

Special Items	UOM	Quantity	Unit Rate	Total
Mobilization	DY			
Flagging	DY	122	\$821.50	\$100,223.00
Flood Track with Ballast for Protection	TN	2600	\$40.36	\$104,926.06
Remove Flooded Ballast	TN	2600	\$9.41	\$24,474.46
Demobilization	DY			
Total Specialty Items				\$229,623.51

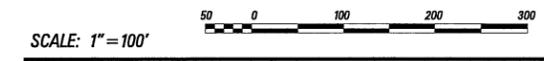
Subtotal All Items		\$2,811,632.22
Construction Contingency	30%	\$843,489.67
Engineering Allowance	10%	\$365,512.19
Construction Management Allowance	14%	\$511,717.06
Total		\$4,532,351.13

9. DRAWINGS



- NOTES:
- HORIZONTAL DATUM IS PARALLEL TO TRACK. WHERE TRACK IS SUPERELEVATED, DATUM IS NOT PARALLEL WITH GROUND.
 - CROSS SECTION GIVEN FOR STA. 0+00 IS A COMPOSITE FOR THE TUNNEL FROM STA. 0+00 THROUGH 0+50. ALL OF THE SECTIONS FOLLOW THIS CONVENTION.

NOT FOR CONSTRUCTION



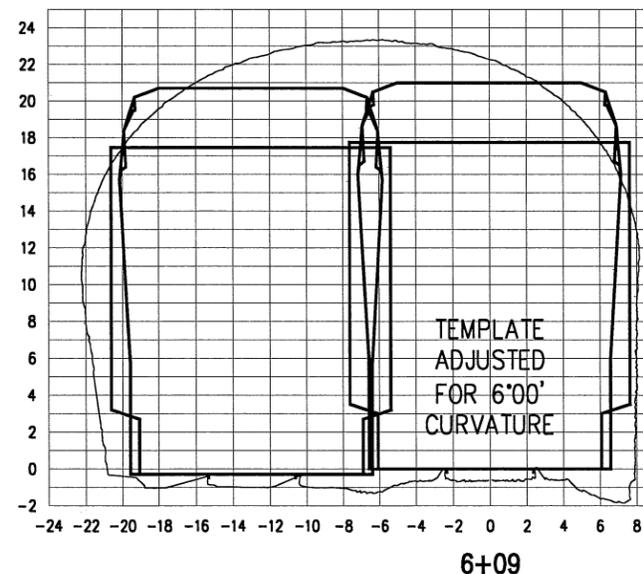
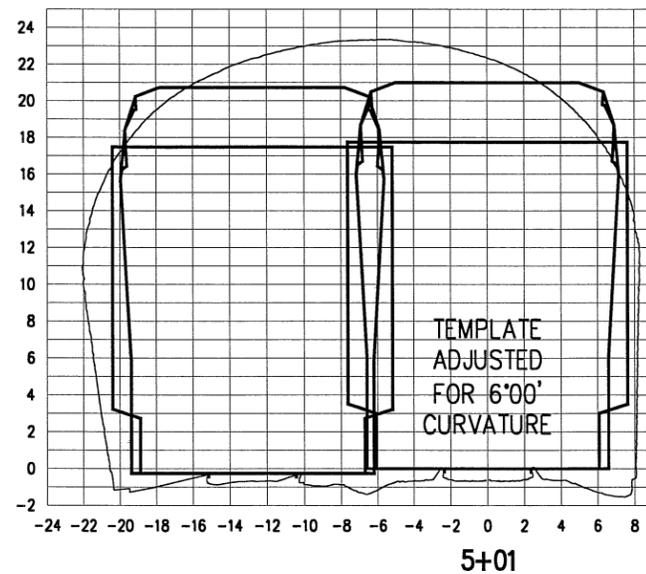
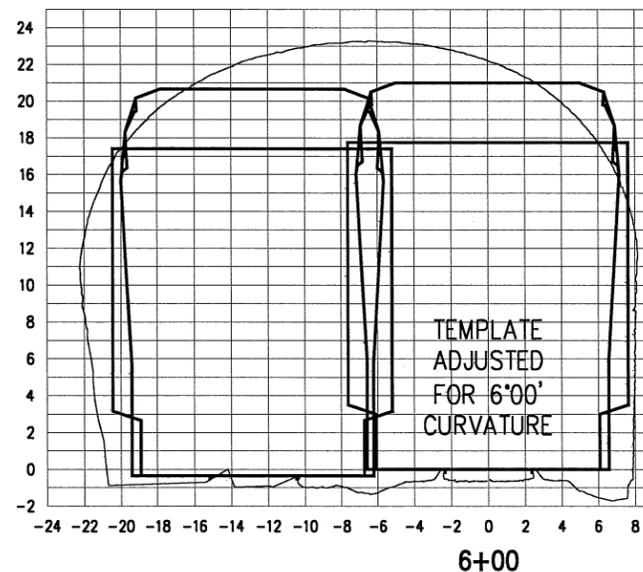
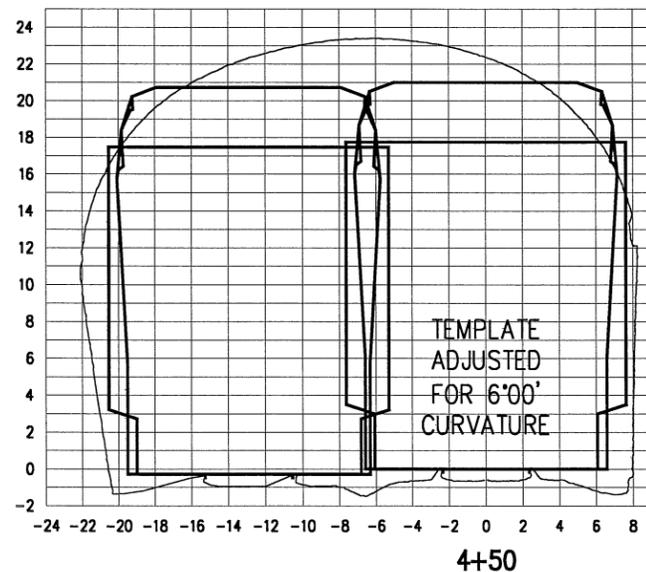
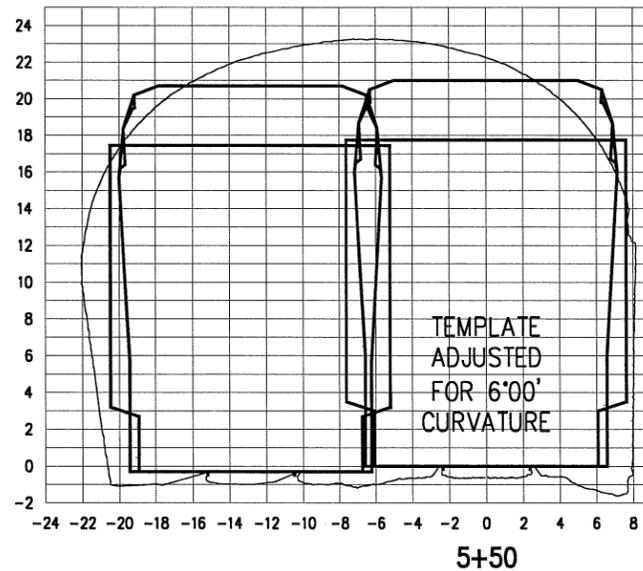
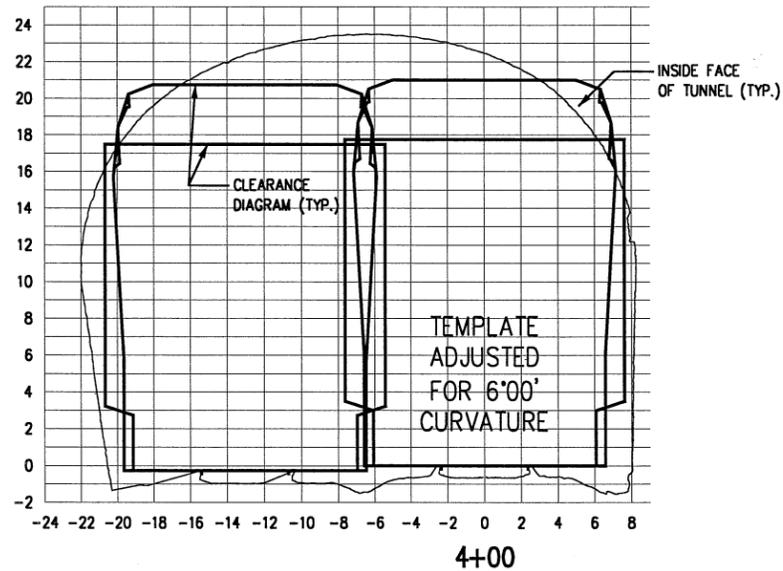
NORFOLK SOUTHERN

OPERATING DIVISION

OFFICE OF THE CHIEF ENGINEER - DESIGN AND CONSTRUCTION - ATLANTA, GA

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REP. BY	DATE	DESCRIPTION
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TITLE	TUNNEL CLEARANCE CROSS SECTIONS - 1 OF 2	
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CHK	DATE	APRIL 15, 2005

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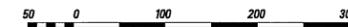


NOTES:

- HORIZONTAL DATUM IS PARALLEL TO TRACK. WHERE TRACK IS SUPERELEVATED, DATUM IS NOT PARALLEL WITH GROUND.
- CROSS SECTION GIVEN FOR STA. 0+00 IS A COMPOSITE FOR THE TUNNEL FROM STA. 0+00 THROUGH 0+50. ALL OF THE SECTIONS FOLLOW THIS CONVENTION.

NOT FOR CONSTRUCTION

SCALE: 1" = 100'

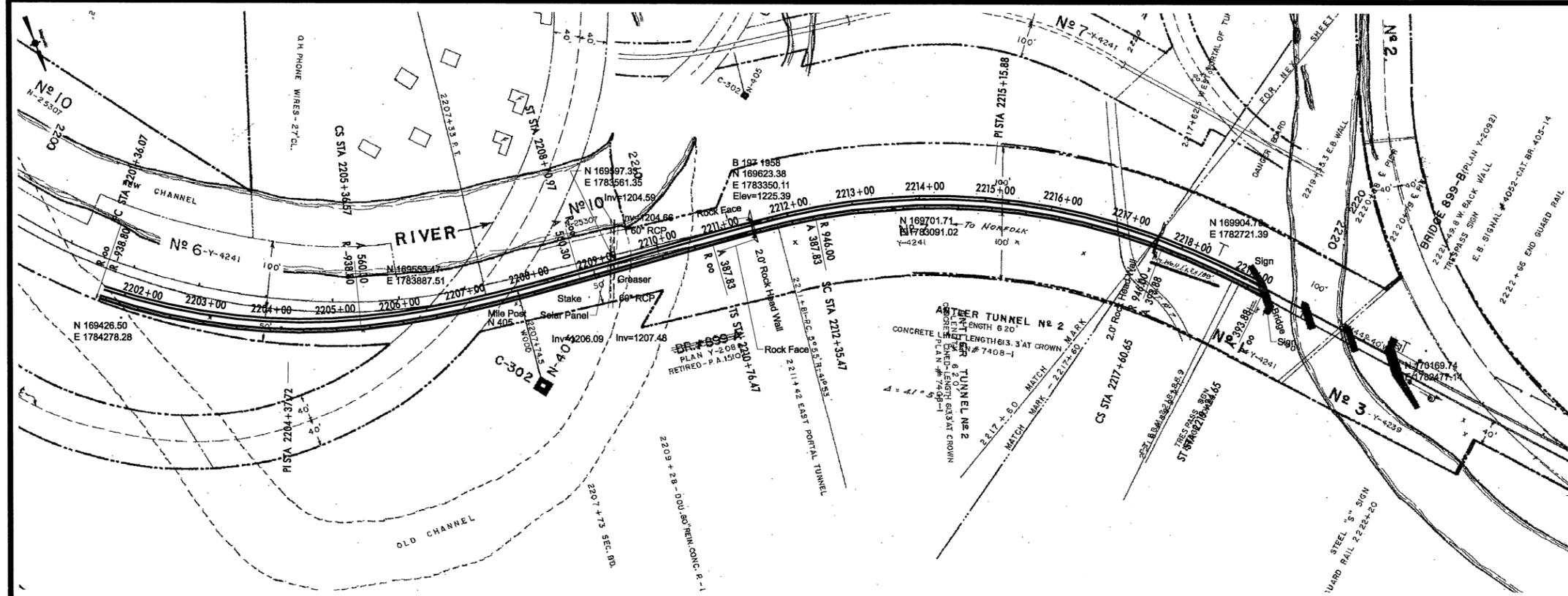


NORFOLK SOUTHERN

OPERATING COMPANY
FOCAHONTAS
 OPERATING DIVISION
 OFFICE OF THE CHIEF ENGINEER - DESIGN AND CONSTRUCTION - ATLANTA, GA.

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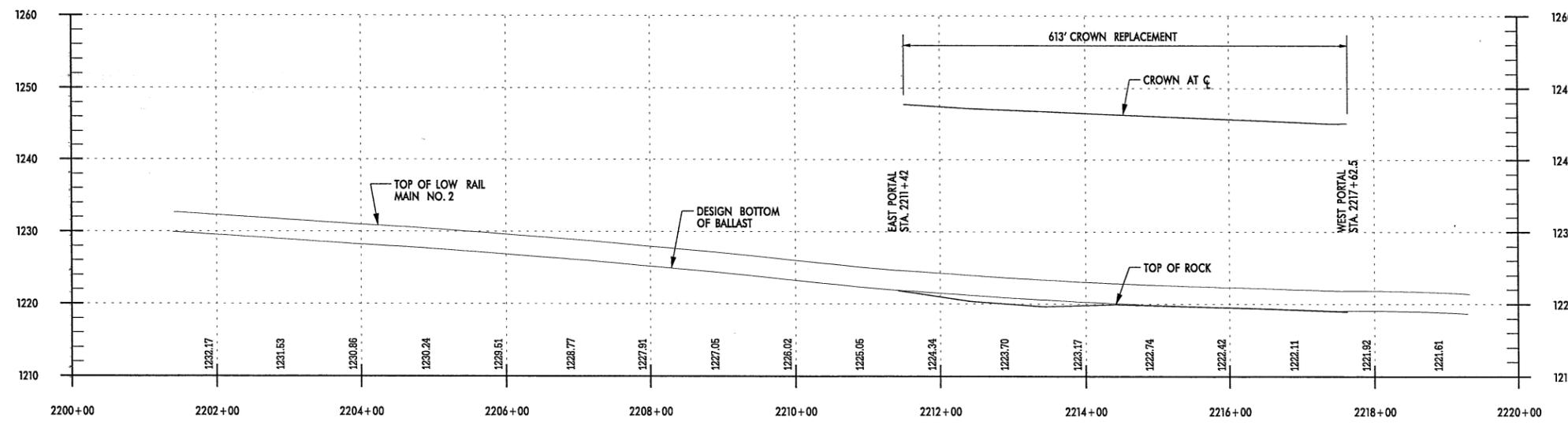
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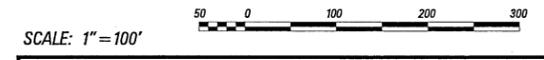
ANTLER NO. 2 CURVE DATA

Element	Station	Northing	Easting
Element: Circular			
PI ()	2201+36.07	169383.50	1784300.31
CC ()	2203+39.51	169514.31	1784144.49
CC ()	2205+36.57	168664.48	1783696.70
Radius	2205+36.57	169568.87	1783948.51
Delta	24° 37' 15"		Left
Degree of Curvature (Chord)	6° 06' 22"		
Length	400.68		
Length (Chord)	400.90		
Tangent	203.44		
Chord	597.65		
Middle Ordinate	21.30		
External	21.79		
Tangent Direction	310° 00' 21"		
Radial Direction	40° 00' 47"		
Chord Direction	297° 47' 09"		
Radial Direction	15° 33' 32"		
Tangent Direction	285° 33' 32"		
Element: Clothoid			
CS ()	2205+36.57	169568.87	1783948.51
SP ()	2206+48.37	169598.86	1783840.80
SC ()	2208+70.37	169619.70	1783618.47
Entrance Radius	938.80		
Exit Radius	0.00		
Length	334.40		
Angle	10° 12' 30"		Left
Constant	560.30		
Long Tangent	223.30		
Short Tangent	111.80		
Long Chord	333.93		
Short Chord	33.34		
Xst	19.81		
Yst	4.96		
Kt	167.02		
Tangent Direction	285° 33' 32"		
Radial Direction	278° 45' 18"		
Chord Direction	5° 21' 16"		
Radial Direction	275° 21' 16"		
Tangent Direction	275° 21' 16"		
Element: Linear			
ST ()	2208+70.97	169619.70	1783618.47
TS ()	2210+76.47	169638.88	1783413.86
Tangent Direction	275° 21' 16"		
Tangent Length	205.51		
Element: Clothoid			
CS ()	2210+76.47	169638.88	1783413.86
SP ()	2211+82.51	169648.78	1782990.64
SC ()	2212+35.47	169658.14	1783256.08
Entrance Radius	946.00		
Exit Radius	159.00		
Length	159.00		
Angle	4° 48' 54"		Right
Constant	387.83		
Long Tangent	106.04		
Short Tangent	53.04		
Long Chord	158.95		
Short Chord	158.89		
Xst	4.45		
Yst	1.11		
Kt	79.48		
Tangent Direction	275° 21' 16"		
Radial Direction	5° 21' 16"		
Chord Direction	276° 57' 34"		
Radial Direction	10° 10' 10"		
Tangent Direction	280° 10' 10"		
Element: Circular			
PI ()	2212+35.47	169658.14	1783256.08
CC ()	2215+05.15	169705.75	1782990.64
CC ()	2217+60.65	169886.18	1782790.20
Radius	946.00		
Delta	31° 49' 23"		Right
Degree of Curvature (Chord)	6° 03' 34"		
Length	525.42		
Length (Chord)	525.18		
Tangent	269.68		
Chord	518.70		
Middle Ordinate	51.82		
External	37.69		
Tangent Direction	280° 10' 10"		
Radial Direction	290° 04' 50"		
Chord Direction	41° 59' 33"		
Radial Direction	311° 59' 33"		
Tangent Direction	311° 59' 33"		
Element: Clothoid			
CS ()	2217+60.65	169886.18	1782790.20
SP ()	2218+15.36	169922.78	1782749.54
SC ()	2219+24.65	170002.72	1782674.89
Entrance Radius	946.00		
Exit Radius	0.00		
Length	164.00		
Angle	4° 57' 59"		Right
Constant	393.88		
Long Tangent	109.38		
Short Tangent	54.71		
Long Chord	163.95		
Short Chord	163.88		
Xst	4.74		
Yst	1.18		
Kt	81.98		
Tangent Direction	311° 59' 33"		
Radial Direction	41° 59' 33"		
Chord Direction	315° 18' 13"		
Radial Direction	46° 57' 32"		
Tangent Direction	316° 57' 32"		



ANTLER NO. 2 PROFILE
SCALE: 1"=100' HORIZ.
1"=10' VERT.

NOT FOR CONSTRUCTION



PROJECT	P2 DAL1014405 PRELIMINARY ENGINEERING PHASE REPORT
DATE	04/15/2005
LOCATION	ANTLER NO. 2 TUNNEL, MOHEGAN, WV
TITLE	PLAN AND PROFILE
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CHK	FILE No. DRAWING NUMBER
DATE	APRIL 15, 2005



NORFOLK SOUTHERN

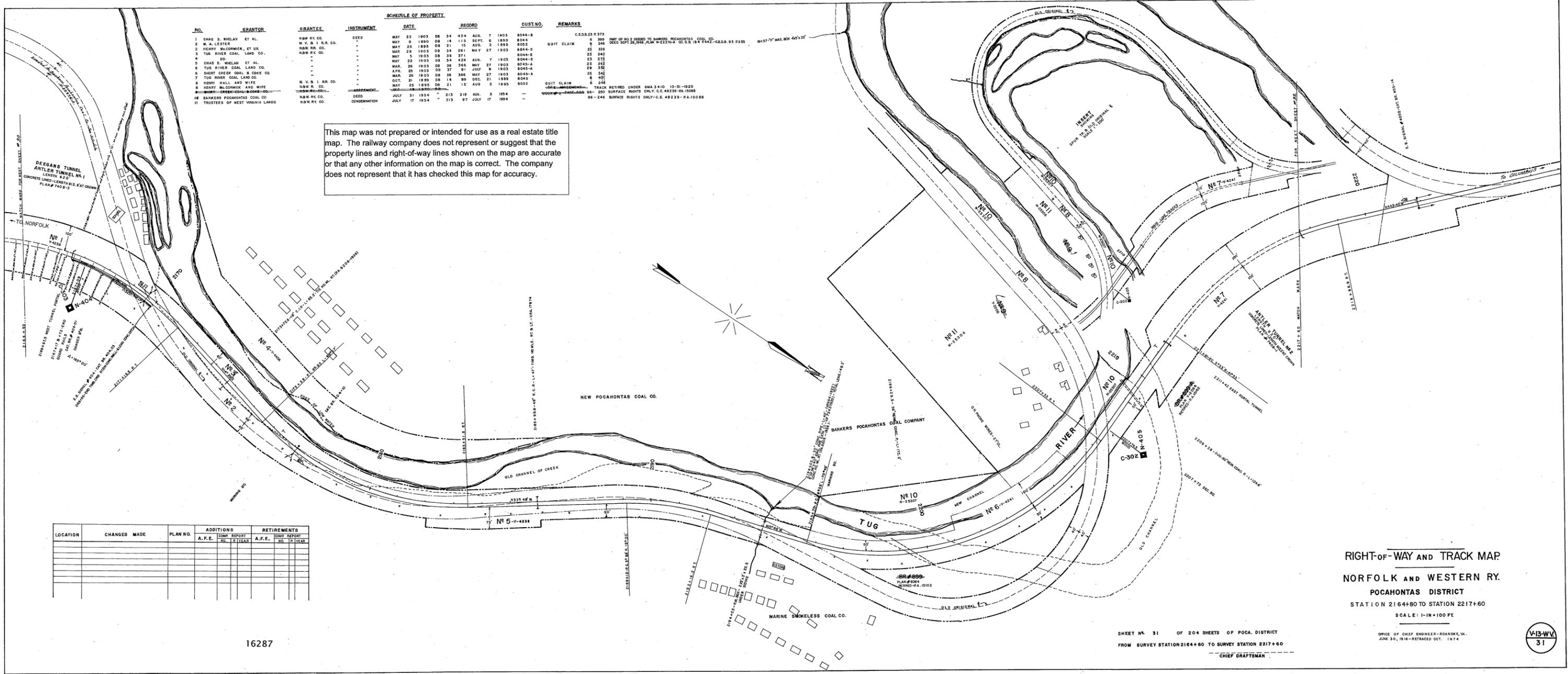
OWNING COMPANY
POCAHONTAS

OPERATING DIVISION
OFFICE OF THE CHIEF ENGINEER - DESIGN AND CONSTRUCTION - ATLANTA, GA.

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NO.	GRANTOR	GRANTEE	INSTRUMENT	DATE	RECORD	CUST. NO.	REMARKS	
1	CHAS. S. WHELAN ET AL.	N.W. RY. CO.	DEED	MAY 22 1903	DB 34 424	AUG. 7 1903	8044-B	C.E.B. 23 R 373
2	M. A. LESTER	N.W. B. I. R.R. CO.	"	MAY 9 1890	DB 14 115	SEPT. 6 1890	8044-A	PART OF NO. 2 DEEDED TO BANKERS POCAHONTAS COAL CO. DEED SUP. 28, 344, PLAN N-2227-A CO. D.B. 184 2442-C.E.B. 93 R 355
3	HENRY MALCOMICK, ET UX	N.W. RY. CO.	"	MAY 23 1895	DB 21 15	AUG. 2 1895	8052	QUIT CLAIM
4	TUG RIVER COAL LAND CO.	N.W. RY. CO.	"	MAY 5 1903	DB 35 371	MAY 27 1903	8044-C	23 350
5	CHAS. S. WHELAN ET AL.	"	"	MAY 22 1903	DB 34 424	AUG. 7 1903	8044-B	23 340
6	TUG RIVER COAL LAND CO.	"	"	MAY 22 1903	DB 34 424	AUG. 7 1903	8044-B	23 373
7	SHORT CREEK COAL & COKE CO.	"	"	MAR. 26 1903	DB 35 326	MAY 27 1903	8045-A	23 342
8	HENRY HALL AND WIFE	"	"	APR. 28 1903	DB 37 81	JULY 9 1903	8045-A	29 352
9	HENRY MALCOMICK AND WIFE	"	"	OCT. 21 1899	DB 14 89	DEC. 21 1899	8045-A	25 342
10	BANKERS POCAHONTAS COAL CO.	"	"	MAY 31 1924	"	AUG. 5 1924	8045	6 401
11	TRUSTEES OF WEST VIRGINIA LANDS	"	"	JULY 17 1924	"	JULY 17 1924	8052	6 246

This map was not prepared or intended for use as a real estate title map. The railway company does not represent or suggest that the property lines and right-of-way lines shown on the map are accurate or that any other information on the map is correct. The company does not represent that it has checked this map for accuracy.



LOCATION	CHANGES MADE	PLAN NO.	ADDITIONS		RETIREMENTS	
			A.F.E. NO.	DATE	A.F.E. NO.	DATE

16287

RIGHT-OF-WAY AND TRACK MAP
 NORFOLK AND WESTERN RY.
 POCAHONTAS DISTRICT
 STATION 2164+80 TO STATION 2217+60
 SCALE: 1-IN=100 FE

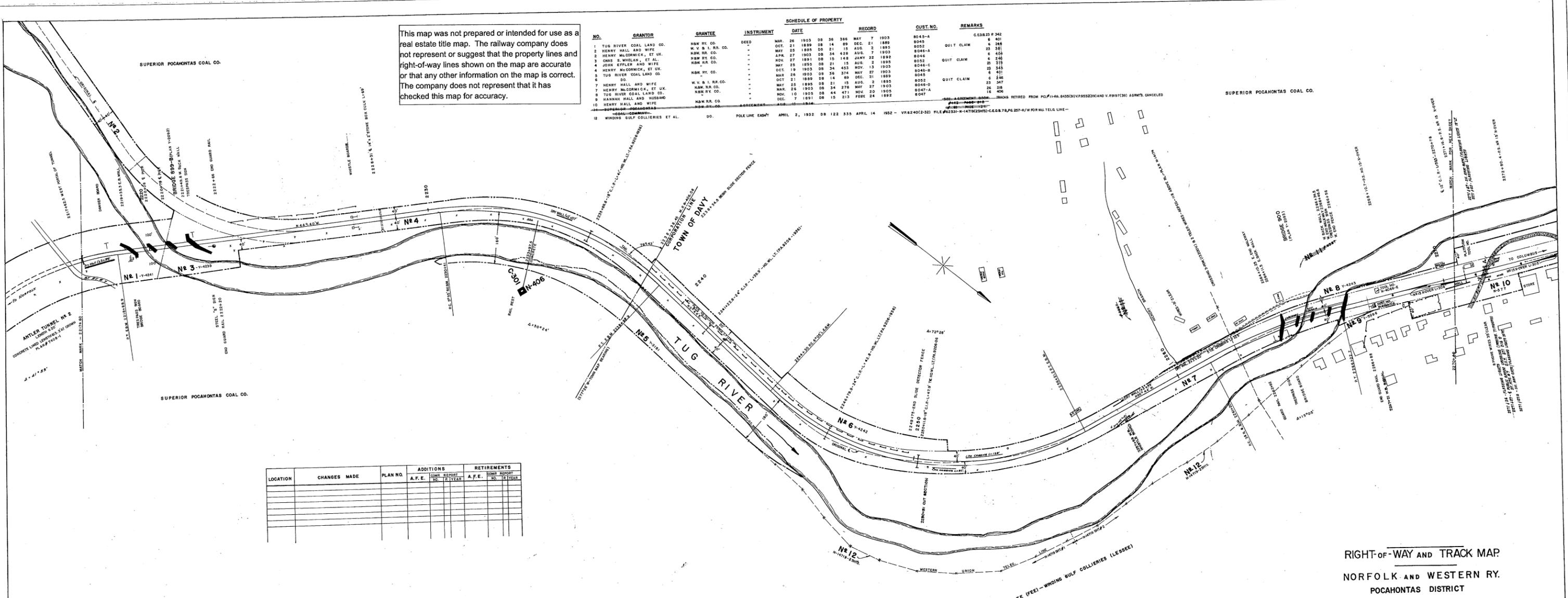
SHEET NO. 31 OF 204 SHEETS OF POCA. DISTRICT
 FROM SURVEY STATION 2164+80 TO SURVEY STATION 2217+60
 CHIEF DRAFTSMAN

OFFICE OF CHIEF ENGINEER—ROANOKE, VA.
 JUNE 30, 1916—RETRACTED OCT. 1974



This map was not prepared or intended for use as a real estate title map. The railway company does not represent or suggest that the property lines and right-of-way lines shown on the map are accurate or that any other information on the map is correct. The company does not represent that it has checked this map for accuracy.

SCHEDULE OF PROPERTY									
NO.	GRANTOR	GRANTEE	INSTRUMENT	DATE	RECORD	CUST. NO.	REMARKS		
1	TUG RIVER COAL LAND CO.	N&W RY. CO.	DEED	MAR. 26 1903	DB 36 366	MAY 7 1903	8045-A	C 63823 P 342	6 401
2	HENRY HALL AND WIFE	W. V. B. I. R.R. CO.	-	OCT. 21 1899	DB 14 69	DEC. 21 1899	8045	QUIT CLAIM	6 249
3	HENRY McDORMICK, ET UX.	N&W RY. CO.	-	MAY 25 1895	DB 21 15	AUG. 2 1895	8052		23 381
4	CHRIS S. WHEELER, ET AL.	N&W RY. CO.	-	APR. 27 1903	DB 34 428	AUG. 7 1903	8046-A		6 456
5	JOHN EFFLER AND WIFE	N&W RY. CO.	-	NOV. 27 1891	DB 15 148	JAN. 22 1892	8046	QUIT CLAIM	6 246
6	HENRY McDORMICK, ET UX.	N&W RY. CO.	-	MAY 25 1895	DB 21 15	AUG. 2 1895	8052		23 379
7	TUG RIVER COAL LAND CO.	N&W RY. CO.	-	OCT. 19 1903	DB 36 374	NOV. 13 1903	8046-B		23 343
8	HENRY HALL AND WIFE	W. V. B. I. R.R. CO.	-	MAR. 26 1903	DB 36 374	MAY 27 1903	8045-B	QUIT CLAIM	6 451
9	HENRY HALL AND WIFE	N&W RY. CO.	-	OCT. 21 1899	DB 14 69	DEC. 21 1899	8045		6 246
10	HENRY HALL AND WIFE	W. V. B. I. R.R. CO.	-	OCT. 21 1899	DB 21 15	AUG. 2 1895	8052	QUIT CLAIM	23 347
11	HENRY McDORMICK, ET UX.	N&W RY. CO.	-	MAY 25 1895	DB 34 428	MAY 27 1903	8046-D		26 208
12	TUG RIVER COAL LAND CO.	N&W RY. CO.	-	MAR. 26 1903	DB 34 471	NOV. 20 1905	8047-A		16 406
13	HANNAH HALL AND HUSBAND	N&W RY. CO.	-	DEC. 7 1891	DB 15 213	FEB. 24 1892	8047		
14	HENRY HALL AND WIFE	N&W RY. CO.	AGREEMENT						



LOCATION	CHANGES MADE	PLAN NO.	ADDITIONS		RETIREMENTS	
			A.P.E.	NO. YEAR	A.P.E.	NO. YEAR

16288

RIGHT-OF-WAY AND TRACK MAP
 NORFOLK AND WESTERN RY.
 POCAHONTAS DISTRICT
 STATION 2217+60 TO STATION 2270+40
 SCALE: 1-IN=100 FT.

SHEET NO. 32 OF 204 SHEETS OF POCA. DISTRICT
 FROM SURVEY STATION 2217+60 TO SURVEY STATION 2270+40
 L. O. TERRY
 CHIEF SURVEYMAN

OFFICE OF CHIEF ENGINEER - ROANOKE, VA.
 JUNE 30, 1916 - RETRACTED OCT. 1974

