DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE NHS00-0000-00(931) Whitfield County Interchange Reconstruction I-75 at US 41/ US 76/ SR 3 (Rocky Face)
P. I. Number 0000931

OFFICE Program Delivery

DATE February 02, 2012

FROM: Bobby Hilliard, P.E., State Program Delivery Engineer

TO: Lisa Myers, Project Review Engineer

SUBJECT **Value Engineering Implementation Revision Request**

This office requests a Value Engineering (VE) Study Implementation Revision on the above noted project. The VE Implementation was approved by your office on June 9, 2009. This office requests to revise the implementation of alternative R-7 to "*No*" to remove conflicts between the approved pavement design and the VE Implementation.

ALT No.	Description	6-09-09 VE Implementation Response/ Cost savings	2-02-12 VE Implementation Response / Cost savings	Information used in Evaluation
R-7	Construct all new ramps using asphalt pavement in lieu of Portland Cement Concrete.	Yes, $312,030.00	No, cost is nearly the same, this will not be implemented. Asphalt saving: $1,584,082.00 Concrete saving: $1,527,654.00	Cost Comparison of HMA versus Concrete (see attachment)

Alternative R-7, which would save $312,030.00, recommended the construction of all new ramps using asphalt pavement in lieu of Portland Cement Concrete. During the final design of the project and the pavement design evaluation, a discrepancy was discovered in the material type between the VE Implementation and the Office of Materials & Research (OMR) pavement design. OMR prefer that the ramps be concrete, therefore, a cost comparison of the asphalt (HMA) ramps versus concrete (PCC) ramps was developed.

The attached cost comparison shows that the cost for the two materials is nearly the same. OMR recommended concrete pavement design of 12' graded aggregate base, 3" of 19 mm superpave binder course, and 12" of plain Portland cement concrete for the ramps. The asphalt pavement design used and recommended in the VE, similar to US 41/SR 3 pavement, is 1 ½" of 12.5 superpave, 2" of 19 mm superpave, 11" of 25 mm superpave, and 12" of graded aggregate base.

If this request is approved, the concrete ramps would be utilized for all ramps (A thru G) with the exception of Ramp E. Ramp E will be constructed with asphalt concrete from Sta. 700+00 to Sta. 716+00. The remainder of the ramp will be constructed with concrete. Ramp E, from Sta. 700+00 to Sta. 716+00, will serve as the I-75 Southbound detour during construction and using asphaltic concrete will be useful during the construction of the detour.

Therefore, this office proposes not to implement alternative R-7, and reapproved the VE Study Implementation without Alt. R-7.

If you have any questions about this request or need additional information please contact the project manager, Peter Emmanuel, at 404-631-1158.

Approved: Lisa L Myers — 2/2/12
Project Review Engineer — Date

Concur: [signature] — 2/10/12
Director of Engineering — Date

Concur: [signature] — 2/14/12
Chief Engineer — Date

BKH: MAH: PBE

Attachments:

- Calculations for Ramps Constructed with HMA
- Calculations for Ramps Constructed with Concrete
- Construction Plan Sheet of Ramps A thru G
- Construction Staging Plan
- Construction Staging Details

Calculations for Ramps Constructed with HMA

Ramp Name	Area (SY)	Spread Rate 12.5 mm SP (1 1/2") (lb/sy*in)	Amount 12.5 mm SP (tons)	Spread Rate 19 mm SP (2") (lb/sy*in)	Amount 19 mm SP (tons)	Spread Rate 25 mm SP (11") (lb/sy*in)	Amount 25 mm SP (tons)	Spread Rate GAB (12") (lb/sy*in)	Amount GAB (tons)
Ramp A/B	6224	165	513.48	220	684.64	1210	3765.52	1320	4108
Ramp C/D	5002	165	412.665	220	550.22	1210	3026.21	1320	3301
Ramp E	2779	165	229.2675	220	305.69	1210	1681.295	1320	1834
Ramp F	1376	165	113.52	220	151.36	1210	832.48	1320	908
Ramp G	5125	165	422.8125	220	563.75	1210	3100.625	1320	3383
		Total	1692	Total	2256	Total	12406	Total	13534

Cost for Ramps constructed with HMA

Type	Total Amount (ton)	Cost per Ton	Total Cost Using HMA
12.5 mm SP, 1 1/2"	1692	$69.86	$118,185.31
19 mm SP, 2"	2256	$78.02	$175,986.59
25 mm SP, 11"	12406	$79.09	$981,200.82
GAB , 12"	13534	$22.81	$308,709.63
		Total Cost =	**$1,584,082**

OMR Asphalt Mix Design for US 41/ SR 3 is used for pricing.

Calculations for Ramps Constructed with Concrete

Ramp Name	Area (SY)	Spread Rate 19 mm SP (3") (lb/sy*in)	Amount 19 mm SP (tons)	Spread Rate GAB (12") (lb/sy*in)	Amount GAB (tons)
Ramp A/B	6224	330	1026.96	1320	4108
Ramp C/D	5002	330	825.33	1320	3301
Ramp E	2779	330	458.535	1320	1834
Ramp F	1376	330	227.04	1320	908
Ramp G	5125	330	845.625	1320	3383
Total	20506	Total	3383	Total	13534

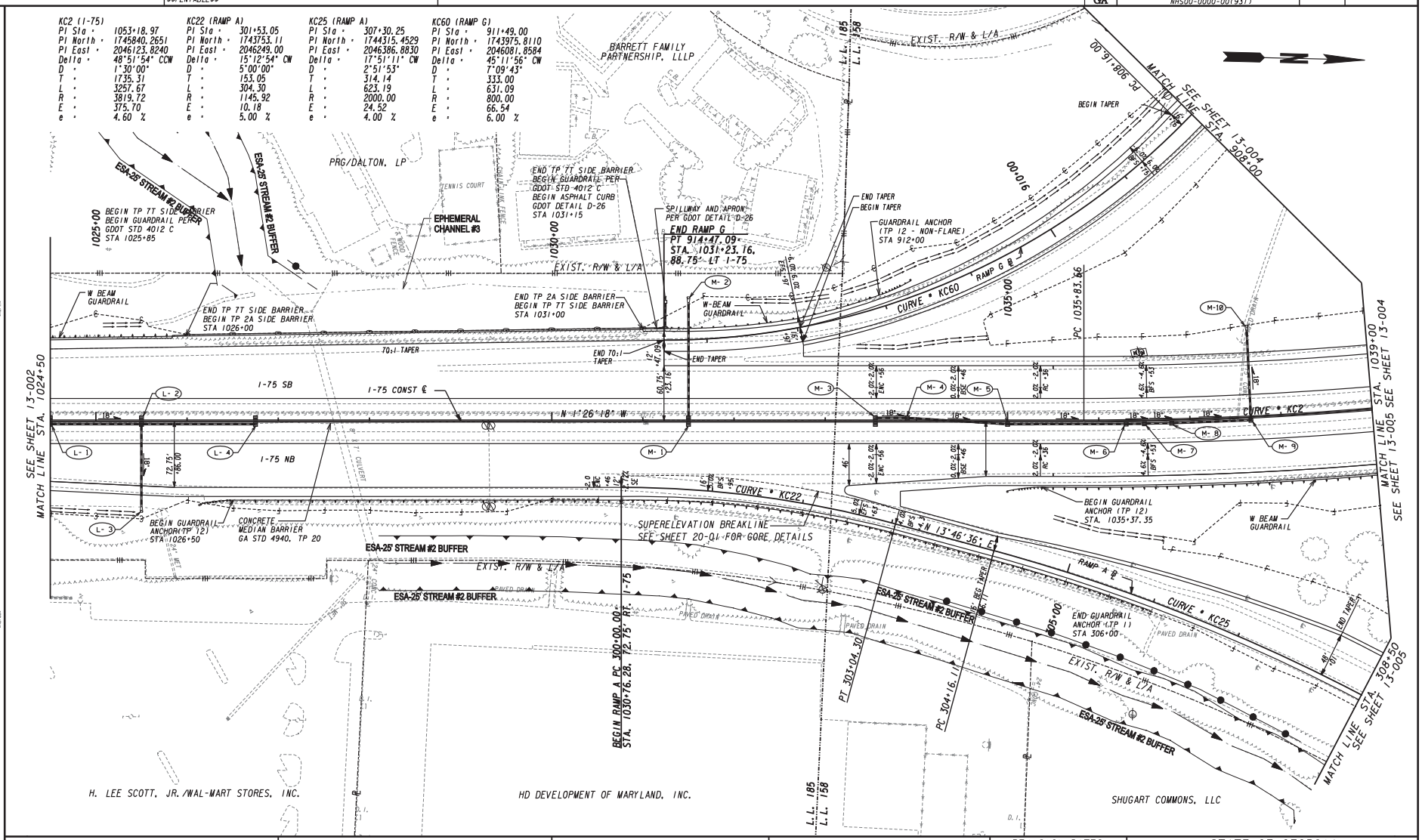
Concrete Ramp Design per OMR

Cost for Ramps constructed with Concrete

Type	Total Area (SY)	Cost per SY	Total Amount (ton)	Cost per Ton	Total Cost Using Concrete
Plain PC Concrete	20506	$46.57			$954,964.42
19 mm SP, 3"			3383	$78.02	$263,979.89
GAB , 12"			13534	$22.81	$308,709.63
				Total Cost =	**$1,527,654**

2/1/2012	2:26:43 PM	PRF	K:\ATL_Roadway\015663111 75 Rocky Face\cadd\00093ICP03.dgn	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
USER:peter.cookley		$$PENTABLE$$		GA	NHS00-0000-00(931)		

KC2 (I-75)		KC22 (RAMP A)		KC25 (RAMP A)		KC60 (RAMP G)	
PI Sta =	1053+18.97	PI Sta =	301+53.05	PI Sta =	307+30.25	PI Sta =	911+49.00
PI North =	1745840.2651	PI North =	1743753.11	PI North =	1744315.4529	PI North =	1743975.8110
PI East =	2046123.8240	PI East =	2046249.00	PI East =	2046386.8830	PI East =	2046081.8584
Delta =	48°51'54" CCW	Delta =	15°12'54" CW	Delta =	17°51'11" CW	Delta =	45°11'56" CW
D =	1°30'00"	D =	5°00'00"	D =	2°51'53"	D =	7°09'43"
T =	1735.31	T =	153.05	T =	314.14	T =	333.00
L =	3257.67	L =	304.30	L =	623.19	L =	631.09
R =	3819.72	R =	1145.92	R =	2000.00	R =	800.00
E =	375.70	E =	10.18	E =	24.52	E =	66.54
e =	4.60 %	e =	5.00 %	e =	4.00 %	e =	6.00 %



PROPERTY AND EXISTING R/W LINE	BEGIN LIMIT OF ACCESS.....BLA
REQUIRED R/W LINE	END LIMIT OF ACCESS.....ELA
CONSTRUCTION LIMITS	LIMIT OF ACCESS
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES	REQ'D R/W & LIMIT OF ACCESS
EASEMENT FOR CONSTR OF SLOPES	
EASEMENT FOR CONSTR OF DRIVES	

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0 50 100 200

REVISION DATES

STATE OF GEORGIA
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MAINLINE PLAN
I-75 @ US 41 ROCKY FACE

DRAWING No. 13-003

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USER:peter.cookley $$PENTABLE$$

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KC2 (I-75)	
PI Sta =	1053+18.97
PI North =	1745840.2651
PI East =	2046123.8240
Delta =	48°51'54" CCW
D =	1°30'00"
T =	1735.31
L =	3257.67
R =	3819.72
E =	375.70
e =	4.60 %

KC13 (RAMP E)	
PI Sta =	707+54.20
PI North =	1745407.6937
PI East =	2045880.2945
Delta =	22°54'26" CW
D =	1°32'21"
T =	754.20
L =	1488.26
R =	3722.47
E =	75.64
e =	3.80 %

KC15 (RAMP E)	
PI Sta =	720+64.54
PI North =	1744098.0098
PI East =	2046114.6400
Delta =	141°43'16" CW
D =	28°38'52"
T =	576.28
L =	494.70
R =	200.00
E =	410.00
e =	5.80 %

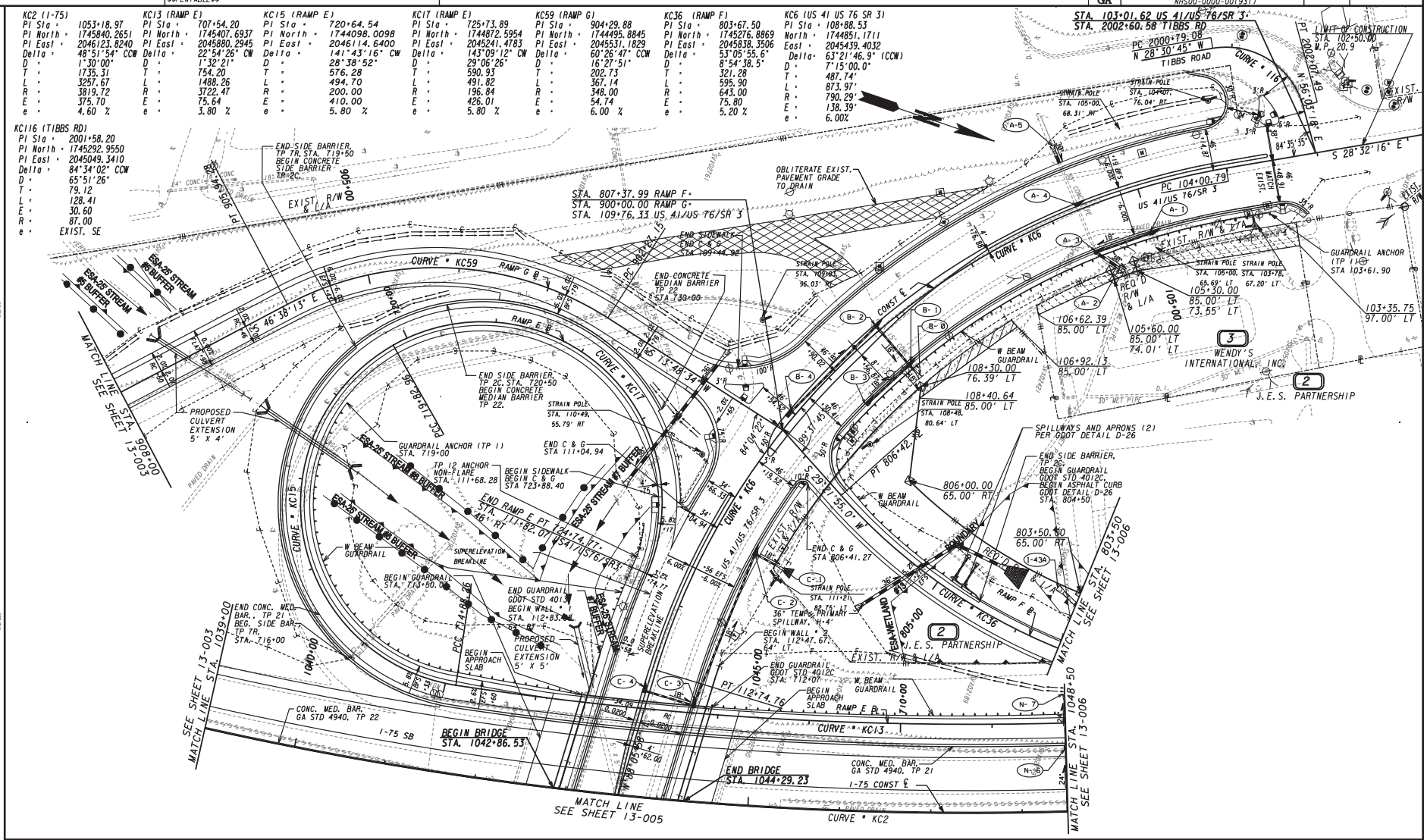
KC17 (RAMP E)	
PI Sta =	725+73.89
PI North =	1744872.5954
PI East =	2045241.4783
Delta =	143°09'12" CW
D =	29°06'26"
T =	590.93
L =	491.82
R =	196.84
E =	426.01
e =	5.80 %

KC59 (RAMP G)	
PI Sta =	904+29.88
PI North =	1744495.8845
PI East =	2045531.1829
Delta =	60°26'47" CCW
D =	16°27'51"
T =	202.73
L =	367.14
R =	348.00
E =	54.74
e =	6.00 %

KC36 (RAMP F)	
PI Sta =	803+67.50
PI North =	1745276.8869
PI East =	2045838.3506
Delta =	53°05'55.6"
D =	8°54'38.5"
T =	321.28
L =	595.90
R =	643.00
E =	75.80
e =	5.20 %

KC6 (US 41 US 76 SR 3)	
PI Sta =	108+88.53
North =	1744851.1711
East =	2045439.4032
Delta =	63°21'46.9" (CCW)
D =	7°15'00.0"
T =	487.74'
L =	873.97'
R =	790.29'
E =	138.39'
e =	6.00%

KC116 (TIBBS RD)	
PI Sta =	2001+58.20
PI North =	1745292.9550
PI East =	2045049.3410
Delta =	84°34'02" CCW
D =	65°51'26"
T =	79.12
L =	128.41
E =	30.60
R =	87.00
e =	EXIST. SE



PROPERTY AND EXISTING R/W LINE	PL
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CONSTRUCTION LIMITS	C F
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES	
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EASEMENT FOR CONSTR OF DRIVES	

BEGIN LIMIT OF ACCESS.....BLA
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MAINLINE PLAN
I-75 @ US 41 ROCKY FACE

DRAWING No. 13-004

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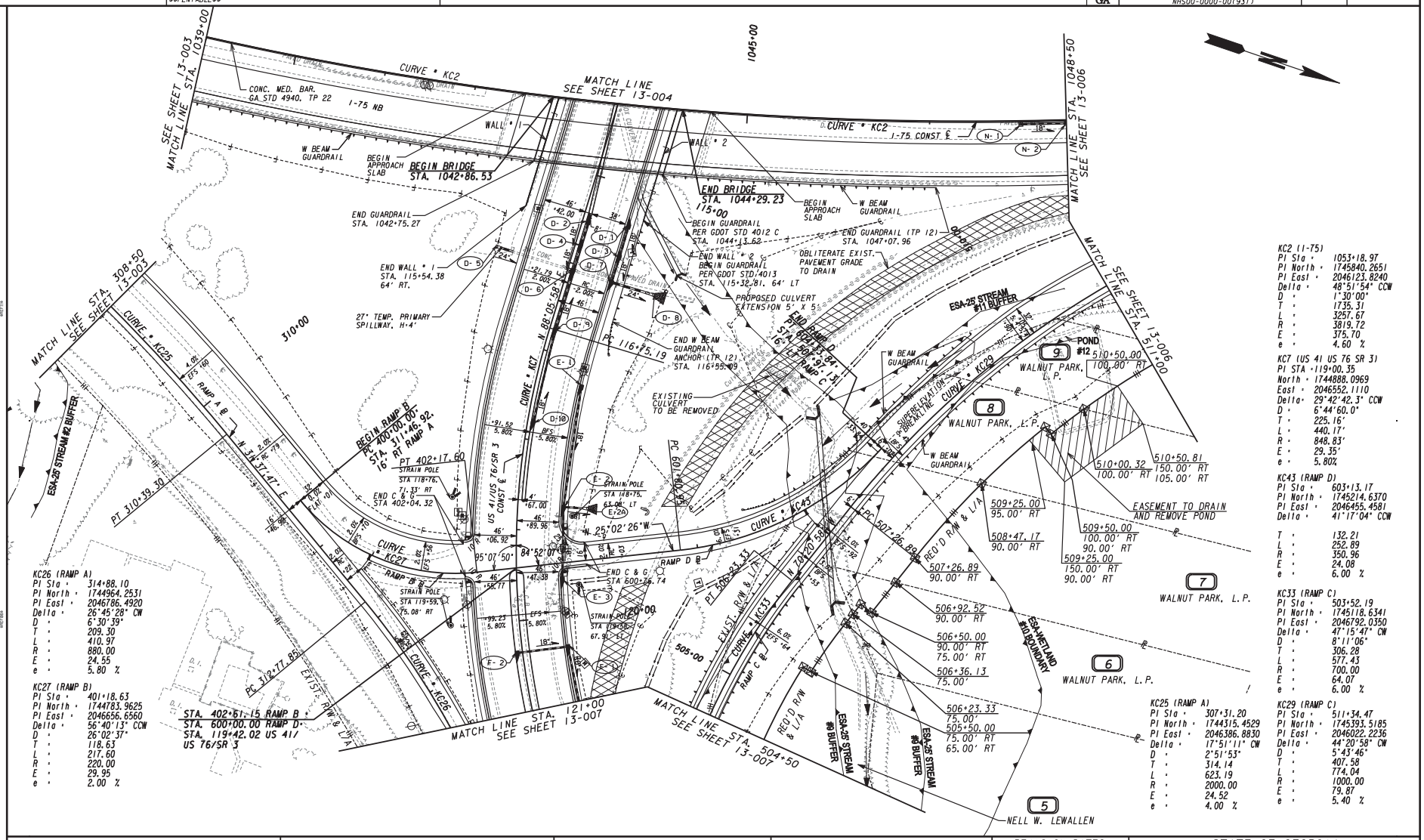

KC26 (RAMP A)
PI Sta = 314+88.10
PI North = 1744964.2531
PI East = 2046786.4920
Delta = 26°45'28" CW
D = 6°30'39"
T = 209.30
L = 410.97
R = 880.00
E = 24.55
e = 5.80 %

KC27 (RAMP B)
PI Sta = 401+18.63
PI North = 1744783.9625
PI East = 2046656.6560
Delta = 56°40'13" CCW
D = 26°02'37"
T = 118.63
L = 217.60
R = 220.00
E = 29.95
e = 2.00 %

KC25 (RAMP A)
PI Sta = 307+31.20
PI North = 1744315.4529
PI East = 2046386.8830
Delta = 17°51'11" CW
D = 2°51'53"
T = 314.14
L = 623.19
R = 2000.00
E = 24.52
e = 4.00 %

KC2 (I-75)
PI Sta = 1053+18.97
PI North = 1745840.2651
PI East = 2046123.8240
Delta = 48°51'54" CCW
D = 1°30'00"
T = 1735.31
L = 3257.67
R = 3819.72
E = 375.70
e = 4.60 %

KC7 (US 41 US 76 SR 3)
PI STA = 119+00.35
North = 1744888.0969
East = 2046552.1110
Delta = 29°42'42.3" CCW
D = 6°44'60.0"
T = 225.16'
L = 440.17'
R = 848.83'
E = 29.35'
e = 5.80%

KC43 (RAMP D)
PI Sta = 603+13.17
PI North = 1745214.6370
PI East = 2046455.4581
Delta = 41°17'04" CCW
T = 132.21
L = 252.89
R = 350.96
E = 24.08
e = 6.00 %

KC33 (RAMP C)
PI Sta = 503+52.19
PI North = 1745118.6341
PI East = 2046792.0350
Delta = 47°15'47" CW
D = 8°11'06"
T = 306.28
L = 577.43
R = 700.00
E = 64.07
e = 6.00 %

KC29 (RAMP C)
PI Sta = 511+34.47
PI North = 1745393.5185
PI East = 2046022.2236
Delta = 44°20'58" CW
D = 5°43'46"
T = 407.58
L = 774.04
R = 1000.00
E = 79.87
e = 5.40 %

PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
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EASEMENT FOR CONSTR OF DRIVES

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MAINLINE PLAN
I-75 @ US 41 ROCKY FACE

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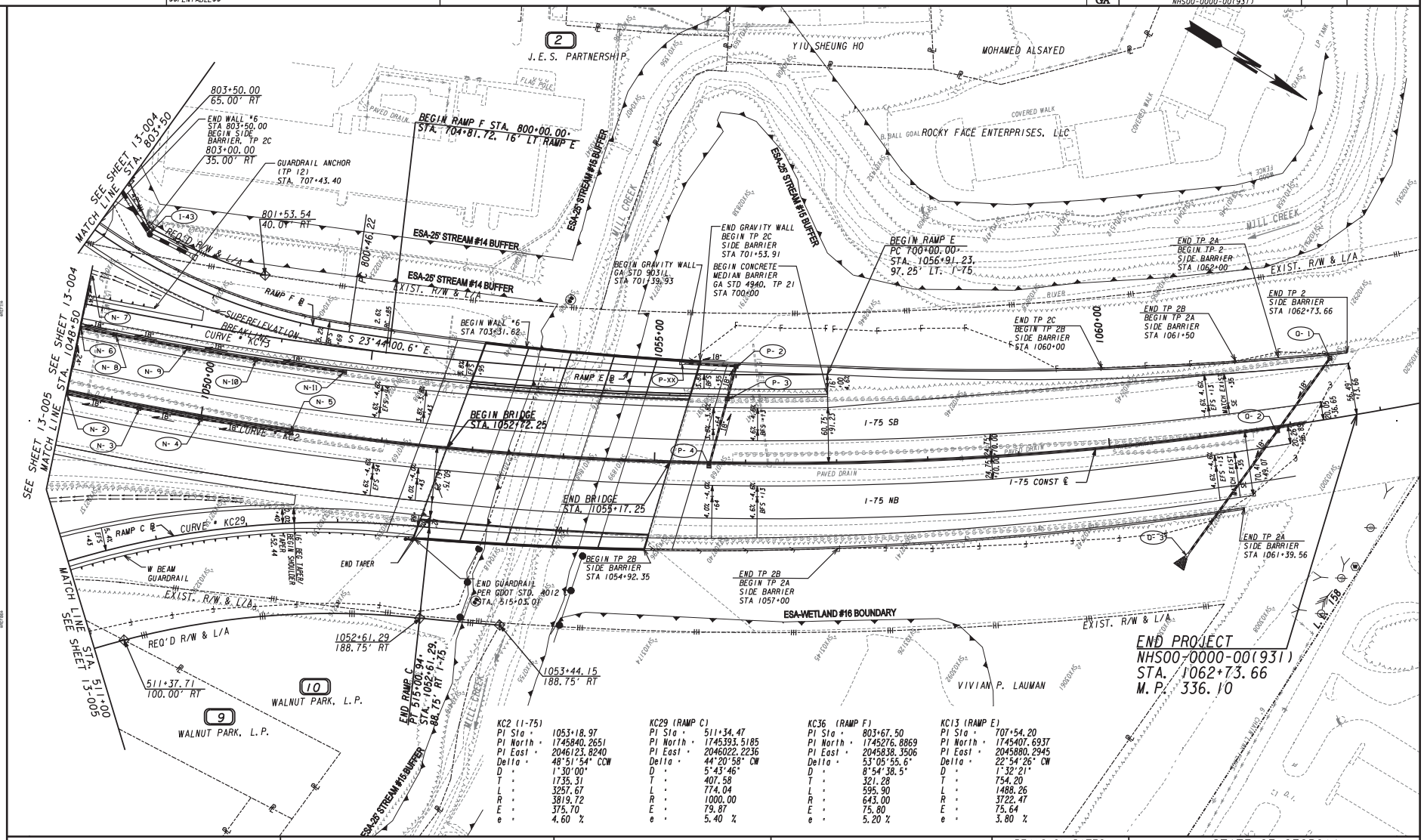

KC2 (I-75)		KC29 (RAMP C)		KC36 (RAMP F)		KC13 (RAMP E)	
PI Sta =	1053+18.97	PI Sta =	511+34.47	PI Sta =	803+67.50	PI Sta =	707+54.20
PI North =	1745840.2651	PI North =	1745393.5185	PI North =	1745276.8869	PI North =	1745407.6937
PI East =	2046123.8240	PI East =	2046022.2236	PI East =	2045838.3506	PI East =	2045880.2945
Delta =	48°51'54" CCW	Delta =	44°20'58" CW	Delta =	53°05'55.6"	Delta =	22°54'26" CW
D =	1°30'00"	D =	5°43'46"	D =	8°54'38.5"	D =	1°32'21"
T =	1735.31	T =	407.58	T =	321.28	T =	754.20
L =	3257.67	L =	774.04	L =	595.90	L =	1488.26
R =	3819.72	R =	1000.00	R =	643.00	R =	3722.47
E =	375.70	E =	79.87	E =	75.80	E =	75.64
e =	4.60 %	e =	5.40 %	e =	5.20 %	e =	3.80 %

PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
EASEMENT FOR CONSTR OF SLOPES
EASEMENT FOR CONSTR OF DRIVES

BEGIN LIMIT OF ACCESS.....BLA
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LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS

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REVISION DATES

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MAINLINE PLAN
I-75 @ US 41 ROCKY FACE

DRAWING No. 13-006

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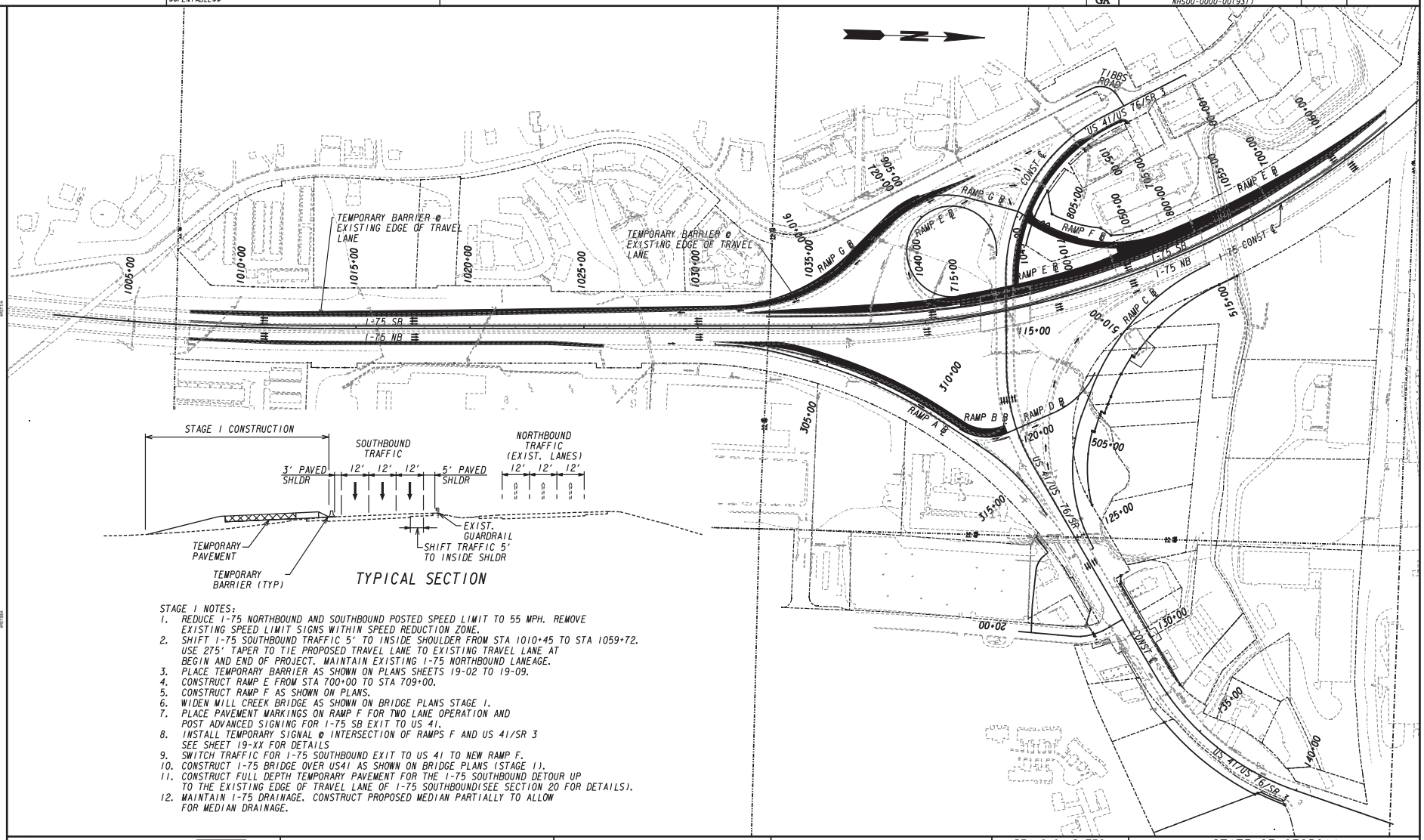
USER:peter.cookley	$$PENTABLE$$		GA	NHS00-0000-00(931)		



TYPICAL SECTION

STAGE 1 NOTES:

1. REDUCE I-75 NORTHBOUND AND SOUTHBOUND POSTED SPEED LIMIT TO 55 MPH. REMOVE EXISTING SPEED LIMIT SIGNS WITHIN SPEED REDUCTION ZONE.
2. SHIFT I-75 SOUTHBOUND TRAFFIC 5' TO INSIDE SHOULDER FROM STA 1010+45 TO STA 1059+72. USE 275' TAPER TO TIE PROPOSED TRAVEL LANE TO EXISTING TRAVEL LANE AT BEGIN AND END OF PROJECT. MAINTAIN EXISTING I-75 NORTHBOUND LANEAGE.
3. PLACE TEMPORARY BARRIER AS SHOWN ON PLANS SHEETS 19-02 TO 19-09.
4. CONSTRUCT RAMP E FROM STA 700+00 TO STA 709+00.
5. CONSTRUCT RAMP F AS SHOWN ON PLANS.
6. WIDEN MILL CREEK BRIDGE AS SHOWN ON BRIDGE PLANS STAGE 1.
7. PLACE PAVEMENT MARKINGS ON RAMP F FOR TWO LANE OPERATION AND POST ADVANCED SIGNING FOR I-75 SB EXIT TO US 41.
8. INSTALL TEMPORARY SIGNAL @ INTERSECTION OF RAMPS F AND US 41/SR 3 SEE SHEET 19-XX FOR DETAILS
9. SWITCH TRAFFIC FOR I-75 SOUTHBOUND EXIT TO US 41 TO NEW RAMP F.
10. CONSTRUCT I-75 BRIDGE OVER US41 AS SHOWN ON BRIDGE PLANS (STAGE 1).
11. CONSTRUCT FULL DEPTH TEMPORARY PAVEMENT FOR THE I-75 SOUTHBOUND DETOUR UP TO THE EXISTING EDGE OF TRAVEL LANE OF I-75 SOUTHBOUND(SEE SECTION 20 FOR DETAILS).
12. MAINTAIN I-75 DRAINAGE. CONSTRUCT PROPOSED MEDIAN PARTIALLY TO ALLOW FOR MEDIAN DRAINAGE.

STAGE CONSTRUCTION
TEMPORARY PAVEMENT
OBLITERATE PAVEMENT
TRAFFIC THIS STAGE
TEMPORARY CONC. BARRIER

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REVISION DATES

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CONSTRUCTION STAGING PLAN
I-75 @ US 41 ROCKY FACE

DRAWING No. 19-001

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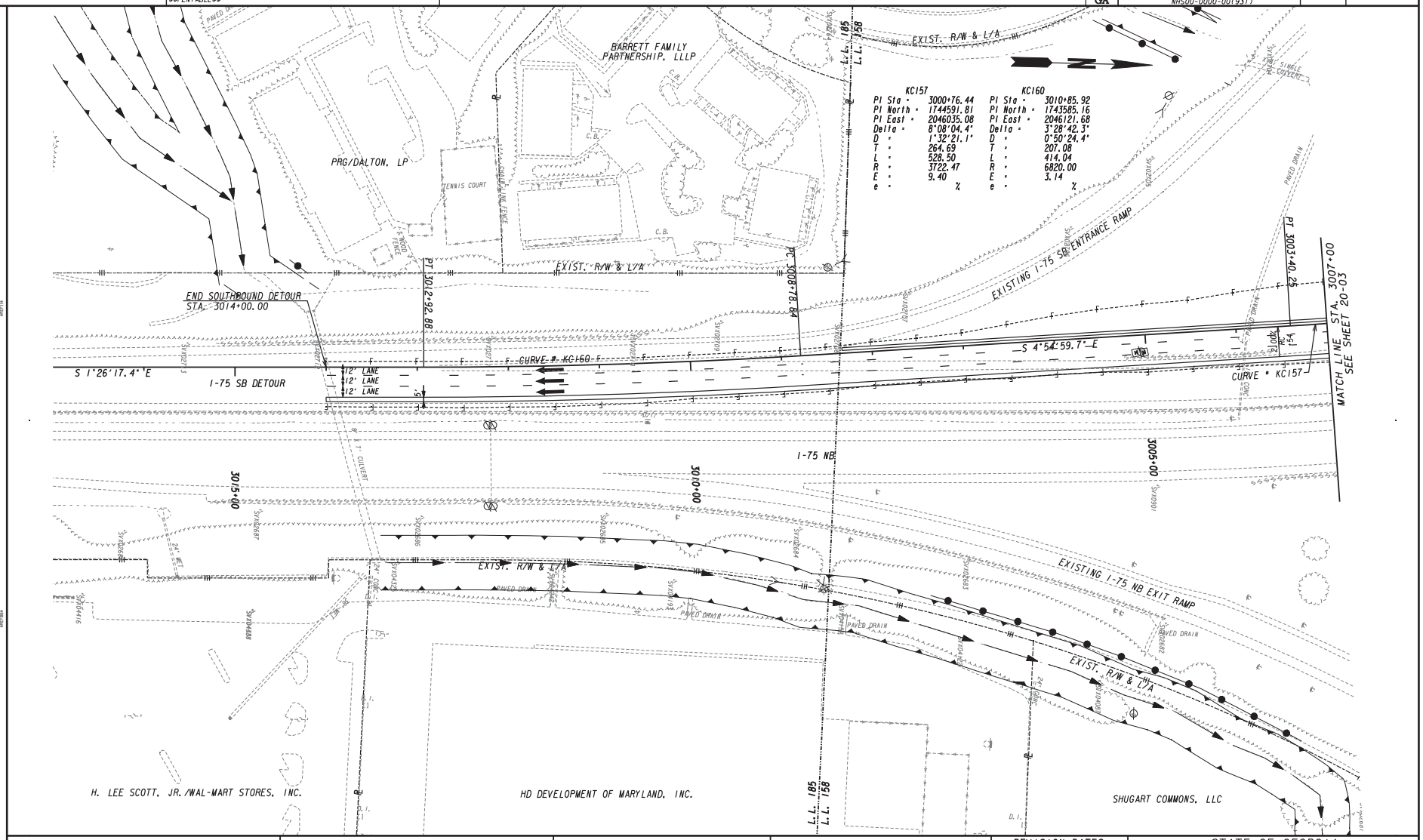
USER:peter.oakley	$$PENTABLE$$		GA	NHS00-0000-00193(1)		



KC157		KC160	
PI Sta =	3000+76.44	PI Sta =	3010+85.92
PI North =	1744591.81	PI North =	1743585.16
PI East =	2046035.08	PI East =	2046121.68
Delta =	8°08'04.4"	Delta =	3°28'42.3"
D =	1°32'21.1"	D =	0°50'24.4"
T =	264.69	T =	207.08
L =	528.50	L =	414.04
R =	3722.47	R =	6820.00
E =	9.40	E =	3.14
e =	%	e =	%

PROPERTY AND EXISTING R/W LINE
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STAGING DETAILS
I-75 @ US 41 ROCKY FACE
I-75 SB DETOUR PLAN

DRAWING No. 20-02

2/1/2012 2:34:03 PM PRF
USER:peter.cookley $$PENTABLE$$
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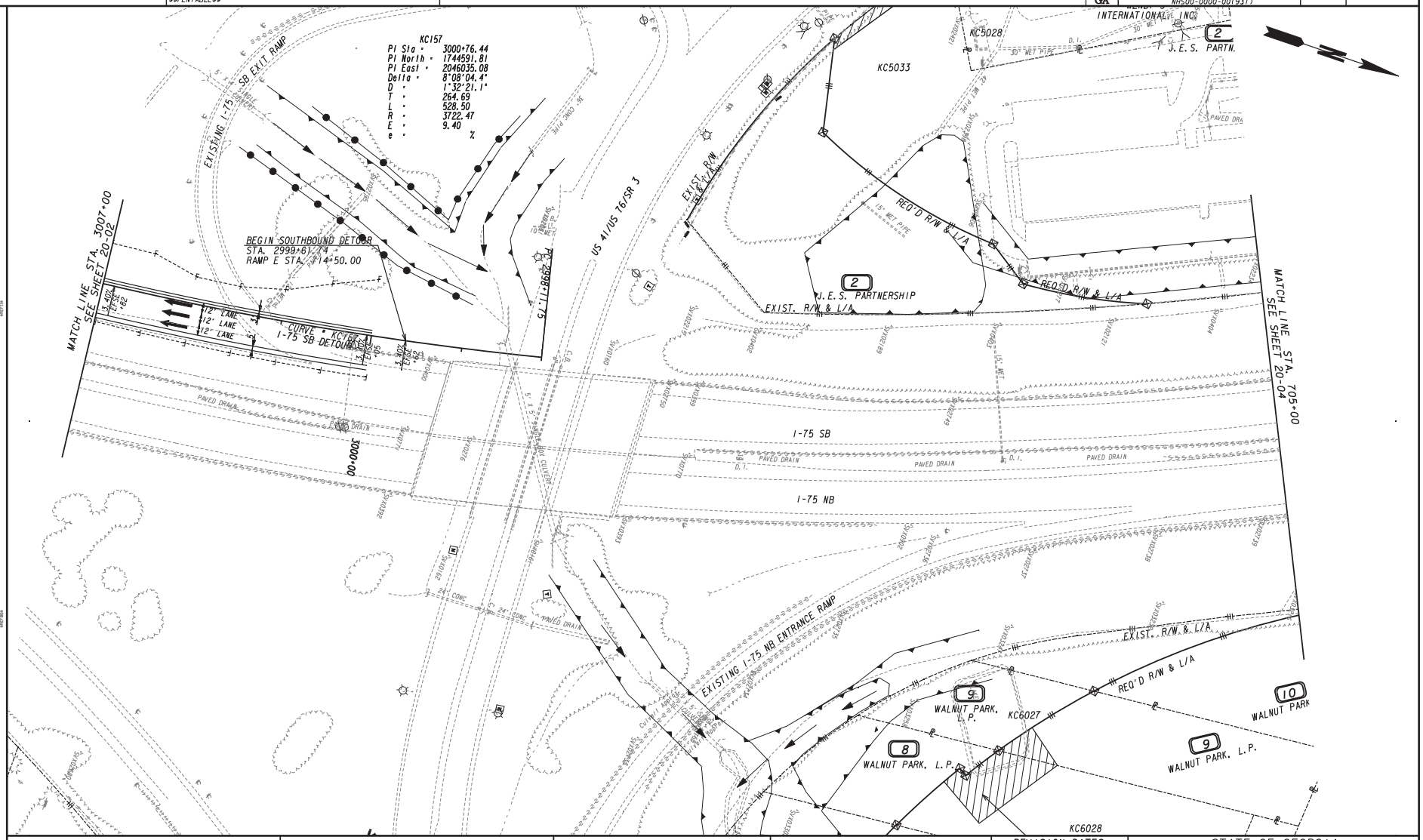
STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA	NHS00-0000-00(931)		



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STAGING DETAILS
I-75 @ US 41 ROCKY FACE
I-75 SB DETOUR PLAN

DRAWING No. 20-03