



LESSONS LEARNED - EXECUTIVE SUMMARY

Florida's Turnpike Enterprise
Hillsborough County

FM 429025-1-52-01 SR 589 Suncoast Parkway
Milling & Resurfacing & Safety

MILLING AND RESURFACING

SUMMARY

Prior to the start date of construction, the CEI observed areas with severe alligator cracking. Additional coring was performed at the direction of the Turnpike's Bituminous Engineer, and the results required that the depth of milling/resurfacing needed to be increased.

RESOLUTION

FTE determined the following new requirements:

- Outside lanes were milled 4-3/4" (4" SP, 3/4" FC) ,
- Inside lanes were milled 2-1/2" (1-3/4" SP, 3/4" FC).
- Original milling depth for all of mainline was 2".
- Added cost to the contract - \$961,025.46.
- Added cost to the contract - \$3,407.25 for MOT to perform additional cores.
- Added cost to the contract - \$2,397.66 to remobilize the paving operation to eliminate delay during coring investigation.

LESSONS LEARNED

Communicating roadway repairs performed through maintenance contracts to the Bituminous Engineer and Design Roadway Engineer for review of pavement deterioration is critical.

Per the design scope, require the project be reviewed by Design, Maintenance, Construction PM and Materials with 90% plans in hand. Recommend an additional site visit to confirm that plans adequately address potential issues which may have arisen between the initial reports, 100% plans and letting. Per the Session 2 meeting, maintenance indicated that they had stressed to production that this project be advanced, ahead of the Hernando resurfacing project, due to the excessive pavement failure experienced.

SHOULDER PAVEMENT ASPHALT TRAFFIC LEVEL

SUMMARY

The plans called for Traffic Level A on the mainline shoulders. The contractor requested to change the shoulder pavement to Traffic Level B.

RESOLUTION

The contractor's request was approved and processed by SA #2. There was no added cost to the contract. However, the contractor bid the shoulder pavement at \$113.00/TN and the mainline pavement at \$91.00/TN.

LESSON LEARNED

Although the pavement design for the shoulders was adequate, the contractor's do not like to produce a different traffic level asphalt for projects. The specifications do not allow the contractor to switch traffic levels by more than one level. History does not show that the cost of lower traffic level asphalt is bid cheaper, and in fact, is usually higher.

CLEARING AND GRUBBING / SODDING

SUMMARY

In the typical sections, sodding was shown over a larger area than clearing and grubbing.

RESOLUTION

Original negotiations - agreed to pay for clearing and grubbing entire sodded area, versus placing sod on top of existing grassing. Added cost to the contract - \$1,039.50.

LESSON LEARNED

As areas may change during plan reviews prior to letting, need to assure both pay items for clearing/grubbing and placement of sod are addressed.

FINISH SOIL LAYER

SUMMARY

Pre-bid questions received regarding the finished soil layer, PI 162-1-11 (Prepared Soil Layer, Finish Soil Layer 6") resulted in an increase to Pay Item 120-1 (Regular Excavation) regarding placement of 6" of organic material without removing the material in place. The intent was to have establish 6 inches of soil with an organic material content meeting the organic soil layer specifications. During construction, the Contractor stated that the Truck Borrow Pay Item 120-2-2 needed to also increase, because they bid it to excavate and then bring in premixed material and that Pay Item 162-1-11 was just for the mixing in the organics.

RESOLUTION

Per Maintenance, the only area where it was desired to increase the organics was between Ramblewood Rd. and Lutz Lake Fern Rd. To meet the original intent, the shoulders were constructed using Standard Index 105, Treatment I. The organics for the median, excluding the shoulders, were increased by the Contractor purchasing the organics (peat) and mixing it with existing top 6" of existing material.

- Reduced cost to the contract = -\$67,274.60 due to deletion of regular excavation and prepared soil layer and only adding organics/peat to the existing material
- Added cost to the contract = \$21,866.25 due to quantity errors.

LESSON LEARNED

The above approach is a good way to increase the organics. Do not try to increase the organics to above 10% per Specification. Above this, for median areas, etc. where traffic/maintenance vehicles could be, it is too soft and after time will break down and may rut easy. In cases where the organics need to be increased, add a pay item note requiring a specified organic content for the area of concern.

CABLE BARRIER

SUMMARY

Specification 540-2.5, Line Posts and Post Accessories: “Provide retro-reflective sheeting... Use colorless (white) sheeting on posts installed to the right of approaching traffic and yellow sheeting on posts installed to the left of approaching traffic. Install sheeting only on one side of the posts unless otherwise specified in the plans...” For this project, the high tension cable barrier (HTCB) is placed in the median area, and there is at least some distance where the cable is between the two directions of traffic.

RESOLUTION

Paid by Work Order to place the reflective sheeting on both sides of the posts.

- Added cost to the contract - \$607.20.

LESSON LEARNED

Where the HTCB is called for in the median, reflectors should be specified on both sides of the posts in the contract documents.

GUARDRAIL

SUMMARY

Guardrail posts were not specified to be wood; however, the existing posts were wood. Since the Aesthetic Guidelines do not require wood, the Department had to request a change to the contract to have wood posts installed.

RESOLUTION

Executed a Supplemental Agreement to pay for wood posts on new guardrail sections, as well as long sections of new guardrail that extended short runs of existing guardrail.

- Added cost to the contract - \$13,264.39.

LESSON LEARNED

If the intent is to install wood posts, or maintain aesthetic features along a corridor, plan notes should be specific regarding the expectation for construction materials, etc.

GUARDRAIL

SUMMARY

Attenuators in the plans had to be adjusted due to conflicts with exit signs. The removal of guardrail end treatments was not consistently included in the pay item quantity. Guardrail modifications due to HTCB adjustments.

RESOLUTION

Field adjustments made by the CEI with some guidance by the EOR to meet design criteria. Additional quantities added as an overrun to existing pay items, including miscellaneous asphalt.

- Reduced cost to the contract - \$8,625.00 (guardrail underrun in area of new shoulder gutter to eliminate impact to trees)
- Added cost to the contract - \$48,412.80 due to changes and quantity error (plans call to add misc asphalt between cable barrier and guardrail but quantity not included)

LESSON LEARNED

Field verification of existing conditions to avoid design conflicts. Provide better quality assurance review of design.

SIGNING

SUMMARY

Several signs shown as panel replacements were not able to be installed on the existing sign posts.

- New sign panels were larger than the existing, and the existing posts were not appropriate for the new sign size.
- Existing sign panels were larger than the proposed signs, and the new signs did not fit on the existing multi-posts.
- Existing exit sign to be relocated - offset from new guardrail doesn't meet Standard 4' deflection.

RESOLUTION

Since the new signs had already been fabricated, in the case of the new, larger signs, the CEI agreed to pay for the new signs as a complete sign - furnish and install (post and panel) as a quantity overrun. For the proposed signs that were too small, the CEI paid for the proposed sign panel and requested that the contractor fabricate new sign panels the same size of the existing signs. The contractor was paid for the new sign panels by overrunning the pay item for the new sign panels.

- Pay Item added cost – $4 \times \$1,350.00 = \$5,400.00$ (larger panels, wrong support)
- Pay Item added cost – $3 \times \$450.00 = \$1,350.00$ (new larger panels fabricated for multi-post)
- Panels paid but not installed – $4 \times \$450.00 = \$1,800.00 + 3 \times \$375.00 = \$1,125.00$ (total = \$2,925.00)
- Relocation of Exit 16 sign - \$1,738.00.

LESSON LEARNED

EOR should inventory the existing signs and verify the size. If panel sizes are changing, the existing sign support should be checked for conformance with Design Standards.

EXTINGUISH THE TORCH – MEETING 3
Summary Report
January 2015

CEI:

JBS Engineering Technical Services, Inc.
Marilynn Schmuki, P.E./Sr. Project Engineer
Glenn Bridges/Project Administrator
Brenda Lister/Contract Support Specialist
LB Wiemer/Sr. Inspector
Mehta and Associates, Inc.
Raju Maditi/Sr. Inspector
Turnpike/CPM
Tracie Rose, P.E.
Turnpike Design Project Manager:
Pam Nagot, P.E.

EOR:

Christopher D. Frank, P.E.
Michael Baker Jr., Inc.
615 Crescent Executive Ct., Suite 200
Lake Mary, FL 32746

Traffic Control Plans:
The Heimburg Group, Inc.
5461 W. Waters Ave., Suite 910
Tampa, FL 33634

Core Borings:
Tierra Inc.
7351 Temple Terrace highway
Tampa, FL 33637

TABLE OF CONTENTS

	Page
1. Project Description and Limits	1
2. Contract Details	2
3. Summary of Significant Changes	3
(Greater than 20% Time and Greater than 10% Cost w/Underruns/Overruns)	
4. Lessons Learned in ProjectSolve	4
5. Summary of Issues (Functional Areas)	8
6. Warranty Items	9

PROJECT DESCRIPTION AND LIMITS

The Improvements under this Contract consist of milling and resurfacing the Suncoast Parkway (State Road 589) to extend the service life of the roadway while providing design criteria upgrades. The design criteria upgrades included as part of this project enhance the safety of the Suncoast Parkway in Hillsborough County. These upgrades are based on an evaluation of specific roadside elements within the project limits that are substandard to current FDOT or AASHTO design criteria. Other improvements include upgrading roadside features not meeting current standards, addition of a median barrier cable system, guardrail installation (including providing water body protection), adding a new median crossover, signing upgrades, guardrail to bridge thrie-beam connection upgrades, and replacing the existing pavement striping due to the milling and resurfacing operation. Features such as pavement and signage were designed in accordance with the Suncoast Parkway Aesthetic Design Guidelines.

Project Limits:

Southern limits start at the end of the Van Dyke Road Bridge (MP14.2) proceeds to the Pasco County Line (MP 17.4) in Hillsborough County.

NOVEMBER MONTHLY/FINAL PROGRESS REPORT

RESURFACE SUNCOAST HERNANDO COUNTY MP 14 - 17

FPID: 429025-1-52-01, 429025-3-52-01
 COUNTY: Hillsborough
 PROJECT MANAGER: Tracie Rose, P.E.
 CE&I PROJECT MANAGER: Marilyn Schmuki, P.E
 NTP DATE: Mar 1, 2014
 PROJECT START DATE: Mar 24, 2014
 CPPR: 92

CONTRACT NO: E8N22
 MILEPOSTS: 14 - 17
 CONTRACTOR: D.A.B. Constructors, Inc.
 PROJECT BONUS DATE: None
 MILESTONE DATE: None
 CONTRACT COMPLETION DATE: Oct 31, 2014
 CEI'S ESTIMATED COMPLETION DATE: Oct 31, 2014

DESCRIPTION	TIME		MONEY	
	DAYS	% of Contract	DOLLARS	% of Contract
Original Contract	150		\$3,404,444	

EXECUTED S.A.'s

002	SA	Add. milling depth and asphalt	21	14.00%	\$949,579	28.31%
016	WOTA	4 Temp. sign	4	2.67%	\$0	0.00%
			0	0.00%	\$0	0.00%
EXECUTED S.A.'s SUBTOTAL			25	16.67%	\$0	28.31%

PENDING S.A.'s

			0	0.00%	\$0	0.00%
PENDING S.A.'s SUBTOTAL			0	0.00%	\$0	0.00%

FORECASTED WORK (Overruns and Future SA's)

			0	0.00%	\$0	0.00%
			0	0.00%	\$0	0.00%
WORK SUBTOTAL			0	0.00%	\$0	0.00%

FORECAST AT COMPLETION	175	116.67%	\$4,414,074	131.59%
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ACTUAL TIME CHARGED TO DATE:				222	(Adj % of Cont)	116.67%	
ACTUAL EARNED TO DATE:				\$4,357,951	(Adj % of Cont)	129.92%	
Original Contingency Amount	Holiday Time Ext Days	Weather Days	Scheduled Earnings	Contract Amount to Complete	Variance Earned	Overrun Encumbered	Overrun Used
\$50,000	10	37	\$4,354,023	\$0	\$3,928	\$60,051.00	\$0.00

NOTICE OF INTENT TO CLAIM:

No.	DESCRIPTION	LTR DATE	STATUS	DOC No.
1	Guardrail wood post	3/21/2014	Pending	1623
2	Pipe joints	10/16/2014	Open	

FTC Cost	129.92%
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GREATER THAN 10% COSTS, GREATER THAN 20% TIME

SA No. 2 - Changes								
INCREASE - 429035-1-52-01								
PAY ITEM NUMBER	PAY ITEM DESCRIPTION	PLAN QTY	REVISED QTY	UNIT	UNIT PRICE	AMOUNT OF CHANGE	QTY CHANGE	NEW CONTRACT AMOUNT
Mill/Pave								
327-70-8	MILLING EXIST ASPH PAVT, 2 1/2" AVG DEPTH	0	50710	SY	\$2.13	\$108,012.30	50710	\$108,012.30
327-70-13	MILLING EXIST ASPH PAVT, 1 3/4" AVG DEPTH	0	14648	SY	\$1.52	\$22,264.96	14648	\$22,264.96
327-70-26	MILLING EXIST ASPH PAVT, 4 3/4" AVG DEPTH	0	43945	SY	\$5.00	\$219,725.00	43945	\$219,725.00
334-1-23	SUPERPAVE ASPH CONC, TRAFFIC C, PG76-22, PMA	7378	15958.5	TN	\$91.00	\$780,843.70	8580.7	\$1,452,223.50
Gores								
337-7-22	ASPH CONC FRICTION COURSE, INC BIT, FC-5, PG76-22, PMA	3743	3981.5	TN	\$129.00	\$30,766.50	238.5	\$513,613.50
Note: Lanes L1 and R2 are to be milled/paved at a width of 11.5 feet and Lanes L2 and R1 are to be milled/paved at a width of 12.5 feet to offset joints and not increase quantities.								
DECREASE - 429035-1-52-01								
PAY ITEM NUMBER	PAY ITEM DESCRIPTION	PLAN QTY	REVISED QTY	UNIT MEASUR	UNIT PRICE	AMOUNT OF CHANGE	QTY CHANGE	NEW CONTRACT AMOUNT
Mill/Pave								
327-70-5	MILLING EXIST ASPH PAVT, 2" AVG DEPTH	88693	0	SY	\$1.70	-\$150,778.10	-88693	\$0.00
327-70-12	MILLING EXIST ASPH PAVT, 1 1/4" AVG DEPTH	14648	0	SY	\$1.30	-\$19,042.40	-14648	\$0.00
Turf								
570-1-2	PERFORMANCE TURF	19440	11441	SY	\$1.75	-\$13,998.25	-7999	\$20,021.75
Organics								
120-1	REGULAR EXCAVATION	3240	0	CY	\$9.00	-\$29,160.00	-3240	\$0.00
162-1-11	PREPARED SOIL LAYER, FINISH SOIL LAYER, 6"	19440	0	SY	\$0.60	-\$11,664.00	-19440	\$0.00
TOTAL INCREASED:		\$1,161,612.46						
TOTAL DECREASED:		-\$224,642.75						
SUBTOTAL		\$936,969.71						
INCREASE - 429035-3-52-01								
PAY ITEM NUMBER	PAY ITEM DESCRIPTION	PLAN QTY	REVISED QTY	UNIT	UNIT PRICE	AMOUNT OF CHANGE	QTY CHANGE	NEW CONTRACT AMOUNT
120-2-2	BORROW EXCAVATION, TRUCK MEASURE	1626	1687	CY	\$27.00	\$1,647.00	61	\$45,549.00
570-1-2	PERFORMANCE TURF	27474	48853	SY	\$1.75	\$37,413.25	21379	\$85,492.75
999-3	ORGANICS (PEAT)	0	1	LS	\$20,368.00	\$20,368.00	1	\$20,368.00
DECREASE - 429035-3-52-01								
PAY ITEM NUMBER	PAY ITEM DESCRIPTION	PLAN QTY	REVISED QTY	UNIT	UNIT PRICE	AMOUNT OF CHANGE	QTY CHANGE	NEW CONTRACT AMOUNT
120-1	REGULAR EXCAVATION	4890	311	CY	\$9.00	-\$41,211.00	-4579	\$2,799.00
162-1-11	PREPARED SOIL LAYER, FINISH SOIL LAYER, 6"	27474	18128	SY	\$0.60	-\$5,607.60	-9346	\$10,876.80
TOTAL INCREASED:		\$59,428.25						
TOTAL DECREASED:		(\$46,818.60)						
SUBTOTAL		\$12,609.65						
GRAND TOTAL FOR SA		\$949,579.36		<==				

Original Contract Amount = \$3,404,444.44. SA No. 2, breakdown above (\$949,579.36), added **29%** of cost to the contract and SA No. 3, extra work for change to wood posts (\$13,264.39) adds **0.4%**.

Original Contract Time = 150 Days, SA No. 2, 21 days added 14% to Contract. Rain Days added 37 Days, Holidays added 10 Days, Work Order added 4 Days (**Total increase for extra work = 16.7%**).

LESSONS LEARNED

1 – Milling and Resurfacing

Issue Summary:

Prior to the start date of construction, the CEI observed areas with severe alligator cracking through the pavement to the limerock base. The Turnpike's Bituminous Engineer was contacted regarding these areas, to determine a repair procedure or if additional depth of milling and resurfacing would suffice. A more in-depth visual inspection was performed project wide and the Bituminous Engineer determined additional coring was needed throughout the project, due the amount of cracking observed. From the cores, it was determined the depth of resurfacing needed to be increased, especially for the outside lanes where most of the heavy truck traffic traveled. Also, during the first day of milling the inside lane, there were areas that were delaminating to the next asphalt course.

Also of note: The thickness of asphalt originally placed was less than the ultimate thickness of asphalt, due to lower traffic levels estimated for the first years the Suncoast was placed into service.

Resolution:

Various options were presented and reviewed by FTE personnel to determine the depth of resurfacing which would provide the best value (life of the pavement) for the additional cost. Both outside lanes were milled down into the limerock, providing 4" of structural course, versus the ultimate depth of 6".

For the inside lanes, the milling depth was increased to assure complete removal of the full lift of asphalt structural course.

Lessons Learned:

After building new roadways, where ultimate depth of asphalt is not being placed, schedule more frequent reviews for changes in road utilization. Also, provide a means of communicating roadway repairs performed through maintenance contracts to the Bituminous Engineer and Design Roadway Engineer, for further review of pavement deterioration. **For resurfacing projects, require that the project be reviewed by the Designer of Record, Maintenance and Materials (i.e. Bituminous Engineer) six months prior to letting to determine if plans adequately address potential issues which may have arisen between the initial reports and when plans are 100% and letting is scheduled.**

Maintenance Comments

During Session 2, Maintenance indicated that the importance of accelerating this resurfacing project due to extensive pavement deterioration was conveyed to Production. Maintenance had requested that this project be advanced ahead of the Hernando resurfacing project. The pavement failure conditions of raveling, patching, potholes and rippling requiring "increased frequency of maintenance repairs" were noted in the Design Concept Report, December 2011, and the Existing Pavement Conditions Assessment Report, February 2013.



2 - Prepared Soil Layer, Finished Soil Layer, and Organic Soil Layer

Issue Summary:

Bid questions were received regarding the finished soil layer, which showed as Pay Item 162-1-11 (Prepared Soil Layer, Finish Soil Layer 6"). Prior to bid, Pay Item 120-1 (Regular Excavation) was increased in response to the bid question regarding placement of 6" of organic material without removing the material in place. The intent was to establish 6 inches of soil that has an organic material content, meeting the organic soil layer specifications. The expectation is that this will promote the strong growth of sod whereas utilizing the standard Finish Soil Layer option allows for chemical treatments, which will not sustain the grass growth more permanently.

The Contractor stated that Pay Item 120-2-2 (Truck Borrow) needed to also increase, because they bid the project to excavate the existing material and then bring back premixed material to meet the organic requirement, and that Pay Item 162-1-11 was just for mixing in the organics. If not paid in this manner, the Contractor would proceed to file a claim.

Resolution:

From discussions with Maintenance, the only area where it was desired to increase the organics was between Ramblewood Rd. and Lutz Lake Fern Rd. To meet the original intent, the shoulders could be constructed under the Standard Index 105, Treatment I. The organics for the median, excluding the shoulders, would be increased by the Contractor purchasing the organic material (peat) and mixing in with the existing top 6". This was the cost savings under Supplemental Agreement No.2 shown in the matrix below:

PAY ITEM NO. AND DESCRIPTION	PLAN QTY	REVISED QTY	UNIT	UNIT PRICE	QTY CHANGE	AMOUNT OF CHANGE
429025-1-52-01						
120-1 / REGULAR EXCAVATION	3240	0	CY	\$9.00	-3240	-\$29,160.00
162-1-11 / PREPARED SOIL LAYER, FINISH SOIL LAYER, 6"	19440	0	SY	\$0.60	-19440	-\$11,664.00
429025-3-52-01						
120-1 / REGULAR EXCAVATION	4890	311	CY	\$9.00	-4579	-\$41,211.00
162-1-11 / PREPARED SOIL LAYER, FINISH SOIL LAYER, 6"	27474	18128	SY	\$0.60	-9346	-\$5,607.60
* 999-3 / ORGANICS (PEAT)	0	1	LS	\$20,368.00	1	\$20,368.00
TOTAL CHANGE						-\$67,274.60

Lessons Learned:

The final resolution is a good approach to increase the organics. The organics brought to the project can vary and mixing can vary. Do not try to increase the organics to above 10%, per the Specifications under Pay Item 162-1-11 (Prepared Soil Layer, Finish Soil Layer 6") with going to the organic specification which leads to 20%. For median areas, etc. where traffic will be, it gets pretty sloppy and after time will break down and may rut easy.

Suggest in cases where the organics need to be increased, it may be handled under pay item note, requiring the contractor to increase organics by giving a percentage not to exceed 10%. Also, specify the area of concern, if possible.

Other Comments:

The end result of increasing the organics indicated test results ranging from 2.2% to just above 10%. No further action was required.

Reference: Sheet Nos. 3, 4, 5 and 10 (Revision 1)

3 - Sodding

Issue Summary:

In the typical sections, sodding was shown over a larger area than clearing and grubbing.

Resolution:

The CEI agreed with the Contractor to pay for clearing and grubbing the additional area via Work Order, versus placing sod on top of existing grassing. The cost included mixing the existing area prior to placing sod, which was at a lower cost than the original clearing and grubbing cost, based on acres bid.

Lessons Learned:

As areas may change during plan reviews prior to letting, the EOR needs to assure both pay items for clearing/grubbing and placement of sod are addressed.

Reference: Typical Sections – Sheets 3 and 4 and Median Sod Detail – Sheet 5

Maintenance comments

Maintenance had requested the entire median to be sodded in certain areas. It was requested that sod get installed earlier in the project (enforce Specification 337). Sod is not established at 90% walk-through. Shoulder treatment and drop-off concerns need to be addressed.

4 - HTCB - Cable Barrier (Reflectors)

Issue Summary:

Specification 540-2.5, Line Posts and Post Accessories: ... Provide retro-reflective sheeting on every fourth post or 50 feet, whichever is less. Meet the AASHTO M-268 Type Four adhesive sheeting requirements. The minimum size of the retro-reflective sheeting shall be eight square inches. Use colorless (white) sheeting on posts installed to the right of approaching traffic and yellow sheeting on posts installed to the left of approaching traffic. *Install sheeting only on one side of the posts unless otherwise specified in the plans.* The reflective sheeting may be applied directly to the post for posts with flat surfaces facing approaching traffic.

For this project, the HTCB is placed in the median area and crosses from one side to other, so there is at least some distance where the cable is right in between the two directions of traffic.

Resolution:

Paid by Work Order to place the reflective sheeting on both sides of the posts.

Lessons Learned:

Where the HTCB is called for in a project in the median, reflectors for both sides should be in the contract documents for driver visibility in both directions in medians. This may ultimately be based on medians less than so many feet wide (to be determined), but should cover most medians.

Reference: Developmental Specifications - SECTION 540 HIGH TENSION CABLE BARRIER SYSTEM

5 - Guardrail Posts

Issue Summary

The Contractor questioned the direction to use wood vs. steel posts for guardrail construction along the project. Although the Aesthetic Guidelines do not designate a preference, the Suncoast Parkway utilizes wood posts. According to the Contractor, driving wood posts is more time consuming and thus more costly and would require a bid adjustment or compensation for the use of wood.

Note:

The Suncoast Parkway is specified as a Scenic Highway and there are aesthetic guidelines to be adhered to. If the Suncoast had started out with steel posts then all would have been steel posts under the guidelines, since wood posts were utilized, then all posts needed to be wood.

Resolution:

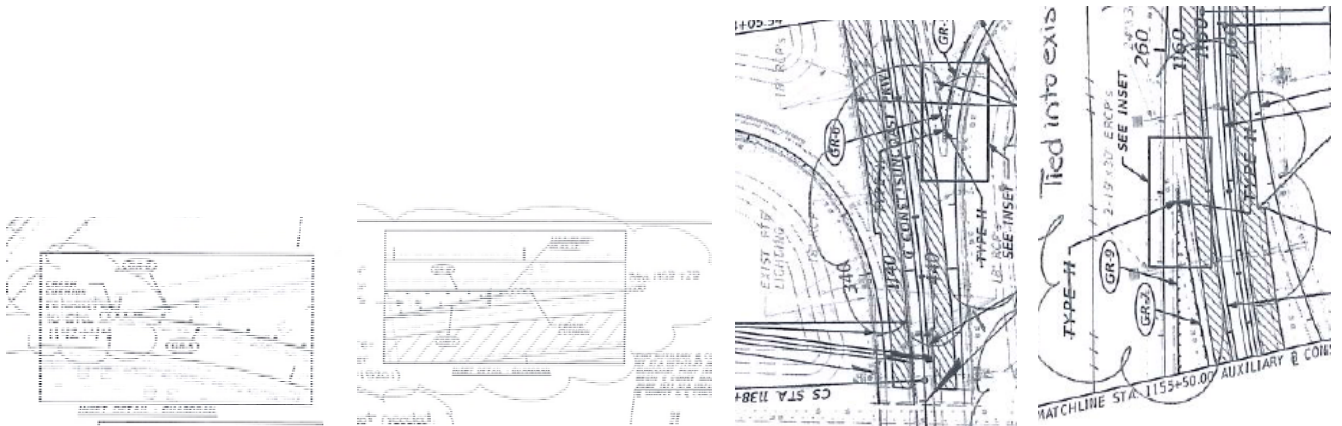
See Summary of Issues. Issue recently resolved by Supplemental Agreement in the amount of \$13,264.39.

Lessons Learned:

Where guardrail installation is called for within a Scenic Highway and there are aesthetic guidelines for that corridor, the EOR should add a pay item footnote specifying that wood posts shall be used, if that is what is expected.

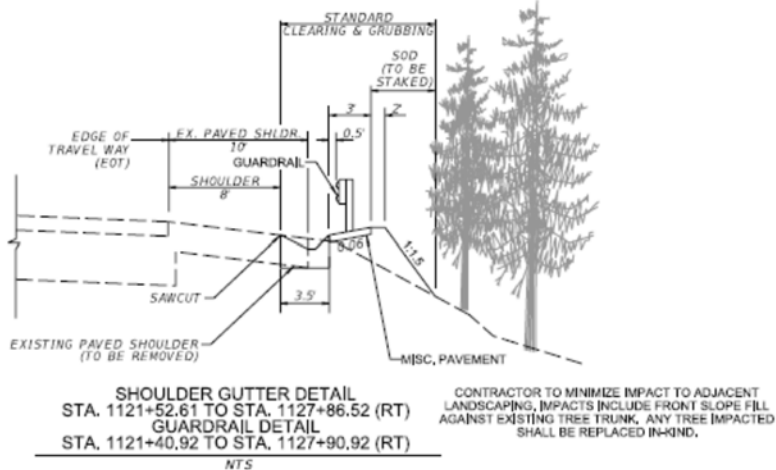
SUMMARY OF ISSUES (Organized by Functional Areas)

1. Aggregate cost of changes (Pay Items added or overrun, SA's, Work Orders) related to milling and resurfacing – Extra depth on outside lanes, inside lanes had to mill deeper due to delamination, calculation errors on original plans (gore areas). \$1,053,191.94
2. Aggregate cost of Safety Improvements (Guardrail/HTCB) changes (Including Work Orders) – Guardrail changes were made due to attenuators originally located where the Exit signs existed. Northbound off-ramp at Lutz Lake Fern Rd., the attenuator was relocated to the north, decreasing the amount of the guardrail. At the southbound off-ramp, the guardrail was extended further north and the sign was also relocated to meet offset requirements, increasing the amount of guardrail. The plans did not completely account for removal of the end treatments and replacement of guardrail when extending the guardrail. Guardrail was not replaced at shoulder gutter area. Conflicts with electrical tying into bridge and extending guardrail. HTC/B – foundations, reflectors (Savings - \$5,841.31)



3. Aggregate cost of Clearing and Grubbing (Work Order) – Grass removal prior to placing sod. \$1,039.50
4. Aggregate cost of Sod (SA) – Original quantities did not cover area identified in the typical sections, where median was sodded for the larger side of the cable barrier as the work area. At the north end of the project, the median area increased, and due to the area of saturation, it was determined it would be best to work off the high side; therefore, not as much sod was needed. At the south end of the project, there was only 4.75' of width not being sodded, which was torn up with construction so this area was sodded. \$21,866.25
5. Aggregate cost of Truck Borrow Embankment/Excavation, Finish Soil Layer (SA) (Savings - \$95,643.01)
6. Aggregate cost of Sign changes (Overrun) – Incorrect sign identification was shown on the plans and new sign panels had to be fabricated. When replacing pedestrian sign panels, the new panels were larger than the original signs. When the signs were placed on the existing posts, they were too close to the roadway and did not meet the Standards, requiring different posts. Added signs requested by Turnpike. \$8,994
7. Aggregate cost of construction modification at shoulder gutter - In the area as shown where there is shoulder gutter and associated drainage, it was determined that the construction would not impact just one (1) tree as anticipated, but would impact twenty (20) trees. This landscaping was originally planted due to complaints by the community of Cheval. These trees took approximately two (2) years to get established and through discussions, it was decided the best solution was to not remove the trees, but meet the standards as close as possible by leaving the guardrail in place and building the drainage

structures/shoulder gutter in front of the guardrail. The electrical conduit was not replaced, except where it was conflict with the drainage structure. The miscellaneous asphalt was constructed as a wedge to meet the 6% slope to the back side of the guardrail. (Savings of \$23,124.01).



8. Aggregate cost of guardrail post and block change - The Contractor questioned the direction to use wood vs. steel posts for guardrail construction along the project. Although the Aesthetic Guidelines do not designate a preference, the Suncoast Parkway utilizes wood posts. According to the Contractor, wood posts are more costly to install and required compensation for the use of wood. Added wood posts and blocks to all new guardrail installations by SA. Only independent runs and sections where new guardrail added to existing and new length exceeded existing length - contract cost increase of \$13,264.39.

WARRANTY ITEMS

1. Performance Sod - Dave Tilki will follow-up with sod under the performance specification. JBS performed 60 day walk through on 1/5/15.