Blythe

R-2247 EB Winston Salem Bypass



Main Contractor: Blythe.



CPM Consultant: HSE Contractors Inc.

<u>TIA Narrative Report</u> <u>R-2247 EB Winston Salem Bypass</u>





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1. <u>Executive Summary</u>

HSE CPM SCHEDULI

This report demonstrates Blythe Construction Company's entitlement to an extension of time based on events that are beyond Blythe control and could not be anticipated prior to bidding. The project was impacted by multiple delay events as detailed in Table (2) below, which affected the contractual date for Project Substantial Completion per Table (1A,2B,3C) below which summarizes the impact on the contractual project completion milestone.

The delay events affected the critical path of the project throughout each window and caused a loss of momentum and disruption of construction work. For purposes of this analysis, we define a delay as amount of time, in days, that the completion of a project is delayed beyond the contractual completion date, based on the critical path of the project.

This report demonstrates Blythe's entitlement to an extension of time and compensation as per Table (4) below which summarizes the impact on the contractual project completion milestone.

The revised date is based on the findings of the Delay Analysis, which was performed using a Contemporaneous Prospective Time Impact Analysis (TIA) method using September's2019 update with data date (September 1st, 2019) and June's2020 update with data date (July 2nd, 2020). The schedule updates chosen is the schedule updates before the delay events regarding excusable compensable delays (**PNG Relocation, Extra Works, SA1-20&22 &SA21**) as detailed in the table (2) below.





The September update schedule, before the delay events, had an expected finish date on 01-sep-22. After impacting the delays, the finish date is 30-aug-2023, with a variance of - 363 days. The June update schedule before the delay events had an expected finish date on 08-June-2023. After impacting the delays, the finish date is 06-Nov-2023, with a variance of -151 days. Also, while analyzing the august-2020 update schedule before the delay events had an expected finish date on 18-May- 2020 after impacting the delays, the finish date is 16-Oct-2023. This also proves that Blythe has acted in good faith and attempted to mitigate completion date from 6-Nov-2023 to 16-Oct -2023 for august-20 update. As well as working out sequence for structure 8 & 11 in order to prevent further impacts on the project. Accordingly, with the calculation illustrated in table (4) 363+151=514 Calendar Days, Blythe is requesting **514 calendar days** based on the impact of the delay events on the project's critical path. Calculation in the table (4) shows total variance to be claimed.

The overall variance of -514 calendar days.





This was shown on the schedule updates, minimizing the impact as possible and proceeding with all needed efforts to achieve the target finish date. However, Blythe believes it is entitled to Excusable and Compensable delays of 514 additional calendar days.

Additional Details and Summary

Several items had a significant impact to the completion of the Piedmont Natural Gas relocation plans and ultimately the start date of the relocation work. These items include utility design staff changes, utility right of way acquisition and permit acquisition.

<u>PNG Utility Design Staff</u> – During the course of the utility relocation plan development the utility design contact changed four times. In our opinion this disrupted utility design workflow, affected communication continuity and required project information to be provided multiple times. For example, the schedule discussed November 9, 2018 indicated the pre-construction work would be coming to completion in February-March timeframe. The relocation designs representative changed three times in a seven-week period in this window.

<u>Utility Right of Way Acquisition</u> – The PNG utility design and right of way acquisition staff interactions resulted in multiple redesigns of the relocation. These redesigns involved the Woodland Baptist Church, Hubbard Realty and City of Winston-Salem properties.

There were apparent inconsistencies observed in the verbal discussions concerning the interaction the utility right of way staff had with property owners, the utility design staff's comments on right of way acquisition and the comments made by the church and City of Winston-Salem staff. The resulting re-designs occurred sequentially which in combination to the owner comments results in





the conclusion that the design concept was not presented to the property owners in a coordinated public outreach. As public outreach efforts were noted by PNG representatives to be on going in mid-March 2019, it was reasonable to believe the issues would have been identified earlier. The other related item is the nature of the property owner comments were similar in that they objected to the initial route which bisected their property rather than minimizing property impacts to one side or the other. These functions were between PNG and 3rd parties and were not within the BCI Team's responsibilities.

<u>Utility Permitting</u> – The re-designs delayed the completion of the plans and affected the utility permitting. The permitting agency required an archaeological site investigation and clearance from Office of State Archaeology which was not identified by the utility design team despite earlier discussions about archaeological sites present in the roadway right of way. In summary, the key element in each of the items affecting the relocation schedule discussed above is task identification, task responsibility, task execution, completion of the task or communication between PNG and an affected utility relocation impacted property owner. Each of these were solely the responsibility of and in the control of the PNG team and outside the control of the BCI Team. The BCI Team coordinated with PNG relocation staff and in cooperation with the Department's Team facilitated communication, followed up on action items, maintained awareness of issue resolution as could be done given the relative issues, areas of responsibility and organizational boundaries.

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Time Window # 1A	Schedule Finish Date
Update Sep19 before Delays	01-Sep-22
Update Sep19 After Delays	30-Aug-23
Variance	363 Days

Table (2B) Impact of Delay Events on Project Finish Date Jun-2020:

Time Window # 1B	Schedule Finish Date
Update June20 before Delays	08-Jun-23
Update June20 After Delays	06-Nov-23
Variance	151 Days

*The scheduled finish date before the occurrence of delay events shows a variance from June20 due to the delays of PNG relocation, which is already taken into account.

Table (3C) Impact of Delay Events on Project Finish Date Aug-2020:

Time Window # 1C	Schedule Finish Date
Update AUGUST-2020 before Delays	18-May-2020
Update AUGUST-2020 After Delays	16-Oct-2020
Variance	151 Days

*The scheduled finish date before the occurrence of delay events shows a variance from August20 due to the delays of PNG relocation. Which was not taken in account for overall calculation





Table (4) TOTAL VARIANCE TO BE CLAIMED:

SUMMARY	VARIANCE
VARIANCE SEPTEMBER 2019	363
VARIANCE JUNE 2020	151
TOTAL VARIANCE TO BE CLAIMED	514 DAYS

Note: All calculations above are based on calendar days





Table (2) DELAY FRAGNETS

	Description	Impacted Activities
1	PNG Relocation	A) Clearing & Grubbing (SB52 Quadrants B & C) B) -Y62RPC- (22+00 to 31+00) Cut & Fill (12,348 cy) C) Y62RPC Flooring In D) -Y62RPC- Channel Change (10+00 to 31+00). E) Structure Excavation (EB-1)
2	Extra Work SA1-20 & 22	A) Extra work SA#21
3	Extra work SA 21	A) Punch List B) Final Completion.





2.Scope Of Work:

Scope

Roadway

The project scope included design and construction of a six-lane divided facility for the extension of Future I-74 from east of SR 1632 (Westinghouse Road) to Station 198+37.73 -L- (U-2579D, E & F tie point) west of NC 66 / SR 4000 (University Parkway), in Forsyth County. The mainline was to be designed and constructed to meet a 70 mph design speed for a rolling rural freeway meeting interstate standards.

Structures

The scope included to design and construct all structures necessary to complete the project, including but not limited to, the following:

- Bridge at -SB52- and -Y62RPC-
- Bridge at -SB52- and -EBBYP-
- Bridge at -NB52- and -L-
- Bridge at -NB52- and -EBBYP-
- Bridge at -WBBYP- and -SB52-
- Bridge at -RPDB- and -SB52-, if required by the Design-Build Team's interchange design
- Bridge at -WBBYP-, -L- and -NB52-
- Bridge at -RPDB-, -NB52- and -EBBYP-, if required by the Design-Build Team's interchange design
- Dual bridges on -Y68- over Norfolk Southern Railroad
- Dual bridges on -L- over Norfolk Southern Railroad
- Bridge on -WBBYP- over Norfolk Southern Railroad
- Bridge on -RPDB- over Norfolk Southern Railroad, if required by the Design-Build Team's
- interchange design
- Bridge on Ziglar Road over US 52
- All retaining walls required by the Design-Build Team's design
- All sound barrier walls required by the Design-Build Team's design (Reference the Roadway
- Scope of Work found elsewhere in this RFP)
- All reinforced concrete box culverts / reinforced concrete box culvert extensions required by
- the Design-Build Team's design





The project had several structures of excessive length, and the interchange was three levels, which caused conflicts with the Duke Power transmission lines, so the Blythe Construction, Inc. Design-Build team reconfigured and eliminated bridges as follows:

- Realigned Ramp DB north of the Norfolk Southern Railroad tracks with an exit off the NB US 52 bridge over the railroad instead of splitting off Ramp D, eliminating the bridge on Ramp DB over Norfolk Southern Railroad.
- In lieu of a bridge at the West-Bound Bypass, I-75 (L-Line) and NB US 52; the team provided two bridges, one on West-Bound Bypass over I-74 (L-Line), and another on NB US 52 over West-Bound Bypass and Ramp DB,
- In lieu of a bridge at Ramp DB, NB US 52, and EB Bypass the Blythe Team provided two bridges, one on EB Bypass over Ramp DB and one on NB US52 over Ramp DB and WB Bypass.
- In lieu of two bridges, one at WB Bypass and SB US 52 and another at Ramp DB and SB US 52 the team provided a bridge on SB US52 over WB Bypass and Ramp DB.
- Through the above the team eliminated the need for a third level in the interchange.

Grade separation bridges provided were:

- A bridge on EB Bypass over Ramp DB
- A bridge on NB US 52 over EB Bypass
- A bridge on NB US 52 over WB Bypass
- A bridge on SB US 52 over WB Bypass
- A bridge on SB US52 over EB Bypass
- A bridge on WB Bypass over I-74 (L-Line)

1. Utility Conflict Mitigation

The team attempted to minimize utility conflicts with multiple publicly- and privately-owned utility infrastructure, including Duke Energy's two transmission towers, Piedmont Natural Gas (PNG)'s transmission line, and the City of Winston-Salem's Montroyal Pump Station, approaching the design with these conflicts in mind:

- Readjusting US 52 SB alignment to minimize PNG's gas line conflicts
- Avoiding direct conflict with Duke Energy's transmission towers
- Shifting Ramp A away from the Montroyal Pump Station leaving access to the station unaffected

Reduce Impact on Traffic

The team strove to reduce impact to the travelling public by performing the majority of earthwork away from traffic using off-road trucks.

- Design separates proposed roadways from existing US 52 traffic to the maximum extent practical
- Construction access to US 52 interchange using grade separation to allow crossing US 52 out of traffic
- US 52 shifted west of existing, minimizing traffic impacts by not staging construction in close proximity to US 52
- Staging was eliminated from US 52 bridge work improving quality and schedule
- Avoiding significant detours and temporary traffic patterns
- Incorporated two loops and two ramps from the adjacent R-2247 CD project (another Blythe Design-Build)





Construction Plan

The construction plan involved:

- Constructing CD lanes for both US 52 NB and SB out of traffic
- After approvals had been obtained, to construct structures over the Norfolk Southern Railway (NS), prioritizing the US 52 SB structures first, critical to shifting traffic onto the new US 52 SB alignment
- Upon completion of the proposed US 52 NB CD lanes, US 52 NB traffic would be shifted onto the new lanes to allow construction of the new US 52 NB lanes in that station range
- Construct the US 52 NB structures and outer loop structures
- After shifting SB traffic on the new US 52 SB alignment, complete construction of US 52 NB south of the US 52 NB CD lanes



5. <u>Chronology of Events:</u>

The Notice to Proceed on October 1, 2018.

>T h e below delay events are the subject of this TIA:

• The delay event #1 PNG Relocation Delay, started on September 02, 2019, and ended on

June 04, 2020. This delay Affects the.

A) Clearing & Grubbing (SB52 Quadrants B & C)
B) -Y62RPC- (22+00 to 31+00) Cut & Fill (12,348 cy)

- C) Y62RPC Flooring In
- D) -Y62RPC- Channel Change (10+00 to

31+00).

E) Structure Excavation (EB-1)

• The delay of the PNG Relocation affected the whole project including (Phase1 Ramp C, Phase 1 Y62

Ramp C, Phase 1 Structure 11, Phase 1 Structure 11 Tie in, Phase 3 Structure 6 Tie in, & Phase 3 Structure 6).

• The Delay event #2 Extra Work (SA1-20&22) started on 19-Apr-23, and ended on

27-May-23

This delay affects: A) Extra work SA#21

• The Delay event #3 Extra work SA#21 started on

27-May-23

, and ended on 15-Sep-23. This delay affects:

A) Punch List

B) Final Completion.





4. Contractual Reference:

ADDITIONAL WORK: Additional work is that which results from a change or alteration to the contract and for which there are existing contract unit prices.

COMPLETION DATE: That date established as set forth in the contract or as revised by authorized extensions, by which it is required that the work set forth in the contract be satisfactorily completed. When observation periods are required by the Specifications, they are not a part of the work to be completed by the completion date or intermediate contract

times stated in the contract unless otherwise noted.

DATE OF AVAILABILITY: That date, established as set forth in the special provisions, by which it is anticipated that sufficient work sites within the project limits will be available for the Contractor to begin his controlling operations that are not otherwise limited by

moratoriums, listed third party conflicts, or by weather conditions.

EXTRA WORK: Work found necessary or desirable to fully complete the work as 41 contemplated in the contract for which payment is not provided for by the contract unit or 42 lump sum prices in the original contract. Extra work shall not be work that in the terms of the 43 contract is incidental to work for which there is a contract price or work that payment is 44

included in some other contract unit or lump sum price.

CURRENT CONTROLLING OPERATION OR OPERATIONS: Any operation or operations, as determined by the Engineer, that if delayed would delay the completion of the project.





If the Contractor's current controlling operation is delayed by circumstances originating from work required under the contract and beyond his control and without his fault or negligence, he may, at any time before payment of the final estimate, make a written request to the Engineer on the Contractor Claim Submittal Form, available through the Construction Unit, for an extension of the completion date, intermediate completion date, or intermediate completion time. This request shall include: (a) The circumstances resulting in the alleged delay and documentation of said circumstances as may be required by the Engineer,

(b) The controlling operation alleged to have been delayed,

(c) The calendar dates or calendar dates and times on which the controlling

operation was delayed

and

(d) The number of calendar days or hours by which he is requesting the

completion date, intermediate completion date, or intermediate completion time to be extended.

If the Engineer determines that the controlling operation was delayed because of circumstances beyond the control of and without the fault or negligence of the Contractor, and that the Contractor has pursued the work in accordance with Article 108-1, he will extend the completion date, intermediate completion date, or

intermediate completion time unless otherwise precluded by other provisions of the contract.

No extension of the completion date, intermediate completion date, or intermediate completion time will be allowed for delays caused by restrictions, limitations or provisions contained in the contract.





5. <u>Appendix (A): Simulation of delay events</u>



	•	<u>R-2247 EB Winston-Salem</u>	<u>ı By-pass Schedule Logic</u>	• 3 BLA
pdated Pro art Date -Oct-18	Dject Schedule Aug-202	<u>o Before Impact</u> Substantial Final Completion 19-Apr-23 18-May-2 Punch List	n 3	Variance = -259 CD delay
pdated Pro	bject Schedule Aug-202	o After Impact		Variance = -410 CD delay
art Date -Oct-18	02-Sep-19	Substantial Completion 27-May-23	15-Sep-23	Completion

This window's variance wasn't taken into account in overall variance but it's only shown to prove that Blythe mitigated their work form June 20 update to august 20 update.





6. Conclusion

In conclusion, the report demonstrates that Blythe is entitled to an extension of time and compensation based on the findings of the Delay Analysis. The delay events, including PNG Relocation, Extra Works, SA1-20&22 & SA21, have impacted the project's critical path, resulting in an overall variance of -514 calendar days. Blythe has acted in good faith and attempted to minimize the schedule variance as much as possible by working out of sequence with the construction open front in structure 11, but the delay events were outside of their control. The report details the various delays and issues encountered during the Piedmont Natural Gas relocation plans, which were solely the responsibility of and in the control of the PNG team. The BCI Team coordinated with the PNG relocation staff and facilitated communication, but the delay events were still unavoidable. Thus, Blythe is entitled to Excusable and Compensable delays of 514 additional calendar days to account for the impact on the project's critical path.





7. Appendix (B): Schedule Sep 2019 update BEFORE occurrence of delay events -Detailed Schedule Layout.





8. Appendix (C): Schedule Sep 2019 update AFTER occurrence of delay events -Detailed Schedule Layout.







9. Appendix (D): Schedule Sep 2019 update BEFORE occurrence of delay events – Critical Path Layout Layout.





10. Appendix (E): Schedule Sep 2019 update AFTER occurrence of delay events – Critical Path Layout.





11. Appendix (F): Schedule June 2020 update BEFORE occurrence of delay events - Detailed Schedule Layout.





12. Appendix (G): Schedule June 2020 update AFTER occurrence of delay events - Detailed Schedule Layout.





13. Appendix (H): Schedule June 2020 update BEFORE occurrence of delay events – Critical Path Layout.





14. Appendix (I): Schedule June 2020 update AFTER occurrence of delay events -Critical Path Layout.





15. Appendix (J): Schedule August 2020 update BEFORE occurrence of delay events Detailed Schedule- Layout.





16. Appendix (K): Schedule August 2020 update AFTER occurrence of delay events Detailed Schedule- Layout.





17. Appendix (L): Schedule August 2020 update BEFORE occurrence of delay events Critical Path- Layout





18. Appendix (M): Schedule August 2020 update AFTER occurrence of delay events Critical Path- Layout.



