

MILLER CONSTRUCTION, INC.

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TRANSMITTAL

TO: Kristin M. Higgins, PE Project Manager Vermont Agency of Transportation	DATE	PROJECT NO.
	2/7/2014	Barnard ER BRF 0241 (39)

XX WE ENCLOSE THE FOLLOWING: _____ UNDER SEPARATE COVER WE ARE SENDING THE FOLLOWING

COPIES	NUMBER	DESCRIPTION	CODE
1		Schedule Narrative - Rev 1	H
1		Schedule Dated 02-07-14	H

- CODE:
- | | |
|---|----------------------------|
| A FOR INITIAL APPROVAL | H FOR APPROVAL |
| B FOR FINAL APPROVAL | I AS REQUESTED OR REQUIRED |
| C APPROVED AS NOTED-RESUBMISSION REQUIRED | J FOR USE IN ERECTION |
| D APPROVED AS NOTED-RESUBMISSION NOT REQUIRED | K LETTER FOLLOWS |
| E DISAPPROVED-RESUBMIT | L FOR FIELD CHECK |
| F QUOTATION REQUESTED | M FOR YOUR USE |
| G APPROVED | |

BY: Paul J. Higgins



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02/07/14

Barnard ER BRF 0241 (39) – Schedule Narrative – Revision 1

Project Overview:

The Barnard ER BRF 0241 (39) Project involves the replacement of Bridge 25 with related approach and channel work. The project location is in the Town of Barnard, VT on Vermont Route 12, beginning at Mile Post 7.0195 and ending at Mile Post 7.0535. The new structure will be approximately 88 feet in length with 97 feet of roadway work.

The intent of the Project is to have the bridge closure period (BCP) be as short a duration as possible. The allowable BCP is 28 consecutive calendar days. During the BCP, work will be allowed on the bridge 24 hours per day, 7 days per week, including holiday periods.

The Contract Completion Date is August 29, 2014. The BCP shall begin on or after June 20, 2014.

Schedule:

The Miller Construction, Inc. approach in preparing the Preliminary Project Baseline Schedule is to sequence activities as logically and efficiently as possible. All activities comprise of basic bridge building concepts with finish-start relationships.

Pre-Construction:

Pre-Construction activities include the submission and subsequent approval of all required submittals. There are (11) eleven required submittals for the project and status of each is as follows:

- CPM Schedule Software Request – Approved
- Bearing Device Assembly – Approved
- Rail Box Beam – Approved
- CPM Schedule – In Review
- Precast Structure Design – In Review
- EPSC Plan – Approved
- Reinforcing Steel – Approved
- Traffic Control Plan – In Review
- HPC Rapid Set Mix – Testing in Process
- Piling Information / WEAP – Pending Submission
- Precast Structure Erection Plan – Pending Submission

One potential conflict that exists is the pending approval of the HPC Rapid Set Mix Design. The concept is relatively new to our supplier, Carroll Concrete, and the mix has not been batched at their West Lebanon, NH Plant before. Testing is in process and results are being sent to VTrans Materials & Research. Testing was started as early as possible in order to minimize any effect on the schedule should issues arise.



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Pre-Construction activities also include the procurement of material. The status of material with significant lead time is as follows:

- Bearing Device Assembly – Stockpiled at Miller Construction, Inc.
- Piling – Rolled and Stockpiled at R.W. Conklin Steel
- Bridge & Approach Rail – Ordered and will be stockpiled at F.R. Lafayette
- Level II Reinforcing Steel – Ordered, pending Plant Scheduling
- Precast Concrete – Pending Approval of Shop Drawings

One potential conflict that exists is the availability of Level II Reinforcing Steel. Currently, Gerda Ameristeel, located in Tennessee is the sole manufacturer of dual coated rebar. Lead time of material can vary from (4) four weeks to (8) eight weeks dependant on order size, time of year, equipment break downs, etc. Rebar has been ordered and will be stored properly at the Miller Construction, Inc. yard in order to minimize any effect on the schedule.

A second potential conflict that exists is the cost of stockpiling material. Due to the short duration of the project, material must be on hand well before the start of construction. Because stockpile payments are not allowed for items with Contract bid amount less than \$25,000, several items (Piling, Bearing Device Assembly, Reinforcing Steel, and certain Rail Items) must be paid for up front by Miller Construction Inc. with no payment for said items being received until the months of July and August.

Pre-Construction activities also include the submission and subsequent approval of all proposed subcontracts. Currently, all anticipated subcontracts for the project have been submitted and approved.

Pre-Closure:

Pre-Closure activities include the Resident Engineer's trailer setup, building inspection of the property located at 8354 VT Rt. 107/12, detour signage installation, and equipment mobilization.

Resident Engineer's Trailer Setup:

An agreement has been made with a landowner to stage the Engineer's trailer on an adjacent property. Use of this site has been approved by VTrans Natural and Cultural Resources.

Building Inspection:

Continental Placer, Inc. will perform a building inspection of the property located at 8354 VT Rt. 12/107 prior to any construction activity.

Detour Signage Installation:

Detour signage shall be installed and covered during the first week in June. Covers shall remain in place until Route 12 is closed and the detour is opened.



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Equipment Mobilization:

Other projects and commitments have been scheduled so that maintenance and mobilization of equipment can occur during the second week in June.

One potential conflict that exists is that the Engineer's trailer location is within a special flood hazard area. The project is late in the season and it is expected that there is minimum potential for flooding in the area. Should this location be uninhabitable, an alternate area in either an adjacent structure or within the paved approach area shall be utilized.

Closure:

Closure activities include the removal of the existing temporary bridge and subsequent construction of the new structure. All work up to, and including the membrane, base course of pavement on the approaches, and line striping targets is required to open the bridge to two-way traffic.

One potential conflict that exists is the piling operation. It is assumed that piles can be driven unobstructed to the required minimum tolerance, depth, and resistance. Piling falls on the critical path, so any unforeseen issues and/or inefficiencies will be detrimental to schedule and to the project.

A second potential conflict that exists is weather. As with any project, it is possible to experience conditions to include, but not limited to, extreme heat, rain, flood, and wind. The contract states that that the BCP is absolutely fixed and will not be changed for any Act of God, omission, improper action, direction of the Engineer, or any other reason unless done so by the Secretary and only under extreme conditions as determined by the Secretary. Every effort shall be made to work though extreme conditions in a safe and productive manner.

Post-Closure:

Post-Closure activities include the removal of the detour signage and traffic control devices, demobilization, and subsequent removal of the Engineer's Trailer.

All contract items may not be complete at the time of releasing traffic onto Route 12. Such remaining items include, but are not limited to, final pavement, line striping, and site reclamation. If required, such work shall be performed with full time, certified flaggers and the schedule adjusted accordingly.

Resources:

It is assumed that two crews will be working extended hours over a seven-day workweek during the BCP. At this time, no night work is anticipated, but it shall be implemented should it be deemed necessary.



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Crew fatigue is a major concern for the project. Safety and productivity will need to be monitored on a continuous basis and crew adjustments made accordingly.

Duration Justification:

Channel Excavation and Stone Fill activities exceed the 12 Hr. task limit during the BCP. None of these activities with the exception of work at Abutment 1 within the bridge limit fall on the Critical Path. All efforts shall be made to expedite the Stone Fill activity at Abutment 1.

Removing Rail & Deck and Hauling of the Temporary Bridge both exceed the 12 Hr. task limit during the BCP. The hauling operation is independent of all other activities after the removal of the Temporary Bridge but falls on the Critical Path because it takes resources away from the project. Should it negatively affect the schedule, bridge components shall be stored and then hauled after the BCP has ended.

Forming of the Backwalls exceeds the 12 Hr. task limit during the BCP. Formwork around the NEXT Beam stems account for the long duration. All efforts shall be made to prefabricate forms in order to expedite the activity.

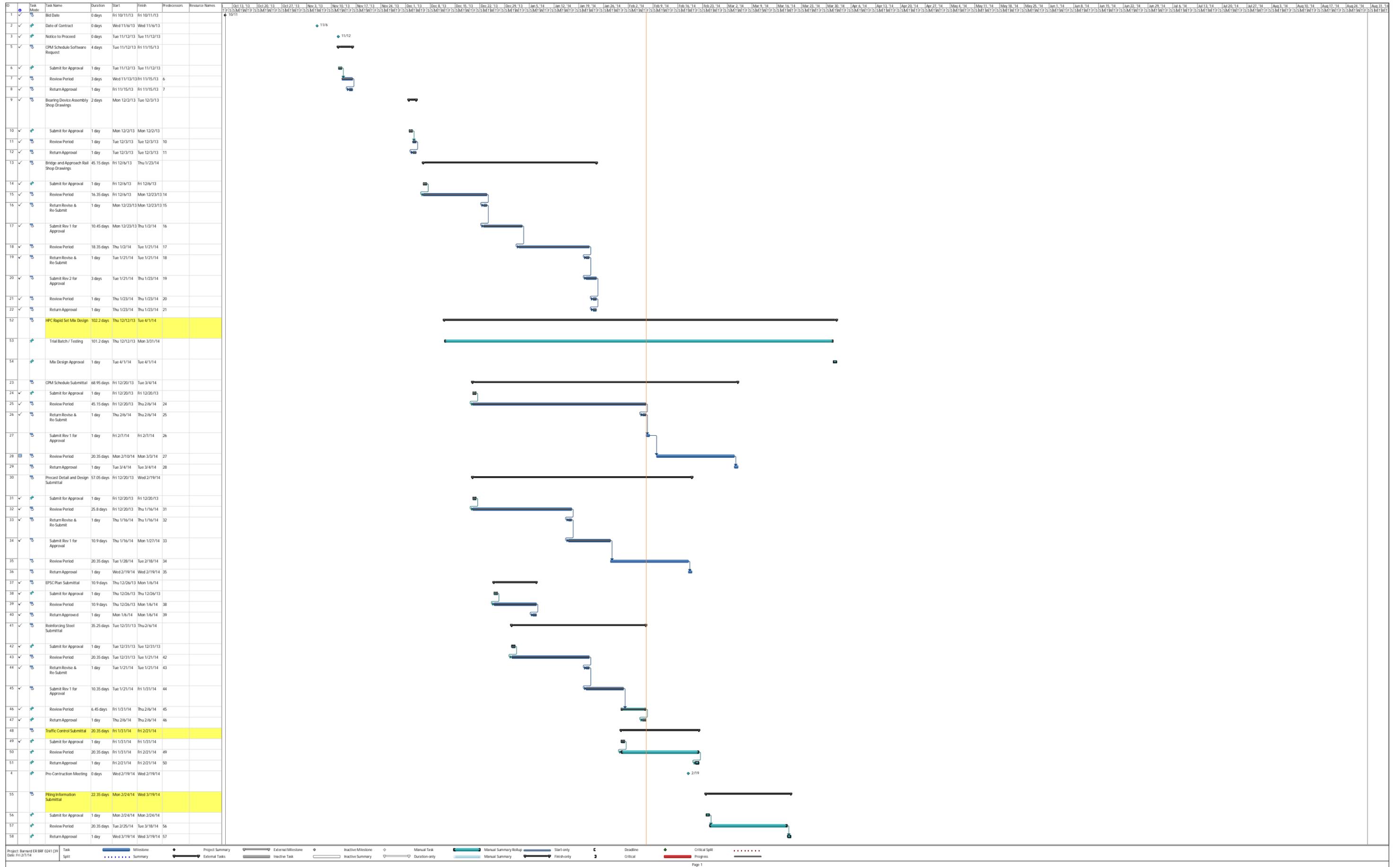
Critical Path:

The Critical Path task bars are colored red, and Critical Path items highlighted yellow. Critical Path items include certain submittals. Although these submittals are critical to the start and completion dates of the project, there is significant float in the submission and approval dates of said items.

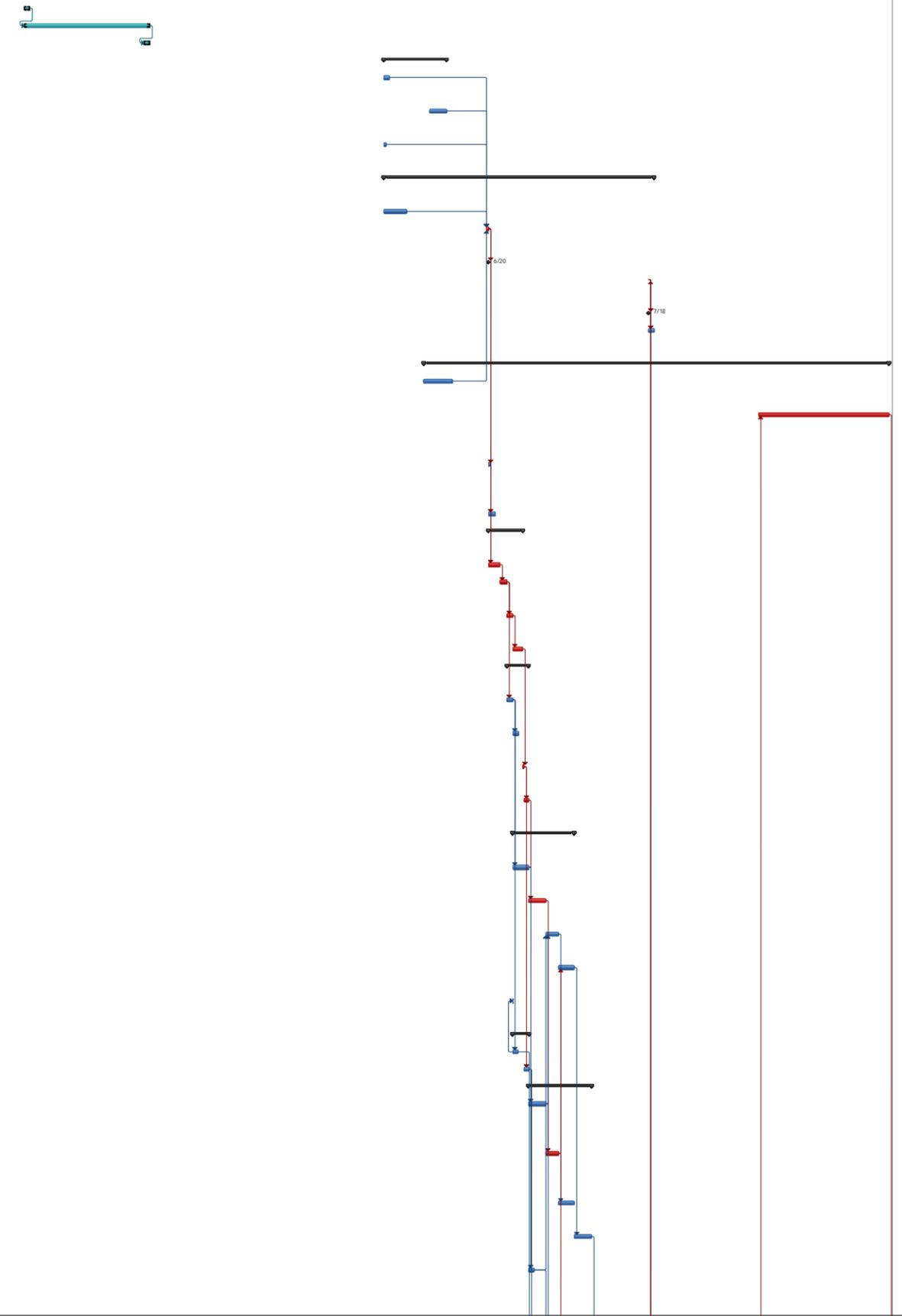
Milestone Dates are as follows:

10/11/13 Bid Date
11/06/13 Date of Contract
11/12/13 Notice to Proceed
02/19/14 Pre-Construction Meeting
06/20/14 Begin BCP
07/09/14 Superstructure Set
07/18/14 End BCP
08/28/14 Project Completion

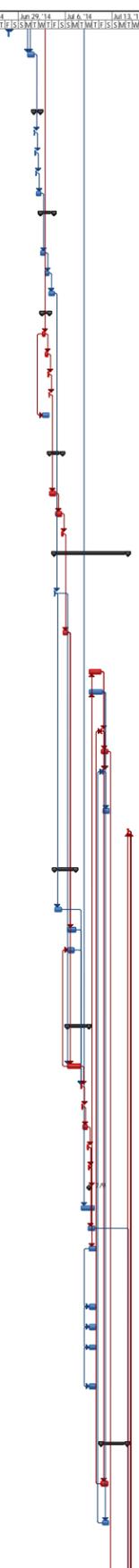
BCP duration is 28 consecutive calendar days.



ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors	Resource Names
59		Precast Erection Plan Submittal	20.35 days	Mon 3/3/14	Mon 4/21/14		
60		Submit for Approval	1 day	Mon 3/3/14	Mon 3/31/14		
61		Review Period	20.35 days	Mon 3/3/14	Mon 4/21/14	60	
62		Return Approval	1 day	Mon 4/21/14	Mon 4/21/14	61	
139		Mobilization	10.45 days	Mon 6/2/14	Thu 6/12/14		
140		Building Inspection - 8354 VT Rte. 107/12	1 day	Mon 6/2/14	Mon 6/2/14		
141		Mobilize Equipment and Job Trailer	3 days	Tue 6/10/14	Thu 6/12/14		
145		4 Inch Yellow Line - Detour	4 hrs	Mon 6/2/14	Mon 6/2/14		
174		Traffic Control, All-Inclusive	43.9 days	Mon 6/2/14	Sat 7/19/14		
175		Set up Detour Signage	4 days	Mon 6/2/14	Thu 6/5/14		
177		Close VT12/Open Detour	1 hr	Fri 6/20/14	Fri 6/20/14	175,137,141,146	
176		Bridge Closed	0 days	Fri 6/20/14	Fri 6/20/14	177	
178		Open VT12/Close Detour	1 hr	Fri 7/18/14	Fri 7/18/14	143	
179		Bridge Open	0 days	Fri 7/18/14	Fri 7/18/14	178	
180		Remove Detour Signage	1 day	Fri 7/18/14	Sat 7/19/14	178	
136		Field Office, Engineers	75.45 days	Mon 6/9/14	Fri 8/29/14		
137		Set up Engineer's Trailer	5 days	Mon 6/9/14	Fri 6/13/14		
138		Breakdown and Removal of Engineer's Trailer	21 days	Wed 8/6/14	Fri 8/29/14	142	
63		Clearing and Grubbing including individual trees and stumps	8 hrs	Fri 6/20/14	Fri 6/20/14	177	
147		EPSC Plan	15 hrs	Fri 6/20/14	Sat 6/21/14	177	
169		Removal of Temporary Bridge and Approaches	5.5 days	Fri 6/20/14	Thu 6/26/14		
170		Remove Rail & Deck	20 hrs	Fri 6/20/14	Sun 6/22/14	177	
171		De-launch Temp. Bridge	10 hrs	Sun 6/22/14	Mon 6/23/14	170	
172		Dismantle Temp. Bridge	10 hrs	Mon 6/23/14	Mon 6/24/14	171	
173		Haul Temp. Bridge	15 hrs	Tue 6/24/14	Thu 6/26/14	172	
101		Partial Removal of Structure	3.5 days	Mon 6/23/14	Fri 6/27/14		
102		Demo Existing Abutment 2	10 hrs	Mon 6/23/14	Tue 6/24/14	171	
103		Haul Existing Abutment 2 Rubble	10 hrs	Tue 6/24/14	Wed 6/25/14	102	
104		Demo Existing Abutment 1	5 hrs	Thu 6/26/14	Thu 6/26/14	173	
105		Haul Existing Abutment 1 Rubble	5 hrs	Thu 6/26/14	Fri 6/27/14	104	
66		Unclassified Channel Excavation	10 days	Tue 6/24/14	Sat 7/5/14		
67		Abutment 2 within Bridge Limits	25 hrs	Tue 6/24/14	Fri 6/27/14	102	
68		Abutment 1 within Bridge Limits	25 hrs	Fri 6/27/14	Mon 6/30/14	105	
69		Abutment 2 Outside Bridge Limits	25 hrs	Mon 6/30/14	Wed 7/2/14	159,128	
70		Abutment 1 Outside Bridge Limits	25 hrs	Wed 7/2/14	Sat 7/5/14	129	
71		Trench Excavation of Earth	2 hrs	Tue 6/24/14	Tue 6/24/14	73SS	
72		Structure Excavation	2.8 days	Tue 6/24/14	Fri 6/27/14		
73		Abutment 2	8 hrs	Tue 6/24/14	Wed 6/25/14	102	
74		Abutment 1	8 hrs	Thu 6/26/14	Fri 6/27/14	104	
127		Stone Fill, Type IV	10 days	Fri 6/27/14	Tue 7/8/14		
128		Abutment 2 to Elev. 870.00 within Bridge Limits	25 hrs	Fri 6/27/14	Mon 6/30/14	67	
129		Abutment 1 to Elev. 875.00 within Bridge Limits	25 hrs	Mon 6/30/14	Wed 7/2/14	68	
130		Abutment 2 Outside Bridge Limits	25 hrs	Wed 7/2/14	Sat 7/5/14	69	
131		Abutment 1 Outside Bridge Limits	25 hrs	Sat 7/5/14	Tue 7/8/14	70	
159		Pre-Excavation of Integral Abutment Piles, Earth	10 hrs	Fri 6/27/14	Sat 6/28/14	67	



ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors	Resource Names
65		Solid Rock Excavation	3 hrs	Fri 6/27/14	Fri 6/27/14	73,74	
160		Pre-Excavation of Integral Abutment Piles, Rock	10 hrs	Mon 6/30/14	Tue 7/1/14	159,128	
82		Steel Piling, HP 10 X 57	1 day	Tue 7/1/14	Wed 7/2/14		
83		Set Pile P1	2.5 hrs	Tue 7/1/14	Tue 7/1/14	160	
84		Set Pile P2	2.5 hrs	Tue 7/1/14	Tue 7/1/14	83	
85		Set Pile P3	2.5 hrs	Tue 7/1/14	Tue 7/1/14	84	
86		Set Pile P4	2.5 hrs	Tue 7/1/14	Wed 7/2/14	85	
111		Precast Concrete Structure (Abutment 2)	2 days	Wed 7/2/14	Fri 7/4/14		
112		Prep for Abutment 2	8 hrs	Wed 7/2/14	Wed 7/2/14	86	
113		Set Abutment 2-1	6 hrs	Thu 7/3/14	Thu 7/3/14	112	
114		Set Abutment 2-2	6 hrs	Thu 7/3/14	Fri 7/4/14	113	
87		Steel Piling, HP 12 X 74	1.2 days	Wed 7/2/14	Thu 7/3/14		
88		Drive Pile P1	3 hrs	Wed 7/2/14	Wed 7/2/14	129	
89		Drive Pile P2	3 hrs	Thu 7/3/14	Thu 7/3/14	88	
90		Drive Pile P3	3 hrs	Thu 7/3/14	Thu 7/3/14	89	
91		Drive Pile P4	3 hrs	Thu 7/3/14	Thu 7/3/14	90	
92		Dynamic Pile Loading Test	10 hrs	Wed 7/2/14	Thu 7/3/14	88,89	
107		Precast Concrete Structure (Abutment 1)	2 days	Thu 7/3/14	Sat 7/5/14		
108		Prep for Abutment 1	8 hrs	Thu 7/3/14	Fri 7/4/14	91	
109		Set Abutment 1-1	6 hrs	Fri 7/4/14	Sat 7/5/14	108	
110		Set Abutment 1-2	6 hrs	Sat 7/5/14	Sat 7/5/14	109	
149		High Performance Concrete, Rapid Set	10 days	Fri 7/4/14	Tue 7/15/14		
150		Place Pile Cavities - Abutment 2	2 hrs	Fri 7/4/14	Fri 7/4/14	114	
151		Place Pile Cavities - Abutment 1	2 hrs	Sat 7/5/14	Sun 7/6/14	110	
152		Form Backwalls	15 hrs	Wed 7/9/14	Fri 7/11/14	167	
153		Form Next Beam Closure Pours	20 hrs	Wed 7/9/14	Fri 7/11/14	167	
154		Place Backwalls	2 hrs	Fri 7/11/14	Fri 7/11/14	152,94,55	
156		Strip Backwalls	8 hrs	Fri 7/11/14	Sat 7/12/14	154	
155		Place Next Beam Closure Pours	2 hrs	Fri 7/11/14	Fri 7/11/14	154,153,95,55	
158		Strip Closure Pours	8 hrs	Fri 7/11/14	Sat 7/12/14	155	
157		Place Approach Slab Closure Pours	2 hrs	Tue 7/15/14	Tue 7/15/14	126,96	
75		Granular Backfill for Structures	2.7 days	Fri 7/4/14	Mon 7/7/14		
76		Abutment 2	10 hrs	Fri 7/4/14	Sat 7/5/14	150	
77		Abutment 1	10 hrs	Sun 7/6/14	Mon 7/7/14	151	
106		Bearing Device Assembly, Steel Reinforced Elastomeric Pad	5 hrs	Sun 7/6/14	Mon 7/7/14	162,55	
161		Prestressed Concrete Nwd D Beams	3 days	Sun 7/6/14	Wed 7/9/14		
162		Install Slider Beam	15 hrs	Sun 7/6/14	Tue 7/8/14	151,150	
163		Set Next - 2	3 hrs	Tue 7/8/14	Tue 7/8/14	162,76,77,106	
164		Set Next - 3	3 hrs	Tue 7/8/14	Tue 7/8/14	163	
165		Set Next - 4	3 hrs	Tue 7/8/14	Wed 7/9/14	164	
166		Remove Slider Beam	3 hrs	Wed 7/9/14	Wed 7/9/14	165	
167		Set Next - 1	3 hrs	Wed 7/9/14	Wed 7/9/14	166	
168		Superstructure Set	0 days	Wed 7/9/14	Wed 7/9/14	167	
146		Grubbing Material	20 hrs	Tue 7/8/14	Thu 7/10/14	131	
84		Common Excavation	10 hrs	Wed 7/9/14	Thu 7/10/14	166	
100		Bridge Railing, Galvanized 3 Rail Box Beam	10 hrs	Wed 7/9/14	Thu 7/10/14	167	
132		Yielding Marker Posts	10 hrs	Wed 7/9/14	Thu 7/10/14	100,55	
133		Box Beam Guardrail	10 hrs	Wed 7/9/14	Thu 7/10/14	132,55	
134		Manufactured Terminal Section, Tangent	10 hrs	Wed 7/9/14	Thu 7/10/14	133,55	
135		Guardrail Approach Section, Galvanized 3 Rail Box Beam	10 hrs	Wed 7/9/14	Thu 7/10/14	134,55	
93		Reinforcing Steel, Level II	3.4 days	Fri 7/11/14	Tue 7/15/14		
94		Backwall Level II Reinforcement	10 hrs	Fri 7/11/14	Sat 7/12/14	152	
95		Next Beam Closure Pour Level II Reinforcement	8 hrs	Fri 7/11/14	Sat 7/12/14	153	



ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors	Resource Names
96		Approach Slab Closure Pour Level II Reinforcement	4 hrs	Mon 7/14/14	Tue 7/15/14	126	
78		Subbase of Dense Graded Crushed Stone	4.1 days	Sat 7/12/14	Wed 7/16/14		
80		DGS within Approach Slab Limit	10 hrs	Sat 7/12/14	Sun 7/13/14	156	
79		DGS outside Approach Slab Limit	15 hrs	Tue 7/15/14	Wed 7/16/14	157,64	
115		Precast Concrete Structure (Approach Slab 1)	0.6 days	Sun 7/13/14	Mon 7/14/14		
116		Prep for Approach Slab 1	2 hrs	Sun 7/13/14	Sun 7/13/14	80	
117		Set Approach Slab 1-1	1 hr	Sun 7/13/14	Sun 7/13/14	116	
118		Set Approach Slab 1-2	1 hr	Mon 7/14/14	Mon 7/14/14	117	
119		Set Approach Slab 1-3	1 hr	Mon 7/14/14	Mon 7/14/14	118	
120		Set Approach Slab 1-4	1 hr	Mon 7/14/14	Mon 7/14/14	119	
121		Precast Concrete Structure (Approach Slab 2)	1 day	Sun 7/13/14	Mon 7/14/14		
122		Prep for Approach Slab 2	2 hrs	Sun 7/13/14	Sun 7/13/14	80	
123		Set Approach Slab 2-1	1 hr	Mon 7/14/14	Mon 7/14/14	122,120	
124		Set Approach Slab 2-2	1 hr	Mon 7/14/14	Mon 7/14/14	123	
125		Set Approach Slab 2-3	1 hr	Mon 7/14/14	Mon 7/14/14	124	
126		Set Approach Slab 2-4	1 hr	Mon 7/14/14	Mon 7/14/14	125	
98		Membrane Waterproofing Spray Applied	10 hrs	Tue 7/15/14	Wed 7/16/14	157	
181		Bituminous Concrete Pavement	10 hrs	Wed 7/16/14	Thu 7/17/14	98,79	
81		Aggregate Shoulders, in Place	3 hrs	Thu 7/17/14	Fri 7/18/14	181	
97		Bridge Expansion Joint, Asphalitic Plug	6 hrs	Thu 7/17/14	Fri 7/18/14	181	
143		4 Inch White Line	3 hrs	Thu 7/17/14	Fri 7/18/14	181	
144		4 Inch Yellow Line	3 hrs	Thu 7/17/14	Fri 7/18/14	143SS	
142		Demobilization	18 days	Fri 7/18/14	Wed 8/6/14	178	
148		Traffic Signs, Type A	4 hrs	Fri 7/18/14	Fri 7/18/14	178	
99		Joint Sealer, Hot Poured	4 hrs	Fri 7/18/14	Fri 7/18/14	97	
182		Project Completion	0 days	Fri 8/29/14	Fri 8/29/14	138	

