



Client: Elliott Van Stelle  
Structures, Inc.  
4 Inverness Court East, Suite 250  
Englewood, CO 80112

### Forest Lakes Bridges

Report Date: Jan 17, 2022  
Work Order Date: Jan 10, 2022

Work Order No.: 21-8536.Concrete.0021; ver: 3  
Reviewed by: Josiah Johnson

#### Concrete

Concrete Contractor: Structures  
Placement Method: Pumped  
Total Quantity Placed: 161 yd<sup>3</sup>  
Placement Location: Bridge Deck for Mesa Top Drive from STA 14+40 to 17+10

Performed by: Zach Mitchell  
Finish Method: Vibrated- Internally|Machine Finished|Hand Finished  
Weather: Mostly Sunny

#### On-site Notifications, Specification, and Mix Information

On-Site Notification(s)	Item / Structure Type	Test	Specified	Mix Design
Elliott Van Stelle with Structures, Inc.	Normal Weight Concrete	Air Content (%)	5 to 8	6.2
	Mix Placed	Slump (in)	-	4.25
	CDOT 2020138 - Martin	Unit Weight (pcf)	-	142.2
	Marietta: XCD4195	Comp. Strength (psi)	4500	4500

#### Sampling (ASTM C172 / AASHTO R60 / CDOT CP61)

Sample No.	Location	Sampled From	Quantity (yd <sup>3</sup> )	Truck No.	Ticket No.	Batch Time	Test Time	Air Temp. (°F)	Water Added (gal)
43	STA 14+80, 5' L of CL	Point of Delivery	10	2002	67099607	7:56 AM	9:00 AM	40	0
44	STA 14+70, 20' L of CL	Point of Delivery	19	1747	67099608	8:25 AM	9:30 AM	40	0
45	STA 14+85, 40' L of CL	Point of Delivery	28	1636	67099610	8:48 AM	10:00 AM	42	5
46	STA 16+00, 25' R of CL	Point of Delivery	100	1758	67099630	11:17 AM	12:20 PM	50	0
47	STA 16+25, 35' L of CL	Point of Delivery	145	2002	67099647	1:11 PM	2:33 PM	50	4
47.1	STA 16+25, 35' L of CL	Point of Delivery	145	2002	67099647	1:11 PM	2:43 PM	50	4
48	STA 16+40, 40' L of CL	Point of Delivery	155	2032	67099650	1:30 PM	3:02 PM	52	0
49	STA 16+55, 15' L of CL	Point of Delivery	161	2220	67099658	3:37 PM	4:32 PM	50	0

#### Field Tests (ASTM C138, C143, C231, and C1064 / AASHTO T119, T121, and T152)

Sample No.	Concrete Temp. (°F)	Slump (in)	Air Cont. (%)	Meas. Vol. (ft <sup>3</sup> )	Empty Meas. (lb)	Full Meas. (lb)	Unit Wt. (pcf)	Lab Samples Cast
43	65	4	5.9	.249	7.86	43.03	141.2	
44	61	4.25	6.7	.249	7.86	42.68	139.8	
45	64	4.5	7.4	.249	7.86	42.36	138.6	Yes
46	73	5	7.0	.250	8.58	43.68	140.4	Yes
47	78	4.75	4.5	.247	7.80	43.49	144.5	
47.1	78	5	6.8	.247	7.80	42.50	140.5	
48	77	5.5	5.1	.247	7.80	42.96	142.3	
49	73	4.75	6.5	.247	7.80	42.57	140.8	Yes

Results apply only to the specific items and locations referenced and at the time of testing, observations or special inspections. Unless noted otherwise, specimens were received in adequate condition. Compressive strength specimens, if tested, were capped in accordance with ASTM C1231 or ASTM C617, as applicable. This report should not be reproduced, except in full, without the written permission of GROUND Engineering Consultants, Inc.



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#### Compressive Strength (ASTM C31 and C39 / AASHTO T22 and T23)

Sample No.	Lab ID	Age (d)	Diameter (in)	Area (in <sup>2</sup> )	Fracture Type	Max. Load (lb-f)	Corrected Strength (psi)	Strength at Acceptance (psi)
45	C1030	3	4.00	12.57	5 / Side	38,500	3,060	-
	C1031	7	4.00	12.57	5 / Side	46,460	3,700	-

Average Compressive Strength (psi):

#### Compressive Strength (ASTM C31 and C39 / AASHTO T22 and T23)

Sample No.	Lab ID	Age (d)	Diameter (in)	Area (in <sup>2</sup> )	Fracture Type	Max. Load (lb-f)	Corrected Strength (psi)	Strength at Acceptance (psi)
46	C1036	3	4.00	12.57	5 / Side	39,800	3,170	-
	C1037	7	4.00	12.57	5 / Side	48,110	3,830	-

Average Compressive Strength (psi):

#### Compressive Strength (ASTM C31 and C39 / AASHTO T22 and T23)

Sample No.	Lab ID	Age (d)	Diameter (in)	Area (in <sup>2</sup> )	Fracture Type	Max. Load (lb-f)	Corrected Strength (psi)	Strength at Acceptance (psi)
49	C1042	3	4.00	12.57	5 / Side	39,930	3,180	-
	C1043	7	4.00	12.57	5 / Side	48,730	3,880	-

Average Compressive Strength (psi):

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