



**Empire Laboratories, Inc.**  
A Division of The Terracon Companies, Inc.

301 N. Howes Street  
Ft. Collins, CO 80521  
Phone (303) 484-0359  
Fax (303) 484-0454

### CONCRETE TEST RESULTS

Project Name & Location: Silver Oaks - Second Filing				The following tests have been performed by Empire in accordance with ASTM procedures.	
Contractor: Gerrard Excavating/CG & S				Sampling ASTM C172-82	X
Engineer/Architect: N/A				Making ASTM C31-85	X
Location of Placement: Curb & gutter, sidewalk Silver Oaks Dr. Station 8+79 west side				Curing C192-81	
Empire Job No.: 2094	Concrete No.: 3043	Sample No.: 1	Date: 5/19/94	Capping C617-85b	X
Reviewed by: Gary M. Martinson		Mix I.D. No.: 60200M		Compressive Strength C39-86	X

### CONCRETE MIX DESIGN DATA

Supplier: WMN	Batch Time: 9:25	Specifications	Measured	Water Added (gal): 20.0
Ticket No.: 60022	Sample Time: 10:15	Air (%): 5-7	Air (%): 6.3	Unit Weight (#/Ft <sup>3</sup> ): 141.8
Truck No.: 606	Concrete Temperature °F: 75	Slump (in): 4" max	Slump (in): 1.25	Specimen Size: 6x12
Batch Size: 10.0	Ambient Temperature °F: 70	Strength (psi): 3500	(7): 3090 (28):	No. of Cylinders: 4
Fine Agg. (lbs): 1560	Medium Agg. (lbs): 200	Coarse Agg. (lbs): 1415	Cement (lbs): 451	Fly Ash (lbs): 113
Water (gal): 31.0	WRA (oz/100#): $\phi$	Air Ent (oz/sack): 1.28	Other: $\phi$	Yield (Ft <sup>3</sup> /Yd <sup>3</sup> ): 28.31

### CYLINDER TEST DATA

Cylinder No.	Date Made	Days Cured		Date Tested	Sample Age (Days)	Diameter (inches)	Cross Section Area, in. <sup>2</sup>	Length (inches)	Test Load (pounds)	Measured Strength (psi)	Type of Fracture	Tested By
		Field	Lab									
1	5/19/94	$\phi$	7	5/26/94	7	6.0	28.3	12.0	86,500	3060	Conical	EF
2	5/19	$\phi$	7	5/26	7	6.0	28.3	12.0	88,000	3110	Conical	EF
3	5/19	$\phi$	28	6/16/94	28	6.0	28.3	12.0			Conical	
4	5/19	$\phi$	28	6/16	28	6.0	28.3	12.0			Conical	

Distribution: (1) Tri Trend; (1) City; (1) Gerrard; (1) WMN



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Location of Placement: Curb & gutter, sidewalk Silver Oaks Dr. Station 0+50 south side					Curing C192-81		
Empire Job No.: 2094	Concrete No.: 3043	Sample No.: 2	Date: 5/19/94	Capping C617-85b			X
Reviewed by: Gary M. Martinson		Mix I.D. No.: N/A			Compressive Strength C39-86		X

### CONCRETE MIX DESIGN DATA

Supplier: WMN	Batch Time: 12:37	Specifications	Measured	Water Added (gal):	φ
Ticket No.: 63337	Sample Time: 1:00	Air (%): 5-7	Air (%): 5.5	Unit Weight (#/Ft <sup>3</sup> ):	142.0
Truck No.: 660	Concrete Temperature °F: 76	Slump (in): 4" max	Slump (in): 1.75	Specimen Size:	6x12
Batch Size: 10.0	Ambient Temperature °F: 85	Strength (psi): 3500	(7): 3200 (28):	No. of Cylinders:	4
Fine Agg. (lbs): 1560	Medium Agg. (lbs): 200	Coarse Agg. (lbs): 1415	Cement (lbs): 451	Fly Ash (lbs):	113
Water (gal): 31.0	WRA (oz/100#): φ	Air Ent (oz/sack): 1.28	Other: φ	Yield (Ft <sup>3</sup> /Yd <sup>3</sup> ):	28.15

### CYLINDER TEST DATA

Cylinder No.	Date Made	Days Cured		Date Tested	Sample Age (Days)	Diameter (inches)	Cross Section Area, in. <sup>2</sup>	Length (inches)	Test Load (pounds)	Measured Strength (psi)	Type of Fracture	Tested By
		Field	Lab									
1	5/19/94	φ	7	5/26/94	7	6.0	28.3	12.0	90,000	3180	Conical	EF
2	5/19	φ	7	5/26	7	6.0	28.3	12.0	89,000	3010	Conical	EF
3	5/19	φ	28	6/16/94	28	6.0	28.3	12.0			Conical	
4	5/19	φ	28	6/16	28	6.0	28.3	12.0			Conical	

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Engineer/Architect: N/A				Making ASTM C31-85	X
Location of Placement: Curb & gutter				Curing C192-81	
Empire Job No.: 2094	Concrete No.: 3043	Sample No.: 3	Date: 5/19/94	Capping C617-85b	X
Reviewed by: Gary M. Martinson		Mix I.D. No.: N/A		Compressive Strength C39-86	X

### CONCRETE MIX DESIGN DATA

Supplier: WMN	Batch Time: 3:03	Specifications		Measured		Water Added (gal): $\phi$
Ticket No.: 63360	Sample Time: 3:45	Air (%): 5-7	Air (%): 6.0	Unit Weight (#/Ft <sup>3</sup> ): 140.8		
Truck No.: 644	Concrete Temperature °F: 80	Slump (in): 4" max	Slump (in): 2.5	Specimen Size: 6x12		
Batch Size: 8.0	Ambient Temperature °F: 85	Strength (psi): 3500	(7): 3260	(28):	No. of Cylinders: 4	
Fine Agg. (lbs): 1560	Medium Agg. (lbs): 200	Coarse Agg. (lbs): 1415	Cement (lbs): 451	Fly Ash (lbs): 113		
Water (gal): 31.0	WRA (oz/100#): $\phi$	Air Ent (oz/sack): 1.28	Other: $\phi$	Yield (Ft <sup>3</sup> /Yd <sup>3</sup> ): 28.39		

### CYLINDER TEST DATA

Cylinder No.	Date Made	Days Cured		Date Tested	Sample Age (Days)	Diameter (inches)	Cross Section Area, in. <sup>2</sup>	Length (inches)	Test Load (pounds)	Measured Strength (psi)	Type of Fracture	Tested By
		Field	Lab									
1	5/19/94	$\phi$	7	5/26/94	7	6.0	28.3	12.0	93,000	3290	Conical	EF
2	5/19	$\phi$	7	5/26	7	6.0	28.3	12.0	91,000	3220	Conical	EF
3	5/19	$\phi$	28	6/16/94	28	6.0	28.3	12.0			Conical	
4	5/19	$\phi$	28	6/16	28	6.0	28.3	12.0			Conical	

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Empire Job No.: 2094	Concrete No.: 3043	Sample No.: 1	Date: 5/19/94	Capping C617-85b	X
Reviewed by: Gary M. Martinson		Mix I.D. No.: 60200M		Compressive Strength C39-86	X

**CONCRETE MIX DESIGN DATA**

Supplier: WMN	Batch Time: 9:25	Specifications	Measured	Water Added (gal): 20.0
Ticket No.: 60022	Sample Time: 10:15	Air (%): 5-7	Air (%): 6.3	Unit Weight (#/Ft <sup>3</sup> ): 141.8
Truck No.: 606	Concrete Temperature °F: 75	Slump (in): 4" max	Slump (in): 1.25	Specimen Size: 6x12
Batch Size: 10.0	Ambient Temperature °F: 70	Strength (psi): 3500	(7): 3090 (28): 4020	No. of Cylinders: 4
Fine Agg. (lbs): 1560	Medium Agg. (lbs): 200	Coarse Agg. (lbs): 1415	Cement (lbs): 451	Fly Ash (lbs): 113
Water (gal): 31.0	WRA (oz/100#): $\phi$	Air Ent (oz/sack): 1.28	Other: $\phi$	Yield (Ft <sup>3</sup> /Yd <sup>3</sup> ): 28.31

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Cylinder No.	Date Made	Days Cured		Date Tested	Sample Age (Days)	Diameter (inches)	Cross Section Area, in. <sup>2</sup>	Length (inches)	Test Load (pounds)	Measured Strength (psi)	Type of Fracture	Tested By
		Field	Lab									
1	5/19/94	$\phi$	7	5/26/94	7	6.0	28.3	12.0	86,500	3060	Conical	EF
2	5/19	$\phi$	7	5/26	7	6.0	28.3	12.0	88,000	3110	Conical	EF
3	5/19	$\phi$	28	6/16/94	28	6.0	28.3	12.0	113,000	4000	Conical	BB
4	5/19	$\phi$	28	6/16	28	6.0	28.3	12.0	114,000	4030	Conical	BB

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Empire Job No.: 2094	Concrete No.: 3043	Sample No.: 2	Date: 5/19/94	Capping C617-85b	X
Reviewed by: Gary M. Martinson		Mix I.D. No.: N/A		Compressive Strength C39-86	X

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Supplier: WMN	Batch Time: 12:37	Specifications	Measured	Water Added (gal): $\phi$
Ticket No.: 63337	Sample Time: 1:00	Air (%): 5-7	Air (%): 5.5	Unit Weight (#/Ft <sup>3</sup> ): 142.0
Truck No.: 660	Concrete Temperature °F: 76	Slump (in): 4" max	Slump (in): 1.75	Specimen Size: 6x12
Batch Size: 10.0	Ambient Temperature °F: 85	Strength (psi): 3500	(7): 3200 (28): 3640	No. of Cylinders: 4
Fine Agg. (lbs): 1560	Medium Agg. (lbs): 200	Coarse Agg. (lbs): 1415	Cement (lbs): 451	Fly Ash (lbs): 113
Water (gal): 31.0	WRA (oz/100#): $\phi$	Air Ent (oz/sack): 1.28	Other: $\phi$	Yield (Ft <sup>3</sup> /Yd <sup>3</sup> ): 28.15

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		Field	Lab									
1	5/19/94	$\phi$	7	5/26/94	7	6.0	28.3	12.0	90,000	3180	Conical	EF
2	5/19	$\phi$	7	5/26	7	6.0	28.3	12.0	89,000	3010	Conical	EF
3	5/19	$\phi$	28	6/16/94	28	6.0	28.3	12.0	102,500	3630	Conical	BB
4	5/19	$\phi$	28	6/16	28	6.0	28.3	12.0	103,000	3640	Conical	BB

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Batch Size: 8.0	Ambient Temperature °F: 85	Strength (psi): 3500	(7): 3260 (28): 3880	No. of Cylinders: 4
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		Field	Lab									
1	5/19/94	$\phi$	7	5/26/94	7	6.0	28.3	12.0	93,000	3290	Conical	EF
2	5/19	$\phi$	7	5/26	7	6.0	28.3	12.0	91,000	3220	Conical	EF
3	5/19	$\phi$	28	6/16/94	28	6.0	28.3	12.0	110,000	3890	Conical	BB
4	5/19	$\phi$	28	6/16	28	6.0	28.3	12.0	109,000	3860	Conical	BB

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