



Charles D. Baker, Governor
Karyn E. Polito, Lieutenant Governor
Stephanie Pollack, Secretary & CEO
Jonathan L. Gulliver, Acting Highway Administrator



July 18, 2017

Mr. Chris Dauphinais
President
Dauphinais Concrete
P.O. Box 461
Sutton, MA 01590

Dear Sir,

The following cement concrete mix design submittals have been reviewed by this section and are approved as specified below, subject to performance at the plant, on the project or in the laboratory. Any changes will require new mix design submittals and trial batches.

Approved Plant Location and Mix Design Sheet Identification No.:

DAUPHINAIS CONCRETE - BELLINGHAM, MA: 17-01-20-11-35-55

Approved Cementitious & Mitigating Materials:

C1: TYPE I / II LEHIGH - CANAKKALE, TURKEY | SLAG: TYPE 120 LAFARGE NEWCEM - BALTIMORE, MD | SF: GRACE FORCE 10,000 D - CAMBRIDGE, MA

Approved Aggregates:

FINE PINE SAND AND GRAVEL - DOUGLAS, MA | 3/8" CUMBERLAND QUARRY - CUMBERLAND, RI | 3/4" CUMBERLAND QUARRY - CUMBERLAND, RI | 1.5" CUMBERLAND QUARRY - CUMBERLAND, RI

Approved Admixtures:

AD1 TYPE F W. R. GRACE - ADVA 140M | AD2 TYPE C260 W. R. GRACE - DAREX II AEA | AD3 TYPE C W. R. GRACE - DARASET 400 | AD4 TYPE F W. R. GRACE - EXP 950 | AD5 TYPE C W. R. GRACE - DCI S | AD6 TYPE B,D W. R. GRACE - RECOVER | AD7 TYPE S W. R. GRACE - DARAFILL CLSM

Approved Mix Designs:

- 1.) 3000 PSI | 3/4" | C1: 259 LBS. | SLAG: 259 LBS. | WATER: 31 GAL. | AD1: 35 OZ. | AD2: 1.3 OZ.
- 2.) 3500 PSI | 1.5" | C1: 268 LBS. | SLAG: 268 LBS. | WATER: 30 GAL. | AD1: 37.2 OZ. | AD2: 1.3 OZ.
- 3.) 4000 PSI | 3/8" | C1: 331 LBS. | SLAG: 331 LBS. | WATER: 36 GAL. | AD1: 46 OZ. | AD2: 2.3 OZ.
- 4.) 4000 PSI | 3/4" | C1: 329 LBS. | SLAG: 329 LBS. | WATER: 35 GAL. | AD1: 46 OZ. | AD2: 2 OZ.
- 5.) 4000 PSI | HP | 3/4" | C1: 293 LBS. | SLAG: 257 LBS. | SF: 35 LBS. | WATER: 38 GAL. | AD2: 5.5 OZ. | AD4: 25 OZ. | AD5: 384 OZ. | AD6: 11 OZ.

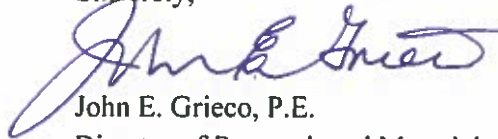
Five Macadam Road, Hopkinton, MA 01748

Tel: 857-368-3400

www.mass.gov/massdot

- 6.) 4000 PSI | 1.5"1 | C1: 303 LBS. | SLAG: 303 LBS. | WATER: 33 GAL. | AD1: 42 OZ. | AD2: 1.5 OZ.
- 7.) 5000 PSI | 3/4"1 | C1: 353 LBS. | SLAG: 353 LBS. | WATER: 34 GAL. | AD1: 49.4 OZ. | AD2: 2.1 OZ.
- 8.) 5000 PSI | HP | 3/8"1 | C1: 358 LBS. | SLAG: 315 LBS. | SF: 43 LBS. | WATER: 35 GAL. | AD2: 6.5 OZ. | AD4: 30 OZ. | AD5: 384 OZ. | AD6: 14 OZ.
- 9.) 5000 PSI | HP | 3/4"1 | C1: 343 LBS. | SLAG: 301 LBS. | SF: 43 LBS. | WATER: 33 GAL. | AD2: 6 OZ. | AD4: 29 OZ. | AD5: 384 OZ. | AD6: 13 OZ.
- 10.) | CDF | C1: 80 LBS. | WATER: 35 GAL. | AD7: 1 OZ.
- 11.) | CDF | C1: 200 LBS. | WATER: 35 GAL. | AD7: 1 OZ.

Sincerely,



John E. Grieco, P.E.

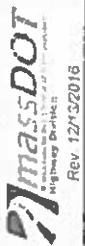
Director of Research and Materials

RFM/tw/wk *LR*

Attachments

C: District 3 Materials Engineer

R&M Job File



Rev 12/13/2016

2017 CEMENT CONCRETE MIX DESIGN SHEET

RMS 043

PLANT NAME		CITY/TOWN, XX		STREET NO. & ADDRESS		MAILING ADDRESS		CITY/TOWN, XX		EMAIL ADDRESS		CONTRACT		MIX SHEET IDENTIFICATION NO.																
DAUPHINIS CONCRETE		BELLINGHAM, MA		P O Box 481		Sutton, MA 01550		Sutton, MA 01550		CRMS@dauphinisconcrete.com		17-01-20-11-35-55																		
AGGREGATE SOURCES		CEMENTITIOUS & MITIGATING MATERIALS SOURCES		ADMITTURE SOURCES																										
ID	SOURCE	LOCATION	S.G.	ID	SOURCE	LOCATION	S.G.	ID	ADMITTURE	PRODUCT	TYPE	QCML	ID	SOURCE	TYPE															
FINE1	PINE SAND AND GRAVEL	DOUGLAS MA	2.61	C1	LEHIGH	CARAKALE, TURKEY	1.11	AD1	W R GRACE	-ADVA 140M	F	Y																		
FINE2				C2				AD2	W R GRACE	DAREX II AEA	C250	Y																		
3/8"1	CUMBERLAND QUARRY	CUMBERLAND, RI	2.77	C3				AD3	W R GRACE	DARASET 400	C	Y																		
3/8"2				C4				AD4	W R GRACE	-EXP 950	F	Y																		
3/4"1	CUMBERLAND QUARRY	CUMBERLAND, RI	2.77	FA1				AD5	W R GRACE	-DCIS	C	Y																		
3/4"2				FA2				AD6	W R GRACE	-RECOVER	BD	Y																		
1.5"1	CUMBERLAND QUARRY	CUMBERLAND, RI	2.77	SLAG	LAFARGE NEWCEM	BALTIMORE, MD	1.30	AD7	W R GRACE	-DARAFILL CLSM	S	Y																		
1.5"2				SF	GRACE FORCE 10,000 D	CAMBRIDGE, MA	2.25	AD8																						
SIZE	1 1/2"	1"	3/4"	1/2"	3/8"	#4	#8	#16	#30	#50	#100	#200	F.M.	L.A.	SIEVE ANALYSIS AND LA ABRASION															
FINE			100	95-100	45-50								1.5"	1.5"	2"	1 1/2"	1"	3/4"	1/2"	3/8"	#4	#8	#16	#30	#50	#100	#200	F.M.	L.A.	
FINE1			100	98	76								1.5"1	1.5"1		90-100	35-60	35-60	35-60	10-25	0-5							<30	21.3	
FINE2													1.5"2	1.5"2		150	57.3	57.3		16.8	2.5									
3/8"			100	85-100	10-30	0-10	0-5						INFO	<30		90-100	90-100	90-100	20-50	0-10	0-5								<30	INFO
3/8LW			100	80-100	5-40	0-20	0-10						INFO	<30		90-100	90-100	90-100	10-50	0-15									<30	INFO
3/8"1			100	81	19	2	2						21.3	3/4"1		100	97.8	97.8	34.8	6.3	1.3								21.3	
3/8"2													3/4"2																	
CONCRETE	TYPE	SIZE	1.5"1	3/4"1	3/8"1	3/8"2	3/8"1	3/8"2	FINE1	FINE2	C1	C2	C3	C4	FA1	SLAG (%)	SF	(%)	WTR (%)	AD1	AD2	AD3	AD4	AD5	AD6	AD7	AD8	W/C		
3000		3/4"1	1313	810	438	1365	1364	288	259	269	268	268	268	268	0%	258	50%	0%	31.0	35.0	1.3						0.50			
3500		1.5"1	810			1364	1364	288	268	268	268	268	268	268	0%	268	50%	0%	30.0	37.2	1.3						0.47			
4000		3/8"1				1189	1189	331	331	331	331	331	331	331	0%	331	50%	0%	36.0	46.0	2.3						0.45			
4000		3/4"1				1145	1145	329	329	329	329	329	329	329	0%	329	50%	0%	35.0	46.0	2.0						0.44			
4000	HP	3/4"1	1230	810	540	1234	1234	283	283	283	283	283	283	283	0%	257	44%	35	6%	38.0	5.5		25.0	394.0	11.0		0.54			
4000		1.5"1	810			1145	1145	353	353	353	353	353	353	353	0%	353	50%	0%	33.0	42.0	1.5						0.45			
5000		3/4"1				1141	1141	353	353	353	353	353	353	353	0%	353	50%	0%	34.0	49.4	2.1						0.40			
5000	HP	3/8"1				1145	1145	358	358	358	358	358	358	358	0%	315	44%	43	6%	35.0	6.5		30.0	384.0	14.0		0.41			
5000	HP	3/4"1	1230			1102	1102	343	343	343	343	343	343	343	0%	301	44%	43	6%	33.0	6.0		29.0	384.0	13.0		0.40			
	COF					2470	2470	80	80	80	80	80	80	80	0%	0%	0%	0%	35.0								1.0	3.85		
	COF					2596	2596	200	200	200	200	200	200	200	0%	0%	0%	0%	35.0								1.0	1.45		

We agree to furnish mixes to MassDOT projects that are produced from only the referenced materials listed on the RMS 043 Cement Concrete Mix Design Sheet. We also understand that designs are to be submitted annually prior to production for state work, and any subsequent change in materials or design will require resubmission for approval.

Christopher A. Smith
 Assistant President

Mr. Chris Dauphinais
 President

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 President