



City of Portland, Oregon - Bureau of Development Services

1900 SW Fourth Avenue • Portland, Oregon 97201 • 503-823-7300 • www.portlandoregon.gov/bds



Deferred Submittal Requirements and Application

Applicants will provide:

- A copy of this application
- Three (3) sets of plans
- One (1) set of calculations
- Two (2) sets of product information
- Drawings and calculations must be stamped and signed by an Engineer registered in Oregon and approved by the Architect/Engineer of record for the building.
- Permit fee (paid at time of submittal)
- If the DFS includes exterior elements, plan views and elevations identifying the location(s) as approved by the Architect and Engineer of Record must be submitted.
- One (1) copy of your main building permit approved plans (NOTE: Approved plans do not need to be submitted if your project has a development liaison assigned)

SAP: WBS Element E06790.073

Contractor submittal information:

Contact name Emery & Sons Construction Dale Bettencourt
 Address P.O. Box 4109
 City Salem State OR Zip Code 97302
 Phone (503) 400-0635 E-mail daleb@emeryandsons.com
 Value of deferred submittal \$190,000.00 Issued main building permit # 07-143650-REV-01-CO
 Description/Scope of work Installation of Secret Pile Shoring System

Fees

Deferred submittal (DFS) fees are collected in addition to the standard building review fee paid on the main building permit. DFS fees cover the cost of the additional processing and review time associated with the design build element.

The DFS fee for processing and reviewing deferred plan submittals is 10 percent of the building permit fee calculated using the value of the particular deferred portion of the project.,

- Minimum fee: Residential, one and two family dwelling ...\$123 for DFS with valuation of less than or equal to \$222,000
- Commercial and all other projects\$307 for DFS with valuation of less than or equal to \$680,000

The Bureau of Development Services (BDS) fee schedule is also available on the BDS web site at www.portlandoregon.gov/bds | select the Fees tab.

Helpful Information

Bureau of Development Services
 1900 SW 4th Avenue, Portland, OR 97201
Submit your plans to:
 Development Services Center (DSC), First Floor,
 Tuesday - Friday:
 8:00 am - 12:00 pm
 Closed Mondays

Important Telephone Numbers

BDS main number 503-823-7300
 DSC automated information line 503-823-7310
 Building code information 503-823-1456
 BDS 24 hour inspection request line 503-823-7000
 Residential information for
 one and two family dwellings..... 503-823-7388
 City of Portland TTY 503-823-6868

DEFERRED SUBMITTAL REQUIREMENTS AND APPLICATION

OR CCB: 196167
WA#: PACIFF1883CP
7206 NE 47TH AVE
VANCOUVER, WA 98661
PH: 360.200.6608
FX: 360.200.6611

PACIFIC FOUNDATION

07-143450-DF-02

LEAN MIX

PACIFIC FOUNDATION

Ross Island Sand & Gravel Co.
 4315 SE McLoughlin Blvd
 P.O. Box 82249-0249
 Portland, OR 97282

Ross Island Sand & Gravel Co.
 1001C-3/8 AGGREGATE, 10" SLUMP, NO AIR, 1000PSI [0]
 Strength Compressive: 1000 psi
 04/26/2013

		Contractor : PACIFIC FOUNDATIONS
Project : AIRPORT BASIN SECANT PILES		
Compressive Strength :	1000 psi at 28 days	Source of Concrete : Ross Island Sand & Gravel Co.
Aggregate size :	3/8" -- 9.5 mm	Construction type : SECANT SHAFT LEAN FILL
Air :	2.5 ± 2.0 %	Placement : CHUTE OR PUMP
Water/Cement ratio :	0.658	Unit Weight : 141.86 pcf
Slump :	6.00 to 11.50 in	Design Date : 06/29/2010

Constituents :	Quantity	Density	Volume
Type I/II Cement (Cement)	100 lb	3.150	0.51
Fly Ash, Class C (Fly Ash)	480 lb	2.600	2.96
Water	380 lb	1.000	6.09
ASTM C-33 #8 Avery(Aggregates)	880 lb	2.780	5.07
ASTM C-33 Sand Avery(Aggregates)	2031 lb	2.722	11.96
VMA (Admix)	29.00 floz (US)/yd ³	1.000	0.03
Air	2.5 %		0.68
<p>THIS DOCUMENT HAS BEEN REVIEWED FOR GENERAL COMPATIBILITY WITH DESIGN CONCEPT AND THE FOLLOWING IS NOTED:</p> <p><input checked="" type="checkbox"/> NO EXCEPTIONS TAKEN <input type="checkbox"/> REVISE AS NOTED <input type="checkbox"/> REVISE AND RESUBMIT <input type="checkbox"/> REJECTED <input type="checkbox"/></p> <p>kpff <u>AN</u> <u>7/12/13</u></p>			
By	Date	Total :	
		3873	27.30

Remarks :
 Ross Island does not guarantee MAXIMUM or "NOT TO EXCEED" compressive strengths.

Reported by : Frank King	Approval by : _____
Date : 02/28/2013	Date : / /



The Chemical Company

3 4	03 30 00	Product Data Cast-in-Place Concrete Precast Concrete Mass Concrete Masonry Grouting
	03 40 00	
	03 70 00	
	04 05 16	

Description

Rheomac VMA 358 organic, viscosity-modifying admixture (VMA) is a ready-to-use, liquid admixture developed for producing concrete with enhanced viscosity and controlled rheological properties. Concrete with Rheomac VMA 358 admixture exhibits superior stability, thus increasing resistance to segregation and facilitating placement.

Applications

Recommended for use in:

- Concrete containing "gap-graded" aggregates
- Lean concrete mixtures
- Concrete containing manufactured sand
- Concrete as a pumping aid
- Concrete as a finishing aid
- Concrete mixtures requiring "more body"
- Rheodynamic® Self-Consolidating Concrete (SCC)
- Liquid Sand™ program
- Pervious Concrete
- Self-Consolidating Grout

RHEOMAC® VMA 358

Viscosity-Modifying Admixture

Features

- Modifies viscosity of concrete

Benefits

- Controls bleeding
- Reduces segregation, even with highly fluid concrete mixtures
- Enhances pumping and finishing
- Reduces sagging, helping plastic concrete maintain its shape on slopes and arches
- Facilitates production of highly fluid concrete mixtures such as Rheodynamic SCC
- Superior and predictable in-place concrete properties
- Enhances surface appearance
- Flexibility in mixture proportioning
- Provides concrete stability during transport and placement

Performance Characteristics

Setting Time: Rheomac VMA 358 admixture has little to no impact on concrete setting time within the recommended dosage range of 2-10 fl oz/cwt (130-650 mL/100 kg) of cementitious materials.

Compressive Strength: Rheomac VMA 358 admixture does not affect the compressive strength of concrete. Slight increases in compressive strength have, however, been noted in Rheodynamic SCC mixtures containing Rheomac VMA 358 admixture.

Workability: A slight decrease in slump or slump flow may be noted after the addition of Rheomac VMA 358 admixture due to the increase in concrete viscosity. If necessary, the slight decrease in slump or slump flow can be offset easily by a minor increase in water-reducing or high-range water-reducing admixture dosage. Very high slump flows can be achieved in Rheodynamic SCC produced with Rheomac VMA 358 admixture.

Slump Retention: In general, the slump retention characteristic of concrete mixtures containing Rheomac VMA 358 admixture is similar to that of plain concrete.

Air Content: Typical dosages of air-entraining admixtures may be used to achieve the desired air content when using Rheomac VMA 358 admixture.

Guidelines for Use

Dosage: The recommended dosage range for Rheomac VMA 358 admixture is 2-10 fl oz/cwt (130-650 mL/100 kg) of cementitious materials for most concrete mixtures. A dosage of 2-6 fl oz/cwt (130-390 mL/100 kg) is recommended for typical concrete mixtures requiring "more body" to facilitate pumping and finishing procedures. A dosage of up to 10 fl oz/cwt (650 mL/100 kg) is recommended to provide stability in self-consolidating concrete mixtures. Because of variations in concrete materials, jobsite conditions and/or applications, dosages outside of the recommended range may be required.

Master
Builders

Product Data: RHEOMAC® VMA 358

Mixing: Rheomac VMA 358 admixture is typically added with the initial mix water. Alternately, Rheomac VMA 358 admixture may be added after all other concreting ingredients have been batched and thoroughly mixed, either at the batch plant or at the jobsite.

Product Notes

Compatibility: *Do not use Rheomac VMA 358 admixture with admixtures containing beta-naphthalene sulfonate such as Rheobuild® 1000 admixture. Erratic behaviors in slump, slump flow and pumpability may be experienced.*

Rheomac VMA 358 admixture is compatible with most other admixtures used in the production of quality concrete including normal, mid-range and high-range water-reducing admixtures, air entrainers, accelerators, retarders, extended set-control admixtures, corrosion inhibitors and shrinkage reducers. However a field trial is recommended to ensure appropriate performance.

Storage and Handling

Storage Temperature: Rheomac VMA 358 admixture must be stored at temperatures above 41 °F (5 °C) to avoid dispensing difficulties due to thickening. **Do not allow Rheomac VMA 358 admixture to freeze since it cannot be reconstituted after thawing.**

Shelf Life: Rheomac VMA 358 admixture has a minimum shelf life of 12 months. Depending on storage conditions, the shelf life may be greater than stated. Please contact your BASF Construction Chemicals representative regarding suitability for use and dosage recommendations if the shelf life of Rheomac VMA 358 admixture has been exceeded.

Dispensing: Consult your local BASF Construction Chemicals sales representative for the proper dispensing equipment for Rheomac VMA 358 admixture. If dispensing directly from the 55 gal (208 L) drum, it is recommended that the larger 2 in. (50 mm) opening be used.

Packaging

Rheomac VMA 358 admixture is supplied in 55 gal (208 L) drums, 275 gal (1040 L) totes and by bulk delivery.

Related Documents

Material Safety Data Sheets: Rheomac VMA 358 admixture.

Additional Information

For additional information on Rheomac VMA 358 admixture or on its use in developing concrete mixtures with special performance characteristics, contact your BASF Construction Chemicals representative.

The Admixture Systems business of BASF Construction Chemicals is a leading provider of innovative additives for specialty concrete used in the ready mix, precast, manufactured concrete products, underground construction and paving markets throughout the NAFTA region. The Company's respected Master Builders brand products are used to improve the placing, pumping, finishing, appearance and performance characteristics of concrete.

BASF Construction Chemicals, LLC
Admixture Systems

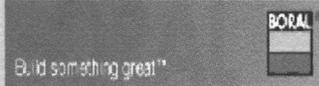
www.masterbuilders.com

United States 23700 Chagrin Boulevard, Cleveland, Ohio 44122-5544 ■ Tel: 800 628-9990 ■ Fax: 216 839-8821
Canada 1800 Clark Boulevard, Brampton, Ontario L6T 4M7 ■ Tel: 800 387-5862 ■ Fax: 905 792-0651

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**Master
Builders**



ASTM C 618 TEST REPORT

Sample Number: S-121203010
 Sample Date: November 2012

Report Date: 1/28/2013
 Sample Source: Boardman
 Tested By: MC

TESTS	RESULTS	ASTM C 618 CLASS F/C	AASHTO M 295 CLASS F/C
CHEMICAL TESTS			
Silicon Dioxide (SiO ₂), %	29.81		
Aluminum Oxide (Al ₂ O ₃), %	17.46		
Iron Oxide (Fe ₂ O ₃), %	5.99		
Sum of SiO ₂ , Al ₂ O ₃ , Fe ₂ O ₃ , %	53.26	70.0/50.0 min.	70.0/50.0 min.
Calcium Oxide (CaO), %	29.67		
Magnesium Oxide (MgO), %	7.90		
Sulfur Trioxide (SO ₃), %	3.07	5.0 max.	5.0 max.
Sodium Oxide (Na ₂ O), %	1.78		
Potassium (K ₂ O), %	0.29		
Total Alkalies (as Na ₂ O), %	1.97		
PHYSICAL TESTS			
Moisture Content, %	0.02	3.0 max.	3.0 max.
Loss on Ignition, %	0.89	6.0 max.	5.0 max.
Amount Retained on No. 325 Sieve, %	16.46	34 max.	34 max.
Specific Gravity	2.76		
Autoclave Soundness, %	0.00	0.8 max.	0.8 max.
SAI, with Portland Cement at 7 Days, % of Control	89.3	75 min.*	75 min.*
SAI, with Portland Cement at 28 Days, % of Control	92.8	75 min.*	75 min.*
Water Required, % of Control	96.7	105 max.	105 max.

Loose, Dry Bulk Density, lb/cu. ft.

Meets ASTM C 618 and AASHTO M 295, Class C

The Class (C) Fly Ash from this plant meets the requirements of the MDOT and SCDHPT specifications.

* Meeting the 7 day or 28 day Strength Activity Index will indicate specification compliance.

Approved By: **Diana Berfield**
 Quality Coordinator

Melissa Garcia
 Quality Assurance Manager

LEHIGH

HEIDELBERGCEMENT Group

TECHNICAL SERVICES

SALES & MARKETING

12667 Alcosta Blvd, Suite 400
 San Ramon, CA 94583
 Telephone (925) 244-6562
 FAX (925) 244-6586



PLANT LOCATION

15390 Wonderland Blvd.
 Redding, CA 96003
 Telephone (530) 275-1581
 FAX (530) 275-2525

CEMENT TEST REPORT

Cement: ASTM C150-09 Type I-II, Low Alkali

Report Date: 4/16/2013

Date Shipped: March 2013

Lot #1350

STANDARD CHEMICAL REQUIREMENTS ASTM C 114	TEST RESULTS	ASTM C 150	
		TYPE I	TYPE II
Silicon Dioxide (SiO ₂), %	19.7	---	---
Aluminum Oxide (Al ₂ O ₃), %	4.9	---	6.0 Max
Ferric Oxide (Fe ₂ O ₃), %	3.3	---	6.0 Max
Calcium Oxide (CaO), %	63.4	---	---
Magnesium Oxide (MgO), %	1.5	6.0 Max	6.0 Max
Sulfur Trioxide (SO ₃), %	2.5	3.0 Max	3.0 Max
Loss on Ignition (LOI), %	2.5	3.0 Max	3.0 Max
Insoluble Residue, %	0.25	0.75 Max	0.75 Max
Alkalies (Na ₂ O equivalent), %	0.36	0.60 Max	0.60 Max
Tricalcium Silicate (C ₃ S), % ^a	56	---	---
Dicalcium Silicate (C ₂ S), % ^a	14	---	---
Tricalcium Aluminate (C ₃ A), % ^a	7	---	8 Max
Tetracalcium Aluminoferrite (C ₄ AF), % ^a	10	---	---
C3S + 4.75*C3A, %	91	---	100 Max
2 (C ₃ A) + C ₄ AF, %	25	---	25 Max
PHYSICAL REQUIREMENTS			
(ASTM C 204) Blaine Fineness, m ² /kg	462	280 Min	280 Min
(ASTM C 430) -325 Mesh, %	97.6	---	---
(ASTM C 114) Limestone, %	4.1	5 Max	5 Max
(ASTM C 114) CO ₂ in cement, %	1.7		
(ASTM C 114) CaCO ₃ in limestone, %	96		
(ASTM C 191) Time of Setting - Initial (Vicat)	72	45 Min	45 Min
(ASTM C 191) Time of Setting - Final (Vicat)	178	375 Max	375 Max
(ASTM C 451) False Set, %	83	50 Min	50 Min
(ASTM C 185) Air Content, %	8.1	12 Max	12 Max
(ASTM C 151) Autoclave Expansion, %	0.20	0.80 Max	0.80 Max
(ASTM C 187) Normal Consistency, %	27.1	---	---
(ASTM C 109) Compressive Strength, psi (MPa)			
1 Day	2255 (15.5)	---	---
3 Day	4026 (27.7)	1800 (12.4) Min	1500 (10.3) Min
7 Day	5028 (34.6)	2800 (19.3) Min	2500 (17.2) Min
28 Day (Previous Month)	6873 (47.4)	---	---

This cement meets the requirements of specification:

Albert J. Cornibe, Jr.

Albert J. Cornibe
 Quality Manager

ASTM C150-09 Type I-II, Low Alkali
 ASTM C 1157 Portland Cement Type GU
^a per ASTM C-150-09 Section A1.6
 AASHTO Practice R18 accredited laboratory



STRUCTURAL CONCRETE

PACIFIC FOUNDATION

OR CCB: 196167

7206 NE 47TH AVE

PH: 360.200.6608

WA#: PACIFFI883CP

VANCOUVER, WA 98661

FX: 360.200.6611

Ross Island Sand & Gravel Co.
 4315 SE McLoughlin Blvd
 P.O. Box 82249-0249
 Portland, OR 97282

Ross Island Sand & Gravel Co.
 3353CVR-(ODOT SEAL CONCRETE) [0]
 Strength Compressive: 3300 psi
 09/06/2012

PACIFIC FOUNDATION

Project : PMLR EAST

Compressive Strength :	3300 psi at 28 days	Source of Concrete :	ROSS ISLAND SAND & GRAVEL
Aggregate size :	3/8" -- 9.5 mm	Construction type :	FOR ALL USES AS REQUIRED
Air :	6.0 ± 1.5 %	Placement :	CHUTE OR PUMP
Water/Cement ratio :	0.460	Unit Weight :	144.61 pcf
Slump :	6.00 to 10.00 in	Design Date :	06/29/2010

Constituents :	Quantity	Density	Volume
Type I/II Cement (Cement)	452 lb	3.150	2.30
ASTM C989 Grade 100 Slag (Cement)	193 lb	2.890	1.07
Water	290 lb	1.000	4.65
ASTM 3/8" (Aggregates)	1484 lb	2.780	8.55
ASTM Sand (Aggregates)	1478 lb	2.722	8.70
3030NS (Admix)	51.60 floz (US)/yd ³	1.080	0.05
ASTM C-494 Water Reducer (Admix)	51.60 floz (US)/yd ³	1.125	0.05
Air Entraining Agent (Admix)	6.45 floz (US)/yd ³	1.079	0.00
Air	6.0 %		1.62
Total :	3905		27.00

Remarks :
 ODOT CLASS 3300 SEAL CONCRETE.
 ODOT AGG. SOURCE # FOR FINE AND COARSE AGGREGATES IS (WA-020-2, AVERY). FINE AGG. SP. GRAVITY (SSD) = 2.757 - 1.90% ABSORB.; 3/8" AGG SP. GAVITY (SSD) 2.722 @ 2.21% ABSORB. DRY RODDED U/W 108.32 LB/CF.

Reported by Jamie Anderson	Approval by : _____
Date : 02/16/2011	Date : / /

Ross Island Sand & Gravel Co.
4315 SE McLoughlin Blvd P.O. Box 82249-0249
Portland, OR 97282

3311BVR - 3/4" AGGREGATE, 4" SLUMP, WITH AIR [0]

3353CVR IS THE 3/8" AGG VERSION / W/SUPER OF THIS 3311BVR MIX.

Cast date	Sample ID	Slump	% Air	7 Day PSI	28 Day PSI	Avg 3 - 28 Day
07/28/2010	Braun	3.75	5.9	4060	5060	5060
08/10/2010	Zavala	5.00	4.9	0	4980	4980
08/11/2010	Zavala	5.00	5.0	3180	4630	4630
08/12/2010	Braun	5.00	5.6	3120	4580	4580
08/22/2010	Braun	4.50	3.7	3440	5187	5187
08/24/2010	Zavala	4.00	4.5	3790	5435	5435
08/27/2010	Zavala	2.75	4.4	3550	5507	5507
09/01/2010	Zavala	4.00	5.9	2910	4675	4675
09/09/2010	Braun	4.50	5.3	2960	4803	4803
09/16/2010	Van Lom	4.00	4.4	3340	5160	5160
10/19/2010	Van Lom	5.00	5.2	3110	4877	4877
12/22/2010	GENTLE	2.75	4.4	2680	4705	4705
01/13/2011	Ross Isla	4.50	3.6	3700	5867	5867
03/11/2011	KONELL	5.00	4.7	2760	4350	4350
04/22/2011	GRESHAM	5.00	5.5	3240	4913	4913
04/30/2011	GRESHAM	5.00	5.6	2760	4060	4060
06/22/2011	295164	5.00	4.8	2980	4273	4273
06/22/2011	GRESHAM	5.00	4.8	2980	4273	4273
07/12/2011	BROWN	4.00	4.4	3840	5610	5610
07/15/2011	AUTO	4.50	5.5	3110	4697	4697
07/20/2011	BROWN	4.00	4.8	4020	5570	5570
07/27/2011	BROWN	0.00	0.0	3170	4807	4807
07/28/2011	BROWN	5.50	5.9	3960	4353	4353
09/14/2011	S-2	5.00	4.9	2910	4410	4410
09/29/2011	HSW	4.25	5.0	3340	5007	5007
11/19/2011	SKANSKA	3.50	5.1	4010	5460	5460
12/30/2011	Brown	5.00	4.9	3240	4757	4757
03/27/2012	Banks	3.50	3.5	4290	6393	6393
04/02/2012	Van Lom	5.00	3.6	3800	5747	5747
04/06/2012	Van Lom	4.00	3.5	3910	5930	5930
		4.41	4.8	3385	5003	Average
		0.71	0.7	461	570	STD
		2.75	2.4	1610	2333	Range
		2.75	3.5	2680	4060	Low
		5.50	5.9	4290	6393	High

Number of observations: 30

LEHIGH

HEIDELBERGCEMENT Group

TECHNICAL SERVICES

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 San Ramon, CA 94583
 Telephone (925) 244-6562
 FAX (925) 244-6586



PLANT LOCATION

15390 Wonderland Blvd.
 Redding, CA 96003
 Telephone (530) 275-1581
 FAX (530) 275-2525

CEMENT TEST REPORT

Cement: ASTM C150-09 Type I-II, Low Alkali

Report Date: 11/11/2011

Date Shipped: October 2011

Lot #1265

STANDARD CHEMICAL REQUIREMENTS ASTM C 114	TEST RESULTS	ASTM C 150	
		TYPE I	TYPE II
Silicon Dioxide (SiO ₂), %	19.7	---	20.0 Min
Aluminum Oxide (Al ₂ O ₃), %	4.9	---	6.0 Max
Ferric Oxide (Fe ₂ O ₃), %	3.3	---	6.0 Max
Calcium Oxide (CaO), %	64.2	---	---
Magnesium Oxide (MgO), %	1.7	6.0 Max	6.0 Max
Sulfur Trioxide (SO ₃), %	3.1	3.0 Max	3.0 Max
Loss on Ignition (LOI), %	2.6	3.0 Max	3.0 Max
Insoluble Residue, %	0.40	0.75 Max	0.75 Max
Alkalies (Na ₂ O equivalent), %	0.26	0.60 Max	0.60 Max
Tricalcium Silicate (C ₃ S), % *	56	---	---
Dicalcium Silicate (C ₂ S), % *	14	---	---
Tricalcium Aluminate (C ₃ A), % *	8	---	8 Max
Tetracalcium Aluminoferrite (C ₄ AF), % *	10	---	---
C ₃ S + 4.75*C ₃ A, %	92	---	100 Max
2 (C ₃ A) + C ₄ AF, %	25	---	25 Max
PHYSICAL REQUIREMENTS			
(ASTM C 204) Blaine Fineness, m ² /kg	431	280 Min	280 Min
(ASTM C 430) -325 Mesh, %	99.1	---	---
(ASTM C 114) Limestone, %	4.2	5 Max	5 Max
(ASTM C 114) CO ₂ in cement, %	1.8	---	---
(ASTM C 114) CaCO ₃ in limestone, %	96	---	---
(ASTM C 191) Time of Setting - Initial (Vicat)	96	45 Min	45 Min
(ASTM C 191) Time of Setting - Final (Vicat)	195	375 Max	375 Max
(ASTM C 451) False Set, %	90	50 Min	50 Min
(ASTM C 185) Air Content, %	7.6	12 Max	12 Max
(ASTM C 151) Autoclave Expansion, %	0.03	0.80 Max	0.80 Max
(ASTM C 187) Normal Consistency, %	27.0	---	---
(ASTM C 109) Compressive Strength, psi (MPa)			
1 Day	2398 (16.5)	---	---
3 Day	4297 (29.6)	1800 (12.4) Min	1500 (10.3) Min
7 Day	5252 (36.2)	2800 (19.3) Min	2500 (17.2) Min
28 Day (Previous Month)	6894 (47.5)	---	---

This cement meets the requirements of specification:

Albert J. Cornibe, Jr.

Albert J. Cornibe
 Quality Manager

ASTM C150-09 Type I-II, Low Alkali
 ASTM C 1157 Portland Cement Type HS
 * per ASTM C-150-09 Section A1.6
 AASHTO Practice R18 accredited laboratory



Location Portland Slag Product Dura Slag

Date 19-Oct-11
 Certification No. Slag 1-11

**STANDARD REQUIREMENTS
 ASTM C - 989 & AASHTO M302**

CHEMICAL			PHYSICAL		
Item	Spec. Limit	Test Result	Item	Spec. Limit	Test Result
Slag			Slag		
Sulfide sulfur as S (%)	2.5 max	0.92	% Retained 325 mesh	20 max	2.2
			Blaine fineness (m ² /kg)	A	436
			Air Content of Slag Mortar (%)	12 max	6.4
Reference Cement			Reference Cement		
Total Alkalies (%)	0.60 min 0.90 max	0.80	% Passing 325 mesh	A	98.1
Potential (%)			Blaine fineness (m ² /kg)	A	425
C3S	A	57	Compressive strength MPa (PSI) min:		
C2S	A	15	7 Days	A	34.7 (5040)
C3A	A	6	28 Days	35 (5000)	43.2 (6270)
C4AF	A	10	50-50 Blend of Slag and Reference Cement		
C4AF + 2(C3A)	A	23	Compressive strength MPa (PSI) min:		
C3S + 4.75(C3A)	A	88	7 Days	A	30.8 (4460)
			28 Days	A	51.6 (7490)
			Slag Activity Index		
			Grade 100	min:	
			Average of Last 5 Samples 7 Days	75	89
			Any Individual Sample 7 Days	70	86
			Average of Last 5 Samples 28 Days	95	119
			Any Individual Sample 28 Days	90	118

^ANot applicable

The Ground Granulated Blast-Furnace Slag meets the chemical and physical requirements of the ASTM C 989-09a and AASHTO M 302-11 specifications for Grade 100.

Signature: 
 Edward C. Rafacz

Title: Chief Chemist



Description

Pozzolith 200 N ready-to-use, liquid admixture is used for making more uniform and predictable quality concrete. It meets ASTM C 494/C 494M requirements for Type A, water-reducing, Type B, retarding, and Type D, water-reducing and retarding, admixtures.

Applications

Recommended for use in:

- Prestressed concrete
- Precast concrete
- Reinforced concrete
- Shotcrete
- Lightweight concrete
- Pumped concrete
- 4x4™ Concrete
- Pervious Concrete
- Rheodynamic® Self-Consolidating Concrete (SCC)

POZZOLITH® 200 N

Water-Reducing Admixture

Features

- Reduced water content required for a given workability
- Controlled setting characteristics – normal or retarded

Benefits

- Improved workability
- Reduced segregation
- Improved finishing characteristics for flatwork and cast surfaces
- Increased compressive and flexural strength

Guidelines for Use

Dosage: Pozzolith 200 N admixture is recommended for use at a dosage of 3-4 fl oz/cwt (195-260 mL/100 kg) of cementitious materials for Type A applications and up to 6 fl oz/cwt (390 mL/100 kg) for Type B and D requirements. Because of variations in job conditions and concrete materials, dosages other than the recommended amounts may be required. In such cases, contact your local BASF Construction Chemicals representative.

Product Notes

Corrosivity – Non-Chloride, Non-Corrosive: Pozzolith 200 N admixture will neither initiate nor promote corrosion of reinforcing steel in concrete. This admixture does not contain intentionally-added calcium chloride or other chloride-based ingredients.

Compatibility: Pozzolith 200 N admixture may be used in combination with any BASF Construction Chemicals admixtures. When used in conjunction with other admixtures, each admixture must be dispensed separately into the mix.

Storage and Handling

Storage Temperature: If Pozzolith 200 N admixture freezes, thaw at 35 °F (2 °C) or above and completely reconstitute by mild mechanical agitation. **Do not use pressurized air for agitation.**

Shelf Life: Pozzolith 200 N admixture has a minimum shelf life of 18 months. Depending on storage conditions, the shelf life may be greater than stated. Please contact your BASF Construction Chemicals representative regarding suitability for use and dosage recommendations if the shelf life of Pozzolith 200 N admixture has been exceeded.

Product Data: POZZOLITH® 200 N

Packaging

Pozzolith 200 N admixture is supplied in 55 gal (208 L) drums, 275 gal (1040 L) totes and by bulk delivery.

Related Documents

Material Safety Data Sheets: Pozzolith 200 N admixture.

Additional Information

For additional information on Pozzolith 200 N admixture or its use in developing a concrete mix with special performance characteristics, contact your BASF Construction Chemicals representative.

The Admixture Systems business of BASF Construction Chemicals is a leading provider of innovative additives for specialty concrete used in the ready mix, precast, manufactured concrete products, underground construction and paving markets throughout the NAFTA region. The Company's respected Master Builders brand products are used to improve the placing, pumping, finishing, appearance and performance characteristics of concrete.

BASF Construction Chemicals, LLC
Admixture Systems

www.masterbuilders.com

United States: 23700 Chagrin Boulevard, Cleveland, Ohio 44122-5544 ☎ Tel: 800 628-9990 ☎ Fax: 216 839-8821
Canada: 1800 Clark Boulevard, Brampton, Ontario L6T 4M7 ☎ Tel: 800 387-5862 ☎ Fax: 905 792-0651

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The Chemical Company



Description

MB-AE 90 air-entraining admixture is for use in concrete mixtures. It meets the requirements of ASTM C 260, AASHTO M 154 and CRD-C 13.

Applications

Recommended for use in:

- Concrete exposed to cyclic freezing and thawing
- Production of high-quality normal or lightweight concrete (heavyweight concrete normally does not contain entrained air)

MB-AE™ 90

Air-Entraining Admixture

Features

- Ready-to-use in the proper concentration for rapid, accurate dispensing

Benefits

- Improved resistance to damage from cyclic freezing and thawing
- Improved resistance to scaling from deicing salts
- Improved plasticity and workability
- Reduced permeability – increased watertightness
- Reduced segregation and bleeding

Performance Characteristics

Concrete durability research has established that the best protection for concrete from the adverse effects of freezing and thawing cycles and deicing salts results from: proper air content in the hardened concrete, a suitable air-void system in terms of bubble size and spacing, and adequate concrete strength, assuming the use of sound aggregates and proper mixing, transporting, placing, consolidation, finishing and curing techniques. MB-AE 90 admixture can be used to obtain adequate freeze-thaw durability in a properly proportioned concrete mixture, if standard industry practices are followed.

Air Content Determination: The total air content of normal weight concrete should be measured in strict accordance with ASTM C 231, "Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method" or ASTM C 173/C 173M, "Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method."

The air content of lightweight concrete should only be determined using the Volumetric Method. The air content should be verified by calculating the gravimetric air content in accordance with ASTM C 138/C 138M, "Standard Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete." If the total air content, as measured by the Pressure Method or Volumetric Method and as verified by the Gravimetric Method, deviates by more than 1-1/2%, the cause should be determined and corrected through equipment calibration or by whatever process is deemed necessary.

Guidelines for Use

Dosage: There is no standard dosage for MB-AE 90 admixture. The exact quantity of air-entraining admixture needed for a given air content of concrete varies because of differences in concrete-making materials and ambient conditions. Typical factors that might influence the amount of air entrained include: temperature, cementitious materials, sand gradation, sand-aggregate ratio, mixture proportions, slump, means of conveying and placement, consolidation and finishing technique.

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Product Data: MB-AE™ 90

The amount of MB-AE 90 admixture used will depend upon the amount of entrained air required under actual job conditions. In a trial mixture, use 1/4 to 4 fl oz/cwt (16-260 mL/100 kg) of cementitious material. Measure the air content of the trial mixture, and, if needed, either increase or decrease the quantity of MB-AE 90 admixture to obtain the desired air content.

In mixtures containing water-reducing or set-control admixtures, the amount of MB-AE 90 admixture needed may be somewhat less than the amount required in plain concrete.

Due to possible changes in the factors that can affect the dosage of MB-AE 90 admixture, frequent air content checks should be made during the course of the work. Adjustments to the dosage should be based on the amount of entrained air required in the mixture at the point of placement.

If an unusually high or low dosage of MB-AE 90 admixture is required to obtain the desired air content, consult your BASF Construction Chemicals representative. In such cases, it may be necessary to determine that, in addition to a proper air content in the fresh concrete, a suitable air-void system is achieved in the hardened concrete.

Dispensing and Mixing: Add MB-AE 90 admixture to the concrete mixture using a dispenser designed for air-entraining admixtures, or add manually using a suitable measuring device that ensures accuracy within plus or minus 3% of the required amount.

For optimum, consistent performance, the air-entraining admixture should be dispensed on damp, fine aggregate. If the concrete mixture contains fine lightweight aggregate, field evaluations should be conducted to determine the best method to dispense the air-entraining admixture.

Precaution

In a 2005 publication from the Portland Cement Association (PCA R&D Serial No. 2789), it was reported that problematic air-void clustering that can potentially lead to above normal decreases in strength was found to coincide with late additions of water to air-entrained concretes. Late additions of water include the conventional practice of holding back water during batching for addition at the jobsite. Therefore, caution should be exercised with delayed additions of water to air-entrained concrete. Furthermore, an air content check should be performed after any post-batching addition to an air-entrained concrete mixture.

Product Notes

Corrosivity – Non-Chloride, Non-Corrosive: MB-AE 90 admixture will neither initiate nor promote corrosion of reinforcing and prestressing steel embedded in concrete, or of galvanized floor and roof systems. No calcium chloride or other chloride-based ingredients are used in the manufacture of this admixture.

Compatibility: MB-AE 90 admixture may be used in combination with any BASF Construction Chemicals admixture, unless stated otherwise on the data sheet for the other product. When used in conjunction with other admixtures, each admixture must be dispensed separately into the concrete mixture.

Storage and Handling

Storage Temperature: MB-AE 90 admixture should be stored and dispensed at 31 °F (-0.5 °C) or higher. Although freezing does not harm this product, precautions should be taken to protect it from freezing. If MB-AE 90 admixture freezes, thaw at 35 °F (2 °C) or above and completely reconstitute by mild mechanical agitation. **Do not use pressurized air for agitation.**

Shelf Life: MB-AE 90 admixture has a minimum shelf life of 18 months. Depending on storage conditions, the shelf life may be greater than stated. Please contact your BASF Construction Chemicals representative regarding suitability for use and dosage recommendations if the shelf life of MB-AE 90 admixture has been exceeded.

Safety: Chemical goggles and gloves are recommended when transferring or handling this material.

Packaging

MB-AE 90 admixture is supplied in 55 gal (208 L) drums, 275 gal (1040 L) totes and by bulk delivery.

Related Documents

Material Safety Data Sheets: MB-AE 90 admixture.

Additional Information

For additional information on MB-AE 90 admixture, or its use in developing a concrete mixture with special performance characteristics, contact your BASF Construction Chemicals representative.

The Admixture Systems business of BASF Construction Chemicals is a leading provider of innovative additives for specialty concrete used in the ready mix, precast, manufactured concrete products, underground construction and paving markets throughout the NAFTA region. The Company's respected Master Builders brand products are used to improve the placing, pumping, finishing, appearance and performance characteristics of concrete.

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Admixture Systems

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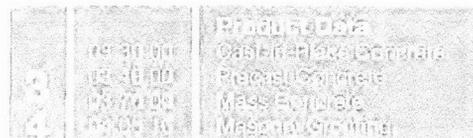
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NSF

ANSI Z39.18-98

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Description

Glenium 3030 NS ready-to-use full-range water-reducing admixture is a patented new generation of admixture based on polycarboxylate chemistry. Glenium 3030 NS admixture is very effective in producing concretes with different levels of workability including applications that require the use of Rheodynamic® Self-Consolidating Concrete (SCC). Glenium 3030 NS admixture meets ASTM C 494/C 494M requirements for Type A, water-reducing, and Type F, high-range water-reducing, admixtures.

Applications

Recommended for use in:

- ☐ Concrete where high flowability, high-early and ultimate strengths and increased durability are needed
- ☐ Self-consolidating concrete
- ☐ Concrete where normal, mid-range, or high-range water-reduction is desired
- ☐ Concrete where normal setting times are required
- ☐ 4x4™ Concrete for fast track construction
- ☐ Pervious Concrete
- ☐ Self-consolidating grout

GLENIUM® 3030 NS

Full-Range Water-Reducing Admixture

Features

- ☐ Reduced water content for a given slump
- ☐ Dosage flexibility for normal, mid and high-range water reduction
- ☐ Produces cohesive and non-segregating concrete mixture
- ☐ Increased compressive strength and flexural strength performance at all ages
- ☐ Providing faster setting times and strength development
- ☐ Enhanced finishability and pumpability

Benefits

- ☐ Providing economic benefits to the entire construction team through higher productivity and reduced variable costs

Performance Characteristics

Mixture Data: 600 lb/yd³ of Type I cement (360 kg/m³); slump, 8.5-9.25 in. (210-235 mm); non-air-entrained concrete; dosage rate adjusted to obtain 25-30% water reduction.

Setting Time

Mixture	Initial Set (h:min)	Difference (h:min)
Plain	4:24	-
Conventional Superplasticizer	6:00	+ 1.36
Glenium 3030 NS admixture	5:00	+0.36

Compressive Strength

Mixture	1 day		7 days	
	psi	MPa	psi	MPa
Plain	1700	12	4040	28
Conventional Superplasticizer	3460	24	6380	44
Glenium 3030 NS admixture	4120	28	7580	52

Slump Retention - in. (mm)

Mixture	Minutes		
	15	30	45
Plain	8.5 (215)	8.5 (215)	7.5 (200)
Conventional Superplasticizer	8.5 (215)	4.25 (110)	3.5 (90)
Glenium 3030 NS admixture	9.25 (235)	9.25 (235)	8.25 (210)

Product Data: GLENIUM® 3030 NS

Rate of Hardening: Glenium 3030 NS admixture is formulated to produce normal setting characteristics throughout its recommended dosage range. Setting time of concrete is influenced by the chemical and physical composition of the basic ingredients of the concrete, temperature of the concrete and ambient conditions. Trial mixtures should be made with actual job materials to determine the dosage required for a specified setting time and a given strength requirement.

Guidelines for Use

Dosage: Glenium 3030 NS admixture has a recommended dosage range of up to 3 fl oz/cwt (195 mL/100 kg) for Type A applications, 3-6 fl oz/cwt (195-390 mL/100 kg) for mid-range use and up to 18 fl oz/cwt (1,170 mL/100 kg) for Type F applications. The dosage range is applicable to most concrete mixtures using typical concrete ingredients. However, variations in job conditions and concrete materials, such as silica fume, may require dosages outside the recommended range. In such cases, contact your local BASF Construction Chemicals representative.

Mixing: Glenium 3030 NS admixture can be batched with the initial mixing water or as a delayed addition. However, optimum water reduction is generally obtained with a delayed addition.

Product Notes

Corrosivity – Non-Chloride, Non-Corrosive: Glenium 3030 NS admixture will neither initiate nor promote corrosion of reinforcing steel embedded in concrete, prestressed concrete or of galvanized steel floor and roof systems. Neither calcium chloride nor other chloride-based ingredients are used in the manufacture of Glenium 3030 NS admixture.

Compatibility: Glenium 3030 NS admixture is compatible with most admixtures used in the production of quality concrete, including normal, mid-range and high-range water-reducing admixtures, air-entrainers, accelerators, retarders, extended set control admixtures, corrosion inhibitors, and shrinkage reducers.

Do not use Glenium 3030 NS admixture with admixtures containing beta-naphthalene-sulfonate. Erratic behaviors in slump, slump flow, and pumpability may be experienced.

For directions on the proper evaluation of Glenium 3030 NS admixture in specific applications, contact your BASF Construction Chemicals representative.

Storage and Handling

Storage Temperature: If Glenium 3030 NS admixture freezes, thaw at 45 °F (7 °C) or above and completely reconstitute by mild mechanical agitation. **Do not use pressurized air for agitation.**

Shelf Life: Glenium 3030 NS admixture has a minimum shelf life of 12 months. Depending on storage conditions, the shelf life may be greater than stated. Please contact your BASF Construction Chemicals representative regarding suitability for use and dosage recommendations if the shelf life of Glenium 3030 NS admixture has been exceeded.

Packaging

Glenium 3030 NS admixture is supplied in 55 gal (208 L) drums, 275 gal (1040 L) totes and by bulk delivery.

Related Documents

Material Safety Data Sheets: Glenium 3030 NS admixture.

Additional Information

For additional information on Glenium 3030 NS admixture or its use in developing concrete mixes with special performance characteristics, contact your BASF Construction Chemicals representative.

The Admixture Systems business of BASF Construction Chemicals is a leading provider of innovative additives for specialty concrete used in the ready mix, precast, manufactured concrete products, underground construction and paving markets throughout the NAFTA region. The Company's respected Master Builders brand products are used to improve the placing, pumping, finishing, appearance and performance characteristics of concrete.

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City of Portland
REVIEWED FOR CODE
COMPLIANCE
AUG 06 2013
Permit Number

SECANT PILE SHOP DRAWING

THIS DOCUMENT HAS BEEN REVIEWED FOR
GENERAL COMPATIBILITY WITH DESIGN
CONCEPT AND THE FOLLOWING IS NOTED:

- NO EXCEPTIONS TAKEN *SH1.0, SH2.0, SH2-1, SH3.0*
- REVISE AS NOTED
- REVISE AND RESUBMIT
- REJECTED
-

kpff _____
By _____ Date _____

SCAN
07-143650-DFS-01-CO 2

PACIFIC FOUNDATION

SOUTH AIRPORT BASIN NE 47TH AVE PUMP STATION

PORTLAND, OREGON

TEMPORARY SHORING PLANS

City of Portland
REVIEWED FOR CODE COMPLIANCE
AUG 06 2013
Permit Number



AIRPORT BASIN / NE 47TH AVE PS
TEMPORARY SHORING PLANS
COVER SHEET AND NOTES

SHEET NUMBER
SH1.0

SHEET NUMBER	SHEET TITLE
SH1.0	COVER SHEET AND NOTES
SH2.0	SITE PLAN
SH2.1	SHORING PLAN
SH3.0	CROSS-SECTIONS



VICINITY MAP

GENERAL:

THE PRIME CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL EXISTING DIMENSIONS AND SITE CONDITIONS FOR DETERMINING ACTUAL LOCATIONS OF ALL EXISTING UTILITIES SHOWN ON THE PLANS AND THOSE UTILITIES OR UNDERGROUND OBSTRUCTIONS NOT SHOWN ON THE PLANS, AND FOR REMOVAL OF ALL ABANDONED UTILITIES OR OTHER OBSTRUCTIONS THAT INTERFERE WITH THE NEW CONSTRUCTION.

THE PRIME CONTRACTOR AND SUBCONTRACTORS ARE RESPONSIBLE FOR THE CONSTRUCTION PROCESS AND THE SAFETY OF THE WORKERS. THIS INCLUDES BUT IS NOT LIMITED TO: THE CONSTRUCTION SEQUENCE, TEMPORARY HANDRAILS, EXCAVATION ACCESS, BARRIERS, LIFTING OF MATERIALS AND CONSTRUCTION EQUIPMENT INTO AND OUT OF THE EXCAVATION, TEMPORARY BRACING OF FORMWORK, TEMPORARY SHORING OF EXCAVATIONS, AND STABILITY OF ALL TEMPORARY CUT SLOPES.

REFERENCE DATA:

"SOUTH AIRPORT BASIN - PHASE IV, NE 47TH AVE (SOUTH) PUMP STATION, SHEET NO. C1", PREPARED BY ACE CONSULTANTS, INC., DATED MARCH 2012.

"SOUTH AIRPORT BASIN - PHASE IV, NE 47TH AVE (SOUTH) PUMP STATION, SHEET NOS. 55 AND 56", PREPARED BY KPFF CONSULTING ENGINEERS, DATED MARCH 2012.

"SECTION 31 50 00, EXCAVATION SUPPORT SYSTEMS, SOUTH AIRPORT BASIN PHASE 4 - PUMP STATIONS, PROJECT NO. E06790", DATED MARCH 2012.

"SECTION 31 63 29, SEGANT FILE EXCAVATION SUPPORT SYSTEM, SOUTH AIRPORT BASIN PHASE 4 - PUMP STATIONS, PROJECT NO. E06790", DATED MARCH 2012.

BUILDING CODES, DESIGN MANUALS, AND SPECIFICATIONS:

2009 INTERNATIONAL BUILDING CODE (AS AMENDED BY THE CITY OF PORTLAND)

2010 OREGON STRUCTURAL SPECIALTY CODE

PUBLICATION NO. FHWA-IF-99-0615, GEOTECHNICAL ENGINEERING CIRCULAR NO. 4, GROUND ANCHORS AND ANCHORED SYSTEMS

DESIGN SURCHARGE & JACKING LOADS:

A VERTICAL CONSTRUCTION SURCHARGE OF 600 PSF WAS CONSIDERED TO ACT EVERYWHERE AROUND THE PROPOSED SHAFT SHORING. SEE THE PLANS FOR THE LATERAL PRESSURES CONSIDERED IN THE DESIGN.

SHORING DESIGN CRITERIA:

THE SUBSURFACE DESIGN PARAMETERS AND SHORING WALL DESIGN CRITERIA ARE BASED UPON THE FOLLOWING CONTRACT DOCUMENT: "GEOTECHNICAL DATA REPORT, SOUTH AIRPORT BASIN PHASE IV, 42ND AVENUE AND 47TH AVENUE SOUTH PUMP STATIONS, PORTLAND, OREGON", PREPARED BY SHANNON & WILSON, INC., DATED FEBRUARY 11, 2011. THE EARTH PRESSURE DIAGRAMS AND SHORING DESIGN CRITERIA ARE SHOWN ON THIS SET OF PLANS.

DRILLED SEGANT FILES:

WHERE APPLICABLE, THE MINIMUM REQUIRED STRUCTURAL STEEL W-SHAPES FOR THE FILES ARE INDICATED ON THE PLANS. ALTERNATIVE STEEL SECTIONS MAY BE USED PROVIDED THAT THE CROSS-SECTIONAL AREA AND SECTION MODULUS OF EACH ALTERNATIVE STEEL SECTION ARE EQUAL TO OR GREATER THAN THE CROSS-SECTIONAL AREA AND SECTION MODULUS OF THE CORRESPONDING STEEL SECTION SHOWN ON THE PLANS, AND IS APPROVED BY THE SHORING DESIGNER.

SEGANT FILES SHALL BE CONSTRUCTED SO THAT THE CENTER AT THE TOP OF THE DRILL HOLE IS WITHIN +/- 2 INCHES OF THE PLAN LOCATION. SEGANT FILES SHALL BE PLUMB TO WITHIN 0.2% OF VERTICAL. THE ELEVATION AT THE TOP OF FILE SHALL BE +/- 2 INCHES FROM THE PLAN LOCATION. DURING CONSTRUCTION FOR THE FILES THE CONTRACTOR SHALL MAKE FREQUENT CHECKS ON THE PLUMBNESS, ALIGNMENT, AND DIMENSIONS OF THE DRILL HOLE. ANY DEVIATION EXCEEDING THE ALLOWABLE TOLERANCES SHALL BE CORRECTED IMMEDIATELY.

THE STEEL BEAMS SHALL BE PLACED SO THAT THE CENTER OF THE BEAM IS WITHIN +/- 1 INCH OF THE PLAN LOCATION AT THE TOP OF THE FILE, AND WITHIN 0.5% OF VERTICAL WITH DEPTH.

SEGANT FILES SHALL BE EXCAVATED TO THE REQUIRED DEPTH AS SHOWN ON THE PLANS. THE EXCAVATION SHALL BE COMPLETED IN A CONTINUOUS OPERATION USING EQUIPMENT CAPABLE OF EXCAVATING THROUGH THE TYPE OF MATERIAL EXPECTED TO BE ENCOUNTERED.

IF THE SEGANT FILE EXCAVATION IS STOPPED WITH THE APPROVAL OF THE ENGINEER, THE DRILL HOLE SHALL BE SECURED BY INSTALLATION OF A SAFETY COVER, UNLESS A CFA INSTALLATION IS UTILIZED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THE SAFETY OF THE DRILL HOLE AND SURROUNDING SOIL AND THE STABILITY OF THE SIDE WALLS. A TEMPORARY CASING SHOULD BE USED IF NECESSARY TO ENSURE SUCH SAFETY AND STABILITY.

WHERE GAVING CONDITIONS ARE ENCOUNTERED, FURTHER EXCAVATION WILL NOT BE ALLOWED UNTIL THE CONTRACTOR SELECTS A METHOD TO PREVENT GROUND MOVEMENT. THE CONTRACTOR MAY ELECT TO PLACE A TEMPORARY CASING OR USE OTHER METHODS APPROVED BY THE ENGINEER.

UNLESS INSTALLATION IS BY THE CFA METHOD, THE CONTRACTOR SHALL USE APPROPRIATE MEANS (SUCH AS A CLEANOUT BUCKET), TO CLEAN THE BOTTOM OF THE EXCAVATION SUCH THAT NO MORE THAN 6 INCHES OF LOOSE OR DISTURBED MATERIAL IS PRESENT.

WHEN UNEXPECTED OBSTRUCTIONS, WHICH REQUIRE SPECIALIZED EQUIPMENT AND/OR LABOR ARE ENCOUNTERED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER PROMPTLY AND THE OBSTRUCTIONS SHALL BE REMOVED AND THE EXCAVATION CONTINUED IN A MANNER APPROVED BY THE ENGINEER.

TEMPORARY CASINGS FOR THE DRILL HOLES SHALL BE REMOVED. A MINIMUM 5 FOOT HEAD OF CONCRETE MUST BE MAINTAINED TO BALANCE THE SOIL AND WATER PRESSURE AT THE BOTTOM OF THE CASINGS DURING REMOVAL. THE CASING SHALL BE SMOOTH.

FILE CONCRETE SHALL BE PLACED AS SHOWN ON THE PLANS AND SHALL COMMENCE WITHIN 4 HOURS AFTER COMPLETION OF THE EXCAVATION. FILE CONCRETE SHALL BE PLACED IN ONE CONTINUOUS OPERATION TO THE TOP OF THE HOLE.

IF WATER IS NOT PRESENT, THE CONCRETE SHALL BE DEPOSITED BY A METHOD WHICH PREVENTS AGGREGATE SEGREGATION. THE CONTRACTOR'S METHOD FOR DEPOSITING CONCRETE SHALL HAVE APPROVAL OF THE ENGINEER PRIOR TO CONCRETE PLACEMENT.

IF WATER IS PRESENT, THE CONCRETE SHALL BE DEPOSITED BY TREMIE PLACEMENT METHODS.

SEGANT FILE CONCRETE:

ALL SEGANT FILE CONCRETE SHALL HAVE A MINIMUM OF 2-1/2 SACKS OF CEMENT PER CUBIC YARD OF CONCRETE, AND SHALL HAVE A 7-DAY COMPRESSIVE STRENGTH OF AT LEAST 1000 PSI. SUBMIT THE MIX DESIGN AND WELL AS FAST DATA OF COMPRESSIVE STRENGTH TESTING, TO GROUND SUPPORT PLLC FOR REVIEW AND FINAL APPROVAL.

TYPE I OR II PORTLAND CEMENT CONFORMING TO ASTM C150 / AASHTO M85 SHALL BE USED FOR SEGANT FILE CONCRETE. SLUMP FOR ALL SEGANT FILE CONCRETE SHALL NOT BE LESS THAN 5 INCHES AND NO GREATER THAN 9 INCHES.

ADMIXTURES SHALL CONFORM TO THE REQUIREMENTS OF ASTM C494 / AASHTO M194, SHALL BE USED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, AND SHALL BE APPROVED BY THE ENGINEER.

TREMIE SEAL CONCRETE:

ALL TREMIE SEAL CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3000 PSI. TYPE I, II, OR III PORTLAND CEMENT CONFORMING TO ASTM C150 / AASHTO M85 SHALL BE USED FOR TREMIE SEAL CONCRETE. SUBMIT MIX DESIGNS IN ACCORDANCE WITH THE PROJECT STANDARD SPECIFICATIONS.

ADMIXTURES SHALL CONFORM TO THE REQUIREMENTS OF ASTM C494 / AASHTO M194, SHALL BE USED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, AND SHALL BE APPROVED BY THE ENGINEER.

AGGREGATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM C33 / AASHTO M6 FOR FINE AGGREGATES AND AASHTO M80, CLASS B FOR COARSE AGGREGATES.

STRUCTURAL STEEL:

ALL STRUCTURAL STEEL SHAPES AND PLATES SHALL CONFORM TO ASTM A36 / AASHTO M270, GRADE 50. STEEL PIPE SHALL CONFORM TO ASTM A53 GRADE B WITH A MINIMUM YIELD STRESS OF 35 KSI.

STRUCTURAL WELDING:

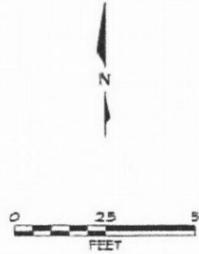
MINIMUM WELD SIZE 1/4" CONTINUOUS FILLET. MINIMUM WELD LENGTH 2 INCHES. ALL WELDING TO BE PERFORMED BY CERTIFIED WELDERS. ALL WELDING OF STRUCTURAL STEEL PER AWS D11.9B CODE. ALL WELDING OF REINFORCING STEEL PER AWS D1.4-96 CODE. USE E70XX ELECTRODES.

CONSTRUCTION SEQUENCE:

1. INSTALL ALL OF THE SEGANT FILES, AND OBTAIN A MINIMUM COMPRESSIVE STRENGTH OF 1000 PSI.
2. EXCAVATE IN THE NET, INSIDE THE SEGANT RINGS DOWN TO THE BOTTOM OF THE TREMIE SEAL. THE WATER LEVEL WITHIN THE EXCAVATION MUST REMAIN WITHIN 2 FEET OF THE WATER LEVEL OUTSIDE THE SEGANT RING.
3. AFTER ENSURING THAT THE SURFACES OF THE SEGANT FILES IN THE REGION OF THE TREMIE SEAL ARE WELL-CLEANED OF ANY LOOSE MATERIAL, PLACE THE TREMIE CONCRETE SEAL.
4. ONCE THE CONCRETE FOR THE TREMIE SEAL TESTS TO AT LEAST 3000 PSI, DENATER THE EXCAVATION.

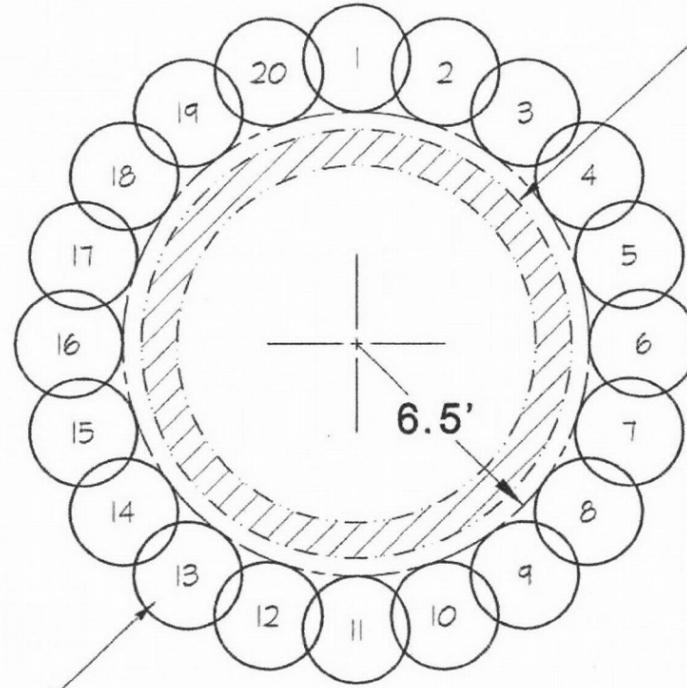
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36" DIA (MIN) SECANT PILE (TYP)
(MIN 1000 PSI STRENGTH)

A / SH3.0

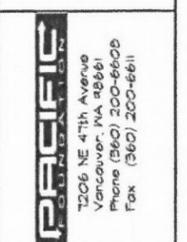
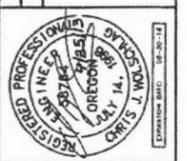


WET WELL

A / SH3.0

City of Portland
REVIEWED FOR CODE
COMPLIANCE
AUG 06 2013
Permit Number

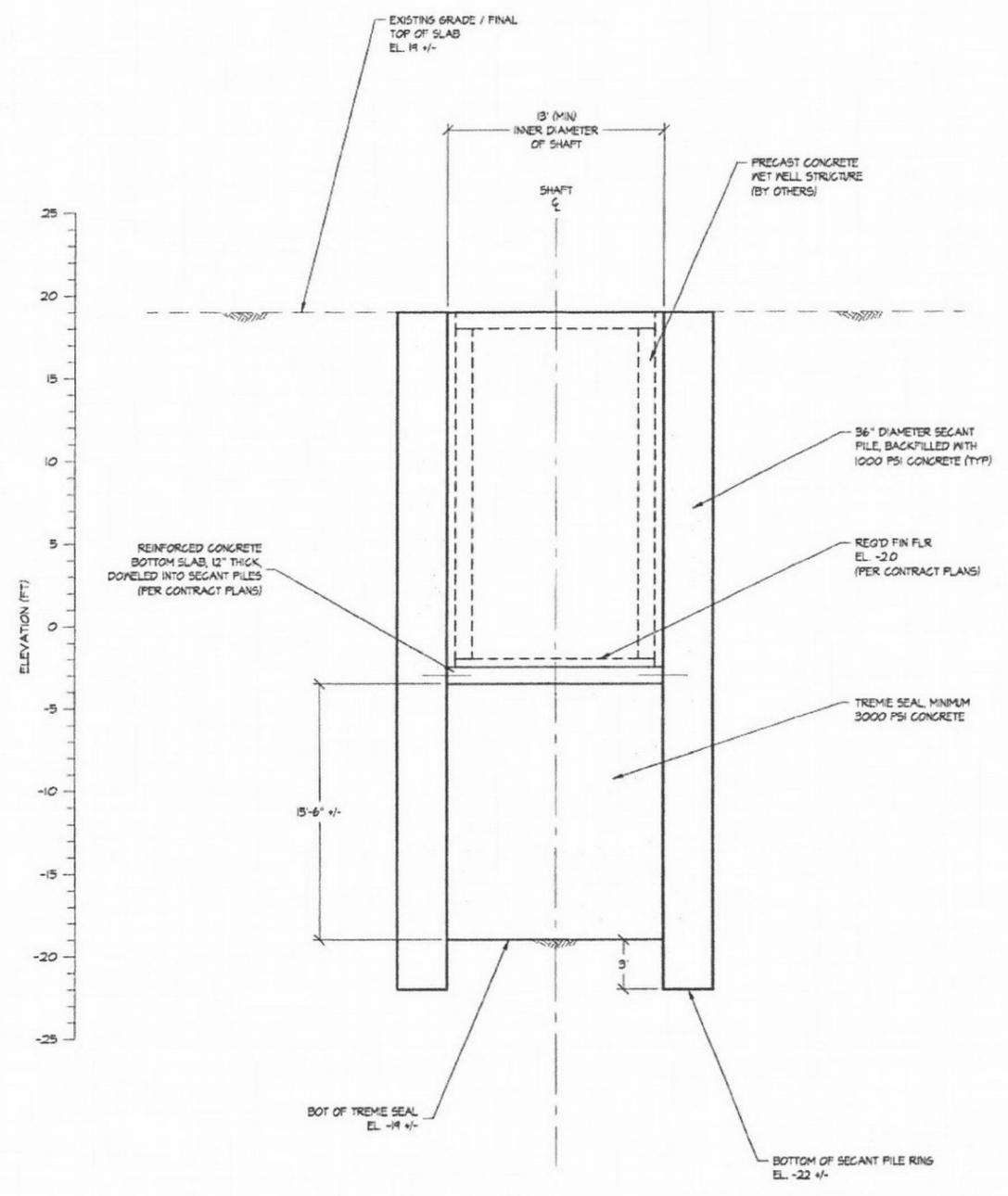
DES	DRN	REV	DATE	REV	DESCRIPTION
C/JN	C/JN	RJB	4/28/13	0	PERMIT SUBMITTAL



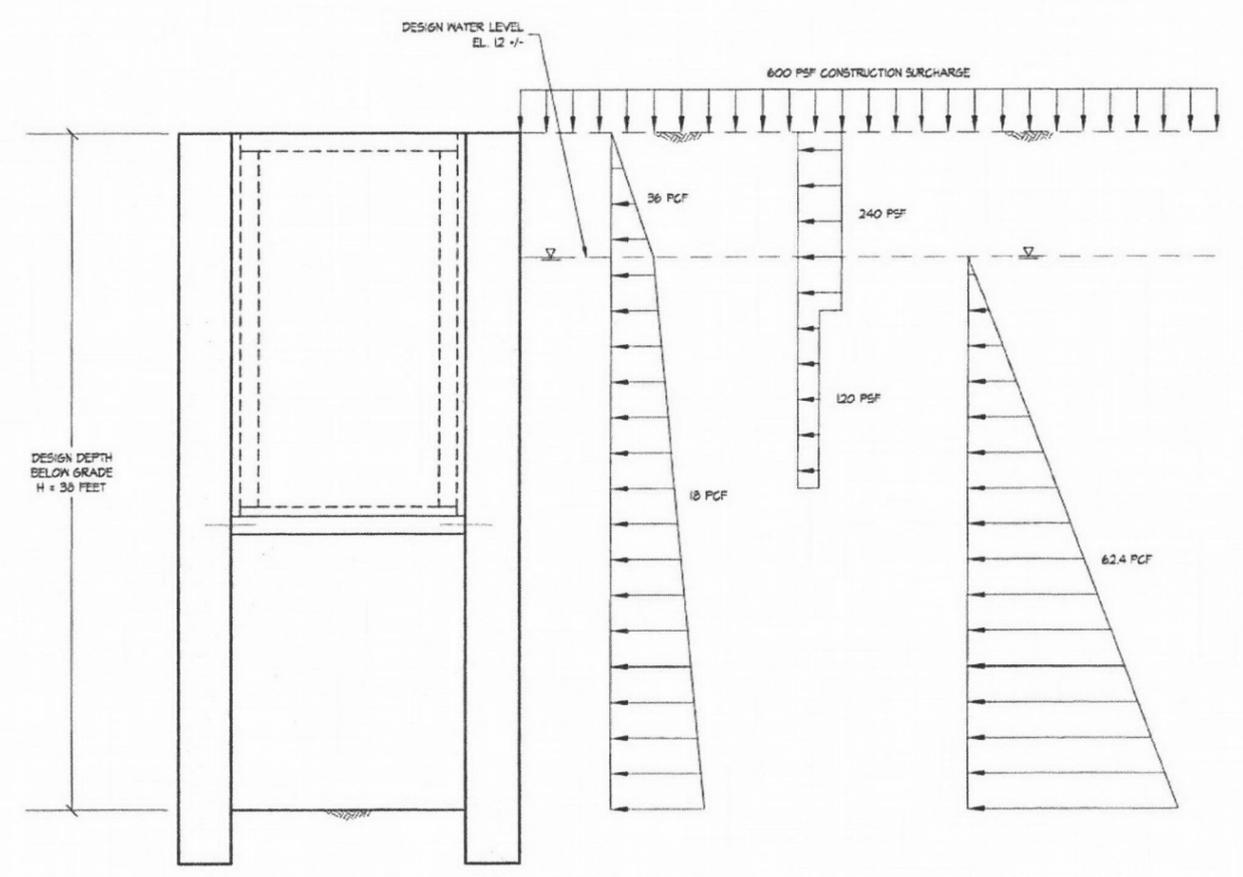
AIRPORT BASIN / NE 47TH AVE PS
TEMPORARY SHORING WALL
SHORING PLAN

SHEET NUMBER
SH2.1

< Public\apps\active\2013\13-30 (Pacific Foundation-Airport Basin-OR)\RO\1330sh03aRO.dwg > < 04/24/2013 10:14:54 >



A
SH3.0
TRANSVERSE CROSS-SECTION
0 5 FEET



B
SH3.0
SHORING DESIGN DIAGRAM
0 5 FEET

City of Portland
REVIEWED FOR CODE COMPLIANCE
AUG 06 2013
Permit Number

DES	CJM	CJM	DATE	4/28/13	REV	0	DESCRIPTION	PERMIT SUBMITTAL
DRW	CJM							

REGISTERED PROFESSIONAL ENGINEER
PAUL J. WOOD
 LICENSE NO. 100000001
 EXPIRES 01-31-14

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AIRPORT BASIN / NE 47TH AVE PS
TEMPORARY SHORING PLANS
CROSS-SECTIONS

SHEET NUMBER
SH3.0