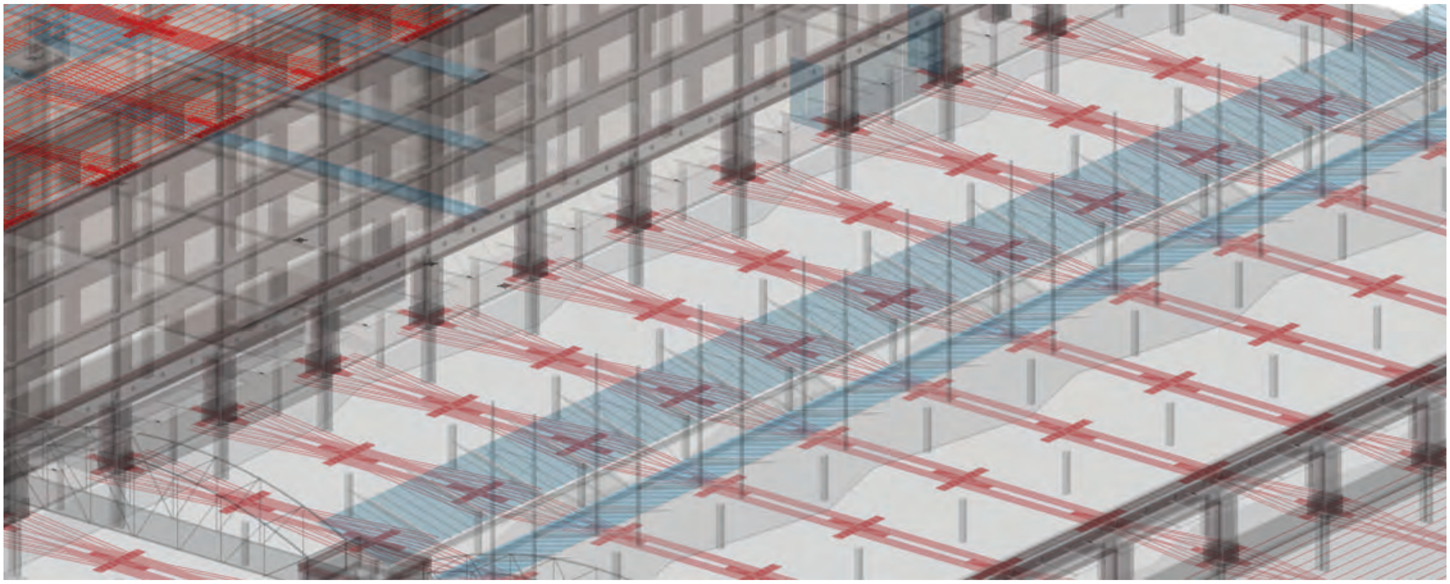

Marion County Courthouse Square
555 Court Street NE, Salem Oregon
Remediation Study Final Report
February 07, 2011

Volume Two of Six

VOLUME II

CARLSON TESTING, INC. (CTI)

CONSTRUCTION MATERIALS TESTING & INSPECTION

MATERIALS TEST REPORT

CONCRETE EVALUATION

FOR

MARION COUNTY COURTHOUSE SQUARE & BUS MALL
555 COURT STREET NE
SALEM, OREGON

TABLE OF CONTENTS

Carlson Testing, Inc.
Construction Materials Testing & Inspection

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Tigard, OR 97223
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Fax: (503) 684-0954

Eugene Office
120 Cleveland St. – Suite #6
Eugene, OR 97402
Phone: (503) 385-7327
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Salem Office
4060 Hudson St. NE
Salem, OR 97301
Phone: (503) 589-1252
Fax: (503) 589-1309

Bend Office
710A NE 1st St.
Bend, OR 97701
Phone: (541) 330-9155
Fax: (541) 330-9163

February 4th, 2011
CTI #S1006062

Marion County
Attn: Mr. Steve Frank
Marion County Courthouse Square
555 Court Street NE
Salem, OR 97301
sfrank@co.marion.or.us

RE: Consolidated Report of Materials Testing at Marion County Courthouse Square
Salem, OR

INTRODUCTION

At the request of George Hagar with SERA Architecture, CTI has completed testing as designated in Scope of Work dated 25 March 2010.

PURPOSE & SCOPE

The purpose of our service is the testing, sampling and evaluating of various elements crucial to the overall evaluation being performed by the engineers and architects on the team.

Our work included concrete coring, with nondestructive testing preceding the coring to avoid damage to the tendons in the post-tensioned slabs or the rebar in slabs and walls. The cores taken were used to perform compressive strength tests and petrographic analysis. Also included were the GPR evaluations of other locations for tendon splay and drape.

PROGRESSION OF EVENTS

The Architect provided a plan view of the locations where cores were desired. GPR was used to locate favorable locations to take the cores. Radiography was then used to confirm that the locations chosen were free from intervening reinforcement or post-tensioned tendons. This operation confirmed locations but as the film must be located on the underside of the slab, it also revealed that some locations were not viable due to access, so a new location in the same general area was found with GPR and that location was radiographed, until we had the designated number of locations cleared. The Coring and patching operation followed. Cores designated for petrographic analysis were shipped off and the cores for compressive strength were processed in our lab. This operation was performed similarly at the five floor levels of the building, at selected locations on the bus mall, and at selected shear wall and column locations.

The engineer provided a second plan with the locations requiring GPR evaluation of tendon drape. Due to occupancy, a few of these locations were also changed from the original plan. These scans were completed and the information has now been processed.

CORE LOCATIONS

CORE	GRID LINE	Measurement from Interior Surface of Exterior Wall	Measurement from the Nearest Pin
1st Floor			
1A	D-E,12-12a	27'5" N of ext wall	2'4" N of pin -0 5/8"
1B	F-G,12-12a	24'9" N of ext wall	14'0" E of pin -0 1/2"
1C	M-N,12-12a	1'11" N of pin +0 1/2"	14'1" E of pin -0 1/8"
2nd Floor			
2A	D-E,12-12a	26'7" N of ext wall	2'6" W of pin -0 3/4"
2B	E-F,12-12a	12'5" N of ext wall	8'6" E of pin -1 1/8"
2C	J-K,10a-11	17'3" S of ext wall	14.4" W of pin -2"
2D	M-N,12-12a	16.8" N of ext wall	14.1" W of pin -0 1/2"
3rd Floor			
3A	E-F,10a-11	22'9" S of ext wall	8'0" E of pin -2 3/4"
3B	G-H,10a-11	23'1" S of ext wall	11'9" W of pin -1 7/8"
3C	J-K,10a-11	17'9" S of ext wall	2'9" S of pin -1 1/8"
3D	J-K,12-12a	20'6" N of ext wall	5'11" W of pin -1 1/4"
4th Floor			
4A	F-G,12-12a	15'6" N of ext wall	9'7" W of pin -2.14"
4B	G-H,10a-11	19'6" S of ext wall	9'2" E of pin -2.34"
4C	J-K,10a-11	17'5" S of ext wall	3'0" E of pin -1.58"
4D	L-M,10a-11	18'0" S of ext wall	2'5" E of pin -3 1/4"
5th Floor			
5A	D-E,12-12a	21'2" N of ext wall	3'0" W of pin -2 5/8"
5B	G-H,12-12a	19'0" N of ext wall	6'11" E of pin -3"
5C	J-K,10-10a	19'0" S of ext wall	4'0" E of pin -1 7/8"
5D	K-L,10a-11	16'8" S of ext wall	2'4" N of pin -2 7/8"

CORE	**ELEVATION**	**GRID LINE**	**Specifics**
Transit Bus Mall			
A	Ground Level	D.7 / 7.8	NE corner of panel A
B	Ground Level	E.3 / 7.8	NW corner of panel B
C	Ground Level	L.7 / 7.8	N border of panel C
D	Ground Level	D.7 / 7.6	SE corner of panel D
F	Ground Level	E.3 / 7.6	SW corner of panel F
H	Ground Level	L.7 / 7.6	S border of panel H

CORE	**ELEVATION**	**GRID LINE**	**Specifics**
Shear Walls and Column			
2SWA	2nd Floor Level	11.4 / F.5	2' up from TOS
2SWB	2nd Floor Level	11.6 / L.5	2' up from TOS
5SWA	5th Floor Level	11.4 / F.5	2' up from TOS
5SWB	5th Floor Level	11.6 / L.5	2' up from TOS
5CCA	5th Floor Level	10 / O	5' up from TOS

Radiographs and GPR scans are on file.

As depicted in the building, there were four locations per floor slab except the 1st floor, which had only three locations; four shear wall locations and one column. At the bus mall there were six locations, one in each of the panels indicated.

GPR scans were performed at each location.

Radiography was performed at each location also, except for the shear walls and column.

Cores were taken at each of these locations for compressive strength tests.

The results of the compressive tests are in Appendix A

At the locations indicated in the petrographic reports, additional cores were taken along side the compressive strength samples for petrographic analysis.

The reports with the results of the petrographic analysis are in Appendix B

Specified locations were scanned with GPR for analysis of the drape and/or the splay of the tendons.

The Tables and graphs for the tendon drape, are in Appendix C

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If there are any further questions regarding this matter, please do not hesitate to contact this office.

Respectfully submitted,
CARLSON TESTING, INC.

Mark R. Powlison
Special Project Dept Manager

eah

cc:	Marion Co Facilities Management – Dan Wilson	dwilson@co.marion.or.us
	Sera Architects – Russ Pitkin	russp@serapdx.com
	Marion Co Risk Management – Gary Hales	ghales@co.marion.or.us
	Sera Architects – George Hager	georgeh@serapdx.com

Appendix A

Concrete Core Samples
Compressive Strength Test Results

Carlson Testing, Inc.

Bend Office (541) 330-9155
Geotechnical Office (503) 601-8250
Eugene Office (541) 345-0289
Salem Office (503) 589-1252
Tigard Office (503) 684-3460

May 24, 2010
S1006062

Marion Co Facilities Management – Dan Wilson
P.O. Box 14500
Salem, OR 97309

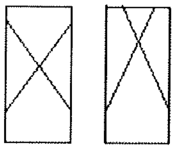
Re: Courthouse Square Structural Remediation – Testing
555 Court Street NE – Salem, OR
Compressive Strength of Drilled Concrete Cores (ASTM C42)

As requested, Carlson Testing Inc. has completed compression testing on three (3) specimens extracted from the above-mentioned project. Samples were obtained by core drilling on May 16, 2010 by our representative. Core specimens were placed into sealed bag on May 16, 2010 prior to testing. Core results are as follows:

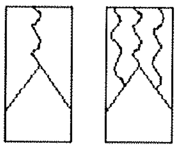
Register #95021 Specimen number	**1**	**2**	**3**	**4**	**5**
Age of Specimen (days)	3	3	3		
Date and Time tested	5/19/10	5/19/10	5/19/10		
Nominal Maximum Aggregate Size (in.)	--	--	--		
Length of Specimen as Received (in.)	8	10.5	8		
Length of specimen prior to capping (in.)	7.64	7.67	7.67		
Length of specimen after capping (in.)	7.88	7.9	7.87		
Direction of load in respect to placement	P	P	P		
Moisture condition at time of testing	M	M	M		
Average diameter of core specimen (in.)	3.94	3.94	3.94		
Length to diameter ratio (l/d) *	2.00	2.01	1.99		
Applied load at specimen failure (lbs.)	53183	56088	53976		
Specimen area (sq.in.)	12.2	12.2	12.2		
Uncorrected unit (psi)	4359	4597	4424		
Strength correction factor *	--	--	--		
Corrected unit psi (psi)	4360	4600	4420		
Type of Fracture	2	2	2		
Density lb/ft^3	N/R	N/R	N/R		

*P - Perpendicular
L – Parallel

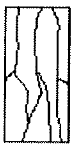
* Strength correction factor applied when length to diameter ratio is less than 1.75
N/R – Not Requested



Type 1
Reasonable well-formed cones on both ends, less than 1 in. [25 mm] of cracking through caps



Type 2
Well-Formed cone on one end, vertical cracks running through caps, no well-defined cone on other end



Type 3
Columnar vertical cracking through both ends, no well-formed cones

Type 4
Diagonal fracture with no cracking through ends; tap with hammer to distinguish from Type 1

Core Specimen Location

Specimen No. 1	*1A*
Specimen No. 2	*1B*
Specimen No. 3	*1C*
Specimen No. 4	
Specimen No. 5	

Remarks: Per engineer of record, cores do not need to be cured.

If there are any further questions regarding this matter, please do not hesitate to contact this office.

Respectfully submitted,
CARLSON TESTING, INC.

Mark R. Powlison
Special Project Dept Manager

eah

cc:	Marion Co Facilities Management – Dan Wilson	dwilson@co.marion.or.us
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Tigard Office	(503) 684-3460

May 24, 2010
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P.O. Box 14500
Salem, OR 97309

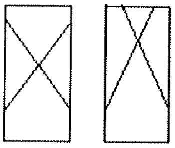
Re: Courthouse Square Structural Remediation – Testing
555 Court Street NE – Salem, OR
Compressive Strength of Drilled Concrete Cores (ASTM C42)

As requested, Carlson Testing Inc. has completed compression testing on four (4) specimens extracted from the above-mentioned project. Samples were obtained by core drilling on May 15 through 16, 2010 by our representative. Core specimens were placed into sealed bag on May 15 through 16, 2010 prior to testing. Core results are as follows:

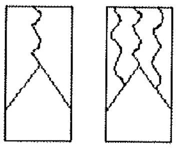
Register #95021 Specimen number	**1**	**2**	**3**	**4**	**5**
Age of Specimen (days)	3-4	3-4	3-4	3-4	
Date and Time tested	5/19/10	5/19/10	5/19/10	5/19/10	
Nominal Maximum Aggregate Size (in.)	--	--	--	--	
Length of Specimen as Received (in.)	10”	9.75”	9.75”	9.75”	
Length of specimen prior to capping (in.)	7.79	7.77	7.7	7.9	
Length of specimen after capping (in.)	7.95	7.91	7.91	8.03	
Direction of load in respect to placement	P	P	P	P	
Moisture condition at time of testing	D	D	D	D	
Average diameter of core specimen (in.)	3.94	3.94	3.94	3.94	
Length to diameter ratio (l/d) *	2.01	2.00	2.00	2.03	
Applied load at specimen failure (lbs.)	42158	51371	45202	49771	
Specimen area (sq.in.)	12.2	12.2	12.2	12.2	
Uncorrected unit (psi)	3455	4210	3705	4079	
Strength correction factor *	--	--	--	--	
Corrected unit psi (psi)	3460	4210	3710	4080	
Type of Fracture	2	2	2	2	
Density lb/ft^3	N/R	N/R	N/R	N/R	

*P - Perpendicular
L – Parallel

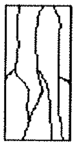
* Strength correction factor applied when length to diameter ratio is less than 1.75
N/R – Not Requested



Type 1
Reasonable well-formed cones on both ends, less than 1 in. [25 mm] of cracking through caps



Type 2
Well-Formed cone on one end, vertical cracks running through caps, no well-defined cone on other end



Type 3
Columnar vertical cracking through both ends, no well-formed cones

Type 4
Diagonal fracture with no cracking through ends; tap with hammer to distinguish from Type 1

Core Specimen Location

Specimen No. 1	*2A*
Specimen No. 2	*2B*
Specimen No. 3	*2C*
Specimen No. 4	*2D*
Specimen No. 5	

Remarks: Per engineer of record, cores do not need to be cured.

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May 24, 2010
S1006062

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555 Court Street NE – Salem, OR
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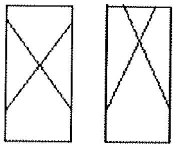
As requested, Carlson Testing Inc. has completed compression testing on four (4) specimens extracted from the above-mentioned project. Samples were obtained by core drilling on May 14, 2010 by our representative. Core specimens were placed into sealed bag on May 14, 2010 prior to testing. Core results are as follows:

Register #95021 Specimen number	**1**	**2**	**3**	**4**	**5**
Age of Specimen (days)	5	5	5	5	
Date and Time tested	5/19/10	5/19/10	5/19/10	5/19/10	
Nominal Maximum Aggregate Size (in.)	--	--	--	--	
Length of Specimen as Received (in.)	10”	9.5”	10”	10.25”	
Length of specimen prior to capping (in.)	7.76	7.77	7.82	7.82	
Length of specimen after capping (in.)	7.94	7.99	8.00	7.93	
Direction of load in respect to placement	P	P	P	P	
Moisture condition at time of testing	D	D	D	D	
Average diameter of core specimen (in.)	3.94	3.94	3.94	3.94	
Length to diameter ratio (l/d) *	2.01	2.02	2.03	2.01	
Applied load at specimen failure (lbs.)	46373	42571	48285	40674	
Specimen area (sq.in.)	12.2	12.2	12.2	12.2	
Uncorrected unit (psi)	3801	3489	3957	3498	
Strength correction factor *	--	--	--	--	
Corrected unit psi (psi)	3800	3490	3960	3500	
Type of Fracture	2	2	2	2	
Density lb/ft^3	N/R	N/R	N/R	N/R	

*P - Perpendicular
L – Parallel

* Strength correction factor applied when length to diameter ratio is less than 1.75
N/R – Not Requested



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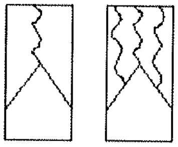
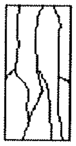


Type 2
Well-Formed cone on one end, vertical cracks running through caps, no well-defined cone on other end



Type 3
Columnar vertical cracking through both ends, no well-formed cones

Type 4
Diagonal fracture with no cracking through ends; tap with hammer to distinguish from Type 1

Core Specimen Location

Specimen No. 1	*3C*
Specimen No. 2	*3B*
Specimen No. 3	*3A*
Specimen No. 4	*3D*
Specimen No. 5	

Remarks: Per engineer of record, cores do not need to be cured.

If there are any further questions regarding this matter, please do not hesitate to contact this office.

Respectfully submitted,
CARLSON TESTING, INC.

Mark R. Powlison
Special Project Dept Manager

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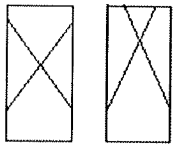
As requested, Carlson Testing Inc. has completed compression testing on four (4) specimens extracted from the above-mentioned project. Samples were obtained by core drilling on May 14 through 15, 2010 by our representative. Core specimens were placed into sealed bag on May 14 through 15, 2010 prior to testing. Core results are as follows:

Register #95021 Specimen number	**1**	**2**	**3**	**4**	**5**
Age of Specimen (days)	4-5	4-5	4-5	4-5	
Date and Time tested	5/19/10	5/19/10	5/19/10	5/19/10	
Nominal Maximum Aggregate Size (in.)	--	--	--	--	
Length of Specimen as Received (in.)	10"	9.75"	10.25"	10.25"	
Length of specimen prior to capping (in.)	7.69	7.77	7.72	7.76	
Length of specimen after capping (in.)	7.85	7.97	7.87	7.93	
Direction of load in respect to placement	P	P	P	P	
Moisture condition at time of testing	D	D	D	D	
Average diameter of core specimen (in.)	3.94	3.94	3.94	3.94	
Length to diameter ratio (l/d) *	1.99	2.02	1.99	2.01	
Applied load at specimen failure (lbs.)	59350	55194	52603	45495	
Specimen area (sq.in.)	12.2	12.2	12.2	12.2	
Uncorrected unit (psi)	4864	4524	4311	3729	
Strength correction factor *	--	--	--	--	
Corrected unit psi (psi)	4860	4520	4310	3730	
Type of Fracture	2	2	2	2	
Density lb/ft^3	N/R	N/R	N/R	N/R	

*P - Perpendicular
L – Parallel

* Strength correction factor applied when length to diameter ratio is less than 1.75
N/R – Not Requested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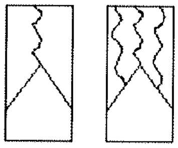
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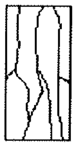
Type 3
Columnar vertical cracking through both ends, no well-formed cones


Type 4
Diagonal fracture with no cracking through ends; tap with hammer to distinguish from Type 1

Core Specimen Location

Specimen No. 1	4C
Specimen No. 2	4D
Specimen No. 3	4A
Specimen No. 4	4B
Specimen No. 5	

Remarks: Per engineer of record, cores do not need to be cured.

If there are any further questions regarding this matter, please do not hesitate to contact this office.

Respectfully submitted,
CARLSON TESTING, INC.

Mark R. Powlison
Special Project Dept Manager

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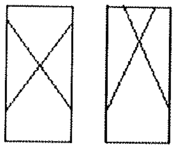
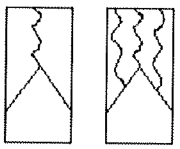
Register #95021 Specimen number	**1**	**2**	**3**	**4**	**5**
Age of Specimen (days)	4	4	4	4	
Date and Time tested	5/19/10	5/19/10	5/19/10	5/19/10	
Nominal Maximum Aggregate Size (in.)	--	--	--	--	
Length of Specimen as Received (in.)	10"	9.62"	9.75"	10"	
Length of specimen prior to capping (in.)	7.7	7.75	7.8	7.75	
Length of specimen after capping (in.)	8.0	7.81	7.93	7.88	
Direction of load in respect to placement	P	P	P	P	
Moisture condition at time of testing	M	M	M	M	
Average diameter of core specimen (in.)	3.94	3.94	3.94	3.94	
Length to diameter ratio (l/d) *	2.03	1.98	2.01	2.00	
Applied load at specimen failure (lbs.)	54970	51725	55197	62850	
Specimen area (sq.in.)	12.2	12.2	12.2	12.2	
Uncorrected unit (psi)	4505	4239	4524	5151	
Strength correction factor *	--	--	--	--	
Corrected unit psi (psi)	4510	4240	4520	5150	
Type of Fracture	2	2	2	3	
Density lb/ft^3	N/R	N/R	N/R	N/R	

*P - Perpendicular
L – Parallel

* Strength correction factor applied when length to diameter ratio is less than 1.75
N/R – Not Requested

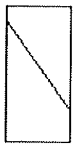


Type 1
Reasonable well-formed cones on both ends, less than 1 in. [25 mm] of cracking through caps



Type 2
Well-Formed cone on one end, vertical cracks running through caps, no well-defined cone on other end

Type 3
Columnar vertical cracking through both ends, no well-formed cones



Type 4
Diagonal fracture with no cracking through ends; tap with hammer to distinguish from Type 1

Core Specimen Location

Specimen No. 1	*5D*
Specimen No. 2	*5B*
Specimen No. 3	*5C*
Specimen No. 4	*5A*
Specimen No. 5	

Remarks: Per engineer of record, cores do not need to be cured.

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If there are any further questions regarding this matter, please do not hesitate to contact this office.

Respectfully submitted,
CARLSON TESTING, INC.

Mark R. Powlison
Special Project Dept Manager

eah

cc:	Marion Co Facilities Management – Dan Wilson	dwilson@co.marion.or.us
	Sera Architects – Russ Pitkin	russp@serapdx.com
	Marion Co Risk Management – Gary Hales	ghales@co.marion.or.us
	Sera Architects – George Hager	georgeh@serapdx.com

Carlson Testing, Inc.

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September 8, 2010
S1006062

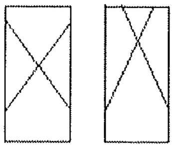
Marion Co Facilities Management – Dan Wilson
PO Box 14500
Salem, Oregon 97309

Re: Courthouse Square – Structural Remediation Testing
555 Court Street NE – Salem, Oregon
Compressive Strength of Drilled Concrete Cores (ASTM C42)

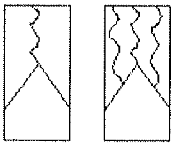
As requested, Carlson Testing Inc. has completed compression testing on six (6) specimens extracted from the above-mentioned project. Samples were obtained by core drilling on June 29, 2010 by our representative. Core specimens were tested July 1, 2010. Core results are as follows:

Specimen number	D	B	F	A	H	C
Age of Specimen (days)	-----	-----	-----	-----	-----	-----
Date and Time tested	7/1/10	7/1/10	7/1/10	7/1/10	7/1/10	7/1/10
Nominal Maximum Aggregate Size (in.)	-----	-----	-----	-----	-----	-----
Length of Specimen as Received (in.)	10.26	10.75	10.25	10.50	10.00	9.50
Length of specimen prior to capping (in.)	7.9	8.0	8.0	8.0	8.0	8.0
Length of specimen after capping (in.)	8.0	8.1	8.1	8.1	8.1	8.1
Direction of load in respect to placement	P	P	P	P	P	P
Moisture condition at time of testing	D	D	D	D	D	D
Average diameter of core specimen (in.)	3.9	3.9	3.9	3.9	3.9	3.9
Length to diameter ratio (l/d) *	2.05	2.08	2.08	2.08	2.08	2.08
Applied load at specimen failure (lbs.)	67,178	73,148	73,236	85,414	79,603	80,558
Specimen area (sq.in.)	11.94	11.94	11.94	11.94	11.94	11.94
Uncorrected unit (psi)	5626	6130	6133	7154	6666	6746
Strength correction factor *	-----	-----	-----	-----	-----	-----
Corrected unit psi (psi)	5630	6130	6130	7150	6670	6750
Type of Fracture	4	3	4	3	3	3
Density lb/ft^3	-----	-----	-----	-----	-----	-----

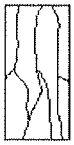
*P - Perpendicular * Strength correction factor applied when length to diameter ratio is less than 1.75
L – Parallel N/R – Not Requested



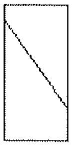
Type 1
Reasonable well-formed cones on both ends, less than 1 in. [25 mm] of cracking through caps



Type 2
Well-Formed cone on one end, vertical cracks running through caps, no well-defined cone on other end



Type 3
Columnar vertical cracking through both ends, no well-formed cones



Type 4
Diagonal fracture with no cracking through ends; tap with hammer to distinguish from Type 1

Core Specimen Location

Specimen No. D	*3D-C Transit Bus Stops*
Specimen No. B	*3B-C Transit Bus Stops*
Specimen No. F	*3F-C Transit Bus Stops*
Specimen No. A	*3-AC Transit Bus Stops*
Specimen No. H	*1-HC Transit Bus Stops*
Specimen No. C	*1C-C Transit Bus Stops*

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If there are any further questions regarding this matter, please do not hesitate to contact this office.

Respectfully submitted,
CARLSON TESTING, INC.

Mark Powlison
Project Manager

kk

cc:

Carlson Testing, Inc.

Bend Office (541) 330-9155
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September 7, 2010
S1006062

Marion Co Facilities Management – Dan Wilson
PO Box 14500
Salem, Oregon 97309

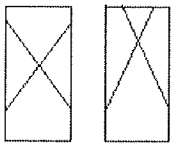
Re: Courthouse Square – Structural Remediation Testing
555 Court Street NE – Salem, Oregon
Compressive Strength of Drilled Concrete Cores (ASTM C42)

As requested, Carlson Testing Inc. has completed compression testing on five (5) specimens extracted from the above-mentioned project. Samples were obtained by core drilling on August 31, 2010 by our representative. Core specimens were tested August 31, 2010. Core results are as follows:

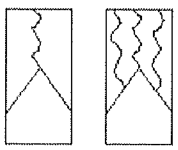
Register #096177 Specimen number	**1**	**2**	**3**	**4**	**5**
Age of Specimen (days)	-----	-----	-----	-----	-----
Date and Time tested	8/31 1:30pm	8/31 1:30pm	8/31 1:30pm	8/31 1:30pm	8/31 1:30pm
Nominal Maximum Aggregate Size (in.)	-----	-----	-----	-----	-----
Length of Specimen as Received (in.)	8.50	8.50	8.50	8.50	8.50
Length of specimen prior to capping (in.)	8.3	8.3	8.2	8.3	8.3
Length of specimen after capping (in.)	8.4	8.4	8.4	8.4	8.4
Direction of load in respect to placement	P	P	P	P	P
Moisture condition at time of testing	D	D	D	D	D
Average diameter of core specimen (in.)	3.94	3.94	3.94	3.94	3.94
Length to diameter ratio (l/d) *	2.1	2.1	2.1	2.1	2.1
Applied load at specimen failure (lbs.)	69,691	71,131	74,784	59,588	59,397
Specimen area (sq.in.)	12.19	12.19	12.19	12.19	12.19
Uncorrected unit (psi)	5717	5835	6134	4888	4872
Strength correction factor *					
Corrected unit psi (psi)	5720	5840	6130	4890	4870
Type of Fracture	3	4	4	3	3
Density lb/ft^3	N/R	N/R	N/R	N/R	N/R

*P - Perpendicular
L – Parallel

* Strength correction factor applied when length to diameter ratio is less than 1.75
N/R – Not Requested



Type 1
Reasonable well-formed cones on both ends, less than 1 in. [25 mm] of cracking through caps



Type 2
Well-Formed cone on one end, vertical cracks running through caps, no well-defined cone on other end

Type 3
Columnar vertical cracking through both ends, no well-formed cones

Type 4
Diagonal fracture with no cracking through ends; tap with hammer to distinguish from Type 1

Core Specimen Location

Specimen No. 1	*2SWA (See map for detailed locations)*
Specimen No. 2	*2SWB (See map for detailed locations)*
Specimen No. 3	*5SWA (See map for detailed locations)*
Specimen No. 4	*5SWB (See map for detailed locations)*
Specimen No. 5	*5CCA (See map for detailed locations)*

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If there are any further questions regarding this matter, please do not hesitate to contact this office.

Respectfully submitted,
CARLSON TESTING, INC.

Mark Powlison
Project Manager

kk

cc:

Appendix B

Concrete Core Samples
Petrographic Analysis Results

PETROGRAPHIC SERVICES REPORT

MICROSCOPIC EXAMINATION OF CORED CONCRETES
COURTHOUSE SQUARE STRUCTURAL REMEDIATION
555 COURT STREET NE, SALEM, OREGON
CARLSON TESTING JOB NO. S1006062

ASTM C 856 – STANDARD PRACTICE FOR PETROGRAPHIC EXAMINATION OF HARDENED CONCRETE
(CORES 1A-P, 1B-P, 1C-P, 2A-P, 2D-P, 3A-P, 3C-P, 3D-P, 4B-P, 4C-P, 4D-P, 5A-P AND 5D-P)

Prepared for:

Mr. Mark R. Powlison
NDT Level III and Special Testing
Carlson Testing, Inc.
8430 SW Hunziker
Tigard, OR 97281

Prepared by:

Dominion Consulting, Inc.
2002 Linda Lane
La Grande, OR 97850

June 3, 2010 (Revised September 27, 2010)
DCI Project No. 671-52

Dominion Consulting, Inc.
Petrographic Examination of Concrete Products and Earth Materials

June 3, 2010

Mr. Mark R. Powlison
NDT Level III and Specialty Testing
Carlson Testing, Inc.
8430 S.W. Hunziker
Tigard, OR 97281

Microscopic Examination of Cored Concretes
Courthouse Square Structural Remediation
555 Court Street N.E., Salem, Oregon
CTI Job No. S1006062

Dear Mark:

We received 13 cores from you on May 18, 2010, reportedly taken from the referenced project. You requested we perform ASTM C 856, *Standard Practice for Petrographic Examination of Hardened Concrete*, to estimate water to cement ratio, degree of hydration, cleanliness/quality of aggregate, adequacy of curing, air-void content, and presence/amount of fly ash. You also furnished us with compressive strength test reports for 18 cores and copies of River Bend S&G Mix Design Nos. 5K-3FM and 5K-4FM for comparison purposes.

Executive Summary

Concretes examined contained mostly sound, clean, and well distributed aggregates. Well hydrated and properly cured hardened cement pastes were present in eight of the 13 cores examined. Cored concretes 2A-P, 4B-P and all the 3 series cores contained a moderate amount of un-hydrated cement grains, which was probably due to incomplete curing. Most of the cores contained total voids 2 to 3 percent above the mix design target value of 3 percent. Only the one series cores contained fiber reinforcement. None of the concretes had severe micro-cracks or excessively high water to cement ratios.

Sample Preparation and Examination Methods

The cores were measured and photographed upon receipt. We prepared the cores for microscopic examination in general accordance with this ASTM. Original core and polished longitudinally sawed surfaces were viewed with the unaided eye and stereomicroscope (16-80X) to note general aggregate and paste characteristics. Thin-sections ground to 25 microns (less than 0.001 inch) were made from the uppermost and mid-depth 1½ inch of each core and studied using a polarizing microscope (40-400X) to identify binder material, degree of binder hydration, microcracks, and contamination.

Tabulated Laboratory Data

Table 1 – General Features

Core	Length (in.)	Prominent Cracks/Voids	Aggregate Quality/Size/Shape/Distribution	Paste Color/Hardness[1]/Alkalinity[2]
1A-P	7.7	None	Good/C33 #67/Round/Good	Med. gray/Good/T 1/8" 6-8, L 12-13
1B-P	10.2	None	Good/C33 #67/Round/Good	Med. gray/Good/T ¼" 6-8, L 12-13
1C-P	7.8	None	Good/C33 #67/Round/Good	Med. gray/Good/T ¼" 6-9, L 12-13
2A-P	10.0	None	Good/C33 #67/Round/Good	Med. gray/Good/T 1/8" 6-8, L 12-13
2D-P	9.8	None	Good/C33 #67/Round/Good	Med. gray/Good/T ¼" 6-8, L 12-13
3A-P	9.9	None	Good/C33 #67/Round/Good	Med. gray/Good/T 1/8" 6-8, L 12-13
3C-P	9.9	None	Good/C33 #67/Round/Good	Med. gray/Good/T 1/8" 6-8, L 12-13
3D-P	10.1	None	Good/C33 #67/Round/Good	Med. gray/Good/T ¼" 7-8, L 12-13
4B-P	10.2	None	Good/C33 #67/Round/Good	Med. gray/Good/T 1/8" 6-8, L 12-13
4C-P	9.9	None	Good/C33 #67/Round/Good	Med. gray/Good/T ¼" 5-8, L 12-13
4D-P	9.8	None	Good/C33 #67/Round/Good	Med. gray/Good/T 1/8" 6-8, L 12-13
5A-P	9.8	None	Good/C33 #67/Round/Good	Med. gray/Good/T ¼" 7-8, L 12-13
5D-P	9.9	None	Good/C33 #67/Round/Good	Med. gray/Good/T 1/8" 6-8, L 12-13

[1] Hardness determined by scratching paste with steel dental tools.

[2] Top 1/8" pH 6-8, Lower concrete pH 12-13. Stained pastes with Rainbow Indicator™. Paste with a pH less than 9 is carbonated.

Table 2 – Microscopic Observations

Core	Cementitious Materials	Void Content[2] (%)	% Un-hydrated Cement[3]	Quality of Curing	Interpreted W/C Ratio[4]
1A-P	Portland cement	5 to 6	4-6	Good	0.40 to 0.45
1B-P	Portland cement	5 to 6	3-5	Good	0.40 to 0.45
1C-P	Portland cement	4½ to 5½	4-6	Good	0.40 to 0.45
2A-P	Portland cement	3 to 4	8-10	Poor to fair	0.45 to 0.50
2D-P	Portland cement	4 to 5	5-7	Good	0.40 to 0.45
3A-P	Portland cement	4½ to 5½	6-8	Fair	0.45 to 0.50
3C-P	Portland cement	4 to 5	6-8	Fair	0.45 to 0.50
3D-P	Portland cement	4 to 5	6-8	Fair	0.45 to 0.50
4B-P	Portland cement Trace of fly ash[1]	5 to 6	6-8	Fair	0.45 to 0.50
4C-P	Portland cement Trace of fly ash[1]	5 to 6	3-5	Good	0.40 to 0.45
4D-P	Portland cement	5 to 6	3-5	Good	0.40 to 0.45
5A-P	Portland cement	5 to 6	2-4	Good	0.40 to 0.45
5D-P	Portland cement	4½ to 5½	3-5	Good	0.40 to 0.45

[1] Trace of fly ash. Possible left-over from another job.

[2] Estimated total voids include entrained and entrapped air voids and water voids. Mix design target value is 3%.

[3] Percent un-hydrated cement by volume of hardened paste estimated from thin-section analysis.

[4] Water to cement ratio interpreted from tested/observed paste properties compared to laboratory reference samples. Mix design value is 0.41.

Discussion and Conclusion

Aggregates were mostly sound, clean, and well distributed. Eight of the 13 hardened cement pastes examined were well hydrated and properly cured. Cored concretes 2A-P, 4B-P and all the 3 series cores contained a moderate amount of un-hydrated cement grains, which was probably due to incomplete curing. Most of the cores contained total voids two to three percent above the mix design target value of three percent. Only the one series cores contained fiber reinforcement. None of the concretes had severe micro-cracks, deep carbonation, or excessively high water to cement ratios.

Photographs and photomicrographs of the concrete samples are included in the Appendix. The above observations and comments specifically apply to the samples as received for examination and analysis. This report may be copied only in its entirety without prior written approval from this office. Remnants of the samples will be kept in our laboratory storage for three months than discarded unless notified otherwise.

Please call (541) 962-7430 or email me at dick@dominionconsulting.biz if you have any questions concerning this report. We appreciate the opportunity to continue providing your petrographic needs.

Regards,

Dick M. Glasheen

Digitally signed by Dick M. Glasheen
DN: cn=Dick M. Glasheen, o=Dominion Consulting, ou, email=dick@dominionconsulting.biz, c=US
Date: 2010.10.05 14:22:34 -07'00'

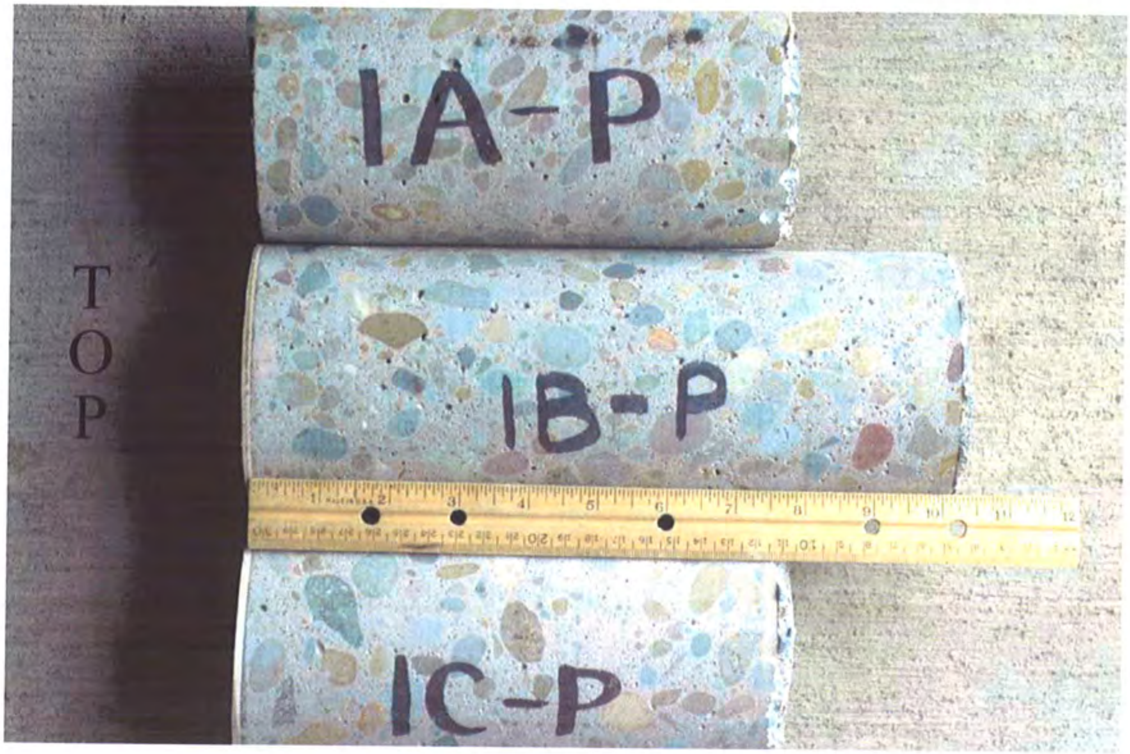
Dick M. Glasheen, R.G.
President/Principal Petrographer

DCI Report No. 671-52

APPENDIX

Includes

Laboratory Photographs



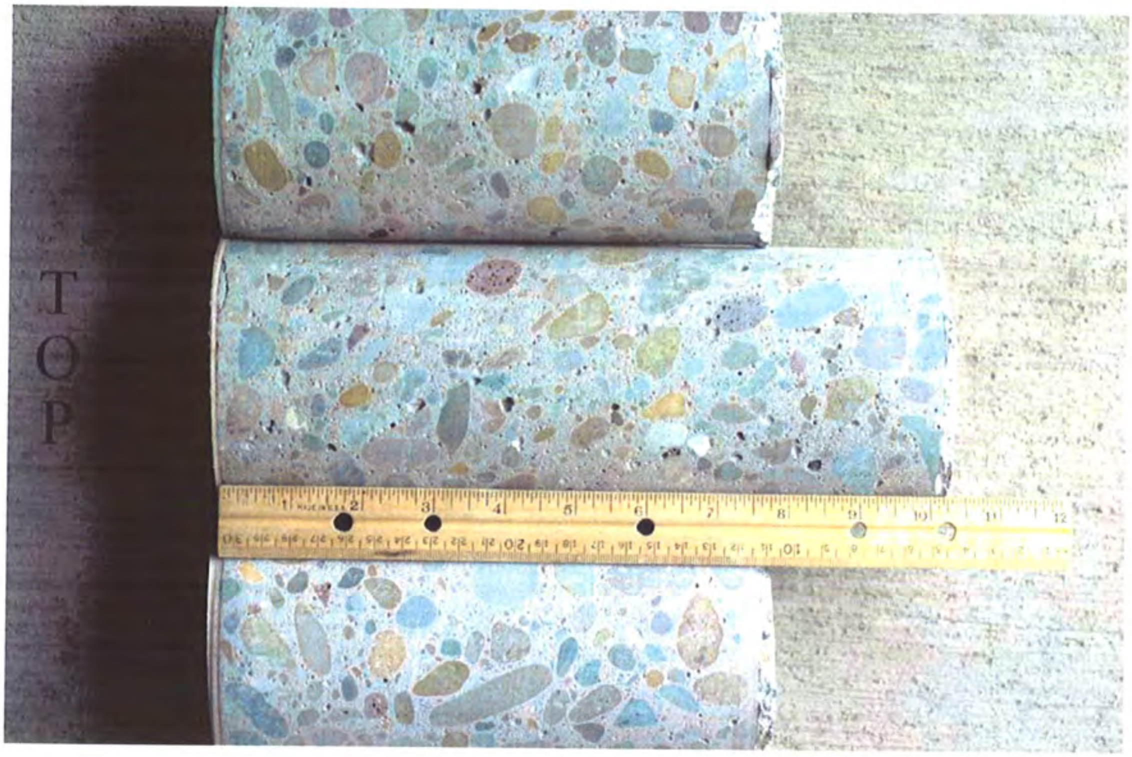
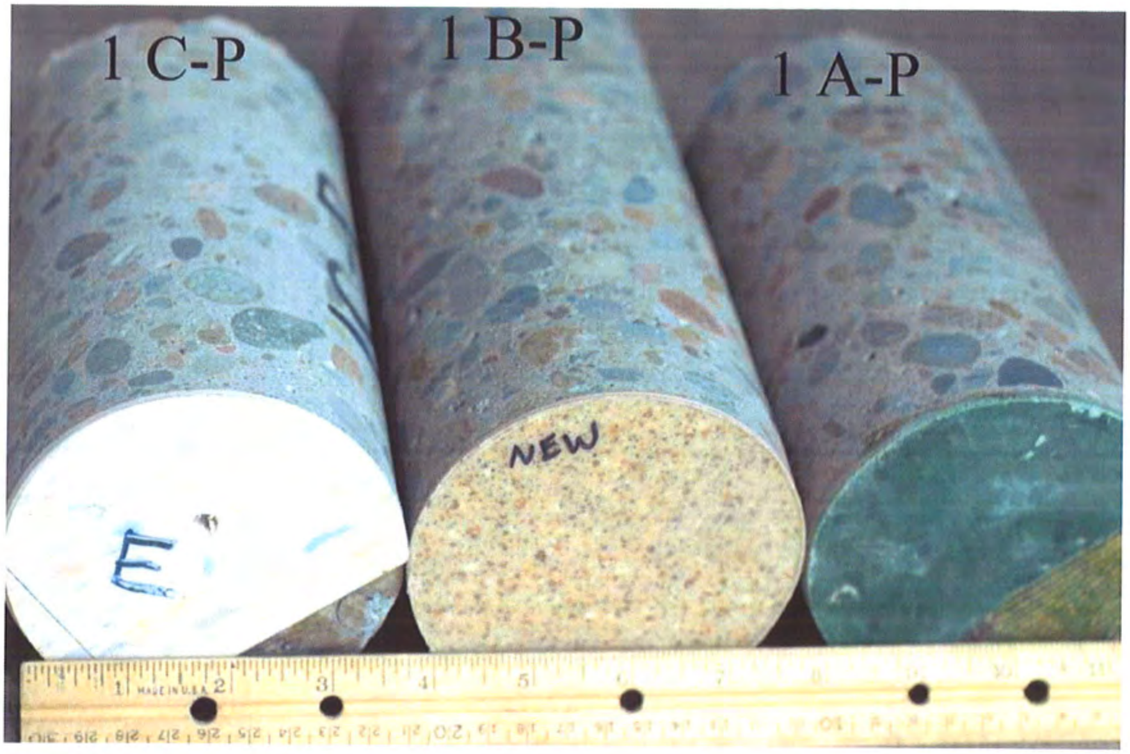


FIGURE 1 Side of 1-P Series cores as received shows aggregate size, shape and distribution and larger voids.

FIGURE 2 Opposite side of 1-P Series cores as received shows similar features.



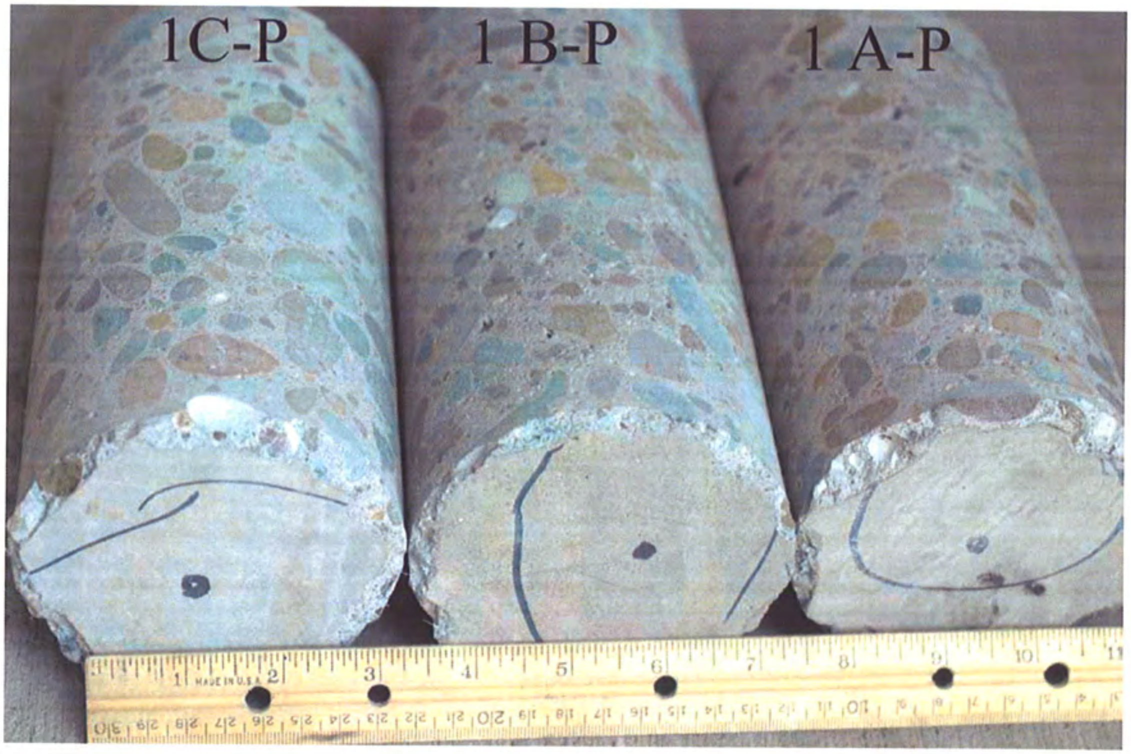


FIGURE 3 Top of 1-P Series cores as received.

FIGURE 4 Bottom of 1-P Series cores as received.

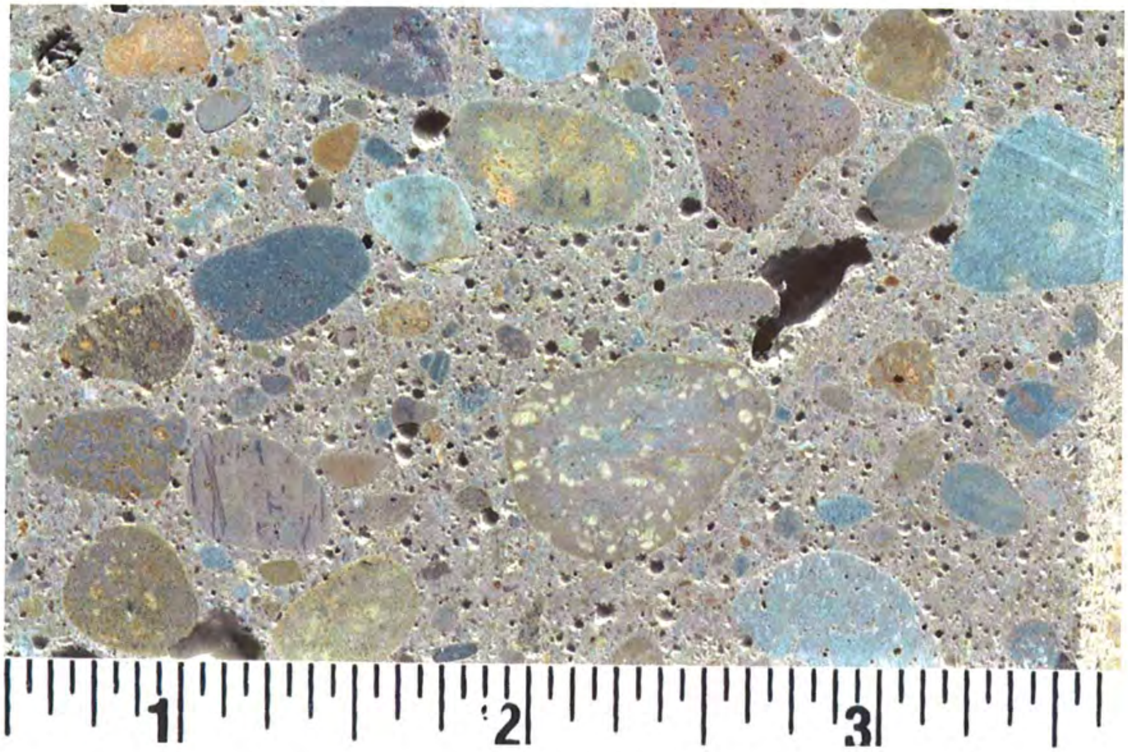
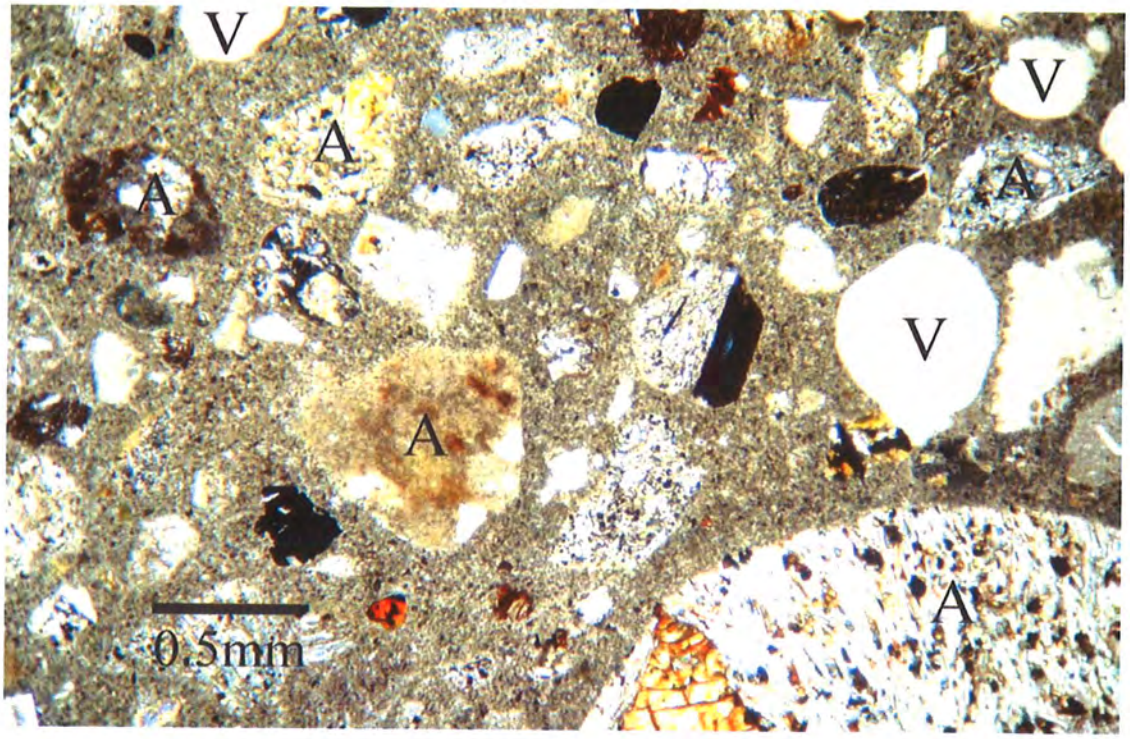


FIGURE 5 **Typical appearance of a 1-P Series longitudinally sawed surface.**



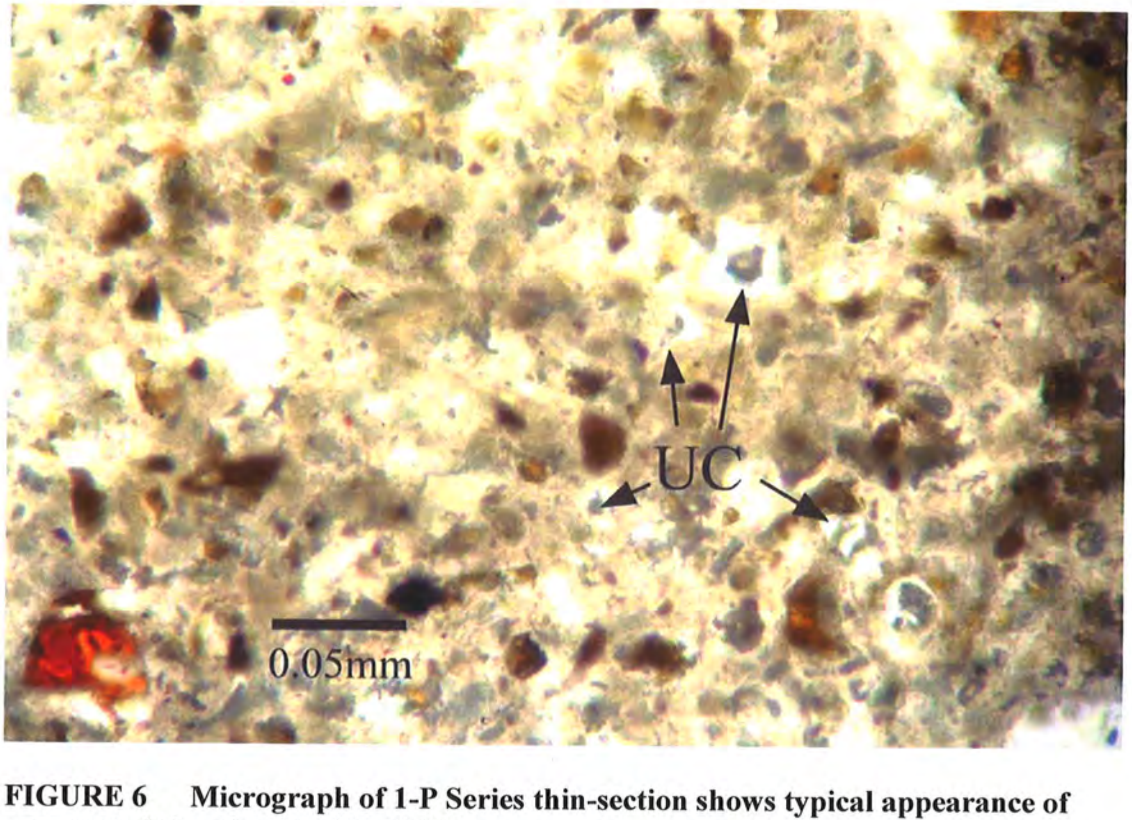


FIGURE 6 Micrograph of 1-P Series thin-section shows typical appearance of aggregate (A) and voids (V) (X40).

FIGURE 7 More highly magnified micrograph of 1-P Series shows typical appearance of hardened paste with some un-hydrated cement particles (UC) (X400).

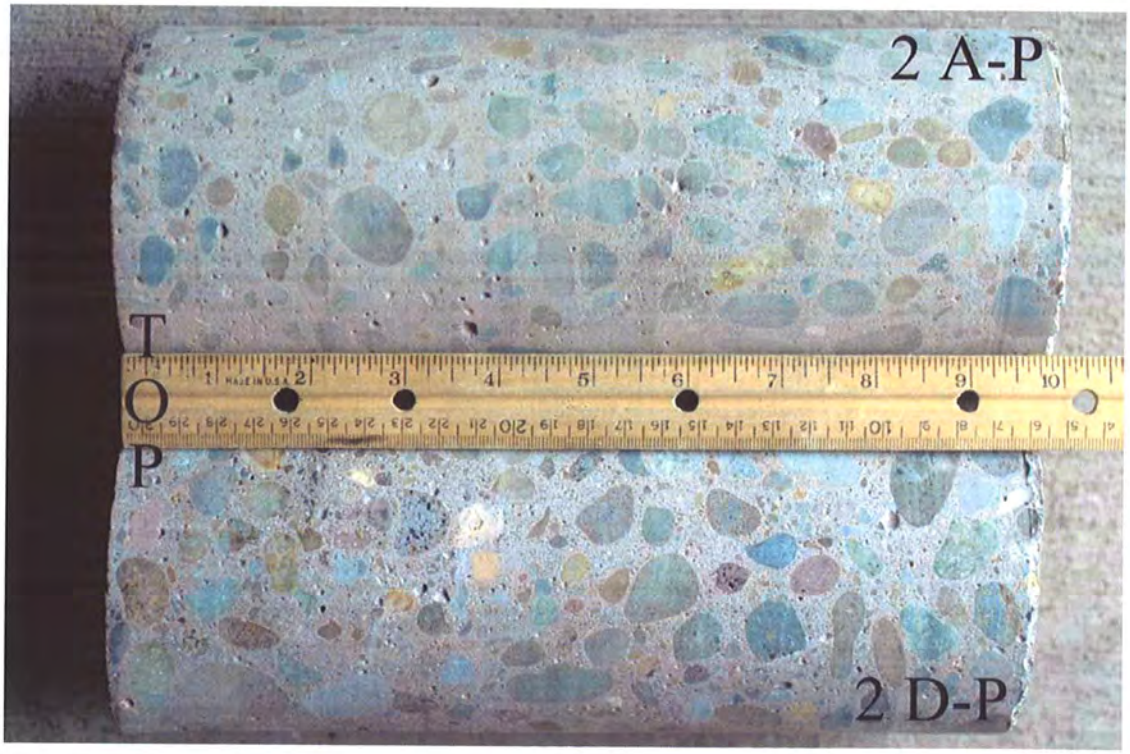
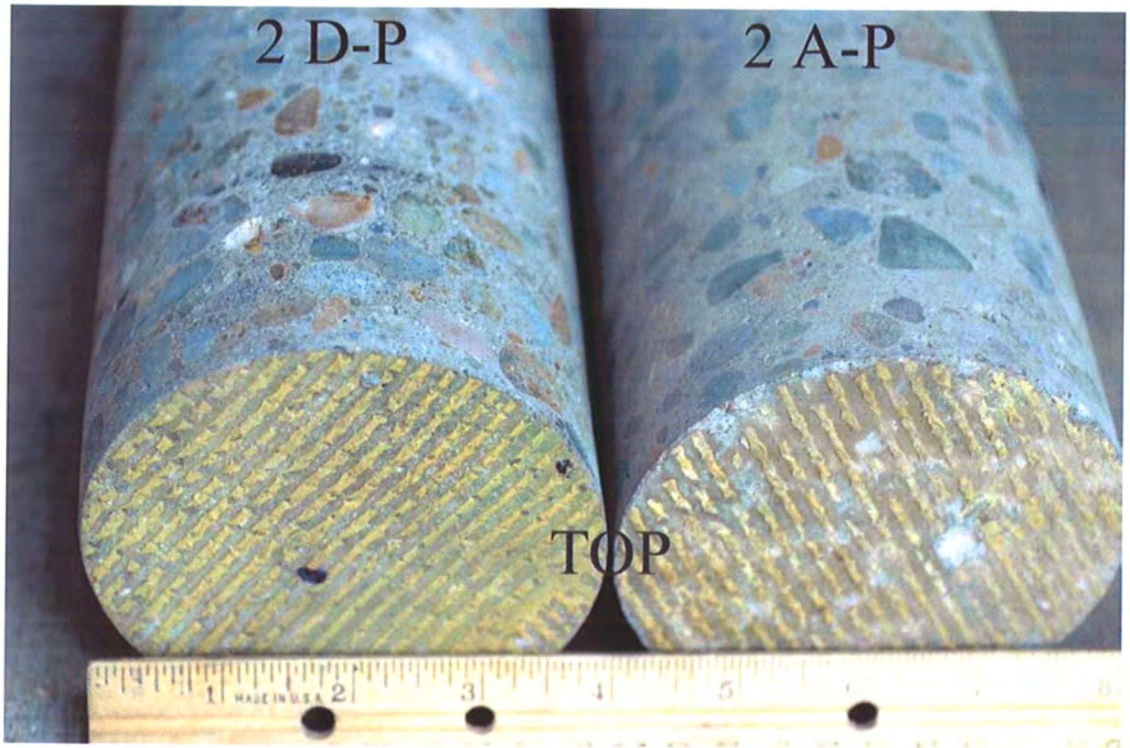


FIGURE 8 Side of 2-P Series cores as received shows aggregate size, shape and distribution and larger voids.

FIGURE 9 Opposite side of 2-P Series cores as received shows similar features.



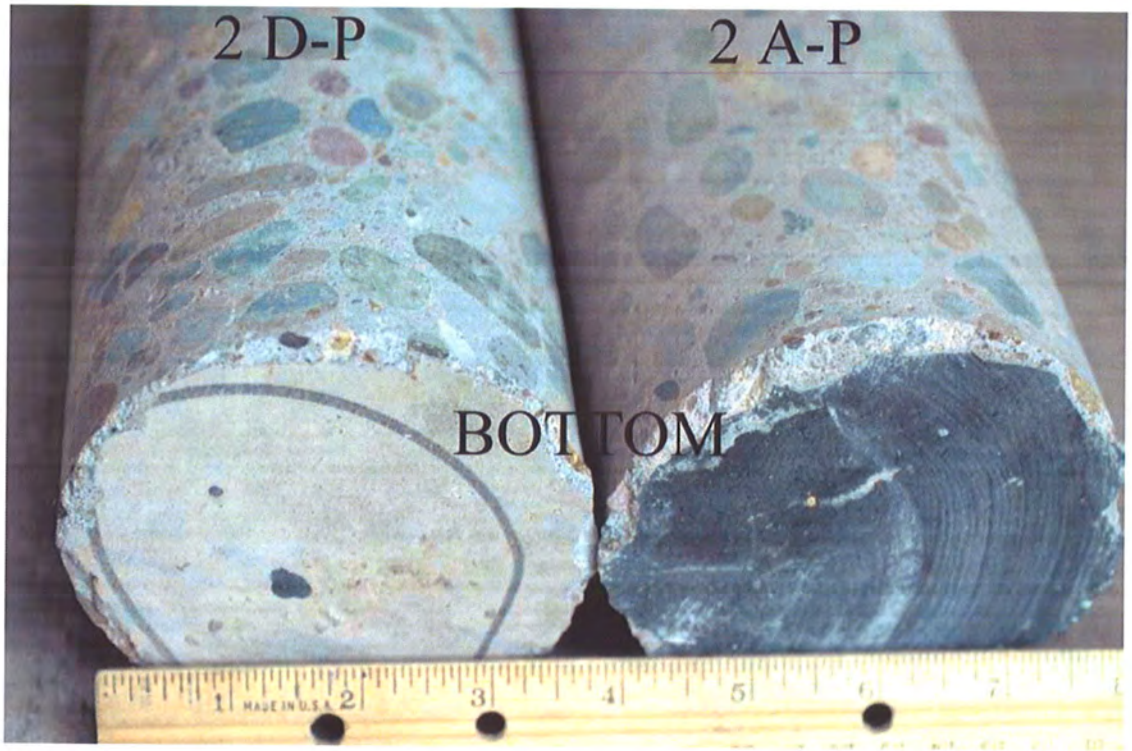


FIGURE 10 Top of 2-P Series cores as received.

FIGURE 11 Bottom of 2-P Series cores as received.

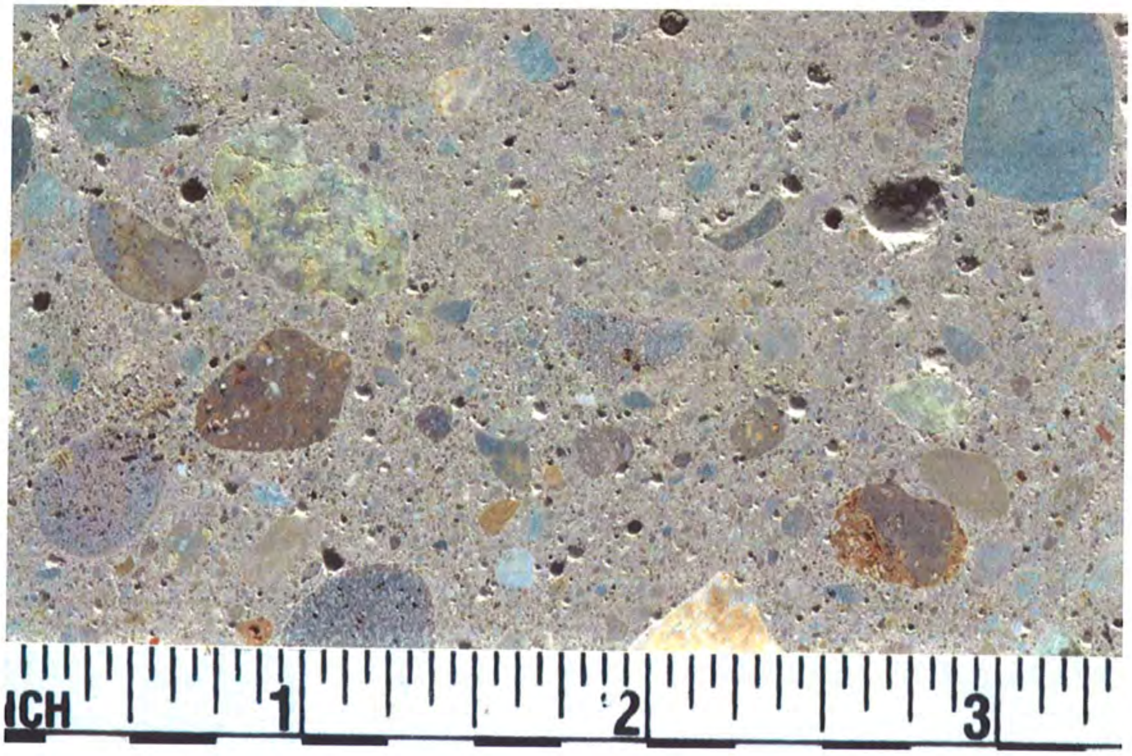
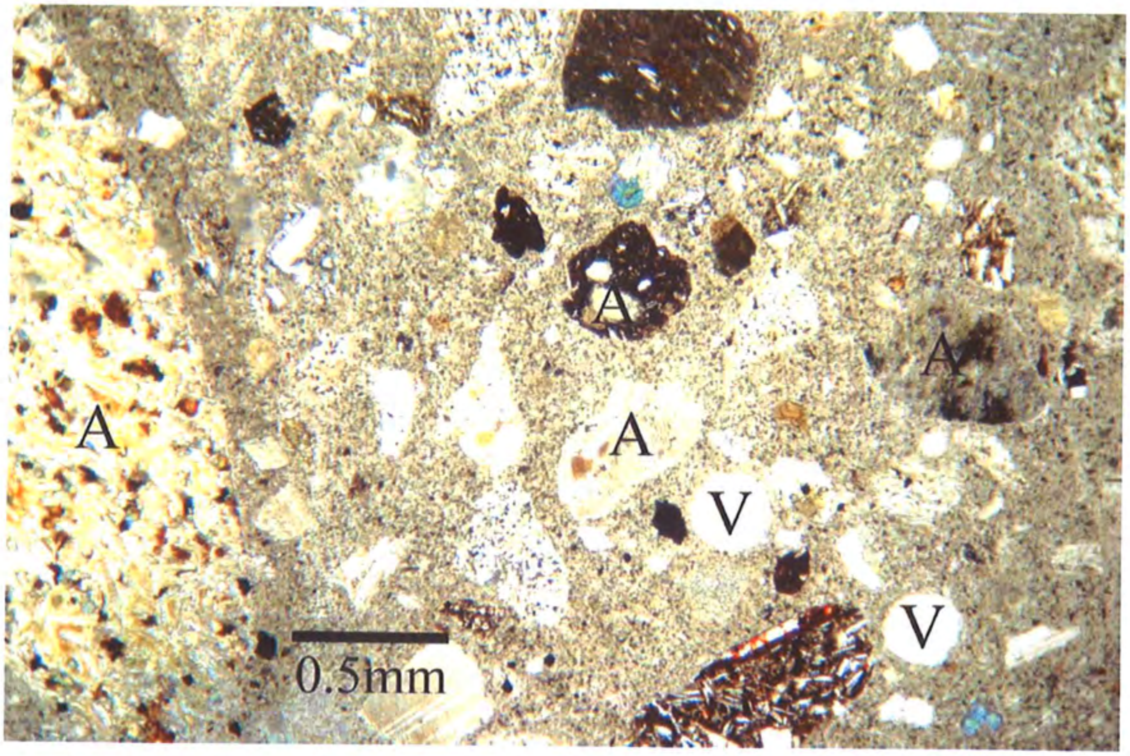


FIGURE 19 Typical appearance of a 2-P Series longitudinally sawed surface.



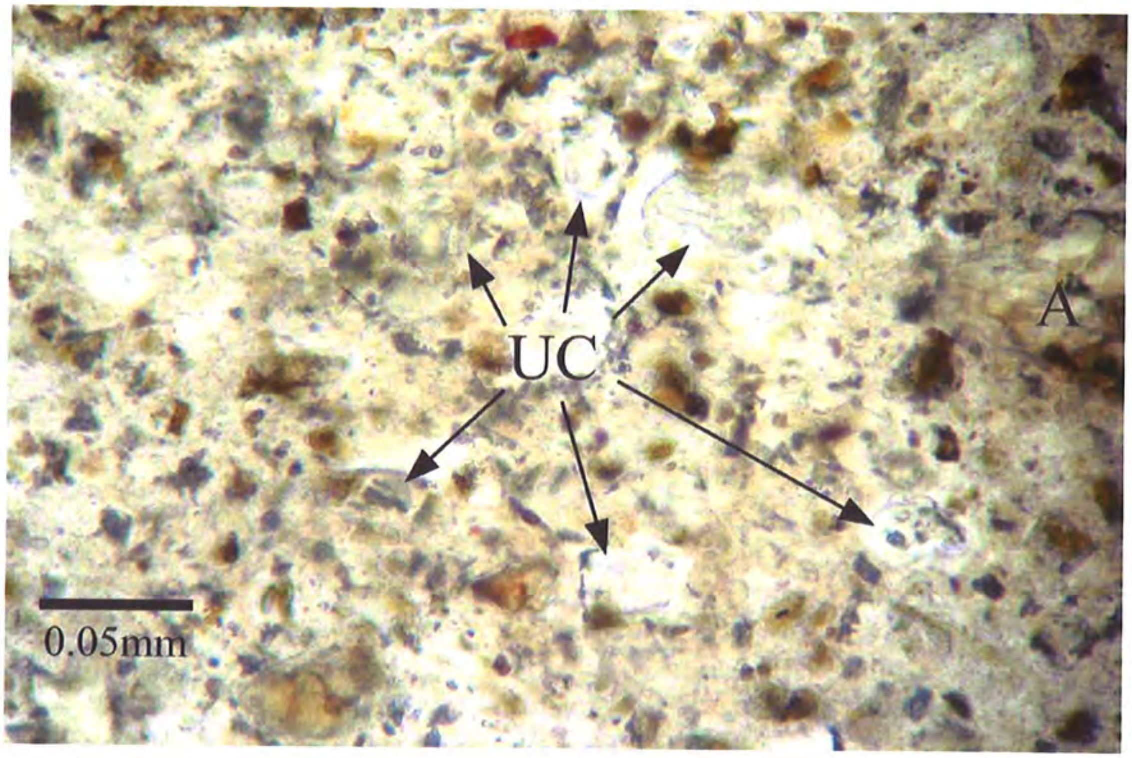
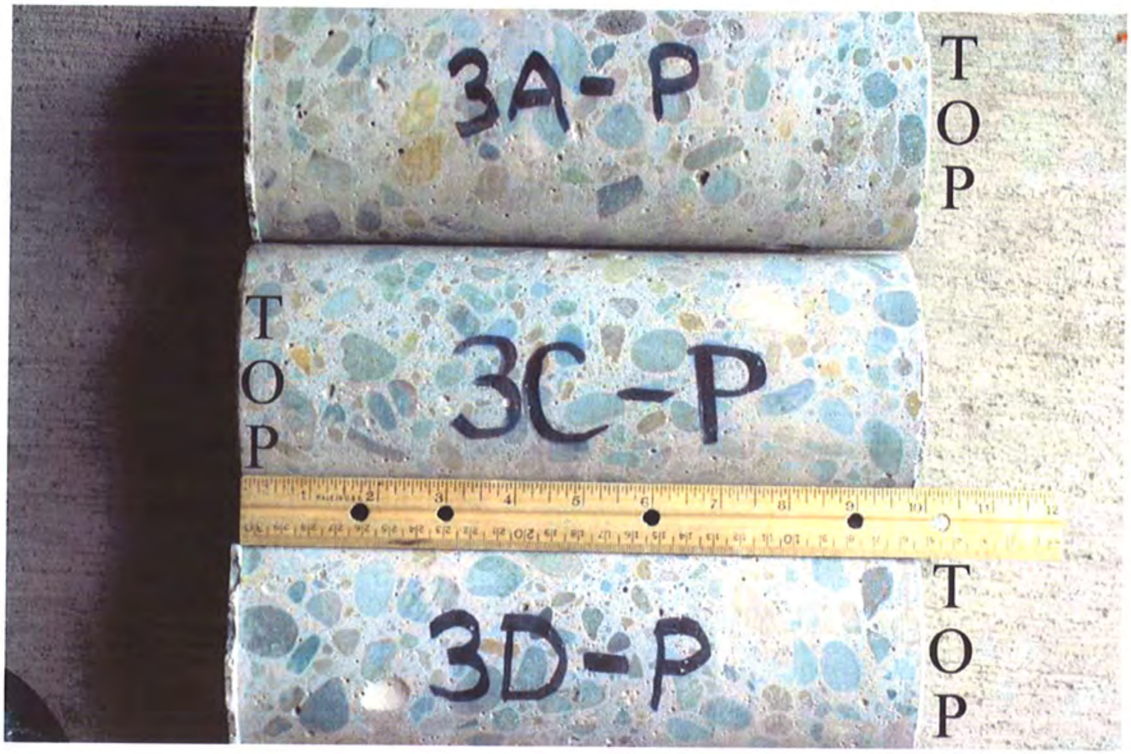


FIGURE 13 Micrograph of 2A-P core thin-section shows aggregate (A) and voids (V) (X40).

FIGURE 14 More highly magnified micrograph of 2A-P shows hardened paste with some un-hydrated cement particles (UC) (X400).



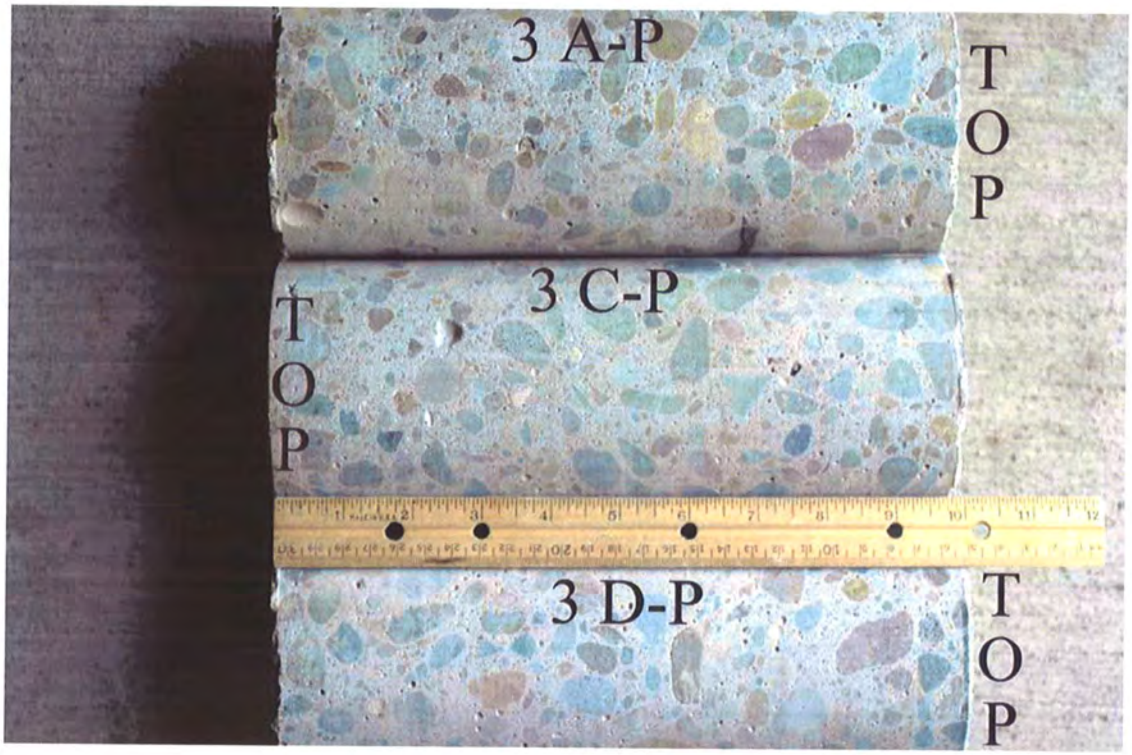
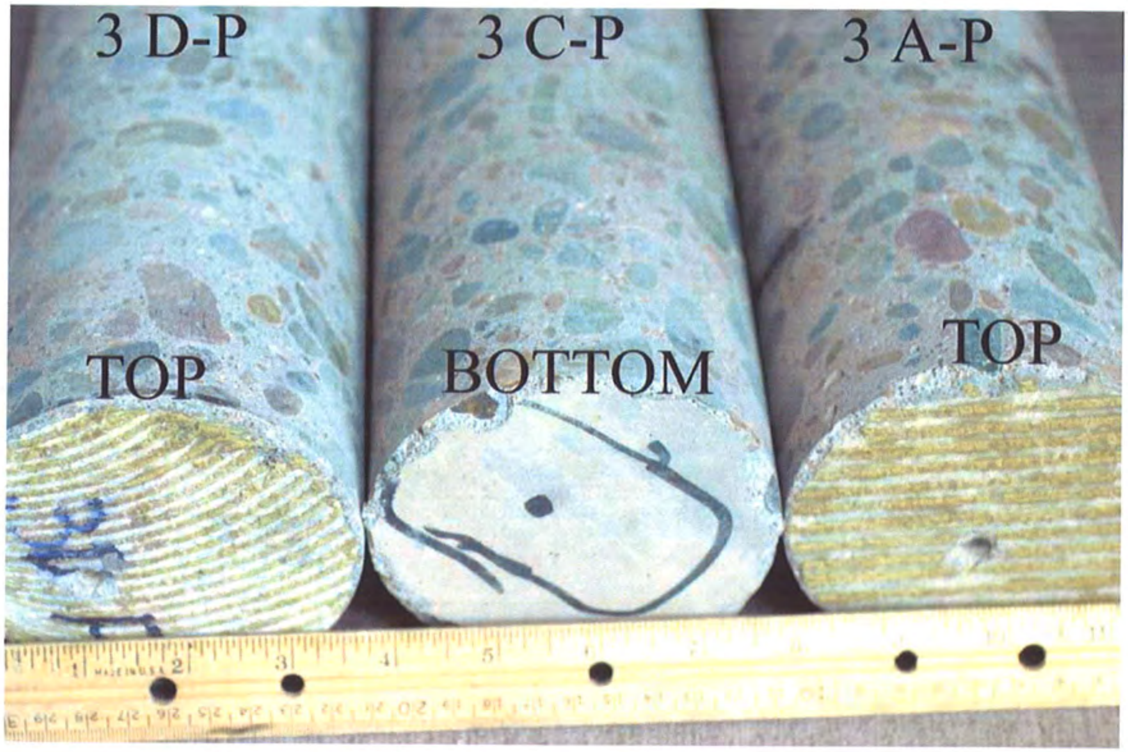


FIGURE 14 Side of 3-P Series cores as received shows aggregate size, shape and distribution and larger voids.

FIGURE 15 Opposite side of 3-P Series cores as received shows similar features.



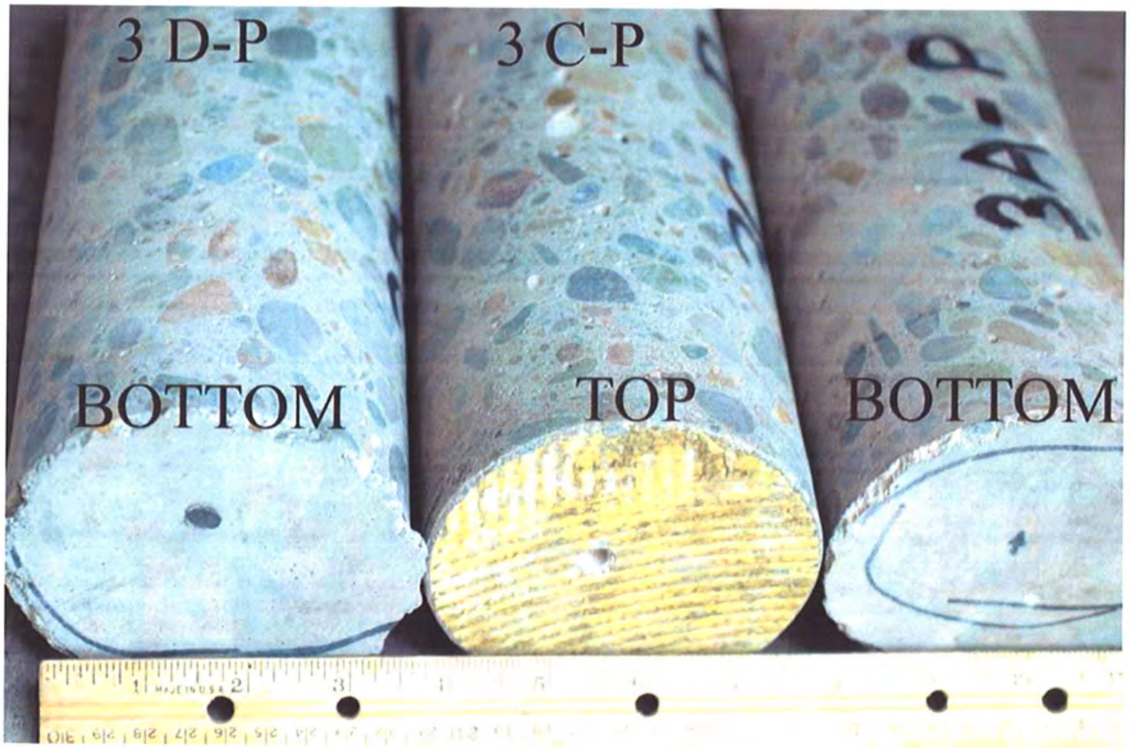


FIGURE 17 Ends of 3-P Series cores as received.

FIGURE 18 Opposite ends of 3-P Series cores as received.

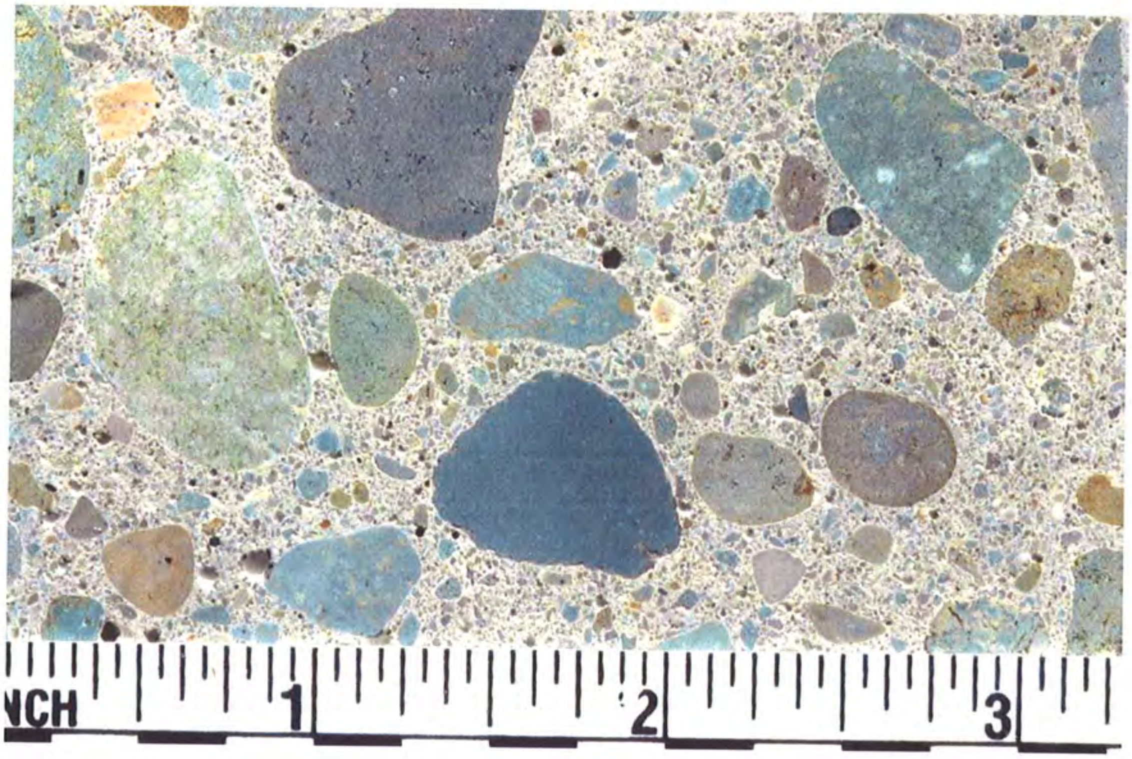
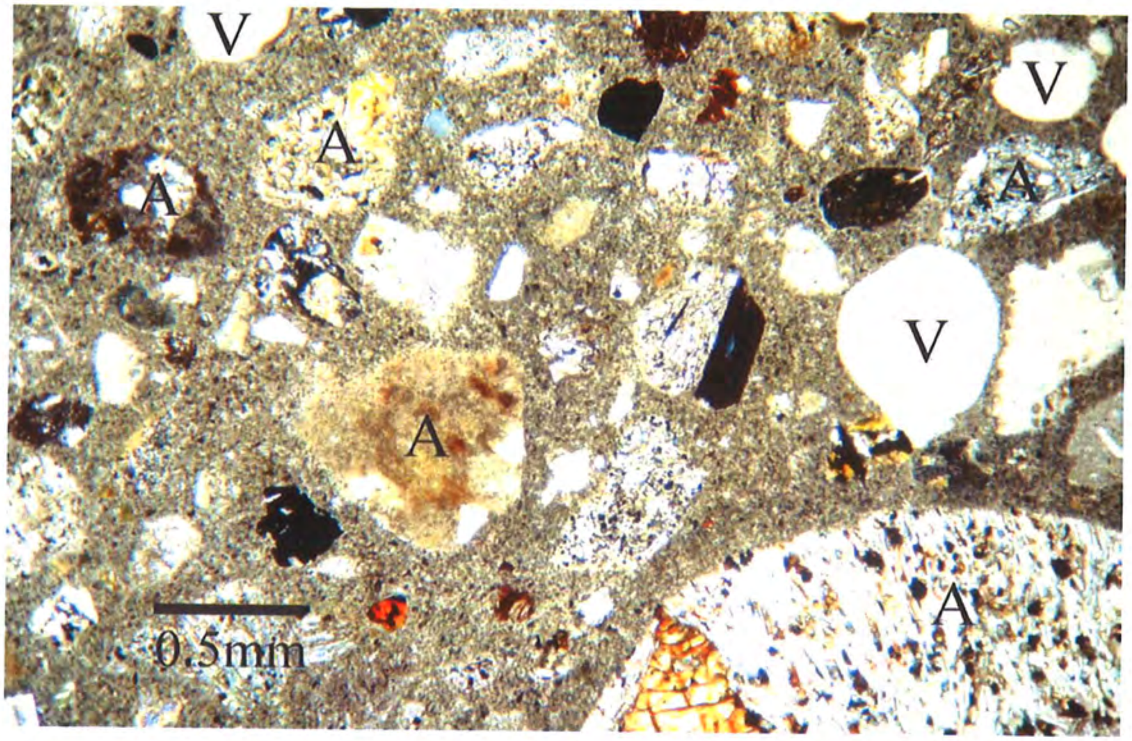


FIGURE 19 Typical appearance of a 3-P Series longitudinally sawed surface.



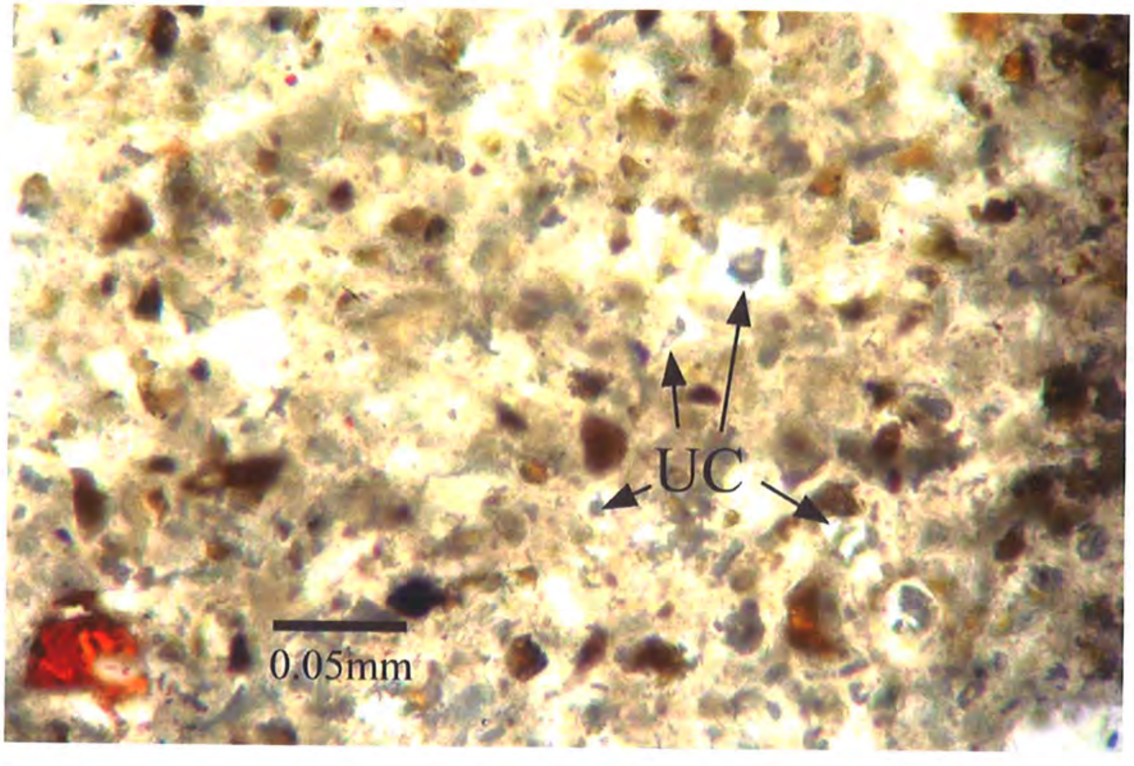
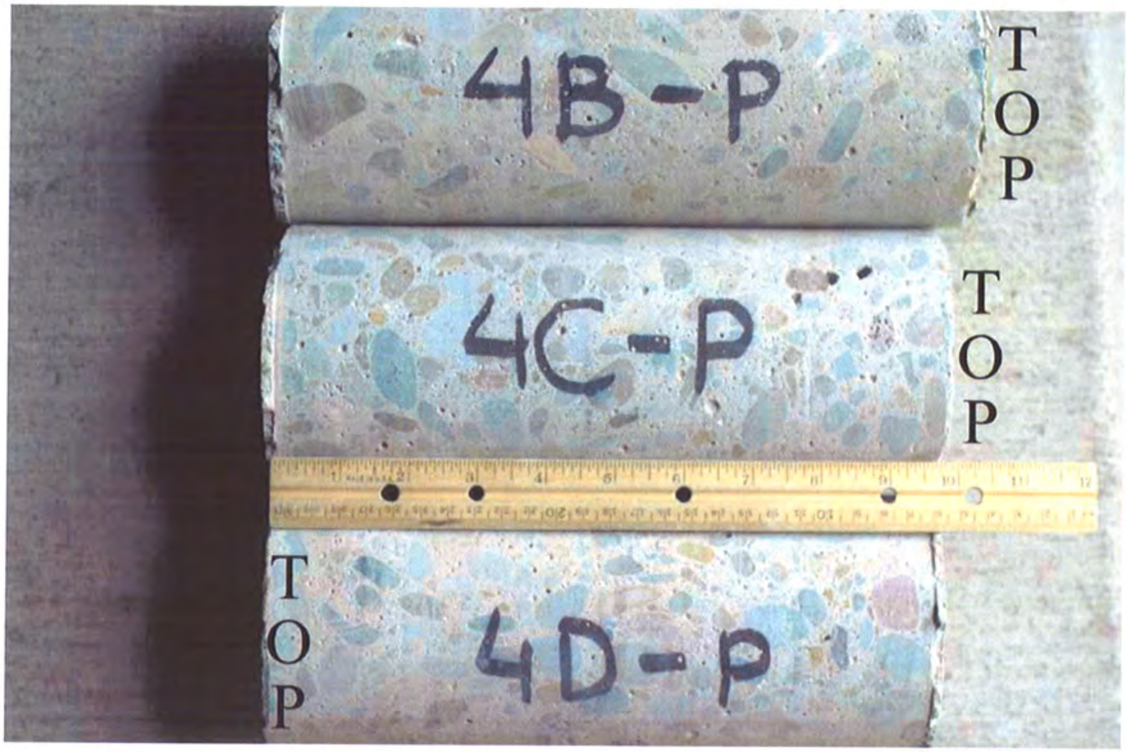


FIGURE 20 Micrograph of 3-P Series thin-section shows typical appearance of aggregate (A) and voids (V) (X40).

FIGURE 21 More highly magnified micrograph of 3-P Series shows typical appearance of hardened paste with some un-hydrated cement particles (UC) (X400).



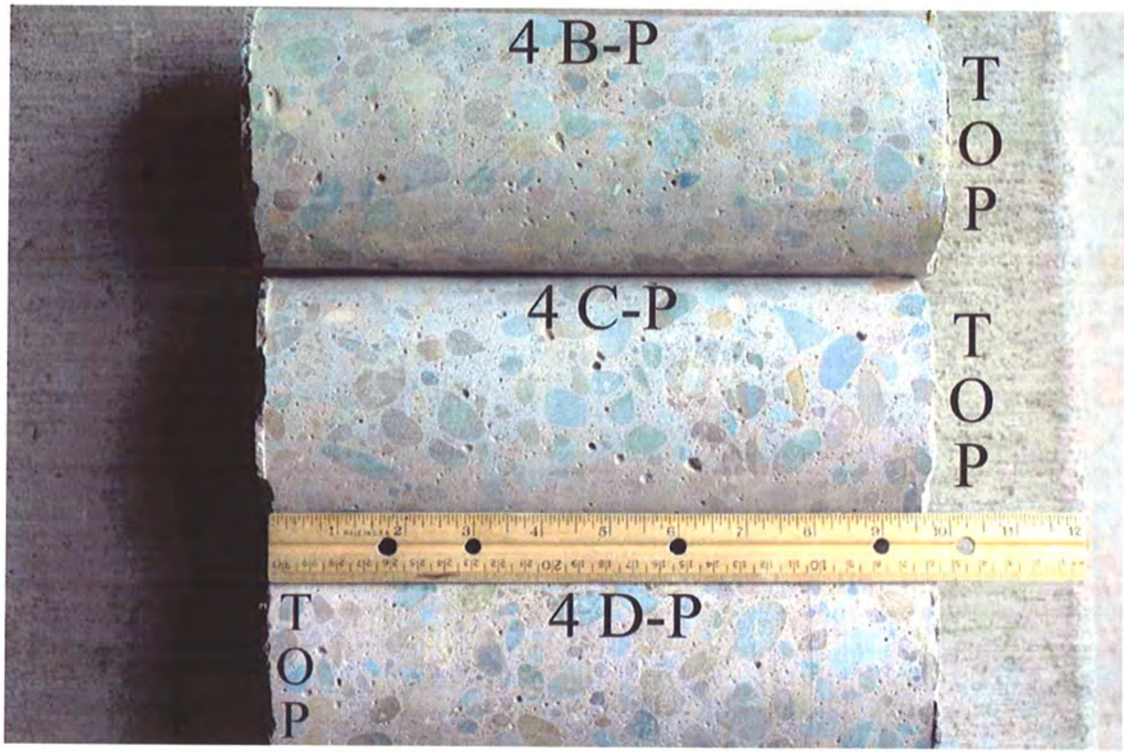
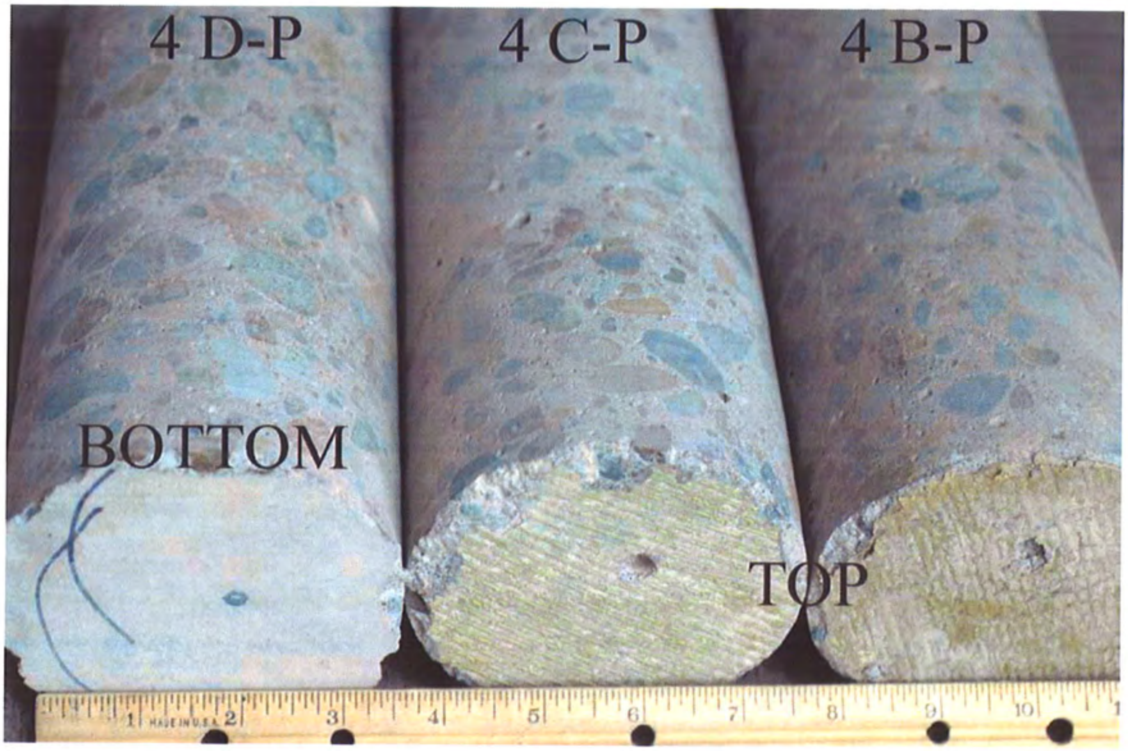


FIGURE 22 Side of 4-P Series cores as received shows aggregate size, shape and distribution and larger voids.

FIGURE 23 Opposite side of 4-P Series cores as received shows similar features.



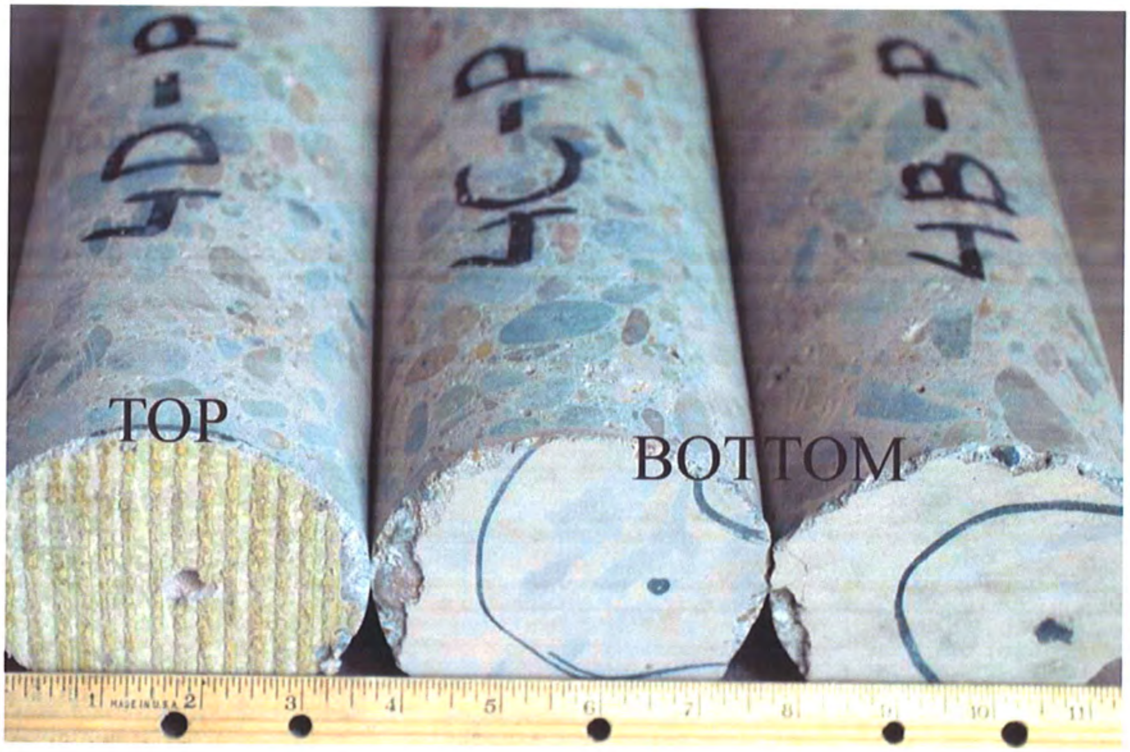


FIGURE 24 **Ends of 4-P Series cores as received.**

FIGURE 25 **Opposite ends of 4-P Series cores as received.**

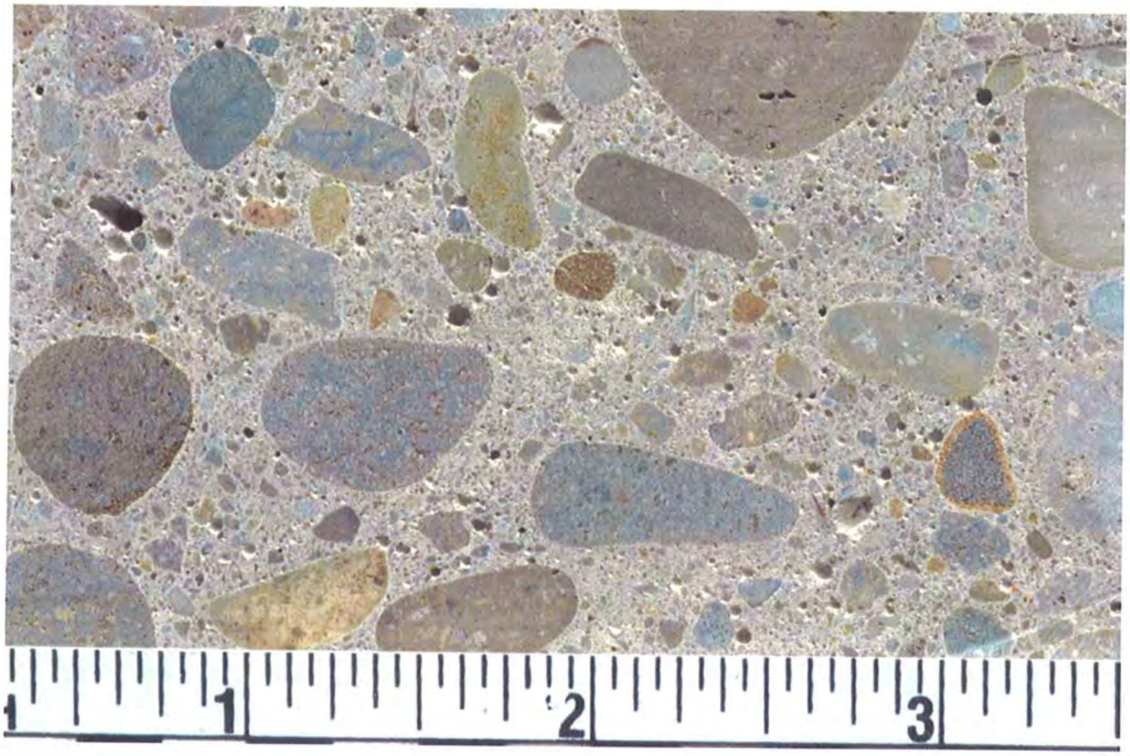
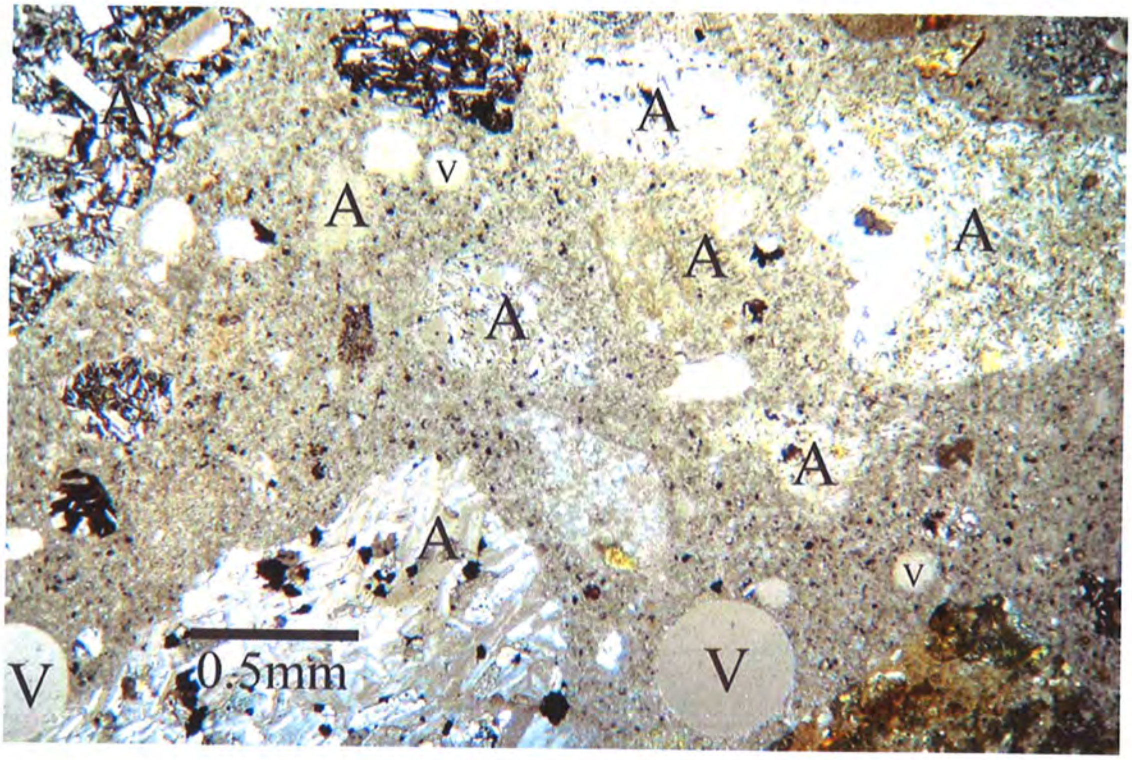


FIGURE 26 Typical appearance of a 4-P Series longitudinally sawed surface.



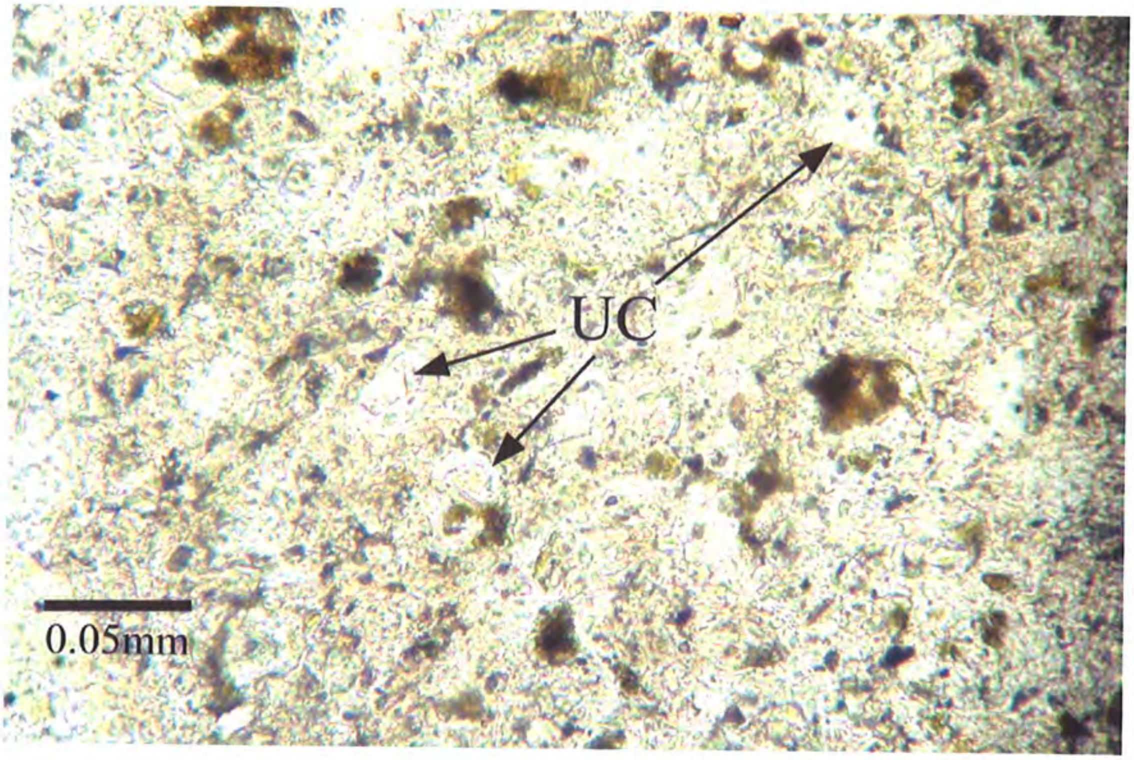


FIGURE 27 Micrograph of 4-P Series thin-section shows typical appearance of aggregate (A) and voids (V) (X40).

FIGURE 28 More highly magnified micrograph of 4-P Series shows typical appearance of hardened paste with some un-hydrated cement particles (UC) (X400).

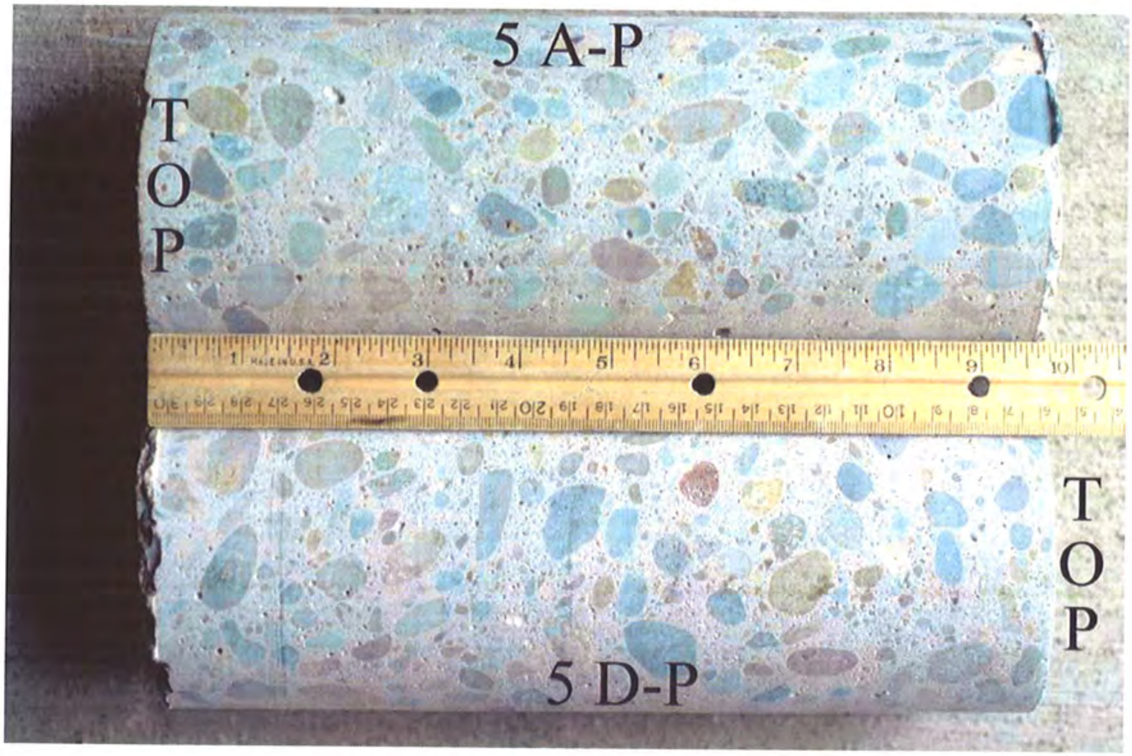
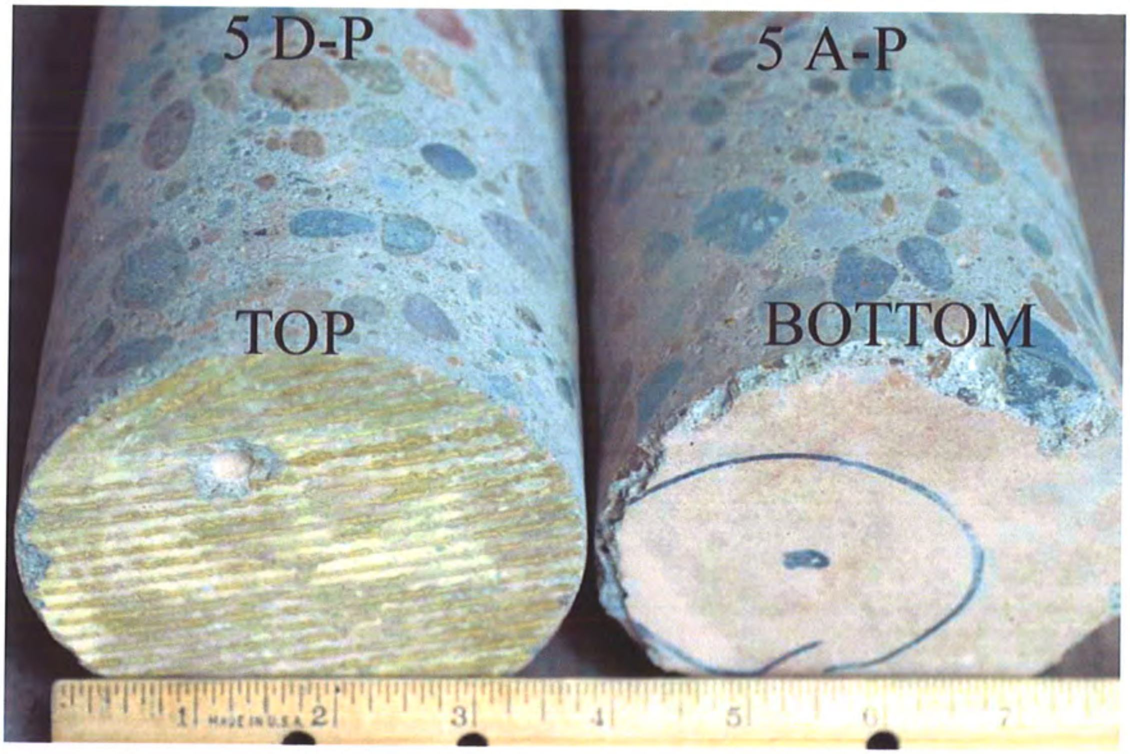


FIGURE 29 Side of 5-P Series cores as received shows aggregate size, shape and distribution and larger voids.

FIGURE 30 Opposite side of 5-P Series cores as received shows similar features.



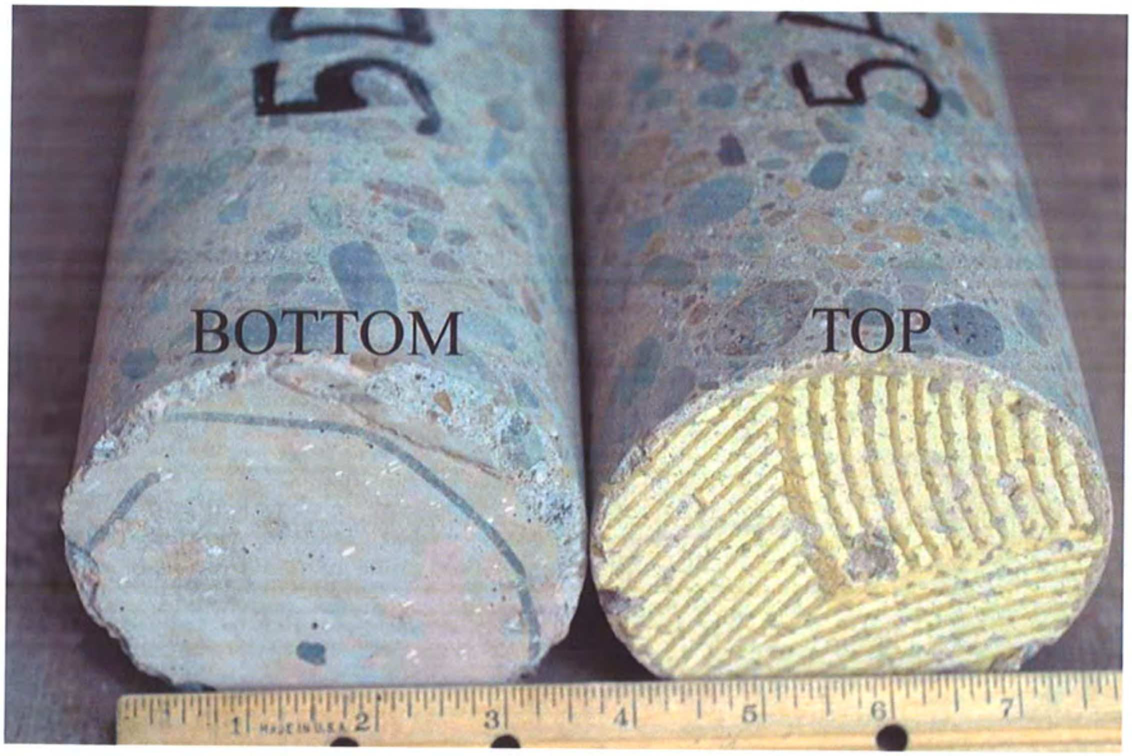


FIGURE 31 Ends of 5-P Series cores as received.

FIGURE 32 Opposite ends of 5-P Series cores as received.

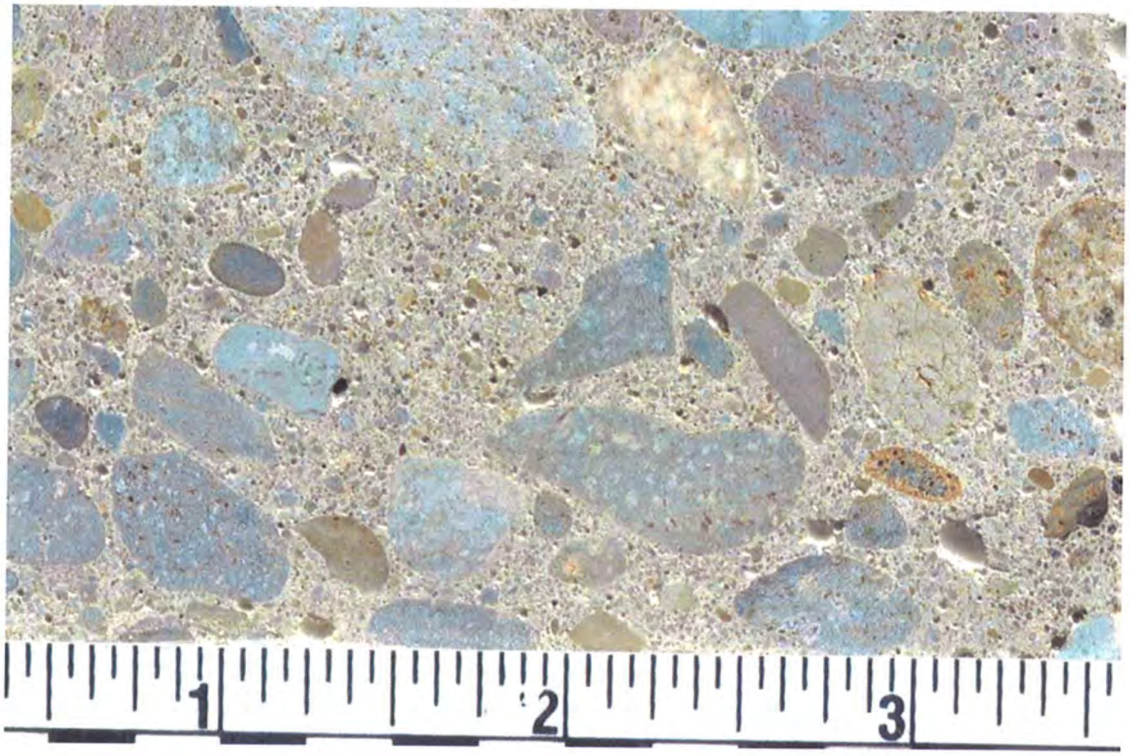
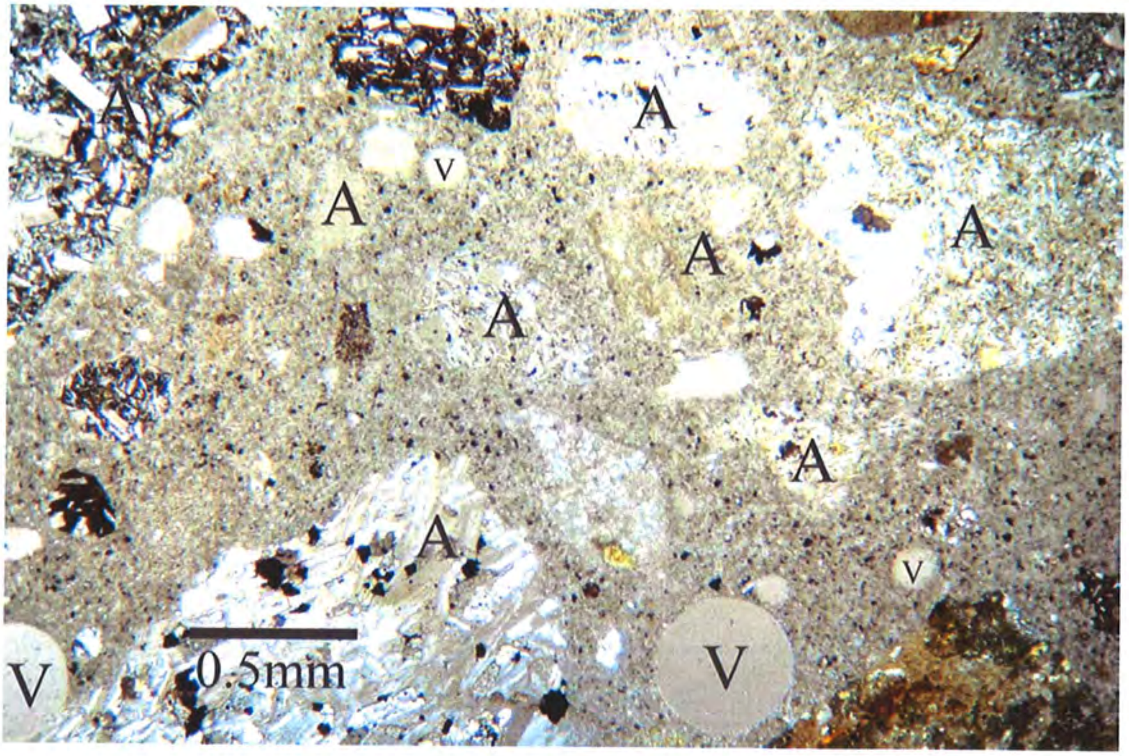


FIGURE 33 Typical appearance of a 5-P Series longitudinally sawed surface.



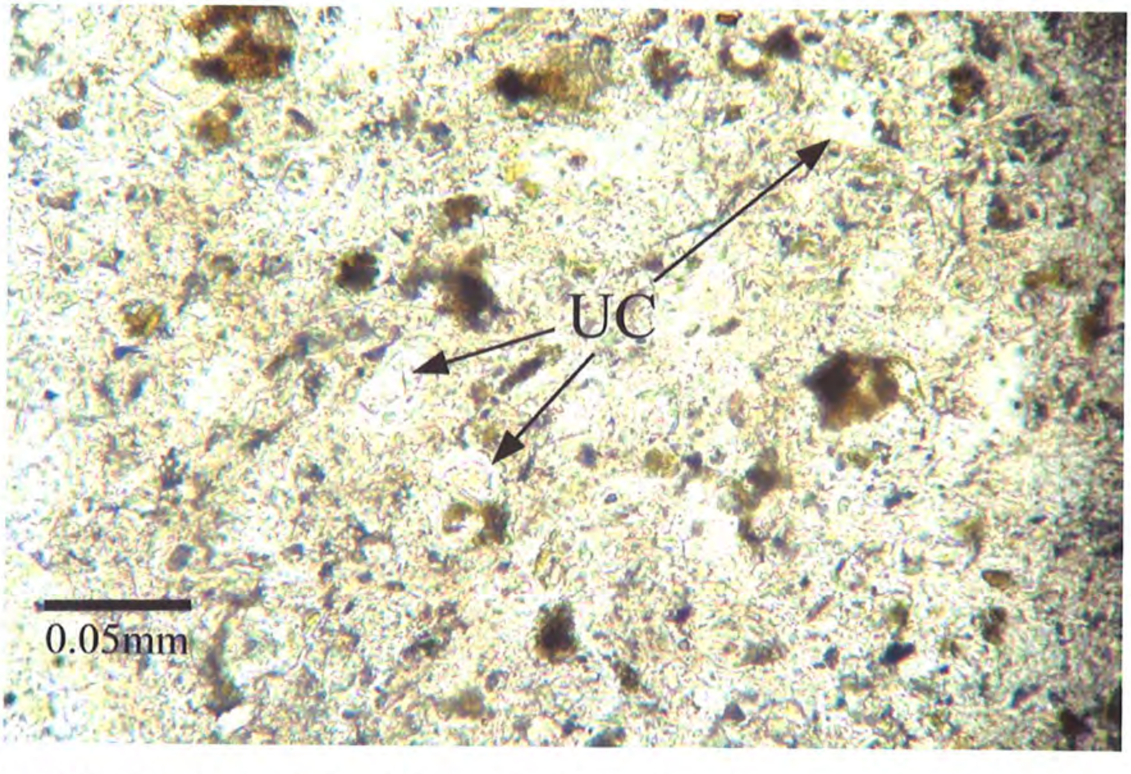


FIGURE 34 Micrograph of Core 5A-P thin-section shows aggregate (A) and voids (V) (X40).

FIGURE 35 More highly magnified micrograph of Core 5A-P shows hardened paste with some un-hydrated cement particles (UC) (X400).

PETROGRAPHIC SERVICES REPORT

MICROSCOPIC EXAMINATION OF CORED CONCRETES TRANSIT MALL PARKING GARAGE AT COURTHOUSE SQUARE STRUCTURAL REMEDIATION PROJECT
555 COURT STREET NE, SALEM, OREGON
CARLSON TESTING JOB NO. S1006062

ASTM C 856 – STANDARD PRACTICE FOR PETROGRAPHIC EXAMINATION OF HARDENED CONCRETE
(CORES A, B, C, D, F AND H)

Prepared for:

Mr. Mark R. Powlison
NDT Level III and Special Testing
Carlson Testing, Inc.
8430 SW Hunziker
Tigard, OR 97281

Prepared by:

Dominion Consulting, Inc.
2002 Linda Lane
La Grande, OR 97850

July 19, 2010
DCI Project No. 671-52A

Dominion Consulting, Inc.
Petrographic Examination of Concrete Products and Earth Materials

July 19, 2010

Mr. Mark R. Powlison
NDT Level III and Specialty Testing
Carlson Testing, Inc.
8430 S.W. Hunziker
Tigard, OR 97281

Microscopic Examination of Cored Concretes
Transit Mall Parking Garage at Courthouse Square
Structural Remediation Project
555 Court Street N.E., Salem, Oregon
CTI Job No. S1006062

Dear Mark:

We received 6 cores from you on July 2, 2010, reportedly taken from the referenced project. You requested we again perform ASTM C 856, *Standard Practice for Petrographic Examination of Hardened Concrete*, to estimate water to cement ratio, degree of hydration, cleanliness/quality of aggregate, adequacy of curing, air-void content, and presence/amount of fly ash. We provided Petrographic Report No. 671-52 on June 3, 2010, that described the concrete in 13 cores from another part of the courthouse complex.

It is our understanding that compressive strengths of cores from the Transit Mall Parking Garage were significantly higher than those from the previous structure. You originally furnished us with compressive strength test reports for 18 cores and copies of River Bend S&G Mix Design Nos. 5K-3FM and 5K-4FM for comparison purposes.

Executive Summary

Aggregates were siliceous (mostly basalt), sound, clean, and generally well distributed. All the hardened cement pastes examined were well hydrated and properly cured. All the cores contained fiber reinforcement and total voids in excess of the mix design target value. None of the concretes had severe micro-cracks, fly ash, deep carbonation, or excessively high water to cement ratios.

Sample Preparation and Examination Methods

The cores were measured and photographed upon receipt. We prepared the cores for microscopic examination in general accordance with this ASTM. Original core and polished longitudinally sawed surfaces were viewed with the unaided eye and stereomicroscope (16-80X) to note general aggregate and paste characteristics. Thin-sections ground to 25 microns (less than 0.001 inch) were made from the uppermost and mid-depth 1½ inch of each core and studied using a polarizing microscope (40-400X) to identify binder material, degree of binder hydration, microcracks, and contamination.

Tabulated Laboratory Data

Table 1 – General Features

Core	Length[1] (in.)	Prominent Cracks/Voids	Aggregate Quality/Size/Shape/Distribution	Paste Color/Hardness[2]/Alkalinity[3]
A	9.8	None	Good/C33 #67/Round/Good	Med. gray/Good/T ¼” 7-8, L 12-13
B	10.3	None	Good/C33 #67/Round/Good	Med. gray/Good/T ¼” 6-8, L 12-13
C	10.1	None	Good/C33 #67/Round/Good	Med. gray/Good/T 1/8” 6-8, L 12-13
D	10.1	None	Good/C33 #67/Round/Good	Med. gray/Good/T ¼” 7-8, L 12-13
F	10.5	None	Good/C33 #67/Round/Good	Med. gray/Good/T ¼” 6-8, L 12-13
H	10.5	None	Good/C33 #67/Round/Good	Med. gray/Good/T 1/8” 7-8, L 12-13

[1] All cores are 3.9 inch diameter.
[2] Hardness determined by scratching paste with steel dental tools.
[3] Top 1/8” pH 6-8, Lower concrete pH 12-13. Stained pastes with Rainbow Indicator™. Paste with a pH less than 9 is carbonated.

Table 2 – Microscopic Observations

Core	Cementitious Materials	Void Content[1] (%)	% Un-hydrated Cement[2]	Quality of Curing	Interpreted W/C Ratio[3]
A	Portland cement	5 to 6	5-7	Good	0.40 to 0.45
B	Portland cement	5 to 7	3-5	Good	0.40 to 0.45
C	Portland cement	4 to 5	3-5	Good	0.40 to 0.45
D	Portland cement	5 to 7	2-4	Good	0.40 to 0.45
F	Portland cement	5 to 6	5-7	Good	0.40 to 0.45
H	Portland cement	5 to 7	3-5	Good	0.40 to 0.45

[1] Estimated total voids include entrained and entrapped air voids and water voids. Mix design target value is 3%.
[2] Un-hydrated cement by volume of hardened paste estimated from thin-section analysis.
[3] Water to cement ratio interpreted from tested/observed paste properties compared to laboratory reference samples. Mix design value is 0.41.

Discussion and Conclusion

Aggregates were siliceous (mostly basalt), sound, clean, and generally well distributed. All the hardened cement pastes examined were well hydrated and properly cured. All the cores contained total voids in excess of the mix design target value of three percent. Fiber reinforcement was present in all the cores. None of the concretes had severe micro-cracks, fly ash, deep carbonation, or excessively high water to cement ratios.

Photographs and photomicrographs of the concrete samples are included in the Appendix. The above observations and comments specifically apply to the samples as received for examination and analysis. This report may be copied only in its entirety without prior written approval from this office. Remnants of the samples will be kept in our laboratory storage for three months than discarded unless notified otherwise.

Please call (541) 962-7430 or email me at dick@dominionconsulting.biz if you have any questions concerning this report. We appreciate the opportunity to continue providing your petrographic needs.

Regards,

Dick M. Glasheen

Digitally signed by Dick M. Glasheen
DN: cn=Dick M. Glasheen, o=Dominion Consulting, ou, email=dick@dominionconsulting.biz, c=US
Date: 2010.07.19 15:35:38 -07'00'

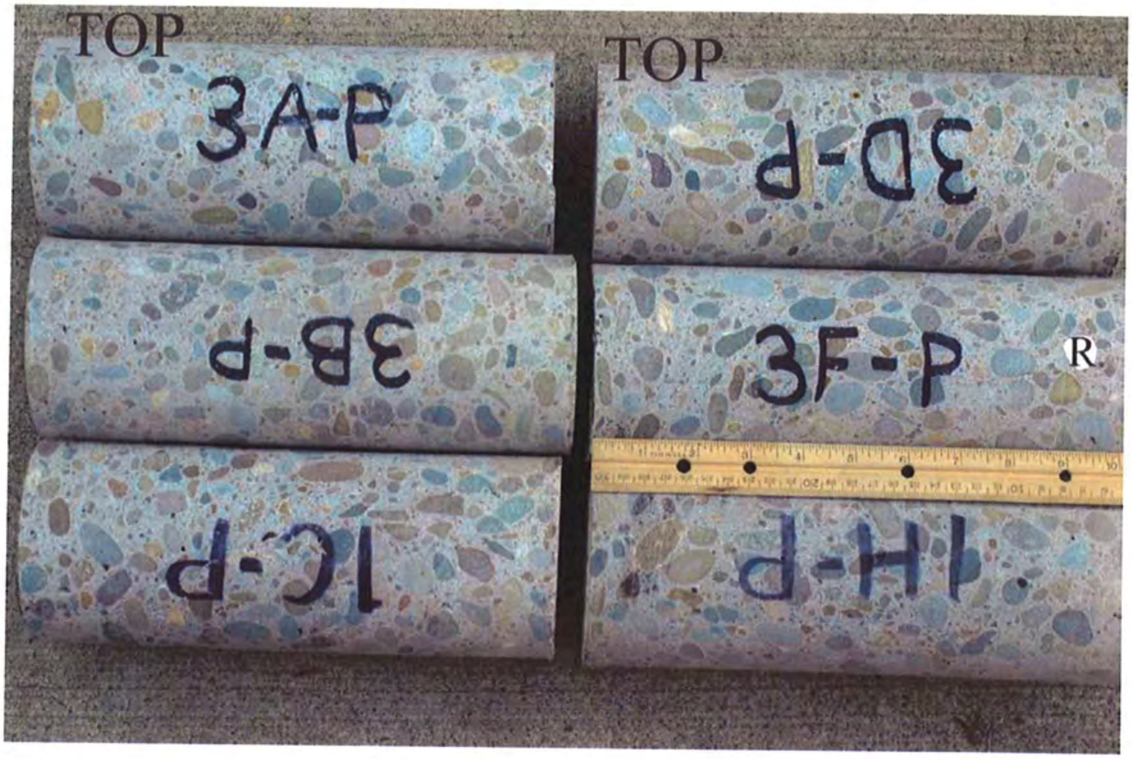
Dick M. Glasheen, R.G.
President/Principal Petrographer

DCI Report No. 671-52A

APPENDIX

Includes

Laboratory Photographs



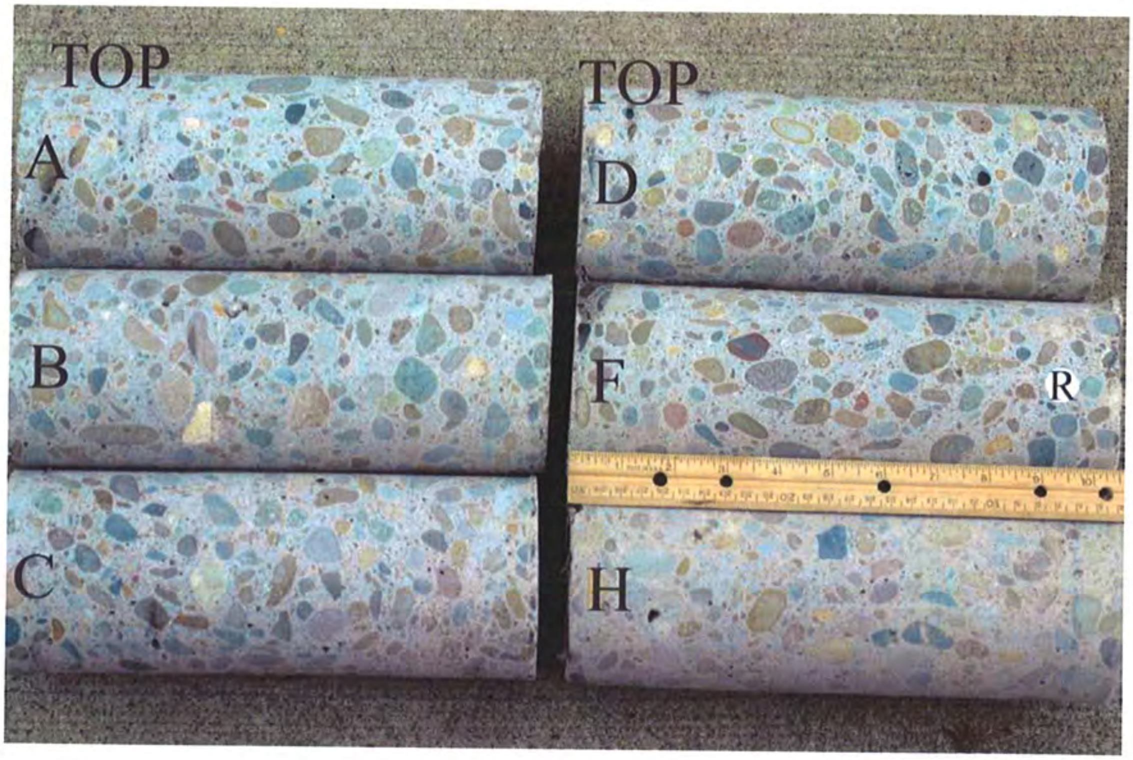


FIGURE 1 Side of cores as received for examination and analysis show aggregate size, shape, and distribution. Intercepted rebar (R) is evident in Core F.

FIGURE 2 Opposite side of cores as received show similar features.

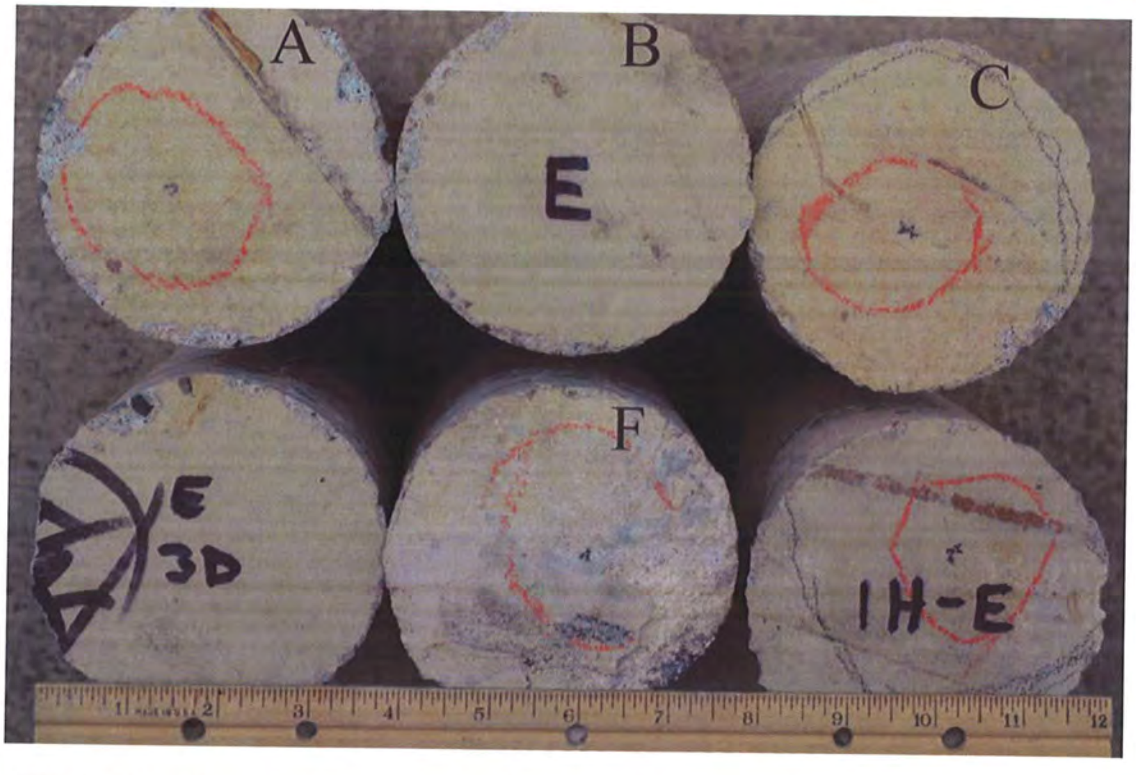
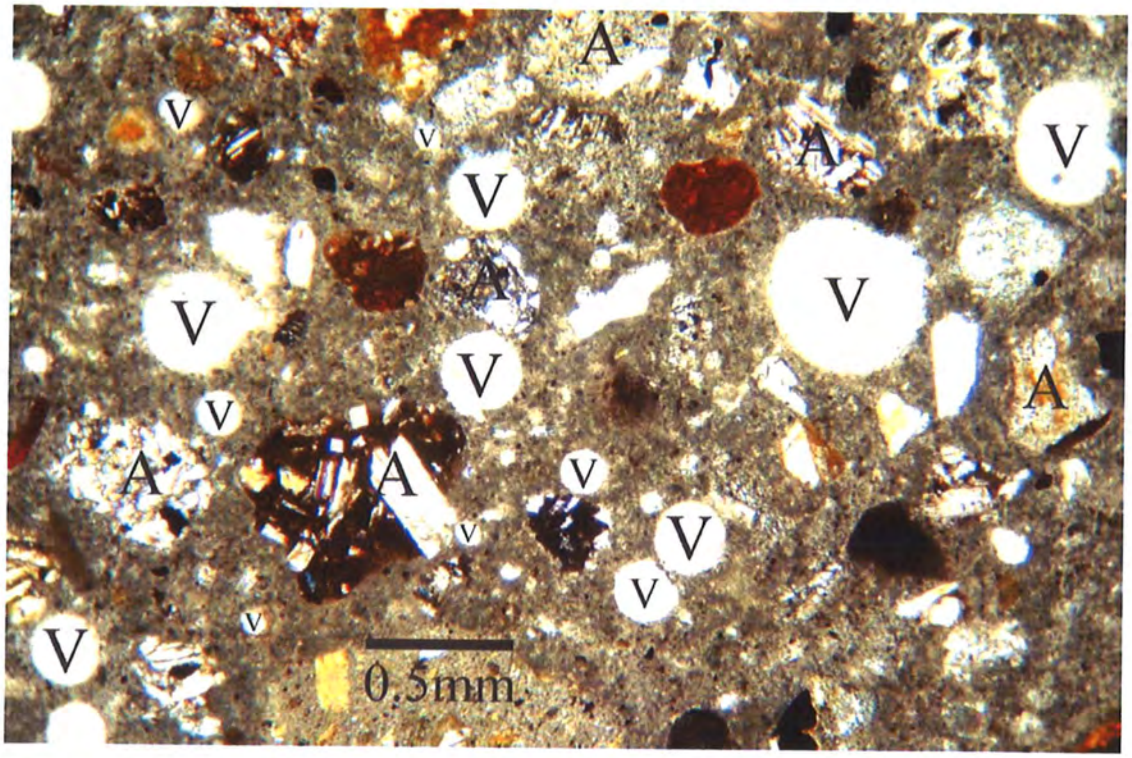


FIGURE 3 Top of cores as received for examination and analysis.

FIGURE 4 Bottoms of cores as received.

FIGURE 5 Sawed longitudinal surface shows typical appearance of aggregates and air-void system.

FIGURE 6 Another sawed longitudinal surface shows similar features.



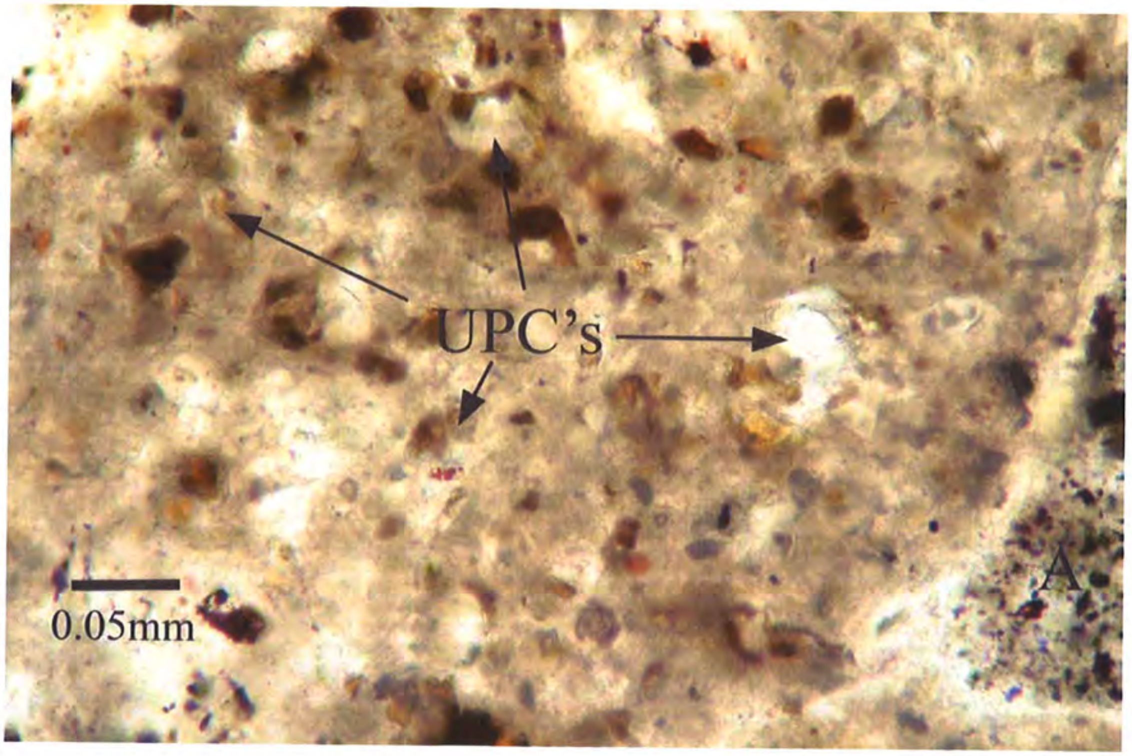


FIGURE 7 Micrograph of thin-section shows typical appearance of aggregate (A) and air-void system (V) through a polarizing microscope (X40).

FIGURE 8 More highly magnified micrograph shows typical appearance of unhydrated portland cement particles (UPC's) in hardened cement paste (X400).

PETROGRAPHIC SERVICES REPORT

MICROSCOPIC EXAMINATION OF CORED CONCRETES SHEARWALLS AND A COLUMN IN COURTHOUSE BUILDING
COURTHOUSE SQUARE STRUCTURAL REMEDIATION
555 COURT STREET NE, SALEM, OREGON
CARLSON TESTING JOB NO. S1006062

ASTM C 856 – STANDARD PRACTICE FOR PETROGRAPHIC EXAMINATION OF HARDENED CONCRETE
(PIECES OF CORES 2SWA, 2SWB AND 5CCA)

Prepared for:

Mr. Mark R. Powlison
NDT Level III and Special Testing
Carlson Testing, Inc.
8430 SW Hunziker
Tigard, OR 97281

Prepared by:

Dominion Consulting, Inc.
2002 Linda Lane
La Grande, OR 97850

September 15, 2010
DCI Project No. 671-52B

Dominion Consulting, Inc.
Petrographic Examination of Concrete Products and Earth Materials

September 15, 2010

Mr. Mark R. Powlison
NDT Level III and Specialty Testing
Carlson Testing, Inc.
8430 S.W. Hunziker
Tigard, OR 97281

Microscopic Examination of Cored Concretes
Courthouse Level 2 Shearwalls and Level 5 Column
Courthouse Square Structural Remediation Project
555 Court Street N.E., Salem, Oregon
CTI Job No. S1006062

Dear Mark:

We received three pieces of cores from you on September 1, 2010, reportedly taken from the referenced project. In addition, we also received River Bend Sand and Gravel Mix Design #5K-8 (5000 psi with 3/8 aggregate), diagrams of cored locations and a core compressive strength report. The compressive strength report listed strengths for all three samples received for petrographic examination (refer to Table 3).

You requested we perform ASTM C 856, *Standard Practice for Petrographic Examination of Hardened Concrete*, to estimate water to cement ratio, degree of hydration, cleanliness/quality of aggregate, adequacy of curing, air-void content, and presence/amount of fly ash. We provided Petrographic Report Nos. 671-52 (June 3, 2010) and 671-52A (July 19, 2010), that described the concretes from floors within the courthouse and transit mall parking garage.

Executive Summary

Aggregates consisted of well distributed, sound and clean particles typical of that mined in the Salem area. Hardened cement pastes were relatively well hydrated and properly cured. All cored concretes contained total voids ranging from 3 to 4½ percent. None of the concretes had severe micro-cracks, contained fly ash, showed deep carbonation, or had excessively high water to cement ratios.

Sample Preparation and Examination Methods

The pieces of cores were measured and photographed upon receipt. Shear wall Cores 2SWA and 2SWB had sawed tops and broken-off bottoms. Column Core 5CCA had a formed top and sawed bottom. We prepared the cores for microscopic examination in general accordance with this ASTM. Original samples and polished longitudinally sawed surfaces were viewed with the unaided eye and stereomicroscope (16-80X) to note general aggregate and paste characteristics. A thin-section ground to 25 microns (less than 0.001 inch) was made from the mid-interior 1½ inch of each core and studied using a polarizing microscope (40-400X) to identify binder material, degree of binder hydration, microcracks, and contamination.

Tabulated Laboratory Data

Table 1 – General Features

Core	Length[1] (in.)	Prominent Cracks/Voids[2]	Coarse Aggregate Quality/Size/Shape/Distribution	Paste Color/Hardness[3]/Alkalinity[4]
2SWA	5.0	None	Good/C33 #8 or #89/Round/Well	Med. gray/Good/12-13 overall
2SWB	3.3	None	Good/C33 #8 or #89/Round/Well	Med. gray/Good/12-13 overall
5CCA	3.8	None	Good/C33 #8 or #89/Round/Well	Med. gray/Good/O 1/16” 6-8, I 12-13

[1] All cores are 3.9 inch diameter.
[2] Cracks and voids visible to the unaided eye.
[3] Hardness determined by scratching paste with steel dental tools.
[4] Outer 1/16” pH 6-8, Interior concrete pH 12-13. Stained pastes with Rainbow Indicator™. Paste with a pH less than 9 is carbonated.

Table 2 – Microscopic Observations

Core	Cementitious Materials	Void Content[1] (%)	% Un-hydrated Cement[2]	Quality of Curing	Interpreted W/C Ratio[3]
2SWA	Portland cement	3 to 4	3-5	Good	0.40 to 0.45
2SWB	Portland cement	3 to 4	3-5	Good	0.40 to 0.45
5CCA	Portland cement	3½ to 4½	5-7	Good	0.40 to 0.45

[1] Estimated total voids include entrained and entrapped air voids and water voids. Mix design target value not stated.
[2] Un-hydrated cement by volume of hardened paste estimated from thin-section analysis.
[3] Water to cement ratio interpreted from tested/observed paste properties compared to laboratory reference samples. Mix design value is 0.41.

Table 3 - Compressive Strength (by Carlson Testing)

Core	Compressive Strength[1]
2SWA	5720 psi
2SWB	5840 psi
5CCA	4870 psi

[1] Design strength of 5000 psi.

Discussion and Conclusion

Concretes examined were in good overall condition. Coarse aggregate was mostly well distributed, sound, clean basalt particles. Sand consisted of similar rock particles and individual grains of quartz, feldspar and mafic minerals. This assemblage of sand and gravel is typical of that mined in the Salem area. All the hardened cement pastes examined were relatively well hydrated and properly cured.

All cored concretes contained total voids ranging from 3 to 4½ percent. No target air-void content is listed; however, the mix design does indicate that no air-entraining agent (AEA) is needed. None of the concretes had severe micro-cracks (cracks less than 0.002-inch wide), contained fly ash, showed deep carbonation, or had excessively high water to cement ratios.

Photographs and photomicrographs of the concrete samples are included in the Appendix. The above observations and comments specifically apply to the samples as received for examination and analysis. This report may be copied only in its entirety without prior written approval from this office. Remnants of the samples will be kept in our laboratory storage for three months than discarded unless notified otherwise.

Please call (541) 962-7430 or email me at dick@dominionconsulting.biz if you have any questions concerning this report. We appreciate the opportunity to continue providing your petrographic needs.

Regards,

Dick M. Glasheen

Digitally signed by Dick M. Glasheen
DN: cn=Dick M. Glasheen, o=Dominion Consulting, ou, email=dick@dominionconsulting.biz, c=US
Date: 2010.09.15 11:24:49 -07'00'

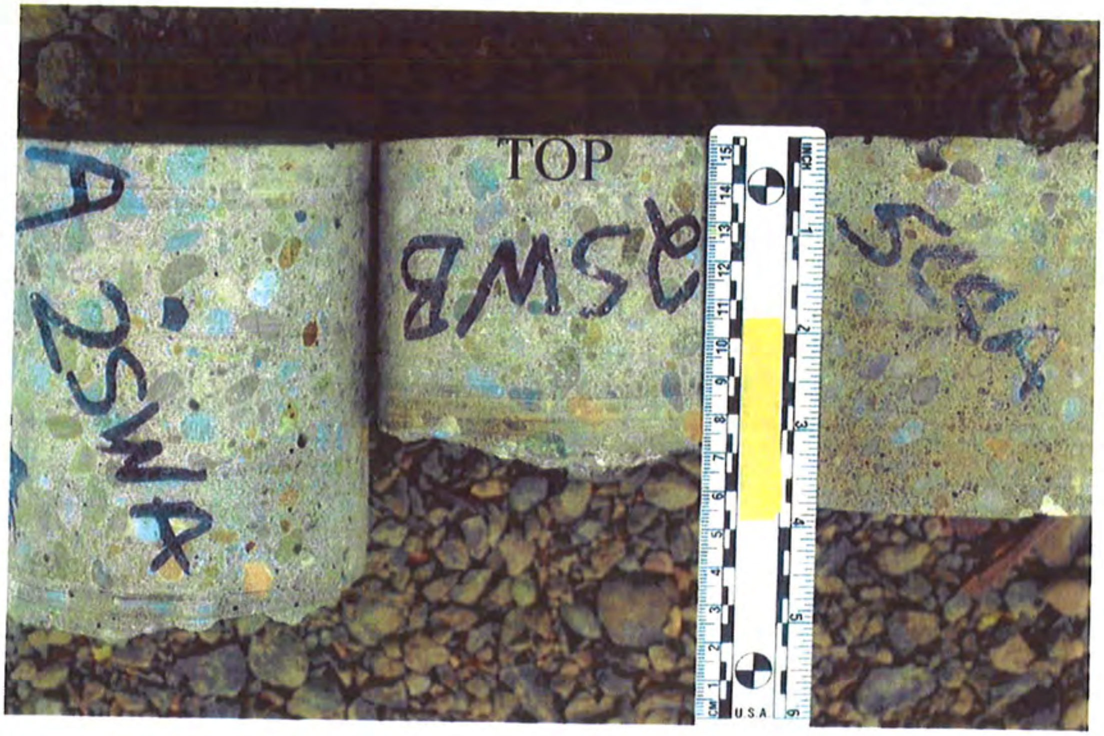
Dick M. Glasheen, R.G.
President/Principal Petrographer

DCI Report No. 671-52B

APPENDIX

Includes

Laboratory Photographs



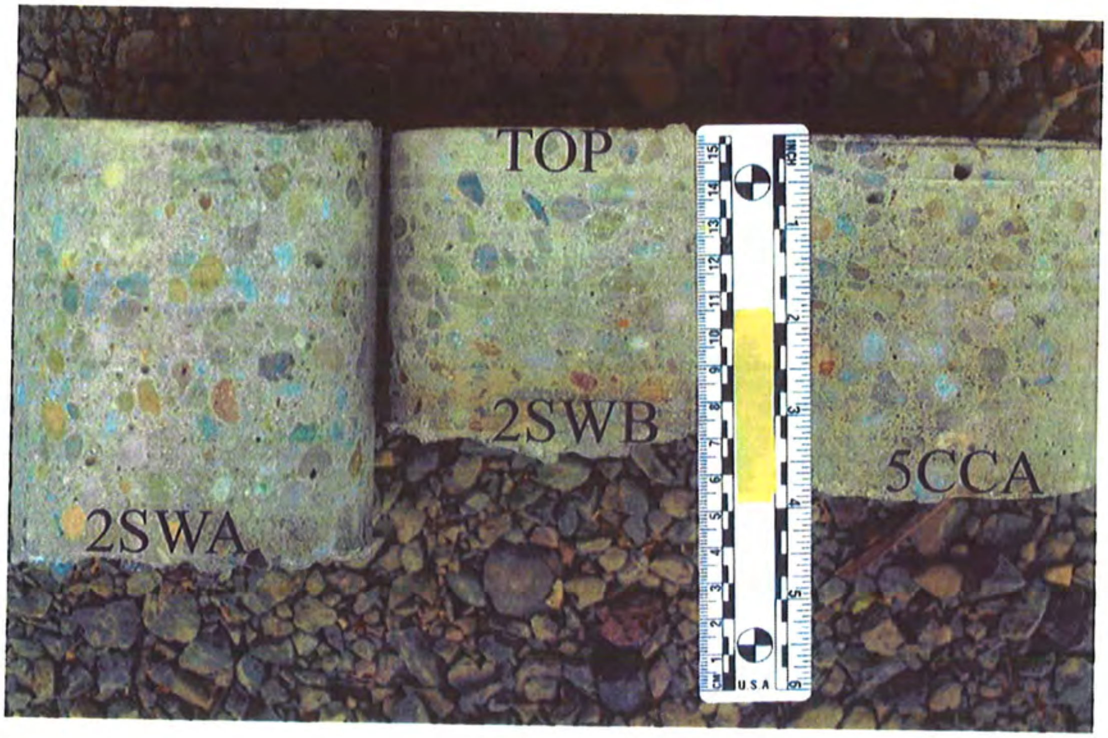


FIGURE 1 Side of cores as received for examination and analysis.

FIGURE 2 Opposite side of cores as received for examination and analysis.

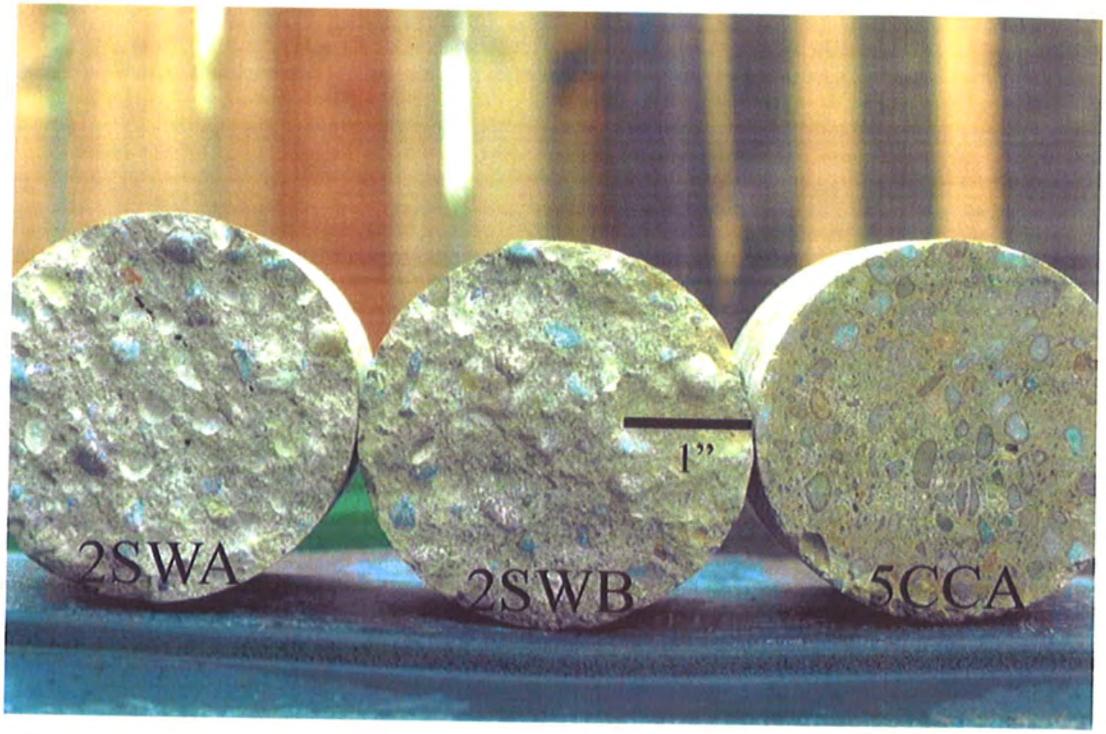
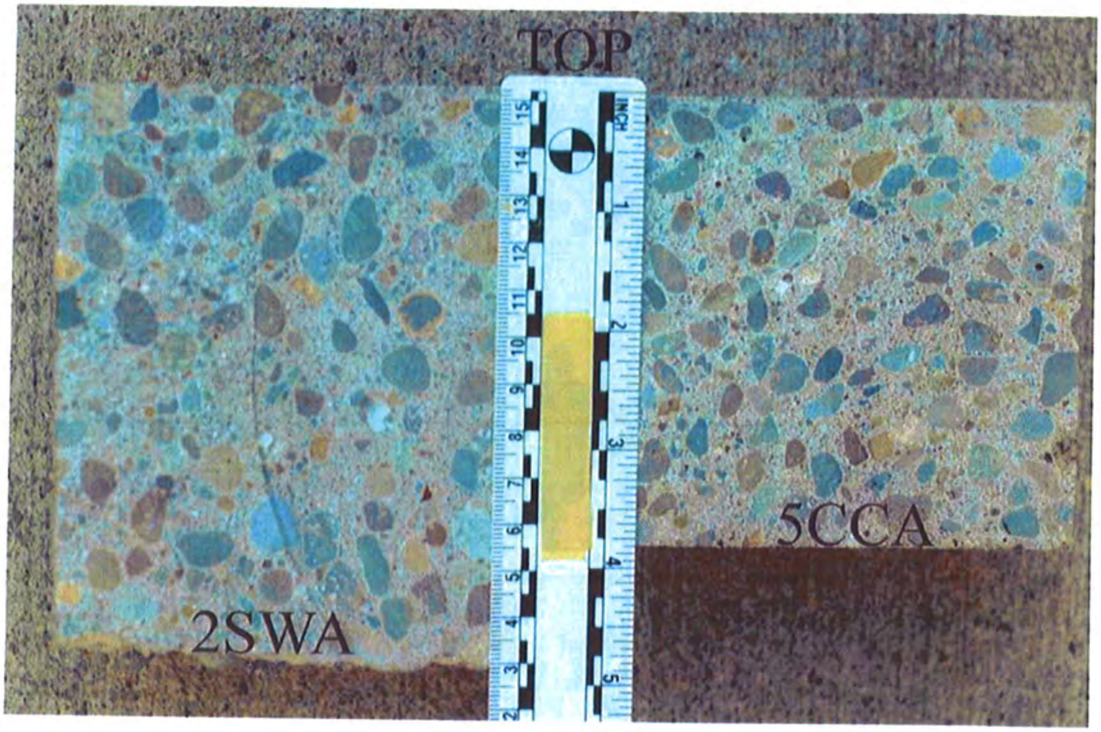


FIGURE 3 Top of cores as received for examination and analysis.

FIGURE 4 Bottom of cores as received for examination and analysis.



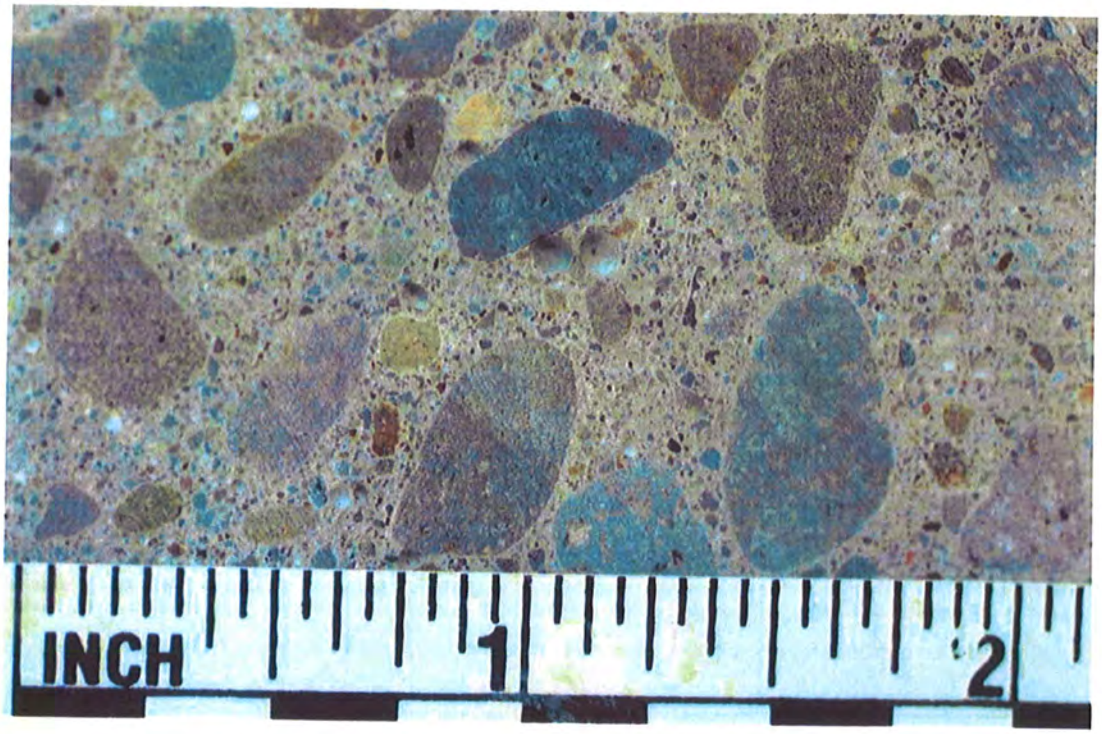


FIGURE 5 Sawed longitudinal surfaces show aggregate size, shape and distribution in addition to the larger voids.

FIGURE 6 Closer view of Core 2SWA sawed surface shows similar features.

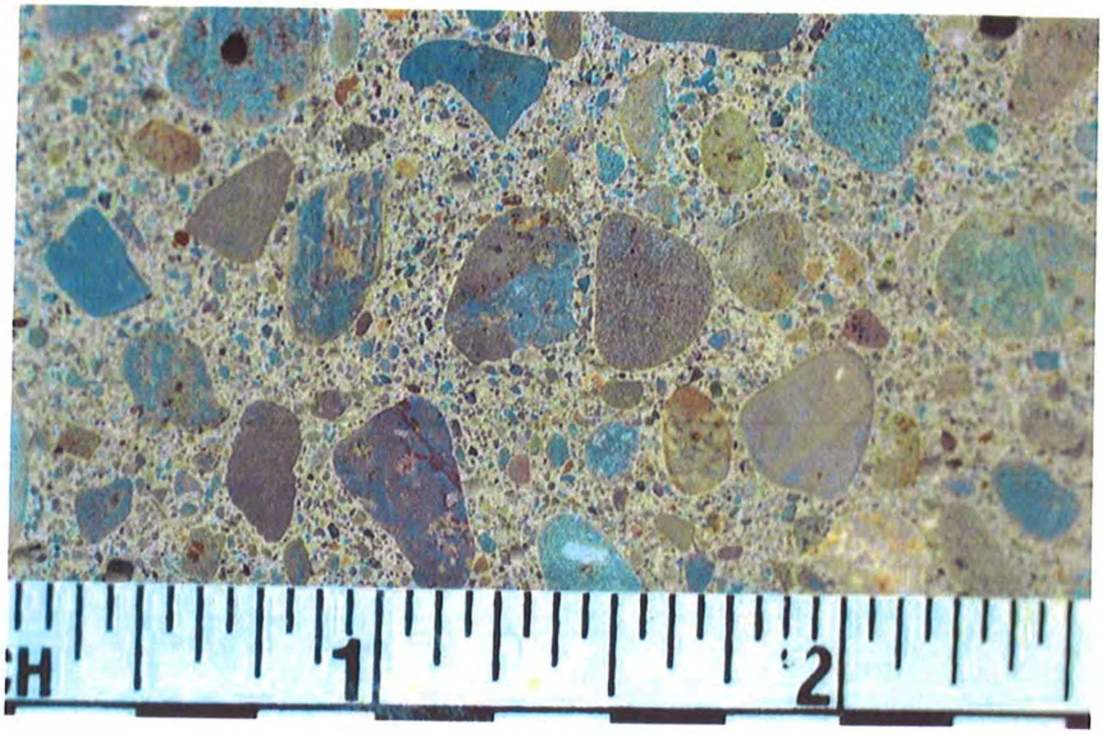
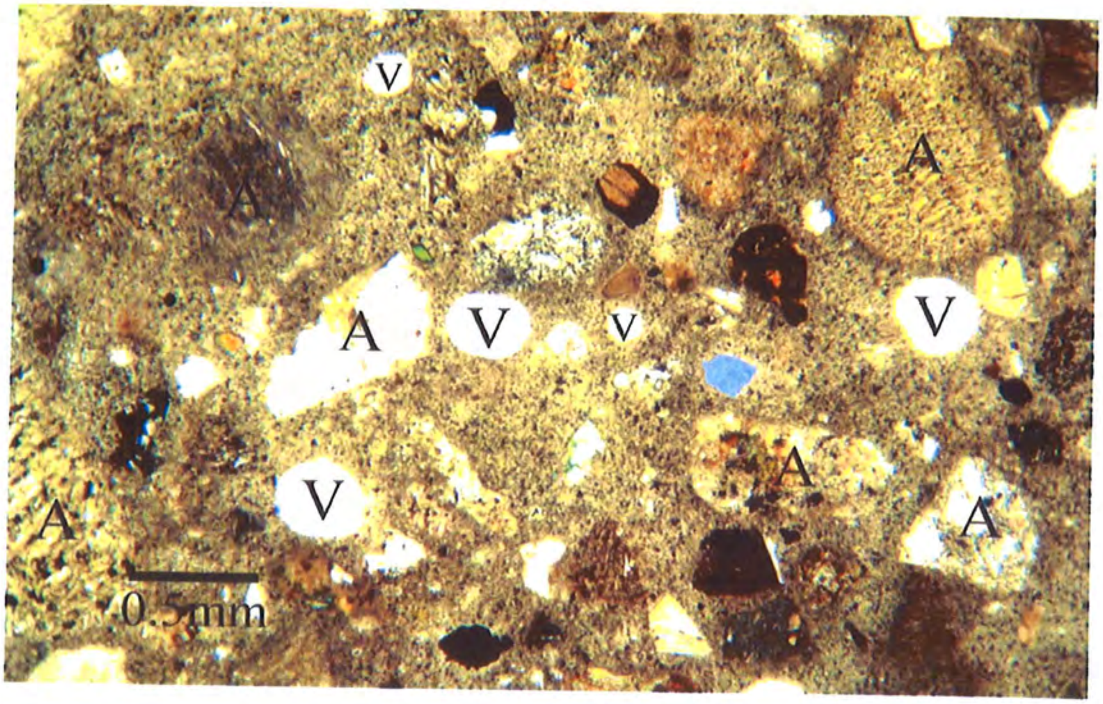


FIGURE 7 Closer view of sawed surface through Core 5CCA shows similar features.



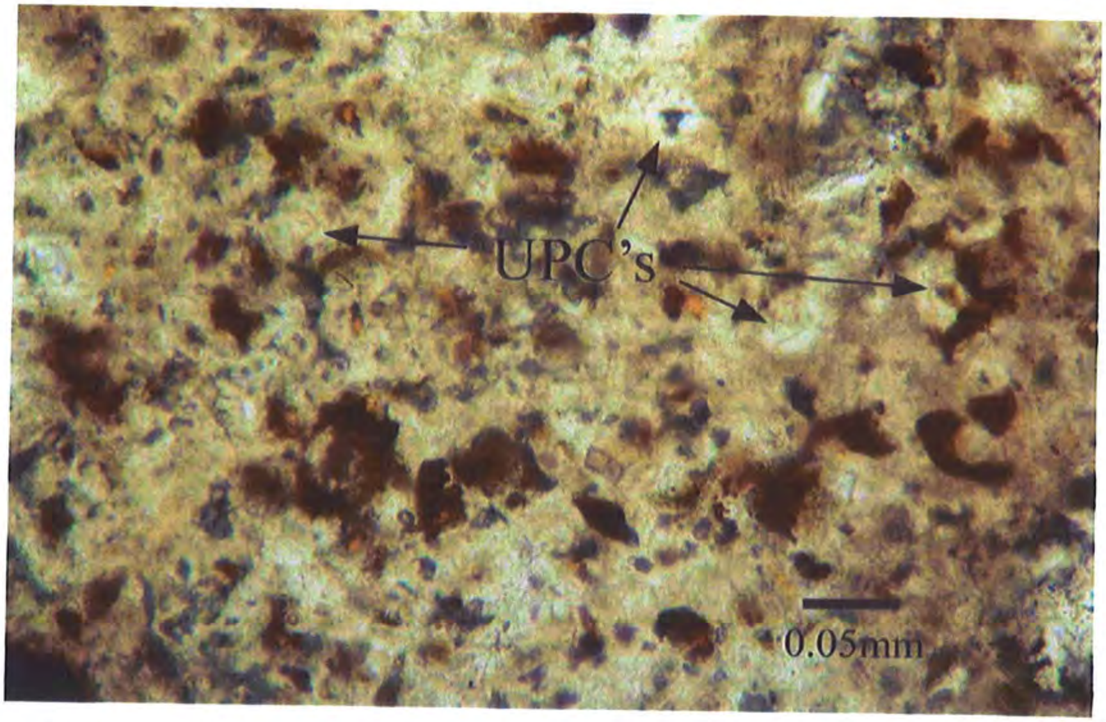
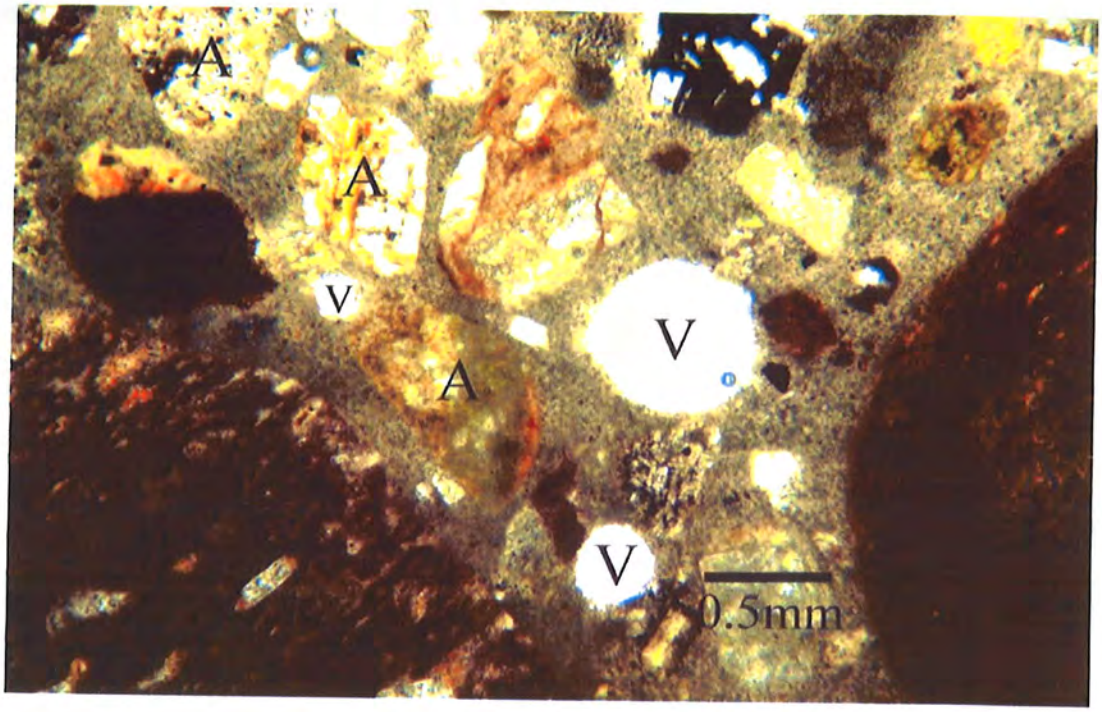


FIGURE 8 Micrograph of thin-section shows typical appearance of shear wall concrete with well distributed aggregate, some voids and relatively few microcracks (X40).

FIGURE 9 More highly magnified micrograph shows typical cement hydration in shear wall concrete with relatively few un-hydrated portland cement particles (UPC's) (X400).



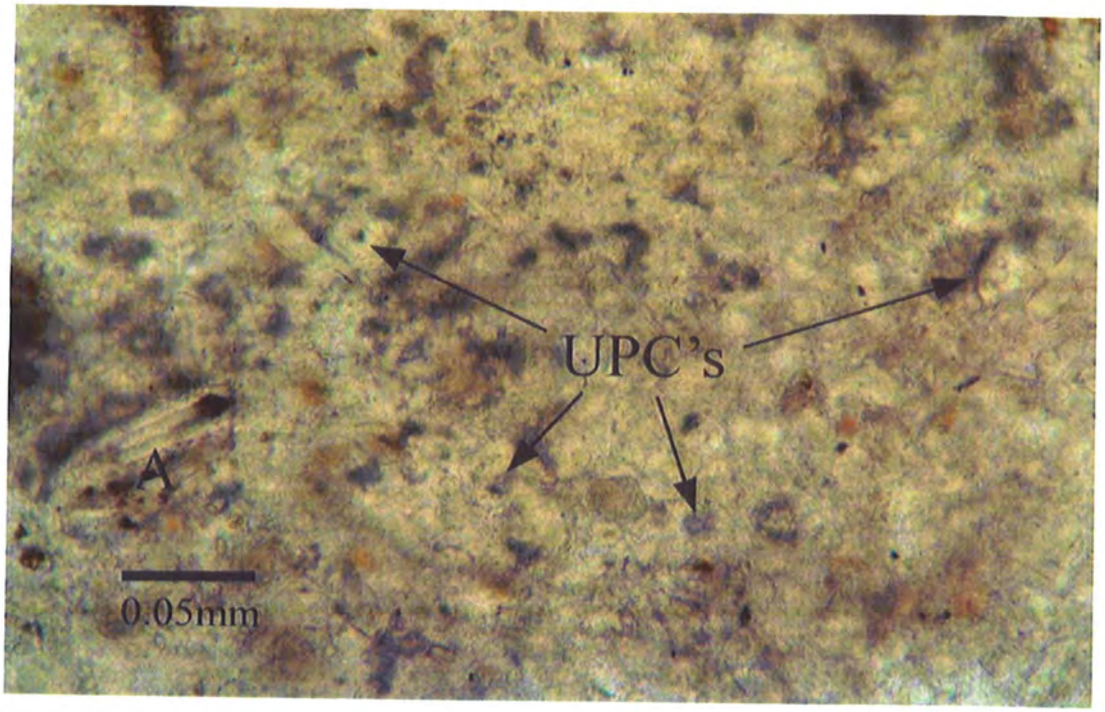


FIGURE 10 Micrograph of thin-section shows typical appearance of column concrete with well distributed aggregate, some voids and relatively few microcracks (X40).

FIGURE 11 More highly magnified micrograph shows typical cement hydration in column concrete with relatively few un-hydrated portland cement particles (UPC's) (X400).

Appendix C

Ground Penetrating Radar
Post-Tensioned Tendon Drape

Data was obtained from GPR scans at the locations below and are in the order set forth below:

Data from the scans at the core locations were used to develop a correction factor for depth. This correction factor has been applied to the Banded type scan locations but was not applied to the Distributed. At the distributed locations assume a 10" slab.

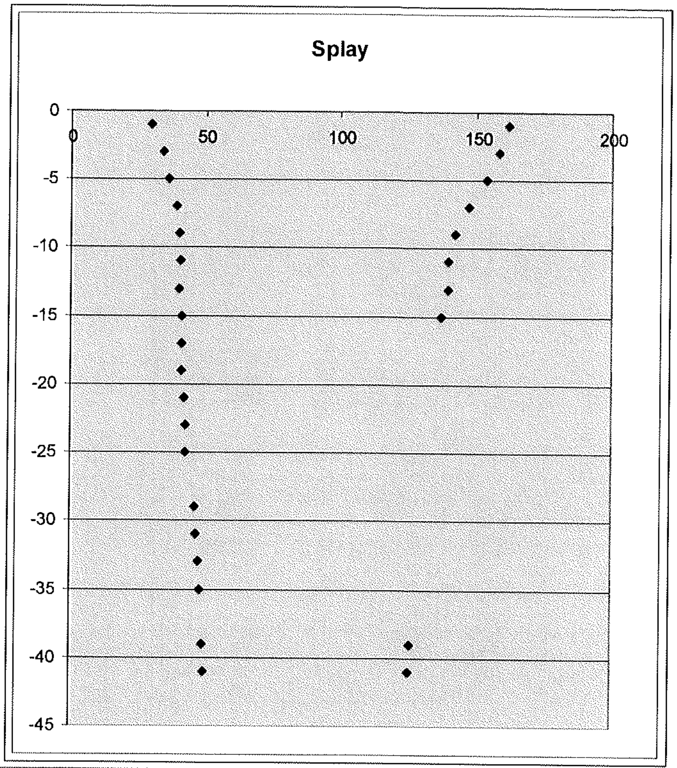
GPR for Drape	Type	GRID LINE	Start Line	Number of Scan Lines	Spacing Between Scans
2nd Floor					
A2	Banded	D from 10 to 11+	1' S of ext wall & parallel to it	21	2'
B2	Banded	J from 10 to 11-	1' S of ext wall & parallel to it	17	2'
3rd Floor					
A3	Banded	N from 10 to 11	1' S of ext wall & parallel to it	18	2'
B3	Banded	F from 10 to 11+	1' S of ext wall & parallel to it	23	2'
4th Floor					
A4	Banded	D from 12 to 13	1' N of ext wall & parallel to it	18	2'
B4	Banded	M from 10 to 11	1' S of ext wall & parallel to it	19	2'
5th Floor					
A5	Banded	G from 12 to 13	1' S of 12 line & parallel to it	19	2'
B5	Banded	L from 10 to 11	1' S of ext wall & parallel to it	19	2'
2nd Floor					
C2	Distributed	10a from C to E+	1' W of ext wall & parallel to it	30	2'
D2	Distributed	16' S of 12 from N+3' to L-3'	3' W of N line parallel to it	32	2'
3rd Floor					
C3	Distributed	12a from N1 to L	Along N1 line ending at 12a Line	30	2'
D3	Distributed	13' S of 10a from C-3' to E+5'	3' E of C line parallel to it	33	2'
4th Floor					
C4	Distributed	10a from J to L	Along J line and parallel to it	59	1'
D4	Distributed	16' S of 12 from C to E+3'	3' E of C line parallel to it	29	2'
5th Floor					
C5	Distributed	12a from L+18' to K	18' E of L line parallel to it	28	2'
D5	Distributed	10a from L to J	Along L line and parallel to it	31	2'

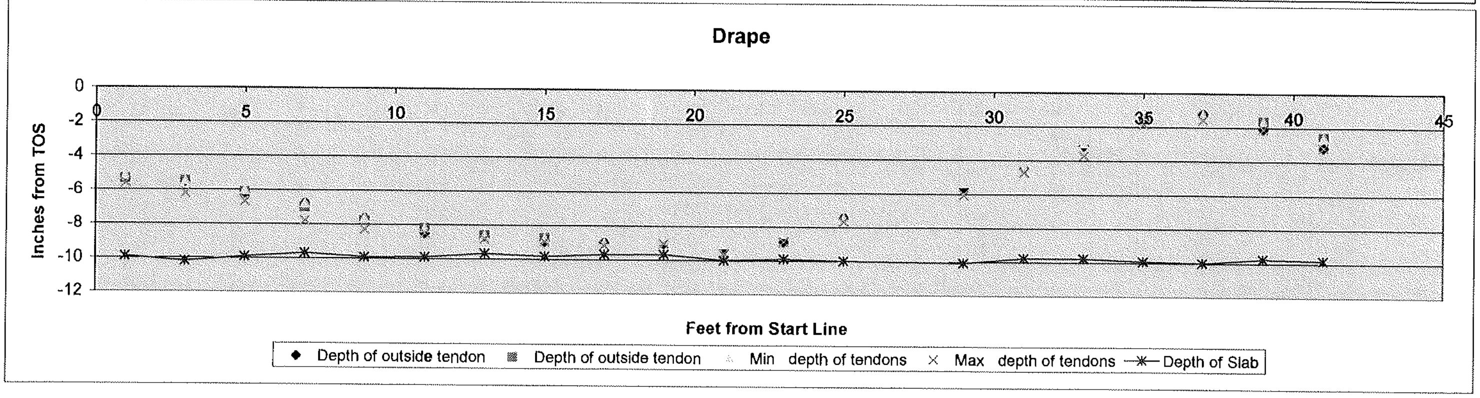
Location A2

Feet from Start Line (ft)	start of banded (in)	start of banded corrected (in)		Depth of outside tendon (in)	Depth of outside tendon (in)	Min depth of tendons (in)	Max depth of tendons (in)	Depth of Slab (in)
-1.00	29.79	29.79	1.00	-5.42	-5.36	-5.17	-5.63	-9.90
-3.00	34.15	34.15	3.00	-5.56	-5.49	-5.49	-6.21	-10.19
-5.00	36.08	36.08	5.00	-6.20	-6.13	-5.99	-6.70	-9.90
-7.00	39.22	39.22	7.00	-6.77	-6.98	-6.77	-7.80	-9.69
-9.00	40.00	40.00	9.00	-7.63	-7.76	-7.63	-8.30	-9.90
-11.00	40.51	40.51	11.00	-8.51	-8.20	-8.20	-8.51	-9.90
-13.00	40.31	40.31	13.00	-8.66	-8.58	-8.58	-8.82	-9.67
-15.00	43.26	41.26	15.00	-8.97	-8.74	-8.74	-8.97	-9.82
-17.00	37.90	41.40	17.00	-8.98		-8.98	-9.16	-9.69
-19.00	37.54	41.04	19.00	-9.05		-8.82	-9.05	-9.67
-21.00	38.72	42.22	21.00	-9.36		-9.05	-9.59	-9.98
-23.00	39.31	42.81	23.00	-8.89		-8.43	-8.89	-9.90
-25.00	39.11	42.61	25.00	-7.44		-7.44	-7.66	-9.98
-29.00	42.81	46.31	29.00	-5.64		-5.35	-6.06	-10.05
-31.00	43.40	46.90	31.00	-4.49		-4.35	-4.71	-9.77
-33.00	44.38	47.88	33.00	-3.13		-2.96	-3.71	-9.77
-35.00	44.78	48.28	35.00	-1.57		-1.42	-1.85	-9.90
-37.00	23.55		37.00	-1.21		-1.21	-1.57	-9.98
-39.00	45.77	49.27	39.00	-2.09	-1.63	-1.63	-2.09	-9.75
-41.00	46.16	49.66	41.00	-3.17	-2.55	-2.55	-3.17	-9.82
-1.00	161.56	161.56	1.00	-5.36				
-3.00	158.30	158.30	3.00	-5.49				
-5.00	153.98	153.98	5.00	-6.13				
-7.00	147.30	147.30	7.00	-6.98				
-9.00	142.00	142.00	9.00	-7.76				
-11.00	139.82	139.82	11.00	-8.20				
-13.00	139.80	139.80	13.00	-8.58				
-15.00	139.21	137.21	15.00	-8.74				
-39.00	122.48	125.98	39.00	-1.63				
-41.00	121.89	125.39	41.00	-2.55				

Depth of Slab

Avg	9.88
Max	10.19
Min	9.67

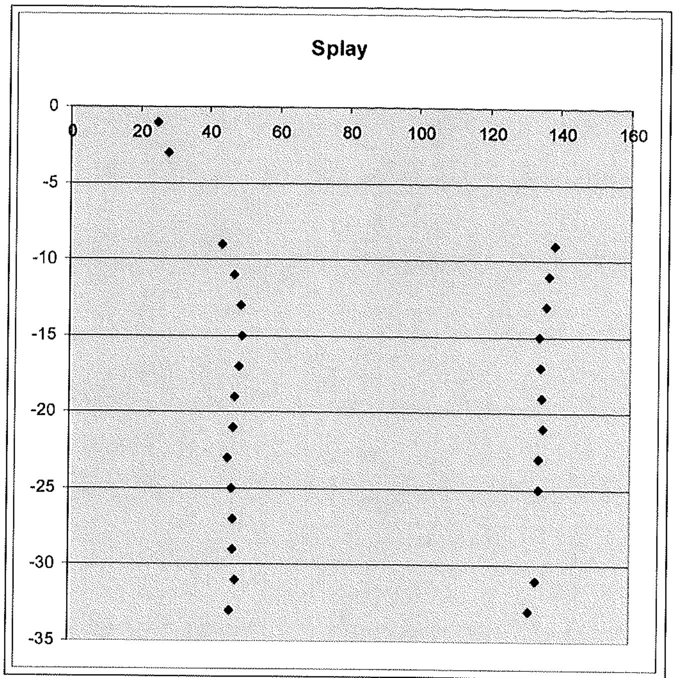


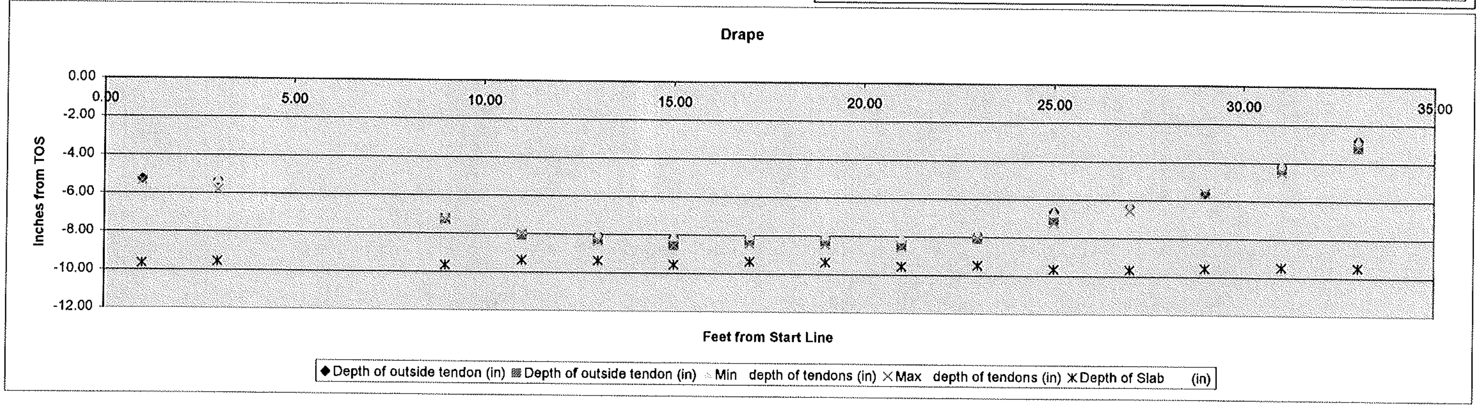


Location B2

Feet from Start Line (ft)	start of banded (in)	start of banded corrected (in)		Depth of outside tendon (in)	Depth of outside tendon (in)	Min depth of tendons (in)	Max depth of tendons (in)	Depth of Slab (in)
-33.00	46.10	46.10	33.00	-2.81	-3.19	-2.81	-3.19	-9.47
-31.00	47.59	47.59	31.00	-4.32	-4.32	-4.13	-4.50	-9.47
-29.00	46.99	46.99	29.00	-5.63		-5.25	-5.63	-9.56
-27.00	46.98	46.98	27.00	-6.37		-6.28	-6.57	-9.65
-25.00	46.38	46.38	25.00	-6.66	-7.03	-6.66	-7.22	-9.65
-23.00	45.42	45.42	23.00	-7.88	-8.06	-7.78	-8.06	-9.47
-21.00	46.80	46.80	21.00	-8.25	-8.44	-8.06	-8.53	-9.56
-19.00	47.38	47.38	19.00	-8.16	-8.25	-7.97	-8.44	-9.37
-17.00	48.56	48.56	17.00	-8.16	-8.25	-7.97	-8.44	-9.37
-15.00	49.34	49.34	15.00	-8.16	-8.53	-8.06	-8.53	-9.56
-13.00	48.75	48.75	13.00	-8.06	-8.25	-7.97	-8.34	-9.37
-11.00	47.00	47.00	11.00	-7.97	-8.06	-7.78	-7.97	-9.37
-9.00	43.26	43.26	9.00	-7.22	-7.22	-7.03	-7.31	-9.65
-3.00	27.90	27.90	3.00	-5.35		-5.25	-5.81	-9.56
-1.00	24.76	24.76	1.00	-5.25		-4.78	-5.35	-9.65
-33.00	131.51	131.51						
-31.00	133.32	133.32						
-25.00	130.39	133.89						
-23.00	133.91	133.91						
-21.00	135.10	135.10						
-19.00	134.86	134.86						
-17.00	134.47	134.47						
-15.00	134.07	134.07						
-13.00	135.84	135.84						
-11.00	136.67	136.67						
-9.00	138.25	138.25						

Depth of Slab	
Avg	9.58
Max	10.13
Min	9.37

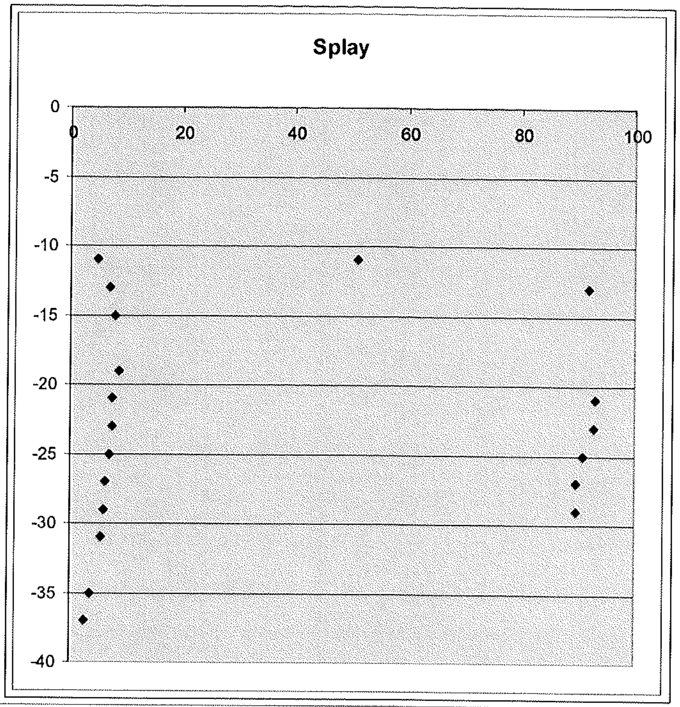


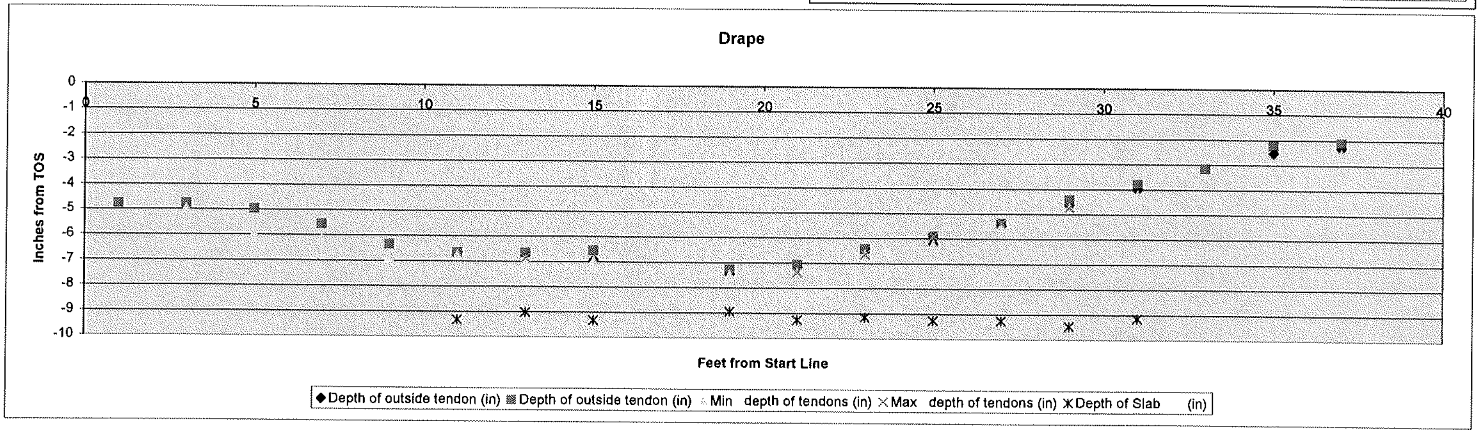


Location A3

Feet from Start Line (ft)	start of banded (in)	start of banded corrected (in)		Depth of outside tendon (in)	Depth of outside tendon (in)	Min depth of tendons (in)	Max depth of tendons (in)	Depth of Slab (in)
-1			1		-4.7616	-5.4498		
-3			3		-4.7616	-4.9569		
-5			5		-4.9569	-5.952		
-7			7		-5.5521	-6.1473		
-9			9		-6.3426	-6.8448		
-11	4.71	4.71	11	-6.6402	-6.6402	-6.7425		-9.32
-13	7.07	7.07	13	-6.6402	-6.6402	-6.9378	-6.8448	-9.02
-15	7.86	7.86	15	-6.9378	-6.5472	-6.9378		-9.32
-17	0		17					
-19	8.64	8.64	19	-7.4679	-7.2633	-7.4679		-8.95
-21	7.47	7.47	21	-7.1517	-7.0494	-7.3656	-7.3656	-9.26
-23	7.46	7.46	23	-6.417	-6.417	-6.6309	-6.6309	-9.15
-25	6.88	6.88	25	-6.2124	-5.8962	-6.2124	-5.8962	-9.26
-27	6.29	6.29	27	-5.4684	-5.3661	-5.4684	-5.3661	-9.26
-29	2.75	5.9	29	-4.6314	-4.4175	-4.7337	-4.7337	-9.47
-31	5.5	5.5	31	-3.999	-3.7851	-4.2129		-9.15
-33	0		33		-3.1527	-3.7851		
-35	3.54	3.54	35	-2.5296	-2.2134	-3.2643		
-37	2.75	2.75	37	-2.3157	-2.1018	-2.5296		
-11	0	50.88 CL Col						
-13	91.94	91.94						
-21	93.12	93.12						
-23	92.72	92.72						
-25	90.76	90.76						
-27	89.58	89.58						
-29	86.63	89.78						

Depth of Slab	
Avg	9.266377
Max	9.4674
Min	8.9466

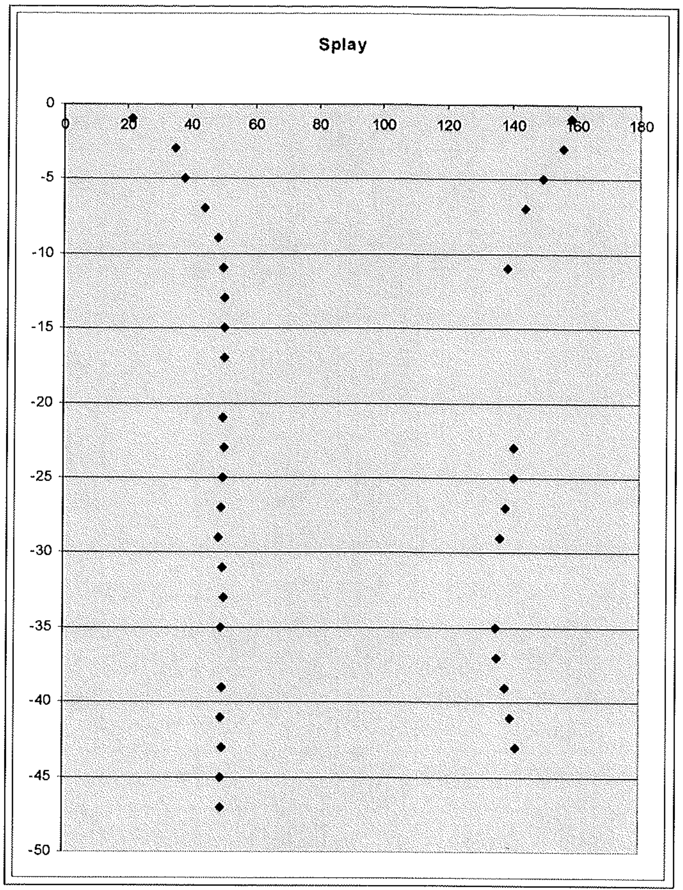


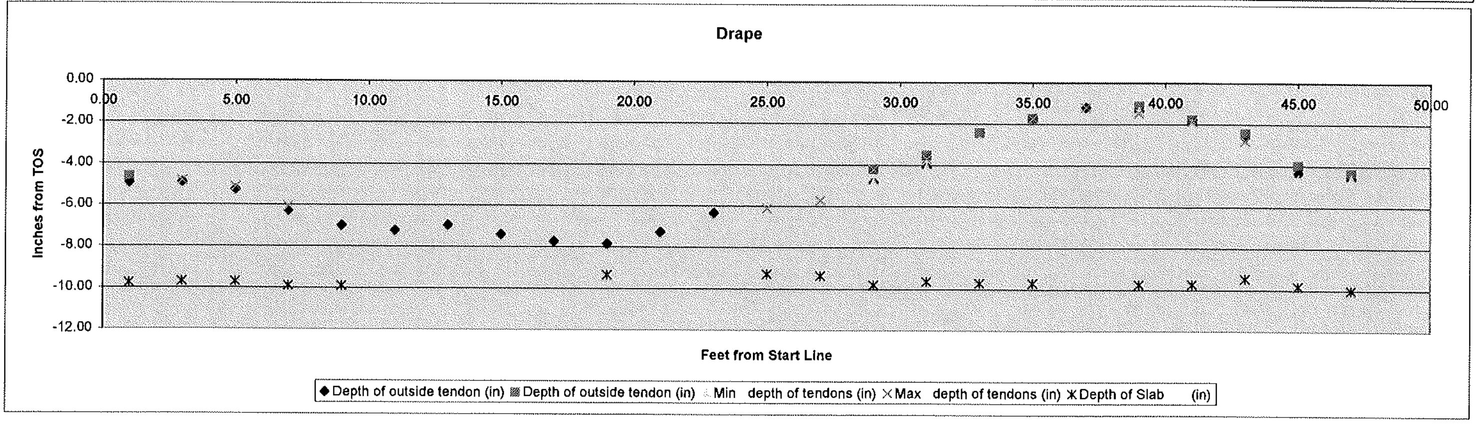


Location B3

Feet from Start Line (ft)	start of banded (in)	start of banded corrected (in)		Depth of outside tendon (in)	Depth of outside tendon (in)	Min depth of tendons (in)	Max depth of tendons (in)	Depth of Slab (in)
-1.00	21.02	21.02	1.00	-4.95	-4.64	-5.70		-9.77
-3.00	34.75	34.75	3.00	-4.92			-4.85	-9.69
-5.00	37.65	37.65	5.00	-5.27			-5.13	-9.69
-7.00	37.69	44.19	7.00	-6.28			-6.06	-9.90
-9.00	48.16	48.16	9.00	-6.98				-9.90
-11.00	50.14	50.14	11.00	-7.22				
-13.00	50.52	50.52	13.00	-6.96				
-15.00	50.52	50.52	15.00	-7.40				
-17.00	50.32	50.32	17.00	-7.74				
-19.00	177.00		19.00	-7.84				-9.34
-21.00	50.12	50.12	21.00	-7.27				
-23.00	50.32	50.32	23.00	-6.34				
-25.00	50.14	50.14	25.00				-6.11	-9.28
-27.00	49.75	49.75	27.00				-5.72	-9.36
-29.00	7.86	48.86	29.00	-4.85	-4.19	-4.85	-4.19	-9.78
-31.00	8.82	49.82	31.00	-4.10	-3.52	-4.10	-3.68	-9.62
-33.00	9.44	50.44	33.00	-2.42	-2.42	-2.81		-9.69
-35.00	8.65	49.65	35.00	-1.72	-1.72	-2.27	-1.72	-9.69
-37.00	115.42	135.42	37.00	-1.19			-1.19	
-39.00	43.46	49.96	39.00	-1.37	-1.11	-1.37	-1.45	-9.75
-41.00	45.03	49.53	41.00	-1.76	-1.76	-1.94	-1.85	-9.73
-43.00	44.44	49.94	43.00	-2.59	-2.41	-3.06	-2.78	-9.45
-45.00	49.53	49.53	45.00	-4.35	-3.98	-4.63		-9.82
-47.00	49.73	49.73	47.00	-4.63	-4.35	-4.63		-10.01
-1.00	96.52	158.54	1.00					
-3.00	0.00	156.00	3.00					
-5.00	0.00	149.61	5.00					
-7.00	0.00	144.20	7.00					
-11.00	138.44	138.44	11.00					
-23.00	140.40	140.40	23.00					
-25.00	140.59	140.59	25.00					
-27.00	138.22	138.22	27.00					
-29.00	96.52	136.52	29.00					
-35.00	95.14	135.14	35.00					
-39.00	138.05	138.05	39.00					
-41.00	144.14	139.64	41.00					
-43.00	142.37	141.37	43.00					

Depth of Slab	
Avg	9.54
Max	10.01
Min	8.98



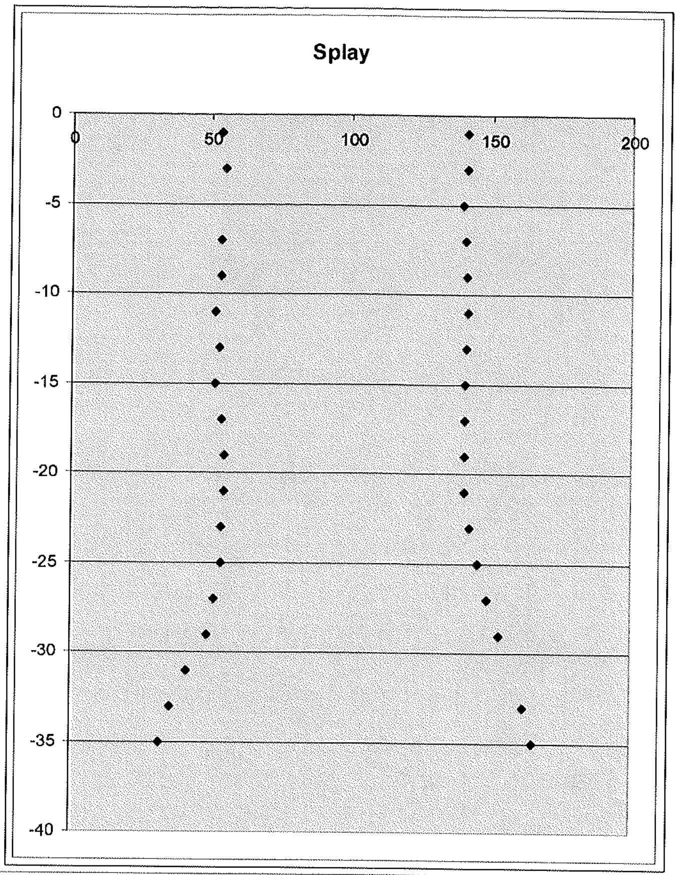


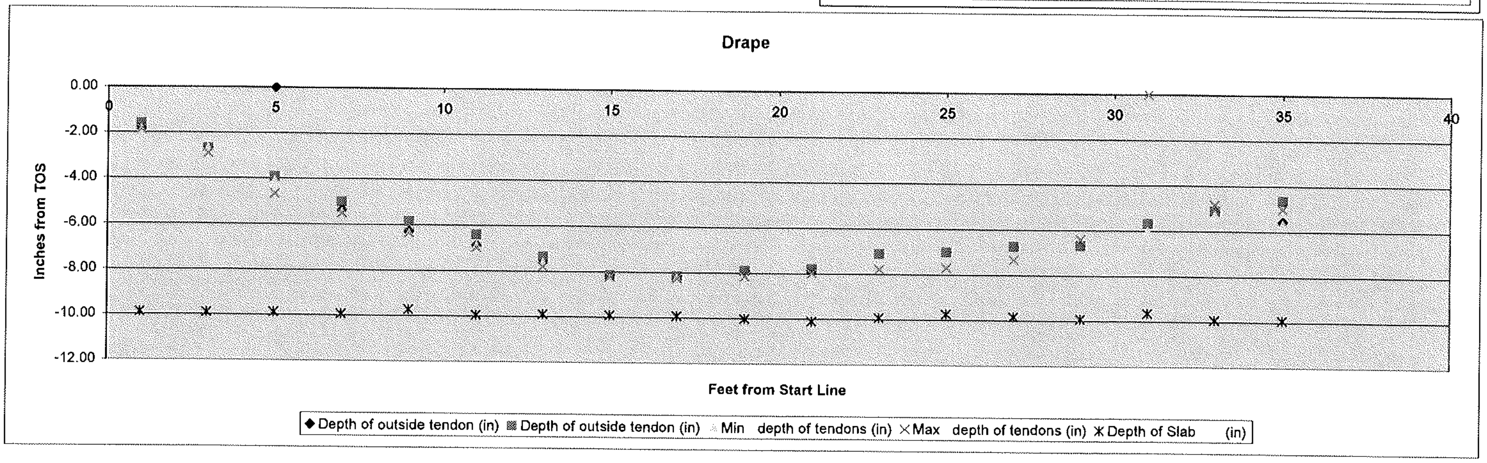
Location A4

Feet from Start Line (ft)	start of banded (in)	start of banded corrected (in)
-1	53.25	53.25
-3	54.62	54.62
-5	0.00	
-7	53.25	53.25
-9	53.25	53.25
-11	51.28	51.28
-13	52.66	52.66
-15	51.47	51.47
-17	53.76	53.76
-19	54.54	54.54
-21	54.54	54.54
-23	53.62	53.62
-25	53.62	53.62
-27	51.26	51.26
-29	48.69	48.69
-31	41.63	41.63
-33	35.94	35.94
-35	32.17	32.17
-1	140.97	140.97
-3	140.97	140.97
-5	139.59	139.59
-7	140.37	140.37
-9	140.96	140.96
-11	141.55	141.55
-13	141.16	141.16
-15	140.57	140.57
-17	140.28	140.28
-19	140.29	140.29
-21	140.48	140.48
-23	142.51	142.51
-25	145.06	145.06
-27	148.81	148.81
-29	152.93	152.93
-31	0	
-33	161.95	161.95
-35	165.09	165.09

	Depth of outside tendon (in)	Depth of outside tendon (in)	Min depth of tendons (in)	Max depth of tendons (in)	Depth of Slab (in)
1	-1.87	-1.60	-1.87	-1.87	-9.87
3	-2.69	-2.69	-2.69	-2.91	-9.90
5	0.00	-3.92	-4.09	-4.67	-9.87
7	-5.37	-5.00	-5.45	-5.51	-9.92
9	-6.28	-5.83	-6.36	-6.33	-9.72
11	-6.87	-6.40	-6.87	-6.96	-9.93
13	-7.61	-7.34	-7.61	-7.78	-9.88
15	-8.13	-8.13	-8.30	-8.20	-9.90
17	-8.15	-8.15	-8.24	-8.24	-9.91
19	-7.88	-7.88	-8.52	-8.15	-10.01
21	-7.78	-7.78	-8.43	-7.97	-10.10
23	-7.09	-7.09	-7.64	-7.78	-9.91
25	-6.99	-6.99	-7.55	-7.69	-9.73
27	-6.72	-6.72	-7.64	-7.32	-9.82
29	-6.67	-6.67	-7.13	-6.39	-9.91
31	-5.65	-5.65	-6.02	0.00	-9.63
33	-5.10	-5.10	-5.28	-4.82	-9.91
35	-5.56	-4.63	-5.65	-5.00	-9.91

Depth of Slab	
Avg	9.85
Max	10.10
Min	9.63

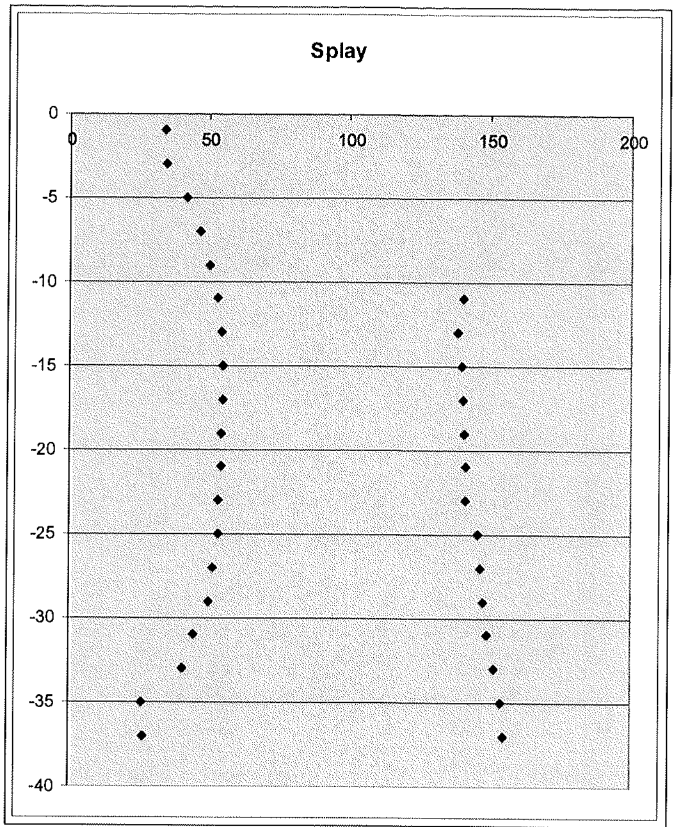


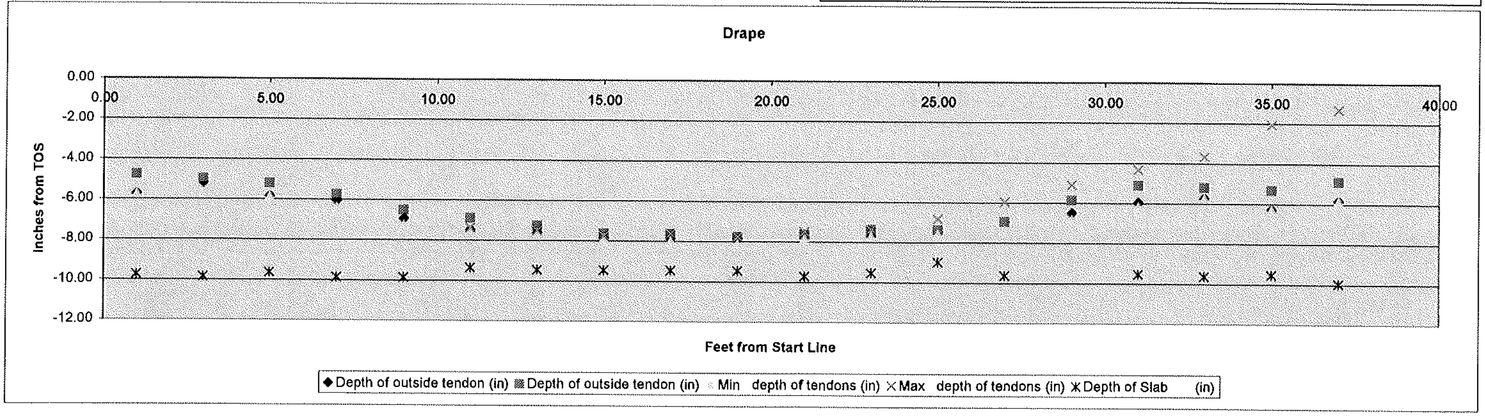


Location B4

Feet from Start Line (ft)	start of banded (in)	start of banded corrected (in)		Depth of outside tendon (in)	Depth of outside tendon (in)	Min depth of tendons (in)	Max depth of tendons (in)	Depth of Slab (in)
-1.00	33.81	33.81	1.00	-5.73	-4.76	-5.73		-9.74
-3.00	34.20	34.20	3.00	-5.19	-4.98	-5.73		-9.84
-5.00	41.87	41.87	5.00	-5.84	-5.19	-5.84		-9.63
-7.00	46.39	46.39	7.00	-6.05	-5.73	-6.38		-9.84
-9.00	49.93	49.93	9.00	-6.92	-6.49	-7.24		-9.84
-11.00	52.90	52.90	11.00	-7.49	-6.87	-7.49	-7.37	-9.35
-13.00	54.08	54.08	13.00	-7.61	-7.24	-7.61	-7.49	-9.45
-15.00	54.67	54.67	15.00	-7.86	-7.61	-7.86	-7.74	-9.45
-17.00	54.67	54.67	17.00	-7.86	-7.61	-7.98	-7.61	-9.45
-19.00	54.27	54.27	19.00	-7.86	-7.74	-8.10	-7.74	-9.45
-21.00	54.46	54.46	21.00	-7.74	-7.61	-7.86	-7.49	-9.70
-23.00	53.28	53.28	23.00	-7.68	-7.36	-7.68	-7.36	-9.52
-25.00	53.43	53.43	25.00	-7.47	-7.36	-7.57	-6.82	-8.97
-27.00	51.27	51.27	27.00	-6.92	-6.92	-7.36	-5.95	-9.63
-29.00	49.70	49.70	29.00	-6.49	-5.84	-6.82	-5.09	
-31.00	44.59	44.59	31.00	-5.95	-5.09	-6.17	-4.32	-9.52
-33.00	40.47	40.47	33.00	-5.73	-5.19	-5.73	-3.67	-9.63
-35.00	26.12	26.12	35.00	-6.28	-5.30	-6.28	-2.06	-9.52
-37.00	26.51	26.51	37.00	-5.84	-4.86	-5.84	-1.30	-9.95
-11.00	140.41	140.41	11.00					
-13.00	138.44	138.44	13.00					
-15.00	140.01	140.01	15.00					
-17.00	140.41	140.41	17.00					
-19.00	140.77	140.77	19.00					
-21.00	141.36	141.36	21.00					
-23.00	141.56	141.56	23.00					
-25.00	145.55	145.55	25.00					
-27.00	146.53	146.53	27.00					
-29.00	147.91	147.91	29.00					
-31.00	149.28	149.28	31.00					
-33.00	151.63	151.63	33.00					
-35.00	153.98	153.98	35.00					
-37.00	154.77	154.77	37.00					

Depth of Slab	
Avg	9.58
Max	9.95
Min	8.97

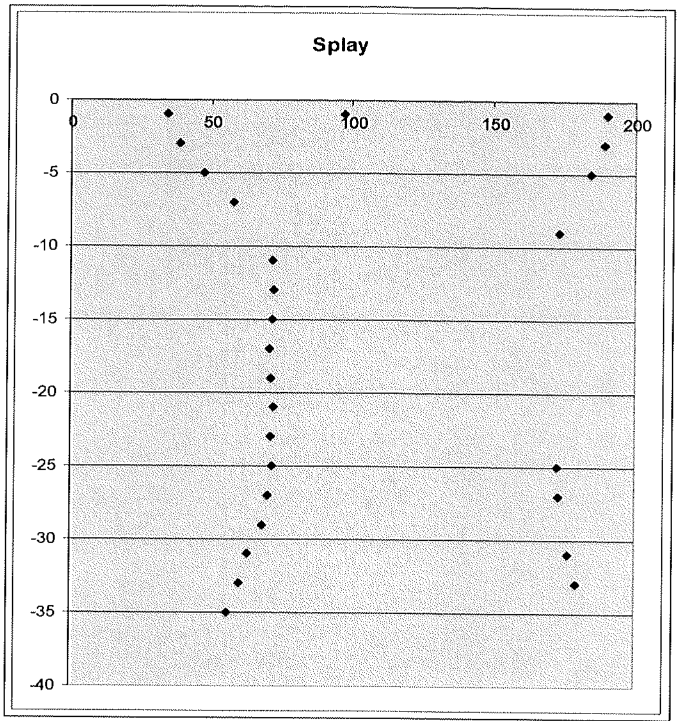


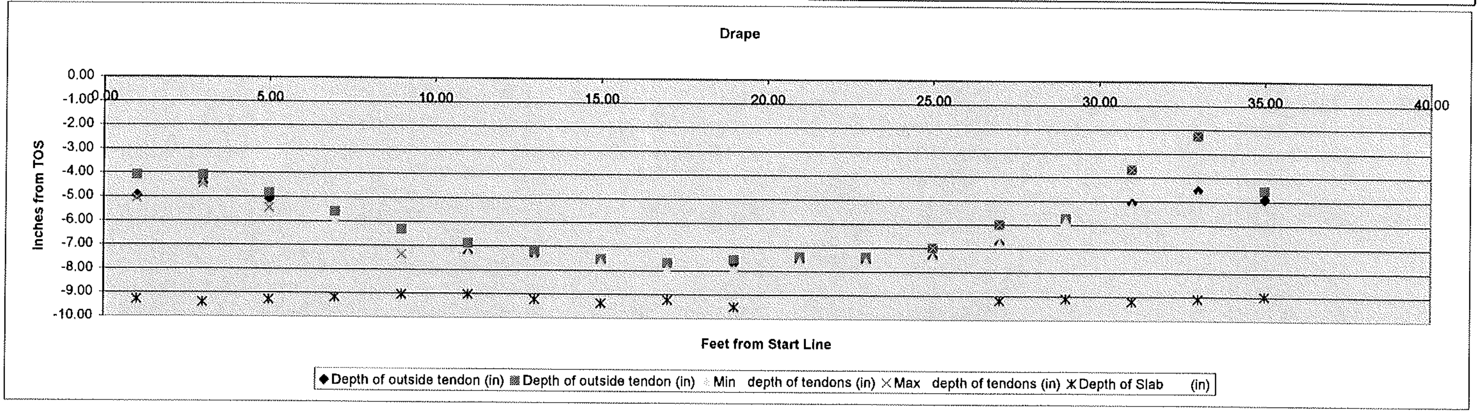


Location A5

Feet from Start Line (ft)	start of banded (in)	start of banded corrected (in)		Depth of outside tendon (in)	Depth of outside tendon (in)	Min depth of tendons (in)	Max depth of tendons (in)	Depth of Slab (in)
-1.00	33.17	34.37	1.00	-4.95	-4.08	-5.75	-5.06	-9.28
-3.00	37.68	38.48	3.00	-4.45	-4.08	-4.46	-4.46	-9.40
-5.00	46.52	47.02	5.00	-5.08	-4.83	-5.44	-5.44	-9.28
-7.00	57.62	57.62	7.00	-5.59	-5.59	-6.02		-9.17
-9.00	0.00		9.00		-6.31	-7.36	-7.36	-9.03
-11.00	70.01	71.41	11.00	-7.30	-6.87	-7.30		-9.02
-13.00	74.53	72.13	13.00	-7.37	-7.24	-7.52		-9.23
-15.00	74.33	71.53	15.00	-7.66	-7.52	-7.66		-9.37
-17.00	50.73	70.73	17.00	-7.66	-7.66	-7.95		-9.23
-19.00	28.90	71.20	19.00	-7.66	-7.52	-7.95		-9.50
-21.00	30.83	72.03	21.00	-7.59	-7.38	-7.59		
-23.00	53.78	71.08	23.00	-7.59	-7.38	-7.59		
-25.00	54.57	71.87	25.00	-7.38	-6.98	-7.38	-6.98	
-27.00	52.67	69.97	27.00	-6.79	-5.99	-6.79	-5.99	-9.18
-29.00	49.32	68.12	29.00	-5.73	-5.73	-5.84		-9.09
-31.00	46.57	62.77	31.00	-5.09	-3.67	-5.19	-3.67	-9.20
-33.00	66.83	60.23	33.00	-4.55	-2.27	-4.76	-2.27	-9.09
-35.00	61.94	55.84	35.00	-4.91	-4.54	-5.40		-8.97
-1.00	190.04	190.04	1.00					
-3.00	189.07	189.07	3.00					
-5.00	184.15	184.15	5.00					
-9.00	173.19	173.19	9.00					
-25.00	172.37	172.37	25.00					
-27.00	172.95	172.95	27.00					
-31.00	176.52	176.52	31.00					
-33.00	179.26	179.26	33.00					
-1.00	97.14	97.14						

Depth of Slab	
Avg	9.26
Max	9.60
Min	8.97

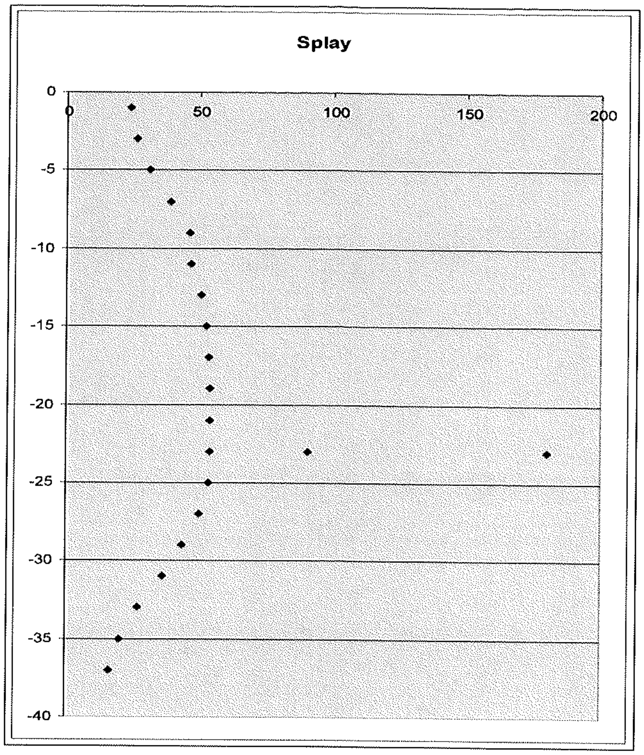


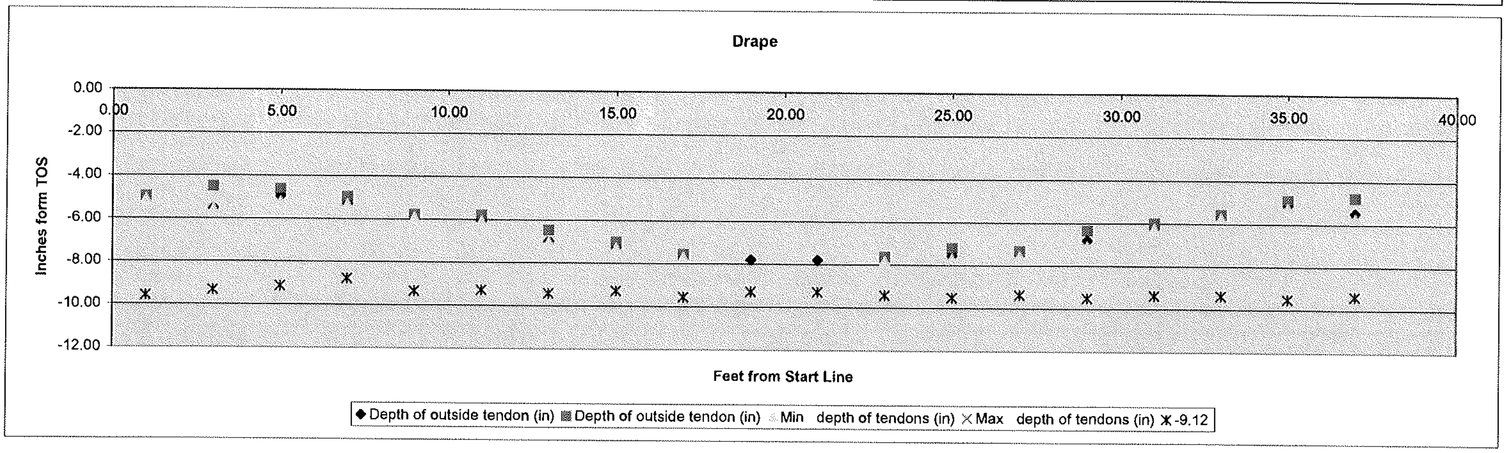


Location B5

Feet from Start Line (ft)	start of banded (in)	start of banded corrected (in)		Depth of outside tendon (in)	Depth of outside tendon (in)	Min depth of tendons (in)	Max depth of tendons (in)	Depth of Slab (in)
-1.00	23.57	23.57	1.00	-5.08	-4.97	-5.08		-9.58
-3.00	25.93	25.93	3.00	-5.54	-4.50	-5.54		-9.32
-5.00	30.84	30.84	5.00	-4.97	-4.61	-5.20		-9.12
-7.00	38.70	38.70	7.00	-5.31	-4.97	-5.30		-8.77
-9.00	45.77	45.77	9.00	-5.89	-5.78	-5.89		-9.35
-11.00	45.37	46.37	11.00	-6.05	-5.78	-6.05		-9.28
-13.00	50.49	50.49	13.00	-6.99	-6.45	-6.99		-9.41
-15.00	52.45	52.45	15.00	-7.26	-6.99	-7.26		-9.28
-17.00	53.24	53.24	17.00	-7.66	-7.53	-7.66		-9.55
-19.00	53.58	53.58	19.00	-7.80				-9.28
-21.00	53.76	53.76	21.00	-7.80				-9.28
-23.00	53.62	53.62	23.00	-7.66	-7.61	-7.80		-9.41
-25.00	53.23	53.23	25.00	-7.55	-7.19	-7.67		-9.50
-27.00	50.09	50.09	27.00	-7.31	-7.31	-7.55		-9.37
-29.00	43.80	43.80	29.00	-6.82	-6.33	-7.07		-9.50
-31.00	36.15	36.15	31.00	-6.21	-5.97	-6.21		-9.37
-33.00	27.30	27.30	33.00	-5.73	-5.56	-5.73		-9.37
-35.00	20.23	20.23	35.00	-5.12	-4.87	-5.24		-9.50
-37.00	16.31	16.31	37.00	-5.48	-4.75	-5.73		-9.37
-23.00		90.35 CL Col						
-23.00		180.00						

Depth of Slab	
Avg	9.35
Max	9.58
Min	8.77

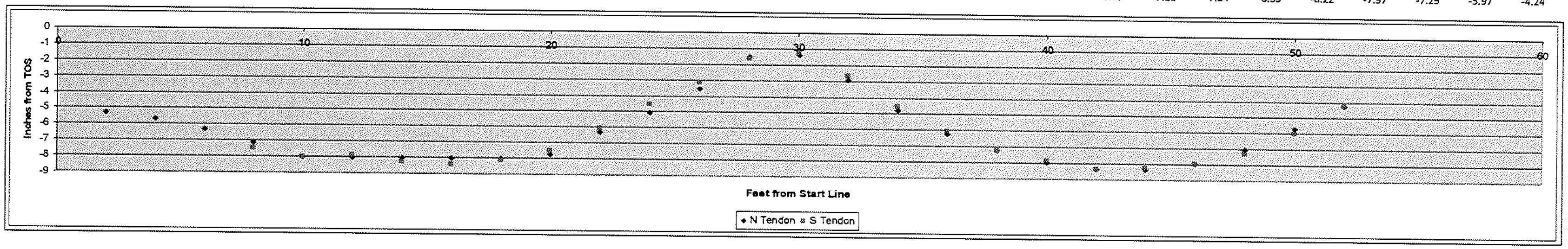




Location C2 & D2

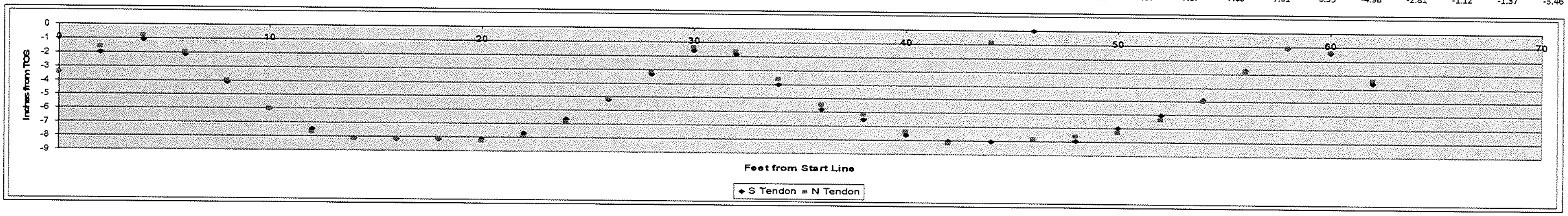
Feet from Start Line	0	2	4	6	8	10	12	14	16	18	20	22	24
North Tendon		-5.31	-5.7	-6.34	-7.13	-8.03	-8.03	-8.03	-8.03	-8.03	-7.77	-6.34	-5.06
South Tendon					-7.51	-8.03	-7.9	-8.29	-8.42	-8.16	-7.51	-6.09	-4.55

Feet from Start Line	26	28	30	32	34	36	38	40	42	44	46	48	50	52
North Tendon	-3.54	-1.52	-1.39	-2.91	-4.81	-6.2	-7.21	-7.97	-8.35	-8.35	-7.97	-7.03	-5.7	-4.24
South Tendon	-3.16	-1.64	-1.26	-2.66	-4.55	-6.07	-7.21	-7.84	-8.35	-8.22	-7.97	-7.29	-5.97	-4.24



Feet from Start Line	0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30
North Tendon	-3.46	-2.01	-1.12	-2.17	-4.1	-6.03	-7.47	-8.12	-8.2	-8.2	-8.12	-7.71	-6.67	-5.22	-3.37	-1.61
South Tendon	-3.47	-1.61	-0.8	-2.01	-4.02	-6.03	-7.71	-8.2	-8.12	-8.12	-8.28	-7.95	-6.83	-5.14	-3.21	-1.37

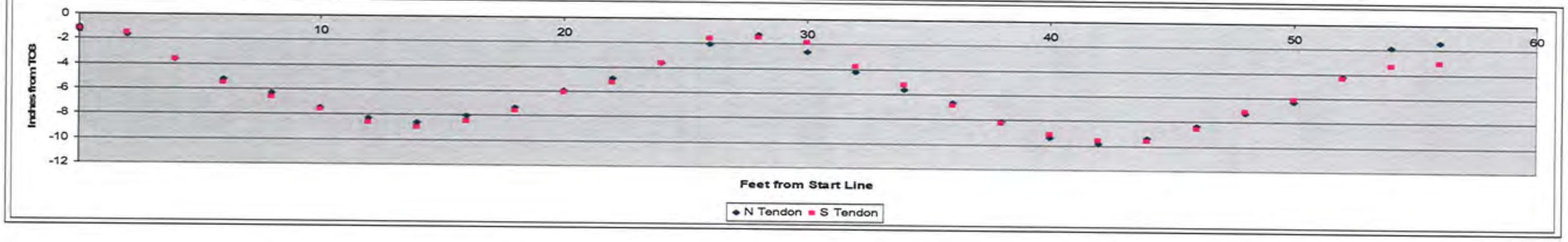
Feet from Start Line	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62
North Tendon	-1.85	-4.02	-5.79	-6.51	-7.63	-8.04	-8.04	0	-7.95	-6.99	-6.03	-4.9	-2.73	-1.12	-1.45	-3.62
South Tendon	-1.69	-3.62	-5.46	-6.11	-7.39	-8.2	-0.86	-7.87	-7.63	-7.31	-6.35	-4.98	-2.81	-1.12	-1.37	-3.46



Location C3

Feet from Start Line	0	2	4	6	8	10	12	14	16	18	20	22	24	26	28
North Tendon	-1.19	-1.69	-3.66	-5.22	-6.34	-7.47	-8.32	-8.6	-8.03	-7.33	-5.92	-4.93	-3.62	-2.02	-1.3
South Tendon	-1.13	-1.55	-3.66	-5.5	-6.62	-7.61	-8.6	-9.02	-8.46	-7.61	-6.06	-5.22	-3.62	-1.59	-1.45

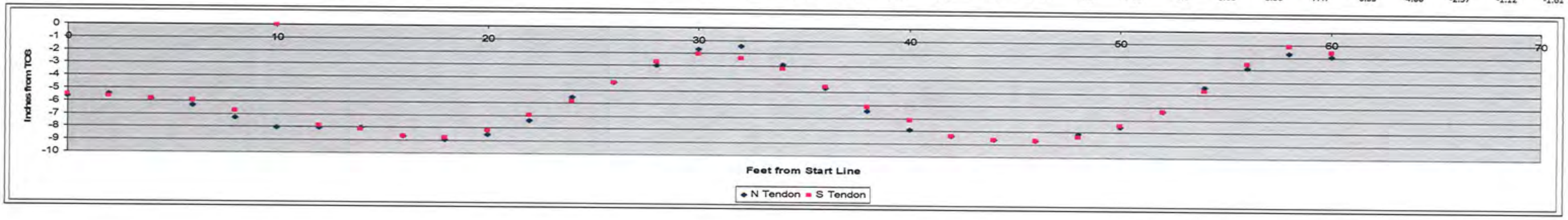
Feet from Start Line	30	32	34	36	38	40	42	44	46	48	50	52	54	56
North Tendon	-2.6	-4.19	-5.64	-6.65	-8.1	-9.4	-9.83	-9.4	-8.39	-7.27	-6.29	-4.19	-1.82	-1.4
South Tendon	-1.88	-3.76	-5.21	-6.8	-8.24	-9.11	-9.55	-9.55	-8.53	-7.13	-6.15	-4.33	-3.35	-3.07



Location D3

Feet from Start Line	0	2	4	6	8	10	12	14	16	18	20	22	24	26	28
North Tendon	-5.62	-5.46	-5.87	-6.35	-7.31	-8.04	-8.04	-8.04	-8.68	-8.92	-8.52	-7.39	-5.54	-4.34	-2.97
South Tendon	-5.54	-5.62	-5.87	-5.95	-6.75	0	-7.87	-8.12	-8.68	-8.76	-8.2	-6.99	-5.87	-4.34	-2.73

Feet from Start Line	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60
North Tendon	-1.69	-1.45	-2.89	-4.66	-6.43	-7.87	-8.36	-8.6	-8.68	-8.12	-7.55	-6.35	-4.42	-2.89	-1.69	-1.93
South Tendon	-2.09	-2.41	-3.21	-4.58	-6.11	-7.15	-8.36	-8.6	-8.68	-8.36	-7.47	-6.35	-4.66	-2.57	-1.12	-1.61



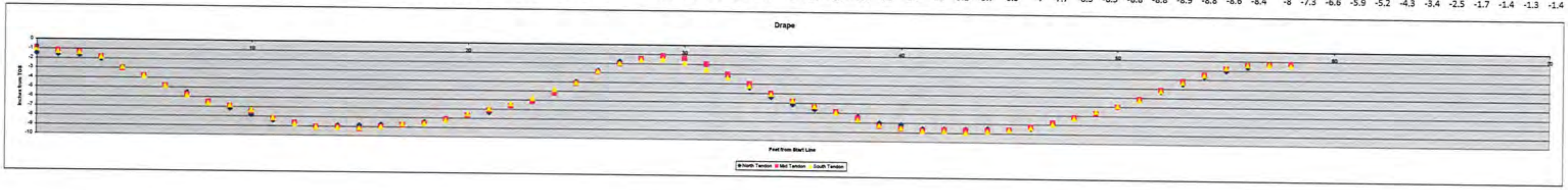
Location C4 & D4

Location C4

Feet from Start Line	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
North Tendon	-1.5	-1.6	-1.7	-2.1	-2.9	-3.8	-4.9	-5.6	-6.6	-7.2	-7.9	-8.4	-8.7	-9.1	-8.9	-8.9	-8.8	-8.8	-8.5	-8.1
Mid Tendon	-0.9	-1.2	-1.3	-1.9	-3.1	-3.8	-4.9	-5.7	-6.6	-7	-7.5	-8.3	-8.7	-9.1	-9.1	-9.3	-9	-8.8	-8.6	-8.1
South Tendon	-1	-1.3	-1.4	-1.9	-2.9	-3.8	-4.9	-5.8	-6.6	-6.9	-7.4	-8.2	-8.8	-9.1	-9.1	-9.2	-9	-8.7	-8.6	-8.2

Feet from Start Line	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
North Tendon	-7.6	-7.4	-6.6	-6.2	-5.2	-4	-2.8	-1.8	-1.5	-1.2	-1.5	-2.1	-3.3	-4.4	-5.4	-6.2	-6.6	-7	-7.4	-8
Mid Tendon	-7.7	-7.1	-6.6	-6.2	-5.2	-4.2	-3	-2.1	-1.5	-1.2	-1.4	-2	-3	-4	-5	-5.8	-6.4	-6.9	-7.5	-8.4
South Tendon	-7.5	-7	-6.4	-5.8	-4.8	-4.1	-2.9	-2	-1.6	-1.5	-1.9	-2.5	-3.4	-4.3	-5.1	-5.7	-6.3	-7	-7.7	-8.3

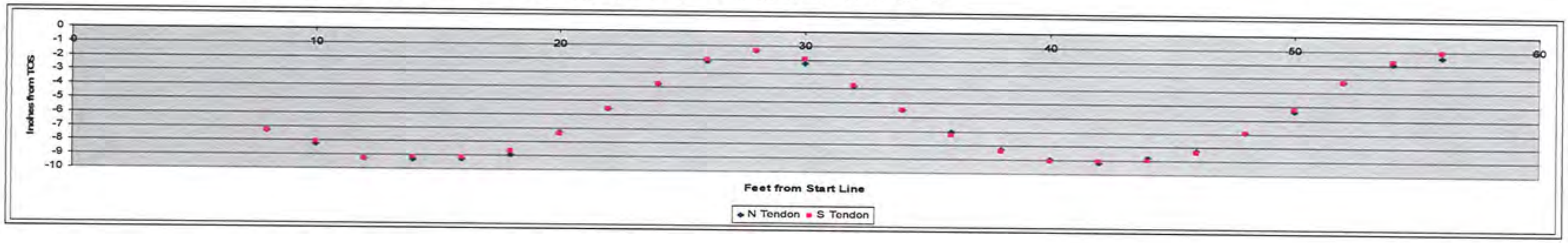
Feet from Start Line	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58
North Tendon	-8.2	-8.6	-8.6	-8.6	-8.5	-8.6	-8.4	-7.9	-7.3	-6.6	-6	-5.2	-4.3	-3.5	-2.7	-2.1	-1.6	-1.3	-1.3
Mid Tendon	-8.6	-8.8	-8.7	-8.7	-8.7	-8.6	-8.3	-7.8	-7.2	-6.7	-6	-5.2	-4.2	-3.2	-2.5	-1.8	-1.4	-1.3	-1.2
South Tendon	-8.5	-8.8	-8.8	-8.9	-8.8	-8.6	-8.4	-8	-7.3	-6.6	-5.9	-5.2	-4.3	-3.4	-2.5	-1.7	-1.4	-1.3	-1.4



Location D4

Feet from Start Line	0	2	4	6	8	10	12	14	16	18	20	22	24	26	28
North Tendon					-7.3	-8.3	-9.2	-9.3	-9.2	-8.9	-7.3	-5.6	-3.8	-2.1	-1.4
South Tendon					-7.3	-8.1	-9.2	-9.1	-9.1	-8.7	-7.4	-5.6	-3.8	-2	-1.4

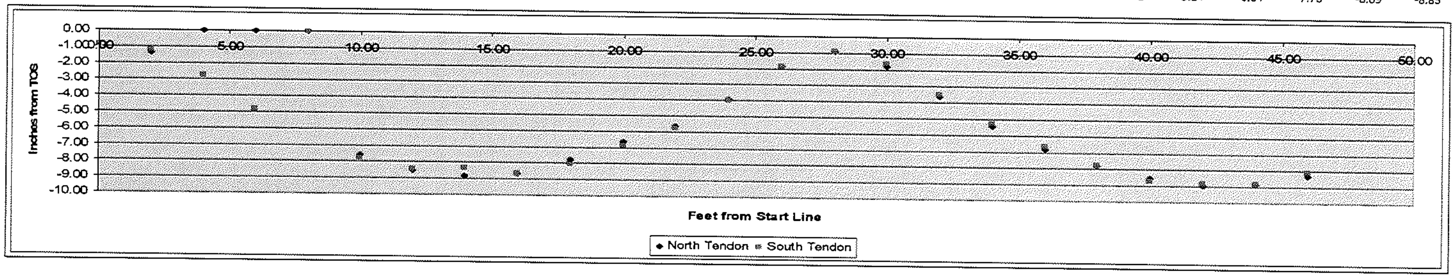
Feet from Start Line	30	32	34	36	38	40	42	44	46	48	50	52	54	56
North Tendon	-2.2	-3.9	-5.5	-7	-8.2	-8.9	-9.1	-8.8	-8.3	-6.9	-5.4	-3.3	-1.9	-1.4
South Tendon	-1.9	-3.8	-5.5	-7.2	-8.4	-9	-9	-8.9	-8.4	-6.9	-5.2	-3.3	-1.7	-1.1



Location C5 & D5

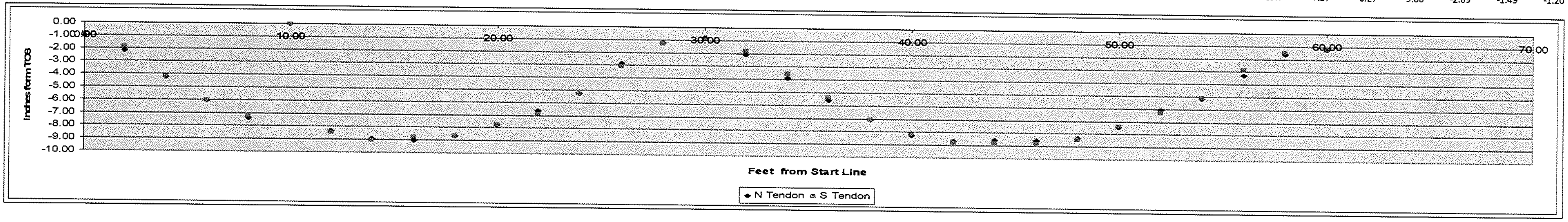
Location C5

Feet from Start Line	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00	24.00	26.00	28.00	30.00	32.00	34.00	36.00	38.00	40.00	42.00	44.00	46.00
North Tendon		-1.39	0.00	0.00	0.00	-7.62	-8.52	-8.85	-8.69	-7.78	-6.64	-5.65	-3.93	-1.88	-0.90	-1.80	-3.61	-5.41	-6.80	-7.78	-8.52	-8.93	-8.85	-8.28
South Tendon	-0.90	-1.23	-2.79	-4.83	0.00	-7.78	-8.44	-8.36	-8.69	-8.03	-6.88	-5.74	-4.01	-1.88	-0.90	-1.64	-3.52	-5.24	-6.64	-7.78	-8.69	-8.83	-8.85	-8.11



Location D5

Feet from Start Line	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00	24.00	26.00	28.00	30.00	32.00	34.00	36.00	38.00	40.00	42.00	44.00	46.00	48.00	50.00	52.00	54.00	56.00	58.00	60.00
North Tendon	-1.00	-2.19	-4.28	-6.08	-7.37	0.00	-8.37	-8.96	-9.06	-8.66	-7.77	-6.67	-5.28	-2.89	-1.20	-0.80	-2.09	-3.88	-5.58	-7.07	-8.27	-8.66	-8.57	-8.57	-8.37	-7.47	-6.08	-5.18	-3.29	-1.59	-1.20
South Tendon	-0.90	-1.89	-4.18	-6.08	-7.27	0.00	-8.47	-9.06	-8.76	-8.66	-7.77	-6.87	-5.28	-3.09	-1.29	-0.90	-1.79	-3.59	-5.38	-7.07	-8.17	-8.76	-8.76	-8.76	-8.47	-7.37	-6.27	-5.08	-2.89	-1.49	-1.20



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CCB License #176269

January 14, 2011

Marion County Oregon
Mr. Dave Henderson
P.O. Box 14500
Salem, Oregon 97309

Phone: (503) 588-5047

Subject: Construction Materials Testing and Evaluation Services
Courthouse Square Remediation Project
Marion County Courthouse Square
555 Court Street NE
Salem, OR 97301
PSI No. 0702464-12

Dear Mr. Henderson:

Professional Service Industries, Inc. (PSI) in accordance with Amendment #1 authorized September 21, 2010 provided building materials sampling, testing and evaluation services at the subject project. Sampling and testing by others of the in-situ concrete had already occurred in the building and our services were requested to supplement these results. Areas selected for testing were provided to PSI by the Architect (SERA) and Engineer (Miller Consulting Engineers). The Architect and Engineer will use the information from our study in part to evaluate the building slabs. The building is experiencing structural distress and has been vacated.

SCOPE OF SERVICES

- The testing requirements were emailed to PSI on August 20 and September 2, 2010 by the Architect and Engineer. On September 1, 2010 PSI performed the requested reconnaissance of the building with Mr. George Hager (SERA) and Mr. Eric Watson, P.E., S.E. (Miller), and Marion County and Fortis Construction, Inc. representatives.
- In order to avoid concrete reinforcement and prestressed tendons both Ground Penetrating Radar (GPR) and concrete X-ray services were provided by PSI. The GPR was conducted to prescreen locations and locate optimal placement of the 14 by 17 inch X-ray film. The slab thickness was determined to be about 10 inches at core locations. The radiographic examination was conducted utilizing iridium-192 in the evenings when the building was unoccupied.
- PSI extracted two approximate 3¾ inch diameter cores for compressive strength testing (ASTM C 42) at two sites each on the 2nd to 5th floors with an additional core on the 5th and 2nd floors extracted for petrographic analysis (ASTM C 856). The drilling of the core penetrated the slab and was collected from below the slab.
- An additional core was retained from the fourth floor, location 4B. This core is to be held as an example of the condition and type of core obtained for testing and evaluation purposes.
- Additional testing as authorized by Amendment #2, were on trimmed bottom portions of cores tested in general accordance with ASTM C 642 for density, absorption and voids. Modulus of elasticity testing on the compressive strength cores was performed prior to crushing in general accordance with ASTM C 469.
- Chemical analysis of the hardened concrete (ASTM 1324) at the 5th and 2nd floors core locations was authorized December 1, 2010.

FIELDWORK

PSI conducted the field preparation (GPR and X-Ray) and core sampling from September 21st through the 28th, 2010. Cores were retrieved directly beneath the slab. This allowed minor impact on the cores. Sample locations diagrams are provided in Appendix A.

FINDINGS

Modulus of Elasticity and Compressive Strength

The ASTM C 469 modulus of elasticity test measured strain (inches of deflection per inch of core length) versus increasing pressure (pounds per square inch) applied within the elastic range limited to 40 percent of the estimated maximum compressive load. Each core was loaded to compression failure once the modulus of elasticity test was completed.

ASTM C 42 strength test prescribes that cores are sealed in a nonabsorbent bag and kept in ambient laboratory conditions for at least five days after trimming. In order to expedite information from testing, it was agreed that one of the two cores would be tested prior to this time and the companion core was tested after conditioning for at least five days. With the exception of location 4C and 2A, companion core results were within the allowed 9 percent of their average.[1]

Cores were cut at about 7½ inches below the top of slab to maintain a length to diameter ratio of 2 to 1. The remaining 2 to 3 inch bottom portions were retained for the absorption, density and voids testing (ASTM C 642). The test results for modulus of elasticity and compressive strength are reported in Table 1 below.

Table 1 Core Compressive Strength (ASTM C42), Modulus of Elasticity (ASTM C469)

Floor (date tested)	Date Cored	Total Core Length (slab thickness), inches	Modulus of Elasticity, (lbs/inch²)/(inch/inch)	Ultimate Compressive Strength, lbs/in² (psi)	Average
5C-1 (9/28/10)	9/23/10	9.7	3.67E+06	3690	
5C-2 (10/1/10)	9/23/10	9.6		3680	3685
5A-2 (9/28/10)	9/23/10	9.8	3.72E+06	4360	
5A-3 (10/1/10)	9/23/10	9.8		4240	4300
4C-1 (9/28/10)	9/23/10	10.0	3.82E+06	4020	
4C-2 (10/1/10)	9/23/10	10.0		4600	4310
4B-1 (9/28/10)	9/23/10	10.3	2.84E+06	3480	
4B-2 (10/1/10)	9/23/10	10.3	3.13E+06	3810	3645
3B-1 (10/1/10)	9/27/10	9.7	2.74E+06	3330	
3B-2 (10/4/10)	9/27/10	9.7		3480	3405
3C-1 (10/1/10)	9/27/10	10.0	3.36E+06	3600	
3C-2 (10/4/10)	9/27/10	10.0		3620	3610
2C-1 (10/1/10)	9/27/10	9.7	2.70E+06	3270	
2C-2 (10/4/10)	9/27/10	9.7		3360	3315
2A-2 (10/1/10)	9/28/10	9.9	3.01E+06	3040	
2A-3 (10/4/10)	9/28/10	10.0		3770	3405

Observations of the general core failures indicated that there was little to no aggregate fracture. Aggregate shear fractures indicate a compressive strength usually greater than 4,000 psi. Hard rock aggregate has the highest strength component of concrete and evidence of aggregate shear failure indicates a well bonded aggregate in a strong cement matrix. In this case, the primary weakness of the core occurred in the cement paste or matrix which generally crumbled. As shown in the photograph below of a typical tested core, the larger rounded coarse aggregate particles lacked aggregate fracture, were poorly bonded and contained a dusty coating in the aggregate sockets.

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[1] Precision statement for single-operator where two properly conducted tests by the same operator on the same material should not differ by more than 9% of each other.

Absorption, Density and Voids

The trimmed bottoms of each core were subjected to oven drying, saturation after immersion in water and saturation after boiling. After immersion by boiling the sample was weighed by suspending the cores in water to determine the immersed apparent mass in water. Specimen volumes exceeded the 350 cubic centimeters minimum required by the test method except 5C-2 which was 288 cm³. The average specimen volume was determined to be 383 cm³. The results of the test are provided in Table 2 below.

Table 2 Absorption, Density and Voids (ASTM C642)

Core	Absorption after immersion	Absorption after immersion and boiling	Bulk density, dry (lbs/sq. ft.) pcf	Bulk density after immersion, pcf	Bulk density after immersion and boiling, pcf	Apparent Density, pcf	Volume of permeable pore space (voids)	Estimated Voids Based on 150.3 (1) pcf to Bulk Boil pcf
5A-2	2.6%	2.8%	145.7	149.5	149.8	155.9	6.5%	0.3%
5A-3	2.9%	3.0%	145.8	149.9	150.2	156.9	7.1%	0.1%
5C-1	2.7%	2.8%	146.5	150.4	150.6	156.9	6.7%	-0.2%
5C-2	2.7%	2.9%	145.9	149.9	150.2	156.6	6.8%	0.1%
4B-1	3.1%	3.2%	144.6	149.0	149.2	156.3	7.5%	0.7%
4B-2	3.8%	4.0%	143.5	148.9	149.1	157.8	9.1%	0.8%
4C-1	2.5%	2.5%	146.3	149.9	150.0	155.6	6.0%	0.2%
4C-2	2.4%	2.4%	147.0	150.5	150.5	155.7	5.6%	-0.1%
3B-1	3.5%	3.7%	142.4	147.3	147.7	155.7	8.5%	1.7%
3B-2	3.4%	3.7%	142.3	147.2	147.6	155.4	8.4%	1.8%
3C-1	2.9%	3.0%	144.6	148.8	149.0	155.6	7.1%	0.9%
3C-2	3.4%	3.6%	143.1	147.9	148.2	155.8	8.2%	1.4%
2A-2	4.4%	4.7%	142.5	148.7	149.1	159.6	10.7%	0.8%
2A-3	4.5%	4.7%	142.4	148.8	149.1	159.7	10.8%	0.8%
2C-1	3.4%	3.6%	143.7	148.6	148.9	156.9	8.4%	0.9%
2C-2	3.4%	3.6%	142.2	147.0	147.4	155.1	8.3%	2.0%

Note:

(1) Absolute density based on mix design batch weights for the deck slab concrete is calculated at 150.3 psf. Absolute density is the batch unit weight calculated at zero void content.

Chemical Analysis of Hardened Concrete

Given that water to cement determinations are based on the cement content, the hardened concrete chemical analysis test (ASTM C 1324) was performed. This test was to provide an estimate of the proportion of cement in the paste. In order to estimate the cement content by volume a calculation was made using the ratio of the volume of tested portland cement to sand; then, multiplied by the mix percent volume of dry sand (assumed absorption of 4.5%), and the unit density of cement at 5,292 lbs/cy.

Table 3 Chemical Analysis of Hardened Concrete (ASTM C1324)

Sample ID	**Core 5A3**	**Core 2A3**
Chemical Analysis(*)		
Soluble Silica %	6.2**	6.1
Calcium Oxide %	21	21
Magnesium Oxide %	0.7	1.0
Insoluble Residue %	49	54
Loss on ignition %		
To 100°C	4.8	4.0
110°C to 550°C	7.1	6.3
550°C to 950°C	2.5	2.2
Calculated Percent by Weight (note 1)		
Portland Cement %	19.5	29.1
Calcium Hydroxide %	11.4	3.4
Dry Sand %	49.0	54.0
Ratio of Portland Cement : Dry Sand by Volume (2)	46.5%	41.3%
Calculated Lbs/CY Portland Cement		
650 lb/cy Mix (26.6% Dry Sand)	654	NA
611 lb/cy Mix (28.0% Dry Sand)	NA	612

(*) Specialty Analytical, Clackamas, Oregon performed the chemical testing. PSI performed the calculations.
(**) Average of two test results

Notes:

(1) Per ASTM C1324 the percent portland cement is calculated from the soluble silica data assuming 21.0% soluble silica assignable to the portland cement. The method assigns 63.5% of the calcium oxide to the portland cement. Sand is assumed to be the insoluble residue. This method assumes ASTM C150 Portland Cement.

(2) Unit Weight of Dry Sand (4.5% absorption)= 150.5 pcf; Unit Weight of Portland Cement = 196 pcf

Petrographic Examination

A sample from the 5th and 2nd floors was delivered to PSI's Blacksburg, Virginia office for petrographic examination to be performed in general accordance with the ASTM C 856 test method. The report is included in Appendix B. The summary of these findings are repeated below.

1. The coarse aggregate consisted primarily of basalt. The coarse aggregate consisted of both rounded and angular particles. The fine aggregate consisted primarily of crushed quartz and feldspar.
2. The water-to-cement ratio (w/c) in the bulk paste in both samples was estimated to be in the range of 0.50 and 0.55. Overall, the paste has a non-uniform w/c. Areas around the aggregate were noted to have a w/c ratio of as high as 0.60, while areas with a w/c as low as approximately 0.45-0.50 were noted.

3. The entrained air content of the analyzed samples ranged from 0.6 to 1.2 percent with a spacing factor in the range of 0.017 to 0.029 inches. An entrained[2] air content of at least 3.5 percent with a spacing factor of 0.008 to 0.010 inch. is generally considered adequate to resist freezing and thawing damage, dependant on nominal maximum aggregate size and exposure conditions, however for concrete that is not exposed to freezing and thawing cycles this is not a concern.
4. The cement paste in the analyzed samples was reasonably hydrated. Unhydrated cementitious particles were estimated to be about 10 to 15 percent.
5. No evidence of pozzolans was observed in either of the samples.
6. No reinforcement or fibers were present in the sample.
7. No evidence of secondary reactions such as ASR (Alkali Silica Reaction) or delayed ettringite formation was noted.[3]
8. Excessive microcracking was visible in the sample. Cracks were visible throughout the paste.

OPINIONS & METHODOLOGY

Compressive Strength of Cores

The required design compressive strength (f'c) was reported to be 5,000 psi for the prestressed concrete deck slabs that were tested. The results of the core compression testing indicated compressive strengths below the design requirement. Based on a low strength investigation (ACI 318 Chapter 20), the overall average of the core compressive strengths or at least the average of three cores need to be equal to at least 85 percent of f'c and no single core can be less than 75 percent of f'c. A summary of the evaluation is given below.

Table 4 Low Strength Evaluation of Average Core Compressive Strength by Floors

FLOOR	Average lbs/in²	% of 5000 (85%≤)	Lowest Individual Result	Percent of 5000 psi (75%≤)
5TH	3990	80%	3680	74%
4TH	3980	80%	3480	70%
3RD	3530	71%	3330	67%
2ND	3460	69%	3040	61%

The compressive strength evaluation would not be satisfied in either case for f'c of 5,000 psi. PSI understands that concrete strength data from acceptance tests on the concrete taken at the time of placement exceeded 5,000 psi at the 28 day requirement. Core compressive strengths represent the concrete field cured and loaded in place and not the laboratory cured acceptance test cylinders. Accordingly, field conditions allow a reduction in the tested core strength as provided in the code. Since the low strength analysis has not been satisfied it appears that the field concrete is not represented by the laboratory acceptance specimens.

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[2] Entrained air is all voids less than approximately 1mm (0.04 inch) in size whether added or inherent to the concrete according to ASTM C457 for Microscopical Determination of Parameters of the Air Void System in Hardened Concrete. Entrapped air voids are larger in size and usually more randomly distributed.

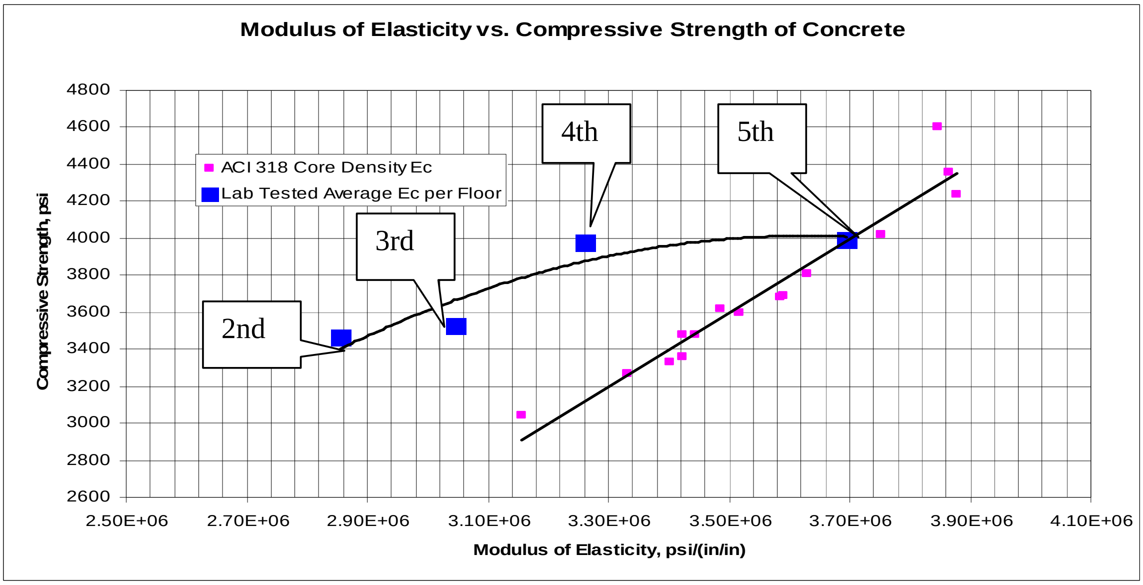
[3] Alkali Carbonate Reaction (ACR) discussed after the petrographic report was issued was also not evident in the concrete analyzed.

Modulus of Elasticity of Concrete

Modulus of elasticity of concrete (Ec) is necessary for calculating deflection in concrete flexural members. The purpose of performing Ec testing was to compare to the design estimates of Ec which may help to explain excessive deflections observed in the field as well as to support the relatively low compressive strengths observed in the laboratory testing. For example, the Building Code Requirements for Structural Concrete, ACI 318 Chapter 8, illustrates two formulas for estimating Ec in design. Both formulas are based on density (Wc) and design compressive strength (f'c) of the concrete, and are:

$Ec=33*Wc^{1.5}*\sqrt{f'c}$ or, for normal weight, normal density concrete this can be simplified to: $Ec=57000*\sqrt{f'c}$

As shown in the following chart, the laboratory tested Ec is substantially less than the estimated design Ec using actual core density and compressive strength values. The Ec would be computed at 4.03 $x10^6$ if the 5,000 psi f'c value is used in the simplified ACI formula above. The laboratory determined average Ec ranges from 71% to 92% of this computed value which suggests further losses in the stiffness of the concrete. The lower modulus of elasticity may partially explain the deflection of the elevated slabs.



Absorption, Density and Voids

The purpose of this test was to estimate void content and density of the concrete. The boiled core would approximate as-placed density for comparison with the mix design proportions and batch weights provided to PSI. The mix design unit weight (density) was calculated at 145.4 pcf given a three percent air void content. This is about 150.3 pcf at a zero percent air void content. The boiled density results fell between these two indicating that the air contents are between zero and three percent.

The method also determined the percentage volume of permeable pore space (voids) percentage which averaged 8 +/-3 percent (95% confidence level). According to section 5.4, ASTM C 457 for Microscopical Determination of Parameters of the Air Void System in Hardened Concrete, water voids are cavities filled with water at time of setting. These voids would be significant in mixtures that contain excessive mixing water or which pronounced bleeding and settlement occurred.

A water to cement ratio of approximately 0.25[4] is needed to hydrate portland cement. For the 650 and 611 lb/cy cement mix there would be 9.7 and 9.1 percent water by volume of the total mix used to hydrate the cement. Permeable voids greater than this percentage relate to water voids. The mix designed w/c ratio of 0.41 has approximately 15.8 percent mix water of the total batch by volume. Approximately 6 to 7 percent extra water voids would be calculated at a 0.41 w/c.

Core 2A-2 with the highest void content and the lowest compressive strength at 10.7 percent permeable voids, and a measured air content of 1.4 percent indicates about 9.3 percent extra water voids. Core 5A-3 (nearly the highest strength) at 7.1 percent permeable voids and 1.2 percent air content indicates about 5.9 percent extra water voids. A rough estimate on the w/c ratio based on these assumptions is 0.51 and 0.43 for cores 2A-2 and 5A-3, respectively. This indicates that the range of w/c ratios observed are higher than the mix design of 0.41 w/c. Increased water to cement (w/c) ratios reduces compressive strength directly.

Petrographic Analysis

Water to Cement Ratio

The petrographic visual examination findings support the laboratory physical testing. The coarse aggregate was noted to have a higher 0.60 w/c surrounding the aggregates and a range of 0.45 to 0.55 water to cement ratios within the paste matrix. The non-uniform w/c ratios suggest both an inadequately mixed concrete, and excessive water to cement ratio.

The mix design concrete w/c ratio is reported to be 0.41 for River-Bend Sand & Gravel mix design 5k-4 (Appendix C). The concrete can be considered out of specification if the w/c ratio of 0.41 is exceeded. A broad range of w/c ratios indicate water additions that were not uniformly mixed into the concrete. The exceptionally higher w/c ratios around the aggregates help to explain the dusty substance or laitance on the aggregates found after core compression failure. The laitance is an accumulation of finer particles which migrate with bleed water to the aggregate surface(s).

Void Content & Other Constituents

The total air void content for both specimens on the 2nd and 5th floors ranged 0.6 to 1.2 percent which is within the estimated laboratory density void content range of zero to three percent. Mix number 5k-4 was designed as a non-air entrained concrete at 3 percent air void content. No air entrainment admixture is given in the mix design and none was reported in batch weights provided to PSI for the 2nd and 5th floor concrete. Batch tickets that were reviewed are included in Appendix D.

Other petrographic observations that were consistent with mix design 5k-4 were the absence of fiber mesh or fiber reinforcement as well as pozzolans such as flyash. Cement paste was reasonably hydrated indicating the moisture in the concrete was adequate for hydration. Obvious deleterious conditions such as Alkali Silica Reaction (ASR) or delayed ettringite formation (sulfate crystal attack) were not evident in the concrete.

Microcracking

Excessive microcracking was observed in the concrete paste matrix. Excessive microcracking indicates overstressed and partially failed paste resulting in a low strength concrete unable to resist service loads. The excessive microcracking could indicate the progressive failure of the concrete as it passes the threshold from elastic deflections to inelastic deformations as evidenced by sagging prestressed slabs.

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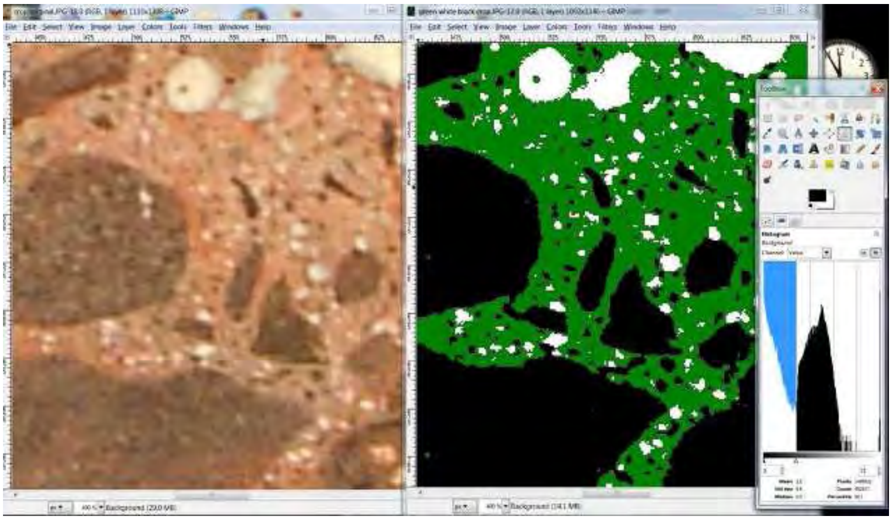
[4] ASTM E 1907 Determining Moisture-Related Acceptability of Concrete Floors to Receive Moisture-Sensitive Finishes.

Microcracking results from the relief of internal stresses predominately within the paste. These internal stresses are usually the result or a combination of restrained shrinkage around aggregates, thermal differentials, chemical attack, and excessive strain from external loads and concrete creep. The progression of microcracking weakens concrete and partly explains the reductions in laboratory modulus of elasticity compared to the calculated theoretical values and lower strengths.

Percent Volume of Paste, Voids and Aggregate

A technique using digital photographs and photo manipulation software[5] was developed to quantify paste volume, voids and aggregates of core remnants 2A-3 and 5A-3. Depictions are shown in appendix E of unprocessed and processed photographs. The methodology was to digitally photograph the polished surface of each core after colorizing the paste and void portions separately. In this example, white wood putty was used to fill the voids after the paste was “dyed” by the pH indicator phenolthalein that turns the alkaline cement portion reddish purple to contrast with the aggregate. A process of selecting the “dyed” paste and filling a homogeneous intermediate color (green) for the paste contrasted by the white voids and black aggregate particles was repeated until each of the three color values was fully realized as shown in the example below.



A histogram feature of GIMP was then used to determine the percent frequency of each color by number of associated pixels. Both sides of each core was analyzed and averaged for the percentages. The resolution of the digital photograph resulted in a pixel size of about 0.001 inches. This was adequate to identify grain sizes passing through the no. 100 sieve size (150 microns or 0.006 inches). It was presumed that the portion passing the no. 200 sieve (0.074 microns or 0.003 inches) would not be easily identified and that these fines were incorporated into the paste portion. To compensate for this, the ASTM C 33 (Standard Specification for Concrete Aggregates) for sand five percent maximum allowed passing the no. 200 was subtracted from the paste.

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[5] GIMP is the GNU Image Manipulation Program. It is a freely distributed piece of software for such tasks as photo retouching, image composition and image authoring.

Appendix E shows a comparison of the batch weights versus the photo analysis percent volumes was performed on core 5A-3 with 650 and 2A-3 with 611 lbs of cement per cubic yard. The percent difference between the calculated batch and photo-analysis percentages is related to the difference in unaccounted water suspected in the mix. If the amount of coarse aggregate free water increased 2 percentage points to 2.5 and 3 percent for the ¾ inch and 3/8 inch aggregate sizes results in a w/c of about 0.45 and 0.48 for 5A-3 and 2A-3, respectively.

Batch Proportions & Tickets

Batch tickets and laboratory strength data for a portion of the concrete 2nd, 5th floor roof and basement level slabs were provided to PSI for review. Volumetric calculations indicated that yield was nearly 100 percent based on batch weights. The chemical analysis verified the cement contents. A review of the batch weights on the tickets included any noted gallons of water added at the jobsite, and free water in the aggregates. Admixtures and mix water indicated that the mix water to cement ratio approximated the designed water to cement ratio of 0.41 upon delivery.

An observation was that the original mix design with 585 lbs/cy cement was apparently not used. Batch weights show that the cement content of 611 lbs/cy was used for the second floor slab, and increased to 650 lbs/cy by the fifth floor, 670 lbs/cy for the roof and 680 lbs/cy for the basement slab. This increase in cement may have been an attempt to increase compressive strength of the concrete or control excess water. The 1st floor, roof and basement slabs also contained Tetraguard which is a shrinkage controlling admixture. The first floor and basement slabs contained fiber mesh reinforcement as well as Tetraguard. This suggests that drying shrinkage was a concern for these slabs.

Uncontrolled Water Additions

Given the evidence for a water cement ratio higher than 0.41, the source of this additional uncontrolled water is not obvious. Uncontrolled water additions are generally attributed to the following:

Batch Plant

- Inaccurate aggregate moisture contents
- Inaccurate water meters and batch weight scales
- Batching out of mix design tolerances
- Water added to concrete at the plant's truck wash rack after batching

Field Conditions

- Water added to the concrete at the truck once onsite without an accurate account, if any, recorded on the ticket
- Rain or ponding with unprotected concrete placements

For this analysis the documents provided were taken as being factual of the concrete at the time of batching, placement and acceptance testing. Otherwise there would be a systemic misreporting of water additions and compressive strength results on the acceptance testing. Validating this data is beyond the scope of this report.

Aggregate Free Moistures

The trend indicates that there was a systemic problem with extra water in the concrete. Given no obvious recorded water additions, the unrecorded water could be the result of a miscalculation or improper inputs for moisture on the batch computer. If the batch scales are considered to be within industry standards for accuracy then the aggregate moisture content inputs might be underestimated. The sand moisture contents varied in the batch weights, whereas the ¾ inch and 3/8 inch coarse aggregate free moisture contents are fixed at 0.5 and 1.0 percent for the construction of the building prestressed slabs from November 1999 through March 2000. This indicates that the sand moisture is metered whereas the coarse aggregate moisture was assumed over this 5 month period. A two percentage increase in moisture content for both coarse aggregates result in w/c ratios within the findings of this report.

It appears that the moisture contents for the coarse aggregate were not measured directly, nor checked throughout the construction of the slabs. Coarse aggregate is usually stockpiled outside with the sand. The moisture fluctuations observed in the sand would be similar to fluctuations in the coarser aggregates. It is likely that the coarse aggregates experienced free moisture contents higher then reported through the winter rainy period.

A clean coarse aggregate may hold up to two percent free moisture, but a dirty aggregate could retain more. A dirty aggregate is an aggregate (both sand and coarse), that contain excess fines. ASTM C 33 requires that coarse aggregate contain less than 1% fines passing the number 200 sieve (0.075 mm). If an aggregate is not thoroughly cleaned after mining, then the fines might be substantial. If the fines contain clay particles the moisture retention can be exponential.

A dirty fine aggregate can also be indicated by the Sand Equivalent (SE) test which provides a ratio of suspended clay particles to sand in a tube filled with hexametaphosphate solution (ASTM D 2419 and AASHTO T 176). This test was developed for asphalt paving aggregates but will provide a measure of cleanliness and is referenced in the Oregon Dept. of Transportation specifications for concrete aggregates. For example, an SE less than about 68 (2008 ODOT Spec 2690.30(f)) could be indicative of dirty aggregates. Neither ASTM C 33 test report(s) nor ODOT specification test reports were available at this time, however, should be subject to review.

Acceptance Testing

The documented mix proportions and weights and the acceptance strength results contradict the findings of the in-place concrete being low strength with an excessive w/c ratio. Acceptance testing data at time of placement should be valid if:

- Concrete is properly batched, mixed and delivered to the jobsite without tampering (ASTM C 94 Standard Specification for Ready-Mixed Concrete).
- Sampling met ASTM C 172 (Sampling of Freshly Mixed Concrete). ASTM C 172, requires composite samples be obtained from the middle portion or more specifically after the first 10% and before the last 90% of discharge. Samples are not to be obtained until after all the water has been added to the mix.
- Fresh Properties testing and casting strength specimens was in accordance with relevant ASTM standards. The American Concrete Institute (ACI) provides a certification for Grade 1 Field Test Technician which is a general requirement of concrete field technicians. This certifies the technician performing the test by a written and practical exam and is valid for a 5 year period.
- Strength samples were properly handled, field and lab cured, transported and labeled at the laboratory performing the compression test.
- Compression testing was performed and reported in accordance with the respective ASTM procedure for capping and compression testing.

If these conditions are not satisfied then compression results may misrepresent the concrete sampled. Although the compressive documentation is incomplete the reporting appears to be thorough. The narrow difference in observed companion test cylinder breaks at 28 days indicates a high level within test quality control. A consistently high level is not likely for every test but there is variance between sample sets relevant to each placement grouping (i.e., concrete “pour”).

Drying Shrinkage

The effects of drying shrinkage are long term over several years. Drying shrinkage is a reduction in the volume of the concrete due to the evaporation of free moisture from the pores of the concrete. Although the rate of shrinkage is higher in the short term the long term shrinkage could be several times the first 28 days of curing. As the moisture evaporates, surface tension in the pore water draws on the capillary walls causing an inward pull. This pull shrinks the concrete paste. Extra free water in the paste exacerbates drying shrinkage.

Aggregates can regulate the shrinkage potential of concrete. A well bonded hard aggregate (especially crushed) can resist some effects of shrinkage. A poorly bonded or loosened aggregate (especially a rounded aggregate as used in 5k-4), can enhance shrinkage and lessen the distribution of stresses between the aggregate and the paste. Over time this can create disproportionate stress risers in the paste. The strain caused by differential shrinkage within the slab, in combination with the service loads, acts on the concrete in complicated and unpredictable ways that cannot be explained in this report. But this condition might partly explain long term failure of the concrete.

Drying shrinkage in the short term, (28 days) would not have an appreciable affect on acceptance test specimens. An acceptance strength test specimen properly fabricated, handled and tested would be more indicative of the w/c ratio and the proportioning of the concrete mix, then that of shrinkage effects.

CONCLUSIONS

The findings provide confirmation that the in place concrete does not meet the f'c compressive strength requirement for design at 5,000 psi. It is also evident from the findings that the concrete placed appeared to be representative of the mix design concrete supplied in most aspects except for the relatively high w/c ratios as compared to the mix design. It is likely that the excess water partly caused the concrete to be low strength. The analysis shows that the lower floors had a higher w/c ratio than the upper level floors which correlate directly with the core compressive strengths.

The coarse aggregate free moisture contents were not directly metered and assumed to be fixed. If other documented sources of water added to the mixes are accepted as factual, the excess water could be attributed to an underestimation of the assumed aggregate moisture contents. An attempt may have been made to compensate for unexpected lower strength resulting from excess water during construction by increasing the cement content only (but lowering the sand portion to maintain yield).

The conditions for large shrinkage factors are evident in the high w/c ratio and paste volume, and poorly bonded round coarse aggregate particles. The poorly bonded aggregate is indicative of a dirty aggregate that can increase the water demand resulting in the higher w/c observed.

The concrete cores had extensive microcracking prior to the modulus of elasticity and compression test that affected the strength performance. The microcracking is an effect observed from the failure of the paste portion of the concrete while in service. Other deleterious conditions related to the concrete materials were not evident in the specimens analyzed.

RECOMMENDATIONS

To support the conclusions a further document review would be needed to reconstruct the history of the concrete materials and workmanship. In addition, the validity of the documentation should be appraised. This appraisal is not limited to but should include:

- A statistical analysis of the laboratory acceptance test data be conducted to evaluate construction quality of the concrete in accordance with ACI 214. Other aspects that can be investigated are anomalies in the test data, trends and probabilities of meeting strength levels.
- The strength level of the concrete represented by the field cores can also be analyzed (additional core tests may be needed).
- As noted, some physical properties of materials have been assumed and should be verified through vendor documentation from ODOT and the concrete supplier. This might include material certifications and test reports on the aggregate, portland cement, mix water and admixture product submittals.
- Interview quality control technicians, special inspectors, concrete truck drivers, plant operators, foreman, consultants, etc. with knowledge or first hand experience with the concrete production and materials.
- Investigate contractor documentation such as the general contractor's "Request for Information" (RFI) process to the Engineer of Record for changes to the specifications or approved materials.

- Investigate daily special inspection records for unusual observations.
- Obtain additional field measurements to estimate contribution of slab shortening due to shrinkage, if any. Investigate slab warpage, if any, related to unusually applied stresses and strains. Investigate mechanisms that could result in observable displacements (for example the shrinkage reducing admixture added roof slab concrete is reported to be performing adequately as compared to the 5th floor slab even though these are of the same basic mix design).
- Attempt to replicate the concrete mix conditions in the laboratory by proportioning and casting compressive strength and shrinkage specimens. The results of the shrinkage test would help to quantify percent shrinkage. Use source materials equivalent to 5k-4 concrete mixtures. Examine source aggregates for contamination (“dirty”). As a control compare clean aggregate with dirty aggregate conditions. The effects of shrinkage reducing admixtures (Tetraguard) should be evaluated. Examine crushed specimens for aggregate bond. Submit specimens for laboratory analysis similar to that conducted in this report.

LIMITATIONS

Services performed for this project have been conducted with the level of care and skill ordinarily exercised by members of the profession currently practicing in this area under similar budget and time constraints. This report has been prepared for the exclusive use of Marion County. This report shall not be reproduced, except in full, without written approval of PSI.

Core remnants were selected by PSI, SERA and Miller Consulting Engineers to be sent by PSI on November 4, 2010 to CTL Group for referee petrographic examination. The purpose of this was for independent evaluation given a difference in the results by PSI and prior testing by others.

Please contact the undersigned at (503) 289-1778, if you require additional investigation, or would like to discuss this report.

Respectfully submitted,
Professional Service Industries, Inc.

REGISTERED PROFESSIONAL ENGINEER
17218
OREGON
1/14/11
July 19, 1994
JAMES A. HATHAWAY
EXPIRES 6/30/11

Jay A. Hathaway, P.E.
Regional Engineer/Principal Consultant

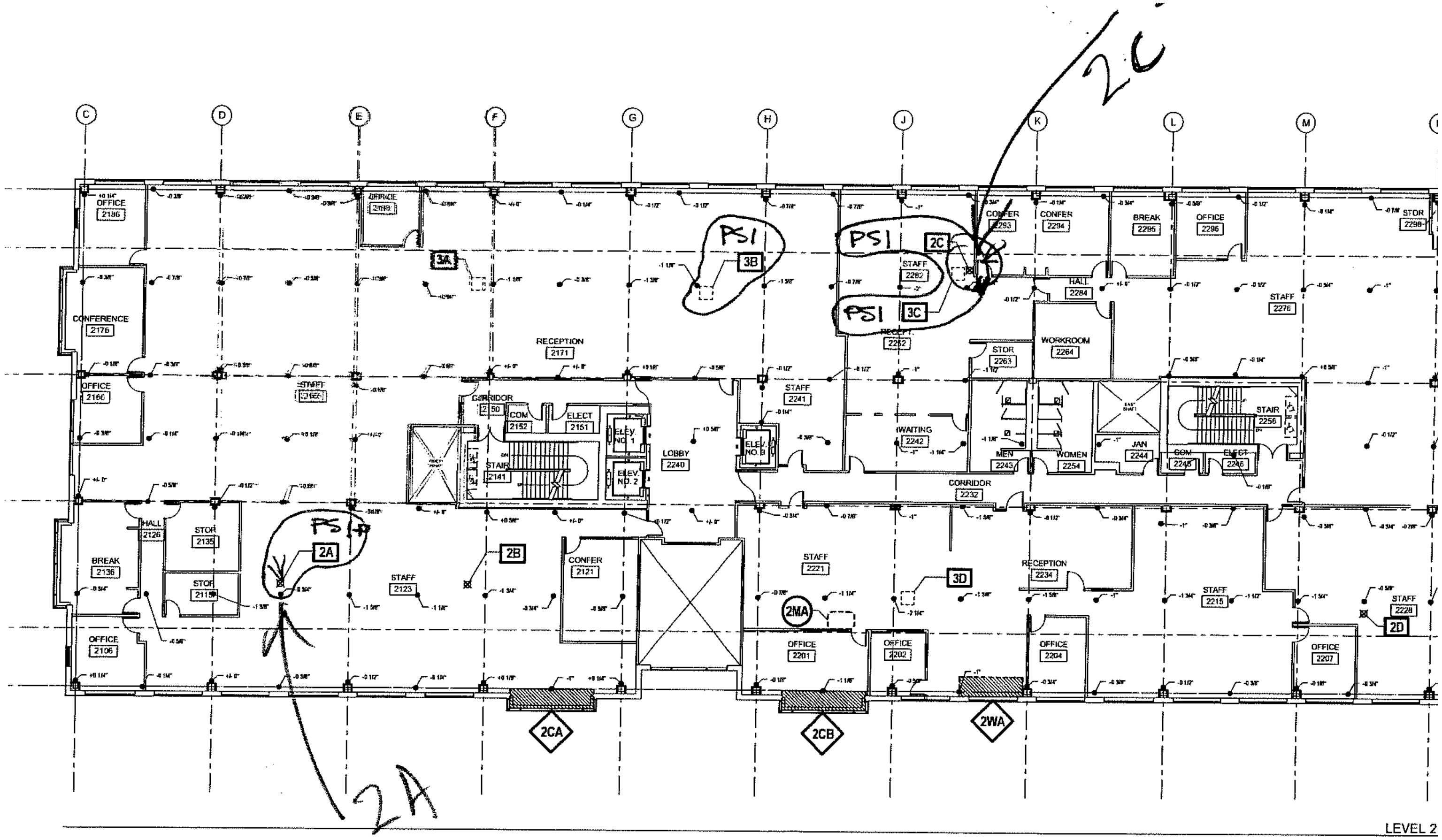
Stephen Bryant, P.E., G.E.
Vice President

Attachments: Appendices

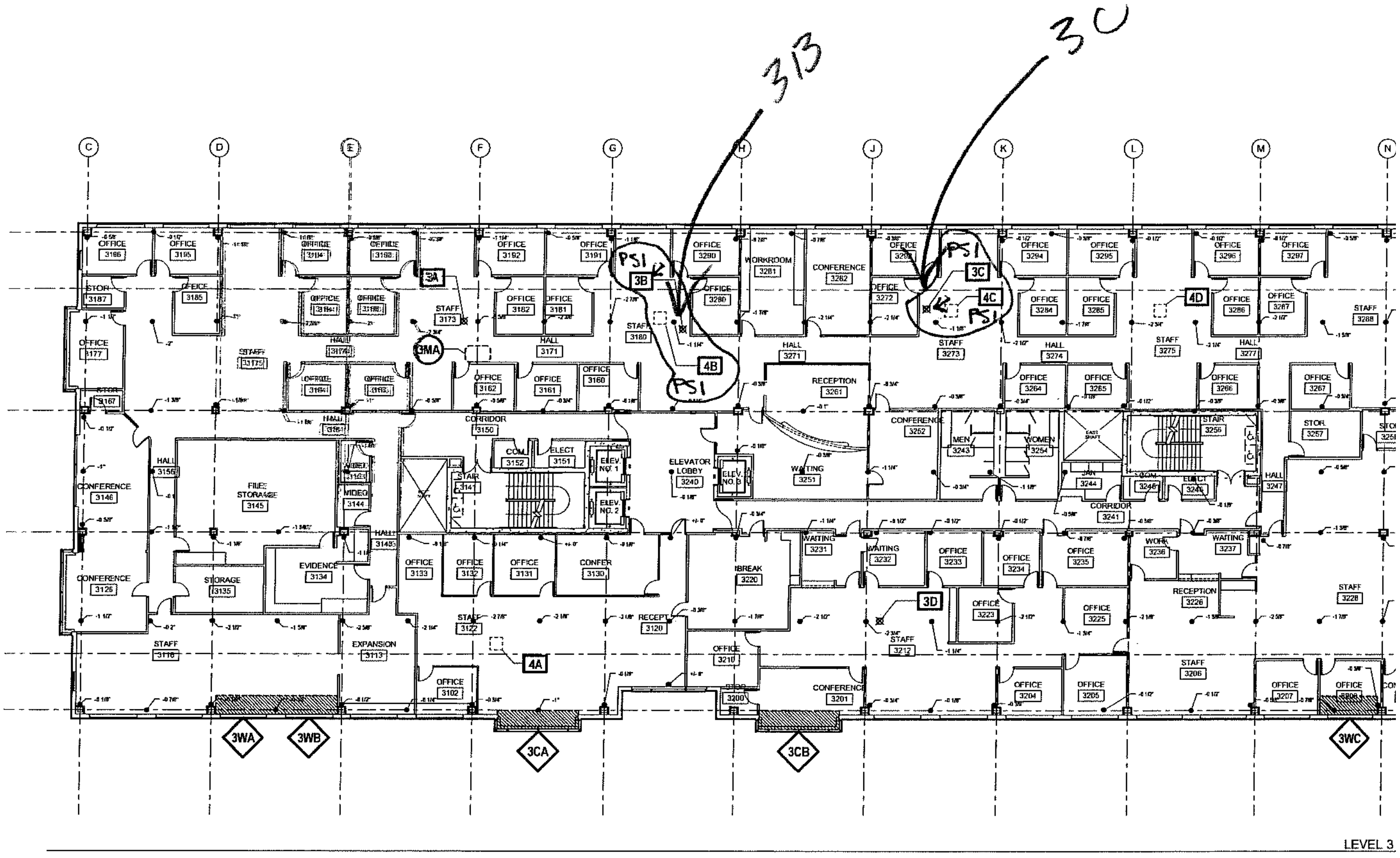
APPENDIX A

FIELD SAMPLE LOCATION DIAGRAMS

2nd FLOOR


C
D
E
F
G
H
J
K
L
M
2C
PSI
3B
PSI
2C
PSI
3C
3A
OFFICE 2186
OFFICE 2189
CONFERENCE 2176
OFFICE 2166
STAFF 2165
RECEPTION 2171
CORRIDOR 2150
COM 2152
ELECT 2151
ELEV NO. 1
ELEV NO. 2
STAIR 2141
LOBBY 2240
ELEV NO. 3
STAFF 2241
STAFF 2282
RECEPT. 2262
WAITING 2242
CONFER 2293
CONFER 2294
BREAK 2295
OFFICE 2296
STOR 2298
HALL 2284
STAFF 2276
STOR 2263
WORKROOM 2264
MEN 2243
WOMEN 2254
JAN 2244
COM 2245
ELECT 2246
STAIR 2256
CORRIDOR 2232
HALL 2126
STOR 2135
STOR 2115
BREAK 2136
OFFICE 2106
PS1-P
2A
2B
STAFF 2123
CONFER 2121
STAFF 2221
2MA
3D
OFFICE 2201
OFFICE 2202
RECEPTION 2234
OFFICE 2204
STAFF 2215
OFFICE 2207
STAFF 2228
2D
2CA
2CB
2WA
2A
LEVEL 2

3rd FLOOR


3B
3C
PSI
PSI
PSI
PSI
C
D
E
F
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H
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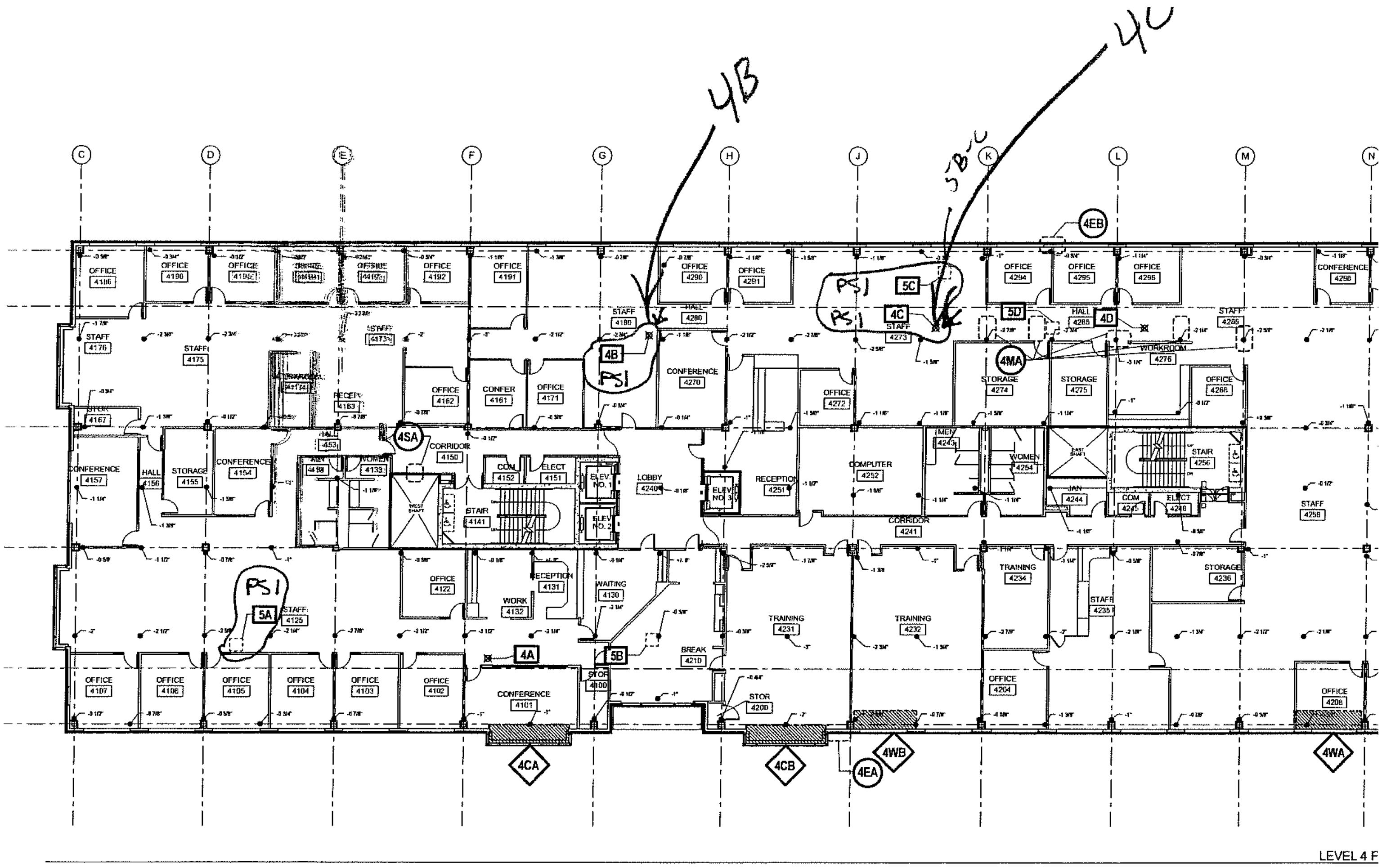
K
L
M
N
3A
3B
4B
3C
4C
4D
3D
4A
3MA
3WA
3WB
3CA
3CB
3WC
OFFICE 3186
OFFICE 3195
OFFICE 3185
STOR 3187
OFFICE 3177
STAFF 3175
STAFF 3173
OFFICE 3192
OFFICE 3191
OFFICE 3182
OFFICE 3181
HALL 3171
OFFICE 3162
OFFICE 3161
OFFICE 3160
STAFF 3180
OFFICE 3290
OFFICE 3280
WORKROOM 3281
CONFERENCE 3282
HALL 3271
RECEPTION 3261
OFFICE 3272
STAFF 3273
OFFICE 3294
OFFICE 3295
OFFICE 3284
OFFICE 3285
HALL 3274
OFFICE 3264
OFFICE 3265
STAFF 3275
OFFICE 3296
OFFICE 3297
OFFICE 3286
OFFICE 3287
HALL 3277
OFFICE 3266
OFFICE 3267
STAFF 3288
STOR 3257
CORRIDOR 3150
COM 3152
ELECT 3151
STAIR 3141
ELEV. NO. 1
ELEV. NO. 2
ELEVATOR LOBBY 3240
ELEV. NO. 3
WAITING 3251
CONFERENCE 3252
MEN 3243
WOMEN 3254
JAN 3244
STAIR 3256
CORRIDOR 3241
HALL 3247
HALL 3156
CONFERENCE 3146
FILE STORAGE 3145
VIDEO 3144
HALL 3143
CONFERENCE 3126
STORAGE 3135
EVIDENCE 3134
STAFF 3116
EXPANSION 3113
OFFICE 3133
OFFICE 3132
OFFICE 3131
CONFER 3130
STAFF 3122
RECEPT 3120
OFFICE 3102
BREAK 3220
OFFICE 3210
WAITING 3231
WAITING 3232
OFFICE 3233
OFFICE 3234
OFFICE 3235
OFFICE 3223
OFFICE 3225
STAFF 3212
CONFERENCE 3201
OFFICE 3204
OFFICE 3205
WORK 3236
WAITING 3237
RECEPTION 3226
STAFF 3206
STAFF 3228
OFFICE 3207
OFFICE 3208
LEVEL 3

4Th FLOOR


4B
4C
5B-C
PSI
PSI
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PSI
4B
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5C
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5A
4A
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4SA
4MA
4EB
4CA
4CB
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4WA
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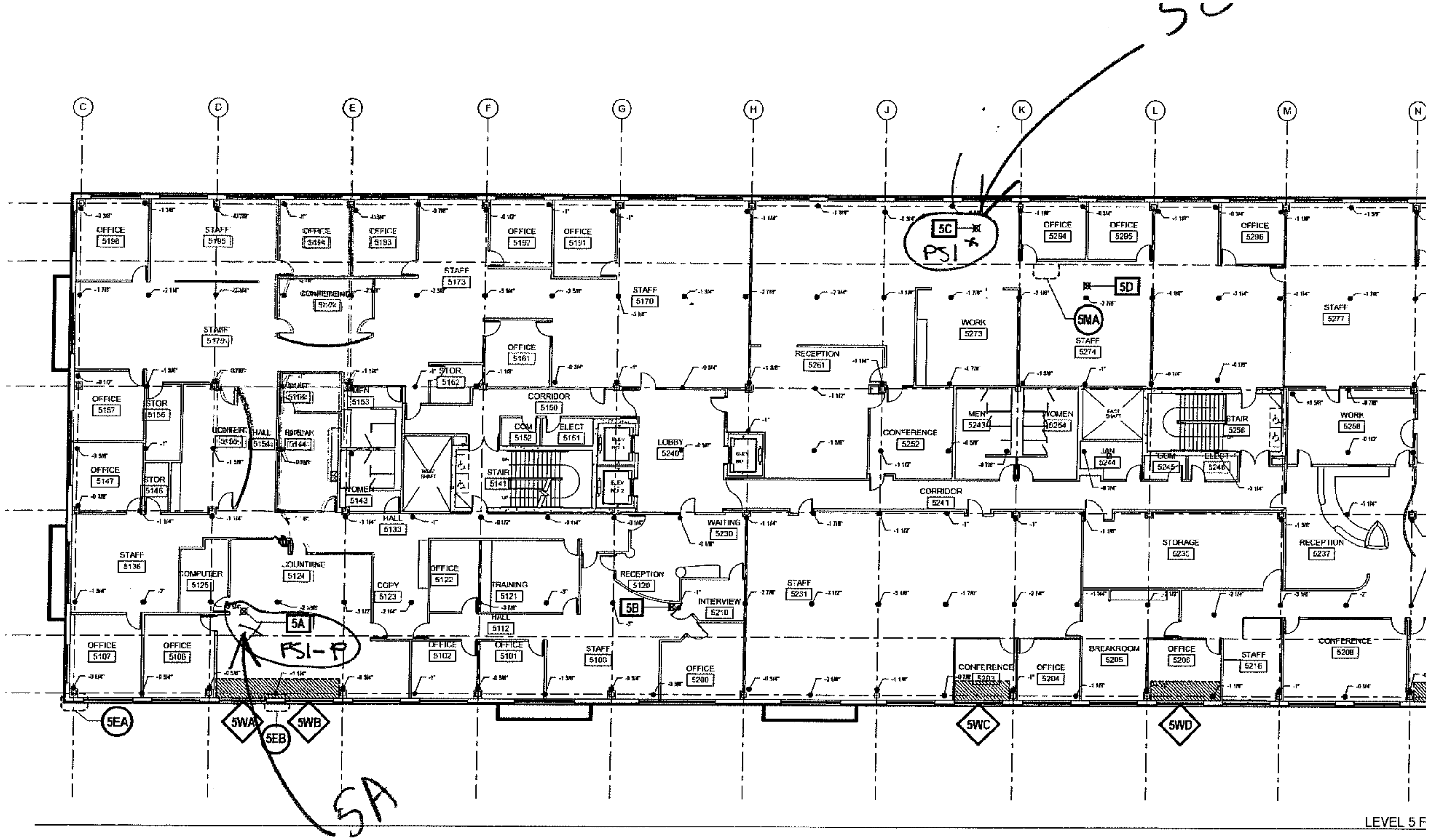
OFFICE 4186
OFFICE 4190
OFFICE 4191
OFFICE 4192
STAFF 4176
STAFF 4175
STAFF 4173
STAFF 4180
HALL 4280
OFFICE 4290
OFFICE 4291
STAFF 4273
OFFICE 4294
OFFICE 4295
OFFICE 4296
HALL 4285
STAFF 4286
WORKROOM 4276
CONFERENCE 4298
OFFICE 4162
CONFER 4161
OFFICE 4171
CONFERENCE 4270
OFFICE 4272
STORAGE 4274
STORAGE 4275
OFFICE 4266
RECEPT 4163
CONFERENCE 4157
HALL 4156
STORAGE 4155
CONFERENCE 4154
WOMEN 4133
CORRIDOR 4150
COM 4152
ELECT 4151
STAIR 4141
ELEV NO. 1
ELEV NO. 2
LOBBY 4240
ELEV NO. 3
RECEPTION 4251
COMPUTER 4252
CORRIDOR 4241
MEN 4243
WOMEN 4254
JAN 4244
COM 4245
ELECT 4246
STAIR 4256
STAFF 4258
OFFICE 4122
RECEPTION 4131
WORK 4132
WAITING 4130
BREAK 4210
TRAINING 4231
TRAINING 4232
TRAINING 4234
STAFF 4235
STORAGE 4236
STAFF 4125
OFFICE 4107
OFFICE 4106
OFFICE 4105
OFFICE 4104
OFFICE 4103
OFFICE 4102
CONFERENCE 4101
STOR 4100
STOR 4200
OFFICE 4204
OFFICE 4208
WEST SHAFT
EAST SHAFT
LEVEL 4 F

5Th FLOOR


5C
5C
PSI *
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5MA
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PSI-R
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K
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M
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OFFICE 5196
STAFF 5195
OFFICE 5194
OFFICE 5193
OFFICE 5192
OFFICE 5191
OFFICE 5294
OFFICE 5295
OFFICE 5286
CONFERENCE 5172
STAFF 5173
STAFF 5171
STAFF 5170
OFFICE 5161
STOR 5162
RECEPTION 5261
WORK 5273
STAFF 5274
STAFF 5277
OFFICE 5157
STOR 5156
CONFER 5155
HALL 5154
BREAK 5144
MEN 5153
WOMEN 5143
CORRIDOR 5150
COM 5152
ELECT 5151
STAIR 5141
LOBBY 5240
CONFERENCE 5252
MEN 5243
WOMEN 5254
JAN 5244
COM 5245
ELECT 5246
STAIR 5256
WORK 5258
CORRIDOR 5241
OFFICE 5147
STOR 5146
HALL 5133
WAITING 5230
STAFF 5136
COMPUTER 5125
COUNTING 5124
COPY 5123
OFFICE 5122
TRAINING 5121
HALL 5112
RECEPTION 5120
INTERVIEW 5210
STAFF 5231
STORAGE 5235
RECEPTION 5237
OFFICE 5107
OFFICE 5106
OFFICE 5102
OFFICE 5101
STAFF 5100
OFFICE 5200
CONFERENCE 5203
OFFICE 5204
BREAKROOM 5205
OFFICE 5206
STAFF 5216
CONFERENCE 5208
LEVEL 5 F

APPENDIX B

PETROGRAPHIC EXAMINATION REPORT

Information To Build On
Engineering • Consulting • Testing

PETROGRAPHIC ANALYSIS REPORT

PROJECT:
Marion County Courthouse Remediation
Salem, OR

REPORTED TO:
PSI
6032 N. Cutter Circle, Suite 480
Portland, OR
Attention: Mr. J. Hathaway, P.E.
Phone: 503.978.4728
Fax: 503.289.1918

Petrographic Lab No.: 807-I-06033

Date: October 15, 2010

BACKGROUND

This report presents the results of petrographic and analysis of two core samples, labeled 5A (06033-1) and 2A (06033-2), and submitted by Mr. Jay Hathaway, P.E. of PSI's Portland, OR office. Reportedly, the samples were from the Marion County Courthouse, in Salem, OR. Sample 5A was retrieved from a 5th floor post-tensioned concrete floor slab, while 2A was retrieved from a 2nd floor post-tensioned concrete floor slab. The concrete is approximately 10 years old and it was reported that the compressive strength of core samples retrieved from the floor slabs was less than the design 28-day strength of 5,000 psi. The objective of the petrographic analysis was to determine the cause of low compressive strength of concrete in the floor slab.

SUMMARY OF FINDINGS

The findings of our petrographic analysis are summarized below:

1. The coarse aggregate consisted primarily of basalt. The coarse aggregate consisted of both rounded and angular particles. The fine aggregate consisted primarily of crushed quartz and feldspar.

2. The water-to-cement ratio (w/c) in the bulk paste in both samples was estimated to be in the range of 0.50 and 0.55. Overall, the paste has a non-uniform w/c. Areas around the aggregate were noted to have a w/c ratio of as high as 0.60, while areas with a w/c as low as approximately 0.45-0.50 were noted.

3. The entrained air content of the analyzed samples ranged from 0.6 to 1.2% with a spacing factor in the range of 0.017 to 0.029 in. An entrained air content of at least

3.5% with a spacing factor of 0.008 to 0.010 in. is generally considered adequate to resist freezing and thawing damage, dependant on nominal maximum aggregate size and exposure conditions, however for concrete that is not exposed to freezing and thawing cycles this is not a concern.

4. The cement paste in the analyzed samples was reasonably hydrated. Unhydrated cementitious particles were estimated to be about 10% to 15%.

5. No evidence of pozzolans was observed in either of the samples.

6. No reinforcement or fibers were present in the sample.

7. No evidence of secondary reactions such as ASR or delayed ettringite formation was noted.

8. Excessive microcracking was visible in the sample. Cracks were visible throughout the paste.

CONCLUSIONS

The general overall quality of the analyzed samples was rated as poor, as evidenced by a high and non-uniform w/cm that was estimated to be in the range of 0.50 to 0.55 with patches of w/cm as high as 0.60. The w/c of the mix is significantly higher than the approved mix design. Concrete of such quality is expected to yield a compressive strength lower than the design 28-day strength of 5,000 psi.

TEST PROCEDURES

Petrographic analysis

The petrographic analysis was performed in general accordance with ASTM C 856-04. The analysis included a blue-dyed thin section using a polarized light microscope. Water-to-cement ratio was estimated based upon the appearance of a finely lapped sample surface and examination of a thin section under a polarized light microscope.

Air content testing

Air content testing was performed in general accordance with ASTM C 457-06, Procedure A—Linear Traverse Method. A thick polished section cut from the concrete core was examined using a stereo microscope at a magnification of 125x.

REMARKS

The test samples will be retained for a period of 30 days from the date of this report. Unless further instructions are received by that time, the samples will be discarded. This report may not be copied, in whole or in part, without the written permission of PSI. This report is accurate for the sample actually tested. Other concrete material batched and placed on this same day may have different physical properties.

Respectfully submitted,
Professional Service Industries, Inc.

Lori Koch

Lori Koch, E.I.T.
Staff Engineer

Andrei Ramniceanu, Ph.D.
Project Engineer

PETROGRAPHIC ANALYSIS DATA SHEET

Petrographic Lab Report No.: 807-I-06033 Sample I.D: 06033-1

A. General Observations

1. Sample Dimensions: The sample was a 9 ½” long by 3 ¾” diameter concrete core. One polished section with blue epoxy impregnation was examined under a stereo microscope, and one thin section with blue epoxy impregnation was studied under a polarizing light microscope.

2. Surface Condition: Smooth finished surface.

3. Reinforcement: None observed

4. General Conditions: The concrete sample was in stable condition. Aggregates were well oriented and well distributed.

B. Aggregate

1.	Coarse :	The coarse aggregate consisted primarily of both angular and rounded basalt.
2.	Fine:	The fine aggregate consisted primarily of angular quartz and feldspar.

C. Cementitious Paste

1.	Paste Content:	26.4%
2.	Air Content:	1.2% Total, 1.2% Entrained, 0.0% Entrapped
3.	Carbonation:	Negligible
4.	Pozzolan Presence:	None
5.	Paste/Aggregate Bonding:	Poor
6.	Paste Color:	Light gray
7.	Paste Hardness:	Soft
8.	Secondary Deposits:	None
9.	Water-to-Cementitious Materials Ratio (W/CM):	Average w/cm of the bulk portion of the concrete sample was estimated to be in the range of 0.50 to 0.55, however areas as low as 0.45 were noted. Areas around the aggregates were noted to have w/cm as high as 0.60.
10.	Paste Quality:	The cementitious material was reasonably hydrated, with about 10% to 15% unhydrated cementitious particles.
11.	Microcracks:	Microcracks were observed in the paste and around the aggregate.

PETROGRAPHIC ANALYSIS DATA SHEET

Petrographic Lab Report No.: 807-I-06033 Sample I.D: 06033-2

A. General Observations

1. Sample Dimensions: The sample was a 9 ½" long by 3 ¾" diameter concrete core. One polished section with blue epoxy impregnation was examined under a stereo microscope, and one thin section with blue epoxy impregnation was studied under a polarizing light microscope.

2. Surface Condition: Smooth finished surface.

3. Reinforcement: None observed

4. General Conditions: The concrete sample was in stable condition. Aggregates were well oriented and well distributed.

B. Aggregate

1.	Coarse :	The coarse aggregate consisted primarily of both angular and rounded basalt.
2.	Fine:	The fine aggregate consisted primarily of angular quartz and feldspar.

C. Cementitious Paste

1.	Paste Content:	24.1%
2.	Air Content:	1.4% Total, 0.6% Entrained, 0.8% Entrapped
3.	Carbonation:	Negligible
4.	Pozzolan Presence:	None
5.	Paste/Aggregate Bonding:	Poor
6.	Paste Color:	Light gray
7.	Paste Hardness:	Soft
8.	Secondary Deposits:	None
9.	Water-to-Cementitious Materials Ratio (W/CM):	Average w/cm of the bulk portion of the concrete sample was estimated to be in the range of 0.50 to 0.55, however areas as low as 0.45 were noted. Areas around the aggregates were noted to have w/cm as high as 0.60.
10.	Paste Quality:	The cementitious material was reasonably hydrated, with about 10% to 15% unhydrated cementitious particles.
11.	Microcracks:	Microcracks were observed in the paste and around the aggregate.

AIR VOID SYSTEM ANALYSIS REPORT

PROJECT:
Marion County Courthouse Remediation
Salem, OR

REPORTED TO:
PSI
6032 N. Cutter Circle, Suite 480
Portland, OR
Attention: Mr. J. Hathaway, P.E.
Phone: 503.978.4728
Fax: 503.289.1918

Petrographic Lab No.: 807-I-06033 **Date:** October 15, 2010

Sample I.D.:	1
Sample Data:	
Sample Description:	9 ½” long by 3 ¾ ” in diameter core
Test Data:	
Air Void Content (%)	1.2
Entrained (%)	1.2
Entrapped (%)	0.0
Air Voids/inch	1.58
Average Void Length (in.)	0.008
Specific Surface (in^2/in^3)	518.0
Spacing Factor	0.017
Paste Content (%)	26.4
Magnification	125x
Test Date	10/11/10

Conformance: The air void system in the analyzed sample is marginal to resist freezing and thawing damage. However, this is not a concern for concrete not exposed to freezing and thawing cycles.

Remarks:

1. The analysis was performed in general accordance with ASTM C-457-06, Procedure A—Linear Traverse Method.
2. The test sample will be retained for 30 days from the date of this report. After 30 days, the sample will be discarded unless other instructions are received.
3. This report may not be copied, in whole or in part, without the written permission of PSI.
4. This report is accurate for the sample actually tested. Other concrete material batched and placed on this same day may have different physical properties.

AIR VOID SYSTEM ANALYSIS REPORT

PROJECT:
Marion County Courthouse Remediation
Salem, OR

REPORTED TO:
PSI
6032 N. Cutter Circle, Suite 480
Portland, OR
Attention: Mr. J. Hathaway, P.E.
Phone: 503.978.4728
Fax: 503.289.1918

Petrographic Lab No.: 807-I-06033

Date: October 15, 2010

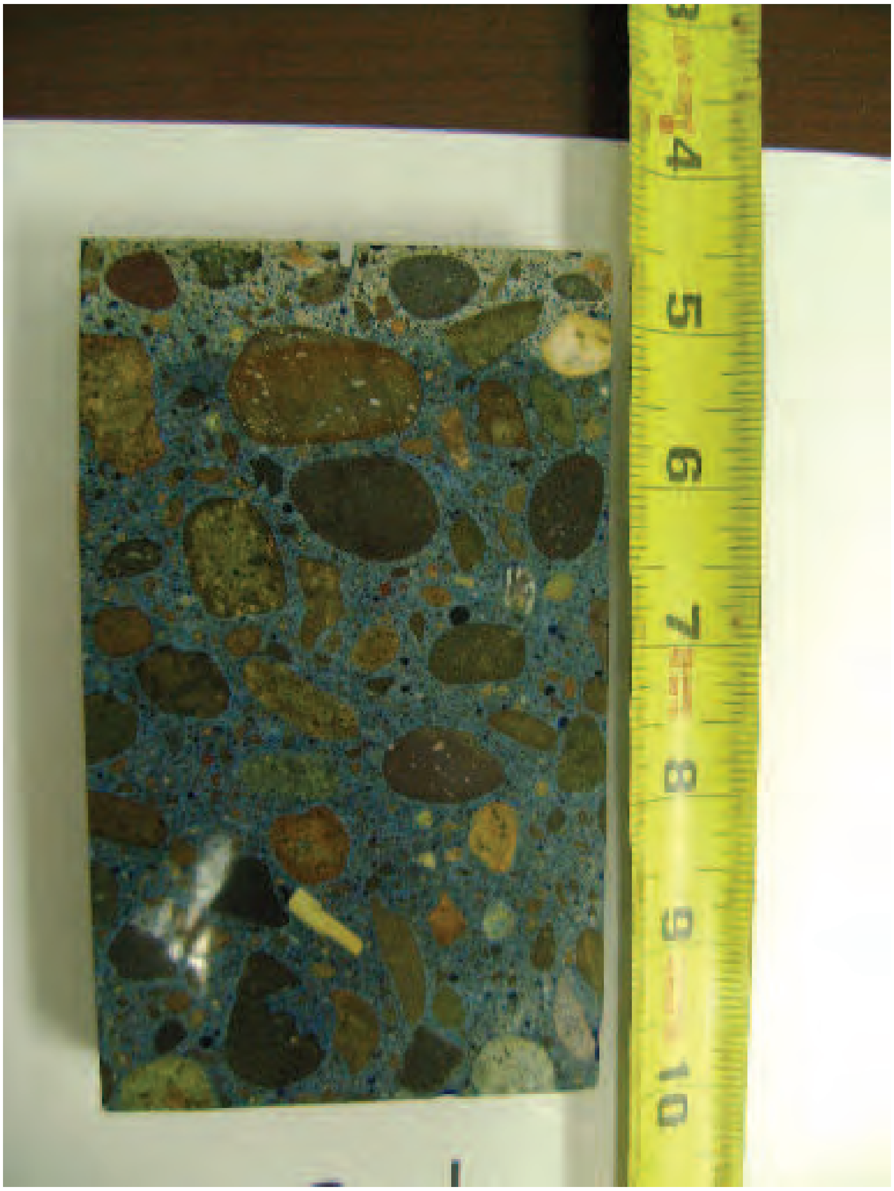
Sample I.D.:	2
Sample Data:	
Sample Description:	9 ½” long by 3 ¾ ” in diameter core
Test Data:	
Air Void Content (%)	1.4
Entrained (%)	0.6
Entrapped (%)	0.8
Air Voids/inch	1.00
Average Void Length (in.)	0.014
Specific Surface (in^2/in^3)	277.7
Spacing Factor	0.029
Paste Content (%)	24.1
Magnification	125x
Test Date	10/11/10

Conformance: The air void system in the analyzed sample is inadequate to resist freezing and thawing damage. However, this is not a concern for concrete not exposed to freezing and thawing cycles.

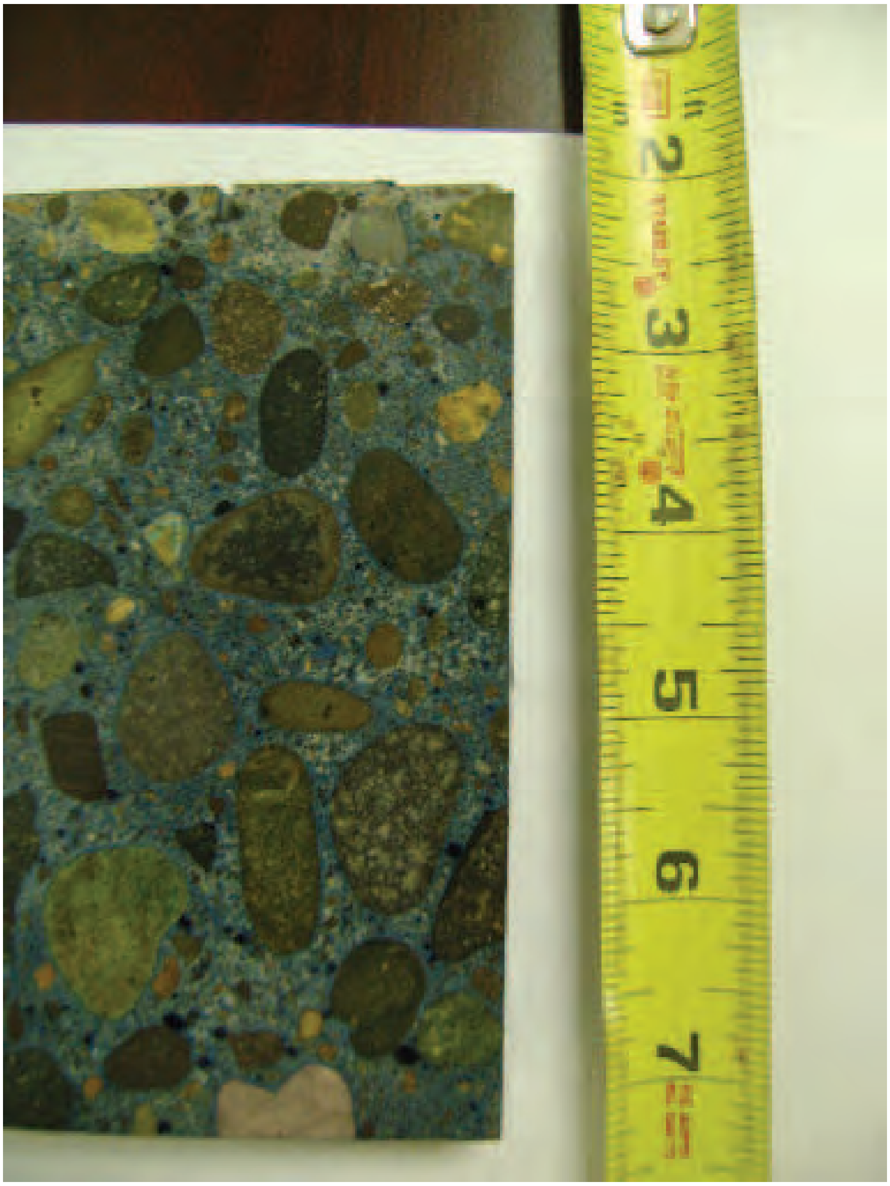
Remarks:

1. The analysis was performed in general accordance with ASTM C-457-06, Procedure A—Linear Traverse Method.
2. The test sample will be retained for 30 days from the date of this report. After 30 days, the sample will be discarded unless other instructions are received.
3. This report may not be copied, in whole or in part, without the written permission of PSI.
4. This report is accurate for the sample actually tested. Other concrete material batched and placed on this same day may have different physical properties.

PHOTOGRAPHS



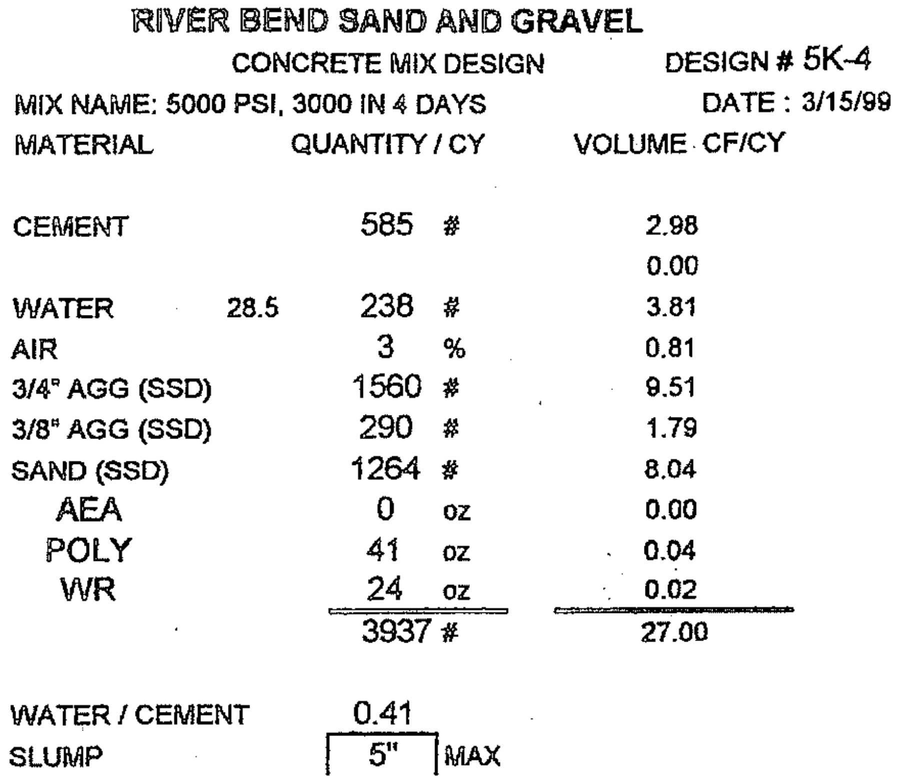
Photograph #1 - Sample 06033-1. Change in paste color can be seen at top surface and lower right corner.



Photograph #2 - Sample 06033-2. Color change can be seen in paste at top surface as well as the bulk paste.

APPENDIX C

CONCRETE MIX DESIGN



RIVER BEND SAND AND GRAVEL

CONCRETE MIX DESIGN DESIGN # 5K-4

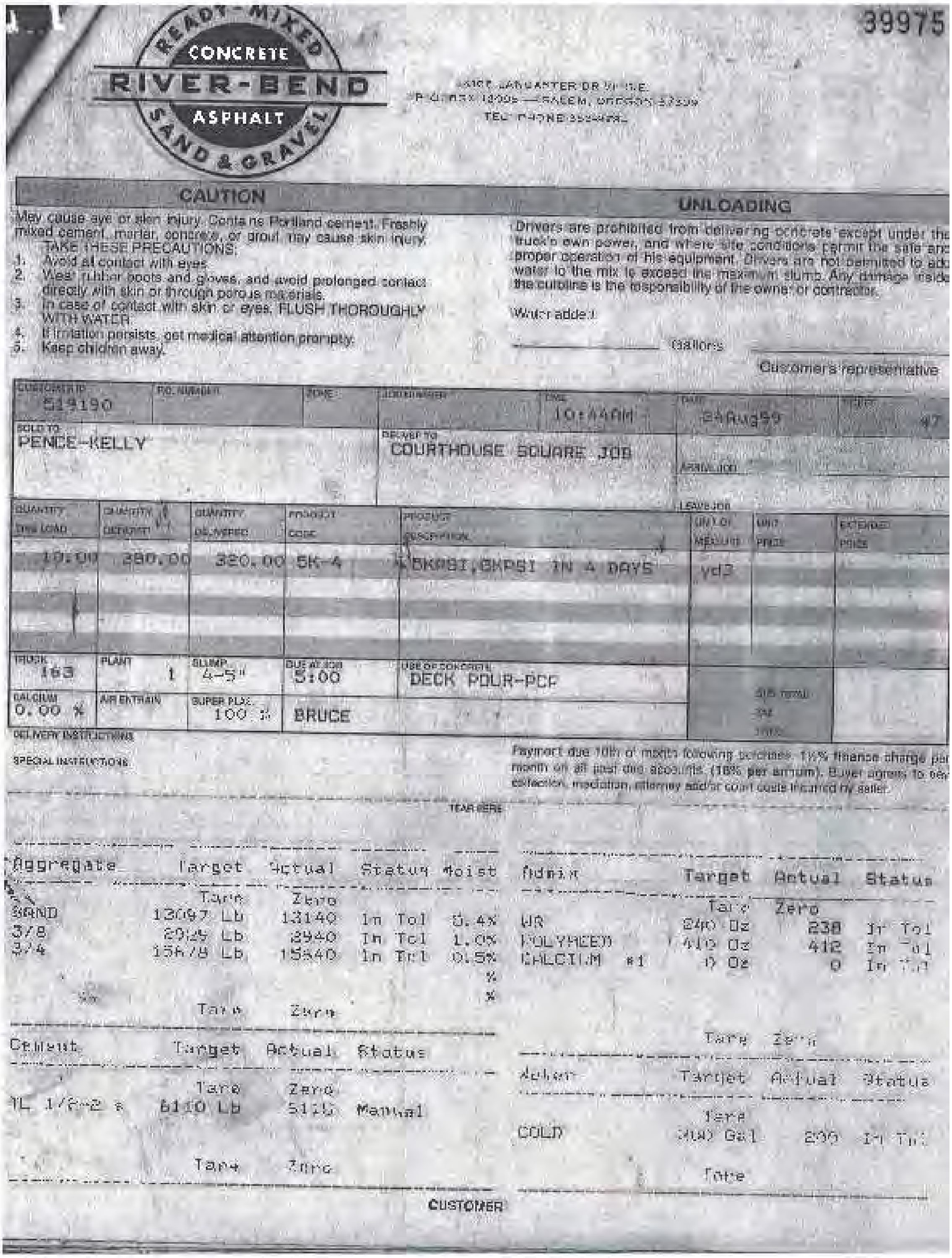
MIX NAME: 5000 PSI, 3000 IN 4 DAYS DATE : 3/15/99

MATERIAL		QUANTITY / CY		VOLUME CF/CY
CEMENT		585	#	2.98
				0.00
WATER	28.5	238	#	3.81
AIR		3	%	0.81
3/4" AGG (SSD)		1560	#	9.51
3/8" AGG (SSD)		290	#	1.79
SAND (SSD)		1264	#	8.04
AEA		0	oz	0.00
POLY		41	oz	0.04
WR		24	oz	0.02
		3937	#	27.00

WATER / CEMENT 0.41
SLUMP 5" MAX

APPENDIX D

REPRESENTATIVE BATCH TICKETS



39975

READY-MIXED CONCRETE RIVER-BEND ASPHALT SAND & GRAVEL

4185 LANCASTER DR N.E.
P.O. BOX 13005 — SALEM, OREGON 97309
TELEPHONE [illegible]

CAUTION

May cause eye or skin injury. Contains Portland cement. Freshly mixed cement, mortar, concrete, or grout may cause skin injury.
TAKE THESE PRECAUTIONS:

1. Avoid all contact with eyes.
2. Wear rubber boots and gloves, and avoid prolonged contact directly with skin or through porous materials.
3. In case of contact with skin or eyes, FLUSH THOROUGHLY WITH WATER.
4. If irritation persists, get medical attention promptly.
5. Keep children away.

UNLOADING

Drivers are prohibited from delivering concrete except under the truck's own power, and where site conditions permit the safe and proper operation of his equipment. Drivers are not permitted to add water to the mix to exceed the maximum slump. Any damage inside the curbline is the responsibility of the owner or contractor.

Water added:

______ Gallons ______
Customer's representative

CUSTOMER ID: 519190
P.O. NUMBER:
ZONE:
JOB NUMBER:
TIME: 10:44AM
DATE: 24Aug99
TICKET: 47
SOLD TO: PENCE-KELLY
DELIVER TO: COURTHOUSE SQUARE JOB
ARRIVE JOB:
LEAVE JOB:

QUANTITY THIS LOAD	QUANTITY [illegible]	QUANTITY DELIVERED	PRODUCT CODE	PRODUCT DESCRIPTION	UNIT OF MEASURE	UNIT PRICE	EXTENDED PRICE
10.00	280.00	320.00	5K-4	5KPSI,6KPSI IN 4 DAYS	yd3		

TRUCK: 163
PLANT: 1
SLUMP: 4-5"
DUE AT JOB: 5:00
USE OF CONCRETE: DECK POUR-PCP
CALCIUM: 0.00 %
AIR ENTRAIN:
SUPER PLAS.: 100 %
BRUCE
SUB TOTAL
TAX
TOTAL

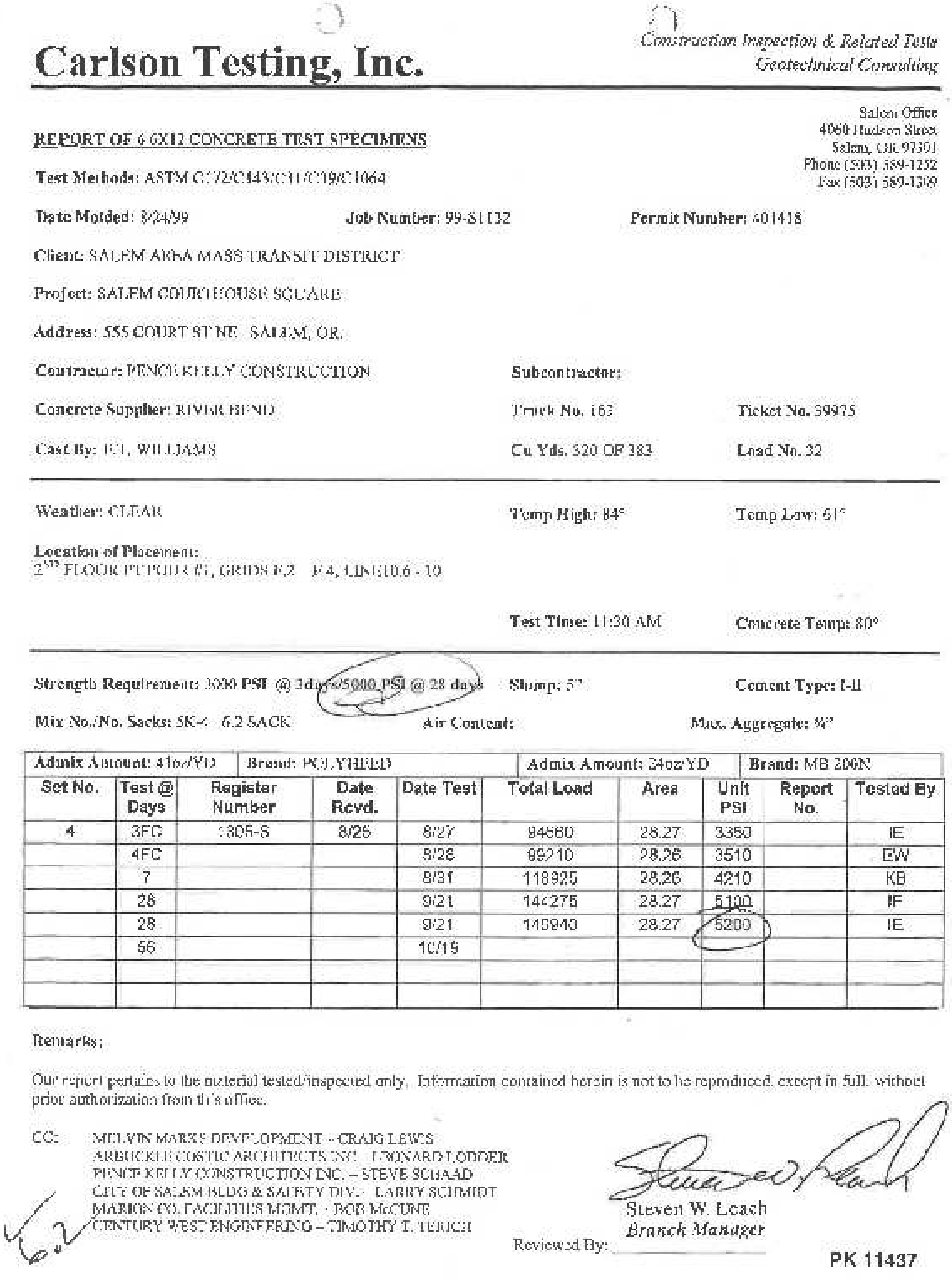
DELIVERY INSTRUCTIONS
SPECIAL INSTRUCTIONS

Payment due 10th of month following purchase. 1½% finance charge per month on all past due accounts (18% per annum). Buyer agrees to bear collection, mediation, attorney and/or court costs incurred by seller.

TEAR HERE

```
Aggregate        Target    Actual   Status  Moist    Admix          Target   Actual   Status
                 Tare      Zero                                     Tare     Zero
SAND           13097 Lb   13140    In Tol   0.4%    WR              240 Oz      238   In Tol
3/8             2925 Lb    2940    In Tol   1.0%    POLYHEED        410 Oz      412   In Tol
3/4            15678 Lb   15540    In Tol   0.5%    CALCIUM  #1       0 Oz        0   In Tol
                                              %
                                              %
                 Tare      Zero                                     Tare     Zero
Cement           Target    Actual   Status          Water           Target   Actual   Status
                 Tare      Zero                                     Tare
IL 1/2-2 s      6110 Lb    5115    Manual           COLD            200 Gal     200   In Tol
                 Tare      Zero                                     Tare
```

CUSTOMER



Carlson Testing, Inc.

Construction Inspection & Related Tests
Geotechnical Consulting

Salem Office
4060 Hudson Street
Salem, OR 97301
Phone (503) 589-1252
Fax (503) 589-1309

REPORT OF 6 6X12 CONCRETE TEST SPECIMENS

Test Methods: ASTM C172/C143/C31/C39/C1064

Date Molded: 8/24/99 **Job Number:** 99-S1132 **Permit Number:** 401418

Client: SALEM AREA MASS TRANSIT DISTRICT

Project: SALEM COURTHOUSE SQUARE

Address: 555 COURT ST NE SALEM, OR.

Contractor: PENCE KELLY CONSTRUCTION **Subcontractor:**

Concrete Supplier: RIVER BEND **Truck No.** 163 **Ticket No.** 59975

Cast By: E1, WILLIAMS **Cu Yds.** 320 OF 383 **Load No.** 32

Weather: CLEAR **Temp High:** 84° **Temp Low:** 61°

Location of Placement:
2ND FLOOR PT POUR #1, GRIDS F.2 F.4, LINE10.6 - 10

Test Time: 11:30 AM **Concrete Temp:** 80°

Strength Requirement: 3000 **PSI** @ 3days/5000 PSI @ 28 days **Slump:** 5" **Cement Type:** I-II

Mix No./No. Sacks: 5K-4 6.2 SACK **Air Content:** **Max. Aggregate:** ¾"

Admix Amount: 41oz/YD	**Brand:** POLYHEED	**Admix Amount:** 24oz/YD	**Brand:** MB 200N

Set No.	Test @ Days	Register Number	Date Rcvd.	Date Test	Total Load	Area	Unit PSI	Report No.	Tested By
4	3FC	1305-S	8/26	8/27	94560	28.27	3350		IE
	4FC			8/28	99210	28.26	3510		EW
	7			8/31	118925	28.26	4210		KB
	28			9/21	144275	28.27	5100		IF
	28			9/21	145940	28.27	5200		IE
	56			10/19					

Remarks;

Our report pertains to the material tested/inspected only. Information contained herein is not to be reproduced, except in full, without prior authorization from this office.

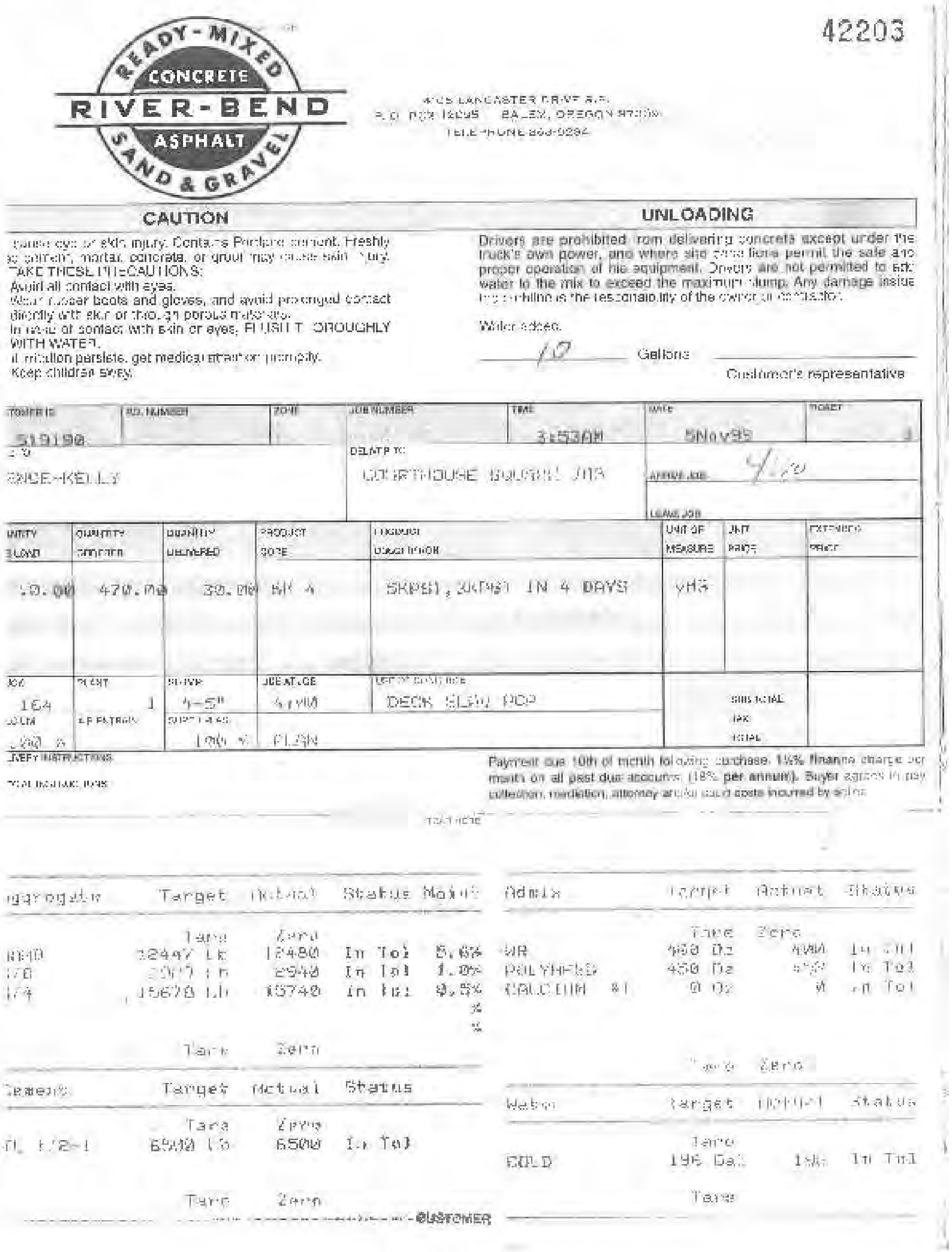
CC: MELVIN MARKS DEVELOPMENT – CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS INC. – LEONARD LODDER
PENCE KELLY CONSTRUCTION INC. – STEVE SCHAAD
CITY OF SALEM BLDG & SAFETY DIV. – LARRY SCHMIDT
MARION CO. FACILITIES MGMT. – BOB McCUNE
CENTURY WEST ENGINEERING – TIMOTHY T. TERICH

✓ 6.2

Steven W. Leach
Branch Manager

Reviewed By: ____________

PK 11437



READY-MIXED CONCRETE
RIVER-BEND
ASPHALT SAND & GRAVEL

42203

4105 LANCASTER DRIVE N.E.
P.O. BOX 12695 SALEM, OREGON 97309
TELEPHONE 363-9294

CAUTION

cause eye or skin injury. Contains Portland cement. Freshly
[illegible] cement, mortar, concrete, or grout may cause skin injury.
TAKE THESE PRECAUTIONS:
Avoid all contact with eyes.
Wear rubber boots and gloves, and avoid prolonged contact
directly with skin or through porous materials.
In case of contact with skin or eyes, FLUSH THOROUGHLY
WITH WATER.
If irritation persists, get medical attention promptly.
Keep children away.

UNLOADING

Drivers are prohibited from delivering concrete except under the truck's own power, and where site conditions permit the safe and proper operation of his equipment. Drivers are not permitted to add water to the mix to exceed the maximum slump. Any damage inside the curbline is the responsibility of the owner or contractor.

Water added.

10 Gallons

Customer's representative

TOMER ID 519190	P.O. NUMBER	ZONE	JOB NUMBER	TIME 3:53AM	DATE 5Nov95	TICKET 3

SOLD TO: [illegible]NCE-KELLY

DELIVER TO: COURTHOUSE SQUARE JOB

ARRIVE JOB 4:10

LEAVE JOB

ANTITY S LOAD	QUANTITY ORDERED	QUANTITY DELIVERED	PRODUCT CODE	PRODUCT DESCRIPTION	UNIT OF MEASURE	UNIT PRICE	EXTENDED PRICE
10.00	470.00	30.00	BK 4	5KPSI,2KPSI IN 4 DAYS	YDS		

UCK 164	PLANT 1	SLUMP 4-5"	USE AT AGE 4 YRS	USE OF CONCRETE DECK SLAB POP	SUB TOTAL
COLM 200 A	% AIR ENTRAIN	SUPPLEMENTAL 100 %	PLAN		TAX
					TOTAL

LIVERY INSTRUCTIONS

TOTAL [illegible]

Payment due 10th of month following purchase. 1½% finance charge per month on all past due accounts (18% per annum). Buyer agrees to pay collection, mediation, attorney and/or court costs incurred by seller.

TEAR HERE

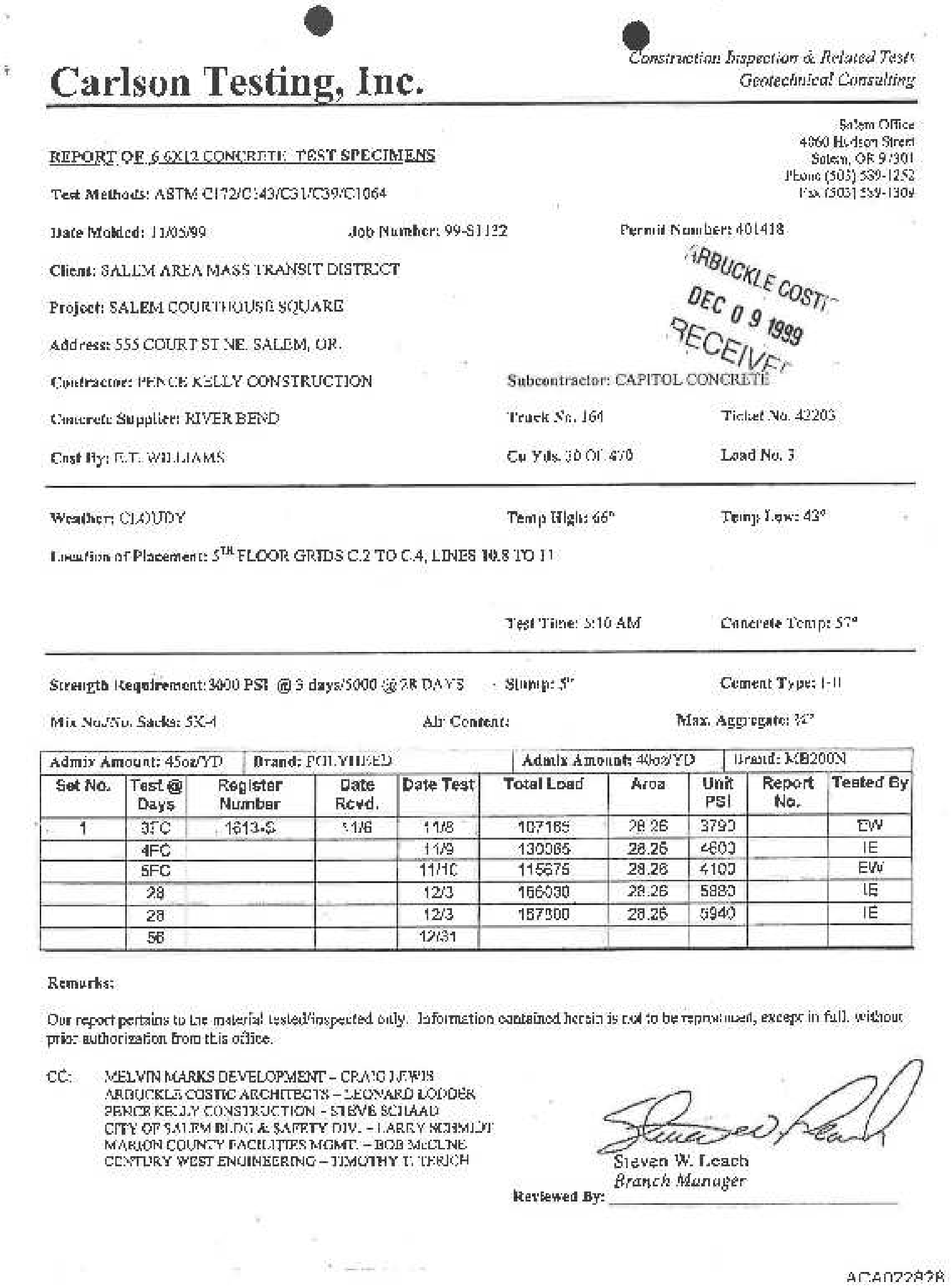
ggregate	Target	Actual	Status	Moist
	Tare	Zero		
RNIO	12447 Lb	12480	In Tol	5.6%
3/8	2917 Lb	2940	In Tol	1.0%
3/4	15670 Lb	15740	In Tol	0.5%
				%
				%
	Tare	Zero		

Cement	Target	Actual	Status
	Tare	Zero	
TL 1/2-1	6500 Lb	6500	In Tol
	Tare	Zero	

Admix	Target	Actual	Status
	Tare	Zero	
WR	450 Oz	448	In Tol
POLYHEED	450 Oz	450	In Tol
CALCIUM #1	0 Oz	0	In Tol
	Tare	Zero	

Water	Target	Actual	Status
	Tare		
COLD	196 Gal	196	In Tol
	Tare		

CUSTOMER



Carlson Testing, Inc.

Construction Inspection & Related Tests
Geotechnical Consulting

Salem Office
4060 Hudson Street
Salem, OR 97301
Phone (503) 589-1252
Fax (503) 589-1309

RBUCKLE COSTI
DEC 0 9 1999
RECEIVE

REPORT OF 6 6X12 CONCRETE TEST SPECIMENS

Test Methods: ASTM C172/C143/C31/C39/C1064

Date Molded: 11/05/99 **Job Number:** 99-S1122 **Permit Number:** 401418

Client: SALEM AREA MASS TRANSIT DISTRICT

Project: SALEM COURTHOUSE SQUARE

Address: 555 COURT ST NE. SALEM, OR.

Contractor: PENCE KELLY CONSTRUCTION **Subcontractor:** CAPITOL CONCRETE

Concrete Supplier: RIVER BEND **Truck No.** 164 **Ticket No.** 42203

Cast By: E.T. WILLIAMS **Cu Yds.** 30 OF 470 **Load No.** 3

Weather: CLOUDY **Temp High:** 66° **Temp Low:** 43°

Location of Placement: 5TH FLOOR GRIDS C.2 TO C.4, LINES 10.8 TO 11

Test Time: 5:10 AM **Concrete Temp:** 57°

Strength Requirement: 3000 PSI @ 3 days/5000 @ 28 DAYS **Slump:** 5" **Cement Type:** I-II

Mix No./No. Sacks: 5X-4 **Air Content:** **Max. Aggregate:** ¾"

Admix Amount: 45oz/YD **Brand:** POLYHEED **Admix Amount:** 40oz/YD **Brand:** MB200N

Set No.	Test @ Days	Register Number	Date Rcvd.	Date Test	Total Load	Area	Unit PSI	Report No.	Tested By
1	3FC	1613-S	11/6	11/8	107165	28.26	3790		EW
	4FC			11/9	130065	28.26	4600		IE
	5FC			11/10	115675	28.26	4100		EW
	28			12/3	166030	28.26	5880		IE
	28			12/3	167900	28.26	5940		IE
	56			12/31					

Remarks:

Our report pertains to the material tested/inspected only. Information contained herein is not to be reproduced, except in full, without prior authorization from this office.

CC:
MELVIN MARKS DEVELOPMENT – CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS – LEONARD LODDER
PENCE KELLY CONSTRUCTION – STEVE SCHAAD
CITY OF SALEM BLDG & SAFETY DIV. – LARRY SCHMIDT
MARION COUNTY FACILITIES MGMT. – BOB McCLNE
CENTURY WEST ENGINEERING – TIMOTHY DIETRICH

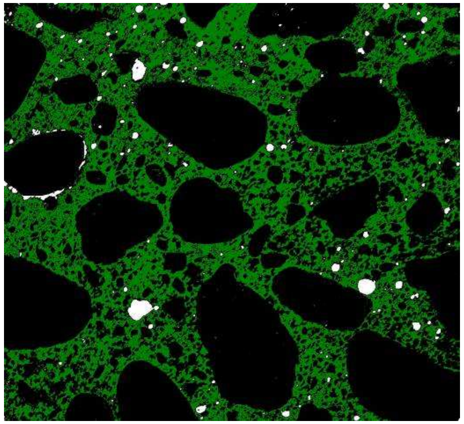
Steven W. Leach
Branch Manager

Reviewed By: ______________________

APPENDIX E

PASTE, VOIDS & AGGREGATE CONTENT
Digital Photographic Analysis

CORE 5A-3
DIGITAL PHOTO-ANALYSIS PHOTOGRAPHS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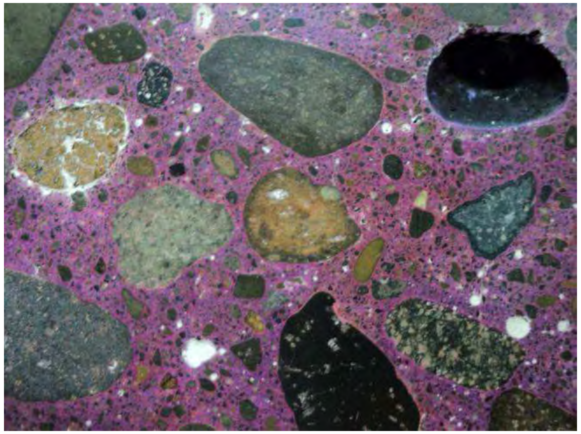
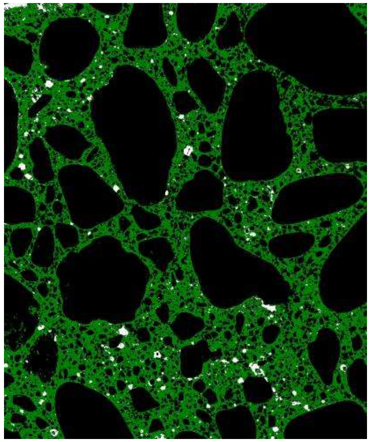

Pre-Process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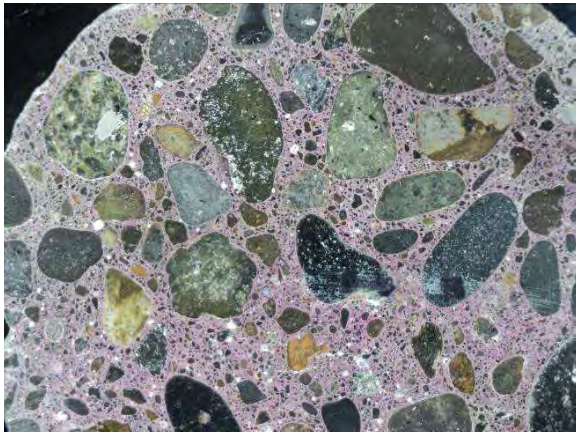
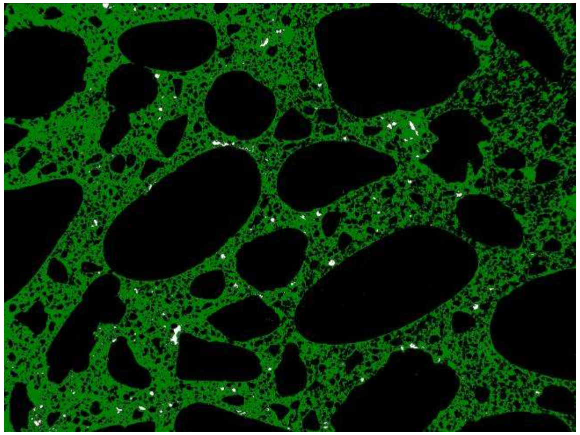

Pre-Process

CORE 5A-3 DIGITAL PHOTO-ANALYSIS
& BATCH WIEGHT ANALYSIS

TICKET	42203	CY	10		cf		lbs/cf	62.3			
CORE 5A		wet wt. lbs	Adjusted	% by Wt.	Volume	% by Vol.	Density	Spg	moisture	gallons	
	CEMENT	6500	6500	16.5%	33.122	12.3%	196.2	3.150			
Batch	WATER	1633	1633	4.1%	26.207	9.7%	62.3	1.000		196	gallons
Aggregate	WATER	1131	1131	2.9%	18.160	6.7%	62.3	1.000			
Field	WATER	83	83	0.2%	0.669	0.2%	124.6	2.000		10	gallons
1.4%	AIR	0	0	0.0%	3.780	1.4%	0.0	0.000			
SSD	3/4" AGG	15740	15356	38.9%	93.614	34.8%	164.0	2.633	2.5%	384	lbs free*
SSD	3/8" AGG	2940	2854	7.2%	17.622	6.5%	162.0	2.600	3.0%	86	lbs free*
SSD	SAND	12480	11818	30.0%	75.128	27.9%	157.3	2.525	5.6%	662	lbs free
ounces	AEA	0		0.0%	0.000	0.0%	62.3	1.000	*add 2% more than assumed		
ounces	POLY	452	28	0.1%	0.453	0.2%	62.3	1.000			
ounces	WR	400	25	0.1%	0.401	0.1%	62.3	1.000			
	SUBTOTAL	39429	extra gallons	100.0%	269.2	100.0%					
BATCHED	w/c ratio	0.433	18		99.7%	Yield					
FIELD	w/c ratio	0.446	28		Unit Weight	146.5					
		5A3 bot	5A3 top	MEDIAN	AVERAGE-fines	TARGET					
	Percent Paste	30.0%	30.4%	31.0%	28.8%	29.4%					
#200 fines	Percent Air	1.5%	1.3%	1.4%	1.4%	1.4%					
5%	Percent Agg	68.6%	68.3%	68.2%	69.8%	69.2%					

CORE 2A-3
DIGITAL PHOTO-ANALYSIS PHOTOGRAPHS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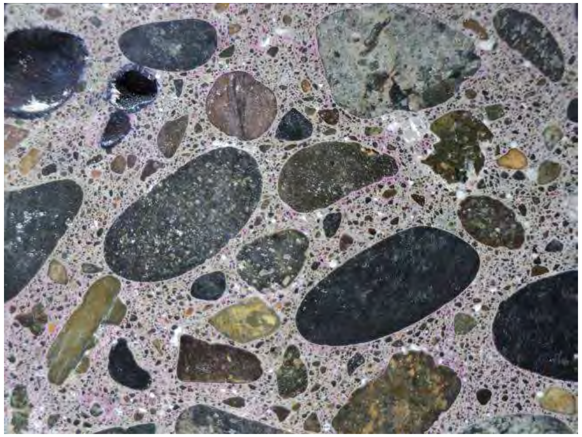
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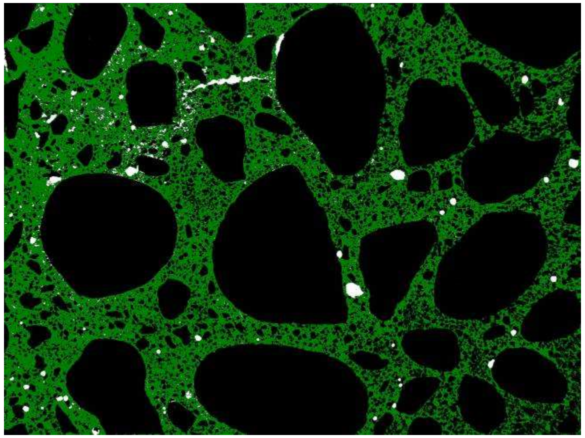
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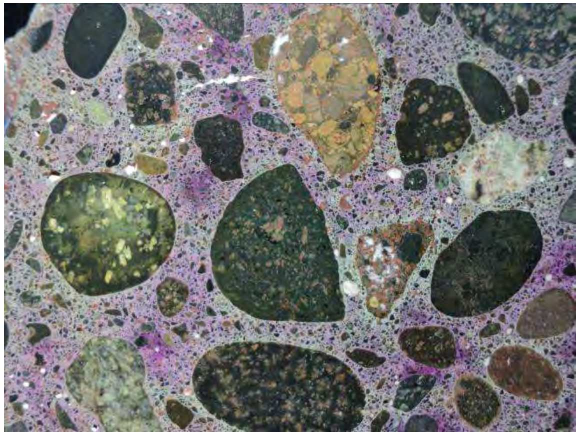
Pre-Process

CORE 2A-3 DIGITAL PHOTO-ANALYSIS
& BATCH WIEGHT ANALYSIS

TICKET	39975	CY	10		cf		lbs/cf	62.3			
CORE 5A		wt. lbs	Adjusted	% by Wt.	Volume	% by Vol.	Density	Spg	moisture	gallons	
	CEMENT	6110	6110	15.4%	31.135	11.6%	196.2	3.150			
Batch	WATER	1666	1666	4.2%	26.742	9.9%	62.3	1.000		200	gallons
Aggregate	WATER	1143	1143	2.9%	18.340	6.8%	62.3	1.000			
Field	WATER	83	83.3	0.2%	0.669	0.2%	124.6	2.000		10	gallons
0.9%	AIR	0	0	0.0%	2.430	0.9%	0.0	0.000			
SSD	3/4" AGG	15620	15239	38.5%	92.901	34.5%	164.0	2.633	2.5%	381	lbs free*
SSD	3/8" AGG	2929	2844	7.2%	17.556	6.5%	162.0	2.600	3.0%	85	lbs free*
SSD	SAND	13200	12524	31.7%	79.613	29.6%	157.3	2.525	5.4%	676	lbs free
ounces	AEA	0		0.0%	0.000	0.0%	62.3	1.000	*add 2.0% more than assumed		
ounces	POLY	410	26	0.1%	0.411	0.2%	62.3	1.000			
ounces	WR	240	15	0.0%	0.241	0.1%	62.3	1.000			
	SUBTOTAL	39566	extra gallons	100.0%	269.4	100.0%					
BATCHED	w/c ratio	0.466	41		99.8%	Yield					
FIELD	w/c ratio	0.480	51		Unit Weight	146.9					
		2A3 bot	2A3 top		AVERAGE-fines	TARGET					
	Percent Paste	30.9%	30.1%	29.4%	29.0%	28.7%					
#200 fines	Percent Air	1.4%	0.4%	0.7%	0.9%	0.9%					
5%	Percent Agg	67.7%	69.5%	69.7%	70.1%	70.4%					

Copy No. 1

Report for
Marion County

Project Number 059191

Petrographic Examination of Concrete Cores - Marion County Courthouse Remediation, Salem, Oregon

December 15, 2010

Submitted by:
Sang Y. Lee

5400 Old Orchard Road
Skokie, Illinois 60077-1030
(847) 965-7500

Austin, TX • Chicago, IL • Washington, DC

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REPORT OF PETROGRAPHIC EXAMINATION

Date: December 15, 2010

CTLGroup Project No.: 059191

Petrographic Examination of Concrete Cores – Marion County Courthouse Remediation, Salem, Oregon

Eight concrete cores (Figs. 1 through 4) were received on November 8, 2010 from Mr. Jay Hathaway, Professional Services Industries, Inc. (PSI), on behalf of Mr. David Henderson, Marion County, Salem, Oregon. Also submitted were documents that included compressive strength test results (performed by PSI), concrete mix design (River Bend Sand and Gravel, Design #5K-4), and concrete batch tickets. The cores were reportedly taken from the cast-in-place posted-tensioned concrete floors at the Marion County Courthouse Building. The five-story courthouse building is approximately 10 years old, and is located at 555 Court St. NE, Salem, Oregon. Reportedly, the building has experienced severe structural defects, including excessive floor deflection and wall cracking. The provided concrete mix design specifies 585 lbs of cement, 0.41 water-cement ratio, 3% air (non-air-entrained), and 5,000 psi 28-day compressive strength. Table 1 summarizes core identification and the average core compressive strength results provided by PSI. All tested cores by PSI revealed compressive strength values lower than the reported minimum 5,000 psi.

TABLE 1 CORE IDENTIFICATION AND RESULTS OFCOMPRESSIVE STRENGTH TESTS PERFORMED BY PSI

Core ID	Core Location	Average core compressive strength provided by PSI
2A-TOP	Second floor	3610 psi
2A-2		
3C-MIDDLE	Third floor	3540 psi
3C-2		
4C-MIDDLE	Fourth floor	4170 psi
4C-2		
5A-2	Fifth floor	4200 psi
5D-BOTTOM		

Petrographic examination (ASTM C 856) of the cores was requested to evaluate general concrete composition and characteristics, with specific focus on features related the reported low concrete compressive strength.

FINDINGS

The observations reported below address possible causes for the reported low concrete strength.

- The general composition and characteristics of the concrete represented by the submitted cores are similar except for small differences in air content and physical paste properties (paste hardness, absorbency, and color). The concrete is composed of siliceous coarse and fine aggregates distributed in a hardened portland cement paste (Fig. 5). Table 2 summarizes observed physical paste properties of the concrete in each core. Estimated water-cement ratio (w/c) is considered moderate overall (approximately 0.45 to 0.55) for all submitted cores based on the observed concrete properties. The paste portion of Cores 2A-Top, 4C-MIDDLE and 4C-2 is slightly harder and denser, which may correspond to slightly lower w/c within the estimated range. These estimated w/c values of concrete represented by the cores are greater than 0.41 w/c reported in the mix design #5K-4 and 0.38 w/c calculated from the provided batch tickets. If all other relevant factors are held constant, concrete strength is known to be inversely proportional to w/c.

- Slight difference is observed in the amount of air voids (Table 1). Cores 2A-TOP, 5A-2, and 5D-BOTTOM contain estimated 1 to 3% air voids. Air content of Cores 2A-2, 3C-2 (Fig. 6), 4C-MIDDLE, and 4C-2 is estimated at 2 to 4%. Air content of Core 3C-MIDDLE is slightly higher and estimated at 3 to 5%. These estimated air contents of the cores are generally consistent with 3% air content specified in the provided mix design, and do not explain the reported overall low concrete strength and substantial difference in reported strength in the cores.

- Paste-aggregate bond is weak in all cores. Examination of fracture surfaces of the submitted cores reveals that the concrete broke around the hard, dense siliceous gravel particles exposing aggregates and sockets (Fig. 7). Aggregate surfaces in the cores appear to be clean and sound. Examination of lapped surfaces of the cores reveals soft, pale gray to white paste rims around some aggregate particles (Fig. 8), which may indicate localized increase in w/c along the periphery of those aggregate particles. Narrow microcracks (separation cracks between paste and aggregate) are also observed encircling some aggregate particles (Fig. 9). These microcracks are not caused by volumetrically unstable rock types, and its exact cause is not fully revealed from this study. The observed weak paste-aggregate bonding has most likely contributed to the reported low concrete strength.

- A hairline crack is observed in Core 3C-MIDDLE near the core top edge, passing around aggregate particles. No other visible cracks are observed in any of the cores. The cores exhibit common to frequent microcracks in the paste between aggregate particles (Fig. 10). A network of interconnected microcracks is locally observed in Core 3C-MIDDLE. Significance and exact cause of these microcracks are not fully revealed. The submitted cores do not exhibit any evidence of external chemical attack or deleterious chemical reactions (such as alkali-aggregate reactions) involving aggregates or any paste constituents of the concrete.

General Concrete Composition and Characteristics: The concrete represented by the cores contains siliceous gravel coarse and fine aggregates in a hardened portland cement paste. No supplementary cementitious material such as fly ash is observed in the concrete. The aggregate particles visually appear evenly graded to an observed top size of 0.6 to 0.8 in., and are uniformly distributed throughout the core body. The coarse aggregate consists of various volcanic rocks. The fine aggregate consists mainly of various volcanic rocks, quartz, and feldspar. Core 2A-Top exhibits the original finished concrete top surface. Only shallow paste carbonation is observed at the immediate top surface (no measurable depth of paste carbonation). Macroscopically, the cores are well consolidated; however, small sample size limited the area available for study.

ADDITIONAL COMMENTS

The submitted cores exhibit frequent microcracks and narrow microcracks (separation cracks between paste and aggregate) encircling some aggregate particles. Based on the results of petrographic examination, these microcracks are not related to any deleterious mechanisms within the concrete. Further site and laboratory investigation would be needed to determine the significance and implication of these microcracks relative to the reported low concrete strength.

TABLE 2 SUMMARY OF PETROGRAPHIC OBSERVATIONS

	2A-TOP	**2A-2**	**3C-MIDDLE**	**3C-2**	**4C-MIDDLE**	**4C-2**	**5A-2**	**5D-BOTTOM**
Paste hardness	Moderately hard to hard	Moderately hard	Moderately hard	Moderately hard	Moderately hard to hard	Moderately hard to hard	Moderately hard	Moderately hard
Absorbency	Fairly dense	Fairly dense to somewhat absorptive	Fairly dense to somewhat absorptive	Fairly dense to somewhat absorptive	Fairly dense	Fairly dense	Fairly dense	Fairly dense
Estimated w/c*	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Paste-aggregate bond	Weak	Weak	Weak	Weak	Weak	Moderately weak to weak	Weak	Weak
Estimated air content	1 to 3%	2 to 4%	3 to 5%	2 to 4%	2 to 4%	2 to 4%	1 to 3%	1 to 3%
Cracks	None observed	None observed	A hairline crack near core top edge	None observed	None observed	None observed	None observed	None observed
Microcracks	Common microcracks in paste and narrow microcracks encircling some aggregates	Frequent microcracks in paste and narrow microcracks encircling some aggregates	Frequent microcracks and network of interconnected microcracks in paste and narrow microcracks encircling some aggregates	Frequent microcracks in paste and narrow microcracks encircling some aggregates	Frequent microcracks in paste and narrow microcracks encircling some aggregates	Frequent microcracks in paste and narrow microcracks encircling some aggregates	Frequent microcracks in paste and narrow microcracks encircling some aggregates	Frequent microcracks in paste and narrow microcracks encircling some aggregates

- Estimation based on the observed physical and microscopical paste properties.

METHODS OF TEST

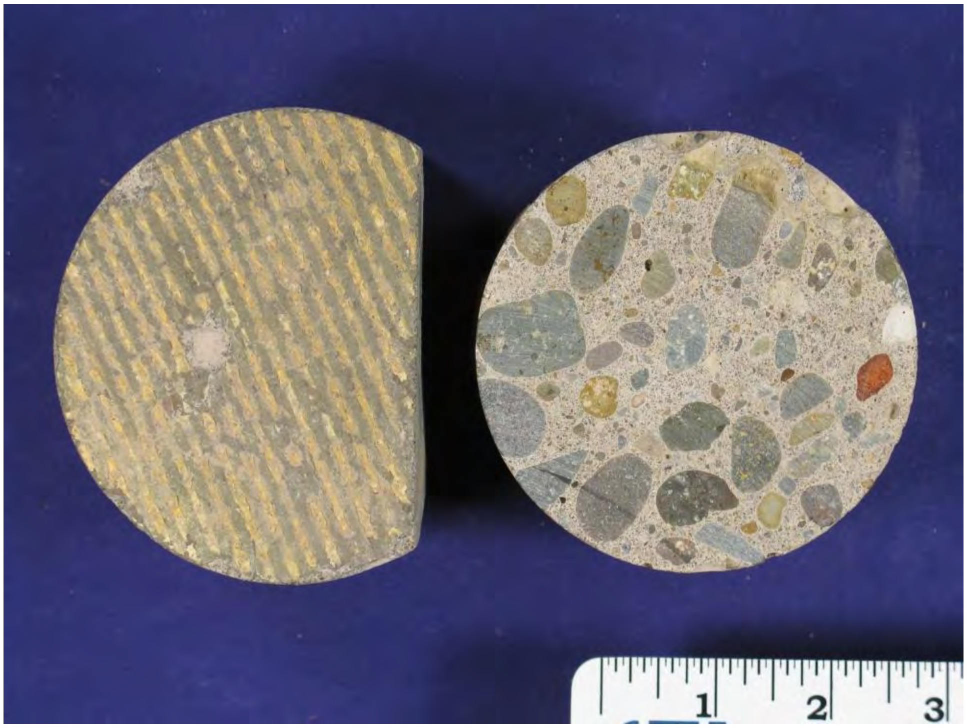
Petrographic examination of the provided cores was performed in accordance with ASTM C 856-04, "Standard Practice for Petrographic Examination of Hardened Concrete." The cores were visually inspected and photographed as received. A longitudinal slice was cut from each core and one of the resulting sides of the slice was ground (lapped) to produce a smooth, flat, semi-polished surface. Lapped and freshly broken surfaces of the concrete were examined using a stereomicroscope at magnifications up to 45X. For thin-section study, a small rectangular block was cut from the body of each core, and one side of the block was lapped to produce a smooth, flat surface. The blocks were cleaned and dried, and the prepared surfaces were mounted on separate ground glass microscope slides with epoxy resin. After the epoxy hardened, the thickness of the mounted blocks was reduced to approximately 20 μm (0.0008 in.). The resulting thin sections were examined using a polarized-light (petrographic) microscope at magnifications up to 400X to study aggregate and paste mineralogy and microstructure.

Estimated water-cementitious materials ratio (w/c), when reported, is based on observed concrete and paste properties including, but not limited to: 1) relative amounts of residual (unhydrated and partially hydrated) portland cement clinker particles, 2) amount and size of calcium hydroxide crystals, 3) paste hardness, color, and luster, 4) paste-aggregate bond, and 5) relative absorbency of paste as indicated by the readiness of a freshly fractured surface to absorb applied water droplets. These techniques have been widely used by industry professionals to estimate w/c. Depth and pattern of paste carbonation was determined by application of a pH indicator solution (phenolphthalein) to freshly cut or fractured concrete surfaces. The solution imparts a deep magenta stain to high pH, non-carbonated paste. Carbonated paste does not change color.

Sang Y. Lee, Ph.D., PE (Texas), PG (Indiana)
Senior Microscopist
Microscopy Group

SYL/hma

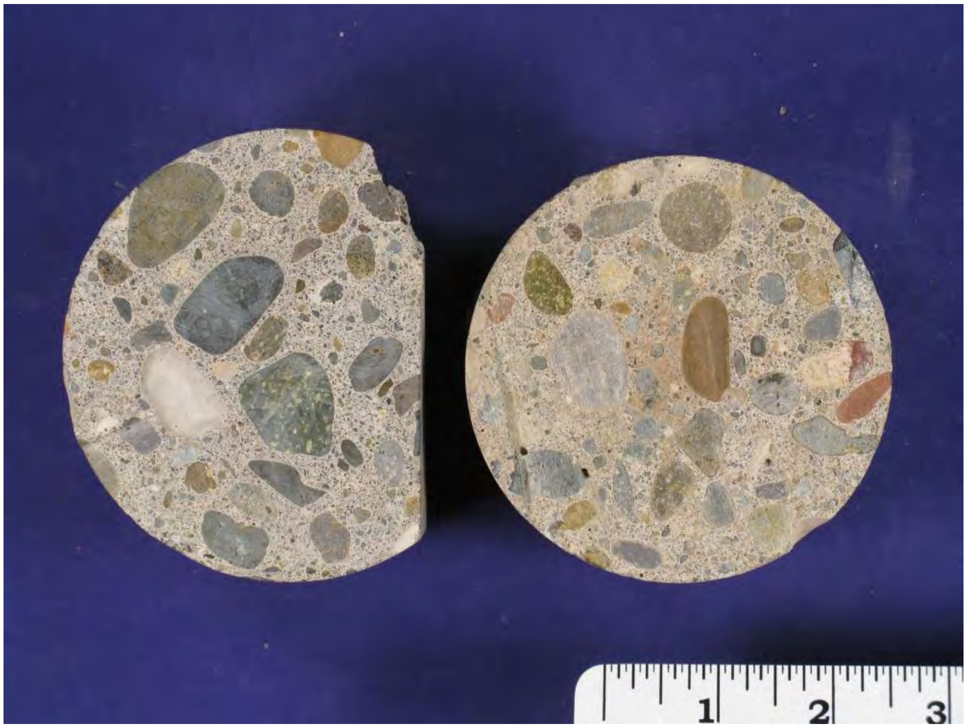
Notes:
1. Results refer specifically to the samples submitted.
2. This report may not be reproduced except in its entirety.
3. The samples will be retained for 30 days, after which they will be discarded unless we hear otherwise from you.



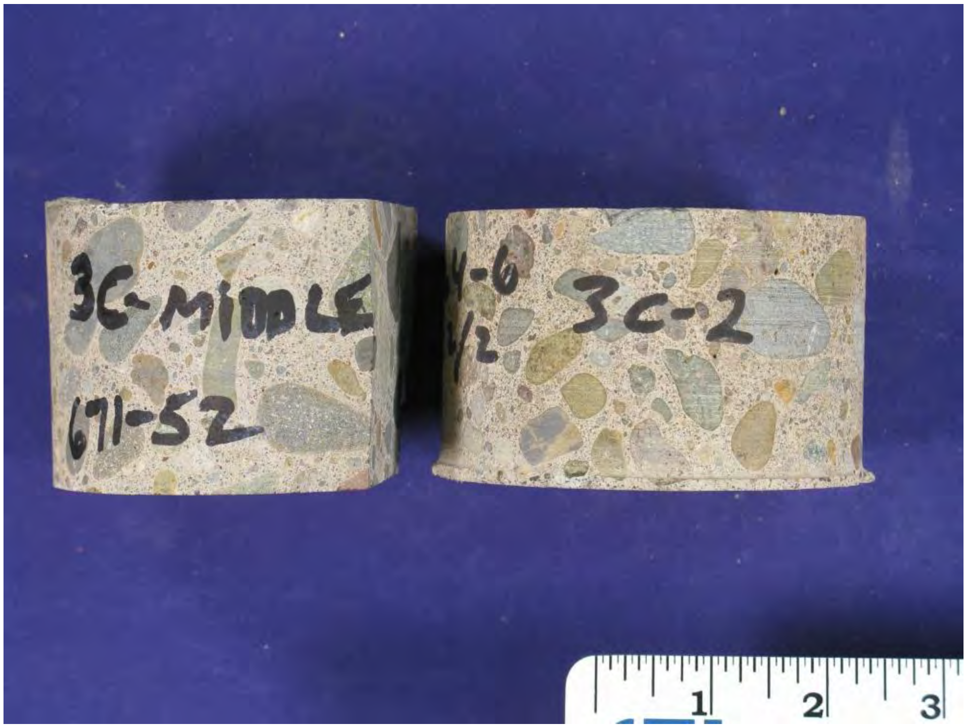
1a. Core top end surfaces.

1b. Side view. Core top end surfaces are up.

Fig. 1 Cores 2A-TOP and 2A-2 (second floor) as received for examination. Scale is marked in inches.

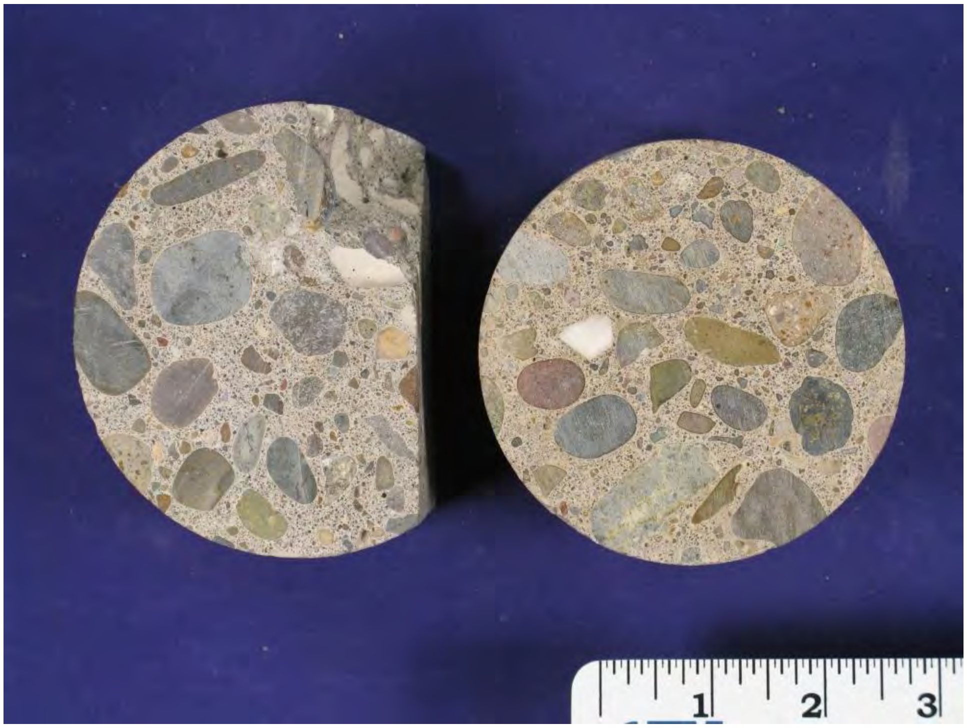


2a. Core top end surfaces.



2b. Side view. Core top end surfaces are up.

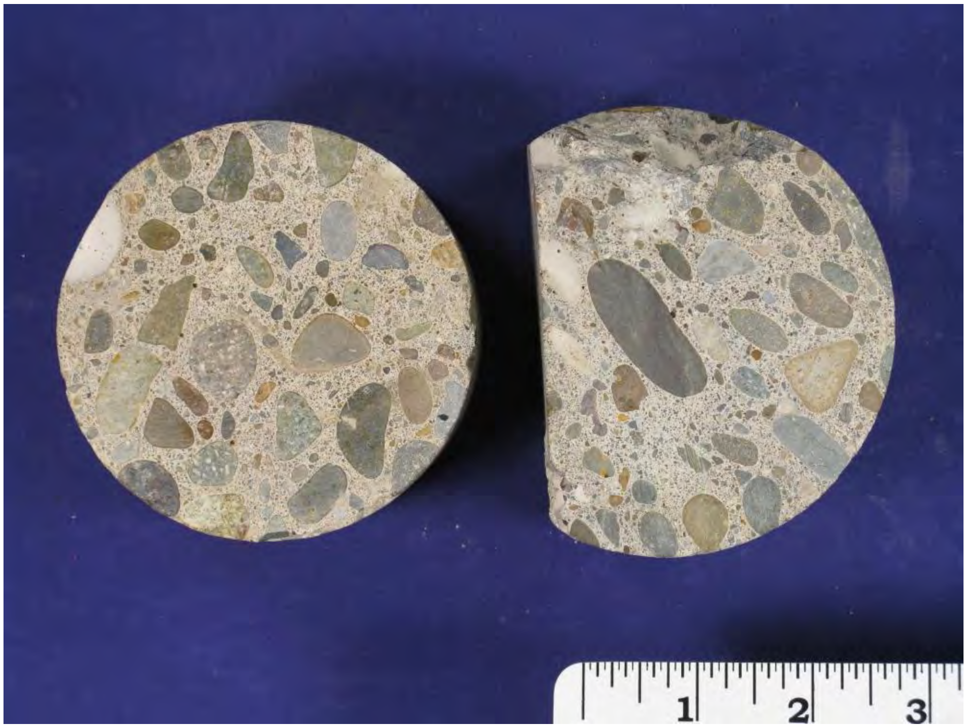
Fig. 2 Cores 3C-MIDDLE and 3C-2 (third floor) as received for examination. Scale is marked in inches.



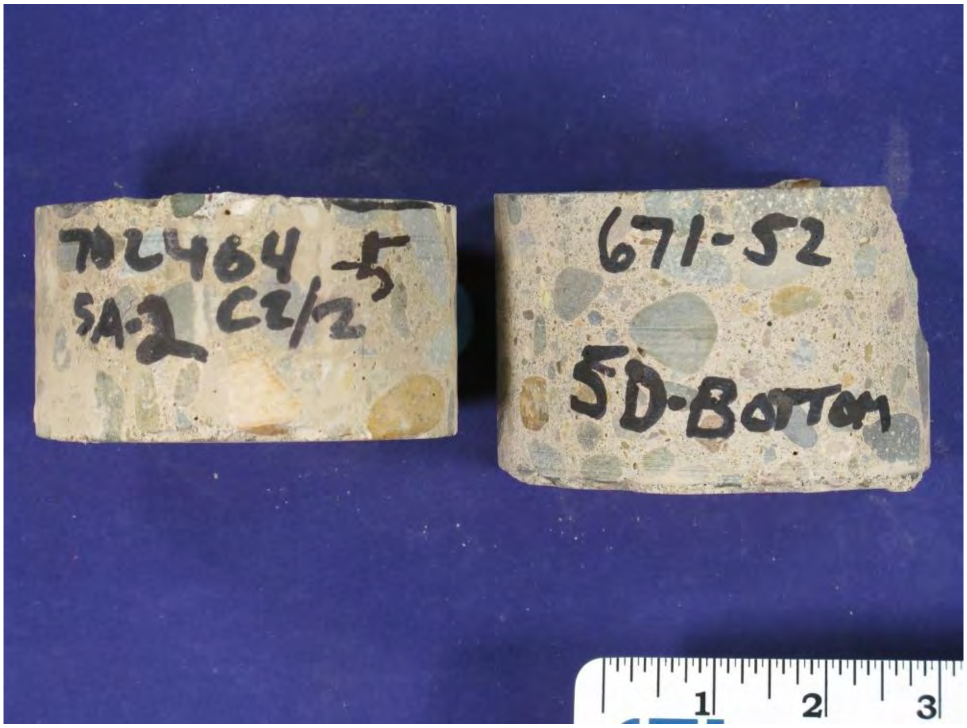
3a. Core top end surfaces.

3b. Side view. Core top end surfaces are up.

Fig. 3 Cores 4C-MIDDLE and 4C-2 (fourth floor) as received for examination. Scale is marked in inches.



4a. Core top end surfaces.



4b. Side view. Core top end surfaces are up.

Fig. 4 Cores 5A-2 and 5D-BOTTOM (fifth floor) as received for examination. Scale is marked in inches.

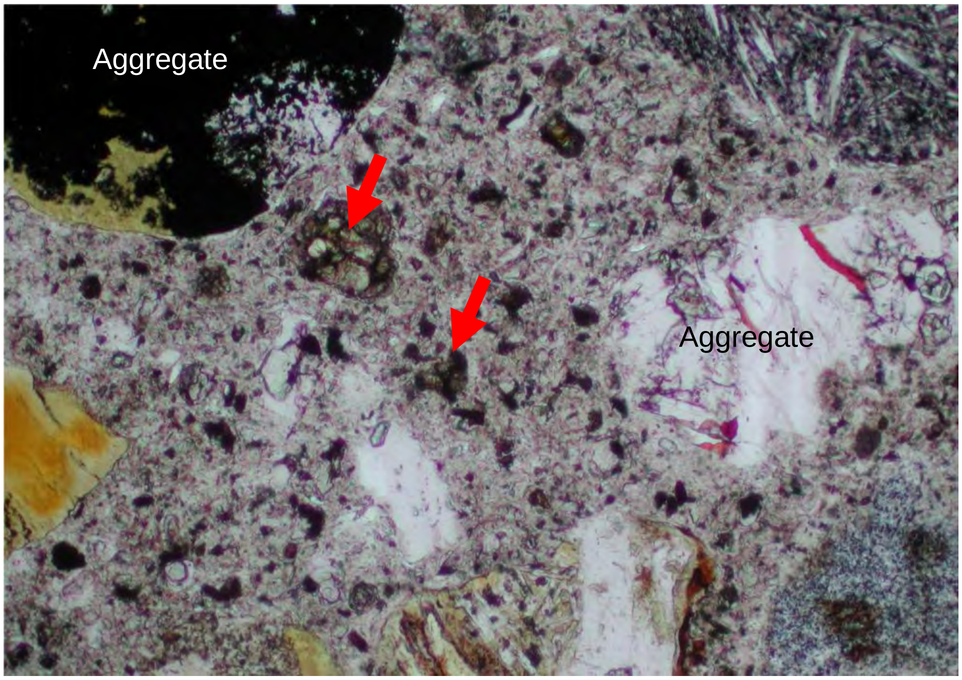


Fig. 5 **Thin-section photomicrograph (plane-polarized light) showing a field of hardened paste in Core 2A-2. Arrows designate residual portland cement particles. No supplementary cementitious material such as fly ash is observed in the paste. Field of view is 0.03 in. across.**

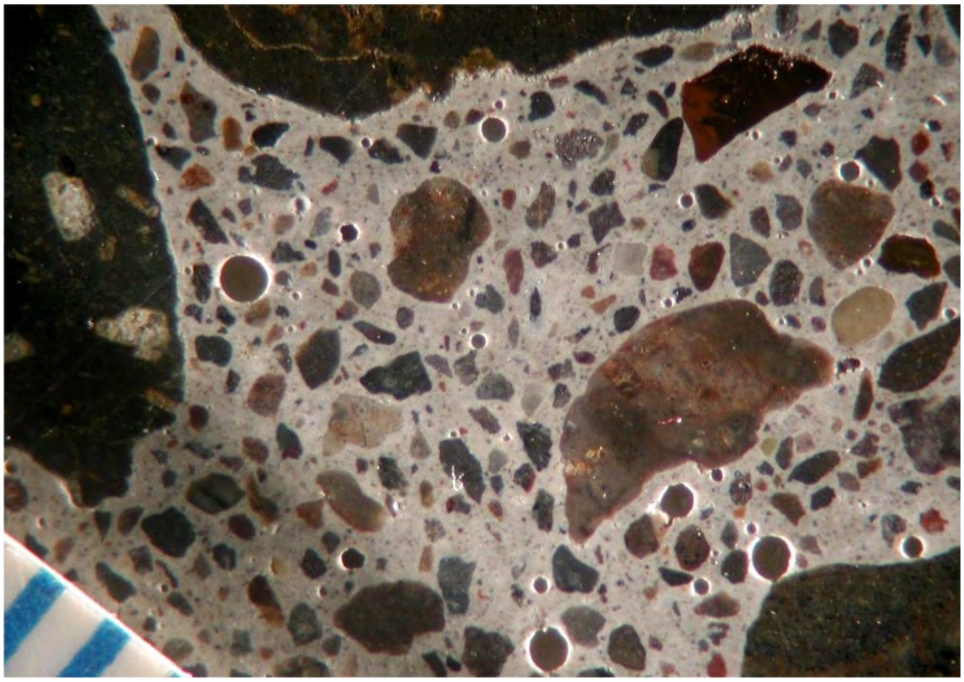


Fig. 6 **Stereomicroscope image of a cut and lapped cross-sectional surface of Core 3C-2, showing overall abundance of air voids (estimated at 2 to 4%) in the core. Scale increments are 0.04 in.**

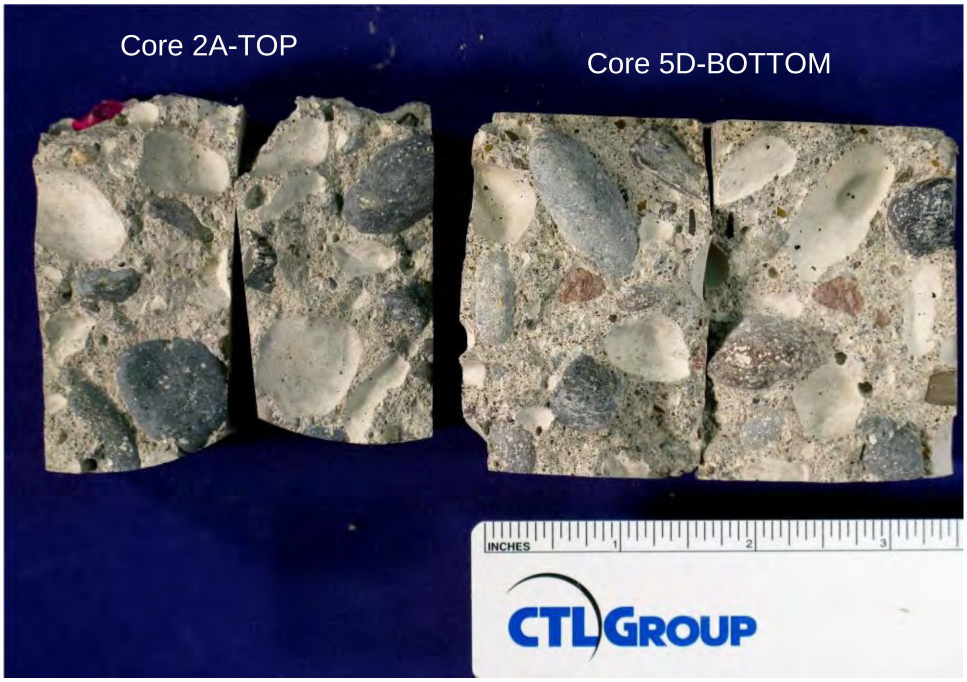


Fig. 7 **Image showing freshly fractured surfaces of Cores 2A-TOP and 5D-BOTTOM. The fracture surfaces pass around almost all coarse aggregate particles indicating a weak paste-aggregate bond. Scale is marked in inches.**

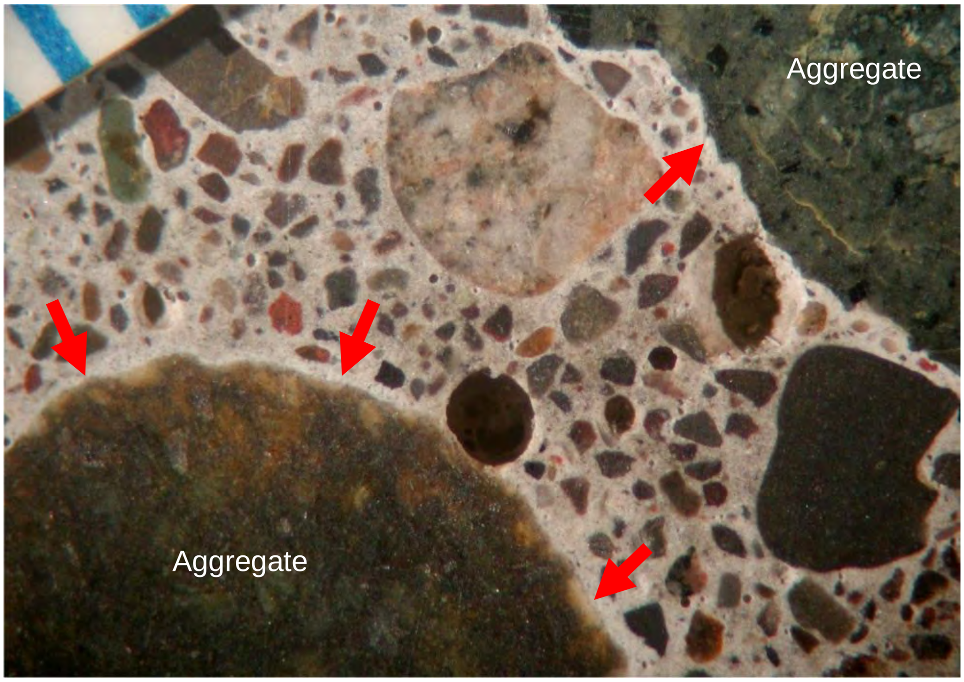


Fig. 8 **Stereomicroscope image of a cut and lapped cross-sectional surface of Core 3C-MIDDLE, showing coarse aggregate particles exhibiting lighter paste rims (arrows). Scale increments are 0.04 in.**

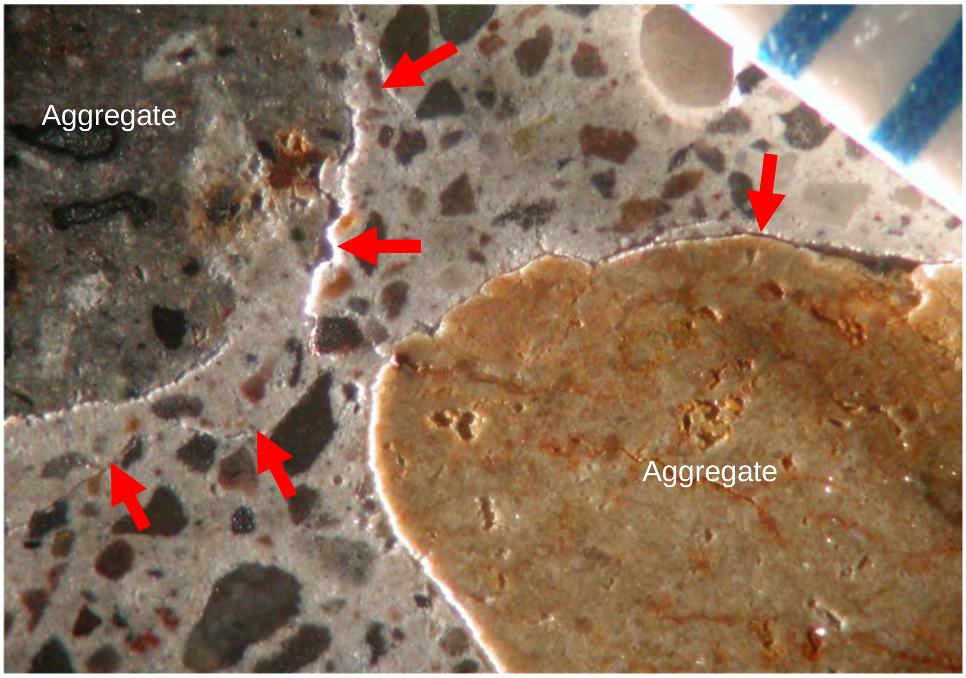


Fig. 9 **Stereomicroscope image of a cut and lapped cross-sectional surface of Core 5D-BOTTOM, showing microcracks along the periphery of coarse aggregate particles and in the nearby paste (arrows). Scale increments are 0.04 in.**

Fig. 10 **Stereomicroscope image of a cut and lapped cross-sectional surface of Core 3C-MIDDLE, showing microcracks in the paste between coarse aggregate particles (arrows). The image was taken using oblique illumination shortly after the surface was wetted to highlight the microcracks. Field of view is approximately 0.5 in. across.**

PETROGRAPHIC EXAMINATION OF HARDENED CONCRETE, ASTM C 856

STRUCTURE: Post-tensioned concrete floor

DATE RECEIVED: November 8, 2010

LOCATION: Salem, Oregon

EXAMINED BY: Sang Lee

SAMPLE

Client Identification: 2A-TOP; second floor.

CTLGroup Identification: 2744501.

Dimensions: Diameter = 3.9 in. (99 mm), length = approximately 2.7 in. (68 mm); partial floor depth.

Top End: Flat, troweled surface with adhered flooring adhesives.

Bottom End: Even, saw-cut surface.

Cracks, Joints, Large Voids: No visible cracks, joints, or large voids are observed.

Reinforcement: No reinforcement is observed.

AGGREGATES

Coarse: Siliceous rocks consisting of various volcanic rocks.

Fine: Siliceous sand consisting mainly of various volcanic rocks, quartz, and feldspar with small amounts of other silicate minerals.

Gradation & Top Size: Visually appears evenly graded to an observed top size of 0.55 in. (14 mm).

Shape, Texture, Distribution: Coarse – rounded to sub-angular and equant to oblong with generally smooth surface texture; uniformly distributed. Fine – mostly angular to sub-rounded and equant to elongated; uniformly distributed.

PASTE

Color: Medium gray.

Hardness: Moderately hard to hard.

Luster: Subvitreous.

Paste-Aggregate Bond: Weak; fresh fractures pass around almost all coarse aggregate particles.

Air Content: Estimated 1 to 3%.

Depth of Carbonation: No measurable depths of carbonation; shallow carbonation at the immediate top surface.

Calcium Hydroxide*: Estimated 5 to 10%; calcium hydroxide mostly occurs as fine crystals in the paste and along the periphery of a few aggregate particles.

Residual Portland Cement Clinker Particles*: Estimated 1 to 3%; relics of hydrated portland cement particles are common.

Supplementary Cementitious Materials*: None observed.

Secondary Deposits: None observed.

MICROCRACKING: A few vertical microcracks extended to a depth of 0.25 in. (6 mm) from the top surface. Other randomly-oriented, discontinuous microcracks are commonly observed in the paste between aggregate particles. Narrow microcracks (separation cracks between paste and aggregate) are also observed encircling some aggregate particles. These observed microcracks are not related to any deleterious reactions within the concrete.

ESTIMATED WATER-CEMENT RATIO: Moderate (approximately 0.45 to 0.55) based on the observed physical and microscopical paste properties.

MISCELLANEOUS: The hardened paste is fairly dense.

---

*percent by volume of paste

PETROGRAPHIC EXAMINATION OF HARDENED CONCRETE, ASTM C 856

STRUCTURE: Post-tensioned concrete floor

DATE RECEIVED: November 8, 2010

LOCATION: Salem, Oregon

EXAMINED BY: Sang Lee

SAMPLE

Client Identification: 2A-2; second floor.

CTLGroup Identification: 2744502.

Dimensions: Diameter = 3.7 in. (94 mm), length = approximately 2.3 in. (58 mm); partial floor depth.

Top End: Flat, saw-cut surface.

Bottom End: Even, formed surface.

Cracks, Joints, Large Voids: No visible cracks, joints, or large voids are observed.

Reinforcement: No reinforcement is observed.

AGGREGATES

Coarse: Siliceous rocks consisting of various volcanic rocks.

Fine: Siliceous sand consisting mainly of various volcanic rocks, quartz, and feldspar with small amounts of other silicate minerals.

Gradation & Top Size: Visually appears evenly graded to an observed top size of 0.7 in. (18 mm).

Shape, Texture, Distribution: Coarse – rounded to sub-angular and equant to oblong with generally smooth surface texture; uniformly distributed. Fine – mostly angular to sub-rounded and equant to elongated; uniformly distributed.

PASTE

Color: Light-medium gray.

Hardness: Moderately hard.

Luster: Dull to subvitreous.

Paste-Aggregate Bond: Weak; fresh fractures pass around almost all coarse aggregate particles.

Air Content: Estimated 2 to 4%.

Depth of Carbonation: The core does not include the original concrete surface, and thus carbonation depths were not measured.

Calcium Hydroxide*: Estimated 5 to 10%; calcium hydroxide mostly occurs as fine crystals in the paste and along the periphery of a few aggregate particles.

Residual Portland Cement Clinker Particles*: Estimated 1 to 3%; relics of hydrated portland cement particles are common.

Supplementary Cementitious Materials*: None observed.

Secondary Deposits: None observed.

MICROCRACKING: Randomly-oriented, discontinuous microcracks are frequently observed in the paste between aggregate particles. Narrow microcracks (separation cracks between paste and aggregate) are also observed encircling some aggregate particles. These observed microcracks are not related to any deleterious reactions within the concrete.

ESTIMATED WATER-CEMENT RATIO: Moderate (approximately 0.45 to 0.55) based on the observed physical and microscopical paste properties.

MISCELLANEOUS: The hardened paste is fairly dense to somewhat absorptive.

---

*percent by volume of paste

PETROGRAPHIC EXAMINATION OF HARDENED CONCRETE, ASTM C 856

STRUCTURE: Post-tensioned concrete floor

DATE RECEIVED: November 8, 2010

LOCATION: Salem, Oregon

EXAMINED BY: Sang Lee

SAMPLE

Client Identification: 3C-MIDDLE; third floor.

CTLGroup Identification: 2744503.

Dimensions: Diameter = 3.9 in. (99 mm), length = approximately 2.4 in. (61 mm); partial floor depth.

Top End: Flat, saw-cut surface.

Bottom End: Flat, formed surface.

Cracks, Joints, Large Voids: A hairline crack is observed near the core top edge, passing around almost all aggregate particles. No other cracks, joints, or large voids are observed.

Reinforcement: No reinforcement is observed.

AGGREGATES

Coarse: Siliceous rocks consisting of various volcanic rocks.

Fine: Siliceous sand consisting mainly of various volcanic rocks, quartz, and feldspar with small amounts of other silicate minerals.

Gradation & Top Size: Visually appears evenly graded to an observed top size of 0.75 in. (19 mm).

Shape, Texture, Distribution: Coarse – rounded to sub-angular and equant to oblong with generally smooth surface texture; uniformly distributed. Fine – mostly angular to sub-rounded and equant to elongated; uniformly distributed.

PASTE

Color: Light to light-medium gray.

Hardness: Moderately hard.

Luster: Dull to subvitreous.

Paste-Aggregate Bond: Weak; fresh fractures pass around almost all coarse aggregate particles.

Air Content: Estimated 3 to 5%.

Depth of Carbonation: The core does not include the original concrete surface, and thus carbonation depths were not measured.

Calcium Hydroxide*: Estimated 5 to 10%; calcium hydroxide mostly occurs as fine crystals in the paste and along the periphery of a few aggregate particles.

Residual Portland Cement Clinker Particles*: Estimated 1 to 3%; relics of hydrated portland cement particles are common.

Supplementary Cementitious Materials*: None observed.

Secondary Deposits: None observed.

MICROCRACKING: Randomly-oriented, discontinuous microcracks and a network of interconnected microcracks are frequently observed in the paste between aggregate particles. Narrow microcracks (separation cracks between paste and aggregate) are also observed encircling some aggregate particles. These observed microcracks are not related to any deleterious reactions within the concrete.

ESTIMATED WATER-CEMENT RATIO: Moderate (approximately 0.45 to 0.55) based on the observed physical and microscopical paste properties.

MISCELLANEOUS: The hardened paste is fairly dense to somewhat absorptive.

---

*percent by volume of paste

PETROGRAPHIC EXAMINATION OF HARDENED CONCRETE, ASTM C 856

STRUCTURE: Post-tensioned concrete floor

DATE RECEIVED: November 8, 2010

LOCATION: Salem, Oregon

EXAMINED BY: Sang Lee

SAMPLE

Client Identification: 3C-2; third floor.

CTLGroup Identification: 2744504.

Dimensions: Diameter = 3.7 in. (94 mm), length = approximately 2.3 in. (58 mm); partial floor depth.

Top End: Flat, saw-cut surface.

Bottom End: Even, formed surface.

Cracks, Joints, Large Voids: No visible cracks, joints, or large voids are observed.

Reinforcement: No reinforcement is observed.

AGGREGATES

Coarse: Siliceous rocks consisting of various volcanic rocks.

Fine: Siliceous sand consisting mainly of various volcanic rocks, quartz, and feldspar with small amounts of other silicate minerals.

Gradation & Top Size: Visually appears evenly graded to an observed top size of 0.6 in. (15 mm).

Shape, Texture, Distribution: Coarse – rounded to sub-angular and equant to oblong with generally smooth surface texture; uniformly distributed. Fine – mostly angular to sub-rounded and equant to elongated; uniformly distributed.

PASTE

Color: Light to light-medium gray.

Hardness: Moderately hard.

Luster: Dull to subvitreous.

Paste-Aggregate Bond: Weak; fresh fractures pass around almost all coarse aggregate particles.

Air Content: Estimated 2 to 4%.

Depth of Carbonation: The core does not include the original concrete surface, and thus carbonation depths were not measured.

Calcium Hydroxide*: Estimated 5 to 10%; calcium hydroxide mostly occurs as fine crystals in the paste and along the periphery of a few aggregate particles.

Residual Portland Cement Clinker Particles*: Estimated 1 to 3%; relics of hydrated portland cement particles are common.

Supplementary Cementitious Materials*: None observed.

Secondary Deposits: None observed.

MICROCRACKING: Randomly-oriented, discontinuous microcracks are frequently observed in the paste between aggregate particles. Narrow microcracks (separation cracks between paste and aggregate) are also observed encircling some aggregate particles. These observed microcracks are not related to any deleterious reactions within the concrete.

ESTIMATED WATER-CEMENT RATIO: Moderate (approximately 0.45 to 0.55) based on the observed physical and microscopical paste properties.

MISCELLANEOUS: The hardened paste is fairly dense to somewhat absorptive.

---

[*] percent by volume of paste

PETROGRAPHIC EXAMINATION OF HARDENED CONCRETE, ASTM C 856

STRUCTURE: Post-tensioned concrete floor

DATE RECEIVED: November 8, 2010

LOCATION: Salem, Oregon

EXAMINED BY: Sang Lee

SAMPLE

Client Identification: 4C-MIDDLE; fourth floor.

CTLGroup Identification: 2744505.

Dimensions: Diameter = 3.9 in. (99 mm), length = approximately 2.4 in. (61 mm); partial floor depth.

Top End: Flat, saw-cut surface.

Bottom End: Flat, saw-cut surface.

Cracks, Joints, Large Voids: No visible cracks, joints, or large voids are observed.

Reinforcement: No reinforcement is observed.

AGGREGATES

Coarse: Siliceous rocks consisting of various volcanic rocks.

Fine: Siliceous sand consisting mainly of various volcanic rocks, quartz, and feldspar with small amounts of other silicate minerals.

Gradation & Top Size: Visually appears evenly graded to an observed top size of 0.6 in. (15 mm).

Shape, Texture, Distribution: Coarse – rounded to sub-angular and equant to oblong with generally smooth surface texture; uniformly distributed. Fine – mostly angular to sub-rounded and equant to elongated; uniformly distributed.

PASTE

Color: Light to light-medium gray.

Hardness: Moderately hard to hard.

Luster: Subvitreous.

Paste-Aggregate Bond: Weak; fresh fractures pass around almost all coarse aggregate particles.

Air Content: Estimated 2 to 4%.

Depth of Carbonation: The core does not include the original concrete surface, and thus carbonation depths were not measured.

Calcium Hydroxide*: Estimated 5 to 10%; calcium hydroxide mostly occurs as fine crystals in the paste and along the periphery of a few aggregate particles.

Residual Portland Cement Clinker Particles*: Estimated 1 to 3%; relics of hydrated portland cement particles are common.

Supplementary Cementitious Materials*: None observed.

Secondary Deposits: None observed.

MICROCRACKING: Randomly-oriented, discontinuous microcracks are frequently observed in the paste between aggregate particles. Narrow microcracks (separation cracks between paste and aggregate) are also observed encircling some aggregate particles. These observed microcracks are not related to any deleterious reactions within the concrete.

ESTIMATED WATER-CEMENT RATIO: Moderate (approximately 0.45 to 0.55) based on the observed physical and microscopical paste properties.

MISCELLANEOUS: The hardened paste is fairly dense.

---

*percent by volume of paste

PETROGRAPHIC EXAMINATION OF HARDENED CONCRETE, ASTM C 856

STRUCTURE: Post-tensioned concrete floor

DATE RECEIVED: November 8, 2010

LOCATION: Salem, Oregon

EXAMINED BY: Sang Lee

SAMPLE

Client Identification: 4C-2; fourth floor.

CTLGroup Identification: 2744506.

Dimensions: Diameter = 3.7 in. (94 mm), length = approximately 2.2 in. (56 mm); partial floor depth.

Top End: Flat, saw-cut surface.

Bottom End: Even, formed surface.

Cracks, Joints, Large Voids: No visible cracks, joints, or large voids are observed.

Reinforcement: No reinforcement is observed.

AGGREGATES

Coarse: Siliceous rocks consisting of various volcanic rocks.

Fine: Siliceous sand consisting mainly of various volcanic rocks, quartz, and feldspar with small amounts of other silicate minerals.

Gradation & Top Size: Visually appears evenly graded to an observed top size of 0.65 in. (17 mm).

Shape, Texture, Distribution: Coarse – rounded to sub-angular and equant to oblong with generally smooth surface texture; uniformly distributed. Fine – mostly angular to sub-rounded and equant to elongated; uniformly distributed.

PASTE

Color: Light to light-medium gray.

Hardness: Moderately hard to hard.

Luster: Subvitreous.

Paste-Aggregate Bond: Moderately weak to weak; fresh fractures pass around to occasionally through coarse aggregate particles.

Air Content: Estimated 2 to 4%.

Depth of Carbonation: The core does not include the original concrete surface, and thus carbonation depths were not measured.

Calcium Hydroxide*: Estimated 5 to 10%; calcium hydroxide mostly occurs as fine crystals in the paste and along the periphery of a few aggregate particles.

Residual Portland Cement Clinker Particles*: Estimated 1 to 3%; relics of hydrated portland cement particles are common.

Supplementary Cementitious Materials*: None observed.

Secondary Deposits: A small amount of secondary ettringite needles line a few voids. Presence of such void-filling secondary deposits is not considered deleterious.

MICROCRACKING: Randomly-oriented, discontinuous microcracks are frequently observed in the paste between aggregate particles. Narrow microcracks (separation cracks between paste and aggregate) are also observed encircling some aggregate particles. These observed microcracks are not related to any deleterious reactions within the concrete.

ESTIMATED WATER-CEMENT RATIO: Moderate (approximately 0.45 to 0.55) based on the observed physical and microscopical paste properties.

MISCELLANEOUS: The hardened paste is fairly dense.

---

*percent by volume of paste

PETROGRAPHIC EXAMINATION OF HARDENED CONCRETE, ASTM C 856

STRUCTURE: Post-tensioned concrete floor

DATE RECEIVED: November 8, 2010

LOCATION: Salem, Oregon

EXAMINED BY: Sang Lee

SAMPLE

Client Identification: 5A-2; fifth floor.

CTLGroup Identification: 2744507.

Dimensions: Diameter = 3.7 in. (94 mm), length = approximately 2.0 in. (51 mm); partial floor depth.

Top End: Flat, saw-cut surface.

Bottom End: Flat, saw-cut surface.

Cracks, Joints, Large Voids: No visible cracks, joints, or large voids are observed.

Reinforcement: No reinforcement is observed.

AGGREGATES

Coarse: Siliceous rocks consisting of various volcanic rocks.

Fine: Siliceous sand consisting mainly of various volcanic rocks, quartz, and feldspar with small amounts of other silicate minerals.

Gradation & Top Size: Visually appears evenly graded to an observed top size of 0.65 in. (17 mm).

Shape, Texture, Distribution: Coarse – rounded to sub-angular and equant to oblong with generally smooth surface texture; uniformly distributed. Fine – mostly angular to sub-rounded and equant to elongated; uniformly distributed.

PASTE

Color: Light gray.

Hardness: Moderately hard

Luster: Dull to subvitreous.

Paste-Aggregate Bond: Weak; fresh fractures pass around almost all coarse aggregate particles.

Air Content: Estimated 1 to 3%.

Depth of Carbonation: The core does not include the original concrete surface, and thus carbonation depths were not measured.

Calcium Hydroxide*: Estimated 5 to 10%; calcium hydroxide mostly occurs as fine crystals in the paste and along the periphery of a few aggregate particles.

Residual Portland Cement Clinker Particles*: Estimated 1 to 3%; relics of hydrated portland cement particles are common.

Supplementary Cementitious Materials*: None observed.

Secondary Deposits: None observed.

MICROCRACKING: Randomly-oriented, discontinuous microcracks are frequently observed in the paste between aggregate particles. Narrow microcracks (separation cracks between paste and aggregate) are also observed encircling some aggregate particles. These observed microcracks are not related to any deleterious reactions within the concrete.

ESTIMATED WATER-CEMENT RATIO: Moderate (approximately 0.45 to 0.55) based on the observed physical and microscopical paste properties.

MISCELLANEOUS: The hardened paste is fairly dense.

---

*percent by volume of paste

PETROGRAPHIC EXAMINATION OF HARDENED CONCRETE, ASTM C 856

STRUCTURE: Post-tensioned concrete floor

DATE RECEIVED: November 8, 2010

LOCATION: Salem, Oregon

EXAMINED BY: Sang Lee

SAMPLE

Client Identification: 5D-BOTTOM; fifth floor.

CTLGroup Identification: 2744508.

Dimensions: Diameter = 3.9 in. (99 mm), length = approximately 2.7 in. (69 mm); partial floor depth.

Top End: Flat, saw-cut surface.

Bottom End: Even, formed surface.

Cracks, Joints, Large Voids: No visible cracks, joints, or large voids are observed.

Reinforcement: No reinforcement is observed.

AGGREGATES

Coarse: Siliceous rocks consisting of various volcanic rocks.

Fine: Siliceous sand consisting mainly of various volcanic rocks, quartz, and feldspar with small amounts of other silicate minerals.

Gradation & Top Size: Visually appears evenly graded to an observed top size of 0.6 in. (15 mm).

Shape, Texture, Distribution: Coarse – rounded to sub-angular and equant to oblong with generally smooth surface texture; uniformly distributed. Fine – mostly angular to sub-rounded and equant to elongated; uniformly distributed.

PASTE

Color: Light gray.

Hardness: Moderately hard.

Luster: Dull to subvitreous.

Paste-Aggregate Bond: Weak; fresh fractures pass around almost all coarse aggregate particles.

Air Content: Estimated 1 to 3%.

Depth of Carbonation: The core does not include the original concrete surface, and thus carbonation depths were not measured.

Calcium Hydroxide*: Estimated 5 to 10%; calcium hydroxide mostly occurs as fine crystals in the paste and along the periphery of a few aggregate particles.

Residual Portland Cement Clinker Particles*: Estimated 1 to 3%; relics of hydrated porltand cement particles are common.

Supplementary Cementitious Materials*: None observed.

Secondary Deposits: None observed.

MICROCRACKING: A few vertical microcracks extend to a depth of 0.5 in. (13 mm) from the formed bottom surface into the core body. Randomly-oriented, discontinuous microcracks are commonly observed in the paste between aggregate particles. Narrow microcracks (separation cracks between paste and aggregate) are also observed encircling some aggregate particles. These observe microcracks are not related to any deleterious reactions within the concrete.

ESTIMATED WATER-CEMENT RATIO: Moderate (approximately 0.45 to 0.55 range) based on the observed physical and microscopical paste properties.

MISCELLANEOUS: The hardened paste is fairly dense.

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*percent by volume of paste

GEODESIGN INC

REPORT OF GEOTECHNICAL ENGINEERING SERVICES

Marion County Courthouse Square Building
555 Court Street NE
Salem, Oregon

For
Marion County Business Services Department
August 12, 2010

GeoDesign Project: Marion-1-01

GEODESIGN INC

August 12, 2010

Marion County Business Services Department
555 Court Street, Room 4250
Salem, OR 97301

Attention: Mr. Dave Henderson

Report of Geotechnical Engineering Services
Marion County Courthouse Square Building
555 Court Street NE
Salem, Oregon
GeoDesign Project: Marion-1-01

GeoDesign, Inc. is pleased to submit our geotechnical engineering report for the Marion County Courthouse Square Building located at 555 Court Street NE in Salem, Oregon. Our services for this project were conducted in accordance with the March 3, 2010 contract between GeoDesign, Inc. and Marion County and our March 25 and May 14, 2010 scope and fee change letters.

We appreciate the opportunity to be of service to you. Please call if you have questions regarding this report.

Sincerely,

GeoDesign, Inc.

George Saunders, P.E., G.E.
Principal Engineer

cc: Mr. George Hager, SERA Architects (via email only)
Mr. Eric Watson, Miller Consulting Engineers (via email only)
Mr. Dan Wilson, Marion County (via email only)

SPM:GPS:kt
Attachments
Three copies submitted
Document ID: Marion-1-01-081210-geor.doc

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1.0 INTRODUCTION

GeoDesign, Inc. is pleased to submit our geotechnical engineering report for the Marion County Courthouse Square Building located at 555 Court Street NE in Salem, Oregon. Figure 1 shows the site relative to existing topographic and physical features. Figure 2 shows the basement floor plan for the Courthouse Square site along with the locations of our drilled borings. Appendix A presents the boring logs, laboratory test results and a description of our subsurface explorations program. Appendix B and C present documents prepared by other consultants for the original construction. For your reference, definitions of all acronyms used in this report are attached at the end of this document.

2.0 PROJECT UNDERSTANDING

The site is an approximate 0.3-acre parcel located in downtown Salem, Oregon. The Courthouse Square building was completed in the year 2000. It consists of a five-story office building located in the southern half of the site and an open bus terminal in the northern portion of the site. There is a single-level basement parking garage that encompasses the entire site. The concrete floor slabs at all levels contain post-tensioned steel stands.

Project documents provided by Marion County state that the Courthouse Square building has experienced "significant settling and structural problems dating to 2002." The problems have resulted in damage to the building finishes, including significant interior cracks, deformation of ceiling systems, uneven floors, and racking and jamming of door and window openings. During field visits, we have also observed severe cracking in three exterior building columns at the basement level and signs of settlement of sidewalks and asphalt pavements around the building perimeter. Marion County has retained SERA Architects, Miller Consulting Engineers (Miller) (structural engineer), and other professionals to investigate building distress and provide recommendations for repairs.

2.1 BACKGROUND

2.1.1 Site History

The site has been developed for various purposes, including commercial, retail, parking, and lodging. Former development included installation of underground storage tanks for gasoline service stations and other commercial facilities. Many of these tanks leaked at some point, resulting in environmental cleanup efforts across the site. The largest cleanup was in the southeast corner of the site where a Standard Oil once operated from 1940 through 1972, later to be taken over by Chevron until 1985 when decommissioning efforts began. In-place treatment occurred at the Chevron site until 1997.

All of the remaining structures on site were demolished between 1997 and 1998 and remedial excavations were conducted on site to remove contaminated soils. Detailed descriptions of the remedial activities can be found in Century West (1998a) and Century West (1999) reports produced by Century West Engineering Corporation (Century West). The most extensive excavation was at the Chevron parcel in the southeastern corner and extended generally 15 to 20 feet below adjacent street levels. Significant dewatering operations were necessary in order to lower groundwater elevations below the excavation bottom and maintain safe excavation sidewalls. Remedial excavations in other areas at the site generally extended between 10 and 15 feet below street elevation.

2.1.2 Site Development

Prior to, and shortly following, demolition of the on-site structures, Century West produced two geotechnical engineering reports (Century West, 1997; 1998b) for the planned Courthouse Square project. The reports provided geotechnical recommendations for site development, including compaction criteria for structural fill, bearing capacity for foundations, and settlement estimates. The reports recommended allowable bearing capacities for shallow foundations of 2,500 psf if established in fill material and 6,000 psf if established on native gravel. Boring logs prepared by Century West and developed during the environmental and geotechnical phases of work were provided to our office by Marion County and are included in Appendix B of this report.

We understand that Century West was retained to provide geotechnical construction observation services during site development, which began with backfilling of the remedial excavations. Construction documents indicate that Carlson Testing, Inc. performed in-place density testing of structural fill soil below the building under the indirect supervision of Century West. Marion County provided copies of the density testing results, which are included in Appendix C of this report.

The data sheets for the density tests show the approximate location (gridlines) and elevation of all test results. Current surveying indicates that the basement floor is at an elevation of 143.2 feet and approximately 10 feet below adjacent street levels. The density test results reported by Carlson Testing were at elevations between elevation 131 and 142 feet, which is 1 to 11 feet below the current basement floor and 11 to 22 feet below street level. Therefore, much of the testing was likely performed on fill that was placed in the remedial excavations and beneath the building foundations. The data sheets indicate that the fill material consisted of 2½-inch-minus on-site material with a maximum theoretical density of 137.5 pcf (based on AASTHO Test Method T180, or a modified proctor test). It does not state if the material was reclaimed native soil or imported crushed rock that was stockpiled on site. All of the test results recorded by Carlson Testing met or exceeded the project specifications for compaction of 95 percent of the maximum theoretical density.

Century West's addendum geotechnical report states that temporary fills were placed against excavation sidewalls to provide support. These fills were reportedly placed without engineering oversight. The report recommended that they be removed and replaced with compacted structural fill. We were unable to find any documentation that this was done. The report did not state how thick the fills were or precisely where they were located.

2.1.3 Construction

As recommended in the Century West geotechnical reports, the foundation system consists of shallow reinforced concrete footings. Most of the footings are spread footings on the order of 6 to 13 feet wide and supporting building columns. There are two mat foundations that support shear walls for the building; one is located in the southeast corner of the building, on the south side of the parking ramp, and the other is located near the center of the building beneath the elevator tower. They measure 56 feet by 42 feet by 6 feet deep and 95 feet by 48 feet by 5 feet deep, respectively.

The five-story, concrete-framed building and the concrete slab for the transit center are supported by concrete columns that bear on the shallow spread footings. All of the floors, including the deck for the transit center, are post-tensioned concrete slabs. The building has a masonry façade. The basement parking slab-on-grade is approximately 6 inches thick and is established over the spread/mat foundations.

2.1.4 Problems Since Construction

Construction of the Courthouse Square development was completed in the year 2000. We understand that building distress was observed starting in 2002. Marion County provided a list of distressed items, which includes the following:

- Window racking
- Non-structural concrete masonry unit cracking
- Cracking in the slab for the parking garage ramp
- Gypsum wall cracking
- Ceiling grid racking
- Door binding and separation from frames
- Cracking and spalling concrete in building walls: north block fan room, south wall of north block (between transit center and Courthouse Square building), northeast stairwell, east stair enclosure, west stair enclosure
- Cracking and spalling in concrete for columns: northeast and northwest basement corners at gridlines O-10 and A-10, north wall for transit center at gridline M-1

On May 1, 2010 we observed an excavation along the east building perimeter, beneath the existing sidewalk and adjacent to the column at gridline O-10. The excavation extended to the top of the column footing. We observed that the crack present in the interior of the column was evident from the outside as well. Miller analyzed the structural loads of the existing building and informed us that actual foundation loads generally approach 6,000 psf.

There are adjacent rows of columns along either side of the post-tensioned slab joints in the vicinity of gridline 3 and gridline 10. Based on our observations and as reported by Miller, the columns are out of alignment by several inches. The separation at the top of the adjacent columns is greater than at the bottom, which we understand may indicate that the tops of the columns are being pulled by the post-tensioned slab.

We also observed indications that the sidewalk areas along the north and east building perimeters have experienced settlement. Indications included separation of sidewalks from the building elements and obvious differences of elevation in asphalt walkways to the northeast and north of the top of the basement walls. It appears that a repair was made along the north basement wall by placing additional asphalt to bring the surface back to grade. The asphalt walkway in the northeast corner appears to have settled up to approximately 3 inches.

3.0 PURPOSE AND SCOPE

The purpose of our geotechnical engineering services was to characterize site subsurface conditions, perform geotechnical engineering analyses, and provide our opinion on the role of settlement in the building distress and potential mitigation options. Our scope of work included the following:

- Reviewed project documents, with special focus on all documentation associated with the environmental remedial work, demolition/construction work related to preparing disturbed native material and fill, and construction field reports associated with the preparation of footing subgrade.
- Completed borings at the following locations:
  - One boring (B-1) in the basement garage in parking stall no. 2 to an approximate depth of 15.5 feet below the basement floor. This boring was extended through the approximately 5-foot-thick mat foundation.
  - One boring (B-2) in the basement garage in parking stall no. 1 to an approximate depth of 10.5 feet below the basement floor.
  - One boring (B-3) in the basement garage in parking stall no. 33 to an approximate depth of 16 feet below the basement floor. This boring was extended through an approximately 6-foot-thick mat foundation.
  - One boring (B-4) through the transit deck to an approximate depth of 30 feet below the deck grade (20 feet below basement floor).
- Observed an excavation (TP-1) outside of the building area near the column at gridline O-10 performed by Fortis Construction, Inc. (project general contractor).
- Attended three team meetings, including the kick-off meeting.
- Performed geotechnical analysis of our findings, including bearing capacity of soils. Analyzed and provided a comparative report on the findings in the geotechnical analysis previously performed by Century West.
- Provided this report containing the results of our evaluation as well as discussion on the existing foundation system's current load bearing capacity and a comparative analysis of soils conditions from our explorations to the original 1997 geotechnical report for the site.

4.0 SITE CONDITIONS

4.1 GEOLOGIC SETTING

Salem is situated in the Willamette Valley, which extends from Cottage Grove in the south to the Portland Basin in the north (Burns, 1998; Orr and Orr, 1999). The Willamette Valley is a tectonically active lowland and part of the Puget-Willamette Trough physiographic province; a forearc basin associated with the tectonically active Cascadia convergent margin. The lowland is generally an elongated alluvial plain bordered on the west by the Coast Ranges and on the east by the Cascade Mountains.

The near-surface geologic unit is mapped as the Linn Gravel, a Quaternary to Upper Pleistocene alluvium composed of stratified fine to coarse gravels deposited in an alluvial fan during early stages of the Santiam River (Bela, 1981). The thickness typically ranges from 30 to 300 feet. The Grande Ronde Member of the CRBG underlies the Linn Gravel in this region.

Basement rocks generally consist of the Miocene CRBG (approximately 17 million to 6 million years old) (Bela, 1981; Tolan and Beeson, 2000). The CRBG comprises a series of thick basalt flows that filled lowland areas throughout much of the northern Willamette Valley. The basalt was subsequently faulted by the compressional tectonics of the region; this also resulted in the uplifting of the Salem Hills. The CRBG ranges up to hundreds of feet thick in areas where it is present (Tolan and Beeson, 2000).

4.2 SURFACE CONDITIONS

The Marion County Courthouse Square site is located in downtown Salem between High Street, Church Street, Court Street, and Chemeketa Street, as shown on Figure 1. The setting is urban and the surrounding areas are developed with retail, courthouse, and commercial buildings. The site is occupied by the five-story Courthouse Square building in the southern half of the property and the transit center in the northern half, which consists of flat driveways for buses. The ground surface is covered by concrete for sidewalks and asphalt for the driveways and some of the open walkways.

4.3 SUBSURFACE CONDITIONS

Our knowledge of site subsurface conditions is based on reviewing previous engineering reports completed for the original project and our own explorations. Our subsurface exploration program consisted of drilling four borings (B-1 through B-4) to depths ranging between 10.5 and 20.0 feet below the basement floor and observation of an excavation outside of the building to an approximate depth of 9.5 feet below the sidewalk (test pit TP-1). Copies of the exploration logs from this phase of work and a description of the exploration program are provided in Appendix A. Copies of boring logs from the previous Century West explorations are provided in Appendix B, along with a site plan showing approximate boring location. Approximate exploration locations for our study are shown on Figure 2.

In general, the subsurface conditions consist of varying depths of gravel fill overlying dense, native gravel. The subsurface units are described as follows.

4.3.1 Gravel Fill

4.3.1.1 Within Building/Transit Mall Area

Gravel fill was encountered in each of the four borings to varying depths as shown on the exploration logs. The depth of the fill within the building area corresponds well to the documented depth of the environmental remediation excavations as documented in the Century West reports. The fill generally consists of angular to subrounded gravel with some sand and trace amounts of silt. We estimate the diameter of the gravel is up to 2 inches or more. The material appears to be processed, crushed rock. Based on the SPT results, the material is medium dense to very dense. We observed some discrete layers (less than 1.5 feet thick) where drilling got slightly easier, indicating softer soil conditions. However, SPT results still indicated a medium dense condition with no blow counts less than 16 blows per foot.

It is difficult to say if all of the fill soil was compacted to the levels reported in the Carlson Testing field reports ("Background" section of this report). It does appear that the majority of the fill soils we encountered were compacted with some degree of effort and not just loosely placed. Laboratory testing indicates that the gravel fill had a moisture content between 5 and 10 percent at the time of our exploration and a fines content between 1 and 8 percent. Based on the results of our exploration and our experience with similar soil, this material has low compressibility characteristics.

Fill soil present in the southeastern corner of the site prior to site development is described in the Century West boring logs. The fill extended to depths up to 13 feet below ground level. Excavation for environmental remediation and for the building basement likely removed most of this material. Therefore, fill material described in our geotechnical report is not necessarily the same as fill material described in the Century West reports.

4.3.1.2 Outside Building Area

We observed gravel fill that was likely placed as backfill against the basement walls (test pit TP-1). The gravel fill appeared to be similar to the fill inside of the building area. There was a zone of backfill that consisted of silty gravel at a depth of approximately 7 to 9 feet. We were unable to closely observe the material in the test pit due to the presence of shoring; however, it was observed from the top of the pit after the shoring was removed. We conducted two in-place density tests on the fill material using a nuclear densometer. The results are presented in Table 1.

Table 1. In-place Density Test Results

Location	Depth (feet)	Dry Density (pcf)	Moisture Content
TP-1	1	132.4	4.5
TP-2	9	100.7	6.5

Based on the test results, it appears that the fill was well compacted near the ground surface (sidewalk elevation) and poorly compacted at the bottom of the excavation near the top of footing elevation.

4.3.2 Native Gravel

The native soils encountered below the fill soil consist of gravel (Linn Gravel unit) with sand, some silt, and occasional cobbles. The cobble and gravel particles are rounded to subrounded. SPT results indicate that the native gravel is dense to very dense. Drilling through this unit was very difficult, so our borings were stopped several feet into it. In boring B-4, we encountered excessive caving in the borehole at an approximate depth of 17 to 19 feet below the basement floor. We believe the caving occurred in a lens above this elevation where sand and silt was absent in the soil matrix and cobbles were prevalent. We were forced to abandon this boring after numerous attempts to clean and maintain and open borehole failed. Laboratory testing indicates that the gravel fill had a moisture content between 9 and 11 percent at the time of our exploration and a fines content between 4 and 9 percent. Based on the results of our exploration and our experience with similar soil, this material has low compressibility characteristics.

Our findings with respect to the native gravel unit correlate well with the subsurface information provided in the Century West boring logs for this material. The Century West borings encountered the native gravel to a depth of 45 feet below street elevation (approximately 35 feet below basement elevation), which is the maximum depth explored. These explorations, in addition to the geology of the area, indicates that the native gravel soil is relatively deep.

4.3.3 Groundwater

Groundwater was encountered at a depth of 3.5 to 4.0 feet below the basement floor in borings B-1 and B-3. Groundwater was not able to be measured in borings B-2 and B-4 due to the presence of drilling fluid. This correlates well with groundwater data provided in previous Century West reports. We anticipate that groundwater elevations will fluctuate in response to the seasons and local river levels.

5.0 CONCLUSIONS

5.1 SETTLEMENT

5.1.1 Within Building and Transit Mall Area

The distress observed in building walls, columns, and floors in the basement is typical in buildings that experienced differential settlement in excess of project tolerances. Diagonal cracking in shear walls is common where settlement has occurred below the wall foundation. However, the data collected in our subsurface exploration and contained in field reports by Carlson Testing indicates that the gravel fill below building foundations is generally competent and likely placed with some degree of compactive effort. Our borings encountered dense to very dense, native gravel that has very low compressibility characteristics. Based on the results of our study, we cannot conclude that widespread settlement is a significant cause of distress in the building elements.

It is possible that there are areas of gravel fill beneath the building that were poorly compacted and not observed in our borings or by Carlson Testing personnel during construction. The Century West addendum geotechnical report stated that temporary uncompacted fills were placed in the building area to provide excavation support during environmental remediation. It is unknown if this material was removed and replaced with compacted fill. The locations and thicknesses of these fills are undocumented. Presence of loose fill soils not observed in our explorations could result in settlement of isolated columns. However, survey results of the basement floor slab provided by SERA Architects indicate that there is generally less than a ½ inch elevation difference between adjacent columns at the basement level. Therefore, it is unlikely that excessive differential settlement has occurred between columns due to local uncompacted fill soil.

Settlement in granular soils, such as gravel and sand, typically occurs rapidly and long-term settlement in these soil types is usually negligible. If there were areas where gravel fill was poorly compacted and settlement of overlying structures occurred, we would expect that settlement would have been complete within a few weeks of load placement. It is highly unlikely that settlement would continue over a period of years, as has been reported for the Courthouse Square development.

5.1.1.1 Columns at Gridlines A-10 and O-10

The columns at gridlines A-10 and O-10 are severely distressed as discussed in the "Background" section of this report. It is possible that part of the column loads were transferred to surrounding columns. The project structural engineer should evaluate potential load redistribution and how it would affect bearing pressures of surrounding column footings and the equilibrium of the structure.

5.1.2 Outside of the Building Area

We observed indications of settlement in the sidewalk areas surrounding the building as discussed in the "Background" section of this report. Our field testing on gravel fill placed outside of the building near gridline O-10 indicates that the gravel fill was loosely placed near the bottom of the building wall. In our opinion, this likely resulted in settlement of concrete and asphalt walkways around the building perimeter. Settlement likely occurred within a few weeks of project completion. We were unable to locate any field density test results performed outside of the building area in the Carlson Testing reports.

5.2 COMPARISON WITH ORIGINAL GEOTECHNICAL REPORT

As discussed in the "Subsurface Conditions" section of this report, the subsurface conditions encountered in our explorations are very similar to those described in the Century West reports. We encountered fill materials beneath the building that were placed since the original Century West geotechnical reports, so this material was different than the fill material encountered in the Century West explorations. The fill material encountered in Century West's borings was likely removed during remedial excavations and the basement excavation.

The Century West geotechnical reports recommend an allowable bearing capacity for shallow foundations of 2,500 psf if established on fill material and 6,000 psf if established on native gravel. These values include dead loads plus live loads. The report estimates that total settlement would not exceed 1 inch and differential settlement would not exceed ½ inch under the planned building loads.

Based on the findings in our subsurface exploration and our geotechnical engineering analyses, we believe that the recommendations for foundation bearing capacity and estimates of settlement provided in the Century West geotechnical reports were generally suitable for this project. However, based on information provided by Miller, foundations bearing on gravel fill soils were designed for a bearing pressure of approximately 6,000 psf instead of 2,500 psf as recommended in the Century West geotechnical reports. This may result in settlement that exceeds the estimates in those reports. In addition, the Century West reports did not address bearing capacity and subgrade reaction for the mat foundations. This is further discussed in the following section.

5.3 MAT FOUNDATIONS

Mat foundations are shallow, reinforced concrete slabs that typically support multiple columns or walls. They are relatively wide compared to shallow spread footings. As the foundation size increases, the subgrade reaction increases as well. Bearing capacity of mat foundations are typically larger than for spread footings. However, the deflection of the subgrade can be higher for mat foundations. Based on our findings, we recommend that the existing mat foundations be analyzed using a subgrade reaction modulus of 350 pci for a mat foundation bearing on the gravel fill. The subgrade reaction modulus value is for a 1 foot by 1 foot loaded area that reduces with increasing size of the mat foundation. A plot of the subgrade reaction modulus as a function of the mat size that was provided to Miller is included as Figure 3. The amount of expected deflection should be determined by the structural engineer depending on the stiffness of the mat and the subgrade reaction modulus.

6.0 MITIGATION

If isolated settlement has occurred in the gravel fill soils underlying the building, it is likely that it was completed years ago. Therefore, there is a low probability that significant settlement magnitudes will be experienced in the future, provided that building loads do not change. In our opinion, settlement mitigation techniques, such as foundation underpinning, will generally provide little benefit. Underpinning may be beneficial if (1) structural analyses indicate areas where current foundation bearing pressures exceed allowable bearing capacity or (2) building repairs result in increases to foundation bearing pressure that exceed allowable bearing capacity. Underpinning options are discussed below if utilized for building repair.

6.1 UNDERPINNING

Bearing capacity for existing foundations can be increased by installing underpinning elements. Common methods for underpinning existing footings include jet grouting and micropile installation. In our opinion, micropiles are the most suitable option for this project because they can be installed in low clearance areas and in gravel and cobble soils with little vibration. They are installed by a drill rig that advances borehole casing during drilling, which prevents caving of granular soils into the borehole. After drilling to the design depth, grout is injected in the borehole and reinforcing steel is inserted. Micropiles are typically installed through existing foundations, which allows the foundation to be structurally tied to the micropile. Micropiles should extend through any gravel fill soil and terminate in the native gravel unit.

Micropiles are typically designed and installed by specialty contractors. There are few contractors that perform this work in the region. GeoDesign can provide references for qualified contractors upon request.

7.0 OBSERVATION OF CONSTRUCTION

Satisfactory foundation performance depends to a large degree on quality of construction. Sufficient observation of the contractor's activities is a key part of determining that the work is completed in accordance with the construction drawings and specifications. Subsurface conditions observed during construction should be compared with those encountered during the subsurface exploration. Recognition of changed conditions often requires experience; therefore, qualified personnel should visit the site with sufficient frequency to detect if subsurface conditions change significantly from those anticipated. We recommend that GeoDesign be retained to observe any foundation mitigation.

8.0 LIMITATIONS

We have prepared this report for use by Marion County and the project team for the existing development. The data and report can be used for analysis purposes, but our report, conclusions, and interpretations should not be construed as warranty of the subsurface conditions and are not applicable to other sites.

Exploration observations indicate soil conditions only at specific locations and only to the depths penetrated. They do not necessarily reflect soil strata or water level variations that may exist between exploration locations. If subsurface conditions differing from those described are noted during the course of remedial work, re-evaluation will be necessary.

The scope of our services does not include services related to construction safety precautions, and our recommendations are not intended to direct the contractor's methods, techniques, sequences, or procedures, except as specifically described in our report for consideration in design.

Within the limitations of scope, schedule, and budget, our services have been executed in accordance with generally accepted practices in this area at the time the report was prepared. No warranty, expressed or implied, should be understood.

◆ ◆ ◆

We appreciate the opportunity to be of continued service to you. Please call if you have questions concerning this report or if we can provide additional services.

Sincerely,

GeoDesign, Inc.

Scott P. McDevitt, P.E., G.E.
Project Engineer

George Saunders, P.E., G.E.
Principal Engineer

REGISTERED PROFESSIONAL
ENGINEER
63094
OREGON
JULY 11, 2000
SCOTT P McDEVITT
EXPIRES: 12/31/10

REFERENCES

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FIGURES

VICINITY MAP BASED ON AERIAL PHOTOGRAPH OBTAINED FROM GOOGLE EARTH PRO®

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MARION-1-01

AUGUST 2010

VICINITY MAP

MARION COUNTY COURTHOUSE SQUARE BUILDING
SALEM, OR

FIGURE 1

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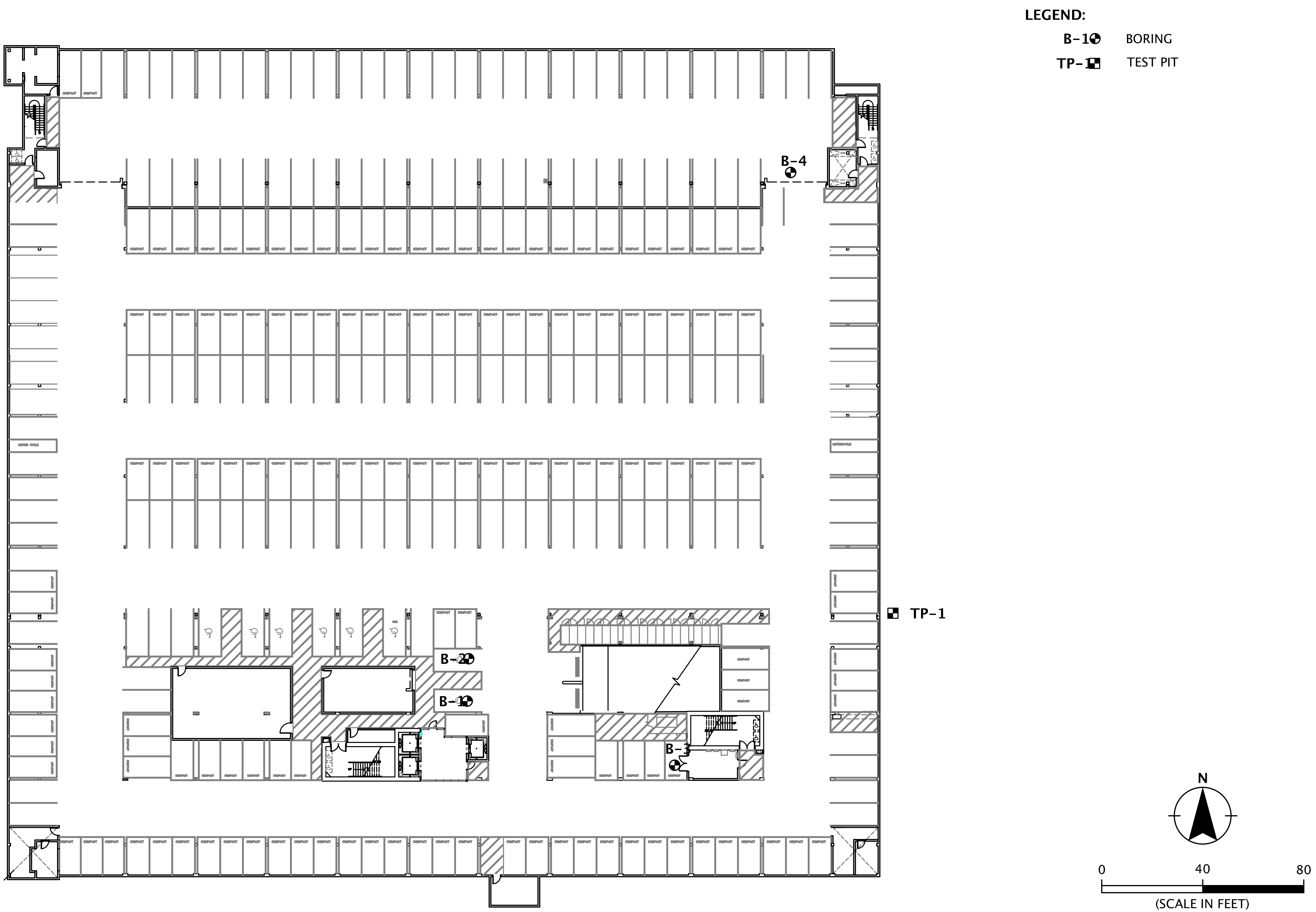
File Name: C:\DOCUME~1\aday\LOCALS~1\Temp\AcPublish_1808\Marion-1-01-VM01.dwg | Layout: FIGURE 1



SITE PLAN BASED ON DRAWING PROVIDED BY
SERA ARCHITECTS, MAY 6, 2010

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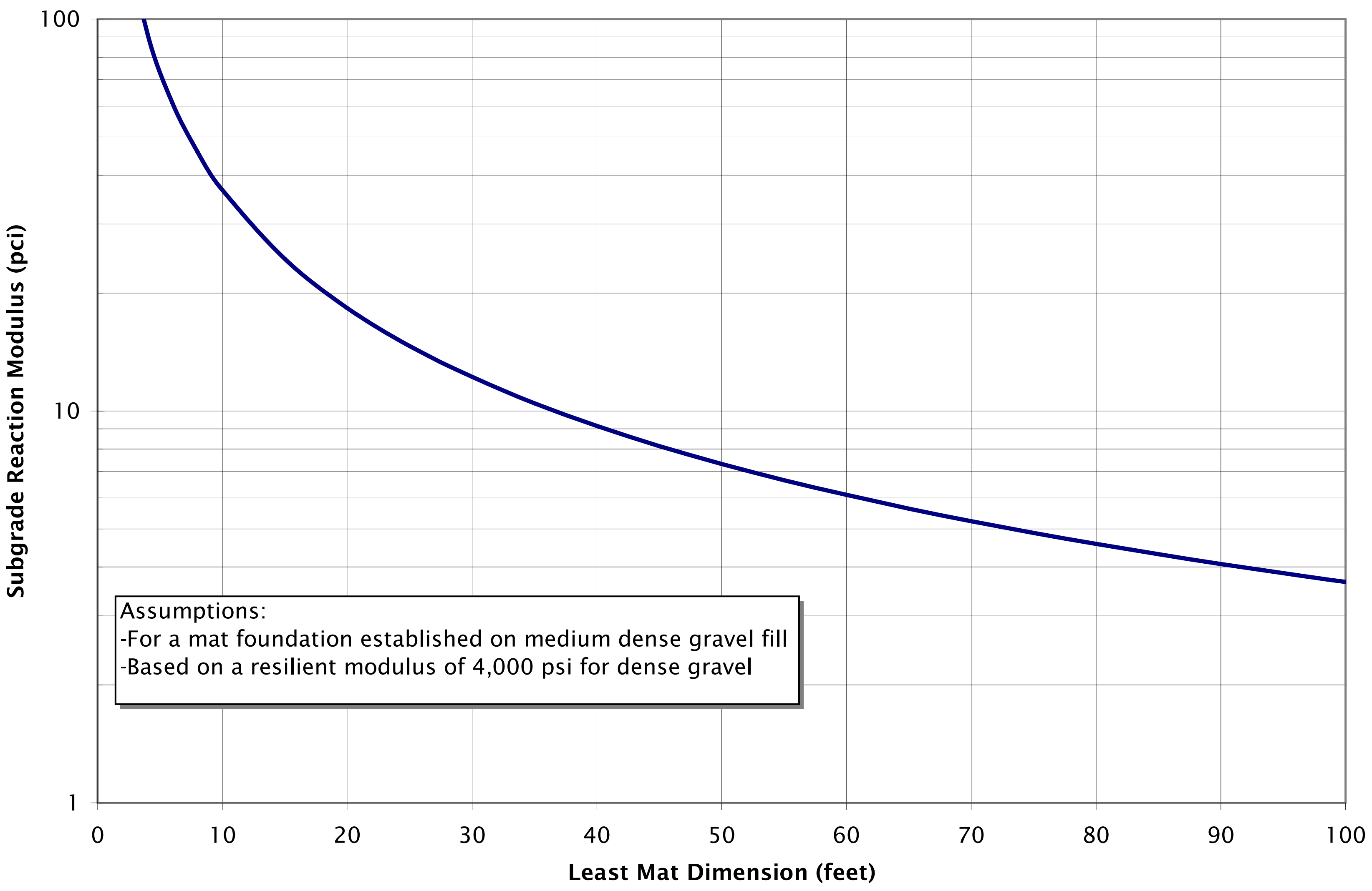
AUGUST 2010

SITE PLAN

MARION COUNTY COURTHOUSE SQUARE BUILDING
SALEM, OR

FIGURE 2



Assumptions:
-For a mat foundation established on medium dense gravel fill
-Based on a resilient modulus of 4,000 psi for dense gravel

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AUGUST 2010

SUBGRADE REACTION MODULUS

MARION COUNTY COURTHOUSE SQUARE BUILDING
SALEM, OR

FIGURE 3

APPENDIX A

APPENDIX A

FIELD EXPLORATIONS

GENERAL

Subsurface conditions at the site were explored by drilling four borings (B-1 through B-4) and observing one test pit exploration (TP-1). Figure 2 shows the approximate exploration locations. Drilling services were provided by Western States Soil Conservation, Inc. of Aurora, Oregon, on April 24 and 25, 2010 and May 15, 2010. Fortis Construction, Inc. performed excavation work on May 1, 2010. The explorations were observed by a member of our geotechnical staff. We obtained representative samples of the various soils encountered in the explorations for geotechnical laboratory testing. Classifications and sampling depths are presented on the exploration logs included in this appendix.

Exploration locations were chosen based on existing site plans and discussions with Miller and SERA Architects. The locations of the explorations were determined in the field by pacing from site features. This information should be considered accurate to the degree implied by the methods used.

SOIL SAMPLING

Soil samples were obtained from the borings using one of the following methods. SPTs were performed in general conformance with ASTM D 1586. The sampler was driven with a 140-pound hammer free-falling 30 inches. The number of blows required to drive the sampler 1 foot, or as otherwise indicated, into the soils is shown adjacent to the sample symbols on the boring log. In some cases, a larger Dames & Moore sampler was used instead of the SPT split spoon. Blow counts shown on the boring logs are higher for these samples because the sampler area is larger than the SPT split spoon. Disturbed samples were obtained from the split barrel for subsequent classification and index testing.

SOIL CLASSIFICATION

The soil samples were classified in accordance with the "Exploration Key" (Table A-1) and "Soil Classification System" (Table A-2), which are included in this appendix. The exploration logs indicate the depths at which the soils or their characteristics change, although the change could be gradual. A horizontal line between soil types indicates an observed (visual or drill action) change. If the change occurred between sample locations and was not observed or obvious, the depth was interpreted and the change is indicated using a dashed line. Classifications and sampling intervals are presented on the exploration logs included in this appendix.

LABORATORY TESTING

CLASSIFICATION

The soil samples were classified in the laboratory to confirm field classifications. The laboratory classifications are included on the exploration logs if those classifications differed from the field classifications.

MOISTURE CONTENT

We determined the natural moisture content of selected soil samples in general accordance with ASTM D 2216. The natural moisture content is a ratio of the weight of the water to soil in a test sample and is expressed as a percentage. The test results are presented on the exploration logs included in this appendix.

GRAIN-SIZE TESTING

We completed grain-size testing on eight soil samples in order to determine the fines content and grain size distribution. The testing consisted of seven percent fines determinations (percent passing the U.S. Standard No. 200 Sieve) analyses completed in general accordance with ASTM C 117 and D 1140 (P200) and one gradation test in accordance with ASTM C 117 and C 136. The fines content test results are presented on the exploration logs and gradation results presented on Figure A-6.

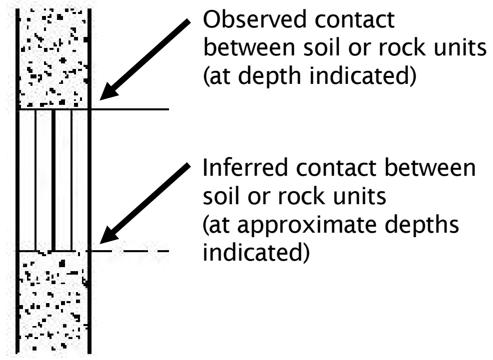
FIELD TESTING

DRY DENSITY

We tested the in situ dry density of soils in test pit TP-1 in general accordance with ASTM D 6938. The dry density is the ratio between the mass of the soil (not including water) and the volume of the soil in a given mass. The density is expressed in units of pcf. The test values are presented on the test pit log included in this appendix and discussed in the "Subsurface Conditions" section of this report.

SYMBOL	SAMPLING DESCRIPTION
▯	Location of sample obtained in general accordance with ASTM D 1586 Standard Penetration Test with recovery
▮	Location of sample obtained using thin-wall Shelby tube or Geoprobe® sampler in general accordance with ASTM D 1587 with recovery
▤	Location of sample obtained using Dames & Moore sampler and 300-pound hammer or pushed with recovery
▤	Location of sample obtained using Dames & Moore or 3-inch-O.D. split-spoon sampler and 140-pound hammer or pushed with recovery
☒	Location of grab sample
▒	Rock coring interval
▽	Water level during drilling
▼	Water level taken on date shown

Graphic Log of Soil and Rock Types



GEOTECHNICAL TESTING EXPLANATIONS

ATT	Atterberg Limits	P	Pushed Sample
CBR	California Bearing Ratio	PP	Pocket Penetrometer
CON	Consolidation	P200	Percent Passing U.S. Standard No. 200 Sieve
DD	Dry Density	RES	Resilient Modulus
DS	Direct Shear	SIEV	Sieve Gradation
HYD	Hydrometer Gradation	TOR	Torvane
MC	Moisture Content	UC	Unconfined Compressive Strength
MD	Moisture-Density Relationship	VS	Vane Shear
OC	Organic Content	kPa	Kilopascal

ENVIRONMENTAL TESTING EXPLANATIONS

CA	Sample Submitted for Chemical Analysis	ND	Not Detected
P	Pushed Sample	NS	No Visible Sheen
PID	Photoionization Detector Headspace Analysis	SS	Slight Sheen
ppm	Parts per Million	MS	Moderate Sheen
		HS	Heavy Sheen

RELATIVE DENSITY - COARSE-GRAINED SOILS

Relative Density	Standard Penetration Resistance	Dames & Moore Sampler (140-pound hammer)	Dames & Moore Sampler (300-pound hammer)
Very Loose	0 – 4	0 - 11	0 - 4
Loose	4 – 10	11 - 26	4 - 10
Medium Dense	10 – 30	26 - 74	10 - 30
Dense	30 – 50	74 - 120	30 - 47
Very Dense	More than 50	More than 120	More than 47

CONSISTENCY - FINE-GRAINED SOILS

Consistency	Standard Penetration Resistance	Dames & Moore Sampler (140-pound hammer)	Dames & Moore Sampler (300-pound hammer)	Unconfined Compressive Strength (tsf)
Very Soft	Less than 2	Less than 3	Less than 2	Less than 0.25
Soft	2 - 4	3 – 6	2 - 5	0.25 - 0.50
Medium Stiff	4 - 8	6 – 12	5 - 9	0.50 - 1.0
Stiff	8 - 15	12 – 25	9 - 19	1.0 - 2.0
Very Stiff	15 - 30	25 – 65	19 – 31	2.0 - 4.0
Hard	More than 30	More than 65	More than 31	More than 4.0

PRIMARY SOIL DIVISIONS			GROUP SYMBOL	GROUP NAME
COARSE-GRAINED SOILS (more than 50% retained on No. 200 sieve)	GRAVEL (more than 50% of coarse fraction retained on No. 4 sieve)	CLEAN GRAVELS (< 5% fines)	GW or GP	GRAVEL
		GRAVEL WITH FINES (≥ 5% and ≤ 12% fines)	GW-GM or GP-GM	GRAVEL with silt
			GW-GC or GP-GC	GRAVEL with clay
		GRAVELS WITH FINES (> 12% fines)	GM	silty GRAVEL
			GC	clayey GRAVEL
			GC-GM	silty, clayey GRAVEL
	SAND (50% or more of coarse fraction passing No. 4 sieve)	CLEAN SANDS (<5% fines)	SW or SP	SAND
		SANDS WITH FINES (≥ 5% and ≤ 12% fines)	SW-SM or SP-SM	SAND with silt
			SW-SC or SP-SC	SAND with clay
		SANDS WITH FINES (> 12% fines)	SM	silty SAND
			SC	clayey SAND
			SC-SM	silty, clayey SAND
FINE-GRAINED SOILS (50% or more passing No. 200 sieve)	SILT AND CLAY	Liquid limit less than 50	ML	SILT
			CL	CLAY
			CL-ML	silty CLAY
			OL	ORGANIC SILT or ORGANIC CLAY
		Liquid limit 50 or greater	MH	SILT
			CH	CLAY
			OH	ORGANIC SILT or ORGANIC CLAY
HIGHLY ORGANIC SOILS			PT	PEAT

MOISTURE CLASSIFICATION

Term	Field Test
dry	very low moisture, dry to touch
moist	damp, without visible moisture
wet	visible free water, usually saturated

ADDITIONAL CONSTITUENTS

Secondary granular components or other materials such as organics, man-made debris, etc.

Percent	Silt and Clay In:		Percent	Sand and Gravel In:	
	Fine-Grained Soils	Coarse-Grained Soils		Fine-Grained Soils	Coarse-Grained Soils
< 5	trace	trace	< 5	trace	trace
5 – 12	minor	with	5 – 15	minor	minor
> 12	some	silty/clayey	15 – 30	with	with
			> 30	sandy/gravelly	sandy/gravelly

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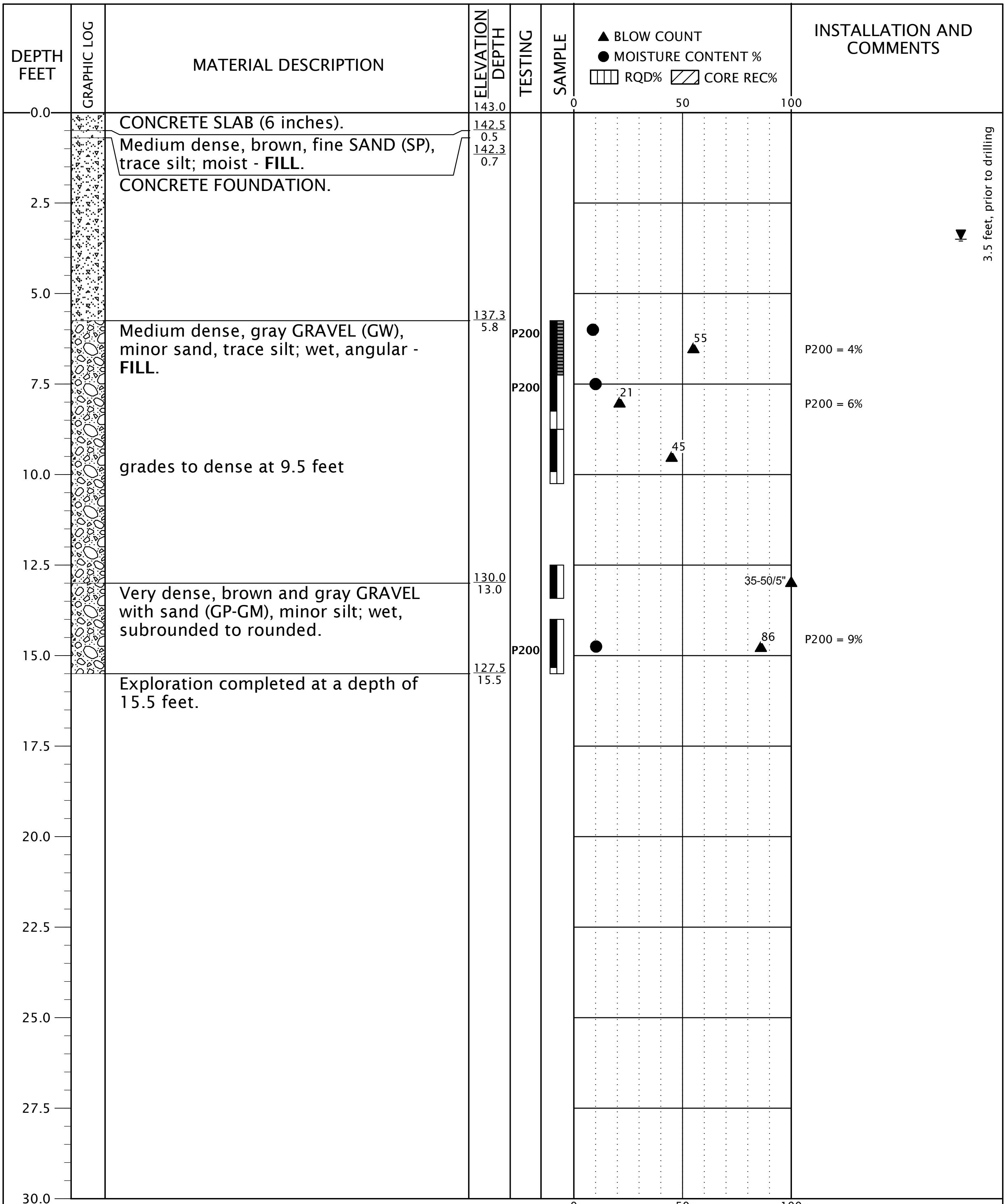
SOIL CLASSIFICATION SYSTEM

TABLE A-2



MATERIAL DESCRIPTION	ELEVATION DEPTH	TESTING	INSTALLATION AND COMMENTS
	143.0		
CONCRETE SLAB (6 inches).	142.5 0.5		
Medium dense, brown, fine SAND (SP), trace silt; moist - **FILL**.	142.3 0.7		
CONCRETE FOUNDATION.			
Medium dense, gray GRAVEL (GW), minor sand, trace silt; wet, angular - **FILL**.	137.3 5.8	P200 P200	P200 = 4% P200 = 6%
grades to dense at 9.5 feet			
Very dense, brown and gray GRAVEL with sand (GP-GM), minor silt; wet, subrounded to rounded.	130.0 13.0	P200	P200 = 9%
Exploration completed at a depth of 15.5 feet.	127.5 15.5		

DRILLED BY: Western States Soil Conservation, Inc.   LOGGED BY: SPM   COMPLETED: 04/24/10

BORING METHOD: mud rotary (see report text)   BORING BIT DIAMETER: 3 7/8-inch

GEODESIGN INC

15575 SW Sequoia Parkway - Suite 100
Portland OR 97224
Off 503.968.8787 Fax 503.968.3068

MARION-1-01

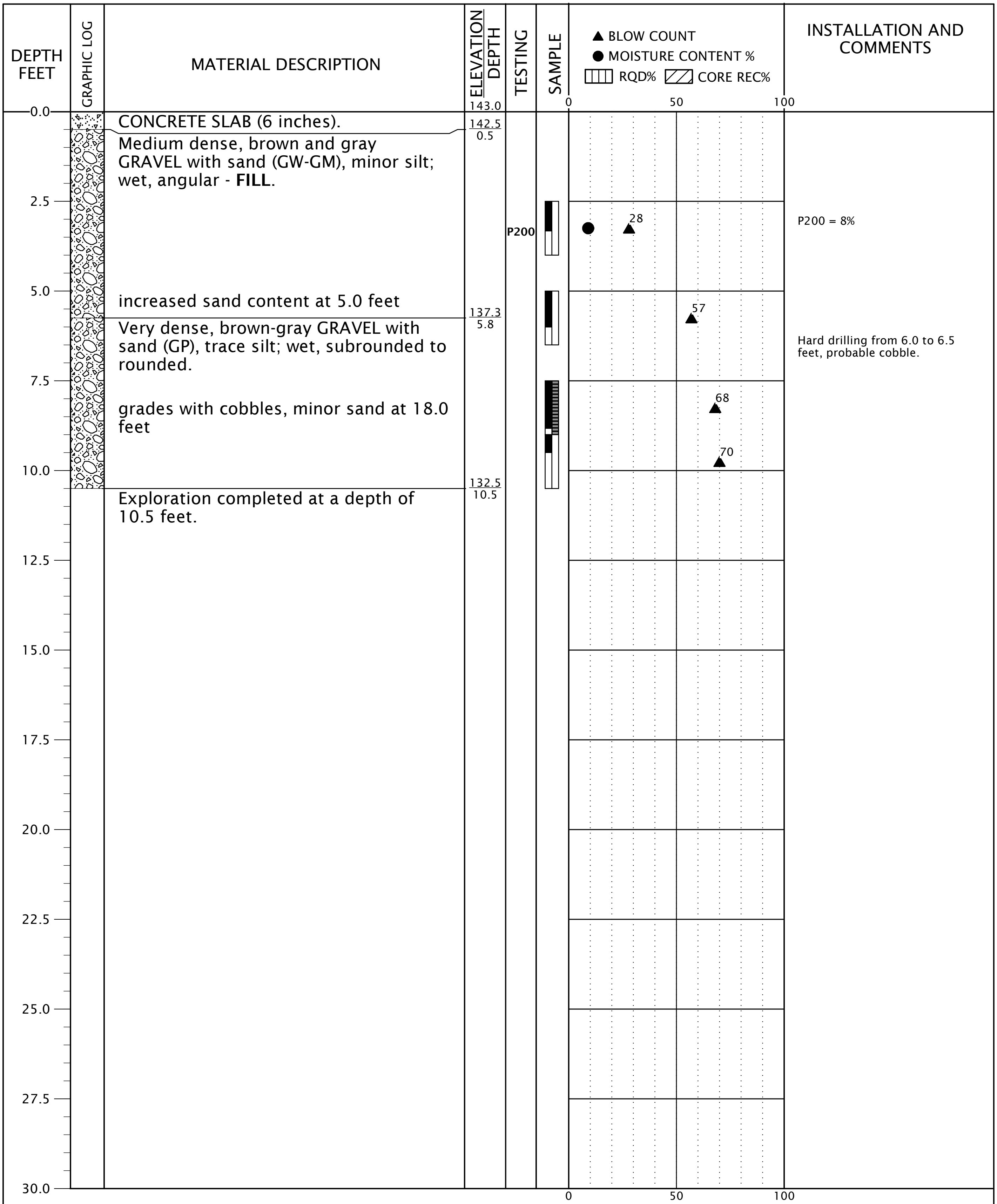
AUGUST 2010

BORING B-1

MARION COUNTY COURTHOUSE SQUARE BUILDING
SALEM, OR

FIGURE A-1

BORING LOG MARION-1-01-B1_4-TP1.GPJ GEODESIGN.GDT PRINT DATE: 8/10/10:CWD



CONCRETE SLAB (6 inches).

Medium dense, brown and gray GRAVEL with sand (GW-GM), minor silt; wet, angular - **FILL**.

increased sand content at 5.0 feet

Very dense, brown-gray GRAVEL with sand (GP), trace silt; wet, subrounded to rounded.

grades with cobbles, minor sand at 18.0 feet

Exploration completed at a depth of 10.5 feet.

P200 = 8%

Hard drilling from 6.0 to 6.5 feet, probable cobble.

DRILLED BY: Western States Soil Conservation, Inc.
LOGGED BY: SPM
COMPLETED: 04/24/10

BORING METHOD: mud rotary (see report text)
BORING BIT DIAMETER: 3 7/8-inch

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MARION-1-01

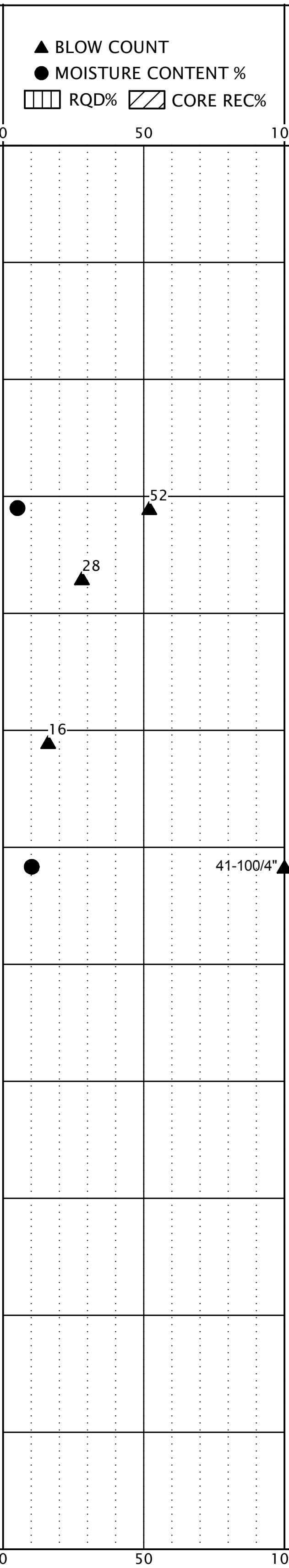
AUGUST 2010

BORING B-2

MARION COUNTY COURTHOUSE SQUARE BUILDING
SALEM, OR

FIGURE A-2

DEPTH FEET	MATERIAL DESCRIPTION	ELEVATION / DEPTH	TESTING	INSTALLATION AND COMMENTS
0.0	CONCRETE SLAB (6 inches).	143.0		
	Medium dense, brown, fine SAND (SP); moist - **FILL**.	142.5 / 0.5		
	CONCRETE FOUNDATION.	142.3 / 0.7		4.0 feet, prior to drilling
7.0	Medium dense, gray, fine to coarse GRAVEL (GW), minor sand, trace silt; wet, angular - **FILL**.	136.0 / 7.0	P200	P200 = 1%
11.0	Medium dense, brown GRAVEL with sand and silt (GP-GM); wet - **FILL**.	132.0 / 11.0		Easier drilling from 11.0 to 11.5 feet. Gravel from 11.5 to 12.0 feet. Easier drilling from 12.0 to 12.5 feet.
14.0	Very dense, brown, sandy GRAVEL with cobbles (GP), trace silt; wet, subrounded to rounded.	129.0 / 14.0	P200	Hard drilling at 14.0 feet. P200 = 4%
16.0	Exploration completed at a depth of 16.0 feet.	127.0 / 16.0		



DRILLED BY: Western States Soil Conservation, Inc.
LOGGED BY: SPM
COMPLETED: 04/25/10

BORING METHOD: mud rotary (see report text)
BORING BIT DIAMETER: 3 7/8-inch

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MARION-1-01

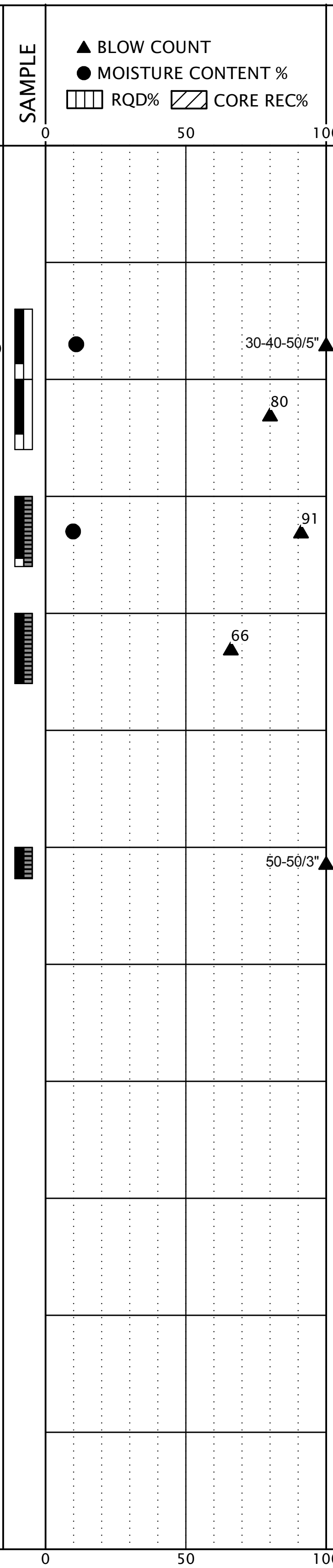
AUGUST 2010

BORING B-3

MARION COUNTY COURTHOUSE SQUARE BUILDING
SALEM, OR

FIGURE A-3

DEPTH FEET	MATERIAL DESCRIPTION	ELEVATION / DEPTH	TESTING	INSTALLATION AND COMMENTS
0.0	CONCRETE SLAB (6 inches).	143.0		
	Dense, gray GRAVEL (GP), minor sand; moist, angular - **FILL**.	142.5 0.5		Drilling staged from top deck of parking garage 11 feet above top of boring.
2.5				
	Very dense, brown and gray, sandy GRAVEL (GP-GM), minor silt; moist to wet, subrounded to rounded.	139.5 3.5	P200	P200 = 9%
5.0				
	grades with cobbles, trace silt (GP) at 6.5 feet			
7.5				Borehole hard to clean out for sampler due to less fines.
	grades to medium dense at 8.5 feet		SIEV	
10.0				
12.5	grades to very dense at 12.0 feet			
15.0				
17.5				
20.0	Exploration completed at a depth of 20.0 feet.	123.0 20.0		
22.5				
25.0				
27.5				
30.0				



DRILLED BY: Western States Soil Conservation, Inc.

LOGGED BY: SPM

COMPLETED: 05/15/10

BORING METHOD: mud rotary (see report text)

BORING BIT DIAMETER: 3 7/8-inch

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MARION-1-01

AUGUST 2010

BORING B-4

MARION COUNTY COURTHOUSE SQUARE BUILDING
SALEM, OR

FIGURE A-4

BORING LOG MARION-1-01-B1_4-TP1.GPJ GEODESIGN.GDT PRINT DATE: 8/10/10:CWD

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION / DEPTH	TESTING	SAMPLE	● MOISTURE CONTENT % 0 50 100	COMMENTS
0.0		CONCRETE SIDEWALK.					
2.5 5.0		Dense, brown GRAVEL wtih sand (GP), minor silt; moist - **FILL**.	0.5				Field dry density: 132.4 pcf Minor caving observed from 6.0 to 9.0 feet.
7.5		Loose, brown, silty GRAVEL with sand (GM); moist - **FILL**.	7.0				
		Loose, brown GRAVEL with sand (GP), minor silt; moist - **FILL**.	8.5				Field dry density: 100.7 pcf Groundwater seepage not observed to the depth explored.
10.0 12.5 15.0		Exploration completed at a depth of 9.5 feet.	9.5			0 50 100	Surface elevation was not measured at the time of exploration.

EXCAVATED BY: Fortis Construction, Inc.

LOGGED BY: SPM

COMPLETED: 05/01/10

EXCAVATION METHOD: backhoe (see report text)

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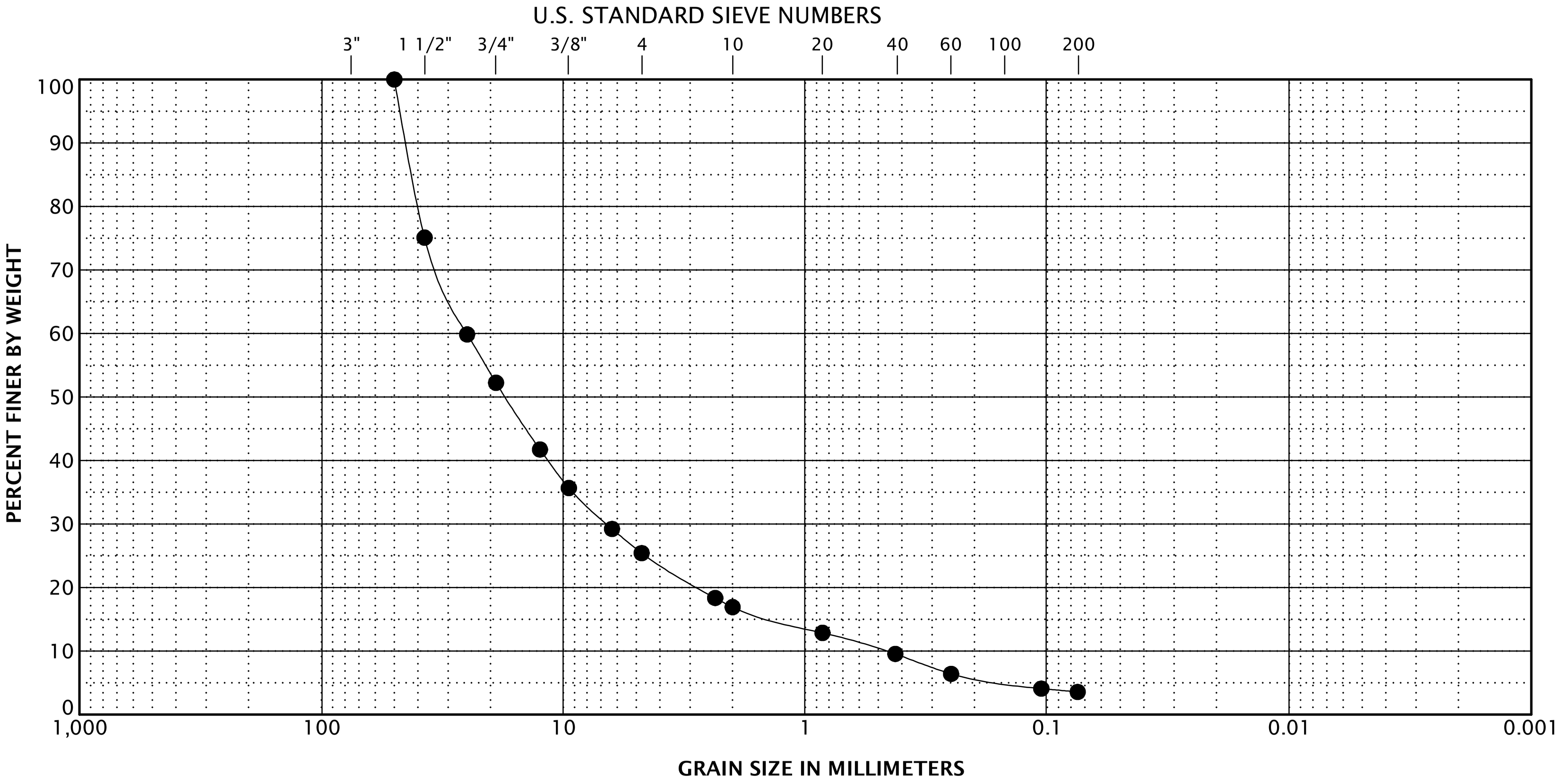
MARION-1-01

AUGUST 2010

TEST PIT TP-1

MARION COUNTY COURTHOUSE SQUARE BUILDING
SALEM, OR

FIGURE A-5



BOULDERS	COBBLES	GRAVEL		SAND			FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY

KEY	EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	MOISTURE CONTENT (PERCENT)	D60	D50	D30	D10	D5	GRAVEL (PERCENT)	SAND (PERCENT)	SILT (PERCENT)	CLAY (PERCENT)
●	B-4	7.5	10	25.09	17.37	6.61	0.47	0.15	75	22	4	

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MARION-1-01

AUGUST 2010

GRAIN-SIZE TEST RESULTS

MARION COUNTY COURTHOUSE SQUARE BUILDING
SALEM, OR

FIGURE A-6

SAMPLE INFORMATION			MOISTURE CONTENT (PERCENT)	DRY DENSITY (PCF)	SIEVE			ATTERBERG LIMITS		
EXPLORATION NUMBER	SAMPLE DEPTH (FEET)	ELEVATION (FEET)			GRAVEL (PERCENT)	SAND (PERCENT)	P200 (PERCENT)	LIQUID LIMIT (PERCENT)	PLASTIC LIMIT (PERCENT)	PLASTICITY INDEX (PERCENT)
B-1	6.0	137.0	9				4			
B-1	7.5	135.5	10				6			
B-1	14.0	129.0	10				9			
B-2	2.5	140.5	9				8			
B-3	7.0	136.0	5				1			
B-3	15.0	128.0	10				4			
B-4	3.5	139.5	11				9			
B-4	7.5	135.5	10		75	22	4			

LAB SUMMARY MARION-1-01-B1_4-TP1.GPJ GEODESIGN.GDT PRINT DATE: 8/10/10:KT

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MARION-1-01

AUGUST 2010

SUMMARY OF LABORATORY DATA

MARION COUNTY COURTHOUSE SQUARE BUILDING
SALEM, OR

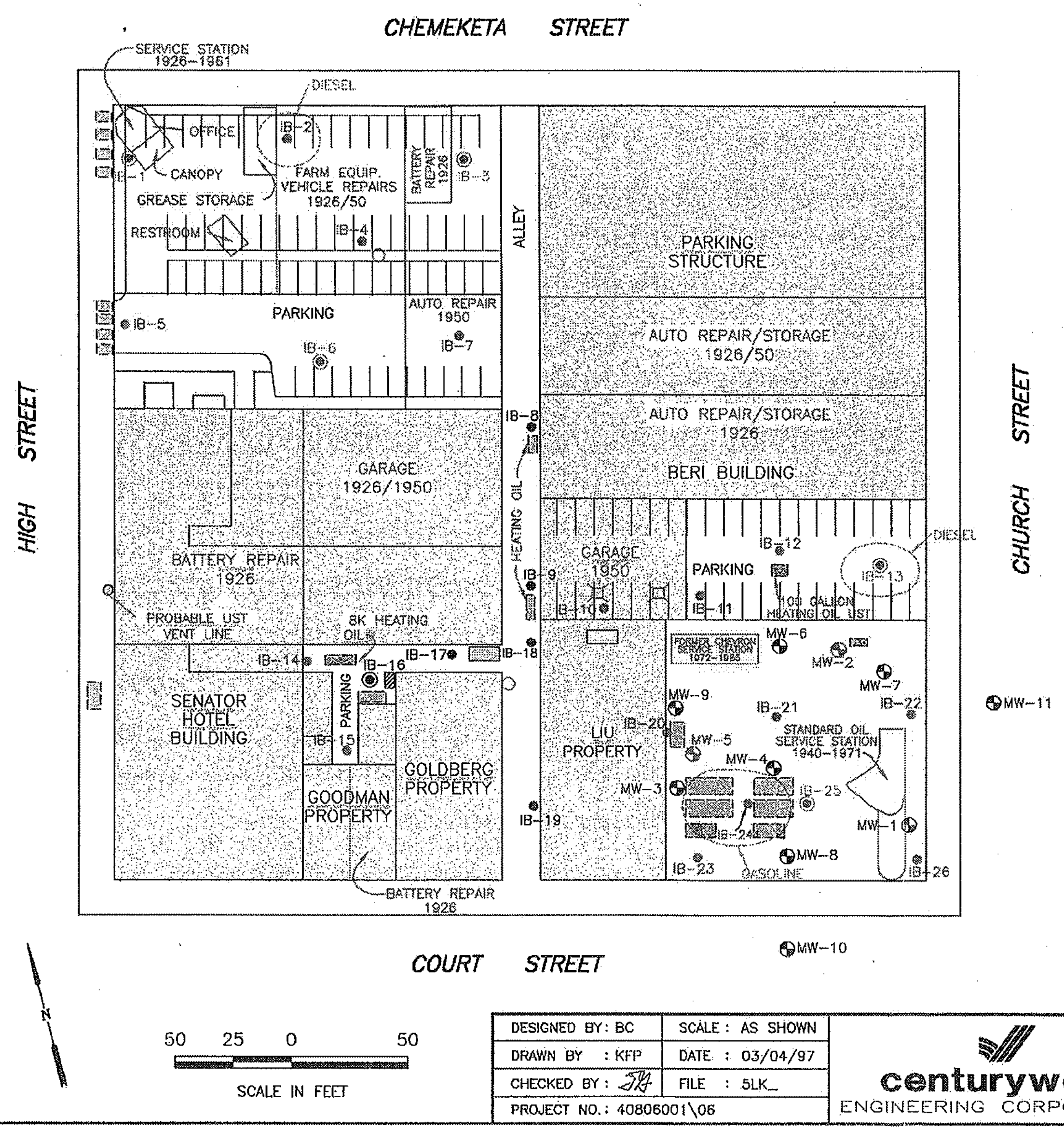
FIGURE A-7

APPENDIX B

APPENDIX B

CENTURY WEST ENGINEERING EXPLORATION LOGS

As discussed in the "Background" section of this report, Century West performed a number of subsurface explorations prior to site development to assess geotechnical soil and environmental conditions. Copies of the exploration logs were provided by Marion County and are presented in this appendix.



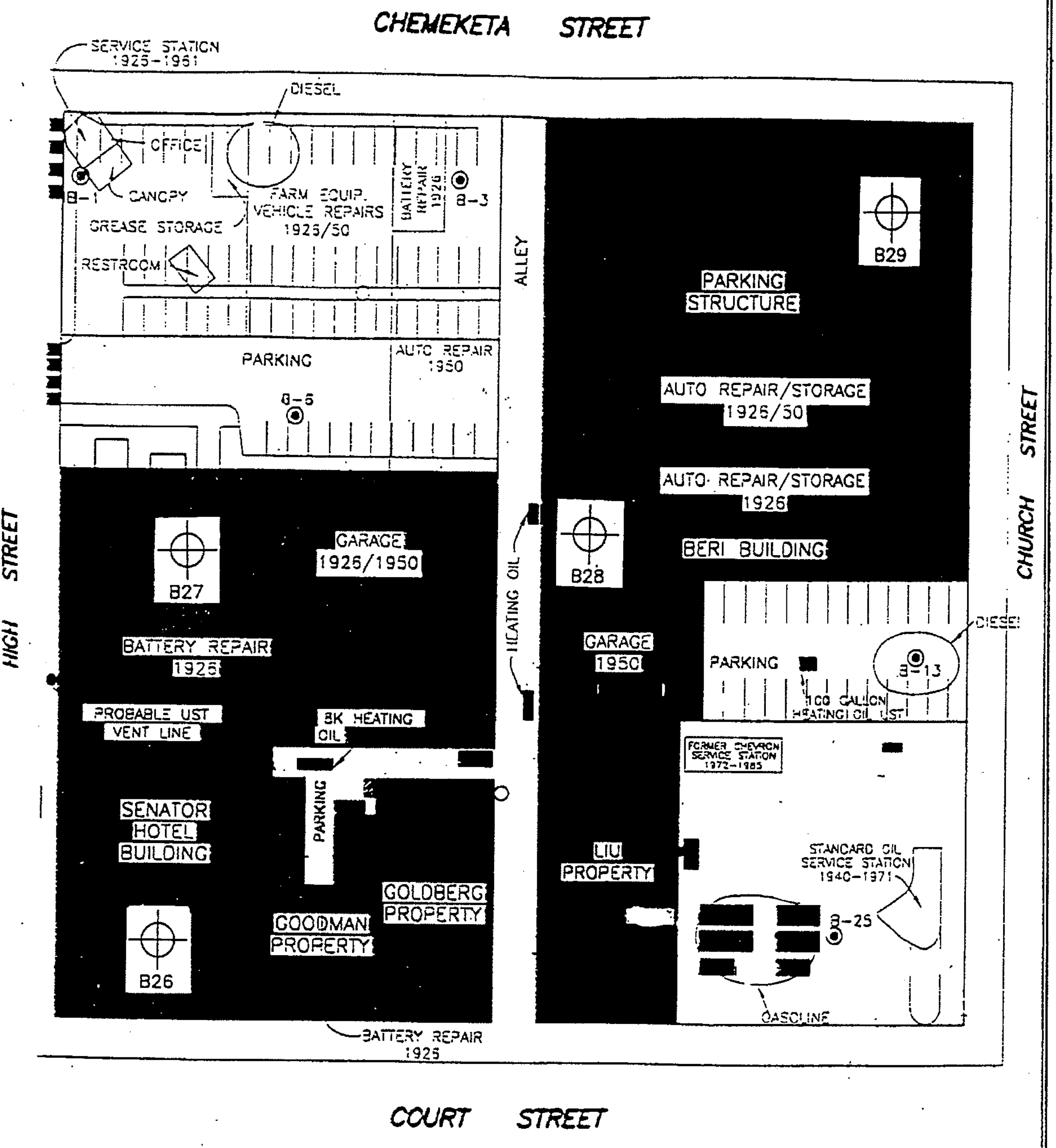
LEGEND

▭	EXISTING UNDERGROUND STORAGE TANK LOCATION
▩	REMOVED/DECOMMISSIONED UNDERGROUND STORAGE TANK LOCATION
▦	SUSPECTED UNDERGROUND STORAGE TANK UST LOCATION
▨	EXISTING ABOVEGROUND STORAGE TANK LOCATION
○	POSSIBLE SUMP/SEPTIC TANK
⌖	HISTORICAL VEHICLE HOIST
······	FORMER BUILDING LOCATION AND HISTORICAL ACTIVITIES
▒	EXISTING BUILDING LOCATION
⊕ MW-7	MONITORING WELL
⊕ MW-2	ABANDONED MONITORING WELL
◉ IB-1	INVESTIGATIVE/GEOTECHNICAL BORING
● IB-5	INVESTIGATIVE BORING
● IB-8	PROPOSED INVESTIGATIVE BORING (NOT COMPLETED)
◯	ESTIMATED EXTENT OF SOIL CONTAMINATION

NOTE:
ALL UNDERGROUND STORAGE TANK LOCATIONS ARE APPROXIMATE; NOT ALL TANK LOCATIONS ON THE BLOCK ARE NECESSARILY SHOWN. TANKS ARE NOT TO SCALE.

DESIGNED BY: BC	SCALE : AS SHOWN	centurywest ENGINEERING CORPORATION	COURTHOUSE SQUARE SALEM, OREGON	BORING LOCATIONS	FIGURE 2
DRAWN BY : KFP	DATE : 03/04/97				
CHECKED BY : JH	FILE : 5LK_				
PROJECT NO.: 40806001\06					

D:\DWG\40806001\06\5LK_ 3-11-97 4:53:10 pmPFC



centurywest
ENGINEERING CORPORATION

SITE PLAN
Courthouse Square
Additional Borings
Salem, Oregon

Date: July 1998

Figure: 2

Scale: NTS

Project No. :40806.001.25

CENTURY WEST
ENGINEERING

SUBSURFACE EXPLORATION LOG

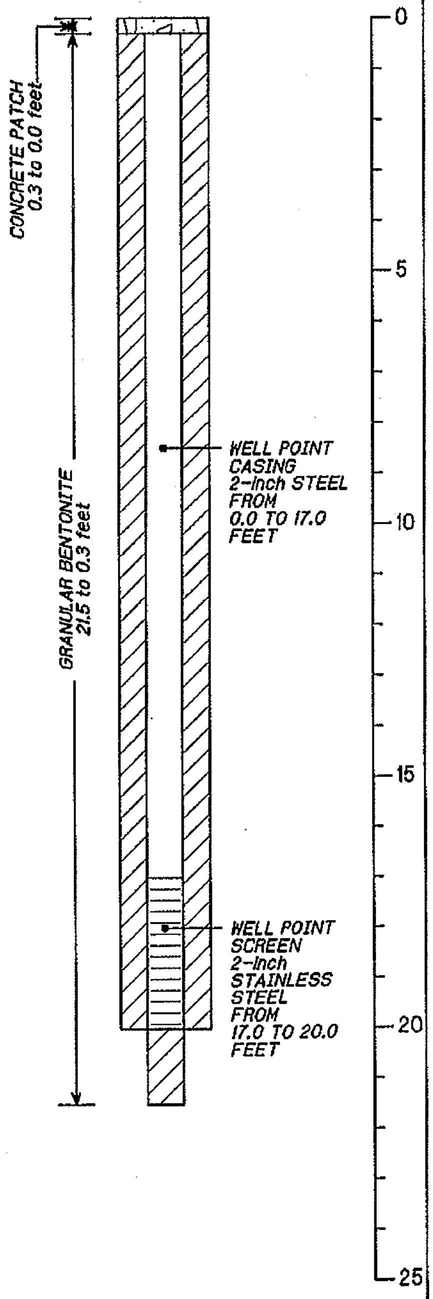
CRTHS1
Page 1 of 1

Project Courthouse Square
Location Salem, Oregon
Job Number 4080600108/4001
Geologist/Engineer Bob Carson, R.G.
Drilling Subcontractor Geo-Tech Exploration
Date Started 2/4/97

Boring Number IB-1
Well Point ID TWP-1
Depth of Boring 20.0 feet
Surface Elevation msl
Top of Casing Elevation msl
Date Completed 2/4/97

DEPTH IN FEET	N-VALUE	SAMPLE	LITHOLOGY	DESCRIPTION
				Sample Method: Drive Sampler
0			AS	ASPHALTIC CONCRETE
			GF	AGGREGATE BASE
			GM	SILTY GRAVEL – medium brown, very dense, damp, silty gravel with a trace of sand, no petroleum odor.
5	60	☒		
			GW	SANDY GRAVEL – medium brown, very dense, damp, sandy gravel with a trace to some silt.
10	49	☒		
15	50	☒		←▽ Wet at 14.5 feet, slight petroleum odor, slight sheen. Soil sample collected for laboratory analysis at 15 feet.
20	55	☒		*← Boring drilled to 20.0 feet*
				↑ Boring sampled to 21.5 feet
25				

TEMPORARY WELL POINT DETAIL



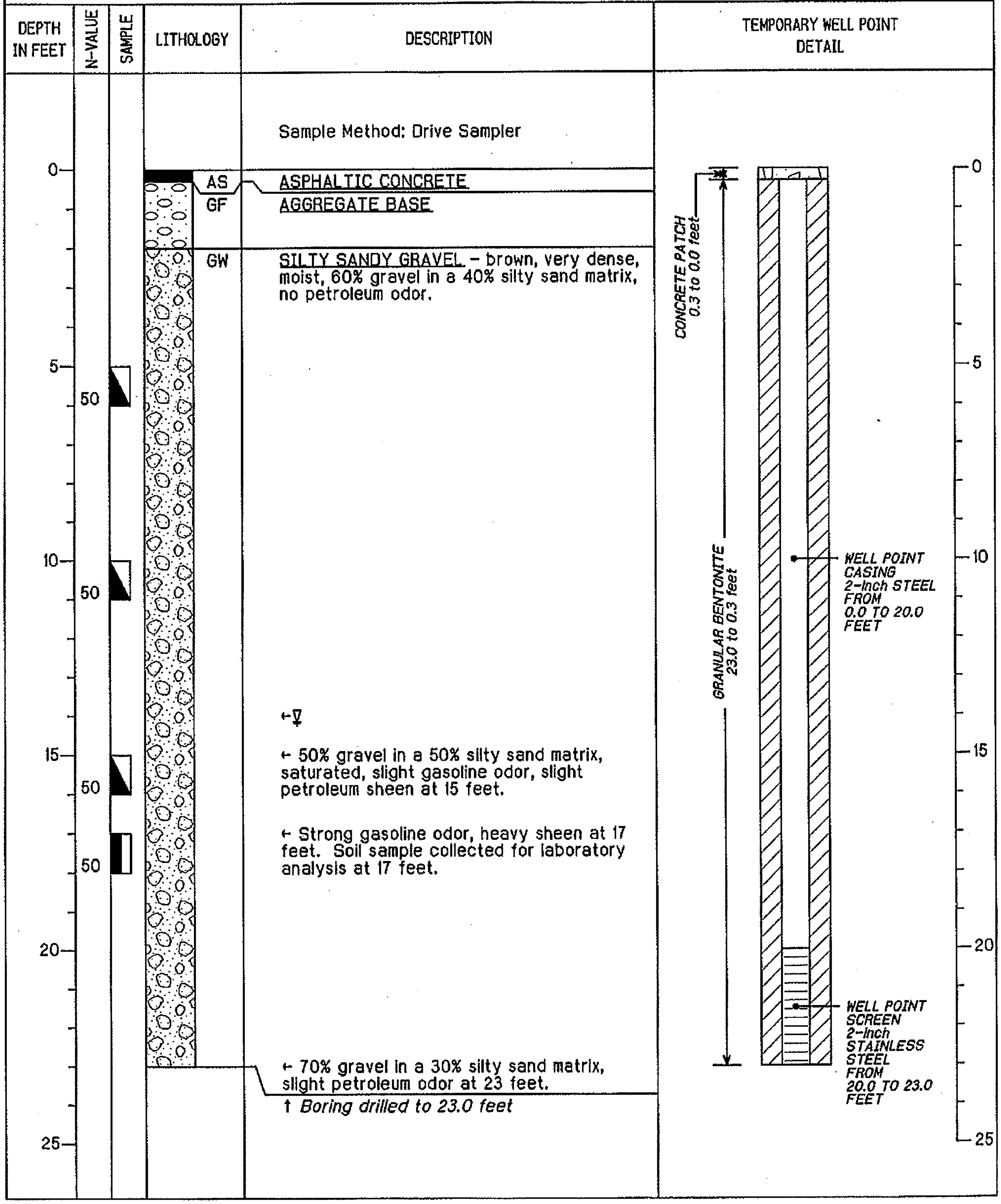
CENTURY WEST
ENGINEERING

SUBSURFACE EXPLORATION LOG

CRTHS2
Page 1 of 1

Project Courthouse Square
Location Salem, Oregon
Job Number 4080600108/4001
Geologist/Engineer Bob Carson, R.G.
Drilling Subcontractor Geo-Tech Exploration
Date Started 2/13/97

Boring Number IB-2
Well Point ID TWP-2
Depth of Boring 23.0 feet
Surface Elevation msl
Top of Casing Elevation msl
Date Completed 2/13/97



Sample Method: Drive Sampler

AS — ASPHALTIC CONCRETE

GF — AGGREGATE BASE

GW — SILTY SANDY GRAVEL - brown, very dense, moist, 60% gravel in a 40% silty sand matrix, no petroleum odor.

← ∇

← 50% gravel in a 50% silty sand matrix, saturated, slight gasoline odor, slight petroleum sheen at 15 feet.

← Strong gasoline odor, heavy sheen at 17 feet. Soil sample collected for laboratory analysis at 17 feet.

← 70% gravel in a 30% silty sand matrix, slight petroleum odor at 23 feet.

↑ *Boring drilled to 23.0 feet*

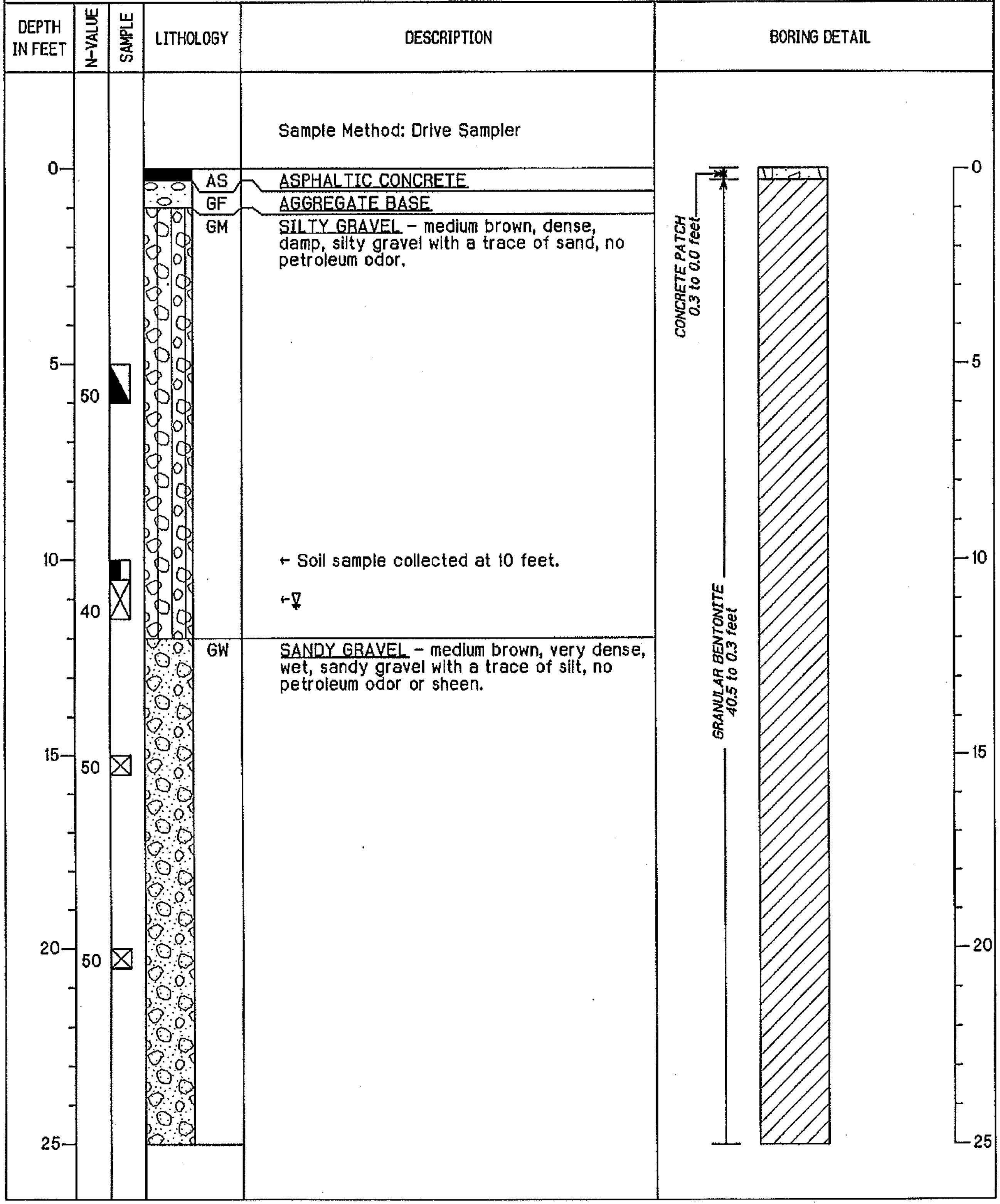
CENTURY WEST ENGINEERING

SUBSURFACE EXPLORATION LOG

CRTHS3
Page 1 of 2

Project Courthouse Square
Location Salem, Oregon
Job Number 4080600108/4001
Geologist/Engineer Bob Carson, R.G.
Drilling Subcontractor Geo-Tech Exploration

Boring Number IB-3
Depth of Boring 40.0 feet
Surface Elevation msl
Date Started 2/4/97
Date Completed 2/4/97



Sample Method: Drive Sampler

AS — ASPHALTIC CONCRETE

GF — AGGREGATE BASE

GM — SILTY GRAVEL - medium brown, dense, damp, silty gravel with a trace of sand, no petroleum odor.

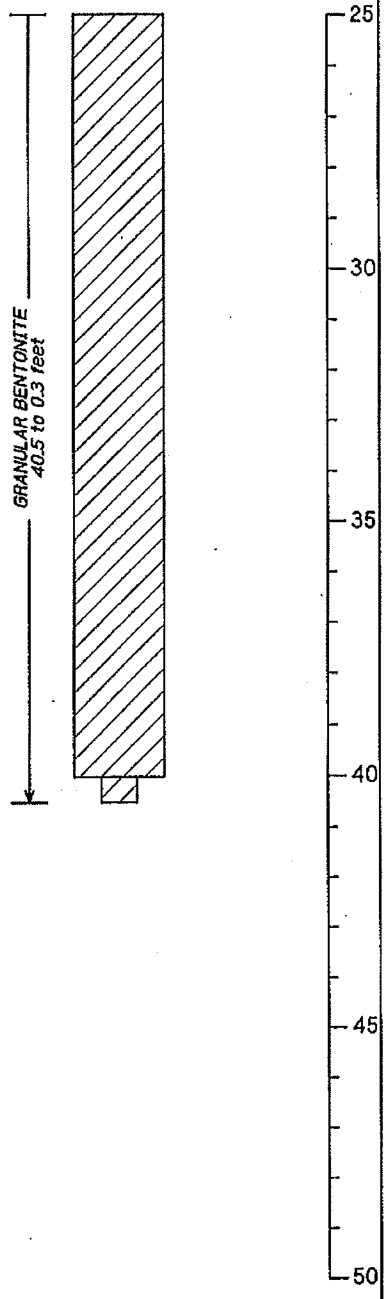
← Soil sample collected at 10 feet.

←∇

GW — SANDY GRAVEL - medium brown, very dense, wet, sandy gravel with a trace of silt, no petroleum odor or sheen.

DEPTH IN FEET	N-VALUE	SAMPLE	LITHOLOGY	DESCRIPTION
25	50	☒	GW	
			SW	SAND - gray brown, very dense, wet, fine to medium grained sand with a trace of gravel.
30	50	☒		
35	50	☒		
			GW	SANDY GRAVEL - gray brown, very dense, wet, sandy gravel with a trace of silt, no petroleum odor or sheen.
40	50	☒		← *Boring drilled to 40.0 feet*
				↑ *Boring sampled to 40.5 feet*
45				
50				

BORING DETAIL



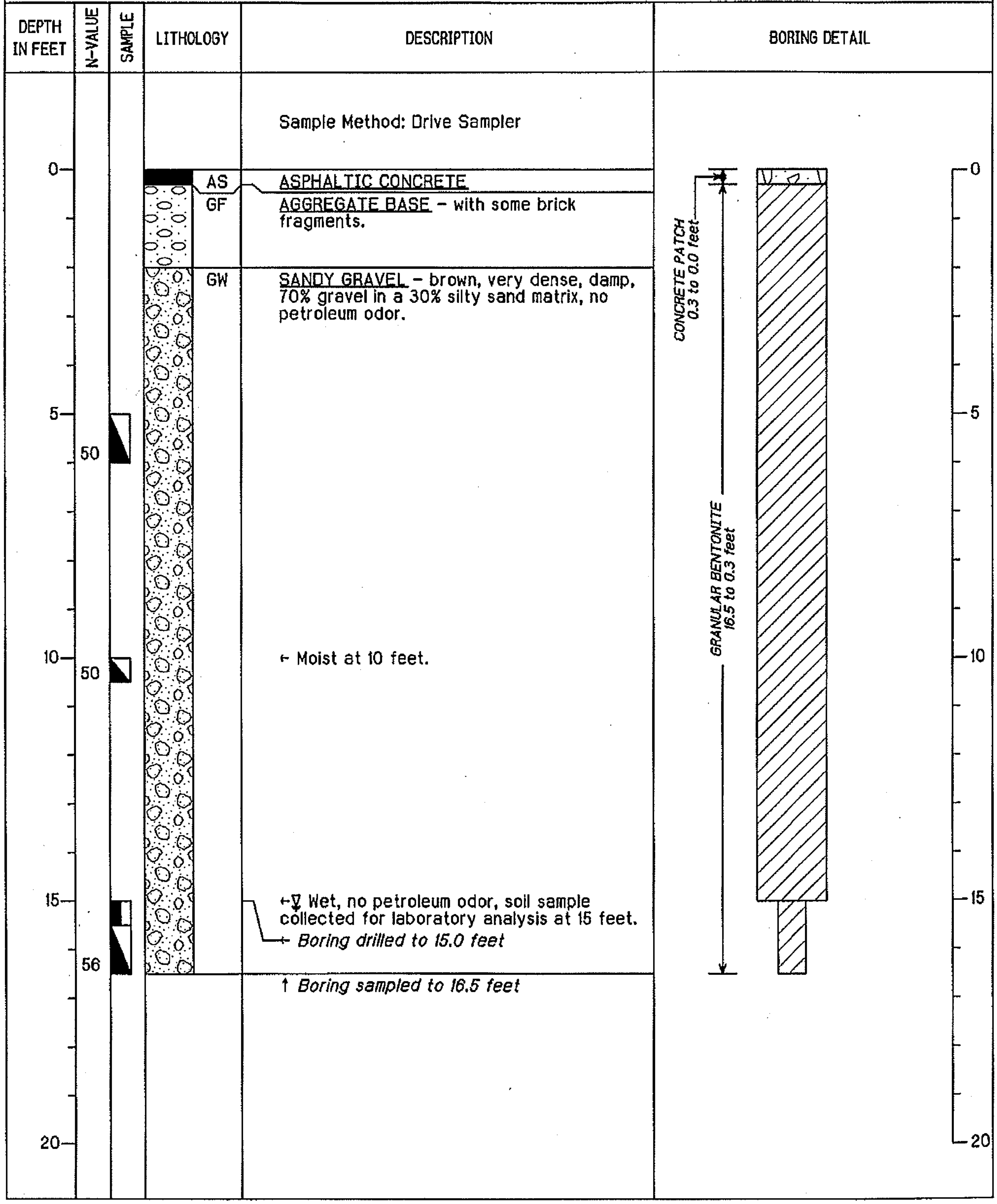
CENTURY WEST ENGINEERING

SUBSURFACE EXPLORATION LOG

CRTHS4
Page 1 of 1

Project Courthouse Square
Location Salem, Oregon
Job Number 4080600108/4001
Geologist/Engineer Bob Carson, R.G.
Drilling Subcontractor Geo-Tech Exploration

Boring Number IB-4
Depth of Boring 15.0 feet
Surface Elevation msl
Date Started 2/13/97
Date Completed 2/13/97



Sample Method: Drive Sampler

ASPHALTIC CONCRETE

AGGREGATE BASE - with some brick fragments.

SANDY GRAVEL - brown, very dense, damp, 70% gravel in a 30% silty sand matrix, no petroleum odor.

← Moist at 10 feet.

←▽ Wet, no petroleum odor, soil sample collected for laboratory analysis at 15 feet.

← *Boring drilled to 15.0 feet*

↑ *Boring sampled to 16.5 feet*

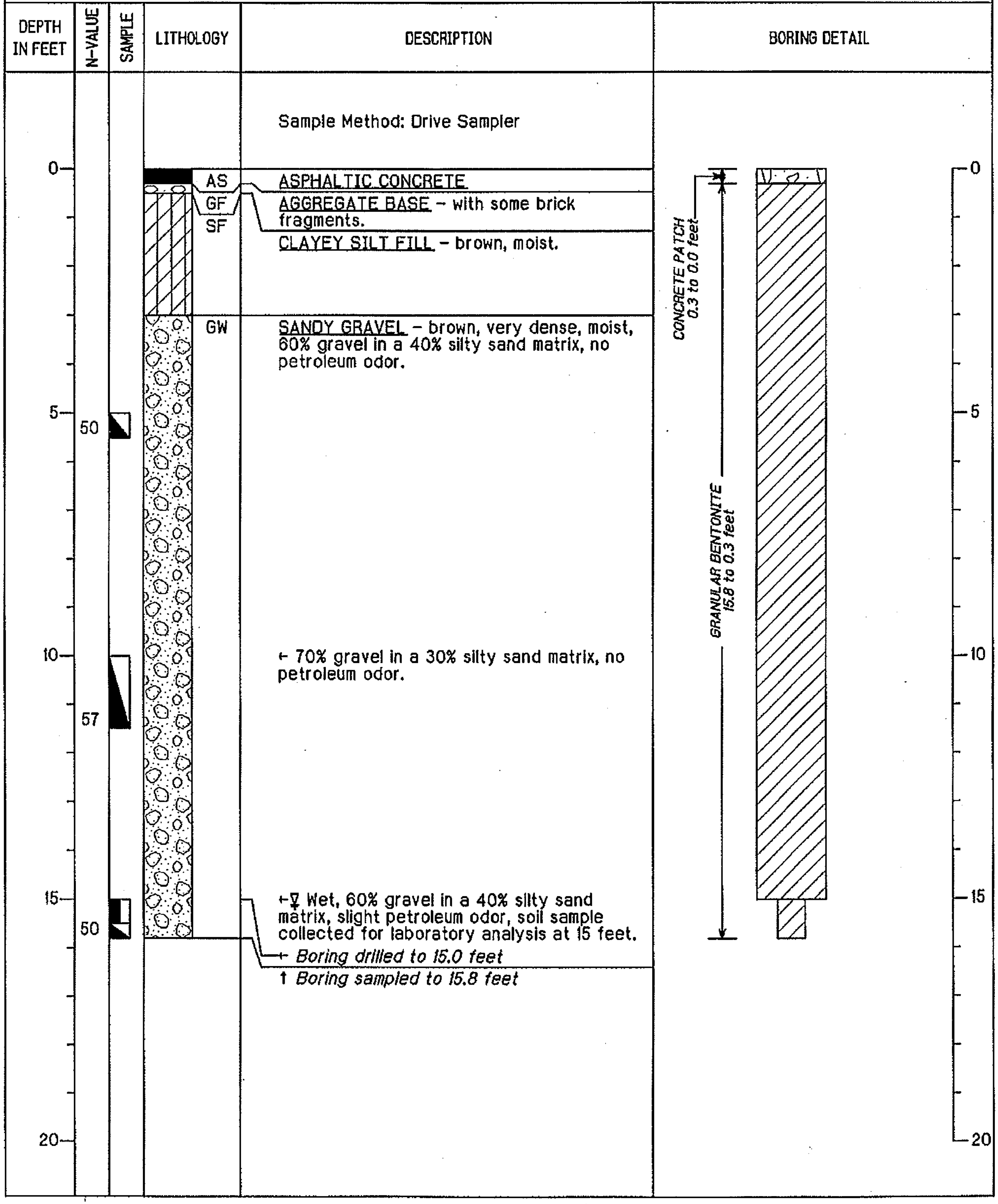
CENTURY WEST ENGINEERING

SUBSURFACE EXPLORATION LOG

CRTHS5
Page 1 of 1

Project Courthouse Square
Location Salem, Oregon
Job Number 4080600108/4001
Geologist/Engineer Bob Carson, R.G.
Drilling Subcontractor Geo-Tech Exploration

Boring Number IB-5
Depth of Boring 15.0 feet
Surface Elevation msl
Date Started 2/12/97
Date Completed 2/12/97



Sample Method: Drive Sampler

ASPHALTIC CONCRETE

AGGREGATE BASE - with some brick fragments.

CLAYEY SILT FILL - brown, moist.

SANDY GRAVEL - brown, very dense, moist, 60% gravel in a 40% silty sand matrix, no petroleum odor.

← 70% gravel in a 30% silty sand matrix, no petroleum odor.

←▽ Wet, 60% gravel in a 40% silty sand matrix, slight petroleum odor, soil sample collected for laboratory analysis at 15 feet.

← *Boring drilled to 15.0 feet*

↑ *Boring sampled to 15.8 feet*

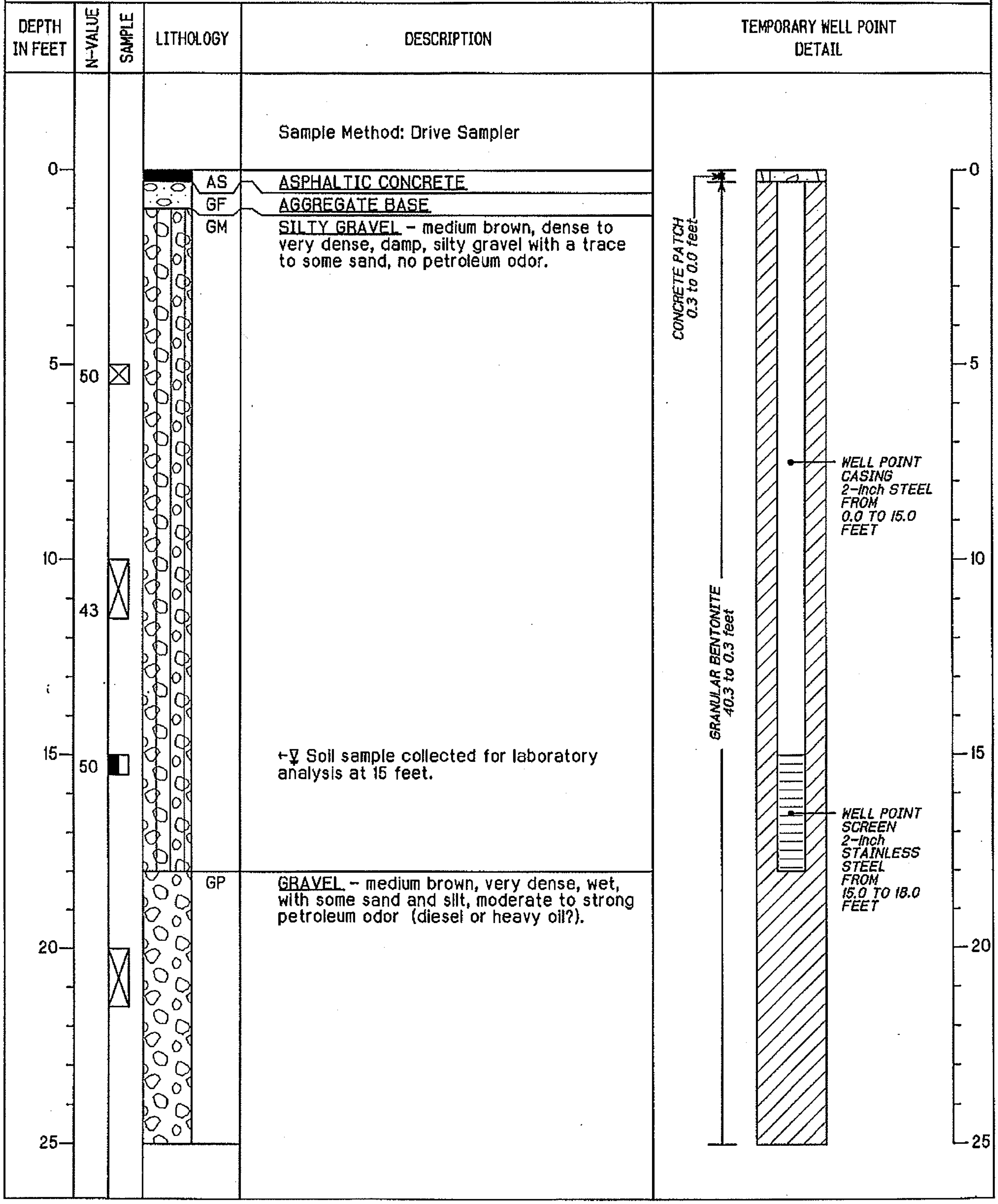
CENTURY WEST ENGINEERING

SUBSURFACE EXPLORATION LOG

CRTHS6
Page 1 of 2

Project Courthouse Square
Location Salem, Oregon
Job Number 4080600108/4001
Geologist/Engineer Bob Carson, R.G.
Drilling Subcontractor Geo-Tech Exploration
Date Started 2/5/97

Boring Number IB-6
Well Point ID TWP-6
Depth of Boring 40.0 feet
Surface Elevation msl
Top of Casing Elevation msl
Date Completed 2/5/97



Sample Method: Drive Sampler

<u>ASPHALTIC CONCRETE</u>

<u>AGGREGATE BASE</u>

<u>SILTY GRAVEL</u> - medium brown, dense to very dense, damp, silty gravel with a trace to some sand, no petroleum odor.

←∇ Soil sample collected for laboratory analysis at 15 feet.

<u>GRAVEL</u> - medium brown, very dense, wet, with some sand and silt, moderate to strong petroleum odor (diesel or heavy oil?).

CENTURY WEST ENGINEERING

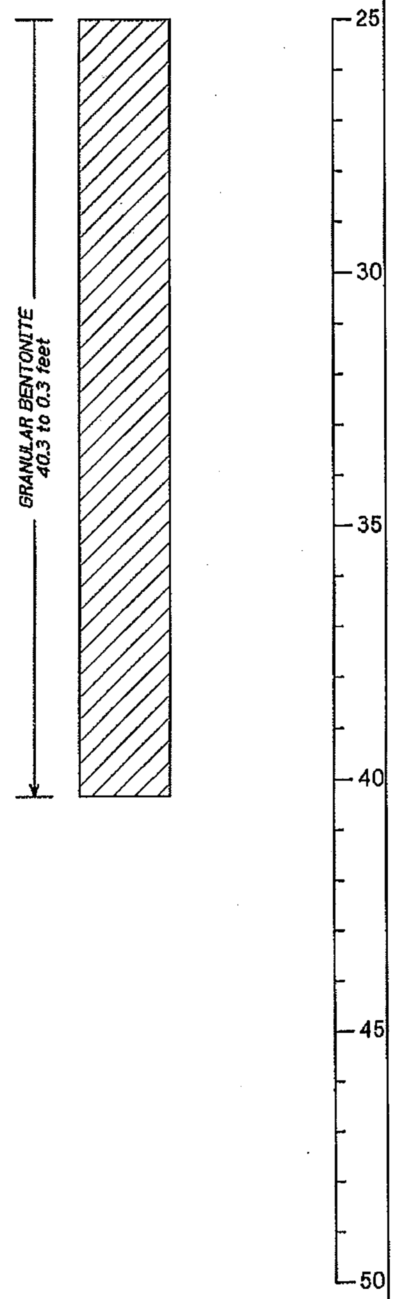
SUBSURFACE EXPLORATION LOG

CRTHS6

Page 2 of 2

DEPTH IN FEET	N-VALUE	SAMPLE	LITHOLOGY	DESCRIPTION
25	50	☒	GP	
			GW	SANDY GRAVEL - medium brown, very dense, wet, sandy gravel with a trace of silt.
30	50	☒		
35				
40	50	☒		*← Boring drilled to 40.0 feet* *Boring sampled to 40.3 feet*
45				
50				

TEMPORARY WELL POINT DETAIL



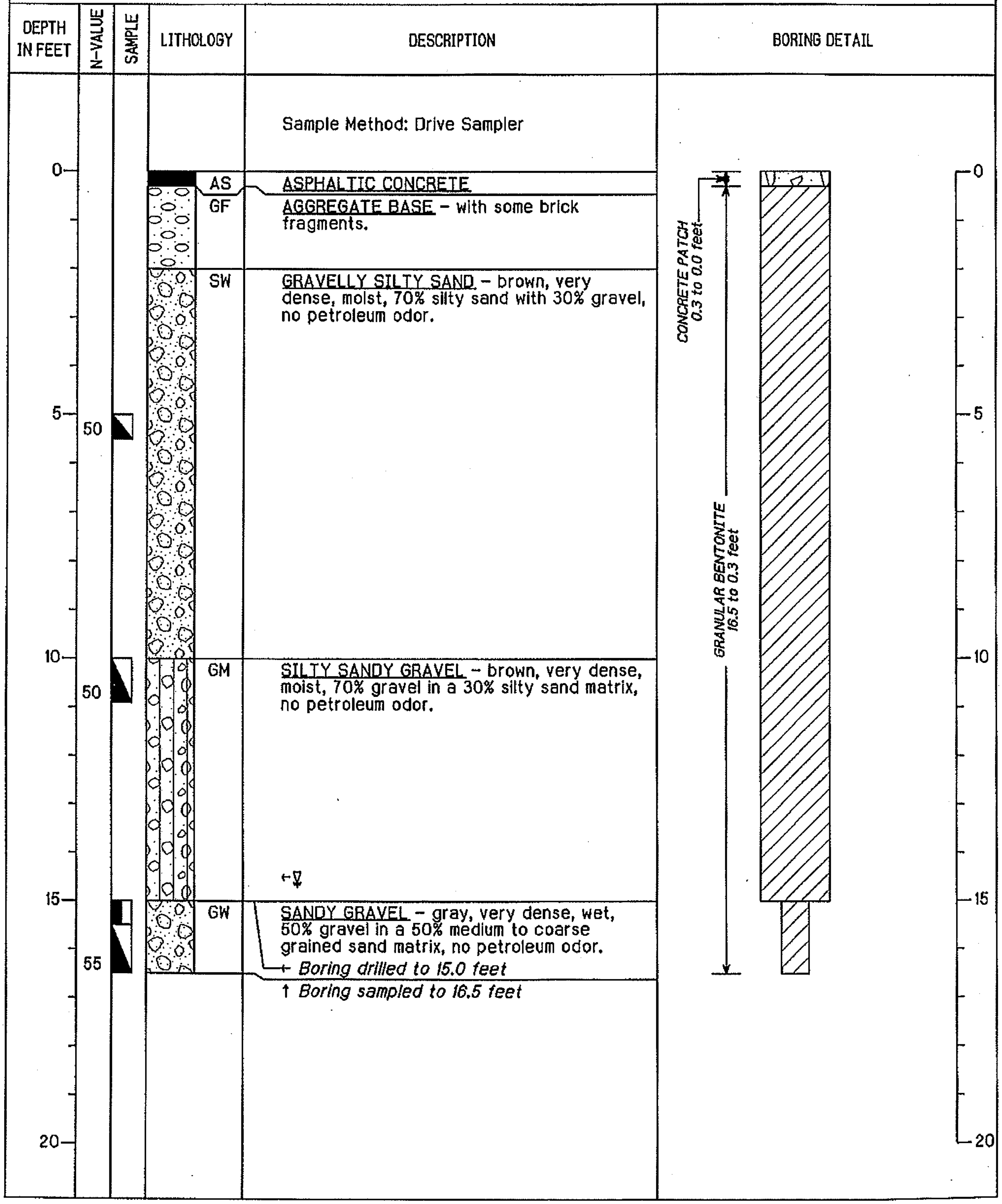
CENTURY WEST ENGINEERING

SUBSURFACE EXPLORATION LOG

CRTHS7
Page 1 of 1

Project Courthouse Square
Location Salem, Oregon
Job Number 4080600108/4001
Geologist/Engineer Bob Carson, R.G.
Drilling Subcontractor Geo-Tech Exploration

Boring Number IB-7
Depth of Boring 15.0 feet
Surface Elevation msl
Date Started 2/12/97
Date Completed 2/12/97



Sample Method: Drive Sampler

ASPHALTIC CONCRETE

AGGREGATE BASE - with some brick fragments.

GRAVELLY SILTY SAND - brown, very dense, moist, 70% silty sand with 30% gravel, no petroleum odor.

SILTY SANDY GRAVEL - brown, very dense, moist, 70% gravel in a 30% silty sand matrix, no petroleum odor.

←∇

SANDY GRAVEL - gray, very dense, wet, 50% gravel in a 50% medium to coarse grained sand matrix, no petroleum odor.

← *Boring drilled to 15.0 feet*

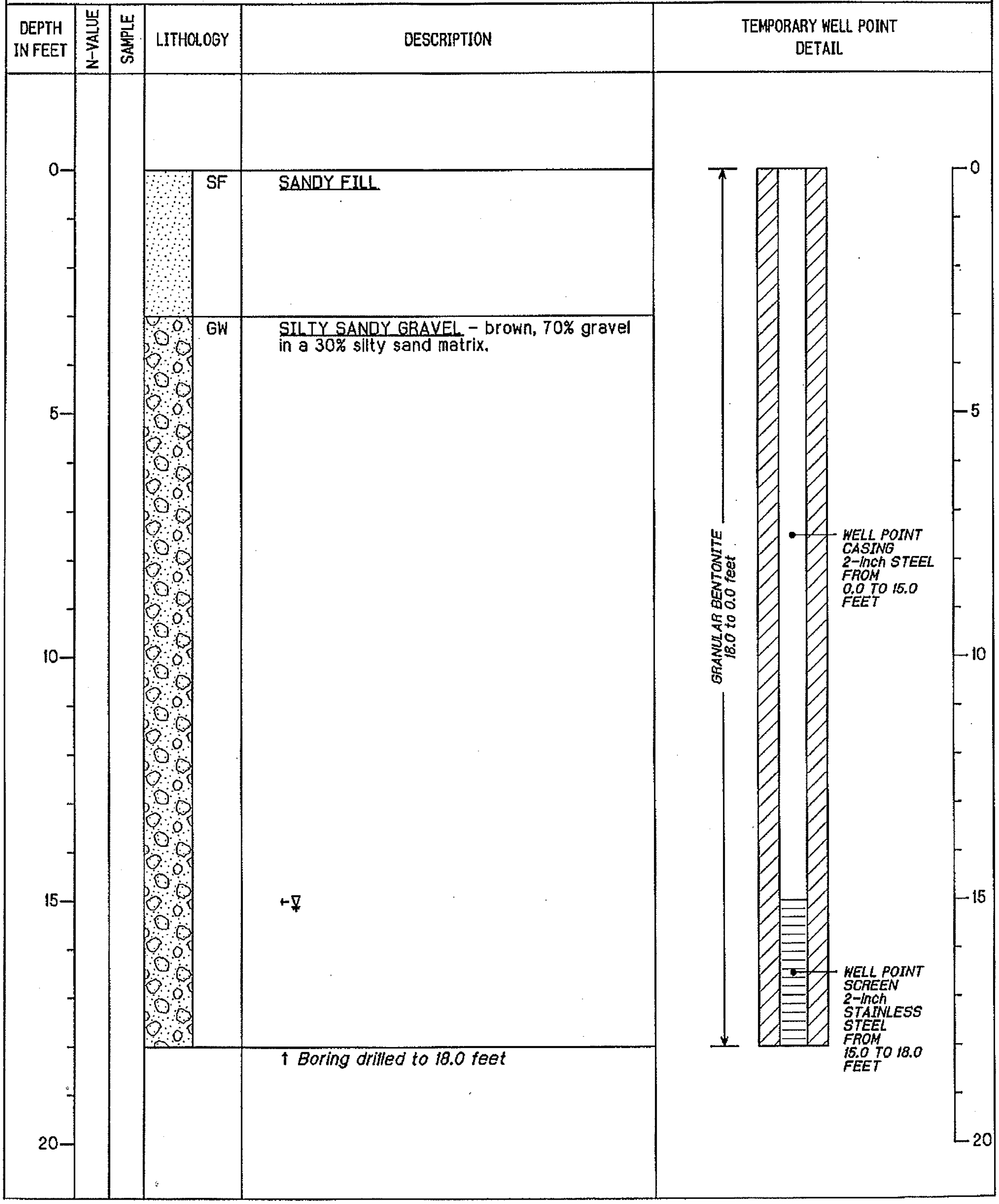
↑ *Boring sampled to 16.5 feet*

CENTURY WEST ENGINEERING

SUBSURFACE EXPLORATION LOG

CRTHS10
Page 1 of 1

Project	Courthouse Square	Boring Number	IB-10
Location	Salem, Oregon	Well Point ID	TWP-10
Job Number	4080600108/4001	Depth of Boring	18.0 feet
Geologist/Engineer	Bob Carson, R.G.	Surface Elevation	msl
Drilling Subcontractor	Geo-Tech Exploration	Top of Casing Elevation	msl
Date Started	2/11/97	Date Completed	2/12/97



SF — SANDY FILL

GW — SILTY SANDY GRAVEL - brown, 70% gravel in a 30% silty sand matrix.

↑ *Boring drilled to 18.0 feet*

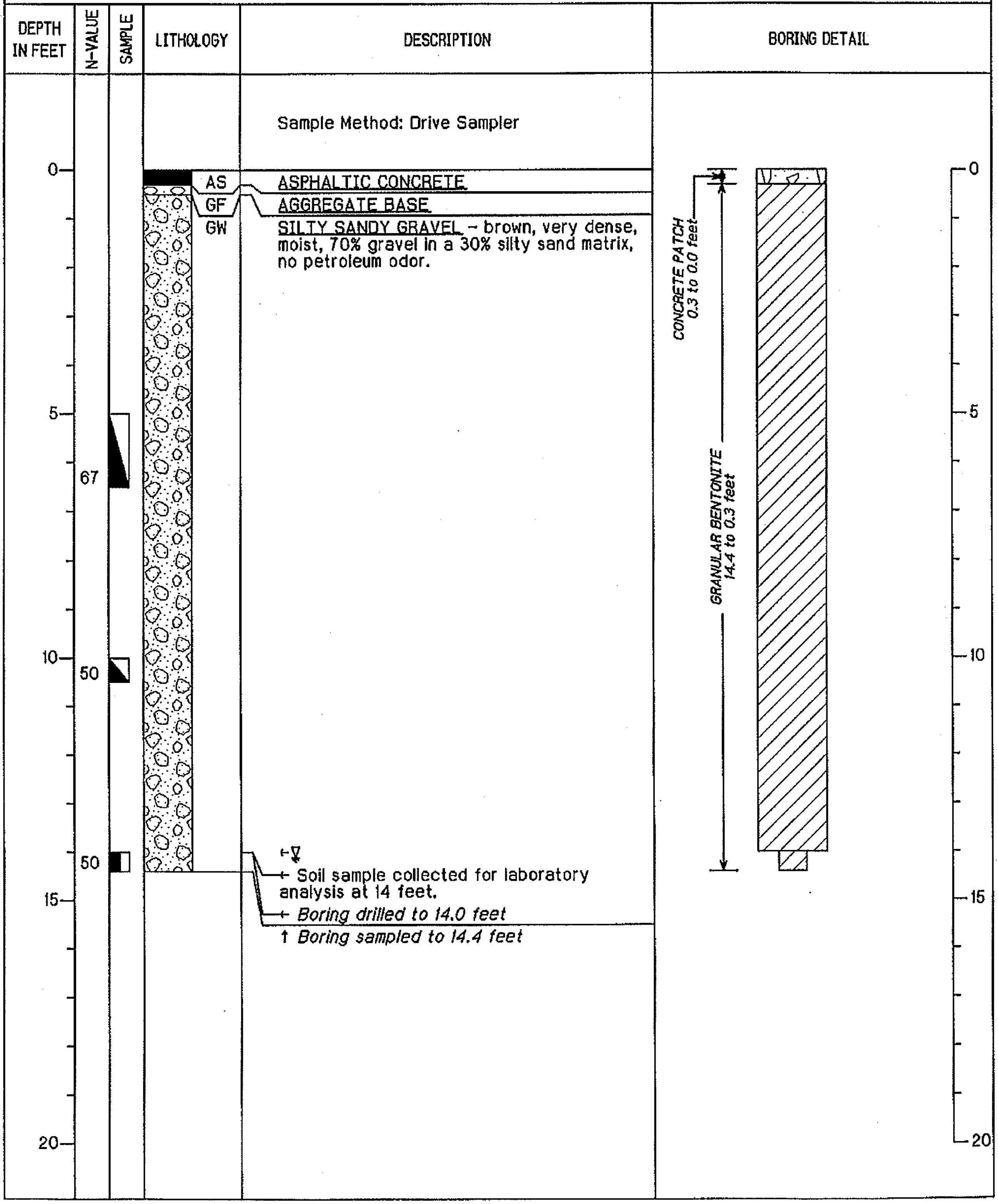
CENTURY WEST
ENGINEERING

SUBSURFACE EXPLORATION LOG

CRTHS11
Page 1 of 1

Project Courthouse Square
Location Salem, Oregon
Job Number 4080600108/4001
Geologist/Engineer Bob Carson, R.G.
Drilling Subcontractor Geo-Tech Exploration

Boring Number IB-11
Depth of Boring 14.0 feet
Surface Elevation msl
Date Started 2/11/97
Date Completed 2/11/97



Sample Method: Drive Sampler

ASPHALTIC CONCRETE

AGGREGATE BASE

SILTY SANDY GRAVEL – brown, very dense, moist, 70% gravel in a 30% silty sand matrix, no petroleum odor.

← Soil sample collected for laboratory analysis at 14 feet.

← *Boring drilled to 14.0 feet*

↑ *Boring sampled to 14.4 feet*

CENTURY WEST ENGINEERING

SUBSURFACE EXPLORATION LOG

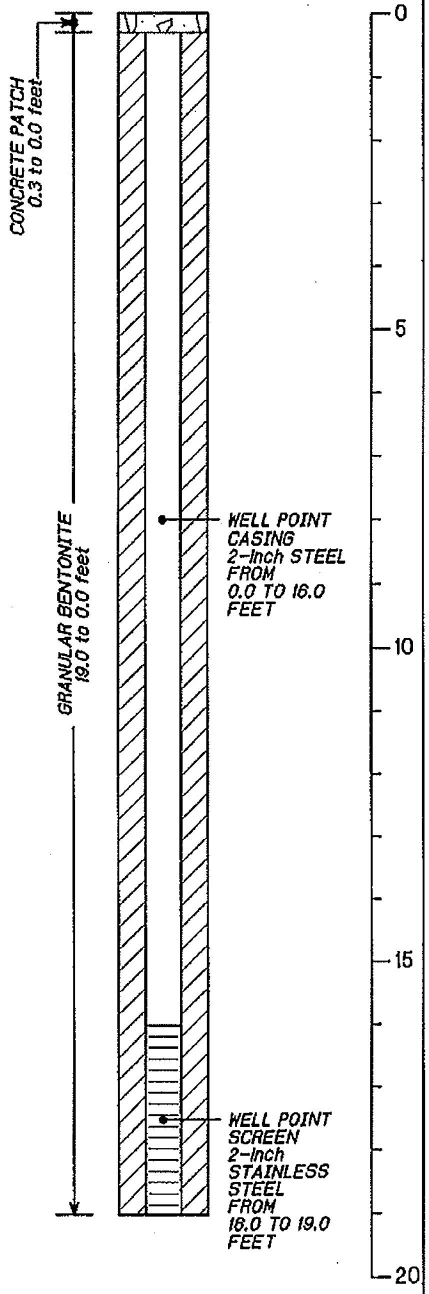
CRTHS12
Page 1 of 1

Project Courthouse Square
Location Salem, Oregon
Job Number 4080600108/4001
Geologist/Engineer Bob Carson, R.G.
Drilling Subcontractor Geo-Tech Exploration
Date Started 2/11/97

Boring Number IB-12
Well Point ID TWP-12
Depth of Boring 19.0 feet
Surface Elevation msl
Top of Casing Elevation msl
Date Completed 2/11/97

DEPTH IN FEET	N-VALUE	SAMPLE	LITHOLOGY	DESCRIPTION
0			AS	ASPHALT
			GF	AGGREGATE BASE
			GP	GRAVEL – brown, very dense, moist, 80% gravel in a 20% silty sand matrix, no petroleum odor.
5	50	◩		
10		◩		←▽ Saturated, 60% gravel in a 40% silty sand matrix at 10 feet.
	73	◩		
15	50	◩		
				↑ *Boring drilled to 19.0 feet*
20				

TEMPORARY WELL POINT DETAIL

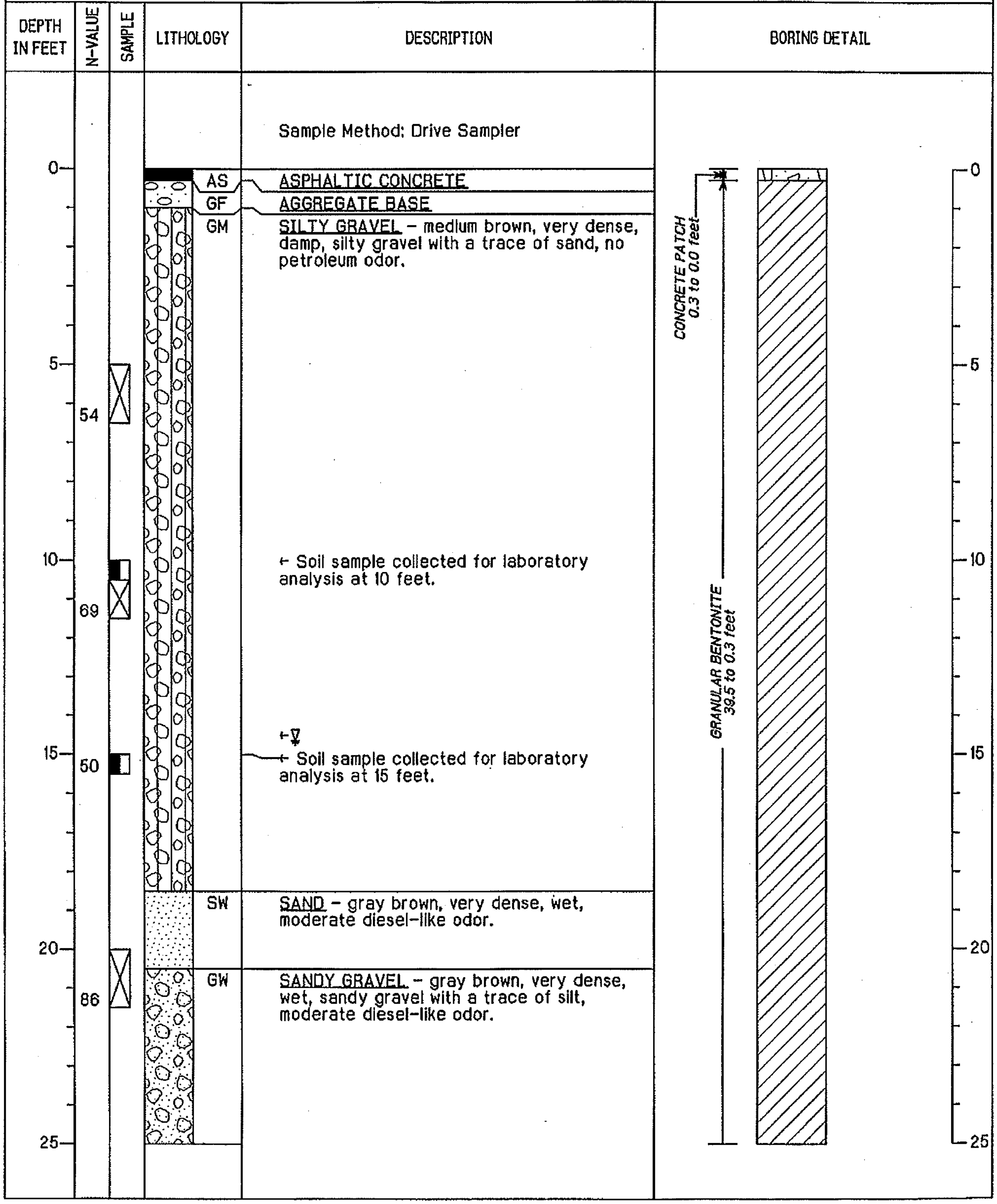


CENTURY WEST ENGINEERING

SUBSURFACE EXPLORATION LOG

CRTHS13
Page 1 of 2

Project Courthouse Square
Location Salem, Oregon
Job Number 4080600108/4001
Geologist/Engineer Bob Carson, R.G.
Drilling Subcontractor Geo-Tech Exploration
Boring Number IB-13
Depth of Boring 39.5 feet
Surface Elevation msl
Date Started 2/6/97
Date Completed 2/6/97



Sample Method: Drive Sampler

ASPHALTIC CONCRETE

AGGREGATE BASE

SILTY GRAVEL – medium brown, very dense, damp, silty gravel with a trace of sand, no petroleum odor.

← Soil sample collected for laboratory analysis at 10 feet.

←∇

← Soil sample collected for laboratory analysis at 15 feet.

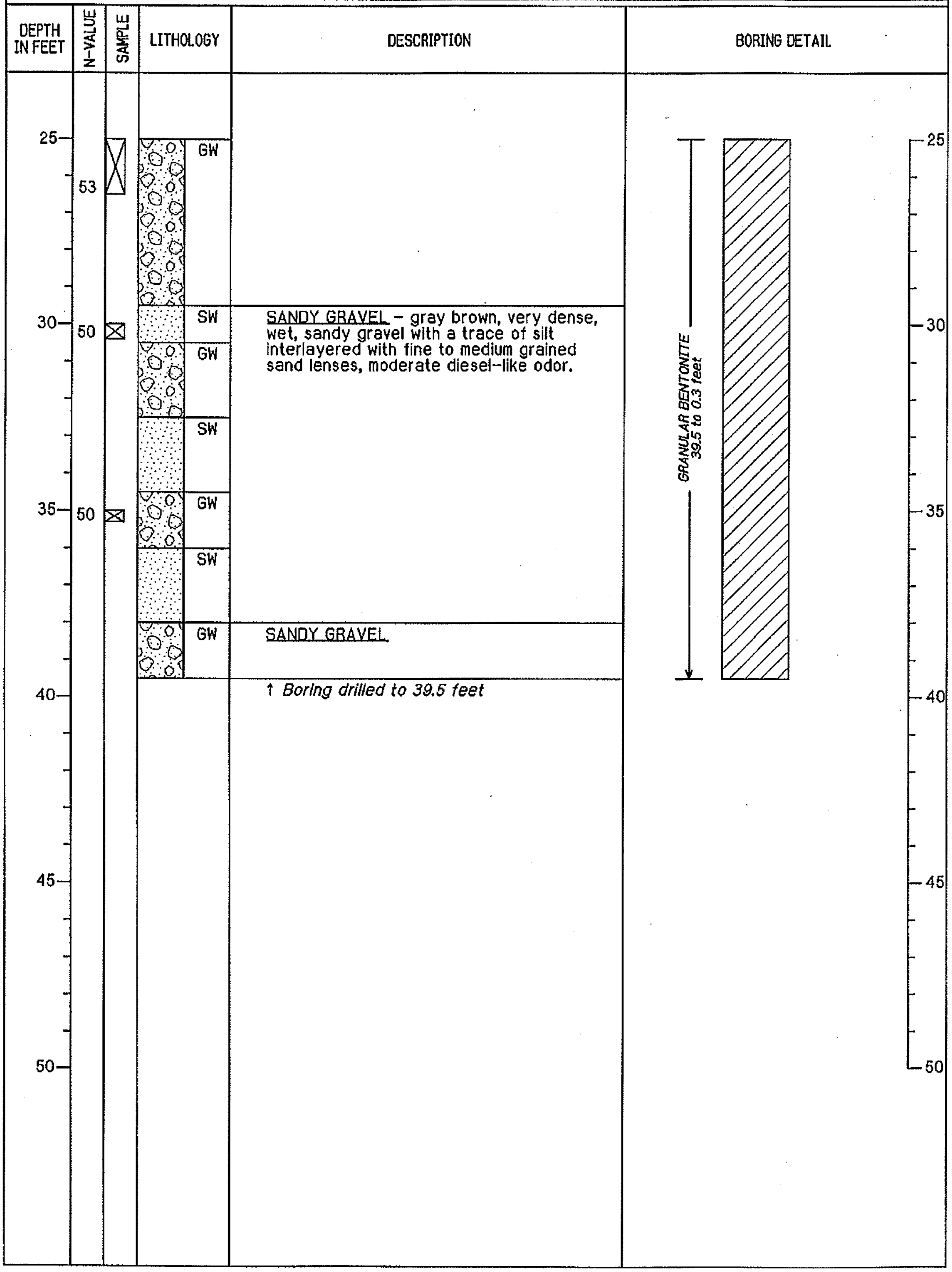
SAND – gray brown, very dense, wet, moderate diesel-like odor.

SANDY GRAVEL – gray brown, very dense, wet, sandy gravel with a trace of silt, moderate diesel-like odor.

CENTURY WEST ENGINEERING

SUBSURFACE
EXPLORATION
LOG

CRTHS13
Page 2 of 2



SANDY GRAVEL – gray brown, very dense, wet, sandy gravel with a trace of silt interlayered with fine to medium grained sand lenses, moderate diesel-like odor.

SANDY GRAVEL

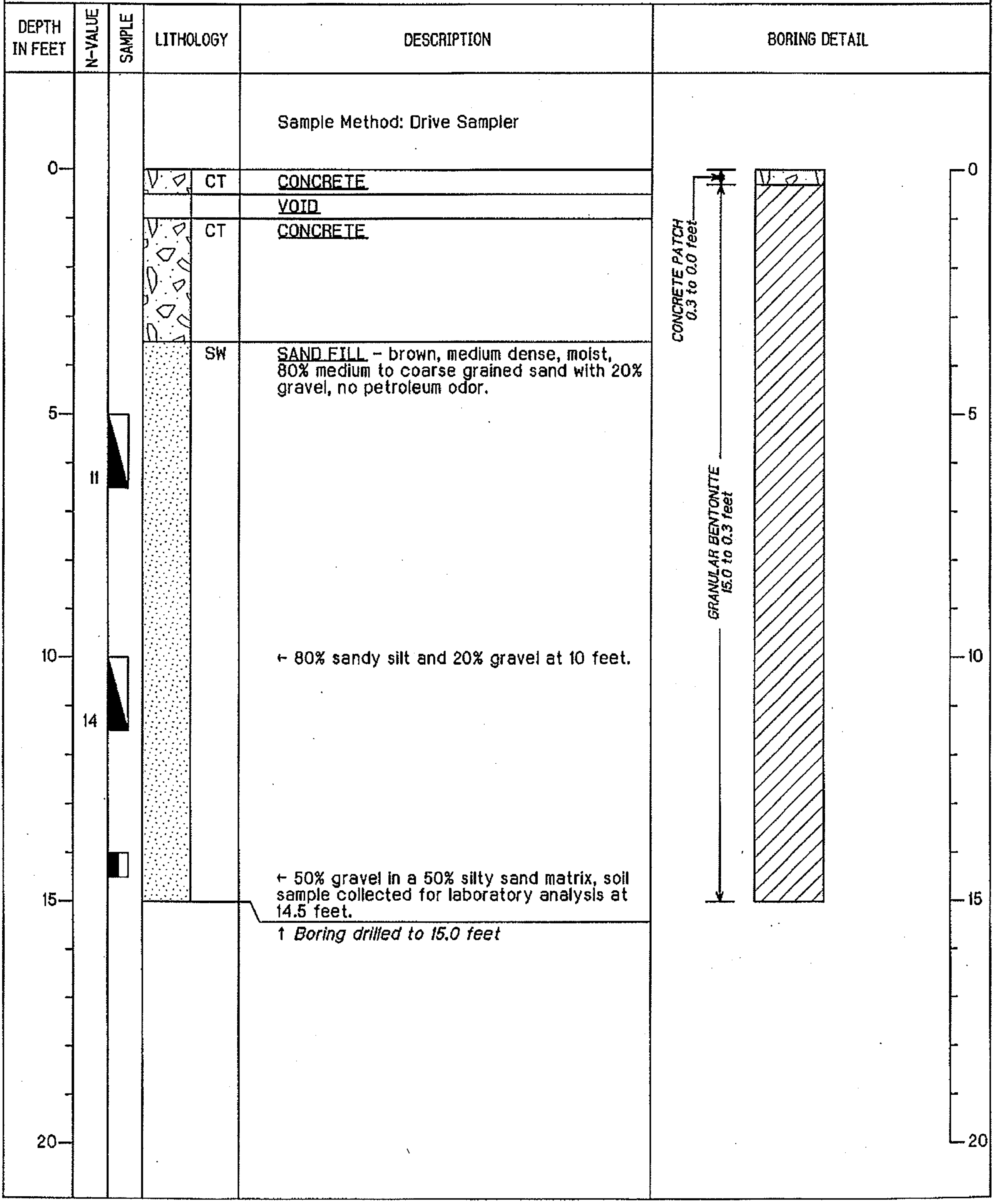
† *Boring drilled to 39.5 feet*

CENTURY WEST ENGINEERING

SUBSURFACE EXPLORATION LOG

CRTHS14
Page 1 of 1

Project Courthouse Square
Location Salem, Oregon
Job Number 4080600108/4001
Geologist/Engineer Bob Carson, R.G.
Drilling Subcontractor Geo-Tech Exploration
Boring Number IB-14
Depth of Boring 15.0 feet
Surface Elevation msl
Date Started 2/14/97
Date Completed 2/14/97



Sample Method: Drive Sampler

CONCRETE

VOID

CONCRETE

SAND FILL - brown, medium dense, moist, 80% medium to coarse grained sand with 20% gravel, no petroleum odor.

← 80% sandy silt and 20% gravel at 10 feet.

← 50% gravel in a 50% silty sand matrix, soil sample collected for laboratory analysis at 14.5 feet.

↑ *Boring drilled to 15.0 feet*

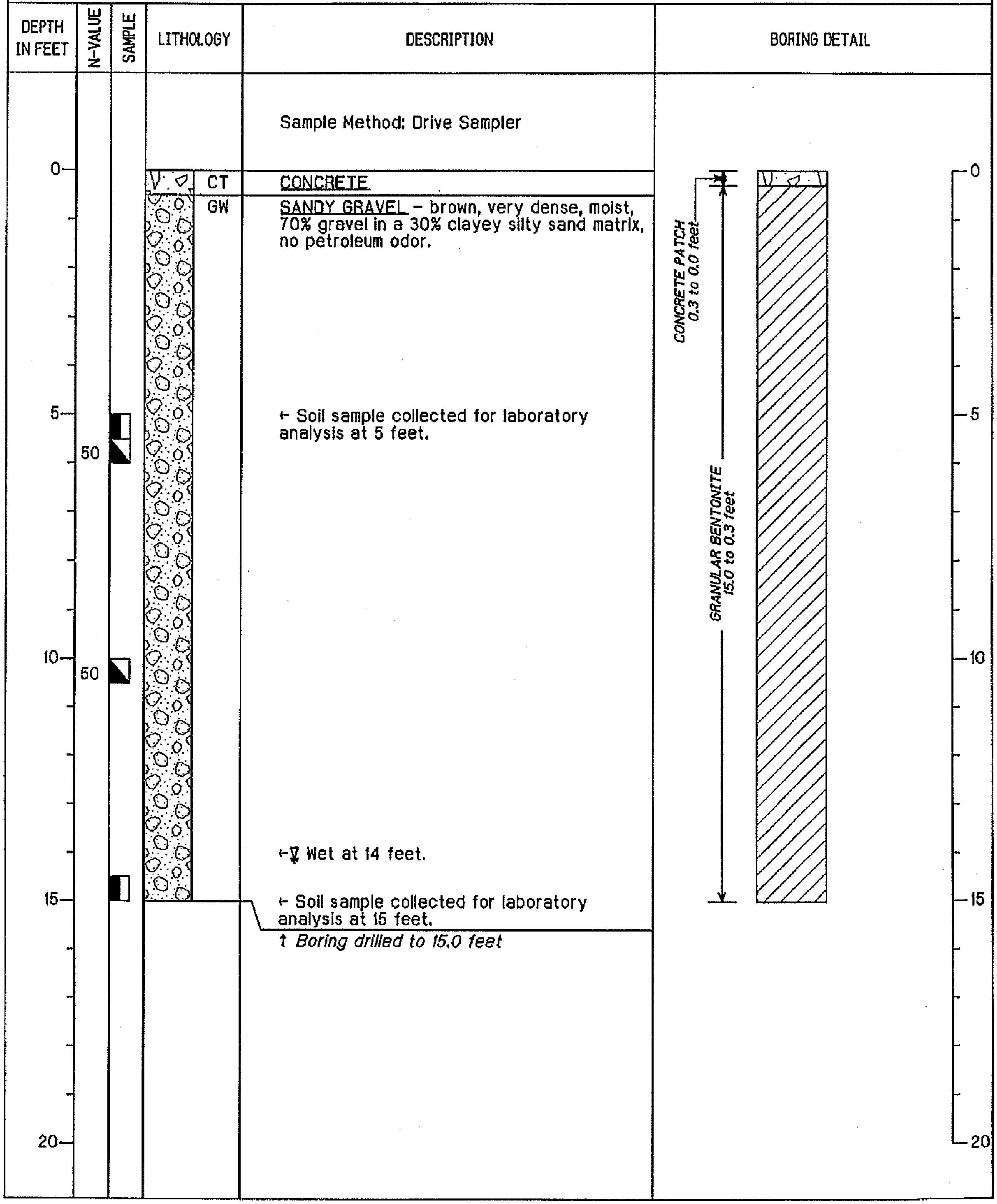
CENTURY WEST ENGINEERING

SUBSURFACE EXPLORATION LOG

CRTHS15
Page 1 of 1

Project Courthouse Square
Location Salem, Oregon
Job Number 4080600108/4001
Geologist/Engineer Bob Carson, R.G.
Drilling Subcontractor Geo-Tech Exploration

Boring Number IB-15
Depth of Boring 15.0 feet
Surface Elevation msl
Date Started 2/13/97
Date Completed 2/13/97



Sample Method: Drive Sampler

CONCRETE

SANDY GRAVEL - brown, very dense, moist, 70% gravel in a 30% clayey silty sand matrix, no petroleum odor.

← Soil sample collected for laboratory analysis at 5 feet.

←▽ Wet at 14 feet.

← Soil sample collected for laboratory analysis at 15 feet.

↑ *Boring drilled to 15.0 feet*

CENTURY WEST ENGINEERING

SUBSURFACE EXPLORATION LOG

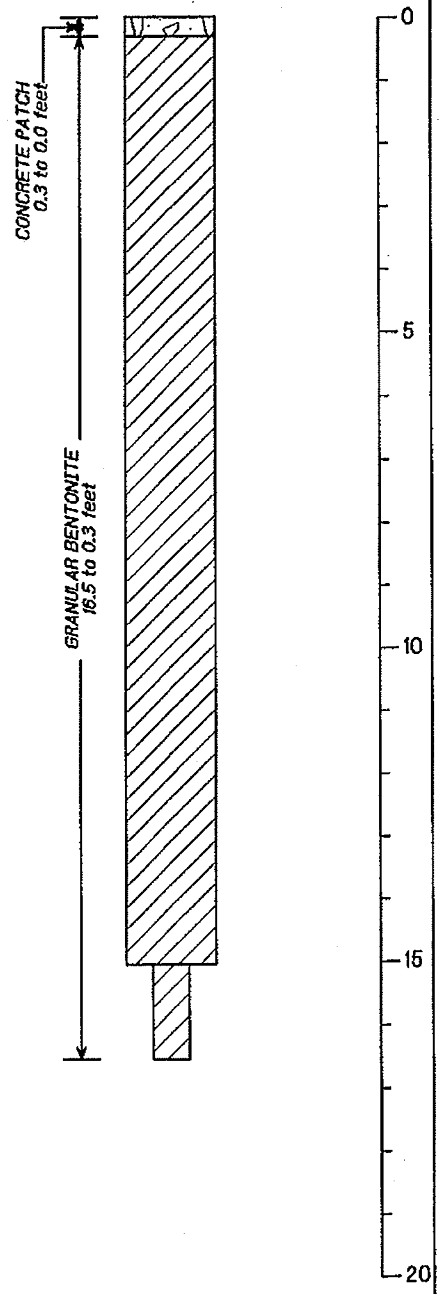
CRTHS20
Page 1 of 1

Project Courthouse Square
Location Salem, Oregon
Job Number 4080600108/4001
Geologist/Engineer Bob Carson, R.G.
Drilling Subcontractor Geo-Tech Exploration

Boring Number IB-20
Depth of Boring 15.0 feet
Surface Elevation msl
Date Started 2/10/97
Date Completed 2/10/97

DEPTH IN FEET	N-VALUE	SAMPLE	LITHOLOGY	DESCRIPTION
				Sample Method: Drive Sampler
0			AS	ASPHALT
			GW	SANDY GRAVEL - brown, very dense, damp, 60% gravel in a 40% silty sand matrix, no petroleum odor.
5	50	◪		
10	50	◪		
				←▽
15		■		← Soil sample collected for laboratory analysis at 15 feet.
	17	◪	SW	GRAVELLY SAND - brown, medium dense, wet, 60% silty sand with 40% gravel, slight petroleum odor.
				← *Boring drilled to 15.0 feet*
				↑ *Boring sampled to 16.5 feet*
20				

BORING DETAIL

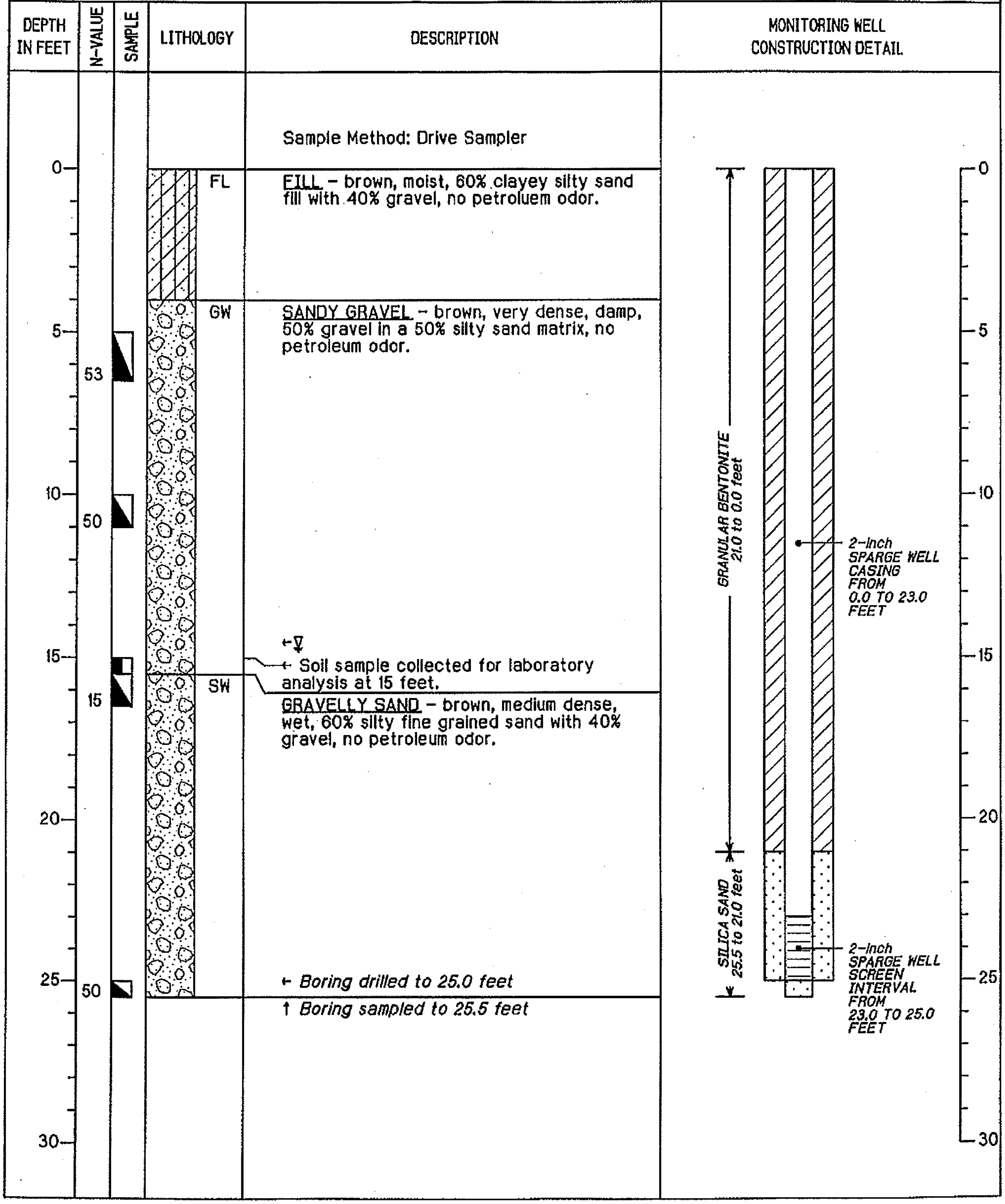


CENTURY WEST
ENGINEERING

SUBSURFACE EXPLORATION LOG

CRTHS21
Page 1 of 1

Project	Courthouse Square	Boring Number	IB-21
Location	Salem, Oregon	Well Number	
Job Number	4080600108/4001	Depth of Boring	25.0 feet
Geologist/Engineer	Bob Carson, R.G.	Top of Casing Elevation	msl
Drilling Subcontractor	Geo-Tech Exploration	Top of Casing Elevation	msl
Date Started	2/10/97	Date Completed	2/10/97



Sample Method: Drive Sampler

FILL - brown, moist, 60% clayey silty sand fill with 40% gravel, no petroluem odor.

SANDY GRAVEL - brown, very dense, damp, 50% gravel in a 50% silty sand matrix, no petroleum odor.

← ▽

← Soil sample collected for laboratory analysis at 15 feet.

GRAVELLY SAND - brown, medium dense, wet, 60% silty fine grained sand with 40% gravel, no petroleum odor.

← *Boring drilled to 25.0 feet*

↑ *Boring sampled to 25.5 feet*

CENTURY WEST
ENGINEERING

SUBSURFACE EXPLORATION LOG

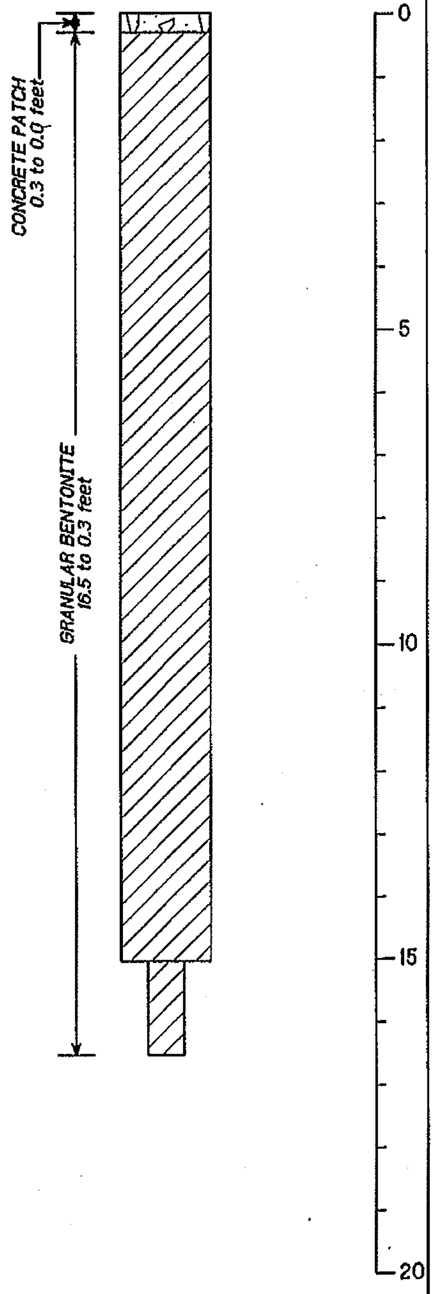
CRTHS22
Page 1 of 1

Project Courthouse Square
Location Salem, Oregon
Job Number 4080600108/4001
Geologist/Engineer Bob Carson, R.G.
Drilling Subcontractor Geo-Tech Exploration

Boring Number IB-22
Depth of Boring 15.0 feet
Surface Elevation msl
Date Started 2/10/97
Date Completed 2/10/97

DEPTH IN FEET	N-VALUE	SAMPLE	LITHOLOGY	DESCRIPTION
				Sample Method: Drive Sampler
0			FL	FILL – brown, moist, 70% clayey silty sand fill with 30% gravel, no petroleum odor.
5	17		GW	SANDY GRAVEL – brown, medium dense to very dense, moist, 70% gravel in a 30% silty sand matrix, no petroleum odor.
10	50			
15	60			←∇ ← Soil sample collected for laboratory analysis at 15 feet. ← *Boring drilled to 15.0 feet*
				↑ *Boring sampled to 16.5 feet*
20				

BORING DETAIL



CENTURY WEST ENGINEERING

SUBSURFACE EXPLORATION LOG

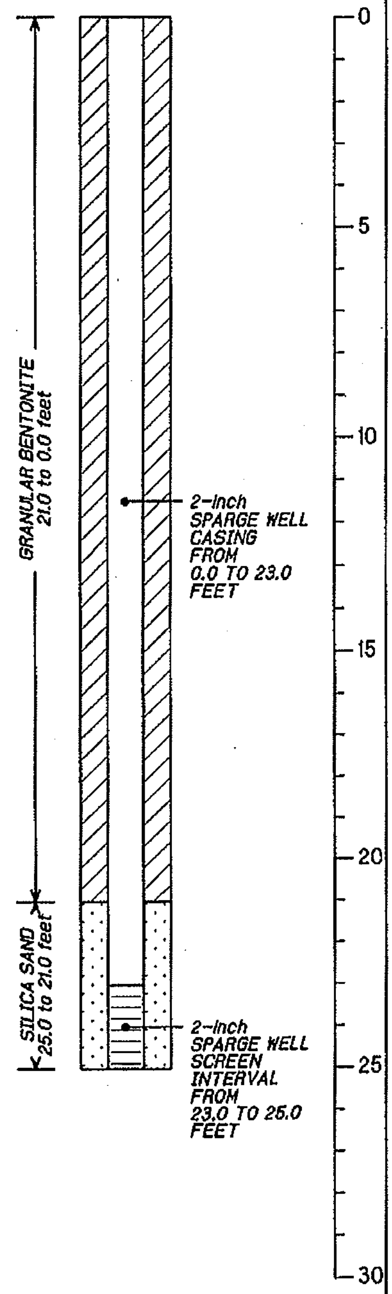
CRTHS23
Page 1 of 1

Project Courthouse Square
Location Salem, Oregon
Job Number 4080600108/4001
Geologist/Engineer Bob Carson, R.G.
Drilling Subcontractor Geo-Tech Exploration
Date Started 2/7/97

Boring Number IB-23
Well Number
Depth of Boring 25.0 feet
Top of Casing Elevation msl
Top of Casing Elevation msl
Date Completed 2/7/97

DEPTH IN FEET	N-VALUE	SAMPLE	LITHOLOGY	DESCRIPTION
				Sample Method: Drive Sampler
0			AS	ASPHALT
			GF	AGGREGATE BASE
			GW	SANDY GRAVEL – brown, very dense, damp, 50% gravel in a 50% silty sand matrix, no petroleum odor.
5	50			
10	50			← Gray, 70% gravel in a 30% silty sand matrix at 11 feet.
15	50			←▽ ← Soil sample collected for laboratory analysis at 15 feet, very slight petroleum odor.
20				
25				↑ *Boring drilled to 25.0 feet*
30				

MONITORING WELL CONSTRUCTION DETAIL



CENTURY WEST ENGINEERING

SUBSURFACE EXPLORATION LOG

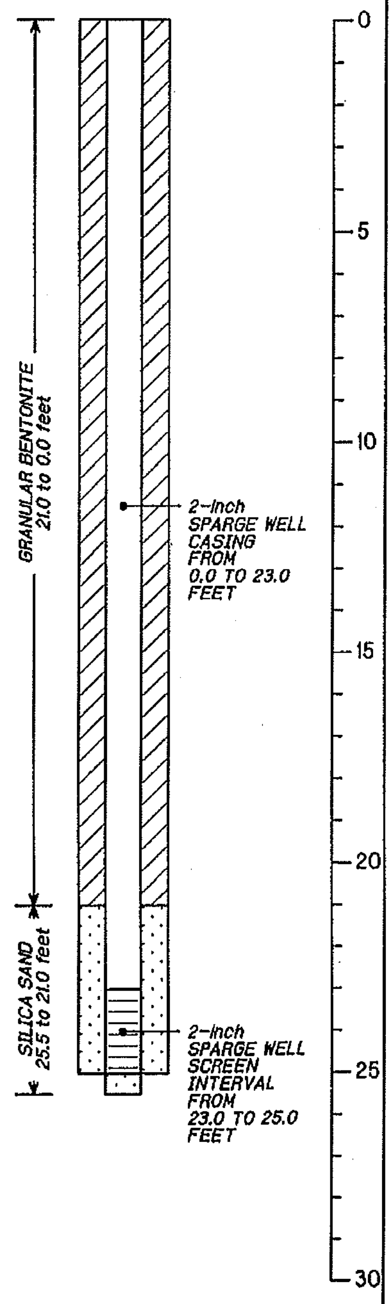
CRTHS24
Page 1 of 1

Project Courthouse Square
Location Salem, Oregon
Job Number 4080600108/4001
Geologist/Engineer Bob Carson, R.G.
Drilling Subcontractor Geo-Tech Exploration
Date Started 2/7/97

Boring Number IB-24
Well Number
Depth of Boring 25.0 feet
Top of Casing Elevation msl
Top of Casing Elevation msl
Date Completed 2/7/97

DEPTH IN FEET	N-VALUE	SAMPLE	LITHOLOGY	DESCRIPTION
				Sample Method: Drive Sampler
0			FL	FILL
5	67		GM	SILTY GRAVEL - brown, very dense, damp, 60% gravel in a 40% sandy silt matrix, no petroleum odor.
10	50			
			GW	SANDY GRAVEL - gray, very dense, moist, 70% gravel in a 30% silty sand matrix, strong petroleum odor, heavy sheen. ← ▽ ← Soil sample collected for laboratory analysis at 15 feet, strong petroleum odor, heavy sheen.
15	84			
20	50			← Soil sample collected for laboratory analysis at 20 feet, strong petroleum odor, heavy sheen.
25	50			← Soil sample collected for laboratory analysis at 25 feet, strong petroleum odor, heavy sheen. ← *Boring drilled to 25.0 feet* ↑ *Boring sampled to 25.5 feet*
30				

MONITORING WELL CONSTRUCTION DETAIL



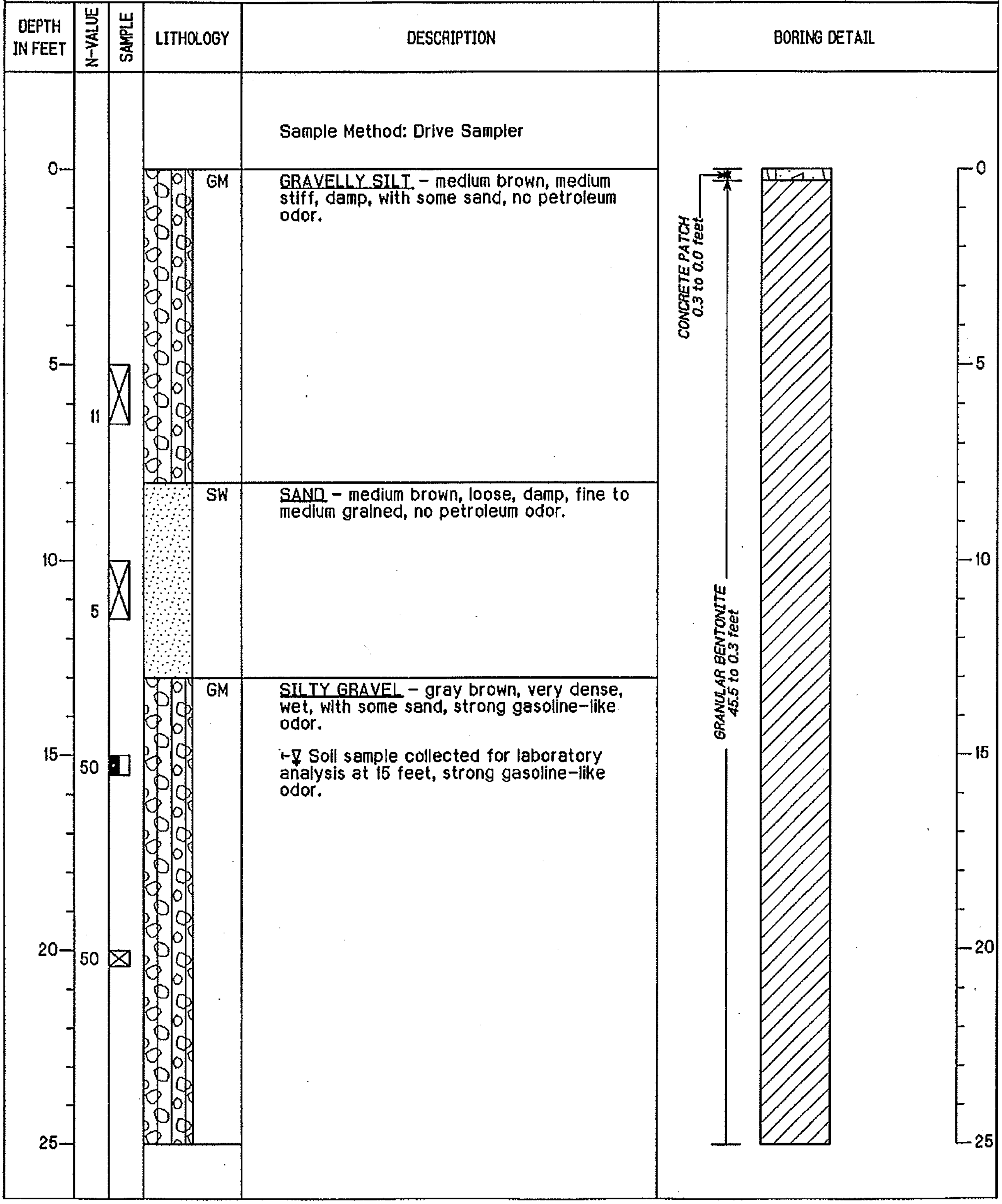
CENTURY WEST ENGINEERING

SUBSURFACE EXPLORATION LOG

CRTHS25
Page 1 of 2

Project Courthouse Square
Location Salem, Oregon
Job Number 4080600108/4001
Geologist/Engineer Bob Carson, R.G.
Drilling Subcontractor Geo-Tech Exploration

Boring Number IB-25
Depth of Boring 45.0 feet
Surface Elevation msl
Date Started 2/5/97
Date Completed 2/6/97



Sample Method: Drive Sampler

GRAVELLY SILT - medium brown, medium stiff, damp, with some sand, no petroleum odor.

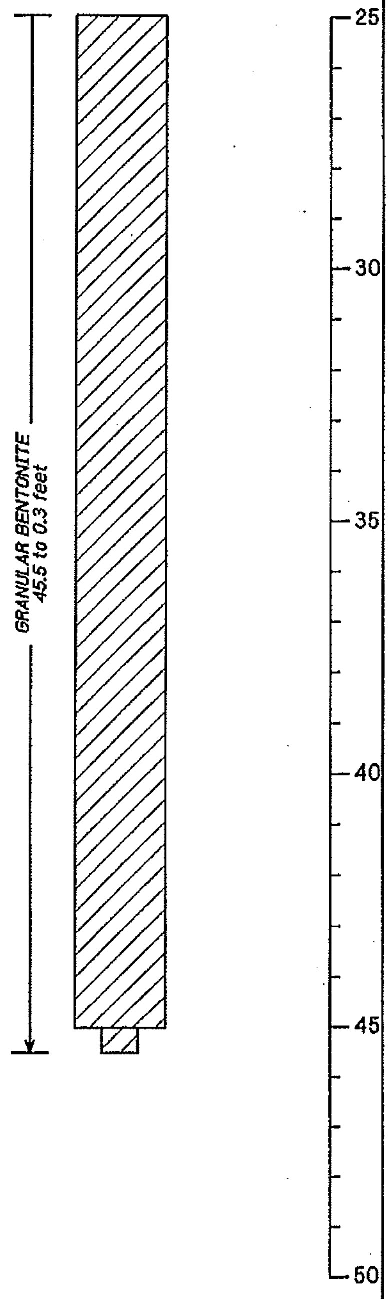
SAND - medium brown, loose, damp, fine to medium grained, no petroleum odor.

SILTY GRAVEL - gray brown, very dense, wet, with some sand, strong gasoline-like odor.

←∇ Soil sample collected for laboratory analysis at 15 feet, strong gasoline-like odor.

DEPTH IN FEET	N-VALUE	SAMPLE	LITHOLOGY	DESCRIPTION
25	60	■ ☒	GM	← Soil sample collected for laboratory analysis at 25 feet, slight petroleum odor.
			GW	SANDY GRAVEL – gray brown, very dense, wet, with a trace of silt, slight petroleum odor.
30	50	☒		
35	46	☒		
			SW	SAND – gray brown, loose, wet, fine to medium grained, very slight petroleum odor.
40	5	☒		
			GW	SANDY GRAVEL – yellow brown and gray mottled, very dense, wet, with some silt, no petroleum odor. ← *Boring drilled to 45.0 feet*
45	50	☒		↑ *Boring sampled to 45.5 feet*
50				

BORING DETAIL



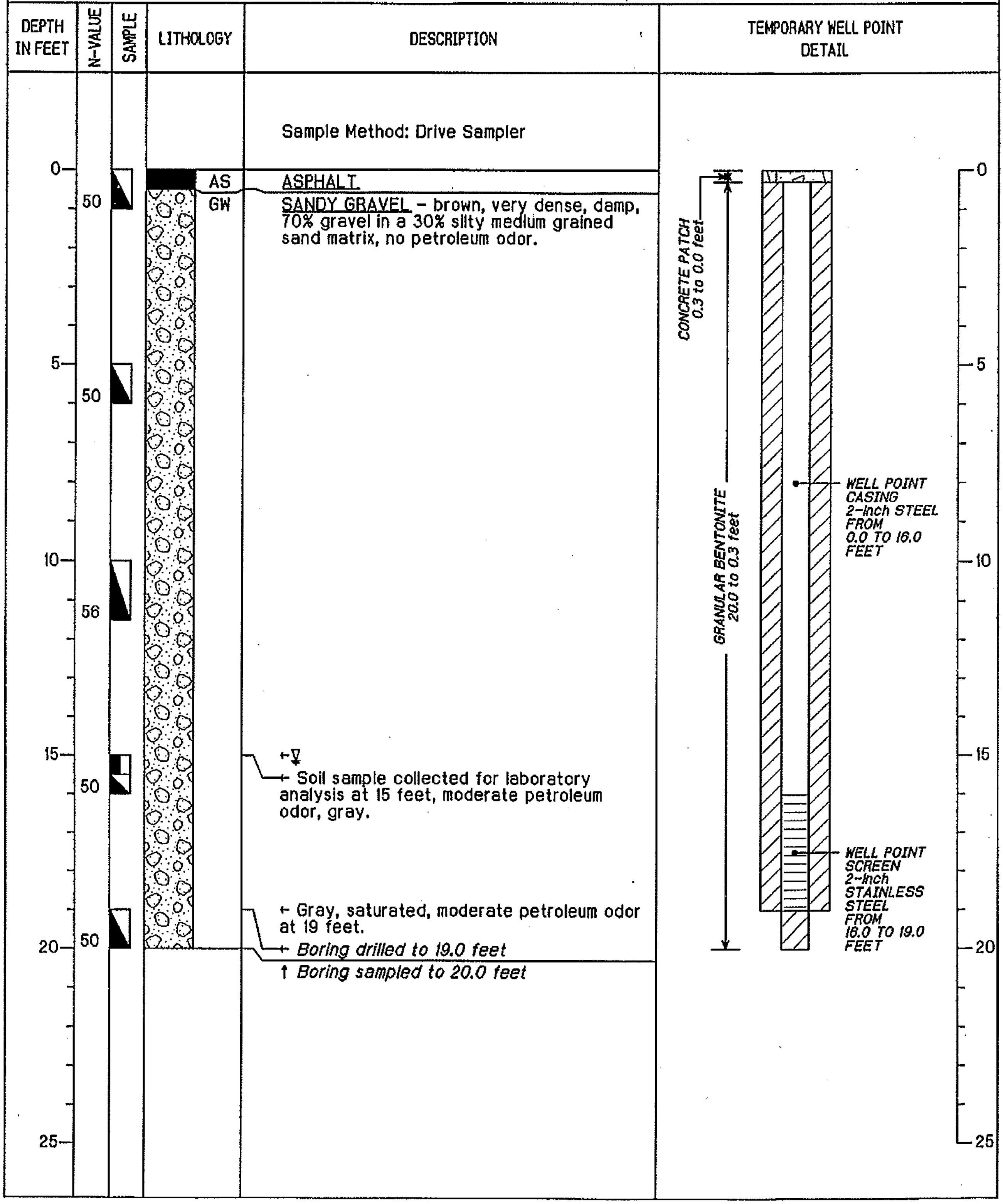
CENTURY WEST ENGINEERING

SUBSURFACE EXPLORATION LOG

CRTHS26
Page 1 of 1

Project Courthouse Square
Location Salem, Oregon
Job Number 4080600108/4001
Geologist/Engineer Bob Carson, R.G.
Drilling Subcontractor Geo-Tech Exploration
Date Started 2/10/97

Boring Number IB-26
Well Point ID TWP-26
Depth of Boring 19.0 feet
Surface Elevation msl
Top of Casing Elevation msl
Date Completed 2/10/97



Sample Method: Drive Sampler

ASPHALT

SANDY GRAVEL - brown, very dense, damp, 70% gravel in a 30% silty medium grained sand matrix, no petroleum odor.

← ▽

← Soil sample collected for laboratory analysis at 15 feet, moderate petroleum odor, gray.

← Gray, saturated, moderate petroleum odor at 19 feet.

← *Boring drilled to 19.0 feet*

↑ *Boring sampled to 20.0 feet*

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ENGINEERING CORPORATION

LOG OF BORING B-26

(Page 1 of 1)

MARION COUNTY
Courthouse Square
Salem, Oregon

40806.001.25

Date Started : 6/24/98
Driller : GEO-TECH
: EXPLORATIONS

Drill : Track Rig
Sample Hammer Wt. : 140 pounds
Drop : 30 inches
Method : Auger & Mud Rotary

Depth in Feet	Sample Type	Samples	Blow Count (N-Value)	Moisture (%)	Density (pcf)	GRAPHIC	USCS	DESCRIPTION
0								
5								Surface elevation is 10 feet below sidewalk elevation. Boring located in the former basement area of the Senator Hotel
10								
15	SPT		50/5"				GP	Gray brown GRAVEL with some silty sand and cobbles; dense, damp. Groundwater encountered at 18 feet.
20	SPT	2	34				GW	Brown sandy GRAVEL; dense, wet.
25	SPT	3	51					
30	SPT	4	50/3"					
35	SPT	5	70				GP	Gray Brown SANDS and GRAVELS; dense, wet.
40	SPT	6	70					
	SPT	7	50/5"					total depth = 42.5 feet below sidewalk elevation.
45								

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LOG OF BORING B-27

(Page 1 of 1)

MARION COUNTY
Courthouse Square
Salem, Oregon

40806.001.25

Date Started : 6/24/98
Driller : GEO-TECH
: EXPLORATIONS

Drill : Track Rig
Sample Hammer Wt. : 140 pounds
Drop : 30 inches
Method : Auger & Mud Rotary

Depth in Feet	Sample Type	Samples	Blow Count (N-Value)	Moisture (%)	Density (pcf)	GRAPHIC	USCS	DESCRIPTION
0								
5								Surface elevation is 10 feet below sidewalk elevation. Boring located in the former basement area of the Senator Hotel
10							GP	Gray brown GRAVEL with some silty sand and cobbles; loose (material was disturbed when the hotel was removed), damp.
15	SPT	1	11					
20	SPT	2	52				GW	Groundwater encountered at 19 feet. Gray Brown SANDS and GRAVELS; dense, damp.
25	SPT	3	50/6"					
30	SPT	4	50/4"				GM	Gray brown SANDS and GRAVELS with some silt; dense, wet.
35	SPT	5	50/3"					total depth = 35 feet below sidewalk elevation.
40								
45								

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ENGINEERING CORPORATION

MARION COUNTY
Courthouse Square
Salem, Oregon
40806.001.25

LOG OF BORING B-28

(Page 1 of 1)

Date Started	: 6/24/98	Drill	: Track Rig
Driller	: GEO-TECH	Sample Hammer Wt.	: 140 pounds
	: EXPLORATIONS	Drop	: 30 inches
		Method	: Auger & Mud Rotary

Depth in Feet	Sample Type	Samples	Blow Count (N-Value)	Moisture (%)	Density (pcf)	GRAPHIC	USCS	DESCRIPTION
0								Surface elevation is 10 feet below sidewalk elevation. Boring located in the former basement area of the Senator Hotel
5								
10	SPT	1	47				GW	Gray brown and green SAND and GRAVEL; dense, damp.
15	SPT	2	55					
20	SPT	3	61				GW	Groundwater encountered at 19.5 feet. Gray brown SAND and GRAVEL; dense, wet.
25	SPT	4	50/5"					
30	SPT	5	50/6"					
35	SPT	6	50/5"				GM	Gray brown to reddish brown silty GRAVELS with some sand; dense, wet.
40	SPT	7	50/6"					
45								total depth = 45 feet below sidewalk elevation.

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centurywest
ENGINEERING CORPORATION

LOG OF BORING B-29

(Page 1 of 1)

MARION COUNTY
Courthouse Square
Salem, Oregon

40806.001.25

Date Started	: 6/24/98	Drill	: Track Rig
Driller	: GEO-TECH	Sample Hammer Wt.	: 140 pounds
	: EXPLORATIONS	Drop	: 30 inches
		Method	: Auger & Mud Rotary

Depth in Feet	Sample Type	Samples	Blow Count (N-Value)	Moisture (%)	Density (pcf)	GRAPHIC	USCS	DESCRIPTION
0							GM	Gray brown and green SAND and GRAVEL with some silt; dense, damp.
5	SPT	1	38					
10	SPT	2	50/6"					
15	SPT	3	32				GW	Groundwater encountered at 18 feet. Gray brown SAND and GRAVEL; dense, wet.
20	SPT	4	33					
25	SPT	5	50/6"					
30	SPT	6	50/5"				GM	Orange-brown silty SAND and GRAVEL; dense, wet.
35	SPT	7	69				GW	Gray brown to reddish brown silty GRAVELS with some sand; dense, wet.
40	SPT	8	50/5"					
45							GM	total depth = 45 feet below sidewalk elevation.

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APPENDIX C

APPENDIX C

IN-PLACE DENSITY TEST RESULTS

As discussed in the "Background" section of this report, Carlson Testing, Inc. performed in-place density testing on compacted fill soils during site development. Copies of the test results were provided by Marion County and are presented in this appendix.

Carlson Testing, Inc.

Construction Inspection & Related Tests
Geotechnical Consulting

P.O. Box 23814
Tigard, Oregon 97281
Phone (503) 684-3460
FAX (503) 684-0954

RECEIVED
MAY 05 1999
Facilities Management

JOB 99-S1132

Apr 28, 1999

REPORT OF IN-PLACE DENSITY TESTS

Client SALEM AREA MASS TRANSIT DISTRICT

Permit No: 401418

Project SALEM COURTHOUSE SQUARE
555 COURT STREET NE SALEM OR

Material Description 2 1/2"-0 ON-SITE MATERIAL

Max. Dry Density 137.5 lbs./cu. ft. Optimum Moisture 9.7 % Method of Test ASTM D1557
ASTM D2922

Standard Count Density: 3097 Moisture: 646 Serial # Troxler 16185 NUC 3440

DATE OF TEST	TEST NO	TEST LOCATION DEPTH	% COARSE PARTICLES	ADJ. MAX. DENS.	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU.FT.)		% COMPACTION
							WET	DRY	
4-27	SF 3	GRIDS 10A AT C.5			138.0	5.0	136.7	130.2	95
4-27	SF 4	GRIDS 10 AT D			138.5	8.9	142.1	130.5	95

Remarks:

Density & Moisture Counts
SF 3
SF 4

cc: MELVIN MARKS DEVELOPMENT - CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS PC
PENCE KELLY CONSTRUCTION INC - STEVE SCH
PENCE KELLY CONSTRUCTION INC - JOHN GREM
MARION COUNTY FACILITIES MANAGEMENT - BO
CENTURY WEST - MATT ROGERS

, P.E
TECHNICAL DIRECTOR

Tested by G. COOPER /LRO Reviewed By CARLSON TESTING INC.

Our reports pertain to the material tested/inspected only.
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Carlson Testing, Inc.

Construction Inspection & Related Tests
Geotechnical Consulting

P.O. Box 23814
Tigard, Oregon 97281
Phone (503) 684-3460
FAX (503) 684-0954

OB.... 99-S1132

May 04, 1999

REPORT OF IN-PLACE DENSITY TESTS

Client SALEM AREA MASS TRANSIT DISTRICT

Permit No: 401418

Project SALEM COURTHOUSE SQUARE
555 COURT STREET NE SALEM OR

Material Description 2 1/2"-0 ON-SITE MATERIAL

Max. Dry Density 137.5 lbs./cu. ft. Optimum Moisture 9.7 % Method of Test ASTM D1557
ASTM D2922

Standard Count Density: 2885 Moisture: 697 Serial # Troxler 27299 NUC 3440

DATE OF TEST	TEST NO	TEST LOCATION	DEPTH	% COARSE PARTICLES	ADJ. MAX. DENS.	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU.FT.) WET	DRY	% COMPACTION
4-28	SF 5	GRIDS 10A AT C.5				139.0	5.1	137.4	130.7	95
4-28	SF 6	GRIDS 10 AT D				139.0	5.1	136.6	130.0	95
4-28	SF 7	GRIDS 10 AT C.5				139.25	5.7	137.5	130.1	95
4-28	SF 8	GRIDS 10 AT C.75				140.0	7.0	145.6	136.1	99
4-28	SF 9	GRIDS 10A.75 AT C				134.5	8.8	142.0	130.5	95
4-28	SF 10	GRIDS 10A.75 AT C				135.5	7.6	140.9	130.9	95

Remarks:
95% REQUIRED.
cc: MELVIN MARKS DEVELOPMENT - CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS PC
PENCE KELLY CONSTRUCTION INC - STEVE SCH
PENCE KELLY CONSTRUCTION INC - JOHN GREM
MARION COUNTY FACILITIES MANAGEMENT - BO
CENTURY WEST - MATT ROGERS

Density & Moisture Counts
SF 5
SF 6
SF 7
SF 8
SF 9
SF 10

Tested by G. COOPER /LRO

Reviewed By CARLSON TESTING INC.

Our reports pertain to the material tested/inspected only.

Carlson Testing, Inc.

Construction Inspection & Related Tests
Geotechnical Consulting

P.O. Box 23814
Tigard, Oregon 97281
Phone (503) 684-3460
FAX (503) 684-0954

OB. 99-S1132

May 04, 1999

REPORT OF IN-PLACE DENSITY TESTS

Client SALEM AREA MASS TRANSIT DISTRICT

Permit No: 401418

Project SALEM COURTHOUSE SQUARE
555 COURT STREET NE SALEM OR

Material Description 2 1/2"-0 ON-SITE MATERIAL

Max. Dry Density 137.5 lbs./cu. ft. Optimum Moisture 9.7 % Method of Test ASTM D1557
ASTM D2922

Standard Count Density: 2899 Moisture: 694 Serial #oxler 27299 NUC 3440

DATE OF TEST	TEST NO	TEST LOCATION	DEPTH	% COARSE PARTICLES	ADJ. MAX. DENS.	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU.FT.) WET	DRY	% COMPACTION
4-30	SF 11	15' NORTH OF "10" LINE AT "C" LINE (SOUTHWEST CORNER OVER-EXCAVATION)				138.0	5.9	140.9	133.1	97
4-30	SF 12	10' NORTH OF "10" LINE AT "C" LINE (SOUTHWEST CORNER OVER-EXCAVATION)				139.5	5.6	143.8	136.2	99
4-30	SF 13	10A AT C - SITE OF TYPE F-2 FOOTING				140.8	5.0	137.5	131.0	95
4-30	SF 14	10 AT C SITE OF TYPE F-6 FOOTING				140.3	5.6	138.2	130.9	95
4-30	SF 15	L AT 12.5 (SOUTHEAST CORNER OVER EXCAVATED)				135.0	4.2	138.6	133.0	97
4-30	SF 16	L AT 12.75 (AFTER OVER EXCAVATION AND BACKFILL)				133.5	5.5	137.8	130.6	95
4-30	SF 17	M AT 12.75 (AFTER OVER EXCAVATION AND BACKFILL)				133.5	5.0	137.7	131.1	95
4-30	SF 18	M.5 AT 12.9				134.0	4.9	137.8	131.4	96

Remarks:
95% REQUIRED.

cc: MELVIN MARKS DEVELOPMENT - CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS PC
PENCE KELLY CONSTRUCTION INC - STEVE SCH
PENCE KELLY CONSTRUCTION INC - JOHN GREM
MARION COUNTY FACILITIES MANAGEMENT - BO
CENTURY WEST - MATT ROGERS

Density & Moisture Counts
SF 11
SF 12
SF 13
SF 14
SF 15
SF 16
SF 17
SF 18

Tested by G. COOPER /LRO

Reviewed By CARLSON TESTING INC.

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Geotechnical Consulting

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FAX (503) 684-0954

OB No. 99-S1132

May 04, 1999

REPORT OF IN-PLACE DENSITY TESTS

lient SALEM AREA MASS TRANSIT DISTRICT

Permit No: 401418

roject SALEM COURTHOUSE SQUARE
555 COURT STREET NE SALEM OR

aterial Description 2 1/2"-0 ON-SITE MATERIAL

ax. Dry Density 137.5 lbs./cu. ft. Optimum Moisture 9.7 % Method of Test ASTM D1557
ASTM D2922

tandard Count Density: 2820 Moisture: 688 Serial #Troxler 27337 NUC 3440

DATE OF TEST	TEST NO	TEST LOCATION	DEPTH	% COARSE PARTICLES	ADJ. MAX. DENS.	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU.FT.) WET	DRY	% COMPACTION
4-29	SF 19	10A.75 AT "C" LINE				136.0	7.2	141.5	132.0	96
4-29	SF 20	10A.75 AT "C" LINE				136.5	6.8	140.8	131.8	96
4-29	SF 21	10A.75 AT "C" LINE				137.5	7.6	142.4	132.3	96
4-29	SF 22	10A.75 AT "C" LINE				138.5	7.5	141.0	131.2	95
4-29	SF 23	5.0 FEET NORTH OF 10A.75 AT "C" LINE				138.5	6.9	142.2	133.0	97
4-29	SF 24	"13" LINE AT J LINE				+16"	6.1	138.7	130.7	95
4-29	SF 25	"13" LINE AT J LINE				+22"	7.8	141.0	130.8	95
4-29	SF 26	"13" LINE AT K LINE				+16"	8.4	142.6	131.5	96
4-29	SF 27	BACKFILL OVEREXCAVATED AREA BETWEEN 8 & 11 LINE & BETWEEN B & D LINES. 10A.75 AT C LINE				139.5	7.0	141.4	132.1	96
4-29	SF 28	BACKFILL OVEREXCAVATED AREA BETWEEN 8 & 11 LINE & BETWEEN B & D LINES. 10A AT "C" LINE				139.5	6.2	138.4	130.3	95

emarks:
95% REQUIRED.

cc: MELVIN MARKS DEVELOPMENT - CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS PC
PENCE KELLY CONSTRUCTION INC - STEVE SCH
PENCE KELLY CONSTRUCTION INC - JOHN GREM
MARION COUNTY FACILITIES MANAGEMENT - BO
CENTURY WEST - MATT ROGERS

Density & Moisture Counts

SF 19	SF 24
SF 20	SF 25
SF 21	SF 26
SF 22	SF 27
SF 23	SF 28

ested by T. VANN /LRO

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JOB 99-S1132

May 04, 1999

REPORT OF IN-PLACE DENSITY TESTS

Client SALEM AREA MASS TRANSIT DISTRICT

Permit No: 401418

Project SALEM COURTHOUSE SQUARE
555 COURT STREET NE SALEM OR

Material Description 2 1/2"-0 ON-SITE MATERIAL

Max. Dry Density 137.5 lbs./cu. ft. Optimum Moisture 9.7 % Method of Test ASTM D1557
ASTM D2922

Standard Count Density: 2820 Moisture: 688 Serial #Troxler 27337 NUC 3440

DATE OF TEST	TEST NO	TEST LOCATION	DEPTH	% COARSE PARTICLES	ADJ. MAX. DENS.	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU.FT.)		% COMPACTION
								WET	DRY	
4-29	SF 29	BACKFILL OVEREXCAVATED AREA BETWEEN 8 & 11 LINE & BETWEEN B & D LINES. 10A.75 AT C LINE				140.0	8.0	142.2	131.7	96
4-29	SF 30	BACKFILL OVEREXCAVATED AREA BETWEEN 8 & 11 LINE & BETWEEN B & D LINES. 10A AT "C" LINE				140.0	7.6	141.9	131.9	96

Remarks:
95% REQUIRED.

Density & Moisture Counts
SF 29
SF 30

cc: MELVIN MARKS DEVELOPMENT - CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS PC
PENCE KELLY CONSTRUCTION INC STEVE SCH
PENCE KELLY CONSTRUCTION INC - JOHN GREM
MARION COUNTY FACILITIES MANAGEMENT - BO
CENTURY WEST - MATT ROGERS

Tested by T. VANN /LRO

Reviewed By CARLSON TESTING INC.

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ob 99-S1132

May 12, 1999

REPORT OF IN-PLACE DENSITY TESTS

Client SALEM AREA MASS TRANSIT DISTRICT

Permit No: 401418

Project SALEM COURTHOUSE SQUARE
555 COURT STREET NE SALEM OR

Material Description 2 1/2"-0 ON-SITE MATERIAL

Max. Dry Density 137.5 lbs./cu. ft. Optimum Moisture 9.7 % Method of Test ASTM D1557
ASTM D2922

Standard Count Density: 2888 Moisture: 688 Serial# oxler 27299 NUC 3440

DATE OF TEST	TEST NO	TEST LOCATION DEPTH	% COARSE PARTICLES	ADJ. MAX. DENS.	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU.FT.) WET	DRY	% COMPACTION
5-3	SF 31	12.25 AT L			134.5	5.4	138.1	131.0	95
5-3	SF 32	12.5 AT K			134.5	4.2	136.5	131.0	95
5-3	SF 33	12.75 AT M			135.0	4.0	139.8	134.4	98
5-3	SF 34	10A.5 AT C.5 (FOOTING AREA)			140.8	4.4	138.4	132.6	96
5-3	SF 35	10A AT D			140.8	5.8	139.1	131.5	96
5-3	SF 36	12.5 AT L.5			136.0	5.5	138.4	131.2	95
5-3	SF 37	9 AT D			139.0	5.4	141.6	134.3	98
5-3	SF 38	12 AT N			138.0	5.7	138.2	130.7	95
5-4	SF 39	12.5 AT M			139.0	5.7	138.4	130.9	95
5-4	SF 40	13 AT K			139.0	5.7	138.5	131.0	95

Remarks:

95% REQUIRED.

cc: MELVIN MARKS DEVELOPMENT - CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS INC - LEONARD
PENCE KELLY CONSTRUCTION INC - STEVE SCH
PENCE KELLY CONSTRUCTION INC - JOHN GREM
MARION COUNTY FACILITIES MANAGEMENT - BO
CENTURY WEST - MATT ROGERS

Density & Moisture Counts

SF 31	SF 36
SF 32	SF 37
SF 33	SF 38
SF 34	SF 39
SF 35	SF 40

Tested by G. COOPER /LRO

Reviewed By CARLSON TESTING INC.

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REPORT OF IN-PLACE DENSITY TESTS

Client SALEM AREA MASS TRANSIT DISTRICT

Permit No: 401418

Project SALEM COURTHOUSE SQUARE
555 COURT STREET NE SALEM OR

Material Description 2 1/2"-0 ON-SITE MATERIAL

Max. Dry Density 137.5 lbs./cu. ft. Optimum Moisture 9.7 % Method of Test ASTM D1557
ASTM D2922

Standard Count Density: 2888 Moisture: 688 Seriall# oxler 27299 NUC 3440

DATE OF TEST	TEST NO	TEST LOCATION	DEPTH	% COARSE PARTICLES	ADJ. MAX. DENS.	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU.FT.)		% COMPACTION
								WET	DRY	
5- 4	SF 41	13 AT L				140.0	6.3	144.3	135.7	99
5- 4	SF 42	9 AT D				141.0	4.3	136.7	131.1	95
5- 4	SF 43	9 AT C.5				135.0	5.4	139.8	132.6	96
5- 4	SF 44	9 AT C.5				136.0	4.4	137.9	132.1	96
5- 4	SF 45	9 AT C.5				137.0	5.9	138.8	131.1	95
5- 4	SF 46	9 AT C.5				138.0	5.6	139.5	132.1	96

Remarks:
95% REQUIRED.

Density & Moisture Counts
SF 41
SF 42
SF 43
SF 44
SF 45
SF 46

cc: MELVIN MARKS DEVELOPMENT - CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS INC - LEONARD
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CENTURY WEST - MATT ROGERS

Tested by G. COOPER /LRO

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May 12, 1999

REPORT OF IN-PLACE DENSITY TESTS

Client SALEM AREA MASS TRANSIT DISTRICT

Permit No: 401418

Project SALEM COURTHOUSE SQUARE
555 COURT STREET NE SALEM OR

Material Description 2 1/2"-0 ON-SITE MATERIAL

Max. Dry Density 137.5 lbs./cu. ft. Optimum Moisture 9.7 % Method of Test ASTM D1557
ASTM D2922

Standard Count Density: 2916 Moisture: 688

Serial# oxler 27299 NUC 3440

DATE OF TEST	TEST NO	TEST LOCATION	DEPTH	% COARSE PARTICLES	ADJ. MAX. DENS.	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU.FT.) WET	DRY	% COMPACTION
5- 5	SF 47	9 AT C.5				139.0	6.4	139.1	130.7	95
5- 5	SF 48	13 AT M.5				141.0	5.4	141.0	133.8	97
5- 5	SF 49	13 AT K				141.0	6.1	147.1	138.6	100+
5	SF 50	9 AT C				136.0	6.2	141.4	133.1	97
5- 5	SF 51	9 AT C				137.0	5.2	137.6	130.8	95
5- 5	SF 52	9 AT C				138.0	5.8	137.9	130.3	95

Remarks:
95% REQUIRED.
cc: MELVIN MARKS DEVELOPMENT - CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS INC - LEONARD
PENCE KELLY CONSTRUCTION INC - STEVE SCH
PENCE KELLY CONSTRUCTION INC - JOHN GREM
MARION COUNTY FACILITIES MANAGEMENT - BO
CENTURY WEST - MATT ROGERS

Density & Moisture Counts
SF 47
SF 48
SF 49
SF 50
SF 51
SF 52

Tested by G. COOPER /LRO

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May 12, 1999

REPORT OF IN-PLACE DENSITY TESTS

Client SALEM AREA MASS TRANSIT DISTRICT

Permit No: 401418

Project SALEM COURTHOUSE SQUARE
555 COURT STREET NE SALEM OR

Material Description 2 1/2"-0 ON-SITE MATERIAL

Max. Dry Density 137.5 lbs./cu. ft. Optimum Moisture 9.7 % Method of Test ASTM D1557
ASTM D2922

Standard Count Density: 2909 Moisture: 692 Serial# Troxler 27299 NUC 3440

DATE OF TEST	TEST NO	TEST LOCATION	DEPTH	% COARSE PARTICLES	ADJ. MAX. DENS.	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU.FT.) WET	DRY	% COMPACTION
5- 6	SF 53	11 AT M				137.0	5.8	137.9	130.3	95
5- 6	SF 54	11 AT K.5				137.0	5.7	138.7	131.2	95
5- 6	SF 55	8 AT C				135.0	5.4	138.6	131.5	96
[illegible] 6	SF 56	10A AT M				137.0	5.7	138.8	131.3	96

Remarks:
95% REQUIRED.
cc: MELVIN MARKS DEVELOPMENT - CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS INC - LEONARD
PENCE KELLY CONSTRUCTION INC - STEVE SCH
PENCE KELLY CONSTRUCTION INC - JOHN GREM
MARION COUNTY FACILITIES MANAGEMENT - BO
CENTURY WEST - MATT ROGERS

Density & Moisture Counts
SF 53
SF 54
SF 55
SF 56

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REPORT OF IN-PLACE DENSITY TESTS

Client SALEM AREA MASS TRANSIT DISTRICT

Permit No: 401418

Project SALEM COURTHOUSE SQUARE
555 COURT STREET NE SALEM OR

Material Description 2 1/2"-0 ON-SITE MATERIAL

Max. Dry Density 137.5 lbs./cu. ft. Optimum Moisture 9.7 % Method of Test ASTM D1557
ASTM D2922

Standard Count Density: 2875 Moisture: 693 Serial #Troxler 27299 NUC 3440

DATE OF TEST	TEST NO	TEST LOCATION	DEPTH	% COARSE PARTICLES	ADJ. MAX. DENS.	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU.FT.) WET	DRY	% COMPACTION
5- 7	SF 57	12 AT M				137.0	5.8	139.2	131.6	96
5- 7	SF 58	10A AT L				137.0	6.4	139.4	131.0	95
5- 7	SF 59	8 AT C (TEST PIT)				133.0	6.2	138.9	130.8	95
[illegible] 7	SF 60	8 AT C (TEST PIT)				134.0	5.0	139.2	132.6	96
5- 7	SF 61	8 AT C				136.0	5.3	143.6	136.4	99
5- 7	SF 62	10 AT E				136.0	7.4	143.8	133.9	97
5- 7	SF 63	10A AT F				138.0	4.4	138.1	132.3	96

Remarks:
95% REQUIRED.
cc: MELVIN MARKS DEVELOPMENT - CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS INC - LEONARD
PENCE KELLY CONSTRUCTION INC - STEVE SCH
)PENCE KELLY CONSTRUCTION INC - JOHN GREM
MARION COUNTY FACILITIES MANAGEMENT - BO
CENTURY WEST - MATT ROGERS

Density & Moisture Counts
SF 57
SF 58
SF 59
SF 60
SF 61
SF 62
SF 63

Tested by G. COOPER /LRO

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REPORT OF IN-PLACE DENSITY TESTS

Client SALEM AREA MASS TRANSIT DISTRICT

Permit No: 401418

Project SALEM COURTHOUSE SQUARE
555 COURT STREET NE SALEM OR

Material Description 2 1/2"-0 ON-SITE MATERIAL

Max. Dry Density 137.5 lbs./cu. ft. Optimum Moisture 9.7 % Method of Test AASHTO T-180
ASTM D2922

Standard Count Density: 2896 Moisture: 693

Serial# Troxler 27299 NUC 3440

DATE OF TEST	TEST NO	TEST LOCATION DEPTH	% COARSE PARTICLES	ADJ. MAX. DENS.	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU.FT.)		% COMPACTION
							WET	DRY	
5-10	SF 64	GRIDS 10 AT D.5			137.0	6.8	143.1	134.0	97
5-10	SF 65	GRIDS 10 AT F			139.0	5.2	137.6	130.8	95
5-10	SF 66	GRIDS 10 AT D			138.0	5.5	139.5	132.2	96
10	SF 67	GRIDS 10 AT E.5			140.0	5.1	137.4	130.7	95
5-10	SF 68	GRIDS 10 AT L			139.0	5.4	139.4	132.3	96
5-10	SF 69	GRIDS 10 AT D.75			140.0	6.5	140.0	131.5	96

Remarks:
95% REQUIRED.
cc: MELVIN MARKS DEVELOPMENT CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS INC - LEONARD
PENCE KELLY CONSTRUCTION INC STEVE [illegible]
PENCE KELLY CONSTRUCTION INC JOHN [illegible]
MARION COUNTY FACILITIES MANAGEMENT BO
CENTURY WEST ENGINEERING TIMOTHY T TER
DAVIDSONS MASONRY CLIFF ROSELLE

Density & Moisture Counts
SF 64
SF 65
SF 66
SF 67
SF 68
SF 69

Tested by G. COOPER /LRO

Reviewed By Brian Leach
Project Manager
CARLSON TESTING INC.

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Job No. 99-S1132

May 25, 1999

REPORT OF IN-PLACE DENSITY TESTS

Client SALEM AREA MASS TRANSIT DISTRICT

Permit No: 401418

Project SALEM COURTHOUSE SQUARE
555 COURT STREET NE SALEM OR

Material Description 2 1/2"-0 ON-SITE MATERIAL

Max. Dry Density 137.5 lbs./cu. ft. Optimum Moisture 9.7 % Method of Test ASTM D1557
ASTM D2922

Standard Count Density: 2895 Moisture: 693

Serial # Troxler 27299 NUC 3440

DATE OF TEST	TEST NO	TEST LOCATION	DEPTH	% COARSE PARTICLES	ADJ. MAX. DENS.	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU.FT.)		% COMPACTION
								WET	DRY	
5-14	SF 81	GRIDS 10 AT C.5 (BACKFILL TO TOP OF FOOTINGS)				142.0	6.7	141.0	132.1	96
5-14	SF 82	GRIDS 10 AT D.5 (BACKFILL TO TOP OF FOOTINGS)				142.0	5.6	139.0	131.6	96
5-14	SF 83	GRIDS 9 AT O				131.0	7.1	143.8	134.3	98
5-14	SF 84	GRIDS 10A AT O				132.0	4.8	140.0	133.6	97
5-14	SF 85	GRIDS 10 AT O				133.0	4.8	136.1	129.9	94

Density & Moisture Counts
SF 81
SF 82
SF 83
SF 84
SF 85

Remarks:
95% REQUIRED.

cc: MELVIN MARKS DEVELOPMENT - CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS INC - LEONARD
PENCE KELLY CONSTRUCTION INC - STEVE SCH
CITY OF SALEM BLDG & SAFETY DIV - LARRY
MARION COUNTY FACILITIES MANAGEMENT - BO
CENTURY WEST ENGINEERING - TIMOTHY T TER
CENTURY WEST - MATT ROGERS

Tested by G. COOPER /LRO

Reviewed By Brian Leach
Project Manager
CARLSON TESTING INC.

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Job No. 99-S1132

May 25, 1999

REPORT OF IN-PLACE DENSITY TESTS

Client SALEM AREA MASS TRANSIT DISTRICT

Permit No: 401418

Project SALEM COURTHOUSE SQUARE
555 COURT STREET NE SALEM OR

Material Description 2 1/2"-0 ON-SITE MATERIAL

Max. Dry Density 137.5 lbs./cu. ft. Optimum Moisture 9.7 % Method of Test ASTM D1557
ASTM D2922

Standard Count Density: 2906 Moisture: 695 Serial Troxler 27299 NUC 3440

DATE OF TEST	TEST NO	TEST LOCATION	DEPTH	% COARSE PARTICLES	ADJ. MAX. DENS.	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU.FT.)		% COMPACTION
								WET	DRY	
5-17	SF 86	GRIDS 10A AT J				138.5	4.6	136.4	130.4	95
5-17	SF 87	GRIDS 10A AT O				134.0	4.4	135.9	130.2	95
5-17	SF 88	GRIDS 9 AT O				135.0	4.1	135.2	129.9	94
5-17	SF 89	GRIDS 10 AT O				136.0	4.7	136.8	130.7	95
5-17	SF 90	GRIDS 9 AT O				137.0	5.8	142.0	134.2	98

Remarks:
95% REQUIRED.

Density & Moisture Counts
SF 86
SF 87
SF 88
SF 89
SF 90

cc: MELVIN MARKS DEVELOPMENT - CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS INC - LEONARD
PENCE KELLY CONSTRUCTION INC - STEVE SCH
CITY OF SALEM BLDG & SAFETY DIV - LARRY
MARION COUNTY FACILITIES MANAGEMENT - BO
CENTURY WEST ENGINEERING - TIMOTHY T TER
CENTURY WEST - MATT ROGERS

Tested by G. COOPER /LRO

Reviewed By Brian Leach CARLSON TESTING INC.
Project Manager

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JOB NO. 99-S1132

May 25, 1999

REPORT OF IN-PLACE DENSITY TESTS

Client SALEM AREA MASS TRANSIT DISTRICT

Permit No: 401418

Project SALEM COURTHOUSE SQUARE
555 COURT STREET NE SALEM OR

Material Description 2 1/2"-0 ON-SITE MATERIAL

Max. Dry Density 137.5 lbs./cu. ft. Optimum Moisture 9.7 % Method of Test ASTM D1557
ASTM D2922

Standard Count Density: 2805 Moisture: 691 Serial# Troxler 27337 NUC 3440

DATE OF TEST	TEST NO	TEST LOCATION DEPTH	% COARSE PARTICLES	ADJ. MAX. DENS.	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU.FT.) WET	DRY	% COMPACTION
5-18	SF 91	GRIDS 12 AT F			133.0	6.1	141.2	133.1	97
5-18	SF 92	GRIDS 10A AT H			140.5	4.4	141.0	135.1	98
5-18	SF 93	GRIDS 11 AT G			134.0	5.8	138.4	130.8	95
5-19	SF 94	GRIDS 10A.5 AT E			135.0	6.1	139.0	131.0	95
5-19	SF 95	GRIDS 11 AT F			135.0	6.9	140.6	131.5	96
5-19	SF 96	GRIDS 12 AT G			136.0	5.9	139.6	131.8	96
5-19	SF 97	GRIDS 11 AT H			136.0	5.0	138.9	132.3	96
5-19	SF 98	GRIDS 12.25 AT G.5			137.0	3.6	135.9	131.2	95
5-19	SF 99	GRIDS 11 AT E.5			137.0	3.9	135.3	130.2	95
5-19	SF 100	GRIDS H.5 AT 13 (BACK FILL AROUND CRARE PAD)			140.0	7.3	142.2	132.5	96

Remarks:

95% REQUIRED.

cc: MELVIN MARKS DEVELOPMENT - CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS INC - LEONARD
PENCE KELLY CONSTRUCTION INC - STEVE SCH
CITY OF SALEM BLDG & SAFETY DIV - LARRY
MARION COUNTY FACILITIES MANAGEMENT - BO
CENTURY WEST ENGINEERING - TIMOTHY T TER
CENTURY WEST - MATT ROGERS

Density & Moisture Counts

SF 91
SF 92
SF 93
SF 94
SF 95

SF 96
SF 97
SF 98
SF 99
SF100

Tested by G. COOPER /LRO

Reviewed By Brian Leach
Project Manager
CARLSON TESTING INC.

Our reports pertain to the material tested/inspected only.

Carlson Testing, Inc.

Construction Inspection & Related Tests
Geotechnical Consulting

P.O. Box 23814
Tigard, Oregon 97281
Phone (503) 684-3460
FAX (503) 684-0954

OB NO. 99-S1132

May 25, 1999

REPORT OF IN-PLACE DENSITY TESTS

Client SALEM AREA MASS TRANSIT DISTRICT

Permit No: 401418

Project SALEM COURTHOUSE SQUARE
555 COURT STREET NE SALEM OR

Material Description 2 1/2"-0 ON-SITE MATERIAL

Max. Dry Density 137.5 lbs./cu. ft. Optimum Moisture 9.7 % Method of Test AASHTO T-180
ASTM D2922

Standard Count Density: 2896 Moisture: 693 Serial # Troxler 27299 NUC 3440

DATE OF TEST	TEST NO	TEST LOCATION	DEPTH	% COARSE PARTICLES	ADJ. MAX. DENS.	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU.FT.) WET	DRY	% COMPACTION
5-11	SF 70	GRID "O" AT 11				135.0	5.6	138.2	130.9	95
5-11	SF 71	GRID "O" AT 11				136.0	5.7	137.6	130.2	95
5-11	SF 72	GRID "O" AT 11				137.0	6.1	139.6	131.6	96
5-11	SF 73	GRID "O" AT 11				138.0	6.6	142.3	133.5	97
5-11	SF 74	GRID "O" AT 11				139.0	5.2	137.3	130.5	95
5-11	SF 75	GRID "O" AT 11				140.0	6.2	141.9	133.6	97
5-12	SF 76	GRIDS 10 AT G				136.5	5.3	138.7	131.7	96
5-12	SF 77	GRIDS 10A AT H				137.5	6.0	138.3	130.5	95
5-12	SF 78	GRIDS 10 AT F.5				138.5	5.9	138.5	130.8	95
5-12	SF 79	GRIDS 10 AT H				139.5	5.3	138.4	131.4	96

Remarks:

95% REQUIRED.

Density & Moisture Counts

SF 70	SF 75
SF 71	SF 76
SF 72	SF 77
SF 73	SF 78
SF 74	SF 79

cc: MELVIN MARKS DEVELOPMENT - CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS INC - LEONARD
PENCE KELLY CONSTRUCTION INC - STEVE SCH
CITY OF SALEM BLDG & SAFETY DIV - LARRY
MARION COUNTY FACILITIES MANAGEMENT - BO
CENTURY WEST ENGINEERING - TIMOTHY T TER
CENTURY WEST - MATT ROGERS

Tested by G. COOPER /LRO

Reviewed By CARLSON TESTING INC.
Brian Leach
Project Manager

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REPORT OF IN-PLACE DENSITY TESTS

Client SALEM AREA MASS TRANSIT DISTRICT

Permit No: 401418

Project SALEM COURTHOUSE SQUARE
555 COURT STREET NE SALEM OR

Material Description 2 1/2"-0 ON-SITE MATERIAL

Max. Dry Density 137.5 lbs./cu. ft. Optimum Moisture 9.7 % Method of Test AASHTO T-180
ASTM D2922

Standard Count Density: 2896 Moisture: 693 Serial # Troxler 27299 NUC 3440

DATE OF TEST	TEST NO	TEST LOCATION DEPTH	% COARSE PARTICLES	ADJ. MAX. DENS.	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU.FT.) WET	DRY	% COMPACTION
5-12	SF 80	GRIDS 10A AT G			140.5	6.0	139.1	131.2	95

Remarks:
95% REQUIRED.

cc: MELVIN MARKS DEVELOPMENT - CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS INC - LEONARD
PENCE KELLY CONSTRUCTION INC - STEVE SCH
CITY OF SALEM BLDG & SAFETY DIV - LARRY
MARION COUNTY FACILITIES MANAGEMENT - BO
CENTURY WEST ENGINEERING - TIMOTHY T TER
CENTURY WEST - MATT ROGERS

Density & Moisture Counts
SF 80

Tested by G. COOPER /LRO

Reviewed By Brian Leach
Project Manager
CARLSON TESTING INC.

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May 26, 1999

REPORT OF IN-PLACE DENSITY TESTS

Client SALEM AREA MASS TRANSIT DISTRICT

Permit No: 401418

Project SALEM COURTHOUSE SQUARE
555 COURT STREET NE SALEM OR

Material Description 2 1/2"-0 ON-SITE MATERIAL

Max. Dry Density 137.5 lbs./cu. ft. Optimum Moisture 9.7 % Method of Test AASHTO T-180
ASTM D2922

Standard Count Density: 2793 Moisture: 698 Serial #Troxler 27337 NUC 3440

DATE OF TEST	TEST NO	TEST LOCATION	DEPTH	% COARSE PARTICLES	ADJ. MAX. DENS.	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU.FT.) WET	DRY	% COMPACTION
5-20	SF 101	GRIDS F AT 11 (BOTTOM OF FOOTING ELEVATION)				140.0	5.6	138.8	131.4	96
5-20	SF 102	GRIDS G AT 11 (BOTTOM OF FOOTING ELEVATION)				140.0	5.5	140.4	133.1	97

Remarks:
95% REQUIRED.

Density & Moisture Counts
SF101
SF102

cc: MELVIN MARKS DEVELOPMENT - CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS INC - LEONARD
PENCE KELLY CONSTRUCTION INC - STEVE SCH
CITY OF SALEM BLDG & SAFETY DIV - LARRY
MARION COUNTY FACILITIES MANAGEMENT - BO
CENTURY WEST ENGINEERING - TIMOTHY T TER
CENTURY WEST - MATT ROGERS

Tested by G. COOPER /LRO

Reviewed By Brian Leach
Project Manager
CARLSON TESTING INC.

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May 26, 1999

REPORT OF IN-PLACE DENSITY TESTS

Client SALEM AREA MASS TRANSIT DISTRICT

Permit No: 401418

Project SALEM COURTHOUSE SQUARE
555 COURT STREET NE SALEM OR

Material Description 2 1/2"-0 ON-SITE MATERIAL

Max. Dry Density 137.5 lbs./cu. ft. Optimum Moisture 9.7 % Method of Test ASTM D1557
ASTM D2922

Standard Count Density: 2797 Moisture: 687 Serial Troxler 27299 NUC 3440

DATE OF TEST	TEST NO	TEST LOCATION DEPTH	% COARSE PARTICLES	ADJ. MAX. DENS.	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU.FT.)		% COMPACTION
							WET	DRY	
5-24	SF 103	GRIDS 10.5 AT M			138.0	4.6	141.9	135.7	99

Remarks:
95% REQUIRED.

Density & Moisture Counts
SF103

cc: MELVIN MARKS DEVELOPMENT - CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS INC - LEONARD
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CITY OF SALEM BLDG & SAFETY DIV - LARRY
MARION COUNTY FACILITIES MANAGEMENT - BO
CENTURY WEST ENGINEERING - TIMOTHY T TER
CENTURY WEST - MATT ROGERS

Tested by G. COOPER /LRO

Reviewed By Brian Leach CARLSON TESTING INC
Project Manager

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May 26, 1999

REPORT OF IN-PLACE DENSITY TESTS

Client SALEM AREA MASS TRANSIT DISTRICT

Permit No: 401418

Project SALEM COURTHOUSE SQUARE
555 COURT STREET NE SALEM OR

Material Description 2 1/2"-0 ON-SITE MATERIAL

Max. Dry Density 137.5 lbs./cu. ft. Optimum Moisture 9.7 % Method of Test ASTM D1557
ASTM D2922

Standard Count Density: 2804 Moisture: 681 Serial# Troxler 27299 NUC 3440

DATE OF TEST	TEST NO	TEST LOCATION	DEPTH	% COARSE PARTICLES	ADJ. MAX. DENS.	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU.FT.) WET	DRY	% COMPACTION
5-25	SF 104	GRIDS L AT 11				139.0	7.4	140.6	130.9	95
5-25	SF 105	GRIDS K AT 12				139.0	5.8	137.8	130.2	95
5-25	SF 106	GRIDS K.5 AT 12.5				140.0	6.4	138.6	130.3	95
5-25	SF 107	GRIDS L.25 AT 10.25				140.0	5.4	140.4	133.2	97

Remarks:

95% REQUIRED.

cc: MELVIN MARKS DEVELOPMENT - CRAIG LEWIS
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PENCE KELLY CONSTRUCTION INC - STEVE SCH
CITY OF SALEM BLDG & SAFETY DIV - LARRY
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CENTURY WEST ENGINEERING - TIMOTHY T TER
CENTURY WEST - MATT ROGERS

Density & Moisture Counts
SF104
SF105
SF106
SF107

Brian Leach

Tested by G. COOPER /LRO

Reviewed By Project Manager CARLSON TESTING INC.

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JOB NO. 99-S1132

Jun 07, 1999

REPORT OF IN-PLACE DENSITY TESTS

Client SALEM AREA MASS TRANSIT DISTRICT

Permit No: 401418

Project SALEM COURTHOUSE SQUARE
555 COURT STREET NE SALEM OR

Material Description 2 1/2"-0 ON-SITE MATERIAL

Max. Dry Density 137.5 lbs./cu. ft. Optimum Moisture 9.7 % Method of Test AASHTO T-180
ASTM D2922

Standard Count Density: 3021 Moisture: 554 Serial # Troxler 23538 NUC 3440

DATE OF TEST	TEST NO	TEST LOCATION	DEPTH	% COARSE PARTICLES	ADJ. MAX. DENS.	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU.FT.) WET	DRY	% COMPACTION
5-28	SF 108	N/12 BOTTOM OF FOOTING				150.0	6.9	146.6	137.1	100
5-28	SF 109	G/9 BOTTOM OF FOOTING				150.0	7.0	133.8	125.0	91
5-28	SF 109A	G/9 RETEST OF 109				150.0	7.7	143.2	133.0	97
5-28	SF 110	H/9 BOTTOM OF FOOTING				150.0	6.8	131.5	123.1	90
5-28	SF 110A	H/9 RETEST OF #110				150.0	6.8	139.7	130.8	95
5-28	SF 111	H/9 + G/9 BOTTOM OF FOOTING				150.0	7.0	146.7	137.1	100

Remarks:
95% REQUIRED.

cc: MELVIN MARKS DEVELOPMENT - CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS INC - LEONARD
PENCE KELLY CONSTRUCTION INC - STEVE SCH
CITY OF SALEM BLDG & SAFETY DIV - LARRY
MARION COUNTY FACILITIES MANAGEMENT - BO
CENTURY WEST ENGINEERING - TIMOTHY T TER
CENTURY WEST - MATT ROGERS

Density & Moisture Counts

SF108	3021, 554	SF111	3021, 55
SF109	3021, 554		
SF109A	3021, 554		
SF110	3021, 554		
SF110A	3021, 554		

Tested by B. PERRY /LRO

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Jun 09, 1999

REPORT OF IN-PLACE DENSITY TESTS

Client SALEM AREA MASS TRANSIT DISTRICT

Permit No: 401418

Project SALEM COURTHOUSE SQUARE
555 COURT STREET NE SALEM OR

Material Description 2 1/2"-0 ON-SITE MATERIAL

Max. Dry Density 137.5 lbs./cu. ft. Optimum Moisture 9.7 % Method of Test ASTM D1557
ASTM D2922

Standard Count Density: 2896 Moisture: 693 Serial # Troxler 27299 NUC 3440

DATE OF TEST	TEST NO	TEST LOCATION	DEPTH	% COARSE PARTICLES	ADJ. MAX. DENS.	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU.FT.) WET	DRY	% COMPACTION
6- 2	SF 112	"N1" LINE AT "10.0" LINE				136.8	5.6	140.1	132.7	96
6- 2	SF 113	"N1" LINE AT "10.0" LINE				137.8	5.1	139.3	132.5	96
6- 2	SF 114	"N1" LINE AT "10.0" LINE				138.8	5.9	140.8	133.0	97
6- 2	SF 115	"N1" LINE AT "10.0" LINE				139.8	6.2	146.4	137.9	100+

Remarks:
95% REQUIRED.
cc: MELVIN MARKS DEVELOPMENT - CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS INC - LEONARD
PENCE KELLY CONSTRUCTION INC - STEVE SCH
CITY OF SALEM BLDG & SAFETY DIV - LARRY
MARION COUNTY FACILITIES MANAGEMENT - BO
CENTURY WEST ENGINEERING - TIMOTHY T TER
CENTURY WEST - MATT ROGERS

Density & Moisture Counts
SF112
SF113
SF114
SF115

Douglas
PRESIDENT

Tested by T. VANN /LRO

Reviewed By CARLSON TESTING INC.

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JC). 99-S1132

AMENDED REPORT 6-9-99

Jun 09, 1999

REPORT OF IN-PLACE DENSITY TESTS

Client SALEM AREA MASS TRANSIT DISTRICT

Permit No: 401418

Project SALEM COURTHOUSE SQUARE
555 COURT STREET NE SALEM OR

Material Description 2 1/2"-0 ON-SITE MATERIAL

Max. Dry Density 137.5 lbs./cu. ft. Optimum Moisture 9.7 % Method of Test ASTM D1557
ASTM D2922

Standard Count Density: 2906 Moisture: 695

Serial Troxler 27299 NUC 3440

DATE OF TEST	TEST NO	TEST LOCATION	DEPTH	% COARSE PARTICLES	ADJ. MAX. DENS.	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU.FT.) WET	DRY	% COMPACTION
5-17	SF 86	GRIDS 10A AT J				138.5	4.6	136.4	130.4	95
5-17	SF 87	GRIDS 10A AT O				134.0	4.4	135.9	130.2	95
5-17	SF 88	GRIDS 9 AT O				135.0	4.1	135.2	129.9	95
5-17	SF 89	GRIDS 10 AT O				136.0	4.7	136.8	130.7	95
5-17	SF 90	GRIDS 9 AT O				137.0	5.8	142.0	134.2	98

Remarks:

95% REQUIRED.

cc: MELVIN MARKS DEVELOPMENT - CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS INC - LEONARD
PENCE KELLY CONSTRUCTION INC - STEVE SCH
CITY OF SALEM BLDG & SAFETY DIV - LARRY
MARION COUNTY FACILITIES MANAGEMENT - BO
CENTURY WEST ENGINEERING - TIMOTHY T TER
CENTURY WEST - MATT ROGERS

Density & Moisture Counts
SF 86
SF 87
SF 88
SF 89
SF 90

Tested by G. COOPER /LRO

Reviewed By Brian Leach
Brian Leach
Project Manager
CARLSON TESTING INC.

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Job 99-S1132

AMENDED REPORT 6-9-99

Jun 09, 1999

REPORT OF IN-PLACE DENSITY TESTS

Client SALEM AREA MASS TRANSIT DISTRICT

Permit No: 401418

Project SALEM COURTHOUSE SQUARE
555 COURT STREET NE SALEM OR

Material Description 2 1/2"-0 ON-SITE MATERIAL

Max. Dry Density 137.5 lbs./cu. ft. Optimum Moisture 9.7 % Method of Test AASHTO T-180
ASTM D2922

Standard Count Density: 2895 Moisture: 693

Serial # Troxler 27299 NUC 3440

DATE OF TEST	TEST NO	TEST LOCATION DEPTH	% COARSE PARTICLES	ADJ. MAX. DENS.	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU.FT.)		% COMPACTION
							WET	DRY	
5-14	SF 81	GRIDS 10 AT C.5 (BACKFILL TO TOP OF FOOTINGS)			142.0	6.7	141.0	132.1	96
5-14	SF 82	GRIDS 10 AT D.5 (BACKFILL TO TOP OF FOOTINGS)			142.0	5.6	139.0	131.6	96
5-14	SF 83	GRIDS 9 AT O			131.0	7.1	143.8	134.3	98
5-14	SF 84	GRIDS 10A AT O			132.0	4.8	140.0	133.6	97
5-14	SF 85	GRIDS 10 AT O			133.0	4.8	136.1	129.9	95

Remarks:

95% REQUIRED.

cc: MELVIN MARKS DEVELOPMENT - CRAIG LEWIS
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CITY OF SALEM BLDG & SAFETY DIV - LARRY
MARION COUNTY FACILITIES MANAGEMENT - BO
CENTURY WEST ENGINEERING - TIMOTHY T TER
CENTURY WEST - MATT ROGERS

Density & Moisture Counts
SF 81
SF 82
SF 83
SF 84
SF 85

Tested by G. COOPER /LRO

Reviewed By CARLSON TESTING INC.

Brian Leach
Project Manager

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No. 99-S1132

Jun 17, 1999

REPORT OF IN-PLACE DENSITY TESTS

Client SALEM AREA MASS TRANSIT DISTRICT

Permit No: 401418

Project SALEM COURTHOUSE SQUARE
555 COURT STREET NE SALEM OR

Material Description 2 1/2"-0 ON-SITE MATERIAL

Max. Dry Density 137.5 lbs./cu. ft. Optimum Moisture 9.7 % Method of Test ASTM D1557
ASTM D2922

Standard Count Density: 2906 Moisture: 695 Serial# Troxler 27299 NUC 3440

DATE OF TEST	TEST NO	TEST LOCATION DEPTH	% COARSE PARTICLES	ADJ. MAX. DENS.	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU.FT.) WET	DRY	% COMPACTION
6-11	SF 127	STRUCTURAL FILL AT FOOTINGS 10 LINE BETWEEN G AND H LINE			140.8	5.1	139.9	133.1	97
6-11	SF 128	H LINE BETWEEN 10A AND 11.0 LINE			140.8	5.7	139.1	131.6	96
6-11	SF 129	BETWEEN G AND H LINE AND 10A AND 11.0 LINE			141.8	5.3	138.6	131.6	96
6-11	SF 130	BETWEEN G AND H LINE AND 10A AND 11.0 LINE			142.8	6.0	141.1	133.1	97
6-11	SF 131	G LINE BETWEEN 10A AND 11.0 LINE			141.8	5.7	139.2	131.7	96
6-11	SF 132	G LINE BETWEEN 10A AND 11.0 LINE			142.8	5.3	140.2	133.1	97
6-11	SF 133	BETWEEN H AND I LINE AT 10A LINE			140.8	5.9	140.6	132.8	97
6-11	SF 134	BETWEEN H AND I LINE AT 11.0 AND 12.0 LINE			139.8	5.4	138.8	131.7	96
6-11	SF 135	BETWEEN H AND I LINE AT 11.0 AND 12.0 LINE			140.8	6.3	142.2	133.8	97

Remarks:
95% REQUIRED.

cc: MELVIN MARKS DEVELOPMENT - CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS INC - LEONARD
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CENTURY WEST ENGINEERING - TIMOTHY T TER
CENTURY WEST - MATT ROGERS

Density & Moisture Counts
SF127
SF128
SF129
SF130
SF131
SF132
SF133
SF134
SF135

Tested by T. VANN /LRO

Reviewed By PRESIDENT

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Job No. 99-S1132

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REPORT OF IN-PLACE DENSITY TESTS

Client SALEM AREA MASS TRANSIT DISTRICT

Permit No: 401418

Project SALEM COURTHOUSE SQUARE
555 COURT STREET NE SALEM OR

Material Description 2 1/2"-0 ON-SITE MATERIAL

Max. Dry Density 137.5 lbs./cu. ft. Optimum Moisture 9.7 % Method of Test ASTM D1557
ASTM D2922

Standard Count Density: Moisture: Serial# Troxler 27299 NUC 3440

DATE OF TEST	TEST NO	TEST LOCATION DEPTH	% COARSE PARTICLES	ADJ. MAX. DENS.	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU.FT.)		% COMPACTION
							WET	DRY	
6-11	SF 122	BETWEEN H AND I LINE AT 10A LINE			141.8	6.1	143.0	134.8	98
6-11	SF 123	BETWEEN H AND I LINE AT 12 LINE			139.8	6.2	141.6	133.3	97
6-11	SF 124	BETWEEN H AND I LINE AT 11 AND 12 LINE			140.8	6.0	140.0	132.1	96
[illegible]-11	SF 125	BETWEEN H AND I LINE AT 10A LINE			142.8	5.7	138.8	131.3	96
6-11	SF 126	BETWEEN H AND I LINE AT 11 AND 12.0 LINE			142.8	5.2	139.0	132.1	96

Remarks:
95% REQUIRED.

cc: MELVIN MARKS DEVELOPMENT - CRAIG LEWIS
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CENTURY WEST ENGINEERING - TIMOTHY T TER
CENTURY WEST - MATT ROGERS

Density & Moisture Counts
SF122
SF123
SF124
SF125
SF126

Tested by T. VANN /LRO

Reviewed By Douglas w [illegible]
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No. 99-S1132

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REPORT OF IN-PLACE DENSITY TESTS

Client SALEM AREA MASS TRANSIT DISTRICT

Permit No: 401418

Project SALEM COURTHOUSE SQUARE
555 COURT STREET NE SALEM OR

Material Description 2 1/2"-0 ON-SITE MATERIAL

Max. Dry Density 137.5 lbs./cu. ft. Optimum Moisture 9.7 % Method of Test AASHTO T-180
ASTM D2922

Standard Count Density: 2896 Moisture: 696 Serial # Troxler 27299 NUC 3440

DATE OF TEST	TEST NO	TEST LOCATION DEPTH	% COARSE PARTICLES	ADJ. MAX. DENS.	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU.FT.)		% COMPACTION
							WET	DRY	
6-10	SF 116	VAULT BACKFILL AREA BETWEEN STRUCTURAL FILL AND FOOTINGS (4.0 & 5.0) AND (G & H) LINE			141.0	6.2	142.2	133.9	97
6-10	SF 117	VAULT BACKFILL AREA BETWEEN STRUCTURAL FILL AND FOOTINGS (D & E) LINE AT 11.0 LINE			139.0	5.7	141.6	134.0	97
6-10	SF 118	VAULT BACKFILL AREA BETWEEN STRUCTURAL FILL AND FOOTINGS (D & E) LINE AT 12 LINE			139.0	5.2	140.0	133.1	97
6-10	SF 119	VAULT BACKFILL AREA BETWEEN STRUCTURAL FILL & FOOTINGS (E & 4) LINE BETWEEN 10A & 11 L			139.8	6.1	140.7	132.6	96
6-10	SF 120	VAULT BACKFILL AREA BETWEEN STRUCTURAL FILL & FOOTINGS H LINE BETWEEN 10A AND 11.0 LI			139.8	5.8	139.8	132.1	96
6-10	SF 121	VAULT BACKFILL AREA BETWEEN STRUCTURAL FILL & FOOTINGS BETWEEB G & H LINE & 10A & 11			140.8	6.0	141.9	133.9	97

Remarks:
95% REQUIRED.

cc: MELVIN MARKS DEVELOPMENT - CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS INC - LEONARD
PENCE KELLY CONSTRUCTION INC - STEVE SCH
CITY OF SALEM BLDG & SAFETY DIV - LARRY
MARION COUNTY FACILITIES MANAGEMENT - BO
CENTURY WEST ENGINEERING - TIMOTHY T TER
CENTURY WEST - MATT ROGERS

Density & Moisture Counts
SF116
SF117
SF118
SF119
SF120
SF121

Tested by T. VANN /LRO

Reviewed By Douglas W Roach
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99-S1132

Jun 21, 1999

REPORT OF IN-PLACE DENSITY TESTS

Client SALEM AREA MASS TRANSIT DISTRICT

Permit No: 401418

Project SALEM COURTHOUSE SQUARE
555 COURT STREET NE SALEM OR

Material Description 2 1/2"-0 ON-SITE MATERIAL

Max. Dry Density 137.5 lbs./cu. ft. Optimum Moisture 9.7 % Method of Test ASTM D1557
ASTM D2922

Standard Count Density: 2780 Moisture: 683 Serial # Troxler 27337 NUC 3440

DATE OF TEST	TEST NO	TEST LOCATION DEPTH	% COARSE PARTICLES	ADJ. MAX. DENS.	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU.FT.) WET	DRY	% COMPACTION
6-16	SF 150	GRID C AT 8.5			140	7.2	144.6	134.9	98
6-16	SF 151	GRID C.5 AT 8.5			140	6.9	142.4	133.2	97

Remarks:
95% REQUIRED.
cc: MELVIN MARKS DEVELOPMENT - CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS INC - LEONARD
PENCE KELLY CONSTRUCTION INC - STEVE SCH
CITY OF SALEM BLDG & SAFETY DIV - LARRY
MARION COUNTY FACILITIES MANAGEMENT - BO
CENTURY WEST ENGINEERING - TIMOTHY T TER
CENTURY WEST - MATT ROGERS

Density & Moisture Counts
SF150
SF151

Tested by R. COLLINS /LRO

Reviewed By Douglas W. Roach PRESIDENT CARLSON TESTING INC

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Jun 21, 1999

REPORT OF IN-PLACE DENSITY TESTS

Client SALEM AREA MASS TRANSIT DISTRICT

Permit No: 401418

Project SALEM COURTHOUSE SQUARE
555 COURT STREET NE SALEM OR

Material Description 2 1/2"-0 ON-SITE MATERIAL

Max. Dry Density 137.5 lbs./cu. ft. Optimum Moisture 9.7 % Method of Test AASHTO T-180
ASTM D2922

Standard Count Density: 2804 Moisture: 682 Serial Troxler 27337 NUC 3440

DATE OF TEST	TEST NO	TEST LOCATION DEPTH	% COARSE PARTICLES	ADJ. MAX. DENS.	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU.FT.) WET	DRY	% COMPACTION
6-15	SF 136	GRID H AT 10A			138	3.6	135.2	130.5	95
6-15	SF 137	GRID G AT 10A			138	4.0	135.2	130.0	95
6-15	SF 138	GRID C AT 8			131	5.7	142.7	135.0	98
6-15	SF 139	GRID C.5 AT 7.5			132	4.1	141.2	135.6	99
6-15	SF 140	GRID C AT 8			132	4.8	141.6	135.1	98
6-15	SF 141	GRID C.5 AT 8			133	4.0	137.1	131.8	96
6-15	SF 142	GRID C AT 7.5			133	4.3	137.2	131.5	96
6-15	SF 143	GRID C AT 7			136	5.0	137.2	130.7	95
6-15	SF 144	GRID C AT 7.5			136	5.3	137.8	130.9	95
6-15	SF 145	GRID C AT 8			138	4.8	137.8	131.5	96

Remarks:

95% REQUIRED.

cc: MELVIN MARKS DEVELOPMENT - CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS INC - LEONARD
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CENTURY WEST - MATT ROGERS

Density & Moisture Counts

SF136
SF137
SF138
SF139
SF140

SF141
SF142
SF143
SF144
SF145

Tested by R. COLLINS /LRO

Reviewed By Douglas W.
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REPORT OF IN-PLACE DENSITY TESTS

Client SALEM AREA MASS TRANSIT DISTRICT

Permit No: 401418

Project SALEM COURTHOUSE SQUARE
555 COURT STREET NE SALEM OR

Material Description 2 1/2"-0 ON-SITE MATERIAL

Max. Dry Density 137.5 lbs./cu. ft. Optimum Moisture 9.7 % Method of Test AASHTO T-180
ASTM D2922

Standard Count Density: 2804 Moisture: 682 Serial Troxler 27337 NUC 3440

DATE OF TEST	TEST NO	TEST LOCATION	DEPTH	% COARSE PARTICLES	ADJ. MAX. DENS.	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU.FT.)		% COMPACTION
								WET	DRY	
6-15	SF 146	GRID C.5 AT 8				138	4.4	136.4	130.7	95
6-15	SF 147	GRID C AT 7.5				140+	3.5	135.4	130.8	95
6-15	SF 148	GRID C.5 AT 8				140+	4.5	142.9	136.7	99

Remarks:
95% REQUIRED.

cc: MELVIN MARKS DEVELOPMENT - CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS INC - LEONARD
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CITY OF SALEM BLDG & SAFETY DIV - LARRY
MARION COUNTY FACILITIES MANAGEMENT - BO
CENTURY WEST ENGINEERING - TIMOTHY T TER
CENTURY WEST - MATT ROGERS

Density & Moisture Counts
SF146
SF147
SF148

Tested by R. COLLINS /LRO

Reviewed By Douglas w
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Jun 21, 1999

REPORT OF IN-PLACE DENSITY TESTS

Client SALEM AREA MASS TRANSIT DISTRICT

Permit No: 401418

Project SALEM COURTHOUSE SQUARE
555 COURT STREET NE SALEM OR

Material Description 1"-0 CRUSHED ROCK FROM RIVER BEND SAND & GRAVEL

Max. Dry Density 138.2 lbs./cu. ft. Optimum Moisture 8.8 % Method of Test ASTM D1557
ASTM D2922

Standard Count Density: 2804 Moisture: 682 Serial Troxler 27337 NUC 3440

DATE OF TEST	TEST NO	TEST LOCATION	DEPTH	% COARSE PARTICLES	ADJ. MAX. DENS.	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU.FT.) WET	DRY	% COMPACTION
6-15	SF 149	GRID B AT 12.75				138	3.6	135.5	130.8	95

Remarks:

Density & Moisture Counts
SF149

cc: MELVIN MARKS DEVELOPMENT - CRAIG LEWIS
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CITY OF SALEM BLDG & SAFETY DIV - LARRY
MARION COUNTY FACILITIES MANAGEMENT - BO
CENTURY WEST ENGINEERING - TIMOTHY T TER
CENTURY WEST - MATT ROGERS

Tested by R. COLLINS /LRO

Reviewed By Douglas W Roach
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Jun 30, 1999

REPORT OF IN-PLACE DENSITY TESTS

lient SALEM AREA MASS TRANSIT DISTRICT

Permit No: 401418

roject SALEM COURTHOUSE SQUARE
555 COURT STREET NE SALEM OR

aterial Description 2 1/2"-0 ON-SITE MATERIAL

ax. Dry Density 137.5 lbs./cu. ft. Optimum Moisture 9.7 % Method of Test AASHTO T-180
ASTM D2922

Standard Count Density: 2904 Moisture: 696 Serial# Troxler 27337 NUC 3440

DATE OF TEST	TEST NO	TEST LOCATION DEPTH	% COARSE PARTICLES	ADJ. MAX. DENS.	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU.FT.) WET	DRY	% COMPACTION
6-22	SF 170	BACKFILL AT OVER EXC AREAS APPROX LOCATIONS BETWEEN 6 AND 7.0 LINE			139.0	4.9	138.5	132.0	96
6-22	SF 171	BACKFILL AT OVER EXC AREAS APPROX LOCATIONS BETWEEN M & N LINE AND 6.0 AND 7.0 LINE			140.0	5.3	138.2	131.2	95
6-22	SF 172	BACKFILL AT OVER EXC AREAS APPROX LOCATIONS BETWEEN M & N LINE AND 6.0 AND 7.0 LINE			141.0	5.0	138.6	132.0	96
6-22	SF 173	BACKFILL AT OVER EXC AREAS APPROX LOCATIONS BETWEEN M & N LINE AND 5.0 TO 6.0 LINE			139.0	5.6	140.2	132.8	97
6-22	SF 174	BACKFILL AT OVER EXC AREAS APPROX LOCATIONS BETWEEN N & O LINE AND 5.0 TO 6.0 LINE			140.0	4.7	137.9	131.7	96
6-22	SF 175	BACKFILL AT OVER EXC AREAS APPROX LOCATIONS BETWEEN N & O LINE AND 6.0 TO 7.0 LINE			140.0	4.9	138.4	131.9	96
6-22	SF 176	BACKFILL AT OVER EXC AREAS APPROX LOCATIONS BETWEEN M & N LINE AND 5.0 TO 6.0 LINE			140.0	5.1	139.7	132.9	97
6-22	SF 177	BACKFILL AT OVER EXC AREAS APPROX LOCATIONS BETWEEN M & N LINE AND 5.0 TO 6.0 LINE			141.0	6.7	142.8	133.8	97
6-22	SF 178	BACKFILL AT OVER EXC AREAS APPROX LOCATIONS BETWEEN N & O LINE AND 6.0 TO 7.0 LINE			141.0	6.9	144.0	134.7	98
6-22	SF 179	BACKFILL AT OVER EXC AREAS APPROX LOCATIONS BETWEEN N & O LINE AND 6.0 TO 7.0 LINE			142.0	6.0	141.3	133.3	97

Remarks:

95% REQUIRED.

cc: MELVIN MARKS DEVELOPMENT - CRAIG LEWIS
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PENCE KELLY CONSTRUCTION INC - STEVE SCH
CITY OF SALEM BLDG & SAFETY DIV - LARRY
MARION COUNTY FACILITIES MANAGEMENT - BO
CENTURY WEST ENGINEERING - TIMOTHY T TER
CENTURY WEST - MATT ROGERS

Density & Moisture Counts

SF170
SF171
SF172
SF173
SF174
SF175
SF176
SF177
SF178
SF179

Brian Leach

Tested by T. VANN /LRO

Reviewed By Brian Leach
Project Manager
CARLSON TESTING INC.

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JOB NO. 99-S1132

Jun 30, 1999

REPORT OF IN-PLACE DENSITY TESTS

Client SALEM AREA MASS TRANSIT DISTRICT

Permit No: 401418

Project SALEM COURTHOUSE SQUARE
555 COURT STREET NE   SALEM OR

Material Description 2 1/2"-0 ON-SITE MATERIAL

Max. Dry Density 137.5 lbs./cu. ft.   Optimum Moisture 9.7 %   Method of Test AASHTO T-180
ASTM D2922

Standard Count Density: 2904   Moisture: 696   Serial #Troxler 27337 NUC 3440

DATE OF TEST	TEST NO	TEST LOCATION DEPTH	% COARSE PARTICLES	ADJ. MAX. DENS.	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU.FT.)		% COMPACTION
							WET	DRY	
6-22	SF 180	BACKFILL AT OVER EXC AREAS APPROX LOCATIONS BETWEEN M & N LINE AT 5.0 TO 6.0 LINE			142.0	5.7	139.2	131.7	96
6-22	SF 181	BACKFILL AT OVER EXC AREAS APPROX LOCATIONS BETWEEN L & M LINE AT 1.0 AND 2.0 LINE			138.0	5.8	140.1	132.4	96
6-22	SF 182	BACKFILL AT OVER EXC AREAS APPROX LOCATIONS BETWEEN L & M LINE AT 1.0 AND 2.0 LINE			139.2	6.8	142.7	133.6	97
6-22	SF 183	BACKFILL AT OVER EXC AREAS APPROX LOCATIONS BETWEEN L & M LINE AT 1.0 AND 2.0 LINE			140.6	6.2	140.8	132.6	96
6-22	SF 184	BACKFILL AT OVER EXC AREAS APPROX LOCATIONS BETWEEN L & M LINE AT 1.0 AND 2.0 LINE			142.0	6.8	143.3	134.2	98

Remarks:

Density & Moisture Counts
SF180
SF181
SF182
SF183
SF184

95% REQUIRED.

cc: MELVIN MARKS DEVELOPMENT - CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS INC - LEONARD
PENCE KELLY CONSTRUCTION INC - STEVE SCH
CITY OF SALEM BLDG & SAFETY DIV - LARRY
MARION COUNTY FACILITIES MANAGEMENT - BO
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CENTURY WEST - MATT ROGERS

Tested by T. VANN /LRO   Reviewed By Brian Leach CARLSON TESTING INC.
Project Manager

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REPORT OF IN-PLACE DENSITY TESTS

Client SALEM AREA MASS TRANSIT DISTRICT

Permit No: 401418

Project SALEM COURTHOUSE SQUARE
555 COURT STREET NE SALEM OR

Material Description 2 1/2"-0 ON-SITE MATERIAL

Max. Dry Density 137.5 lbs./cu. ft. Optimum Moisture 9.7 % Method of Test AASHTO T-180
ASTM D2922

Standard Count Density: 2898 Moisture: 696 Serial Troxler 27299 NUC 3440

DATE OF TEST	TEST NO	TEST LOCATION	DEPTH	% COARSE PARTICLES	ADJ. MAX. DENS.	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU.FT.)		% COMPACTION
								WET	DRY	
6-21	SF 152	FOOTING "13" LINE AT "N" LINE				142.0	5.3	138.2	131.2	95
6-21	SF 153	BACKFILL AT FOOTINGS BETWEEN K AND L AND 11 AND 12A LINE				142.0	5.3	139.1	132.1	96
6-21	SF 154	BACKFILL AT FOOTINGS BETWEEN L AND M LINE AT 12A LINE				142.0	6.6	140.4	131.7	96
6-21	SF 155	BACKFILL AT FOOTINGS BETWEEN K AND L LINE AND 10A AND 11.0 LINE				142.0	5.3	142.4	135.2	98
6-21	SF 156	BACKFILL AT 11.0 LINE BETWEEN J AND K LINE				137.0	6.0	140.1	132.2	96
6-21	SF 157	BACKFILL AT 12.0 LINE BETWEEN J AND K LINE				137.0	5.1	139.6	132.8	97
6-21	SF 158	BACKFILL AT 11.0 LINE BETWEEN J AND K LINE				138.6	5.7	141.0	133.4	97
6-21	SF 159	BACKFILL AT 12.0 LINE BETWEEN J AND K LINE				138.6	5.2	139.0	132.1	96
6-21	SF 160	BACKFILL AT 12.0 LINE BETWEEN J AND K LINE				139.2	4.6	137.2	131.2	95
6-21	SF 161	BACKFILL AT 12.0 LINE BETWEEN J AND K LINE				140.0	4.6	138.7	132.6	96

Remarks:

95% REQUIRED.

cc: MELVIN MARKS DEVELOPMENT - CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS INC - LEONARD
PENCE KELLY CONSTRUCTION INC - STEVE SCH
CITY OF SALEM BLDG & SAFETY DIV - LARRY
MARION COUNTY FACILITIES MANAGEMENT - BO
CENTURY WEST ENGINEERING - TIMOTHY T TER
CENTURY WEST - MATT ROGERS

Density & Moisture Counts

SF152	SF157
SF153	SF158
SF154	SF159
SF155	SF160
SF156	SF161

Tested by T. VANN /LRO

Reviewed By Brian Leach CARLSON TESTING INC.
Project Manager

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JOB NO. 99-S1132

Jun 30, 1999

REPORT OF IN-PLACE DENSITY TESTS

Client SALEM AREA MASS TRANSIT DISTRICT

Permit No: 401418

Project SALEM COURTHOUSE SQUARE
555 COURT STREET NE SALEM OR

Material Description 2 1/2"-0 ON-SITE MATERIAL

Max. Dry Density 137.5 lbs./cu. ft. Optimum Moisture 9.7 % Method of Test AASHTO T-180
ASTM D2922

Standard Count Density: 2898 Moisture: 696 Serial #Troxler 27299 NUC 3440

DATE OF TEST	TEST NO	TEST LOCATION DEPTH	% COARSE PARTICLES	ADJ. MAX. DENS.	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU.FT.)		% COMPACTION
							WET	DRY	
6-21	SF 162	BACKFILL AT K LINE BETWEEN 11 AND 12 LINE			137.0	5.2	140.3	133.4	97
6-21	SF 163	BACKFILL AT K LINE BETWEEN 11 AND 12 LINE			138.0	4.9	139.5	133.0	97
6-21	SF 164	BACKFILL AT K LINE BETWEEN 11 AND 12 LINE			139.0	5.6	141.1	133.6	97
6-21	SF 165	BACKFILL AT K LINE BETWEEN 11 AND 12 LINE			140.0	5.3	139.1	132.1	96
6-21	SF 166	BACKFILL AT J LINE BETWEEN 11 AND 12 LINE			137.0	6.0	142.2	134.2	98
6-21	SF 167	BACKFILL AT J LINE BETWEEN 11 AND 12 LINE			138.0	5.7	141.0	133.4	97
6-21	SF 168	BACKFILL AT J LINE BETWEEN 11 AND 12 LINE			139.0	6.1	141.3	133.2	97
6-21	SF 169	BACKFILL AT J LINE BETWEEN 11 AND 12 LINE			140.0	5.9	139.2	131.4	96

Remarks:
95% REQUIRED.

cc: MELVIN MARKS DEVELOPMENT - CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS INC - LEONARD
PENCE KELLY CONSTRUCTION INC - STEVE SCH
CITY OF SALEM BLDG & SAFETY DIV - LARRY
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CENTURY WEST ENGINEERING - TIMOTHY T TER
CENTURY WEST - MATT ROGERS

Density & Moisture Counts

SF162	SF167
SF163	SF168
SF164	SF169
SF165	
SF166	

Tested by T. VANN /LRO

Reviewed By Brian Leach
Project Manager
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REPORT OF IN-PLACE DENSITY TESTS

Client SALEM AREA MASS TRANSIT DISTRICT

Permit No: 401418

Project SALEM COURTHOUSE SQUARE
555 COURT STREET NE SALEM OR

Material Description 1"-0 CRUSHED ROCK FROM RIVER BEND SAND & GRAVEL

Max. Dry Density 138.2 lbs./cu. ft. Optimum Moisture 8.8 % Method of Test ASTM D1557
ASTM D2922

Standard Count Density: 2808 Moisture: 681 Serial #Troxler 27337 NUC 3440

DATE OF TEST	TEST NO	TEST LOCATION	DEPTH	% COARSE PARTICLES	ADJ. MAX. DENS.	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU.FT.) WET	IN-PLACE DENSITY (LBS./CU.FT.) DRY	% COMPACTION
6-25	SF 201	GRID J AT 10A				141	4.8	141.8	135.3	98
6-25	SF 202	GRID J AT 12				141	5.1	139.6	132.8	96

Remarks:

Density & Moisture Counts
SF201
SF202

cc: MELVIN MARKS DEVELOPMENT - CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS INC - LEONARD
PENCE KELLY CONSTRUCTION INC - STEVE SCH
CITY OF SALEM BLDG & SAFETY DIV - LARRY
MARION COUNTY FACILITIES MANAGEMENT - BO
CENTURY WEST ENGINEERING - TIMOTHY T TER
CENTURY WEST - MATT ROGERS

Tested by R. COLLINS /LRO

Reviewed By Brian Leach
Project Manager
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REPORT OF IN-PLACE DENSITY TESTS

Client SALEM AREA MASS TRANSIT DISTRICT

Permit No: 401418

Project SALEM COURTHOUSE SQUARE
555 COURT STREET NE SALEM OR

Material Description 2 1/2"-0 ON-SITE MATERIAL

Max. Dry Density 137.5 lbs./cu. ft. Optimum Moisture 9.7 % Method of Test ASTM D1557
ASTM D2922

Standard Count Density: 2808 Moisture: 681 Serial # Troxler 27337 NUC 3440

DATE OF TEST	TEST NO	TEST LOCATION	DEPTH	% COARSE PARTICLES	ADJ. MAX. DENS.	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU.FT.) WET		% COMPACTION
								WET	DRY	
6-25	SF 197	GRID 1 BETWEEN H AND J				139	5.6	139.5	132.1	96
6-25	SF 198	GRID 1 BETWEEN H AND J				140	6.1	141.1	133.0	97
6-25	SF 199	GRID 1 AT H.5				140	6.4	144.0	135.3	98
6-25	SF 200	GRID 1 AT M				140	5.4	143.5	136.1	99

Remarks:
95% REQUIRED.

cc: MELVIN MARKS DEVELOPMENT - CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS INC - LEONARD
PENCE KELLY CONSTRUCTION INC - STEVE SCH
CITY OF SALEM BLDG & SAFETY DIV - LARRY
MARION COUNTY FACILITIES MANAGEMENT - BO
CENTURY WEST ENGINEERING - TIMOTHY T TER
CENTURY WEST - MATT ROGERS

Density & Moisture Counts
SF197
SF198
SF199
SF200

Tested by R. COLLINS /LRO

Reviewed By Brian Leach CARLSON TESTING INC.
Project Manager

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Carlson Testing, Inc.

Construction Inspection & Related Tests
Geotechnical Consulting

P.O. Box 23814
Tigard, Oregon 97281
Phone (503) 684-3460
FAX (503) 684-0954

JOB NO. 99-S1132

Jul 07, 1999

REPORT OF IN-PLACE DENSITY TESTS

Client SALEM AREA MASS TRANSIT DISTRICT

Permit No: 401418

Project SALEM COURTHOUSE SQUARE
555 COURT STREET NE SALEM OR

Material Description 2 1/2"-0 ON-SITE MATERIAL

Max. Dry Density 137.5 lbs./cu. ft. Optimum Moisture 9.7 % Method of Test AASHTO T-180
ASTM D2922

Standard Count Density: 2908 Moisture: 694 Serial # Troxler 27299 NUC 3440

DATE OF TEST	TEST NO	TEST LOCATION DEPTH	% COARSE PARTICLES	ADJ. MAX. DENS.	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU.FT.) WET	DRY	% COMPACTION
6-24	SF 190	STRUCTURAL FILL AROUND FOOTINGS K LINE BETWEEN 12.0 AND 13 LINE			141.8	6.1	141.0	132.9	97
6-24	SF 191	STRUCTURAL FILL AROUND FOOTINGS K LINE BETWEEN 11.0 AND 12 LINE			141.8	5.7	142.2	134.5	98
6-24	SF 192	STRUCTURAL FILL AROUND FOOTINGS K LINE BETWEEN 10 AND 11 LINE			141.8	6.3	140.6	132.3	96
6-24	SF 193	STRUCTURAL FILL AROUND FOOTINGS J LINE BETWEEN 11 AND 12 LINE			141.8	6.0	139.9	132.0	96
6-24	SF 194	STRUCTURAL FILL AROUND FOOTINGS J LINE BETWEEN 10 AND 11 LINE			141.8	5.9	142.7	134.7	98
6-24	SF 195	STRUCTURAL FILL AROUND FOOTINGS 11.0 LINE BETWEEN K AND J LINE			141.8	6.2	144.0	135.6	99
6-24	SF 196	STRUCTURAL FILL AROUND FOOTINGS 12.0 LINE BETWEEN I AND J LINE			141.8	5.3	139.2	132.2	96

Remarks:
95% REQUIRED.

cc: MELVIN MARKS DEVELOPMENT - CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS INC - LEONARD
PENCE KELLY CONSTRUCTION INC - STEVE SCH
CITY OF SALEM BLDG & SAFETY DIV - LARRY
MARION COUNTY FACILITIES MANAGEMENT - BO
CENTURY WEST ENGINEERING - TIMOTHY T TER
CENTURY WEST - MATT ROGERS

Density & Moisture Counts

SF190	SF195
SF191	SF196
SF192	
SF193	
SF194	

Tested by T. VANN /LRO

Reviewed By Brian Leach
Project Manager
CARLSON TESTING INC.

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JOB NO. 99-S1132

Jul 07, 1999

REPORT OF IN-PLACE DENSITY TESTS

Client SALEM AREA MASS TRANSIT DISTRICT

Permit No: 401418

Project SALEM COURTHOUSE SQUARE
555 COURT STREET NE SALEM OR

Material Description 2 1/2"-0 ON-SITE MATERIAL

Max. Dry Density 137.5 lbs./cu. ft. Optimum Moisture 9.7 % Method of Test AASHTO T-180
ASTM D2922

Standard Count Density: 2904 Moisture: 694 Serial # Troxler 27299 NUC 3440

DATE OF TEST	TEST NO	TEST LOCATION DEPTH	% COARSE PARTICLES	ADJ. MAX. DENS.	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU.FT.) WET	DRY	% COMPACTION
6-23	SF 185	SLAB-ON-GRADE SUBGRADE BETWEEN N AND O LINE AT 13.0 LINE			FSG	7.2	144.9	135.2	98
6-23	SF 186	SLAB-ON-GRADE SUBGRADE BETWEEN N AND O LINE AT 12.0 LINE			FSG	6.8	145.1	135.9	99
6-23	SF 187	SLAB-ON-GRADE SUBGRADE BETWEEN N AND O LINE AT 11.0 LINE			FSG	6.3	144.8	136.2	99
6-23	SF 188	SLAB-ON-GRADE SUBGRADE BETWEEN M AND N LINE AND 12.0 TO 13.0 LINE			FSG	5.9	142.6	134.7	98
6-23	SF 189	SLAB-ON-GRADE SUBGRADE BETWEEN M AND N LINE AND 11.0 TO 12 LINE			FSG	6.1	142.1	133.9	97

Remarks:

95% REQUIRED.

cc: MELVIN MARKS DEVELOPMENT - CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS INC - LEONARD
PENCE KELLY CONSTRUCTION INC - STEVE SCH
CITY OF SALEM BLDG & SAFETY DIV - LARRY
MARION COUNTY FACILITIES MANAGEMENT - BO
CENTURY WEST ENGINEERING - TIMOTHY T TER
CENTURY WEST - MATT ROGERS

Density & Moisture Counts
SF185
SF186
SF187
SF188
SF189

Tested by T. VANN /LRO

Reviewed By Brian Leach
Project Manager
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JUL 22 1999
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JO. NO. 99-S1132

Jul 14, 1999

REPORT OF IN-PLACE DENSITY TESTS

Client SALEM AREA MASS TRANSIT DISTRICT

Permit No: 401418

Project SALEM COURTHOUSE SQUARE
555 COURT STREET NE SALEM OR

Material Description 2 1/2"-0 ON-SITE MATERIAL

Max. Dry Density 137.5 lbs./cu. ft. Optimum Moisture 9.7 % Method of Test AASHTO T-180
ASTM D2922

Standard Count Density: 2812 Moisture: 686 Serial # Troxler 27337 NUC 3440

DATE OF TEST	TEST NO	TEST LOCATION	DEPTH	% COARSE PARTICLES	ADJ. MAX. DENS.	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU.FT.)		% COMPACTION
								WET	DRY	
7- 7	SF 203	GRID 3A AT J				141.3	4.6	141.1	134.9	98
7- 7	SF 204	GRID 3A AT K				141.3	4.5	139.1	133.1	97
7- 7	SF 205	GRID 3A AT J.5				141.3	3.8	138.5	133.4	97
7- 7	SF 206	GRID 3A AT J				143	5.2	137.2	130.4	95
7- 7	SF 206A	GRID 3A AT J				143	4.2	136.0	130.5	95
7- 7	SF 207	GRID 3A AT K				142	5.1	141.4	134.5	98
7- 7	SF 208	GRID 3A AT J.5				142	5.0	140.9	134.2	98
7- 7	SF 209	GRID 3A AT K				143	4.8	135.3	129.1	94
7- 7	SF 209A	GIRD 3A AT K (RE-TEST)				143	4.8	137.3	131.0	95
7- 7	SF 210	GRID 3A AT J.5				143	4.8	139.2	132.8	97

Remarks:
95% REQUIRED.
cc: MELVIN MARKS DEVELOPMENT - CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS INC - LEONARD
PENCE KELLY CONSTRUCTION INC - STEVE SCH
CITY OF SALEM BLDG & SAFETY DIV - LARRY
MARION COUNTY FACILITIES MANAGEMENT - BO
CENTURY WEST ENGINEERING - TIMOTHY T TER
CENTURY WEST - MATT ROGERS

Density & Moisture Counts

SF203	SF207
SF204	SF208
SF205	SF209
SF206	SF209A
SF206A	SF210

Tested by R. COLLINS /LRO

Reviewed By Brian Leach SON TESTING INC.
Project Manager

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Carlson Testing, Inc.

Construction Inspection & Related Tests
Geotechnical Consulting

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JOB NO. 99-S1132

Jul 23, 1999

REPORT OF IN-PLACE DENSITY TESTS

Client SALEM AREA MASS TRANSIT DISTRICT

Permit No: 401418

Project SALEM COURTHOUSE SQUARE
555 COURT STREET NE SALEM OR

Material Description 2 1/2"-0 ON-SITE MATERIAL

Max. Dry Density 137.5 lbs./cu. ft. Optimum Moisture 9.7 % Method of Test AASHTO T-180
ASTM D2922

Standard Count Density: 3058 Moisture: 666 Serial #Troxler 29030 NUC 3440

DATE OF TEST	TEST NO	TEST LOCATION	DEPTH	% COARSE PARTICLES	ADJ. MAX. DENS.	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU.FT.) WET	DRY	% COMPACTION
7-12	SF 211	ENTER - EXIT				144.5	4.0	137.8	132.5	96

Remarks:
95% REQUIRED.

cc: MELVIN MARKS DEVELOPMENT - CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS INC - LEONARD
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CITY OF SALEM BLDG & SAFETY DIV - LARRY
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CENTURY WEST - MATT ROGERS

Density & Moisture Counts
SF211

Tested by G. COOPER /LRO

Reviewed By CARLSON TESTING INC.

Brian Leach
Project Manager

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io. 99-S1132

Jul 26, 1999

REPORT OF IN-PLACE DENSITY TESTS

Client SALEM AREA MASS TRANSIT DISTRICT

Permit No: 401418

Project SALEM COURTHOUSE SQUARE
555 COURT STREET NE SALEM OR

Material Description 2 1/2"-0 ON-SITE MATERIAL

Max. Dry Density 137.5 lbs./cu. ft. Optimum Moisture 9.7 % Method of Test AASHTO T-180
ASTM D2922

Standard Count Density: 2797 Moisture: 679 Serial # Troxler 27337 NUC 3440

DATE OF TEST	TEST NO	TEST LOCATION	DEPTH	% COARSE PARTICLES	ADJ. MAX. DENS.	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU.FT.)		% COMPACTION
								WET	DRY	
7-20	SF 212	GRID D.75 AT 3				139	6.3	139.7	131.4	96
7-20	SF 213	GRID D.75 AT 2				139	5.4	142.0	134.7	98
7-20	SF 214	GRID B AT 2				139	6.8	142.5	133.4	97
7-20	SF 215	GRID B AT 3				139	5.9	140.2	132.4	96
7-20	SF 216	GRID C.5 AT 9				140	6.6	140.6	131.9	96
7-20	SF 217	GRID B.5 AT 9				140	4.3	139.5	133.7	97
7-20	SF 218	GRID B.5 AT 8				140	5.6	139.1	131.7	96
7-20	SF 219	GRID B AT 8				140	6.1	139.7	131.7	96

Remarks:
95% REQUIRED.

cc: MELVIN MARKS DEVELOPMENT - CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS INC - LEONARD
PENCE KELLY CONSTRUCTION INC - STEVE SCH
CITY OF SALEM BLDG & SAFETY DIV - LARRY
MARION COUNTY FACILITIES MANAGEMENT - BO
CENTURY WEST ENGINEERING - TIMOTHY T TER
CENTURY WEST - MATT ROGERS

Density & Moisture Counts

SF212	SF217
SF213	SF218
SF214	SF219
SF215	
SF216	

Tested by R. COLLINS /LRO

Reviewed By Brian Leach
Project Manager CARLSON TESTING INC.

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JOB NO. 99-S1132

Jul 28, 1999

REPORT OF IN-PLACE DENSITY TESTS

Client SALEM AREA MASS TRANSIT DISTRICT

Permit No: 401418

Project SALEM COURTHOUSE SQUARE
555 COURT STREET NE SALEM OR

Material Description 2 1/2"-0 ON-SITE MATERIAL

Max. Dry Density 137.5 lbs./cu. ft. Optimum Moisture 9.7 % Method of Test AASHTO T-180
ASTM D2922

Standard Count Density: 2778 Moisture: 688 Serial #oxler 27337 NUC 3440

DATE OF TEST	TEST NO	TEST LOCATION	DEPTH	% COARSE PARTICLES	ADJ. MAX. DENS.	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU.FT.)		% COMPACTION
								WET	DRY	
7-21	SF 220	GRID C AT 1				140	6.5	140.3	131.7	96
7-21	SF 221	GRID B.5 AT 1				140	8.3	143.6	132.6	96
7-21	SF 222	GRID A AT 1				140	7.3	140.3	130.8	95

Remarks:
95% REQUIRED.
cc: MELVIN MARKS DEVELOPMENT - CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS INC - LEONARD
PENCE KELLY CONSTRUCTION INC - STEVE SCH
CITY OF SALEM BLDG & SAFETY DIV - LARRY
MARION COUNTY FACILITIES MANAGEMENT - BO
CENTURY WEST ENGINEERING - TIMOTHY T TER
CENTURY WEST - MATT ROGERS

Density & Moisture Counts
SF220
SF221
SF222

Tested by R. COLLINS /LRO

Reviewed By Brian Leach
Project Manager
CARLSON TESTING INC.

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Carlson Testing, Inc.

Construction Inspection & Related Tests
Geotechnical Consulting

JOB NO. 99S1132.CTI

Salem Office
4060 Hudson Street
Salem, OR 97301
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Fax (503) 589-1309

REPORT OF IN-PLACE DENSITY TESTS

Client: SALEM AREA MASS TRANSIT DISTRICT

Project: SALEM COURTHOUSE SQUARE

Address: 555 COURT STREET NE – SALEM, OREGON

Material Description: 2 ½"-0 CRUSHED ON SITE MATERIAL

Max. Dry Density: 137.5 lbs./cu. ft.

Optimum Moisture: 9.7 %

Method of Test: AASHTO T-180D

Serial # TROXLER #27337

Standard Density Count: 2778

Standard Moisture Count: 686

DATE OF TEST	TEST NO	TEST LOCATION	% COARSE PARTICLES	ADJ. MAX. DENSITY	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU. FT.) WET	DRY	% COMPACTION
7-13-99	1 SF	GRID M AT 10A.5			+4	7.0	143.6	134.1	97.6
7-13-99	2 SF	GRID M AT 11			+4	6.0	142.6	134.5	97.8
7-13-99	3 SF	GRID K AT 10.5			+3	6.6	138.6	130.0	95.0
7-13-99	4 SF	GRID M AT 10A.5			+5	7.5	140.8	131.0	95.3
7-13-99	5 SF	GRID M AT 11			+5	6.9	139.1	130.1	95.0
7-13-99	6 SF	GRID M AT 11			+7	6.1	140.8	131.0	95.2
7-13-99	7 SF	GRID M AT 10A.5			+7	8.9	140.7	131.0	95.2

Remarks: Vibratory drum roller was used for compacting.

CC: SALEM AREA MASS TRANSIT DISTRICT
MELVIN MARKS DEVELOPMENT – CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS INC – LEAONARD LODDER
PENCE KELLY CONSTRUCTION INC – STEVE SCHAAD
CITY OF SALEM BLDG & SAFETY DIV – LARRY SCHMIDT
MARION COUNTY FACILITIES MANAGEMENT – BOB MCCUNE
CENTURY WEST ENGINEERING – TIMOTHY T TERICH

Tested By: RC COLLINS

Reviewed By: Steve W. Leach
Steven W. Leach

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JOB NO. 99S1132.CTI

REPORT OF IN-PLACE DENSITY TESTS

Client: SALEM AREA MASS TRANSIT DISTRICT

Project: SALEM COURTHOUSE SQUARE

Address: 555 COURT STREET NE – SALEM, OREGON

Material Description: 2 ½"-0 CRUSHED ON SITE MATERIAL

Max. Dry Density: 137.5 lbs./cu. ft.

Optimum Moisture: 9.7 %

Method of Test: AASHTO T-180D

Serial # TROXLER #27337

Standard Density Count: 2791

Standard Moisture Count: 678

DATE OF TEST	TEST NO	TEST LOCATION	% COARSE PARTICLES	ADJ. MAX. DENSITY	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU. FT.) WET	DRY	% COMPACTION
7-16-99	1 SF	GRID C AT 3.5			139.5	5.2	137.6	130.7	95.1
7-16-99	2 SF	GRID C AT 2.0			139.5	5.4	144.6	137.2	99.8
7-16-99	3 SF	GRID D.5 AT 2.0			139.5	6.5	145.2	136.4	99.2
7-16-99	4 SF	GRID D AT 3.5			139.5	6.5	139.5	131.0	95.3

Remarks: Vibratory drum roller was used for compacting.

CC: SALEM AREA MASS TRANSIT DISTRICT
MELVIN MARKS DEVELOPMENT – CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS INC – LEAONARD LODDER
PENCE KELLY CONSTRUCTION INC – STEVE SCHAAD
CITY OF SALEM BLDG & SAFETY DIV – LARRY SCHMIDT
MARION COUNTY FACILITIES MANAGEMENT – BOB MCCUNE
CENTURY WEST ENGINEERING – TIMOTHY T TERICH

Tested By: RC COLLINS

Reviewed By: Steven W. Leach
Steven W. Leach

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Geotechnical Consulting

JOB NO. 99-S1132.CTI

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REPORT OF IN-PLACE DENSITY TESTS

RECEIVED
OCT 26 1999
Facilities Management

Client: Salem Area Mass Transit District

Project: Salem Courthouse Square

Address: 555 Court St. NE – Salem, Oregon

Material Description: 1"- 0 Crushed Rock (Riverbend Ready Mix)

Max. Dry Density: 138.2 lbs./cu. ft.

Optimum Moisture: 8.8 %

Method of Test: ASTM D-1557

Serial # 27299

Standard Density Count: 2866

Standard Moisture Count: 695

DATE OF TEST	TEST NO	TEST LOCATION	% COARSE PARTICLES	ADJ. MAX. DENSITY	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU. FT.) WET	DRY	% COMPACTION
		Structural Fill – Slab-On-Grade							
10-20-99	1	'E' Line Between 4 & 5 Line			FG	6.3	146.3	137.6	100

Remarks: 95% compaction required. Contractor still grading and compacting slab-on-grade area. Rescheduled for October 21,1999.

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Steven W. Leach
Branch Manager

Tested By: T. Vann

Reviewed By: ______

CC:
Melvin Marks Development – Craig Lewis
Arbuckle Costic Architects Inc. – Leonard Lodder
Pence Kelly Construction Inc. – Steve Schaad
City of Salem Bldg. & Safety Div. – Larry Schmidt
Marion County Facilities Management – Bob McCune
Century West Engineering – Timothy T. Terich
Century West Engineering – Matt Rogers

Construction Inspection & Related Tests
Geotechnical Consulting

Carlson Testing, Inc.

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REPORT OF 2 6X12 CONCRETE TEST SPECIMENS

Test Methods: ASTM C172/C143/C31/C39/C1064

Date Molded: 10/14/99 **Job Number:** 99-S1132 **Permit Number:** 401418

Client: SALEM AREA MASS TRANSIT DISTRICT

Project: SALEM COURTHOUSE SQUARE

Address: 555 COURT ST NE. SALEM, OR.

Contractor: PENCE KELLY CONSTRUCTION **Subcontractor:** CAPITOL CONCRETE

Concrete Supplier: RIVER BEND **Truck No.** 161 **Ticket No.** 41612

Cast By: E.T. WILLIAMS **Cu Yds.** 270 OF 270 **Load No.** 27

Weather: PTLY CLOUDY **Temp High:** 68° **Temp Low:** 42°

Location of Placement: 4TH FLOOR POUR #1 FIELD CURE CYLINDERS

Test Time: **Concrete Temp:** 71°

Strength Requirement:3000 **PSI** @ 28 days/5000 @ 28 days **Slump:** 5" **Cement Type:** I-II

Mix No./No. Sacks: 5K-4 **Air Content:** **Max. Aggregate:**

Admix Amount: 45 oz/YD **Brand:** POLYHEED **Admix Amount:** 40 oz/YD **Brand:** MB200N

Set No.	Test @ Days	Register Number	Date Rcvd.	Date Test	Total Load	Area	Unit PSI	Report No.	Tested By
6	4FC	1526-S	10/15	10/18	85945	28.26	3040		EW
	4FC			10/18	87965	28.26	3110		EW

Remarks:

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CC:
MELVIN MARKS DEVELOPMENT – CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS INC – LEONARD LODDER
PENCE KELLY CONSTRUCTION INC – STEVE SCHAAD
CITY OF SALEM BLDG & SAFETY DIV. – LARRY SCHMIDT
MARION COUNTY FACILITIES MGMT – BOB McCUNE
CENTURY WEST ENGINEERING – TIMOTHY T. TERICH

Steven W. Leach
Reviewed By: *Branch Manager*

Carlson Testing, Inc.

Construction Inspection & Related Tests
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REPORT OF 5 6x12 CONCRETE TEST SPECIMENS

Test Methods: ASTM C172/C143/C31/C39/C1064

Date Molded: 9/22/99 **Job Number:** 99-S1132 **Permit Number:** 401418

Client: SALEM AREA MASS TRANSIT DISTRICT

Project: SALEM COURTHOUSE SQUARE

Address: 555 COURT ST NE. SALEM, OR.

Contractor: PENCE KELLY CONSTRUCTION **Subcontractor:** CAPITOL CONCRETE

Concrete Supplier: RIVER BEND **Truck No.** 157 **Ticket No.** 40888

Cast By: E.T. WILLIAMS **Cu Yds.** 460 OF 480 **Load No.** 46

Weather: CLEAR **Temp High:** 82° **Temp Low:**

Location of Placement: 3^{RD} FLOOR P.T. POUR #1, F.6 TO F.8, 12A TO 12A.2

Test Time: 1:20 PM **Concrete Temp:** 77°

Strength Requirement: 3000 **PSI** @ 3 days/5000 **PSI** @ 28 days **Slump:** 6" **Cement Type:** I-II

Mix No./No. Sacks: 5K-4 **Air Content:** **Max. Aggregate:** ¾"

Admix Amount: 45oz/YD **Brand:** POLYHEED **Admix Amount:** 40 oz/YD **Brand:** MB200N

Set No.	Test @ Days	Register Number	Date Rcvd.	Date Test	Total Load	Area	Unit PSI	Report No.	Tested By
5	3FC	1431-S	9/23	9/25	92325	28.27	3270		EW
	3FC			9/25	94825	28.27	3360		EW
	28			10/20	151230	28.27	5350		IE
	28			10/20	153770	28.27	5340		IE
	56								

Remarks:

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CC: MELVIN MARKS DEVELOPMENT – CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS INC. – LEONARD LODDER
PENCE KELLY CONSTRUCTION INC. – STEVE SCHAAD
CITY OF SALEM BLDG & SAFETY DIV. – LARRY SCHMIDT
MARION COUNTY FACILITIES MGMT. – BOB McCUNE
CENTURY WEST ENGINEERING – TIMOTHY T. TERICH

Steven W. Leach
Branch Manager

Reviewed By: ____________________

Carlson Testing, Inc.

Construction Inspection & Related Tests
Geotechnical Consulting

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REPORT OF 5 6X12 CONCRETE TEST SPECIMENS

Test Methods: ASTM C172/C143/C31/C349/C1064

Date Molded: 10/14/99 **Job Number:** 99-S1132 **Permit Number:** 401418

Client: SALEM AREA MASS TRANSIT DISTRICT

Project: SALEM COURTHOUSE SQUARE

Address: 555 COURT ST NE. SALEM, OR.

Contractor: PENCE KELLY CONSTRUCTION **Subcontractor:** CAPITOL CONCRETE

Concrete Supplier: RIVER BEND **Truck No.** 157 **Ticket No.** 41606

Cast By: E.T. WILLIAMS **Cu Yds.** 420 OF 470 **Load No.** 42

Weather: CLEAR **Temp High:** 68° **Temp Low:** 42°

Location of Placement: 4TH FLOOR POUR #1, LINES 11.2 TO 11.4, GRIDS H TO H.2

Test Time: **Concrete Temp:** 68°

Strength Requirement:3000 PSI @ 28 days/5000 @ 28 days **Slump:** 5" **Cement Type:** I-II

Mix No./No. Sacks: 5K-4 **Air Content:** **Max. Aggregate:**

Admix Amount: 45oz/YD **Brand:** POLYHEED **Admix Amount:** 40 oz/YD **Brand:** MB200N

Set No.	Test @ Days	Register Number	Date Rcvd.	Date Test	Total Load	Area	Unit PSI	Report No.	Tested By
5	3FC	1525-S	10/15	10/17	96625	28.26	3420		EW
	7			10/20	131460	28.26	4650		IE
	28			11/11					
	28			11/11					
	56			12/9					

Remarks:

Our report pertains to the material tested/inspected only. Information contained herein is not to be reproduced, except in full, without prior authorization from this office.

CC:
MELVIN MARKS DEVELOPMENT – CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS INC – LEONARD LODDER
PENCE KELLY CONSTRUCTION INC – STEVE SCHAAD
CITY OF SALEM BLDG & SAFETY DIV – LARRY SCHMIDT
MARION COUNTY FACILITIES MGMT – BOB McCUNE
CENTURY WEST ENGINEERING – TIMOTHY T. TERICH

Steven W. Leach
Branch Manager

Reviewed By: ____________________

Carlson Testing, Inc.

Construction Inspection & Related Tests
Geotechnical Consulting

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4060 Hudson Street
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Phone (503) 589-1252
Fax (503) 589-1309

REPORT OF 5 6X12 CONCRETE TEST SPECIMENS

Test Methods: ASTM C172/C143/C31/C39/C1064

Date Molded: 10/14/99 **Job Number:** 99-S1132 **Permit Number:** 401418

Client: SALEM AREA MASS TRANSIT DISTRICT

Project: SALEM COURTHOUSE SQUARE

Address: 555 COURT ST NE. SALEM, OR

Contractor: PENCE KELLY CONSTRUCTION **Subcontractor:** CAPITOL CONCRETE

Concrete Supplier: RIVER BEND **Truck No.** 160 **Ticket No.** 41594

Cast By: E.T. WILLIAMS **Cu Yds.** 330 OF 460 **Load No.** 33

Weather: CLEAR **Temp High:** 68° **Temp Low:** 42°

Location of Placement: 4TH FLOOR POUR #1, GRID F.5 TO G @ LINE 12 TO 12.3

Test Time: **Concrete Temp:** 67°

Strength Requirement:3000 PSI @ 28 days/5000 @ 28 days **Slump:** 5" **Cement Type:** I-II

Mix No./No. Sacks: 5K-4 **Air Content:** **Max. Aggregate:**

Admix Amount: 45 oz/YD **Brand:** POLYHEED **Admix Amount:** 40 oz/YD **Brand:** MB200N

Set No.	Test @ Days	Register Number	Date Rcvd.	Date Test	Total Load	Area	Unit PSI	Report No.	Tested By
4	3FC	1524-S	10/15	10/17	96625	28.26	3420		EW
	7			10/21	131460	28.26	4650		IE
	28			11/11					
	28			11/11					
	56			12/9					

Remarks:

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CC:
MELVIN MARKS DEVELOPMENT – CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS INC. – LEONARD LODDER
PENCE KELLY CONSTRUCTION INC – STEVE SCHAAD
CITY OF SALEM BLDG & SAFETY DIV. – LARRY SCHMIDT
MARION COUNTY FACILITIES MGMT – BOB McCUNE
CENTURY WEST ENGINEERING – TIMOTHY T. TERICH

Steven W. Leach
Branch Manager

Reviewed By:

Carlson Testing, Inc.

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REPORT OF 5 6X12 CONCRETE TEST SPECIMENS

Test Methods: ASTM C172/C143/C31/C39/C1064

Date Molded: 10/14/99 **Job Number:** 99-S1132 **Permit Number:** 401418

Client: SALEM AREA MASS TRANSIT DISTRICT

Project: SALEM COURTHOUSE SQUARE

Address: 555 COURT ST NE. SALEM, OR.

Contractor: PENCE KELLY CONSTRUCTION **Subcontractor:** CAPITOL CONCRETE

Concrete Supplier: RIVER BEND **Truck No.** 161 **Ticket No.** 41583

Cast By: E.T. WILLIAMS **Cu Yds.** 250 OF 450 **Load No.** 25

Weather: CLEAR **Temp High:** 68° **Temp Low:** 42°

Location of Placement: 4TH FLOOR POUR #1, GRIDS E.5 TO F @ LINES 10 TO 10.4

Test Time: **Concrete Temp:** 67°

Strength Requirement:3000 PSI @ 28 days/5000 PSI @ 28 day **Slump:** 5" **Cement Type:** I-II

Mix No./No. Sacks: 5K-4 **Air Content:** **Max. Aggregate:**

Admix Amount: 45oz/YD **Brand:** POLYHEED **Admix Amount:** 40 oz/YD **Brand:** MB200N

Set No.	Test @ Days	Register Number	Date Rcvd.	Date Test	Total Load	Area	Unit PSI	Report No.	Tested By
3	3FC	1523-S	10/15	10/17	106495	28.26	3770		EW
	7			10/21	132095	28.26	4670		IE
	28			11/11					
	28			11/11					
	56			12/9					

Remarks:

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CC: MELVIN MARKS DEVELOPMENT – CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS INC – LEONARD LODDER
PENCE KELLY CONSTRUCTION INC – STEVE SCHAAD
CITY OF SALEM BLDG & SAFETY DIV. – LARRY SCHMIDT
MARION COUNTY FACILITIES MGMT. – BOB McCUNE
CENTURY WEST ENGINEERING – TIMOTHY T. TERICH

Steven W. Leach
Reviewed By: *Branch Manager*

Carlson Testing, Inc.

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REPORT OF 5 6X12 CONCRETE **TEST SPECIMENS**

Test Methods: ASTM C172/C143/C31/C39/C1064

Date Molded: 10/14/99 **Job Number:** 99-S1132 **Permit Number:** 401418

Client: SALEM AREA MASS TRANSIT DISTRICT

Project: SALEM COURTHOUSE SQUARE

Address: 555 COURTHOUSE SQUARE

Contractor: PENCE KELLY CONSTRUCTION **Subcontractor:** CAPITOL CONCRETE

Concrete Supplier: RIVER BEND **Truck No.** 164 **Ticket No.** 41572

Cast By: E.T. WILLIAMS **Cu Yds.** 170 OF 450 **Load No.** 17

Weather: CLEAR **Temp High:** 68° **Temp Low:** 42°

Location of Placement: 4TH FLOOR POUR #1, GRIDS D.3 TO D.5 @ LINES 12.3 TO 12.5

Test Time: **Concrete Temp:** 66°

Strength Requirement: 3000 PSI @ 28 days/5000 PSI @ 28 day **Slump:** 5” **Cement Type:** I-II

Mix No./No. Sacks: 5K-4 **Air Content:** **Max. Aggregate:**

Admix Amount: 45oz/YD	**Brand:** POLYHEED	**Admix Amount:** 40oz/YD	**Brand:** MB200N

Set No.	Test @ Days	Register Number	Date Rcvd.	Date Test	Total Load	Area	Unit PSI	Report No.	Tested By
2	3FC	1522-S	10/15	10/17	106895	28.27	3780		EW
	7			10/21	132070	28.27	4670		IE
	28			11/11					
	28			11/11					
	56			12/9					

Remarks:

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CC:
MELVIN MARKS DEVELOPMENT –CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS INC – LEONARD LODDER
PENCE KELLY CONSTRUCTION INC – STEVE SCHAAD
CITY OF SALEM BLDG & SAFETY DIV. – LARRY SCHMIDT
MARION COUNTY FACILITIES MGMT. – BOB McCUNE
CENTURY WEST ENGINEERING – TIMOTHY T. TERICH

Steven W. Leach
Reviewed By: *Branch Manager*

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REPORT OF 5 6X12 CONCRETE TEST SPECIMENS

Test Methods: ASTM C172/C143/C31/C39/C1064

Date Molded: 10/14/99 **Job Number:** 99-S1132 **Permit Number:** 401418

Client: SALEM AREA MASS TRANSIT DISTRICT

Project: SALEM COURTHOUSE SQUARE

Address: 555 COURT ST NE. SALEM, OR.

Contractor: PENCE KELLY CONSTRUCTION **Subcontractor:** CAPITOL CONCRETE

Concrete Supplier: RIVER BEND **Truck No.** 160 **Ticket No.** 41560

Cast By: E.T. WILLIAMS **Cu Yds.** 50 OF 460 **Load No.** 5

Weather: CLEAR **Temp High:** 68° **Temp Low:** 42°

Location of Placement: 4^{TH} FLOOR LEVEL POUR #1, GRIDS C.5 TO C.8, 10.4 TO 10.4.2

Test Time: **Concrete Temp:** 66°

Strength Requirement: 3000 PSI @ 28 days/5000 PSI @ 28 day **Slump:** 5" **Cement Type:** I-II

Mix No./No. Sacks: 5K-4 **Air Content:** **Max. Aggregate:**

Admix Amount: 45oz/YD **Brand:** POLYHEED **Admix Amount:** 40oz/YD **Brand:** MB200N

Set No.	Test @ Days	Register Number	Date Rcvd.	Date Test	Total Load	Area	Unit PSI	Report No.	Tested By
1	3FC	1521-S	10/15	10/17	107510	28.27	3800		EW
	7			10/21	139045	28.27	4920		IE
	28			11/11					
	28			11/11					
	56			12/9					

Remarks:

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CC:
MELVIN MARKS DEVELOPMENT – CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS INC – LEONARD LODDER
PENCE KELLY CONSTRUCTION INC. – STEVE SCHAAD
CITY OF SALEM BLDG & SAFETY DIV. – LARRY SCHMIDT
MARION COUNTY FACILITIES MGMT. – BOB McCUNE
CENTURY WEST ENGINEERING – TIMOTHY T. TERICH

Steven W. Leach
Branch Manager

Reviewed By: ______________________

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REPORT OF 4 6X12 CONCRETE TEST SPECIMENS

Test Methods: ASTM C172/C143/C31/C39/C1064

Date Molded: 10/13/99 **Job Number:** 99-S1132 **Permit Nnmber:** 401418

Client: SALEM AREA MASS TRANSIT DISTRICT

Project: SALEM COURTHOUSE SQUARE

Address: 555 COURT ST NE. SALEM, OR.

Contractor: PENCE KELLY CONSTRUCTION INC. **Subcontractor:** CAPITOL CONCRETE

Concrete Supplier: RIVER BEND **Truck No.** 163 **Ticket No.** 41563

Cast By: E.T. WILLIAMS **Cu Yds.** 100 OF 130 **Load No.** 10

Weather: CLEAR **Temp High:** 75° **Temp Low:** 47°

Location of Placement: SLAB ON GRADE @ GRID F TO F.2, LINE 2 TO 2.5

Test Time: **Concrete Temp:** 67°

Strength Requirement: 3000 PSI @ 28 days **Slump:** 5" **Cement Type:** I-II

Mix No./No. Sacks: 5.5-4FM **Air Content:** **Max. Aggregate:** ¾"

Admix Amount: **Brand:** **Admix Amount:** **Brand:**

Set No.	Test @ Days	Register Number	Date Rcvd.	Date Test	Total Load	Area	Unit PSI	Report No.	Tested By
2	7	1520-S	10/14	10/20	84595	28.26	2990		IE
	28			11/10					
	28			11/10					
	56/H								

Remarks:

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CC:
MELVIN MARKS DEVELOPMENT – CRAIG LEWIS
ARBUCKLE COSTIC ARCHITECTS – LEONARD LODDER
PENCE KELLY CONSTRUCTION INC. – STEVE SCHAAD
CITY OF SALEM BLDG & SAFETY DIV. – LARRY SCHMIDT
MARION CO. FACILITIES MGMT – BOB McCUNE
CENTURY WEST ENGINEERING – TIMOTHY T. TERICH

Steven W. Leach
Branch Manager

Reviewed By: ______________________

Carlson Testing, Inc.

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Geotechnical Consulting

JOB NO. 99-S1132.CTI

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REPORT OF IN-PLACE DENSITY TESTS

Client: Salem Area Mass Transit District

Project: Salem Courthouse Square

Address: 555 Court St. NE – Salem, Oregon

Material Description: 1"- 0 Crushed Rock (Riverbend Ready Mix)

Max. Dry Density: 138.2 lbs./cu. ft.

Optimum Moisture: 8.8 %

Method of Test: ASTM D-1557

Serial # 27299

Standard Density Count: 2862

Standard Moisture Count: 694

DATE OF TEST	TEST NO	TEST LOCATION	% COARSE PARTICLES	ADJ. MAX. DENSITY	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU. FT.) WET	DRY	% COMPACTION
		Structural Fill – Slab-On-Grade							
10-21-99	SF 1	'E' Line Between 4 & 5 Line			FG	4.6	139.8	133.7	97
10-21-99	SF 2	'G' Line Between 4 & 5 Line			FG	5.6	138.7	132.6	96
10-21-99	SF 3	'H' Line Between 4, 5 & 6 Line			FG	5.8	140.3	132.6	96
10-21-99	SF 4	'J' Line Between 3 & 4 Line			FG	5.1	142.8	135.9	98
10-21-99	SF 5	'L' Line Between 4 & 5 Line			FG	4.9	139.2	132.7	96

Remarks: 95% compaction required.

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Steven W. Leach
Branch Manager

Tested By: T. Vann

Reviewed By:

CC: Melvin Marks Development – Craig Lewis
Arbuckle Costic Architects Inc. – Leonard Lodder
Pence Kelly Construction Inc. – Steve Schaad
City of Salem Bldg. & Safety Div. – Larry Schmidt
Marion County Facilities Management – Bob McCune
Century West Engineering – Timothy T. Terich
Century West Engineering – Matt Rogers

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JOB NO. 99-S1132.CTI

REPORT OF IN-PLACE DENSITY TESTS

RECEIVED
JUN 23 2000
Facilities Management

Client: Salem Area Mass Transit District

Project: Salem Courthouse Square

Address: 555 Court St. NE – Salem, Oregon

Material Description: ¾"-0 Rock (River Bend Sand & Gravel)

Max. Dry Density: 127.1 lbs./cu. ft.

Optimum Moisture: 10.8 %

Method of Test: ASTM D-1557 'C'
ASTM D2922, 3017

Serial # 27337

Standard Density Count: 2711

Standard Moisture Count: 686

DATE OF TEST	TEST NO	TEST LOCATION	% COARSE PARTICLES	ADJ. MAX. DENSITY	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU. FT.) WET	DRY	% COMPACTION
06-16-00	SF 1	Chemeketa St. 'H' Line on Curb			0	5.3	138.3	131.3	100+
06-16-00	SF 2	Chemeketa St. 'L' Line on Curb			0	7.2	136.8	127.6	100
06-16-00	SF 3	Chemeketa St. 'P' Line on Curb			0	3.6	135.9	131.2	100+

Remarks: 100% compaction required.

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Tested By: R.C. Collins

Reviewed By: **Brian Leach**
Project Manager

CC: Melvin Marks Development – Craig Lewis
Arbuckle Costic Architects Inc. – Leonard Lodder
Pence Kelly Construction Inc. – Steve Schaad
City of Salem Salem Bldg & Safety Div - Supervisor
Marion County Facilities Management – Bob McCune
Century West Engineering – Timothy T. Terich
Century West Engineering – Matt Rogers

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JOB NO. 99-S1132.CTI

REPORT OF IN-PLACE DENSITY TESTS

Client: Salem Area Mass Transit Districct

Project: Salem Courthouse Square

Address: 555 Court St. NE – Salem, Oregon

Material Description: 1"- 0 Base Rock (River Bend)

Max. Dry Density: 134.7 lbs./cu. ft.

Optimum Moisture: 9.7 %

Method of Test: ASHTO T-180 "D"
ASTM D2922, 3017

Serial # 27337

Standard Density Count: 2692

Standard Moisture Count: 686

DATE OF TEST	TEST NO	TEST LOCATION	% COARSE PARTICLES	ADJ. MAX. DENSITY	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU. FT.)		% COMPACTION
							WET	DRY	
06-21-00	SF 1	Curb Line 1 – End of Radius			0	4.0	140.3	134.9	100+
06-21-00	SF 2	Curb Line 0			0	6.0	145.0	136.8	100+
06-21-00	SF 3	Curb Line 0 – End of Radius			0	7.2	146.5	136.7	100+

Remarks: 100% compaction required.

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Tested By: R.C. Collins

Reviewed By:
Brian Leach
Project Manager

CC:
Melvin Marks Development – Craig Lewis
Arbuckle Costic Architects Inc. – Leonard Lodder
Pence Kelly Construction Inc. – Steve Schaad
City of Salem Salem Bldg & Safety Div - Supervisor
Marion County Facilities Management – Bob McCune
Century West Engineering – Timothy T. Terich
Century West Engineering – Matt Rogers

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JOB NO. 99-S1132.CTI

REPORT OF IN-PLACE DENSITY TESTS

RECEIVED
JUL 31 2000
Facilities Management

Client: Salem Area Mass Transit District

Project: Salem Courthouse Square

Address: 555 Court St. NE – Salem, Oregon

Material Description: 1"- 0 Crushed Rock (River Bend)

Max. Dry Density: 138.2 lbs./cu. ft. Optimum Moisture: 8.8 %

Method of Test: ASTM D1557 'C'
ASTM D2922, 3017

Serial # 20677 Standard Density Count: 2457 Standard Moisture Count: 722

DATE OF TEST	TEST NO	TEST LOCATION	% COARSE PARTICLES	ADJ. MAX. DENSITY	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU. FT.) WET	DRY	% COMPACTION
		Sidewalk – High St.							
07-06-00	BC 1	...at '10' Line.			TOP	4.5	149.2	142.9	100+
07-06-00	BC 2	...at '11' Line.			TOP	6.6	147.5	138.3	100+
07-06-00	BC 3	...at '12' Line.			TOP	4.5	144.7	138.5	100+
07-06-00	BC 4	...at '13' Line.			TOP	6.3	150.6	141.6	100+

Remarks: 100% compaction required

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Tested By: G. Cooper

Reviewed By: Brian Leach
Project Manager

CC: Melvin Marks Development – Craig Lewis
Arbuckle Costic Architects Inc. – Leonard Lodder
Pence Kelly Construction Inc. – Steve Schaad
City of Salem Bldg. & Safety Div. - Supervisor
Marion County Facilities Management – Bob McCune
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JOB NO. 99-S1132.CTI

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REPORT OF IN-PLACE DENSITY TESTS

Client: Salem Area Mass Transit District

Project: Salem Courthouse Square

Address: 555 Court St. NE – Salem, Oregon

Material Description: 1"- 0 Rock (Wadsworth)

Max. Dry Density: 120.6 lbs./cu. ft.

Optimum Moisture: 5.9 %

Method of Test: ASHTO T-99 "D"
ASTM D2922, 3017

Serial # 20677

Standard Density Count:

Standard Moisture Count:

DATE OF TEST	TEST NO	TEST LOCATION	% COARSE PARTICLES	ADJ. MAX. DENSITY	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU. FT.) WET	DRY	% COMPACTION
07-17-00	BC	'11' at Curb			TOP	5.1	132.8	126.3	100+
07-17-00	BC	'13' at Curb			TOP	4.4	129.7	124.8	100+
07-17-00	BC	'12' at Walk			TOP	4.3	130.2	124.9	100+
07-17-00	BC	'11' at Walk			TOP	4.7	131.5	125.6	100+
07-17-00	BC	'9.5' at Bus Ramp West			TOP	5.2	130.8	124.3	100+
07-17-00	BC	'7' at Bus Ramp West			TOP	5.8	134.0	126.6	100+
07-17-00	BC	'7' at Bus Ramp East			TOP	5.3	133.0	126.2	100+
07-17-00	BC	'9.5' at Bus Ramp East			TOP	5.3	134.6	127.9	100+

Remarks: 100% compaction required.

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Tested By: G. Cooper

Reviewed By:

CC:
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Arbuckle Costic Architects Inc. – Leonard Lodder
Pence Kelly Construction Inc. – Steve Schaad
City of Salem Salem Bldg & Safety Div - Supervisor
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REPORT OF IN-PLACE DENSITY TESTS

Client: Salem Area Mass Transit District

Project: Salem Courthouse Square

Address: 555 Court St. NE – Salem, Oregon

Material Description: 1"- 0 Rock (Wadsworth)

RECEIVED
JUL 24 2000
Facilities Management

Max. Dry Density: 120.6 lbs./cu. ft. Optimum Moisture: 5.9 % Method of Test: ASHTO T-99 "D" ASTM D2922, 3017

Serial # 27337 Standard Density Count: 2711 Standard Moisture Count: 681

DATE OF TEST	TEST NO	TEST LOCATION	% COARSE PARTICLES	ADJ. MAX. DENSITY	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU. FT.) WET	DRY	% COMPACTION
07-12-00	SF 1	Court St. Sidewalks at Column 'G' Line			0	4.2	126.9	121.8	100+
07-12-00	SF 2	Court St. Sidewalks at Column 'I' Line			0	5.7	126.9	121.7	100+
07-12-00	SF 3	Court St. Sidewalks at Column 'L' Line			0	7.4	132.5	123.3	100+
07-12-00	SF 4	Court St. Sidewalks at Column 'M' Line			0	5.3	129.4	122.9	100+
07-12-00	SF 5	Corner of Court St. and Church St. between Handicap Ramps			0	6.2	131.1	123.4	100+

Remarks: 100% compaction required.

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Brian Leach
Project Manager

Tested By: R.C. Collins Reviewed By: ____________

CC:
Melvin Marks Development – Craig Lewis
Arbuckle Costic Architects Inc. – Leonard Lodder
Pence Kelly Construction Inc. – Steve Schaad
City of Salem Salem Bldg & Safety Div - Supervisor
Marion County Facilities Management – Bob McCune
Century West Engineering – Timothy T. Terich
Century West Engineering – Matt Rogers

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REPORT OF IN-PLACE DENSITY TESTS

RECEIVED
AUG - 3 2000
Facilities Management

Client: Salem Area Mass Transit District

Project: Salem Courthouse Square

Address: 555 Court St. NE – Salem, Oregon

Material Description: 1"- 0 Crushed Rock (River Bend)

Max. Dry Density: 138.2 lbs./cu. ft.

Optimum Moisture: 8.8 %

Method of Test: ASTM D1557 'C'
ASTM D2922, 3017

Serial # 27337

Standard Density Count: 2694

Standard Moisture Count: 620

DATE OF TEST	TEST NO	TEST LOCATION	% COARSE PARTICLES	ADJ. MAX. DENSITY	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU. FT.) WET	DRY	% COMPACTION
07-19-00	1	East Island Between Ramps			BS	6.3	148.2	139.4	100+
07-19-00	2	East Island Between Ramps			BS	6.9	148.5	138.9	100+
07-19-00	3	East Island Between Rampls			BS	7.0	149.7	139.9	100+

Remarks: 100% compaction required

Our report pertains to the material tested/inspected only. Information contained herein is not to be reproduced, except in full, without prior authorization from this office.

Tested By: B. Perry

Reviewed By: Brian Leach
Project Manager

CC:
Melvin Marks Development – Craig Lewis
Arbuckle Costic Architects Inc. – Leonard Lodder
Pence Kelly Construction Inc. – Steve Schaad
City of Salem Bldg. & Safety Div. - Supervisor
Marion County Facilities Management – Bob McCune
Century West Engineering – Timothy T. Terich
Century West Engineering – Matt Rogers

Carlson Testing, Inc.

Construction Inspection & Related Tests
Geotechnical Consulting

Salem Office
4060 Hudson Street
Salem, OR 97301
Phone (503) 589-1252
Fax (503) 589-1309

JOB NO. 99-S1132.CTI

REPORT OF IN-PLACE DENSITY TESTS

RECEIVED
AUG 11 2000
Facilities Management

Client: Salem Area Mass Transit District

Project: Salem Courthouse Square

Address: 555 Court St. NE – Salem, Oregon

Material Description: 1"- 0 Rock (Wadsworth)

Max. Dry Density: 120.6 lbs./cu. ft.   Optimum Moisture: 5.9 %   Method of Test: ASHTO T-99 "D"
ASTM D2922, 3017

Serial # 20677   Standard Density Count: Standard Moisture Count:

DATE OF TEST	TEST NO	TEST LOCATION	% COARSE PARTICLES	ADJ. MAX. DENSITY	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU. FT.) WET	DRY	% COMPACTION
08-03-00	1	Sidewalk Grade – Island Between Loading Ramp and Bus Ramp			GRD	4.8	127.2	121.4	100+

Remarks: 100% compaction required.

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Brian Leach
Project Manager

Tested By: S. Leach   Reviewed By:

CC:
Melvin Marks Development – Craig Lewis
Arbuckle Costic Architects Inc. – Leonard Lodder
Pence Kelly Construction Inc. – Steve Schaad
City of Salem Salem Bldg & Safety Div - Supervisor
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REPORT OF IN-PLACE DENSITY TESTS

Client: Salem Area Mass Transit District

Project: Salem Courthouse Square

Address: 555 Court St. NE – Salem, Oregon

Material Description: 1"- 0 Rock (Wadsworth)

Max. Dry Density: 120.6 lbs./cu. ft.

Optimum Moisture: 9.9 %

Method of Test: AASHTO T-99 "D"
ASTM D2922, 3017

Serial #: 29030

Standard Density Count: 3027

Standard Moisture Count: 676

DATE OF TEST	TEST NO	TEST LOCATION	% COARSE PARTICLES	ADJ. MAX. DENSITY	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU. FT.) WET	DRY	% COMPACTION
		Base At Dead Center Of Area For Underground Loading Zone......							
08-02-00	1	.....At SE Corner Of Site			FSG	6.0	138.8	126.8	100+
08-02-00	2	.....At 10' NW Of Test #1			FSG	5.7	134.6	125.3	100+
08-02-00	3	.....At 15' SE Of Test #1			FSG	6.4	134.5	125.2	100+

Remarks: 100% compaction required.

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Tested By: I. Evans

Reviewed By: ~~Brian Leach~~
Project Manager

cc:
Melvin Marks Development – Craig Lewis
Arbuckle Costic Architects, Inc. – Leonard Lodder
Pence / Kelly Construction – Steve Schaad
City of Salem Bldg. & Safety Div. - Supervisor
Marion County Facilities Management – Bob McCune
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JOB NO. 99-S1132.CTI

REPORT OF IN-PLACE DENSITY TESTS

RECEIVED
AUG 31 2000
Facilities Management

Client: Salem Area Mass Transit District

Project: Salem Courthouse Square

Address: 555 Court St. NE – Salem, Oregon

Material Description: 1"- 0 Rock (Wadsworth)

Max. Dry Density: 120.6 lbs./cu. ft.

Optimum Moisture: 5.9 %

Method of Test: ASHTO T-99 "D"
ASTM D2922, 3017

Serial # 27337

Standard Density Count: 2704

Standard Moisture Count: 679

DATE OF TEST	TEST NO	TEST LOCATION	% COARSE PARTICLES	ADJ. MAX. DENSITY	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU. FT.) WET	DRY	% COMPACTION
		Church St.							
08-18-00	SF 1	N Bus Ramp, E Side, SW Corner			0	4.8	132.3	126.2	100+
08-18-00	SF 2	N Bus Ramp, E Side, Center			0	5.8	132.1	124.8	100+
08-18-00	SF 3	N Bus Ramp, E Side, NE Corner			0	5.4	127.0	120.5	100
08-18-00	SF 4	N Bus Ramp, Gutter Curb SE			0	5.4	127.0	120.5	100
08-18-00	SF 5	N Bus Ramp, Gutter Curb Center			0	4.1	125.3	120.4	100
08-18-00	SF 6	A Curb – 15' N of Bus Ramp			0	11.2	134.3	122.9	100+
08-18-00	SF 7	A Curb – 25' N of Bus Ramp			0	9.3	134.4	122.9	100+

Remarks: 100% compaction required.

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Brian Leach
Project Manager

Tested By: R.C. Collins

Reviewed By:

CC:
Melvin Marks Development – Craig Lewis
Arbuckle Costic Architects Inc. – Leonard Lodder
Pence Kelly Construction Inc. – Steve Schaad
City of Salem Salem Bldg & Safety Div - Supervisor
Marion County Facilities Management – Bob McCune
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JOB NO. 99-S1132.CTI

REPORT OF IN-PLACE DENSITY TESTS

RECEIVED
SEP 07 2000
Facilities Management

Client: Salem Area Mass Transit District

Project: Salem Courthouse Square

Address: 555 Court St. NE – Salem, Oregon

Material Description: 1"- 0 (River Bend)

Max. Dry Density: 138.2 lbs./cu. ft.

Optimum Moisture: 8.8 %

Method of Test: ASTM D1557 'C'
ASTM D2922, 3017

Serial # 27337

Standard Density Count: 2692

Standard Moisture Count: 679

DATE OF TEST	TEST NO	TEST LOCATION	% COARSE PARTICLES	ADJ. MAX. DENSITY	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU. FT.) WET	DRY	% COMPACTION
08-25-00	1	NE Corner Base Course				6.5	147.9	138.9	100+
08-25-00	2	NE Corner Base Course				7.1	149.8	139.9	100+
08-25-00	3	NE Corner Base Course				6.9	148.6	138.6	100+
08-25-00	4	NE Corner Base Course				6.9	147.9	138.3	100+

Remarks: 95% compaction required

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Tested By: B. Perry

Reviewed By: Brian Leach
Project Manager

CC:
Melvin Marks Development – Craig Lewis
Arbuckle Costic Architects Inc. – Leonard Lodder
Pence Kelly Construction Inc. – Steve Schaad
City of Salem Bldg. & Safety Div. - Supervisor
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REPORT OF IN-PLACE DENSITY TESTS

Client: Salem Area Mass Transit District

Project: Salem Courthouse Square

Address: 555 Court St. NE – Salem, Oregon

Material Description: 1"- 0 Rock (Wadsworth)

Max. Dry Density: 120.6 lbs./cu. ft. Optimum Moisture: 5.9 %

RECEIVED
SEP 25 2000
Facilities Management

Method of Test: ASHTO T-99 "D"
ASTM D2922, 3017

Serial # 27077 Standard Density Count: 2985 Standard Moisture Count: 693

DATE OF TEST	TEST NO	TEST LOCATION	% COARSE PARTICLES	ADJ. MAX. DENSITY	ELEV. FT.	FIELD MOISTURE %	IN-PLACE DENSITY (LBS./CU. FT.)		% COMPACTION
							WET	DRY	
		New A/C Strip Around Perimeter of Bldg…							
09-06-00	1	North Side 25' East of West End			+0	7.9	130.2	120.7	100
09-06-00	2	North Side 30' West of East End			+0	8.4	131.6	121.4	100+
09-06-00	3	East Side 40' South of North End			+0	8.3	132.1	122.0	100+
09-06-00	4	East Side 50' North of South End			+0	8.0	130.6	120.9	100
09-06-00	5	South Side 30' East of West End			+0	8.1	131.1	121.3	100+
09-06-00	6	South Side 55' West of East Enc			+0	7.0	130.2	121.7	100+
09-06-00	7	West Side 60' South of North End			+0	7.0	130.0	121.5	100+
09-06-00	8	West Side 40' North of South End			+0	6.9	128.9	120.6	100

Remarks: 100% compaction required.

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Brian Leach
Project Manager

Tested By: I. Evans

Reviewed By:

CC:
Melvin Marks Development – Craig Lewis
Arbuckle Costic Architects Inc. – Leonard Lodder
Pence Kelly Construction Inc. – Steve Schaad
City of Salem Salem Bldg & Safety Div - Supervisor
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ACRONYMS

ACRONYMS

AASHTO	American Association of State Highway and Transportation Officials
ASTM	American Society for Testing and Materials
BGS	below the ground surface
CRBG	Columbia River Basalt Group
pcf	pounds per cubic foot
pci	pounds per cubic inch
psf	pounds per square foot
SPT	standard penetration test

Marion County
Courthouse Square Remediation Project
Full Building Survey Services

May 4, 2010

David Evans and Associates, Inc.
530 Center Street NE, Suite 650
Salem, OR 97301

Project Manager: Jon Broadwater P.L.S

TABLE OF CONTENTS

Project overview

Marion County Facilities employed DEA to monitor the potential movement of the Courthouse square building in Salem, Oregon. DEA utilized a variety of survey techniques ranging from traversing and digital leveling, to terrestrial laser scanning. The goal of the project was to monument the structure, then measure said locations to document the possible deflections in the post tensioned slab floors and other structural elements of the building. DEA set approximately 1000 semi permanent monuments at pre determined grid line locations in the parking garage and five floors of the building. The bottom of the roof slab was measured by transferring the fifth floor elevations to the bottom of the roof slab. Temporary Bench Marks (TBM) were set in both stair wells at each floor to facilitate future measurements and to provide a redundancy check. DEA completed the work over a two week period beginning on 4-19-2010 and delivering the final report on 5-4-2010. The project required both a high level of accuracy and repeatability. To facilitate these needs DEA, through sound surveying practice, created the following control environment to base this project on.

Project Datum Statement

The horizontal datum held for this project is based on local coordinates. The basis of bearing held was the centerline of Court Street being S70-30-00E per the City of Salem plat. Vertical measurements were based off of closed digital level loops originating and closing to City of Salem benchmark 1155 located at the SW corner of Liberty and Center Street and having a NGVD 29/47 value of 153.40 ft. the following is the City of Salem bench mark data:

Name	1155
Status	
X Coord	0
Y Coord	0
Z Coord	0
Convergence	
Elevation	153.4
Type	
Section	
County	MARION
Marker	ALUM DISK
Description	SE CORNER LIBERTY & CENTER ST, TOP OF CURB IN RADIUS, 3' SW OF A CATCHBASIN

Horizontal Control Least Square Adjustment report:

File: Marn0043
Projection: Local grid
File Date: Wednesday, April 28, 2010

Units
=====

Angle: Degrees Minutes Seconds
Distance: International Feet

```
Earth constants
===============
        Refraction constant:      0.070
             Earth's radius: 6378000.000

      Combined scale factor:      1.000000

Fixed Coordinates
-----------------
  Point ID     North       East
     11      5000.000   10000.000
     12      4903.643   10272.103

Adjusted Coordinates
--------------------
   Point ID     North       East
     13       5068.600   10457.549
     10       5249.848    9971.833


Observations
------------
Directions
     At        To      Direction     +/-SD      Residual   Orientation   Grid Az.
     12        11       0°00'00"    0°00'02"   -0°00'01"   289°30'01"   289°30'00"
     12        13     118°50'45"    0°00'02"    0°00'01"                 48°20'47"
     13        12       0°00'00"    0°00'02"   -0°00'01"   228°20'48"   228°20'47"
     13        10      62°07'00"    0°00'02"    0°00'01"                290°27'48"
     10        13       0°00'00"    0°00'02"   -0°00'03"   110°27'51"   110°27'48"
     10        11      63°06'11"    0°00'02"    0°00'03"                173°34'04"
     11        10       0°00'00"    0°00'02"   -0°00'02"   353°34'07"   353°34'04"
     11        12     115°55'51"    0°00'02"    0°00'02"                109°30'00"
Distances
     At        To      Distance  +/-SD   Residual   Grid      L.S.F.
     12        11      288.662   0.005   -0.002   288.660   1.00000000
     12        13      248.196   0.005   -0.000   248.195   1.00000000
     13        12      248.198   0.005   -0.002   248.195   1.00000000
     13        10      518.431   0.005   -0.000   518.431   1.00000000
     10        13      518.430   0.005    0.000   518.431   1.00000000
     10        11      251.425   0.005    0.006   251.430   1.00000000
     11        10      251.433   0.005   -0.003   251.430   1.00000000
     11        12      288.656   0.005    0.004   288.660   1.00000000

Statistics
----------
Degrees of Freedom: 6
Fixed Coordinates: 2
Floating Coordinates: 2
Observations: 14
Directions: 8
Orientation: 4
```

```
Distances: 6
Number of Iterations: 2

Error Analysis
--------------
Variance Factor: 1.10
           Adjusted Coordinates   +/- 95% Confidence Limits      Error Ellipse
  Point ID     North       East    North       East   Semi Major Semi Minor  Orientation
    13      5068.600  10457.549      0.009       0.007      0.009       0.007     3°36'02"
    10      5249.848   9971.833      0.009       0.008      0.009       0.007    38°27'56"
```

Digital level reports for primary control:

Point Id	**Epoch**	**Height [fti]**	**Corr [fti]**	**Delta Hgt. [fti]**	**Point Class**	**Sd. Hgt. [fti]**
BM-2A	04/27/2010 13:03:02	153.4003	-	-	Control	-
TP1	04/27/2010 13:03:06	152.7485	0.0002	-0.6518	Measured	0.0010
TP2	04/27/2010 13:03:10	153.6718	0.0005	0.9233	Measured	0.0014
10	04/27/2010 13:03:14	153.5949	0.0006	-0.0769	Measured	0.0010
11	04/27/2010 13:03:18	153.4431	-0.0002	-0.1518	Measured	-
12	04/27/2010 13:03:22	152.1743	0.0000	-1.2688	Measured	-
13	04/27/2010 13:03:26	151.6795	0.0001	-0.4948	Measured	0.0020
TP3	04/27/2010 13:03:30	153.4548	0.0005	1.7753	Measured	0.0010
TP4	04/27/2010 13:03:34	153.4221	0.0018	-0.0327	Measured	0.0010
BM-2A	04/27/2010 13:03:38	153.4003	-	-0.0218	Control	-

Digital level reports for TBM building control:

Point Id	**Epoch**	**Height [fti]**	**Corr [fti]**	**Delta Hgt. [fti]**	**Point Class**	**Sd. Hgt. [fti]**
13	04/27/2010 13:03:41	151.6793	-	-	Control	-
TP1	04/27/2010 13:03:45	148.6879	-0.0004	-2.9914	Measured	-
TP2	04/27/2010 13:03:49	143.4218	-0.0005	-5.2662	Measured	-
BM-GA	04/27/2010 13:03:53	143.1726	0.0003	-0.2491	Measured	-
TP3	04/27/2010 13:03:57	147.9746	0.0003	4.8020	Measured	-
BM-1A	04/27/2010 13:04:01	153.4625	0.0002	5.4880	Measured	0.0010
TP4	04/27/2010 13:04:05	155.4185	0.0002	1.9560	Measured	-
TP5	04/27/2010 13:04:09	163.4125	0.0011	7.9940	Measured	-
BM-2A	04/27/2010 13:04:13	169.4814	0.0011	6.0690	Measured	-
TP5	04/27/2010 13:04:17	171.9454	0.0021	2.4640	Measured	-
TP6	04/27/2010 13:04:21	178.2094	0.0010	6.2640	Measured	-
BM-3A	04/27/2010 13:04:25	181.9773	0.0010	3.7680	Measured	-
TP8	04/27/2010 13:04:29	183.8793	0.0009	1.9020	Measured	-
TP9	04/27/2010 13:04:33	190.7143	0.0009	6.8350	Measured	-
BM-4A	04/27/2010 13:04:37	194.4912	-0.0002	3.7770	Measured	-
TP10	04/27/2010 13:04:41	196.3902	-0.0002	1.8990	Measured	-
TP11	04/27/2010 13:04:45	202.6312	-0.0002	6.2410	Measured	-
BM-5A	04/27/2010 13:04:49	206.9771	-0.0013	4.3460	Measured	0.0010
TP12	04/27/2010 13:04:53	207.1950	-0.0014	0.2179	Measured	-
TP13	04/27/2010 13:04:57	207.1850	-0.0005	-0.0101	Measured	-
BM-5B	04/27/2010 13:05:01	206.9787	-0.0007	-0.2062	Measured	-
TP14	04/27/2010 13:05:05	202.6617	-0.0007	-4.3171	Measured	-
TP15	04/27/2010 13:05:09	196.4066	-0.0008	-6.2551	Measured	-
BM-4B	04/27/2010 13:05:13	194.4686	-0.0008	-1.9380	Measured	-
TP16	04/27/2010 13:05:17	190.1255	-0.0009	-4.3430	Measured	-

TP17	04/27/2010 13:05:21	183.8985	-0.0019	-6.2271	Measured	-
BM-3B	04/27/2010 13:05:25	181.9584	-0.0019	-1.9400	Measured	-
TP18	04/27/2010 13:05:29	177.6444	-0.0030	-4.3140	Measured	-
TP19	04/27/2010 13:05:33	171.3873	-0.0030	-6.2571	Measured	-
BM-2B	04/27/2010 13:05:37	169.4783	-0.0020	-1.9091	Measured	-
TP20	04/27/2010 13:05:41	163.9772	-0.0031	-5.5010	Measured	-
TP21	04/27/2010 13:05:45	155.9842	-0.0021	-7.9930	Measured	-
BM-1B	04/27/2010 13:05:49	153.4981	-0.0022	-2.4860	Measured	-
TP22	04/27/2010 13:05:53	150.2661	-0.0022	-3.2321	Measured	0.0010
TP23	04/27/2010 13:05:57	145.1010	-0.0023	-5.1651	Measured	0.0010
BM-GB	04/27/2010 13:06:01	143.1820	-0.0023	-1.9190	Measured	-
TP24	04/27/2010 13:06:05	143.4079	-0.0024	0.2259	Measured	-
TP25	04/27/2010 13:06:09	148.2367	-0.0016	4.8288	Measured	-
13	04/27/2010 13:06:13	151.6793	-	3.4426	Control	-

Jon K Broadwater P.L.S
Senior Associate
David Evans and Associates, Inc.
May 4, 2010

GRID LINE ELEVATIONS

PARKING LEVEL

Bench Elevation= 143' 2 1/8"

ELEVATIONS					GRID LINE N-S				
GRID LINE E-W	**10**	**10A**	**10A-11**	**11**	**11--12**	**12**	**12-12A**	**12A**	**13**
A	143' 2 1/4"	143' 2 1/4"	143' 2 3/8"	143' 2"	143' 2 1/4"	143' 2 1/8"	143' 2 3/8"	143' 2 3/4"	143' 2 7/8"
A1	143' 2 1/4"	143' 2 1/4"	143' 2 1/8"	143' 2 1/4"	143' 2 1/4"	143' 2 1/8"	143' 2 3/8"	143' 2 5/8"	143' 2 3/8"
B-C	143' 2 1/8"	143' 2"	143' 1 7/8"	143' 2 1/8"	143' 2 1/4"	DNS	143' 2 3/8"	143' 2 1/4"	143' 2 1/2"
C	143' 2 1/4"	143' 2 1/8"	143' 2 1/4"	143' 2 1/8"	143' 2 1/4"	143' 2 1/2"	143' 2 3/8"	143' 2"	143' 2 1/8"
C-D	143' 2 1/4"	143' 2 1/4"	143' 2 3/8"	143' 2 1/4"	143' 2 1/4"	143' 2 1/2"	143' 2 1/4"	143' 2"	143' 1 7/8"
D	143' 2 3/8"	143' 1 7/8"	143' 2 1/4"	143' 2 1/4"	143' 2"	143' 2 1/4"	143' 2 1/4"	143' 2 1/8"	143' 2 1/8"
D-E	143' 2 1/8"	143' 2 1/8"	143' 2"	143' 2 1/4"	143' 1 7/8"	143' 2 3/8"	143' 2 1/8"	143' 2 1/2"	143' 2"
E	143' 2 1/4"	143' 2"	143' 2 1/2"	143' 2 1/2"	143' 1 3/4"	143' 2 3/8"	143' 2"	143' 2 1/8"	143' 2"
E-F	143' 2"	143' 2 3/8"	143' 2 1/8"	143' 2 1/4"	DNS	143' 2 1/8"	143' 2 1/8"	143' 2 5/8"	143' 2 1/2"
F	143' 2 1/4"	143' 2 3/8"	143' 2 1/4"	143' 2 1/8"	DNS	143' 2 3/8"	143' 2"	143' 2 1/8"	143' 2"
F-G	143' 2 1/4"	143' 2 3/8"	143' 1 7/8"	143' 2 3/8"	DNS	143' 2"	143' 2 1/4"	143' 2 3/8"	143' 2 3/8"
G	143' 2 3/8"	143' 2 1/4"	143' 2 1/8"	143' 2 1/8"	DNS	143' 2"	143' 2 3/8"	143' 2"	143' 1 3/4"
G-H	143' 2 1/4"	143' 2 3/8"	143' 2 1/8"	143' 1 7/8"	143' 1 1/2"	143' 2 1/8"	143' 1 7/8"	143' 2 1/8"	143' 2 1/8"
H	143' 1 7/8"	143' 2"	143' 2 1/8"	143' 2"	143' 1 3/4"	143' 2 1/8"	143' 2"	143' 2 1/8"	143' 1 5/8"
H-J	143' 2 3/8"	143' 2"	143' 2 1/8"	143' 2"	143' 2"	143' 2 1/8"	143' 2 1/4"	143' 2 1/4"	143' 2 1/8"
J	143' 2"	143' 2 1/8"	143' 2"	143' 2"	143' 2"	143' 2"	143' 2 1/4"	143' 2"	143' 1 7/8"
J-K	143' 2 1/8"	143' 2 1/8"	143' 2"	143' 2 1/8"	143' 1 7/8"	143' 2"	143' 2 1/4"	143' 2 3/8"	143' 1 7/8"
K	143' 2"	DNS	DNS	DNS	143' 2 3/8"	143' 2 1/8"	DNS	143' 2 1/8"	143' 2"
K-L	143' 2 1/8"	DNS	DNS	DNS	143' 1 3/4"	143' 2 1/4"	143' 2"	143' 2 3/8"	143' 2 1/8"
L	143' 1 7/8"	DNS	DNS	DNS	DNS	143' 1 7/8"	143' 1 3/4"	143' 2"	143' 2 1/8"
L-M	143' 2 3/8"	143' 2 1/8"	143' 2 1/8"	143' 1 5/8"	DNS	143' 1 3/4"	143' 1 3/4"	143' 2 1/8"	143' 2 1/4"
M	143' 1 5/8"	143' 2"	143' 1 7/8"	143' 2"	DNS	143' 2 1/4"	143' 1 3/4"	143' 2 1/8"	143' 2"
M-N	143' 2"	143' 1 3/4"	143' 1 1/4"	143' 1 1/2"	143' 1 3/4"	143' 1 5/8"	143' 1 5/8"	DNS	DNS
N	143' 1 7/8"	143' 1 7/8"	143' 1 7/8"	143' 1 3/4"	DNS	143' 2"	143' 1 5/8"	143' 2 1/8"	143' 2 1/4"
N1	143' 2"	143' 1 7/8"	143' 1 1/2"	143' 1 3/4"	DNS	143' 1 1/2"	143' 1 1/2"	143' 2 1/4"	143' 2"
O	143' 2 3/8"	143' 2 1/8"	143' 1 7/8"	143' 1 7/8"	DNS	143' 1 7/8"	143' 2"	DNS	DNS
	ELEVATION OF GRID POINT IN FEET & INCHES					DNS = DID NOT SURVEY			

RELITIVE DIFF. FROM BENCH ELEV.					GRID LINE N-S				
GRID LINE E-W	**10**	**10A**	**10A-11**	**11**	**11--12**	**12**	**12-12A**	**12A**	**13**
A	0' 0 1/4"	0' 0 1/8"	0' 0 1/4"	0' 0"	0' 0 1/8"	0' 0 1/8"	0' 0 1/4"	0' 0 5/8"	0' 0 3/4"
A1	0' 0 1/8"	0' 0 1/8"	0' 0 1/8"	0' 0 1/8"	0' 0 1/4"	0' 0"	0' 0 1/4"	0' 0 1/2"	0' 0 3/8"
B-C	0' 0"	0' 0"	0' 0 -1/8"	0' 0 1/8"	0' 0 1/8"	DNS	0' 0 3/8"	0' 0 1/4"	0' 0 3/8"
C	0' 0 1/4"	0' 0"	0' 0 1/4"	0' 0 1/8"	0' 0 1/8"	0' 0 3/8"	0' 0 3/8"	0' 0"	0' 0 1/8"
C-D	0' 0 1/4"	0' 0 1/4"	0' 0 1/4"	0' 0 1/8"	0' 0 1/8"	0' 0 3/8"	0' 0 1/4"	0' 0"	0' 0 -1/8"
D	0' 0 3/8"	0' 0 -1/8"	0' 0 1/8"	0' 0 1/8"	0' 0 -1/8"	0' 0 1/8"	0' 0 1/4"	0' 0 1/8"	0' 0"
D-E	0' 0 1/8"	0' 0"	0' 0 -1/8"	0' 0 1/8"	0' 0 -1/4"	0' 0 1/4"	0' 0"	0' 0 3/8"	0' 0"
E	0' 0 1/4"	0' 0 -1/8"	0' 0 3/8"	0' 0 3/8"	0' 0 -3/8"	0' 0 1/4"	0' 0 -1/8"	0' 0"	0' 0"
E-F	0' 0"	0' 0 3/8"	0' 0"	0' 0 1/8"	DNS	0' 0"	0' 0"	0' 0 1/2"	0' 0 1/2"
F	0' 0 1/4"	0' 0 1/4"	0' 0 1/4"	0' 0"	DNS	0' 0 1/4"	0' 0"	0' 0"	0' 0 -1/8"
F-G	0' 0 1/4"	0' 0 3/8"	0' 0 -1/8"	0' 0 3/8"	DNS	0' 0 -1/8"	0' 0 1/8"	0' 0 3/8"	0' 0 3/8"
G	0' 0 1/4"	0' 0 1/4"	0' 0 1/8"	0' 0"	DNS	0' 0 -1/8"	0' 0 3/8"	0' 0 -1/8"	0' 0 -1/4"
G-H	0' 0 1/8"	0' 0 1/4"	0' 0 1/8"	0' 0 -1/8"	0' 0 -5/8"	0' 0"	0' 0 -1/4"	0' 0 1/8"	0' 0 1/8"
H	0' 0 -1/8"	0' 0"	0' 0"	0' 0 -1/8"	0' 0 -3/8"	0' 0"	0' 0 -1/8"	0' 0 1/8"	0' 0 -3/8"
H-J	0' 0 3/8"	0' 0"	0' 0"	0' 0 -1/8"	0' 0"	0' 0"	0' 0 1/4"	0' 0 1/4"	0' 0"
J	0' 0"	0' 0 1/8"	0' 0"	0' 0 -1/8"	0' 0"	0' 0 -1/8"	0' 0 1/8"	0' 0 -1/8"	0' 0 -1/4"
J-K	0' 0"	0' 0 1/8"	0' 0"	0' 0"	0' 0 -1/4"	0' 0"	0' 0 1/4"	0' 0 1/4"	0' 0 -1/4"
K	0' 0 -1/8"	DNS	DNS	DNS	0' 0 1/4"	0' 0"	DNS	0' 0"	0' 0 -1/8"
K-L	0' 0"	DNS	DNS	DNS	0' 0 -3/8"	0' 0 1/4"	0' 0 -1/8"	0' 0 1/4"	0' 0 1/8"
L	0' 0 -1/4"	DNS	DNS	DNS	DNS	0' 0 -1/4"	0' 0 -3/8"	0' 0 -1/8"	0' 0"
L-M	0' 0 1/4"	0' 0"	0' 0"	0' 0 -3/8"	DNS	0' 0 -3/8"	0' 0 -1/4"	0' 0"	0' 0 1/4"
M	0' 0 -3/8"	0' 0"	0' 0 -1/4"	0' 0 -1/8"	DNS	0' 0 1/4"	0' 0 -3/8"	0' 0 1/8"	0' 0 -1/8"
M-N	0' 0 -1/8"	0' 0 -3/8"	0' 0 -3/4"	0' 0 -5/8"	0' 0 -3/8"	0' 0 -1/2"	0' 0 -1/2"	DNS	DNS
N	0' 0 -1/4"	0' 0 -1/4"	0' 0 -1/4"	0' 0 -1/4"	DNS	0' 0"	0' 0 -1/2"	0' 0"	0' 0 1/8"
N1	0' 0 -1/8"	0' 0 -1/4"	0' 0 -1/2"	0' 0 -3/8"	DNS	0' 0 -5/8"	0' 0 -1/2"	0' 0 1/4"	0' 0"
O	0' 0 1/4"	0' 0 1/8"	0' 0 -1/4"	0' 0 -1/4"	DNS	0' 0 -1/4"	0' 0"	DNS	DNS
						DNS = DID NOT SURVEY			

MONUMENTS SET			
GRID LINE E-W	*GRIDLINE N-S*	*DESCRIPTION*	*LOCATION*
A			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
A1			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
B-C			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Did Not Survey	Point was Destroyed
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
C			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
C-D			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
D			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Set on East Side of Column
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
D-E			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line

E			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
E-F			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
F			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Set on South Side of Column
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
F-G			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Set of South Side of Wall
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
G			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Set of South Side of Column
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
G-H			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line-3.5' South of Wall Angle Point
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
H			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line

H-J			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	SCRIBE ON CONTRETE	On Grid Line
	11--12	SCRIBE ON CONTRETE	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
J			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Set on South Side of Column
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
J-K			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
K			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Did Not Survey	On Garage Ramp
	10A-11	Did Not Survey	On Garage Ramp
	11	Did Not Survey	On Garage Ramp
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
K-L			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Did Not Survey	On Garage Ramp
	10A-11	Did Not Survey	On Garage Ramp
	11	Did Not Survey	On Garage Ramp
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
L			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Did Not Survey	On Garage Ramp
	10A-11	Did Not Survey	On Garage Ramp
	11	Did Not Survey	On Garage Ramp
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
L-M			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line

M			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	Set on North Side of Column
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
M-N			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Did Not Survey	Immovable Vehicle
	13	Did Not Survey	Immovable Vehicle
N			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	Immovable Vehicle
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
N1			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	Immovable Vehicle
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
O			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Did Not Survey	Immovable Vehicle
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Did Not Survey	Inside Heating Unit - No Access
	13	Did Not Survey	Inside Heating Unit - No Access

GRID LINE ELEVATIONS

FIRST FLOOR

Bench Elevation= 153' 5 1/2"

ELEVATION					*GRIDLINE N-S*				
GRID LINE E-W	**10A**	**10A-11**	**11**	**11--12**	**12**	**12-12A**	**12A**	**12A-13**	**13**
C-D	153' 6"	153' 5 3/4"	153' 5 3/4"	153' 6"	153' 5 3/4"	153' 5 5/8"	153' 5 1/2"	DNS	DNS
D	153' 6"	153' 5 7/8"	153' 6 1/8"	153' 6 1/8"	153' 5 5/8"	153' 4 7/8"	153' 5 7/8"	153' 5 5/8"	153' 5 5/8"
D-E	153' 5 1/2"	153' 6"	153' 6"	153' 6 3/8"	153' 5 1/8"	153' 4 7/8"	153' 5 3/8"	153' 5 1/2"	153' 5 1/2"
E	153' 6 1/8"	153' 6"	153' 5 7/8"	153' 5 3/4"	153' 5 1/2"	DNS	153' 5 5/8"	159' 7 1/4"	153' 5 5/8"
E-F	153' 5 3/4"	153' 6 1/8"	153' 5 3/4"	153' 5 3/4"	153' 6"	153' 5 3/8"	153' 5 5/8"	153' 5 5/8"	153' 5 3/4"
F	153' 5 3/4"	153' 5 3/4"	153' 5 5/8"	153' 5 5/8"	153' 5 3/4"	153' 5 1/8"	153' 6 1/8"	153' 5 7/8"	DNS
F-G	153' 5 3/4"	153' 5 3/4"	153' 5 3/4"	153' 5 5/8"	153' 5 3/8"	153' 4 7/8"	153' 5 3/4"	153' 5 3/4"	153' 5 7/8"
G	153' 5 7/8"	153' 5 5/8"	153' 5 1/8"	DNS	153' 5 1/2"	153' 5 3/8"	153' 5 5/8"	153' 5 3/4"	153' 6"
G-H	153' 5"	153' 4 3/4"	153' 5 5/8"	153' 5 1/8"	153' 5 3/8"	153' 5"	153' 5 3/8"	153' 5 3/8"	DNS
H	153' 5 7/8"	153' 5 1/8"	153' 5 3/4"	DNS	153' 5 1/4"	153' 5"	153' 5 7/8"	153' 5 5/8"	153' 5 1/2"
H-J	153' 5 1/4"	153' 5 1/8"	153' 4 7/8"	153' 5 3/8"	153' 5 1/8"	153' 4 1/2"	153' 5 1/8"	153' 5 5/8"	153' 5 5/8"
J	153' 5 3/8"	153' 5 1/2"	153' 5 1/2"	153' 4 3/4"	153' 5 3/4"	153' 4 7/8"	154' 0 5/8"	154' 1"	DNS
J-K	153' 5 3/8"	153' 5 1/8"	153' 5 1/8"	153' 5 1/4"	153' 5 3/8"	153' 5"	153' 5 3/8"	154' 0 1/2"	154' 1"
K	DNS	153' 5 3/8"	153' 6 1/8"	153' 5 1/8"	153' 5 5/8"	153' 5 1/4"	154' 0 3/4"	154' 0 7/8"	DNS
K-L	DNS	DNS	153' 5 1/2"	153' 5 1/8"	153' 5 1/4"	153' 5 3/8"	153' 5 3/8"	153' 5 1/2"	153' 5 5/8"
L	DNS	DNS	DNS	DNS	153' 6 1/4"	153' 5 1/2"	153' 6 3/8"	153' 6"	DNS
L-M	DNS	DNS	DNS	DNS	153' 6 5/8"	153' 5 1/2"	153' 5 3/4"	153' 5 7/8"	153' 6"
M	DNS	DNS	153' 5 7/8"	DNS	153' 6 3/8"	153' 5 3/8"	153' 6"	153' 6"	DNS
M-N	DNS	DNS	DNS	DNS	153' 4 7/8"	153' 6 1/8"	153' 5 1/2"	153' 6 1/4"	153' 6 1/8"
N	DNS	DNS	DNS	DNS	153' 5 3/8"	153' 5 1/4"	153' 6"	153' 6 1/8"	153' 6"
N1	DNS	DNS	DNS	DNS	DNS	DNS	153' 3 5/8"	153' 5 7/8"	153' 6 1/4"
O	DNS	DNS	DNS	DNS	153' 1 1/8"	153' 1 1/4"	153' 0 7/8"	153' 1 1/2"	DNS
	ELEVATION OF GRID POINTS IN FEET & INCHES					DNS = DID NOT SURVEY			

RELITIVE DIFF. FROM BENCH ELEV.					*GRIDLINE N-S*				
GRID LINE E-W	**10A**	**10A-11**	**11**	**11--12**	**12**	**12-12A**	**12A**	**12A-13**	**13**
C-D	0' 0 1/2"	0' 0 1/4"	0' 0 1/4"	0' 0 3/8"	0' 0 1/8"	0' 0 1/8"	0' 0 -1/8"	DNS	DNS
D	0' 0 1/2"	0' 0 3/8"	0' 0 5/8"	0' 0 5/8"	0' 0 1/8"	0' 0 -5/8"	0' 0 3/8"	0' 0 1/8"	0' 0 1/8"
D-E	0' 0"	0' 0 3/8"	0' 0 3/8"	0' 0 7/8"	0' 0 -1/2"	0' 0 -5/8"	0' 0 -1/4"	0' 0 -1/8"	0' 0 -1/8"
E	0' 0 1/2"	0' 0 1/2"	0' 0 3/8"	0' 0 1/4"	0' 0 -1/8"	DNS	0' 0 1/8"	6' 1 3/4"	0' 0 1/8"
E-F	0' 0 1/4"	0' 0 5/8"	0' 0 1/4"	0' 0 1/8"	0' 0 1/2"	0' 0 -1/8"	0' 0 1/8"	0' 0 1/8"	0' 0 1/4"
F	0' 0 1/4"	0' 0 1/4"	0' 0 1/8"	0' 0 1/8"	0' 0 1/4"	0' 0 -1/2"	0' 0 5/8"	0' 0 3/8"	DNS
F-G	0' 0 1/4"	0' 0 1/4"	0' 0 1/4"	0' 0 1/8"	0' 0 -1/8"	0' 0 -3/4"	0' 0 1/8"	0' 0 1/8"	0' 0 1/4"
G	0' 0 3/8"	0' 0 1/8"	0' 0 -1/2"	DNS	0' 0"	0' 0 -1/4"	0' 0 1/8"	0' 0 1/8"	0' 0 3/8"
G-H	0' 0 -1/2"	0' 0 -3/4"	0' 0 1/8"	0' 0 -3/8"	0' 0 -1/8"	0' 0 -1/2"	0' 0 -1/4"	0' 0 -1/8"	DNS
H	0' 0 3/8"	0' 0 -3/8"	0' 0 1/8"	DNS	0' 0 -3/8"	0' 0 -1/2"	0' 0 3/8"	0' 0 1/8"	0' 0"
H-J	0' 0 -3/8"	0' 0 -3/8"	0' 0 -3/4"	0' 0 -1/4"	0' 0 -3/8"	0' -1 -1/8"	0' 0 -1/2"	0' 0"	0' 0 1/8"
J	0' 0 -1/8"	0' 0 -1/8"	0' 0"	0' 0 -3/4"	0' 0 1/8"	0' 0 -5/8"	0' 7 1/8"	0' 7 1/2"	DNS
J-K	0' 0 -1/4"	0' 0 -1/2"	0' 0 -1/2"	0' 0 -3/8"	0' 0 -1/8"	0' 0 -1/2"	0' 0 -1/8"	0' 7"	0' 7 1/2"
K	DNS	0' 0 -1/8"	0' 0 1/2"	0' 0 -1/2"	0' 0 1/8"	0' 0 -3/8"	0' 7 1/4"	0' 7 3/8"	DNS
K-L	DNS	DNS	0' 0"	0' 0 -3/8"	0' 0 -3/8"	0' 0 -1/8"	0' 0 -1/4"	0' 0 -1/8"	0' 0 1/8"
L	DNS	DNS	DNS	DNS	0' 0 3/4"	0' 0 -1/8"	0' 0 7/8"	0' 0 1/2"	DNS
L-M	DNS	DNS	DNS	DNS	0' 1 1/8"	0' 0 -1/8"	0' 0 1/8"	0' 0 3/8"	0' 0 3/8"
M	DNS	DNS	0' 0 3/8"	DNS	0' 0 3/4"	0' 0 -1/8"	0' 0 1/2"	0' 0 3/8"	DNS
M-N	DNS	DNS	DNS	DNS	0' 0 -3/4"	0' 0 1/2"	0' 0 -1/8"	0' 0 3/4"	0' 0 1/2"
N	DNS	DNS	DNS	DNS	0' 0 -1/8"	0' 0 -3/8"	0' 0 3/8"	0' 0 1/2"	0' 0 1/2"
N1	DNS	DNS	DNS	DNS	DNS	DNS	0' -1 -1/1"	0' 0 3/8"	0' 0 3/4"
O	DNS	DNS	DNS	DNS	0' -4 -1/2"	0' -4 -3/8"	0' -4 -5/8"	0' -4 -1/8"	DNS
	ELEVATION OF GRID POINTS IN FEET & INCHES					DNS = DID NOT SURVEY			

MONUMENTS SET			
GRID LINE E-W	*GRIDLINE N-S*	*DESCRIPTION*	*LOCATION*
C-D			
	10	Did Not Survey	No Proposed Location
	10A	Marker Dot	On Grid Line
	10A-11	Marker Dot	0.1' East of Wall
	11	Marker Dot	0.1' East and 0.73' North of Corner
	11--12	Marker Dot	On Grid Line
	12	Marker Dot	0.7' East and 0.55' South of Corner
	12-12A	Marker Dot	On Grid Line
	12A	Marker Dot	On Grid Line
	12A-13	Did Not Survey	No Proposed Location
	13	Did Not Survey	No Proposed Location
D			
	10	Did Not Survey	No Proposed Location
	10A	Marker Dot	On Grid Line
	10A-11	Marker Dot	On Grid Line
	11	Marker Dot	Moved to 4.0' West of Grid Line on Column CL
	11--12	Marker Dot	On Grid Line
	12	Marker Dot	On Grid Line
	12-12A	Marker Dot	On Grid Line
	12A	Marker Dot	On Grid Line
	12A-13	Marker Dot	On Grid Line
	13	Marker Dot	On Grid Line
D-E			
	10	Did Not Survey	No Proposed Location
	10A	Marker Dot	On Grid Line
	10A-11	Marker Dot	On Grid Line
	11	Marker Dot	On Grid Line
	11--12	Marker Dot	On Grid Line
	12	Marker Dot	Moved to North Side of Wall on Grid Line
	12-12A	Marker Dot	On Grid Line
	12A	Marker Dot	On Grid Line
	12A-13	Marker Dot	On Grid Line
	13	Marker Dot	On Grid Line
E			
	10	Did Not Survey	No Proposed Location
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Marker Dot	Moved 4' East of Grid Line on Column CL
	11--12	Marker Dot	On Grid Line
	12	Marker Dot	On Grid Line
	12-12A	Did Not Survey	Immovable Kitchen Appliances
	12A	Marker Dot	Moved 2' West of Grid Line
	12A-13	Marker Dot	Moved 2' West of Grid Line
	13	Marker Dot	Moved 2' West of Grid Line
E-F			
	10	Did Not Survey	No Proposed Location
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Marker Dot	On Grid Line
	11--12	Marker Dot	On Grid Line
	12	Marker Dot	On Grid Line
	12-12A	Marker Dot	On Grid Line
	12A	Marker Dot	On Grid Line
	12A-13	Marker Dot	On Grid Line
	13	Marker Dot	On Grid Line
F			
	10	Did Not Survey	No Proposed Location
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Marker Dot	Moved to South side of Column
	11--12	Marker Dot	On Grid Line
	12	Marker Dot	On Grid Line
	12-12A	Marker Dot	On Grid Line
	12A	Marker Dot	On Grid Line
	12A-13	Marker Dot	On Grid Line
	13	Did Not Survey	Permanent Office Furniture

F-G			
	10	Did Not Survey	No Proposed Location
	10A	Marker Dot	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Marker Dot	On Grid Line
	11--12	Marker Dot	Moved North into Elec. Closet 1151
	12	Marker Dot	On Grid Line
	12-12A	Marker Dot	On Grid Line
	12A	Marker Dot	On Grid Line
	12A-13	Marker Dot	On Grid Line
	13	Marker Dot	On Grid Line
G			
	10	Did Not Survey	No Proposed Location
	10A	Marker Dot	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Marker Dot	Moved to South Side of Column
	11--12	Did Not Survey	No Proposed Location
	12	Marker Dot	On Grid Line
	12-12A	Marker Dot	On Grid Line
	12A	Marker Dot	Moved 2.8' West of Grid Line
	12A-13	Marker Dot	Moved 2.8' West of Grid Line
	13	Marker Dot	On Grid Line
G-H			
	10	Did Not Survey	No Proposed Location
	10A	Marker Dot	On Grid Line
	10A-11	Marker Dot	On Grid Line
	11	Marker Dot	On Grid Line
	11--12	Marker Dot	On Grid Line
	12	Marker Dot	On Grid Line
	12-12A	Marker Dot	On Grid Line
	12A	Marker Dot	On Grid Line
	12A-13	Marker Dot	On Grid Line
	13	Did Not Survey	No Proposed Location
H			
	10	Did Not Survey	No Proposed Location
	10A	Marker Dot	On Grid Line
	10A-11	Marker Dot	On Grid Line
	11	Marker Dot	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Marker Dot	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A-13	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
H-J			
	10	Did Not Survey	No Proposed Location
	10A	Marker Dot	On Grid Line
	10A-11	Marker Dot	On Grid Line
	11	Marker Dot	On Grid Line
	11--12	Marker Dot	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A-13	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
J			
	10	Did Not Survey	No Proposed Location
	10A	Marker Dot	On Grid Line
	10A-11	Marker Dot	On Grid Line
	11	Marker Dot	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Raised Concrete Pad
	12A-13	Set 3/4" Pin w/ Washer	On Raised Concrete Pad
	13	Did Not Survey	No Proposed Location

J-K			
	10	Did Not Survey	No Proposed Location
	10A	Marker Dot	On Grid Line
	10A-11	Marker Dot	On Grid Line
	11	Marker Dot	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A-13	Set 3/4" Pin w/ Washer	On Raised Concrete Pad
	13	Set 3/4" Pin w/ Washer	On Raised Concrete Pad
K			
	10	Did Not Survey	No Proposed Location
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Marker Dot	On Grid Line
	11	Marker Dot	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Raised Concrete Pad
	12A-13	Set 3/4" Pin w/ Washer	On Raised Concrete Pad
	13	Did Not Survey	No Proposed Location
K-L			
	10	Did Not Survey	No Proposed Location
	10A	Did Not Survey	No Proposed Location
	10A-11	Did Not Survey	No Proposed Location
	11	Marker Dot	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Marker Dot	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A-13	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
L			
	10	Did Not Survey	No Proposed Location
	10A	Did Not Survey	No Proposed Location
	10A-11	Did Not Survey	No Proposed Location
	11	Did Not Survey	No Proposed Location
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A-13	Set 3/4" Pin w/ Washer	On Grid Line
	13	Did Not Survey	Permanent Office Furniture
L-M			
	10	Did Not Survey	No Proposed Location
	10A	Did Not Survey	No Proposed Location
	10A-11	Did Not Survey	No Proposed Location
	11	Did Not Survey	No Proposed Location
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On grid Line
	12-12A	Set 3/4" Pin w/ Washer	On grid Line
	12A	Set 3/4" Pin w/ Washer	On grid Line
	12A-13	Set 3/4" Pin w/ Washer	On grid Line
	13	Set 3/4" Pin w/ Washer	On grid Line
M			
	10	Did Not Survey	No Proposed Location
	10A	Did Not Survey	No Proposed Location
	10A-11	Did Not Survey	No Proposed Location
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A-13	Set 3/4" Pin w/ Washer	On Grid Line
	13	Did Not Survey	Permanent Office Furniture

M-N			
	10	Did Not Survey	No Proposed Location
	10A	Did Not Survey	No Proposed Location
	10A-11	Did Not Survey	No Proposed Location
	11	Did Not Survey	No Access
	11--12	Did Not Survey	No Access
	12	Did Not Survey	No Proposed Location
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A-13	Set 3/4" Pin w/ Washer	On Grid Line
	13	Marker Dot	On Grid Line
N			
	10	Did Not Survey	No Proposed Location
	10A	Did Not Survey	No Proposed Location
	10A-11	Did Not Survey	No Proposed Location
	11	Did Not Survey	No Proposed Location
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A-13	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
N1			
	10	Did Not Survey	No Proposed Location
	10A	Did Not Survey	No Proposed Location
	10A-11	Did Not Survey	No Proposed Location
	11	Did Not Survey	No Proposed Location
	11--12	Did Not Survey	No Proposed Location
	12	Did Not Survey	No Proposed Location
	12-12A	Did Not Survey	No Proposed Location
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A-13	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
O			
	10	Did Not Survey	No Proposed Location
	10A	Did Not Survey	No Proposed Location
	10A-11	Did Not Survey	No Proposed Location
	11	Did Not Survey	No Proposed Location
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A-1	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A-2	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Did Not Survey	No Proposed Location

GRID LINE ELEVATIONS

SECOND FLOOR

Bench Elevation= 169' 5 3/4"

ELEVATION				GRIDLINE N-S			
GRID LINE E-W	**10**	**10A-11**	**11**	**11--12**	**12**	**12-12A**	**13**
C	169' 5 7/8"	169' 5 3/8"	169' 5 5/8"	169' 5 3/8"	169' 5 3/4"	169' 5"	169' 5 7/8"
C-D	169' 5 3/8"	169' 4 7/8"	169' 5 3/8"	169' 5 1/2"	169' 5 1/8"	169' 5 1/8"	169' 5 1/2"
D	169' 5 3/8"	169' 4 7/8"	169' 5 3/8"	169' 5 1/2"	169' 5 1/8"	169' 4 3/8"	169' 5 3/4"
D-E	169' 5 3/8"	169' 5 1/8"	169' 5 3/8"	169' 5 7/8"	169' 5 5/8"	169' 5"	169' 5 3/8"
E	169' 5 3/8"	169' 4 3/8"	169' 5 5/8"	169' 5 3/4"	169' 5 5/8"	169' 4 1/8"	169' 5 1/4"
E-F	169' 5 1/2"	169' 5"	169' 5 5/8"	DNS	169' 5 3/4"	169' 4 5/8"	169' 5 1/2"
F	169' 5 3/4"	169' 4 1/2"	169' 5 3/4"	DNS	169' 6 3/8"	169' 4"	169' 5 7/8"
F-G	169' 5 1/2"	169' 5 3/8"	169' 5 3/4"	DNS	169' 5 3/4"	169' 5"	169' 4 3/4"
G	169' 5 1/4"	169' 4 3/8"	169' 5 7/8"	DNS	169' 6 1/4"	169' 5 3/8"	169' 6"
G-H	169' 5 1/4"	169' 4 1/2"	169' 5 1/8"	169' 6 3/8"	169' 5 3/4"	DNS	DNS
H	169' 4 7/8"	169' 4 1/8"	169' 5 1/8"	169' 5 1/2"	169' 5"	169' 4 7/8"	169' 5 5/8"
H-J	169' 4 7/8"	169' 4 7/8"	169' 5 1/4"	169' 5 3/8"	169' 4 7/8"	169' 4 1/2"	169' 4 1/2"
J	169' 4 3/4"	169' 3 3/4"	169' 4 3/4"	169' 4 3/4"	169' 4 3/4"	169' 3 1/2"	169' 5 1/8"
J-K	169' 5"	169' 4 1/2"	169' 4 1/4"	170' 4"	169' 4 3/8"	169' 4 3/8"	169' 4 3/4"
K	169' 5 1/2"	169' 5 1/4"	DNS	169' 4 5/8"	169' 5 1/8"	169' 4 1/8"	169' 5"
K-L	169' 5"	169' 5 3/4"	DNS	169' 4 3/4"	169' 5"	169' 4 3/4"	169' 5 3/8"
L	169' 5 1/8"	169' 5 1/8"	169' 6"	DNS	169' 4 3/4"	169' 4"	169' 5 1/8"
L-M	169' 5 1/8"	169' 5 1/4"	169' 6"	169' 5 5/8"	169' 5 3/8"	169' 4 1/4"	169' 5 3/8"
M	169' 5 1/2"	169' 5"	169' 6 3/8"	DNS	169' 5 3/8"	169' 4"	169' 5 5/8"
M-N	169' 4 7/8"	169' 4 3/4"	169' 4 3/4"	169' 5 1/8"	169' 5"	169' 5 1/8"	169' 5"
N	169' 5 1/8"	169' 4 5/8"	169' 5"	169' 5 1/8"	169' 4 7/8"	169' 5 1/8"	169' 5 5/8"
N1	169' 5 5/8"	169' 5"	169' 5 1/8"	169' 4 3/4"	169' 4 7/8"	169' 5 1/8"	169' 5 3/4"
O	169' 5 1/2"	DNS	169' 5 1/2"	169' 5 3/8"	169' 5 1/4"	169' 5 5/8"	169' 5 5/8"
	ELEVATION OF GRID POINTS IN FEET & INCHES					DNS = DID NOT SURVEY	

RELITIVE DIFF. FROM BENCH ELEV.				GRIDLINE N-S			
GRID LINE E-W	**10**	**10A-11**	**11**	**11--12**	**12**	**12-12A**	**13**
C	0' 0 1/4"	0' 0 -3/8"	0' 0 -1/8"	0' 0 -3/8"	0' 0"	0' 0 -3/4"	0' 0 1/4"
C-D	0' 0 -3/8"	0' 0 -7/8"	0' 0 -3/8"	0' 0 -1/4"	0' 0 -5/8"	0' 0 -5/8"	0' 0 -1/4"
D	0' 0 -3/8"	0' 0 -7/8"	0' 0 -3/8"	0' 0 -1/4"	0' 0 -1/2"	0' -1 -3/8"	0' 0"
D-E	0' 0 -3/8"	0' 0 -5/8"	0' 0 -3/8"	0' 0 1/8"	0' 0 -1/8"	0' 0 -3/4"	0' 0 -3/8"
E	0' 0 -3/8"	0' -1 -3/8"	0' 0 -1/8"	0' 0"	0' 0 -1/8"	0' -1 -5/8"	0' 0 -1/2"
E-F	0' 0 -1/4"	0' 0 -3/4"	0' 0 -1/8"	DNS	0' 0"	0' -1 -1/8"	0' 0 -1/4"
F	0' 0"	0' -1 -1/8"	0' 0"	DNS	0' 0 5/8"	0' -1 -3/4"	0' 0 1/8"
F-G	0' 0 -1/4"	0' 0 -3/8"	0' 0"	DNS	0' 0"	0' 0 -3/4"	0' 0 -1/1"
G	0' 0 -1/2"	0' -1 -3/8"	0' 0 1/8"	DNS	0' 0 1/2"	0' 0 -3/8"	0' 0 1/4"
G-H	0' 0 -1/2"	0' -1 -1/8"	0' 0 -5/8"	0' 0 5/8"	0' 0"	DNS	DNS
H	0' 0 -7/8"	0' -1 -5/8"	0' 0 -1/2"	0' 0 -1/4"	0' 0 -3/4"	0' 0 -7/8"	0' 0 -1/8"
H-J	0' 0 -7/8"	0' 0 -7/8"	0' 0 -1/2"	0' 0 -3/8"	0' 0 -7/8"	0' -1 -1/4"	0' -1 -1/8"
J	0' -1"	0' -1 -1/1"	0' 0 -1/1"	0' -1"	0' -1"	0' -2 -1/4"	0' 0 -5/8"
J-K	0' 0 -3/4"	0' -1 -1/4"	0' -1 -1/2"	0' 10 1/4"	0' -1 -3/8"	0' -1 -3/8"	0' 0 -1/1"
K	0' 0 -1/4"	0' 0 -1/2"	DNS	0' -1 -1/8"	0' 0 -1/2"	0' -1 -5/8"	0' 0 -3/4"
K-L	0' 0 -3/4"	0' 0"	DNS	0' -1"	0' 0 -3/4"	0' -1"	0' 0 -3/8"
L	0' 0 -5/8"	0' 0 -1/2"	0' 0 3/8"	DNS	0' -1"	0' -1 -3/4"	0' 0 -1/2"
L-M	0' 0 -1/2"	0' 0 -1/2"	0' 0 1/4"	0' 0 -1/8"	0' 0 -3/8"	0' -1 -1/2"	0' 0 -3/8"
M	0' 0 -1/4"	0' 0 -3/4"	0' 0 5/8"	DNS	0' 0 -3/8"	0' -1 -3/4"	0' 0 -1/8"
M-N	0' 0 -7/8"	0' 0 -1/1"	0' 0 -1/1"	0' 0 -1/2"	0' 0 -3/4"	0' 0 -5/8"	0' 0 -3/4"
N	0' 0 -5/8"	0' -1 -1/8"	0' 0 -3/4"	0' 0 -5/8"	0' 0 -7/8"	0' 0 -1/2"	0' 0 -1/8"
N1	0' 0 -1/8"	0' 0 -3/4"	0' 0 -5/8"	0' 0 -1/1"	0' 0 -7/8"	0' 0 -5/8"	0' 0"
O	0' 0 -1/4"	DNS	0' 0 -1/4"	0' 0 -3/8"	0' 0 -1/2"	0' 0 -1/8"	0' 0 -1/8"
	ELEVATION OF GRID POINTS IN FEET & INCHES					DNS = DID NOT SURVEY	

MONUMENTS SET			
GRID LINE E-W	*GRIDLINE N-S*	*DESCRIPTION*	*LOCATION*
C			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Marker Dot	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
C-D			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
D			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Marker Dot	On Grid Line
	12-12A	Marker Dot	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
D-E			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
E			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to South Side of Column
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
E-F			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
F			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Marker Dot	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line

F-G			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Marker Dot	On Grid Line
	11--12	NONE	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
G			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Marker Dot	On Grid Line
	11--12	NONE	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
G-H			
	10	Set 3/4" Pin w/ Washer	Moved 2' West of Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Marker Dot	On Grid Line
	11--12	Marker Dot	In Lobby 12.5' South & 8.9' West of Northeast Corner
	12	Marker Dot	In Lobby 7.1' North & 8.9' West of Southeast Corner
	12-12A	Did Not Survey	No Proposed Location
	13	Did Not Survey	No Proposed Location
H			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to South Side of Column
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
H-J			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line-6.8' North of Wall
	13	Set 3/4" Pin w/ Washer	On Grid Line
J			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
J-K			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line

K			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Did Not Survey	Permanent Office Furniture
	11--12	Marker Dot	Moved to West Side of Wall into Mens Room
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
K-L			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Did Not Survey	Permanent Office Furniture
	11--12	Marker Dot	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
L			
	10	Marker Dot	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	NONE	No Proposed Location
	12	Set 3/4" Pin w/ Washer	1.9' South of SW Corner of Column
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
L-M			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Marker Dot	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
M			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	Moved to Southeast Corner of Column
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
M-N			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	Moved Westerly to Southeast Corner of RM 2207
N			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line

N1			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
O			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Did Not Survey	Permanent Office Furniture
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line

GRID LINE ELEVATIONS

THIRD FLOOR

Bench Elevation= 181' 11 3/4"

ELEVATION				GRIDLINE N-S			
GRID LINE E-W	**10**	**10A-11**	**11**	**11--12**	**12**	**12-12A**	**13**
C	181' 11 1/8"	181' 10 1/4"	181' 11 1/8"	181' 10 3/4"	181' 11 1/8"	181' 10 1/4"	181' 11 5/8"
C-D	181' 11 1/8"	181' 9 5/8"	181' 10 3/8"	181' 10 3/4"	181' 10 1/4"	181' 9 3/4"	181' 10 7/8"
D	181' 10 5/8"	181' 8 3/4"	181' 10 5/8"	DNS	181' 10 5/8"	181' 9 1/4"	181' 11 5/8"
D-E	181' 10 1/2"	181' 9 3/8"	181' 10 5/8"	DNS	181' 10 1/4"	181' 10 1/8"	181' 11 3/8"
E	181' 11"	181' 8 3/4"	181' 10 3/4"	181' 10 1/2"	181' 10 5/8"	181' 9"	181' 11 1/8"
E-F	181' 11 3/8"	181' 9"	181' 11 1/8"	DNS	181' 11 5/8"	181' 9 1/2"	181' 11 1/2"
F	181' 10 1/2"	181' 8 1/8"	181' 11 1/8"	DNS	181' 11 1/2"	181' 8 3/4"	181' 10 7/8"
F-G	181' 11"	181' 9 3/8"	181' 11"	DNS	181' 11 3/4"	181' 9 5/8"	181' 10 3/4"
G	181' 10 5/8"	181' 8 7/8"	181' 11 5/8"	DNS	181' 11 7/8"	181' 9 5/8"	181' 11 7/8"
G-H	DNS	181' 10 1/2"	181' 11 1/2"	181' 11 5/8"	181' 11 5/8"	181' 11 3/8"	181' 11 5/8"
H	181' 10 7/8"	181' 9 7/8"	181' 11 3/8"	181' 11 5/8"	181' 11"	181' 9 7/8"	DNS
H-J	181' 10 7/8"	181' 9 1/2"	181' 10 3/4"	181' 11 1/4"	181' 10 1/2"	181' 9 1/8"	DNS
J	181' 11 1/4"	181' 9 1/2"	181' 10 7/8"	181' 10 1/2"	181' 11 1/4"	181' 9"	181' 11"
J-K	DNS	181' 10 5/8"	181' 11 3/8"	181' 11"	181' 11 1/8"	181' 10 3/8"	181' 11 7/8"
K	181' 11 1/4"	181' 9 1/4"	181' 10 7/8"	181' 10 5/8"	181' 11 1/8"	181' 9 1/4"	181' 11 3/8"
K-L	181' 11 3/8"	181' 9 7/8"	181' 11 5/8"	181' 11"	181' 10 7/8"	181' 10"	DNS
L	181' 11 1/4"	181' 9"	182' 0 1/4"	DNS	181' 11 3/8"	181' 9 5/8"	181' 11 1/8"
L-M	181' 11 1/4"	181' 9 1/2"	182' 0 1/8"	181' 11 3/4"	181' 11 3/8"	181' 10 1/8"	181' 11 1/4"
M	181' 11 1/4"	181' 9 1/4"	182' 0"	DNS	181' 10 7/8"	181' 9 1/8"	181' 11 1/8"
M-N	181' 11 1/8"	181' 10 1/8"	181' 11"	181' 11 1/8"	181' 10 3/8"	181' 9 7/8"	181' 10 7/8"
N	181' 11 1/4"	181' 9 3/4"	181' 10 7/8"	181' 10 3/4"	181' 10 3/4"	181' 10"	181' 11 3/8"
N1	181' 11 1/2"	181' 10 1/2"	DNS	181' 10 1/2"	181' 10 7/8"	181' 10 7/8"	181' 11 3/8"
O	181' 11 5/8"	181' 11"	181' 11 5/8"	181' 11"	181' 11 5/8"	181' 11 1/4"	181' 11 3/4"
	ELEVATION OF GRID POINTS IN FEET & INCHES					DNS = DID NOT SURVEY	

RELITIVE DIFF. FROM BENCH ELEV.				GRIDLINE N-S			
GRID LINE E-W	**10**	**10A-11**	**11**	**11--12**	**12**	**12-12A**	**13**
C	0' 0 -5/8"	0' -1 -1/2"	0' 0 -1/2"	0' -1"	0' 0 -5/8"	0' -1 -1/2"	0' 0 -1/8"
C-D	0' 0 -1/2"	0' -2"	0' -1 -3/8"	0' -1"	0' -1 -1/2"	0' -1 -1/1"	0' 0 -7/8"
D	0' -1 -1/8"	0' -2 -1/1"	0' -1 -1/8"	DNS	0' -1 -1/8"	0' -2 -1/2"	0' 0 -1/8"
D-E	0' -1 -1/8"	0' -2 -3/8"	0' -1 -1/8"	DNS	0' -1 -3/8"	0' -1 -5/8"	0' 0 -3/8"
E	0' 0 -5/8"	0' -2 -1/1"	0' 0 -1/1"	0' -1 -1/8"	0' -1 -1/8"	0' -2 -5/8"	0' 0 -1/2"
E-F	0' 0 -3/8"	0' -2 -3/4"	0' 0 -5/8"	DNS	0' 0 -1/8"	0' -2 -1/4"	0' 0 -1/4"
F	0' -1 -1/4"	0' -3 -5/8"	0' 0 -5/8"	DNS	0' 0 -1/4"	0' -2 -7/8"	0' 0 -3/4"
F-G	0' 0 -5/8"	0' -2 -3/8"	0' 0 -3/4"	DNS	0' 0"	0' -2 -1/8"	0' 0 -1/1"
G	0' -1 -1/8"	0' -2 -7/8"	0' 0 -1/8"	DNS	0' 0 1/8"	0' -2 -1/8"	0' 0 1/8"
G-H	DNS	0' -1 -1/4"	0' 0 -1/4"	0' 0 -1/8"	0' 0"	0' 0 -3/8"	0' 0"
H	0' 0 -7/8"	0' -1 -7/8"	0' 0 -3/8"	0' 0 -1/8"	0' 0 -3/4"	0' -1 -7/8"	DNS
H-J	0' 0 -7/8"	0' -2 -1/4"	0' 0 -1/1"	0' 0 -3/8"	0' -1 -1/4"	0' -2 -1/2"	DNS
J	0' 0 -3/8"	0' -2 -1/4"	0' 0 -3/4"	0' -1 -1/4"	0' 0 -1/2"	0' -2 -3/4"	0' 0 -3/4"
J-K	DNS	0' -1 -1/8"	0' 0 -3/8"	0' 0 -3/4"	0' 0 -1/2"	0' -1 -1/4"	0' 0 1/8"
K	0' 0 -1/2"	0' -2 -1/2"	0' 0 -3/4"	0' -1 -1/8"	0' 0 -1/2"	0' -2 -1/2"	0' 0 -3/8"
K-L	0' 0 -3/8"	0' -1 -7/8"	0' 0 -1/8"	0' 0 -5/8"	0' 0 -7/8"	0' -1 -3/4"	DNS
L	0' 0 -1/2"	0' -2 -3/4"	0' 0 1/2"	DNS	0' 0 -3/8"	0' -2 -1/8"	0' 0 -1/2"
L-M	0' 0 -1/2"	0' -2 -1/4"	0' 0 3/8"	0' 0 1/8"	0' 0 -3/8"	0' -1 -5/8"	0' 0 -1/2"
M	0' 0 -1/2"	0' -2 -1/2"	0' 0 3/8"	DNS	0' 0 -7/8"	0' -2 -5/8"	0' 0 -5/8"
M-N	0' 0 -5/8"	0' -1 -5/8"	0' 0 -3/4"	0' 0 -5/8"	0' -1 -3/8"	0' -1 -7/8"	0' 0 -7/8"
N	0' 0 -1/2"	0' -1 -7/8"	0' 0 -7/8"	0' 0 -1/1"	0' 0 -1/1"	0' -1 -3/4"	0' 0 -3/8"
N1	0' 0 -1/4"	0' -1 -1/8"	DNS	0' -1 -1/8"	0' 0 -7/8"	0' 0 -3/4"	0' 0 -3/8"
O	0' 0 -1/8"	0' 0 -5/8"	0' 0 -1/8"	0' 0 -3/4"	0' 0 -1/8"	0' 0 -1/2"	0' 0"
	ELEVATION OF GRID POINTS IN FEET & INCHES					DNS = DID NOT SURVEY	

MONUMENTS SET			
GRID LINE E-W	*GRIDLINE N-S*	*DESCRIPTION*	*LOCATION*
C			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to South Side of Column
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
C-D			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
D			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Access-Rolling File Room
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
D-E			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Access-Rolling File Room
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
E			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
E-F			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
F			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
F-G			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line

	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
G			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
G-H			
	10	Set 3/4" Pin w/ Washer	Moved to West Side of Wall in Staff RM 3180
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
H			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	Moved to West Side of Wall in Office RM
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Marker Dot	On Grid Line
	12-12A	Marker Dot	On Grid Line
	13	Did Not Survey	Distrct Attorney-Victim Meeting
H-J			
	10	Set 3/4" Pin w/ Washer	Moved 2.4' West along Wall
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Did Not Survey	Distrct Attorney-Victim Meeting
J			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
J-K			
	10	Did Not Survey	Permanent Office Furniture
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to North Side of Wall on Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	Moved East to Northwest Corner of Office RM 3233
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
K			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to Southeast Corner of Staff RM 3273
	11--12	Set 3/4" Pin w/ Washer	Moved West into Mens Room
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
K-L			
	10	Set 3/4" Pin w/ Washer	Moved 2.3' West
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Marker Dot	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Did Not Survey	Permanent Office Furniture

L			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to Southeast Corner of Office RM 3265
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	Moved 4' West of Column
L-M			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Marker Dot	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
M			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	Moved to Southeast Corner of Column
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
M-N			
	10	Set 3/4" Pin w/ Washer	Moved to East side of Wall in Staff RM 3288
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	Moved 2' East of Wall in RM 3208
N			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
N1			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Did Not Survey	Permanent Office Furniture
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
O			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line

GRID LINE ELEVATIONS

FOURTH FLOOR

Bench Elevation= 194' 5 7/8"

ELEVATION				GRIDLINE N-S			
GRID LINE E-W	**10**	**10A-11**	**11**	**11--12**	**12**	**12-12A**	**13**
C	194' 5 1/4"	194' 4"	194' 5 1/8"	194' 4 5/8"	194' 5 1/4"	194' 3 7/8"	194' 5 3/8"
C-D	194' 5 1/8"	194' 3 5/8"	194' 4 1/2"	194' 4 1/2"	194' 4 3/8"	194' 3 1/2"	194' 5"
D	194' 5 3/8"	194' 3 1/8"	194' 5 3/8"	194' 4 1/2"	194' 5"	194' 3 1/4"	194' 5 1/4"
D-E	194' 5 1/2"	194' 3 3/4"	194' 5 1/4"	194' 4 7/8"	194' 4 7/8"	194' 3 5/8"	194' 5 1/8"
E	194' 5 1/8"	194' 3"	194' 5"	194' 4 3/4"	DNS	194' 3"	194' 5"
E-F	194' 5 1/8"	194' 3 7/8"	194' 5 1/8"	DNS	194' 5 1/2"	194' 3 1/2"	DNS
F	194' 4 3/4"	194' 3"	194' 5 3/8"	DNS	194' 6"	194' 2 3/8"	194' 5"
F-G	194' 4 1/2"	194' 3 3/8"	194' 5 1/2"	DNS	194' 5 7/8"	194' 3 5/8"	194' 4 7/8"
G	194' 5 1/8"	194' 3 1/8"	194' 5 1/8"	DNS	194' 5 5/8"	194' 3 5/8"	194' 5 3/8"
G-H	194' 5 1/8"	194' 4 3/4"	194' 5 5/8"	194' 5 3/4"	194' 5 7/8"	194' 5 5/8"	194' 5"
H	194' 4 3/4"	194' 3 1/2"	194' 5"	194' 4 7/8"	194' 4 7/8"	194' 3 1/4"	194' 5 1/2"
H-J	194' 4 1/4"	194' 3"	194' 4 1/4"	194' 4 3/8"	194' 4"	194' 3"	194' 3 7/8"
J	194' 4 3/4"	194' 3 1/4"	194' 4 3/4"	194' 4 3/8"	194' 4 1/2"	194' 3 1/8"	194' 5 1/4"
J-K	194' 5 1/8"	194' 4 1/4"	194' 4 3/4"	194' 4 5/8"	194' 5"	194' 4 1/8"	194' 5 1/8"
K	194' 5"	194' 3"	194' 4 3/8"	194' 4 5/8"	194' 4 5/8"	194' 3"	194' 5 1/4"
K-L	194' 5 1/8"	194' 3 1/8"	194' 4 5/8"	194' 4 3/4"	194' 4 5/8"	194' 3 7/8"	194' 4 1/2"
L	194' 4 5/8"	194' 2 5/8"	194' 5"	DNS	194' 5 1/4"	194' 3 3/4"	194' 4 7/8"
L-M	DNS	194' 3 5/8"	194' 5 3/8"	194' 5 1/2"	194' 5 1/8"	194' 4 1/8"	194' 5"
M	194' 5 1/8"	194' 3 1/4"	194' 6 1/4"	DNS	194' 4 7/8"	194' 3 3/8"	194' 5 1/4"
M-N	194' 4 3/4"	194' 3 3/4"	194' 5 1/8"	194' 5 3/8"	DNS	194' 3 3/4"	194' 5 1/4"
N	194' 4 1/2"	194' 3 7/8"	194' 4 3/4"	194' 4 3/8"	194' 4 1/2"	194' 3 7/8"	194' 5 3/8"
N1	194' 5"	194' 4 3/4"	194' 4 3/8"	194' 4 5/8"	194' 4 3/4"	194' 4 5/8"	194' 5 5/8"
O	194' 5 7/8"	194' 5"	194' 5 1/8"	194' 5 1/4"	194' 5 1/8"	194' 5 1/8"	194' 5 7/8"
	ELEVATION OF GRID POINTS IN FEET & INCHES					DNS = DID NOT SURVEY	

RELITIVE DIFF. FROM BENCH ELEV.				GRIDLINE N-S			
GRID LINE E-W	**10**	**10A-11**	**11**	**11--12**	**12**	**12-12A**	**13**
C	0' 0 -5/8"	0' -1 -7/8"	0' 0 -3/4"	0' -1 -1/4"	0' 0 -5/8"	0' -2"	0' 0 -1/2"
C-D	0' 0 -3/4"	0' -2 -3/8"	0' -1 -3/8"	0' -1 -3/8"	0' -1 -1/2"	0' -2 -1/2"	0' 0 -7/8"
D	0' 0 -1/2"	0' -2 -3/4"	0' 0 -1/2"	0' -1 -3/8"	0' 0 -7/8"	0' -2 -5/8"	0' 0 -5/8"
D-E	0' 0 -3/8"	0' -2 -1/8"	0' 0 -5/8"	0' 0 -1/1"	0' -1"	0' -2 -1/4"	0' 0 -3/4"
E	0' 0 -3/4"	0' -2 -7/8"	0' 0 -7/8"	0' -1 -1/8"	DNS	0' -2 -7/8"	0' 0 -7/8"
E-F	0' 0 -3/4"	0' -2"	0' 0 -7/8"	DNS	0' 0 -3/8"	0' -2 -1/2"	DNS
F	0' -1 -1/8"	0' -2 -1/1"	0' 0 -1/2"	DNS	0' 0 1/8"	0' -3 -1/2"	0' 0 -1/1"
F-G	0' -1 -3/8"	0' -2 -1/2"	0' 0 -3/8"	DNS	0' 0"	0' -2 -1/4"	0' 0 -1/1"
G	0' 0 -7/8"	0' -2 -3/4"	0' 0 -3/4"	DNS	0' 0 -1/4"	0' -2 -1/4"	0' 0 -1/2"
G-H	0' 0 -7/8"	0' -1 -1/8"	0' 0 -1/4"	0' 0 -1/8"	0' 0"	0' 0 -3/8"	0' 0 -1/1"
H	0' -1 -1/8"	0' -2 -1/2"	0' 0 -1/1"	0' -1 -1/8"	0' -1 -1/8"	0' -2 -5/8"	0' 0 -3/8"
H-J	0' -1 -5/8"	0' -2 -7/8"	0' -1 -5/8"	0' -1 -1/2"	0' -1 -7/8"	0' -2 -1/1"	0' -2"
J	0' -1 -1/8"	0' -2 -5/8"	0' -1 -1/8"	0' -1 -5/8"	0' -1 -3/8"	0' -2 -3/4"	0' 0 -5/8"
J-K	0' 0 -3/4"	0' -1 -5/8"	0' -1 -1/8"	0' -1 -1/4"	0' 0 -1/1"	0' -1 -3/4"	0' 0 -7/8"
K	0' 0 -1/1"	0' -2 -7/8"	0' -1 -5/8"	0' -1 -1/4"	0' -1 -1/4"	0' -2 -7/8"	0' 0 -5/8"
K-L	0' 0 -3/4"	0' -2 -3/4"	0' -1 -1/4"	0' -1 -1/8"	0' -1 -1/4"	0' -2"	0' -1 -3/8"
L	0' -1 -1/4"	0' -3 -1/4"	0' 0 -1/1"	DNS	0' 0 -5/8"	0' -2 -1/8"	0' 0 -1/1"
L-M	DNS	0' -2 -1/4"	0' 0 -1/2"	0' 0 -3/8"	0' 0 -7/8"	0' -1 -3/4"	0' 0 -7/8"
M	0' 0 -3/4"	0' -2 -5/8"	0' 0 3/8"	DNS	0' -1"	0' -2 -1/2"	0' 0 -5/8"
M-N	0' -1 -1/8"	0' -2 -1/8"	0' 0 -3/4"	0' 0 -1/2"	DNS	0' -2 -1/8"	0' 0 -5/8"
N	0' -1 -3/8"	0' -2"	0' -1 -1/8"	0' -1 -1/2"	0' -1 -3/8"	0' -2"	0' 0 -1/2"
N1	0' 0 -7/8"	0' -1 -1/8"	0' -1 -1/2"	0' -1 -1/4"	0' -1 -1/8"	0' -1 -1/4"	0' 0 -3/8"
O	0' 0 -1/8"	0' 0 -7/8"	0' 0 -3/4"	0' 0 -5/8"	0' 0 -3/4"	0' 0 -7/8"	0' 0"
	ELEVATION OF GRID POINTS IN FEET & INCHES					DNS = DID NOT SURVEY	

MONUMENTS SET			
GRID LINE E-W	*GRIDLINE N-S*	*DESCRIPTION*	*LOCATION*
C			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to East Side of Column
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
C-D			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	Moved 2.4' West
D			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
D-E			
	10	Set 3/4" Pin w/ Washer	Moved to Northeast Corner of RM 4195
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to West Side of Wall in RM 4175
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	Moved 3' West
E			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	Moved North 4' Along Grid Line
	12	Did Not Survey	Permanent Office Furniture
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
E-F			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Did Not Survey	Permanent Office Furniture
F			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to South Side of Column
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	Moved 2.2' East
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line

F-G			
	10	Set 3/4" Pin w/ Washer	Moved 4' South
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to South side of Wall on Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
G			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
G-H			
	10	Set 3/4" Pin w/ Washer	Moved 3.5' South
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
H			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	Move to North Side of Column
H-J			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
J			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Marker Dot	Moved 2.0' South Along Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
J-K			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to North Side of Wall on Grid Line
	11--12	Marker Dot	Moved 2.0' South Along Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line

K			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved 2' West of Column
	11--12	Set 3/4" Pin w/ Washer	Moved West into Mens Room
	12	Set 3/4" Pin w/ Washer	Moved to North Side of Wall on Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
K-L			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved 2.5' West
	11--12	Marker Dot	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Did Not Survey	Permanent Office Furniture
L			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved 2.2' North along Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
L-M			
	10	Did Not Survey	Permanent Office Furniture
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved 2.2' North along Grid Line
	11--12	Marker Dot	On Grid Line
	12	Set 3/4" Pin w/ Washer	Moved to North Side of Wall on Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
M			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	Moved to East Side of Column
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
M-N			
	10	Set 3/4" Pin w/ Washer	Moved to Northwest Corner of RM 4298
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Did Not Survey	Permanent Office Furniture
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	Moved 2' East of Wall in RM 4208
N			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	Moved 2' South along Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line

N1			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to South side of Wall on Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
O			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	Moved 2' West
	11	Set 3/4" Pin w/ Washer	Moved to South side of Wall on Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	Moved 2' West
	13	Set 3/4" Pin w/ Washer	On Grid Line

GRID LINE ELEVATIONS

FIFTH FLOOR

Bench Elevation= 206' 11 3/4"

ELEVATION				*GRIDLINE N-S*			
GRID LINE E-W	**10**	**10A-11**	**11**	**11--12**	**12**	**12-12A**	**13**
C	206' 11 3/8"	206' 9 7/8"	206' 11 1/4"	206' 11 1/8"	206' 10 7/8"	206' 10"	206' 11 1/2"
C-D	206' 10 3/8"	206' 9 1/2"	206' 10 3/8"	206' 10 3/4"	206' 10 1/2"	206' 9 3/4"	206' 11"
D	206' 10 7/8"	206' 9"	206' 10 7/8"	206' 10 1/8"	206' 10 1/2"	206' 8 1/2"	206' 11 1/8"
D-E	206' 10 3/4"	206' 9 5/8"	206' 10 3/4"	206' 11"	206' 10 5/8"	206' 9 1/8"	206' 10 1/2"
E	206' 11"	206' 8 5/8"	206' 10 1/2"	206' 10 5/8"	206' 10 1/2"	206' 8 1/4"	206' 11"
E-F	206' 10 7/8"	206' 9 3/8"	206' 10 3/4"	DNS	206' 10 3/4"	206' 9 1/2"	206' 10 3/4"
F	206' 11 1/4"	206' 8 1/2"	206' 10 5/8"	DNS	206' 11 1/4"	206' 7 7/8"	206' 11 1/8"
F-G	206' 10 3/4"	206' 9 1/8"	206' 11"	DNS	206' 11 1/2"	206' 8 3/4"	206' 10 3/8"
G	206' 10 3/4"	206' 8 5/8"	206' 10 3/4"	DNS	206' 11 1/2"	206' 8 3/4"	206' 11"
G-H	DNS	206' 10"	206' 11"	206' 11 3/8"	206' 11 5/8"	206' 10 3/4"	206' 11 3/8"
H	206' 10 1/2"	206' 8 7/8"	206' 10 3/8"	206' 10 3/4"	206' 10 1/2"	206' 8 7/8"	206' 11"
H-J	206' 10 3/8"	206' 9"	206' 10 1/4"	206' 10 3/8"	206' 9 7/8"	206' 8 1/4"	206' 9 5/8"
J	206' 11"	206' 8 5/8"	206' 10 1/2"	206' 10 1/4"	206' 10 1/4"	206' 8 5/8"	206' 10 5/8"
J-K	206' 11 1/8"	206' 9 7/8"	206' 10 7/8"	206' 11 1/8"	206' 10 3/4"	206' 9 7/8"	206' 10 7/8"
K	206' 10 5/8"	206' 8 5/8"	206' 10 3/8"	206' 10 7/8"	206' 10 3/4"	206' 8 7/8"	206' 10 3/4"
K-L	206' 11"	206' 8 7/8"	206' 10 3/4"	206' 11"	206' 10 5/8"	206' 9 7/8"	206' 10 5/8"
L	206' 10 5/8"	206' 7 5/8"	206' 11 1/2"	DNS	DNS	206' 9 1/4"	206' 10 3/4"
L-M	206' 11"	206' 8 1/2"	206' 11 5/8"	206' 11 1/2"	DNS	206' 9 1/2"	206' 10 5/8"
M	206' 10 5/8"	206' 8 1/2"	207' 0 3/8"	DNS	206' 10 3/8"	206' 8 5/8"	206' 10 3/4"
M-N	206' 10 3/8"	206' 9 7/8"	206' 10 7/8"	206' 11 1/4"	206' 10 1/2"	206' 9 3/4"	206' 11"
N	206' 11 1/8"	206' 10 1/8"	206' 11"	206' 10 1/8"	206' 10 1/2"	206' 9 5/8"	206' 11 1/4"
N1	206' 11 1/8"	206' 10 5/8"	206' 11 1/8"	206' 10 5/8"	206' 10 3/4"	206' 10 1/4"	206' 11 1/8"
O	206' 11 7/8"	DNS	206' 11 1/8"	206' 10 3/4"	206' 11"	206' 10 3/4"	206' 11 3/8"
	ELEVATION OF GRID POINTS IN FEET & INCHES					DNS = DID NOT SURVEY	

RELITIVE DIFF. FROM BENCH ELEV.				*GRIDLINE N-S*			
GRID LINE E-W	**10**	**10A-11**	**11**	**11--12**	**12**	**12-12A**	**13**
C	0' 0 -3/8"	0' -1 -7/8"	0' 0 -1/2"	0' 0 -5/8"	0' 0 -7/8"	0' -1 -3/4"	0' 0 -1/4"
C-D	0' -1 -3/8"	0' -2 -1/4"	0' -1 -3/8"	0' -1"	0' -1 -1/4"	0' -1 -1/1"	0' 0 -3/4"
D	0' 0 -7/8"	0' -2 -3/4"	0' 0 -7/8"	0' -1 -5/8"	0' -1 -1/4"	0' -3 -1/4"	0' 0 -5/8"
D-E	0' 0 -1/1"	0' -2 -1/8"	0' 0 -1/1"	0' 0 -3/4"	0' -1 -1/8"	0' -2 -5/8"	0' -1 -1/4"
E	0' 0 -3/4"	0' -3 -1/8"	0' -1 -1/4"	0' -1 -1/8"	0' -1 -1/4"	0' -3 -1/2"	0' 0 -3/4"
E-F	0' 0 -7/8"	0' -2 -3/8"	0' -1"	DNS	0' -1"	0' -2 -1/4"	0' 0 -1/1"
F	0' 0 -1/2"	0' -3 -1/4"	0' -1 -1/8"	DNS	0' 0 -1/2"	0' -3 -7/8"	0' 0 -5/8"
F-G	0' 0 -1/1"	0' -2 -5/8"	0' 0 -3/4"	DNS	0' 0 -1/4"	0' -2 -1/1"	0' -1 -3/8"
G	0' 0 -1/1"	0' -3 -1/8"	0' 0 -1/1"	DNS	0' 0 -1/4"	0' -2 -1/1"	0' 0 -3/4"
G-H	DNS	0' -1 -3/4"	0' 0 -3/4"	0' 0 -3/8"	0' 0 -1/8"	0' -1"	0' 0 -3/8"
H	0' -1 -1/4"	0' -2 -7/8"	0' -1 -3/8"	0' 0 -1/1"	0' -1 -1/4"	0' -2 -7/8"	0' 0 -3/4"
H-J	0' -1 -3/8"	0' -2 -3/4"	0' -1 -1/2"	0' -1 -3/8"	0' -1 -7/8"	0' -3 -1/2"	0' -2 -1/8"
J	0' 0 -3/4"	0' -3 -1/8"	0' -1 -1/4"	0' -1 -1/2"	0' -1 -1/2"	0' -3 -1/8"	0' -1 -1/8"
J-K	0' 0 -5/8"	0' -1 -7/8"	0' 0 -7/8"	0' 0 -5/8"	0' 0 -1/1"	0' -1 -7/8"	0' 0 -7/8"
K	0' -1 -1/8"	0' -3 -1/8"	0' -1 -3/8"	0' 0 -7/8"	0' 0 -1/1"	0' -2 -7/8"	0' 0 -1/1"
K-L	0' 0 -3/4"	0' -2 -7/8"	0' -1"	0' 0 -3/4"	0' -1 -1/8"	0' -1 -3/4"	0' -1 -1/8"
L	0' -1 -1/8"	0' -4 -1/8"	0' 0 -1/4"	DNS	DNS	0' -2 -1/2"	0' -1"
L-M	0' 0 -3/4"	0' -3 -1/4"	0' 0 -1/8"	0' 0 -1/4"	DNS	0' -2 -1/4"	0' -1 -1/8"
M	0' -1 -1/8"	0' -3 -1/4"	0' 0 5/8"	DNS	0' -1 -3/8"	0' -3 -1/8"	0' 0 -1/1"
M-N	0' -1 -3/8"	0' -1 -7/8"	0' 0 -7/8"	0' 0 -1/2"	0' -1 -1/4"	0' -1 -1/1"	0' 0 -3/4"
N	0' 0 -5/8"	0' -1 -5/8"	0' 0 -3/4"	0' -1 -5/8"	0' -1 -1/4"	0' -2 -1/8"	0' 0 -1/2"
N1	0' 0 -5/8"	0' -1 -1/8"	0' 0 -5/8"	0' -1 -1/8"	0' 0 -1/1"	0' -1 -1/2"	0' 0 -5/8"
O	0' 0 1/8"	DNS	0' 0 -5/8"	0' 0 -1/1"	0' 0 -3/4"	0' 0 -1/1"	0' 0 -3/8"
	ELEVATION OF GRID POINTS IN FEET & INCHES					DNS = DID NOT SURVEY	

MONUMENTS SET			
GRID LINE E-W	*GRIDLINE N-S*	*DESCRIPTION*	*LOCATION*
C			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
C-D			
	10	Set 3/4" Pin w/ Washer	Moved to Northeast Corner of RM 5196
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	Moved West into RM 5147
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
D			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
D-E			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
E			
	10	Set 3/4" Pin w/ Washer	Moved to Southwest Corner of Column
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	Moved 1.5' East
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
E-F			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
F			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Marker Dot	Moved to West Side of Column
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line

F-G			
	10	Set 3/4" Pin w/ Washer	Moved to Northeast Corner of RM 5192
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
G			
	10	Set 3/4" Pin w/ Washer	Moved to Southwest Corner of Column
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
G-H			
	10	Did Not Survey	Permanent Office Furniture
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	Moved to West Side of Wall in RM 5210
	13	Set 3/4" Pin w/ Washer	Moved to West Side of Wall in RM 5200
H			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
H-J			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
J			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
J-K			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to North Side of Wall on Grid Line
	11--12	Marker Dot	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line

K			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	Moved West into Mens Room
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
K-L			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Marker Dot	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	Moved 2' North along Grid Line
	13	Marker Dot	Moved to Southwest Corner of RM 5205
L			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	Moved to West Side of Wall in RM 5274
	11	Set 3/4" Pin w/ Washer	Moved to West Side of Wall in RM 5274
	11--12	Did Not Survey	No Proposed Location
	12	Did Not Survey	No Access
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
L-M			
	10	Set 3/4" Pin w/ Washer	Moved to West Side of Wall in RM 4290
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved 2.2' North along Grid Line
	11--12	Marker Dot	On Grid Line
	12	Did Not Survey	No Access
	12-12A	Set 3/4" Pin w/ Washer	Moved 2' South along Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
M			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	Moved to West Side of Wall in RM 5274
	11	Set 3/4" Pin w/ Washer	Moved 3.5' South into RM 5258
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
M-N			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to South side of Wall on Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
N			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line

N1			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to South side of Wall on Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
O			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Did Not Survey	Permanent Office Furniture
	11	Set 3/4" Pin w/ Washer	Moved 2.5' West
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line

GRID LINE ELEVATIONS

BOTTOM OF ROOF SLAB

Bench Elevation= FIFTH FLOOR PLUS MEASURE UP

BOTTOM OF SLAB				*GRIDLINE N-S*			
GRID LINE E-W	**10**	**10A**	**11**	**11--12**	**12**	**12A**	**13**
C	219' 3 3/8"	219' 0 7/8"	219' 2 5/8"	219' 2 5/8"	219' 1"	219' 1 1/8"	219' 3"
C-D	219' 1 1/2"	218' 8 1/8"	218' 11 3/8"	219' 1 7/8"	218' 11 3/4"	218' 10 7/8"	219' 2 3/8"
D	219' 1 1/2"	218' 7 5/8"	218' 10"	219' 2 1/4"	218' 9 3/4"	218' 6 1/2"	219' 1 3/4"
D-E	219' 1 1/2"	218' 9 5/8"	218' 10 5/8"	219' 2 3/8"	218' 10 5/8"	218' 10 3/8"	219' 1 3/4"
E	219' 1 5/8"	219' 0 1/4"	219' 1 5/8"	DNS	219' 2"	219' 0 7/8"	219' 1 5/8"
E-F	219' 2 1/2"	218' 9 1/8"	218' 11 3/4"	DNS	218' 10 3/8"	218' 10 1/8"	219' 2"
F	219' 2 3/4"	218' 6 1/4"	218' 10 3/8"	DNS	218' 11 3/8"	218' 7 3/4"	219' 1 3/8"
F-G	219' 2 3/8"	218' 7 7/8"	218' 10 1/8"	DNS	219' 0"	218' 8 5/8"	219' 3"
G	219' 2 3/8"	218' 10 3/4"	219' 1 1/4"	DNS	219' 2 7/8"	218' 11 5/8"	219' 3 1/2"
G-H	DNS	218' 9 5/8"	218' 11 1/4"	219' 3 3/8"	DNS	218' 10 3/8"	219' 1 3/4"
H	219' 2"	218' 7 3/8"	218' 10 1/4"	219' 1 3/4"	218' 10 3/8"	218' 7 5/8"	219' 2 5/8"
H-J	219' 1 3/4"	218' 9 5/8"	218' 10 5/8"	219' 1 1/4"	218' 10 3/8"	218' 9 1/2"	219' 0 5/8"
J	219' 1 3/4"	218' 12"	219' 1 3/4"	219' 2"	219' 1 7/8"	219' 0 1/8"	219' 1 5/8"
J-K	219' 2 1/2"	218' 10"	218' 11 3/4"	219' 3 1/2"	218' 11 5/8"	218' 10"	219' 1 3/8"
K	219' 1 5/8"	218' 6 5/8"	218' 9 3/4"	DNS	218' 10"	218' 7 3/8"	219' 1 5/8"
K-L	219' 2 1/2"	218' 8 3/8"	218' 11"	DNS	218' 10 3/8"	218' 10"	219' 2"
L	219' 1 3/4"	219' 1 3/8"	219' 2 1/2"	DNS	DNS	219' 0"	219' 1 3/8"
L-M	219' 2 5/8"	218' 10 1/2"	218' 12"	DNS	DNS	218' 10 3/8"	219' 2 1/8"
M	219' 1 7/8"	218' 7 1/4"	219' 0 1/4"	DNS	218' 10 1/4"	218' 7 3/4"	219' 1 5/8"
M-N	219' 1 1/2"	218' 10 1/8"	218' 11 1/8"	219' 3 1/4"	218' 10 3/4"	218' 9 3/8"	219' 3"
N	219' 2"	219' 1 5/8"	219' 2 1/2"	219' 2 1/8"	219' 2 1/8"	219' 1 1/8"	219' 3 1/8"
N1	219' 4 7/8"	219' 6"	219' 5"	219' 5 1/8"	219' 5 1/8"	219' 3 5/8"	219' 5 1/2"
O	219' 8 7/8"	DNS	219' 7 1/4"	219' 7 5/8"	219' 7 1/2"	219' 7 3/4"	219' 8"
	BOTTOM OF ROOF SLAB IN FEET & INCHES					DNS = DID NOT SURVEY	

RELITIVE DIFF. FROM BENCH ELEV.				*GRIDLINE N-S*			
GRID LINE E-W	**10**	**10A**	**11**	**11--12**	**12**	**12A**	**13**
C	0' 0 -3/8"	0' -1 -7/8"	0' 0 -1/2"	0' 0 -5/8"	0' 0 -7/8"	0' -1 -3/4"	0' 0 -1/4"
C-D	0' -1 -3/8"	0' -2 -1/4"	0' -1 -3/8"	0' -1"	0' -1 -1/4"	0' -1 -1/1"	0' 0 -3/4"
D	0' 0 -7/8"	0' -2 -3/4"	0' 0 -7/8"	0' -1 -5/8"	0' -1 -1/4"	0' -3 -1/4"	0' 0 -5/8"
D-E	0' 0 -1/1"	0' -2 -1/8"	0' 0 -1/1"	0' 0 -3/4"	0' -1 -1/8"	0' -2 -5/8"	0' -1 -1/4"
E	0' 0 -3/4"	0' -3 -1/8"	0' -1 -1/4"	DNS	0' -1 -1/4"	0' -3 -1/2"	0' 0 -3/4"
E-F	0' 0 -7/8"	0' -2 -3/8"	0' -1"	DNS	0' -1"	0' -2 -1/4"	0' 0 -1/1"
F	0' 0 -1/2"	0' -3 -1/4"	0' -1 -1/8"	DNS	0' 0 -1/2"	0' -3 -7/8"	0' 0 -5/8"
F-G	0' 0 -1/1"	0' -2 -5/8"	0' 0 -3/4"	DNS	0' 0 -1/4"	0' -2 -1/1"	0' -1 -3/8"
G	0' 0 -1/1"	0' -3 -1/8"	0' 0 -1/1"	DNS	0' 0 -1/4"	0' -2 -1/1"	0' 0 -3/4"
G-H	DNS	0' -1 -3/4"	0' 0 -3/4"	0' 0 -3/8"	DNS	0' -1"	0' 0 -3/8"
H	0' -1 -1/4"	0' -2 -7/8"	0' -1 -3/8"	0' 0 -1/1"	0' -1 -1/4"	0' -2 -7/8"	0' 0 -3/4"
H-J	0' -1 -3/8"	0' -2 -3/4"	0' -1 -1/2"	0' -1 -3/8"	0' -1 -7/8"	0' -3 -1/2"	0' -2 -1/8"
J	0' 0 -3/4"	0' -3 -1/8"	0' -1 -1/4"	0' -1 -1/2"	0' -1 -1/2"	0' -3 -1/8"	0' -1 -1/8"
J-K	0' 0 -5/8"	0' -1 -7/8"	0' 0 -7/8"	0' 0 -5/8"	0' 0 -1/1"	0' -1 -7/8"	0' 0 -7/8"
K	0' -1 -1/8"	0' -3 -1/8"	0' -1 -3/8"	DNS	0' 0 -1/1"	0' -2 -7/8"	0' 0 -1/1"
K-L	0' 0 -3/4"	0' -2 -7/8"	0' -1"	DNS	0' -1 -1/8"	0' -1 -3/4"	0' -1 -1/8"
L	0' -1 -1/8"	0' -4 -1/8"	0' 0 -1/4"	DNS	DNS	0' -2 -1/2"	0' -1"
L-M	0' 0 -3/4"	0' -3 -1/4"	0' 0 -1/8"	DNS	DNS	0' -2 -1/4"	0' -1 -1/8"
M	0' -1 -1/8"	0' -3 -1/4"	0' 0 5/8"	DNS	0' -1 -3/8"	0' -3 -1/8"	0' 0 -1/1"
M-N	0' -1 -3/8"	0' -1 -7/8"	0' 0 -7/8"	0' 0 -1/2"	0' -1 -1/4"	0' -1 -1/1"	0' 0 -3/4"
N	0' 0 -5/8"	0' -1 -5/8"	0' 0 -3/4"	0' -1 -5/8"	0' -1 -1/4"	0' -2 -1/8"	0' 0 -1/2"
N1	0' 0 -5/8"	0' -1 -1/8"	0' 0 -5/8"	0' -1 -1/8"	0' 0 -1/1"	0' -1 -1/2"	0' 0 -5/8"
O	0' 0 1/8"	#VALUE!	0' 0 -5/8"	0' 0 -1/1"	0' 0 -3/4"	0' 0 -1/1"	0' 0 -3/8"
	BOTTOM OF ROOF SLAB IN FEET & INCHES					DNS = DID NOT SURVEY	

MONUMENTS SET			
GRID LINE E-W	*GRIDLINE N-S*	*DESCRIPTION*	*LOCATION*
C			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
C-D			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
D			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
D-E			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
E			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
E-F			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	see Fifth Floor Monument Locations
	11	No Monument Set	see Fifth Floor Monument Locations
	11--12	No Monument Set	see Fifth Floor Monument Locations
	12	No Monument Set	see Fifth Floor Monument Locations
	12-12A	No Monument Set	see Fifth Floor Monument Locations
	13	No Monument Set	see Fifth Floor Monument Locations
F			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations

F-G			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
G			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
G-H			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
H			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
H-J			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
J			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
J-K			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
K			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations

K-L			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
L			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
L-M			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
M			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
M-N			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
N			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations

N1			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
O			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations

Exterior Points

NORTH FACE

1030= O/ROOF NORTH SIDE

pt number	northing	easting	elevation	code	location on brick
1030	5066.7974	10365.0176	219.1727	990	upper right
1031	5066.4493	10365.8933	206.4160	990	upper left
1032	5066.4290	10365.9053	193.9481	990	upper left
1033	5066.5099	10365.6562	181.6948	990	upper right
1034	5066.6117	10365.3218	169.0147	990	upper right
1035	5072.4477	10348.9788	168.9839	990	upper right
1036	5072.4445	10349.0079	181.4379	990	upper right
1037	5072.5455	10348.6892	194.1820	990	upper right
1038	5072.4805	10348.9241	206.4008	990	upper left
1039	5072.7166	10348.3882	218.3955	990	upper right
1040	5081.9927	10322.3314	218.6680	990	upper right
1041	5081.8374	10322.6526	206.4384	990	upper right
1042	5081.7241	10322.9382	194.1857	990	upper right
1043	5081.8609	10322.6281	181.4598	990	upper right
1044	5081.7657	10322.8719	169.7483	990	lower right
1045	5091.0432	10296.8838	169.4479	990	upper left
1046	5091.2324	10296.2910	181.4353	990	upper right
1047	5091.1193	10296.5615	194.1862	990	upper right
1048	5091.2466	10296.2442	206.1890	990	upper left
1049	5091.4962	10295.6086	218.4125	990	upper left
1050	5100.6293	10269.8951	206.4284	990	upper left
1051	5100.7244	10269.6181	194.1901	990	upper left
1052	5100.5181	10270.2243	181.6973	990	upper right
1053	5100.7528	10269.6327	169.1948	990	upper right
1054	5109.9535	10243.8075	169.2017	990	upper left
1055	5119.3402	10217.4731	169.2258	990	upper left
1056	5119.4400	10217.1425	181.6925	990	upper left
1057	5119.2894	10217.5075	194.1636	990	upper right
1058	5119.1686	10217.8413	206.7021	990	lower left
1059	5119.3036	10217.4897	219.1553	990	upper right
1060	5129.0252	10190.1858	219.4145	990	upper right
1061	5128.5625	10191.4698	207.3309	990	upper left
1062	5128.8154	10190.7812	194.4260	990	upper left
1063	5128.8133	10190.8235	181.9726	990	upper right
1064	5128.6172	10191.4222	169.4871	990	upper left
1065	5138.1253	10164.7194	169.7482	990	upper left
1066	5138.1198	10164.7087	181.7381	990	upper left
1067	5138.1992	10164.4490	194.9297	990	upper right
1068	5137.9290	10165.1602	207.3464	990	upper right
1069	5138.3940	10163.8466	218.9233	990	upper right
1070	5147.7026	10137.7537	219.1749	990	upper left
1071	5147.3302	10138.7874	206.7297	990	lower left
1072	5147.5822	10138.1100	195.1640	990	upper right
1073	5147.5186	10138.3606	182.0316	990	lower left
1074	5147.5026	10138.4386	169.2242	990	upper right
1075	5156.8117	10112.3444	169.2581	990	lower left
1076	5156.7964	10112.3339	181.9592	990	upperleft
1077	5156.9775	10111.7705	194.9171	990	upper right
1078	5156.5451	10112.8598	206.7277	990	lower left
1079	5157.1786	10111.1416	219.4025	990	upper right
1080	5166.3530	10085.3826	219.9105	990	upper right
1081	5166.0875	10086.1109	206.7525	990	lower right
1082	5166.3931	10085.4201	194.4392	990	upper right
1083	5166.3056	10085.6701	182.1969	990	upper left
1084	5166.1989	10086.0024	169.4767	990	upper left
1085	5109.9132	10243.8041	181.7087	990	upper right
1086	5110.0051	10243.5532	194.1945	990	upper right
1087	5109.9352	10243.7183	206.7300	990	lower left
1088	5109.9198	10243.8224	218.9775	990	lower left
1089	5100.7641	10269.5696	218.6672	990	upper left

Exterior Points

NORTH FACE

1030= O/ROOF NORTH SIDE

pt number	northing	easting	elevation	code	location on brick
1030	5066' 9 5/8"	10365' 0 1/4"	219' 2 1/8"	990	upper right
1031	5066' 5 3/8"	10365' 10 3/4"	206' 5"	990	upper left
1032	5066' 5 1/8"	10365' 10 7/8"	193' 11 3/8"	990	upper left
1033	5066' 6 1/8"	10365' 7 7/8"	181' 8 3/8"	990	upper right
1034	5066' 7 3/8"	10365' 3 7/8"	169' 0 1/8"	990	upper right
1035	5072' 5 3/8"	10348' 11 3/4"	168' 11 3/4"	990	upper right
1036	5072' 5 3/8"	10349' 0 1/8"	181' 5 1/4"	990	upper right
1037	5072' 6 1/2"	10348' 8 1/4"	194' 2 1/8"	990	upper right
1038	5072' 5 3/4"	10348' 11 1/8"	206' 4 3/4"	990	upper left
1039	5072' 8 5/8"	10348' 4 5/8"	218' 4 3/4"	990	upper right
1040	5081' 11 7/8"	10322' 4"	218' 8"	990	upper right
1041	5081' 10"	10322' 7 7/8"	206' 5 1/4"	990	upper right
1042	5081' 8 3/4"	10322' 11 1/4"	194' 2 1/4"	990	upper right
1043	5081' 10 3/8"	10322' 7 1/2"	181' 5 1/2"	990	upper right
1044	5081' 9 1/4"	10322' 10 1/2"	169' 9"	990	lower right
1045	5091' 0 1/2"	10296' 10 5/8"	169' 5 3/8"	990	upper left
1046	5091' 2 3/4"	10296' 3 1/2"	181' 5 1/4"	990	upper right
1047	5091' 1 3/8"	10296' 6 3/4"	194' 2 1/4"	990	upper right
1048	5091' 3"	10296' 2 7/8"	206' 2 1/4"	990	upper left
1049	5091' 6"	10295' 7 1/4"	218' 5"	990	upper left
1050	5100' 7 1/2"	10269' 10 3/4"	206' 5 1/8"	990	upper left
1051	5100' 8 3/4"	10269' 7 3/8"	194' 2 1/4"	990	upper left
1052	5100' 6 1/4"	10270' 2 3/4"	181' 8 3/8"	990	upper right
1053	5100' 9"	10269' 7 5/8"	169' 2 3/8"	990	upper right
1054	5109' 11 1/2"	10243' 9 3/4"	169' 2 3/8"	990	upper left
1055	5119' 4 1/8"	10217' 5 5/8"	169' 2 3/4"	990	upper left
1056	5119' 5 1/4"	10217' 1 3/4"	181' 8 1/4"	990	upper left
1057	5119' 3 1/2"	10217' 6 1/8"	194' 2"	990	upper right
1058	5119' 2"	10217' 10 1/8"	206' 8 3/8"	990	lower left
1059	5119' 3 5/8"	10217' 5 7/8"	219' 1 7/8"	990	upper right
1060	5129' 0 1/4"	10190' 2 1/4"	219' 5"	990	upper right
1061	5128' 6 3/4"	10191' 5 5/8"	207' 4"	990	upper left
1062	5128' 9 3/4"	10190' 9 3/8"	194' 5 1/8"	990	upper left
1063	5128' 9 3/4"	10190' 9 7/8"	181' 11 5/8"	990	upper right
1064	5128' 7 3/8"	10191' 5 1/8"	169' 5 7/8"	990	upper left
1065	5138' 1 1/2"	10164' 8 5/8"	169' 9"	990	upper left
1066	5138' 1 1/2"	10164' 8 1/2"	181' 8 7/8"	990	upper left
1067	5138' 2 3/8"	10164' 5 3/8"	194' 11 1/8"	990	upper right
1068	5137' 11 1/8"	10165' 1 7/8"	207' 4 1/8"	990	upper right
1069	5138' 4 3/4"	10163' 10 1/8"	218' 11 1/8"	990	upper right
1070	5147' 8 3/8"	10137' 9"	219' 2 1/8"	990	upper left
1071	5147' 4"	10138' 9 1/2"	206' 8 3/4"	990	lower left
1072	5147' 7"	10138' 1 3/8"	195' 2"	990	upper right
1073	5147' 6 1/4"	10138' 4 3/8"	182' 0 3/8"	990	lower left
1074	5147' 6"	10138' 5 1/4"	169' 2 3/4"	990	upper right
1075	5156' 9 3/4"	10112' 4 1/8"	169' 3 1/8"	990	lower left
1076	5156' 9 1/2"	10112' 4"	181' 11 1/2"	990	upperleft
1077	5156' 11 3/4"	10111' 9 1/4"	194' 11"	990	upper right
1078	5156' 6 1/2"	10112' 10 3/8"	206' 8 3/4"	990	lower left
1079	5157' 2 1/8"	10111' 1 3/4"	219' 4 7/8"	990	upper right
1080	5166' 4 1/4"	10085' 4 5/8"	219' 10 7/8"	990	upper right
1081	5166' 1"	10086' 1 3/8"	206' 9"	990	lower right
1082	5166' 4 3/4"	10085' 5"	194' 5 1/4"	990	upper right
1083	5166' 3 5/8"	10085' 8"	182' 2 3/8"	990	upper left
1084	5166' 2 3/8"	10086' 0"	169' 5 3/4"	990	upper left
1085	5109' 11"	10243' 9 5/8"	181' 8 1/2"	990	upper right
1086	5110' 0"	10243' 6 5/8"	194' 2 3/8"	990	upper right
1087	5109' 11 1/4"	10243' 8 5/8"	206' 8 3/4"	990	lower left
1088	5109' 11"	10243' 9 7/8"	218' 11 3/4"	990	lower left
1089	5100' 9 1/8"	10269' 6 7/8"	218' 8"	990	upper left

Exterior Points

SOUTH FACE

2000= O/ROOF SOUTH SIDE

pt number	northing	easting	elevation	code	location on brick
2000	4966.9520	10329.7810	219.4530	990	upper right
2001	4966.9140	10329.7800	206.4440	990	upper right
2002	4966.9970	10329.4810	194.2390	990	upper left
2003	4966.6820	10330.4190	181.5060	990	upper left
2004	4966.9080	10329.7870	168.9820	990	upper left
2005	4972.9480	10312.8570	168.7660	990	uppper left
2006	4972.9610	10312.8450	181.9620	990	uppper left
2007	4973.0490	10312.5130	193.7040	990	uppper left
2008	4982.1280	10287.0810	206.4530	990	upper right
2009	4982.1340	10287.0660	206.4000	990	upper right
2010	4972.8600	10313.1910	219.1750	990	upper left
2011	4972.9360	10312.8880	205.9140	990	upper left
2012	4982.3250	10286.5950	219.4160	990	upper left
2013	4982.3130	10286.5040	194.4170	990	upper left
2014	4982.2620	10286.7430	181.6810	990	upper right
2015	4982.3740	10286.4350	169.4690	990	upper right
2016	4991.8530	10259.8260	169.2300	990	upper left
2017	4991.6550	10260.3750	181.6910	990	upper right
2018	4991.7430	10260.0670	193.8880	990	upper right
2019	4991.6770	10260.3360	206.6940	990	lower left
2020	4991.8520	10259.8530	219.1540	990	upper right
2021	5001.2131	10233.5492	218.9565	990	lower right
2022	5001.1342	10233.7747	206.3991	990	upper left
2023	5001.0197	10234.0364	194.1465	990	upper left
2024	5001.1273	10233.7782	181.9516	990	upper right
2025	5001.1311	10233.7818	168.9803	990	upper right
2026	5010.5180	10207.4026	169.4700	990	upper right
2027	5010.5376	10207.3537	181.4411	990	upper left
2028	5010.5144	10207.3942	194.4150	990	upper right
2029	5010.7401	10206.8152	206.4059	990	upper right
2030	5010.5090	10207.4685	218.4013	990	upper right
2031	5019.5588	10181.8999	218.6639	990	upper left
2032	5019.9340	10180.9916	206.3936	990	upper left
2033	5019.7343	10181.6040	194.4436	990	upper left
2034	5019.8440	10181.3094	181.6890	990	upper left
2035	5020.0311	10180.7312	169.0182	990	lower right
2036	5029.0289	10155.3846	168.9629	990	lower right
2037	5029.1564	10155.0283	194.1094	990	upper left
2038	5028.9325	10155.5642	206.6789	990	lower right
2039	5029.0754	10155.0170	219.4506	990	lower right
2040	5038.4841	10128.5984	219.1508	990	upper left
2041	5038.7085	10128.0655	206.6902	990	lower right
2042	5038.6306	10128.3898	194.3952	990	upper right
2043	5038.7605	10128.0669	181.6706	990	upper right
2044	5038.4354	10128.9399	169.4064	990	upper left
2045	5047.9534	10102.2627	169.1943	990	upper left
2046	5047.9476	10102.2408	181.7060	990	upper left
2047	5047.8157	10102.5829	194.1469	990	upper left
2048	5047.9554	10102.1174	206.6979	990	lower left
2049	5047.9804	10101.9105	219.2668	990	lower left
2050	5057.3943	10075.5694	219.3903	990	upper left
2051	5057.3902	10075.6478	206.3890	990	upper right
2052	5057.3159	10075.9437	194.1675	990	upper right
2053	5057.5464	10075.3258	181.6654	990	upper right
2054	5057.4480	10075.6309	169.4498	990	upper right
2055	5066.6441	10049.8484	169.4590	990	upper left
2056	5066.8201	10049.2903	181.9199	990	upper right
2057	5066.8173	10049.2874	194.4399	990	upper right
2058	5066.7951	10049.2331	206.4225	990	upper left
2059	5066.5663	10049.8040	219.3990	990	upper left
2060	5066.6441	10049.8484	169.4590	990	upper left

Exterior Points

SOUTH FACE

2000= O/ROOF SOUTH SIDE

pt number	northing	easting	elevation	code	location on brick
2000	4966' 11 3/8"	10329' 9 3/8"	219' 5 3/8"	990	upper right
2001	4966' 11"	10329' 9 3/8"	206' 5 3/8"	990	upper right
2002	4966' 12"	10329' 5 3/4"	194' 2 7/8"	990	upper left
2003	4966' 8 1/8"	10330' 5"	181' 6 1/8"	990	upper left
2004	4966' 10 7/8"	10329' 9 1/2"	168' 11 3/4"	990	upper left
2005	4972' 11 3/8"	10312' 10 1/4"	168' 9 1/4"	990	uppper left
2006	4972' 11 1/2"	10312' 10 1/8"	181' 11 1/2"	990	uppper left
2007	4973' 0 5/8"	10312' 6 1/8"	193' 8 1/2"	990	uppper left
2008	4982' 1 1/2"	10287' 1"	206' 5 3/8"	990	upper right
2009	4982' 1 5/8"	10287' 0 3/4"	206' 4 3/4"	990	upper right
2010	4972' 10 3/8"	10313' 2 1/4"	219' 2 1/8"	990	upper left
2011	4972' 11 1/4"	10312' 10 5/8"	205' 11"	990	upper left
2012	4982' 3 7/8"	10286' 7 1/8"	219' 5"	990	upper left
2013	4982' 3 3/4"	10286' 6"	194' 5"	990	upper left
2014	4982' 3 1/8"	10286' 8 7/8"	181' 8 1/8"	990	upper right
2015	4982' 4 1/2"	10286' 5 1/4"	169' 5 5/8"	990	upper right
2016	4991' 10 1/4"	10259' 9 7/8"	169' 2 3/4"	990	upper left
2017	4991' 7 7/8"	10260' 4 1/2"	181' 8 1/4"	990	upper right
2018	4991' 8 7/8"	10260' 0 3/4"	193' 10 5/8"	990	upper right
2019	4991' 8 1/8"	10260' 4"	206' 8 3/8"	990	lower left
2020	4991' 10 1/4"	10259' 10 1/4"	219' 1 7/8"	990	upper right
2021	5001' 2 1/2"	10233' 6 5/8"	218' 11 1/2"	990	lower right
2022	5001' 1 5/8"	10233' 9 1/4"	206' 4 3/4"	990	upper left
2023	5001' 0 1/4"	10234' 0 3/8"	194' 1 3/4"	990	upper left
2024	5001' 1 1/2"	10233' 9 3/8"	181' 11 3/8"	990	upper right
2025	5001' 1 5/8"	10233' 9 3/8"	168' 11 3/4"	990	upper right
2026	5010' 6 1/4"	10207' 4 7/8"	169' 5 5/8"	990	upper right
2027	5010' 6 1/2"	10207' 4 1/4"	181' 5 1/4"	990	upper left
2028	5010' 6 1/8"	10207' 4 3/4"	194' 5"	990	upper right
2029	5010' 8 7/8"	10206' 9 3/4"	206' 4 7/8"	990	upper right
2030	5010' 6 1/8"	10207' 5 5/8"	218' 4 7/8"	990	upper right
2031	5019' 6 3/4"	10181' 10 3/4"	218' 8"	990	upper left
2032	5019' 11 1/4"	10180' 11 7/8"	206' 4 3/4"	990	upper left
2033	5019' 8 3/4"	10181' 7 1/4"	194' 5 3/8"	990	upper left
2034	5019' 10 1/8"	10181' 3 3/4"	181' 8 1/4"	990	upper left
2035	5020' 0 3/8"	10180' 8 3/4"	169' 0 1/4"	990	lower right
2036	5029' 0 3/8"	10155' 4 5/8"	168' 11 1/2"	990	lower right
2037	5029' 1 7/8"	10155' 0 3/8"	194' 1 3/8"	990	upper left
2038	5028' 11 1/4"	10155' 6 3/4"	206' 8 1/8"	990	lower right
2039	5029' 0 7/8"	10155' 0 1/4"	219' 5 3/8"	990	lower right
2040	5038' 5 3/4"	10128' 7 1/8"	219' 1 3/4"	990	upper left
2041	5038' 8 1/2"	10128' 0 3/4"	206' 8 1/4"	990	lower right
2042	5038' 7 5/8"	10128' 4 5/8"	194' 4 3/4"	990	upper right
2043	5038' 9 1/8"	10128' 0 3/4"	181' 8"	990	upper right
2044	5038' 5 1/4"	10128' 11 1/4"	169' 4 7/8"	990	upper left
2045	5047' 11 1/2"	10102' 3 1/8"	169' 2 3/8"	990	upper left
2046	5047' 11 3/8"	10102' 2 7/8"	181' 8 1/2"	990	upper left
2047	5047' 9 3/4"	10102' 7"	194' 1 3/4"	990	upper left
2048	5047' 11 1/2"	10102' 1 3/8"	206' 8 3/8"	990	lower left
2049	5047' 11 3/4"	10101' 10 7/8"	219' 3 1/4"	990	lower left
2050	5057' 4 3/4"	10075' 6 7/8"	219' 4 5/8"	990	upper left
2051	5057' 4 5/8"	10075' 7 3/4"	206' 4 5/8"	990	upper right
2052	5057' 3 3/4"	10075' 11 3/8"	194' 2"	990	upper right
2053	5057' 6 1/2"	10075' 3 7/8"	181' 8"	990	upper right
2054	5057' 5 3/8"	10075' 7 5/8"	169' 5 3/8"	990	upper right
2055	5066' 7 3/4"	10049' 10 1/8"	169' 5 1/2"	990	upper left
2056	5066' 9 7/8"	10049' 3 1/2"	181' 11"	990	upper right
2057	5066' 9 3/4"	10049' 3 1/2"	194' 5 1/4"	990	upper right
2058	5066' 9 1/2"	10049' 2 3/4"	206' 5 1/8"	990	upper left
2059	5066' 6 3/4"	10049' 9 5/8"	219' 4 3/4"	990	upper left
2060	5066' 7 3/4"	10049' 10 1/8"	169' 5 1/2"	990	upper left

Exterior Points

EAST FACE

2100= 10/ROOF EAST SIDE

pt number	northing	easting	elevation	code	location on brick
2100	5063.9153	10367.1211	219.1762	990	upper right
2101	5063.6371	10366.9896	206.4276	990	upper left
2102	5063.6143	10367.0217	193.9290	990	upper left
2103	5063.6124	10367.0269	181.4259	990	upper left
2104	5063.5680	10367.0274	169.0078	990	upper left
2105	5054.4686	10363.7799	168.7540	990	upper right
2106	5054.1767	10363.6388	181.4212	990	upper right
2107	5054.1923	10363.6400	193.8907	990	upper right
2108	5054.7923	10363.8107	206.3944	990	upper right
2109	5054.8001	10363.8527	218.3872	990	upper right
2110	5029.6936	10354.9166	218.8875	990	upper left
2111	5029.7583	10354.9072	206.4030	990	upper left
2112	5029.4036	10354.8180	194.1626	990	upper left
2113	5029.7334	10354.9377	181.4440	990	upper left
2114	5029.9856	10355.0636	169.0621	990	lower right
2115	5005.5386	10346.3467	169.0555	990	lower right
2116	5005.2318	10346.1935	181.2757	990	lower right
2117	5005.2388	10346.2099	193.7348	990	lower right
2118	5005.2524	10346.1673	206.4041	990	upper left
2119	5005.5670	10346.3244	218.6687	990	upper left
2120	4977.3723	10336.2542	218.6558	990	upper left
2121	4977.6332	10336.3028	206.4034	990	upper right
2122	4976.6617	10336.0123	194.1858	990	upper right
2123	4976.6279	10335.9661	181.2028	990	upper right
2124	4977.3723	10336.2542	218.6558	990	upper left

Exterior Points

EAST FACE

2100= 10/ROOF EAST SIDE

pt number	northing	easting	elevation	code	location on brick
2100	5063' 11"	10367' 1 1/2"	219' 2 1/8"	990	upper right
2101	5063' 7 5/8"	10366' 11 7/8"	206' 5 1/8"	990	upper left
2102	5063' 7 3/8"	10367' 0 1/4"	193' 11 1/8"	990	upper left
2103	5063' 7 3/8"	10367' 0 3/8"	181' 5 1/8"	990	upper left
2104	5063' 6 7/8"	10367' 0 3/8"	169' 0 1/8"	990	upper left
2105	5054' 5 5/8"	10363' 9 3/8"	168' 9"	990	upper right
2106	5054' 2 1/8"	10363' 7 5/8"	181' 5"	990	upper right
2107	5054' 2 1/4"	10363' 7 5/8"	193' 10 3/4"	990	upper right
2108	5054' 9 1/2"	10363' 9 3/4"	206' 4 3/4"	990	upper right
2109	5054' 9 5/8"	10363' 10 1/4"	218' 4 5/8"	990	upper right
2110	5029' 8 3/8"	10354' 11"	218' 10 5/8"	990	upper left
2111	5029' 9 1/8"	10354' 10 7/8"	206' 4 7/8"	990	upper left
2112	5029' 4 7/8"	10354' 9 7/8"	194' 2"	990	upper left
2113	5029' 8 3/4"	10354' 11 1/4"	181' 5 3/8"	990	upper left
2114	5029' 11 7/8"	10355' 0 3/4"	169' 0 3/4"	990	lower right
2115	5005' 6 1/2"	10346' 4 1/8"	169' 0 5/8"	990	lower right
2116	5005' 2 3/4"	10346' 2 3/8"	181' 3 1/4"	990	lower right
2117	5005' 2 7/8"	10346' 2 1/2"	193' 8 7/8"	990	lower right
2118	5005' 3"	10346' 2"	206' 4 7/8"	990	upper left
2119	5005' 6 3/4"	10346' 3 7/8"	218' 8"	990	upper left
2120	4977' 4 1/2"	10336' 3"	218' 7 7/8"	990	upper left
2121	4977' 7 5/8"	10336' 3 5/8"	206' 4 7/8"	990	upper right
2122	4976' 8"	10336' 0 1/8"	194' 2 1/4"	990	upper right
2123	4976' 7 1/2"	10335' 11 5/8"	181' 2 3/8"	990	upper right
2124	4977' 4 1/2"	10336' 3"	218' 7 7/8"	990	upper left

Exterior Points

WEST FACE

1000= 10/ROOF WEST SIDE

pt number	northing	easting	elevation	code	location on brick
1000	5165.2013	10082.7937	219.3920	990	upper left
1001	5165.1835	10082.7982	206.7467	990	lower left
1002	5165.1621	10082.8072	194.4338	990	upper left
1003	5165.1780	10082.8291	181.9364	990	upper left
1004	5155.4627	10079.4169	181.9146	990	upper left
1005	5155.1431	10079.2969	194.1452	990	upper left
1006	5155.5134	10079.4179	207.3068	990	upper left
1007	5155.3954	10079.3840	219.3475	990	upper left
1008	5130.9240	10070.6753	219.3895	990	upper left
1009	5131.1775	10070.7800	207.2681	990	upper right
1010	5130.9325	10070.7097	194.4479	990	upper left
1011	5131.5024	10070.9010	181.9064	990	upper right
1012	5131.5703	10070.8684	169.3977	990	upper right
1013	5106.5512	10061.9537	169.4341	990	upper left
1014	5106.2052	10061.8766	181.9103	990	upper left
1015	5106.1817	10061.9076	194.4267	990	upper left
1016	5106.5583	10062.0384	207.3193	990	upper left
1017	5106.7288	10062.0877	219.6870	990	upper right
1018	5081.9304	10053.2693	219.6577	990	lower left
1019	5081.9200	10053.2664	207.2670	990	upper right
1020	5081.9590	10053.2764	194.4143	990	upper left
1021	5081.9667	10053.2447	181.8944	990	upper left

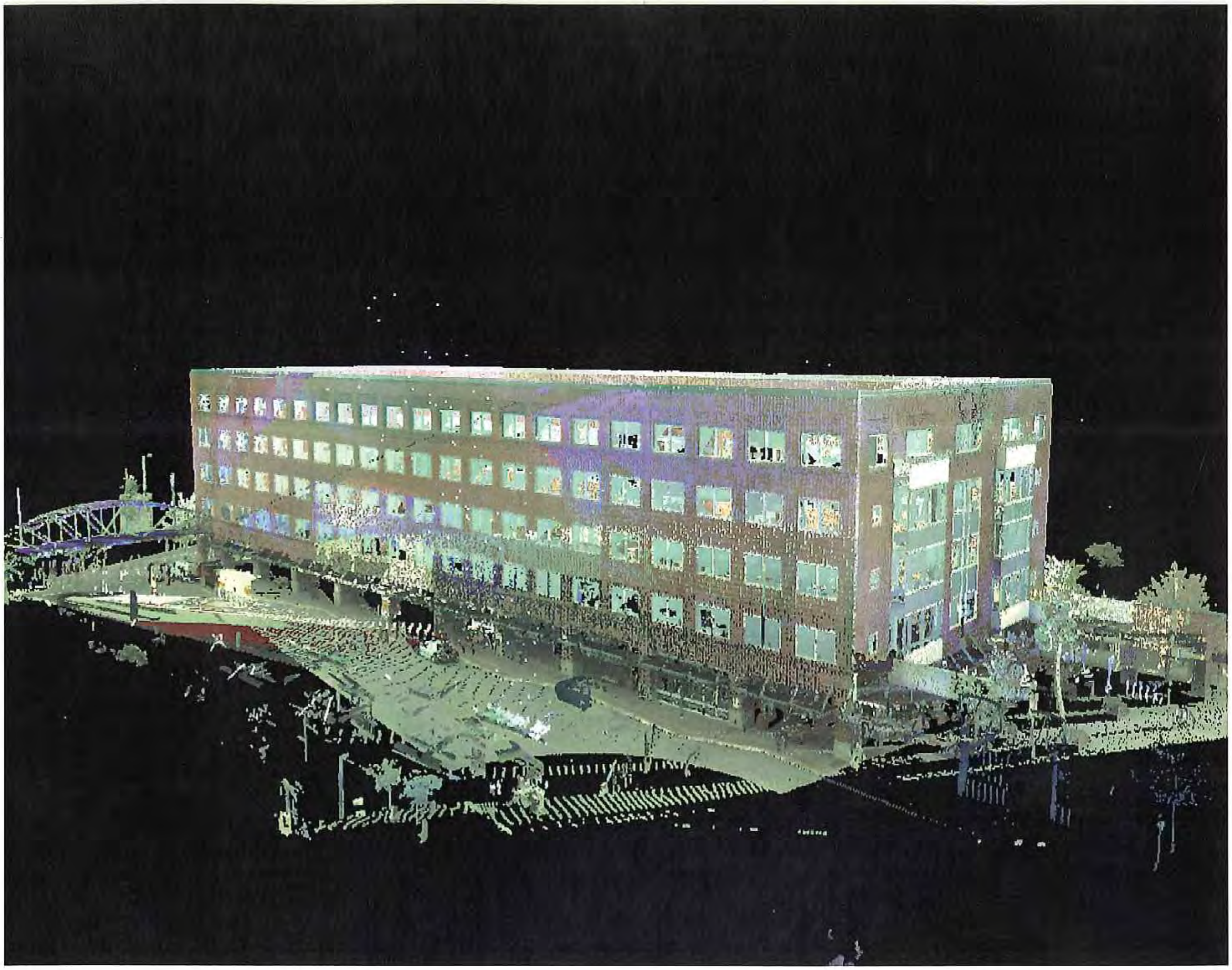
Exterior Points

WEST FACE

1000= 10/ROOF WEST SIDE

pt number	northing	easting	elevation	code	location on brick
1000	5165' 2 3/8"	10082' 9 1/2"	219' 4 3/4"	990	upper left
1001	5165' 2 1/4"	10082' 9 5/8"	206' 9"	990	lower left
1002	5165' 2"	10082' 9 5/8"	194' 5 1/4"	990	upper left
1003	5165' 2 1/8"	10082' 10"	181' 11 1/4"	990	upper left
1004	5155' 5 1/2"	10079' 5"	181' 11"	990	upper left
1005	5155' 1 3/4"	10079' 3 5/8"	194' 1 3/4"	990	upper left
1006	5155' 6 1/8"	10079' 5"	207' 3 5/8"	990	upper left
1007	5155' 4 3/4"	10079' 4 5/8"	219' 4 1/8"	990	upper left
1008	5130' 11 1/8"	10070' 8 1/8"	219' 4 5/8"	990	upper left
1009	5131' 2 1/8"	10070' 9 3/8"	207' 3 1/4"	990	upper right
1010	5130' 11 1/4"	10070' 8 1/2"	194' 5 3/8"	990	upper left
1011	5131' 6"	10070' 10 3/4"	181' 10 7/8"	990	upper right
1012	5131' 6 7/8"	10070' 10 3/8"	169' 4 3/4"	990	upper right
1013	5106' 6 5/8"	10061' 11 1/2"	169' 5 1/4"	990	upper left
1014	5106' 2 1/2"	10061' 10 1/2"	181' 10 7/8"	990	upper left
1015	5106' 2 1/8"	10061' 10 7/8"	194' 5 1/8"	990	upper left
1016	5106' 6 3/4"	10062' 0 1/2"	207' 3 7/8"	990	upper left
1017	5106' 8 3/4"	10062' 1"	219' 8 1/4"	990	upper right
1018	5081' 11 1/8"	10053' 3 1/4"	219' 7 7/8"	990	lower left
1019	5081' 11"	10053' 3 1/4"	207' 3 1/4"	990	upper right
1020	5081' 11 1/2"	10053' 3 3/8"	194' 5"	990	upper left
1021	5081' 11 5/8"	10053' 2 7/8"	181' 10 3/4"	990	upper left

Marion County
Courthouse Square Remediation Project
Full Building Survey Services



September 9, 2010

David Evans and Associates, Inc.
530 Center Street NE, Suite 650
Salem, OR 97301

Project Manager: Jon Broadwater P.L.S

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Project overview

Marion County Facilities employed DEA to monitor the potential movement of the Courthouse square building in Salem, Oregon. DEA utilized a variety of survey techniques ranging from traversing and digital leveling, to terrestrial laser scanning. The goal of the project was to monument the structure. Then measure said locations to document the possible deflections in the post tensioned slab floors and other structural elements of the building. DEA completed the work over a two week period beginning on 8-16-2010 and delivering the final report on 8-26-2010. The project required both a high level of accuracy and repeatability. To facilitate these needs DEA, through sound surveying practice, created the following control environment to base this project on.

Project Datum Statement

The horizontal datum held for this project is based on local coordinates. The basis of bearing held was the centerline of Court Street being S70-30-00E per the City of Salem plat. Vertical measurements were based off of closed digital level loops originating and closing to City of Salem benchmark 1155 located at the SW corner of Liberty and center Street and having a NGVD 29 value of 153.40 ft. the following is the City of Salem bench mark data:

Name	1155
Status	
X Coord	0
Y Coord	0
Z Coord	0
Convergence	
Elevation	153.4
Type	
Section	
County	MARION
Marker	ALUM DISK
Description	SE CORNER LIBERTY & CENTER ST, TOP OF CURB IN RADIUS, 3' SW OF A CATCHBASIN

Control Least Square Adjustment report:

File: Marn0043
Projection: Plane grid
File Date: Wednesday, April 28, 2010

Units

Angle: Degrees Minutes Seconds
Distance: International Feet

```
Earth constants
================
      Refraction constant:      0.070
         Earth's radius: 6378000.000

     Combined scale factor:      1.000000

Fixed Coordinates
-----------------
  Point ID    North       East
     11      5000.000  10000.000
     12      4903.643  10272.103

Adjusted Coordinates
--------------------
  Point ID    North       East
     13      5068.600  10457.549
     10      5249.848   9971.833


Observations
------------
Directions
    At       To      Direction     +/-SD      Residual    Orientation   Grid Az.
    12       11       0°00'00"    0°00'02"   -0°00'01"   289°30'01"   289°30'00"
    12       13     118°50'45"    0°00'02"    0°00'01"                 48°20'47"
    13       12       0°00'00"    0°00'02"   -0°00'01"   228°20'48"   228°20'47"
    13       10      62°07'00"    0°00'02"    0°00'01"                290°27'48"
    10       13       0°00'00"    0°00'02"   -0°00'03"   110°27'51"   110°27'48"
    10       11      63°06'11"    0°00'02"    0°00'03"                173°34'04"
    11       10       0°00'00"    0°00'02"   -0°00'02"   353°34'07"   353°34'04"
    11       12     115°55'51"    0°00'02"    0°00'02"                109°30'00"
Distances
    At       To      Distance  +/-SD   Residual   Grid      L.S.F.
    12       11      288.662   0.005   -0.002   288.660  1.00000000
    12       13      248.196   0.005   -0.000   248.195  1.00000000
    13       12      248.198   0.005   -0.002   248.195  1.00000000
    13       10      518.431   0.005   -0.000   518.431  1.00000000
    10       13      518.430   0.005    0.000   518.431  1.00000000
    10       11      251.425   0.005    0.006   251.430  1.00000000
    11       10      251.433   0.005   -0.003   251.430  1.00000000
    11       12      288.656   0.005    0.004   288.660  1.00000000

Statistics
```

Degrees of Freedom: 6
Fixed Coordinates: 2
Floating Coordinates: 2
Observations: 14
Directions: 8
Orientation: 4
Distances: 6
Number of Iterations: 2

Error Analysis

Variance Factor: 1.10

	Adjusted Coordinates		+/- 95% Confidence Limits		Error Ellipse		
Point ID	North	East	North	East	Semi Major	Semi Minor	Orientation
13	5068.600	10457.549	0.009	0.007	0.009	0.007	3°36'02"
10	5249.848	9971.833	0.009	0.008	0.009	0.007	38°27'56"

Digital level repots for primary control:

Point Id	Epoch	Height [fti]	Corr [fti]	Delta Hgt. [fti]	Point Class	Sd. Hgt. [fti]
BM-2A	04/27/2010 13:03:02	153.4003	-	-	Control	-
TP1	04/27/2010 13:03:06	152.7485	0.0002	-0.6518	Measured	0.0010
TP2	04/27/2010 13:03:10	153.6718	0.0005	0.9233	Measured	0.0014
10	04/27/2010 13:03:14	153.5949	0.0006	-0.0769	Measured	0.0010
11	04/27/2010 13:03:18	153.4431	-0.0002	-0.1518	Measured	-
12	04/27/2010 13:03:22	152.1743	0.0000	-1.2688	Measured	-
13	04/27/2010 13:03:26	151.6795	0.0001	-0.4948	Measured	0.0020
TP3	04/27/2010 13:03:30	153.4548	0.0005	1.7753	Measured	0.0010
TP4	04/27/2010 13:03:34	153.4221	0.0018	-0.0327	Measured	0.0010
BM-2A	04/27/2010 13:03:38	153.4003	-	-0.0218	Control	-

Digital level repots for TBM building control:

Point Id	Epoch	Height [fti]	Corr [fti]	Delta Hgt. [fti]	Point Class	Sd. Hgt. [fti]
13	04/27/2010 13:03:41	151.6793	-	-	Control	-
TP1	04/27/2010 13:03:45	148.6879	-0.0004	-2.9914	Measured	-
TP2	04/27/2010 13:03:49	143.4218	-0.0005	-5.2662	Measured	-
BM-GA	04/27/2010 13:03:53	143.1726	0.0003	-0.2491	Measured	-
TP3	04/27/2010 13:03:57	147.9746	0.0003	4.8020	Measured	-
BM-1A	04/27/2010 13:04:01	153.4625	0.0002	5.4880	Measured	0.0010
TP4	04/27/2010 13:04:05	155.4185	0.0002	1.9560	Measured	-
TP5	04/27/2010 13:04:09	163.4125	0.0011	7.9940	Measured	-
BM-2A	04/27/2010 13:04:13	169.4814	0.0011	6.0690	Measured	-
TP5	04/27/2010 13:04:17	171.9454	0.0021	2.4640	Measured	-
TP6	04/27/2010 13:04:21	178.2094	0.0010	6.2640	Measured	-

BM-3A	04/27/2010 13:04:25	181.9773	0.0010	3.7680	Measured	-
TP8	04/27/2010 13:04:29	183.8793	0.0009	1.9020	Measured	-
TP9	04/27/2010 13:04:33	190.7143	0.0009	6.8350	Measured	-
BM-4A	04/27/2010 13:04:37	194.4912	-0.0002	3.7770	Measured	-
TP10	04/27/2010 13:04:41	196.3902	-0.0002	1.8990	Measured	-
TP11	04/27/2010 13:04:45	202.6312	-0.0002	6.2410	Measured	-
BM-5A	04/27/2010 13:04:49	206.9771	-0.0013	4.3460	Measured	0.0010
TP12	04/27/2010 13:04:53	207.1950	-0.0014	0.2179	Measured	-
TP13	04/27/2010 13:04:57	207.1850	-0.0005	-0.0101	Measured	-
BM-5B	04/27/2010 13:05:01	206.9787	-0.0007	-0.2062	Measured	-
TP14	04/27/2010 13:05:05	202.6617	-0.0007	-4.3171	Measured	-
TP15	04/27/2010 13:05:09	196.4066	-0.0008	-6.2551	Measured	-
BM-4B	04/27/2010 13:05:13	194.4686	-0.0008	-1.9380	Measured	-
TP16	04/27/2010 13:05:17	190.1255	-0.0009	-4.3430	Measured	-
TP17	04/27/2010 13:05:21	183.8985	-0.0019	-6.2271	Measured	-
BM-3B	04/27/2010 13:05:25	181.9584	-0.0019	-1.9400	Measured	-
TP18	04/27/2010 13:05:29	177.6444	-0.0030	-4.3140	Measured	-
TP19	04/27/2010 13:05:33	171.3873	-0.0030	-6.2571	Measured	-
BM-2B	04/27/2010 13:05:37	169.4783	-0.0020	-1.9091	Measured	-
TP20	04/27/2010 13:05:41	163.9772	-0.0031	-5.5010	Measured	-
TP21	04/27/2010 13:05:45	155.9842	-0.0021	-7.9930	Measured	-
BM-1B	04/27/2010 13:05:49	153.4981	-0.0022	-2.4860	Measured	-
TP22	04/27/2010 13:05:53	150.2661	-0.0022	-3.2321	Measured	0.0010
TP23	04/27/2010 13:05:57	145.1010	-0.0023	-5.1651	Measured	0.0010
BM-GB	04/27/2010 13:06:01	143.1820	-0.0023	-1.9190	Measured	-
TP24	04/27/2010 13:06:05	143.4079	-0.0024	0.2259	Measured	-
TP25	04/27/2010 13:06:09	148.2367	-0.0016	4.8288	Measured	-
13	04/27/2010 13:06:13	151.6793	-	3.4426	Control	-

Jon K Broadwater P.L.S
Senior Associate
David Evans and Associates, Inc.
May 4, 2010

REGISTERED
PROFESSIONAL
LAND SURVEYOR

OREGON
JULY 11, 2006
JON KENNETH BROADWATER
61360LS
EXPIRES: 12/31/11

GRID LINE ELEVATIONS

PARKING LEVEL

Bench Elevation= 143' 2"

ELEVATIONS					GRID LINE N-S				
GRID LINE E-W	10	10A	10A-11	11	11--12	12	12-12A	12A	13
A	143' 2"	143' 2 1/8"	143' 2 3/8"	143' 2"	143' 2 1/4"	143' 2 3/8"	143' 2 3/8"	143' 2 5/8"	143' 2 3/4"
A1	143' 2 1/8"	143' 2 1/4"	143' 2 1/4"	143' 2 1/8"	DNS	143' 2 1/8"	DNS	143' 2 1/2"	143' 2 3/8"
B-C	143' 2 1/4"	143' 2 1/4"	DNS	143' 2 1/4"	143' 2 3/8"	DNS	143' 2 5/8"	143' 2 1/2"	143' 2 5/8"
C	143' 2 1/4"	143' 2 1/8"	143' 2 3/8"	143' 2 1/4"	143' 2 1/4"	143' 2 1/2"	143' 2 3/8"	143' 2 1/8"	143' 2 1/4"
C-D	143' 2 3/8"	143' 2 1/4"	143' 2 3/8"	143' 2 3/8"	143' 2 3/8"	143' 2 5/8"	143' 2 3/8"	143' 2 1/4"	143' 2"
D	143' 2 3/8"	143' 1 7/8"	143' 2 1/4"	143' 2 1/4"	143' 2"	143' 2 1/4"	DNS	143' 2 1/8"	143' 2"
D-E	143' 2 3/8"	143' 2 1/4"	143' 1 7/8"	143' 2 1/4"	143' 1 3/4"	143' 2 1/2"	143' 2 1/4"	143' 2 1/2"	143' 2 1/8"
E	143' 2 3/8"	143' 2"	143' 2 1/2"	143' 2 1/2"	143' 1 3/4"	143' 2 3/8"	143' 2"	143' 2"	143' 2"
E-F	143' 2 1/8"	143' 2 1/2"	143' 2 1/8"	143' 2 1/4"	DNS	143' 2 1/8"	143' 2"	143' 2 5/8"	143' 2 5/8"
F	143' 2 1/4"	143' 2 3/8"	143' 2 3/8"	143' 2"	DNS	143' 2 1/4"	143' 2 1/8"	143' 2"	143' 2"
F-G	143' 2 3/8"	143' 2 1/8"	143' 1 7/8"	143' 2 1/2"	DNS	143' 2"	143' 2 1/4"	143' 2 1/2"	143' 2 1/2"
G	143' 2 3/8"	143' 2 1/4"	143' 2 1/8"	DNS	DNS	143' 2"	143' 2 3/8"	143' 2"	143' 1 7/8"
G-H	143' 2 1/4"	143' 2 3/8"	143' 2 1/4"	143' 2"	143' 1 3/8"	143' 1 3/4"	143' 1 7/8"	143' 2 3/8"	143' 2 1/8"
H	143' 1 7/8"	143' 2"	143' 2 1/8"	143' 2"	143' 1 5/8"	143' 2"	143' 2"	143' 2 1/8"	143' 1 5/8"
H-J	143' 2 1/2"	143' 2 1/8"	DNS	143' 2 1/8"	143' 2 1/8"	143' 2 1/4"	143' 2 3/8"	DNS	143' 2 1/8"
J	143' 2"	143' 2 1/4"	143' 2 1/8"	143' 2"	DNS	143' 1 7/8"	143' 2 3/8"	143' 1 7/8"	143' 1 7/8"
J-K	143' 2 1/4"	143' 2 1/8"	DNS	143' 2 1/8"	143' 2 1/8"	143' 2 1/8"	143' 2 3/8"	143' 2 1/2"	143' 1 7/8"
K	143' 1 7/8"	DNS	DNS	DNS	143' 2"	143' 2"	DNS	143' 2 1/8"	143' 1 7/8"
K-L	143' 2 1/8"	DNS	DNS	DNS	143' 2 1/2"	143' 2 1/2"	143' 2"	143' 2 1/2"	143' 2 1/8"
L	143' 1 7/8"	DNS	DNS	DNS	143' 1 7/8"	143' 1 7/8"	143' 1 7/8"	143' 2"	143' 2"
L-M	143' 2 3/8"	143' 2 1/8"	143' 2 1/8"	143' 1 5/8"	143' 1 3/4"	143' 1 3/4"	DNS	143' 2 1/8"	143' 2 3/8"
M	143' 1 5/8"	143' 2"	143' 2"	143' 2"	143' 2 1/4"	143' 2 1/4"	143' 1 5/8"	143' 2 1/8"	143' 2"
M-N	143' 2 1/8"	143' 1 7/8"	DNS	143' 1 1/2"	143' 1 5/8"	143' 1 5/8"	143' 1 5/8"	DNS	DNS
N	143' 1 7/8"	143' 1 7/8"	DNS	143' 1 3/4"	143' 2"	143' 2"	143' 1 3/4"	143' 2"	143' 2"
N1	143' 2"	143' 1 7/8"	143' 1 5/8"	143' 1 7/8"	143' 1 1/2"	143' 1 1/2"	143' 1 1/2"	143' 2 3/8"	143' 2"
O	DNS	143' 2 1/4"	143' 1 7/8"	143' 1 7/8"	143' 1 7/8"	143' 1 7/8"	143' 2"	DNS	DNS
	ELEVATION OF GRID POINT IN FEET & INCHES					DNS = DID NOT SURVEY			

RELITIVE DIFF. FROM BENCH ELEV.					GRID LINE N-S				
GRID LINE E-W	10	10A	10A-11	11	11--12	12	12-12A	12A	13
A	0' 0"	0' 0 1/8"	0' 0 3/8"	0' 0"	0' 0 1/4"	0' 0 1/4"	0' 0 3/8"	0' 0 5/8"	0' 0 3/4"
A1	0' 0 1/8"	0' 0 1/8"	0' 0 1/4"	0' 0 1/8"	DNS	0' 0 1/8"	DNS	0' 0 1/2"	0' 0 3/8"
B-C	0' 0 1/4"	0' 0 1/8"	DNS	0' 0 1/4"	0' 0 3/8"	DNS	0' 0 1/2"	0' 0 3/8"	0' 0 1/2"
C	0' 0 1/4"	0' 0"	0' 0 3/8"	0' 0 1/8"	0' 0 1/4"	0' 0 3/8"	0' 0 3/8"	0' 0"	0' 0 1/8"
C-D	0' 0 3/8"	0' 0 1/4"	0' 0 3/8"	0' 0 1/4"	0' 0 1/4"	0' 0 1/2"	0' 0 3/8"	0' 0 1/8"	0' 0"
D	0' 0 1/4"	0' 0 -1/8"	0' 0 1/8"	0' 0 1/8"	0' 0"	0' 0 1/8"	DNS	0' 0 1/8"	0' 0"
D-E	0' 0 1/4"	0' 0 1/8"	0' 0 -1/8"	0' 0 1/4"	0' 0 -1/4"	0' 0 3/8"	0' 0 1/8"	0' 0 3/8"	0' 0"
E	0' 0 3/8"	0' 0 -1/8"	0' 0 3/8"	0' 0 3/8"	0' 0 -3/8"	0' 0 3/8"	0' 0"	0' 0"	0' 0"
E-F	0' 0 1/8"	0' 0 3/8"	0' 0 1/8"	0' 0 1/4"	DNS	0' 0 1/8"	0' 0"	0' 0 5/8"	0' 0 1/2"
F	0' 0 1/4"	0' 0 1/4"	0' 0 1/4"	0' 0"	DNS	0' 0 1/4"	0' 0"	0' 0"	0' 0"
F-G	0' 0 3/8"	0' 0 1/8"	0' 0 -1/8"	0' 0 1/2"	DNS	0' 0"	0' 0 1/4"	0' 0 1/2"	0' 0 3/8"
G	0' 0 3/8"	0' 0 1/4"	0' 0"	DNS	DNS	0' 0"	0' 0 3/8"	0' 0"	0' 0 -1/4"
G-H	0' 0 1/4"	0' 0 3/8"	0' 0 1/4"	0' 0 -1/8"	0' 0 -5/8"	0' 0 -3/8"	0' 0 -1/4"	0' 0 1/4"	0' 0 1/8"
H	0' 0 -1/4"	0' 0"	0' 0 1/8"	0' 0 -1/8"	0' 0 -3/8"	0' 0"	0' 0"	0' 0 1/8"	0' 0 -3/8"
H-J	0' 0 3/8"	0' 0 1/8"	DNS	0' 0 1/8"	0' 0"	0' 0 1/4"	0' 0 1/4"	DNS	0' 0 1/8"
J	0' 0"	0' 0 1/8"	0' 0"	0' 0 -1/8"	DNS	0' 0 -1/8"	0' 0 1/4"	0' 0 -1/8"	0' 0 -1/8"
J-K	0' 0 1/8"	0' 0 1/8"	DNS	0' 0"	0' 0"	0' 0"	0' 0 1/4"	0' 0 3/8"	0' 0 -1/8"
K	0' 0 -1/8"	DNS	DNS	DNS	0' 0"	0' 0"	DNS	0' 0"	0' 0 -1/8"
K-L	0' 0 1/8"	DNS	DNS	DNS	0' 0 3/8"	0' 0 3/8"	0' 0"	0' 0 3/8"	0' 0"
L	0' 0 -1/8"	DNS	DNS	DNS	0' 0 -1/4"	0' 0 -1/4"	0' 0 -1/4"	0' 0"	0' 0 -1/8"
L-M	0' 0 3/8"	0' 0 1/8"	0' 0"	0' 0 -3/8"	0' 0 -1/4"	0' 0 -1/4"	DNS	0' 0 1/8"	0' 0 3/8"
M	0' 0 -1/2"	0' 0"	0' 0 -1/8"	0' 0 -1/8"	0' 0 1/4"	0' 0 1/4"	0' 0 -3/8"	0' 0 1/8"	0' 0 -1/8"
M-N	0' 0"	0' 0 -1/4"	DNS	0' 0 -1/2"	0' 0 -3/8"	0' 0 -3/8"	0' 0 -3/8"	DNS	DNS
N	0' 0 -1/8"	0' 0 -1/4"	DNS	0' 0 -3/8"	0' 0"	0' 0"	0' 0 -3/8"	0' 0"	0' 0"
N1	0' 0 -1/8"	0' 0 -1/8"	0' 0 -1/2"	0' 0 -1/8"	0' 0 -1/2"	0' 0 -1/2"	0' 0 -1/2"	0' 0 1/4"	0' 0"
O	DNS	0' 0 1/4"	0' 0 -1/4"	0' 0 -1/8"	0' 0 -1/8"	0' 0 -1/8"	0' 0"	DNS	DNS
						DNS = DID NOT SURVEY			

MONUMENTS SET

GRID LINE E-W	*GRIDLINE N-S*	*DESCRIPTION*	*LOCATION*
A			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
A1			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	Point was Destroyed
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
B-C			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	Point was Destroyed
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Did Not Survey	Point was Destroyed
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
C			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
C-D			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
D			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Set on East Side of Column
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	Point was Destroyed
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
D-E			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line

E			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
E-F			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
F			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Set on South Side of Column
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
F-G			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Set of South Side of Wall
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
G			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Point was Destroyed
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
G-H			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line-3.5' South of Wall Angle Point
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
H			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line

H-J			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	Point was Destroyed
	11	SCRIBE ON CONTRETE	On Grid Line
	11--12	SCRIBE ON CONTRETE	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	Point was Destroyed
	13	Set 3/4" Pin w/ Washer	On Grid Line
J			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Set on South Side of Column
	11--12	Set 3/4" Pin w/ Washer	Point was Destroyed
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
J-K			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	Point was Destroyed
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
K			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Did Not Survey	On Garage Ramp
	10A-11	Did Not Survey	On Garage Ramp
	11	Did Not Survey	On Garage Ramp
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
K-L			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Did Not Survey	On Garage Ramp
	10A-11	Did Not Survey	On Garage Ramp
	11	Did Not Survey	On Garage Ramp
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
L			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Did Not Survey	On Garage Ramp
	10A-11	Did Not Survey	On Garage Ramp
	11	Did Not Survey	On Garage Ramp
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
L-M			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	Point was Destroyed
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line

M			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	Set on North Side of Column
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
M-N			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	Point was Destroyed
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Did Not Survey	Immovable Vehicle
	13	Did Not Survey	Immovable Vehicle
N			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	Point was Destroyed
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	Immovable Vehicle
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
N1			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	Immovable Vehicle
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
O			
	10	Set 3/4" Pin w/ Washer	Point was Destroyed
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Did Not Survey	Immovable Vehicle
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Did Not Survey	Inside Heating Unit - No Access
	13	Did Not Survey	Inside Heating Unit - No Access

GRID LINE ELEVATIONS

FIRST FLOOR

Bench Elevation= 153' 5 1/2"

ELEVATION					*GRIDLINE N-S*				
GRID LINE E-W	**10A**	**10A-11**	**11**	**11--12**	**12**	**12-12A**	**12A**	**12A-13**	**13**
C-D	153' 6"	153' 5 7/8"	153' 5 7/8"	153' 6"	153' 5 5/8"	153' 5 1/4"	153' 5 1/2"	DNS	DNS
D	153' 6"	153' 5 7/8"	153' 6 1/8"	153' 6 1/8"	153' 5 5/8"	153' 5"	153' 5 5/8"	153' 5 5/8"	153' 5 5/8"
D-E	153' 5 5/8"	153' 5 3/4"	153' 6"	153' 6 3/8"	153' 5 1/8"	153' 4 7/8"	153' 5 3/8"	153' 5 1/2"	153' 5 1/2"
E	153' 6 1/8"	153' 6"	153' 5 7/8"	153' 5 3/4"	153' 5 5/8"	DNS	153' 5 5/8"	153' 5 1/2"	153' 5 3/4"
E-F	153' 5 3/4"	153' 6 1/8"	153' 5 3/4"	153' 5 3/4"	153' 6"	153' 5 3/8"	153' 5 5/8"	153' 5 5/8"	153' 5 3/4"
F	153' 5 7/8"	DNS	153' 5 5/8"	153' 5 5/8"	153' 5 3/4"	153' 5 1/8"	153' 6"	153' 5 7/8"	DNS
F-G	153' 5 3/4"	153' 5 3/4"	153' 5 7/8"	153' 5 3/4"	153' 5 3/8"	153' 4 7/8"	153' 5 1/2"	153' 5 3/4"	153' 5 7/8"
G	153' 5 7/8"	153' 5 5/8"	153' 5"	DNS	153' 5 1/2"	153' 5 1/4"	153' 5 1/2"	153' 5 3/4"	153' 5 7/8"
G-H	153' 5"	153' 4 7/8"	153' 5 5/8"	153' 5 1/8"	153' 5 3/8"	153' 5"	153' 5 1/4"	153' 5 3/8"	DNS
H	153' 5 7/8"	153' 5"	153' 5 3/4"	DNS	153' 5 1/4"	153' 5 1/8"	153' 5 7/8"	153' 5 3/4"	153' 5 5/8"
H-J	153' 5 1/4"	153' 5 1/8"	153' 4 7/8"	153' 5 1/4"	153' 5 1/8"	153' 4 1/2"	153' 5 1/8"	153' 5 1/4"	153' 5 5/8"
J	153' 5 1/2"	153' 5 1/2"	153' 5 5/8"	153' 4 7/8"	153' 5 7/8"	153' 5"	154' 0 3/4"	154' 0 5/8"	DNS
J-K	153' 5 3/8"	153' 5 1/8"	153' 5 1/8"	153' 5 1/4"	153' 5 3/8"	153' 5 1/8"	153' 5 3/8"	154' 0 5/8"	154' 0 3/4"
K	DNS	153' 5 1/2"	153' 6"	153' 5 1/8"	153' 5 3/4"	153' 5 1/4"	154' 0 3/4"	154' 0 7/8"	DNS
K-L	DNS	DNS	153' 5 1/2"	153' 5 1/4"	153' 5 3/8"	153' 5 1/2"	153' 5 1/4"	153' 5 1/2"	153' 5 3/4"
L	DNS	DNS	DNS	DNS	153' 6 1/8"	154' 5 1/8"	153' 6 3/8"	153' 6"	DNS
L-M	DNS	DNS	DNS	DNS	153' 6 1/2"	153' 5 3/8"	153' 5 5/8"	153' 5 7/8"	153' 5 7/8"
M	DNS	DNS	153' 5 3/4"	DNS	153' 6 3/8"	153' 5 1/4"	153' 5 7/8"	153' 5 7/8"	DNS
M-N	DNS	DNS	DNS	DNS	153' 4 3/4"	153' 4 3/4"	153' 5 3/8"	153' 6"	153' 6"
N	DNS	DNS	DNS	DNS	153' 5 1/4"	153' 5 1/8"	153' 5 7/8"	153' 6"	153' 6"
N1	DNS	DNS	DNS	DNS	DNS	DNS	153' 3 3/8"	153' 5 7/8"	DNS
O	DNS	DNS	DNS	DNS	153' 1"	153' 1 1/2"	153' 1 1/8"	153' 0 3/4"	DNS
	ELEVATION OF GRID POINTS IN FEET & INCHES					DNS = DID NOT SURVEY			

RELITIVE DIFF. FROM BENCH ELEV.					*GRIDLINE N-S*				
GRID LINE E-W	**10A**	**10A-11**	**11**	**11--12**	**12**	**12-12A**	**12A**	**12A-13**	**13**
C-D	0' 0 3/8"	0' 0 1/4"	0' 0 3/8"	0' 0 3/8"	0' 0 1/8"	0' 0 -3/8"	0' 0 -1/8"	DNS	DNS
D	0' 0 1/2"	0' 0 1/4"	0' 0 1/2"	0' 0 1/2"	0' 0"	0' 0 -1/2"	0' 0 1/8"	0' 0"	0' 0 1/8"
D-E	0' 0"	0' 0 1/4"	0' 0 3/8"	0' 0 7/8"	0' 0 -1/2"	0' 0 -5/8"	0' 0 -1/4"	0' 0 -1/8"	0' 0 -1/8"
E	0' 0 1/2"	0' 0 3/8"	0' 0 3/8"	0' 0 1/4"	0' 0"	DNS	0' 0 1/8"	0' 0"	0' 0 1/4"
E-F	0' 0 1/4"	0' 0 5/8"	0' 0 1/4"	0' 0 1/4"	0' 0 3/8"	0' 0 -1/8"	0' 0 1/8"	0' 0 1/8"	0' 0 1/8"
F	0' 0 1/4"	DNS	0' 0"	0' 0 1/8"	0' 0 1/8"	0' 0 -1/2"	0' 0 1/2"	0' 0 3/8"	DNS
F-G	0' 0 1/4"	0' 0 1/4"	0' 0 3/8"	0' 0 1/4"	0' 0 -1/4"	0' 0 -5/8"	0' 0 -1/8"	0' 0 1/8"	0' 0 3/8"
G	0' 0 3/8"	0' 0"	0' 0 -1/2"	DNS	0' 0"	0' 0 -1/4"	0' 0"	0' 0 1/4"	0' 0 3/8"
G-H	0' 0 -1/2"	0' 0 -3/4"	0' 0 1/8"	0' 0 -3/8"	0' 0 -1/8"	0' 0 -1/2"	0' 0 -1/4"	0' 0 -1/8"	DNS
H	0' 0 1/4"	0' 0 -1/2"	0' 0 1/8"	DNS	0' 0 -3/8"	0' 0 -1/2"	0' 0 3/8"	0' 0 1/8"	0' 0 1/8"
H-J	0' 0 -3/8"	0' 0 -3/8"	0' 0 -5/8"	0' 0 -1/4"	0' 0 -3/8"	0' 0 -1/1"	0' 0 -3/8"	0' 0 -1/4"	0' 0 1/8"
J	0' 0 -1/8"	0' 0"	0' 0"	0' 0 -3/4"	0' 0 1/4"	0' 0 -5/8"	0' 7 1/8"	0' 7 1/8"	DNS
J-K	0' 0 -1/8"	0' 0 -3/8"	0' 0 -3/8"	0' 0 -3/8"	0' 0 -1/8"	0' 0 -3/8"	0' 0 -1/8"	0' 7"	0' 7 1/8"
K	DNS	0' 0 -1/8"	0' 0 1/2"	0' 0 -3/8"	0' 0 1/8"	0' 0 -3/8"	0' 7 1/4"	0' 7 3/8"	DNS
K-L	DNS	DNS	0' 0"	0' 0 -3/8"	0' 0 -1/8"	0' 0 -1/8"	0' 0 -1/4"	0' 0"	0' 0 1/8"
L	DNS	DNS	DNS	DNS	0' 0 5/8"	0' 11 5/8"	0' 0 7/8"	0' 0 3/8"	DNS
L-M	DNS	DNS	DNS	DNS	0' 1"	0' 0 -1/8"	0' 0 1/8"	0' 0 1/4"	0' 0 3/8"
M	DNS	DNS	0' 0 1/4"	DNS	0' 0 3/4"	0' 0 -1/4"	0' 0 3/8"	0' 0 3/8"	DNS
M-N	DNS	DNS	DNS	DNS	0' 0 -3/4"	0' 0 -3/4"	0' 0 -1/4"	0' 0 1/2"	0' 0 1/2"
N	DNS	DNS	DNS	DNS	0' 0 -1/4"	0' 0 -3/8"	0' 0 3/8"	0' 0 3/8"	0' 0 3/8"
N1	DNS	DNS	DNS	DNS	DNS	DNS	0' -2 -1/8"	0' 0 1/4"	DNS
O	DNS	DNS	DNS	DNS	0' -4 -5/8"	0' -4 -1/8"	0' -4 -3/8"	0' -4 -3/4"	DNS
	ELEVATION OF GRID POINTS IN FEET & INCHES					DNS = DID NOT SURVEY			

MONUMENTS SET			
GRID LINE E-W	*GRIDLINE N-S*	*DESCRIPTION*	*LOCATION*
C-D			
	10	Did Not Survey	No Proposed Location
	10A	Marker Dot	On Grid Line
	10A-11	Marker Dot	0.1' East of Wall
	11	Marker Dot	0.1' East and 0.73' North of Corner
	11--12	Marker Dot	On Grid Line
	12	Marker Dot	0.7' East and 0.55' South of Corner
	12-12A	Marker Dot	On Grid Line
	12A	Marker Dot	On Grid Line
	12A-13	Did Not Survey	No Proposed Location
	13	Did Not Survey	No Proposed Location
D			
	10	Did Not Survey	No Proposed Location
	10A	Marker Dot	On Grid Line
	10A-11	Marker Dot	On Grid Line
	11	Marker Dot	Moved to 4.0' West of Grid Line on Column CL
	11--12	Marker Dot	On Grid Line
	12	Marker Dot	On Grid Line
	12-12A	Marker Dot	On Grid Line
	12A	Marker Dot	On Grid Line
	12A-13	Marker Dot	On Grid Line
	13	Marker Dot	On Grid Line
D-E			
	10	Did Not Survey	No Proposed Location
	10A	Marker Dot	On Grid Line
	10A-11	Marker Dot	On Grid Line
	11	Marker Dot	On Grid Line
	11--12	Marker Dot	On Grid Line
	12	Marker Dot	Moved to North Side of Wall on Grid Line
	12-12A	Marker Dot	On Grid Line
	12A	Marker Dot	On Grid Line
	12A-13	Marker Dot	On Grid Line
	13	Marker Dot	On Grid Line
E			
	10	Did Not Survey	No Proposed Location
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Marker Dot	Moved 4' East of Grid Line on Column CL
	11--12	Marker Dot	On Grid Line
	12	Marker Dot	On Grid Line
	12-12A	Did Not Survey	Immovable Kitchen Appliances
	12A	Marker Dot	Moved 2' West of Grid Line
	12A-13	Marker Dot	Moved 2' West of Grid Line
	13	Marker Dot	Moved 2' West of Grid Line
E-F			
	10	Did Not Survey	No Proposed Location
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Marker Dot	On Grid Line
	11--12	Marker Dot	On Grid Line
	12	Marker Dot	On Grid Line
	12-12A	Marker Dot	On Grid Line
	12A	Marker Dot	On Grid Line
	12A-13	Marker Dot	On Grid Line
	13	Marker Dot	On Grid Line
F			
	10	Did Not Survey	No Proposed Location
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Destroyed	Destroyed
	11	Marker Dot	Moved to South side of Column
	11--12	Marker Dot	On Grid Line
	12	Marker Dot	On Grid Line
	12-12A	Marker Dot	On Grid Line
	12A	Marker Dot	On Grid Line
	12A-13	Marker Dot	On Grid Line
	13	Did Not Survey	Permanent Office Furniture

F-G			
	10	Did Not Survey	No Proposed Location
	10A	Marker Dot	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Marker Dot	On Grid Line
	11--12	Marker Dot	Moved North into Elec. Closet 1151
	12	Marker Dot	On Grid Line
	12-12A	Marker Dot	On Grid Line
	12A	Marker Dot	On Grid Line
	12A-13	Marker Dot	On Grid Line
	13	Marker Dot	On Grid Line
G			
	10	Did Not Survey	No Proposed Location
	10A	Marker Dot	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Marker Dot	Moved to South Side of Column
	11--12	Did Not Survey	No Proposed Location
	12	Marker Dot	On Grid Line
	12-12A	Marker Dot	On Grid Line
	12A	Marker Dot	Moved 2.8' West of Grid Line
	12A-13	Marker Dot	Moved 2.8' West of Grid Line
	13	Marker Dot	On Grid Line
G-H			
	10	Did Not Survey	No Proposed Location
	10A	Marker Dot	On Grid Line
	10A-11	Marker Dot	On Grid Line
	11	Marker Dot	On Grid Line
	11--12	Marker Dot	On Grid Line
	12	Marker Dot	On Grid Line
	12-12A	Marker Dot	On Grid Line
	12A	Marker Dot	On Grid Line
	12A-13	Marker Dot	On Grid Line
	13	Did Not Survey	No Proposed Location
H			
	10	Did Not Survey	No Proposed Location
	10A	Marker Dot	On Grid Line
	10A-11	Marker Dot	On Grid Line
	11	Marker Dot	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Marker Dot	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A-13	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
H-J			
	10	Did Not Survey	No Proposed Location
	10A	Marker Dot	On Grid Line
	10A-11	Marker Dot	On Grid Line
	11	Marker Dot	On Grid Line
	11--12	Marker Dot	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A-13	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
J			
	10	Did Not Survey	No Proposed Location
	10A	Marker Dot	On Grid Line
	10A-11	Marker Dot	On Grid Line
	11	Marker Dot	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Raised Concrete Pad
	12A-13	Set 3/4" Pin w/ Washer	On Raised Concrete Pad
	13	Did Not Survey	No Proposed Location

J-K			
	10	Did Not Survey	No Proposed Location
	10A	Marker Dot	On Grid Line
	10A-11	Marker Dot	On Grid Line
	11	Marker Dot	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A-13	Set 3/4" Pin w/ Washer	On Raised Concrete Pad
	13	Set 3/4" Pin w/ Washer	On Raised Concrete Pad
K			
	10	Did Not Survey	No Proposed Location
	10A	Set 3/4" Pin w/ Washer	Point Was Destroyed
	10A-11	Marker Dot	On Grid Line
	11	Marker Dot	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Raised Concrete Pad
	12A-13	Set 3/4" Pin w/ Washer	On Raised Concrete Pad
	13	Did Not Survey	No Proposed Location
K-L			
	10	Did Not Survey	No Proposed Location
	10A	Did Not Survey	No Proposed Location
	10A-11	Did Not Survey	No Proposed Location
	11	Marker Dot	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Marker Dot	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A-13	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
L			
	10	Did Not Survey	No Proposed Location
	10A	Did Not Survey	No Proposed Location
	10A-11	Did Not Survey	No Proposed Location
	11	Did Not Survey	No Proposed Location
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A-13	Set 3/4" Pin w/ Washer	On Grid Line
	13	Did Not Survey	Permanent Office Furniture
L-M			
	10	Did Not Survey	No Proposed Location
	10A	Did Not Survey	No Proposed Location
	10A-11	Did Not Survey	No Proposed Location
	11	Did Not Survey	No Proposed Location
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On grid Line
	12-12A	Set 3/4" Pin w/ Washer	On grid Line
	12A	Set 3/4" Pin w/ Washer	On grid Line
	12A-13	Set 3/4" Pin w/ Washer	On grid Line
	13	Set 3/4" Pin w/ Washer	On grid Line
M			
	10	Did Not Survey	No Proposed Location
	10A	Did Not Survey	No Proposed Location
	10A-11	Did Not Survey	No Proposed Location
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A-13	Set 3/4" Pin w/ Washer	On Grid Line
	13	Did Not Survey	Permanent Office Furniture

M-N			
	10	Did Not Survey	No Proposed Location
	10A	Did Not Survey	No Proposed Location
	10A-11	Did Not Survey	No Proposed Location
	11	Did Not Survey	No Access
	11--12	Did Not Survey	No Access
	12	Did Not Survey	No Proposed Location
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A-13	Set 3/4" Pin w/ Washer	On Grid Line
	13	Marker Dot	On Grid Line
N			
	10	Did Not Survey	No Proposed Location
	10A	Did Not Survey	No Proposed Location
	10A-11	Did Not Survey	No Proposed Location
	11	Did Not Survey	No Proposed Location
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A-13	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
N1			
	10	Did Not Survey	No Proposed Location
	10A	Did Not Survey	No Proposed Location
	10A-11	Did Not Survey	No Proposed Location
	11	Did Not Survey	No Proposed Location
	11--12	Did Not Survey	No Proposed Location
	12	Did Not Survey	No Proposed Location
	12-12A	Did Not Survey	No Proposed Location
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A-13	Set 3/4" Pin w/ Washer	On Grid Line
	13	Destroyed	Point Was Destroyed
O			
	10	Did Not Survey	No Proposed Location
	10A	Did Not Survey	No Proposed Location
	10A-11	Did Not Survey	No Proposed Location
	11	Did Not Survey	No Proposed Location
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A-1	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A-2	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Did Not Survey	No Proposed Location

GRID LINE ELEVATIONS

SECOND FLOOR

Bench Elevation= 169' 5 3/4"

ELEVATION				GRIDLINE N-S			
GRID LINE E-W	10	10A-11	11	11--12	12	12-12A	13
C	169' 6 1/8"	169' 5 5/8"	169' 5 7/8"	169' 5 3/4"	169' 5 7/8"	169' 5 1/4"	169' 6"
C-D	169' 5 1/2"	169' 5 3/8"	169' 5 3/8"	169' 5 5/8"	169' 5 1/4"	169' 5 3/8"	169' 5 3/4"
D	169' 5 1/2"	169' 5 1/8"	169' 5 5/8"	169' 5 3/4"	169' 5 3/8"	169' 4 5/8"	169' 5 7/8"
D-E	169' 5 5/8"	169' 5 1/4"	169' 5 1/2"	169' 6"	169' 5 7/8"	169' 5 1/4"	169' 5 3/4"
E	169' 5 5/8"	169' 4 5/8"	169' 5 7/8"	169' 6"	169' 5 3/4"	169' 4 3/8"	169' 5 1/2"
E-F	169' 5 3/4"	169' 5 1/8"	169' 5 7/8"	DNS	169' 5 7/8"	169' 4 7/8"	169' 5 3/4"
F	169' 5 7/8"	169' 4 3/4"	169' 6"	DNS	169' 6 5/8"	169' 4 1/4"	169' 6 1/8"
F-G	169' 5 3/4"	169' 5 5/8"	169' 6"	DNS	169' 5 7/8"	169' 5 1/8"	169' 5"
G	169' 5 7/8"	169' 4 1/2"	169' 6"	DNS	169' 6 1/2"	169' 5 5/8"	169' 6 1/4"
G-H	169' 5 1/2"	169' 4 3/4"	169' 5 1/4"	169' 6 5/8"	169' 6"	DNS	DNS
H	169' 5"	169' 4 3/8"	169' 5 1/2"	DNS	169' 5 1/4"	169' 5"	169' 5 3/4"
H-J	169' 5"	169' 5 1/8"	169' 5 5/8"	169' 5 5/8"	169' 5"	169' 4 5/8"	169' 4 5/8"
J	169' 5"	169' 4"	169' 5"	169' 5"	169' 4 7/8"	169' 3 3/4"	169' 5 1/4"
J-K	169' 5 1/4"	169' 4 3/4"	169' 4 1/2"	169' 4 1/2"	169' 4 5/8"	169' 4 1/2"	169' 5"
K	169' 5 3/4"	169' 5 5/8"	DNS	169' 4 7/8"	169' 5 3/8"	169' 4 3/8"	169' 5 1/4"
K-L	169' 5 1/8"	169' 5 7/8"	DNS	169' 4 7/8"	169' 5 1/4"	169' 4 7/8"	169' 5 1/2"
L	169' 5 1/4"	169' 5 1/2"	169' 6 3/8"	DNS	169' 4 7/8"	169' 4 1/4"	169' 5 3/8"
L-M	169' 5 3/8"	169' 5 1/2"	169' 6 1/8"	169' 5 3/4"	169' 5 1/8"	169' 4 3/8"	169' 5 1/2"
M	169' 5 3/4"	169' 5 1/4"	169' 6 1/2"	DNS	169' 5 5/8"	169' 4 1/8"	169' 5 7/8"
M-N	DNS	169' 5"	169' 5"	169' 5 1/4"	169' 5 1/8"	169' 5 1/4"	169' 5 1/8"
N	169' 5 1/8"	169' 4 7/8"	169' 5 1/8"	169' 5 1/4"	169' 5"	169' 5 3/8"	169' 5 3/4"
N1	169' 5 5/8"	169' 5"	169' 5 1/4"	169' 4 7/8"	169' 5"	169' 5 1/4"	169' 5 7/8"
O	169' 5 5/8"	DNS	169' 5 3/4"	169' 5 1/2"	169' 5 3/8"	169' 5 3/4"	169' 5 3/4"
	ELEVATION OF GRID POINTS IN FEET & INCHES					DNS = DID NOT SURVEY	

RELITIVE DIFF. FROM BENCH ELEV.				GRIDLINE N-S			
GRID LINE E-W	10	10A-11	11	11--12	12	12-12A	13
C	0' 0 3/8"	0' 0 -1/4"	0' 0"	0' 0 -1/8"	0' 0 1/8"	0' 0 -1/2"	0' 0 1/4"
C-D	0' 0 -1/4"	0' 0 -3/8"	0' 0 -1/2"	0' 0 -1/4"	0' 0 -5/8"	0' 0 -1/2"	0' 0"
D	0' 0 -3/8"	0' 0 -5/8"	0' 0 -1/8"	0' 0"	0' 0 -1/2"	0' -1 -1/8"	0' 0 1/8"
D-E	0' 0 -1/4"	0' 0 -1/2"	0' 0 -1/4"	0' 0 1/4"	0' 0"	0' 0 -5/8"	0' 0 -1/8"
E	0' 0 -1/8"	0' -1 -1/8"	0' 0"	0' 0 1/4"	0' 0"	0' -1 -3/8"	0' 0 -3/8"
E-F	0' 0 -1/8"	0' 0 -5/8"	0' 0"	DNS	0' 0 1/8"	0' 0 -7/8"	0' 0 -1/8"
F	0' 0 1/8"	0' -1 -1/8"	0' 0 1/8"	DNS	0' 0 7/8"	0' -1 -5/8"	0' 0 1/4"
F-G	0' 0 -1/8"	0' 0 -1/8"	0' 0 1/8"	DNS	0' 0"	0' 0 -5/8"	0' 0 -7/8"
G	0' 0 1/8"	0' -1 -1/4"	0' 0 1/4"	DNS	0' 0 5/8"	0' 0 -1/8"	0' 0 1/2"
G-H	0' 0 -3/8"	0' -1 -1/8"	0' 0 -5/8"	0' 0 3/4"	0' 0 1/4"	DNS	DNS
H	0' 0 -3/4"	0' -1 -1/2"	0' 0 -3/8"	DNS	0' 0 -1/2"	0' 0 -3/4"	0' 0"
H-J	0' 0 -3/4"	0' 0 -5/8"	0' 0 -1/4"	0' 0 -1/4"	0' 0 -3/4"	0' -1 -1/8"	0' -1 -1/8"
J	0' 0 -3/4"	0' -1 -3/4"	0' 0 -3/4"	0' 0 -3/4"	0' 0 -7/8"	0' -2 -1/8"	0' 0 -1/2"
J-K	0' 0 -1/2"	0' -1 -1/8"	0' -1 -1/4"	0' -1 -1/4"	0' -1 -1/4"	0' -1 -1/4"	0' 0 -3/4"
K	0' 0"	0' 0 -1/4"	DNS	0' 0 -1/1"	0' 0 -3/8"	0' -1 -1/2"	0' 0 -5/8"
K-L	0' 0 -5/8"	0' 0"	DNS	0' 0 -1/1"	0' 0 -5/8"	0' 0 -1/1"	0' 0 -3/8"
L	0' 0 -1/2"	0' 0 -3/8"	0' 0 1/2"	DNS	0' 0 -7/8"	0' -1 -5/8"	0' 0 -1/2"
L-M	0' 0 -1/2"	0' 0 -1/4"	0' 0 1/4"	0' 0"	0' 0 -5/8"	0' -1 -3/8"	0' 0 -1/4"
M	0' 0"	0' 0 -5/8"	0' 0 3/4"	DNS	0' 0 -1/4"	0' -1 -3/4"	0' 0"
M-N	DNS	0' 0 -3/4"	0' 0 -7/8"	0' 0 -1/2"	0' 0 -5/8"	0' 0 -1/2"	0' 0 -5/8"
N	0' 0 -5/8"	0' 0 -1/1"	0' 0 -5/8"	0' 0 -1/2"	0' 0 -3/4"	0' 0 -3/8"	0' 0 -1/8"
N1	0' 0 -1/4"	0' 0 -3/4"	0' 0 -5/8"	0' 0 -7/8"	0' 0 -7/8"	0' 0 -1/2"	0' 0"
O	0' 0 -1/8"	DNS	0' 0 -1/8"	0' 0 -3/8"	0' 0 -3/8"	0' 0"	0' 0 -1/8"
	ELEVATION OF GRID POINTS IN FEET & INCHES					DNS = DID NOT SURVEY	

MONUMENTS SET			
GRID LINE E-W	*GRIDLINE N-S*	*DESCRIPTION*	*LOCATION*
C			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Marker Dot	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
C-D			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
D			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Marker Dot	On Grid Line
	12-12A	Marker Dot	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
D-E			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
E			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to South Side of Column
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
E-F			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
F			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Marker Dot	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line

F-G			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Marker Dot	On Grid Line
	11--12	NONE	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
G			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Marker Dot	On Grid Line
	11--12	NONE	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
G-H			
	10	Set 3/4" Pin w/ Washer	Moved 2' West of Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Marker Dot	On Grid Line
	11--12	Marker Dot	In Lobby 12.5' South & 8.9' West of Northeast Corner
	12	Marker Dot	In Lobby 7.1' North & 8.9' West of Southeast Corner
	12-12A	Did Not Survey	No Proposed Location
	13	Did Not Survey	No Proposed Location
H			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to South Side of Column
	11--12	Set 3/4" Pin w/ Washer	Point Was Destroyed
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
H-J			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line-6.8' North of Wall
	13	Set 3/4" Pin w/ Washer	On Grid Line
J			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
J-K			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line

K			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Did Not Survey	Permanent Office Furniture
	11--12	Marker Dot	Moved to West Side of Wall into Mens Room
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
K-L			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Did Not Survey	Permanent Office Furniture
	11--12	Marker Dot	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
L			
	10	Marker Dot	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	NONE	No Proposed Location
	12	Set 3/4" Pin w/ Washer	1.9' South of SW Corner of Column
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
L-M			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Marker Dot	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
M			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	Moved to Southeast Corner of Column
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
M-N			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	Moved Westerly to Southeast Corner of RM 2207
N			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line

N1			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
O			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Did Not Survey	Permanent Office Furniture
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line

GRID LINE ELEVATIONS

THIRD FLOOR

Bench Elevation= 181' 11 5/8"

ELEVATION				GRIDLINE N-S			
GRID LINE E-W	10	10A-11	11	11--12	12	12-12A	13
C	181' 11 1/4"	181' 10 1/4"	181' 11 1/8"	181' 10 3/4"	181' 11 1/4"	181' 10 1/2"	181' 11 5/8"
C-D	181' 11 3/8"	181' 9 5/8"	181' 10 3/8"	181' 10 3/8"	181' 10 3/8"	181' 9 7/8"	181' 11"
D	181' 10 3/4"	181' 8 3/4"	181' 10 5/8"	DNS	181' 10 3/4"	181' 9 3/8"	181' 11 3/4"
D-E	181' 10 5/8"	181' 9 3/8"	181' 10 5/8"	DNS	181' 10 1/2"	181' 9 5/8"	181' 11 3/8"
E	181' 11 1/4"	181' 9"	181' 10 7/8"	181' 10 5/8"	181' 10 5/8"	181' 9 1/8"	181' 11 1/4"
E-F	181' 11 1/2"	181' 9 1/8"	181' 11 1/4"	DNS	181' 11 3/4"	181' 9 1/2"	181' 11 5/8"
F	181' 10 3/4"	181' 8 1/4"	181' 11 1/4"	DNS	181' 11 1/2"	181' 8 7/8"	181' 11"
F-G	181' 11 1/4"	181' 9 1/2"	181' 11 1/4"	DNS	181' 11 7/8"	181' 9 3/4"	181' 10 7/8"
G	181' 10 3/4"	181' 9"	181' 11 3/4"	DNS	181' 12"	181' 9 3/4"	181' 12"
G-H	DNS	181' 10 5/8"	181' 11 1/2"	181' 11 3/4"	181' 11 3/4"	181' 11 1/2"	181' 11 7/8"
H	181' 10 7/8"	181' 10"	181' 11 3/8"	181' 11 3/4"	181' 11 1/2"	181' 10"	DNS
H-J	181' 10 7/8"	181' 10"	181' 10 7/8"	181' 11 3/8"	181' 10 5/8"	181' 9 1/4"	DNS
J	181' 11 3/8"	DNS	181' 11"	181' 10 1/2"	181' 11 1/4"	181' 9 1/8"	181' 11 1/8"
J-K	DNS	181' 10 3/4"	181' 11 1/2"	181' 11 1/8"	181' 11 3/8"	181' 10 1/2"	DNS
K	181' 11 3/8"	181' 9 3/8"	181' 11 7/8"	181' 10 3/4"	181' 11 1/4"	181' 9 1/4"	181' 11 1/2"
K-L	181' 11 1/2"	181' 9 7/8"	181' 11 3/4"	181' 11 1/8"	181' 11"	181' 10 1/8"	DNS
L	181' 11 3/8"	181' 9 1/8"	182' 0 3/8"	DNS	181' 11 1/2"	181' 9 3/4"	181' 11 3/8"
L-M	181' 11 3/8"	181' 9 5/8"	182' 0 1/4"	181' 11 7/8"	181' 11 1/4"	181' 10 1/8"	181' 11 3/8"
M	181' 11 3/8"	181' 9 3/8"	182' 0 1/8"	DNS	181' 11"	181' 9 1/8"	181' 11 1/8"
M-N	181' 11 3/8"	181' 10 1/8"	181' 11 1/8"	DNS	181' 10 5/8"	181' 9 7/8"	181' 11"
N	181' 11 3/8"	181' 9 7/8"	181' 11"	181' 10 7/8"	181' 10 3/4"	181' 10"	181' 11 3/8"
N1	181' 11 5/8"	181' 10 5/8"	DNS	181' 10 5/8"	181' 10 7/8"	181' 11 1/8"	181' 11 1/2"
O	181' 11 5/8"	181' 11 1/4"	181' 11 3/4"	181' 11 1/8"	181' 11 5/8"	181' 11 3/8"	181' 11 7/8"
	ELEVATION OF GRID POINTS IN FEET & INCHES					DNS = DID NOT SURVEY	

RELITIVE DIFF. FROM BENCH ELEV.				GRIDLINE N-S			
GRID LINE E-W	10	10A-11	11	11--12	12	12-12A	13
C	0' 0 -3/8"	0' -1 -3/8"	0' 0 -1/2"	0' 0 -7/8"	0' 0 -3/8"	0' -1 -1/8"	0' 0"
C-D	0' 0 -3/8"	0' -1 -1/1"	0' -1 -1/4"	0' -1 -1/4"	0' -1 -1/4"	0' -1 -3/4"	0' 0 -5/8"
D	0' 0 -7/8"	0' -2 -7/8"	0' 0 -1/1"	DNS	0' 0 -7/8"	0' -2 -1/4"	0' 0 1/8"
D-E	0' -1"	0' -2 -1/4"	0' 0 -1/1"	DNS	0' -1 -1/8"	0' -2"	0' 0 -1/4"
E	0' 0 -3/8"	0' -2 -5/8"	0' 0 -3/4"	0' 0 -1/1"	0' 0 -1/1"	0' -2 -1/2"	0' 0 -3/8"
E-F	0' 0 -1/8"	0' -2 -1/2"	0' 0 -3/8"	DNS	0' 0 1/8"	0' -2 -1/8"	0' 0"
F	0' 0 -7/8"	0' -3 -3/8"	0' 0 -3/8"	DNS	0' 0 -1/8"	0' -2 -3/4"	0' 0 -5/8"
F-G	0' 0 -3/8"	0' -2 -1/8"	0' 0 -3/8"	DNS	0' 0 1/4"	0' -1 -7/8"	0' 0 -3/4"
G	0' 0 -7/8"	0' -2 -5/8"	0' 0 1/8"	DNS	0' 0 3/8"	0' -1 -7/8"	0' 0 3/8"
G-H	DNS	0' -1 -1/8"	0' 0 -1/8"	0' 0 1/8"	0' 0 1/8"	0' 0 -1/8"	0' 0 1/4"
H	0' 0 -3/4"	0' -1 -5/8"	0' 0 -1/4"	0' 0 1/8"	0' 0 -1/8"	0' -1 -5/8"	DNS
H-J	0' 0 -3/4"	0' -1 -5/8"	0' 0 -3/4"	0' 0 -1/4"	0' 0 -1/1"	0' -2 -3/8"	DNS
J	0' 0 -1/4"	DNS	0' 0 -5/8"	0' -1 -1/8"	0' 0 -3/8"	0' -2 -1/2"	0' 0 -1/2"
J-K	DNS	0' 0 -7/8"	0' 0 -1/8"	0' 0 -1/2"	0' 0 -3/8"	0' -1 -1/8"	DNS
K	0' 0 -3/8"	0' -2 -1/4"	0' 0 1/4"	0' 0 -7/8"	0' 0 -3/8"	0' -2 -3/8"	0' 0 -1/8"
K-L	0' 0 -1/8"	0' -1 -3/4"	0' 0 1/8"	0' 0 -1/2"	0' 0 -5/8"	0' -1 -1/2"	DNS
L	0' 0 -1/4"	0' -2 -1/2"	0' 0 3/4"	DNS	0' 0 -1/8"	0' -1 -7/8"	0' 0 -1/4"
L-M	0' 0 -1/4"	0' -2"	0' 0 5/8"	0' 0 1/4"	0' 0 -3/8"	0' -1 -1/2"	0' 0 -3/8"
M	0' 0 -3/8"	0' -2 -1/4"	0' 0 1/2"	DNS	0' 0 -5/8"	0' -2 -1/2"	0' 0 -1/2"
M-N	0' 0 -3/8"	0' -1 -1/2"	0' 0 -1/2"	DNS	0' -1"	0' -1 -3/4"	0' 0 -5/8"
N	0' 0 -3/8"	0' -1 -3/4"	0' 0 -5/8"	0' 0 -3/4"	0' 0 -7/8"	0' -1 -5/8"	0' 0 -1/4"
N1	0' 0"	0' -1"	DNS	0' 0 -1/1"	0' 0 -3/4"	0' 0 -1/2"	0' 0 -1/8"
O	0' 0"	0' 0 -3/8"	0' 0 1/8"	0' 0 -1/2"	0' 0"	0' 0 -1/4"	0' 0 1/4"
	ELEVATION OF GRID POINTS IN FEET & INCHES					DNS = DID NOT SURVEY	

MONUMENTS SET			
GRID LINE E-W	*GRIDLINE N-S*	*DESCRIPTION*	*LOCATION*
C			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to South Side of Column
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
C-D			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
D			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Access-Rolling File Room
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
D-E			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Access-Rolling File Room
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
E			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
E-F			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
F			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
F-G			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line

	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
G			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
G-H			
	10	Set 3/4" Pin w/ Washer	Point was Destroyed
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
H			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	Moved to West Side of Wall in Office RM
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Marker Dot	On Grid Line
	12-12A	Marker Dot	On Grid Line
	13	Did Not Survey	Distrct Attorney-Victim Meeting
H-J			
	10	Set 3/4" Pin w/ Washer	Moved 2.4' West along Wall
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Did Not Survey	Distrct Attorney-Victim Meeting
J			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	Point was Destroyed
J-K			
	10	Did Not Survey	Permanent Office Furniture
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to North Side of Wall on Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	Moved East to Northwest Corner of Office RM 3233
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	Point was Destroyed
K			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to Southeast Corner of Staff RM 3273
	11--12	Set 3/4" Pin w/ Washer	Moved West into Mens Room
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
K-L			
	10	Set 3/4" Pin w/ Washer	Moved 2.3' West
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Marker Dot	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Did Not Survey	Permanent Office Furniture

L			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to Southeast Corner of Office RM 3265
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	Moved 4' West of Column
L-M			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Marker Dot	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
M			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	Moved to Southeast Corner of Column
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
M-N			
	10	Set 3/4" Pin w/ Washer	Moved to East side of Wall in Staff RM 3288
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	Point was Destroyed
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	Moved 2' East of Wall in RM 3208
N			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
N1			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Did Not Survey	Permanent Office Furniture
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
O			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line

GRID LINE ELEVATIONS

FOURTH FLOOR

Bench Elevation= 181' 11 5/8"

ELEVATION				GRIDLINE N-S			
GRID LINE E-W	**10**	**10A-11**	**11**	**11--12**	**12**	**12-12A**	**13**
C	194' 5 3/8"	194' 4 1/8"	194' 5 1/4"	194' 4 3/4"	194' 5 1/4"	194' 3 7/8"	194' 5 3/8"
C-D	194' 5 1/4"	194' 3 5/8"	194' 4 3/4"	194' 4 5/8"	194' 4 1/2"	194' 3 1/2"	194' 5 1/8"
D	194' 5 3/8"	194' 3 1/4"	194' 5 1/2"	194' 4 5/8"	194' 5 1/4"	194' 3 3/8"	194' 5 3/8"
D-E	194' 5 1/2"	194' 3 7/8"	194' 5 1/4"	194' 5"	194' 5"	194' 3 3/4"	194' 5 1/4"
E	194' 5 1/4"	194' 3 1/8"	194' 5 1/4"	194' 4 3/4"	194' 5"	DNS	194' 5 1/8"
E-F	194' 5 1/4"	194' 3 7/8"	194' 5 1/8"	DNS	194' 5 1/2"	194' 3 1/2"	DNS
F	194' 5 1/8"	194' 3 1/4"	194' 5 1/2"	DNS	194' 6 1/8"	194' 2 1/2"	194' 5"
F-G	194' 4 7/8"	194' 3 3/4"	194' 5 5/8"	DNS	194' 6"	194' 3 3/4"	194' 5"
G	194' 5 3/8"	194' 3 3/8"	194' 5 1/2"	DNS	194' 5 3/4"	194' 3 7/8"	194' 5 1/2"
G-H	194' 5 3/8"	194' 5 1/8"	194' 5 7/8"	194' 5 3/4"	194' 6"	194' 5 5/8"	194' 5"
H	194' 5 1/8"	194' 3 3/4"	194' 5 1/4"	194' 5 1/8"	194' 5"	194' 3 3/8"	194' 5 5/8"
H-J	194' 4 5/8"	194' 3 1/4"	194' 4 5/8"	194' 4 5/8"	194' 4 1/8"	194' 3"	194' 4"
J	194' 5 1/8"	194' 3 5/8"	194' 5"	194' 4 1/2"	194' 4 5/8"	194' 3 1/4"	194' 5 1/4"
J-K	194' 5 3/8"	194' 4 5/8"	194' 5"	194' 4 3/4"	194' 3 7/8"	194' 4 3/8"	194' 5 1/4"
K	194' 5 1/4"	194' 3 1/4"	194' 4 5/8"	194' 4 5/8"	194' 4 3/4"	194' 3 1/4"	194' 5 1/2"
K-L	194' 5 1/4"	194' 3 1/4"	194' 4 3/4"	194' 4 7/8"	194' 4 3/4"	194' 4"	194' 4 3/4"
L	194' 4 3/4"	194' 2 3/4"	194' 5 1/8"	DNS	194' 5 3/8"	194' 3 7/8"	194' 5 1/8"
L-M	DNS	194' 3 3/4"	194' 5 5/8"	194' 5 5/8"	194' 5 1/4"	194' 4 1/4"	194' 5 1/4"
M	194' 5 1/4"	194' 3 1/2"	194' 6 3/8"	DNS	194' 5"	194' 3 5/8"	194' 5 1/2"
M-N	194' 5"	194' 3 7/8"	194' 5 1/4"	194' 5 1/2"	DNS	194' 3 7/8"	DNS
N	194' 4 3/4"	194' 4 1/8"	194' 5"	194' 4 1/2"	194' 4 3/4"	194' 4"	194' 5 3/8"
N1	194' 5 1/4"	194' 4 7/8"	194' 5"	194' 4 7/8"	194' 4 7/8"	194' 4 3/4"	194' 5 5/8"
O	194' 6"	194' 5 1/4"	194' 5 3/8"	194' 5 3/8"	194' 5 3/8"	194' 5 1/4"	194' 6"
	ELEVATION OF GRID POINTS IN FEET & INCHES					DNS = DID NOT SURVEY	

RELITIVE DIFF. FROM BENCH ELEV.				GRIDLINE N-S			
GRID LINE E-W	**10**	**10A-11**	**11**	**11--12**	**12**	**12-12A**	**13**
C	0' 0 -3/8"	0' -1 -5/8"	0' 0 -1/2"	0' 0 -1/1"	0' 0 -1/2"	0' -1 -3/4"	0' 0 -3/8"
C-D	0' 0 -1/2"	0' -2 -1/8"	0' -1"	0' -1 -1/8"	0' -1 -1/4"	0' -2 -1/4"	0' 0 -5/8"
D	0' 0 -3/8"	0' -2 -1/2"	0' 0 -1/4"	0' -1 -1/8"	0' 0 -1/2"	0' -2 -3/8"	0' 0 -3/8"
D-E	0' 0 -1/4"	0' -1 -7/8"	0' 0 -1/2"	0' 0 -3/4"	0' 0 -3/4"	0' -2"	0' 0 -1/2"
E	0' 0 -1/2"	0' -2 -5/8"	0' 0 -1/2"	0' 0 -1/1"	0' 0 -3/4"	DNS	0' 0 -5/8"
E-F	0' 0 -1/2"	0' -1 -3/4"	0' 0 -5/8"	DNS	0' 0 -1/4"	0' -2 -1/4"	DNS
F	0' 0 -5/8"	0' -2 -1/2"	0' 0 -1/4"	DNS	0' 0 3/8"	0' -3 -1/4"	0' 0 -3/4"
F-G	0' 0 -7/8"	0' -2"	0' 0 -1/8"	DNS	0' 0 1/4"	0' -2"	0' 0 -3/4"
G	0' 0 -3/8"	0' -2 -3/8"	0' 0 -1/4"	DNS	0' 0"	0' -1 -7/8"	0' 0 -1/4"
G-H	0' 0 -3/8"	0' 0 -5/8"	0' 0 1/8"	0' 0"	0' 0 1/4"	0' 0 -1/8"	0' 0 -3/4"
H	0' 0 -5/8"	0' -1 -1/1"	0' 0 -1/2"	0' 0 -5/8"	0' 0 -3/4"	0' -2 -3/8"	0' 0 -1/8"
H-J	0' -1 -1/8"	0' -2 -1/2"	0' -1 -1/8"	0' -1 -1/8"	0' -1 -5/8"	0' -2 -3/4"	0' -1 -3/4"
J	0' 0 -5/8"	0' -2 -1/8"	0' 0 -3/4"	0' -1 -1/4"	0' -1 -1/8"	0' -2 -1/2"	0' 0 -1/2"
J-K	0' 0 -3/8"	0' -1 -1/8"	0' 0 -3/4"	0' -1"	0' -1 -3/4"	0' -1 -3/8"	0' 0 -1/2"
K	0' 0 -1/2"	0' -2 -1/2"	0' -1 -1/8"	0' -1 -1/8"	0' 0 -1/1"	0' -2 -1/2"	0' 0 -1/4"
K-L	0' 0 -1/2"	0' -2 -1/2"	0' 0 -1/1"	0' 0 -7/8"	0' 0 -1/1"	0' -1 -3/4"	0' -1"
L	0' 0 -1/1"	0' -2 -1/1"	0' 0 -5/8"	DNS	0' 0 -3/8"	0' -1 -7/8"	0' 0 -5/8"
L-M	DNS	0' -1 -1/1"	0' 0 -1/8"	0' 0 -1/8"	0' 0 -1/2"	0' -1 -1/2"	0' 0 -1/2"
M	0' 0 -1/2"	0' -2 -1/4"	0' 0 5/8"	DNS	0' 0 -3/4"	0' -2 -1/8"	0' 0 -1/4"
M-N	0' 0 -3/4"	0' -1 -3/4"	0' 0 -1/2"	0' 0 -1/4"	DNS	0' -1 -3/4"	DNS
N	0' -1"	0' -1 -5/8"	0' 0 -3/4"	0' -1 -1/4"	0' -1"	0' -1 -3/4"	0' 0 -3/8"
N1	0' 0 -1/2"	0' 0 -7/8"	0' 0 -3/4"	0' 0 -7/8"	0' 0 -7/8"	0' 0 -1/1"	0' 0 -1/8"
O	0' 0 1/4"	0' 0 -1/2"	0' 0 -3/8"	0' 0 -3/8"	0' 0 -3/8"	0' 0 -1/2"	0' 0 1/4"
	ELEVATION OF GRID POINTS IN FEET & INCHES					DNS = DID NOT SURVEY	

MONUMENTS SET			
GRID LINE E-W	*GRIDLINE N-S*	*DESCRIPTION*	*LOCATION*
C			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to East Side of Column
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
C-D			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	Moved 2.4' West
D			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
D-E			
	10	Set 3/4" Pin w/ Washer	Moved to Northeast Corner of RM 4195
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to West Side of Wall in RM 4175
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	Moved 3' West
E			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	Moved North 4' Along Grid Line
	12	Did Not Survey	Permanent Office Furniture
	12-12A	Set 3/4" Pin w/ Washer	Point was Destroyed
	13	Set 3/4" Pin w/ Washer	On Grid Line
E-F			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Did Not Survey	Permanent Office Furniture
F			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to South Side of Column
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	Moved 2.2' East
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line

F-G			
	10	Set 3/4" Pin w/ Washer	Moved 4' South
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to South side of Wall on Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
G			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
G-H			
	10	Set 3/4" Pin w/ Washer	Moved 3.5' South
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
H			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	Move to North Side of Column
H-J			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
J			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Marker Dot	Moved 2.0' South Along Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
J-K			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to North Side of Wall on Grid Line
	11--12	Marker Dot	Moved 2.0' South Along Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line

K			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved 2' West of Column
	11--12	Set 3/4" Pin w/ Washer	Moved West into Mens Room
	12	Set 3/4" Pin w/ Washer	Moved to North Side of Wall on Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
K-L			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved 2.5' West
	11--12	Marker Dot	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Did Not Survey	Permanent Office Furniture
L			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved 2.2' North along Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
L-M			
	10	Did Not Survey	Permanent Office Furniture
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved 2.2' North along Grid Line
	11--12	Marker Dot	On Grid Line
	12	Set 3/4" Pin w/ Washer	Moved to North Side of Wall on Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
M			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	Moved to East Side of Column
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
M-N			
	10	Set 3/4" Pin w/ Washer	Moved to Northwest Corner of RM 4298
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Did Not Survey	Permanent Office Furniture
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	Point was Destroyed
N			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	Moved 2' South along Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line

N1			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to South side of Wall on Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
O			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	Moved 2' West
	11	Set 3/4" Pin w/ Washer	Moved to South side of Wall on Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	Moved 2' West
	13	Set 3/4" Pin w/ Washer	On Grid Line

GRID LINE ELEVATIONS

FIFTH FLOOR

Bench Elevation= 206' 11 7/8"

ELEVATION				*GRIDLINE N-S*			
GRID LINE E-W	**10**	**10A-11**	**11**	**11--12**	**12**	**12-12A**	**13**
C	DNS	206' 10"	206' 11 3/8"	206' 11 1/4"	DNS	206' 10 1/8"	206' 11 5/8"
C-D	206' 10 1/2"	206' 9 5/8"	206' 10 3/8"	DNS	206' 10 1/2"	206' 9 7/8"	206' 11 1/8"
D	206' 11"	206' 9"	206' 10 7/8"	206' 10 1/4"	206' 10 5/8"	206' 8 3/4"	206' 11 1/4"
D-E	206' 10 7/8"	206' 9 3/4"	206' 10 7/8"	206' 11"	206' 10 3/4"	206' 9 1/8"	206' 10 1/2"
E	206' 11"	206' 8 3/4"	206' 10 3/4"	206' 10 7/8"	206' 10 5/8"	206' 8 3/8"	206' 11"
E-F	206' 11"	206' 9 1/2"	206' 10 7/8"	DNS	206' 10 7/8"	206' 9 1/2"	206' 10 3/4"
F	206' 11 3/8"	206' 8 5/8"	206' 10 3/4"	DNS	206' 11 1/4"	206' 8"	206' 11 1/4"
F-G	206' 10 7/8"	206' 9 1/4"	206' 11 1/4"	DNS	206' 11 5/8"	206' 8 7/8"	206' 10 5/8"
G	206' 11"	207' 0 7/8"	206' 10 7/8"	DNS	206' 11 5/8"	206' 8 7/8"	206' 11 1/8"
G-H	DNS	206' 10 1/8"	206' 11 1/8"	206' 11 1/2"	206' 11 3/4"	206' 10 7/8"	206' 11 5/8"
H	206' 10 5/8"	206' 9 1/8"	206' 10 5/8"	206' 10 7/8"	206' 10 3/4"	206' 9"	206' 11 1/4"
H-J	206' 10 1/2"	206' 9 1/8"	206' 10 1/4"	206' 10 3/8"	206' 10"	206' 8 3/8"	206' 9 3/4"
J	206' 11 1/8"	206' 8 3/4"	206' 10 5/8"	206' 10 3/8"	206' 10 3/8"	206' 8 3/4"	206' 10 7/8"
J-K	206' 11 1/4"	206' 10"	206' 11"	206' 11 1/4"	206' 10 7/8"	206' 10"	206' 11"
K	206' 10 3/4"	206' 8 3/4"	206' 10 1/2"	206' 10 7/8"	206' 10 7/8"	206' 9 1/8"	206' 10 7/8"
K-L	206' 11"	206' 8 7/8"	206' 10 3/4"	206' 11 1/8"	206' 10 7/8"	206' 10"	206' 10 3/4"
L	206' 10 3/4"	206' 7 3/4"	206' 11 5/8"	DNS	DNS	206' 9 3/8"	206' 10 7/8"
L-M	206' 11 1/8"	206' 8 5/8"	206' 11 5/8"	206' 11 5/8"	DNS	206' 9 1/2"	206' 10 3/4"
M	206' 10 3/4"	206' 8 5/8"	207' 0 1/2"	DNS	206' 10 3/8"	206' 8 3/4"	206' 10 7/8"
M-N	206' 10 1/2"	206' 9 7/8"	206' 10 7/8"	206' 11 3/8"	206' 10 5/8"	206' 9 7/8"	206' 11 1/8"
N	206' 11 1/4"	206' 10"	206' 11"	206' 10 1/4"	206' 10 1/2"	DNS	206' 11 3/8"
N1	206' 11 1/4"	206' 10 3/4"	206' 11 1/4"	206' 10 7/8"	206' 10 7/8"	206' 10 3/8"	206' 11 1/4"
O	206' 12"	DNS	206' 11 3/8"	206' 10 7/8"	206' 11 1/8"	206' 10 7/8"	206' 11 1/2"
	ELEVATION OF GRID POINTS IN FEET & INCHES					DNS = DID NOT SURVEY	

RELITIVE DIFF. FROM BENCH ELEV.				*GRIDLINE N-S*			
GRID LINE E-W	**10**	**10A-11**	**11**	**11--12**	**12**	**12-12A**	**13**
C	DNS	0' -1 -7/8"	0' 0 -1/2"	0' 0 -5/8"	DNS	0' -1 -3/4"	0' 0 -1/4"
C-D	0' -1 -3/8"	0' -2 -1/4"	0' -1 -1/2"	DNS	0' -1 -3/8"	0' -1 -1/1"	0' 0 -3/4"
D	0' 0 -7/8"	0' -2 -7/8"	0' 0 -1/1"	0' -1 -5/8"	0' -1 -1/4"	0' -3 -1/8"	0' 0 -5/8"
D-E	0' 0 -1/1"	0' -2 -1/8"	0' 0 -1/1"	0' 0 -7/8"	0' -1 -1/8"	0' -2 -3/4"	0' -1 -3/8"
E	0' 0 -7/8"	0' -3 -1/8"	0' -1 -1/8"	0' -1 -1/8"	0' -1 -1/4"	0' -3 -1/2"	0' 0 -7/8"
E-F	0' 0 -7/8"	0' -2 -3/8"	0' -1"	DNS	0' -1 -1/8"	0' -2 -3/8"	0' -1 -1/8"
F	0' 0 -1/2"	0' -3 -1/4"	0' -1 -1/8"	DNS	0' 0 -5/8"	0' -3 -7/8"	0' 0 -5/8"
F-G	0' 0 -1/1"	0' -2 -5/8"	0' 0 -5/8"	DNS	0' 0 -1/4"	0' -2 -1/1"	0' -1 -1/4"
G	0' 0 -7/8"	0' 1"	0' 0 -1/1"	DNS	0' 0 -1/4"	0' -2 -1/1"	0' 0 -3/4"
G-H	DNS	0' -1 -3/4"	0' 0 -3/4"	0' 0 -3/8"	0' 0 -1/8"	0' 0 -1/1"	0' 0 -1/4"
H	0' -1 -1/4"	0' -2 -3/4"	0' -1 -1/4"	0' 0 -1/1"	0' -1 -1/8"	0' -2 -7/8"	0' 0 -5/8"
H-J	0' -1 -3/8"	0' -2 -3/4"	0' -1 -5/8"	0' -1 -1/2"	0' -1 -7/8"	0' -3 -1/2"	0' -2 -1/8"
J	0' 0 -3/4"	0' -3 -1/8"	0' -1 -1/4"	0' -1 -1/2"	0' -1 -1/2"	0' -3 -1/8"	0' -1"
J-K	0' 0 -5/8"	0' -1 -7/8"	0' 0 -7/8"	0' 0 -5/8"	0' 0 -1/1"	0' -1 -7/8"	0' 0 -7/8"
K	0' -1 -1/8"	0' -3 -1/8"	0' -1 -3/8"	0' -1"	0' 0 -1/1"	0' -2 -3/4"	0' 0 -1/1"
K-L	0' 0 -7/8"	0' -2 -1/1"	0' -1 -1/8"	0' 0 -3/4"	0' -1 -1/8"	0' -1 -7/8"	0' -1 -1/8"
L	0' -1 -1/8"	0' -4 -1/8"	0' 0 -3/8"	DNS	DNS	0' -2 -1/2"	0' -1"
L-M	0' 0 -3/4"	0' -3 -1/4"	0' 0 -1/4"	0' 0 -1/4"	DNS	0' -2 -3/8"	0' -1 -1/8"
M	0' -1 -1/8"	0' -3 -1/4"	0' 0 5/8"	DNS	0' -1 -1/2"	0' -3 -1/8"	0' 0 -1/1"
M-N	0' -1 -3/8"	0' -1 -1/1"	0' 0 -1/1"	0' 0 -1/2"	0' -1 -1/4"	0' -2"	0' 0 -3/4"
N	0' 0 -5/8"	0' -1 -7/8"	0' 0 -7/8"	0' -1 -5/8"	0' -1 -3/8"	DNS	0' 0 -1/2"
N1	0' 0 -5/8"	0' -1 -1/8"	0' 0 -5/8"	0' -1 -1/8"	0' -1"	0' -1 -1/2"	0' 0 -5/8"
O	0' 0 1/8"	DNS	0' 0 -1/2"	0' -1"	0' 0 -3/4"	0' 0 -1/1"	0' 0 -3/8"
	ELEVATION OF GRID POINTS IN FEET & INCHES					DNS = DID NOT SURVEY	

MONUMENTS SET			
GRID LINE E-W	*GRIDLINE N-S*	*DESCRIPTION*	*LOCATION*
C			
	10	Destroyed	Destroyed
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Destroyed	Destroyed
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
C-D			
	10	Set 3/4" Pin w/ Washer	Moved to Northeast Corner of RM 5196
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Destroyed	Destroyed
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
D			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
D-E			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
E			
	10	Set 3/4" Pin w/ Washer	Moved to Southwest Corner of Column
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	Moved 1.5' East
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
E-F			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
F			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Marker Dot	Moved to West Side of Column
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line

F-G			
	10	Set 3/4" Pin w/ Washer	Moved to Northeast Corner of RM 5192
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
G			
	10	Set 3/4" Pin w/ Washer	Moved to Southwest Corner of Column
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
G-H			
	10	Did Not Survey	Permanent Office Furniture
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	Moved to West Side of Wall in RM 5210
	13	Set 3/4" Pin w/ Washer	Moved to West Side of Wall in RM 5200
H			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
H-J			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
J			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
J-K			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to North Side of Wall on Grid Line
	11--12	Marker Dot	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line

K			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	Moved West into Mens Room
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
K-L			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Marker Dot	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	Moved 2' North along Grid Line
	13	Marker Dot	Moved to Southwest Corner of RM 5205
L			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	Moved to West Side of Wall in RM 5274
	11	Set 3/4" Pin w/ Washer	Moved to West Side of Wall in RM 5274
	11--12	Did Not Survey	No Proposed Location
	12	Did Not Survey	No Access
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
L-M			
	10	Set 3/4" Pin w/ Washer	Moved to West Side of Wall in RM 4290
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved 2.2' North along Grid Line
	11--12	Marker Dot	On Grid Line
	12	Did Not Survey	No Access
	12-12A	Set 3/4" Pin w/ Washer	Moved 2' South along Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
M			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	Moved to West Side of Wall in RM 5274
	11	Set 3/4" Pin w/ Washer	Moved 3.5' South into RM 5258
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
M-N			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to South side of Wall on Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
N			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Destroyed	Destroyed
	13	Set 3/4" Pin w/ Washer	On Grid Line

N1			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to South side of Wall on Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
O			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Did Not Survey	Permanent Office Furniture
	11	Set 3/4" Pin w/ Washer	Moved 2.5' West
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line

GRID LINE ELEVATIONS

BOTTOM OF ROOF SLAB

Bench Elevation= FIFTH FLOOR PLUS MEASURE UP

BOTTOM OF SLAB				GRIDLINE N-S			
GRID LINE E-W	**10**	**10A**	**11**	**11--12**	**12**	**12A**	**13**
C	DNS	219' 0 3/4"	219' 2 1/2"	219' 2 3/4"	DNS	219' 1 1/8"	219' 3"
C-D	219' 1 5/8"	218' 8 7/8"	218' 11 1/2"	DNS	218' 11 5/8"	218' 10 7/8"	219' 2 3/4"
D	219' 1 7/8"	218' 7 7/8"	218' 10"	219' 2 1/8"	218' 9 7/8"	218' 7"	219' 2 1/2"
D-E	219' 1 3/4"	218' 9 3/4"	218' 10 7/8"	219' 2 3/8"	218' 10 5/8"	218' 10 5/8"	219' 1 1/2"
E	219' 1 7/8"	219' 0 3/8"	219' 2"	DNS	219' 2 1/8"	219' 0 1/2"	219' 2"
E-F	219' 2 5/8"	218' 9 1/4"	218' 11 7/8"	DNS	218' 10 1/4"	218' 10 3/8"	219' 1 7/8"
F	219' 3"	218' 6 1/4"	218' 10 1/2"	DNS	218' 11 3/8"	218' 8"	219' 1 5/8"
F-G	219' 2 5/8"	218' 8 1/8"	218' 10 1/8"	DNS	219' 0 1/8"	218' 8 5/8"	219' 3 1/4"
G	219' 2 3/8"	219' 2 7/8"	219' 1 1/4"	DNS	219' 2 1/2"	218' 11 3/4"	219' 2 3/8"
G-H	DNS	218' 9 5/8"	218' 11 3/8"	219' 3 3/8"	DNS	218' 10 1/4"	219' 2"
H	219' 1 7/8"	218' 7 1/2"	218' 10 3/8"	219' 1 7/8"	218' 10 3/4"	218' 7 5/8"	219' 2 3/4"
H-J	219' 1 7/8"	218' 9 5/8"	218' 10 5/8"	219' 1 1/8"	218' 10 1/4"	218' 9 3/8"	219' 0 7/8"
J	219' 1 7/8"	219' 0"	219' 2 1/8"	219' 2 1/4"	219' 2 1/4"	219' 0 3/8"	219' 2"
J-K	219' 2 5/8"	218' 10 1/8"	219' 0"	219' 3 1/2"	218' 11 1/2"	218' 10"	219' 1 1/2"
K	219' 1 1/2"	218' 6 5/8"	218' 10"	DNS	218' 10"	218' 7 1/4"	219' 1 7/8"
K-L	219' 2 5/8"	218' 8 1/2"	218' 11"	DNS	218' 10 1/2"	218' 10 1/4"	219' 2"
L	219' 1 7/8"	219' 1"	219' 2 5/8"	DNS	DNS	219' 0 1/4"	219' 1 5/8"
L-M	219' 2 5/8"	218' 9 3/4"	219' 0 1/8"	DNS	DNS	218' 10 1/2"	219' 2 1/8"
M	219' 1 3/4"	218' 7 3/8"	219' 0 3/8"	DNS	218' 10 1/4"	218' 7 7/8"	219' 1 3/4"
M-N	219' 2 1/8"	218' 10 1/8"	218' 11 1/4"	219' 3 1/2"	218' 10 3/4"	218' 8 7/8"	219' 3"
N	219' 2 1/4"	219' 1 1/4"	219' 2 3/4"	219' 2 3/8"	219' 2"	DNS	219' 3 1/4"
N1	219' 5 1/4"	219' 6"	219' 5 1/8"	219' 5 1/4"	219' 5 1/8"	219' 3 3/4"	219' 6 1/4"
O	219' 9"	DNS	219' 7 3/8"	219' 7 5/8"	219' 7 5/8"	219' 7 3/4"	219' 8 1/4"
	BOTTOM OF ROOF SLAB IN FEET & INCHES					DNS = DID NOT SURVEY	

RELITIVE DIFF. FROM BENCH ELEV.				GRIDLINE N-S			
GRID LINE E-W	**10**	**10A**	**11**	**11--12**	**12**	**12A**	**13**
C	DNS	0' -1 -7/8"	0' 0 -1/2"	0' 0 -5/8"	DNS	0' -1 -3/4"	0' 0 -1/4"
C-D	0' -1 -3/8"	0' -2 -1/4"	0' -1 -1/2"	DNS	0' -1 -3/8"	0' -1 -1/1"	0' 0 -3/4"
D	0' 0 -7/8"	0' -2 -7/8"	0' 0 -1/1"	0' -1 -5/8"	0' -1 -1/4"	0' -3 -1/8"	0' 0 -5/8"
D-E	0' 0 -1/1"	0' -2 -1/8"	0' 0 -1/1"	0' 0 -7/8"	0' -1 -1/8"	0' -2 -3/4"	0' -1 -3/8"
E	0' 0 -7/8"	0' -3 -1/8"	0' -1 -1/8"	DNS	0' -1 -1/4"	0' -3 -1/2"	0' 0 -7/8"
E-F	0' 0 -7/8"	0' -2 -3/8"	0' -1"	DNS	0' -1 -1/8"	0' -2 -3/8"	0' -1 -1/8"
F	0' 0 -1/2"	0' -3 -1/4"	0' -1 -1/8"	DNS	0' 0 -5/8"	0' -3 -7/8"	0' 0 -5/8"
F-G	0' 0 -1/1"	0' -2 -5/8"	0' 0 -5/8"	DNS	0' 0 -1/4"	0' -2 -1/1"	0' -1 -1/4"
G	0' 0 -7/8"	0' 1"	0' 0 -1/1"	DNS	0' 0 -1/4"	0' -2 -1/1"	0' 0 -3/4"
G-H	DNS	0' -1 -3/4"	0' 0 -3/4"	0' 0 -3/8"	DNS	0' 0 -1/1"	0' 0 -1/4"
H	0' -1 -1/4"	0' -2 -3/4"	0' -1 -1/4"	0' 0 -1/1"	0' -1 -1/8"	0' -2 -7/8"	0' 0 -5/8"
H-J	0' -1 -3/8"	0' -2 -3/4"	0' -1 -5/8"	0' -1 -1/2"	0' -1 -7/8"	0' -3 -1/2"	0' -2 -1/8"
J	0' 0 -3/4"	0' -3 -1/8"	0' -1 -1/4"	0' -1 -1/2"	0' -1 -1/2"	0' -3 -1/8"	0' -1"
J-K	0' 0 -5/8"	0' -1 -7/8"	0' 0 -7/8"	0' 0 -5/8"	0' 0 -1/1"	0' -1 -7/8"	0' 0 -7/8"
K	0' -1 -1/8"	0' -3 -1/8"	0' -1 -3/8"	DNS	0' 0 -1/1"	0' -2 -3/4"	0' 0 -1/1"
K-L	0' 0 -7/8"	0' -2 -1/1"	0' -1 -1/8"	DNS	0' -1 -1/8"	0' -1 -7/8"	0' -1 -1/8"
L	0' -1 -1/8"	0' -4 -1/8"	0' 0 -3/8"	DNS	DNS	0' -2 -1/2"	0' -1"
L-M	0' 0 -3/4"	0' -3 -1/4"	0' 0 -1/4"	DNS	DNS	0' -2 -3/8"	0' -1 -1/8"
M	0' -1 -1/8"	0' -3 -1/4"	0' 0 5/8"	DNS	0' -1 -1/2"	0' -3 -1/8"	0' 0 -1/1"
M-N	0' -1 -3/8"	0' -1 -1/1"	0' 0 -1/1"	0' 0 -1/2"	0' -1 -1/4"	0' -2"	0' 0 -3/4"
N	0' 0 -5/8"	0' -1 -7/8"	0' 0 -7/8"	0' -1 -5/8"	0' -1 -3/8"	DNS	0' 0 -1/2"
N1	0' 0 -5/8"	0' -1 -1/8"	0' 0 -5/8"	0' -1 -1/8"	0' -1"	0' -1 -1/2"	0' 0 -5/8"
O	0' 0 1/8"	DNS	0' 0 -1/2"	0' -1"	0' 0 -3/4"	0' 0 -1/1"	0' 0 -3/8"
	BOTTOM OF ROOF SLAB IN FEET & INCHES					DNS = DID NOT SURVEY	

MONUMENTS SET			
GRID LINE E-W	GRIDLINE N-S	DESCRIPTION	LOCATION
C			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
C-D			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
D			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
D-E			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
E			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
E-F			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	see Fifth Floor Monument Locations
	11	No Monument Set	see Fifth Floor Monument Locations
	11--12	No Monument Set	see Fifth Floor Monument Locations
	12	No Monument Set	see Fifth Floor Monument Locations
	12-12A	No Monument Set	see Fifth Floor Monument Locations
	13	No Monument Set	see Fifth Floor Monument Locations
F			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations

F-G			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
G			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
G-H			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
H			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
H-J			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
J			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
J-K			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
K			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations

K-L			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
L			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
L-M			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
M			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
M-N			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
N			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations

N1			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
O			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations

Marion County
Courthouse Square Remediation Project
Full Building Survey Services

January 24, 2011

David Evans and Associates, Inc.
530 Center Street NE, Suite 650
Salem, OR 97301

Project Manager: Jon Broadwater P.L.S

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Project overview

Marion County Facilities employed DEA to monitor the potential movement of the Courthouse square building in Salem, Oregon. DEA utilized a variety of survey techniques ranging from traversing and digital leveling, to terrestrial laser scanning. The goal of the project was to monument the structure. Then measure said locations to document the possible deflections in the post tensioned slab floors and other structural elements of the building. DEA completed the work over a two week period beginning on 1-07-2011 and delivering the final report on 1-24-2011. The project required both a high level of accuracy and repeatability. To facilitate these needs DEA, through sound surveying practice, created the following control environment to base this project on.

Project Datum Statement

The horizontal datum held for this project is based on local coordinates. The basis of bearing held was the centerline of Court Street being S70-30-00E per the City of Salem plat. Vertical measurements were based off of closed digital level loops originating and closing to City of Salem benchmark 1155 located at the SW corner of Liberty and center Street and having a NGVD 29 value of 153.40 ft. the following is the City of Salem bench mark data:

Name	1155
Status	
X Coord	0
Y Coord	0
Z Coord	0
Convergence	
Elevation	153.4
Type	
Section	
County	MARION
Marker	ALUM DISK
Description	SE CORNER LIBERTY & CENTER ST, TOP OF CURB IN RADIUS, 3' SW OF A CATCHBASIN

Control Least Square Adjustment report:

File: Marn0043
Projection: Plane grid
File Date: Wednesday, April 28, 2010

Units
=====

Angle: Degrees Minutes Seconds
Distance: International Feet

```
Earth constants
===============
        Refraction constant:       0.070
            Earth's radius: 6378000.000

      Combined scale factor:       1.000000

Fixed Coordinates
-----------------
  Point ID     North        East
     11      5000.000   10000.000
     12      4903.643   10272.103

Adjusted Coordinates
--------------------
   Point ID      North        East
     13        5068.600   10457.549
     10        5249.848    9971.833


Observations
------------
Directions
     At          To       Direction     +/-SD      Residual    Orientation   Grid Az.
     12          11        0°00'00"    0°00'02"   -0°00'01"   289°30'01"   289°30'00"
     12          13      118°50'45"    0°00'02"    0°00'01"                 48°20'47"
     13          12        0°00'00"    0°00'02"   -0°00'01"   228°20'48"   228°20'47"
     13          10       62°07'00"    0°00'02"    0°00'01"                290°27'48"
     10          13        0°00'00"    0°00'02"   -0°00'03"   110°27'51"   110°27'48"
     10          11       63°06'11"    0°00'02"    0°00'03"                173°34'04"
     11          10        0°00'00"    0°00'02"   -0°00'02"   353°34'07"   353°34'04"
     11          12      115°55'51"    0°00'02"    0°00'02"                109°30'00"
Distances
     At          To       Distance   +/-SD    Residual    Grid       L.S.F.
     12          11       288.662    0.005    -0.002   288.660   1.00000000
     12          13       248.196    0.005    -0.000   248.195   1.00000000
     13          12       248.198    0.005    -0.002   248.195   1.00000000
     13          10       518.431    0.005    -0.000   518.431   1.00000000
     10          13       518.430    0.005     0.000   518.431   1.00000000
     10          11       251.425    0.005     0.006   251.430   1.00000000
     11          10       251.433    0.005    -0.003   251.430   1.00000000
     11          12       288.656    0.005     0.004   288.660   1.00000000

Statistics
```

```
----------
Degrees of Freedom: 6
Fixed Coordinates: 2
Floating Coordinates: 2
Observations: 14
Directions: 8
Orientation: 4
Distances: 6
Number of Iterations: 2

Error Analysis
--------------
Variance Factor: 1.10
           Adjusted Coordinates   +/- 95% Confidence Limits      Error Ellipse
  Point ID     North       East     North       East    Semi Major Semi Minor  Orientation
     13     5068.600  10457.549      0.009      0.007      0.009      0.007     3°36'02"
     10     5249.848   9971.833      0.009      0.008      0.009      0.007    38°27'56"
```

Digital Level Report for Main Building Control:

Point Id	Epoch	Height [fti]	Corr [fti]	Delta Hgt. [fti]	Point Class	Sd. Hgt. [fti]
13	01/20/2011 15:04:18	151.6793	-	-	Control	-
1	01/20/2011 15:04:21	153.1670	-0.0003	1.4877	Measured	-
2	01/20/2011 15:04:25	153.9055	-0.0018	0.7385	Measured	-
2	01/20/2011 15:04:29	153.5935	-0.0009	-0.3120	Measured	-
11	01/20/2011 15:04:33	153.4441	-0.0002	-0.1494	Measured	0.0020
12	01/20/2011 15:04:37	152.1737	-0.0007	-1.2704	Measured	-
13	01/20/2011 15:04:41	151.6793	-	-0.4944	Control	-

Digital Level Repot for TBM Building Control:

Point Id	Epoch	Height [fti]	Corr [fti]	Delta Hgt. [fti]	Point Class	Sd. Hgt. [fti]
13	01/20/2011 15:01:38	151.6793	-	-	Control	-
1	01/20/2011 15:01:41	151.8036	0.0013	0.1243	Measured	-
2	01/20/2011 15:01:45	145.3497	0.0014	-6.4539	Measured	-
3	01/20/2011 15:01:49	143.1608	0.0026	-2.1888	Measured	-
BM-GA	01/20/2011 15:01:53	143.1679	0.0027	0.0071	Measured	-
4	01/20/2011 15:01:57	147.3620	0.0017	4.1940	Measured	-
BM-1A	01/20/2011 15:02:01	153.4581	0.0018	6.0961	Measured	-
5	01/20/2011 15:02:05	157.0891	0.0018	3.6310	Measured	-
6	01/20/2011 15:02:10	164.5122	0.0019	7.4231	Measured	-
BM-2A	01/20/2011 15:02:14	169.4782	0.0019	4.9660	Measured	0.0000
7	01/20/2011 15:02:18	172.4663	0.0019	2.9881	Measured	-
8	01/20/2011 15:02:22	179.3083	0.0020	6.8421	Measured	-
BM-3A	01/20/2011 15:02:26	181.9754	0.0010	2.6671	Measured	0.0000
9	01/20/2011 15:02:30	185.5354	0.0011	3.5600	Measured	-
10	01/20/2011 15:02:34	191.8005	0.0011	6.2651	Measured	-

BM-4A	01/20/2011 15:02:38	194.4926	0.0011	2.6921	Measured	-
11	01/20/2011 15:02:42	198.0546	0.0012	3.5620	Measured	-
12	01/20/2011 15:02:46	204.2976	0.0002	6.2430	Measured	-
BM-5A	01/20/2011 15:02:51	206.9817	0.0003	2.6841	Measured	-
14	01/20/2011 15:02:55	207.1718	0.0014	0.1901	Measured	-
15	01/20/2011 15:02:59	207.1250	0.0005	-0.0469	Measured	-
BM-5B	01/20/2011 15:03:03	206.9861	0.0017	-0.1389	Measured	-
16	01/20/2011 15:03:07	204.3331	0.0017	-2.6530	Measured	-
17	01/20/2011 15:03:11	197.5021	0.0017	-6.8310	Measured	0.0010
BM-4B	01/20/2011 15:03:15	194.4732	0.0018	-3.0290	Measured	-
18	01/20/2011 15:03:19	190.6662	0.0009	-3.8070	Measured	-
19	01/20/2011 15:03:23	184.9903	0.0009	-5.6760	Measured	-
BM-3B	01/20/2011 15:03:27	181.9633	0.0019	-3.0270	Measured	-
20	01/20/2011 15:03:31	178.7403	0.0010	-3.2230	Measured	-
21	01/20/2011 15:03:35	171.9174	0.0010	-6.8230	Measured	-
BM-2B	01/20/2011 15:03:39	169.4804	0.0010	-2.4370	Measured	-
22	01/20/2011 15:03:43	165.0774	0.0011	-4.4030	Measured	-
23	01/20/2011 15:03:47	157.0905	0.0001	-7.9870	Measured	-
BM-1B	01/20/2011 15:03:51	153.4975	0.0002	-3.5930	Measured	-
24	01/20/2011 15:03:55	146.1995	-0.0008	-7.2979	Measured	-
BM-GB	01/20/2011 15:03:59	143.1785	-0.0007	-3.0210	Measured	-
25	01/20/2011 15:04:03	143.1598	-0.0005	-0.0188	Measured	-
26	01/20/2011 15:04:07	145.4429	0.0006	2.2831	Measured	-
27	01/20/2011 15:04:11	151.8040	0.0007	6.3611	Measured	-

Jon K Broadwater P.L.S
Senior Associate
David Evans and Associates, Inc.
January 24, 2011

REGISTERED
PROFESSIONAL
LAND SURVEYOR

OREGON
JULY 11, 2006
JON KENNETH BROADWATER
61360LS
EXPIRES: 12/31/11

GRID LINE ELEVATIONS

PARKING LEVEL

Benchmark Elevation = 143' 2"

ELEVATION					*GRIDLINE N-S*				
GRID LINE E-W	**10**	**10A**	**10A-11**	**11**	**11--12**	**12**	**12-12A**	**12A**	**13**
A	143' 2 1/4"	143' 2 1/8"	143' 2 3/8"	143' 2 1/8"	143' 2 1/4"	143' 2 1/4"	143' 2 3/8"	143' 2 3/4"	143' 3"
A1	143' 2 1/8"	143' 2 1/4"	143' 2 1/4"	143' 2 1/8"	143' 2 3/8"	143' 2 1/8"	143' 2 3/8"	143' 2 5/8"	143' 2 1/2"
B-C	143' 2 1/8"	143' 2 1/8"	DNS	143' 2 1/8"	143' 2 3/8"	DNS	143' 2 3/8"	143' 2 3/8"	143' 2 5/8"
C	143' 2 1/4"	143' 2"	143' 2 3/8"	143' 2 1/8"	143' 2 1/4"	143' 2 3/8"	143' 2 3/8"	143' 2 1/8"	143' 2 1/4"
C-D	143' 2 3/8"	143' 2 1/4"	143' 2 3/8"	143' 2 1/4"	143' 2 1/4"	143' 2 5/8"	143' 2 3/8"	143' 2 1/8"	143' 2"
D	143' 2 3/8"	143' 1 7/8"	143' 2 1/4"	143' 2 1/4"	143' 2"	143' 2 1/4"	DNS	143' 2 1/8"	143' 2 1/8"
D-E	143' 2 1/4"	143' 2 1/8"	143' 2"	143' 2 3/8"	143' 1 3/4"	143' 2 3/8"	143' 2 1/8"	143' 2 3/8"	143' 2 1/8"
E	143' 2 3/8"	143' 2"	143' 2 1/2"	143' 2 1/2"	143' 1 3/4"	143' 2 3/8"	143' 2 1/8"	143' 2"	143' 2 1/8"
E-F	143' 2 1/8"	143' 2 3/8"	143' 2 1/8"	143' 2 3/8"	DNS	143' 2"	143' 2"	143' 2 5/8"	143' 2 5/8"
F	143' 2 3/8"	143' 2 3/8"	143' 2 1/4"	143' 2"	DNS	143' 2 1/4"	143' 2 1/8"	143' 2"	143' 2"
F-G	143' 2 3/8"	143' 2 5/8"	143' 1 7/8"	143' 2 1/2"	DNS	143' 2"	143' 2 1/4"	143' 2 1/2"	143' 2 5/8"
G	143' 2 3/8"	143' 2 1/4"	143' 2 1/8"	DNS	DNS	143' 2"	143' 2 3/8"	143' 2"	143' 1 7/8"
G-H	143' 2 1/4"	143' 2 3/8"	143' 2 1/4"	143' 1 7/8"	143' 1 3/8"	143' 1 3/4"	143' 1 3/4"	143' 2 1/8"	143' 2 1/8"
H	143' 1 7/8"	143' 2"	143' 2 1/4"	143' 1 7/8"	143' 1 5/8"	143' 2"	143' 2"	143' 2 1/8"	143' 1 5/8"
H-J	143' 2 3/8"	143' 2 1/8"	DNS	DNS	DNS	143' 2 1/8"	143' 2 1/4"	143' 2 3/8"	143' 2 1/8"
J	143' 2"	143' 2 1/8"	143' 2 1/8"	143' 2"	DNS	143' 2 3/8"	143' 2 1/8"	143' 1 7/8"	143' 1 7/8"
J-K	143' 2 1/8"	143' 2 1/4"	143' 2"	143' 2 1/8"	143' 1 7/8"	143' 2"	143' 2 1/4"	143' 2 3/8"	143' 1 7/8"
K	143' 2 3/8"	DNS	DNS	DNS	143' 2 3/8"	143' 2 1/8"	DNS	143' 2 1/8"	143' 2"
K-L	143' 2 1/8"	DNS	DNS	DNS	143' 1 3/4"	143' 2 3/8"	143' 2"	143' 2 3/8"	143' 2 1/8"
L	143' 1 7/8"	DNS	DNS	DNS	DNS	143' 1 7/8"	143' 1 3/4"	143' 2"	143' 2"
L-M	143' 2 3/8"	143' 2 1/8"	143' 2 1/8"	143' 1 5/8"	DNS	143' 1 3/4"	DNS	143' 2 1/8"	143' 2 3/8"
M	143' 1 5/8"	143' 2"	143' 1 7/8"	143' 2"	DNS	143' 2 1/4"	143' 1 3/4"	143' 2 1/8"	143' 1 7/8"
M-N	143' 2"	143' 1 3/4"	DNS	143' 1 1/2"	143' 1 3/4"	143' 1 5/8"	143' 1 3/4"	DNS	DNS
N	143' 1 7/8"	143' 1 3/4"	DNS	143' 1 3/4"	DNS	143' 2"	143' 1 3/4"	143' 2"	143' 2 1/8"
N1	143' 1 7/8"	143' 1 3/4"	143' 1 5/8"	143' 1 7/8"	DNS	143' 1 1/2"	143' 1 5/8"	143' 2 3/8"	143' 2 1/8"
O	DNS	143' 1 7/8"	143' 1 7/8"	143' 1 7/8"	DNS	143' 1 7/8"	143' 2"	DNS	DNS
	ELEVATION OF GRID POINT IN FEET & INCHES					DNS = DID NOT SURVEY			

RELATIVE DIFF. FROM BENCH ELEV.					GRIDLINE N-S				
GRID LINE E-W	**10**	**10A**	**10A-11**	**11**	**11--12**	**12**	**12-12A**	**12A**	**13**
A	0' 0 1/4"	0' 0 1/8"	0' 0 3/8"	0' 0 1/8"	0' 0 1/4"	0' 0 1/4"	0' 0 3/8"	0' 0 3/4"	0' 1"
A1	0' 0 1/8"	0' 0 1/4"	0' 0 1/4"	0' 0 1/8"	0' 0 3/8"	0' 0 1/8"	0' 0 3/8"	0' 0 5/8"	0' 0 1/2"
B-C	0' 0 1/8"	0' 0 1/8"	DNS	0' 0 1/8"	0' 0 3/8"	DNS	0' 0 3/8"	0' 0 3/8"	0' 0 1/2"
C	0' 0 1/4"	0' 0"	0' 0 3/8"	0' 0 1/8"	0' 0 1/4"	0' 0 3/8"	0' 0 3/8"	0' 0 1/8"	0' 0 1/4"
C-D	0' 0 3/8"	0' 0 1/4"	0' 0 3/8"	0' 0 1/4"	0' 0 1/4"	0' 0 1/2"	0' 0 3/8"	0' 0 1/8"	0' 0"
D	0' 0 3/8"	0' 0 -1/8"	0' 0 1/4"	0' 0 1/4"	0' 0"	0' 0 1/4"	DNS	0' 0 1/8"	0' 0 1/8"
D-E	0' 0 1/4"	0' 0 1/8"	0' 0"	0' 0 3/8"	0' 0 -1/4"	0' 0 3/8"	0' 0 1/8"	0' 0 3/8"	0' 0 1/8"
E	0' 0 3/8"	0' 0"	0' 0 1/2"	0' 0 1/2"	0' 0 -3/8"	0' 0 3/8"	0' 0 1/8"	0' 0"	0' 0 1/8"
E-F	0' 0 1/8"	0' 0 3/8"	0' 0 1/8"	0' 0 3/8"	DNS	0' 0"	0' 0"	0' 0 5/8"	0' 0 5/8"
F	0' 0 3/8"	0' 0 3/8"	0' 0 1/4"	0' 0"	DNS	0' 0 1/4"	0' 0 1/8"	0' 0"	0' 0"
F-G	0' 0 3/8"	0' 0 1/2"	0' 0 -1/8"	0' 0 1/2"	DNS	0' 0"	0' 0 1/4"	0' 0 1/2"	0' 0 5/8"
G	0' 0 3/8"	0' 0 1/4"	0' 0 1/8"	DNS	DNS	0' 0"	0' 0 3/8"	0' 0"	0' 0 -1/4"
G-H	0' 0 1/4"	0' 0 3/8"	0' 0 1/4"	0' 0 -1/8"	0' 0 -5/8"	0' 0 -3/8"	0' 0 -1/4"	0' 0 1/8"	0' 0 1/8"
H	0' 0 -1/8"	0' 0"	0' 0 1/4"	0' 0 -1/8"	0' 0 -3/8"	0' 0"	0' 0"	0' 0 1/8"	0' 0 -3/8"
H-J	0' 0 3/8"	0' 0 1/8"	DNS	DNS	DNS	0' 0 1/8"	0' 0 1/4"	0' 0 3/8"	0' 0 1/8"
J	0' 0"	0' 0 1/8"	0' 0 1/8"	0' 0"	DNS	0' 0 3/8"	0' 0 1/8"	0' 0 -1/8"	0' 0 -1/8"
J-K	0' 0 1/8"	0' 0 1/4"	0' 0"	0' 0 1/8"	0' 0 -1/8"	0' 0"	0' 0 1/4"	0' 0 3/8"	0' 0 -1/8"
K	0' 0 3/8"	DNS	DNS	DNS	0' 0 3/8"	0' 0 1/8"	DNS	0' 0 1/8"	0' 0"
K-L	0' 0 1/8"	DNS	DNS	DNS	0' 0 -1/4"	0' 0 3/8"	0' 0"	0' 0 3/8"	0' 0 1/8"
L	0' 0 -1/8"	DNS	DNS	DNS	DNS	0' 0 -1/8"	0' 0 -1/4"	0' 0"	0' 0"
L-M	0' 0 3/8"	0' 0 1/8"	0' 0 1/8"	0' 0 -3/8"	DNS	0' 0 -3/8"	DNS	0' 0 1/8"	0' 0 3/8"
M	0' 0 -3/8"	0' 0"	0' 0 -1/8"	0' 0"	DNS	0' 0 1/4"	0' 0 -3/8"	0' 0 1/8"	0' 0 -1/8"
M-N	0' 0"	0' 0 -1/4"	DNS	0' 0 -1/2"	0' 0 -3/8"	0' 0 -3/8"	0' 0 -3/8"	DNS	DNS
N	0' 0 -1/8"	0' 0 -1/4"	DNS	0' 0 -3/8"	DNS	0' 0"	0' 0 -3/8"	0' 0"	0' 0 1/8"
N1	0' 0 -1/8"	0' 0 -1/4"	0' 0 -3/8"	0' 0 -1/4"	DNS	0' 0 -1/2"	0' 0 -3/8"	0' 0 3/8"	0' 0 1/8"
O	DNS	0' 0 -1/8"	0' 0 -1/8"	0' 0 -1/8"	DNS	0' 0 -1/8"	0' 0"	DNS	DNS
	RELATIVE DIFFERENCES ARE IN FEET & INCHES					DNS = DID NOT SURVEY			

MONUMENTS SET					
GRID LINE E-W	*GRIDLINE N-S*	*DESCRIPTION*	*LOCATION*		
A					
	10	Set 3/4" Pin w/ Washer	On Grid Line		
	10A	Set 3/4" Pin w/ Washer	On Grid Line		
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line		
	11	Set 3/4" Pin w/ Washer	On Grid Line		
	11--12	Set 3/4" Pin w/ Washer	On Grid Line		
	12	Set 3/4" Pin w/ Washer	On Grid Line		
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line		
	12A	Set 3/4" Pin w/ Washer	On Grid Line		
	13	Set 3/4" Pin w/ Washer	On Grid Line		
A1					
	10	Set 3/4" Pin w/ Washer	On Grid Line		
	10A	Set 3/4" Pin w/ Washer	On Grid Line		
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line		
	11	Set 3/4" Pin w/ Washer	On Grid Line		
	11--12	Set 3/4" Pin w/ Washer	On Grid Line		
	12	Set 3/4" Pin w/ Washer	On Grid Line		
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line-Point was located		
	12A	Set 3/4" Pin w/ Washer	On Grid Line		
	13	Set 3/4" Pin w/ Washer	On Grid Line		
B-C					
	10	Set 3/4" Pin w/ Washer	On Grid Line		
	10A	Set 3/4" Pin w/ Washer	On Grid Line		
	10A-11	Set 3/4" Pin w/ Washer	Point was Destroyed		
	11	Set 3/4" Pin w/ Washer	On Grid Line		
	11--12	Set 3/4" Pin w/ Washer	On Grid Line		
	12	Did Not Survey	Point was Destroyed		
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line		
	12A	Set 3/4" Pin w/ Washer	On Grid Line		
	13	Set 3/4" Pin w/ Washer	On Grid Line		
C					
	10	Set 3/4" Pin w/ Washer	On Grid Line		
	10A	Set 3/4" Pin w/ Washer	On Grid Line		
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line		
	11	Set 3/4" Pin w/ Washer	On Grid Line		
	11--12	Set 3/4" Pin w/ Washer	On Grid Line		
	12	Set 3/4" Pin w/ Washer	On Grid Line		
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line		
	12A	Set 3/4" Pin w/ Washer	On Grid Line		
	13	Set 3/4" Pin w/ Washer	On Grid Line		
C-D					
	10	Set 3/4" Pin w/ Washer	On Grid Line		
	10A	Set 3/4" Pin w/ Washer	On Grid Line		
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line		
	11	Set 3/4" Pin w/ Washer	On Grid Line		
	11--12	Set 3/4" Pin w/ Washer	On Grid Line		
	12	Set 3/4" Pin w/ Washer	On Grid Line		
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line		
	12A	Set 3/4" Pin w/ Washer	On Grid Line		
	13	Set 3/4" Pin w/ Washer	On Grid Line		
D					
	10	Set 3/4" Pin w/ Washer	On Grid Line		
	10A	Set 3/4" Pin w/ Washer	On Grid Line		
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line		
	11	Set 3/4" Pin w/ Washer	Set on East Side of Column		
	11--12	Set 3/4" Pin w/ Washer	On Grid Line		
	12	Set 3/4" Pin w/ Washer	On Grid Line		
	12-12A	Set 3/4" Pin w/ Washer	Point was Destroyed		
	12A	Set 3/4" Pin w/ Washer	On Grid Line		
	13	Set 3/4" Pin w/ Washer	On Grid Line		
D-E					
	10	Set 3/4" Pin w/ Washer	On Grid Line		
	10A	Set 3/4" Pin w/ Washer	On Grid Line		
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line		
	11	Set 3/4" Pin w/ Washer	On Grid Line		
	11--12	Set 3/4" Pin w/ Washer	On Grid Line		
	12	Set 3/4" Pin w/ Washer	On Grid Line		
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line		
	12A	Set 3/4" Pin w/ Washer	On Grid Line		
	13	Set 3/4" Pin w/ Washer	On Grid Line		

E			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
E-F			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
F			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Set on South Side of Column
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
F-G			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Set of South Side of Wall
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
G			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Point was Destroyed
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
G-H			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line-3.5' South of Wall Angle Point
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
H			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line

H-J			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	Point was Destroyed
	11	SCRIBE ON CONTRETE	Could not Locate
	11--12	SCRIBE ON CONTRETE	Could not Locate
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line-Point was Located
	13	Set 3/4" Pin w/ Washer	On Grid Line
J			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Set on South Side of Column
	11--12	Set 3/4" Pin w/ Washer	Point was Destroyed
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
J-K			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line-Point was Located
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
K			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Did Not Survey	On Garage Ramp
	10A-11	Did Not Survey	On Garage Ramp
	11	Did Not Survey	On Garage Ramp
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	Point was Destroyed
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
K-L			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Did Not Survey	On Garage Ramp
	10A-11	Did Not Survey	On Garage Ramp
	11	Did Not Survey	On Garage Ramp
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
L			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Did Not Survey	On Garage Ramp
	10A-11	Did Not Survey	On Garage Ramp
	11	Did Not Survey	On Garage Ramp
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
L-M			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	Point was Destroyed
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line

M			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	Set on North Side of Column
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
M-N			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	Point was Destroyed
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Did Not Survey	Did Not Set
	13	Did Not Survey	Did Not Set
N			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	Point was Destroyed
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	Did Not Set
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
N1			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	Did Not Set
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
O			
	10	Set 3/4" Pin w/ Washer	Point was Destroyed
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Did Not Survey	Did not Set
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Did Not Survey	Inside Heating Unit - No Access
	13	Did Not Survey	Inside Heating Unit - No Access

GRID LINE ELEVATIONS

FIRST FLOOR

Benchmark Elevation = 153' 5 1/2"

ELEVATION					GRIDLINE N-S				
GRID LINE E-W	10A	10A-11	11	11--12	12	12-12A	12A	12A-13	13
C-D	153' 5 7/8"	153' 5 3/4"	153' 5 7/8"	153' 5 7/8"	153' 5 5/8"	153' 5 1/8"	153' 5 3/8"	DNS	DNS
D	153' 5 7/8"	153' 5 3/4"	153' 6"	153' 6 1/8"	153' 5 1/2"	DNS	153' 5 5/8"	153' 5 1/2"	153' 5 1/2"
D-E	153' 5 5/8"	153' 5 3/4"	153' 5 7/8"	153' 6 3/8"	153' 5 1/8"	153' 4 7/8"	153' 5 1/4"	153' 5 3/8"	153' 5 3/8"
E	153' 6"	153' 6"	153' 5 3/4"	153' 5 3/4"	153' 5 1/2"	DNS	153' 5 1/2"	153' 5 1/2"	153' 5 5/8"
E-F	153' 5 3/4"	153' 6 1/8"	153' 5 3/4"	153' 5 3/4"	153' 5 7/8"	153' 5 1/4"	153' 5 5/8"	153' 5 5/8"	153' 5 3/4"
F	153' 5 3/4"	DNS	153' 5 1/2"	153' 5 5/8"	153' 5 5/8"	DNS	153' 5 7/8"	153' 5 3/4"	DNS
F-G	153' 5 5/8"	153' 5 3/4"	153' 5 3/4"	153' 5 3/4"	153' 5 3/8"	153' 4 3/4"	153' 5 3/8"	153' 5 5/8"	153' 5 3/4"
G	153' 5 5/8"	153' 5 1/2"	153' 5"	DNS	153' 5 1/2"	153' 5 1/8"	153' 5 1/2"	153' 5 5/8"	153' 5 7/8"
G-H	153' 5"	153' 4 3/4"	153' 5 1/2"	153' 5 1/8"	153' 5 1/4"	153' 4 7/8"	153' 5 1/8"	153' 5 1/4"	152' 9 1/4"
H	153' 5 3/4"	153' 4 7/8"	153' 5 5/8"	DNS	153' 5 1/8"	153' 5"	153' 5 3/4"	153' 5 5/8"	153' 5 5/8"
H-J	DNS	DNS	153' 4 3/4"	153' 5 1/4"	153' 5 1/8"	153' 4 3/8"	153' 5"	153' 5 1/8"	153' 5 5/8"
J	DNS	153' 5 3/8"	153' 5 3/8"	153' 4 3/4"	153' 5 3/4"	153' 4 7/8"	154' 0 5/8"	154' 0 3/4"	DNS
J-K	DNS	DNS	153' 5"	153' 5 1/8"	153' 5 3/8"	153' 5"	153' 5 3/8"	154' 0 1/2"	154' 0 3/4"
K	DNS	153' 5 3/8"	153' 6"	153' 5"	153' 5 5/8"	153' 5 1/8"	154' 0 3/4"	154' 0 7/8"	DNS
K-L	DNS	DNS	153' 5 1/2"	153' 5 1/8"	153' 5 1/4"	153' 5 1/2"	153' 5 1/4"	153' 5 1/2"	153' 5 5/8"
L	DNS	DNS	DNS	DNS	153' 6 1/8"	153' 5 1/4"	153' 6 1/4"	153' 5 7/8"	DNS
L-M	DNS	DNS	DNS	DNS	153' 6 1/2"	153' 5 3/8"	153' 5 5/8"	153' 5 3/4"	153' 5 3/4"
M	DNS	DNS	DNS	DNS	153' 6 1/4"	153' 5 1/4"	153' 5 7/8"	153' 5 7/8"	DNS
M-N	DNS	DNS	DNS	DNS	153' 4 3/4"	153' 4 3/4"	153' 5 1/4"	153' 6"	153' 6"
N	DNS	DNS	DNS	DNS	153' 5 1/4"	153' 5 1/8"	153' 5 7/8"	153' 6"	153' 5 7/8"
N1	DNS	DNS	DNS	DNS	DNS	DNS	153' 3 1/2"	153' 5 3/4"	153' 5 7/8"
O	DNS	DNS	DNS	153' 1"	153' 1 1/2"	153' 1 1/4"	153' 1"	DNS	DNS
	ELEVATION OF GRID POINTS IN FEET & INCHES					DNS = DID NOT SURVEY			

RELATIVE DIFF. FROM BENCH ELEV.					GRIDLINE N-S				
GRID LINE E-W	10A	10A-11	11	11--12	12	12-12A	12A	12A-13	13
C-D	0' 0 3/8"	0' 0 3/8"	0' 0 3/8"	0' 0 3/8"	0' 0 1/8"	0' 0 -3/8"	0' 0 -1/8"	DNS	DNS
D	0' 0 3/8"	0' 0 3/8"	0' 0 1/2"	0' 0 5/8"	0' 0"	DNS	0' 0 1/8"	0' 0"	0' 0"
D-E	0' 0 1/8"	0' 0 3/8"	0' 0 3/8"	0' 0 7/8"	0' 0 -3/8"	0' 0 -5/8"	0' 0 -1/4"	0' 0 -1/8"	0' 0 -1/8"
E	0' 0 1/2"	0' 0 1/2"	0' 0 3/8"	0' 0 1/4"	0' 0"	DNS	0' 0"	0' 0"	0' 0 1/8"
E-F	0' 0 1/4"	0' 0 5/8"	0' 0 1/4"	0' 0 1/4"	0' 0 3/8"	0' 0 -1/4"	0' 0 1/8"	0' 0 1/8"	0' 0 1/4"
F	0' 0 1/4"	DNS	0' 0"	0' 0 1/8"	0' 0 1/8"	DNS	0' 0 3/8"	0' 0 3/8"	DNS
F-G	0' 0 1/8"	0' 0 1/4"	0' 0 1/4"	0' 0 1/4"	0' 0 -1/8"	0' 0 -3/4"	0' 0 -1/8"	0' 0 1/8"	0' 0 1/4"
G	0' 0 1/8"	0' 0"	0' 0 -1/2"	DNS	0' 0"	0' 0 -3/8"	0' 0"	0' 0 1/8"	0' 0 3/8"
G-H	0' 0 -1/2"	0' 0 -3/4"	0' 0"	0' 0 -3/8"	0' 0 -1/4"	0' 0 -5/8"	0' 0 -3/8"	0' 0 -1/4"	0' -8 -1/4"
H	0' 0 1/4"	0' 0 -5/8"	0' 0 1/8"	DNS	0' 0 -3/8"	0' 0 -1/2"	0' 0 3/8"	0' 0 1/8"	0' 0 1/8"
H-J	DNS	DNS	0' 0 -3/4"	0' 0 -1/4"	0' 0 -3/8"	0' -1 -1/8"	0' 0 -1/2"	0' 0 -3/8"	0' 0 1/8"
J	DNS	0' 0 -1/8"	0' 0 -1/8"	0' 0 -3/4"	0' 0 1/4"	0' 0 -5/8"	0' 7 1/8"	0' 7 1/4"	DNS
J-K	DNS	DNS	0' 0 -1/2"	0' 0 -3/8"	0' 0 -1/8"	0' 0 -1/2"	0' 0 -1/8"	0' 7"	0' 7 1/4"
K	DNS	0' 0 -1/8"	0' 0 1/2"	0' 0 -1/2"	0' 0 1/8"	0' 0 -3/8"	0' 7 1/4"	0' 7 3/8"	DNS
K-L	DNS	DNS	0' 0"	0' 0 -3/8"	0' 0 -1/4"	0' 0"	0' 0 -1/4"	0' 0"	0' 0 1/8"
L	DNS	DNS	DNS	DNS	0' 0 5/8"	0' 0 -1/4"	0' 0 3/4"	0' 0 3/8"	DNS
L-M	DNS	DNS	DNS	DNS	0' 1"	0' 0 -1/8"	0' 0 1/8"	0' 0 3/8"	0' 0 3/8"
M	DNS	DNS	DNS	DNS	0' 0 3/4"	0' 0 -1/4"	0' 0 3/8"	0' 0 3/8"	DNS
M-N	DNS	DNS	DNS	DNS	0' 0 -3/4"	0' 0 -3/4"	0' 0 -1/4"	0' 0 1/2"	0' 0 1/2"
N	DNS	DNS	DNS	DNS	0' 0 -1/4"	0' 0 -3/8"	0' 0 3/8"	0' 0 1/2"	0' 0 3/8"
N1	DNS	DNS	DNS	DNS	DNS	DNS	0' -1 -1/1"	0' 0 3/8"	0' 0 3/8"
O	DNS	DNS	DNS	0' -4 -1/2"	0' -3 -1/1"	0' -4 -1/4"	0' -4 -1/2"	DNS	DNS
	RELATIVE DIFFERENCES ARE IN FEET & INCHES					DNS = DID NOT SURVEY			

MONUMENTS SET			
GRID LINE E-W	*GRIDLINE N-S*	*DESCRIPTION*	*LOCATION*
C-D			
	10	Did Not Survey	No Proposed Location
	10A	Marker Dot	On Grid Line
	10A-11	Marker Dot	0.1' East of Wall
	11	Marker Dot	0.1' East and 0.73' North of Corner
	11--12	Marker Dot	On Grid Line
	12	Marker Dot	0.7' East and 0.55' South of Corner
	12-12A	Marker Dot	On Grid Line
	12A	Marker Dot	On Grid Line
	12A-13	Did Not Survey	No Proposed Location
	13	Did Not Survey	No Proposed Location
D			
	10	Did Not Survey	No Proposed Location
	10A	Marker Dot	On Grid Line
	10A-11	Marker Dot	On Grid Line
	11	Marker Dot	Moved to 4.0' West of Grid Line on Column CL
	11--12	Marker Dot	On Grid Line
	12	Marker Dot	On Grid Line
	12-12A	Marker Dot	Destroyed
	12A	Marker Dot	On Grid Line
	12A-13	Marker Dot	On Grid Line
	13	Marker Dot	On Grid Line
D-E			
	10	Did Not Survey	No Proposed Location
	10A	Marker Dot	On Grid Line
	10A-11	Marker Dot	On Grid Line
	11	Marker Dot	On Grid Line
	11--12	Marker Dot	On Grid Line
	12	Marker Dot	Moved to North Side of Wall on Grid Line
	12-12A	Marker Dot	On Grid Line
	12A	Marker Dot	On Grid Line
	12A-13	Marker Dot	On Grid Line
	13	Marker Dot	On Grid Line
E			
	10	Did Not Survey	No Proposed Location
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Marker Dot	Moved 4' East of Grid Line on Column CL
	11--12	Marker Dot	On Grid Line
	12	Marker Dot	On Grid Line
	12-12A	Did Not Survey	Immovable Kitchen Appliances
	12A	Marker Dot	Moved 2' West of Grid Line
	12A-13	Marker Dot	Moved 2' West of Grid Line
	13	Marker Dot	Moved 2' West of Grid Line
E-F			
	10	Did Not Survey	No Proposed Location
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Marker Dot	On Grid Line
	11--12	Marker Dot	On Grid Line
	12	Marker Dot	On Grid Line
	12-12A	Marker Dot	On Grid Line
	12A	Marker Dot	On Grid Line
	12A-13	Marker Dot	On Grid Line
	13	Marker Dot	On Grid Line
F			
	10	Did Not Survey	No Proposed Location
	10A	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Destroyed	Destroyed
	11	Marker Dot	Moved to South side of Column
	11--12	Marker Dot	On Grid Line
	12	Marker Dot	On Grid Line
	12-12A	Marker Dot	Destroyed
	12A	Marker Dot	On Grid Line
	12A-13	Marker Dot	On Grid Line
	13	Did Not Survey	Permanent Office Furniture

F-G			
	10	Did Not Survey	No Proposed Location
	10A	Marker Dot	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Marker Dot	On Grid Line
	11--12	Marker Dot	Moved North into Elec. Closet 1151
	12	Marker Dot	On Grid Line
	12-12A	Marker Dot	On Grid Line
	12A	Marker Dot	On Grid Line
	12A-13	Marker Dot	On Grid Line
	13	Marker Dot	On Grid Line
G			
	10	Did Not Survey	No Proposed Location
	10A	Marker Dot	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Marker Dot	Moved to South Side of Column
	11--12	Did Not Survey	No Proposed Location
	12	Marker Dot	On Grid Line
	12-12A	Marker Dot	On Grid Line
	12A	Marker Dot	Moved 2.8' West of Grid Line
	12A-13	Marker Dot	Moved 2.8' West of Grid Line
	13	Marker Dot	On Grid Line
G-H			
	10	Did Not Survey	No Proposed Location
	10A	Marker Dot	On Grid Line
	10A-11	Marker Dot	On Grid Line
	11	Marker Dot	On Grid Line
	11--12	Marker Dot	On Grid Line
	12	Marker Dot	On Grid Line
	12-12A	Marker Dot	On Grid Line
	12A	Marker Dot	On Grid Line
	12A-13	Marker Dot	On Grid Line
	13	Did Not Survey	No Proposed Location
H			
	10	Did Not Survey	No Proposed Location
	10A	Marker Dot	On Grid Line
	10A-11	Marker Dot	On Grid Line
	11	Marker Dot	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Marker Dot	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A-13	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
H-J			
	10	Did Not Survey	No Proposed Location
	10A	Marker Dot	Destroyed Due to Cleaning
	10A-11	Marker Dot	Destroyed Due to Cleaning
	11	Marker Dot	On Grid Line
	11--12	Marker Dot	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A-13	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
J			
	10	Did Not Survey	No Proposed Location
	10A	Marker Dot	Destroyed Due to Cleaning
	10A-11	Marker Dot	On Grid Line
	11	Marker Dot	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Raised Concrete Pad
	12A-13	Set 3/4" Pin w/ Washer	On Raised Concrete Pad
	13	Did Not Survey	No Proposed Location

J-K			
	10	Did Not Survey	No Proposed Location
	10A	Marker Dot	Destroyed Due to Cleaning
	10A-11	Marker Dot	Destroyed Due to Cleaning
	11	Marker Dot	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A-13	Set 3/4" Pin w/ Washer	On Raised Concrete Pad
	13	Set 3/4" Pin w/ Washer	On Raised Concrete Pad
K			
	10	Did Not Survey	No Proposed Location
	10A	Set 3/4" Pin w/ Washer	Point Was Destroyed
	10A-11	Marker Dot	On Grid Line
	11	Marker Dot	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Raised Concrete Pad
	12A-13	Set 3/4" Pin w/ Washer	On Raised Concrete Pad
	13	Did Not Survey	No Proposed Location
K-L			
	10	Did Not Survey	No Proposed Location
	10A	Did Not Survey	No Proposed Location
	10A-11	Did Not Survey	No Proposed Location
	11	Marker Dot	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Marker Dot	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A-13	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
L			
	10	Did Not Survey	No Proposed Location
	10A	Did Not Survey	No Proposed Location
	10A-11	Did Not Survey	No Proposed Location
	11	Did Not Survey	No Proposed Location
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A-13	Set 3/4" Pin w/ Washer	On Grid Line
	13	Did Not Survey	Permanent Office Furniture
L-M			
	10	Did Not Survey	No Proposed Location
	10A	Did Not Survey	No Proposed Location
	10A-11	Did Not Survey	No Proposed Location
	11	Did Not Survey	No Proposed Location
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On grid Line
	12-12A	Set 3/4" Pin w/ Washer	On grid Line
	12A	Set 3/4" Pin w/ Washer	On grid Line
	12A-13	Set 3/4" Pin w/ Washer	On grid Line
	13	Set 3/4" Pin w/ Washer	On grid Line
M			
	10	Did Not Survey	No Proposed Location
	10A	Did Not Survey	No Proposed Location
	10A-11	Did Not Survey	No Proposed Location
	11	Set 3/4" Pin w/ Washer	Did not Survey - Access Issues
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A-13	Set 3/4" Pin w/ Washer	On Grid Line
	13	Did Not Survey	Permanent Office Furniture

M-N			
	10	Did Not Survey	No Proposed Location
	10A	Did Not Survey	No Proposed Location
	10A-11	Did Not Survey	No Proposed Location
	11	Did Not Survey	No Access
	11--12	Did Not Survey	No Access
	12	Did Not Survey	No Proposed Location
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A-13	Set 3/4" Pin w/ Washer	On Grid Line
	13	Marker Dot	On Grid Line
N			
	10	Did Not Survey	No Proposed Location
	10A	Did Not Survey	No Proposed Location
	10A-11	Did Not Survey	No Proposed Location
	11	Did Not Survey	No Proposed Location
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A-13	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
N1			
	10	Did Not Survey	No Proposed Location
	10A	Did Not Survey	No Proposed Location
	10A-11	Did Not Survey	No Proposed Location
	11	Did Not Survey	No Proposed Location
	11--12	Did Not Survey	No Proposed Location
	12	Did Not Survey	No Proposed Location
	12-12A	Did Not Survey	No Proposed Location
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	12A-13	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line-Point was Located
O			
	10	Did Not Survey	No Proposed Location
	10A	Did Not Survey	No Proposed Location
	10A-11	Did Not Survey	No Proposed Location
	11	Did Not Survey	No Proposed Location
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A-1	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A-2	Set 3/4" Pin w/ Washer	On Grid Line
	12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Did Not Survey	No Proposed Location

GRID LINE ELEVATIONS

SECOND FLOOR

Benchmark Elevation = 169' 5 3/4"

ELEVATION				GRIDLINE N-S			
GRID LINE E-W	**10**	**10A-11**	**11**	**11--12**	**12**	**12-12A**	**13**
C	169' 6 1/8"	169' 5 1/2"	169' 5 3/4"	DNS	169' 5 7/8"	169' 5 1/4"	169' 6"
C-D	169' 5 5/8"	169' 5 3/8"	169' 5 1/4"	169' 5 5/8"	169' 5 1/4"	169' 5 1/4"	169' 5 3/4"
D	169' 5 5/8"	169' 5 1/8"	169' 5 5/8"	169' 5 3/4"	169' 5 3/8"	169' 4 1/2"	169' 5 7/8"
D-E	169' 5 5/8"	169' 5 1/4"	169' 5 5/8"	DNS	169' 5 7/8"	169' 5 1/8"	169' 5 3/4"
E	169' 5 5/8"	169' 4 5/8"	169' 5 7/8"	169' 6"	169' 5 7/8"	169' 4 1/2"	169' 5 1/2"
E-F	169' 5 3/4"	169' 5 1/8"	169' 5 3/4"	DNS	169' 6"	169' 4 7/8"	DNS
F	169' 5 7/8"	169' 4 3/4"	169' 6"	DNS	DNS	169' 4 1/4"	169' 6 1/8"
F-G	169' 5 3/4"	169' 5 5/8"	169' 6"	DNS	169' 5 7/8"	DNS	169' 5"
G	169' 5 7/8"	169' 4 1/2"	169' 6"	DNS	169' 6 1/2"	169' 5 5/8"	169' 6 1/4"
G-H	169' 5 3/8"	169' 4 3/4"	169' 5 1/4"	169' 6 5/8"	169' 6"	DNS	DNS
H	169' 5"	169' 4 3/8"	169' 5 3/8"	DNS	DNS	DNS	DNS
H-J	169' 5"	169' 5 1/8"	169' 5 1/2"	169' 5 5/8"	DNS	169' 4 5/8"	DNS
J	169' 5"	169' 4"	169' 5"	169' 5"	169' 4 7/8"	DNS	169' 5 1/4"
J-K	169' 5 1/4"	169' 4 5/8"	169' 4 3/8"	169' 4 3/8"	169' 4 1/2"	169' 4 1/2"	169' 5 1/8"
K	169' 5 3/4"	169' 5 5/8"	DNS	169' 4 3/4"	169' 5 1/2"	169' 4 3/8"	169' 5 1/4"
K-L	169' 5 1/8"	169' 5 3/4"	DNS	169' 4 7/8"	169' 5 1/4"	169' 4 7/8"	DNS
L	169' 5 1/4"	169' 5 3/8"	169' 6 1/4"	DNS	DNS	169' 4"	DNS
L-M	169' 5 1/4"	169' 5 1/2"	169' 6 1/8"	169' 5 7/8"	DNS	169' 4 3/8"	DNS
M	169' 5 3/4"	169' 5 1/4"	169' 6 5/8"	DNS	169' 5 1/2"	169' 4 1/8"	169' 5 7/8"
M-N	DNS	169' 5"	169' 5"	169' 5 1/4"	169' 5 1/8"	169' 5 1/4"	169' 5 1/4"
N	169' 5 1/4"	169' 4 7/8"	169' 5 1/8"	169' 5 1/4"	169' 5"	169' 5 3/8"	169' 5 3/4"
N1	169' 5 5/8"	169' 5 1/8"	169' 5 1/4"	169' 5"	169' 5 1/8"	169' 5 1/4"	DNS
O	169' 5 3/4"	DNS	169' 5 3/4"	169' 5 1/2"	169' 5 1/2"	169' 5 7/8"	169' 5 7/8"
	ELEVATION OF GRID POINTS IN FEET & INCHES					DNS = DID NOT SURVEY	

RELATIVE DIFF. FROM BENCH ELEV.				GRIDLINE N-S			
GRID LINE E-W	**10**	**10A-11**	**11**	**11--12**	**12**	**12-12A**	**13**
C	0' 0 3/8"	0' 0 -1/4"	0' 0"	DNS	0' 0 1/8"	0' 0 -1/2"	0' 0 1/4"
C-D	0' 0 -1/8"	0' 0 -3/8"	0' 0 -3/8"	0' 0 -1/8"	0' 0 -3/8"	0' 0 -3/8"	0' 0"
D	0' 0 -1/8"	0' 0 -5/8"	0' 0 -1/8"	0' 0"	0' 0 -3/8"	0' -1 -1/4"	0' 0 1/4"
D-E	0' 0 -1/8"	0' 0 -3/8"	0' 0 -1/8"	DNS	0' 0 1/8"	0' 0 -5/8"	0' 0"
E	0' 0 -1/8"	0' -1 -1/8"	0' 0 1/8"	0' 0 3/8"	0' 0 1/8"	0' -1 -1/4"	0' 0 -1/4"
E-F	0' 0"	0' 0 -5/8"	0' 0"	DNS	0' 0 1/4"	0' 0 -7/8"	DNS
F	0' 0 1/8"	0' -1"	0' 0 1/4"	DNS	DNS	0' -1 -1/2"	0' 0 3/8"
F-G	0' 0"	0' 0 -1/8"	0' 0 1/4"	DNS	0' 0 1/8"	DNS	0' 0 -3/4"
G	0' 0 1/8"	0' -1 -1/8"	0' 0 1/4"	DNS	0' 0 3/4"	0' 0 -1/8"	0' 0 1/2"
G-H	0' 0 -3/8"	0' 0 -1/1"	0' 0 -1/2"	0' 0 7/8"	0' 0 1/4"	DNS	DNS
H	0' 0 -3/4"	0' -1 -1/4"	0' 0 -3/8"	DNS	DNS	DNS	DNS
H-J	0' 0 -3/4"	0' 0 -5/8"	0' 0 -1/4"	0' 0 -1/8"	DNS	0' -1 -1/8"	DNS
J	0' 0 -3/4"	0' -1 -3/4"	0' 0 -3/4"	0' 0 -3/4"	0' 0 -7/8"	DNS	0' 0 -3/8"
J-K	0' 0 -3/8"	0' -1 -1/8"	0' -1 -1/4"	0' -1 -1/4"	0' -1 -1/8"	0' -1 -1/4"	0' 0 -5/8"
K	0' 0"	0' 0 -1/8"	DNS	0' 0 -1/1"	0' 0 -1/4"	0' -1 -3/8"	0' 0 -3/8"
K-L	0' 0 -5/8"	0' 0"	DNS	0' 0 -7/8"	0' 0 -1/2"	0' 0 -7/8"	DNS
L	0' 0 -3/8"	0' 0 -3/8"	0' 0 1/2"	DNS	DNS	0' -1 -3/4"	DNS
L-M	0' 0 -3/8"	0' 0 -1/4"	0' 0 3/8"	0' 0 1/8"	DNS	0' -1 -3/8"	DNS
M	0' 0"	0' 0 -1/2"	0' 0 7/8"	DNS	0' 0 -1/4"	0' -1 -5/8"	0' 0 1/8"
M-N	DNS	0' 0 -3/4"	0' 0 -3/4"	0' 0 -3/8"	0' 0 -1/2"	0' 0 -3/8"	0' 0 -1/2"
N	0' 0 -3/8"	0' 0 -7/8"	0' 0 -5/8"	0' 0 -1/2"	0' 0 -3/4"	0' 0 -3/8"	0' 0"
N1	0' 0 -1/8"	0' 0 -5/8"	0' 0 -3/8"	0' 0 -3/4"	0' 0 -5/8"	0' 0 -3/8"	DNS
O	0' 0"	DNS	0' 0"	0' 0 -1/4"	0' 0 -1/4"	0' 0 1/8"	0' 0 1/8"
	RELATIVE DIFFERENCES ARE IN FEET & INCHES					DNS = DID NOT SURVEY	

MONUMENTS SET			
GRID LINE E-W	*GRIDLINE N-S*	*DESCRIPTION*	*LOCATION*
C			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	Point Blocked
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Marker Dot	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
C-D			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
D			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Marker Dot	On Grid Line
	12-12A	Marker Dot	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
D-E			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	Point Destroyed
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
E			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to South Side of Column
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
E-F			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
F			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Marker Dot	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	Point Blocked
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line

F-G			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Marker Dot	On Grid Line
	11--12	NONE	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	Point Blocked
	13	Set 3/4" Pin w/ Washer	On Grid Line
G			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Marker Dot	On Grid Line
	11--12	NONE	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
G-H			
	10	Set 3/4" Pin w/ Washer	Moved 2' West of Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Marker Dot	On Grid Line
	11--12	Marker Dot	In Lobby 12.5' South & 8.9' West of Northeast Corner
	12	Marker Dot	In Lobby 7.1' North & 8.9' West of Southeast Corner
	12-12A	Did Not Survey	No Proposed Location
	13	Did Not Survey	No Proposed Location
H			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to South Side of Column
	11--12	Set 3/4" Pin w/ Washer	Point Was Destroyed
	12	Set 3/4" Pin w/ Washer	Point Blocked
	12-12A	Set 3/4" Pin w/ Washer	Point Blocked
	13	Set 3/4" Pin w/ Washer	Point Blocked
H-J			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	Point Blocked
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	Point Blocked
J			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	Point Blocked
	13	Set 3/4" Pin w/ Washer	On Grid Line
J-K			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line

GRID LINE ELEVATIONS

THIRD FLOOR

Benchmark Elevation = 181' 11 1/2"

ELEVATION				GRIDLINE N-S			
GRID LINE E-W	**10**	**10A-11**	**11**	**11--12**	**12**	**12-12A**	**13**
C	181' 11 1/4"	181' 10 3/8"	181' 11 1/4"	181' 10 7/8"	181' 11 1/4"	181' 10 1/2"	181' 11 3/4"
C-D	181' 11 3/8"	181' 9 3/4"	181' 10 1/2"	181' 10 1/2"	181' 10 3/8"	181' 9 7/8"	181' 11"
D	181' 10 3/4"	181' 8 7/8"	181' 10 3/4"	DNS	181' 10 7/8"	181' 9 3/8"	181' 11 3/4"
D-E	181' 10 5/8"	181' 9 1/2"	181' 10 3/4"	DNS	181' 11"	181' 9 3/4"	181' 11 1/2"
E	181' 11 1/4"	181' 9"	181' 10 7/8"	181' 10 3/4"	DNS	181' 9 1/4"	181' 11 3/8"
E-F	181' 11 1/2"	181' 9 1/4"	181' 11 1/4"	DNS	181' 11 3/4"	181' 9 5/8"	181' 11 1/2"
F	181' 10 7/8"	181' 8 3/8"	181' 11 1/4"	DNS	181' 11 1/2"	181' 9"	181' 11 1/8"
F-G	181' 11 3/8"	181' 9 5/8"	181' 11 1/4"	DNS	181' 11 3/4"	181' 9 3/4"	181' 10 7/8"
G	181' 10 3/4"	181' 9 1/8"	181' 11 5/8"	DNS	181' 12"	181' 9 3/4"	182' 0"
G-H	181' 11 3/8"	181' 10 3/4"	181' 11 5/8"	181' 11 3/4"	181' 11 3/4"	181' 11 1/2"	181' 11 7/8"
H	181' 11"	181' 10"	181' 11 1/2"	181' 11 7/8"	181' 11 1/2"	181' 10"	181' 11 5/8"
H-J	181' 11"	181' 9 3/4"	181' 11"	181' 11 1/2"	181' 10 3/4"	181' 9 3/8"	181' 10 5/8"
J	181' 11 1/2"	181' 9 3/4"	181' 11 1/8"	181' 10 5/8"	181' 11 1/4"	181' 9 1/4"	181' 11 1/4"
J-K	DNS	181' 10 7/8"	181' 11 5/8"	181' 11 1/8"	181' 11 3/8"	181' 10 5/8"	181' 12"
K	181' 11 3/8"	181' 9 1/2"	181' 11 1/8"	181' 10 3/4"	181' 11 3/8"	181' 9 3/8"	181' 11 1/2"
K-L	181' 11 1/2"	181' 10"	181' 11 3/4"	181' 11 1/4"	181' 11"	181' 10 1/8"	DNS
L	181' 11 3/8"	181' 9 1/4"	182' 0 3/8"	DNS	181' 11 1/2"	181' 9 3/4"	181' 11 3/8"
L-M	181' 11 1/2"	181' 9 3/4"	182' 0 1/4"	181' 12"	181' 11 1/4"	181' 10 1/4"	181' 11 3/8"
M	181' 11 3/8"	181' 9 1/2"	182' 0 1/8"	DNS	181' 11"	181' 9 1/4"	181' 11 1/4"
M-N	181' 11 3/8"	181' 10 1/8"	181' 11 1/8"	DNS	181' 10 5/8"	181' 10"	181' 11 1/8"
N	181' 11 3/8"	181' 10"	181' 11 1/8"	181' 10 7/8"	181' 10 7/8"	181' 10 1/8"	181' 11 1/2"
N1	181' 11 5/8"	181' 10 5/8"	DNS	181' 10 3/4"	181' 11"	181' 11 1/8"	181' 11 1/2"
O	181' 11 5/8"	181' 11 1/4"	181' 11 3/4"	181' 11 1/8"	181' 11 5/8"	181' 11 1/2"	181' 11 7/8"
	ELEVATION OF GRID POINTS IN FEET & INCHES					DNS = DID NOT SURVEY	

RELATIVE DIFF. FROM BENCH ELEV.				GRIDLINE N-S			
GRID LINE E-W	**10**	**10A-11**	**11**	**11--12**	**12**	**12-12A**	**13**
C	0' 0 -3/8"	0' -1 -1/8"	0' 0 -3/8"	0' 0 -5/8"	0' 0 -3/8"	0' -1"	0' 0 1/8"
C-D	0' 0 -1/8"	0' -1 -3/4"	0' -1 -1/8"	0' -1 -1/8"	0' -1 -1/8"	0' -1 -3/4"	0' 0 -1/2"
D	0' 0 -3/4"	0' -2 -5/8"	0' 0 -3/4"	DNS	0' 0 -3/4"	0' -2 -1/8"	0' 0 1/8"
D-E	0' 0 -7/8"	0' -2"	0' 0 -3/4"	DNS	0' 0 -5/8"	0' -1 -3/4"	0' 0 -1/8"
E	0' 0 -3/8"	0' -2 -1/2"	0' 0 -5/8"	0' 0 -7/8"	DNS	0' -2 -1/4"	0' 0 -1/4"
E-F	0' 0"	0' -2 -3/8"	0' 0 -3/8"	DNS	0' 0 1/4"	0' -1 -1/1"	0' 0"
F	0' 0 -3/4"	0' -3 -1/4"	0' 0 -1/4"	DNS	0' 0"	0' -2 -5/8"	0' 0 -1/2"
F-G	0' 0 -1/4"	0' -1 -1/1"	0' 0 -3/8"	DNS	0' 0 1/4"	0' -1 -3/4"	0' 0 -5/8"
G	0' 0 -3/4"	0' -2-1/2"	0' 0 1/8"	DNS	0' 0 3/8"	0' -1 -3/4"	0' 0 1/2"
G-H	0' 0 -1/8"	0' 0 -7/8"	0' 0 1/8"	0' 0 1/8"	0' 0 1/4"	0' 0 -1/8"	0' 0 3/8"
H	0' 0 -5/8"	0' -1 -1/2"	0' 0 -1/8"	0' 0 1/4"	0' 0 -1/8"	0' -1 -5/8"	0' 0"
H-J	0' 0 -1/2"	0' -1 -3/4"	0' 0 -5/8"	0' 0 -1/8"	0' 0 -3/4"	0' -2 -1/8"	0' 0 -1/1"
J	0' 0 -1/8"	0' -1 -3/4"	0' 0 -1/2"	0' 0 -1/1"	0' 0 -1/4"	0' -2 -3/8"	0' 0 -3/8"
J-K	DNS	0' 0 -5/8"	0' 0"	0' 0 -3/8"	0' 0 -1/4"	0' 0 -1/1"	0' 0 3/8"
K	0' 0 -1/8"	0' -2"	0' 0 -1/2"	0' 0 -3/4"	0' 0 -1/4"	0' -2 -1/4"	0' 0"
K-L	0' 0"	0' -1 -1/2"	0' 0 1/4"	0' 0 -3/8"	0' 0 -1/2"	0' -1 -3/8"	DNS
L	0' 0 -1/8"	0' -2 -3/8"	0' 0 7/8"	DNS	0' 0 -1/8"	0' -1 -3/4"	0' 0 -1/4"
L-M	0' 0 -1/8"	0' -1 -3/4"	0' 0 3/4"	0' 0 3/8"	0' 0 -3/8"	0' -1 -3/8"	0' 0 -1/4"
M	0' 0 -1/4"	0' -2"	0' 0 5/8"	DNS	0' 0 -1/2"	0' -2 -1/4"	0' 0 -3/8"
M-N	0' 0 -1/4"	0' -1 -3/8"	0' 0 -3/8"	DNS	0' 0 -1/1"	0' -1 -1/2"	0' 0 -1/2"
N	0' 0 -1/4"	0' -1 -5/8"	0' 0 -1/2"	0' 0 -3/4"	0' 0 -5/8"	0' -1 -3/8"	0' 0 -1/8"
N1	0' 0 1/8"	0' 0 -7/8"	DNS	0' 0 -7/8"	0' 0 -1/2"	0' 0 -1/2"	0' 0 -1/8"
O	0' 0 1/8"	0' 0 -3/8"	0' 0 1/4"	0' 0 -1/2"	0' 0 1/8"	0' 0 -1/8"	0' 0 3/8"
	RELATIVE DIFFERENCES ARE IN FEET & INCHES					DNS = DID NOT SURVEY	

MONUMENTS SET			
GRID LINE E-W	*GRIDLINE N-S*	*DESCRIPTION*	*LOCATION*
C			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to South Side of Column
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
C-D			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
D			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Access-Rolling File Room
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
D-E			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Access-Rolling File Room
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
E			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	No Access
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
E-F			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
F			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
F-G			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line

	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
G			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
G-H			
	10	Set 3/4" Pin w/ Washer	On Grid Line-Point was Located
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
H			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	Moved to West Side of Wall in Office RM
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Marker Dot	On Grid Line
	12-12A	Marker Dot	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
H-J			
	10	Set 3/4" Pin w/ Washer	Moved 2.4' West along Wall
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
J			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line - Point was Located
J-K			
	10	Did Not Survey	Permanent Office Furniture
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to North Side of Wall on Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	Moved East to Northwest Corner of Office RM 3233
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line-Point Was Located
K			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to Southeast Corner of Staff RM 3273
	11--12	Set 3/4" Pin w/ Washer	Moved West into Mens Room
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
K-L			
	10	Set 3/4" Pin w/ Washer	Moved 2.3' West
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Marker Dot	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Did Not Survey	Permanent Office Furniture

L			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to Southeast Corner of Office RM 3265
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	Moved 4' West of Column
L-M			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Marker Dot	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
M			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	Moved to Southeast Corner of Column
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
M-N			
	10	Set 3/4" Pin w/ Washer	Moved to East side of Wall in Staff RM 3288
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	Point was Destroyed
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	Moved 2' East of Wall in RM 3208
N			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
N1			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Did Not Survey	Permanent Office Furniture
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
O			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line

L			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to Southeast Corner of Office RM 3265
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	Moved 4' West of Column
L-M			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Marker Dot	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
M			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	Moved to Southeast Corner of Column
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
M-N			
	10	Set 3/4" Pin w/ Washer	Moved to East side of Wall in Staff RM 3288
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	Point was Destroyed
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	Moved 2' East of Wall in RM 3208
N			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
N1			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Did Not Survey	Permanent Office Furniture
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
O			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line

GRID LINE ELEVATIONS

FOURTH FLOOR

Benchmark Elevation = 194' 5 5/8"

ELEVATION				GRIDLINE N-S			
GRID LINE E-W	**10**	**10A-11**	**11**	**11--12**	**12**	**12-12A**	**13**
C	194' 5 3/8"	194' 4"	194' 5 1/4"	194' 4 5/8"	194' 5 1/4"	194' 3 7/8"	194' 5 3/8"
C-D	194' 5 1/4"	194' 3 5/8"	194' 4 5/8"	194' 4 5/8"	194' 4 1/2"	194' 3 1/2"	194' 5"
D	194' 5 3/8"	194' 3 1/4"	194' 5 1/2"	194' 4 5/8"	194' 5 1/8"	194' 3 3/8"	194' 5 1/4"
D-E	194' 5 1/2"	194' 3 7/8"	194' 5 1/4"	194' 5"	194' 4 7/8"	194' 3 3/4"	194' 5 1/8"
E	194' 5 1/8"	194' 3 1/8"	194' 4 3/4"	194' 5"	DNS	DNS	194' 5"
E-F	194' 5 1/4"	194' 4"	194' 5 1/8"	DNS	194' 5 1/2"	194' 3 1/2"	DNS
F	194' 5"	194' 3 1/4"	194' 5 1/2"	DNS	194' 6 1/8"	194' 2 1/2"	194' 4 7/8"
F-G	194' 4 3/4"	194' 3 3/4"	194' 5 5/8"	DNS	194' 5 7/8"	194' 3 5/8"	194' 5"
G	194' 5 1/4"	194' 3 3/8"	194' 5 1/2"	DNS	194' 5 5/8"	194' 3 3/4"	194' 5 3/8"
G-H	194' 5 3/8"	194' 5"	194' 6"	194' 5 3/4"	194' 6"	194' 5 1/2"	194' 5"
H	194' 5"	194' 3 3/4"	194' 5 1/4"	194' 5 1/8"	194' 5"	194' 3 3/8"	194' 5 5/8"
H-J	194' 4 1/2"	194' 3 1/4"	194' 4 5/8"	194' 4 5/8"	194' 4"	194' 3"	194' 4"
J	194' 5"	194' 3 5/8"	194' 5"	194' 4 3/8"	194' 4 5/8"	194' 3 1/4"	194' 5 1/4"
J-K	194' 5 3/8"	194' 4 1/2"	194' 4 7/8"	194' 4 5/8"	194' 5"	194' 4 1/4"	194' 5 1/8"
K	194' 5 1/4"	194' 3 1/4"	194' 4 1/2"	194' 4 1/2"	194' 4 3/4"	194' 3 1/8"	194' 5 1/2"
K-L	194' 5 1/4"	194' 3 3/8"	194' 4 3/4"	194' 4 3/4"	194' 4 3/4"	194' 4"	194' 4 5/8"
L	194' 4 3/4"	194' 2 3/4"	194' 5 1/8"	DNS	194' 5 3/8"	194' 3 7/8"	194' 5"
L-M	DNS	194' 3 3/4"	194' 5 1/2"	194' 5 5/8"	194' 5 1/8"	194' 4 1/4"	194' 5 1/8"
M	194' 5 1/4"	194' 3 1/2"	194' 6 3/8"	DNS	194' 5"	194' 3 5/8"	194' 5 1/2"
M-N	194' 5"	194' 4"	194' 5 1/4"	194' 5 1/2"	DNS	194' 4"	DNS
N	194' 4 5/8"	194' 4"	194' 4 3/4"	194' 4 1/2"	194' 4 5/8"	194' 4"	194' 5 1/2"
N1	194' 5 1/8"	194' 4 7/8"	194' 5"	194' 4 3/4"	194' 4 3/4"	194' 4 3/4"	194' 5 5/8"
O	194' 6"	194' 5 1/8"	194' 5 3/8"	194' 5 1/4"	194' 5 1/4"	194' 5 1/4"	194' 6"
	ELEVATION OF GRID POINTS IN FEET & INCHES					DNS = DID NOT SURVEY	

RELATIVE DIFF. FROM BENCH ELEV.				GRIDLINE N-S			
GRID LINE E-W	**10**	**10A-11**	**11**	**11--12**	**12**	**12-12A**	**13**
C	0' 0 -1/4"	0' -1 -5/8"	0' 0 -1/2"	0' -1"	0' 0 -1/2"	0' -1 -3/4"	0' 0 -3/8"
C-D	0' 0 -1/2"	0' -2"	0' -1"	0' -1"	0' -1 -1/8"	0' -2 -1/8"	0' 0 -5/8"
D	0' 0 -3/8"	0' -2 -3/8"	0' 0 -1/4"	0' -1 -1/8"	0' 0 -5/8"	0' -2 -1/4"	0' 0 -3/8"
D-E	0' 0 -1/8"	0' -1 -3/4"	0' 0 -3/8"	0' 0 -3/4"	0' 0 -3/4"	0' -1 -7/8"	0' 0 -1/2"
E	0' 0 -1/2"	0' -2 -1/2"	0' 0 -7/8"	0' 0 -3/4"	DNS	DNS	0' 0 -5/8"
E-F	0' 0 -1/2"	0' -1 -3/4"	0' 0 -1/2"	DNS	0' 0 -1/8"	0' -2 -1/4"	DNS
F	0' 0 -5/8"	0' -2 -1/2"	0' 0 -1/4"	DNS	0' 0 3/8"	0' -3 -1/4"	0' 0 -3/4"
F-G	0' 0 -7/8"	0' -1 -7/8"	0' 0 -1/8"	DNS	0' 0 1/8"	0' -2 -1/8"	0' 0 -3/4"
G	0' 0 -3/8"	0' -2 -3/8"	0' 0 -1/8"	DNS	0' 0 -1/8"	0' -1 -1/1"	0' 0 -3/8"
G-H	0' 0 -3/8"	0' 0 -3/4"	0' 0 1/4"	0' 0"	0' 0 1/4"	0' 0 -1/4"	0' 0 -3/4"
H	0' 0 -5/8"	0' -1 -7/8"	0' 0 -1/2"	0' 0 -1/2"	0' 0 -5/8"	0' -2 -3/8"	0' 0 -1/8"
H-J	0' -1 -1/8"	0' -2 -1/2"	0' -1 -1/8"	0' -1 -1/8"	0' -1 -5/8"	0' -2 -3/4"	0' -1 -3/4"
J	0' 0 -5/8"	0' -2 -1/8"	0' 0 -5/8"	0' -1 -1/4"	0' -1 -1/8"	0' -2 -1/2"	0' 0 -1/2"
J-K	0' 0 -3/8"	0' -1 -1/8"	0' 0 -3/4"	0' -1"	0' 0 -5/8"	0' -1 -3/8"	0' 0 -1/2"
K	0' 0 -1/2"	0' -2 -3/8"	0' -1 -1/8"	0' -1 -1/8"	0' 0 -7/8"	0' -2 -5/8"	0' 0 -1/8"
K-L	0' 0 -3/8"	0' -2 -3/8"	0' 0 -7/8"	0' 0 -7/8"	0' 0 -1/1"	0' -1 -5/8"	0' -1"
L	0' 0 -7/8"	0' -2 -1/1"	0' 0 -1/2"	DNS	0' 0 -3/8"	0' -1 -3/4"	0' 0 -5/8"
L-M	DNS	0' -1 -7/8"	0' 0 -1/8"	0' 0 -1/8"	0' 0 -1/2"	0' -1 -3/8"	0' 0 -5/8"
M	0' 0 -3/8"	0' -2 -1/4"	0' 0 5/8"	DNS	0' 0 -5/8"	0' -2 -1/8"	0' 0 -1/4"
M-N	0' 0 -3/4"	0' -1 -3/4"	0' 0 -3/8"	0' 0 -1/4"	DNS	0' -1 -3/4"	DNS
N	0' -1"	0' -1 -5/8"	0' 0 -7/8"	0' -1 -1/8"	0' -1"	0' -1 -5/8"	0' 0 -1/8"
N1	0' 0 -1/2"	0' 0 -3/4"	0' 0 -3/4"	0' 0 -7/8"	0' 0 -7/8"	0' 0 -1/1"	0' 0"
O	0' 0 3/8"	0' 0 -1/2"	0' 0 -3/8"	0' 0 -3/8"	0' 0 -3/8"	0' 0 -1/2"	0' 0 3/8"
	RELATIVE DIFFERENCES ARE IN FEET & INCHES					DNS = DID NOT SURVEY	

MONUMENTS SET			
GRID LINE E-W	*GRIDLINE N-S*	*DESCRIPTION*	*LOCATION*
C			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to East Side of Column
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
C-D			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	Moved 2.4' West
D			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
D-E			
	10	Set 3/4" Pin w/ Washer	Moved to Northeast Corner of RM 4195
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to West Side of Wall in RM 4175
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	Moved 3' West
E			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	Moved North 4' Along Grid Line
	12	Did Not Survey	Permanent Office Furniture
	12-12A	Set 3/4" Pin w/ Washer	Point was Destroyed
	13	Set 3/4" Pin w/ Washer	On Grid Line
E-F			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Did Not Survey	Permanent Office Furniture
F			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to South Side of Column
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	Moved 2.2' East
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line

F-G			
	10	Set 3/4" Pin w/ Washer	Moved 4' South
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to South side of Wall on Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
G			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
G-H			
	10	Set 3/4" Pin w/ Washer	Moved 3.5' South
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
H			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	Move to North Side of Column
H-J			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
J			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Marker Dot	Moved 2.0' South Along Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
J-K			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to North Side of Wall on Grid Line
	11--12	Marker Dot	Moved 2.0' South Along Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line

K			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved 2' West of Column
	11--12	Set 3/4" Pin w/ Washer	Moved West into Mens Room
	12	Set 3/4" Pin w/ Washer	Moved to North Side of Wall on Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
K-L			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved 2.5' West
	11--12	Marker Dot	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line-Point Located
L			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved 2.2' North along Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
L-M			
	10	Did Not Survey	Permanent Office Furniture
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved 2.2' North along Grid Line
	11--12	Marker Dot	On Grid Line
	12	Set 3/4" Pin w/ Washer	Moved to North Side of Wall on Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
M			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	Moved to East Side of Column
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
M-N			
	10	Set 3/4" Pin w/ Washer	Moved to Northwest Corner of RM 4298
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Did Not Survey	Permanent Office Furniture
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	Point was Destroyed
N			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	Moved 2' South along Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line

N1			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to South side of Wall on Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
O			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	Moved 2' West
	11	Set 3/4" Pin w/ Washer	Moved to South side of Wall on Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	Moved 2' West
	13	Set 3/4" Pin w/ Washer	On Grid Line

GRID LINE ELEVATIONS

FIFTH FLOOR

Benchmark Elevation = 206' 11 3/4"

ELEVATION				*GRIDLINE N-S*			
GRID LINE E-W	**10**	**10A-11**	**11**	**11--12**	**12**	**12-12A**	**13**
C	DNS	206' 9 7/8"	206' 11 1/4"	206' 11 1/4"	206' 10 7/8"	206' 10 1/8"	206' 11 1/2"
C-D	206' 10 3/8"	206' 9 1/2"	206' 10 1/4"	206' 10 3/4"	206' 10 1/2"	206' 9 7/8"	206' 11 1/8"
D	206' 11"	206' 9"	206' 11"	206' 10 1/8"	206' 10 1/2"	206' 8 5/8"	206' 11 1/4"
D-E	206' 10 7/8"	206' 9 3/4"	206' 11"	206' 11"	206' 10 5/8"	206' 9 1/4"	206' 10 1/2"
E	206' 11"	206' 8 3/4"	206' 10 5/8"	206' 11"	206' 10 5/8"	206' 8 3/8"	206' 11"
E-F	206' 11"	206' 9 1/2"	206' 10 7/8"	DNS	206' 10 3/4"	206' 9 5/8"	206' 10 7/8"
F	206' 11 1/4"	206' 8 5/8"	206' 10 3/4"	DNS	206' 11 1/4"	206' 8 1/8"	206' 11 1/8"
F-G	206' 10 7/8"	206' 9 1/4"	206' 11 1/8"	DNS	206' 11 5/8"	206' 8 7/8"	206' 10 1/2"
G	206' 10 7/8"	206' 8 7/8"	206' 10 7/8"	DNS	206' 11 5/8"	206' 8 7/8"	206' 11"
G-H	DNS	206' 10"	206' 11"	206' 11 1/2"	206' 11 5/8"	206' 10 7/8"	206' 10 5/8"
H	DNS	206' 8 7/8"	206' 10 1/2"	206' 10 7/8"	206' 10 5/8"	206' 8 7/8"	206' 11"
H-J	206' 10 3/8"	206' 9 1/8"	206' 10 1/4"	206' 10 3/8"	206' 9 7/8"	206' 8 3/8"	206' 9 3/4"
J	206' 11"	206' 8 3/4"	206' 10 1/2"	206' 10 3/8"	206' 10 1/4"	206' 8 3/4"	206' 10 3/4"
J-K	206' 11 1/8"	206' 9 7/8"	206' 11"	206' 11 1/8"	206' 10 7/8"	206' 10"	206' 10 7/8"
K	206' 10 5/8"	206' 8 3/4"	206' 10 1/2"	206' 10 7/8"	206' 10 7/8"	206' 9"	206' 10 7/8"
K-L	206' 11"	206' 8 7/8"	206' 10 3/4"	206' 11 1/8"	206' 10 5/8"	206' 10 1/8"	206' 10 3/4"
L	206' 10 5/8"	206' 7 3/4"	206' 11 1/2"	DNS	DNS	206' 9 3/8"	206' 10 7/8"
L-M	206' 11 1/8"	206' 8 5/8"	206' 11 5/8"	206' 11 3/4"	DNS	206' 9 5/8"	206' 10 3/4"
M	206' 10 3/4"	206' 8 5/8"	207' 0 1/2"	DNS	206' 10 1/2"	206' 8 3/4"	206' 11"
M-N	206' 10 1/2"	206' 9 7/8"	206' 10 7/8"	206' 11 1/4"	206' 10 5/8"	206' 9 7/8"	206' 11 1/8"
N	206' 11 1/4"	206' 10 1/4"	206' 11 1/8"	206' 10 1/4"	206' 10 1/2"	DNS	206' 11 1/4"
N1	206' 11 1/4"	206' 10 3/4"	206' 11 1/8"	206' 10 7/8"	206' 10 7/8"	206' 10 1/4"	206' 11 1/8"
O	207' 0"	DNS	206' 11 1/8"	206' 10 7/8"	206' 11 1/8"	206' 10 7/8"	206' 11 5/8"
	ELEVATION OF GRID POINTS IN FEET & INCHES					DNS = DID NOT SURVEY	

RELATIVE DIFF. FROM BENCH ELEV.				*GRIDLINE N-S*			
GRID LINE E-W	**10**	**10A-11**	**11**	**11--12**	**12**	**12-12A**	**13**
C	DNS	0' -1 -1/1"	0' 0 -1/2"	0' 0 -5/8"	0' 0 -7/8"	0' -1 -5/8"	0' 0 -1/4"
C-D	0' -1 -3/8"	0' -2 -1/4"	0' -1 -1/2"	0' -1 -1/8"	0' -1 -1/4"	0' -1 -1/1"	0' 0 -5/8"
D	0' 0 -7/8"	0' -2 -3/4"	0' 0 -7/8"	0' -1 -5/8"	0' -1 -1/4"	0' -3 -1/8"	0' 0 -5/8"
D-E	0' 0 -1/1"	0' -2"	0' 0 -7/8"	0' 0 -3/4"	0' -1 -1/8"	0' -2 -5/8"	0' -1 -1/4"
E	0' 0 -7/8"	0' -3"	0' -1 -1/8"	0' 0 -3/4"	0' -1 -1/8"	0' -3 -3/8"	0' 0 -3/4"
E-F	0' 0 -7/8"	0' -2 -3/8"	0' 0 -1/1"	DNS	0' -1"	0' -2 -1/4"	0' 0 -1/1"
F	0' 0 -5/8"	0' -3 -1/4"	0' -1 -1/8"	DNS	0' 0 -1/2"	0' -3 -3/4"	0' 0 -5/8"
F-G	0' 0 -1/1"	0' -2 -5/8"	0' 0 -3/4"	DNS	0' 0 -1/4"	0' -2 -7/8"	0' -1 -3/8"
G	0' 0 -1/1"	0' -2 -1/1"	0' 0 -1/1"	DNS	0' 0 -1/8"	0' -2 -1/1"	0' 0 -3/4"
G-H	DNS	0' -1 -3/4"	0' 0 -7/8"	0' 0 -3/8"	0' 0 -1/8"	0' 0 -1/1"	0' -1 -1/8"
H	DNS	0' -2 -7/8"	0' -1 -1/4"	0' 0 -1/1"	0' -1 -1/8"	0' -2 -7/8"	0' 0 -3/4"
H-J	0' -1 -3/8"	0' -2 -5/8"	0' -1 -1/2"	0' -1 -3/8"	0' -1 -7/8"	0' -3 -3/8"	0' -2 -1/8"
J	0' 0 -3/4"	0' -3 -1/8"	0' -1 -1/4"	0' -1 -1/2"	0' -1 -1/2"	0' -3 -1/8"	0' -1 -1/8"
J-K	0' 0 -5/8"	0' -1 -7/8"	0' 0 -7/8"	0' 0 -5/8"	0' 0 -1/1"	0' -1 -7/8"	0' 0 -7/8"
K	0' -1 -1/8"	0' -3 -1/8"	0' -1 -3/8"	0' 0 -1/1"	0' 0 -1/1"	0' -2 -3/4"	0' 0 -1/1"
K-L	0' 0 -7/8"	0' -2 -1/1"	0' -1 -1/8"	0' 0 -5/8"	0' -1 -1/8"	0' -1 -3/4"	0' -1 -1/8"
L	0' -1 -1/8"	0' -4"	0' 0 -1/4"	DNS	DNS	0' -2 -1/2"	0' 0 -1/1"
L-M	0' 0 -5/8"	0' -3 -1/4"	0' 0 -1/8"	0' 0 -1/8"	DNS	0' -2 -1/4"	0' -1 -1/8"
M	0' -1 -1/8"	0' -3 -1/4"	0' 0 3/4"	DNS	0' -1 -3/8"	0' -3 -1/8"	0' 0 -7/8"
M-N	0' -1 -3/8"	0' -1 -7/8"	0' 0 -1/1"	0' 0 -1/2"	0' -1 -1/4"	0' -1 -7/8"	0' 0 -3/4"
N	0' 0 -1/2"	0' -1 -5/8"	0' 0 -3/4"	0' -1 -1/2"	0' -1 -1/4"	DNS	0' 0 -1/2"
N1	0' 0 -1/2"	0' -1 -1/8"	0' 0 -5/8"	0' 0 -1/1"	0' 0 -1/1"	0' -1 -1/2"	0' 0 -5/8"
O	0' 0 1/4"	DNS	0' 0 -5/8"	0' 0 -1/1"	0' 0 -3/4"	0' 0 -7/8"	0' 0 -1/4"
	RELATIVE DIFFERENCES ARE IN FEET & INCHES					DNS = DID NOT SURVEY	

MONUMENTS SET			
GRID LINE E-W	*GRIDLINE N-S*	*DESCRIPTION*	*LOCATION*
C			
	10	Destroyed	Destroyed
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	Destroyed
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
C-D			
	10	Set 3/4" Pin w/ Washer	Moved to Northeast Corner of RM 5196
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	Destroyed
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
D			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
D-E			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
E			
	10	Set 3/4" Pin w/ Washer	Moved to Southwest Corner of Column
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	Moved 1.5' East
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
E-F			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
F			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Marker Dot	Moved to West Side of Column
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line

F-G			
	10	Set 3/4" Pin w/ Washer	Moved to Northeast Corner of RM 5192
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
G			
	10	Set 3/4" Pin w/ Washer	Moved to Southwest Corner of Column
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
G-H			
	10	Did Not Survey	Permanent Office Furniture
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	Moved to West Side of Wall in RM 5210
	13	Set 3/4" Pin w/ Washer	Moved to West Side of Wall in RM 5200
H			
	10	Set 3/4" Pin w/ Washer	Point Destroyed
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
H-J			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
J			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
J-K			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to North Side of Wall on Grid Line
	11--12	Marker Dot	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line

K			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	Moved West into Mens Room
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
K-L			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Marker Dot	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	Moved 2' North along Grid Line
	13	Marker Dot	Moved to Southwest Corner of RM 5205
L			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	Moved to West Side of Wall in RM 5274
	11	Set 3/4" Pin w/ Washer	Moved to West Side of Wall in RM 5274
	11--12	Did Not Survey	No Proposed Location
	12	Did Not Survey	No Access
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
L-M			
	10	Set 3/4" Pin w/ Washer	Moved to West Side of Wall in RM 4290
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved 2.2' North along Grid Line
	11--12	Marker Dot	On Grid Line
	12	Did Not Survey	No Access
	12-12A	Set 3/4" Pin w/ Washer	Moved 2' South along Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
M			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	Moved to West Side of Wall in RM 5274
	11	Set 3/4" Pin w/ Washer	Moved 3.5' South into RM 5258
	11--12	Did Not Survey	No Proposed Location
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
M-N			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to South side of Wall on Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
N			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	On Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	Destroyed
	13	Set 3/4" Pin w/ Washer	On Grid Line

N1			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Set 3/4" Pin w/ Washer	On Grid Line
	11	Set 3/4" Pin w/ Washer	Moved to South side of Wall on Grid Line
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line
O			
	10	Set 3/4" Pin w/ Washer	On Grid Line
	10A-11	Did Not Survey	Permanent Office Furniture
	11	Set 3/4" Pin w/ Washer	Moved 2.5' West
	11--12	Set 3/4" Pin w/ Washer	On Grid Line
	12	Set 3/4" Pin w/ Washer	On Grid Line
	12-12A	Set 3/4" Pin w/ Washer	On Grid Line
	13	Set 3/4" Pin w/ Washer	On Grid Line

GRID LINE ELEVATIONS

BOTTOM OF ROOF SLAB

Benchmark Elevation = FIFTH FLOOR PLUS MEASURE UP

BOTTOM OF SLAB				*GRIDLINE N-S*			
GRID LINE E-W	**10**	**10A**	**11**	**11--12**	**12**	**12A**	**13**
C	DNS	219' 0 3/4"	219' 2 3/8"	219' 2 3/4"	DNS	219' 1 1/8"	219' 3"
C-D	219' 1 1/2"	218' 8 5/8"	218' 11 1/4"	219' 1 7/8"	218' 11 5/8"	218' 10 3/4"	219' 2 3/4"
D	219' 1 3/4"	218' 7 5/8"	218' 9 7/8"	219' 2 1/8"	218' 9 7/8"	218' 6 5/8"	219' 1 7/8"
D-E	219' 1 3/4"	218' 9 3/4"	218' 11"	219' 2 1/2"	218' 11"	218' 10 3/8"	219' 1 3/8"
E	219' 1 5/8"	218' 6 1/4"	219' 2 1/4"	DNS	219' 2 1/4"	219' 0 1/2"	219' 1 5/8"
E-F	219' 2 1/2"	218' 9 1/8"	218' 11 3/4"	DNS	218' 5 1/2"	218' 10 1/8"	219' 2"
F	219' 2 3/4"	218' 6"	218' 10 1/2"	DNS	218' 11 1/4"	218' 8 1/4"	219' 1 3/4"
F-G	219' 2 5/8"	218' 7 7/8"	218' 10 1/8"	DNS	219' 0"	218' 8 5/8"	219' 3"
G	219' 2 3/8"	218' 10 7/8"	219' 1 3/4"	DNS	219' 2 1/2"	218' 11 5/8"	219' 2 3/8"
G-H	DNS	218' 9 3/8"	218' 11 1/8"	219' 3 1/4"	DNS	218' 10 1/8"	219' 1 1/8"
H	DNS	218' 7 1/4"	218' 10 1/4"	219' 1 5/8"	218' 10 3/8"	218' 7 5/8"	219' 3"
H-J	219' 1 7/8"	218' 9 5/8"	218' 10 3/4"	219' 1 1/4"	218' 10 1/4"	218' 9 1/4"	219' 1"
J	219' 1 3/4"	218' 12"	219' 2"	219' 2 1/8"	219' 2 1/8"	219' 0"	219' 1 3/4"
J-K	219' 2 5/8"	218' 9 7/8"	218' 11 7/8"	219' 3 1/2"	218' 11 1/2"	218' 10"	219' 1 3/8"
K	219' 1 5/8"	218' 6 1/2"	218' 9 7/8"	DNS	218' 9 7/8"	218' 7 1/4"	219' 1 3/4"
K-L	219' 2 3/4"	218' 8 1/8"	218' 11"	DNS	218' 10 1/4"	218' 10 1/4"	219' 2 1/4"
L	219' 1 7/8"	219' 1"	219' 2 1/2"	DNS	DNS	219' 0 3/8"	219' 1 5/8"
L-M	219' 2 1/2"	218' 9 1/2"	219' 0 1/8"	219' 3 1/4"	DNS	218' 10 3/8"	219' 2 1/8"
M	219' 1 5/8"	218' 7 1/8"	219' 0 1/2"	DNS	218' 10 3/8"	218' 7 3/4"	219' 2"
M-N	219' 1 3/8"	218' 10"	218' 11 1/8"	219' 3 1/2"	218' 10 5/8"	218' 8 3/4"	219' 3"
N	219' 0 3/4"	219' 1 1/2"	219' 2 7/8"	219' 2 1/2"	219' 2"	DNS	219' 3 1/8"
N1	219' 5 1/8"	219' 6 7/8"	219' 5"	219' 5 1/4"	219' 5 1/8"	219' 3 3/4"	219' 5 7/8"
O	219' 9"	DNS	219' 7 3/8"	219' 7 5/8"	219' 7 5/8"	219' 7 3/8"	219' 8 1/4"
	BOTTOM OF ROOF SLAB IN FEET & INCHES					DNS = DID NOT SURVEY	

MONUMENTS SET			
GRID LINE E-W	*GRIDLINE N-S*	*DESCRIPTION*	*LOCATION*
C			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
C-D			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
D			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
D-E			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
E			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
E-F			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	see Fifth Floor Monument Locations
	11	No Monument Set	see Fifth Floor Monument Locations
	11--12	No Monument Set	see Fifth Floor Monument Locations
	12	No Monument Set	see Fifth Floor Monument Locations
	12-12A	No Monument Set	see Fifth Floor Monument Locations
	13	No Monument Set	see Fifth Floor Monument Locations
F			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations

F-G			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
G			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
G-H			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
H			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
H-J			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
J			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
J-K			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
K			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations

K-L			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
L			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
L-M			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
M			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
M-N			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
N			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations

N1			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations
O			
	10	No Monument Set	See Fifth Floor Monument Locations
	10A-11	No Monument Set	See Fifth Floor Monument Locations
	11	No Monument Set	See Fifth Floor Monument Locations
	11--12	No Monument Set	See Fifth Floor Monument Locations
	12	No Monument Set	See Fifth Floor Monument Locations
	12-12A	No Monument Set	See Fifth Floor Monument Locations
	13	No Monument Set	See Fifth Floor Monument Locations

Exterior Points

WEST FACE

1000= 10/ROOF WEST SIDE

Pt Number	Northing	Easting	Elevation	Code	Location on Brick
1000	5165' 2 1/2"	10082' 9 7/8"	219' 4 7/8"	990	upper left
1001	5165' 2 3/8"	10082' 10"	206' 9 1/8"	990	upper right
1002	5165' 2 1/8"	10082' 10 1/4"	194' 5 3/8"	990	upper left
1003	5165' 2 3/8"	10082' 10 1/4"	181' 11 3/8"	990	upper left
1004	5155' 5 3/4"	10079' 5 1/4"	181' 11 1/8"	990	upper left
1005	5155' 2 3/8"	10079' 3 7/8"	194' 1 7/8"	990	upper left
1006	5155' 6 3/8"	10079' 5 3/8"	207' 3 7/8"	990	upper left
1007	5155' 5"	10079' 4 7/8"	219' 4 3/8"	990	upper left
1008	5130' 11 1/4"	10070' 8 1/4"	219' 4 7/8"	990	upper left
1009	5131' 2 1/4"	10070' 9 5/8"	207' 3 1/2"	990	upper left
1010	5130' 11 3/8"	10070' 8 3/4"	194' 5 5/8"	990	upper left
1011	5131' 6 1/4"	10070' 11 1/8"	181' 11 1/8"	990	upper left
1012	5131' 7 1/8"	10070' 10 1/2"	169' 4 7/8"	990	upper left
1013	5106' 6 3/4"	10061' 11 1/2"	169' 5 1/2"	990	upper left
1014	5106' 2 3/4"	10061' 10 3/4"	181' 11 1/8"	990	upper left
1015	5106' 2 1/2"	10061' 11"	194' 5 3/8"	990	upper left
1016	5106' 6 7/8"	10062' 0 1/2"	207' 4"	990	upper left
1017	5106' 9"	10062' 1 1/8"	219' 8 1/2"	990	upper left
1018	5081' 11 1/4"	10053' 3 1/4"	219' 8 1/8"	990	upper right
1018	Not Surveyed Due to Vegetation Obstruction				
1020	5081' 11 3/4"	10053' 3 3/8"	194' 5 1/4"	990	upper right
1021	5081' 12"	10053' 3"	181' 11"	990	upper right

Exterior Points

NORTH FACE

1030= O/ROOF NORTH SIDE

Pt Number	Northing	Easting	Elevation	Code	Location on Brick
1030	5066' 9"	10364' 11 5/8"	219' 1 7/8"	990	upper right
1031	5066' 4 7/8"	10365' 10 1/4"	206' 4 7/8"	990	upper left
1032	5066' 4 5/8"	10365' 10 1/4"	193' 11 1/4"	990	upper left
1033	5066' 5 5/8"	10365' 7 1/4"	181' 8 1/8"	990	upper right
1034	5066' 6 7/8"	10365' 3 1/4"	168' 11 7/8"	990	upper right
1035	5072' 5"	10348' 11 1/8"	168' 11 5/8"	990	upper right
1036	5072' 4 7/8"	10348' 11 5/8"	181' 5"	990	upper right
1037	5072' 6 1/8"	10348' 7 5/8"	194' 2"	990	upper right
1038	5072' 5 1/4"	10348' 10 5/8"	206' 4 3/4"	990	upper left
1039	5072' 8 1/8"	10348' 4 1/8"	218' 4 3/4"	990	upper right
1040	5081' 11 3/8"	10322' 3 1/2"	218' 7 7/8"	990	upper right
1041	5081' 9 5/8"	10322' 7 3/8"	206' 5 1/8"	990	upper right
1042	5081' 8 1/4"	10322' 10 7/8"	194' 2 1/8"	990	upper right
1043	5081' 9 7/8"	10322' 7 1/8"	181' 5 3/8"	990	upper right
1044	5081' 8 5/8"	10322' 10 1/8"	169' 9"	990	lower right
1045	5090' 12"	10296' 10"	169' 5 1/4"	990	upper left
1046	5091' 2 3/8"	10296' 3"	181' 5 1/8"	990	upper right
1047	5091' 1"	10296' 6 1/4"	194' 2 1/8"	990	upper right
1048	5091' 2 1/2"	10296' 2 3/8"	206' 2 1/4"	990	upper left
1049	5091' 5 1/2"	10295' 6 3/4"	218' 4 7/8"	990	upper left
1050	5100' 7 1/8"	10269' 10 3/8"	206' 5 1/8"	990	upper left
1051	5100' 8 3/8"	10269' 6 7/8"	194' 2 1/8"	990	upper right
1052	5100' 5 3/4"	10270' 2 1/8"	181' 8 1/4"	990	upper right
1053	5100' 8 5/8"	10269' 7 1/8"	169' 2 1/4"	990	upper right
1054	5109' 10 7/8"	10243' 9 1/4"	169' 2 3/8"	990	upper left
1055	5119' 3 3/4"	10217' 5 1/4"	169' 2 1/2"	990	upper left
1056	5119' 5"	10217' 1 1/4"	181' 8 1/8"	990	upper left
1057	5119' 3 1/8"	10217' 5 5/8"	194' 1 7/8"	990	upper left
1058	5119' 1 5/8"	10217' 9 5/8"	206' 8 3/8"	990	lower left
1059	5119' 3 1/4"	10217' 5 3/8"	219' 1 7/8"	990	upper right
1060	5129' 0"	10190' 1 3/4"	219' 4 7/8"	990	upper right
1061	5128' 6 1/2"	10191' 5 1/4"	207' 3 7/8"	990	upper left
1062	5128' 9 1/2"	10190' 9"	194' 5"	990	upper left
1063	5128' 9 1/2"	10190' 9 1/2"	181' 11 5/8"	990	upper right
1064	5128' 7"	10191' 4 5/8"	169' 5 3/4"	990	upper right
1065	5138' 1 3/8"	10164' 8 3/8"	169' 8 7/8"	990	upper left
1066	5138' 1 1/8"	10164' 8 1/8"	181' 8 5/8"	990	upper left
1067	5138' 2 1/8"	10164' 5"	194' 11 1/8"	990	upper right
1068	5137' 10 7/8"	10165' 1 5/8"	207' 4 1/4"	990	upper right
1069	5138' 4 1/2"	10163' 9 5/8"	218' 10 7/8"	990	upper right
1070	5147' 8 1/8"	10137' 8 5/8"	219' 1 7/8"	990	upper left
1071	5147' 3 5/8"	10138' 9 1/8"	206' 8 5/8"	990	lower left
1072	5147' 6 5/8"	10138' 0 7/8"	195' 1 7/8"	990	upper right
1073	5147' 5 7/8"	10138' 4"	182' 0 1/4"	990	lower left
1074	5147' 5 5/8"	10138' 4 7/8"	169' 2 1/2"	990	upper right
1075	5156' 9 1/2"	10112' 3 3/4"	169' 3"	990	lower left
1076	5156' 9 1/4"	10112' 3 5/8"	181' 11 3/8"	990	upper left
1077	5156' 11 3/8"	10111' 9"	194' 10 7/8"	990	upper right
1078	5156' 6 1/4"	10112' 10 1/8"	206' 8 5/8"	990	lower left
1079	5157' 1 3/4"	10111' 1 3/8"	219' 4 3/4"	990	upper right
1080	5166' 3 3/4"	10085' 4 1/4"	219' 10 5/8"	990	upper right
1081	5166' 0 5/8"	10086' 1"	206' 8 7/8"	990	lower right
1082	5166' 4 3/8"	10085' 4 5/8"	194' 5"	990	upper right
1083	5166' 3 3/8"	10085' 7 5/8"	182' 2 1/4"	990	upper left
1084	5166' 2 1/8"	10085' 11 5/8"	169' 5 1/2"	990	upper left
1085	5109' 10 5/8"	10243' 9 1/8"	181' 8 3/8"	990	upper right
1086	5109' 11 5/8"	10243' 6 1/8"	194' 2 1/8"	990	upper right
1087	5109' 10 5/8"	10243' 8 1/8"	206' 8 5/8"	990	lower left
1088	5109' 10 5/8"	10243' 9 3/8"	218' 11 5/8"	990	lower left
1089	5100' 8 5/8"	10269' 6 3/8"	218' 8"	990	upper left

Exterior Points

SOUTH FACE

2000= O/ROOF SOUTH SIDE

Pt Number	Northing	Easting	Elevation	Code	Location on Brick
2000	4966' 11 1/2"	10329' 9 3/8"	219' 5 3/8"	990	upper right
2001	4966' 11 1/8"	10329' 9 1/4"	206' 5"	990	upper right
2002	4967' 0 1/8"	10329' 5 3/4"	194' 2 1/2"	990	upper left
2003	4966' 8 1/4"	10330' 5"	181' 5 3/4"	990	upper left
2004	4966' 10 7/8"	10329' 9 3/8"	168' 11 1/2"	990	upper left
2005	4972' 11 1/2"	10312' 10 1/4"	168' 8 7/8"	990	uppper left
2006	4972' 11 3/4"	10312' 9 3/4"	181' 11 3/8"	990	uppper left
2007	4973' 0 5/8"	10312' 6 1/8"	193' 8 1/8"	990	uppper left
2008	Not Surveyed Due to Vegetation Obstruction				
2009	4982' 1 5/8"	10287' 0 3/4"	206' 4 1/2"	990	upper right
2010	4972' 10 1/4"	10313' 2 1/4"	219' 1 5/8"	990	upper left
2011	4972' 11 1/2"	10312' 10 5/8"	205' 10 3/4"	990	upper left
2012	4982' 4"	10286' 6 7/8"	219' 4 3/4"	990	upper left
2013	4982' 3 7/8"	10286' 5 7/8"	194' 4 3/4"	990	upper left
2014	4982' 3 1/8"	10286' 8 7/8"	181' 7 7/8"	990	upper right
2015	4982' 4 1/2"	10286' 5 1/8"	169' 5 3/8"	990	upper right
2016	4991' 10 3/8"	10259' 9 7/8"	169' 2 3/8"	990	upper left
2017	4991' 7 7/8"	10260' 4 3/8"	181' 8"	990	upper right
2018	4991' 9"	10260' 0 3/4"	193' 10 3/8"	990	upper right
2019	4991' 8 1/8"	10260' 3 7/8"	206' 8"	990	lower left
2020	4991' 10 1/4"	10259' 10 1/4"	219' 1 5/8"	990	upper right
2021	5001' 2 1/2"	10233' 6 1/2"	218' 11 1/4"	990	lower right
2022	5001' 1 1/2"	10233' 9 1/8"	206' 4 1/2"	990	upper left
2023	5001' 0 1/4"	10234' 0 1/4"	194' 1 1/2"	990	upper left
2024	5001' 1 5/8"	10233' 9"	181' 11 1/4"	990	upper right
2025	5001' 1 1/2"	10233' 9 1/4"	168' 11 5/8"	990	upper right
2026	5010' 6 1/8"	10207' 4 7/8"	169' 5 3/8"	990	upper right
2027	5010' 6 1/4"	10207' 4"	181' 5 1/8"	990	upper left
2028	5010' 6 1/8"	10207' 4 1/2"	194' 4 5/8"	990	upper right
2029	5010' 8 3/4"	10206' 9 5/8"	206' 4 1/2"	990	upper right
2030	5010' 6 1/8"	10207' 5 3/8"	218' 4 5/8"	990	upper right
2031	5019' 6 5/8"	10181' 10 3/4"	218' 7 7/8"	990	upper left
2032	5019' 11 1/8"	10180' 11 7/8"	206' 4 1/2"	990	upper left
2033	5019' 8 5/8"	10181' 7 1/4"	194' 5 1/8"	990	upper left
2034	5019' 10"	10181' 3 5/8"	181' 8"	990	upper left
2035	5020' 0 3/8"	10180' 8 1/2"	168' 11 7/8"	990	lower right
2036	5029' 0 5/8"	10155' 4 1/2"	168' 11 3/8"	990	lower right
2037	5029' 2 1/4"	10155' 0 3/8"	194' 1 3/8"	990	upper left
2038	5028' 11 3/8"	10155' 6 5/8"	206' 8"	990	lower right
2039	5029' 1 1/4"	10155' 0"	219' 5 3/8"	990	lower right
2040	5038' 6"	10128' 7 1/4"	219' 1 7/8"	990	upper left
2041	5038' 8 3/4"	10128' 0 7/8"	206' 8 1/8"	990	lower right
2042	5038' 7 7/8"	10128' 4 1/2"	194' 4 3/4"	990	upper right
2043	5038' 9 3/8"	10128' 0 5/8"	181' 8"	990	upper right
2044	5038' 5 3/8"	10128' 11 5/8"	169' 5"	990	upper left
2045	5047' 11 5/8"	10102' 3 1/4"	169' 2 3/8"	990	upper left
2046	5047' 11 5/8"	10102' 2 7/8"	181' 8 3/8"	990	upper left
2047	5047' 10"	10102' 6 7/8"	194' 1 3/4"	990	upper left
2048	5047' 11 3/4"	10102' 1 1/2"	206' 8 3/8"	990	lower left
2049	5047' 11 7/8"	10101' 11"	219' 3 1/4"	990	lower left
2050	5057' 5"	10075' 6 7/8"	219' 4 3/4"	990	upper left
2051	5057' 4 3/4"	10075' 7 3/4"	206' 4 5/8"	990	upper right
2052	5057' 3 7/8"	10075' 11 1/4"	194' 2"	990	upper right
2053	5057' 6 3/4"	10075' 3 3/4"	181' 7 7/8"	990	upper right
2054	5057' 5 5/8"	10075' 7 1/2"	169' 5 3/8"	990	upper right
2055	Not Surveyed Due to Vegetation Obstruction				
2056	Not Surveyed Due to Vegetation Obstruction				
2057	Not Surveyed Due to Vegetation Obstruction				
2058	Not Surveyed Due to Vegetation Obstruction				
2059	Not Surveyed Due to Vegetation Obstruction				
2060	Not Surveyed Due to Vegetation Obstruction				

Exterior Points

EAST FACE

2100= 10/ROOF EAST SIDE

Pt Number	Northing	Easting	Elevation	Code	Location on Brick
2100	5063' 10 7/8"	10367' 1 1/2"	219' 2 1/8"	990	upper right
2101	5063' 7 1/2"	10366' 11 7/8"	206' 5 1/8"	990	upper left
2102	5063' 7 1/4"	10367' 0 1/8"	193' 11 1/8"	990	upper left
2103	5063' 7 1/4"	10367' 0 3/8"	181' 5 1/8"	990	upper left
2104	5063' 6 5/8"	10367' 0 3/8"	169' 0"	990	upper left
2105	5054' 5 1/2"	10363' 9 3/8"	168' 9"	990	upper right
2106	5054' 2"	10363' 7 5/8"	181' 5"	990	upper right
2107	5054' 2 1/4"	10363' 7 5/8"	193' 10 5/8"	990	upper right
2108	5054' 9 1/2"	10363' 9 3/4"	206' 4 3/4"	990	upper right
2109	5054' 9 5/8"	10363' 10 1/4"	218' 4 3/4"	990	upper right
2110	5029' 8 3/8"	10354' 11"	218' 10 5/8"	990	upper left
2111	5029' 9"	10354' 10 7/8"	206' 4 3/4"	990	upper left
2112	5029' 4 7/8"	10354' 9 3/4"	194' 2"	990	upper left
2113	5029' 8 3/4"	10354' 11 1/8"	181' 5 3/8"	990	upper left
2114	5029' 11 7/8"	10355' 0 5/8"	169' 0 5/8"	990	lower right
2115	5005' 6 1/2"	10346' 4 1/4"	169' 0 5/8"	990	lower right
2116	5005' 2 3/4"	10346' 2 1/4"	181' 3 1/4"	990	lower right
2117	5005' 2 7/8"	10346' 2 1/2"	193' 8 3/4"	990	lower right
2118	5005' 2 7/8"	10346' 1 7/8"	206' 5"	990	upper left
2119	5005' 6 3/4"	10346' 3 7/8"	218' 8"	990	upper left
2120	4977' 7 5/8"	10336' 4 3/8"	168' 11 3/4"	990	upper left
2121	4977' 7 1/2"	10336' 3 1/2"	206' 4 3/4"	990	upper right
2122	4976' 7 7/8"	10336' 0 1/8"	194' 2 1/4"	990	upper right
2123	4976' 7 1/2"	10335' 11 5/8"	181' 2 5/8"	990	upper right
2124	4977' 4 3/8"	10336' 3"	218' 7 3/4"	990	upper left

Marion County Courthouse Square
Remediation Study- Summary Cost Forecast
January 20, 2011

	Building and Garage		160,000sf bldg 37,000sf garage	**Bus Mall and Garage**		60,000sf mall 60,000sf garage	**North Block**		20,000 ped path 20,000 garage
Activity	**Demolition**	**Remediation**	**Replacement**	**Demolition**	**Remediation**	**Replacement**	**Demolition**	**Remediation**	**Replacement**
General Conditions	$ 65,748	$ 264,000	$ 720,000	$ 16,625	$ 270,000	$ 285,000	$ 5,627	$ 91,800	$ 96,900
Demolition	$ 1,306,000	-	$ 496,000	$ 234,000	$ 476,736	$ 257,250	$ 100,000	$ 185,640	$ 102,680
Site work	$ 14,943	$ 50,000	$ 1,198,000	$ 3,778	$ 600,000	$ 600,000	$ 1,279	$ 60,000	$ 72,000
Below Grade Parking	-	$ 2,018,000	$ 750,000	-	-	-	-		
Structure	-	$ 8,630,000	$ 8,318,000	-	$ 4,009,700	$ 4,450,000	-	$ 1,655,120	$ 1,616,700
Envelope	-	$ 1,026,000	$ 2,355,400	-	$ 325,000	$ 65,000	-	$ 110,500	$ 22,100
Finishes	-	$ 3,200,000	$ 7,824,000	-	-	-	-		
Mech/Elec	-	$ 10,720,000	$ 6,953,000	-	$ 600,000	$ -	-	$ 200,000	
Other	-	-	$ 1,430,720		$ 675,000	$ 675,000		$ 225,000	$ 225,000
Subtotal	$ 1,386,691	$ 25,908,000	$ 30,045,120	$ 254,404	$ 6,956,436	$ 6,332,250	$ 106,905	$ 2,528,060	$ 2,135,380
Insurance	$ 14,560	$ 69,459	$ 150,226	$ 2,671	$ 50,270	$ 45,901	$ 1,123	$ 25,281	$ 21,354
Bond	$ 13,971	$ 246,590	$ 301,953	$ 2,563	$ 72,317	$ 66,032	$ 1,077	$ 22,753	$ 19,218
Margin	$ 69,335	$ 1,113,120	$ 1,524,865	$ 12,720	$ 365,201	$ 333,459	$ 5,345	$ 126,403	$ 106,769
Construction Contingency	$ 103,919	$ 1,462,858	$ 1,601,108	$ 19,065	$ 383,461	$ 350,132	$ 8,012	$ 176,964	$ 149,477
Construction Subtotal	***$ 1,588,475***	***$ 28,800,027***	***$ 33,623,272***	***$ 291,423***	***$ 7,827,685***	***$ 7,127,773***	***$ 122,462***	$ 2,879,460	$ 2,432,198
				-			-	-	-
Soft Cost Allowances	$ 423,059	$ 8,306,298	$ 10,122,998	$ 77,086	$ 2,134,499	$ 2,119,821	$ 25,464	$ 542,269	$ 709,737
Temporary Relocation	$ -	$ 170,500	$ 170,500	$ -	$ -	$ -	-	-	$ -
Current Lease Expenditure (36 months)		$ 2,419,760	$ 2,419,760		$ 413,100	$ 413,100			
Project Budget	***$ 2,011,535***	***$ 39,696,585***	***$ 46,336,530***	***$ 368,509***	***$ 10,375,284***	***$ 9,660,695***	***$ 147,926***	***$ 3,421,730***	***$ 3,141,935***
Construction Inflation (not calculated)				- -			- -	- -	

SERA

MILLER
CONSULTING
ENGINEERS, INC.