R. W. Gillespie & Associates, Inc.

86 Industrial Park Road, Suite 4, Saco, ME 04072 207-286-8008
200 Int'l Drive, Suite 170, Portsmouth, NH 03801 603-427-0244

LETTER OF TRANSMITTAL

Date:	Project No.:
20 May 2010	557-14

Attention:
Mr. Cuyler Feagles (cmf@portlandmaine.gov)

Re:
In-Place Density Testing
Terminal Enhancement, Portland Int. Jetport
Portland, Maine

City of Portland, Portand Int. Jetport

1001 Westbrook Street

Portland, Maine 04102

We are sending you attached In-Place Density Test Results.

Date(s) Performed:	Test (s) Performed
May 4, 5, 6, 2010	In-Place Density Testing - Nuclear Method ASTM D6938

◉ Meets Specification

○ Selected Tests Do Not Meet Specification - Noted with an *

Note: Materials descriptions and maximum laboratory dry density values were transmitted under separate cover and are referenced in the attached summaries by the material number.

Remarks:

Signed: Matthew J. Graf

Copy To: Roy Williams: rsw@portlandmaine.gov
Jim Stanislaski: jim_stanislaski@gensler.com
Cliff Takara: clifford_takara@gensler.com
Lacey Fogg: Lacey.Fogg@amec.com
Mike Fusco: mfusco@tcco.com
Shaun Winner: swinner@tcco.com
Phil Coleman: pcoleman@tcco.com
Elizabeth O'Toole: eotoole@tcco.com

If enclosures are not as noted, kindly notify us at once.

SUMMARY OF IN-PLACE DENSITIES - ASTM D6938
TERMINAL ENHANCEMENT AT THE PORTLAND INTERNATIONAL JETPORT
PORTLAND, MAINE
RWG&A PROJECT NO. 557-14

Client: City of Portland
Test Date: May 04, 2010
Technician: George Morrell
Gauge Model/Serial Number: Seamans L500

Lab No.	Soil Description	ASTM D1557 Max Density	ASTM D1557 Opt. Moisture
11194	Poorly graded sand	111.0	11

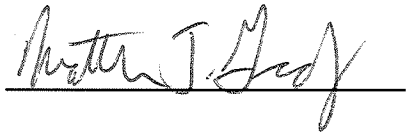
Report Issue Date:

Test No.	Location	Elevation	ASTM D6938 Dry Density (pcf)	ASTM D6938 Water Content (%)	Percent of Max. (%)	Lab. No.
1	East of DMH-OA23, 50' along pipe line	FG-4.0'	113.4	6	100+	11194
2	East of DMH-OA23, 75' along pipe line	FG-5.0'	108.8	6	98	11194
3	East of DMH-OA23, 100' along pipe line	FG-5.0'	109.7	6	99	11194
4	East of DMH-OA23, 120' along pipe line	FG-5.0'	114.9	5	100+	11194
5	East of DMH-OA23, 140' along pipe line	FG-5.0'	114.1	6	100+	11194

Remarks:

FG = Finish Grade
FF = Finish Floor
FGB = Finish Grade of Base
FGSB = Finish Grade of Subbase
FGSG = Finish Grade of Subgrade

TOW = Top of Foundation Wall
BOF = Bottom of Footing

Checked by: 

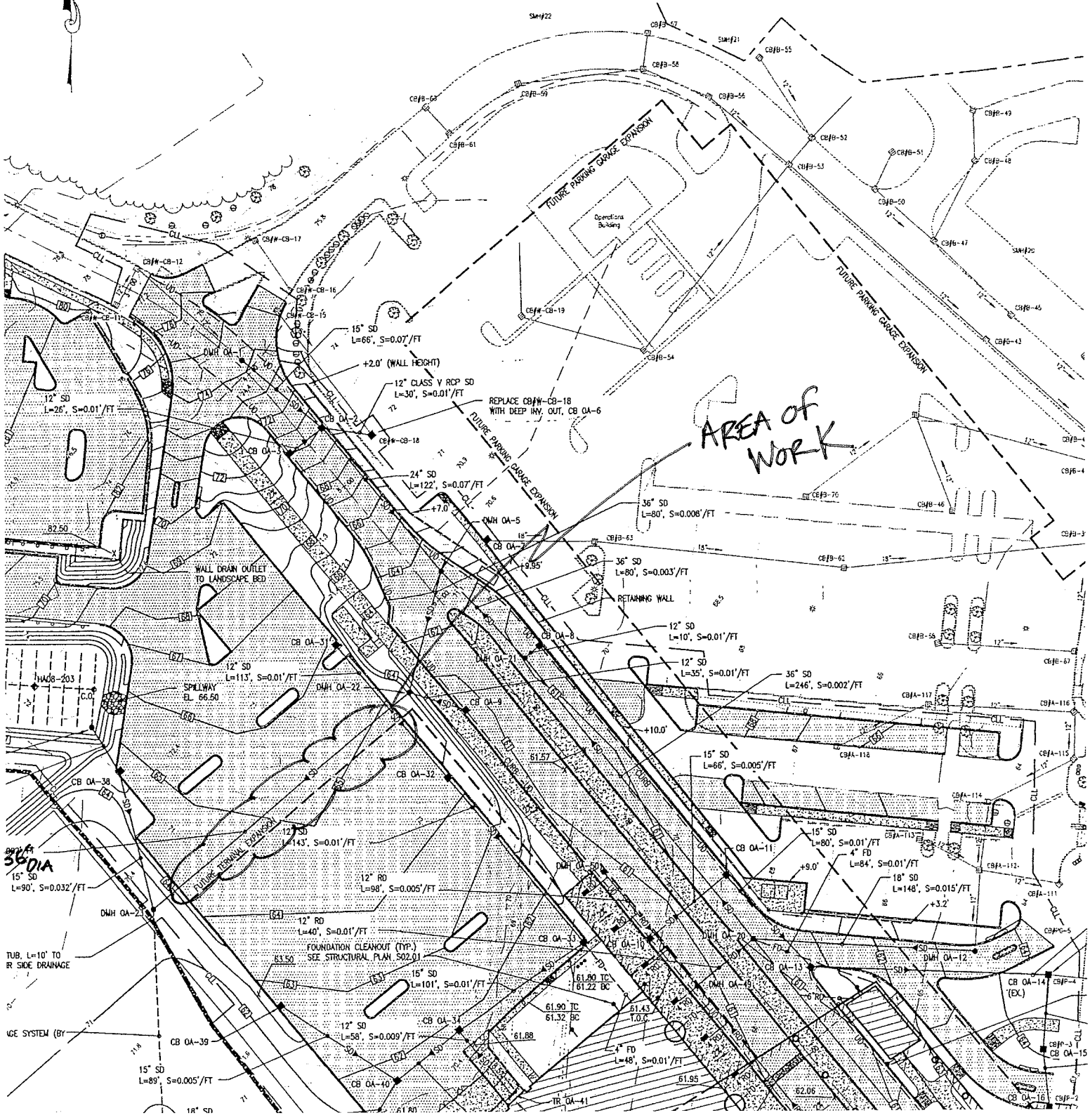
557-14

5-4-10

GSM

36" DIA DRAINAGE PIPE

(AREA 'B')



SUMMARY OF IN-PLACE DENSITIES - ASTM D6938
TERMINAL ENHANCEMENT AT THE PORTLAND INTERNATIONAL JETPORT
PORTLAND, MAINE
RWG&A PROJECT NO. 557-14

Client: City of Portland
Test Date: May 05, 2010
Technician: George Morrell
Gauge Model/Serial Number: Seamans L500

Lab No.	Soil Description	ASTM D1557 Max Density	ASTM D1557 Opt. Moisture
11194	Poorly graded sand	111.0	11

Report Issue Date:

Test No.	Location	Elevation	ASTM D6938 Dry Density (pcf)	ASTM D6938 Water Content (%)	Percent of Max. (%)	Lab. No.
1	East of DMH-OA23, 50' along pipe line	FG-3.0'	110.8	7	100	11194
2	East of DMH-OA23, 75' along pipe line	FG-4.0'	112.2	7	100+	11194
3	East of DMH-OA23, 100' along pipe line	FG-4.0'	110.4	8	99	11194
4	West of DMH-OA22, 75' along pipe line	FG-6.0'	112.0	5	100+	11194
5	West of DMH-OA22, 50' along pipe line	FG-7.0'	107.6	5	97	11194

Remarks:

FG = Finish Grade
FF = Finish Floor
FGB = Finish Grade of Base
FGSB = Finish Grade of Subbase
FGSG = Finish Grade of Subgrade

TOW = Top of Foundation Wall
BOF = Bottom of Footing

Checked by: [signature]

SUMMARY OF IN-PLACE DENSITIES - ASTM D6938
TERMINAL ENHANCEMENT AT THE PORTLAND INTERNATIONAL JETPORT
PORTLAND, MAINE
RWG&A PROJECT NO. 557-14

Client: City of Portland
Test Date: 5/5/2010
Technician: MJK
Gauge Model/Serial Number: Seamans L500

Lab No.	Soil Description	ASTM D1557 Max Density	ASTM D1557 Opt. Moisture
11194	Poorly Graded Sand	111.0	11.4

Report Issue Date:

Test No.	Location	Elevation	ASTM D6938 Dry Density (pcf)	ASTM D6938 Water Content (%)	Percent of Max. (%)	Lab. No.
1	23 yds± SW of DMH OA-22	SG-1'	105.1	6	95	11194
2	15 yds± SW of DMH OA-22	SG-3'	109.6	5	99	11194
3	20 yds± SW of DMH OA-22	SG-2'	105.8	6	95	11194
4	25 yds± SW of DMH OA-22	SG	104.9	6	95	11194

Remarks:

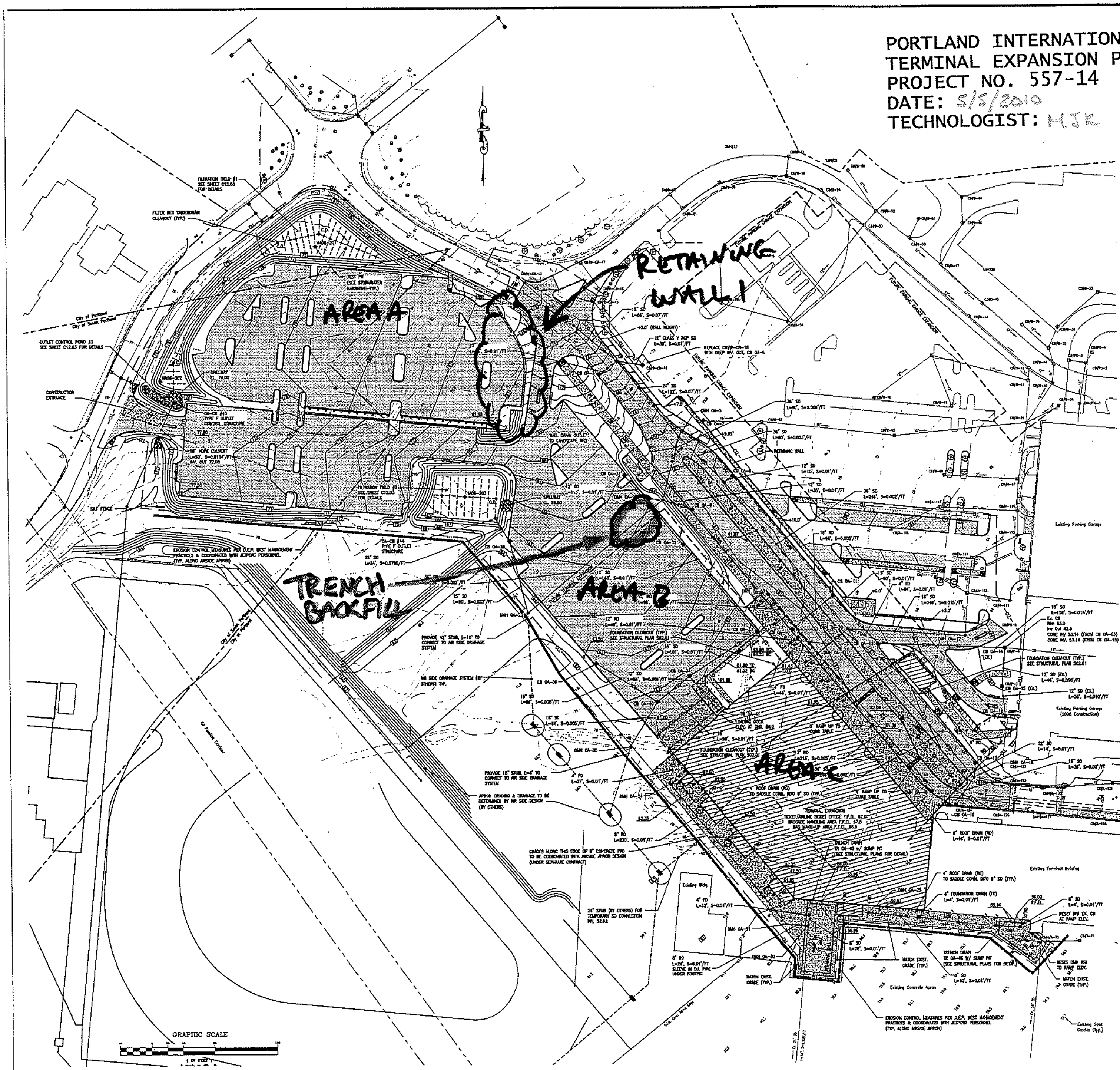
FG = Finish Grade
FF = Finish Floor
FGB = Finish Grade of Base
FGSB = Finish Grade of Subbase
FGSG = Finish Grade of Subgrade

TOW = Top of Foundation Wall
BOF = Bottom of Footing
SG = Subgrade

Checked by: [signature]

R. W. Gillespie Associates, Inc.
Corporate Office 86 Industrial Park Road, Ste. 4, Saco, ME 04072
Branch Office 200 International Drive, Ste. 170, Portsmouth, NH 03801

PORTLAND INTERNATIONAL JETPORT TERMINAL EXPANSION PROJECT
PROJECT NO. 557-14
DATE: 5/5/2010
TECHNOLOGIST: HJK



Drainage Structure Schedule

DESC.	RIM	INV. IN	INV. IN	INV. IN	INV. OUT
DMH OA-1	74.30	69.92(12")	-	-	69.82(15")
CB OA-2**	69.75	65.20(12")	65.20(15")	66.50(6")	65.10(24")
CB OA-3	69.75	-	-	68.80(6")	65.46(12")
DMH OA-5**	63.02	53.87(36")	56.56(24")	-	53.87(36")
CB OA-6(x)	71.86	68.83(12")	-	-	68.50(12")
CB OA-7	70.86*	-	-	-	65.30(18")
CB OA-8	60.47	-	56.57(6")	56.57(6")	56.50(12")
CB OA-9	60.47	-	56.57(6")	56.57(6")	56.50(12")
CB OA-10(F)	60.24	-	-	-	57.27(15")
CB OA-11(F)	60.24	56.94(15")	-	-	56.84(15")
DMH OA-12	63.50	57.14(12"ex)	-	-	57.04(18")
CB OA-13	60.53	56.04(15")	-	-	55.94(18")
CB OA-14(x)*	63.00*	53.14(18")	53.14(12")	-	42.50(18")
CB OA-15(x)*	64.00*	53.70(12")	-	-	53.60(12")
CB OA-16(x)*	63.15*	-	-	-	54.05(12")
CB OA-17	60.28	-	-	54.76(6")	54.14(12")
x DMH OA-18	60.85	55.61(15"ex)	55.21(15")	56.00(12")	55.20(36")
x CB OA-19	60.50	55.21(12"ex)	-	-	55.21(15")
DMH OA-20**	60.80	54.70(36")	54.82(18")	56.00(6")^	54.70(36")
DMH OA-21	61.00	56.40(12")	54.21(36")	-	54.21(36")
DMH OA-22**	65.20	53.25(36")	-	56.15(12")	53.20(36")
DMH OA-23**	62.10	52.79(36")	57.00(18")	-	51.31(42")
DMH OA-24	62.80	-	-	54.88(4")^	55.24(8")
DMH OA-25	60.00*	54.44(8")	-	-	54.00(8")
DMH OA-30	57.10	52.60(8")^	52.90(8")^	55.86(4")^	52.50(24"ex)
CB OA-31	66.80	-	-	-	60.17(12")
CB OA-32	64.19	59.04(12")	-	-	58.94(12")
CB OA-33	61.26	57.51(12")	-	58.35(4")^	57.41(15")
CB OA-34	61.76	56.40(15")	-	54.22(12")	54.00(18")
DMH OA-35	61.61*	53.09(18")	-	-	53.00(18")
CB OA-38	64.50	60.00(15")	-	-	58.90(15")
CB OA-39	62.80	-	-	-	59.09(15")
CB OA-40	61.80	53.50(18")	56.61(15")	-	53.40(18")
TR OA-41	57.98	-	-	-	54.72(12")^
CB OA-43 =	75.50	72.67	-	-	72.57(18")
CB OA-44 =	65.90	62.97	-	-	62.87(15")
TR OA-45	55.86	-	-	-	52.86(8")
TR OA-46	55.88	-	-	-	52.88(8")
DMH OA-48	60.83	56.68(8")	-	57.00(6")	56.58(12")
DMH OA-49	60.80	55.60(12")	55.60(12")^	-	56.40(12")
DMH OA-50	60.77	-	-	-	55.99(12")
DMH OA-51	61.20	52.94(8")	-	-	52.84(8")
A-72(x)	65.96*	51.01(18"ex)	51.08(6"ex)	52.84(8")^	51.01(18"ex)
A-74(x)	58.13	53.73(4"ex)	-	53.40(8")^	51.48(15"ex)
A-70(x)*	58.53	52.63(4"ex)	51.08(18"ex)	51.48(15"ex)	50.98(18"ex)

* ADJUST TO GRADE
** 6' DIA. STRUCTURE
= 2' SQ. STRUCTURE
^ BACKFLOW PREVENTER REQUIRED
(x) EXISTING STRUCTURE
(F) TYPE F BASIN REQUIRED

GENERAL NOTES

1. ALL CATCH BASIN STRUCTURES ARE 4' DIA. UNLESS OTHERWISE NOTED AND SHALL BE BUILT WITH A MIN. 3 FT. SUMP.
2. TYPE "E" CATCH BASIN STRUCTURES WITH GRANITE CURB INLET STONES SHALL BE INSTALLED IN INTERNATIONAL PARKWAY.
3. THE TWO (2) CATCH BASINS FUNCTIONING AS OUTLET STRUCTURES FROM THE FILTRATION FIELDS ARE SHALL BE TYPE "F", 2' X 2' SQUARE STRUCTURES.
4. ALL DRAIN MANHOLE STRUCTURES SHALL BE 4' DIA. EXCEPT STRUCTURES DMH OA-5, DMH OA-20, DMH OA-22 AND DMH OA-23. THESE STRUCTURES SHALL BE 6' DIA.
5. SEE STRUCTURAL DRAWINGS FOR DETAILS OF THE UNDER SLAB DRAINAGE SYSTEM AND FOUNDATION DRAIN SYSTEM.
6. SEE MECHANICAL DRAWINGS FOR ROOF DRAIN SYSTEM.
7. REFER TO THE CIVIL DETAIL FOR A SPECIFICATION OF THE "TIDEFLEX" SERIES TF-1 BACKFLOW VALVE TO BE INSTALLED IN THE FOLLOWING DRAINAGE STRUCTURES:
   - DMH OA-25, 4" FOUNDATION DRAIN I
   - DMH OA-24, 4" FOUNDATION DRAIN
   - CB A-72, 4" FOUNDATION DRAIN AND 8" TRENCH DRAIN (FROM TR OA-46)
   - CB OA-33, 4" FOUNDATION DRAIN
   - DMH OA-30, 4" FOUNDATION DRAIN AND 8" TRENCH DRAIN (TR OA-45)
8. PROVIDE BACKFLOW PREVENTER ON THE 4" FOUNDATION DRAIN IN CB OA-20.
9. 10" CORE REQUIRED IN EXISTING CB A-72 FOR NEW 10" ROOF DRAIN AT ELEV. 51.08 AND NEW 8" SD FROM TRENCH DRAIN AT ELEV. 52.84.
10. MAINTAIN POSITIVE GRADE ON ALL FOUNDATION DRAINS & RAIN LEADERS, MIN. SLOPE 0.005FT/FT.
11. 12" ROOF DRAIN HEADER PIPE COLLECTING ROOF DRAINS & FOUNDATION DRAINS ALONG ENTRANCE OF TERMINAL INVERT IN TO DMH OA-49 REQUIRES A BACKFLOW PREVENTER.

Portland International Jetport
1001 Westbrook Street
Portland, Maine 04102

Gensler
2020 K Street, NW
Suite 200
Washington, DC 20006
Telephone 202.721.5700
Facsimile 202.872.8587

oest ASSOCIATES, INC.
engineers · architects · surveyors · construction managers

Issue	Date & Issue Description	By	Check
1	07/11/08 SCHEMATIC DESIGN	WJW	AWL
2	09/22/08 DESIGN DEVELOPMENT	WJW	AWL
3	12/03/08 75% CONSTRUCTION DOCUMENTS	WJW	AWL
4	01/23/09 95% CONSTRUCTION DOCUMENTS	WJW	AWL
5	10/26/09 ISSUED FOR PERMIT	WJW	FEM

Seal/Signature

23 October 2009

Project Name
PWM Terminal Enhancement

Project Number
09.6385.000

CAD File Name
T:\5330101\SHEETS\C02.02.DWG

Description
SITE GRADING & DRAINAGE PLAN

Scale
1" = 40'

Ref. North

C02.02

SUMMARY OF IN-PLACE DENSITIES - ASTM D6938
TERMINAL ENHANCEMENT AT THE PORTLAND INTERNATIONAL JETPORT
PORTLAND, MAINE
RWG&A PROJECT NO. 557-14

Client: City of Portland
Test Date: 5/6/2010
Technician: MJK
Gauge Model/Serial Number: L 500

Lab No.	Soil Description	ASTM D1557 Max Density	ASTM D1557 Opt. Moisture
11194	Poorly Graded Sand	111.0	11.4

Report Issue Date:

Test No.	Location	Elevation	ASTM D6938 Dry Density (pcf)	ASTM D6938 Water Content (%)	Percent of Max. (%)	Lab. No.
1	20' ± SW of DMH OA-22	SG - 8'	108.0	6	97	11194
2	40' ± SW of DMH OA-23	SG - 3'	106.0	6	96	11194
3	10' ± SW of DMH OA-24	SG - 7'	106.0	7	95	11194
4	40' ± SW of DMH OA-25	SG - 2'	107.0	6	96	11194
5	10' ± SW of DMH OA-26	SG - 6'	105.0	5	95	11194
6	30' ± SW of DMH OA-27	SG - 3'	104.0	6	94	11194

Remarks:

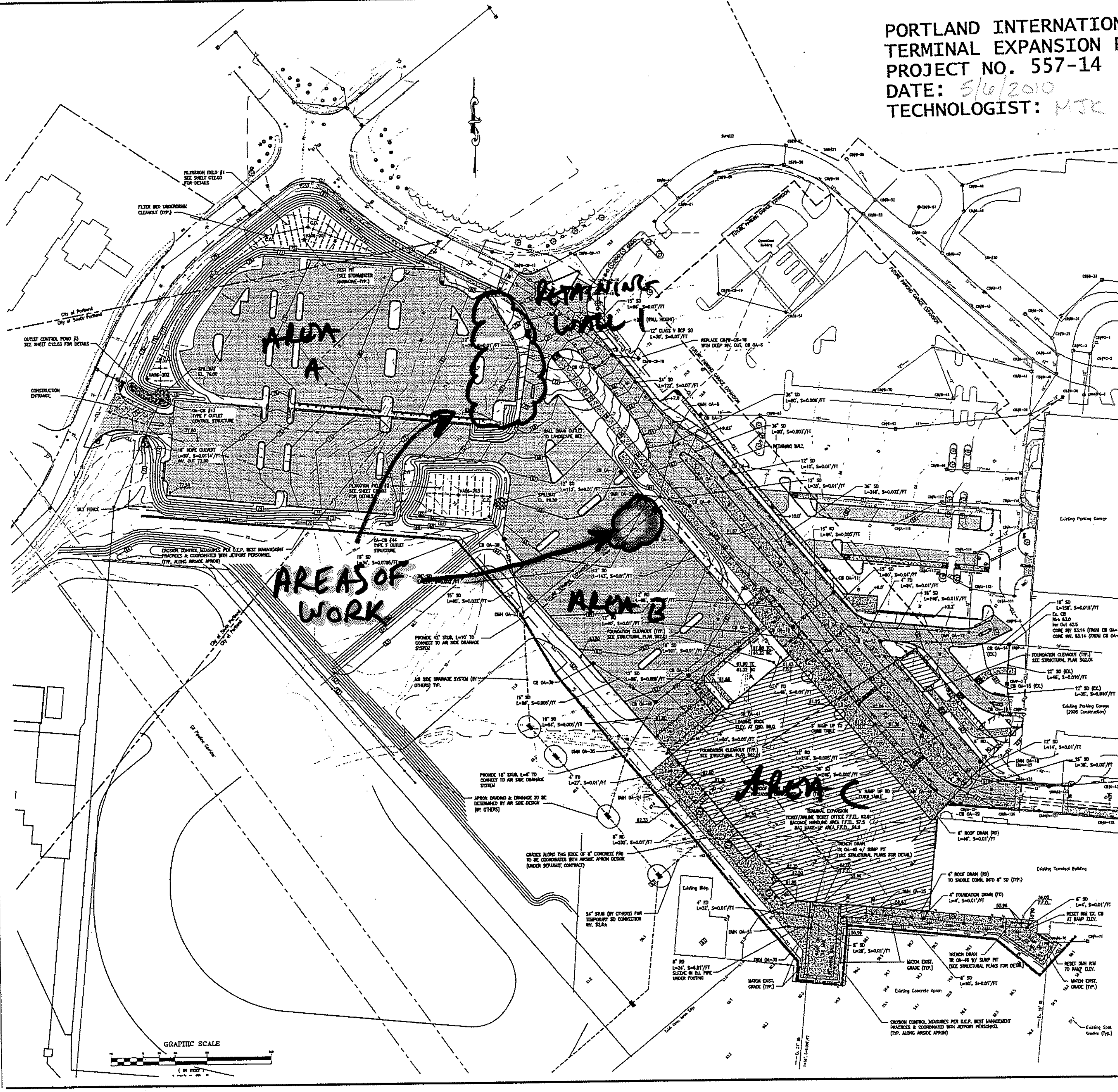
FG = Finish Grade
FF = Finish Floor
FGB = Finish Grade of Base
FGSB = Finish Grade of Subbase
FGSG = Finish Grade of Subgrade

TOW = Top of Foundation Wall
BOF = Bottom of Footing
SG = Subgrade

Checked by: Martin J. Gesl

R. W. Gillespie Associates, Inc.
Corporate Office 86 Industrial Park Road, Ste. 4, Saco, ME 04072
Branch Office 200 International Drive, Ste. 170, Portsmouth, NH 03801

PORTLAND INTERNATIONAL JETPORT
TERMINAL EXPANSION PROJECT
PROJECT NO. 557-14
DATE: 5/6/2010
TECHNOLOGIST: MJK



Drainage Structure Schedule

DESC.	RIM	INV. IN	INV. IN	INV. IN	INV. OUT
DMH OA-1	74.30	66.92(12")	–	–	66.82(18")
CB OA-2**	69.75	65.20(12")	65.20(18")	65.50(6")	65.10(24")
CB OA-3	69.75	–	–	65.90(6")	65.40(12")
DMH OA-5**	63.02	53.97(36")	54.50(24")	–	53.87(36")
CB OA-6(x)	71.86	66.63(12")	–	–	65.80(12")
CB OA-7	70.84*	–	–	–	65.30(18")
CB OA-8	60.47	–	56.97(6")	56.97(6")	56.50(12")
CB OA-9	60.47	–	56.97(6")	56.97(6")	56.50(12")
CB OA-10(F)	60.24	–	–	–	57.27(18")
CB OA-11(F)	60.24	56.84(18")	–	–	56.84(18")
DMH OA-12	63.50	57.14(12"ex)	–	–	57.04(18")
CB OA-13	60.53	56.04(15")	–	–	53.84(18")
CB OA-14(x)*	63.00*	53.14(18")	53.14(12")	–	42.50(18")
CB OA-15(x)*	64.00*	53.70(12")	–	–	53.60(12")
CB OA-16(x)*	63.18*	–	–	–	54.05(12")
CB OA-17	60.26	–	–	54.70(8")	54.14(12")
x DMH OA-18	60.85	55.61(15"ex)	55.21(15")	56.00(12")	55.20(36")
x CB OA-19	60.50	55.21(12"ex)	–	–	55.21(18")
DMH OA-20**	60.80	54.70(36")	54.82(18")	55.00(6")~	54.70(36")
DMH OA-21	61.00	56.40(12")	54.21(36")	–	54.21(36")
DMH OA-22**	65.20	53.25(36")	–	56.15(12")	53.20(36")
DMH OA-23**	62.10	52.75(36")	57.00(18")	–	51.31(42")
DMH OA-24	62.00	–	–	54.80(4")~	55.24(8")
DMH OA-25	60.00*	54.44(6")	–	–	54.00(8")
DMH OA-30	57.10	52.80(8")~	52.80(8")~	55.86(4")~	52.50(24"ex)
CB OA-31	66.30	–	–	–	60.17(12")
CB OA-32	64.19	59.04(12")	–	–	58.94(12")
CB OA-33	61.26	57.51(12")	–	58.39(4")~	57.41(18")
CB OA-34	61.78	56.40(18")	–	54.22(12")	64.00(18")
DMH OA-35	61.61*	53.00(18")	–	–	53.00(18")
CB OA-36	64.50	60.00(15")	–	–	59.90(15")
CB OA-39	62.80	–	–	–	59.06(15")
CB OA-40	61.80	53.50(18")	58.61(15")	–	53.40(18")
TR OA-41	57.88	–	–	–	54.72(12")~
CB OA-43 **	75.50	72.67	–	–	72.57(18")
CB OA-44 **	65.90	62.67	–	–	62.67(18")
TR OA-45	55.86	–	–	–	52.88(8")
TR OA-46	55.86	–	–	–	52.88(8")
DMH OA-48	60.83	58.68(8")	–	57.00(6")	58.58(12")
DMH OA-49	60.80	55.50(12")	55.50(12")~	–	56.40(12")
DMH OA-50	60.77	–	–	–	55.99(12")
DMH OA-51	61.20	52.94(8")	–	–	52.84(8")
A-72(x)	55.96*	51.01(18"ex)	51.06(8"ex)	52.84(8")~	51.01(18"ex)
A-74(x)	58.13	53.73(4"ex)	–	53.40(8")~	51.48(15"ex)
A-76(x)*	58.53	52.53(4"ex)	51.08(18"ex)	51.48(15"ex)	50.98(18"ex)

* ADJUST TO GRADE
** 6' DIA. STRUCTURE
** 2' SQ. STRUCTURE
~ BACKFLOW PREVENTER REQUIRED
(x) EXISTING STRUCTURE
(F) TYPE F BASIN REQUIRED

GENERAL NOTES

1. ALL CATCH BASIN STRUCTURES ARE 4' DIA. UNLESS OTHERWISE NOTED AND SHALL BE BUILT WITH A MIN. 3 FT. SUMP.
2. TYPE "E" CATCH BASIN STRUCTURES WITH GRANITE CURB INLET STONES SHALL BE INSTALLED IN INTERNATIONAL PARKWAY.
3. THE TWO (2) CATCH BASINS FUNCTIONING AS OUTLET STRUCTURES FROM THE FILTRATION FIELDS ARE SHALL BE TYPE "F", 2' X 2' SQUARE STRUCTURES.
4. ALL DRAIN MANHOLE STRUCTURES SHALL BE 4' DIA. EXCEPT STRUCTURES DMH OA-5, DMH OA-20, DMH OA-22 AND DMH OA-23. THESE STRUCTURES SHALL BE 6' DIA.
5. SEE STRUCTURAL DRAWINGS FOR DETAILS OF THE UNDER SLAB DRAINAGE SYSTEM AND FOUNDATION DRAIN SYSTEM.
6. SEE MECHANICAL DRAWINGS FOR ROOF DRAIN SYSTEM.
7. REFER TO THE CIVIL DETAIL FOR A SPECIFICATION OF THE "TIDEFLEX" SERIES TF-1 BACKFLOW VALVE TO BE INSTALLED IN THE FOLLOWING DRAINAGE STRUCTURES:
   - DMH OA-25, 4" FOUNDATION DRAIN
   - DMH OA-24, 4" FOUNDATION DRAIN
   - CB A-72, 4" FOUNDATION DRAIN AND 8" TRENCH DRAIN (FROM TR OA-46)
   - CB OA-33, 4" FOUNDATION DRAIN
   - DMH OA-30, 4" FOUNDATION DRAIN, AND 8" TRENCH DRAIN (TR OA-45)
8. PROVIDE BACKFLOW PREVENTER ON THE 4" FOUNDATION DRAIN IN CB OA-20.
9. 10" CORE REQUIRED IN EXISTING CB A-72 FOR NEW 10" ROOF DRAIN AT ELEV. 51.06 AND NEW 8" SD FROM TRENCH DRAIN AT ELEV. 52.84.
10. MAINTAIN POSITIVE GRADE ON ALL FOUNDATION DRAINS & RAIN LEADERS, MIN. SLOPE 0.005FT/FT.
11. 12" ROOF DRAIN HEADER PIPE COLLECTING ROOF DRAINS & FOUNDATION DRAINS ALONG ENTRANCE OF TERMINAL INVERT IN TO DMH OA-49 REQUIRES A BACKFLOW PREVENTER.

Portland International Jetport
1001 Westbrook Street
Portland, Maine 04102

Gensler

oest ASSOCIATES, INC.
engineers • architects • surveyors • construction managers

Issue	Date & Issue Description	By	Check
1	07/11/08 SCHEMATIC DESIGN	WJW	AWL
2	09/22/08 DESIGN DEVELOPMENT	WJW	AWL
3	12/03/08 75% CONSTRUCTION DOCUMENTS	WJW	AWL
4	01/23/09 95% CONSTRUCTION DOCUMENTS	WJW	AWL
5	10/26/09 ISSUED FOR PERMIT	WJW	FEM

23 October 2009

Project Name
PWM Terminal Enhancement

Project Number
09.8396.000

CAD File Name
T:\5330101\SHEETS\C02.02.DWG

Description
SITE GRADING & DRAINAGE PLAN

Scale
1" = 40'

Ref. North

C02.02

SUMMARY OF IN-PLACE DENSITIES - ASTM D6938
TERMINAL ENHANCEMENT AT THE PORTLAND INTERNATIONAL JETPORT
PORTLAND, MAINE
RWG&A PROJECT NO. 557-14

Client: City of Portland
Test Date: 5/6/2010
Technician: MCS
Gauge Model/Serial Number: CPN 6969

Lab No.	Soil Description	ASTM D1557 Max Density	ASTM D1557 Opt. Moisture
11194	Poorly Graded Sand	111.0	11.4

Report Issue Date:

Test No.	Location	Elevation	ASTM D6938 Dry Density (pcf)	ASTM D6938 Water Content (%)	Percent of Max. (%)	Lab. No.
1	35' ± SW of DMH OA-22	SG - 2'	103.0	7	93	11194
2	25' ± SW of DMH OA-23	SG - 1'	102.2	7	92	11194
3	40' ± SW of DMH OA-24	SG	102.8	7	93	11194
4						
5						
6						

Remarks:

FG = Finish Grade
FF = Finish Floor
FGB = Finish Grade of Base
FGSB = Finish Grade of Subbase
FGSG = Finish Grade of Subgrade

TOW = Top of Foundation Wall
BOF = Bottom of Footing
SG = Subgrade

Checked by: _____