SM 282 E 12/02

PSN _____ BORNUM FHK-16

NEW YORK STATE THRUWAY AUTHORITY
NEW YORK STATE CANAL CORPORATION

SUBSURFACE EXPLORATION LOG

HOLE FH-K
LINE _____
STA _____
OFFSET ft

DIVISION Syracuse
COUNTY Onondaga
PIN S52886
ROUTE Thruway Mainline
MILEPOST 282.62
PROJECT Syracuse Division 2017 Design-Build Bridge Replacements

SURF. ELEV. 379.12, NAD 88
DEPTH TO WATER 7.60

COORDINATES (Lat) 43.092728°N (Long) 76.161936°W
DATE START 11/30/2016 **DATE FINISH** 12/2/2016

AUGER 4 1/4" I.D. HOLLOW STEM FLIGHT AUGER **WT OF HAMMER-CASING** lb **HAMMER FALL-CASING** in
CASING O. D. in I. D. in **WT OF HAMMER-SAMPLER** 140 lb **HAMMER FALL-SAMPLER** 30 in
SAMPLER O. D. 2 in I. D. 1-3/8 in **HAMMER TYPE** Automatic

CASING BLOWS/ft	DEPTH (ft.) BELOW SURFACE	SAMPLE NO.	BLOWS ON SAMPLER (in.) 0/6	6/12	12/18	18/24	MOIST. CONT. (%)	Soil Recovery (in.)	Rock Recovery (ft.)	DESCRIPTION OF SOIL AND ROCK	
	0.0										-
		SS1	7	6	6	8	5.7%	16		Brown gravelly (SILTY-SAND) fill with 10 to 25% gravel, trace to little silt, loose, massive soil structure, (SM).	M - NPL
	5.0										-
		SS2	3	5	9	12	18.2%	10		8.0-9.0' - Faintly mottled brown (CLAYEY-SILT) fill with some clay, stiff, weakly thinly laminated with nearly vertical gray desiccation cracks to massive soil structure, (CL).	M to W - PL
	10.0									9.0-10.0' - Brown gravelly (SILTY-SAND) with 10 to 20% mostly rounded to sub-rounded gravel, little silt, compact, weakly stratified, (SM).	-
		SS3	6	6	6	5	12.8%	11		Brown gravelly (SILTY-SAND) with 10 to 20% mostly sub-rounded to rounded gravel, little silt, loose, weakly stratified, (SM).	S - NPL
	15.0										-
		SS4	2	1	2	2	47.0%	22		Not mottled to faintly mottled brownish gray (SANDY-SILT) with trace to little sand and organic matter, trace clay, very loose, thinly bedded with an occasional thin (SILTY-SAND) lense with mostly very fine to fine size sand, (ML) with occasional thin (SM) interbeds.	M - NPL
	20.0										-
		SS5	WR	WR	4	4	22.5%	14		Brown (SILTY-SAND) with trace silt, mostly very fine to fine size sand, very loose to loose, weakly thinly bedded, (SM).	S - NPL
	25.0										

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DRILL RIG OPERATOR Andrew Kempisty
SOIL & ROCK DESCRIPTION Kyle Shearing
INSPECTOR Joe Dorety (Fisher)
BIN 5510130
STRUCTURE NAME Thruway/Bear Trap Creek

CONTRACT _____ **CONTRACTOR** Earth Dimensions, Inc.

TWY-CAN SUBSURF EXPLORATION 7K16_BIN-5510130-DRAFTS.GPJ TWYSE1TMPL_V05.GDT 3/31/17

SM 282 E 12/02

PSN _____ BORNUM FHK-16

NEW YORK STATE THRUWAY AUTHORITY
NEW YORK STATE CANAL CORPORATION

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PROJECT Syracuse Division 2017 Design-Build Bridge Replacements

COORDINATES (Lat) 43.092728°N (Long) 76.161936°W
DATE START 11/30/2016 **DATE FINISH** 12/2/2016

AUGER 4 1/4" I.D. HOLLOW STEM FLIGHT AUGER **WT OF HAMMER-CASING** lb **HAMMER FALL-CASING** in
CASING **O. D.** in **I. D.** in **WT OF HAMMER-SAMPLER** 140 lb **HAMMER FALL-SAMPLER** 30 in
SAMPLER **O. D.** 2 in **I. D.** 1-3/8 in **HAMMER TYPE** Automatic

CASING BLOWS/ft	DEPTH (ft.) BELOW SURFACE	SAMPLE NO.	BLOWS ON SAMPLER (in.) 0/6	6/12	12/18	18/24	MOIST. CONT. (%)	Soil Recovery (in.)	Rock Recovery (ft.)	DESCRIPTION OF SOIL AND ROCK	
	25.0									Note: At 27.5 feet driller noticed change (stiffer/more gravel)	-
										Note: Wet running sands before sampling 28.0-30.0 feet.	
		SS6	15	10	17	88	12.8%	22		Brown (SILTY-SAND) with 5 to 10% gravel, little to some silt, mostly very fine to fine size sand, compact to very dense, thinly bedded, (SM).	S to W - NPL
	30.0										-
		SS7	WR	2	3	3	20.9%	12		33.0-33.5' - Brown (SILTY-SAND) with trace silt, mostly fine size sand, very loose, weakly thinly bedded, (SM).	S - NPL
	35.0									33.5-35.0' - Reddish brown (SILTY-SAND) with trace to little silt, mostly very fine to fine size sand, loose, weakly thinly bedded, (SM).	-
		SS8	2	1	2	2	20.8%	14		Brown (SAND) with trace silt, mostly very fine to fine size sand, very loose, weakly thinly bedded, (SM).	S - NPL
	40.0									Note: Sampled from 43.0-43.2 feet Split Spoon-Refusal: Advanced auger without sampling to 44.0 feet: Sampled from 44.0-44.2 feet. Split Spoon-Refusal: Advanced to 44.8 feet - auger refusal	-
		SS9	50/2"		100/2"		12.9%	4		Brown very gravelly (SILTY-SAND) with 40 to 60% gravel, occasional cobbles and boulders, little silt, very dense, weakly stratified to massive soil structure, (SM),(GM).	S - NPL
	45.0									Note: Started core run at 44.8 feet with 10 foot NQ-2 core barrel with impregnated dimond bit, cored from 44.8 feet to 48.3 feet. Boulders and cobbles. Boulder from 44.2-45.4 feet.	-
		SS10	21	36	56	50/2"	9.2%	12		Faintly mottled grayish brown gravelly (SILTY-SAND) with 25 to 40% gravel, occasional cobbles, some silt, very dense, massive soil structure, (SM).	W - NPL
	50.0										

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INSPECTOR Joe Dorety (Fisher)
BIN 5510130
STRUCTURE NAME
Thruway/Bear Trap Creek

TWY-CAN SUBSURF EXPLORATION 7K16_BIN-5510130-DRAFTS.GPJ TWYSE1TMPL_V05.GDT 3/31/17

SM 282 E 12/02

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SAMPLER O. D. 2 in I. D. 1-3/8 in **HAMMER TYPE** Automatic

CASING BLOWS/ft	DEPTH (ft.) BELOW SURFACE	SAMPLE NO.	BLOWS ON SAMPLER (in.) 0/6	6/12	12/18	18/24	MOIST. CONT. (%)	Soil Recovery (in.)	Rock Recovery (ft.)	DESCRIPTION OF SOIL AND ROCK	
	50.0									-	
		SS11	99	100/2"			8.2%	6		Same as 48.0-50.0'	W - NPL
	55.0									-	
		SS12	15	31	26	32	7.2%	14		Reddish brown gravelly (SANDY-SILT) with 20 to 40% gravel, occasional cobble, little sand, trace clay, very dense, massive soil structure, (ML).	W to M - LPL
	60.0									-	
		SS13	34	33	100	100/1"	10.3%	14		Same as 58.0-60.0'	W to M - LPL
	65.0									Note: At 67.0 feet driller noticed change, much harder, possible weathered bedrock	-
		SS14	75	100/2			8.7%	8		Dark gray aparent weathered shale bedrock, soft to very soft.	-
		RUN1							1.8	Run #1: NQ-2 size diamond core barrel 68.8-73.8' Dark gray to gray (68.8-69.9') light bluish gray (69.9-73.8') shale, soft to moderately soft, sedimentary, very fine clay/silt, smooth, thickly laminated to thinly bedded, diagonal bedding planes in first 1.1 feet of run, horizontal thereafter, very intensely fractured along bedding planes with some near vertical to vertical fractures, core pieces range from (0.01-0.30'), breaks appear fresh, core is pitted with occasional pyrite vugs/crystals (68.8-69.9'), core is very slightly pitted with large vertical fracture (69.9-73.8').	-
	70.0										
		RUN2							2.4	Recovery: 1.8'/5.0' = 36% RQD: 0' = 0%	-
	75.0										

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INSPECTOR Joe Dorety (Fisher)
BIN 5510130
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CONTRACT _____ **CONTRACTOR** Earth Dimensions, Inc.

TWY-CAN SUBSURF EXPLORATION 7K16_BIN-5510130-DRAFTS.GPJ TWYSE1TMPL_V05.GDT 3/31/17

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AUGER 4 1/4" I.D. HOLLOW STEM FLIGHT AUGER **WT OF HAMMER-CASING** lb **HAMMER FALL-CASING** in
CASING **O. D.** in **I. D.** in **WT OF HAMMER-SAMPLER** 140 lb **HAMMER FALL-SAMPLER** 30 in
SAMPLER **O. D.** 2 in **I. D.** 1-3/8 in **HAMMER TYPE** Automatic

CASING BLOWS/ft	DEPTH (ft.) BELOW SURFACE	SAMPLE NO.	BLOWS ON SAMPLER (in.) 0/6 6/12 12/18 18/24	MOIST. CONT. (%)	Soil Recovery (in.)	Rock Recovery (ft.)	DESCRIPTION OF SOIL AND ROCK
	75.0						Number of Pieces >4": 0 Number of Pieces total: >30 Run #2: NQ-2 size diamond core barrel 73.8-78.8' Light bluish gray shale, moderately soft to soft, with an occasional thin bed of fine grained sandstone, moderately hard, sedimentary, shale - very fine/smooth, sandstone - fine/coarse, thickly laminated to thinly bedded, very intensely fractured horizontally along bedding planes, with
		RUN3				2.8	larger vertical fractures along almost entire length of core barrel, core pieces range from (0.05-0.25') slightly weathered, large vertical fractures along almost entire length of core recovered with some iron staining, core is slightly pitted. -
	80.0						Recovery: 2.4'/5.0' = 48% RQD: 0' = 0% Number of Pieces >4": 0 Number of Pieces total: >50 Run #3: NQ-2 size diamond core barrel 78.8-83.8'
		RUN4				3.3	Light bluish gray shale, soft, sedimentary, very fine, smooth, thinly to thickly laminated, intensely fractured horizontally along bedding planes, with an occasional thin vertical fracture, core pieces range from (0.02-0.27') slightly weathered, core is slightly pitted, with some slight iron staining. -
	85.0						Recovery: 2.8'/5.0' = 56% RQD: 0' = 0% Number of Pieces >4": 0 Number of Pieces total: >50 Run #4: NQ-2 size diamond core barrel 83.8-88.8' Light bluish gray shale with an occasional thin dark gray siltstone interbed and an occasional very thin gypsum interbed, moderately soft to soft, sedimentary very fine clay/silt, thinly laminated to thickly laminated, intensely fractured horizontally along bedding planes, with occasional thin near vertical fractures, core pieces range from (0.04-0.50') breaks appear fresh, core is slightly pitted with an occasional thin siltstone interbed and occasional very thin gypsum interbeds. Recovery: 3.3'/5.0' = 66% RQD: 0.8' = 16% Number of Pieces >4": 2 Number of Pieces total: >30 BOTTOM OF HOLE AT 88.80 ft

Note:
Advanced bore hole with 4 1/4" ID x 8" OD hollow stem auger casing with 5.0-foot interval sampling to 44.8 feet to auger refusal. Continued below with a NQ-2 size double tubed wireline core barrel with imprenated dimond bit, cored from 44.8 feet to 48.3 feet, switched back to 4 1/4" ID x 8" OD hollow stem auger casing with 5.0-foot interval sampling to 68.8 feet, switched to coring with a NQ-2 size double tubed wireline core barrel with impregnated dimond bit to end of

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LINE _____
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AUGER 4 1/4" I.D. HOLLOW STEM FLIGHT AUGER **WT OF HAMMER-CASING** lb **HAMMER FALL-CASING** in
CASING **O. D.** in **I. D.** in **WT OF HAMMER-SAMPLER** 140 lb **HAMMER FALL-SAMPLER** 30 in
SAMPLER **O. D.** 2 in **I. D.** 1-3/8 in **HAMMER TYPE** Automatic

CASING BLOWS/ft	DEPTH (ft.) BELOW SURFACE	SAMPLE NO.	BLOWS ON SAMPLER (in.) 0/6 6/12 12/18 18/24	MOIST. CONT. (%)	Soil Recovery (in.)	Rock Recovery (ft.)	DESCRIPTION OF SOIL AND ROCK

coring at 88.8 feet. Bore hole was backfilled with bentonite chips to top of rock and tremmie grouted from top of rock to ground surface at completion due to artesian condition. Water level came up to ground surface upon completion and bore hole was tremmie grouted to plug condition and prevent artesian erosion.

DATE	TIME	DEPTH (ft.)			ARTESIAN HEAD HEIGHT ABOVE GROUND	FILLED WITH WATER AT END OF DAY
		HOLE	CASING	WATER		
30-Nov-16	10:00	10.00	8.00	7.60	NO	No
30-Nov-16	13:20	44.80	44.80	15.30	NO	No
01-Dec-16	09:00	45.00	45.00	10.10	NO	No
01-Dec-16	17:30	88.80	68.80	0.00	NO	No
02-Dec-16	09:00	88.80	68.80	0.00	NO	No

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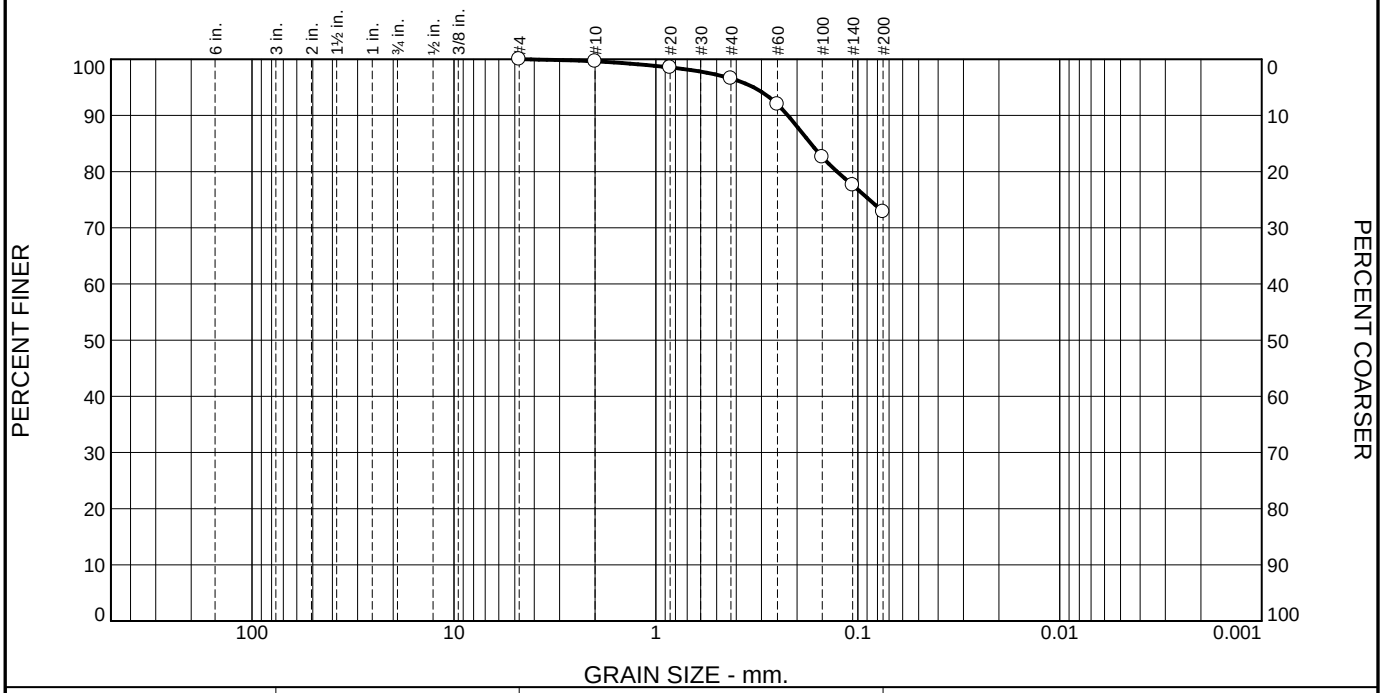
INSPECTOR Joe Dorety (Fisher)
BIN 5510130
STRUCTURE NAME Thruway/Bear Trap Creek

CONTRACT _____ **CONTRACTOR** Earth Dimensions, Inc.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	3.0	23.8	72.8	

TEST RESULTS (D6913)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	99.6		
#20	98.5		
#40	96.6		
#60	92.0		
#100	82.6		
#140	77.6		
#200	72.8		

* (no specification provided)

Material Description

ID#17-053

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= AASHTO (M 145)=

Coefficients

D_{90}= 0.2220 D_{85}= 0.1711 D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: 2/9/17 **Date Tested:** 2/23/17

Tested By: ETC

Checked By: JMA

Title: LM

Source of Sample: 6K16 & 7K16 **Date Sampled:**

Sample Number: FHK-16, SS-4

3rd Rock, LLC

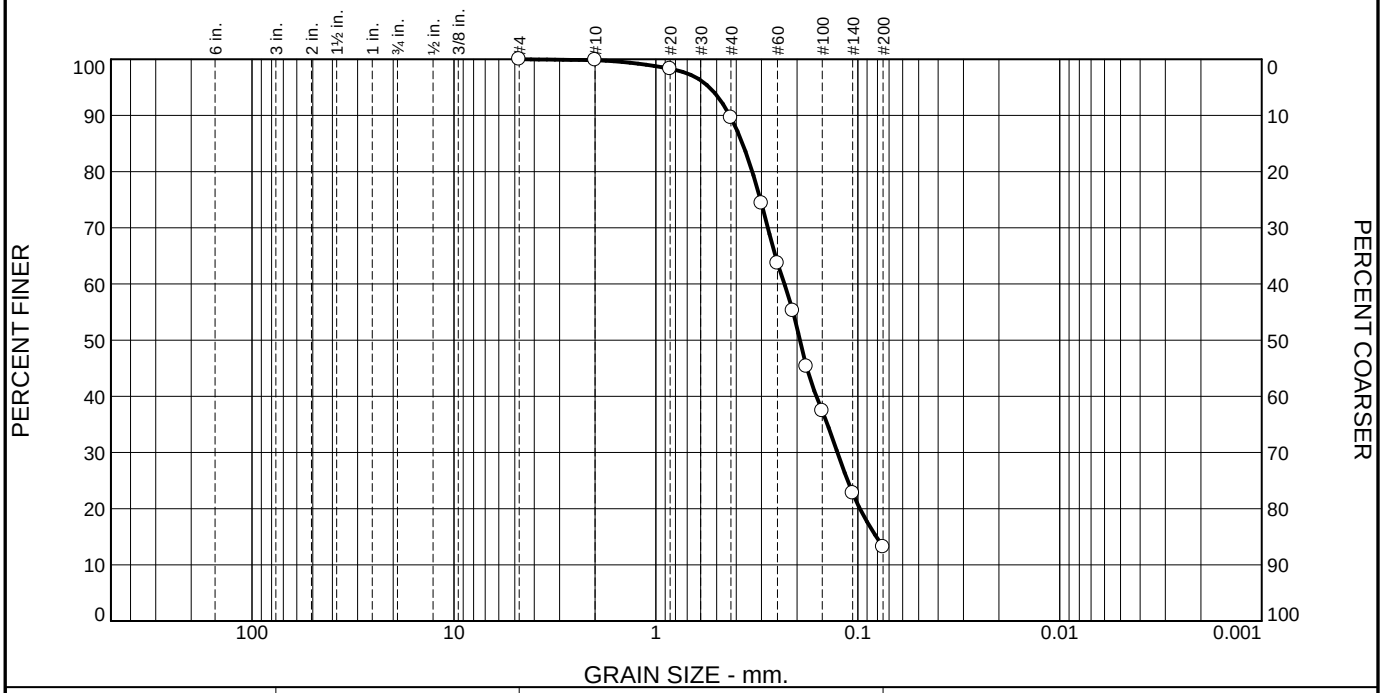
East Aurora, NY

Client: Earth Dimensions, Inc.

Project: 6K16; 7K16

Project No: 17-002 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.2	10.2	76.4	13.2	

TEST RESULTS (D6913)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	99.8		
#20	98.3		
#40	89.6		
#50	74.4		
#60	63.7		
#70	55.3		
#80	45.3		
#100	37.4		
#140	22.8		
#200	13.2		

* (no specification provided)

Material Description

ID#17-054

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 0.4308 D_{85}= 0.3727 D_{60}= 0.2310
D_{50}= 0.1936 D_{30}= 0.1262 D_{15}= 0.0810
D_{10}= C_u= C_c=

Remarks

Date Received: 2/9/17 **Date Tested:** 2/27/17

Tested By: ETC

Checked By: JMA

Title: LM

Source of Sample: 6K16 & 7K16 **Date Sampled:**

Sample Number: FHK-16, SS8

3rd Rock, LLC

East Aurora, NY

Client: Earth Dimensions, Inc.

Project: 6K16; 7K16

Project No: 17-002 **Figure**

APPENDIX A

ROCK CORE EVALUATION SHEET

PSN _____

PIN S52886

BIN 5510130

Project Thruway/Bear Trap Creek

Boring ID FHK-16

Surface Elevation _____

Depth From 68.8' to 88.8'

Number of Runs 4

Core Size NQ-2

Date Evaluated 12-01-16

Evaluator (s) Kyle Shearing

Top of Rock 67.0' (Depth) _____ (Elevation)

Top of Sound Rock 69.9' (Depth) _____ (Elevation)

Comments _____

RUN #1 Run Length 5.0' Depth Range: From 68.8' To 73.8'

RQD 0 (as measured) 0 % Photo(s) _____

Rock Type Shale

Color Dark gray to gray (68.8'-69.9') Light bluish gray (69.9'-73.8')

Mineralogy, Grain Size, & Texture Sedimentary, very fine clay/silt, smooth

Bedding Thickly laminated to thinly bedded, diagonal bedding planes in first 1.1' of run, horizontal thereafter

Fractures Very intensely fractured along bedding planes with some near vertical to vertical fractures

Size Range of Pieces 0.01'-0.3'

Hardness Soft to moderately soft

Weathering Breaks appear fresh Number of Pieces >4": 0

Additional Comments Recovery: 1.8' or 36% Number of Pieces total: >30

68.8 → 69.9' core is pitted with occasional pyrite vugs/crystals

69.9 → 73.8' core is very slightly pitted with large vertical fracture -0.5'

APPENDIX A

ROCK CORE EVALUATION SHEET (CONTINUED)

PSN _____ PIN S52886 Boring ID FHK-16

RUN # 2 Run Length 5.0 Depth Range: From 73.8' to 78.8'

RQD 0 (as measured) 0 % Photo(s) _____

Rock Type Shale with an occasional thin bed of fine grained sandstone

Color Light bluish gray

Mineralogy, Grain Size, & Texture Sedimentary, Shale-very fine/smooth, Sandstone-fine/coarse

Bedding Thickly laminated to thinly bedded

Fractures Very intensely fractured horizontally along bedding planes, with large vertical fracture along almost entire length of core recovered

Size Range of Pieces 0.05-0.25'

Hardness Shale-moderately soft to soft, Sandstone is moderately hard

Weathering Slightly weathered Number of Pieces >4": 0

Additional Comments Recovery: 2.4' or 48% Number of Pieces total: >50
Large vertical fracture along almost entire length of core recovered with some iron staining, core is slightly pitted

---

RUN # 3 Run Length 5.0 Depth Range: From 78.8' to 83.8'

RQD 0 (as measured) 0 % Photo(s) _____

Rock Type Shale

Color Light bluish gray

Mineralogy, Grain Size, & Texture Sedimentary, very fine, smooth

Bedding Thinly to thickly laminated

Fractures Intensely fractured horizontally along bedding planes with an occasional thin vertical fracture

Size Range of Pieces 0.02-0.27'

Hardness Soft

Weathering Slightly weathered Number of Pieces >4": 0

Additional Comments Recovery: 2.8' or 56% Number of Pieces total: >50
Core is slightly pitted with some slight iron staining

APPENDIX A

ROCK CORE EVALUATION SHEET (CONTINUED)

PSN _____ PIN 552886 Boring ID FHK-16

RUN # 4 Run Length 5.0' Depth Range: From 83.8' to 88.8'

RQD 0.8' (as measured) 16 % Photo(s) _____

Rock Type Shale with an occasional thin siltstone interbed and occasional very thin gypsum interbeds

Color Light bluish gray, siltstone is dark gray

Mineralogy, Grain Size, & Texture Sedimentary, very fine, clay/silt

Bedding Thinly laminated to thickly laminated

Fractures Intensely fractured horizontally along bedding planes with occasional thin near vertical fractures

Size Range of Pieces 0.04-0.5'

Hardness Soft to moderately soft

Weathering Breaks appear fresh / Number of Pieces >4": 2

Additional Comments Recovery: 3.3 or 66% Number of Pieces total: >30

Core is slightly pitted with occasional thin siltstone interbeds and occasional very thin gypsum interbeds

---

RUN # _____ Run Length _____ Depth Range: From _____ to _____

RQD _____ (as measured) _____ % Photo(s) _____

Rock Type _____

Color _____

Mineralogy, Grain Size, & Texture _____

Bedding _____

Fractures _____

Size Range of Pieces _____

Hardness _____

Weathering _____

Additional Comments _____


EDI
NYSTA
Stantec/Fisher
MP-282.62
Thruway/Bear Trail creek
FH-K-16
MP-278.93
Thruway/Int.35 Ramp
DN-B-13
Date | Boring | MP | Run | Depth | Length | Rec | Rec% | RQD | RQD% | # of core pieces greater than 4"
12-1-16 | FH-K-16 | 282.62 | 1 | 68.8-73.8 | 5.0 | 1.8 | 36% | 0 | 0 | 0
12-1-16 | FH-K-16 | 282.62 | 2 | 73.8-78.8 | 5.0 | 2.4 | 48% | 0 | 0 | 0
12-1-16 | FH-K-16 | 282.62 | 3 | 78.8-83.8 | 5.0 | 2.8 | 56% | 0 | 0 | 0
12-1-16 | FH-K-16 | 282.62 | 4 | 83.8-88.8 | 5.0 | 3.3 | 66% | 0.8 | 16% | 2
12-22-16 | DN-B-13 | 278.93 | 1 | 33.4-38.3 | 4.9 | 2.9 | 59% | 0.4 | 8% | 1
12-22-16 | DN-B-13 | 278.93 | 2 | 38.3-43.3 | 5.0 | 5.0 | 100% | 3.5 | 70% | 4

SM 282 E 12/02

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SURF. ELEV. 380.20, NAD 88
DEPTH TO WATER 14.0

COORDINATES (Lat) 43.092508°N (Long) 76.162516°W
DATE START 11/30/2016 **DATE FINISH** 12/1/2016

AUGER 4 1/4" I.D. HOLLOW STEM FLIGHT AUGER **WT OF HAMMER-CASING** lb **HAMMER FALL-CASING** in
CASING O. D. in I. D. in **WT OF HAMMER-SAMPLER** 140 lb **HAMMER FALL-SAMPLER** 30 in
SAMPLER O. D. 2 in I. D. 1-3/8 in **HAMMER TYPE** Safety

CASING BLOWS/ft	DEPTH (ft.) BELOW SURFACE	SAMPLE NO.	BLOWS ON SAMPLER (in.) 0/6	6/12	12/18	18/24	MOIST. CONT. (%)	Soil Recovery (in.)	Rock Recovery (ft.)	DESCRIPTION OF SOIL AND ROCK	
	0.0									Dark gray asphalt pavement to 1.8 feet.	-
		SS1	16	12	15	20	7.3%	16		Reddish brown gravelly (SILTY-SAND) fill with 15 to 25% gravel, mostly very fine to coarse size sand, trace to little silt, dense, massive soil structure, (SM).	M to W - NPL
	5.0										-
		SS2	9	16	9	12	8.2%	14		Same as 3.0-5.0'	M to W - NPL
	10.0										-
		SS3	9	8	7	9	8.9%	13		Brown gravelly (SILTY-SAND) with 15 to 25% gravel, little silt, compact, stratified, (SW).	W - NPL
	15.0										-
		SS4	5	5	9	12	60.6%	16		Dark brown to brown (SANDY-SILT) with little mostly very fine size sand, trace to little organic matter, trace clay, compact, thinly bedded, (ML).	M to W - LPL
	20.0										-
		SS5	WR	1	2	5	24.2%	12		Grayish brown (SILTY-SAND) with 0 to 3% gravel, mostly very fine to fine size sand, trace to little silt, very loose, weakly thinly bedded, slight tendency to liquefy when disturbed, (SM).	W - NPL
	25.0										

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DRILL RIG OPERATOR Philip Bence
SOIL & ROCK DESCRIPTION Brandon Mikolin
INSPECTOR Matthew Conley (Stantec)
BIN 5510130
STRUCTURE NAME Thruway/Bear Trap Creek

CONTRACT _____ **CONTRACTOR** Earth Dimensions, Inc.

TWY-CAN SUBSURF EXPLORATION 7K16_BIN-5510130-DRAFTS.GPJ TWYSE1TMPL_V05.GDT 3/31/17

SM 282 E 12/02

PSN _____ BORNUM FHK-17

NEW YORK STATE THRUWAY AUTHORITY
NEW YORK STATE CANAL CORPORATION

SUBSURFACE EXPLORATION LOG

HOLE FH-K
LINE _____
STA _____
OFFSET ft

DIVISION Syracuse
COUNTY Onondaga
PIN S52886
ROUTE Thruway Mainline
MILEPOST 282.62
PROJECT Syracuse Division 2017 Design-Build Bridge Replacements

SURF. ELEV. 380.20, NAD 88
DEPTH TO WATER 14.0

COORDINATES (Lat) 43.092508°N (Long) 76.162516°W
DATE START 11/30/2016 **DATE FINISH** 12/1/2016

AUGER 4 1/4" I.D. HOLLOW STEM FLIGHT AUGER **WT OF HAMMER-CASING** lb **HAMMER FALL-CASING** in
CASING **O. D.** in **I. D.** in **WT OF HAMMER-SAMPLER** 140 lb **HAMMER FALL-SAMPLER** 30 in
SAMPLER **O. D.** 2 in **I. D.** 1-3/8 in **HAMMER TYPE** Safety

CASING BLOWS/ft	DEPTH (ft.) BELOW SURFACE	SAMPLE NO.	BLOWS ON SAMPLER (in.) 0/6	6/12	12/18	18/24	MOIST. CONT. (%)	Soil Recovery (in.)	Rock Recovery (ft.)	DESCRIPTION OF SOIL AND ROCK	
	25.0										-
		SS6	2	6	4	3	26.2%	14		Brown (SANDY-SILT) with trace to little mostly very fine to fine size sand, trace clay, loose, thinly bedded, (ML).	W - LPL
	30.0										-
		SS7	WR	WR	8	8	31.5%	15		Light brown to brown (SILTY-SAND) with mostly very fine to fine size sand, trace silt, loose, single grain, (SP).	W - NPL
	35.0										-
		SS8	WR	WR	1	5	27.0%	13		Reddish brown (SILTY-SAND) with 5 to 10% gravel, trace to little silt, very loose, weakly stratified, (SW).	W - NPL
	40.0										-
		SS9	WR/18			4	27.1%	15		Light brown (SILTY-SAND) with 3 to 7% gravel, trace silt, very loose, stratified, (SW).	W - NPL
	45.0										-
		SS10	WR	8	7	32	24.5%	13		Light brownish gray (SILTY-SAND) with mostly very fine to fine size sand, trace to little silt, compact, weakly thinly bedded, (SM).	W - NPL
	50.0										

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DRILL RIG OPERATOR Philip Bence
SOIL & ROCK DESCRIPTION Brandon Mikolin
INSPECTOR Matthew Conley (Stantec)
BIN 5510130
STRUCTURE NAME
Thruway/Bear Trap Creek

CONTRACT _____ **CONTRACTOR** Earth Dimensions, Inc.

TWY-CAN SUBSURF EXPLORATION 7K16_BIN-5510130-DRAFTS.GPJ TWYSE1TMPL_V05.GDT 3/31/17

SM 282 E 12/02

PSN _____ BORNUM FHK-17

NEW YORK STATE THRUWAY AUTHORITY
NEW YORK STATE CANAL CORPORATION

SUBSURFACE EXPLORATION LOG

HOLE FH-K
LINE _____
STA _____
OFFSET ft

DIVISION Syracuse
COUNTY Onondaga
PIN S52886
ROUTE Thruway Mainline
MILEPOST 282.62
PROJECT Syracuse Division 2017 Design-Build Bridge Replacements

SURF. ELEV. 380.20, NAD 88
DEPTH TO WATER 14.0

COORDINATES (Lat) 43.092508°N (Long) 76.162516°W
DATE START 11/30/2016 **DATE FINISH** 12/1/2016

AUGER 4 1/4" I.D. HOLLOW STEM FLIGHT AUGER **WT OF HAMMER-CASING** lb **HAMMER FALL-CASING** in
CASING O. D. in I. D. in **WT OF HAMMER-SAMPLER** 140 lb **HAMMER FALL-SAMPLER** 30 in
SAMPLER O. D. 2 in I. D. 1-3/8 in **HAMMER TYPE** Safety

CASING BLOWS/ft	DEPTH (ft.) BELOW SURFACE	SAMPLE NO.	BLOWS ON SAMPLER (in.) 0/6	6/12	12/18	18/24	MOIST. CONT. (%)	Soil Recovery (in.)	Rock Recovery (ft.)	DESCRIPTION OF SOIL AND ROCK	
	50.0										-
		SS11	33	96	100/3		9.8%	7		Light grayish brown gravelly (SANDY-SILT) with 15 to 40% gravel, little sand, trace clay, very dense, massive soil structure, (ML) tending toward (ML-CL).	M - LPL
	55.0										-
		SS12	100/5				8.6%	3		Same as 53.0-55.0'	M - LPL
	60.0										-
		SS13	33	100/4			18.6%	7		63.0-63.5' Light brown (SILT) very dense, thinly bedded, (ML). 63.5-63.9' Reddish brown (CLAYEY-SILT) with little to some clay, stiff, thinly laminated, (ML-CL) tending toward (CL).	M - LPL
	65.0										-
		SS14	40	49	53	63	7.7%	16		Reddish brown gravelly (SAND-SILT-CLAY) with 15 to 25% gravel, little to some sand, trace to little clay, hard, massive soil structure, (ML-CL).	M to W - LPL
	70.0										-
		SS15	100/3				10.6%	3		Gray shale stone fragments.	D - NPL
	75.0										

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DRILL RIG OPERATOR Philip Bence
SOIL & ROCK DESCRIPTION Brandon Mikolin
INSPECTOR Matthew Conley (Stantec)
BIN 5510130
STRUCTURE NAME Thruway/Bear Trap Creek

CONTRACT _____ **CONTRACTOR** Earth Dimensions, Inc.

TWY-CAN SUBSURF EXPLORATION 7K16_BIN-5510130-DRAFTS.GPJ TWYSE1TMPL_V05.GDT 3/31/17

SM 282 E 12/02

PSN _____ BORNUM FHK-17

NEW YORK STATE THRUWAY AUTHORITY
NEW YORK STATE CANAL CORPORATION

SUBSURFACE EXPLORATION LOG

HOLE FH-K
LINE _____
STA _____
OFFSET ft

DIVISION Syracuse
COUNTY Onondaga
PIN S52886
ROUTE Thruway Mainline
MILEPOST 282.62
PROJECT Syracuse Division 2017 Design-Build Bridge Replacements

SURF. ELEV. 380.20, NAD 88
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COORDINATES (Lat) 43.092508°N (Long) 76.162516°W
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AUGER 4 1/4" I.D. HOLLOW STEM FLIGHT AUGER **WT OF HAMMER-CASING** lb **HAMMER FALL-CASING** in
CASING **O. D.** in **I. D.** in **WT OF HAMMER-SAMPLER** 140 lb **HAMMER FALL-SAMPLER** 30 in
SAMPLER **O. D.** 2 in **I. D.** 1-3/8 in **HAMMER TYPE** Safety

CASING BLOWS/ft	DEPTH (ft.) BELOW SURFACE	SAMPLE NO.	BLOWS ON SAMPLER (in.) 0/6 6/12 12/18 18/24	MOIST. CONT. (%)	Soil Recovery (in.)	Rock Recovery (ft.)	DESCRIPTION OF SOIL AND ROCK
	75.0	RUN1				0.9	Note: Top of Rock at 73.2 feet. Advanced bore hole with 3 7/8" roller bit to 75.0 feet to clean the hole and confirm bedrock. Run #1: NQ-2 size diamond core barrel 75.0-78.0' Light gray shale bedrock, very soft, smooth very fine grains not visible, thinly laminated, intensely fractured, sligthly to moderately weathered, core pieces range from (0.05-0.20'), slight iron staining. Recovery: 0.9'/3.0' = 30% RQD: 0' = 0% Number of Pieces >4": 0 Number of Pieces total: >20
		RUN2				3.65	Run #2: NQ-2 size diamond core barrel 78.0-83.0' 78.0-79.6' Light gray shale, soft to very soft, very smooth, grains are not visible, thinly laminated, 79.6-80.8' Light gray sandstone, moderately soft to soft, fine grained, massive soil structure, 80.8-83.0' Reddish gray shale, soft to very soft, very smooth, grains not visible, thinly laminated, intensly to moderately fractured, moderately weathered, core pieces range from (0.01-0.4'), slight iron staining in shale. Recovery: 3.65'/5.0' = 73% RQD: 0.4'/5.0' = 8% Number of Pieces >4": 1 Number of Pieces total: >50
	80.0						BOTTOM OF HOLE AT 83.00 ft

Note:
Advanced bore hole with 4 1/4" ID x 8" OD hollow stem auger casing with 5.0-foot interval sampling to 73.3 feet. Continued below with 3 7/8" tricone roller bit to 75.0 feet. Continued below with a NQ-2 size double tubed wireline core barrel with impregnated diamond bit. Bore hole was backfilled with cuttings and ground surface repaired with a concrete patch.

DATE	TIME	DEPTH (ft.) HOLE	DEPTH (ft.) CASING	DEPTH (ft.) WATER	ARTESIAN HEAD HEIGHT ABOVE GROUND	FILLED WITH WATER AT END OF DAY
30-Nov-16	10:30	15.00	13.00	14.00	NO	No
30-Nov-16	14:00	60.00	58.00	18.00	NO	No
01-Dec-16	09:00	60.00	58.00	18.00	NO	No
01-Dec-16	15:00	83.00	73.30	18.00	NO	No

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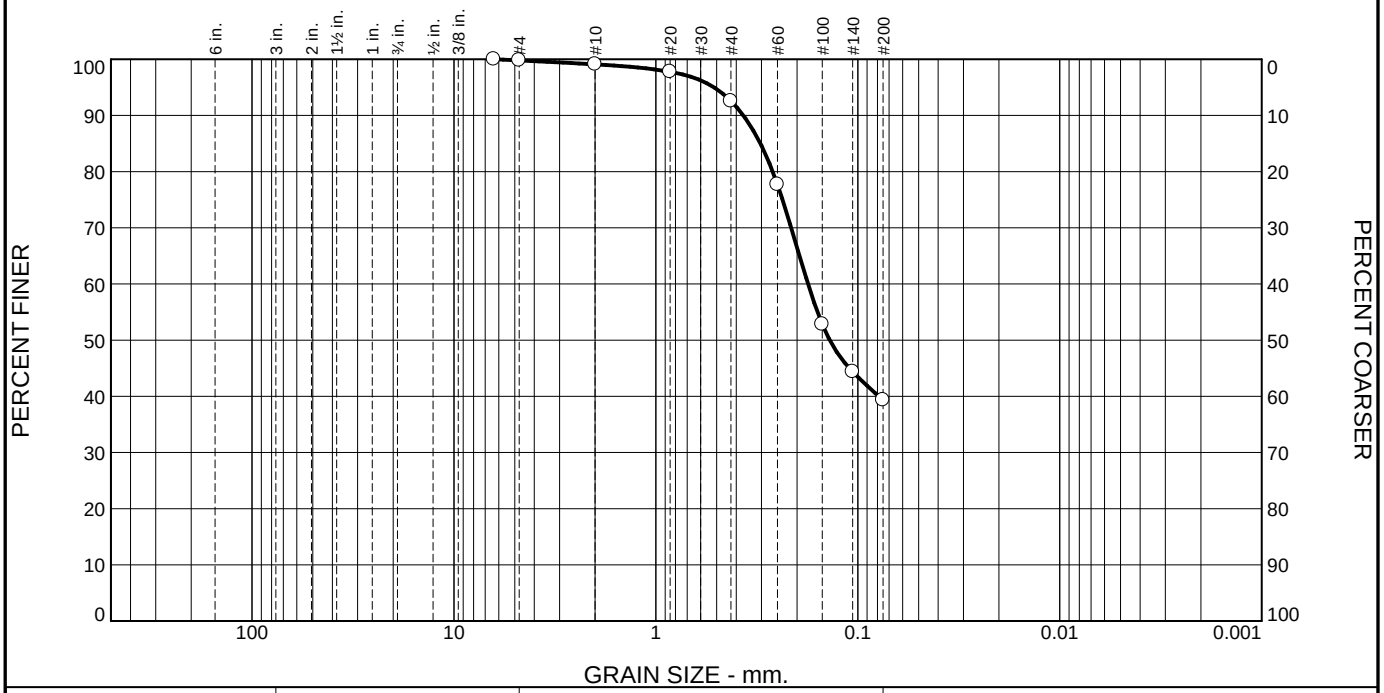
DRILL RIG OPERATOR Philip Bence
SOIL & ROCK DESCRIPTION Brandon Mikolin
INSPECTOR Matthew Conley (Stantec)
BIN 5510130
STRUCTURE NAME
Thruway/Bear Trap Creek

CONTRACT _____ **CONTRACTOR** Earth Dimensions, Inc.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.7	6.5	53.3	39.3	

TEST RESULTS (D6913)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.25"	100.0		
#4	99.8		
#10	99.1		
#20	97.8		
#40	92.6		
#60	77.7		
#100	52.8		
#140	44.4		
#200	39.3		

* (no specification provided)

Material Description

ID#17-055

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 0.3687 D_{85}= 0.3037 D_{60}= 0.1764
D_{50}= 0.1378 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: 2/9/17 **Date Tested:** 2/15/17

Tested By: ETC

Checked By: JMA

Title: LM

Source of Sample: 6K16 & 7K16 **Date Sampled:**
Sample Number: FHK-17, SS5

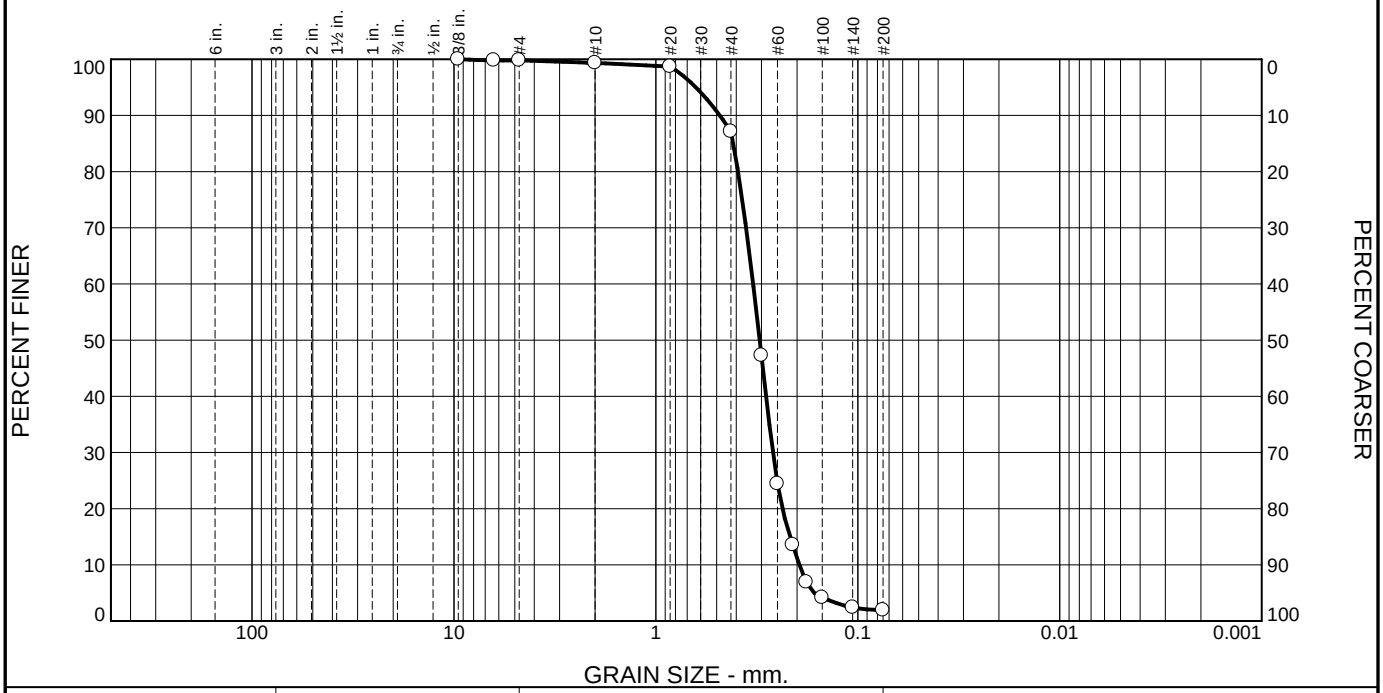
3rd Rock, LLC

East Aurora, NY

Client: Earth Dimensions, Inc.
Project: 6K16; 7K16

Project No: 17-002 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.5	12.2	85.2	1.9	

TEST RESULTS (D6913)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.375"	100.0		
.25	99.8		
#4	99.8		
#10	99.3		
#20	98.7		
#40	87.1		
#50	47.2		
#60	24.4		
#70	13.6		
#80	6.9		
#100	4.2		
#140	2.4		
#200	1.9		

* (no specification provided)

Material Description

ID#17-056
Poorly graded sand

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SP **AASHTO (M 145)=**

Coefficients

D_{90}= 0.4829 D_{85}= 0.4141 D_{60}= 0.3299
D_{50}= 0.3061 D_{30}= 0.2634 D_{15}= 0.2164
D_{10}= 0.1949 C_u= 1.69 C_c= 1.08

Remarks

Date Received: 2/9/17 **Date Tested:** 2/15/17
Tested By: ETC
Checked By: JMA
Title: LM

Source of Sample: 6K16 & 7K16 **Date Sampled:**
Sample Number: FHK-17, SS9

3rd Rock, LLC

East Aurora, NY

Client: Earth Dimensions, Inc.
Project: 6K16; 7K16

Project No: 17-002 **Figure**

APPENDIX A

ROCK CORE EVALUATION SHEET

PSN _____

PIN 552886

BIN 5510130

Project Thruway/Bear Trap Creek

Boring ID FHK-17

Surface Elevation _____

Depth From 75.0' to 83.0'

Number of Runs 2

Core Size NQ-2

Date Evaluated 12-01-16

Evaluator (s) Brandon Mikolin

Top of Rock 73.2' (Depth) _____ (Elevation)

Top of Sound Rock 75.0' (Depth) _____ (Elevation)

Comments _____

RUN #1 Run Length 3.0' Depth Range: From 75.0' To 78.0'

RQD 0 (as measured) 0 % Photo(s) _____

Rock Type Shale

Color Light gray

Mineralogy, Grain Size, & Texture Smooth very fine grains not visible

Bedding Thinly laminated

Fractures Intensely fractured

Size Range of Pieces 0.05-0.20'

Hardness Very soft

Weathering Slightly to moderately weathered

Additional Comments Recovery: 0.9' or 30% Number of Pieces >4": 0

Slight iron Staining Number of Pieces total: >20

APPENDIX A

ROCK CORE EVALUATION SHEET (CONTINUED)

PSN _____ PIN S52886 Boring ID FHK-17

RUN # 2 Run Length 5.0 Depth Range: From 78.0' to 83.0'

RQD 0.4' (as measured) 8 % Photo(s) _____

Rock Type Shale (78.0-79.6'), Sandstone (79.6-80.8'), Shale (80.8-83.0')

Color Light gray (78.0-79.6'), Light gray (79.6-80.8'), Reddish gray (80.8-83.0')

Mineralogy, Grain Size, & Texture Very smooth, grains not visible (78.0-79.6'; 80.8-83.0'), fine grained (79.6-80.8')

Bedding Thinly laminated (78.0-79.6'), Massive soil structure (79.6-80.8'), Thinly laminated (80.8-83.0')

Fractures Intensely to moderately fractured

Size Range of Pieces 0.01-0.40'

Hardness Soft to very soft (78.0-79.6'; 80.8-83.0'), Moderately soft to soft (79.6-80.8')

Weathering Moderately weathered

Additional Comments Recovery: 3.65' or 73%

Slight iron staining in shale Number of Pieces >4": 1

Number of Pieces total: >50

RUN # _____ Run Length _____ Depth Range: From _____ to _____

RQD _____ (as measured) _____ % Photo(s) _____

Rock Type _____

Color _____

Mineralogy, Grain Size, & Texture _____

Bedding _____

Fractures _____

Size Range of Pieces _____

Hardness _____

Weathering _____

Additional Comments _____

EDI#7K16

7K16 NYSTA

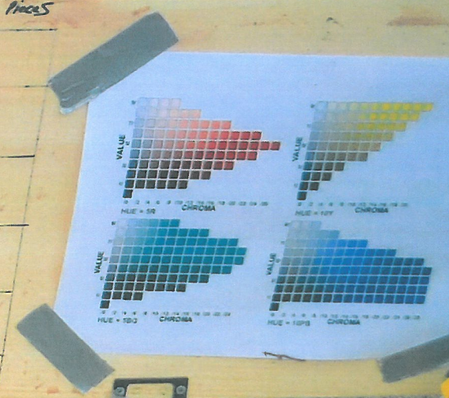
Stantec/Fisher

Thruway, Mainline Rt 90

Thruway/Int 35 Ramp
MP- 278.93

Thruway/culvert
MP- 282.62

Date	MP	Boring	Run	Depth	length	Rec	%	RQD	%	# of Cog Pieces >4"
12-23-16	278.93	DN-B-15	1	18.5'-23.0'	4.5	2.6	58%	0	0	0
12-23-16	278.93	DN-B-15	2	23.0-28.0	5.0	2.9	58%	0	0	0
12-23-16	278.93	DN-B-15	3	28.0-33.0	5.0	4.2	84%	3.2	64%	6
12-1-16	282.62	DN-K-17	1	75.0'-78.0'	3.0	0.9	30%	0	0	0
12-1-16	282.62	DN-K-17	2	78.0-83.0	5.0	3.65	73%	0.4	8%	1



Compressive Properties Report
ASTM D7012

Project: NYSTA Syr. Div.; EDI
Project No.: 17-002
Analyst: JMA
Date: 3/3/2017
Specimen Type: Rock Core, 2" Diameter, ~4" height

Borehole Number	Laboratory ID No.	Average Diameter in.	Average Length in.	Maximum Load lbf	Maximum Compressive Strength psi
FHB-13, 42.9'	17-072	1.967	4.037	19508	6420
DNB-14, 30.9'	17-073	1.966	3.989	8770.7	2889
DNB-15, 31.5'	17-074	1.970	4.004	11223	3682
FHK-16, 88.3'	17-075	1.968	4.327	3800.1	1249
FHK-17, 78.5'	17-076	1.801	3.717	5634.8	2212

Respectfully Submitted,
3rd Rock, LLC

580 Olean Road
East Aurora, NY 14052
Phone (716)655-4933, fax 655-8638

Water Content Test Results by ASTM D2216

Project: New York State Thruway **Project No:** 16-008
EDI Project No.: 7K16 **Date:** 12/15/16
Client: Earth Dimensions, Inc.

Borehole No.	Sample Nos.	Depth, fbg	Lab ID No.	Natural Water Content, %
FH-K-16	S-1	3-5	16-537	5.7
	S-2	8-10	16-537	18.2
	S-3	13-15	16-537	12.8
	S-4	18-20	16-537	47.0
	S-5	23-25	16-537	22.5
	S-6	28-30	16-537	12.8
	S-7	33-35	16-537	20.9
	S-8	38-40	16-537	20.8
	S-9	43-45	16-537	12.9
	S-10	48-50	16-537	9.2
	S-11	53-55	16-537	8.2
	S-12	58-60	16-537	7.2
	S-13	63-65	16-537	10.3
	S-14	68-68.7	16-537	8.7
FH-K-17	S-1	3-5	16-536	7.3
	S-2	8-10	16-536	8.2
	S-3	13-15	16-536	8.9
	S-4	18-20	16-536	60.6
	S-5	23-25	16-536	24.2
	S-6	28-30	16-536	26.2
	S-7	33-35	16-536	31.5
	S-8	38-40	16-536	27.0
	S-9	43-45	16-536	27.1
	S-10	48-50	16-536	24.5
	S-11	53-55	16-536	9.8
	S-12	58-60	16-536	8.6
	S-13	63-65	16-536	18.6
	S-14	68-70	16-536	7.7
	S-15	73-73.3	16-536	10.6

3rd Rock, LLC
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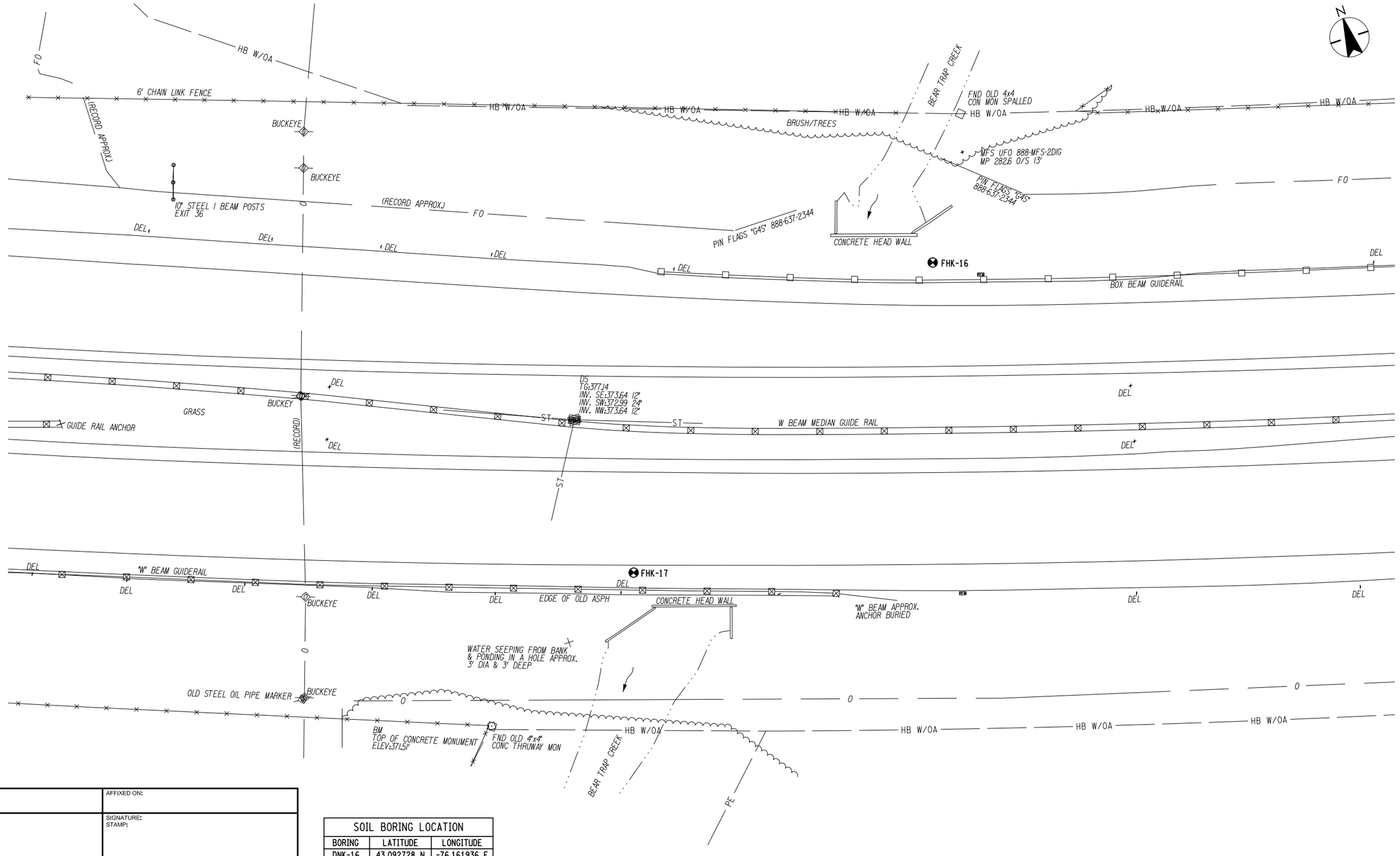
East Aurora, NY 14052
(716)655-4933
(716)655-8638 fax



SOIL BORING LOCATION		
BORING	LATITUDE	LONGITUDE
DNK-16	43.092728 N	-76.161936 E
DNK-17	43.092508 N	-76.162516 E

SOIL BORING LOCATION PLAN

20 0 20 40

DESIGNED BY: B. WALKER
DRAFTED BY: S. ROMEISER
CHECKED BY: B. WALKER
DESIGN SUPERVISOR: J. HOFMANN
CHECKED BY: R. CODY

ALTERED ON:	AFFIXED ON:
SIGNATURE: STAMP:	SIGNATURE: STAMP:

REVISIONS

DATE	DESCRIPTION	BY	SYM.

NEW YORK STATE OF OPPORTUNITY. Thruway Authority

Stantec

TITLE OF PROJECT
INTERSTATE 90 OVER BEAR TRAP CREEK
MP 282.62 / BIN 5510130

LOCATION OF PROJECT
TOWN OF SALINA
ONONDAGA COUNTY

TITLE OF DRAWING
BORING LOCATION PLAN

CONTRACT NUMBER:
TAB 17-XX

DATE:
FEB. 2017

DRAWING NUMBER:
BP-07