

Client: Shelby Crushed Stone
 Site: Eagle Harbor Sand & Gravel Mine, Town of Barre, Orleans County, New York
 Project: Reserves Evaluation
 Drilled by: **FILL IN** _____ Logged by: P.H. Griggs

CORE HOLE MW1-2008
Collar Elevation: FILL IN
Base Map Coordinates: FILL IN

Location: FILL IN

	<u>Thickness</u>
Overburden (0-36.5') : not recovered, believed to be sand & gravel	36.5'
LOCKPORT FORMATION (36.5-94.2')	57.7' +
GOAT ISLAND MEMBER (36.5-64.7')	28.2' +
Dolostone (36.5-45.6') : medium to medium light gray, slight brownish tint to light grayish brown. Finely crystalline. Some vugs ranging from pinpoint to ½ inch in size. Some vugs filled with medium to coarsely crystalline dolomite. Few stylolites. Remnants of brachiopod fossil at 40.2' Few dark gray paper thin shaly partings. Medium bedded. Sucrosic.	9.1' +
<i>Sharp contact at stylolite vuggy zone filled with dolomite, change in color and texture</i>	
Dolostone (45.6-49.9') : medium to medium dark brownish gray. Becomes medium dark gray towards bottom. Common dolomite filled vugs up to 2 inches in size. Few stylolites. Few dark gray wispy partings. Very vuggy from 47.1 to 47.5.	4.3'
<i>Gradational contact at change in color and parting.</i>	
Dolostone (49.9-61.2') : medium dark gray with slight brownish tint. Finely crystalline. Few vugs. Light gray to cream colored chert up to ½ inch in size with associated amber colored sphalerite crystals from 51.3 to 51.8. Occasional arc shaped to oval shaped off-white to light gray pockets of dolomite up to ½ inch in size scattered throughout. Few dark gray wispy paper thin shaly partings, becoming more common in middle. Dark grey shaly seam from 58.3 to 58.6. Sphalerite crystals at 60.8. Few stylolites. Medium bedded, thin bedded locally.	11.3'

Griggs-Lang Consulting Geologists, Inc.
 8 Brunswick Road Troy, New York 12180
 Phone: (518) 270-5920 Fax: (518) 270-5922

Gradational contact at change in texture.

Dolostone (61.2-64.7'): medium to dark grayish brown. Common pinpoint vugs. Medium to some finely crystalline. Sucrosic. Few stylolites. Less argillaceous content than above. Very few dark paper thin wispy partings. 3.5'

Sharp contact at parting and texture change

GASPORT MEMBER (64.7-79.3')

Dolostone (64.7-79.3'): medium grayish brown to medium brownish gray. Finely crystalline. Very few vugs. Few cream to off-white colored pockets of dolomite crystals up to 3/8 inch in size. Few dark gray paper thin wispy partings. 3/4 inch shaly seam at 76.4. 1 inch oval vug filled with dolomite, honey colored sphalerite, and grey metallic galena crystals at 77.8. 14.6'

Gradational contact at slight color and texture change

DECEW MEMBER (79.3-94.2')

Dolostone (79.3-84.4'): medium dark brownish gray. Fine to some medium crystalline. Sucrosic. Few dark gray wispy paper thin partings. Few pinpoint vugs. Few pockets up to 1/4 inch filled with off-white dolomite. Vuggy and slightly porous at base. 14.9'

Sharp contact at color and texture change

Dolostone (84.4-94.2'): medium gray. Finely crystalline. Slightly argillaceous. More argillaceous than above unit. Few dark gray wavy partings. In lower half, common oval shaped pockets filled with gypsum up to 1 inch in size. Shaly zone from 88.3 to 88.8. Locally mottled. Bottom of good quality stone. 9.8'

Gradational contact at change in lithology

ROCHESTER SHALE FORMATION (84.2-115.9' TD)

Dolomitic mudstone to shale (94.2-115.9' TD): medium dark to dark gray. Very fine grained. Locally mottled. Argillaceous throughout. Locally fissile to laminated. 1" thick gray weathered seam at 115.2'. 21.7' +

TD 115.9'

1. All core size NQ/L.

Client: Shelby Crushed Stone

Site: Eagle Harbor Sand & Gravel Mine, Town of Barre, Orleans County, New York

Project: NYSDOT Geologic Quarry Report and Due Diligence

Drilled by: **FILL IN** _____ Logged by: P.H. Griggs

CORE HOLE 2-2008

Collar Elevation: FILL IN

Base Map Coordinates: FILL IN

Location: FILL IN

	<u>Thickness</u>
Overburden (0-28.3') : not recovered, believed to be sand & gravel	28.3'
LOCKPORT FORMATION (28.3 -86.3')	58.0'+
GOAT ISLAND MEMBER (28.3-57.1')	28.8' +
Dolostone (28.3-36.9') : medium to medium light gray, slight brownish tint to light grayish brown. Finely crystalline. Common vugs ranging from pinpoint to ½ inch in size. Some vugs filled with medium to coarsely crystalline off-white dolomite. Few dark gray paper thin shaly partings. Medium bedded. Sucrosic. Core badly broken from 28.3 to 32.3.	8.6'
<i>Sharp contact at stylolite, vuggy zone filled with dolomite, change in color and texture</i>	
Dolostone (36.9-45.3') : Medium dark brownish gray at top. Medium dark gray below. Some off-white dolomite filled vugs up to ½ inch in size. Few stylolites. Few dark gray paper thin wispy partings. Core broken at 38.0 o 38.3. Medium to some finely crystalline.	8.4'
<i>Gradational contact at slight change in color and texture.</i>	
Dolostone (45.3-57.1') : medium dark gray with slight brownish tint at top. Becomes grayer towards bottom. Finely crystalline. Few vugs. Few off-white to light gray pockets of dolomite up to 3/8 inch in size scattered throughout. Few dark gray wispy paper thin shaly partings, becoming more common in middle. Dark gray shaly seam ¼" thick at 49.7, and from 48.1 to 48.2. Few stylolites. 1/8" thick white dolomite seam parallel to bedding at 50.2. Medium bedded to thin bedded locally.	11.8'

Griggs-Lang Consulting Geologists, Inc.
 8 Brunswick Road Troy, New York 12180
 Phone: (518) 270-5920 Fax: (518) 270-5922

Gradational contact at slight color change.

Dolostone (57.1-62.3'): medium dark brownish gray. Finely crystalline. Less argillaceous content than above. Very few dark paper thin wispy partings. At 57.2, white dolomite crystals in vug with honey colored sphalerite crystals. Cream colored chert nodule at 60.4. 5.2'

Sharp contact at parting and texture change

GASPORT MEMBER (62.3-76.1')

13.8'

Dolostone (62.3-68.9'): medium grayish brown to medium brownish gray. Finely crystalline. Very few oval shaped vugs up to ½ inch in size. Few off-white colored pockets of dolomite crystals up to 1/2 inch in size. Few dark gray paper thin wispy partings at top, becoming more common in lower part. 6.6'

Gradational contact at texture change

Dolostone (68.9-76.1'): medium dark brownish gray. Medium to some finely crystalline. Sucrosic. Few dark gray wispy paper thin partings. Some pinpoint vugs. Vuggy and slightly porous at base. 7.2'

Semi-sharp contact at parting swarm

DECEW MEMBER (76.1-86.3')

10.2'

Dolostone (76.1-86.3'): medium gray. Finely crystalline. Slightly argillaceous, becomes more argillaceous with increasing depth. Few dark gray wavy partings. Shaly zone from 79.6 to 79.8 locally mottled. Bottom of good quality stone. 10.2'

Gradational contact at change in lithology

Dolomitic mudstone to shale (86.3-108.0' TD): medium dark to dark gray. Very fine grained. Locally mottled. Argillaceous throughout. Locally fissile to laminated. Few beds of fossil fragments in upper part. 21.7'

TD 108.0'



3553 Crittenden Road
Alden, NY 14004
(716) 937- 6527

www.natureswayenvironmental.com

HOLE NUMBER: MW 3 (Deep) ELEVATION:

DATE: 7/6/16

PROJECT: Subsurface Investigation & Monitoring Well Installation
 for a Natural Resource Assessment

PREPARED FOR: Shelby Crushed Stone, Inc

BORING LOCATION: Eagle Harbor Sand and Gravel Facility, Town of Barre, NY

SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	REC	MONITORING WELL	REMARKS	COMMENTS
		RUN					Dolostone bedrock, gray, hard to very hard, can be etched with a knife with effort, thin to medium bedded, 2" to 8" thick, slightly calcareous, very fine crystalline	5.0'			
		# 2									
45		RUN						1.5'		Open NX Rock Hole	
		# 3									
50		RUN					Dolostone bedrock, gray to medium gray, very hard, thin to medium bedded, 2" to 10" thick, coarse crystalline (succrosic)	4.9'			
		# 4									
		RUN						4.8'			
		# 5									
55		RUN									
		# 6									
							See next sheet	59.0			
60											

Run #	Interval (ft)	Length (ft)	Rec (ft)	% Rec	RQD %
2	39.5 to 40.5	4.0	0.9	30	95
3	40.5 to 40.5	5.0	5.0	100	96
4	40.5 to 50.5	2.0	1.5	75	50
5	50.5 to 55.5	5.0	4.9	30	94
6	55.5 to 60.5	5.0	4.0	36	00



3553 Crittenden Road
 Alden, NY 14004
 (716) 937- 6527

www.natureswayenvironmental.com

HOLE NUMBER: MW 3 (Deep) ELEVATION:

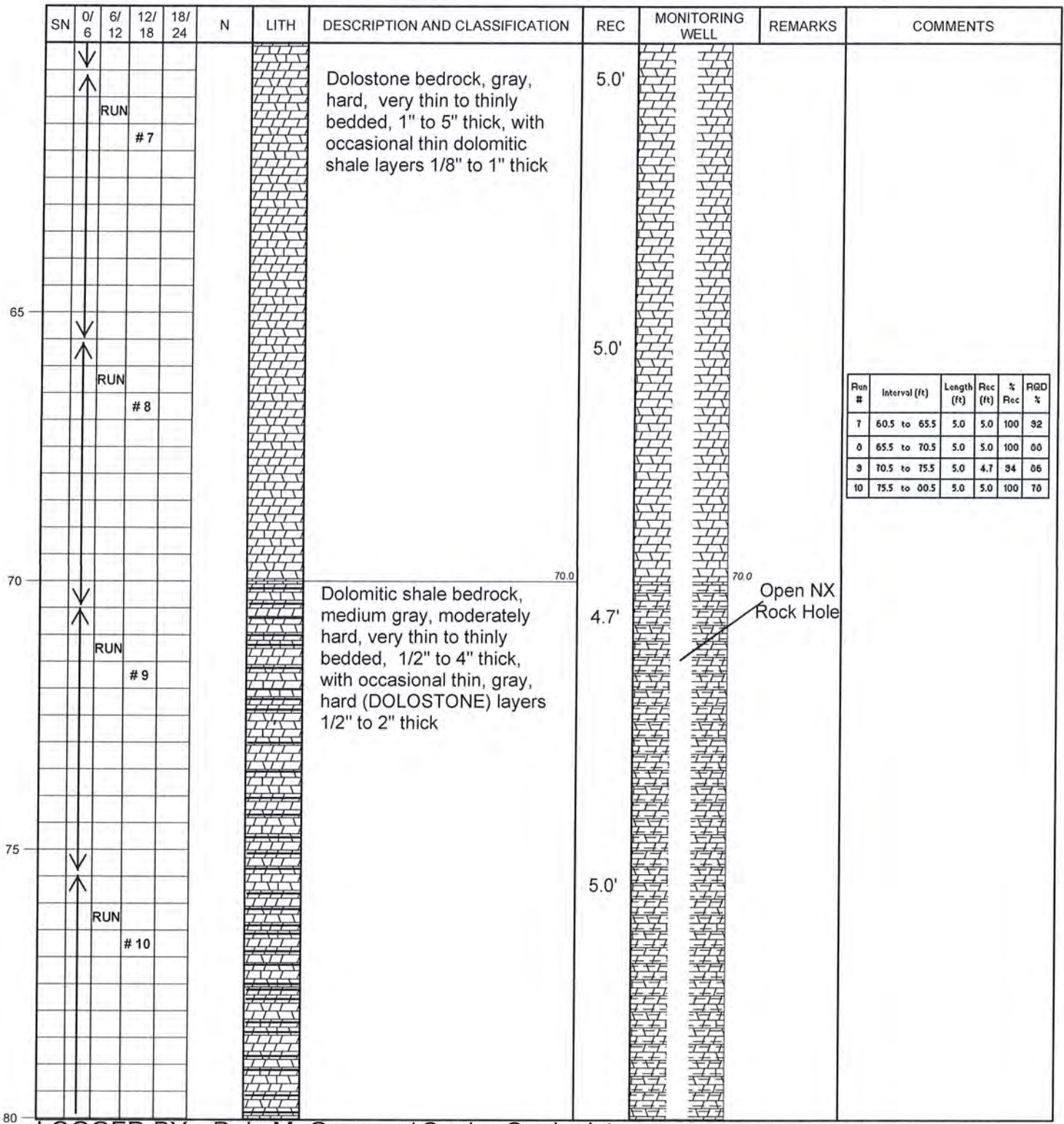
DATE: 7/6/16

PROJECT: Subsurface Investigation & Monitoring Well Installation

 for a Natural Resource Assessment

PREPARED FOR: Shelby Crushed Stone, Inc

BORING LOCATION: Eagle Harbor Sand and Gravel Facility, Town of Barre, NY





3553 Crittenden Road
 Alden, NY 14004
 (716) 937- 6527

www.natureswayenvironmental.com

HOLE NUMBER: MW 3 (Deep) ELEVATION:

DATE: 7/6/16

PROJECT: Subsurface Investigation & Monitoring Well Installation

 for a Natural Resource Assessment

PREPARED FOR: Shelby Crushed Stone, Inc

BORING LOCATION: Eagle Harbor Sand and Gravel Facility, Town of Barre, NY

SN	0/ 6	6/ 12	12/ 18	18/ 24	N	LITH	DESCRIPTION AND CLASSIFICATION	REC	MONITORING WELL	REMARKS	COMMENTS	
	↓						See Previous Sheet	80.5		80.5		
							Coring Completed at 80.5' BGS					
85												
90												
95												
100												

LOGGED BY: Dale M. Gramza / Senior Geologist PAGE 5 of 5



HOLE NUMBER: MW 3 (Shallow)

DATE: 7/7/16

ELEVATION: _____

PROJECT: Subsurface Investigation & Monitoring Well Installation
for a Natural Resource Assessment

PREPARED FOR: Shelby Crushed Stone, Inc

BORING LOCATION: Eagle Harbor Sand and Gravel Facility, Town of Barre, NY

SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	REC	MONITORING WELL	REMARKS	COMMENTS
0							Drill without sampling with 4 1/4" HSA to 18.0' BGS			Cement / Bentonite Grout	Drill without sampling with 4 1/4" HSA to 18.0' BGS
									3.0	Bentonite Seal	
5									6.0	2" PVC Riser Pipe	
									8.0	# 2 Size Sand	
10										2" 10 Slot PVC Screen	
15									18.0		
20							Drilling Completed at 18.0' BGS		18.0		



HOLE NUMBER: MW 4 (Shallow)

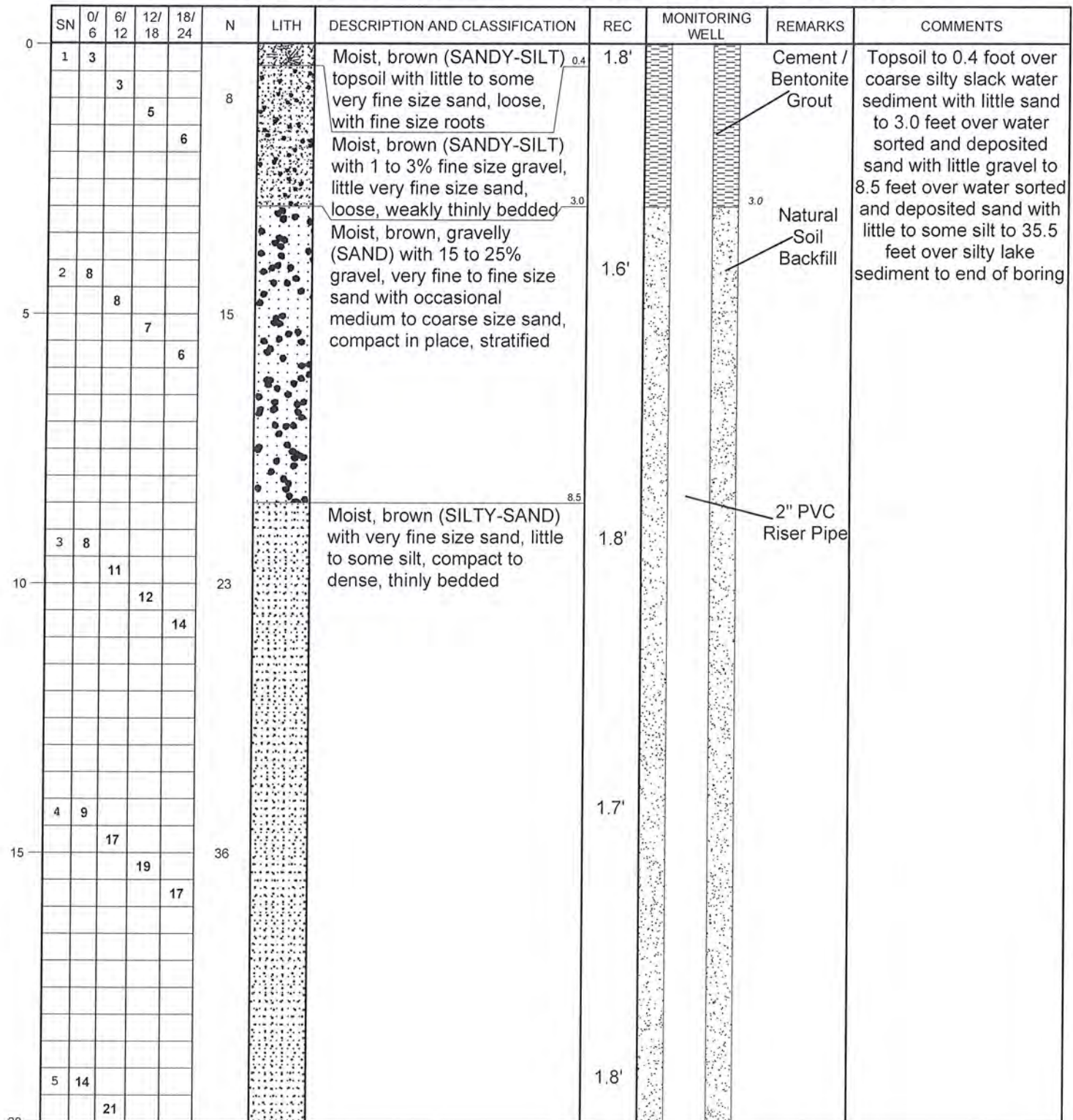
DATE: 6/30/16

ELEVATION: _____

PROJECT: Subsurface Investigation & Monitoring Well Installation
for a Natural Resource Assessment

PREPARED FOR: Shelby Crushed Stone, Inc

BORING LOCATION: Eagle Harbor Sand and Gravel Facility, Town of Barre, NY





3553 Crittenden Road
Alden, NY 14004
(716) 937-6527

www.natureswayenvironmental.com

HOLE NUMBER: MW 4 (Shallow) ELEVATION: _____

DATE: 6/30/16

PROJECT: Subsurface Investigation & Monitoring Well Installation

for a Natural Resource Assessment

PREPARED FOR: Shelby Crushed Stone, Inc

BORING LOCATION: Eagle Harbor Sand and Gravel Facility, Town of Barre, NY

SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	REC	MONITORING WELL	REMARKS	COMMENTS
			50/3"		>92		See previous sheet Boring Completed at 40.3' BGS		40.3		
45											
50											
55											
60											



3553 Crittenden Road
 Alden, NY 14004
 (716) 937- 6527

www.natureswayenvironmental.com

HOLE NUMBER: MW 4 (Deep) ELEVATION:

DATE: 7/5/16

PROJECT: Subsurface Investigation & Monitoring Well Installation
 for a Natural Resource Assessment

PREPARED FOR: Shelby Crushed Stone, Inc

BORING LOCATION: Eagle Harbor Sand and Gravel Facility, Town of Barre, NY

SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	REC	MONITORING WELL	REMARKS	COMMENTS
							Drill without sampling with 4¼" HSA to 43.0' BGS			3" Steel Casing Cement / Bentonite Grout	Drill without sampling with 4¼" HSA to 43.0' BGS

LOGGED BY: Dale M. Gramza / Senior Geologist PAGE 1 of 7



3553 Crittenden Road
 Alden, NY 14004
 (716) 937-6527

www.natureswayenvironmental.com

HOLE NUMBER: MW 4 (Deep) ELEVATION:

DATE: 7/5/16

PROJECT: Subsurface Investigation & Monitoring Well Installation
 for a Natural Resource Assessment

PREPARED FOR: Shelby Crushed Stone, Inc

BORING LOCATION: Eagle Harbor Sand and Gravel Facility, Town of Barre, NY

SN	0/ 6	6/ 12	12/ 18	18/ 24	N	LITH	DESCRIPTION AND CLASSIFICATION	REC	MONITORING WELL	REMARKS	COMMENTS
							Drill without sampling with 4 1/4" HSA to 43.0' BGS			3" Steel Casing Cement / Bentonite Grout	
25											
30											
35											
40											



3553 Crittenden Road
 Alden, NY 14004
 (716) 937- 6527

www.natureswayenvironmental.com

HOLE NUMBER: MW 4 (Deep) ELEVATION:

DATE: 7/5/16

PROJECT: Subsurface Investigation & Monitoring Well Installation

 for a Natural Resource Assessment

PREPARED FOR: Shelby Crushed Stone, Inc

BORING LOCATION: Eagle Harbor Sand and Gravel Facility, Town of Barre, NY

SN	0/6	6/12	12/18	18/24	N	LITH	DESCRIPTION AND CLASSIFICATION	REC	MONITORING WELL	REMARKS	COMMENTS
							Drill without sampling with 4 1/4" HSA to 43.0' BGS			3" Steel Casing Cement / Bentonite Grout	
1	39	50/3"			>50		Wet, brown (SILT) with trace to little very fine size sand	0.6'			Below 43.0 feet - silty lake sediment to 56.5 feet over apparent fractured dolostone rock (possible sand and gravel) to 59.7 feet over fractured dolostone rock to 62.5 feet over dolostone bedrock to end of boring
2	51	50/3"			>50			0.5'			
							Fractured dolostone rock, gray, hard, wet				
							See next sheet				



3553 Crittenden Road
 Alden, NY 14004
 (716) 937-6527

www.natureswayenvironmental.com

HOLE NUMBER: MW 4 (Deep)

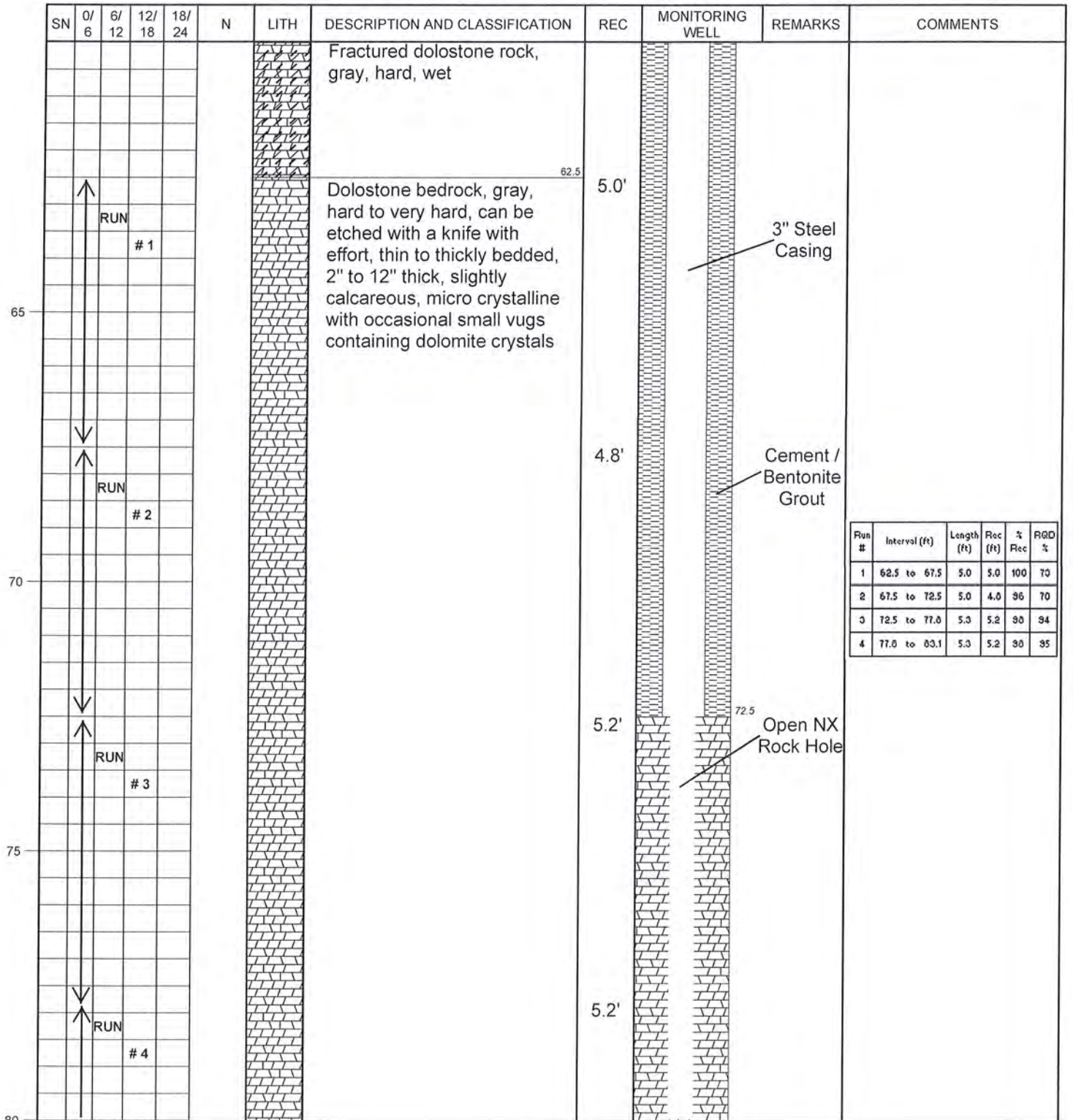
DATE: 7/5/16

ELEVATION: _____

PROJECT: Subsurface Investigation & Monitoring Well Installation
 for a Natural Resource Assessment

PREPARED FOR: Shelby Crushed Stone, Inc

BORING LOCATION: Eagle Harbor Sand and Gravel Facility, Town of Barre, NY



LOGGED BY: Dale M. Gramza / Senior Geologist PAGE 4 of 7



3553 Crittenden Road
Alden, NY 14004
(716) 937- 6527

www.natureswayenvironmental.com

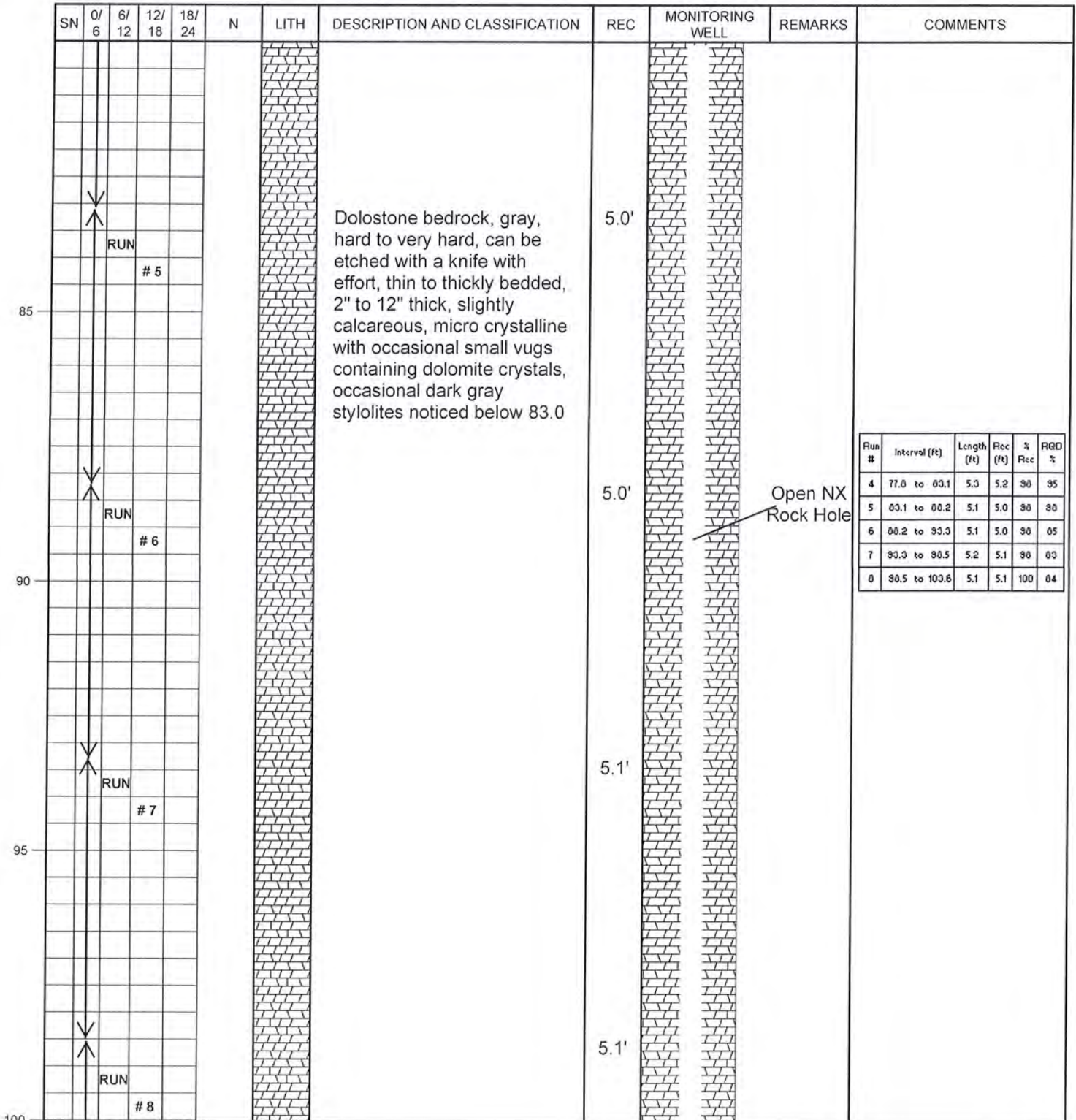
HOLE NUMBER: MW 4 (Deep)

DATE: 7/5/16 ELEVATION:

PROJECT: Subsurface Investigation & Monitoring Well Installation
 for a Natural Resource Assessment

PREPARED FOR: Shelby Crushed Stone, Inc

BORING LOCATION: Eagle Harbor Sand and Gravel Facility, Town of Barre, NY





HOLE NUMBER: MW 4 (Deep)

DATE: 7/5/16

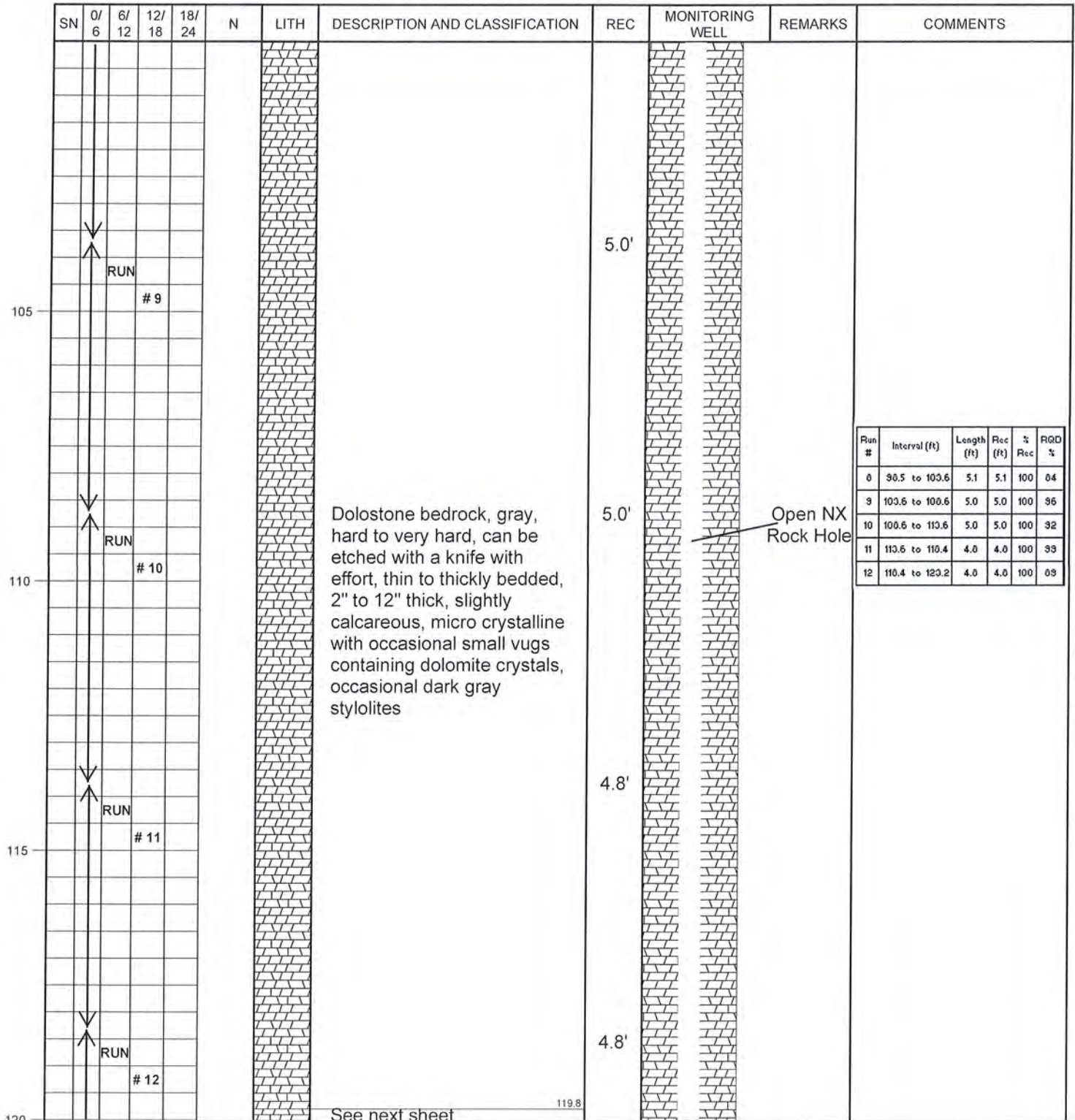
ELEVATION: _____

PROJECT: Subsurface Investigation & Monitoring Well Installation

for a Natural Resource Assessment

PREPARED FOR: Shelby Crushed Stone, Inc

BORING LOCATION: Eagle Harbor Sand and Gravel Facility, Town of Barre, NY





3553 Crittenden Road
 Alden, NY 14004
 (716) 937- 6527

www.natureswayenvironmental.com

HOLE NUMBER: MW 4 (Deep) ELEVATION:

DATE: 7/5/16

PROJECT: Subsurface Investigation & Monitoring Well Installation

 for a Natural Resource Assessment

PREPARED FOR: Shelby Crushed Stone, Inc

BORING LOCATION: Eagle Harbor Sand and Gravel Facility, Town of Barre, NY

SN	0/ 6	6/ 12	12/ 18	18/ 24	N	LITH	DESCRIPTION AND CLASSIFICATION	REC	MONITORING WELL	REMARKS	COMMENTS
							Dolostone bedrock, gray to dark gray, very hard, thin to medium bedded, 4" to 8" thick, slightly calcareous, crystalline				
								5.2'		Open NX Rock Hole	
							Dolostone bedrock, gray, hard, can be etched with a knife, very thin to thinly bedded, 1/2" to 4" thick, with thin dark gray (SHALE) seams and layers up to 1" thick				
							Coring Completed at 128.4' BGS				

Run #	Interval (ft)	Length (ft)	Rec (ft)	% Rec	RQD %
12	118.4 to 123.2	4.8	4.8	100	83
13	123.2 to 128.4	5.2	5.2	100	73