



Project Summary Memo
Via email

Date: 13 July 2021

To: Aaron Hughes, Land Management Agent
KPB Land Management Division

From: Cody McLane, PE

Project: KPB Sterling / Soldotna Parcels Soils Profile

Re: Parcel 06304329 Summary

In the summer of 2021 the Kenai Peninsula Borough (KPB) contracted with McLane Consulting Inc. (MCI) to conduct a soils investigation of parcel 06304329, located on Red Hill Street (Sterling Highway to Robinson Loop Road) in the Sterling area, Alaska. The intent of the soils investigation was to provide basic soils data for the respective parcel.

On June 30th, July 1st and July 2nd MCI Engineer Cody McLane logged test holes at locations provided by the KPB (see soils profile for WGS84 positional locations). Test holes were excavated utilizing a John Deere 50D excavator utilizing benching technique to reach required depth of 12 to 13 feet. A stake with the test hole number was left at each location. A total of (5) test holes were excavated and logged, with the dominant strata sampled for additional testing by sieve analysis in test holes 1, 2 and 3.

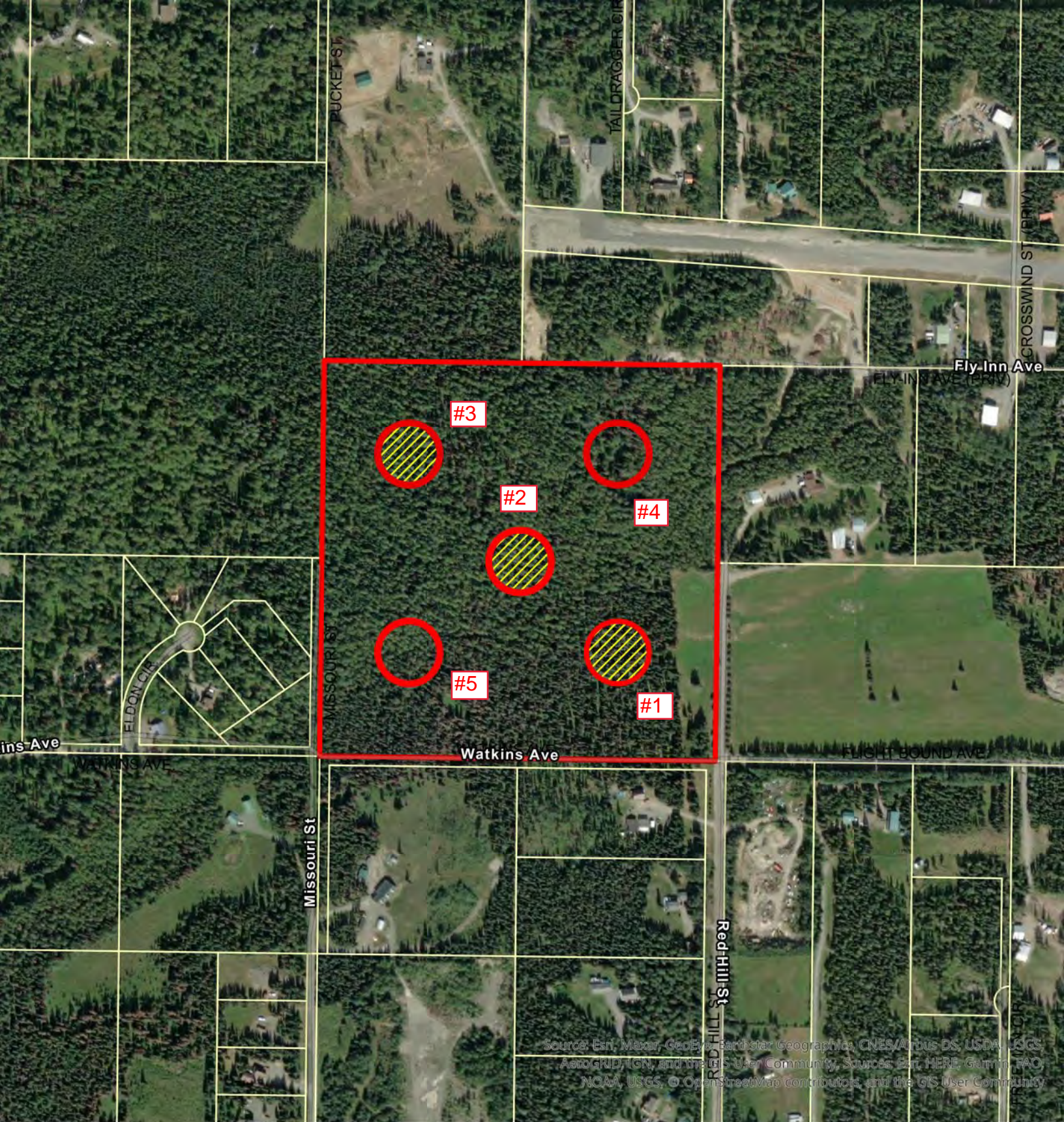
Soils of parcel 06304329 were found to be a mix of silts and sands overlain by several feet of silt loam. Some of silt stratum are dense and not free draining. Trace amounts of gravel were found at depth in test holes 1, 2 and 3. Heavy ground water seep was found in test hole 1; no ground water was encountered in any of the other locations. Test hole profiles, pictures, sieve analysis results and GIS parcel map with general test holes locations are attached to the end of this memo.

Please feel free to contact me if you have any questions or comments.

Sincerely,
Cody R. McLane, P.E.
Principal
McLane Consulting, Inc.





7/13/2021

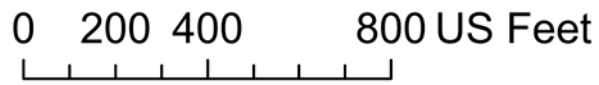


Site Map: 063-043-29



Legend

-  Proposed Test Hole
-  Proposed Test Hole With Sieve Analysis



Project: **SW1/4 NE1/4 Sec 3, T05N, R09W SM Soils Investigation (Parcel# 06304329)**
 Field Tech: Cody McLane
 Equipment: John Deere 50D Excavator
 Work Date: June 30 thru July 2, 2021
 Conditions: 6/30/2021: Sunny 65° F, 7/1/2021: Overcast, 59° F, 7/2/2021: P. Cloudy, 57° F,

LOG OF ON-SITE SOILS

Test Hole Number	Depth	USCS	Description / Date
#1	Location:	Woods	30-Jun-21
	Latitude:	60°33'13.128" N	
	Longitude:	150°50'47.124" W	
	0.0 - 0.4	PT-OL	ROOT MAT & organics
	0.4 - 2.4	ML	Dark brown to tan SILT loam
	2.4 - 7.0	SM	Silty, fine grain SAND w/ gravel
	7.0 - 9.3	SP	Clean, coarse grain SAND w/ gravel
	9.3 - 9.7	ML	Grey SILT w/ sand, dense
9.7 - 12.5	SM	Silty, fine grain SAND , dense	
* Sample taken at 7.5 - 8.5'			
* Heavy ground water seep encountered from 8.0 to 9.3'			
#2	Location:	Woods	1-Jul-21
	Latitude:	60°33'15.828" N	
	Longitude:	150°51'00.000" W	
	0.0 - 0.4	PT-OL	ROOT MAT & organics
	0.4 - 2.0	ML	Tan-brown to grey SILT loam
	2.0 - 8.7	SM	Silty SAND w/ gravel, dense
8.7 - 12.3	ML	Gravelly SILT w/ sand and cobbles	
* Sample taken at 8.0 - 8.5'			
* No ground water encountered			
#3	Location:	Woods	1-Jul-21
	Latitude:	60°33'20.154" N	
	Longitude:	150°51'07.884" W	
	0.0 - 0.4	PT-OL	ROOT MAT & organics
	0.4 - 2.3	ML	Tan-brown to tan-grey SILT loam w/ sand
2.3 - 9.0	SM	Silty, fine grain SAND w/ gravel, dense	
9.0 - 12.0	ML	Grey, sandy SILT , dense	
* Sample taken at 8.0 - 9.0'			
* No ground water encountered.			

Project: **SW1/4 NE1/4 Sec 3, T05N, R09W SM Soils Investigation (Parcel# 06304329)**
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 Equipment: John Deere 50D Excavator
 Work Date: June 30 thru July 2, 2021
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LOG OF ON-SITE SOILS

Test Hole Number	Depth	USCS	Description / Date
#4	Location:	Woods	2-Jul-21
	Latitude:	60°33'20.775" N	
	Longitude:	150°50'52.476" W	
	0.0 - 0.5	PT-OL	ROOT MAT & organics
	0.5 - 3.0	ML	Brown to tan-grey SILT loam
	3.0 - 9.6	SM	Silty SAND w/ gravel
	9.6 - 13.5	ML	Grey, sandy SILT , loose
* No ground water encountered			
#5	Location:	Woods	2-Jul-21
	Latitude:	60°33'13.040" N	
	Longitude:	150°51'03.623" W	
	0.0 - 0.5	PT-OL	ROOT MAT & organics
	0.5 - 3.9	ML	Brown to tan-grey SILT loam
	3.9 - 7.8	SM	Silty SAND
	7.8 - 10.6	SP	SAND
	10.6 - 13.3	SM	Silty, fine grain SAND
* No ground water encountered			

- Notes:
1. Groundwater or water seep encountered in test hole #1.
 2. No permafrost encountered or anticipated in this area.
 3. Grab samples were visually classified under the Unified Soils Classification System by Cody McLane PE.
 4. Test hole locations based on WGS84 datum and listed in degrees-minutes-seconds.

Test Hole #1



Test Hole #2



Test Hole #3

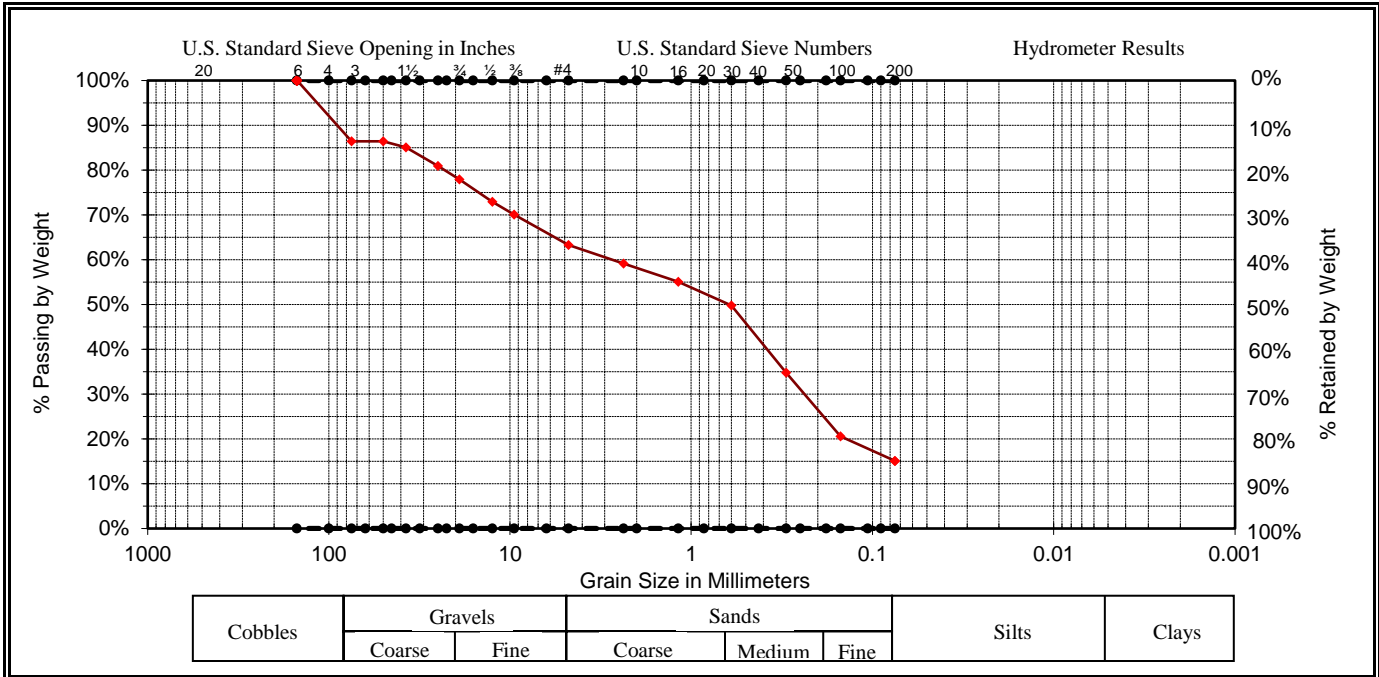


Test Hole #4



Test Hole #5





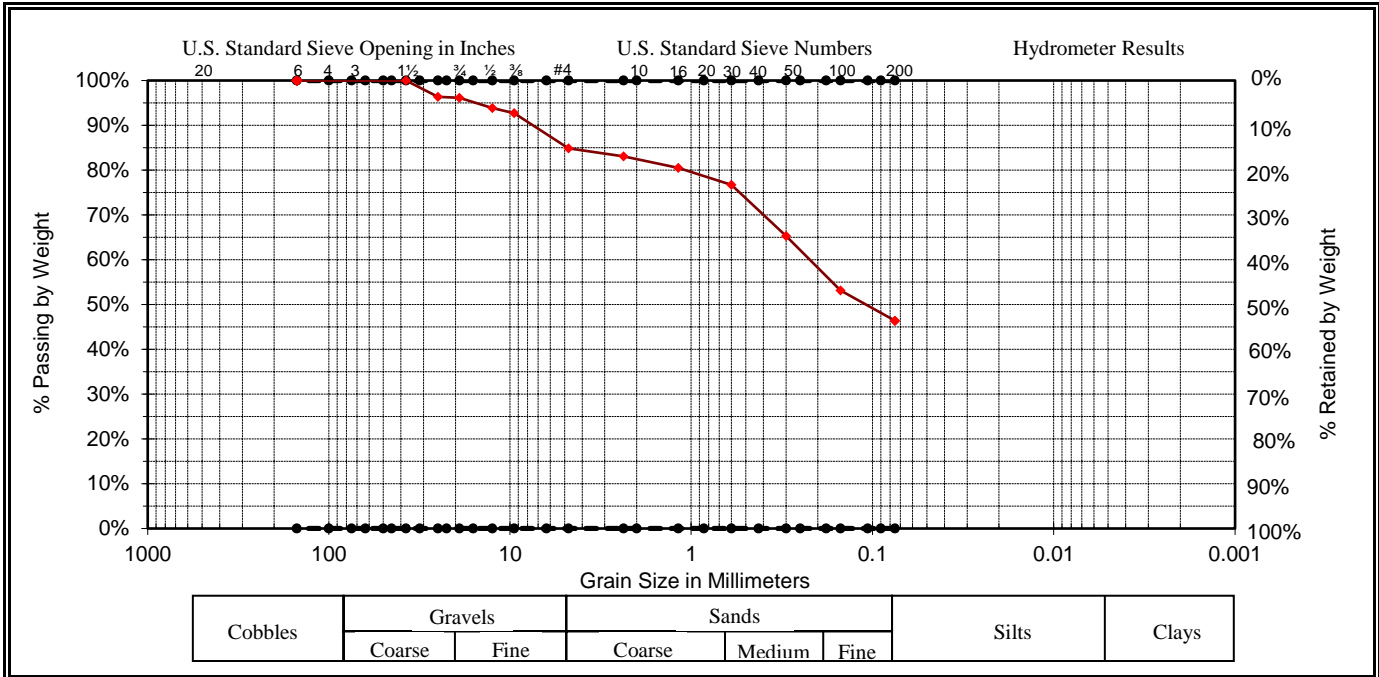
Cobbles	Gravels		Sands			Silts	Clays
	Coarse	Fine	Coarse	Medium	Fine		

Date : 07/01/21	D ₁₀ = 0.05	USCS Classification	% Sand
Sample #:	D ₃₀ = 0.25	SM, Silty Sand with Gravel	48.2%
Sample ID:	D ₆₀ = 2.87	Specifications	% Gravel
Source:	C _c = 0.44	No Specs	36.7%
Project: KPB	C _u = 57.68	Sample Meets Specs	% Silt & Clay
Location: Parcel 06304329	Liquid Limit= n/a	n/a	15.1%
Boring #: TH 2	Plastic Limit= n/a	Fineness Modulus	
Depth: 8.0-8.5'	Plasticity Index= n/a	3.98	

Coarse Section					Fines Section						
Sieve Size		Actual Cumulative Percent Passing	Interpolated Cumulative Percent Passing	Specs Max	Specs Min	Sieve Size		Actual Cumulative Percent Passing	Interpolated Cumulative Percent Passing	Specs Max	Specs Min
US	Metric	Percent Passing	Percent Passing			US	Metric	Percent Passing	Percent Passing		
6.00"	150.00		100.0%			#4	4.750	63.3%	63.3%		
4.00"	100.00		100.0%			#8	2.360	59.1%	59.1%		
3.00"	75.00	86.4%	86.4%			#10	2.000	57.9%	57.9%		
2.50"	63.00		86.4%			#16	1.180	55.0%	55.0%		
2.00"	50.00	86.4%	86.4%			#20	0.850	52.0%	52.0%		
1.75"	45.00		85.9%			#30	0.600	49.8%	49.8%		
1.50"	37.50	85.1%	85.1%			#40	0.425	41.0%	41.0%		
1.25"	31.50		83.1%			#50	0.300	34.8%	34.8%		
1.00"	25.00	80.9%	80.9%			#60	0.250		30.0%		
7/8"	22.40		79.6%			#80	0.180		23.4%		
3/4"	19.00	77.9%	77.9%			#100	0.150	20.5%	20.5%		
5/8"	16.00		75.6%			#140	0.106		17.3%		
1/2"	12.50	72.9%	72.9%			#170	0.090		16.1%		
3/8"	9.50	70.0%	70.0%			#200	0.075	15.1%	15.1%		
1/4"	6.30		65.5%			#270	0.053				
#4	4.75	63.3%	63.3%								

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WAQTC FOP
for
AASHTO T27/T11



Cobbles	Gravels		Sands			Silts	Clays
	Coarse	Fine	Coarse	Medium	Fine		

Date : 07/01/21	D ₁₀ = 0.02	USCS Classification	% Sand
Sample #:	D ₃₀ = 0.05	SM, Silty Sand with Gravel	38.5%
Sample ID:	D ₆₀ = 0.24	Specifications	% Gravel
Source:	C _c = 0.62	No Specs	15.2%
Project: KPB	C _u = 14.53	Sample Meets Specs	% Silt & Clay
Location: Parcel 06304329	Liquid Limit= n/a	n/a	46.4%
Boring #: TH 3	Plastic Limit= n/a	Fineness Modulus	
Depth: 8.0-9.0'	Plasticity Index= n/a	1.68	

Coarse Section					Fines Section						
Sieve Size		Actual Cumulative Percent Passing	Interpolated Cumulative Percent Passing	Specs Max	Specs Min	Sieve Size		Actual Cumulative Percent Passing	Interpolated Cumulative Percent Passing	Specs Max	Specs Min
US	Metric	Percent Passing	Percent Passing			US	Metric	Percent Passing	Percent Passing		
6.00"	150.00		100.0%			#4	4.750	84.8%	84.8%		
4.00"	100.00		100.0%			#8	2.360	83.0%	83.0%		
3.00"	75.00		100.0%			#10	2.000	82.2%	82.2%		
2.50"	63.00		100.0%			#16	1.180	80.4%	80.4%		
2.00"	50.00		100.0%			#20	0.850	78.3%	78.3%		
1.75"	45.00		100.0%			#30	0.600	76.7%	76.7%		
1.50"	37.50	100.0%	100.0%			#40	0.425	70.0%	70.0%		
1.25"	31.50		98.3%			#50	0.300	65.3%	65.3%		
1.00"	25.00	96.4%	96.4%			#60	0.250	61.2%	61.2%		
7/8"	22.40		96.3%			#80	0.180	55.5%	55.5%		
3/4"	19.00	96.1%	96.1%			#100	0.150	53.1%	53.1%		
5/8"	16.00		95.1%			#140	0.106	49.1%	49.1%		
1/2"	12.50	93.8%	93.8%			#170	0.090	47.7%	47.7%		
3/8"	9.50	92.7%	92.7%			#200	0.075	46.4%	46.4%		
1/4"	6.30		87.4%			#270	0.053				
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