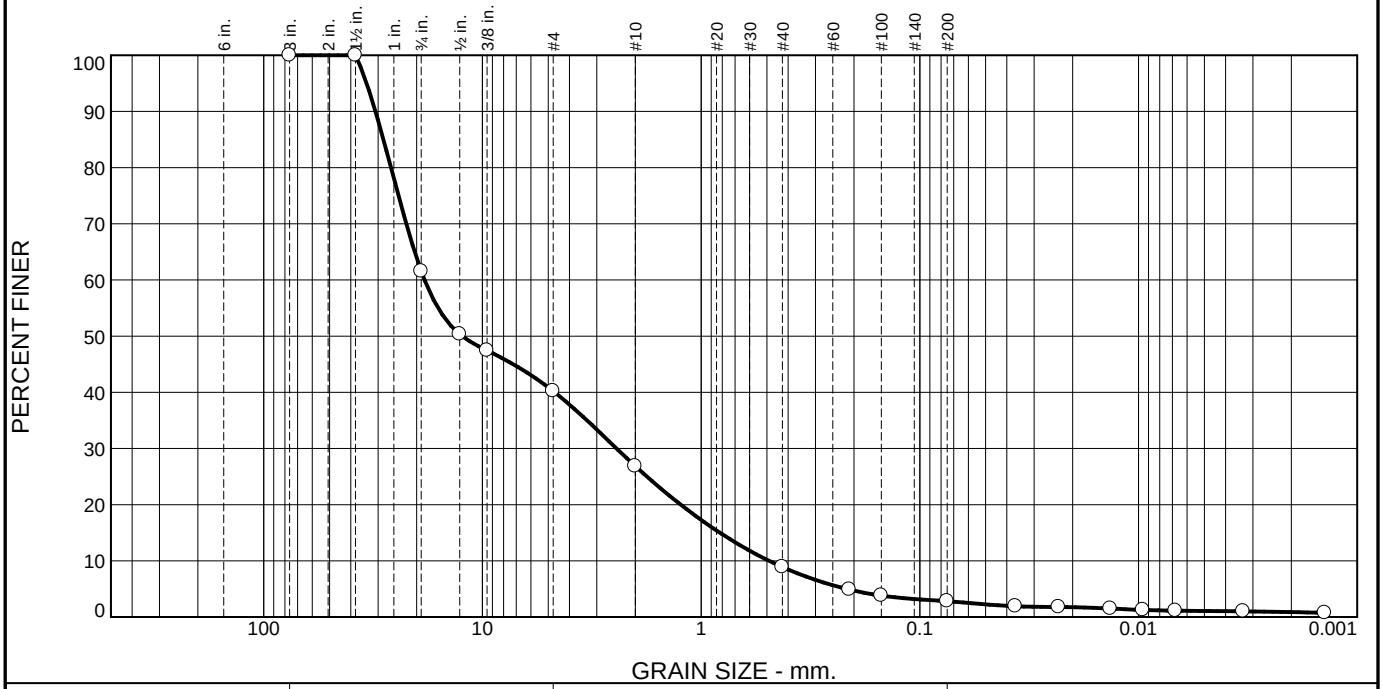
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	38.4	21.4	13.3	18.0	6.1	1.7	1.1

Test Results (ASTM D 422 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3.0"	100.0		
1.5	100.0		
3/4	61.6		
1/2	50.3		
3/8	47.5		
#4	40.2		
#10	26.9		
#40	8.9		
#70	4.9		
#100	3.8		
#200	2.8		
0.0365 mm.	1.9		
0.0232 mm.	1.8		
0.0134 mm.	1.5		
0.0095 mm.	1.3		
0.0068 mm.	1.1		
0.0033 mm.	1.0		
0.0014 mm.	0.8		

* (no specification provided)

Material Description

Atterberg Limits (ASTM D 4318)

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

Classification

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

Coefficients

D_{90}= 30.8308 D_{85}= 28.3543 D_{60}= 18.3850
D_{50}= 12.3855 D_{30}= 2.4361 D_{15}= 0.8201
D_{10}= 0.4888 C_u= 37.62 C_c= 0.66

Remarks

Date Received: July 19 2021 **Date Tested:** July 19-23 2021

Tested By: JPC

Checked By: JPC

Title: Engineering Technician

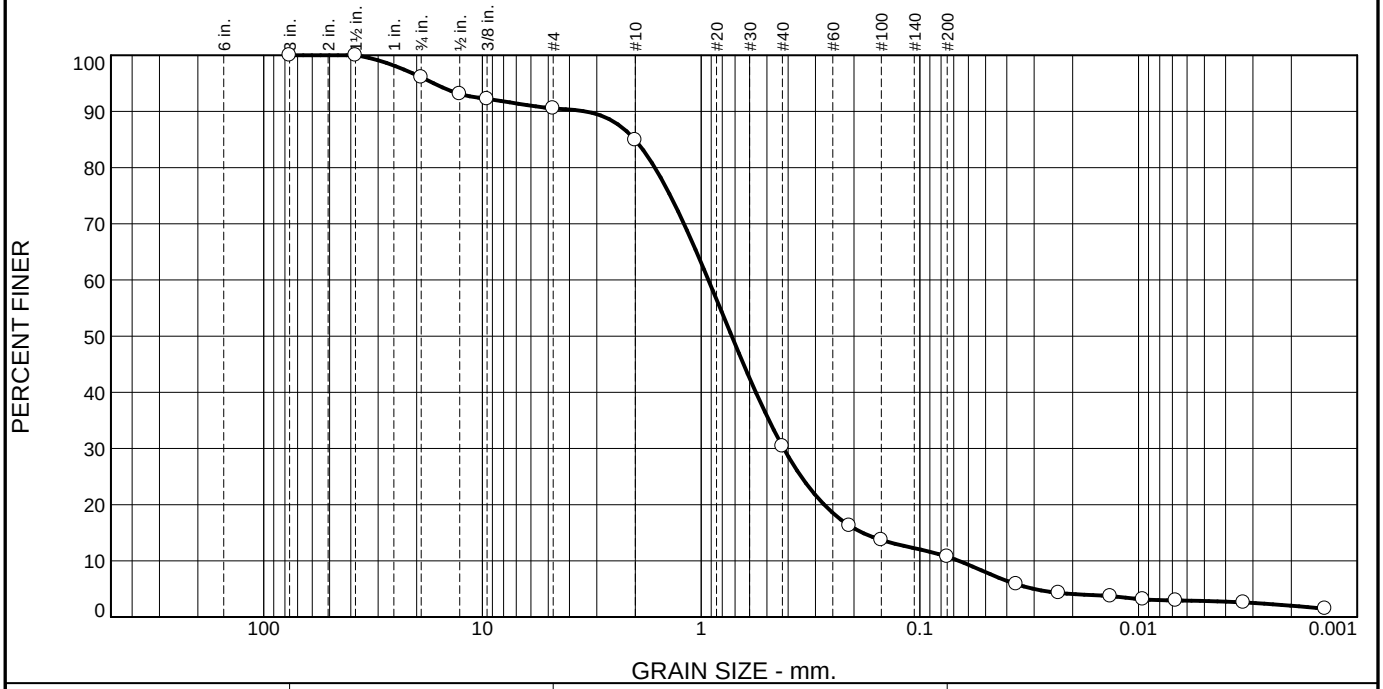
Source of Sample: Bag Samples **Date Sampled:** June 2021
Sample Number: 1-1

US ARMY CORPS OF ENGINEERS ST. LOUIS

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo

Project No: ID# 113454-46 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	3.9	5.6	5.6	54.5	19.7	7.8	2.9

Test Results (ASTM D 422 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3.0"	100.0		
1.5"	100.0		
3/4	96.1		
1/2	93.1		
3/8	92.2		
#4	90.5		
#10	84.9		
#40	30.4		
#70	16.3		
#100	13.7		
#200	10.7		
0.0363 mm.	5.9		
0.0232 mm.	4.3		
0.0134 mm.	3.7		
0.0095 mm.	3.1		
0.0068 mm.	3.0		
0.0033 mm.	2.6		
0.0014 mm.	1.5		

* (no specification provided)

Material Description

Atterberg Limits (ASTM D 4318)

PL= Np **LL=** NV **PI=**

Classification

USCS (D 2487)= SW-SM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 3.3817 D_{85}= 2.0109 D_{60}= 0.9262
D_{50}= 0.7244 D_{30}= 0.4193 D_{15}= 0.1828
D_{10}= 0.0663 C_u= 13.96 C_c= 2.86

Remarks

Date Received: July 18th 2021 **Date Tested:** July 20-25 2021

Tested By: JPC

Checked By: JPC

Title: Engineering Technician

Source of Sample: Bag Samples **Date Sampled:** May 2021

Sample Number: 1-2

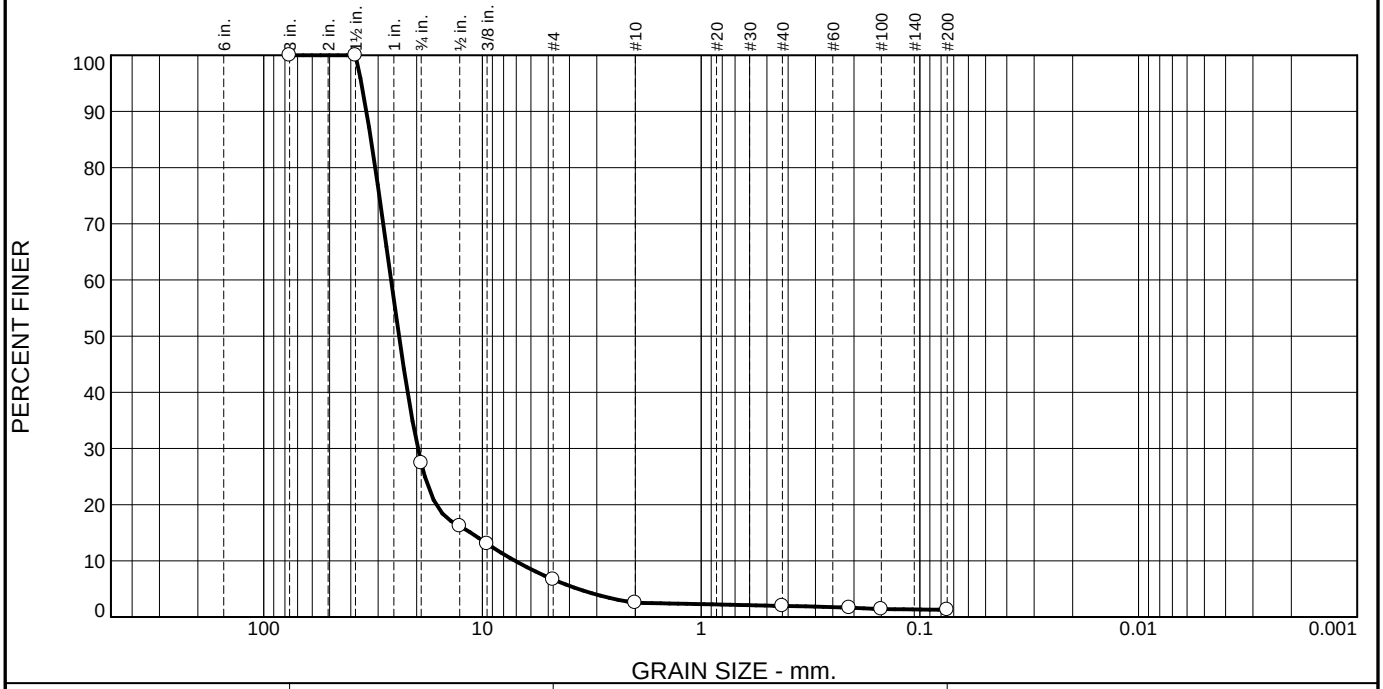
US ARMY CORPS OF ENGINEERS ST. LOUIS

Client: USACE MVS EC-HD

Project: Rio Puerto Nuevo

Project No: ID# 113454-46 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	72.6	20.7	4.2	0.5	0.7	1.3	

Test Results (ASTM D 422 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3.0"	100.0		
1.5"	100.0		
3/4	27.4		
1/2	16.2		
3/8	13.1		
#4	6.7		
#10	2.5		
#40	2.0		
#70	1.7		
#100	1.4		
#200	1.3		

* (no specification provided)

Material Description

Atterberg Limits (ASTM D 4318)

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

Classification

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

Coefficients

D_{90}= 33.9144 D_{85}= 32.3240 D_{60}= 26.1713
D_{50}= 24.0746 D_{30}= 19.7286 D_{15}= 11.3090
D_{10}= 7.0859 C_u= 3.69 C_c= 2.10

Remarks

No Hydro,lacks req. passing #10

Date Received: July 18th 2021 **Date Tested:** July 20-25 2021

Tested By: JPC

Checked By: JPC

Title: Engineering Technician

Source of Sample: Bag Samples **Date Sampled:** May 2021

Sample Number: 1-3

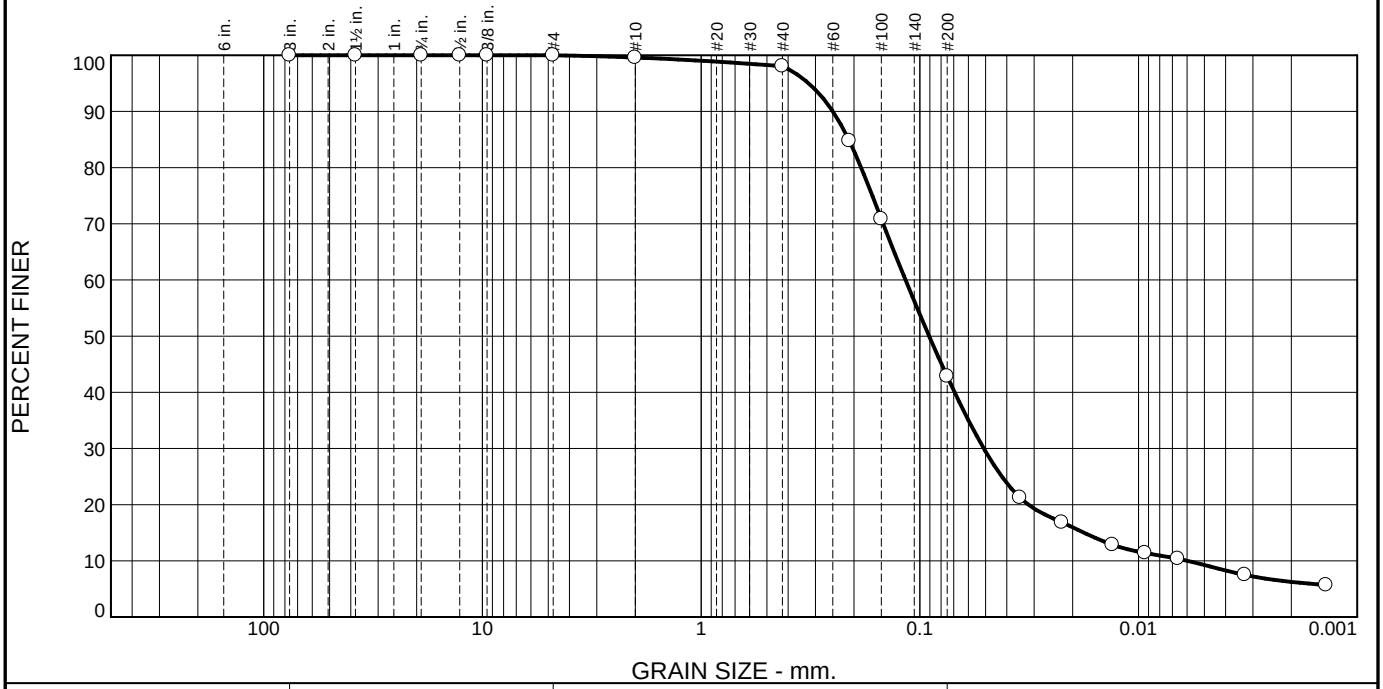
US ARMY CORPS OF ENGINEERS ST. LOUIS

Client: USACE MVS EC-HD

Project: Rio Puerto Nuevo

Project No: ID# 113454-46 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	1.6	55.1	33.6	9.3

Test Results (ASTM D 422 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3.0"	100.0		
1.5"	100.0		
3/4	100.0		
1/2	100.0		
3/8	100.0		
#4	100.0		
#10	99.6		
#40	98.0		
#70	84.8		
#100	70.9		
#200	42.9		
0.0348 mm.	21.2		
0.0224 mm.	16.9		
0.0131 mm.	12.9		
0.0093 mm.	11.4		
0.0066 mm.	10.4		
0.0033 mm.	7.5		
0.0014 mm.	5.7		

* (no specification provided)

Material Description

Atterberg Limits (ASTM D 4318)

PL= NP **LL=** NV **PI=** NP

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-4(0)

Coefficients

D_{90}= 0.2500 D_{85}= 0.2115 D_{60}= 0.1163
D_{50}= 0.0906 D_{30}= 0.0510 D_{15}= 0.0177
D_{10}= 0.0060 C_u= 19.44 C_c= 3.74

Remarks

Date Received: July 18th 2021 **Date Tested:** July 20-25 2021

Tested By: JPC

Checked By: JPC

Title: Engineering Technician

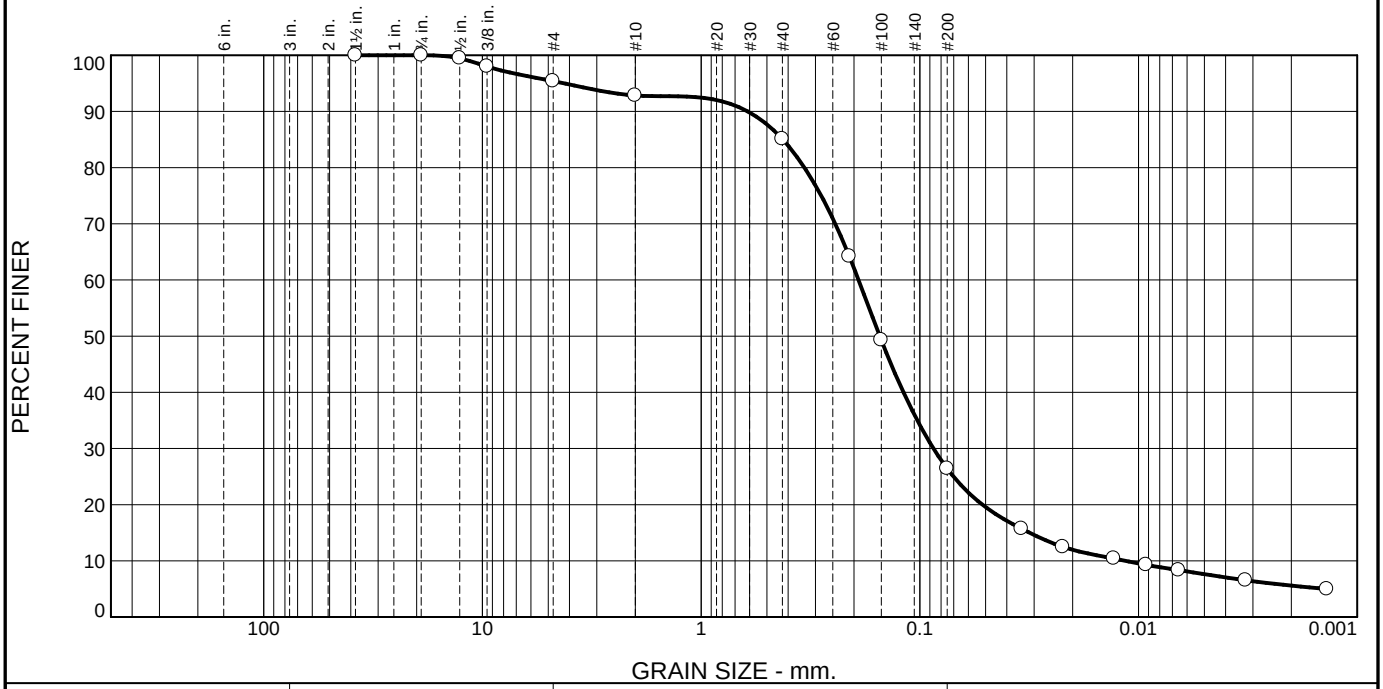
Source of Sample: Bag Samples **Date Sampled:** May 2021
Sample Number: 1-4

US ARMY CORPS OF ENGINEERS ST. LOUIS

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo

Project No: ID# 113454-46 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	4.6	2.6	7.7	58.7	18.8	7.6

Test Results (ASTM D 422 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1.5"	100.0		
3/4	100.0		
1/2	99.5		
3/8	98.0		
#4	95.4		
#10	92.8		
#40	85.1		
#70	64.2		
#100	49.3		
#200	26.4		
0.0343 mm.	15.7		
0.0221 mm.	12.5		
0.0130 mm.	10.4		
0.0092 mm.	9.3		
0.0066 mm.	8.4		
0.0032 mm.	6.5		
0.0014 mm.	5.0		

* (no specification provided)

Material Description

Atterberg Limits (ASTM D 4318)

PL= NP **LL=** NV **PI=**

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-2-4(0)

Coefficients

D_{90}= 0.6121 D_{85}= 0.4233 D_{60}= 0.1906
D_{50}= 0.1525 D_{30}= 0.0867 D_{15}= 0.0315
D_{10}= 0.0115 C_u= 16.60 C_c= 3.43

Remarks

Date Received: July 18th 2021 **Date Tested:** July 19-23 2021

Tested By: JPC

Checked By: JPC

Title: Engineering Technician

Source of Sample: Bag Samples **Date Sampled:** May 2021

Sample Number: 1-5

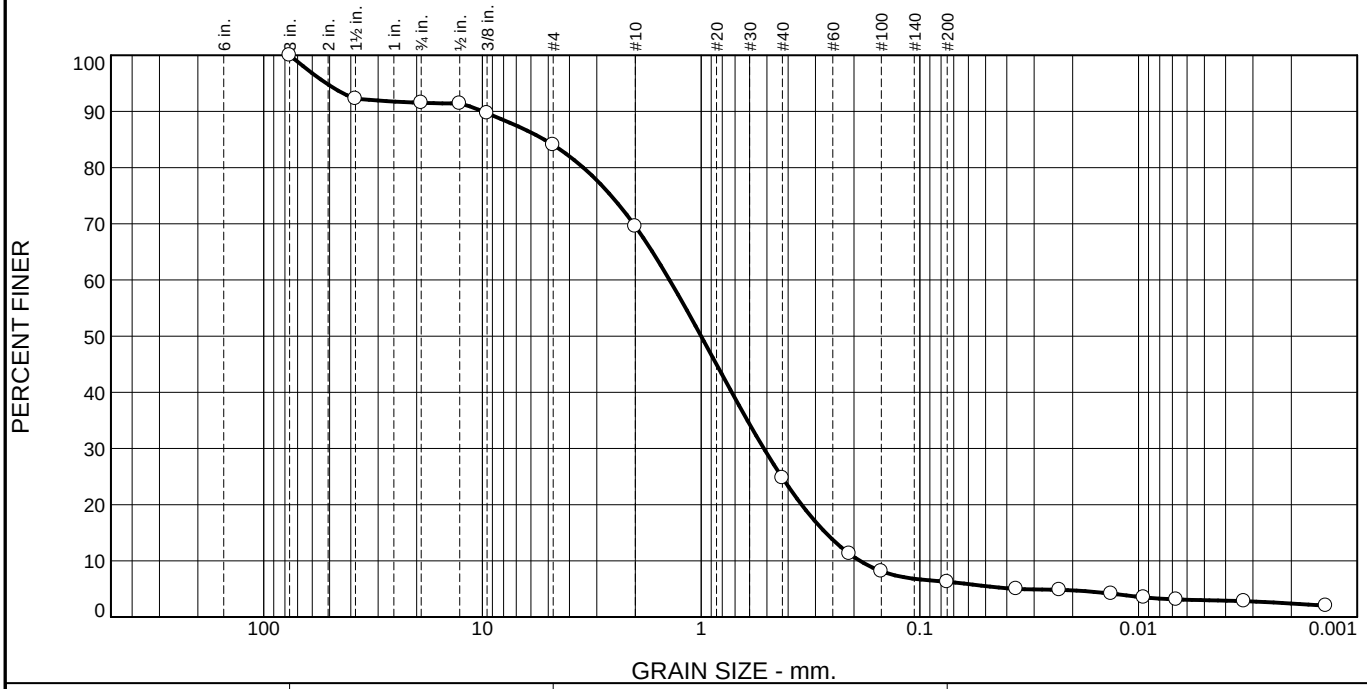
US ARMY CORPS OF ENGINEERS ST. LOUIS

Client: USACE MVS EC-HD

Project: Rio Puerto Nuevo

Project No: ID# 113454-46 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	8.5	7.5	14.5	44.7	18.5	3.3	3.0

Test Results (ASTM D 422 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3.0"	100.0		
1.5"	92.3		
3/4	91.5		
1/2	91.4		
3/8	89.7		
#4	84.0		
#10	69.5		
#40	24.8		
#70	11.3		
#100	8.2		
#200	6.3		
0.0363 mm.	5.0		
0.0230 mm.	4.8		
0.0133 mm.	4.2		
0.0095 mm.	3.5		
0.0067 mm.	3.1		
0.0033 mm.	2.8		
0.0014 mm.	2.0		

* (no specification provided)

Material Description

Atterberg Limits (ASTM D 4318)

PL= NP **LL=** NV **PI=**

Classification

USCS (D 2487)= SW-SM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 9.9581 D_{85}= 5.2203 D_{60}= 1.3945
D_{50}= 1.0000 D_{30}= 0.5167 D_{15}= 0.2695
D_{10}= 0.1878 C_u= 7.43 C_c= 1.02

Remarks

Date Received: July 18th 2021 **Date Tested:** July 19-23 2021

Tested By: JPC

Checked By: JPC

Title: Engineering Technician

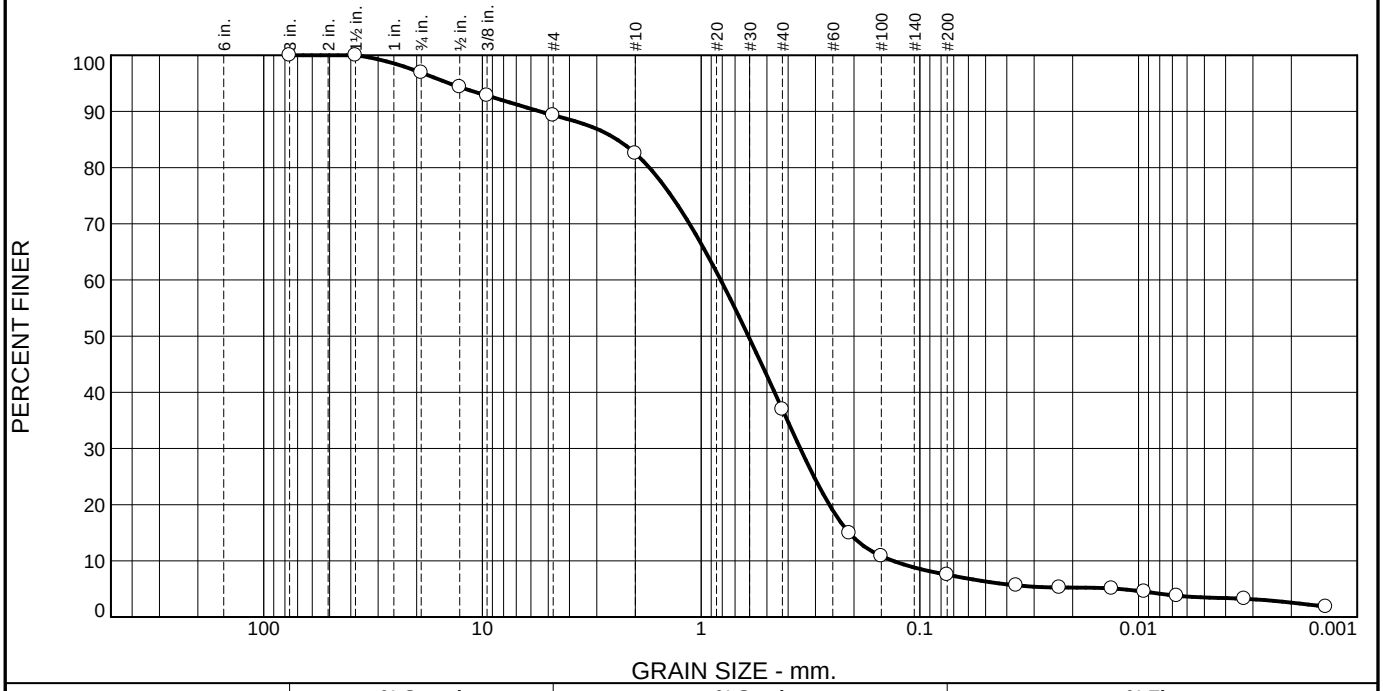
Source of Sample: Bag Samples **Date Sampled:** June 2021
Sample Number: 2-6

US ARMY CORPS OF ENGINEERS ST. LOUIS

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo

Project No: ID# 113454-46 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	3.1	7.6	6.8	45.6	29.4	4.0	3.5

Test Results (ASTM D 422 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3.0"	100.0		
1.5"	100.0		
3/4	96.9		
1/2	94.3		
3/8	92.8		
#4	89.3		
#10	82.5		
#40	36.9		
#70	15.0		
#100	10.9		
#200	7.5		
0.0362 mm.	5.6		
0.0230 mm.	5.3		
0.0133 mm.	5.1		
0.0094 mm.	4.5		
0.0067 mm.	3.8		
0.0033 mm.	3.3		
0.0014 mm.	1.9		

* (no specification provided)

Material Description

Atterberg Limits (ASTM D 4318)

PL= NP **LL=** NV **PI=**

Classification

USCS (D 2487)= SW-SM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 5.4594 D_{85}= 2.4206 D_{60}= 0.8139
D_{50}= 0.6077 D_{30}= 0.3519 D_{15}= 0.2106
D_{10}= 0.1326 C_u= 6.14 C_c= 1.15

Remarks

Date Received: July 18th 2021 **Date Tested:** July 20-25 2021

Tested By: JPC

Checked By: JPC

Title: Engineering Technician

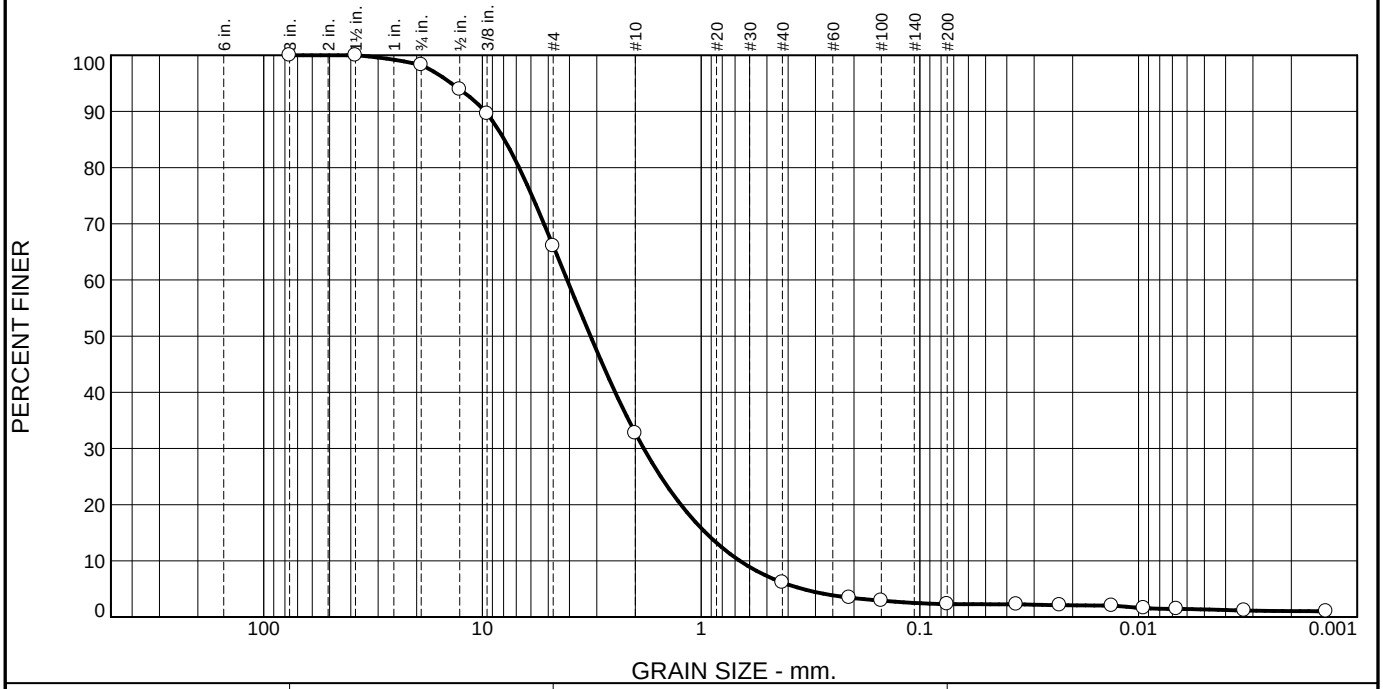
Source of Sample: Bag Samples **Date Sampled:** June 2021
Sample Number: 2-7

US ARMY CORPS OF ENGINEERS ST. LOUIS

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo

Project No: ID# 113454-46 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	1.7	32.2	33.4	26.6	3.8	1.0	1.3

Test Results (ASTM D 422 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3.0"	100.0		
1.5"	100.0		
3/4	98.3		
1/2	93.9		
3/8	89.6		
#4	66.1		
#10	32.7		
#40	6.1		
#70	3.5		
#100	2.9		
#200	2.3		
0.0362 mm.	2.3		
0.0229 mm.	2.1		
0.0133 mm.	2.0		
0.0095 mm.	1.6		
0.0067 mm.	1.4		
0.0033 mm.	1.2		
0.0014 mm.	1.0		

* (no specification provided)

Material Description

Atterberg Limits (ASTM D 4318)

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

Classification

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

Coefficients

D_{90}= 9.7255 D_{85}= 7.9370 D_{60}= 4.0984
D_{50}= 3.2060 D_{30}= 1.8303 D_{15}= 0.9527
D_{10}= 0.6649 C_u= 6.16 C_c= 1.23

Remarks

Date Received: July 18th 2021 **Date Tested:** July 19-23 2021

Tested By: JPC

Checked By: JPC

Title: Engineering Technician

Source of Sample: Bag Samples **Date Sampled:** May 2021

Sample Number: 4-1

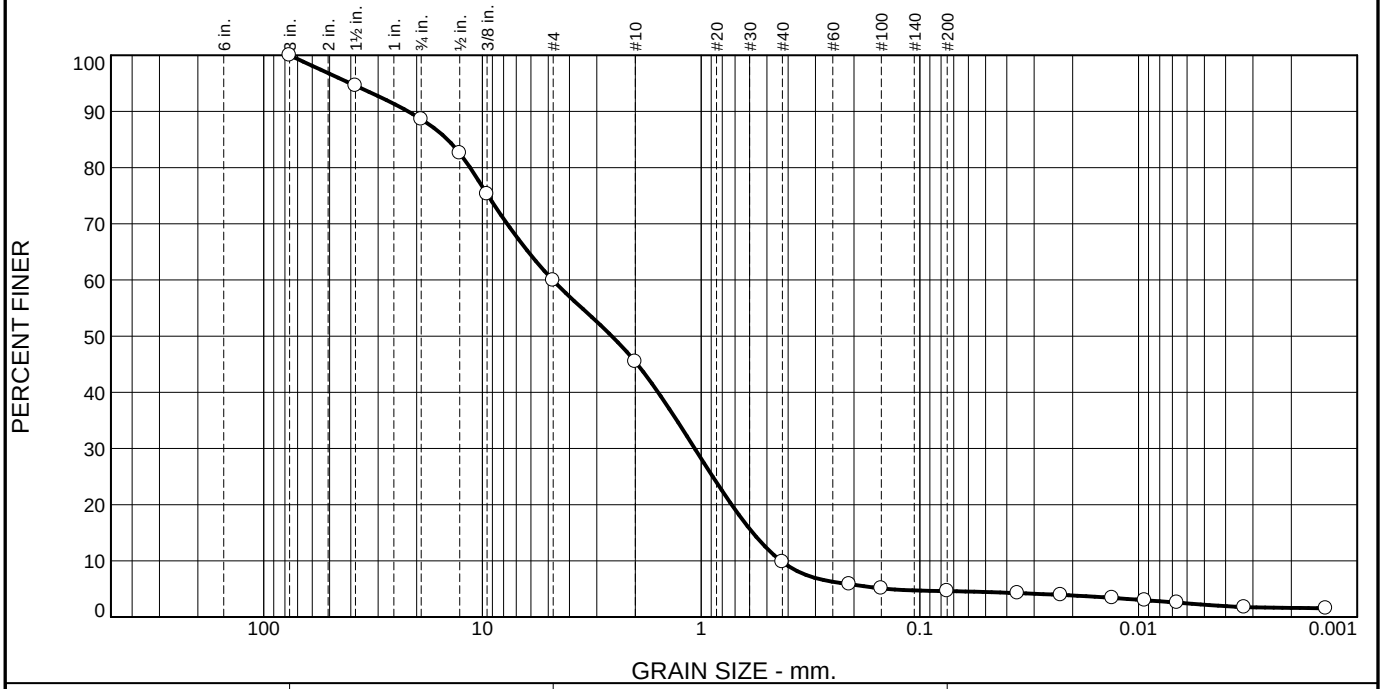
US ARMY CORPS OF ENGINEERS ST. LOUIS

Client: USACE MVS EC-HD

Project: Rio Puerto Nuevo

Project No: ID# 113454-46 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	11.4	28.7	14.5	35.6	5.2	2.4	2.2

Test Results (ASTM D 422 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3.0"	100.0		
1.5"	94.6		
3/4	88.6		
1/2	82.6		
3/8	75.3		
#4	59.9		
#10	45.4		
#40	9.8		
#70	5.8		
#100	5.1		
#200	4.6		
0.0357 mm.	4.3		
0.0227 mm.	3.9		
0.0132 mm.	3.4		
0.0094 mm.	3.0		
0.0067 mm.	2.6		
0.0033 mm.	1.8		
0.0014 mm.	1.5		

* (no specification provided)

Material Description

Atterberg Limits (ASTM D 4318)

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

Classification

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

Coefficients

D_{90}= 21.8573 D_{85}= 14.4416 D_{60}= 4.7701
D_{50}= 2.5589 D_{30}= 1.0695 D_{15}= 0.5801
D_{10}= 0.4318 C_u= 11.05 C_c= 0.56

Remarks

Date Received: July 18th 2021 **Date Tested:** July 20-25 2021

Tested By: JPC

Checked By: JPC

Title: Engineering Technician

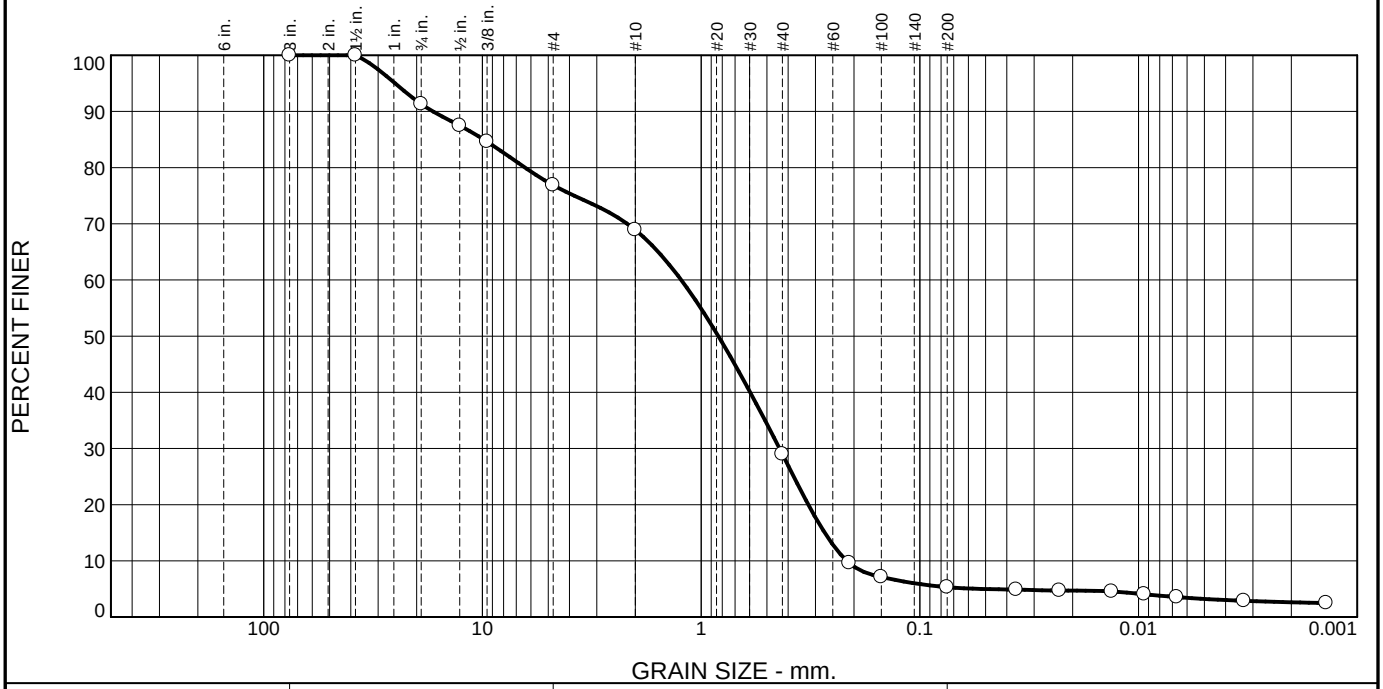
Source of Sample: Bag Samples **Date Sampled:** June 2021
Sample Number: 4-4

US ARMY CORPS OF ENGINEERS ST. LOUIS

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo

Project No: ID# 113454-46 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	8.7	14.4	8.0	39.9	23.7	2.1	3.2

Test Results (ASTM D 422 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3.0"	100.0		
1.5"	100.0		
3/4	91.3		
1/2	87.5		
3/8	84.6		
#4	76.9		
#10	68.9		
#40	29.0		
#70	9.6		
#100	7.1		
#200	5.3		
0.0363 mm.	4.9		
0.0230 mm.	4.7		
0.0133 mm.	4.6		
0.0094 mm.	4.1		
0.0067 mm.	3.6		
0.0033 mm.	2.9		
0.0014 mm.	2.5		

* (no specification provided)

Material Description

Atterberg Limits (ASTM D 4318)

PL= NP **LL=** NV **PI=**

Classification

USCS (D 2487)= SP-SM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 16.8429 D_{85}= 9.8709 D_{60}= 1.2337
D_{50}= 0.8341 D_{30}= 0.4382 D_{15}= 0.2723
D_{10}= 0.2156 C_u= 5.72 C_c= 0.72

Remarks

Date Received: July 18th 2021 **Date Tested:** July 20-25 2021

Tested By: JPC

Checked By: JPC

Title: Engineering Technician

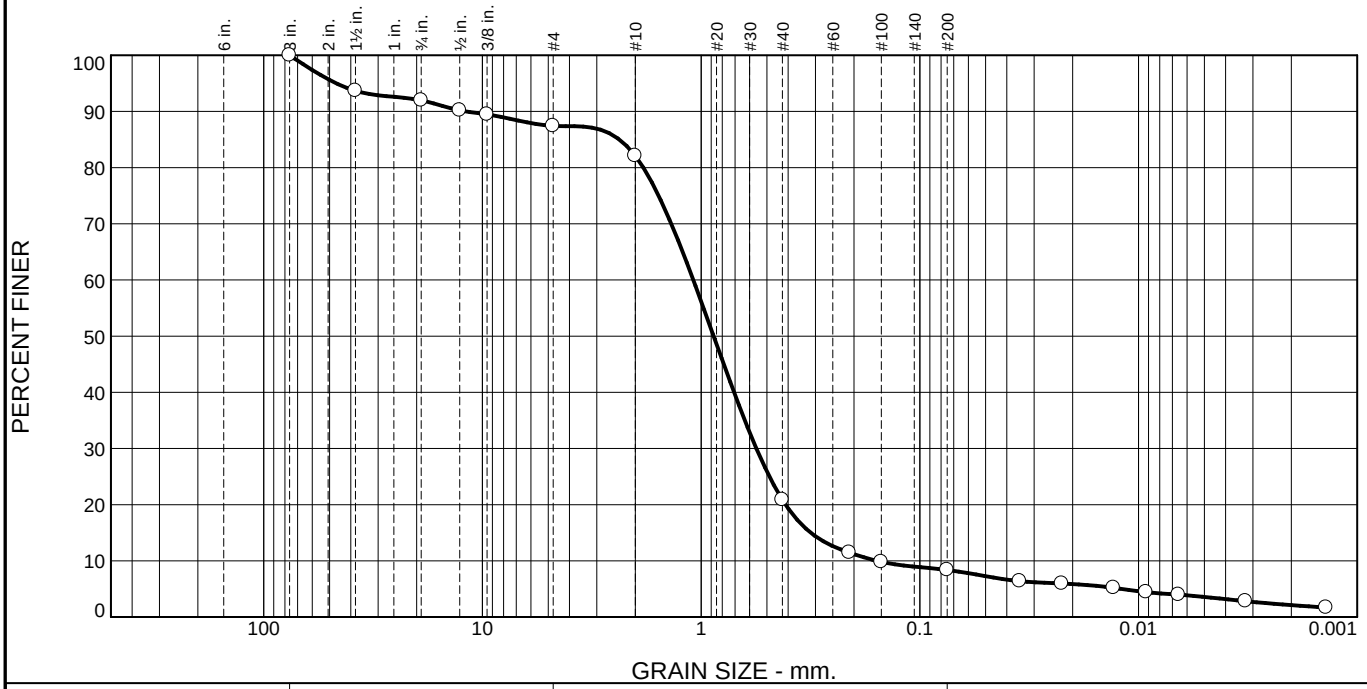
Source of Sample: Bag Samples **Date Sampled:** June 2021
Sample Number: 4-5

US ARMY CORPS OF ENGINEERS ST. LOUIS

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo

Project No: ID# 113454-46 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	8.0	4.6	5.3	61.2	12.5	4.8	3.6

Test Results (ASTM D 422 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3.0"	100.0		
1.5"	93.7		
3/4	92.0		
1/2	90.2		
3/8	89.5		
#4	87.4		
#10	82.1		
#40	20.9		
#70	11.5		
#100	9.8		
#200	8.4		
0.0350 mm.	6.4		
0.0224 mm.	6.0		
0.0130 mm.	5.2		
0.0092 mm.	4.4		
0.0066 mm.	4.0		
0.0032 mm.	2.8		
0.0014 mm.	1.7		

* (no specification provided)

Material Description

Atterberg Limits (ASTM D 4318)

PL= NP **LL=** NV **PI=**

Classification

USCS (D 2487)= SW-SM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 11.9042 D_{85}= 2.3666 D_{60}= 1.0862
D_{50}= 0.8766 D_{30}= 0.5588 D_{15}= 0.3153
D_{10}= 0.1571 C_u= 6.91 C_c= 1.83

Remarks

Date Received: July 18th 2021 **Date Tested:** July 20-25 2021

Tested By: JPC

Checked By: JPC

Title: Engineering Technician

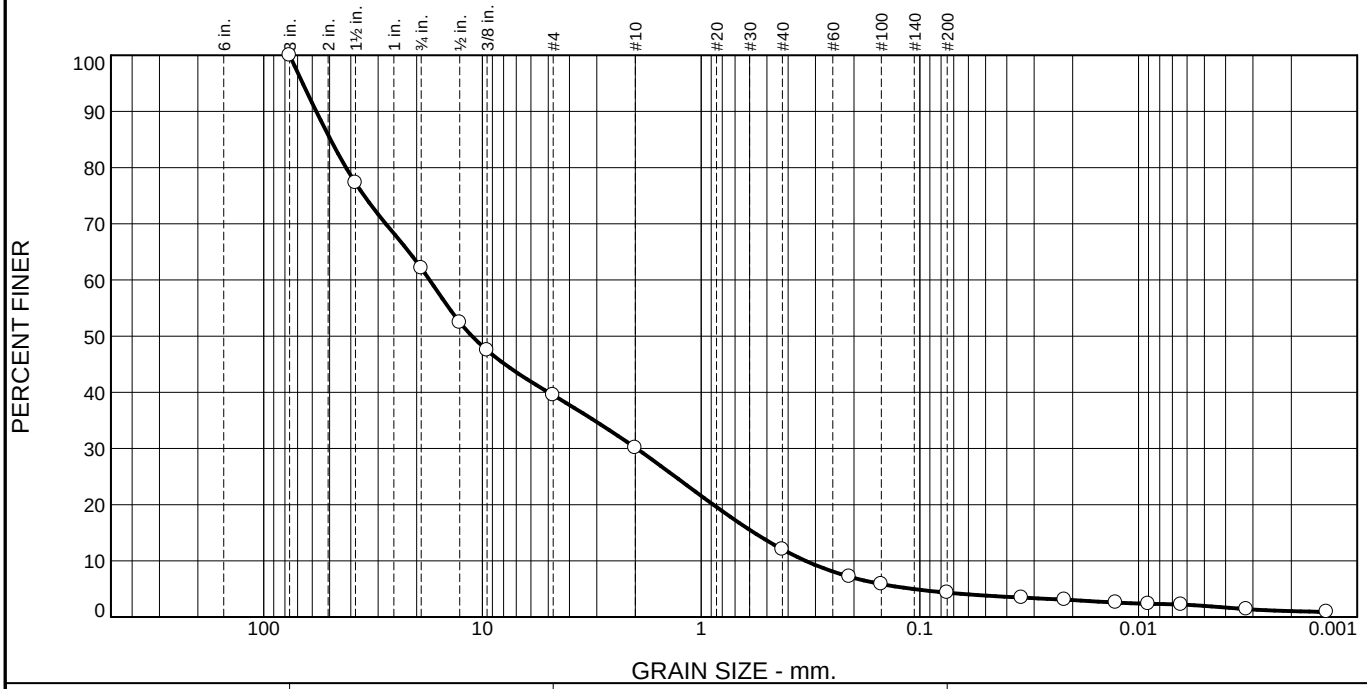
Source of Sample: Bag Samples **Date Sampled:** June 2021
Sample Number: 4-6

US ARMY CORPS OF ENGINEERS ST. LOUIS

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo

Project No: ID# 113454-46 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	37.9	22.6	9.4	18.1	7.7	2.3	2.0

Test Results (ASTM D 422 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3.0"	100.0		
1.5"	77.3		
3/4	62.1		
1/2	52.5		
3/8	47.5		
#4	39.5		
#10	30.1		
#40	12.0		
#70	7.2		
#100	5.9		
#200	4.3		
0.0342 mm.	3.5		
0.0218 mm.	3.1		
0.0127 mm.	2.6		
0.0090 mm.	2.4		
0.0064 mm.	2.2		
0.0032 mm.	1.4		
0.0014 mm.	0.9		

* (no specification provided)

Material Description

Atterberg Limits (ASTM D 4318)

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

Classification

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

Coefficients

D_{90}= 57.5061 D_{85}= 49.5132 D_{60}= 17.4308
D_{50}= 11.1634 D_{30}= 1.9754 D_{15}= 0.5716
D_{10}= 0.3325 C_u= 52.42 C_c= 0.67

Remarks

Date Received: July 18th 2021 **Date Tested:** July 20-25 2021

Tested By: JPC

Checked By: JPC

Title: Engineering Technician

Source of Sample: Bag Samples **Date Sampled:** June 2021

Sample Number: 5-1

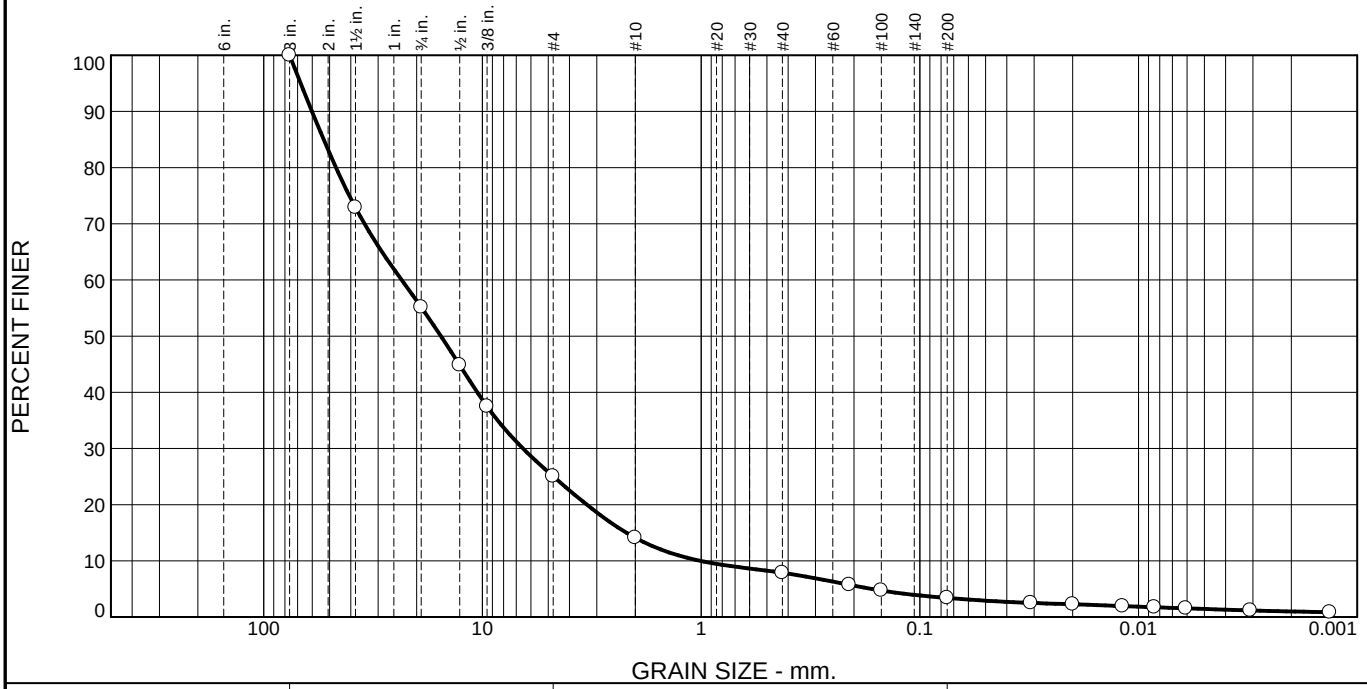
US ARMY CORPS OF ENGINEERS ST. LOUIS

Client: USACE MVS EC-HD

Project: Rio Puerto Nuevo

Project No: ID# 113454-46 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	44.8	30.1	11.0	6.2	4.5	2.0	1.4

Test Results (ASTM D 422 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3.0"	100.0		
1.5"	72.9		
3/4	55.2		
1/2	44.8		
3/8	37.5		
#4	25.1		
#10	14.1		
#40	7.9		
#70	5.7		
#100	4.7		
#200	3.4		
0.0311 mm.	2.5		
0.0200 mm.	2.3		
0.0118 mm.	1.9		
0.0085 mm.	1.7		
0.0061 mm.	1.5		
0.0031 mm.	1.2		
0.0013 mm.	0.9		

* (no specification provided)

Material Description

Atterberg Limits (ASTM D 4318)

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

Classification

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

Coefficients

D_{90}= 60.1597 D_{85}= 53.2032 D_{60}= 23.4017
D_{50}= 15.4883 D_{30}= 6.5286 D_{15}= 2.1943
D_{10}= 1.0102 C_u= 23.17 C_c= 1.80

Remarks

Date Received: July 18th 2021 **Date Tested:** July 20-25 2021

Tested By: JPC

Checked By: JPC

Title: Engineering Technician

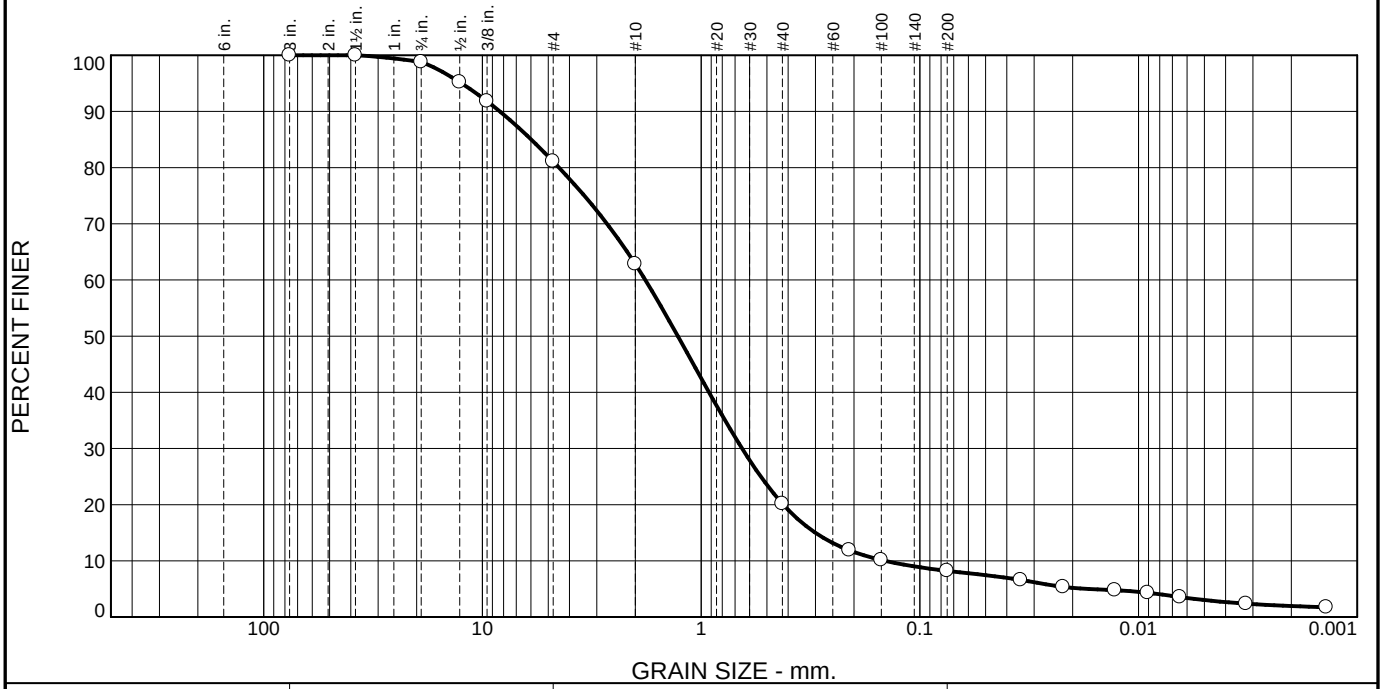
Source of Sample: Bag Samples **Date Sampled:** June 2021
Sample Number: 5-2

US ARMY CORPS OF ENGINEERS ST. LOUIS

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo

Project No: ID# 113454-46 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	1.2	17.7	18.3	42.6	12.0	5.2	3.0

Test Results (ASTM D 422 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3.0"	100.0		
1.5"	100.0		
3/4	98.8		
1/2	95.2		
3/8	91.8		
#4	81.1		
#10	62.8		
#40	20.2		
#70	11.9		
#100	10.2		
#200	8.2		
0.0345 mm.	6.6		
0.0221 mm.	5.4		
0.0128 mm.	4.8		
0.0091 mm.	4.3		
0.0065 mm.	3.6		
0.0032 mm.	2.4		
0.0014 mm.	1.7		

* (no specification provided)

Material Description

Atterberg Limits (ASTM D 4318)

PL= NP **LL=** NV **PI=**

Classification

USCS (D 2487)= SW-SM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 8.3218 D_{85}= 5.9849 D_{60}= 1.8000
D_{50}= 1.2780 D_{30}= 0.6498 D_{15}= 0.3002
D_{10}= 0.1441 C_u= 12.49 C_c= 1.63

Remarks

Date Received: July 18th 2021 **Date Tested:** July 20-25 2021

Tested By: JPC

Checked By: JPC

Title: Engineering Technician

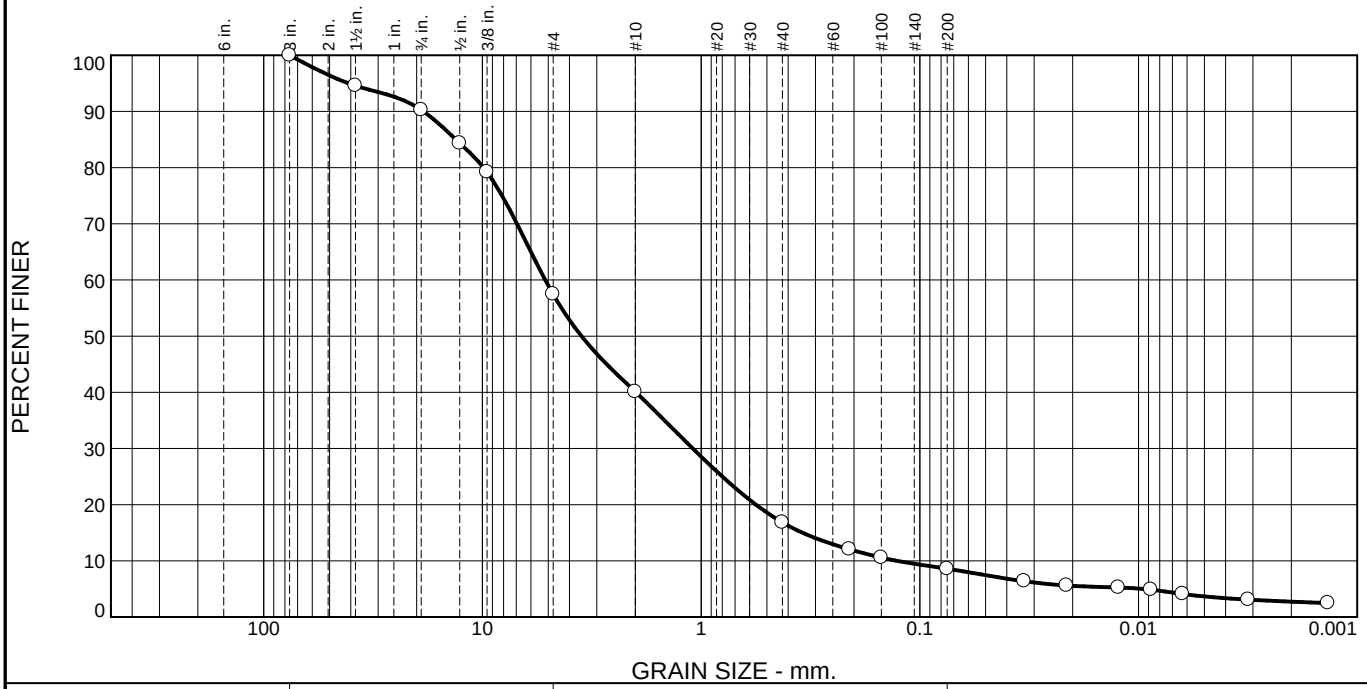
Source of Sample: Bag Samples **Date Sampled:** June 2021
Sample Number: 5-4

US ARMY CORPS OF ENGINEERS ST. LOUIS

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo

Project No: ID# 113454-46 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	9.7	32.9	17.3	23.3	8.2	4.9	3.7

Test Results (ASTM D 422 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3.0"	100.0		
1.5"	94.6		
3/4	90.3		
1/2	84.4		
3/8	79.2		
#4	57.4		
#10	40.1		
#40	16.8		
#70	12.1		
#100	10.6		
#200	8.6		
0.0333 mm.	6.4		
0.0213 mm.	5.6		
0.0123 mm.	5.2		
0.0088 mm.	4.9		
0.0063 mm.	4.1		
0.0031 mm.	3.1		
0.0014 mm.	2.5		

* (no specification provided)

Material Description

Atterberg Limits (ASTM D 4318)

PL= NP **LL=** NV **PI=**

Classification

USCS (D 2487)= SW-SM **AASHTO (M 145)=** A-1-a

Coefficients

D_{90}= 18.5896 D_{85}= 13.2253 D_{60}= 5.1611
D_{50}= 3.5244 D_{30}= 1.0920 D_{15}= 0.3437
D_{10}= 0.1268 C_u= 40.69 C_c= 1.82

Remarks

Date Received: July 18th 2021 **Date Tested:** July 20-25 2021

Tested By: JPC

Checked By: JPC

Title: Engineering Technician

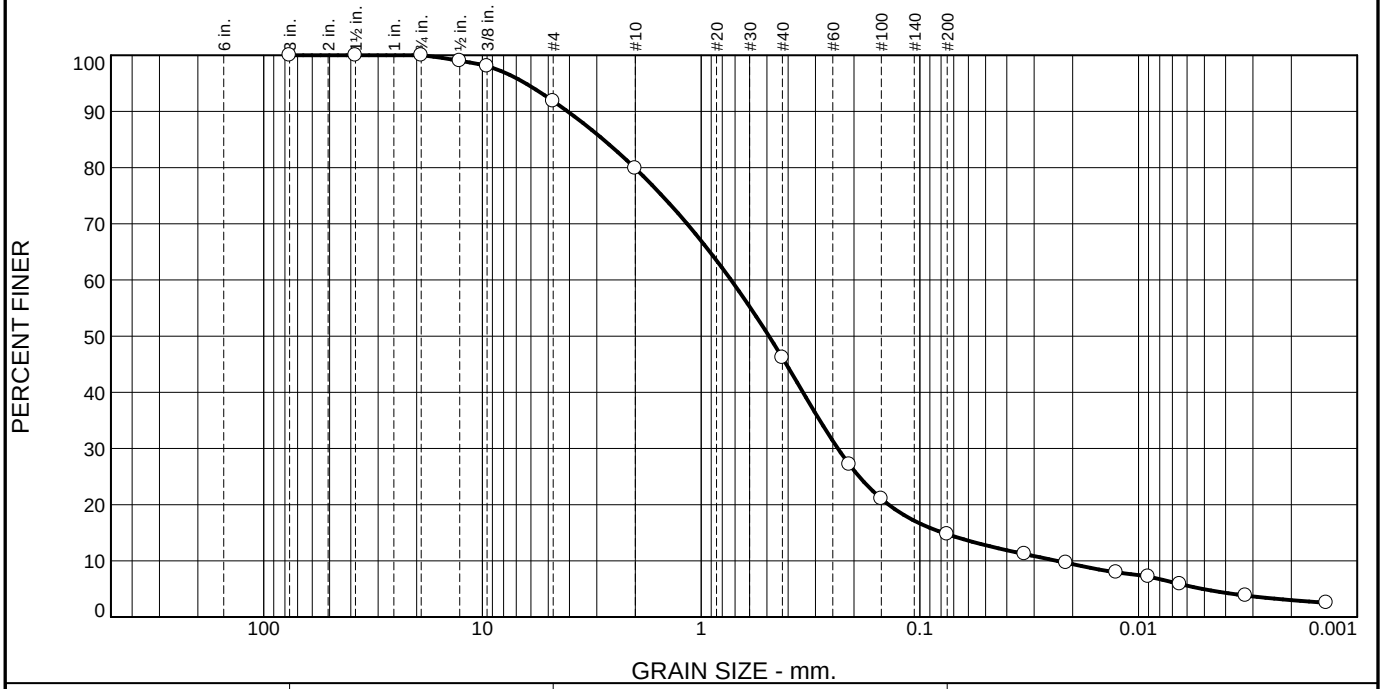
Source of Sample: Bag Samples **Date Sampled:** June 2021
Sample Number: 5-4R

US ARMY CORPS OF ENGINEERS ST. LOUIS

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo

Project No: ID# 113454-46 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	8.2	11.9	33.7	31.5	9.8	4.9

Test Results (ASTM D 422 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3.0"	100.0		
1.5"	100.0		
3/4	100.0		
1/2	99.0		
3/8	98.1		
#4	91.8		
#10	79.9		
#40	46.2		
#70	27.2		
#100	21.0		
#200	14.7		
0.0332 mm.	11.2		
0.0214 mm.	9.7		
0.0126 mm.	8.0		
0.0090 mm.	7.2		
0.0065 mm.	5.9		
0.0032 mm.	3.8		
0.0014 mm.	2.5		

* (no specification provided)

Material Description

Atterberg Limits (ASTM D 4318)

PL= NP **LL=** NV **PI=**

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 4.0763 D_{85}= 2.8007 D_{60}= 0.7302
D_{50}= 0.4894 D_{30}= 0.2370 D_{15}= 0.0784
D_{10}= 0.0236 C_u= 30.90 C_c= 3.26

Remarks

Date Received: July 18th 2021 **Date Tested:** July 20-25 2021

Tested By: JPC

Checked By: JPC

Title: Engineering Technician

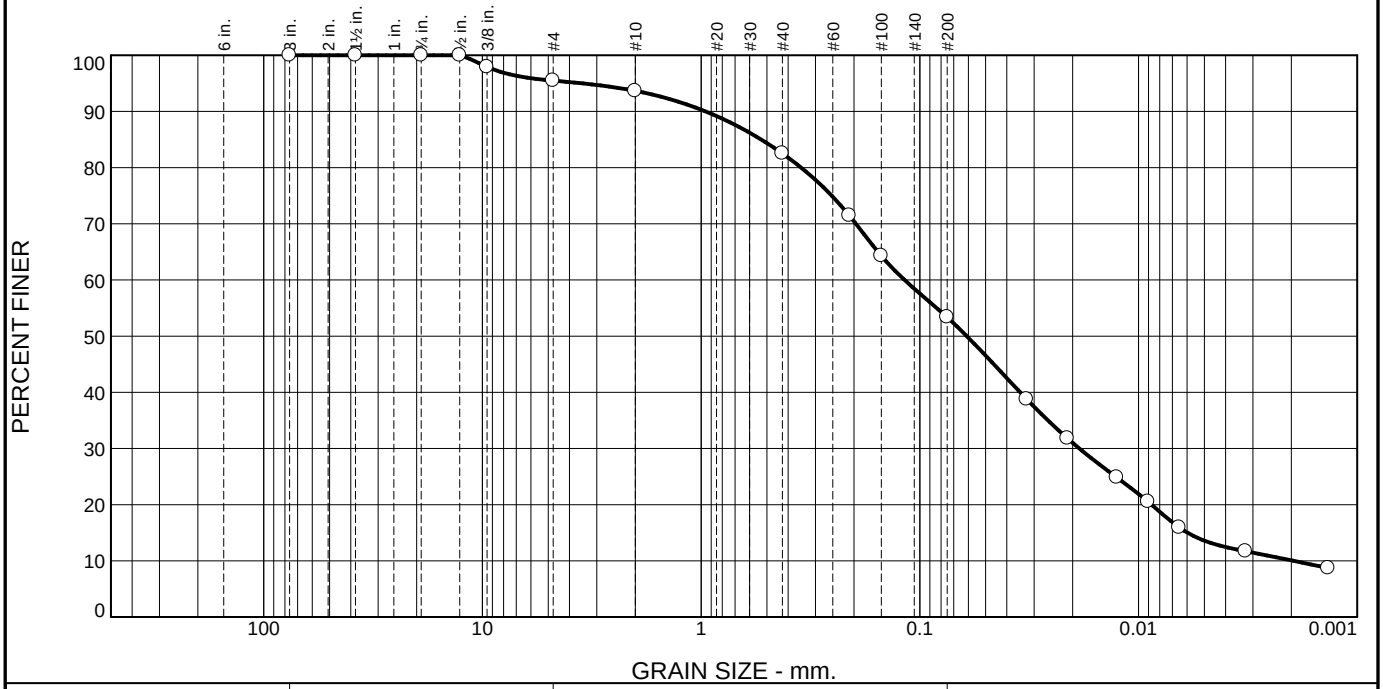
Source of Sample: Bag Samples **Date Sampled:** June 2021
Sample Number: 6-1

US ARMY CORPS OF ENGINEERS ST. LOUIS

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo

Project No: ID# 113454-46 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	4.5	1.8	11.2	29.1	39.8	13.6

Test Results (ASTM D 422 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3.0"	100.0		
1.5"	100.0		
3/4	100.0		
1/2	100.0		
3/8	97.9		
#4	95.5		
#10	93.7		
#40	82.5		
#70	71.5		
#100	64.3		
#200	53.4		
0.0324 mm.	38.8		
0.0212 mm.	31.8		
0.0126 mm.	24.8		
0.0091 mm.	20.6		
0.0065 mm.	15.9		
0.0032 mm.	11.7		
0.0014 mm.	8.7		

* (no specification provided)

Material Description

Atterberg Limits (ASTM D 4318)

PL= NP **LL=** NV **PI=**

Classification

USCS (D 2487)= ML **AASHTO (M 145)=** A-4(0)

Coefficients

D_{90}= 0.9541 D_{85}= 0.5310 D_{60}= 0.1175
D_{50}= 0.0610 D_{30}= 0.0186 D_{15}= 0.0060
D_{10}= 0.0020 C_u= 60.16 C_c= 1.52

Remarks

Organics Present in sample

Date Received: July 18th 2021 **Date Tested:** July 20-25 2021

Tested By: JPC

Checked By: JPC

Title: Engineering Technician

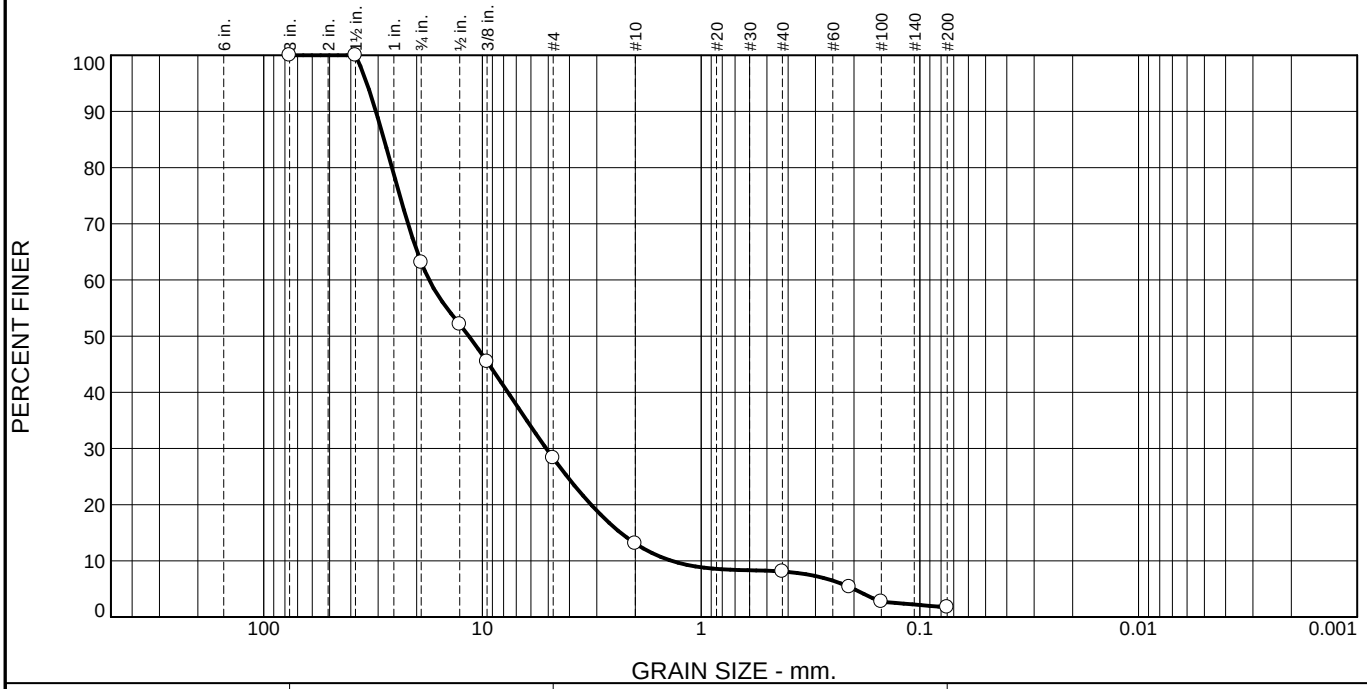
Source of Sample: Bag Samples **Date Sampled:** June 2021
Sample Number: 6-2

US ARMY CORPS OF ENGINEERS ST. LOUIS

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo

Project No: ID# 113454-46 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	36.9	34.8	15.2	5.0	6.4	1.7	

Test Results (ASTM D 422 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3.0"	100.0		
1.5"	100.0		
3/4	63.1		
1/2	52.1		
3/8	45.5		
#4	28.3		
#10	13.1		
#40	8.1		
#70	5.4		
#100	2.7		
#200	1.7		

* (no specification provided)

Material Description

Atterberg Limits (ASTM D 4318)

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

Classification

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

Coefficients

D_{90}= 30.6865 D_{85}= 28.1582 D_{60}= 17.5278
D_{50}= 11.5406 D_{30}= 5.1075 D_{15}= 2.3345
D_{10}= 1.3627 C_u= 12.86 C_c= 1.09

Remarks

No Hydro,lacks req. passing #10

Date Received: July 18th 2021 **Date Tested:** July 20-25 2021

Tested By: JPC

Checked By: JPC

Title: Engineering Technician

Source of Sample: Bag Samples **Date Sampled:** June 2021

Sample Number: 6-3

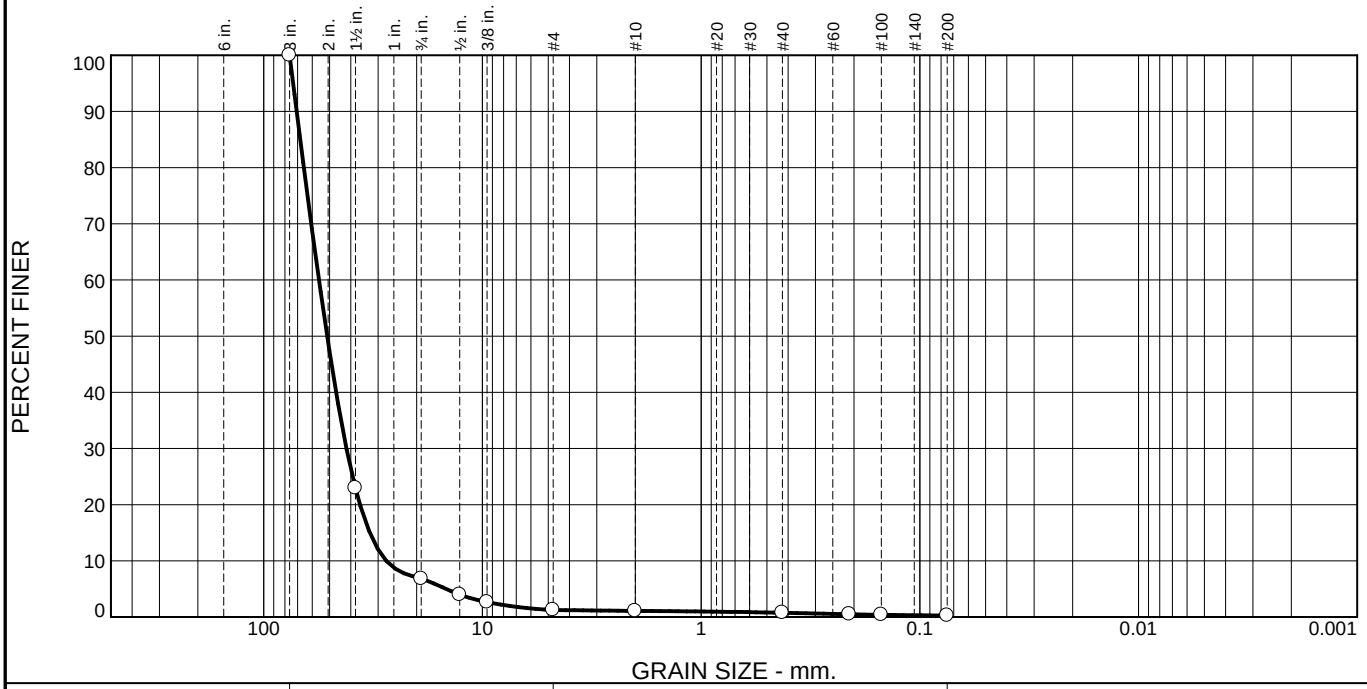
US ARMY CORPS OF ENGINEERS ST. LOUIS

Client: USACE MVS EC-HD

Project: Rio Puerto Nuevo

Project No: ID# 113454-46 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	93.2	5.5	0.2	0.3	0.5	0.3	

Test Results (ASTM D 422 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3.0"	100.0		
1.5"	23.0		
3/4	6.8		
1/2	4.0		
3/8	2.7		
#4	1.3		
#10	1.1		
#40	0.8		
#70	0.5		
#100	0.4		
#200	0.3		

* (no specification provided)

Material Description

Atterberg Limits (ASTM D 4318)

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

Classification

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

Coefficients

D_{90}= 70.6968 D_{85}= 68.0770 D_{60}= 55.9070
D_{50}= 51.2920 D_{30}= 41.8544 D_{15}= 32.7291
D_{10}= 27.4935 C_u= 2.03 C_c= 1.14

Remarks

No Hydro,lacks req. passing #10

Date Received: July 18th 2021 **Date Tested:** July 20-25 2021

Tested By: JPC

Checked By: JPC

Title: Engineering Technician

Source of Sample: Bag Samples **Date Sampled:** June 2021

Sample Number: 6-4

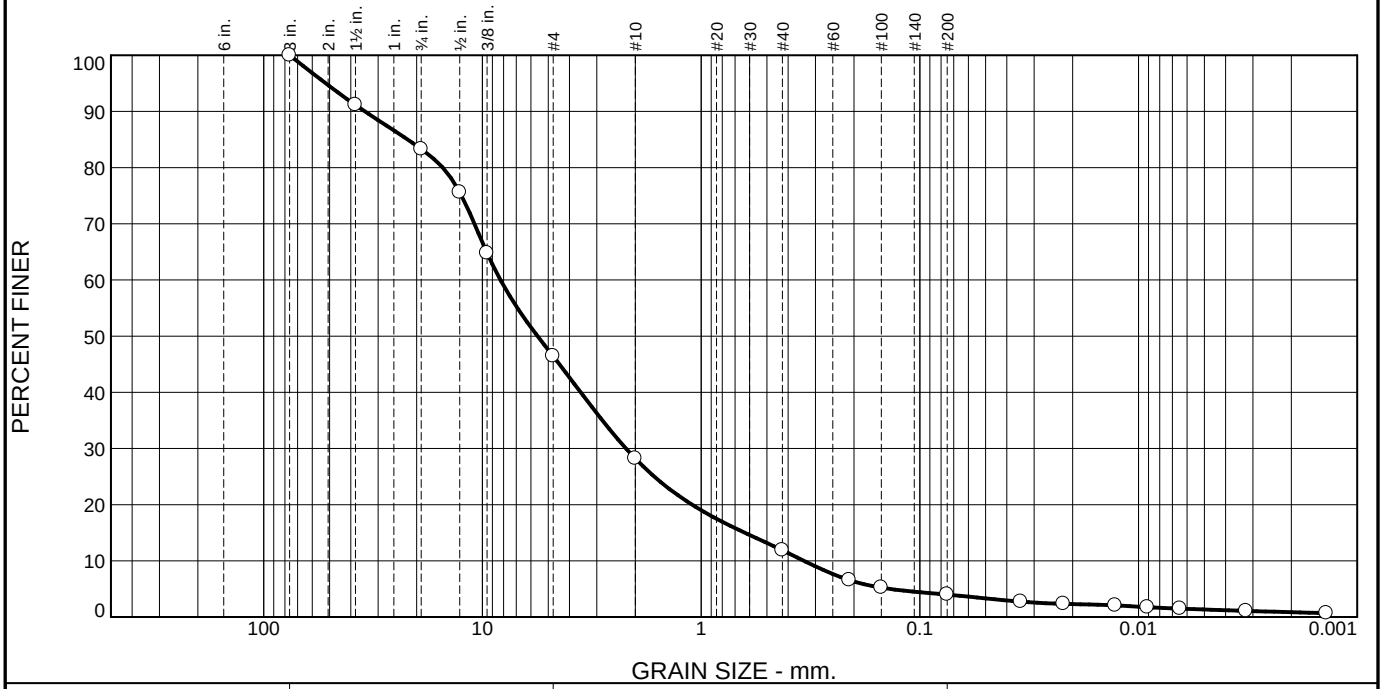
US ARMY CORPS OF ENGINEERS ST. LOUIS

Client: USACE MVS EC-HD

Project: Rio Puerto Nuevo

Project No: ID# 113454-46 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	16.7	36.9	18.2	16.3	7.9	2.7	1.3

Test Results (ASTM D 422 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3.0"	100.0		
1.5"	91.2		
3/4	83.3		
1/2	75.6		
3/8	64.8		
#4	46.4		
#10	28.2		
#40	11.9		
#70	6.6		
#100	5.2		
#200	4.0		
0.0346 mm.	2.7		
0.0220 mm.	2.3		
0.0128 mm.	2.1		
0.0091 mm.	1.7		
0.0065 mm.	1.5		
0.0032 mm.	1.1		
0.0014 mm.	0.7		

* (no specification provided)

Material Description

Atterberg Limits (ASTM D 4318)

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

Classification

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

Coefficients

D_{90}= 34.4527 D_{85}= 21.9956 D_{60}= 8.2723
D_{50}= 5.5939 D_{30}= 2.2064 D_{15}= 0.6313
D_{10}= 0.3385 C_u= 24.44 C_c= 1.74

Remarks

No Hydro,lacks req. passing #10

Date Received: July 18th 2021 **Date Tested:** July 20-25 2021

Tested By: JPC

Checked By: JPC

Title: Engineering Technician

Source of Sample: Bag Samples **Date Sampled:** June 2021

Sample Number: 199A

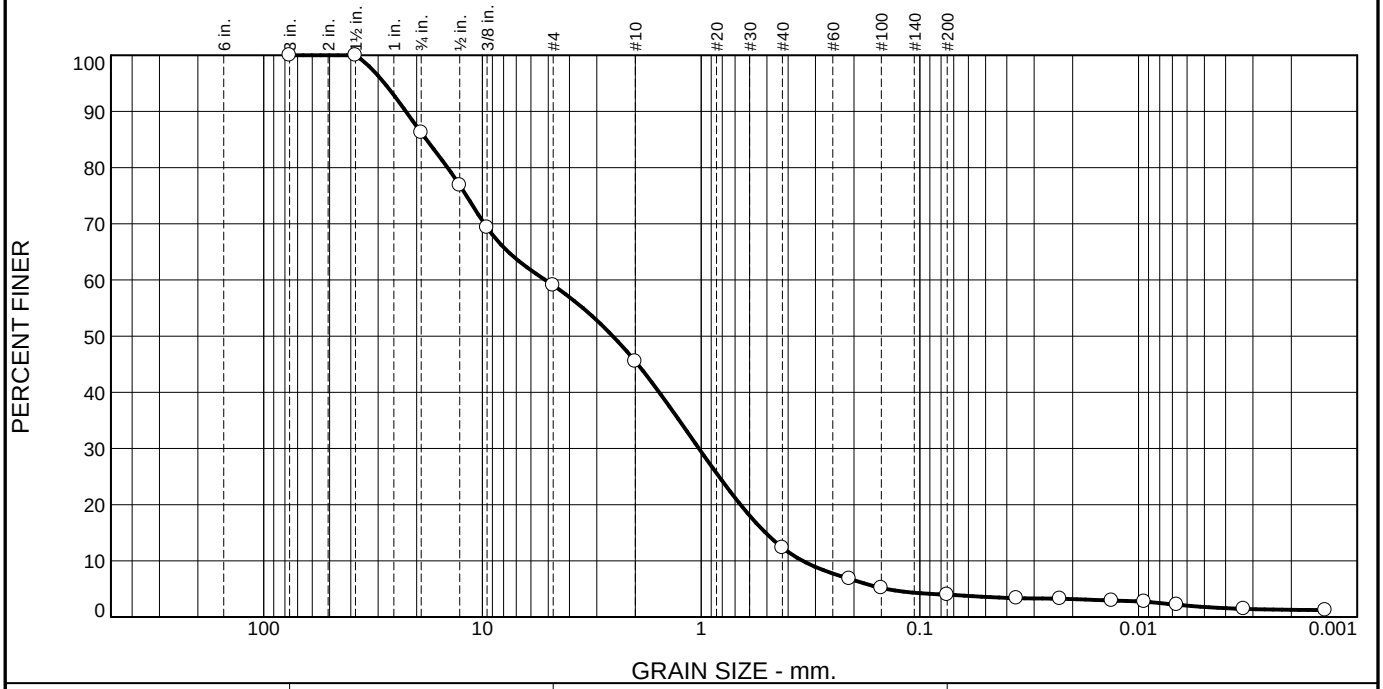
US ARMY CORPS OF ENGINEERS ST. LOUIS

Client: USACE MVS EC-HD

Project: Rio Puerto Nuevo

Project No: ID# 113454-46 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	13.8	27.1	13.6	33.2	8.3	2.2	1.8

Test Results (ASTM D 422 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3.0"	100.0		
1.5"	100.0		
3/4	86.2		
1/2	76.9		
3/8	69.3		
#4	59.1		
#10	45.5		
#40	12.3		
#70	6.8		
#100	5.2		
#200	4.0		
0.0362 mm.	3.4		
0.0229 mm.	3.3		
0.0133 mm.	2.9		
0.0094 mm.	2.7		
0.0067 mm.	2.2		
0.0033 mm.	1.5		
0.0014 mm.	1.2		

* (no specification provided)

Material Description

Atterberg Limits (ASTM D 4318)

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

Classification

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

Coefficients

D_{90}= 22.3962 D_{85}= 18.0360 D_{60}= 5.1562
D_{50}= 2.5329 D_{30}= 1.0234 D_{15}= 0.5073
D_{10}= 0.3431 C_u= 15.03 C_c= 0.59

Remarks

Date Received: July 18th 2021 **Date Tested:** July 20-25 2021

Tested By: JPC

Checked By: JPC

Title: Engineering Technician

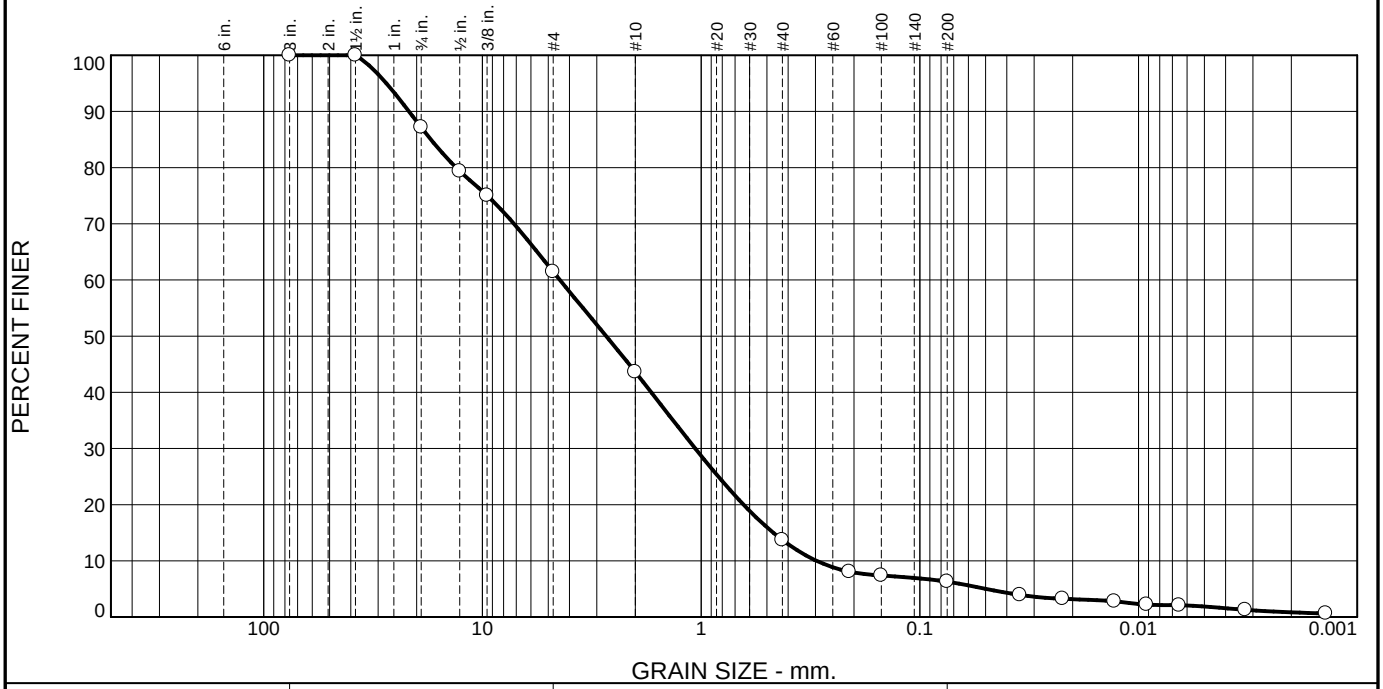
Source of Sample: Bag Samples **Date Sampled:** June 2021
Sample Number: 199B

US ARMY CORPS OF ENGINEERS ST. LOUIS

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo

Project No: ID# 113454-46 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	12.8	25.7	17.9	29.9	7.4	4.4	1.9

Test Results (ASTM D 422 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3.0"	100.0		
1.5"	100.0		
3/4	87.2		
1/2	79.4		
3/8	75.0		
#4	61.5		
#10	43.6		
#40	13.7		
#70	8.1		
#100	7.4		
#200	6.3		
0.0349 mm.	3.9		
0.0222 mm.	3.2		
0.0129 mm.	2.8		
0.0092 mm.	2.2		
0.0065 mm.	2.1		
0.0032 mm.	1.3		
0.0014 mm.	0.6		

* (no specification provided)

Material Description

Atterberg Limits (ASTM D 4318)

PL= NP **LL=** NV **PI=**

Classification

USCS (D 2487)= SP-SM **AASHTO (M 145)=** A-1-a

Coefficients

D_{90}= 21.6824 D_{85}= 17.1952 D_{60}= 4.4250
D_{50}= 2.7175 D_{30}= 1.0639 D_{15}= 0.4678
D_{10}= 0.2962 C_u= 14.94 C_c= 0.86

Remarks

Date Received: July 18th 2021 **Date Tested:** July 20-25 2021

Tested By: JPC

Checked By: JPC

Title: Engineering Technician

Source of Sample: Bag Samples **Date Sampled:** June 2021

Sample Number: 199C

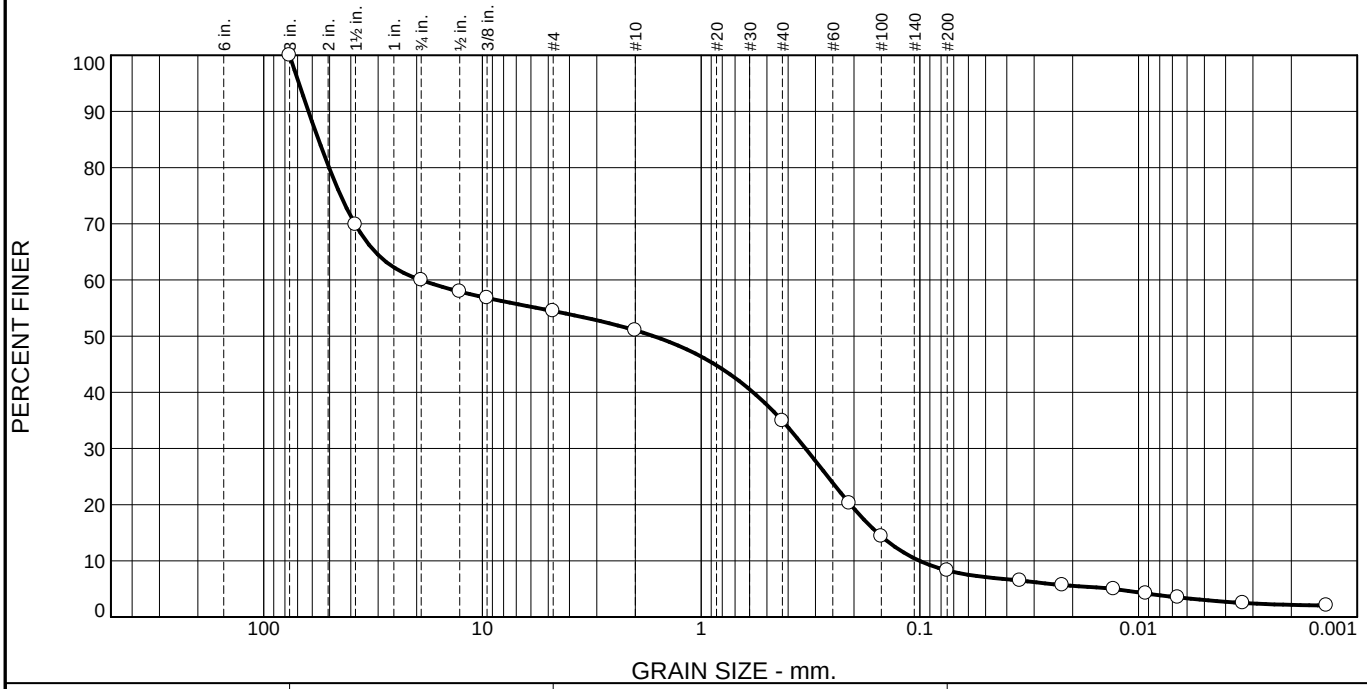
US ARMY CORPS OF ENGINEERS ST. LOUIS

Client: USACE MVS EC-HD

Project: Rio Puerto Nuevo

Project No: ID# 113454-46 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	40.0	5.5	3.5	16.1	26.6	5.3	3.0

Test Results (ASTM D 422 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3.0"	100.0		
1.5"	69.8		
3/4	60.0		
1/2	57.9		
3/8	56.8		
#4	54.5		
#10	51.0		
#40	34.9		
#70	20.3		
#100	14.4		
#200	8.3		
0.0349 mm.	6.5		
0.0223 mm.	5.7		
0.0130 mm.	5.0		
0.0093 mm.	4.2		
0.0066 mm.	3.5		
0.0033 mm.	2.5		
0.0014 mm.	2.1		

* (no specification provided)

Material Description

Atterberg Limits (ASTM D 4318)

PL= NP **LL=** NV **PI=**

Classification

USCS (D 2487)= SP-SM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 62.4096 D_{85}= 56.2110 D_{60}= 19.0953
D_{50}= 1.6499 D_{30}= 0.3329 D_{15}= 0.1563
D_{10}= 0.1002 C_u= 190.52 C_c= 0.06

Remarks

Date Received: July 18th 2021 **Date Tested:** July 20-25 2021

Tested By: JPC

Checked By: JPC

Title: Engineering Technician

Source of Sample: Bag Samples **Date Sampled:** June 2021

Sample Number: 199D

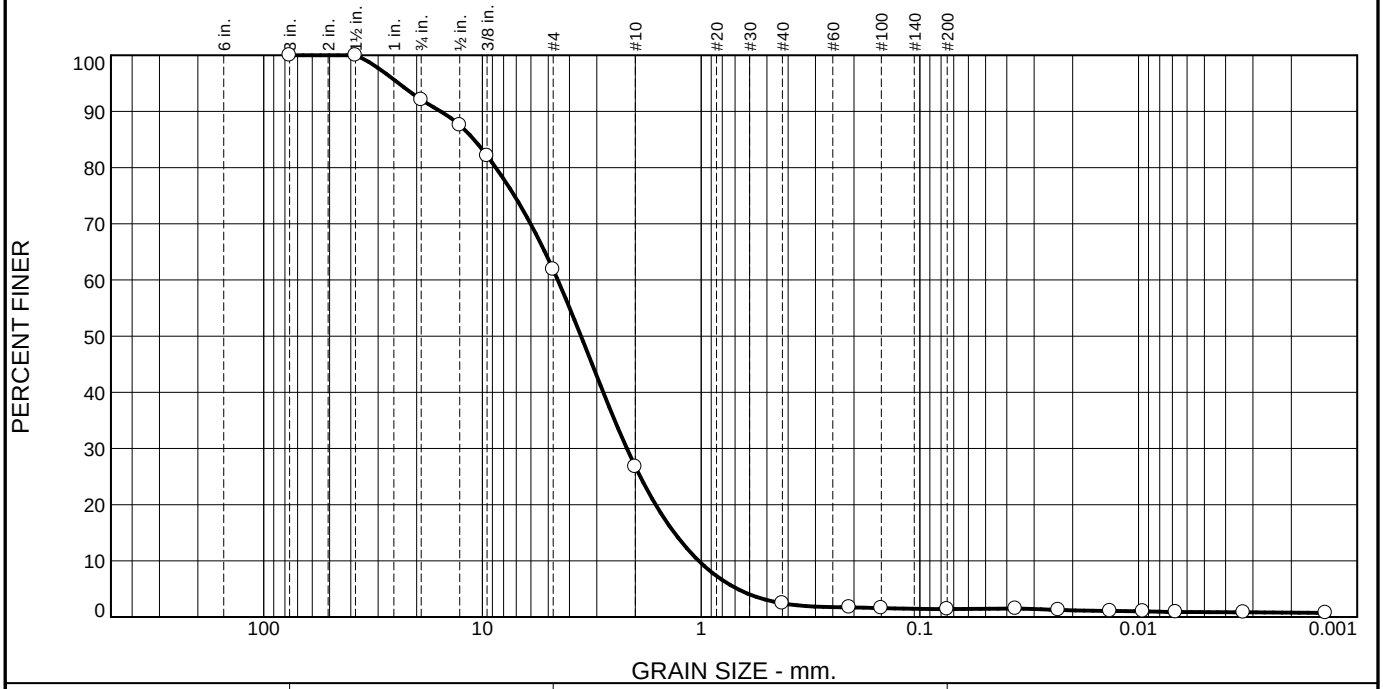
US ARMY CORPS OF ENGINEERS ST. LOUIS

Client: USACE MVS EC-HD

Project: Rio Puerto Nuevo

Project No: ID# 113454-46 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	7.9	30.2	35.1	24.4	1.0	0.5	0.9

Test Results (ASTM D 422 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3.0"	100.0		
1.5"	100.0		
3/4	92.1		
1/2	87.6		
3/8	82.1		
#4	61.9		
#10	26.8		
#40	2.4		
#70	1.7		
#100	1.6		
#200	1.4		
0.0365 mm.	1.5		
0.0232 mm.	1.3		
0.0135 mm.	1.1		
0.0095 mm.	1.0		
0.0068 mm.	0.9		
0.0033 mm.	0.8		
0.0014 mm.	0.7		

* (no specification provided)

Material Description

Atterberg Limits (ASTM D 4318)

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

Classification

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

Coefficients

D_{90}= 15.5198 D_{85}= 10.9374 D_{60}= 4.5231
D_{50}= 3.5424 D_{30}= 2.1861 D_{15}= 1.3260
D_{10}= 1.0256 C_u= 4.41 C_c= 1.03

Remarks

Date Received: July 18th 2021 **Date Tested:** July 20-25 2021

Tested By: JPC

Checked By: JPC

Title: Engineering Technician

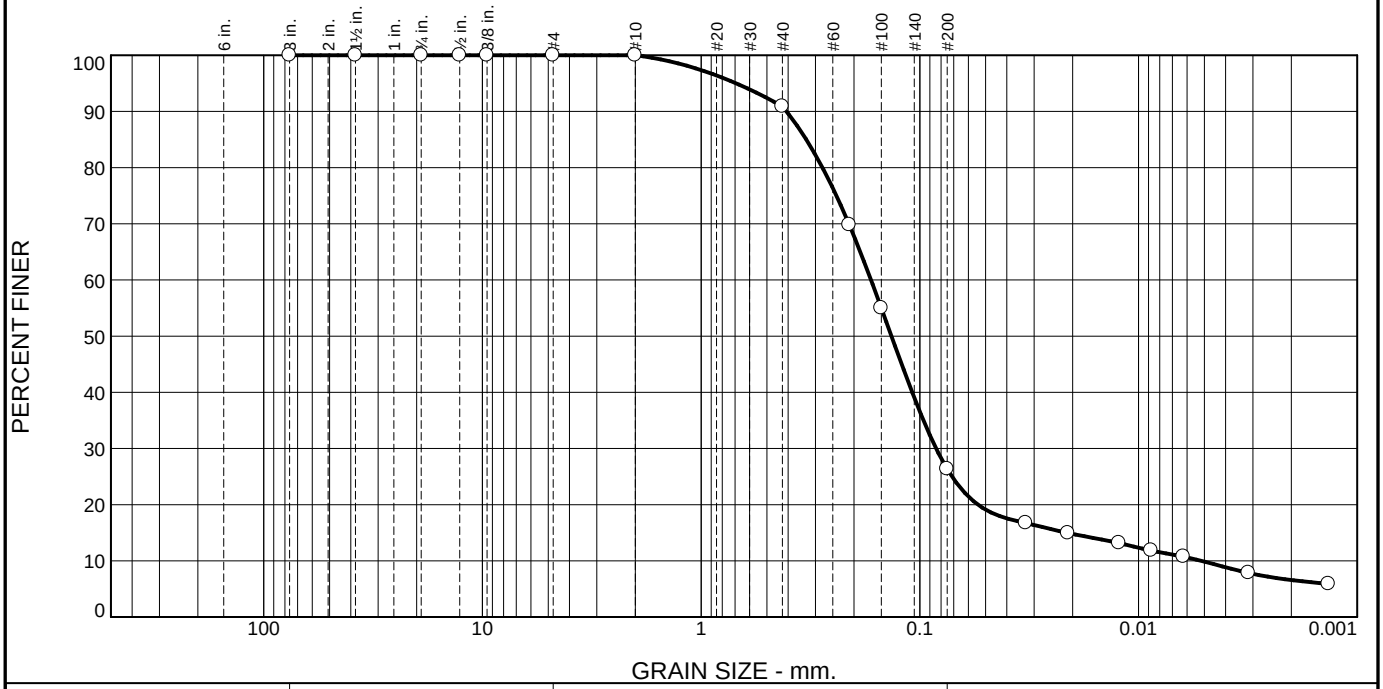
Source of Sample: Bag Samples **Date Sampled:** June 2021
Sample Number: 199E

US ARMY CORPS OF ENGINEERS ST. LOUIS

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo

Project No: ID# 113454-46 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	9.1	64.5	16.5	9.9

Test Results (ASTM D 422 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3.0"	100.0		
1.5"	100.0		
3/4	100.0		
1/2	100.0		
3/8	100.0		
#4	100.0		
#10	100.0		
#40	90.9		
#70	69.8		
#100	55.0		
#200	26.4		
0.0328 mm.	16.7		
0.0210 mm.	15.0		
0.0123 mm.	13.2		
0.0088 mm.	11.8		
0.0062 mm.	10.7		
0.0031 mm.	7.9		
0.0014 mm.	5.9		

* (no specification provided)

Material Description

Atterberg Limits (ASTM D 4318)

PL= NP **LL=** NV **PI=**

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-2-4(0)

Coefficients

D_{90}= 0.4073 D_{85}= 0.3306 D_{60}= 0.1672
D_{50}= 0.1348 D_{30}= 0.0842 D_{15}= 0.0213
D_{10}= 0.0052 C_u= 32.40 C_c= 8.22

Remarks

Date Received: July 18th 2021 **Date Tested:** July 20-25 2021

Tested By: JPC

Checked By: JPC

Title: Engineering Technician

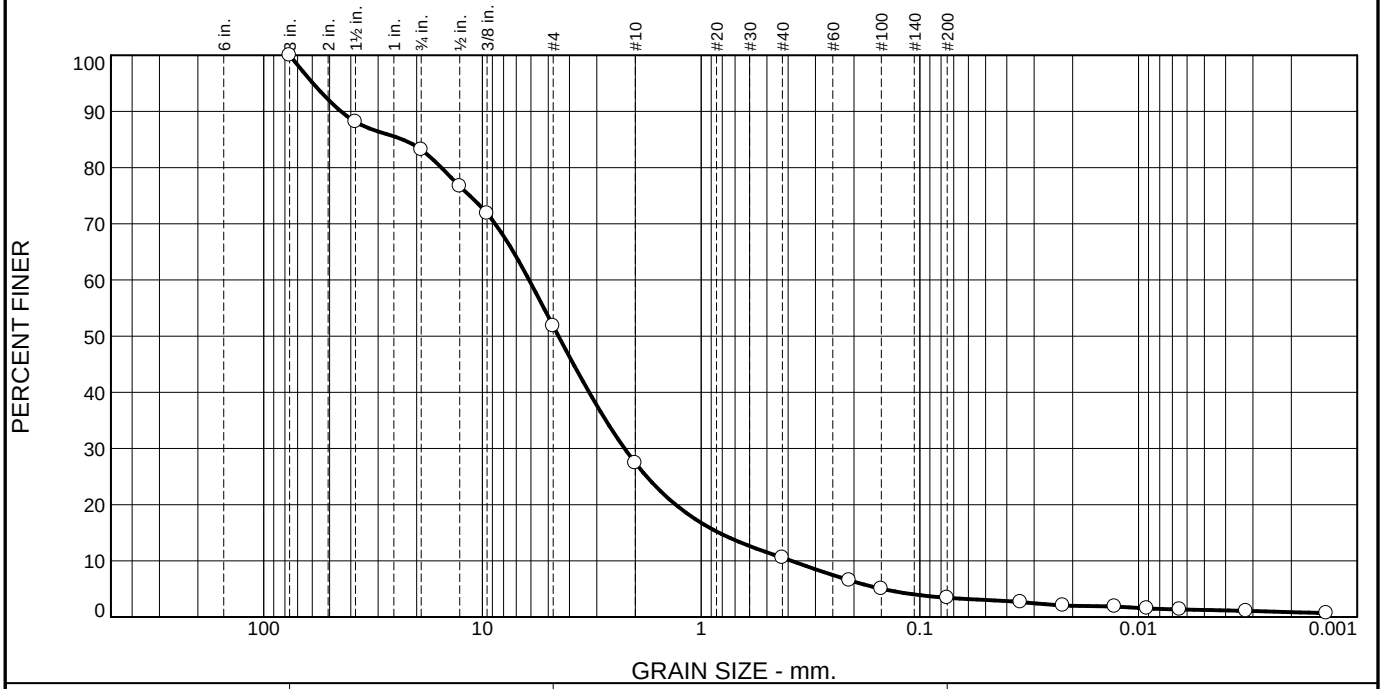
Source of Sample: Bag Samples **Date Sampled:** June 2021
Sample Number: WC-1

US ARMY CORPS OF ENGINEERS ST. LOUIS

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo

Project No: ID# 113454-46 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	16.8	31.4	24.4	16.8	7.2	2.1	1.3

Test Results (ASTM D 422 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3.0"	100.0		
1.5"	88.2		
3/4	83.2		
1/2	76.7		
3/8	71.8		
#4	51.8		
#10	27.4		
#40	10.6		
#70	6.5		
#100	5.0		
#200	3.4		
0.0346 mm.	2.7		
0.0222 mm.	2.1		
0.0129 mm.	1.9		
0.0091 mm.	1.5		
0.0065 mm.	1.4		
0.0032 mm.	1.1		
0.0014 mm.	0.7		

* (no specification provided)

Material Description

Atterberg Limits (ASTM D 4318)

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

Classification

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

Coefficients

D_{90}= 44.3551 D_{85}= 23.1552 D_{60}= 6.1184
D_{50}= 4.4897 D_{30}= 2.2396 D_{15}= 0.8282
D_{10}= 0.3866 C_u= 15.83 C_c= 2.12

Remarks

Date Received: July 18th 2021 **Date Tested:** July 20-25 2021

Tested By: JPC

Checked By: JPC

Title: Engineering Technician

Source of Sample: Bag Samples **Date Sampled:** June 2021

Sample Number: WC-3

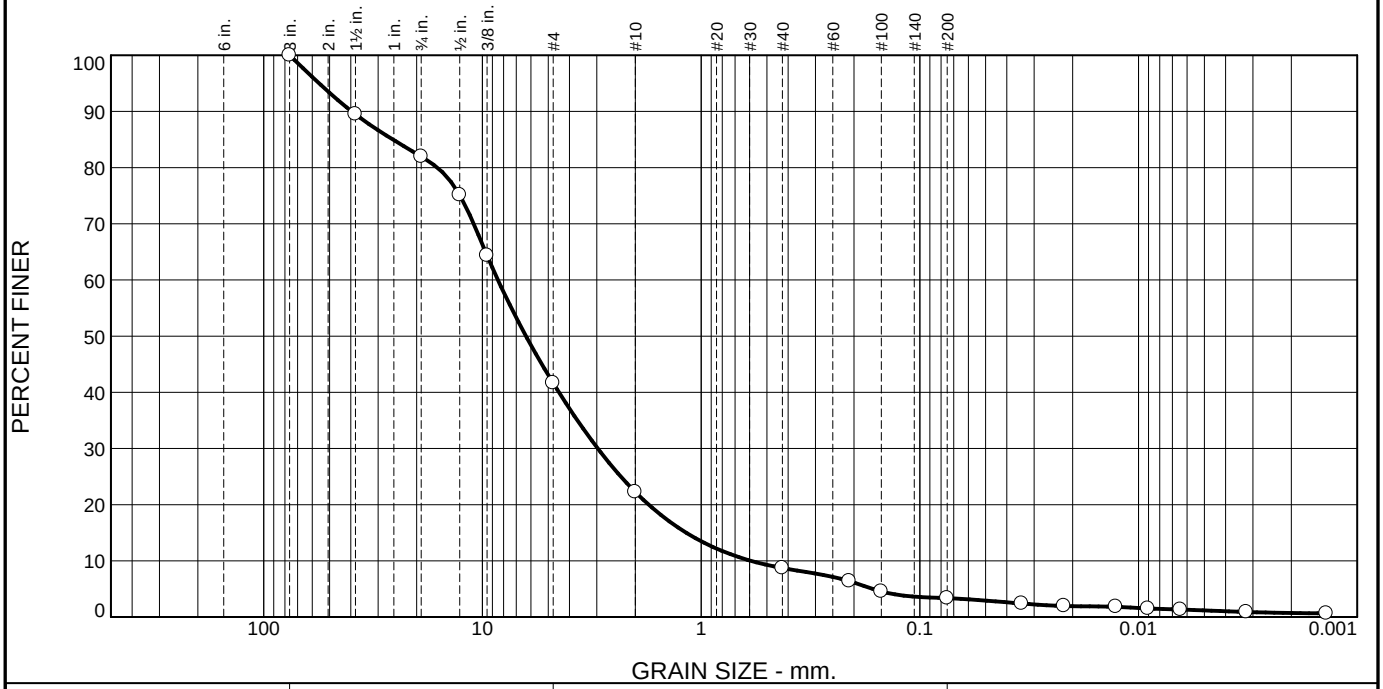
US ARMY CORPS OF ENGINEERS ST. LOUIS

Client: USACE MVS EC-HD

Project: Rio Puerto Nuevo

Project No: ID# 113454-46 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	18.0	40.3	19.5	13.5	5.3	2.2	1.2

Test Results (ASTM D 422 & ASTM D1140)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
3.0"	100.0		
1.5"	89.5		
3/4	82.0		
1/2	75.1		
3/8	64.4		
#4	41.7		
#10	22.2		
#40	8.7		
#70	6.4		
#100	4.6		
#200	3.4		
0.0342 mm.	2.4		
0.0219 mm.	2.0		
0.0127 mm.	1.8		
0.0091 mm.	1.5		
0.0064 mm.	1.3		
0.0032 mm.	0.9		
0.0014 mm.	0.6		

* (no specification provided)

Material Description

Atterberg Limits (ASTM D 4318)

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

Classification

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

Coefficients

D_{90}= 39.5948 D_{85}= 25.6722 D_{60}= 8.4958
D_{50}= 6.3227 D_{30}= 2.9705 D_{15}= 1.1699
D_{10}= 0.5915 C_u= 14.36 C_c= 1.76

Remarks

Date Received: July 18th 2021 **Date Tested:** July 20-25 2021

Tested By: JPC

Checked By: JPC

Title: Engineering Technician

Source of Sample: Bag Samples **Date Sampled:** June 2021
Sample Number: WC-4

US ARMY CORPS OF ENGINEERS ST. LOUIS

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo

Project No: ID# 113454-46 **Figure**

GRAIN SIZE DISTRIBUTION TEST DATA

7/29/2021

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo
Project Number: ID# 113454-46
Location: Bag Samples
Sample Number: 1-1
Sample Date: June 2021
Date Received: July 19 2021
USCS Classification: GP
Grain Size Test Method: ASTM D 422
#200 Wash Method: ASTM D1140
Tested By: JPC
Test Date: July 19-23 2021
Checked By: JPC
Title: Engineering Technician

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
1452.86	243.41	0.00	3.0"	0.00	100.0
			1.5	0.00	100.0
			3/4	464.81	61.6
			1/2	600.63	50.3
			3/8	635.50	47.5
			#4	722.91	40.2
			#10	884.52	26.9
105.49	0.00	0.00	#40	70.55	8.9
			#70	86.27	4.9
			#100	90.53	3.8
			#200	94.44	2.8

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 26.9
Weight of hydrometer sample =105.49
Hygroscopic moisture correction:
Moist weight and tare = 15.21
Dry weight and tare = 14.75
Tare weight = 3.25
Hygroscopic moisture = 4.0%
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -3
Meniscus correction only = -0.5
Specific gravity of solids = 2.68
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 **-** 0.164 **x Rm**

Hydrometer Test Data (continued)

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.3	10.3	7.3	0.0135	9.8	14.7	0.0365	1.9
5.00	20.3	9.8	6.8	0.0135	9.3	14.8	0.0232	1.8
15.00	20.3	8.8	5.8	0.0135	8.3	14.9	0.0134	1.5
30.00	20.4	7.8	4.8	0.0135	7.3	15.1	0.0095	1.3
60.00	20.4	7.3	4.3	0.0135	6.8	15.2	0.0068	1.1
250.00	20.6	6.8	3.8	0.0134	6.3	15.3	0.0033	1.0
1440.00	19.6	6.0	2.9	0.0136	5.5	15.4	0.0014	0.8

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	38.4	21.4	59.8	13.3	18.0	6.1	37.4	1.7	1.1	2.8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.4888	0.8201	1.2395	2.4361	12.3855	18.3850	26.1820	28.3543	30.8308	33.8476

Fineness Modulus	C_u	C_c
5.80	37.62	0.66

GRAIN SIZE DISTRIBUTION TEST DATA

7/29/2021

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo
Project Number: ID# 113454-46
Location: Bag Samples
Sample Number: 1-2
Sample Date: May 2021
Date Received: July 18th 202**PL:** Np **LL:** NV
USCS Classification: SW-SM **AASHTO Classification:** A-1-b
Grain Size Test Method: ASTM D 422
#200 Wash Method: ASTM D1140
Tested By: JPC **Test Date:** July 20-25 2021
Checked By: JPC **Title:** Engineering Technician

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
1147.83	232.66	0.00	3.0"	0.00	100.0
			1.5"	0.00	100.0
			3/4	35.82	96.1
			1/2	63.11	93.1
			3/8	71.06	92.2
			#4	86.49	90.5
			#10	138.23	84.9
112.96	0.00	0.00	#40	72.50	30.4
			#70	91.29	16.3
			#100	94.70	13.7
			#200	98.66	10.7

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 84.9
Weight of hydrometer sample =112.96
Hygroscopic moisture correction:
Moist weight and tare = 18.26
Dry weight and tare = 17.69
Tare weight = 4.02
Hygroscopic moisture = 4.2%
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -3
Meniscus correction only = 0.5
Specific gravity of solids = 2.68
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 **-** 0.164 **x Rm**

Hydrometer Test Data (continued)

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.3	10.5	7.5	0.0135	11.0	14.5	0.0363	5.9
5.00	20.3	8.5	5.5	0.0135	9.0	14.8	0.0232	4.3
15.00	20.3	7.8	4.8	0.0135	8.3	14.9	0.0134	3.7
30.00	20.4	7.0	4.0	0.0135	7.5	15.1	0.0095	3.1
60.00	20.4	6.8	3.8	0.0135	7.3	15.1	0.0068	3.0
250.00	20.6	6.3	3.3	0.0134	6.8	15.2	0.0033	2.6
1440.00	19.8	5.0	1.9	0.0136	5.5	15.4	0.0014	1.5

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	3.9	5.6	9.5	5.6	54.5	19.7	79.8	7.8	2.9	10.7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0663	0.1828	0.2739	0.4193	0.7244	0.9262	1.6278	2.0109	3.3817	16.6957

Fineness Modulus	C_u	C_c
2.86	13.96	2.86

GRAIN SIZE DISTRIBUTION TEST DATA

7/29/2021

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo
Project Number: ID# 113454-46
Location: Bag Samples
Sample Number: 1-3
Sample Date: May 2021
Date Received: July 18th 2021
USCS Classification: GP
Grain Size Test Method: ASTM D 422
#200 Wash Method: ASTM D1140
Testing Remarks: No Hydro,lacks req. passing #10
Tested By: JPC
Test Date: July 20-25 2021
Checked By: JPC
Title: Engineering Technician

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
1289.07	244.05	0.00	3.0"	0.00	100.0
			1.5"	0.00	100.0
			3/4	758.40	27.4
			1/2	875.80	16.2
			3/8	908.60	13.1
			#4	975.10	6.7
			#10	1018.60	2.5
			#40	1024.45	2.0
			#70	1027.62	1.7
			#100	1030.22	1.4
			#200	1031.56	1.3

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	72.6	20.7	93.3	4.2	0.5	0.7	5.4			1.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
7.0859	11.3090	16.2805	19.7286	24.0746	26.1713	30.9066	32.3240	33.9144	35.7702

Fineness Modulus	C_u	C_c
7.42	3.69	2.10

GRAIN SIZE DISTRIBUTION TEST DATA

7/29/2021

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo
Project Number: ID# 113454-46
Location: Bag Samples
Sample Number: 1-4
Sample Date: May 2021
Date Received: July 18th 202**PL:** NP **LL:** NV **PI:** NP
USCS Classification: SM **AASHTO Classification:** A-4(0)
Grain Size Test Method: ASTM D 422
#200 Wash Method: ASTM D1140
Tested By: JPC **Test Date:** July 20-25 2021
Checked By: JPC **Title:** Engineering Technician

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
519.86	0.00	0.00	3.0"	0.00	100.0
			1.5"	0.00	100.0
			3/4	0.00	100.0
			1/2	0.00	100.0
			3/8	0.00	100.0
			#4	0.00	100.0
			#10	2.12	99.6
70.10	0.00	0.00	#40	1.09	98.0
			#70	10.44	84.8
			#100	20.23	70.9
			#200	39.93	42.9

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 99.6
Weight of hydrometer sample =70.1
Hygroscopic moisture correction:
Moist weight and tare = 20.36
Dry weight and tare = 19.77
Tare weight = 3.56
Hygroscopic moisture = 3.6%
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -3
Meniscus correction only = 0.5
Specific gravity of solids = 2.68
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 **-** 0.164 **x Rm**

Hydrometer Test Data (continued)

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.3	17.5	14.5	0.0135	18.0	13.3	0.0348	21.2
5.00	20.3	14.5	11.5	0.0135	15.0	13.8	0.0224	16.9
15.00	20.4	11.8	8.8	0.0135	12.3	14.3	0.0131	12.9
30.00	20.4	10.8	7.8	0.0135	11.3	14.4	0.0093	11.4
60.00	20.6	10.0	7.1	0.0134	10.5	14.6	0.0066	10.4
250.00	20.8	8.0	5.1	0.0134	8.5	14.9	0.0033	7.5
1440.00	19.7	7.0	3.9	0.0136	7.5	15.1	0.0014	5.7

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.4	1.6	55.1	57.1	33.6	9.3	42.9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0060	0.0177	0.0319	0.0510	0.0906	0.1163	0.1854	0.2115	0.2500	0.3221

Fineness Modulus	C_u	C_c
0.38	19.44	3.74

GRAIN SIZE DISTRIBUTION TEST DATA

7/29/2021

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo
Project Number: ID# 113454-46
Location: Bag Samples
Sample Number: 1-5
Sample Date: May 2021
Date Received: July 18th 202**PL:** NP
LL: NV
USCS Classification: SM
AASHTO Classification: A-2-4(0)
Grain Size Test Method: ASTM D 422
#200 Wash Method: ASTM D1140
Tested By: JPC
Test Date: July 19-23 2021
Checked By: JPC
Title: Engineering Technician

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
842.36	237.04	0.00	1.5"	0.00	100.0
			3/4	0.00	100.0
			1/2	3.27	99.5
			3/8	12.13	98.0
			#4	27.85	95.4
			#10	43.32	92.8
102.78	0.00	0.00	#40	8.60	85.1
			#70	31.71	64.2
			#100	48.21	49.3
			#200	73.51	26.4

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 92.8
Weight of hydrometer sample =102.78
Hygroscopic moisture correction:
Moist weight and tare = 15.63
Dry weight and tare = 15.27
Tare weight = 2.94
Hygroscopic moisture = 2.9%
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -3.0
Meniscus correction only = 0.5
Specific gravity of solids = 2.68
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 **-** 0.164 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.3	20.0	17.0	0.0135	20.5	12.9	0.0343	15.7
5.00	20.3	16.5	13.5	0.0135	17.0	13.5	0.0221	12.5
15.00	20.3	14.3	11.3	0.0135	14.8	13.9	0.0130	10.4
30.00	20.4	13.0	10.0	0.0135	13.5	14.1	0.0092	9.3
60.00	20.4	12.0	9.0	0.0135	12.5	14.2	0.0066	8.4

Hydrometer Test Data (continued)

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
250.00	20.6	10.0	7.1	0.0134	10.5	14.6	0.0032	6.5
1440.00	19.7	8.5	5.4	0.0136	9.0	14.8	0.0014	5.0

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	4.6	4.6	2.6	7.7	58.7	69.0	18.8	7.6	26.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0115	0.0315	0.0517	0.0867	0.1525	0.1906	0.3370	0.4233	0.6121	4.2344

Fineness Modulus	C_u	C_c
1.05	16.60	3.43

GRAIN SIZE DISTRIBUTION TEST DATA

7/29/2021

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo
Project Number: ID# 113454-46
Location: Bag Samples
Sample Number: 2-6
Sample Date: June 2021
Date Received: July 18th 202**PL:** NP
LL: NV
USCS Classification: SW-SM
AASHTO Classification: A-1-b
Grain Size Test Method: ASTM D 422
#200 Wash Method: ASTM D1140
Tested By: JPC
Test Date: July 19-23 2021
Checked By: JPC
Title: Engineering Technician

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
1598.21	118.60	0.00	3.0"	0.00	100.0
			1.5"	114.38	92.3
			3/4	125.27	91.5
			1/2	127.05	91.4
			3/8	152.61	89.7
			#4	236.16	84.0
			#10	450.58	69.5
103.49	0.00	0.00	#40	66.62	24.8
			#70	86.72	11.3
			#100	91.35	8.2
			#200	94.16	6.3

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 69.5
Weight of hydrometer sample =103.49
Hygroscopic moisture correction:
Moist weight and tare = 15.36
Dry weight and tare = 15.01
Tare weight = 2.89
Hygroscopic moisture = 2.9%
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -3
Meniscus correction only = 0.5
Specific gravity of solids = 2.68
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 **-** 0.164 **x Rm**

Hydrometer Test Data (continued)

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.4	10.3	7.3	0.0135	10.8	14.5	0.0363	5.0
5.00	20.4	10.0	7.0	0.0135	10.5	14.6	0.0230	4.8
15.00	20.5	9.0	6.1	0.0134	9.5	14.7	0.0133	4.2
30.00	20.6	8.0	5.1	0.0134	8.5	14.9	0.0095	3.5
60.00	20.5	7.5	4.6	0.0134	8.0	15.0	0.0067	3.1
250.00	20.7	7.0	4.1	0.0134	7.5	15.1	0.0033	2.8
1440.00	19.9	6.0	2.9	0.0135	6.5	15.2	0.0014	2.0

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	8.5	7.5	16.0	14.5	44.7	18.5	77.7	3.3	3.0	6.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1878	0.2695	0.3473	0.5167	1.0000	1.3945	3.4579	5.2203	9.9581	51.6995

Fineness Modulus	C_u	C_c
3.55	7.43	1.02

GRAIN SIZE DISTRIBUTION TEST DATA

7/29/2021

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo
Project Number: ID# 113454-46
Location: Bag Samples
Sample Number: 2-7
Sample Date: June 2021
Date Received: July 18th 202**PL:** NP
LL: NV
USCS Classification: SW-SM
AASHTO Classification: A-1-b
Grain Size Test Method: ASTM D 422
#200 Wash Method: ASTM D1140
Tested By: JPC
Test Date: July 20-25 2021
Checked By: JPC
Title: Engineering Technician

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
1493.10	121.10	0.00	3.0"	0.00	100.0
			1.5"	0.00	100.0
			3/4	42.37	96.9
			1/2	77.78	94.3
			3/8	98.44	92.8
			#4	146.30	89.3
			#10	239.60	82.5
111.74	0.00	0.00	#40	61.72	36.9
			#70	91.50	15.0
			#100	97.03	10.9
			#200	101.54	7.5

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 82.5
Weight of hydrometer sample =111.74
Hygroscopic moisture correction:
Moist weight and tare = 16.23
Dry weight and tare = 16.02
Tare weight = 3.56
Hygroscopic moisture = 1.7%
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -3
Meniscus correction only = 0.5
Specific gravity of solids = 2.68
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 **-** 0.164 **x Rm**

Hydrometer Test Data (continued)

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.4	10.5	7.5	0.0135	11.0	14.5	0.0362	5.6
5.00	20.4	10.0	7.0	0.0135	10.5	14.6	0.0230	5.3
15.00	20.5	9.8	6.8	0.0134	10.3	14.6	0.0133	5.1
30.00	20.5	9.0	6.1	0.0134	9.5	14.7	0.0094	4.5
60.00	20.6	8.0	5.1	0.0134	8.5	14.9	0.0067	3.8
250.00	20.7	7.3	4.4	0.0134	7.8	15.0	0.0033	3.3
1440.00	20.1	5.5	2.5	0.0135	6.0	15.3	0.0014	1.9

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	3.1	7.6	10.7	6.8	45.6	29.4	81.8	4.0	3.5	7.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1326	0.2106	0.2594	0.3519	0.6077	0.8139	1.7253	2.4206	5.4594	14.1807

Fineness Modulus	C_u	C_c
2.80	6.14	1.15

GRAIN SIZE DISTRIBUTION TEST DATA

7/29/2021

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo
Project Number: ID# 113454-46
Location: Bag Samples
Sample Number: 4-1
Sample Date: May 2021
Date Received: July 18th 2021
USCS Classification: SW
Grain Size Test Method: ASTM D 422
#200 Wash Method: ASTM D1140
Tested By: JPC
Test Date: July 19-23 2021
Checked By: JPC
Title: Engineering Technician

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
1399.20	119.30	0.00	3.0"	0.00	100.0
			1.5"	0.00	100.0
			3/4	22.10	98.3
			1/2	77.70	93.9
			3/8	133.30	89.6
			#4	434.20	66.1
			#10	860.80	32.7
162.05	51.15	0.00	#40	90.10	6.1
			#70	99.20	3.5
			#100	101.03	2.9
			#200	103.15	2.3

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 32.7
Weight of hydrometer sample =110.88
Hygroscopic moisture correction:
Moist weight and tare = 19.23
Dry weight and tare = 18.95
Tare weight = 4.21
Hygroscopic moisture = 1.9%
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -3
Meniscus correction only = 0.5
Specific gravity of solids = 2.68
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 **-** 0.164 **x Rm**

Hydrometer Test Data (continued)

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.5	10.5	7.6	0.0134	11.0	14.5	0.0362	2.3
5.00	20.5	10.0	7.1	0.0134	10.5	14.6	0.0229	2.1
15.00	20.5	9.8	6.8	0.0134	10.3	14.6	0.0133	2.0
30.00	20.5	8.3	5.3	0.0134	8.8	14.9	0.0095	1.6
60.00	20.6	7.8	4.8	0.0134	8.3	14.9	0.0067	1.4
250.00	20.9	6.8	3.9	0.0134	7.3	15.1	0.0033	1.2
1440.00	19.9	6.5	3.4	0.0135	7.0	15.1	0.0014	1.0

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	1.7	32.2	33.9	33.4	26.6	3.8	63.8	1.0	1.3	2.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.6649	0.9527	1.2383	1.8303	3.2060	4.0984	6.7998	7.9370	9.7255	13.8612

Fineness Modulus	C_u	C_c
4.72	6.16	1.23

GRAIN SIZE DISTRIBUTION TEST DATA

7/29/2021

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo
Project Number: ID# 113454-46
Location: Bag Samples
Sample Number: 4-4
Sample Date: June 2021
Date Received: July 18th 2021
USCS Classification: SP
Grain Size Test Method: ASTM D 422
#200 Wash Method: ASTM D1140
Tested By: JPC
Test Date: July 20-25 2021
Checked By: JPC
Title: Engineering Technician

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
892.50	118.70	0.00	3.0"	0.00	100.0
			1.5"	41.84	94.6
			3/4	88.11	88.6
			1/2	134.90	82.6
			3/8	191.20	75.3
			#4	310.10	59.9
			#10	422.20	45.4
110.66	0.00	0.00	#40	86.80	9.8
			#70	96.42	5.8
			#100	98.24	5.1
			#200	99.41	4.6

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 45.4
Weight of hydrometer sample =110.66
Hygroscopic moisture correction:
Moist weight and tare = 18.21
Dry weight and tare = 17.69
Tare weight = 4.23
Hygroscopic moisture = 3.9%
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -3
Meniscus correction only = 0.5
Specific gravity of solids = 2.68
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 **-** 0.164 **x Rm**

Hydrometer Test Data (continued)

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.4	13.0	10.0	0.0135	13.5	14.1	0.0357	4.3
5.00	20.4	12.3	9.3	0.0135	12.8	14.2	0.0227	3.9
15.00	20.4	11.0	8.0	0.0135	11.5	14.4	0.0132	3.4
30.00	20.5	10.0	7.1	0.0134	10.5	14.6	0.0094	3.0
60.00	20.5	9.0	6.1	0.0134	9.5	14.7	0.0067	2.6
250.00	20.8	7.0	4.1	0.0134	7.5	15.1	0.0033	1.8
1440.00	19.7	6.8	3.6	0.0136	7.3	15.1	0.0014	1.5

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	11.4	28.7	40.1	14.5	35.6	5.2	55.3	2.4	2.2	4.6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.4318	0.5801	0.7255	1.0695	2.5589	4.7701	11.3917	14.4416	21.8573	40.1679

Fineness Modulus	C_u	C_c
4.73	11.05	0.56

GRAIN SIZE DISTRIBUTION TEST DATA

7/29/2021

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo
Project Number: ID# 113454-46
Location: Bag Samples
Sample Number: 4-5
Sample Date: June 2021
Date Received: July 18th 202**PL:** NP
LL: NV
USCS Classification: SP-SM
AASHTO Classification: A-1-b
Grain Size Test Method: ASTM D 422
#200 Wash Method: ASTM D1140
Tested By: JPC
Test Date: July 20-25 2021
Checked By: JPC
Title: Engineering Technician

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
893.50	110.09	0.00	3.0"	0.00	100.0
			1.5"	0.00	100.0
			3/4	68.12	91.3
			1/2	98.06	87.5
			3/8	120.53	84.6
			#4	181.21	76.9
			#10	243.58	68.9
104.53	0.00	0.00	#40	60.57	29.0
			#70	89.96	9.6
			#100	93.72	7.1
			#200	96.47	5.3

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 68.9
Weight of hydrometer sample =104.53
Hygroscopic moisture correction:
Moist weight and tare = 14.23
Dry weight and tare = 14.01
Tare weight = 3.36
Hygroscopic moisture = 2.1%
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -3
Meniscus correction only = 0.5
Specific gravity of solids = 2.68
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 **-** 0.164 **x Rm**

Hydrometer Test Data (continued)

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.4	10.3	7.3	0.0135	10.8	14.5	0.0363	4.9
5.00	20.4	10.0	7.0	0.0135	10.5	14.6	0.0230	4.7
15.00	20.5	9.8	6.8	0.0134	10.3	14.6	0.0133	4.6
30.00	20.5	9.0	6.1	0.0134	9.5	14.7	0.0094	4.1
60.00	20.5	8.3	5.3	0.0134	8.8	14.9	0.0067	3.6
250.00	20.5	7.3	4.3	0.0134	7.8	15.0	0.0033	2.9
1440.00	20.0	6.8	3.7	0.0135	7.3	15.1	0.0014	2.5

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	8.7	14.4	23.1	8.0	39.9	23.7	71.6	2.1	3.2	5.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.2156	0.2723	0.3234	0.4382	0.8341	1.2337	6.3846	9.8709	16.8429	25.0755

Fineness Modulus	C_u	C_c
3.52	5.72	0.72

GRAIN SIZE DISTRIBUTION TEST DATA

7/29/2021

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo
Project Number: ID# 113454-46
Location: Bag Samples
Sample Number: 4-6
Sample Date: June 2021
Date Received: July 18th 202**PL:** NP
LL: NV
USCS Classification: SW-SM
AASHTO Classification: A-1-b
Grain Size Test Method: ASTM D 422
#200 Wash Method: ASTM D1140
Tested By: JPC
Test Date: July 20-25 2021
Checked By: JPC
Title: Engineering Technician

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
530.30	51.60	0.00	3.0"	0.00	100.0
			1.5"	30.31	93.7
			3/4	38.40	92.0
			1/2	46.92	90.2
			3/8	50.39	89.5
			#4	60.21	87.4
			#10	85.76	82.1
154.03	50.81	0.00	#40	77.00	20.9
			#70	88.79	11.5
			#100	90.87	9.8
			#200	92.68	8.4

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 82.1
Weight of hydrometer sample =103.22
Hygroscopic moisture correction:
Moist weight and tare = 19.63
Dry weight and tare = 19.51
Tare weight = 3.62
Hygroscopic moisture = 0.8%
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -3
Meniscus correction only = 0.5
Specific gravity of solids = 2.68
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 **-** 0.164 **x Rm**

Hydrometer Test Data (continued)

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.4	10.3	8.0	0.0130	10.8	14.5	0.0350	6.4
5.00	22.4	10.0	7.5	0.0131	10.5	14.6	0.0224	6.0
15.00	22.5	9.0	6.5	0.0131	9.5	14.7	0.0130	5.2
30.00	22.6	8.0	5.6	0.0131	8.5	14.9	0.0092	4.4
60.00	22.4	7.5	5.0	0.0131	8.0	15.0	0.0066	4.0
250.00	22.5	6.0	3.5	0.0131	6.5	15.2	0.0032	2.8
1440.00	20.7	5.0	2.1	0.0134	5.5	15.4	0.0014	1.7

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	8.0	4.6	12.6	5.3	61.2	12.5	79.0	4.8	3.6	8.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1571	0.3153	0.4113	0.5588	0.8766	1.0862	1.8375	2.3666	11.9042	46.5776

Fineness Modulus	C_u	C_c
3.32	6.91	1.83

GRAIN SIZE DISTRIBUTION TEST DATA

7/29/2021

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo
Project Number: ID# 113454-46
Location: Bag Samples
Sample Number: 5-1
Sample Date: June 2021
Date Received: July 18th 2021
USCS Classification: GP
Grain Size Test Method: ASTM D 422
#200 Wash Method: ASTM D1140
Tested By: JPC
Test Date: July 20-25 2021
Checked By: JPC
Title: Engineering Technician

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
1219.32	124.80	0.00	3.0"	0.00	100.0
			1.5"	248.56	77.3
			3/4	414.48	62.1
			1/2	520.36	52.5
			3/8	574.66	47.5
			#4	662.12	39.5
			#10	764.56	30.1
155.05	51.78	0.00	#40	62.02	12.0
			#70	78.67	7.2
			#100	83.16	5.9
			#200	88.39	4.3

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 30.1
Weight of hydrometer sample =103.72
Hygroscopic moisture correction:
Moist weight and tare = 18.81
Dry weight and tare = 18.56
Tare weight = 4.02
Hygroscopic moisture = 1.7%
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -3
Meniscus correction only = 0.5
Specific gravity of solids = 2.68
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 **-** 0.164 **x Rm**

Hydrometer Test Data (continued)

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.4	14.0	11.8	0.0130	14.5	13.9	0.0342	3.5
5.00	23.4	12.8	10.5	0.0130	13.3	14.1	0.0218	3.1
15.00	23.4	11.0	8.8	0.0130	11.5	14.4	0.0127	2.6
30.00	23.5	10.3	8.1	0.0130	10.8	14.5	0.0090	2.4
60.00	23.5	9.8	7.6	0.0130	10.3	14.6	0.0064	2.2
250.00	22.6	7.3	4.8	0.0131	7.8	15.0	0.0032	1.4
1440.00	20.7	6.0	3.1	0.0134	6.5	15.2	0.0014	0.9

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	37.9	22.6	60.5	9.4	18.1	7.7	35.2	2.3	2.0	4.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.3325	0.5716	0.8800	1.9754	11.1634	17.4308	42.0470	49.5132	57.5061	66.3034

Fineness Modulus	C_u	C_c
5.87	52.42	0.67

GRAIN SIZE DISTRIBUTION TEST DATA

7/29/2021

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo
Project Number: ID# 113454-46
Location: Bag Samples
Sample Number: 5-2
Sample Date: June 2021
Date Received: July 18th 2021
USCS Classification: GW
Grain Size Test Method: ASTM D 422
#200 Wash Method: ASTM D1140
Tested By: JPC
Test Date: July 20-25 2021
Checked By: JPC
Title: Engineering Technician

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
1570.32	120.20	0.00	3.0"	0.00	100.0
			1.5"	392.96	72.9
			3/4	650.31	55.2
			1/2	800.11	44.8
			3/8	906.70	37.5
			#4	1086.84	25.1
			#10	1245.60	14.1
155.04	0.00	0.00	#40	68.43	7.9
			#70	91.99	5.7
			#100	103.22	4.7
			#200	117.64	3.4

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 14.1
Weight of hydrometer sample =155.04
Hygroscopic moisture correction:
Moist weight and tare = 19.98
Dry weight and tare = 19.42
Tare weight = 4.12
Hygroscopic moisture = 3.7%
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -3
Meniscus correction only = 0.5
Specific gravity of solids = 2.68
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 **-** 0.164 **x Rm**

Hydrometer Test Data (continued)

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.4	29.0	26.8	0.0130	29.5	11.5	0.0311	2.5
5.00	23.4	26.5	24.3	0.0130	27.0	11.9	0.0200	2.3
15.00	23.4	23.0	20.8	0.0130	23.5	12.4	0.0118	1.9
30.00	23.6	20.8	18.6	0.0129	21.3	12.8	0.0085	1.7
60.00	23.4	18.8	16.5	0.0130	19.3	13.1	0.0061	1.5
250.00	22.5	15.0	12.5	0.0131	15.5	13.8	0.0031	1.2
1440.00	20.7	12.0	9.1	0.0134	12.5	14.2	0.0013	0.9

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	44.8	30.1	74.9	11.0	6.2	4.5	21.7	2.0	1.4	3.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
1.0102	2.1943	3.3311	6.5286	15.4883	23.4017	46.7421	53.2032	60.1597	67.7663

Fineness Modulus	C_u	C_c
6.63	23.17	1.80

GRAIN SIZE DISTRIBUTION TEST DATA

7/29/2021

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo
Project Number: ID# 113454-46
Location: Bag Samples
Sample Number: 5-4
Sample Date: June 2021
Date Received: July 18th 202**PL:** NP
LL: NV
USCS Classification: SW-SM
AASHTO Classification: A-1-b
Grain Size Test Method: ASTM D 422
#200 Wash Method: ASTM D1140
Tested By: JPC
Test Date: July 20-25 2021
Checked By: JPC
Title: Engineering Technician

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
896.50	123.12	0.00	3.0"	0.00	100.0
			1.5"	0.00	100.0
			3/4	9.35	98.8
			1/2	37.12	95.2
			3/8	63.32	91.8
			#4	146.26	81.1
			#10	287.44	62.8
102.50	0.00	0.00	#40	69.61	20.2
			#70	83.12	11.9
			#100	85.93	10.2
			#200	89.09	8.2

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 62.8
Weight of hydrometer sample =102.5
Hygroscopic moisture correction:
Moist weight and tare = 18.78
Dry weight and tare = 18.62
Tare weight = 3.88
Hygroscopic moisture = 1.1%
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -3
Meniscus correction only = 0.5
Specific gravity of solids = 2.68
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 **-** 0.164 **x Rm**

Hydrometer Test Data (continued)

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.2	13.0	10.7	0.0130	13.5	14.1	0.0345	6.6
5.00	23.2	11.0	8.7	0.0130	11.5	14.4	0.0221	5.4
15.00	23.3	10.0	7.7	0.0130	10.5	14.6	0.0128	4.8
30.00	23.4	9.3	7.0	0.0130	9.8	14.7	0.0091	4.3
60.00	23.4	8.0	5.8	0.0130	8.5	14.9	0.0065	3.6
250.00	22.8	6.3	3.9	0.0131	6.8	15.2	0.0032	2.4
1440.00	20.5	5.8	2.8	0.0134	6.3	15.3	0.0014	1.7

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	1.2	17.7	18.9	18.3	42.6	12.0	72.9	5.2	3.0	8.2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1441	0.3002	0.4213	0.6498	1.2780	1.8000	4.4666	5.9849	8.3218	12.4687

Fineness Modulus	C_u	C_c
3.61	12.49	1.63

GRAIN SIZE DISTRIBUTION TEST DATA

7/29/2021

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo
Project Number: ID# 113454-46
Location: Bag Samples
Sample Number: 5-4R
Sample Date: June 2021
Date Received: July 18th 202**PL:** NP
LL: NV
USCS Classification: SW-SM
AASHTO Classification: A-1-a
Grain Size Test Method: ASTM D 422
#200 Wash Method: ASTM D1140
Tested By: JPC
Test Date: July 20-25 2021
Checked By: JPC
Title: Engineering Technician

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
1606.51	122.10	0.00	3.0"	0.00	100.0
			1.5"	80.40	94.6
			3/4	144.23	90.3
			1/2	232.23	84.4
			3/8	308.91	79.2
			#4	631.63	57.4
			#10	889.13	40.1
105.49	0.00	0.00	#40	61.21	16.8
			#70	73.75	12.1
			#100	77.67	10.6
			#200	82.89	8.6

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 40.1
Weight of hydrometer sample =105.49
Hygroscopic moisture correction:
Moist weight and tare = 18.65
Dry weight and tare = 18.51
Tare weight = 3.26
Hygroscopic moisture = 0.9%
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -3
Meniscus correction only = 0.5
Specific gravity of solids = 2.68
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 **-** 0.164 **x Rm**

Hydrometer Test Data (continued)

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.2	19.0	16.7	0.0130	19.5	13.1	0.0333	6.4
5.00	23.2	17.0	14.7	0.0130	17.5	13.4	0.0213	5.6
15.00	23.4	16.0	13.8	0.0130	16.5	13.6	0.0123	5.2
30.00	23.4	15.0	12.8	0.0130	15.5	13.8	0.0088	4.9
60.00	23.4	13.0	10.8	0.0130	13.5	14.1	0.0063	4.1
250.00	22.8	10.5	8.1	0.0131	11.0	14.5	0.0031	3.1
1440.00	20.3	9.5	6.5	0.0135	10.0	14.7	0.0014	2.5

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	9.7	32.9	42.6	17.3	23.3	8.2	48.8	4.9	3.7	8.6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1268	0.3437	0.5618	1.0920	3.5244	5.1611	9.8837	13.2253	18.5896	40.9347

Fineness Modulus	C_u	C_c
4.59	40.69	1.82

GRAIN SIZE DISTRIBUTION TEST DATA

7/29/2021

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo
Project Number: ID# 113454-46
Location: Bag Samples
Sample Number: 6-1
Sample Date: June 2021
Date Received: July 18th 202**PL:** NP
LL: NV
USCS Classification: SM
AASHTO Classification: A-1-b
Grain Size Test Method: ASTM D 422
#200 Wash Method: ASTM D1140
Tested By: JPC
Test Date: July 20-25 2021
Checked By: JPC
Title: Engineering Technician

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
917.92	249.28	0.00	3.0"	0.00	100.0
			1.5"	0.00	100.0
			3/4	0.00	100.0
			1/2	6.55	99.0
			3/8	13.01	98.1
			#4	54.53	91.8
			#10	134.67	79.9
153.85	0.00	0.00	#40	64.93	46.2
			#70	101.53	27.2
			#100	113.30	21.0
			#200	125.44	14.7

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 79.9
Weight of hydrometer sample =153.85
Hygroscopic moisture correction:
Moist weight and tare = 19.47
Dry weight and tare = 19.32
Tare weight = 3.56
Hygroscopic moisture = 1.0%
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -3
Meniscus correction only = 0.5
Specific gravity of solids = 2.68
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 **-** 0.164 **x Rm**

Hydrometer Test Data (continued)

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.4	24.5	21.5	0.0135	25.0	12.2	0.0332	11.2
5.00	20.4	21.5	18.5	0.0135	22.0	12.7	0.0214	9.7
15.00	20.4	18.3	15.3	0.0135	18.8	13.2	0.0126	8.0
30.00	20.4	16.8	13.8	0.0135	17.3	13.5	0.0090	7.2
60.00	20.4	14.3	11.3	0.0135	14.8	13.9	0.0065	5.9
250.00	20.6	10.3	7.3	0.0134	10.8	14.5	0.0032	3.8
1440.00	19.6	8.0	4.9	0.0136	8.5	14.9	0.0014	2.5

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	8.2	8.2	11.9	33.7	31.5	77.1	9.8	4.9	14.7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0236	0.0784	0.1389	0.2370	0.4894	0.7302	2.0174	2.8007	4.0763	6.3480

Fineness Modulus	C_u	C_c
2.45	30.90	3.26

GRAIN SIZE DISTRIBUTION TEST DATA

7/29/2021

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo
Project Number: ID# 113454-46
Location: Bag Samples
Sample Number: 6-2
Sample Date: June 2021
Date Received: July 18th 202**PL:** NP
LL: NV
USCS Classification: ML
AASHTO Classification: A-4(0)
Grain Size Test Method: ASTM D 422
#200 Wash Method: ASTM D1140
Testing Remarks: Organics Present in sample
Tested By: JPC
Test Date: July 20-25 2021
Checked By: JPC
Title: Engineering Technician

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
379.68	101.70	0.00	3.0"	0.00	100.0
			1.5"	0.00	100.0
			3/4	0.00	100.0
			1/2	0.00	100.0
			3/8	5.75	97.9
			#4	12.52	95.5
			#10	17.63	93.7
112.10	51.57	0.00	#40	7.20	82.5
			#70	14.34	71.5
			#100	18.98	64.3
			#200	26.04	53.4

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 93.7
Weight of hydrometer sample =60.53
Hygroscopic moisture correction:
Moist weight and tare = 18.88
Dry weight and tare = 18.77
Tare weight = 4.21
Hygroscopic moisture = 0.8%
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -3
Meniscus correction only = 0.5
Specific gravity of solids = 2.68
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 **-** 0.164 **x Rm**

Hydrometer Test Data (continued)

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.4	28.0	25.0	0.0135	28.5	11.6	0.0324	38.8
5.00	20.4	23.5	20.5	0.0135	24.0	12.4	0.0212	31.8
15.00	20.4	19.0	16.0	0.0135	19.5	13.1	0.0126	24.8
30.00	20.3	16.3	13.3	0.0135	16.8	13.5	0.0091	20.6
60.00	20.4	13.3	10.3	0.0135	13.8	14.0	0.0065	15.9
250.00	20.5	10.5	7.6	0.0134	11.0	14.5	0.0032	11.7
1440.00	20.8	8.5	5.6	0.0134	9.0	14.8	0.0014	8.7

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	4.5	4.5	1.8	11.2	29.1	42.1	39.8	13.6	53.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0020	0.0060	0.0087	0.0186	0.0610	0.1175	0.3488	0.5310	0.9541	3.5018

Fineness Modulus	C_u	C_c
0.93	60.16	1.52

GRAIN SIZE DISTRIBUTION TEST DATA

7/29/2021

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo
Project Number: ID# 113454-46
Location: Bag Samples
Sample Number: 6-3
Sample Date: June 2021
Date Received: July 18th 2021
USCS Classification: GW
Grain Size Test Method: ASTM D 422
#200 Wash Method: ASTM D1140
Testing Remarks: No Hydro,lacks req. passing #10
Tested By: JPC
Test Date: July 20-25 2021
Checked By: JPC
Title: Engineering Technician

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
1175.36	238.21	0.00	3.0"	0.00	100.0
			1.5"	0.00	100.0
			3/4	345.45	63.1
			1/2	448.81	52.1
			3/8	511.20	45.5
			#4	671.88	28.3
			#10	814.55	13.1
			#40	861.21	8.1
			#70	886.99	5.4
			#100	911.67	2.7
			#200	920.99	1.7

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	36.9	34.8	71.7	15.2	5.0	6.4	26.6			1.7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
1.3627	2.3345	3.1855	5.1075	11.5406	17.5278	25.9309	28.1582	30.6865	33.7598

Fineness Modulus	C_u	C_c
6.20	12.86	1.09

GRAIN SIZE DISTRIBUTION TEST DATA

7/29/2021

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo
Project Number: ID# 113454-46
Location: Bag Samples
Sample Number: 6-4
Sample Date: June 2021
Date Received: July 18th 2021
USCS Classification: GP
Grain Size Test Method: ASTM D 422
#200 Wash Method: ASTM D1140
Testing Remarks: No Hydro,lacks req. passing #10
Tested By: JPC
Test Date: July 20-25 2021
Checked By: JPC
Title: Engineering Technician

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
1341.24	235.59	0.00	3.0"	0.00	100.0
			1.5"	851.70	23.0
			3/4	1030.22	6.8
			1/2	1061.61	4.0
			3/8	1076.23	2.7
			#4	1091.81	1.3
			#10	1093.70	1.1
			#40	1097.20	0.8
			#70	1100.20	0.5
			#100	1101.30	0.4
			#200	1102.80	0.3

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	93.2	5.5	98.7	0.2	0.3	0.5	1.0			0.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
27.4935	32.7291	36.3041	41.8544	51.2920	55.9070	65.5315	68.0770	70.6968	73.4009

Fineness Modulus	C_u	C_c
8.62	2.03	1.14

GRAIN SIZE DISTRIBUTION TEST DATA

7/29/2021

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo
Project Number: ID# 113454-46
Location: Bag Samples
Sample Number: 199A
Sample Date: June 2021
Date Received: July 18th 2021
USCS Classification: GW
Grain Size Test Method: ASTM D 422
#200 Wash Method: ASTM D1140
Testing Remarks: No Hydro,lacks req. passing #10
Tested By: JPC **Test Date:** July 20-25 2021
Checked By: JPC **Title:** Engineering Technician

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
1869.50	120.78	0.00	3.0"	0.00	100.0
			1.5"	154.63	91.2
			3/4	291.91	83.3
			1/2	426.33	75.6
			3/8	615.65	64.8
			#4	936.58	46.4
			#10	1255.35	28.2
155.87	50.73	0.00	#40	60.86	11.9
			#70	80.66	6.6
			#100	85.62	5.2
			#200	90.24	4.0

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 28.2
Weight of hydrometer sample =105.14
Hygroscopic moisture correction:
Moist weight and tare = 19.74
Dry weight and tare = 19.68
Tare weight = 3.25
Hygroscopic moisture = 0.4%
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -3
Meniscus correction only = 0.5
Specific gravity of solids = 2.68
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 **-** 0.164 **x Rm**

Hydrometer Test Data (continued)

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.3	12.5	10.2	0.0130	13.0	14.2	0.0346	2.7
5.00	23.3	11.0	8.7	0.0130	11.5	14.4	0.0220	2.3
15.00	23.4	10.0	7.8	0.0130	10.5	14.6	0.0128	2.1
30.00	23.4	8.8	6.5	0.0130	9.3	14.8	0.0091	1.7
60.00	23.6	7.8	5.6	0.0129	8.3	14.9	0.0065	1.5
250.00	22.7	6.5	4.1	0.0131	7.0	15.1	0.0032	1.1
1440.00	20.6	5.5	2.6	0.0134	6.0	15.3	0.0014	0.7

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	16.7	36.9	53.6	18.2	16.3	7.9	42.4	2.7	1.3	4.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.3385	0.6313	1.1001	2.2064	5.5939	8.2723	15.1806	21.9956	34.4527	52.0583

Fineness Modulus	C_u	C_c
5.33	24.44	1.74

GRAIN SIZE DISTRIBUTION TEST DATA

7/29/2021

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo
Project Number: ID# 113454-46
Location: Bag Samples
Sample Number: 199B
Sample Date: June 2021
Date Received: July 18th 2021
USCS Classification: SP
Grain Size Test Method: ASTM D 422
#200 Wash Method: ASTM D1140
Tested By: JPC
Test Date: July 20-25 2021
Checked By: JPC
Title: Engineering Technician

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
834.10	124.40	0.00	3.0"	0.00	100.0
			1.5"	0.00	100.0
			3/4	97.69	86.2
			1/2	164.23	76.9
			3/8	217.66	69.3
			#4	290.56	59.1
			#10	386.70	45.5
105.77	0.00	0.00	#40	77.08	12.3
			#70	89.95	6.8
			#100	93.73	5.2
			#200	96.54	4.0

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 45.5
Weight of hydrometer sample =105.77
Hygroscopic moisture correction:
Moist weight and tare = 19.99
Dry weight and tare = 19.87
Tare weight = 4.25
Hygroscopic moisture = 0.8%
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -3
Meniscus correction only = 0.5
Specific gravity of solids = 2.68
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 **-** 0.164 **x Rm**

Hydrometer Test Data (continued)

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.4	10.8	7.8	0.0135	11.3	14.4	0.0362	3.4
5.00	20.5	10.5	7.6	0.0134	11.0	14.5	0.0229	3.3
15.00	20.5	9.8	6.8	0.0134	10.3	14.6	0.0133	2.9
30.00	20.5	9.3	6.3	0.0134	9.8	14.7	0.0094	2.7
60.00	20.6	8.0	5.1	0.0134	8.5	14.9	0.0067	2.2
250.00	20.8	6.3	3.4	0.0134	6.8	15.2	0.0033	1.5
1440.00	19.6	6.0	2.9	0.0136	6.5	15.2	0.0014	1.2

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	13.8	27.1	40.9	13.6	33.2	8.3	55.1	2.2	1.8	4.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.3431	0.5073	0.6606	1.0234	2.5329	5.1562	14.4425	18.0360	22.3962	28.0039

Fineness Modulus	C_u	C_c
4.71	15.03	0.59

GRAIN SIZE DISTRIBUTION TEST DATA

7/29/2021

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo
Project Number: ID# 113454-46
Location: Bag Samples
Sample Number: 199C
Sample Date: June 2021
Date Received: July 18th 202**PL:** NP
LL: NV
USCS Classification: SP-SM
AASHTO Classification: A-1-a
Grain Size Test Method: ASTM D 422
#200 Wash Method: ASTM D1140
Tested By: JPC
Test Date: July 20-25 2021
Checked By: JPC
Title: Engineering Technician

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
890.10	122.10	0.00	3.0"	0.00	100.0
			1.5"	0.00	100.0
			3/4	98.56	87.2
			1/2	158.45	79.4
			3/8	191.63	75.0
			#4	295.86	61.5
			#10	433.07	43.6
94.20	0.00	0.00	#40	64.59	13.7
			#70	76.76	8.1
			#100	78.23	7.4
			#200	80.61	6.3

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 43.6
Weight of hydrometer sample =94.2
Hygroscopic moisture correction:
Moist weight and tare = 18.81
Dry weight and tare = 18.76
Tare weight = 3.78
Hygroscopic moisture = 0.3%
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -3
Meniscus correction only = 0.5
Specific gravity of solids = 2.68
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 **-** 0.164 **x Rm**

Hydrometer Test Data (continued)

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.4	10.8	8.5	0.0130	11.3	14.4	0.0349	3.9
5.00	23.4	9.3	7.0	0.0130	9.8	14.7	0.0222	3.2
15.00	23.5	8.3	6.1	0.0130	8.8	14.9	0.0129	2.8
30.00	23.5	7.0	4.8	0.0130	7.5	15.1	0.0092	2.2
60.00	23.4	6.8	4.5	0.0130	7.3	15.1	0.0065	2.1
250.00	22.5	5.3	2.8	0.0131	5.8	15.4	0.0032	1.3
1440.00	20.7	4.3	1.4	0.0134	4.8	15.5	0.0014	0.6

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	12.8	25.7	38.5	17.9	29.9	7.4	55.2	4.4	1.9	6.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.2962	0.4678	0.6395	1.0639	2.7175	4.4250	13.1976	17.1952	21.6824	27.4718

Fineness Modulus	C_u	C_c
4.61	14.94	0.86

GRAIN SIZE DISTRIBUTION TEST DATA

7/29/2021

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo
Project Number: ID# 113454-46
Location: Bag Samples
Sample Number: 199D
Sample Date: June 2021
Date Received: July 18th 202**PL:** NP
LL: NV
USCS Classification: SP-SM
AASHTO Classification: A-1-b
Grain Size Test Method: ASTM D 422
#200 Wash Method: ASTM D1140
Tested By: JPC
Test Date: July 20-25 2021
Checked By: JPC
Title: Engineering Technician

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
868.56	119.10	0.00	3.0"	0.00	100.0
			1.5"	225.99	69.8
			3/4	299.89	60.0
			1/2	315.35	57.9
			3/8	323.81	56.8
			#4	341.25	54.5
			#10	366.98	51.0
110.12	0.00	0.00	#40	34.81	34.9
			#70	66.38	20.3
			#100	79.09	14.4
			#200	92.21	8.3

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 51.0
Weight of hydrometer sample =110.12
Hygroscopic moisture correction:
Moist weight and tare = 17.73
Dry weight and tare = 17.67
Tare weight = 3.65
Hygroscopic moisture = 0.4%
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -3
Meniscus correction only = 0.5
Specific gravity of solids = 2.68
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 **-** 0.164 **x Rm**

Hydrometer Test Data (continued)

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.4	17.0	14.0	0.0135	17.5	13.4	0.0349	6.5
5.00	20.4	15.3	12.3	0.0135	15.8	13.7	0.0223	5.7
15.00	20.4	13.8	10.8	0.0135	14.3	14.0	0.0130	5.0
30.00	20.5	12.0	9.1	0.0134	12.5	14.2	0.0093	4.2
60.00	20.5	10.5	7.6	0.0134	11.0	14.5	0.0066	3.5
240.00	20.9	8.3	5.4	0.0134	8.8	14.9	0.0033	2.5
1440.00	19.9	7.5	4.4	0.0135	8.0	15.0	0.0014	2.1

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	40.0	5.5	45.5	3.5	16.1	26.6	46.2	5.3	3.0	8.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1002	0.1563	0.2071	0.3329	1.6499	19.0953	50.2780	56.2110	62.4096	69.0222

Fineness Modulus	C_u	C_c
4.77	190.52	0.06

GRAIN SIZE DISTRIBUTION TEST DATA

7/29/2021

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo
Project Number: ID# 113454-46
Location: Bag Samples
Sample Number: 199E
Sample Date: June 2021
Date Received: July 18th 2021
USCS Classification: SP
Grain Size Test Method: ASTM D 422
#200 Wash Method: ASTM D1140
Tested By: JPC
Test Date: July 20-25 2021
Checked By: JPC
Title: Engineering Technician

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
1083.18	121.50	0.00	3.0"	0.00	100.0
			1.5"	0.00	100.0
			3/4	76.07	92.1
			1/2	119.56	87.6
			3/8	171.98	82.1
			#4	366.77	61.9
			#10	704.30	26.8
157.17	50.92	0.00	#40	96.57	2.4
			#70	99.41	1.7
			#100	99.96	1.6
			#200	100.66	1.4

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 26.8
Weight of hydrometer sample =106.25
Hygroscopic moisture correction:
Moist weight and tare = 17.71
Dry weight and tare = 17.69
Tare weight = 4.23
Hygroscopic moisture = 0.1%
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -3
Meniscus correction only = 0.5
Specific gravity of solids = 2.68
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 **-** 0.164 **x Rm**

Hydrometer Test Data (continued)

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	20.4	9.0	6.0	0.0135	9.5	14.7	0.0365	1.5
5.00	20.4	8.0	5.0	0.0135	8.5	14.9	0.0232	1.3
15.00	20.4	7.3	4.3	0.0135	7.8	15.0	0.0135	1.1
30.00	20.4	7.0	4.0	0.0135	7.5	15.1	0.0095	1.0
60.00	20.4	6.5	3.5	0.0135	7.0	15.1	0.0068	0.9
250.00	20.6	6.3	3.3	0.0134	6.8	15.2	0.0033	0.8
1440.00	19.7	6.0	2.9	0.0136	6.5	15.2	0.0014	0.7

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	7.9	30.2	38.1	35.1	24.4	1.0	60.5	0.5	0.9	1.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
1.0256	1.3260	1.6142	2.1861	3.5424	4.5231	8.6855	10.9374	15.5198	24.1374

Fineness Modulus	C_u	C_c
5.11	4.41	1.03

GRAIN SIZE DISTRIBUTION TEST DATA

7/29/2021

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo
Project Number: ID# 113454-46
Location: Bag Samples
Sample Number: WC-1
Sample Date: June 2021
Date Received: July 18th 202**PL:** NP
LL: NV
USCS Classification: SM
AASHTO Classification: A-2-4(0)
Grain Size Test Method: ASTM D 422
#200 Wash Method: ASTM D1140
Tested By: JPC
Test Date: July 20-25 2021
Checked By: JPC
Title: Engineering Technician

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
164.14	52.08	0.00	3.0"	0.00	100.0
			1.5"	0.00	100.0
			3/4	0.00	100.0
			1/2	0.00	100.0
			3/8	0.00	100.0
			#4	0.00	100.0
			#10	0.00	100.0
			#40	10.23	90.9
			#70	33.84	69.8
			#100	50.42	55.0
			#200	82.53	26.4

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =112.06
Hygroscopic moisture correction:
Moist weight and tare = 14.56
Dry weight and tare = 14.50
Tare weight = 3.78
Hygroscopic moisture = 0.6%
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -3
Meniscus correction only = 0.5
Specific gravity of solids = 2.68
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 **-** 0.164 **x Rm**

Hydrometer Test Data (continued)

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.4	21.0	18.8	0.0130	21.5	12.8	0.0328	16.7
5.00	23.4	19.0	16.8	0.0130	19.5	13.1	0.0210	15.0
15.00	23.4	17.0	14.8	0.0130	17.5	13.4	0.0123	13.2
30.00	23.4	15.5	13.3	0.0130	16.0	13.7	0.0088	11.8
60.00	23.5	14.3	12.1	0.0130	14.8	13.9	0.0062	10.7
250.00	22.6	11.3	8.8	0.0131	11.8	14.4	0.0031	7.9
1440.00	20.7	9.5	6.6	0.0134	10.0	14.7	0.0014	5.9

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	9.1	64.5	73.6	16.5	9.9	26.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0052	0.0213	0.0542	0.0842	0.1348	0.1672	0.2788	0.3306	0.4073	0.6913

Fineness Modulus	C_u	C_c
0.71	32.40	8.22

GRAIN SIZE DISTRIBUTION TEST DATA

7/29/2021

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo
Project Number: ID# 113454-46
Location: Bag Samples
Sample Number: WC-3
Sample Date: June 2021
Date Received: July 18th 2021
USCS Classification: SW
Grain Size Test Method: ASTM D 422
#200 Wash Method: ASTM D1140
Tested By: JPC
Test Date: July 20-25 2021
Checked By: JPC
Title: Engineering Technician

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
1447.20	116.50	0.00	3.0"	0.00	100.0
			1.5"	157.61	88.2
			3/4	223.42	83.2
			1/2	310.42	76.7
			3/8	374.80	71.8
			#4	641.11	51.8
			#10	965.64	27.4
102.48	0.00	0.00	#40	63.04	10.6
			#70	78.03	6.5
			#100	83.65	5.0
			#200	89.68	3.4

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 27.4
Weight of hydrometer sample =102.48
Hygroscopic moisture correction:
Moist weight and tare = 14.56
Dry weight and tare = 14.54
Tare weight = 4.21
Hygroscopic moisture = 0.2%
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -3
Meniscus correction only = 0.5
Specific gravity of solids = 2.68
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 **-** 0.164 **x Rm**

Hydrometer Test Data (continued)

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.3	12.3	10.0	0.0130	12.8	14.2	0.0346	2.7
5.00	23.3	10.0	7.7	0.0130	10.5	14.6	0.0222	2.1
15.00	23.3	9.3	7.0	0.0130	9.8	14.7	0.0129	1.9
30.00	23.4	8.0	5.8	0.0130	8.5	14.9	0.0091	1.5
60.00	23.6	7.3	5.1	0.0129	7.8	15.0	0.0065	1.4
250.00	22.7	6.5	4.1	0.0131	7.0	15.1	0.0032	1.1
1440.00	20.6	5.5	2.6	0.0134	6.0	15.3	0.0014	0.7

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	16.8	31.4	48.2	24.4	16.8	7.2	48.4	2.1	1.3	3.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.3866	0.8282	1.3078	2.2396	4.4897	6.1184	15.4117	23.1552	44.3551	59.4901

Fineness Modulus	C_u	C_c
5.29	15.83	2.12

GRAIN SIZE DISTRIBUTION TEST DATA

7/29/2021

Client: USACE MVS EC-HD
Project: Rio Puerto Nuevo
Project Number: ID# 113454-46
Location: Bag Samples
Sample Number: WC-4
Sample Date: June 2021
Date Received: July 18th 2021
USCS Classification: GW
Grain Size Test Method: ASTM D 422
#200 Wash Method: ASTM D1140
Tested By: JPC
Test Date: July 20-25 2021
Checked By: JPC
Title: Engineering Technician

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
1327.00	121.60	0.00	3.0"	0.00	100.0
			1.5"	126.60	89.5
			3/4	217.46	82.0
			1/2	300.00	75.1
			3/8	429.60	64.4
			#4	703.20	41.7
			#10	937.20	22.2
112.96	0.00	0.00	#40	68.70	8.7
			#70	80.55	6.4
			#100	89.83	4.6
			#200	95.89	3.4

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 22.2
Weight of hydrometer sample =112.96
Hygroscopic moisture correction:
Moist weight and tare = 14.33
Dry weight and tare = 14.28
Tare weight = 3.77
Hygroscopic moisture = 0.5%
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -3
Meniscus correction only = 0.5
Specific gravity of solids = 2.68
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 **-** 0.164 **x Rm**

Hydrometer Test Data (continued)

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.2	14.5	12.2	0.0130	15.0	13.8	0.0342	2.4
5.00	23.2	12.3	10.0	0.0130	12.8	14.2	0.0219	2.0
15.00	23.3	11.5	9.2	0.0130	12.0	14.3	0.0127	1.8
30.00	23.3	10.0	7.7	0.0130	10.5	14.6	0.0091	1.5
60.00	23.4	9.0	6.8	0.0130	9.5	14.7	0.0064	1.3
250.00	22.6	7.0	4.6	0.0131	7.5	15.1	0.0032	0.9
1440.00	20.4	6.3	3.3	0.0135	6.8	15.2	0.0014	0.6

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	18.0	40.3	58.3	19.5	13.5	5.3	38.3	2.2	1.2	3.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.5915	1.1699	1.7374	2.9705	6.3227	8.4958	16.0782	25.6722	39.5948	55.8145

Fineness Modulus	C_u	C_c
5.60	14.36	1.76