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## LABORATORY REPORT ON SOIL

Client **DIBBLE ENGINEERING**  
**7500 NORTH DREAMY DRAW DRIVE**  
**STE 200**  
**PHOENIX, AZ 85020**

Date of Report **02-07-17**

Job No. **3147JV005**

Event / Invoice No. **31470013**

Lab No. **3050**

Authorized By **TIM WOLFE**

Date **01-12-17**

Sampled By **WT/T. MOORE**

Date **01-12-17**

Submitted By **WT/T. MOORE**

Date **01-13-17**

Project **NDOT BETTERMENT FUNDING PROJECTS - LAB WORK**

Location **FARMINGTON LAB, NM**

Contractor **N/A**

Arch. / Engr. **N/A**

Type / Use of Material **NATIVE MATERIAL/SUBGRADE**

Supplier / Source **N21 KAIBITO, AZ/ONSITE**

Sample Source / Location **N21 3.5M WEST OF EAST END OF PAVE**

Source / Location Desig. By **WT/T. MOORE**

Date **01-12-17**

Reference: **PARTICLE SIZE ANALYSIS OF SOIL** ☒ **ASTM D422** ☐ **AASHTO T88**

**HYDRAULIC CONDUCTIVITY** ☐ **ASTM D5084 METHOD** ☐ **ASTM D2434**

Special Instructions:

### TEST RESULTS

PARTICLE SIZE ANALYSIS			
DISPERSION DEVICE <b>MALT MACHINE</b>		LENGTH OF DISPERSION PERIOD, MINUTES <b>1</b>	SPECIFIC GRAVITY → <b>2.65</b> <input type="checkbox"/> ASTM D854 <input checked="" type="checkbox"/> ASSUMED
DIFFICULTY IN DISPERSING MINUS NO. 10 MATERIAL <b>NONE</b>			
DESCRIPTION OF SAND & GRAVEL PARTICLES: <input type="checkbox"/> HARD <input checked="" type="checkbox"/> SOFT <input type="checkbox"/> FRIABLE <input type="checkbox"/> ROUNDED <input type="checkbox"/> ANGULAR MAXIMUM PARTICLE SIZE, IN. <b>#10</b>			
SIEVE ANALYSIS		HYDROMETER ANALYSIS	
SIEVE SIZE	% PASS	PARTICLE SIZE	% PASS
3 IN.		0.074 MM	<b>15.9</b>
2 IN.		0.020 MM	<b>9.7</b>
1 1/2 IN.		0.005 MM	<b>7.9</b>
1 IN.		0.002 MM	<b>6.5</b>
3/4	<b>100</b>	0.001 MM	<b>5.2</b>
3/8	<b>97.6</b>		
NO. 4	<b>90.5</b>		
8	<b>84.6</b>		
10	<b>82.9</b>		
40	<b>68.0</b>		
50	<b>60.4</b>		
200	<b>15.9</b>		
<b>LIQUID &amp; PLASTIC PROPERTIES</b> <input type="checkbox"/> ASTM D4318 <input checked="" type="checkbox"/> AASHTO T89 & T90 METHOD <input checked="" type="checkbox"/> A <input type="checkbox"/> B LIQUID LIMIT <b>NO VALUE</b> PLASTIC LIMIT <b>NO LIMIT</b> PLASTICITY INDEX <b>NO PLASTICITY</b> SAMPLE AIR DRIED: <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO ESTIMATE % RETAINED ON NO. 40			
<b>SOIL CLASSIFICATION</b> <input type="checkbox"/> ASTM D2487 <input checked="" type="checkbox"/> AASHTO M145 <input type="checkbox"/> ASTM D2488 VISUAL / MANUAL GROUP SYMBOL <b>A-2-4</b> GROUP NAME			

### HYDRAULIC CONDUCTIVITY

SPECIMEN CHARACTERISTIC							
	HEIGHT, IN.	DIAMETER, IN.	DENSITY, PCF	MOISTURE, %	VOID RATIO	SATURATION, %	TYPE
INITIAL							<input type="checkbox"/> REMODED
FINAL							<input type="checkbox"/> UNDISTURBED
SPECIFIC GRAVITY → <input type="checkbox"/> ASTM D854 <input type="checkbox"/> ASSUMED PERMEANT TOTAL BACK PRESSURE, PSI →							
MAXIMUM CONSOLIDATION EFFECTIVE STRESS, PSI → MINIMUM CONSOLIDATION EFFECTIVE STRESS, PSI → HYDRAULIC GRADIENT → HYDRAULIC CONDUCTIVITY, CM PER SECOND →							

Comments: **GRAVEL = 9.5%, SAND = 74.6%, SILT = 8.0%, CLAY = 7.9%, COLLOIDS = 5.2%**

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THE SERVICES REFERRED TO HEREIN WERE PERFORMED IN ACCORDANCE WITH THE STANDARD OF CARE PRACTICED LOCALLY FOR THE REFERENCED METHOD(S) AND RELATE ONLY TO THE CONDITION(S) OR SAMPLE(S) TESTED AS STATED HEREIN. WESTERN TECHNOLOGIES INC. MAKES NO OTHER WARRANTY OR REPRESENTATION, EXPRESSED OR IMPLIED, AND HAS NOT CONFIRMED INFORMATION INCLUDING SOURCE OF MATERIALS SUBMITTED BY OTHERS.

**B. JENKINS**

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## LABORATORY REPORT ON SOIL

Client **DIBBLE ENGINEERING**  
**7500 NORTH DREAMY DRAW DRIVE**  
**STE 200**  
**PHOENIX, AZ 85020**

Date of Report **02-07-17**

Job No. **3147JV005**

Event / Invoice No. **31470013**

Lab No. **3049**

Authorized By **TIM WOLFE**

Date **01-12-17**

Sampled By **WT/T. MOORE**

Date **01-12-17**

Submitted By **WT/T. MOORE**

Date **01-13-17**

Project **NDOT BETTERMENT FUNDING PROJECTS - LAB WORK**

Location **FARMINGTON LAB, NM**

Contractor **N/A**

Arch. / Engr. **N/A**

Type / Use of Material **NATIVE MATERIAL/SUBGRADE**

Supplier / Source **N21 KAIBITO, AZ/ONSITE**

Sample Source / Location **N21 MP0.9 W. OF E. END OF PAVE**

Source / Location Desig. By **WT/T. MOORE**

Date **01-12-17**

Reference: **PARTICLE SIZE ANALYSIS OF SOIL** ☒ **ASTM D422** ☐ **AASHTO T88**

**HYDRAULIC CONDUCTIVITY** ☐ **ASTM D5084 METHOD** ☐ **ASTM D2434**

Special Instructions:

### TEST RESULTS

PARTICLE SIZE ANALYSIS			
DISPERSION DEVICE	MALT MACHINE		LENGTH OF DISPERSION PERIOD, MINUTES <b>1</b>
DIFFICULTY IN DISPERSING MINUS NO. 10 MATERIAL		NONE	
DESCRIPTION OF SAND & GRAVEL PARTICLES:		<input type="checkbox"/> HARD <input checked="" type="checkbox"/> SOFT <input type="checkbox"/> FRIABLE <input type="checkbox"/> ROUNDED <input type="checkbox"/> ANGULAR	
		SPECIFIC GRAVITY → <b>2.65</b> <input type="checkbox"/> ASTM D854 <input checked="" type="checkbox"/> ASSUMED	
		MAXIMUM PARTICLE SIZE, IN. <b>#10</b>	

SIEVE ANALYSIS		HYDROMETER ANALYSIS		LIQUID & PLASTIC PROPERTIES	
SIEVE SIZE	% PASS	PARTICLE SIZE	% PASS		
3 IN.		0.074 MM	15.9	<input type="checkbox"/> ASTM D4318 <input checked="" type="checkbox"/> AASHTO T89 & T90	
2 IN.				METHOD <input checked="" type="checkbox"/> A <input type="checkbox"/> B	RESULT
1 1/2 IN.		0.020 MM	11.3	LIQUID LIMIT	17
1 IN.				PLASTIC LIMIT	15
3/4	100	0.005 MM	9.5	PLASTICITY INDEX	2
3/8	97.6			SAMPLE AIR DRIED: <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
NO. 4	90.5	0.002 MM	8.2	ESTIMATE % RETAINED ON NO. 40	
8	84.6				
10	82.9	0.001 MM	6.8		
40	68.0				
50	60.4				
200	15.9				

SOIL CLASSIFICATION	
<input type="checkbox"/> ASTM D2487	<input checked="" type="checkbox"/> AASHTO M145
<input type="checkbox"/> ASTM D2488 VISUAL / MANUAL	
GROUP SYMBOL <b>A-2-6</b>	
GROUP NAME	

### HYDRAULIC CONDUCTIVITY

SPECIMEN CHARACTERISTIC							
	HEIGHT, IN.	DIAMETER, IN.	DENSITY, PCF	MOISTURE, %	VOID RATIO	SATURATION, %	TYPE
INITIAL							<input type="checkbox"/> REMOLDED <input type="checkbox"/> UNDISTURBED
FINAL							

SPECIFIC GRAVITY →	<input type="checkbox"/> ASTM D854	MAXIMUM CONSOLIDATION EFFECTIVE STRESS, PSI →
	<input type="checkbox"/> ASSUMED	MINIMUM CONSOLIDATION EFFECTIVE STRESS, PSI →
PERMEANT		HYDRAULIC GRADIENT →
TOTAL BACK PRESSURE, PSI →		HYDRAULIC CONDUCTIVITY, CM PER SECOND →

Comments: **GRAVEL = 9.5%, SAND = 74.6%, SILT = 6.3%, CLAY = 9.5%, COLLOIDS = 6.8%**

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## LABORATORY REPORT ON SOIL

Client **DIBBLE ENGINEERING**  
**7500 NORTH DREAMY DRAW DRIVE**  
**STE 200**  
**PHOENIX, AZ 85020**

Date of Report **02-16-17**

Job No. **3147JV005**

Event / Invoice No. **31470013**

Authorized By **TIM WOLFE**

Sampled By **WT/T. MOORE**

Submitted By **WT/T. MOORE**

Lab No. **3051**

Date **01-12-17**

Date **01-12-17**

Date **01-13-17**

Project **NDOT BETTERMENT FUNDING PROJECTS - LAB WORK**

Location **FARMINGTON LAB, NM**

Contractor **N/A**

Arch. / Engr. **N/A**

Type / Use of Material **NATIVE MATERIAL/SUBGRADE**

Supplier / Source **N21 KAIBITO, AZ/ONSITE**

Sample Source / Location **N21 8.0M WEST OF EAST END OF PAVE**

Source / Location Desig. By **WT/T. MOORE**

Date **01-12-17**

Reference: **PARTICLE SIZE ANALYSIS OF SOIL** ☒ **ASTM D422** ☐ **AASHTO T88**

**HYDRAULIC CONDUCTIVITY** ☐ **ASTM D5084 METHOD** ☐ **ASTM D2434**

Special Instructions:

### TEST RESULTS

PARTICLE SIZE ANALYSIS			
DISPERSION DEVICE <b>MALT MACHINE</b>		LENGTH OF DISPERSION PERIOD, MINUTES <b>1</b>	SPECIFIC GRAVITY → <b>2.65</b> <input type="checkbox"/> ASTM D854 <input checked="" type="checkbox"/> ASSUMED
DIFFICULTY IN DISPERSING MINUS NO. 10 MATERIAL <b>NONE</b>			
DESCRIPTION OF SAND & GRAVEL PARTICLES: <input type="checkbox"/> HARD <input checked="" type="checkbox"/> SOFT <input type="checkbox"/> FRIABLE <input type="checkbox"/> ROUNDED <input type="checkbox"/> ANGULAR		MAXIMUM PARTICLE SIZE, IN. <b>#10</b>	
SIEVE ANALYSIS		HYDROMETER ANALYSIS	
SIEVE SIZE	% PASS	PARTICLE SIZE	% PASS
3 IN.		0.074 MM	<b>56.7</b>
2 IN.			
1 1/2 IN.		0.020 MM	<b>44.0</b>
1 IN.			
3/4	<b>100</b>	0.005 MM	<b>36.1</b>
3/8	<b>99.7</b>		
NO. 4	<b>97.9</b>	0.002 MM	<b>32.0</b>
8	<b>96.8</b>		
10	<b>96.6</b>	0.001 MM	<b>28.8</b>
40	<b>95.7</b>		
50	<b>91.8</b>		
200	<b>56.7</b>		
<b>LIQUID &amp; PLASTIC PROPERTIES</b> <input type="checkbox"/> ASTM D4318 <input checked="" type="checkbox"/> AASHTO T89 & T90 METHOD <input checked="" type="checkbox"/> A <input type="checkbox"/> B LIQUID LIMIT <b>29</b> PLASTIC LIMIT <b>13</b> PLASTICITY INDEX <b>16</b> SAMPLE AIR DRIED: <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO ESTIMATE % RETAINED ON NO. 40			
<b>SOIL CLASSIFICATION</b> <input type="checkbox"/> ASTM D2487 <input checked="" type="checkbox"/> AASHTO M145 <input type="checkbox"/> ASTM D2488 VISUAL / MANUAL GROUP SYMBOL <b>A-6</b> GROUP NAME			

### HYDRAULIC CONDUCTIVITY

SPECIMEN CHARACTERISTIC							
	HEIGHT, IN.	DIAMETER, IN.	DENSITY, PCF	MOISTURE, %	VOID RATIO	SATURATION, %	TYPE
INITIAL							<input type="checkbox"/> REMOLDED
FINAL							<input type="checkbox"/> UNDISTURBED
SPECIFIC GRAVITY → <input type="checkbox"/> ASTM D854 <input type="checkbox"/> ASSUMED			MAXIMUM CONSOLIDATION EFFECTIVE STRESS, PSI →				
PERMEANT			MINIMUM CONSOLIDATION EFFECTIVE STRESS, PSI →				
TOTAL BACK PRESSURE, PSI →			HYDRAULIC GRADIENT →				
			HYDRAULIC CONDUCTIVITY, CM PER SECOND →				

Comments: **GRAVEL = 2.1%, SAND = 41.2%, SILT = 20.6%, CLAY = 36.1%, COLLOIDS = 28.8%**

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THE SERVICES REFERRED TO HEREIN WERE PERFORMED IN ACCORDANCE WITH THE STANDARD OF CARE PRACTICED LOCALLY FOR THE REFERENCED METHOD(S) AND RELATE ONLY TO THE CONDITION(S) OR SAMPLE(S) TESTED AS STATED HEREIN. WESTERN TECHNOLOGIES INC. MAKES NO OTHER WARRANTY OR REPRESENTATION, EXPRESSED OR IMPLIED, AND HAS NOT CONFIRMED INFORMATION INCLUDING SOURCE OF MATERIALS SUBMITTED BY OTHERS.

REVIEWED BY **B. JENKINS**



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## LABORATORY REPORT ON SOIL

Client **DIBBLE ENGINEERING**  
**7500 NORTH DREAMY DRAW DRIVE**  
**STE 200**  
**PHOENIX, AZ 85020**

Date of Report **02-16-17**

Job No. **3147JV005**

Event / Invoice No. **31470013**

Lab No. **3052**

Authorized By **TIM WOLFE**

Date **01-12-17**

Sampled By **WT/T. MOORE**

Date **01-12-17**

Submitted By **WT/T. MOORE**

Date **01-13-17**

Project **NDOT BETTERMENT FUNDING PROJECTS – LAB WORK**

Location **FARMINGTON LAB, NM**

Contractor **N/A**

Arch. / Engr. **N/A**

Type / Use of Material **NATIVE MATERIAL/SUBGRADE**

Supplier / Source **N21 KAIBITO, AZ/ONSITE**

Sample Source / Location **N21 12.4M WEST OF EAST END OF PAVE**

Source / Location Desig. By **WT/T. MOORE**

Date **01-12-17**

Reference: **PARTICLE SIZE ANALYSIS OF SOIL** ☒ **ASTM D422** ☐ **AASHTO T88**

**HYDRAULIC CONDUCTIVITY** ☐ **ASTM D5084 METHOD** ☐ **ASTM D2434**

Special Instructions:

### TEST RESULTS

<b>PARTICLE SIZE ANALYSIS</b>			
DISPERSION DEVICE <b>MALT MACHINE</b>		LENGTH OF DISPERSION PERIOD, MINUTES <b>1</b>	SPECIFIC GRAVITY → <b>2.65</b> <input type="checkbox"/> ASTM D854
DIFFICULTY IN DISPERSING MINUS NO. 10 MATERIAL <b>NONE</b>			<input checked="" type="checkbox"/> ASSUMED
DESCRIPTION OF SAND & GRAVEL PARTICLES: <input checked="" type="checkbox"/> HARD <input type="checkbox"/> SOFT <input type="checkbox"/> FRIABLE <input type="checkbox"/> ROUNDED <input type="checkbox"/> ANGULAR			
MAXIMUM PARTICLE SIZE, IN. <b>#10</b>			
<b>SIEVE ANALYSIS</b>		<b>HYDROMETER ANALYSIS</b>	
SIEVE SIZE	% PASS	PARTICLE SIZE	% PASS
3 IN.		0.074 MM	<b>12.1</b>
2 IN.		0.020 MM	<b>3.8</b>
1 1/2 IN.		0.005 MM	<b>2.8</b>
1 IN.	<b>100</b>	0.002 MM	<b>2.8</b>
3/4	<b>97.6</b>	0.001 MM	<b>2.8</b>
NO. 4	<b>96.1</b>		
8	<b>94.5</b>		
10	<b>94.1</b>		
40	<b>87.4</b>		
50	<b>76.3</b>		
200	<b>12.1</b>		
<b>LIQUID &amp; PLASTIC PROPERTIES</b>			
<input type="checkbox"/> ASTM D4318 <input checked="" type="checkbox"/> AASHTO T89 & T90			
METHOD <input checked="" type="checkbox"/> A <input type="checkbox"/> B		RESULT	SPECIFICATION
LIQUID LIMIT		<b>NO VALUE</b>	
PLASTIC LIMIT		<b>NO LIMIT</b>	
PLASTICITY INDEX		<b>NO PLASTICITY</b>	
SAMPLE AIR DRIED: <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO			
ESTIMATE % RETAINED ON NO. 40			
<b>SOIL CLASSIFICATION</b>			
<input type="checkbox"/> ASTM D2487 <input checked="" type="checkbox"/> AASHTO M145			
<input type="checkbox"/> ASTM D2488 VISUAL / MANUAL			
GROUP SYMBOL <b>A-3</b>			
GROUP NAME			

### HYDRAULIC CONDUCTIVITY

SPECIMEN CHARACTERISTIC							
	HEIGHT, IN.	DIAMETER, IN.	DENSITY, PCF	MOISTURE, %	VOID RATIO	SATURATION, %	TYPE
INITIAL							<input type="checkbox"/> REMOLDED
FINAL							<input type="checkbox"/> UNDISTURBED
SPECIFIC GRAVITY → <input type="checkbox"/> ASTM D854							
<input type="checkbox"/> ASSUMED							
MAXIMUM CONSOLIDATION EFFECTIVE STRESS, PSI →							
MINIMUM CONSOLIDATION EFFECTIVE STRESS, PSI →							
HYDRAULIC GRADIENT →							
TOTAL BACK PRESSURE, PSI →							
HYDRAULIC CONDUCTIVITY, CM PER SECOND →							

Comments: **GRAVEL = 3.9%, SAND = 84.0%, SILT = 9.3%, CLAY = 2.8%, COLLOIDS = 2.8%**

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**B. JENKINS**

REVIEWED BY \_\_\_\_\_

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## LABORATORY REPORT ON SOIL

Client **DIBBLE ENGINEERING**  
**7500 NORTH DREAMY DRAW DRIVE**  
**STE 200**  
**PHOENIX, AZ 85020**

Date of Report **02-10-17**

Job No. **3147JV005**

Event / Invoice No. **31470013**

Authorized By **TIM WOLFE**

Sampled By **WT/T. MOORE**

Submitted By **WT/T. MOORE**

Lab No. **3053**

Date **01-12-17**

Date **01-12-17**

Date **01-13-17**

Project **NDOT BETTERMENT FUNDING PROJECTS - LAB WORK**

Contractor **N/A**

Type / Use of Material **NATIVE MATERIAL/SUBGRADE**

Sample Source / Location **N21 16.0M W. OF E. END OF PAVE**

Reference: **PARTICLE SIZE ANALYSIS OF SOIL** ☒ **ASTM D422** ☐ **AASHTO T88**

**HYDRAULIC CONDUCTIVITY** ☐ **ASTM D5084 METHOD** ☐ **ASTM D2434**

Location **FARMINGTON LAB, NM**

Arch./Engr. **N/A**

Supplier / Source **N21 KAIBITO, AZ/ONSITE**

Source / Location Desig. By **WT/T. MOORE**

Date **01-12-17**

Special Instructions:

### TEST RESULTS

PARTICLE SIZE ANALYSIS			
DISPERSION DEVICE	MALT MACHINE		
LENGTH OF DISPERSION PERIOD, MINUTES	1		
SPECIFIC GRAVITY →	2.65		
DIFFICULTY IN DISPERSING MINUS NO. 10 MATERIAL	NONE		
DESCRIPTION OF SAND & GRAVEL PARTICLES:	<input checked="" type="checkbox"/> HARD <input type="checkbox"/> SOFT <input type="checkbox"/> FRIABLE <input type="checkbox"/> ROUNDED <input type="checkbox"/> ANGULAR		
MAXIMUM PARTICLE SIZE, IN. #10			
SIEVE ANALYSIS		HYDROMETER ANALYSIS	
SIEVE SIZE	% PASS	PARTICLE SIZE	% PASS
3 IN.		0.074 MM	31.9
2 IN.			
1 1/2 IN.		0.020 MM	5.3
1 IN.	100		
3/4	99.0	0.005 MM	3.7
3/8	97.9		
NO. 4	96.1	0.002 MM	3.7
8	92.1		
10	90.8	0.001 MM	3.7
40	86.4		
50	78.2		
200	31.9		
LIQUID & PLASTIC PROPERTIES			
<input type="checkbox"/> ASTM D4318 <input checked="" type="checkbox"/> AASHTO T89 & T90			
METHOD <input checked="" type="checkbox"/> A <input type="checkbox"/> B			
LIQUID LIMIT		RESULT NO VALUE	
PLASTIC LIMIT		SPECIFICATION NO LIMIT	
PLASTICITY INDEX		NO PLASTICITY	
SAMPLE AIR DRIED: <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO			
ESTIMATE % RETAINED ON NO. 40			
SOIL CLASSIFICATION			
<input type="checkbox"/> ASTM D2487 <input checked="" type="checkbox"/> AASHTO M145			
<input type="checkbox"/> ASTM D2488 VISUAL / MANUAL			
GROUP SYMBOL A-2-4			
GROUP NAME			

### HYDRAULIC CONDUCTIVITY

SPECIMEN CHARACTERISTIC							
	HEIGHT, IN.	DIAMETER, IN.	DENSITY, PCF	MOISTURE, %	VOID RATIO	SATURATION, %	TYPE
INITIAL							<input type="checkbox"/> REMOLDED
FINAL							<input type="checkbox"/> UNDISTURBED
SPECIFIC GRAVITY → <input type="checkbox"/> ASTM D854 <input type="checkbox"/> ASSUMED							
MAXIMUM CONSOLIDATION EFFECTIVE STRESS, PSI →							
MINIMUM CONSOLIDATION EFFECTIVE STRESS, PSI →							
HYDRAULIC GRADIENT →							
HYDRAULIC CONDUCTIVITY, CM PER SECOND →							
PERMEANT							
TOTAL BACK PRESSURE, PSI →							

Comments: **GRAVEL = 3.9%, SAND = 64.2%, SILT = 28.2%, CLAY = 3.7%, COLLOIDS = 3.7%**

Copies To:

THE SERVICES REFERRED TO HEREIN WERE PERFORMED IN ACCORDANCE WITH THE STANDARD OF CARE PRACTICED LOCALLY FOR THE REFERENCED METHOD(S) AND RELATE ONLY TO THE CONDITION(S) OR SAMPLE(S) TESTED AS STATED HEREIN. WESTERN TECHNOLOGIES INC. MAKES NO OTHER WARRANTY OR REPRESENTATION, EXPRESSED OR IMPLIED, AND HAS NOT CONFIRMED INFORMATION INCLUDING SOURCE OF MATERIALS SUBMITTED BY OTHERS.

REVIEWED BY **B. JENKINS**

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## LABORATORY REPORT ON SOIL

Client **DIBBLE ENGINEERING**  
**7500 NORTH DREAMY DRAW DRIVE**  
**STE 200**  
**PHOENIX, AZ 85020**

Date of Report **02-10-17**

Job No. **3147JV005**

Event / Invoice No. **31470013**

Lab No. **3054**

Authorized By **TIM WOLFE**

Date **01-12-17**

Sampled By **WT/T. MOORE**

Date **01-12-17**

Submitted By **WT/T. MOORE**

Date **01-13-17**

Project **NDOT BETTERMENT FUNDING PROJECTS - LAB WORK**

Location **FARMINGTON LAB, NM**

Contractor **N/A**

Arch. / Engr. **N/A**

Type / Use of Material **NATIVE MATERIAL/SUBGRADE**

Supplier / Source **N21 KAIBITO, AZ/ONSITE**

Sample Source / Location **N21 20.0M W. OF E. END OF PAVE**

Source / Location Desig. By **WT/T. MOORE**

Date **01-12-17**

Reference: **PARTICLE SIZE ANALYSIS OF SOIL** ☒ **ASTM D422** ☐ **AASHTO T88**

**HYDRAULIC CONDUCTIVITY** ☐ **ASTM D5084 METHOD** ☐ **ASTM D2434**

Special Instructions:

### TEST RESULTS

PARTICLE SIZE ANALYSIS			
DISPERSION DEVICE <b>MALT MACHINE</b>		LENGTH OF DISPERSION PERIOD, MINUTES <b>1</b>	SPECIFIC GRAVITY → <b>2.65</b> <input type="checkbox"/> ASTM D854
DIFFICULTY IN DISPERSING MINUS NO. 10 MATERIAL <b>NONE</b>			<input checked="" type="checkbox"/> ASSUMED
DESCRIPTION OF SAND & GRAVEL PARTICLES: <input checked="" type="checkbox"/> HARD <input type="checkbox"/> SOFT <input type="checkbox"/> FRIABLE <input type="checkbox"/> ROUNDED <input type="checkbox"/> ANGULAR			
MAXIMUM PARTICLE SIZE, IN. <b>#10</b>			

SIEVE ANALYSIS		HYDROMETER ANALYSIS		LIQUID & PLASTIC PROPERTIES	
SIEVE SIZE	% PASS	PARTICLE SIZE	% PASS	METHOD <input checked="" type="checkbox"/> A <input type="checkbox"/> B	RESULT
3 IN.		0.074 MM	<b>34.7</b>		
2 IN.		0.020 MM	<b>9.2</b>		
1 1/2 IN.		0.005 MM	<b>8.9</b>		
1 IN.		0.002 MM	<b>7.8</b>		
3/4	<b>100</b>	0.001 MM	<b>7.1</b>		
3/8	<b>98.2</b>				
NO. 4	<b>94.3</b>				
8	<b>90.5</b>				
10	<b>89.5</b>				
40	<b>82.2</b>				
50	<b>69.9</b>				
200	<b>34.7</b>				

SOIL CLASSIFICATION	
<input type="checkbox"/> ASTM D2487	<input checked="" type="checkbox"/> AASHTO M145
<input type="checkbox"/> ASTM D2488 VISUAL / MANUAL	
GROUP SYMBOL	<b>A-2-6</b>
GROUP NAME	

### HYDRAULIC CONDUCTIVITY

SPECIMEN CHARACTERISTIC							
INITIAL	HEIGHT, IN.	DIAMETER, IN.	DENSITY, PCF	MOISTURE, %	VOID RATIO	SATURATION, %	TYPE
FINAL							<input type="checkbox"/> REMOLDED <input type="checkbox"/> UNDISTURBED

SPECIFIC GRAVITY →	<input type="checkbox"/> ASTM D854 <input type="checkbox"/> ASSUMED	MAXIMUM CONSOLIDATION EFFECTIVE STRESS, PSI →
PERMEANT		MINIMUM CONSOLIDATION EFFECTIVE STRESS, PSI →
TOTAL BACK PRESSURE, PSI →		HYDRAULIC GRADIENT →
		HYDRAULIC CONDUCTIVITY, CM PER SECOND →

Comments: **GRAVEL = 5.7%, SAND = 59.6%, SILT = 25.7%, CLAY = 8.9%, COLLOIDS = 7.1%**

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092899



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## LABORATORY REPORT ON SOIL

Client **DIBBLE ENGINEERING**  
**7500 NORTH DREAMY DRAW DRIVE**  
**STE 200**  
**PHOENIX, AZ 85020**

Date of Report **02-10-17**

Job No. **3147JV005**

Event / Invoice No. **31470013**

Lab No. **3055**

Authorized By **TIM WOLFE**

Date **01-12-17**

Sampled By **WT/T. MOORE**

Date **01-12-17**

Submitted By **WT/T. MOORE**

Date **01-13-17**

Project **NDOT BETTERMENT FUNDING PROJECTS - LAB WORK**

Location **FARMINGTON LAB, NM**

Contractor **N/A**

Arch. / Engr. **N/A**

Type / Use of Material **NATIVE MATERIAL/SUBGRADE**

Supplier / Source **N21 KAIBITO, AZ/ONSITE**

Sample Source / Location **N21 23.3M W. OF E. END OF PAVE**

Source / Location Desig. By **WT/T. MOORE**

Date **01-12-17**

Reference: **PARTICLE SIZE ANALYSIS OF SOIL** ☒ **ASTM D422** ☐ **AASHTO T88**

**HYDRAULIC CONDUCTIVITY** ☐ **ASTM D5084 METHOD** ☐ **ASTM D2434**

Special Instructions:

### TEST RESULTS

PARTICLE SIZE ANALYSIS			
DISPERSION DEVICE <b>MALT MACHINE</b>		LENGTH OF DISPERSION PERIOD, MINUTES <b>1</b>	SPECIFIC GRAVITY → <b>2.65</b> <input type="checkbox"/> ASTM D854 <input checked="" type="checkbox"/> ASSUMED
DIFFICULTY IN DISPERSING MINUS NO. 10 MATERIAL <b>NONE</b>			
DESCRIPTION OF SAND & GRAVEL PARTICLES: <input checked="" type="checkbox"/> HARD <input type="checkbox"/> SOFT <input type="checkbox"/> FRIABLE <input type="checkbox"/> ROUNDED <input type="checkbox"/> ANGULAR		MAXIMUM PARTICLE SIZE, IN. <b>#10</b>	
SIEVE ANALYSIS		HYDROMETER ANALYSIS	
SIEVE SIZE	% PASS	PARTICLE SIZE	% PASS
3 IN.		0.074 MM	<b>10.4</b>
2 IN.			
1 1/2 IN.		0.020 MM	<b>6.4</b>
1 IN.			
3/4	<b>100</b>	0.005 MM	<b>4.6</b>
3/8	<b>95.5</b>		
NO. 4	<b>89.7</b>	0.002 MM	<b>4.1</b>
8	<b>83.1</b>		
10	<b>81.7</b>	0.001 MM	<b>4.1</b>
40	<b>75.1</b>		
50	<b>64.1</b>		
200	<b>10.4</b>		
<b>LIQUID &amp; PLASTIC PROPERTIES</b> <input type="checkbox"/> ASTM D4318 <input checked="" type="checkbox"/> AASHTO T89 & T90 METHOD <input checked="" type="checkbox"/> A <input type="checkbox"/> B LIQUID LIMIT <b>NO VALUE</b> PLASTIC LIMIT <b>NO LIMIT</b> PLASTICITY INDEX <b>NO PLASTICITY</b> SAMPLE AIR DRIED: <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO ESTIMATE % RETAINED ON NO. 40			
<b>SOIL CLASSIFICATION</b> <input type="checkbox"/> ASTM D2487 <input checked="" type="checkbox"/> AASHTO M145 <input type="checkbox"/> ASTM D2488 VISUAL / MANUAL GROUP SYMBOL <b>A-3</b> GROUP NAME			

### HYDRAULIC CONDUCTIVITY

SPECIMEN CHARACTERISTIC							
	HEIGHT, IN.	DIAMETER, IN.	DENSITY, PCF	MOISTURE, %	VOID RATIO	SATURATION, %	TYPE
INITIAL							<input type="checkbox"/> REMOLDED
FINAL							<input type="checkbox"/> UNDISTURBED
SPECIFIC GRAVITY → <input type="checkbox"/> ASTM D854 <input type="checkbox"/> ASSUMED			MAXIMUM CONSOLIDATION EFFECTIVE STRESS, PSI →				
PERMEANT			MINIMUM CONSOLIDATION EFFECTIVE STRESS, PSI →				
TOTAL BACK PRESSURE, PSI →			HYDRAULIC GRADIENT →				
			HYDRAULIC CONDUCTIVITY, CM PER SECOND →				

Comments: **GRAVEL = 10.3%, SAND = 79.3%, SILT = 5.7%, CLAY = 4.6%, COLLOIDS = 4.1%**

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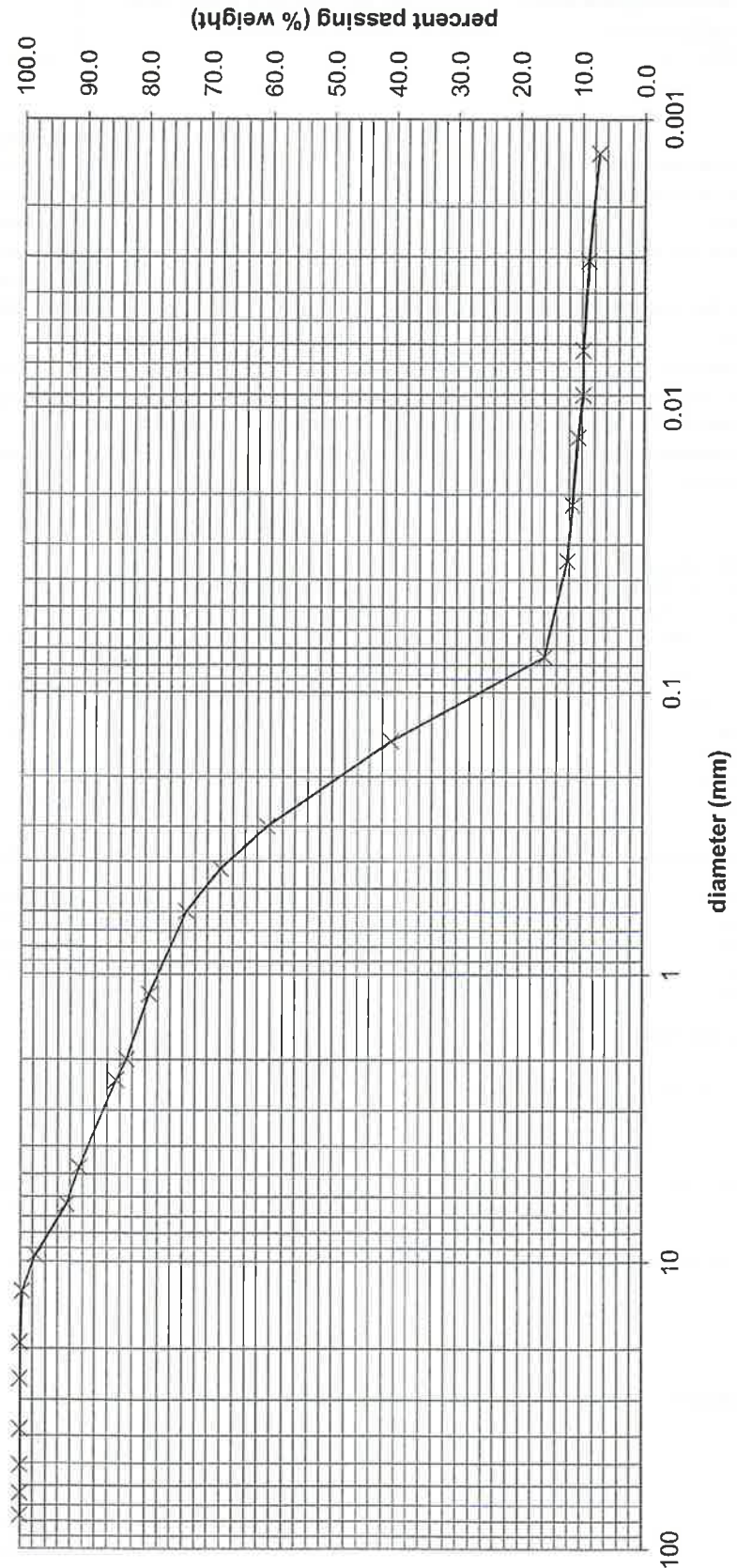


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Project Number: 3147JV005  
Event Number: 17  
Lab Number: 3049  
Tested by: T. Moore  
Date Tested : 1/31/2017



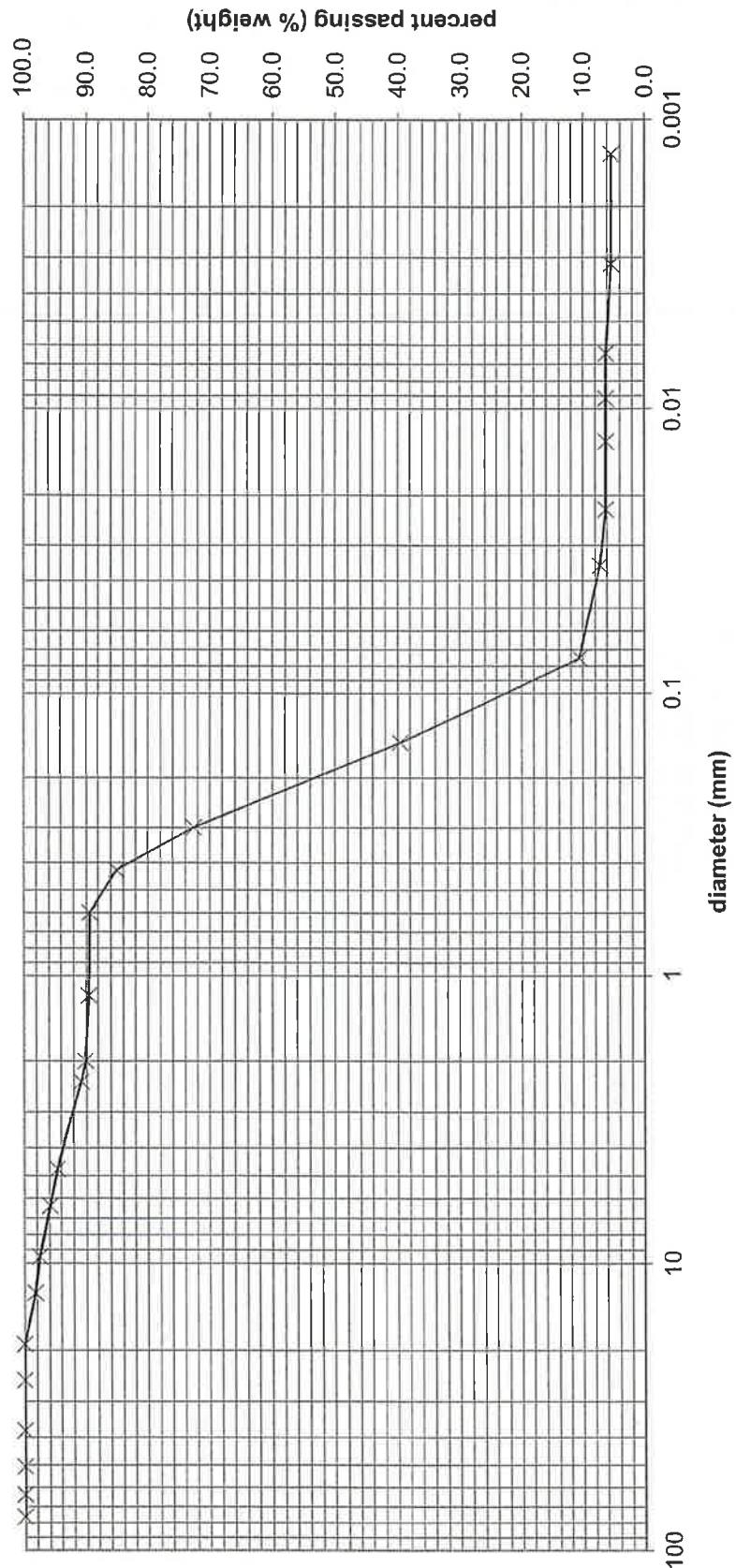




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Project Number: 3147JV005  
Event Number: 17  
Lab Number: 3050  
Tested by: T. Moore  
Date Tested : 1/31/2017

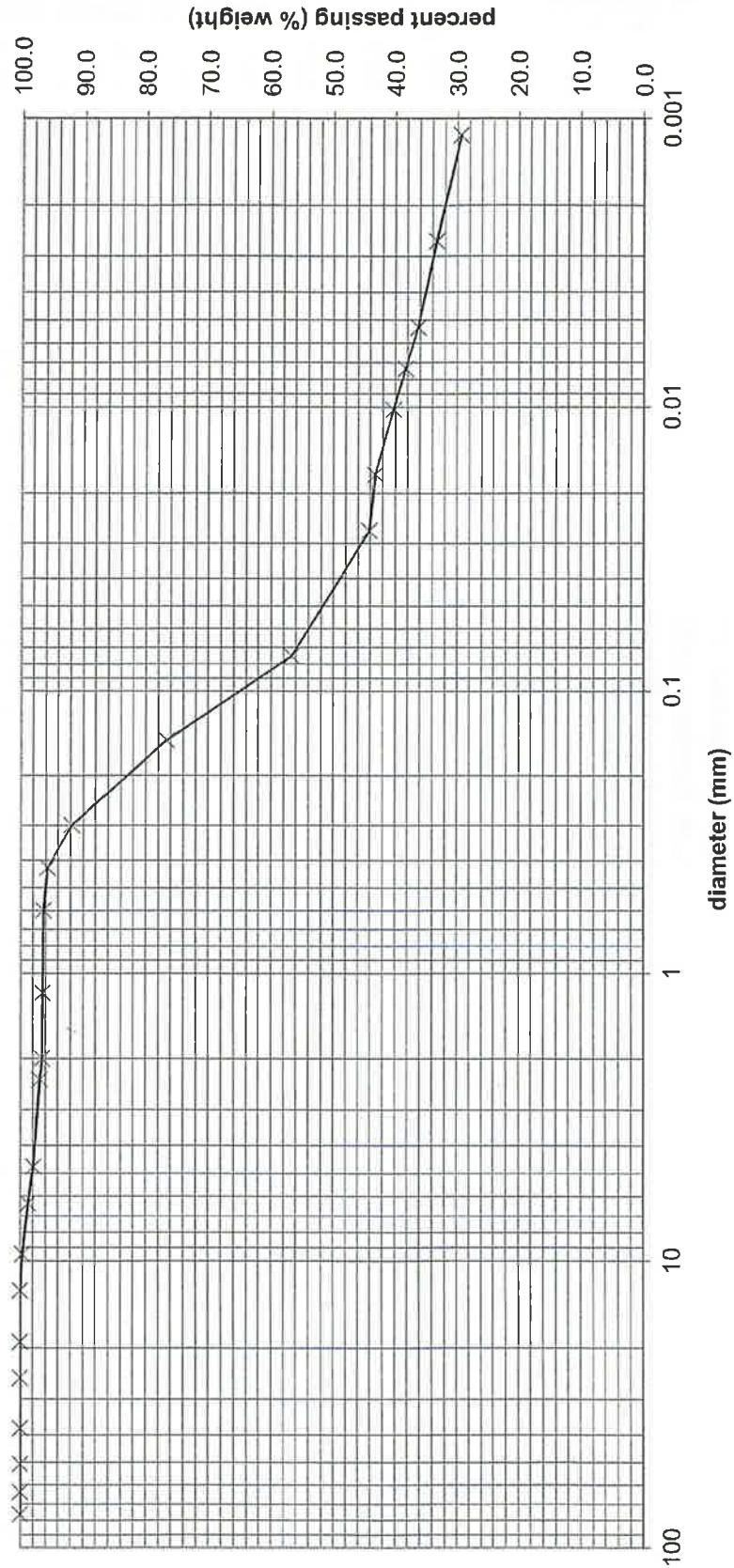




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Project Number: 3147JV005  
Event Number: 17  
Lab Number: 3051  
Tested by: T. Moore  
Date Tested : 2/13/2017

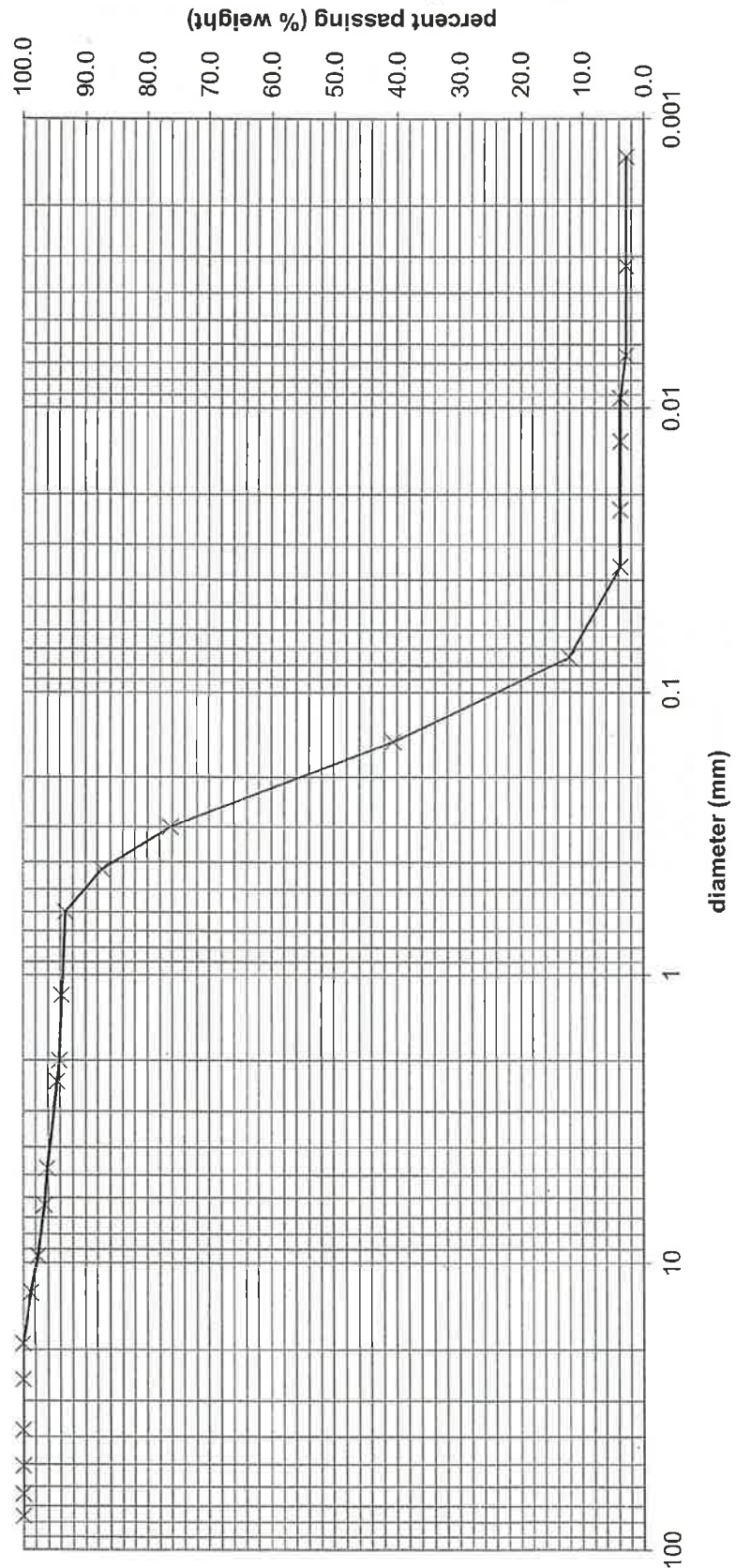




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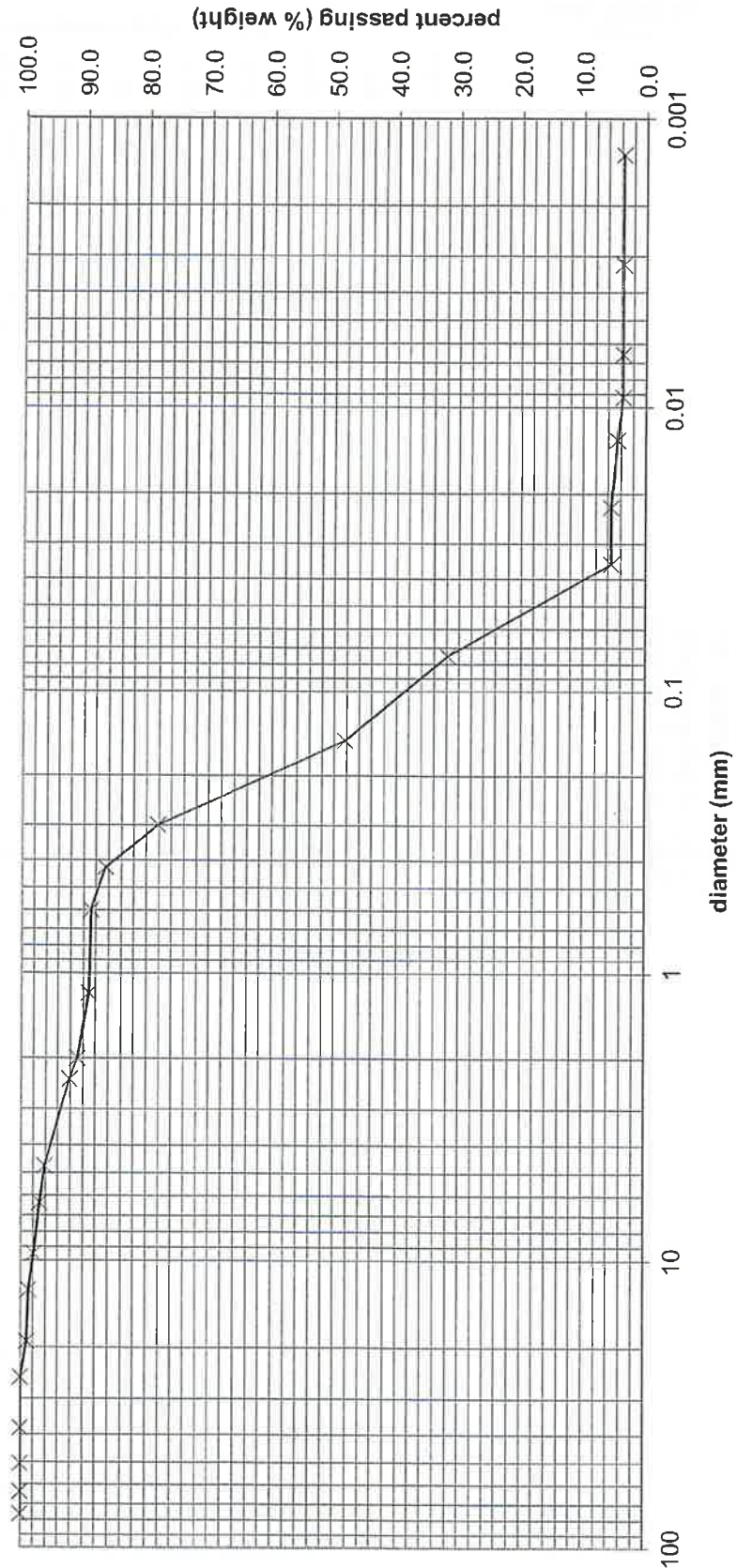
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Project Number: 3147JV005  
Event Number: 17  
Lab Number: 3052  
Tested by: T. Moore  
Date Tested : 2/13/2017





Project Number: 3147JV005  
Event Number: 17  
Lab Number: 3053  
Tested by: T. Moore  
Date Tested : 1/31/2017





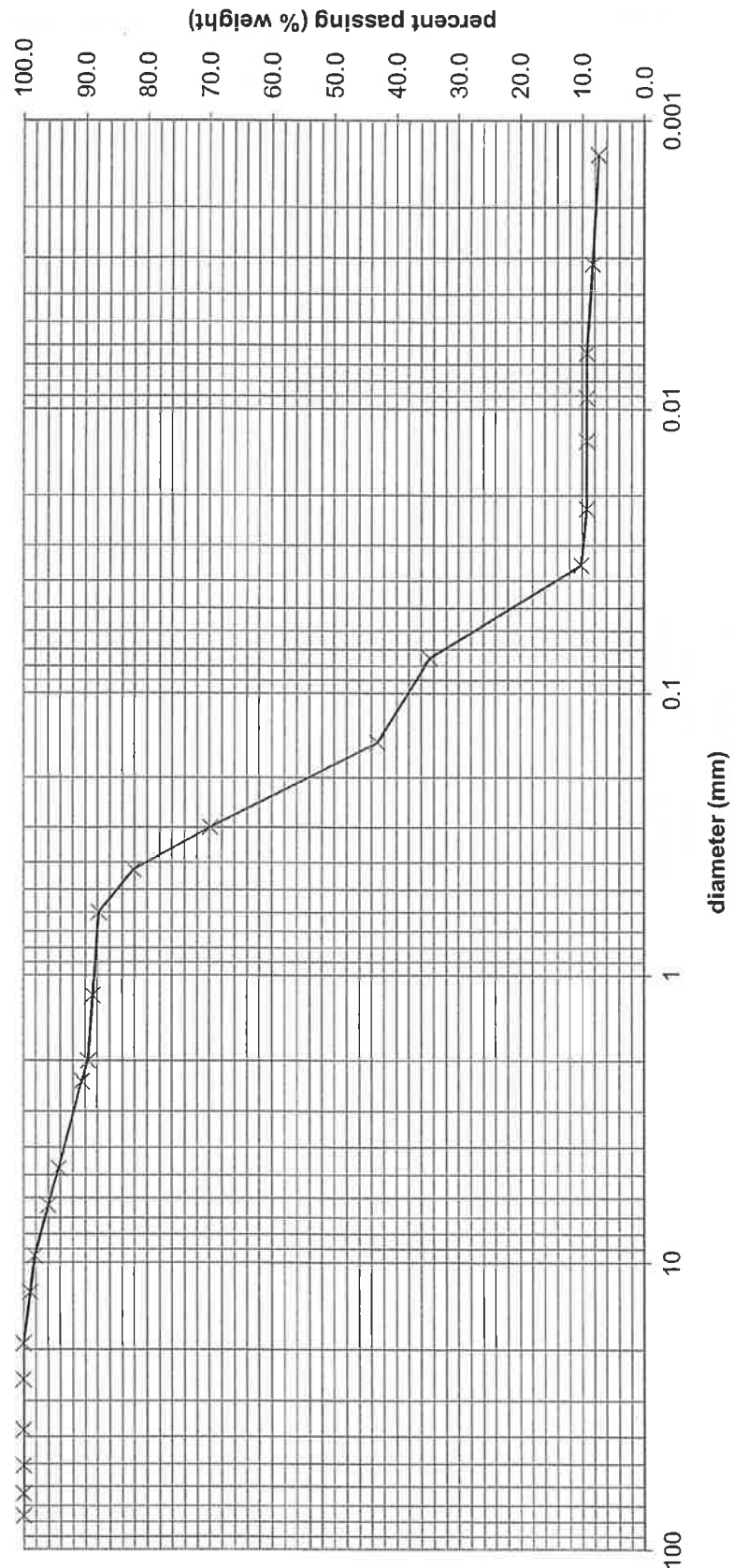


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Project Number: 3147JV005  
Event Number: 17  
Lab Number: 3054  
Tested by: T. Moore  
Date Tested : 2/1/2017

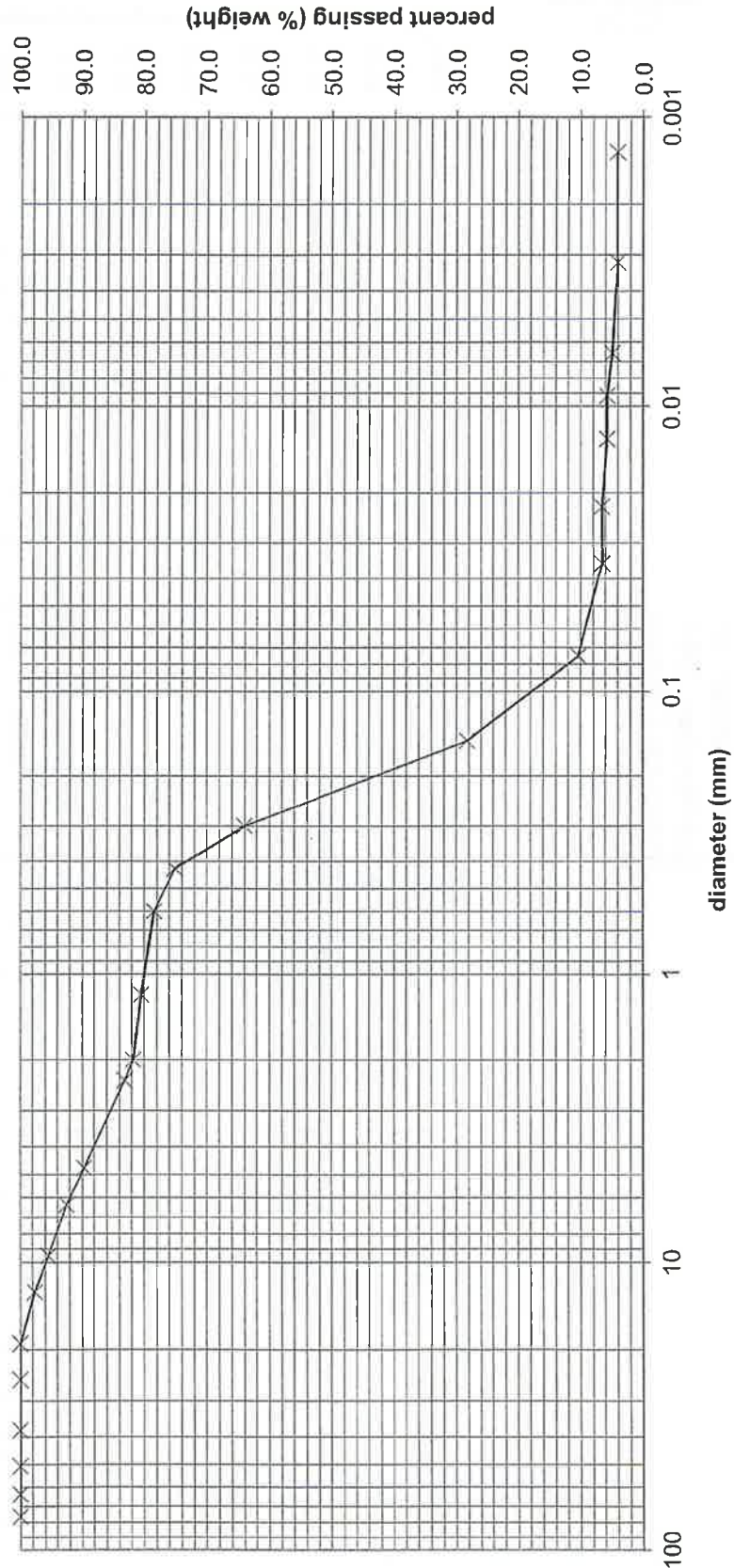




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Project Number: 3147JV005  
Event Number: 17  
Lab Number: 3055  
Tested by: T. Moore  
Date Tested : 1/31/2017







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## PHYSICAL PROPERTIES OF SOILS & AGGREGATES

Client **DIBBLE ENGINEERING**  
**7500 NORTH DREAMY DRAW DRIVE**  
**STE 200**  
**PHOENIX, AZ 85020**

Date of Report **02-16-17**  
Job No. **3147JV005**  
Event / Invoice No. **31470013**  
Authorized by **TIM WOLFE**  
Sampled by **WT/T. MOORE**  
Submitted by **WT/T. MOORE**  
Source / Location Designated by **WT/T. MOORE**

Lab No. **3049**  
Date **01-12-17**  
Date **01-12-17**  
Date **01-13-17**  
Date **01-12-17**

Project **NDOT BETTERMENT FUNDING PROJECTS - LAB WORK**  
Location **FARMINGTON LAB, NM**  
Type / Use of Material **NATIVE MATERIAL/SUBGRADE**  
Supplier / Source **N21 KAIBITO, AZ/ONSITE**  
Sample Source / Location **N21 MP0.9 W. OF E. END OF PAVE**  
Special Instructions

### TEST RESULTS

SIEVE ANALYSIS : AASHTO T27 FINER THAN NO. 200 : AASHTO T11			LABORATORY COMPACTION CHARACTERISTICS : AASHTO T99		METHOD C	
SIEVE	ACCUMULATIVE % PASSING	SPECIFICATION	DRY UNIT WEIGHT, LBF/FT <sup>3</sup>		SAMPLE PREPARATION: <input checked="" type="checkbox"/> WET <input type="checkbox"/> DRY	
4					RAMMER USED:	
3		<input checked="" type="checkbox"/> 2 IN. CIRCULAR FACE <input type="checkbox"/> OTHER				
2		<input type="checkbox"/> MECHANICAL <input checked="" type="checkbox"/> MANUAL				
1-1/2"		PROJECT PROCTOR ID: <b>18</b>				
1"		MAXIMUM DRY UNIT WEIGHT, LBF/FT <sup>3</sup> → <b>128</b>				
3/4"		OPTIMUM WATER CONTENT, % → <b>8</b>				
1/2"	<b>100</b>	OVERSIZE AGGREGATE :				
3/8"	<b>98</b>	ASSUMED BULK SPECIFIC GRAVITY: <b>2.65</b>				
1/4"	<b>93</b>	ASSUMED ABSORPTION, % : <b>1.0</b>				
No. 4	<b>91</b>	% OVERSIZE IN LAB SAMPLE : <b>0</b>				
8	<b>85</b>	ASSUMED SPECIFIC GRAVITY : <b>2.65</b>				
10	<b>83</b>	IN ZERO AIR VOID CURVE				
16	<b>78</b>					
30	<b>71</b>					
40	<b>65</b>					
50	<b>58</b>					
100	<b>37</b>					
200	<b>15</b>					
			WATER CONTENT, % DRY WEIGHT			
TEST PROCEDURE			RESULT	SPECS	TEST PROCEDURE	
LIQUID & PLASTIC PROPERTIES AASHTO T89, 90					RESISTANCE TO DEGRADATION OF SMALL-SIZE COARSE AGGREGATES BY ABRASION :	
METHOD A LIQUID LIMIT →			<b>17</b>		GRADING 100 REV, % LOSS →	
ESTIMATED % RETAINED ON NO. 40 <b>0</b> PLASTIC LIMIT →			<b>15</b>		GRADING 500 REV, % LOSS →	
SAMPLE AIR DRIED <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO PLASTICITY INDEX →			<b>2</b>			
MOISTURE CONTENT : AASHTO T265					SPECIFIC GRAVITY :	
PORTION TESTED <b>FULL</b> % DRY WEIGHT →			<b>6.9</b>		MAX. PARTICLE SIZE, IN. SPECIFIC GRAVITY @ 20°C →	
EXPANSION / COMPRESSION PROPERTIES OF COHESIVE SOIL :					pH DETERMINATION :	
<input type="checkbox"/> EXPANSION <input type="checkbox"/> COMPRESSION, % →					pH →	
SURCHARGE, PSF					SOLUBLE SALTS :	
MAXIMUM SWELL PRESSURE, KSF →					PPM →	
INITIAL WATER CONTENT, % DRY UNIT WEIGHT LBF/FT <sup>3</sup>					MINIMUM RESISTIVITY :	
EXPANSION INDEX OF SOIL :					OHM-CM →	
INITIAL WATER CONTENT, %					SOIL CLASSIFICATION : AASHTO M145 GROUP SYMBOL: <b>A-2-6</b>	
INITIAL DRY UNIT WEIGHT LBF/FT <sup>3</sup>					NAME:	
INITIAL DEGREE OF SATURATION						
FINAL WATER CONTENT, %						

Comments :

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## PHYSICAL PROPERTIES OF SOILS & AGGREGATES

Client **DIBBLE ENGINEERING**  
**7500 NORTH DREAMY DRAW DRIVE**  
**STE 200**  
**PHOENIX, AZ 85020**

Date of Report **02-16-17**  
Job No. **3147JV005**  
Event / Invoice No. **31470013**  
Authorized by **TIM WOLFE**  
Sampled by **WT/T. MOORE**  
Submitted by **WT/T. MOORE**  
Source / Location Designated by **WT/T. MOORE**

Lab No. **3050**  
Date **01-12-17**  
Date **01-12-17**  
Date **01-13-17**  
Date **01-12-17**

Project **NDOT BETTERMENT FUNDING PROJECTS - LAB WORK**  
Location **FARMINGTON LAB, NM**  
Type / Use of Material **NATIVE MATERIAL/SUBGRADE**  
Supplier / Source **N21 KAIBITO, AZ/ONSITE**  
Sample Source / Location **N21 3.5M W. OF EAST END OF PAVE**  
Special Instructions

### TEST RESULTS

SIEVE ANALYSIS : AASHTO T27 FINER THAN NO. 200 : AASHTO T11			LABORATORY COMPACTION CHARACTERISTICS : AASHTO T180		METHOD D	
SIEVE	ACCUMULATIVE % PASSING	SPECIFICATION	DRY UNIT WEIGHT, LBF/FT <sup>3</sup>		SAMPLE PREPARATION: <input checked="" type="checkbox"/> WET <input type="checkbox"/> DRY RAMMER USED: <input checked="" type="checkbox"/> 2 IN. CIRCULAR FACE <input type="checkbox"/> OTHER <input type="checkbox"/> MECHANICAL <input checked="" type="checkbox"/> MANUAL	
4					PROJECT PROCTOR ID: <b>25</b>	
3		MAXIMUM DRY UNIT WEIGHT, LBF/FT <sup>3</sup> → <b>116</b>				
2		OPTIMUM WATER CONTENT, % → <b>7</b>				
1-1/2"		OVERSIZE AGGREGATE :				
1"		ASSUMED BULK SPECIFIC GRAVITY: <b>2.65</b>				
3/4"	<b>100</b>	ASSUMED ABSORPTION, % : <b>1.0</b>				
1/2"	<b>98</b>	% OVERSIZE IN LAB SAMPLE : <b>0</b>				
3/8"	<b>98</b>	ASSUMED SPECIFIC GRAVITY : <b>2.65</b>				
1/4"	<b>96</b>	IN ZERO AIR VOID CURVE				
No. 4	<b>95</b>					
8	<b>91</b>					
10	<b>90</b>					
16	<b>89</b>					
30	<b>89</b>					
40	<b>84</b>					
50	<b>72</b>					
100	<b>38</b>					
200	<b>11</b>					
					WATER CONTENT, % DRY WEIGHT	
TEST PROCEDURE			RESULT	SPECS	TEST PROCEDURE	RESULT
LIQUID & PLASTIC PROPERTIES AASHTO T89, 90					RESISTANCE TO DEGRADATION OF SMALL-SIZE COARSE AGGREGATES BY ABRASION :	
METHOD A LIQUID LIMIT →			<b>0</b>	NV	GRADING 100 REV, % LOSS →	
ESTIMATED % RETAINED ON NO. 40 0 PLASTIC LIMIT →			<b>0</b>	NL	GRADING 500 REV, % LOSS →	
SAMPLE AIR DRIED <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO PLASTICITY INDEX →			<b>0</b>	NP		
MOISTURE CONTENT : AASHTO T265					SPECIFIC GRAVITY :	
PORTION TESTED FULL % DRY WEIGHT →			<b>4.6</b>		MAX. PARTICLE SIZE, IN. SPECIFIC GRAVITY @ 20°C →	
EXPANSION / COMPRESSION PROPERTIES OF COHESIVE SOIL :					pH DETERMINATION :	
<input type="checkbox"/> EXPANSION <input type="checkbox"/> COMPRESSION, % →					pH →	
SURCHARGE, PSF					SOLUBLE SALTS :	
MAXIMUM SWELL PRESSURE, KSF →					PPM →	
INITIAL WATER CONTENT, % DRY UNIT WEIGHT LBF/FT <sup>3</sup>					MINIMUM RESISTIVITY :	
EXPANSION INDEX OF SOIL :					OHM-CM →	
INITIAL WATER CONTENT, %					SOIL CLASSIFICATION : AASHTO M145	GROUP SYMBOL: A-2-4
INITIAL DRY UNIT WEIGHT LBF/FT <sup>3</sup>					NAME:	
INITIAL DEGREE OF SATURATION						
FINAL WATER CONTENT, %						

Comments :

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## PHYSICAL PROPERTIES OF SOILS & AGGREGATES

Client **DIBBLE ENGINEERING**  
**7500 NORTH DREAMY DRAW DRIVE**  
**STE 200**  
**PHOENIX, AZ 85020**

Date of Report **02-16-17**  
Job No. **3147JV005**  
Event / Invoice No. **31470013**  
Authorized by **TIM WOLFE**  
Sampled by **WT/T. MOORE**  
Submitted by **WT/T. MOORE**  
Source / Location Designated by **WT/T. MOORE**

Lab No. **3051**  
Date **01-12-17**  
Date **01-12-17**  
Date **01-13-17**  
Date **01-12-17**

Project **NDOT BETTERMENT FUNDING PROJECTS - LAB WORK**  
Location **FARMINGTON LAB, NM**  
Type / Use of Material **NATIVE MATERIAL/SUBGRADE**  
Supplier / Source **N21 KAIBITO, AZ/ONSITE**  
Sample Source / Location **N21 8.0M WEST OF E. END OF PAVE**  
Special Instructions

### TEST RESULTS

SIEVE ANALYSIS : AASHTO T27 FINER THAN NO. 200 : AASHTO T11			LABORATORY COMPACTION CHARACTERISTICS : AASHTO T99 METHOD C				
SIEVE	ACCUMULATIVE % PASSING	SPECIFICATION			SAMPLE PREPARATION: <input checked="" type="checkbox"/> WET <input type="checkbox"/> DRY		
					RAMMER USED:		
4			<p>PROJECT PROCTOR ID: <b>37</b> MAXIMUM DRY UNIT WEIGHT, LBF/FT<sup>3</sup> → <b>112</b> OPTIMUM WATER CONTENT, % → <b>16</b></p> <p>OVERSIZE AGGREGATE : ASSUMED BULK SPECIFIC GRAVITY: <b>2.65</b> ASSUMED ABSORPTION, % : <b>1.0</b> % OVERSIZE IN LAB SAMPLE : <b>0</b></p> <p>ASSUMED SPECIFIC GRAVITY IN ZERO AIR VOID CURVE : <b>2.65</b></p>		<input checked="" type="checkbox"/> 2 IN. CIRCULAR FACE <input type="checkbox"/> OTHER		
3					<input type="checkbox"/> MECHANICAL <input checked="" type="checkbox"/> MANUAL		
2							
1-1/2"							
1"							
3/4"							
1/2"							
3/8"	<b>100</b>						
1/4"	<b>99</b>						
No.4	<b>98</b>						
8	<b>97</b>						
10	<b>97</b>						
16	<b>96</b>						
30	<b>96</b>						
40	<b>95</b>						
50	<b>91</b>						
100	<b>75</b>						
200	<b>52</b>						
TEST PROCEDURE			RESULT	SPECS	TEST PROCEDURE	RESULT	SPECS
LIQUID & PLASTIC PROPERTIES AASHTO T89, 90			RESISTANCE TO DEGRADATION OF SMALL-SIZE COARSE AGGREGATES BY ABRASION :				
METHOD A LIQUID LIMIT →			29		GRADING 100 REV, % LOSS →		
ESTIMATED % RETAINED ON NO. 40 0 PLASTIC LIMIT →			13		GRADING 500 REV, % LOSS →		
SAMPLE AIR DRIED <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO PLASTICITY INDEX →			16				
MOISTURE CONTENT : AASHTO T265			SPECIFIC GRAVITY :				
PORTION TESTED FULL % DRY WEIGHT →			9.7		MAX. PARTICLE SIZE, IN. SPECIFIC GRAVITY @ 20°C →		
EXPANSION / COMPRESSION PROPERTIES OF COHESIVE SOIL :			pH DETERMINATION :				
<input type="checkbox"/> EXPANSION <input type="checkbox"/> COMPRESSION, % →			pH →				
SURCHARGE, PSF			SOLUBLE SALTS :				
MAXIMUM SWELL PRESSURE, KSF →			PPM →				
INITIAL WATER CONTENT, % DRY UNIT WEIGHT LBF/FT <sup>3</sup>			MINIMUM RESISTIVITY :				
EXPANSION INDEX OF SOIL :			OHM-CM →				
INITIAL WATER CONTENT, %			SOIL CLASSIFICATION : AASHTO M145 GROUP SYMBOL: A-6				
INITIAL DRY UNIT WEIGHT LBF/FT <sup>3</sup>			NAME:				
INITIAL DEGREE OF SATURATION							
FINAL WATER CONTENT, %							

Comments :

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**Western  
Technologies  
Inc.**

The Quality People  
Since 1955

400 South Lorena Avenue  
Farmington, NM 87404  
(505) 327-4966

## PHYSICAL PROPERTIES OF SOILS & AGGREGATES

Client **DIBBLE ENGINEERING**  
**7500 NORTH DREAMY DRAW DRIVE**  
**STE 200**  
**PHOENIX, AZ 85020**

Date of Report **02-16-17**  
Job No. **3147JV005**  
Event / Invoice No. **31470013**  
Authorized by **TIM WOLFE**  
Sampled by **WT/T. MOORE**  
Submitted by **WT/T. MOORE**  
Source / Location Designated by **WT/T. MOORE**

Lab No. **3052**  
Date **01-12-17**  
Date **01-12-17**  
Date **01-13-17**  
Date **01-12-17**

Project **NDOT BETTERMENT FUNDING PROJECTS - LAB WORK**  
Location **FARMINGTON LAB, NM**  
Type / Use of Material **NATIVE MATERIAL/SUBGRADE**  
Supplier / Source **N21 KAIBITO, AZ/ONSITE**  
Sample Source / Location **N21 12.4M W. OF E. END OF PAVE**  
Special Instructions

### TEST RESULTS

SIEVE ANALYSIS : AASHTO T27 FINER THAN NO. 200 : AASHTO T11			LABORATORY COMPACTION CHARACTERISTICS : AASHTO T99		METHOD C	
SIEVE	ACCUMULATIVE % PASSING	SPECIFICATION	DRY UNIT WEIGHT, LBF/FT <sup>3</sup>			
4					SAMPLE PREPARATION: <input checked="" type="checkbox"/> WET <input type="checkbox"/> DRY RAMMER USED: <input checked="" type="checkbox"/> 2 IN. CIRCULAR FACE <input type="checkbox"/> OTHER <input type="checkbox"/> MECHANICAL <input checked="" type="checkbox"/> MANUAL  PROJECT PROCTOR ID: <b>27</b> MAXIMUM DRY UNIT WEIGHT, LBF/FT <sup>3</sup> → <b>109</b> OPTIMUM WATER CONTENT, % → <b>12</b>  OVERSIZE AGGREGATE : ASSUMED BULK SPECIFIC GRAVITY: <b>2.65</b> ASSUMED ABSORPTION, % : <b>1.0</b> % OVERSIZE IN LAB SAMPLE : <b>0</b>  ASSUMED SPECIFIC GRAVITY IN ZERO AIR VOID CURVE : <b>2.65</b>	
3						
2						
1-1/2"						
1"						
3/4"						
1/2"						
3/8"	<b>100</b>					
1/4"	<b>98</b>					
No. 4	<b>98</b>					
8	<b>96</b>					
10	<b>96</b>					
16	<b>95</b>					
30	<b>94</b>					
40	<b>88</b>					
50	<b>77</b>					
100	<b>39</b>					
200	<b>4.6</b>					

TEST PROCEDURE		RESULT	SPECS	TEST PROCEDURE		RESULT	SPECS
<b>LIQUID &amp; PLASTIC PROPERTIES AASHTO T89, 90</b>				<b>RESISTANCE TO DEGRADATION OF SMALL-SIZE COARSE AGGREGATES BY ABRASION :</b>			
METHOD A	LIQUID LIMIT →	<b>0</b>	<b>NV</b>	GRADING 100 REV, % LOSS →			
ESTIMATED % RETAINED ON NO. 40	PLASTIC LIMIT →	<b>0</b>	<b>NL</b>	GRADING 500 REV, % LOSS →			
SAMPLE AIR DRIED <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	PLASTICITY INDEX →	<b>0</b>	<b>NP</b>				
<b>MOISTURE CONTENT : AASHTO T265</b>				<b>SPECIFIC GRAVITY :</b>			
PORTION TESTED <b>FULL</b>	% DRY WEIGHT →	<b>4.5</b>		MAX. PARTICLE SIZE, IN.	SPECIFIC GRAVITY @ 20°C →		
<b>EXPANSION / COMPRESSION PROPERTIES OF COHESIVE SOIL :</b>				<b>pH DETERMINATION :</b>			
<input type="checkbox"/> EXPANSION <input type="checkbox"/> COMPRESSION, % →				pH →			
SURCHARGE, PSF				<b>SOLUBLE SALTS :</b>			
MAXIMUM SWELL PRESSURE, KSF →				PPM →			
INITIAL WATER CONTENT, %				<b>MINIMUM RESISTIVITY :</b>			
DRY UNIT WEIGHT LBF/FT <sup>3</sup>				OHM-CM →			
<b>EXPANSION INDEX OF SOIL :</b>				<b>SOIL CLASSIFICATION : AASHTO M145</b>			
INITIAL WATER CONTENT, %				GROUP SYMBOL: <b>A-3</b>			
INITIAL DRY UNIT WEIGHT LBF/FT <sup>3</sup> →				NAME:			
INITIAL DEGREE OF SATURATION							
FINAL WATER CONTENT, %							

Comments :

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