

**COLORADO DEPARTMENT OF TRANSPORTATION  
FIELD REPORT FOR SAMPLE IDENTIFICATION  
OR MATERIALS DOCUMENTATION**

Metric units  yes  no

Field sheet No. <b>188251</b>	Date <b>2/2/2010</b>		
Project No.	Project location <b>1-25 MP 149.5 TO 155.5</b>		
Project code (SA#) <b>16785</b>	Function <b>3020</b>	Region <b>2</b>	Part. <b>P</b>

Sample submitted: (ie.: Soil, ABC, Hydrated lime, HMA, concrete cores, steel, etc.) <b>SOIL</b>		Field office phone number <b>719-546-5779</b>
		Field office FAX number <b>719-546-5779</b>
Item <b>203</b>	Class	Grading
Previously used on Project No.:		Special provisions applicable: <input type="checkbox"/> yes <input checked="" type="checkbox"/> no
Previous CDOT Form #157 F/S No.(s):		<input type="checkbox"/> CDOT Form #633 (sack) <input type="checkbox"/> CDOT Form #634 (can)

- Sample Identification: Quantity & Unit of material submitted, describe tests required, precise location sample removed from (stationing), etc.
- Materials Documentation: Field inspected (describe appearance, weight/dimensions, model/serial number), COC &/or CTR provided, etc.

**SUBMITTING FOUR (4) SACKS OF SOIL FOR A PRELIMINARY SOIL SURVEY: PLEASE RUN THE FOLLOWING TESTS:**

**CLASSIFICATION  
R-VALUE**

**FEB 17 2010**

**2010-0013-0016**

APL/QML Acceptance: APL Ref. No.	Product name:	Date checked:
APL/QML Acceptance: APL Ref. No.	Product name:	Date checked:
Preliminary <input checked="" type="checkbox"/> Construction <input type="checkbox"/> Maintenance <input type="checkbox"/> Emergency <input type="checkbox"/>		Date needed
Contractor	Supplier	
Sampled from (Pit, roadway, windrow, stock, etc.) <b>ROADWAY</b>	Pit name or owner	
Quantity represented <b>1/1 LANE MILE</b>	Previous quantity	Total quantity to date
Sample submitted: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Shipped to: <input checked="" type="checkbox"/> Central lab <input type="checkbox"/> Region lab	Via <b>CDOT</b>
		Date <b>2/17/09</b>
Sampled or inspected by (Name) <b>CRAIG WIEDEN</b>	(Title) <b>PE I</b>	Lab phone number <b>719-546-5779</b>
Supervisor (Pro./Res./Mats. Engr./Maint. Supt.) <b>RICHARD ZAMORA</b>	Title <b>PE II</b>	Address <b>1019 ERIE PUEBLO, CO 81001</b>

**Distribution:** White copy - Staff Materials Branch (submit white copy only if sample or information is directed to Staff Materials)  
Canary copy - Region Materials Engineer  
Pink copy - Resident Engineer

CDOT Form #157 9/07

Previous editions may be used until supplies are exhausted

**COLORADO DEPARTMENT OF TRANSPORTATION  
PRELIMINARY SOIL SURVEY**

Note 1: If samples are submitted leave sieve analysis section blank.  
 Note 2: Comments should be placed in the description column of the form.  
 Note 3: Sulfate content expressed as percent (dry soil), or ppm in water.  
 Note 4: R-values referenced are noted 'Survey by Group Class' portion of this report.

Form #157 No. 188251	Form #554 No. 898	Date: 02/02/10
Project No.	STA R200-158	
Project location	I-25 MP 149.5 to MP 155.5	
Project code (SA#)	16785	

STATION AND LOG	TEST NO.	DESCRIPTION	SULFATE CONTENT (SO <sub>4</sub> )	R-VAL REF	Per CP 24, Section 4						LIQUID LIMIT	PLASTIC INDEX	CLASSIFICATION AND GROUP INDEX	MOIST. %	M <sub>R</sub> PSI
					3/4"	3/8"	#4	#10	#40	#200					
MM 149.5 NB PL (CORE)															
0-12.5"	1A	HMA (Stripped from 4.5"-6.5")													
12.5"-21"	1B	Granular Base Reddish Brown - SAMPLE 1B			100	94	80	65	38	16	8	NP	A-1-b(0)	0.4	32883
21"-36"	1C	Silty/Clayey Sand Brown to Gray - SAMPLE 1C				100	98	81	42	17	NV	NP	A-1-b(0)	0.1	33975
MM 150.5 NB PL (AUGER)															
0-12"	2A	HMA													
12"-21.5"	2B	Granular Base - Similar to 1B											A-1-b(0)		32883
21.5"-36"	2C	Tan Silty Sand - Fine Grained - SAMPLE 2C				100	98	93	53	9.3	19	NP	A-3(0)	0.2	29812
MM 151 NB INSIDE SHLDR															
0-21"	3A	SM/SC - Similar to 1C											A-1-b(0)		33975
21"-36"	3B	Silty Sand - Tan - Fine to Coarse - SAMPLE 3B			100	99	93	72	30	12	23	5	A-1-b(0)	0.3	33975
MM 151.5 NB PL (CORE)															
0-15"	4A	HMA													
15"-23"	4B	Granular Base - Similar to 1B											A-1-b(0)		32883
23"-36"	4C	Tan SM - Similar to 3B											A-1-b(0)		33975
MM 152.5 NB PL (AUGER)															
0-14.5"	5A	HMA													
14.5"-24"	5B	Granular Base - Similar to 1B											A-1-b(0)		32883
24"-36"	5C	Tan SM - Similar to 3B											A-1-b(0)		33975
MM 153.5 NB PL (CORE)															
0-14"	6A	HMA													
14"-26"	6B	Granular Base - Similar to 1B											A-1-b(0)		32883
26"-36"	6C	Tan SM - Similar to 3B											A-1-b(0)		33975

- Materials and Geotechnical
- Region Materials Engineer
- Resident Engineer

**COLORADO DEPARTMENT OF TRANSPORTATION  
PRELIMINARY SOIL SURVEY**

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Form #157 No. 188251	Form #554 No. 898	Date: 02/02/10
Project No.	STA R200-158	
Project location	I-25 MP 149.5 to MP 155.5	
Project code (SA#)	16785	

STATION AND LOG	TEST NO.	DESCRIPTION	SULFATE CONTENT (SO <sub>4</sub> )	R-VAL REF	Per CP 24, Section 4						LIQUID LIMIT	PLASTIC INDEX	CLASSIFICATION AND GROUP INDEX	MOIST. %	M <sub>R</sub> PSI
					3/4"	3/8"	#4	#10	#40	#200					
MM 154.5 NB PL (AUGER)															
0-15.5"	7A	HMA													
15.5"-23"	7B	Granular Base - Similar to 1B										A-1-b(0)		32883	
23"-33"	7C	SM/SC - Similar to 1C										A-1-b(0)		33975	
33"-36"	7D	SC Dark Brown - No Sample													
MM 155.5 NB PL (CORE)															
0-15"	8A	HMA													
15"-19"	8B	Granular Base - Similar to 1B										A-1-b(0)		32883	
19"-36"	8C	Tan SM - Similar to 3B										A-1-b(0)		33975	
MM 149.5 NB AC LN (AUGER)															
0-10"	9A	HMA													
10"-24"	9B	SM/SC - Similar to 1C (DDC ON CONCRETE)													
MM 150 NB PL (AUGER)															
0-10.5"	10A	HMA													
10.5"-17"	10B	Granular Base - Similar to 1B										A-1-b(0)		32883	
17"-36"	10C	SM - Fine Grained - Similar to 2C										A-3(0)		29812	
MM 150.5 NB AC LN (AUGER)															
0-9.5"	11A	HMA													
9.5"-16.5"	11B	Granular Base - Similar to 1B										A-1-b(0)		32883	
16.5"-36"	11C	SM - Fine Grained - Similar to 2C										A-3(0)		29812	
MM 151 NB DL (AUGER)															
0-15.5"	12A	HMA													
15.5"-23"	12B	Granular Base - Similar to 1B										A-1-b(0)		32883	
23"-36"	12C	Tan SM - Similar to 3B										A-1-b(0)		33975	

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STATION AND LOG	TEST NO.	DESCRIPTION	SULFATE CONTENT (SO <sub>4</sub> )	R-VAL REF	Per CP 24, Section 4						LIQUID LIMIT	PLASTIC INDEX	CLASSIFICATION AND GROUP INDEX	MOIST. %	M <sub>R</sub> PSI
					3/4"	3/8"	#4	#10	#40	#200					
MM 152 NB DL (AUGER)															
0-13.5"	13A	HMA													
13.5"-20.5"	13B	Granular Base - Similar to 1B										A-1-b(0)		32883	
20.5"-36"	13C	Tan SM - Similar to 3B										A-1-b(0)		33975	
MM 153 NB DL (AUGER)															
0-14.5"	14A	HMA													
14.5"-27"	14B	Granular Base - Similar to 1B										A-1-b(0)		32883	
27"-36"	14C	SC - Dark Brown - No Sample													
MM 153.5 NB AC LN (AUGER)															
0-12"	15A	HMA													
12"-21.5"	15B	Granular Base - Similar to 1B										A-1-b(0)		32883	
21.5"-36"	15C	SM/SC - Similar to 1C										A-1-b(0)		33975	
MM 154 NB DL (AUGER)															
0-11.5"	16A	HMA													
11.5"-23.5"	16B	Granular Base - Similar to 1B										A-1-b(0)		32883	
23.5"-36"	16C	Tan SM - Similar to 3B										A-1-b(0)		33975	
MM 155 NB DL (AUGER)															
0-15"	17A	HMA													
15"-25.5"	17B	Granular Base - Similar to 1B										A-1-b(0)		32883	
25.5"-36"	17C	Tan SM - Similar to 3B										A-1-b(0)		33975	
MM 155.5 SB PL (CORE)															
0-14.5"	18A	HMA													
14.5"- 18"	18B	Granular Base - Similar to 1B										A-1-b(0)		32883	
18"-36"	18C	Tan SM - Similar to 3B										A-1-b(0)		33975	

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					3/4"	3/8"	#4	#10	#40	#200					
MM 154.5 SB PL (AUGER)															
0-17"	18A	HMA													
17"-23"	18B	Granular Base - Similar to 1B										A-1-b(0)		32883	
23"-36"	18C	Tan SM - Similar to 3B										A-1-b(0)		33975	
MM 153.5 SB PL (CORE)															
0-14.5"	19A	HMA													
14.5"-18"	19B	Granular Base - Similar to 1B										A-1-b(0)		32883	
18"-36"	19C	Tan SM - Similar to 3B										A-1-b(0)		33975	
MM 152.5 SB PL (AUGER)															
0-16"	20A	HMA													
16"-23"	20B	Granular Base - Similar to 1B										A-1-b(0)		32883	
23"-36"	20C	Tan SM - Similar to 3B										A-1-b(0)		33975	
MM 153 SB INSIDE SHLDR															
0-23"	21A	SM/SC - Dk Brown - Similar to 1C										A-1-b(0)		33975	
23"-36"	21B	Tan SM - Similar to 3B										A-1-b(0)		33975	
MM 152 SB INSIDE SHLDR															
0-16"	22A	SM - Fine Grained - Similar to 2C													
16"-27"	22B	SM/SC - Similar to 1C										A-1-b(0)		33975	
27"-36"	22C	Tan SM - Similar to 3B										A-1-b(0)		33975	
MM 151.5 SB PL (CORE)															
0-14.5"	23A	HMA													
14.5"-22.5"	23B	Granular Base - Similar to 1B										A-1-b(0)		32883	
22.5"-36"	23C	Tan SM - Similar to 3B										A-1-b(0)		33975	

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					3/4"	3/8"	#4	#10	#40	#200					
M 150.5 SB PL (AUGER)															
0-16"	24A	HMA													
16"-25"	24B	Granular Base - Similar to 1B										A-1-b(0)		32883	
25"-36"	24C	SM - Fine Grained - Similar to 2C										A-3(0)		29812	
MM 150 SB INSIDE SHLDR															
0-17"	25A	SM/SC Brown - Similar to 1C										A-1-b(0)		33975	
17"-33"	25B	SM - Fine Grained - Similar to 2C										A-3(0)		29812	
33"-36"	25C	Tan SM - Similar to 3B										A-1-b(0)		33975	
MM 149.5 SB PL (CORE)															
0-11.5"	26A	HMA (Stripped between 4" and 5")													
11.5"-21"	26B	Granular Base - Similar to 1B										A-1-b(0)		32883	
21"-36"	26C	SM - Fine Grained - Similar to 2C										A-3(0)		29812	
MM 155 SB DL (CORE)															
0-13.5"	27A	HMA													
13.5"-29"	27B	Granular Base - Similar to 1B										A-1-b(0)		32883	
29"-36"	27C	Tan SM - Similar to 3B										A-1-b(0)		33975	
MM 154 SB DL (AUGER)															
0-12"	28A	HMA													
12"-24"	28B	Granular Base - Similar to 1B										A-1-b(0)		32883	
24"-36"	28C	Tan SM - Similar to 3B										A-1-b(0)		33975	
MM 153 SB DL (CORE)															
0-14"	29A	HMA													
14"-24"	29B	Granular Base - Similar to 1B										A-1-b(0)		32883	
24"-36"	29C	Tan SM - Similar to 3B										A-1-b(0)		33975	

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PRELIMINARY SOIL SURVEY**

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					3/4"	3/8"	#4	#10	#40	#200					
MM 152 - SB DL (Auger)															
0-13"	30A	HMA													
13"-23"	30B	Granular Base - Similar to 1B										A-1-b(0)			32883
23"-36"	30C	Tan SM - Similar to 3B										A-1-b(0)			33975
MM 151 SB DL (CORE)															
0-18"	31A	HMA													
18"-30"	31B	Granular Base - Similar to 1B										A-1-b(0)			32883
30"-36"	31C	Tan SM - Similar to 3B										A-1-b(0)			33975
MM 150 SB DL (AUGER)															
0-11"	32A	HMA													
11"-14"	32B	Granular Base - Similar to 1B										A-1-b(0)			32883
14"-36"	32C	SM - Fine Grained - Similar to 2C										A-3(0)			29812

- Materials and Geotechnical
- Region Materials Engineer
- Resident Engineer

# COLORADO DEPARTMENT OF TRANSPORTATION

## Gradation Report

<b>Project ID</b> 16785	<b>Location</b> R2 SURFACE TREATMENT PE POOL	
<b>Project</b> STA R200-158	<b>Source</b> ROADWAY	<b>Report Date</b> 2/26/2010
<b>F.S. #</b> 188251	<b>Region</b> 02	<b>Final Design</b> 3020
<b>Engineer</b> C.K. Su - Soils and Rockfall Program		<b>Working Days</b> 7

**Comments**

Test #	Lab #	SP?	Station	Depth	LL	PL	PI	%Moist	R-Val	Group Class(GI)	mr
1B	2010-0013	None	MP 149.5 NB PL (Core)	12.5" - 21.0"	8	8	NP	0.4	78	A-1-b(0)	32883

<p><b><u>Gradations:</u></b></p> <table border="0" style="width: 100%;"> <tr> <td style="text-align: right;">mm</td> <td>75</td> <td>25</td> <td>19</td> <td>9.5</td> <td>#4</td> <td>#10</td> <td>#40</td> <td>#200</td> </tr> <tr> <td style="text-align: right;">in</td> <td>3</td> <td>1</td> <td>3/4</td> <td>3/8</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: right;">%Pass</td> <td></td> <td>100</td> <td>94</td> <td>80</td> <td>65</td> <td>38</td> <td>16</td> <td></td> </tr> <tr> <td style="text-align: right;">As Run</td> <td></td> <td>100</td> <td>94</td> <td>80</td> <td>65</td> <td>38</td> <td>16</td> <td></td> </tr> </table>	mm	75	25	19	9.5	#4	#10	#40	#200	in	3	1	3/4	3/8					%Pass		100	94	80	65	38	16		As Run		100	94	80	65	38	16		<p><b><u>Proctor:</u></b></p> <p>MDD :</p> <p>OMC :</p> <p>SpG :</p> <p>Abs :</p>	<p><b><u>Lab Performing Work:</u></b></p> <p>Atterberg : CDOT      T180 :</p> <p>Direct Shear :      Mechanical Analysis : CDOT</p> <p>R-Value : CDOT      Other :</p> <p>T99 :</p>
mm	75	25	19	9.5	#4	#10	#40	#200																														
in	3	1	3/4	3/8																																		
%Pass		100	94	80	65	38	16																															
As Run		100	94	80	65	38	16																															

Test #	Lab #	SP?	Station	Depth	LL	PL	PI	%Moist	R-Val	Group Class(GI)	mr
1C	2010-0014	None	MP 149.5 NB PL (Core)	21.0" - 36.0"	NV	NP	NP	0.1	79	A-1-b(0)	33975

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mm	75	25	19	9.5	#4	#10	#40	#200																														
in	3	1	3/4	3/8																																		
%Pass		100	98	81	42	17																																
As Run		100	98	81	42	17																																

Test #	Lab #	SP?	Station	Depth	LL	PL	PI	%Moist	R-Val	Group Class(GI)	mr
2C	2010-0015	None	MP 150.5 NB PL (Auger)	21.5" - 36.0"	19	19	NP	0.2	75	A-3(0)	29812

<p><b><u>Gradations:</u></b></p> <table border="0" style="width: 100%;"> <tr> <td style="text-align: right;">mm</td> <td>75</td> <td>25</td> <td>19</td> <td>9.5</td> <td>#4</td> <td>#10</td> <td>#40</td> <td>#200</td> </tr> <tr> <td style="text-align: right;">in</td> <td>3</td> <td>1</td> <td>3/4</td> <td>3/8</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: right;">%Pass</td> <td></td> <td>100</td> <td>98</td> <td>93</td> <td>53</td> <td>9.3</td> <td></td> <td></td> </tr> <tr> <td style="text-align: right;">As Run</td> <td></td> <td>100</td> <td>98</td> <td>93</td> <td>53</td> <td>9.3</td> <td></td> <td></td> </tr> </table>	mm	75	25	19	9.5	#4	#10	#40	#200	in	3	1	3/4	3/8					%Pass		100	98	93	53	9.3			As Run		100	98	93	53	9.3			<p><b><u>Proctor:</u></b></p> <p>MDD :</p> <p>OMC :</p> <p>SpG :</p> <p>Abs :</p>	<p><b><u>Lab Performing Work:</u></b></p> <p>Atterberg : CDOT      T180 :</p> <p>Direct Shear :      Mechanical Analysis : CDOT</p> <p>R-Value : CDOT      Other :</p> <p>T99 :</p>
mm	75	25	19	9.5	#4	#10	#40	#200																														
in	3	1	3/4	3/8																																		
%Pass		100	98	93	53	9.3																																
As Run		100	98	93	53	9.3																																

<b><u>Key</u></b>	SP? = Meets special provision requirements?	MDD = Maximum Dry Density
LL = Liquid Limit (AASHTO T89)	R-Val = Stab R-Value (CP-L3101)	OMC = Optimum Moisture Content
PL = Plastic Limit (AASHTO T90)	mr = Resilient Modulus (psi)	SpG = Bulk Specific Gravity
PI = Plastic Index (AASHTO T90)	GI = Group Index	Abs = Absorption



# COLORADO DEPARTMENT OF TRANSPORTATION

## Gradation Report

<b>Project ID</b>	16785	<b>Location</b>	R2 SURFACE TREATMENT PE POOL		
<b>Project</b>	STA R200-158	<b>Source</b>	ROADWAY	<b>Report Date</b>	2/26/2010
<b>F.S. #</b>	188251	<b>Region</b>	02	<b>Final Design</b>	3020
<b>Engineer</b>	C.K. Su - Soils and Rockfall Program			<b>Working Days</b>	7

**Comments**

Test #	Lab #	SP?	Station	Depth	LL	PL	PI	%Moist	R-Val	Group Class(GI)	mr
3B	2010-0016	None	MP 151.0 NB Inside Shldr	21.0" - 36.0"	23	18	5	0.3	79	A-1-b(0)	33975

<u>Gradations:</u>								<u>Proctor:</u>		<u>Lab Performing Work:</u>			
mm	75	25	19	9.5	#4	#10	#40	#200	MDD :	Atterberg :	CDOT	T180	:
in	3	1	3/4	3/8					OMC :	Direct Shear :		Mechanical Analysis :	CDOT
%Pass			100	99	93	72	30	12	SpG :	R-Value :	CDOT	Other	:
As Run			100	99	93	72	30	12	Abs :	T99	:		

<u>Key</u>			
LL = Liquid Limit (AASHTO T89)	SP? = Meets special provision requirements?	MDD = Maximum Dry Density	
PL = Plastic Limit (AASHTO T90)	R-Val = Stab R-Value (CP-L3101)	OMC = Optimum Moisture Content	
PI = Plastic Index (AASHTO T90)	mr = Resilient Modulus (psi)	SpG = Bulk Specific Gravity	
	GI = Group Index	Abs = Absorption	

# Survey 188251 R-values by Group Class

GroupClass	A-1-b										
	Labno	Rvalue	LL	PI	GI	p19mm:	p9_5mm:	p#4:	p#10	p#40	p#200
	2010-0013	78	8	NP	0	100	94	80	65	38	16
	2010-0014	79	NV	NP	0		100	98	81	42	17
	2010-0016	79	23	5	0	100	99	93	72	30	12
'GroupClass' =	A-1-b (3 R-values)										
	<b>Average</b>	79									

GroupClass	A-3										
Labno	Rvalue	LL	PI	GI	p19mm:	p9_5mm:	p#4:	p#10	p#40	p#200	
2010-0015	75	19	NP	0		100	98	93	53	9.3	
'GroupClass' = A-3 (1 R-value)											
<b>Average</b>	75										