



# Department of Transportation

## State of Wyoming



Matthew H. Mead  
Governor

John F. Cox  
Director

March 12, 2012

### MEMORANDUM

TO: Shelby Carlson, P.E., District Engineer, Basin

FROM: Den Dudrey, P.G., Engineering Geologist

SUBJECT: Oldman Borrow Investigation, T.1S., R.2E., SW¼SE¼ Section 8

PROJECT: CN10093, 17 Mile Road-West, CR #334, Fremont County



At the request of Robert Scheidemantel, P.E. Resident Engineer, Riverton the Oldman borrow area (Figure 1) was investigated January 24 and 25, 2012, utilizing WYDOT auger rig H-823. The investigated borrow area lies on Tribal land. Borrow material from the site will be utilized on the 17 Mile Road – West Road Section. The test holes and corners were surveyed by APEX Surveying, Inc. and submitted to WYDOT Photogrammetry and Survey and WYDOT Right-of-Way for development of a T146A. Existing pit and access roads on the T146A are approximate. The T146A should be included in the plans.

A total of 16 test holes were drilled and the drill cuttings were sampled and delivered to the WYDOT Materials Laboratory for gradation, classification, and determination of "R" value. The depth of the borings ranged from 2.44 meters to 5.49 meters with the majority of the test holes being drilled to a depth of 3.96 meters. Material encountered during drilling was Quaternary alluvium deposits overlying the Tertiary Fort Union formation. A summary of the test intervals and the analytical results of the WYDOT Materials Laboratory Report of Tests on Soils (Form T111S) are shown in Table 1.

The test hole locations and approximate corner locations are shown on the attached T146A map sheet. The surface area of investigation consisted of approximately 17.8 hectare or approximately 177,250 m<sup>2</sup>. Topsoil is very thin and assuming an average thickness of 0.15 m, the amount of topsoil is 26,600 m<sup>3</sup>. The available borrow material assuming a borrow thickness of 3.96 m and a surface area of 149,250 m<sup>2</sup> is 591,000 m<sup>3</sup>. The borrow material consisted of yellow to brown, dry, fine grain sandy silt and silt. Also present, are isolated surface areas covered by a thin 0.15 m to 0.30 m veneer of rounded and some angular rock ranging in thickness of 0.080 m to 0.15 m with some up to 0.25 m thickness. In the northeast corner of the investigated area (Figure 1 and T146A), is a small gravel pit which was used locally and is suitable for BSE as the R-values and classifications are higher than the material available in the rest of the borrow. The BSE material consisted of yellow to brown, dry, fine grain sandy silt and meager amounts of rock. The approximate surface area is 28,000 m<sup>2</sup> and assuming an average BSE thickness of 2.8 m, the available BSE is 78,400 m<sup>3</sup>

WYDOT Material Testing Laboratory Summary – Oldman Borrow Area  
 Table 1

Lab. No.	S#	TH #	Interval Meter	4.75mm	2.00mm	425µm	75µm	LL	PI	Class	"R" Value	Moist	Swell
12-032	1	12-1	0 - 0.61	49	46	39	12.2	18	NP	A-1-b(0)	65	Moderate	Slight
12-033	2	12-1	0.61 - 3.96	100	99	98	38.6	23	2	A-4(0)	42	Moderate	Slight
12-034	3	12-2	0 - 1.22	84	76	65	25.5	22	2	A-2-4(0)	50	Extreme	Slight
12-035	4	12-2	1.22 - 5.49	94	91	88	56.9	23	5	A-4(0)	22	Slight	Slight
12-036	5	12-3	0 - 3.96	100	99	99	58.1	25	6	A-4(1)	12	Slight	Slight
12-037	6	12-4	0 - 2.44	100	99	97	36.4	23	3	A-4(0)	23	Slight	Slight
12-038	7	12-5	0 - 3.96	100	100	100	32.1	20	3	A-2-4(0)	35	Slight	Slight
12-039	8	12-6	0 - 3.96	99	99	99	31.0	20	1	A-2-4(0)	70	Extreme	Slight
12-040	9	12-7	0 - 2.44	99	97	85	27.2	19	1	A-2-4(0)	55	Slight	Slight
12-041	10	12-8	0 - 2.44	99	98	95	55.3	24	5	A-4(0)	18	Slight	Slight
12-042	11	12-9	0 - 3.96	81	71	57	36.6	21	5	A-4(0)	40	Extreme	Slight
12-043	12	12-10	0 - 3.96	100	99	97	22.6	NV	NP	A-2-4(0)	73	Slight	Slight
12-044	13	12-11	0 - 3.96	100	100	100	25.2	NV	NP	A-2-4(0)	64	Moderate	Slight
12-045	14	12-12	0 - 2.44	100	100	98	32.1	22	NP	A-2-4(0)	61	Slight	Slight
12-046	15	12-13	0 - 2.44	95	91	86	52.8	33	17	A-6(6)	10	Slight	Slight
12-047	16	12-14	0 - 3.96	99	97	94	56.1	24	9	A-4(2)	17	Moderate	Slight
12-048	17	12-15	0 - 5.49	82	76	62	49.4	20	5	A-4(0)	23	Extreme	Slight
12-049	18	12-16	0 - 2.74	100	100	99	44.2	23	NP	A-4(0)	57	Extreme	Slight

Reviewed By:   
 Project Geologist

Approved By:   
 Chief Engineering Geologist

Attachment(s): Figure 1 - Google map  
 T146A – Test hole locations & Property Corners

cc: Rick Harvey, P.E., State Materials Engineer, Cheyenne  
 Andrea Allen, P.E., Project Development Engineer, Cheyenne  
 Robert Scheidemantel, P.E., Resident Engineer, Riverton  
 Geology (3)



Oldman Borrow Area  
CN10093 Fremont CO  
Figure 1

Image © 2012 DigitalGlobe  
© 2012 Google

T-146A  
REV. 8/99  
REV. 8/01

T-146A  
SHEET NO.1

# WYOMING DEPARTMENT OF TRANSPORTATION

STATE OF WYOMING  
PROJECT NO.  
SHEET NO. TOTAL SHEETS

## MATERIALS DEPOSIT LAYOUT SHEET

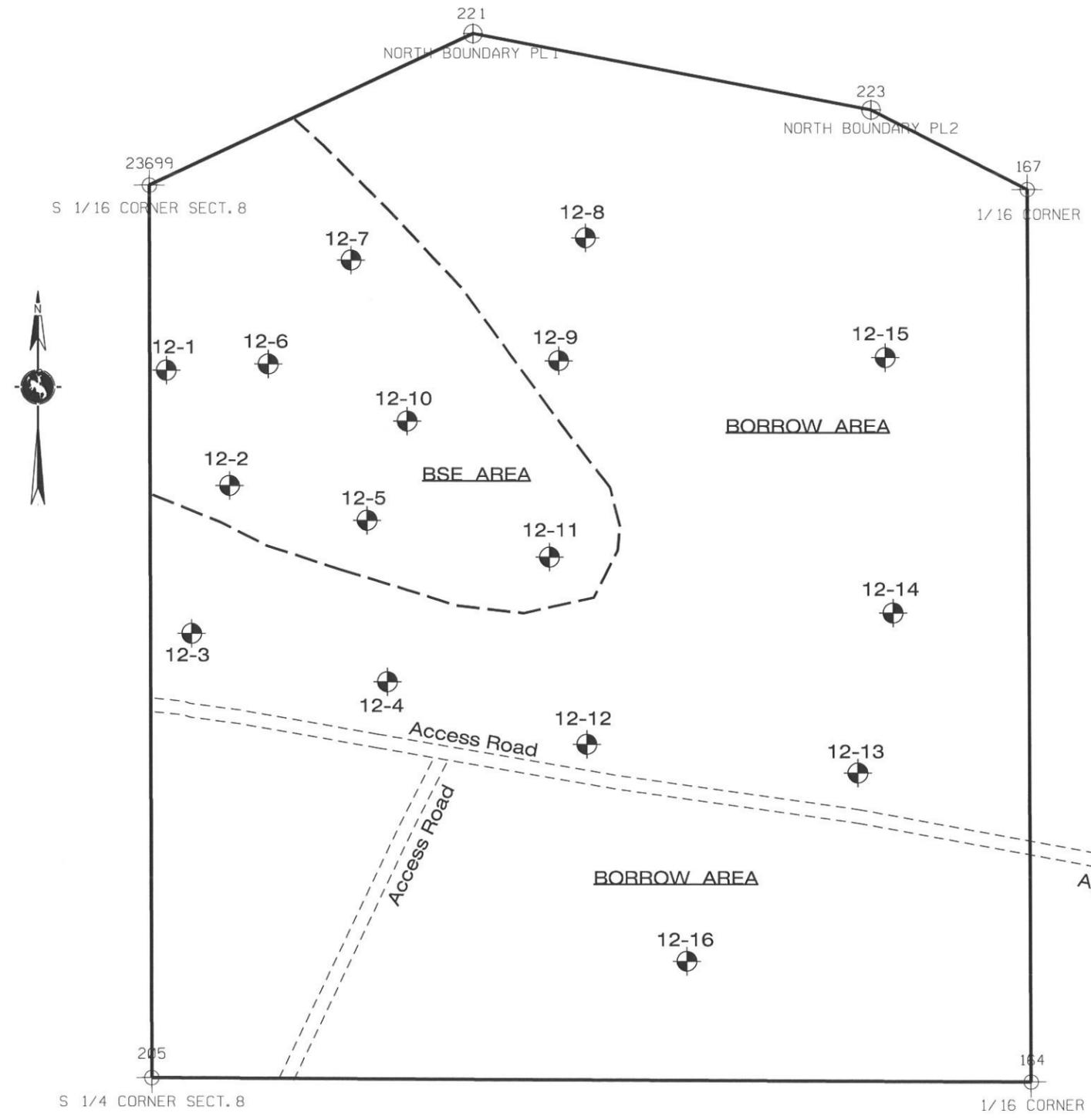
Metric

BLUE FOLDER PROJECT 17 MILE ROAD  
# \_\_\_\_\_ A.F.E. NO. CN10093  
SHEET NO. 1 TOTAL SHEETS 3

PIT NAME OLDMAN BORROW OWNERSHIP HEIRS of JOSIAH OLDMAN ENGINEER R. SCHEIDEMANTEL LAND DESCRIPTION SW<sup>1</sup>/<sub>4</sub> SE<sup>1</sup>/<sub>4</sub>, Sec. 8, T1S R2E  
DEADHAUL \_\_\_\_\_ KILOMETERS TO STATION \_\_\_\_\_ OR DEADHAUL IS \_\_\_\_\_ KILOMETERS TO STATION \_\_\_\_\_ ON PROJECT CN10093 DATE 3/9/2012  
QUANTITIES BSE 78,400 m<sup>3</sup> BORROW 591,000 m<sup>3</sup> CAN PIT BE EXTENDED ? No

FILE: \\Cheyenne-hq2\projects2\CN10093\Ge\_Lb\Borrow\17MileRoadBorrowPit.dgn  
DATE: 09-Mar-12 09:29

The Wyoming Department of Transportation assumes no responsibility for the accuracy of the test data shown for proposed gravel pits except at the exact locations or points where samples were taken. The above test data is provided solely for the information of the Contractor and its accuracy is not guaranteed.  
The Contractor is advised that operations within this quarry (pit) are subject to the rules and regulations of the Mine Safety and Health Act (M.S.H.A.) and the State Mining Engineer offices.



**LEGEND:**

- 12-15 Drill Hole
- Corner
- BSE Boundary
- Permit Boundary
- Borrow Boundary

**ESTIMATED QUANTITIES:**  
Topsoil -  
177,250 m<sup>2</sup> X 0.15 m = 26,600 m<sup>3</sup>  
Borrow Material -  
149,250 m<sup>2</sup> X 3.96 m = 591,000 m<sup>3</sup>  
Borrow Special Excavation (BSE) -  
28,000 m<sup>2</sup> x 2.8 m = 78,400 m<sup>3</sup>

Test holes and corners were located by Apex Surveying. Existing pit and access roads are approximate.



FILE NO. \_\_\_\_\_

# WYOMING DEPARTMENT OF TRANSPORTATION

STATE OF WYOMING PROJECT NO. SHEET NO. TOTAL SHEETS

## MATERIALS DEPOSIT LAYOUT SHEET

PIT NAME Oldman Borrow PROJECT 17 Mile Road  
COUNTY Fremont A.F.E. NO. CN10093

SHEET NO. 2 TOTAL SHEETS 3

HOLE NO.	FIELD NO.	LAB NO.	OVERBURDEN VERT. LIMITS (FEET)	VERT. LIMITS (FEET)	PIT FLOOR LIMITS (FEET)	MAXIMUM SIZE (INCHES)	ESTIMATED % > 3"	PERCENT PASSING										LIQUID LIMIT	PLASTIC INDEX	"R VALUE"	REMARKS (Test Hole Log, Etc.)			
								2"	1 1/2"	1"	3/4"	1/2"	3/8"	NO.4	NO.10	NO.40	NO.30					NO.50	NO.200	
12-1	1	12-032		0 - 2.0										49	46	39				12.2	18	NP	65	Sand and Gravel
	2	12-033		2.0 - 13.0+										100	99	98				38.6	23	2	42	Silty Sand, medium dense, dry
12-2	3	12-034		0 - 4.0										84	76	65				25.5	22	2	50	Sand and Gravel, medium dense, dry, smaller rock
	4	12-035		4.0 - 18.0+										94	91	88				56.9	23	5	22	Slightly Silty Sand, medium dense, dry
12-3	5	12-036		0 - 13.0+										100	99	99				58.1	25	6	12	Sand, dry
12-4	6	12-037		0 - 8.0+										100	99	97				36.4	23	3	23	Slightly Silty Sand, medium dense, dry
12-5				0 - 1.0		10																		Surface Rock with Sand and Gravel, loose, dry
	7	12-038		1.0 - 13.0+																32.1	20	3	35	Sand, medium dense, dry
12-6				0 - 1.5																				Surface Rock with Sand and Gravel, medium dense, dry
	8	12-039		1.5 - 13.0+										99	99	99				31.0	20	1	70	Sand, medium dense, dry
12-7	9	12-040		0 - 8.0+										99	97	85				27.2	19	1	55	Sand, dry
12-8	10	12-041		0 - 8.0+										99	98	95				55.3	24	5	18	Sand, medium dense, dry
12-9				0 - 5.5																				Sand with minor Gravel top 5.5 feet, medium dense, dry
	11	12-042		5.5 - 13.0+										81	71	57				36.6	21	5	40	Sand, medium dense, dry
12-10				0 - 0.5																				Surface Rock with Sand and Gravel, loose, dry
	12	12-043		0.5 - 13.0+										100	99	97				22.6	NV	NP	73	Sand, medium dense, dry
12-11	13	12-044		0 - 13.0+												100				25.2	NV	NP	64	Sand, medium dense, dry
12-12	14	12-045		0 - 8.0+											100	98				32.1	22	NP	61	Sand, medium dense, dry
12-13	15	12-046		0 - 8.0+										95	91	86				52.8	33	17	10	Sand, medium dense, dry
12-14	16	12-047		0 - 13.0+										99	97	94				56.1	24	9	17	Sand, medium dense, dry

