



October 9, 2013
Job No. 1464-01N-13

Mr. Kade Bambrough
5162 South 5900 West
Hooper, Utah 84315

Mr. Bambrough:

Re: Summary Letter
Observations of Construction
Bambrough Subdivision Road Extension
Approximately 4202 West 3675 North
Weber County, Utah

Recently, GSH Geotechnical, Inc. (GSH) performed a pavement study¹ for the extension of 3675 North within the Bambrough Subdivision in Weber County, Utah. GSH has now been asked to verify the construction of the roadway. This letter summarizes our observations of the construction and the available material testing data related to the road construction.

Observations

As requested by Mr. Kade Bambrough, Mr. Andrew Harris of GSH visited the above-referenced site in the morning of October 1, 2013 to observe the stripping of vegetation and topsoil within the roadway extension for 3675 North. At the time of the visit Mr. Harris observed that stripping of vegetation and topsoil had been completed at the subject site prior to arrival. However, road base had been placed and compacted throughout the proposed roadway extension, thus limiting our ability to observe the stripping of vegetation and topsoil from the ground surface. A number of shallow, hand-dug holes were dug at the site to assist in observing the soil conditions. Our observations indicate that the surface was sufficiently stripped in preparation of further construction.

As requested by Mr. Kade Bambrough, Mr. Andrew Harris of GSH returned to the subject site in the morning of October 3, 2013 to observe the thickness of road base placed within roadway extension for 3675 North. At the time of the visit Mr. Harris observed two test pits excavated within the roadway. The first test pit was excavated near the west end of the road extension and contained about 24 inches of compacted road base. The second test pit was excavated near the

¹ "Report, Pavement Study, Proposed Bambrough Subdivision, Approximately 4202 West 3600 North, Weber County, Utah," GSH Geotechnical, Inc., Project No. 1464-01N-13, September 20, 2013.

east end of the road extension and contained about 11 inches of compacted road base. The thickness of road base observed at the test pit locations exceeds the minimum requirements of the referenced pavement study.

Material Testing Results

Laboratory and field testing on the road base material was performed for this project by Intermountain Testing Services, Inc. In-place moisture-density testing was performed on the road base material placed at the site on October 2 and 3, 2013. The test results provided by Intermountain Testing Services, Inc. (attached) indicate that the road base placed within the roadway meets the compaction requirements indicated in the referenced pavement study. Additionally, Intermountain Testing Services, Inc. prepared a gradation on the road base material to determine compliance with the project specifications. The results of the gradation testing indicate the road base material conforms to the requirements of the referenced pavement study.

Summary

Based on our observations at the test pit locations and the material testing results provided for review, the construction completed for the extension of 3675 North within the Bambrough Subdivision appears to meet the requirements of the referenced pavement study. Accordingly, we recommend acceptance of this construction by Weber County. All other recommendations provided in the referenced report should be followed.

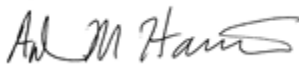
Closure

If you have any questions or would like to discuss these items further, please feel free to contact us at (801) 393-2012.

Respectfully submitted,

GSH Geotechnical, Inc.

Reviewed by:



Andrew M. Harris, P.E.
State of Utah No. 7420456
Senior Geotechnical Engineer



William G. Turner, P.E.
State of Utah No. 171715
Senior Geotechnical Engineer

Attachments: Test Data by Intermountain Testing Services Inc. (4 sheets)

AMH/WGT:mmh

Addressee (kadebambrough@yahoo.com)

INTERMOUNTAIN *Testing Services Inc.*

October 8, 2013

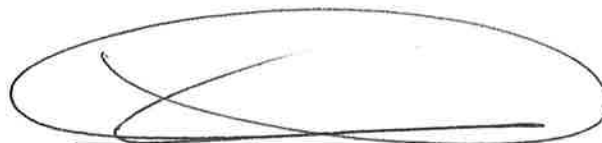
KADE BAMBROUGH
430 WEST 5200 SOUTH
OGDEN UT 84405

PROJECT #: 011596
PROJECT: BAMBROUGH SUBDIVISION
MATERIAL: 1" COMMERCIAL BASE COURSE
SOIL DESCRIPTION: COMMERCIAL (AGGREGATE BASE COURSE)
SOURCE: JBP HOT SPRINGS
ITEM: :
DATE: 10/03/2013

ASTM D-1557 Lab Compaction Characteristics Of Soil (Modified)
Lab Number: 196149

Maximum Dry Density = 130.5

Optimum Moisture = 5.3



Manager

INTERMOUNTAIN *Testing Services Inc.*

1079

KADE BAMBROUGH
430 WEST 5200 SOUTH
OGDEN UT 84405

10/08/2013

ASTM C-2172, C-136, C-117
LAB NO.: 196150
MATERIAL: 1" COMMERCIAL BASE
PIT/PLANT: JBP-HOT SP

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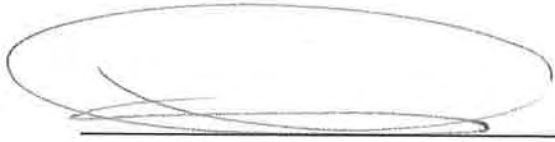
PROJECT:	011596 BAMBROUGH SUBDIVISION	TEST DATE:	10/03/13		
IDENTIFICATION:	SAMPLED ON-SITE VERIFY MATERIAL				
SPECIFICATION:		SAMPLE BY:	1033	RUN BY:	1014
REMARKS:	1" COMMERCIAL BASE SAMPLED ON-SITE				
ITEM:	:				

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SIEVE	GRAMS	%	ACCUM. %	%	SPECIFICATION
USA-METRIC	RETAINED	RETAINED	RETAINED	PASSING	% PASSING
1"	0.0	0.0	0.0	100	
3/4"	464.7	18.4	18.4	82	
1/2"	585.5	23.2	41.6	58	
3/8"	239.7	9.5	51.1	49	
#4	338.5	13.4	64.5	36	
#8	158.3	6.3	70.8	29	
#16	103.8	4.1	74.9	25	
#50	210.1	8.3	83.2	17	
#200	185.4	7.3	90.6	9.4	

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ORIGINAL WT.	2523.8		F.M.	0.00
WASHED WT.	2315.5			
-#200 W.O.	208.3		DESIGN F.M.	0.00
-#200 S.O.	7.9			
TOTAL -#200/75	216.2 =	8.6%		



Manager

INTERMOUNTAIN *Testing Services Inc.*

KADE BAMBROUGH
430 WEST 5200 SOUTH
OGDEN UT 84405

October 8, 2013
Nuclear Densities
ASTM D-2922 & D-3017
AASHTO T310

PROJECT#: 011596

PROJECT: BAMBROUGH SUBDIVISION

MATERIAL: AGGREGATE BASE COURSE

SOURCE: JBP, - HOT SPRINGS

GAUGE:

MODEL:

CALIBRATION DATE: / /

STD COUNTS - MS: 0

DS: 0

LAB NUMBER: 196040

DATE TESTED: 10/03/2013

SPEC COMPACTION: 95.0

TECH: 1033

AVERAGE DENSITY: 96.6

LOCATION: PLAIN CITY

ITEM:

PROCTOR LAB #:

PROVIDED BY:

DEPTH	WET DENS P.C.F.	DRY DENS P.C.F.	PERCENT MOISTURE CONTENT	PROCTOR MAX DENS P.C.F.	PERCENT OPTIMUM MOISTURE	PERCENT COMPACTION	PASS / FAIL
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1	8"	129.0	124.2	3.8	130.5	5.3	95.2	PASS
2	8"	131.9	124.0	6.4	130.5	5.3	95.0	PASS
3	6"	135.1	130.1	3.8	130.5	5.3	99.7	PASS
4								
5								
6								
7								
8								
9								
10								

APPROXIMATE LOCATION AND ELEVATION:


- 1 ROADWAY, WEST SECTION, WESTBOUND LANE; 1ST LIFT
- 2 ROADWAY, CENTER SECTION, SPOT TEST; 1ST LIFT
- 3 ROADWAY, WEST SECTION, WESTBOUND LANE, SPOT TEST; 2ND LIFT

- 4
- 5
- 6 MODIFIED REPORT VERIFIED ON-SITE MATERIAL 130.5 PCF @ 5.3 %

- 7
- 8
- 9
- 10

Comments:

SAMPLE OBTAINED ON-SITE TO VERIFY DENSITIES



Manager

INTERMOUNTAIN *Testing Services Inc.*

KADE BAMBROUGH
430 WEST 5200 SOUTH
OGDEN UT 84405

October 8,2013
Nuclear Densities
ASTM D-2922 & D-3017
AASHTO T310

PROJECT#: 011596

PROJECT: BAMBROUGH SUBDIVISION

MATERIAL: AGGREGATE BASE COURSE

SOURCE: JBP - HOT SPRINGS

GAUGE:

MODEL:

CALIBRATION DATE: / /

STD COUNTS - MS:0

DS:0

LAB NUMBER: 195925

DATE TESTED: 10/02/2013

SPEC COMPACTION: 95.0

TECH: 1033

AVERAGE DENSITY: 100.4

LOCATION: PLAIN CITY

ITEM:

PROCTOR LAB #:

PROVIDED BY:

DEPTH	WET DENS P.C.F.	DRY DENS P.C.F.	PERCENT MOISTURE CONTENT	PROCTOR MAX DENS P.C.F.	PERCENT OPTIMUM MOISTURE	PERCENT COMPACTION	PASS / FAIL
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1	6"	136.6	129.6	5.4	130.5	5.3	99.3	PASS
2	6"	140.0	132.5	5.6	130.5	5.3	101.5	PASS
3								
4								
5								
6								
7								
8								
9								
10								

APPROXIMATE LOCATION AND ELEVATION:

1 ROADWAY, EAST SIDE; 1ST LIFT

2 ROADWAY, WEST SIDE; 2ND LIFT

3

4

5 MODIFIED REPORT MATERIAL ON-SITE 130.5 PCF @ 5.3 %

6

7

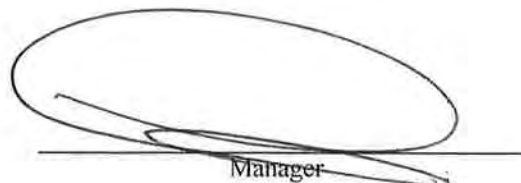
8

9

10

Comments:

MATERIAL SAMPLED ON-SITE TO VERIFY PROCTOR VALUES



Manager