

Phase III Pavement Estimating Report

N 10th Avenue ITS & Overlay, Caldwell

Project No. A013(905), Key No. 13905

Caldwell, Idaho

April 14, 2020

Terracon Project No. 62195037

Prepared for:

Six Mile Engineering, PA

Meridian, Idaho

Prepared by:

Terracon Consultants, Inc.

Boise, Idaho

terracon.com

Terracon

Environmental



Facilities



Geotechnical



Materials

April 14, 2020



Six Mile Engineering, PA
704 E. United Heritage Court, Suite 204
Meridian, Idaho 83642

Attn: Mr. Jeff Jones, P.E.

Re: Phase III Pavement Estimating Report
N 10th Avenue ITS & Overlay, Caldwell
Project No. A013(905), Key No. 13905
Terracon Project No. 62195037

Dear Mr. Jones:

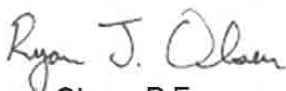
Terracon Consultants, Inc. (Terracon) has completed the Phase III Pavement Estimating Report for the above referenced project. These services were performed in general accordance with our agreement dated December 6, 2019. The accompanying report presents the estimating basis in general accordance with the Idaho Transportation Department (ITD) *Materials Manual*. Based on email correspondence dated April 13, 2020 we understand there were no comments on the draft version of the report dated March 2, 2020.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further assistance, we are available at your convenience.

Sincerely,
Terracon Consultants, Inc.



Kevin C. Hoagland, P.E.
Senior Engineer


Ryan J. Olsen, P.E.
Geotechnical Department Manager

Attachments

Copies to: Addressee (1 Electronic)

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Typical Section
LTPPBind Output

**PHASE III PAVEMENT ESTIMATING REPORT
N 10TH AVENUE ITS & OVERLAY, CALDWELL
PROJECT NO. A013(905), KEY NO. 13905
CALDWELL, IDAHO**

**Terracon Project No. 62195037
April 14, 2020**

240.00 PHASE III PAVEMENT ESTIMATING REPORT

240.01 PAVEMENT TYPE AND SURFACE SMOOTHNESS

The project consists of resurfacing N 10th Avenue between Albany Street and Kimball Avenue in Caldwell, Idaho using Hot Mix Asphalt (HMA). The existing roadway consists of an asphaltic concrete paved, 4-lane urban arterial roadway with partial middle turn lanes. Additionally, the project includes infrastructure for future signalization, roadway lighting, pedestrian safety and drainage improvements. The project is approximately ½ mile in length.

A Traffic Index (TI) of 9.0 was used for the flexible pavement section design. The posted speed limit is 35 mph. Pavement Smoothness will be in accordance with straightedge requirements.

240.02 TYPICAL SECTION

A typical section is included in the Appendix.

240.03 BASE

¾-inch crushed Aggregate for Untreated Base Type B will be provided from an approved Contractor furnished source.

Tack and Prime

A note to the Contractor will be included in the Phase V Report to allow the use of either CSS-1 or CSS-1h diluted emulsified asphalt for Tack Coat between successive lifts of HMA paving and construction joints at 0.12 gal/ yd² (estimated). A Prime Coat will not be used.

Dust Abatement

Dust abatement water quantities may be estimated at 235,000 gallons (235 MG), based on a cumulative application rate of 2 inches of water over the construction area.

240.04 SURFACE TREATMENT

A surface treatment is not anticipated for this project.

240.05 PAVING

PG 64-28 Asphalt Cement for ½-inch Class SP-3 Superpave Hot Mix Asphalt (HMA) at 5.3 percent by total weight of mix, for estimating purposes only. Add anti-stripping additive to the asphalt cement at a rate of 0.5 percent by weight of asphalt cement.

240.05.01 Performance Grade Binder Selection

Based on design traffic and in accordance with the LTPPBind program, PG 64-28 asphalt cement should be used for all permanent pavements. Output from the LTPPBind program is included in the Appendix for permanent pavements.

240.05.01.01 Reclaimed Asphalt Pavement (RAP)

Reclaimed Asphalt Pavement (RAP) may be reused from the project site. If utilized, RAP should meet the requirements of the ITD Standard Specifications for intended use.

240.05.02 Lift Thickness and Nominal Maximum Aggregate Size

½-inch nominal maximum aggregate size should be used for the HMA on this project. The HMA should be placed in two lifts of approximately equal thickness.

240.05.03 Portland Cement Concrete Pavement

Portland cement concrete pavement (PCCP) will not be used on this project.

240.05.04 Reduced Shoulder Pavement Thickness

Reduced shoulder pavement thickness is not applicable on this project.

240.06 SEAL

A seal coat will not be used for this project.

240.07 AGGREGATE ESTIMATING DATA

The unit weights for this estimating basis were determined from area history and past project experience. This information is provided for use by the designer in developing reasonable project quantities. The actual quantities will vary, and are dependent on the Contractor provided materials source, crushing operation, and mix designs. The Contractor is responsible for determining actual unit weights based on the material produced and providing adequate materials for the project plus any losses due to stockpile operation, out of specification (rejected) materials, or other waste.

The estimated unit weight of the ½-inch aggregate for Superpave Class SP3 HMA is 146 lb/ft³ (compacted), including 5.3 percent PG 64-28 by total weight of mix and 0.5 percent anti-stripping additive by weight of asphalt cement.

The estimated unit weight of the ¾-inch Type B Aggregate for Untreated Base is 140 lb/ft³ (compacted), including 7 percent moisture.

240.08 AGGREGATE SOURCES

Approved Contractor furnished sources will be used.

240.09 REFERENCES

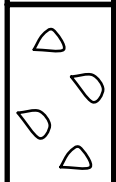
Idaho Transportation Department, *Materials Manual*, 2019.

Idaho Transportation Department, *Standard Specifications for Highway Construction*, 2018.

Idaho Transportation Department, *2019 Supplemental Specifications for the 2018 Idaho Standard Specifications for Highway Construction*, 2019

APPENDIX

Typical Section **N 10th Avenue ITS & Overlay, Caldwell** **Albany Street to Kimball Avenue**

	0.42' (5") PG 64-28 Class SP-3 Superpave HMA (1/2") (2 lifts)
	New Untreated Aggregate Base, 3/4" Type B (as needed)
	Existing Granular Fill

Notes:

Completely remove existing asphalt pavement.

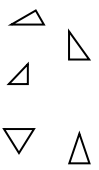
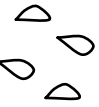
Remove existing base as necessary to accommodate new HMA thickness.

Finish grade and compact using existing or new aggregate base (as needed to attain finish grade).

Surface smoothness in accordance with straightedge requirements.

Typical Section **N 10th Avenue ITS & Overlay, Caldwell**

Soft Spot Repair

	0.42' (5") PG 64-28 Class SP-3 Superpave HMA (1/2") (2 lifts)
	1.5' (18") Untreated Aggregate Base, 3/4" Type B Type III Subgrade Separation Geotextile
	Subgrade

Notes:

Repair soft spot in accordance with typical section, Section 205.03.D, or as directed.
 Place HMA full width of roadway following soft spot repair.
 Surface smoothness in accordance with straightedge requirements.

PG Binder Selection Report N 10th Ave, Caldwell

LTPPBind V3.0 PG Binder Selection Report (Date: 2/27/2020)

Parameter	A=11 km	B=11 km	C=19 km
Station ID	ID1380	ID2444	ID6305
Elevation, m	2201	2331	2294
Degree-Days >10 C	3311	2974	3069
Low Air Temperature, C	-19.1	-19.1	-20.5
Low Air Temp. Std Dev	5	5.3	5.8

Input Data

Latitude, Degree	43.66
Yearly Degree-Days>10C	3118
Lowest Yearly Air Temp., Deg. C	-19.6
Low Temp. Std. Dev., Deg. C	5.4
Base HT PG	58

Traffic Adjustments for HT

Desired Reliability, Percent	98
Traffic Loading, Million ESAL	Up to 3 M. ESAL
Traffic Speed	Slow
High Temp. Adjustment	2.7

PG Temperature	HIGH	LOW
PG Temp. at 50% Reliability	57.5	-14.5
PG Temp. at Desired Reliability	61.0	-23.6
Adjustments for Traffic	2.7	
Adjustments for Depth	0.0	0.0
Adjusted PG Temperature	63.7	-23.6
Selected PG Binder Grade	64	-28