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Client TIMET	Project 1323080	Page 1 of 2
	By KMK	Date 3/10/14
Subject New Road Rutting	Checked	Date
	Approved	Date

Determine the estimated rut depth of the proposed gravel road.

Assumptions: Follow AASHTO Design Chart Procedure

- Design Cross Section:

6" Type 2 Gravel

10 oz/sy NWGT

6" Type 2 Gravel

6" Sand

GCL

Sand CBR=10

- Total 18-kip ESAL Repetitions - W_{18} = 25,000 (entire service life)
  - Wet Season 4 months 25,000 (4/12) = 8,333
  - Dry Season 8 months 25,000 (8/12) = 16,667
- Base CBR ≅ 10 (Sand) Gravel

$M_{R(wet)}$ = 6,000 $M_{R(wet)}$ = 8,000

$M_{R(dry)}$ = 10,000 $M_{R(dry)}$ = 20,000

Trial Gravel Thickness = 12 in

Serviceability Criteria $\Delta PSI = 2.5$

Rutting RD = 1.5 in

Season	Sand M_R	Gravel M_R	ESALs	Allowable	Seasonal Damage	Allowable	Seasonal Damage
Wet	6,000	8,000	8,333	60,000	0.13	10,000	0.83
Dry	10,000	20,000	16,667	400,000	0.04	50,000	0.33
			25,000	Total Damage	0.17	Total Rutting	1.16

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		Project 1323080	Page 2 of 2
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- Based on the AASHTO Design Chart Procedure, after approximately 25,000 ESALs, the rutting in the surface of the road will be approximately 1.5 inches. Rutting deformation at the GCL (18" below the surface) is expected to be considerably less than 1.5 inches.

The addition of a 10 oz/sy NWGT in the road section will act to further improve road serviceability and reduce rutting.