Gravel Road Management Planning – Solutions for Associations

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Topics

Road Construction Basics

Surveying/Inventorying gravel roads

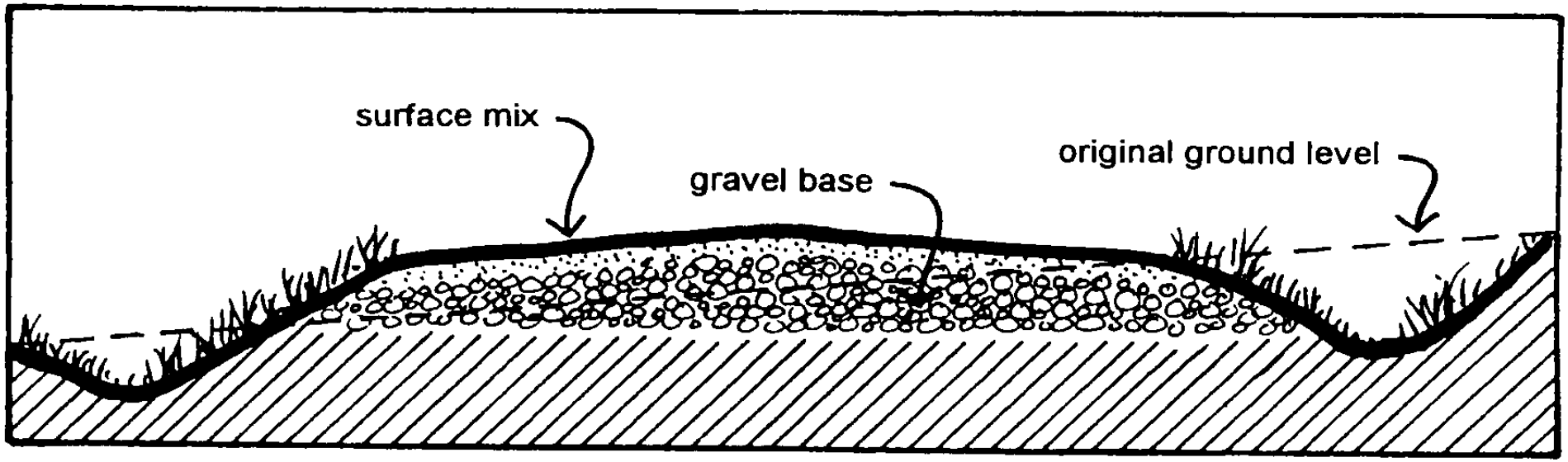
Management Plans

Q&A

The Basics of Road Building

- All roads need to withstand the impacts of **vehicles** and **weather**.
- This is accomplished by:
  - Using the appropriate materials when constructing the road
  - Shaping the road to efficiently drain water

Profile – Base



BASE

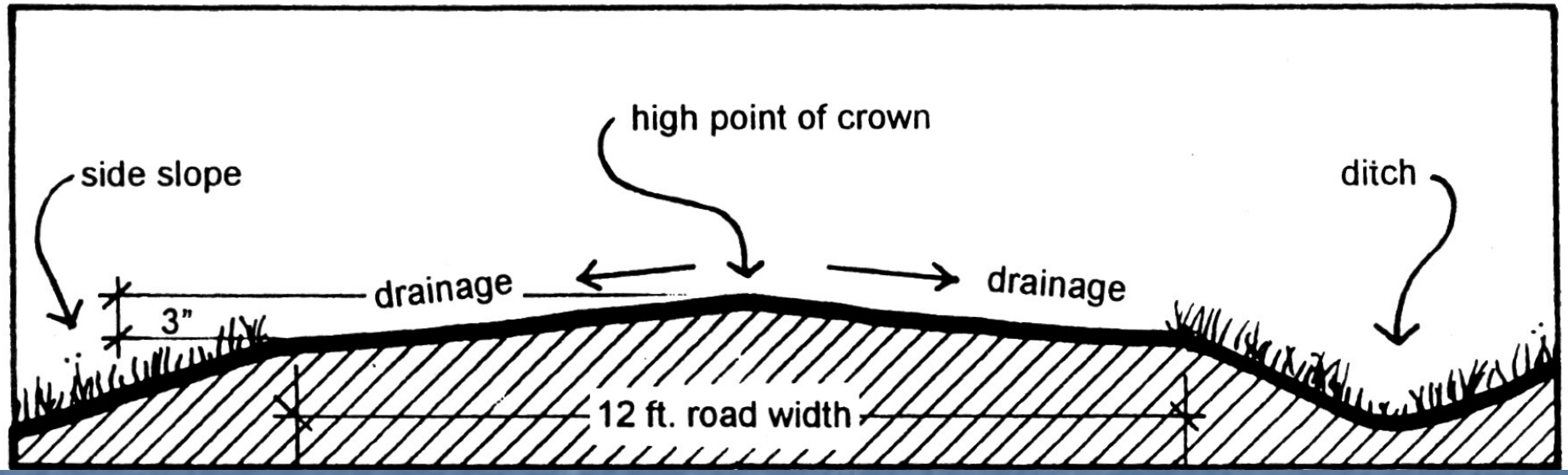
- Sub-base
- Provides foundation for road, holds up vehicles
- Gravel contains lots of rock and drains well
- Larger aggregate size than surface gravel – 3-4” minus

Fabric

-Woven Geotextile
-Use on new roads or in wet areas of chronic erosion that don’t dry


No Fabric
Fabric

Surface



- Provides a smooth, easily *gradable* driving surface
- Keep water out of road base (roof)
- Directs water into ditches
- Crown – minimum 1/4" per foot – ½" recommended
- Super-elevate

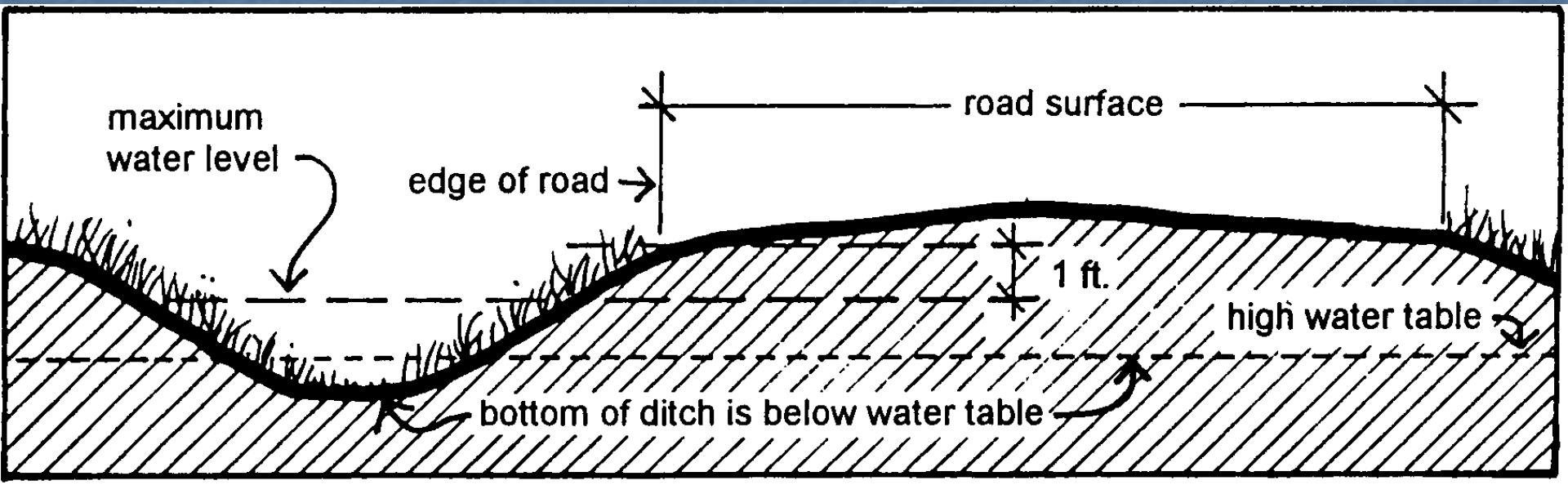
Surface Gravel

-3/4 – 1.5” minus crushed material with 7-10% fines

-Bluestone gravel

-Crushed bluestone or slate with crusher dust included. Still 7-10% fines

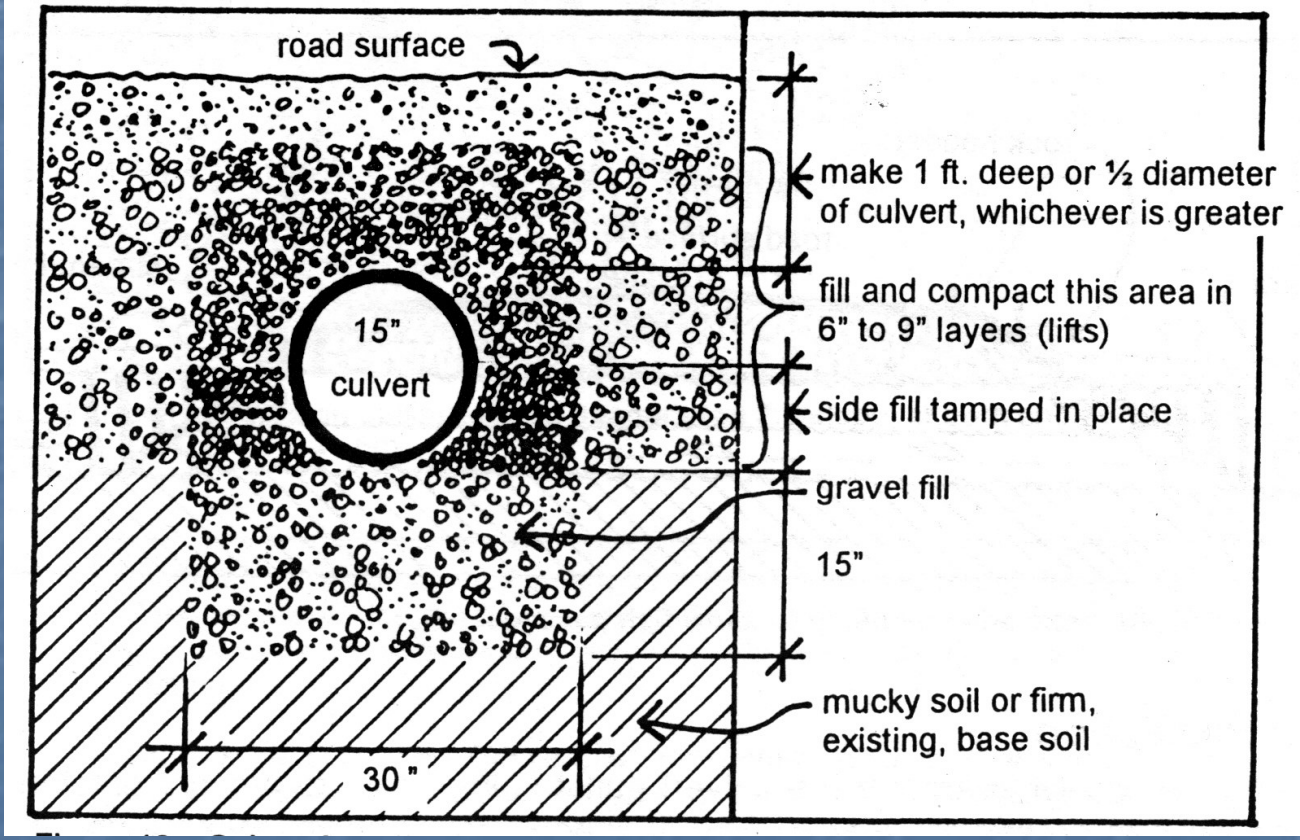
Ditches



- Control the runoff from the road surface
- Drains water out of the road base materials
- Shape of ditch should be a “rounded V”
- Stabilizing ditches

Culverts

- Used to convey water under a road
- Properly sized
- Proper compaction



Surveying Gravel Roads
Taking Inventory

Road Problems

- Common Problems:
  - Road Surface Erosion/Potholes
  - Mud/Ruts, Potholes
  - Road Shoulder Erosion
  - Ditch Erosion
  - Culvert Inlet/Outlet Erosion
- Most problems are due to poor road shape and/or poor materials

Saturated Conditions: Mud and Ruts

Lack of Crown: Standing Water

Flat Surface: Potholes

Culvert: Unstable inlet/outlet

Culvert: Crushed

Ditch: Severe Erosion

Ditch: Bank Failure

Road Surface: Severe Erosion


A Guide to Forming Road Associations
October 2009
GRAVEL ROAD MAINTENANCE MANUAL
A Guide for Landowners on Camp and Other Gravel Roads
Kennebec County Soil and Water Conservation District
Maine Department of Environmental Protection Bureau of Land and Water Quality
Links:
http://www.maine.gov/dep/land/watershed/materials.html

Gravel Road Management Planning With MES

Steps to Managing Your Gravel Road

1. Inventory road
2. Determine specific road repairs
3. Determine costs
4. Establish priorities – 3 factors
5. Annual maintenance
6. Establish yearly budget
7. Keep a maintenance log

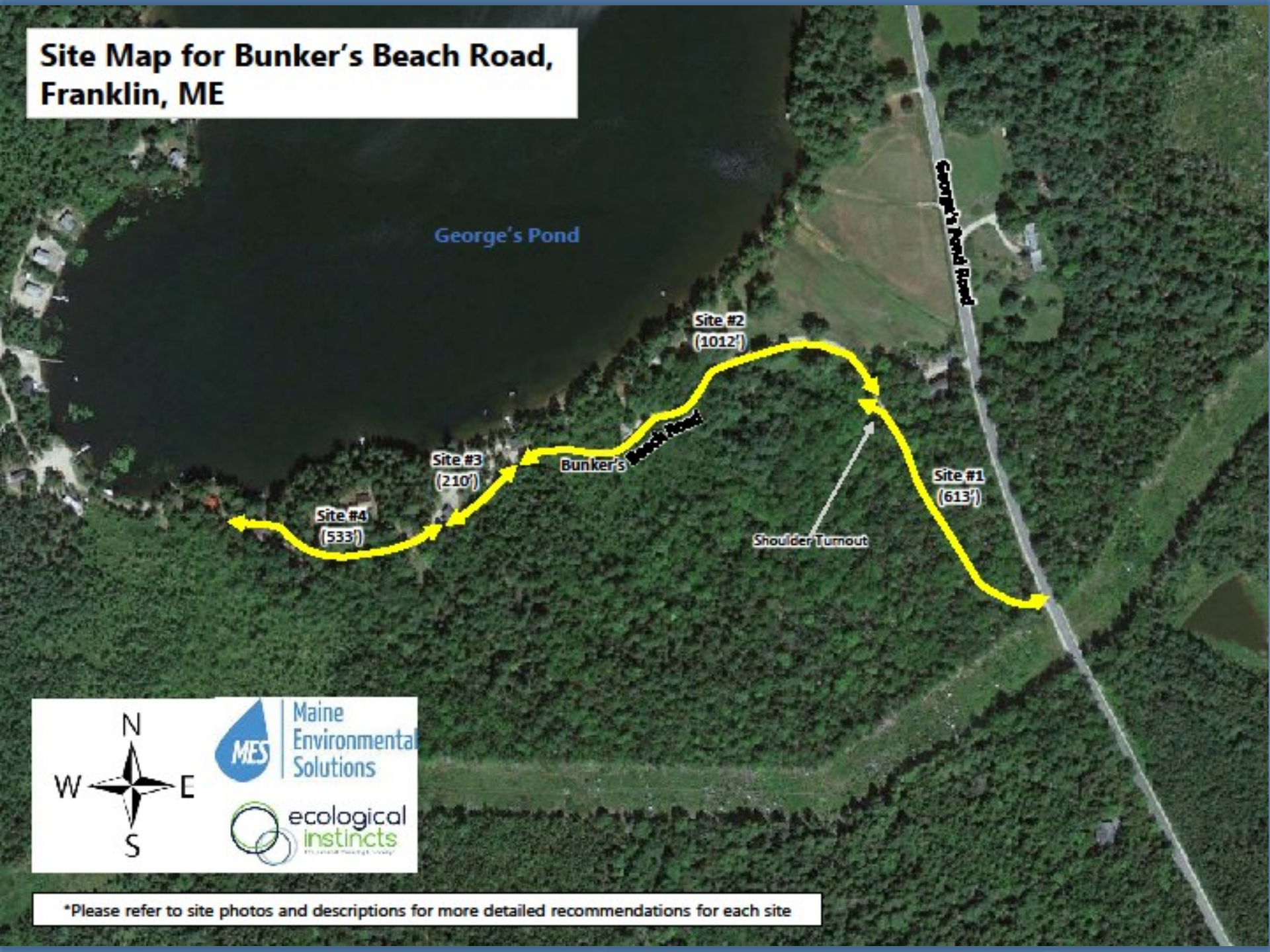
MES Road Plans Include the Following Information

-Evaluation of Existing Road
-Aggregate Sizes and Options
-Dust Control
-Contact Information
-Aerial Maps of Site Locations and Measurements
-Photos/Report of Site-Specific Repairs and Ranking
-Construction Details
-Maintenance Recommendations
-Maintenance Log

Additional Management Plan Options

-Road Profile
-Construction Oversight

Site Map for Bunker's Beach Road, Franklin, ME



*Please refer to site photos and descriptions for more detailed recommendations for each site

Pond Road, Mercer, Maine
(Southern Section)

Site 10
1018'

Site 11
240'

Site 12
477'

Site 13
609'

Site 14
180'

Site 15
785'

0 150 300 600 Feet

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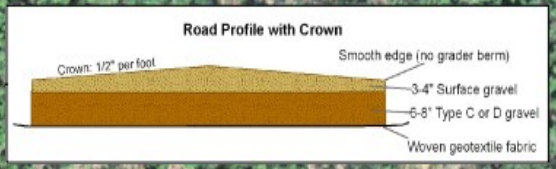
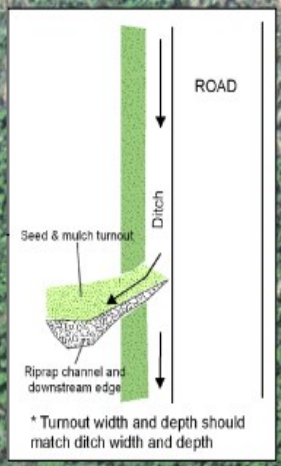
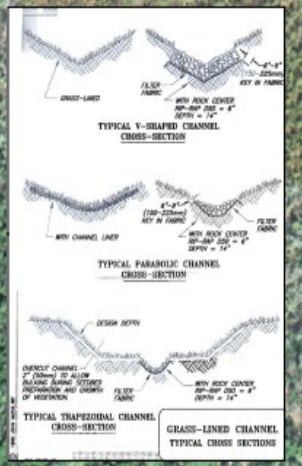




* Turnout width and depth should match ditch width and depth



Young Road - Site # 1

Site # 1: 140′ section between driveway #87 & Pole #23 .

Issue: Water not reaching ditches, ground water coming up through road, lack of crown and insufficient ditching.

Fix: Box cut 140′ section and install US 200 woven filter fabric, 1′ of 3″ minus base gravel compacted in 6″ lifts and 6″ of 1″ minus surface gravel with 7-12% fines. Road surface should be shaped and compacted to a 1/2″ per foot crown.

Install 85′ of ditching on west side of road between poles #21 & #23 & tie into existing ditch to the north. Stabilize ditch with seed and hay.

Priority #: 1

Cedar Point Road – Site # 4

Site # 4: 300’ section from turnout at the bottom of site #3, around corner to Camp sign.

Issue: Lack of ditching, surface erosion, road material accumulation at bottom of hill.

Fix: Install ditch on east side of road (Approx 230’) where water cannot get to woods and stabilize with 6” angular rock. (ditching this section will be a challenge due to site conditions)
Super-elevate road surface (approx 300’) to east & direct water into new ditch that will end in a turnout at the bottom of the hill.

Priority Ranking #: 2

Same site following implementation of recommendations

Pine Point – Site # 5

Site # 9: From Pole #88 to Pole #91 for a distance of 630′

Issue: Road is lower than surrounding grade. Surface erosion is occurring and there is no way to get water off road surface.

Fix: This is the most challenging section of Horse Point Road to address. To significantly improve this section would require a complete rebuild to raise road 1′ above existing grade.

Steps: Install woven filter fabric over road surface using specs provided. Add 1′ of 3″ minus material compacted in 6″ lifts. Install 6″ (compacted depth) of 1″ minus surface gravel and crown to ½″ per foot.

Priority Ranking #: 3

Same site following implementation of recommendations – Day after Hurricane Irene

Dondero Road – Site # 4

Site # 4: From end of Site #3 - 420’ to south.

Issues: Vegetation and debris buildup in left side ditch. Ditch also needs to be reshaped and deepened.
3-6” DBH (diameter breast height) trees encroaching road surface on right
Shoulder berms are present along the sides of road.

Fix: Clean and reshape left side ditch to increase capacity and ensure uninterrupted flows toward culverts.
Remove closest trees on right side of road surface growing in shoulder.
Shave shoulder berms & cut in several turnouts on right where trees and topography allow.
Maintain crown

Priority #: 4

Searls Mills Road – Site # 3

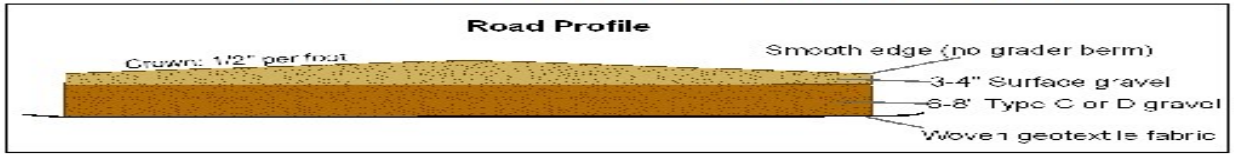
Site # 3: From Pole #13 – 275’ to Pole #14

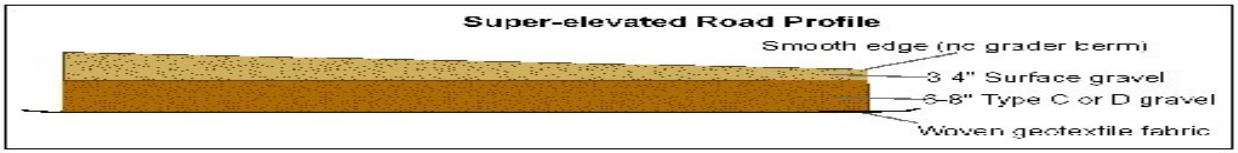
Issues: Lack of ditching and shoulder berms
A wet spring is weeping water through the road surface causing rutting, mud and saturated conditions.
Poor surface gravel with very high fine content and sandy

Fix: Continue right side ditch for 271’ to Pole # 14 and stabilize with seed and hay.
Box cut 75’ saturated area and rebuild road. Install woven geotextile fabric and rebuild base with 1’ of 3” minus base gravel rolled in 6” lifts. (Compacted depth will be approximately 6”)
Install 6” of 1” minus surface gravel (pre-compacted depth) and crown to a 1/2” per foot.

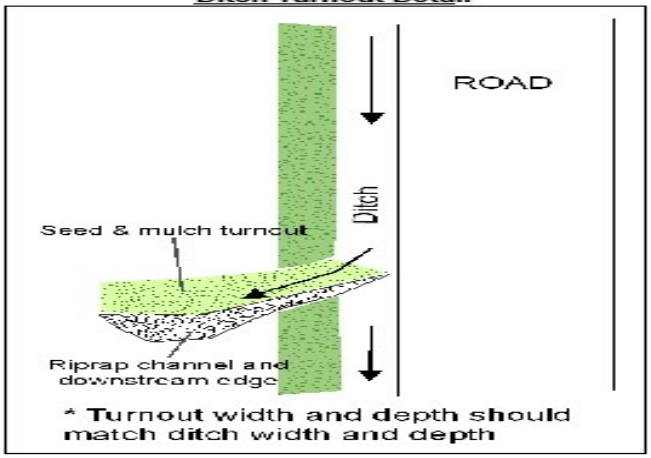
Priority #: 1

Horse Point Road Construction Details

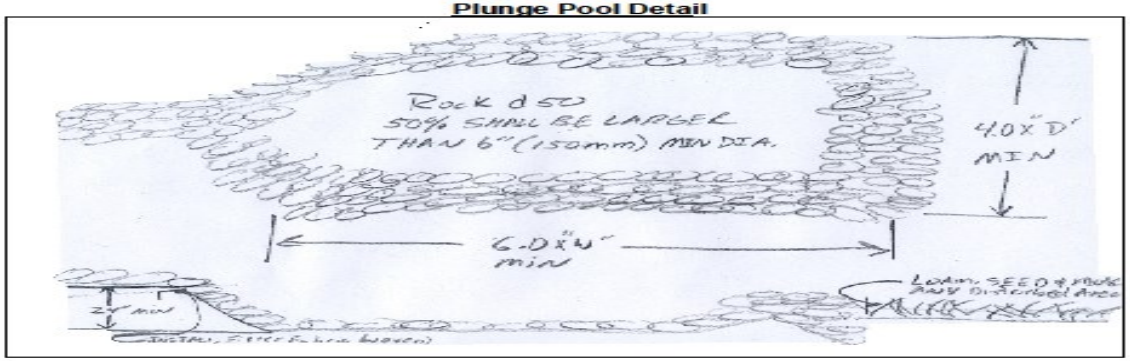




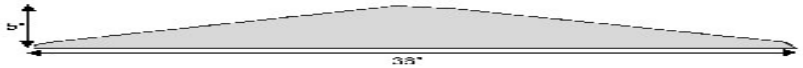
Ditch Turnout Detail



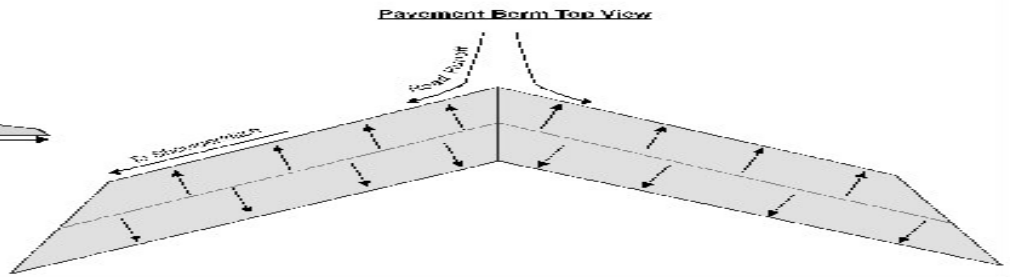
Plunge Pool Detail



Pavement Berm Cross Section



Pavement Berm Top View



Culvert Installation Detail

Gravel road management plans have proven to be the best investment a group can make in their gravel road.

Small investment to have a multi-year plan for properly maintaining a road, spending your money in the right areas and protecting your investment.

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