

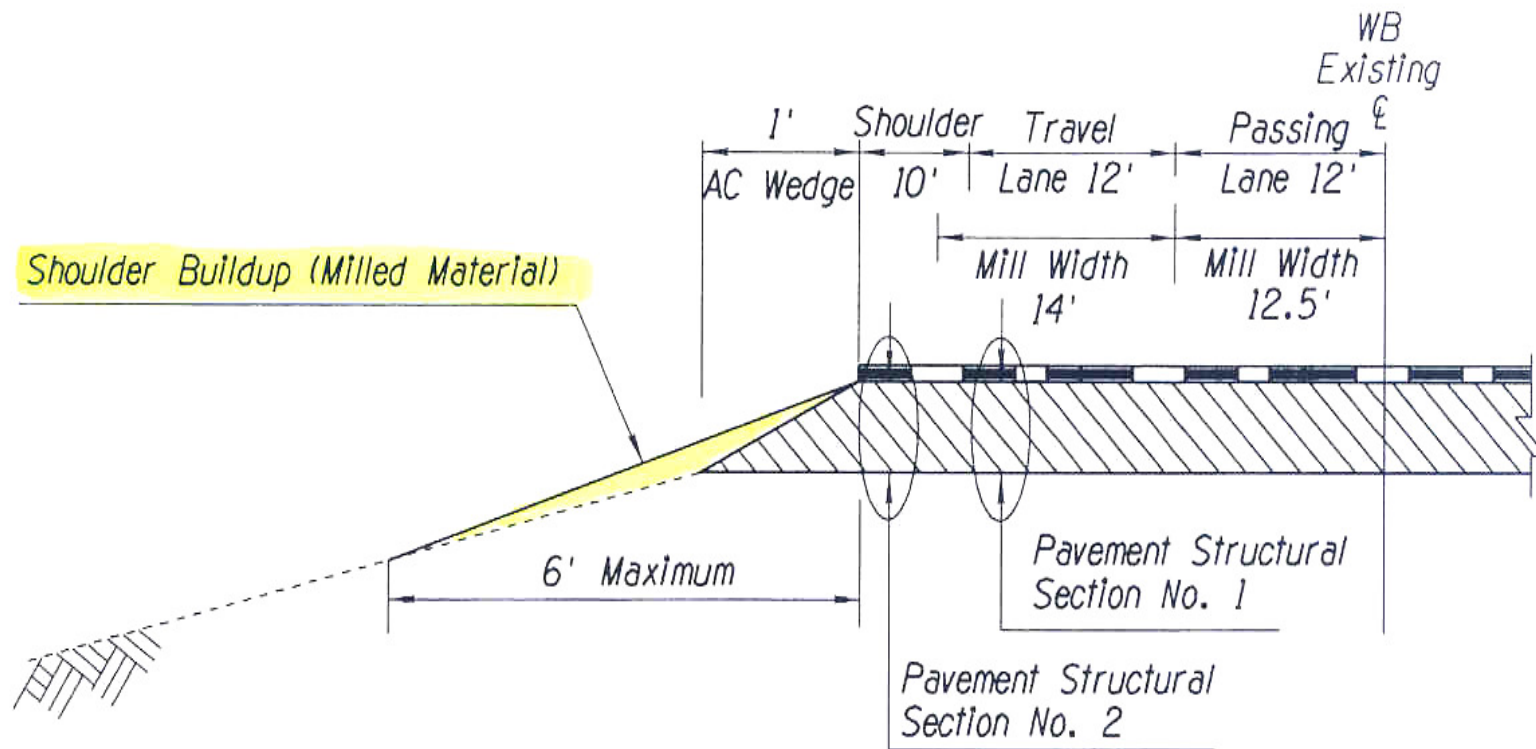
# Shoulder Build-up Seeding for Roadway Projects



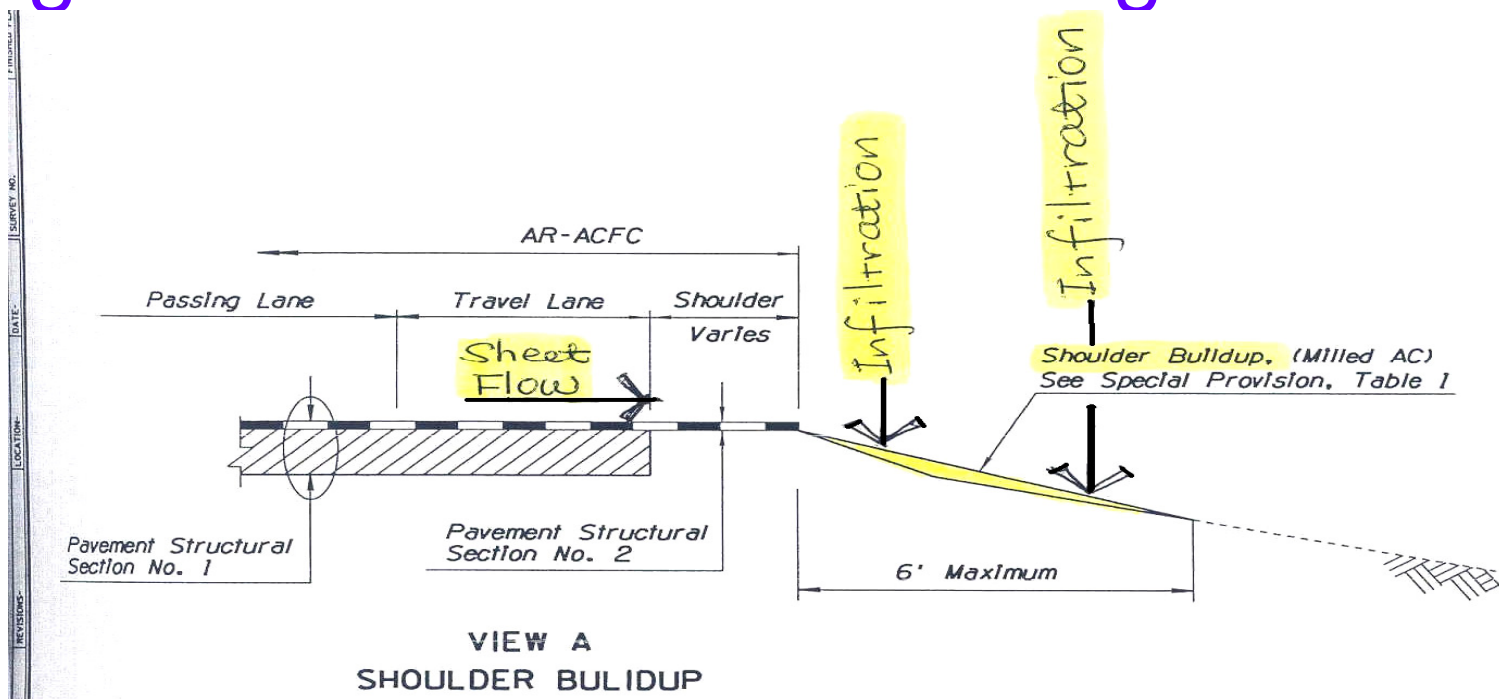
~ ADOT Roadway Engineering Group,  
Roadside Development Section

*August 2007*

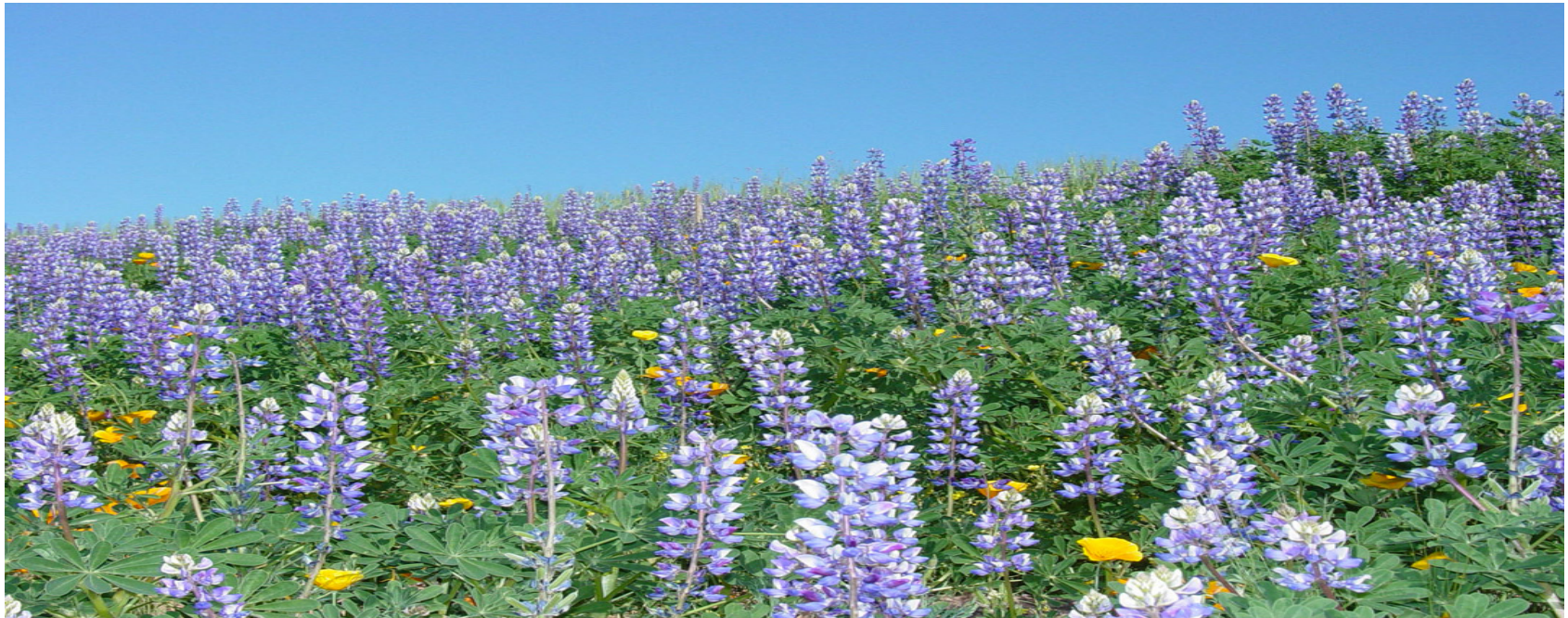
When asphalt millings are placed and compacted for shoulder build-up “To seed or not to seed” that is the Question.



The area next to the impervious asphalt paved shoulder receives the highest concentration of stormwater runoff which often times supports the densest level of vegetative buffers within Right of Way.



1. We can do some positive restoration of the native vegetative covers on those new shoulder buildups through proper native seedlings.





2. However, when we do not seed we still cannot allow extraneous seed sources, including noxious and invasive non-native plant species growing in the area or resulting from the transportation of materials and alien seeds, to provide the basis for re-vegetation.



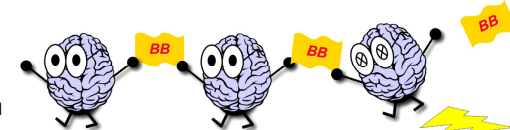
Either way, over time vegetation will establish in the compacted millings since there are no growth inhibiting chemicals and because of the moisture levels that penetrate and move across and down through the millings into the material along the new shoulder buildups.



The following comments are the result of the experience of Natural Resources, Roadside Development and various Engineers observing and dealing with shoulder build-up on projects that have and have not had seeding:



- When the millings are laid down, usually a surfactant with water is used to enhance compaction. In some areas and on some projects this has been adequate moisture to start germination of seeds.
- Compacted milling material has a limited resistance to eroding and allows stormwater runoff to penetrate and move into the soils below.
- Millings off the paved shoulder over time and with traffic vibration and moisture relax or loose some of the compaction and allow increased amounts of stormwater runoff to penetrate.
- Millings that are dissimilar material to the soil below result in an interface that is poor for capillary action to bring up moisture out of the base and sub-base.
- The layer of millings acts as a true mulch, holding and reducing evaporation which in turn enhances conditions for supporting vegetation.
- Vegetation established along the edge of pavement reduces movement of millings and soils from stormwater runoff, and the need to repair shoulder drop offs.





**Seeding shoulder build-up areas fosters an appropriate seed source of desirable/diversified native plant species, including low grasses and forbs which as they establish prevent and minimize the invasion of noxious and invasive non-native plant species.**





# Seeding New Shoulder Build-up Areas





# Seeding New Shoulder Build-up Areas





Desert Marigold, Brittle Bush, Purple Threeawn, Bush Muhly and Sand Dropseed compete very well against noxious and invasive species such as: Buffelgrass, Russian Thistle, Bermuda Grass, Sahara Mustard and Amaranthus. Some of the noxious and invasive species produce very high biomass levels resulting in high fuel levels.





Without appropriate seeding shoulder buildup applications, remedial actions will be required as a part of continuous maintenance by Natural Resources for control of undesirable and unacceptable plant species.



Seeding for shoulder build-up areas that use millings or other materials diminishes the negative environmental effects of highway construction, operation and maintenance by establishing native vegetation that provides the following benefits:

- Decreases moisture level in the new shoulder build-ups that could otherwise be harmful to the pavement.
- Improves erosion/sediment control.
- Reduces needed control of noxious and invasive non-native plant species.
- Lowers long term maintenance cost for pesticides and erosion repair.
- Defines the pavement edge with a visual background.
- Enhances the roadside aesthetic quality.
- Restores the landscape ecological security within and along the right-of-way.



# *Questions and Suggestions*



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ADOT, Roadside Development Section

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*Thank You !!!*

