

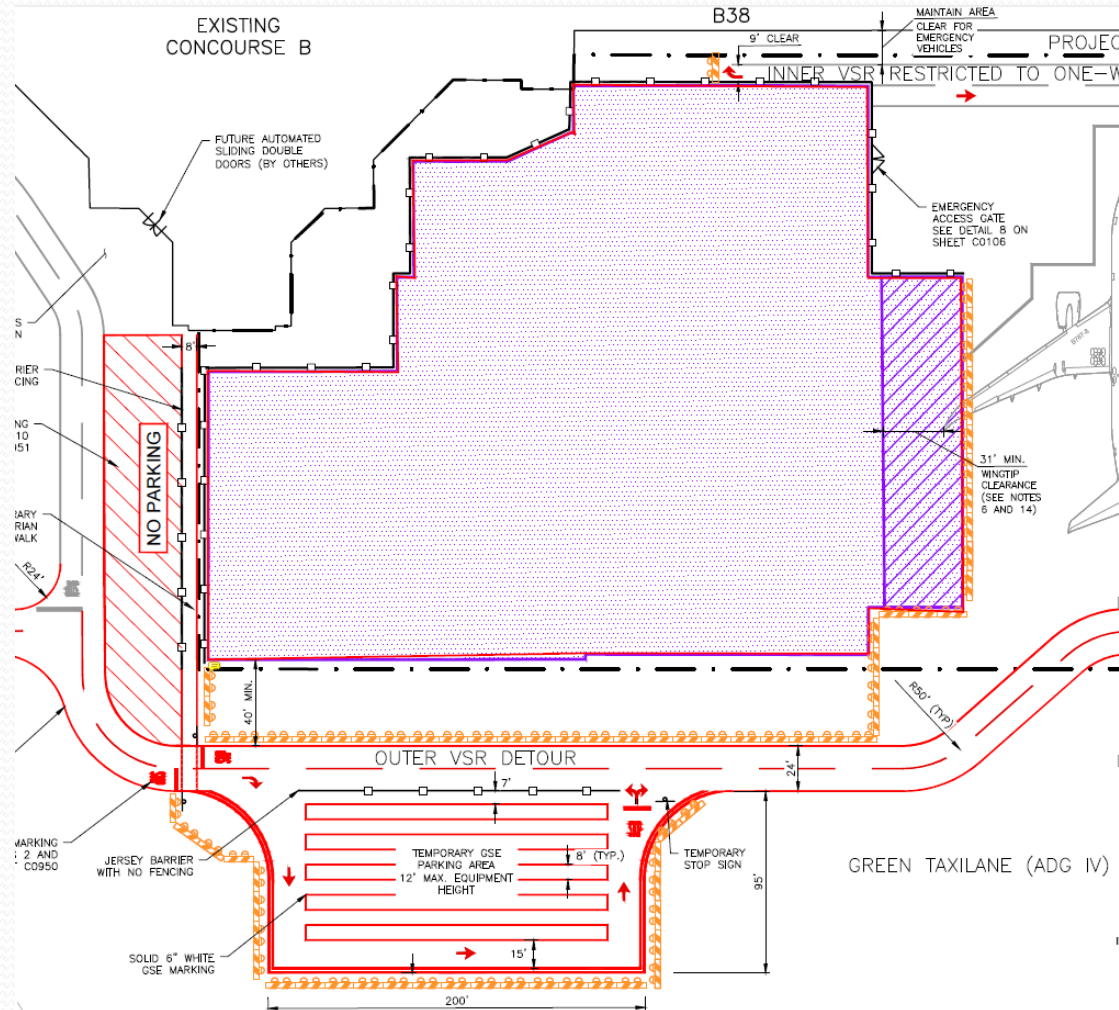
DEN Gate Apron Rehabilitation and Drainage Improvements (GARDI)

Asphalt Treated Permeable Base (ATPB) under PCCP
Mix Design Specification Considerations

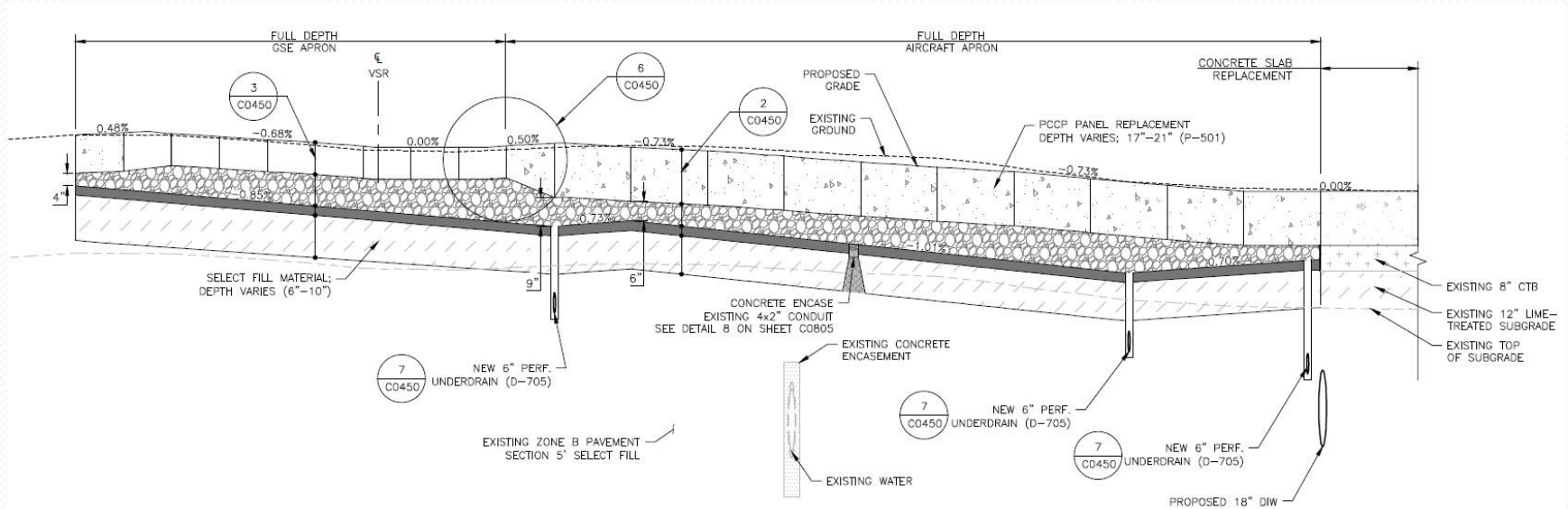
Grant Cruseturner
Brannan Sand and Gravel



Project Overview



Plan Typical Section



- Underdrains, 3" HMA, 4"-8" Variable ATPB, and 17" to 21" PCCP

Challenges

- Traditionally used ATPB will not stand up to the construction loads due to its lack of stability. Concrete paving equipment would rut and damage a traditional mix designs. Thus, needing a more stable ATPB mix design.
- Modified ATPB specifications successfully used in other regions could not be produced using locally sourced materials.
 - Local aggregate could not consistently meet ASTM C 131 – LA Abrasion limit.
 - Modified 70-22 Asphalt Cement is not readily available.

Solutions

- By working with DEN and their engineers, we developed a revised specification that was compatible with locally available materials.
 - Raised the limit slightly (5%) on the ASTM C 131 - LA Abrasion. To ensure that this change was not detrimental, we added an ASTM D6928 – Micro Deval specification.
 - Used PG 76-28 asphalt cement to increase strength and stability.

Lessons Learned

- Every region of the country has its own unique challenges that need to be considered when specifying materials for a project. Colorado is no exception.
- By involving local contractors and engineers in the specification discussion early, we can find solutions to efficiently meet the owner's requirements using locally sourced materials.