



# EARTH SYSTEMS

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November 7, 2023

FILE NO.: 306369-001

Ms. Kerry Davenport  
Independence Ranch CSD  
Hog Canyon Road  
San Miguel, California 93451

**PROJECT:** INDEPENDENCE RANCH COMMUNITY SERVICES DISTRICT  
VARIOUS STREETS  
SAN MIGUEL, CALIFORNIA

**SUBJECT:** Report of Existing Pavement Conditions and Recommendations for Future Roadway Rehabilitation

**REF:** Proposal for Geotechnical Pavement Assessment, Independence Ranch Community Services District, Various Streets, San Miguel, California, by Earth Systems Pacific, Doc. No. SLO-2201-035.PRP.REV, dated January 19, 2022, revised August 4, 2023.

Dear Ms. Davenport:

In accordance with your authorization of the above referenced proposal, this pavement assessment and subsequent recommendations have been prepared for your records and for the purpose of future roadway maintenance planning of the Independence Ranch Community Services District (CSD).

## SCOPE OF SERVICES

Our scope of services for this project was to perform a visual assessment of the roadways within the CSD and prepare this report to identify potentially problematic areas of the pavement and indicate relative severity from a geotechnical perspective related to the pavement surfacing.

## EXISTING CONDITIONS

Independence Ranch is a CSD in San Miguel, California, located approximately 4 miles north of Highway 46. The eastern entrance to the CSD is located near the intersection of Independence Ranch Place and Pine Hawk Way. We understand Independence Ranch CSD contains about 125 lots and 9 miles of roads and the roads are generally a series of chip seals over site soils with between one and three chip seal layers. Currently, the surface of the pavement appears to have been maintained with chip seal, crackfill, and pothole patching.

## FIELD ASSESSMENT

Generally, the surface of the pavement has been maintained such that most of the fines are still present in the surface of the asphalt. Although the chip seal, crackfill, and pothole patching have preserved the surface of the pavement and prolonged the effects of age and moisture intrusion, we observed potholing,



edge and wheel path cracking, and patch deterioration present throughout the Independence Ranch CSD, and failure in some areas is more pronounced than others. Existing roadway photos are attached and provide examples of pavement failures observed within the CSD.

### ANALYSIS AND RECOMMENDATIONS

Based upon visual assessment of the pavement surface, portions of Gray Hawk Way and other isolated areas within the CSD appear in relatively good condition considering the relatively thin pavement section and improvement efforts could be considered within two to four years. Other streets in the CSD require maintenance this year to reduce the rate at which the failed areas will expand. Potential minor rehabilitation options are as follows:

**Option 1:** The first recommendation for pavement maintenance within Independence Ranch CSD is to perform hot mix asphalt (HMA) digouts in areas of prominent patch deterioration and settlement. Digouts should be ground to a depth of 4 inches and have HMA placed and compacted to a minimum of 92% relative compaction. Existing cracks should then be routed and crackfilled to minimize the amount of moisture that is able to permeate the surface and cause additional degradation of the pavement. After digouts are installed and cracks are filled, a chip seal should be placed. The chip seal, which consists of a layer of oil followed by a layer of small aggregate compacted into the oil and provides a two-fold benefit of rejuvenating the existing pavement surface with the oil that is placed as well as providing a wearing course with the aggregate that is placed. Although more costly than a just a chip seal, it is our opinion that this option will extend pavement life more effectively than Option 2 by as much as two to three times.

**Option 2:** A secondary recommendation for pavement maintenance within the development with reduced initial costs is to aggregate base in the failed areas and compact to a minimum of 95% relative compaction. Existing cracks should then be routed and crackfilled to minimize the amount of moisture that is able to permeate the surface and cause additional degradation of the pavement. Finally, a chip seal should be placed on the surface of the pavement and aggregate base. We note that a chip seal is generally not used as a primary roadway section, but since it has been used in the CSD due to the relative expense of traditional pavements, it has been included as an option. Although this option is initially less expensive, we believe that maintenance will be needed on a more frequent basis with the selection of this option with additional chip seal placement every 3 to 5 years.

For planning purposes, it is anticipated that additional chip seal layers should be planned no more than 5 years apart or major rehabilitation will be needed in approximately 15 years, based upon the existing conditions and current traffic. Major rehabilitation may include milling the existing pavement off, compacting existing base, and replacing with hot mix asphalt in kind. Some areas, specifically areas with significant potholing and settlement related to subgrade/patch failure and utilities, will likely need to be reconstructed, including the aggregate base, at that time also.

As conditions change over time with increase aging and traffic, it would be beneficial to have subsequent assessments made on a 4 to 6-year cycle. These assessments should be intended to make additional




recommendations based upon the conditions at the time. Further, it is important to perform minor and/or major rehabilitation operations prior to the deterioration of the roads which may then require reconstruction.

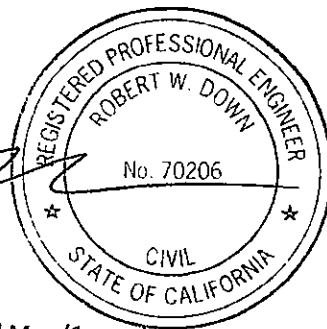
General Recommendations

1. Finished paved and unpaved pavement surfaces should be sloped to freely drain toward appropriate drainage facilities. Water should not be allowed to stand or pond on or adjacent to pavement as it could infiltrate into the base and/or subgrade, causing premature pavement deterioration.
2. As noted in many of the attached photos, drainage patterns should be made such that the storm water does not erode the pavement edges or surface.
3. To reduce migration of surface drainage into the subgrade, maintenance of pavement areas is critical. Any cracks that develop in the pavement should be promptly sealed.
4. A program of chip sealing of the new pavement should be established, based upon the Community Services District's maintenance program.
5. To reduce the potential for undermining of pavement sections, rodent activity should be aggressively controlled.

We appreciate the opportunity to have provided services for this project and look forward to working with you again in the future. If there are any questions concerning this report, please do not hesitate to contact us.

Sincerely,  
Earth Systems Pacific

  
Rob Down, PE  
Principal Engineer



  
Jennifer Campbell,  
Project Engineer



Attachments: Parcel Map (1 page)  
Existing Roadway Photos (18 pages)

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