

Section B

SURFACE AND POINT SOURCE EROSION (ROADS/SKID TRAILS)

INTRODUCTION

The surface and point source erosion module examines the past and present soil erosion from roads and skid trails of the Mendocino Redwood Company (MRC) ownership in the Greenwood Creek watershed, the Greenwood watershed analysis unit (WAU). This module also provides a hazard assessment of the potential for future surface and point source erosion from roads in the Greenwood WAU. The potential erosion assessment is to assist in development of mitigation measures and actions to minimize future soil erosion from the road network. The road data that is the basis for most of this analysis was collected by MRC during a 100% road inventory of the Greenwood WAU. The erosion estimates utilize a combination of field observations and the use of the surface erosion model presented in the Standard Methodology for Conducting Watershed Analysis (Version 4.0, Washington Forest Practices).

Surface erosion is defined as the removal of soil particles from the surface of the soil. Processes such as rill erosion, sheetwash, biogenic transport (animal burrows, treefall, etc.) and ravel are considered surface erosion. Gullies, road crossing wash-outs, and large erosion features created by erosion from overland flow of water are considered point source erosion. In contrast, the largest discrete erosion events, landslides, are considered mass wasting.

This report examines road and skid trail associated surface and point source erosion delivering sediment into watercourses. Excessive levels of fine sediments from surface and point source erosion can get trapped in porous streambed gravels; and can increase water turbidity and suspended sediment concentrations. Excessive coarse sediments from point source erosion can adversely affect stream channel morphology. These can reduce the survival of salmonids in their redds or affect habitat needs and physiological characteristics of rearing salmonids. Excessive surface and point source erosion when delivered to a watercourse can also affect other downstream uses such as water supplies, agricultural diversions and recreation users. It is important that best management practices be utilized in forest management operations to minimize the impacts of surface and point source erosion.

SURFACE AND POINT SOURCE EROSION FROM ROADS

Methods

A 100% road inventory of the roads within the Greenwood WAU was conducted. The road inventory consisted of traveling all roads with a Global Positioning System (GPS) unit and identifying, mapping and inventorying all major features of the road network. Some of the features that are inventoried include watercourse-crossings and crossing structures (culverts, bridges, etc.), landings, erosion features and controllable erosion amounts (as defined below).

Information relating to erosion and sediment delivery from the road inventory is analyzed in this report. Dimensions of the road network such as length, width and sediment contributing road lengths are also summarized. The road inventory collects information on the entire road infrastructure. This road infrastructure information allows for better management and tracking of the road network.

All road features (watercourse crossings, landings, road fill, etc.), during the road inventory, have the past deliverable point source erosion volume estimated for that feature. Deliverable point source erosion from a road is defined as major rills or gully erosion which is observed in close proximity to a watercourse or which showed evidence of eroding directly into a watercourse. These measurements were used to calculate the volume of point source erosion delivered from the road. The volume of erosion was converted to a weight (in tons) assuming a soil bulk density of 100 lbs/cubic foot. All observed sediment delivery from surface or point source erosion is assumed to have occurred within the past 10 years, unless there is information otherwise.

Future or potential point source erosion (gully or road fill wash-outs, not sheetwash) observations were also collected during the road inventory. This potential future erosion is called controllable erosion, a term developed by the North Coast Regional Water Quality Control Board for Total Maximum Daily Load (TMDL) purposes. Controllable erosion is defined as soil that could potentially deliver to a watercourse in the next 40 years (the duration of a TMDL), is human created, and can be reasonably controlled by human actions. Typically, controllable erosion is a measure of the fill material from a road that could erode if a road feature is left un-maintained or fails in the next 40 years. The controllable erosion amount is the volume of soil that can be controlled with high design standards for a road feature (i.e. watercourse crossing, side-cast fill, etc.).

The controllable erosion sites are further designated by the potential for sediment delivery and the immediacy of treatment for the site. Both the sediment delivery potential and the treatment immediacy are ranked low, moderate, or high. The ranking of each controllable erosion site by these variables provides a hazard or risk assessment of the controllable erosion. This allows prioritization of road improvements and erosion control work based on potential point source erosion hazard.

Another important variable of potential future point source erosion from a road is the likelihood of diversion of water down the road prism. This diversion potential, as it is called, was evaluated for every watercourse crossing of every road in the Greenwood WAU. A site has a diversion potential if when the watercourse crossing plugged, dammed or failed water could be diverted out of the “natural” watercourse channel and down the road prism. Water diverted out of its “natural” channel would erode the road prism creating potentially high sediment delivery. Sites with a diversion potential can be engineered such that the diversion of water down a road prism does not occur if the watercourse crossing plugged, dammed, or failed.

A prioritization of potential point source erosion sites for the Greenwood WAU is presented (Appendix B). This prioritization is based on amount of controllable erosion of the site, the treatment immediacy, and a high diversion potential.

Proper culvert sizing is another important characteristic for consideration of road erosion potential. Culverts that do not have the capacity to pass debris, water and sediment in high flow events can plug creating road prism failures with high sediment inputs. MRC currently designs all new culvert installations to pass the 100 year flood to ensure enough capacity in the pipe to

pass water, debris and sediment in high flows. To determine if culvert sizing is appropriate for existing culverts the area behind each culvert inventoried was determined from topography data in the MRC Geographic Information System (GIS). The regression equation for the North Coast region (Waananen and Crippen, 1977) is used to predict the 50 and 100 year peak flow. A culvert sizing nomograph is used to determine the appropriate size for 50 and 100 year peak flow magnitudes and the predicted size are compared to the existing culvert sizing to determine if the culvert is large enough.

The culvert sizing analysis must be interpreted carefully as it was often difficult to tell what area of watershed drained to a culvert from a map based analysis. This culvert sizing analysis is only meant to be “first cut” at determining if a culvert is properly sized. From this analysis a field visit to the site will determine if indeed the appropriate watershed drainage area was used and the culvert is indeed under-sized. The results from the culvert sizing analysis are presented in Appendix B.

Surface erosion (sheetwash and minor rills) from roads was not directly estimated in the field. The contributing length or extent of road that delivers erosion to a watercourse is measured in the field then used for surface erosion calculations. The contributing length of a road is the length of road prism that drains water and associated eroded soil into a watercourse. Thus it defines the length of surface erosion of any particular site on the road. The model used to calculate surface erosion from roads is from the Standard Methodology for Conducting Watershed Analysis (Version 4.0, Washington Forest Practices Board) and is described below.

Surface erosion from the road surface is influenced by the amount of road traffic (high use mainline, moderate use, active secondary, etc.), the type of road surface material, precipitation, width and size of road (the more surface area to erode, the more erosion), and vegetative cover (Reid, 1981). The Standard Methodology for Conducting Watershed Analysis (Version 4.0, Washington Forest Practices Board) provides relationships based on these factors to estimate the amount of surface erosion from different road types and conditions.

Field observations from the road inventory determined the length of the road delivering sediment to a watercourse (contributing length) from individual features of the road (culverts and crossings), the road width, the road surface material and the type of road (seasonal or temporary) to aid in the surface erosion calculations.

The road inventory lacked contributing road length for road segments adjacent to a watercourse but not associated with a culvert or crossing. Using an analysis from GIS the amount of road within 50 feet, 50-100 feet and 100-200 feet of a watercourse was determined. It was assumed that within 50 feet, 100 percent of erosion from the road delivers sediment to a watercourse. At 50-100 feet 35 percent and at 100-200 feet 10 percent of erosion from the road was assumed to deliver sediment to a watercourse. These assumptions were based on sediment delivery ratios used in a road erosion model called SEDMOD.

The following model parameters were used to calculate surface erosion from roads in the Greenwood WAU. All of the observed roads were assumed to be older than 2 years, a base erosion rate of 60 tons/acre/year was used. This initial value was altered (multiplied) by the factors of traffic on the road, cut- and fill-slope vegetation cover, road surface type, annual precipitation, and road type in an attempt to model the actual sediment volume contributed by a given road segment. The road tread width was determined in the field during the road inventory and is assumed to be 40% of the road prism. The cut- and fill-slopes are assumed to 60% of the

road prism; their dimensions for the surface erosion model were determined by multiplying the tread width by 1.5.

Road cut- and fill-slopes usually had approximately 50% vegetative cover, giving a cover factor of 0.37. The majority of hauling on roads occurs during drier times of the year (i.e. late spring, summer and early fall). Therefore the lowest annual precipitation category is used (<47 in. precipitation annually). In this annual precipitation category a road with at least a 6 inch rock surface is given a factor of 0.2, while a native surface road has a factor of 1.

There were 3 traffic factors used in surface erosion modeling:

- 1) *Mainline roads with moderate traffic* have a factor of 2; these roads are used for log haul traffic 2-3 times each decade.
- 2) *Seasonal roads* have a traffic factor of 1.2; these are tributary roads which receive moderate log haul traffic 1-2 years each decade and light traffic the remainder of the time.
- 3) *Temporary roads* receive a traffic factor of 0.61; these roads receive moderate log haul traffic 1-2 times per every 1-2 decades with little to no use in between.

The result of the surface erosion modeling is added to the total past point source erosion observed during the road inventory from a given road and presented as tons/year of sediment delivery (see Appendix B for erosion estimates of each road in the Greenwood WAU). For relative sediment contributions from each planning watershed for road-associated sediment input evaluation, the tons/year calculations for all roads was totaled by planning watershed and normalized by dividing by the MRC ownership, in square miles, for the planning watershed. The result is a tons/square mile of MRC ownership/year estimate of road surface and point source erosion.

Finally, with this information each road in the Greenwood WAU is assigned an erosion hazard class. The erosion hazard class is used to classify the roads in the Greenwood WAU by their current and potential erosion hazard. The erosion hazard class was determined by the amount of erosion a road produced and the likelihood for that erosion to be delivered to a watercourse. High levels of traffic, road surface, proximity to the stream, high past point source erosion, and high modeled surface erosion all were considered when ranking roads for their erosion hazard. The roads with the highest risk of sediment delivery and soil erosion were given a high erosion hazard classification. The roads with medium risk of sediment delivery and soil erosion were given a moderate erosion hazard classification. The roads with the lowest risk of sediment delivery and soil erosion were given a low erosion hazard classification. A description of what each erosion hazard classification means can be found in the results and discussion sub-section of this report.

Results and Discussion – Roads

The road erosion hazard rating for each road in the Greenwood WAU is presented on Map B-1 and for each individual road in Appendix B of this report. The categorizing of roads into hazard classes is intended to identify current problem areas, consider reconstruction and prioritize maintenance. The following are the definitions for each road erosion hazard class.

High Road Erosion Hazard Class - These roads have the highest amount of recent deliverable surface erosion to watercourses and a high potential for future deliverable erosion. These roads can be active, abandoned or closed. Often roads in this class are close to watercourses creating a

high sediment delivery potential. Erosion is typically due to long contributing road lengths or road with native surfaces near watercourses: a result of too few waterbars and/or rolling dips or lack of rock surface. Erosion may also be a product of problem areas such as watercourse crossing wash-outs, poor road drainage, plugged road watercourse crossings, water diverted down the road surface, culverts not fitted with downspouts, etc. Active roads in this class should get the highest priority for maintenance or improvements. Closed roads in this class will need improvements before opening again. Opening abandoned roads in this class should be avoided.

Moderate Road Erosion Hazard Class - These roads have moderate amounts of recent deliverable surface erosion to watercourses and potential for future deliverable erosion. These roads can be active, abandoned or closed. Erosion problems on roads in this class can usually be handled with good road maintenance. Erosion is typically from problem areas such as poor road drainage, water diverted down the road surface, culverts not fitted with downspouts, and an occasional plugged culvert or watercourse crossing wash-out. Active roads in this class should be a priority for maintenance. Closed or abandoned roads in this class will need some improvements before opening again.

Low Road Erosion Hazard Class - These roads have low amounts of recent deliverable surface erosion to watercourses and low potential for future deliverable erosion. These roads can be active, abandoned or closed. Active roads in this class do not need to be a priority for maintenance. Closed or abandoned roads in this class will need only some improvements before opening again.

The mapped roads and road features (culverts, crossings, and landings) are presented in map B-2 for the Greenwood WAU. The associated treatment immediacy of the road feature is also shown on these maps. Potential controllable (point source) erosion sites were identified and prioritized in the Greenwood WAU. In the Greenwood WAU 115 controllable erosion sites have high treatment immediacy and 51 controllable erosion sites have moderate treatment immediacy. In addition to these controllable erosion sites 241 culverts or crossings in the Greenwood WAU have a diversion potential. These diversion potential sites need to be considered a high priority for road improvement as they can represent a significant potential point source erosion hazard. The site identification, treatment immediacy and amount of controllable erosion estimated are found in Appendix B of this report.

The culvert size analysis has determined that, out of a total of 108 culverts, 67 (62%) are potentially too small to pass the 50 year flood and 69 culverts (64%) will not pass the 100 year flood. The analysis of culvert sizing is only an estimate based on culvert location from the MRC road inventory and area behind the culvert based on MRC GIS topographic data. A field review will be required at each site to validate the culvert size analysis results and determine if the culvert is indeed under-sized. However, the identification of these culverts as under-sized is a good hypothesis to work from and provides information to address potential road problems in Greenwood WAU. These culverts identified as potentially too small need to be a high priority for upgrade if after field review the culverts are determined to be under-sized. The culvert sizing results are found in Appendix B of this report.

It was determined that there are 108 miles of truck roads in the Greenwood WAU (skid trails not included). This represented an average road density of 7.5 miles of road per square mile of property owned by MRC. Table B-1 breaks down the road lengths and densities by planning watershed for the Greenwood WAU.

Table B-1. Road Lengths and Density by Planning Watershed for the Greenwood WAU.

Planning Watershed	Road Length (miles)	Contributing Road Length (miles)	Road Density (mi/sq mi)
Lower Greenwood Creek	68.7	9.7	7.3
Upper Greenwood Creek	36.3	6.7	6.3
<i>Greenwood WAU Total</i>	<i>108.4</i>	<i>16.5</i>	<i>7.5</i>

Road densities are something that should be managed for in the Greenwood WAU. Not all roads can be abandoned, but by converting many of these roads to a temporary status or putting them to bed after use, the amount of road that can contribute erosion at any given time is reduced.

The surface and point source erosion estimates by planning watershed are presented in Table B-2. The breakdown of estimated erosion, road lengths and hazard rating by individual roads is in Appendix B of this report. Roads in the MRC ownership in the Greenwood WAU are estimated to generate, on average, 750 tons/mi²/yr of sediment from road-associated surface and point source erosion. This rate of erosion from roads within the Greenwood WAU is relatively high in comparison with other typical erosion rates on MRC land and is mainly due to high levels of point source erosion.

Table B-2 Road Associated Surface and Point Source Erosion Estimates by Planning Watershed for the Greenwood East Tract, Greenwood WAU.

Planning Watershed	MRC Owned (sq mi)	Surface Erosion (tons/sq mi/yr)	Point Source Erosion (tons/sq mi/yr)	Total (surface + point source) (tons/sq mi/yr)
Lower Greenwood Creek	9.4	410	340	750
Upper Greenwood Creek	5.7	340	420	760
<i>Greenwood WAU Total</i>	<i>15.1^a</i>	<i>380^b</i>	<i>370^b</i>	<i>750^b</i>

Upper and Lower Greenwood Creek planning watersheds have high rates of road associated erosion. In both cases the roads in the planning watersheds have a high amount of point source erosion. This probably indicates older legacy roads that are having a high amount of culvert or landing failures or inappropriate drainage creating gully erosion. These planning watersheds with a high rate of erosion should be considered priorities for erosion control work when considering work in a watershed context (i.e. “buttoning-up the entire watershed”).

The future potential for point source erosion was evaluated in the Greenwood WAU. This potential erosion or controllable erosion was identified during the road inventory during 2000-2003. A total of 45,224 cubic yards of controllable erosion was identified in the Greenwood WAU (Table B-3).

^a Sum of property ownership within the Greenwood WAU

^b Weighted average by ownership

Table B-3. Controllable Erosion Estimates by Road Feature and Treatment Immediacy for the Greenwood WAU.

Location	Controllable Erosion Treatment Immediacy (yd ³)			
	High	Moderate	Low	None
Culverts	5350	285	7318	
Crossings	676	1683	13195	50
Landings	107	800	3426	
Erosion Features	0	1250	863	
Road slides	278	3403	6540	
Total	6411	7421	31342	50

The majority of controllable erosion sites are at culverts and watercourse crossings. However, a large amount of controllable erosion is associated with road slides, particularly in Lower Greenwood Creek. There are a total of 108 controllable erosion sites at landings with a treatment immediacy of none and of those 108 sites, 62 have an undetermined amount of controllable erosion volume. The high treatment immediacy sites in Lower and Upper Greenwood Creek should be addressed first (Table B-4) with culverts comprising the bulk of the yardage.

Table B-4. Controllable Erosion by Treatment Immediacy for the Greenwood WAU.

PLWS Name	Treatment Immediacy	Culverts (yd ³)	Crossings (yd ³)	Landings (yd ³)	Erosion Sites (yd ³)	Road Slides (yd ³)	Total (yd ³)
Lower Greenwood	High	3022	500			35	3557
Lower Greenwood	Moderate	70	700		1000	2542	4312
Lower Greenwood	Low	4292	8441	2480	396	4805	20414
Lower Greenwood	None		20				20
Upper Greenwood	High	2328	176	107		243	2854
Upper Greenwood	Moderate	215	983	800	250	861	3109
Upper Greenwood	Low	3026	4754	946	467	1735	10928
Upper Greenwood	None		30				30

Fish passage barriers in the Greenwood WAU

There is only one identified barrier to fish passage in the Greenwood WAU. This is the dam on the Pond tributary to Greenwood Creek. This dam is an earthen structure with culverts and a bypass channel for water during high flows. This dam has been on this tributary for approximately 40-50 years.

Road Associated Erosion Control Measures for the Greenwood WAU 1998-2002

Since Mendocino Redwood Company's ownership in Greenwood Creek 1998 through 2003 MRC has conducted erosion control and road upgrade work to address and improve road erosion sites. During 1998-2003 approximately 10,205 cubic yards of controllable erosion has been controlled. This amount of erosion controlled represents approximately 18% of the total controllable erosion estimated for the Greenwood WAU. This percentage is calculated by dividing the amount of erosion controlled (10,205 cubic yards) by the sum of the amounts of

controllable erosion and erosion controlled (45,224 plus 10,205 equals 55,429 cubic yards). The following section summarizes those road updates and erosion control projects. Map B-3 displays road work completed since 1998.

Table B-5. Treated Controllable Erosion by Area for the Greenwood WAU, 1998-2003.

Year	Area Name	Brief Work Description	Controlled Erosion (yd ³)
1998	S. Morrison	Culvert armoring, rocked fords and road outsloping	150
1998	Odd Lots	Rocking road within WLPZ	50
1999	Long Ride	Rocked fords & road outsloping	200
1999	Cabin	Culvert armoring, rocked fords & road outsloping	1,000
1999	Longer Ride	Rocked fords & road outsloping	200
2000	S.E. Trestle	Rocked fords & road outsloping	350
2000	Valenti	Road outsloping	50
2000	S. Long Ridge	Road outsloping & rocked fords	175
2000	North Corrals	Road outsloping & rocked fords	200
2001	Section 14	Road outsloping & rocked fords	750
2001	N.W. Morrison	Road outsloping & rocked fords	300
2001	West Morrison	Road outsloping, rocked fords & skid trail re-alignment	400
2003	Lower North Greenwood	Road outsloping, rocked fords and road rocking	1,500
2003	Section 20	Road outsloping and rock fords	750
2003	West Two Frog	Road outsloping, rocked fords road rocking and permanent bridge	2,000
2003	Valenti Gulch	Road outsloping	250
2003	Rice 40	Road outsloping and rocked ditch	400
2003	USG2K	Road outsloping, rocked fords and road rocking	1,000
2003	North Cabin	Road outsloping and rocked fords	500

Treated Controllable Erosion Total for Greenwood WAU 1998 = 200 cubic yards
Treated Controllable Erosion Total for Greenwood WAU 1999 = 1,400 cubic yards
Treated Controllable Erosion Total for Greenwood WAU 2000 = 775 cubic yards
Treated Controllable Erosion Total for Greenwood WAU 2001 = 1,450 cubic yards
Treated Controllable Erosion Total for Greenwood WAU 2003 = 6,400 cubic yards

Treated Controllable Erosion Total for Greenwood WAU 1998-2003 = 10,205 cubic yards

SURFACE AND POINT SOURCE EROSION FROM SKID TRAILS

Methods

Sediment delivery from surface and point source erosion from skid trails was determined from aerial photograph interpretation and sediment delivery estimates developed in previous MRC watershed analyses (MRC, 1998 and MRC, 2000). Aerial photographs were analyzed from 1972, 1981, 1988 and 2000 with scales of 1:20,000, 1:20,000, 1:20,000, and 1:13,000, respectively. The aerial photographs were used to identify skid trail activity. The 1972 through 1988 aerial photographs were checked out at the Mendocino County Assessor's Office in Ukiah. The 2000 aerial photographs were used from Mendocino Redwood Company's collection.

The aerial photograph interpretation for skid trail activity consisted of determining the area harvested by ground based yarding by skid trail density (high, moderate, low) for each photo year. High-density skid trail activity is defined as having greater than 100 watercourse crossings per square mile. Moderate-density skid trail activity is defined as having between 50-100 watercourse crossings per square mile. Light skid trail density has less than 50 watercourse crossings per square mile or trails with significant re-vegetation observed in the aerial photograph.

The amount of sediment delivery from the various densities of skid trail activity was estimated from sediment delivery rates during previous watershed analyses by MRC (MRC, 1998 and MRC, 2000). A combination of surface erosion modeling and field observations of point source erosion from skid trails, from previous watershed analysis, was used to develop the skid trail estimates. High skid trail density is estimated to contribute 600 tons/square mile/year of sediment. Moderate skid trail density is estimated to contribute 400 tons/square mile/year of sediment, while low skid trail density contributing 100 tons/square mile/year. Results from the South Fork Caspar Creek in the early 1970's suggested that high density tractor logging, with practices used at that time, generated approximately 600 tons/square mile/year (Rice et. al., 1979).

For each photo year the area in each skid trail density category was multiplied by the sediment delivery rate for that density. The estimate was then divided by the MRC ownership in each Calwater planning watershed to provide a sediment rate (tons/square mile/year) for each planning watershed. The estimated rate was then assumed to represent the decade previous to the photo year observed (i.e. 1972 photos represent activity in the 1960s).

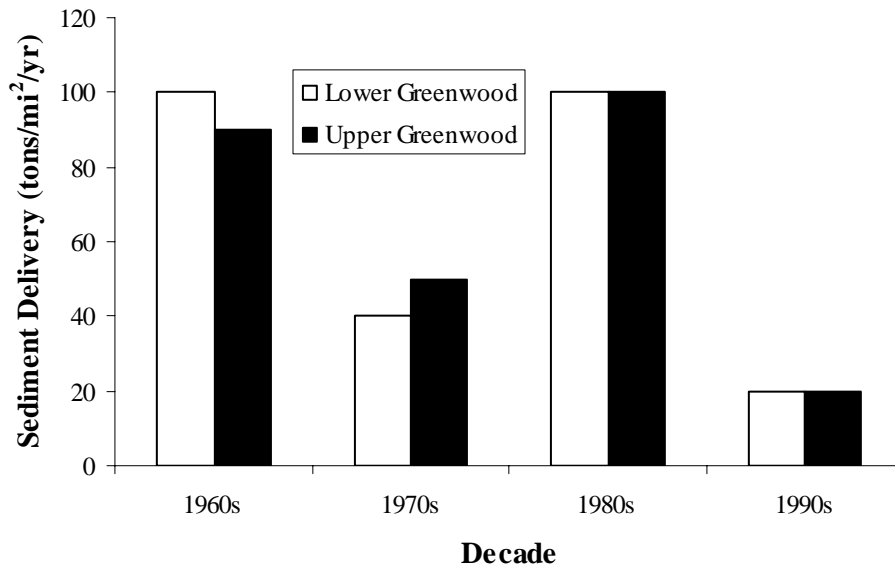
Results and Discussion - Skid Trail Erosion

The results by time period for the skid trail sediment delivery estimates are summarized in Table B-3 and Figure B-1. The estimates should be considered a minimum sediment delivery for skid trails constructed and used in the decade. Undoubtedly, some if not many, sediment delivering skid trails were vegetated enough to be overlooked during the inventory. In particular are those trails constructed or used greater than five years prior to aerial photograph reconnaissance.

Table B-3. Skid Trail Sediment Delivery Rates by Decade and Planning Watershed for Greenwood WAU, 1960s-1990s.

Planning Watershed	Skid Trail Erosion (tons/mi ² /yr)			
	1960s	1970s	1980s	1990s
Lower Greenwood	100	40	100	20
Upper Greenwood	90	50	100	20

Figure B-1. Skid Trail Sediment Delivery Rates by Decade and Planning Watershed for Greenwood WAU, 1960s-1990s.



In the Greenwood WAU, the majority of what is now the MRC ownership was harvested using tractor based yarding prior to the 1990s. This high level of skid trail construction and use is estimated to contribute a high level of sediment delivery. (See Figure B-1). In Greenwood Creek, both planning watersheds had their skid trail sediment delivery peaks during the 1960s or 1980s (no data was evaluated prior to 1960s). The 1970s had higher skid trail sediment delivery levels than the 1990s but not as high as the 1960s and 1980s.

In the 1990s skid trail sediment delivery rates diminished in all watersheds. This is a result of a combination of less harvest activity and stricter regulations on tractor based yarding use. Future skid trail sediment delivery rates will be lower than past rates because California Forest Practice Rules and MRC policy mandate better managed tractor yarding activities. Better erosion control measures are used on skid trails such as increased water bar spacing and a practice by MRC of packing the trails with logging debris (slash), when available, after operations to prevent surface erosion. Furthermore, skid trail operation is limited next to watercourses and prohibited directly in watercourses.

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Rice, Raymond M.; Tilley, Forest B.; Datzman, Patricia A. 1979. A watershed's response to logging and roads: South Fork of Caspar Creek, California, 1967-1976. Res. Paper PSW-146. Berkeley, CA: Pacific Southwest Forest and Range Experiment Station, Forest Service, U.S. Department of Agriculture; 12 p.

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APPENDIX B
Surface and Point Source Erosion Module

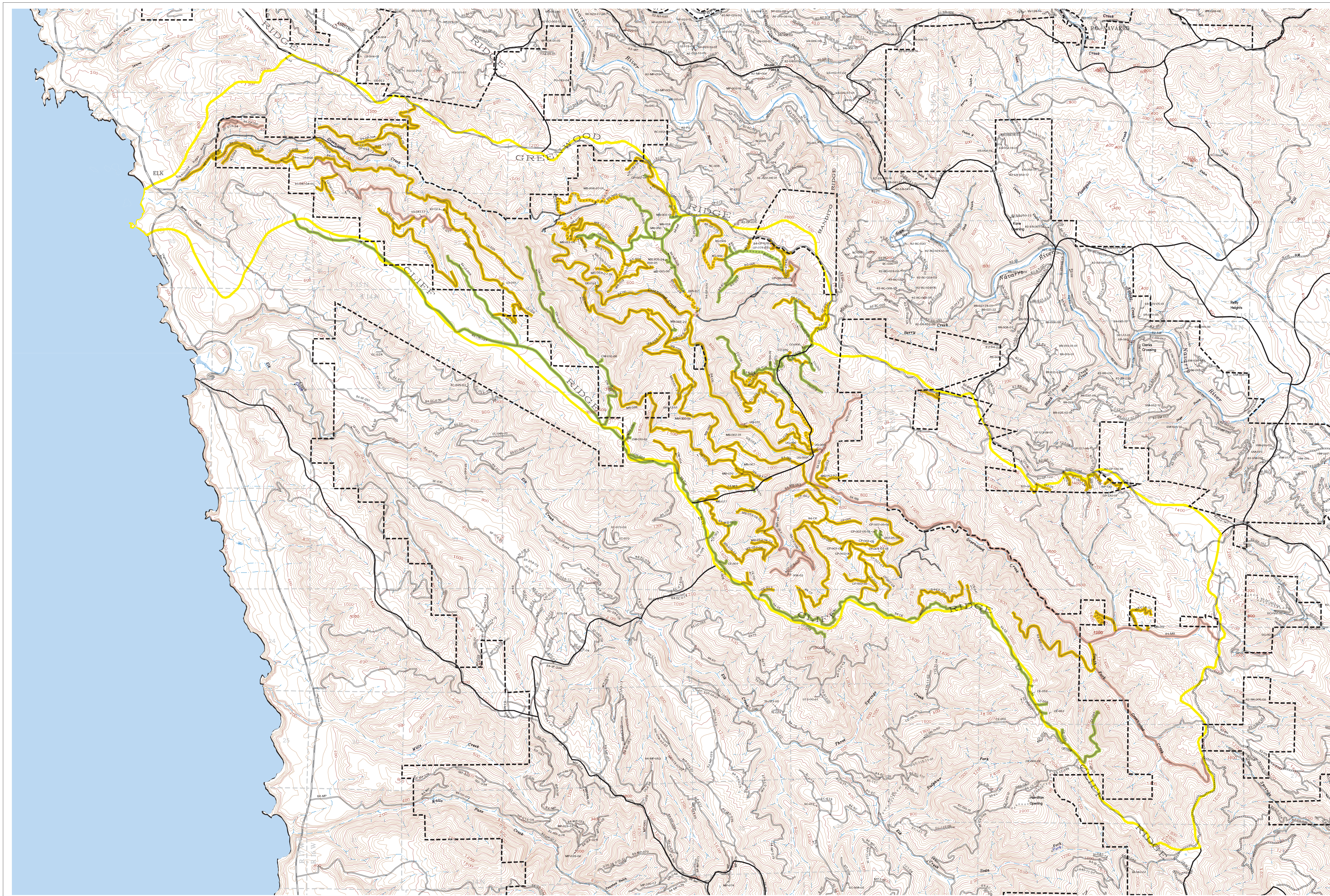
APPENDIX B
Surface and Point Source Erosion Module

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Surface and Point Source Erosion Module

Greenwood Creek Watershed Analysis Unit

Map B-1 Road Erosion Hazard Classifications

This map presents an erosion hazard rating for the MRC roads. High erosion hazard roads have the highest amount of recent deliverable surface erosion to watercourses and a high potential for future deliverable erosion. Active roads in this class should get the highest priority for maintenance or improvements. Closed roads in this class will need improvements before opening again. Opening abandoned roads in this class should be avoided. Moderate erosion hazard roads have moderate amounts of recent deliverable surface erosion to watercourses and potential for future deliverable erosion. Active roads in this class should be a priority for maintenance. Closed or abandoned roads in this class will need some improvements before opening again. Low Erosion Hazard roads have low amounts of recent deliverable surface erosion to watercourses and low potential for future deliverable erosion. Roads in this class only need small improvements before use. Historic roads are not given an erosion hazard rating since they receive little or no traffic and are not scheduled to be reopened in the foreseeable future.



Erosion Hazard Rating

- Low
- Moderate
- High

Transportation

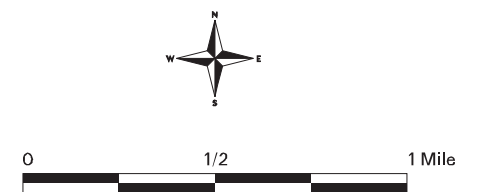
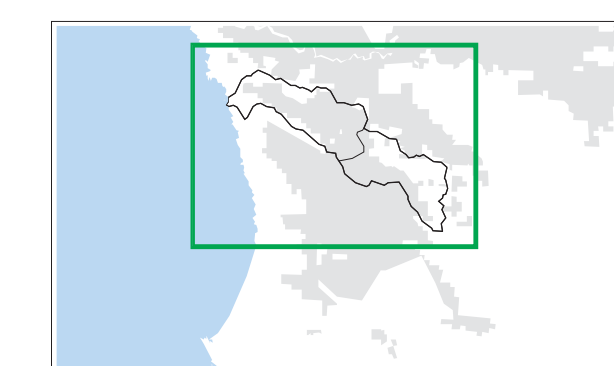
- Paved Road
- Rocked Road
- Native Road
- Jeep Trail
- Historic Road

MRC Ownership

- Planning Watershed Boundary
- Greenwood Creek Watershed Boundary

Flow Class

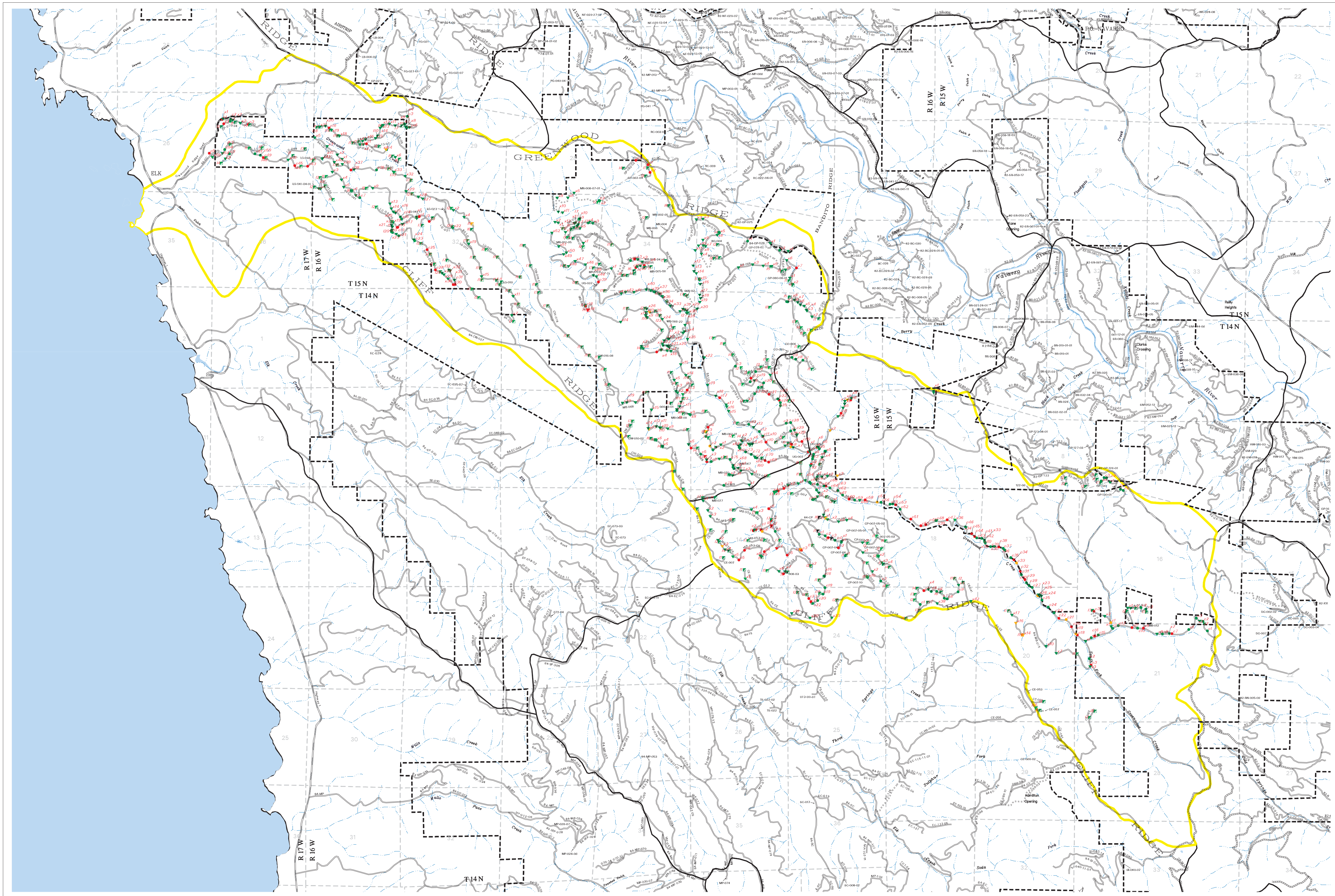
- Class I
- Class II
- Class III



**Greenwood Creek
Watershed Analysis
Unit**

**Map B-2
Road Feature
Treatment Immediacy**

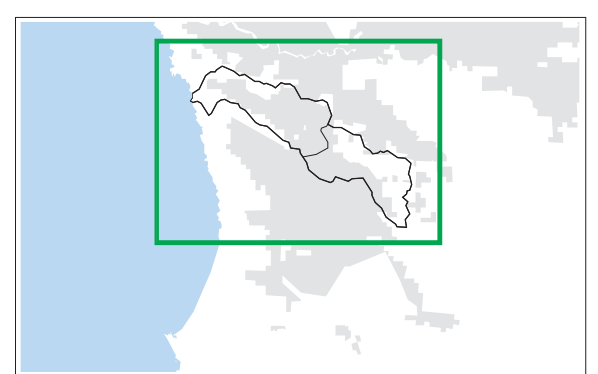
This map presents select results from MRC's road inventory. The entire road network and road features were mapped using geographic positioning system (GPS) from 2000-2003. For each feature with the potential to create erosion (culverts, landings, crossings) the treatment immediacy for the feature was assigned. The treatment immediacy represents the level of concern for either upgrading or maintenance to the feature.



- | | | |
|-----------------|------------------|-----------------|
| Culverts | Crossings | Landings |
| • High | ▼ High | ■ High |
| • Moderate | ▼ Moderate | ■ Moderate |
| • Low | ▼ Low | ■ Low |
| • None | ▼ None | ■ None |
| • Undetermined | ▼ Undetermined | ■ Undetermined |

- Transportation**
- Paved Road
 - - - - - Rocked Road
 - Native Road
 - Jeep Trail
- MRC Ownership
 --- Planning Watershed Boundary
 — Greenwood Creek Watershed Boundary

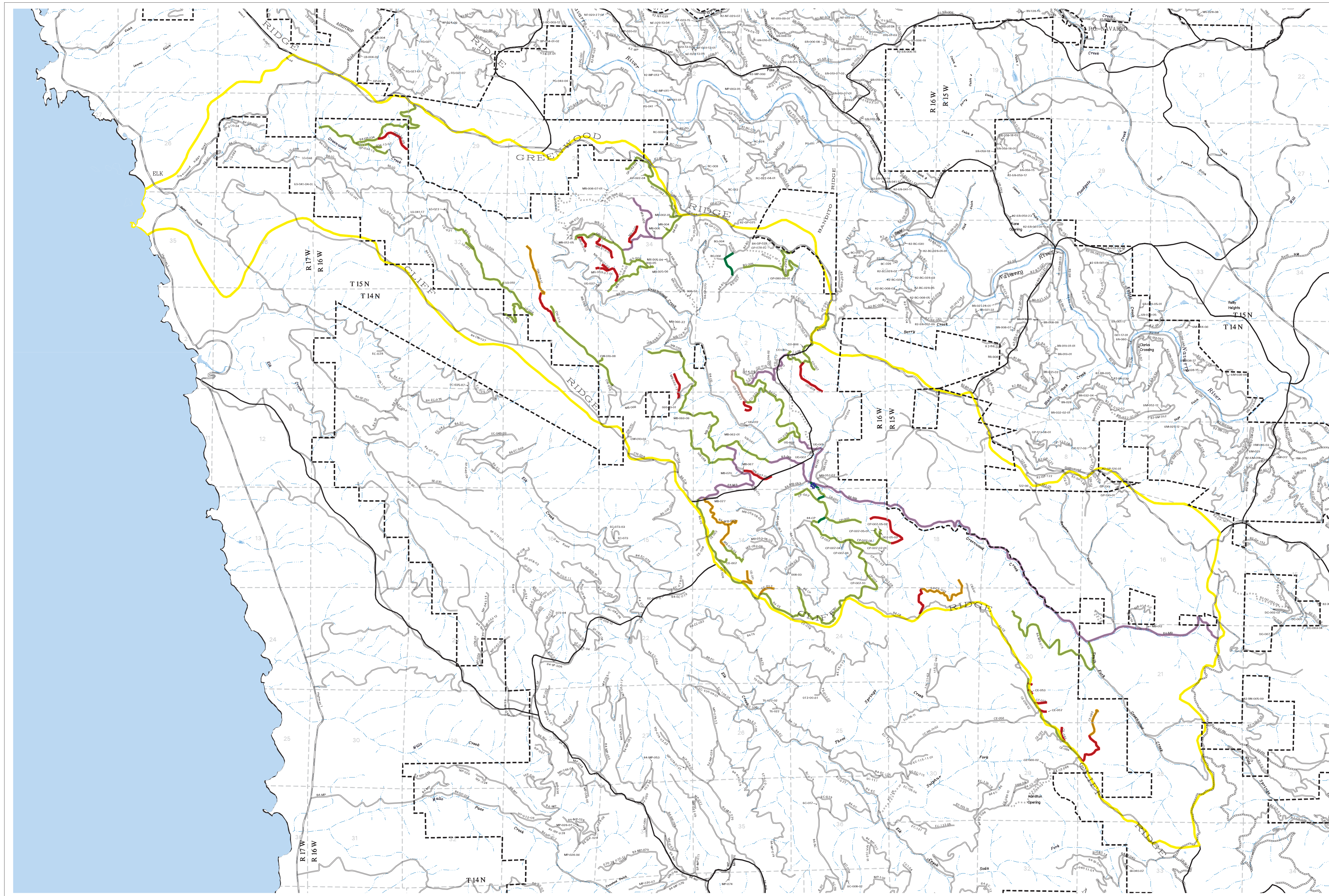
- Flow Class**
- Class I
 - Class II
 - Class III



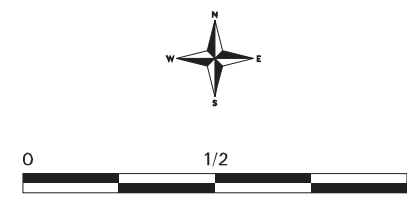
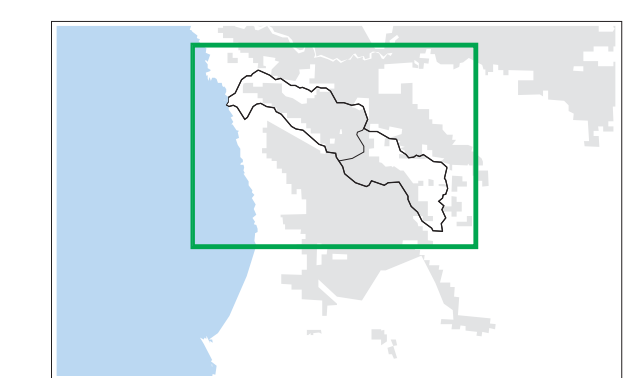
**Greenwood Creek
Watershed Analysis
Unit**

**Map B-3
Road Work**

This map presents road-associated erosion control work completed in the Greenwood WAU since 1998. This can include new road construction, road decommissioning, improvements to the road surface, or adjustments to the road prism. The road reconstruction category involves the re-opening of previously-used haul roads, whereas the major reconstruction category refers to roads that have been reconstructed from previously-used skid trails. Other road-associated erosion control work includes upgrades or replacements of major watercourse crossings such as bridge replacements or installations.



- Road Work**
- New Road Construction
 - Major Reconstruction
 - Road Reconstruction
 - Road Surface Improvement
 - Prism Alt./Drainage Structure Imprv.
 - General Maintenance (2003)
 - - - Road Decommissioned
- Major Crossing Improvement or Bridge Placement**
-
- Transportation**
- Paved Road
 - - - Rocky Road
 - Native Road
 - - - Jeep Trail
- Boundaries**
- - - MRC Ownership
 - Planning Watershed Boundary
 - Greenwood Creek Watershed Boundary
- Flow Class**
- Class I
 - - - Class II
 - - - Class III



Road Number	Site Number	Mile Post	Culvert Type	Diversion Potential	Treatment Immediacy	Controllable Volume (yd ³)
84-MB-066-17	18	1.82	other	no div. potential	high	500
84-CP-008	7	0.65	other	no div. potential	high	121
84-MB-066	25	2.34	other	already diverted	moderate	400
84-MB-015	14	1.41	other	no div. potential	moderate	320
84-MB-015	16	1.56	other	already diverted	moderate	230
84-MB-068	10	0.99	other	no div. potential	moderate	150
84-UG-004	2	0.23	other	no div. potential	moderate	120
84-MB-068	13	1.13	humboldt	no div. potential	moderate	120
84-UG-004	8	0.62	other	already diverted	moderate	100
84-CP-008-03	2	0.22	other	yes, ditch	moderate	100
84-MB-037	11	0.61	other	already diverted	moderate	50
84-MB-079-04	3	0.28	dipped	no div. potential	moderate	33
84-MB-052-02	3	0.25	other	already diverted	moderate	30
84-GP-034-13	4	0.36	humboldt	no div. potential	moderate	30
84-MB-037-05	3	0.26	other	already diverted	moderate	0
84-MB-053	7	0.71	other	no div. potential	high	55
84-CP-007-04	1	0.03	dipped	no div. potential	low	500
84-MB-068	20	1.89	dipped	no div. potential	low	350
84-MB-037	13	0.91	humboldt	no div. potential	low	350
84-UG-005	1	0.02	other	no div. potential	low	300
84-MB-068	15	1.34	dipped	no div. potential	low	230
84-MB-015	10	0.97	other	no div. potential	low	210
84-MR-008-07-02	4	0.29	dipped	no div. potential	low	200
84-LG-038	9	0.77	other	no div. potential	low	200
84-MB-079	2	0.15	dipped	no div. potential	low	170
84-LG-041-04-01	1	0.10	dipped	no div. potential	low	160
84-CE	23	2.31	dipped	no div. potential	low	160
84-UG	43	3.50	other	yes, road	low	140
84-GP-034	21	1.69	other	no div. potential	low	140
84-UG	39	3.23	bridge	no div. potential	low	130
84-UG	40	3.28	bridge	no div. potential	low	130
84-MB-067	2	0.10	other	already diverted	low	130
84-MB-015	7	0.70	other	no div. potential	low	130
84-CA-036-08	3	0.28	other	no div. potential	low	123
84-MB-053	5	0.33	other	already diverted	low	120
84-MB-079-04	4	0.32	dipped	no div. potential	low	110
84-UG	35	3.10	other	yes, road	low	100
84-MB-066-17	11	0.97	other	already diverted	low	100
84-MB-037	10	0.44	humboldt	already diverted	low	100
84-CW-004	4	0.38	other	no div. potential	low	100
84-CP	16	1.59	other	already diverted	low	100
84-LG-038	1	0.13	other	already diverted	low	90
84-GP-070	20	1.65	other	no div. potential	low	90
84-UG	5	0.38	bridge	no div. potential	low	80
84-MB-037-05	4	0.28	humboldt	no div. potential	low	80
84-MB-037	14	0.92	humboldt	no div. potential	low	80
84-MB	2	0.19	other	already diverted	low	80
84-LG-024	4	0.41	other	yes, road	low	80
84-LG	37	3.74	dipped	no div. potential	low	80
84-MB-066-17	9	0.94	other	already diverted	low	75

Road Number	Site Number	Mile Post	Culvert Type	Diversion Potential	Treatment Immediacy	Controllable Volume (yd ³)
84-CP-005	1	0.03	other	no div. potential	low	75
84-UG	19	1.87	dipped	yes, road	low	70
84-MB-037-05	2	0.16	humboldt	no div. potential	low	70
84-LG-038	3	0.34	other	no div. potential	low	70
84-UG-004	7	0.59	other	already diverted	low	62
84-UG-004	6	0.56	other	already diverted	low	60
84-UG	12	1.16	dipped	no div. potential	low	60
84-MR-008-07-02	7	0.47	humboldt	no div. potential	low	60
84-MB-079-04	2	0.20	dipped	no div. potential	low	60
84-MB-079	3	0.23	dipped	no div. potential	low	60
84-MB-066-17	14	1.37	dipped	no div. potential	low	60
84-MB-053-02	4	0.40	other	already diverted	low	60
84-MB-037	12	0.71	other	already diverted	low	60
84-MB	24	2.30	other	already diverted	low	60
84-MB	68	6.76	other	no div. potential	low	60
84-LG	33	3.28	dipped	no div. potential	low	60
84-LG	54	5.41	bridge	no div. potential	low	60
84-GP-070	5	0.46	other	no div. potential	low	60
84-GP-070	15	1.35	dipped	no div. potential	low	60
84-GP-034-13-01	2	0.05	other	no div. potential	low	60
84-GP-010	1	0.05	other	yes, road	low	55
84-UG	29	2.77	dipped	no div. potential	low	50
84-UG	46	4.13	dipped	no div. potential	low	50
84-MB-068	14	1.15	other	no div. potential	low	50
84-MB-068	19	1.85	other	yes, road	low	50
84-MB-066-17	6	0.42	humboldt	no div. potential	low	50
84-MB-066-17	10	0.95	other	no div. potential	low	50
84-MB-066-13	2	0.20	dipped	no div. potential	low	50
84-MB-066	15	1.55	dipped	no div. potential	low	50
84-MB-015	3	0.26	bridge	no div. potential	low	50
84-MB-015	17	1.68	other	no div. potential	low	50
84-MB	3	0.25	other	already diverted	low	50
84-MB	25	2.31	other	already diverted	low	50
84-MB	61	6.06	other	yes, ditch	low	50
84-LG-041	14	1.31	other	no div. potential	low	50
84-LG-041	30	2.92	other	no div. potential	low	50
84-GP-080-03	5	0.46	dipped	no div. potential	low	50
84-GP-034	13	0.91	humboldt	no div. potential	low	50
84-CW-004	6	0.47	other	already diverted	low	50
84-CP	5	0.51	other	no div. potential	low	50
84-GP-010	2	0.15	dipped	already diverted	low	46
84-MB-067	1	0.05	other	yes, road	low	45
84-MB-052	4	0.38	other	no div. potential	low	45
84-MB	32	3.15	other	already diverted	low	45
84-GP-080-08	12	0.96	humboldt	no div. potential	low	45
84-CO-022	3	0.27	other	yes, road	low	45
84-CO-002	8	0.45	dipped	no div. potential	low	42
84-UG-004	5	0.52	other	already diverted	low	40
84-UG	18	1.71	dipped	no div. potential	low	40

Road Number	Site Number	Mile Post	Culvert Type	Diversion Potential	Treatment Immediacy	Controllable Volume (yd ³)
84-UG	22	2.15	dipped	no div. potential	low	40
84-UG	30	2.79	dipped	no div. potential	low	40
84-UG	42	3.47	dipped	no div. potential	low	40
84-MR-012	9	0.68	dipped	no div. potential	low	40
84-MR-009-02-01	1	0.07	dipped	no div. potential	low	40
84-MR-008-07	10	0.95	other	already diverted	low	40
84-MB-079	1	0.03	dipped	no div. potential	low	40
84-MB-068	9	0.91	other	yes, road	low	40
84-MB-068	11	1.00	dipped	no div. potential	low	40
84-MB-068	18	1.75	dipped	no div. potential	low	40
84-MB-066	8	0.81	dipped	no div. potential	low	40
84-MB-066	22	1.88	dipped	no div. potential	low	40
84-MB-037-05	1	0.01	other	already diverted	low	40
84-MB-037	9	0.40	other	no div. potential	low	40
84-MB	23	2.28	other	no div. potential	low	40
84-MB	30	3.05	other	already diverted	low	40
84-MB	39	3.86	other	already diverted	low	40
84-MB	48	4.76	other	already diverted	low	40
84-LG-041	3	0.28	dipped	no div. potential	low	40
84-LG-041	5	0.49	dipped	no div. potential	low	40
84-LG-041	31	3.06	dipped	no div. potential	low	40
84-LG-038	2	0.20	dipped	no div. potential	low	40
84-LG	7	0.75	other	already diverted	low	40
84-LG	32	3.15	dipped	no div. potential	low	40
84-GP-106	1	0.00	other	already diverted	low	40
84-GP-080	5	0.47	dipped	no div. potential	low	40
84-GP-080	6	0.60	dipped	no div. potential	low	40
84-GP-034-13-01	6	0.18	other	no div. potential	low	40
84-GP-034-13-01	7	0.18	other	no div. potential	low	40
84-CO-002	2	0.18	dipped	no div. potential	low	40
84-CE	20	2.03	dipped	no div. potential	low	40
84-CA-036	9	0.80	dipped	no div. potential	low	40
84-UG	6	0.39	other	already diverted	low	35
84-UG	16	1.55	other	yes, road	low	35
84-UG	17	1.57	other	yes, road	low	35
84-MB-067-01	1	0.13	dipped	no div. potential	low	35
84-MB-066	18	1.79	other	already diverted	low	35
84-MB-066	20	1.82	other	already diverted	low	35
84-MB-066	26	2.40	dipped	no div. potential	low	35
84-MB-062	1	0.09	dipped	no div. potential	low	35
84-MB-016	2	0.16	other	already diverted	low	35
84-LG-041	22	1.98	other	already diverted	low	35
84-LG	29	2.93	humboldt	no div. potential	low	35
84-GP-034-13-01	3	0.05	other	no div. potential	low	35
84-GP-034	18	1.47	other	yes, road	low	35
84-UG	4	0.27	other	already diverted	low	30
84-UG	7	0.66	dipped	no div. potential	low	30
84-UG	33	2.97	dipped	no div. potential	low	30
84-UG	38	3.20	other	yes, road	low	30

Road Number	Site Number	Mile Post	Culvert Type	Diversion Potential	Treatment Immediacy	Controllable Volume (yd ³)
84-UG	48	4.27	dipped	no div. potential	low	30
84-MR-009	3	0.32	dipped	no div. potential	low	30
84-MB-068	1	0.12	dipped	no div. potential	low	30
84-MB-068	5	0.55	dipped	no div. potential	low	30
84-MB-068	13	1.04	other	yes, ditch	low	30
84-MB-066-17	1	0.12	dipped	no div. potential	low	30
84-MB-066-17	2	0.16	other	already diverted	low	30
84-MB-066-17	7	0.46	dipped	yes, road	low	30
84-MB-066-13	3	0.33	dipped	no div. potential	low	30
84-MB-066-10	3	0.24	other	already diverted	low	30
84-MB-066	1	0.03	ditch relief	no div. potential	low	30
84-MB-066	2	0.08	dipped	no div. potential	low	30
84-MB-066	19	1.81	other	no div. potential	low	30
84-MB-053-08	5	0.51	other	already diverted	low	30
84-MB-053	1	0.07	other	already diverted	low	30
84-MB-037-05	5	0.38	other	already diverted	low	30
84-MB-037	1	0.04	dipped	already diverted	low	30
84-MB-037	2	0.09	other	no div. potential	low	30
84-MB	7	0.70	other	already diverted	low	30
84-MB	8	0.82	other	already diverted	low	30
84-MB	33	3.19	other	already diverted	low	30
84-MB	34	3.45	other	already diverted	low	30
84-LG-041	13	1.26	other	already diverted	low	30
84-LG-041	24	2.36	other	already diverted	low	30
84-LG-038	10	0.83	other	no div. potential	low	30
84-LG	42	4.13	dipped	no div. potential	low	30
84-GP-080-08-01	1	0.07	other	no div. potential	low	30
84-GP-080-03	4	0.37	dipped	no div. potential	low	30
84-GP-070	2	0.15	dipped	no div. potential	low	30
84-GP-034-13-01	1	0.04	dipped	no div. potential	low	30
84-CP-007-07	2	0.22	other	no div. potential	low	30
84-CO-002	7	0.40	dipped	no div. potential	low	30
84-CO	28	2.85	other	already diverted	low	30
84-MB-066-10	4	0.26	other	already diverted	low	26
84-UG-004	9	0.66	other	yes, road	low	25
84-UG	44	3.90	other	no div. potential	low	25
84-UG	47	4.20	other	no div. potential	low	25
84-UG	49	4.53	other	no div. potential	low	25
84-UG	51	4.63	other	no div. potential	low	25
84-UG	52	4.76	other	already diverted	low	25
84-MR-009	4	0.37	dipped	no div. potential	low	25
84-MR-008-07	5	0.54	dipped	no div. potential	low	25
84-MB-070	1	0.08	other	already diverted	low	25
84-MB-070	2	0.11	other	already diverted	low	25
84-MB-066-17	3	0.22	dipped	yes, road	low	25
84-MB-066-17	4	0.22	dipped	no div. potential	low	25
84-MB-066-10	1	0.06	other	no div. potential	low	25
84-MB-066-10	2	0.07	other	already diverted	low	25
84-MB-066	3	0.33	dipped	yes, road	low	25

Road Number	Site Number	Mile Post	Culvert Type	Diversion Potential	Treatment Immediacy	Controllable Volume (yd ³)
84-MB-053-08	6	0.54	other	already diverted	low	25
84-MB-037	3	0.14	other	no div. potential	low	25
84-MB-037	4	0.16	other	already diverted	low	25
84-MB-037	7	0.28	other	already diverted	low	25
84-MB-016	1	0.03	other	no div. potential	low	25
84-LG-041-04-01	2	0.13	dipped	no div. potential	low	25
84-LG-041	29	2.86	dipped	no div. potential	low	25
84-LG	15	1.52	dipped	no div. potential	low	25
84-LG	27	2.73	dipped	no div. potential	low	25
84-GP-080-08-02	1	0.05	other	already diverted	low	25
84-GP-080-08	3	0.31	humboldt	no div. potential	low	25
84-GP-080-08	4	0.39	other	already diverted	low	25
84-GP-080-08	7	0.66	dipped	no div. potential	low	25
84-GP-080-03	3	0.26	dipped	no div. potential	low	25
84-GP-070	9	0.90	dipped	no div. potential	low	25
84-GP-070	13	1.24	other	already diverted	low	25
84-GP-070	18	1.54	dipped	no div. potential	low	25
84-GP-034-13-01	4	0.12	other	no div. potential	low	25
84-GP-034	10	0.77	dipped	no div. potential	low	25
84-GP-034	19	1.58	other	already diverted	low	25
84-CO-002	6	0.37	dipped	no div. potential	low	25
84-CA-036-09	1	0.07	dipped	no div. potential	low	25
84-CA-036	8	0.73	dipped	no div. potential	low	25
84-CA-036	10	0.82	dipped	no div. potential	low	25
84-UG	8	0.74	other	no div. potential	low	20
84-UG	10	1.03	other	no div. potential	low	20
84-UG	31	2.81	other	no div. potential	low	20
84-UG	36	3.14	other	yes, road	low	20
84-UG	37	3.18	other	no div. potential	low	20
84-UG	41	3.40	dipped	no div. potential	low	20
84-MR-009	5	0.48	dipped	no div. potential	low	20
84-MR-008-07-03	1	0.02	dipped	no div. potential	low	20
84-MR-008-07-02	1	0.05	other	no div. potential	low	20
84-MR-008-07-02	11	0.76	other	no div. potential	low	20
84-MR-008-07	8	0.79	dipped	no div. potential	low	20
84-MB-071	1	0.00	dipped	no div. potential	low	20
84-MB-068	3	0.28	dipped	no div. potential	low	20
84-MB-066-13	5	0.45	dipped	no div. potential	low	20
84-MB-066	9	0.82	other	no div. potential	low	20
84-MB-066	21	1.86	other	yes, ditch	low	20
84-MB-066	23	1.92	other	yes, road	low	20
84-MB-066	24	2.17	other	no div. potential	low	20
84-MB-062	2	0.25	other	yes, road	low	20
84-MB-052-02	1	0.08	other	already diverted	low	20
84-MB-052-02	2	0.15	other	already diverted	low	20
84-MB-052	1	0.11	other	already diverted	low	20
84-LG-041-17	2	0.04	dipped	no div. potential	low	20
84-LG-041	6	0.58	dipped	no div. potential	low	20
84-LG-041	7	0.64	other	already diverted	low	20

Road Number	Site Number	Mile Post	Culvert Type	Diversion Potential	Treatment Immediacy	Controllable Volume (yd ³)
84-LG-041	9	0.94	dipped	no div. potential	low	20
84-LG-041	16	1.37	other	already diverted	low	20
84-LG-038	7	0.62	other	no div. potential	low	20
84-LG	11	1.12	dipped	yes, road	low	20
84-LG	28	2.78	dipped	no div. potential	low	20
84-LG	39	3.87	ditch relief	yes, road	low	20
84-LG	40	3.97	dipped	no div. potential	low	20
84-GP-080-08	2	0.20	dipped	no div. potential	low	20
84-GP-080-08	18	1.21	other	no div. potential	low	20
84-GP-080	1	0.01	dipped	no div. potential	low	20
84-GP-070	11	1.03	dipped	no div. potential	low	20
84-GP-034-13	6	0.56	dipped	no div. potential	low	20
84-GP-034	6	0.60	dipped	no div. potential	low	20
84-GP-010	3	0.26	other	no div. potential	low	20
84-CW-004	5	0.39	other	already diverted	low	20
84-CO-002	5	0.33	dipped	no div. potential	low	20
84-CO	19	1.87	dipped	yes, road	low	20
84-UG	2	0.16	other	no div. potential	low	18
84-LG-041	23	2.05	humboldt	yes, road	low	18
84-GP-070	12	1.19	other	already diverted	low	18
84-CP-007-07	3	0.29	other	no div. potential	low	18
84-UG	3	0.25	other	yes, ditch	low	15
84-UG	15	1.50	dipped	no div. potential	low	15
84-UG	34	3.03	other	already diverted	low	15
84-MR-012	7	0.66	dipped	no div. potential	low	15
84-MR-012	8	0.66	dipped	yes, road	low	15
84-MR-008-07-02	6	0.40	other	no div. potential	low	15
84-MR-008-07-02	9	0.53	other	no div. potential	low	15
84-MB-066	11	1.02	ditch relief	no div. potential	low	15
84-MB-066	12	1.07	dipped	no div. potential	low	15
84-MB-053	4	0.32	other	already diverted	low	15
84-MB-037	5	0.20	other	no div. potential	low	15
84-LG-041	15	1.35	other	already diverted	low	15
84-LG-041	17	1.74	dipped	no div. potential	low	15
84-LG-041	20	1.93	other	already diverted	low	15
84-LG-041	28	2.83	other	no div. potential	low	15
84-LG	19	1.89	dipped	no div. potential	low	15
84-LG	22	2.15	dipped	no div. potential	low	15
84-GP-080-08-02	2	0.09	dipped	no div. potential	low	15
84-GP-080-08	16	1.09	dipped	no div. potential	low	15
84-GP-080-03	1	0.12	dipped	no div. potential	low	15
84-GP-078	1	0.06	other	already diverted	low	15
84-GP-070	10	0.97	dipped	no div. potential	low	15
84-GP-070	16	1.39	dipped	no div. potential	low	15
84-GP-034	9	0.66	dipped	no div. potential	low	15
84-GP-034	11	0.82	dipped	no div. potential	low	15
84-GP-034	17	1.19	dipped	no div. potential	low	15
84-CO-002	3	0.27	dipped	no div. potential	low	15
84-CO	14	1.40	other	yes, road	low	15

Road Number	Site Number	Mile Post	Culvert Type	Diversion Potential	Treatment Immediacy	Controllable Volume (yd ³)
84-CO	29	2.86	dipped	no div. potential	low	15
84-CE	42	4.17	other	yes, road	low	15
84-CA-036	7	0.68	dipped	no div. potential	low	15
84-GP-080-08	6	0.59	dipped	no div. potential	low	12
84-GP-080-08	8	0.77	dipped	no div. potential	low	12
84-GP-034	16	1.15	dipped	no div. potential	low	12
84-CP-007-07	4	0.31	dipped	no div. potential	low	12
84-CP-007-05	2	0.18	undetermined	undetermined	low	11
84-UG-004	4	0.41	other	no div. potential	low	10
84-UG	45	3.93	other	no div. potential	low	10
84-MR-013-05	1	0.14	other	no div. potential	low	10
84-MR-012	10	0.74	other	already diverted	low	10
84-MR-008-07-02	2	0.11	other	already diverted	low	10
84-MR-008-07-02	8	0.51	other	already diverted	low	10
84-MB-066	14	1.43	dipped	no div. potential	low	10
84-MB-062	3	0.26	dipped	no div. potential	low	10
84-MB-052	5	0.45	other	no div. potential	low	10
84-MB	63	6.26	other	yes, ditch	low	10
84-MB	64	6.29	other	already diverted	low	10
84-LG-041-17	1	0.04	dipped	no div. potential	low	10
84-LG	41	4.12	dipped	no div. potential	low	10
84-GP-080-08	10	0.85	other	no div. potential	low	10
84-GP-070	7	0.68	dipped	no div. potential	low	10
84-GP-034-13-01	5	0.17	other	no div. potential	low	10
84-CP-008-03	7	0.69	other	no div. potential	low	10
84-CP-005	3	0.18	dipped	no div. potential	low	10
84-CP	1	0.04	low water (temp)	no div. potential	low	10
84-CP-001	1	0.12	undetermined	undetermined	low	9
84-MB-053-02	3	0.33	other	already diverted	low	8
84-GP-034	12	0.89	other	already diverted	low	8
84-UG	50	4.55	other	no div. potential	low	5
84-MR-013-06	1	0.14	dipped	no div. potential	low	5
84-MR-012	3	0.28	other	already diverted	low	5
84-MR-012	4	0.32	dipped	yes, road	low	5
84-MR-012	11	0.82	dipped	no div. potential	low	5
84-MR-012	12	0.83	dipped	no div. potential	low	5
84-MB-053	3	0.30	other	yes, ditch	low	5
84-LG-041	4	0.41	dipped	no div. potential	low	5
84-LG-041	21	1.95	dipped	no div. potential	low	5
84-LG-038	6	0.56	other	no div. potential	low	5
84-GP-080-08	15	1.07	humboldt	no div. potential	low	5
84-GP-070	6	0.49	dipped	no div. potential	low	5
84-GP-070	8	0.84	dipped	no div. potential	low	5
84-CE-035	4	0.42	dipped	no div. potential	low	5
84-CE-035	9	0.91	dipped	yes, road	low	5
84-MR-008-07-03	2	0.12	other	no div. potential	low	3
84-CP	2	0.16	other	already diverted	low	3
84-MR-012-10	1	0.11	other	no div. potential	low	2
84-MR-012-10	2	0.15	other	no div. potential	low	2

Road Number	Site Number	Mile Post	Culvert Type	Diversion Potential	Treatment Immediacy	Controllable Volume (yd ³)
84-CP-008-03	8	0.78	other	no div. potential	low	2
84-CP	3	0.25	other	already diverted	low	1
84-UG	25	2.47	other	already diverted	low	0
84-UG	28	2.76	low water (temp)	no div. potential	low	0
84-UG	32	2.84	other	already diverted	low	0
84-MR-012	5	0.45	dipped	no div. potential	low	0
84-MR-012	6	0.62	other	already diverted	low	0
84-MR-008-07-03	3	0.16	other	no div. potential	low	0
84-MR-008-07-02	3	0.25	other	no div. potential	low	0
84-MR-008-07-02	5	0.39	other	already diverted	low	0
84-MR-008-07-02	10	0.58	dipped	no div. potential	low	0
84-MR-008-07	2	0.23	bridge	no div. potential	low	0
84-MR-008-07	6	0.63	other	already diverted	low	0
84-MR-008-07	11	1.00	other	no div. potential	low	0
84-MB-066-10	5	0.33	low water (temp)	no div. potential	low	0
84-MB-062	6	0.35	dipped	no div. potential	low	0
84-MB-062	5	0.36	other	no div. potential	low	0
84-MB-053	2	0.17	other	already diverted	low	0
84-MB-037	6	0.20	low water (temp)	no div. potential	low	0
84-MB-037	8	0.37	other	no div. potential	low	0
84-MB-015	1	0.01	bridge	no div. potential	low	0
84-MB-014	1	0.02	other	already diverted	low	0
84-MB-014	2	0.05	other	no div. potential	low	0
84-MB	62	6.09	other	yes, ditch	low	0
84-LG-049	3	0.33	dipped	no div. potential	low	0
84-LG-041	19	1.88	dipped	no div. potential	low	0
84-LG-041	32	3.16	other	already diverted	low	0
84-LG-038	5	0.50	other	no div. potential	low	0
84-LG-024	2	0.24	dipped	no div. potential	low	0
84-LG	46	4.60	other	already diverted	low	0
84-GP-106	2	0.02	other	no div. potential	low	0
84-GP-080-08	9	0.81	dipped	no div. potential	low	0
84-GP-080-08	11	0.88	dipped	no div. potential	low	0
84-GP-080-08	13	1.00	other	already diverted	low	0
84-GP-080-08	14	1.01	dipped	no div. potential	low	0
84-GP-080-08	17	1.17	dipped	no div. potential	low	0
84-GP-080-08	19	1.34	dipped	no div. potential	low	0
84-GP-070	3	0.22	other	already diverted	low	0
84-GP-070	14	1.28	dipped	no div. potential	low	0
84-GP-070	17	1.50	dipped	no div. potential	low	0
84-GP-070	19	1.58	dipped	no div. potential	low	0
84-GP-034-13	1	0.06	other	already diverted	low	0
84-GP-034-13	2	0.09	other	no div. potential	low	0
84-GP-034	7	0.62	ditch relief	no div. potential	low	0
84-GP-034	8	0.63	ditch relief	no div. potential	low	0
84-GP-034	14	0.93	dipped	no div. potential	low	0
84-GP-034	15	1.05	dipped	no div. potential	low	0
84-GP-034	20	1.66	dipped	no div. potential	low	0
84-CP-007-09	2	0.17	other	already diverted	low	0

Road Number	Site Number	Mile Post	Culvert Type	Diversion Potential	Treatment Immediacy	Controllable Volume (yd ³)
84-CP-007-07	1	0.05	other	no div. potential	low	0
84-CP-007	10	1.01	other	yes, road	low	0
84-CP-005	4	0.26	dipped	no div. potential	low	0
84-CO-002	4	0.28	dipped	no div. potential	low	0
84-CE	18	1.80	dipped	no div. potential	low	0
84-CE	38	3.79	other	no div. potential	low	0
84-BG-006	4	0.37	other	already diverted	low	0
84-MB-066	10	0.98	dipped	no div. potential	low	undetermined
84-LG-038	8	0.75	other	no div. potential	low	undetermined
84-LG-038	14	1.41	dipped	no div. potential	low	undetermined
84-CA-036-08	5	0.46	dipped	no div. potential	none	40
84-MB	36	3.59	bridge	no div. potential	none	30
84-MB-066	13	1.14	dipped	no div. potential	none	20
84-MB-079-04	5	0.45	dipped	no div. potential	none	0
84-MB-062	4	0.33	dipped	no div. potential	none	0
84-MB	54	5.36	bridge	no div. potential	none	0
84-CP-005	2	0.06	dipped	no div. potential	none	0
84-CE-011	1	0.06	dipped	no div. potential	none	0
84-LG	55	5.54	low water (temp)	no div. potential	none	undetermined

Road Number	Site Number	Mile Post	Perched Material	Fill Condition	Treatment Immediacy	Controllable Volume (yd3)	Distance from Stream (ft)
84-MB-053	8	0.726	yes	unstable	high	107	0-50
84-MB-066-17	18	1.817	undetermined	unstable	high	0	0-50
84-MB-037	6	0.585	undetermined	unstable	moderate	400	50-200
84-CP-008	3	0.269	undetermined	failed-active	moderate	250	0-50
84-MB-037-05	4	0.412	undetermined	unstable	moderate	150	0-50
84-CP-005	1	0.039	yes	stable	moderate	0	0-50
84-MB-015	14	1.416	undetermined	unstable	moderate	0	0-50
84-LG-024	5	0.517	no	unstable	moderate	undetermined	>200
84-MB-066	4	0.335	no	unstable	moderate	undetermined	>200
84-MB-068	3	0.315	yes	unstable	high	0	>200
84-CW-004	6	0.528	yes	stable	low	300	>200
84-MB-052	3	0.304	yes	stable	low	200	>200
84-MB-066	22	2.213	yes	stable	low	200	>200
84-MB-068	10	0.985	yes	stable	low	200	0-50
84-GP-080-08-01	1	0.097	undetermined	failed-dormant	low	180	0-50
84-GP-070	13	1.340	undetermined	stable	low	170	0-50
84-MB-066	24	2.404	yes	unstable	low	170	>200
84-MB-037-05	3	0.318	undetermined	stable	low	150	50-200
84-GP-010	4	0.350	undetermined	unstable	low	150	>200
84-CW-004	4	0.386	yes	stable	low	120	0-50
84-MB-066	23	2.276	yes	stable	low	120	>200
84-MB-037	2	0.223	undetermined	stable	low	100	0-50
84-MB-037-06	1	0.019	undetermined	stable	low	100	>200
84-MB-052	1	0.121	yes	stable	low	100	>200
84-GP-010-34	2	0.161	yes	stable	low	100	50-200
84-MB-066-17	10	0.997	yes	stable	low	100	50-200
84-MB-066-17	7	0.739	yes	stable	low	100	>200
84-CP-008-03	2	0.227	undetermined	stable	low	80	0-50
84-MB-037	7	0.711	undetermined	stable	low	80	50-200
84-CW-004	5	0.481	undetermined	stable	low	80	>200
84-MB-066-17	22	2.155	undetermined	stable	low	80	>200
84-MB-066-22	1	0.059	yes	stable	low	80	>200
84-MB-068	16	1.584	yes	stable	low	80	>200
84-MB-015	17	1.736	undetermined	unstable	low	60	>200
84-MB-053	7	0.651	undetermined	failed-dormant	low	60	50-200
84-MB-066-17	19	1.879	undetermined	stable	low	60	0-50
84-MB-068	4	0.437	yes	unstable	low	60	>200
84-GP-080-08	13	1.283	undetermined	failed-dormant	low	50	0-50
84-LG-041	32	3.177	undetermined	stable	low	50	0-50
84-CA-036-08	6	0.626	yes	stable	low	50	>200
84-CA-036-09	1	0.049	yes	stable	low	45	50-200
84-MB-070	1	0.119	undetermined	stable	low	15	0-50
84-MB-052	5	0.461	undetermined	stable	low	10	0-50
84-GP-080-08	2	0.204	undetermined	stable	low	10	0-50
84-CE-007	1	0.099	undetermined	stable	low	5	>200
84-MB-066-17	4	0.438	undetermined	stable	low	5	0-50
84-CP	3	0.295	undetermined	stable	low	1	>200
82-GP-122-01	2	0.098	undetermined	stable	low	0	0-50
82-GP-122-01	3	0.158	undetermined	stable	low	0	50-200
82-GP-126	1	0.118	undetermined	stable	low	0	>200
82-GP-126-02	2	0.203	undetermined	stable	low	0	>200
84-CE	1	0.122	undetermined	stable	low	0	>200
84-CE	25	2.518	undetermined	stable	low	0	>200
84-CE	36	3.551	undetermined	stable	low	0	>200
84-CE	37	3.674	undetermined	stable	low	0	>200
84-CE-003	1	0.093	undetermined	stable	low	0	>200

Road Number	Site Number	Mile Post	Perched Material	Fill Condition	Treatment Immediacy	Controllable Volume (yd3)	Distance from Stream (ft)
84-CE-011	1	0.102	undetermined	stable	low	0	>200
84-CE-035	10	0.982	undetermined	stable	low	0	>200
84-CE-035	4	0.296	undetermined	stable	low	0	>200
84-CE-035	6	0.561	undetermined	stable	low	0	>200
84-CE-041	2	0.197	undetermined	stable	low	0	>200
84-CE-055	2	0.150	undetermined	stable	low	0	>200
84-CE-057	1	0.034	undetermined	stable	low	0	>200
84-CE-063	7	0.699	undetermined	stable	low	0	>200
84-CE-063	8	0.798	undetermined	stable	low	0	>200
84-CO-007	1	0.106	undetermined	stable	low	0	>200
84-CP	24	2.368	undetermined	stable	low	0	>200
84-CP-001	2	0.151	no	stable	low	0	0-50
84-CP-007-06	1	0.110	undetermined	stable	low	0	50-200
84-CP-007-07	3	0.314	no	stable	low	0	0-50
84-CP-007-07	4	0.382	undetermined	stable	low	0	>200
84-MB-014	1	0.101	undetermined	stable	low	0	0-50
84-MB-014	2	0.209	undetermined	stable	low	0	>200
84-MB-014	3	0.298	undetermined	stable	low	0	>200
84-MB-015	5	0.475	undetermined	stable	low	0	>200
84-MB-016	3	0.302	undetermined	stable	low	0	50-200
84-MB-053-02	1	0.089	no	stable	low	0	0-50
84-MB-053-02	6	0.595	no	stable	low	0	0-50
84-MB-053-08	5	0.514	undetermined	stable	low	0	0-50
84-MB-077	1	0.127	undetermined	stable	low	0	>200
84-MB-079	6	0.552	undetermined	stable	low	0	>200
84-MB-079-04	1	0.081	no	stable	low	0	>200
84-MB-079-04	2	0.224	undetermined	stable	low	0	50-200
84-MB-079-04	4	0.368	no	stable	low	0	>200
84-BG-004	2	0.185	undetermined	stable	low	0	>200
84-BG-006	1	0.027	undetermined	stable	low	0	>200
84-BG-006	2	0.082	undetermined	stable	low	0	>200
84-CO	20	2.010	undetermined	stable	low	0	>200
84-CW-010	2	0.185	undetermined	stable	low	0	>200
84-CW-010-02	1	0.037	undetermined	stable	low	0	>200
84-CW-016	10	0.986	undetermined	stable	low	0	>200
84-CW-016	11	1.102	undetermined	stable	low	0	>200
84-CW-016	13	1.283	undetermined	stable	low	0	>200
84-CW-016	17	1.667	undetermined	stable	low	0	>200
84-CW-016	6	0.574	yes	stable	low	0	>200
84-CW-016-08	1	0.075	undetermined	stable	low	0	>200
84-CW-016-17	3	0.349	undetermined	stable	low	0	>200
84-CW-016-17	5	0.481	undetermined	stable	low	0	>200
84-CW-016-17	7	0.686	undetermined	stable	low	0	>200
84-CW-016-17	9	0.911	undetermined	stable	low	0	>200
84-GP-010-34	1	0.017	undetermined	stable	low	0	>200
84-GP-034	12	1.223	undetermined	stable	low	0	>200
84-GP-034	17	1.711	undetermined	stable	low	0	50-200
84-GP-034	18	1.710	undetermined	stable	low	0	50-200
84-GP-034-13	5	0.524	undetermined	stable	low	0	>200
84-GP-034-13	6	0.572	undetermined	stable	low	0	>200
84-GP-034-13-01	1	0.041	undetermined	stable	low	0	0-50
84-GP-034-13-02	1	0.082	undetermined	stable	low	0	50-200
84-GP-062	2	0.172	undetermined	stable	low	0	>200
84-GP-062	6	0.592	undetermined	stable	low	0	>200
84-GP-062-02	1	0.003	undetermined	stable	low	0	>200
84-GP-062-02	4	0.362	undetermined	stable	low	0	>200

Road Number	Site Number	Mile Post	Perched Material	Fill Condition	Treatment Immediacy	Controllable Volume (yd3)	Distance from Stream (ft)
84-GP-070	4	0.445	undetermined	stable	low	0	0-50
84-GP-080	3	0.339	undetermined	stable	low	0	>200
84-GP-080-03	5	0.452	undetermined	stable	low	0	50-200
84-GP-080-08	10	0.958	undetermined	stable	low	0	0-50
84-GP-080-08	7	0.692	undetermined	stable	low	0	0-50
84-LG	14	1.359	undetermined	stable	low	0	>200
84-LG	16	1.611	undetermined	stable	low	0	>200
84-LG-003	7	0.691	undetermined	stable	low	0	>200
84-LG-010	1	0.038	undetermined	stable	low	0	>200
84-LG-038	10	0.952	undetermined	stable	low	0	>200
84-LG-041	28	2.812	undetermined	stable	low	0	50-200
84-LG-041	6	0.574	undetermined	stable	low	0	50-200
84-MB	60	5.990	no	stable	low	0	0-50
84-MB	77	7.650	undetermined	stable	low	0	>200
84-MB-066-13	4	0.409	undetermined	stable	low	0	>200
84-MB-066-13	5	0.533	undetermined	stable	low	0	>200
84-MB-066-17	12	1.210	undetermined	stable	low	0	>200
84-MB-068	7	0.702	no	stable	low	0	>200
84-MR-005	7	0.661	undetermined	stable	low	0	>200
84-MR-005-04	1	0.023	undetermined	stable	low	0	>200
84-MR-005-07	1	0.030	undetermined	stable	low	0	>200
84-MR-008	2	0.224	undetermined	stable	low	0	>200
84-MR-009	10	0.977	undetermined	stable	low	0	>200
84-MR-009	4	0.429	undetermined	stable	low	0	>200
84-MR-009	6	0.561	undetermined	stable	low	0	>200
84-MR-009	7	0.601	undetermined	stable	low	0	>200
84-MR-009	8	0.680	undetermined	stable	low	0	>200
84-MR-009	9	0.728	undetermined	stable	low	0	>200
84-MR-009-02-01	3	0.293	undetermined	stable	low	0	>200
84-MR-009-02-02	1	0.104	undetermined	stable	low	0	>200
84-MR-009-05	1	0.061	undetermined	stable	low	0	>200
84-MR-012	3	0.303	undetermined	stable	low	0	0-50
84-MR-013	4	0.449	undetermined	stable	low	0	>200
84-UG	27	2.745	undetermined	stable	low	0	>200
84-UG	43	4.303	undetermined	stable	low	0	50-200
84-UG-006	1	0.068	undetermined	stable	low	0	50-200
84-CA-036	8	0.755	yes	stable	low	0	>200
84-CP-008-03-01	1	0.035	no	stable	low	undetermined	>200
84-CO-022	3	0.306	no	stable	low	undetermined	>200
84-CO-028	3	0.295	no	unstable	low	undetermined	>200
84-GP-034	10	1.016	no	stable	low	undetermined	>200
84-GP-034	13	1.283	yes	stable	low	undetermined	>200
84-GP-034	15	1.477	no	stable	low	undetermined	50-200
84-GP-034	16	1.578	no	stable	low	undetermined	50-200
84-GP-034	7	0.682	no	stable	low	undetermined	50-200
84-GP-034	9	0.892	no	stable	low	undetermined	0-50
84-LG	12	1.179	no	stable	low	undetermined	0-50
84-LG	17	1.739	no	stable	low	undetermined	>200
84-LG	22	2.165	no	stable	low	undetermined	0-50
84-LG	39	3.927	no	stable	low	undetermined	>200
84-LG-024	6	0.579	yes	stable	low	undetermined	>200
84-LG-041-04-01	2	0.172	no	stable	low	undetermined	>200
84-LG-041-17	3	0.255	no	stable	low	undetermined	0-50
84-LG-046	1	0.038	no	stable	low	undetermined	0-50
84-LG-048	3	0.332	yes	stable	low	undetermined	50-200
84-MB-062	4	0.329	no	stable	low	undetermined	0-50

Road Number	Site Number	Mile Post	Perched Material	Fill Condition	Treatment Immediacy	Controllable Volume (yd3)	Distance from Stream (ft)
84-MB-066	13	1.288	no	failed-dormant	low	undetermined	>200
84-MB-066	14	1.377	no	stable	low	undetermined	0-50
84-MB-066-13	3	0.331	yes	stable	low	undetermined	>200
84-CE	34	3.356	undetermined	stable	none	0	>200
84-CE	55	5.522	undetermined	stable	none	0	>200
84-CE-035	2	0.164	undetermined	stable	none	0	>200
84-CE-035	3	0.217	undetermined	stable	none	0	>200
84-CP	12	1.218	no	stable	none	0	>200
84-CP	17	1.666	no	stable	none	0	>200
84-CP	19	1.868	no	stable	none	0	50-200
84-CP	21	2.130	no	stable	none	0	>200
84-CP-001	1	0.053	no	unstable	none	0	>200
84-CP-002	3	0.296	no	stable	none	0	50-200
84-CP-007	10	1.000	undetermined	stable	none	0	0-50
84-CP-007-05	2	0.235	no	stable	none	0	50-200
84-CP-007-05	5	0.462	no	stable	none	0	>200
84-CP-007-05-01	1	0.014	no	stable	none	0	>200
84-CP-007-07	2	0.220	no	stable	none	0	>200
84-CP-007-07-01	1	0.069	no	stable	none	0	>200
84-CP-007-09	1	0.064	no	stable	none	0	>200
84-CP-007-09	4	0.394	no	stable	none	0	>200
84-CP-008	7	0.744	no	stable	none	0	50-200
84-MB	54	5.444	no	stable	none	0	>200
84-MB-053	3	0.323	no	stable	none	0	50-200
84-MB-053-02	3	0.337	yes	stable	none	0	>200
84-MB-053-04	1	0.099	no	stable	none	0	>200
84-MB-053-04	3	0.274	no	stable	none	0	50-200
84-MB-067-01	3	0.312	undetermined	stable	none	0	>200
84-CW	2	0.210	no	stable	none	0	>200
84-CW	4	0.417	no	stable	none	0	>200
84-CW-010	3	0.236	undetermined	stable	none	0	50-200
84-CW-016	8	0.768	no	stable	none	0	>200
84-LG-003	2	0.215	undetermined	stable	none	0	>200
84-LG-003	3	0.332	undetermined	stable	none	0	>200
84-MB	56	5.562	no	stable	none	0	>200
84-MB-068	1	0.055	no	stable	none	0	>200
84-MR-008-07	2	0.244	undetermined	stable	none	0	0-50
84-MR-013-05	2	0.168	undetermined	stable	none	0	>200
84-UG-012	1	0.077	no	stable	none	0	>200
82-CA-012	1	0.075	no	stable	none	0	>200
82-CA-026	4	0.391	no	stable	none	0	>200
82-CA-028	7	0.652	no	stable	none	0	>200
84-CA-036	10	1.026	no	stable	none	0	>200
84-CA-036	6	0.622	no	stable	none	0	>200
84-CA-036-08	1	0.133	no	stable	none	0	>200
84-CA-036-08	8	0.788	no	stable	none	0	>200
84-CA-036-08-01	1	0.057	no	stable	none	0	>200
84-CA-036-08-01	2	0.118	no	stable	none	0	>200
84-CA-036-08-02	1	0.013	yes	stable	none	0	>200
84-CP-008-03	9	0.869	no	stable	none	undetermined	>200
84-CO-002	5	0.000	no	stable	none	undetermined	>200
84-CO-002-05	3	0.253	no	stable	none	undetermined	>200
84-CO-002-05	4	0.334	no	stable	none	undetermined	>200
84-CO-006	1	0.034	no	stable	none	undetermined	>200
84-CO-013	1	0.031	no	stable	none	undetermined	>200
84-CO-013	3	0.291	no	stable	none	undetermined	>200

Road Number	Site Number	Mile Post	Perched Material	Fill Condition	Treatment Immediacy	Controllable Volume (yd3)	Distance from Stream (ft)
84-CO-014	1	0.027	no	stable	none	undetermined	>200
84-CO-014	2	0.104	no	stable	none	undetermined	>200
84-CO-014-02	1	0.082	no	stable	none	undetermined	>200
84-CO-014-04	1	0.041	no	stable	none	undetermined	>200
84-CO-014-04	2	0.181	no	stable	none	undetermined	>200
84-CO-018	1	0.024	no	stable	none	undetermined	>200
84-CO-018	4	0.404	no	stable	none	undetermined	>200
84-CO-018	5	0.544	no	stable	none	undetermined	>200
84-CO-018	7	0.726	no	stable	none	undetermined	>200
84-CO-028	2	0.217	no	stable	none	undetermined	>200
84-LG	10	1.017	no	stable	none	undetermined	>200
84-LG	13	1.305	no	stable	none	undetermined	>200
84-LG	15	1.505	no	stable	none	undetermined	>200
84-LG	19	1.929	no	stable	none	undetermined	>200
84-LG	28	2.848	no	stable	none	undetermined	>200
84-LG	31	3.070	no	stable	none	undetermined	>200
84-LG	33	3.269	no	stable	none	undetermined	50-200
84-LG	34	3.345	no	stable	none	undetermined	>200
84-LG	43	4.252	no	stable	none	undetermined	>200
84-LG	44	4.403	no	stable	none	undetermined	>200
84-LG	48	4.845	no	stable	none	undetermined	>200
84-LG	53	5.286	no	stable	none	undetermined	>200
84-LG	7	0.684	no	stable	none	undetermined	>200
84-LG-021	3	0.298	no	stable	none	undetermined	50-200
84-LG-024	10	0.979	no	stable	none	undetermined	>200
84-LG-024	13	1.292	no	stable	none	undetermined	50-200
84-LG-024	2	0.218	no	stable	none	undetermined	>200
84-LG-024	8	0.837	no	stable	none	undetermined	>200
84-LG-041	20	1.997	no	stable	none	undetermined	50-200
84-LG-041	24	2.443	no	stable	none	undetermined	50-200
84-LG-041	26	2.596	no	stable	none	undetermined	>200
84-LG-041	27	2.704	no	stable	none	undetermined	>200
84-LG-041	9	0.852	no	stable	none	undetermined	>200
84-LG-041-04	1	0.113	no	stable	none	undetermined	>200
84-LG-041-04	2	0.173	no	stable	none	undetermined	>200
84-LG-041-04	3	0.268	no	stable	none	undetermined	>200
84-LG-041-04	4	0.425	no	stable	none	undetermined	>200
84-LG-041-10	1	0.001	no	stable	none	undetermined	>200
84-LG-041-10	2	0.221	no	stable	none	undetermined	>200
84-LG-049	1	0.006	no	stable	none	undetermined	50-200
84-LG-049	4	0.387	no	stable	none	undetermined	50-200
84-LG-050	2	0.154	no	stable	none	undetermined	>200
84-MB-062	2	0.199	no	stable	none	undetermined	>200
84-MB-066	11	1.112	no	stable	none	undetermined	50-200
84-MB-066	3	0.258	no	stable	none	undetermined	50-200
84-MB-066	6	0.636	no	stable	none	undetermined	>200
84-MB-066	9	0.884	no	stable	none	undetermined	>200
84-MR	10	0.990	no	stable	none	undetermined	>200
84-MR-012	10	0.965	no	stable	none	undetermined	>200
84-MR-012	5	0.534	no	stable	none	undetermined	>200
84-MR-012	7	0.739	no	stable	none	undetermined	>200
84-MR-012-05	1	0.083	no	stable	none	undetermined	>200
84-CP	6	0.562	undetermined	undetermined	undetermined	undetermined	>200
84-CP-007	1	0.142	undetermined	undetermined	undetermined	undetermined	50-200
84-CP-007	3	0.326	undetermined	undetermined	undetermined	undetermined	50-200

Road Number	Site Number	Mile Post	Erosion Type	Treatment Immediacy	Controllable Volume (yd ³)
84-GP-070	14	1.354	gully	moderate	1000
84-MB-015	15	1.527	gully	moderate	200
84-MB-037-05	2	0.248	gully	moderate	50
84-CP	18	1.766	gully	low	50
84-MB-015	9	0.913	gully	low	50
84-LG-038	4	0.354	gully	low	40
84-UG	33	3.342	gully	low	40
84-MB	15	1.487	gully	low	30
84-MB-053	1	0.145	gully	low	30
84-MB-015	6	0.616	gully	low	20
84-MB-015	7	0.669	gully	low	20
84-MB-037	2	0.232	major rilling	low	20
84-MB-053	3	0.309	gully	low	20
84-CO	30	2.996	major rilling	low	20
84-GP-034-13-01	1	0.087	gully	low	20
84-UG-006	1	0.026	gully	low	20
84-CP	6	0.612	major rilling	low	15
84-MB	9	0.948	gully	low	15
84-MB-016	3	0.261	gully	low	15
84-MB-053	4	0.344	gully	low	15
84-GP-034	11	1.086	gully	low	15
84-GP-034-13-01	3	0.155	gully	low	15
84-GP-070	8	0.846	gully	low	15
84-GP-080-08	8	0.793	gully	low	15
84-LG-038	2	0.231	gully	low	15
84-MB	76	7.629	major rilling	low	15
84-MB-066-13	2	0.245	gully	low	15
84-MR-009	5	0.454	gully	low	15
84-UG	29	2.929	gully	low	15
84-CP	5	0.381	major rilling	low	12
84-MB-053-08	8	0.777	gully	low	12
84-CP-007	5	0.524	major rilling	low	10
84-MB-052-02	3	0.181	major rilling	low	10
84-MB-053	7	0.670	gully	low	10
84-MB-053-08	1	0.005	gully	low	10
84-UG-004	4	0.461	gully	low	10
84-GP-034-13-01	2	0.129	gully	low	10
84-GP-034-13-01	5	0.170	gully	low	10
84-GP-078	2	0.163	major rilling	low	10
84-LG	13	1.291	gully	low	10
84-MB	71	7.087	major rilling	low	10
84-UG	34	3.439	gully	low	10
84-CP	2	0.155	major rilling	low	8
84-MR-008-07	10	0.987	gully	low	8
84-CP-007	4	0.405	major rilling	low	5
84-CP-008-03	7	0.659	major rilling	low	5
84-GP-106	1	0.043	major rilling	low	5
84-GP-106	2	0.066	major rilling	low	5
84-MB	1	0.144	major rilling	low	5
84-MB	32	3.238	major rilling	low	5

Road Number	Site Number	Mile Post	Erosion Type	Treatment Immediacy	Controllable Volume (yd ³)
84-MB-016	4	0.422	gully	low	5
84-MB-037	4	0.375	gully	low	5
84-MB-052	1	0.094	major rilling	low	5
84-MB-053	6	0.552	gully	low	5
84-MB-053-02	1	0.126	gully	low	5
84-MB-053-08	2	0.074	gully	low	5
84-MB-053-08	6	0.618	gully	low	5
84-MB-079	5	0.518	major rilling	low	5
84-MB-079-04	1	0.002	major rilling	low	5
84-UG-004	2	0.201	gully	low	5
84-CO	19	1.924	major rilling	low	5
84-GP-034-13-01	4	0.166	gully	low	5
84-GP-070	16	1.629	gully	low	5
84-GP-070	5	0.495	gully	low	5
84-LG-041	21	2.107	gully	low	5
84-MB	75	7.510	major rilling	low	5
84-MB	77	7.703	major rilling	low	5
84-MR-009	4	0.359	major rilling	low	5
84-MR-009-02-02	1	0.058	major rilling	low	5
84-UG	26	2.593	gully	low	5
84-GP-070	2	0.248	gully	low	3
84-CP	4	0.291	major rilling	low	2
84-MB-052-02	2	0.161	major rilling	low	2
84-CP	3	0.196	major rilling	low	1
84-CE	35	3.509	major rilling	low	0
84-CO	7	0.668	major rilling	low	0
84-CO	8	0.707	major rilling	low	0
84-CO-008	2	0.199	major rilling	low	0
84-CP-007	7	0.653	major rilling	low	0
84-CP-007	8	0.842	major rilling	low	0
84-MB-015	5	0.525	gully	low	0
84-MB-037	5	0.419	gully	low	0
84-CO	12	1.234	major rilling	low	0
84-CO	18	1.801	major rilling	low	0
84-CO	20	1.979	major rilling	low	0
84-CO	21	2.020	major rilling	low	0
84-CO	3	0.276	major rilling	low	0
84-CW-016-17	4	0.394	major rilling	low	0
84-GP-034-13	1	0.141	gully	low	0
84-LG-038	1	0.053	gully	low	0
84-LG-038	3	0.318	gully	low	0
84-LG-038	5	0.428	gully	low	0
84-MB-062	3	0.278	gully	low	0
84-MR-009	2	0.242	major rilling	low	0
84-UG	5	0.495	gully	low	0

Road Number	Site Number	Mile Post	Culvert Type	Diversion Potential	Treatment Immediacy	Controllable Volume (yd3)
84-CP-008	3	0.281	watercourse	no div. potential	high	300
84-LG	38	3.769	watercourse	yes, ditch	high	300
84-LG	43	4.336	watercourse	no div. potential	high	240
84-LG-041	25	2.538	watercourse	no div. potential	high	210
84-MB-079-04	5	0.513	watercourse	no div. potential	high	180
84-LG-041	28	2.761	watercourse	no div. potential	high	180
84-LG-041	31	3.019	watercourse	no div. potential	high	180
84-LG	49	4.880	watercourse	no div. potential	high	160
84-MR-009	3	0.286	watercourse	no div. potential	high	160
84-MB	32	2.638	watercourse	yes, ditch	high	150
84-UG	17	1.666	watercourse	yes, road	high	150
84-MB	63	5.010	watercourse	yes, road	high	120
84-MB-053-02	2	0.095	watercourse	yes, road	high	120
84-MB-053	3	0.285	ditch relief	yes, road	high	115
84-MB	30	2.530	watercourse	yes, road	high	110
84-MB-053	5	0.516	watercourse	no div. potential	high	100
84-UG-004	6	0.649	watercourse	no div. potential	high	100
84-LG-041	18	1.806	watercourse	no div. potential	high	100
84-CP-008	5	0.482	watercourse	no div. potential	high	90
84-MB-053	2	0.222	watercourse	no div. potential	high	80
84-LG-041	19	1.813	watercourse	no div. potential	high	80
84-MB	34	2.774	watercourse	yes, road	high	70
84-GP-034	16	1.617	watercourse	no div. potential	high	70
84-MR-009	6	0.527	watercourse	no div. potential	high	70
84-UG	11	1.031	watercourse	no div. potential	high	70
84-UG-004	5	0.462	watercourse	already diverted	high	60
84-GP-010	1	0.068	watercourse	yes, road	high	60
84-GP-010-34	2	0.121	watercourse	yes, road	high	60
84-MB-066-17	19	1.873	watercourse	already diverted	high	60
84-MB-068	3	0.262	watercourse	no div. potential	high	60
84-UG	39	3.863	watercourse	no div. potential	high	60
84-CO	17	1.651	watercourse	no div. potential	high	50
84-LG-041	30	2.995	watercourse	no div. potential	high	50
84-UG-006	1	0.034	watercourse	no div. potential	high	50
84-MB	38	3.002	watercourse	yes, road	high	40
84-MB	49	3.973	watercourse	yes, ditch	high	40
84-MB	53	4.377	watercourse	yes, road	high	40
84-CO	21	2.115	watercourse	no div. potential	high	40
84-CO	30	2.952	watercourse	no div. potential	high	40
84-GP-010	3	0.332	watercourse	no div. potential	high	40
84-LG	45	4.485	watercourse	no div. potential	high	40
84-MB-066	4	0.389	watercourse	yes, road	high	40
84-UG	10	0.964	ditch relief	no div. potential	high	40
84-GP-034-13	1	0.121	watercourse	no div. potential	high	35
84-CE-035	4	0.368	watercourse	no div. potential	high	33
84-MB	22	1.976	ditch relief	no div. potential	high	30
84-MB	50	4.024	ditch relief	yes, ditch	high	30
84-MB	58	4.701	ditch relief	yes, road	high	30
84-MB	7	0.675	ditch relief	yes, ditch	high	30

Road Number	Site Number	Mile Post	Culvert Type	Diversion Potential	Treatment Immediacy	Controllable Volume (yd3)
84-GP-080	7	0.710	watercourse	no div. potential	high	30
84-MB-066	13	1.211	watercourse	yes, ditch	high	30
84-MB-066-17	3	0.272	watercourse	no div. potential	high	30
84-UG	7	0.494	watercourse	no div. potential	high	30
84-CP-007	3	0.277	ditch relief	yes, road	high	25
84-MB	16	1.484	ditch relief	yes, ditch	high	25
84-MB	18	1.703	ditch relief	yes, ditch	high	25
84-MB	20	1.809	ditch relief	yes, road	high	25
84-MB	47	3.747	watercourse	yes, road	high	25
84-MB-015	3	0.244	ditch relief	yes, ditch	high	25
84-MB-053-02	1	0.074	watercourse	yes, road	high	25
84-UG	6	0.395	ditch relief	already diverted	high	25
84-CO	23	2.258	watercourse	yes, road	high	25
84-LG-041-17	1	0.071	watercourse	no div. potential	high	25
84-MR-009	4	0.404	ditch relief	yes, road	high	25
84-GC	5	0.457	watercourse	yes, road	high	22
84-CP	21	2.047	watercourse	no div. potential	high	20
84-CP	23	2.086	ditch relief	no div. potential	high	20
84-MB	11	1.090	watercourse	yes, ditch	high	20
84-MB	45	3.336	ditch relief	yes, road	high	20
84-MB	51	4.154	watercourse	yes, road	high	20
84-MB	60	4.866	ditch relief	yes, road	high	20
84-MB	65	5.148	watercourse	already diverted	high	20
84-MB	9	0.931	watercourse	yes, road	high	20
84-MB-053-08	1	0.105	watercourse	no div. potential	high	20
84-GP-062-02	2	0.176	watercourse	no div. potential	high	20
84-MB	70	5.952	watercourse	no div. potential	high	20
84-MB-068	6	0.505	watercourse	no div. potential	high	20
84-MB-016	3	0.286	ditch relief	yes, road	high	15
84-MB-053	7	0.659	ditch relief	yes, ditch	high	15
84-MB-053-08	8	0.819	ditch relief	yes, ditch	high	15
84-UG	2	0.180	watercourse	yes, ditch	high	15
84-GP-034	4	0.337	ditch relief	no div. potential	high	15
84-MB	69	5.912	ditch relief	no div. potential	high	15
84-MB	44	3.296	ditch relief	yes, road	high	10
84-MB-053-08	4	0.449	ditch relief	yes, road	high	10
84-GP-034-13-01	2	0.163	watercourse	no div. potential	high	10
84-GP-062	1	0.005	ditch relief	yes, ditch	high	5
84-GP-062	2	0.088	ditch relief	no div. potential	high	5
84-CP-007-04	2	0.098	watercourse	no div. potential	high	0
84-LG-021	3	0.264	watercourse	no div. potential	high	0
84-CP-008-03	7	0.722	watercourse	no div. potential	high	undetermined
84-UG	8	0.681	watercourse	no div. potential	moderate	70
84-MB-053-08	2	0.121	ditch relief	no div. potential	moderate	50
84-MB	33	2.732	watercourse	yes, road	moderate	40
84-MB	19	1.722	ditch relief	yes, ditch	moderate	30
84-MB	26	2.315	watercourse	no div. potential	moderate	30
84-MB	21	1.898	ditch relief	no div. potential	moderate	25
84-MB	57	4.577	watercourse	yes, ditch	moderate	25

Road Number	Site Number	Mile Post	Culvert Type	Diversion Potential	Treatment Immediacy	Controllable Volume (yd3)
84-MB-016	1	0.066	ditch relief	yes, road	moderate	15
84-MB-066	2	0.159	watercourse	yes, ditch	moderate	undetermined
84-MB-066	1	0.125	watercourse	no div. potential	low	500
84-CP	18	1.763	watercourse	no div. potential	low	460
84-MB-066	10	0.972	watercourse	no div. potential	low	300
84-MB-066	11	0.974	watercourse	no div. potential	low	300
84-LG-041	15	1.467	watercourse	no div. potential	low	250
84-LG-041	21	2.081	watercourse	no div. potential	low	220
84-CP-007-04	1	0.036	watercourse	no div. potential	low	200
84-GP-034	7	0.650	watercourse	no div. potential	low	200
84-LG-041	20	2.009	watercourse	no div. potential	low	200
84-CP-007-09	3	0.306	watercourse	no div. potential	low	185
84-LG-049	3	0.260	watercourse	yes, road	low	160
84-MB-068	5	0.369	watercourse	yes, road	low	140
84-MB-014	2	0.172	watercourse	no div. potential	low	120
84-MB-066	3	0.289	watercourse	no div. potential	low	100
84-MR-009	5	0.511	watercourse	no div. potential	low	100
84-LG	35	3.490	watercourse	yes, road	low	90
84-CE-035	9	0.835	watercourse	no div. potential	low	80
84-LG	54	5.368	watercourse	yes, road	low	80
84-MB-068	2	0.210	watercourse	no div. potential	low	80
84-UG	13	1.218	watercourse	no div. potential	low	80
84-MB	56	4.538	watercourse	yes, ditch	low	70
84-MB	62	5.007	watercourse	yes, road	low	70
84-CO	8	0.829	watercourse	no div. potential	low	70
84-GP-034-13	4	0.363	watercourse	no div. potential	low	70
84-MB	73	6.178	watercourse	no div. potential	low	62
84-CP	1	0.127	watercourse	yes, road	low	60
84-CP	22	2.006	watercourse	no div. potential	low	60
84-MB	13	1.292	watercourse	no div. potential	low	60
84-MB	23	2.051	watercourse	yes, ditch	low	60
84-MB	27	2.418	ditch relief	yes, ditch	low	60
84-MB	28	2.455	watercourse	no div. potential	low	60
84-MB	3	0.303	watercourse	no div. potential	low	60
84-MB	5	0.490	ditch relief	yes, ditch	low	60
84-CO	16	1.565	watercourse	no div. potential	low	60
84-CO-022	2	0.144	watercourse	no div. potential	low	60
84-GP-010	2	0.152	watercourse	no div. potential	low	60
84-LG	51	4.973	watercourse	no div. potential	low	60
84-LG-041	14	1.443	watercourse	no div. potential	low	60
84-CO-022	1	0.069	watercourse	yes, road	low	55
84-CP	20	1.949	watercourse	no div. potential	low	50
84-MB	1	0.108	watercourse	yes, ditch	low	50
84-MB	2	0.223	ditch relief	yes, road	low	50
84-CO	20	1.964	watercourse	no div. potential	low	50
84-CO	9	0.878	watercourse	no div. potential	low	50
84-MR-009	2	0.237	watercourse	yes, road	low	50
84-CE-035	5	0.451	watercourse	no div. potential	low	45
84-MB	46	3.456	watercourse	yes, road	low	45

Road Number	Site Number	Mile Post	Culvert Type	Diversion Potential	Treatment Immediacy	Controllable Volume (yd3)
84-GP-010-34	1	0.048	watercourse	yes, road	low	45
84-MB	78	7.348	watercourse	yes, road	low	45
84-CO	7	0.731	watercourse	no div. potential	low	40
84-MB	31	2.594	ditch relief	yes, road	low	40
84-MB	66	5.166	ditch relief	yes, road	low	40
84-MB	8	0.771	watercourse	yes, road	low	40
84-CO	18	1.688	watercourse	yes, road	low	40
84-CO	22	2.238	watercourse	no div. potential	low	40
84-GP-034	3	0.334	watercourse	no div. potential	low	40
84-LG	50	4.919	watercourse	yes, road	low	40
84-MB	71	6.060	ditch relief	no div. potential	low	40
84-MR-008-07	2	0.233	watercourse	no div. potential	low	40
84-MB	15	1.459	watercourse	yes, ditch	low	35
84-MB	35	2.812	watercourse	no div. potential	low	35
84-MB	40	3.168	watercourse	yes, road	low	35
84-MB	54	4.408	watercourse	yes, road	low	35
84-MB-015	2	0.181	ditch relief	yes, ditch	low	35
84-MB-053	8	0.784	ditch relief	yes, road	low	35
84-CO	24	2.286	watercourse	yes, road	low	35
84-CO-002	6	0.551	watercourse	no div. potential	low	35
84-GP-080	2	0.110	watercourse	no div. potential	low	35
84-MB	76	6.771	watercourse	yes, road	low	35
84-CE-035	6	0.514	watercourse	no div. potential	low	30
84-CE-035	8	0.670	watercourse	yes, road	low	30
84-CP-007	1	0.176	watercourse	no div. potential	low	30
84-CP-007-06	1	0.117	watercourse	no div. potential	low	30
84-MB	10	1.033	watercourse	yes, road	low	30
84-MB	17	1.535	ditch relief	yes, road	low	30
84-MB	24	2.134	ditch relief	yes, road	low	30
84-MB	29	2.494	ditch relief	undetermined	low	30
84-MB	37	2.956	ditch relief	no div. potential	low	30
84-MB	64	5.103	ditch relief	yes, ditch	low	30
84-UG	4	0.285	ditch relief	no div. potential	low	30
84-CP-002	1	0.015	ditch relief	no div. potential	low	25
84-CP-007	4	0.358	watercourse	yes, road	low	25
84-MB	25	2.247	watercourse	no div. potential	low	25
84-MB	39	3.084	ditch relief	yes, road	low	25
84-MB	41	3.180	watercourse	yes, road	low	25
84-MB	42	3.220	ditch relief	yes, road	low	25
84-MB	52	4.312	watercourse	no div. potential	low	25
84-MB	55	4.434	watercourse	yes, road	low	25
84-UG	5	0.368	watercourse	yes, road	low	25
84-CO	25	2.318	watercourse	yes, road	low	25
84-CO	28	2.702	watercourse	yes, road	low	25
84-CO-002	7	0.564	watercourse	no div. potential	low	25
84-CO-018	3	0.277	watercourse	yes, road	low	25
84-MB	72	6.117	watercourse	yes, road	low	25
84-MB	74	6.259	watercourse	no div. potential	low	25
84-MB	75	6.684	ditch relief	yes, road	low	22

Culverts Controllable Erosion Sites

Greenwood WAU

Road Number	Site Number	Mile Post	Culvert Type	Diversion Potential	Treatment Immediacy	Controllable Volume (yd3)
84-MB	12	1.230	ditch relief	yes, road	low	20
84-MB	36	2.939	watercourse	no div. potential	low	20
84-MB	43	3.273	ditch relief	yes, road	low	20
84-MB	48	3.862	watercourse	no div. potential	low	20
84-MB	59	4.809	watercourse	yes, road	low	20
84-MB	68	5.318	ditch relief	yes, road	low	20
84-CO-028	1	0.115	watercourse	no div. potential	low	20
84-UG	12	1.090	watercourse	yes, road	low	20
84-MB	67	5.236	ditch relief	yes, ditch	low	18
84-CE-035	7	0.636	watercourse	no div. potential	low	17
84-CE-035	1	0.098	watercourse	yes, road	low	16
84-CP	16	1.587	ditch relief	yes, road	low	15
84-CP	19	1.838	watercourse	yes, road	low	15
84-CP-007	2	0.239	ditch relief	no div. potential	low	15
84-BG	1	0.036	watercourse	no div. potential	low	15
84-CO	27	2.657	watercourse	yes, road	low	15
84-CO	29	2.789	watercourse	no div. potential	low	15
84-UG	3	0.237	ditch relief	no div. potential	low	15
84-MB	77	6.786	watercourse	yes, road	low	13
84-MB	61	4.943	ditch relief	no div. potential	low	10
84-MB-014	3	0.264	watercourse	no div. potential	low	0
84-LG-041	7	0.689	watercourse	no div. potential	low	undetermined
84-LG-041	23	2.344	ditch relief	undetermined	none	undetermined

Road Number	Site Number	Mile Post	Road Slide Type	Treatment Immediacy	Controllable Volume (yd ³)	Distance from Stream (ft)
84-MB	23	2.267	fill	high	125	0-50
84-UG	2	0.188	fill	high	44	0-50
84-MB-068	5	0.385	fill	high	35	0-50
84-MB-053	1	0.025	streambank	high	33	0-50
84-CP	1	0.048	cutbank	high	25	0-50
84-MB	52	5.227	fill	high	16	50-200
84-GP-010	4	0.283	unknown	high	undetermined	50-200
84-MB-066	2	0.077	fill	high	undetermined	0-50
84-GP-010	1	0.112	fill	moderate	1000	0-50
84-CA-036-08	4	0.416	unknown	moderate	550	50-200
84-GP-010	8	0.409	fill	moderate	500	>200
84-UG-004	3	0.217	fill	moderate	400	0-50
84-MB-066-17	19	1.864	streambank	moderate	400	0-50
84-LG-038	4	0.371	fill	moderate	300	50-200
84-MB-052	1	0.141	fill	moderate	250	>200
84-MR-008-07-02	2	0.227	streambank	moderate	200	0-50
84-MB-037-05	4	0.389	streambank	moderate	80	0-50
84-UG	8	0.751	streambank	moderate	80	0-50
84-MB-037	8	0.778	fill	moderate	65	50-200
84-CP-008	6	0.625	fill	moderate	40	0-50
84-MB-068	2	0.202	cutbank	moderate	32	0-50
84-UG	10	1.041	streambank	moderate	30	0-50
84-MB-053	2	0.144	fill	moderate	26	50-200
84-CO-002	5	0.524	fill	moderate	undetermined	>200
84-LG-024	5	0.494	fill	moderate	undetermined	>200
84-UG	42	4.229	cutbank	moderate	undetermined	0-50
84-UG	9	0.948	cutbank	moderate	undetermined	0-50
84-GP-010	2	0.179	fill	low	800	>200
84-MB-066	17	1.710	fill	low	550	>200
84-MB-037	12	0.996	cutbank	low	500	>200
84-GP-010	5	0.314	fill	low	500	>200
84-MB-066-17	11	1.056	fill	low	500	>200
84-CA-036-08	5	0.525	fill	low	370	50-200
84-CP-007-07	4	0.384	cutbank	low	300	>200
84-CW-004	2	0.143	fill	low	250	>200
84-MB-066-17	5	0.536	fill	low	250	>200
84-MB-079	3	0.234	fill	low	200	50-200
84-UG-004	4	0.272	cutbank	low	200	50-200
84-CW-004	4	0.209	fill	low	200	>200
84-UG	37	3.557	fill	low	200	50-200
84-GP-010	6	0.341	cutbank	low	150	50-200
84-MB-066-17	23	2.115	cutbank	low	150	>200
84-MB-066-17	24	2.187	cutbank	low	130	>200
84-LG-038	7	0.666	fill	low	120	0-50
84-UG-004	5	0.543	cutbank	low	100	50-200
84-MB-066-17	20	1.937	cutbank	low	100	50-200
84-MB-052	3	0.344	cutbank	low	90	>200
84-CE	35	3.491	fill	low	80	>200
84-MB-079	1	0.090	fill	low	80	>200
84-CW-004	1	0.130	cutbank	low	80	>200

Road Number	Site Number	Mile Post	Road Slide Type	Treatment Immediacy	Controllable Volume (yd ³)	Distance from Stream (ft)
84-MB-066-17	22	2.071	cutbank	low	75	>200
84-MB-079	2	0.151	cutbank	low	70	0-50
84-MB-066	23	2.348	cutbank	low	60	0-50
84-MR-008-07-03	1	0.141	fill	low	60	50-200
84-CW-004	3	0.162	fill	low	50	>200
84-GP-010	3	0.251	cutbank	low	50	>200
84-GP-034-13-01	4	0.083	cutbank	low	50	50-200
84-MR-008-07-02	1	0.087	streambank	low	50	0-50
84-MB-037	11	0.989	cutbank	low	40	50-200
84-MB-037	3	0.296	cutbank	low	40	50-200
84-GP-034-13	1	0.097	fill	low	40	>200
84-GP-070	16	1.599	streambank	low	40	0-50
84-LG	26	2.618	fill	low	40	50-200
84-LG-038	11	1.060	fill	low	40	0-50
84-MB-068	18	1.756	cutbank	low	40	>200
84-MB-015	9	0.944	fill	low	35	50-200
84-CW-004	5	0.269	fill	low	30	>200
84-GP-034-13-01	6	0.125	cutbank	low	30	0-50
84-GP-034-13-01	8	0.148	streambank	low	30	0-50
84-LG-041	13	1.268	fill	low	30	0-50
84-MB-068	9	0.897	cutbank	low	25	>200
84-GP-010	7	0.347	fill	low	20	>200
84-MR-009-05	1	0.044	cutbank	low	20	50-200
84-GP-080-08	10	1.028	streambank	low	15	0-50
84-GP-080-08	11	1.124	streambank	low	15	0-50
84-UG	36	3.493	fill	low	15	50-200
84-CP	15	1.464	fill	low	0	>200
84-CP	16	1.492	fill	low	0	>200
84-CP-001	1	0.008	fill	low	0	>200
84-CP-002	2	0.197	cutbank	low	0	50-200
84-CP-002	3	0.211	fill	low	0	50-200
84-MB	28	2.755	cutbank	low	0	50-200
84-MB	36	3.569	cutbank	low	0	50-200
84-MB-037	10	0.860	streambank	low	0	0-50
84-MB-037	6	0.562	fill	low	0	>200
84-MB-037	7	0.578	fill	low	0	>200
84-MB-037	9	0.804	streambank	low	0	0-50
84-MB-037-05	1	0.021	fill	low	0	>200
84-MB-053-08	6	0.613	fill	low	0	>200
84-MB-079-04	3	0.261	cutbank	low	0	>200
84-UG-004	2	0.181	fill	low	0	0-50
84-CO-002	6	0.552	cutbank	low	0	0-50
84-CW-016	15	1.454	fill	low	0	>200
84-CW-016-17	2	0.219	cutbank	low	0	>200
84-CW-016-17	3	0.298	cutbank	low	0	>200
84-CW-016-17	4	0.336	fill	low	0	>200
84-GP-034	13	1.319	cutbank	low	0	50-200
84-GP-034	15	1.517	cutbank	low	0	>200
84-GP-034-13	2	0.133	cutbank	low	0	0-50

Road Number	Site Number	Mile Post	Road Slide Type	Treatment Immediacy	Controllable Volume (yd ³)	Distance from Stream (ft)
84-GP-034-13	3	0.158	fill	low	0	50-200
84-GP-034-13	4	0.185	fill	low	0	50-200
84-GP-034-13	5	0.220	cutbank	low	0	>200
84-GP-034-13	6	0.284	fill	low	0	>200
84-GP-034-13	7	0.350	cutbank	low	0	0-50
84-GP-034-13-01	1	0.011	fill	low	0	>200
84-GP-034-13-01	10	0.179	cutbank	low	0	0-50
84-GP-034-13-01	2	0.074	cutbank	low	0	>200
84-GP-034-13-01	3	0.075	cutbank	low	0	>200
84-GP-034-13-01	5	0.119	cutbank	low	0	0-50
84-GP-034-13-01	7	0.147	cutbank	low	0	0-50
84-GP-034-13-01	9	0.173	cutbank	low	0	0-50
84-GP-070	2	0.239	fill	low	0	>200
84-GP-070	5	0.518	fill	low	0	50-200
84-GP-080-08	12	1.226	streambank	low	0	0-50
84-LG	20	1.975	cutbank	low	0	>200
84-LG	24	2.351	fill	low	0	>200
84-LG	36	3.594	cutbank	low	0	>200
84-LG	55	5.484	cutbank	low	0	>200
84-LG-024	2	0.194	fill	low	0	>200
84-LG-024	4	0.379	cutbank	low	0	>200
84-LG-038	12	1.140	cutbank	low	0	>200
84-LG-038	5	0.530	fill	low	0	50-200
84-LG-041	10	0.992	cutbank	low	0	>200
84-LG-041	11	1.006	cutbank	low	0	>200
84-LG-041	20	2.028	cutbank	low	0	0-50
84-LG-041	23	2.284	cutbank	low	0	>200
84-LG-041	30	3.045	cutbank	low	0	50-200
84-LG-041	7	0.661	cutbank	low	0	50-200
84-LG-041-10	2	0.171	fill	low	0	0-50
84-LG-049	2	0.167	cutbank	low	0	>200
84-MB-062	3	0.273	cutbank	low	0	0-50
84-MB-066	1	0.038	cutbank	low	0	>200
84-MB-066-13	3	0.319	cutbank	low	0	50-200
84-MB-066-13	5	0.528	cutbank	low	0	>200
84-MB-066-17	12	1.167	cutbank	low	0	>200
84-MB-066-17	21	2.055	fill	low	0	>200
84-MB-067-01	1	0.054	cutbank	low	0	>200
84-MB-068	4	0.355	cutbank	low	0	50-200
84-MB-068	6	0.623	cutbank	low	0	50-200
84-MR-008-07-02	6	0.612	fill	low	0	50-200
84-MR-009	7	0.703	cutbank	low	0	>200
84-MR-009	8	0.790	cutbank	low	0	>200
84-MR-009	9	0.805	cutbank	low	0	>200
84-MR-009-02-01	1	0.040	cutbank	low	0	>200
84-MR-009-02-01	2	0.052	cutbank	low	0	>200
84-MR-012	5	0.462	cutbank	low	0	50-200
84-MR-013-05	1	0.134	cutbank	low	0	>200
84-UG	16	1.601	cutbank	low	0	50-200

Road Number	Site Number	Mile Post	Road Slide Type	Treatment Immediacy	Controllable Volume (yd ³)	Distance from Stream (ft)
84-UG	35	3.484	fill	low	0	50-200
84-UG	41	4.142	cutbank	low	0	0-50
84-UG	46	4.575	cutbank	low	0	50-200
84-MB-053-08	5	0.472	cutbank	low	undetermined	50-200
84-MB-053-08	9	0.856	fill	low	undetermined	>200
84-LG-024	8	0.790	cutbank	low	undetermined	>200
84-LG-038	8	0.811	cutbank	low	undetermined	50-200
84-LG-041	3	0.314	fill	low	undetermined	>200
84-MB-066	13	1.333	fill	low	undetermined	>200
84-MB-066	6	0.551	cutbank	low	undetermined	0-50
84-MB-066	8	0.831	fill	low	undetermined	50-200
84-MB-037	13	0.999	fill	none	0	>200
84-UG-004	6	0.617	unknown	none	0	50-200

Culvert Sizing Analysis for Greenwood WAU Watercourse Culverts

Mean Annual Precipitation (in.)

Road Number	Site Num.	Culvert Diameter (in.)	Area (ac)	Mean Annual Precipitation (in.)		50 yr flood (cfs)	100 year flood (cfs)	50 yr Culvert Size (in)	100 yr Culvert Size (in)	50 yr pass	100 yr pass
				39	50 year flood (cfs)						
84UG0050000c6	84-UG-005	24	34	23	24	30	30	NO	NO		
84UG0000000c7	84-UG	36	32	21	23	30	30	YES	YES		
84UG0000000c6	84-UG	24	9	7	8	18	18	YES	YES		
84UG0000000c5	84-UG	24	32	21	23	30	30	NO	NO		
84UG0000000c2	84-UG	18	15	11	12	24	24	NO	NO		
84UG0000000c17	84-UG	18	19	13	14	24	24	NO	NO		
84UG0000000c13	84-UG	24	67	40	43	36	36	NO	NO		
84UG0000000c12	84-UG	24	49	31	33	30	30	NO	NO		
84UG0000000c11	84-UG	24	19	13	14	24	24	YES	YES		
84MR0060000c9	84-MR-006	24	327	161	173	60	60	NO	NO		
84MB0680000c7	84-MB-068	18	14	10	11	24	24	NO	NO		
84MB0680000c6	84-MB-068	18	21	15	16	24	24	NO	NO		
84MB0680000c5	84-MB-068	24	8	6	7	18	18	YES	YES		
84MB0680000c3	84-MB-068	36	57	35	38	36	36	YES	YES		
84MB0680000c2	84-MB-068	24	25	17	18	24	24	YES	YES		
84MB0660000c3	84-MB-066	36	49	31	33	30	30	YES	YES		
84MB0660000c2	84-MB-066	24	13	10	11	24	24	YES	YES		
84MB0660000c10	84-MB-066	24	162	87	94	48	48	NO	NO		
84MB0660000c1	84-MB-066	36	85	50	53	36	42	YES	NO		
84MB0620000c3	84-MB-062	18	22	16	17	24	24	NO	NO		
84MB0620000c1	84-MB-062	18	18	13	14	24	24	NO	NO		
84MB0000000c9	84-MB	18	20	14	15	24	24	NO	NO		
84MB0000000c8	84-MB	18	15	11	12	24	24	NO	NO		
84MB0000000c75	84-MB	18	8	6	6	18	18	YES	YES		
84MB0000000c74	84-MB	18	26	18	19	24	30	NO	NO		
84MB0000000c71	84-MB	18	20	14	15	24	24	NO	NO		
84MB0000000c70	84-MB	24	32	21	23	30	30	NO	NO		
84MB0000000c69	84-MB	24	24	17	18	24	24	YES	YES		
84MB0000000c60	84-MB	36	93	54	58	42	42	NO	NO		
84MB0000000c56	84-MB	24	19	13	14	24	24	YES	YES		
84MB0000000c55	84-MB	36	52	32	35	30	36	YES	YES		
84MB0000000c54	84-MB	18	15	11	12	24	24	NO	NO		
84MB0000000c53	84-MB	24	19	14	15	24	24	YES	YES		
84MB0000000c52	84-MB	18	22	15	16	24	24	NO	NO		
84MB0000000c51	84-MB	18	14	11	11	24	24	NO	NO		
84MB0000000c48	84-MB	18	14	10	11	24	24	NO	NO		
84MB0000000c45	84-MB	18	23	16	17	24	24	NO	NO		
84MB0000000c40	84-MB	24	33	22	24	30	30	NO	NO		
84MB0000000c37	84-MB	18	22	15	16	24	24	NO	NO		
84MB0000000c35	84-MB	18	18	13	14	24	24	NO	NO		
84MB0000000c33	84-MB	24	15	11	12	24	24	YES	YES		
84MB0000000c32	84-MB	18	11	8	9	18	24	YES	NO		
84MB0000000c31	84-MB	24	22	15	16	24	24	YES	YES		
84MB0000000c29	84-MB	24	20	14	15	24	24	YES	YES		
84MB0000000c25	84-MB	18	20	14	15	24	24	NO	NO		
84MB0000000c24	84-MB	18	15	11	12	24	24	NO	NO		
84MB0000000c22	84-MB	36	50	31	34	30	30	YES	YES		
84MB0000000c15	84-MB	12	9	7	7	18	18	NO	NO		
84MB0000000c13	84-MB	36	818	357	385	72	72	NO	NO		
84MB0000000c10	84-MB	24	34	22	24	30	30	NO	NO		
84LG0490000c3	84-LG-049	24	81	48	52	36	42	NO	NO		
84LG0410000c7	84-LG-041	36	34	22	24	30	30	YES	YES		
84LG0410000c28	84-LG-041	24	45	29	31	30	30	NO	NO		
84LG0410000c25	84-LG-041	18	21	15	16	24	24	NO	NO		
84LG0410000c21	84-LG-041	24	34	23	24	30	30	NO	NO		
84LG0410000c20	84-LG-041	24	28	19	20	30	30	NO	NO		
84LG0410000c18	84-LG-041	24	56	34	37	30	36	NO	NO		
84LG0410000c15	84-LG-041	24	93	54	58	42	42	NO	NO		
84LG0000000c54	84-LG	48	88	51	55	42	42	YES	YES		
84LG0000000c50	84-LG	36	29	19	21	30	30	YES	YES		
84LG0000000c49	84-LG	24	28	19	20	30	30	NO	NO		
84LG0000000c43	84-LG	24	110	62	67	42	42	NO	NO		
84LG0000000c38	84-LG	36	110	62	67	42	42	NO	NO		
84LG0000000c35	84-LG	36	13	10	10	24	24	YES	YES		
84GP0800000c7	84-GP-080	18	135	74	80	42	42	NO	NO		
84GP0800000c6	84-GP-080	18	59	36	39	36	36	NO	NO		
84GP0800000c2	84-GP-080	18	36	24	26	30	30	NO	NO		
84GP0340000c7	84-GP-034	18	19	13	14	24	24	NO	NO		
84GP0103400c2	84-GP-010-34	18	32	21	23	30	30	NO	NO		
84GP0103400c1	84-GP-010-34	18	28	19	21	30	30	NO	NO		
84GP0100000c2	84-GP-010	24	23	16	17	24	24	YES	YES		
84GP0100000c1	84-GP-010	24	30	20	21	30	30	NO	NO		
84GC0000000c5	84-GC	18	19	13	14	24	24	NO	NO		

Culvert Sizing Analysis for Greenwood WAU Watercourse Culverts

Mean Annual Precipitation (in.)

Road Number	Site Num.	Culvert Diameter (in.)	Area (ac)	39		50 yr	100 yr	50 yr pass	100 yr pass	
				50 year flood (cfs)	100 year flood (cfs)					
84CP0270000c3	84-CP-027	12	34	23	24	30	30	NO	NO	
84CP0240000c1	84-CP-024	30	15	11	12	24	24	YES	YES	
84CP0160000c9	84-CP-016	0	12	9	10	24	24	NO	NO	
84CP0160000c13	84-CP-016	24	13	10	10	24	24	YES	YES	
84CP0160000c12	84-CP-016	24	22	16	17	24	24	YES	YES	
84CP0160000c11	84-CP-016	24	11	9	9	24	24	YES	YES	
84CP0160000c10	84-CP-016	24	9	7	7	18	18	YES	YES	
84CP0130000c7	84-CP-013	24	74	44	47	36	36	NO	NO	
84CP0080200c1	84-CP-008-02	24	114	64	69	42	42	NO	NO	
84CP0080000c9	84-CP-008	18	13	9	10	24	24	NO	NO	
84CP0080000c13	84-CP-008	18	17	12	13	24	24	NO	NO	
84CP0080000c1	84-CP-008	18	131	72	78	42	42	NO	NO	
84CP0000000c5	84-CP	36	130	72	77	42	42	NO	NO	
84CP0000000c23	84-CP	24	89	52	56	42	42	NO	NO	
84CP0000000c22	84-CP	0	10	8	8	18	18	NO	NO	
84CP0000000c20	84-CP	0	9	7	8	18	18	NO	NO	
84CP0000000c2	84-CP	0	33	22	24	30	30	NO	NO	
84CP0000000c14	84-CP	18	176	94	101	48	48	NO	NO	
84CP0000000c12	84-CP	36	111	63	68	42	42	NO	NO	
84CO0280000c1	84-CO-028	36	16	12	13	24	24	YES	YES	
84CO0220000c2	84-CO-022	24	29	20	21	30	30	NO	NO	
84CO0220000c1	84-CO-022	18	13	10	11	24	24	NO	NO	
84CO0180100c3	84-CO-018-01	18	4	3	4	18	18	YES	YES	
84CO0020500c7	84-CO-002-05	18	9	7	8	18	18	YES	YES	
84CO0000000c9	84-CO	18	2	2	2	18	18	YES	YES	
84CO0000000c8	84-CO	18	3	2	2	18	18	YES	YES	
84CO0000000c7	84-CO	18	2	2	2	18	18	YES	YES	
84CO0000000c17	84-CO	18	1	1	1	18	18	YES	YES	
84CO0000000c16	84-CO	18	1	1	1	18	18	YES	YES	
84CE0350000c8	84-CE-035	18	14	10	11	24	24	NO	NO	
84CE0350000c7	84-CE-035	18	12	9	10	24	24	NO	NO	
84CE0350000c6	84-CE-035	36	4	4	4	18	18	YES	YES	
84CE0350000c5	84-CE-035	36	4	3	4	18	18	YES	YES	
84CE0350000c4	84-CE-035	36	7	6	6	18	18	YES	YES	
84CE0350000c1	84-CE-035	36	4	3	4	18	18	YES	YES	
								Percent "NO"	62%	64%
								Total "NO"	67	69