SECTION A
MASS WASTING

INTRODUCTION

This module summarizes the methods and results of a mass wasting assessment conducted on the Mendocino Redwood Company, LLC (MRC) ownership in the Big River watershed, the Big River Watershed Analysis Unit (Big River WAU). This assessment is part of a watershed analysis initiated by MRC and utilizes modified methodology adapted from procedures outlined in the Standard Methodology for Conducting Watershed Analysis (Version 4.0, Washington Forest Practices Board).

The principle objectives of this assessment are to:
1) Identify the types of mass wasting processes active in the basin.
2) Identify the link between mass wasting and select forest management related activities.
3) Identify where the mass wasting processes are concentrated.
4) Partition the ownership into zones of relative mass wasting potential (Mass Wasting Map Units) based on the likelihood of future mass wasting and sediment delivery to stream channels.

Additionally, the role of mass wasting sediment input to watercourses is examined. This information combined with the results of the Surface and Point Source Erosion module is used to construct a sediment input summary for the Big River WAU, contained in the Sediment Input Summary section of this watershed analysis.

The products of this report are: a landslide inventory map (Map A-1), a mass wasting map unit (MWMU) map (Map A-2), and a mass wasting inventory database (Appendix A). The data for these products are the interpretation of three sets of aerial photographs (1978, 1987, 2000), field observations during the summer of 2001, and interpretation of SHALSTAB predictions. The analysis was done without the use of older aerial photographs (pre-1970s). Therefore the analysis presented is, in general, representative for recent mass wasting conditions (last 32 years).

The assembled information will enable forestland managers to make better forest management decisions to reduce management-induced risk of mass wasting. The mass wasting inventory will provide the information necessary to understand the spatial distribution, causal mechanisms, relative size, and timing of mass wasting processes active in the basin with reasonable confidence.

LANDSLIDE TYPES AND PROCESSES IN THE BIG RIVER WAU

The terminology used to describe landslides in this report closely follows the definitions of Cruden and Varnes (1996). This terminology is based on two nouns, the first describing the material that the landslide is composed of and the second describing the type of movement. Landslides identified in the Big River WAU were described using the following names: debris slides, debris torrents, debris flows, rockslides, and earth flows (if present). These names are described in Cruden and Varnes (1996) with the exception of our use of debris torrent.

Shallow-Seated Landslides

Debris slides, debris flows, and debris torrents are terms used throughout Mendocino Redwood Company's ownership to identify shallow-seated landslide processes. The material composition of debris slides, flows, or torrents is considered to be soil with a significant proportion of coarse material; 20 to 80 percent of the particles larger than 2 mm as stated in Cruden and Varnes (1996). Shallow-seated slides generally move quickly downslope and commonly break apart during failure. Shallow-seated slides commonly occur in converging topography where colluvial materials accumulate and subsurface drainage concentrates. Susceptibility of a slope to fail by shallow-seated landslides is affected by slope steepness, saturation of soil, soil strength (friction angle and cohesion), and root strength. Due to the shallow depth and fact that debris slides, flows, or torrents involve the soil mantle, these are landslide types that can be significantly influenced by forest practices.

Debris slides are, by far, the most common landslide type observed in the WAU. The landslide mass typically fails along a surface of rupture or along relatively thin zones of intense shear strain located near the base of the soil profile. The landslide deposit commonly slides a distance beyond the toe of the surface of rupture and onto the ground surface below the failure; it generally does not slide more than the distance equal to the length of the failure scar. Landslides with deposits that traveled a longer distance below the failure scar would be defined as debris flow or debris torrent. Debris slides commonly occur on steep planar slopes, convergent slopes, along forest roads and on steep slopes adjacent to watercourses. They usually fail by translational movement along an undulating or planar surface of failure. By definition debris slides do not continue downstream upon reaching a watercourse.

A debris flow is similar to a debris slide with the exception that the landslide mass continues to "flow" down the slope below the failure a considerable distance on top of the ground surface. A debris flow is characterized as a mobile, potentially rapid, slurry of soil, rock, vegetation, and water. High water content is needed for this process to occur. Debris flows generally occur on both steep, planar hillslopes and confined, convergent hillslopes. Often a failure will initiate as a debris slide, but will change as its moves downslope to a debris flow. During this analysis no debris flows where observed.

Debris torrents have the greatest potential to destroy stream habitat and deliver large amounts of sediment. The main characteristic distinguishing a debris torrent is that the mass of failed soil and debris "torrents" downstream in a confined channel and erodes the channel. As the debris torrent moves downslope and scours the channel, the liquefied landslide material increases in mass. Highly saturated soil or run-off in a channel is required for this process to occur. Debris torrents move rapidly and can potentially run down a channel for great distances. They typically initiate in headwall swales and torrent down intermittent watercourses. Often a failure will initiate as a debris slide, but will develop into a debris torrent upon reaching a channel. While actually a combination of two processes, these features were considered debris torrents.

Sediment Input from Shallow-Seated Landslides

The overall time period used for mass wasting interpretation and sediment budget analysis is approximately thirty years. Sediment input to stream channels by mass wasting is quantified for three time periods: the 1970's (using 1978 photographs), the 1980's (using 1987 photographs) and the 1990's (using 2000 photographs and 2001 field observations). The evaluation assumes that about 10 years of mass wasting is observed in the aerial photograph. Landslide surfaces can re-vegetate quickly, making mass wasting older than about 10 years difficult to see. We acknowledge that we have likely missed some small mass wasting events during the aerial photograph interpretation. However, we assume we have captured the majority of the larger mass wasting events in this analysis. It is the large mass wasting events that provide the greatest sedimentation impacts. In the case of the landslides observed in the Big River WAU, landslides greater than 300 cubic yards in size represented over 70% of the sediment delivery estimated. Landslides greater than 200 and 100 cubic yards in size represented approximately 97% and >99%, respectively of the sediment delivery estimated.

Sediment delivery estimates from mapped shallow-seated landslides were used to produce the total mass wasting sediment input. Some of the sediment delivery from shallow-seated landslides is the result of conditions created by deep-seated landslides. For example, a deep-seated failure could result in a debris slide or torrent, which could deliver sediment. Furthermore, over-steepened scarps or toes of deep-seated landslides may have shallow failures associated with them. These types of sediment delivery from shallow-seated landslides associated with deep-seated landslides are accounted for in the delivery estimates.

Deep-Seated Landslides

The deep-seated landslides identified in the Big River WAU are termed rockslides. The failure dates of the deep-seated landslides generally could not be estimated with confidence and the landslides are likely to be of varying age with some landslides potentially being over 1000's of years old. Many of the deep-seated landslides are considered "dormant", but the importance of identifying those lies in the fact that if reactivated, they have the potential to deliver large amounts of sediment and impair stream habitat. Accelerated or episodic movement in some landslides is likely to have occurred over time in response to seismic shaking or high rainfall events. Deep-seated landslides can be very large, exceeding tens to hundreds of acres.

Rockslides are deep-seated landslides with movement involving a relatively intact mass of rock and overlying earth materials. The failure plane is below the colluvial layer and involves the underlying bedrock. Mode of rock sliding generally is not strictly rotational or translational, but involves some component of each. Rotational slides typically fail along a concave surface, while translational slides typically fail on a planar or undulating surface of rupture. Rockslides commonly create a flat, or back-tilted bench below the crown of the scarp. A prominent bench is sually preserved over time and can be indicative of a rockslide. Rockslides can fail in response to triggering mechanisms such as seismic shaking, adverse local structural geology, high rainfall, offloading or loading material on the slide, or channel incision. The stream itself can be the cause of chronic movement, if it periodically undercuts the toe of a rockslide.

Sediment Delivery from Deep-Seated Landslides

A large, active deep-seated slide can deliver large volumes of sediment. Delivery generally occurs over long time periods compared to shallow-seated landslides, with movement delivering earth materials into the channel, resulting in an increased sediment load downstream of the failure. Actual delivery can occur by over-steepening of the toe of the slide and subsequent failure into the creek, or by the slide pushing out into the creek. It is very important not to confuse normal stream bank erosion at the toe of a slide as an indicator of movement of that slide. Before making such a connection, the slide surface should be carefully explored for evidence of significant movement, such as wide ground cracks. Sediment delivery could also occur in a catastrophic manner. In such a situation, large portions of the landslide essentially fail and move into the watercourse “instantaneously”. These types of deep-seated failures are relatively rare on MRC property and usually occur in response to unusual storm events or seismic ground shaking.

Movement of deep-seated landslides has definitely resulted in some sediment delivery in the Big River WAU. Quantification of the sediment delivery from deep-seated landslides was not determined in this watershed analysis. Factors such as rate of movement, or depth of the deep-seated landslide are difficult to determine without in-depth geotechnical observations that were not conducted in the analysis. Sediment delivery to watercourses from deep-seated landslides (landslides typically ≥10 feet thick) can occur by several processes. Such processes can include surface erosion and shallow-or deep-seated movement of a portion or all of the deep-seated landslide deposit.

The ground surface of a deep-seated landslide, like any other hillside surface, is subject to surface erosion processes such as rain drop impact, sheet wash (overland flow), and gully/rill erosion. Under these conditions the sediment delivery from surficial processes is assumed the same as adjacent hillside slopes not underlain by landslide deposits. The materials within the landslide are disturbed and can be arguably somewhat weaker. However, once a soil has developed, the fact that the slope is underlain by a deep-seated landslide should make little difference regarding sediment delivery generated by erosional processes that act at the ground surface. Although, fresh unprotected surfaces that develop in response to recent or active movement could become a source of sediment until the bare surface becomes covered with leaf litter, re-vegetated, or soils developed.

Clearly, movement of a portion or all of a deep-seated landslide can result in delivery of sediment to a watercourse. To determine this the slide surface should be carefully explored for evidence of movement. However, movement would need to be on slopes immediately adjacent to or in close proximity to a watercourse and of sufficient magnitude to push the toe of the slide into the watercourse. A deep-seated slide that toes out on a slope far from a creek or moves only a short distance downslope will generally deliver little to a watercourse. It is also important to realize that often only a portion of a deep-seated slide may become active, though the portion could be quite variable in size. Ground cracking at the head of a large, deep-seated landslide does not necessarily equate to immediate sediment delivery at the toe of the landslide. Movement of large deep-seated landslides can create void spaces within the slide mass. Though movement can be clearly indicated by the ground cracks, many times the toe may not respond or show indications of movement until some of the void space is “closed up”. This would be particularly true in the case of very large deep-seated landslides that exhibit ground cracks that are only a few inches to a couple of feet wide. Compared to the entire length of the slide, the amount of movement implied by the ground crack could be very small. This combined with the closing up or “bulking up” of the slide, would not generate much movement, if any, at the toe of the slide. Significant movement, represented by large wide ground cracks, would need to occur to result in significant movement and sediment delivery at the toe of the slide.

Use of SHALSTAB by Mendocino Redwood Company for the Big River WAU

SHALSTAB, a coupled steady state runoff and infinite-slope stability model, is used by MRC as one tool to demonstrate the relative potential for shallow-landslide hazard across the MRC ownership. A detailed description of the model is available in Dietrich and Montgomery (1998). In the watershed analysis mass wasting hazard is expanded beyond SHALSTAB. Areas of mass wasting and sediment delivery hazards are mapped using field and aerial photograph interpretation techniques. However, SHALSTAB output was used to assist in this interpretation of the landscape and mass wasting map units.

METHODS

Landslide Inventory

The mass wasting assessment relies on an inventory of mass wasting features collected through the use of aerial photographs and field observations. The 2000 (color), 1987 (B&W), and 1978 (color) photograph sets used to interpret landslides are owned by MRC. The 2000 photographs are at a scale of 1:13000, the 1987 photographs at a scale of 1:12000, and the 1978 photograph are at a scale of 1:15840. MRC collected data regarding characteristics and measurements of the identified landslides. Since mass wasting events were essentially "temporally sampled" based on available aerial photographs, we acknowledge that some landslides may have been missed, particularly small ones that may be obscured by vegetation. A description of select parameters inventoried for each landslide observed in the field and during aerial photograph interpretation is presented in Figure A-1.

Figure A-1. Description of Select Parameters used to Describe Mass Wasting in the Mass Wasting Inventory.

- Slide I.D. Number: each landslide is assigned a unique number from 1 to n.
- PWS: the planning watershed the landslide occurs in is represented by a two letter code:
    BE = East Branch North Fork Big River
    BI = Rice Creek
    BA = Martin Creek
    BR = Russell Brook
    BM = Mettick Creek
    BT = Two Log Creek
    BG = Laguna Creek
    BS = South Daugherty Creek
    BP = Dark Gulch
    BL = Lower North Fork Big River
- Sec. #: this is the section number the landslide's centroid occurs.
- Air Photo, year, number: designated by 2 numbers representing the year followed by the photograph number of the sequence.
- MWMU: Mass Wasting Map Unit in which landslide is located.
- Landslide Process:
    DS = debris slide
    DT = debris torrent
    DF = debris flow
    RS = rockslide
    EF = earth flow
- Certainty: The certainty of identification is recorded.
    D - Definite, P - Probable; Q - Questionable.

- Size[1]:
    - Length: scarp to toe of body, only shallow slides; top of body to toe, deep seated landslides.
    - Width: lateral scarp to lateral scarp, only shallow slides; mean lateral edge body to lateral edge body, deep seated landslides
    - Depth: 2=0-3 ft, 4=3-5 ft, 6=5-7 ft, 10=>7 ft as interpreted on aerial photograph, or exact amount if field observed, only shallow slides.
- Slide volume: length * width * depth in cubic yards
- Torrent length: length of run-out, only debris flow and debris torrents.
- Sed Routing: sediment routing to stream type, P = delivery to a perennial stream, I = delivery to a intermittent or ephemeral stream, N-No delivery estimated.
- Sed Del Ratio: the percentage of the slide volume that delivered sediment, 25=0-25%, 50=25-50%, 75=50-75%, 100=75-100%, or exact amount if field observed.
- Sediment delivery yd^3: the volume of the landslide that delivered sediment in cubic yards, it is the sediment delivery ratio * the slide volume.
- Sediment delivery tons: the mass of the landslide that delivered to a watercourse in tons. When converting landslide volumes to mass (tons), we assume a soil bulk density of 1.35 grams/cubic centimeter.
- Slope: percent hillslope gradient at landslide, only for field observed landslides.
- Age: time since failure interpreted from aerial photograph for shallow seated landslides: A=active, R=recent <5-10 yrs, 0=old >10 yrs.
- Slope form: C=convergent, D=divergent, P=planar.
- Slide location: landscape location: H=headwall swale, S=steep streamside, I=Inner gorge, N=neither.
- Road assoc.: R=road, S=skid trail; L=landing; N=no association, I=Indeterminate.
- Toe activity: code 1-5, for toe morphology of deep seated landslide, see description in later section.
- Body Morph: code 1-5, for body morphology of deep seated landslide, see description in later section.
- Lat. scarps: code 1-5, for lateral scarp morphology of deep seated landslide, see description in later section.
- Main scarps: code 1-5, for main scarp morphology of deep seated landslide, see description in later section.
- DS veg.: code 1-5, for vegetation characteristics on deep seated landslide, see description in later section.
- Complex Y or N: Yes or No if the feature is a landslide complex or part of a complex.
- Field Obs: Yes or No if field observations for landslide.

---

[1] Landslide dimensions and depths can be quite variable, therefore length, width, and depth values that are recorded are considered to be the average dimension of that feature.

Landslides identified in the field and from aerial photograph observations are plotted on a landslide inventory map (Map A-1). All shallow-seated landslides are identified as a point plotted on the map at the interpreted head scarp of the failure. Deep-seated landslides are represented as a polygon representing the interpreted perimeter of the landslide feature.

The certainty of landslide identification is assessed for each landslide. Three designations are used: definite, probable, and questionable. Definite means the landslide definitely exists. Probable means the landslide probably is there, but there is some doubt in the analyst's interpretation. Questionable means that the interpretation of the landslide identification may be inaccurate; the analyst has the least amount of confidence in the interpretation. Accuracy in identifying landslides on aerial photographs is dependent on the size of the slide, scale of the photographs, thickness of canopy, and logging history. Landslides mapped in areas recently logged or through a thin canopy are identified with the highest level of confidence. Characteristics of the particular aerial photographs used affects confidence in identifying landslides. For example, sun angle creates shadows which may obscure landslides, the print quality of some photo sets varies, and photographs taken at larger scale makes identifying small landslides difficult. The landslide inventory results are considered a minimum estimate of sediment production. This is because landslides that were too small to identify on aerial photographs may have been missed, landslide surfaces could have reactivated in subsequent years and not been quantified, and secondary erosion by rills and gullies on slide surfaces is difficult to assess. However, small landslides cumulatively may not deliver amounts of sediment that would significantly alter total sediment delivery.

Landslides were classified based on the likelihood that a road associated land use practice was associated with the landslide. In this analysis, the effects of silvicultural techniques were not observed. The Big River WAU has been managed, recently and historically, for timber production, it was determined that the effect of silvicultural practices was too difficult to confidently assign to landslides. There have been too many different silvicultural activities over time for reasonable confidence in a landslide evaluation based on silviculture. The land use practices that were assigned to landslides were associations with roads, skid trails, or landings. It was assumed that a landslide adjacent to a road, landing, or skid trail was triggered either directly or indirectly by that land use practice. If a landslide appeared to be influenced by more than one land use practice, the more causative one was noted. If a cutslope failure did not cross the road prism, it was assumed that the failure would remain perched on the road, landing, or skid trail and would not deliver to a watercourse. Some surface erosion could result from a cutslope failure and is assumed to be addressed in the road surface erosion estimates (Surface and Point Source Erosion module).

Mass wasting was separated into three time periods for analysis: 1970's, 1980's, and 1990's. The dates for each of the time periods are based on the date of aerial photographs used to interpret landslides: the 1978 photo interpretations represent 1970's, the 1987 photo interpretations represent 1980's, and 2000 observations represent 1990's. The available aerial photography did not correspond perfectly to ten year time periods for mass wasting assessment, however the time periods and the aerial photographs analyzed approximate decadal intervals. These time periods allow for a general evaluation of the relative magnitude of sediment delivery rate estimates across the Big River WAU.

The characteristics of deep-seated landslides received less attention in the landslide inventory than shallow-seated landslides mainly due to the fact that complicated geotechnical analyses would have to be done to estimate attributes such as depth, failure date, activity, and sediment delivery. Assessment of deep-seated landslides will occur on a site-by-site basis in the Big River WAU, likely during timber harvest plan preparation and review.

Systematic description of deep-seated landslide features

Deep-seated landslides were only interpreted by reconnaissance techniques (aerial photograph interpretation rather than field observations). Reconnaissance mapping criteria consist of observations of four morphologic features of deep seated landslides --toe, internal morphology, lateral flanks, main scarp--and vegetation (after McCalpin 1984 as presented by Keaton and DeGraff, 1996, p. 186, Table 9-1). The mapping and classification criteria for each feature are presented in detail below.

Aerial photo interpretation of deep seated landslide features in the Big River WAU suggest that the first three morphologic features above are the most useful for inferring the presence of deep-seated landslides. The presence of tension cracks and/or sharply defined and topographically offset scarps are probably a more accurate indicator of recent or active landslide movement. These features, however, are rarely visible on aerial photos.

Sets of five descriptions have been developed to classify each deep-seated landslide morphologic feature or vegetation influence. The five descriptions are ranked in descending order from characteristics more typical of active landslides to dormant to relict landslides. One description should characterize the feature most accurately. Nevertheless, some overlap between classifications is neither unusual nor unexpected. We recognize that some deep-seated landslides may lack evidence with respect to one or more of the observable features, but show strong evidence of another feature. If there is no expression of a particular geomorphic feature (e.g. lateral flanks), the classification of that feature is considered “undetermined”. If a deep-seated landslide is associated with other deep-seated landslides, it may also be classified as a landslide complex.

In addition to the classification criteria specific to the deep-seated landslide features, more general classification of the strength of the interpretation of the deep-seated landslide is conducted. Some landslides are obscured by vegetation to varying degrees, with areas that are clearly visible and areas that are poorly visible. In addition, weathering and erosion processes may also obscure geomorphic features over time. The quality of different aerial photograph sets varies and can sometimes make interpretations difficult. Owing to these circumstances, each inferred deep-seated landslide feature is classified according to the strength of the evidence as either definite, probable or questionable as defined with respect to interpretation of shallow landslides.

At the project scale (THP development and planning), field observations of deep-seated landslide morphology and other indicators by qualified professionals are expected to be used to reduce uncertainty of interpretation inherent in reconnaissance mapping. Field criteria for mapping deep-seated landslides and assessment of activity are presented elsewhere.

Deep seated landslide morphologic classification criteria:

I. Toe Activity

1. Steep streamside slopes with extensive unvegetated to sparsely vegetated debris slide scars. Debris slides occur on both sides of stream channel, but more prominently on side containing the deep-seated landslide. Stream channel in toe region may contain

coarser sediment than adjacent channel. Stream channel may be pushed out by toe. Toe may be eroding, sharp topography/geomorphology.

2. Steep streamside slopes with few unvegetated to sparsely vegetated debris slide scars. Debris slides generally are distinguishable only on streamside slope containing the deep-seated landslide. Stream channel may be pushed out by toe. Sharp edges becoming subdued.
3. Steep streamside slopes that are predominantly vegetated with little to no debris slide activity. Topography/geomorphology subdued.
4. Gently sloping stream banks that are vegetated and lack debris slide activity. Topography/geomorphology very subdued.
5. Undetermined

II. Internal Morphology

1. Multiple, well defined scarps and associated angular benches. Some benches may be rotated against scarps so that their surfaces slope back into the hill causing ponded water, which can be identified by different vegetation than adjacent areas. Hummocky topography with ground cracks. Jack-strawed trees may be present. No drainage to chaotic drainage/disrupted drainage.
2. Hummocky topography with identifiable scarps and benches, but those features have been smoothed. Undrained to drained but somewhat subdued depressions may exist. Poorly established drainage.
3. Slight benches can be identified, but are subtle and not prominent. Undrained depressions have since been drained. Moderately developed drainage to established drainage but not strongly incised. Subdued depressions but are being filled.
4. Smooth topography. Body of slide typically appears to have failed as one large coherent mass, rather than broken and fragmented. Developed drainage well established, incised. Essentially only large undrained depressions preserved and would be very subdued. Could have standing water. May appear as amphitheater slope where slide deposit is mostly or all removed.
5. Undetermined

III. Lateral Flanks

1. Sharp, well defined. Debris slides on lateral scarps fail onto body of slide. Gullies/drainage may begin to form at boundary between lateral scarps and sides of slide deposit. Bare spots are common or partially unvegetated.
2. Sharp to somewhat subdued, rounded, essentially continuous, might have small breaks; gullies/drainage may be developing down lateral edges of slide body. May have debris slide activity, but less prominent. Few bare spots.
3. Smooth, subdued, but can be discontinuous and vegetated. Drainage may begin to develop along boundary between lateral scarp and slide body. Tributaries to drainage extend onto body of slide.
4. Subtle, well subdued to indistinguishable, discontinuous. Vegetation is identical to adjacent areas. Watercourses could be well incised, may have developed along boundary between lateral scarp and slide body. Tributaries to drainage developed on slide body.
5. Undetermined

IV. Main Scarp

1. Sharp, continuous geomorphic expression, usually arcuate break in slope with bare spots to unvegetated; often has debris slide activity.
2. Distinct, essentially continuous break in slope that may be smooth to slightly subdued in parts and sharp in others, apparent lack of debris slide activity. Bare spots may exist, but are few.
3. Smooth, subdued, less distinct break in slope with generally similar vegetation relative to adjacent areas. Bare spots are essentially non-existent.
4. Very subtle to subdued, well vegetated, can be discontinuous and deeply incised, dissected; feature may be indistinct.
5. Undetermined

V. Vegetation

1. Less dense vegetation than adjacent areas. Recent slide scarps and deposits leave many bare areas. Bare areas also due to lack of vegetative ability to root in unstable soils. Open canopy, may have jack-strawed trees; can have large openings.
2. Bare areas exist with some regrowth. Regrowth or successional patterns related to scarps and deposits. May have some openings in canopy or young broad-leaf vegetation with similar age.
3. Subtle differences from surrounding areas. Slightly less dense and different type vegetation. Essentially closed canopy; may have moderately aged to old trees.
4. Same size, type, and density as surrounding areas.
5. Undetermined

Mass Wasting Map Units

Mass Wasting Map Units (MWMUs) are delineated by partitioning the landscape into zones characterized by similar geomorphic attributes, shallow-seated landslide potential, and sediment delivery to stream channels. A combination of aerial photograph interpretation, field investigation, and to a lesser extent SHALSTAB output was utilized to delineate MWMUs. The MWMU designations for the Big River WAU are only meant to be general characterizations of similar geomorphic and terrain characteristics related to shallow seated landslides. Deep-seated landslides are also shown on the MWMU map (Map A-2). The deep-seated landslides have been included to provide land managers with supplemental information to guide evaluation of harvest planning and subsequent needs for geologic review. The landscape and geomorphic setting in the Big River WAU is certainly more complex than generalized MWMUs delineated for this evaluation. The MWMUs are only meant to be a starting point for gauging the need for site-specific field assessments.

The delineation of each MWMU described is based on landforms present, the mass wasting processes, sensitivity to forest practices, mass wasting hazard, delivery potential, and forest management related trigger mechanisms for shallow seated landslides. The landform section of the MWMU description defines the terrain found within the MWMU. The mass wasting process section is a summary of landslide types found in the MWMU. Sensitivity to forest practice and mass wasting hazard is, in part, a subjective call by the analyst based on the relative landslide hazard and influence of forest practices. Delivery potential is based on proximity of MWMU to watercourses and the likelihood of mass wasting in the unit to reach a watercourse. The hazard potential is based on a combination of the mass wasting hazard and delivery potential (Table A-

1). The trigger mechanisms are a list of forest management practices that may have the potential to create mass wasting in the MWMU.

Table A-1. Ratings for Potential Hazard of Delivery of Debris and Sediment to Streams by Mass Wasting (letters designate hazard: L= low, M= moderate, H = high)(Version 4.0, Washington Forest Practices Board, 1995).

Mass Wasting Potential

		Low	Moderate	High
Delivery Potential	Low	**L**	**L**	**M**
	Moderate	**L**	**M**	**H**
	High	**L**	**M**	**H**

RESULTS

Mass Wasting Inventory

A landslide inventory (Appendix A) documents attributes associated with each landslide. The spatial distribution and location of landslides is shown on Map A-1.

A total of 1547 landslides were identified in the Big River WAU. Of that total 1101 were shallow-seated landslides (debris slides, torrents, or flows) and 446 deep-seated landslides (rockslides). A considerable effort was made to field verify as many landslides as possible to insure greater confidence in the results; approximately 15% of the identified shallow-seated landslides were field verified.

The temporal distribution of the 1101 shallow-seated landslides observed in the Big River WAU is listed in Table A-2 for the Big River WAU. The distribution by landslide type is shown in Table A-3.

Table A-2. Shallow-Seated Landslide Summary for Big River WAU by Decade (1970-2000).

Planning Watershed	**1970's Landslides**	**1980's Landslides**	**1990's Landslides**
East Branch North Fork Big River	13	22	31
Rice Creek	6	1	6
Lower North Fork Big River	17	24	18
Mettick Creek	159	117	137
Dark Gulch	6	1	1
Russell Brook	27	45	83
South Daugherty	36	35	99
Two Log Creek	84	57	76
TOTAL	***348***	***302***	***451***

Table A-3. Percent of Landslides by Type and Planning Watershed for Big River WAU.

Planning Watershed	**Debris Slides**	**Debris Torrents**	**Debris Flows**	**Rockslides**	**Earth Flows**		**Road Assoc.**
East Branch North Fork Big River	47%	2%	4%	47%	0%		31%
Rice Creek	76%	0%	0%	24%	0%		29%
Lower North Fork Big River	73%	0%	1%	25%	0%		29%
Mettick Creek	64%	3%	3%	30%	0%		44%
Dark Gulch	54%	0%	8%	38%	0%		31%
Russell Brook	57%	3%	7%	33%	0%		47%
South Daugherty	67%	3%	2%	29%	0%		40%
Two Log Creek	81%	3%	1%	16%	0%		53%
Big River WAU Total	***66%***	***3%***	***3%***	***29%***	***0%***		***61%***

The majority of landslides observed in the Big River WAU are debris slides and rockslides. Approximately 6% of the total shallow landslides observed in the Big River WAU were debris flows and debris torrents. No earth flows were identified in the Big River WAU.

Of the 1101 shallow-seated landslides in the Big River WAU, 671 are determined to be road-associated. This is approximately 61% of the total number of shallow-seated landslides. Of the road associated landslides 41% are from truck roads, 4% from landings and 16% from skid trails.

Approximately 90% of the field observed shallow landslides inventoried were initiated on slopes of 60% gradient or higher and greater than 65% of the field observed shallow landslides initiated on slopes of 70% gradient or higher. Of the field observed landslides that occurred on slopes with gradients less than 70% only 4 were not road associated. This suggests that few landslides are occurring on slopes less than 70% gradient unless triggered by a road or skid trail.

Shallow seated landslides were in the greatest concentration in inner gorge and steep streamside areas. Combined these two locations accounted for 52% of the number of shallow seated landslides identified; 20% inner gorge and 32% steep streamside slopes. Headwall swales accounted for 12% of the number of shallow seated landslides identified. The remainder of the shallow seated landslides occurred in mid-slope regions (37%) often as a result of roads, landings or skid trails.

The majority of inventoried landslides originated in planar topography (65%) where sub-surface water can be concentrated at the base of slopes, in localized topographic depressions, or by subsoil geologic structures. Approximately 31% of inventoried landslides occurred within convergent topography. The high percent of observations of landslides occurring in planar topography is due to a high number of landslides occurring in inner gorge or steep streamside areas and the planar sides of headwall swales. Few landslides originated in divergent topography, where subsurface water is routed to the sides of ridges. Such observations were, in part, the basis for the delineation of the Big River WAU into Mass Wasting Map Units.

Mass Wasting Map Units

The landscape was partitioned into five Mass Wasting Map Units (MWMU) representing general areas of similar geomorphology, landslide processes, and sediment delivery potential for shallow-seated landslides (Map A-2). The units are to be used by forest managers to assist in making decisions that will minimize future mass wasting sediment input to watercourses. The delineation for the MWMUs was based on qualitative observations and interpretations from aerial photographs, field evaluation, and SHALSTAB output. Deep-seated landslides are also shown on the MWMU map (Map A-2). The deep-seated landslides have been included to provide land managers with supplemental information to guide evaluation of harvest planning and subsequent needs for geologic review.

Shallow-seated landslide characteristics considered in determination of map units are size, frequency, delivery to watercourses, and spatial distribution. Hillslope characteristics considered are slope form (convergence, divergence, planar), slope gradient, magnitude of stream incision, and overall geomorphology. The range of slope gradients was determined from USGS 1:24000 topographic maps and field observations. Hillslope and landslide morphology vary within each individual Mass Wasting Map Unit and the boundaries are not exact. This evaluation is not intended to be a substitute for site-specific field assessments. Field observations over-ride the mapped locations of the units. Site-specific field assessments are required in MWMUs and at deep-seated landslides or specific areas of some MWMUs to assess the risk and likelihood of mass wasting impacts from a proposed management action. The Mass Wasting Map Units are compiled on the entitled Mass Wasting Map Unit Map (Map A-2).

MWMU Number: 1

Description: Inner Gorge or Steep Slopes adjacent to Low Gradient Watercourses

Materials: Shallow soils formed on weathered marine sedimentary rocks. Can be composed of toe sediment of deep-seated landslide deposits.

Landform: Characterized by steep slopes or steep inner gorge topography along low gradient watercourses (typically less than 6-7%). An inner gorge is considered a geomorphic feature created from down cutting of the stream in response to tectonic uplift. Inner gorge slopes extend from either one side or both sides of the stream channel to the first break in slope. Inner gorge slope gradients typically exceed 70%. Slopes with lower inclination are locally present. Height of inner gorge ranges from approximately 20-500 feet in the Big River WAU. Slopes commonly contain areas of multiple, coalescing shallow seated landslide scars of varying age. Steep slopes adjacent to low gradient streams are generally planar in form with slope gradients typically exceeding 70% and exhibit strong evidence of past landslide activity. Inner gorge topography is commonly found on the outside of meander bends. The distinction between inner-gorge and steep streamside slopes is steep streamside slopes lack a distinct break in slope and has less active erosion from stream down cutting. The upper extent of the unit is variable. Where there is not a break in slope, the unit may exceed 150 feet upslope (based on the range of lengths of landslides observed 20-460 feet, mean length of landslides observed in the unit is 110 feet). Landslides in this unit generally deposit sediment directly into Class I and II watercourses. Small areas of incised terraces may be locally present.

Slope: 70 % to vertical, (mean slope of observed mass wasting events is 80%, range: 60%-137%)

Total Area: 2742 acres; 8 % of the total WAU area.

MW Processes: *250 road-associated landslides*

- 242 Debris slides
- 3 Debris flow
- 5 Debris torrent

195 non-road associated landslides

- 193 Debris slides
- 1 Debris torrent
- 1 Debris flows

Non Road-related Landslide Density: 0.071 landslides per acre for the past 30 years.

Forest Practices Sensitivity:	High sensitivity to road construction due to proximity to watercourses, bedrock underlying inner gorge slopes creates increased stability, high sensitivity to harvesting and forest management practices due to steep slopes with localized colluvial or alluvial soil deposits next to watercourses.
Mass Wasting Potential:	High localized potential for landslides in both unmanaged and managed conditions.
Delivery Potential:	High
Delivery Criteria Used:	Steep slopes adjacent to stream channels, all observed landslides delivered sediment into streams.
Hazard-Potential Rating:	**High**
Forest Management Related Trigger Mechanisms:	•Sidecast fill material placed on steep slopes can initiate debris slides or flows in this unit. •Concentrated drainage from roads onto unstable areas can initiate debris slides or flows in this unit. •Poorly sized culvert or excessive debris at watercourse crossings can initiate failure of the fill material creating debris slides, torrents or flows in this unit. •Cut-slope of roads can expose potential failure planes creating debris slides, torrents or flows in this unit. •Sidecast fill material created from skid trail construction placed on steep slopes can initiate debris slides or flows in this unit. •Concentrated drainage from skid trails onto unstable areas can initiate debris slides or flows in this unit. •Cut-slope of skid trails can remove support of slope creating debris slides, torrents or flows in this unit. •Root decay from harvested trees can be a contributing factor in the initiation of debris slides, torrents or flows in this unit. •Concentrated drainage from roads can increase groundwater, accelerating movement of rockslides or earth flows and over-steepening inner gorge slopes. •Removal of vegetation above these slopes can result in loss of evapo-transpiration and rainfall interception thus increase pore water pressures that could create debris slides in this unit.
Confidence:	High confidence for susceptibility of landslides and sediment delivery in this unit. Moderate confidence for placement of this unit. This unit is locally variable and exact boundaries are better determined from field observations.

MWMU Number: 2

Description: Steep slopes or inner gorge topography adjacent to high gradient intermittent or ephemeral watercourses.

Materials: Shallow soils formed from weathered marine sedimentary rocks with localized areas of thin to thick colluvial deposits.

Landforms: Characterized by steep slopes or steep inner gorge topography along high gradient watercourses (typically greater than 7%). An inner gorge is considered a geomorphic feature created from down cutting of the stream in response to tectonic uplift. Inner gorge slopes extend from either one side or both sides of the stream channel to the first break in slope. Inner gorge slope gradients typically exceed 70%. Slopes with lower inclination are locally present. Slopes commonly contain areas of multiple, coalescing shallow seated landslide scars of varying age. Steep slopes adjacent to low gradient streams are generally planar in form with slope gradients typically exceeding 70% and exhibit strong evidence of past landslide activity. The distinction between inner-gorge and steep streamside slopes is steep streamside slopes lack a distinct break in slope and has less active erosion from stream down cutting. The upper extent of the unit is variable. Where there is not a break in slope, the unit may exceed 100 feet upslope (mean length of all landslides in the unit is 103 feet, maximum landslide length is 376 feet). Landslides in this unit generally deposit sediment directly into Class II and III watercourses. Small areas of incised terraces may be locally present. This unit is typically present along tributary watercourses to the mainstem Big River.

Slope: >70% (mean slope of observed mass wasting events is 79%, range: 60%-95%).

Total Area: 1511 acres; 4% of total WAU area

MW Processes: *80 road-associated landslides*

- 73 Debris slides
- 4 Debris flow
- 3 Debris torrent

46 non-road associated landslides

- 44 Debris slides
- 1 Debris flow
- 1 Debris torrent

Non Road-related
Landslide Density: 0.03 landslides per acre for the past 30 years.

Forest Practices Sensitivity: High sensitivity to roads due to steep slopes adjacent to watercourses, high to moderate sensitivity to harvesting and forest management due to steep slopes next to watercourses. Localized areas of steeper and/or convergent slopes may have an even higher sensitivity to forest practices.

Mass Wasting Potential: High, due to the steep topography of the slopes.

Delivery Potential: High

Delivery Criteria Used: Steep slopes adjacent to stream channels, all observed landslides delivered sediment into streams.

Hazard-Potential Rating: **High**

Forest Management Related Trigger Mechanisms:

- Sidecast fill material placed on steep slopes can initiate debris slides, torrents or flows in this unit.
- Concentrated drainage from roads onto unstable areas can initiate debris slides, torrents or flows in this unit.
- Poorly sized culvert or excessive debris at watercourse crossings can initiate failure of the fill material creating debris slides, torrents or flows in this unit.
- Cut-slope of roads can over-steepen the slope creating debris slides, torrents or flows in this unit.
- Cut-slope of roads can remove support of the toe or expose potential failure planes of rockslides or earth flows.
- Sidecast fill material created from skid trail construction placed on steep slopes can initiate debris slides, torrents or flows.
- Concentrated drainage from skid trails onto unstable areas can initiate debris slides, torrents or flows.
- Cut-slope of skid trails can remove support of the toe or expose potential failure planes of rockslides or earth flows.
- Root decay from harvested trees can be a contributing factor in the initiation of debris slides, torrents or flows in this unit.
- Loss of evapo-transpiration and rainfall interception from forest harvest can increase groundwater levels initiating or accelerating movement in rockslides or earth flows or aid in the initiation of debris slides, torrents or flows.

Confidence: High confidence for susceptibility of unit to landslides and deliver sediment. Moderate confidence in the placement of this unit. This unit is highly localized and exact boundaries are better determined from field observations. Within the mapped boundaries of this unit there are areas of low gradient slopes that are less susceptible to mass wasting.

MWMU Number: 3

Description: Dissected and convergent topography

Materials: Shallow soils formed from weathered marine sedimentary rocks with localized thin to thick colluvial deposits.

Landforms: These areas have steep slopes (typically greater than 70%) that have been sculpted over geologic time by mass wasting events. The area is characterized primarily by strong evidence of past shallow landslide failures and 1) steep convergent and dissected topography located within steep gradient colluvial hollows or headwall swales and small high gradient watercourses, and 2) local very steep planar slopes. MRC intends this unit to represent areas of potentially high to moderately high hazard for shallow landslides that does not constitute a continuous streamside unit (otherwise would classify as MWMU 1 or 2). The mapped unit may represent isolated individual “high hazard” areas or areas where there is a concentration of “high hazard” areas. Boundaries between higher hazard areas and other more stable areas (i.e. divergent and lower gradient slopes) within the unit should be keyed out as necessary based on field verification of landslide features.

Slope: >70%, (mean slope of observed mass wasting events is 71% range: 60%-91%)

Total Area: 3890 ac., 11% of the total WAU

MW Processes: *156 road associated landslides*

- 128 Debris slides
- 14 Debris flow
- 14 Debris Torrent

124 non-road associated landslides

- 111 Debris slides
- 10 Debris flows
- 3 Debris torrents

Non Road-related Landslide Density: 0.032 landslides per acre for the past 30 years.

Forest Practices Sensitivity: Moderate to high sensitivity to road building, moderate to high sensitivity to harvesting and forest management practices due to moderate to steep slopes within this unit. Localized areas of steeper and/or convergent slopes have even higher sensitivity to forest practices.

Mass Wasting Potential: High

Delivery Potential: High

Delivery Criteria Used: The converging topography directs mass wasting down slopes toward watercourses. Delivery potential may be high based on relatively high number of debris slides. Landslides in headwater swales often torrent or flow down watercourses. Approximately 77% of landslides in this unit delivered sediment

Hazard-Potential Rating: **High**

Forest Management Related Trigger Mechanisms:

- Sidecast fill material placed on steep slopes can initiate debris slides, torrents or flows in this unit.
- Concentrated drainage from roads onto unstable areas can initiate debris slides, torrents or flows in this unit.
- Concentrated drainage from roads can increase groundwater, accelerating movement of rockslides or earth flows in this unit.
- Poorly sized culvert or excessive debris at watercourse crossings can initiate failure of the fill material creating debris slides, torrents or flows in this unit.
- Cut-slope of roads can over-steepen the slope creating debris slides in this unit.
- Cut-slope of roads can over-steepen the slope creating debris slides, torrents or flows in this unit.
- Cut-slope of roads can remove support of the toe or expose potential failure planes of rockslides or earth flows.
- Sidecast fill material created from skid trail construction placed on steep slopes can initiate debris slides, torrents or flows.
- Concentrated drainage from skid trails onto unstable areas can initiate debris slides, torrents or flows.
- Cut-slope of skid trails can remove support of the toe or expose potential failure planes of rockslides or earth flows.
- Root decay from harvested trees can be a contributing factor in the initiation of debris slides, torrents or flows in this unit.
- Loss of evapo-transpiration and rainfall interception from forest harvest can increase groundwater levels initiating or accelerating movement in rockslides or earth flows or aid in the initiation of debris slides, torrents or flows.

Confidence: Moderate confidence in placement of unit. This unit is locally variable and exact boundaries are better determined from field observations. Some areas within this unit could have higher susceptibility to landslides and higher delivery rates.

MWMU Number: 4

Description: Non-dissected topography

Materials: Shallow to moderately deep soils formed from weathered marine sedimentary rocks.

Landforms: Moderate to moderately steep hillslopes with planar, divergent, or broadly convergent slope forms with isolated areas of steep topography or strongly convergent slope forms. Unit is generally a midslope region of lesser slope gradient and more variable slope form than unit 3.

Slope: >40%, (mean slope of observed mass wasting events 72%, range: 29%-109%)

Total Area: 23800 acres, 70% of the total WAU

MW Processes: *185 road-associated landslides*

- 164 Debris slides
- 12 Debris flow
- 9 Debris torrent

65 non-road associated landslides

- 60 Debris slides
- 2 Debris flow
- 3 Debris Torrents

Non Road-related Landslide Density: 0.003 landslides per acre for the past 30 years.

Forest Practices Sensitivity: Moderate sensitivity to road building, moderate to low sensitivity to harvesting and forest management practices due to moderate slope gradients and non-converging topography within this unit. Localized areas of steeper slopes have higher sensitivity to forest practices.

Mass Wasting Potential: Moderate

Delivery Potential: High

Delivery Criteria Used: This unit has the largest area, which accounts for it having the highest number of landslides. This unit has a low landslide density, and therefore has a moderate mass wasting hazard. Although the landslides in this unit are highly localized, when landslides occur, the landslide has a high potential to deliver. Approximately 76% of landslides in this unit delivered sediment. This unit has a moderate sensitivity to road building due low road landslide density.

Hazard-Potential Rating: **Moderate**

Forest Management
Related Trigger
Mechanisms:

- Sidecast fill material placed on steep slopes can initiate debris slides, torrents or flows in this unit.
- Concentrated drainage from roads onto unstable areas can initiate debris slides, torrents or flows in this unit.
- Concentrated drainage from roads can increase groundwater, accelerating movement of rockslides or earth flows in this unit.
- Poorly sized culvert or excessive debris at watercourse crossings can initiate failure of the fill material creating debris slides, torrents or flows in this unit.
- Cut-slope of roads can over-steepen the slope creating debris slides in this unit.
- Cut-slope of roads can over-steepen the slope creating debris slides, torrents or flows in this unit.
- Cut-slope of roads can remove support of the toe or expose potential failure planes of rockslides or earth flows.
- Sidecast fill material created from skid trail construction placed on steep slopes can initiate debris slides, torrents or flows.
- Concentrated drainage from skid trails onto unstable areas can initiate debris slides, torrents or flows.
- Cut-slope of skid trails can remove support of the toe or expose potential failure planes of rockslides or earth flows.
- Root decay from harvested trees can be a contributing factor in the initiation of debris slides, torrents or flows in this unit.
- Loss of evapo-transpiration and rainfall interception from forest harvest can increase groundwater levels initiating or accelerating movement in rockslides or earth flows or aid in the initiation of debris slides, torrents or flows.

Confidence: High confidence in placement of unit. Some areas within this unit could have higher susceptibility to landslides and higher delivery rates due to localized areas of steep slopes with weak soils, and adverse groundwater conditions.

MWMU Number: 5

Description: Low relief topography

Material: Moderately deep to deep soils, formed from weathered marine sedimentary rocks.

Landforms: Characterized by low gradient slopes generally less than 40%, although in some places slopes can be steeper. This unit occurs on ridge crests, low gradient side slopes, and well-developed terraces. Shallow-seated landslides seldom occur and usually do not deliver sediment to stream channels.

Slope: <50% (based on field observations)

Total Area: 1888 acres, 6% of WAU area

MW Processes: 0 shallow-seated landslides

Non Road-related Landslide Density: 0 landslides per acre for past 30 years.

Forest Practices Sensitivity: Low sensitivity to road building and forest management practices due to low gradient slopes

Mass Wasting Potential: Low

Delivery Potential: Low

Delivery Criteria Used: Sediment delivery in this unit is low.

Hazard-Potential Rating: **Low**

Forest Management Related Trigger Mechanisms:

- Poorly sized culvert or excessive debris at watercourse crossings can initiate failure of the fill material creating debris slides, torrents or flows in this unit.
- Concentrated drainage from roads and skid trails can initiate or accelerate gully erosion, which can increase the potential for mass wasting processes.

Confidence: High confidence in placement of unit; placed in areas of obvious stable topography. High confidence in mass wasting potential and sediment delivery potential ratings.

Sediment Input from Mass Wasting

Sediment delivery was estimated for shallow-seated landslides in the Big River WAU. Landslides were determined to have either no sediment delivery or to deliver all or a percentage of their total volume. Of the shallow-seated landslides mapped in this watershed analysis, 87 percent of the landslides delivered sediment to a watercourse.

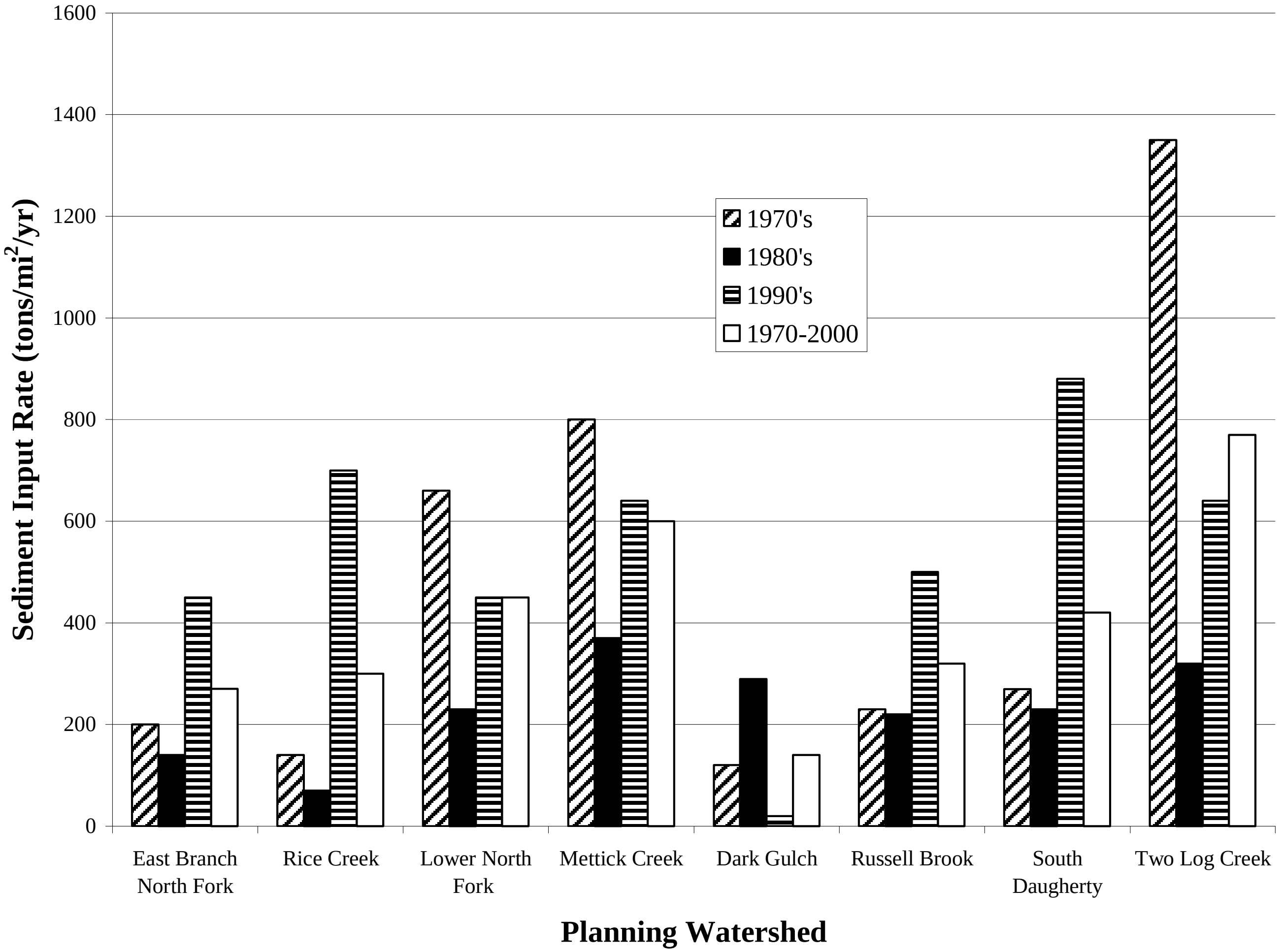
A total of 783,000 tons of mass wasting sediment delivery was estimated for the time period 1970-2000 in the Big River WAU. This equates to approximately 490 tons/sq. mi./yr during this 30 year time period. Of the total estimated amount, approximately 265,000 tons (34% of total) occurred during the 1970's, 146,000 tons (19% of total) occurred in the 1980's, and 372,000 tons (48% of total) occurred in the 1990's time period (Table A-5).

Relatively large amounts of sediment delivered in the 1990's compared to earlier time periods results from several factors, including high rain fall events during this time frame, and field work done in the summer of 2000. Unusually intense storms and/or high annual rainfall occurred in 1995, 1997 and 1998; under wet conditions more landslides occur. According to rainfall data taken from Casper Creek, just South of Fort Bragg, the most intense rainfall during the 1995 – 1998 period was January 8-9 1995 5.78 inches, March 13-14 1995 4.64 inches, December 30 1996 – January 1 1997 10.58 inches and March 21-23 1998 6.63 inches. Field surveys located additional landslides. The field assessment occurred in the summer of 2000 two years after the 1998 storm events.

Table A-5. Estimated Sediment Input by Decade in the Big River WAU.

Decade	**Tons**	**% of Total**
1970's	265,000	34%
1980's	146,000	19%
1990's	372,000	48%
Total	**783,000**	

Chart A-1. Sediment Input Rate (tons/yr/sq. mi.) from Landslides for the Big River WAU by Planning Watershed and Decade.



The highest estimated sediment input rate from mass wasting occurred in the Two Log planning watershed, with the majority of that occurring in the 1970's (Chart A-1). Mettick Creek was the next highest sediment input rate with the higher rate occurring in the 1970's as well. The other planning watersheds had varied rates of inputs based on decades, with the 1970's or 1990's being highest.

Road associated mass wasting was found to have contributed approximately 509,000 tons (320 tons/sq. mi./yr) of sediment over the 30 years analyzed (1970-2000) in the Big River WAU (Table A-6). This represents approximately 65% of the total mass wasting sediment inputs for the Big River WAU for 1970-2000. In the Mettick Creek, Russel Brook, Two Log and South Daugherty Creek planning watersheds, road associated landslide sediment delivery was a major sediment source, approximately 2/3 of the mass wasting sediment inputs.

Table A-6. Road Associated Sediment Delivery for Shallow-Seated Landslides by Planning Watershed for Big River WAU, 1970-2000.

Planning Watershed	**Road Associated Mass Wasting Sediment Delivery (tons/mi^2/yr)**	**Percent Road Associated Sediment Delivery**
East Branch North Fork Big River	130	48%
Rice Creek	70	23%
Lower North Fork Big River	210	47%
Mettick Creek	410	68%
Dark Gulch	30	21%
Russell Brook	230	72%
South Daugherty	310	67%
Two Log Creek	490	64%
Big River WAU Total	***320***	***65%***

Sediment Input by Mass Wasting Map Unit

Total mass wasting sediment delivery for the Big River WAU was separated into respective mass wasting map units. Sediment delivery statistics for each MWMU are summarized in Table A-7.

The mass wasting map unit with the highest sediment delivery is MWMU 1, which is estimated to deliver 45% of the total sediment input for the Big River WAU. MWMU 2, the other streamside unit, represents approximately 9% of the total sediment input for the Big River WAU. Combining both streamside units (MWMU 1 and 2) would yield 54% of the total sediment input. MWMU 3 and MWMU 4 were similar in their sediment yields representing approximately 22 and 24% respectively of the total sediment input for the Big River WAU.

One measure of the intensity of mass wasting processes in a MWMU is the amount of sediment produced divided by the area in the MWMU. The last row in Table A-7 expresses landslide intensity as the ratio of the percentage of total sediment delivered by the percentage of watershed area in the MWMU. High values of this ratio indicate high landslide rates in a concentrated area. The MWMU with the highest ratio was unit 2 with a ratio of 21.68; MWMU 1 was high as well with a ratio of 11.84; while MWMUs 4 and 5 had the lowest ratios of 1.08 and 0 respectively.

Table A-7. Total Sediment Delivery by Mass Wasting Map Units in the Big River WAU (1970-2000).

	MWMU				
	1	**2**	**3**	**4**	**5**
Road Related Sediment Delivered (tons)	198200	35600	108900	128600	0
Non-Road Related Sediment Delivered (tons)	152800	33900	65300	59700	0
Total Sediment Delivered (tons)	351000	69500	174200	188300	0
% road related delivery for WAU	56%	51%	63%	68%	0
% non-road related delivery for WAU	44%	49%	37%	32%	0
% of total delivered for WAU	96%	97%	77%	76%	0
% of WAU area	8%	4%	11%	70%	6%
% ratio: delivery %/area %	11.8	21.7	6.7	1.1	0

CONCLUSIONS

In natural forest environments of the California Coast Range, mass wasting is a common occurrence. In the Big River WAU this is due to steep slopes, the condition of weathered and fractured marine sedimentary rocks (interbedded sandstone and shale), tectonic activity, locally thick colluvial soils, a history of timber harvest practices, and the occurrence of high intensity rainfall events. Mass wasting events are episodic and many landslides may happen in a short time frame. Mass wasting features of variable age and stability are observed throughout the Big

River WAU. The vast majority of the landslides visited in the field during this assessment occurred on slopes greater than 60%. Of the field observed landslides that occurred on slopes with gradients less than 70% only 4 were not road associated. This suggests that few landslides are occurring on slopes less than 70% gradient unless triggered by a road or skid trail.

A total of 1547 landslides were identified in the Big River WAU from 1970-2000. Of that total 1101 were shallow-seated landslides (debris slides, torrents, or flows) and 446 deep-seated landslides (rockslides). Of the 1101 shallow-seated landslides in the Big River WAU, 671 are determined to be road-associated.

Mass wasting is estimated to contribute 783,000 tons or 490 tons/mi^2/yr over the 30 years analyzed. The majority of these inputs occurring in the 1970s and the 1990s. The steep streamside areas of MWMU 1 and 2 contribute the highest amount of the sediment in the watershed, 54%. In MWMU 3 and 4 a large amount of road associated landslides are occurring.

The highest estimated sediment input rate from mass wasting occurred in the Two Log planning watershed, with the majority of that occurring in the 1970's. Mettick Creek was the next highest sediment input rate with the higher rate occurring in the 1970's as well. The other planning watersheds had varied rates of inputs based on decades, with the 1970's or 1990's being highest.

Approximately 61% of the number of shallow-seated landslides in the Big River WAU is road associated. Of the road associated landslides 41% are from truck roads, 4% from landings and 16% from skid trails. Road associated mass wasting was found to have contributed approximately 509,000 tons (320 tons/sq. mi./yr) of sediment over the 30 years analyzed (1970-2000) in the Big River WAU (Table A-6). This represents approximately 65% of the total mass wasting sediment inputs for the Big River WAU for 1970-2000. In the Mettick Creek, Russell Brook, Two Log and South Daugherty Creek planning watersheds, road associated landslide sediment delivery was a major sediment source, approximately 2/3 of the mass wasting sediment inputs. Roads are a significant factor in the cause of shallow-seated mass wasting events. Improved road construction practices combined with design upgrades of old roads should lower sediment input rates and mass wasting hazards.

LITERATURE CITED

Cruden, D.M. and Varnes, D.J. 1996. Landslide types and processes. In: Landslides Investigation and Mitigation, Transportation Research Board, Washington DC, Special Report 247: 36-75.

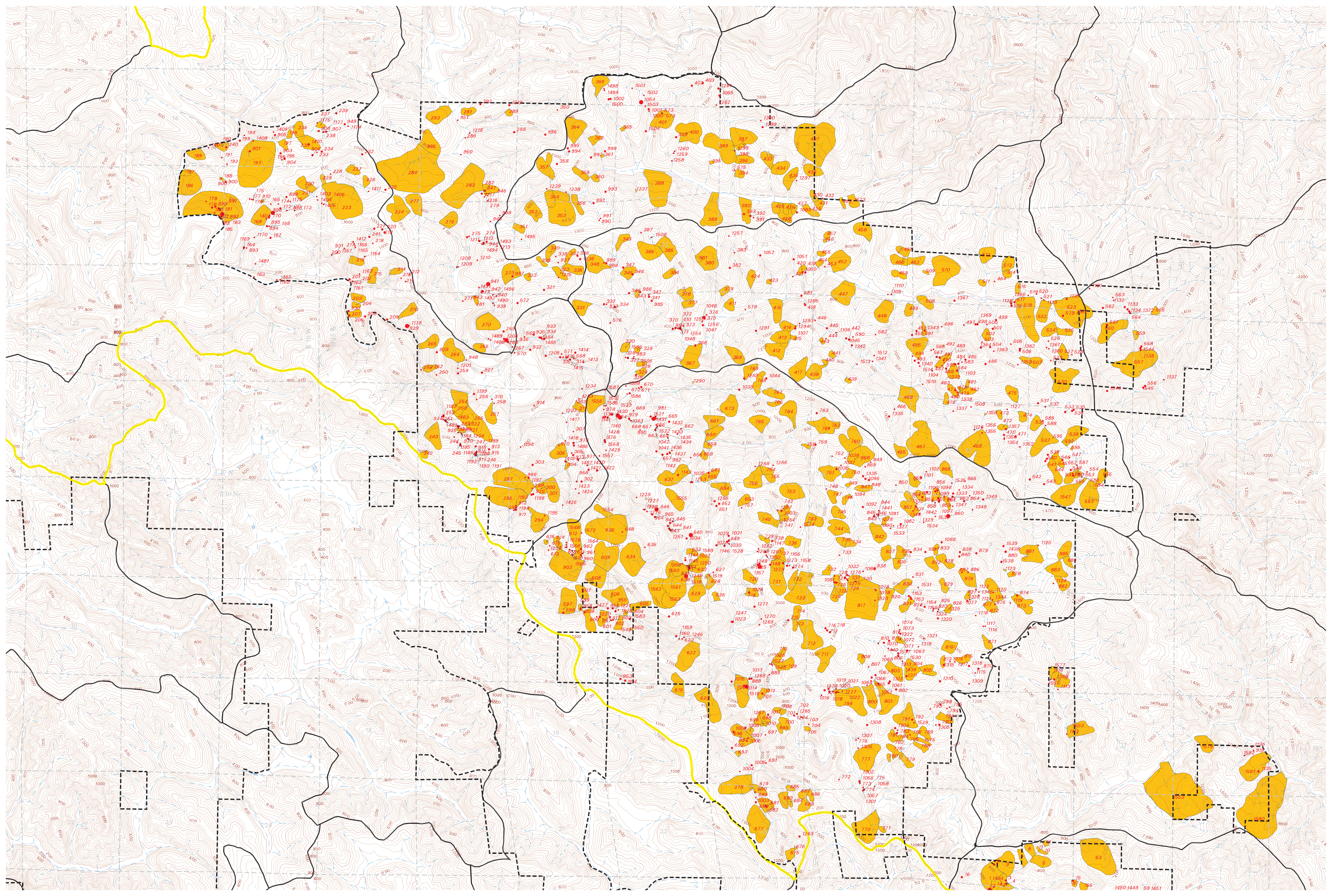
Dietrich, W.E. and Montgomery, D.R. SHALSTAB; a digital terrain model for mapping shallow-landslide potential, NCASI Technical Report, February 1998, 29 pp.

Dietrich, W.E., Real de Asua, R., Coyle, J., Orr, B., and Trso, M. 1998. A validation study of the shallow slope stability model, SHALSTAB, in forested lands of Northern California. Stillwater Sciences Internal Report, Berkeley, CA.

Selby, M.J. 1993. Hillslope materials and processes. Second Edition. Oxford University Press. Oxford.

Swanston, D.N., Lienkaemper, G.W., Mersereau, R.C., and Levno, A.B. 1988. Timber harvest and progressive deformation of slopes in southwestern Oregon. AEG Bulletin, 25(3):371-381.

Washington Forest Practice Board. 1995. Standard methodology for conducting watershed analysis. Version 4.0. WA-DNR Seattle, WA.



Big River
Watershed Analysis
Unit

Map A-1
Mass Wasting Inventory

This map presents the location of mass wasting features identified on the MRC land in the Big River River watershed. The mass wasting features were developed from an interpretation of aerial photographs from the 1970s-2000 with field observations taken in 2001. All shallow-seated landslides are identified as a point plotted on the map at the interpreted head scarp of the failure. Deep-seated landslides are represented as a polygon representing the interpreted perimeter of the landslide feature. Physical and geomorphic characteristics of mapped landslides are categorized in a database in the mass wasting report for the Big River WAU (Section A).

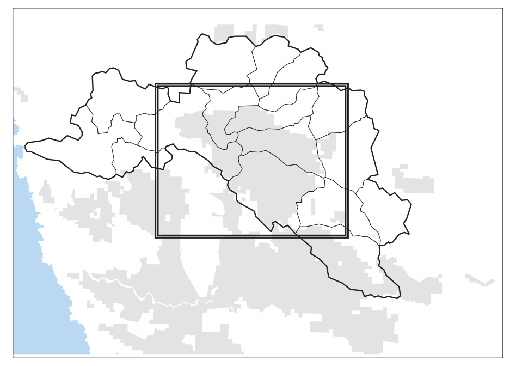
- - - MRC Ownership
— Planning Watershed Boundary
— Big River Watershed Boundary

▬ Deep-Seated Landslides

Shallow-Seated Landslides
- • < 500 cubic yards
- • 500 - 5000 cubic yards
- ● > 5000 cubic yards

Flow Class
- Class I
- Class II
- Class III

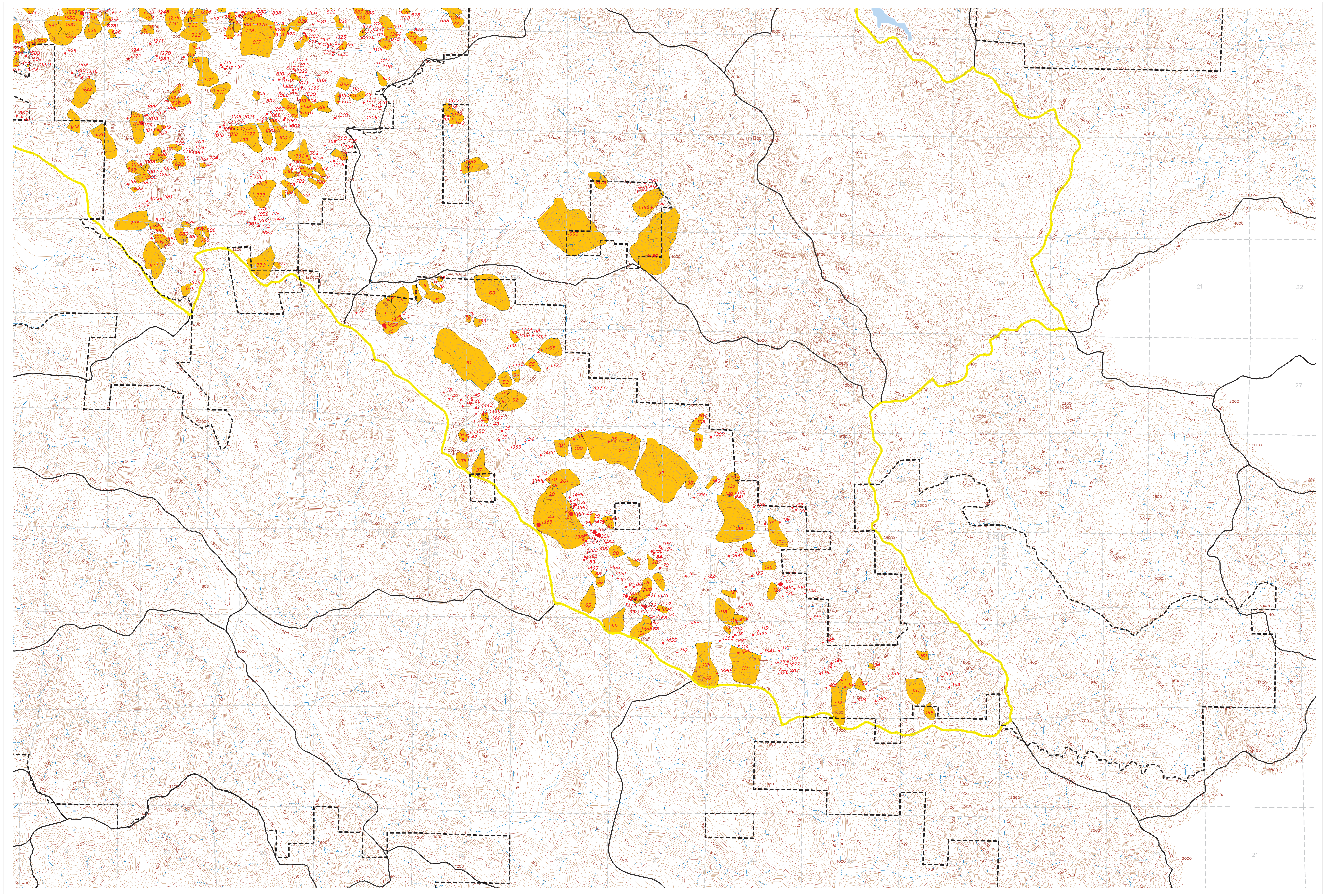
Sheet 1



N
W E
S

0 1/2 1 Mile

September 2003



Big River
Watershed Analysis
Unit

Map A-1
Mass Wasting Inventory

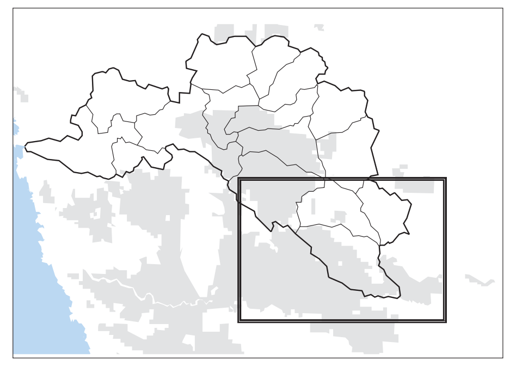
This map presents the location of mass wasting features identified on the MRC land in the Big River River watershed. The mass wasting features were developed from an interpretation of aerial photographs from the 1970s-2000 with field observations taken in 2001. All shallow-seated landslides are identified as a point plotted on the map at the interpreted head scarp of the failure. Deep-seated landslides are represented as a polygon representing the interpreted perimeter of the landslide feature. Physical and geomorphic characteristics of mapped landslides are categorized in a database in the mass wasting report for the Big River WAU (Section A).

- - MRC Ownership
— Planning Watershed Boundary
— Big River Watershed Boundary
▨ Deep-Seated Landslides

Shallow-Seated Landslides
• < 500 cubic yards
• 500 - 5000 cubic yards
● > 5000 cubic yards

Flow Class
Class I
Class II
Class III

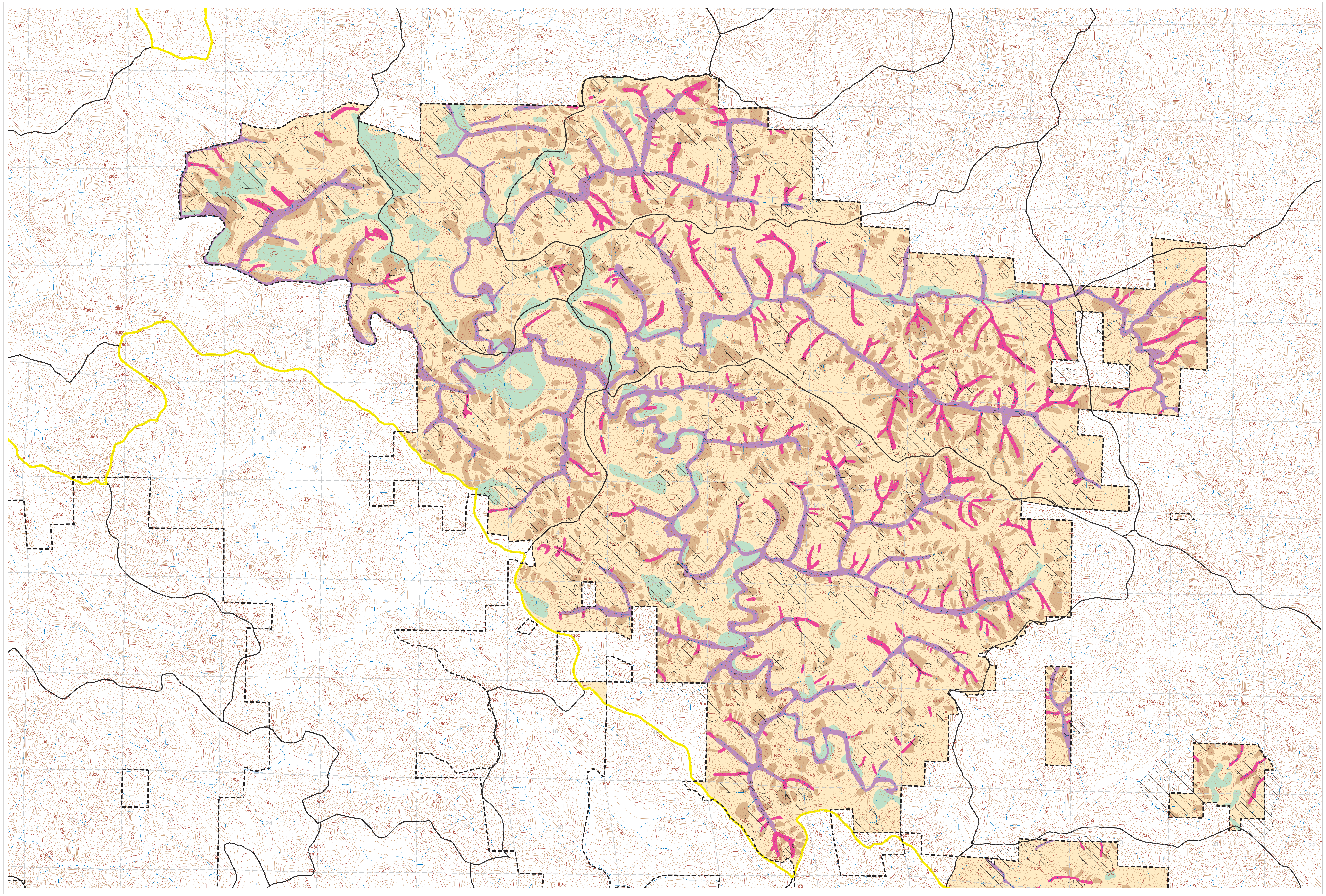
Sheet 2



N
W E
S

0 1/2 1 Mile

September 2003



Big River Watershed Analysis Unit

Map A-2
Mass Wasting Map Units

This map presents an interpretation of the mass wasting map units (MWMUs) delineated for the Big River WAU. The MWMUs characterize the landscape by similar geomorphic attributes, shallow-seated landslide potential, and sediment delivery potential. The MWMU designations for the Big River WAU are only meant to be general characterizations of similar geomorphic and terrain characteristics related to shallow seated landslides. Deep-seated landslides are also shown on this map. The deep-seated landslides have been included to provide land managers with supplemental information to guide evaluation of harvest planning and subsequent needs for geologic review. The landscape and geomorphic setting in the Big River WAU is certainly more complex than generalized MWMU delineated for this evaluation. The MWMUs are only meant to be a starting point for gauging the need for site-specific field assessments. Field observations will over-ride unit boundaries of this map.

Unit 1: Steep slopes or inner gorge along low gradient watercourses

Unit 2: Steep slopes or inner gorge adjacent to select intermittent or ephemeral streams

Unit 3: Steep, dissected topography

Unit 4: Non-dissected topography

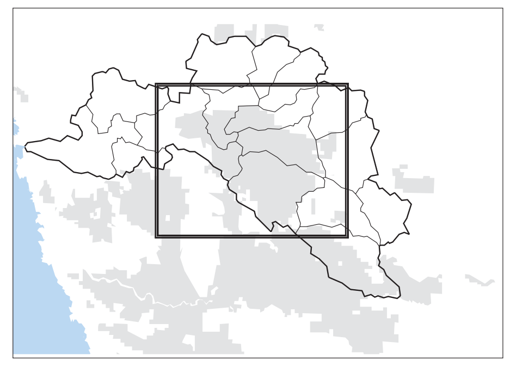
Unit 5: Low relief topography

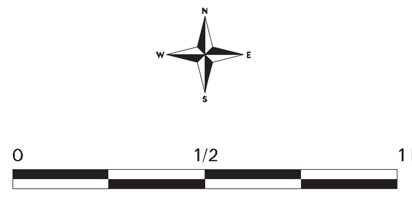
▨ Deep Seated Landslides

MRC Ownership
Planning Watershed Boundary
Big River Watershed Boundary

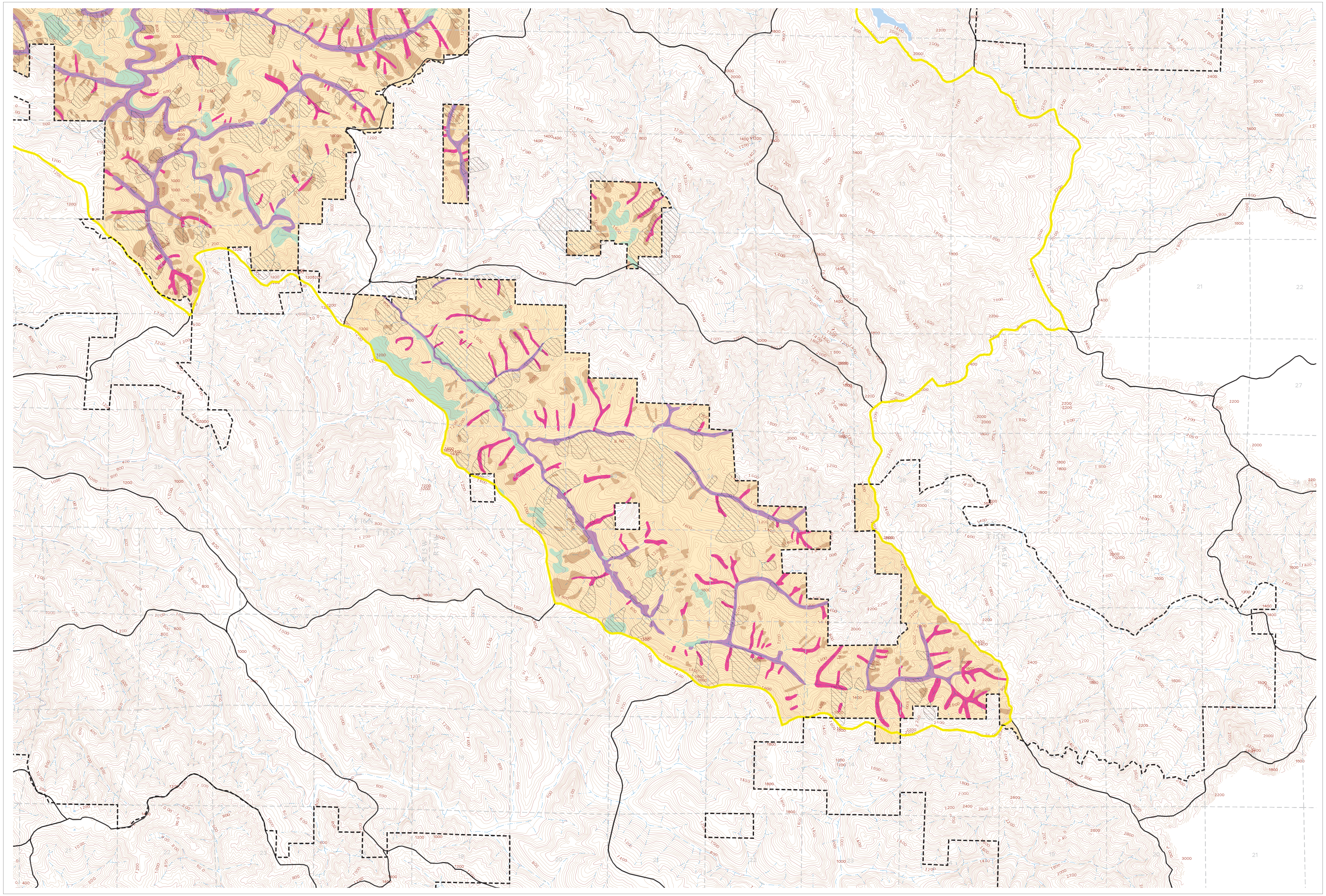
Flow Class
Class I
Class II
Class III

Sheet 1





September 2003



Big River
Watershed Analysis
Unit

Map A-2
Mass Wasting Map Units

This map presents an interpretation of the mass wasting map units (MWMUs) delineated for the Big River WAU. The MWMUs characterize the landscape by similar geomorphic attributes, shallow-seated landslide potential, and sediment delivery potential. The MWMU designations for the Big River WAU are only meant to be general characterizations of similar geomorphic and terrain characteristics related to shallow seated landslides. Deep-seated landslides are also shown on this map. The deep-seated landslides have been included to provide land managers with supplemental information to guide evaluation of harvest planning and subsequent needs for geologic review. The landscape and geomorphic setting in the Big River WAU is certainly more complex than generalized MWMU delineated for this evaluation. The MWMUs are only meant to be a starting point for gauging the need for site-specific field assessments. Field observations will over-ride unit boundaries of this map.

Unit 1: Steep slopes or inner gorge along low gradient watercourses

Unit 2: Steep slopes or inner gorge adjacent to select intermittent or ephemeral streams

Unit 3: Steep, dissected topography

Unit 4: Non-dissected topography

Unit 5: Low relief topography

▨ Deep Seated Landslides

MRC Ownership

Planning Watershed Boundary

Big River Watershed Boundary

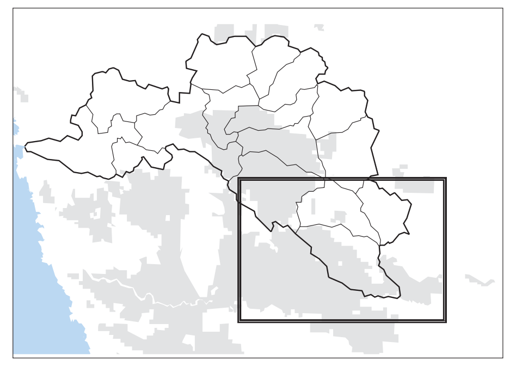
Flow Class

Class I

Class II

Class III

Sheet 2



0 1/2 1 Mile

September 2003

Big River Mass Wasting
Appendix A

													Shallow landslides								Deep-seated landslides							
ID#		Sec	Air Photo		Landslide	Certainty	Size				Torrent	Sed	Sed Del			Slope		Slope	Slide	Road	Toe	Body	Lat.	Main	DS	Complex	Field	
					Type		Length	Width	Depth	Slide	Length	Routing	Ratio	Sediment	Sediment	(field)	Age	Form	Loc.	Assoc.	Activity	Morph.	Scarps	Scarps	Veg.		Obs.	Comments
Unique		#	year - number		DS DF DT	D P Q	ft	ft	ft	Vol	ft	P I N	25 50 75	Delivery	Delivery	(%)	A R O	C D P	H S I N	R S L	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3 4	Y N	Y N	
	PWS			MWMU	EF RS					yd^3			100 (%)	yd^3	tons					N I	4 5	4 5	4 5	4 5				
1	BS	19	00-BR17A-12		RS	D	975	1300		0	0	P		0	0						2	3	3	3	3	Y	N	WELL DEFINED SCARP
2	BS	19	00-BR17A-12		RS	D	300	650		0	0	P		0	0						2	2	5	2	2	N	N	OFF TOE OF #1, ACTIVE DEBRIS SLIDES AT TOE
3	BS	19	00-BR17A-12	1	DS	D	45	110	4	733.333	0	P	100	733.333	990	96	A	P	I	N							Y	ON TOE #2, OUTSIDE OF MEANDER BENCH
4	BS	19	00-BR17A-12	1	DS	D	125	60	4	1111.11	0	P	25	277.778	375		A	C	I	N								ON BODY #2
5	BS	19	00-BR17A-12		RS	D	800	500		0	0	P		0	0						3	3	3	3	3	N	N	HUMMOCKY, BUT TOE APPEARS ERODED AWAY
6	BS	19	00-BR17A-12		RS	Q	670	250		0	0	P		0	0						4	4	4	4	4	N	N	OBLIQUE TOE PUSHES STREAM
7	BS	19	00-BR17A-12		RS	D	725	275		0	0	P		0	0						3	3	3	3	4	N	N	SMOOTHED TOPOGRAPHY
8	BS	19	00-BR17A-12	1	DS	D	90	50	4	666.667	0	P	100	666.667	900		R	P	I	N							N	OFF TOE OF #1
9	BS	19	00-BR17A-12		RS	Q	1150	850		0	0	P		0	0						3	4	4	4	3	N	N	
10	BS	19	00-BR17A-12		RS	Q	300	150		0	0	P		0	0						3	2	5	3	2	N	N	MODERATLEY DEFINED SLIDE MASS
11	BS	19	00-BR17A-12		RS	P	125	100		0	0	P		0	0						3	3	5	3	3	N	N	DISTINCT HEAD SCARP
12	BS	19	00-BR17A-12		RS	P	250	200		0	0	P		0	0						3	3	5	3	3	N	N	DISTINCT HEAD SCARP
13	BS	19	00-BR17A-12	3	DS	P	95	50	4	703.704	0	I	25	175.926	237.5		R	C	H	N							N	
14	BS	19	00-BR17A-12	4	DS	Q	60	40	2	177.778	0	I	0	0	0		R	C	N	N							N	
15	BS	19	00-BR17A-12	2	DS	Q	95	50	4	703.704	0	P	50	351.852	475		O	C	S	N							N	OFF TOE OF #33
16	BS	19	00-BR17A-12	4	DS	D	110	50	4	814.815	0	I	75	611.111	825		R	P	S	R							N	
17	BS	30	00-BR17A-12	3	DS	Q	120	40	4	711.111	0	N	0	0	0		O	P	H	N							N	
18	BS	30	00-BR17A-12	4	DS	P	90	35	4	466.667	0	N	0	0	0		O	P	N	N							N	
19	BS	32	00-NE18A-10	4	DS	D	40	60	4	355.556	0	P	25	88.8889	120		R	P	I	N							N	
20	BS	32	00-NE18A-10		RS	D	200	750		0	0	P		0	0						2	2	5	3	2	N	N	AN EARTH FLOW?
21	BS	33	00-NE18A-10		RS	D	400	550		0	0	P		0	0						2	3	5	4	3	N	N	OFF TOE OF #
22	BS	33	00-NE18A-10	4	DS	D	210	200	6	9333.33	0	P	100	9333.33	12600		A	P	I	I							N	ASSOC. W/ ROAD BUT PROBABLY NOT CAUSED BY
23	BS	32	00-NE18A-10		RS	P	1800	2100		0	0	P		0	0						1	2	3	2	3	Y	N	
24	BS	32	00-NE18A-10	4	DS	D	50	75	4	555.556	0	P	25	138.889	187.5		A	C	I	N							N	
25	BS	33	00-NE18A-10	4	DS	P	90	40	4	533.333	0	P	100	533.333	720		R	P	I	N							N	
26	BS	33	00-NE18A-10	4	DS	D	275	44	6	2688.89	0	P	75	2016.67	2722.5	62	R	C	I	R							Y	
27	BS	33	00-NE18A-10	1	DS	D	50	50	4	370.37	0	P	100	370.37	500		A	P	I	N							N	
28	BS	33	00-NE18A-10	1	DS	P	50	50	4	370.37	0	P	100	370.37	500		O	P	I	N							N	
29	BS	33	00-NE18A-10	1	DS	P	40	50	4	296.296	0	P	100	296.296	400		O	P	I	N							N	
30	BS	33	00-NE18A-10		RS	P	300	150		0	0	P		0	0						3	3	3	3	3	N	N	
31	BS	5	00-NE18A-10	1	DS	Q	40	50	4	296.296	0	P	100	296.296	400		A	P	I	N							N	
32	BS	5	00-NE18A-10	3	DS	D	220	50	4	1629.63	0	P	50	814.815	1100		R	P	I	N							N	POSSIBLE SKID TRAIL INTERACTION?
33	BS	5	00-NE18A-10	1	DS	P	80	50	4	592.593	0	P	25	148.148	200		R	C	N	R							N	
34	BS	32	00-18A-12	1	DS	P	40	70	4	414.815	0	P	100	414.815	560		A	P	I	N							N	
35	BS	32	00-18A-12	4	DT	D	138	58	12	3557.33	150	P	40	1422.93	1920.96	72	A	P	N	L							Y	TORRENT WIDTH 3', DEPTH 2'. Deep failure off landing goes across road.
36	BS	32	00-18A-12	1	DS	D	80	46	4	545.185	0	P	70	381.63	515.2	87	A	P	I	R							Y	
37	BS	32	00-18A-12		RS	P	1200	400		0	0	I		0	0						4	2	5	3	3	N	N	
38	BS	31	00-18A-12		RS	P	850	350		0	0	I		0	0						4	3	5	3	3	N	N	
39	BS	31	00-18A-12	4	DS	D	70	70	4	725.926	0	I	25	181.481	245		A	P	N	N							N	FAILED AT BREAK IN SLOPE
40	BS	31	00-18A-12		RS	P	350	300		0	0	I		0	0						3	2	2	3	3	N	N	
41	BS	31	00-18A-12	4	DS	D	180	50	4	1333.33	0	N	0	0	0		R	P	N	S							N	
42	BS	32	00-18A-12	4	DS	D	110	30	4	488.889	0	N	0	0	0		R	P	H	N							N	
43	BS	29	00-18A-12		RS	Q	425	300		0	0	P		0	0						3	3	3	4	3	N	N	
44	BS	29	00-18A-12	2	DS	D	63	38	3	266	0	P	80	212.8	287.28	82	A	P	S	S							Y	SOME DEPOSIT STILL ON STREAM-ADJACENT OLD SKID RD.
45	BS	29	00-18A-12	3	DS	D	30	30	4	133.333	0	I	100	133.333	180		A	P	I	N							N	
46	BS	29	00-18A-12	3	DS	D	120	60	4	1066.67	0	N	0	0	0		O	P	N	N							N	
47	BS	29	00-18A-12	3	DS	D	70	30	4	311.111	0	I	25	77.7778	105		R	C	N	N							N	
48	BS	30	00-18A-12	3	DS	P	100	50	4	740.741	0	I	50	370.37	500		O	P	N	S							N	
49	BS	30	00-18A-12	4	DS	D	70	50	4	518.519	0		25	129.63	175		R	P	S	S							N	
50	BS	29	00-18A-12		RS	D	575	300		0	0	N		0	0						4	3	3	3	3	N	N	
51	BS	29	00-18A-12		RS	D	425	300		0	0	P		0	0						4	3	5	4	3	N	N	
52	BS	29	00-18A-12		RS	P	1400	500		0	0	P		0	0						3	4	4	4	3	Y	N	
53	BS	29	00-18A-12		RS	D	600	400		0	0	P		0	0						3	3	3	3	2	N	N	
54	BS	29	00-18A-12		RS	D	550	300		0	0	P		0	0						3	3	3	4	3	N	N	
55	BS	29	00-18A-12		RS	D	650	400		0	0	P		0	0						3	3	4	4	4	N	N	
56	BS	29	00-18A-12		RS	P	300	150		0	0	P		0	0						2	2	5	2	2	N	N	
57	BS	29	00-18A-12	1	DS	D	100	80	4	1185.19	0	P	100	1185.19	1600		O	P	S	N							N	
58	BS	29	00-18A-12		RS	P	975	700		0	0	P		0	0						3	3	3	3	3	Y	N	
59	BS	29	00-18A-12	4	DS	P	30	30	4	133.333	0	I	100	133.333	180		O	C	N	R							N	
60	BS	29	00-18A-12	3	DS	P	120	20	2	177.778	0	N	0	0	0		O	P	N	R							N	
61	BS	30	00-18A-12		RS	P	1450	3200		0	0	P		0	0						4	4	4	4	3	Y	N	
62	BS	29	00-18A-12		RS	Q	675	550		0	0	I		0	0						4	4	5	4	4	N	N	
63	BS	20	00-18A-14		RS	Q	1200	900		0	0	I		0	0						3	3	4	3	4	Y	N	WELL DISSECTED
64	BS	9	00-19A-8		RS	Q	1100	550		0	0	I		0	0						2	2	5	3	2	N	N	SMOOTHED TOPO.
65	BS	9	00-19A-8		RS	P	1300	500		0	0	I		0	0						4	3	5	3	3	N	N	
66	BS	9	00-19A-8	1	DS	D	90	60	4	800	0	P		0	0		A	P	I	N							N	
67	BS	9	00-19A-8	1	DS	D	50	50	4	370.37	0	P	100	370.37	500		R	P	I	N							N	
68	BS	9	00-19A-8	1	DS	D	50	50	4	370.37	0	P	100	370.37	500		R	P	I	N							N	
69	BS	4	00-19A-8	2	DS	D	70	40	4	414.815	0	I	75	311.111	420		O	P	S	N							N	
70	BS	4	00-19A-8	4	DS	D	125	80	4	1481.48	0	P	100	1481.48	2000		O	P	I	R							N	PARTIALLY RE-VEG.
71	BS	4	00-19A-8		RS	P	475	250		0	0	I		0	0						2	3	3	3	4	N	N	
72	BS	4	00-19A-8	4	DS	D	130	30	4	577.778	0	I	25	144.444	195	76	R	C	N	S							Y	
73	BS	4	00-19A-8	1	DS	P	110	83	3	1014.44	0	N	0	0	0	72	O	C	N	R							Y	ROAD-CUT FAILURE
74	BS	4	00-19A-8	1	DS	P	120	45	3	600	0	P	60	360	486	61	O	P	I	R							Y	
75	BS	4	00-19A-8	1	DS	D	120	20	3	266.667	0	P	70	186.667	252	58	R	P	I	L							Y	FILL FAILURE
76	BS	4	00-19A-8		RS	Q	1400	450		0	0	P		0	0						2	2	5	3	2	N	N	
77	BS	4	00-19A-8		RS	P	850	300		0	0	I		0	0						3	3	4	4	3	N	N	SMOOTH TOPO, IG AT TOE
78	BS	4	00-19A-8	3	DS	Q	50	70	4	518.519	0	I	50	259.259	350		O	C	H	N							N	
79	BS	4	00-19A-8	3	DS	P	100	40	4	592.593	0	I	75	444.444	600		O	P	S	N							N	
80	BS	4	00-19A-8	4	DT	D	190	22	8	1238.52	190	I	85	1052.74	1421.2	54	R	C	N	N							Y	
81	BS	4	00-19A-8	4	DS	D	130	124	4	2388.15	0	P	50	1194.07	1612	62	A	P	N	R							Y	
82	BS	4	00-19A-8	1	DS	D	50	50	4	370.37	0	P	100	370.37	500		R	P	I	N							N	
83	BS	4	00-19A-8		RS	P	725	150		0	0	I		0	0						4	3	5	3	3	N	N	
84	BS	4	00-19A-8	4	DS	D	160	60	4	1422.22	0	I	25	355.556	480		R	P	N	N							N	
85	BS	5	00-19A-8		RS	Q	1300	425		0	0	I		0	0						4	3	5	4	3	N	N	
86	BS	5	00-19A-8		RS	P	475	350		0	0	I		0	0						3	3	3	3	3	N	N	
87	BS		00 BR17A-11		RS	P	450	300		0		I		0	0						3	4	2	4	3	N		
88	BS	5	00-19A-8		RS	P	300	175		0	0	I		0	0						3	3	3	3	3	N	N	

													Shallow landslides								*Deep-seated landslides*							
ID#		Sec	Air Photo		Landslide Type	Certainty	Size Length	Width	Depth	Slide	Torrent Length	Sed Routing	Sed Del Ratio	Sediment	Sediment	Slope (field)	Age	Slope Form	Slide Loc.	Road Assoc.	Toe Activity	Body Morph.	Lat. Scarps	Main Scarps	DS Veg.	Complex	Field Obs.	Comments
Unique		#	year - number		DS DF DT	D P Q	ft	ft	ft	Vol	ft	P I N	25 50 75	Delivery	Delivery	(%)	A R O	C D P	H S I N	R S L	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3 4	Y N	Y N	
	PWS			MWMU	EF RS					yd^3			100 (%)	yd^3	tons					N I	4 5	4 5	4 5	4 5				
89	BS	5	00-19A-8	4	DS	D	100	70	4	1037.04	0	I	25	259.259	350		R	C	N	N							N	
90	BS	4	00-19A-10		RS	D	600	400		0	0	I		0	0						3	3	4	3	3	N	N	LOBATE TOP
91	BS	5	00-19A-10	4	DS	D	480	132	10	23466.7	0	P	30	7040	9504	53	R	C	N	R							Y	
92	BS	33	00-19A-10		RS	P	600	400		0	0	I		0	0						2	3	3	2	3	N	N	
93	BS	33	00-19A-10	4	DS	D	300	100	4	4444.44	0	P	75	3333.33	4500		R	P	S	N							N	
94	BS	33	00-19A-10		RS	D	1600	1500		0	0	P		0	0						3	3	3	4	3	Y	N	LARGE SLIDE COMPLEX
95	BS	33	00-19A-10	4	DS	D	50	100	4	740.741	0	P	25	185.185	250		R	P	N	S							N	
96	BS	33	00-19A-10	4	DS	D	240	45	4	1600	0	P	75	1200	1620		R	C	I	S							N	
97	BS	34	00-19A-10		RS	D	2700	2500		0	0	P		0	0						3	3	3	3	3	Y	N	LARGE SLIDE COMPLEX
98	BS	34	00-19A-10		RS	D	700	300		0	0	P		0	0						3	2	3	3	2	N	N	
99	BS	34	00-19A-10		RS	P	750	350		0	0	P		0	0						3	3	5	4	2	N	N	
100	BS	33	00-19A-10		RS	D	1250	700		0	0	P		0	0						2	4	3	3	4	N	N	
101	BS	32	00-19A-10		RS	D	850	600		0	0	P		0	0						3	3	5	4	3	N	N	
102	BS	33	00-19A-10	4	DS	D	78	52	4	600.889	0	P	100	600.889	811.2	67	A	P	I	N							Y	
103	BS	4	00-19A-10	3	DS	P	150	60	4	1333.33	0	I	50	666.667	900		O	P	N	N							N	
104	BS	4	00-19A-10	3	DS	P	130	40	4	770.37	0	I	50	385.185	520		O	P	N	N							N	
105	BS	33	00-19A-10	4	DS	P	170	30	4	755.556	0	N	0	0	0		O	C	N	N							N	
106	BS	27	00-19A-12		RS	P	850	400		0	0	I		0	0						3	3	3	3	2	N	N	
107	BS	27	00-19A-12	4	DS	D	95	25	2	175.926	0	I	75	131.944	178.125		R	P	H	N							N	
108	BS	9	00-20-11		RS	D	2200	700		0	0	P		0	0						4	3	3	3	3	N	N	
109	BS	9	00-20-11	4	DT	D	50	40	3	222.222	180	I	100	222.222	300	90	R	C	N	S							Y	STOPS AT MASONITE RD. XING
110	BS	9	00-20-11	4	DF	D	40	20	4	118.519	375	P	50	59.2593	80		A	C	N	N							N	FLOW/TORRENT IS SHALLOW AND NARROW
111	BS	10	00-20-11		RS	P	1500	1400		0	0	P		0	0						3	3	3	3	3	Y	N	
112	BS	10	00-20-11	4	DS	D	325	89	2	2142.59	0	P	95	2035.46	2747.88	97	R	P	N	R							Y	
113	BS	10	00-20-11	1	DS	P	160	54	2	640	0	N	0	0	0	74	O	P	N	N							Y	
114	BS	10	00-20-11	1	DS	D	85	64	4	805.926	0	P	50	402.963	544	68	R	P	I	R							Y	
115	BS	10	00-20-11	4	DS	P	30	50	4	222.222	0	I	25	55.5556	75		R	P	N	S							N	
116	BS	10	00-20-11	4	DS	D	80	89	3	791.111	0	N	0	0	0	96	R	P	N	R							Y	ROAD CUT-FAILURE
117	BS	10	00-20-11		RS	Q	330	200		0	0	P		0	0						3	2	3	3	2	N	N	
118	BS	3	00-20-11		RS	P	950	700		0	0	P		0	0						3	4	3	3	3	Y	N	
119	BS	3	00-20-11		RS	Q	480	400		0	0	P		0	0						3	3	3	4	3	N	N	
120	BS	3	00-20-11	3	DS	P	130	30	4	577.778	0	I	50	288.889	390		O	P	S	S							N	
121	BS	3	00-20-11		RS	P	700	300		0	0	P		0	0						3	3	3	3	3	N	N	
122	BS	4	00-20-11	4	DS	Q	110	30	4	488.889	0	I	75	366.667	495		O	P	S	N							N	
123	BS	3	00-20-11	4	DS	D	175	40	4	1037.04	0	P	90	933.333	1260	91	A	P	S	N							Y	
124	BS	3	00-20-11		RS	Q	600	350		0	0	P		0	0						3	3	3	3	3	N	N	
125	BS	3	00-20-11	4	DS	D	70	40	3	311.111	0	N	0	0	0	59	R	P	N	R							Y	
126	BS	3	00-20-11	2	DS	Q	250	100	4	3703.7	0	P	100	3703.7	5000		O	P	N	N							N	
127	BS	3	00-20-11	2	DS	P	50	20	4	148.148	0	I	50	74.0741	100		R	C	N	N							N	
128	BS	3	00-20-11	3	DS	P	150	25	2	277.778	0	I	75	208.333	281.25		R	P	N	N							N	
129	BS	3	00-20-13		RS	Q	400	300		0	0	I		0	0						3	3	3	3	3	N	N	
130	BS	3	00-20-13		RS	Q	300	800		0	0	I		0	0						4	3	3	3	3	N	N	
131	BS	35	00-20-13		RS	P	1200	500		0	0	P		0	0						3	3	5	3	3	N	N	
132	BS	3	00-20-13	3	DS	P	60	30	2	133.333	0	N	0	0	0		R	P	H	N							N	
133	BS	34	00-20-13		RS	P	2400	1300		0	0	P		0	0						3	4	3	3	3	Y	N	
134	BS	35	00-20-13	4	DS	D	120	50	4	888.889	0	I	50	444.444	600		O	P	S	N							N	
135	BS	35	00-20-13	1	DS	D	160	30	4	711.111	0	P	100	711.111	960		O	C	N	R							N	
136	BS	35	00-20-13	3	DS	P	120	40	4	711.111	0	N	0	0	0		O	P	N	N							N	
137	BS	35	00-20-13	3	DS	P	130	30	4	577.778	0	I	50	288.889	390		O	P	N	N							N	
138	BS	34	00-20-13	4	DS	P	70	60	4	622.222	0	N	0	0	0		O	P	N	R							N	ROAD CUT
139	BS	34	00-20-13		RS	P	1200	350		0	0	P		0	0						2	3	3	3	3	Y	N	
140	BS	34	00-20-13	4	DS	D	180	110	4	2933.33	0	P	100	2933.33	3960		R	P	I	N							N	
141	BS	34	00-20-13	1	DS	P	120	40	4	711.111	0	N	0	0	0		R	P	I	R							N	ROAD CUT
142	BS	34	00-20-13	4	DS	Q	90	40	4	533.333	0	I	50	266.667	360		O	C	N	N							N	
143	BS	34	00-20-13		RS	P	700	200		0	0	P		0	0						2	4	4	4	4	N	N	
144	BS	2	00-21-11	4	DS	D	95	30	2	211.111	0	N	0	0	0		O	P	N	R							N	
145	BS	11	00-21-11	3	DS	P	30	30	4	133.333	0	I	75	100	135		O	P	S	N							N	
146	BS	11	00-21-11	4	DS	D	270	75	4	3000	0	I	100	3000	4050		A	C	S	N							N	
147	BS	11	00-21-11	2	DS	D	70	30	4	311.111	0	I	100	311.111	420		A	P	S	N							N	
148	BS	11	00-21-11	2	DS	D	120	35	4	622.222	0	I	100	622.222	840		A	P	S	N							N	
149	BS	11	00-21-11		RS	D	1400	1000		0	0	P		0	0						3	3	3	3	3	N	N	
150	BS	11	00-21-11	2	DS	D	110	40	4	651.852	0	P	100	651.852	880		R	P	I	N							N	
151	BS	11	00-21-11		RS	D	650	400		0	0	P		0	0						3	3	3	4	3	N	N	
152	BS	11	00-21-11		RS	D	450	400		0	0	P		0	0						3	3	3	3	3	N	N	
153	BS	11	00-21-11	2	DS	D	140	45	3	700	0	I	75	525	708.75	61	R	C	N	R							Y	
154	BS	11	00-21-11		RS	P	240	200		0	0	I		0	0						3	2	5	2	2	N	N	
155	BS	3	00-21-11	2	DS	P	30	60	4	266.667	0	I	50	133.333	180		O	C	N	N							N	
156	BS	11	00-22-11	4	DS	P	90	25	4	333.333	0	I	75	250	337.5		O	C	N	R							N	
157	BS	12	00-22-11		RS	P	1100	650		0	0	P		0	0						3	3	3	3	3	N	N	
158	BS	12	00-22-11		RS	Q	725	300		0	0	I		0	0						4	3	3	3	3	N	N	
159	BS	12	00-22-11	4	DS	D	195	68	4	1964.44	0	I	50	982.222	1326	73	R	P	S	R							Y	
160	BS	12	00-22-11	1	DS	Q	50	60	4	444.444	0	N	0	0	0		O	P	N	N							N	
161	BS	12	00-22-11		RS	P	425	350		0	0	P		0	0						3	2	3	3	3	N	N	
162	BT	25	00-10C-12	1	DS	P	100	30	2	222.222		P	100	222.222	300		R	P	S	N							N	
163	BT	25	00 BR10C-1	1	DS	P	50	75	2	277.778	0	I	100	277.778	375		O	P	S	N								
164	BT	24	00-10C-12	1	DS	D	65	53	5	637.963		P	90	574.167	775.125	77	R	P	N	R							Y	
165	BT	24	00-10C-12	4	DS	D	100	20	2	148.148		I	100	148.148	200		O	C	H	R							N	
166	BS		00 BR17A-11		RS	P	600	500		0		I		0	0						3	4	4	4	4	N		
167	BT	24	00-10C-12	3	DS	D	215	68	6	3248.89		I	40	1299.56	1754.4	59	R	C	N	R							Y	
169	BT	24	00-10C-12		RS	D	800	1360		0		P		0	0						3	3	4	4	2	N	N	
170	BT	24	00-10C-12	1	DS	Q	40	30	2	88.8889		P	100	88.8889	120		R	P	S	S							N	
171	BT	24	00-10C-12	1	DS	P	100	100	2	740.741		I	100	740.741	1000		R	P	S	N							N	
172	BT	24	00 BR11C-10	1	DS	D	150	100	2	1111.11	0	I	75	833.333	1125		O	P	S	R								
173	BT	274	00-10C-12	3	DS	P	200	30	2	444.444		P	75	333.333	450		R	P	N	S							N	
174	BT	24	00-10C-12	4	DS	P	100	20	2	148.148		I	100	148.148	200		O	C	H	R							N	
175	BT	24	00-10C-12	2	DS	D	40	30	2	88.8889		I	100	88.8889	120		R	P	S	N							N	
176	BT	24	00-10C-12	2	DS	P	20	30	2	44.4444		I	100	44.4444	60		R	P	S	N							N	
177	BT	24	00-10C-12	2	DS	D	40	30	2	88.8889		I	100	88.8889	120		R	P	S	N							N	

							Size						Shallow landslides								Deep-seated landslides							
ID#		Sec	Air Photo		Landslide Type	Certainty	Length	Width	Depth	Slide	Torrent Length	Sed Routing	Sed Del Ratio	Sediment	Sediment	Slope (field)	Age	Slope Form	Slide Loc.	Road Assoc.	Toe Activity	Body Morph.	Lat. Scarps	Main Scarps	DS Veg.	Complex	Field Obs.	Comments
Unique	PWS	#	year - number	MWMU	DS DF DT EF RS	D P Q	ft	ft	ft	Vol yd^3	ft	P I N	25 50 75 100 (%)	Delivery yd^3	Delivery tons	(%)	A R O	C D P	H S I N	R S L N I	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4	Y N	Y N	
178	BT	23	00-10C-12		RS	Q	1190	2160		0		P		0	0						2	4	3	3	3	Y	N	
180	BT	23	00-10C-12	1	DS	D	130	45	5	1083.33		N	0	0	0	68	O	C	N	S							Y	
181	BT	23	00-10C-2	1	DS	D	85	66	4	831.111	0	N	0	0	0	78	O	P	N	R							Y	
182	BT	23	00-10C-12	1	DS	D	60	30	2	133.333		P	100	133.333	180		R	P	S	N							N	
183	BT	23	00-10C-12	1	DS	D	60	30	2	133.333		P	100	133.333	180		R	P	S	N							N	
184	BT	23	00-10C-12	1	DS	Q	40	50	2	148.148		P	100	148.148	200		R	P	S	N							N	
186	BT		00 BR10C-2		RS	P	1000	850		0		P		0	0						4	3	4	4	4	N		
187	BT		00 BR10C-3		RS	Q	600	250		0		P		0	0						4	4	4	4	4	N		
189	BT	14	00-10C-4		RS	Q	630	640		0		P		0	0						3	3	5	4	3	N	N	
190	BT	13	00-10C-4		RS	P	500	400		0		P		0	0						3	2	2	3	3	N	N	
191	BT	14	00-10C-4	2	DS	P	40	20	2	59.2593		I	100	59.2593	80		R	P	S	N							N	
192	BT	13	00 BR10C-3	3	DS	Q	40	30	2	88.8889	100	I		0	0		R	P	S	N								
193	BT	13	00-10C-4		RS	P	2880	1280		0		I		0	0						4	4	4	4	3	Y	N	
195	BT	13	00-10C-4	4	DS	D	100	30	2	222.222		I	100	222.222	300		R	P	H	R							N	
196	BT	13	00-10C-4	3	DS	D	60	30	2	133.333		I	100	133.333	180		R	P	S	R							N	
197	BT	13	00-10C-4		RS	Q	500	350		0		I		0	0						3	3	3	3	3	N	N	
198	BT	13	00-10C-4		RS	P	730	240		0		I		0	0						3	3	3	3	3	N	N	
199	BT	13	00-10C-4	1	DS	D	60	42	7	653.333	0	P	100	653.333	882	75	R	C	S	R							Y	
200	BT	19	00-11C-9	3	DS	P	175	20	2	259.259		I	100	259.259	350		O	P	S	N							N	
201	BT	19	00-11C-11	3	DS	D	70	90	4	933.333		P	100	933.333	1260		R	P	I	N							N	
202	BT	19	00-11C-11	3	DS	D	125	20	4	370.37		P	100	370.37	500		R	P	I	N							N	
203	BT	30	00-11C-9		RS	D	420	300		0		N		0	0						4	4	5	3	2	N	N	
204	BT	30	00-11C-9		RS	D	350	300		0		N		0	0						4	3	3	3	2	N	N	
205	BT	30	00-11C-9		RS	Q	910	270		0		P		0	0						2	3	3	3	2	N	N	
206	BT	30	00-11C-9	3	DS	D	90	30	4	400		P	100	400	540		A	P	I	N							N	OFF TOE #25
207	BT	30	00-11C-9	1	DS	D	110	60	4	977.778		P	100	977.778	1320		A	P	I	N							N	
208	BT	30	00-11C-9	3	DS	D	180	80	4	2133.33		P	50	1066.67	1440		A	P	S	N							N	
209	BT	30	00-11C-9	1	DS	D	95	40	4	562.963		P	100	562.963	760		R	P	I	N							N	
210	BT	30	00-11C-9		RS	Q	890	260		0		I		0	0						4	3	3	3	3	N	N	
211	BT	19	00 BR11C-10	4	DS	Q	75	30	2	166.667	0	N	0	0	0		R	C	H	N								
212	BT	19	00 BR11C-10	4	DS	Q	70	30	2	155.556	100	I	25	38.8889	52.5		R	C	H	N								
213	BT	19	00-11C-11	2	DS	Q	30	30	4	133.333	0	I	100	133.333	180		O	P	S	N							N	
214	BT	19	00-11C-11		RS	P	450	400		0		I		0	0						4	3	5	3	3	N	N	
215	BT	19	00-11C-11		RS	D	600	400		0		I		0	0						3	3	3	3	2	N	N	
216	BT	19	00-11C-9		RS	D	700	300		0		I		0	0						3	2	3	3	2	N	N	
217	BT	19	00-11C-9	1	DS	P	60	25	4	222.222		I	100	222.222	300		R	P	S	N							N	
218	BT	19	00-11C-11	4	DS	P	60	30	4	266.667	0	I	100	266.667	360		R	C	N	N							N	
219	BT	19	00-11C-11	2	DS	D	100	46	4	681.481	0	I	100	681.481	920		O	C	N	N							N	
220	BT	19	00-11C-11	2	DS	D	180	75	4	2000	500	I	100	2000	2700		R	C	N	N							N	
221	BT	19	00-11C-11	2	DT	D	120	30	4	533.333	0	N		0	0		R	C	N	N							N	
223	BT	19	00-11C-11		RS	P	1400	850		0		P		0	0						3	4	4	3	4	Y	N	
225	BT	18	00-11C-11	4	DT	D	131	58	5	1407.04	275	I	80	1125.63	1519.6	52	R	C	N	R							Y	
226	BT		00 BR11C-11		RS	Q	630	300		0		I		0	0						3	3	3	3	4	N		
227	BT		00 BR11C-11		RS	P	750	430		0		I		0	0						3	3	3	3	4	N		
228	BT	19	00-11C-11	4	DS	Q	60	40	4	355.556		I	75	266.667	360		R	C	N	N							N	
229	BT	24	00-11C-11		RS	P	500	225		0		P		0	0						3	3	4	3	3	N	N	
231	BT	24	00-11C-11		RS	P	680	290		0		P		0	0						3	3	3	3	3	N	N	
232	BT	18	00-11C-11	4	DS	P	220	60	4	1955.56		I	25	488.889	660		O	C	N	N							N	
233	BT	13	00-11C-11	3	DS	P	120	20	4	355.556	0	I	75	266.667	360		R	P	N	N							N	
234	BT	13	00-11C-11	3	DS	P	95	40	4	562.963		N		0	0		R	P	N	R							N	
235	BT	13	00-11C-11		RS	Q	840	250		0		P		0	0						4	3	3	3	2	N	N	
236	BT	13	00-11C-11		RS	D	800	500		0		P		0	0						3	2	3	3	3	N	N	
237	BT	13	00-11C-11		RS	P	590	300		0		I		0	0						3	3	5	4	3	N	N	
238	BT	18	00-11C-11	3	DS	P	100	20	4	296.296		I	75	222.222	300		O	C	N	N							N	
239	BT	18	00-11C-11	2	DS	Q	120	60	4	1066.67		I	50	533.333	720		O	P	S	N							N	
240	BT	13	00-10C-4	4	DS	D	250	82	5	3796.3		P	80	3037.04	4100		R	P	N	R							Y	CUT-SLOPE FAILURE CROSSES ROAD
241	BT	19	00-11C-11	2	DS	D	65	53	5	637.963		P	90	574.167	775.125	77	R	P	N	R							Y	
242	BT	32	00-12C-34		RS	P	300	200		0	0	I		0	0						4	3	5	3	2	N	N	
243	BT	32	00-12C-34		RS	P	1200	600		0	0	I		0	0						3	3	4	4	3	N	N	
244	BT	32	00-12C-34	4	DS	Q	60	15	4	133.333		N	0	0	0		R	C	N	S							N	
245	BT	32	00-12C-34	3	DS	D	70	75	4	777.778		I	50	388.889	525		O	P	N	N							N	
246	BT	32	00-12C-34	1	DS	D	73	34	4	367.704	0	I	90	330.933	446.76	88	R	P	N	R							Y	
247	BT	32	00-12C-34	1	DS	P	50	50	4	370.37		I	100	370.37	500		R	P	S	N							N	
248	BT	32	00-12C-34		RS	D	300	275		0		I		0	0						3	2	3	2	2	N	N	
249	BT	32	00-12C-34	1	DS	P	180	75	4	2000		I	75	1500	2025		O	P	S	N							N	PARTIALLY RE-VEG
250	BT	32	00-12C-34	1	DS	P	60	40	2	177.778		I	100	177.778	240	117	R	P	S	N							Y	
251	BT	32	00-12C-34	1	DS	D	50	60	1	111.111		I	100	111.111	150	137	R	D	S	N							Y	
252	BT	32	00-12C-34	1	DS	D	120	50	5	1111.11		N	0	0	0	88	A	P	N	S							Y	
253	BT	32	00-12C-34	1	DS	D	86	58	4	738.963		P	90	665.067	897.84	68	R	P	S	R							Y	
254	BT	32	00-12C-34		RS	D	1000	600		0		P		0	0						3	3	4	3	2	Y	N	COMPLEX ASSOC. WITH 315
255	BT	32	00-12C-34		RS	D	1806	500		0		P		0	0						4	4	3	3	3	Y	N	COMPLEX W/ #314 AT BOTTOM
256	BT	32	00-12C-34	3	DS	P	95	35	4	492.593		N	0	0	0		R	P	N	N							N	
257	BT	32	00-12C-34		RS	P	1100	200		0		I		0	0						4	3	3	3	3	N	N	
258	BT	32	00 BR12C-33	3	DS	P	75	40	2	222.222		I	50	111.111	150		O	P	N	S								
259	BT	29	00-12C-34	1	DS	P	70	50	4	518.519		P	100	518.519	700		A	P	I	N							N	
260	BT	29	00-12C-34	3	DS	P	120	25	4	444.444	0	P	100	444.444	600		R	P	I	N						N	N	
261	BS		00 BR19A-9		RS	P	1300	1200		0		P		0	0						4	4	4	4	4	N		
262	BT	29	00-12C-34		RS	D	650	300		0		P		0	0						3	2	3	3	2		N	
263	BT	29	00-12C-34	1	DS	D	95	44	3	464.444	0	P	100	464.444	627	77	R	C	I	R							Y	
264	BT	29	00-12C-34		RS	P	800	500		0		P		0	0						3	2	3	4	3	N	N	
265	BT	29	00 BR12C-34		RS	P	1150	500		0		P		0	0						3	2	5	5	5	N		
266	BL	29	00-12C-34		RS	D	300	275		0	0	N		0	0		DY				4	2	3	2	3	N		
267	BL	28	00-12C-34	1	DS	D	60	40	5	444.444	0	P	95	422.222	570	104	O	P	S	N							Y	
268	BL	29	00-12C-34	1	DS	D	160	133	7	5517.04	0	P	90	4965.33	6703.2	97	A	C	I	R							Y	
269	BL	29	00-12C-34	3	DS	D	155	70	4	1607.41	0	N	0	0	0		O	P	N	R								
270	BL	29	00-12C-34		RS	D	1200	600		0	0	P		0	0		DM				3	3	3	3	3	N		
271	BL	29	00-12C-34	4	DS	D	110	30	4	488.889	0	P	25	122.222	165		A	P	N	N								
272	BL	20	00-12C-34	1	DS	D	70	60	4	622.222	0	P	100	622.222	840		A	P	I	N								MEANDER BEND

													Shallow landslides								*Deep-seated landslides*							
ID#		Sec	Air Photo		Landslide Type	Certainty	Size				Torrent Length	Sed Routing	Sed Del Ratio			Slope (field)		Slope Form	Slide Loc.	Road Assoc.	Toe Activity	Body Morph.	Lat. Scarps	Main Scarps	DS Veg.	Complex	Field Obs.	
							Length	Width	Depth	Slide				Sediment	Sediment		Age											Comments
Unique		#	year - number		DS DF DT	D P Q	ft	ft	ft	Vol	ft	P I N	25 50 75	Delivery	Delivery	(%)	A R O	C D P	H S I N	R S L	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3 4	Y N	Y N	
	PWS			MWMU	EF RS					yd^3			100 (%)	yd^3	tons					N I	4 5	4 5	4 5	4 5				
273	BL	20	00-12C-36		RS	D	800	750		0	0	I		0	0						3	3	3	3	3	N		
274	BL	20	00-12C-36	1	DS	P	190	49	2	689.63	0	P	100	689.63	931	82	R	C	S	R							Y	
275	BL	20	00-12C-36	1	DS	D	70	29	1	75.1852	0	P	100	75.1852	101.5	80	R	P	I	R							Y	
276	BL	20	00-12C-36		RS	P	725	500		0	0	I		0	0						3	3	3	3	3	N		
277	BL	19	00-12C-36		RS	D	850	500		0	0	I		0	0						4	4	3	3	3	N		
278	BR	20	00-12C-36	1	DS	D	95	30	4	422.222	0	P	100	422.222	570		A	C	I	N								MEANDER BEND
278	BM		00 BR15E-11		RS	P	2000	950		0		I		0	0						4	4	4	3	4	N		
279	BL	17	00-12C-36	1	DS	D	50	40	4	296.296	0	P	100	296.296	400		R	P	I	N								
280	BL	17	00-12C-36	1	DS	D	55	150	4	1222.22	0	P	100	1222.22	1650		R	P	I	N								
281	BL	29	00-12C-36		RS	P	350	100		0	0	P		0	0						3	2	2	2	2	N		
282	BL	17	00-12C-38		RS	Q	600	500		0	0	P		0	0						3	3	3	4	3	N		
283	BL	17	00-12C-38		RS	D	2200	800		0	0	P		0	0						3	3	4	3	3	Y		
284	BL	18	00-12C-38		RS	P	2900	1600		0	0	I		0	0						3	3	3	3	3	Y		
285	BL	17	00-12C-38		RS	D	700	1000		0	0	I		0	0						3	3	3	4	2	N		
286	BL	17	00-12C-38	1	DS	D	60	35	4	311.111	0	P	100	311.111	420		R	P	I	N								
287	BL	21	00-13B-36		RS	Q	310	110		0		I		0	0						4	2	5	3	2	N		
288	BL	17	00-12C-38	4	DS	Q	120	30	4	533.333	0	N	0	0	0		O	P	N	N								
289	BL	17	00-12C-38		RS	D	355	300		0	0	I		0	0						3	2	5	3	2	N		
290	BL	17	00-12C-38	4	DS	D	150	125	4	2777.78	0	I	50	1388.89	1875		O	P	S	N								
291	BL	17	00-12C-38		RS	D	550	300		0	0	N		0	0						3	2	3	3	1	N		
292	BL	17	00-12C-38	3	DS	P	120	30	4	533.333	0	N		0	0		R	P	N	N								
293	BL	17	00-12C-38		RS	D	1100	500		0	0	P		0	0						3	4	5	3	2	N		
294	BT	4	00-13B-32		RS	D	500	1000		0		I		0	0						4	3	4	4	4	N	N	
295	BT	4	00-13B-32	1	DS	P	60	50	4	444.444		I	0	0	0		R	P	S	S							N	
296	BT	4	00-13B-32		RS	D	1400	900		0		I		0	0						4	3	4	3	4	N		
297	BT	4	00-13B-32		RS	P	1400	600		0		I		0	0						2	3	3	2	3	N	N	
298	BT	4	00-13B-32	1	DS	D	120	60	4	1066.67		I	50	533.333	720		R	P	S	N							N	OFF TOE OF #262
299	BT	4	00-13B-32	1	DS	P	70	40	4	414.815		I	75	311.111	420		R	P	S	N							N	OFF TOE OF #262
300	BT	4	00-13B-32		RS	P	500	450		0		I		0	0						3	2	3	2	3	N	N	
301	BT	4	00-13B-32		RS	D	1100	600		0		I		0	0						3	3	4	3	3	N	N	
302	BT	4	00-13B-32	3	DS	D	360	65	4	3466.67		I	75	2600	3510		R	C	N	N							N	
303	BT	33	00-13B-32	4	DS	P	120	30	4	533.333	0	I	50	266.667	360		R	P	N	N							N	
304	BT		00 BR13B-33		RS	D	260	300		0		I		0	0						2	3	3	3	3	N		
305	BT	33	00-13B-32	3	DS	P	50	30	2	111.111	0	N	0	0	0		R	P	N	R							N	
306	BT	33	00-13B-32		RS	D	950	600		0		P		0	0						3	3	4	3	3	N	N	
307	BT	33	00-13B-32	3	DS	P	45	25	4	166.667	0	I	75	125	168.75		R	P	N	N							N	
310	BT	32	00-13B-32	3	DS	P	50	20	4	148.148	0	I	75	111.111	150		P		S	N								
314	BT	28	00 BR13B-13	1	DS	Q	110	70	2	570.37		P	75	427.778	577.5		O	P	I	N								
315	BT	28	00 BR13B-13	1	DS	Q	75	100	2	555.556		P	75	416.667	562.5		O	P	S	N								
321	BL	21	00-13B-34	4	DS	D	90	36	6	720	0	I	100	720	972	74	R	P	N	R							Y	
322	BL	21	00-13B-34		RS	D	300	350		0	0	P		0	0						3	2	3	3	3	N	N	
323	BL	21	00-13B-34		RS	P	600	300		0	0	I		0	0						3	3	4	3	3	N	N	
324	BR	27	00-13B-34	3	DS	D	190	60	4	1688.89	0	P	100	1688.89	2280		A	P	I	N							N	
325	BR	27	00-13B-34		RS	D	350	200		0	0	P		0	0						3	2	3	4	3	N	N	
326	BR	27	00-13B-34		RS	D	375	200		0	0	P		0	0						3	3	5	4	3	N	N	
327	BR	27	00-13B-34	1	DS	D	60	75	4	666.667	0	P	100	666.667	900		R	D	I	N							N	MEANDER BEND
328	BR	27	00-13B-34	1	DS	D	50	50	4	370.37	0	P	100	370.37	500		R	D	I	N							N	MEANDER BEND
329	BR	27	00-13B-34		RS	D	225	300		0	0	N		0	0						4	3	5	3	2	N	N	
330	BR	27	00-13B-34		RS	D	350	500		0	0	P		0	0						3	2	5	2	3	N	N	
331	BR	28	00-13B-34		RS	P	800	450		0	0	I		0	0						3	3	3	4	3	N	N	LOW RELIEF SLOPE
332	BR	28	00-13B-34	3	DS	D	163	84	4	2028.44	0	I	25	507.111	684.6	79	A	P	N	R							Y	
333	BR	28	00-13B-34	3	DS	P	50	35	4	259.259	0	N	0	0	0	63	O	P	N	R							Y	
334	BR	27	00-13B-34	3	DS	D	310	100	4	4592.59	0	I	25	1148.15	1550		A	P	N	R							N	
335	BL	21	00-13B-36		RS	D	925	300		0	0	I		0	0						3	3	3	4	3	N	N	
336	BL	21	00-13B-36	3	DS	D	120	30	4	533.333	0	N	0	0	0		R	C	H	N							N	
337	BL	21	00-13B-36		RS	D	700	250		0	0	I		0	0						4	3	3	4	2	N	N	
338	BL	21	00-13B-36	3	DS	D	70	35	4	362.963	0	I	50	181.481	245		R	C	H	N							N	
339	BL	21	00-13B-36		RS	D	700	200		0	0	P		0	0						4	3	3	3	2	N	N	
340	BL	21	00-13B-36		RS	P	900	250		0	0	I		0	0						4	3	5	4	3	N	N	
341	BR	27	00-13B-36	3	DS	P	60	30	8	533.333	0	N	0	0	0		R	P	N	R							N	
342	BR	27	00-13B-36	3	DS	D	35	20	2	51.8519	0	N	0	0	0		R	P	N	R							N	
343	BR	22	00-13B-36		RS	P	275	200		0	0	P		0	0						3	2	3	2	2	N	N	
344	BR	22	00-13B-36	3	DS	D	77	46	7	918.296	105	N	0	0	0	59	R	C	N	N							Y	ENDS ON A RD. TORRENT WIDTH 8', DEPTH 3'
345	BR	22	00-13B-36		RS	P	600	500		0	0	I		0	0						3	2	2	3	3	N	N	
346	BR	22	00-13B-36	3	DS	P	110	60	4	977.778	0	N	0	0	0		R	P	N	R							N	
347	BR	22	00-13B-36	1	DS	Q	300	50	4	2222.22	0	I	50	1111.11	1500		O	P	N	L								
348	BR	22	00-13B-36		RS	D	1300	600		0	0	I		0	0						4	4	3	3	3	N		
349	BR	22	00-13B-36		RS	P	1100	225		0	0	I		0	0						4	3	3	3	2	N		
350	BL	16	00-13B-38	3	DS	D	80	30	4	355.556	0	I	50	177.778	240		R	P	N	N								
351	BE	21	00-13B-36		RS	P	600	300		0	0	P		0	0						4	3	5	3	3	N		
352	BE	21	00-13B-36		RS	D	1050	600		0	0	P		0	0						3	2	3	3	3	Y		
353	BE	21	00-13B-36		RS	D	1800	1000		0	0	P		0	0						3	2	3	3	3	Y		
354	BE	16	00-13B-36		RS	D	950	300		0	0	P		0	0						3	3	5	3	3	N		
355	BE	16	00-13B-36	3	DS	D	60	80	4	711.111	0	N	0	0	0		R	P	N	N								
356	BE	16	00-13B-36		RS	D	900	300		0	0	P		0	0						3	2	3	3	3	N		
357	BE	16	00-13B-38		RS	D	1500	300		0	0	I		0	0						4	3	3	4	3	N		
358	BE	16	00-13B-38	3	DS	D	200	20	4	592.593	0	I	75	444.444	600		R	C	H	N								
359	BE	16	00-13B-36		RS	D	825	300		0	0	P		0	0						3	3	3	4	3	N		
360	BE	16	00-13B-36		RS	D	350	300		0	0	P		0	0						3	3	5	4	3	N		
361	BE	16	00-13B-38		RS	P	140	100		0	0	P		0	0						3	2	5	3	2	N		
362	BE	16	00-13B-38		RS	D	475	350		0	0	P		0	0						4	2	3	3	3	N		
363	BE	16	00-13B-38	3	DS	D	240	40	4	1422.22	0	I	25	355.556	480		R	C	N	N								
364	BE	16	00-13B-38		RS	D	1100	700		0	0	I		0	0						4	3	3	3	3	N		
365	BE	15	00-13B-38		RS	D	200	125		0	0	P		0	0						3	2	5	3	2	N		
366	BE	9	00-13B-38		RS	Q	1200	450		0	0	I		0	0						4	4	3	4	3	N		
367	BR	27	00-14B-40		RS	P	1300	700		0	0	P		0	0						2	2	3	4	3	N		
368	BR	27	00-14B-40	1	DS	D	120	40	4	711.111	0	P	100	711.111	960		A	P	I	N								
369	BR	26	00-14B-40		RS	D	1100	300		0	0	I		0	0						4	3	3	3	4	N		

													Shallow landslides								*Deep-seated landslides*							
ID#		Sec	Air Photo		Landslide Type	Certainty	Size Length	Width	Depth	Slide	Torrent Length	Sed Routing	Sed Del Ratio	Sediment	Sediment	Slope (field)	Age	Slope Form	Slide Loc.	Road Assoc.	Toe Activity	Body Morph.	Lat. Scarps	Main Scarps	DS Veg.	Complex	Field Obs.	Comments
Unique		#	year - number		DS DF DT	D P Q	ft	ft	ft	Vol	ft	P I N	25 50 75	Delivery	Delivery	(%)	A R O	C D P	H S I N	R S L	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3 4	Y N	Y N	
	PWS			MWMU	EF RS					yd^3			100 (%)	yd^3	tons					N I	4 5	4 5	4 5	4 5				
370	BR	27	00-14B-40	1	DS	D	120	68	2	604.444	0	P	100	604.444	816	92	O	P	I	R							Y	
371	BR	27	00-14B-40	1	DS	P	120	47	2	417.778	0	P	100	417.778	564	97	O	P	I	R							Y	CULVERT OUTLET @ LATERAL EDGE OF SLIDE
372	BR	27	00-14B-40	1	DS	D	90	60	4	800	0	P	100	800	1080		R	P	I	N								
373	BR	27	00-14B-40	1	DS	D	81	36	4	432	0	I	55	237.6	320.76	59	A	P	S	R							Y	
374	BR	27	00-14B-40	1	DS	D	70	47	3	365.556	0	P	100	365.556	493.5	84	O	C	I	R							Y	
375	BR	27	00-14B-40	1	DS	D	85	97	5	1526.85	0	P	100	1526.85	2061.25	77	R	C	I	R							Y	
376	BR	27	00-14B-40	1	DF	D	70	46	4	477.037	0	P	90	429.333	579.6	61	O	C	I	R							Y	
377	BR	27	00-14B-40		RS	D	600	275		0	0	I		0	0						2	4	4	4	4	N		
378	BR	27	00-14B-40		RS	D	750	300		0	0	I		0	0						2	3	3	4	3	N		
379	BR	26	00-14B-40		RS	P	550	300		0	0	I		0	0						3	3	4	4	3	N		
380	BR	22	00-14B-40		RS	P	1200	1200		0	0	I		0	0						3	2	3	3	3	Y		
381	BR	22	00-14B-40		RS	D	250	250		0	0	I		0	0						3	2	5	2	2	N		
382	BR	23	00-14B-40	4	DT	D	123	33	8	1202.67	325	I	75	902	1217.7	57	R	C	H	R							Y	TORRENT 3' WIDE, 1.5' DEEP
383	BR	23	00-14B-40	1	DS	P	29	30	2	64.4444	0	I	75	48.3333	65.25	86	R	N	N	R							Y	
384	BR	22	00-14B-40		RS	D	500	350		0	0	I		0	0						3	3	3	3	3	N	N	
385	BR	22	00-14B-40		RS	D	800	1200		0	0	I		0	0						3	2	3	3	3	N	Y	
386	BR	22	00-14B-40		RS	D	1100	800		0	0	I		0	0						4	2	3	3	3	N	N	
387	BR	22	00-14B-40	2	DF	D	80	30	4	355.556	150	I	100	355.556	480		R	P	S	N							N	
388	BE	15	00-14B-42		RS	P	1900	1100		0	0	P		0	0						3	3	3	3	3	N	N	
389	BE	15	00-14B-40		RS	D	1700	700		0	0	P		0	0						3	3	3	3	3	N	N	
390	BE	23	00-14B-42		RS	D	1300	550		0	0	P		0	0						3	2	3	3	3	N	N	
391	BE	23	00-14B-40	3	DS	D	95	30	4	422.222	0	N	0	0	0		R	P	N	N							N	
392	BE	23	00-14B-40	4	DT	D	120	100	4	1777.78	220	I	100	1777.78	2400		R	P	S	N							N	TORRENT 10' WIDE
393	BE	23	00-14B-40	4	DS	D	265	70	4	2748.15	0	I	25	687.037	927.5		A	P	N	L							N	
394	BE	14	00-14B-42		RS	D	500	400		0	0	I		0	0						3	2	3	2	2	N	N	
395	BE	15	00-14B-42		RS	P	150	150		0	0	I		0	0						3	2	5	3	2	N	N	
396	BE	14	00-14B-42		RS	D	800	500		0	0	I		0	0						3	2	3	3	2	N	N	
397	BE	14	00-14B-42		RS	D	1300	900		0	0	I		0	0						3	2	3	3	2	Y	N	
398	BE	14	00-14B-42		RS	D	350	250		0	0	I		0	0						3	2	5	3	2	N	N	
399	BE	14	00-14B-42		RS	D	2100	800		0	0	I		0	0						3	2	3	2	3	N	N	
400	BE	15	00-14B-42		RS	P	1400	900		0	0	I		0	0						4	3	3	3	3	Y	N	
401	BE	15	00-14B-42		RS	P	1000	900		0	0	I		0	0						3	2	3	3	3	N	N	
402	BE	10	00-14B-42	2	DS	D	120	28	5	622.222	0	I	100	622.222	840	67	A	P	S	R							Y	
403	BE	10	00-14B-42	2	DS	P	120	30	4	533.333	0	I	75	400	540		R	P	S	N							N	
404	BS	11	FIELD	4	DS	D	60	29	4	257.778	0	I	95	244.889	330.6	55	A	C	H	R							Y	FAILURE IS FILL OVER CULVERT
405	BS	5	00-19A-10	1	DS	D	45	45	2	150	0	N	0	0	0	64	R	P	N	R							Y	CUTBANK
406	BS	5	00-19A-10	1	DS	D	258	146	12	16741.3	0	P	70	11718.9	15820.6	77	O	C	N	R							Y	
407	BS	10	20-11	1	DS	D	60	22	2	97.7778	0	P	100	97.7778	132	91	A	P	I	R							Y	FILL
408	BS	10	20-11	4	DS	D	40	36	4	213.333	0	N	0	0	0	90	R	P	N	R							Y	CUTBANK
409	BS	11	20-11	4	DS	D	42	21	3	98	0	N	0	0	0	109	A	P	N	R							Y	CUTBANK
410	BR	27	00-14B-40	1	DS	D	45	76	3	380	0	I	20	76	102.6	84	A	C	S	R							Y	FILL
411	BR	26	00-15E-18		RS	Q	425	375		0	0	N		0	0						4	2	3	2	3	N	N	FILL TOES ON TERRACE??
412	BR	26	00-15E-18		RS	D	1000	500		0	0	I		0	0						4	3	3	3	3	N	N	COMPLEX W/ 412 AND 413
413	BR	26	00-15E-18		RS	D	1100	500		0	0	I		0	0						3	3	3	3	2	N	N	COMPLEX W/ 411 AND 413
414	BR	26	00-15E-18		RS	D	750	400		0	0	I		0	0						3	2	5	3	3	N	N	COMPLEX W/ 411 AND 412
415	BR	26	00-15E-18		RS	P	240	150		0	0	I		0	0						3	2	5	3	2	N	N	
416	BR	26	00-15E-18		RS	D	1200	500		0	0	P		0	0						3	3	3	3	3	N	N	
417	BR	26	00-15E-18		RS	P	1300	650		0	0	I		0	0						4	4	3	4	3	N	N	
418	BR	26	00-15E-18	1	DS	P	110	95	4	1548.15	0	P	50	774.074	1045		O	P	I	R							Y	
419	BR	23	00-15E-18	3	DS	D	230	130	4	4429.63	0	P	25	1107.41	1495		A	P	I	N							N	MEANDER BEND
420	BR	23	00-15E-18		RS	P	400	200		0	0	P		0	0						3	2	5	3	2	N	N	MEANDER BEND
421	BR	23	00-15E-18	1	DS	D	48	66	3	352	0	P	50	176	237.6	105	A	D	I	R						N	Y	STREAM TERRACE GRAVELS EXPOSED IN SCARP
423	BR	23	00-15E-18		RS	D	220	150		0	0	I		0	0						4	2	5	3	2	N	N	
424	BR	23	00-15E-18		RS	Q	800	400		0	0	I		0	0						4	2	3	3	3	N	N	
425	BE	23	00-15E-20		RS	P	500	400		0	0	P		0	0						3	2	3	3	2	N	N	COMPLEX ASSOC. W/ 426,427,428
426	BE	23	00-15E-20		RS	D	700	200		0	0	P		0	0						3	2	3	3	2	N	N	COMPLEX ASSOC. W/ 427,428,425
427	BE	23	00-15E-20		RS	D	475	350		0	0	P		0	0						3	2	3	3	2	N	N	COMPLEX ASSOC. W/ 425,426,428
428	BE	23	00-15E-20		RS	P	1200	800		0	0	P		0	0						3	2	3	3	2	Y	N	COMPLEX ASSOC. W/ 425,426,427
429	BE	23	00-15E-20		RS	D	1100	200		0	0	P		0	0						4	3	3	3	3	N	N	
430	BE	24	00-15E-20		RS	P	650	200		0	0	P		0	0						3	2	5	3	3	N	N	
431	BE	24	00-15E-20		RS	D	475	400		0	0	P		0	0						3	2	3	2	2	N	N	
432	BE	24	00-15E-20	0	DS	P	60	30	4	266.667	0	P	100	266.667	360		O	P	I	N							N	
433	BE	14	00-15E-20		RS	D	950	300		0	0	I		0	0						3	2	5	3	2	N	N	
434	BE	14	00-15E-20		RS	D	900	450		0	0	I		0	0						3	2	3	3	3	N	N	
435	BE	14	00-15E-20		RS	Q	500	700		0	0	I		0	0						4	3	3	3	3	N	N	
436	BE	14	00-15E-20		RS	D	1000	500		0	0	I		0	0						3	3	3	3	3	N	N	
437	BE	13	00-15E-20		RS	D	1400	1000		0	0	I		0	0						4	2	3	3	2	Y	N	
438	BE	25	00-15E-18		RS	D	800	450		0	0	I		0	0						4	2	3	3	3	N	N	
439	BR	25	00-15E-18		RS	P	220	100		0	0	I		0	0						3	2	3	3	3	N	N	
440	BR	25	00-15E-18		RS	P	375	250		0	0	I		0	0						3	2	5	3	2	N	N	
441	BR	25	00-15E-18		RS	D	300	225		0	0	I		0	0						3	2	3	3	2	N	N	
442	BR	25	00-15E-18	1	DS	D	190	104	3	2195.56	0	P	100	2195.56	2964	96	R	P	I	S							Y	
443	BR	25	00-15E-18		RS	D	260	150		0	0	I		0	0						4	2	3	3	3	N	N	
444	BR	25	00-15E-18	4	DS	D	190	30	2	422.222	0	N	0	0	0		R	P	N	N							N	
445	BR	25	00-15E-18	1	DS	D	70	60	4	622.222	0	P	100	622.222	840		O	P	I	N							N	
446	BR	25	00-15E-18	1	DS	D	50	45	4	333.333	0	P	100	333.333	450	121	R	C	I	N							Y	
447	BR	24	00-15E-18		RS	D	1100	800		0	0	P		0	0						3	2	5	3	3	N	N	
448	BR	25	00-16E-20		RS	P	1100	700		0	0	N		0	0						3	3	3	3	3	N	N	
449	BR	25	00-16E-20		RS	P	600	300		0	0	P		0	0						3	2	3	2	2	N	N	
450	BR	25	00-16E-20	3	DF	D	120	40	4	711.111	300	I	50	355.556	480		R	C	H	N							N	
451	BR	30	00-16E-20	3	DT	D	240	50	4	1777.78	500	I	75	1333.33	1800		R	C	H	L							N	
452	BR	24	00-15E-18		RS	D	1100	800		0	0	N		0	0						4	2	5	3	1	N	N	
453	BR	24	00-15E-18	4	DF	D	80	60	2	355.556	105	N	0	0	0	89	A	C	N	R							Y	DF RUNOUT OF 105' NOT INTENDED TO BE INCLUDED IN VOLUME DUE TO FLOW, NO SCO
454	BR	24	00-15E-18		RS	P	370	300		0	0	I		0	0						3	2	3	4	3	N	N	
455	BR	24	00-15E-18		RS	D	420	200		0	0	I		0	0						3	2	3	3	2	N	N	
456	BR	24	00-15E-20		RS	P	180	100		0	0	I		0	0						3	2	5	2	2	N	N	
457	BR	24	00-15E-20		RS	Q	360	175		0	0	I		0	0						3	2	3	3	2	N	N	
458	BR	24	00-15E-20		RS	P	1200	500		0	0	I		0	0						4	3	3	3	3	N	N	

													Shallow landslides								*Deep-seated landslides*							
ID#		Sec	Air Photo		Landslide Type	Certainty	Size				Torrent Length	Sed Routing	Sed Del Ratio			Slope (field)		Slope Form	Slide Loc.	Road Assoc.	Toe Activity	Body Morph.	Lat. Scarps	Main Scarps	DS Veg.	Complex	Field Obs.	Comments
							Length	Width	Depth	Slide				Sediment	Sediment		Age											
Unique	PWS	#	year - number	MWMU	DS DF DT EF RS	D P Q	ft	ft	ft	Vol yd^3	ft	P I N	25 50 75 100 (%)	Delivery yd^3	Delivery tons	(%)	A R O	C D P	H S I N	R S L N I	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4	Y N	Y N	
459	BE	24	00-16E-20		RS	D	700	300		0	0	I		0	0						3	2	2	2	2	N	N	
460	BE	24	00-16E-20		RS	P	1100	400		0	0	I		0	0						3	2	3	3	2	N	N	
461	BE	24	00-16E-20		RS	P	700	400		0	0	I		0	0						3	2	3	3	3	N	N	
462	BE	24	00-16E-20		RS	D	950	300		0	0	I		0	0						3	2	3	3	2	N	N	
463	BR	32	00-18B-4		RS	P	2500	500		0	0	P		0	0						3	2	5	3	3	N	N	
464	BE	19	00-17A-22	4	DF	D	50	40	4	296.296	220	N	0	0	0		O	C	H	R							N	
465	BR	36	00-16E-18		RS	P	750	250		0	0	I		0	0						4	3	3	3	3	N	N	
466	BR	36	00-16E-18	2	DS	Q	65	20	4	192.593	0	I	100	192.593	260		R	P	S	N							N	
467	BR	31	00-16E-18		RS	P	1800	500		0	0	I		0	0						4	2	3	3	3	Y	N	
468	BR	25	00-16E-18		RS	Q	1100	800		0	0	P		0	0						3	3	3	3	3	Y	N	
469	BR	31	00-17A-19		RS	P	1900	1000		0	0	I		0	0						4	2	3	3	3	Y	N	
470	BR	31	00-17A-19	3	DS	D	95	40	4	562.963	0	I	100	562.963	760		O	P	S	N							N	
471	BR	31	00-17A-19	2	DS	P	95	45	4	633.333	0	I	100	633.333	855		O	P	S	N							N	
472	BR	31	00-17A-19		RS	D	450	200		0	0	I		0	0						3	2	2	3	2	N	N	
473	BR	31	00-17A-19		RS	D	350	200		0	0	P		0	0						3	2	3	3	3	N	N	
474	BR	31	00-17A-19		RS	D	700	350		0	0	P		0	0						3	2	3	3	3	N	N	
475	BR	30	00-17A-19		RS	Q	850	500		0	0	I		0	0						3	3	5	3	3	N	N	
476	BR	31	00-16E-18		RS	P	450	150		0	0	P		0	0						3	2	3	2	3	N	N	
477	BR	30	00-16E-18		RS	P	950	200		0	0	I		0	0						3	2	2	3	3	N	N	
478	BR	30	00-16E-18	4	DS	D	180	50	4	1333.33	0	I	50	666.667	900		R	C	N	N							N	
479	BR	30	00-16E-18	2	DS	D	120	75	4	1333.33	0	I	100	1333.33	1800		O	P	N	N							N	
480	BR	30	00-16E-18		RS	P	240	150		0	0	I		0	0						3	2	3	2	3	N	N	
481	BR	30	00-16E-18		RS	P	240	150		0	0	I		0	0						4	3	3	3	3	N	N	
482	BR	30	00-16E-18		RS	D	550	400		0	0	I		0	0						3	2	3	3	3	N	N	
483	BR	30	00-16E-18		RS	P	730	400		0	0	I		0	0						3	2	3	3	3	N	N	
484	BR	30	00-16E-18	4	DS	D	130	36	3	520	0	I	90	468	631.8	66	R	P	N	R							Y	
485	BR	30	00-16E-18	4	DS	P	150	46	6	1533.33	0	N	0	0	0	63	R	C	N	R							Y	
486	BR	30	00-17A-20	4	DS	D	145	40	8	1718.52	0	N	0	0	0	64	R	P	N	L							Y	
487	BR	30	00-16E-18	2	DS	P	90	35	2	233.333	0	I	100	233.333	315		R	P	S	N							N	
488	BR	30	00-16E-18	3	DF	P	100	30	4	444.444	180	I	100	444.444	600		R	C	S	N							N	
489	BR	30	00-16E-18		RS	P	1100	300		0	0	I		0	0						3	2	3	3	3	N	N	
490	BR	30	00-16E-18	4	DS	D	110	73	3	892.222	0	N	0	0	0	71	O	P	N	L							Y	
491	BR	30	00-16E-18	3	DS	D	280	34	2	705.185	0	I	25	176.296	238	84	A	P	N	L							Y	
492	BR	30	00-16E-18	3	DS	D	120	35	4	622.222	0	I	100	622.222	840		R	P	H	S							N	
493	BR	30	00-16E-18	3	DS	D	300	30	4	1333.33	0	I	25	333.333	450		O	C	H	N							N	
494	BR	30	00-16E-18	4	DS	P	120	25	4	444.444	0	I	50	222.222	300		O	P	S	N							N	
495	BR	30	00-16E-18		RS	P	1250	550		0	0	I		0	0						4	3	3	3	3	N	N	
496	BE	30	00-16E-20	3	DF	D	70	35	5	453.704	170	I	50	226.852	306.25	77	O	C	N	L							Y	
497	BE	30	00-16E-20	2	DS	P	40	50	4	296.296	0	I	100	296.296	400		O	P	S	N							N	
498	BE	30	00-16E-20	4	DS	D	120	50	4	888.889	0	I	75	666.667	900		R	C	N	R							N	
499	BE	30	00-17A-21	2	DS	D	90	50	4	666.667	0	I	75	500	675		R	P	S	N							N	
500	BE	30	00-17A-21	2	DS	D	60	50	4	444.444	0	I	100	444.444	600		R	P	S	N							N	
501	BE	30	00-17A-21	4	DF	D	130	54	3	780	162	N	0	0	0	71	O	P	N	L							Y	
502	BE	30	00-17A-21		RS	P	480	350		0	0	I		0	0						3	3	3	3	3	N	N	
503	BE	30	00-17A-21	4	DS	D	120	20	4	355.556	0	N	0	0	0		R	C	N	S							N	COULD NOT LOCATE IN FIELD
504	BE	30	00-17A-21	3	DS	D	184	37	4	1008.59	0	I	25	252.148	340.4	62	A	C	H	S							Y	
505	BE	30	00-17A-21	3	DS	P	30	80	4	355.556	0	I	100	355.556	480		R	P	S	N							N	
506	BE	30	00-17A-21	3	DF	D	145	47	3	757.222	235	I	60	454.333	613.35	73	O	P	N	R							Y	FLOW WIDTH 20'
507	BE	29	00-17A-21		RS	D	1000	450		0	0	I		0	0						3	3	4	3	3	N	N	
508	BE	19	00-16E-20		RS	P	1000	350		0	0	P		0	0						3	3	3	3	3	N	N	
509	BE	19	00-16E-20		RS	P	250	150		0	0	I		0	0						3	2	5	4	1	N	N	GRASSY/TALL AREA
510	BE	19	00-16E-20		RS	D	1400	750		0	0	I		0	0						4	2	3	3	1	N	N	GRASSY AREA - TOES ON TERRACE
511	BE	19	00-16E-20		RS	D	300	300		0	0	I		0	0						3	2	3	3	3	N	N	
512	BE	19	00-17A-22		RS	D	950	700		0	0	I		0	0						3	3	3	3	3	N	N	
513	BE	19	00-17A-22		RS	P	700	600		0	0	I		0	0						2	3	3	3	2	N	N	
514	BE	19	00-17A-22		RS	P	350	350		0	0	I		0	0						4	3	5	3	2	N	N	
515	BE	19	00-17A-22		RS	D	550	250		0	0	N		0	0						4	2	5	3	2	N	N	
516	BE	19	00-17A-22	1	DS	D	230	105	4	3577.78	0	P	90	3220	4347	76	R	P	I	N							Y	
517	BE	19	00-17A-22	1	DS	D	170	54	5	1700	0	P	30	510	688.5	63	R	C	I	I							Y	
518	BE	29	00-17A-22		RS	D	2400	700		0	0	P		0	0						3	2	3	3	3	N	N	
519	BE	20	00-17A-22	1	DS	D	70	24	3	186.667	0	P	100	186.667	252	99	R	P	I	N							Y	
520	BE	20	00-17A-22	1	DS	D	65	61	2	293.704	0	P	100	293.704	396.5	84	A	P	I	N							Y	
521	BE	20	00-17A-22	1	DS	D	50	65	4	481.481	0	P	100	481.481	650	95	R	P	I	N							Y	
522	BE	20	00-17A-22		RS	D	1100	500		0	0	P		0	0						3	2	5	3	3	N	N	
523	BE	20	00-17A-22		RS	P	1600	1300		0	0	P		0	0						3	3	3	3	3	Y	N	MAY BE A COMPLEX OF ROCK SLIDE
524	BE	29	00-17A-22		RS	P	850	500		0	0	I		0	0						3	3	3	3	3	N	N	
525	BE	29	00-17A-22		RS	D	850	300		0	0	I		0	0						3	2	3	3	3	N	N	
526	BE	29	00-17A-22	4	DS	Q	100	25	2	185.185	0	N	0	0	0		O	P	N	N							N	
527	BE	29	00-17A-22		RS	P	750	300		0	0	I		0	0						3	2	3	3	3	N	N	
528	BE	29	00-17A-22	2	DS	Q	100	20	4	296.296	0	I	100	296.296	400		R	P	S	N							N	
529	BE	29	00-17A-22	3	DS	D	95	35	4	492.593	0	I	25	123.148	166.25		R	C	H	N							N	
530	BR	29	00-17A-19		RS	P	1500	800		0	0	I		0	0						4	2	3	3	2	Y	N	
531	BR	29	00-17A-19	4	DS	D	100	70	4	1037.04	0	N	0	0	0			C	H	N							N	
532	BR	32	00-17A-19	2	DS	P	70	50	2	259.259	0	I	75	194.444	262.5		R	P	N	R							N	
533	BR	32	00-17A-19	3	DT	D	70	70	4	725.926	850	I	100	725.926	980		R	C	H	N							N	TORRENT WIDTH 10'
534	BR	32	00-17A-19	4	DT	D	120	50	4	888.889	330	I	100	888.889	1200		R	C	H	R							N	TORRENT WIDTH 10'
535	BR	32	00-17A-19	4	DT	D	70	50	4	518.519	330	I	100	518.519	700		R	C	H	R							N	TORRENT WIDTH 10'
536	BR	32	00-17A-19		RS	D	700	400		0	0	P		0	0						3	2	3	3	2	N	N	
537	BR	32	00-17A-19		RS	D	1600	700		0	0	P		0	0						2	2	3	3	3	N	N	
538	BR	32	00-17A-19		RS	D	1100	500		0	0	P		0	0						4	3	3	3	1	Y	N	GRASSY AREAS ON BODY
539	BR	32	00-17A-19	4	DS	D	240	70	2	1244.44	0	I	75	933.333	1260		A	P	N	R							N	
540	BR	32	00-17A-19	4	DS	D	190	40	2	562.963	0	I	75	422.222	570		R	P	N	R							N	
541	BR	32	00-17A-19	4	DS	D	120	70	4	1244.44	0	I	75	933.333	1260		O	C	N	R							N	
542	BR	32	00-17A-19	3	DS	D	220	50	4	1629.63	0	I	50	814.815	1100		O	C	N	N							N	
543	BR	32	00-17A-19	4	DS	D	155	35	4	803.704	0	I	25	200.926	271.25		R	C	H	S							N	
544	BR	32	00-17A-19		RS	D	1200	300		0	0	I		0	0						4	3	5	4	3	N	N	
545	BR	32	00-17A-19		RS	D	850	300		0	0	I		0	0						3	2	5	3	2	N	N	
546	BR	32	00-17A-19	4	DS	D	120	100	4	1777.78	0	I	25	444.444	600		O	P	H	L							N	SLONG MARGIN OF ROCK SLIDE

													Shallow landslides								Deep-seated landslides							
ID# Unique	PWS	Sec #	Air Photo year - number	MWMU	Landslide Type DS DF DT EF RS	Certainty D P Q	Size Length ft	Size Width ft	Size Depth ft	Slide Vol yd^3	Torrent Length ft	Sed Routing P I N	Sed Del Ratio 25 50 75 100 (%)	Sediment Delivery yd^3	Sediment Delivery tons	Slope (field) (%)	Age A R O	Slope Form C D P	Slide Loc. H S I N	Road Assoc. R S L N I	Toe Activity 1 2 3 4 5	Body Morph. 1 2 3 4 5	Lat. Scarps 1 2 3 4 5	Main Scarps 1 2 3 4 5	DS Veg. 1 2 3 4	Complex Y N	Field Obs. Y N	Comments
547	BR	32	00-17A-19	3	DS	D	70	35	2	181.481	0	N	0	0	0	63	R	P	N	R							Y	
548	BR	32	00-17A-19	3	DF	D	210	50	4	1555.56	275	P	25	388.889	525		R	C	N	R							N	
549	BR	32	00-17A-19		RS	D	1100	250		0	0	P		0	0						4	1	2	3	1	N	N	RECENT ACTIVITY MOVEMENT OBSERVED
550	BR	32	00-17A-19	4	DS	P	100	35	2	259.259	0	N	0	0	0		R	C	N	N							N	ON POSSIBLE ACTIVE ROCK SLIDE
551	BR	32	00-17A-19	4	DS	D	190	75	4	2111.11	0	I	25	527.778	712.5		R	C	N	R							N	ON POSSIBLE ACTIVE ROCK SLIDE
552	BR	32	00-18B-4		RS	D	550	250		0	0	P		0	0						3	2	2	2	2	N	N	ACTIVE
553	BR	32	00-18B-4	1	DS	D	95	43	3	453.889	0	N	0	0	0	85	R	P	N	R							Y	ON ROCK SLIDE #552
554	BR	32	00-18B-4	3	DS	D	120	35	2	311.111	0	P	90	280	378	74	O	P	S	R							Y	
555	BR	32	00-18B-4		RS	D	850	300		0	0	P		0	0						4	2	5	3	2	N	N	
556	BI	28	00-18B-4	4	DS	D	180	110	4	2933.33	0	I	50	1466.67	1980		O	P	S	R							N	
557	BI	28	00-18B-6		RS	P	2000	900		0	0	P		0	0						3	3	4	3	3	Y	N	
558	BI	28	00-18B-6	1	DS	P	245	130	4	4718.52	0	P	100	4718.52	6370		O	P	I	N							N	
559	BI	28	00-18B-6		RS	D	700	200		0	0	P		0	0						2	2	5	3	2	N	N	
560	BI	29	00-18B-6		RS	P	1500	500		0	0	P		0	0						2	2	3	3	2	N	N	
561	BI	29	00-18B-6	4	DS	D	280	60	4	2488.89	0	N	0	0	0		R	C	H	R							N	ON ROCK SLIDE #560
562	BI	20	00-18B-6	3	DS	P	190	30	4	844.444	0	N	0	0	0		R	C	H	N							N	STOPS AT ROAD
563	BI	20	00-18B-6	1	DS	Q	60	20	4	177.778	0	P	100	177.778	240		R	P	I	N							N	
564	BI	20	00-18B-6	1	DS	D	100	75	4	1111.11	0	P	100	1111.11	1500		O	P	I	N							N	
565	BI	21	00-18B-6		RS	D	300	350		0	0	I		0	0						3	2	2	3	2	N	N	
566	BR	30	00-16E-18	4	DS	Q	60	10	2	44.4444	0	N	0	0	0		R	C	N	R							N	
567	BR	30	00-16E-18	4	DS	P	90	45	2	300	0	N	0	0	0		R	P	N	R							N	
568	BT	28	00 BR13B-13	1	DS	Q	175	25	2	324.074		P	50	162.037	218.75		O	P	S	R								
569	BT	28	00-13B-34	2	DS	D	65	34	2	163.704		I	100	163.704	221	91	O	P	S	R							Y	CAUSED BY CULVERT OUTLET
570	BT	28	00-13B-34	1	DS	D	46	48	4	327.111		P	80	261.689	353.28	81	O	P	I	N							Y	AT BREAK IN SLOPE, TOP OF I. GORGE
571	BT	28	00-13B-34	4	DS	D	50	58	4	429.63		N	0	0	0	71	R	P	N	R							Y	
572	BL	28	00-13B-34	4	DS	D	173	64	7	2870.52		N	0	0	0	46	A	P	N	R							Y	
573	BE	15	00-14B-42	1	DS	D	63	26	5	303.333		N	0	0	0	89	R	P	N	R							Y	CUTBANK-DEPOSITS ACROSS ROAD
574	BE	14	00-14B-42	1	DT	D	86	42	4	535.111	276	P	80	428.089	577.92	58	R	C	H	S							Y	TORRENT 3' WIDE, 15' DEEP
575	BE	14	00-14B-42	1	DS	D	54	29	3	174		P	100	174	234.9	64	R	P	S	R							Y	
576	BR	28	00-13B-34	3	DS	D	22	29	3	70.8889		N	0	0	0	81	O	C	N	R							Y	
577	BR	22	00-13B-34	3	DS	D	40	39	3	173.333		P	100	173.333	234	91	O	P	S	R							Y	
578	BR	26	00-15E-18	4	DS	D	71	42	3	331.333		P	100	331.333	447.3	84	R	P	I	R							Y	
579	BR	29	00-17A-21	4	DS	D	96	84	4	1194.67		N	0	0	0	29	A	D	N	R							Y	ACTIVE SCARPS AND GROUND CRACKS
580	BR	29	00-17A-21	4	DS	D	54	32	4	256		N	0	0	0	49	O	C	N	R							Y	
581	BR	26	00-15E-18	4	DS	D	168	125	6	4666.67		P	20	933.333	1260	65	R	P	I	S							Y	ACTIVE AT TOE. INITIATED BY SKID TRAIL ACROSS LOWER SLIDE.
582	BR	25	00-16E-18	3	DS	D	22	41	2	66.8148		N	0	0	0	72	A	C	H	R							Y	FILL FAILURE. GROUND CRACKS ON ROAD.
583	BR	30	00-16E-18	3	DS	D	30	37	3	123.333		N	0	0	0	60	R	C	N	R							Y	
584	BR	30	00-16E-18	3	DS	D	68	366	4	3687.11		N	0	0	0	73	A	P	N	R							Y	
585	BR	30	00-16E-18	3	DS	D	60	37	2	164.444		N	0	0	0	70	O	C	N	R							Y	
586	BR	32	00-17A-19	1	DS	D	47	30	5	261.111		N	0	0	0	64	A	P	N	R							Y	
587	BR	32	00-17A-19	1	DS	D	30	44	7	342.222		P	100	342.222	462	61	R	P	I	R							Y	
588	BR	32	00-17A-19	1	DS	D	30	27	2	60		P	100	60	81	66	R	C	S	R							Y	MEANDER BEND
589	BR	32	00-17A-19	1	DS	D	40	52	2	154.074		P	100	154.074	208	72	R	C	S	R							Y	MEANDER BEND
590	BR	25	00-15E-18	4	DS	D	75	50	3	416.667		N	0	0	0	49	O	C	N	L							Y	
591	BR	30	00-16E-20		RS	D	600	265		0		N		0	0						4	2	3	5	2	N	Y	DEEP FAILURE PLANE. ~12' VERT SCARP NEAR RIDGETOP. MANY SCARPS & BENCHES
592	BR	32	00-17A-19		RS	D	200	235		0		P		0	0			P			4	2	5	4	1	N	Y	ARCUATE SCARP ON RD. DROPPED 2'. DEEP FAILURE PLANE. SLIDE BODY INTACT.
593	BR	32	00-18B-4		RS	D	920	1400		0		P		0	0						2	2	3	3	3	Y	Y	ACTIVE. LOTS OF BROKEN GROUND W/ SCARPS & BENCHES
594	BR	32	00-18B-4		RS	D	340	235		0		P		0	0						3	2	5	3	1	N	Y	ACTIVE
595	BR	32	00-17A-19		RS	D	50	60		0		P		0	0						4	2	2	2	2	N	Y	ACTIVE- DEEP FAILURE PLANE. SMALL RS
596	BR	32	00-17A-19		RS	D	200	110		0		P		0	0		I				3	2	3	3	1	N	Y	ACTIVE- RD. DOWN DROPPED ~6'
597	BM	9	00-13B-30		RS	D	1200	800		0		P		0	0						2	2	3	2	4	N	Y	SOME ACTIVITY AT TOE
598	BM	9	00-13B-30	1	DS	D	150	35	4	777.778	0	P	50	388.889	525		A	P	N	N								ON TOE #597
599	BM	9	00-13B-30		RS	D	400	150		0		P		0	0						1	1	2	2	1	N	Y	ACTIVE
600	BM	9	00-13B-30		RS	D	1250	250		0		P		0	0						3	2	3	3	3	Y		
601	BM	9	00-13B-30		RS	Q	850	400		0		P		0	0						3	3	3	3	4	N		
602	BM	10	00-13B-30	4	DS	P	95	25	2	175.926		N	0	0	0		A	D	N	R								
603	BM	10	00-13B-30	3	DS	P	95	25	2	175.926		N	0	0	0		A	D	N	R								
604	BM	10	00-13B-30		RS	D	225	125		0		P		0	0						1	2	2	3	2	N		
605	BM	10	00-13B-30		RS	D	1000	300		0		P		0	0						3	2	2	2	2	N		
606	BM	10	00-13B-30		RS	P	1200	700		0		P		0	0						4	3	3	3	3	N		
607	BM	9	00-13B-30		RS	Q	700	300		0		I		0	0						3	3	4	3	4	N		
608	BM	4	00-13B-30		RS	P	900	700		0		P		0	0						3	2	3	3	3	N		
609	BM	4	00-13B-30		RS	D	1200	1000		0		P		0	0						3	2	3	2	2	N		
610	BM	4	00-13B-30	3	DS	Q	50	40	2	148.148	0	N	0	0	0		O	C	H	N								
611	BM	4	00-13B-30	3	DS	Q	30	30	2	66.6667	0	I	25	16.6667	22.5		O	P	S	N								
612	BM	4	00-13B-30	3	DF	D	120	40	2	355.556	100	I	50	177.778	240		R	P	H	N								
613	BM	4	00-13B-30		RS	D	325	150		0		I		0	0						2	1	3	2	3	Y		ASSOC. W/ 614
614	BM	4	00-13B-30		RS	D	500	150		0		I		0	0						3	2	5	3	3	Y		ASSOC W/ 615
615	BM	4	00-13B-30	2	DS	P	100	30	2	222.222	0	I	100	222.222	300		A	P	S	N								
616	BM	4	00-13B-30		RS	P	200	125		0		I		0	0						3	1	2	3	4	N		
617	BM	10	00-13B-30	1	DS	D	275	75	4	3055.56	0	P	75	2291.67	3093.75		A	P	S	N								
618	BM	4	00-13B-30	2	DS	P	90	40	2	266.667	0	I	100	266.667	360		R	P	S	N								
619	BM	15	00-14B-34		RS	D	1100	350		0		I		0	0						3	2	3	3	3	Y		
620	BM	15	00-14B-34		RS	D	1600	350		0		P		0	0						3	3	3	3	3	N		
622	BM	10	00-14B-34		RS	P	1650	600		0		I		0	0						4	3	3	3	3	N		
623	BM	16	00-14B-34	1	DS	D	110	40	2	325.926	0		100	325.926	440		A	P	S	R								
624	BM	11	00-14B-34	1	DF	D	135	60	2	600	250	P	75	450	607.5		A	C	H	R								
625	BM	10	00-14B-34	4	DF	D	240	90	4	3200	425	P	50	1600	2160		R	P	H	R								
626	BM	11	00-14B-34		RS	D	550	300		0		I		0	0						3	2	5	3	4	N		
627	BM	2	00-14B-34	1	DS	P	95	30	2	211.111	0	P	100	211.111	285		R	P	I	N								
628	BM	2	00-14B-34		RS	Q	800	250		0		P		0	0						3	4	5	3	3	N		
629	BM	3	00-14B-34		RS	P	1400	400		0		P		0	0						3	3	3	3	3	Y		
630	BM	3	00-14B-34		RS	D	2500	1400		0		P		0	0						2	3	2	3	3	Y		
631	BM	3	00-14B-34	1	DS	D	245	145	6	7894.44	0	P	75	5920.83	7993.13		R	P	I	N								
632	BM	3	00-14B-34	1	DS	D	150	60	2	666.667	0	P	75	500	675		O	P	I	N								
633	BM	3	00-14B-34	3	DS	P	120	30	2	266.667	0	P	75	200	270		O	P	I	R								
634	BM	3	00-14B-36		RS	P	1400	800		0		I		0	0						3	3	3	3	4	N		
635	BM	3	00-14B-36	4	DF	D	140	30	2	311.111	120	I	25	77.7778	105		R	C	H	R								

													Shallow landslides								Deep-seated landslides							
ID#		Sec	Air Photo		Landslide Type	Certainty	Size			Slide	Torrent Length	Sed Routing	Sed Del Ratio	Sediment	Sediment	Slope (field)	Age	Slope Form	Slide Loc.	Road Assoc.	Toe Activity	Body Morph.	Lat. Scarps	Main Scarps	DS Veg.	Complex	Field Obs.	Comments
							Length	Width	Depth																			
Unique	PWS	#	year - number	MWMU	DS DF DT EF RS	D P Q	ft	ft	ft	Vol yd^3	ft	P I N	25 50 75 100 (%)	Delivery yd^3	Delivery tons	(%)	A R O	C D P	H S I N	R S L N I	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4	Y N	Y N	
636	BM	3	00-14B-36		RS	P	1600	1600		0		I		0	0						4	2	3	3	3	Y		
637	BM	34	00-14B-36		RS	P	1400	500		0		P		0	0						3	3	3	3	3	N		
638	BM	3	00-14B-36		RS	Q	1200	600		0	0	P		0	0						3	3	3	4	3	N		
639	BM	3	00-14B-36		RS	P	500	220		0	0	P		0	0						4	2	2	3	3	N		
640	BM	3	00-14B-36	4	DS	D	300	250	2	5555.56	0	P	100	5555.56	7500		O	P	I	N						Y		OUTISIDE OF MEANDER
641	BM	3	00-14B-36	1	DS	Q	180	50	2	666.667	0	P	100	666.667	900		R	P	I	N								
642	BM	3	00-14B-36	1	DS	D	210	50	2	777.778	0	P	100	777.778	1050		R	P	I	N								
643	BM	3	00-14B-36	1	DS	P	300	30	2	666.667	0	P	100	666.667	900		R	P	I	N								
644	BM	3	00-14B-36	4	DS	P	175	50	2	648.148	0	P	100	648.148	875		O	P	I	N								
645	BM	3	00-14B-36	1	DS	Q	120	40	2	355.556	0	P	100	355.556	480		O	P	I	N								
646	BM	3	00-14B-36	4	DS	D	500	100	4	7407.41	0	I	25	1851.85	2500		A	P	N	N								
647	BM	34	00-14B-36	4	DS	D	120	75	2	666.667	0	I	25	166.667	225		R	P	H	R								
648	BM	3	00-14B-36	3	DS	Q	100	50	2	370.37	0	I	50	185.185	250		R	P	S	N								
649	BM	2	00-14B-36	3	DS	D	240	75	2	1333.33	0	P	100	1333.33	1800		R	P	I	R								
651	BM	2	00-14B-36	3	DS	P	240	75	2	1333.33	0	I	25	333.333	450		A	P	H	N								
652	BM	2	00-14B-36	3	DS	P	240	30	2	533.333	0	I	25	133.333	180		A	C	H	N								
653	BM	2	00-14B-36		RS	P	650	400		0		I		0	0						3	3	3	3	3	N		
654	BM	2	00-14B-36		RS	P	1700	400		0		N		0	0						4	4	3	4	3	Y		
655	BM	34	00-14B-36		RS	P	1100	500		0		N		0	0						4	3	2	3	3	N		
656	BM	34	00-14B-38	4	DS	P	90	60	2	400	0	I	25	100	135		R	P	N	R								
657	BM	34	00 BR14B-37	4	DS	D	200	125	2	1851.85	0	P	100	1851.85	2500		R	P	I	R								
658	BM	34	00-14B-38		RS	Q	500	300		0		P		0	0						3	3	5	4	3	N		
659	BM	34	00-14B-38		RS	P	500	300		0		P		0	0						3	3	5	3	3	N		
660	BM	34	00-14B-38		RS	P	1200	400		0		P		0	0						3	3	4	3	2	N		
661	BM	34	00-14B-38		RS	Q	1000	550		0		I		0	0						4	4	3	3	3	N		
662	BM	34	00-14B-38	1	DS	P	80	30	2	177.778	0	P	100	177.778	240		O	P	I	N								
663	BM	34	00-14B-38	1	DS	D	150	40	2	444.444	0	P	100	444.444	600		R	P	I	N								
664	BM	34	00-14B-38	1	DS	D	120	30	2	266.667	0	P	100	266.667	360		R	P	I	N								
665	BM	34	00-14B-38	1	DS	D	70	30	2	155.556	0	P	100	155.556	210		R	P	I	N								
666	BM	34	00-14B-38	1	DS	D	300	300	2	6666.67	0	P	100	6666.67	9000		O	P	I	N						Y		
667	BM	34	00-14B-38	1	DS	P	60	40	2	177.778	0	P	100	177.778	240		O	P	I	N								MEANDER
668	BM	34	00-14B-38	1	DS	P	120	30	2	266.667	0	P	100	266.667	360		O	P	I	N								
669	BM	34	00-14B-38	1	DS	P	85	75	2	472.222	0	P	100	472.222	637.5		R	P	I	N								
670	BM	27	00-14B-38	1	DS	D	90	100	2	666.667	0	P	100	666.667	900		R	P	I	N								
671	BM	27	00-14B-38	1	DS	P	90	40	2	266.667	0	P	100	266.667	360		R	P	I	N								
672	BM	27	00-14B-38	1	DS	D	120	100	2	888.889	0	P	100	888.889	1200		R	P	I	N								
673	BM	35	00-14B-38		RS	Q	1200	600		0		P		0	0						3	3	3	4	4	N		
675	BM	23	00-15E-11		RS	P	550	400		0		I		0	0						3	2	3	5	4	N		
676	BM	23	00-15E-11		RS	P	150	175		0		I		0	0						3	2	2	3	3	N		
677	BM	23	00-15E-11		RS	P	1200	1300		0		P		0	0						3	3	4	3	3	Y		
678	BM	14	00-15E-11		RS	P	2200	900		0		P		0	0						4	3	4	3	3	Y		
679	BM	23	00-15E-11		RS	D	700	500		0		P		0	0						2	3	2	3	4	N		
680	BM	23	00-15E-11		RS	D	600	650		0		P		0	0						2	3	5	2	4	N		
681	BM	23	00-15E-11	3	DS	P	70	30	2	155.556	0	N	0	0	0		A	P	N	N								
682	BM	23	00-15E-11	3	DS	P	95	25	2	175.926	0	N	0	0	0		A	P	N	N								
683	BM	23	00-15E-11		RS	P	900	500		0		I		0	0						4	3	3	5	3	N		
684	BM	23	00-15E-11		RS	P	300	250		0		I		0	0						3	3	3	4	4	N		
685	BM	14	00-15E-11		RS	D	350	200		0		I		0	0						3	2	3	2	3	N		
686	BM	24	00-15E-11		RS	D	700	300		0		I		0	0						3	3	3	4	3	N		
687	BM	23	00-15E-11		RS	P	500	300		0		I		0	0						3	4	3	3	3	Y		
688	BM	23	00-15E-11		RS	P	600	350		0		I		0	0						3	4	3	3	3	Y		
689	BM	23	00-15E-11	1	DS	D	90	30	2	200	0	P	100	200	270		R	P	S	N								
690	BM	23	00-15E-11	1	DS	D	60	40	2	177.778	0	P	100	177.778	240		R	P	S	N								
691	BM	14	00-15E-11	4	DS	D	120	35	2	311.111	0	P	50	155.556	210		R	P	S	R								
692	BM	14	00-15E-11	3	DT	D	120	90	4	1600	250	I	50	800	1080		A	C	H	N								TORRENT WIDTH 50'
693	BM	14	00-15E-11		RS	P	230	225		0		I		0	0						4	3	5	5	2	N		
694	BM	14	00-15E-11		RS	P	700	350		0		I		0	0						3	4	3	3	4	N		
695	BM	14	00-15E-11		RS	P	750	600		0		I		0	0						3	3	3	4	3	N		
696	BM	14	00-15E-11		RS	D	425	300		0		I		0	0						3	3	5	3	3	N		
697	BM	14	00-15E-11		RS	P	350	150		0		P		0	0						3	2	3	2	3	N		
698	BM	14	00-15E-11		RS	P	700	500		0		P		0	0						3	4	3	4	2	N		
699	BM	14	00-15E-11		RS	D	550	200		0		N		0	0						3	2	5	2	3	N		
700	BM	14	00-15E-11		RS	D	700	400		0		P		0	0						3	2	3	2	3	N		
701	BM	14	00-15E-11	1	DS	D	120	20	2	177.778	0	P	100	177.778	240		R	P	I	N								
702	BM	14	00-15E-11	1	DS	D	120	50	2	444.444	0	P	75	333.333	450		O	C	I	N								
703	BM	14	00-15E-11	1	DS	D	95	40	2	281.481	0	P	50	140.741	190		O	P	I	N								
704	BM	13	00-15E-11	4	DS	D	150	40	2	444.444	0	I	25	111.111	150		R	C	N	R								
705	BM	13	00-15E-11		RS	D	250	250		0		N		0	0						3	2	5	4	3	N		
706	BM	14	00-15E-13		RS	P	1800	600		0		P		0	0						2	3	3	3	2	Y		
707	BM	14	00-15E-13		RS	P	650	200		0		P		0	0						3	4	3	4	2	N		
708	BM	14	00-15E-13		RS	D	500	300		0		P		0	0						3	3	5	3	3	N		
709	BM	11	00-15E-13		RS	P	950	250		0		P		0	0						3	2	4	3	2	N		
710	BM	11	00-15E-13		RS	P	950	500		0		P		0	0						3	3	3	4	3	N		
711	BM	12	00-15E-13		RS	D	1500	450		0		I		0	0						4	2	3	3	2	N		
712	BM	12	00-15E-13		RS	D	1800	600		0		I		0	0						4	2	2	2	2	Y		
713	BM	11	00-15E-13		RS	D	600	250		0		I		0	0						3	2	5	3	3	N		
714	BM	11	00-15E-13		RS	P	750	300		0		I		0	0						2	2	5	3	2	N		
715	BM	11	00-15E-13	1	DS	D	120	60	2	533.333	0	I	75	400	540		R	P	S	R								
716	BM	12	00-15E-13	3	DS	D	150	35	4	777.778	0	I	75	583.333	787.5		R	P	S	N								
717	BM	12	00-15E-13	3	DS	D	240	75	2	1333.33	0	I	50	666.667	900		R	P	S	N								
718	BM	12	00-15E-13	3	DS	D	240	90	2	1600	0	I	25	400	540		R	C	S	N								
719	BM	11	00-15E-15		RS	D	550	400		0		P		0	0						3	3	5	3	4	Y		
720	BM	2	00-15E-15		RS	D	850	300		0		P		0	0						3	3	3	3	3	N		
721	BM	2	00-15E-15		RS	D	1400	600		0		P		0	0						3	2	3	3	4	Y		
722	BM	2	00-15E-15		RS	D	900	300		0		P		0	0						2	2	3	4	3	Y		
723	BM	11	00-15E-15		RS	P	1800	600		0		P		0	0						3	4	3	3	3	Y		
724	BM	12	00-15E-15		RS	P	700	300		0		I		0	0						4	3	3	3	3	N		
725	BM	1	00-15E-15		RS	D	1100	300		0		I		0	0						2	2	3	3	3	N		

													Shallow landslides								*Deep-seated landslides*							
ID#		Sec	Air Photo		Landslide	Certainty	Size				Torrent	Sed	Sed Del			Slope		Slope	Slide	Road	Toe	Body	Lat.	Main	DS	Complex	Field	
					Type		Length	Width	Depth	Slide	Length	Routing	Ratio	Sediment	Sediment	(field)	Age	Form	Loc.	Assoc.	Activity	Morph.	Scarps	Scarps	Veg.		Obs.	Comments
Unique		#	year - number		DS DF DT	D P Q	ft	ft	ft	Vol	ft	P I N	25 50 75	Delivery	Delivery	(%)	A R O	C D P	H S I N	R S L	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3 4	Y N	Y N	
	PWS			MWMU	EF RS					yd^3			100 (%)	yd^3	tons					N I	4 5	4 5	4 5	4 5				
726	BM	1	00-15E-15	4	DS	D	130	60	2	577.778	0	I	75	433.333	585		A	P	S	N								OFF LATERAL EDGE #725
727	BM	1	00-15E-15	1	DS	D	100	40	2	296.296	0	P	100	296.296	400		R	P	I	N								OFF TOE #725
728	BM	1	00-15E-15	1	DS	D	150	30	2	333.333	0	P	100	333.333	450		R	P	I	N								
729	BM	1	00-15E-15	4	DS	P	140	25	2	259.259	0	I	25	64.8148	87.5		R	C	H	R								
730	BM	1	00-15E-15	4	DS	P	95	50	2	351.852	0	I	50	175.926	237.5		R	P	H	N								
731	BM	1	00-15E-15	1	DS	D	80	50	2	296.296	0	P	100	296.296	400		R	P	I	N								
732	BM	1	00-15E-15		RS	P	550	300		0		N		0	0						4	3	3	3	3	N		
733	BM	1	00-15E-15	3	DS	P	150	30	2	333.333		N		0	0		R	P	N	N								
734	BM	1	00-15E-15		RS	P	500	300		0		P		0	0						3	4	3	4	3	N		
735	BM	1	00-15E-15		RS	D	500	300		0		P		0	0						3	3	3	3	3	N		
736	BM	2	00-15E-15		RS	D	1000	300		0		I		0	0						2	2	3	3	4	N		
737	BM	2	00-15E-15		RS	D	700	400		0		P		0	0						3	3	3	3	3	N		
738	BM	2	00-15E-15	1	DS	D	180	80	2	1066.67		I	50	533.333	720		R	P	S	S								
739	BM	2	00-15E-15		RS	P	600	200		0		I		0	0						2	2	3	2	2	N		
740	BM	2	00-15E-15		RS	D	1500	300		0		I		0	0						4	2	2	3	3	N		
741	BM	2	00-15E-15		RS	D	450	300		0		I		0	0						3	3	4	3	3	N		
742	BM	2	00-15E-15		RS	D	600	300		0		I		0	0						3	4	5	3	2	N		
743	BM	1	00-15E-15		RS	P	1000	500		0		I		0	0						3	4	3	3	4	N		
744	BM	1	00-15E-15		RS	D	1000	500		0		I		0	0						4	3	3	4	4	N		
745	BM	1	00-15E-15		RS	P	900	300		0		I		0	0		O				4	3	3	3	4	N		
746	BM	1	00-15E-15		RS	P	500	250		0		I		0	0						3	3	4	4	4	N		
747	BM	1	00-15E-15		RS	P	600	450		0		I		0	0						4	4	3	4	4	N		
748	BM	1	00-15E-15	3	DF	D	120	30	2	266.667	1100	I	100	266.667	360		R	C	H	N								
749	BM	36	00-15E-15		RS	P	250	200		0		I		0	0						3	4	3	3	2	N		
750	BM	36	00-15E-15		RS	P	900	250		0		I		0	0						4	3	3	3	3	N		
751	BM	36	00-15E-15		RS	Q	1100	600		0		I		0	0						3	4	3	3	4	N		
752	BM	36	00-15E-15	2	DS	P	100	60	2	444.444		I	50	222.222	300			C	S	N								
753	BM	2	00-15E-15		RS	P	1200	600		0		I		0	0						3	3	4	4	4	N		
754	BM	35	00-15E-15		RS	D	500	300		0		I		0	0						3	2	3	2	3	Y		Assoc. w/755/756
755	BM	35	00-15E-15		RS	P	500	300		0		I		0	0						4	4	3	3	4	Y		Assoc. w/754/756
756	BM	35	00-15E-15		RS	D	1500	300		0		I		0	0						4	3	3	4	3	Y		Assoc. w/754/755
757	BM	35	00-15E-17	1	DS	Q	60	40	2	177.778		I	100	177.778	240		R	P	S	N								
758	BM	35	00-15E-17		RS	D	600	150		0		I		0	0						3	2	3	2	3	N		
759	BM	36	00-15E-17	3	DT	D	125	60	2	555.556	250	I	75	416.667	562.5		R	C	H	R								Torrent 60ft wide
760	BM	36	00-15E-17		RS	D	1400	450		0		I		0	0						4	2	3	2	2	Y		
761	BM	36	00-15E-17		RS	D	1700	500		0		I		0	0						4	3	3	3	3	Y		
762	BM	36	00-15E-17	4	DS	D	80	40	2	237.037		I	50	118.519	160		R	P	N	R								
763	BM	36	00-15E-17	3	DS	D	180	50	2	666.667		I	75	500	675		R	P	N	R								
764	BM	35	00-15E-17		RS	P	1300	700		0		I		0	0						4	3	3	3	3	N		
765	BM	35	00-15E-17		RS	P	800	400		0		I		0	0						4	3	3	3	3	N		
766	BM	35	00-15E-17		RS	P	850	200		0		I		0	0						4	4	3	4	3	N		
767	BM	35	00-15E-17		RS	D	1100	300		0		I		0	0						4	3	3	2	3	N		
768	BM	26	00-15E-17		RS	P	1350	200		0		I		0	0						4	3	2	3	3	N		
769	BM	26	00-15E-17		RS	D	1000	300		0		I		0	0						4	2	2	3	3	N		
770	BM	24	00-16E-12		RS	D	1500	1000		0		I		0	0						3	2	3	4	3	Y		
771	BM	24	00-16E-12		RS	D	350	200		0		I		0	0						3	2	5	3	3	N		
772	BM	13	00-16E-12	3	DS	D	95	60	2	422.222	125	I	50	211.111	285		A	P	S	L								
773	BM	13	00-16E-12	1	DS	D	125	60	2	555.556		P	100	555.556	750		O	P	I	N								
774	BM	13	00-16E-12	1	DS	D	125	30	2	277.778		P	100	277.778	375		R	P	I	N								
775	BM	13	00-16E-12	3	DS	D	140	20	2	207.407		P	100	207.407	280		R	P	I	N								
776	BM	13	00-16E-12	3	DS	P	95	30	2	211.111		I	100	211.111	285		R	P	S	N								
777	BM	13	00-16E-12		RS	P	2160	800		0		P		0	0						4	4	3	2	2	Y		
778	BM	13	00-16E-12		RS	D	850	300		0		I		0	0						2	2	3	2	2	N		
779	BM	18	00-16E-12		RS	D	1000	300		0		I		0	0						3	3	3	3	3	N		
780	BM	13	00-16E-12		RS	P	425	175		0		I		0	0						3	4	5	3	3	N		
781	BM	13	00-16E-12		RS	D	670	400		0		I		0	0						4	3	3	2	2	N		
782	BM	13	00-16E-12		RS	D	180	300		0		I		0	0						3	2	5	3	2	N		
783	BM	13	00-16E-12	3	DS	D	80	70	2	414.815		I	50	207.407	280		R	C	H	R								
784	BM	13	00-16E-12	3	DS	P	120	100	2	888.889		I	100	888.889	1200		R	P	S	S								
785	BM	18	00-16E-12		RS	P	730	400		0		I		0	0						3	3	3	3	3	N		
786	BM	18	00-16E-12	3	DS	Q	100	30		0		I	25	0	0		R	C	H	N								on slide #785
787	BM	18	00-16E-12		RS	D	730	200	2	10814.8		I		0	0						3	3	3	3	2	N		
788	BM	18	00-16E-12		RS	D	850	150		0		I		0	0						3	2	2	3	3	N		
789	BM	18	00-16E-12		RS	D	675	300		0		I		0	0						3	2	2	2	2	N		
790	BM	18	00-16E-12	4	DS	D	180	60	2	800		I	50	400	540		R	P	N	L								
791	BM	18	00-16E-12		RS	P	1600	750		0		I		0	0						4	4	4	3	4	N		
792	BM	18	00-16E-12	3	DS	D	180	100	2	1333.33		I	100	1333.33	1800		O	P	S	N								
793	BM	18	00-16E-12	2	DS	P	125	40	2	370.37		I	100	370.37	500		R	P	S	R								
794	BM	18	00-16E-12	3	DS	P	60	20	2	88.8889		N	0	0	0		R	P	N	S								
795	BM	18	00-16E-12	3	DS	P	40	20	2	59.2593		N	0	0	0		R	C	N	S								
796	BM	18	00-16E-14		RS	D	1000	300		0		I		0	0						3	3	3	3	3	N		
798	BM	18	00-16E-14	3	DS	D	125	60	4	1111.11		I	25	277.778	375		A	C	H	S								
799	BM	13	00-16E-14		RS	D	1900	1000		0		P		0	0						3	3	3	3	3	Y		
800	BM	13	00-16E-14		RS	P	1350	400		0		P		0	0						3	4	3	3	2	N		
801	BM	13	00-16E-14		RS	Q	1650	800		0		I		0	0						4	3	4	3	2	Y		
802	BM	13	00-16E-14	3	DS	P	180	60	2	800	100	I	75	600	810		R	C	H	S								
803	BM	12	00-16E-14		RS	P	1150	400		0		P		0	0						3	3	4	3	3	N		
804	BM	7	00-16E-14		RS	P	1100	800		0		I		0	0						3	4	4	3	4	N		
805	BM	7	00-16E-14		RS	P	700	400		0		I		0	0						3	2	3	3	4	N		
806	BM	12	00-16E-14	1	DS	P	150	100	2	1111.11		P	100	1111.11	1500		O	P	S	N								
807	BM	12	00-16E-14	4	DS	D	125	40	2	370.37		I	75	277.778	375		O	P	N	R								
808	BM	12	00-16E-14		RS	D	400	350		0		I		0	0						4	3	5	4	2	N		
810	BM	12	00-16E-14	2	DS	P	95	35	2	246.296		I	100	246.296	332.5		R	P	N	R								
811	BM	12	00-16E-14	3	DS	P	100	70	2	518.519		N	0	0	0		R	C	N	N								
812	BM	12	00-16E-14		RS	P	475	400		0		P		0	0						4	3	3	4	2	N		
813	BM	7	00-16E-14		RS	Q	725	150		0		I		0	0						4	2	3	3	3	N		
814	BM	7	00-16E-14	3	DS	D	110	80	2	651.852		I	100	651.852	880		R	C	H	N								
815	BM	7	00-16E-14		RS	D	730	500		0		I		0	0						3	2	5	3	2	N		

													Shallow landslides								Deep-seated landslides							
ID#		Sec	Air Photo		Landslide Type	Certainty	Size				Torrent Length	Sed Routing	Sed Del Ratio	Sediment	Sediment	Slope (field)	Age	Slope Form	Slide Loc.	Road Assoc.	Toe Activity	Body Morph.	Lat. Scarps	Main Scarps	DS Veg.	Complex	Field Obs.	Comments
							Length	Width	Depth	Slide				Delivery	Delivery													
Unique	PWS	#	year - number	MWMU	DS DF DT EF RS	D P Q	ft	ft	ft	Vol yd^3	ft	P I N	25 50 75 100 (%)	yd^3	tons	(%)	A R O	C D P	H S I N	R S L N I	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4	Y N	Y N	
816	BM	7	00-16E-14		RS	D	600	650		0		I		0	0						3	2	5	4	3	N		
817	BM	12	00-16E-14		RS	P	2100	1300		0		P		0	0						2	3	4	3	3	Y		Some areas have more recent activity than others
818	BM	12	00-16E-14	3	DS	D	155	75	2	861.111		I	100	861.111	1162.5		R	P	N	N								
819	BM	12	00-16E-14	3	DS	Q	50	50	2	185.185		I	50	92.5926	125		R	P	N	N								
820	BM	12	00-16E-14		RS	P	1200	200		0		P		0	0						2	3	4	4	3	N		
821	BM	7	00-16E-14		RS	Q	975	200		0		P		0	0						2	3	3	4	4	N		
822	BM	7	00-16E-14	1	DS	D	150	50	2	555.556		P	100	555.556	750		R	P	S	N								
823	BM	7	00-16E-14	1	DS	D	120	50	2	444.444		P	100	444.444	600		R	P	S	R								
824	BM	7	00-16E-14	1	DS	D	180	40	4	1066.67		I	50	533.333	720		R	P	S	R								
825	BM	7	00-16E-14	1	DS	P	90	25	2	166.667		P	75	125	168.75		R	P	I	R								
826	BM	7	00-16E-14		RS	D	475	250		0		P		0	0						3	2	5	2	3	N		
827	BM	7	00-16E-14		RS	P	425	200		0		I		0	0						3	3	3	4	3	N		
828	BM	6	00-16E-16		RS	P	1200	200		0		I		0	0						3	3	3	3	3	N		
829	BM	6	00-16E-16		RS	P	850	250		0		I		0	0						4	4	3	2	3	N		
830	BM	1	00-16E-16		RS	D	1000	400		0		P		0	0						3	3	3	3	3	N		
831	BM	6	00-16E-16	3	DT	D	100	40	2	296.296	360	I	100	296.296	400		R	C	H	N								Torent width 15ft.
832	BM	6	00-16E-16		RS	P	700	500		0		I		0	0						4	4	3	3	3	N		
833	BM	6	00-16E-16		RS	P	600	200		0		I		0	0						3	3	3	4	3	N		
834	BM	6	00-16E-16	4	DF	D	190	60	2	844.444	300	I	50	422.222	570		R	P	N	N								
835	BM	1	00-16E-16		RS	P	800	400		0		I		0	0						3	3	3	3	3	N		
836	BM	1	00-16E-16		RS	D	550	350		0		I		0	0						3	2	3	3	4	N		
837	BM	1	00-16E-16		RS	P	730	400		0		I		0	0						3	3	3	4	4	N		
838	BM	1	00-16E-16	1	DS	D	180	100	2	1333.33	0	I	50	666.667	900		R	P	S	R								
839	BM	6	00-16E-16	3	DS	D	240	200	2	3555.56	0	I	75	2666.67	3600		R	C	H	S								
840	BM	6	00-16E-16	4	DS	D	180	60	2	800	0	I	50	400	540		R	P	H	R								
841	BM	6	00-16E-16	4	DS	Q	120	40	2	355.556	0	I	25	88.8889	120		R	C	N	N								733
842	BM	1	00-16E-16		RS	P	1200	500		0		I		0	0						4	3	3	3	4	Y		
843	BM	1	00-16E-16		RS	D	500	200		0		I		0	0						3	4	5	3	3	N		
844	BM	1	00-16E-16	2	DS	P	100	20	2	148.148	0	I	100	148.148	200		R	P	S	N								
845	BM	1	00-16E-16	2	DS	P	60	50	2	222.222	0	I	100	222.222	300		R	P	S	N								
846	BM	1	00-16E-16	2	DS	P	100	60	2	444.444	0	I	25	111.111	150		R	P	N	N								
847	BM	36	00-16E-16		RS	D	975	300		0		I		0	0						4	2	3	2	3	N		
848	BM	36	00-16E-16	3	DS	D	150	50	2	555.556	0	I	100	555.556	750		R	C	H	S								
849	BM	36	00-16E-16	3	DS	D	145	40	2	429.63	0	I	75	322.222	435		R	P	N	S								
850	BM	36	00-16E-16	2	DS	P	70	50	2	259.259	0	I	100	259.259	350		R	P	N	N								
851	BM	6	00-16E-16		RS	P	1300	500		0		I		0	0						3	2	3	3	3	N		
852	BM	6	00-16E-16		RS	P	600	450		0		I		0	0						3	3	5	4	3	N		
853	BM	6	00-16E-16	3	DS	D	125	40	2	370.37	0	N	0	0	0		R	P	N	R								On slide #852
854	BM	6	00-16E-16	3	DS	D	145	50	2	537.037	0	I	25	134.259	181.25		R	P	N	L								On slide #852
855	BM	31	00-16E-16		RS	P	850	300		0		I		0	0						4	3	5	3	2	N		
856	BM	6	00-16E-16		RS	P	600	400		0		I		0	0						1	2	5	3	2	N		
857	BM	6	00-16E-16	1	DS	D	135	60	2	600	0	I	100	600	810		R	P	S	N								On toe #856
858	BM	6	00-16E-16	1	DS	D	70	60	2	311.111	0	I	100	311.111	420		R	P	S	N								On toe #856
859	BM	6	00-16E-16	1	DS	D	125	70	2	648.148	0	I	100	648.148	875		R	P	S	R								Across stream of toe #856
860	BM	6	00-16E-16	3	DF	D	125	600	2	5555.56	250	I	75	4166.67	5625		R	P	N	S								
861	BM	6	00-16E-16		RS	D	700	150		0		I		0	0						2	2	3	3	2	N		
862	BM	6	00-16E-16	1	DS	P	110	30	2	244.444	0	I	100	244.444	330		R	P	S	N								
863	BM	6	00-16E-16	1	DS	Q	160	65	2	770.37	0	I	50	385.185	520		R	P	S	S								
864	BM	6	00-16E-16	1	DS	D	320	65	2	1540.74	0	I	50	770.37	1040		R	P	N	S								
865	BM	31	00-16E-16	2	DS	D	150	30	2	333.333	0	I	75	250	337.5		R	P	S	L								
866	BM	31	00-16E-16		RS	D	1000	300		0		I		0	0						3	3	3	3	4	N		
867	BM		00-16E-18		RS	P	1200	500		0		I		0	0						4	3	3	3	2	Y		760
868	BM	36	00-16E-18		RS	D	1500	700		0		I		0	0						3	4	3	4	3	N		
869	BM	36	00-16E-18	3	DS	D	120	30	2	266.667	0	I	50	133.333	180		R	P	N	S								
870	BM	7	00-17A-15	3	DS	D	125	80	4	1481.48	0	I	100	1481.48	2000		R	C	N	L								
871	BM	7	00-17A-15		RS	P	800	200		0		I		0	0						4	2	3	2	3	N		
872	BM	7	00-17A-15		RS	D	700	450		0		P		0	0						2	2	3	3	3	N		
873	BM	7	00-17A-15		RS	D	1350	400		0		P		0	0						2	2	3	3	2	Y		
874	BM	7	00-17A-15	1	DS	D	180	60	2	800	0	P	100	800	1080		R	P	I	N								
875	BM	7	00-17A-15	3	DS	D	125	50	2	462.963	0	P	75	347.222	468.75		R	C	I	R								
876	BM	6	00-17A-17		RS	D	1000	600		0		I		0	0						4	4	3	3	3	N		
877	BM	6	00-17A-17		RS	P	1300	500		0		P		0	0						3	2	3	3	3	N		
878	BM	6	00-17A-17		RS	P	350	200		0		I		0	0						3	3	5	4	3	N		
879	BM	6	00-17A-17	3	DT	D	180	50	2	666.667	300	I	50	333.333	450		R	C	H	S								
880	BM	6	00-17A-17	3	DT	D	150	80	2	888.889	400	I	50	444.444	600		O	P	H	S								
881	BM	6	00-17A-17		RS	D	1100	800		0		I		0	0						4	2	3	3	2	N		
882	BM	6	00-17A-17		RS	D	850	300		0		I		0	0						4	2	3	3	3	N		
883	BM	6	00-17A-17		RS	P	1100	500		0		I		0	0						4	4	3	3	3	N		
884	BM	6	00-17A-17		RS	D	700	200		0		I		0	0						3	3	5	3	3	N		
885	BM	6	00-17A-17		RS	D	1200	400		0		I		0	0						4	3	5	3	3	N		
886	BM	6	00-17A-17	4	DS	D	125	35	2	324.074	0	I	75	243.056	328.125		R	C	N	S								
887	BM	6	00-17A-17	4	DS	P	70	60	2	311.111	0	N	0	0	0		R	P	H	N								
888	BM	11	00-15E-13	1	DS	D	60	35	2	155.556		P	100	155.556	210		R	P	I	N								
889	BM	11	00-15E-13	1	DS	P	35	25	2	64.8148		P	100	64.8148	87.5		R	P	I	N								
890	BT	23	78 BR 2-3	1	DS	D	240	65	2	1155.56		P	100	1155.56	1560		R	P	S	S								
891	BT	23	78 BR 2-3	1	DS	D	240	50	2	888.889		I	0	0	0		R	P	N	S								
892	BT	23	78 BR 2-3	1	DS	D	350	120	4	6222.22		N	100	6222.22	8400		R	C	I	R								probably mapped '00
893	BT	24	78 BR 2-3	1	DS	Q	110	40	2	325.926		P	100	325.926	440		R	P	S	N								
894	BT	24	78 BR 2-3	1	DS	P	130	80	2	770.37		P	75	577.778	780		R	C	S	S								
895	BT	24	78 BR 2-3	1	DS	D	80	120	2	711.111		P	100	711.111	960		R	P	S	S								
896	BT	24	78 BR 2-3	1	DS	D	130	560	2	5392.59		P	100	5392.59	7280		R	C	S	S								
897	BT	24	78 BR 2-3	1	DS	P	110	40	2	325.926		I	100	325.926	440		R	P	S	S								
898	BT	24	78 BR 2-3	1	DS	D	130	50	2	481.481		I	100	481.481	650		R	P	S	S								
899	BT	24	78 BR 2-3	2	DS	P	160	90	2	1066.67		I	100	1066.67	1440		R	P	S	R								
900	BT	24	78 BR 2-5	3	DT	P	225	80	3	2000	650	I	100	2000	2700		R	C	H	S								
901	BT	13	78 BR 2-5	4	DS	P	110	160	2	1303.7		I	25	325.926	440		R	C	N	S								
902	BT	13	78 BR 2-5	4	DS	Q	50	80	2	296.296		I	25	74.0741	100		R	P	S	S								
902	BM		00 BR13B-30		RS	P	1300	1650		0		I		0	0						4	4	4	3	4	N		

													Shallow landslides								*Deep-seated landslides*							
ID#		Sec	Air Photo		Landslide	Certainty	Size				Torrent	Sed	Sed Del			Slope		Slope	Slide	Road	Toe	Body	Lat.	Main	DS	Complex	Field	
					Type		Length	Width	Depth	Slide	Length	Routing	Ratio	Sediment	Sediment	(field)	Age	Form	Loc.	Assoc.	Activity	Morph.	Scarps	Scarps	Veg.		Obs.	Comments
Unique		#	year - number		DS DF DT	D P Q	ft	ft	ft	Vol	ft	P I N	25 50 75	Delivery	Delivery	(%)	A R O	C D P	H S I N	R S L	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3 4	Y N	Y N	
	PWS			MWMU	EF RS					yd^3			100 (%)	yd^3	tons					N I	4 5	4 5	4 5	4 5				
903	BT	13	78 BR 2-5	3	DS	D	320	130	2	3081.48		I	75	2311.11	3120		R	P	N	S								
904	BT	13	78 BR 2-5	4	DF	D	180	40	2	533.333		I	50	266.667	360		R	C	H	S								
905	BT	13	78 BR 2-5	4	DS	D	160	90	2	1066.67		I	75	800	1080		R	C	N	S								
906	BT	13	78 BR 2-5	4	DS	P	190	100	2	1407.41		I	50	703.704	950		R	P	H	S								
907	BT	18	78 BR 2-5	3	DF	D	130	40	3	577.778		I	50	288.889	390		R	C	H	R								
908	BT	13	78 BR 2-5	2	DS	P	100	240	2	1777.78		I	75	1333.33	1800		R	P	S	N								
909	BT	9	78 BR 2-5	2	DS	P	160	50	2	592.593		I	50	296.296	400		R	P	S	R								
910	BT		78 BR 2-5		RS	P	290	160		0		I		0	0						1	1	1	1	1	N		Active, possible DS
911	BT	4	78 BR 3-3	1	DS	D	100	90	2	666.667		I	100	666.667	900		R	P	S	N								
912	BT	4	78 BR 3-3	1	DS	P	140	25	2	259.259	0	I	50	129.63	175		R	C	N	R								
913	BT	32	78 BR 3-3	3	DS	P	130	65	2	625.926	0	I	75	469.444	633.75		R	P	N	S								
914	BT	33	78 BR 3-3	3	DS	Q	150	40	2	444.444	0	N	0	0	0		R	P	N	S								
915	BT	32	78 BR 3-3	1	DS	P	100	65	2	481.481	0	I	100	481.481	650		R	P	S	R								
916	BT	32	78 BR 3-3	1	DS	Q	130	25	2	240.741	0	I	100	240.741	325		R	P	S	R								
917	BT	32	78 BR 3-3	1	DS	Q	130	25	2	240.741	0	I	100	240.741	325		R	P	S	R								
918	BT	32	78 BR 3-3	1	DS	P	145	65	2	698.148	0	I	75	523.611	706.875		R	P	S	R								
919	BT	16	78 BR 3-3	4	DS	Q	160	30	2	355.556	0	I	75	266.667	360		R	P	S	N								
920	BT	32	78 BR 3-3	1	DS	P	115	40	2	340.741	0	I	100	340.741	460		R	D	S	L								
921	BT	32	78 BR 3-3	1	DS	P	50	60	2	222.222	0	I	100	222.222	300		R	D	S	R								
922	BT	32	78 BR 3-3	4	DS	D	320	90	4	4266.67	0	I	25	1066.67	1440		A	P	N	R								
923	BT	32	78 BR 3-3	1	DS	P	50	50	2	185.185	0	I	100	185.185	250		R	P	S	R								
924	BT	32	78 BR 3-3	1	DS	P	50	50	2	185.185	0	I	100	185.185	250		R	P	S	R								
925	BT	32	78 BR 3-3	1	DS	P	50	50	2	185.185	0	I	100	185.185	250		R	P	S	R								
926	BT	4	78 BR 3-3	4	DS	P	220	40	2	651.852	0	I	50	325.926	440		R	C	N	S								
927	BT	29	78 BR 3-3	1	DS	D	80	370	4	4385.19	0	P	100	4385.19	5920		O	C	I	R								
928	BT	29	78 BR 3-5	4	DS	D	100	120	2	888.889	0	N	0	0	0		A	C	H	N								
929	BT	30	78 BR 3-5	1	DS	D	430	100	4	6370.37	0	P	100	6370.37	8600		R	C	S	N								
930	BT	30	78 BR 3-5	1	DS	D	130	130	2	1251.85	0	P	100	1251.85	1690		R	P	I	N								
931	BT	19	78 BR 3-5	3	DT	D	130	40	2	385.185	500	I	100	385.185	520		R	C	H	R								
932	BT	28	78 BR 3-5	1	DS	D	180	330	2	4400	0	P	100	4400	5940		A	C	I	R								
933	BT	28	78 BR 3-5	1	DS	D	225	65	2	1083.33	0	P	100	1083.33	1462.5		A	C	I	N								
934	BT	28	78 BR 3-5	1	DS	D	160	120	2	1422.22	0	P	100	1422.22	1920		A	C	I	N								
935	BT	28	78 BR 3-5	1	DS	D	290	90	2	1933.33	0	P	100	1933.33	2610		A	C	I	R								
936	BT	29	78 BR 3-5	1	DS	D	160	200	2	2370.37	0	P	100	2370.37	3200		R	P	I	N								
937	BL	21	78 BR 3-5	3	DS	D	65	65	2	312.963	0	P	100	312.963	422.5		R	P	I	N								
938	BL	20	78 BR 3-5	4	DS	D	65	65	2	312.963	0	P	100	312.963	422.5		R	P	I	N								
939	BL	29	78 BR 3-5	1	DS	D	100	65	2	481.481	0	P	100	481.481	650		R	P	I	N								
940	BL	29	78 BR 3-5	1	DS	P	200	25	2	370.37	0	P	100	370.37	500		R	P	I	R								
941	BL	20	78 BR 3-5	1	DS	D	460	150	2	5111.11	0	P	75	3833.33	5175		A	C	I	R								
942	BL	20	78 BR 3-5	1	DS	D	80	50	2	296.296	0	P	25	74.0741	100		R	P	I	N								
943	BL	29	78 BR 3-5	1	DS	D	65	40	2	192.593	0	P	100	192.593	260		R	P	I	N								
944	BL	20	78 BR 3-5	1	DS	D	250	65	2	1203.7	0	P	100	1203.7	1625		R	C	I	R								
945	BL	20	78 BR 3-5	1	DS	P	80	65	2	385.185	0	P	100	385.185	520		R	P	S	N								
946	BL	17	78 BR 3-5	1	DS	Q	100	40	2	296.296	0	P	100	296.296	400		R	P	S	N								
947	BL	17	78 BR 3-5	1	DS	Q	80	130	2	770.37	0	P	100	770.37	1040		R	P	S	N								
948	BT	29	78 BR 3-5	1	DS	D	65	90	2	433.333	0	P	100	433.333	585		R	P	I	N								
949	BT	18	78 BR 3-5	4	DS	P	150	50	2	555.556	0	I	50	277.778	375		R	P	N	S								
950	BL	17	78 BR 3-7	1	DS	Q	65	40	2	192.593	0	I	100	192.593	260		R	P	S	N								
951	BL	17	78 BR 3-7	2	DS	Q	30	40	2	88.8889	0	I	100	88.8889	120		R	P	S	N								
953	BM	10	78 BR 4-3	0	DS	D	100	90	2	666.667	0	I	100	666.667	900		R	P	S	R								
954	BM	10	78 BR 4-3	0	DF	P	110	65	2	529.63	150	I	100	529.63	715		R	C	S	R								
955	BM	10	78 BR 4-3	3	DF	P	180	40	2	533.333	0	I	25	133.333	180		R	P	N	N								
956	BM	9	78 BR 4-3	1	DF	P	275	65	2	1324.07	0	N	50	662.037	893.75		R	P	N	N								
957	BM	9	78 BR 4-3	4	DS	D	160	50	2	592.593	0	I	50	296.296	400		R	C	N	R								
958	BM	9	78 BR 4-3	1	DS	D	160	130	2	1540.74	0	P	75	1155.56	1560		R	P	S	R								
959	BM	9	78 BR 4-3	1	DS	D	145	40	2	429.63	0	I	100	429.63	580		R	P	S	N								
960	BM	4	78 BR 4-5	3	DS	D	100	100	2	740.741	0	I	100	740.741	1000		R	P	S	N								
961	BM	4	78 BR 4-5	3	DS	D	160	30	2	355.556	0	I	100	355.556	480		R	P	S	R								
962	BM	4	78 BR 4-5	3	DS	D	110	170	2	1385.19	0	I	100	1385.19	1870		R	P	S	N								
963	BM	4	78 BR 4-5	3	DS	D	65	50	2	240.741	0	I	100	240.741	325		R	D	S	R								
964	BM	3	78 BR 4-5	1	DS	D	130	130	2	1251.85	0	I	75	938.889	1267.5		R	P	S	R								
965	BM	3	78 BR 4-5	4	DS	D	160	80	2	948.148	0	I	75	711.111	960		R	P	S	R								
966	BT	33	78 BR 4-5	3	DS	D	150	40	2	444.444	0	I	50	222.222	300		R	C	H	R								
967	BT	33	78 BR 4-5	3	DS	P	130	25	2	240.741	0	N	0	0	0		R	C	H	S								
968	BT	4	78 BR 4-5	3	DS	D	100	65	2	481.481	0	I	50	240.741	325		R	P	N	R								
969	BT	4	78 BR 4-5	3	DS	D	100	65	2	481.481	0	I	50	240.741	325		R	P	N	R								
970	BT	33	78 BR 4-5	3	DS	D	160	30	2	355.556	0	I	50	177.778	240		R	P	N	S								
971	BT	33	78 BR 4-5	3	DS	D	390	65	2	1877.78	0	I	50	938.889	1267.5		R	C	N	R								
972	BT	33	78 BR 4-5	3	DS	Q	450	65	2	2166.67	0	I	25	541.667	731.25		R	C	N	R								
973	BT	33	78 BR 4-5	4	DS	P	200	40	2	592.593	0	I	25	148.148	200		R	P	N	R								
974	BT	33	78 BR 4-5	4	DS	P	130	90	2	866.667	0	I	75	650	877.5		R	C	N	R								
975	BT	33	78 BR 4-5	4	DS	P	180	40	2	533.333	0	I	25	133.333	180		R	P	N	I								
976	BM	33	78 BR 4-5	2	DS	D	320	65	3	2311.11	0	I	50	1155.56	1560		R	P	N	S								
977	BM	33	78 BR 4-5	2	DS	Q	80	130	2	770.37	0	I	100	770.37	1040		R	P	S	R								
978	BM	33	78 BR 4-5	4	DS	D	120	40	2	355.556	60	P	75	266.667	360		R	P	I	R								
979	BM	34	78 BR 4-5	3	DF	D	320	330	2	7822.22	0	P	75	5866.67	7920		R	C	I	R								
980	BM	34	78 BR 4-5	4	DS	D	75	40	2	222.222	0	P	75	166.667	225		R	P	I	R								
981	BM	34	78 BR 4-5	1	DS	D	240	80	2	1422.22	0	P	75	1066.67	1440		R	C	I	N								
982	BM	34	78 BR 4-5	1	DS	D	260	130	2	2503.7	0	P	75	1877.78	2535		R	P	I	R								
983	BR	27	78 BR 4-7	1	DS	P	65	65	2	312.963	0	P	100	312.963	422.5		R	P	I	N								
984	BR	27	78 BR 4-7	1	DS	D	120	300	2	2666.67	0	P	25	666.667	900		R	P	I	R								
985	BR	27	78 BR 4-7	4	DF	D	240	100	2	1777.78	180	I	25	444.444	600		R	P	I	S								
986	BR	22	78 BR 4-7	1	DS	D	130	130	2	1251.85	0	I	100	1251.85	1690		R	P	S	R								
987	BE	20	78 BR 4-7	4	DS	P	180	80	2	1066.67	0	I	25	266.667	360		R	C	N	R								
988	BR	21	78 BR 4-7	3	DS	Q	250	40	2	740.741	0	I	25	185.185	250		R	P	N	N								
989	BR	21	78 BR 4-7	3	DS	Q	150	40	2	444.444	0	I	25	111.111	150		R	P	N	N								
990	BE	21	78 BR 4-7	4	DS	D	160	40	2	474.074	0	I	100	474.074	640		R	D	N	L								
991	BE	21	78 BR 4-7	2	DS	D	65	80	2	385.185	0	I	100	385.185	520		R	D	N	L								

							Size						Shallow landslides								Deep-seated landslides							
ID# Unique	PWS	Sec #	Air Photo year - number	MWMU	Landslide Type DS DF DT EF RS	Certainty D P Q	Length ft	Width ft	Depth ft	Slide Vol yd^3	Torrent Length ft	Sed Routing P I N	Sed Del Ratio 25 50 75 100 (%)	Sediment Delivery yd^3	Sediment Delivery tons	Slope (field) (%)	Age A R O	Slope Form C D P	Slide Loc. H S I N	Road Assoc. R S L N I	Toe Activity 1 2 3 4 5	Body Morph. 1 2 3 4 5	Lat. Scarps 1 2 3 4 5	Main Scarps 1 2 3 4 5	DS Veg. 1 2 3 4	Complex Y N	Field Obs. Y N	Comments
992	BE	21	78 BR 4-7	4	DS	D	150	65	2	722.222	0	I	100	722.222	975		R	P	S	R								
993	BE	16	78 BR 4-9	3	DS	P	190	50	2	703.704	0	I	100	703.704	950		R	C	H	N								
994	BE	16	78 BR 4-9	3	DS	P	180	70	2	933.333	0	I	50	466.667	630		R	C	H	N								
995	BE	16	78 BR 4-9	3	DS	P	250	50	2	925.926	0	I	50	462.963	625		R	C	H	N								
996	BL	16	78 BR 4-9	3	DS	P	100	80	2	592.593	0	I	25	148.148	200		R	C	N	R								
997	BE	16	78 BR 4-9	3	DF	P	130	80	2	770.37	260	I	50	385.185	520		R	C	H	N								
998	BE	16	78 BR 4-9	3	DS	P	160	80	2	948.148	0	I	25	237.037	320		R	C	H	S								
999	BE	15	78 BR 4-9	3	DS	D	160	65	2	770.37	0	N	0	0	0		R	D	N	R								
1000	BE	15	78 BR 4-9	1	DS	P	80	65	2	385.185	0	I	100	385.185	520		R	P	S	L								
1001	BE	15	78 BR 4-9	1	DS	P	80	160	2	948.148	0	I	100	948.148	1280		R	P	S	L								
1002	BE	9	78 BR 4-9	3	DS	P	180	50	2	666.667	0	I	50	333.333	450		R	C	H	S								
1003	BM	23	78 BR 5-2	1	DS	P	175	130	2	1685.19	0	I	75	1263.89	1706.25		R	C	S	R								
1004	BM	14	78 BR 5-2	3	DS	P	130	50	2	481.481	0	I	50	240.741	325		R	C	N	I								
1005	BM	14	78 BR 5-2	1	DS	P	145	50	2	537.037	0	I	75	402.778	543.75		R	P	S	N								
1006	BM	14	78 BR 5-2	4	DS	P	145	40	2	429.63	0	I	50	214.815	290		R	C	H	S								
1007	BM	14	78 BR 5-2	4	DS	Q	150	25	2	277.778	0	I	50	138.889	187.5		R	C	S	S								
1008	BM	14	78 BR 5-2	1	DS	P	160	65	2	770.37	0	I	75	577.778	780		O	P	S	S								
1009	BM	14	78 BR 5-2	4	DT	D	260	80	2	1540.74	475	I	75	1155.56	1560		R	C	H	S								
1010	BM	14	78 BR 5-2	4	DS	D	125	80	2	740.741	0	P	25	185.185	250		R	P	N	R								
1011	BM	14	78 BR 5-2	4	DS	P	130	80	2	770.37	0	P	25	192.593	260		R	P	N	S								
1012	BM	14	78 BR 5-2	3	DS	P	160	90	2	1066.67	0	P	25	266.667	360		O	C	H	N								
1013	BM	11	78 BR 5-2	1	DS	D	130	80	2	770.37	0	P	100	770.37	1040		R	P	I	N								
1014	BM	14	78 BR 5-2	3	DS	D	480	100	2	3555.56	0	P	50	1777.78	2400		R	P	N	R								
1015	BM	11	78 BR 5-2	3	DS	P	160	50	2	592.593	0	I	100	592.593	800		R	P	S	S								
1016	BM	13	78 BR 5-2	1	DS	P	80	80	2	474.074	0	I	25	118.519	160		R	P	S	R								
1017	BM	13	78 BR 5-2	1	DS	D	150	50	2	555.556	0	I	50	277.778	375		R	P	S	R								
1018	BM	13	78 BR 5-2	1	DS	D	80	100	2	592.593	0	I	25	148.148	200		R	P	S	R								
1019	BM	13	78 BR 5-2	1	DS	P	90	65	2	433.333	0	I	25	108.333	146.25		R	P	S	R								
1020	BM	13	78 BR 5-2	1	DS	P	90	65	2	433.333	0	I	25	108.333	146.25		R	D	S	R								
1021	BM	13	78 BR 5-2	4	DS	P	160	80	2	948.148	0	I	50	474.074	640		R	C	S	R								
1022	BM	13	78 BR 5-2	4	DS	P	160	40	2	474.074	0	I	50	237.037	320		R	P	S	R								
1023	BM	11	78 BR 5-2	1	DS	D	210	40	2	622.222	0	P	75	466.667	630		R	P	I	R								
1024	BM	11	78 BR 5-4	1	DS	D	130	160	2	1540.74	0	P	50	770.37	1040		R	C	N	R								
1025	BM	2	78 BR 5-4	1	DS	D	150	200	2	2222.22	0	P	50	1111.11	1500		R	P	I	R								
1026	BM	2	78 BR 5-4	1	DS	D	250	100	2	1851.85	0	P	75	1388.89	1875		R	C	I	R								
1027	BM	3	78 BR 5-4	1	DS	D	110	90	3	1100	0	P	100	1100	1485		R	C	I	R								
1028	BM	2	78 BR 5-4	4	DS	Q	130	60	2	577.778	0	I	25	144.444	195		R	C	H	I								
1029	BM	2	78 BR 5-4	4	DS	D	190	150	2	2111.11	0	P	25	527.778	712.5		R	C	I	R								Roadcut failures
1030	BM	2	78 BR 5-4	4	DS	D	220	130	2	2118.52	0	P	25	529.63	715		R	C	I	R								Roadcut failures
1031	BM	2	78 BR 5-4	3	DS	Q	160	90	2	1066.67	0	I	75	800	1080		R	P	S	N								
1032	BM	1	78 BR 5-4	4	DS	P	320	100	2	2370.37	0	P	75	1777.78	2400		R	P	S	R								
1033	BM	2	78 BR 5-4	3	DS	P	160	50	2	592.593	0	I	75	444.444	600		R	P	S	S								
1034	BM	3	78 BR 5-4	1	DS	D	65	160	2	770.37	0	P	100	770.37	1040		R	P	I	R								
1035	BM	3	78 BR 5-4	4	DS	D	65	100	2	481.481	0	P	100	481.481	650		R	P	I	R								
1036	BM	36	78 BR 5-4	2	DS	Q	130	65	2	625.926	0	I	50	312.963	422.5		R	P	S	R								
1037	BM	36	78 BR 5-4	2	DS	P	80	40	2	237.037	0	I	50	118.519	160		R	P	S	R								
1038	BM	36	78 BR 5-4	2	DS	P	50	80	2	296.296	0	I	50	148.148	200		R	P	S	R								
1039	BM	35	78 BR 5-4	4	DS	P	180	65	2	866.667	0	N	0	0	0		R	P	N	N								
1040	BM	35	78 BR 5-6	4	DS	D	65	130	2	625.926	0	P	100	625.926	845		R	C	I	N								
1041	BM	34	78 BR 5-6	4	DS	D	320	160	2	3792.59	0	P	25	948.148	1280		R	P	I	R								
1042	BM	34	78 BR 5-6	1	DS	D	160	65	2	770.37	0	P	100	770.37	1040		O	P	I	N								
1043	BM	34	78 BR 5-6	1	DS	D	160	200	2	2370.37	0	P	100	2370.37	3200		O	C	I	N								
1044	BM	26	78 BR 5-6	3	DS	Q	160	65	2	770.37	0	N	0	0	0		O	P	N	N								
1045	BR	25	78 BR 5-6	1	DS	P	190	100	2	1407.41	0	P	75	1055.56	1425		R	P	S	R								
1046	BR	27	78 BR 5-6	1	DS		260	65	2	1251.85	0	P	100	1251.85	1690		R	P	S	R								
1047	BR	27	78 BR 5-6	1	DS	D	80	260	2	1540.74	0	P	25	385.185	520		O	C	S	R								
1048	BR	27	78 BR 5-6	1	DS	P	180	25	2	333.333	0	P	100	333.333	450		R	D	S	R								
1049	BR	27	78 BR 5-6	1	DS	D	320	330	2	7822.22	0	P	25	1955.56	2640		O	P	S	R								
1050	BR	23	78 BR 5-6	3	DS	D	275	130	2	2648.15	0	P	25	662.037	893.75		R	C	I	N								
1051	BR	23	78 BR 5-6	2	DS	P	160	80	2	948.148	0	I	75	711.111	960		R	P	N	R								
1052	BR	23	78 BR 5-6	3	DS	Q	130	90	2	866.667	0	I	50	433.333	585		R	P	N	N								
1053	BL	23	78 BR 5-8	3	DS	P	130	25	2	240.741	0	N	0	0	0		R	C	N	R								
1054	BL	10	78 BR 5-8	3	DS	D	430	300	2	9555.56	0	I	75	7166.67	9675		R	P	N	N								
1055	BL	10	78 BR 5-8	3	DS	D	160	60	2	711.111	0	I	100	711.111	960		R	C	H	N								
1056	BM	13	78 BR 6-3	1	DS	D	100	65	2	481.481	0	P	100	481.481	650		R	P	S	N								
1057	BM	24	78 BR 6-3	1	DS	D	100	90	2	666.667	0	P	100	666.667	900		R	P	S	N								
1058	BM	13	78 BR 6-3	1	DS	D	65	80	2	385.185	0	P	100	385.185	520		R	P	I	N								
1059	BM	13	78 BR 6-3	1	DS	P	50	50	2	185.185	0	I	25	46.2963	62.5		R	P	N	R								
1060	BM	13	78 BR 6-3	1	DS	P	90	50	2	333.333	0	I	50	166.667	225		R	C	N	R								
1061	BM	12	78 BR 6-3	3	DS	P	190	60	2	844.444	0	I	25	211.111	285		R	C	H	S								
1062	BM	12	78 BR 6-3	4	DS	P	100	50	2	370.37	0	I	50	185.185	250		R	P	N	R								
1063	BM	7	78 BR 6-3	1	DS	Q	110	65	2	529.63	0	I	75	397.222	536.25		R	D	N	R								
1064	BM	12	78 BR 6-3	1	DS	Q	50	50	2	185.185	0	N	0	0	0		R	D	N	S								
1065	BM	12	78 BR 6-3	4	DS	P	110	40	2	325.926	0	I	25	81.4815	110		R	D	N	R								
1066	BM	12	78 BR 6-3	4	DS	D	170	40	2	503.704	0	I	50	251.852	340		R	P	N	R								
1067	BM	12	78 BR 6-3	1	DS	P	110	65	2	529.63	0	I	50	264.815	357.5		R	P	N	R								
1068	BM	12	78 BR 6-3	4	DS	P	130	50	2	481.481	130	N	0	0	0		R	P	N	S								
1069	BM	12	78 BR 6-3	4	DF	P	130	40	2	385.185	0	I	50	192.593	260		R	C	N	R								
1070	BM	12	78 BR 6-3	2	DS	Q	170	40	2	503.704	0	I	25	125.926	170		R	P	S	R								
1071	BM	12	78 BR 6-3	4	DS	P	130	30	2	288.889	0	I	25	72.2222	97.5		R	P	H	R								
1072	BM	12	78 BR 6-3	4	DS	D	180	65	2	866.667	0	I	50	433.333	585		R	P	N	R								
1073	BM	12	78 BR 6-3	2	DS	D	110	25	2	203.704	0	I	25	50.9259	68.75		R	P	N	R								
1074	BM	12	78 BR 6-3	2	DS	Q	90	25	2	166.667	0	I	25	41.6667	56.25		R	P	N	R								
1075	BM	12	78 BR 6-3	2	DS	P	110	50	2	407.407	0	N	0	0	0		R	C	N	R								
1076	BM	12	78 BR 6-3	2	DS	D	110	40	2	325.926	0	I	50	162.963	220		R	P	N	R								
1077	BM	7	78 BR 6-3	3	DS	D	200	40	2	592.593	0	I	50	296.296	400		R	D	H	S								
1078	BM	12	78 BR 6-3	4	DS	D	140	40	2	414.815	0	I	75	311.111	420		R	P	S	R								
1079	BM	12	78 BR 6-3	4	DS	D	90	25	2	166.667	0	I	25	41.6667	56.25		R	P	N	R								

							Size						Shallow landslides								Deep-seated landslides							
ID# Unique	PWS	Sec #	Air Photo year - number	MWMU	Landslide Type DS DF DT EF RS	Certainty D P Q	Length ft	Width ft	Depth ft	Slide Vol yd^3	Torrent Length ft	Sed Routing P I N	Sed Del Ratio 25 50 75 100 (%)	Sediment Delivery yd^3	Sediment Delivery tons	Slope (field) (%)	Age A R O	Slope Form C D P	Slide Loc. H S I N	Road Assoc. R S L N I	Toe Activity 1 2 3 4 5	Body Morph. 1 2 3 4 5	Lat. Scarps 1 2 3 4 5	Main Scarps 1 2 3 4 5	DS Veg. 1 2 3 4	Complex Y N	Field Obs. Y N	Comments
1080	BM	1	78 BR 6-3	2	DS	P	65	40	2	192.593	0	I	50	96.2963	130		R	P	N	S								
1081	BM	1	78 BR 6-3	3	DS	P	240	50	2	888.889	0	I	50	444.444	600		R	P	N	R								
1082	BM	1	78 BR 6-5	1	DS	P	80	130	2	770.37	0	I	100	770.37	1040		R	P	S	R								
1083	BM	23	78 BR 6-5	4	DS	Q	190	90	2	1266.67	0	I	25	316.667	427.5		R	P	N	R								
1084	BM	23	78 BR 6-5	4	DS	D	175	80	2	1037.04	0	I	50	518.519	700		R	P	N	S								
1085	BM	23	78 BR 6-5	4	DS	P	145	40	2	429.63	0	I	25	107.407	145		R	P	N	S								
1086	BM	23	78 BR 6-5	4	DS	D	50	50	2	185.185	0	P	100	185.185	250		R	P	I	S								
1087	BM	6	78 BR 6-5	3	DS	P	210	40	2	622.222	0	I	50	311.111	420		R	P	N	S								
1088	BM	6	78 BR 6-5	3	DS	P	240	130	2	2311.11	0	I	25	577.778	780		R	P	N	N								
1089	BM	6	78 BR 6-5	3	DS	P	130	105	2	1011.11	0	I	50	505.556	682.5		R	P	S	S								
1090	BM	1	78 BR 6-5	2	DS	D	80	40	2	237.037	0	I	75	177.778	240		R	C	S	S								
1091	BM	1	78 BR 6-5	2	DS	D	130	80	2	770.37	0	I	75	577.778	780		R	P	S	S								
1092	BM	1	78 BR 6-5	3	DF	D	110	80	2	651.852	210	I	75	488.889	660		R	C	H	S								
1093	BM	1	78 BR 6-5	3	DS	D	130	50	2	481.481	0	I	25	120.37	162.5		R	D	S	R								
1094	BM	1	78 BR 6-5	1	DS	D	80	40	2	237.037	0	I	100	237.037	320		R	P	S	R								
1095	BM	1	78 BR 6-5	1	DS	Q	190	65	2	914.815	0	I	75	686.111	926.25		R	C	S	R								
1096	BM	36	78 BR 6-5	3	DS	P	130	65	2	625.926	0	N	0	0	0		R	D	N	S								
1097	BM	6	78 BR 6-5	1	DS	P	160	50	2	592.593	0	I	25	148.148	200		R	P	S	R								
1098	BM	31	78 BR 6-5	4	DS	P	160	80	2	948.148	0	N	0	0	0		R	P	N	R								
1099	BM	31	78 BR 6-5	4	DS	P	200	130	2	1925.93	0	N	0	0	0		R	P	N	R								
1100	BM	31	78 BR 6-5	1	DS	P	145	50	2	537.037	0	N	0	0	0		R	P	N	S								
1101	BM	31	78 BR 6-5	3	DF	D	250	90	2	1666.67	400	I	50	833.333	1125		R	C	H	S								
1102	BM	31	78 BR 6-5	3	DS	Q	130	50	2	481.481	0	I	75	361.111	487.5		R	P	S	S								
1103	BR	30	78 BR 6-5	3	DS	P	110	100	2	814.815	0	I	75	611.111	825		R	P	H	S								
1104	BR	30	78 BR 6-7	2	DS	P	110	40	2	325.926	0	I	50	162.963	220		R	P	N	S								
1105	BR	30	78 BR 6-7	2	DS	D	210	130	2	2022.22	0	P	50	1011.11	1365		R	P	S	R								
1106	BR	25	78 BR 6-7	1	DS	P	130	40	2	385.185	0	P	50	192.593	260		R	P	S	R								
1107	BR	26	78 BR 6-7	2	DT	P	145	80	2	859.259	950	I	100	859.259	1160		R	C	H	R								
1108	BR	26	78 BR 6-7	2	DS	D	350	130	2	3370.37	0	P	25	842.593	1137.5		A	P	I	N								
1109	BR	24	78 BR 6-7	1	DS	D	70	40	2	207.407	0	P	100	207.407	280		R	P	S	R								
1110	BR	24	78 BR 6-7	1	DS	P	50	130	2	481.481	0	P	75	361.111	487.5		R	P	S	R								
1111	BP	24	78 BR 7-3	1	DS	P	65	50	2	240.741	0	P	25	60.1852	81.25		R	D	N	R								
1112	BP	18	78 BR 7-3	1	DS	P	50	40	2	148.148	0	P	100	148.148	200		R	P	S	N								
1113	BP	7	78 BR 7-3	3	DS	P	80	25	2	148.148	0	I	75	111.111	150		R	P	N	S								
1114	BP	7	78 BR 7-3	3	DS	P	110	25	2	203.704	0	I	75	152.778	206.25		R	P	N	S								
1115	BM	7	78 BR 7-3	2	DS	P	140	30	2	311.111	0	I	75	233.333	315		R	P	S	S								
1116	BM	7	78 BR 7-3	2	DS	P	50	25	2	92.5926	0	I	100	92.5926	125		R	P	S	R								
1117	BM	7	78 BR 7-3	2	DS	D	50	40	2	148.148	0	I	100	148.148	200		R	P	S	R								
1118	BM	7	78 BR 7-3	4	DS	P	100	50	2	370.37	0	N	0	0	0		R	D	N	R								
1119	BM	7	78 BR 7-3	2	DS	Q	40	25	2	74.0741	0	I	100	74.0741	100		R	P	S	S								
1120	BM	7	78 BR 7-3	4	DS	P	140	25	2	259.259	0	I	25	64.8148	87.5		R	P	N	S								
1121	BM	7	78 BR 7-3	2	DS	P	50	40	2	148.148	0	I	75	111.111	150		R	P	S	S								
1122	BM	6	78 BR 7-3	2	DS	P	145	40	2	429.63	0	I	50	214.815	290		R	P	N	S								
1123	BM	6	78 BR 7-3	2	DS	P	150	25	2	277.778	0	I	75	208.333	281.25		R	C	H	S								
1124	BM	6	78 BR 7-3	4	DS	P	90	25	2	166.667	0	I	25	41.6667	56.25		R	D	N	S								
1125	BM	6	78 BR 7-5	2	DS	P	100	50	2	370.37	0	I	75	277.778	375		R	P	S	S								
1126	BR	31	78 BR 7-5	3	DS	Q	170	25	2	314.815	0	I	25	78.7037	106.25		R	C	H	S								
1127	BR	31	78 BR 7-7	1	DS	Q	100	50	2	370.37	0	P	100	370.37	500		R	C	S	R								
1128	BR	31	78 BR 7-7	1	DS	D	100	40	2	296.296	0	P	100	296.296	400		R	P	S	N								
1129	BR	20	78 BR 7-7	1	DS	D	100	50	2	370.37	0	P	100	370.37	500		R	C	S	R								
1130	BR	20	78 BR 7-7	1	DS	D	80	100	2	592.593	0	P	100	592.593	800		R	P	S	I								
1131	BI	20	78 BR 7-7	1	DS	P	80	40	2	237.037	0	P	100	237.037	320		R	P	S	R								
1132	BI	20	78 BR 7-7	1	DS	D	210	30	2	466.667	0	P	50	233.333	315		R	P	S	R								
1133	BI	20	78 BR 7-7	1	DS	D	80	160	2	948.148	0	P	25	237.037	320		O	P	S	N								
1134	BI	20	78 BR 7-7	1	DS	D	100	80	2	592.593	0	P	25	148.148	200		R	P	S	N								
1135	BP	16	78 BR 8-2	2	DF	D	180	50	2	666.667	160	P	50	333.333	450		R	D	N	R								
1136	BP	16	78 BR 8-2	4	DS	P	50	40	2	148.148	0	N	0	0	0		R	P	N	N								
1137	BI	28	78 BR 8-7	1	DS	D	160	40	2	474.074	0	P	50	237.037	320		O	C	S	R								
1138	BI	28	78 BR 8-7	1	DS	D	240	65	2	1155.56	0	P	25	288.889	390		O	P	S	N								
1139	BM	33	78	4	DS	D	300	180	2	4000		P	100	4000	5400	95	R	P	S	R							Y	
1140	BM	33	78	4	DS	D	200	60	2	888.889		P	100	888.889	1200	95	R	P	S	R							Y	
1141	BM	33	78	2	DS	D	300	100	3	3333.33		P	100	3333.33	4500	95	R	P	S	R							Y	
1142	BM	34	78	4	DS	D	150	50	2	555.556		P	30	166.667	225	90	O	P	N	R							Y	
1143	BM	34	78	4	DS	D	150	80	4	1777.78		P	70	1244.44	1680	90	O	P	N	R							Y	
1144	BM	3	78	1	DS	D	30	50	2	111.111		P	100	111.111	150	98	R	P	S	R							Y	
1145	BM	3	78	1	DS	D	50	80	4	592.593		P	100	592.593	800	76	R	P	S	R							Y	
1146	BM	2	78	4	DS	D	40	100	3	444.444		P	100	444.444	600	80	R	P	I	R							Y	
1147	BM	2	78	1	DS	D	50	80	6	888.889		P	100	888.889	1200	78	R	C	S	R							Y	
1148	BM	2	78	1	DS	D	50	70	3	388.889		P	100	388.889	525	72	R	P	S	R							Y	
1149	BM	12	78	1	DS	D	200	75	7	3888.89		I	80	3111.11	4200	72	R	C	N	R							Y	
1150	BM	12	78	1	DS	D	50	30	5	277.778		I	50	138.889	187.5	60	R	C	N	N							Y	
1151	BM	12	78	1	DS	D	75	30	3	250		I	30	75	101.25	78	O	P	N	R							Y	
1152	BM	7	78	1	DS	D	50	100	10	1851.85		P	100	1851.85	2500	40	R	P	S	R							Y	
1153	BM	7	78	1	DS	D	40	20	2	59.2593		P	100	59.2593	80	75	R	P	S	R							Y	
1154	BM	7	78	1	DS	D	50	30	4	222.222		P	100	222.222	300	80	R	P	S	R							Y	
1155	BM	7	78	1	DS	D	80	100	3	888.889		P	100	888.889	1200	82	R	P	S	R							Y	
1156	BM	2	78	1	DS	D	200	70	5	2592.59		P	90	2333.33	3150	88	R	P	N	R							Y	
1157	BM	2	78	4	DS	D	250	190	5	8796.3		P	80	7037.04	9500	68	R	P	N	R							Y	
1158	BM	2	78	1	DS	D	30	50	10	555.556		P	100	555.556	750	60	R	P	S	R							Y	
1159	BM	10	78	1	DS	D	30	120	2	266.667		P	100	266.667	360	88	R	P	S	N							Y	
1160	BM	10	78	1	DS	D	100	50	7	1296.3		P	100	1296.3	1750	104	R	P	S	R							Y	
1161	BT	19	87 M20-55	1	DS	D	60	40	2	177.778	0	P	100	177.778	240		O	C	I	N								
1162	BT	19	87 M20-55	1	DS	D	60	40	2	177.778	0	P	100	177.778	240		O	C	I	N								
1163	BT	19	87 M20-55	4	DS	P	120	30	2	266.667	0	N	0	0	0		R	P	N	R								
1164	BT	19	87 M20-55	3	DS	Q	80	25	2	148.148	0	N	0	0	0		R	P	N	R								
1165	BT	19	87 M20-55	1	DS	Q	35	20	2	51.8519	0	I	100	51.8519	70		R	P	S	N								
1166	BT	19	87 M20-55	3	DS	Q	35	20	2	51.8519	0	I	100	51.8519	70		R	P	S	N								
1167	BT	19	87 M20-55	4	DS	P	150	30	2	333.333	0	I	50	166.667	225		O	C	H	R								

							Size						Shallow landslides								Deep-seated landslides							
ID# Unique	PWS	Sec #	Air Photo year - number	MWMU	Landslide Type DS DF DT EF RS	Certainty D P Q	Length ft	Width ft	Depth ft	Slide Vol yd^3	Torrent Length ft	Sed Routing P I N	Sed Del Ratio 25 50 75 100 (%)	Sediment Delivery yd^3	Sediment Delivery tons	Slope (field) (%)	Age A R O	Slope Form C D P	Slide Loc. H S I N	Road Assoc. R S L N I	Toe Activity 1 2 3 4 5	Body Morph. 1 2 3 4 5	Lat. Scarps 1 2 3 4 5	Main Scarps 1 2 3 4 5	DS Veg. 1 2 3 4	Complex Y N	Field Obs. Y N	Comments
1168	BT	25	87 M20-55	1	DS	D	60	40	2	177.778	0	P	100	177.778	240		R	P	I	N								
1169	BT	24	87 M20-57	1	DS	D	95	35	2	246.296	0	P	100	246.296	332.5		R	P	S	R								
1170	BT	24	87 M20-57	1	DS	D	85	40	2	251.852	0	P	100	251.852	340		R	P	S	R								
1171	BT	24	87 M20-57	1	DS	D	80	40	2	237.037	0	I	75	177.778	240		O	P	S	R								
1172	BT	24	87 M20-57	1	DT	P	80	30	2	177.778	275	I	100	177.778	240		R	C	H	S								Torrent width 10' X 1' deep
1173	BL	24	87 M20-57	1	DS	P	95	20	2	140.741	0	I	75	105.556	142.5		R	P	S	N								
1174	BL	18	87 M20-57	4	DS	Q	75	20	2	111.111	0	I	50	55.5556	75		R	P	N	R								
1175	BT	24	87 M20-57	2	DS	P	95	50	2	351.852	0	I	25	87.963	118.75		R	C	S	R								
1176	BT	13	87 M20-57	4	DS	Q	75	15	2	83.3333	0	I	25	20.8333	28.125		R	P	N	S								
1177	BT	18	87 M20-57	3	DS	Q	70	35	2	181.481	0	I	100	181.481	245		R	P	S	N								
1178	BT	30	87 M21-50	1	DS	D	245	100	4	3629.63	0	P	75	2722.22	3675		O	C	I	N								
1179	BT	30	87 M21-50	1	DS	D	60	40	2	177.778	0	P	100	177.778	240		R	P	I	N								
1180	BT	30	87 M21-50	1	DS	D	70	40	2	207.407	0	P	100	207.407	280		R	P	I	N								
1181	BT	30	87 M22-48	1	DS	D	130	60	2	577.778	0	P	100	577.778	780		O	P	I	R								
1182	BT	30	87 M22-48	1	DS	D	95	40	2	281.481	0	P	100	281.481	380		R	P	I	R								
1183	BT	32	87 M22-48	1	DS	P	120	60	2	533.333	0	I	25	133.333	180		R	P	S	R								
1184	BT	32	87 M22-48	1	DS	D	210	60	2	933.333	0	I	50	466.667	630		R	P	S	R								
1185	BT	32	87 M22-48	3	DS	P	120	30	2	266.667	0	N	0	0	0		O	C	H	S								
1186	BT	32	87 M22-48	3	DS	D	210	40	2	622.222	0	I	50	311.111	420		R	P	N	R								
1187	BT	32	87 M22-48	3	DS	P	60	50	2	222.222	0	I	100	222.222	300		R	P	S	S								
1188	BT	32	87 M22-48	1	DS	P	70	20	2	103.704	0	I	25	25.9259	35		R	P	S	R								
1189	BT	32	87 M22-48	1	DS	P	50	30	2	111.111	0	I	25	27.7778	37.5		R	P	S	R								
1190	BT	32	87 M22-48	1	DS	D	60	70	2	311.111	0	I	25	77.7778	105		R	P	S	R								
1191	BT	32	87 M22-48	1	DS	D	60	50	2	222.222	0	I	50	111.111	150		R	P	S	R								
1192	BT	32	87 M22-48	1	DS	P	75	30	2	166.667	0	I	50	83.3333	112.5		R	C	N	S								
1193	BT	4	87 M22-48	1	DS	P	70	30	2	155.556	0	I	75	116.667	157.5		R	C	S	S								
1194	BT	4	87 M22-48	1	DS	D	85	30	2	188.889	0	I	75	141.667	191.25		R	D	S	R								
1195	BT	4	87 M22-48	3	DS	D	130	25	2	240.741	0	I	25	60.1852	81.25		R	C	H	R								
1196	BT	4	87 M22-48	1	DS	P	150	50	2	555.556	0	I	75	416.667	562.5		R	P	S	N								
1197	BT	33	87 M22-48	3	DS	D	240	30	2	533.333	0	I	25	133.333	180		R	P	H	R								
1198	BT	33	87 M22-48	4	DS	P	110	60	2	488.889	0	I	50	244.444	330		R	P	N	S								
1199	BT	32	87 M22-48	1	DS	D	100	75	2	555.556	0	P	25	138.889	187.5		R	C	I	R								
1200	BT	32	87 M22-48	1	DS	D	70	60	2	311.111	0	P	100	311.111	420		R	P	I	N								
1201	BT	29	87 M22-48	1	DS	D	100	20	2	148.148	0	P	100	148.148	200		R	P	I	N								
1202	BT	29	87 M22-48	1	DS	P	180	35	2	466.667	0	I	100	466.667	630		R	C	S	S								
1203	BT	33	87 M22-48	1	DS	D	90	50	2	333.333	0	I	50	166.667	225		R	P	S	R								
1204	BT	32	87 M22-48	1	DS	P	70	50	2	259.259	0	I	100	259.259	350		R	P	S	S								
1205	BT	28	87 M22-50	1	DS	D	95	80	2	562.963	0	P	100	562.963	760		R	P	I	N								
1206	BL	29	87 M22-50	3	DS	D	210	160	2	2488.89	0	P	50	1244.44	1680		R	C	I	R								
1207	BL	29	87 M22-50	3	DS	D	280	130	2	2696.3	0	P	50	1348.15	1820		O	C	I	R								
1208	BL	20	87 M22-50	1	DS	D	95	50	2	351.852	0	P	100	351.852	475		R	P	I	N								
1209	BL	20	87 M22-50	1	DS	D	60	70	2	311.111	0	P	100	311.111	420		R	P	I	N								
1210	BL	20	87 M22-50	4	DS	P	95	40	2	281.481	0	I	50	140.741	190		R	C	H	S								
1211	BL	20	87 M22-50	1	DS	D	155	50	2	574.074	0	P	50	287.037	387.5		O	P	I	R								
1212	BL	20	87 M22-50	1	DS	D	180	75	2	1000	0	P	25	250	337.5		O	P	I	R								
1213	BL	20	87 M22-50	3	DS	P	130	30	2	288.889	0	I	50	144.444	195		R	P	N	N								
1215	BL	21	87 M22-50	4	DF	D	70	50	2	259.259	95	I	25	64.8148	87.5		R	C	N	R								
1216	BL	17	87 M22-52	1	DS	D	60	60	2	266.667	0	P	100	266.667	360		R	P	I	N								
1217	BL	17	87 M22-52	1	DS	D	100	100	2	740.741	0	P	50	370.37	500		R	P	I	N								
1218	BL	17	87 M22-52	1	DS	D	70	30	2	155.556	0	P	50	77.7778	105		R	C	N	R								
1219	BL	17	87 M22-52	4	DS	Q	120	60	2	533.333	0	N	0	0	0		O	C	N	N								
1220	BM	9	87 M23-46	4	DS	P	110	30	2	244.444	0	I	25	61.1111	82.5		R	P	N	R								
1221	BM	10	87 M23-46	3	DS	Q	245	30	2	544.444	0	I	50	272.222	367.5		O	C	N	S								
1222	BM	10	87 M23-46	3	DS	P	60	30	2	133.333	0	N	0	0	0		R	P	N	N								
1224	BM	4	87 M23-46	2	DS	D	60	50	2	222.222	0	I	100	222.222	300		R	D	S	N								
1226	BM	3	87 M23-46	1	DS	P	120	25	2	222.222	0	I	50	111.111	150		R	C	S	R								
1227	BM	3	87 M23-46	1	DS	D	60	25	2	111.111	0	I	25	27.7778	37.5		R	P	S	R								
1228	BM	3	87 M23-46	1	DS	P	60	20	2	88.8889	0	I	25	22.2222	30		R	P	S	R								
1229	BM	3	87 M23-46	3	DS	P	85	35	2	220.37	0	N	0	0	0		R	P	H	S								
1230	BT	3	87 M23-46	3	DS	D	180	40	2	533.333	0	I	100	533.333	720		R	C	N	R								
1231	BT	3	87 M23-46	3	DS	D	130	35	2	337.037	0	I	50	168.519	227.5		R	C	H	R								
1232	BM	3	87 M23-48	3	DS	D	90	25	2	166.667	0	I	100	166.667	225		R	C	N	R								X-ing blowout
1233	BT	33	87 M23-48	1	DS	P	90	40	2	266.667	0	P	75	200	270		R	P	N	R								
1234	BT	28	87 M23-48	1	DS	D	110	45	2	366.667	0	P	75	275	371.25		R	D	N	R								
1235	BL	28	87 M23-50	1	DS	Q	65	50	2	240.741	0	I	25	60.1852	81.25		R	P	N	S								
1236	BR	21	87 M23-50	3	DS	D	180	50	2	666.667	0	I	50	333.333	450		R	C	H	N								
1237	BE	21	87 M23-50	3	DS	P	160	50	2	592.593	0	I	50	296.296	400		R	C	N	N								
1238	BE	16	87 M23-50	1	DS	D	60	50	2	222.222	0	P	100	222.222	300		R	P	S	N								
1239	BE	16	87 M23-50	1	DS	D	140	40	2	414.815	0	P	50	207.407	280		R	P	I	S								
1240	BE	16	87 M23-52	1	DS	D	250	100	2	1851.85	0	I	25	462.963	625		R	P	N	R								Cutslope failure
1241	BM	16	87 M24-40	1	DS	P	100	40	2	296.296	0	P	50	148.148	200		R	P	S	S								
1242	BM	16	87 M24-40	1	DS	P	85	40	2	251.852	0	I	75	188.889	255		O	P	N	N								
1243	BM	16	87 M24-40	1	DS	D	370	75	2	2055.56	0	P	75	1541.67	2081.25		R	C	I	R								
1244	BM	16	87 M24-40	1	DS	P	230	30	2	511.111	0	I	75	383.333	517.5		R	C	H	N								
1245	BM	16	87 M24-42	1	DS	D	110	50	2	407.407	0	I	50	203.704	275		O	C	N	N								
1246	BM	10	87 M24-42	1	DS	P	70	40	2	207.407	0	I	75	155.556	210		R	P	S	N								
1247	BM	11	87 M24-42	1	DS	D	300	30	2	666.667	0	P	75	500	675		R	C	N	R								
1248	BM	2	87 M24-42	1	DS	P	130	55	2	529.63	0	P	100	529.63	715		R	P	I	R								
1249	BM	3	87 M24-42	1	DS	D	95	50	2	351.852	0	P	100	351.852	475		R	P	I	R								
1250	BM	3	87 M24-42	1	DS	D	95	50	2	351.852	0	P	100	351.852	475		R	P	I	R								
1251	BM	3	87 M24-44	1	DS	D	145	45	2	483.333	0	P	75	362.5	489.375		R	P	I	N								
1253	BM	3	87 M24-44	1	DS	D	125	100	2	925.926	0	P	100	925.926	1250		R	C	I	R								
1254	BM	27	87 M24-44	1	DS	D	180	45	2	600	0	P	100	600	810		R	P	I	R								
1255	BR	27	87 M24-46	1	DS	D	110	45	2	366.667	0	P	75	275	371.25		R	P	I	R								
1256	BR	27	87 M24-46	1	DS	D	190	60	2	844.444	0	P	50	422.222	570		R	P	I	R								
1257	BR	23	87 M24-48	3	DS	P	70	30	2	155.556	0	I	75	116.667	157.5		R	P	N	N								
1258	BE	15	87 M24-48	2	DS	P	50	30	2	111.111	0	I	75	83.3333	112.5		R	P	S	R								
1259	BE	15	87 M24-48	2	DS	Q	60	50	2	222.222	0	I	75	166.667	225		R	P	N	R								

													Shallow landslides								Deep-seated landslides							
ID#		Sec	Air Photo		Landslide	Certainty	Size				Torrent	Sed	Sed Del			Slope		Slope	Slide	Road	Toe	Body	Lat.	Main	DS	Complex	Field	
					Type		Length	Width	Depth	Slide	Length	Routing	Ratio	Sediment	Sediment	(field)	Age	Form	Loc.	Assoc.	Activity	Morph.	Scarps	Scarps	Veg.		Obs.	Comments
Unique		#	year - number		DS DF DT	D P Q	ft	ft	ft	Vol	ft	P I N	25 50 75	Delivery	Delivery	(%)	A R O	C D P	H S I N	R S L	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3 4	Y N	Y N	
	PWS			MWMU	EF RS					yd^3			100 (%)	yd^3	tons					N I	4 5	4 5	4 5	4 5				
1260	BE	15	87 M24-48	2	DS	Q	75	35	2	194.444	0	I	75	145.833	196.875		R	P	N	R								
1261	BE	10	87 M24-50	3	DS	D	130	70	2	674.074	0	I	50	337.037	455		R	P	N	N								
1262	BE	10	87 M24-50	2	DS	D	60	55	2	244.444	0	I	100	244.444	330		R	P	S	R								
1263	BM	23	87 M25-41	3	DS	D	180	50	2	666.667	0	I	100	666.667	900		R	C	H	S								
1264	BM	14	87 M25-41	1	DS	P	130	40	2	385.185	0	I	75	288.889	390		R	P	H	I								
1265	BM	14	87 M25-41	1	DS	D	70	50	2	259.259	0	P	100	259.259	350		O	C	I	N								
1266	BM	14	87 M25-41	1	DS	P	150	30	2	333.333	0	P	100	333.333	450		O	P	I	N								
1267	BM	14	87 M25-43	1	DS	P	240	50	2	888.889	0	I	50	444.444	600		O	C	N	R								
1268	BM	11	87 M25-43	1	DS	D	120	80	2	711.111	0	O	100	711.111	960		R	P	I	N								
1269	BM	11	87 M25-43	3	DS	D	95	40	2	281.481	0	O	25	70.3704	95		R	C	I	R								
1270	BM	11	87 M25-43	3	DS	P	60	50	2	222.222	0	N	0	0	0		R	P	I	R								
1271	BM	11	87 M25-43	3	DS	D	110	80	2	651.852	0	N	0	0	0		R	P	N	R								
1273	BM	2	87 M25-43	1	DS	D	90	75	2	500	0	O	100	500	675		R	C	I	R								
1274	BM	2	87 M25-43	1	DS	D	60	75	2	333.333	0	O	100	333.333	450		R	P	I	R								
1275	BM	1	87 M25-43	4	DS	P	75	50	2	277.778	0	N	0	0	0		R	C	N	R								
1276	BM	1	87 M25-43	1	DS	D	80	100	2	592.593	0	P	75	444.444	600		R	P	S	N								Off toe of DSL
1277	BM	13	87 M25-43	1	DS	P	60	70	2	311.111	0	N	0	0	0		R	P	N	R								
1278	BM	13	87 M25-43	1	DS	D	110	70	2	570.37	0	P	75	427.778	577.5		R	P	S	R								
1279	BM	2	87 M25-45	4	DS	D	245	100	2	1814.81	0	P	25	453.704	612.5		O	C	I	R								
1280	BM	2	87 M25-45	1	DS	D	70	50	2	259.259	0	P	100	259.259	350		R	P	I	R								
1281	BM	2	87 M25-45	1	DS	P	70	40	2	207.407	0	P	100	207.407	280		R	C	I	R								
1282	BM	2	87 M25-45	4	DS	P	95	40	2	281.481	0	P	50	140.741	190		R	P	I	R								
1283	BM	2	87 M25-45	1	DS	D	60	50	2	222.222	0	P	100	222.222	300		O	P	I	R								
1284	BM	2	87 M25-45	1	DS	Q	75	75	2	416.667	0	I	50	208.333	281.25		R	P	N	S								
1285	BM	2	87 M25-45	3	DS	D	125	60	2	555.556	0	I	75	416.667	562.5		R	C	H	I								
1286	BM	35	87 M25-45	3	DS	Q	70	40	2	207.407	0	I	50	103.704	140		R	P	S	S								
1287	BM	2	87 M25-45	1	DS	Q	130	40	2	385.185	0	I	50	192.593	260		O	C	H	N								
1288	BM	35	87 M25-45	3	DS	P	150	40	2	444.444	0	I	25	111.111	150		R	P	N	N								
1289	BM	26	87 M25-47	3	DS	D	260	60	2	1155.56	0	I	50	577.778	780		R	P	H	N								
1290	BM	26	87 M25-47	3	DS	P	95	30	2	211.111	0	N	0	0	0		R	C	N	S								
1291	BR	26	87 M25-47	2	DS	D	125	75	2	694.444	0	I	75	520.833	703.125		R	C	H	R								
1292	BR	26	87 M25-47	2	DS	P	155	25	2	287.037	0	I	25	71.7593	96.875		R	P	N	R								
1293	BR	26	87 M25-47	2	DS	P	95	50	2	351.852	0	I	25	87.963	118.75		R	P	S	N								
1294	BR	26	87 M25-47	2	DS	Q	100	35	2	259.259	0	P	100	259.259	350		R	P	I	R								
1295	BR	26	87 M25-47	1	DS	P	100	40	2	296.296		P	50	148.148	200		R	C	I	N								
1296	BR	26	87 M25-47	1	DS	D	70	40	2	207.407		P	100	207.407	280		R	P	I	R								
1297	BE	14	87 M25-49	4	DS	D	135	30	2	300		I	50	150	202.5		R	C	H	R								
1298	BE	14	87 M25-51	1	DS	P	60	30	2	133.333		I	75	100	135		R	D	S	R								
1299	BE	14	87 M25-51	4	DS	D	120	75	2	666.667		I	25	166.667	225		R	P	N	S								
1300	BE	14	87 M25-51	1	DS	P	85	50	2	314.815		I	50	157.407	212.5		R	P	S	S								
1301	BM	24	87 M26-39	3	DS	D	75	70	2	388.889		P	100	388.889	525		R	D	S	N								
1302	BM	13	87 M26-39	1	DS	D	70	55	2	285.185		P	100	285.185	385		R	P	S	N								
1303	BM	13	87 M26-39	1	DS	D	110	50	2	407.407		N	0	0	0		R	C	N	R								
1304	BM	13	87 M26-39	3	DT	D	180	50	2	666.667		P	25	166.667	225		R	C	H	S								Torrent width ~ 10'
1305	BM	18	87 M26-39	4	DS	Q	60	60	2	266.667		N	0	0	0		R	P	N	S								
1306	BM	13	87 M26-39	4	DS	Q	70	30	2	155.556		N	0	0	0		R	P	N	S								
1307	BM	13	87 M26-39	3	DS	D	70	30	2	155.556		I	50	77.7778	105		R	P	S	R								
1308	BM	13	87 M26-39	4	DS	P	150	50	2	555.556		N	0	0	0		R	P	H	S								
1309	BM	7	87 M26-41	2	DS	D	90	25	2	166.667		I	75	125	168.75		R	C	H	R								
1310	BM	7	87 M26-41	3	DT	D	240	65	2	1155.56		I	100	1155.56	1560		R	P	H	L								
1311	BM	7	87 M26-41	4	DS	D	85	100	2	629.63		N	0	0	0		R	C	H	S								Torrent width ~ 10'
1312	BM	12	87 M26-41	3	DS	D	180	50	2	666.667		I	25	166.667	225		R	C	H	S								
1313	BM	12	87 M26-41	1	DS	D	155	75	2	861.111		P	50	430.556	581.25		R	P	S	S								
1314	BM	12	87 M26-41	1	DS	D	100	40	2	296.296		I	25	74.0741	100		R	P	N	R								
1315	BM	7	87 M26-41	3	DS	D	125	80	2	740.741		N	0	0	0		R	C	H	I								
1316	BM	7	87 M26-41	3	DS	P	100	35	2	259.259		N	0	0	0		R	P	N	I								
1317	BM	7	87 M26-41	1	DS	D	130	40	2	385.185		I	50	192.593	260		R	P	S	S								
1318	BM	7	87 M26-41	4	DS	P	180	50	2	666.667		I	25	166.667	225		R	P	N	R								
1319	BM	7	87 M26-41	4	DT	D	120	50	2	444.444		I	50	222.222	300		R	C	H	R								
1320	BM	7	87 M26-41	4	DS	P	150	80	2	888.889		I	25	222.222	300		R	P	N	R								
1321	BM	7	87 M26-41	3	DF	D	130	45	2	433.333		I	50	216.667	292.5		R	P	N	S								
1322	BM	12	87 M26-41	4	DS	D	90	40	2	266.667		N	25	66.6667	90		R	C	H	R								
1323	BM	12	87 M26-41	3	DF	D	125	50	2	462.963		I	75	347.222	468.75		R	C	H	I								
1324	BM	7	87 M26-41	1	DS	D	70	40	2	207.407		I	50	103.704	140		R	P	S	R								
1325	BM	7	87 M26-41	1	DS	P	70	40	2	207.407		I	75	155.556	210		R	P	S	R								
1326	BM	7	87 M26-41	3	DS	P	100	30	2	222.222		N	0	0	0		R	P	N	S								
1327	BM	1	87 M26-43	1	DS	D	90	35	2	233.333		I	100	233.333	315		R	P	S	R								
1328	BM	1	87 M26-43	2	DS	D	85	40	2	251.852		I	75	188.889	255		R	P	S	N								
1329	BM	6	87 M26-43	1	DS	P	90	80	2	533.333		I	75	400	540		R	P	S	R								
1330	BM	6	87 M26-43	1	DS	P	90	50	2	333.333		N	0	0	0		R	C	N	S								
1331	BM	6	87 M26-43	3	DS	D	170	55	2	692.593		I	25	173.148	233.75		R	C	N	R								
1332	BM	6	87 M26-43	3	DS	P	145	35	2	375.926		I	25	93.9815	126.875		R	P	N	R								
1333	BM	31	87 M26-43	1	DS	P	70	100	2	518.519		I	50	259.259	350		R	P	N	R								
1334	BM	31	87 M26-43	4	DF	D	90	50	2	333.333		I	50	166.667	225		R	P	N	S								
1335	BM	36	87 M26-43	3	DS	P	150	60	2	666.667		I	50	333.333	450		O	C	H	S								
1336	BR	36	87 M26-45	3	DT	D	180	40	2	533.333		I	100	533.333	720		R	P	N	L								
1337	BR	31	87 M26-45	3	DF	D	60	70	2	311.111		I	50	155.556	210		R	C	N	L								
1338	BR	30	87 M26-45	2	DS	D	125	50	2	462.963		I	75	347.222	468.75		R	C	N	S								
1339	BR	30	87 M26-45	3	DF	D	145	50	2	537.037		I	50	268.519	362.5		R	C	H	L								
1340	BR	30	87 M26-45	3	DF	D	240	65	2	1155.56	0	I	25	288.889	390		R	C	N	N								
1341	BR	25	87 M26-45	1	DS	P	30	40	2	88.8889	0	P	100	88.8889	120		R	P	S	R								
1342	BR	25	87 M26-45	3	DS	D	195	240	2	3466.67	0	P	100	3466.67	4680		R	P	S	R								
1343	BR	30	87 M26-45	3	DF	D	300	40	2	888.889	0	I	75	666.667	900		R	C	H	R								
1344	BM	7	87 M27-41	1	DS	D	110	40	2	325.926	0	I	50	162.963	220		R	D	S	R								
1345	BM	7	87 M27-41	2	DS	D	60	30	2	133.333	0	I	25	33.3333	45		R	D	S	R								
1346	BM	6	87 M27-43	3	DS	P	65	50	2	240.741	0	I	50	120.37	162.5		R	P	S	R								
1347	BM	6	87 M27-43	3	DS	D	70	55	2	285.185	0	N	0	0	0		R	P	H	S								
1348	BM	6	87 M27-43	2	DS	Q	70	50	2	259.259	0	I	25	64.8148	87.5		R	P	N	S								

							Size						Shallow landslides								Deep-seated landslides							
ID# Unique	PWS	Sec #	Air Photo year - number	MWMU	Landslide Type DS DF DT EF RS	Certainty D P Q	Length ft	Width ft	Depth ft	Slide Vol yd^3	Torrent Length ft	Sed Routing P I N	Sed Del Ratio 25 50 75 100 (%)	Sediment Delivery yd^3	Sediment Delivery tons	Slope (field) (%)	Age A R O	Slope Form C D P	Slide Loc. H S I N	Road Assoc. R S L N I	Toe Activity 1 2 3 4 5	Body Morph. 1 2 3 4 5	Lat. Scarps 1 2 3 4 5	Main Scarps 1 2 3 4 5	DS Veg. 1 2 3 4	Complex Y N	Field Obs. Y N	Comments
1349	BM	6	87 M27-43	2	DF	P	240	55	2	977.778	0	I	75	733.333	990		R	P	S	S								
1350	BM	31	87 M27-43	2	DF	P	85	50	2	314.815	0	I	100	314.815	425		R	C	N	S								
1351	BM	31	87 M27-43	2	DF	D	85	50	2	314.815	0	I	25	78.7037	106.25		R	P	N	S								
1352	BR	31	87 M27-43	2	DS	P	60	50	2	222.222	0	I	75	166.667	225		R	P	N	R								
1353	BR	31	87 M27-43	2	DS	Q	60	20	2	88.8889	0	I	50	44.4444	60		R	P	N	R								
1354	BR	31	87 M27-43	2	DS	Q	50	20	2	74.0741	0	I	50	37.037	50		R	P	N	R								
1355	BR	31	87 M27-43	2	DS	P	60	45	2	200	0	I	75	150	202.5		R	P	N	R								
1356	BR	31	87 M27-43	2	DS	D	60	35	2	155.556	0	I	100	155.556	210		R	C	N	S								
1357	BR	31	87 M27-43	4	DS	D	90	80	2	533.333	0	I	75	400	540		R	P	S	S								
1358	BR	31	87 M27-43	4	DS	P	60	40	2	177.778	0	I	75	133.333	180		R	P	S	S								
1360	BR	29	87 M27-45	3	DF	D	180	30	2	400	0	I	50	200	270		R	C	H	R								
1361	BR	29	87 M27-45	3	DF	D	70	30	2	155.556	0	I	50	77.7778	105		R	C	H	N								
1362	BR	30	87 M27-45	3	DF	D	230	40	2	681.481	0	I	50	340.741	460		R	C	H	R								
1363	BR	30	87 M27-45	3	DF	D	85	30	2	188.889	0	I	75	141.667	191.25		R	P	H	N								
1364	BR	30	87 M27-45	3	DS	D	150	100	2	1111.11	0	I	50	555.556	750		R	P	H	I								
1365	BR	30	87 M27-45	3	DS	D	240	35	2	622.222	0	I	75	466.667	630		R	C	H	R								
1366	BR	19	87 M27-45	4	DS	D	190	90	2	1266.67	0	P	75	950	1282.5		R	P	N	R								
1367	BR	19	87 M27-45	4	DS	D	100	80	2	592.593	0	P	25	148.148	200		R	P	N	R								
1368	BP	7	87 M28A-8	1	DS	D	180	75	4	2000	0	P	100	2000	2700		R	P	N	N								
1369	BR	30	87 M28A-11	4	DS	D	125	160	2	1481.48	0	I	75	1111.11	1500		R	P	S	R								
1370	BR	30	87 M28A-11	4	DS	D	180	60	2	800	0	I	50	400	540		R	P	S	R								
1372	BI	20	87 M28A-13	1	DS	D	90	100	2	666.667	0	P	100	666.667	900		R	C	I	N								
1373	BS	20	87 M28A-6	1	DS	D	330	75	4	3666.67	0	I	25	916.667	1237.5		O	C	H	N								
1374	BS	20	87 M28A-4	1	DS	P	170	40	2	503.704	0	I	50	251.852	340		R	P	N	R								
1375	BS	20	87 M28A-4	1	DF	D	150	45	2	500		I	25	125	168.75		R	P	N	L								
1376	BS	20	87 M28A-4	1	DT	D	80	60	2	355.556	425	I	100	355.556	480		R	P	H	L								Torrent width ~ 15'
1377	BS	20	87 M28A-4	1	DS	P	125	50	2	462.963	0	I	75	347.222	468.75		R	C	N	R								
1378	BS	4	87 M29-33	1	DS	D	125	70	2	648.148	0	N	0	0	0		R	P	N	R								
1379	BS	4	87 M29-33	1	DS	P	125	40	2	370.37	0	P	75	277.778	375		R	D	I	R								
1380	BS	4	87 M29-33	1	DS	D	160	40	2	474.074	0	P	50	237.037	320		R	D	I	R								
1381	BS	4	87 M29-33	1	DS	D	100	100	2	740.741	0	P	75	555.556	750		R	P	I	R								
1382	BS	5	87 M29-33	3	DS	D	150	75	2	833.333	0	I	50	416.667	562.5		R	P	N	N								
1383	BS	5	87 M29-33	3	DS	P	90	50	2	333.333	0	I	25	83.3333	112.5		R	P	N	N								
1384	BS	5	87 M29-33	1	DS	D	425	75	2	2361.11	0	P	50	1180.56	1593.75		R	C	H	N								
1385	BS	5	87 M29-33	3	DS	D	210	50	2	777.778	0	P	50	388.889	525		R	C	N	S								
1386	BS	33	87 M29-33	4	DS	D	95	100	2	703.704	0	P	50	351.852	475		R	P	S	R								Off toe of DSL
1387	BS	33	87 M29-33	4	DS	D	230	40	2	681.481	0	P	75	511.111	690		R	P	S	L								
1388	BS	32	87 M29-33	4	DS	P	180	80	2	1066.67	0	N	0	0	0		R	P	N	S								
1389	BS	32	87 M29-33	4	DF	D	90	70	2	466.667	0	I	25	116.667	157.5		R	D	N	L								
1390	BS	10	87 M30-36	4	DS	P	130	45	2	433.333	0	I	25	108.333	146.25		R	P	N	S								
1391	BS	10	87 M30-36	4	DS	D	90	75	2	500	0	N	0	0	0		R	P	N	S								
1392	BS	10	87 M30-36	1	DS	P	70	50	2	259.259	0	P	25	64.8148	87.5		R	P	S	R								
1393	BS	10	87 M30-36	1	DS	D	100	80	2	592.593	0	P	75	444.444	600		R	C	S	R								
1394	BS	4	87 M30-36	1	DS	P	90	45	2	300	0	I	25	75	101.25		R	P	N	S								
1395	BS	4	87 M30-36	4	DF	D	125	80	2	740.741	0	I	100	740.741	1000		R	C	H	R								
1396	BS	33	87 M30-38	4	DS	D	210	100	4	3111.11	0	I	25	777.778	1050		R	P	N	N								
1397	BS	34	87 M30-38	3	DS	D	70	40	2	207.407	0	I	25	51.8519	70		R	P	H	N								
1398	BS	34	87 M30-38	1	DS	D	125	60	2	555.556	0	P	75	416.667	562.5		R	P	S	N								
1399	BS	34	87 M30-38	1	DS	P	170	50	4	1259.26	0	P	50	629.63	850		O	P	N	R								
1400	BT	4	87 M20-55	1	DS	P	120	30	2	266.667	0	P	75	200	270		O	P	I	N								
1401	BT	24	78 BR 2-3	1	DS	Q	27	44	4	176	0	P	100	176	237.6		R	C	S	R								
1402	BT	23	78 BR 2-3	1	DS	Q	27	22	2	44	0	I	25	11	14.85		R	C	N	L								
1403	BT	24	78 BR 2-3	3	DS	Q	54	22	2	88	0	I	50	44	59.4		R	P	S	R								
1404	BT	24	78 BR 2-3	3	DS	Q	54	22	2	88	0	I	100	88	118.8		R	P	S	R								
1405	BT	19	78 BR 2-3	3	DS	Q	27	22	2	44	0	I	25	11	14.85		R	P	N	N								
1406	BT	19	78 BR 2-3	3	DT	P	106	22	4	345.481	270	I	75	259.111	349.8		R	C	H	R								
1407	BT	14	78 BR 2-5	1	DS	P	81	44	2	264	0	P	100	264	356.4		R	P	S	R								
1408	BT	13	78 BR 2-5	1	DS	Q	27	20	2	40	0	I	100	40	54		R	C	S	R								
1409	BT	13	78 BR 2-5	4	DS	Q	54	20	2	80	0	N		0	0		R	C	N	N								
1410	BT	13	78 BR 2-5	4	DS	D	215	67	4	2134.07	0	I	75	1600.56	2160.75		R	P	S	S								
1411	BT	19	78 BR 3-5	4	DS	P	107	44	2	348.741	0	I	100	348.741	470.8		R	P	S	I								
1412	BT	19	78 BR 3-5	3	DS	Q	54	22	2	88	0	I	100	88	118.8		R	P	N	S								
1413	BT	28	78 BR 4-6	1	DS	Q	107	22	2	174.37	0	P	50	87.1852	117.7		R	C	S	S								
1414	BT	28	78 BR 4-6	4	DT	Q	107	66	4	1046.22	215	N		0	0		R	C	N	R								
1415	BT	28	78 BR 4-6	1	DS	Q	161	66	2	787.111	0	P	100	787.111	1062.6		R	P	S	R								
1416	BT	28	78 BR 4-6	1	DS	Q	107	22	2	174.37	0	P	100	174.37	235.4		R	P	S	N								
1417	BT	33	78 BR 4-5	1	DS	Q	27	22	2	44	0	P	100	44	59.4		R	P	S	R								
1418	BT	33	78 BR 4-5	1	DS	Q	27	44	2	88	0	P	100	88	118.8		R	P	S	R								
1419	BT	33	78 BR 4-5	1	DS	Q	54	198	2	792	0	P	100	792	1069.2		R	C	S	S								
1420	BT	33	78 BR 4-5	4	DS	P	134	44	2	436.741	0	I	25	109.185	147.4		R	C	N	S								
1421	BT	33	78 BR 4-5	4	DS	P	134	66	2	655.111	0	I	100	655.111	884.4		R	P	S	S								
1422	BT	33	78 BR 4-5	4	DS	P	537	44	4	3500.44	0	I	75	2625.33	3544.2		R	C	N	S								
1423	BT	4	78 BR 4-5	3	DS	Q	27	66	2	132	0	I	100	132	178.2		R	C	N	S								
1424	BT	4	78 BR 4-5	3	DS	Q	81	44	2	264	0	I	100	264	356.4		R	C	N	S								
1425	BT	4	78 BR 4-5	3	DS	Q	27	22	2	44	0	I	50	22	29.7		R	C	N	S								
1426	BT	4	78 BR 4-5	4	DS	Q	54	22	2	88	0	I	100	88	118.8		R	C	S	S								
1427	BM	9	78 BR 4-3	1	DS	Q	54	154	2	616	0	P	100	616	831.6		R	P	S	R								
1428	BM	33	78 BR 4-5	2	DS	Q	107	44	2	348.741	0	I	25	87.1852	117.7		R	C	N	N								
1429	BM	33	78 BR 4-5	2	DS	Q	161	20	2	238.519	0	I	25	59.6296	80.5		O	C	N	S								
1430	BM	34	78 BR 4-5	1	DS	P	94	188	2	1309.04	0	P	100	1309.04	1767.2		R	C	I	N								
1431	BM	34	78 BR 4-5	1	DS	P	107	55	2	435.926	0	P	100	435.926	588.5		R	P	I	N								
1432	BM	34	78 BR 4-5	4	DS	P	269	66	2	1315.11	0	N	0	0	0		R	C	N	N								
1433	BM	34	78 BR 4-5	1	DS	Q	94	22	4	306.37	0	P	100	306.37	413.6		R	P	S	N								
1434	BM	34	78 BR 4-5	1	DS	Q	54	44	2	176	0	P	100	176	237.6		R	C	S	N								
1435	BM	34	78 BR 4-5	2	DS	Q	54	22	2	88	0	P	100	88	118.8		R	C	S	N								
1436	BM	34	78 BR 4-5	1	DS	Q	27	22	2	44	0	P	100	44	59.4		R	C	S	N								
1437	BM	34	78 BR 4-5	1	DS	Q	107	44	2	348.741	0	P	75	261.556	353.1		R	P	I	N								
1438	BM	6	78 BR 7-3	3	DT	D	322	88	4	4197.93	188	I	75	3148.44	4250.4		R	C	N	S								

													Shallow landslides								*Deep-seated landslides*							
ID#		Sec	Air Photo		Landslide	Certainty	Size				Torrent	Sed	Sed Del			Slope		Slope	Slide	Road	Toe	Body	Lat.	Main	DS	Complex	Field	
					Type		Length	Width	Depth	Slide	Length	Routing	Ratio	Sediment	Sediment	(field)	Age	Form	Loc.	Assoc.	Activity	Morph.	Scarps	Scarps	Veg.		Obs.	Comments
Unique		#	year - number		DS DF DT	D P Q	ft	ft	ft	Vol	ft	P I N	25 50 75	Delivery	Delivery	(%)	A R O	C D P	H S I N	R S L	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3 4	Y N	Y N	
	PWS			MWMU	EF RS					yd^3			100 (%)	yd^3	tons					N I	4 5	4 5	4 5	4 5				
1439	BM	12	78 BR 6-3	4	DS	Q	27	44	2	88	0	I	25	22	29.7		R	C	N	R								
1440	BM	12	78 BR 6-3	2	DS	Q	27	22	2	44	0	I	100	44	59.4		R	P	S	N								
1441	BM	1	78 BR 6-5	2	DS	Q	107	44	2	348.741	0	I	25	87.1852	117.7		R	P	N	R								
1442	BM	6	78 BR 6-5	1	DS	Q	81	66	2	396	0	I	25	99	133.65		R	P	S	R								
1443	BS	29	78 Nav 3-9	4	DS	P	134	44	4	873.481	0	I	25	218.37	294.8		R	C	N	I								
1444	BS	29	78 Nav 3-9	2	DS	Q	81	22	2	132	0	I	25	33	44.55		R	C	N	L								
1445	BS	29	78 Nav 3-9	4	DS	P	134	22	4	436.741	0	I	75	327.556	442.2		R	P	N	R								
1446	BS	29	78 Nav 3-9	2	DS	Q	27	22	2	44	0	I	100	44	59.4		R	P	N	R								
1447	BS	29	78 Nav 3-9	2	DS	Q	54	22	2	88	0	I	100	88	118.8		R	P	N	S								
1448	BS	29	78 Nav 3-9	4	DS	P	134	44	2	436.741	0	I	50	218.37	294.8		R	C	N	S								
1449	BS	29	78 Nav 3-9	3	DS	Q	107	44	2	348.741	0	I	25	87.1852	117.7		R	P	N	S								
1450	BS	29	78 Nav 3-9	2	DS	Q	54	44	2	176	0	I	100	176	237.6		R	P	N	S								
1451	BS	29	78 Nav 3-9	4	DS	P	188	110	4	3063.7	0	I	100	3063.7	4136		R	P	N	R								Rockpit?
1452	BS	29	78 Nav 3-9	3	DT	P	107	44	2	348.741	270	I	50	174.37	235.4		R	C	N	L								
1453	BS	32	78 Nav 3-9	4	DT	D	134	33	2	327.556	107	I	50	163.778	221.1		R	P	N	N								
1454	BS	30	78 Nav 3-9	3	DS	D	376	110	4	6127.41	0	N	0	0	0		R	C	N	N								
1455	BS	9	78 Nav 4-9	4	DS	D	430	44	4	2802.96	0	P	50	1401.48	1892		R	P	N	L								
1456	BS	9	78 Nav 4-9	3	DS	Q	44	22	2	71.7037	0	N	0	0	0		R	P	N	S								
1457	BS	4	78 Nav 4-9	1	DS	P	242	44	4	1577.48	0	I	100	1577.48	2129.6		R	P	S	R								
1458	BS	9	78 Nav 4-9	4	DS	P	81	44	2	264	0	N	0	0	0		R	P	N	R								
1459	BS	4	78 Nav 4-9	1	DS	P	107	44	2	348.741	0	P	100	348.741	470.8		R	C	S	R								
1460	BS	4	78 Nav 4-9	1	DS	Q	134	44	2	436.741	0	P	100	436.741	589.6		R	C	I	R								
1461	BS	4	78 Nav 4-9	1	DS	Q	27	44	2	88	0	P	100	88	118.8		R	C	I	N								
1462	BS	5	78 Nav 4-9	1	DS	P	134	22	2	218.37	0	P	50	109.185	147.4		R	P	N	R								
1463	BS	5	78 Nav 4-9	4	DS	D	134	44	4	873.481	0	I	75	655.111	884.4		R	P	N	R								
1464	BS	5	78 Nav 4-9	1	DS	P	134	66	2	655.111	0	P	100	655.111	884.4		R	P	S	R								
1465	BS	32	78 Nav 4-9	4	DS	D	457	88	4	5957.93	0	N	0	0	0		R	C	N	N								
1466	BS	32	78 Nav 4-9	4	DS	P	215	66	2	1051.11	0	N	100	1051.11	1419		R	C	S	N								
1468	BS	5	78 Nav 4-9	1	DS	Q	54	22	2	88	0	P	100	88	118.8		R	C	N	R								
1469	BS	33	78 Nav 4-9	4	DS	P	188	88	2	1225.48	0	P	100	1225.48	1654.4		R	P	S	R								
1470	BS	32	78 Nav 4-9	4	DS	Q	107	66	2	523.111	0	P	100	523.111	706.2		R	P	N	R								
1471	BS	5	78 Nav 4-9	1	DS	Q	107	44	2	348.741	0	P	100	348.741	470.8		R	C	N	R								
1472	BS	33	78 Nav 4-9	2	DS	Q	67	22	2	109.185	0	I	100	109.185	147.4		R	P	N	R								
1473	BS	33	78 BR 8-1	4	DS	P	107	22	2	174.37	0	N	0	0	0		R	D	N	R								
1474	BS	28	78 BR 8-1	2	DS	P	134	22	4	436.741	0	I	75	327.556	442.2		R	C	N	S								
1475	BS	10	78 Nav 5-7	2	DS	Q	107	22	2	174.37	0	I	100	174.37	235.4		R	C	N	R								
1476	BS	10	78 Nav 5-7	2	DS	P	81	66	2	396	0	I	25	99	133.65		R	C	N	R								
1477	BS	10	78 Nav 5-7	1	DS	P	81	22	2	132	0	P	100	132	178.2		R	P	S	R								
1479	BS	4	78 Nav 5-7	2	DS	P	188	110	4	3063.7	0	P	100	3063.7	4136		R	C	S	S								
1480	BS	3	78 Nav 5-7	2	DS	D	376	132	4	7352.89	0	P	75	5514.67	7444.8		R	P	N	I								
1481	BT	24	87 M20-55	2	DS	Q	39	16	2	46.2222	0	N	0	0	0		R	P	N	N								
1482	BT	32	87 M22-48	1	DS	Q	20	32	2	47.4074	0	I	100	47.4074	64		R	D	N	R								
1483	BT	32	87 M22-48	1	DS	Q	39	32	2	92.4444	0	I	100	92.4444	124.8		R	P	N	R								
1484	BT	28	87 M22-50	1	DS	P	117	32	4	554.667	0	P	100	554.667	748.8		R	P	I	N								
1485	BT	28	87 M22-50	1	DS	Q	49	16	2	58.0741	0	P	100	58.0741	78.4		R	P	I	R								
1486	BT	33	87 M23-48	3	DS	D	195	32	4	924.444	0	I	50	462.222	624		R	P	S	R								
1487	BT	33	87 M23-48	3	DS	Q	39	16	2	46.2222	0	I	25	11.5556	15.6		R	C	H	R								
1488	BL	29	87 M22-50	1	DS	Q	20	32	2	47.4074	0	P	100	47.4074	64		R	P	S	N								
1489	BL	29	87 M22-50	1	DS	Q	39	48	2	138.667	0	P	100	138.667	187.2		R	P	S	N								
1490	BL	29	87 M22-50	1	DS	P	59	48	2	209.778	0	P	100	209.778	283.2		R	C	S	N								
1491	BL	20	87 M22-50	1	DS	Q	59	32	2	139.852	0	P	100	139.852	188.8		R	C	S	N								
1492	BL	20	87 M22-50	1	DS	Q	39	48	2	138.667	0	P	100	138.667	187.2		R	C	S	N								
1493	BL	20	87 M22-50	1	DS	Q	59	48	2	209.778	0	P	25	52.4444	70.8		O	P	N	R								
1494	BL	20	87 M22-50	1	DS	Q	39	16	2	46.2222	0	P	25	11.5556	15.6		R	P	N	R								
1495	BE	21	87 M22-50	4	DS	Q	78	16	2	92.4444	0	N	0	0	0		R	P	N	N								
1496	BL	29	87 M23-50	1	DS	Q	39	16	2	46.2222	0	I	100	46.2222	62.4		R	P	N	R								
1497	BE	29	87 M23-52	1	DT	Q	39	16	2	46.2222	78	I	75	34.6667	46.8		R	C	N	I								
1498	BE	9	87 M23-52	3	DS	Q	39	16	2	46.2222	0	N	0	0	0		R	C	N	L								
1499	BE	9	87 M23-52	3	DS	Q	59	16	2	69.9259	0	N	0	0	0		R	P	N	L								
1500	BE	9	87 M23-52	3	DS	P	176	32	4	834.37	0	I	100	834.37	1126.4		R	C	N	S								
1501	BE	10	87 M23-52	2	DS	Q	78	16	2	92.4444	0	I	50	46.2222	62.4		R	P	N	R								
1502	BE	10	87 M23-52	1	DS	Q	39	16	2	46.2222	0	I	100	46.2222	62.4		R	C	N	R								
1503	BE	15	87 M23-52	1	DS	P	98	22	4	319.407	0	I	25	79.8519	107.8		R	C	N	R								
1504	BE	15	87 M24-50	1	DS	Q	234	32	2	554.667	0	I	75	416	561.6		R	D	N	R								
1505	BR	27	87 M24-46	1	DS	Q	20	48	2	71.1111	0	P	100	71.1111	96		R	C	S	N								
1506	BR	27	87 M24-46	1	DS	Q	20	32	2	47.4074	0	P	100	47.4074	64		R	D	S	N								
1507	BR	27	87 M24-46	1	DS	P	59	64	2	279.704	0	P	100	279.704	377.6		R	P	S	N								
1508	BR	22	87 M24-48	2	DS	Q	59	48	2	209.778	0	I	100	209.778	283.2		R	D	N	N								
1509	BR	31	87 M26-45	1	DS	Q	39	16	2	46.2222	0	P	100	46.2222	62.4		R	P	S	L								
1510	BR	30	87 M26-45	1	DS	Q	39	32	2	92.4444	0	P	100	92.4444	124.8		R	C	S	R								
1511	BR	30	87 M26-45	1	DS	Q	29	80	4	343.704	0	P	100	343.704	464		R	P	S	R								
1512	BR	25	87 M26-45	3	DS	Q	39	16	2	46.2222	0	I	25	11.5556	15.6		R	C	N	R								
1513	BR	25	87 M26-45	4	DS	P	78	32	2	184.889	0	I	50	92.4444	124.8		R	P	N	R								
1514	BR	30	87 M27-45	3	DT	Q	195	32	2	462.222	0	I	25	115.556	156		R	D	N	S								Skid?
1515	BM	33	87 M23-48	1	DS	Q	59	32	2	139.852	0	P	100	139.852	188.8		R	P	S	N								
1516	BM	14	87 M24-42	3	DS	D	586	80	4	6945.19	0	P	100	6945.19	9376		R	P	S	R								
1517	BM	14	87 M24-42	3	DS	Q	20	16	2	23.7037	0	P	100	23.7037	32		R	P	N	N								
1518	BM	3	87 M24-42	1	DS	Q	39	24	2	69.3333	0	P	100	69.3333	93.6		R	P	S	N								
1519	BM	2	87 M24-42	1	DS	P	98	16	2	116.148	0	P	100	116.148	156.8		R	P	S	N								
1520	BM	2	87 M24-44	1	DS	Q	78	48	2	277.333	0	P	100	277.333	374.4		R	C	S	N								
1521	BM	34	87 M24-44	4	DS	P	176	48	4	1251.56	0	P	100	1251.56	1689.6		R	P	S	N								
1522	BM	34	87 M24-46	4	DS	Q	59	16	2	69.9259	0	P	100	69.9259	94.4		R	P	S	N								
1523	BM	34	87 M24-46	1	DS	D	195	273	4	7886.67	0	P	100	7886.67	10647		R	C	S	R								
1524	BM	34	87 M24-46	1	DS	P	98	48	2	348.444	0	P	100	348.444	470.4		R	C	S	R								
1525	BM	11	87 M25-43	1	DS	Q	20	48	2	71.1111	0	P	100	71.1111	96		R	P	S	N								
1526	BM	11	87 M25-43	1	DS	Q	20	32	2	47.4074	0	P	100	47.4074	64		R	P	S	N								
1527	BM	11	87 M25-43	1	DS	Q	39	16	2	46.2222	0	P	100	46.2222	62.4		R	P	S	N								
1528	BM	2	87 M25-45	1	DT	Q	39	32	2	92.4444	78	P	75	69.3333	93.6		R	C	I	R								

													Shallow landslides								Deep-seated landslides							
ID#		Sec	Air Photo		Landslide	Certainty	Size				Torrent	Sed	Sed Del			Slope		Slope	Slide	Road	Toe	Body	Lat.	Main	DS	Complex	Field	
					Type		Length	Width	Depth	Slide	Length	Routing	Ratio	Sediment	Sediment	(field)	Age	Form	Loc.	Assoc.	Activity	Morph.	Scarps	Scarps	Veg.		Obs.	Comments
Unique		#	year - number		DS DF DT	D P Q	ft	ft	ft	Vol	ft	P I N	25 50 75	Delivery	Delivery	(%)	A R O	C D P	H S I N	R S L	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3 4	Y N	Y N	
	PWS			MWMU	EF RS					yd^3			100 (%)	yd^3	tons					N I	4 5	4 5	4 5	4 5				
1529	BM	18	87 M26-39	3	DS	Q	59	16	2	69.9259	0	I	25	17.4815	23.6		R	C	N	I								
1530	BM	7	87 M26-41	1	DS	Q	39	16	2	46.2222	0	I	25	11.5556	15.6		R	P	N	L								
1531	BM	6	87 M26-41	2	DT	Q	98	16	2	116.148	195	N	0	0	0		R	C	N	S								
1532	BM	6	87 M26-43	3	DS	Q	59	40	2	174.815	0	I	100	174.815	236		R	P	N	R								
1533	BM	1	87 M26-43	1	DT	Q	20	16	2	23.7037	59	I	50	11.8519	16		R	D	I	R								
1534	BM	6	87 M26-43	3	DT	Q	20	16	2	23.7037	39	I	50	11.8519	16		R	C	N	R								
1535	BM	31	87 M26-43	2	DS	Q	39	16	2	46.2222	0	I	100	46.2222	62.4		R	P	N	R								
1536	BM	31	87 M26-43	2	DT	Q	98	16	2	116.148	117	I	25	29.037	39.2		R	D	N	L								
1537	BM	12	87 M27-41	2	DS	Q	98	48	2	348.444	0	I	75	261.333	352.8		R	P	S	I								
1538	BM	6	87 M27-43	3	DS	Q	215	48	4	1528.89	0	I	75	1146.67	1548		R	C	N	I								
1539	BM	6	87 M27-43	3	DS	Q	527	48	4	3747.56	0	I	75	2810.67	3794.4		R	P	N	S								
1540	BS	10	87 M31-35	4	DS	D	371	80	2	2198.52	0	P	100	2198.52	2968		R	P	S	S								
1541	BS	10	87 M31-35	1	DS	P	98	64	2	464.593	0	P	100	464.593	627.2		R	D	N	L								
1542	BS	10	87 M31-35	2	DS	P	195	48	2	693.333	0	I	50	346.667	468		R	P	N	S								
1543	BS	3	87 M31-37	4	DS	P	254	64	4	2408.3	0	I	25	602.074	812.8		R	P	N	S								
1544	BS	28	87 M29-44	1	DS	D	273	80	4	3235.56	0	P	100	3235.56	4368		R	C	S	N								
1545	BS	28	87 M29-44	2	DS	D	137	80	2	811.852	0	I	100	811.852	1096		R	C	S	R								
1546	BS	29	87 M29-44	3	DS	P	137	96	4	1948.44	0	I	100	1948.44	2630.4		R	P	N	L								
1547	BT	29	87 M22-48	3	DS	P	57	16	2	67.5556	0	N	0	0	0		R	P	N	L								
1547	BR		00 BR18B-2		RS	Q	2300	1000		0		I		0	0						4	3	4	4	4	N		
1548	BT	29	87 M22-50	3	DS	D	234	80	4	2773.33	0	P	100	2773.33	3744		R	P	I	R								
1548	BM		00 BR13B-30		RS	D	2100	350		0		I		0	0						2	2	3	3	3	N		
1549	BM		00 BR13B-29		RS	Q	850	300		0		I		0	0						4	4	4	4	4	N		
1554	BM		00 BR13B-31		RS	D	1000	300		0		I		0	0						4	2	3	3	3	N		
1555	BM		00 BR14B-36		RS	D	1500	500		0		P		0	0						2	2	3	3	3	N		
1556	BM		00 BR13B-33		RS	P	1000	750		0		P		0	0						3	3	4	5	5	N		
1557	BM	33	00 BR14B-37	4	DS	Q	120	40	2	355.556		N	0	0	0		R	C	H	S								
1558	BM	33	00 BR14B-37	2	DS	P	140	80	2	829.63		I	50	414.815	560		O	C	N	S								
1559	BM		00 BR14B-34		RS	D	800	350		0		P		0	0						2	2	3	5	4	Y		
1560	BM		00 BR14B-34		RS	D	850	600		0		P		0	0						1	2	3	5	4	Y		
1561	BM		00 BR14B-34		RS	D	1100	1100		0		P		0	0						4	2	4	4	4	Y		
1562	BM		00 BR14B-34		RS	D	800	1100		0		P		0	0						4	2	4	4	4	Y		
1563	BM		00 BR14B-34		RS	D	600	800		0		P		0	0						4	2	4	4	4	Y		
1564	BM	4	00 BR13B-30	2	DS	P	50	50	2	185.185		I	25	46.2963	62.5		O	P	S	R								
1571	BP		00 BR17A-14		RS	P	1400	2200		0		I		0	0						4	4	4	4	4	N		
1572	BM	4	00 BR13B-30	3	DS	Q	70	50	2	259.259		I	25	64.8148	87.5		O	P	N	N								
1573	BE		00 BR15E-20		RS	D	750	400		0		P		0	0						2	2	3	3	2	N		
1574	BM	2	00 BR15E-15	1	DS	P	60	35	2	155.556		I	75	116.667	157.5		R	C	S	I								
1575	BM		00 BR16E-12		RS	D	900	150		0		I		0	0						4	4	4	4	2	N		
1577	BP		00 BR17A-14		RS	D	650	650		0		I		0	0						4	4	4	4	4	N		
1579	BP		00 BR19A-15		RS	D	1200	650		0		P		0	0						2	4	4	4	4	N		
1580	BP		00 BR19A-15		RS	P	3800	1700		0		P		0	0						4	4	4	4	4	N		
1581	BP		00 BR19A-15		RS	D	2000	900		0		P		0	0						3	3	4	4	3	N		
1582	BP	16	00 BR19A-15	2	DS	D	90	30	2	200		I	75	150	202.5		R	C	H	N								
1583	BM	10	00 BR13B-29	3	DS	D	120	150	4	2666.67		I	25	666.667	900		A	C	S	N								
1584	BM	3	00 BR14B-34	1	DS	D	85	40	2	251.852		P	100	251.852	340		R	P	I	N								
1585	BM	33	00 BR13B-33	1	DS	P	100	30	2	222.222		P	100	222.222	300		R	P	I	N								
1586	BM	34	00 BR13B-33	1	DS	D	85	35	2	220.37		P	100	220.37	297.5		R	P	I	N								
1587	BT	33	00 BR14B-38	1	DS	P	90	50	2	333.333		P	100	333.333	450		R	P	I	N								
1589	BM		00 BR14B-34		RS	D	600	300		0		P		0	0						4	4	4	3	4	N		