APPENDIX A

Biological Resources Assessment

BIOLOGICAL RESOURCES ASSESSMENT
FOR THE

MARTIS VALLEY REGIONAL TRAIL STUDY CORRIDOR

PLACER COUNTY, CALIFORNIA

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BIOLOGICAL RESOURCES ASSESSMENT FOR THE MARTIS VALLEY REGIONAL TRAIL STUDY CORRIDOR

INTRODUCTION

Project Location

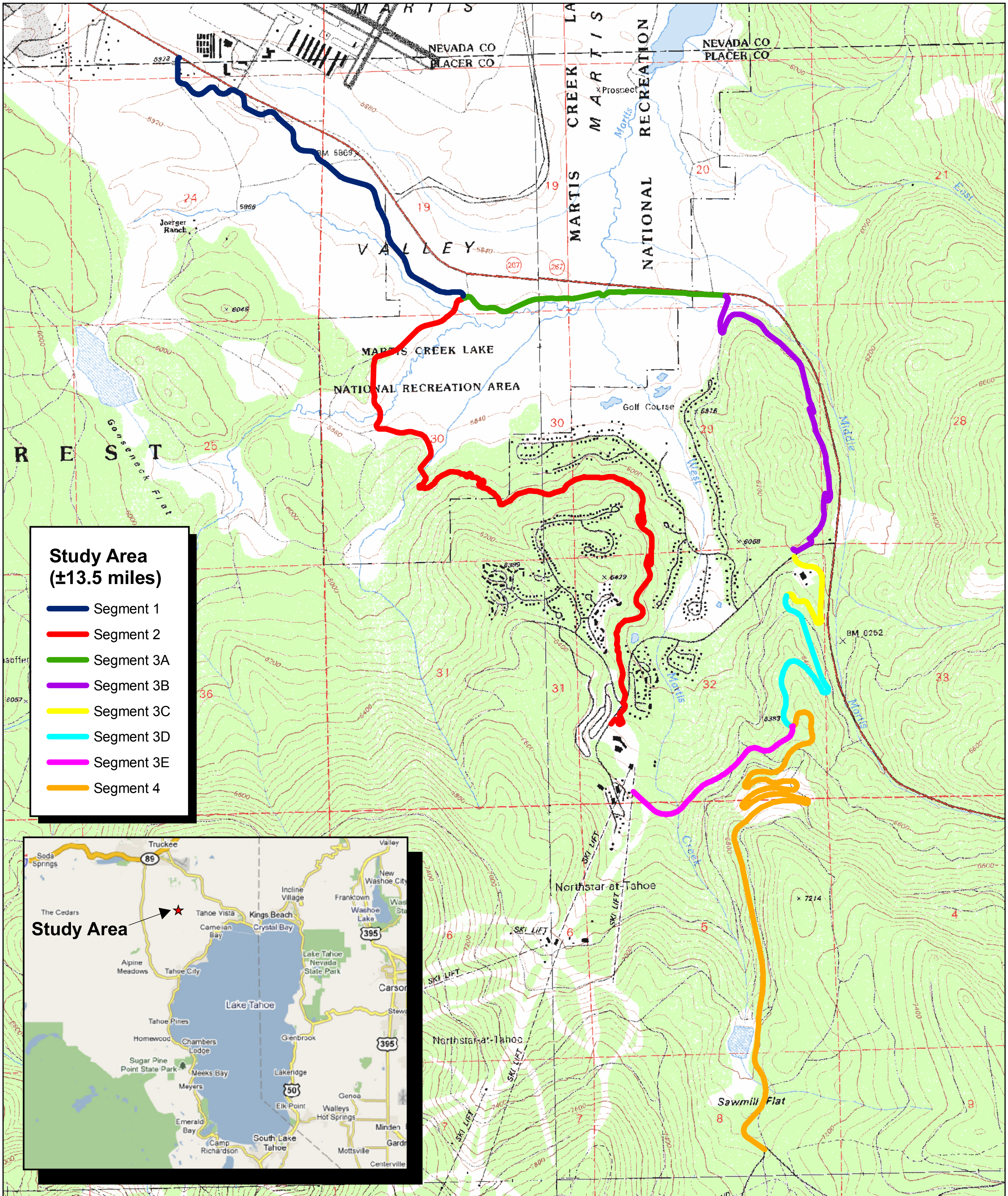
The Martis Valley Regional Trail study corridor is located generally between the southern limits of the Town of Truckee and the Four Corners area at Brockway Summit in Placer County. The study corridor is 50 feet wide and occurs mostly along existing trails. An alternative trail alignment for a portion of the route is also included in this assessment. The proposed trail alignment originates south of Highway 267, north of Schaffer Mill Road, and heads east, keeping just south of Highway 267 through Martis Valley to the wildlife viewing area parking lot off of Highway 267. The proposed alignment extends from the parking area to the south and southeast, crossing Martis Valley before heading up to Northstar and ending before Northstar Drive. The alternative trail alignment extends from the parking area to the east and southeast, climbing in elevation up to Northstar and ending near Northstar Drive and State Route 267. Segments of the trail proposed to be constructed in future phases would continue south of Northstar Drive to connect to the Four Corners area near Brockway Summit; the ridge between Martis Valley and the Lake Tahoe Basin. The trail corridor is located within Townships 16N and 17N and Ranges 16E and 17E of the Truckee and Martis Peak U.S. Geological Survey 7.5 minute quadrangles. The proposed trail alignment crosses through Sections 5, 8, 13, 19, 24, 29, 30, and 32 of these quadrangles (Figure 1).

Setting

The study area is set on the eastern side of the Sierra Nevada Mountains, north of Lake Tahoe and southeast of the Town of Truckee, at elevations between approximately 5,880 and 6,200 feet. The topography is gently rolling to generally flat within Martis Valley, and steep outside of the valley towards Northstar. Habitat types found onsite include coniferous forest, sagebrush scrub, wet and dry meadow, riparian, and ruderal. Adjacent land uses include the Northstar Community (including Northstar at Tahoe golf course), Lahontan Golf Club, Truckee-Tahoe Airport, Martis Creek Lake, and undeveloped areas of Tahoe National Forest (Figure 2).

Proposed Project Description

The Martis Valley Regional Trail is a multiple-use trail proposed by the Northstar Community Services District (CSD). The proposed and alternative trail alignments generally follow the existing Tomkins Memorial Trail through the Martis Valley and up to the Northstar at Tahoe property. Constructing the Martis Valley Regional Trail will entail widening and paving the existing Tomkins Memorial Trail alignment, as well as constructing new trail alignments. The trail alignment runs through private property and property under the jurisdiction of the U.S. Army Corps of Engineers. Figure 1 shows the segments of the proposed trail alignment (Segments 1 and 2) and the alternative alignment (Segments 3A and 3B). Segments 3C, 3D, 3E and 4, south of Northstar Drive, are possible future phases of the trail. The total study corridor length is ±13.5 miles.



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N

0 750 1,500 3,000
Scale in Feet

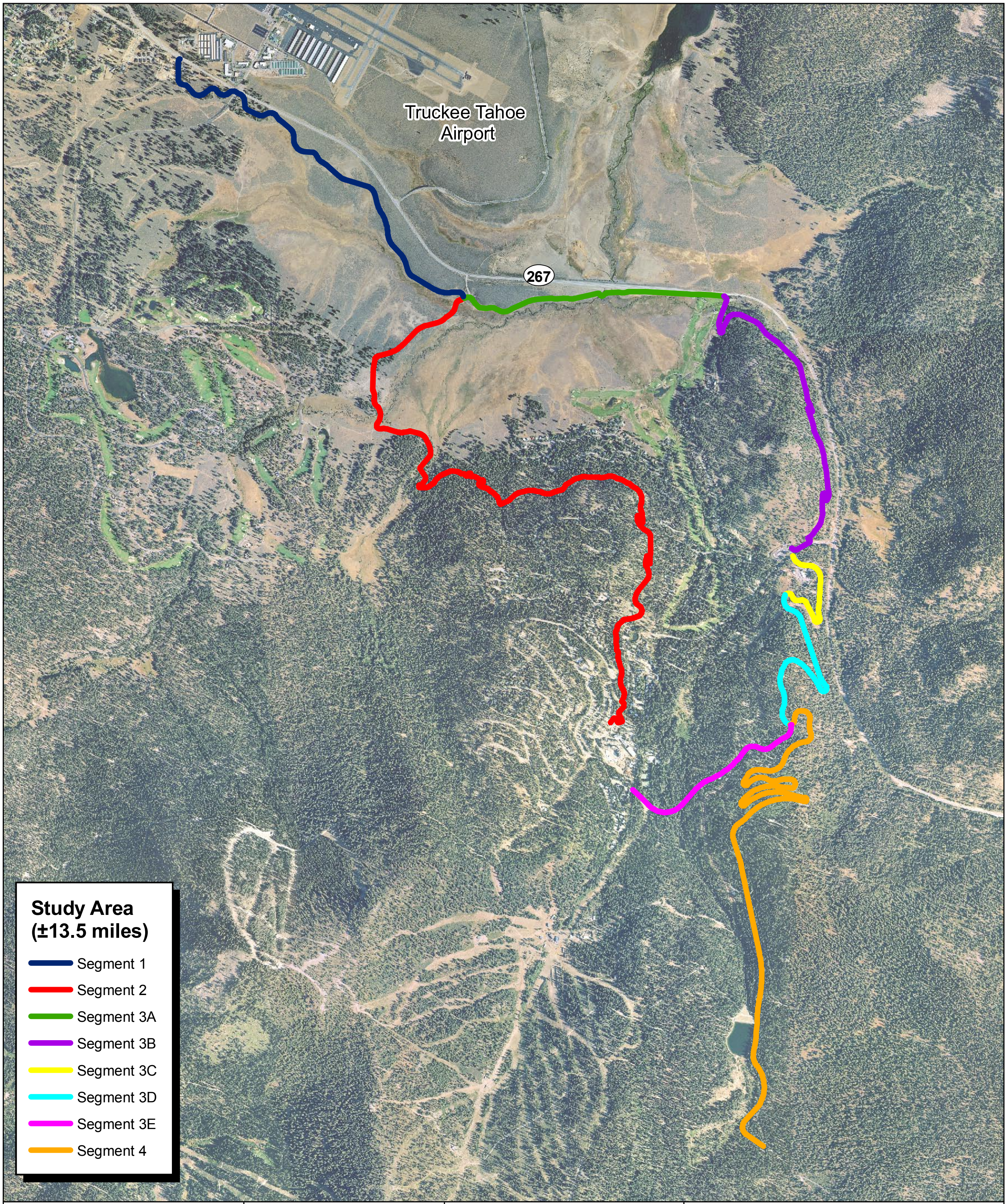
USGS Base Map:
Truckee & Martis Peak, CA
7.5 minute topographic quadrangle
Sections:
5,8,13,19,20,24,28,29,30,32,33
Township: 16N,17N
Range: 16E,17E

Figure 1

SITE & VICINITY MAP

Martis Valley Regional Trail

Placer County, California



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0 750 1,500 3,000
Scale in Feet

Aerial Photo: 2005 Placer County.

Figure 2

AERIAL PHOTO

Martis Valley Regional Trail

Placer County, California

Objectives of Biological Resources Assessment

- Identify and describe the biological communities present in the study corridor
- Record plant and animal species observed in the study corridor
- Evaluate and identify sensitive resources and special-status plant and animal species that could be affected by project activities
- Provide conclusions and recommendations

METHODS

Data Sources

For this assessment, Auerbach Engineering Corporation provided digital base files of the trail alignment. Aerial photographs were obtained from Environmental Systems Research Institute (ESRI) (2005, 2007) and Placer County (2005). Soils information was obtained from the United States Department of Agriculture, Natural Resources Conservation Service, and geological information was taken from the *Geologic Map of the Sacramento Quadrangle* (California Department of Conservation 1987).

Special-Status Species Reports

North Fork Associates queried the California Natural Diversity Data Base (CNDDB) for location records for special-status species known to occur in the region surrounding the project site. Quadrangles included in the query were Independence Lake, Hobart Mills, Boca, Mount Rose Northwest, Mount Rose, Marlette Lake, Kings Beach, Tahoe City, Granite Chief, Norden, Truckee, and Martis Peak. North Fork Associates biologists also reviewed the special-status species lists for the Truckee and Martis Peak USGS quadrangles and Placer County created by the U.S. Fish and Wildlife Service (USFWS). The California Native Plant Society (CNPS) Inventory was checked for special-status plants occurring in the area.

For the purposes of this report, special-status species are those that fall into one or more of the following categories, including those:

- listed as endangered or threatened under the federal Endangered Species Act (including candidates and species proposed for listing),
- listed as endangered or threatened under the California Endangered Species Act (including candidates and species proposed for listing),
- designated as rare, protected, or fully protected pursuant to California Fish and Game Code,
- designated a Species of Concern by the California Department of Fish and Game (CDFG),
- defined as rare or endangered under Section 15380 of the California Environmental Quality Act (CEQA), or
- occurring on List 1, 2, or 3 maintained by the CNPS.

Field Surveys

The field assessment of Segments 1, 2, 3A and 3B was conducted on June 25, July 9, July 23, and July 29, 2009 by Jeff Glazner and Erin Gottschalk Fisher (botany), and on July 29, 2009 by Gaylene Tupen (wildlife). A wetland delineation was conducted in tandem with this study and a report has been produced under separate cover. For the biological resource assessment, site surveys were conducted to assess habitat conditions and determine the potential for occurrence of special-status plant and wildlife species. The surveys consisted of walking the site, recording notes of species observed or their respective sign (nests, burrows, tracks, scat), and assessing habitat conditions. A less intensive reconnaissance-level survey of Segments 3C, 3D, 3E and 4 was conducted on August 20, 2009 by Jeff Glazner and Matt Fremont. A less intensive survey was performed on these sections since these segment south of Northstar Drive are not being pursued as part of Phase 1 of the trail project. Appendix A is a list of plants observed, and Appendix B is a list of wildlife observed onsite. Plant names are according to *The Jepson Manual* (Hickman 1993), except for changes obtained from the Jepson Interchange, an online database maintained by the University of California and Jepson Herbaria.

SURVEY AND LITERATURE SEARCH RESULTS

Hydrology

The study area region slopes toward Martis Valley, which is drained by Martis Creek, the main hydrological feature throughout the study area. Martis Creek flows in a northeasterly direction and crosses the study corridor in the northern portion of Segment 2 of the proposed alignment and in the middle of Segment 3A of the alternative alignment. Three tributaries to Martis Creek (including Middle Martis Creek) also cross the study corridor, with two unnamed tributaries crossing Segment 2 of the proposed alignment and Middle Martis Creek crossing the northern portion of Segment 3B of the alternative alignment. Martis Creek and its tributaries are represented as solid blue line features on the USGS map. After crossing the study corridor in Segment 3A of the alternative alignment near Highway 267, Martis Creek crosses under Highway 267 in a culvert. On the north side of Highway 267, Martis Creek drains into Martis Creek Lake. Martis Creek continues below the dam, draining into the Truckee River south of Interstate 80. The Truckee River empties into Pyramid Lake in the Great Basin in Nevada.

Other hydrological features within the study corridor include wetland swales, wetland meadows, and ephemeral and intermittent streams.

Biological Communities

Five habitat types were observed along the Martis Valley Regional Trail corridor: coniferous forest, sagebrush scrub, wet meadow, dry meadow, and riparian. The proposed and alternative trail alignments generally follow the alignment of the existing Tomkins Memorial Trail from the wildlife viewing area parking lot south and east to Northstar, although the alignments depart from the existing trail substantially in some areas. The existing trail is generally three to ten feet wide through Martis Valley and into Northstar. No trail presently exists along the proposed trail alignment west of the wildlife viewing area parking lot.

Figure 3 is a habitat map and Table 1 provides the linear distance the trail corridor passes through each habitat type. Figures 4 and 5 contain photographs of the study corridor. Each of the biological communities is described below. A complete list of species observed during the site visits is provided in Appendices A and B.

Table 1.
Biological Communities Present Within the Martis Valley Regional Trail Study Corridor

Biological Community	Approximate Length
Coniferous Forest	10.23
Sagebrush Scrub	3.17
Wet Meadow	0.05
Dry Meadow	0.08
Riparian	0.06
Total	**13.59 miles[1]**

Plants

Coniferous Forest

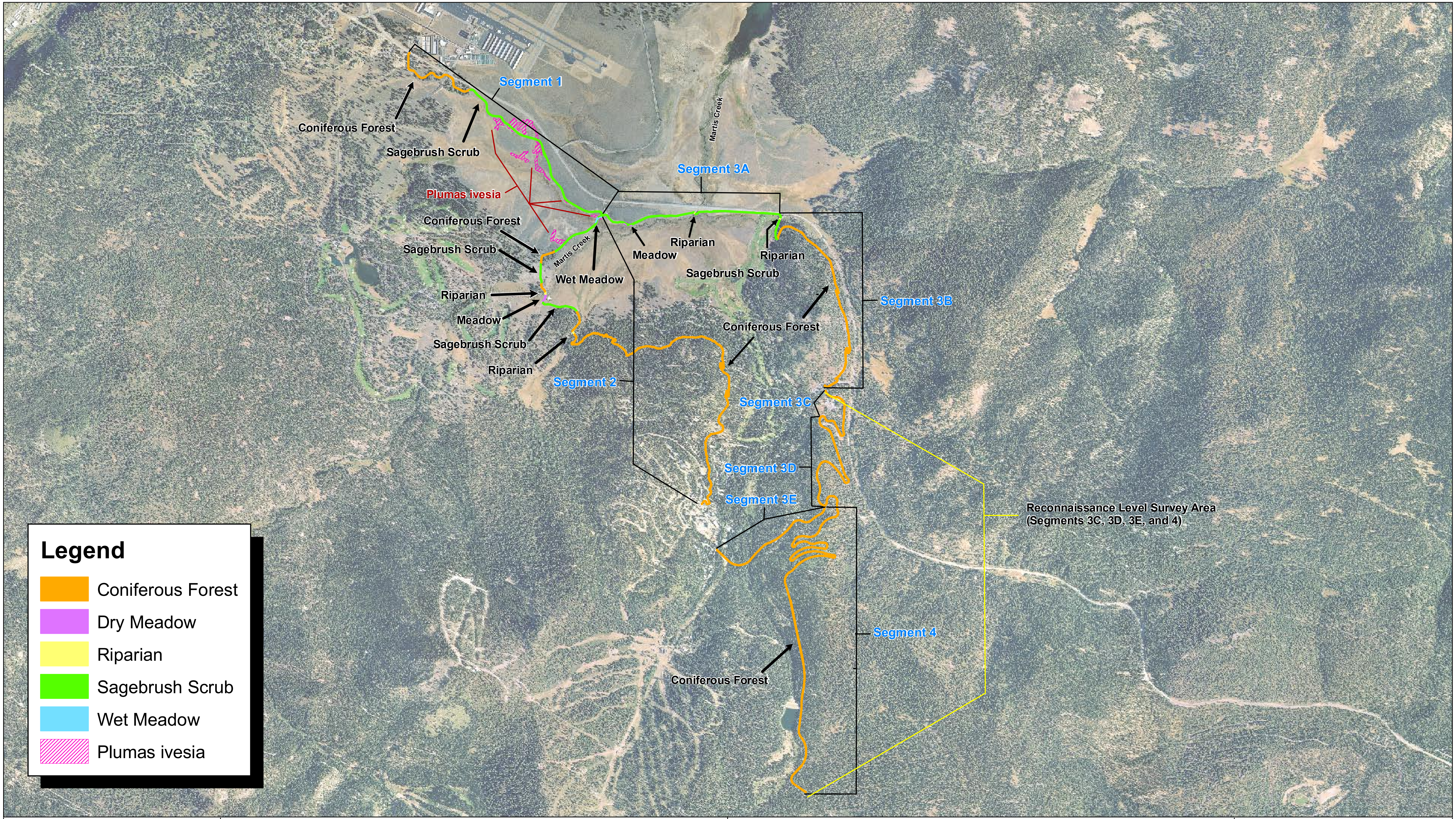
Approximately 10.23 miles of the study area support coniferous forest habitat. Coniferous forest occurs at elevations slightly higher than the floor of Martis Valley and is the dominant habitat on the slopes ascending from the valley to Northstar and Brockway Summit. The southeastern portion of the study corridor, including Segments 3B – 3D of the alternative trail alignment and Segment 4 and the southeastern portion of Segment 2 of the proposed trail alignment, is within coniferous forest habitat (Figures 4a and 4b). The upper slopes above Northstar support dense forests with red and white fir, western white pine, Jeffrey pine and lodgepole pine. On the lower slopes near Martis Valley, the coniferous forest areas support mostly Jeffrey pine and white fir. In areas with more moisture, particularly in the lower landscape positions of Martis Valley, lodgepole pine is the dominant species. Understory shrubs include greenleaf manzanita, mahala mat, tobacco brush, big sagebrush, and antelope brush. The herbaceous cover is relatively light and includes bitter dogbane, mountain mule's-ears, phacelia, campion, blue wildrye, quackgrass, and orchard grass.

In the southeastern portion of the study corridor, the proposed trail alignment meanders through existing residential development and the alternative trail alignment runs close to Highway 267. These areas of conifer forest habitat have been thinned, presumably for fire fuels management. Evidence of recent thinning operations along the trail alignment includes slash piles and tree stumps.

Sagebrush Scrub

Approximately 3.17 miles of the study corridor pass through sagebrush scrub habitat (Figure 4c). This habitat occurs at a lower elevation generally than the coniferous forest and is the dominant habitat type along Segments 1 and 3A of the proposed and alternative trail alignments. Areas of sagebrush scrub habitat also occur along the northern portion of Segment 2 of the proposed alignment and the northernmost portion of Segment 3B of the

[1] The cumulative length of biological communities is slightly longer than the trail length due to short reaches of overlapping biological communities.



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0 750 1,500 3,000
Scale in Feet

Aerial Photo: Placer County, 2005

Figure 3

HABITAT MAP

Martis Valley Regional Trail

Placer County, California

alternative alignment. This habitat type is dominated by big sagebrush; secondary shrub dominants include antelope brush and rubber rabbitbrush. The sagebrush scrub varies from dense intertwining branches of big sagebrush and antelope brush to more open areas that also support herbaceous vegetation, such as Parish's yampah, thickstem aster, mountain tarweed, cryptantha, locoweed, dwarf lupine, clustered broom-rape, blue-eyed Mary, sulfer flower, navarretia, onion, cheat grass, bulbous bluegrass, and squirreltail. Embedded within the sagebrush scrub are areas dominated by low sagebrush. This lower-stature shrub is the sole shrub in these areas which support unique plant species, including Plumas ivesia (see Special-Status Species section below).

Wet Meadow

The wet meadow habitat occurs in a large area in the Martis Valley that supports wetland vegetation due to hydrological influences from Martis Creek (and tributaries) and/or a seasonally high water table. Approximately 0.05 mile of wet meadow occurs within the study corridor, the largest portion occurring just south of the wildlife viewing area parking lot at the north end of Segment 2 (Figure 4d). This wet meadow habitat is dominated by herbaceous wetland species such as Ryberg's beardtongue, long-stalk clover, dense-flower spike-primrose, western mountain aster, dwarf woolly-heads, water speedwell, Great Basin navarretia, long-stalk starwort, glandular cinquefoil, western buttercup, sedges, rushes, meadow barley, and tufted hairgrass. Some marginal wetland species, such as Parry's arnica, Kentucky blue grass, and common timothy also occur in the wet meadow.

Dry Meadow

The dry meadow habitat type is typically found in the transition zone between wet meadow or riparian and upland sage scrub and coniferous forest habitat types. The study corridor runs through dry meadow habitat for approximately 0.08 mile. Dry meadow habitat occurs within Segment 2 of the proposed alignment, south of the proposed crossing of Martis Creek, and within Segment 3A of the alternative alignment (Figure 5a). Dry meadow habitat type is dominated by many of the same species as found in the wet meadow (a wetland flora) but trending towards species that are more tolerant of dryer conditions. Perennial species of sedges, rushes, and grasses are the primary occupants of these areas.

Riparian

Approximately 0.06 mile of the study corridor supports riparian shrub habitat associated with Martis Creek and its tributaries (Figures 5b). The riparian habitat is generally a patchy band approximately 10 to 20 feet wide along each bank of the creek, and is dominated by compacted, rounded willow shrub species 10 to 15 feet high. Small lodgepole pine trees also occur throughout the riparian habitat. Other associated plant species are similar to the species found in the wet meadow, along with mountain alder, wild rose, mountain timothy, willow dock, common monkeyflower, and stemless thistle. Riparian habitat occurs near drainages along Segment 2 of the proposed alignment and in areas within Segments 3A and 3B of the alternative alignment.

4a. – Coniferous Forest in the vicinity of Northstar.

4b. – Coniferous Forest canopy as viewed from Segment 4 of the proposed alignment.

4c. – Existing trail through Sagebrush Scrub.

4d. – Wet Meadow with Martis Creek and Riparian Habitat in background.

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Photo Dates: July 9, 2009; July 23, 2009; August 20, 2009

Figure 4

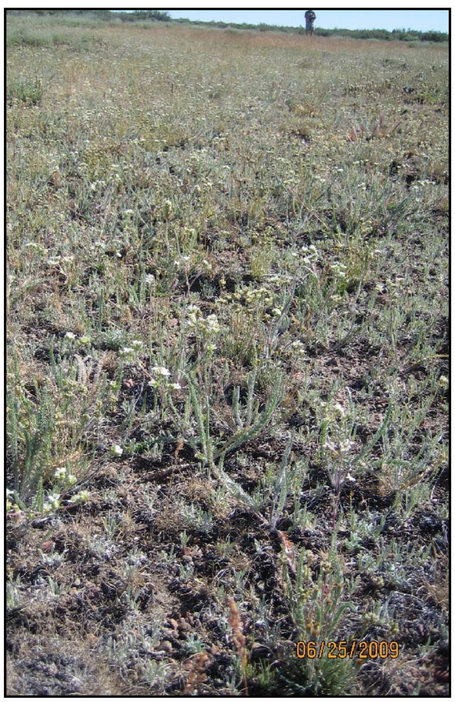
SITE PHOTOS

Martis Valley Regional Trail

Placer County, California

5a. – Dry meadow vegetation along Segment 2 south of Martis Creek.

5b. – Bridge crossing of Martis Creek (with riparian shrub vegetation) near Highway 267.



5c. – Large population of Plumas ivesia.

5d. – Plumas ivesia.

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Photo Dates: June 25, 2009; July 9, 2009; August 20, 2009

Figure 5

SITE PHOTOS

Martis Valley Regional Trail

Placer County, California

Wildlife

The Martis Valley Regional Trail study area supports a wide diversity of wildlife due to the availability of important habitat features including: nesting sites, escape and thermal cover, and abundant food sources. Aquatic habitats in the area, including Martis Creek and its tributaries, provide year-round and seasonal sources of water for wildlife of the area and habitat for various aquatic and semi-aquatic species. Forest communities, such as those located throughout much of the study corridor, are important for animal cover, and provide high quality roosting and nesting opportunities for songbirds and shelter for numerous mammals. Snags located within and adjacent to forested areas of the study corridor provide nesting cavities for birds such as owls and woodpeckers. Taller trees located on hillsides overlooking foraging areas provide good nesting habitat for raptors such as great horned owl and red-tailed hawk.

During the field survey conducted on July 29, 2009 a variety of birds were observed throughout both forested and open habitats of the study corridor. Because of the elevation of the study area, many species are only expected to occur on site seasonally either for nesting purposes or during migration. Many of the birds observed during the field survey are known to nest in coniferous forest habitats such as those present onsite. The following birds are a representative sample of those observed throughout forested habitats of the study corridor: mountain chickadee, brown creeper, dusky flycatcher, western wood pewee, northern flicker, dark-eyed junco, western tanager, yellow-rumped warbler and red-breasted nuthatch. Fewer species were observed within more open communities such as sagebrush scrub. These primarily included Brewer's sparrow, cliff swallow, and chipping sparrow. Riparian communities associated with the various drainages crossing the study corridor are expected to provide important seasonal nesting habitat for numerous migratory songbirds, including a variety of special-status species.

During the field survey, two American kestrels were observed emerging from a cavity in a snag located just up-slope of Martis Creek and foraging in adjacent sagebrush scrub. It is expected that the pair of kestrels had been recently, or were currently, using the snag for nesting purposes. The only other raptor detected within the study area during the field survey was a solitary osprey observed flying over Martis Creek in the western end of the study area.

Various small mammals either observed or detected throughout the study corridor included: mountain pocket gopher, Douglas' squirrel, and golden-mantled ground squirrel. Tracks, scat, or other sign of mule deer, coyote, and raccoon were found in various locations throughout both forest and sagebrush communities of the study area. Deer occurring within the Martis Valley, including the study corridor, are part of the Loyalton-Truckee Deer Herd. The study corridor occurs within the summer range for the Loyalton-Truckee Deer Herd (Kahre and Fowler, 1982).

Martis Creek and associated tributaries are expected to provide important habitat for a variety of aquatic and semi-aquatic species. During the field survey numerous small trout were observed in pools located along Martis Creek, just upstream of the Highway 267 crossing, and along the unnamed drainage located east of Martis Creek in the southern portion of the study corridor.

Special-Status Species

Appendix C is a list of potentially occurring special-status plants, and Appendix D is a similar list of special-status wildlife compiled from our queries as described in the Methods section above. The USFWS list for Placer County includes species from the Central Valley to the east side of the Sierra Nevada. Species requiring habitats not occurring in or around the study area and species occurring far outside the study area are not considered in Appendices C or D. Field surveys and the best professional judgment of North Fork Associates biologists were used to further refine the tables in Appendices C and D. Plants species found on the CNPS Lists 3 and 4, as well as mosses and moonworts, are included in the Appendices but are not considered further in the document. Nevertheless, floristic surveys conducted according to CDFG guidelines for rare plant surveys would detect these species where they are present, so that these species are not ignored.

This refined list of special-status species in the region of the project site includes 22 plants and 16 animals (Appendix C and Appendix D, respectively). Of the 22 plant species in Appendix C and 16 animal species in Appendix D, six plants and eight animals either **occur** within the study corridor or they are rated **likely** or **possible** to occur because the corridor has some areas of suitable habitat or they are known from nearby locations. Table 2 is a summary of those species, and they are discussed in more detail in the paragraphs following the table.

Table 2.
Special-Status Species That Could Occur Within the Martis Valley Regional Trail Study Corridor

Species	Status* Federal	State	Other	Habitat	Potential for Occurrence**
Plants					
Constance sedge *Carex constanceana*	-	-	List 1B.1	Subalpine coniferous forest (sandy, mesic)	Possible. Suitable habitat occurs in onsite streams and wetlands.
Mud sedge *Carex limosa*	-	-	List 2.2	Bogs and fens in upper montane coniferous forest	Possible. Suitable habitat occurs in onsite streams and wetlands.
American mannagrass *Glyceria grandis*	-	-	List 2.3	Bogs, fens, meadows, streambanks and lake margins	Possible. Suitable habitat occurs in onsite streams and wetlands.
Slender-leaved pondweed *Potamogeton filiformis*	-	-	List 2.2	Marshes and swamps, moving water (assorted shallow freshwater).	Possible. Suitable habitat in onsite perennial creeks.

Species	Status* Federal	State	Other	Habitat	Potential for Occurrence**
Alder buckthorn *Rhamnus alnifolia*	-	-	List 2.2	Upper and lower montane coniferous forests; meadows and seeps; riparian scrub.	Possible. Suitable habitat onsite in riparian scrub.
Plumas ivesia *Ivesia sericoleuca*	-	-	List 1B.2	Great Basin scrub; lower montane coniferous forest; meadows and seeps; vernal pools; [vernally mesic, usually volcanic].	Occurs. Observed in sagebrush scrub habitat onsite.
Fish					
Lahontan cutthroat trout *Oncorhynchus clarki henshawi*	FT	-	-	Endemic to streams of Lahontan Basin of northern Nevada, eastern California, and southern Oregon.	Possible. Previously documented in Martis Creek and tributaries but likely extirpated.
Amphibians					
Northern leopard frog *Rana pipiens*	-	CSC		Known from a variety of aquatic habitats. Endemic populations potentially occur in Truckee River drainage.	Possible. Potential habitat in Martis Creek and perennial tributaries. Rare in project region.
Sierra Nevada yellow-legged frog *Rana sierrae*	FC	CSC		Streams, lakes, and ponds in montane habitats.	Possible. Marginal-quality habitat in Martis Creek and perennial tributaries.
Birds					
Northern goshawk *Accipiter gentilis*	-	CSC	-	Mature and old-growth stands of conifer and deciduous forests.	Possible. Potential nesting habitat onsite. Known nesting in project vicinity.
Yellow warbler *Dendroica petechia brewsteri*	-	CSC	-	Breeds in riparian deciduous habitats or open conifer forest with shrub cover.	Possible. Suitable nesting habitat available throughout corridor.

Species	Status* Federal	State	Other	Habitat	Potential for Occurrence**
Willow flycatcher *Empidonax traillii*	-	CE	-	Breeds in extensive willow thickets on edge of wet meadows, ponds, or streams.	Likely. Suitable nesting habitat in onsite riparian scrub. Previous nesting along Martis Creek.
Mammals					
Sierra Nevada snowshoe hare *Lepus americanus tahoensis*	-	CSC	-	Montane riparian habitats, with dense thickets of young trees and shrubs.	Possible. Suitable habitat occurs in association with onsite dense riparian scrub communities. Rare in project region.
Sierra Nevada mountain beaver *Aplodontia rufa californica*	-	CSC	-	Aquatic habitats with adjacent shrubs and deciduous trees.	Possible. Suitable habitat in scattered locations along drainages of study corridor with dense riparian cover.

*Status Codes:

Federal

FE Federal Endangered
FT Federal Threatened
FP Federal Proposed Species

State

CE California Endangered
CT California Threatened
CR California Rare (plants only)
CSC California Species of Concern
CFP California Fully Protected

CNPS

List 1B Rare, Threatened, or Endangered in California
List 2 R, T, or E in California, more common elsewhere
1- Seriously threatened in California
2- Fairly threatened in California
3- Not very threatened in California

**Definitions for the Potential to Occur:

- **None.** Habitat does not occur.
- **Unlikely.** Some habitat may occur, but disturbance or other activities may restrict or eliminate the possibility of the species occurring. Habitat may be very marginal, or the study area may be outside the range of the species.
- **Possible.** Marginal to suitable habitat occurs, and the study area occurs within the range of the species.
- **Likely.** Good habitat occurs, but the species was not observed during surveys.
- **Occurs:** Species was observed during surveys.

Plants

Due to the previously known occurrences of Plumas ivesia within the study area, our corridor field surveys included focused surveys for Plumas ivesia. However, our assessment did not include conducting floristic, special-status plant surveys to agency guidelines, which would have included a comprehensive botanical survey and identification of each plant species to determine any listing/rarity status. Nevertheless, our surveys in June and July covered the blooming times of many special-status species and we attempted to determine the presence or absence of rare plant species. We also did a thorough survey in the sagebrush scrub habitat during our focused surveys for Plumas ivesia. Other habitats, such as the riparian and stream areas, were not as thoroughly surveyed.

Constance's sedge (*Carex constanceana*) is a medium to tall (1 ½ to 2 feet) member of the sedge family (Cyperaceae) that grows in dense clumps. Several technical characteristics separate it from other members of this large genus. Constance's sedge has no state or federal status, but it is on the CNPS List 1B.1. Constance's sedge occurs in Oregon and Washington. In California it is known to occur at the Sagehen Reserve in Nevada County. Constance's sedge is not recognized in the current *Jepson Manual*. It blooms in August. Suitable habitat for Constance's sedge occurs in the wetland meadow and stream habitats onsite. *Carex* species were observed in the study area during the 2009 field surveys.

Mud sedge (*Carex limosa*) is a spreading perennial member of the sedge family (Cyperaceae). It has no state or federal status. It is on the CNPS List 2.2, meaning that it is relatively uncommon in California, but more common elsewhere. Mud sedge has long rhizomes and roots that are conspicuously hairy. The style is exerted from the perigynium and has a thick blackened base. Mud sedge grows in soggy meadows and sphagnum bogs and other very wet scattered locations in the Cascades and Sierra Nevada from Siskiyou County to Fresno County. It is very widespread in other portions of the Northern Hemisphere, occurring north to Alaska and Canada, and extending to the mountains of Europe and Asia. It blooms from June to August. Suitable habitat for mud sedge occurs in the wetter areas of meadow adjacent to Martis Creek, particularly along the proposed trail alignment. *Carex* species were observed in the study area during the 2009 field surveys.

Slender-leaved pondweed (*Potamogeton filiformis)* is perennial member of the pondweed family (Potamogetonaceae). It has no state or federal status, but is on the CNPS List 2.2. It occurs in assorted shallow freshwater habitats such as marshes, swamps, and moving water. It blooms between May and July. Slender-leaved pondweed can be distinguished from other pondweeds by having leaves that are linear and not floating, with fused stipules. Suitable onsite habitat occurs in the perennial streams onsite, including Martis Creek. No species of *Potamogeton* were recorded during the 2009 field surveys.

Alder buckthorn (*Rhamnus alnifolia*) is shrub member of the buckthorn family (Rhamnaceae). It has no state or federal status, but is on the CNPS List 2.2. It occurs in meadows, seeps, and riparian scrub habitats within montane coniferous forests. It blooms between May and July. Alder buckthorn can be distinguished from other *Rhamnus* species by having both terminal buds covered with scales and deciduous leaves. Suitable habitat onsite occurs in the riparian scrub habitats. No species of *Rhamnus* were recorded during the 2009 field surveys.

American mannagrass (*Glyceria grandis*) is a perennial member of the grass family (Poaceae). It lacks state and federal status and is on the CNPS List 2.3. It occurs in bogs and fens, and in montane streams and lake margins. It blooms between June and August. Suitable habitat occurs within and adjacent to the onsite perennial streams. No *Glyceria* species were recorded during the 2009 field surveys.

Plumas ivesia (*Ivesia sericoleuca*) is a perennial member of the rose family (Rosaceae). It is a CNPS List 1B.2 status. Plumas ivesia has a more-or-less cylindrical leaf with many leaflets and numerous white flowers. It grows in dry to moist meadows in Great Basin scrub and coniferous forests. It occurs in the northern Sierra Nevada to the Modoc Plateau, and blooms from May to September.

Due to the previous known occurrences of Plumas ivesia within the study area, our assessment included focused surveys for Plumas ivesia. During our focused surveys, we mapped and estimated numbers for Plumas ivesia populations within and adjacent to the study corridor (Figures 5c and 5d). Plumas ivesia was observed at several locations within the sagebrush scrub habitat along the proposed and alternative trail alignments north of Martis Valley Creek (refer to Figure 3, Habitat Map). Plumas ivesia is located in areas in the sagebrush scrub that are dominated by low sagebrush, where antelope brush and big sagebrush are absent. Other plant species associated with Plumas ivesia include flat-scale balsam-root, capitate sandwort, dwarf lupine, Indian paintbrush, navarretia, onion, and Bloomer's fleabane.

As shown on Figure 3, the study corridor runs through large populations of Plumas ivesia. Along the proposed trail alignment (Segments 1 and 2), there are an estimated 1,100 Plumas ivesia plants within the study corridor and an estimated 196,000 Plumas ivesia plants total in the areas shown on the map.

Wildlife

Lahontan cutthroat trout (*Oncorhynchus clarkia henshawi*) is found in a wide variety of cold-water habitats throughout the Lahontan Basin of northern Nevada, eastern California, and southern Oregon. It generally occurs in cold, clear flowing water with adjacent well-vegetated and stable stream banks (USFWS 2009). A segment of the population in the Truckee River basin also occurs in large lakes. Lahontan cutthroat trout (LCT) spawn in streams, between February and July, depending on local water conditions.

LCT were once abundant in the Truckee River basin, but populations have been significantly reduced due to a variety of factors including: habitat loss, development, water diversions, poor water quality, and competition with introduced fish species. In 1960, LCT populations in the Truckee River basin were limited to Pole Creek, Pyramid Lake, Independence Lake, and its tributary Independence Creek. Stream populations in a variety of streams and rivers in the Truckee River basin were later started through stocking in the 1980's and early 1990's. Currently, seven stream populations occupy about 8 miles of habitat comprising 2.2 percent of the historic stream distribution (Coffin and Cowan 1995).

The CNDDB lists two documented historic occurrences of LCT in the study area. These include occurrences along the mainstem of Martis Creek (occurrence no. 13) and in Middle Martis Creek (occurrence no. 11) to the east. The presence of LCT was confirmed in 1983 in the mainsteam of Martis Creek (CNDDB 2009). However, during a follow-up visit in 1993, the population was determined to likely have been extirpated. LCT was also determined to no longer be present in middle Martis Creek. Although existing literature indicates that LCT no longer exists in the drainages in the study corridor, there may be some limited potential for LCT to occur in suitable habitat areas located along Martis Creek in the future.

Sierra Nevada Yellow-legged Frog (*Rana sierrae*) occurs primarily at higher elevations of the Sierra Nevada from Plumas County to southern Tulare County (Zeiner et al., 1998). In the Sierra Nevada this species is associated with streams, lakes and ponds in montane riparian, lodgepole pine, subalpine conifer, and wet meadow habitat types. It is never encountered far from water. The Sierra Nevada yellow-legged frog (SNYLF) feeds primarily on aquatic and terrestrial invertebrates, but favors terrestrial insects. Tadpoles graze on algae and diatoms along rocky bottoms in shallow waters. Breeding and egg-laying at higher elevations usually occurs from June to August depending on local conditions. Clusters of 200 to 300 eggs are deposited in shallow water and attached to gravel or submerged rocks. Tadpoles may require up to two over-wintering periods to complete metamorphosis. Adults are commonly preyed upon by garter snakes and introduced trout.

The CNDDB (2009) documents nine occurrences of SNYLF within the project region. Many of these occurrences are associated with higher elevation lakes and streams located northwest and southeast of the study area. The closest previously documented occurrence of SNYLF is from Gray Creek, approximately 8 miles northeast of the study corridor. Within the study corridor, potential habitat occurs in association with portions of Martis Creek and its tributaries. Portions of these drainages that typically retain surface water throughout the dry season and have open, sunny embankments may provide suitable habitat for the species.

Northern leopard frog (*Lithobates pipiens*) is widely distributed across North America from the Atlantic coast to the western edge of the Great Basin (Stebbins 1985). This species is uncommon and localized in California and many populations appear to be introduced. The preferred elevation range extends from sea level to 7,000 feet (Zeiner et al., 1988). The northern leopard frog (NLF) is a highly aquatic species typically found in springs, slow flowing streams, marshes, bogs, ponds, canals, and reservoirs, usually in permanent and semi-permanent water in many habitat types (Stebbins 1985). Permanent aquatic habitat is required for NLF to breed, feed, and overwinter. In California, NLF breed and lay eggs from December through June depending on local water conditions. Females deposit clusters of eggs which attach to vegetation in shallow water. Eggs hatch within three weeks and tadpoles metamorphose in two to four months.

The CNDDB documents one occurrence of NLF in the project region. This occurrence is from a stream located approximately six to seven miles southeast of the study corridor, in the vicinity of Kings Beach (CNDDB 2009). Although NLF is considered rare within the project region, there is some limited potential for individuals to occur within the study corridor due to the presence of suitable habitat.

Northern goshawk (*Accipiter gentilis*) occurs in dense, mature conifer and deciduous forest habitats interspersed with meadows or other openings. It typically breeds in mature old-growth stands of conifer and deciduous habitats, at mid to high elevations. Nesting habitat generally includes north-facing slopes located near water. Nests are usually located in the fork of a large, horizontal limb close to the trunk, approximately 19 to 82 feet above the ground. This species often uses old nests, and will maintain alternate sites. Breeding generally begins in mid-June, with eggs being incubated approximately 36 to 41 days. Young usually fledge at about 45 days following hatching and are typically independent by 70 days.

The CNDDB (2009) reports 12 documented occurrences of northern goshawk in the project region. The closest documented nesting activity (occurrence no. 305) was reported from approximately two miles east of the study corridor, in a Jeffrey pine located just east of Monte Carlo Meadows. Based on the presence of suitable habitat and proximity to previously documented nesting activity, there is some limited potential for northern goshawk to nest in portions of the study corridor. Potential nesting habitat is likely limited to forested areas located near open areas and away from development.

Yellow warbler (*Dendoica petechia*) is an uncommon to common, summer resident in the northern Sierra Nevada. It primarily breeds in riparian woodlands up to 8,000 feet, but is also known to breed in montane chaparral, open ponderosa pine and mixed conifer habitats with substantial amounts of shrub cover. During migration, this species is found in a variety of forest and woodland habitats. Nests consist of an open cup placed approximately 2 to 16 feet above the ground in a deciduous tree or shrub. Breeding generally takes place from mid-April to early-August with peak activity occurring in June. Incubation is approximately 11 days. Young fledge at about 9 to 12 days following hatching. Young yellow warblers breed the following year after hatching.

The CNDDB documents three known occurrences of yellow warbler within the project region. The closest documented occurrences relative to the study corridor are from Burton Creek State Park to the south and Donner Lake to the west (CNDDB 2009). Suitable nesting habitat for the yellow warbler occurs in association with riparian habitats of Martis Creek and its tributaries throughout the study corridor, as well as in adjacent upland habitats with dense shrubby vegetation. Based on the presence of suitable habitat, and proximity to previously documented nesting activity, it is expected that yellow warbler has a reasonable potential for nesting within the study corridor.

Willow Flycatcher *(Empidonax trailii),* a state-listed endangered species, is a rare to locally uncommon summer resident in the Sierra Nevada. Willow flycatcher breeds from Tulare County north, along the western front of the Sierra Nevada and Cascade mountain ranges, extending to the coast in northern California. This species resides in wet meadows and montane riparian habitats, up to 8,000 feet in elevation, and most often occurs in broad, open river valleys or large mountain meadows with large areas of shrubby willows (Zeiner et al. 1990). Preferred nesting habitat for willow flycatcher consists of extensive thickets of low, dense willows located along the edges of wet meadows, ponds, or backwater areas. While territories as small as one acre in size have been documented in riparian patches, suitable nesting habitat is generally greater than 10 acres in size. The nest consists of an open cup constructed in an upright fork of a willow or other shrub, approximately 1.5 to 10 feet above the ground. Individual birds arrive from Central and South American wintering grounds in May through June. Peak egg-laying of willow flycatcher is during June. Incubation occurs for 12 to 13 days, and young fledge approximately 13 to 14 days after hatching.

The CNDDB (2009) documents numerous previous sightings of willow flycatcher throughout the project region. One documented occurrence is from a portion of Martis Creek located within the study area. This CNDDB record (occurrence No. 111) included sightings of breeding adults on several occasions between 1996 and 2004 along Martis Creek, approximately 0.5 miles upstream from the Highway 267 crossing. Habitat in the vicinity of the willow flycatcher sightings consisted of a shallow gradient channel bordered primarily by a band of willows approximately 15 to 20 feet wide. Potential nesting habitat for willow flycatcher within the study area includes scattered areas of dense willow scrub located along Martis Creek and its tributaries. Based on the presence of suitable habitat and previously documented nesting activity along Martis Creek, willow flycatcher has a reasonable potential for occurring within the study corridor on a seasonal basis.

Sierra Nevada Snowshoe hare *(Lepus americanus tahoensis)* is an uncommon resident at upper elevations of the Sierra Nevada. This subspecies of snowshoe hare is primarily found in montane riparian habitats with thickets of alders and willows, and in stands of young conifers mixed with chaparral. It prefers the younger stages of a variety of coniferous forest habitats, primarily occurring along the edges, adjacent to meadows. Individuals seek cover in dense tree or shrub thickets, where they create a shallow bowllike depression. Breeding takes place from mid-February to June or July, with a gestation period of 35 to 37 days. Two to three litters are generally produced. Diet consists of grasses, forbs, sedges, and low shrubs during the summer. In winter, they eat the needles and bark of young conifers, and leaves and twigs of willow and alder (Zeiner et al., 1990).

A few occurrences of the Sierra Nevada snowshoe hare (SNSH) have been documented in the broader region around the study area. The closest documented occurrence relative to the study area was from 1915 near the town of Truckee. The most recent occurrence, reported from 1969, was from Sagehen Creek, approximately 11 to 12 miles north/northwest of the study corridor. Within the study area, suitable habitat occurs in association with the meadows and thickets associated with portions of Martis Creek and the unnamed tributary to the east. Based on the presence of suitable habitat, the SNSH may have some limited potential for occurring within the study corridor.

Sierra Nevada Mountain Beaver (*Aplodontia rufa californica*) occurs throughout the Sierra Nevada in montane riparian habitats, consisting of dense riparian-deciduous vegetation. This mostly nocturnal species also frequents forested areas with a dense understory near water. Cool, moist microclimates are required, along with deep, friable soils for burrowing. Burrows are excavated in deep soils in dense thickets, near streams or springs. Breeding takes place from December through March, with peak activity in February. Young are born from February through June, with one litter being produced each year. Young are weaned at about 60 days. The diet of the Sierra Nevada mountain beaver (SNMB) consists of the vegetative parts of plants, including dogwood, blackberry, ferns, willows, and grasses (Zeiner et al., 1990).

The CNDDB (2009) lists 11 previously documented occurrences of the SNMB within the project region, including several occurrences in the Truckee area and along tributaries to the Truckee River. Based on the close proximity to other known occurrence and the presence of suitable habitat, it is expected that the SNMB has some limited potential for occurring within the study corridor. Suitable habitat primarily occurs along portions of Martis Creek and the unnamed tributary to the east containing dense riparian vegetation and moist, friable soils.

RECOMMENDATIONS

Waters of the United States

The study area has areas considered waters of the United States. Activities that affect these areas would require a permit from the U.S. Army Corps of Engineers pursuant to Section 404 of the federal Clean Water Act. The project would also need to obtain a water quality certification from the Regional Water Quality Control Board pursuant to Section 401 of the federal Clean Water Act. The Corps and the Regional Board would add conditions to the permits that would stipulate the appropriate mitigation, which could include one or more of the following: onsite creation, offsite creation, purchase of credits in a mitigation bank, or payments to an in-lieu fund. The precise mitigation and monitoring requirements would depend on the extent of impacts.

Streams, Pond, and Riparian Habitat

Impacts to the bed, bank, or channel of Martis Creek the minor creeks that cross the study area would require a Streambed Alteration Agreement with the CDFG. Impacts to the riparian habitat may require a Streambed Alteration Agreement with the CDFG.

Special-Status Plants

1) Due to the focused surveys for Plumas ivesia, the onsite sagebrush scrub habitat was thoroughly surveyed during the 2009 field surveys. However, in the less thoroughly surveyed habitats onsite, such as the riparian and stream habitats, moderate potential for several special-status plant species remains. Therefore, floristic rare plant survey should be conducted (according to current agency guidelines) within the wetland, riparian, and stream habitats (within the areas of potential effect) prior to construction. The floristic survey should occur in June/July and August during the possible overlap in blooming times of potentially occurring special-status species. Should any individual special-status plant species be located, the applicant shall retain a qualified botanist to develop and implement a mitigation plan in coordination with USFWS and/or CDFG; appropriate measures may include transplanting for non-federal or state listed species (such as CNPS List 1 or 2 species).

2) An estimated 1,100 Plumas ivesia plants are located in the study corridor, individuals that are part of a population of an estimated 196,000 plants in the vicinity of the trail corridor. Due to the relatively small percentage (<1%) of the population potentially affected by the proposed project, the proposed project is not expected to significantly impact the populations of Plumas ivesia in the project area. In order to ensure a less than significant impact, it is recommended that: (1) where feasible, align the trail to avoid known populations of Plumas ivesia; and (2) if Plumas ivesia plants are unavoidable and will be impacted, the applicant shall retain a qualified botanist to develop and implement a mitigation plan in coordination with the applicant, property owner, and/or CDFG. Appropriate measures may include soil salvage and placement at a nearby appropriate location.

Special-Status Wildlife

1) The potential for occurrence of Lahontan cutthroat trout within drainages crossing the study corridor is considered low, based on existing records (CNDDB 2009; Coffin and Cowan 1995). However, Martis Creek and associated tributaries may provide suitable habitat for the species and individuals could occupy portions of the system in the future. Well in advance of commencement of proposed construction activities, the USFWS Nevada Field Office should be contacted to initiate informal consultation and determine appropriate measures for avoiding impacts to potential LCT habitat within and downstream of the study corridor and identify any potential permitting responsibilities.

2) Portions of Martis Creek and its tributaries provide potential habitat for Sierra Nevada yellow-legged frog (SNYLF), as well as potential habitat for northern leopard frog (NLF). All disturbance of potential habitat for these species should be avoided to the extent feasible, including all perennial streams and adjacent wetland habitat within the study area. Any work conducted along ephemeral streams of the study corridor should be implemented during the driest part of the season. If it is determined that any disturbance of perennial drainages within the study corridor would be required as part of construction activities, the following measures should be implemented:

- Retain a biological monitor throughout the duration of construction activities in the vicinity of affected aquatic habitat, to ensure that disturbance of SNYLF and its habitat is minimized or avoided. If individuals are detected within a proposed construction area, the CDFG should be contacted immediately to determine appropriate avoidance measures including, but not limited to, moving individuals to appropriate offsite locations.
- Restore all aquatic habitat and wetland areas that experience temporary disturbance as a result of construction activities, to pre-project conditions, where feasible.

3) Portions of the study corridor provide suitable nesting habitat for northern goshawk, as well as for a variety of other raptors which have no formal state or federal listing status. At a minimum, forested habitats within the study corridor have potential to support nesting of the following species known from the region: northern goshawk, Cooper's hawk, and red-tailed hawk. Snags located throughout the study area also provide suitable nesting habitat for American kestrel and a variety of owls. Project implementation could therefore result in disturbance of breeding and nesting of some of the identified species if construction occurs at any time during the typical breeding season (approximately March 1 through August 31). Take of any active raptor nest is prohibited under California Fish and Game Code Section 3503.5. To avoid disturbance of active nests, a pre-construction survey should be conducted by a qualified biologist if construction commences at any time during the typical nesting season. Pre-construction surveys should be conducted no more than 30 days prior to initiation of proposed construction activities. Survey results should then be submitted to the CDFG. If active raptor nests are found on or immediately adjacent to proposed construction areas, consultation should be initiated with the CDFG to determine appropriate avoidance measures. Depending on the species at issue, protective measures would likely include establishing an appropriate buffer zone around each active nest found, and subsequent monitoring of the nest until young have fledged.

4) Potential nesting habitat for willow flycatcher and yellow warbler occurs in scattered locations along various drainages throughout the study area. In addition, nesting activities of willow flycatcher have previously been documented by the CNDDB (2009) in association with riparian scrub of Martis Creek in the southwestern portion of the study area. To avoid impacts to willow flycatcher and potential nesting habitat, all disturbance of riparian scrub vegetation should be avoided, to the extent feasible. In addition, any work conducted in the general vicinity of potential nesting habitat should be conducted following the typical breeding season for both willow flycatcher and yellow warbler (nesting season is spring and early summer; fall is best time for habitat impacts). Any disturbance of breeding or nesting willow flycatcher or its habitat would require a "take" permit under the California Endangered Species Act. If disturbance of potential habitat for willow flycatcher will likely be required as part of the project, CDFG should be contacted well in advance of project implementation to determine if protocol-level surveys are necessary and identify any permitting requirements and mitigation responsibilities.

5) Portions of the study corridor provide potential habitat for Sierra Nevada snowshoe hare (SNSH) and Sierra Nevada mountain beaver (SNMB), although the potential for occurrence of SNSH is considered low due to the species' rarity in the region. Suitable habitat for SNSH occurs in association with willow thickets and adjacent meadows in the vicinities of Martis Creek and its tributary to the east. Potential habitat for SNMB may include areas of dense riparian vegetation containing moist, friable soils associated with Martis Creek and the unnamed tributary to the east. To the extent feasible, avoid any new ground disturbance within and directly adjacent to areas that provide potential habitat for SNMB and SNSH. If areas of potential habitat cannot be avoided, retain a qualified biologist to survey the proposed area of disturbance prior to commencement of construction. If evidence of occurrence of either of these species is found, CDFG should be contacted to determine appropriate avoidance or mitigation measures.

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Appendix A.
Plant Species Observed Within the Martis Valley Regional Trail Study Corridor

Appendix A

Plant Species Observed Within the Martis Valley Trail Study Area

Ferns and Allies

Dennstaedtiaceae

Pteridium aquilinum var. pubescens	Bracken fern

Equisetaceae

Equisetum arvense	Common horsetail

Woodsiaceae

Athyrium filix-femina var. cyclosorum	Western lady fern

Gymnosperms

Cupressaceae

Juniperus occidentalis	Western juniper

Pinaceae

Abies concolor	White fir
Pinus contorta subsp. murrayana	Lodgepole pine
Pinus jeffreyi	Jeffrey pine
Pinus ponderosa	Pacific ponderosa pine

Angiosperms - Dicots

Amaranthaceae

**Chenopodium album*	White pigweed

Apiaceae (Umbelliferae)

Heracleum lanatum	Cow parsnip
Lomatium nevadense var. nevadense	Nevada lomatium
Perideridia parishii subsp. latifolia	Parish's yampah

Apocynaceae

Apocynum androsaemifolium	Bitter dogbane

Asteraceae (Compositae)

Agoseris sp.	Agoseris
Arnica parryi	Parry's arnica
Artemisia arbuscula subsp. arbuscula	Low sagebrush
Artemisia tridentata	Big sagebrush
Balsamorhiza hookeri	Flat-scale balsam-root
Cirsium scariosum var. americanum	Stemless thistle
Ericameria nauseosa	Rubber rabbitbrush
Erigeron bloomeri var. bloomeri	Bloomer's fleabane
Eurybia integrifolia	Thickstem aster
Gnaphalium palustre	Western marsh cudweed
Madia glomerata	Mountain tarweed
Psilocarphus brevissimus var. brevissimus	Dwarf woolly-heads
Senecio integerrimus	Mountain butterweed

* Indicates a non-native species

Symphyotrichum spathulatum var. spathulatum	Western mountain aster
**Taraxacum officinale*	Common dandelion
**Tragopogon dubius*	Yellow salsify
Wyethia mollis	Mountain mule's-ears

Betulaceae

Alnus incana subsp. tenuifolia	Mountain alder

Boraginaceae

Cryptantha affinis	Cryptantha
Phacelia hastata subsp. hastata	Phacelia
Plagiobothrys hispidulus	Popcornflower

Brassicaceae (Cruciferae)

Erysimum capitatum subsp. capitatum	Western wallflower
Rorippa sinuata	Spreading yellow cress

Campanulaceae

Porterella carnulosa	Fleshy porterella

Caryophyllaceae

Eremogone congesta var. congesta	Capitate sandwort
Silene douglasii	Campion
Stellaria longipes var. longipes	Long-stalk starwort

Ericaceae

Arctostaphylos patula	Greenleaf manzanita

Fabaceae (Leguminosae)

Astragalus purshii var. tinctus	Locoweed
Lotus purshianus var. purshianus	Spanish-clover
Lupinus lepidus var. confertus	Dwarf lupine
Trifolium longipes var. elmeri	Long-stalk clover
**Trifolium repens*	White clover

Lamiaceae (Labiatae)

Monardella odoratissima subsp. pallida	Monardella

Linaceae

Linum lewisii var. lewisii	Prairie flax

Loasaceae

Mentzelia dispersa	Blazing star

Onagraceae

Epilobium brachycarpum	Summer cottonweed
Epilobium densiflorum	Dense-flower spike-primrose

Orobanchaceae

Castilleja pilosa	Indian paintbrush
Orobanche fasciculata	Clustered broom-rape
Orthocarpus cuspidatus subsp. cryptanthus	Orthocarpus

Phrymaceae

Mimulus breweri	Monkeyflower
Mimulus guttatus	Common monkeyflower

Plantaginaceae

Collinsia parviflora	Blue-eyed Mary

* Indicates a non-native species

Penstemon rydbergii var. oreocharis	Rydberg's beardtongue
**Veronica anagallis-aquatica*	Water speedwell

Polemoniaceae

Navarretia capillaris	Navarretia
Navarretia intertexta subsp. propinqua	Great Basin navarretia
Navarretia leptalea subsp. bicolor	Navarretia
Polemonium occidentale	Western Jacob's-ladder

Polygonaceae

Eriogonum nudum	Nude buckwheat
Eriogonum umbellatum var. nevadense	Nevada buckwheat
Polygonum douglasii	Douglas' knotweed
Polygonum polygaloides subsp. kelloggii	Polygala knotweed
Rumex salicifolius	Willow dock

Portulacaceae

Claytonia rubra subsp. rubra	Claytonia

Ranunculaceae

Delphinium nuttallianum	Dwarf larkspur
Ranunculus occidentalis	Western buttercup

Rhamnaceae

Ceanothus prostratus	Mahala mat
Ceanothus velutinus var. velutinus	Tobacco brush

Rosaceae

Geum macrophyllum	Bigleaf avens
Ivesia sericoleuca	Plumas ivesia
Potentilla glandulosa	Glandular cinquefoil
Purshia tridentata var. tridentata	Antelope bush
**Rosa sp.*	Wild rose
Sanguisorba occidentalis	Western burnet

Rubiaceae

Kelloggia galioides	Kelloggia

Salicaceae

Populus tremuloides	Quaking aspen
Salix geyeriana	Geyer's willow
Salix lemmonii	Lemmon's willow
Salix sp.	Willow

Scrophulariaceae

**Verbascum thapsus*	Woolly mullein

Violaceae

Viola purpurea subsp. purpurea	Mountain violet

Angiosperms -Monocots

Agavaceae

Camassia quamash subsp. breviflora	Common camassia

Alliaceae

Allium campanulatum	Onion

Cyperaceae

Carex sp.	Sedge

Juncaceae

Juncus balticus	Baltic rush
Juncus bufonius	Toad rush
Juncus sp.	Rush

Poaceae (Gramineae)

**Agropyron cristatum*	Crested wheatgrass
**Bromus tectorum*	Cheat grass
**Dactylis glomerata*	Orchard grass
Danthonia unispicata	One-spike oatgrass
Deschampsia cespitosa subsp. cespitosa	Tufted hairgrass
Deschampsia danthonioides	Annual hairgrass
Elymus elymoides	Squirreltail
Elymus glaucus	Blue wildrye
**Elytrigia repens*	Quackgrass
Hordeum brachyantherum	Meadow barley
Muhlenbergia richardsonis	Mat muhly
Phleum alpinum	Mountain timothy
**Phleum pratense*	Common timothy
**Poa bulbosa subsp. vivipara*	Bulbous bluegrass
**Poa pratensis subsp. pratensis*	Kentucky bluegrass
Poa secunda	Secund bluegrass

* Indicates a non-native species

Appendix B.
Wildlife Species Observed Within the Martis Valley Regional Trail Study Corridor

Appendix B
Wildlife Species Observed Within the Martis Valley Trail Study Area

Reptiles

Northern sagebrush lizard	*Sceloporus graciosus graciosus*

Birds

Turkey vulture	*Cathartes aura*
Osprey	*Pandion haliaetus*
American kestrel	*Falco sparverius*
Northern flicker	*Colaptes auratus*
Western wood-pewee	*Contopus sordidulus*
Dusky flycatcher	*Empidonax oberholseri*
Steller's jay	*Cyanocitta stelleri*
Common raven	*Corvus corax*
Cliff swallow	*Petrochelidon pyrrhonota*
Mountain chickadee	*Poecile gambeli*
Red-breasted nuthatch	*Sitta canadensis*
Brown creeper	*Certhia americana*
American robin	*Turdus migratorius*
Yellow-rumped warbler	*Dendroica coronata*
Western tanager	*Piranga ludoviciana*
Chipping sparrow	*Spizella passerina*
Brewer's sparrow	*Spizella breweri*
Dark-eyed junco	*Junco hyemalis*

Mammals

Belding's ground squirrel	*Spermophilus beldingi*
Golden-mantled ground squirrel	*Spermophilus lateralis*
Douglas' squirrel	*Tamiasciurus douglasii*
Mountain pocket gopher	*Thomomys monticola*
Coyote	*Canis latrans*
Mule deer	*Odocoileus hemionus*

Appendix C.
Special-Status Plant Species Known to Occur in the Region of the Martis Valley Regional Trail Study Corridor

Appendix C

Special-Status Plant Species Known to Occur in the Region of the Martis Valley Trail Study Area

Family Taxon Common Name	Status*	Flowering Period	Habitat	Probability on Project Site
Asteraceae (Compositae)				
Erigeron eatonii nevadincola Nevada daisy	Fed: - State: - CNPS: List 2.3	May-July	Great Basin scrub; lower montane coniferous forest; pinyon and juniper woodland (rocky).	Unlikely. Last seen in project region in 1915 (CNDDB 2009). Suitable habitat occurs onsite; however, it would have been observed during our extensive surveys in the sagebrush scrub during focused surveys for Plumas ivesia.
Erigeron miser Starved daisy	Fed: - State: - CNPS: List 1B.3	June-October	Upper montane coniferous forest (rocky). 1840-2620 m.	None. Micro-habitat (steep, rocky granitic outcrops) not within the study area. Moreover, found at higher elevations than those within the study area.
Brassicaceae (Cruciferae)				
Arabis rigidissima demota Carson Range rock cress	Fed: - State: - CNPS: List 1B.2	August-August	Broad-leaved upland forest; upper montane coniferous forest; [rocky],	None. Occurs above 7,300 feet (too high for study area).
Rorippa subumbellata Tahoe yellow cress	Fed: FC State: CE CNPS: List 1B.1	June-September	Lower montane coniferous forest; meadows; [decomposed granitic beaches].	None. Occurs along Lake Tahoe. No suitable habitat in the study area.
Bruchiaceae				
Bruchia bolanderi Bolander's bruchia	Fed: - State: - CNPS: List 2.2	May-July	Coniferous forest (meadows and seeps, damp soil). 1700-2500 m.	Possible. Suitable habitat onsite. Moss that grows on damp soil. One occurrence in project region.
Cyperaceae				
Carex constanceana Constance's sedge	Fed: - State: - CNPS: List 1B.1	August-August	Subalpine coniferous forest (sandy, mesic).	Possible. Suitable habitat occurs in the stream and wetland habitats onsite.

Appendix C

Special-Status Plant Species Known to Occur in the Region of the Martis Valley Trail Study Area

Family Taxon Common Name	Status*	Flowering Period	Habitat	Probability on Project Site
Carex limosa Mud sedge	Fed: - State: - CNPS: List 2.2	June-August	Bogs and fens [lower montane coniferous forest; upper montane coniferous forest].	Possible. Suitable habitat occurs in the stream and wetland habitats onsite.
Droseraceae				
Drosera anglica Narrow-leaved sundew	Fed: - State: - CNPS: List 2.3	June-August	Bogs and fens; meadows.	Unlikely. Very marginally suitable habitat in the wetland meadow near Martis Creek. No Drosera species observed during surveys. In the project region, Drosera anglica is found in fens, which do not occur onsite.
Lamiaceae (Labiatae)				
Scutellaria galericulata Marsh skullcap	Fed: - State: - CNPS: List 2.2	June-September	Lower montane coniferous forest; meadows (mesic); marshes and swamps.	Unlikely. Only record in the project region is from 1885 (CNDDB 2009). Mostly occurs in marshes and swamps, which are not located in the study area.
Malvaceae				
Sphaeralcea munroana Munroe's desert mallow	Fed: - State: - CNPS: List 2.2	May-June	Great Basin scrub.	Unlikely. Suitable habitat occurs onsite; however, it would have been observed during our extensive surveys in the sagebrush scrub during focused surveys for Plumas ivesia. Only record in the project region is from 1922.
Meesiaceae				
Meesia triquetra Three-ranked hump-moss	Fed: - State: - CNPS: List 4.2	August-September	Bogs and fens; meadows and seeps; upper montane coniferous forest (mesic soil). 1300-2500 m.	Possible. Suitable habitat onsite.
Meesia uliginosa Broad-nerved hump-moss	Fed: - State: - CNPS: List 2.2	August-September	Meadows and seeps; upper montane coniferous forest (damp soil). 1300-2500 m.	Possible. Suitable habitat onsite.

Appendix C

Special-Status Plant Species Known to Occur in the Region of the Martis Valley Trail Study Area

Family Taxon Common Name	Status*	Flowering Period	Habitat	Probability on Project Site
Ophioglossaceae				
Botrychium crenulatum Scalloped moonwort	Fed: - State: - CNPS: List 2.2	June-July	Lower montane coniferous forest; bogs and fens; meadows; marshes and swamps (freshwater).	Possible. Suitable habitat onsite.
Botrychium lunaria Common moonwort	Fed: - State: - CNPS: List 2.3	August-August	Meadows; subalpine coniferous forest; upper montane coniferous forest.	None. Occurs above 9,000 feet (outside of study area elevation).
Botrychium minganense Mingan moonwort	Fed: - State: - CNPS: List 2.2	July-August	Lower montane coniferous forest (mesic).	Possible. Suitable habitat onsite.
Poaceae (Gramineae)				
Glyceria grandis American mannagrass	Fed: - State: - CNPS: List 2.3	June-August	Bogs and fens; meadows; marshes and swamps (streambanks and lake margins).	Possible. Suitable habitat occurs in streams and wetlands.
Polygonaceae				
Eriogonum umbellatum torreyanum Donner Pass buckwheat	Fed: - State: - CNPS: List 1B.2	July-September	Meadows; upper montane coniferous forest; [volcanic, rocky].	Unlikely. Very marginal micro-habitat onsite (steep slopes and ridgetops; in bare or sparsely vegetated areas). Only observed Eriogonum umbellatum var. nevadense.
Portulacaceae				
Claytonia megarhiza Fell-fields claytonia	Fed: - State: - CNPS: List 2.3	July-August	Alpine boulder or rock; subalpine coniferous forest (rocky).	None. Occurs above 8,500 feet (outside of study area elevation).

Appendix C

Special-Status Plant Species Known to Occur in the Region of the Martis Valley Trail Study Area

Family Taxon Common Name	Status*	Flowering Period	Habitat	Probability on Project Site
Lewisia longipetala Long-petaled lewisia	Fed: - State: - CNPS: List 1B.3	July-August	Alpine boulder or rock; subalpine coniferous forest (mesic, rocky/granitic).	None. Occurs above 8,100 feet (outside of study area elevation). Suitable habitat not onsite.
Potamogetonaceae				
Potamogeton filiformis Slender-leaved pondweed	Fed: - State: - CNPS: List 2.2	May-July	Marshes and swamps (assorted shallow freshwater).	Possible. Suitable habitat in onsite perennial creeks.
Rhamnaceae				
Rhamnus alnifolia Alder buckthorn	Fed: - State: - CNPS: List 2.2	May-July	Upper and lower montane coniferous forests; meadows and seeps; riparian scrub. 1370-2130 meters.	Possible. Suitable habitat onsite in riparian scrub.
Rosaceae				
Ivesia sericoleuca Plumas ivesia	Fed: - State: - CNPS: List 1B.2	May-September	Great Basin scrub; lower montane coniferous forest; meadows and seeps; vernal pools; [vernally mesic, usually volcanic].	Occurs. Observed in sagebrush scrub habitat onsite.

***Status**

Federal:
FE - Federal Endangered
FT - Federal Threatened
FPE - Federal Proposed Endangered
FPT - Federal Proposed Threatened
FC - Federal Candidate

State:
CE - California Endangered
CT - California Threatened
CR - California Rare
CSC - California Species of Special Concern

CNPS (California Native Plant Society - List.RED Code):
List 1A - Extinct
List 1B - Plants rare, threatened, or endangered in California and elsewhere
List 2 - Plants rare, threatened, or endangered in California, more common elsewhere
List 3 - Plants about which more information is needed, a review list
List 4 - Plants of limited distribution, a watch list
RED Code
1 - Seriously endangered (>80% of occurrences threatened)
2 - Fairly endangered (20 to 80% of occurrences threatened)
3 - Not very endangered (<20% of occurrences threatened)

Appendix D.
Special-Status Wildlife Species Known to Occur in the Region of the Martis Valley Regional Trail Study Corridor

Appendix D

Special-Status Wildlife Species Known to Occur in the Region of the Martis Valley Trail Study Area

	Status*	Habitat	Probability on Project Site
Fish			
Lahontan cutthroat trout *Oncorhynchus clarki henshawi*	Fed: FT State: - Other: -	Historically found in all cold waters of the Lahontan Basin, including Independence Lake.	Possible. Suitable habitat occurs in association with Martis Creek, and some tributaries. Previously documented occurrences in mainstem of Martis Creek and west Martis Creek.
Amphibians			
Sierra Nevada yellow-legged frog *Rana sierra*	Fed: FC State: CSC Other: *	Associated with streams, lakes, and ponds in montane riparian, lodgepole pine, subalpine conifer and wet meadow habitats. Occurs in the northern and central portions of the Sierra Nevada at elevations above 4,500 feet. Always near water.	Possible. Marginal-quality habitat occurs on site in association with Martis Creek and some tributaries. Several previously documented occurrences in project region, mostly from alpine lakes and streams.
Northern leopard frog *Rana pipiens*	Fed: - State: CSC Other:	Known from a variety of aquatic habitats. Endemic populations potentially occur in Truckee River drainage.	Possible. Potential habitat occurs in association with Martis Creek and tributaries. Closest documented occurrence is from Kings Beach area, north shore Lake Tahoe.
Birds			
Bald eagle *Haliaeetus leucocephalus*	Fed: - State: CE Other: *	Occurs along shorelines, lake margins, and rivers. Nests in large, old-growth or dominant trees with open branches.	Unlikely. Species unlikely to nest on site but may periodically venture through site during foraging activities.
Northern goshawk *Accipiter gentilis*	Fed: - State: CSC Other: *	Dense, mature coniferous forests, most typically dense fir stands in the Sierra Nevada mountains.	Possible. Previously documented nesting activity approximately 1 mile east of the project site near Monte Carlo Meadows. Potential nesting in project area.
Greater sandhill crane *Grus canadensis tabida*	Fed: - State: CT Other: CFP	Nesting habitat in NE California includes wet meadows that are often interspersed with emergent vegetation. Winters in the Central Valley using irrigated pastures as habitat.	Unlikely. No suitable breeding habitat present within or near the project site. No known occurrences recorded in vicinity of project area. May visit site during migration.
Black swift *Cypseloides niger*	Fed: - State: CSC Other: *	Breeds on steep, usually wet cliffs in interior canyons and along the ocean coast.	None. No suitable nesting habitat observed within project area.

Appendix D

Special-Status Wildlife Species Known to Occur in the Region of the Martis Valley Trail Study Area

	Status*	Habitat	Probability on Project Site
Willow flycatcher *Empidonax traillii*	Fed: - State: CE Other: *	Uncommon summer resident in upper elevation montane riparian and wet meadow areas, usually with a thick growth of shrubby willow.	Likely. Previously documented nesting activity along Martis Creek, approximately 0.5 mile upstream of Highway 267. Suitable breeding habitat occurs in scattered areas along Martis Creek and tributaries.
Yellow warbler *Dendroica petechia*	Fed: - State: CSC Other: *	Breeds in riparian vegetation throughout California; populations in Sacramento and San Joaquin valleys are declining. Common in eastern Sierran riparian habitats below 8,000 feet.	Possible. Three previously documented occurrences in project region. Suitable nesting habitat occurs along portions of Martis Creek and tributaries.
Mammals			
Sierra Nevada snowshoe hare *Lepus americanus tahoensis*	Fed: - State: CSC Other: -	Montane riparian habitats with thickets of alders and willows and in stands of young conifers interdispersed with chaparral. Early seral stages of mixed conifer, subalpine conifer, red fir, Jeffrey pine, lodgepole pine, and aspen, usually along edges.	Possible. Potential habitat occurs in scattered locations on site including riparian corridors of Martis Creek and tributaries.
White-tailed jackrabbit *Lepus townsendii*	Fed: - State: CSC Other: -	Sagebrush, subalpine conifer, juniper, alpine dwarf-shrub, and perennial grassland habitats. Also found in low sagebrush, wet meadow, and early successional stages of conifer habitats.	Unlikely. Suitable habitat present on site but very rare in region. Only documented occurrence in region is from 1920 in vicinity of Tahoe City.
Sierra Nevada mountain beaver *Aplodontia rufa californica*	Fed: - State: CSC Other: -	Dense decidious trees and shrubs in riparian habitat with an abundant source of water.	Possible. Several known occurrences in the Truckee region and along tributaries to Truckee River. Suitable habitat may occur in vicinity of portions of Martis Creek.
Sierra Nevada red fox *Vulpes vulpes necator*	Fed: - State: CT Other: *	Occurs in conifer forests and rugged alpine landscape of the Sierra Nevada and Cascade ranges between 4,000 feet and 12,000 feet, most often above 7,000 feet.	Unlikely. Very rare within project region. Known from higher elevations with minimal human presence.
Pacific fisher *Martes pennanti pacifica*	Fed: FC State: CSC Other: *	Occurs in intermediate to large-tree stage coniferous forests and riparian woodlands with a high percent level of canopy closure.	Unlikely. Suitable habitat does not occur within the project site. Prefers dense coniferous forests at higher elevations, with minimal human disturbance. Only one previously documented occurrence in project region.
California wolverine *Gulo gulo luteus*	Fed: - State: CT Other: *	Habitat generally consists of open terrain above the timberline, but has been observed at 1500 feet.	Unlikely. Suitable habitat does not occur within or near the project site and no documented occurrences in vicinity. Known from higher elevations with minimal human presence.

Appendix D

Special-Status Wildlife Species Known to Occur in the Region of the Martis Valley Trail Study Area

	Status*	Habitat	Probability on Project Site
American badger *Taxidea taxus*	Fed: - State: CSC Other: -	Occurs in dry, open soils in herbaceous, shrub, and forest habitats. Needs friable, uncultivated soil. Preys on rodents.	Unlikely. Only documented occurrence in project region is from near Sierraville to north. Some limited potential for species to occur on site.

***Status**	Federal:	State:	Other:
	FE - Federal Endangered	CE - California Endangered	Some species have protection under the other designations, such as the California
	FT - Federal Threatened	CT - California Threatened	Department of Forestry Sensitive Species, Bureau of Land Management Sensitive
	FPE - Federal Proposed Endangered	CR - California Rare	Species, U.S.D.A. Forest Service Sensitive Species, and the Migratory Bird Treaty Act.
	FPT - Federal Proposed Threatened	CC - California Candidate	Raptors and their nests are protected by provisions of the California Fish and Game
	FC - Federal Candidate	CFP - California Fully Protected	Code. Certain areas, such as wintering areas of the monarch butterfly, may be protected
	FPD - Federal Proposed for Delisting	CSC - California Species of Special Concern	by policies of the California Department of Fish and Game.

WETLAND DELINEATION
FOR THE

MARTIS VALLEY REGIONAL TRAIL STUDY CORRIDOR

PLACER COUNTY, CALIFORNIA

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OCTOBER 14, 2009

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WETLAND DELINEATION
FOR THE
MARTIS VALLEY REGIONAL TRAIL STUDY CORRIDOR

INTRODUCTION

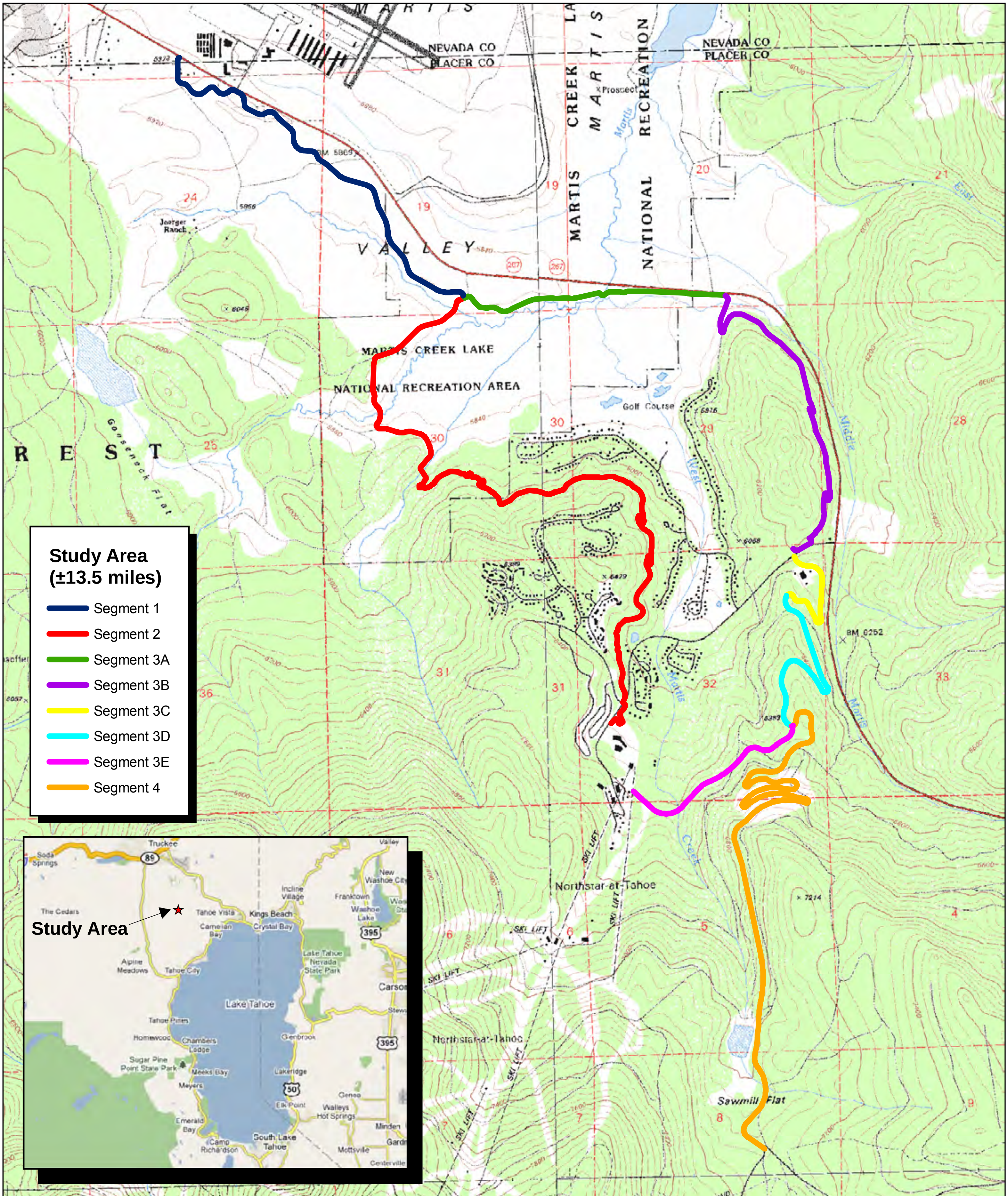
The Martis Valley Regional Trail study corridor runs for several miles between the eastern limits of the Town of Truckee and the Four Corners area near Brockway Summit in Placer County. The trail corridor is located within Townships 16N and 17N and Ranges 16E and 17E of the Truckee and Martis Peak U.S. Geological Survey 7.5 minute quadrangles. The proposed trail alignment crosses through Sections 5, 8, 13, 19, 24, 29, 30, and 32 of these quadrangles (Figure 1).

The study corridor is 50 feet wide and takes in both a proposed trail alignment and an alternative trail alignment. Both alignments generally follow the route of existing trails, although they depart substantially from existing trails in several places. The study corridor was broken into eight segments for planning purposes. The proposed trail alignment includes Segments 1, 2, 3E, and 4. The alternative alignment includes Segments 3A-3D. Implementation of the proposed trail project would occur in two phases. Phase 1 includes constructing the trail from its western terminus to Northstar, including Segments 1 and 2 of the proposed alignment. An alternative for Phase 1 would follow Segment 1 of the proposed alignment and Segments 3A and 3B of the alternative alignment. Construction of Phase 1 is the project currently under consideration. No construction is currently proposed on Segments 3C, 3D, 3E, or 4, which would be part of future phases of the trail project (Figures 1 and 2).

Segment 1 of the proposed trail alignment originates south of Highway 267, north of Schaffer Mill Road, and heads east, keeping just south of Highway 267 through Martis Valley to the wildlife viewing area parking lot south of Highway 267. Segment 2 of the proposed alignment extends from the parking area generally southeast, crossing Martis Valley before ascending the slope into the Northstar Community and ending at Big Springs Drive. Segment 3A of the alternative trail alignment extends from the parking area east to where it joins Segment 3B at the base of Porcupine Hill. Segment 3B continues at an elevated position on the slope along Highway 267 until it ends at a junction with Northstar Drive about 500 feet west of the Highway 267/Northstar Drive intersection. Segments of the proposed trail that would be constructed in future project phases include Segments 3C, 3D, 3E, and 4, which continue southward to connect to the Four Corners area near Brockway Summit; the ridge between Martis Valley and the Lake Tahoe Basin.

The study area is set on the eastern side of the Sierra Nevada Mountains, north of Lake Tahoe and southeast of the Town of Truckee, at elevations between approximately 5,880 feet and 6,200 feet. The topography is gently rolling to generally flat within Martis Valley and steep in the vicinity of Northstar and leading to Brockway Summit. Habitat types found onsite include coniferous forest, sagebrush scrub, wet and dry meadow, and riparian. Adjacent land uses include the Northstar Community (including Northstar at Tahoe golf course), Lahontan Golf Club, Truckee-Tahoe Airport, Martis Creek Lake, and undeveloped areas of Tahoe National Forest (Figure 2).

Directions: From Sacramento, head east on Interstate 80. After Donner Pass, take exit 188B to merge onto State Route 267 toward Lake Tahoe. Pass the intersection with Schaffer Mill Road. After approximately three miles, turn right off of State Route 267 into the Wildlife Viewing Area parking lot and park in the lot at the end of the dirt road. The proposed and alternative trail alignments connect near the Wildlife Viewing Area parking lot.



north fork associates

N

0 750 1,500 3,000

Scale in Feet

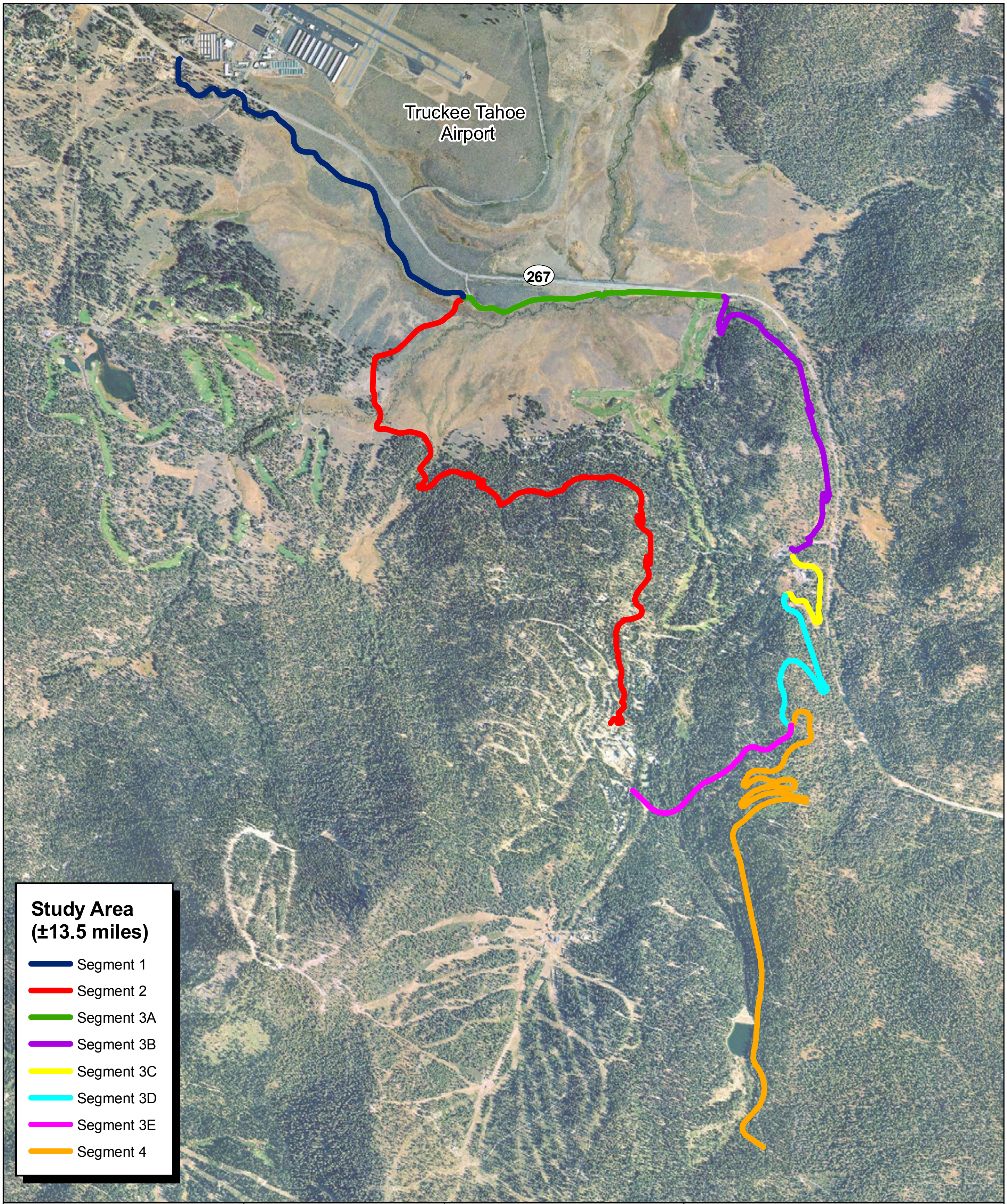
USGS Base Map:
Truckee & Martis Peak, CA
7.5 minute topographic quadrangle
Sections:
5,8,13,19,20,24,28,29,30,32,33
Township: 16N,17N
Range: 16E,17E

Figure 1

SITE & VICINITY MAP

Martis Valley Regional Trail

Placer County, California



north fork associates

N

0 750 1,500 3,000

Scale in Feet

Aerial Photo: 2005 Placer County.

Figure 2

AERIAL PHOTO

Martis Valley Regional Trail

Placer County, California

Contact Information

Applicant:
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Contact: Jeff Glazner

Property Owners:

Placer County

Martis Valley Professional Center

9701, LLC

DMB/Highlands Group, LLC

Truckee Tahoe Airport District

Kielhofer Et Al

The U.S. Army Corps of Engineers

Caltrans

CNL Income Properties, Inc.

Methods

Waters of the United States were delineated on June 25, July 9, July 23, July 29, August 20, and September 15, 2009 by Jeff Glazner and Erin Gottschalk Fisher. The delineation was conducted according to the 1987 Corps Manual (Environmental Laboratory 1987) as amended by the Western Mountains, Valleys, and Coast Region Regional Supplement (U.S. Army Corps of Engineers 2008).

Within the study corridor, information about vegetation, soils, and hydrology was recorded at fifteen three-parameter data point locations. Data sheets are located in Appendix A. Information on soils was taken from the Placer County soil survey (USDA, NRCS 1980). A Munsell Color (2000) chart was used in the field to determine moist soil colors.

Common plant names are used in this document. Appendix B is a list of plants observed during the delineation, along with the scientific name and wetland status of each species. Scientific names follow *The Jepson Manual* (Hickman 1993), as updated by the Jepson Interchange, an online database maintained by the University of California and Jepson Herbaria. The wetland status for species observed was taken from Reed (1988).

Trimble GeoXH global positioning system (GPS) units were used to obtain location information about data points, wetland areas, and other pertinent features. The GPS data were corrected in the office using the nearest available base station. 2009 aerial photography provided by Auerbach Engineering Corporation and 2005 Placer County aerial photography were combined with GPS data in ArcGIS to create the wetland delineation map. The wetland delineation map is presented as an 11x17 map book attached as Appendix A of this document. Appendix D contains a CD with the electronic files in ArcView shape format.

RESULTS

Climate and Weather

The Martis Valley Regional Trail study corridor has a montane climate with cold, snowy winters and mild, mostly dry summers. The National Weather and Climate Center (WCC) weather station positioned closest to the project site is located in the Town of Truckee (WETS Station: Truckee Ranger Station, CA #049043). Data from this station is presented here as a reasonable approximation of climate conditions at the project site.

The growing season in Truckee is relatively short, from mid-May to late September (about 120 days). Mean annual precipitation is 30.15 inches, with most of that falling as snow. Although warm season thunderstorms are common, summer rainfall does not contribute much to the overall wetland water budget. Weather conditions during all field work associated with this wetland delineation were warm and dry except for some light rain during the July 29th site visit.

Geology and Soils

According to the geologic map, the site is underlain by Alluvium (lake, playa, and terrace deposits), Quaternary volcanic flow rocks, and Tertiary volcanic flow rocks (California Department of Conservation 1987). Fourteen soil units have been mapped on the site (Figure 3) (USDA, NRCS 2007).

- AQB Aquolls and Borolls, 0 to 5 percent slopes
- EUB Euer-Martis variant complex, 2 to 15 percent slopes
- EUE Euer-Martis variant complex, 5 to 30 percent slopes
- FTE Fugawee-Tahoma complex, 2 to 30 percent slopes
- FUC Kyburz-Trojan-Sierraville complex, 2 to 9 percent slopes
- FUE Kyburz-Trojan complex, 9 to 30 percent slopes
- JTF Jorge very stony sandy loam, 30 to 50 percent slopes
- KRE Kyburz-Rock outcrop-Trojan complex, 2 to 30 percent slopes
- KRF Kyburz-Rock outcrop-Trojan complex, 30 to 50 percent slopes
- MEB Martis-Euer variant complex, 2 to 5 percent slopes
- PX Pits, borrow

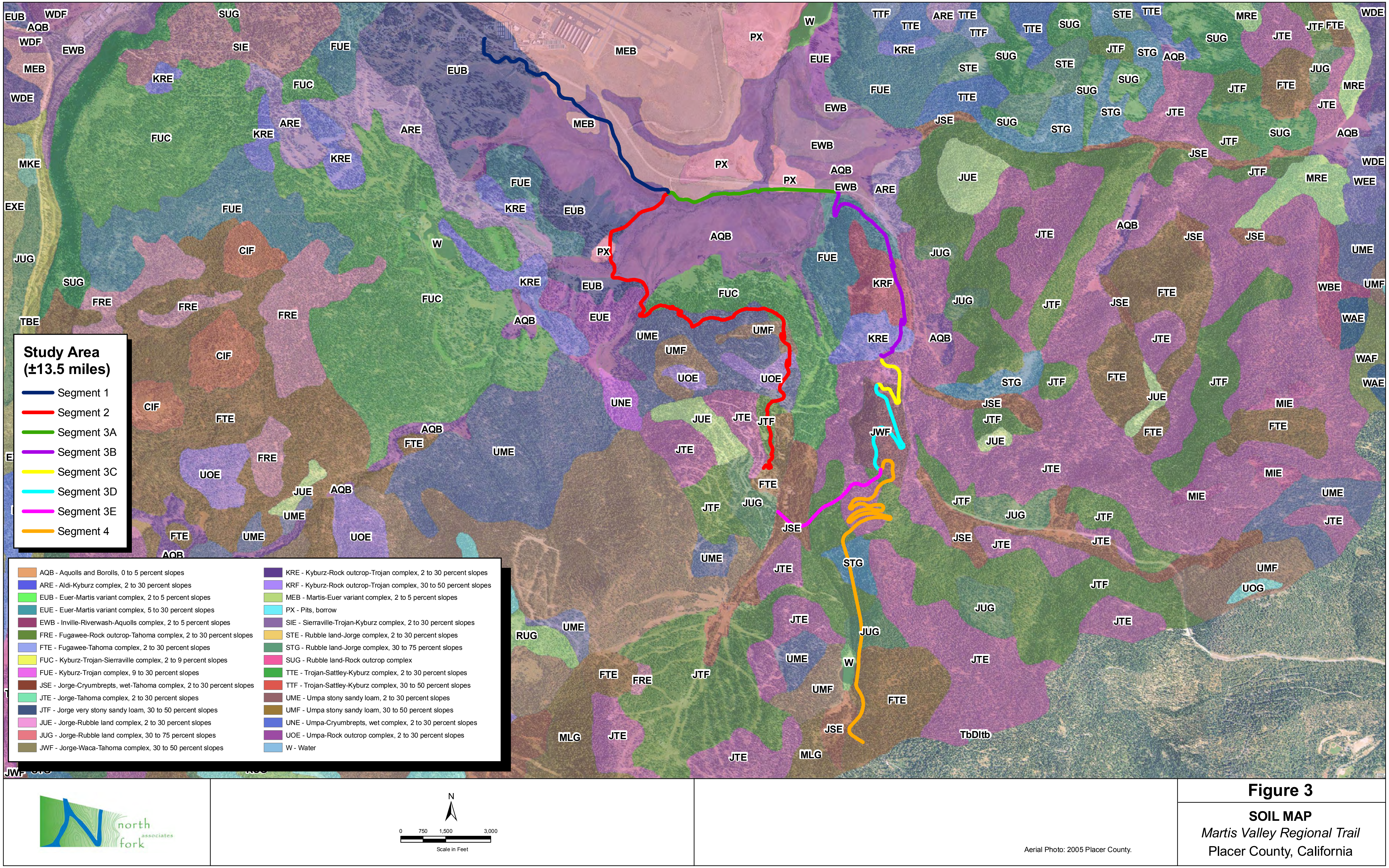


Figure 3

SOIL MAP

Martis Valley Regional Trail

Placer County, California

- UME Umpa stony sandy loam, 2 to 30 percent slopes
- UMF Umpa stony sandy loam, 30 to 50 percent slopes
- UOE Umpa-Rock outcrop complex, 2 to 30 percent slopes

Aquolls are Mollisols that are often saturated for much of the year and may develop a histic horizon. These soils generally form in drainageways and on valley floors, and have low chromas and distinct mottles. Permeability is variable. Aquolls are common soils in montane meadows, and are usually hydric.

Borolls are more-or-less freely drained Mollisols that are usually found on the edges of wet meadows. These soils often have a thick surface layer of stratified coarse sand and clay. Permeability is variable and mottles are often found in the lower horizons. In the California mountains Borolls support aspen groves and grassland. Borolls are not necessarily hydric.

Euer soils are Alfisols that are deep, well-drained sandy to gravelly loams derived from glacial outwash and volcanic material. The A horizon is approximately 15 inches deep. A-horizon colors are 10YR to 7.5YR with chromas between 2 and 3. Because of the clay layer in the B horizon, Euer soils have moderately slow permeability.

Martis soils are Alfisols that are sandy to gravelly loams derived from glacial till and outwash from mostly volcanic sources. The A horizon is usually about 17 inches deep and ranges in hue from 10YR to 7.5YR. Chromas are between 1 and 3. Martis soils are well drained with moderately slow permeability.

Fugawee soils are Andic Haploxeralfs and consist of moderately deep, well-drained soils that formed in material weathered from basic volcanic rock. Fugawee soils are on mountains and have slopes 2 to 50 percent. The top two inches are typically covered in pine or fir litter. The A horizon is approximately 19 inches think with colors 10 YR 2/2 to 10 YR 3/3. Fugawee soils have slow to rapid runoff and moderate permeability.

Tahoma soils are Ultic Haploxeralfs that consist of deep and very deep, well-drained soils that formed in material weathered from basic volcanic rock. Tahoma soils are on mountain sides and have slopes ranging from 2 to 50 percent. The A horizon is 22 inches deep with a color ranging between 10 YR, 7.5 YR, or 5 YR with chromas between 2 and 5.

Kyburz soils are Ultic Haploxeralfs that consist of moderately deep, well-drained soils formed in material weathered from basic volcanic rock. These soils occur on uplands and have slopes of 2 to 50 percent. The A horizon is six inches deep with a dark brown color (7.5 YR 3/2). Kyburz soils have slow to rapid runoff and moderate to moderately slow permeability.

Trojan soils are Ultic Argixerolls that consist of deep and very deep, well-drained soils that formed in colluvium and residuum derived from volcanic rocks or from schist and argillite. Trojan soils are on hills and mountains with slopes from 2 to 50 percent. The A horizon is 10 inches deep with a color from 7.5 YR 4/2 to 5 YR 3/2. Trojan soils have medium or high surface runoff and moderately slow permeability.

Sierraville soils are Ultic Haploxeralfs that typically have reddish brown, slightly acid, stony sandy loam. The A horizon is nine inches deep with a color of 5 YR 5/3 to 2.5 YR

4/4. Sierraville soils are well-drained with slow to rapid runoff and moderately slow permeability.

Jorge soils are Andic Haploxeralfs that consist of deep or very deep, well-drained soils that formed from material weathered from basic volcanic rock. The A horizon is 24 inches deep with a color ranging between 10 YR and 5 YR with a value and chroma between 2 and 4. Jorge soils have low to high runoff and moderate permeability.

Umpa soils are Andic Dystroxerepts that consist of moderately deep, well-drained soils that formed in material weathered from andesite. Umpa soils are on uplands and have slopes of 5 to 75 percent. The A horizon varies in hue between 10 YR and 7.5 YR with values and chroma between 2 and 4. Umpa soils have medium to rapid runoff and moderately rapid permeability.

Hydrology

The study area region slopes toward Martis Valley, which is drained by Martis Creek, the main hydrological feature throughout the study area. Martis Creek flows in a northeasterly direction and crosses the study corridor in the northern portion of Segment 2 of the proposed alignment and again in the middle of Segment 3A of the alternative alignment. Four tributaries to Martis Creek (including Middle and West Martis Creek) also cross the study corridor, with two unnamed tributaries crossing Segment 2 of the proposed alignment, Middle Martis Creek crossing the northern portion of Segment 3B of the alternative alignment, and West Martis Creek crossing the western end of Segment 3B of the proposed alignment. Martis Creek and its tributaries are represented as solid blue line features on the USGS map. After crossing the study corridor in Segment 3A of the alternative alignment near Highway 267, Martis Creek crosses under Highway 267 in a large box culvert. On the north side of Highway 267, Martis Creek drains into Martis Creek Lake. Martis Creek continues below the dam, draining into the Truckee River south of Interstate 80. The Truckee River flows into Pyramid Lake in the Great Basin in Nevada.

Other hydrological features within the study corridor include wetland swales, ephemeral and intermittent streams and the very large wetland meadows complex associated with Martis Creek. These features are all part of the local watershed.

Vegetation

Five primary vegetation communities occur in the study area: coniferous forest, sagebrush scrub, riparian, wet meadow, and dry meadow. These vegetation communities are discussed below.

Approximately 10.23 miles of the study corridor is within the **coniferous forest** vegetation community. Coniferous forest occurs at elevations slightly higher than the floor of Martis Valley and is the dominant habitat on the slopes ascending from the valley to Northstar and Brockway Summit. The southeastern portion of the study corridor, including Segments 3B – 3D of the alternative trail alignment and Segments 3E, 4 and the southeastern portion of Segment 2 of the proposed trail alignment, is within coniferous forest habitat. Common forest trees within the study corridor include red fir at the higher elevations and white fir at the lower elevations, lodgepole pine, Jeffrey pine, and western white pine. Lodgepole pine is particularly abundant near the meadows and streams. Understory shrubs include greenleaf manzanita, mahala mat, tobacco brush, big sagebrush, and antelope brush. The herbaceous cover is relatively sparse and includes bitter dogbane, mountain mule's-ears, phacelia, campion, blue wildrye, quackgrass, and orchard grass.

Approximately 3.17 miles of the study corridor passes through the **sagebrush scrub** vegetation community. This vegetation community occurs at a lower elevation generally than the coniferous forest and is the dominant habitat type along Segment 1 of the proposed alignment and Segment 3A of the alternative alignment. Areas of sagebrush scrub habitat also occur along the northern portion of Segment 2 of the proposed alignment and the northernmost portion of Segment 3B of the alternative alignment. This habitat type is dominated by big sagebrush; secondary shrub dominants include antelope brush and rubber rabbitbrush. The sagebrush scrub varies from dense intertwining branches of big sagebrush and antelope brush to more open areas that also support herbaceous vegetation, such as Parish's yampah, thickstem aster, mountain tarweed, cryptantha, locoweed, dwarf lupine, clustered broom-rape, blue-eyed Mary, sulfer flower, navarretia, onion, cheat grass, bulbous bluegrass, and squirreltail. Embedded within the sagebrush scrub are areas dominated by low sagebrush.

The **wet meadow** vegetation community supports wetland vegetation due to hydrological influences from Martis Creek (and tributaries) and/or a seasonally high water table (Figure 4a). The wet meadow vegetation community encroaches in approximately 0.05 mile of the trail corridor, the largest portion occurring just south of the wildlife viewing area parking lot at the north end of Segment 2 of the proposed alignment. The herbaceous wet meadow habitat supports many wetland species, including Ryberg's beardtongue, long-stalk clover, dense-flower spike-primrose, western mountain aster, dwarf woolly-heads, water speedwell, Great Basin navarretia, long-stalk starwort, glandular cinquefoil, western buttercup, meadow barley, and tufted hairgrass. The majority of the biomass in the wet meadow areas is made up of several species of sedges and rushes. The wetter the meadow, the more abundant the sedge cover. Some marginal wetland species, such as Parry's arnica, Kentucky blue grass, and common timothy also occur in the wet meadow.

The dry **meadow** vegetation community is typically found in the transition zone between wet meadow or riparian and upland sage scrub and coniferous forest habitat types. The study corridor runs through meadow habitat for approximately 0.08 mile within Segment 2 of the proposed alignment south of the proposed crossing of Martis Creek, and within Segment 3A of the alternative alignment. This vegetation community supports both wetland and upland species including a sparse cover of sagebrush, cheatgrass, and Douglas' knotweed. The line between wet and dry meadow lacks definition in some areas.

Approximately 0.06 mile of the study corridor passes through the **riparian** vegetation community associated with Martis Creek and its tributaries within Segment 2 of the proposed alignment and within portions of Segments 3A and 3B of the alternative alignment. The riparian habitat is generally a patchy band of willows approximately 10 to 20 feet wide along each bank of the creek. Small lodgepole pine trees also occur throughout the riparian habitat. Other associated plant species are similar to the species found in the wet meadow, along with mountain alder, wild rose, mountain timothy, willow dock, common monkeyflower, and stemless thistle.

Waters of the United States

Five categories of waters of the United States have been mapped within the study corridor: wetland swale, wetland meadow, perennial stream, intermittent stream, and ephemeral stream. Table 1 provides a summary of the acreage of each category of waters of the United States on the site; Figures 4 and 5 are photos of representative examples. Wetlands referred to in the following discussion are identified in a map book included with this document as Appendix A. To provide appropriate detail for this linear study area, the wetland delineation map book included with this document is divided into multiple map sheets (referred to below).

Table 1.
Waters of the United States

Type	Acreage
Wetlands:	
Wetland Swale	0.06
Wetland Meadow	0.09
Other Waters:	
Perennial Stream	0.21
Intermittent Stream	0.07
Ephemeral Stream	0.02
Total Waters of the United States	**0.45**

Wetland Swale

Wetland swales are water conveyance features that do not develop the bed-and-bank morphology typical of streams, although they have wetland soils and are vegetated with wetland species. One wetland swale, WS-1, totaling 0.06 acre, is mapped within the Martis Valley Regional Trail study corridor. The swale is located within Segment 1 of the proposed trail alignment in sagebrush scrub habitat (Appendix A, Sheet C). Wetland swales are similar to wetland meadows in that they support many of the same species and have hydrologic connection to adjacent streams. Wetland swales, however, occur on a slope and convey water rather than hold water. Common plant species in the wetland swales include wire rush, Kentucky bluegrass, Great Basin navarretia, long stalk clover, annual hairgrass, Rydberg’s beardtongue, and western mountain aster.

4a. – Sagebrush Scrub / Wetland Meadow interface. Proposed trail is just upslope of meadow in sagebrush.

4b. – Looking downstream along area of proposed crossing of Martis Creek at PS-1.

4c. – Looking upstream along Martis Creek (PS-2) from existing bridge near Highway 267. Willow scrub (Riparian) habitat occurs along narrow perennial stream.

4d. – Perennial Stream (PS-3) in area of proposed crossing of tributary in Segment 2.

north fork associates

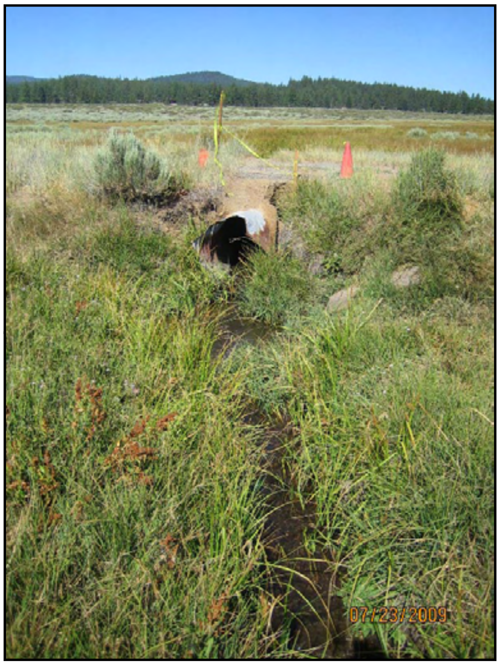
Photo Dates: June 25, 2009; July 23, 2009, August 20, 2009; September 15, 2009

Figure 4

SITE PHOTOS

Martis Valley Regional Trail

Placer County, California



5a. – Intermittent Stream (IS-1) and adjacent Wetland Meadow (WM-2). Culvert crosses under existing gravel trail.

5b. – From near existing wildlife viewing area looking southwest along existing trail to area where trail crosses IS-1 and IS-2 and runs through WM-1 and WM-2.

5c. – Looking west over Ephemeral Stream (ES-1) near Northstar at Tahoe Golf Course adjacent to Highway 267.

5d. – Culvert at ES-3 along Segment 4 of the Phase 2 trail alignment.

north fork associates

Photo Dates: June 25, 2009; July 23, 2009; August 20, 2009

Figure 5

SITE PHOTOS

Martis Valley Regional Trail

Placer County, California

Wetland Meadow

The wetland meadow ("wet meadow") habitat is described above in the *Vegetation* section. Wetland meadow occurs in areas adjacent to Martis Creek and its tributaries. The proposed trail alignment crosses or encroaches on two areas of wetland meadow, WM-1 and WM-2, along Segment 2 (Appendix A, Sheet F). A total of 0.09 acre of wetland meadow occurs within these two areas. The wetland meadow supports wetland vegetation and hydric soils due to hydrological influences from Martis Creek (and tributaries) and a high water table (Figure 4a). The wetland meadow is dominated by herbaceous wetland species, primarily sedges and rushes, but also abundant are Ryberg's beardtongue, long-stalk clover, dense-flower spike-primrose, western mountain aster, dwarf woolly-heads, water speedwell, Great Basin navarretia, long-stalk starwort, glandular cinquefoil, western buttercup, meadow barley, and tufted hairgrass. At the drier margins, facultative species such as Parry's arnica, Kentucky blue grass, and common timothy are common.

Perennial Stream

Perennial streams, unlike ephemeral or intermittent streams, flow year-round and exhibit well defined bed-and-bank morphology. The study area crosses perennial streams at three locations (PS-1 through PS-3) totaling 0.21 acre. There are two crossings of Martis Creek and one crossing of an unnamed tributary to Martis Creek (Appendix A, Sheets G, I, K). Segment 2 of the proposed alignment crosses Martis Creek and the unnamed tributary to Martis Creek and Segment 3A of the alternative alignment crosses Martis Creek near Highway 267.

At the proposed trail crossing of Martis Creek at PS-1 in Segment 2 of the proposed alignment (Appendix A, Sheet I), the stream channel is downcut and well defined. High water spills to the north side of the channel. We have mapped the ordinary high water mark at approximately 70 feet wide at this proposed crossing location. Bankside vegetation includes riparian scrub (Figure 4b). The south side of the channel is mapped as dry meadow.

PS-2 is at a crossing of Martis Creek in the alternative trail alignment just south of Highway 267 (Appendix A, Sheet G). At this location, Martis Creek has a gravel and rock bottom. Bankside riparian at PS-2 is patchy (Figure 4c). The ordinary high water mark is approximately 20 feet wide. The existing Tomkins Memorial Trail spans the creek in this location on a wooden bridge. After leaving the study corridor, Martis Creek flows through a large box culvert under Highway 267.

PS-3 is located at a study corridor crossing of a perennial tributary to Martis Creek south of PS-1 in Segment 2 of the proposed trail alignment (Appendix A, Sheet K). There is a braided stream system at this location that during high water, flows through three small channels across the corridor. On September 15, 2009, only the southern channel was flowing (approximately 5 cfs). Within the study corridor, the bankside vegetation is primarily willow but with abundant lodgepole pine. The understory is mostly sedges (Figure 4d).

Intermittent Stream

Intermittent streams begin flowing sometime during the rain/snow melt season and usually continue to the end of the rain/snow melt season. Intermittent streams have a groundwater component that allows them to flow during dry weather. Four intermittent streams occur within the study corridor (Appendix A, Sheets F, H, and T); all three are tributaries to Martis Creek. A total of 0.07 acre of intermittent stream occurs within the study corridor.

IS-1 and IS-2 in the northern portion of Segment 2 of the proposed trail alignment are part of a braided channel system that drains water from northwest to southeast toward Martis Creek (Appendix A, Sheet F). These intermittent streams cross the study corridor in three culverts under an existing dirt/gravel road (Figures 5a and 5b). Two of the culverts support distinct channels and only one of the channels contained flowing water (approximately 1 to 3 cfs) during the July 23rd site visit. The intermittent streams are flanked by wetland meadow and do not support riparian vegetation (Figures 5a and 5b).

IS-3 is Middle Martis Creek and crosses the study corridor at the north end of Segment 3B of the alternative alignment. During field surveys, there was a small amount of water trickling out of the culvert under the road; however, once leaving the metal culvert, the water goes under the rocky channel bed. There was no surface water observed in the creek channel at the time of the site visit. In the study corridor, Middle Martis Creek varies between five and 10 feet wide at its ordinary high water mark. From the culvert, the edges of the creek are lined with riprap. Bankside vegetation includes a dense cover of willows.

The crossing of West Martis Creek, IS-4, occurs in Segment 3E of the proposed future Phase 2 alignment (Appendix A, Sheet T). This stream zone appears to carry occasional and short term high scouring flows but the seasonal duration is relatively low. We estimate that this stream flows for approximately half of the year. It was dry on our August 20th site visit. The ordinary high water mark at the location of the crossing was variable with an average width of 30 feet. The bed of the channel is rocky and vegetation associated both bankside and within the channel includes several willow species (including scoulers willow), mountain alder, aspen, salmonberry, blue wildrye, milfoil, and arrow butterweed.

Ephemeral Stream

Ephemeral streams flow only during periods of rainfall/snow melt or for a short time thereafter. Ephemeral streams do not have a groundwater component. Three ephemeral streams occur within the study corridor, comprising an area of 0.02 acre (Appendix A, Sheets G, K, and X). ES-1 occurs in Segment 3A of the alternative trail alignment and carries runoff from Highway 267 into Middle Martis Creek (Appendix A, Sheet G) (Figure 5c). ES-2 is located in a steep area of coniferous forest within Segment 2 of the proposed trail alignment (Appendix A, Sheet K). ES-3 occurs at the south end of Segment 4 of the proposed future Phase 2 trail alignment (Appendix A, Sheet X) (Figure 5d). Upland vegetation occurs adjacent to each of these ephemeral streams, which were dry during each of our site visits.

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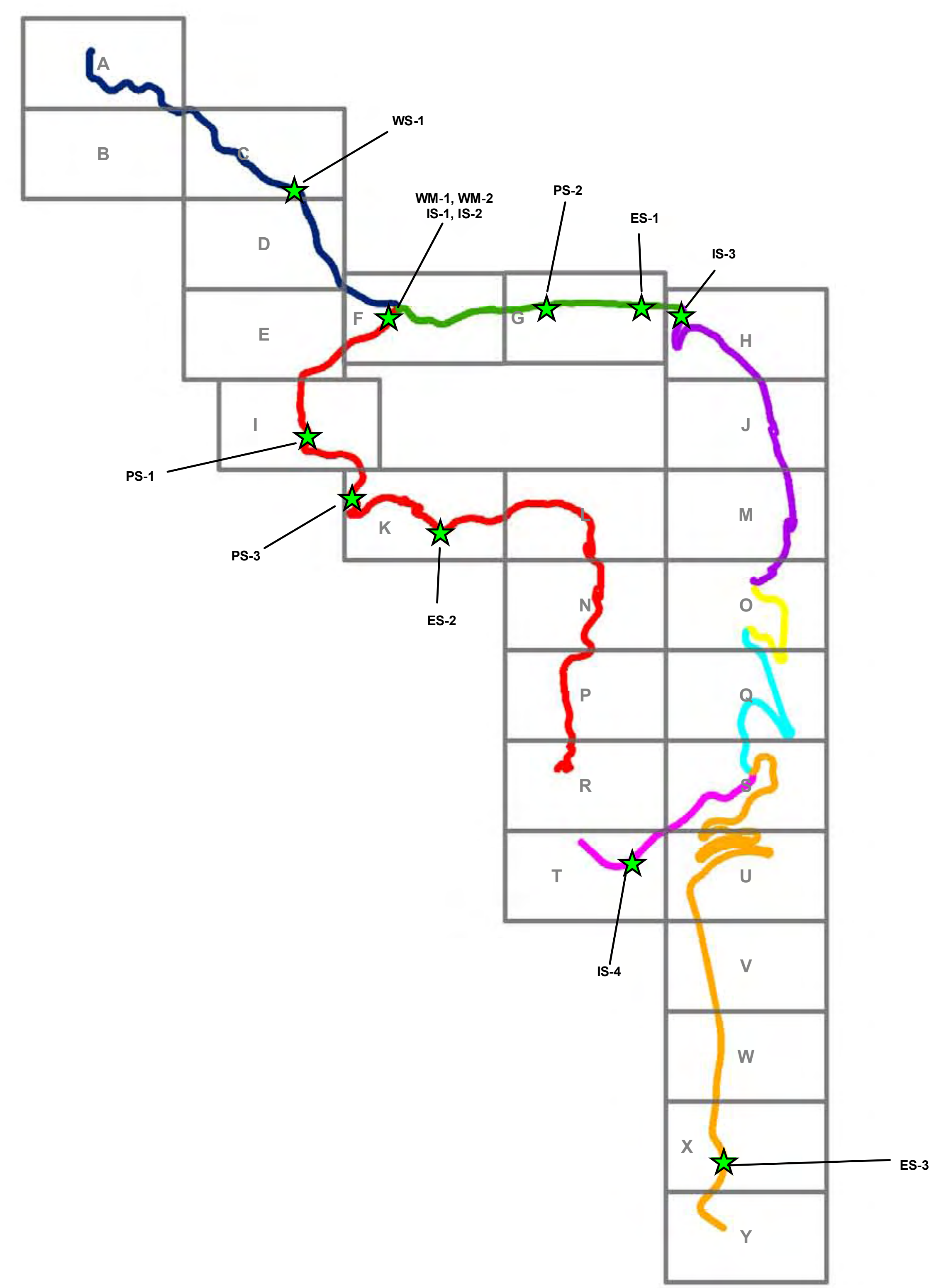
Appendix A.
Preliminary Wetland Delineation Map Book



Waters of the United States

Feature	Acreage	Feature	Acreage
Ephemeral Stream		*Perennial Stream*	
ES-1	0.01	PS-1 (Martis Creek)	0.09
ES-2	0.01	PS-2 (Martis Creek)	0.03
ES-3	<0.01	PS-3	0.09
subtotal	**0.02**	**subtotal**	**0.21**
Intermittent Stream		*Wetland Meadow*	
IS-1	<0.01	WM-1	0.07
IS-2	0.01	WM-2	0.02
IS-3	0.01	**subtotal**	**0.09**
IS-4	0.05	*Wetland Swale*	
		WS-1	0.06
subtotal	**0.07**	**subtotal**	**0.06**
		TOTAL	**0.45**

north fork associates

DRAWN BY: M. Fremont
DELINEATORS: Jeff Glazner and Erin Gottschalk Fisher
DATE OF FIELDWORK: June 25, July 9, July 23, July 29, August 20, and September 15, 2009

USACE REGULATORY FILE#: TBD
VERIFIED BY: TBD
DATE OF VERIFICATION: TBD

Notes:
1. T 16N,17N; R 16E,17E; S 5,8,13,19,20,24,28,29,30,32,& 33 32 of Truckee & Martis Peak, CA, USGS 7.5 minute topographic quadrangle.
2. Study area corridor is 50' in width.
3. Aerial photograph: Auerbach Engineering Corp, 2009; Placer County, 2005.
4. The boundaries and jurisdictional status of all waters shown on this map are preliminary and subject to verification by the U.S. Army Corps of Engineers.
5. Original map size: 11"x17"
6. Final map issued after verification.

PREPARED FOR: Northstar Community Services District
908 Northstar Drive, Northstar, CA 96161
Contact: Mike Staudenmayer, (530) 562-0747

Study Area (±13.5 miles)

- Segment 1
- Segment 2
- Segment 3A
- Segment 3B
- Segment 3C
- Segment 3D
- Segment 3E
- Segment 4

N

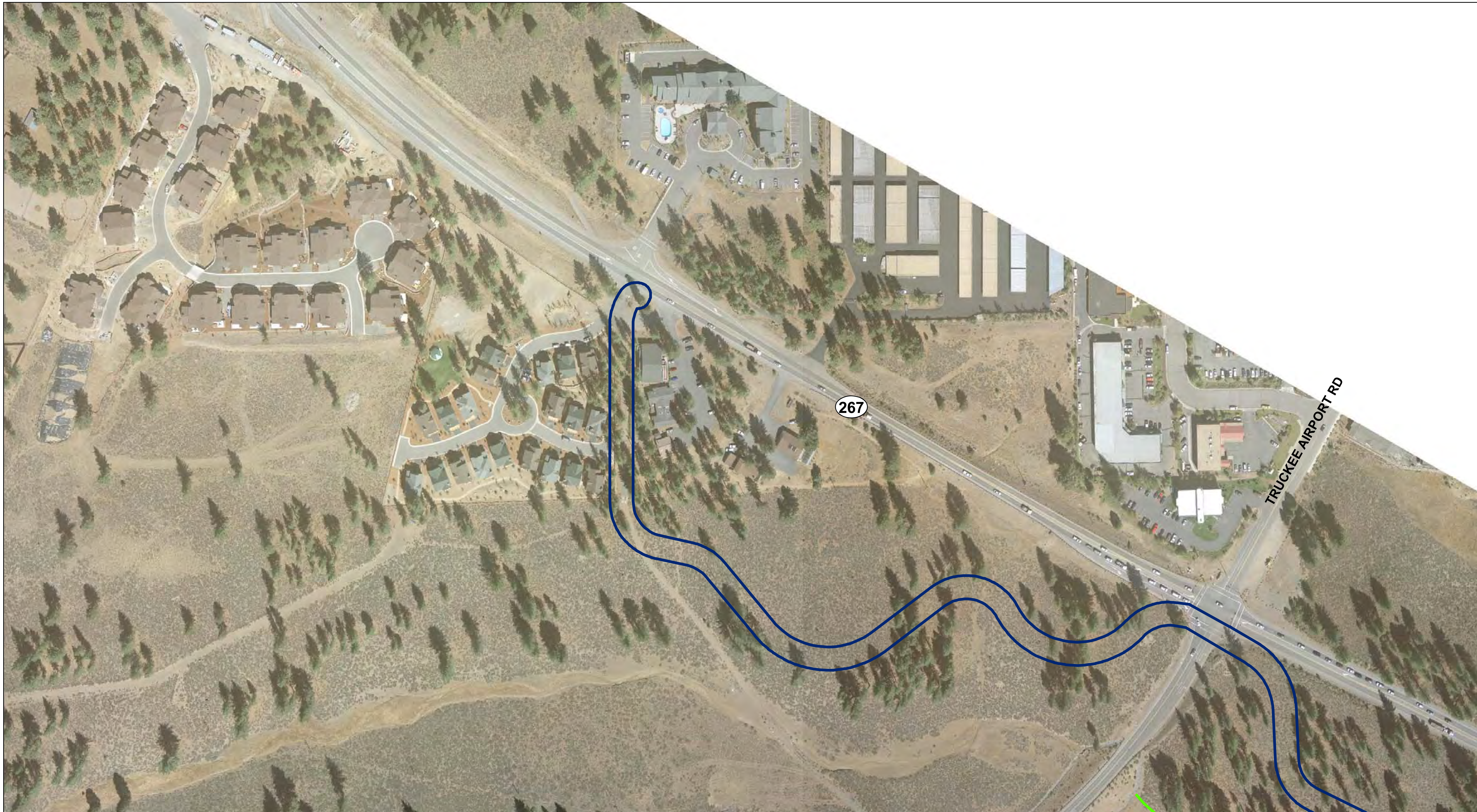
0 750 1,500 3,000

PRELIMINARY WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Map Date: October 15, 2009



PREPARED BY:

north fork associates

Aerial photograph and base data provided by: Auerbach Engineering Corp, September 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±13.5 miles)

- Segment 1
- Segment 2
- Segment 3A
- Segment 3B
- Segment 3C
- Segment 3D
- Segment 3E
- Segment 4

WATERS OF THE UNITED STATES

- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Wetland Swale
- Wetland Meadow

- Wetland Data Point
- Waters Data Point
- Upland Data Point
- Culvert
- Meadow Line

PRELIMINARY WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet A

PREPARED BY:

north fork associates

Aerial photograph and base data provided by: Auerbach Engineering Corp, September 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±13.5 miles)

- Segment 1
- Segment 2
- Segment 3A
- Segment 3B
- Segment 3C
- Segment 3D
- Segment 3E
- Segment 4

WATERS OF THE UNITED STATES

- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Wetland Swale
- Wetland Meadow

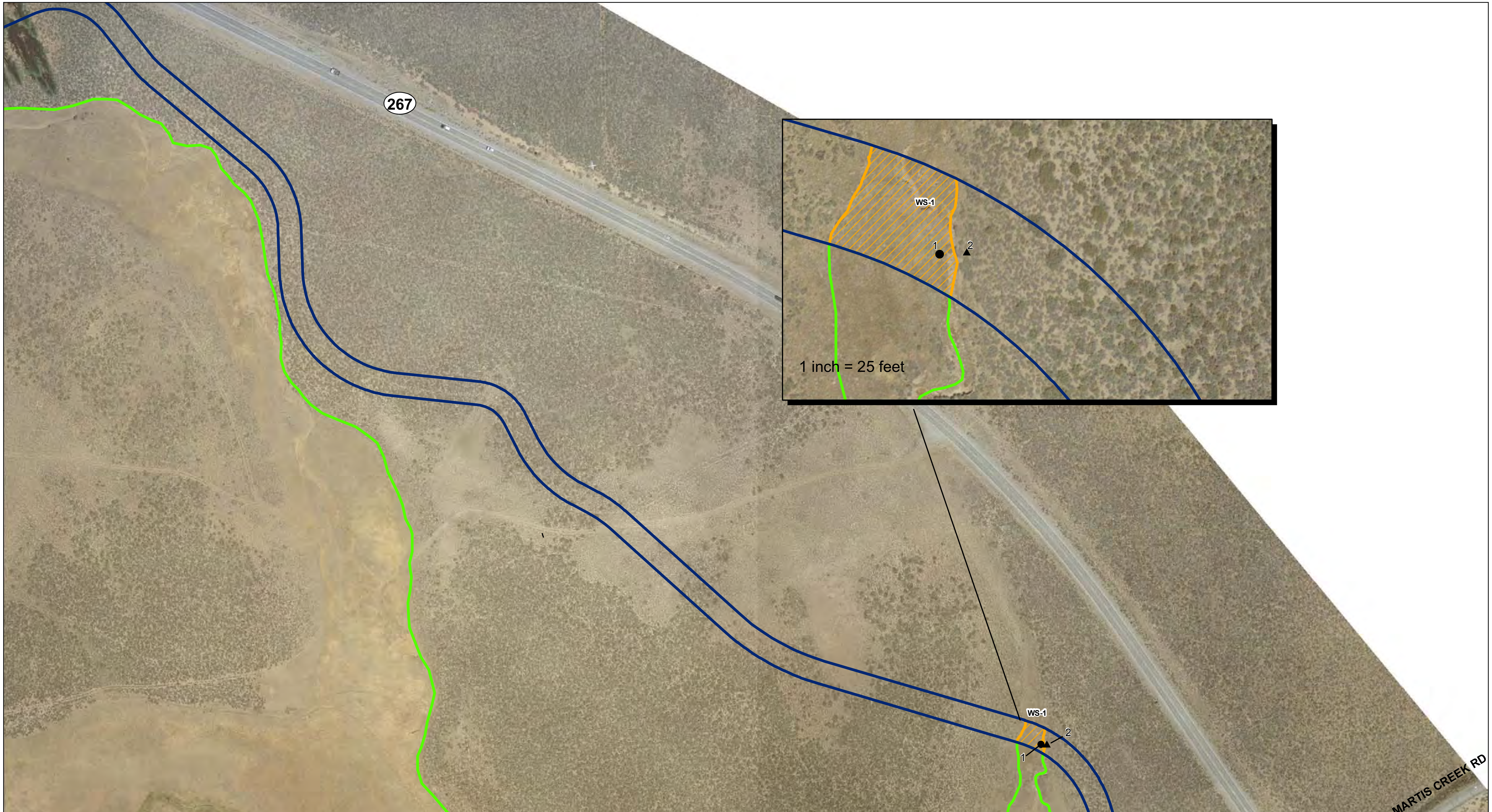
- Wetland Data Point
- Waters Data Point
- Upland Data Point
- Culvert
- Meadow Line

PRELIMINARY WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet B



PREPARED BY:

north fork associates

Aerial photograph and base data provided by: Auerbach Engineering Corp, September 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±13.5 miles)

- Segment 1
- Segment 2
- Segment 3A
- Segment 3B
- Segment 3C
- Segment 3D
- Segment 3E
- Segment 4

WATERS OF THE UNITED STATES

- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Wetland Swale
- Wetland Meadow

- Wetland Data Point
- Waters Data Point
- Upland Data Point
- Culvert
- Meadow Line

PRELIMINARY WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet C

PREPARED BY:

north fork associates

Aerial photograph and base data provided by: Auerbach Engineering Corp, September 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±13.5 miles)

Segment 1
Segment 2
Segment 3A
Segment 3B
Segment 3C
Segment 3D
Segment 3E
Segment 4

WATERS OF THE UNITED STATES

Ephemeral Stream
Intermittent Stream
Perennial Stream
Wetland Swale
Wetland Meadow

Wetland Data Point
Waters Data Point
Upland Data Point
Culvert
Meadow Line

PRELIMINARY WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet D

PREPARED BY:

north fork associates

Aerial photograph and base data provided by: Auerbach Engineering Corp, September 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±13.5 miles)

Segment 1
Segment 2
Segment 3A
Segment 3B
Segment 3C
Segment 3D
Segment 3E
Segment 4

WATERS OF THE UNITED STATES

Ephemeral Stream
Intermittent Stream
Perennial Stream
Wetland Swale
Wetland Meadow

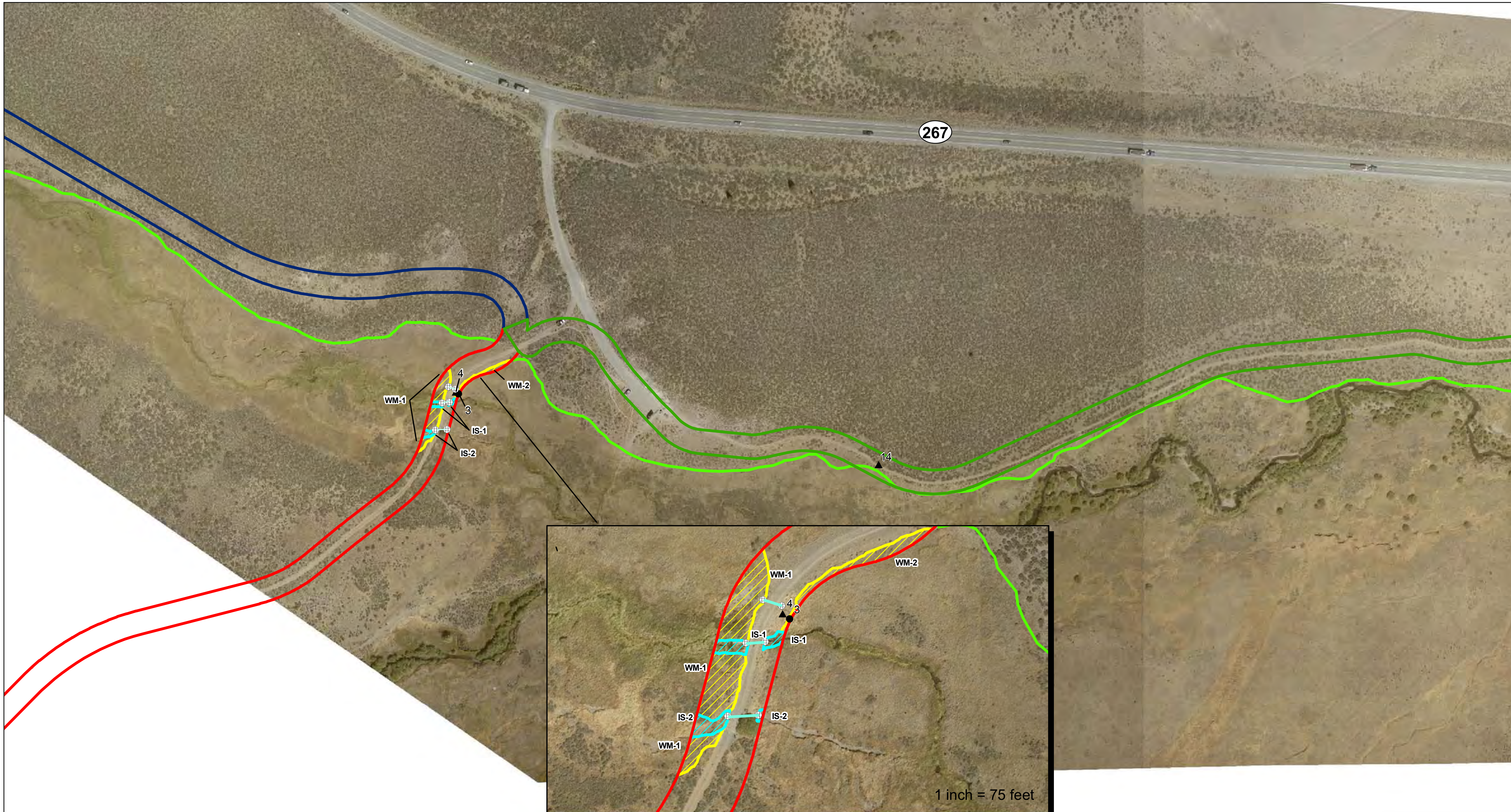
Wetland Data Point
Waters Data Point
Upland Data Point
Culvert
Meadow Line

PRELIMINARY WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet E



PREPARED BY:

north fork associates

Aerial photograph and base data provided by: Auerbach Engineering Corp, September 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±13.5 miles)

- Segment 1
- Segment 2
- Segment 3A
- Segment 3B
- Segment 3C
- Segment 3D
- Segment 3E
- Segment 4

WATERS OF THE UNITED STATES

- Ephemeral Stream
- Intermittent Stream
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- Wetland Swale
- Wetland Meadow

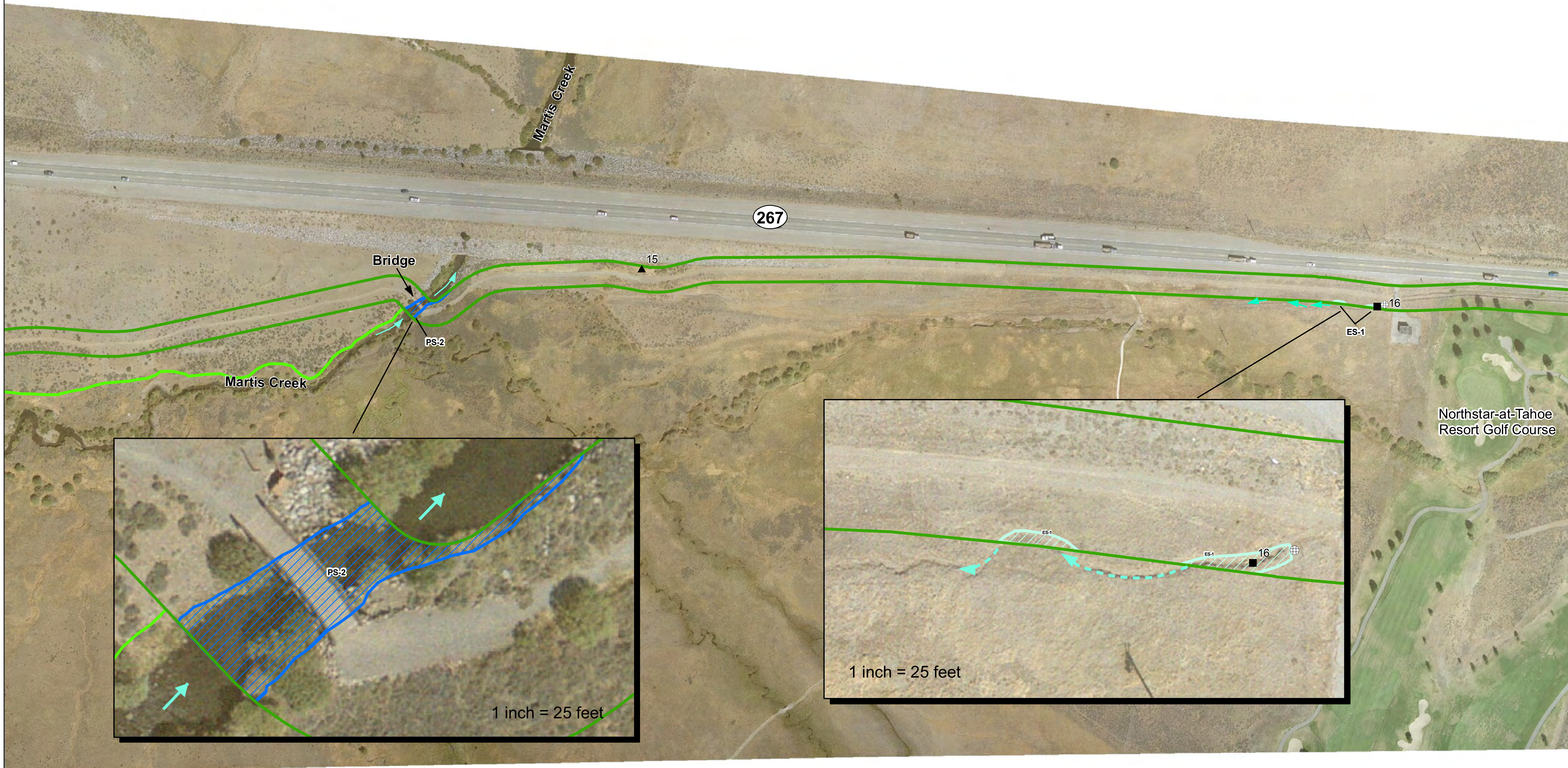
- Wetland Data Point
- Waters Data Point
- Upland Data Point
- Culvert
- Meadow Line

PRELIMINARY WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet F



PREPARED BY:

north fork associates

Aerial photograph and base data provided by: Auerbach Engineering Corp, September 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±13.5 miles)

- Segment 1
- Segment 2
- Segment 3A
- Segment 3B
- Segment 3C
- Segment 3D
- Segment 3E
- Segment 4

WATERS OF THE UNITED STATES

- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Wetland Swale
- Wetland Meadow

- Wetland Data Point
- Waters Data Point
- Upland Data Point
- Culvert
- Meadow Line

PRELIMINARY WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet G

PREPARED BY:

north fork associates

Aerial photograph and base data provided by: Auerbach Engineering Corp, September 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±13.5 miles)

- Segment 1
- Segment 2
- Segment 3A
- Segment 3B
- Segment 3C
- Segment 3D
- Segment 3E
- Segment 4

WATERS OF THE UNITED STATES

- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Wetland Swale
- Wetland Meadow

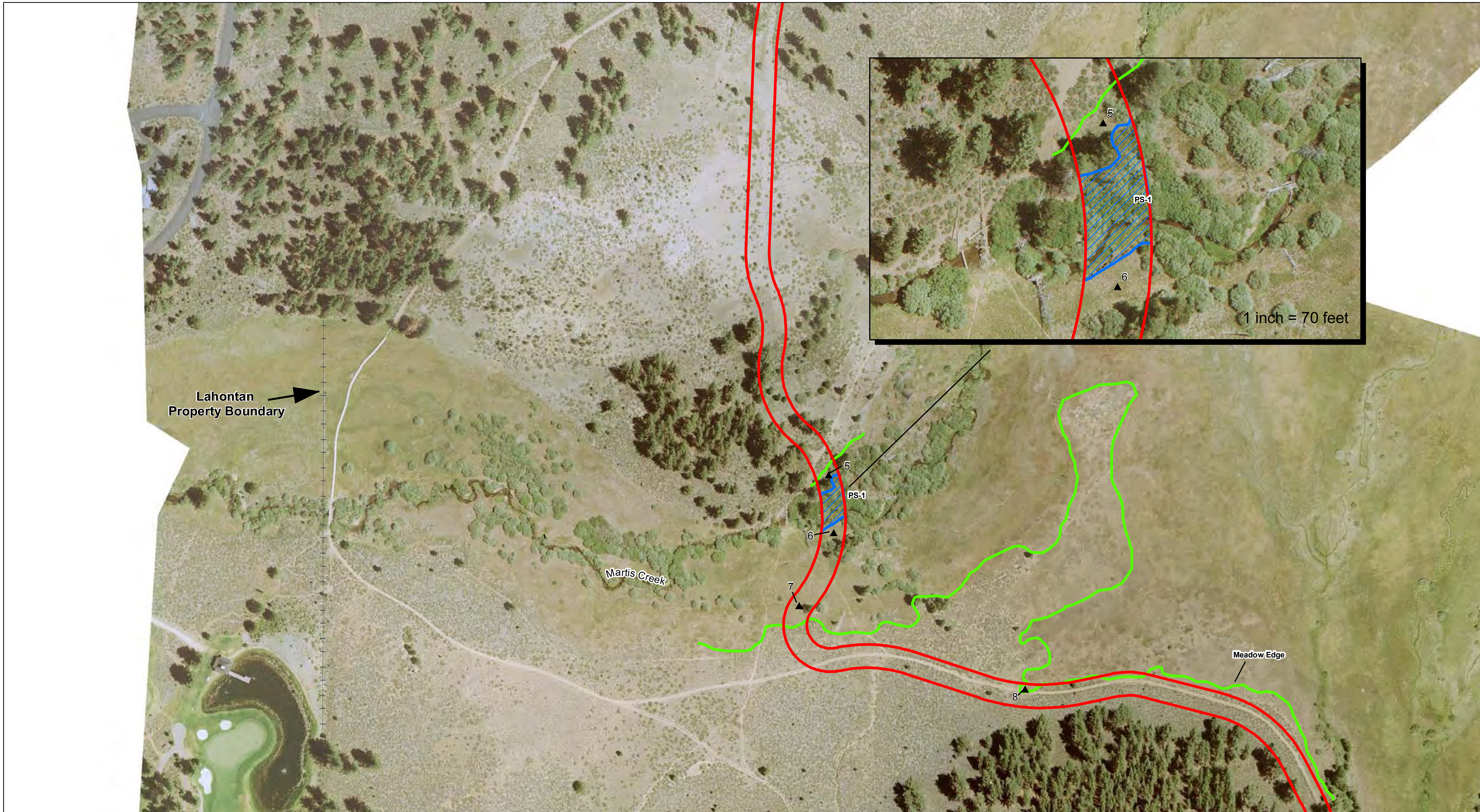
- Wetland Data Point
- Waters Data Point
- Upland Data Point
- Culvert
- Meadow Line

PRELIMINARY WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet H



PREPARED BY:

north fork associates

Aerial photograph and base data provided by: Auerbach Engineering Corp, September 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±13.5 miles)

- Segment 1
- Segment 2
- Segment 3A
- Segment 3B
- Segment 3C
- Segment 3D
- Segment 3E
- Segment 4

WATERS OF THE UNITED STATES

- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
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- Wetland Meadow

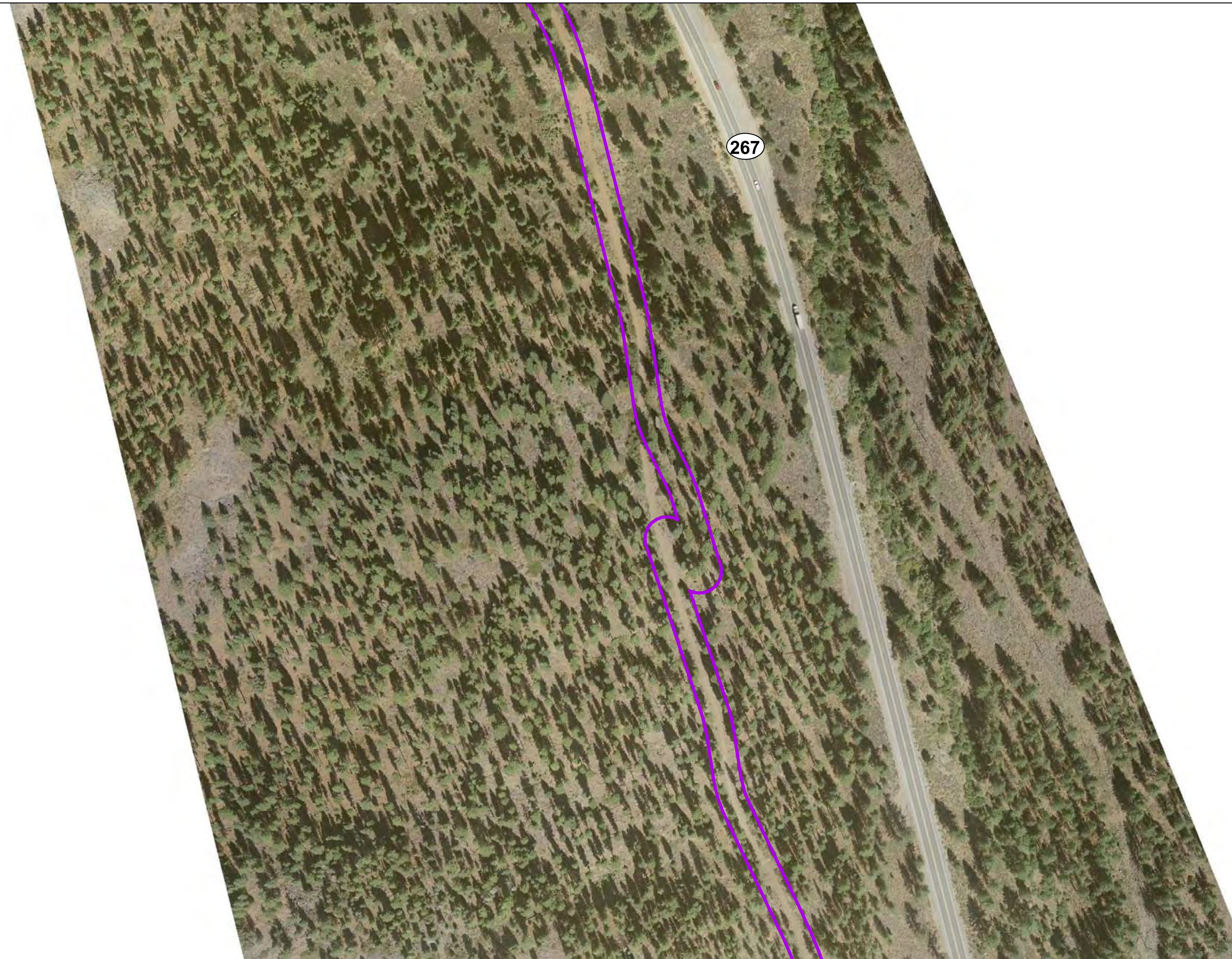
- Wetland Data Point
- Waters Data Point
- Upland Data Point
- Culvert
- Meadow Line

PRELIMINARY WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet 1



PREPARED BY:

north fork associates

Aerial photograph and
base data provided by:
Auerbach Engineering Corp,
September 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±13.5 miles)

- Segment 1
- Segment 2
- Segment 3A
- Segment 3B
- Segment 3C
- Segment 3D
- Segment 3E
- Segment 4

WATERS OF THE UNITED STATES

- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Wetland Swale
- Wetland Meadow

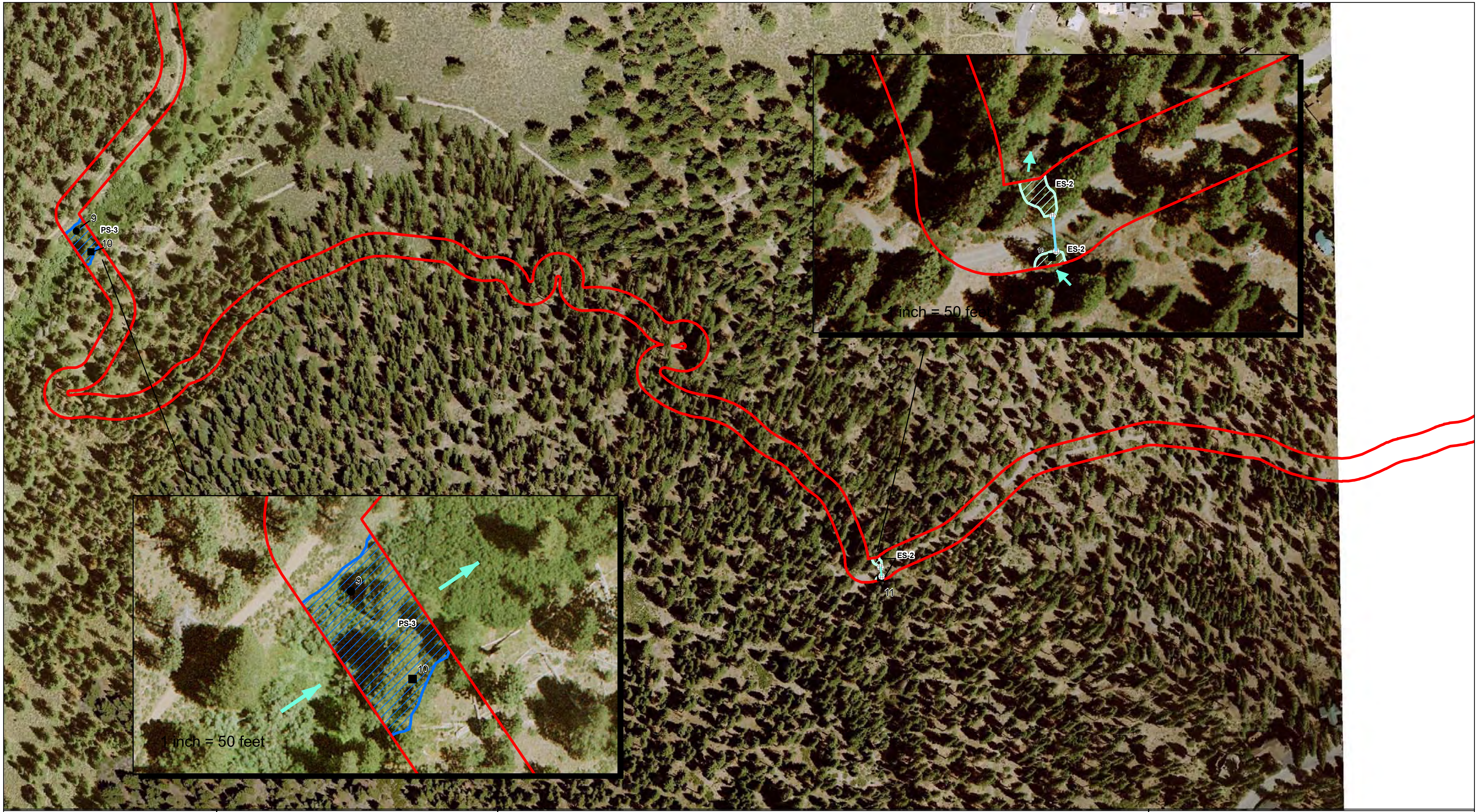
- Wetland Data Point
- Waters Data Point
- Upland Data Point
- Culvert
- Meadow Line

PRELIMINARY WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet J



PREPARED BY:

north fork associates

Aerial photograph and base data provided by: Auerbach Engineering Corp, September 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±13.5 miles)

- Segment 1
- Segment 2
- Segment 3A
- Segment 3B
- Segment 3C
- Segment 3D
- Segment 3E
- Segment 4

WATERS OF THE UNITED STATES

- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Wetland Swale
- Wetland Meadow

- Wetland Data Point
- Waters Data Point
- Upland Data Point
- Culvert
- Meadow Line

PRELIMINARY WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet K

PREPARED BY:

north fork associates

Aerial photograph:
Placer County,
September 2005.
Base data provided by:
Auerbach Engineering Corp,
September 2009.

N

0 50 100 200
1 inch = 200 feet

Study Area (±13.5 miles)

- Segment 1
- Segment 2
- Segment 3A
- Segment 3B
- Segment 3C
- Segment 3D
- Segment 3E
- Segment 4

WATERS OF THE UNITED STATES

- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Wetland Swale
- Wetland Meadow

- ● Wetland Data Point
- ■ Waters Data Point
- ▲ Upland Data Point
- Culvert
- Meadow Line

PRELIMINARY WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet L

PREPARED BY:

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Aerial photograph:
Placer County,
September 2005.
Base data provided by:
Auerbach Engineering Corp,
September 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±13.5 miles)

- Segment 1
- Segment 2
- Segment 3A
- Segment 3B
- Segment 3C
- Segment 3D
- Segment 3E
- Segment 4

WATERS OF THE UNITED STATES

- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Wetland Swale
- Wetland Meadow

- Wetland Data Point
- Waters Data Point
- Upland Data Point
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PRELIMINARY WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet M

PREPARED BY:

north associates fork

Aerial photograph:
Placer County,
September 2005.
Base data provided by:
Auerbach Engineering Corp,
September 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±13.5 miles)

- Segment 1
- Segment 2
- Segment 3A
- Segment 3B
- Segment 3C
- Segment 3D
- Segment 3E
- Segment 4

WATERS OF THE UNITED STATES

- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Wetland Swale
- Wetland Meadow

- Wetland Data Point
- Waters Data Point
- Upland Data Point
- Culvert
- Meadow Line

PRELIMINARY WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet N

PREPARED BY:

north fork associates

Aerial photograph:
Placer County,
September 2005.
Base data provided by:
Auerbach Engineering Corp,
September 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±13.5 miles)

Segment 1
Segment 2
Segment 3A
Segment 3B
Segment 3C
Segment 3D
Segment 3E
Segment 4

WATERS OF THE UNITED STATES

Ephemeral Stream
Intermittent Stream
Perennial Stream
Wetland Swale
Wetland Meadow

Wetland Data Point
Waters Data Point
Upland Data Point
Culvert
Meadow Line

PRELIMINARY WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet O

PREPARED BY:

north fork associates

Aerial photograph:
Placer County,
September 2005.
Base data provided by:
Auerbach Engineering Corp,
September 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±13.5 miles)

- Segment 1
- Segment 2
- Segment 3A
- Segment 3B
- Segment 3C
- Segment 3D
- Segment 3E
- Segment 4

WATERS OF THE UNITED STATES

- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Wetland Swale
- Wetland Meadow

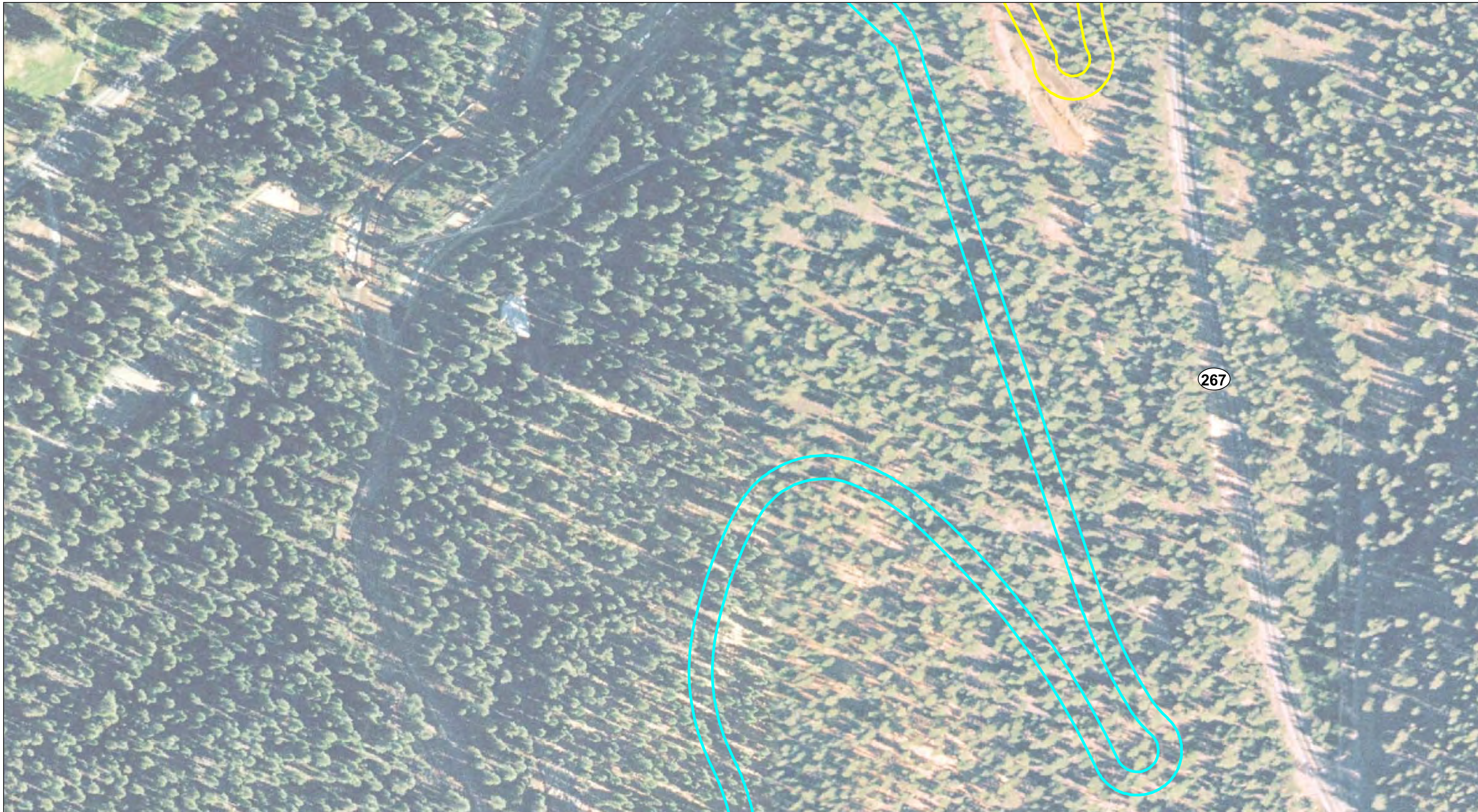
- Wetland Data Point
- Waters Data Point
- Upland Data Point
- Culvert
- Meadow Line

PRELIMINARY
WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet P



PREPARED BY:

north fork associates

Aerial photograph:
Placer County,
September 2005.
Base data provided by:
Auerbach Engineering Corp,
September 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±13.5 miles)

- Segment 1
- Segment 2
- Segment 3A
- Segment 3B
- Segment 3C
- Segment 3D
- Segment 3E
- Segment 4

WATERS OF THE UNITED STATES

- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Wetland Swale
- Wetland Meadow

- Wetland Data Point
- Waters Data Point
- Upland Data Point
- Culvert
- Meadow Line

PRELIMINARY WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet Q

PREPARED BY:

north fork associates

Aerial photograph:
Placer County,
September 2005.
Base data provided by:
Auerbach Engineering Corp,
September 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±13.5 miles)

- Segment 1
- Segment 2
- Segment 3A
- Segment 3B
- Segment 3C
- Segment 3D
- Segment 3E
- Segment 4

WATERS OF THE UNITED STATES

- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Wetland Swale
- Wetland Meadow

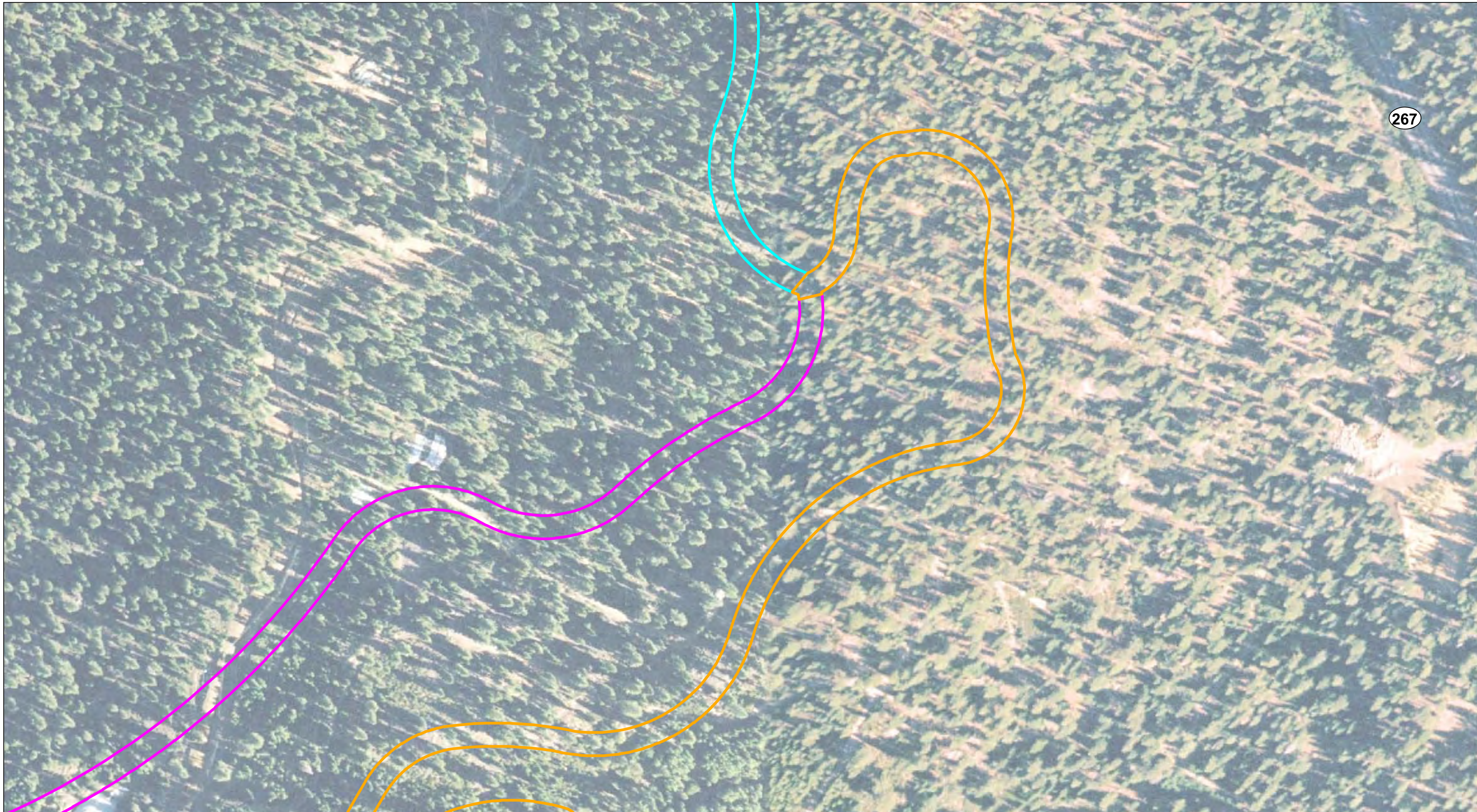
- Wetland Data Point
- Waters Data Point
- Upland Data Point
- Culvert
- Meadow Line

PRELIMINARY WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet R



PREPARED BY:

north fork associates

Aerial photograph:
Placer County,
September 2005.
Base data provided by:
Auerbach Engineering Corp,
September 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±13.5 miles)

- Segment 1
- Segment 2
- Segment 3A
- Segment 3B
- Segment 3C
- Segment 3D
- Segment 3E
- Segment 4

WATERS OF THE UNITED STATES

- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Wetland Swale
- Wetland Meadow

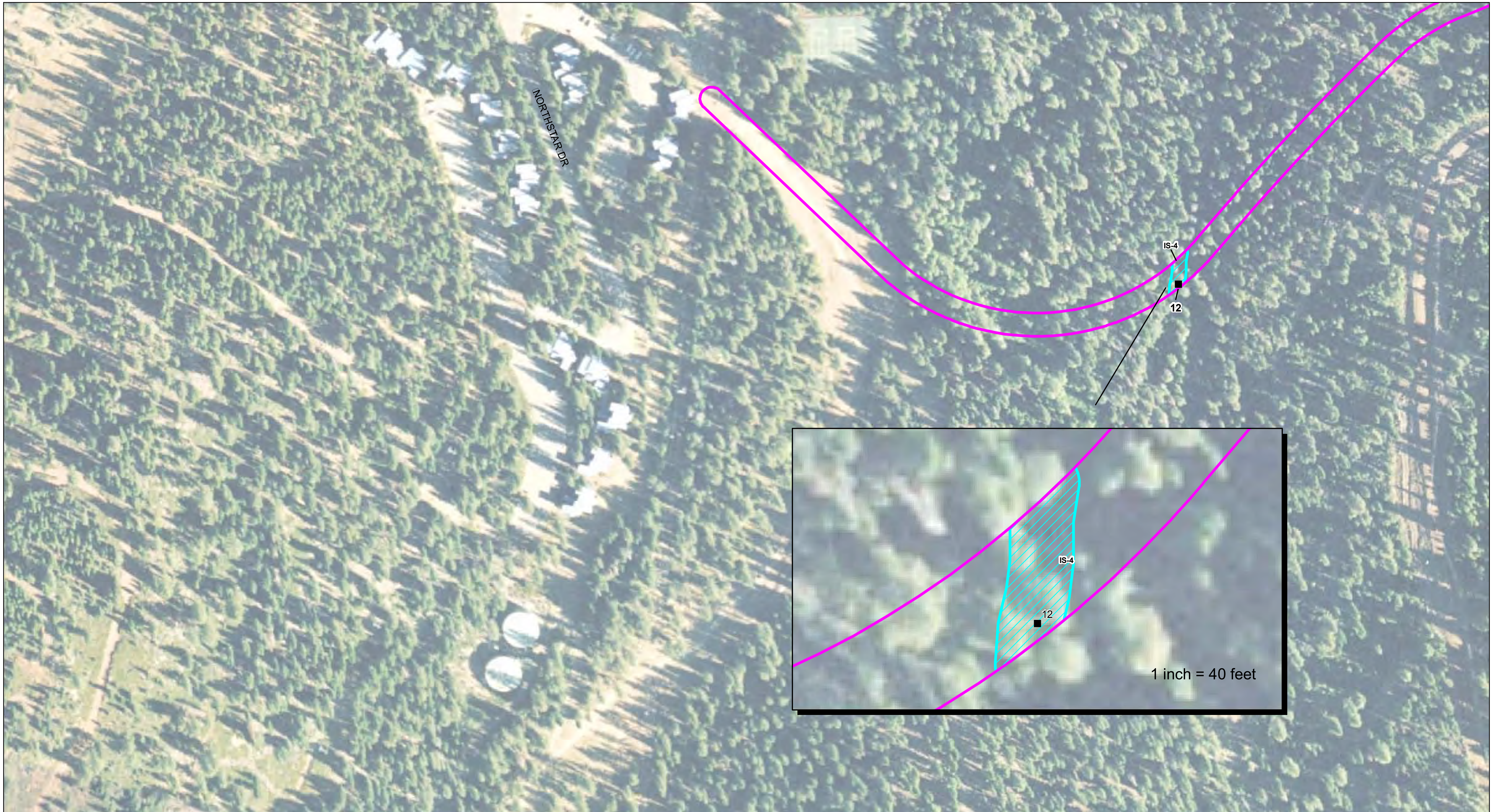
- Wetland Data Point
- Waters Data Point
- Upland Data Point
- Culvert
- Meadow Line

PRELIMINARY WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet S



PREPARED BY:

north fork associates

Aerial photograph:
Placer County,
September 2005.
Base data provided by:
Auerbach Engineering Corp,
September 2009.

N

0 50 100 200
1 inch = 200 feet

Study Area (±13.5 miles)

- Segment 1
- Segment 2
- Segment 3A
- Segment 3B
- Segment 3C
- Segment 3D
- Segment 3E
- Segment 4

WATERS OF THE UNITED STATES

- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Wetland Swale
- Wetland Meadow

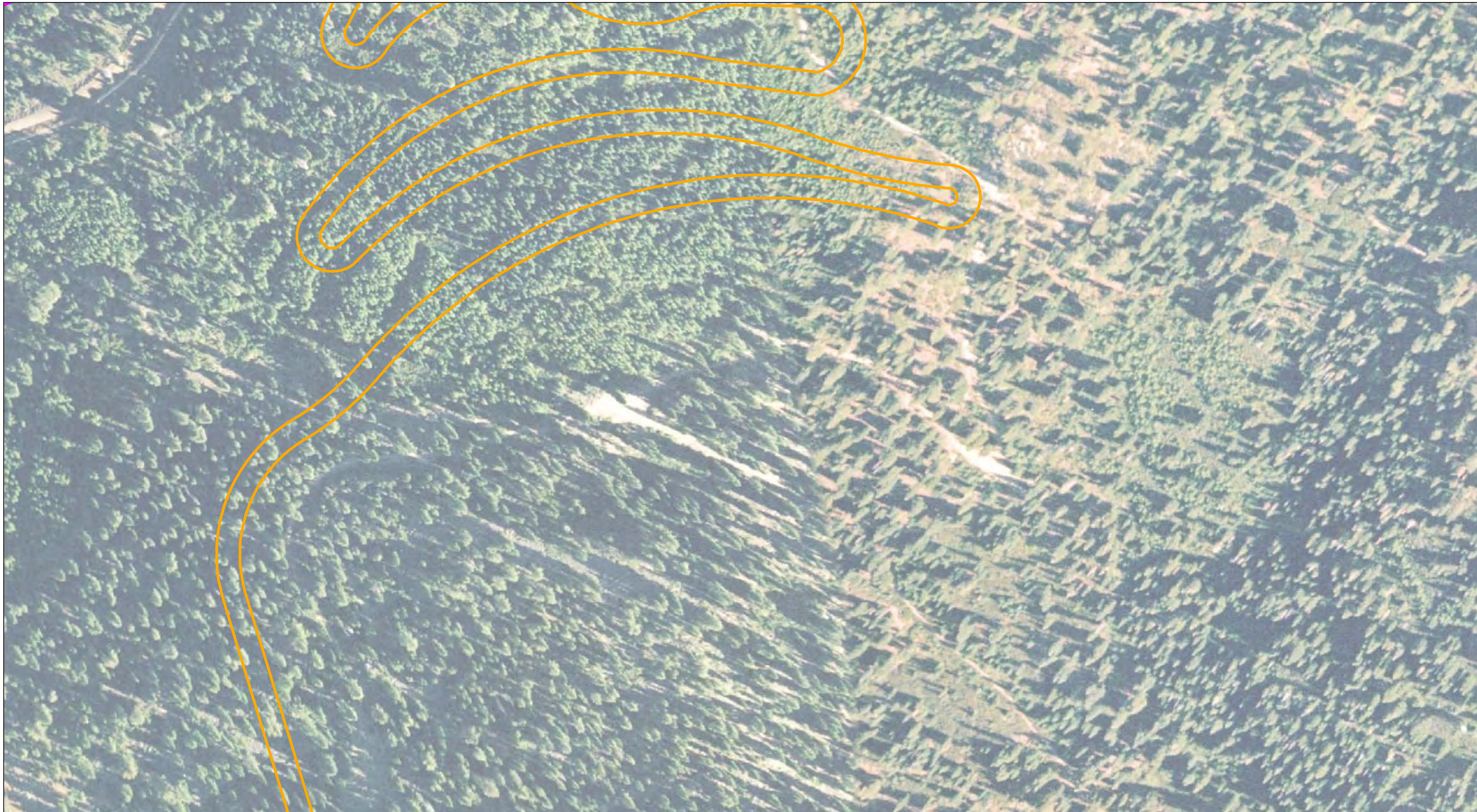
- Wetland Data Point
- Waters Data Point
- Upland Data Point
- Culvert
- Meadow Line

PRELIMINARY WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet T



PREPARED BY:

north fork associates

Aerial photograph:
Placer County,
September 2005.
Base data provided by:
Auerbach Engineering Corp,
September 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±13.5 miles)

- Segment 1
- Segment 2
- Segment 3A
- Segment 3B
- Segment 3C
- Segment 3D
- Segment 3E
- Segment 4

WATERS OF THE UNITED STATES

- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Wetland Swale
- Wetland Meadow

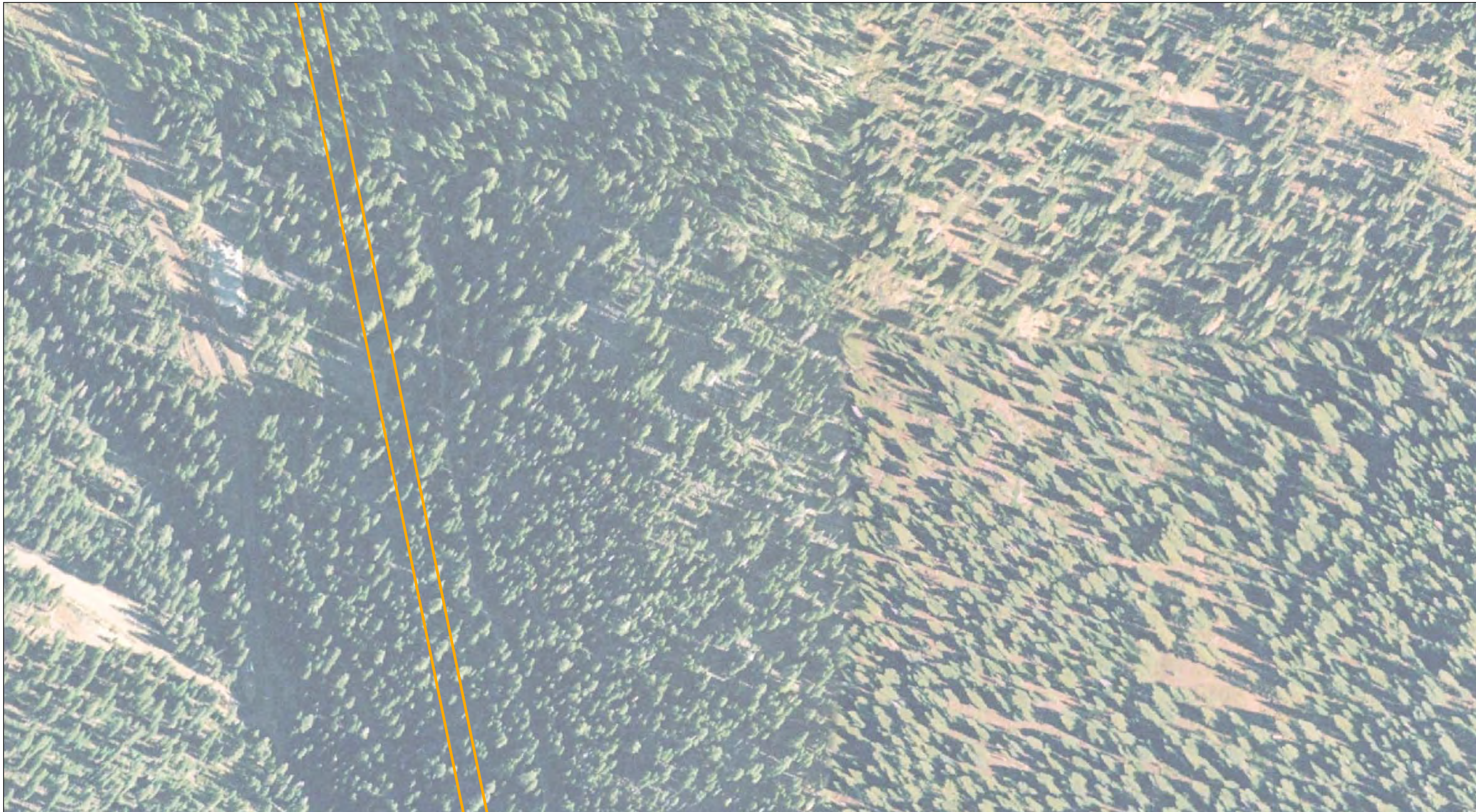
- Wetland Data Point
- Waters Data Point
- Upland Data Point
- Culvert
- Meadow Line

PRELIMINARY WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet U



PREPARED BY:

Aerial photograph:
Placer County,
September 2005.
Base data provided by:
Auerbach Engineering Corp,
September 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±13.5 miles)

- Segment 1
- Segment 2
- Segment 3A
- Segment 3B
- Segment 3C
- Segment 3D
- Segment 3E
- Segment 4

WATERS OF THE UNITED STATES

- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Wetland Swale
- Wetland Meadow

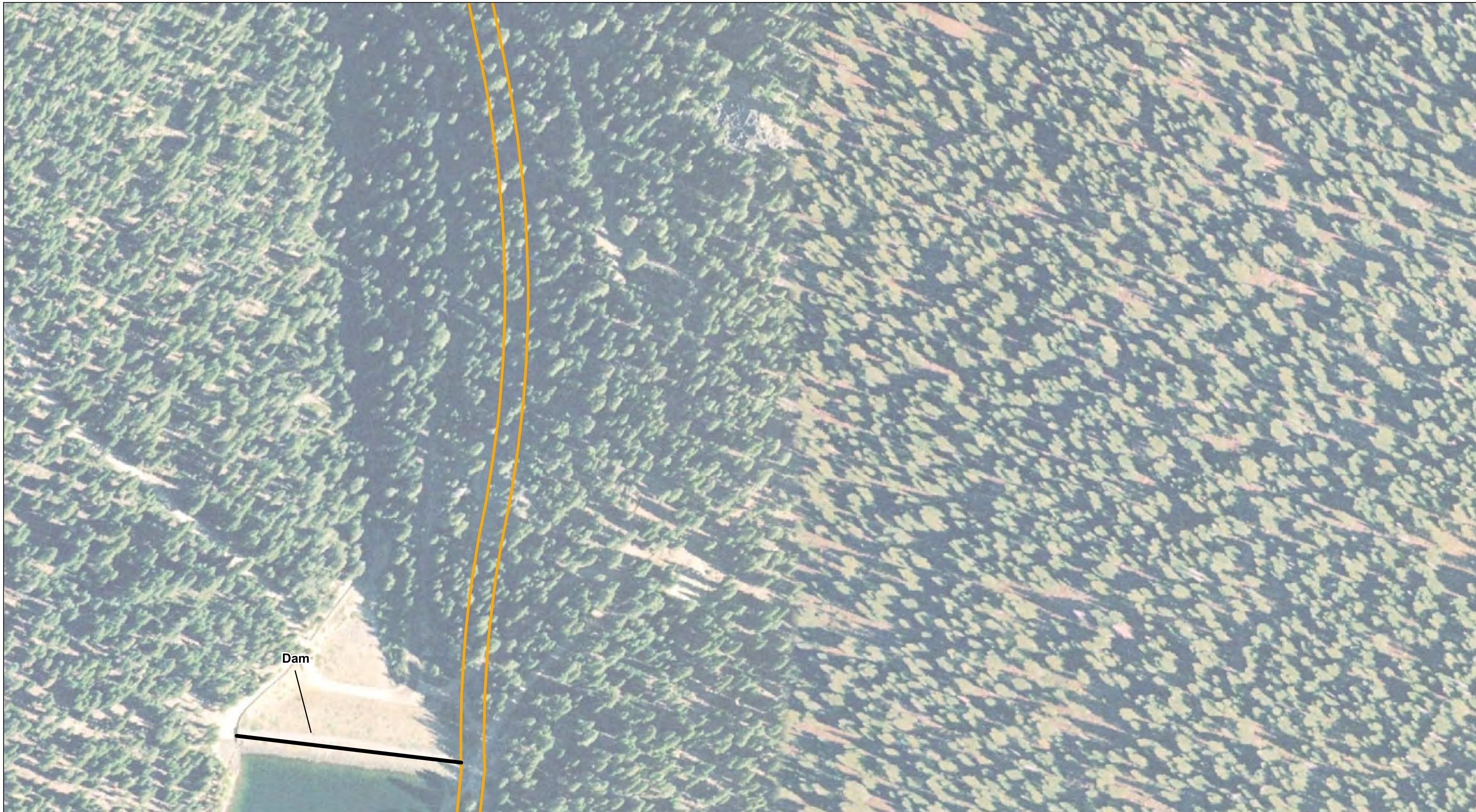
- Wetland Data Point
- Waters Data Point
- Upland Data Point
- Culvert
- Meadow Line

PRELIMINARY
WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet V



PREPARED BY:

north fork associates

Aerial photograph:
Placer County,
September 2005.
Base data provided by:
Auerbach Engineering Corp,
September 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±13.5 miles)

Segment 1
Segment 2
Segment 3A
Segment 3B
Segment 3C
Segment 3D
Segment 3E
Segment 4

WATERS OF THE UNITED STATES

Ephemeral Stream
Intermittent Stream
Perennial Stream
Wetland Swale
Wetland Meadow

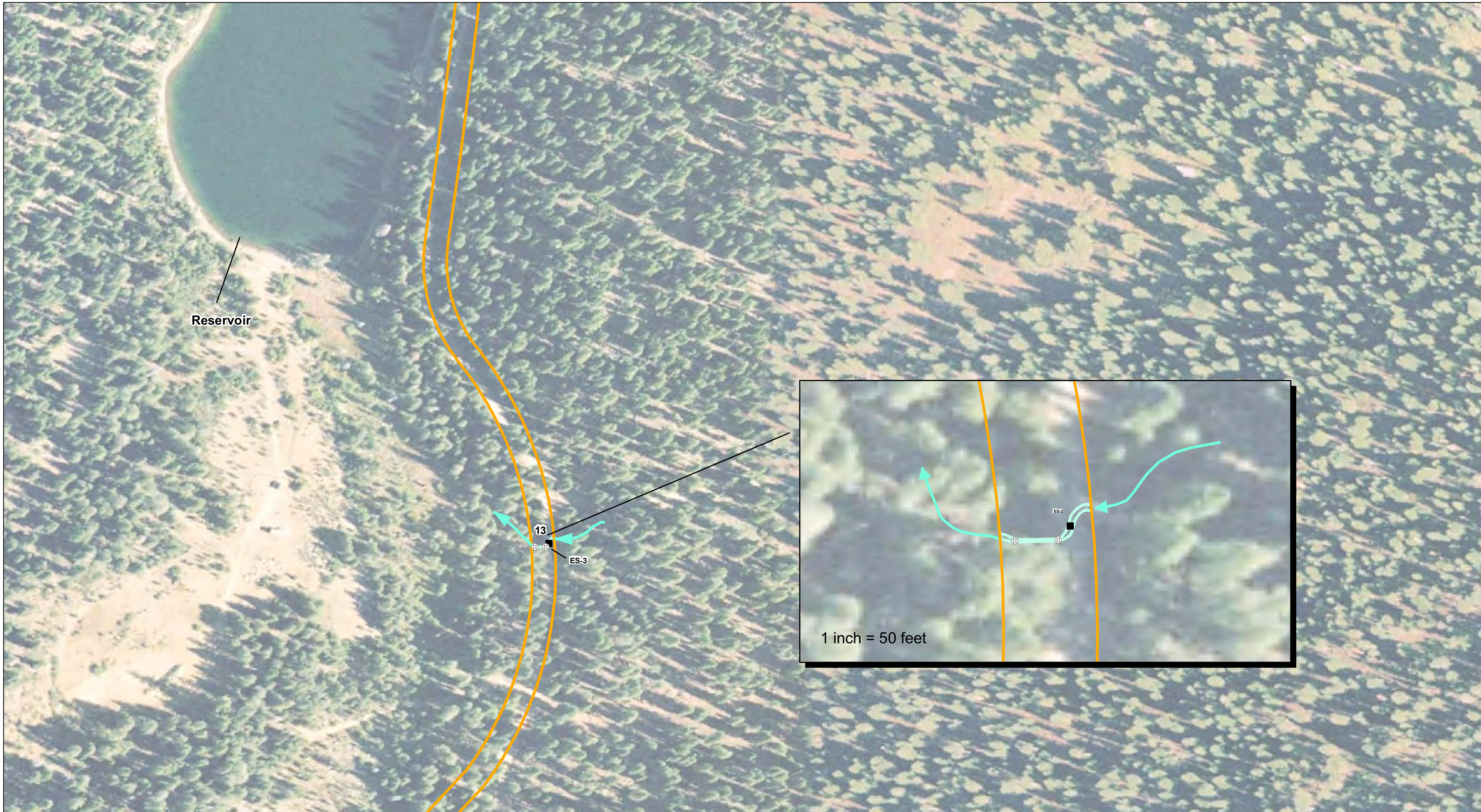
Wetland Data Point
Waters Data Point
Upland Data Point
Culvert
Meadow Line

PRELIMINARY WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet W



PREPARED BY:

north fork associates

Aerial photograph:
Placer County,
September 2005.
Base data provided by:
Auerbach Engineering Corp,
September 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±13.5 miles)

- Segment 1
- Segment 2
- Segment 3A
- Segment 3B
- Segment 3C
- Segment 3D
- Segment 3E
- Segment 4

WATERS OF THE UNITED STATES

- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Wetland Swale
- Wetland Meadow

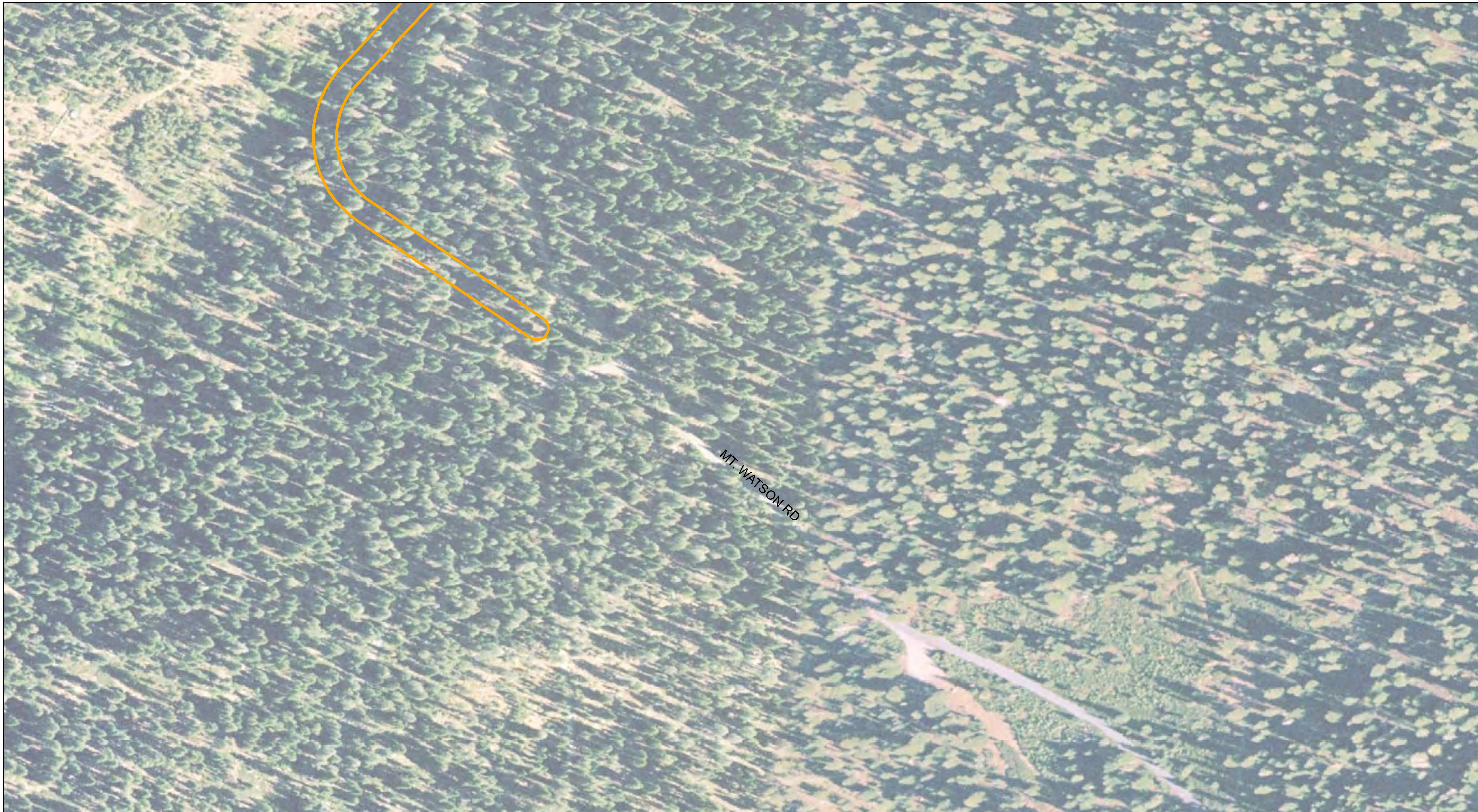
- Wetland Data Point
- Waters Data Point
- Upland Data Point
- Culvert
- Meadow Line

PRELIMINARY WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet X



PREPARED BY:

north fork associates

Aerial photograph:
Placer County,
September 2005.
Base data provided by:
Auerbach Engineering Corp,
September 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±13.5 miles)

- Segment 1
- Segment 2
- Segment 3A
- Segment 3B
- Segment 3C
- Segment 3D
- Segment 3E
- Segment 4

WATERS OF THE UNITED STATES

- Ephemeral Stream
- Intermittent Stream
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PRELIMINARY WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet Y

Appendix B.
Wetland Data Sheets

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Martis Valley Trail City/County: Placer County Sampling Date: 7/23/09

Applicant/Owner: Northstar Community Services District State: CA Sampling Point: 1

Investigator(s): Jeff Glazner, Erin Gottschalk Fisher Section, Township, Range: Sections 19,20,24,28,29,30, & 32, T 17 North and R 16 & 17 East

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 3%

Subregion (LRR): MLRA 22A Lat: 2238956.055°north Long: 7092071.396° west Datum: NAD 83

Soil Map Unit Name: Martis-Euer variant complex, 2 to 5 percent slopes NWI classification: P

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? No Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** **Yes X No ____**
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks:
Wetland swale. Located high in the watershed near Hwy 267.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Juncus sp.	20	Yes	FACW
2. Perideridia kelloggii	20	Yes	---
3. Poa pratensis ssp. pratensis	10	No	FACU
4. Navarretia intertexta ssp. propinqua	10	No	FAC
5. Symphyotrichum spathulatum var. spathulatum	10	No	FAC
6. Deschampsia danthonioides	30	Yes	FACW
7. Penstemon rydbergii var. oreocharis	10	No	FAC
8. Muhlenbergia richardsonis	20	Yes	FAC
Total Cover:	130		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks: Facultative plant community in shallow swale.

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	5 YR 2.5/1	90	5 YR 5/8	10	C	M	Sandy, Loamy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
_X_ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes _X_ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
_X_ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
_X_ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
_X_ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plans (D1) (**LRR A**)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) (**MLRA 1, 2 4A, and 4B**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6) (**LRR A**)
___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No _X_ Depth (inches): ___
Water Table Present? Yes ___ No _X_ Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes ___ No _X_ Depth (inches): ___

Wetland Hydrology Present? Yes _X_ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Evidence of prolonged saturation. Slow moving, near surface water, flows through swale for an extended period.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Martis Valley Trail City/County: Placer County Sampling Date: 7/23/09

Applicant/Owner: Northstar Community Services District State: CA Sampling Point: 2

Investigator(s): Jeff Glazner, Erin Gottschalk Fisher Section, Township, Range: Sections 19,20,24,28,29,30, & 32, T 17 North and R 16 & 17 East

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 5%

Subregion (LRR): MLRA 22A Lat: 2238956.055°north Long: 7092071.396° west Datum: NAD 83

Soil Map Unit Name: Martis-Euer variant complex, 2 to 5 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? No Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
Upland comparison data point to sampling point 1. Just upslope from wetland swale.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. Artemisia arbuscula	50	Yes	---
2.			
3.			
4.			
5.			
Total Cover:	50		
Herb Stratum			
1. Elymus elymoides	20	Yes	---
2. Perideridia kelloggii	10	No	---
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	30		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 20 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks: Herbaceous upland edge

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	5 YR 3/2	100	----				loamy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

__ Histosol (A1)
__ Histic Epipedon (A2)
__ Black Histic (A3)
__ Hydrogen Sulfide (A4)
__ Depleted Below Dark Surface (A11)
__ Thick Dark Surface (A12)
__ Sandy Mucky Mineral (S1)
__ Sandy Gleyed Matrix (S4)
__ Sandy Redox (S5)
__ Stripped Matrix (S6)
__ Loamy Mucky Mineral (F1) (**except MLRA 1**)
__ Loamy Gleyed Matrix (F2)
__ Depleted Matrix (F3)
__ Redox Dark Surface (F6)
__ Depleted Dark Surface (F7)
__ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

__ 2 cm Muck (A10)
__ Red Parent Material (TF2)
__ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ________

Depth (inches): ________

Hydric Soil Present? Yes ____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

__ Surface Water (A1)
__ High Water Table (A2)
__ Saturation (A3)
__ Water Marks (B1)
__ Sediment Deposits (B2)
__ Drift Deposits (B3)
__ Algal Mat or Crust (B4)
__ Iron Deposits (B5)
__ Surface Soil Cracks (B6)
__ Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
__ Salt Crust (B11)
__ Aquatic Invertebrates (B13)
__ Hydrogen Sulfide Odor (C1)
__ Oxidized Rhizospheres along Living Roots (C3)
__ Presence of Reduced Iron (C4)
__ Recent Iron Reduction in Tilled Soils (C6)
__ Stunted or Stressed Plans (D1) (**LRR A**)
__ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__ Water-Stained Leaves (B9) (**MLRA 1, 2 4A, and 4B**)
__ Drainage Patterns (B10)
__ Dry-Season Water Table (C2)
__ Saturation Visible on Aerial Imagery (C9)
__ Geomorphic Position (D2)
__ Shallow Aquitard (D3)
__ FAC-Neutral Test (D5)
__ Raised Ant Mounds (D6) (**LRR A**)
__ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____
Water Table Present? Yes ____ No X Depth (inches): ____
Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Lacks evidence of prolonged saturation. Upland edge.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Martis Valley Trail City/County: Placer County Sampling Date: 7/23/09

Applicant/Owner: Northstar Community Services District State: CA Sampling Point: 3

Investigator(s): Jeff Glazner, Erin Gottschalk Fisher Section, Township, Range: Sections 19,20,24,28,29,30, & 32, T 17 North and R 16 & 17 East

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): flat Slope (%): 1%

Subregion (LRR): MLRA 22A Lat: 2238956.055°north Long: 7092071.396° west Datum: NAD 83

Soil Map Unit Name: Aquolls and Borolls, 0 to 5 percent slopes NWI classification: P

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? No Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** **Yes X No ____**
Hydric Soil Present?	Yes X	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:

Data point taken in adjacent wetland meadow to seasonal stream (currently flowing).

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Poa pratensis ssp. pratensis	.30	Yes	FACU
2. Hordeum brachyantherum	30	Yes	FACW
3. Phleum pratense	20	No	FACU
4. Epilobium ciliatum	30	Yes	FACW
5. Carex sp.	20	No	FACW
6.			
7.			
8.			
Total Cover:	130		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes X No ____**

Remarks: Meadow species rooted in well aerated soil (more available oxygen).

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	5 YR 2.5/1	80	5 YR 5/8	20	C	M	Loamy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes X No ___

Remarks: Soils in this area are stable but have settled through periodic deposition.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- X Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres along Living Roots (C3)
- X Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plans (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Adjacent to intermittent stream. Receives overflow waters and peripheral wetting.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Martis Valley Trail City/County: Placer County Sampling Date: 7/23/09

Applicant/Owner: Northstar Community Services District State: CA Sampling Point: 4

Investigator(s): Jeff Glazner, Erin Gottschalk Fisher Section, Township, Range: Sections 19,20,24,28,29,30, & 32, T 17 North and R 16 & 17 East

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): flat Slope (%): 3%

Subregion (LRR): MLRA 22A Lat: 2238956.055°north Long: 7092071.396° west Datum: NAD 83

Soil Map Unit Name: Aquolls and Borolls, 0 to 5 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? No Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

	Yes	No
Hydrophytic Vegetation Present?		X
Hydric Soil Present?		X
Wetland Hydrology Present?		X

Is the Sampled Area within a Wetland? Yes ____ No X

Remarks:
Upland comparison data point to sampling point 3. Located near existing gravel road an in upland position just upslope from wetland meadow.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. Artemisia tridentata	20	Yes	---
2.			
3.			
4.			
5.			
Total Cover:	20		
Herb Stratum			
1. Elytrigia repens	80	Yes	NI
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	80		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: Upland vegetation. Mix of herbs and (woody) sagebrush.

SOIL

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	5 YR 3/2	100	----					

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ______ No X

Remarks: Compact/dry soil.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plans (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ______	No X	Depth (inches): ______
Water Table Present?	Yes ______	No X	Depth (inches): ______
Saturation Present? (includes capillary fringe)	Yes ______	No X	Depth (inches): ______

Wetland Hydrology Present? Yes ______ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Lacks evidence of wetland hydrology. Upslope from wetland meadow in gravel road influenced area.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Martis Valley Trail City/County: Placer County Sampling Date: 9/15/09

Applicant/Owner: Northstar Community Services District State: CA Sampling Point: 5

Investigator(s): Jeff Glazner Section, Township, Range: Sections 19,20,24,28,29,30, & 32, T 17 North and R 16 & 17 East

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): 1%

Subregion (LRR): MLRA 22A Lat: 2238956.055°north Long: 7092071.396° west Datum: NAD 83

Soil Map Unit Name: Aquolls and Borolls, 0 to 5 percent slopes NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? No Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?**	**Yes ____ No X**
Hydric Soil Present?	Yes ____ No X		**____ Other Waters**
Wetland Hydrology Present?	Yes ____ No X		

Remarks:

Along Martis Creek floodplain – just outside ordinary high water mark in dry meadow edge.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Carex sp.	.40	Yes	FACW
2. Juncus balticus	40	Yes	OBL
3. Elymus glaucus	10	No	FACU
4. Hordeum brachyantherum	5	No	FACW
5. Artemisia tridentata	5	No	-
6.			
7.			
8.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum ______ % Cover of Biotic Crust ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	____	x 1 = ____
FACW species	____	x 2 = ____
FAC species	____	x 3 = ____
FACU species	____	x 4 = ____
UPL species	____	x 5 = ____
Column Totals:	____ (A)	____ (B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks: Dry meadow edge near northern bank of Martis Creek in dry meadow zone.

SOIL

Sampling Point: 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10 YR 4/3	100					loamy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ___ No X

Remarks: Lacks hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plans (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No ___	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Lacks evidence of prolonged seasonal saturation.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Martis Valley Trail City/County: Placer County Sampling Date: 9/15/09

Applicant/Owner: Northstar Community Services District State: CA Sampling Point: 6

Investigator(s): Jeff Glazner Section, Township, Range: Sections 19,20,24,28,29,30, & 32, T 17 North and R 16 & 17 East

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): 1%

Subregion (LRR): MLRA 22A Lat: 2238956.055°north Long: 7092071.396° west Datum: NAD 83

Soil Map Unit Name: Aquolls and Borolls, 0 to 5 percent slopes NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? No Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____ No X	____ **Other Waters**
Wetland Hydrology Present?	Yes ____ No X	

Remarks:

Along Martis Creek floodplain – approx 20 feet from active incised Martis Creek channel. Channel appears to be dewatering adjacent meadow areas and this location appears to lack wetland hydrology as a result.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Carex sp.	.40	Yes	FACW
2. Juncus balticus	40	Yes	OBL
3. Phleum alpinum	5	No	FACW
4. Aster sp.	5	No	FAC
5. Artemisia tridentata	5	No	-
6. Achillea millefolium	5	No	FACU
7.			
8.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum ______ % Cover of Biotic Crust ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Wetland Non-Vascular Plants[1]
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks: Meadow species trending toward upland. Encroachment of sagebrush.

SOIL

Sampling Point: 6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10 YR 4/3	100					loamy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ____________

Depth (inches): ____________

Hydric Soil Present? Yes ____ **No** X

Remarks: Lacks hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plans (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No ____ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? Yes ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Lacks evidence of prolonged seasonal saturation.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Martis Valley Trail City/County: Placer County Sampling Date: 9/15/09

Applicant/Owner: Northstar Community Services District State: CA Sampling Point: 7

Investigator(s): Jeff Glazner Section, Township, Range: Sections 19,20,24,28,29,30, & 32, T 17 North and R 16 & 17 East

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): undulating Slope (%): 1%

Subregion (LRR): MLRA 22A Lat: 2238956.055°north Long: 7092071.396° west Datum: NAD 83

Soil Map Unit Name: Aquolls and Borolls, 0 to 5 percent slopes NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ______ (If no, explain in Remarks.)

Are Vegetation ______, Soil ______, or Hydrology ______ significantly disturbed? No Are "Normal Circumstances" present? Yes X No ______

Are Vegetation ______, Soil ______, or Hydrology ______ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ______	**Is the Sampled Area within a Wetland?** **Yes** ______ **No** X
Hydric Soil Present?	Yes ______ No X	___ **Other Waters**
Wetland Hydrology Present?	Yes ______ No X	

Remarks:

Very localized depression within dry meadow area. Appears to lack wetland hydrology or it is limited to a very small footprint.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Carex sp.	.30	Yes	FACW
2. Juncus balticus	50	Yes	OBL
3. Penstemon rydbergii	20	Yes	FAC
4.			
5.			
6.			
7.			
8.			
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum ______ % Cover of Biotic Crust ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	______	x 1 = ______
FACW species	______	x 2 = ______
FAC species	______	x 3 = ______
FACU species	______	x 4 = ______
UPL species	______	x 5 = ______
Column Totals:	______ (A)	______ (B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

- X Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** X **No** ______

Remarks: Meadow species. Localized area lacks encroachment of upland species as found in adjacent meadow areas.

SOIL

Sampling Point: 7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5 YR 3/3	98	5 YR 4/6	2	C	M	loamy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ______

Depth (inches): ______

Hydric Soil Present? Yes ___ No X

Remarks: Lacks hydric soils indicators. Soil lower in organics than areas closer to the creek.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plans (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ______

Water Table Present? Yes ___ No ___ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ______

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Marginal to lacking evidence of prolonged seasonal saturation.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Martis Valley Trail City/County: Placer County Sampling Date: 7/23/09

Applicant/Owner: Northstar Community Services District State: CA Sampling Point: 8

Investigator(s): Jeff Glazner, Erin Gottschalk Fisher Section, Township, Range: Sections 19,20,24,28,29,30, & 32, T 17 North and R 16 & 17 East

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 2%

Subregion (LRR): MLRA 22A Lat: 2238956.055°north Long: 7092071.396° west Datum: NAD 83

Soil Map Unit Name: Euer-Martis variant complex, 2 to 5 percent slopes NWI classification: P

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? No Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?**	**Yes ____ No ____**
Hydric Soil Present?	Yes ____ No X		
Wetland Hydrology Present?	Yes ____ No X		

Remarks:

Suspect area at edge of meadow. Appears to lack wetland hydrology.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Juncus balticus	50	Yes	OBL
2. Poa pratensis ssp. pratensis	20	Yes	FACU
3. Phleum pratense	15	No	FACU
4. Navarretia intertexta ssp. propinqua	30	Yes	FAC
5. Trifolium longipes var. elmeri	10	No	FACW
6.			
7.			
8.			
Total Cover:	125		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- X Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No ____

Remarks: Area dominated by ecologically tolerant meadow species. Juncus is rhizomatous and "traveling" from wetter areas to drier areas.

SOIL

Sampling Point: 8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	5 YR 2.5/2	100	5 YR 5/8	2	C	M	Loamy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: __________

Depth (inches): __________

Hydric Soil Present? Yes _____ No X

Remarks: Weak redoximorphic features.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plans (D1) (**LRR A**)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) (**MLRA 1, 2 4A, and 4B**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6) (**LRR A**)
___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Meadow edge adjacent to sagebrush slope. Appears to lack prolonged saturation.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Martis Valley Trail City/County: Placer County Sampling Date: 9/15/09

Applicant/Owner: Northstar Community Services District State: CA Sampling Point: 9

Investigator(s): Jeff Glazner Section, Township, Range: Sections 19,20,24,28,29,30, & 32, T 17 North and R 16 & 17 East

Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%): 1%

Subregion (LRR): MLRA 22A Lat: 2238956.055°north Long: 7092071.396° west Datum: NAD 83

Soil Map Unit Name: Aquolls and Borolls, 0 to 5 percent slopes NWI classification: R

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? No Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ___	**Is the Sampled Area within a Wetland?** **Yes X No ___**
Hydric Soil Present?	Yes X	No ___	**___ Other Waters**
Wetland Hydrology Present?	Yes X	No ___	

Remarks:

Along Martis Creek tributary – just outside the active channel in adjacent wetland. This wetland is part of a braided perennial stream complex and is lumped with the Perennial Stream as one unit below the OHWM.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. Salix sp.	10	Yes	OBL
2.			
3.			
4.			
5.			
Total Cover:	10		
Herb Stratum			
1. Carex sp.	60	Yes	FACW
2. Juncus balticus	10	No	OBL
3. Hordeum brachyantherum	20	Yes	FACW
4. Deschampsia cespitosa	5	No	FACW
5.			
6.			
7.			
8.			
Total Cover:	95		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum ___ % Cover of Biotic Crust ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes X No ___**

Remarks: Robust herbaceous wetland vegetation among braided stream system.

SOIL

Sampling Point: 9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10 YR 4/2	95	5 YR 4/6	5			clayey-loamy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
___ Loamy Gleyed Matrix (F2)
_X_ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes _X_ No ___

Remarks: Clayey, organic soil zone in relatively flat drainage bottom.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)
_X_ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plans (D1) (**LRR A**)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) (**MLRA 1, 2 4A, and 4B**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6) (**LRR A**)
___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No _X_ Depth (inches): ___
Water Table Present? Yes _X_ No ___ Depth (inches): 20
Saturation Present? (includes capillary fringe) Yes ___ No ___ Depth (inches): ___

Wetland Hydrology Present? Yes _X_ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Stream zone, shallow groundwater from perennial flows.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Martis Valley Trail City/County: Placer County Sampling Date: 9/15/09

Applicant/Owner: Northstar Community Services District State: CA Sampling Point: 10

Investigator(s): Jeff Glazner Section, Township, Range: Sections 19,20,24,28,29,30, & 32, T 17 North and R 16 & 17 East

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 2%

Subregion (LRR): MLRA 22A Lat: 2238956.055°north Long: 7092071.396° west Datum: NAD 83

Soil Map Unit Name: Aquolls and Borolls, 0 to 5 percent slopes NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? No Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ___ No ___		**Is the Sampled Area within a Wetland?** Yes ___ No ___
Hydric Soil Present? Yes ___ No ___		X Other Waters
Wetland Hydrology Present? Yes ___ No ___		

Remarks:

Active flowing channel. ±5 cfs. Narrow channel – flows appear consistent over period of time. Drift lines are not seen at this location. Flows regulated above?

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1.	.		
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum ______ % Cover of Biotic Crust ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ______ (A)

Total Number of Dominant Species Across All Strata: ______ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ______ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ______	x 1 = ______
FACW species ______	x 2 = ______
FAC species ______	x 3 = ______
FACU species ______	x 4 = ______
UPL species ______	x 5 = ______
Column Totals: ______ (A)	______ (B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ___ No ___

Remarks: Unvegetated channel. Bankside vegetation includes Salix spp.

SOIL

Sampling Point: 10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ______________

Depth (inches): ______________

Hydric Soil Present? Yes ______ No ______

Remarks: None taken – scoured channel with flowing water.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plans (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes X No ______ Depth (inches): ______

Water Table Present? Yes ______ No ______ Depth (inches): ______

Saturation Present? (includes capillary fringe) Yes ______ No ______ Depth (inches): ______

Wetland Hydrology Present? Yes ______ No ______

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Flowing water; appears perennial.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Martis Valley Trail City/County: Placer County Sampling Date: 9/15/09

Applicant/Owner: Northstar Community Services District State: CA Sampling Point: 11

Investigator(s): Jeff Glazner Section, Township, Range: Sections 19,20,24,28,29,30, & 32, T 17 North and R 16 & 17 East

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 5%

Subregion (LRR): MLRA 22A Lat: 2238956.055°north Long: 7092071.396° west Datum: NAD 83

Soil Map Unit Name: Umpa stony sandy loam, 2 to 30 percent slopes NWI classification: R

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? No Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ____ No ____		Is the Sampled Area within a Wetland? Yes ____ No ____
Hydric Soil Present? Yes ____ No ____		X Other Waters
Wetland Hydrology Present? Yes ____ No ____		

Remarks:

Intermittent stream. Well defined channel lacking hydrophytic or riparian vegetation. Dry at time of site visit.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1.	.		
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ____ (A)

Total Number of Dominant Species Across All Strata: ____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ____ No ____

Remarks: Unvegetated channel.

SOIL

Sampling Point: 11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: __________

Depth (inches): __________

Hydric Soil Present? Yes ______ No ______

Remarks: None taken – scoured channel with rocky bottom.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plans (D1) (**LRR A**)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) (**MLRA 1, 2 4A, and 4B**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6) (**LRR A**)
___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): ________
Water Table Present? Yes _____ No _____ Depth (inches): ________
Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): ________

Wetland Hydrology Present? Yes _____ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Channel width above culvert is 12 ft and below culvert is 15 ft. Flow appears to have ceased early in the summer as there is little evidence of recent water.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Martis Valley Trail City/County: Placer County Sampling Date: 8/20/09

Applicant/Owner: Northstar Community Services District State: CA Sampling Point: 12

Investigator(s): Jeff Glazner Section, Township, Range: Sections 19,20,24,28,29,30, & 32, T 17 North and R 16 & 17 East

Landform (hillslope, terrace, etc.): channel Local relief (concave, convex, none): concave Slope (%): 6%

Subregion (LRR): MLRA 22A Lat: 2238956.055°north Long: 7092071.396° west Datum: NAD 83

Soil Map Unit Name: Jorge-Cryumbrepts, wet-Tahoma complex, 2 to 30 percent slopes NWI classification: R

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? No Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___ No ___	**Is the Sampled Area within a Wetland?**	**Yes ___ No ___**
Hydric Soil Present?	Yes ___ No ___		**X Other Waters**
Wetland Hydrology Present?	Yes ___ No ___		

Remarks:
In West Martis Creek channel. Rocky streambed with evidence of periodic high flows. Channel dry during field visit.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. .	.		
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum ___ % Cover of Biotic Crust ___

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ___ (A)

Total Number of Dominant Species Across All Strata: ___ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ___ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ___	x 1 = ___
FACW species ___	x 2 = ___
FAC species ___	x 3 = ___
FACU species ___	x 4 = ___
UPL species ___	x 5 = ___
Column Totals: ___ (A)	___ (B)

Prevalence Index = B/A = ___

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ___ No ___

Remarks: Unvegetated channel. Bankside vegetation includes Salix spp, mountain alder and a few scattered aspens.

SOIL

Sampling Point: 12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ____________

Depth (inches): ____________

Hydric Soil Present? Yes _______ No ______

Remarks: None taken –scoured channel with rocky bottom.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plans (D1) (**LRR A**)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) (**MLRA 1, 2 4A, and 4B**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6) (**LRR A**)
___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ______ No ______ Depth (inches): ___________

Water Table Present? Yes ______ No ______ Depth (inches): ___________

Saturation Present? (includes capillary fringe) Yes ______ No ______ Depth (inches): ___________

Wetland Hydrology Present? Yes _____ No ______

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Seasonally high flows.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Martis Valley Trail City/County: Placer County Sampling Date: 8/20/09

Applicant/Owner: Northstar Community Services District State: CA Sampling Point: 13

Investigator(s): Jeff Glazner Section, Township, Range: Sections 19,20,24,28,29,30, & 32, T 17 North and R 16 & 17 East

Landform (hillslope, terrace, etc.): channel Local relief (concave, convex, none): concave Slope (%): 5%

Subregion (LRR): MLRA 22A Lat: 2238956.055°north Long: 7092071.396° west Datum: NAD 83

Soil Map Unit Name: Fugawee-Tahoma complex, 2 to 30 percent slopes NWI classification: R

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? No Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ____	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** ____
Hydric Soil Present?	Yes ____	No ____	
Wetland Hydrology Present?	Yes ____	No ____	X **Other Waters**

Remarks:

Ephemeral stream, tributary to Martis Creek. Rocky streambed with evidence of periodic low flows. Channel passed through culvert under dirt road just below data point location.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1.	.		
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ____ (A)

Total Number of Dominant Species Across All Strata: ____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

____ Dominance Test is >50%

____ Prevalence Index is ≤3.0[1]

____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

____ Wetland Non-Vascular Plants[1]

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ____ **No** ____

Remarks: Unvegetated channel. Bankside vegetation is upland forest (red fir, lodgepole pine).

SOIL

Sampling Point: 13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ________

Depth (inches): ________

Hydric Soil Present? Yes ____ No ____

Remarks: None taken –scoured channel with rocky bottom.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plans (D1) (**LRR A**)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) (**MLRA 1, 2 4A, and 4B**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6) (**LRR A**)
___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ____ No ____ Depth (inches): ____

Water Table Present? Yes ____ No ____ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No ____ Depth (inches): ____

Wetland Hydrology Present? Yes ____ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Storm and snowmelt related flows.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Martis Valley Trail City/County: Placer County Sampling Date: 7/23/09

Applicant/Owner: Northstar Community Services District State: CA Sampling Point: 14

Investigator(s): Jeff Glazner, Erin Gottschalk Fisher Section, Township, Range: Sections 19,20,24,28,29,30, & 32, T 17 North and R 16 & 17 East

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): flat Slope (%): 4%

Subregion (LRR): MLRA 22A Lat: 2238956.055°north Long: 7092071.396° west Datum: NAD 83

Soil Map Unit Name: Aquolls and Borolls, 0 to 5 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? No Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:
Area adjacent to existing trail in sagebrush/meadow transitional area. Upper portion of sloped meadow that drains toward tributary Martis Creek.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. Artemisia arbuscula	50	Yes	---
2.			
3.			
4.			
5.			
Total Cover:	50		
Herb Stratum			
1. Eremogone congesta var. congesta	20	Yes	---
2. Ivesia sericoleuca	20	Yes	---
3. Poa bulbosa ssp. vivipara	20	Yes	---
4. Balsamorhiza hookeri	15	No	---
5. Lupinus lepidus var. confertus	10	No	---
6. Castilleja pilosa	10	No	---
7. Elymus elymoides	15	No	---
8.			
Total Cover:	110		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	____	x 1 = ____
FACW species	____	x 2 = ____
FAC species	____	x 3 = ____
FACU species	____	x 4 = ____
UPL species	____	x 5 = ____
Column Totals:	____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: Upland meadow species

SOIL

Sampling Point: 14

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	5 YR 3/2	100	----					

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ______________

Depth (inches): ______________

Hydric Soil Present? Yes ______ No __X__

Remarks: Lacks redoximorphic features.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plans (D1) (**LRR A**)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) (**MLRA 1, 2 4A, and 4B**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6) (**LRR A**)
___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ______ No __X__ Depth (inches): ________

Water Table Present? Yes ______ No __X__ Depth (inches): ________

Saturation Present? (includes capillary fringe) Yes ______ No __X__ Depth (inches): ________

Wetland Hydrology Present? Yes ______ No __X__

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Lacks evidence of prolonged saturation.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Martis Valley Trail City/County: Placer County Sampling Date: 7/23/09

Applicant/Owner: Northstar Community Services District State: CA Sampling Point: 15

Investigator(s): Jeff Glazner, Erin Gottschalk Fisher Section, Township, Range: Sections 19,20,24,28,29,30, & 32, T 17 North and R 16 & 17 East

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): flat Slope (%): 2%

Subregion (LRR): MLRA 22A Lat: 2238956.055°north Long: 7092071.396° west Datum: NAD 83

Soil Map Unit Name: Aquolls and Borolls, 0 to 5 percent slopes NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? $\boxed{\text{No}}$ Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? $\boxed{\text{No}}$ (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?**	**Yes ____ No X**
Hydric Soil Present?	Yes ____ No X		
Wetland Hydrology Present?	Yes ____ No X		

Remarks:

Suspect area at toe of slope for Hwy 267. Historically modified and highly disturbed. Supports meadow vegetation but lacks evidence of prolonged saturation (no hydric soil or hydrologic indicators).

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. Artemisia arbuscula	5	No	---
2. Salix spp.	20	Yes	FACW*
3.			
4.			
5.			
Total Cover:	25		
Herb Stratum			
1. Poa pratensis ssp. pratensis	20	Yes	FACU
2. Potentilla glandulosa	15	No	FAC
3. Juncus bufonius	20	Yes	FACW
4. Trifolium longipes var. elmeri	80	Yes	FACW
5. Poa secunda	5	No	FACU
6. Symphyotrichum spathulatum var. spathulatum	15	No	FAC
7.			
8.			
Total Cover:	155		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Wetland Non-Vascular Plants[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes X No ____**

Remarks: Numerous meadow species in formerly disturbed area. Adjacent to existing trail.

SOIL

Sampling Point: 15

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5 YR 3/2	100	----					Includes rocks (cast off) from trail.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: __________

Depth (inches): __________

Hydric Soil Present? Yes ______ No X

Remarks: Unconsolidated soils at toe of Hwy 267 slope.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plans (D1) (**LRR A**)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) (**MLRA 1, 2 4A, and 4B**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6) (**LRR A**)
___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ______ No X Depth (inches): ______
Water Table Present? Yes ______ No X Depth (inches): ______
Saturation Present? (includes capillary fringe) Yes ______ No X Depth (inches): ______

Wetland Hydrology Present? Yes ______ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No evidence of hydrology. No hydrologic indicators.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Martis Valley Trail City/County: Placer County Sampling Date: 8/20/09

Applicant/Owner: Northstar Community Services District State: CA Sampling Point: 16

Investigator(s): Jeff Glazner Section, Township, Range: Sections 19,20,24,28,29,30, & 32, T 17 North and R 16 & 17 East

Landform (hillslope, terrace, etc.): channel Local relief (concave, convex, none): concave Slope (%): 3%

Subregion (LRR): MLRA 22A Lat: 2238956.055°north Long: 7092071.396° west Datum: NAD 83

Soil Map Unit Name: Inville-Riverwash-Aquolls complex, 2 to 5 percent slopes NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? No Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____ No ____	**Is the Sampled Area within a Wetland?** Yes ____ No ____
Hydric Soil Present?	Yes ____ No ____	**X Other Waters**
Wetland Hydrology Present?	Yes ____ No ____	

Remarks:

Ephemeral stream emerging from culvert carrying roadside drainage from Hwy 267. Very minor channel.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1.	.		
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum ______ % Cover of Biotic Crust ______

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ______ (A)

Total Number of Dominant Species Across All Strata: ______ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ______ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	______	x 1 = ______
FACW species	______	x 2 = ______
FAC species	______	x 3 = ______
FACU species	______	x 4 = ______
UPL species	______	x 5 = ______
Column Totals:	______ (A)	______ (B)

Prevalence Index = B/A = ______

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ____ No ____

Remarks: Unvegetated channel in disturbed dry meadow area near Northstar Golf Course.

SOIL

Sampling Point: 16

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ____________

Depth (inches): ____________

Hydric Soil Present? Yes _______ No ______

Remarks: None taken –scoured channel with rocky bottom.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plans (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches):__________

Water Table Present? Yes _____ No _____ Depth (inches): __________

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): __________

Wetland Hydrology Present? Yes _____ No ______

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Storm and snowmelt related flows.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Martis Valley Trail City/County: Placer County Sampling Date: 7/23/09

Applicant/Owner: Northstar Community Services District State: CA Sampling Point: 17

Investigator(s): Jeff Glazner, Erin Gottschalk Fisher Section, Township, Range: Sections 19,20,24,28,29,30, & 32, T 17 North and R 16 & 17 East

Landform (hillslope, terrace, etc.): channel Local relief (concave, convex, none): concave Slope (%): 3%

Subregion (LRR): MLRA 22A Lat: 2238956.055°north Long: 7092071.396° west Datum: NAD 83

Soil Map Unit Name: Kyburz-Trojan complex, 9 to 30 percent slopes NWI classification: R

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? No Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____ No ____	**Is the Sampled Area within a Wetland?** **Yes ____ No ____**
Hydric Soil Present?	Yes ____ No ____	**X Other Waters**
Wetland Hydrology Present?	Yes ____ No ____	

Remarks:

Middle Martis Creek - tributary to Martis Creek. Intermittent Stream.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. Salix sp			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1.	.		
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: ____ (A)

Total Number of Dominant Species Across All Strata: ____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: ____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes ____ No ____**

Remarks: Willow-lined channel. Riprap near culvert outfall.

SOIL

Sampling Point: 17

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: ________

Depth (inches): ________

Hydric Soil Present? Yes ____ No ____

Remarks: None taken –scoured channel with rocky bottom.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A and 4B**)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Stunted or Stressed Plans (D1) (**LRR A**)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water-Stained Leaves (B9) (**MLRA 1, 2 4A, and 4B**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Raised Ant Mounds (D6) (**LRR A**)
___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): <1" (in culvert)
Water Table Present? Yes ___ No ___ Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes ___ No ___ Depth (inches): ___

Wetland Hydrology Present? Yes ___ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Water trickling out of metal culvert under road. Water goes under rocky channel bottom. No flowing water at data point. In the area surrounding the data point, tributary varies with a 5 to 10 feet wide ordinary high water mark.

Appendix C.
Plant Species Observed in the Martis Valley Regional Trail Study Corridor

Appendix C. Plant Species Observed in the Martis Valley Trail Study Area

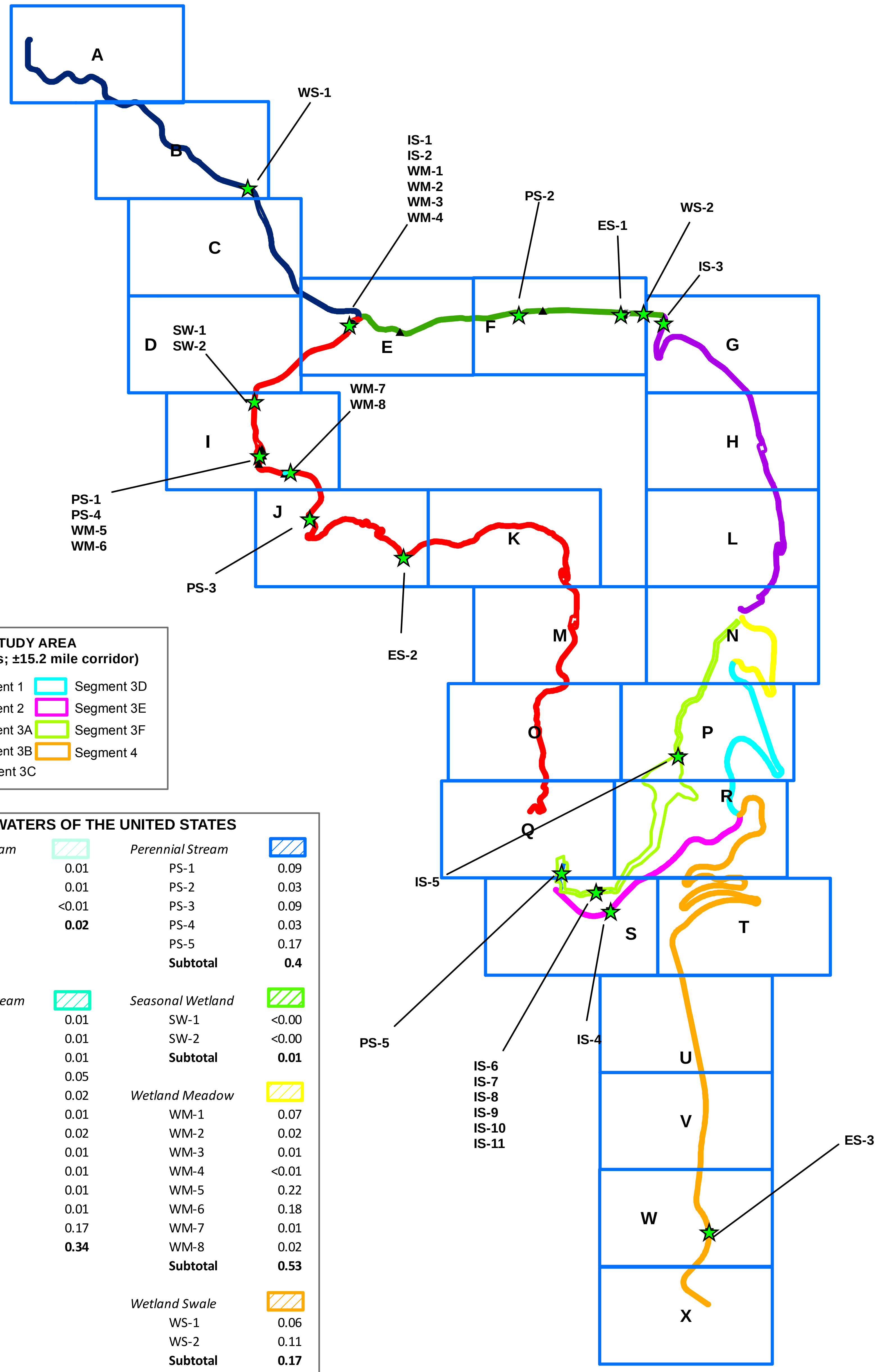
Common Name	Taxon	Wetland Status
Agoseris	*Agoseris sp.*	-
Annual hairgrass	*Deschampsia danthonioides*	FACW
Antelope bush	*Purshia tridentata var. tridentata*	-
Baltic rush	*Juncus balticus*	OBL
Big sagebrush	*Artemisia tridentata*	-
Bigleaf avens	*Geum macrophyllum*	FACW
Bitter dogbane	*Apocynum androsaemifolium*	-
Blazing star	*Mentzelia dispersa*	-
Bloomer's fleabane	*Erigeron bloomeri var. bloomeri*	-
Blue wildrye	*Elymus glaucus*	FACU
Blue-eyed Mary	*Collinsia parviflora*	-
Bracken fern	*Pteridium aquilinum var. pubescens*	FACU
Bulbous bluegrass	*Poa bulbosa subsp. vivipara*	-
Campion	*Silene douglasii*	-
Capitate sandwort	*Eremogone congesta var. congesta*	-
Cheat grass	*Bromus tectorum*	-
Claytonia	*Claytonia rubra subsp. rubra*	FAC
Clustered broom-rape	*Orobanche fasciculata*	-
Common camassia	*Camassia quamash subsp. breviflora*	FACW
Common dandelion	*Taraxacum officinale*	FACU
Common horsetail	*Equisetum arvense*	FAC
Common monkeyflower	*Mimulus guttatus*	OBL
Common timothy	*Phleum pratense*	FACU
Cow parsnip	*Heracleum lanatum*	FACU
Crested wheatgrass	*Agropyron cristatum*	-
Cryptantha	*Cryptantha affinis*	-
Dense-flower spike-primrose	*Epilobium densiflorum*	OBL
Douglas' knotweed	*Polygonum douglasii*	FACU
Dwarf larkspur	*Delphinium nuttallianum*	FACW
Dwarf lupine	*Lupinus lepidus var. confertus*	-
Dwarf woolly-heads	*Psilocarphus brevissimus var. brevissimus*	OBL
Flat-scale balsam-root	*Balsamorhiza hookeri*	-
Fleshy porterella	*Porterella carnulosa*	OBL
Geyer's willow	*Salix geyeriana*	OBL
Glandular cinquefoil	*Potentilla glandulosa*	FAC
Great Basin navarretia	*Navarretia intertexta subsp. propinqua*	FAC*
Greenleaf manzanita	*Arctostaphylos patula*	-
Indian paintbrush	*Castilleja pilosa*	-

Common Name	Taxon	Wetland Status
Jeffrey pine	*Pinus jeffreyi*	-
Kelloggia	*Kelloggia galioides*	-
Kentucky bluegrass	*Poa pratensis subsp. pratensis*	FACU
Lemmon's willow	*Salix lemmonii*	OBL
Locoweed	*Astragalus purshii var. tinctus*	-
Lodgepole pine	*Pinus contorta subsp. murrayana*	FAC
Long-stalk clover	*Trifolium longipes var. elmeri*	FACW
Long-stalk starwort	*Stellaria longipes var. longipes*	OBL
Low sagebrush	*Artemisia arbuscula subsp. arbuscula*	-
Mahala mat	*Ceanothus prostratus*	-
Mat muhly	*Muhlenbergia richardsonis*	FAC
Meadow barley	*Hordeum brachyantherum*	FACW
Monardella	*Monardella odoratissima subsp. pallida*	FACU
Monkeyflower	*Mimulus breweri*	-
Mountain alder	*Alnus incana subsp. tenuifolia*	NI
Mountain butterweed	*Senecio integerrimus*	FAC
Mountain mule's-ears	*Wyethia mollis*	-
Mountain tarweed	*Madia glomerata*	FACU-
Mountain timothy	*Phleum alpinum*	FACW
Mountain violet	*Viola purpurea subsp. purpurea*	-
Navarretia	*Navarretia capillaris*	-
Navarretia	*Navarretia leptalea subsp. bicolor*	-
Nevada buckwheat	*Eriogonum umbellatum var. nevadense*	-
Nevada lomatium	*Lomatium nevadense var. nevadense*	-
Nude buckwheat	*Eriogonum nudum*	-
One-spike oatgrass	*Danthonia unispicata*	-
Onion	*Allium campanulatum*	-
Orchard grass	*Dactylis glomerata*	FACU
Orthocarpus	*Orthocarpus cuspidatus subsp. cryptanthus*	-
Pacific ponderosa pine	*Pinus ponderosa*	FACU
Parish's yampah	*Perideridia parishii subsp. latifolia*	FACW
Parry's arnica	*Arnica parryi*	-
Phacelia	*Phacelia hastata subsp. hastata*	-
Plumas ivesia	*Ivesia sericoleuca*	-
Polygala knotweed	*Polygonum polygaloides subsp. kelloggii*	NI
Popcornflower	*Plagiobothrys hispidulus*	FACW
Prairie flax	*Linum lewisii var. lewisii*	-
Quackgrass	*Elytrigia repens*	NI*
Quaking aspen	*Populus tremuloides*	FAC+
Rubber rabbitbrush	*Ericameria nauseosa*	-

Common Name	Taxon	Wetland Status
Rush	*Juncus sp.*	VARIES
Rydberg's beardtongue	*Penstemon rydbergii var. oreocharis*	FAC
Secund bluegrass	*Poa secunda*	FACU
Sedge	*Carex sp.*	VARIES
Spanish-clover	*Lotus purshianus var. purshianus*	-
Spreading yellow cress	*Rorippa sinuata*	FACW
Squirreltail	*Elymus elymoides*	-
Stemless thistle	*Cirsium scariosum var. americanum*	FAC
Summer cottonweed	*Epilobium brachycarpum*	-
Thickstem aster	*Eurybia integrifolia*	-
Toad rush	*Juncus bufonius*	FACW+
Tobacco brush	*Ceanothus velutinus var. velutinus*	-
Tufted hairgrass	*Deschampsia cespitosa subsp. cespitosa*	FACW
Water speedwell	*Veronica anagallis-aquatica*	OBL
Western burnet	*Sanguisorba occidentalis*	-
Western buttercup	*Ranunculus occidentalis*	FACW
Western Jacob's-ladder	*Polemonium occidentale*	OBL
Western juniper	*Juniperus occidentalis*	-
Western lady fern	*Athyrium filix-femina var. cyclosorum*	FAC
Western marsh cudweed	*Gnaphalium palustre*	FACW
Western mountain aster	*Symphyotrichum spathulatum var. spathulatum*	FAC
Western wallflower	*Erysimum capitatum subsp. capitatum*	-
White clover	*Trifolium repens*	FACU+
White fir	*Abies concolor*	-
White pigweed	*Chenopodium album*	FAC
Wild rose	*Rosa sp.*	VARIES
Willow	*Salix sp.*	VARIES
Willow dock	*Rumex salicifolius*	OBL
Woolly mullein	*Verbascum thapsus*	-
Yellow salsify	*Tragopogon dubius*	-

Appendix D.
GIS Files

GIS Files are provided to the Corps and are available upon request.



STUDY AREA
(±107 acres; ±15.2 mile corridor)

- Segment 1
- Segment 2
- Segment 3A
- Segment 3B
- Segment 3C
- Segment 3D
- Segment 3E
- Segment 3F
- Segment 4

WATERS OF THE UNITED STATES

Ephemeral Stream	
ES-1	0.01
ES-2	0.01
ES-3	<0.01
Subtotal	**0.02**

Perennial Stream	
PS-1	0.09
PS-2	0.03
PS-3	0.09
PS-4	0.03
PS-5	0.17
Subtotal	**0.4**

Intermittent Stream	
IS-1	0.01
IS-2	0.01
IS-3	0.01
IS-4	0.05
IS-5	0.02
IS-6	0.01
IS-7	0.02
IS-8	0.01
IS-9	0.01
IS-10	0.01
IS-11	0.01
IS-12	0.17
Subtotal	**0.34**

Seasonal Wetland	
SW-1	<0.00
SW-2	<0.00
Subtotal	**0.01**

Wetland Meadow	
WM-1	0.07
WM-2	0.02
WM-3	0.01
WM-4	<0.01
WM-5	0.22
WM-6	0.18
WM-7	0.01
WM-8	0.02
Subtotal	**0.53**

Wetland Swale	
WS-1	0.06
WS-2	0.11
Subtotal	**0.17**

TOTAL WATERS OF THE U.S. (Acres) 1.47

north fork associates

Notes:
1. T 16N,17N; R 16E,17E; S 5,8,13,19,20,24,28,29,30,32,& 33 32 of Truckee & Martis Peak, CA, USGS 7.5 minute topographic quadrangle.
2. Study Area: 107 acres
3. Aerial photographs: Auerbach Engineering Corp, 2009; NAIP, 2009.
4. The boundaries and jurisdictional status of all waters shown on this map are preliminary and subject to verification by the U.S. Army Corps of Engineers.
5. Original map size: 11"x17"
6. Final map issued after verification.

Prepared For:
Northstar Community Services District
908 Northstar Drive, Northstar, CA 96161
Contact: Mike Staudenmayer, (530) 562-0747

Base data provided by Auerbach Engineering Corp.

DELINEATOR: Jeff Glazner, Salix Consulting
DATES OF FIELDWORK: June 25, July 9, July 23, July 29, August 19, and September 15, 2009, July 8, 2011.
DRAWN BY: M. Lang
USACE REGULATORY FILE#: TBD
VERIFIED BY: William Ness, U.S.A.C.E
DATE OF VERIFICATION: August 10, 2011

Preliminary Wetland Delineation Map

Martis Valley Regional Trail

Placer County, California

N

0 1,000 2,000 Feet
1 inch = 2,001 feet

Map Date: September 21, 2011

PREPARED BY:

north fork associates

Aerial photograph and base data provided by: Auerbach Engineering Corp, September 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±15.2 miles)

- Segment 1
- Segment 2
- Segment 3A
- Segment 3B
- Segment 3C
- Segment 3D
- Segment 3E
- Segment 3F
- Segment 4

WATERS OF THE UNITED STATES

- Ephemeral Stream
- Intermittent Stream
- Martis Creek
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- Wetland Data Point
- Waters Data Point
- Upland Data Point
- Culvert
- Meadow Line

PRELIMINARY WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet A

PREPARED BY:

north fork associates

Aerial photograph and base data provided by: Auerbach Engineering Corp, September 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±15.2 miles)

- Segment 1
- Segment 2
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WATERS OF THE UNITED STATES

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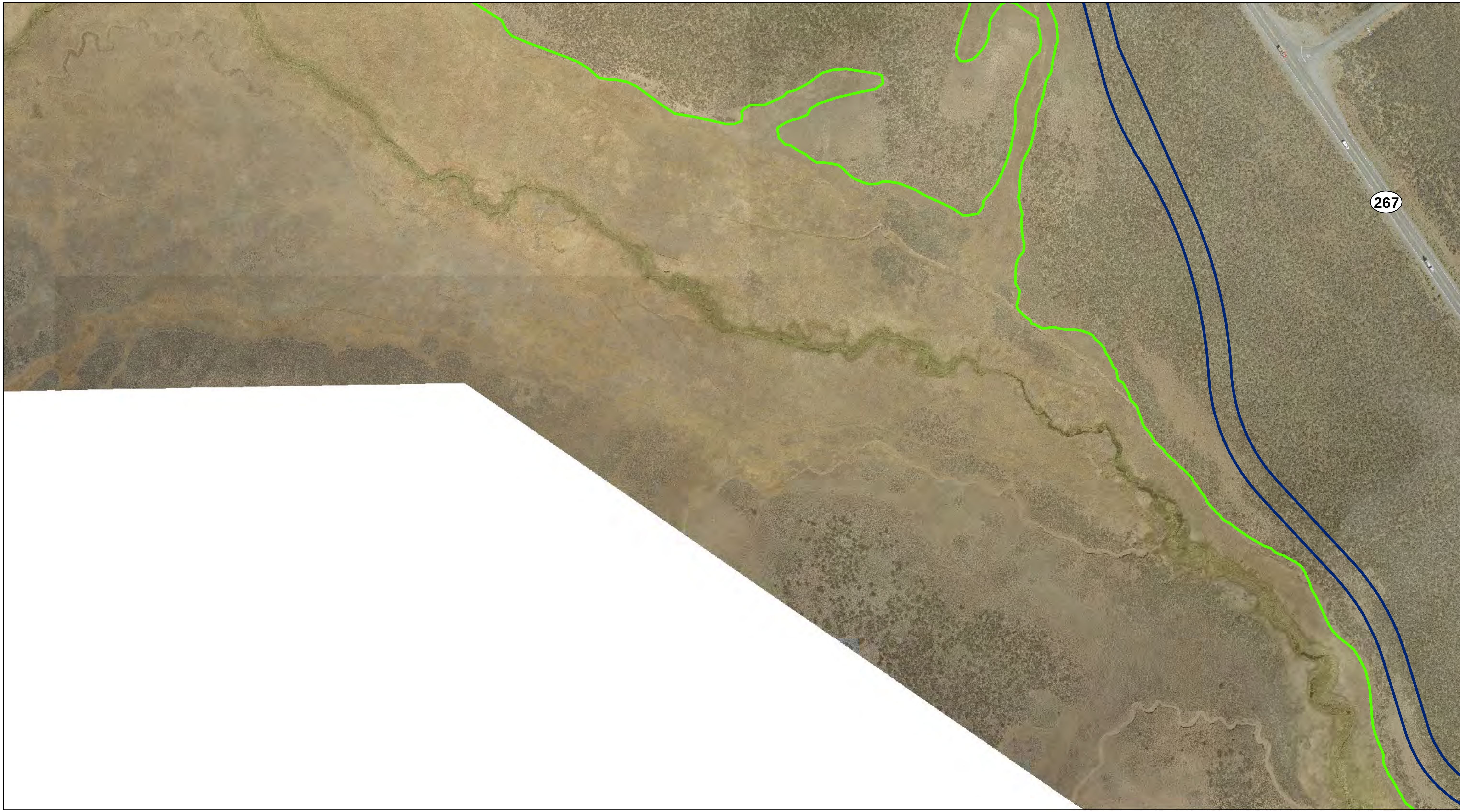
PRELIMINARY WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet B



PREPARED BY:

north fork associates

Aerial photograph and
base data provided by:
Auerbach Engineering Corp,
September 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±15.2 miles)

Segment 1
Segment 2
Segment 3A
Segment 3B
Segment 3C
Segment 3D
Segment 3E
Segment 3F
Segment 4

WATERS OF THE UNITED STATES

Ephemeral Stream
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Wetland Data Point
Waters Data Point
Upland Data Point
Culvert
Meadow Line

PRELIMINARY
WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet C

PREPARED BY:

Aerial photograph and
base data provided by:
Auerbach Engineering Corp,
September 2009; NAIP 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±15.2 miles)

Segment 1
Segment 2
Segment 3A
Segment 3B
Segment 3C
Segment 3D
Segment 3E
Segment 3F
Segment 4

WATERS OF THE UNITED STATES

Ephemeral Stream
Intermittent Stream
Martis Creek
Perennial Stream
Seasonal Wetland
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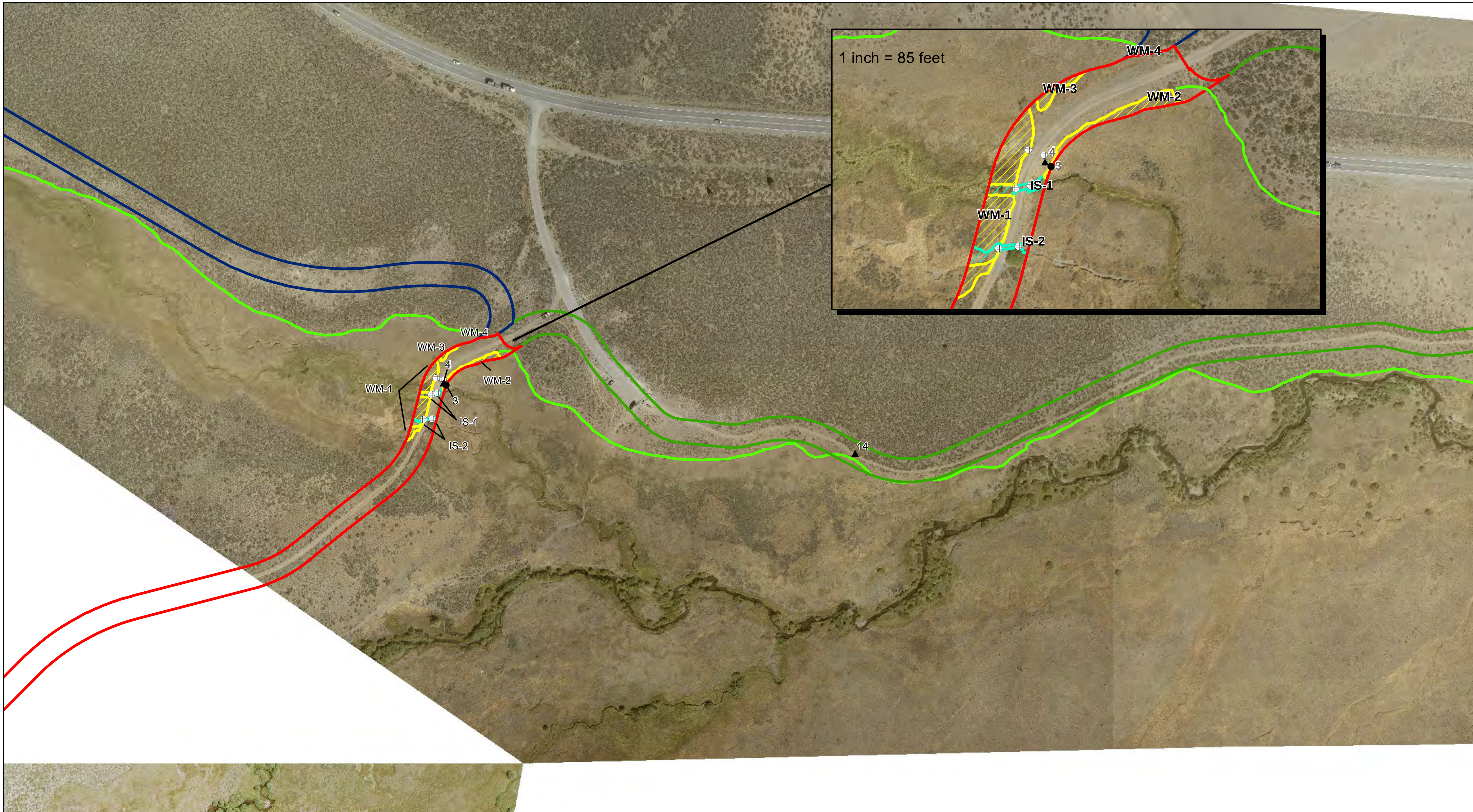
Wetland Data Point
Waters Data Point
Upland Data Point
Culvert
Meadow Line

PRELIMINARY
WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet D



PREPARED BY:

north fork associates

Aerial photograph and base data provided by: Auerbach Engineering Corp, September 2009; NAIP 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±15.2 miles)

- Segment 1
- Segment 2
- Segment 3A
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WATERS OF THE UNITED STATES

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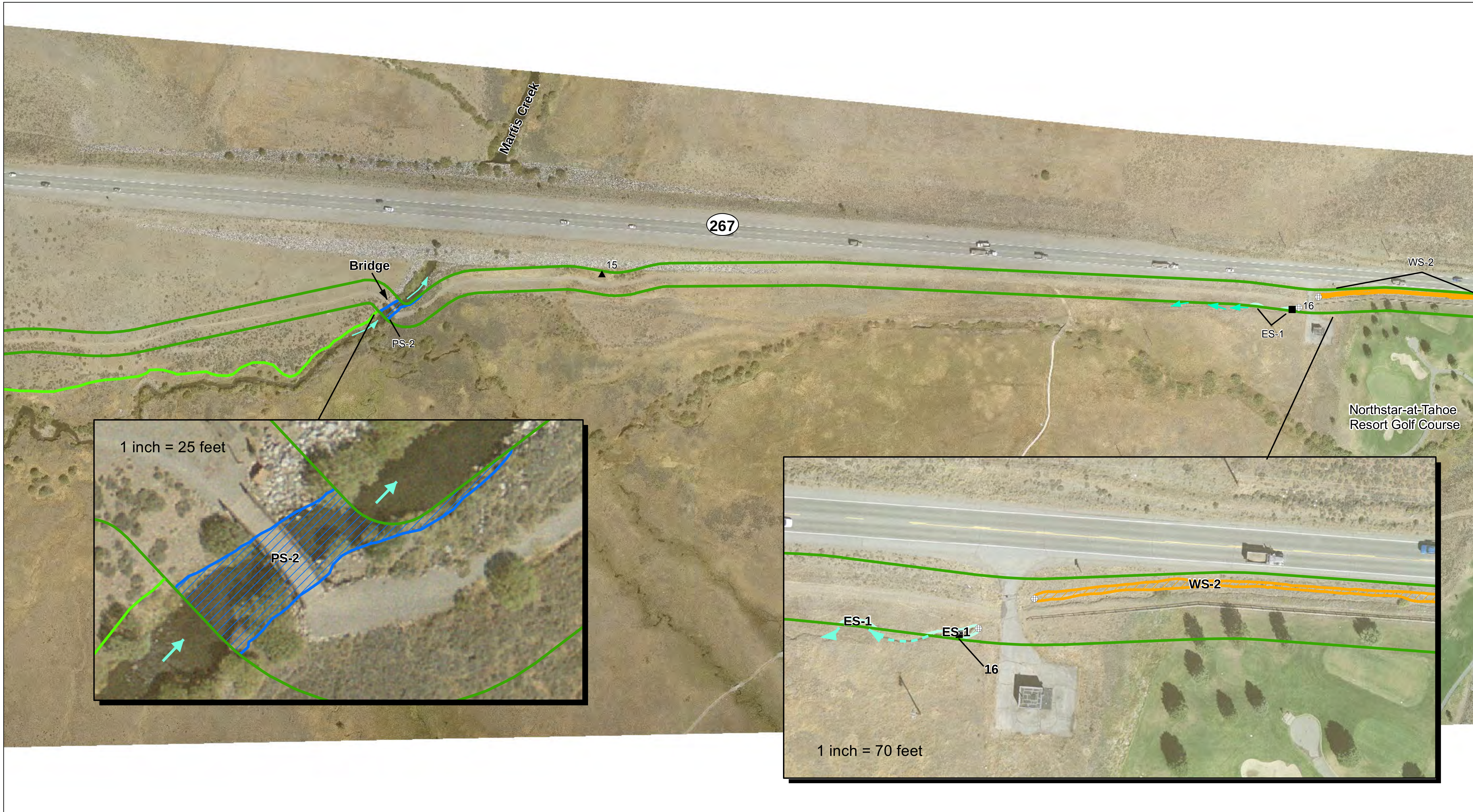
PRELIMINARY WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet E



PREPARED BY:

north fork associates

Aerial photograph and base data provided by: Auerbach Engineering Corp, September 2009; NAIP 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±15.2 miles)

- Segment 1
- Segment 2
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WATERS OF THE UNITED STATES

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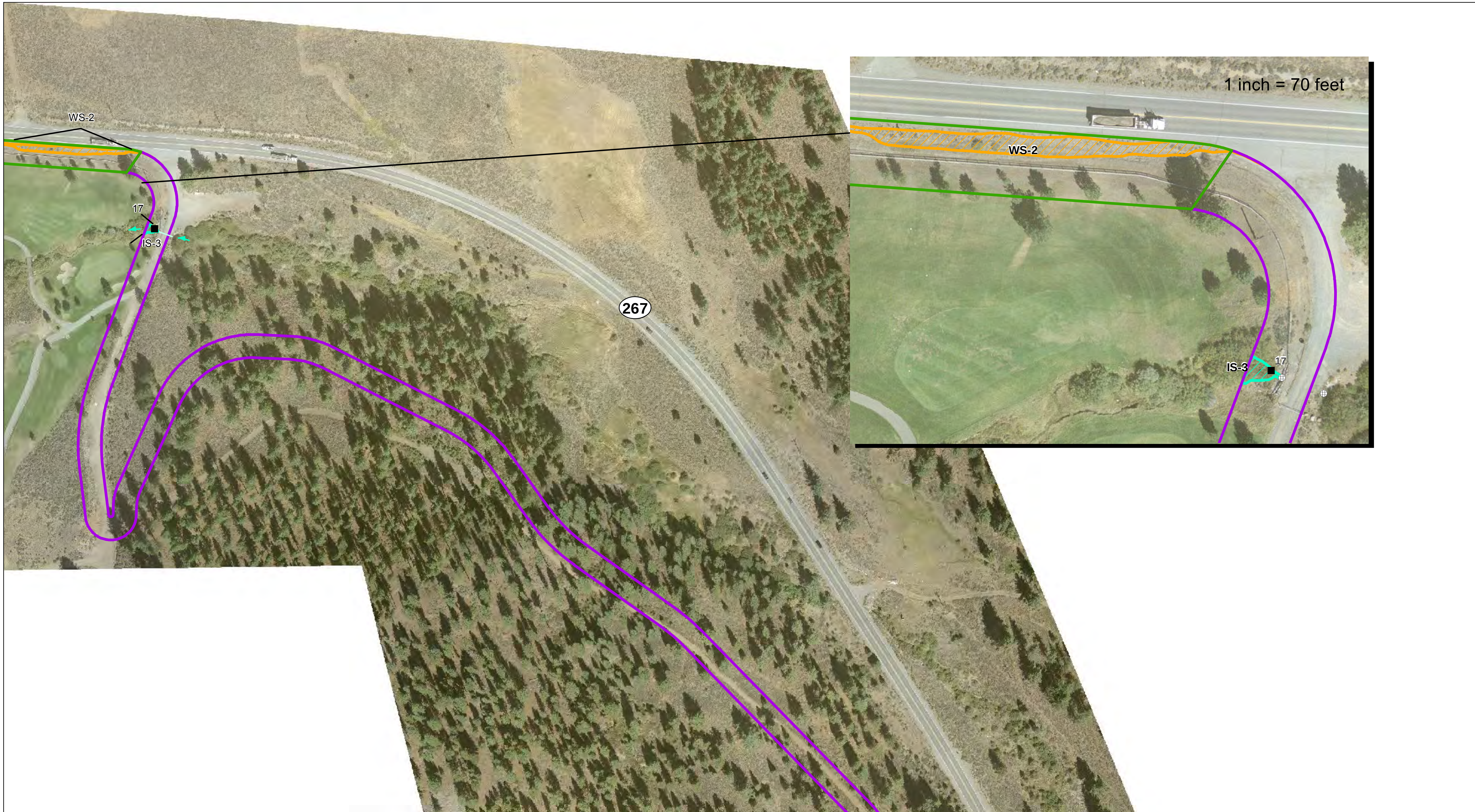
PRELIMINARY WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet F



PREPARED BY:

north fork associates

Aerial photograph and base data provided by: Auerbach Engineering Corp, September 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±15.2 miles)

- Segment 1
- Segment 2
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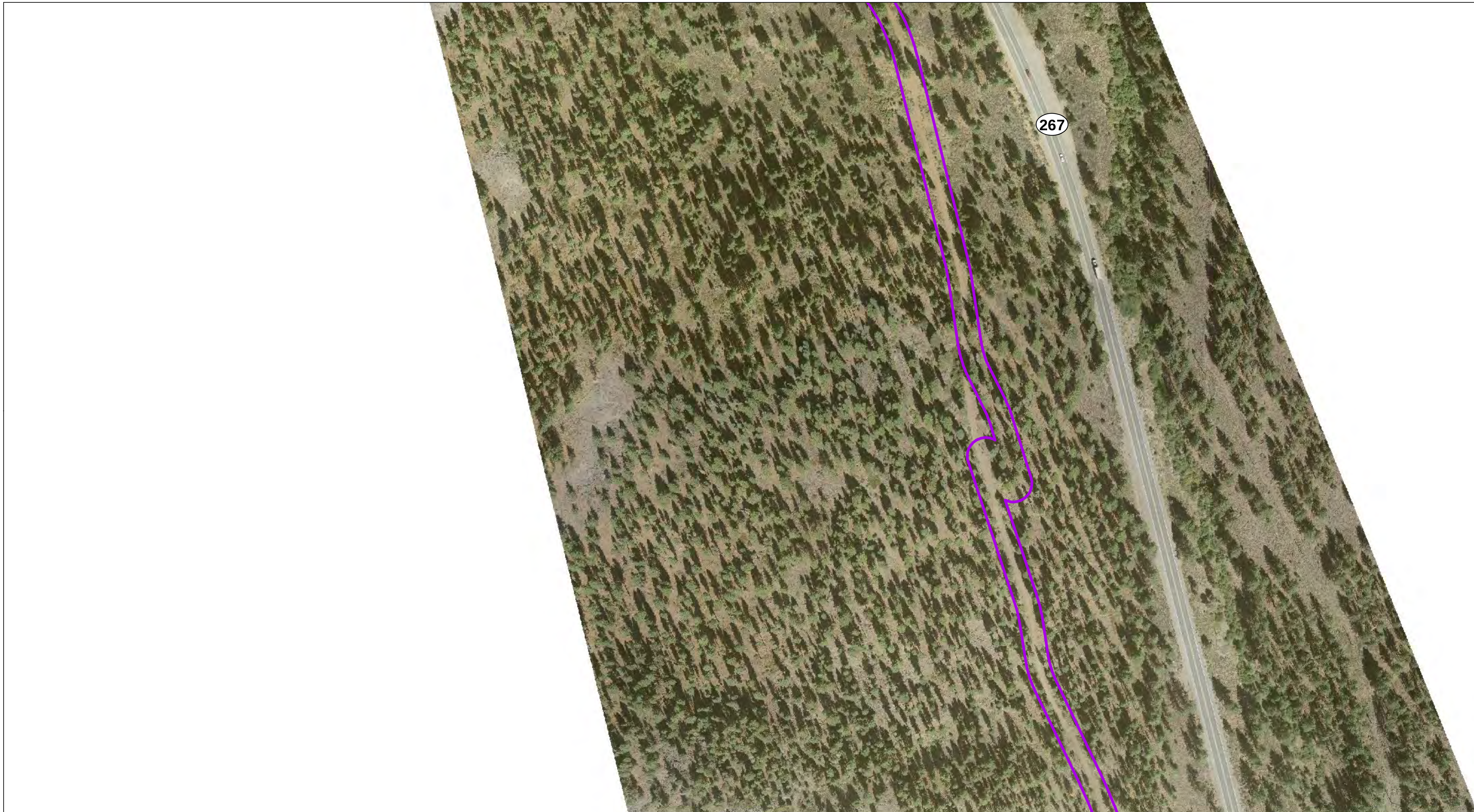
PRELIMINARY WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet G



PREPARED BY:

north fork associates

Aerial photograph and base data provided by: Auerbach Engineering Corp, September 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±15.2 miles)

Segment 1
Segment 2
Segment 3A
Segment 3B
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Segment 3D
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Segment 3F
Segment 4

WATERS OF THE UNITED STATES

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Waters Data Point
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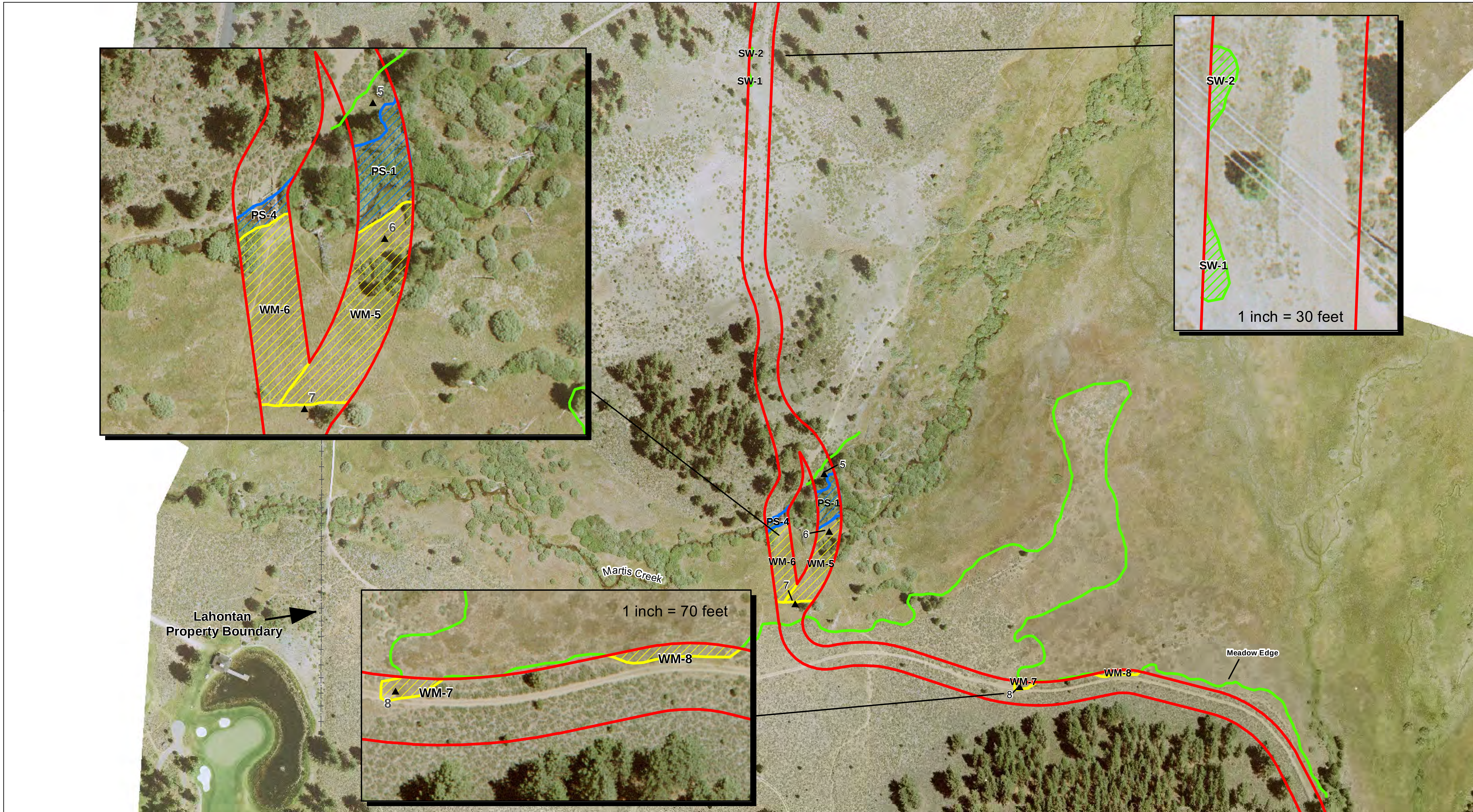
Culvert
Meadow Line

PRELIMINARY WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet H



PREPARED BY:

north fork associates

Aerial photograph and base data provided by: Auerbach Engineering Corp, September 2009; NAIP 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±15.2 miles)

- Segment 1
- Segment 2
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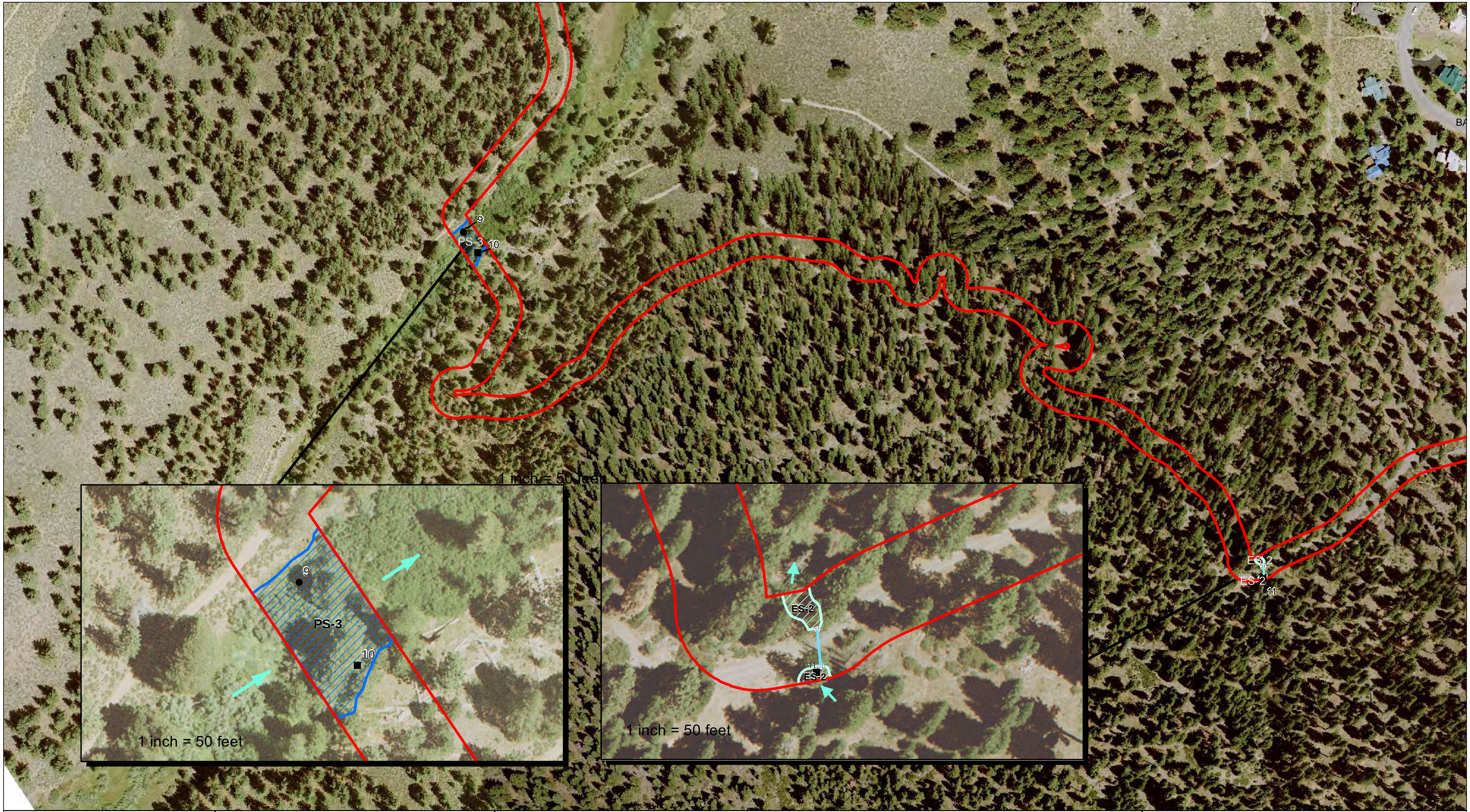
PRELIMINARY WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet I



PREPARED BY:

north fork associates

Aerial photograph and base data provided by: Auerbach Engineering Corp, September 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±15.2 miles)

- Segment 1
- Segment 2
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PRELIMINARY WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet J

PREPARED BY:

north fork associates

Aerial photograph and base data provided by: Auerbach Engineering Corp, September 2009; NAIP 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±15.2 miles)

- Segment 1
- Segment 2
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PRELIMINARY WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet K

PREPARED BY:

north fork associates

Aerial photograph and base data provided by: Auerbach Engineering Corp, September 2009 - 2011

N

0 50 100 200

1 inch = 200 feet

Study Area (±15.2 miles)

- Segment 1
- Segment 2
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PRELIMINARY WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet L

PREPARED BY:

north fork associates

Aerial photograph and
base data provided by:
Auerbach Engineering Corp,
September 2009; NAIP 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±15.2 miles)

Segment 1
Segment 2
Segment 3A
Segment 3B
Segment 3C
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Segment 3E
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Culvert
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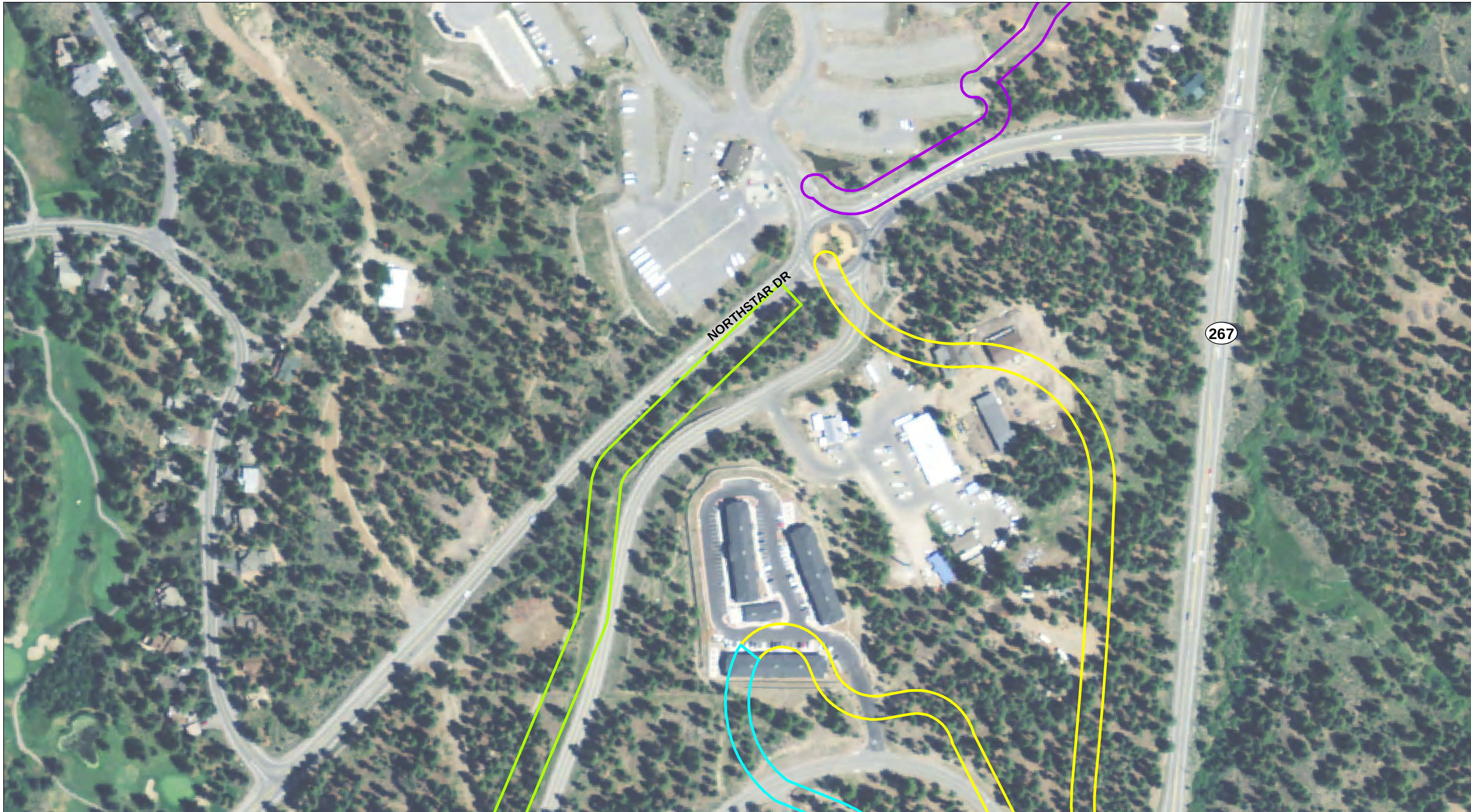
PRELIMINARY
WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet M



PREPARED BY:

north fork associates

Aerial photograph and base data provided by: Auerbach Engineering Corp, September 2009 - 2011; NAIP 2009

N

0 50 100 200

1 inch = 200 feet

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- Segment 1
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PRELIMINARY WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet N

PREPARED BY:

north fork associates

Aerial photograph and base data provided by: Auerbach Engineering Corp, September 2009; NAIP 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±15.2 miles)

Segment 1
Segment 2
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PRELIMINARY WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet O

PREPARED BY:

north fork associates

Aerial photograph and base data provided by: Auerbach Engineering Corp, September 2009; NAIP 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±15.2 miles)

Segment 1
Segment 2
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Meadow Line

PRELIMINARY WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet P

PREPARED BY:

north fork associates

Aerial photograph and base data provided by: Auerbach Engineering Corp, September 2009; NAIP 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±15.2 miles)

- Segment 1
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PRELIMINARY WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet Q

PREPARED BY:

north fork associates

Aerial photograph and
base data provided by:
Auerbach Engineering Corp,
September 2009; NAIP 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±15.2 miles)

- Segment 1
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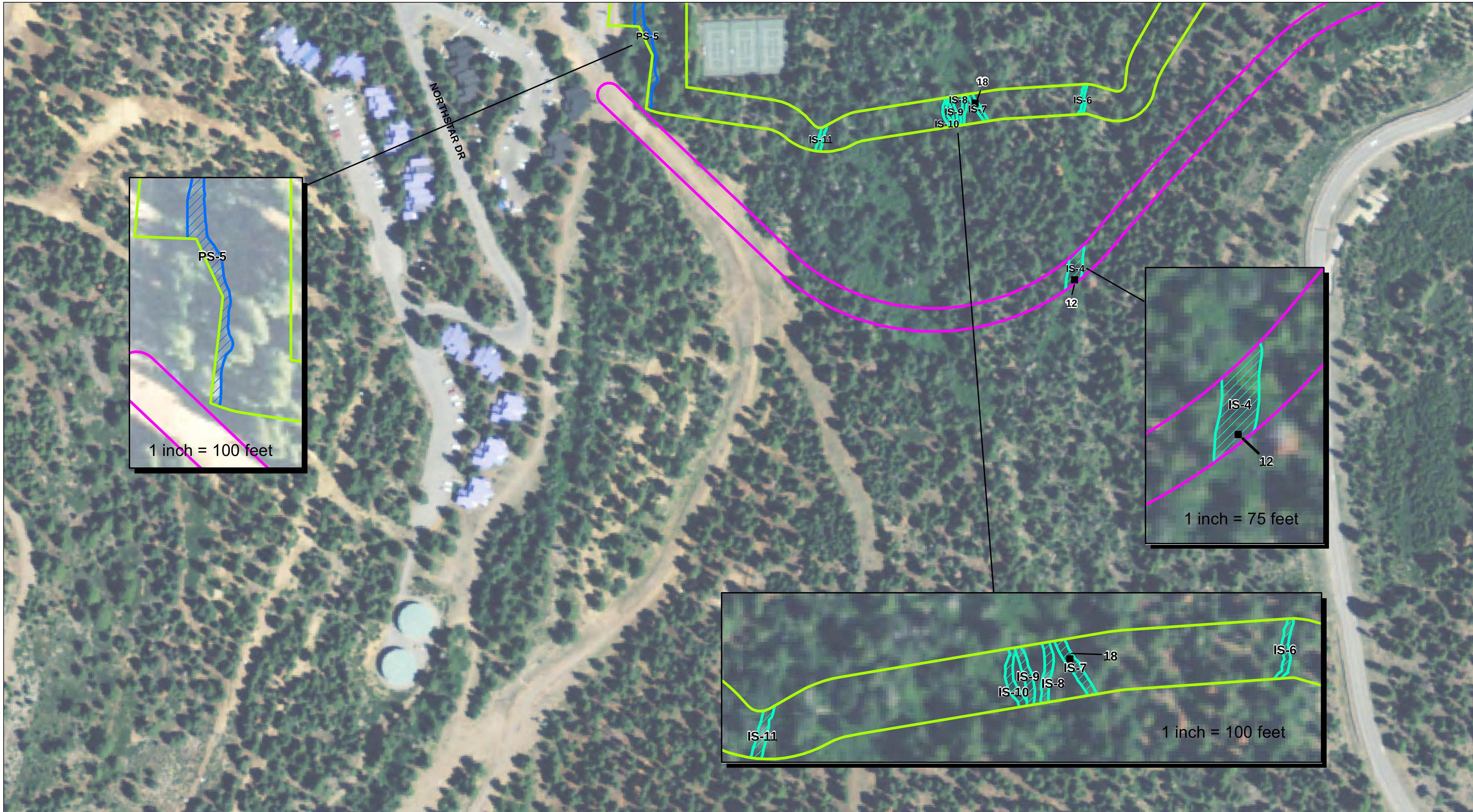
PRELIMINARY
WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet R



PREPARED BY:

north fork associates

Aerial photograph and base data provided by: Auerbach Engineering Corp, September 2009; NAIP 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±15.2 miles)

- Segment 1
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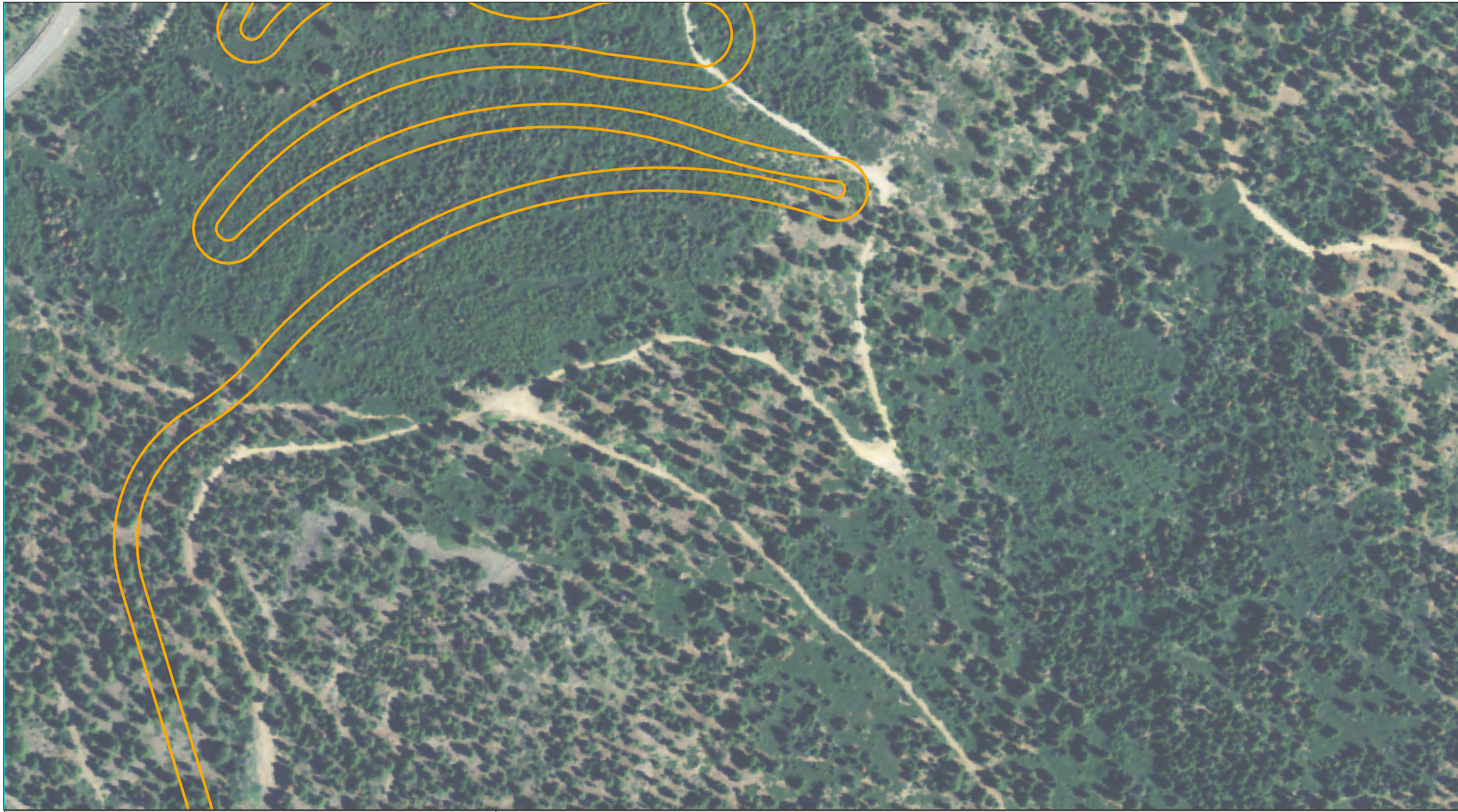
PRELIMINARY WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet S



PREPARED BY:

north fork associates

Aerial photograph and
base data provided by:
Auerbach Engineering Corp,
September 2009; NAIP 2009.

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1 inch = 200 feet

Study Area (±15.2 miles)

- Segment 1
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PRELIMINARY
WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet T

PREPARED BY:

north fork associates

Aerial photograph and
base data provided by:
Auerbach Engineering Corp,
September 2009; NAIP 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±15.2 miles)

- Segment 1
- Segment 2
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PRELIMINARY
WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet U

PREPARED BY:

north fork associates

Aerial photograph and base data provided by: Auerbach Engineering Corp, September 2009; NAIP 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±15.2 miles)

- Segment 1
- Segment 2
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PRELIMINARY WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet V

PREPARED BY:

north fork associates

Aerial photograph and base data provided by: Auerbach Engineering Corp, September 2009; NAIP 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±15.2 miles)

- Segment 1
- Segment 2
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PRELIMINARY
WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet W

PREPARED BY:

Aerial photograph and base data provided by: Auerbach Engineering Corp, September 2009; NAIP 2009.

N

0 50 100 200

1 inch = 200 feet

Study Area (±15.2 miles)

- Segment 1
- Segment 2
- Segment 3A
- Segment 3B
- Segment 3C
- Segment 3D
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- Segment 3F
- Segment 4

WATERS OF THE UNITED STATES

- Ephemeral Stream
- Intermittent Stream
- Martis Creek
- Perennial Stream
- Seasonal Wetland
- Wetland Meadow
- Wetland Swale

- Wetland Data Point
- Waters Data Point
- Upland Data Point
- Culvert
- Meadow Line

PRELIMINARY WETLAND DELINEATION

Martis Valley Regional Trail

Placer County, CA

Sheet X

DUDEK
853 LINCOLN WAY, SUITE #208
AUBURN, CALIFORNIA 95603
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November 4, 2016

Katherine Waugh
Dudek
853 Lincoln Way, Suite 208
Auburn, CA 95603

Subject: Current Status of Lahontan Cutthroat Trout and Sierra Nevada Yellow-Legged Frog and Potential to Occur within Segment 3A of the Martis Valley Trail Project – Supplement to BRA

Dear Ms. Waugh:

The following assessment of the current status of Lahontan cutthroat trout and Sierra Nevada yellow-legged frog and their potential to occur within the vicinity of Segment 3A of the Martis Valley Trail Project is intended to supplement information provided in the BRA prepared by North Fork Associates (2009).

The Lahontan cutthroat trout (*Oncorhynchus clarkii henshawi*, Federal Endangered) and Sierra Nevada yellow-legged frog (*Rana sierra*, Federal Threatened) are the only two ESA-listed species within the Segment 3A project area. Final critical habitat has been designated for Sierra Nevada yellow-legged frog, but not for Lahontan cutthroat trout (USFWS 2016).

Lahontan cutthroat trout

Lahontan cutthroat trout are native to the Lahontan basin of central Nevada and mid-eastern California. They spawn in streams with clean, cold water flowing over gravel beds. In California, this species now occupies less than 5% of their historic habitats. The present distribution is restricted to a few lakes and streams within and outside the historic range. In the Truckee River Basin, they currently occur in Independence Lake (Sierra and Nevada counties), Independence Creek (Nevada County), and Pole Creek (Placer County). A short-term action plan for Lahontan cutthroat trout in the Truckee River Basin (USFWS 2003) is currently being implemented to help restore this species to the basin. Habitat for this species is present within the project area; however, this species is currently not present within the Truckee River Basin, including Martis Creek (Segment 3A) and tributaries. Even though this species historically occurred in Martis Creek and tributaries, there is currently no potential for this species to occur within any portions of the project area.

Sierra Nevada Yellow-Legged Frog

The Sierra Nevada yellow-legged frog inhabits lakes, ponds, meadow streams, isolated pools, and sunny riverbanks in the Sierra Nevada Mountains where fish are not present. This species prefers open stream and lake edges with a gentle slope up to a depth of 5-8 centimeters. This species generally occurs from 6,000 – 12,000 feet in elevation, in waters that do not freeze to the bottom and which do not dry up. Available information indicates that habitat for Sierra Nevada yellow-legged frog generally appears to be marginal within Maris Creek and tributaries. Results of field surveys conducted by North Fork Associates (2009) documented the presence of numerous trout within Martis Creek (within Segment 3A), just upstream of the Highway 267 crossing. Trout have also been observed within this reach during subsequent field visits conducted by Dudek biologists (Pers. Comm. Markus Lang, Dudek November 2016). Based on this information, Sierra Nevada yellow-legged frog could potentially occur in the upper reaches of Martis Creek where trout are not present; however, habitat for SNYLF does not currently exist within the Segment 3A project area due to the presence of a self-sustaining trout population within this reach of the creek. As a result, there is no potential for this species to occur within the Segment 3A project area.

Sincerely,

Craig Seltenrich
Senior Aquatic Ecologist

References Cited:

North Fork Associates, 2009. Biological Resources Assessment for the Martis Valley Regional Trail Study Corridor. October 15, 2009.

USFWS, 2016. List of threatened and endangered species that may occur within the proposed Martis Valley Trail Project. Consultation Code: 08ESMF00-2017-SLI-0228. November 4, 2016.

USFWS, 2003. Short-Term Action Plan for Lahontan Cutthroat Trout in the Truckee River Basin. August 2003.

APPENDIX B

Project Hydrology Study

MARTIS VALLEY REGIONAL TRAIL

PLACER COUNTY, CA

PROJECT HYDROLOGY STUDY

MARCH 2012

Prepared By:

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JOB # 2011.06

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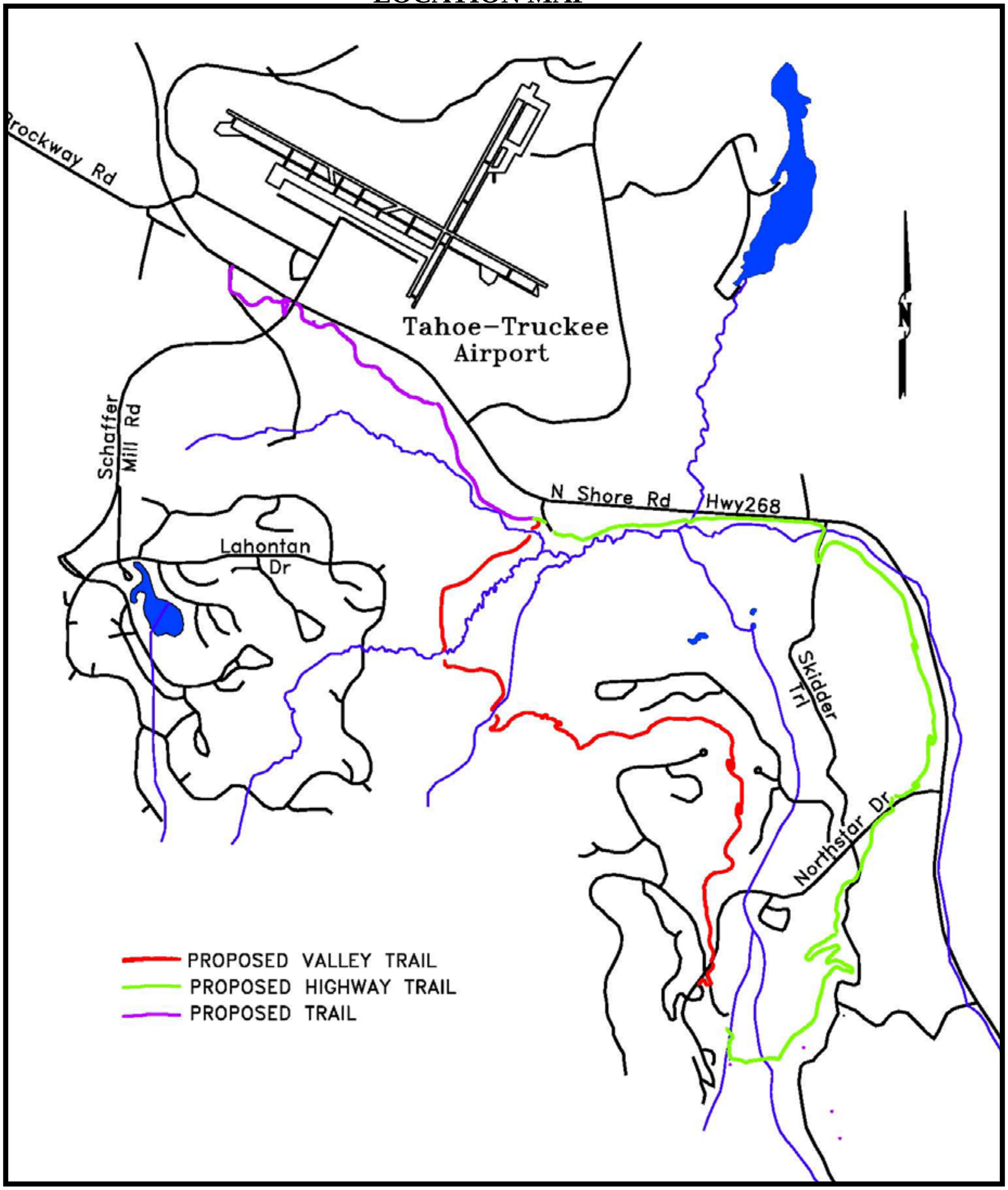
Exhibit FP-F1	-	FROZEN EVENT PRE-PROJECT FLOODPLAIN MAP
Exhibit FP-F2	-	FROZEN EVENT POST-PROJECT FLOODPLAIN MAP

1. SECTION 1: WATERSHED HYDROLOGY

LOCATION MAP



1-I. Introduction:

This study expands the watershed analysis for Martis Valley to include all areas of the watershed which would pass across or adjacent to the proposed Martis Valley Trail system. Prior to this study, 14.5 square miles of the watershed had been studied by several projects within the watershed, including: Martis Camp(Siller Ranch), Eaglewood, Lahontan, The Village at Northstar, and Hopkins Ranch. This study expands the analysis to include roughly 25.6 square miles at the Martis Creek crossing of Highway 267, near the Truckee Airport.

The proposed trail system is located near Truckee California, south of Highway 267, and southeast of the Truckee Airport, within Placer County, CA. The proposed trail crosses four (4) different branches of Martis Creek. The proposed trail system includes up to 6.4 miles of regional trail system as well as entry features and informational kiosks.

This study will perform hydrology analysis for the “snowmelt” (rain with snowmelt, “WARM” storm) event and the “snow covered” (rain on ice, “FROZEN” storm) event conditions. The WARM event will be used to determine potential project impacts to peak flow rates. The FROZEN storm event is used for mapping floodplains and evaluating cross culverts and bridges.

Floodplain delineations are included within this study for both the WARM and FROZEN event conditions for the 2-year, 10-year and 100-year flood events.

This study will evaluate the potential peak flow impacts which may result from the project in the WARM storm event, as a result of added impervious surfaces at the proposed trail system. Each trail alternative was evaluated independently for hydrology, and the worst case (higher flow rate) of the two alternatives was used in the hydraulic and floodplain analysis.

This study will also evaluate the potential hydraulic impacts from proposed bridges and culverts.

1-II. Hydrology:

All calculations and analysis included in this study were prepared in accordance with the requirements of the *"Stormwater Management Manual (SWMM)"* dated September 1, 1990 and the SWMM Addendum 1, dated October 1997. HEC-1 files were generated using the Placer County Pre-processor utility and the PDP precipitation generation software.

The Army Corps HEC-1 software was utilized to develop the included hydrologic models. For the main hydrologic analysis of this study, we used the post-project hydrologic factors for upstream offsite areas where the developments are under construction or already constructed. We also included detention and attenuation factors as shown in the post-project conditions of those development analysis.

The hydrology analysis included with this project provides analysis of the 25.6 square miles of tributary area of the Martis Creek watershed. A hydraulic evaluation of the four (4) main creek branches is also provided. Detailed flood mapping of Martis Creek are included.

1.II.A Model Factors:

The proposed project is located east of the Sierra Crest. Elevations within the analyzed watershed area range from 5800 feet at the Martis Creek flats northeast of the project, to elevation 8600 at the Mount Pluto crest (at the Northstar Ski resort).

Placer County requires projects in the "Mountainous areas" to provide two base analyses for the design of storm drainage facilities, the "WARM conditions" model and the "snow-cover conditions" model (sometimes called the "FROZEN conditions" model). The WARM conditions model represents the expected runoff during warm/dry season conditions when snowmelt is also occurring. The FROZEN condition model represents the design event for which the ground is partially frozen by snow cover, and runoff occurs. Additionally, a "snowmelt" rate of flow is added in WARM condition event to simulate the addition of runoff to the event from the melting snow. We assume a snowmelt rate of 0.06 inches per hour for this analysis. This translates to a base flow of approximately 38.7 cfs per square mile. The snowmelt rate is applied to all conditions of the peak flow analysis but is excluded from any volumetric impact analysis because development is not expected to significantly change the snowmelt rates. We included the snowmelt rate in this analysis (even though the total analysis area exceeds 10 square miles) because local project creek crossings of concern did not exceed the 10 square mile requirement in most cases. The result is only a minor conservative assumption of flow rates within the main Martis Creek channel areas.

For the "snow cover" events, a variable amount of imperviousness was applied to the watershed per Table 5-4 of the Placer SWMM.

Standards:

The Placer County PDP software was utilized to determine precipitation rates for the design events 2-year, 10-year, 100-year, 500-year. Elevation data for each watershed centroid was input into the "DAT" file. The ".DAT file was fed into the PDP program to generate the HEC-1 input (.in) file for each event. Storm centering was not utilized in this analysis.

The Placer County Flood Control and Water Conservation District's Stormwater Management Manual specifies several unique model requirement items for "Mountainous Areas" as follows:

> *SWMM Addendum 1 - Part 1: Overland Flow parameters on Natural Land use. "L" - "Typically, about 600 feet, but can vary depending on local topography. In mountainous areas, can be much longer: look for convergence of contours on topographical map."*
>
> *SWMM Section V-C-3b : "Above the cloudburst region (i.e., higher than 4000 feet), a uniform distribution may be assumed over the entire watershed."*
>
> *SWMM Section V-C-4 Snowmelt : "The snowmelt rates shown in Table 5-2 will be used for planning and design involving small watersheds. ... They may also be used as a base flow with HEC-1 for evaluating watersheds less than 10 square miles."*
>
> *SWMM Section V-D-2 Snow Covered Areas : "Snow covered areas are assumed impervious since the ground beneath is likely to be saturated and could also be frozen. The portion of the watershed covered with snow depends on elevation and location relative to the Sierra Nevada Crest as shown in Table 5-4."*

Soils:

The predominant soils of the watershed are Hydrologic Type "B" soils. However, within the watershed all four(4) hydrologic soil types are present. The hydrologic soil type classification helps to provide guidelines for infiltration losses that can be expected at the non-impervious areas of the watershed. Type "A" soils have the highest expected infiltration rates and Type "D" soils have the lowest expected infiltration rates. Standard infiltration rates are reported in Table 5-3 of the SWMM. This infiltration rates used in this analysis are summarized in TABLE I.II.A1 below. The infiltration rates also include adjustments for the absorption and transpiration qualities of the project vicinity. In the upper reaches of the watersheds, the swales are poorly defined, and distinct swales often do not appear for thousands of feet downstream of the ridges. Existing timber is scattered at the lower elevations but increases in density, rapidly, further up the slopes. The upper portions of the ridge lines are at 10% to 30% slopes, while the main creeks flatten out to less than a percent.

TABLE I.II.A1 – Infiltration Factors Applied

Hyd. Soil Group	**A**	**B**	**C**	**D**
Infiltration Rate Applied (in/hr):	.48	.25	.16	.1

Other Factors:

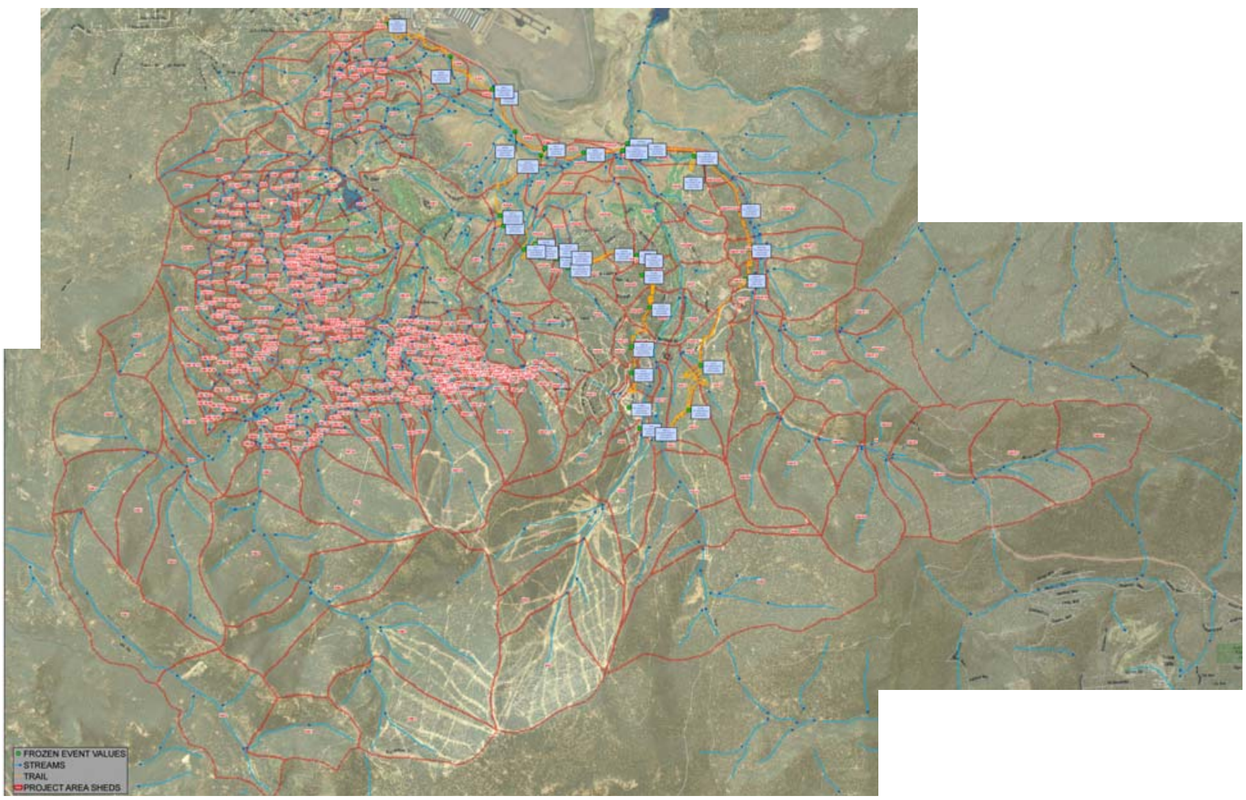
Overland flow Manning's 'n' values were estimated using Table 5-5 of the SWMM and range from 0.11 for roadways and pavement areas to 0.4 thru 0.6 for open space and wooded areas. In general the included models were prepared with a pervious areas shed element and directly connected impervious areas shed element. The hydrologic factors utilized in these models are consistent with those previously utilized with the previously studied development projects.

1.II.B Pre-Project Model:

The project is located within the upper reaches of the Martis Creek watershed and consists of well-drained soils with high infiltration rates typical of the Lake Tahoe region. Four main tributaries of Martis Creek are intersected by the proposed pedestrian trail. The four tributaries join at the south side of Highway 267 and flow through the culvert at the highway as a joined flow. From the Highway, the joined flows pass along the east side of the Truckee Airport before discharging into Martis Lake.

A Pre-project hydrologic analysis was generated to estimate existing peak runoff rates from the project site for the WARM and FROZEN events. Oversized Exhibits SH-1A to SH-1C show the Regional Pre-project Watershed Map for the analysis areas of this study. Impervious values, infiltration rates and overland response factors were estimated for each watershed as shown in TABLE II.I.B.1 to II.I.B.4. Shed names and locations can be correlated with the names shown on Exhibit SH-1A to SH-1C.

FIGURE S-1 : PRE-PROJECT REGIONAL WATERSHEDS



(See Oversized Exhibits SH-1A to SH-1C for detail)

TABLE I.II.B.1 : Pre-Project Hydrologic Factors

					PLANE 1 - NON URBAN AND URBAN PLANE PARAMETERS								PLANE 2 - URBAN PLANE PARAMETERS							
SHED	DESCRIPTION	Centroid Elevation (ft)	DA AREA (mi^2)	DA AREA (acre)	Initial Abst. (in)	Constant Infiltration (in/hr)	% Imperv. WARM	% Imperv. FROZEN	Overland Length (ft)	Overland Slope	Overland 'n' Value	Plane % of Shed	Initial Abst (in)	Constant Infiltration (in/hr)	% Imperv. WARM	% Imperv. FROZEN	Overland Length (ft)	Overland Slope	Overland 'n' Value	Plane % of Shed
E2	Large Offsite Shed 155.8ac	6231	0.2434	155.78	0.1	0.211	2	92.31	1500	0.083	0.6	100								
E15	Other Large Upstream offsite shed 111.1	6006	0.1736	111.1	0.1	0.147	2	90.06	1000	0.058	0.6	100								
E10	Large Undeveloped upstream watershed (139.2)	6096	0.0311	19.9	0.1	0.179	2	90.96	2000	0.075	0.6	100								
E20A	12.0 AC	5940	0.0106	6.78	0.1	0.243	3	88.2	1200	0.058	0.6	100								
E14A	Small Roadway Shed 4 ac	5989	0.0063	4.03	0.1	0.1	10	89.67	500	0.03	0.6	100								
E18A	Small Hopkins Roadway Drain 3.6ac	5968	0.0057	3.65	0.1	0.207	10	88.74	460	0.03	0.6	100								
E16A	Small Hopkins Roadway Drain 0.4ac	5956	0.0006	0.38	0.1	0.213	90	90	50	0.02	0.6	100								
E20B	10.9 AC	5951	0.0182	11.65	0.1	0.2	5	88.53	800	0.07	0.6	100								
E20C	4.8 AC	5949	0.0075	4.8	0.1	0.25	2	88.47	500	0.05	0.6	90	0.1	0.25	90	90	18	0.02	0.11	10
E20D	10.6 AC	5924	0.0166	10.62	0.1	0.25	15	87.72	500	0.05	0.6	89	0.1	0.25	90	90	18	0.02	0.11	11
E20E	8.4 AC Mostly diverted area added to this shed	5952	0.0132	8.45	0.1	0.25	12	88.56	900	0.02	0.6	90	0.1	0.25	90	90	18	0.02	0.11	10
E30	MAIN SHED ABOVE TWIN CULVERTS IN S. MILL RD. 40.8AC	5901	0.0638	40.83	0.1	0.25	8	87.03	600	0.038	0.6	100								
E19	HILLSIDE ABOVE SM RD. 4.2AC	5951	0.0065	4.16	0.1	0.25	2	88.53	400	0.018	0.6	89	0.1	0.25	90	90	18	0.02	0.11	11
E21	HILLSIDE ABOVE ROAD 5.7AC	5941	0.0084	5.38	0.1	0.25	7	88.23	600	0.017	0.6	74	0.1	0.25	90	90	18	0.02	0.11	26
E22	" HILLSIDE ABOVE 15"" CULVERT	5935	0.0045	2.88	0.1	0.25	7	88.05	350	0.027	0.6	100								
E23	PORTION OF S.MILL RD. 0.5AC	5920	0.0008	0.51	0.1	0.25	90	90	18	0.02	0.11	100								
E40	LARGE SHED DOWNSTREAM OF S. MILL RD. 85.5Ac	5886	0.1147	73.41	0.1	0.18	8.1	86.58	1600	0.034	0.6	100								
E40B	LARGE SHED DOWNSTREAM OF S. MILL RD. 85.5Ac	5884	0.019	12.16	0.1	0.248	8.1	86.52	600	0.01	0.6	100								
E14C	OFF-SITE SHED WEST OF S. MILL RD. 3.6AC	6033	0.0059	3.78	0.1	0.25	2	90.33	600	0.08	0.6	100								
E64A	EAST OF S. MILL RD. 16.1AC	5991	0.0248	15.87	0.1	0.159	14	89.73	1000	0.05	0.6	94	0.1	0.159	90	90	18	0.02	0.11	6
E64B	EAST OF S. MILL RD. 12.1AC	5956	0.019	12.16	0.1	0.175	15	88.68	800	0.07	0.6	97	0.1	0.175	90	90	18	0.02	0.11	3
E70	OFF-SITE- LAHONTAN UNITS 7&8 AND LAHONTAN II 78.6AC	5952	0.1255	80.32	0.1	0.171	8	88.56	1200	0.041	0.6	95	0.1	0.171	90	90	18	0.02	0.11	5
E71	OFF-SITE PORTION OF LAHONTAN II 17.8Ac	5968	0.0279	17.86	0.1	0.227	19.1	89.04	1400	0.05	0.6	100								
E72	OFF-SITE PORTION OF LAHONTAN II 12.1Ac	5967	0.0178	11.39	0.1	0.198	9.6	88.71	1700	0.037	0.6	100								
E75	MOSTLY OFF-SITE AND DOWNSTREAM SHED 57.9Ac	5881	0.0905	57.92	0.1	0.191	3.2	86.43	1200	0.058	0.6	100								
E14B	OFF-SITE SHED WEST OF S. MILL	6018	0.0397	25.41	0.1	0.192	2	90.18	800	0.08	0.6	100								
E55A	EAST OF S. MILL RD. 16.7AC	5967	0.0261	16.7	0.1	0.136	20	89.01	500	0.04	0.6	100								
E58D	EAST OF S. MILL RD. 23.7AC	5911	0.0229	14.66	0.1	0.25	9.5	87.33	800	0.04	0.6	100								
E55B	EAST OF S. MILL RD. 3.2AC	5951	0.005	3.2	0.1	0.192	40	88.53	200	0.05	0.6	100								
E56C	EAST OF S. MILL RD. 7.7AC	5926	0.012	7.68	0.1	0.247	22	87.78	200	0.05	0.6	100								
E55E	EAST OF S. MILL RD. 3.6AC	5951	0.0056	3.58	0.1	0.25	25	88.53	300	0.02	0.6	100								
E55F	EAST OF S. MILL RD. 1.8AC	5949	0.0028	1.79	0.1	0.25	25	88.47	250	0.03	0.6	100								
E56G	EAST OF S. MILL RD. 1AC	5940	0.0015	0.96	0.1	0.25	11	88.2	150	0.02	0.6	100								
E58C	EAST OF S. MILL RD. 5.6AC	5897	0.0088	5.63	0.1	0.25	36	86.91	250	0.06	0.6	100								
E55H	EAST OF S. MILL RD. 44.1AC	5936	0.0057	3.65	0.1	0.25	2.4	88.08	400	0.02	0.6	100								
E58A	EAST OF S. MILL RD. 5.3AC	5921	0.0083	5.31	0.1	0.25	22	87.63	300	0.04	0.6	100								
E58E	EAST OF S. MILL RD. 3.7AC	5885	0.037	23.68	0.1	0.225	22	86.55	300	0.02	0.6	100								
E80	LAST DOWNSTREAM SHED	5869	0.0452	28.93	0.1	0.131	2	86.07	1300	0.04	0.6	100								
E40C	LARGE SHED DOWNSTREAM OF S. MILL RD. 85.5Ac	5871	0.0344	22.02	0.1	0.166	8.1	86.13	1200	0.01	0.6	100								
E40E	LARGE SHED DOWNSTREAM OF S. MILL RD. 85.5Ac	5874	0.0058	3.71	0.1	0.25	8.1	86.22	600	0.01	0.6	100								
E40D	LARGE SHED DOWNSTREAM OF S. MILL RD. 85.5Ac	5866	0.0074	4.74	0.1	0.194	8.1	85.98	600	0.01	0.6	100								
E85	OFFSITE DOWNSTREAM SHED 313.9	5859	0.4599	294.34	0.1	0.175	2	85.77	2500	0.0625	0.6	100								
E85B	E85B	5870	0.0312	19.97	0.1	0.23	2	86.1	400	0.02	0.6	100								
E85C	E85C	5864	0.0079	5.06	0.1	0.238	2	85.92	400	0.02	0.6	100								
E5A1	E5A1 Drop Inlet	6404	0.073	46.72	0.1	0.204	2	94.84	1350	0.133	0.6	98	0.1	0.204	95	95	200	0.02	0.11	3
E5B	E5B	6348	0.0139	8.9	0.1	0.245	2	93.48	600	0.08	0.6	91	0.1	0.245	95	95	200	0.02	0.11	9
E5C	E5C	6260	0.0051	3.26	0.1	0.25	2	92.6	600	0.07	0.6	92	0.1	0.25	95	95	200	0.02	0.11	8
E5D	E5D	6279	0.085	54.4	0.1	0.25	2	92.79	1500	0.05	0.6	100								
E6A1	E6A1	6119	0.057	36.48	0.1	0.25	2	91.19	1000	0.068	0.6	100								
E6A2	E6A2	6217	0.0149	9.54	0.1	0.25	2	92.17	600	0.068	0.6	100								
E6C	E6C	6042	0.0939	60.1	0.1	0.246	2	90.42	1600	0.09	0.6	100								
GS10D	GS10D	6257	0.0124	7.94	0.1	0.25	2	92.57	900	0.07	0.6	79	0.1	0.25	95	95	100	0.02	0.11	21
GS10C	GS10C	6238	0.0169	10.82	0.1	0.25	2	92.38	300	0.06	0.6	91	0.1	0.25	95	95	100	0.02	0.11	9
GS10B	GS10B	6226	0.0044	2.82	0.1	0.25	2	92.26	600	0.08	0.6	86	0.1	0.25	95	95	100	0.02	0.11	14
GS10A1	GS10A1	6209	0.029	18.56	0.1	0.25	2	92.09	600	0.08	0.6	96	0.1	0.25	95	95	100	0.02	0.11	4
GS10F	GS10F	6163	0.0248	15.87	0.1	0.25	2	91.63	600	0.08	0.6	92	0.1	0.25	95	95	100	0.02	0.11	8
GS10E	GS10E	6152	0.0153	9.79	0.1	0.25	2	91.52	300	0.08	0.6	78	0.1	0.25	95	95	100	0.02	0.11	22
GS10A2	GS10A2	6190	0.0278	17.79	0.1	0.25	2	91.9	1400	0.08	0.6	96	0.1	0.25	95	95	100	0.02	0.11	4
GS10J	GS10J	6144	0.0099	6.34	0.1	0.25	83	91.44	300	0.08	0.6	92	0.1	0.25	95	95	200	0.02	0.11	8
GS10G	GS10G	6108	0.0081	5.18	0.1	0.25	83	91.08	300	0.08	0.6	90	0.1	0.25	95	95	200	0.02	0.11	10
GS10H	GS10H	6104	0.0066	4.22	0.1	0.25	2	91.04	300	0.08	0.6	81	0.1	0.25	95	95	200	0.02	0.11	19
GS10I	GS10I	6076	0.0071	4.54	0.1	0.25	2	90.76	300	0.06	0.6	78	0.1	0.25	95	95	200	0.02	0.11	22
E8A	E8A	6197	0.0049	3.14	0.1	0.25	2	91.97	200	0.12	0.6	73	0.1	0.25	95	95	100	0.02	0.11	27
E8B	E8B	6129	0.0122	7.81	0.1	0.25	2	91.29	400	0.08	0.6	95	0.1	0.25	95	95	100	0.02	0.11	5
E8C	E8C	6063	0.0244	15.62	0.1	0.25	2	90.63	800	0.08	0.6	100								
E9	E9	6004	0.0213	13.63	0.1	0.25	2	90.04	600	0.08	0.6	100								
GS11B	GS11B	6068	0.0031	1.98	0.1	0.25	2	90.68	700	0.1	0.6	100								
GS11A	GS11A	5999	0.0354	22.66	0.1	0.237	2	89.97	700	0.1	0.6	100								
GS13C	GS13C	6083	0.0066	4.22	0.1	0.25	2	90.83	300	0.07	0.6	100								
GS13B	GS13B	6034	0.0168	10.75	0.1	0.25	2	90.34	300	0.07	0.6	100								
GS18A	GS18A	6108	0.002	1.28	0.1	0.25	3	91.08	800	0.094	0.6	100								
GS18	GS18	6041	0.0248	15.87	0.1	0.25	2	90.41	800	0.094	0.6	100								
GS13A	GS13A	5992	0.0196	12.54	0.1	0.181	2	89.76	600	0.067	0.6	100								
GS19	GS19	5993	0.0617	39.49	0.1	0.192	2	89.79	700	0.086	0.6	100								
GS20	GS20	5982	0.0178	11.39	0.1	0.168	2	89.46	600	0.1	0.6	100								
GS21B1	4.2 AC.	6166	0.0065	4.16	0.1	0.25	10.06	91.66	300	0.07	0.6	100								
GS21B2	3.2 AC.	6133	0.005	3.2	0.1	0.25	15	91.33	300	0.07	0.6	100								
GS21A	GS21A	6083	0.0412	26.37	0.1	0.25	2	90.83	1000	0.07	0.6	80	0.1	0.25	15	90.83	200	0.02	0.24	20
GS22	GS22	6000	0.0741	47.42	0.1	0.249	2	90	700	0.057	0.6	100								
GS23	GS23	5983	0.0596	38.14	0.1	0.25	2	89.49	2000	0.04	0.6	100								
GS24	GS24	6002	0.0352	22.53	0.1	0.25	2	90.02	500	0.1	0.6	100								
GS25B3	1.2 AC.	6133	0.0019	1.22	0.1	0.25	15	91.33	300	0.07	0.6	100								
GS25B4	1.8 AC.	6125	0.0029	1.86	0.1	0.25	15	91.25	300	0.07	0.6	100								
GS25C4	4.4 AC.	6121	0.0069	4.42	0.1	0.25	11.75	91.21	300	0.07	0.6	100								
GS25C5	1.7 AC.	6119	0.0026	1.66	0.1	0.25	9.8	91.19	300	0.07	0.6	100								
GS25C6	1.6 AC.	6106	0.0023	1.47	0.1	0.25	4.6	91.06	300	0.07	0.6	100								
GS25C9	3.0 AC.	6085	0.0047	3.01	0.1	0.25	11.36	90.85	300	0.07	0.6	100								
GS21A2	1.3 AC.	6104	0.002	1.28	0.1	0.25	15	91.04	300	0.07	0.6	100								
GS25C1	.4 AC.	6087	0.0006	0.38	0.1	0.25	15	90.87	300	0.07	0.6	100								

TABLE I.II.B.2 : Pre-Project Hydrologic Factors (Continued)

					PLANE 1 - NON-URBAN AND URBAN PLANE PARAMETERS								PLANE 2 - URBAN PLANE PARAMETERS							
SHED	DESCRIPTION	Centroid Elevation (ft)	BA AREA (mi^2)	BA AREA (acre)	Initial Abst. (in)	Constant Infiltration (in/hr)	% Imperv. WARM	% Imperv. FROZEN	Overland Length (ft)	Overland Slope	Overland 'n' Value	Plane % of Shed	Initial Abst (in)	Constant Infiltration (in/hr)	% Imperv. WARM	% Imperv. FROZEN	Overland Length (ft)	Overland Slope	Overland 'n' Value	Plane % of Shed
GS25C3	3.9 AC.	6099	0.006	3.84	0.1	0.25	11.23	90.99	300	0.07	0.6	100								
GS25C7	3.8 AC.	6083	0.006	3.84	0.1	0.25	13.10	90.83	300	0.07	0.6	100								
GS27C	2.8 AC.	6061	0.0044	2.82	0.1	0.25	15	90.61	300	0.07	0.6	100								
GS23B	0	6064	0.0061	3.9	0.1	0.25	15	90.64	300	0.07	0.6	100								
GS25E	GS25E	6024	0.034	21.76	0.1	0.25	2	90.24	900	0.1	0.6	100								
GS25A2	1.9 AC.	6169	0.0029	1.86	0.1	0.25	8.5	91.69	300	0.07	0.6	100								
GS25A1	.4 AC.	6174	0.0007	0.45	0.1	0.25	8.5	91.74	300	0.07	0.6	100								
GS25A3	1.2 AC.	6148	0.0018	1.15	0.1	0.25	8.5	91.7	300	0.07	0.6	100								
GS25D3	1.3 AC.	6169	0.0022	1.41	0.1	0.25	11.1	91.69	300	0.07	0.6	100								
GS25D2	2.9 AC.	6157	0.0045	2.88	0.1	0.25	8.5	91.57	300	0.07	0.6	100								
GS25D1	4.1 AC	6140	0.0062	3.97	0.1	0.25	8.5	91.4	300	0.07	0.6	100								
GS28B2	6.7 AC.	6123	0.0105	6.72	0.1	0.25	5.25	91.23	300	0.07	0.6	100								
GS27B1	5.5 AC.	6117	0.0087	5.57	0.1	0.25	8.5	91.17	300	0.07	0.6	100								
GS25C2	3.0 AC	6098	0.0047	3.01	0.1	0.25	9.93	90.98	300	0.07	0.6	100								
GS27B3	3.3 AC.	6066	0.0052	3.33	0.1	0.25	15	90.66	300	0.07	0.6	100								
GS27B2	0	6062	0.0053	3.39	0.1	0.25	15	90.62	300	0.07	0.6	100								
GS25E1	GS25E	6012	0.0131	8.38	0.1	0.25	2	90.12	900	0.1	0.6	100								
GS30B	1.1 AC	6127	0.0018	1.15	0.1	0.25	15	91.27	300	0.07	0.6	100								
GS28B1	1.6 AC.	6117	0.0025	1.6	0.1	0.25	15	91.17	300	0.07	0.6	100								
GS28B3	.09 AC.	6099	0.0015	0.96	0.1	0.25	15	90.99	300	0.07	0.6	100								
GS28A1	7.6 AC.	6079	0.012	7.68	0.1	0.25	15	90.79	300	0.07	0.6	100								
GS28A2	GS28A	6054	0.0154	9.86	0.1	0.25	2	90.54	500	0.071	0.6	50								
GS30A	GS30	6104	0.0427	27.33	0.1	0.25	2	91.04	900	0.056	0.6	89								
GS31A	GS31A	5990	0.0843	53.95	0.1	0.25	2	89.7	1000	0.05	0.6	90								
GS32	GS32	5924	0.032	20.48	0.1	0.23	2	87.72	600	0.1	0.6	100								
MD1H3	MD1H3	6510	0.004	2.56	0.1	0.25	2	95.1	300	0.12	0.6	75								
MD1H2	MD1H2	6464	0.0027	1.73	0.1	0.25	2	94.64	300	0.12	0.6	75								
MD1E4	MD1E4	6442	0.0132	8.45	0.1	0.25	2	94.42	300	0.1	0.6	87								
MD1E3	MD1E3	6379	0.0039	2.5	0.1	0.25	2	93.79	300	0.1	0.6	78								
MD1E2	MD1E2	6315	0.0031	1.98	0.1	0.25	2	93.15	300	0.1	0.6	84								
MD1E1E	MD1E1-2	6357	0.0042	2.69	0.1	0.25	2	93.57	1200	0.107	0.6	100								
MD1E1C	MD1E1-3	6238	0.0686	43.9	0.1	0.25	2	92.38	1000	0.08	0.6	100								
MD1E1B	MD1E1-2	6262	0.0141	9.02	0.1	0.25	2	92.62	1200	0.107	0.6	100								
MD1H1	MD1H1-1	6415	0.0073	4.67	0.1	0.25	2	94.15	400	0.06	0.6	100								
MD1H4	MD1H1-2	6403	0.0049	3.14	0.1	0.25	2	94.03	650	0.06	0.6	100								
MD1I_1	MD1I-1	6469	0.0242	15.49	0.1	0.25	2	94.69	1000	0.1	0.6	100								
MD1G3	MD1G3	6371	0.0096	6.14	0.1	0.25	2	93.71	300	0.08	0.6	90								
MD1G2	MD1G2	6357	0.0033	2.11	0.1	0.25	2	93.57	200	0.08	0.6	72								
MD1G2B	MD1G2B	6340	0.0055	3.52	0.1	0.25	2	93.4	200	0.085	0.6	100								
MD1G1B	MD1G1-2	6230	0.0195	12.48	0.1	0.25	2	92.3	1300	0.06	0.6	100								
GS26A	GS26A	6535	0.0074	4.74	0.1	0.25	2	95.35	600	0.1	0.6	85								
GS26B	GS26B	6422	0.0139	8.9	0.1	0.25	2	94.22	600	0.2	0.6	89								
GS26C	GS26C	6311	0.0126	8.06	0.1	0.25	2	93.11	600	0.2	0.6	90								
GS26D	GS26D	6343	0.0144	9.22	0.1	0.25	2	93.43	600	0.1	0.6	89								
GS26E	GS26E	6256	0.0028	1.79	0.1	0.25	2	92.56	300	0.08	0.6	75								
GS26F	GS26F	6256	0.0074	4.74	0.1	0.25	2	92.56	400	0.1	0.6	87								
GS26N1	GS26N-1	6226	0.0046	2.94	0.1	0.25	2	92.26	335	0.02	0.11	100								
GS26G	GS26G	6252	0.0231	14.78	0.1	0.25	2	92.52	600	0.1	0.6	91								
GS26H	GS26H	6214	0.0026	1.66	0.1	0.25	2	92.14	100	0.08	0.6	75								
GS15C	GS15C	6522	0.0106	6.78	0.1	0.25	2	95.22	600	0.15	0.6	91								
GS15D	GS15D	6362	0.0133	8.51	0.1	0.25	2	93.62	300	0.135	0.6	91								
GS15A	GS15A	6582	0.0913	58.43	0.1	0.237	2	95.82	1800	0.12	0.6	97								
GS15B	GS15B	6351	0.0151	9.66	0.1	0.25	2	93.51	400	0.1	0.6	94								
GS16A1	GS16A1	6287	0.019	12.16	0.1	0.25	2	92.87	400	0.1	0.6	96								
GS16A2	GS16A2	6243	0.0137	8.77	0.1	0.25	2	92.43	400	0.1	0.6	91								
GS16B	GS16B	6571	0.026	16.64	0.1	0.233	2	95.71	1800	0.15	0.6	93								
GS16C	GS16C	6374	0.0141	9.02	0.1	0.25	2	93.74	400	0.15	0.6	89								
GS17C	GS17C	6277	0.0147	9.41	0.1	0.25	2	92.77	600	0.12	0.6	91								
E6A3	E6A3	6519	0.0421	26.94	0.1	0.18	2	95.19	1800	0.2	0.6	94								
GS12B	GS12B	6327	0.0089	5.7	0.1	0.25	2	93.27	600	0.12	0.6	89								
GS12C	GS12C	6382	0.0068	4.35	0.1	0.25	2	93.82	300	0.12	0.6	70								
GS12F	GS12F	6291	0.0082	5.25	0.1	0.25	2	92.91	400	0.1	0.6	94								
GS12H	GS12H	6301	0.0082	5.25	0.1	0.25	2	93.01	800	0.1	0.6	94								
GS12D	GS12D	6445	0.0044	2.82	0.1	0.25	2	94.45	400	0.15	0.6	84								
GS12E	GS12E	6365	0.0044	2.82	0.1	0.25	2	93.65	400	0.15	0.6	90								
GS12I	GS12I	6263	0.0177	11.33	0.1	0.25	2	92.63	800	0.1	0.6	95								
GS17A	GS17A	6206	0.0226	14.46	0.1	0.25	2	92.06	800	0.1	0.6	90								
GS26N	GS26N-2	6195	0.0299	19.14	0.1	0.25	2	91.95	1419	0.066	0.6	100								
GS26OA	AREA=20.2 AC	6155	0.0321	20.54	0.1	0.25	86	91.55	800	0.05	0.6	95								
GS26OB	AREA=3.3 AC UNIT 4A	6165	0.0047	3.01	0.1	0.25	2	91.65	600	0.05	0.6	95								
MD1C2	MD1C2	6130	0.0063	4.03	0.1	0.25	2	91.3	250	0.05	0.6	90								
GS26L3	AREA=0.7 AC UNIT 4A	6132	0.0012	0.77	0.1	0.25	2	91.32	500	0.058	0.6	90								
MD1F-1	MD1F-1	6368	0.0069	4.42	0.1	0.25	2	93.68	600	0.08	0.6	90								
MD1F	MD1F-2	6353	0.0035	2.24	0.1	0.25	2	93.53	500	0.08	0.6	90								
MD1D1D	MD1D1D	6275	0.0124	7.94	0.1	0.25	2	92.75	800	0.06	0.6	100								
MD1D1C	MD1D1C	6254	0.0074	4.74	0.1	0.25	2	92.54	500	0.05	0.6	100								
MD1E	MD1E	6305	0.016	10.24	0.1	0.25	2	93.05	600	0.08	0.6	95								
MD1D1A	MD1D1A	6225	0.0059	3.78	0.1	0.25	2	92.25	400	0.12	0.6	100								
MD1D1B	MD1D1B	6232	0.0028	1.79	0.1	0.25	2	92.32	400	0.12	0.6	100								
MD1D2	MD1D2	6197	0.0077	4.93	0.1	0.25	2	91.97	600	0.2	0.6	100								
GS26J	GS26J	6164	0.0023	1.47	0.1	0.25	2	91.64	230	0.078	0.6	100								
GS26K	GS26K	6166	0.0032	2.05	0.1	0.25	2	91.66	194	0.092	0.6	100								
GS26L	GS26L REVISED AREA = 5.8 AC UNIT	6149	0.0091	5.82	0.1	0.25	2	91.49	500	0.058	0.6	90								
GS26L2	GS26L2	6110	0.0029	1.86	0.1	0.25	2	91.1	250	0.047	0.6	90								
MD1C1	MD1C1	6100	0.0155	9.92	0.1	0.25	2	91	400	0.05	0.6	85								
MD1C4	MD1C4	6067	0.0169	10.82	0.1	0.224	2	90.67	400	0.05	0.6	95								
MA1	MA1	7303	0.2995	191.68	0.1	0.191	2	100	1600	0.234	0.6	100								
MA2	MA2	7054	0.5483	350.91	0.1	0.2	2	100	2200	0.284	0.6	100								
MA3	MA3	7366	0.6259	400.58	0.1	0.229	2	100	2300	0.272	0.6	100								
MA4	MA4	6453	0.287	183.68	0.1	0.227	2	94.53	2000	0.3	0.6	100								
MA5	MA5	6409	0.2025	129.6	0.1	0.214	2	94.09	1500	0.183	0.6	100								
MA6	MA6	6283	0.4152	265.73	0.1	0.228	2	92.83	1800	0.097	0.6	100								
MA7	MA7	6346	0.2326	148.86	0.1	0.233	2	93.46	3300	0.227	0.6	100								
MA8	MA8	6860	0.4308	275.71	0.1	0.165	2	98.6	1250	0.32	0.6	100								
MA9	MA9	6181	0.0913	58.43	0.1	0.237	2	91.81	600	0.208	0.6	100								
MA10A	MA10A	6287	0.2885	184.64	0.1	0.241	2	92.87	1600	0.038	0.6	85								
MA10B	MA10B	6270	0.01	6.4	0.1	0.25	2	92.7	900	0.09	0.6	90								
MB7B3A	MB7B3A	6302	0.0051	3.26	0.1	0.25	2	93.02	500	0.08	0.6	95								
MB7B4A	MB7B4A	6252	0.0156	9.98	0.1	0.25	2	92.52	500	0.09	0.6	95								
MB7B3B	MB7B3B	6302	0.0064	4.1	0.1	0.25	2	93.02	600	0.08	0.6	95								
MB7B4B	MB7B4B	6257	0.0044	2.82	0.1	0.25	2	92.57	400	0.07	0.6	95								
MB7B4C	MB7B4C	6216	0.0023	1.47	0.1	0.25	2	92.16	170	0.053	0.6	95								

TABLE I.II.B.3 : Pre-Project Hydrologic Factors (Continued)

					PLANE 1 - NON-URBAN AND URBAN PLANE PARAMETERS								PLANE 2 - URBAN PLANE PARAMETERS							
SHED	DESCRIPTION	Centroid Elevation (ft)	BA AREA (mi^2)	BA AREA (acre)	Initial Abst. (in)	Constant Infiltration (in/hr)	% Imperv. WARM	% Imperv. FROZEN	Overland Length (ft)	Overland Slope	Overland 'n' Value	Plane % of Shed	Initial Abst (in)	Constant Infiltration (in/hr)	% Imperv. WARM	% Imperv. FROZEN	Overland Length (ft)	Overland Slope	Overland 'n' Value	Plane % of Shed
MB7B1A	MB7B1A	6400	0.0709	45.38	0.1	0.25	2	94	1300	0.192	0.6	100								
MB7B1C	MB7B1C	6369	0.0041	2.62	0.1	0.25	2	93.69	400	0.08	0.6	95								
MB7B1B	MB7B1B	6341	0.0107	6.85	0.1	0.25	2	93.41	500	0.08	0.6	95								
MB7B1D	MB7B1D	6250	0.0146	9.34	0.1	0.25	2	92.5	500	0.07	0.6	95								
MB7B1E	MB7B1E	6217	0.0054	3.46	0.1	0.25	2	92.17	500	0.05	0.6	95								
MB7B2	MB7B2	6188	0.0216	13.82	0.1	0.25	2	91.88	1300	0.192	0.6	95								
MB1	MB1	7456	0.5333	341.31	0.1	0.188	2	100	4000	0.275	0.6	100								
MB2	MB2	6762	1.2667	810.69	0.1	0.192	2	97.62	2800	0.339	0.6	100								
MB3	MB3	6632	0.5006	320.38	0.1	0.218	2	96.32	1800	0.278	0.6	100								
MB4	MB4	6485	0.6535	418.24	0.1	0.245	2	94.85	1900	0.184	0.6	100								
MB5	MB5	6222	0.1602	102.53	0.1	0.25	2	92.22	1800	0.278	0.6	100								
MB6A	AREA = 7.0 AC	6199	0.0073	4.67	0.1	0.25	6.6	91.99	1335	0.1543	0.6	100								
MB6B	AREA = 3.9 AC	6190	0.0061	3.9	0.1	0.25	11.8	91.9	240	0.0708	0.6	100								
MB6C	AREA = 3.2 AC	6160	0.0039	2.5	0.1	0.25	7.6	91.6	370	0.1081	0.6	100								
MB6D	MB6D	6151	0.0223	14.27	0.1	0.246	2	91.51	200	0.125	0.6	65								
MB6G	MB6G	6244	0.0109	6.98	0.1	0.25	2	92.44	500	0.125	0.6	30								
MB6F	MB6F	6226	0.0062	3.97	0.1	0.25	2	92.26	500	0.125	0.6	30								
MB6D1	MB6D1	6200	0.0036	2.3	0.1	0.25	2	92	500	0.125	0.6	30								
MB6E	MB6E	6227	0.005	3.2	0.1	0.25	2	92.27	500	0.125	0.6	30								
MB7A1	MB7A1	6457	0.1465	93.76	0.1	0.208	2	94.57	1300	0.192	0.6	97								
MB7A2A	MB7A2A	6297	0.0247	15.81	0.1	0.25	2	92.97	550	0.192	0.6	92								
MB7A2B	MB7A2B	6273	0.0059	3.78	0.1	0.25	2	92.73	300	0.192	0.6	100								
MB7C	MB7C	6245	0.0236	15.1	0.1	0.25	2	92.45	200	0.1	0.6	92								
MB7D1A	MB7D1A	6321	0.0044	2.82	0.1	0.25	2	93.21	500	0.1	0.6	79								
MB7D1B	MB7D1B	6331	0.0025	1.6	0.1	0.25	2	93.31	300	0.1	0.6	79								
MB7D1	MB7D1	6281	0.0011	0.7	0.1	0.25	2	92.81	100	0.1	0.6	100								
MB7D2	MB7D2	6262	0.0215	13.76	0.1	0.25	2	92.62	200	0.1	0.6	95								
MB7E	MB7E	6130	0.0585	37.44	0.1	0.247	2	91.3	200	0.1	0.6	96								
MB8	MB8	6093	0.0545	34.88	0.1	0.214	2	90.93	1000	0.1	0.6	85								
MC1	AREA = 258.6 AC	6908	0.4041	258.62	0.1	0.239	2	99.08	1530	0.4281	0.6	100								
MC2A	AREA = 59.1 AC	6585	0.0923	59.07	0.1	0.25	2.2	95.85	1035	0.401	0.6	100								
MC2B	AREA = 0.9 AC	6188	0.0014	0.9	0.1	0.25	10.3	91.88	550	0.0764	0.6	100								
MC2K	MC2K	6170	0.0001	0.06	0.1	0.25	4.7	91.7	1225	0.1551	0.6	100								
MD1D	MD1d AREA = 5.9 AC	6358	0.0092	5.89	0.1	0.25	3.4	93.58	800	0.2375	0.6	100								
MD1B	MD1b AREA = 5.9 AC	6304	0.0092	5.89	0.1	0.25	3.6	93.04	800	0.2375	0.6	100								
MC2A2	MC2A2	6157	0.0061	3.9	0.1	0.25	4.7	91.57	1225	0.1551	0.6	100								
MD1C	MD1c AREA = 2.9 AC	6274	0.0045	2.88	0.1	0.25	7.9	92.74	500	0.2178	0.6	100								
MC2A3	MC2A3	6174	0.0044	2.82	0.1	0.25	4.7	91.74	1225	0.1551	0.6	100								
MC2D	AREA = 7.8 AC	6293	0.0122	7.81	0.1	0.25	4.7	92.93	1225	0.1551	0.6	100								
MC2E	AREA = 3.9 AC	6236	0.006	3.84	0.1	0.25	8.5	92.36	895	0.1777	0.6	100								
MC2G	AREA = 9.7 AC	6189	0.0151	9.66	0.1	0.25	90	91.89	395	0.2051	0.6	100								
MC2H	AREA = 2.4 AC	6220	0.0038	2.43	0.1	0.25	9.5	92.2	365	0.1096	0.6	100								
MC2L	MC2L	6085	0.0519	33.22	0.1	0.25	10.3	90.85	550	0.0764	0.6	100								
MC2I	AREA = 0.7 AC	6195	0.0011	0.7	0.1	0.25	24.3	91.95	225	0.1289	0.6	100								
MC2J	AREA = 0.6 AC	6163	0.0011	0.7	0.1	0.25	19.2	91.63	225	0.16	0.6	100								
MD4A	MD4A	6944	0.1163	74.43	0.1	0.25	2.5	99.44	500	0.414	0.6	100								
MD3C	MD3c AREA = 6.9 AC = 0.01078 SQ MI % IMPERV = 4.6	6436	0.0108	6.91	0.1	0.25	4.4	94.36	500	0.3184	0.6	100								
MD3B	MD3b AREA = 8.5 AC = 0.01328 SQ MI % IMPERV = 3.8	6521	0.0133	8.51	0.1	0.25	3.6	95.21	500	0.3073	0.6	100								
MD3A1	MD3a AREA = 25.4 AC = 0.03969 SQ MI % IMPERV = 2.6	6712	0.0397	25.41	0.1	0.25	2.5	97.12	500	0.3458	0.6	100								
MD1A1	MD1a AREA = 3.0 AC = 0.00469 SQ MI % IMPERV = 7.1	6294	0.0047	3.01	0.1	0.25	6.4	92.94	500	0.242	0.6	100								
MC2A4	AREA = 59.1 AC	6166	0.0022	1.41	0.1	0.25	2.2	91.66	1035	0.401	0.6	100								
MD1B1	MD1B1	6284	0.0157	10.05	0.1	0.25	2	92.84	800	0.05	0.6	51								
MD1B2	MD1B2	6137	0.0392	25.09	0.1	0.25	2	91.37	800	0.08	0.6	94								
MD1A	MD1a AREA = 3.0 AC = 0.00469 SQ MI % IMPERV = 7.1	6054	0.0581	37.18	0.1	0.194	6.4	90.54	500	0.242	0.6	100								
MD2D	MD2D	6074	0.004	2.56	0.1	0.25	2	90.74	550	0.035	0.6	90								
MD3D	MD3d	6237	0.0094	6.02	0.1	0.25	8	92.37	682	0.161	0.6	100								
MD1E1A	MD1E1A	6218	0.0018	1.15	0.1	0.25	2	92.18	600	0.08	0.6	95								
MD6	MD6	6145	0.0072	4.61	0.1	0.25	7.5	91.45	635	0.156	0.6	100								
MD1	MD1 AREA = 5.7 AC = 0.00891 SQ MI % IMPERV = 14.0	6218	0.0088	5.63	0.1	0.25	13	92.18	483	0.1451	0.6	100								
MD2A	MD2A	6146	0.0026	1.66	0.1	0.25	2	91.46	250	0.035	0.6	90								
MD27	MD27	6109	0.0048	3.07	0.1	0.25	11	91.09	559	0.05	0.6	100								
MD28A	MD28A	6099	0.0043	2.75	0.1	0.25	15.2	90.99	559	0.05	0.6	100								
MD28B	MD28B	6087	0.0092	5.89	0.1	0.25	4.8	90.87	559	0.05	0.6	100								
MD3A	MD3a AREA = 25.4 AC = 0.03969 SQ MI % IMPERV = 2.6	6059	0.0076	4.86	0.1	0.25	2.5	90.59	500	0.3458	0.6	100								
MD7B	MD7B	6251	0.0042	2.69	0.1	0.25	9	92.51	760	0.05	0.6	100								
MD4C	MD4c	6240	0.0056	3.58	0.1	0.25	8.8	92.4	626	0.05	0.6	100								
MD4E	MD4E	6253	0.0016	1.02	0.1	0.25	2	92.53	1500	0.283	0.6	100								
MD4D	MD4d	6246	0.0062	3.97	0.1	0.25	7.5	92.46	895	0.101	0.6	100								
MD9	MD9	6160	0.0106	6.78	0.1	0.25	7.9	91.6	824	0.253	0.6	100								
MD8	MD8	6139	0.0047	3.01	0.1	0.25	4.8	91.39	519	0.126	0.6	100								
MD6A	MD6A	6018	0.1279	81.86	0.1	0.219	7.5	90.18	635	0.156	0.6	100								
MD7D	MD7d	6652	0.0051	3.26	0.1	0.25	2	96.52	500	0.106	0.6	100								
MD7C	MD7c	6450	0.0061	3.9	0.1	0.25	3.2	94.5	500	0.106	0.6	100								
MD7E	MD7E	6273	0.0094	6.02	0.1	0.25	2	92.73	1200	0.313	0.6	90								
MD7F	MD7F	6194	0.0067	4.29	0.1	0.25	2	91.94	1200	0.313	0.6	90								
MD11	MD11	6164	0.0056	3.58	0.1	0.25	4.8	91.64	595	0.05	0.6	100								
MD2B	MD2B	6071	0.0056	3.58	0.1	0.25	2	90.71	690	0.046	0.6	90								
ME3A	ME3A	6051	0.004	2.56	0.1	0.25	2	90.51	420	0.038	0.6	90								
MD17	MD17	6174	0.0075	4.8	0.1	0.25	5.7	91.74	830	0.126	0.6	100								
MD18	MD18	6137	0.0051	3.26	0.1	0.25	6	91.37	930	0.148	0.6	100								
MD19	MD19	6118	0.0056	3.58	0.1	0.25	6.1	91.18	1055	0.21	0.6	100								
MD2A1	MD2A	6089	0.0019	1.22	0.1	0.25	2	90.89	250	0.035	0.6	90								
MD2	MD2	6074	0.0059	3.78	0.1	0.25	16.8	90.74	295	0.125	0.6	100								
ME3A2	ME3A2	6049	0.0062	3.97	0.1	0.25	2	90.49	500	0.044	0.6	90								
MD13	MD13	6987	0.4368	279.55	0.1	0.25	2	99.87	500	0.477	0.6	100								
ME6_19	ME6_19	6649	0.0236	15.1	0.1	0.25	15	96.49	330	0.053	0.6	100								
ME6_14	ME6_14	6522	0.0063	4.03	0.1	0.25	15	95.22	330	0.053	0.6	100								
MD12	MD12	6813	0.0428	27.39	0.1	0.25	2.5	98.13	500	0.106	0.6	100								
MD12B	MD12b	6336	0.0024	1.54	0.1	0.25	24.7	93.36	352	0.256	0.6	100								
MD12C	MD12c	6408	0.0084	5.38	0.1	0.25	6.5	94.08	500	0.205	0.6	100								
MD14B	MD14b	6354	0.0016	1.02	0.1	0.25	12.6	93.54	500	0.106	0.6	100								
MD14C	MD14c	6384	0.006	3.84	0.1	0.25	4.3	93.84	500	0.106	0.6	100								
ME6_13	1.17 AC	6393	0.0022	1.41	0.1	0.25	2.9	93.93	525	0.175	0.6	100								
ME8_3	3.07 AC	6355	0.0048	3.07	0.1	0.25	7.4	93.55	675	0.164	0.6	100								
MD13B	MD13B	6240	0.0392	25.09	0.1	0.25	2	92.4	500	0.477	0.6	100								

TABLE I.II.B.4 : Pre-Project Hydrologic Factors (Continued)

					PLANE 1 - NON-URBAN AND URBAN PLANE PARAMETERS								PLANE 2 - URBAN PLANE PARAMETERS							
SHED	DESCRIPTION	Centroid Elevation (ft)	BA AREA (mi^2)	BA AREA (acre)	Initial Abst. (in)	Constant Infiltration (in/hr)	% Imperv. WARM	% Imperv. FROZEN	Overland Length (ft)	Overland Slope	Overland 'n' Value	Plane % of Shed	Initial Abst (in)	Constant Infiltration (in/hr)	% Imperv. WARM	% Imperv. FROZEN	Overland Length (ft)	Overland Slope	Overland 'n' Value	Plane % of Shed
MD14	MD14	6336	0.006	3.84	0.1	0.25	9.3	93.36	663	0.165	0.6	100								
MD14A	MD14A	6330	0.0009	0.58	0.1	0.25	9.3	93.3	663	0.165	0.6	100								
ME3_5	ME3_5	6224	0.0007	0.45	0.1	0.25	2	92.24	300	0.1	0.6	65								
MD15	MD15	6266	0.0073	4.67	0.1	0.25	9.2	92.66	870	0.159	0.6	100								
MD15A	MD15A	6229	0.0002	0.13	0.1	0.25	9.2	92.29	870	0.159	0.6	100								
MD16A	MD16A	6219	0.0036	2.3	0.1	0.25	10	92.19	772	0.125	0.6	100								
MD16	MD16	6245	0.0063	4.03	0.1	0.25	10	92.45	772	0.125	0.6	100								
MD13C	MD13C	6095	0.0068	4.35	0.1	0.25	2	90.95	500	0.477	0.6	100								
MD20	MD20	6107	0.002	1.28	0.1	0.25	9	91.07	740	0.05	0.6	100								
ME3B	ME3B	5997	0.0182	11.65	0.1	0.25	2	89.91	300	0.1	0.6	65								
GS31B1	GS31B1	6087	0.0029	1.86	0.1	0.25	2	90.87	580	0.038	0.6	90								
GS31B2	GS31B2	6079	0.0047	3.01	0.1	0.25	2	90.79	690	0.057	0.6	90								
GS31B3	GS31B3	6068	0.0056	3.58	0.1	0.25	2	90.68	530	0.06	0.6	90								
GS31B4	GS31B4	6054	0.0012	0.77	0.1	0.25	2	90.54	250	0.048	0.6	90								
GS31B5	GS31B5	6052	0.0056	3.58	0.1	0.25	2	90.52	500	0.05	0.6	90								
ME8_1	0.48 AC	6339	0.0007	0.45	0.1	0.25	26	93.39	180	0.066	0.6	100								
ME3_1	ME3_1	6336	0.0009	0.58	0.1	0.25	2	93.36	300	0.1	0.6	65								
ME3_2	ME3_2	6335	0.0024	1.54	0.1	0.25	2	93.35	300	0.1	0.6	65								
ME3_3	ME3_3	6301	0.0031	1.98	0.1	0.25	2	93.01	300	0.1	0.6	65								
ME3_4	ME3_4	6267	0.0024	1.54	0.1	0.25	2	92.67	300	0.1	0.6	65								
MD21	MD21	6186	0.0033	2.11	0.1	0.25	7.2	91.86	640	0.05	0.6	100								
ME3C3	ME3C3	6096	0.0066	4.22	0.1	0.25	2	90.96	300	0.1	0.6	65								
ME3C1	ME3C1	6102	0.0016	1.02	0.1	0.25	2	91.02	300	0.1	0.6	65								
ME4A	ME4A	5971	0.0939	60.1	0.1	0.232	2	89.13	500	0.12	0.6	90								
ME6_11	0.13 AC	6328	0.0002	0.13	0.1	0.25	49.1	93.28	30	0.02	0.11	100								
ME6_10	0.21 AC	6326	0.0003	0.19	0.1	0.25	67.3	93.26	30	0.02	0.11	100								
ME6_25	7.81 AC	6275	0.0094	6.02	0.1	0.25	7.1	92.75	125	0.16	0.6	100								
ME6_33	ME6_33	6258	0.0026	1.66	0.1	0.25	15	92.58	330	0.053	0.6	100								
ME6_26	0.43 AC	6214	0.0008	0.51	0.1	0.25	3	92.14	200	0.13	0.6	100								
ME7_1	8.34 AC	6223	0.0127	8.13	0.1	0.25	4.6	92.23	470	0.2468	0.6	100								
ME7_2	0.25 AC	6168	0.0004	0.26	0.1	0.25	83.6	91.68	30	0.02	0.11	100								
ME7D6	ME7D6	6213	0.006	3.84	0.1	0.25	2	92.13	500	0.18	0.6	75								
ME7D14	ME7D14	6138	0.0037	2.37	0.1	0.25	15	91.38	150	0.13	0.6	100								
ME7D16	ME7D16	6148	0.0018	1.15	0.1	0.25	15	91.48	177	0.045	0.6	100								
ME7D15	ME7D15	6145	0.0031	1.98	0.1	0.25	15	91.45	175	0.057	0.6	100								
ME7D24	ME7D24	6115	0.0022	1.41	0.1	0.25	15	91.15	144	0.09	0.6	100								
ME4B13	ME4B13	6103	0.0056	3.58	0.1	0.25	15	91.03	270	0.02	0.6	100								
ME7C4	ME7C4	6182	0.0054	3.46	0.1	0.25	2	91.82	500	0.15	0.6	5								
ME7C5	ME7C5	6202	0.0061	3.9	0.1	0.25	2	92.02	500	0.15	0.6	5								
ME4B3	ME4B3	6134	0.0029	1.86	0.1	0.25	2	91.34	300	0.05	0.6	15								
ME4B12	ME4B12	6096	0.0065	4.16	0.1	0.25	15	90.96	430	0.018	0.6	100								
ME4B23	ME4B23	6061	0.0088	5.63	0.1	0.25	15	90.61	210	0.07	0.6	100								
ME4B22	ME4B22	6053	0.0074	4.74	0.1	0.25	15	90.53	220	0.1	0.6	100								
ME3C2	ME3C2	6113	0.0032	2.05	0.1	0.25	2	91.13	300	0.16	0.6	60								
ME4B11	ME4B11	6066	0.0049	3.14	0.1	0.25	15	90.66	340	0.053	0.6	100								
ME4B21	ME4B21	6044	0.0024	1.54	0.1	0.25	15	90.44	220	0.1	0.6	100								
ME4B10	ME4B-10	6068	0.0027	1.73	0.1	0.25	15	90.68	150	0.08	0.6	100								
ME4B	ME4B	6037	0.0055	3.52	0.1	0.25	2	90.37	300	0.05	0.6	15								
MG3_3B	MG3_3B	6928	0.146	93.44	0.1	0.25	2.9	99.28	575	0.225	0.6	100								
MG3_3C	MG3_3C	6589	0.0127	8.13	0.1	0.25	2.9	95.89	575	0.225	0.6	100								
ME6_12	14.48 AC	6583	0.0096	6.14	0.1	0.25	3.4	95.83	600	0.295	0.6	100								
ME6_16	10.41 AC	6370	0.0002	0.13	0.1	0.25	4.4	93.7	600	0.295	0.6	100								
ME6_18	2.92 AC	6343	0.0046	2.94	0.1	0.25	10.2	93.43	150	0.2133	0.6	100								
ME6_20	3.75 AC	6339	0.006	3.84	0.1	0.25	6.3	93.39	200	0.21	0.6	100								
ME6_24	0.70 AC	6287	0.0026	1.66	0.1	0.25	18.6	92.87	305	0.091	0.6	100								
ME6_23	4.19 AC	6222	0.0065	4.16	0.1	0.25	8.2	92.22	200	0.17	0.6	100								
ME6_32	0.39 AC	6194	0.0006	0.38	0.1	0.25	33.9	91.94	24	0.02	0.11	100								
ME6_28	4.93 AC	6163	0.0077	4.93	0.1	0.25	2	91.63	355	0.113	0.6	100								
ME627	1.77 AC	6157	0.0027	1.73	0.1	0.25	2	91.57	120	0.107	0.6	100								
ME6_29	1.37 AC	6127	0.0021	1.34	0.1	0.25	2	91.27	370	0.114	0.6	100								
ME6_30	1.27 AC	6098	0.002	1.28	0.1	0.25	2	90.98	295	0.088	0.6	100								
ME6A25	ME6A25	6096	0.0029	1.86	0.1	0.25	15	90.96	330	0.053	0.6	100								
ME7B	ME7B	6069	0.027	17.28	0.1	0.25	2	90.69	400	0.05	0.6	75								
ME7A	ME7A	5927	0.1404	89.86	0.1	0.227	2	87.81	1300	0.192	0.6	10								
MF1	MF1	5957	0.378	241.92	0.1	0.205	2	88.71	1500	0.087	0.6	100								
MF2	MF2	5903	0.0582	37.25	0.1	0.247	2	87.09	1000	0.07	0.6	100								
MD4_1A	MD4	6876	0.1899	121.54	0.1	0.25	2	98.76	1500	0.283	0.6	100								
MG4_1B	6.35 AC	6466	0.01	6.4	0.1	0.25	2.1	94.66	500	0.35	0.6	100								
MG5_2A	8.61 AC	6536	0.0134	8.58	0.1	0.25	3.2	95.36	600	0.2033	0.6	100								
MG3_1	1.78 AC	6486	0.0028	1.79	0.1	0.25	5.4	94.86	500	0.28	0.6	100								
MG3_1A	1.00 AC	6345	0.0016	1.02	0.1	0.25	5.4	93.45	498	0.28	0.6	100								
MG3_1C	1.47 AC	6530	0.0023	1.47	0.1	0.25	5.4	95.3	498	0.2811	0.6	100								
MG3_6	0.09 AC	6301	0.0002	0.13	0.1	0.25	90	93.01	30	0.02	0.11	100								
MG4_2	4.61 AC	6451	0.0072	4.61	0.1	0.25	3.1	94.51	500	0.284	0.6	100								
MG4_3B	MG4_3B	6300	0.0002	0.13	0.1	0.25	2	93	2300	0.326	0.6	95								
MG4_3A	0.07 AC	6303	0.0001	0.06	0.1	0.25	90	93.03	30	0.02	0.11	100								
MG5_2B	0.06 AC	6330	0.0001	0.06	0.1	0.25	90	93.3	12	0.01	0.6	100								
MG4_4	0.10 AC	6322	0.0002	0.13	0.1	0.25	90	93.22	30	0.02	0.11	100								
MG4_5C	MG4_5C	6258	0.0078	4.99	0.1	0.25	2	92.58	2300	0.326	0.6	95								
MG5_1A	18.98 AC	6608	0.0296	18.94	0.1	0.25	2.8	96.08	600	0.155	0.6	100								
MG5_1B	MG5_1B	6455	0.009	5.76	0.1	0.25	2	94.55	200	0.1	0.6	5								
MG5_3	0.04 AC	6301	0.0001	0.06	0.1	0.25	90	93.01	30	0.02	0.11	100								
MG5_4	0.15 AC	6281	0.0003	0.19	0.1	0.25	90	92.81	30	0.02	0.11	100								
MG5_5	MG5_5	6284	0.0024	1.54	0.1	0.25	2	92.84	200	0.1	0.6	5								
MG3_3A	8.25 AC	6533	0.0129	8.26	0.1	0.25	2.9	95.33	575	0.225	0.6	100								
MG3_2	2.58 AC	6398	0.004	2.56	0.1	0.25	6.1	93.98	390	0.2051	0.6	100								
MG3_4	014 AC	6297	0.0002	0.13	0.1	0.25	88.8	92.97	30	0.02	0.11	100								
MG3_1B	0.87 AC	6425	0.0014	0.9	0.1	0.25	5.4	94.25	500	0.28	0.6	100								
MG3_1D	0.57 AC	6370	0.0009	0.58	0.1	0.25	5.4	93.7	504	0.2778	0.6	100								
MG3_5	0.07 AC	6291	0.0001	0.06	0.1	0.25	90	92.91	30	0.02	0.11	100								
MG3_5A	MG3_5A	6261	0.0073	4.67	0.1	0.25	2.9	92.61	575	0.225	0.6	100								
ME6_1	10.24 AC	6361	0.0082	5.25	0.1	0.25	3.9	93.61	310	0.174	0.6	100								
ME6_2	1.28 AC	6365	0.0099	6.34	0.1	0.25	6.9	93.65	505	0.194	0.6	100								
ME6_3	0.02 AC	6286	0.0003	0.19	0.1	0.25	86.5	92.86	15	0.02	0.6	100								
ME6_5	1.40 AC	6276	0.0022	1.41	0.1	0.25	16.5	92.76	160	0.15	0.6	100								
ME6_7	0.81 AC	6264	0.0013	0.83	0.1	0.25	16.2	92.64	190	0.168	0.6	100								
ME6_8	.44 AC	6231	0.0007	0.45	0.1	0.25	87.8	92.31	20	0.02	0.6	100								
MG1_2	0.67 AC	6285	0.001	0.64	0.1	0.25	11.1	92.85	100	0.14	0.6	100								
MG1_3	1.89 AC	6315	0.0025	1.6	0.1	0.25	9.5	93.15	300	0.07	0.6	100								
MG1_1	1.38 AC	6336	0.0026	1.66	0.1	0.25	2	93.36	185	0.1946	0.6	100								
MG1_4	0.18 AC	6272	0.0003	0.19	0.1	0.25	46.9	92.72	30	0.02	0.11	100								
MG3_33	MG3_33	6210	0.0087	5.57	0.1	0.25	2.9	92.1	575	0.225	0.6	100								

TABLE I.II.B.5 : Pre-Project Hydrologic Factors (Continued)

					PLANE 1 - NON-URBAN AND URBAN PLANE PARAMETERS								PLANE 2 - URBAN PLANE PARAMETERS							
SHED	DESCRIPTION	Centroid Elevation (ft)	BA AREA (mi^2)	BA AREA (acre)	Initial Abst. (in)	Constant Infiltration (in/hr)	% Imperv. WARM	% Imperv. FROZEN	Overland Length (ft)	Overland Slope	Overland 'n' Value	Plane % of Shed	Initial Abst (in)	Constant Infiltration (in/hr)	% Imperv. WARM	% Imperv. FROZEN	Overland Length (ft)	Overland Slope	Overland 'n' Value	Plane % of Shed
ME6_8A	ME6_8A	6168	0.0006	0.38	0.1	0.25	15	91.68	330	0.053	0.6	100								
MG2	MG2	5975	0.1195	76.48	0.1	0.245	2	89.25	700	0.143	0.6	90								
ME6_6	0.16 AC	6263	0.0003	0.19	0.1	0.25	73	92.63	30	0.02	0.11	100								
ME6_21	2.50 AC	6249	0.0039	2.5	0.1	0.25	12	92.49	200	0.125	0.6	100								
ME6_31	0.44 AC	6219	0.0007	0.45	0.1	0.25	42.9	92.19	24	0.02	0.11	100								
MG1B19	MG1B19	6177	0.0072	4.61	0.1	0.25	15	91.77	150	0.04	0.6	100								
MG1B20	MG1B20	6164	0.0039	2.5	0.1	0.25	15	91.64	240	0.08	0.6	100								
ME6A	ME6A	6164	0.003	1.92	0.1	0.25	2	91.64	300	0.12	0.6	50								
MG1B26	MG1B26	6099	0.0038	2.43	0.1	0.25	15	90.99	250	0.096	0.6	100								
MG1B	MG1B	6094	0.0119	7.62	0.1	0.25	2	90.94	300	0.1	0.6	50								
ME6A27	ME6A27	6055	0.0094	6.02	0.1	0.25	15	90.55	230	0.095	0.6	100								
MG1A	MG1A	6022	0.0185	11.84	0.1	0.25	2	90.22	200	0.1	0.6	50								
MG5B1	MG5B1	6456	0.1242	79.49	0.1	0.25	2	94.56	200	0.1	0.6	5								
MG5A2	MG5A2	6240	0.0613	39.23	0.1	0.25	2	92.4	200	0.1	0.6	5								
MG6B	MG6B	6056	0.0479	30.66	0.1	0.201	2	90.56	1000	0.25	0.6	85								
MG5A1	MG5A1	6069	0.0134	8.58	0.1	0.25	2	90.69	200	0.1	0.6	5								
MG7	MG7	5894	0.1439	92.1	0.1	0.207	2	86.82	600	0.25	0.6	100								
NS24A	NS24A	6045	0.0297	19.01	0.1	0.25	2	90.45	900	0.1	0.6	100								
NS24B	NS24B	5932	0.012	7.68	0.1	0.25	2	87.96	300	0.1	0.6	100								
NS24C	NS24C	5862	0.04	25.6	0.1	0.182	2	85.86	800	0.1	0.6	100								
NS25	NS25	5904	0.037	23.68	0.1	0.249	2	87.12	800	0.05	0.6	100								
NS26	NS26	5842	0.1102	70.53	0.1	0.122	2	85.26	1000	0.05	0.6	100								
NS22A	NS22A	6078	0.0103	6.59	0.1	0.25	2	90.78	750	0.1	0.6	100								
NS22C	NS22C	5966	0.0063	4.03	0.1	0.25	2	88.98	300	0.1	0.6	100								
NS23A	NS23A	5878	0.0374	23.94	0.1	0.19	2	86.34	950	0.07	0.6	100								
NS27	NS27	5834	0.0574	36.74	0.1	0.1	2	85.02	830	0.03	0.6	100								
NS28B	NS28B	5818	0.0417	26.69	0.1	0.1	2	84.54	500	0.01	0.6	100								
E85Z	E85Z	5864	0.0291	18.62	0.1	0.25	2	87	400	0.02	0.6	100								
NS28A	NS28A	5841	0.0415	26.56	0.1	0.1	2	85.23	500	0.01	0.6	100								
NS22	NS22	6304	0.2037	130.37	0.1	0.25	2	93.04	2100	0.08	0.6	100								
NS31	NS31	6214	0.0592	37.89	0.1	0.25	2	92.14	1250	0.1	0.6	100								
NS22B	NS22B	6014	0.0098	6.27	0.1	0.25	2	90.14	500	0.1	0.6	100								
NS23B	NS23B	5866	0.1061	67.9	0.1	0.191	2	85.98	1350	0.05	0.6	100								
NS32A	NS32A	6168	0.0191	12.22	0.1	0.25	2	91.68	500	0.1	0.6	100								
NS32B	NS32B	5855	0.1481	94.78	0.1	0.165	2	85.65	1500	0.08	0.6	100								
NS1	BASIN 1 - 330 Ac	7825	0.5174	331.14	0.1	0.178	2	100	3300	0.24	0.8	57								
NS2	BASIN 2 - 267 Ac	7697	0.4184	267.78	0.1	0.25	2	100	2800	0.25	0.8	54								
NS3	BASIN 3 - 331 Ac	7343	0.5218	333.95	0.1	0.25	65	100	2950	0.18	0.24	3								
NS4	BASIN 4 - 166 Ac	6727	0.2602	166.53	0.1	0.25	65	97.27	2110	0.22	0.24	29								
NS5	BASIN 5 - 21 Ac	6520	0.0319	20.42	0.1	0.25	65	95.2	1400	0.25	0.24	36								
NS6	BASIN 6 - 178 Ac	6685	0.2162	138.37	0.1	0.25	65	96.85	3100	0.27	0.24	71								
NS7	BASIN 7 - 38 Ac	6362	0.0602	38.53	0.1	0.25	65	93.62	1570	0.19	0.24	69								
NS8	BASIN 8 - 673 Ac	7113	1.1304	723.46	0.1	0.239	2	100	4200	0.21	0.8	92								
NS9	BASIN 9 - 144 Ac	6837	0.1855	118.72	0.1	0.249	2	98.37	4400	0.2	0.6	100								
NS10	BASIN 10 - 214 Ac	6657	0.3581	229.18	0.1	0.223	2	96.57	3905	0.2	0.6	100								
NS11	BASIN 11 - 60 Ac	6559	0.0389	24.9	0.1	0.249	65	95.59	1600	0.34	0.24	6								
NS11B	BASIN 11 - 60 Ac	6270	0.0546	34.94	0.1	0.25	65	92.7	1600	0.34	0.24	6								
NS12	BASIN 12 - 40 Ac	6210	0.0619	39.62	0.1	0.25	65	92.1	400	0.1	0.24	71								
NS13	BASIN 13 - 15 Ac	6452	0.1459	93.38	0.1	0.25	65	94.52	500	0.16	0.24	86								
NS14	BASIN 14 - 47 Ac	6261	0.0434	27.78	0.1	0.25	65	92.61	775	0.35	0.24	90								
NS14B	NS14B	6176	0.0204	13.06	0.1	0.25	2	91.76	500	0.1	0.6	100								
NS20B	NS20B	6358	0.0322	20.61	0.1	0.25	2	93.58	640	0.1	0.6	100								
NS15	NS15	6103	0.086	55.04	0.1	0.25	2	91.03	1000	0.08	0.6	100								
NS16	NS16	6564	0.1019	65.22	0.1	0.246	2	95.64	1600	0.1	0.6	100								
NS17	NS17	6282	0.0811	51.9	0.1	0.25	2	92.82	1500	0.08	0.6	100								
NS18	NS18	6405	0.1877	120.13	0.1	0.25	2	94.05	3200	0.1	0.6	100								
NS19	NS19	6169	0.0434	27.78	0.1	0.25	2	91.69	1600	0.05	0.6	100								
NS20	NS20	6070	0.0548	35.07	0.1	0.25	2	90.7	600	0.08	0.6	100								
NS21	NS21	6056	0.139	88.96	0.1	0.248	2	90.56	1450	0.05	0.6	100								
NS30D	NS30D	6286	0.0577	36.93	0.1	0.25	2	92.86	900	0.08	0.6	100								
NS30A	NS30A	6014	0.0266	17.02	0.1	0.244	2	90.14	800	0.08	0.6	100								
NS30B	NS30B	5979	0.14	89.6	0.1	0.236	2	89.37	1600	0.1	0.6	100								
NS30E	NS30E	6133	0.0022	1.41	0.1	0.25	2	91.33	200	0.1	0.6	100								
NS30F	NS30F	6158	0.0023	1.47	0.1	0.25	2	91.58	200	0.1	0.6	100								
NS30C	NS30C	5872	0.1237	79.17	0.1	0.151	2	86.16	1600	0.08	0.6	100								
NS33B	NS33B	5818	0.0301	19.26	0.1	0.1	2	84.54	1000	0.05	0.6	100								
NS34	NS34	6122	0.0437	27.97	0.1	0.25	2	91.22	900	0.08	0.6	100								
NS35	NS35	5869	0.1517	97.09	0.1	0.185	2	86.07	1900	0.05	0.6	100								
XMAR1	XMAR1	6837	0.2922	187.01	0.1	0.244	2	90	1900	0.1	0.6	100								
XMAR2	XMAR2	6837	0.4066	260.22	0.1	0.241	2	90	2200	0.1	0.6	100								
XMAR3	XMAR3	6837	0.6221	398.14	0.1	0.248	2	90	3500	0.1	0.6	100								
XMAR4	XMAR4	6837	0.2489	159.3	0.1	0.25	2	90	2300	0.1	0.6	100								
XMAR5	XMAR5	6837	0.3335	213.44	0.1	0.25	2	90	1700	0.1	0.6	100								
XMAR6	XMAR6	6837	0.1147	73.41	0.1	0.25	2	90	1500	0.1	0.6	100								
XMAR7	XMAR7	6837	0.3439	220.1	0.1	0.25	2	90	2800	0.1	0.6	100								
XMAR8	XMAR8	6837	0.2218	141.95	0.1	0.25	2	90	2200	0.1	0.6	100								
XMAR9	XMAR9	6837	0.25	160	0.1	0.25	2	90	2100	0.1	0.6	100								
XMAR10	XMAR10	6837	0.2272	145.41	0.1	0.25	2	90	2300	0.1	0.6	100								
XMAR11	XMAR11	6837	0.1037	66.37	0.1	0.185	2	90	1100	0.1	0.6	100								
XMAR12	XMAR12	6837	0.1361	87.1	0.1	0.206	2	90	1250	0.1	0.6	100								
XMAR13	XMAR13	6837	0.2679	171.46	0.1	0.249	2	90	1800	0.1	0.6	100								
XMAR14	XMAR14	6837	0.0483	30.91	0.1	0.25	2	90	500	0.1	0.6	100								
XMAR15	XMAR15	6837	0.014	8.96	0.1	0.25	2	90	500	0.1	0.6	100								
XMAR17	XMAR17	6837	0.2288	146.43	0.1	0.22	2	90	1300	0.1	0.6	100								
MAR19A	MAR19A	6244	0.0295	18.88	0.1	0.25	2	92.44	1000	0.1	0.6	100								
MAR19B	MAR19B	6120	0.0074	4.74	0.1	0.25	2	91.2	500	0.1	0.6	100								
XMAR18	XMAR18	6837	0.1517	97.09	0.1	0.248	2	90	1600	0.1	0.6	100								
XMAR20	XMAR20	6837	0.2009	128.58	0.1	0.244	2	91	1700	0.1	0.6	100								
MAR21A	MAR21A	6190	0.0602	38.53	0.1	0.25	2	91.9	500	0.1	0.6	100								
MAR21B	MAR21B	6055	0.0241	15.42	0.1	0.245	2	90.55	500	0.1	0.6	100								
MAR22B	MAR22B	5942	0.0266	17.02	0.1	0.23	2	88.26	500	0.1	0.6	100								
MAR22A	MAR22A	6025	0.0165	10.56	0.1	0.25	2	90.25	500	0.1	0.6	100								
XMAR23	XMAR23	6837	0.0439	28.1	0.1	0.138	2	87	500	0.05	0.6	100								
XMAR24	XMAR24	6837	0.0055	3.52	0.1	0.1	2	87	200	0.02	0.6	100								
XMAR25	XMAR25	6837	0.0147	9.41	0.1	0.126	2	87	1000	0.02	0.6	100								
NS33A	NS33A	5840	0.0118	7.55	0.1	0.197	2	85.2	1000	0.02	0.6	100								

Tables I.II.B.5A and I.II.B.5B list the computed Pre-project peak flow rates at key project locations for the various storm events evaluated in this analysis. TABLE I.II.B.5A shows the Warm Storm Event estimated Peak Flows. Table I.II.B.5B shows the Frozen Condition Event estimated Peak Flow Rates. The base HEC-1 file for PDP input for the pre-project conditions is shown in Appendices A-1 and A-2 for the Warm and Frozen events respectively.

TABLE I.II.B.5A: PRE-PROJECT PEAK FLOW RATES WARM EVENT

HEC-1 Watershed Node	Watershed Area (mi^2)	HEC-RAS River/Stream	HEC-RAS Cross Section	500-YEAR FLOW (cfs)	100-YEAR FLOW (cfs)	10-YEAR FLOW (cfs)	2-YEAR FLOW (cfs)
YE20D	0.53	Martis Creek / NW	100	477	345.5	179.4	62.6
UE30CR	0.61	Martis Creek / NW	96	548.6	399.1	208	72.9
YE40BC	0.74	Martis Creek / NW	91	632.1	463.4	243.5	85.4
YE80C	1.28	Martis Creek / NW	89	1096.7	805.5	428.3	156
E40C	0.03	Martis Creek / NW2	110	26.2	19.1	10	3.2
YE40D	0.05	Martis Creek / NW2	108	37.9	27.5	14.3	4.6
YE40DC	1.32	Martis Creek / NW3	79.5	1134.5	833	442.5	160.5
YE85	1.78	Martis Creek / NW3	78	1468.4	1075.3	565.5	191.8
YE85B	1.82	Martis Creek / NW3	77	1490.3	1090.9	573.7	195
YE85CC	1.82	Martis Creek / NW3	73	604.5	557	499.7	195.8
VMF1CR	12.07	Martis Creek / NW4	69.5	8564.1	6190.3	3077.9	1100.3
VMF2CR	12.13	Martis Creek / NW4	68.5	8610.7	6225.2	3097.8	1106
YNS26	13.27	Martis Creek / NW4	65.5	9600.3	6951	3461.1	1265
YNS27	15.21	Martis Creek / NW5	59.5	7744.2	6205.9	3837.1	1450.7
YNS28B	15.28	Martis Creek / NW5	57.5	7786.4	6240.7	3862.3	1462.9
YNS28A	15.32	Martis Creek / NW5	56.5	7814.3	6264.2	3879.3	1471.6
YNSALL	21.04	Martis Creek / NW5	56	10636	8334.8	4940.8	1980.3
YR21B	4.33	Martis Creek / W1	49.5	1639.6	1064.7	483.1	240.7
MAR22B	4.36	Martis Creek / W1	47	230.7	221.2	208.9	199.9
YR22A	4.38	Martis Creek / W1	44	251.5	236.3	216.9	202.5
XMAR23	4.42	Martis Creek / W1	41	296.3	267	230.9	208.2
YMAR23	4.62	Martis Creek / W1	40	459.2	383.8	289.6	224.8
XMAR24	4.62	Martis Creek / W1	39.5	246.7	244.3	239.7	212.3
UHWY	25.69	Martis Creek / MAIN	39.5	8462.6	7076.3	4440.6	2140.7
NS22	0.2	Martis Creek / SP2	189.5	142.7	100	42.5	12.8
YNS31	0.26	Martis Creek / SP2	188.5	194.6	135.7	59.2	17.6
YNS22B	0.27	Martis Creek / SP2	185.5	203.3	141.8	61.7	19
MG7	0.92	Martis Creek / SP1	199	1171.5	862	461.6	180.1
YNS24C	1	Martis Creek / SP1	195.5	1267.4	930.6	498.2	192.5
NS18	0.19	Martis Creek / SP1	20	112.6	78.5	30.3	10.4
E30A		Offsite		6.6	4.7	2.3	0.6

TABLE I.II.B.5B : PRE-PROJECT PEAK FLOW RATES FROZEN EVENT

HEC-1 Watershed Node	Watershed Area (mi^2)	HEC-RAS River/Stream	HEC-RAS Cross Section	500-YEAR FLOW (cfs)	100-YEAR FLOW (cfs)	10-YEAR FLOW (cfs)	2-YEAR FLOW (cfs)
YE20D	0.53	Martis Creek / NW	100	527.6	398.2	235.6	120.5
UE30CR	0.61	Martis Creek / NW	96	607.3	460	273.7	140.3
YE40BC	0.74	Martis Creek / NW	91	699.3	532.9	318.1	163.1
YE80C	1.28	Martis Creek / NW	89	1206.5	918.3	546	279.8
E40C	0.03	Martis Creek / NW2	110	28.5	21.5	12.4	6.1
YE40D	0.05	Martis Creek / NW2	108	41.5	31.1	18.1	8.9
YE40DC	1.32	Martis Creek / NW3	79.5	1247.9	949.4	564	288.7
YE85	1.78	Martis Creek / NW3	78	1620.2	1227.1	727.3	368.9
YE85B	1.82	Martis Creek / NW3	77	1644.1	1246.8	738.7	374.9
YE85CC	1.82	Martis Creek / NW3	73	638.1	580.1	521.7	340.6
VMF1CR	12.07	Martis Creek / NW4	69.5	10035	7695.9	4740.1	2480.3
VMF2CR	12.13	Martis Creek / NW4	68.5	10083	7739.9	4760.7	2495.4
YNS26	13.27	Martis Creek / NW4	65.5	11231	8605.1	5289.7	2775.4
YNS27	15.21	Martis Creek / NW5	59.5	8888.5	7266.2	5273.3	3047.1
YNS28B	15.28	Martis Creek / NW5	57.5	8933.3	7302	5300.2	3063.6
YNS28A	15.32	Martis Creek / NW5	56.5	8961.4	7324.6	5317.7	3073.4
YNSALL	21.04	Martis Creek / NW5	56	12448	10094	7125.3	4087.5
YR21B	4.33	Martis Creek / W1	49.5	2691.2	1968.1	1104.2	587.6
MAR22B	4.36	Martis Creek / W1	47	235	225.5	213.1	204.2
YR22A	4.38	Martis Creek / W1	44	258.2	243.1	223.5	209.5
XMAR23	4.42	Martis Creek / W1	41	306.9	278.1	242.3	218.9
YMAR23	4.62	Martis Creek / W1	40	490.3	414.4	322.3	259.2
XMAR24	4.62	Martis Creek / W1	39.5	247.2	244.7	241.8	224.3
UHWY	25.69	Martis Creek / MAIN	39.5	9993.1	8446.8	5796.9	3793.3
NS22	0.2	Martis Creek / SP2	189.5	174	131.5	77.6	39.3
YNS31	0.26	Martis Creek / SP2	188.5	234.7	177.1	104.5	53.3
YNS22B	0.27	Martis Creek / SP2	185.5	245.1	185.1	109.3	56
MG7	0.92	Martis Creek / SP1	199	1290	979.4	599.3	311.9
YNS24C	1	Martis Creek / SP1	195.5	1394.6	1058.5	646.1	335.6
NS18	0.19	Martis Creek / SP1	20	142	107.9	64	32.7

Calibration of the Flood Events:

On previous projects in the Tahoe basin we have utilized two other methods for computing peak flow rates:

"The Squaw Creek Memo" - The memo compares the measured peak flow rates from Blackwood Creek and Ward Creek to Squaw Creek citing that they "share several reasonably similar characteristics: size, exposure, orientation, elevation and slope. This memo published the runoff rates for the 7.5 square mile Squaw Creek watershed. The values shown in Table I.II.B.6 were summarized in the memo.

TABLE I.II.B.6 : COMPARISON OF SQUAW CREEK FLOW RATES

Design Event	* Squaw Creek Published Flow (cfs/mi^2)	RANGE OF WARM EVENT (cfs/mi^2)	WARM Rate at 7.5 mi Sq. (cfs/mi^2)	RANGE OF FROZEN EVENT (cfs/mi^2)	FROZEN Rate at 7.5 mi Sq. (cfs/mi^2)
100-year	493	270-1000	510	330 to 1100	640
50-year	360	N/.A	N/A	N/A	N/A
25-year	213	N/A	N/A	N/A	N/A
10-year	133	170-600	250	225-650	390

* At 7.5 square mile watershed point. N/A – These events were not analyzed in this study.

This analysis of Martis Creek for a 25.6 square mile watershed reported a peak 100-year “Frozen Condition” runoff of 8446 cfs, and a Warm event 100-year peak flow value of 7043 cfs. This translates to roughly **328 cfs per square mile** for the **frozen** event (worst case scenario) and **274 cfs per square mile** for the **Warm** design event criteria. The study area of the Martis Creek watershed is lower in average elevation and flatter in slope than the Squaw Creek shed area. Also, the total area is roughly 4 times the Squaw Creek criteria. The results of the design storm warm event seem to represent a good correlation in the 100-year event given the slope and elevation factors. The Frozen Event appears more conservative than the values of the Squaw Creek study (computed flows in this study may be in excess of other correlated data).

USGS ‘Magnitude and Frequency of Floods in California’. USGS, WRI 77-21, 1977: A generalized relationship for peak flows in the “Sierra Nevada Mountain region” is offered in the form of a simple equation. Q=Qo * (DA)^(0.8) where Qo = 740 (100-year), 540 (50-year), 320 (25-year) and 200 (10-year).

For this project 100-year storm : Q = 740 * (25.6) ^ (0.8) = **9904 cfs.** The comparison of the USGS estimate with the HEC-1 FROZEN event computed value of **8447 cfs** tend to indicate that computed peak flows from this study are comparable to the USGS estimate equation, and perhaps less conservative. However it should be noted that some flows in the south area of Martis Creek bypass this section of the Martis Valley creeks, and divert directly to areas east of Highway 267. It should also be noted that the assumption of a downstream base flood elevation of 5845 creates significant backwater conditions within the project analysis reaches… This results in significant attenuation of peak flows, in excess of those estimated by the calibration methods.

The WARM storm event 100-year HEC-1 analysis yields a value of **7043 cfs**, which correlated to a yield of 274 cfs per square mile. The WARM storm event values present a less conservative correlation to the USGS equation estimates.

1.II.C Post-Project Mitigated Model:

A Post-project Mitigated model was developed to represent the post-project hydrologic conditions of the Martis Creek Watershed. Changes from the pre-project watershed analysis include modifications to the sub-watershed impervious areas for the proposed trail system. Two versions of the hydrology were created for the Post project WARM event models. One with the northern trail segments + the Valley Trail alternative (called the Valley Trail Analysis) and onw with the northern trail segments + the Highway Trail alternative. The Base HEC-1 PDP input file is included in Appendix B. Tables I.II.C.1 to I.II.C.6 identify the watershed factors utilized in the post-project WARM event analysis for the Valley Trail alternative.. Tables I.II.C.8 to I.II.C.13 identify the watershed factors utilized in the post-project WARM event analysis for the Highway Trail alternative. Impervious surface areas were computed for each watershed and applied in each model according to the existing conditions plus the appropriate trail alternative's impervious areas.

A FROZEN event analysis for the post-project conditions is not required as it would yield the same results as the pre-project FROZEN analysis since the snow cover condition dictates impervious values in excess of those that would be computed for the project watersheds.

TABLE 1.II.C.7 summarizes the computed post-project peak flow rates for the 2-year, 10-year, 100-year and 500-year events, and also summarizes the changes from the pre-project WARM event peak flow results, for the Valley Trail alternative. TABLE 1.II.C.14 summarizes the computed post-project peak flow rates for the 2-year, 10-year, 100-year and 500-year events, and also summarizes the changes from the pre-project WARM event peak flow results, for the Highway Trail alternative. Table 1.II.C.15 shows the peak flow computed in either analysis, and compares those to the pre-project conditions peak flow rates. The peak flow values listed in Table 1.II.C.15 were used in the Hydraulic (HEC-RAS) analysis for the post-project WARM Event.

TABLE I.II.C.1 : POST-PROJECT HYDROLOGIC FACTORS

Valley Trail

					PLANE 1 - NON-URBAN AND URBAN PLANE PARAMETERS							PLANE 2 - URBAN PLANE PARAMETERS						
SHED	DESCRIPTION	Centroid Elevation (ft)	BA AREA (mi^2)	BA AREA (acre)	Initial Abst (in)	Constant Infiltration (in/hr)	% Imperv. WARM	Overland Length (ft)	Overland Slope	Overland 'n' Value	Plane % of Shed	Initial Abst (in)	Constant Infiltration (in/hr)	% Imperv WARM	Overland Length (ft)	Overland Slope	Overland 'n' Value	Plane % of Shed
E2	Large Offsite Shed 155.8ac	6231	0.2434	155.78	0.1	0.211	2	1500	0.083	0.6	100							
E15	Other Large Upstream offsite shed	6006	0.1736	111.1	0.1	0.147	2	1000	0.058	0.6	100							
E10	Large Undeveloped upstream	6096	0.0311	19.9	0.1	0.179	2	2000	0.075	0.6	100							
E20A	12.0 AC	5940	0.0106	6.78	0.1	0.243	3	1200	0.058	0.6	100							
E14A	Small Roadway Shed 4 ac	5989	0.0063	4.03	0.1	0.1	10	500	0.03	0.6	100							
E18A	Small Hopkins Roadway Drain	5958	0.0057	3.65	0.1	0.207	10	450	0.03	0.6	100							
E16A	Small Hopkins Roadway Drain	5956	0.0006	0.38	0.1	0.213	90	50	0.02	0.6	100							
E20B	10.9 AC	5951	0.0182	11.65	0.1	0.2	5	800	0.07	0.6	100							
E20C	4.8 AC	5949	0.0075	4.8	0.1	0.25	2	500	0.05	0.6	90	0.1	0.25	90	18	0.02	0.11	10
E20D	10.6 AC	5924	0.0166	10.62	0.1	0.25	15	500	0.05	0.6	89	0.1	0.25	90	18	0.02	0.11	11
E20E	8.4 AC Mostly diverted area added	5952	0.0132	8.45	0.1	0.25	12	900	0.02	0.6	90	0.1	0.25	90	18	0.02	0.11	10
E30	MAIN SHED ABOVE TWIN	5901	0.0638	40.83	0.1	0.25	8.99	800	0.038	0.6	100							
E19	HILLSIDE ABOVE SM RD. 4.2AC	5951	0.0065	4.16	0.1	0.25	2	400	0.018	0.6	89	0.1	0.25	90	18	0.02	0.11	11
E21	HILLSIDE ABOVE ROAD 5.7AC	5941	0.0084	5.38	0.1	0.25	7	600	0.017	0.6	74	0.1	0.25	90	18	0.02	0.11	26
E22	" HILLSIDE ABOVE 15"" CULVERT	5935	0.0045	2.88	0.1	0.25	7	350	0.027	0.6	100							
E23	PORTION OF S.MILL RD. 0.5AC	5920	0.0008	0.51	0.1	0.25	90	18	0.02	0.11	100							
E40	LARGE SHED DOWNSTREAM OF	5886	0.1147	73.41	0.1	0.18	8.48	1600	0.034	0.6	100							
E40B	LARGE SHED DOWNSTREAM OF	5884	0.019	12.16	0.1	0.248	10.92	600	0.01	0.6	100							
E14C	OFF-SITE SHED WEST OF S.	6033	0.0059	3.78	0.1	0.25	2	600	0.08	0.6	100							
E64A	EAST OF S. MILL RD. 16.1AC	5991	0.0248	15.87	0.1	0.159	14	1000	0.05	0.6	94	0.1	0.159	90	18	0.02	0.11	6
E64B	EAST OF S. MILL RD. 12.1AC	5956	0.019	12.16	0.1	0.175	15	800	0.07	0.6	97	0.1	0.175	90	18	0.02	0.11	3
E70	OFF-SITE- LAHONTAN UNITS 7&8	5952	0.1255	80.32	0.1	0.171	8	1200	0.041	0.6	95	0.1	0.171	90	18	0.02	0.11	5
E71	OFF-SITE PORTION OF	5968	0.0279	17.86	0.1	0.227	19.1	1400	0.05	0.6	100							
E72	OFF-SITE PORTION OF	5957	0.0178	11.39	0.1	0.198	9.6	1700	0.037	0.6	100							
E75	MOSTLY OFF-SITE AND	5881	0.0905	57.92	0.1	0.191	3.2	1200	0.058	0.6	100							
E14B	OFF-SITE SHED WEST OF S.	6018	0.0397	25.41	0.1	0.192	2	800	0.08	0.6	100							
E55A	EAST OF S. MILL RD. 16.7AC	5967	0.0261	16.7	0.1	0.136	20	500	0.04	0.6	100							
E58D	EAST OF S. MILL RD. 23.7AC	5911	0.0229	14.66	0.1	0.25	9.5	800	0.04	0.6	100							
E55B	EAST OF S. MILL RD. 3.2AC	5951	0.005	3.2	0.1	0.192	40	200	0.05	0.6	100							
E55C	EAST OF S. MILL RD. 7.7AC	5926	0.012	7.68	0.1	0.247	22	200	0.05	0.6	100							
E55E	EAST OF S. MILL RD. 3.6AC	5951	0.0056	3.58	0.1	0.25	25	300	0.02	0.6	100							
E55F	EAST OF S. MILL RD. 1.8AC	5949	0.0028	1.79	0.1	0.25	25	250	0.03	0.6	100							
E55G	EAST OF S. MILL RD. 1AC	5940	0.0015	0.96	0.1	0.25	11	150	0.02	0.6	100							
E58C	EAST OF S. MILL RD. 5.6AC	5897	0.0088	5.63	0.1	0.25	36	250	0.06	0.6	100							
E55H	EAST OF S. MILL RD. 44.1AC	5936	0.0057	3.65	0.1	0.25	2.4	400	0.02	0.6	100							
E58A	EAST OF S. MILL RD. 5.3AC	5921	0.0083	5.31	0.1	0.25	22	300	0.04	0.6	100							
E58E	EAST OF S. MILL RD. 3.7AC	5885	0.037	23.68	0.1	0.225	22	300	0.02	0.6	100							
E80	LAST DOWNSTREAM SHED	5869	0.0452	28.93	0.1	0.131	2	1300	0.04	0.6	100							
E40C	LARGE SHED DOWNSTREAM OF	5871	0.0344	22.02	0.1	0.166	9.31	1200	0.01	0.6	100							
E40E	LARGE SHED DOWNSTREAM OF	5874	0.0058	3.71	0.1	0.25	10.51	600	0.01	0.6	100							
E40D	LARGE SHED DOWNSTREAM OF	5866	0.0074	4.74	0.1	0.194	8.27	600	0.01	0.6	100							
E85	OFFSITE DOWNSTREAM SHED	5859	0.4599	294.34	0.1	0.175	2.27	2500	0.0625	0.6	100							
E85B	E85B	5870	0.0312	19.97	0.1	0.23	3.35	400	0.02	0.6	100							
E85C	E85C	5864	0.0079	5.06	0.1	0.238	2.39	400	0.02	0.6	100							
E5A1	E5A1 Drop Inlet	6484	0.073	46.72	0.1	0.204	2	1350	0.133	0.6	98	0.1	0.204	95	200	0.02	0.11	3
E5B	E5B	6348	0.0139	8.9	0.1	0.245	2	600	0.08	0.6	91	0.1	0.245	95	200	0.02	0.11	9
E5C	E5C	6260	0.0051	3.26	0.1	0.25	2	600	0.07	0.6	92	0.1	0.25	95	200	0.02	0.11	8
E5D	E5D	6279	0.085	54.4	0.1	0.25	2	1500	0.05	0.6	100							
E6A1	E6A1	6119	0.057	36.48	0.1	0.25	2	1000	0.068	0.6	100							
E6A2	E6A2	6217	0.0149	9.54	0.1	0.25	2	600	0.068	0.6	100							
E6C	E6C	6042	0.0939	60.1	0.1	0.246	2	1600	0.09	0.6	100							
GS10D	GS10D	6257	0.0124	7.94	0.1	0.25	2	900	0.07	0.6	79	0.1	0.25	95	100	0.02	0.11	21
GS10C	GS10C	6238	0.0169	10.82	0.1	0.25	2	300	0.06	0.6	91	0.1	0.25	95	100	0.02	0.11	9
GS10B	GS10B	6226	0.0044	2.82	0.1	0.25	2	600	0.08	0.6	86	0.1	0.25	95	100	0.02	0.11	14
GS10A1	GS10A1	6208	0.029	18.56	0.1	0.25	2	600	0.08	0.6	96	0.1	0.25	95	100	0.02	0.11	4
GS10F	GS10F	6163	0.0248	15.87	0.1	0.25	2	600	0.08	0.6	92	0.1	0.25	95	100	0.02	0.11	8
GS10E	GS10E	6152	0.0153	9.79	0.1	0.25	2	300	0.08	0.6	78	0.1	0.25	95	100	0.02	0.11	22
GS10A2	GS10A2	6190	0.0278	17.79	0.1	0.25	2	1400	0.08	0.6	96	0.1	0.25	95	100	0.02	0.11	4
GS10J	GS10J	6144	0.0099	6.34	0.1	0.25	83	300	0.08	0.6	92	0.1	0.25	95	200	0.02	0.11	8
GS10G	GS10G	6108	0.0081	5.18	0.1	0.25	83	300	0.08	0.6	90	0.1	0.25	95	200	0.02	0.11	10
GS10H	GS10H	6104	0.0066	4.22	0.1	0.25	2	300	0.08	0.6	81	0.1	0.25	95	200	0.02	0.11	19
GS10I	GS10I	6076	0.0071	4.54	0.1	0.25	2	300	0.06	0.6	78	0.1	0.25	95	200	0.02	0.11	22
E8A	E8A	6197	0.0049	3.14	0.1	0.25	2	200	0.12	0.6	73	0.1	0.25	95	100	0.02	0.11	27
E8B	E8B	6129	0.0122	7.81	0.1	0.25	2	400	0.08	0.6	95	0.1	0.25	95	100	0.02	0.11	5
E8C	E8C	6063	0.0244	15.62	0.1	0.25	2	800	0.08	0.6	100							
E9	E9	6004	0.0213	13.63	0.1	0.25	2	600	0.08	0.6	100							
GS11B	GS11B	6068	0.0031	1.98	0.1	0.25	2	700	0.1	0.6	100							
GS11A	GS11A	5999	0.0354	22.66	0.1	0.237	2	700	0.1	0.6	100							
GS13C	GS13C	6083	0.0066	4.22	0.1	0.25	2	300	0.07	0.6	100							
GS13B	GS13B	6034	0.0168	10.75	0.1	0.25	2	300	0.07	0.6	100							
GS18A	GS18A	6108	0.002	1.28	0.1	0.25	3	800	0.094	0.6	100							
GS18	GS18	6041	0.0248	15.87	0.1	0.25	2	800	0.094	0.6	100							
GS13A	GS13A	5992	0.0196	12.54	0.1	0.181	2	600	0.067	0.6	100							
GS19	GS19	5993	0.0617	39.49	0.1	0.192	2	700	0.086	0.6	100							
GS20	GS20	5982	0.0178	11.39	0.1	0.168	2	800	0.1	0.6	100							
GS21B1	4.2 AC.	6166	0.0065	4.16	0.1	0.25	10.06	300	0.07	0.6	100							
GS21B2	3.2 AC.	6133	0.005	3.2	0.1	0.25	15	300	0.07	0.6	100							
GS21A	GS21A	6083	0.0412	26.37	0.1	0.25	2	1000	0.07	0.6	80	0.1	0.25	15	200	0.02	0.24	20
GS22	GS22	6000	0.0741	47.42	0.1	0.249	2	700	0.057	0.6	100							
GS23	GS23	5983	0.0596	38.14	0.1	0.25	2	2000	0.04	0.6	100							
GS24	GS24	6002	0.0352	22.53	0.1	0.25	2	500	0.1	0.6	100							
GS25B3	1.2 AC.	6133	0.0019	1.22	0.1	0.25	15	300	0.07	0.6	100							
GS25B4	1.8 AC.	6125	0.0029	1.86	0.1	0.25	15	300	0.07	0.6	100							
GS25C4	4.4 AC.	6121	0.0069	4.42	0.1	0.25	11.75	300	0.07	0.6	100							
GS25C5	1.7 AC.	6119	0.0026	1.66	0.1	0.25	9.8	300	0.07	0.6	100							
GS25C6	1.6 AC.	6106	0.0023	1.47	0.1	0.25	4.8	300	0.07	0.6	100							
GS25C9	3.0 AC.	6085	0.0047	3.01	0.1	0.25	11.36	300	0.07	0.6	100							
GS21A2	1.3 AC.	6104	0.002	1.28	0.1	0.25	15	300	0.07	0.6	100							
GS25C1	.4 AC.	6087	0.0006	0.38	0.1	0.25	15	300	0.07	0.6	100							
GS25C3	3.9 AC.	6099	0.006	3.84	0.1	0.25	11.23	300	0.07	0.6	100							
GS25C7	3.8 AC.	6083	0.006	3.84	0.1	0.25	13.18	300	0.07	0.6	100							
GS27C	2.8 AC.	6061	0.0044	2.82	0.1	0.25	15	300	0.07	0.6	100							
GS23B	0	6064	0.0061	3.9	0.1	0.25	15	300	0.07	0.6	100							

TABLE I.II.C.2 : POST-PROJECT HYDROLOGIC FACTORS (CONT)

Valley Trail

					PLANE 1 - NON-URBAN AND URBAN PLANE PARAMETERS							PLANE 2 - URBAN PLANE PARAMETERS						
SHED	DESCRIPTION	Centroid Elevation (ft)	BA AREA (mi^2)	BA AREA (acre)	Initial Abst (in)	Constant Infiltration (in/hr)	% Imperv. WARM	Overland Length (ft)	Overland Slope	Overland 'n' Value	Plane % of Shed	Initial Abst (in)	Constant Infiltration (in/hr)	% Imperv WARM	Overland Length (ft)	Overland Slope	Overland 'n' Value	Plane % of Shed
GS25E	GS25E	6024	0.034	21.76	0.1	0.25	2	900	0.1	0.6	100							
GS25A2	1.9 AC.	6169	0.0029	1.86	0.1	0.25	8.5	300	0.07	0.6	100							
GS25A1	.4 AC.	6174	0.0007	0.45	0.1	0.25	8.5	300	0.07	0.6	100							
GS25A3	1.2 AC.	6148	0.0018	1.15	0.1	0.25	8.5	300	0.07	0.6	100							
GS25D3	1.3 AC.	6169	0.0022	1.41	0.1	0.25	11.1	300	0.07	0.6	100							
GS25D2	2.9 AC.	6157	0.0045	2.88	0.1	0.25	8.5	300	0.07	0.6	100							
GS25D1	4.1 AC	6140	0.0062	3.97	0.1	0.25	8.5	300	0.07	0.6	100							
GS28B2	6.7 AC.	6123	0.0105	6.72	0.1	0.25	5.25	300	0.07	0.6	100							
GS27B1	5.5 AC.	6117	0.0087	5.57	0.1	0.25	8.5	300	0.07	0.6	100							
GS25C2	3.0 AC	6098	0.0047	3.01	0.1	0.25	9.93	300	0.07	0.6	100							
GS27B3	3.3 AC.	6066	0.0052	3.33	0.1	0.25	15	300	0.07	0.6	100							
GS27B2	0	6062	0.0053	3.39	0.1	0.25	15	300	0.07	0.6	100							
GS25E1	GS25E	6012	0.0131	8.38	0.1	0.25	2	900	0.1	0.6	100							
GS30B	1.1 AC	6127	0.0018	1.15	0.1	0.25	15	300	0.07	0.6	100							
GS28B1	1.6 AC.	6117	0.0025	1.6	0.1	0.25	15	300	0.07	0.6	100							
GS28B3	.09 AC.	6099	0.0015	0.96	0.1	0.25	15	300	0.07	0.6	100							
GS28A1	7.6 AC.	6079	0.012	7.68	0.1	0.25	15	300	0.07	0.6	100							
GS28A2	GS28A	6054	0.0154	9.86	0.1	0.25	2	500	0.071	0.6	50	0.1	0.25	15	200	0.02	0.24	50
GS30A	GS30	6104	0.0427	27.33	0.1	0.25	2	900	0.056	0.6	89	0.1	0.25	95	50	0.02	0.11	11
GS31A	GS31A	5990	0.0843	53.95	0.1	0.25	2	1000	0.05	0.6	90	0.1	0.25	15	200	0.02	0.4	10
GS32	GS32	5924	0.032	20.48	0.1	0.23	2	500	0.1	0.6	100							
MD1H3	MD1H3	6510	0.004	2.56	0.1	0.25	2	300	0.12	0.6	75	0.1	0.25	95	50	0.02	0.11	25
MD1H2	MD1H2	6464	0.0027	1.73	0.1	0.25	2	300	0.12	0.6	75	0.1	0.25	95	50	0.02	0.11	25
MD1E4	MD1E4	6442	0.0132	8.45	0.1	0.25	2	300	0.1	0.6	87	0.1	0.25	95	50	0.02	0.11	13
MD1E3	MD1E3	6379	0.0039	2.5	0.1	0.25	2	300	0.1	0.6	78	0.1	0.25	95	50	0.02	0.11	22
MD1E2	MD1E2	6315	0.0031	1.98	0.1	0.25	2	300	0.1	0.6	84	0.1	0.25	95	50	0.02	0.11	16
MD1E1E	MD1E1-2	6357	0.0042	2.69	0.1	0.25	2	1200	0.107	0.6	100							
MD1E1C	MD1E1-3	6238	0.0686	43.9	0.1	0.25	2	1000	0.08	0.6	100							
MD1E1B	MD1E1-2	6262	0.0141	9.02	0.1	0.25	2	1200	0.107	0.6	100							
MD1H1	MD1H1-1	6415	0.0073	4.67	0.1	0.25	2	400	0.06	0.6	100							
MD1H4	MD1H1-2	6403	0.0049	3.14	0.1	0.25	2	650	0.06	0.6	100							
MD1I_1	MD1I-1	6469	0.0242	15.49	0.1	0.25	2	1000	0.1	0.6	100							
MD1G3	MD1G3	6371	0.0096	6.14	0.1	0.25	2	300	0.08	0.6	90	0.1	0.25	95	50	0.02	0.11	10
MD1G2	MD1G2	6357	0.0033	2.11	0.1	0.25	2	200	0.08	0.6	72	0.1	0.25	95	50	0.02	0.11	28
MD1G2B	MD1G2B	6340	0.0055	3.52	0.1	0.25	2	200	0.085	0.6	100							
MD1G1B	MD1G1-2	6230	0.0195	12.48	0.1	0.25	2	1300	0.06	0.6	100							
GS26A	GS26A	6535	0.0074	4.74	0.1	0.25	2	600	0.1	0.6	85	0.1	0.25	95	50	0.02	0.11	15
GS26B	GS26B	6422	0.0139	8.9	0.1	0.25	2	600	0.2	0.6	89	0.1	0.25	95	50	0.02	0.11	11
GS26C	GS26C	6311	0.0126	8.06	0.1	0.25	2	600	0.2	0.6	90	0.1	0.25	95	50	0.02	0.11	10
GS26D	GS26D	6343	0.0144	9.22	0.1	0.25	2	600	0.1	0.6	89	0.1	0.25	95	50	0.02	0.11	11
GS26E	GS26E	6256	0.0028	1.79	0.1	0.25	2	300	0.08	0.6	75	0.1	0.25	95	50	0.02	0.11	25
GS26F	GS26F	6256	0.0074	4.74	0.1	0.25	2	400	0.1	0.6	87	0.1	0.25	95	50	0.02	0.11	13
GS26N1	GS26N-1	6226	0.0046	2.94	0.1	0.25	2	335	0.02	0.11	100							
GS26G	GS26G	6252	0.0231	14.78	0.1	0.25	2	600	0.1	0.6	91	0.1	0.25	95	50	0.02	0.11	9
GS26H	GS26H	6214	0.0026	1.66	0.1	0.25	2	100	0.08	0.6	75	0.1	0.25	95	50	0.02	0.11	25
GS15C	GS15C	6522	0.0106	6.78	0.1	0.25	2	600	0.15	0.6	91	0.1	0.25	95	50	0.02	0.11	9
GS15D	GS15D	6362	0.0133	8.51	0.1	0.25	2	300	0.135	0.6	91	0.1	0.25	95	50	0.02	0.11	9
GS15A	GS15A	6582	0.0913	58.43	0.1	0.237	2	1800	0.12	0.6	97	0.1	0.237	95	50	0.02	0.11	3
GS15B	GS15B	6351	0.0151	9.66	0.1	0.25	2	400	0.1	0.6	94	0.1	0.25	95	50	0.02	0.11	6
GS16A1	GS16A1	6287	0.019	12.16	0.1	0.25	2	400	0.1	0.6	96	0.1	0.25	95	50	0.02	0.11	4
GS16A2	GS16A2	6243	0.0137	8.77	0.1	0.25	2	400	0.1	0.6	91	0.1	0.25	95	50	0.02	0.11	9
GS16B	GS16B	6571	0.026	16.64	0.1	0.233	2	1800	0.15	0.6	93	0.1	0.233	95	50	0.02	0.11	7
GS16C	GS16C	6374	0.0141	9.02	0.1	0.25	2	400	0.15	0.6	89	0.1	0.25	95	50	0.02	0.11	11
GS17C	GS17C	6277	0.0147	9.41	0.1	0.25	2	600	0.12	0.6	91	0.1	0.25	95	50	0.02	0.11	9
E6A3	E6A3	6519	0.0421	26.94	0.1	0.18	2	1800	0.2	0.6	94	0.1	0.18	95	50	0.02	0.11	6
GS12B	GS12B	6327	0.0089	5.7	0.1	0.25	2	600	0.12	0.6	89	0.1	0.25	95	50	0.02	0.11	11
GS12C	GS12C	6382	0.0068	4.35	0.1	0.25	2	300	0.12	0.6	70	0.1	0.25	95	50	0.02	0.11	30
GS12F	GS12F	6291	0.0082	5.25	0.1	0.25	2	400	0.1	0.6	94	0.1	0.25	95	50	0.02	0.11	6
GS12H	GS12H	6301	0.0082	5.25	0.1	0.25	2	800	0.1	0.6	94	0.1	0.25	95	50	0.02	0.11	6
GS12D	GS12D	6445	0.0044	2.82	0.1	0.25	2	400	0.15	0.6	84	0.1	0.25	95	50	0.02	0.11	16
GS12E	GS12E	6365	0.0044	2.82	0.1	0.25	2	400	0.15	0.6	90	0.1	0.25	95	50	0.02	0.11	10
GS12I	GS12I	6263	0.0177	11.33	0.1	0.25	2	800	0.1	0.6	95	0.1	0.25	95	50	0.02	0.11	5
GS17A	GS17A	6206	0.0226	14.46	0.1	0.25	2	800	0.1	0.6	90	0.1	0.25	95	50	0.02	0.11	10
GS26N	GS26N-2	6195	0.0299	19.14	0.1	0.25	2	1419	0.066	0.6	100							
GS26OA	AREA=20.2 AC	6155	0.0321	20.54	0.1	0.25	86	800	0.05	0.6	95	0.1	0.25	90	50	0.02	0.11	5
GS26OB	AREA=3.3 AC UNIT 4A	6165	0.0047	3.01	0.1	0.25	2	600	0.05	0.6	95	0.1	0.25	90	50	0.02	0.11	5
MD1C2	MD1C2	6130	0.0063	4.03	0.1	0.25	2	250	0.05	0.6	90	0.1	0.25	90	50	0.02	0.11	10
GS26L3	AREA=0.7 AC UNIT 4A	6132	0.0012	0.77	0.1	0.25	2	500	0.058	0.6	90	0.1	0.25	90	50	0.02	0.11	10
MD1F-1	MD1F-1	6368	0.0069	4.42	0.1	0.25	2	600	0.08	0.6	90	0.1	0.25	95	50	0.02	0.11	10
MD1F	MD1F-2	6353	0.0035	2.24	0.1	0.25	2	500	0.08	0.6	90	0.1	0.25	95	50	0.02	0.11	10
MD1D1D	MD1D1D	6275	0.0124	7.94	0.1	0.25	2	800	0.06	0.6	100							
MD1D1C	MD1D1C	6254	0.0074	4.74	0.1	0.25	2	500	0.05	0.6	100							
MD1E	MD1E	6305	0.016	10.24	0.1	0.25	2	600	0.08	0.6	95	0.1	0.25	95	50	0.02	0.11	5
MD1D1A	MD1D1A	6225	0.0059	3.78	0.1	0.25	2	400	0.12	0.6	100							
MD1D1B	MD1D1B	6232	0.0028	1.79	0.1	0.25	2	400	0.12	0.6	100							
MD1D2	MD1D2	6197	0.0077	4.93	0.1	0.25	2	600	0.2	0.6	100							
GS26J	GS26J	6164	0.0023	1.47	0.1	0.25	2	230	0.078	0.6	100							
GS26K	GS26K	6166	0.0032	2.05	0.1	0.25	2	194	0.092	0.6	100							
GS26L	GS26L REVISED AREA = 5.8 AC	6149	0.0091	5.82	0.1	0.25	2	500	0.058	0.6	90	0.1	0.25	90	50	0.02	0.11	10
GS26L2	GS26L2	6110	0.0029	1.86	0.1	0.25	2	250	0.047	0.6	90	0.1	0.25	90	50	0.02	0.11	10
MD1C1	MD1C1	6100	0.0155	9.92	0.1	0.25	2	400	0.05	0.6	85	0.1	0.25	90	50	0.02	0.11	15
MD1C4	MD1C4	6067	0.0169	10.82	0.1	0.224	2	400	0.05	0.6	95	0.1	0.224	90	50	0.02	0.11	5
MA1	MA1	7303	0.2995	191.68	0.1	0.191	2	1600	0.234	0.6	100							
MA2	MA2	7054	0.5483	350.91	0.1	0.2	2	2200	0.284	0.6	100							
MA3	MA3	7366	0.6259	400.58	0.1	0.229	2	2300	0.272	0.6	100							
MA4	MA4	6453	0.287	183.68	0.1	0.227	2	2000	0.3	0.6	100							
MA5	MA5	6409	0.2025	129.6	0.1	0.214	2	1500	0.183	0.6	100							
MA6	MA6	6283	0.4152	265.73	0.1	0.228	2	1800	0.097	0.6	100							
MA7	MA7	6346	0.2326	148.86	0.1	0.233	2	3300	0.227	0.6	100							
MA8	MA8	6860	0.4308	275.71	0.1	0.165	2	1250	0.32	0.6	100							
MA9	MA9	6181	0.0913	58.43	0.1	0.237	2	600	0.208	0.6	100							
MA10A	MA10A	6287	0.2885	184.64	0.1	0.241	2	1600	0.038	0.6	85	0.1	0.241	15	200	0.02	0.24	15
MA10B	MA10B	6270	0.01	6.4	0.1	0.25	2	900	0.09	0.6	90	0.1	0.25	95	50	0.02	0.11	10

TABLE I.II.C.3 : POST-PROJECT HYDROLOGIC FACTORS (CONT)

Valley Trail

					PLANE 1 - NON-URBAN AND URBAN PLANE PARAMETERS							PLANE 2 - URBAN PLANE PARAMETERS						
SHED	DESCRIPTION	Centroid Elevation (ft)	BA AREA (mi^2)	BA AREA (acre)	Initial Abst (in)	Constant Infiltration (in/hr)	% Imperv. WARM	Overland Length (ft)	Overland Slope	Overland 'n' Value	Plane % of Shed	Initial Abst (in)	Constant Infiltration (in/hr)	% Imperv WARM	Overland Length (ft)	Overland Slope	Overland 'n' Value	Plane % of Shed
MB7B3A	MB7B3A	6302	0.0051	3.26	0.1	0.25	2	500	0.08	0.6	95	0.1	0.25	95	50	0.02	0.11	5
MB7B4A	MB7B4A	6252	0.0156	9.98	0.1	0.25	2	500	0.09	0.6	95	0.1	0.25	95	50	0.02	0.11	5
MB7B3B	MB7B3B	6302	0.0064	4.1	0.1	0.25	2	600	0.08	0.6	95	0.1	0.25	95	50	0.02	0.11	5
MB7B4B	MB7B4B	6257	0.0044	2.82	0.1	0.25	2	400	0.07	0.6	95	0.1	0.25	95	50	0.02	0.11	5
MB7B4C	MB7B4C	6216	0.0023	1.47	0.1	0.25	2	170	0.053	0.6	95	0.1	0.25	95	50	0.02	0.11	5
MB7B1A	MB7B1A	6400	0.0708	45.38	0.1	0.25	2	1300	0.192	0.6	100							
MB7B1C	MB7B1C	6369	0.0041	2.62	0.1	0.25	2	400	0.08	0.6	95	0.1	0.25	95	50	0.02	0.11	5
MB7B1B	MB7B1B	6341	0.0107	6.85	0.1	0.25	2	500	0.08	0.6	95	0.1	0.25	95	50	0.02	0.11	5
MB7B1D	MB7B1D	6250	0.0146	9.34	0.1	0.25	2	500	0.07	0.6	95	0.1	0.25	95	50	0.02	0.11	5
MB7B1E	MB7B1E	6217	0.0054	3.46	0.1	0.25	2	500	0.05	0.6	95	0.1	0.25	95	50	0.02	0.11	5
MB7B2	MB7B2	6188	0.0216	13.82	0.1	0.25	2	1300	0.192	0.6	95	0.1	0.25	95	50	0.02	0.11	5
MB1	MB1	7456	0.5333	341.31	0.1	0.188	2	4000	0.275	0.6	100							
MB2	MB2	6762	1.2667	810.69	0.1	0.192	2	2800	0.339	0.6	100							
MB3	MB3	6632	0.5006	320.38	0.1	0.218	2	1800	0.278	0.6	100							
MB4	MB4	6485	0.6535	418.24	0.1	0.245	2	1900	0.184	0.6	100							
MB5	MB5	6222	0.1602	102.53	0.1	0.25	2	1800	0.278	0.6	100							
MB6A	AREA = 7.0 AC	6199	0.0073	4.67	0.1	0.25	6.6	1335	0.1543	0.6	100							
MB6B	AREA = 3.9 AC	6190	0.0061	3.9	0.1	0.25	11.8	240	0.0708	0.6	100							
MB6C	AREA = 3.2 AC	6160	0.0039	2.5	0.1	0.25	7.6	370	0.1081	0.6	100							
MB6D	MB6D	6151	0.0223	14.27	0.1	0.246	2	200	0.125	0.6	65	0.1	0.246	15	200	0.02	0.24	35
MB6G	MB6G	6244	0.0109	6.98	0.1	0.25	2	500	0.125	0.6	30	0.1	0.25	15	200	0.02	0.24	70
MB6F	MB6F	6226	0.0062	3.97	0.1	0.25	2	500	0.125	0.6	30	0.1	0.25	15	200	0.02	0.24	70
MB6D1	MB6D1	6200	0.0036	2.3	0.1	0.25	2	500	0.125	0.6	30	0.1	0.25	15	200	0.02	0.24	70
MB6E	MB6E	6227	0.005	3.2	0.1	0.25	2	500	0.125	0.6	30	0.1	0.25	15	200	0.02	0.24	70
MB7A1	MB7A1	6457	0.1465	93.76	0.1	0.208	2	1300	0.192	0.6	97	0.1	0.208	95	50	0.02	0.11	3
MB7A2A	MB7A2A	6297	0.0247	15.81	0.1	0.25	2	550	0.192	0.6	92	0.1	0.25	95	50	0.02	0.11	8
MB7A2B	MB7A2B	6273	0.0059	3.78	0.1	0.25	2	300	0.192	0.6	100							
MB7C	MB7C	6245	0.0236	15.1	0.1	0.25	2	200	0.1	0.6	92	0.1	0.25	95	50	0.02	0.11	8
MB7D1A	MB7D1A	6321	0.0044	2.82	0.1	0.25	2	500	0.1	0.6	79	0.1	0.25	95	50	0.02	0.11	21
MB7D1B	MB7D1B	6331	0.0025	1.6	0.1	0.25	2	300	0.1	0.6	79	0.1	0.25	95	50	0.02	0.11	21
MB7D1	MB7D1	6281	0.0011	0.7	0.1	0.25	2	100	0.1	0.6	100							
MB7D2	MB7D2	6262	0.0215	13.76	0.1	0.25	2	200	0.1	0.6	95	0.1	0.25	95	50	0.02	0.11	5
MB7E	MB7E	6130	0.0585	37.44	0.1	0.247	2	200	0.1	0.6	96	0.1	0.247	95	50	0.02	0.11	4
MB8	MB8	6093	0.0545	34.88	0.1	0.214	2	1000	0.1	0.6	85	0.1	0.214	15	200	0.02	0.24	15
MC1	AREA = 258.6 AC	6908	0.4041	258.62	0.1	0.239	2	1530	0.4281	0.6	100							
MC2A	AREA = 59.1 AC	6585	0.0923	59.07	0.1	0.25	2.2	1035	0.401	0.6	100							
MC2B	AREA = 0.9 AC	6188	0.0014	0.9	0.1	0.25	10.3	550	0.0764	0.6	100							
MC2K	MC2K	6170	0.0001	0.06	0.1	0.25	4.7	1225	0.1551	0.6	100							
MD1D	MD1d AREA = 5.9 AC	6358	0.0092	5.89	0.1	0.25	3.4	800	0.2375	0.6	100							
MD1B	MD1b AREA = 5.9 AC	6304	0.0092	5.89	0.1	0.25	3.6	800	0.2375	0.6	100							
MC2A2	MC2A2	6157	0.0061	3.9	0.1	0.25	4.7	1225	0.1551	0.6	100							
MD1C	MD1c AREA = 2.9 AC	6274	0.0045	2.88	0.1	0.25	7.9	500	0.2178	0.6	100							
MC2A3	MC2A3	6174	0.0044	2.82	0.1	0.25	4.7	1225	0.1551	0.6	100							
MC2D	AREA = 7.8 AC	6293	0.0122	7.81	0.1	0.25	4.7	1225	0.1551	0.6	100							
MC2E	AREA = 3.9 AC	6236	0.006	3.84	0.1	0.25	8.5	895	0.1777	0.6	100							
MC2G	AREA = 9.7 AC	6189	0.0151	9.66	0.1	0.25	90	395	0.2051	0.6	100							
MC2H	AREA = 2.4 AC	6220	0.0038	2.43	0.1	0.25	9.5	365	0.1096	0.6	100							
MC2L	MC2L	6085	0.0519	33.22	0.1	0.25	10.3	550	0.0764	0.6	100							
MC2I	AREA = 0.7 AC	6195	0.0011	0.7	0.1	0.25	24.3	225	0.1289	0.6	100							
MC2J	AREA = 0.6 AC	6163	0.0011	0.7	0.1	0.25	19.2	225	0.16	0.6	100							
MD4A	MD4A	6944	0.1163	74.43	0.1	0.25	2.5	500	0.414	0.6	100							
MD3C	MD3c AREA = 6.9 AC = 0.01078	6436	0.0108	6.91	0.1	0.25	4.4	500	0.3184	0.6	100							
MD3B	MD3b AREA = 8.5 AC = 0.01328	6521	0.0133	8.51	0.1	0.25	3.6	500	0.3073	0.6	100							
MD3A1	MD3a AREA = 25.4 AC = 0.03969	6712	0.0397	25.41	0.1	0.25	2.5	500	0.3458	0.6	100							
MD1A1	MD1a AREA = 3.0 AC = 0.00469	6294	0.0047	3.01	0.1	0.25	6.4	500	0.242	0.6	100							
MC2A4	AREA = 59.1 AC	6166	0.0022	1.41	0.1	0.25	2.2	1035	0.401	0.6	100							
MD1B1	MD1B1	6284	0.0157	10.05	0.1	0.25	2	800	0.05	0.6	51	0.1	0.25	95	50	0.02	0.11	49
MD1B2	MD1B2	6137	0.0392	25.09	0.1	0.25	2	800	0.08	0.6	94	0.1	0.25	95	50	0.02	0.11	6
MD1A	MD1a AREA = 3.0 AC = 0.00469	6054	0.0581	37.18	0.1	0.194	6.4	500	0.242	0.6	100							
MD2D	MD2D	6074	0.004	2.56	0.1	0.25	2	550	0.035	0.6	90	0.1	0.25	95	50	0.02	0.11	10
MD3D	MD3d	6237	0.0094	6.02	0.1	0.25	8	682	0.161	0.6	100							
MD1E1A	MD1E1A	6218	0.0018	1.15	0.1	0.25	2	600	0.08	0.6	95	0.1	0.25	95	50	0.02	0.11	5
MD6	MD6	6145	0.0072	4.61	0.1	0.25	7.5	635	0.156	0.6	100							
MD1	MD1 AREA = 5.7 AC = 0.00891 SQ	6218	0.0088	5.63	0.1	0.25	13	483	0.1451	0.6	100							
MD2A	MD2A	6146	0.0026	1.66	0.1	0.25	2	250	0.035	0.6	90	0.1	0.25	95	50	0.02	0.11	10
MD27	MD27	6109	0.0048	3.07	0.1	0.25	11	559	0.05	0.6	100							
MD28A	MD28A	6099	0.0043	2.75	0.1	0.25	15.2	559	0.05	0.6	100							
MD28B	MD28B	6087	0.0092	5.89	0.1	0.25	4.8	559	0.05	0.6	100							
MD3A	MD3a AREA = 25.4 AC = 0.03969	6059	0.0076	4.86	0.1	0.25	2.5	500	0.3458	0.6	100							
MD7B	MD7B	6251	0.0042	2.69	0.1	0.25	9	760	0.05	0.6	100							
MD4C	MD4c	6240	0.0056	3.58	0.1	0.25	8.8	626	0.05	0.6	100							
MD4E	MD4E	6253	0.0016	1.02	0.1	0.25	2	1500	0.283	0.6	100							
MD4D	MD4d	6246	0.0062	3.97	0.1	0.25	7.5	895	0.101	0.6	100							
MD9	MD9	6160	0.0106	6.78	0.1	0.25	7.9	824	0.253	0.6	100							
MD8	MD8	6139	0.0047	3.01	0.1	0.25	4.8	519	0.126	0.6	100							
MD6A	MD6A	6018	0.1279	81.86	0.1	0.219	7.5	635	0.156	0.6	100							
MD7D	MD7d	6652	0.0051	3.26	0.1	0.25	2	500	0.106	0.6	100							
MD7C	MD7c	6450	0.0061	3.9	0.1	0.25	3.2	500	0.106	0.6	100							
MD7E	MD7E	6273	0.0094	6.02	0.1	0.25	2	1200	0.313	0.6	90	0.1	0.25	15	1200	0.3	0.24	10
MD7F	MD7F	6194	0.0067	4.29	0.1	0.25	2	1200	0.313	0.6	90	0.1	0.25	15	1200	0.3	0.24	10
MD11	MD11	6164	0.0056	3.58	0.1	0.25	4.8	595	0.05	0.6	100							
MD2B	MD2B	6071	0.0056	3.58	0.1	0.25	2	690	0.046	0.6	90	0.1	0.25	95	50	0.02	0.11	10
ME3A	ME3A	6051	0.004	2.56	0.1	0.25	2	420	0.038	0.6	90	0.1	0.25	95	50	0.02	0.11	10
MD17	MD17	6174	0.0075	4.8	0.1	0.25	5.7	830	0.126	0.6	100							
MD18	MD18	6137	0.0051	3.26	0.1	0.25	6	930	0.148	0.6	100							
MD19	MD19	6118	0.0056	3.58	0.1	0.25	6.1	1055	0.21	0.6	100							
MD2A1	MD2A	6089	0.0019	1.22	0.1	0.25	2	250	0.035	0.6	90	0.1	0.25	95	50	0.02	0.11	10
MD2	MD2	6074	0.0059	3.78	0.1	0.25	16.8	295	0.125	0.6	100							
ME3A2	ME3A2	6049	0.0062	3.97	0.1	0.25	2	500	0.044	0.6	90	0.1	0.25	95	50	0.02	0.11	10
MD13	MD13	6987	0.4368	279.55	0.1	0.25	2	500	0.477	0.6	100							
ME6_19	ME6_19	6649	0.0236	15.1	0.1	0.25	15	330	0.053	0.6	100							
ME6_14	ME6_14	6522	0.0063	4.03	0.1	0.25	15	330	0.053	0.6	100							
MD12	MD12	6813	0.0428	27.39	0.1	0.25	2.5	500	0.106	0.6	100							

TABLE I.II.C.4 : POST-PROJECT HYDROLOGIC FACTORS (CONT)

Valley Trail

					PLANE 1 - NON-URBAN AND URBAN PLANE PARAMETERS							PLANE 2 - URBAN PLANE PARAMETERS						
SHED	DESCRIPTION	Centroid Elevation (ft)	BA AREA (mi^2)	BA AREA (acre)	Initial Abst (in)	Constant Infiltration (in/hr)	% Imperv. WARM	Overland Length (ft)	Overland Slope	Overland 'n' Value	Plane % of Shed	Initial Abst (in)	Constant Infiltration (in/hr)	% Imperv WARM	Overland Length (ft)	Overland Slope	Overland 'n' Value	Plane % of Shed
MD12B	MD12b	6336	0.0024	1.54	0.1	0.25	24.7	352	0.256	0.6	100							
MD12C	MD12c	6408	0.0084	5.38	0.1	0.25	6.5	500	0.205	0.6	100							
MD14B	MD14b	6354	0.0016	1.02	0.1	0.25	12.6	500	0.106	0.6	100							
MD14C	MD14c	6384	0.006	3.84	0.1	0.25	4.3	500	0.106	0.6	100							
ME6_13	1.17 AC	6393	0.0022	1.41	0.1	0.25	2.9	525	0.175	0.6	100							
ME8_3	3.07 AC	6355	0.0048	3.07	0.1	0.25	7.4	675	0.164	0.6	100							
MD13B	MD13B	6240	0.0392	25.09	0.1	0.25	2	500	0.477	0.6	100							
MD14	MD14	6336	0.006	3.84	0.1	0.25	9.3	663	0.165	0.6	100							
MD14A	MD14A	6330	0.0009	0.58	0.1	0.25	9.3	663	0.165	0.6	100							
ME3_5	ME3_5	6224	0.0007	0.45	0.1	0.25	2	300	0.1	0.6	65	0.1	0.25	15	300	0.1	0.24	35
MD15	MD15	6266	0.0073	4.67	0.1	0.25	9.2	870	0.159	0.6	100							
MD15A	MD15A	6229	0.0002	0.13	0.1	0.25	9.2	870	0.159	0.6	100							
MD16A	MD16A	6219	0.0036	2.3	0.1	0.25	10	772	0.125	0.6	100							
MD16	MD16	6245	0.0063	4.03	0.1	0.25	10	772	0.125	0.6	100							
MD13C	MD13C	6095	0.0068	4.35	0.1	0.25	2	500	0.477	0.6	100							
MD20	MD20	6107	0.002	1.28	0.1	0.25	9	740	0.05	0.6	100							
ME3B	ME3B	5997	0.0182	11.65	0.1	0.25	2	300	0.1	0.6	65	0.1	0.25	15	300	0.1	0.24	35
GS31B1	GS31B1	6087	0.0029	1.86	0.1	0.25	2	580	0.038	0.6	90	0.1	0.25	95	50	0.02	0.11	10
GS31B2	GS31B2	6079	0.0047	3.01	0.1	0.25	2	690	0.057	0.6	90	0.1	0.25	95	50	0.02	0.11	10
GS31B3	GS31B3	6068	0.0056	3.58	0.1	0.25	2	530	0.06	0.6	90	0.1	0.25	95	50	0.02	0.11	10
GS31B4	GS31B4	6054	0.0012	0.77	0.1	0.25	2	250	0.048	0.6	90	0.1	0.25	95	50	0.02	0.11	10
GS31B5	GS31B5	6052	0.0056	3.58	0.1	0.25	2	500	0.05	0.6	90	0.1	0.25	95	50	0.02	0.11	10
ME8_1	0.48 AC	6339	0.0007	0.45	0.1	0.25	26	180	0.066	0.6	100							
ME3_1	ME3_1	6336	0.0009	0.58	0.1	0.25	2	300	0.1	0.6	65	0.1	0.25	15	300	0.1	0.24	35
ME3_2	ME3_2	6335	0.0024	1.54	0.1	0.25	2	300	0.1	0.6	65	0.1	0.25	15	300	0.1	0.24	35
ME3_3	ME3_3	6301	0.0031	1.98	0.1	0.25	2	300	0.1	0.6	65	0.1	0.25	15	300	0.1	0.24	35
ME3_4	ME3_4	6267	0.0024	1.54	0.1	0.25	2	300	0.1	0.6	65	0.1	0.25	15	300	0.1	0.24	35
MD21	MD21	6186	0.0033	2.11	0.1	0.25	7.2	640	0.05	0.6	100							
ME3C3	ME3C3	6096	0.0066	4.22	0.1	0.25	2	300	0.1	0.6	65	0.1	0.25	15	300	0.1	0.24	35
ME3C1	ME3C1	6102	0.0016	1.02	0.1	0.25	2	300	0.1	0.6	65	0.1	0.25	15	300	0.1	0.24	35
ME4A	ME4A	5971	0.0939	60.1	0.1	0.232	2	500	0.12	0.6	90	0.1	0.232	15	300	0.12	0.24	10
ME6_11	0.13 AC	6328	0.0002	0.13	0.1	0.25	49.1	30	0.02	0.11	100							
ME6_10	0.21 AC	6326	0.0003	0.19	0.1	0.25	67.3	30	0.02	0.11	100							
ME6_25	7.81 AC	6275	0.0094	6.02	0.1	0.25	7.1	125	0.16	0.6	100							
ME6_33	ME6_33	6258	0.0026	1.66	0.1	0.25	15	330	0.053	0.6	100							
ME6_26	0.43 AC	6214	0.0008	0.51	0.1	0.25	3	200	0.13	0.6	100							
ME7_1	8.34 AC	6223	0.0127	8.13	0.1	0.25	4.6	470	0.2468	0.6	100							
ME7_2	0.25 AC	6168	0.0004	0.26	0.1	0.25	83.6	30	0.02	0.11	100							
ME7D6	ME7D6	6213	0.006	3.84	0.1	0.25	2	500	0.18	0.6	75	0.1	0.25	15	300	0.18	0.24	25
ME7D14	ME7D14	6138	0.0037	2.37	0.1	0.25	15	150	0.13	0.6	100							
ME7D16	ME7D16	6148	0.0018	1.15	0.1	0.25	15	177	0.045	0.6	100							
ME7D15	ME7D15	6145	0.0031	1.98	0.1	0.25	15	175	0.057	0.6	100							
ME7D24	ME7D24	6115	0.0022	1.41	0.1	0.25	15	144	0.09	0.6	100							
ME4B13	ME4B13	6103	0.0056	3.58	0.1	0.25	15	270	0.02	0.6	100							
ME7C4	ME7C4	6182	0.0054	3.46	0.1	0.25	2	500	0.15	0.6	5	0.1	0.25	15	300	0.15	0.24	95
ME7C5	ME7C5	6202	0.0061	3.9	0.1	0.25	2	500	0.15	0.6	5	0.1	0.25	15	300	0.15	0.24	95
ME4B3	ME4B3	6134	0.0029	1.86	0.1	0.25	2	300	0.05	0.6	15	0.1	0.25	15	300	0.05	0.24	85
ME4B12	ME4B12	6096	0.0065	4.16	0.1	0.25	15	430	0.018	0.6	100							
ME4B23	ME4B23	6061	0.0088	5.63	0.1	0.25	15	210	0.07	0.6	100							
ME4B22	ME4B22	6053	0.0074	4.74	0.1	0.25	15	220	0.1	0.6	100							
ME3C2	ME3C2	6113	0.0032	2.05	0.1	0.25	2	300	0.16	0.6	60	0.1	0.25	15	300	0.16	0.24	40
ME4B11	ME4B11	6066	0.0049	3.14	0.1	0.25	15	340	0.053	0.6	100							
ME4B21	ME4B21	6044	0.0024	1.54	0.1	0.25	15	220	0.1	0.6	100							
ME4B10	ME4B-10	6068	0.0027	1.73	0.1	0.25	15	150	0.08	0.6	100							
ME4B	ME4B	6037	0.0055	3.52	0.1	0.25	2	300	0.05	0.6	15	0.1	0.25	15	300	0.05	0.24	85
MG3_3B	MG3_3B	6928	0.146	93.44	0.1	0.25	2.9	575	0.225	0.6	100							
MG3_3C	MG3_3C	6589	0.0127	8.13	0.1	0.25	2.9	575	0.225	0.6	100							
ME6_12	14.48 AC	6583	0.0096	6.14	0.1	0.25	3.4	600	0.295	0.6	100							
ME6_16	10.41 AC	6370	0.0002	0.13	0.1	0.25	4.4	600	0.295	0.6	100							
ME6_18	2.92 AC	6343	0.0046	2.94	0.1	0.25	10.2	150	0.2133	0.6	100							
ME6_20	3.75 AC	6339	0.006	3.84	0.1	0.25	6.3	200	0.21	0.6	100							
ME6_24	0.70 AC	6287	0.0026	1.66	0.1	0.25	18.6	305	0.091	0.6	100							
ME6_23	4.19 AC	6222	0.0065	4.16	0.1	0.25	8.2	200	0.17	0.6	100							
ME6_32	0.39 AC	6194	0.0006	0.38	0.1	0.25	33.9	24	0.02	0.11	100							
ME6_28	4.93 AC	6163	0.0077	4.93	0.1	0.25	2	355	0.113	0.6	100							
ME627	1.77 AC	6157	0.0027	1.73	0.1	0.25	2	120	0.107	0.6	100							
ME6_29	1.37 AC	6127	0.0021	1.34	0.1	0.25	2	370	0.114	0.6	100							
ME6_30	1.27 AC	6098	0.002	1.28	0.1	0.25	2	295	0.088	0.6	100							
ME6A25	ME6A25	6096	0.0029	1.86	0.1	0.25	15	330	0.053	0.6	100							
ME7B	ME7B	6069	0.027	17.28	0.1	0.25	2	400	0.05	0.6	75	0.1	0.25	15	300	0.05	0.24	25
ME7A	ME7A	5927	0.1404	89.86	0.1	0.227	2	1300	0.192	0.6	10	0.1	0.227	15	300	0.19	0.24	90
MF1	MF1	5957	0.378	241.92	0.1	0.205	2	1500	0.087	0.6	100							
MF2	MF2	5903	0.0582	37.25	0.1	0.247	2	1000	0.07	0.6	100							
MD4_1A	MD4	6876	0.1899	121.54	0.1	0.25	2	1500	0.283	0.6	100							
MG4_1B	6.35 AC	6466	0.01	6.4	0.1	0.25	2.1	500	0.35	0.6	100							
MG5_2A	8.61 AC	6536	0.0134	8.58	0.1	0.25	3.2	600	0.2033	0.6	100							
MG3_1	1.78 AC	6486	0.0028	1.79	0.1	0.25	5.4	500	0.28	0.6	100							
MG3_1A	1.00 AC	6345	0.0016	1.02	0.1	0.25	5.4	498	0.28	0.6	100							
MG3_1C	1.47 AC	6530	0.0023	1.47	0.1	0.25	5.4	498	0.2811	0.6	100							
MG3_6	0.09 AC	6301	0.0002	0.13	0.1	0.25	90	30	0.02	0.11	100							
MG4_2	4.81 AC	6451	0.0072	4.61	0.1	0.25	3.1	500	0.284	0.6	100							
MG4_3B	MG4_3B	6300	0.0002	0.13	0.1	0.25	2	2300	0.326	0.6	95	0.1	0.25	15	600	0.25	0.24	5
MG4_3A	0.07 AC	6303	0.0001	0.06	0.1	0.25	90	30	0.02	0.11	100							
MG5_2B	0.06 AC	6330	0.0001	0.06	0.1	0.25	90	12	0.01	0.6	100							
MG4_4	0.10 AC	6322	0.0002	0.13	0.1	0.25	90	30	0.02	0.11	100							
MG4_5C	MG4_5C	6258	0.0078	4.99	0.1	0.25	2	2300	0.326	0.6	95	0.1	0.25	15	600	0.25	0.24	5
MG5_1A	18.98 AC	6608	0.0296	18.94	0.1	0.25	2.8	600	0.155	0.6	100							
MG5_1B	MG5_1B	6455	0.009	5.76	0.1	0.25	2	200	0.1	0.6	5	0.1	0.25	15	200	0.1	0.24	95
MG5_3	0.04 AC	6301	0.0001	0.06	0.1	0.25	90	30	0.02	0.11	100							
MG5_4	0.15 AC	6281	0.0003	0.19	0.1	0.25	90	30	0.02	0.11	100							
MG5_5	MG5_5	6284	0.0024	1.54	0.1	0.25	2	200	0.1	0.6	5	0.1	0.25	15	200	0.1	0.24	95
MG3_3A	8.25 AC	6533	0.0129	8.26	0.1	0.25	2.9	575	0.225	0.6	100							
MG3_2	2.58 AC	6398	0.004	2.56	0.1	0.25	6.1	390	0.2051	0.6	100							

TABLE I.II.C.5 : POST-PROJECT HYDROLOGIC FACTORS (CONT)

Valley Trail

					PLANE 1 - NON-URBAN AND URBAN PLANE PARAMETERS							PLANE 2 - URBAN PLANE PARAMETERS						
SHED	DESCRIPTION	Centroid Elevation (ft)	BA AREA (mi^2)	BA AREA (acre)	Initial Abst (in)	Constant Infiltration (in/hr)	% Imperv. WARM	Overland Length (ft)	Overland Slope	Overland 'n' Value	Plane % of Shed	Initial Abst (in)	Constant Infiltration (in/hr)	% Imperv WARM	Overland Length (ft)	Overland Slope	Overland 'n' Value	Plane % of Shed
MG3_4	014 AC	6297	0.0002	0.13	0.1	0.25	88.8	30	0.02	0.11	100							
MG3_1B	0.87 AC	6425	0.0014	0.9	0.1	0.25	5.4	500	0.28	0.6	100							
MG3_1D	0.57 AC	6370	0.0009	0.58	0.1	0.25	5.4	504	0.2778	0.6	100							
MG3_5	0.07 AC	6291	0.0001	0.06	0.1	0.25	90	30	0.02	0.11	100							
MG3_5A	MG3_5A	6261	0.0073	4.67	0.1	0.25	2.9	575	0.225	0.6	100							
ME6_1	10.24 AC	6361	0.0082	5.25	0.1	0.25	3.9	310	0.174	0.6	100							
ME6_2	1.28 AC	6365	0.0099	6.34	0.1	0.25	6.9	505	0.194	0.6	100							
ME6_3	0.02 AC	6286	0.0003	0.19	0.1	0.25	86.5	15	0.02	0.6	100							
ME6_5	1.40 AC	6276	0.0022	1.41	0.1	0.25	16.5	160	0.15	0.6	100							
ME6_7	0.81 AC	6264	0.0013	0.83	0.1	0.25	16.2	190	0.168	0.6	100							
ME6_8	.44 AC	6231	0.0007	0.45	0.1	0.25	87.8	20	0.02	0.6	100							
MG1_2	0.67 AC	6285	0.001	0.64	0.1	0.25	11.1	100	0.14	0.6	100							
MG1_3	1.89 AC	6315	0.0025	1.6	0.1	0.25	9.5	300	0.07	0.6	100							
MG1_1	1.38 AC	6336	0.0026	1.66	0.1	0.25	2	185	0.1946	0.6	100							
MG1_4	0.18 AC	6272	0.0003	0.19	0.1	0.25	46.9	30	0.02	0.11	100							
MG3_33	MG3_33	6210	0.0087	5.57	0.1	0.25	2.9	575	0.225	0.6	100							
ME6_8A	ME6_8A	6168	0.0006	0.38	0.1	0.25	15	330	0.053	0.6	100							
MG2	MG2	5975	0.1195	76.48	0.1	0.245	2	700	0.143	0.6	90	0.1	0.245	15	700	0.14	0.24	10
ME6_6	0.16 AC	6263	0.0003	0.19	0.1	0.25	73	30	0.02	0.11	100							
ME6_21	2.50 AC	6249	0.0039	2.5	0.1	0.25	12	200	0.125	0.6	100							
ME6_31	0.44 AC	6219	0.0007	0.45	0.1	0.25	42.9	24	0.02	0.11	100							
MG1B19	MG1B19	6177	0.0072	4.61	0.1	0.25	15	150	0.04	0.6	100							
MG1B20	MG1B20	6164	0.0039	2.5	0.1	0.25	15	240	0.08	0.6	100							
ME6A	ME6A	6164	0.003	1.92	0.1	0.25	2	300	0.12	0.6	50	0.1	0.25	15	300	0.12	0.24	50
MG1B26	MG1B26	6099	0.0038	2.43	0.1	0.25	15	250	0.096	0.6	100							
MG1B	MG1B	6094	0.0119	7.62	0.1	0.25	2	300	0.1	0.6	50	0.1	0.25	15	200	0.1	0.24	50
ME6A27	ME6A27	6055	0.0094	6.02	0.1	0.25	15	230	0.095	0.6	100							
MG1A	MG1A	6022	0.0185	11.84	0.1	0.25	2	200	0.1	0.6	50	0.1	0.25	15	200	0.1	0.24	50
MG5B1	MG5B1	6456	0.1242	79.49	0.1	0.25	2	200	0.1	0.6	5	0.1	0.25	15	200	0.1	0.24	95
MG5A2	MG5A2	6240	0.0613	39.23	0.1	0.25	2	200	0.1	0.6	5	0.1	0.25	15	200	0.1	0.24	95
MG6B	MG6B	6056	0.0479	30.66	0.1	0.201	2	1000	0.25	0.6	85	0.1	0.201	15	400	0.25	0.24	15
MG5A1	MG5A1	6069	0.0134	8.58	0.1	0.25	2	200	0.1	0.6	5	0.1	0.25	15	200	0.1	0.24	95
MG7	MG7	5894	0.1439	92.1	0.1	0.207	2.16	600	0.25	0.6	100							
NS24A	NS24A	6045	0.0297	19.01	0.1	0.25	2.08	900	0.1	0.6	100							
NS24B	NS24B	5932	0.012	7.68	0.1	0.25	5.58	300	0.1	0.6	100							
NS24C	NS24C	5862	0.04	25.6	0.1	0.182	2.68	800	0.1	0.6	100							
NS25	NS25	5904	0.037	23.68	0.1	0.249	2.14	800	0.05	0.6	100							
NS26	NS26	5842	0.1102	70.53	0.1	0.122	2.8	1000	0.05	0.6	100							
NS22A	NS22A	6078	0.0103	6.59	0.1	0.25	2.83	750	0.1	0.6	100							
NS22C	NS22C	5966	0.0063	4.03	0.1	0.25	4.58	300	0.1	0.6	100							
NS23A	NS23A	5878	0.0374	23.94	0.1	0.19	2	950	0.07	0.6	100							
NS27	NS27	5834	0.0574	36.74	0.1	0.1	2.18	830	0.03	0.6	100							
NS28B	NS28B	5818	0.0417	26.69	0.1	0.1	2	500	0.01	0.6	100							
E85Z	E85Z	5864	0.0291	18.62	0.1	0.25	2	400	0.02	0.6	100							
NS28A	NS28A	5841	0.0415	26.56	0.1	0.1	2	500	0.01	0.6	100							
NS22	NS22	6304	0.2037	130.37	0.1	0.25	2.07	2100	0.08	0.6	100							
NS31	NS31	6214	0.0592	37.89	0.1	0.25	2.37	1250	0.1	0.6	100							
NS22B	NS22B	6014	0.0098	6.27	0.1	0.25	4.91	500	0.1	0.6	100							
NS23B	NS23B	5866	0.1061	67.9	0.1	0.191	2.04	1350	0.05	0.6	100							
NS32A	NS32A	6168	0.0191	12.22	0.1	0.25	3.08	500	0.1	0.6	100							
NS32B	NS32B	5855	0.1481	94.78	0.1	0.165	2.13	1500	0.08	0.6	100							
NS1	BASIN 1 - 330 Ac	7825	0.5174	331.14	0.1	0.178	2	3300	0.24	0.8	57	0.1	0.178	2	3300	0.24	0.6	43
NS2	BASIN 2 - 267 Ac	7697	0.4184	267.78	0.1	0.25	2	2800	0.25	0.8	54	0.1	0.25	2	2800	0.25	0.6	46
NS3	BASIN 3 - 331 Ac	7343	0.5218	333.95	0.1	0.25	65	2950	0.18	0.24	3	0.1	0.25	2	2950	0.18	0.6	98
NS4	BASIN 4 - 166 Ac	6727	0.2602	166.53	0.1	0.25	65	2110	0.22	0.24	29	0.1	0.25	2	2110	0.22	0.6	71
NS5	BASIN 5 - 21 Ac	6520	0.0319	20.42	0.1	0.25	65	1400	0.25	0.24	36	0.1	0.25	2	1400	0.25	0.6	64
NS6	BASIN 6 - 178 Ac	6685	0.2162	138.37	0.1	0.25	65	3100	0.27	0.24	71	0.1	0.25	2	3100	0.27	0.6	29
NS7	BASIN 7 - 38 Ac	6362	0.0602	38.53	0.1	0.25	65.27	1570	0.19	0.24	69	0.1	0.25	2	1570	0.19	0.6	31
NS8	BASIN 8 - 673 Ac	7113	1.1304	723.46	0.1	0.239	2	4200	0.21	0.8	92	0.1	0.239	2	4200	0.21	0.6	9
NS9	BASIN 9 - 144 Ac	6837	0.1855	118.72	0.1	0.249	2	4400	0.2	0.6	100							
NS10	BASIN 10 - 214 Ac	6657	0.3581	229.18	0.1	0.223	2	3905	0.2	0.6	100							
NS11	BASIN 11 - 60 Ac	6559	0.0389	24.9	0.1	0.249	65	1600	0.34	0.24	6	0.1	0.249	2	1600	0.34	0.6	95
NS11B	BASIN 11 - 60 Ac	6270	0.0546	34.94	0.1	0.25	65	1600	0.34	0.24	6	0.1	0.25	2	1600	0.34	0.6	95
NS12	BASIN 12 - 40 Ac	6210	0.0619	39.62	0.1	0.25	65.34	400	0.1	0.24	71	0.1	0.25	2	400	0.1	0.8	30
NS13	BASIN 13 - 15 Ac	6452	0.1459	93.38	0.1	0.25	65.2	500	0.16	0.24	86	0.1	0.25	98	500	0.16	0.11	14
NS14	BASIN 14 - 47 Ac	6261	0.0434	27.78	0.1	0.25	65.98	775	0.35	0.24	90	0.1	0.25	98	775	0.35	0.11	10
NS14B	NS14B	6176	0.0204	13.06	0.1	0.25	2.86	500	0.1	0.6	100							
NS20B	NS20B	6358	0.0322	20.61	0.1	0.25	3.4	640	0.1	0.6	100							
NS15	NS15	6103	0.086	55.04	0.1	0.25	2.4	1000	0.08	0.6	100							
NS16	NS16	6564	0.1019	65.22	0.1	0.246	2	1600	0.1	0.6	100							
NS17	NS17	6282	0.0811	51.9	0.1	0.25	2	1500	0.08	0.6	100							
NS18	NS18	6405	0.1877	120.13	0.1	0.25	2	3200	0.1	0.6	100							
NS19	NS19	6169	0.0434	27.78	0.1	0.25	2	1600	0.05	0.6	100							
NS20	NS20	6070	0.0548	35.07	0.1	0.25	2	600	0.08	0.6	100							
NS21	NS21	6056	0.139	88.96	0.1	0.248	2.13	1450	0.05	0.6	100							
NS30D	NS30D	6286	0.0577	36.93	0.1	0.25	2.5	900	0.08	0.6	100							
NS30A	NS30A	6014	0.0266	17.02	0.1	0.244	2.78	800	0.08	0.6	100							
NS30B	NS30B	5979	0.14	89.6	0.1	0.236	2.06	1600	0.1	0.6	100							
NS30E	NS30E	6133	0.0022	1.41	0.1	0.25	4.37	200	0.1	0.6	100							
NS30F	NS30F	6158	0.0023	1.47	0.1	0.25	5.38	200	0.1	0.6	100							
NS30C	NS30C	5872	0.1237	79.17	0.1	0.151	2.01	1600	0.08	0.6	100							
NS33B	NS33B	5818	0.0301	19.26	0.1	0.1	2	1000	0.05	0.6	100							
NS34	NS34	6122	0.0437	27.97	0.1	0.25	2	900	0.08	0.6	100							
NS35	NS35	5869	0.1517	97.09	0.1	0.185	2	1900	0.05	0.6	100							
XMAR1	XMAR1	6837	0.2922	187.01	0.1	0.244	2	1900	0.1	0.6	100							
XMAR2	XMAR2	6837	0.4066	260.22	0.1	0.241	2	2200	0.1	0.6	100							
XMAR3	XMAR3	6837	0.6221	398.14	0.1	0.248	2	3500	0.1	0.6	100							
XMAR4	XMAR4	6837	0.2489	159.3	0.1	0.25	2	2300	0.1	0.6	100							
XMAR5	XMAR5	6837	0.3335	213.44	0.1	0.25	2	1700	0.1	0.6	100							
XMAR6	XMAR6	6837	0.1147	73.41	0.1	0.25	2	1500	0.1	0.6	100							
XMAR7	XMAR7	6837	0.3439	220.1	0.1	0.25	2	2800	0.1	0.6	100							
XMAR8	XMAR8	6837	0.2218	141.95	0.1	0.25	2	2200	0.1	0.6	100							
XMAR9	XMAR9	6837	0.25	160	0.1	0.25	2	2100	0.1	0.6	100							

TABLE I.II.C.6 : POST-PROJECT HYDROLOGIC FACTORS (CONT)

Valley Trail

					PLANE 1 - NON-URBAN AND URBAN PLANE PARAMETERS								PLANE 2 - URBAN PLANE PARAMETERS						
SHED	DESCRIPTION	Centroid Elevation (ft)	BA AREA (mi^2)	BA AREA (acre)	Initial Abst (in)	Constant Infiltration (in/hr)	% Imperv. WARM	Overland Length (ft)	Overland Slope	Overland 'n' Value	Plane % of Shed		Initial Abst (in)	Constant Infiltration (in/hr)	% Imperv WARM	Overland Length (ft)	Overland Slope	Overland 'n' Value	Plane % of Shed
XMAR10	XMAR10	6837	0.2272	145.41	0.1	0.25	2	2300	0.1	0.6	100								
XMAR11	XMAR11	6837	0.1037	66.37	0.1	0.185	2	1100	0.1	0.6	100								
XMAR12	XMAR12	6837	0.1361	87.1	0.1	0.206	2	1250	0.1	0.6	100								
XMAR13	XMAR13	6837	0.2679	171.46	0.1	0.249	2	1800	0.1	0.6	100								
XMAR14	XMAR14	6837	0.0483	30.91	0.1	0.25	2	500	0.1	0.6	100								
XMAR15	XMAR15	6837	0.014	8.96	0.1	0.25	2	500	0.1	0.6	100								
XMAR17	XMAR17	6837	0.2288	146.43	0.1	0.22	2	1300	0.1	0.6	100								
MAR19A	MAR19A	6244	0.0295	18.88	0.1	0.25	2	1000	0.1	0.6	100								
MAR19B	MAR19B	6120	0.0074	4.74	0.1	0.25	2	500	0.1	0.6	100								
XMAR18	XMAR18	6837	0.1517	97.09	0.1	0.248	2	1600	0.1	0.6	100								
XMAR20	XMAR20	6837	0.2009	128.58	0.1	0.244	2	1700	0.1	0.6	100								
MAR21A	MAR21A	6190	0.0602	38.53	0.1	0.25	2	500	0.1	0.6	100								
MAR21B	MAR21B	6055	0.0241	15.42	0.1	0.245	2	500	0.1	0.6	100								
MAR22B	MAR22B	5942	0.0266	17.02	0.1	0.23	2	500	0.1	0.6	100								
MAR22A	MAR22A	6025	0.0165	10.56	0.1	0.25	2	500	0.1	0.6	100								
XMAR23	XMAR23	6837	0.0439	28.1	0.1	0.138	2	500	0.05	0.6	100								
XMAR24	XMAR24	6837	0.0055	3.52	0.1	0.1	2	200	0.02	0.6	100								
XMAR25	XMAR25	6837	0.0147	9.41	0.1	0.126	2	1000	0.02	0.6	100								
NS33A	NS33A	5840	0.0118	7.55	0.1	0.197	2	1000	0.02	0.6	100								
E30A	Drains Away	5941	0.0064	4.1	0.1	0.25	10.06	600	0.038	0.6	100								

TABLE I.II.C.7A : EST. POST-PROJECT PEAK FLOW RATES – WARM EVENT-VALLEY TRAIL

HEC-1 Watershed Node	HEC-RAS River/Stream	HEC-RAS Cross Section	500-YEAR FLOW (cfs)	100-YEAR FLOW (cfs)	10-YEAR FLOW (cfs)	2-YEAR FLOW (cfs)
YE20D	Martis Creek / NW	100	477	345.5	179.4	62.6
UE30CR	Martis Creek / NW	96	548.7	399.2	208	73
YE40BC	Martis Creek / NW	91	632.4	463.7	243.8	85.7
YE80C	Martis Creek / NW	89	1097	805.8	428.6	156.4
E40C	Martis Creek / NW2	110	26.2	19.2	10	3.3
YE40D	Martis Creek / NW2	108	37.9	27.6	14.4	4.7
YE40DC	Martis Creek / NW3	79.5	1134.8	833.4	443	161.1
YE85	Martis Creek / NW3	78	1468.9	1076	566.1	192.7
YE85B	Martis Creek / NW3	77	1490.9	1091.6	574.4	196
YE85CC	Martis Creek / NW3	73	604.6	557.2	500.3	196.8
VMF1CR	Martis Creek / NW4	69.5	8564.1	6190.3	3077.9	1100.3
VMF2CR	Martis Creek / NW4	68.5	8610.7	6225.2	3097.8	1106
YNS26	Martis Creek / NW4	65.5	9600.7	6951.2	3461.4	1265.1
YNS27	Martis Creek / NW5	59.5	7744.5	6206.1	3838.1	1451.9
YNS28B	Martis Creek / NW5	57.5	7786.7	6241	3863.3	1464.1
YNS28A	Martis Creek / NW5	56.5	7814.6	6264.4	3880.3	1472.8
YNSALL	Martis Creek / NW5	56	10636	8335.7	4942.5	1982.6
YR21B	Martis Creek / W1	49.5	1639.6	1064.7	483.1	240.7
MAR22B	Martis Creek / W1	47	230.7	221.2	208.9	199.9
YR22A	Martis Creek / W1	44	251.5	236.3	216.9	202.5
XMAR23	Martis Creek / W1	41	296.3	267	230.9	208.2
YMAR23	Martis Creek / W1	40	459.2	383.8	289.6	224.8
XMAR24	Martis Creek / W1	39.5	246.7	244.3	239.7	212.3
UHWY	Martis Creek / MAIN	39.5	8463	7077	4441.8	2142.9
NS22	Martis Creek / SP2	189.5	142.7	100.1	42.5	12.8
YNS31	Martis Creek / SP2	188.5	194.7	135.8	59.4	17.7
YNS22B	Martis Creek / SP2	185.5	203.4	141.9	61.8	19.2
MG7	Martis Creek / SP1	199	1172	861.8	461.4	180.2
YNS24C	Martis Creek / SP1	195.5	1267.9	930.4	498.2	192.9
NS18	Martis Creek / SP1	20	112.6	78.5	30.3	10.4

TABLE I.II.C.7B : PROJECT FLOW CHANGES – WARM EVENT-VALLEY TRAIL

HEC-1 Watershed Node	HEC-RAS River/Stream	HEC-RAS Cross Section	POST-PROJECT - PRE-PROJECT DIFFERENCE				POST - PRE DIFFERENCE %			
			500-YEAR (cfs)	100-YEAR (cfs)	10-YEAR (cfs)	2-YEAR (cfs)	500-YEAR (cfs)	100-YEAR (cfs)	10-YEAR (cfs)	2-YEAR (cfs)
YE20D	Martis Creek / NW	100	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
UE30CR	Martis Creek / NW	96	0.1	0.1	0.1	0.1	0.02	0.03	0.05	0.14
YE40BC	Martis Creek / NW	91	0.2	0.3	0.3	0.4	0.03	0.06	0.12	0.47
YE80C	Martis Creek / NW	89	0.3	0.3	0.3	0.4	0.03	0.04	0.07	0.26
E40C	Martis Creek / NW2	110	0.1	0.1	0.1	0.1	0.38	0.52	1.00	3.03
YE40D	Martis Creek / NW2	108	0.1	0.1	0.1	0.1	0.26	0.36	0.69	2.13
YE40DC	Martis Creek / NW3	79.5	0.3	0.4	0.4	0.6	0.03	0.05	0.09	0.37
YE85	Martis Creek / NW3	78	0.5	0.7	0.6	0.9	0.03	0.07	0.11	0.47
YE85B	Martis Creek / NW3	77	0.6	0.7	0.7	1.0	0.04	0.06	0.12	0.51
YE85CC	Martis Creek / NW3	73	0.1	0.1	0.6	1.0	0.02	0.02	0.12	0.51
VMF1CR	Martis Creek / NW4	69.5	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
VMF2CR	Martis Creek / NW4	68.5	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
YNS26	Martis Creek / NW4	65.5	0.4	0.2	0.3	0.1	0.00	0.00	0.01	0.01
YNS27	Martis Creek / NW5	59.5	0.3	0.2	1.0	1.2	0.00	0.00	0.03	0.08
YNS28B	Martis Creek / NW5	57.5	0.3	0.3	1.0	1.2	0.00	0.00	0.03	0.08
YNS28A	Martis Creek / NW5	56.5	0.3	0.2	1.0	1.2	0.00	0.00	0.03	0.08
YNSALL	Martis Creek / NW5	56	0.0	0.9	1.7	2.3	0.00	0.01	0.03	0.12
YR21B	Martis Creek / W1	49.5	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
MAR22B	Martis Creek / W1	47	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
YR22A	Martis Creek / W1	44	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
XMAR23	Martis Creek / W1	41	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
YMAR23	Martis Creek / W1	40	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
XMAR24	Martis Creek / W1	39.5	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
UHWY	Martis Creek / MAIN	39.5	0.4	0.7	1.2	2.2	0.00	0.01	0.03	0.10
NS22	Martis Creek / SP2	189.5	0.1	0.0	0.1	0.0	0.07	0.00	0.24	0.00
YNS31	Martis Creek / SP2	188.5	0.1	0.1	0.1	0.1	0.05	0.07	0.17	0.56
YNS22B	Martis Creek / SP2	185.5	0.1	0.1	0.2	0.2	0.05	0.07	0.32	1.04
MG7	Martis Creek / SP1	199	0.5	-0.2	-0.1	0.1	0.04	-0.02	-0.02	0.06
YNS24C	Martis Creek / SP1	195.5	0.5	-0.2	0.0	0.4	0.04	-0.02	0.00	0.21
NS18	Martis Creek / SP1	20	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00

TABLE I.II.C.8 : POST-PROJECT HYDROLOGIC FACTORS HIGHWAY TRAIL

					PLANE 1 - NON-URBAN AND URBAN PLANE PARAMETERS							PLANE 2 - URBAN PLANE PARAMETERS						
SHED	DESCRIPTION	Centroid Elevation (ft)	BA AREA (mi^2)	BA AREA (acre)	Initial Abst (in)	Constant Infiltration (in/hr)	% Imperv. WARM	Overland Length (ft)	Overland Slope	Overland 'n' Value	Plane % of Shed	Initial Abst (in)	Constant Infiltration (in/hr)	% Imperv WARM	Overland Length (ft)	Overland Slope	Overland 'n' Value	Plane % of Shed
E2	Large Offsite Shed 155.8ac	6231	0.2434	155.78	0.1	0.211	2	1500	0.083	0.6	100							
E15	Other Large Upstream offsite shed	6006	0.1736	111.1	0.1	0.147	2	1000	0.058	0.6	100							
E10	Large Undeveloped upstream	6096	0.0311	19.9	0.1	0.179	2	2000	0.075	0.6	100							
E20A	12.0 AC	5940	0.0106	6.78	0.1	0.243	3	1200	0.058	0.6	100							
E14A	Small Roadway Shed 4 ac	5989	0.0063	4.03	0.1	0.1	10	500	0.03	0.6	100							
E18A	Small Hopkins Roadway Drain	5958	0.0057	3.65	0.1	0.207	10	450	0.03	0.6	100							
E16A	Small Hopkins Roadway Drain	5956	0.0006	0.38	0.1	0.213	90	50	0.02	0.6	100							
E20B	10.9 AC	5951	0.0182	11.65	0.1	0.2	5	800	0.07	0.6	100							
E20C	4.8 AC	5949	0.0075	4.8	0.1	0.25	2	500	0.05	0.6	90	0.1	0.25	90	18	0.02	0.11	10
E20D	10.6 AC	5924	0.0166	10.62	0.1	0.25	15	500	0.05	0.6	89	0.1	0.25	90	18	0.02	0.11	11
E20E	8.4 AC Mostly diverted area added	5952	0.0132	8.45	0.1	0.25	12	900	0.02	0.6	90	0.1	0.25	90	18	0.02	0.11	10
E30	MAIN SHED ABOVE TWIN	5901	0.0638	40.83	0.1	0.25	8.99	600	0.038	0.6	100							
E19	HILLSIDE ABOVE SM RD. 4.2AC	5951	0.0065	4.16	0.1	0.25	2	400	0.018	0.6	89	0.1	0.25	90	18	0.02	0.11	11
E21	HILLSIDE ABOVE ROAD 5.7AC	5941	0.0084	5.38	0.1	0.25	7	600	0.017	0.6	74	0.1	0.25	90	18	0.02	0.11	26
E22	" HILLSIDE ABOVE 15"" CULVERT	5935	0.0045	2.88	0.1	0.25	7	350	0.027	0.6	100							
E23	PORTION OF S.MILL RD. 0.5AC	5920	0.0008	0.51	0.1	0.25	90	18	0.02	0.11	100							
E40	LARGE SHED DOWNSTREAM OF	5886	0.1147	73.41	0.1	0.18	8.48	1600	0.034	0.6	100							
E40B	LARGE SHED DOWNSTREAM OF	5884	0.019	12.16	0.1	0.248	10.92	600	0.01	0.6	100							
E14C	OFF-SITE SHED WEST OF S.	6033	0.0059	3.78	0.1	0.25	2	600	0.08	0.6	100							
E64A	EAST OF S. MILL RD. 16.1AC	5991	0.0248	15.87	0.1	0.159	14	1000	0.05	0.6	94	0.1	0.159	90	18	0.02	0.11	6
E64B	EAST OF S. MILL RD. 12.1AC	5956	0.019	12.16	0.1	0.175	15	800	0.07	0.6	97	0.1	0.175	90	18	0.02	0.11	3
E70	OFF-SITE- LAHONTAN UNITS 7&8	5952	0.1255	80.32	0.1	0.171	8	1200	0.041	0.6	95	0.1	0.171	90	18	0.02	0.11	5
E71	OFF-SITE PORTION OF	5968	0.0279	17.86	0.1	0.227	19.1	1400	0.05	0.6	100							
E72	OFF-SITE PORTION OF	5957	0.0178	11.39	0.1	0.198	9.6	1700	0.037	0.6	100							
E75	MOSTLY OFF-SITE AND	5881	0.0905	57.92	0.1	0.191	3.2	1200	0.058	0.6	100							
E14B	OFF-SITE SHED WEST OF S.	6018	0.0397	25.41	0.1	0.192	2	800	0.08	0.6	100							
E55A	EAST OF S. MILL RD. 16.7AC	5967	0.0261	16.7	0.1	0.136	20	500	0.04	0.6	100							
E58D	EAST OF S. MILL RD. 23.7AC	5911	0.0229	14.66	0.1	0.25	9.5	800	0.04	0.6	100							
E55B	EAST OF S. MILL RD. 3.2AC	5951	0.005	3.2	0.1	0.192	40	200	0.05	0.6	100							
E55C	EAST OF S. MILL RD. 7.7AC	5926	0.012	7.68	0.1	0.247	22	200	0.05	0.6	100							
E55E	EAST OF S. MILL RD. 3.8AC	5951	0.0056	3.58	0.1	0.25	25	300	0.02	0.6	100							
E55F	EAST OF S. MILL RD. 1.8AC	5949	0.0028	1.79	0.1	0.25	25	250	0.03	0.6	100							
E55G	EAST OF S. MILL RD. 1AC	5940	0.0015	0.96	0.1	0.25	11	150	0.02	0.6	100							
E58C	EAST OF S. MILL RD. 5.8AC	5897	0.0088	5.63	0.1	0.25	36	250	0.06	0.6	100							
E55H	EAST OF S. MILL RD. 44.1AC	5936	0.0057	3.65	0.1	0.25	24	400	0.02	0.6	100							
E58A	EAST OF S. MILL RD. 5.3AC	5921	0.0083	5.31	0.1	0.25	22	300	0.04	0.6	100							
E58E	EAST OF S. MILL RD. 3.7AC	5885	0.037	23.68	0.1	0.225	22	300	0.02	0.6	100							
E80	LAST DOWNSTREAM SHED	5869	0.0452	28.93	0.1	0.131	2	1300	0.04	0.6	100							
E40C	LARGE SHED DOWNSTREAM OF	5871	0.0344	22.02	0.1	0.166	9.31	1200	0.01	0.6	100							
E40E	LARGE SHED DOWNSTREAM OF	5874	0.0058	3.71	0.1	0.25	10.51	600	0.01	0.6	100							
E40D	LARGE SHED DOWNSTREAM OF	5866	0.0074	4.74	0.1	0.194	8.27	600	0.01	0.6	100							
E85	OFFSITE DOWNSTREAM SHED	5859	0.4599	294.34	0.1	0.175	2.15	2500	0.0625	0.6	100							
E85B	E85B	5870	0.0312	19.97	0.1	0.23	3.35	400	0.02	0.6	100							
E85C	E85C	5864	0.0079	5.06	0.1	0.238	2.43	400	0.02	0.6	100							
E5A1	E5A1 Drop Inlet	6484	0.073	46.72	0.1	0.204	2	1350	0.133	0.6	98	0.1	0.204	85	200	0.02	0.11	3
E5B	E5B	6348	0.0139	8.9	0.1	0.245	2	600	0.08	0.6	91	0.1	0.245	95	200	0.02	0.11	9
E5C	E5C	6260	0.0051	3.26	0.1	0.25	2	600	0.07	0.6	92	0.1	0.25	95	200	0.02	0.11	8
E5D	E5D	6279	0.085	54.4	0.1	0.25	2	1500	0.05	0.6	100							
E6A1	E6A1	6119	0.057	36.48	0.1	0.25	2	1000	0.068	0.6	100							
E6A2	E6A2	6217	0.0149	9.54	0.1	0.25	2	600	0.068	0.6	100							
E6C	E6C	6042	0.0939	60.1	0.1	0.246	2	1600	0.09	0.6	100							
GS10D	GS10D	6257	0.0124	7.94	0.1	0.25	2	900	0.07	0.6	79	0.1	0.25	95	100	0.02	0.11	21
GS10C	GS10C	6238	0.0169	10.82	0.1	0.25	2	300	0.06	0.6	91	0.1	0.25	95	100	0.02	0.11	9
GS10B	GS10B	6226	0.0044	2.82	0.1	0.25	2	600	0.08	0.6	86	0.1	0.25	85	100	0.02	0.11	14
GS10A1	GS10A1	6209	0.029	18.56	0.1	0.25	2	600	0.08	0.6	96	0.1	0.25	85	100	0.02	0.11	4
GS10F	GS10F	6163	0.0248	15.87	0.1	0.25	2	600	0.08	0.6	92	0.1	0.25	95	100	0.02	0.11	8
GS10E	GS10E	6152	0.0153	9.79	0.1	0.25	2	300	0.08	0.6	78	0.1	0.25	85	100	0.02	0.11	22
GS10A2	GS10A2	6190	0.0278	17.79	0.1	0.25	2	1400	0.08	0.6	96	0.1	0.25	85	100	0.02	0.11	4
GS10J	GS10J	6144	0.0099	6.34	0.1	0.25	83	300	0.08	0.6	92	0.1	0.25	95	200	0.02	0.11	8
GS10G	GS10G	6108	0.0081	5.18	0.1	0.25	83	300	0.08	0.6	90	0.1	0.25	95	200	0.02	0.11	10
GS10H	GS10H	6104	0.0066	4.22	0.1	0.25	2	300	0.08	0.6	81	0.1	0.25	85	200	0.02	0.11	19
GS10I	GS10I	6076	0.0071	4.54	0.1	0.25	2	300	0.06	0.6	78	0.1	0.25	95	200	0.02	0.11	22
E8A	E8A	6197	0.0049	3.14	0.1	0.25	2	200	0.12	0.6	73	0.1	0.25	95	100	0.02	0.11	27
E8B	E8B	6129	0.0122	7.81	0.1	0.25	2	400	0.08	0.6	95	0.1	0.25	95	100	0.02	0.11	5
E8C	E8C	6063	0.0244	15.62	0.1	0.25	2	800	0.08	0.6	100							
E9	E9	6004	0.0213	13.63	0.1	0.25	2	600	0.08	0.6	100							
GS11B	GS11B	6068	0.0031	1.98	0.1	0.25	2	700	0.1	0.6	100							
GS11A	GS11A	5999	0.0354	22.66	0.1	0.237	2	700	0.1	0.6	100							
GS13C	GS13C	6083	0.0066	4.22	0.1	0.25	2	300	0.07	0.6	100							
GS13B	GS13B	6034	0.0168	10.75	0.1	0.25	2	300	0.07	0.6	100							
GS18A	GS18A	6108	0.002	1.28	0.1	0.25	3	800	0.094	0.6	100							
GS18	GS18	6041	0.0248	15.87	0.1	0.25	2	800	0.094	0.6	100							
GS13A	GS13A	5992	0.0196	12.54	0.1	0.181	2	600	0.067	0.6	100							
GS19	GS19	5993	0.0617	39.49	0.1	0.192	2	700	0.086	0.6	100							
GS20	GS20	5982	0.0178	11.39	0.1	0.168	2	600	0.1	0.6	100							
GS21B1	4.2 AC.	6166	0.0065	4.16	0.1	0.25	10.06	300	0.07	0.6	100							
GS21B2	3.2 AC.	6133	0.005	3.2	0.1	0.25	15	300	0.07	0.6	100							
GS21A	GS21A	6083	0.0412	26.37	0.1	0.25	2	1000	0.07	0.6	80	0.1	0.25	15	200	0.02	0.24	20
GS22	GS22	6000	0.0741	47.42	0.1	0.249	2	700	0.057	0.6	100							
GS23	GS23	5983	0.0596	38.14	0.1	0.25	2	2000	0.04	0.6	100							
GS24	GS24	6002	0.0352	22.53	0.1	0.25	2	500	0.1	0.6	100							
GS25B3	1.2 AC.	6133	0.0019	1.22	0.1	0.25	15	300	0.07	0.6	100							
GS25B4	1.8 AC.	6125	0.0029	1.86	0.1	0.25	15	300	0.07	0.6	100							
GS25C4	4.4 AC.	6121	0.0069	4.42	0.1	0.25	11.75	300	0.07	0.6	100							
GS25C5	1.7 AC.	6119	0.0026	1.66	0.1	0.25	9.8	300	0.07	0.6	100							
GS25C6	1.6 AC.	6106	0.0023	1.47	0.1	0.25	4.6	300	0.07	0.6	100							
GS25C9	3.0 AC.	6085	0.0047	3.01	0.1	0.25	11.36	300	0.07	0.6	100							
GS21A2	1.3 AC.	6104	0.002	1.28	0.1	0.25	15	300	0.07	0.6	100							
GS25C1	.4 AC.	6087	0.0006	0.38	0.1	0.25	15	300	0.07	0.6	100							
GS25C3	3.9 AC.	6099	0.006	3.84	0.1	0.25	11.23	300	0.07	0.6	100							
GS25C7	3.8 AC.	6083	0.006	3.84	0.1	0.25	13.18	300	0.07	0.6	100							
GS27C	2.8 AC.	6061	0.0044	2.82	0.1	0.25	15	300	0.07	0.6	100							
GS23B	0	6064	0.0061	3.9	0.1	0.25	15	300	0.07	0.6	100							

TABLE I.II.C.9 : POST-PROJECT HYDROLOGIC FACTORS HIGHWAY(CONT)

					PLANE 1 - NON-URBAN AND URBAN PLANE PARAMETERS							PLANE 2 - URBAN PLANE PARAMETERS						
SHED	DESCRIPTION	Centroid Elevation (ft)	BA AREA (mi^2)	BA AREA (acre)	Initial Abst (in)	Constant Infiltration (in/hr)	% Imperv. WARM	Overland Length (ft)	Overland Slope	Overland 'n' Value	Plane % of Shed	Initial Abst (in)	Constant Infiltration (in/hr)	% Imperv WARM	Overland Length (ft)	Overland Slope	Overland 'n' Value	Plane % of Shed
GS25E	GS25E	6024	0.034	21.76	0.1	0.25	2	900	0.1	0.6	100							
GS25A2	1.9 AC.	6169	0.0029	1.86	0.1	0.25	8.5	300	0.07	0.6	100							
GS25A1	.4 AC.	6174	0.0007	0.45	0.1	0.25	8.5	300	0.07	0.6	100							
GS25A3	1.2 AC.	6148	0.0018	1.15	0.1	0.25	8.5	300	0.07	0.6	100							
GS25D3	1.3 AC.	6169	0.0022	1.41	0.1	0.25	11.1	300	0.07	0.6	100							
GS25D2	2.9 AC.	6157	0.0045	2.88	0.1	0.25	8.5	300	0.07	0.6	100							
GS25D1	4.1 AC	6140	0.0062	3.97	0.1	0.25	8.5	300	0.07	0.6	100							
GS28B2	6.7 AC.	6123	0.0105	6.72	0.1	0.25	5.25	300	0.07	0.6	100							
GS27B1	5.5 AC.	6117	0.0087	5.57	0.1	0.25	8.5	300	0.07	0.6	100							
GS25C2	3.0 AC	6098	0.0047	3.01	0.1	0.25	9.93	300	0.07	0.6	100							
GS27B3	3.3 AC.	6066	0.0052	3.33	0.1	0.25	15	300	0.07	0.6	100							
GS27B2	0	6062	0.0053	3.39	0.1	0.25	15	300	0.07	0.6	100							
GS25E1	GS25E	6012	0.0131	8.38	0.1	0.25	2	900	0.1	0.6	100							
GS30B	1.1 AC	6127	0.0018	1.15	0.1	0.25	15	300	0.07	0.6	100							
GS28B1	1.6 AC.	6117	0.0025	1.6	0.1	0.25	15	300	0.07	0.6	100							
GS28B3	.09 AC.	6099	0.0015	0.96	0.1	0.25	15	300	0.07	0.6	100							
GS28A1	7.6 AC.	6079	0.012	7.68	0.1	0.25	15	300	0.07	0.6	100							
GS28A2	GS28A	6054	0.0154	9.86	0.1	0.25	2	500	0.071	0.6	50	0.1	0.25	15	200	0.02	0.24	50
GS30A	GS30	6104	0.0427	27.33	0.1	0.25	2	900	0.056	0.6	89	0.1	0.25	95	50	0.02	0.11	11
GS31A	GS31A	5990	0.0843	53.95	0.1	0.25	2	1000	0.05	0.6	90	0.1	0.25	15	200	0.02	0.4	10
GS32	GS32	5924	0.032	20.48	0.1	0.23	2	500	0.1	0.6	100							
MD1H3	MD1H3	6510	0.004	2.56	0.1	0.25	2	300	0.12	0.6	75	0.1	0.25	95	50	0.02	0.11	25
MD1H2	MD1H2	6464	0.0027	1.73	0.1	0.25	2	300	0.12	0.6	75	0.1	0.25	95	50	0.02	0.11	25
MD1E4	MD1E4	6442	0.0132	8.45	0.1	0.25	2	300	0.1	0.6	87	0.1	0.25	95	50	0.02	0.11	13
MD1E3	MD1E3	6379	0.0039	2.5	0.1	0.25	2	300	0.1	0.6	78	0.1	0.25	95	50	0.02	0.11	22
MD1E2	MD1E2	6315	0.0031	1.98	0.1	0.25	2	300	0.1	0.6	84	0.1	0.25	95	50	0.02	0.11	16
MD1E1E	MD1E1-2	6357	0.0042	2.69	0.1	0.25	2	1200	0.107	0.6	100							
MD1E1C	MD1E1-3	6238	0.0686	43.9	0.1	0.25	2	1000	0.08	0.6	100							
MD1E1B	MD1E1-2	6262	0.0141	9.02	0.1	0.25	2	1200	0.107	0.6	100							
MD1H1	MD1H1-1	6415	0.0073	4.67	0.1	0.25	2	400	0.06	0.6	100							
MD1H4	MD1H1-2	6403	0.0049	3.14	0.1	0.25	2	650	0.06	0.6	100							
MD1I_1	MD1I-1	6469	0.0242	15.49	0.1	0.25	2	1000	0.1	0.6	100							
MD1G3	MD1G3	6371	0.0096	6.14	0.1	0.25	2	300	0.08	0.6	90	0.1	0.25	95	50	0.02	0.11	10
MD1G2	MD1G2	6357	0.0033	2.11	0.1	0.25	2	200	0.08	0.6	72	0.1	0.25	95	50	0.02	0.11	28
MD1G2B	MD1G2B	6340	0.0055	3.52	0.1	0.25	2	200	0.085	0.6	100							
MD1G1B	MD1G1-2	6230	0.0195	12.48	0.1	0.25	2	1300	0.06	0.6	100							
GS26A	GS26A	6535	0.0074	4.74	0.1	0.25	2	600	0.1	0.6	85	0.1	0.25	95	50	0.02	0.11	15
GS26B	GS26B	6422	0.0139	8.9	0.1	0.25	2	600	0.2	0.6	89	0.1	0.25	95	50	0.02	0.11	11
GS26C	GS26C	6311	0.0126	8.06	0.1	0.25	2	600	0.2	0.6	90	0.1	0.25	95	50	0.02	0.11	10
GS26D	GS26D	6343	0.0144	9.22	0.1	0.25	2	600	0.1	0.6	89	0.1	0.25	95	50	0.02	0.11	11
GS26E	GS26E	6256	0.0028	1.79	0.1	0.25	2	300	0.08	0.6	75	0.1	0.25	95	50	0.02	0.11	25
GS26F	GS26F	6256	0.0074	4.74	0.1	0.25	2	400	0.1	0.6	87	0.1	0.25	95	50	0.02	0.11	13
GS26N1	GS26N-1	6226	0.0046	2.94	0.1	0.25	2	335	0.02	0.11	100							
GS26G	GS26G	6252	0.0231	14.78	0.1	0.25	2	600	0.1	0.6	91	0.1	0.25	95	50	0.02	0.11	9
GS26H	GS26H	6214	0.0026	1.66	0.1	0.25	2	100	0.08	0.6	75	0.1	0.25	95	50	0.02	0.11	25
GS15C	GS15C	6522	0.0106	6.78	0.1	0.25	2	600	0.15	0.6	91	0.1	0.25	95	50	0.02	0.11	9
GS15D	GS15D	6362	0.0133	8.51	0.1	0.25	2	300	0.135	0.6	91	0.1	0.25	95	50	0.02	0.11	9
GS15A	GS15A	6582	0.0913	58.43	0.1	0.237	2	1800	0.12	0.6	97	0.1	0.237	95	50	0.02	0.11	3
GS15B	GS15B	6351	0.0151	9.66	0.1	0.25	2	400	0.1	0.6	94	0.1	0.25	95	50	0.02	0.11	6
GS16A1	GS16A1	6287	0.019	12.16	0.1	0.25	2	400	0.1	0.6	96	0.1	0.25	95	50	0.02	0.11	4
GS16A2	GS16A2	6243	0.0137	8.77	0.1	0.25	2	400	0.1	0.6	91	0.1	0.25	95	50	0.02	0.11	9
GS16B	GS16B	6571	0.026	16.64	0.1	0.233	2	1800	0.15	0.6	93	0.1	0.233	95	50	0.02	0.11	7
GS16C	GS16C	6374	0.0141	9.02	0.1	0.25	2	400	0.15	0.6	89	0.1	0.25	95	50	0.02	0.11	11
GS17C	GS17C	6277	0.0147	9.41	0.1	0.25	2	600	0.12	0.6	91	0.1	0.25	95	50	0.02	0.11	9
E6A3	E6A3	6519	0.0421	26.94	0.1	0.18	2	1800	0.2	0.6	94	0.1	0.18	95	50	0.02	0.11	6
GS12B	GS12B	6327	0.0089	5.7	0.1	0.25	2	600	0.12	0.6	89	0.1	0.25	95	50	0.02	0.11	11
GS12C	GS12C	6382	0.0068	4.35	0.1	0.25	2	300	0.12	0.6	70	0.1	0.25	95	50	0.02	0.11	30
GS12F	GS12F	6291	0.0082	5.25	0.1	0.25	2	400	0.1	0.6	94	0.1	0.25	95	50	0.02	0.11	6
GS12H	GS12H	6301	0.0082	5.25	0.1	0.25	2	800	0.1	0.6	94	0.1	0.25	95	50	0.02	0.11	6
GS12D	GS12D	6445	0.0044	2.82	0.1	0.25	2	400	0.15	0.6	84	0.1	0.25	95	50	0.02	0.11	16
GS12E	GS12E	6365	0.0044	2.82	0.1	0.25	2	400	0.15	0.6	90	0.1	0.25	95	50	0.02	0.11	10
GS12I	GS12I	6263	0.0177	11.33	0.1	0.25	2	800	0.1	0.6	95	0.1	0.25	95	50	0.02	0.11	5
GS17A	GS17A	6206	0.0226	14.46	0.1	0.25	2	800	0.1	0.6	90	0.1	0.25	95	50	0.02	0.11	10
GS26N	GS26N-2	6195	0.0299	19.14	0.1	0.25	2	1419	0.066	0.6	100							
GS26OA	AREA=20.2 AC	6155	0.0321	20.54	0.1	0.25	86	800	0.05	0.6	95	0.1	0.25	90	50	0.02	0.11	5
GS26OB	AREA=3.3 AC UNIT 4A	6165	0.0047	3.01	0.1	0.25	2	600	0.05	0.6	95	0.1	0.25	90	50	0.02	0.11	5
MD1C2	MD1C2	6130	0.0063	4.03	0.1	0.25	2	250	0.05	0.6	90	0.1	0.25	90	50	0.02	0.11	10
GS26L3	AREA=0.7 AC UNIT 4A	6132	0.0012	0.77	0.1	0.25	2	500	0.058	0.6	90	0.1	0.25	90	50	0.02	0.11	10
MD1F-1	MD1F-1	6368	0.0069	4.42	0.1	0.25	2	600	0.08	0.6	90	0.1	0.25	95	50	0.02	0.11	10
MD1F	MD1F-2	6353	0.0035	2.24	0.1	0.25	2	500	0.08	0.6	90	0.1	0.25	95	50	0.02	0.11	10
MD1D1D	MD1D1D	6275	0.0124	7.94	0.1	0.25	2	800	0.06	0.6	100							
MD1D1C	MD1D1C	6254	0.0074	4.74	0.1	0.25	2	500	0.05	0.6	100							
MD1E	MD1E	6305	0.016	10.24	0.1	0.25	2	600	0.08	0.6	95	0.1	0.25	95	50	0.02	0.11	5
MD1D1A	MD1D1A	6225	0.0059	3.78	0.1	0.25	2	400	0.12	0.6	100							
MD1D1B	MD1D1B	6232	0.0028	1.79	0.1	0.25	2	400	0.12	0.6	100							
MD1D2	MD1D2	6197	0.0077	4.93	0.1	0.25	2	600	0.2	0.6	100							
GS26J	GS26J	6164	0.0023	1.47	0.1	0.25	2	230	0.078	0.6	100							
GS26K	GS26K	6166	0.0032	2.05	0.1	0.25	2	194	0.092	0.6	100							
GS26L	GS26L REVISED AREA = 5.8 AC	6149	0.0091	5.82	0.1	0.25	2	500	0.058	0.6	90	0.1	0.25	90	50	0.02	0.11	10
GS26L2	GS26L2	6110	0.0029	1.86	0.1	0.25	2	250	0.047	0.6	90	0.1	0.25	90	50	0.02	0.11	10
MD1C1	MD1C1	6100	0.0155	9.92	0.1	0.25	2	400	0.05	0.6	85	0.1	0.25	90	50	0.02	0.11	15
MD1C4	MD1C4	6067	0.0169	10.82	0.1	0.224	2	400	0.05	0.6	95	0.1	0.224	90	50	0.02	0.11	5
MA1	MA1	7303	0.2995	191.68	0.1	0.191	2	1600	0.234	0.6	100							
MA2	MA2	7054	0.5483	350.91	0.1	0.2	2	2200	0.284	0.6	100							
MA3	MA3	7366	0.6259	400.58	0.1	0.229	2	2300	0.272	0.6	100							
MA4	MA4	6453	0.287	183.68	0.1	0.227	2	2000	0.3	0.6	100							
MA5	MA5	6409	0.2025	129.6	0.1	0.214	2	1500	0.183	0.6	100							
MA6	MA6	6203	0.4152	265.73	0.1	0.228	2	1800	0.097	0.6	100							
MA7	MA7	6346	0.2326	148.86	0.1	0.233	2	3300	0.227	0.6	100							
MA8	MA8	6860	0.4308	275.71	0.1	0.165	2	1250	0.32	0.6	100							
MA9	MA9	6181	0.0913	58.43	0.1	0.237	2	600	0.208	0.6	100							
MA10A	MA10A	6287	0.2885	184.64	0.1	0.241	2	1600	0.038	0.6	85	0.1	0.241	15	200	0.02	0.24	15
MA10B	MA10B	6270	0.01	6.4	0.1	0.25	2	900	0.09	0.6	90	0.1	0.25	95	50	0.02	0.11	10

TABLE I.II.C.10 : POST-PROJECT HYDROLOGIC FACTORS HIGHWAY(CONT)

					PLANE 1 - NON-URBAN AND URBAN PLANE PARAMETERS							PLANE 2 - URBAN PLANE PARAMETERS						
SHED	DESCRIPTION	Centroid Elevation (ft)	BA AREA (mi^2)	BA AREA (acre)	Initial Abst (in)	Constant Infiltration (in/hr)	% Imperv. WARM	Overland Length (ft)	Overland Slope	Overland 'n' Value	Plane % of Shed	Initial Abst (in)	Constant Infiltration (in/hr)	% Imperv WARM	Overland Length (ft)	Overland Slope	Overland 'n' Value	Plane % of Shed
MB7B3A	MB7B3A	6302	0.0051	3.26	0.1	0.25	2	500	0.08	0.6	95	0.1	0.25	95	50	0.02	0.11	5
MB7B4A	MB7B4A	6252	0.0156	9.98	0.1	0.25	2	500	0.09	0.6	95	0.1	0.25	95	50	0.02	0.11	5
MB7B3B	MB7B3B	6302	0.0064	4.1	0.1	0.25	2	600	0.08	0.6	95	0.1	0.25	95	50	0.02	0.11	5
MB7B4B	MB7B4B	6257	0.0044	2.82	0.1	0.25	2	400	0.07	0.6	95	0.1	0.25	95	50	0.02	0.11	5
MB7B4C	MB7B4C	6216	0.0023	1.47	0.1	0.25	2	170	0.053	0.6	95	0.1	0.25	95	50	0.02	0.11	5
MB7B1A	MB7B1A	6400	0.0709	45.38	0.1	0.25	2	1300	0.192	0.6	100							
MB7B1C	MB7B1C	6369	0.0041	2.62	0.1	0.25	2	400	0.08	0.6	95	0.1	0.25	95	50	0.02	0.11	5
MB7B1B	MB7B1B	6341	0.0107	6.85	0.1	0.25	2	500	0.08	0.6	95	0.1	0.25	95	50	0.02	0.11	5
MB7B1D	MB7B1D	6250	0.0146	9.34	0.1	0.25	2	500	0.07	0.6	95	0.1	0.25	95	50	0.02	0.11	5
MB7B1E	MB7B1E	6217	0.0054	3.46	0.1	0.25	2	500	0.05	0.6	95	0.1	0.25	95	50	0.02	0.11	5
MB7B2	MB7B2	6188	0.0216	13.82	0.1	0.25	2	1300	0.192	0.6	95	0.1	0.25	95	50	0.02	0.11	5
MB1	MB1	7456	0.5333	341.31	0.1	0.188	2	4000	0.275	0.6	100							
MB2	MB2	6762	1.2667	810.69	0.1	0.192	2	2800	0.339	0.6	100							
MB3	MB3	6632	0.5006	320.38	0.1	0.218	2	1800	0.278	0.6	100							
MB4	MB4	6485	0.6535	418.24	0.1	0.245	2	1900	0.184	0.6	100							
MB5	MB5	6222	0.1602	102.53	0.1	0.25	2	1800	0.278	0.6	100							
MB6A	AREA = 7.0 AC	6199	0.0073	4.67	0.1	0.25	6.6	1335	0.1543	0.6	100							
MB6B	AREA = 3.9 AC	6190	0.0061	3.9	0.1	0.25	11.8	240	0.0708	0.6	100							
MB6C	AREA = 3.2 AC	6160	0.0039	2.5	0.1	0.25	7.6	370	0.1081	0.6	100							
MB6D	MB6D	6151	0.0223	14.27	0.1	0.246	2	200	0.125	0.6	65	0.1	0.246	15	200	0.02	0.24	35
MB6G	MB6G	6244	0.0109	6.98	0.1	0.25	2	500	0.125	0.6	30	0.1	0.25	15	200	0.02	0.24	70
MB6F	MB6F	6226	0.0062	3.97	0.1	0.25	2	500	0.125	0.6	30	0.1	0.25	15	200	0.02	0.24	70
MB6D1	MB6D1	6200	0.0036	2.3	0.1	0.25	2	500	0.125	0.6	30	0.1	0.25	15	200	0.02	0.24	70
MB6E	MB6E	6227	0.005	3.2	0.1	0.25	2	500	0.125	0.6	30	0.1	0.25	15	200	0.02	0.24	70
MB7A1	MB7A1	6457	0.1465	93.76	0.1	0.208	2	1300	0.192	0.6	97	0.1	0.208	95	50	0.02	0.11	3
MB7A2A	MB7A2A	6297	0.0247	15.81	0.1	0.25	2	550	0.192	0.6	92	0.1	0.25	95	50	0.02	0.11	8
MB7A2B	MB7A2B	6273	0.0059	3.78	0.1	0.25	2	300	0.192	0.6	100							
MB7C	MB7C	6245	0.0236	15.1	0.1	0.25	2	200	0.1	0.6	92	0.1	0.25	95	50	0.02	0.11	8
MB7D1A	MB7D1A	6321	0.0044	2.82	0.1	0.25	2	500	0.1	0.6	79	0.1	0.25	95	50	0.02	0.11	21
MB7D1B	MB7D1B	6331	0.0025	1.6	0.1	0.25	2	300	0.1	0.6	79	0.1	0.25	95	50	0.02	0.11	21
MB7D1	MB7D1	6281	0.0011	0.7	0.1	0.25	2	100	0.1	0.6	100							
MB7D2	MB7D2	6262	0.0215	13.76	0.1	0.25	2	200	0.1	0.6	95	0.1	0.25	95	50	0.02	0.11	5
MB7E	MB7E	6130	0.0585	37.44	0.1	0.247	2	200	0.1	0.6	96	0.1	0.247	95	50	0.02	0.11	4
MB8	MB8	6093	0.0545	34.88	0.1	0.214	2	1000	0.1	0.6	85	0.1	0.214	15	200	0.02	0.24	15
MC1	AREA = 258.6 AC	6908	0.4041	258.62	0.1	0.239	2	1530	0.4281	0.6	100							
MC2A	AREA = 59.1 AC	6585	0.0923	59.07	0.1	0.25	2.2	1035	0.401	0.6	100							
MC2B	AREA = 0.9 AC	6188	0.0014	0.9	0.1	0.25	10.3	550	0.0764	0.6	100							
MC2K	MC2K	6170	0.0001	0.06	0.1	0.25	4.7	1225	0.1551	0.6	100							
MD1D	MD1d AREA = 5.9 AC	6358	0.0092	5.89	0.1	0.25	3.4	800	0.2375	0.6	100							
MD1B	MD1b AREA = 5.9 AC	6304	0.0092	5.89	0.1	0.25	3.6	800	0.2375	0.6	100							
MC2A2	MC2A2	6157	0.0061	3.9	0.1	0.25	4.7	1225	0.1551	0.6	100							
MD1C	MD1c AREA = 2.9 AC	6274	0.0045	2.88	0.1	0.25	7.9	500	0.2178	0.6	100							
MC2A3	MC2A3	6174	0.0044	2.82	0.1	0.25	4.7	1225	0.1551	0.6	100							
MC2D	AREA = 7.8 AC	6293	0.0122	7.81	0.1	0.25	4.7	1225	0.1551	0.6	100							
MC2E	AREA = 3.9 AC	6236	0.006	3.84	0.1	0.25	8.5	895	0.1777	0.6	100							
MC2G	AREA = 9.7 AC	6189	0.0151	9.66	0.1	0.25	90	395	0.2051	0.6	100							
MC2H	AREA = 2.4 AC	6220	0.0038	2.43	0.1	0.25	9.5	365	0.1096	0.6	100							
MC2L	MC2L	6085	0.0519	33.22	0.1	0.25	10.3	550	0.0764	0.6	100							
MC2I	AREA = 0.7 AC	6195	0.0011	0.7	0.1	0.25	24.3	225	0.1289	0.6	100							
MC2J	AREA = 0.6 AC	6163	0.0011	0.7	0.1	0.25	19.2	225	0.16	0.6	100							
MD4A	MD4A	6944	0.1163	74.43	0.1	0.25	2.5	500	0.414	0.6	100							
MD3C	MD3c AREA = 6.9 AC = 0.01078	6436	0.0108	6.91	0.1	0.25	4.4	500	0.3184	0.6	100							
MD3B	MD3b AREA = 8.5 AC = 0.01328	6521	0.0133	8.51	0.1	0.25	3.6	500	0.3073	0.6	100							
MD3A1	MD3a AREA = 25.4 AC = 0.03969	6712	0.0397	25.41	0.1	0.25	2.5	500	0.3458	0.6	100							
MD1A1	MD1a AREA = 3.0 AC = 0.00469	6294	0.0047	3.01	0.1	0.25	6.4	500	0.242	0.6	100							
MC2A4	AREA = 59.1 AC	6166	0.0022	1.41	0.1	0.25	2.2	1035	0.401	0.6	100							
MD1B1	MD1B1	6284	0.0157	10.05	0.1	0.25	2	800	0.05	0.6	51	0.1	0.25	95	50	0.02	0.11	49
MD1B2	MD1B2	6137	0.0392	25.09	0.1	0.25	2	800	0.08	0.6	94	0.1	0.25	95	50	0.02	0.11	6
MD1A	MD1a AREA = 3.0 AC = 0.00469	6054	0.0581	37.18	0.1	0.194	6.4	500	0.242	0.6	100							
MD2D	MD2D	6074	0.004	2.56	0.1	0.25	2	550	0.035	0.6	90	0.1	0.25	95	50	0.02	0.11	10
MD3D	MD3d	6237	0.0094	6.02	0.1	0.25	8	682	0.161	0.6	100							
MD1E1A	MD1E1A	6218	0.0018	1.15	0.1	0.25	2	600	0.08	0.6	95	0.1	0.25	95	50	0.02	0.11	5
MD6	MD6	6145	0.0072	4.61	0.1	0.25	7.5	635	0.156	0.6	100							
MD1	MD1 AREA = 5.7 AC = 0.00891 SQ	6218	0.0088	5.63	0.1	0.25	13	483	0.1451	0.6	100							
MD2A	MD2A	6146	0.0026	1.66	0.1	0.25	2	250	0.035	0.6	90	0.1	0.25	95	50	0.02	0.11	10
MD27	MD27	6109	0.0048	3.07	0.1	0.25	11	559	0.05	0.6	100							
MD28A	MD28A	6099	0.0043	2.75	0.1	0.25	15.2	559	0.05	0.6	100							
MD28B	MD28B	6087	0.0092	5.89	0.1	0.25	4.8	559	0.05	0.6	100							
MD3A	MD3a AREA = 25.4 AC = 0.03969	6059	0.0076	4.86	0.1	0.25	2.5	500	0.3458	0.6	100							
MD7B	MD7B	6251	0.0042	2.69	0.1	0.25	9	760	0.05	0.6	100							
MD4C	MD4c	6240	0.0056	3.58	0.1	0.25	8.8	626	0.05	0.6	100							
MD4E	MD4E	6253	0.0016	1.02	0.1	0.25	2	1500	0.283	0.6	100							
MD4D	MD4d	6246	0.0062	3.97	0.1	0.25	7.5	895	0.101	0.6	100							
MD9	MD9	6160	0.0106	6.78	0.1	0.25	7.9	824	0.253	0.6	100							
MD8	MD8	6139	0.0047	3.01	0.1	0.25	4.8	519	0.126	0.6	100							
MD6A	MD6A	6018	0.1279	81.86	0.1	0.219	7.5	635	0.156	0.6	100							
MD7D	MD7d	6652	0.0051	3.26	0.1	0.25	2	500	0.106	0.6	100							
MD7C	MD7c	6450	0.0061	3.9	0.1	0.25	3.2	500	0.106	0.6	100							
MD7E	MD7E	6273	0.0094	6.02	0.1	0.25	2	1200	0.313	0.6	90	0.1	0.25	15	1200	0.3	0.24	10
MD7F	MD7F	6194	0.0067	4.29	0.1	0.25	2	1200	0.313	0.6	90	0.1	0.25	15	1200	0.3	0.24	10
MD11	MD11	6164	0.0056	3.58	0.1	0.25	4.8	595	0.05	0.6	100							
MD2B	MD2B	6071	0.0056	3.58	0.1	0.25	2	690	0.046	0.6	90	0.1	0.25	95	50	0.02	0.11	10
ME3A	ME3A	6051	0.004	2.56	0.1	0.25	2	420	0.038	0.6	90	0.1	0.25	95	50	0.02	0.11	10
MD17	MD17	6174	0.0075	4.8	0.1	0.25	5.7	830	0.126	0.6	100							
MD18	MD18	6137	0.0051	3.26	0.1	0.25	6	930	0.148	0.6	100							
MD19	MD19	6118	0.0056	3.58	0.1	0.25	6.1	1055	0.21	0.6	100							
MD2A1	MD2A	6089	0.0019	1.22	0.1	0.25	2	250	0.035	0.6	90	0.1	0.25	95	50	0.02	0.11	10
MD2	MD2	6074	0.0059	3.78	0.1	0.25	16.8	295	0.125	0.6	100							
ME3A2	ME3A2	6049	0.0062	3.97	0.1	0.25	2	500	0.044	0.6	90	0.1	0.25	95	50	0.02	0.11	10
MD13	MD13	6987	0.4368	279.55	0.1	0.25	2	500	0.477	0.6	100							
ME6_19	ME6_19	6649	0.0236	15.1	0.1	0.25	15	330	0.053	0.6	100							
ME6_14	ME6_14	6522	0.0063	4.03	0.1	0.25	15	330	0.053	0.6	100							
MD12	MD12	6813	0.0428	27.39	0.1	0.25	2.5	500	0.106	0.6	100							

TABLE I.II.C.11 : POST-PROJECT HYDROLOGIC FACTORS HIGHWAY (CONT)

					PLANE 1 - NON-URBAN AND URBAN PLANE PARAMETERS							PLANE 2 - URBAN PLANE PARAMETERS						
SHED	DESCRIPTION	Centroid Elevation (ft)	BA AREA (mi^2)	BA AREA (acre)	Initial Abst (in)	Constant Infiltration (in/hr)	% Imperv. WARM	Overland Length (ft)	Overland Slope	Overland 'n' Value	Plane % of Shed	Initial Abst (in)	Constant Infiltration (in/hr)	% Imperv WARM	Overland Length (ft)	Overland Slope	Overland 'n' Value	Plane % of Shed
MD12B	MD12b	6336	0.0024	1.54	0.1	0.25	24.7	352	0.256	0.6	100							
MD12C	MD12c	6408	0.0084	5.38	0.1	0.25	6.5	500	0.205	0.6	100							
MD14B	MD14b	6354	0.0016	1.02	0.1	0.25	12.6	500	0.106	0.6	100							
MD14C	MD14c	6384	0.006	3.84	0.1	0.25	4.3	500	0.106	0.6	100							
ME6_13	1.17 AC	6393	0.0022	1.41	0.1	0.25	2.9	525	0.175	0.6	100							
ME8_3	3.07 AC	6355	0.0048	3.07	0.1	0.25	7.4	675	0.164	0.6	100							
MD13B	MD13B	6240	0.0392	25.09	0.1	0.25	2	500	0.477	0.6	100							
MD14	MD14	6336	0.006	3.84	0.1	0.25	9.3	663	0.165	0.6	100							
MD14A	MD14A	6330	0.0009	0.58	0.1	0.25	9.3	663	0.165	0.6	100							
ME3_5	ME3_5	6224	0.0007	0.45	0.1	0.25	2	300	0.1	0.6	65	0.1	0.25	15	300	0.1	0.24	35
MD15	MD15	6266	0.0073	4.67	0.1	0.25	9.2	870	0.159	0.6	100							
MD15A	MD15A	6228	0.0002	0.13	0.1	0.25	9.2	870	0.159	0.6	100							
MD16A	MD16A	6219	0.0036	2.3	0.1	0.25	10	772	0.125	0.6	100							
MD16	MD16	6245	0.0063	4.03	0.1	0.25	10	772	0.125	0.6	100							
MD13C	MD13C	6095	0.0068	4.35	0.1	0.25	2	500	0.477	0.6	100							
MD20	MD20	6107	0.002	1.28	0.1	0.25	9	740	0.05	0.6	100							
ME3B	ME3B	5997	0.0182	11.65	0.1	0.25	2	300	0.1	0.6	65	0.1	0.25	15	300	0.1	0.24	35
GS31B1	GS31B1	6087	0.0029	1.86	0.1	0.25	2	580	0.038	0.6	90	0.1	0.25	95	50	0.02	0.11	10
GS31B2	GS31B2	6079	0.0047	3.01	0.1	0.25	2	690	0.057	0.6	90	0.1	0.25	95	50	0.02	0.11	10
GS31B3	GS31B3	6060	0.0056	3.58	0.1	0.25	2	530	0.06	0.6	90	0.1	0.25	95	50	0.02	0.11	10
GS31B4	GS31B4	6054	0.0012	0.77	0.1	0.25	2	250	0.048	0.6	90	0.1	0.25	95	50	0.02	0.11	10
GS31B5	GS31B5	6052	0.0056	3.58	0.1	0.25	2	500	0.05	0.6	90	0.1	0.25	95	50	0.02	0.11	10
ME8_1	0.48 AC	6339	0.0007	0.45	0.1	0.25	26	180	0.066	0.6	100							
ME3_1	ME3_1	6336	0.0009	0.58	0.1	0.25	2	300	0.1	0.6	65	0.1	0.25	15	300	0.1	0.24	35
ME3_2	ME3_2	6335	0.0024	1.54	0.1	0.25	2	300	0.1	0.6	65	0.1	0.25	15	300	0.1	0.24	35
ME3_3	ME3_3	6301	0.0031	1.98	0.1	0.25	2	300	0.1	0.6	65	0.1	0.25	15	300	0.1	0.24	35
ME3_4	ME3_4	6267	0.0024	1.54	0.1	0.25	2	300	0.1	0.6	65	0.1	0.25	15	300	0.1	0.24	35
MD21	MD21	6186	0.0033	2.11	0.1	0.25	7.2	640	0.05	0.6	100							
ME3C3	ME3C3	6096	0.0066	4.22	0.1	0.25	2	300	0.1	0.6	65	0.1	0.25	15	300	0.1	0.24	35
ME3C1	ME3C1	6102	0.0016	1.02	0.1	0.25	2	300	0.1	0.6	65	0.1	0.25	15	300	0.1	0.24	35
ME4A	ME4A	5971	0.0939	60.1	0.1	0.232	2	500	0.12	0.6	90	0.1	0.232	15	300	0.12	0.24	10
ME6_11	0.13 AC	6328	0.0002	0.13	0.1	0.25	49.1	30	0.02	0.11	100							
ME6_10	0.21 AC	6326	0.0003	0.19	0.1	0.25	67.3	30	0.02	0.11	100							
ME6_25	7.81 AC	6275	0.0094	6.02	0.1	0.25	7.1	125	0.16	0.6	100							
ME6_33	ME6_33	6258	0.0026	1.66	0.1	0.25	15	330	0.053	0.6	100							
ME6_26	0.43 AC	6214	0.0008	0.51	0.1	0.25	3	200	0.13	0.6	100							
ME7_1	8.34 AC	6223	0.0127	8.13	0.1	0.25	4.6	470	0.2468	0.6	100							
ME7_2	0.25 AC	6168	0.0004	0.26	0.1	0.25	83.6	30	0.02	0.11	100							
ME7D6	ME7D6	6213	0.006	3.84	0.1	0.25	2	500	0.18	0.6	75	0.1	0.25	15	300	0.18	0.24	25
ME7D14	ME7D14	6130	0.0037	2.37	0.1	0.25	15	150	0.13	0.6	100							
ME7D16	ME7D16	6148	0.0018	1.15	0.1	0.25	15	177	0.045	0.6	100							
ME7D15	ME7D15	6145	0.0031	1.98	0.1	0.25	15	175	0.057	0.6	100							
ME7D24	ME7D24	6115	0.0022	1.41	0.1	0.25	15	144	0.09	0.6	100							
ME4B13	ME4B13	6103	0.0056	3.58	0.1	0.25	15	270	0.02	0.6	100							
ME7C4	ME7C4	6182	0.0054	3.46	0.1	0.25	2	500	0.15	0.6	5	0.1	0.25	15	300	0.15	0.24	95
ME7C5	ME7C5	6202	0.0061	3.9	0.1	0.25	2	500	0.15	0.6	5	0.1	0.25	15	300	0.15	0.24	95
ME4B3	ME4B3	6134	0.0029	1.86	0.1	0.25	2	300	0.05	0.6	15	0.1	0.25	15	300	0.05	0.24	85
ME4B12	ME4B12	6098	0.0065	4.16	0.1	0.25	15	430	0.018	0.6	100							
ME4B23	ME4B23	6061	0.0088	5.63	0.1	0.25	15	210	0.07	0.6	100							
ME4B22	ME4B22	6053	0.0074	4.74	0.1	0.25	15	220	0.1	0.6	100							
ME3C2	ME3C2	6113	0.0032	2.05	0.1	0.25	2	300	0.16	0.6	60	0.1	0.25	15	300	0.16	0.24	40
ME4B11	ME4B11	6066	0.0049	3.14	0.1	0.25	15	340	0.053	0.6	100							
ME4B21	ME4B21	6044	0.0024	1.54	0.1	0.25	15	220	0.1	0.6	100							
ME4B10	ME4B-10	6060	0.0027	1.73	0.1	0.25	15	150	0.08	0.6	100							
ME4B	ME4B	6037	0.0055	3.52	0.1	0.25	2	300	0.05	0.6	15	0.1	0.25	15	300	0.05	0.24	85
MG3_3B	MG3_3B	6928	0.146	93.44	0.1	0.25	2.9	575	0.225	0.6	100							
MG3_3C	MG3_3C	6589	0.0127	8.13	0.1	0.25	2.9	575	0.225	0.6	100							
ME6_12	14.48 AC	6583	0.0096	6.14	0.1	0.25	3.4	600	0.295	0.6	100							
ME6_16	10.41 AC	6370	0.0002	0.13	0.1	0.25	4.4	600	0.285	0.6	100							
ME6_18	2.92 AC	6343	0.0046	2.94	0.1	0.25	10.2	150	0.2133	0.6	100							
ME6_20	3.75 AC	6339	0.006	3.84	0.1	0.25	6.3	200	0.21	0.6	100							
ME6_24	0.70 AC	6287	0.0026	1.66	0.1	0.25	18.6	305	0.091	0.6	100							
ME6_23	4.19 AC	6222	0.0065	4.16	0.1	0.25	8.2	200	0.17	0.6	100							
ME6_32	0.39 AC	6194	0.0006	0.38	0.1	0.25	33.9	24	0.02	0.11	100							
ME6_28	4.93 AC	6163	0.0077	4.93	0.1	0.25	2	355	0.113	0.6	100							
ME627	1.77 AC	6157	0.0027	1.73	0.1	0.25	2	120	0.107	0.6	100							
ME6_29	1.37 AC	6127	0.0021	1.34	0.1	0.25	2	370	0.114	0.6	100							
ME6_30	1.27 AC	6090	0.002	1.28	0.1	0.25	2	295	0.088	0.6	100							
ME6A25	ME6A25	6096	0.0029	1.86	0.1	0.25	15	330	0.053	0.6	100							
ME7B	ME7B	6069	0.027	17.28	0.1	0.25	2	400	0.05	0.6	75	0.1	0.25	15	300	0.05	0.24	25
ME7A	ME7A	5927	0.1404	89.86	0.1	0.227	2	1300	0.192	0.6	10	0.1	0.227	15	300	0.19	0.24	90
MF1	MF1	5957	0.378	241.92	0.1	0.205	2	1500	0.087	0.6	100							
MF2	MF2	5903	0.0582	37.25	0.1	0.247	2	1000	0.07	0.6	100							
MD4_1A	MD4	6876	0.1899	121.54	0.1	0.25	2	1500	0.283	0.6	100							
MG4_1B	6.35 AC	6466	0.01	6.4	0.1	0.25	2.1	500	0.35	0.6	100							
MG5_2A	8.61 AC	6536	0.0134	8.58	0.1	0.25	3.2	600	0.2033	0.6	100							
MG3_1	1.78 AC	6406	0.0028	1.79	0.1	0.25	5.4	500	0.28	0.6	100							
MG3_1A	1.00 AC	6345	0.0016	1.02	0.1	0.25	5.4	498	0.28	0.6	100							
MG3_1C	1.47 AC	6530	0.0023	1.47	0.1	0.25	5.4	498	0.2811	0.6	100							
MG3_6	0.09 AC	6301	0.0002	0.13	0.1	0.25	90	30	0.02	0.11	100							
MG4_2	4.81 AC	6451	0.0072	4.61	0.1	0.25	3.1	500	0.284	0.6	100							
MG4_3B	MG4_3B	6300	0.0002	0.13	0.1	0.25	2	2300	0.326	0.6	95	0.1	0.25	15	600	0.25	0.24	5
MG4_3A	0.07 AC	6303	0.0001	0.06	0.1	0.25	90	30	0.02	0.11	100							
MG5_2B	0.06 AC	6330	0.0001	0.06	0.1	0.25	90	12	0.01	0.6	100							
MG4_4	0.10 AC	6322	0.0002	0.13	0.1	0.25	90	30	0.02	0.11	100							
MG4_5C	MG4_5C	6258	0.0078	4.99	0.1	0.25	2	2300	0.326	0.6	95	0.1	0.25	15	600	0.25	0.24	5
MG5_1A	18.98 AC	6608	0.0296	18.94	0.1	0.25	2.8	600	0.155	0.6	100							
MG5_1B	MG5_1B	6455	0.009	5.76	0.1	0.25	2	200	0.1	0.6	5	0.1	0.25	15	200	0.1	0.24	95
MG5_3	0.04 AC	6301	0.0001	0.06	0.1	0.25	90	30	0.02	0.11	100							
MG5_4	0.15 AC	6281	0.0003	0.19	0.1	0.25	90	30	0.02	0.11	100							
MG5_5	MG5_5	6284	0.0024	1.54	0.1	0.25	2	200	0.1	0.6	5	0.1	0.25	15	200	0.1	0.24	95
MG3_3A	8.25 AC	6533	0.0129	8.26	0.1	0.25	2.8	575	0.225	0.6	100							
MG3_2	2.58 AC	6398	0.004	2.56	0.1	0.25	6.1	390	0.2051	0.6	100							

TABLE I.II.C.12 : POST-PROJECT HYDROLOGIC FACTORS HIGHWAY (CONT)

					PLANE 1 - NON-URBAN AND URBAN PLANE PARAMETERS							PLANE 2 - URBAN PLANE PARAMETERS						
SHED	DESCRIPTION	Centroid Elevation (ft)	BA AREA (mi^2)	BA AREA (acre)	Initial Abst (in)	Constant Infiltration (in/hr)	% Imperv. WARM	Overland Length (ft)	Overland Slope	Overland 'n' Value	Plane % of Shed	Initial Abst (in)	Constant Infiltration (in/hr)	% Imperv WARM	Overland Length (ft)	Overland Slope	Overland 'n' Value	Plane % of Shed
MG3_4	014 AC	6297	0.0002	0.13	0.1	0.25	88.8	30	0.02	0.11	100							
MG3_1B	0.87 AC	6425	0.0014	0.9	0.1	0.25	5.4	500	0.28	0.6	100							
MG3_1D	0.57 AC	6370	0.0009	0.58	0.1	0.25	5.4	504	0.2778	0.6	100							
MG3_5	0.07 AC	6291	0.0001	0.06	0.1	0.25	90	30	0.02	0.11	100							
MG3_5A	MG3_5A	6261	0.0073	4.67	0.1	0.25	2.8	575	0.225	0.6	100							
ME6_1	10.24 AC	6361	0.0082	5.25	0.1	0.25	3.9	310	0.174	0.8	100							
ME6_2	1.28 AC	6365	0.0099	6.34	0.1	0.25	6.9	505	0.194	0.8	100							
ME6_3	0.02 AC	6286	0.0003	0.19	0.1	0.25	86.5	15	0.02	0.6	100							
ME6_5	1.40 AC	6276	0.0022	1.41	0.1	0.25	16.5	160	0.15	0.6	100							
ME6_7	0.81 AC	6264	0.0013	0.83	0.1	0.25	16.2	190	0.168	0.6	100							
ME6_8	.44 AC	6231	0.0007	0.45	0.1	0.25	87.8	20	0.02	0.6	100							
MG1_2	0.67 AC	6285	0.001	0.64	0.1	0.25	11.1	100	0.14	0.6	100							
MG1_3	1.89 AC	6315	0.0025	1.6	0.1	0.25	9.5	300	0.07	0.8	100							
MG1_1	1.38 AC	6336	0.0026	1.66	0.1	0.25	2	185	0.1946	0.6	100							
MG1_4	0.18 AC	6272	0.0003	0.19	0.1	0.25	46.9	30	0.02	0.11	100							
MG3_33	MG3_33	6210	0.0087	5.57	0.1	0.25	2.9	575	0.225	0.6	100							
ME6_8A	ME6_8A	6168	0.0006	0.38	0.1	0.25	15	330	0.053	0.6	100							
MG2	MG2	5975	0.1195	76.48	0.1	0.245	2	700	0.143	0.6	90	0.1	0.245	15	700	0.14	0.24	10
ME6_6	0.16 AC	6263	0.0003	0.19	0.1	0.25	73	30	0.02	0.11	100							
ME6_21	2.50 AC	6249	0.0039	2.5	0.1	0.25	12	200	0.125	0.6	100							
ME6_31	0.44 AC	6219	0.0007	0.45	0.1	0.25	42.9	24	0.02	0.11	100							
MG1B19	MG1B19	6177	0.0072	4.61	0.1	0.25	15	150	0.04	0.6	100							
MG1B20	MG1B20	6164	0.0039	2.5	0.1	0.25	15	240	0.08	0.6	100							
ME6A	ME6A	6164	0.003	1.92	0.1	0.25	2	300	0.12	0.6	50	0.1	0.25	15	300	0.12	0.24	50
MG1B26	MG1B26	6099	0.0038	2.43	0.1	0.25	15	250	0.096	0.6	100							
MG1B	MG1B	6094	0.0119	7.62	0.1	0.25	2	300	0.1	0.6	50	0.1	0.25	15	200	0.1	0.24	50
ME6A27	ME6A27	6055	0.0094	6.02	0.1	0.25	15	230	0.095	0.6	100							
MG1A	MG1A	6022	0.0185	11.84	0.1	0.25	2	200	0.1	0.6	50	0.1	0.25	15	200	0.1	0.24	50
MG5B1	MG5B1	6456	0.1242	79.49	0.1	0.25	2	200	0.1	0.6	5	0.1	0.25	15	200	0.1	0.24	95
MG5A2	MG5A2	6240	0.0613	39.23	0.1	0.25	2	200	0.1	0.6	5	0.1	0.25	15	200	0.1	0.24	95
MG6B	MG6B	6056	0.0479	30.66	0.1	0.201	2	1000	0.25	0.6	85	0.1	0.201	15	400	0.25	0.24	15
MG5A1	MG5A1	6069	0.0134	8.58	0.1	0.25	2	200	0.1	0.6	5	0.1	0.25	15	200	0.1	0.24	95
MG7	MG7	5894	0.1439	92.1	0.1	0.207	2	600	0.25	0.6	100							
NS24A	NS24A	6045	0.0297	19.01	0.1	0.25	2	900	0.1	0.6	100							
NS24B	NS24B	5932	0.012	7.68	0.1	0.25	2	300	0.1	0.6	100							
NS24C	NS24C	5862	0.04	25.6	0.1	0.182	2	800	0.1	0.6	100							
NS25	NS25	5904	0.037	23.68	0.1	0.249	2	800	0.05	0.6	100							
NS26	NS26	5842	0.1102	70.53	0.1	0.122	2	1000	0.05	0.8	100							
NS22A	NS22A	6070	0.0103	6.59	0.1	0.25	2	750	0.1	0.6	100							
NS22C	NS22C	5966	0.0063	4.03	0.1	0.25	2	300	0.1	0.6	100							
NS23A	NS23A	5878	0.0374	23.94	0.1	0.19	2	950	0.07	0.6	100							
NS27	NS27	5834	0.0574	36.74	0.1	0.1	2	830	0.03	0.6	100							
NS28B	NS28B	5818	0.0417	26.69	0.1	0.1	2.85	500	0.01	0.6	100							
E85Z	E85Z	5864	0.0291	18.62	0.1	0.25	2	400	0.02	0.8	100							
NS28A	NS28A	5841	0.0415	26.56	0.1	0.1	2	500	0.01	0.6	100							
NS22	NS22	6304	0.2037	130.37	0.1	0.25	2	2100	0.08	0.6	100							
NS31	NS31	6214	0.0592	37.89	0.1	0.25	2	1250	0.1	0.6	100							
NS22B	NS22B	6014	0.0098	6.27	0.1	0.25	2	500	0.1	0.6	100							
NS23B	NS23B	5866	0.1061	67.9	0.1	0.191	2	1350	0.05	0.6	100							
NS32A	NS32A	6168	0.0191	12.22	0.1	0.25	2	500	0.1	0.8	100							
NS32B	NS32B	5855	0.1481	94.78	0.1	0.165	2	1500	0.08	0.8	100							
NS1	BASIN 1 - 330 Ac	7825	0.5174	331.14	0.1	0.178	2	3300	0.24	0.8	57	0.1	0.178	2	3300	0.24	0.6	43
NS2	BASIN 2 - 267 Ac	7697	0.4184	267.78	0.1	0.25	2	2800	0.25	0.8	54	0.1	0.25	2	2800	0.25	0.6	46
NS3	BASIN 3 - 331 Ac	7343	0.5218	333.95	0.1	0.25	65	2850	0.18	0.24	3	0.1	0.25	2	2850	0.18	0.6	98
NS4	BASIN 4 - 166 Ac	6727	0.2602	166.53	0.1	0.25	65	2110	0.22	0.24	29	0.1	0.25	2	2110	0.22	0.6	71
NS5	BASIN 5 - 21 Ac	6520	0.0319	20.42	0.1	0.25	65	1400	0.25	0.24	36	0.1	0.25	2	1400	0.25	0.6	64
NS6	BASIN 6 - 178 Ac	6685	0.2162	138.37	0.1	0.25	65	3100	0.27	0.24	71	0.1	0.25	2	3100	0.27	0.8	29
NS7	BASIN 7 - 38 Ac	6362	0.0602	38.53	0.1	0.25	65.79	1570	0.19	0.24	69	0.1	0.25	2	1570	0.19	0.6	31
NS8	BASIN 8 - 673 Ac	7113	1.1304	723.46	0.1	0.239	2	4200	0.21	0.8	92	0.1	0.239	2	4200	0.21	0.6	8
NS9	BASIN 9 - 144 Ac	6837	0.1855	118.72	0.1	0.249	2	4400	0.2	0.6	100							
NS10	BASIN 10 - 214 Ac	6657	0.3581	229.18	0.1	0.223	2	3805	0.2	0.6	100							
NS11	BASIN 11 - 60 Ac	6559	0.0389	24.9	0.1	0.249	65.07	1600	0.34	0.24	6	0.1	0.249	2	1600	0.34	0.8	95
NS11B	BASIN 11 - 60 Ac	6270	0.0546	34.94	0.1	0.25	72.44	1600	0.34	0.24	6	0.1	0.25	2	1600	0.34	0.8	95
NS12	BASIN 12 - 40 Ac	6210	0.0619	39.62	0.1	0.25	65	400	0.1	0.24	71	0.1	0.25	2	400	0.1	0.8	30
NS13	BASIN 13 - 15 Ac	6452	0.1459	93.38	0.1	0.25	65	500	0.16	0.24	86	0.1	0.25	98	500	0.16	0.11	14
NS14	BASIN 14 - 47 Ac	6261	0.0434	27.78	0.1	0.25	65	775	0.35	0.24	90	0.1	0.25	98	775	0.35	0.11	10
NS14B	NS14B	6176	0.0204	13.06	0.1	0.25	2	500	0.1	0.6	100							
NS20B	NS20B	6358	0.0322	20.61	0.1	0.25	2	640	0.1	0.8	100							
NS15	NS15	6103	0.086	55.04	0.1	0.25	2	1000	0.08	0.8	100							
NS16	NS16	6564	0.1019	65.22	0.1	0.246	2.13	1600	0.1	0.8	100							
NS17	NS17	6282	0.0811	51.9	0.1	0.25	3.47	1500	0.08	0.6	100							
NS18	NS18	6405	0.1877	120.13	0.1	0.25	2.61	3200	0.1	0.6	100							
NS19	NS19	6169	0.0434	27.78	0.1	0.25	3.07	1600	0.05	0.6	100							
NS20	NS20	6070	0.0548	35.07	0.1	0.25	2	600	0.08	0.8	100							
NS21	NS21	6056	0.139	88.96	0.1	0.248	2.05	1450	0.05	0.8	100							
NS30D	NS30D	6286	0.0577	36.93	0.1	0.25	2	900	0.08	0.8	100							
NS30A	NS30A	6014	0.0266	17.02	0.1	0.244	2	800	0.08	0.6	100							
NS30B	NS30B	5979	0.14	89.6	0.1	0.236	2	1600	0.1	0.6	100							
NS30E	NS30E	6133	0.0022	1.41	0.1	0.25	2	200	0.1	0.6	100							
NS30F	NS30F	6158	0.0023	1.47	0.1	0.25	2	200	0.1	0.8	100							
NS30C	NS30C	5872	0.1237	79.17	0.1	0.151	2	1600	0.08	0.8	100							
NS33B	NS33B	5818	0.0301	19.26	0.1	0.1	2.49	1000	0.05	0.8	100							
NS34	NS34	6122	0.0437	27.97	0.1	0.25	2	900	0.08	0.6	100							
NS35	NS35	5869	0.1517	97.09	0.1	0.185	2.15	1900	0.05	0.6	100							
XMAR1	XMAR1	6837	0.2922	187.01	0.1	0.244	2	1900	0.1	0.6	100							
XMAR2	XMAR2	6837	0.4066	260.22	0.1	0.241	2	2200	0.1	0.8	100							
XMAR3	XMAR3	6837	0.6221	398.14	0.1	0.248	2	3500	0.1	0.8	100							
XMAR4	XMAR4	6837	0.2489	159.3	0.1	0.25	2	2300	0.1	0.8	100							
XMAR5	XMAR5	6837	0.3335	213.44	0.1	0.25	2	1700	0.1	0.6	100							
XMAR6	XMAR6	6837	0.1147	73.41	0.1	0.25	2	1500	0.1	0.6	100							
XMAR7	XMAR7	6837	0.3439	220.1	0.1	0.25	2	2800	0.1	0.6	100							
XMAR8	XMAR8	6837	0.2218	141.95	0.1	0.25	2	2200	0.1	0.8	100							
XMAR9	XMAR9	6837	0.25	160	0.1	0.25	2	2100	0.1	0.8	100							

TABLE I.II.C.13 : POST-PROJECT HYDROLOGIC FACTORS HIGHWAY (CONT)

					PLANE 1 - NON-URBAN AND URBAN PLANE PARAMETERS							PLANE 2 - URBAN PLANE PARAMETERS						
SHED	DESCRIPTION	Centroid Elevation (ft)	BA AREA (mi^2)	BA AREA (acre)	Initial Abst (in)	Constant Infiltration (in/hr)	% Imperv. WARM	Overland Length (ft)	Overland Slope	Overland 'n' Value	Plane % of Shed	Initial Abst (in)	Constant Infiltration (in/hr)	% Imperv WARM	Overland Length (ft)	Overland Slope	Overland 'n' Value	Plane % of Shed
XMAR10	XMAR10	6837	0.2272	145.41	0.1	0.25	2	2300	0.1	0.8	100							
XMAR11	XMAR11	6837	0.1037	66.37	0.1	0.185	2	1100	0.1	0.6	100							
XMAR12	XMAR12	6837	0.1361	87.1	0.1	0.206	2	1250	0.1	0.6	100							
XMAR13	XMAR13	6837	0.2679	171.46	0.1	0.249	2	1800	0.1	0.8	100							
XMAR14	XMAR14	6837	0.0483	30.91	0.1	0.25	3.52	500	0.1	0.6	100							
XMAR15	XMAR15	6837	0.014	8.96	0.1	0.25	2.23	500	0.1	0.8	100							
XMAR17	XMAR17	6837	0.2288	146.43	0.1	0.22	2	1300	0.1	0.8	100							
MAR19A	MAR19A	6244	0.0295	18.88	0.1	0.25	2.48	1000	0.1	0.6	100							
MAR19B	MAR19B	6120	0.0074	4.74	0.1	0.25	4.11	500	0.1	0.8	100							
XMAR18	XMAR18	6837	0.1517	97.09	0.1	0.248	2	1600	0.1	0.6	100							
XMAR20	XMAR20	6837	0.2009	128.58	0.1	0.244	2	1700	0.1	0.8	100							
MAR21A	MAR21A	6190	0.0602	38.53	0.1	0.25	2.47	500	0.1	0.8	100							
MAR21B	MAR21B	6055	0.0241	15.42	0.1	0.245	4.75	500	0.1	0.6	100							
MAR22B	MAR22B	5942	0.0266	17.02	0.1	0.23	3.02	500	0.1	0.8	100							
MAR22A	MAR22A	6025	0.0165	10.56	0.1	0.25	3.4	500	0.1	0.8	100							
XMAR23	XMAR23	6837	0.0439	28.1	0.1	0.138	2.69	500	0.05	0.6	100							
XMAR24	XMAR24	6837	0.0055	3.52	0.1	0.1	2.43	200	0.02	0.8	100							
XMAR25	XMAR25	6837	0.0147	9.41	0.1	0.126	7.95	1000	0.02	0.6	100							
NS33A	NS33A	5840	0.0118	7.55	0.1	0.197	2	1000	0.02	0.6	100							
E30A	Drains Away	5941	0.0064	4.1	0.1	0.25	8	800	0.038	0.8	100							

TABLE I.II.C.14A : EST. POST-PROJECT PEAK FLOW RATES – WARM EVENT-HIGHWAY TRAIL

HEC-1 Watershed Node	HEC-RAS River/Stream	HEC-RAS Cross Section	500-YEAR FLOW (cfs)	100-YEAR FLOW (cfs)	10-YEAR FLOW (cfs)	2-YEAR FLOW (cfs)
YE20D	Martis Creek / NW	100	477	345.5	179.4	62.6
UE30CR	Martis Creek / NW	96	548.7	399.2	208	73
YE40BC	Martis Creek / NW	91	632.4	463.7	243.8	85.7
YE80C	Martis Creek / NW	89	1097	805.8	428.6	156.4
E40C	Martis Creek / NW2	110	26.2	19.2	10	3.3
YE40D	Martis Creek / NW2	108	37.9	27.6	14.4	4.7
YE40DC	Martis Creek / NW3	79.5	1134.8	833.4	443	161.1
YE85	Martis Creek / NW3	78	1468.9	1075.9	566.1	192.5
YE85B	Martis Creek / NW3	77	1490.8	1091.5	574.3	195.7
YE85CC	Martis Creek / NW3	73	604.6	557.1	500.2	196.5
VMF1CR	Martis Creek / NW4	69.5	8564.1	6190.3	3077.9	1100.3
VMF2CR	Martis Creek / NW4	68.5	8610.7	6225.2	3097.8	1106
YNS26	Martis Creek / NW4	65.5	9600.3	6951	3461.1	1265
YNS27	Martis Creek / NW5	59.5	7744.3	6205.9	3837.8	1451.6
YNS28B	Martis Creek / NW5	57.5	7786.5	6240.8	3863	1463.8
YNS28A	Martis Creek / NW5	56.5	7814.4	6264.3	3879.9	1472.5
YNSALL	Martis Creek / NW5	56	10636	8335.5	4942.7	1982.1
YR21B	Martis Creek / W1	49.5	1639.7	1065	482.8	241.2
MAR22B	Martis Creek / W1	47	231	221.2	209	200
YR22A	Martis Creek / W1	44	252.1	236.4	217	202.7
XMAR23	Martis Creek / W1	41	296.6	266.9	231.1	208.4
YMAR23	Martis Creek / W1	40	459.8	384	289.9	225.1
XMAR24	Martis Creek / W1	39.5	246.8	244.3	239.7	212.4
UHWY	Martis Creek / MAIN	39.5	8463	7076.9	4442.1	2142.8
NS22	Martis Creek / SP2	189.5	142.7	100	42.5	12.8
YNS31	Martis Creek / SP2	188.5	194.6	135.7	59.2	17.6
YNS22B	Martis Creek / SP2	185.5	203.3	141.8	61.7	19
MG7	Martis Creek / SP1	199	1171.5	862	461.6	180.1
YNS24C	Martis Creek / SP1	195.5	1267.4	930.6	498.2	192.5
NS18	Martis Creek / SP1	20	112.8	78.7	30.8	10.7

TABLE I.II.C.14B : PROJECT FLOW CHANGES – WARM EVENT-HIGHWAY TRAIL

HEC-1 Watershed Node	HEC-RAS River/Stream	HEC-RAS Cross Section	POST-PROJECT - PRE-PROJECT DIFFERENCE 500-YEAR (cfs)	100-YEAR (cfs)	10-YEAR (cfs)	2-YEAR (cfs)	POST - PRE DIFFERENCE % 500-YEAR (cfs)	100-YEAR (cfs)	10-YEAR (cfs)	2-YEAR (cfs)
YE20D	Martis Creek / NW	100	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
UE30CR	Martis Creek / NW	96	0.1	0.1	0.1	0.1	0.02	0.03	0.05	0.14
YE40BC	Martis Creek / NW	91	0.2	0.3	0.3	0.4	0.03	0.06	0.12	0.47
YE80C	Martis Creek / NW	89	0.3	0.3	0.3	0.4	0.03	0.04	0.07	0.26
E40C	Martis Creek / NW2	110	0.1	0.1	0.1	0.1	0.38	0.52	1.00	3.03
YE40D	Martis Creek / NW2	108	0.1	0.1	0.1	0.1	0.26	0.36	0.69	2.13
YE40DC	Martis Creek / NW3	79.5	0.3	0.4	0.4	0.6	0.03	0.05	0.09	0.37
YE85	Martis Creek / NW3	78	0.5	0.6	0.5	0.7	0.03	0.06	0.09	0.36
YE85B	Martis Creek / NW3	77	0.5	0.6	0.6	0.8	0.03	0.05	0.10	0.41
YE85CC	Martis Creek / NW3	73	0.1	0.1	0.6	0.7	0.02	0.02	0.12	0.36
VMF1CR	Martis Creek / NW4	69.5	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
VMF2CR	Martis Creek / NW4	68.5	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
YNS26	Martis Creek / NW4	65.5	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
YNS27	Martis Creek / NW5	59.5	0.1	0.0	0.7	0.9	0.00	0.00	0.02	0.06
YNS28B	Martis Creek / NW5	57.5	0.1	0.1	0.7	0.9	0.00	0.00	0.02	0.06
YNS28A	Martis Creek / NW5	56.5	0.1	0.1	0.6	0.9	0.00	0.00	0.02	0.06
YNSALL	Martis Creek / NW5	56	0.0	0.7	1.9	1.8	0.00	0.01	0.04	0.09
YR21B	Martis Creek / W1	49.5	0.1	0.3	-0.3	0.5	0.01	0.03	-0.06	0.21
MAR22B	Martis Creek / W1	47	0.3	0.0	0.0	0.1	0.13	0.00	0.00	0.05
YR22A	Martis Creek / W1	44	0.6	0.1	0.1	0.2	0.24	0.04	0.05	0.10
XMAR23	Martis Creek / W1	41	0.2	-0.1	0.2	0.3	0.07	-0.04	0.09	0.14
YMAR23	Martis Creek / W1	40	0.6	0.2	0.3	0.3	0.13	0.05	0.10	0.13
XMAR24	Martis Creek / W1	39.5	0.1	0.0	0.0	0.1	0.04	0.00	0.00	0.05
UHWY	Martis Creek / MAIN	39.5	0.4	0.6	1.5	2.1	0.00	0.01	0.03	0.10
NS22	Martis Creek / SP2	189.5	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
YNS31	Martis Creek / SP2	188.5	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
YNS22B	Martis Creek / SP2	185.5	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
MG7	Martis Creek / SP1	199	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
YNS24C	Martis Creek / SP1	195.5	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
NS18	Martis Creek / SP1	20	0.2	0.3	0.5	0.2	0.18	0.38	1.62	1.87

TABLE I.II.C.15 : EST. POST-PROJECT PEAK FLOW RATES – WARM EVENT-PEAK OF ALL ALTERNATIVES

HEC-1 Watershed Node	HEC-RAS River/Stream	HEC-RAS Cross Section	500-YEAR FLOW (cfs)	100-YEAR FLOW (cfs)	10-YEAR FLOW (cfs)	2-YEAR FLOW (cfs)	POST-PROJECT - PRE-PROJECT DIFFERENCE 500-YEAR (cfs)	100-YEAR (cfs)	10-YEAR (cfs)	2-YEAR (cfs)
YE20D	Martis Creek / NW	100	477	345.5	179.4	62.6	0.0	0	0	0
UE30CR	Martis Creek / NW	96	548.7	399.2	208	73	0.1	0.1	0.1	0.1
YE40BC	Martis Creek / NW	91	632.4	463.7	243.8	85.7	0.2	0.3	0.3	0.4
YE80C	Martis Creek / NW	89	1097	805.8	428.6	156.4	0.3	0.3	0.3	0.4
E40C	Martis Creek / NW2	110	26.2	19.2	10	3.3	0.1	0.1	0.1	0.1
YE40D	Martis Creek / NW2	108	37.9	27.6	14.4	4.7	0.1	0.1	0.1	0.1
YE40DC	Martis Creek / NW3	79.5	1134.8	833.4	443	161.1	0.3	0.4	0.4	0.6
YE85	Martis Creek / NW3	78	1468.9	1076	566.1	192.7	0.5	0.7	0.6	0.9
YE85B	Martis Creek / NW3	77	1490.9	1091.6	574.4	196	0.6	0.7	0.7	1
YE85CC	Martis Creek / NW3	73	604.6	557.2	500.3	196.8	0.1	0.1	0.6	1
VMF1CR	Martis Creek / NW4	69.5	8564.1	6190.3	3077.9	1100.3	0.0	0	0	0
VMF2CR	Martis Creek / NW4	68.5	8610.7	6225.2	3097.8	1106	0.0	0	0	0
YNS26	Martis Creek / NW4	65.5	9600.7	6951.2	3461.4	1265.1	0.4	0.2	0.3	0.1
YNS27	Martis Creek / NW5	59.5	7744.5	6206.1	3838.1	1451.9	0.3	0.2	1	1.2
YNS28B	Martis Creek / NW5	57.5	7786.7	6241	3863.3	1464.1	0.3	0.3	1	1.2
YNS28A	Martis Creek / NW5	56.5	7814.6	6264.4	3880.3	1472.8	0.3	0.2	1	1.2
YNSALL	Martis Creek / NW5	56	10636	8335.7	4942.7	1982.6	0.0	0.9	1.9	2.3
YR21B	Martis Creek / W1	49.5	1639.7	1065	483.1	241.2	0.1	0.3	0	0.5
MAR22B	Martis Creek / W1	47	231	221.2	209	200	0.3	0	0	0.1
YR22A	Martis Creek / W1	44	252.1	236.4	217	202.7	0.6	0.1	0.1	0.2
XMAR23	Martis Creek / W1	41	296.6	267	231.1	208.4	0.2	0	0.2	0.3
YMAR23	Martis Creek / W1	40	459.8	384	289.9	225.1	0.6	0.2	0.3	0.3
XMAR24	Martis Creek / W1	39.5	246.8	244.3	239.7	212.4	0.1	0	0	0.1
UHWY	Martis Creek / MAIN	39.5	8463	7077	4442.1	2142.9	0.4	0.7	1.5	2.2
NS22	Martis Creek / SP2	189.5	142.7	100.1	42.5	12.8	0.1	0	0.1	0
YNS31	Martis Creek / SP2	188.5	194.7	135.8	59.4	17.7	0.1	0.1	0.1	0.1
YNS22B	Martis Creek / SP2	185.5	203.4	141.9	61.8	19.2	0.1	0.1	0.2	0.2
MG7	Martis Creek / SP1	199	1172	862	461.6	180.2	0.5	0	0	0.1
YNS24C	Martis Creek / SP1	195.5	1267.9	930.6	498.2	192.9	0.5	0	0	0.4
NS18	Martis Creek / SP1	20	112.8	78.7	30.8	10.7	0.2	0.3	0.5	0.2
E30A	Offsite		6.8	4.9	2.5	0.9	0.3	0.3	0.3	0.3

1.II.D Peak Flow Impacts :

Some minor increases to peak flow rates are demonstrated in Tables I.II.C.7, I.II.C.14 and I.II.C.15. These potential changes to peak flows will be evaluated in the included hydraulic analysis to determine if water surface elevations are impacted by the peak flow rate changes. The values of the worst case peak flow of the Highway Trail or Valley Trail alternatives is shown in Table I.II.C.15, and these values are used in the post-project WARM event hydraulic analysis.

1-III. Hydraulics:

1-III.A Flood Plain Analysis:

The existing project site area includes FEMA Zone A delineation at Martis Creek as shown on the FEMA Flood Insurance Rate Map. A reduced scale version of this map is provided in Figure 1-III.A. The floodplain near the trail system results from local watershed runoff combining with a downstream backwater condition. The backwater condition has been estimated to flood to approximately elevation 5845 at the downstream side of Highway 267. The hydraulic analysis for the FROZEN event condition provides the maximum 100-year flood elevations within the project area. The FROZEN analysis results should be used for determining the required elevations of proposed insurable structures, and for evaluating potential 100-year storm event flood damages within the watershed. The hydraulic analysis for the WARM event condition is used to evaluate potential impacts of the project to watershed hydrology.

The Army Corps HEC-RAS software was utilized to develop the included hydraulic models for the proposed MVRT project. Floodplain limits were determined for the 2-year, 10-year and 100-year events, for the pre-project and post-project conditions, and for the warm season event and frozen ground conditions events. Floodplain elevations are shown on the included FP-1W, FP-2W, FP-1F and FP-2F for the 100-year storm event for each of the conditions. FP-1W and FP-1F show the pre-project conditions for the WARM and FROZEN storm events respectively.

The hydraulic evaluations also included analysis of the 500-year event which is not plotted or shown in the included exhibits, however, the results are summarized in the appendices of this report, with the other hydraulic results. The HEC-RAS summary tables for all events are provided in Appendices C and D for the pre-project and post-project respectively. Note cross culverts and bridges are being evaluated for the “FROZEN” & WARM event peak 100-year flow rates determined in the HEC-1 post-project analysis. Future bridges proposed with the project are included in the HEC-RAS analysis.

Culvert sizes were evaluated per project designs as described in Table 1.III.B below. Alternative culverts sizes may be substituted at the time of design with adequate support for design capacity.

FIGURE 1-III.1 - FIRMETTE MAP

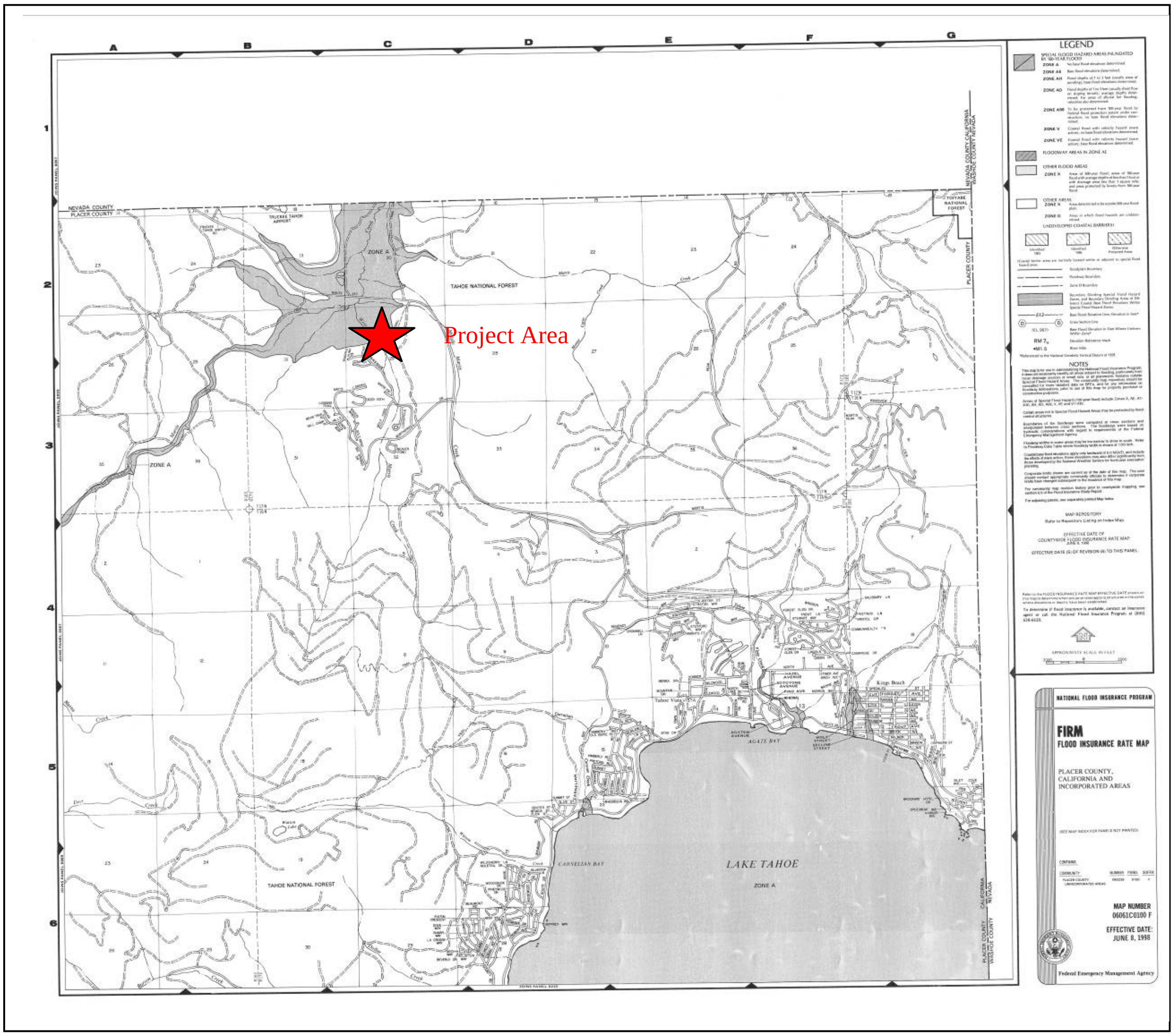
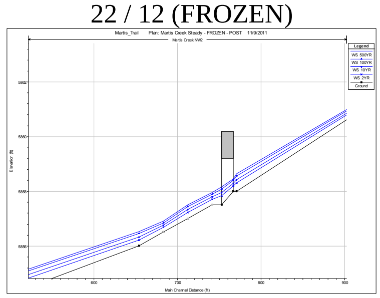
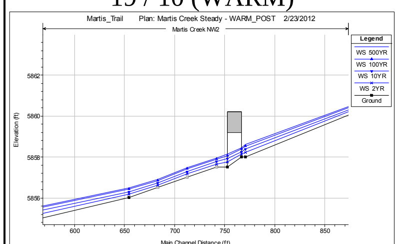
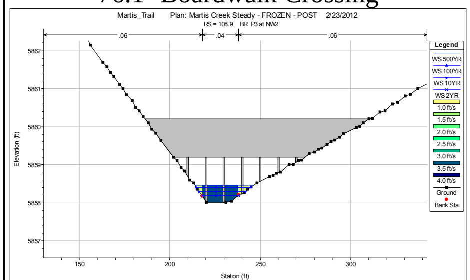
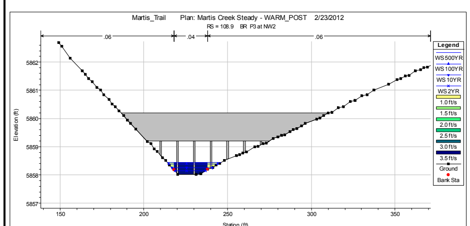
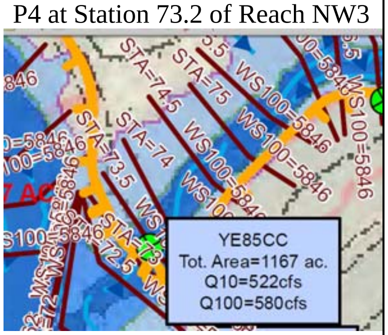
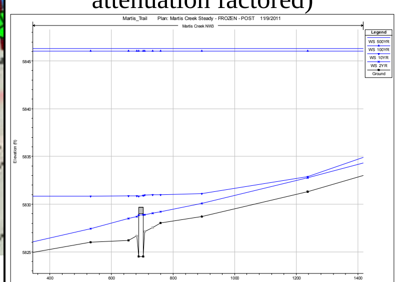
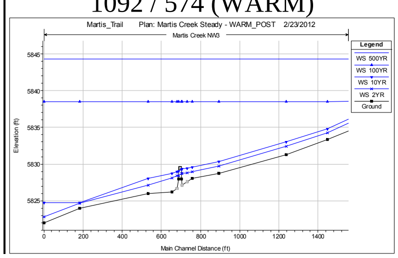
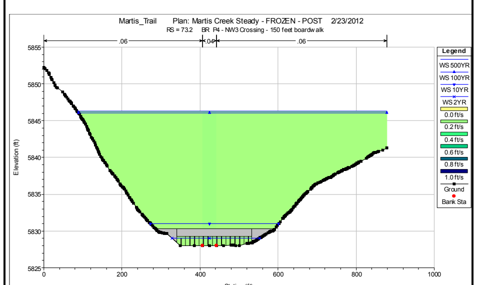
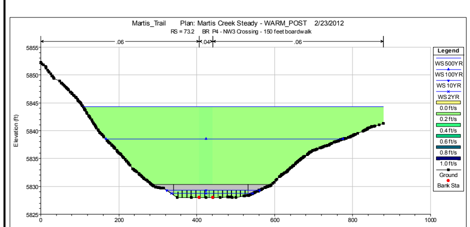


TABLE 1.III.A: Project Bridges and Culverts - Proposed

Culvert Station/Location	Frozen Event Peak Q100/Q10 Warm Event Peak Q100/Q10 (cfs)	Proposed Culvert Size
P3 at Station 108.9 of Reach NW2 	22 / 12 (FROZEN)  19 / 10 (WARM) 	76.1’ Boardwalk Crossing  
P4 at Station 73.2 of Reach NW3 	1247 / 739 (FROZEN) (580 / 522 with backwater attenuation factored)  1092 / 574 (WARM) 	192’ Boardwalk Crossing  

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<td>P5A at Station 67.8 of Reach NW4

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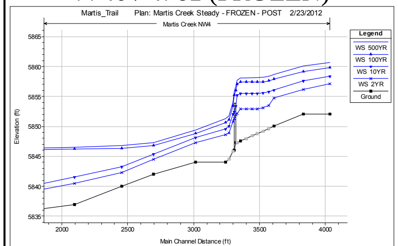
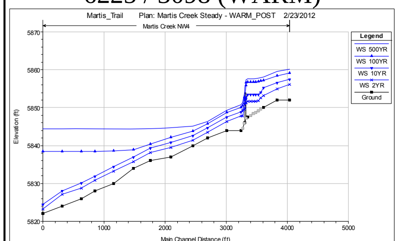
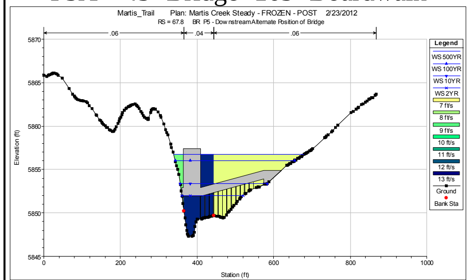
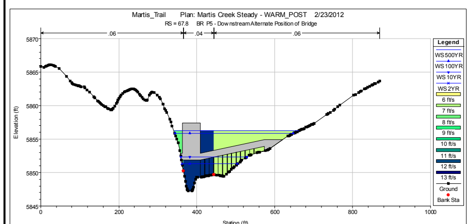
<td>7740 / 4761 (FROZEN)

6225 / 3098 (WARM)
</td>
<td>P5A – 45’ Bridge+165’ Boardwalk

</td>
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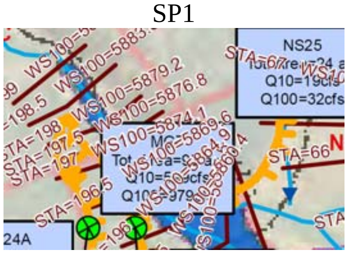
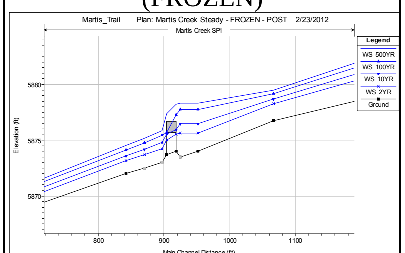
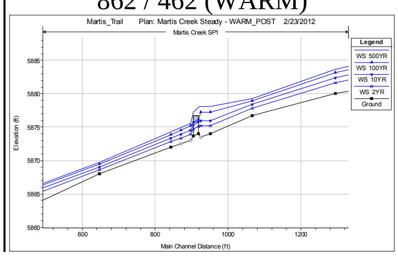
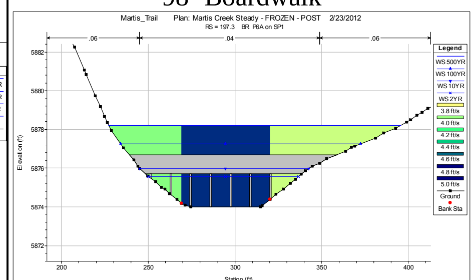
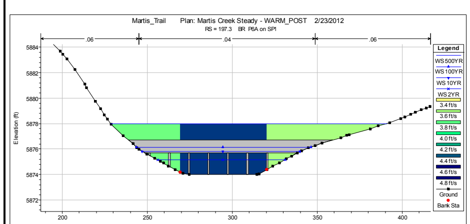
<tr>
<td>P6A at Station 197.3 of Reach SP1

</td>
<td>1058 / 646 (FROZEN)

862 / 462 (WARM)
</td>
<td>98’ Boardwalk

</td>
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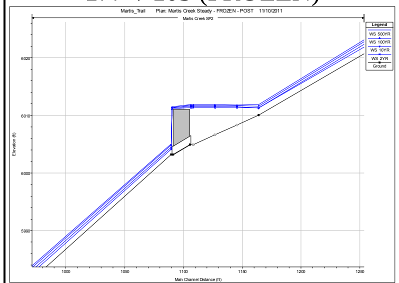
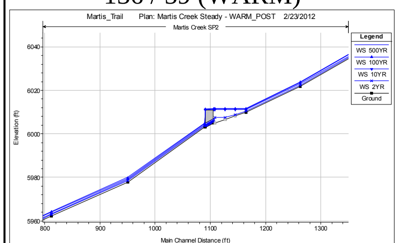
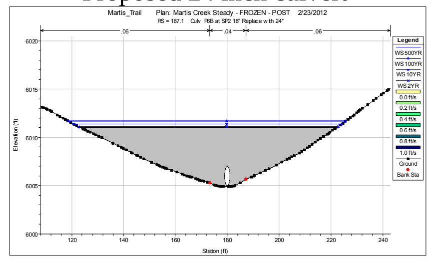
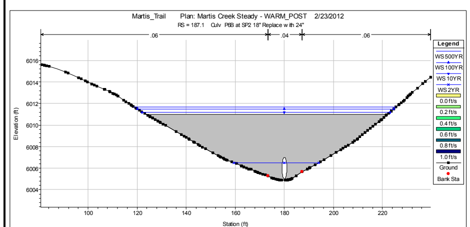
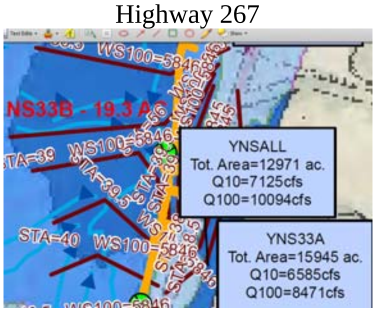
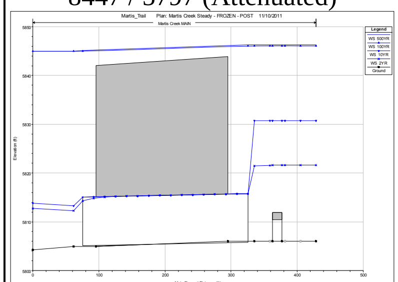
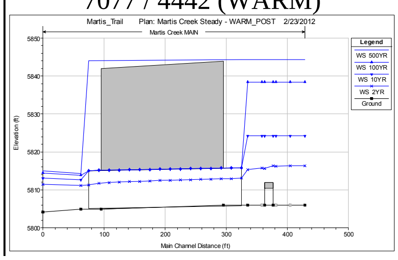
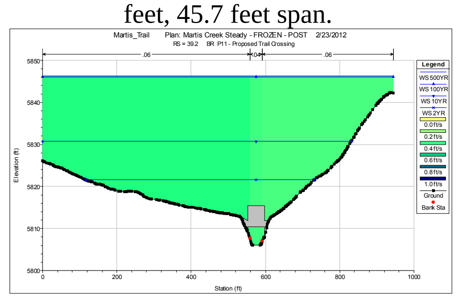
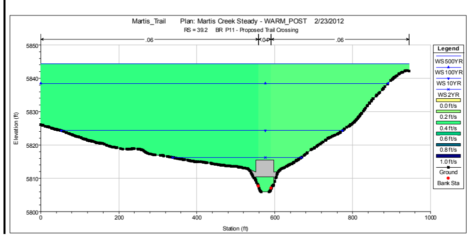
</table>

<table>
<tr>
<td>P6B at Station 187.1 of Reach SP2

</td>
<td>177 / 105 (FROZEN)

136 / 59 (WARM)

</td>
<td>Proposed 24 inch culvert


</td>
</tr>
<tr>
<td>P11 at Station 39.2 of MAIN near Highway 267

</td>
<td>8447 / 5797 (Attenuated)

7077 / 4442 (WARM)

</td>
<td>New Franks Fish Bridge widened to 12 feet, 45.7 feet span.



</td>
</tr>
</table>

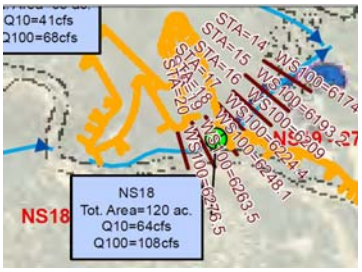
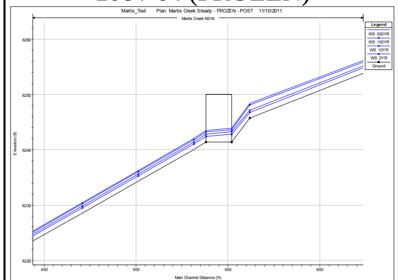
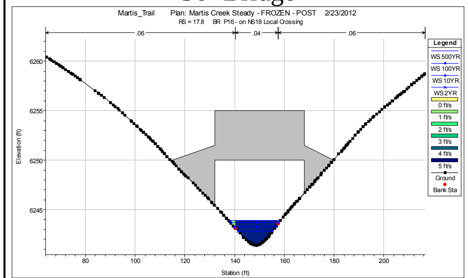
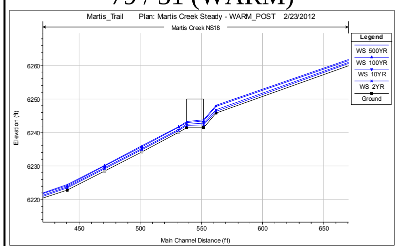
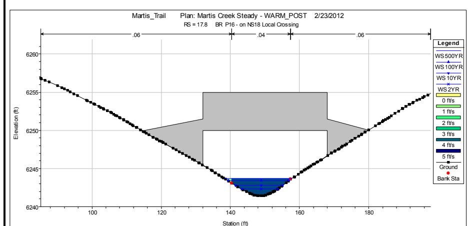
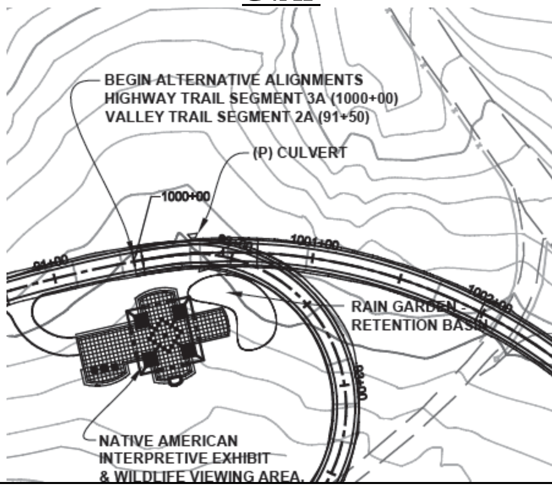
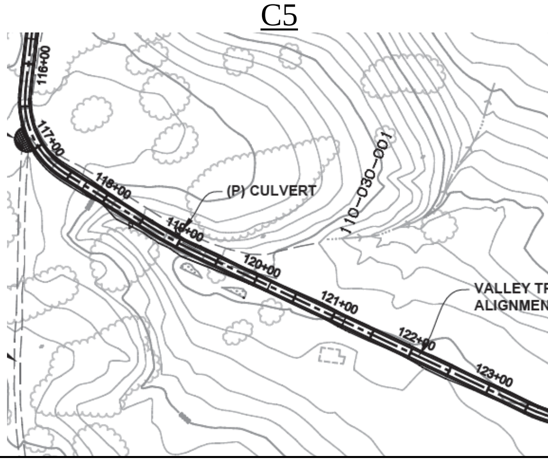
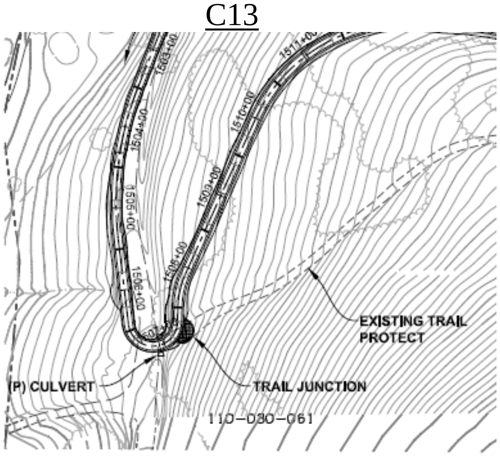
P16 at Station 17.8 of NS18	108 / 64 (FROZEN)	36' Bridge
		
	79 / 31 (WARM)	
		

TABLE 1.III.B: Additional Proposed Culverts

Culvert Station/Location	Culvert Design Information
C4AF 	Tributary Watershed Area= 1.5 ac Part of Watershed: E85C FROZEN 100YR Q= 1.7cfs FROZEN 10YR Q= 1.0cfs WARM 100YR Q= 1.5cfs WARM 10YR Q= 0.8cfs Recommended Culvert: 12 inch concrete (or equiv.)
C5 	Tributary Watershed Area= 1.0 ac Part of Watershed: NS26 FROZEN 100YR Q= 1.3cfs FROZEN 10YR Q= 0.8cfs WARM 100YR Q= 1.3cfs WARM 10YR Q= 0.7cfs Recommended Culvert: 12 inch concrete (or equiv.)
C13 	Tributary Watershed Area = 24.88 ac However, existing drainage ditch will overtop existing trail and only 7 cfs can make it to this culvert crossing. Part of Watershed: NS35 FROZEN 100YR Q= 27.2cfs (7cfs) FROZEN 10YR Q= 15.7cfs (7 cfs) WARM 100YR Q= 23.6cfs (7cfs) WARM 10YR Q= 11.9cfs (7cfs) Recommended Culvert Size: 18 inch concrete (or equiv.)

The project may identify and require additional drainage pipeline and culverts to be located at other concentrated flow locations not listed in Table 1.III.A or in the preliminary layout plans.

An ‘n’ value of 0.060 was selected to be utilized throughout the analysis of this project for the native channel overbank areas. Since very little vegetation is present at this project (near the channels), and the surface conditions at the channels appear smooth from the photographic data provided, an ‘n’ value of 0.040 was selected for the existing low flow channels.

1-III.B Sheet Flow Trail Crossings :

Much of the proposed length of trail is placed along existing slopes where sheet flows will cross the trails. Where concentrated flows are not anticipated, pipe drain crossings are not proposed and the trail will be designed to pass the sheet flows over the trail and to the down slope maintaining the sheet flow conditions.

Information is being provided to the project design team to assess these sheet flows in this report. Peak combined flow rates are evaluated for watersheds at the locations of the sheet flow crossings. These combined peak flow rates could be divided by the length of the trail intersecting each watershed to evaluate a flowrate per linear foot of trail as a sheet flow rate.

1-III.C Water Quality:

The water quality components for this project are discussed and evaluated in the “MARTIS VALLEY REGIONAL TRAIL WATER QUALITY PLAN” prepared by AUERBACH ENGINEERING CORP., January 27, 2012.

2. SECTION 2 - APPENDICES

A-1. HEC-1 Pre-Project PDP Input WARM EVENT

```
ID DRY CREEK WATERSHED, PLACER COUNTY, CA
ID WATERSHED UPDATE MODELS - DRAFT ULT BUILDOUT
ID DRAFT MODEL FOR HYD ROUTING - DCTOOLBOX SOURCE
ID CESI/RBF 8/29/2011
ID
IT     5 13FEB08       0     300
IO     5               0
IN     5       0       0
*DIAGRAM
*
*
KK    E2
KM    Large Offsite Shed  155.8ac
BA0.2434
PB
* PI
BF -38.7
LU  0.10  0.2110   2.000
UK  1500  0.0830   0.600  100.00
RD  4000  0.0300   0.060            TRAP     2.0    25.0
ZW C=FLOW
*
KK   E15
KM   Other Large Upstream offsite shed 111.1 ac
BA0.1736
PB
* PI
BF -38.7
LU  0.10  0.1470   2.000
UK  1000  0.0580   0.600  100.00
RD  2500  0.0300   0.060            TRAP     2.0    10.0     YES
ZW C=FLOW
*
KK   E10
KM    Large Undeveloped upstream watershed. (139.2)
BA0.0311
PB
* PI
BF -38.7
LU  0.10  0.1790   2.000
UK  2000  0.0750   0.600  100.00
RD  3200  0.0700   0.060   .0500    TRAP    20.0    40.0
RD  3300  0.0010   0.040   .1500    TRAP    20.0    20.0
ZW C=FLOW
*
KK YE10C
KM    Upstream of Project
HC     2
ZW C=FLOW
*
KK VE12R
KM    ROUTE TO BOTTOM OF E20
RD  1500  0.0170   0.040            TRAP    15.0     5.0
ZW C=FLOW
*
KK  E20A
KM    12.0 AC
BA0.0106
PB
* PI
BF -38.7
LU  0.10  0.2430   3.000
UK  1200  0.0580   0.600  100.00
RD   700  0.0170   0.060            TRAP    15.0     5.0
ZW C=FLOW
*
KK YE20A
KM  0
HC     2
ZW C=FLOW
*
KK  E14A
KM    Small Roadway Shed 4 ac
BA0.0063
PB
* PI
BF -38.7
LU  0.10  0.1000  10.000
UK   500  0.0300   0.600  100.00
RD   500  0.0300   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  E18A
KM    Small Hopkins Roadway Drain 3.6ac
BA0.0057
PB
* PI
BF -38.7
LU  0.10  0.2070  10.000
UK   450  0.0300   0.600  100.00
RD   500  0.0300   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK  E16A
```

```
KM    Small Hopkins Roadway Drain 0.4ac
BA0.0006
PB
* PI
BF -38.7
LU  0.10  0.2130  90.000
UK    50  0.0200   0.600  100.00
RD   100  0.0300   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYE16AC
KM  0
HC     2
ZW C=FLOW
*
KK  E20B
KM    10.9 AC
BA0.0182
PB
* PI
BF -38.7
LU  0.10  0.2000   5.000
UK   800  0.0700   0.600  100.00
RD   200  0.0170   0.060            TRAP    15.0     5.0
ZW C=FLOW
*
KK YE20B
KM  0
HC     2
ZW C=FLOW
*
KKVE16AR
KM    ROUTE TO BOTTOM OF E20
RD  2000  0.0170   0.040            TRAP    15.0     5.0
ZW C=FLOW
*
KK  E20C
KM    4.8 AC
BA0.0075
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  90.000
UK   500  0.0500   0.600      90
UK    18  0.0200   0.110      10
RD   200  0.0170   0.060   .0500    TRAP    15.0     5.0
RD   500  0.0010   0.040            TRAP    15.0     5.0
ZW C=FLOW
*
KK YE20C
KM  0
HC     3
ZW C=FLOW
*
KK  E20D
KM    10.6 AC
BA0.0166
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000    0.10  0.2500  90.000
UK   500  0.0500   0.600      89
UK    18  0.0200   0.110      11
RD   200  0.0170   0.060   .0500    TRAP    15.0     5.0
RD   600  0.0010   0.040            TRAP    15.0     5.0
ZW C=FLOW
*
KK  E20E
KM    8.4 AC Mostly diverted area added to this shed
BA0.0132
PB
* PI
BF -38.7
LU  0.10  0.2500  12.000    0.10  0.2500  90.000
UK   900  0.0200   0.600      90
UK    18  0.0200   0.110      10
RD   200  0.0170   0.060   .0500    TRAP    15.0     5.0
RD   600  0.0010   0.040            TRAP    15.0     5.0
ZW C=FLOW
*
KK YE20D
KM  0
HC     3
ZW C=FLOW
*
KK   E30
KM    MAIN SHED ABOVE TWIN CULVERTS IN S. MILL RD.  40.8AC
BA0.0638
PB
* PI
BF -38.7
LU  0.10  0.2500   8.000
UK   600  0.0380   0.600  100.00
RD  1900  0.0140   0.060            TRAP    15.0    10.0     YES
```

```
ZW C=FLOW
*
KK   E19
KM    HILLSIDE ABOVE SM RD.     4.2AC
BA0.0065
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  90.000
UK   400  0.0180   0.600      89
UK    18  0.0200   0.110      11
RD   570  0.0140   0.060            TRAP     2.0    25.0
RD   550  0.0010   0.012            CIRC     1.0     0.0      NO
ZW C=FLOW
*
KK VE19R
KM    ROUTE TO BOTTOM OF E20
RD   600  0.0400   0.040            TRAP    10.0    40.0
ZW C=FLOW
*
KK   E21
KM    HILLSIDE ABOVE ROAD           5.7AC
BA0.0084
PB
* PI
BF -38.7
LU  0.10  0.2500   7.000    0.10  0.2500  90.000
UK   600  0.0170   0.600      74
UK    18  0.0200   0.110      26
RD   800  0.0150   0.060            TRAP     2.0    25.0
RD   800  0.0010   0.015            TRAP     2.0    25.0      NO
ZW C=FLOW
*
KK  YE21
KM  0
HC     2
ZW C=FLOW
*
KK   E22
KM  "  HILLSIDE ABOVE 15"" CULVERT   2.9AC                                                 "
BA0.0045
PB
* PI
BF -38.7
LU  0.10  0.2500   7.000
UK   350  0.0270   0.600  100.00
RD   250  0.0300   0.060            TRAP     2.0    10.0      NO
ZW C=FLOW
*
KK YE22C
KM    COMBINE E21 AND E22
HC     2
ZW C=FLOW
*
KK VE22R
KM    ROUTE TO BOTTOM OF E30
RD   700  0.0140   0.040            TRAP    15.0    10.0
ZW C=FLOW
*
KK   E23
KM    PORTION OF S.MILL RD.     0.5AC
BA0.0008
PB
* PI
BF -38.7
LU  0.10  0.2500  90.000
UK    18  0.0200   0.110  100.00
RD   500  0.0240   0.060            TRAP     2.0    25.0      NO
ZW C=FLOW
*
KK  YE23
KM  0
HC     2
ZW C=FLOW
*
KK VE23R
KM    ROUTE TO BOTTOM OF E30
RD   400  0.0140   0.040            TRAP    15.0    10.0
ZW C=FLOW
*
KK YE30C
KM     COMBINE AT BOTTOM OF E30
HC     2
ZW C=FLOW
*
*
KKUE30CR
KM  0
RS     1    FLOW      -1
SV  0.00    0.54    0.84    1.03    1.34    1.56    1.82    2.09    7.48
SQ   0.0    73.0   104.0   125.0   153.0   173.0   195.0   217.0   700.0
ZW C=FLOW
*
KK   E40
```

```
KM    LARGE SHED DOWNSTREAM OF S. MILL RD.    85.5Ac
BA0.1147
PB
* PI
BF -38.7
LU  0.10  0.1800   8.100
UK  1600  0.0340   0.600  100.00
RD   600  0.0400   0.060   .0100    TRAP    10.0    40.0
RD  3000  0.0010   0.040            TRAP    40.0    20.0     YES
ZW C=FLOW
*
KK  E40B
KM    LARGE SHED DOWNSTREAM OF S. MILL RD.    85.5Ac
BA0.0190
PB
* PI
BF -38.7
LU  0.10  0.2480   8.100
UK   600  0.0100   0.600  100.00
RD   600  0.0400   0.060   .0100    TRAP    10.0    40.0
RD  1000  0.0010   0.040            TRAP    40.0    20.0
ZW C=FLOW
*
KKYE40BC
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK  E14C
KM    OFF-SITE SHED WEST OF S. MILL RD.    3.6AC
BA0.0059
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   600  0.0800   0.600  100.00
RD   500  0.0070   0.060   .0030    TRAP     2.0    25.0
RD   500  0.0010   0.040            TRAP     2.0    10.0      NO
ZW C=FLOW
*
KK VE60R
KM    ROUTE TO MAIN CHANNEL OF E64
RD  1100  0.0700   0.060            TRAP    40.0    40.0
ZW C=FLOW
*
KK  E64A
KM    EAST OF S. MILL RD.      16.1AC
BA0.0248
PB
* PI
BF -38.7
LU  0.10  0.1590  14.000    0.10  0.1590  90.000
UK  1000  0.0500   0.600      94
UK    18  0.0200   0.110       6
RD  1000  0.0700   0.060   .0140    TRAP    40.0    40.0
RD   500  0.0010   0.040            TRAP    20.0    10.0
ZW C=FLOW
*
KK YE64A
KM  0
HC     2
ZW C=FLOW
*
KK  E64B
KM    EAST OF S. MILL RD.      12.1AC
BA0.0190
PB
* PI
BF -38.7
LU  0.10  0.1750  15.000    0.10  0.1750  90.000
UK   800  0.0700   0.600      97
UK    18  0.0200   0.110       3
RD  1000  0.0700   0.060   .0140    TRAP    40.0    40.0
RD   500  0.0010   0.040            TRAP    20.0    10.0
ZW C=FLOW
*
KK YE64B
KM  0
HC     2
ZW C=FLOW
*
KK VE64R
KM    ROUTE TO MAIN CHANNEL OF E75
RD  1000  0.0350   0.040            TRAP    40.0    10.0
ZW C=FLOW
*
* - - - - - -
*
*
KK   E70
KM    OFF-SITE- LAHONTAN UNITS 7&8 AND LAHONTAN II    78.6AC
```

```
BA0.1255
PB
* PI
BF -38.7
LU  0.10  0.1710   8.000    0.10  0.1710  90.000
UK  1200  0.0410   0.600      95
UK    18  0.0200   0.110       5
RD   450  0.0140   0.060   .0100    TRAP     2.0    25.0
RD  1800  0.0010   0.040            TRAP    20.0    10.0      NO
ZW C=FLOW
*
KK   E71
KM    OFF-SITE PORTION OF LAHONTAN II    17.8Ac
BA0.0279
PB
* PI
BF -38.7
LU  0.10  0.2270  19.100
UK  1400  0.0500   0.600  100.00
RD   700  0.0300   0.060   .0070    TRAP     2.0    25.0
RD   400  0.0010   0.040   .0150    TRAP     2.0     5.0
ZW C=FLOW
*
KK   E72
KM    OFF-SITE PORTION OF LAHONTAN II   12.1Ac
BA0.0178
PB
* PI
BF -38.7
LU  0.10  0.1980   9.600
UK  1700  0.0370   0.600  100.00
RD   850  0.0530   0.060   .0100    TRAP    20.0    20.0
RD   700  0.0010   0.040            TRAP    10.0    20.0      NO
ZW C=FLOW
*
KKYE7012
KM  0
HC     2
ZW C=FLOW
*
KK VE72R
KM    ROUTE TO MAIN CHANNEL OF E75
RD   750  0.0300   0.040            TRAP    40.0    10.0
ZW C=FLOW
*
KKY72&64
KM    ROUTE TO MAIN CHANNEL OF E75
HC     2
ZW C=FLOW
*
KK   E75
KM    MOSTLY OFF-SITE AND DOWNSTREAM SHED  57.9Ac
BA0.0905
PB
* PI
BF -38.7
LU  0.10  0.1910   3.200
UK  1200  0.0580   0.600  100.00
RD   600  0.0500   0.060   .0050    TRAP    20.0    20.0
RD  1400  0.0010   0.040            TRAP    10.0    50.0     YES
ZW C=FLOW
*
KK  YE75
KM  0
HC     2
ZW C=FLOW
*
*
KKUE75CR
KM  0
RS     1    FLOW      -1
SV  0.00    0.33    0.45    0.52    0.61    0.67    0.73    0.79    0.87    2.95
SQ   0.0    24.0    35.0    42.0    51.0    58.0    66.0    73.0    83.0   400.0
ZW C=FLOW
*
* - - - - - -
*
*
KK  E14B
KM    OFF-SITE SHED WEST OF S. MILL RD.
BA0.0397
PB
* PI
BF -38.7
LU  0.10  0.1920   2.000
UK   800  0.0800   0.600  100.00
RD   800  0.0300   0.060   .0200    TRAP    40.0    40.0
RD   400  0.0010   0.040            TRAP     2.0     6.0      NO
ZW C=FLOW
*
KK VE50R
KM    ROUTE TO MAIN CHANNEL OF E55
RD   850  0.0700   0.060            TRAP    40.0    40.0
ZW C=FLOW
```

```
*
KK  E55A
KM    EAST OF S. MILL RD.   16.7AC
BA0.0261
PB
* PI
BF -38.7
LU  0.10  0.1360  20.000
UK   500  0.0400   0.600  100.00
RD   400  0.0700   0.060   .0070    TRAP    40.0    40.0
RD   500  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KK YE55A
KM  0
HC     2
ZW C=FLOW
*
*
KKUE55AR
KM  0
RS     1    FLOW      -1
SV  0.00    0.08    0.10    0.12    0.14    0.15    0.16    0.17    0.30
SQ   0.0    18.0    25.0    30.0    36.0    41.0    45.0    49.0    80.0
ZW C=FLOW
*
KK  E58D
KM    EAST OF S. MILL RD.   23.7AC
BA0.0229
PB
* PI
BF -38.7
LU  0.10  0.2500   9.500
UK   800  0.0400   0.600  100.00
RD   400  0.0700   0.060   .0070    TRAP    40.0    40.0
RD  1400  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KK YE58D
KM  0
HC     2
ZW C=FLOW
*
KK  E55B
KM    EAST OF S. MILL RD.   3.2AC
BA0.0050
PB
* PI
BF -38.7
LU  0.10  0.1920  40.000
UK   200  0.0500   0.600  100.00
RD   400  0.0700   0.060   .0070    TRAP    40.0    40.0
RD   500  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KK  E55C
KM    EAST OF S. MILL RD.   7.7AC
BA0.0120
PB
* PI
BF -38.7
LU  0.10  0.2470  22.000
UK   200  0.0500   0.600  100.00
RD   400  0.0700   0.060   .0070    TRAP    40.0    40.0
RD   500  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KK YE55C
KM  0
HC     2
ZW C=FLOW
*
*
KKU55CCR
KM  0
RS     1    FLOW      -1
SV  0.00    0.55    0.76    0.91    1.13    1.28    1.62    2.09    2.89
SQ   0.0    20.0    28.0    34.0    42.0    47.0    53.0    59.0    80.0
ZW C=FLOW
*
KK  E55E
KM    EAST OF S. MILL RD.   3.6AC
BA0.0056
PB
* PI
BF -38.7
LU  0.10  0.2500  25.000
UK   300  0.0200   0.600  100.00
RD   400  0.0700   0.060   .0070    TRAP    40.0    40.0
RD   500  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KK YE55E
KM  0
```

```
HC     2
ZW C=FLOW
*
KK  E55F
KM    EAST OF S. MILL RD.   1.8AC
BA0.0028
PB
* PI
BF -38.7
LU  0.10  0.2500  25.000
UK   250  0.0300   0.600  100.00
RD   200  0.0700   0.060   .0070    TRAP    40.0    40.0
RD   300  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KK  E55G
KM    EAST OF S. MILL RD.   1AC
BA0.0015
PB
* PI
BF -38.7
LU  0.10  0.2500  11.000
UK   150  0.0200   0.600  100.00
RD   200  0.0700   0.060   .0070    TRAP    40.0    40.0
RD   300  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KKYE55GC
KM  0
HC     2
ZW C=FLOW
*
KK YE55G
KM  0
HC     2
ZW C=FLOW
*
*
KKUE55CR
KM  0
RS     1    FLOW      -1
SV  0.00    0.55    0.76    0.91    1.13    1.28    1.62    2.09    2.89
SQ   0.0    20.0    28.0    34.0    42.0    47.0    53.0    59.0    80.0
ZW C=FLOW
*
KK  E58C
KM    EAST OF S. MILL RD.   5.6AC
BA0.0088
PB
* PI
BF -38.7
LU  0.10  0.2500  36.000
UK   250  0.0600   0.600  100.00
RD   200  0.0700   0.060   .0070    TRAP    40.0    40.0
RD   500  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KK YE58C
KM  0
HC     2
ZW C=FLOW
*
KK  E55H
KM    EAST OF S. MILL RD.                                   44.1AC
BA0.0057
PB
* PI
BF -38.7
LU  0.10  0.2500   2.400
UK   400  0.0200   0.600  100.00
RD   400  0.0700   0.060   .0300    TRAP    40.0    40.0
RD  1000  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KK YE55H
KM  0
HC     2
ZW C=FLOW
*
KK  E58A
KM    EAST OF S. MILL RD.   5.3AC
BA0.0083
PB
* PI
BF -38.7
LU  0.10  0.2500  22.000
UK   300  0.0400   0.600  100.00
RD   200  0.0700   0.060   .0070    TRAP    40.0    40.0
RD   500  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KK YE58A
KM  0
HC     2
```

```
ZW C=FLOW
*
KK  E58E
KM    EAST OF S. MILL RD.   3.7AC
BA0.0370
PB
* PI
BF -38.7
LU  0.10  0.2250  22.000
UK   300  0.0200   0.600  100.00
RD   200  0.0700   0.060   .0070    TRAP    40.0    40.0
RD   500  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KK YE58E
KM  0
HC     2
ZW C=FLOW
*
KK   E80
KM    LAST DOWNSTREAM SHED
BA0.0452
PB
* PI
BF -38.7
LU  0.10  0.1310   2.000
UK  1300  0.0400   0.600  100.00
RD  1000  0.0250   0.060   .0200    TRAP    20.0    20.0
RD  1100  0.0010   0.040            TRAP    10.0    50.0     YES
ZW C=FLOW
*
KKYE5875
KM  0
HC     3
ZW C=FLOW
*
KK YE80C
KM    COMBINE WITH E40 FOR TOTAL AT LAST DOWNSTREAM POINT
HC     2
ZW C=FLOW
*
KK  E40C
KM    LARGE SHED DOWNSTREAM OF S. MILL RD.    85.5Ac
BA0.0344
PB
* PI
BF -38.7
LU  0.10  0.1660   8.100
UK  1200  0.0100   0.600  100.00
RD   600  0.0400   0.060   .0100    TRAP    10.0    40.0
RD  1000  0.0010   0.040            TRAP    40.0    20.0
ZW C=FLOW
*
KK  E40E
KM    LARGE SHED DOWNSTREAM OF S. MILL RD.    85.5Ac
BA0.0058
PB
* PI
BF -38.7
LU  0.10  0.2500   8.100
UK   600  0.0100   0.600  100.00
RD   600  0.0400   0.060   .0100    TRAP    10.0    40.0
RD  1000  0.0010   0.040            TRAP    40.0    20.0
ZW C=FLOW
*
KK  E40D
KM    LARGE SHED DOWNSTREAM OF S. MILL RD.    85.5Ac
BA0.0074
PB
* PI
BF -38.7
LU  0.10  0.1940   8.100
UK   600  0.0100   0.600  100.00
RD   600  0.0400   0.060   .0100    TRAP    10.0    40.0
RD  1000  0.0010   0.040            TRAP    40.0    20.0
ZW C=FLOW
*
KK YE40D
KM  0
HC     3
ZW C=FLOW
*
KKYE40DC
KM  0
HC     2
ZW C=FLOW
*
KK   E85
KM    OFFSITE DOWNSTREAM SHED     313.9
BA0.4599
PB
* PI
BF -38.7
LU  0.10  0.1750   2.000
```

```
UK  2500  0.0625   0.600  100.00
RD  2000  0.0250   0.060   .1000    TRAP    20.0    20.0
RD  5000  0.0010   0.040            TRAP    10.0    50.0
ZW C=FLOW
*
KK  YE85
KM  0
HC     2
ZW C=FLOW
*
KK  E85B
KM  E85B
BA0.0312
PB
* PI
BF -38.7
LU  0.10  0.2300   2.000
UK   400  0.0200   0.600  100.00
RD   500  0.0500   0.060            TRAP    20.0    10.0
ZW C=FLOW
*
KK YE85B
KM  0
HC     2
ZW C=FLOW
*
*
KKUW3END
KM  ROUTE FOR BACKWATER AT NW3
RS     1    FLOW      -1
SV  0.00    0.01    0.03    20.6     247     250
SQ   0.0    40.0   243.0     508     637   800.0
ZW C=FLOW
*
KK  E85C
KM  E85C
BA0.0079
PB
* PI
BF -38.7
LU  0.10  0.2380   2.000
UK   400  0.0200   0.600  100.00
RD   500  0.0500   0.060            TRAP    20.0    10.0
ZW C=FLOW
*
KKYE85CC
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK  E5A1
KM    E5A1 Drop Inlet
BA0.0730
PB
* PI
BF -38.7
LU  0.10  0.2040   2.000    0.10  0.2040  95.000
UK  1350  0.1330   0.600      98
UK   200  0.0200   0.110       3
RD  2000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK   E5B
KM    E5B
BA0.0139
PB
* PI
BF -38.7
LU  0.10  0.2450   2.000    0.10  0.2450  95.000
UK   600  0.0800   0.600      91
UK   200  0.0200   0.110       9
RD  2000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  YE5B
KM  0
HC     2
ZW C=FLOW
*
KK   E5C
KM    E5C
BA0.0051
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.0700   0.600      92
UK   200  0.0200   0.110       8
RD   500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
```

```
KK  YE5C
KM  0
HC     2
ZW C=FLOW
*
*
KKUE5ADT
KM  0
RS     1    FLOW      -1
SV  0.00    0.10    0.20    0.30    0.40    1.70    2.40
SQ   0.0     0.0     0.1     2.0    50.0    80.0   200.0
ZW C=FLOW
*
KK   E5D
KM    E5D
BA0.0850
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1500  0.0500   0.600  100.00
RD  1500  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YE5DC
KM  0
HC     2
ZW C=FLOW
*
KK  E6A1
KM    E6A1
BA0.0570
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1000  0.0680   0.600  100.00
RD  2700  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK  E6A2
KM    E6A2
BA0.0149
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   600  0.0680   0.600  100.00
RD   800  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYE6A1C
KM  0
HC     2
ZW C=FLOW
*
KK   E6C
KM    E6C
BA0.0939
PB
* PI
BF -38.7
LU  0.10  0.2460   2.000
UK  1600  0.0900   0.600  100.00
RD  1400  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YE6CC
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK GS10D
KM    GS10D
BA0.0124
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   900  0.0700   0.600      79
UK   100  0.0200   0.110      21
RD   200  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK GS10C
KM    GS10C
BA0.0169
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
```

```
UK   300  0.0600   0.600      91
UK   100  0.0200   0.110       9
RD   400  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYS10CC
KM  0
HC     2
ZW C=FLOW
*
KK GS10B
KM    GS10B
BA0.0044
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.0800   0.600      86
UK   100  0.0200   0.110      14
RD   400  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKGS10A1
KM    GS10A1
BA0.0290
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.0800   0.600      96
UK   100  0.0200   0.110       4
RD   500  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK GS10F
KM    GS10F
BA0.0248
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.0800   0.600      92
UK   100  0.0200   0.110       8
RD   900  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKY10FCC
KM  0
HC     2
ZW C=FLOW
*
KK GS10E
KM    GS10E
BA0.0153
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   300  0.0800   0.600      78
UK   100  0.0200   0.110      22
RD   600  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYS10AC
KM   COMBINATION AT MEADOWS ROUTING AREA
HC     2
ZW C=FLOW
*
KKGS10A2
KM   GS10A2
BA0.0278
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK  1400  0.0800   0.600      96
UK   100  0.0200   0.110       4
RD  1400  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYGDTCC
KM  0
HC     2
ZW C=FLOW
*
*
KKUGS10R
KM   MEADOWS WQ AND DETENTION RESERVOIR AT GS10E
RS     1    FLOW      -1
SV 11.60   13.00   15.95
SQ  61.0   100.0   330.0
ZW C=FLOW
*
*
```

```
KKUS10ER
KM   Channel Attenuation downstream of GS10R
RS     1    FLOW      -1
SV  0.00    0.05    0.27    0.50    0.72    0.95    1.15
SQ   0.0     0.0     5.0    15.0    27.0    37.0    62.0
ZW C=FLOW
*
KK GS10J
KM    GS10J
BA0.0099
PB
* PI
BF -38.7
LU  0.10  0.2500  83.000    0.10  0.2500  95.000
UK   300  0.0800   0.600      92
UK   200  0.0200   0.110       8
RD   500  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYS10JC
KM  0
HC     2
ZW C=FLOW
*
KK GS10G
KM    GS10G
BA0.0081
PB
* PI
BF -38.7
LU  0.10  0.2500  83.000    0.10  0.2500  95.000
UK   300  0.0800   0.600      90
UK   200  0.0200   0.110      10
RD   500  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
*
KKUS10JR
KM   Channel Attenuation From GS10J to GS10I
RS     1    FLOW      -1
SV  0.00    0.05    0.10    0.12    0.19    0.22    0.35
SQ   0.0     0.0     5.0    15.0    27.0    37.0    80.0
ZW C=FLOW
*
KK GS10H
KM    GS10H
BA0.0066
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   300  0.0800   0.600      81
UK   200  0.0200   0.110      19
RD   400  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK GS10I
KM    GS10I
BA0.0071
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   300  0.0600   0.600      78
UK   200  0.0200   0.110      22
RD   400  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK   E8A
KM    E8A
BA0.0049
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   200  0.1200   0.600      73
UK   100  0.0200   0.110      27
RD   300  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
*
KKUE8ASQ
KM  0
RS     1    FLOW      -1
SV  0.00    0.03    0.05    0.08    0.10    0.20    1.00
SQ   0.0     0.0     0.0     0.0     3.5    80.0   200.0
ZW C=FLOW
*
KK   E8B
KM    E8B
BA0.0122
PB
* PI
BF -38.7
```

```
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   400  0.0800   0.600      95
UK   100  0.0200   0.110       5
RD  1400  0.1000   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK   E8C
KM    E8C
BA0.0244
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   800  0.0800   0.600  100.00
RD  1400  0.1000   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YE8CC
KM  0
HC     2
ZW C=FLOW
*
KKYGS10C
KM  0
HC     2
ZW C=FLOW
*
KKYS10IC
KM  0
HC     2
ZW C=FLOW
*
*
KKUS10IR
KM   Storage Upstream of Siller Ranch Road -  Channel Routing Meadow to Schaffer m
RS     1    FLOW      -1
SV  0.00    0.05    0.12    0.19    0.26    0.33    1.55
SQ   0.0     0.0     5.0    15.0    27.0    37.0   400.0
ZW C=FLOW
*
*
KK UGS9R
KM  0
RS     1    FLOW      -1
SV  0.00    0.09    0.17    0.24    0.41    0.59    0.83    0.94    4.03
SQ   0.0    33.0    55.0    76.0   114.0   145.0   177.0   206.0   644.0
ZW C=FLOW
*
KK    E9
KM    E9
BA0.0213
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   600  0.0800   0.600  100.00
RD  1000  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
*
KKUGS11R
KM  0
RS     1    FLOW      -1
SV  0.00    0.25    0.42    0.58    0.95    1.37    2.24    2.77    6.95
SQ   0.0    33.0    55.0    76.0   114.0   145.0   177.0   206.0   644.0
ZW C=FLOW
*
KK GS11B
KM    GS11B
BA0.0031
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   700  0.1000   0.600  100.00
RD   300  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK GS11A
KM    GS11A
BA0.0354
PB
* PI
BF -38.7
LU  0.10  0.2370   2.000
UK   700  0.1000   0.600  100.00
RD  1100  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYGS11A
KM  0
HC     2
ZW C=FLOW
*
```

```
*
KKUS11RR
KM  0
RS     1    FLOW      -1
SV  0.00    1.25    1.51    1.75    2.27    2.78    3.53    4.26    4.67
SQ   0.0    33.0    55.0    76.0   114.0   145.0   177.0   206.0   244.0
ZW C=FLOW
*
KK GS13C
KM   GS13C
BA0.0066
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   300  0.0700   0.600  100.00
RD   300  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK GS13B
KM   GS13B
BA0.0168
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   300  0.0700   0.600  100.00
RD  1100  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK GS18A
KM   GS18A
BA0.0020
PB
* PI
BF -38.7
LU  0.10  0.2500   3.000
UK   800  0.0940   0.600  100.00
RD   300  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK  GS18
KM    GS18
BA0.0248
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   800  0.0940   0.600  100.00
RD  1600  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYGS18C
KM  0
HC     2
ZW C=FLOW
*
KK GS13A
KM   GS13A
BA0.0196
PB
* PI
BF -38.7
LU  0.10  0.1810   2.000
UK   600  0.0670   0.600  100.00
RD  1100  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYGS13A
KM  0
HC     2
ZW C=FLOW
*
KK YGS13
KM  0
HC     2
ZW C=FLOW
*
KK  GS19
KM    GS19
BA0.0617
PB
* PI
BF -38.7
LU  0.10  0.1920   2.000
UK   700  0.0860   0.600  100.00
RD  1000  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK  GS20
KM    GS20
BA0.0178
PB
* PI
```

```
BF -38.7
LU  0.10  0.1680   2.000
UK   600  0.1000   0.600  100.00
RD   600  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYGS20C
KM  0
HC     2
ZW C=FLOW
*
*
KKUOOSED
KM   GOOSENECK LAKE RESERVOIR _ CURRENT ROUTING/DISCHARGE RATING
RS     1    FLOW      -1
SV  0.00   43.30   90.10  144.10  173.90  205.40  238.90  274.10
SQ   0.0     2.0    84.8   360.0   670.8  1273.0  3585.0  8880.0
ZW C=FLOW
*
* - - - - - -
*
*
KKGS21B1
KM            4.2 AC.
BA0.0065
PB
* PI
BF -38.7
LU  0.10  0.2500  10.060
UK   300  0.0700   0.600  100.00
RD   800  0.1000   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKVR21B1
KM   ROUTE GS21B1
RD   540  0.0704   0.015            CIRC     2.0     0.0
ZW C=FLOW
*
KKGS21B2
KM            3.2 AC.
BA0.0050
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   300  0.0700   0.600  100.00
RD   900  0.0800   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKYQG21B
KM     COMBINE
HC     2
ZW C=FLOW
*
KK GS21A
KM   GS21A
BA0.0412
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK  1000  0.0700   0.600      80
UK   200  0.0200   0.240      20
RD  2500  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK  GS22
KM    GS22
BA0.0741
PB
* PI
BF -38.7
LU  0.10  0.2490   2.000
UK   700  0.0570   0.600  100.00
RD  1000  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYGS21A
KM     COMBINE
HC     2
ZW C=FLOW
*
*
KKUGS22R
KM  0
RS     1    FLOW      -1
SV  0.00    0.67    0.84    0.97    1.28    1.45    1.87    2.23    5.29
SQ   0.0    65.0    85.0   102.0   144.0   184.0   232.0   291.0   575.0
ZW C=FLOW
*
KK  GS23
KM    GS23
BA0.0596
PB
```

```
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  2000  0.0400   0.600  100.00
RD  1100  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK  GS24
KM    GS24
BA0.0352
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   500  0.1000   0.600  100.00
RD   900  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYGS24C
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KKGS25B3
KM           1.2 AC.
BA0.0019
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   300  0.0700   0.600  100.00
RD   310  0.0500   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKGS25B4
KM            1.8 AC.
BA0.0029
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   300  0.0700   0.600  100.00
RD   440  0.1200   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKYC25B4
KM     COMBINE
HC     2
ZW C=FLOW
*
KKGS25C4
KM            4.4 AC.
BA0.0069
PB
* PI
BF -38.7
LU  0.10  0.2500  11.750
UK   300  0.0700   0.600  100.00
RD   550  0.1000   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKGS25C5
KM            1.7 AC.
BA0.0026
PB
* PI
BF -38.7
LU  0.10  0.2500   9.800
UK   300  0.0700   0.600  100.00
RD   450  0.1100   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKYC25C5
KM     COMBINE
HC     2
ZW C=FLOW
*
KKGS25C6
KM            1.6 AC.
BA0.0023
PB
* PI
BF -38.7
LU  0.10  0.2500   4.600
UK   300  0.0700   0.600  100.00
RD   240  0.1080   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKYC25C6
KM     COMBINE
HC     3
```

```
ZW C=FLOW
*
KKGS25C9
KM           3.0 AC.
BA0.0047
PB
* PI
BF -38.7
LU  0.10  0.2500  11.360
UK   300  0.0700   0.600  100.00
RD   550  0.0509   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKGS21A2
KM           1.3 AC.
BA0.0020
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   300  0.0700   0.600  100.00
RD   750  0.0825   0.060            CIRC     2.0     0.0
ZW C=FLOW
*
KKGS25C1
KM           .4 AC.
BA0.0006
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   300  0.0700   0.600  100.00
RD   290  0.0621   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKYC25C1
KM   COMBINE
HC     2
ZW C=FLOW
*
KKVR25C1
KM     ROUTR COMBINED GS25C1
RD   312  0.0401   0.015          CIRC       2.0     0.0
ZW C=FLOW
*
KKYC25C9
KM     COMBINE
HC     3
ZW C=FLOW
*
KKGS25C3
KM           3.9 AC.
BA0.0060
PB
* PI
BF -38.7
LU  0.10  0.2500  11.230
UK   300  0.0700   0.600  100.00
RD  1045  0.0670   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKGS25C7
KM           3.8 AC.
BA0.0060
PB
* PI
BF -38.7
LU  0.10  0.2500  13.180
UK   300  0.0700   0.600  100.00
RD   620  0.0452   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKYC25C7
KM     COMBINE
HC     3
ZW C=FLOW
*
KK GS27C
KM           2.8 AC.
BA0.0044
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   300  0.0700   0.600  100.00
RD   220  0.0636   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KK GS23B
KM  0
BA0.0061
PB
* PI
BF -38.7
```

```
LU  0.10  0.2500  15.000
UK   300  0.0700   0.600  100.00
RD   470  0.0638   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKYWQ25C
KM     COMBINE
HC     3
ZW C=FLOW
*
KK GS25E
KM    GS25E
BA0.0340
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   900  0.1000   0.600  100.00
RD  1000  0.1000   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKY25ECC
KM  0
HC     2
ZW C=FLOW
*
KKGS25A2
KM           1.9 AC.
BA0.0029
PB
* PI
BF -38.7
LU  0.10  0.2500   8.500
UK   300  0.0700   0.600  100.00
RD   700  0.0500   0.060           TRAP     2.0     3.0
ZW C=FLOW
*
KKGS25A1
KM           .4 AC.
BA0.0007
PB
* PI
BF -38.7
LU  0.10  0.2500   8.500
UK   300  0.0700   0.600  100.00
RD  1400  0.0660   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKGS25A3
KM           1.2 AC.
BA0.0018
PB
* PI
BF -38.7
LU  0.10  0.2500   8.500
UK   300  0.0700   0.600  100.00
RD  1010  0.0620   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKYC25A3
KM     COMBINE
HC     3
ZW C=FLOW
*
KKVR25A3
KM       ROUTE COMBINED GS25A3
RD   561  0.0238   0.015           CIRC     2.0     0.0
ZW C=FLOW
*
KKGS25D3
KM           1.3 AC.
BA0.0022
PB
* PI
BF -38.7
LU  0.10  0.2500  11.100
UK   300  0.0700   0.600  100.00
RD   900  0.0650   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKYC25D3
KM     COMBINE
HC     2
ZW C=FLOW
*
KKGS25D2
KM           2.9 AC.
BA0.0045
PB
* PI
BF -38.7
LU  0.10  0.2500   8.500
UK   300  0.0700   0.600  100.00
RD   840  0.0710   0.060           TRAP    10.0     1.0
```

```
ZW C=FLOW
*
KKYC25D2
KM     COMBINE
HC     2
ZW C=FLOW
*
KKGS25D1
KM             4.1 AC
BA0.0062
PB
* PI
BF -38.7
LU  0.10  0.2500   8.500
UK   300  0.0700   0.600  100.00
RD  1520  0.0700   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKYC25D1
KM     COMBINE
HC     2
ZW C=FLOW
*
KKVR25D1
KM     ROUTE COMBINED GS25D1
RD   923  0.0368   0.015           CIRC     2.0     0.0
ZW C=FLOW
*
KKGS28B2
KM            6.7 AC.
BA0.0105
PB
* PI
BF -38.7
LU  0.10  0.2500   5.250
UK   300  0.0700   0.600  100.00
RD  1780  0.0625   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKGS27B1
KM         5.5 AC.
BA0.0087
PB
* PI
BF -38.7
LU  0.10  0.2500   8.500
UK   300  0.0700   0.600  100.00
RD  1040  0.0557   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KK YC27B
KM     COMBINE
HC     3
ZW C=FLOW
*
KKGS25C2
KM            3.0 AC
BA0.0047
PB
* PI
BF -38.7
LU  0.10  0.2500   9.930
UK   300  0.0700   0.600  100.00
RD  1800  0.0566   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKYC25C2
KM     COMBINE
HC     2
ZW C=FLOW
*
KKGS27B3
KM            3.3 AC.
BA0.0052
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   300  0.0700   0.600  100.00
RD   660  0.0720   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKGS27B2
KM  0
BA0.0053
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   300  0.0700   0.600  100.00
RD   560  0.0640   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKYQG27B
```

```
KM     COMBINE
HC     3
ZW C=FLOW
*
KKGS25E1
KM    GS25E
BA0.0131
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   900  0.1000   0.600  100.00
RD  1000  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYGS25E
KM  0
HC     2
ZW C=FLOW
*
KK GS30B
KM            1.1 AC
BA0.0018
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   300  0.0700   0.600  100.00
RD   800  0.0350   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKGS28B1
KM            1.6 AC.
BA0.0025
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   300  0.0700   0.600  100.00
RD  1000  0.0437   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKYC28B1
KM     COMBINE
HC     2
ZW C=FLOW
*
KKGS28B3
KM            .09 AC.
BA0.0015
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   300  0.0700   0.600  100.00
RD   830  0.0554   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKYC28B3
KM     COMBINE
HC     2
ZW C=FLOW
*
KKGS28A1
KM            7.6 AC.
BA0.0120
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   300  0.0700   0.600  100.00
RD  1000  0.0690   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKYQG28B
KM     COMBINE
HC     2
ZW C=FLOW
*
KKGS28A2
KM   GS28A
BA0.0154
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   500  0.0710   0.600      50
UK   200  0.0200   0.240      50
RD   500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYGS28A
KM  0
HC     2
```

```
ZW C=FLOW
*
KKYGS29C
KM  0
HC     2
ZW C=FLOW
*
KK GS30A
KM    GS30
BA0.0427
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   900  0.0560   0.600      89
UK    50  0.0200   0.110      11
RD  1400  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK GS31A
KM   GS31A
BA0.0843
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK  1000  0.0500   0.600      90
UK   200  0.0200   0.400      10
RD  1100  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYGS31C
KM  0
HC     2
ZW C=FLOW
*
KKYS31CC
KM  0
HC     2
ZW C=FLOW
*
KK  GS32
KM    GS32
BA0.0320
PB
* PI
BF -38.7
LU  0.10  0.2300   2.000
UK   500  0.1000   0.600  100.00
RD  1800  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
* - - - - - -
*
*
KK MD1H3
KM   MD1H3
BA0.0040
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   300  0.1200   0.600      75
UK    50  0.0200   0.110      25
RD   400  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MD1H2
KM   MD1H2
BA0.0027
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   300  0.1200   0.600      75
UK    50  0.0200   0.110      25
RD   300  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYD1H2C
KM  0
HC     2
ZW C=FLOW
*
KK MD1E4
KM   MD1E4
BA0.0132
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   300  0.1000   0.600      87
UK    50  0.0200   0.110      13
RD   600  0.0500   0.060            TRAP     2.0     2.0
```

```
ZW C=FLOW
*
KKYD1H2D
KM  0
HC     2
ZW C=FLOW
*
KK MD1E3
KM   MD1E3
BA0.0039
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   300  0.1000   0.600      78
UK    50  0.0200   0.110      22
RD   500  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYD1E3C
KM  0
HC     2
ZW C=FLOW
*
KK MD1E2
KM   MD1E2
BA0.0031
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   300  0.1000   0.600      84
UK    50  0.0200   0.110      16
RD   600  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYD1E2C
KM  0
HC     2
ZW C=FLOW
*
KKMD1E1E
KM   MD1E1-2
BA0.0042
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1200  0.1070   0.600  100.00
RD   800  0.0640   0.060            TRAP    10.0     0.0
ZW C=FLOW
*
KK YMD1E
KM  0
HC     2
ZW C=FLOW
*
KKMD1E1C
KM   MD1E1-3
BA0.0686
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1000  0.0800   0.600  100.00
RD  1858  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKMD1E1B
KM   MD1E1-2
BA0.0141
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1200  0.1070   0.600  100.00
RD   800  0.0640   0.060            TRAP    10.0     0.0
ZW C=FLOW
*
KKYM1E1B
KM  0
HC     2
ZW C=FLOW
*
KK MD1H1
KM    MD1H1-1
BA0.0073
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   400  0.0600   0.600  100.00
RD   200  0.0080   0.060            TRAP    10.0    10.0
ZW C=FLOW
```

```
*
KK MD1H4
KM    MD1H1-2
BA0.0049
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   650  0.0600   0.600  100.00
RD   100  0.0030   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKMD1I_1
KM    MD1I-1
BA0.0242
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1000  0.1000   0.600  100.00
RD   350  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYD1H1C
KM  0
HC     3
ZW C=FLOW
*
KK MD1G3
KM   MD1G3
BA0.0096
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   300  0.0800   0.600      90
UK    50  0.0200   0.110      10
RD   600  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYD1G3C
KM  0
HC     2
ZW C=FLOW
*
KKVD1G3R
KM  0
RD  1600  0.0500   0.040           TRAP    10.0    10.0
ZW C=FLOW
*
KK MD1G2
KM   MD1G2
BA0.0033
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   200  0.0800   0.600      72
UK    50  0.0200   0.110      28
RD   300  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKMD1G2B
KM   MD1G2B
BA0.0055
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   200  0.0850   0.600  100.00
RD   300  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYM1G2B
KM  0
HC     2
ZW C=FLOW
*
KKMD1G1B
KM   MD1G1-2
BA0.0195
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1300  0.0600   0.600  100.00
RD  1568  0.1070   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYM1G1B
KM  0
HC     2
ZW C=FLOW
*
```

```
KKY26OUP
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK GS26A
KM    GS26A
BA0.0074
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.1000   0.600      85
UK    50  0.0200   0.110      15
RD   400  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK GS26B
KM    GS26B
BA0.0139
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.2000   0.600      89
UK    50  0.0200   0.110      11
RD   800  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK GS26C
KM    GS26C
BA0.0126
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.2000   0.600      90
UK    50  0.0200   0.110      10
RD   800  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK GS26D
KM    GS26D
BA0.0144
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.1000   0.600      89
UK    50  0.0200   0.110      11
RD   400  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYS26DC
KM  0
HC     2
ZW C=FLOW
*
KK GS26E
KM    GS26E
BA0.0028
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   300  0.0800   0.600      75
UK    50  0.0200   0.110      25
RD   600  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK GS26F
KM    GS26F
BA0.0074
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   400  0.1000   0.600      87
UK    50  0.0200   0.110      13
RD   400  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KKGS26N1
KM    GS26N-1
BA0.0046
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   335  0.0200   0.110  100.00
RD   500  0.0500   0.060            TRAP     2.0     2.0
```

```
ZW C=FLOW
*
KK GS26G
KM    GS26G
BA0.0231
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.1000   0.600      91
UK    50  0.0200   0.110       9
RD   400  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KKYS26NC
KM  0
HC     2
ZW C=FLOW
*
KK GS26H
KM    GS26H
BA0.0026
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   100  0.0800   0.600      75
UK    50  0.0200   0.110      25
RD   500  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK GS15C
KM    GS15C
BA0.0106
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.1500   0.600      91
UK    50  0.0200   0.110       9
RD   400  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK GS15D
KM    GS15D
BA0.0133
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   300  0.1350   0.600      91
UK    50  0.0200   0.110       9
RD   400  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK GS15A
KM    GS15A
BA0.0913
PB
* PI
BF -38.7
LU  0.10  0.2370   2.000    0.10  0.2370  95.000
UK  1800  0.1200   0.600      97
UK    50  0.0200   0.110       3
RD   600  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK GS15B
KM    GS15B
BA0.0151
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   400  0.1000   0.600      94
UK    50  0.0200   0.110       6
RD   600  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KKYS15BC
KM  0
HC     2
ZW C=FLOW
*
KKGS16A1
KM    GS16A1
BA0.0190
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   400  0.1000   0.600      96
UK    50  0.0200   0.110       4
RD   500  0.0500   0.060            TRAP     2.0     2.0     YES
```

```
ZW C=FLOW
*
KKGS16A2
KM    GS16A2
BA0.0137
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   400  0.1000   0.600      91
UK    50  0.0200   0.110       9
RD   600  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK GS16B
KM    GS16B
BA0.0260
PB
* PI
BF -38.7
LU  0.10  0.2330   2.000    0.10  0.2330  95.000
UK  1800  0.1500   0.600      93
UK    50  0.0200   0.110       7
RD   500  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK GS16C
KM    GS16C
BA0.0141
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   400  0.1500   0.600      89
UK    50  0.0200   0.110      11
RD   400  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK GS17C
KM    GS17C
BA0.0147
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.1200   0.600      91
UK    50  0.0200   0.110       9
RD   600  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK  E6A3
KM    E6A3
BA0.0421
PB
* PI
BF -38.7
LU  0.10  0.1800   2.000    0.10  0.1800  95.000
UK  1800  0.2000   0.600      94
UK    50  0.0200   0.110       6
RD   800  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK GS12B
KM    GS12B
BA0.0089
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.1200   0.600      89
UK    50  0.0200   0.110      11
RD   600  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK GS12C
KM    GS12C
BA0.0068
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   300  0.1200   0.600      70
UK    50  0.0200   0.110      30
RD  1600  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKY12CCC
KM  0
HC     2
ZW C=FLOW
*
KK GS12F
KM    GS12F
BA0.0082
```

```
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   400  0.1000   0.600      94
UK    50  0.0200   0.110       6
RD   400  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYS12FC
KM  0
HC     2
ZW C=FLOW
*
KK GS12H
KM    GS12H
BA0.0082
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   800  0.1000   0.600      94
UK    50  0.0200   0.110       6
RD   600  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK GS12D
KM    GS12D
BA0.0044
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   400  0.1500   0.600      84
UK    50  0.0200   0.110      16
RD   300  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK GS12E
KM    GS12E
BA0.0044
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   400  0.1500   0.600      90
UK    50  0.0200   0.110      10
RD   400  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KKY12ECC
KM  0
HC     2
ZW C=FLOW
*
KK GS12I
KM    GS12I
BA0.0177
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   800  0.1000   0.600      95
UK    50  0.0200   0.110       5
RD  1000  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYS12IC
KM  0
HC     2
ZW C=FLOW
*
KKVNTOLK
KM  0
RD  1000  0.0500   0.040            TRAP     2.0     2.0
ZW C=FLOW
*
KKYGS17C
KM  0
HC     2
ZW C=FLOW
*
KKYGS16A
KM  0
HC     2
ZW C=FLOW
*
KK GS17A
KM    GS17A
BA0.0226
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
```

```
UK   800  0.1000   0.600      90
UK    50  0.0200   0.110      10
RD  1000  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYAKCOM
KM  0
HC     3
ZW C=FLOW
*
*
KKULFDT2
KM   DETENTION AT GS17A
RS     1    FLOW      -1
SV  0.00    0.55    1.91    3.69    7.81
SQ   0.0    60.0   170.0   311.0   630.0
ZW C=FLOW
*
KK GS26N
KM   GS26N-2
BA0.0299
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1419  0.0660   0.600  100.00
RD  1800  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
*
KKUSTDET
KM GOLF LAKE/WET MEADOW AT SOUTH SIDE OF B STREET
* NEW 10-11-04
* NEW 12-04 for 30ft weir @ 6177.2 and low swq below
KO     1
RS     1    ELEV    6176
* SV     0    6.92   8.320   9.821  11.439   13.17
*  sv Revised by BAT 2/15/05 TO REFLECT NORMAL POOL ELEV AT 6176
SA     0    0.01    1.34    1.67    2.15
SE  6166  6175.9    6176    6178    6180
SQ     0    .001    0.50    64.0   217.0   421.0
SE  6166    6176    6177    6178    6179    6180
ZW C=FLOW
*
*
KKGS26OA
KM    AREA=20.2 AC
BA0.0321
PB
* PI
BF -38.7
LU  0.10  0.2500  86.000    0.10  0.2500  90.000
UK   800  0.0500   0.600      95
UK    50  0.0200   0.110       5
RD   800  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKGS26OB
KM    AREA=3.3 AC UNIT 4A
BA0.0047
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  90.000
UK   600  0.0500   0.600      95
UK    50  0.0200   0.110       5
RD   600  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYS26OC
KM  0
HC     4
ZW C=FLOW
*
*
KKUPLAKE
KM   CONCERT PARK LAKE
KO     1
RS     1    ELEV    6149
SA  0.01    0.25    0.32    0.36
SE  6140    6148    6149    6150
*  LOW FLOW PIPE (SL RECORD) IS A DUMMY
SL  6146   0.001    0.62     0.5
SS  6148      20     2.6     1.5
ZW C=FLOW
*
KK MD1C2
KM    MD1C2
BA0.0063
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  90.000
UK   250  0.0500   0.600      90
```

```
UK    50  0.0200   0.110      10
RD   300  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYMD1C2
KM  0
HC     2
ZW C=FLOW
*
KKGS26L3
KM    AREA=0.7 AC   UNIT 4A
BA0.0012
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  90.000
UK   500  0.0580   0.600      90
UK    50  0.0200   0.110      10
RD   500  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYNIT4A
KM  0
HC     2
ZW C=FLOW
*
KKMD1F-1
KM    MD1F-1
BA0.0069
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.0800   0.600      90
UK    50  0.0200   0.110      10
RD  1000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  MD1F
KM    MD1F-2
BA0.0035
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   500  0.0800   0.600      90
UK    50  0.0200   0.110      10
RD  1000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD1F
KM  0
HC     2
ZW C=FLOW
*
KKMD1D1D
KM    MD1D1D
BA0.0124
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   800  0.0600   0.600  100.00
RD   400  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYD1D1D
KM  0
HC     2
ZW C=FLOW
*
KKMD1D1C
KM    MD1D1C
BA0.0074
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   500  0.0500   0.600  100.00
RD   200  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYD1D1C
KM  0
HC     2
ZW C=FLOW
*
KK  MD1E
KM    MD1E
BA0.0160
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
```

```
UK   600  0.0800   0.600      95
UK    50  0.0200   0.110       5
RD  1000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
*
KKUD1EWQ
KM  0
RS     1    FLOW      -1
SV  0.00    0.25    0.50    0.75
SQ   0.0     0.1    30.0    60.0
ZW C=FLOW
*
KKMD1D1A
KM    MD1D1A
BA0.0059
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   400  0.1200   0.600  100.00
RD   500  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKMD1D1B
KM    MD1D1B
BA0.0028
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   400  0.1200   0.600  100.00
RD   500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYD1D1B
KM  0
HC     2
ZW C=FLOW
*
KK MD1D2
KM    MD1D2
BA0.0077
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   600  0.2000   0.600  100.00
RD  1000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYD1D2D
KM  0
HC     3
ZW C=FLOW
*
KKYD1C2C
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK GS26J
KM    GS26J
BA0.0023
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   230  0.0780   0.600  100.00
RD   250  0.0770   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK GS26K
KM    GS26K
BA0.0032
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   194  0.0920   0.600  100.00
RD   200  0.0830   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYGS26K
KM  0
HC     2
ZW C=FLOW
*
KK GS26L
KM    GS26L REVISED AREA = 5.8 AC UNIT 4A
BA0.0091
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PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  90.000
UK   500  0.0580   0.600      90
UK    50  0.0200   0.110      10
RD   500  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYGS26L
KM  0
HC     2
ZW C=FLOW
*
KKGS26L2
KM    GS26L2
BA0.0029
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  90.000
UK   250  0.0470   0.600      90
UK    50  0.0200   0.110      10
RD   250  0.0300   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK MD1C1
KM    MD1C1
BA0.0155
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  90.000
UK   400  0.0500   0.600      85
UK    50  0.0200   0.110      15
RD  1800  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KKYD1C1C
KM  0
HC     2
ZW C=FLOW
*
*
KKUWLAKE
KM CULTURAL CENTER LAKE LOWER LAKE
* CULTURAL LAKE HAS BEEN RELOCATED AND THE THE GRADING REVISED.
* THE LAKE NOW CONSISTS OF AN UPPER LAKE AND A LOWER LAKE.
* THE UPPER LAKE IS UPLAKE. THIS IS LOWER LAKE.  UPPER LAKE IS
* DESIGNATED UPLAKE
* REVISION DATE 7/7/2006
KO     1
RS     1    ELEV    6133
SA  0.98    2.89    3.08    3.34    3.65    4.01
SE  6119    6133    6134    6136    6138    6140
SQ     0     1.8    10.5    54.1   116.9   194.2   283.6   383.6   493.2
SE  6133  6133.6    6134    6135    6136    6137    6138    6139    6140
ZW C=FLOW
*
*
KKUAINWQ
KM   AT MD1C1
RS     1    FLOW      -1
SV  0.00    0.34    0.69    1.03    1.38    1.83    2.29    2.86    3.44
SQ   0.0     0.5     1.0     8.5    30.0    60.0   100.0   150.0   600.0
ZW C=FLOW
*
KK MD1C4
KM    MD1C4
BA0.0169
PB
* PI
BF -38.7
LU  0.10  0.2240   2.000    0.10  0.2240  90.000
UK   400  0.0500   0.600      95
UK    50  0.0200   0.110       5
RD  1800  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
*
KKU1C4WQ
KM   AT MD1C4
RS     1    FLOW      -1
SV  0.00    0.23    0.51    0.92    1.24    1.60    1.95    2.30
SQ   0.0     0.3     0.5     0.8     1.0     1.5    45.0   500.0
ZW C=FLOW
*
* - - - - - -
*
*
KK   MA1
KM     MA1
BA0.2995
PB
```

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* PI
BF -38.7
LU  0.10  0.1910   2.000
UK  1600  0.2340   0.600  100.00
RD  3500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK   MA2
KM     MA2
BA0.5483
PB
* PI
BF -38.7
LU  0.10  0.2000   2.000
UK  2200  0.2840   0.600  100.00
RD  4300  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK   MA3
KM     MA3
BA0.6259
PB
* PI
BF -38.7
LU  0.10  0.2290   2.000
UK  2300  0.2720   0.600  100.00
RD  7500  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK   MA4
KM     MA4
BA0.2870
PB
* PI
BF -38.7
LU  0.10  0.2270   2.000
UK  2000  0.3000   0.600  100.00
RD  3300  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK   MA5
KM     MA5
BA0.2025
PB
* PI
BF -38.7
LU  0.10  0.2140   2.000
UK  1500  0.1830   0.600  100.00
RD  2500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK   MA6
KM     MA6
BA0.4152
PB
* PI
BF -38.7
LU  0.10  0.2280   2.000
UK  1800  0.0970   0.600  100.00
RD  3000  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK YMA6C
KM  0
HC     2
ZW C=FLOW
*
KK   MA7
KM     MA7
BA0.2326
PB
* PI
BF -38.7
LU  0.10  0.2330   2.000
UK  3300  0.2270   0.600  100.00
RD  1500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMA7C
KM  0
HC     2
ZW C=FLOW
*
KK   MA8
KM     MA8
BA0.4308
PB
* PI
BF -38.7
LU  0.10  0.1650   2.000
UK  1250  0.3200   0.600  100.00
RD  5500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
```

```
KK YMA8C
KM  0
HC     2
ZW C=FLOW
*
KK   MA9
KM     MA9
BA0.0913
PB
* PI
BF -38.7
LU  0.10  0.2370   2.000
UK   600  0.2080   0.600  100.00
RD  1500  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK MA10A
KM    MA10A
BA0.2885
PB
* PI
BF -38.7
LU  0.10  0.2410   2.000    0.10  0.2410  15.000
UK  1600  0.0380   0.600      85
UK   200  0.0200   0.240      15
RD  2800  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK MA10B
KM    MA10B
BA0.0100
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   900  0.0900   0.600      90
UK    50  0.0200   0.110      10
RD   200  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYA10BC
KM  0
HC     2
ZW C=FLOW
*
*
KKU0DCUL
KM  0
RS     1    FLOW      -1
SV  0.00    2.50    5.00    8.50   12.50
SQ   0.0   500.0  1200.0  2300.0  3500.0
ZW C=FLOW
*
* - - - - - -
*
*
KKMB7B3A
KM    MB7B3A
BA0.0051
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   500  0.0800   0.600      95
UK    50  0.0200   0.110       5
RD   550  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKMB7B4A
KM    MB7B4A
BA0.0156
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   500  0.0900   0.600      95
UK    50  0.0200   0.110       5
RD   570  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKMB7B3B
KM    MB7B3B
BA0.0064
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.0800   0.600      95
UK    50  0.0200   0.110       5
RD   600  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKMB7B4B
KM    MB7B4B
```

```
BA0.0044
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   400  0.0700   0.600      95
UK    50  0.0200   0.110       5
RD   500  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYB7B34
KM  0
HC     3
ZW C=FLOW
*
KKMB7B4C
KM    MB7B4C
BA0.0023
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   170  0.0530   0.600      95
UK    50  0.0200   0.110       5
RD   300  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
*
KKUA10EQ
KM  0
RS     1    FLOW      -1
SV  0.00    0.05    0.10    0.15    0.20    0.25
SQ   0.0     0.0     0.0     0.0    30.0    60.0
ZW C=FLOW
*
KKYA10EC
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KKMB7B1A
KM    MB7B1A
BA0.0709
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1300  0.1920   0.600  100.00
RD  3000  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKMB7B1C
KM    MB7B1C
BA0.0041
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   400  0.0800   0.600      95
UK    50  0.0200   0.110       5
RD   200  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKMB7B1B
KM    MB7B1B
BA0.0107
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   500  0.0800   0.600      95
UK    50  0.0200   0.110       5
RD   600  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYMB7B1
KM  0
HC     2
ZW C=FLOW
*
KKMB7B1D
KM    MB7B1D
BA0.0146
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   500  0.0700   0.600      95
UK    50  0.0200   0.110       5
RD   650  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
```

```
*
KKMB7B1E
KM    MB7B1E
BA0.0054
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   500  0.0500   0.600      95
UK    50  0.0200   0.110       5
RD   350  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
*
KKUB7B1Q
KM  0
RS     1    FLOW      -1
SV  0.00    0.10    0.20    0.30    0.40    0.50
SQ   0.0     0.1     0.1     0.7    20.0    80.0
ZW C=FLOW
*
KK MB7B2
KM    MB7B2
BA0.0216
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK  1300  0.1920   0.600      95
UK    50  0.0200   0.110       5
RD   600  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
*
KKUB7B2Q
KM  0
RS     1    FLOW      -1
SV  0.00    0.33    0.66    1.00    1.33
SQ   0.0     0.2     0.3     0.3   150.0
ZW C=FLOW
*
KKYMB7BC
KM  0
HC     2
ZW C=FLOW
*
*
KKUPONDD
KM  0
RS     1    FLOW      -1
SV  0.00    1.00    2.00    3.00    4.00    5.00    6.00    7.00    8.00
SQ   0.0    50.0   100.0   200.0   400.0   600.0  1000.0  2000.0  4000.0
ZW C=FLOW
*
* - - - - - -
*
*
KK   MB1
KM     MB1
BA0.5333
PB
* PI
BF -38.7
LU  0.10  0.1880   2.000
UK  4000  0.2750   0.600  100.00
RD  2700  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK   MB2
KM     MB2
BA1.2667
PB
* PI
BF -38.7
LU  0.10  0.1920   2.000
UK  2800  0.3390   0.600  100.00
RD  3400  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK   MB3
KM     MB3
BA0.5006
PB
* PI
BF -38.7
LU  0.10  0.2180   2.000
UK  1800  0.2780   0.600  100.00
RD  1600  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK   MB4
KM     MB4
BA0.6535
PB
```

```
* PI
BF -38.7
LU  0.10  0.2450   2.000
UK  1900  0.1840   0.600  100.00
RD  4000  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK   MB5
KM     MB5
BA0.1602
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1800  0.2780   0.600  100.00
RD  1500  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK  MB6A
KM   AREA = 7.0 AC
BA0.0073
PB
* PI
BF -38.7
LU  0.10  0.2500   6.600
UK  1335  0.1543   0.600  100.00
RD   625  0.0800   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
*
KKUB6ADT
KM  0
RS     1    FLOW      -1
SV  0.00    0.15    0.30    0.45
SQ   0.0   100.0   200.0   300.0
ZW C=FLOW
*
KKYMB6AC
KM  0
HC     2
ZW C=FLOW
*
*
KKUB6CUL
KM  0
RS     1    FLOW      -1
SV  0.00    2.50    5.00    8.50   12.50
SQ   0.0   500.0  1100.0  2000.0  3000.0
ZW C=FLOW
*
KK  MB6B
KM   AREA = 3.9 AC
BA0.0061
PB
* PI
BF -38.7
LU  0.10  0.2500  11.800
UK   240  0.0708   0.600  100.00
RD   520  0.0800   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
*
KKUB6BDT
KM  0
RS     1    FLOW      -1
SV  0.00    0.15    0.30    0.45
SQ   0.0   100.0   200.0   300.0
ZW C=FLOW
*
KKYMB6BC
KM  0
HC     2
ZW C=FLOW
*
KK  MB6C
KM   AREA = 3.2 AC
BA0.0039
PB
* PI
BF -38.7
LU  0.10  0.2500   7.600
UK   370  0.1081   0.600  100.00
RD   490  0.0683   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
*
KKUB6CDT
KM  0
RS     1    FLOW      -1
SV  0.00    0.15    0.30    0.45
SQ   0.0   100.0   200.0   300.0
ZW C=FLOW
*
KKYMB6CC
```

```
KM  0
HC     2
ZW C=FLOW
*
KK  MB6D
KM    MB6D
BA0.0223
PB
* PI
BF -38.7
LU  0.10  0.2460   2.000    0.10  0.2460  15.000
UK   200  0.1250   0.600      65
UK   200  0.0200   0.240      35
RD  1500  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK  MB6G
KM  MB6G
BA0.0109
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   500  0.1250   0.600      30
UK   200  0.0200   0.240      70
RD   500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  MB6F
KM  MB6F
BA0.0062
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   500  0.1250   0.600      30
UK   200  0.0200   0.240      70
RD   500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MB6D1
KM  MB6D1
BA0.0036
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   500  0.1250   0.600      30
UK   200  0.0200   0.240      70
RD   500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMB6D1
KM  0
HC     3
ZW C=FLOW
*
KK  MB6E
KM    MB6E
BA0.0050
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   500  0.1250   0.600      30
UK   200  0.0200   0.240      70
RD   500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMB6E
KM  0
HC     2
ZW C=FLOW
*
*
KKUB6EDT
KM  0
RS     1    FLOW      -1
SV  0.00    0.15    0.30    0.45
SQ   0.0   100.0   200.0   300.0
ZW C=FLOW
*
KKYMB6EC
KM  0
HC     2
ZW C=FLOW
*
KKYMB6DD
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
```

```
*
KK MB7A1
KM     MB7A1
BA0.1465
PB
* PI
BF -38.7
LU  0.10  0.2080   2.000    0.10  0.2080  95.000
UK  1300  0.1920   0.600      97
UK    50  0.0200   0.110       3
RD  2500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKMB7A2A
KM     MB7A2A
BA0.0247
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   550  0.1920   0.600      92
UK    50  0.0200   0.110       8
RD   580  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKMB7A2B
KM     MB7A2B
BA0.0059
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   300  0.1920   0.600  100.00
RD   500  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
*
KKUB7A2Q
KM  0
RS     1    FLOW      -1
SV  0.00    0.12    0.25    0.38    0.50    0.62
SQ   0.0     0.1     0.1     0.1    20.0   120.0
ZW C=FLOW
*
KK  MB7C
KM     MB7C
BA0.0236
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   200  0.1000   0.600      92
UK    50  0.0200   0.110       8
RD   500  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKMB7D1A
KM     MB7D1A
BA0.0044
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   500  0.1000   0.600      79
UK    50  0.0200   0.110      21
RD   200  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKMB7D1B
KM     MB7D1B
BA0.0025
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   300  0.1000   0.600      79
UK    50  0.0200   0.110      21
RD   400  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYB7D1C
KM  0
HC     2
ZW C=FLOW
*
KK MB7D1
KM     MB7D1
BA0.0011
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   100  0.1000   0.600  100.00
RD   300  0.0500   0.060            TRAP    10.0    10.0     YES
```

```
ZW C=FLOW
*
KK MB7D2
KM     MB7D2
BA0.0215
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   200  0.1000   0.600      95
UK    50  0.0200   0.110       5
RD   500  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYMB7CC
KM  0
HC     2
ZW C=FLOW
*
KK  MB7E
KM     MB7E
BA0.0585
PB
* PI
BF -38.7
LU  0.10  0.2470   2.000    0.10  0.2470  95.000
UK   200  0.1000   0.600      96
UK    50  0.0200   0.110       4
RD  1500  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
*
KKUB8SWQ
KM  0
RS     1    FLOW      -1
SV  0.00    0.25    0.50    0.75    1.00
SQ   0.0     0.2     0.2     0.2   200.0
ZW C=FLOW
*
KKYMB7EC
KM  0
HC     2
ZW C=FLOW
*
KK   MB8
KM     MB8
BA0.0545
PB
* PI
BF -38.7
LU  0.10  0.2140   2.000    0.10  0.2140  15.000
UK  1000  0.1000   0.600      85
UK   200  0.0200   0.240      15
RD  2500  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
* - - - - - -
*
*
KK   MC1
KM   AREA = 258.6 AC
BA0.4041
PB
* PI
BF -38.7
LU  0.10  0.2390   2.000
UK  1530  0.4281   0.600  100.00
RD  5300  0.2394   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  MC2A
KM   AREA = 59.1 AC
BA0.0923
PB
* PI
BF -38.7
LU  0.10  0.2500   2.200
UK  1035  0.4010   0.600  100.00
RD  2590  0.3421   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMC2AC
KM  0
HC     2
ZW C=FLOW
*
KK  MC2B
KM   AREA = 0.9 AC
BA0.0014
PB
* PI
BF -38.7
LU  0.10  0.2500  10.300
UK   550  0.0764   0.600  100.00
```

```
RD   200  0.0800   0.060           TRAP     0.1     1.0
ZW C=FLOW
*
KK  MC2K
KM  MC2K
BA0.0001
PB
* PI
BF -38.7
LU  0.10  0.2500   4.700
UK  1225  0.1551   0.600  100.00
RD   565  0.0800   0.060           TRAP     0.1     1.0
ZW C=FLOW
*
KK YMC2K
KM  0
HC     2
ZW C=FLOW
*
*
KKUC2BDT
KM  0
RS     1    FLOW      -1
SV  0.00    0.15    0.30    0.45
SQ   0.0   100.0   200.0   300.0
ZW C=FLOW
*
KKYMC2BC
KM  0
HC     2
ZW C=FLOW
*
KK  MD1D
KM     MD1d AREA = 5.9 AC
BA0.0092
PB
* PI
BF -38.7
LU  0.10  0.2500   3.400
UK   800  0.2375   0.600  100.00
RD   190  0.0414   0.060           TRAP     0.1     1.0
ZW C=FLOW
*
KK  MD1B
KM     MD1b AREA = 5.9 AC
BA0.0092
PB
* PI
BF -38.7
LU  0.10  0.2500   3.600
UK   800  0.2375   0.600  100.00
RD   260  0.0414   0.060           TRAP     0.1     1.0
ZW C=FLOW
*
KK YMD1B
KM  0
HC     2
ZW C=FLOW
*
KK MC2A2
KM  MC2A2
BA0.0061
PB
* PI
BF -38.7
LU  0.10  0.2500   4.700
UK  1225  0.1551   0.600  100.00
RD   565  0.0800   0.060           TRAP     0.1     1.0
ZW C=FLOW
*
KKYMC2A2
KM  0
HC     3
ZW C=FLOW
*
KK  MD1C
KM    MD1c AREA = 2.9 AC
BA0.0045
PB
* PI
BF -38.7
LU  0.10  0.2500   7.900
UK   500  0.2178   0.600  100.00
RD   364  0.2178   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK MC2A3
KM  MC2A3
BA0.0044
PB
* PI
BF -38.7
LU  0.10  0.2500   4.700
UK  1225  0.1551   0.600  100.00
```

```
RD   565  0.0800   0.060           TRAP     0.1     1.0
ZW C=FLOW
*
KKYMC2A3
KM  0
HC     3
ZW C=FLOW
*
KK  MC2D
KM   AREA = 7.8 AC
BA0.0122
PB
* PI
BF -38.7
LU  0.10  0.2500   4.700
UK  1225  0.1551   0.600  100.00
RD   565  0.0800   0.060           TRAP     0.1     1.0
ZW C=FLOW
*
*
KKUC2DDT
KM  0
RS     1    FLOW      -1
SV  0.00    0.15    0.30    0.45
SQ   0.0   100.0   200.0   300.0
ZW C=FLOW
*
KK  MC2E
KM   AREA = 3.9 AC
BA0.0060
PB
* PI
BF -38.7
LU  0.10  0.2500   8.500
UK   895  0.1777   0.600  100.00
RD   565  0.0800   0.060           TRAP     0.1     1.0
ZW C=FLOW
*
*
KKUC2EDT
KM  0
RS     1    FLOW      -1
SV  0.00    0.15    0.30    0.45
SQ   0.0   100.0   200.0   300.0
ZW C=FLOW
*
KKYMC2EC
KM  0
HC     2
ZW C=FLOW
*
KK  MC2G
KM   AREA = 9.7 AC
BA0.0151
PB
* PI
BF -38.7
LU  0.10  0.2500  90.000
UK   395  0.2051   0.600  100.00
RD   360  0.0800   0.060           TRAP     0.1     1.0
ZW C=FLOW
*
KK YMC2G
KM  0
HC     2
ZW C=FLOW
*
KK  MC2H
KM   AREA = 2.4 AC
BA0.0038
PB
* PI
BF -38.7
LU  0.10  0.2500   9.500
UK   365  0.1096   0.600  100.00
RD   530  0.0800   0.060           TRAP     0.1     1.0
ZW C=FLOW
*
KKYMC2HC
KM  0
HC     2
ZW C=FLOW
*
KK  MC2L
KM  MC2L
BA0.0519
PB
* PI
BF -38.7
LU  0.10  0.2500  10.300
UK   550  0.0764   0.600  100.00
RD   200  0.0800   0.060           TRAP     0.1     1.0
ZW C=FLOW
*
```

```
KK YMC2L
KM  0
HC     3
ZW C=FLOW
*
KK  MC2I
KM   AREA = 0.7 AC
BA0.0011
PB
* PI
BF -38.7
LU  0.10  0.2500  24.300
UK   225  0.1289   0.600  100.00
RD   100  0.0800   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
KK  MC2J
KM   AREA = 0.6 AC
BA0.0011
PB
* PI
BF -38.7
LU  0.10  0.2500  19.200
UK   225  0.1600   0.600  100.00
RD   310  0.0800   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
KKYMC2IC
KM  0
HC     2
ZW C=FLOW
*
KK YMC2I
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK  MD4A
KM     MD4A
BA0.1163
PB
* PI
BF -38.7
LU  0.10  0.2500   2.500
UK   500  0.4140   0.600  100.00
RD  2399  0.3040   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  MD3C
KM     MD3c AREA = 6.9 AC = 0.01078 SQ MI % IMPERV = 4.6
BA0.0108
PB
* PI
BF -38.7
LU  0.10  0.2500   4.400
UK   500  0.3184   0.600  100.00
RD   737  0.3184   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD3C
KM  0
HC     2
ZW C=FLOW
*
KK  MD3B
KM     MD3b AREA = 8.5 AC = 0.01328 SQ MI % IMPERV = 3.8
BA0.0133
PB
* PI
BF -38.7
LU  0.10  0.2500   3.600
UK   500  0.3073   0.600  100.00
RD  1173  0.3073   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD3BC
KM  0
HC     2
ZW C=FLOW
*
KK MD3A1
KM     MD3a AREA = 25.4 AC = 0.03969 SQ MI % IMPERV = 2.6
BA0.0397
PB
* PI
BF -38.7
LU  0.10  0.2500   2.500
UK   500  0.3458   0.600  100.00
RD  2530  0.3458   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
```

```
KKYMD3A1
KM  0
HC     2
ZW C=FLOW
*
KK MD1A1
KM     MD1a  AREA = 3.0 AC = 0.00469 SQ MI % IMPERV = 7.1
BA0.0047
PB
* PI
BF -38.7
LU  0.10  0.2500   6.400
UK   500  0.2420   0.600  100.00
RD   135  0.2420   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD1A1
KM  0
HC     2
ZW C=FLOW
*
KK MC2A4
KM   AREA = 59.1 AC
BA0.0022
PB
* PI
BF -38.7
LU  0.10  0.2500   2.200
UK  1035  0.4010   0.600  100.00
RD  2590  0.3421   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMC2A4
KM  0
HC     2
ZW C=FLOW
*
KKYC2A4C
KM  0
HC     2
ZW C=FLOW
*
KK YMD8C
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK MD1B1
KM   MD1B1
BA0.0157
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   800  0.0500   0.600      51
UK    50  0.0200   0.110      49
RD  1000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MD1B2
KM   MD1B2
BA0.0392
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   800  0.0800   0.600      94
UK    50  0.0200   0.110       6
RD  1000  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYMD1B2
KM  0
HC     2
ZW C=FLOW
*
KK  MD1A
KM     MD1a  AREA = 3.0 AC = 0.00469 SQ MI % IMPERV = 7.1
BA0.0581
PB
* PI
BF -38.7
LU  0.10  0.1940   6.400
UK   500  0.2420   0.600  100.00
RD   135  0.2420   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD1A
KM  0
HC     2
ZW C=FLOW
```

```
*
KKYMD1C4
KM  0
HC     2
ZW C=FLOW
*
KK  MD2D
KM     MD2D
BA0.0040
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   550  0.0350   0.600      90
UK    50  0.0200   0.110      10
RD   350  0.0300   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK YMD2D
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK  MD3D
KM     MD3d
BA0.0094
PB
* PI
BF -38.7
LU  0.10  0.2500   8.000
UK   682  0.1610   0.600  100.00
RD   200  0.2350   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKMD1E1A
KM  MD1E1A
BA0.0018
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.0800   0.600      95
UK    50  0.0200   0.110       5
RD  1000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYD1E1A
KM  0
HC     2
ZW C=FLOW
*
KK   MD6
KM     MD6
BA0.0072
PB
* PI
BF -38.7
LU  0.10  0.2500   7.500
UK   635  0.1560   0.600  100.00
RD   300  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  YMD6
KM  0
HC     2
ZW C=FLOW
*
KK   MD1
KM     MD1  AREA = 5.7 AC = 0.00891 SQ MI % IMPERV = 14.0
BA0.0088
PB
* PI
BF -38.7
LU  0.10  0.2500  13.000
UK   483  0.1451   0.600  100.00
RD   100  0.1451   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  MD2A
KM  MD2A
BA0.0026
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   250  0.0350   0.600      90
UK    50  0.0200   0.110      10
RD   300  0.0400   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK YMD2A
```

```
KM  0
HC     2
ZW C=FLOW
*
KKYMD6CC
KM  0
HC     2
ZW C=FLOW
*
KK  MD27
KM     MD27
BA0.0048
PB
* PI
BF -38.7
LU  0.10  0.2500  11.000
UK   559  0.0500   0.600  100.00
RD   123  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD27
KM  0
HC     2
ZW C=FLOW
*
KK MD28A
KM     MD28A
BA0.0043
PB
* PI
BF -38.7
LU  0.10  0.2500  15.200
UK   559  0.0500   0.600  100.00
RD   123  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD28A
KM  0
HC     2
ZW C=FLOW
*
KK MD28B
KM     MD28B
BA0.0092
PB
* PI
BF -38.7
LU  0.10  0.2500   4.800
UK   559  0.0500   0.600  100.00
RD   123  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  MD3A
KM     MD3a AREA = 25.4 AC = 0.03969 SQ MI % IMPERV = 2.6
BA0.0076
PB
* PI
BF -38.7
LU  0.10  0.2500   2.500
UK   500  0.3458   0.600  100.00
RD  2530  0.3458   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD28B
KM  0
HC     3
ZW C=FLOW
*
KK YMD3A
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK  MD7B
KM     MD7B
BA0.0042
PB
* PI
BF -38.7
LU  0.10  0.2500   9.000
UK   760  0.0500   0.600  100.00
RD   160  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
*
KKUD7BDT
KM  0
RS     1    FLOW      -1
SV  0.00    0.15    0.30    0.45
SQ   0.0   100.0   200.0   300.0
ZW C=FLOW
```

```
*
KK  MD4C
KM     MD4c
BA0.0056
PB
* PI
BF -38.7
LU  0.10  0.2500   8.800
UK   626  0.0500   0.600  100.00
RD   200  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD4C
KM  0
HC     2
ZW C=FLOW
*
KK  MD4E
KM  MD4E
BA0.0016
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1500  0.2830   0.600  100.00
RD  1100  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD4E
KM  0
HC     2
ZW C=FLOW
*
KK  MD4D
KM     MD4d
BA0.0062
PB
* PI
BF -38.7
LU  0.10  0.2500   7.500
UK   895  0.1010   0.600  100.00
RD   350  0.2980   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD4D
KM  0
HC     2
ZW C=FLOW
*
KK   MD9
KM     MD9
BA0.0106
PB
* PI
BF -38.7
LU  0.10  0.2500   7.900
UK   824  0.2530   0.600  100.00
RD   572  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK   MD8
KM     MD8
BA0.0047
PB
* PI
BF -38.7
LU  0.10  0.2500   4.800
UK   519  0.1260   0.600  100.00
RD   354  0.2350   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  YMD8
KM  0
HC     3
ZW C=FLOW
*
KK  YMD9
KM  0
HC     2
ZW C=FLOW
*
KK  MD6A
KM  MD6A
BA0.1279
PB
* PI
BF -38.7
LU  0.10  0.2190   7.500
UK   635  0.1560   0.600  100.00
RD   300  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD6A
KM  0
```

```
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK  MD7D
KM     MD7d
BA0.0051
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   500  0.1060   0.600  100.00
RD   723  0.0640   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  MD7C
KM     MD7c
BA0.0061
PB
* PI
BF -38.7
LU  0.10  0.2500   3.200
UK   500  0.1060   0.600  100.00
RD   741  0.0640   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD7C
KM  0
HC     2
ZW C=FLOW
*
KK  MD7E
KM  MD7E
BA0.0094
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK  1200  0.3130   0.600      90
UK  1200  0.3000   0.240      10
RD  2000  0.0200   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD7E
KM  0
HC     2
ZW C=FLOW
*
KK  MD7F
KM  MD7F
BA0.0067
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK  1200  0.3130   0.600      90
UK  1200  0.3000   0.240      10
RD  2000  0.0200   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD7F
KM  0
HC     2
ZW C=FLOW
*
KK  MD11
KM     MD11
BA0.0056
PB
* PI
BF -38.7
LU  0.10  0.2500   4.800
UK   595  0.0500   0.600  100.00
RD   200  0.3330   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD11
KM  0
HC     2
ZW C=FLOW
*
KKYMD7FC
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK  MD2B
KM     MD2B
BA0.0056
```

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PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   690  0.0460   0.600      90
UK    50  0.0200   0.110      10
RD   130  0.0100   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK  ME3A
KM     ME3A
BA0.0040
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   420  0.0380   0.600      90
UK    50  0.0200   0.110      10
RD   200  0.0300   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK YME3A
KM  0
HC     2
ZW C=FLOW
*
*
KKUE3CUL
KM  0
RS     1    FLOW      -1
SV  0.00    2.50    5.00    8.50   12.50   17.50
SQ   0.0   500.0  1200.0  2300.0  3500.0  5500.0
ZW C=FLOW
*
KKYME3AC
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK  MD17
KM     MD17
BA0.0075
PB
* PI
BF -38.7
LU  0.10  0.2500   5.700
UK   830  0.1260   0.600  100.00
RD   150  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  MD18
KM    MD18
BA0.0051
PB
* PI
BF -38.7
LU  0.10  0.2500   6.000
UK   930  0.1480   0.600  100.00
RD   200  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  MD19
KM     MD19
BA0.0056
PB
* PI
BF -38.7
LU  0.10  0.2500   6.100
UK  1055  0.2100   0.600  100.00
RD   150  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD19
KM  0
HC     3
ZW C=FLOW
*
KKYMD19C
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK MD2A1
KM     MD2A
BA0.0019
PB
* PI
BF -38.7
```

```
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   250  0.0350   0.600      90
UK    50  0.0200   0.110      10
RD   300  0.0400   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK   MD2
KM     MD2
BA0.0059
PB
* PI
BF -38.7
LU  0.10  0.2500  16.800
UK   295  0.1250   0.600  100.00
RD   200  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  YMD2
KM  0
HC     2
ZW C=FLOW
*
KK ME3A2
KM    ME3A2
BA0.0062
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   500  0.0440   0.600      90
UK    50  0.0200   0.110      10
RD   300  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK YMD2C
KM  0
HC     2
ZW C=FLOW
*
KKYME3A2
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK  MD13
KM     MD13
BA0.4368
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   500  0.4770   0.600  100.00
RD  5450  0.3010   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKME6_19
KM  ME6_19
BA0.0236
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   330  0.0530   0.600  100.00
RD   522  0.0880   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKME6_14
KM  ME6_14
BA0.0063
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   330  0.0530   0.600  100.00
RD   522  0.0880   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME614
KM  0
HC     2
ZW C=FLOW
*
KK YMD13
KM  0
HC     2
ZW C=FLOW
*
KK  MD12
KM     MD12
BA0.0428
PB
```

```
* PI
BF -38.7
LU  0.10  0.2500   2.500
UK   500  0.1060   0.600  100.00
RD  2855  0.0640   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD12
KM  0
HC     2
ZW C=FLOW
*
KK MD12B
KM     MD12b
BA0.0024
PB
* PI
BF -38.7
LU  0.10  0.2500  24.700
UK   352  0.2560   0.600  100.00
RD   190  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MD12C
KM     MD12c
BA0.0084
PB
* PI
BF -38.7
LU  0.10  0.2500   6.500
UK   500  0.2050   0.600  100.00
RD   498  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD12C
KM  0
HC     2
ZW C=FLOW
*
KK MD14B
KM     MD14b
BA0.0016
PB
* PI
BF -38.7
LU  0.10  0.2500  12.600
UK   500  0.1060   0.600  100.00
RD    42  0.0640   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD14B
KM  0
HC     2
ZW C=FLOW
*
KK MD14C
KM     MD14c
BA0.0060
PB
* PI
BF -38.7
LU  0.10  0.2500   4.300
UK   500  0.1060   0.600  100.00
RD   406  0.0640   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD14C
KM  0
HC     3
ZW C=FLOW
*
KKME6_13
KM   1.17 AC
BA0.0022
PB
* PI
BF -38.7
LU  0.10  0.2500   2.900
UK   525  0.1750   0.600  100.00
RD   345  0.0800   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK ME8_3
KM   3.07 AC
BA0.0048
PB
* PI
BF -38.7
LU  0.10  0.2500   7.400
UK   675  0.1640   0.600  100.00
RD   100  0.1700   0.060            TRAP     0.1     2.0
ZW C=FLOW
*
KKYME8_3
```

```
KM  0
HC     2
ZW C=FLOW
*
KK YME83
KM  0
HC     2
ZW C=FLOW
*
KK MD13B
KM  MD13B
BA0.0392
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   500  0.4770   0.600  100.00
RD  5450  0.3010   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD13B
KM  0
HC     2
ZW C=FLOW
*
KK  MD14
KM     MD14
BA0.0060
PB
* PI
BF -38.7
LU  0.10  0.2500   9.300
UK   663  0.1650   0.600  100.00
RD   280  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MD14A
KM  MD14A
BA0.0009
PB
* PI
BF -38.7
LU  0.10  0.2500   9.300
UK   663  0.1650   0.600  100.00
RD   280  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD14A
KM  0
HC     2
ZW C=FLOW
*
KKYD14AC
KM  0
HC     2
ZW C=FLOW
*
KK ME3_5
KM  ME3_5
BA0.0007
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   300  0.1000   0.600      65
UK   300  0.1000   0.240      35
RD  1500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME3_5
KM  0
HC     2
ZW C=FLOW
*
KK  MD15
KM    MD15
BA0.0073
PB
* PI
BF -38.7
LU  0.10  0.2500   9.200
UK   870  0.1590   0.600  100.00
RD   140  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MD15A
KM  MD15A
BA0.0002
PB
* PI
BF -38.7
LU  0.10  0.2500   9.200
UK   870  0.1590   0.600  100.00
RD   140  0.3210   0.060            TRAP    10.0    10.0
```

```
ZW C=FLOW
*
KKYMD15A
KM  0
HC     2
ZW C=FLOW
*
KK MD16A
KM  MD16A
BA0.0036
PB
* PI
BF -38.7
LU  0.10  0.2500  10.000
UK   772  0.1250   0.600  100.00
RD   150  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD16A
KM  0
HC     2
ZW C=FLOW
*
KK  MD16
KM     MD16
BA0.0063
PB
* PI
BF -38.7
LU  0.10  0.2500  10.000
UK   772  0.1250   0.600  100.00
RD   150  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD16
KM  0
HC     2
ZW C=FLOW
*
KKYMD16C
KM  0
HC     2
ZW C=FLOW
*
KK MD13C
KM  MD13C
BA0.0068
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   500  0.4770   0.600  100.00
RD  5450  0.3010   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD13C
KM  0
HC     2
ZW C=FLOW
*
KK  MD20
KM     MD20
BA0.0020
PB
* PI
BF -38.7
LU  0.10  0.2500   9.000
UK   740  0.0500   0.600  100.00
RD   180  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD20
KM  0
HC     2
ZW C=FLOW
*
KKYD13CC
KM  0
HC     2
ZW C=FLOW
*
KK  ME3B
KM     ME3B
BA0.0182
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   300  0.1000   0.600      65
UK   300  0.1000   0.240      35
RD  1500  0.1000   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
* - - - - - -
```

```
*
*
KKGS31B1
KM    GS31B1
BA0.0029
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   580  0.0380   0.600      90
UK    50  0.0200   0.110      10
RD   275  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKGS31B2
KM    GS31B2
BA0.0047
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   690  0.0570   0.600      90
UK    50  0.0200   0.110      10
RD   340  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKGS31B3
KM    GS31B3
BA0.0056
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   530  0.0600   0.600      90
UK    50  0.0200   0.110      10
RD   250  0.0400   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYGS311
KM  0
HC     3
ZW C=FLOW
*
KKGS31B4
KM    GS31B4
BA0.0012
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   250  0.0480   0.600      90
UK    50  0.0200   0.110      10
RD   150  0.0400   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKGS31B5
KM    GS31B5
BA0.0056
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   500  0.0500   0.600      90
UK    50  0.0200   0.110      10
RD   350  0.0400   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYGS312
KM  0
HC     3
ZW C=FLOW
*
KKYS31BC
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK ME8_1
KM   0.48 AC
BA0.0007
PB
* PI
BF -38.7
LU  0.10  0.2500  26.000
UK   180  0.0660   0.600  100.00
RD    80  0.0600   0.060            TRAP     0.1     2.0
ZW C=FLOW
*
KK ME3_1
KM  ME3_1
BA0.0009
```

```
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   300  0.1000   0.600      65
UK   300  0.1000   0.240      35
RD  1500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME3_1
KM  0
HC     2
ZW C=FLOW
*
KK ME3_2
KM  ME3_2
BA0.0024
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   300  0.1000   0.600      65
UK   300  0.1000   0.240      35
RD  1500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME3_2
KM  0
HC     2
ZW C=FLOW
*
KK ME3_3
KM  ME3_3
BA0.0031
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   300  0.1000   0.600      65
UK   300  0.1000   0.240      35
RD  1500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME3_3
KM  0
HC     2
ZW C=FLOW
*
KK ME3_4
KM  ME3_4
BA0.0024
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   300  0.1000   0.600      65
UK   300  0.1000   0.240      35
RD  1500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME3_4
KM  0
HC     2
ZW C=FLOW
*
KK  MD21
KM     MD21
BA0.0033
PB
* PI
BF -38.7
LU  0.10  0.2500   7.200
UK   640  0.0500   0.600  100.00
RD   150  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD21
KM  0
HC     2
ZW C=FLOW
*
KK ME3C3
KM  ME3C3
BA0.0066
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   300  0.1000   0.600      65
UK   300  0.1000   0.240      35
RD  1500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME3C3
```

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KM  0
HC     2
ZW C=FLOW
*
KK ME3C1
KM  ME3C1
BA0.0016
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   300  0.1000   0.600      65
UK   300  0.1000   0.240      35
RD  1500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME3C1
KM  0
HC     2
ZW C=FLOW
*
KKYME3CC
KM  0
HC     2
ZW C=FLOW
*
KK  ME4A
KM     ME4A
BA0.0939
PB
* PI
BF -38.7
LU  0.10  0.2320   2.000    0.10  0.2320  15.000
UK   500  0.1200   0.600      90
UK   300  0.1200   0.240      10
RD  2500  0.1000   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
* - - - - - -
*
*
KKME6_11
KM   0.13 AC
BA0.0002
PB
* PI
BF -38.7
LU  0.10  0.2500  49.100
UK    30  0.0200   0.110  100.00
RD    95  0.0600   0.060            TRAP     0.1    50.0
ZW C=FLOW
*
KKME6_10
KM   0.21 AC
BA0.0003
PB
* PI
BF -38.7
LU  0.10  0.2500  67.300
UK    30  0.0200   0.110  100.00
RD   235  0.0600   0.060            TRAP     0.1    50.0
ZW C=FLOW
*
KKYME610
KM  CME610
HC     2
ZW C=FLOW
*
KKME6_25
KM   7.81 AC
BA0.0094
PB
* PI
BF -38.7
LU  0.10  0.2500   7.100
UK   125  0.1600   0.600  100.00
RD   235  0.1149   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME625
KM  0
HC     2
ZW C=FLOW
*
KKME6_33
KM  ME6_33
BA0.0026
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   330  0.0530   0.600  100.00
RD   522  0.0880   0.060            TRAP    10.0    10.0
ZW C=FLOW
```

```
*
KKYME633
KM  0
HC     2
ZW C=FLOW
*
KKME6_26
KM   0.43 AC
BA0.0008
PB
* PI
BF -38.7
LU  0.10  0.2500   3.000
UK   200  0.1300   0.600  100.00
RD   205  0.1268   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME626
KM  0
HC     2
ZW C=FLOW
*
KK ME7_1
KM   8.34 AC
BA0.0127
PB
* PI
BF -38.7
LU  0.10  0.2500   4.600
UK   470  0.2468   0.600  100.00
RD   340  0.1471   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME7_1
KM  CME7_1
HC     2
ZW C=FLOW
*
KK ME7_2
KM   0.25 AC
BA0.0004
PB
* PI
BF -38.7
LU  0.10  0.2500  83.600
UK    30  0.0200   0.110  100.00
RD   620  0.0800   0.060            TRAP     0.1    50.0
ZW C=FLOW
*
KKYME7_2
KM  0
HC     2
ZW C=FLOW
*
KK ME7D6
KM  ME7D6
BA0.0060
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   500  0.1800   0.600      75
UK   300  0.1800   0.240      25
RD  1000  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME7D6
KM  0
HC     2
ZW C=FLOW
*
KKME7D14
KM  ME7D14
BA0.0037
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   150  0.1300   0.600  100.00
RD   300  0.1200   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKME7D16
KM  ME7D16
BA0.0018
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   177  0.0450   0.600  100.00
RD   430  0.1200   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKME7D15
```

```
KM  ME7D15
BA0.0031
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   175  0.0570   0.600  100.00
RD   570  0.1100   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYM7D14
KM  0
HC     2
ZW C=FLOW
*
KKME7D24
KM  ME7D24
BA0.0022
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   144  0.0900   0.600  100.00
RD   270  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYM7D24
KM  0
HC     2
ZW C=FLOW
*
KKME4B13
KM  ME4B13
BA0.0056
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   270  0.0200   0.600  100.00
RD   515  0.0540   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYM4B13
KM  0
HC     2
ZW C=FLOW
*
KK ME7C4
KM  ME7C4
BA0.0054
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   500  0.1500   0.600       5
UK   300  0.1500   0.240      95
RD  1000  0.1000   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK ME7C5
KM  ME7C5
BA0.0061
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   500  0.1500   0.600       5
UK   300  0.1500   0.240      95
RD  1000  0.1000   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYME7C5
KM  0
HC     2
ZW C=FLOW
*
KK ME4B3
KM  ME4B3
BA0.0029
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   300  0.0500   0.600      15
UK   300  0.0500   0.240      85
RD  2000  0.1000   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYME4B3
KM  0
HC     2
ZW C=FLOW
*
*
```

```
KKUE4BDT
KM  0
RS     1    FLOW      -1
SV  0.00    0.15    0.30    0.45
SQ   0.0   100.0   200.0   300.0
ZW C=FLOW
*
KKME4B12
KM  ME4B12
BA0.0065
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   430  0.0180   0.600  100.00
RD   720  0.0700   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYME4BC
KM  0
HC     2
ZW C=FLOW
*
KKYM4BCC
KM  0
HC     2
ZW C=FLOW
*
KKME4B23
KM  ME4B23
BA0.0088
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   210  0.0700   0.600  100.00
RD   400  0.0600   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKME4B22
KM  ME4B22
BA0.0074
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   220  0.1000   0.600  100.00
RD   720  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK ME3C2
KM  ME3C2
BA0.0032
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   300  0.1600   0.600      60
UK   300  0.1600   0.240      40
RD  1500  0.1000   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKME4B11
KM  ME4B11
BA0.0049
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   340  0.0530   0.600  100.00
RD   530  0.0750   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKME4B21
KM  ME4B21
BA0.0024
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   220  0.1000   0.600  100.00
RD   720  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKME4B10
KM  ME4B-10
BA0.0027
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   150  0.0800   0.600  100.00
RD   275  0.0700   0.060          TRAP     10.0    10.0
ZW C=FLOW
```

```
*
KK  ME4B
KM     ME4B
BA0.0055
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   300  0.0500   0.600      15
UK   300  0.0500   0.240      85
RD  2000  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YME4B
KM  0
HC     2
ZW C=FLOW
*
KKYME4CC
KM  0
HC     3
ZW C=FLOW
*
KKYM4CCC
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KKMG3_3B
KM  MG3_3B
BA0.1460
PB
* PI
BF -38.7
LU  0.10  0.2500   2.900
UK   575  0.2250   0.600  100.00
RD   925  0.2260   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKMG3_3C
KM  MG3_3C
BA0.0127
PB
* PI
BF -38.7
LU  0.10  0.2500   2.900
UK   575  0.2250   0.600  100.00
RD   925  0.2260   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMG_3C
KM  0
HC     2
ZW C=FLOW
*
KKME6_12
KM   14.48 AC
BA0.0096
PB
* PI
BF -38.7
LU  0.10  0.2500   3.400
UK   600  0.2950   0.600  100.00
RD  1920  0.2495   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME_12
KM  0
HC     2
ZW C=FLOW
*
KKME6_16
KM   10.41 AC
BA0.0002
PB
* PI
BF -38.7
LU  0.10  0.2500   4.400
UK   600  0.2950   0.600  100.00
RD  1595  0.3003   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME_16
KM  0
HC     2
ZW C=FLOW
*
KKME6_18
KM   2.92 AC
BA0.0046
PB
```

```
* PI
BF -38.7
LU  0.10  0.2500  10.200
UK   150  0.2133   0.600  100.00
RD   155  0.1032   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME_18
KM  0
HC     2
ZW C=FLOW
*
KKME6_20
KM   3.75 AC
BA0.0060
PB
* PI
BF -38.7
LU  0.10  0.2500   6.300
UK   200  0.2100   0.600  100.00
RD   155  0.2330   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKME6_24
KM   0.70 AC
BA0.0026
PB
* PI
BF -38.7
LU  0.10  0.2500  18.600
UK   305  0.0910   0.600  100.00
RD   120  0.0300   0.060            TRAP     0.1    50.0
ZW C=FLOW
*
KKYME_24
KM  0
HC     3
ZW C=FLOW
*
KKME6_23
KM   4.19 AC
BA0.0065
PB
* PI
BF -38.7
LU  0.10  0.2500   8.200
UK   200  0.1700   0.600  100.00
RD   265  0.1060   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKME6_32
KM   0.39 AC
BA0.0006
PB
* PI
BF -38.7
LU  0.10  0.2500  33.900
UK    24  0.0200   0.110  100.00
RD   415  0.0800   0.060            TRAP     0.1    50.0
ZW C=FLOW
*
KKYME_32
KM  0
HC     2
ZW C=FLOW
*
KKME6_28
KM   4.93 AC
BA0.0077
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   355  0.1130   0.600  100.00
RD   590  0.1010   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK ME627
KM   1.77 AC
BA0.0027
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   120  0.1070   0.600  100.00
RD   400  0.1057   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME627
KM  0
HC     2
ZW C=FLOW
*
KKME6_29
```

```
KM   1.37 AC
BA0.0021
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   370  0.1140   0.600  100.00
RD   335  0.0930   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME_29
KM  0
HC     2
ZW C=FLOW
*
KKME6_30
KM   1.27 AC
BA0.0020
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   295  0.0880   0.600  100.00
RD   195  0.0790   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKME6A25
KM  ME6A25
BA0.0029
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   330  0.0530   0.600  100.00
RD   522  0.0880   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYM6A25
KM  0
HC     2
ZW C=FLOW
*
KK  ME7B
KM     ME7B
BA0.0270
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   400  0.0500   0.600      75
UK   300  0.0500   0.240      25
RD  1500  0.1000   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
*
KKUE7BDT
KM  0
RS     1    FLOW      -1
SV  0.00    0.15    0.30    0.45
SQ   0.0   100.0   200.0   300.0
ZW C=FLOW
*
KK  ME7A
KM     ME7A
BA0.1404
PB
* PI
BF -38.7
LU  0.10  0.2270   2.000    0.10  0.2270  15.000
UK  1300  0.1920   0.600      10
UK   300  0.1900   0.240      90
RD  3000  0.1000   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYME7AC
KM  0
HC     2
ZW C=FLOW
*
KK YGSMC
KM  0
HC     2
ZW C=FLOW
*
KKVGSMCR
KM  0
RD  2000  0.0100   0.040            TRAP    10.0    10.0
ZW C=FLOW
*
KK   MF1
KM     MF1
BA0.3780
PB
* PI
```

```
BF -38.7
LU  0.10  0.2050   2.000
UK  1500  0.0870   0.600  100.00
RD  2000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMF1C
KM  0
HC     2
ZW C=FLOW
*
KKVMF1CR
KM  0
RD  2000  0.0100   0.040            TRAP    10.0    10.0
ZW C=FLOW
*
KK   MF2
KM     MF2
BA0.0582
PB
* PI
BF -38.7
LU  0.10  0.2470   2.000
UK  1000  0.0700   0.600  100.00
RD  2000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMF2C
KM  0
HC     2
ZW C=FLOW
*
KKVMF2CR
KM  0
RD  3000  0.0100   0.040            TRAP    10.0    10.0
ZW C=FLOW
*
* - - - - - -
*
*
KKMD4_1A
KM     MD4
BA0.1899
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1500  0.2830   0.600  100.00
RD  1100  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKMG4_1B
KM     6.35 AC
BA0.0100
PB
* PI
BF -38.7
LU  0.10  0.2500   2.100
UK   500  0.3500   0.600  100.00
RD   491  0.4296   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKMG5_2A
KM   8.61 AC
BA0.0134
PB
* PI
BF -38.7
LU  0.10  0.2500   3.200
UK   600  0.2033   0.600  100.00
RD  1065  0.3014   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMG52A
KM  0
HC     3
ZW C=FLOW
*
KK MG3_1
KM   1.78 AC
BA0.0028
PB
* PI
BF -38.7
LU  0.10  0.2500   5.400
UK   500  0.2800   0.600  100.00
RD  1070  0.3293   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKMG3_1A
KM   1.00 AC
BA0.0016
PB
* PI
```

```
BF -38.7
LU  0.10  0.2500   5.400
UK   498  0.2800   0.600  100.00
RD   575  0.3270   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMG31A
KM  0
HC     2
ZW C=FLOW
*
KKMG3_1C
KM   1.47 AC
BA0.0023
PB
* PI
BF -38.7
LU  0.10  0.2500   5.400
UK   498  0.2811   0.600  100.00
RD   567  0.3422   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMG31C
KM  0
HC     2
ZW C=FLOW
*
KK MG3_6
KM   0.09 AC
BA0.0002
PB
* PI
BF -38.7
LU  0.10  0.2500  90.000
UK    30  0.0200   0.110  100.00
RD   360  0.0120   0.060           TRAP     0.1     1.0
ZW C=FLOW
*
KK YMG36
KM  0
HC     2
ZW C=FLOW
*
KK MG4_2
KM   4.61 AC
BA0.0072
PB
* PI
BF -38.7
LU  0.10  0.2500   3.100
UK   500  0.2840   0.600  100.00
RD   535  0.3551   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YMG42
KM  0
HC     2
ZW C=FLOW
*
KKMG4_3B
KM  MG4_3B
BA0.0002
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK  2300  0.3260   0.600      95
UK   600  0.2500   0.240       5
RD  2500  0.1000   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMG43B
KM  0
HC     2
ZW C=FLOW
*
KKMG4_3A
KM   0.07 AC
BA0.0001
PB
* PI
BF -38.7
LU  0.10  0.2500  90.000
UK    30  0.0200   0.110  100.00
RD   250  0.0098   0.060           TRAP     0.1     1.0
ZW C=FLOW
*
KKYMG43A
KM  0
HC     2
ZW C=FLOW
*
KKMG5_2B
KM   0.06 AC
```

```
BA0.0001
PB
* PI
BF -38.7
LU  0.10  0.2500  90.000
UK    12  0.0100   0.600  100.00
RD   400  0.0500   0.060            TRAP    10.0    50.0
ZW C=FLOW
*
KK MG4_4
KM   0.10 AC
BA0.0002
PB
* PI
BF -38.7
LU  0.10  0.2500  90.000
UK    30  0.0200   0.110  100.00
RD   350  0.0098   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
KK YMG44
KM  0
HC     2
ZW C=FLOW
*
KKMG4_5C
KM  MG4_5C
BA0.0078
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK  2300  0.3260   0.600      95
UK   600  0.2500   0.240       5
RD  2500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMG45C
KM  0
HC     4
ZW C=FLOW
*
KKMG5_1A
KM   18.98 AC
BA0.0296
PB
* PI
BF -38.7
LU  0.10  0.2500   2.800
UK   600  0.1550   0.600  100.00
RD  1820  0.2357   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKMG5_1B
KM  MG5_1B
BA0.0090
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   200  0.1000   0.600       5
UK   200  0.1000   0.240      95
RD   500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMG51B
KM  0
HC     2
ZW C=FLOW
*
KK MG5_3
KM   0.04 AC
BA0.0001
PB
* PI
BF -38.7
LU  0.10  0.2500  90.000
UK    30  0.0200   0.110  100.00
RD   300  0.0775   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
KK MG5_4
KM   0.15 AC
BA0.0003
PB
* PI
BF -38.7
LU  0.10  0.2500  90.000
UK    30  0.0200   0.110  100.00
RD   300  0.0775   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
KK YMG54
KM  0
```

```
HC     3
ZW C=FLOW
*
KK MG5_5
KM  MG5_5
BA0.0024
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   200  0.1000   0.600       5
UK   200  0.1000   0.240      95
RD   500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMG55
KM  0
HC     2
ZW C=FLOW
*
KKYMG55C
KM  0
HC     2
ZW C=FLOW
*
KKMG3_3A
KM   8.25 AC
BA0.0129
PB
* PI
BF -38.7
LU  0.10  0.2500   2.900
UK   575  0.2250   0.600  100.00
RD   925  0.2260   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MG3_2
KM   2.58 AC
BA0.0040
PB
* PI
BF -38.7
LU  0.10  0.2500   6.100
UK   390  0.2051   0.600  100.00
RD   370  0.3000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MG3_4
KM   014 AC
BA0.0002
PB
* PI
BF -38.7
LU  0.10  0.2500  88.800
UK    30  0.0200   0.110  100.00
RD   300  0.0691   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
KK YMG34
KM  0
HC     3
ZW C=FLOW
*
KKMG3_1B
KM   0.87 AC
BA0.0014
PB
* PI
BF -38.7
LU  0.10  0.2500   5.400
UK   500  0.2800   0.600  100.00
RD   300  0.3467   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKMG3_1D
KM   0.57 AC
BA0.0009
PB
* PI
BF -38.7
LU  0.10  0.2500   5.400
UK   504  0.2778   0.600  100.00
RD   360  0.3083   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MG3_5
KM   0.07 AC
BA0.0001
PB
* PI
BF -38.7
LU  0.10  0.2500  90.000
UK    30  0.0200   0.110  100.00
RD   350  0.0094   0.060            TRAP     0.1     1.0
```

```
ZW C=FLOW
*
KK YMG35
KM  0
HC     3
ZW C=FLOW
*
KKMG3_5A
KM  MG3_5A
BA0.0073
PB
* PI
BF -38.7
LU  0.10  0.2500   2.900
UK   575  0.2250   0.600  100.00
RD   925  0.2260   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMG35A
KM  0
HC     3
ZW C=FLOW
*
KK ME6_1
KM   10.24 AC
BA0.0082
PB
* PI
BF -38.7
LU  0.10  0.2500   3.900
UK   310  0.1740   0.600  100.00
RD   250  0.1640   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK ME6_2
KM   1.28 AC
BA0.0099
PB
* PI
BF -38.7
LU  0.10  0.2500   6.900
UK   505  0.1940   0.600  100.00
RD   235  0.0800   0.060            TRAP     0.1    50.0
ZW C=FLOW
*
KK ME6_3
KM   0.02 AC
BA0.0003
PB
* PI
BF -38.7
LU  0.10  0.2500  86.500
UK    15  0.0200   0.600  100.00
RD   235  0.0800   0.060            TRAP     0.1    50.0
ZW C=FLOW
*
KKYM6123
KM  0
HC     3
ZW C=FLOW
*
KK ME6_5
KM   1.40 AC
BA0.0022
PB
* PI
BF -38.7
LU  0.10  0.2500  16.500
UK   160  0.1500   0.600  100.00
RD   365  0.0800   0.060            TRAP     0.1    50.0
ZW C=FLOW
*
KK YME65
KM  0
HC     2
ZW C=FLOW
*
KK ME6_7
KM   0.81 AC
BA0.0013
PB
* PI
BF -38.7
LU  0.10  0.2500  16.200
UK   190  0.1680   0.600  100.00
RD   145  0.1100   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YME67
KM  0
HC     2
ZW C=FLOW
*
KK ME6_8
```

```
KM    .44 AC
BA0.0007
PB
* PI
BF -38.7
LU  0.10  0.2500  87.800
UK    20  0.0200   0.600  100.00
RD   555  0.0560   0.060            TRAP    10.0    50.0
ZW C=FLOW
*
KK YME68
KM  0
HC     2
ZW C=FLOW
*
KK MG1_2
KM   0.67 AC
BA0.0010
PB
* PI
BF -38.7
LU  0.10  0.2500  11.100
UK   100  0.1400   0.600  100.00
RD   255  0.1686   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MG1_3
KM   1.89 AC
BA0.0025
PB
* PI
BF -38.7
LU  0.10  0.2500   9.500
UK   300  0.0700   0.600  100.00
RD   205  0.2293   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MG1_1
KM   1.38 AC
BA0.0026
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   185  0.1946   0.600  100.00
RD   205  0.0600   0.060            TRAP     0.1     2.0
ZW C=FLOW
*
KK MG1_4
KM   0.18 AC
BA0.0003
PB
* PI
BF -38.7
LU  0.10  0.2500  46.900
UK    30  0.0200   0.110  100.00
RD   295  0.0800   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
KKYG1234
KM  0
HC     5
ZW C=FLOW
*
KKMG3_33
KM  MG3_33
BA0.0087
PB
* PI
BF -38.7
LU  0.10  0.2500   2.900
UK   575  0.2250   0.600  100.00
RD   925  0.2260   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMG33
KM  0
HC     2
ZW C=FLOW
*
KKME6_8A
KM  ME6_8A
BA0.0006
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   330  0.0530   0.600  100.00
RD   522  0.0880   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME68A
KM  0
HC     3
```

```
ZW C=FLOW
*
KK   MG2
KM     MG2
BA0.1195
PB
* PI
BF -38.7
LU  0.10  0.2450   2.000    0.10  0.2450  15.000
UK   700  0.1430   0.600      90
UK   700  0.1400   0.240      10
RD  1500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  YMG2
KM  0
HC     3
ZW C=FLOW
*
* - - - - - -
*
*
KK ME6_6
KM   0.16 AC
BA0.0003
PB
* PI
BF -38.7
LU  0.10  0.2500  73.000
UK    30  0.0200   0.110  100.00
RD   340  0.0800   0.060            TRAP     0.1    50.0
ZW C=FLOW
*
KKME6_21
KM   2.50 AC
BA0.0039
PB
* PI
BF -38.7
LU  0.10  0.2500  12.000
UK   200  0.1250   0.600  100.00
RD   235  0.1490   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKME6_31
KM   0.44 AC
BA0.0007
PB
* PI
BF -38.7
LU  0.10  0.2500  42.900
UK    24  0.0200   0.110  100.00
RD   480  0.0800   0.060            TRAP     0.1    50.0
ZW C=FLOW
*
KKYME631
KM  0
HC     3
ZW C=FLOW
*
KKMG1B19
KM  MG1B19
BA0.0072
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   150  0.0400   0.600  100.00
RD   780  0.1300   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKMG1B20
KM  MG1B20
BA0.0039
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   240  0.0800   0.600  100.00
RD   710  0.1200   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  ME6A
KM     ME6A
BA0.0030
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   300  0.1200   0.600      50
UK   300  0.1200   0.240      50
RD  1500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
```

```
KK YME6A
KM  0
HC     3
ZW C=FLOW
*
KKMG1B26
KM  MG1B26
BA0.0038
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   250  0.0960   0.600  100.00
RD   550  0.0910   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK  MG1B
KM     MG1B
BA0.0119
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   300  0.1000   0.600      50
UK   200  0.1000   0.240      50
RD   800  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKME6A27
KM  ME6A27
BA0.0094
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   230  0.0950   0.600  100.00
RD   520  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMG1B
KM  0
HC     3
ZW C=FLOW
*
KK  MG1A
KM     MG1A
BA0.0185
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   200  0.1000   0.600      50
UK   200  0.1000   0.240      50
RD  1000  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMG1A
KM  0
HC     2
ZW C=FLOW
*
KK YMGCC
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK MG5B1
KM  MG5B1
BA0.1242
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   200  0.1000   0.600       5
UK   200  0.1000   0.240      95
RD   500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MG5A2
KM  MG5A2
BA0.0613
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   200  0.1000   0.600       5
UK   200  0.1000   0.240      95
RD   500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMG5A2
```

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KM  0
HC     2
ZW C=FLOW
*
KK  MG6B
KM     MG6B
BA0.0479
PB
* PI
BF -38.7
LU  0.10  0.2010   2.000    0.10  0.2010  15.000
UK  1000  0.2500   0.600      85
UK   400  0.2500   0.240      15
RD  1500  0.1000   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK MG5A1
KM  MG5A1
BA0.0134
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   200  0.1000   0.600       5
UK   200  0.1000   0.240      95
RD   500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMG5A1
KM  0
HC     2
ZW C=FLOW
*
KK YMGCC
KM  0
HC     2
ZW C=FLOW
*
KK   MG7
KM     MG7
BA0.1439
PB
* PI
BF -38.7
LU  0.10  0.2070   2.000
UK   600  0.2500   0.600  100.00
RD  3500  0.0100   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK NS24A
KM  NS24A
BA0.0297
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   900  0.1000   0.600  100.00
RD  1000  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK NS24B
KM  NS24B
BA0.0120
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   300  0.1000   0.600  100.00
RD   500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS24B
KM  0
HC     2
ZW C=FLOW
*
KK NS24C
KM  NS24C
BA0.0400
PB
* PI
BF -38.7
LU  0.10  0.1820   2.000
UK   800  0.1000   0.600  100.00
RD  1000  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS24C
KM  0
HC     3
ZW C=FLOW
*
KK  NS25
KM  NS25
```

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BA0.0370
PB
* PI
BF -38.7
LU  0.10  0.2490   2.000
UK   800  0.0500   0.600  100.00
RD  1200  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YNS25
KM  0
HC     2
ZW C=FLOW
*
KK  NS26
KM  NS26
BA0.1102
PB
* PI
BF -38.7
LU  0.10  0.1220   2.000
UK  1000  0.0500   0.600  100.00
RD  1500  0.0200   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YNS26
KM  0
HC     3
ZW C=FLOW
*
*
KKUW4END
KM  ROUTE FOR BACKWATER AT NW4
RS     1    FLOW      -1
SV  0.00    0.46    1.70    6.66    46.3     520
SQ   0.0   178.0    1833    2500    4382    8550
ZW C=FLOW
*
* - - - - - -
*
*
KK NS22A
KM  NS22A
BA0.0103
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   750  0.1000   0.600  100.00
RD  1000  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK NS22C
KM  NS22C
BA0.0063
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   300  0.1000   0.600  100.00
RD   500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS22C
KM  0
HC     2
ZW C=FLOW
*
KK NS23A
KM  NS23A
BA0.0374
PB
* PI
BF -38.7
LU  0.10  0.1900   2.000
UK   950  0.0700   0.600  100.00
RD  1100  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS23A
KM  0
HC     2
ZW C=FLOW
*
KK  NS27
KM  NS27
BA0.0574
PB
* PI
BF -38.7
LU  0.10  0.1000   2.000
UK   830  0.0300   0.600  100.00
RD  1000  0.0200   0.060            TRAP    10.0    10.0
ZW C=FLOW
```

```
*
KK YNS27
KM  0
HC     4
ZW C=FLOW
*
KK NS28B
KM  NS28B
BA0.0417
PB
* PI
BF -38.7
LU  0.10  0.1000   2.000
UK   500  0.0100   0.600  100.00
RD  1000  0.0100   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  E85Z
KM  E85Z
BA0.0291
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   400  0.0200   0.600  100.00
RD   500  0.0500   0.060            TRAP    20.0    10.0
ZW C=FLOW
*
KKYNS28B
KM  0
HC     3
ZW C=FLOW
*
KK NS28A
KM  NS28A
BA0.0415
PB
* PI
BF -38.7
LU  0.10  0.1000   2.000
UK   500  0.0100   0.600  100.00
RD  1000  0.0100   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS28A
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK  NS22
KM  NS22
BA0.2037
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  2100  0.0800   0.600  100.00
RD  2500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  NS31
KM  NS31
BA0.0592
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1250  0.1000   0.600  100.00
RD  1300  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YNS31
KM  0
HC     2
ZW C=FLOW
*
KK NS22B
KM  NS22B
BA0.0098
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   500  0.1000   0.600  100.00
RD   500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS22B
KM  0
HC     2
ZW C=FLOW
```

```
*
KK NS23B
KM  NS23B
BA0.1061
PB
* PI
BF -38.7
LU  0.10  0.1910   2.000
UK  1350  0.0500   0.600  100.00
RD  1500  0.0200   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS23B
KM  0
HC     2
ZW C=FLOW
*
KK NS32A
KM  NS32A
BA0.0191
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   500  0.1000   0.600  100.00
RD  1000  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK NS32B
KM  NS32B
BA0.1481
PB
* PI
BF -38.7
LU  0.10  0.1650   2.000
UK  1500  0.0800   0.600  100.00
RD  2500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS32B
KM  0
HC     3
ZW C=FLOW
*
KK   NS1
KM   BASIN 1 - 330 Ac
BA0.5174
PB
* PI
BF -38.7
LU  0.10  0.1780   2.000    0.10  0.1780   2.000
UK  3300  0.2400   0.800      57
UK  3300  0.2400   0.600      43
RD  2800  0.1800   0.060            TRAP     5.0     3.0
RD  2800  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
*
KKUR-NS1
KM   ROUTE NS-1
RS     1    FLOW      -1
SV  0.70    1.10    1.50    1.90    2.20    2.80    3.90    4.90
SQ 100.0   200.0   300.0   400.0   500.0   700.0  1100.0  1500.0
ZW C=FLOW
*
KK   NS2
KM   BASIN 2 - 267 Ac
BA0.4184
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500   2.000
UK  2800  0.2500   0.800      54
UK  2800  0.2500   0.600      46
RD  2200  0.1600   0.060            TRAP     5.0     3.0
RD  2200  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKYCMB-2
KM   COMBINE NS-1 & 2
HC     2
ZW C=FLOW
*
*
KKUCMB-2
KM   ROUTE CMB-2
RS     1    FLOW      -1
SV  0.70    1.00    1.40    1.70    2.00    2.50    3.40    4.30
SQ 100.0   200.0   300.0   400.0   500.0   700.0  1100.0  1500.0
ZW C=FLOW
*
KK   NS3
KM   BASIN 3 - 331 Ac
BA0.5218
```

```
PB
* PI
BF -38.7
LU  0.10  0.2500  65.000    0.10  0.2500   2.000
UK  2950  0.1800   0.240       3
UK  2950  0.1800   0.600      98
RD  3000  0.2000   0.060            TRAP     5.0     3.0
RD  3000  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKYCMB-3
KM   COMBINE NS-1 THRU 3
HC     2
ZW C=FLOW
*
*
KKUCMB-3
KM   ROUTE CMB-3
RS     1    FLOW      -1
SV  1.40    2.30    3.00    3.70    4.20    5.70    7.70    9.20
SQ 100.0   200.0   300.0   400.0   500.0   700.0  1100.0  1500.0
ZW C=FLOW
*
KK   NS4
KM   BASIN 4 - 166 Ac
BA0.2602
PB
* PI
BF -38.7
LU  0.10  0.2500  65.000    0.10  0.2500   2.000
UK  2110  0.2200   0.240      29
UK  2110  0.2200   0.600      71
RD  2500  0.1000   0.060            TRAP     5.0     3.0
RD  2500  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKYCMB-4
KM   COMBINE NS-1 THRU 4
HC     2
ZW C=FLOW
*
*
KKUCMB-4
KM   ROUTE CMB-4
RS     1    FLOW      -1
SV  0.20    0.30    0.40    0.40    0.50    0.60    2.20    2.90
SQ 100.0   200.0   300.0   400.0   500.0   700.0  1100.0  1500.0
ZW C=FLOW
*
KK   NS5
KM   BASIN 5 - 21 Ac
BA0.0319
PB
* PI
BF -38.7
LU  0.10  0.2500  65.000    0.10  0.2500   2.000
UK  1400  0.2500   0.240      36
UK  1400  0.2500   0.600      64
RD   700  0.1400   0.060            TRAP     5.0     3.0
RD   700  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKYCMB-5
KM   COMBINE NS-1 THRU 5
HC     2
ZW C=FLOW
*
*
KKUCMB-5
KM   ROUTE CMB-5
RS     1    FLOW      -1
SV  0.40    0.60    0.80    1.10    1.30    1.60    2.30    2.90
SQ 100.0   200.0   300.0   400.0   500.0   700.0  1100.0  1500.0
ZW C=FLOW
*
KK   NS6
KM   BASIN 6 - 178 Ac
BA0.2162
PB
* PI
BF -38.7
LU  0.10  0.2500  65.000    0.10  0.2500   2.000
UK  3100  0.2700   0.240      71
UK  3100  0.2700   0.600      29
RD  3100  0.1600   0.060            TRAP     5.0     3.0
RD  3100  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKVR-NS6
KM   ROUTE NS-6
RD   970  0.0700   0.015            TRAP     1.0     1.0
ZW C=FLOW
*
KK   NS7
```

```
KM   BASIN 7 - 38 Ac
BA0.0602
PB
* PI
BF -38.7
LU  0.10  0.2500  65.000    0.10  0.2500   2.000
UK  1570  0.1900   0.240      69
UK  1570  0.1900   0.600      31
RD   800  0.0800   0.060            TRAP     2.0     1.0
RD   800  0.0010   0.060            TRAP     2.0     1.0
ZW C=FLOW
*
KKYCMB-7
KM   COMBINE NS-6 & 7
HC     2
ZW C=FLOW
*
KKYMB-7A
KM   COMBINE NS-1 THRU 7
HC     2
ZW C=FLOW
*
*
KKUCMB7A
KM   ROUTE CMB-7A
RS     1    FLOW      -1
SV  0.60    1.10    1.40    1.70    2.10    2.60    3.60    4.60
SQ 100.0   200.0   300.0   400.0   500.0   700.0  1100.0  1500.0
ZW C=FLOW
*
KK   NS8
KM   BASIN 8 - 673 Ac
BA1.1304
PB
* PI
BF -38.7
LU  0.10  0.2390   2.000    0.10  0.2390   2.000
UK  4200  0.2100   0.800      92
UK  4200  0.2100   0.600       9
RD  1900  0.0800   0.060            TRAP     5.0     3.0
RD  1900  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
*
KKURES-A
KM   RESERVOIR A
RS     1    FLOW      -1
SV  0.00    3.40    6.80   10.20   13.60   17.00   20.40   23.80   27.20   34.00
SQ   0.0    23.9    67.5   124.0   190.0   266.0   350.0   441.0   540.0   754.0
ZW C=FLOW
*
KKV-RESA
KM   ROUTE RES-A
RD  1400  0.1100   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KK   NS9
KM   BASIN 9 - 144 Ac
BA0.1855
PB
* PI
BF -38.7
LU  0.10  0.2490   2.000
UK  4400  0.2000   0.600  100.00
RD  1200  0.1100   0.060            TRAP     5.0     3.0
RD  1200  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKYCMB-9
KM   COMBINE NS-8 & 9
HC     2
ZW C=FLOW
*
KKVCMB-9
KM   ROUTE CMB-9
RD  2800  0.1100   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KK  NS10
KM   BASIN 10 - 214 Ac
BA0.3581
PB
* PI
BF -38.7
LU  0.10  0.2230   2.000
UK  3905  0.2000   0.600  100.00
RD  2200  0.0900   0.060            TRAP     5.0     3.0
RD  2200  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKYMB-10
KM   COMBINE NS-8 THRU 10
HC     2
ZW C=FLOW
```

```
*
KKVCMB10
KM   ROUTE CMB-10
RD  3600  0.0800   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KK  NS11
KM   BASIN 11 - 60 Ac
BA0.0389
PB
* PI
BF -38.7
LU  0.10  0.2490  65.000    0.10  0.2490   2.000
UK  1600  0.3400   0.240       6
UK  1600  0.3400   0.600      95
RD  3600  0.0800   0.060            TRAP     5.0     3.0
RD  3600  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKYMB-11
KM   COMBINE NS-8 THRU 11
HC     2
ZW C=FLOW
*
KKYMB11A
KM   COMBINE NS-1 THRU 11
HC     2
ZW C=FLOW
*
*
KKUCM11A
KM   ROUTE CMB11A
RS     1    FLOW      -1
SV  0.20    0.30    0.50    0.60    0.70    0.90    1.20    1.60
SQ 100.0   200.0   300.0   400.0   500.0   700.0  1100.0  1500.0
ZW C=FLOW
*
KK NS11B
KM   BASIN 11 - 60 Ac
BA0.0546
PB
* PI
BF -38.7
LU  0.10  0.2500  65.000    0.10  0.2500   2.000
UK  1600  0.3400   0.240       6
UK  1600  0.3400   0.600      95
RD  3600  0.0800   0.060            TRAP     5.0     3.0
RD  3600  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKYNS11B
KM  0
HC     2
ZW C=FLOW
*
KK  NS12
KM   BASIN 12 - 40 Ac
BA0.0619
PB
* PI
BF -38.7
LU  0.10  0.2500  65.000    0.10  0.2500   2.000
UK   400  0.1000   0.240      71
UK   400  0.1000   0.800      30
RD  1500  0.0700   0.060            TRAP     5.0     3.0
RD  1500  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKYMB-12
KM   COMBINE NS-1 THRU 12
HC     2
ZW C=FLOW
*
KK  NS13
KM   BASIN 13 - 15 Ac
BA0.1459
PB
* PI
BF -38.7
LU  0.10  0.2500  65.000    0.10  0.2500  98.000
UK   500  0.1600   0.240      86
UK   500  0.1600   0.110      14
RD   900  0.1300   0.060            TRAP     5.0     3.0
RD   900  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKV-NS13
KM   ROUTE NS-13
RD  1400  0.0800   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KK  NS14
KM   BASIN 14 - 47 Ac
BA0.0434
```

```
PB
* PI
BF -38.7
LU  0.10  0.2500  65.000    0.10  0.2500  98.000
UK   775  0.3500   0.240      90
UK   775  0.3500   0.110      10
RD   800  0.0600   0.060            TRAP     5.0     3.0
RD   800  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKYMB-14
KM   COMBINE NS-13 & 14
HC     2
ZW C=FLOW
*
KK NS14B
KM  NS14B
BA0.0204
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   500  0.1000   0.600  100.00
RD   500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMB14A
KM   COMBINE NS-1 THRU 14
HC     3
ZW C=FLOW
*
KK NS20B
KM  NS20B
BA0.0322
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   640  0.1000   0.600  100.00
RD  1000  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  NS15
KM  NS15
BA0.0860
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1000  0.0800   0.600  100.00
RD  1500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YNS15
KM  0
HC     2
ZW C=FLOW
*
KKYNS15C
KM  0
HC     2
ZW C=FLOW
*
KK  NS16
KM  NS16
BA0.1019
PB
* PI
BF -38.7
LU  0.10  0.2460   2.000
UK  1600  0.1000   0.600  100.00
RD  2100  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  NS17
KM  NS17
BA0.0811
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1500  0.0800   0.600  100.00
RD  1200  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YNS17
KM  0
HC     2
ZW C=FLOW
*
KK  NS18
KM  NS18
BA0.1877
PB
```

```
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  3200  0.1000   0.600  100.00
RD  3000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  NS19
KM  NS19
BA0.0434
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1600  0.0500   0.600  100.00
RD  1000  0.0400   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YNS19
KM  0
HC     2
ZW C=FLOW
*
KKYNS19C
KM  0
HC     2
ZW C=FLOW
*
KK  NS20
KM  NS20
BA0.0548
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   600  0.0800   0.600  100.00
RD  1200  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YNS20
KM  0
HC     2
ZW C=FLOW
*
KKYNS20C
KM  0
HC     2
ZW C=FLOW
*
KK  NS21
KM  NS21
BA0.1390
PB
* PI
BF -38.7
LU  0.10  0.2480   2.000
UK  1450  0.0500   0.600  100.00
RD  2500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YNS21
KM  0
HC     2
ZW C=FLOW
*
KK NS30D
KM  NS30D
BA0.0577
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   900  0.0800   0.600  100.00
RD  1400  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK NS30A
KM  NS30A
BA0.0266
PB
* PI
BF -38.7
LU  0.10  0.2440   2.000
UK   800  0.0800   0.600  100.00
RD  1600  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS30A
KM  0
HC     2
ZW C=FLOW
*
KKYS30CC
KM  0
```

```
HC     2
ZW C=FLOW
*
KK NS30B
KM  NS30B
BA0.1400
PB
* PI
BF -38.7
LU  0.10  0.2360   2.000
UK  1600  0.1000   0.600  100.00
RD  2000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS30B
KM  0
HC     2
ZW C=FLOW
*
KK NS30E
KM  NS30E
BA0.0022
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   200  0.1000   0.600  100.00
RD   500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS30E
KM  0
HC     2
ZW C=FLOW
*
KK NS30F
KM  NS30F
BA0.0023
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   200  0.1000   0.600  100.00
RD   500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS30F
KM  0
HC     2
ZW C=FLOW
*
KK NS30C
KM  NS30C
BA0.1237
PB
* PI
BF -38.7
LU  0.10  0.1510   2.000
UK  1600  0.0800   0.600  100.00
RD  2000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS30C
KM  0
HC     2
ZW C=FLOW
*
KKY30CCC
KM  0
HC     2
ZW C=FLOW
*
KK NS33B
KM  NS33B
BA0.0301
PB
* PI
BF -38.7
LU  0.10  0.1000   2.000
UK  1000  0.0500   0.600  100.00
RD  1000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS33B
KM  0
HC     2
ZW C=FLOW
*
KKYNSALL
KM  0
HC     2
ZW C=FLOW
*
*
```

```
KKUW5END
KM  ROUTE FOR BACKWATER AT NW5
RS      1    FLOW      -1
SV  0.00    0.75    54.4   131.2     377    1086
SQ   0.0   267.0    2853    3500    6287    9653
ZW C=FLOW
*
* - - - - - -
*
*
KK  NS34
KM  NS34
BA0.0437
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   900  0.0800   0.600  100.00
RD   900  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK  NS35
KM  NS35
BA0.1517
PB
* PI
BF -38.7
LU  0.10  0.1850   2.000
UK  1900  0.0500   0.600  100.00
RD  2500  0.0400   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YNS35
KM  0
HC      2
ZW C=FLOW
*
KK XMAR1
KM XMAR1
BA0.2922
PB
* PI
BF -38.7
LU  0.10  0.2440   2.000
UK  1900  0.1000   0.600  100.00
RD  2000  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK XMAR2
KM XMAR2
BA0.4066
PB
* PI
BF -38.7
LU  0.10  0.2410   2.000
UK  2200  0.1000   0.600  100.00
RD  3100  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK XMAR3
KM XMAR3
BA0.6221
PB
* PI
BF -38.7
LU  0.10  0.2480   2.000
UK  3500  0.1000   0.600  100.00
RD  3400  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK XMAR4
KM XMAR4
BA0.2489
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  2300  0.1000   0.600  100.00
RD  1100  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK XMAR5
KM XMAR5
BA0.3335
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1700  0.1000   0.600  100.00
RD  2600  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YMAR5
KM  0
```

```
HC     2
ZW C=FLOW
*
KK XMAR6
KM XMAR6
BA0.1147
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1500  0.1000   0.600  100.00
RD  1650  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK XMAR7
KM XMAR7
BA0.3439
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  2800  0.1000   0.600  100.00
RD  1400  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMAR7
KM  0
HC     2
ZW C=FLOW
*
KK XMAR8
KM XMAR8
BA0.2218
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  2200  0.1000   0.600  100.00
RD  3500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMAR8
KM  0
HC     2
ZW C=FLOW
*
KK XMAR9
KM XMAR9
BA0.2500
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  2100  0.1000   0.600  100.00
RD  3400  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKXMAR10
KM XMAR10
BA0.2272
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  2300  0.1000   0.600  100.00
RD  2400  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKXMAR11
KM XMAR11
BA0.1037
PB
* PI
BF -38.7
LU  0.10  0.1850   2.000
UK  1100  0.1000   0.600  100.00
RD  1500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMAR11
KM  0
HC     2
ZW C=FLOW
*
KKXMAR12
KM XMAR12
BA0.1361
PB
* PI
BF -38.7
LU  0.10  0.2060   2.000
UK  1250  0.1000   0.600  100.00
RD  2200  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
```

```
*
KKXMAR13
KM XMAR13
BA0.2679
PB
* PI
BF -38.7
LU  0.10  0.2490   2.000
UK  1800  0.1000   0.600  100.00
RD  4000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMAR13
KM  0
HC     2
ZW C=FLOW
*
KKYMARC1
KM  0
HC     2
ZW C=FLOW
*
KKXMAR14
KM XMAR14
BA0.0483
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   500  0.1000   0.600  100.00
RD   500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKXMAR15
KM XMAR15
BA0.0140
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   500  0.1000   0.600  100.00
RD   500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMAR15
KM  0
HC     3
ZW C=FLOW
*
KKXMAR17
KM XMAR17
BA0.2288
PB
* PI
BF -38.7
LU  0.10  0.2200   2.000
UK  1300  0.1000   0.600  100.00
RD  2700  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMAR17
KM  0
HC     2
ZW C=FLOW
*
KKMAR19A
KM  MAR19A
BA0.0295
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1000  0.1000   0.600  100.00
RD  1000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKMAR19B
KM  MAR19B
BA0.0074
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   500  0.1000   0.600  100.00
RD  1000  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKXMAR18
KM XMAR18
BA0.1517
PB
* PI
BF -38.7
LU  0.10  0.2480   2.000
```

```
UK  1600  0.1000   0.600  100.00
RD  2500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMAR18
KM  0
HC     3
ZW C=FLOW
*
KKXMAR20
KM XMAR20
BA0.2009
PB
* PI
BF -38.7
LU  0.10  0.2440   2.000
UK  1700  0.1000   0.600  100.00
RD  2700  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKMAR21A
KM  MAR21A
BA0.0602
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   500  0.1000   0.600  100.00
RD   500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKMAR21B
KM  MAR21B
BA0.0241
PB
* PI
BF -38.7
LU  0.10  0.2450   2.000
UK   500  0.1000   0.600  100.00
RD  1000  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK YR21B
KM  0
HC     2
ZW C=FLOW
*
* SA Note: Use New Overflow analysis instead
* DIVERT At Upstream Highway Crossing, where water can't cross under roadway
KK N11DV
DTN11DIV
DI     0     190     200     800    1600    5000
DQ     0       1       5     604    1403    4802
ZW C=FLOW
*
KKMAR22B
KM  MAR22B
BA0.0266
PB
* PI
BF -38.7
LU  0.10  0.2300   2.000
UK   500  0.1000   0.600  100.00
RD  1000  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKMAR22A
KM  MAR22A
BA0.0165
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   500  0.1000   0.600  100.00
RD   500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YR22A
KM  0
HC     2
ZW C=FLOW
*
KKXMAR23
KM XMAR23
BA0.0439
PB
* PI
BF -38.7
LU  0.10  0.1380   2.000
UK   500  0.0500   0.600  100.00
RD  2000  0.0200   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYMAR23
```

```
KM  0
HC     2
ZW C=FLOW
*
*
KK UWEND
KM  ROUTE FOR BACKWATER AT W1
RS     1    FLOW      -1
SV  0.00   10.00    49.2   292.0   859.7  867.00
SQ   0.0    18.0   239.0   244.0   250.0  1034.0
ZW C=FLOW
*
KKXMAR24
KM XMAR24
BA0.0055
PB
* PI
BF -38.7
LU  0.10  0.1000   2.000
UK   200  0.0200   0.600  100.00
RD   500  0.0100   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKXMAR25
KM XMAR25
BA0.0147
PB
* PI
BF -38.7
LU  0.10  0.1260   2.000
UK  1000  0.0200   0.600  100.00
RD  1000  0.0100   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMAR25
KM  0
HC     3
ZW C=FLOW
*
KK NS33A
KM  NS33A
BA0.0118
PB
* PI
BF -38.7
LU  0.10  0.1970   2.000
UK  1000  0.0200   0.600  100.00
RD  1000  0.0200   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS33A
KM  0
HC     2
ZW C=FLOW
*
*
KK  UHWY
KM  ROUTE FOR BACKWATER AT HWY
RS     1    FLOW      -1
SV  0.00    0.13    0.60   32.40   61.60  114.60  266.00  330.00
SQ   0.0   200.0   491.0  3074.0  4293.0  5718.0  8410.0  9000.0
ZW C=FLOW
*
* ----------END---------------
KKN11DIV
DRN11DIV
ZW C=FLOW
*
KK  E30A
KM  Drains Away
BA0.0064
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500   8.000
UK   600  0.0380   0.600  100.00
RD  1900  0.0140   0.060            TRAP    15.0    10.0
ZW C=FLOW
*
ZZ
```

A-2. HEC-1 Pre-Project PDP Input FROZEN EVENT

```
ID DRY CREEK WATERSHED, PLACER COUNTY, CA
ID WATERSHED UPDATE MODELS - DRAFT ULT BUILDOUT
ID DRAFT MODEL FOR HYD ROUTING - DCTOOLBOX SOURCE
ID CESI/RBF 8/29/2011
ID
IT     5 13FEB08       0     300
IO     5               0
IN     5       0       0
*DIAGRAM
*
*
KK    E2
KM    Large Offsite Shed  155.8ac
BA0.2434
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2110  92.310
UK  1500  0.0830   0.600  100.00
RD  4000  0.0300   0.060            TRAP     2.0    25.0
ZW C=FLOW
*
KK   E15
KM   Other Large Upstream offsite shed 111.1 ac
BA0.1736
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.1470  90.060
UK  1000  0.0580   0.600  100.00
RD  2500  0.0300   0.060            TRAP     2.0    10.0     YES
ZW C=FLOW
*
KK   E10
KM    Large Undeveloped upstream watershed. (139.2)
BA0.0311
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.1790  90.960
UK  2000  0.0750   0.600  100.00
RD  3200  0.0700   0.060   .0500    TRAP    20.0    40.0
RD  3300  0.0010   0.040   .1500    TRAP    20.0    20.0
ZW C=FLOW
*
KK YE10C
KM    Upstream of Project
HC     2
ZW C=FLOW
*
KK VE12R
KM    ROUTE TO BOTTOM OF E20
RD  1500  0.0170   0.040            TRAP    15.0     5.0
ZW C=FLOW
*
KK  E20A
KM    12.0 AC
BA0.0106
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2430  88.200
UK  1200  0.0580   0.600  100.00
RD   700  0.0170   0.060            TRAP    15.0     5.0
ZW C=FLOW
*
KK YE20A
KM  0
HC     2
ZW C=FLOW
*
KK  E14A
KM    Small Roadway Shed 4 ac
BA0.0063
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.1000  89.670
UK   500  0.0300   0.600  100.00
RD   500  0.0300   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  E18A
KM    Small Hopkins Roadway Drain 3.6ac
BA0.0057
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2070  88.740
UK   450  0.0300   0.600  100.00
RD   500  0.0300   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK  E16A
```

```
KM    Small Hopkins Roadway Drain 0.4ac
BA0.0006
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2130  90.000
UK    50  0.0200   0.600  100.00
RD   100  0.0300   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYE16AC
KM  0
HC     2
ZW C=FLOW
*
KK  E20B
KM    10.9 AC
BA0.0182
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2000  88.530
UK   800  0.0700   0.600  100.00
RD   200  0.0170   0.060            TRAP    15.0     5.0
ZW C=FLOW
*
KK YE20B
KM  0
HC     2
ZW C=FLOW
*
KKVE16AR
KM    ROUTE TO BOTTOM OF E20
RD  2000  0.0170   0.040            TRAP    15.0     5.0
ZW C=FLOW
*
KK  E20C
KM    4.8 AC
BA0.0075
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  88.470    0.10  0.2500  90.000
UK   500  0.0500   0.600      90
UK    18  0.0200   0.110      10
RD   200  0.0170   0.060   .0500    TRAP    15.0     5.0
RD   500  0.0010   0.040            TRAP    15.0     5.0
ZW C=FLOW
*
KK YE20C
KM  0
HC     3
ZW C=FLOW
*
KK  E20D
KM    10.6 AC
BA0.0166
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  87.720    0.10  0.2500  90.000
UK   500  0.0500   0.600      89
UK    18  0.0200   0.110      11
RD   200  0.0170   0.060   .0500    TRAP    15.0     5.0
RD   600  0.0010   0.040            TRAP    15.0     5.0
ZW C=FLOW
*
KK  E20E
KM    8.4 AC Mostly diverted area added to this shed
BA0.0132
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  88.560    0.10  0.2500  90.000
UK   900  0.0200   0.600      90
UK    18  0.0200   0.110      10
RD   200  0.0170   0.060   .0500    TRAP    15.0     5.0
RD   600  0.0010   0.040            TRAP    15.0     5.0
ZW C=FLOW
*
KK YE20D
KM  0
HC     3
ZW C=FLOW
*
KK   E30
KM    MAIN SHED ABOVE TWIN CULVERTS IN S. MILL RD.  40.8AC
BA0.0638
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  87.030
UK   600  0.0380   0.600  100.00
RD  1900  0.0140   0.060            TRAP    15.0    10.0     YES
```

```
ZW C=FLOW
*
KK   E19
KM    HILLSIDE ABOVE SM RD.     4.2AC
BA0.0065
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  88.530    0.10  0.2500  90.000
UK   400  0.0180   0.600      89
UK    18  0.0200   0.110      11
RD   570  0.0140   0.060            TRAP     2.0    25.0
RD   550  0.0010   0.012            CIRC     1.0     0.0      NO
ZW C=FLOW
*
KK VE19R
KM    ROUTE TO BOTTOM OF E20
RD   600  0.0400   0.040            TRAP    10.0    40.0
ZW C=FLOW
*
KK   E21
KM    HILLSIDE ABOVE ROAD           5.7AC
BA0.0084
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  88.230    0.10  0.2500  90.000
UK   600  0.0170   0.600      74
UK    18  0.0200   0.110      26
RD   800  0.0150   0.060            TRAP     2.0    25.0
RD   800  0.0010   0.015            TRAP     2.0    25.0      NO
ZW C=FLOW
*
KK  YE21
KM  0
HC     2
ZW C=FLOW
*
KK   E22
KM  "  HILLSIDE ABOVE 15"" CULVERT   2.9AC                                                  "
BA0.0045
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  88.050
UK   350  0.0270   0.600  100.00
RD   250  0.0300   0.060            TRAP     2.0    10.0      NO
ZW C=FLOW
*
KK YE22C
KM    COMBINE E21 AND E22
HC     2
ZW C=FLOW
*
KK VE22R
KM    ROUTE TO BOTTOM OF E30
RD   700  0.0140   0.040            TRAP    15.0    10.0
ZW C=FLOW
*
KK   E23
KM    PORTION OF S.MILL RD.     0.5AC
BA0.0008
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.000
UK    18  0.0200   0.110  100.00
RD   500  0.0240   0.060            TRAP     2.0    25.0      NO
ZW C=FLOW
*
KK  YE23
KM  0
HC     2
ZW C=FLOW
*
KK VE23R
KM    ROUTE TO BOTTOM OF E30
RD   400  0.0140   0.040            TRAP    15.0    10.0
ZW C=FLOW
*
KK YE30C
KM     COMBINE AT BOTTOM OF E30
HC     2
ZW C=FLOW
*
*
KKUE30CR
KM  0
RS     1    FLOW      -1
SV  0.00    0.54    0.84    1.03    1.34    1.56    1.82    2.09    7.48
SQ   0.0    73.0   104.0   125.0   153.0   173.0   195.0   217.0   700.0
ZW C=FLOW
*
KK   E40
```

```
KM    LARGE SHED DOWNSTREAM OF S. MILL RD.    85.5Ac
BA0.1147
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.1800  86.580
UK  1600  0.0340   0.600  100.00
RD   600  0.0400   0.060   .0100    TRAP    10.0    40.0
RD  3000  0.0010   0.040            TRAP    40.0    20.0     YES
ZW C=FLOW
*
KK  E40B
KM    LARGE SHED DOWNSTREAM OF S. MILL RD.    85.5Ac
BA0.0190
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2480  86.520
UK   600  0.0100   0.600  100.00
RD   600  0.0400   0.060   .0100    TRAP    10.0    40.0
RD  1000  0.0010   0.040            TRAP    40.0    20.0
ZW C=FLOW
*
KKYE40BC
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK  E14C
KM    OFF-SITE SHED WEST OF S. MILL RD.    3.6AC
BA0.0059
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.330
UK   600  0.0800   0.600  100.00
RD   500  0.0070   0.060   .0030    TRAP     2.0    25.0
RD   500  0.0010   0.040            TRAP     2.0    10.0      NO
ZW C=FLOW
*
KK VE60R
KM    ROUTE TO MAIN CHANNEL OF E64
RD  1100  0.0700   0.060            TRAP    40.0    40.0
ZW C=FLOW
*
KK  E64A
KM    EAST OF S. MILL RD.      16.1AC
BA0.0248
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.1590  89.730    0.10  0.1590  90.000
UK  1000  0.0500   0.600      94
UK    18  0.0200   0.110       6
RD  1000  0.0700   0.060   .0140    TRAP    40.0    40.0
RD   500  0.0010   0.040            TRAP    20.0    10.0
ZW C=FLOW
*
KK YE64A
KM  0
HC     2
ZW C=FLOW
*
KK  E64B
KM    EAST OF S. MILL RD.      12.1AC
BA0.0190
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.1750  88.680    0.10  0.1750  90.000
UK   800  0.0700   0.600      97
UK    18  0.0200   0.110       3
RD  1000  0.0700   0.060   .0140    TRAP    40.0    40.0
RD   500  0.0010   0.040            TRAP    20.0    10.0
ZW C=FLOW
*
KK YE64B
KM  0
HC     2
ZW C=FLOW
*
KK VE64R
KM    ROUTE TO MAIN CHANNEL OF E75
RD  1000  0.0350   0.040            TRAP    40.0    10.0
ZW C=FLOW
*
* - - - - - -
*
*
KK   E70
KM    OFF-SITE- LAHONTAN UNITS 7&8 AND LAHONTAN II    78.6AC
```

```
BA0.1255
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.1710  88.560    0.10  0.1710  90.000
UK  1200  0.0410   0.600      95
UK    18  0.0200   0.110       5
RD   450  0.0140   0.060   .0100    TRAP     2.0    25.0
RD  1800  0.0010   0.040            TRAP    20.0    10.0      NO
ZW C=FLOW
*
KK   E71
KM    OFF-SITE PORTION OF LAHONTAN II    17.8Ac
BA0.0279
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2270  89.040
UK  1400  0.0500   0.600  100.00
RD   700  0.0300   0.060   .0070    TRAP     2.0    25.0
RD   400  0.0010   0.040   .0150    TRAP     2.0     5.0
ZW C=FLOW
*
KK   E72
KM    OFF-SITE PORTION OF LAHONTAN II   12.1Ac
BA0.0178
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.1980  88.710
UK  1700  0.0370   0.600  100.00
RD   850  0.0530   0.060   .0100    TRAP    20.0    20.0
RD   700  0.0010   0.040            TRAP    10.0    20.0      NO
ZW C=FLOW
*
KKYE7012
KM  0
HC     2
ZW C=FLOW
*
KK VE72R
KM    ROUTE TO MAIN CHANNEL OF E75
RD   750  0.0300   0.040            TRAP    40.0    10.0
ZW C=FLOW
*
KKY72&64
KM    ROUTE TO MAIN CHANNEL OF E75
HC     2
ZW C=FLOW
*
KK   E75
KM    MOSTLY OFF-SITE AND DOWNSTREAM SHED  57.9Ac
BA0.0905
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.1910  86.430
UK  1200  0.0580   0.600  100.00
RD   600  0.0500   0.060   .0050    TRAP    20.0    20.0
RD  1400  0.0010   0.040            TRAP    10.0    50.0     YES
ZW C=FLOW
*
KK  YE75
KM  0
HC     2
ZW C=FLOW
*
*
KKUE75CR
KM  0
RS     1    FLOW      -1
SV  0.00    0.33    0.45    0.52    0.61    0.67    0.73    0.79    0.87    2.95
SQ   0.0    24.0    35.0    42.0    51.0    58.0    66.0    73.0    83.0   400.0
ZW C=FLOW
*
* - - - - - -
*
*
KK  E14B
KM    OFF-SITE SHED WEST OF S. MILL RD.
BA0.0397
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.1920  90.180
UK   800  0.0800   0.600  100.00
RD   800  0.0300   0.060   .0200    TRAP    40.0    40.0
RD   400  0.0010   0.040            TRAP     2.0     6.0      NO
ZW C=FLOW
*
KK VE50R
KM    ROUTE TO MAIN CHANNEL OF E55
RD   850  0.0700   0.060            TRAP    40.0    40.0
ZW C=FLOW
```

```
*
KK  E55A
KM    EAST OF S. MILL RD.   16.7AC
BA0.0261
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.1360  89.010
UK   500  0.0400   0.600  100.00
RD   400  0.0700   0.060   .0070    TRAP    40.0    40.0
RD   500  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KK YE55A
KM  0
HC     2
ZW C=FLOW
*
*
KKUE55AR
KM  0
RS     1    FLOW      -1
SV  0.00    0.08    0.10    0.12    0.14    0.15    0.16    0.17    5.30
SQ   0.0    18.0    25.0    30.0    36.0    41.0    45.0    49.0   580.0
ZW C=FLOW
*
KK  E58D
KM    EAST OF S. MILL RD.   23.7AC
BA0.0229
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  87.330
UK   800  0.0400   0.600  100.00
RD   400  0.0700   0.060   .0070    TRAP    40.0    40.0
RD  1400  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KK YE58D
KM  0
HC     2
ZW C=FLOW
*
KK  E55B
KM    EAST OF S. MILL RD.   3.2AC
BA0.0050
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.1920  88.530
UK   200  0.0500   0.600  100.00
RD   400  0.0700   0.060   .0070    TRAP    40.0    40.0
RD   500  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KK  E55C
KM    EAST OF S. MILL RD.   7.7AC
BA0.0120
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2470  87.780
UK   200  0.0500   0.600  100.00
RD   400  0.0700   0.060   .0070    TRAP    40.0    40.0
RD   500  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KK YE55C
KM  0
HC     2
ZW C=FLOW
*
*
KKU55CCR
KM  0
RS     1    FLOW      -1
SV  0.00    0.55    0.76    0.91    1.13    1.28    1.62    2.09    2.89
SQ   0.0    20.0    28.0    34.0    42.0    47.0    53.0    59.0    80.0
ZW C=FLOW
*
KK  E55E
KM    EAST OF S. MILL RD.   3.6AC
BA0.0056
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  88.530
UK   300  0.0200   0.600  100.00
RD   400  0.0700   0.060   .0070    TRAP    40.0    40.0
RD   500  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KK YE55E
KM  0
```

```
HC     2
ZW C=FLOW
*
KK  E55F
KM    EAST OF S. MILL RD.   1.8AC
BA0.0028
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  88.470
UK   250  0.0300   0.600  100.00
RD   200  0.0700   0.060   .0070    TRAP    40.0    40.0
RD   300  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KK  E55G
KM    EAST OF S. MILL RD.   1AC
BA0.0015
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  88.200
UK   150  0.0200   0.600  100.00
RD   200  0.0700   0.060   .0070    TRAP    40.0    40.0
RD   300  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KKYE55GC
KM  0
HC     2
ZW C=FLOW
*
KK YE55G
KM  0
HC     2
ZW C=FLOW
*
*
KKUE55CR
KM  0
RS     1    FLOW      -1
SV  0.00    0.55    0.76    0.91    1.13    1.28    1.62    2.09    2.89
SQ   0.0    20.0    28.0    34.0    42.0    47.0    53.0    59.0    80.0
ZW C=FLOW
*
KK  E58C
KM    EAST OF S. MILL RD.   5.6AC
BA0.0088
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  86.910
UK   250  0.0600   0.600  100.00
RD   200  0.0700   0.060   .0070    TRAP    40.0    40.0
RD   500  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KK YE58C
KM  0
HC     2
ZW C=FLOW
*
KK  E55H
KM    EAST OF S. MILL RD.                               44.1AC
BA0.0057
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  88.080
UK   400  0.0200   0.600  100.00
RD   400  0.0700   0.060   .0300    TRAP    40.0    40.0
RD  1000  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KK YE55H
KM  0
HC     2
ZW C=FLOW
*
KK  E58A
KM    EAST OF S. MILL RD.   5.3AC
BA0.0083
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  87.630
UK   300  0.0400   0.600  100.00
RD   200  0.0700   0.060   .0070    TRAP    40.0    40.0
RD   500  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KK YE58A
KM  0
HC     2
```

```
ZW C=FLOW
*
KK  E58E
KM    EAST OF S. MILL RD.   3.7AC
BA0.0370
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2250  86.550
UK   300  0.0200   0.600  100.00
RD   200  0.0700   0.060   .0070    TRAP    40.0    40.0
RD   500  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KK YE58E
KM  0
HC     2
ZW C=FLOW
*
KK   E80
KM    LAST DOWNSTREAM SHED
BA0.0452
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.1310  86.070
UK  1300  0.0400   0.600  100.00
RD  1000  0.0250   0.060   .0200    TRAP    20.0    20.0
RD  1100  0.0010   0.040            TRAP    10.0    50.0     YES
ZW C=FLOW
*
KKYE5875
KM  0
HC     3
ZW C=FLOW
*
KK YE80C
KM    COMBINE WITH E40 FOR TOTAL AT LAST DOWNSTREAM POINT
HC     2
ZW C=FLOW
*
KK  E40C
KM    LARGE SHED DOWNSTREAM OF S. MILL RD.    85.5Ac
BA0.0344
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.1660  86.130
UK  1200  0.0100   0.600  100.00
RD   600  0.0400   0.060   .0100    TRAP    10.0    40.0
RD  1000  0.0010   0.040            TRAP    40.0    20.0
ZW C=FLOW
*
KK  E40E
KM    LARGE SHED DOWNSTREAM OF S. MILL RD.    85.5Ac
BA0.0058
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  86.220
UK   600  0.0100   0.600  100.00
RD   600  0.0400   0.060   .0100    TRAP    10.0    40.0
RD  1000  0.0010   0.040            TRAP    40.0    20.0
ZW C=FLOW
*
KK  E40D
KM    LARGE SHED DOWNSTREAM OF S. MILL RD.    85.5Ac
BA0.0074
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.1940  85.980
UK   600  0.0100   0.600  100.00
RD   600  0.0400   0.060   .0100    TRAP    10.0    40.0
RD  1000  0.0010   0.040            TRAP    40.0    20.0
ZW C=FLOW
*
KK YE40D
KM  0
HC     3
ZW C=FLOW
*
KKYE40DC
KM  0
HC     2
ZW C=FLOW
*
KK   E85
KM    OFFSITE DOWNSTREAM SHED     313.9
BA0.4599
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.1750  85.770
```

```
UK  2500  0.0625   0.600  100.00
RD  2000  0.0250   0.060   .1000    TRAP    20.0    20.0
RD  5000  0.0010   0.040            TRAP    10.0    50.0
ZW C=FLOW
*
KK  YE85
KM  0
HC     2
ZW C=FLOW
*
KK  E85B
KM  E85B
BA0.0312
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2300  86.100
UK   400  0.0200   0.600  100.00
RD   500  0.0500   0.060            TRAP    20.0    10.0
ZW C=FLOW
*
KK YE85B
KM  0
HC     2
ZW C=FLOW
*
*
KKUW3END
KM  ROUTE FOR BACKWATER AT NW3
RS     1    FLOW      -1
SV  0.00    0.01    0.03    20.6     247     250
SQ   0.0    40.0   243.0     508     637   800.0
ZW C=FLOW
*
KK  E85C
KM  E85C
BA0.0079
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2380  85.920
UK   400  0.0200   0.600  100.00
RD   500  0.0500   0.060            TRAP    20.0    10.0
ZW C=FLOW
*
KKYE85CC
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK  E5A1
KM    E5A1 Drop Inlet
BA0.0730
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2040  94.840    0.10  0.2040  95.000
UK  1350  0.1330   0.600      98
UK   200  0.0200   0.110       3
RD  2000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK   E5B
KM    E5B
BA0.0139
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2450  93.480    0.10  0.2450  95.000
UK   600  0.0800   0.600      91
UK   200  0.0200   0.110       9
RD  2000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  YE5B
KM  0
HC     2
ZW C=FLOW
*
KK   E5C
KM    E5C
BA0.0051
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.600    0.10  0.2500  95.000
UK   600  0.0700   0.600      92
UK   200  0.0200   0.110       8
RD   500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
```

```
KK  YE5C
KM  0
HC     2
ZW C=FLOW
*
*
KKUE5ADT
KM  0
RS     1    FLOW      -1
SV  0.00    0.10    0.20    0.30    0.40    1.70    2.40
SQ   0.0     0.0     0.1     2.0    50.0    80.0   200.0
ZW C=FLOW
*
KK   E5D
KM    E5D
BA0.0850
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.790
UK  1500  0.0500   0.600  100.00
RD  1500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YE5DC
KM  0
HC     2
ZW C=FLOW
*
KK  E6A1
KM    E6A1
BA0.0570
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.190
UK  1000  0.0680   0.600  100.00
RD  2700  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK  E6A2
KM    E6A2
BA0.0149
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.170
UK   600  0.0680   0.600  100.00
RD   800  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYE6A1C
KM  0
HC     2
ZW C=FLOW
*
KK   E6C
KM    E6C
BA0.0939
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2460  90.420
UK  1600  0.0900   0.600  100.00
RD  1400  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YE6CC
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK GS10D
KM    GS10D
BA0.0124
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.570    0.10  0.2500  95.000
UK   900  0.0700   0.600      79
UK   100  0.0200   0.110      21
RD   200  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK GS10C
KM    GS10C
BA0.0169
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.380    0.10  0.2500  95.000
```

```
UK   300  0.0600   0.600      91
UK   100  0.0200   0.110       9
RD   400  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYS10CC
KM  0
HC     2
ZW C=FLOW
*
KK GS10B
KM    GS10B
BA0.0044
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.260    0.10  0.2500  95.000
UK   600  0.0800   0.600      86
UK   100  0.0200   0.110      14
RD   400  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKGS10A1
KM    GS10A1
BA0.0290
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.090    0.10  0.2500  95.000
UK   600  0.0800   0.600      96
UK   100  0.0200   0.110       4
RD   500  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK GS10F
KM    GS10F
BA0.0248
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.630    0.10  0.2500  95.000
UK   600  0.0800   0.600      92
UK   100  0.0200   0.110       8
RD   900  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKY10FCC
KM  0
HC     2
ZW C=FLOW
*
KK GS10E
KM    GS10E
BA0.0153
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.520    0.10  0.2500  95.000
UK   300  0.0800   0.600      78
UK   100  0.0200   0.110      22
RD   600  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYS10AC
KM   COMBINATION AT MEADOWS ROUTING AREA
HC     2
ZW C=FLOW
*
KKGS10A2
KM   GS10A2
BA0.0278
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.900    0.10  0.2500  95.000
UK  1400  0.0800   0.600      96
UK   100  0.0200   0.110       4
RD  1400  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYGDTCC
KM  0
HC     2
ZW C=FLOW
*
*
KKUGS10R
KM   MEADOWS WQ AND DETENTION RESERVOIR AT GS10E
RS     1    FLOW      -1
SV 11.60   13.00   15.95
SQ  61.0   100.0   330.0
ZW C=FLOW
*
*
```

```
KKUS10ER
KM   Channel Attenuation downstream of GS10R
RS     1    FLOW      -1
SV  0.00    0.05    0.27    0.50    0.72    0.95    1.15
SQ   0.0     0.0     5.0    15.0    27.0    37.0    62.0
ZW C=FLOW
*
KK GS10J
KM    GS10J
BA0.0099
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.440    0.10  0.2500  95.000
UK   300  0.0800   0.600      92
UK   200  0.0200   0.110       8
RD   500  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYS10JC
KM  0
HC     2
ZW C=FLOW
*
KK GS10G
KM    GS10G
BA0.0081
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.080    0.10  0.2500  95.000
UK   300  0.0800   0.600      90
UK   200  0.0200   0.110      10
RD   500  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
*
KKUS10JR
KM   Channel Attenuation From GS10J to GS10I
RS     1    FLOW      -1
SV  0.00    0.05    0.10    0.12    0.19    0.22    1.35
SQ   0.0     0.0     5.0    15.0    27.0    37.0   400.0
ZW C=FLOW
*
KK GS10H
KM    GS10H
BA0.0066
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.040    0.10  0.2500  95.000
UK   300  0.0800   0.600      81
UK   200  0.0200   0.110      19
RD   400  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK GS10I
KM    GS10I
BA0.0071
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.760    0.10  0.2500  95.000
UK   300  0.0600   0.600      78
UK   200  0.0200   0.110      22
RD   400  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK   E8A
KM    E8A
BA0.0049
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.970    0.10  0.2500  95.000
UK   200  0.1200   0.600      73
UK   100  0.0200   0.110      27
RD   300  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
*
KKUE8ASQ
KM  0
RS     1    FLOW      -1
SV  0.00    0.03    0.05    0.08    0.10    0.20    1.00
SQ   0.0     0.0     0.0     0.0     3.5    80.0   200.0
ZW C=FLOW
*
KK   E8B
KM    E8B
BA0.0122
PB
* PI
BF    -1  -0.001    1.50
```

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LU  0.10  0.2500  91.290    0.10  0.2500  95.000
UK   400  0.0800   0.600      95
UK   100  0.0200   0.110       5
RD  1400  0.1000   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK   E8C
KM    E8C
BA0.0244
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.630
UK   800  0.0800   0.600  100.00
RD  1400  0.1000   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YE8CC
KM  0
HC     2
ZW C=FLOW
*
KKYGS10C
KM  0
HC     2
ZW C=FLOW
*
KKYS10IC
KM  0
HC     2
ZW C=FLOW
*
*
KKUS10IR
KM   Storage Upstream of Siller Ranch Road -  Channel Routing Meadow to Schaffer m
RS     1    FLOW      -1
SV  0.00    0.05    0.12    0.19    0.26    0.33    1.55
SQ   0.0     0.0     5.0    15.0    27.0    37.0   400.0
ZW C=FLOW
*
*
KK UGS9R
KM  0
RS     1    FLOW      -1
SV  0.00    0.09    0.17    0.24    0.41    0.59    0.83    0.94    4.03
SQ   0.0    33.0    55.0    76.0   114.0   145.0   177.0   206.0   644.0
ZW C=FLOW
*
KK    E9
KM    E9
BA0.0213
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.040
UK   600  0.0800   0.600  100.00
RD  1000  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
*
KKUGS11R
KM  0
RS     1    FLOW      -1
SV  0.00    0.25    0.42    0.58    0.95    1.37    2.24    2.77    6.95
SQ   0.0    33.0    55.0    76.0   114.0   145.0   177.0   206.0   644.0
ZW C=FLOW
*
KK GS11B
KM    GS11B
BA0.0031
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.680
UK   700  0.1000   0.600  100.00
RD   300  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK GS11A
KM    GS11A
BA0.0354
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2370  89.970
UK   700  0.1000   0.600  100.00
RD  1100  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYGS11A
KM  0
HC     2
ZW C=FLOW
*
```

```
*
KKUS11RR
KM  0
RS     1    FLOW      -1
SV  0.00    1.25    1.51    1.75    2.27    2.78    3.53    4.26    4.67
SQ   0.0    33.0    55.0    76.0   114.0   145.0   177.0   206.0   244.0
ZW C=FLOW
*
KK GS13C
KM   GS13C
BA0.0066
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.830
UK   300  0.0700   0.600  100.00
RD   300  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK GS13B
KM   GS13B
BA0.0168
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.340
UK   300  0.0700   0.600  100.00
RD  1100  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK GS18A
KM   GS18A
BA0.0020
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.080
UK   800  0.0940   0.600  100.00
RD   300  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  GS18
KM    GS18
BA0.0248
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.410
UK   800  0.0940   0.600  100.00
RD  1600  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYGS18C
KM  0
HC     2
ZW C=FLOW
*
KK GS13A
KM   GS13A
BA0.0196
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.1810  89.760
UK   600  0.0670   0.600  100.00
RD  1100  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYGS13A
KM  0
HC     2
ZW C=FLOW
*
KK YGS13
KM  0
HC     2
ZW C=FLOW
*
KK  GS19
KM    GS19
BA0.0617
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.1920  89.790
UK   700  0.0860   0.600  100.00
RD  1000  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK  GS20
KM    GS20
BA0.0178
PB
* PI
```

```
BF    -1  -0.001    1.50
LU  0.10  0.1680  89.460
UK   600  0.1000   0.600  100.00
RD   600  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYGS20C
KM  0
HC     2
ZW C=FLOW
*
*
KKUOOSED
KM   GOOSENECK LAKE RESERVOIR _ CURRENT ROUTING/DISCHARGE RATING
RS     1    FLOW      -1
SV  0.00   43.30   90.10  144.10  173.90  205.40  238.90  274.10
SQ   0.0     2.0    84.8   360.0   670.8  1273.0  3585.0  8880.0
ZW C=FLOW
*
* - - - - - -
*
*
KKGS21B1
KM            4.2 AC.
BA0.0065
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.660
UK   300  0.0700   0.600  100.00
RD   800  0.1000   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKVR21B1
KM   ROUTE GS21B1
RD   540  0.0704   0.015           CIRC     2.0     0.0
ZW C=FLOW
*
KKGS21B2
KM            3.2 AC.
BA0.0050
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.330
UK   300  0.0700   0.600  100.00
RD   900  0.0800   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKYQG21B
KM     COMBINE
HC     2
ZW C=FLOW
*
KK GS21A
KM   GS21A
BA0.0412
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.830    0.10  0.2500  90.830
UK  1000  0.0700   0.600      80
UK   200  0.0200   0.240      20
RD  2500  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK  GS22
KM    GS22
BA0.0741
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2490  90.000
UK   700  0.0570   0.600  100.00
RD  1000  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYGS21A
KM     COMBINE
HC     2
ZW C=FLOW
*
*
KKUGS22R
KM  0
RS     1    FLOW      -1
SV  0.00    0.67    0.84    0.97    1.28    1.45    1.87    2.23    5.29
SQ   0.0    65.0    85.0   102.0   144.0   184.0   232.0   291.0   575.0
ZW C=FLOW
*
KK  GS23
KM    GS23
BA0.0596
PB
```

```
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  89.490
UK  2000  0.0400   0.600  100.00
RD  1100  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK  GS24
KM    GS24
BA0.0352
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.020
UK   500  0.1000   0.600  100.00
RD   900  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYGS24C
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KKGS25B3
KM           1.2 AC.
BA0.0019
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.330
UK   300  0.0700   0.600  100.00
RD   310  0.0500   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKGS25B4
KM            1.8 AC.
BA0.0029
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.250
UK   300  0.0700   0.600  100.00
RD   440  0.1200   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKYC25B4
KM     COMBINE
HC     2
ZW C=FLOW
*
KKGS25C4
KM            4.4 AC.
BA0.0069
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.210
UK   300  0.0700   0.600  100.00
RD   550  0.1000   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKGS25C5
KM            1.7 AC.
BA0.0026
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.190
UK   300  0.0700   0.600  100.00
RD   450  0.1100   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKYC25C5
KM     COMBINE
HC     2
ZW C=FLOW
*
KKGS25C6
KM            1.6 AC.
BA0.0023
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.060
UK   300  0.0700   0.600  100.00
RD   240  0.1080   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKYC25C6
KM     COMBINE
HC     3
```

```
ZW C=FLOW
*
KKGS25C9
KM           3.0 AC.
BA0.0047
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.850
UK   300  0.0700   0.600  100.00
RD   550  0.0509   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKGS21A2
KM           1.3 AC.
BA0.0020
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.040
UK   300  0.0700   0.600  100.00
RD   750  0.0825   0.060            CIRC     2.0     0.0
ZW C=FLOW
*
KKGS25C1
KM           .4 AC.
BA0.0006
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.870
UK   300  0.0700   0.600  100.00
RD   290  0.0621   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKYC25C1
KM   COMBINE
HC     2
ZW C=FLOW
*
KKVR25C1
KM     ROUTR COMBINED GS25C1
RD   312  0.0401   0.015          CIRC       2.0     0.0
ZW C=FLOW
*
KKYC25C9
KM     COMBINE
HC     3
ZW C=FLOW
*
KKGS25C3
KM           3.9 AC.
BA0.0060
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.990
UK   300  0.0700   0.600  100.00
RD  1045  0.0670   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKGS25C7
KM           3.8 AC.
BA0.0060
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.830
UK   300  0.0700   0.600  100.00
RD   620  0.0452   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKYC25C7
KM     COMBINE
HC     3
ZW C=FLOW
*
KK GS27C
KM           2.8 AC.
BA0.0044
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.610
UK   300  0.0700   0.600  100.00
RD   220  0.0636   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KK GS23B
KM  0
BA0.0061
PB
* PI
BF    -1  -0.001    1.50
```

```
LU  0.10  0.2500  90.640
UK   300  0.0700   0.600  100.00
RD   470  0.0638   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKYWQ25C
KM     COMBINE
HC     3
ZW C=FLOW
*
KK GS25E
KM    GS25E
BA0.0340
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.240
UK   900  0.1000   0.600  100.00
RD  1000  0.1000   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKY25ECC
KM  0
HC     2
ZW C=FLOW
*
KKGS25A2
KM            1.9 AC.
BA0.0029
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.690
UK   300  0.0700   0.600  100.00
RD   700  0.0500   0.060            TRAP     2.0     3.0
ZW C=FLOW
*
KKGS25A1
KM            .4 AC.
BA0.0007
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.740
UK   300  0.0700   0.600  100.00
RD  1400  0.0660   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKGS25A3
KM            1.2 AC.
BA0.0018
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.700
UK   300  0.0700   0.600  100.00
RD  1010  0.0620   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKYC25A3
KM     COMBINE
HC     3
ZW C=FLOW
*
KKVR25A3
KM       ROUTE COMBINED GS25A3
RD   561  0.0238   0.015            CIRC     2.0     0.0
ZW C=FLOW
*
KKGS25D3
KM            1.3 AC.
BA0.0022
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.690
UK   300  0.0700   0.600  100.00
RD   900  0.0650   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKYC25D3
KM     COMBINE
HC     2
ZW C=FLOW
*
KKGS25D2
KM            2.9 AC.
BA0.0045
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.570
UK   300  0.0700   0.600  100.00
RD   840  0.0710   0.060            TRAP    10.0     1.0
```

```
ZW C=FLOW
*
KKYC25D2
KM     COMBINE
HC     2
ZW C=FLOW
*
KKGS25D1
KM             4.1 AC
BA0.0062
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.400
UK   300  0.0700   0.600  100.00
RD  1520  0.0700   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKYC25D1
KM     COMBINE
HC     2
ZW C=FLOW
*
KKVR25D1
KM     ROUTE COMBINED GS25D1
RD   923  0.0368   0.015           CIRC     2.0     0.0
ZW C=FLOW
*
KKGS28B2
KM            6.7 AC.
BA0.0105
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.230
UK   300  0.0700   0.600  100.00
RD  1780  0.0625   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKGS27B1
KM         5.5 AC.
BA0.0087
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.170
UK   300  0.0700   0.600  100.00
RD  1040  0.0557   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KK YC27B
KM     COMBINE
HC     3
ZW C=FLOW
*
KKGS25C2
KM            3.0 AC
BA0.0047
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.980
UK   300  0.0700   0.600  100.00
RD  1800  0.0566   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKYC25C2
KM     COMBINE
HC     2
ZW C=FLOW
*
KKGS27B3
KM            3.3 AC.
BA0.0052
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.660
UK   300  0.0700   0.600  100.00
RD   660  0.0720   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKGS27B2
KM  0
BA0.0053
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.620
UK   300  0.0700   0.600  100.00
RD   560  0.0640   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKYQG27B
```

```
KM     COMBINE
HC     3
ZW C=FLOW
*
KKGS25E1
KM    GS25E
BA0.0131
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.120
UK   900  0.1000   0.600  100.00
RD  1000  0.1000   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYGS25E
KM  0
HC     2
ZW C=FLOW
*
KK GS30B
KM            1.1 AC
BA0.0018
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.270
UK   300  0.0700   0.600  100.00
RD   800  0.0350   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKGS28B1
KM            1.6 AC.
BA0.0025
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.170
UK   300  0.0700   0.600  100.00
RD  1000  0.0437   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKYC28B1
KM     COMBINE
HC     2
ZW C=FLOW
*
KKGS28B3
KM            .09 AC.
BA0.0015
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.990
UK   300  0.0700   0.600  100.00
RD   830  0.0554   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKYC28B3
KM     COMBINE
HC     2
ZW C=FLOW
*
KKGS28A1
KM            7.6 AC.
BA0.0120
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.790
UK   300  0.0700   0.600  100.00
RD  1000  0.0690   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKYQG28B
KM     COMBINE
HC     2
ZW C=FLOW
*
KKGS28A2
KM   GS28A
BA0.0154
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.540    0.10  0.2500  90.540
UK   500  0.0710   0.600      50
UK   200  0.0200   0.240      50
RD   500  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYGS28A
KM  0
HC     2
```

```
ZW C=FLOW
*
KKYGS29C
KM  0
HC     2
ZW C=FLOW
*
KK GS30A
KM    GS30
BA0.0427
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.040    0.10  0.2500  95.000
UK   900  0.0560   0.600      89
UK    50  0.0200   0.110      11
RD  1400  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK GS31A
KM   GS31A
BA0.0843
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  89.700    0.10  0.2500  89.700
UK  1000  0.0500   0.600      90
UK   200  0.0200   0.400      10
RD  1100  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYGS31C
KM  0
HC     2
ZW C=FLOW
*
KKYS31CC
KM  0
HC     2
ZW C=FLOW
*
KK  GS32
KM    GS32
BA0.0320
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2300  87.720
UK   500  0.1000   0.600  100.00
RD  1800  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
* - - - - - -
*
*
KK MD1H3
KM   MD1H3
BA0.0040
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  95.100    0.10  0.2500  95.100
UK   300  0.1200   0.600      75
UK    50  0.0200   0.110      25
RD   400  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MD1H2
KM   MD1H2
BA0.0027
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  94.640    0.10  0.2500  95.000
UK   300  0.1200   0.600      75
UK    50  0.0200   0.110      25
RD   300  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYD1H2C
KM  0
HC     2
ZW C=FLOW
*
KK MD1E4
KM   MD1E4
BA0.0132
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  94.420    0.10  0.2500  95.000
UK   300  0.1000   0.600      87
UK    50  0.0200   0.110      13
RD   600  0.0500   0.060            TRAP     2.0     2.0
```

```
ZW C=FLOW
*
KKYD1H2D
KM  0
HC     2
ZW C=FLOW
*
KK MD1E3
KM   MD1E3
BA0.0039
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.790    0.10  0.2500  95.000
UK   300  0.1000   0.600      78
UK    50  0.0200   0.110      22
RD   500  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYD1E3C
KM  0
HC     2
ZW C=FLOW
*
KK MD1E2
KM   MD1E2
BA0.0031
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.150    0.10  0.2500  95.000
UK   300  0.1000   0.600      84
UK    50  0.0200   0.110      16
RD   600  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYD1E2C
KM  0
HC     2
ZW C=FLOW
*
KKMD1E1E
KM   MD1E1-2
BA0.0042
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.570
UK  1200  0.1070   0.600  100.00
RD   800  0.0640   0.060            TRAP    10.0     0.0
ZW C=FLOW
*
KK YMD1E
KM  0
HC     2
ZW C=FLOW
*
KKMD1E1C
KM   MD1E1-3
BA0.0686
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.380
UK  1000  0.0800   0.600  100.00
RD  1858  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKMD1E1B
KM   MD1E1-2
BA0.0141
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.620
UK  1200  0.1070   0.600  100.00
RD   800  0.0640   0.060            TRAP    10.0     0.0
ZW C=FLOW
*
KKYM1E1B
KM  0
HC     2
ZW C=FLOW
*
KK MD1H1
KM    MD1H1-1
BA0.0073
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  94.150
UK   400  0.0600   0.600  100.00
RD   200  0.0080   0.060            TRAP    10.0    10.0
ZW C=FLOW
```

```
*
KK MD1H4
KM    MD1H1-2
BA0.0049
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  94.030
UK   650  0.0600   0.600  100.00
RD   100  0.0030   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKMD1I_1
KM    MD1I-1
BA0.0242
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  94.690
UK  1000  0.1000   0.600  100.00
RD   350  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYD1H1C
KM  0
HC     3
ZW C=FLOW
*
KK MD1G3
KM   MD1G3
BA0.0096
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.710    0.10  0.2500  95.000
UK   300  0.0800   0.600      90
UK    50  0.0200   0.110      10
RD   600  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYD1G3C
KM  0
HC     2
ZW C=FLOW
*
KKVD1G3R
KM  0
RD  1600  0.0500   0.040           TRAP    10.0    10.0
ZW C=FLOW
*
KK MD1G2
KM   MD1G2
BA0.0033
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.570    0.10  0.2500  95.000
UK   200  0.0800   0.600      72
UK    50  0.0200   0.110      28
RD   300  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKMD1G2B
KM   MD1G2B
BA0.0055
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.400
UK   200  0.0850   0.600  100.00
RD   300  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYM1G2B
KM  0
HC     2
ZW C=FLOW
*
KKMD1G1B
KM   MD1G1-2
BA0.0195
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.300
UK  1300  0.0600   0.600  100.00
RD  1568  0.1070   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYM1G1B
KM  0
HC     2
ZW C=FLOW
*
```

```
KKY26OUP
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK GS26A
KM    GS26A
BA0.0074
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  95.350    0.10  0.2500  95.350
UK   600  0.1000   0.600      85
UK    50  0.0200   0.110      15
RD   400  0.0500   0.060            TRAP     2.0      2.0
ZW C=FLOW
*
KK GS26B
KM    GS26B
BA0.0139
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  94.220    0.10  0.2500  95.000
UK   600  0.2000   0.600      89
UK    50  0.0200   0.110      11
RD   800  0.0500   0.060            TRAP     2.0      2.0     YES
ZW C=FLOW
*
KK GS26C
KM    GS26C
BA0.0126
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.110    0.10  0.2500  95.000
UK   600  0.2000   0.600      90
UK    50  0.0200   0.110      10
RD   800  0.0500   0.060            TRAP     2.0      2.0     YES
ZW C=FLOW
*
KK GS26D
KM    GS26D
BA0.0144
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.430    0.10  0.2500  95.000
UK   600  0.1000   0.600      89
UK    50  0.0200   0.110      11
RD   400  0.0500   0.060            TRAP     2.0      2.0
ZW C=FLOW
*
KKYS26DC
KM  0
HC     2
ZW C=FLOW
*
KK GS26E
KM    GS26E
BA0.0028
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.560    0.10  0.2500  95.000
UK   300  0.0800   0.600      75
UK    50  0.0200   0.110      25
RD   600  0.0500   0.060            TRAP     2.0      2.0     YES
ZW C=FLOW
*
KK GS26F
KM    GS26F
BA0.0074
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.560    0.10  0.2500  95.000
UK   400  0.1000   0.600      87
UK    50  0.0200   0.110      13
RD   400  0.0500   0.060            TRAP     2.0      2.0     YES
ZW C=FLOW
*
KKGS26N1
KM    GS26N-1
BA0.0046
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.260
UK   335  0.0200   0.110  100.00
RD   500  0.0500   0.060            TRAP     2.0      2.0
```

```
ZW C=FLOW
*
KK GS26G
KM    GS26G
BA0.0231
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.520    0.10  0.2500  95.000
UK   600  0.1000   0.600      91
UK    50  0.0200   0.110       9
RD   400  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KKYS26NC
KM  0
HC     2
ZW C=FLOW
*
KK GS26H
KM    GS26H
BA0.0026
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.140    0.10  0.2500  95.000
UK   100  0.0800   0.600      75
UK    50  0.0200   0.110      25
RD   500  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK GS15C
KM    GS15C
BA0.0106
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  95.220    0.10  0.2500  95.220
UK   600  0.1500   0.600      91
UK    50  0.0200   0.110       9
RD   400  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK GS15D
KM    GS15D
BA0.0133
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.620    0.10  0.2500  95.000
UK   300  0.1350   0.600      91
UK    50  0.0200   0.110       9
RD   400  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK GS15A
KM    GS15A
BA0.0913
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2370  95.820    0.10  0.2370  95.820
UK  1800  0.1200   0.600      97
UK    50  0.0200   0.110       3
RD   600  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK GS15B
KM    GS15B
BA0.0151
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.510    0.10  0.2500  95.000
UK   400  0.1000   0.600      94
UK    50  0.0200   0.110       6
RD   600  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KKYS15BC
KM  0
HC     2
ZW C=FLOW
*
KKGS16A1
KM    GS16A1
BA0.0190
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.870    0.10  0.2500  95.000
UK   400  0.1000   0.600      96
UK    50  0.0200   0.110       4
RD   500  0.0500   0.060            TRAP     2.0     2.0     YES
```

```
ZW C=FLOW
*
KKGS16A2
KM    GS16A2
BA0.0137
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.430    0.10  0.2500  95.000
UK   400  0.1000   0.600      91
UK    50  0.0200   0.110       9
RD   600  0.0500   0.060           TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK GS16B
KM    GS16B
BA0.0260
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2330  95.710    0.10  0.2330  95.710
UK  1800  0.1500   0.600      93
UK    50  0.0200   0.110       7
RD   500  0.0500   0.060           TRAP     2.0     2.0
ZW C=FLOW
*
KK GS16C
KM    GS16C
BA0.0141
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.740    0.10  0.2500  95.000
UK   400  0.1500   0.600      89
UK    50  0.0200   0.110      11
RD   400  0.0500   0.060           TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK GS17C
KM    GS17C
BA0.0147
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.770    0.10  0.2500  95.000
UK   600  0.1200   0.600      91
UK    50  0.0200   0.110       9
RD   600  0.0500   0.060           TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK  E6A3
KM    E6A3
BA0.0421
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.1800  95.190    0.10  0.1800  95.190
UK  1800  0.2000   0.600      94
UK    50  0.0200   0.110       6
RD   800  0.0500   0.060           TRAP     2.0     2.0
ZW C=FLOW
*
KK GS12B
KM    GS12B
BA0.0089
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.270    0.10  0.2500  95.000
UK   600  0.1200   0.600      89
UK    50  0.0200   0.110      11
RD   600  0.0500   0.060           TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK GS12C
KM    GS12C
BA0.0068
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.820    0.10  0.2500  95.000
UK   300  0.1200   0.600      70
UK    50  0.0200   0.110      30
RD  1600  0.0500   0.060           TRAP     2.0     2.0
ZW C=FLOW
*
KKY12CCC
KM  0
HC     2
ZW C=FLOW
*
KK GS12F
KM    GS12F
BA0.0082
```

```
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.910    0.10  0.2500  95.000
UK   400  0.1000   0.600      94
UK    50  0.0200   0.110       6
RD   400  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYS12FC
KM  0
HC     2
ZW C=FLOW
*
KK GS12H
KM    GS12H
BA0.0082
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.010    0.10  0.2500  95.000
UK   800  0.1000   0.600      94
UK    50  0.0200   0.110       6
RD   600  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK GS12D
KM    GS12D
BA0.0044
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  94.450    0.10  0.2500  95.000
UK   400  0.1500   0.600      84
UK    50  0.0200   0.110      16
RD   300  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK GS12E
KM    GS12E
BA0.0044
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.650    0.10  0.2500  95.000
UK   400  0.1500   0.600      90
UK    50  0.0200   0.110      10
RD   400  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KKY12ECC
KM  0
HC     2
ZW C=FLOW
*
KK GS12I
KM    GS12I
BA0.0177
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.630    0.10  0.2500  95.000
UK   800  0.1000   0.600      95
UK    50  0.0200   0.110       5
RD  1000  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYS12IC
KM  0
HC     2
ZW C=FLOW
*
KKVNTOLK
KM  0
RD  1000  0.0500   0.040            TRAP     2.0     2.0
ZW C=FLOW
*
KKYGS17C
KM  0
HC     2
ZW C=FLOW
*
KKYGS16A
KM  0
HC     2
ZW C=FLOW
*
KK GS17A
KM    GS17A
BA0.0226
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.060    0.10  0.2500  95.000
```

```
UK   800  0.1000   0.600      90
UK    50  0.0200   0.110      10
RD  1000  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYAKCOM
KM  0
HC     3
ZW C=FLOW
*
*
KKULFDT2
KM   DETENTION AT GS17A
RS     1    FLOW      -1
SV  0.00    0.55    1.91    3.69    7.81
SQ   0.0    60.0   170.0   311.0   630.0
ZW C=FLOW
*
KK GS26N
KM   GS26N-2
BA0.0299
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.950
UK  1419  0.0660   0.600  100.00
RD  1800  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
*
KKUSTDET
KM GOLF LAKE/WET MEADOW AT SOUTH SIDE OF B STREET
* NEW 10-11-04
* NEW 12-04 for 30ft weir @ 6177.2 and low swq below
KO     1
RS     1    ELEV    6176
* SV     0    6.92   8.320   9.821  11.439   13.17
*  sv Revised by BAT 2/15/05 TO REFLECT NORMAL POOL ELEV AT 6176
SA     0    0.01    1.34    1.67    2.15
SE  6166  6175.9    6176    6178    6180
SQ     0    .001    0.50    64.0   217.0   421.0
SE  6166    6176    6177    6178    6179    6180
ZW C=FLOW
*
KKGS26OA
KM    AREA=20.2 AC
BA0.0321
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.550    0.10  0.2500  91.550
UK   800  0.0500   0.600      95
UK    50  0.0200   0.110       5
RD   800  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKGS26OB
KM    AREA=3.3 AC UNIT 4A
BA0.0047
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.650    0.10  0.2500  91.650
UK   600  0.0500   0.600      95
UK    50  0.0200   0.110       5
RD   600  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYS26OC
KM  0
HC     4
ZW C=FLOW
*
*
KKUPLAKE
KM   CONCERT PARK LAKE
KO     1
RS     1    ELEV    6149
SA  0.01    0.25    0.32    0.36
SE  6140    6148    6149    6150
*  LOW FLOW PIPE (SL RECORD) IS A DUMMY
SL  6146   0.001    0.62     0.5
SS  6148      20     2.6     1.5
ZW C=FLOW
*
KK MD1C2
KM    MD1C2
BA0.0063
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.300    0.10  0.2500  91.300
UK   250  0.0500   0.600      90
UK    50  0.0200   0.110      10
```

```
RD   300  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYMD1C2
KM  0
HC     2
ZW C=FLOW
*
KKGS26L3
KM    AREA=0.7 AC   UNIT 4A
BA0.0012
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.320    0.10  0.2500  91.320
UK   500  0.0580   0.600      90
UK    50  0.0200   0.110      10
RD   500  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYNIT4A
KM  0
HC     2
ZW C=FLOW
*
KKMD1F-1
KM    MD1F-1
BA0.0069
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.680    0.10  0.2500  95.000
UK   600  0.0800   0.600      90
UK    50  0.0200   0.110      10
RD  1000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  MD1F
KM    MD1F-2
BA0.0035
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.530    0.10  0.2500  95.000
UK   500  0.0800   0.600      90
UK    50  0.0200   0.110      10
RD  1000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD1F
KM  0
HC     2
ZW C=FLOW
*
KKMD1D1D
KM    MD1D1D
BA0.0124
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.750
UK   800  0.0600   0.600  100.00
RD   400  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYD1D1D
KM  0
HC     2
ZW C=FLOW
*
KKMD1D1C
KM    MD1D1C
BA0.0074
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.540
UK   500  0.0500   0.600  100.00
RD   200  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYD1D1C
KM  0
HC     2
ZW C=FLOW
*
KK  MD1E
KM    MD1E
BA0.0160
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.050    0.10  0.2500  95.000
UK   600  0.0800   0.600      95
```

```
UK    50  0.0200   0.110       5
RD  1000  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
*
KKUD1EWQ
KM  0
RS     1    FLOW      -1
SV  0.00    0.25    0.50    0.75
SQ   0.0     0.1    30.0    60.0
ZW C=FLOW
*
KKMD1D1A
KM    MD1D1A
BA0.0059
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.250
UK   400  0.1200   0.600  100.00
RD   500  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKMD1D1B
KM    MD1D1B
BA0.0028
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.320
UK   400  0.1200   0.600  100.00
RD   500  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYD1D1B
KM  0
HC     2
ZW C=FLOW
*
KK MD1D2
KM    MD1D2
BA0.0077
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.970
UK   600  0.2000   0.600  100.00
RD  1000  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYD1D2D
KM  0
HC     3
ZW C=FLOW
*
KKYD1C2C
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK GS26J
KM    GS26J
BA0.0023
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.640
UK   230  0.0780   0.600  100.00
RD   250  0.0770   0.060           TRAP     2.0     2.0
ZW C=FLOW
*
KK GS26K
KM    GS26K
BA0.0032
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.660
UK   194  0.0920   0.600  100.00
RD   200  0.0830   0.060           TRAP     2.0     2.0
ZW C=FLOW
*
KKYGS26K
KM  0
HC     2
ZW C=FLOW
*
KK GS26L
KM    GS26L REVISED AREA = 5.8 AC UNIT 4A
BA0.0091
PB
```

```
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.490    0.10  0.2500  91.490
UK   500  0.0580   0.600      90
UK    50  0.0200   0.110      10
RD   500  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYGS26L
KM  0
HC     2
ZW C=FLOW
*
KKGS26L2
KM    GS26L2
BA0.0029
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.100    0.10  0.2500  91.100
UK   250  0.0470   0.600      90
UK    50  0.0200   0.110      10
RD   250  0.0300   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK MD1C1
KM    MD1C1
BA0.0155
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.000    0.10  0.2500  91.000
UK   400  0.0500   0.600      85
UK    50  0.0200   0.110      15
RD  1800  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KKYD1C1C
KM  0
HC     2
ZW C=FLOW
*
*
KKUWLAKE
KM CULTURAL CENTER LAKE LOWER LAKE
* CULTURAL LAKE HAS BEEN RELOCATED AND THE THE GRADING REVISED.
* THE LAKE NOW CONSISTS OF AN UPPER LAKE AND A LOWER LAKE.
* THE UPPER LAKE IS UPLAKE. THIS IS LOWER LAKE.  UPPER LAKE IS
* DESIGNATED UPLAKE
* REVISION DATE 7/7/2006
KO     1
RS     1    ELEV    6133
SA  0.98    2.89    3.08    3.34    3.65    4.01
SE  6119    6133    6134    6136    6138    6140
SQ     0     1.8    10.5    54.1   116.9   194.2   283.6   383.6   493.2
SE  6133  6133.6    6134    6135    6136    6137    6138    6139    6140
ZW C=FLOW
*
*
KKUAINWQ
KM   AT MD1C1
RS     1    FLOW      -1
SV  0.00    0.34    0.69    1.03    1.38    1.83    2.29    2.86    3.44
SQ   0.0     0.5     1.0     8.5    30.0    60.0   100.0   150.0   600.0
ZW C=FLOW
*
KK MD1C4
KM    MD1C4
BA0.0169
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2240  90.670    0.10  0.2240  90.670
UK   400  0.0500   0.600      95
UK    50  0.0200   0.110       5
RD  1800  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
*
KKU1C4WQ
KM   AT MD1C4
RS     1    FLOW      -1
SV  0.00    0.23    0.51    0.92    1.24    1.60    1.95    2.30
SQ   0.0     0.3     0.5     0.8     1.0     1.5    45.0   500.0
ZW C=FLOW
*
* - - - - - -
*
*
KK   MA1
KM     MA1
BA0.2995
PB
* PI
```

```
BF    -1  -0.001    1.50
LU  0.10  0.1910 100.000
UK  1600  0.2340   0.600  100.00
RD  3500  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK   MA2
KM     MA2
BA0.5483
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2000 100.000
UK  2200  0.2840   0.600  100.00
RD  4300  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK   MA3
KM     MA3
BA0.6259
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2290 100.000
UK  2300  0.2720   0.600  100.00
RD  7500  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK   MA4
KM     MA4
BA0.2870
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2270  94.530
UK  2000  0.3000   0.600  100.00
RD  3300  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK   MA5
KM     MA5
BA0.2025
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2140  94.090
UK  1500  0.1830   0.600  100.00
RD  2500  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK   MA6
KM     MA6
BA0.4152
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2280  92.830
UK  1800  0.0970   0.600  100.00
RD  3000  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK YMA6C
KM  0
HC     2
ZW C=FLOW
*
KK   MA7
KM     MA7
BA0.2326
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2330  93.460
UK  3300  0.2270   0.600  100.00
RD  1500  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YMA7C
KM  0
HC     2
ZW C=FLOW
*
KK   MA8
KM     MA8
BA0.4308
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.1650  98.600
UK  1250  0.3200   0.600  100.00
RD  5500  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YMA8C
```

```
KM  0
HC     2
ZW C=FLOW
*
KK   MA9
KM     MA9
BA0.0913
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2370  91.810
UK   600  0.2080   0.600  100.00
RD  1500  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK MA10A
KM    MA10A
BA0.2885
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2410  92.870    0.10  0.2410  92.870
UK  1600  0.0380   0.600      85
UK   200  0.0200   0.240      15
RD  2800  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK MA10B
KM    MA10B
BA0.0100
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.700    0.10  0.2500  95.000
UK   900  0.0900   0.600      90
UK    50  0.0200   0.110      10
RD   200  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYA10BC
KM  0
HC     2
ZW C=FLOW
*
*
KKU0DCUL
KM  0
RS     1    FLOW      -1
SV  0.00    2.50    5.00    8.50   12.50
SQ   0.0   500.0  1200.0  2300.0  3500.0
ZW C=FLOW
*
* - - - - - -
*
*
KKMB7B3A
KM    MB7B3A
BA0.0051
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.020    0.10  0.2500  95.000
UK   500  0.0800   0.600      95
UK    50  0.0200   0.110       5
RD   550  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKMB7B4A
KM    MB7B4A
BA0.0156
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.520    0.10  0.2500  95.000
UK   500  0.0900   0.600      95
UK    50  0.0200   0.110       5
RD   570  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKMB7B3B
KM    MB7B3B
BA0.0064
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.020    0.10  0.2500  95.000
UK   600  0.0800   0.600      95
UK    50  0.0200   0.110       5
RD   600  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKMB7B4B
KM    MB7B4B
BA0.0044
```

```
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.570    0.10  0.2500  95.000
UK   400  0.0700   0.600      95
UK    50  0.0200   0.110       5
RD   500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYB7B34
KM  0
HC     3
ZW C=FLOW
*
KKMB7B4C
KM    MB7B4C
BA0.0023
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.160    0.10  0.2500  95.000
UK   170  0.0530   0.600      95
UK    50  0.0200   0.110       5
RD   300  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
*
KKUA10EQ
KM  0
RS     1    FLOW      -1
SV  0.00    0.05    0.10    0.15    0.20    0.25
SQ   0.0     0.0     0.0     0.0    30.0    60.0
ZW C=FLOW
*
KKYA10EC
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KKMB7B1A
KM    MB7B1A
BA0.0709
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  94.000
UK  1300  0.1920   0.600  100.00
RD  3000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKMB7B1C
KM    MB7B1C
BA0.0041
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.690    0.10  0.2500  95.000
UK   400  0.0800   0.600      95
UK    50  0.0200   0.110       5
RD   200  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKMB7B1B
KM    MB7B1B
BA0.0107
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.410    0.10  0.2500  95.000
UK   500  0.0800   0.600      95
UK    50  0.0200   0.110       5
RD   600  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYMB7B1
KM  0
HC     2
ZW C=FLOW
*
KKMB7B1D
KM    MB7B1D
BA0.0146
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.500    0.10  0.2500  95.000
UK   500  0.0700   0.600      95
UK    50  0.0200   0.110       5
RD   650  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
```

```
KKMB7B1E
KM    MB7B1E
BA0.0054
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.170    0.10  0.2500  95.000
UK   500  0.0500   0.600      95
UK    50  0.0200   0.110       5
RD   350  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
*
KKUB7B1Q
KM  0
RS     1    FLOW      -1
SV  0.00    0.10    0.20    0.30    0.40    0.50
SQ   0.0     0.1     0.1     0.7    20.0    80.0
ZW C=FLOW
*
KK MB7B2
KM    MB7B2
BA0.0216
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.880    0.10  0.2500  95.000
UK  1300  0.1920   0.600      95
UK    50  0.0200   0.110       5
RD   600  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
*
KKUB7B2Q
KM  0
RS     1    FLOW      -1
SV  0.00    0.33    0.66    1.00    1.33
SQ   0.0     0.2     0.3     0.3   150.0
ZW C=FLOW
*
KKYMB7BC
KM  0
HC     2
ZW C=FLOW
*
*
KKUPONDD
KM  0
RS     1    FLOW      -1
SV  0.00    1.00    2.00    3.00    4.00    5.00    6.00    7.00    8.00
SQ   0.0    50.0   100.0   200.0   400.0   600.0  1000.0  2000.0  4000.0
ZW C=FLOW
*
* - - - - - -
*
*
KK   MB1
KM     MB1
BA0.5333
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.1880 100.000
UK  4000  0.2750   0.600  100.00
RD  2700  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK   MB2
KM     MB2
BA1.2667
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.1920  97.620
UK  2800  0.3390   0.600  100.00
RD  3400  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK   MB3
KM     MB3
BA0.5006
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2180  96.320
UK  1800  0.2780   0.600  100.00
RD  1600  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK   MB4
KM     MB4
BA0.6535
PB
* PI
```

```
BF    -1  -0.001    1.50
LU  0.10  0.2450  94.850
UK  1900  0.1840   0.600  100.00
RD  4000  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK   MB5
KM     MB5
BA0.1602
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.220
UK  1800  0.2780   0.600  100.00
RD  1500  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK  MB6A
KM   AREA = 7.0 AC
BA0.0073
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.990
UK  1335  0.1543   0.600  100.00
RD   625  0.0800   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
*
KKUB6ADT
KM  0
RS     1    FLOW      -1
SV  0.00    0.15    0.30    0.45
SQ   0.0   100.0   200.0   300.0
ZW C=FLOW
*
KKYMB6AC
KM  0
HC     2
ZW C=FLOW
*
*
KKUB6CUL
KM  0
RS     1    FLOW      -1
SV  0.00    2.50    5.00    8.50   12.50
SQ   0.0   500.0  1100.0  2000.0  3000.0
ZW C=FLOW
*
KK  MB6B
KM   AREA = 3.9 AC
BA0.0061
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.900
UK   240  0.0708   0.600  100.00
RD   520  0.0800   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
*
KKUB6BDT
KM  0
RS     1    FLOW      -1
SV  0.00    0.15    0.30    0.45
SQ   0.0   100.0   200.0   300.0
ZW C=FLOW
*
KKYMB6BC
KM  0
HC     2
ZW C=FLOW
*
KK  MB6C
KM   AREA = 3.2 AC
BA0.0039
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.600
UK   370  0.1081   0.600  100.00
RD   490  0.0683   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
*
KKUB6CDT
KM  0
RS     1    FLOW      -1
SV  0.00    0.15    0.30    0.45
SQ   0.0   100.0   200.0   300.0
ZW C=FLOW
*
KKYMB6CC
KM  0
```

```
HC     2
ZW C=FLOW
*
KK  MB6D
KM    MB6D
BA0.0223
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2460  91.510    0.10  0.2460  91.510
UK   200  0.1250   0.600      65
UK   200  0.0200   0.240      35
RD  1500  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK  MB6G
KM  MB6G
BA0.0109
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.440    0.10  0.2500  92.440
UK   500  0.1250   0.600      30
UK   200  0.0200   0.240      70
RD   500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  MB6F
KM  MB6F
BA0.0062
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.260    0.10  0.2500  92.260
UK   500  0.1250   0.600      30
UK   200  0.0200   0.240      70
RD   500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MB6D1
KM  MB6D1
BA0.0036
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.000    0.10  0.2500  92.000
UK   500  0.1250   0.600      30
UK   200  0.0200   0.240      70
RD   500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMB6D1
KM  0
HC     3
ZW C=FLOW
*
KK  MB6E
KM    MB6E
BA0.0050
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.270    0.10  0.2500  92.270
UK   500  0.1250   0.600      30
UK   200  0.0200   0.240      70
RD   500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMB6E
KM  0
HC     2
ZW C=FLOW
*
*
KKUB6EDT
KM  0
RS     1    FLOW      -1
SV  0.00    0.15    0.30    0.45
SQ   0.0   100.0   200.0   300.0
ZW C=FLOW
*
KKYMB6EC
KM  0
HC     2
ZW C=FLOW
*
KKYMB6DD
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
```

```
KK MB7A1
KM     MB7A1
BA0.1465
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2080  94.570    0.10  0.2080  95.000
UK  1300  0.1920   0.600      97
UK    50  0.0200   0.110       3
RD  2500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKMB7A2A
KM     MB7A2A
BA0.0247
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.970    0.10  0.2500  95.000
UK   550  0.1920   0.600      92
UK    50  0.0200   0.110       8
RD   580  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKMB7A2B
KM     MB7A2B
BA0.0059
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.730
UK   300  0.1920   0.600  100.00
RD   500  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
*
KKUB7A2Q
KM  0
RS     1    FLOW      -1
SV  0.00    0.12    0.25    0.38    0.50    0.62
SQ   0.0     0.1     0.1     0.1    20.0   120.0
ZW C=FLOW
*
KK  MB7C
KM     MB7C
BA0.0236
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.450    0.10  0.2500  95.000
UK   200  0.1000   0.600      92
UK    50  0.0200   0.110       8
RD   500  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKMB7D1A
KM     MB7D1A
BA0.0044
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.210    0.10  0.2500  95.000
UK   500  0.1000   0.600      79
UK    50  0.0200   0.110      21
RD   200  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKMB7D1B
KM     MB7D1B
BA0.0025
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.310    0.10  0.2500  95.000
UK   300  0.1000   0.600      79
UK    50  0.0200   0.110      21
RD   400  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYB7D1C
KM  0
HC     2
ZW C=FLOW
*
KK MB7D1
KM     MB7D1
BA0.0011
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.810
UK   100  0.1000   0.600  100.00
RD   300  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
```

```
*
KK MB7D2
KM     MB7D2
BA0.0215
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.620    0.10  0.2500  95.000
UK   200  0.1000   0.600      95
UK    50  0.0200   0.110       5
RD   500  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYMB7CC
KM  0
HC     2
ZW C=FLOW
*
KK  MB7E
KM     MB7E
BA0.0585
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2470  91.300    0.10  0.2470  95.000
UK   200  0.1000   0.600      96
UK    50  0.0200   0.110       4
RD  1500  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
*
KKUB8SWQ
KM  0
RS     1    FLOW      -1
SV  0.00    0.25    0.50    0.75    1.00
SQ   0.0     0.2     0.2     0.2   200.0
ZW C=FLOW
*
KKYMB7EC
KM  0
HC     2
ZW C=FLOW
*
KK   MB8
KM     MB8
BA0.0545
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2140  90.930    0.10  0.2140  90.930
UK  1000  0.1000   0.600      85
UK   200  0.0200   0.240      15
RD  2500  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
* - - - - - -
*
*
KK   MC1
KM   AREA = 258.6 AC
BA0.4041
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2390  99.080
UK  1530  0.4281   0.600  100.00
RD  5300  0.2394   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  MC2A
KM   AREA = 59.1 AC
BA0.0923
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  95.850
UK  1035  0.4010   0.600  100.00
RD  2590  0.3421   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMC2AC
KM  0
HC     2
ZW C=FLOW
*
KK  MC2B
KM   AREA = 0.9 AC
BA0.0014
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.880
UK   550  0.0764   0.600  100.00
RD   200  0.0800   0.060            TRAP     0.1     1.0
```

```
ZW C=FLOW
*
KK  MC2K
KM  MC2K
BA0.0001
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.700
UK  1225  0.1551   0.600  100.00
RD   565  0.0800   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
KK YMC2K
KM  0
HC     2
ZW C=FLOW
*
*
KKUC2BDT
KM  0
RS     1    FLOW      -1
SV  0.00    0.15    0.30    0.45
SQ   0.0   100.0   200.0   300.0
ZW C=FLOW
*
KKYMC2BC
KM  0
HC     2
ZW C=FLOW
*
KK  MD1D
KM     MD1d AREA = 5.9 AC
BA0.0092
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.580
UK   800  0.2375   0.600  100.00
RD   190  0.0414   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
KK  MD1B
KM     MD1b AREA = 5.9 AC
BA0.0092
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.040
UK   800  0.2375   0.600  100.00
RD   260  0.0414   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
KK YMD1B
KM  0
HC     2
ZW C=FLOW
*
KK MC2A2
KM  MC2A2
BA0.0061
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.570
UK  1225  0.1551   0.600  100.00
RD   565  0.0800   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
KKYMC2A2
KM  0
HC     3
ZW C=FLOW
*
KK  MD1C
KM    MD1c AREA = 2.9 AC
BA0.0045
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.740
UK   500  0.2178   0.600  100.00
RD   364  0.2178   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MC2A3
KM  MC2A3
BA0.0044
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.740
UK  1225  0.1551   0.600  100.00
RD   565  0.0800   0.060            TRAP     0.1     1.0
```

```
ZW C=FLOW
*
KKYMC2A3
KM  0
HC     3
ZW C=FLOW
*
KK  MC2D
KM   AREA = 7.8 AC
BA0.0122
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.930
UK  1225  0.1551   0.600  100.00
RD   565  0.0800   0.060           TRAP     0.1     1.0
ZW C=FLOW
*
*
KKUC2DDT
KM  0
RS     1    FLOW      -1
SV  0.00    0.15    0.30    0.45
SQ   0.0   100.0   200.0   300.0
ZW C=FLOW
*
KK  MC2E
KM   AREA = 3.9 AC
BA0.0060
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.360
UK   895  0.1777   0.600  100.00
RD   565  0.0800   0.060           TRAP     0.1     1.0
ZW C=FLOW
*
*
KKUC2EDT
KM  0
RS     1    FLOW      -1
SV  0.00    0.15    0.30    0.45
SQ   0.0   100.0   200.0   300.0
ZW C=FLOW
*
KKYMC2EC
KM  0
HC     2
ZW C=FLOW
*
KK  MC2G
KM   AREA = 9.7 AC
BA0.0151
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.890
UK   395  0.2051   0.600  100.00
RD   360  0.0800   0.060           TRAP     0.1     1.0
ZW C=FLOW
*
KK YMC2G
KM  0
HC     2
ZW C=FLOW
*
KK  MC2H
KM   AREA = 2.4 AC
BA0.0038
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.200
UK   365  0.1096   0.600  100.00
RD   530  0.0800   0.060           TRAP     0.1     1.0
ZW C=FLOW
*
KKYMC2HC
KM  0
HC     2
ZW C=FLOW
*
KK  MC2L
KM  MC2L
BA0.0519
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.850
UK   550  0.0764   0.600  100.00
RD   200  0.0800   0.060           TRAP     0.1     1.0
ZW C=FLOW
*
KK YMC2L
```

```
KM  0
HC     3
ZW C=FLOW
*
KK  MC2I
KM   AREA = 0.7 AC
BA0.0011
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.950
UK   225  0.1289   0.600  100.00
RD   100  0.0800   0.060           TRAP     0.1     1.0
ZW C=FLOW
*
KK  MC2J
KM   AREA = 0.6 AC
BA0.0011
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.630
UK   225  0.1600   0.600  100.00
RD   310  0.0800   0.060           TRAP     0.1     1.0
ZW C=FLOW
*
KKYMC2IC
KM  0
HC     2
ZW C=FLOW
*
KK YMC2I
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK  MD4A
KM     MD4A
BA0.1163
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  99.440
UK   500  0.4140   0.600  100.00
RD  2399  0.3040   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK  MD3C
KM     MD3c AREA = 6.9 AC = 0.01078 SQ MI % IMPERV = 4.6
BA0.0108
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  94.360
UK   500  0.3184   0.600  100.00
RD   737  0.3184   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD3C
KM  0
HC     2
ZW C=FLOW
*
KK  MD3B
KM     MD3b AREA = 8.5 AC = 0.01328 SQ MI % IMPERV = 3.8
BA0.0133
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  95.210
UK   500  0.3073   0.600  100.00
RD  1173  0.3073   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD3BC
KM  0
HC     2
ZW C=FLOW
*
KK MD3A1
KM     MD3a AREA = 25.4 AC = 0.03969 SQ MI % IMPERV = 2.6
BA0.0397
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  97.120
UK   500  0.3458   0.600  100.00
RD  2530  0.3458   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD3A1
```

```
KM  0
HC     2
ZW C=FLOW
*
KK MD1A1
KM     MD1a  AREA = 3.0 AC = 0.00469 SQ MI % IMPERV = 7.1
BA0.0047
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.940
UK   500  0.2420   0.600  100.00
RD   135  0.2420   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD1A1
KM  0
HC     2
ZW C=FLOW
*
KK MC2A4
KM   AREA = 59.1 AC
BA0.0022
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.660
UK  1035  0.4010   0.600  100.00
RD  2590  0.3421   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMC2A4
KM  0
HC     2
ZW C=FLOW
*
KKYC2A4C
KM  0
HC     2
ZW C=FLOW
*
KK YMD8C
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK MD1B1
KM   MD1B1
BA0.0157
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.840    0.10  0.2500  95.000
UK   800  0.0500   0.600      51
UK    50  0.0200   0.110      49
RD  1000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MD1B2
KM   MD1B2
BA0.0392
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.370    0.10  0.2500  95.000
UK   800  0.0800   0.600      94
UK    50  0.0200   0.110       6
RD  1000  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYMD1B2
KM  0
HC     2
ZW C=FLOW
*
KK  MD1A
KM     MD1a  AREA = 3.0 AC = 0.00469 SQ MI % IMPERV = 7.1
BA0.0581
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.1940  90.540
UK   500  0.2420   0.600  100.00
RD   135  0.2420   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD1A
KM  0
HC     2
ZW C=FLOW
*
```

```
KKYMD1C4
KM  0
HC     2
ZW C=FLOW
*
KK  MD2D
KM     MD2D
BA0.0040
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.740    0.10  0.2500  95.000
UK   550  0.0350   0.600      90
UK    50  0.0200   0.110      10
RD   350  0.0300   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK YMD2D
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK  MD3D
KM     MD3d
BA0.0094
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.370
UK   682  0.1610   0.600  100.00
RD   200  0.2350   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKMD1E1A
KM  MD1E1A
BA0.0018
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.180    0.10  0.2500  95.000
UK   600  0.0800   0.600      95
UK    50  0.0200   0.110       5
RD  1000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYD1E1A
KM  0
HC     2
ZW C=FLOW
*
KK   MD6
KM     MD6
BA0.0072
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.450
UK   635  0.1560   0.600  100.00
RD   300  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  YMD6
KM  0
HC     2
ZW C=FLOW
*
KK   MD1
KM     MD1  AREA = 5.7 AC = 0.00891 SQ MI % IMPERV = 14.0
BA0.0088
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.180
UK   483  0.1451   0.600  100.00
RD   100  0.1451   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  MD2A
KM  MD2A
BA0.0026
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.460    0.10  0.2500  95.000
UK   250  0.0350   0.600      90
UK    50  0.0200   0.110      10
RD   300  0.0400   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK YMD2A
KM  0
```

```
HC     2
ZW C=FLOW
*
KKYMD6CC
KM  0
HC     2
ZW C=FLOW
*
KK  MD27
KM     MD27
BA0.0048
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.090
UK   559  0.0500   0.600  100.00
RD   123  0.3210   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD27
KM  0
HC     2
ZW C=FLOW
*
KK MD28A
KM     MD28A
BA0.0043
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.990
UK   559  0.0500   0.600  100.00
RD   123  0.3210   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD28A
KM  0
HC     2
ZW C=FLOW
*
KK MD28B
KM     MD28B
BA0.0092
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.870
UK   559  0.0500   0.600  100.00
RD   123  0.3210   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK  MD3A
KM     MD3a AREA = 25.4 AC = 0.03969 SQ MI % IMPERV = 2.6
BA0.0076
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.590
UK   500  0.3458   0.600  100.00
RD  2530  0.3458   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD28B
KM  0
HC     3
ZW C=FLOW
*
KK YMD3A
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK  MD7B
KM     MD7B
BA0.0042
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.510
UK   760  0.0500   0.600  100.00
RD   160  0.3210   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
*
KKUD7BDT
KM  0
RS     1    FLOW      -1
SV  0.00    0.15    0.30    0.45
SQ   0.0   100.0   200.0   300.0
ZW C=FLOW
*
```

```
KK  MD4C
KM     MD4c
BA0.0056
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.400
UK   626  0.0500   0.600  100.00
RD   200  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD4C
KM  0
HC     2
ZW C=FLOW
*
KK  MD4E
KM  MD4E
BA0.0016
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.530
UK  1500  0.2830   0.600  100.00
RD  1100  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD4E
KM  0
HC     2
ZW C=FLOW
*
KK  MD4D
KM     MD4d
BA0.0062
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.460
UK   895  0.1010   0.600  100.00
RD   350  0.2980   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD4D
KM  0
HC     2
ZW C=FLOW
*
KK   MD9
KM     MD9
BA0.0106
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.600
UK   824  0.2530   0.600  100.00
RD   572  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK   MD8
KM     MD8
BA0.0047
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.390
UK   519  0.1260   0.600  100.00
RD   354  0.2350   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  YMD8
KM  0
HC     3
ZW C=FLOW
*
KK  YMD9
KM  0
HC     2
ZW C=FLOW
*
KK  MD6A
KM  MD6A
BA0.1279
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2190  90.180
UK   635  0.1560   0.600  100.00
RD   300  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD6A
KM  0
HC     2
```

```
ZW C=FLOW
*
* - - - - - -
*
*
KK  MD7D
KM     MD7d
BA0.0051
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  96.520
UK   500  0.1060   0.600  100.00
RD   723  0.0640   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK  MD7C
KM     MD7c
BA0.0061
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  94.500
UK   500  0.1060   0.600  100.00
RD   741  0.0640   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD7C
KM  0
HC     2
ZW C=FLOW
*
KK  MD7E
KM  MD7E
BA0.0094
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.730    0.10  0.2500  92.730
UK  1200  0.3130   0.600      90
UK  1200  0.3000   0.240      10
RD  2000  0.0200   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD7E
KM  0
HC     2
ZW C=FLOW
*
KK  MD7F
KM  MD7F
BA0.0067
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.940    0.10  0.2500  91.940
UK  1200  0.3130   0.600      90
UK  1200  0.3000   0.240      10
RD  2000  0.0200   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD7F
KM  0
HC     2
ZW C=FLOW
*
KK  MD11
KM     MD11
BA0.0056
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.640
UK   595  0.0500   0.600  100.00
RD   200  0.3330   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD11
KM  0
HC     2
ZW C=FLOW
*
KKYMD7FC
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK  MD2B
KM     MD2B
BA0.0056
PB
```

```
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.710    0.10  0.2500  95.000
UK   690  0.0460   0.600      90
UK    50  0.0200   0.110      10
RD   130  0.0100   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK  ME3A
KM     ME3A
BA0.0040
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.510    0.10  0.2500  95.000
UK   420  0.0380   0.600      90
UK    50  0.0200   0.110      10
RD   200  0.0300   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK YME3A
KM  0
HC     2
ZW C=FLOW
*
*
KKUE3CUL
KM  0
RS     1    FLOW      -1
SV  0.00    2.50    5.00    8.50   12.50   17.50
SQ   0.0   500.0  1200.0  2300.0  3500.0  5500.0
ZW C=FLOW
*
KKYME3AC
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK  MD17
KM     MD17
BA0.0075
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.740
UK   830  0.1260   0.600  100.00
RD   150  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  MD18
KM    MD18
BA0.0051
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.370
UK   930  0.1480   0.600  100.00
RD   200  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  MD19
KM     MD19
BA0.0056
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.180
UK  1055  0.2100   0.600  100.00
RD   150  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD19
KM  0
HC     3
ZW C=FLOW
*
KKYMD19C
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK MD2A1
KM     MD2A
BA0.0019
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.890    0.10  0.2500  95.000
```

```
UK   250  0.0350   0.600      90
UK    50  0.0200   0.110      10
RD   300  0.0400   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK   MD2
KM     MD2
BA0.0059
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.740
UK   295  0.1250   0.600  100.00
RD   200  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  YMD2
KM  0
HC     2
ZW C=FLOW
*
KK ME3A2
KM    ME3A2
BA0.0062
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.490    0.10  0.2500  95.000
UK   500  0.0440   0.600      90
UK    50  0.0200   0.110      10
RD   300  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK YMD2C
KM  0
HC     2
ZW C=FLOW
*
KKYME3A2
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK  MD13
KM     MD13
BA0.4368
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  99.870
UK   500  0.4770   0.600  100.00
RD  5450  0.3010   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKME6_19
KM  ME6_19
BA0.0236
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  96.490
UK   330  0.0530   0.600  100.00
RD   522  0.0880   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKME6_14
KM  ME6_14
BA0.0063
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  95.220
UK   330  0.0530   0.600  100.00
RD   522  0.0880   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME614
KM  0
HC     2
ZW C=FLOW
*
KK YMD13
KM  0
HC     2
ZW C=FLOW
*
KK  MD12
KM     MD12
BA0.0428
PB
* PI
```

```
BF    -1  -0.001    1.50
LU  0.10  0.2500  98.130
UK   500  0.1060   0.600  100.00
RD  2855  0.0640   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD12
KM  0
HC     2
ZW C=FLOW
*
KK MD12B
KM     MD12b
BA0.0024
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.360
UK   352  0.2560   0.600  100.00
RD   190  0.3210   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK MD12C
KM     MD12c
BA0.0084
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  94.080
UK   500  0.2050   0.600  100.00
RD   498  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD12C
KM  0
HC     2
ZW C=FLOW
*
KK MD14B
KM     MD14b
BA0.0016
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.540
UK   500  0.1060   0.600  100.00
RD    42  0.0640   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD14B
KM  0
HC     2
ZW C=FLOW
*
KK MD14C
KM     MD14c
BA0.0060
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.840
UK   500  0.1060   0.600  100.00
RD   406  0.0640   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD14C
KM  0
HC     3
ZW C=FLOW
*
KKME6_13
KM   1.17 AC
BA0.0022
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.930
UK   525  0.1750   0.600  100.00
RD   345  0.0800   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK ME8_3
KM   3.07 AC
BA0.0048
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.550
UK   675  0.1640   0.600  100.00
RD   100  0.1700   0.060           TRAP     0.1     2.0
ZW C=FLOW
*
KKYME8_3
KM  0
```

```
HC     2
ZW C=FLOW
*
KK YME83
KM  0
HC     2
ZW C=FLOW
*
KK MD13B
KM  MD13B
BA0.0392
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.400
UK   500  0.4770   0.600  100.00
RD  5450  0.3010   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD13B
KM  0
HC     2
ZW C=FLOW
*
KK  MD14
KM     MD14
BA0.0060
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.360
UK   663  0.1650   0.600  100.00
RD   280  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MD14A
KM  MD14A
BA0.0009
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.300
UK   663  0.1650   0.600  100.00
RD   280  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD14A
KM  0
HC     2
ZW C=FLOW
*
KKYD14AC
KM  0
HC     2
ZW C=FLOW
*
KK ME3_5
KM  ME3_5
BA0.0007
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.240    0.10  0.2500  92.240
UK   300  0.1000   0.600      65
UK   300  0.1000   0.240      35
RD  1500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME3_5
KM  0
HC     2
ZW C=FLOW
*
KK  MD15
KM    MD15
BA0.0073
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.660
UK   870  0.1590   0.600  100.00
RD   140  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MD15A
KM  MD15A
BA0.0002
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.290
UK   870  0.1590   0.600  100.00
RD   140  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
```

```
*
KKYMD15A
KM  0
HC      2
ZW C=FLOW
*
KK MD16A
KM  MD16A
BA0.0036
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.190
UK   772  0.1250   0.600  100.00
RD   150  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD16A
KM  0
HC      2
ZW C=FLOW
*
KK  MD16
KM     MD16
BA0.0063
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.450
UK   772  0.1250   0.600  100.00
RD   150  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD16
KM  0
HC      2
ZW C=FLOW
*
KKYMD16C
KM  0
HC      2
ZW C=FLOW
*
KK MD13C
KM  MD13C
BA0.0068
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.950
UK   500  0.4770   0.600  100.00
RD  5450  0.3010   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD13C
KM  0
HC      2
ZW C=FLOW
*
KK  MD20
KM     MD20
BA0.0020
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.070
UK   740  0.0500   0.600  100.00
RD   180  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD20
KM  0
HC      2
ZW C=FLOW
*
KKYD13CC
KM  0
HC      2
ZW C=FLOW
*
KK  ME3B
KM     ME3B
BA0.0182
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  89.910    0.10  0.2500  89.910
UK   300  0.1000   0.600      65
UK   300  0.1000   0.240      35
RD  1500  0.1000   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
* - - - - - -
*
```

```
*
KKGS31B1
KM    GS31B1
BA0.0029
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.870    0.10  0.2500  95.000
UK   580  0.0380   0.600      90
UK    50  0.0200   0.110      10
RD   275  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKGS31B2
KM    GS31B2
BA0.0047
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.790    0.10  0.2500  95.000
UK   690  0.0570   0.600      90
UK    50  0.0200   0.110      10
RD   340  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKGS31B3
KM    GS31B3
BA0.0056
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.680    0.10  0.2500  95.000
UK   530  0.0600   0.600      90
UK    50  0.0200   0.110      10
RD   250  0.0400   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYGS311
KM  0
HC     3
ZW C=FLOW
*
KKGS31B4
KM    GS31B4
BA0.0012
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.540    0.10  0.2500  95.000
UK   250  0.0480   0.600      90
UK    50  0.0200   0.110      10
RD   150  0.0400   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKGS31B5
KM    GS31B5
BA0.0056
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.520    0.10  0.2500  95.000
UK   500  0.0500   0.600      90
UK    50  0.0200   0.110      10
RD   350  0.0400   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYGS312
KM  0
HC     3
ZW C=FLOW
*
KKYS31BC
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK ME8_1
KM   0.48 AC
BA0.0007
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.390
UK   180  0.0660   0.600  100.00
RD    80  0.0600   0.060            TRAP     0.1     2.0
ZW C=FLOW
*
KK ME3_1
KM  ME3_1
BA0.0009
PB
```

```
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.360    0.10  0.2500  93.360
UK   300  0.1000   0.600      65
UK   300  0.1000   0.240      35
RD  1500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME3_1
KM  0
HC     2
ZW C=FLOW
*
KK ME3_2
KM  ME3_2
BA0.0024
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.350    0.10  0.2500  93.350
UK   300  0.1000   0.600      65
UK   300  0.1000   0.240      35
RD  1500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME3_2
KM  0
HC     2
ZW C=FLOW
*
KK ME3_3
KM  ME3_3
BA0.0031
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.010    0.10  0.2500  93.010
UK   300  0.1000   0.600      65
UK   300  0.1000   0.240      35
RD  1500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME3_3
KM  0
HC     2
ZW C=FLOW
*
KK ME3_4
KM  ME3_4
BA0.0024
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.670    0.10  0.2500  92.670
UK   300  0.1000   0.600      65
UK   300  0.1000   0.240      35
RD  1500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME3_4
KM  0
HC     2
ZW C=FLOW
*
KK  MD21
KM     MD21
BA0.0033
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.860
UK   640  0.0500   0.600  100.00
RD   150  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD21
KM  0
HC     2
ZW C=FLOW
*
KK ME3C3
KM  ME3C3
BA0.0066
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.960    0.10  0.2500  90.960
UK   300  0.1000   0.600      65
UK   300  0.1000   0.240      35
RD  1500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME3C3
KM  0
```

```
HC     2
ZW C=FLOW
*
KK ME3C1
KM  ME3C1
BA0.0016
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.020    0.10  0.2500  91.020
UK   300  0.1000   0.600      65
UK   300  0.1000   0.240      35
RD  1500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME3C1
KM  0
HC     2
ZW C=FLOW
*
KKYME3CC
KM  0
HC     2
ZW C=FLOW
*
KK  ME4A
KM     ME4A
BA0.0939
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2320  89.130    0.10  0.2320  89.130
UK   500  0.1200   0.600      90
UK   300  0.1200   0.240      10
RD  2500  0.1000   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
* - - - - - -
*
*
KKME6_11
KM   0.13 AC
BA0.0002
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.280
UK    30  0.0200   0.110  100.00
RD    95  0.0600   0.060            TRAP     0.1    50.0
ZW C=FLOW
*
KKME6_10
KM   0.21 AC
BA0.0003
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.260
UK    30  0.0200   0.110  100.00
RD   235  0.0600   0.060            TRAP     0.1    50.0
ZW C=FLOW
*
KKYME610
KM  CME610
HC     2
ZW C=FLOW
*
KKME6_25
KM   7.81 AC
BA0.0094
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.750
UK   125  0.1600   0.600  100.00
RD   235  0.1149   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME625
KM  0
HC     2
ZW C=FLOW
*
KKME6_33
KM  ME6_33
BA0.0026
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.580
UK   330  0.0530   0.600  100.00
RD   522  0.0880   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
```

```
KKYME633
KM  0
HC     2
ZW C=FLOW
*
KKME6_26
KM   0.43 AC
BA0.0008
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.140
UK   200  0.1300   0.600  100.00
RD   205  0.1268   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME626
KM  0
HC     2
ZW C=FLOW
*
KK ME7_1
KM   8.34 AC
BA0.0127
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.230
UK   470  0.2468   0.600  100.00
RD   340  0.1471   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME7_1
KM  CME7_1
HC     2
ZW C=FLOW
*
KK ME7_2
KM   0.25 AC
BA0.0004
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.680
UK    30  0.0200   0.110  100.00
RD   620  0.0800   0.060            TRAP     0.1    50.0
ZW C=FLOW
*
KKYME7_2
KM  0
HC     2
ZW C=FLOW
*
KK ME7D6
KM  ME7D6
BA0.0060
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.130    0.10  0.2500  92.130
UK   500  0.1800   0.600      75
UK   300  0.1800   0.240      25
RD  1000  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME7D6
KM  0
HC     2
ZW C=FLOW
*
KKME7D14
KM  ME7D14
BA0.0037
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.380
UK   150  0.1300   0.600  100.00
RD   300  0.1200   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKME7D16
KM  ME7D16
BA0.0018
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.480
UK   177  0.0450   0.600  100.00
RD   430  0.1200   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKME7D15
KM  ME7D15
```

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BA0.0031
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.450
UK   175  0.0570   0.600  100.00
RD   570  0.1100   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYM7D14
KM  0
HC     2
ZW C=FLOW
*
KKME7D24
KM  ME7D24
BA0.0022
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.150
UK   144  0.0900   0.600  100.00
RD   270  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYM7D24
KM  0
HC     2
ZW C=FLOW
*
KKME4B13
KM  ME4B13
BA0.0056
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.030
UK   270  0.0200   0.600  100.00
RD   515  0.0540   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYM4B13
KM  0
HC     2
ZW C=FLOW
*
KK ME7C4
KM  ME7C4
BA0.0054
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.820    0.10  0.2500  91.820
UK   500  0.1500   0.600       5
UK   300  0.1500   0.240      95
RD  1000  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK ME7C5
KM  ME7C5
BA0.0061
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.020    0.10  0.2500  92.020
UK   500  0.1500   0.600       5
UK   300  0.1500   0.240      95
RD  1000  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME7C5
KM  0
HC     2
ZW C=FLOW
*
KK ME4B3
KM  ME4B3
BA0.0029
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.340    0.10  0.2500  91.340
UK   300  0.0500   0.600      15
UK   300  0.0500   0.240      85
RD  2000  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME4B3
KM  0
HC     2
ZW C=FLOW
*
*
KKUE4BDT
```

```
KM  0
RS     1    FLOW      -1
SV  0.00    0.15    0.30    0.45
SQ   0.0   100.0   200.0   300.0
ZW C=FLOW
*
KKME4B12
KM  ME4B12
BA0.0065
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.960
UK   430  0.0180   0.600  100.00
RD   720  0.0700   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME4BC
KM  0
HC     2
ZW C=FLOW
*
KKYM4BCC
KM  0
HC     2
ZW C=FLOW
*
KKME4B23
KM  ME4B23
BA0.0088
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.610
UK   210  0.0700   0.600  100.00
RD   400  0.0600   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKME4B22
KM  ME4B22
BA0.0074
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.530
UK   220  0.1000   0.600  100.00
RD   720  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK ME3C2
KM  ME3C2
BA0.0032
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.130    0.10  0.2500  91.130
UK   300  0.1600   0.600      60
UK   300  0.1600   0.240      40
RD  1500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKME4B11
KM  ME4B11
BA0.0049
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.660
UK   340  0.0530   0.600  100.00
RD   530  0.0750   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKME4B21
KM  ME4B21
BA0.0024
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.440
UK   220  0.1000   0.600  100.00
RD   720  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKME4B10
KM  ME4B-10
BA0.0027
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.680
UK   150  0.0800   0.600  100.00
RD   275  0.0700   0.060           TRAP     10.0    10.0
ZW C=FLOW
*
```

```
KK  ME4B
KM     ME4B
BA0.0055
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.370    0.10  0.2500  90.370
UK   300  0.0500   0.600      15
UK   300  0.0500   0.240      85
RD  2000  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YME4B
KM  0
HC     2
ZW C=FLOW
*
KKYME4CC
KM  0
HC     3
ZW C=FLOW
*
KKYM4CCC
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KKMG3_3B
KM  MG3_3B
BA0.1460
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  99.280
UK   575  0.2250   0.600  100.00
RD   925  0.2260   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKMG3_3C
KM  MG3_3C
BA0.0127
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  95.890
UK   575  0.2250   0.600  100.00
RD   925  0.2260   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMG_3C
KM  0
HC     2
ZW C=FLOW
*
KKME6_12
KM   14.48 AC
BA0.0096
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  95.830
UK   600  0.2950   0.600  100.00
RD  1920  0.2495   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME_12
KM  0
HC     2
ZW C=FLOW
*
KKME6_16
KM   10.41 AC
BA0.0002
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.700
UK   600  0.2950   0.600  100.00
RD  1595  0.3003   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME_16
KM  0
HC     2
ZW C=FLOW
*
KKME6_18
KM   2.92 AC
BA0.0046
PB
* PI
```

```
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.430
UK   150  0.2133   0.600  100.00
RD   155  0.1032   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYME_18
KM  0
HC     2
ZW C=FLOW
*
KKME6_20
KM   3.75 AC
BA0.0060
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.390
UK   200  0.2100   0.600  100.00
RD   155  0.2330   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKME6_24
KM   0.70 AC
BA0.0026
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.870
UK   305  0.0910   0.600  100.00
RD   120  0.0300   0.060           TRAP     0.1    50.0
ZW C=FLOW
*
KKYME_24
KM  0
HC     3
ZW C=FLOW
*
KKME6_23
KM   4.19 AC
BA0.0065
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.220
UK   200  0.1700   0.600  100.00
RD   265  0.1060   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKME6_32
KM   0.39 AC
BA0.0006
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.940
UK    24  0.0200   0.110  100.00
RD   415  0.0800   0.060           TRAP     0.1    50.0
ZW C=FLOW
*
KKYME_32
KM  0
HC     2
ZW C=FLOW
*
KKME6_28
KM   4.93 AC
BA0.0077
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.630
UK   355  0.1130   0.600  100.00
RD   590  0.1010   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK ME627
KM   1.77 AC
BA0.0027
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.570
UK   120  0.1070   0.600  100.00
RD   400  0.1057   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYME627
KM  0
HC     2
ZW C=FLOW
*
KKME6_29
KM   1.37 AC
```

```
BA0.0021
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.270
UK   370  0.1140   0.600  100.00
RD   335  0.0930   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYME_29
KM  0
HC     2
ZW C=FLOW
*
KKME6_30
KM   1.27 AC
BA0.0020
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.980
UK   295  0.0880   0.600  100.00
RD   195  0.0790   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKME6A25
KM  ME6A25
BA0.0029
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.960
UK   330  0.0530   0.600  100.00
RD   522  0.0880   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYM6A25
KM  0
HC     2
ZW C=FLOW
*
KK  ME7B
KM     ME7B
BA0.0270
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.690    0.10  0.2500  90.690
UK   400  0.0500   0.600      75
UK   300  0.0500   0.240      25
RD  1500  0.1000   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
*
KKUE7BDT
KM  0
RS     1    FLOW      -1
SV  0.00    0.15    0.30    0.45
SQ   0.0   100.0   200.0   300.0
ZW C=FLOW
*
KK  ME7A
KM     ME7A
BA0.1404
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2270  87.810    0.10  0.2270  87.810
UK  1300  0.1920   0.600      10
UK   300  0.1900   0.240      90
RD  3000  0.1000   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYME7AC
KM  0
HC     2
ZW C=FLOW
*
KK YGSMC
KM  0
HC     2
ZW C=FLOW
*
KKVGSMCR
KM  0
RD  2000  0.0100   0.040           TRAP    10.0    10.0
ZW C=FLOW
*
KK   MF1
KM     MF1
BA0.3780
PB
* PI
BF    -1  -0.001    1.50
```

```
LU  0.10  0.2050  88.710
UK  1500  0.0870   0.600  100.00
RD  2000  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YMF1C
KM  0
HC     2
ZW C=FLOW
*
KKVMF1CR
KM  0
RD  2000  0.0100   0.040           TRAP    10.0    10.0
ZW C=FLOW
*
KK   MF2
KM     MF2
BA0.0582
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2470  87.090
UK  1000  0.0700   0.600  100.00
RD  2000  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YMF2C
KM  0
HC     2
ZW C=FLOW
*
KKVMF2CR
KM  0
RD  3000  0.0100   0.040           TRAP    10.0    10.0
ZW C=FLOW
*
* - - - - - -
*
*
KKMD4_1A
KM     MD4
BA0.1899
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  98.760
UK  1500  0.2830   0.600  100.00
RD  1100  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKMG4_1B
KM     6.35 AC
BA0.0100
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  94.660
UK   500  0.3500   0.600  100.00
RD   491  0.4296   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKMG5_2A
KM   8.61 AC
BA0.0134
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  95.360
UK   600  0.2033   0.600  100.00
RD  1065  0.3014   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMG52A
KM  0
HC     3
ZW C=FLOW
*
KK MG3_1
KM   1.78 AC
BA0.0028
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  94.860
UK   500  0.2800   0.600  100.00
RD  1070  0.3293   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKMG3_1A
KM   1.00 AC
BA0.0016
PB
* PI
BF    -1  -0.001    1.50
```

```
LU  0.10  0.2500  93.450
UK   498  0.2800   0.600  100.00
RD   575  0.3270   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMG31A
KM  0
HC     2
ZW C=FLOW
*
KKMG3_1C
KM   1.47 AC
BA0.0023
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  95.300
UK   498  0.2811   0.600  100.00
RD   567  0.3422   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMG31C
KM  0
HC     2
ZW C=FLOW
*
KK MG3_6
KM   0.09 AC
BA0.0002
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.010
UK    30  0.0200   0.110  100.00
RD   360  0.0120   0.060           TRAP     0.1     1.0
ZW C=FLOW
*
KK YMG36
KM  0
HC     2
ZW C=FLOW
*
KK MG4_2
KM   4.61 AC
BA0.0072
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  94.510
UK   500  0.2840   0.600  100.00
RD   535  0.3551   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YMG42
KM  0
HC     2
ZW C=FLOW
*
KKMG4_3B
KM  MG4_3B
BA0.0002
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.000    0.10  0.2500  93.000
UK  2300  0.3260   0.600      95
UK   600  0.2500   0.240       5
RD  2500  0.1000   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMG43B
KM  0
HC     2
ZW C=FLOW
*
KKMG4_3A
KM   0.07 AC
BA0.0001
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.030
UK    30  0.0200   0.110  100.00
RD   250  0.0098   0.060           TRAP     0.1     1.0
ZW C=FLOW
*
KKYMG43A
KM  0
HC     2
ZW C=FLOW
*
KKMG5_2B
KM   0.06 AC
BA0.0001
```

```
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.300
UK    12  0.0100   0.600  100.00
RD   400  0.0500   0.060           TRAP    10.0    50.0
ZW C=FLOW
*
KK MG4_4
KM   0.10 AC
BA0.0002
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.220
UK    30  0.0200   0.110  100.00
RD   350  0.0098   0.060           TRAP     0.1     1.0
ZW C=FLOW
*
KK YMG44
KM  0
HC     2
ZW C=FLOW
*
KKMG4_5C
KM  MG4_5C
BA0.0078
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.580    0.10  0.2500  92.580
UK  2300  0.3260   0.600      95
UK   600  0.2500   0.240       5
RD  2500  0.1000   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMG45C
KM  0
HC     4
ZW C=FLOW
*
KKMG5_1A
KM   18.98 AC
BA0.0296
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  96.080
UK   600  0.1550   0.600  100.00
RD  1820  0.2357   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKMG5_1B
KM  MG5_1B
BA0.0090
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  94.550    0.10  0.2500  94.550
UK   200  0.1000   0.600       5
UK   200  0.1000   0.240      95
RD   500  0.1000   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMG51B
KM  0
HC     2
ZW C=FLOW
*
KK MG5_3
KM   0.04 AC
BA0.0001
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.010
UK    30  0.0200   0.110  100.00
RD   300  0.0775   0.060           TRAP     0.1     1.0
ZW C=FLOW
*
KK MG5_4
KM   0.15 AC
BA0.0003
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.810
UK    30  0.0200   0.110  100.00
RD   300  0.0775   0.060           TRAP     0.1     1.0
ZW C=FLOW
*
KK YMG54
KM  0
HC     3
```

```
ZW C=FLOW
*
KK MG5_5
KM  MG5_5
BA0.0024
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.840    0.10  0.2500  92.840
UK   200  0.1000   0.600       5
UK   200  0.1000   0.240      95
RD   500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMG55
KM  0
HC     2
ZW C=FLOW
*
KKYMG55C
KM  0
HC     2
ZW C=FLOW
*
KKMG3_3A
KM   8.25 AC
BA0.0129
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  95.330
UK   575  0.2250   0.600  100.00
RD   925  0.2260   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MG3_2
KM   2.58 AC
BA0.0040
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.980
UK   390  0.2051   0.600  100.00
RD   370  0.3000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MG3_4
KM   014 AC
BA0.0002
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.970
UK    30  0.0200   0.110  100.00
RD   300  0.0691   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
KK YMG34
KM  0
HC     3
ZW C=FLOW
*
KKMG3_1B
KM   0.87 AC
BA0.0014
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  94.250
UK   500  0.2800   0.600  100.00
RD   300  0.3467   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKMG3_1D
KM   0.57 AC
BA0.0009
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.700
UK   504  0.2778   0.600  100.00
RD   360  0.3083   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MG3_5
KM   0.07 AC
BA0.0001
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.910
UK    30  0.0200   0.110  100.00
RD   350  0.0094   0.060            TRAP     0.1     1.0
ZW C=FLOW
```

```
*
KK YMG35
KM  0
HC     3
ZW C=FLOW
*
KKMG3_5A
KM  MG3_5A
BA0.0073
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.610
UK   575  0.2250   0.600  100.00
RD   925  0.2260   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMG35A
KM  0
HC     3
ZW C=FLOW
*
KK ME6_1
KM   10.24 AC
BA0.0082
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.610
UK   310  0.1740   0.600  100.00
RD   250  0.1640   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK ME6_2
KM   1.28 AC
BA0.0099
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.650
UK   505  0.1940   0.600  100.00
RD   235  0.0800   0.060            TRAP     0.1    50.0
ZW C=FLOW
*
KK ME6_3
KM   0.02 AC
BA0.0003
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.860
UK    15  0.0200   0.600  100.00
RD   235  0.0800   0.060            TRAP     0.1    50.0
ZW C=FLOW
*
KKYM6123
KM  0
HC     3
ZW C=FLOW
*
KK ME6_5
KM   1.40 AC
BA0.0022
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.760
UK   160  0.1500   0.600  100.00
RD   365  0.0800   0.060            TRAP     0.1    50.0
ZW C=FLOW
*
KK YME65
KM  0
HC     2
ZW C=FLOW
*
KK ME6_7
KM   0.81 AC
BA0.0013
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.640
UK   190  0.1680   0.600  100.00
RD   145  0.1100   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YME67
KM  0
HC     2
ZW C=FLOW
*
KK ME6_8
KM    .44 AC
```

```
BA0.0007
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.310
UK    20  0.0200   0.600  100.00
RD   555  0.0560   0.060            TRAP    10.0    50.0
ZW C=FLOW
*
KK YME68
KM  0
HC     2
ZW C=FLOW
*
KK MG1_2
KM   0.67 AC
BA0.0010
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.850
UK   100  0.1400   0.600  100.00
RD   255  0.1686   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MG1_3
KM   1.89 AC
BA0.0025
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.150
UK   300  0.0700   0.600  100.00
RD   205  0.2293   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MG1_1
KM   1.38 AC
BA0.0026
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.360
UK   185  0.1946   0.600  100.00
RD   205  0.0600   0.060            TRAP     0.1     2.0
ZW C=FLOW
*
KK MG1_4
KM   0.18 AC
BA0.0003
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.720
UK    30  0.0200   0.110  100.00
RD   295  0.0800   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
KKYG1234
KM  0
HC     5
ZW C=FLOW
*
KKMG3_33
KM  MG3_33
BA0.0087
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.100
UK   575  0.2250   0.600  100.00
RD   925  0.2260   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMG33
KM  0
HC     2
ZW C=FLOW
*
KKME6_8A
KM  ME6_8A
BA0.0006
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.680
UK   330  0.0530   0.600  100.00
RD   522  0.0880   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME68A
KM  0
HC     3
ZW C=FLOW
```

```
*
KK   MG2
KM     MG2
BA0.1195
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2450  89.250    0.10  0.2450  89.250
UK   700  0.1430   0.600      90
UK   700  0.1400   0.240      10
RD  1500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  YMG2
KM  0
HC     3
ZW C=FLOW
*
* - - - - - -
*
*
KK ME6_6
KM   0.16 AC
BA0.0003
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.630
UK    30  0.0200   0.110  100.00
RD   340  0.0800   0.060            TRAP     0.1    50.0
ZW C=FLOW
*
KKME6_21
KM   2.50 AC
BA0.0039
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.490
UK   200  0.1250   0.600  100.00
RD   235  0.1490   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKME6_31
KM   0.44 AC
BA0.0007
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.190
UK    24  0.0200   0.110  100.00
RD   480  0.0800   0.060            TRAP     0.1    50.0
ZW C=FLOW
*
KKYME631
KM  0
HC     3
ZW C=FLOW
*
KKMG1B19
KM  MG1B19
BA0.0072
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.770
UK   150  0.0400   0.600  100.00
RD   780  0.1300   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKMG1B20
KM  MG1B20
BA0.0039
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.640
UK   240  0.0800   0.600  100.00
RD   710  0.1200   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  ME6A
KM     ME6A
BA0.0030
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.640    0.10  0.2500  91.640
UK   300  0.1200   0.600      50
UK   300  0.1200   0.240      50
RD  1500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YME6A
```

```
KM  0
HC     3
ZW C=FLOW
*
KKMG1B26
KM  MG1B26
BA0.0038
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.990
UK   250  0.0960   0.600  100.00
RD   550  0.0910   0.060           TRAP    10.0    10.0      YES
ZW C=FLOW
*
KK  MG1B
KM     MG1B
BA0.0119
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.940    0.10  0.2500  90.940
UK   300  0.1000   0.600      50
UK   200  0.1000   0.240      50
RD   800  0.1000   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKME6A27
KM  ME6A27
BA0.0094
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.550
UK   230  0.0950   0.600  100.00
RD   520  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YMG1B
KM  0
HC     3
ZW C=FLOW
*
KK  MG1A
KM     MG1A
BA0.0185
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.220    0.10  0.2500  90.220
UK   200  0.1000   0.600      50
UK   200  0.1000   0.240      50
RD  1000  0.1000   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YMG1A
KM  0
HC     2
ZW C=FLOW
*
KK YMGCC
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK MG5B1
KM  MG5B1
BA0.1242
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  94.560    0.10  0.2500  94.560
UK   200  0.1000   0.600       5
UK   200  0.1000   0.240      95
RD   500  0.1000   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK MG5A2
KM  MG5A2
BA0.0613
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.400    0.10  0.2500  92.400
UK   200  0.1000   0.600       5
UK   200  0.1000   0.240      95
RD   500  0.1000   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMG5A2
KM  0
```

```
HC     2
ZW C=FLOW
*
KK  MG6B
KM     MG6B
BA0.0479
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2010  90.560    0.10  0.2010  90.560
UK  1000  0.2500   0.600      85
UK   400  0.2500   0.240      15
RD  1500  0.1000   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK MG5A1
KM  MG5A1
BA0.0134
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.690    0.10  0.2500  90.690
UK   200  0.1000   0.600       5
UK   200  0.1000   0.240      95
RD   500  0.1000   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMG5A1
KM  0
HC     2
ZW C=FLOW
*
KK YMGCC
KM  0
HC     2
ZW C=FLOW
*
KK   MG7
KM     MG7
BA0.1439
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2070  86.820
UK   600  0.2500   0.600  100.00
RD  3500  0.0100   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK NS24A
KM  NS24A
BA0.0297
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.450
UK   900  0.1000   0.600  100.00
RD  1000  0.1000   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK NS24B
KM  NS24B
BA0.0120
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  87.960
UK   300  0.1000   0.600  100.00
RD   500  0.1000   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS24B
KM  0
HC     2
ZW C=FLOW
*
KK NS24C
KM  NS24C
BA0.0400
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.1820  85.860
UK   800  0.1000   0.600  100.00
RD  1000  0.1000   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS24C
KM  0
HC     3
ZW C=FLOW
*
KK  NS25
KM  NS25
BA0.0370
```

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PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2490  87.120
UK   800  0.0500   0.600  100.00
RD  1200  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YNS25
KM  0
HC     2
ZW C=FLOW
*
KK  NS26
KM  NS26
BA0.1102
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.1220  85.260
UK  1000  0.0500   0.600  100.00
RD  1500  0.0200   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YNS26
KM  0
HC     3
ZW C=FLOW
*
*
KKUW4END
KM  ROUTE FOR BACKWATER AT NW4
RS     1    FLOW      -1
SV  0.00    0.46    1.70    6.66    46.3     520
SQ   0.0   178.0    1833    2500    4382    8550
ZW C=FLOW
*
* - - - - - -
*
*
KK NS22A
KM  NS22A
BA0.0103
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.780
UK   750  0.1000   0.600  100.00
RD  1000  0.1000   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK NS22C
KM  NS22C
BA0.0063
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  88.980
UK   300  0.1000   0.600  100.00
RD   500  0.1000   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS22C
KM  0
HC     2
ZW C=FLOW
*
KK NS23A
KM  NS23A
BA0.0374
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.1900  86.340
UK   950  0.0700   0.600  100.00
RD  1100  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS23A
KM  0
HC     2
ZW C=FLOW
*
KK  NS27
KM  NS27
BA0.0574
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.1000  85.020
UK   830  0.0300   0.600  100.00
RD  1000  0.0200   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
```

```
KK YNS27
KM  0
HC     4
ZW C=FLOW
*
KK NS28B
KM  NS28B
BA0.0417
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.1000  84.540
UK   500  0.0100   0.600  100.00
RD  1000  0.0100   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  E85Z
KM  E85Z
BA0.0291
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  87.000
UK   400  0.0200   0.600  100.00
RD   500  0.0500   0.060            TRAP    20.0    10.0
ZW C=FLOW
*
KKYNS28B
KM  0
HC     3
ZW C=FLOW
*
KK NS28A
KM  NS28A
BA0.0415
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.1000  85.230
UK   500  0.0100   0.600  100.00
RD  1000  0.0100   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS28A
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK  NS22
KM  NS22
BA0.2037
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.040
UK  2100  0.0800   0.600  100.00
RD  2500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  NS31
KM  NS31
BA0.0592
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.140
UK  1250  0.1000   0.600  100.00
RD  1300  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YNS31
KM  0
HC     2
ZW C=FLOW
*
KK NS22B
KM  NS22B
BA0.0098
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.140
UK   500  0.1000   0.600  100.00
RD   500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS22B
KM  0
HC     2
ZW C=FLOW
*
```

```
KK NS23B
KM  NS23B
BA0.1061
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.1910  85.980
UK  1350  0.0500   0.600  100.00
RD  1500  0.0200   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS23B
KM  0
HC     2
ZW C=FLOW
*
KK NS32A
KM  NS32A
BA0.0191
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.680
UK   500  0.1000   0.600  100.00
RD  1000  0.1000   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK NS32B
KM  NS32B
BA0.1481
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.1650  85.650
UK  1500  0.0800   0.600  100.00
RD  2500  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS32B
KM  0
HC     3
ZW C=FLOW
*
KK   NS1
KM   BASIN 1 - 330 Ac
BA0.5174
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.1780 100.000    0.10  0.1780 100.000
UK  3300  0.2400   0.800      57
UK  3300  0.2400   0.600      43
RD  2800  0.1800   0.060           TRAP     5.0     3.0
RD  2800  0.0010   0.060           TRAP     5.0     3.0
ZW C=FLOW
*
*
KKUR-NS1
KM   ROUTE NS-1
RS     1    FLOW      -1
SV  0.70    1.10    1.50    1.90    2.20    2.80    3.90    4.90
SQ 100.0   200.0   300.0   400.0   500.0   700.0  1100.0  1500.0
ZW C=FLOW
*
KK   NS2
KM   BASIN 2 - 267 Ac
BA0.4184
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500 100.000    0.10  0.2500 100.000
UK  2800  0.2500   0.800      54
UK  2800  0.2500   0.600      46
RD  2200  0.1600   0.060           TRAP     5.0     3.0
RD  2200  0.0010   0.060           TRAP     5.0     3.0
ZW C=FLOW
*
KKYCMB-2
KM   COMBINE NS-1 & 2
HC     2
ZW C=FLOW
*
*
KKUCMB-2
KM   ROUTE CMB-2
RS     1    FLOW      -1
SV  0.70    1.00    1.40    1.70    2.00    2.50    3.40    4.30
SQ 100.0   200.0   300.0   400.0   500.0   700.0  1100.0  1500.0
ZW C=FLOW
*
KK   NS3
KM   BASIN 3 - 331 Ac
BA0.5218
PB
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* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500 100.000    0.10  0.2500 100.000
UK  2950  0.1800   0.240       3
UK  2950  0.1800   0.600      98
RD  3000  0.2000   0.060            TRAP     5.0     3.0
RD  3000  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKYCMB-3
KM   COMBINE NS-1 THRU 3
HC     2
ZW C=FLOW
*
*
KKUCMB-3
KM   ROUTE CMB-3
RS     1    FLOW      -1
SV  1.40    2.30    3.00    3.70    4.20    5.70    7.70    9.20
SQ 100.0   200.0   300.0   400.0   500.0   700.0  1100.0  1500.0
ZW C=FLOW
*
KK   NS4
KM   BASIN 4 - 166 Ac
BA0.2602
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  97.270    0.10  0.2500  97.270
UK  2110  0.2200   0.240      29
UK  2110  0.2200   0.600      71
RD  2500  0.1000   0.060            TRAP     5.0     3.0
RD  2500  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKYCMB-4
KM   COMBINE NS-1 THRU 4
HC     2
ZW C=FLOW
*
*
KKUCMB-4
KM   ROUTE CMB-4
RS     1    FLOW      -1
SV  0.20    0.30    0.40    0.40    0.50    0.60    2.20    2.90
SQ 100.0   200.0   300.0   400.0   500.0   700.0  1100.0  1500.0
ZW C=FLOW
*
KK   NS5
KM   BASIN 5 - 21 Ac
BA0.0319
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  95.200    0.10  0.2500  95.200
UK  1400  0.2500   0.240      36
UK  1400  0.2500   0.600      64
RD   700  0.1400   0.060            TRAP     5.0     3.0
RD   700  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKYCMB-5
KM   COMBINE NS-1 THRU 5
HC     2
ZW C=FLOW
*
*
KKUCMB-5
KM   ROUTE CMB-5
RS     1    FLOW      -1
SV  0.40    0.60    0.80    1.10    1.30    1.60    2.30    2.90
SQ 100.0   200.0   300.0   400.0   500.0   700.0  1100.0  1500.0
ZW C=FLOW
*
KK   NS6
KM   BASIN 6 - 178 Ac
BA0.2162
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  96.850    0.10  0.2500  96.850
UK  3100  0.2700   0.240      71
UK  3100  0.2700   0.600      29
RD  3100  0.1600   0.060            TRAP     5.0     3.0
RD  3100  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKVR-NS6
KM   ROUTE NS-6
RD   970  0.0700   0.015            TRAP     1.0     1.0
ZW C=FLOW
*
KK   NS7
KM   BASIN 7 - 38 Ac
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BA0.0602
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.620    0.10  0.2500  93.620
UK  1570  0.1900   0.240      69
UK  1570  0.1900   0.600      31
RD   800  0.0800   0.060            TRAP     2.0     1.0
RD   800  0.0010   0.060            TRAP     2.0     1.0
ZW C=FLOW
*
KKYCMB-7
KM   COMBINE NS-6 & 7
HC     2
ZW C=FLOW
*
KKYMB-7A
KM   COMBINE NS-1 THRU 7
HC     2
ZW C=FLOW
*
*
KKUCMB7A
KM   ROUTE CMB-7A
RS     1    FLOW      -1
SV  0.60    1.10    1.40    1.70    2.10    2.60    3.60    4.60
SQ 100.0   200.0   300.0   400.0   500.0   700.0  1100.0  1500.0
ZW C=FLOW
*
KK   NS8
KM   BASIN 8 - 673 Ac
BA1.1304
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2390 100.000    0.10  0.2390 100.000
UK  4200  0.2100   0.800      92
UK  4200  0.2100   0.600       9
RD  1900  0.0800   0.060            TRAP     5.0     3.0
RD  1900  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
*
KKURES-A
KM   RESERVOIR A
RS     1    FLOW      -1
SV  0.00    3.40    6.80   10.20   13.60   17.00   20.40   23.80   27.20   34.00
SQ   0.0    23.9    67.5   124.0   190.0   266.0   350.0   441.0   540.0   754.0
ZW C=FLOW
*
KKV-RESA
KM   ROUTE RES-A
RD  1400  0.1100   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KK   NS9
KM   BASIN 9 - 144 Ac
BA0.1855
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2490  98.370
UK  4400  0.2000   0.600  100.00
RD  1200  0.1100   0.060            TRAP     5.0     3.0
RD  1200  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKYCMB-9
KM   COMBINE NS-8 & 9
HC     2
ZW C=FLOW
*
KKVCMB-9
KM   ROUTE CMB-9
RD  2800  0.1100   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KK  NS10
KM   BASIN 10 - 214 Ac
BA0.3581
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2230  96.570
UK  3905  0.2000   0.600  100.00
RD  2200  0.0900   0.060            TRAP     5.0     3.0
RD  2200  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKYMB-10
KM   COMBINE NS-8 THRU 10
HC     2
ZW C=FLOW
*
```

```
KKVCMB10
KM   ROUTE CMB-10
RD  3600  0.0800   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KK  NS11
KM   BASIN 11 - 60 Ac
BA0.0389
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2490  95.590    0.10  0.2490  95.590
UK  1600  0.3400   0.240       6
UK  1600  0.3400   0.600      95
RD  3600  0.0800   0.060            TRAP     5.0     3.0
RD  3600  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKYMB-11
KM   COMBINE NS-8 THRU 11
HC     2
ZW C=FLOW
*
KKYMB11A
KM   COMBINE NS-1 THRU 11
HC     2
ZW C=FLOW
*
*
KKUCM11A
KM   ROUTE CMB11A
RS     1    FLOW      -1
SV  0.20    0.30    0.50    0.60    0.70    0.90    1.20    1.60
SQ 100.0   200.0   300.0   400.0   500.0   700.0  1100.0  1500.0
ZW C=FLOW
*
KK NS11B
KM   BASIN 11 - 60 Ac
BA0.0546
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.700    0.10  0.2500  92.700
UK  1600  0.3400   0.240       6
UK  1600  0.3400   0.600      95
RD  3600  0.0800   0.060            TRAP     5.0     3.0
RD  3600  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKYNS11B
KM  0
HC     2
ZW C=FLOW
*
KK  NS12
KM   BASIN 12 - 40 Ac
BA0.0619
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.100    0.10  0.2500  92.100
UK   400  0.1000   0.240      71
UK   400  0.1000   0.800      30
RD  1500  0.0700   0.060            TRAP     5.0     3.0
RD  1500  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKYMB-12
KM   COMBINE NS-1 THRU 12
HC     2
ZW C=FLOW
*
KK  NS13
KM   BASIN 13 - 15 Ac
BA0.1459
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  94.520    0.10  0.2500  98.000
UK   500  0.1600   0.240      86
UK   500  0.1600   0.110      14
RD   900  0.1300   0.060            TRAP     5.0     3.0
RD   900  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKV-NS13
KM   ROUTE NS-13
RD  1400  0.0800   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KK  NS14
KM   BASIN 14 - 47 Ac
BA0.0434
PB
```

```
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.610    0.10  0.2500  98.000
UK   775  0.3500   0.240      90
UK   775  0.3500   0.110      10
RD   800  0.0600   0.060            TRAP     5.0     3.0
RD   800  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKYMB-14
KM   COMBINE NS-13 & 14
HC     2
ZW C=FLOW
*
KK NS14B
KM  NS14B
BA0.0204
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.760
UK   500  0.1000   0.600  100.00
RD   500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMB14A
KM   COMBINE NS-1 THRU 14
HC     3
ZW C=FLOW
*
KK NS20B
KM  NS20B
BA0.0322
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  93.580
UK   640  0.1000   0.600  100.00
RD  1000  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  NS15
KM  NS15
BA0.0860
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.030
UK  1000  0.0800   0.600  100.00
RD  1500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YNS15
KM  0
HC     2
ZW C=FLOW
*
KKYNS15C
KM  0
HC     2
ZW C=FLOW
*
KK  NS16
KM  NS16
BA0.1019
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2460  95.640
UK  1600  0.1000   0.600  100.00
RD  2100  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  NS17
KM  NS17
BA0.0811
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.820
UK  1500  0.0800   0.600  100.00
RD  1200  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YNS17
KM  0
HC     2
ZW C=FLOW
*
KK  NS18
KM  NS18
BA0.1877
PB
* PI
```

```
BF    -1  -0.001    1.50
LU  0.10  0.2500  94.050
UK  3200  0.1000   0.600  100.00
RD  3000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  NS19
KM  NS19
BA0.0434
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.690
UK  1600  0.0500   0.600  100.00
RD  1000  0.0400   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YNS19
KM  0
HC     2
ZW C=FLOW
*
KKYNS19C
KM  0
HC     2
ZW C=FLOW
*
KK  NS20
KM  NS20
BA0.0548
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.700
UK   600  0.0800   0.600  100.00
RD  1200  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YNS20
KM  0
HC     2
ZW C=FLOW
*
KKYNS20C
KM  0
HC     2
ZW C=FLOW
*
KK  NS21
KM  NS21
BA0.1390
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2480  90.560
UK  1450  0.0500   0.600  100.00
RD  2500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YNS21
KM  0
HC     2
ZW C=FLOW
*
KK NS30D
KM  NS30D
BA0.0577
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.860
UK   900  0.0800   0.600  100.00
RD  1400  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK NS30A
KM  NS30A
BA0.0266
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2440  90.140
UK   800  0.0800   0.600  100.00
RD  1600  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS30A
KM  0
HC     2
ZW C=FLOW
*
KKYS30CC
KM  0
HC     2
```

```
ZW C=FLOW
*
KK NS30B
KM  NS30B
BA0.1400
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2360  89.370
UK  1600  0.1000   0.600  100.00
RD  2000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS30B
KM  0
HC     2
ZW C=FLOW
*
KK NS30E
KM  NS30E
BA0.0022
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.330
UK   200  0.1000   0.600  100.00
RD   500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS30E
KM  0
HC     2
ZW C=FLOW
*
KK NS30F
KM  NS30F
BA0.0023
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.580
UK   200  0.1000   0.600  100.00
RD   500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS30F
KM  0
HC     2
ZW C=FLOW
*
KK NS30C
KM  NS30C
BA0.1237
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.1510  86.160
UK  1600  0.0800   0.600  100.00
RD  2000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS30C
KM  0
HC     2
ZW C=FLOW
*
KKY30CCC
KM  0
HC     2
ZW C=FLOW
*
KK NS33B
KM  NS33B
BA0.0301
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.1000  84.540
UK  1000  0.0500   0.600  100.00
RD  1000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS33B
KM  0
HC     2
ZW C=FLOW
*
KKYNSALL
KM  0
HC     2
ZW C=FLOW
*
*
KKUW5END
```

```
KM  ROUTE FOR BACKWATER AT NW5
RS     1    FLOW      -1
SV  0.00    0.75    54.4   131.2     377    1086
SQ   0.0   267.0    2853    3500    6287    9653
ZW C=FLOW
*
* - - - - - -
*
*
KK  NS34
KM  NS34
BA0.0437
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.220
UK   900  0.0800   0.600  100.00
RD   900  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  NS35
KM  NS35
BA0.1517
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.1850  86.070
UK  1900  0.0500   0.600  100.00
RD  2500  0.0400   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YNS35
KM  0
HC     2
ZW C=FLOW
*
KK XMAR1
KM XMAR1
BA0.2922
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2440  90.000
UK  1900  0.1000   0.600  100.00
RD  2000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK XMAR2
KM XMAR2
BA0.4066
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2410  90.000
UK  2200  0.1000   0.600  100.00
RD  3100  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK XMAR3
KM XMAR3
BA0.6221
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2480  90.000
UK  3500  0.1000   0.600  100.00
RD  3400  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK XMAR4
KM XMAR4
BA0.2489
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.000
UK  2300  0.1000   0.600  100.00
RD  1100  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK XMAR5
KM XMAR5
BA0.3335
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.000
UK  1700  0.1000   0.600  100.00
RD  2600  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMAR5
KM  0
HC     2
```

```
ZW C=FLOW
*
KK XMAR6
KM XMAR6
BA0.1147
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.000
UK  1500  0.1000   0.600  100.00
RD  1650  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK XMAR7
KM XMAR7
BA0.3439
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.000
UK  2800  0.1000   0.600  100.00
RD  1400  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMAR7
KM  0
HC     2
ZW C=FLOW
*
KK XMAR8
KM XMAR8
BA0.2218
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.000
UK  2200  0.1000   0.600  100.00
RD  3500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMAR8
KM  0
HC     2
ZW C=FLOW
*
KK XMAR9
KM XMAR9
BA0.2500
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.000
UK  2100  0.1000   0.600  100.00
RD  3400  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKXMAR10
KM XMAR10
BA0.2272
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.000
UK  2300  0.1000   0.600  100.00
RD  2400  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKXMAR11
KM XMAR11
BA0.1037
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.1850  90.000
UK  1100  0.1000   0.600  100.00
RD  1500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMAR11
KM  0
HC     2
ZW C=FLOW
*
KKXMAR12
KM XMAR12
BA0.1361
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2060  90.000
UK  1250  0.1000   0.600  100.00
RD  2200  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
```

```
KKXMAR13
KM XMAR13
BA0.2679
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2490  90.000
UK  1800  0.1000   0.600  100.00
RD  4000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMAR13
KM  0
HC     2
ZW C=FLOW
*
KKYMARC1
KM  0
HC     2
ZW C=FLOW
*
KKXMAR14
KM XMAR14
BA0.0483
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.000
UK   500  0.1000   0.600  100.00
RD   500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKXMAR15
KM XMAR15
BA0.0140
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.000
UK   500  0.1000   0.600  100.00
RD   500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMAR15
KM  0
HC     3
ZW C=FLOW
*
KKXMAR17
KM XMAR17
BA0.2288
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2200  90.000
UK  1300  0.1000   0.600  100.00
RD  2700  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMAR17
KM  0
HC     2
ZW C=FLOW
*
KKMAR19A
KM  MAR19A
BA0.0295
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  92.440
UK  1000  0.1000   0.600  100.00
RD  1000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKMAR19B
KM  MAR19B
BA0.0074
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.200
UK   500  0.1000   0.600  100.00
RD  1000  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKXMAR18
KM XMAR18
BA0.1517
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2480  90.000
UK  1600  0.1000   0.600  100.00
```

```
RD  2500  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMAR18
KM  0
HC     3
ZW C=FLOW
*
KKXMAR20
KM XMAR20
BA0.2009
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2440  91.000
UK  1700  0.1000   0.600  100.00
RD  2700  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKMAR21A
KM  MAR21A
BA0.0602
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  91.900
UK   500  0.1000   0.600  100.00
RD   500  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKMAR21B
KM  MAR21B
BA0.0241
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2450  90.550
UK   500  0.1000   0.600  100.00
RD  1000  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK YR21B
KM  0
HC     2
ZW C=FLOW
*
* SA Note: Use New Overflow analysis instead
* DIVERT At Upstream Highway Crossing, where water can't cross under roadway
KK N11DV
DTN11DIV
DI     0     190     200     800    1600    5000
DQ     0       1       5     604    1403    4802
ZW C=FLOW
*
KKMAR22B
KM  MAR22B
BA0.0266
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2300  88.260
UK   500  0.1000   0.600  100.00
RD  1000  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKMAR22A
KM  MAR22A
BA0.0165
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.2500  90.250
UK   500  0.1000   0.600  100.00
RD   500  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YR22A
KM  0
HC     2
ZW C=FLOW
*
KKXMAR23
KM XMAR23
BA0.0439
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.1380  87.000
UK   500  0.0500   0.600  100.00
RD  2000  0.0200   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYMAR23
KM  0
```

```
HC     2
ZW C=FLOW
*
*
KK UWEND
KM  ROUTE FOR BACKWATER AT W1
RS     1    FLOW      -1
SV  0.00   10.00    49.2   292.0   859.7  867.00
SQ   0.0    18.0   239.0   244.0   250.0  1034.0
ZW C=FLOW
*
KKXMAR24
KM XMAR24
BA0.0055
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.1000  87.000
UK   200  0.0200   0.600  100.00
RD   500  0.0100   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKXMAR25
KM XMAR25
BA0.0147
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.1260  87.000
UK  1000  0.0200   0.600  100.00
RD  1000  0.0100   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMAR25
KM  0
HC     3
ZW C=FLOW
*
KK NS33A
KM  NS33A
BA0.0118
PB
* PI
BF    -1  -0.001    1.50
LU  0.10  0.1970  85.200
UK  1000  0.0200   0.600  100.00
RD  1000  0.0200   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS33A
KM  0
HC     2
ZW C=FLOW
*
*
KK  UHWY
KM  ROUTE FOR BACKWATER AT HWY
RS     1    FLOW      -1
SV  0.00    0.13    0.60    32.4    61.6   114.6   265.3  330.00
SQ   0.0   200.0   491.0    3074    4293    5718  5847.0  9000.0
ZW C=FLOW
*
* ----------END---------------
KKN11DIV
DRN11DIV
ZW C=FLOW
*
*
ZZ
```

B-1A. HEC-1 Post-Project PDP Input WARM EVENT VALLEY TRAIL ALTERNATIVE

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ID PLACER COUNTY WATERSHED MODEL, PLACER COUNTY, CA
ID WATERSHED UPDATE MODELS - DRAFT ULT BUILDOUT
ID DRAFT MODEL FOR HYD ROUTING - HEC1VOLS UTILITY
ID CESI 2/22/2012
ID
IT     5 13FEB08       0     300
IO     5               0
IN     5       0       0
*DIAGRAM
*
*
KK    E2
KM    Large Offsite Shed  155.8ac
BA0.2434
PB
* PI
BF -38.7
LU  0.10  0.2110   2.000
UK  1500  0.0830   0.600  100.00
RD  4000  0.0300   0.060            TRAP     2.0    25.0
ZW C=FLOW
*
KK   E15
KM   Other Large Upstream offsite shed 111.1 ac
BA0.1736
PB
* PI
BF -38.7
LU  0.10  0.1470   2.000
UK  1000  0.0580   0.600  100.00
RD  2500  0.0300   0.060            TRAP     2.0    10.0     YES
ZW C=FLOW
*
KK   E10
KM    Large Undeveloped upstream watershed. (139.2)
BA0.0311
PB
* PI
BF -38.7
LU  0.10  0.1790   2.000
UK  2000  0.0750   0.600  100.00
RD  3200  0.0700   0.060   .0500    TRAP    20.0    40.0
RD  3300  0.0010   0.040   .1500    TRAP    20.0    20.0
ZW C=FLOW
*
KK YE10C
KM    Upstream of Project
HC     2
ZW C=FLOW
*
KK VE12R
KM    ROUTE TO BOTTOM OF E20
RD  1500  0.0170   0.040            TRAP    15.0     5.0
ZW C=FLOW
*
KK  E20A
KM    12.0 AC
BA0.0106
PB
* PI
BF -38.7
LU  0.10  0.2430   3.000
UK  1200  0.0580   0.600  100.00
RD   700  0.0170   0.060            TRAP    15.0     5.0
ZW C=FLOW
*
KK YE20A
KM  0
HC     2
ZW C=FLOW
*
KK  E14A
KM    Small Roadway Shed 4 ac
BA0.0063
PB
* PI
BF -38.7
LU  0.10  0.1000  10.000
UK   500  0.0300   0.600  100.00
RD   500  0.0300   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  E18A
KM    Small Hopkins Roadway Drain 3.6ac
BA0.0057
PB
* PI
BF -38.7
LU  0.10  0.2070  10.000
UK   450  0.0300   0.600  100.00
RD   500  0.0300   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK  E16A
```

```
KM    Small Hopkins Roadway Drain 0.4ac
BA0.0006
PB
* PI
BF -38.7
LU  0.10  0.2130  90.000
UK    50  0.0200   0.600  100.00
RD   100  0.0300   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYE16AC
KM  0
HC     2
ZW C=FLOW
*
KK  E20B
KM    10.9 AC
BA0.0182
PB
* PI
BF -38.7
LU  0.10  0.2000   5.000
UK   800  0.0700   0.600  100.00
RD   200  0.0170   0.060            TRAP    15.0     5.0
ZW C=FLOW
*
KK YE20B
KM  0
HC     2
ZW C=FLOW
*
KKVE16AR
KM    ROUTE TO BOTTOM OF E20
RD  2000  0.0170   0.040            TRAP    15.0     5.0
ZW C=FLOW
*
KK  E20C
KM    4.8 AC
BA0.0075
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  90.000
UK   500  0.0500   0.600      90
UK    18  0.0200   0.110      10
RD   200  0.0170   0.060   .0500    TRAP    15.0     5.0
RD   500  0.0010   0.040            TRAP    15.0     5.0
ZW C=FLOW
*
KK YE20C
KM  0
HC     3
ZW C=FLOW
*
KK  E20D
KM    10.6 AC
BA0.0166
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000    0.10  0.2500  90.000
UK   500  0.0500   0.600      89
UK    18  0.0200   0.110      11
RD   200  0.0170   0.060   .0500    TRAP    15.0     5.0
RD   600  0.0010   0.040            TRAP    15.0     5.0
ZW C=FLOW
*
KK  E20E
KM    8.4 AC Mostly diverted area added to this shed
BA0.0132
PB
* PI
BF -38.7
LU  0.10  0.2500  12.000    0.10  0.2500  90.000
UK   900  0.0200   0.600      90
UK    18  0.0200   0.110      10
RD   200  0.0170   0.060   .0500    TRAP    15.0     5.0
RD   600  0.0010   0.040            TRAP    15.0     5.0
ZW C=FLOW
*
KK YE20D
KM  0
HC     3
ZW C=FLOW
*
KK   E30
KM    MAIN SHED ABOVE TWIN CULVERTS IN S. MILL RD.  40.8AC
BA0.0638
PB
* PI
BF -38.7
LU  0.10  0.2500   8.990
UK   600  0.0380   0.600  100.00
RD  1900  0.0140   0.060            TRAP    15.0    10.0     YES
```

```
ZW C=FLOW
*
KK   E19
KM    HILLSIDE ABOVE SM RD.     4.2AC
BA0.0065
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  90.000
UK   400  0.0180   0.600      89
UK    18  0.0200   0.110      11
RD   570  0.0140   0.060            TRAP     2.0    25.0
RD   550  0.0010   0.012            CIRC     1.0     0.0      NO
ZW C=FLOW
*
KK VE19R
KM    ROUTE TO BOTTOM OF E20
RD   600  0.0400   0.040            TRAP    10.0    40.0
ZW C=FLOW
*
KK   E21
KM    HILLSIDE ABOVE ROAD           5.7AC
BA0.0084
PB
* PI
BF -38.7
LU  0.10  0.2500   7.000    0.10  0.2500  90.000
UK   600  0.0170   0.600      74
UK    18  0.0200   0.110      26
RD   800  0.0150   0.060            TRAP     2.0    25.0
RD   800  0.0010   0.015            TRAP     2.0    25.0      NO
ZW C=FLOW
*
KK  YE21
KM  0
HC     2
ZW C=FLOW
*
KK   E22
KM  "  HILLSIDE ABOVE 15"" CULVERT   2.9AC                                                 "
BA0.0045
PB
* PI
BF -38.7
LU  0.10  0.2500   7.000
UK   350  0.0270   0.600  100.00
RD   250  0.0300   0.060            TRAP     2.0    10.0      NO
ZW C=FLOW
*
KK YE22C
KM    COMBINE E21 AND E22
HC     2
ZW C=FLOW
*
KK VE22R
KM    ROUTE TO BOTTOM OF E30
RD   700  0.0140   0.040            TRAP    15.0    10.0
ZW C=FLOW
*
KK   E23
KM    PORTION OF S.MILL RD.     0.5AC
BA0.0008
PB
* PI
BF -38.7
LU  0.10  0.2500  90.000
UK    18  0.0200   0.110  100.00
RD   500  0.0240   0.060            TRAP     2.0    25.0      NO
ZW C=FLOW
*
KK  YE23
KM  0
HC     2
ZW C=FLOW
*
KK VE23R
KM    ROUTE TO BOTTOM OF E30
RD   400  0.0140   0.040            TRAP    15.0    10.0
ZW C=FLOW
*
KK YE30C
KM     COMBINE AT BOTTOM OF E30
HC     2
ZW C=FLOW
*
*
KKUE30CR
KM  0
RS     1    FLOW      -1
SV  0.00    0.54    0.84    1.03    1.34    1.56    1.82    2.09    7.48
SQ   0.0    73.0   104.0   125.0   153.0   173.0   195.0   217.0   700.0
ZW C=FLOW
*
KK   E40
```

```
KM    LARGE SHED DOWNSTREAM OF S. MILL RD.    85.5Ac
BA0.1147
PB
* PI
BF -38.7
LU  0.10  0.1800   8.480
UK  1600  0.0340   0.600  100.00
RD   600  0.0400   0.060   .0100    TRAP    10.0    40.0
RD  3000  0.0010   0.040            TRAP    40.0    20.0     YES
ZW C=FLOW
*
KK  E40B
KM    LARGE SHED DOWNSTREAM OF S. MILL RD.    85.5Ac
BA0.0190
PB
* PI
BF -38.7
LU  0.10  0.2480  10.920
UK   600  0.0100   0.600  100.00
RD   600  0.0400   0.060   .0100    TRAP    10.0    40.0
RD  1000  0.0010   0.040            TRAP    40.0    20.0
ZW C=FLOW
*
KKYE40BC
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK  E14C
KM    OFF-SITE SHED WEST OF S. MILL RD.    3.6AC
BA0.0059
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   600  0.0800   0.600  100.00
RD   500  0.0070   0.060   .0030    TRAP     2.0    25.0
RD   500  0.0010   0.040            TRAP     2.0    10.0      NO
ZW C=FLOW
*
KK VE60R
KM    ROUTE TO MAIN CHANNEL OF E64
RD  1100  0.0700   0.060            TRAP    40.0    40.0
ZW C=FLOW
*
KK  E64A
KM    EAST OF S. MILL RD.      16.1AC
BA0.0248
PB
* PI
BF -38.7
LU  0.10  0.1590  14.000    0.10  0.1590  90.000
UK  1000  0.0500   0.600      94
UK    18  0.0200   0.110       6
RD  1000  0.0700   0.060   .0140    TRAP    40.0    40.0
RD   500  0.0010   0.040            TRAP    20.0    10.0
ZW C=FLOW
*
KK YE64A
KM  0
HC     2
ZW C=FLOW
*
KK  E64B
KM    EAST OF S. MILL RD.      12.1AC
BA0.0190
PB
* PI
BF -38.7
LU  0.10  0.1750  15.000    0.10  0.1750  90.000
UK   800  0.0700   0.600      97
UK    18  0.0200   0.110       3
RD  1000  0.0700   0.060   .0140    TRAP    40.0    40.0
RD   500  0.0010   0.040            TRAP    20.0    10.0
ZW C=FLOW
*
KK YE64B
KM  0
HC     2
ZW C=FLOW
*
KK VE64R
KM    ROUTE TO MAIN CHANNEL OF E75
RD  1000  0.0350   0.040            TRAP    40.0    10.0
ZW C=FLOW
*
* - - - - - -
*
*
KK   E70
KM    OFF-SITE- LAHONTAN UNITS 7&8 AND LAHONTAN II    78.6AC
```

```
BA0.1255
PB
* PI
BF -38.7
LU  0.10  0.1710   8.000    0.10  0.1710  90.000
UK  1200  0.0410   0.600      95
UK    18  0.0200   0.110       5
RD   450  0.0140   0.060   .0100    TRAP     2.0    25.0
RD  1800  0.0010   0.040            TRAP    20.0    10.0      NO
ZW C=FLOW
*
KK   E71
KM    OFF-SITE PORTION OF LAHONTAN II    17.8Ac
BA0.0279
PB
* PI
BF -38.7
LU  0.10  0.2270  19.100
UK  1400  0.0500   0.600  100.00
RD   700  0.0300   0.060   .0070    TRAP     2.0    25.0
RD   400  0.0010   0.040   .0150    TRAP     2.0     5.0
ZW C=FLOW
*
KK   E72
KM    OFF-SITE PORTION OF LAHONTAN II   12.1Ac
BA0.0178
PB
* PI
BF -38.7
LU  0.10  0.1980   9.600
UK  1700  0.0370   0.600  100.00
RD   850  0.0530   0.060   .0100    TRAP    20.0    20.0
RD   700  0.0010   0.040            TRAP    10.0    20.0      NO
ZW C=FLOW
*
KKYE7012
KM  0
HC     2
ZW C=FLOW
*
KK VE72R
KM    ROUTE TO MAIN CHANNEL OF E75
RD   750  0.0300   0.040            TRAP    40.0    10.0
ZW C=FLOW
*
KKY72&64
KM    ROUTE TO MAIN CHANNEL OF E75
HC     2
ZW C=FLOW
*
KK   E75
KM    MOSTLY OFF-SITE AND DOWNSTREAM SHED  57.9Ac
BA0.0905
PB
* PI
BF -38.7
LU  0.10  0.1910   3.200
UK  1200  0.0580   0.600  100.00
RD   600  0.0500   0.060   .0050    TRAP    20.0    20.0
RD  1400  0.0010   0.040            TRAP    10.0    50.0     YES
ZW C=FLOW
*
KK  YE75
KM  0
HC     2
ZW C=FLOW
*
*
KKUE75CR
KM  0
RS     1    FLOW      -1
SV  0.00    0.33    0.45    0.52    0.61    0.67    0.73    0.79    0.87    2.95
SQ   0.0    24.0    35.0    42.0    51.0    58.0    66.0    73.0    83.0   400.0
ZW C=FLOW
*
* - - - - - -
*
*
KK  E14B
KM    OFF-SITE SHED WEST OF S. MILL RD.
BA0.0397
PB
* PI
BF -38.7
LU  0.10  0.1920   2.000
UK   800  0.0800   0.600  100.00
RD   800  0.0300   0.060   .0200    TRAP    40.0    40.0
RD   400  0.0010   0.040            TRAP     2.0     6.0      NO
ZW C=FLOW
*
KK VE50R
KM    ROUTE TO MAIN CHANNEL OF E55
RD   850  0.0700   0.060            TRAP    40.0    40.0
ZW C=FLOW
```

```
*
KK  E55A
KM    EAST OF S. MILL RD.   16.7AC
BA0.0261
PB
* PI
BF -38.7
LU  0.10  0.1360  20.000
UK   500  0.0400   0.600  100.00
RD   400  0.0700   0.060   .0070    TRAP    40.0    40.0
RD   500  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KK YE55A
KM  0
HC     2
ZW C=FLOW
*
*
KKUE55AR
KM  0
RS     1    FLOW      -1
SV  0.00    0.08    0.10    0.12    0.14    0.15    0.16    0.17    0.30
SQ   0.0    18.0    25.0    30.0    36.0    41.0    45.0    49.0    80.0
ZW C=FLOW
*
KK  E58D
KM    EAST OF S. MILL RD.   23.7AC
BA0.0229
PB
* PI
BF -38.7
LU  0.10  0.2500   9.500
UK   800  0.0400   0.600  100.00
RD   400  0.0700   0.060   .0070    TRAP    40.0    40.0
RD  1400  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KK YE58D
KM  0
HC     2
ZW C=FLOW
*
KK  E55B
KM    EAST OF S. MILL RD.   3.2AC
BA0.0050
PB
* PI
BF -38.7
LU  0.10  0.1920  40.000
UK   200  0.0500   0.600  100.00
RD   400  0.0700   0.060   .0070    TRAP    40.0    40.0
RD   500  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KK  E55C
KM    EAST OF S. MILL RD.   7.7AC
BA0.0120
PB
* PI
BF -38.7
LU  0.10  0.2470  22.000
UK   200  0.0500   0.600  100.00
RD   400  0.0700   0.060   .0070    TRAP    40.0    40.0
RD   500  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KK YE55C
KM  0
HC     2
ZW C=FLOW
*
*
KKU55CCR
KM  0
RS     1    FLOW      -1
SV  0.00    0.55    0.76    0.91    1.13    1.28    1.62    2.09    2.89
SQ   0.0    20.0    28.0    34.0    42.0    47.0    53.0    59.0    80.0
ZW C=FLOW
*
KK  E55E
KM    EAST OF S. MILL RD.   3.6AC
BA0.0056
PB
* PI
BF -38.7
LU  0.10  0.2500  25.000
UK   300  0.0200   0.600  100.00
RD   400  0.0700   0.060   .0070    TRAP    40.0    40.0
RD   500  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KK YE55E
KM  0
```

```
HC     2
ZW C=FLOW
*
KK  E55F
KM    EAST OF S. MILL RD.   1.8AC
BA0.0028
PB
* PI
BF -38.7
LU  0.10  0.2500  25.000
UK   250  0.0300   0.600  100.00
RD   200  0.0700   0.060   .0070    TRAP    40.0    40.0
RD   300  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KK  E55G
KM    EAST OF S. MILL RD.   1AC
BA0.0015
PB
* PI
BF -38.7
LU  0.10  0.2500  11.000
UK   150  0.0200   0.600  100.00
RD   200  0.0700   0.060   .0070    TRAP    40.0    40.0
RD   300  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KKYE55GC
KM  0
HC     2
ZW C=FLOW
*
KK YE55G
KM  0
HC     2
ZW C=FLOW
*
*
KKUE55CR
KM  0
RS     1    FLOW      -1
SV  0.00    0.55    0.76    0.91    1.13    1.28    1.62    2.09    2.89
SQ   0.0    20.0    28.0    34.0    42.0    47.0    53.0    59.0    80.0
ZW C=FLOW
*
KK  E58C
KM    EAST OF S. MILL RD.   5.6AC
BA0.0088
PB
* PI
BF -38.7
LU  0.10  0.2500  36.000
UK   250  0.0600   0.600  100.00
RD   200  0.0700   0.060   .0070    TRAP    40.0    40.0
RD   500  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KK YE58C
KM  0
HC     2
ZW C=FLOW
*
KK  E55H
KM    EAST OF S. MILL RD.                            44.1AC
BA0.0057
PB
* PI
BF -38.7
LU  0.10  0.2500   2.400
UK   400  0.0200   0.600  100.00
RD   400  0.0700   0.060   .0300    TRAP    40.0    40.0
RD  1000  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KK YE55H
KM  0
HC     2
ZW C=FLOW
*
KK  E58A
KM    EAST OF S. MILL RD.   5.3AC
BA0.0083
PB
* PI
BF -38.7
LU  0.10  0.2500  22.000
UK   300  0.0400   0.600  100.00
RD   200  0.0700   0.060   .0070    TRAP    40.0    40.0
RD   500  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KK YE58A
KM  0
HC     2
```

```
ZW C=FLOW
*
KK  E58E
KM    EAST OF S. MILL RD.   3.7AC
BA0.0370
PB
* PI
BF -38.7
LU  0.10  0.2250  22.000
UK   300  0.0200   0.600  100.00
RD   200  0.0700   0.060   .0070    TRAP    40.0    40.0
RD   500  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KK YE58E
KM  0
HC     2
ZW C=FLOW
*
KK   E80
KM    LAST DOWNSTREAM SHED
BA0.0452
PB
* PI
BF -38.7
LU  0.10  0.1310   2.000
UK  1300  0.0400   0.600  100.00
RD  1000  0.0250   0.060   .0200    TRAP    20.0    20.0
RD  1100  0.0010   0.040            TRAP    10.0    50.0     YES
ZW C=FLOW
*
KKYE5875
KM  0
HC     3
ZW C=FLOW
*
KK YE80C
KM    COMBINE WITH E40 FOR TOTAL AT LAST DOWNSTREAM POINT
HC     2
ZW C=FLOW
*
KK  E40C
KM    LARGE SHED DOWNSTREAM OF S. MILL RD.    85.5Ac
BA0.0344
PB
* PI
BF -38.7
LU  0.10  0.1660   9.310
UK  1200  0.0100   0.600  100.00
RD   600  0.0400   0.060   .0100    TRAP    10.0    40.0
RD  1000  0.0010   0.040            TRAP    40.0    20.0
ZW C=FLOW
*
KK  E40E
KM    LARGE SHED DOWNSTREAM OF S. MILL RD.    85.5Ac
BA0.0058
PB
* PI
BF -38.7
LU  0.10  0.2500  10.510
UK   600  0.0100   0.600  100.00
RD   600  0.0400   0.060   .0100    TRAP    10.0    40.0
RD  1000  0.0010   0.040            TRAP    40.0    20.0
ZW C=FLOW
*
KK  E40D
KM    LARGE SHED DOWNSTREAM OF S. MILL RD.    85.5Ac
BA0.0074
PB
* PI
BF -38.7
LU  0.10  0.1940   8.270
UK   600  0.0100   0.600  100.00
RD   600  0.0400   0.060   .0100    TRAP    10.0    40.0
RD  1000  0.0010   0.040            TRAP    40.0    20.0
ZW C=FLOW
*
KK YE40D
KM  0
HC     3
ZW C=FLOW
*
KKYE40DC
KM  0
HC     2
ZW C=FLOW
*
KK   E85
KM    OFFSITE DOWNSTREAM SHED     313.9
BA0.4599
PB
* PI
BF -38.7
LU  0.10  0.1750   2.270
```

```
UK  2500  0.0625   0.600  100.00
RD  2000  0.0250   0.060   .1000    TRAP    20.0    20.0
RD  5000  0.0010   0.040            TRAP    10.0    50.0
ZW C=FLOW
*
KK  YE85
KM  0
HC     2
ZW C=FLOW
*
KK  E85B
KM  E85B
BA0.0312
PB
* PI
BF -38.7
LU  0.10  0.2300   3.350
UK   400  0.0200   0.600  100.00
RD   500  0.0500   0.060            TRAP    20.0    10.0
ZW C=FLOW
*
KK YE85B
KM  0
HC     2
ZW C=FLOW
*
*
KKUW3END
KM  ROUTE FOR BACKWATER AT NW3
RS     1    FLOW      -1
SV  0.00    0.01    0.03   20.60  247.00  250.00
SQ   0.0    40.0   243.0   508.0   637.0   800.0
ZW C=FLOW
*
KK  E85C
KM  E85C
BA0.0079
PB
* PI
BF -38.7
LU  0.10  0.2380   2.390
UK   400  0.0200   0.600  100.00
RD   500  0.0500   0.060            TRAP    20.0    10.0
ZW C=FLOW
*
KKYE85CC
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK  E5A1
KM    E5A1 Drop Inlet
BA0.0730
PB
* PI
BF -38.7
LU  0.10  0.2040   2.000    0.10  0.2040  95.000
UK  1350  0.1330   0.600      98
UK   200  0.0200   0.110       3
RD  2000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK   E5B
KM    E5B
BA0.0139
PB
* PI
BF -38.7
LU  0.10  0.2450   2.000    0.10  0.2450  95.000
UK   600  0.0800   0.600      91
UK   200  0.0200   0.110       9
RD  2000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  YE5B
KM  0
HC     2
ZW C=FLOW
*
KK   E5C
KM    E5C
BA0.0051
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.0700   0.600      92
UK   200  0.0200   0.110       8
RD   500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
```

```
KK  YE5C
KM  0
HC     2
ZW C=FLOW
*
*
KKUE5ADT
KM  0
RS     1    FLOW      -1
SV  0.00    0.10    0.20    0.30    0.40    1.70    2.40
SQ   0.0     0.0     0.1     2.0    50.0    80.0   200.0
ZW C=FLOW
*
KK   E5D
KM    E5D
BA0.0850
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1500  0.0500   0.600  100.00
RD  1500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YE5DC
KM  0
HC     2
ZW C=FLOW
*
KK  E6A1
KM    E6A1
BA0.0570
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1000  0.0680   0.600  100.00
RD  2700  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK  E6A2
KM    E6A2
BA0.0149
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   600  0.0680   0.600  100.00
RD   800  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYE6A1C
KM  0
HC     2
ZW C=FLOW
*
KK   E6C
KM    E6C
BA0.0939
PB
* PI
BF -38.7
LU  0.10  0.2460   2.000
UK  1600  0.0900   0.600  100.00
RD  1400  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YE6CC
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK GS10D
KM    GS10D
BA0.0124
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   900  0.0700   0.600      79
UK   100  0.0200   0.110      21
RD   200  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK GS10C
KM    GS10C
BA0.0169
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
```

```
UK   300  0.0600   0.600      91
UK   100  0.0200   0.110       9
RD   400  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYS10CC
KM  0
HC     2
ZW C=FLOW
*
KK GS10B
KM    GS10B
BA0.0044
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.0800   0.600      86
UK   100  0.0200   0.110      14
RD   400  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKGS10A1
KM    GS10A1
BA0.0290
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.0800   0.600      96
UK   100  0.0200   0.110       4
RD   500  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK GS10F
KM    GS10F
BA0.0248
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.0800   0.600      92
UK   100  0.0200   0.110       8
RD   900  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKY10FCC
KM  0
HC     2
ZW C=FLOW
*
KK GS10E
KM    GS10E
BA0.0153
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   300  0.0800   0.600      78
UK   100  0.0200   0.110      22
RD   600  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYS10AC
KM   COMBINATION AT MEADOWS ROUTING AREA
HC     2
ZW C=FLOW
*
KKGS10A2
KM   GS10A2
BA0.0278
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK  1400  0.0800   0.600      96
UK   100  0.0200   0.110       4
RD  1400  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYGDTCC
KM  0
HC     2
ZW C=FLOW
*
*
KKUGS10R
KM   MEADOWS WQ AND DETENTION RESERVOIR AT GS10E
RS     1    FLOW      -1
SV 11.60   13.00   15.95
SQ  61.0   100.0   330.0
ZW C=FLOW
*
*
```

```
KKUS10ER
KM   Channel Attenuation downstream of GS10R
RS     1    FLOW      -1
SV  0.00    0.05    0.27    0.50    0.72    0.95    1.15
SQ   0.0     0.0     5.0    15.0    27.0    37.0    62.0
ZW C=FLOW
*
KK GS10J
KM    GS10J
BA0.0099
PB
* PI
BF -38.7
LU  0.10  0.2500  83.000    0.10  0.2500  95.000
UK   300  0.0800   0.600      92
UK   200  0.0200   0.110       8
RD   500  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYS10JC
KM  0
HC     2
ZW C=FLOW
*
KK GS10G
KM    GS10G
BA0.0081
PB
* PI
BF -38.7
LU  0.10  0.2500  83.000    0.10  0.2500  95.000
UK   300  0.0800   0.600      90
UK   200  0.0200   0.110      10
RD   500  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
*
KKUS10JR
KM   Channel Attenuation From GS10J to GS10I
RS     1    FLOW      -1
SV  0.00    0.05    0.10    0.12    0.19    0.22    0.35
SQ   0.0     0.0     5.0    15.0    27.0    37.0    80.0
ZW C=FLOW
*
KK GS10H
KM    GS10H
BA0.0066
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   300  0.0800   0.600      81
UK   200  0.0200   0.110      19
RD   400  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK GS10I
KM    GS10I
BA0.0071
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   300  0.0600   0.600      78
UK   200  0.0200   0.110      22
RD   400  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK   E8A
KM    E8A
BA0.0049
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   200  0.1200   0.600      73
UK   100  0.0200   0.110      27
RD   300  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
*
KKUE8ASQ
KM  0
RS     1    FLOW      -1
SV  0.00    0.03    0.05    0.08    0.10    0.20    1.00
SQ   0.0     0.0     0.0     0.0     3.5    80.0   200.0
ZW C=FLOW
*
KK   E8B
KM    E8B
BA0.0122
PB
* PI
BF -38.7
```

```
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   400  0.0800   0.600      95
UK   100  0.0200   0.110       5
RD  1400  0.1000   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK   E8C
KM    E8C
BA0.0244
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   800  0.0800   0.600  100.00
RD  1400  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YE8CC
KM  0
HC     2
ZW C=FLOW
*
KKYGS10C
KM  0
HC     2
ZW C=FLOW
*
KKYS10IC
KM  0
HC     2
ZW C=FLOW
*
*
KKUS10IR
KM   Storage Upstream of Siller Ranch Road -  Channel Routing Meadow to Schaffer m
RS     1    FLOW      -1
SV  0.00    0.05    0.12    0.19    0.26    0.33    1.55
SQ   0.0     0.0     5.0    15.0    27.0    37.0   400.0
ZW C=FLOW
*
*
KK UGS9R
KM  0
RS     1    FLOW      -1
SV  0.00    0.09    0.17    0.24    0.41    0.59    0.83    0.94    4.03
SQ   0.0    33.0    55.0    76.0   114.0   145.0   177.0   206.0   644.0
ZW C=FLOW
*
KK    E9
KM    E9
BA0.0213
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   600  0.0800   0.600  100.00
RD  1000  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
*
KKUGS11R
KM  0
RS     1    FLOW      -1
SV  0.00    0.25    0.42    0.58    0.95    1.37    2.24    2.77    6.95
SQ   0.0    33.0    55.0    76.0   114.0   145.0   177.0   206.0   644.0
ZW C=FLOW
*
KK GS11B
KM    GS11B
BA0.0031
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   700  0.1000   0.600  100.00
RD   300  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK GS11A
KM    GS11A
BA0.0354
PB
* PI
BF -38.7
LU  0.10  0.2370   2.000
UK   700  0.1000   0.600  100.00
RD  1100  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYGS11A
KM  0
HC     2
ZW C=FLOW
*
```

```
*
KKUS11RR
KM  0
RS     1    FLOW      -1
SV  0.00    1.25    1.51    1.75    2.27    2.78    3.53    4.26    4.67
SQ   0.0    33.0    55.0    76.0   114.0   145.0   177.0   206.0   244.0
ZW C=FLOW
*
KK GS13C
KM   GS13C
BA0.0066
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   300  0.0700   0.600  100.00
RD   300  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK GS13B
KM   GS13B
BA0.0168
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   300  0.0700   0.600  100.00
RD  1100  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK GS18A
KM   GS18A
BA0.0020
PB
* PI
BF -38.7
LU  0.10  0.2500   3.000
UK   800  0.0940   0.600  100.00
RD   300  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  GS18
KM    GS18
BA0.0248
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   800  0.0940   0.600  100.00
RD  1600  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYGS18C
KM  0
HC     2
ZW C=FLOW
*
KK GS13A
KM   GS13A
BA0.0196
PB
* PI
BF -38.7
LU  0.10  0.1810   2.000
UK   600  0.0670   0.600  100.00
RD  1100  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYGS13A
KM  0
HC     2
ZW C=FLOW
*
KK YGS13
KM  0
HC     2
ZW C=FLOW
*
KK  GS19
KM    GS19
BA0.0617
PB
* PI
BF -38.7
LU  0.10  0.1920   2.000
UK   700  0.0860   0.600  100.00
RD  1000  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK  GS20
KM    GS20
BA0.0178
PB
* PI
```

```
BF -38.7
LU  0.10  0.1680   2.000
UK   600  0.1000   0.600  100.00
RD   600  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYGS20C
KM  0
HC     2
ZW C=FLOW
*
*
KKUOOSED
KM   GOOSENECK LAKE RESERVOIR _ CURRENT ROUTING/DISCHARGE RATING
RS     1    FLOW      -1
SV  0.00   43.30   90.10  144.10  173.90  205.40  238.90  274.10
SQ   0.0     2.0    84.8   360.0   670.8  1273.0  3585.0  8880.0
ZW C=FLOW
*
* - - - - - -
*
*
KKGS21B1
KM            4.2 AC.
BA0.0065
PB
* PI
BF -38.7
LU  0.10  0.2500  10.060
UK   300  0.0700   0.600  100.00
RD   800  0.1000   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKVR21B1
KM   ROUTE GS21B1
RD   540  0.0704   0.015           CIRC     2.0     0.0
ZW C=FLOW
*
KKGS21B2
KM            3.2 AC.
BA0.0050
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   300  0.0700   0.600  100.00
RD   900  0.0800   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKYQG21B
KM     COMBINE
HC     2
ZW C=FLOW
*
KK GS21A
KM   GS21A
BA0.0412
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK  1000  0.0700   0.600      80
UK   200  0.0200   0.240      20
RD  2500  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK  GS22
KM    GS22
BA0.0741
PB
* PI
BF -38.7
LU  0.10  0.2490   2.000
UK   700  0.0570   0.600  100.00
RD  1000  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYGS21A
KM     COMBINE
HC     2
ZW C=FLOW
*
*
KKUGS22R
KM  0
RS     1    FLOW      -1
SV  0.00    0.67    0.84    0.97    1.28    1.45    1.87    2.23    5.29
SQ   0.0    65.0    85.0   102.0   144.0   184.0   232.0   291.0   575.0
ZW C=FLOW
*
KK  GS23
KM    GS23
BA0.0596
PB
```

```
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  2000  0.0400   0.600  100.00
RD  1100  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK  GS24
KM    GS24
BA0.0352
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   500  0.1000   0.600  100.00
RD   900  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYGS24C
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KKGS25B3
KM           1.2 AC.
BA0.0019
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   300  0.0700   0.600  100.00
RD   310  0.0500   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKGS25B4
KM            1.8 AC.
BA0.0029
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   300  0.0700   0.600  100.00
RD   440  0.1200   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKYC25B4
KM     COMBINE
HC     2
ZW C=FLOW
*
KKGS25C4
KM            4.4 AC.
BA0.0069
PB
* PI
BF -38.7
LU  0.10  0.2500  11.750
UK   300  0.0700   0.600  100.00
RD   550  0.1000   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKGS25C5
KM            1.7 AC.
BA0.0026
PB
* PI
BF -38.7
LU  0.10  0.2500   9.800
UK   300  0.0700   0.600  100.00
RD   450  0.1100   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKYC25C5
KM     COMBINE
HC     2
ZW C=FLOW
*
KKGS25C6
KM            1.6 AC.
BA0.0023
PB
* PI
BF -38.7
LU  0.10  0.2500   4.600
UK   300  0.0700   0.600  100.00
RD   240  0.1080   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKYC25C6
KM     COMBINE
HC     3
```

```
ZW C=FLOW
*
KKGS25C9
KM            3.0 AC.
BA0.0047
PB
* PI
BF -38.7
LU  0.10  0.2500  11.360
UK   300  0.0700   0.600  100.00
RD   550  0.0509   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKGS21A2
KM            1.3 AC.
BA0.0020
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   300  0.0700   0.600  100.00
RD   750  0.0825   0.060            CIRC     2.0     0.0
ZW C=FLOW
*
KKGS25C1
KM            .4 AC.
BA0.0006
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   300  0.0700   0.600  100.00
RD   290  0.0621   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKYC25C1
KM   COMBINE
HC     2
ZW C=FLOW
*
KKVR25C1
KM     ROUTR COMBINED GS25C1
RD   312  0.0401   0.015          CIRC       2.0     0.0
ZW C=FLOW
*
KKYC25C9
KM     COMBINE
HC     3
ZW C=FLOW
*
KKGS25C3
KM            3.9 AC.
BA0.0060
PB
* PI
BF -38.7
LU  0.10  0.2500  11.230
UK   300  0.0700   0.600  100.00
RD  1045  0.0670   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKGS25C7
KM            3.8 AC.
BA0.0060
PB
* PI
BF -38.7
LU  0.10  0.2500  13.180
UK   300  0.0700   0.600  100.00
RD   620  0.0452   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKYC25C7
KM     COMBINE
HC     3
ZW C=FLOW
*
KK GS27C
KM            2.8 AC.
BA0.0044
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   300  0.0700   0.600  100.00
RD   220  0.0636   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KK GS23B
KM  0
BA0.0061
PB
* PI
BF -38.7
```

```
LU  0.10  0.2500  15.000
UK   300  0.0700   0.600  100.00
RD   470  0.0638   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKYWQ25C
KM     COMBINE
HC     3
ZW C=FLOW
*
KK GS25E
KM    GS25E
BA0.0340
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   900  0.1000   0.600  100.00
RD  1000  0.1000   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKY25ECC
KM  0
HC     2
ZW C=FLOW
*
KKGS25A2
KM            1.9 AC.
BA0.0029
PB
* PI
BF -38.7
LU  0.10  0.2500   8.500
UK   300  0.0700   0.600  100.00
RD   700  0.0500   0.060            TRAP     2.0     3.0
ZW C=FLOW
*
KKGS25A1
KM            .4 AC.
BA0.0007
PB
* PI
BF -38.7
LU  0.10  0.2500   8.500
UK   300  0.0700   0.600  100.00
RD  1400  0.0660   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKGS25A3
KM            1.2 AC.
BA0.0018
PB
* PI
BF -38.7
LU  0.10  0.2500   8.500
UK   300  0.0700   0.600  100.00
RD  1010  0.0620   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKYC25A3
KM     COMBINE
HC     3
ZW C=FLOW
*
KKVR25A3
KM       ROUTE COMBINED GS25A3
RD   561  0.0238   0.015            CIRC     2.0     0.0
ZW C=FLOW
*
KKGS25D3
KM            1.3 AC.
BA0.0022
PB
* PI
BF -38.7
LU  0.10  0.2500  11.100
UK   300  0.0700   0.600  100.00
RD   900  0.0650   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKYC25D3
KM     COMBINE
HC     2
ZW C=FLOW
*
KKGS25D2
KM            2.9 AC.
BA0.0045
PB
* PI
BF -38.7
LU  0.10  0.2500   8.500
UK   300  0.0700   0.600  100.00
RD   840  0.0710   0.060            TRAP    10.0     1.0
```

```
ZW C=FLOW
*
KKYC25D2
KM     COMBINE
HC     2
ZW C=FLOW
*
KKGS25D1
KM             4.1 AC
BA0.0062
PB
* PI
BF -38.7
LU  0.10  0.2500   8.500
UK   300  0.0700   0.600  100.00
RD  1520  0.0700   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKYC25D1
KM     COMBINE
HC     2
ZW C=FLOW
*
KKVR25D1
KM     ROUTE COMBINED GS25D1
RD   923  0.0368   0.015           CIRC     2.0     0.0
ZW C=FLOW
*
KKGS28B2
KM            6.7 AC.
BA0.0105
PB
* PI
BF -38.7
LU  0.10  0.2500   5.250
UK   300  0.0700   0.600  100.00
RD  1780  0.0625   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKGS27B1
KM         5.5 AC.
BA0.0087
PB
* PI
BF -38.7
LU  0.10  0.2500   8.500
UK   300  0.0700   0.600  100.00
RD  1040  0.0557   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KK YC27B
KM     COMBINE
HC     3
ZW C=FLOW
*
KKGS25C2
KM            3.0 AC
BA0.0047
PB
* PI
BF -38.7
LU  0.10  0.2500   9.930
UK   300  0.0700   0.600  100.00
RD  1800  0.0566   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKYC25C2
KM     COMBINE
HC     2
ZW C=FLOW
*
KKGS27B3
KM            3.3 AC.
BA0.0052
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   300  0.0700   0.600  100.00
RD   660  0.0720   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKGS27B2
KM  0
BA0.0053
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   300  0.0700   0.600  100.00
RD   560  0.0640   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKYQG27B
```

```
KM     COMBINE
HC     3
ZW C=FLOW
*
KKGS25E1
KM    GS25E
BA0.0131
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   900  0.1000   0.600  100.00
RD  1000  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYGS25E
KM  0
HC     2
ZW C=FLOW
*
KK GS30B
KM            1.1 AC
BA0.0018
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   300  0.0700   0.600  100.00
RD   800  0.0350   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKGS28B1
KM            1.6 AC.
BA0.0025
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   300  0.0700   0.600  100.00
RD  1000  0.0437   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKYC28B1
KM     COMBINE
HC     2
ZW C=FLOW
*
KKGS28B3
KM            .09 AC.
BA0.0015
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   300  0.0700   0.600  100.00
RD   830  0.0554   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKYC28B3
KM     COMBINE
HC     2
ZW C=FLOW
*
KKGS28A1
KM            7.6 AC.
BA0.0120
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   300  0.0700   0.600  100.00
RD  1000  0.0690   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKYQG28B
KM     COMBINE
HC     2
ZW C=FLOW
*
KKGS28A2
KM   GS28A
BA0.0154
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   500  0.0710   0.600      50
UK   200  0.0200   0.240      50
RD   500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYGS28A
KM  0
HC     2
```

```
ZW C=FLOW
*
KKYGS29C
KM  0
HC     2
ZW C=FLOW
*
KK GS30A
KM    GS30
BA0.0427
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   900  0.0560   0.600      89
UK    50  0.0200   0.110      11
RD  1400  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK GS31A
KM   GS31A
BA0.0843
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK  1000  0.0500   0.600      90
UK   200  0.0200   0.400      10
RD  1100  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYGS31C
KM  0
HC     2
ZW C=FLOW
*
KKYS31CC
KM  0
HC     2
ZW C=FLOW
*
KK  GS32
KM    GS32
BA0.0320
PB
* PI
BF -38.7
LU  0.10  0.2300   2.000
UK   500  0.1000   0.600  100.00
RD  1800  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
* - - - - - -
*
*
KK MD1H3
KM   MD1H3
BA0.0040
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   300  0.1200   0.600      75
UK    50  0.0200   0.110      25
RD   400  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MD1H2
KM   MD1H2
BA0.0027
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   300  0.1200   0.600      75
UK    50  0.0200   0.110      25
RD   300  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYD1H2C
KM  0
HC     2
ZW C=FLOW
*
KK MD1E4
KM   MD1E4
BA0.0132
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   300  0.1000   0.600      87
UK    50  0.0200   0.110      13
RD   600  0.0500   0.060            TRAP     2.0     2.0
```

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ZW C=FLOW
*
KKYD1H2D
KM  0
HC     2
ZW C=FLOW
*
KK MD1E3
KM   MD1E3
BA0.0039
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   300  0.1000   0.600      78
UK    50  0.0200   0.110      22
RD   500  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYD1E3C
KM  0
HC     2
ZW C=FLOW
*
KK MD1E2
KM   MD1E2
BA0.0031
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   300  0.1000   0.600      84
UK    50  0.0200   0.110      16
RD   600  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYD1E2C
KM  0
HC     2
ZW C=FLOW
*
KKMD1E1E
KM   MD1E1-2
BA0.0042
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1200  0.1070   0.600  100.00
RD   800  0.0640   0.060            TRAP    10.0     0.0
ZW C=FLOW
*
KK YMD1E
KM  0
HC     2
ZW C=FLOW
*
KKMD1E1C
KM   MD1E1-3
BA0.0686
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1000  0.0800   0.600  100.00
RD  1858  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKMD1E1B
KM   MD1E1-2
BA0.0141
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1200  0.1070   0.600  100.00
RD   800  0.0640   0.060            TRAP    10.0     0.0
ZW C=FLOW
*
KKYM1E1B
KM  0
HC     2
ZW C=FLOW
*
KK MD1H1
KM    MD1H1-1
BA0.0073
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   400  0.0600   0.600  100.00
RD   200  0.0080   0.060            TRAP    10.0    10.0
ZW C=FLOW
```

```
*
KK MD1H4
KM    MD1H1-2
BA0.0049
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   650  0.0600   0.600  100.00
RD   100  0.0030   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKMD1I_1
KM    MD1I-1
BA0.0242
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1000  0.1000   0.600  100.00
RD   350  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYD1H1C
KM  0
HC     3
ZW C=FLOW
*
KK MD1G3
KM   MD1G3
BA0.0096
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   300  0.0800   0.600      90
UK    50  0.0200   0.110      10
RD   600  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYD1G3C
KM  0
HC     2
ZW C=FLOW
*
KKVD1G3R
KM  0
RD  1600  0.0500   0.040           TRAP    10.0    10.0
ZW C=FLOW
*
KK MD1G2
KM   MD1G2
BA0.0033
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   200  0.0800   0.600      72
UK    50  0.0200   0.110      28
RD   300  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKMD1G2B
KM   MD1G2B
BA0.0055
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   200  0.0850   0.600  100.00
RD   300  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYM1G2B
KM  0
HC     2
ZW C=FLOW
*
KKMD1G1B
KM   MD1G1-2
BA0.0195
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1300  0.0600   0.600  100.00
RD  1568  0.1070   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYM1G1B
KM  0
HC     2
ZW C=FLOW
*
```

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KKY26OUP
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK GS26A
KM    GS26A
BA0.0074
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.1000   0.600      85
UK    50  0.0200   0.110      15
RD   400  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK GS26B
KM    GS26B
BA0.0139
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.2000   0.600      89
UK    50  0.0200   0.110      11
RD   800  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK GS26C
KM    GS26C
BA0.0126
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.2000   0.600      90
UK    50  0.0200   0.110      10
RD   800  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK GS26D
KM    GS26D
BA0.0144
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.1000   0.600      89
UK    50  0.0200   0.110      11
RD   400  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYS26DC
KM  0
HC     2
ZW C=FLOW
*
KK GS26E
KM    GS26E
BA0.0028
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   300  0.0800   0.600      75
UK    50  0.0200   0.110      25
RD   600  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK GS26F
KM    GS26F
BA0.0074
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   400  0.1000   0.600      87
UK    50  0.0200   0.110      13
RD   400  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KKGS26N1
KM    GS26N-1
BA0.0046
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   335  0.0200   0.110  100.00
RD   500  0.0500   0.060            TRAP     2.0     2.0
```

```
ZW C=FLOW
*
KK GS26G
KM    GS26G
BA0.0231
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.1000   0.600      91
UK    50  0.0200   0.110       9
RD   400  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KKYS26NC
KM  0
HC     2
ZW C=FLOW
*
KK GS26H
KM    GS26H
BA0.0026
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   100  0.0800   0.600      75
UK    50  0.0200   0.110      25
RD   500  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK GS15C
KM    GS15C
BA0.0106
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.1500   0.600      91
UK    50  0.0200   0.110       9
RD   400  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK GS15D
KM    GS15D
BA0.0133
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   300  0.1350   0.600      91
UK    50  0.0200   0.110       9
RD   400  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK GS15A
KM    GS15A
BA0.0913
PB
* PI
BF -38.7
LU  0.10  0.2370   2.000    0.10  0.2370  95.000
UK  1800  0.1200   0.600      97
UK    50  0.0200   0.110       3
RD   600  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK GS15B
KM    GS15B
BA0.0151
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   400  0.1000   0.600      94
UK    50  0.0200   0.110       6
RD   600  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KKYS15BC
KM  0
HC     2
ZW C=FLOW
*
KKGS16A1
KM    GS16A1
BA0.0190
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   400  0.1000   0.600      96
UK    50  0.0200   0.110       4
RD   500  0.0500   0.060            TRAP     2.0     2.0     YES
```

```
ZW C=FLOW
*
KKGS16A2
KM    GS16A2
BA0.0137
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   400  0.1000   0.600      91
UK    50  0.0200   0.110       9
RD   600  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK GS16B
KM    GS16B
BA0.0260
PB
* PI
BF -38.7
LU  0.10  0.2330   2.000    0.10  0.2330  95.000
UK  1800  0.1500   0.600      93
UK    50  0.0200   0.110       7
RD   500  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK GS16C
KM    GS16C
BA0.0141
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   400  0.1500   0.600      89
UK    50  0.0200   0.110      11
RD   400  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK GS17C
KM    GS17C
BA0.0147
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.1200   0.600      91
UK    50  0.0200   0.110       9
RD   600  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK  E6A3
KM    E6A3
BA0.0421
PB
* PI
BF -38.7
LU  0.10  0.1800   2.000    0.10  0.1800  95.000
UK  1800  0.2000   0.600      94
UK    50  0.0200   0.110       6
RD   800  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK GS12B
KM    GS12B
BA0.0089
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.1200   0.600      89
UK    50  0.0200   0.110      11
RD   600  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK GS12C
KM    GS12C
BA0.0068
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   300  0.1200   0.600      70
UK    50  0.0200   0.110      30
RD  1600  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKY12CCC
KM  0
HC     2
ZW C=FLOW
*
KK GS12F
KM    GS12F
BA0.0082
```

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PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   400  0.1000   0.600      94
UK    50  0.0200   0.110       6
RD   400  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYS12FC
KM  0
HC     2
ZW C=FLOW
*
KK GS12H
KM    GS12H
BA0.0082
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   800  0.1000   0.600      94
UK    50  0.0200   0.110       6
RD   600  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK GS12D
KM    GS12D
BA0.0044
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   400  0.1500   0.600      84
UK    50  0.0200   0.110      16
RD   300  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK GS12E
KM    GS12E
BA0.0044
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   400  0.1500   0.600      90
UK    50  0.0200   0.110      10
RD   400  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KKY12ECC
KM  0
HC     2
ZW C=FLOW
*
KK GS12I
KM    GS12I
BA0.0177
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   800  0.1000   0.600      95
UK    50  0.0200   0.110       5
RD  1000  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYS12IC
KM  0
HC     2
ZW C=FLOW
*
KKVNTOLK
KM  0
RD  1000  0.0500   0.040            TRAP     2.0     2.0
ZW C=FLOW
*
KKYGS17C
KM  0
HC     2
ZW C=FLOW
*
KKYGS16A
KM  0
HC     2
ZW C=FLOW
*
KK GS17A
KM    GS17A
BA0.0226
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
```

```
UK   800  0.1000   0.600      90
UK    50  0.0200   0.110      10
RD  1000  0.0500   0.060           TRAP     2.0     2.0
ZW C=FLOW
*
KKYAKCOM
KM  0
HC     3
ZW C=FLOW
*
*
KKULFDT2
KM   DETENTION AT GS17A
RS     1    FLOW      -1
SV  0.00    0.55    1.91    3.69    7.81
SQ   0.0    60.0   170.0   311.0   630.0
ZW C=FLOW
*
KK GS26N
KM   GS26N-2
BA0.0299
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1419  0.0660   0.600  100.00
RD  1800  0.0500   0.060           TRAP     2.0     2.0     YES
ZW C=FLOW
*
*
KKUSTDET
KM GOLF LAKE/WET MEADOW AT SOUTH SIDE OF B STREET
* NEW 10-11-04
* NEW 12-04 for 30ft weir @ 6177.2 and low swq below
KO     1
RS     1    ELEV    6176
* SV     0    6.92   8.320   9.821  11.439   13.17
*  sv Revised by BAT 2/15/05 TO REFLECT NORMAL POOL ELEV AT 6176
SA     0    0.01    1.34    1.67    2.15
SE  6166  6175.9    6176    6178    6180
SQ     0    .001    0.50    64.0   217.0   421.0
SE  6166    6176    6177    6178    6179    6180
ZW C=FLOW
*
KKGS26OA
KM    AREA=20.2 AC
BA0.0321
PB
* PI
BF -38.7
LU  0.10  0.2500  86.000    0.10  0.2500  90.000
UK   800  0.0500   0.600      95
UK    50  0.0200   0.110       5
RD   800  0.0500   0.060           TRAP     2.0     2.0
ZW C=FLOW
*
KKGS26OB
KM    AREA=3.3 AC UNIT 4A
BA0.0047
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  90.000
UK   600  0.0500   0.600      95
UK    50  0.0200   0.110       5
RD   600  0.0500   0.060           TRAP     2.0     2.0
ZW C=FLOW
*
KKYS26OC
KM  0
HC     4
ZW C=FLOW
*
*
KKUPLAKE
KM   CONCERT PARK LAKE
KO     1
RS     1    ELEV    6149
SA  0.01    0.25    0.32    0.36
SE  6140    6148    6149    6150
*  LOW FLOW PIPE (SL RECORD) IS A DUMMY
SL  6146   0.001    0.62     0.5
SS  6148      20     2.6     1.5
ZW C=FLOW
*
KK MD1C2
KM    MD1C2
BA0.0063
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  90.000
UK   250  0.0500   0.600      90
UK    50  0.0200   0.110      10
```

```
RD   300  0.0500   0.060           TRAP     2.0     2.0
ZW C=FLOW
*
KKYMD1C2
KM  0
HC     2
ZW C=FLOW
*
KKGS26L3
KM    AREA=0.7 AC   UNIT 4A
BA0.0012
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  90.000
UK   500  0.0580   0.600      90
UK    50  0.0200   0.110      10
RD   500  0.0500   0.060           TRAP     2.0     2.0
ZW C=FLOW
*
KKYNIT4A
KM  0
HC     2
ZW C=FLOW
*
KKMD1F-1
KM    MD1F-1
BA0.0069
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.0800   0.600      90
UK    50  0.0200   0.110      10
RD  1000  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK  MD1F
KM    MD1F-2
BA0.0035
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   500  0.0800   0.600      90
UK    50  0.0200   0.110      10
RD  1000  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD1F
KM  0
HC     2
ZW C=FLOW
*
KKMD1D1D
KM    MD1D1D
BA0.0124
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   800  0.0600   0.600  100.00
RD   400  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYD1D1D
KM  0
HC     2
ZW C=FLOW
*
KKMD1D1C
KM    MD1D1C
BA0.0074
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   500  0.0500   0.600  100.00
RD   200  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYD1D1C
KM  0
HC     2
ZW C=FLOW
*
KK  MD1E
KM    MD1E
BA0.0160
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.0800   0.600      95
```

```
UK    50  0.0200   0.110       5
RD  1000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
*
KKUD1EWQ
KM  0
RS     1    FLOW      -1
SV  0.00    0.25    0.50    0.75
SQ   0.0     0.1    30.0    60.0
ZW C=FLOW
*
KKMD1D1A
KM    MD1D1A
BA0.0059
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   400  0.1200   0.600  100.00
RD   500  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKMD1D1B
KM    MD1D1B
BA0.0028
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   400  0.1200   0.600  100.00
RD   500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYD1D1B
KM  0
HC     2
ZW C=FLOW
*
KK MD1D2
KM    MD1D2
BA0.0077
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   600  0.2000   0.600  100.00
RD  1000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYD1D2D
KM  0
HC     3
ZW C=FLOW
*
KKYD1C2C
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK GS26J
KM    GS26J
BA0.0023
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   230  0.0780   0.600  100.00
RD   250  0.0770   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK GS26K
KM    GS26K
BA0.0032
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   194  0.0920   0.600  100.00
RD   200  0.0830   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYGS26K
KM  0
HC     2
ZW C=FLOW
*
KK GS26L
KM    GS26L REVISED AREA = 5.8 AC UNIT 4A
BA0.0091
PB
```

```
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  90.000
UK   500  0.0580   0.600      90
UK    50  0.0200   0.110      10
RD   500  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYGS26L
KM  0
HC     2
ZW C=FLOW
*
KKGS26L2
KM    GS26L2
BA0.0029
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  90.000
UK   250  0.0470   0.600      90
UK    50  0.0200   0.110      10
RD   250  0.0300   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK MD1C1
KM    MD1C1
BA0.0155
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  90.000
UK   400  0.0500   0.600      85
UK    50  0.0200   0.110      15
RD  1800  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KKYD1C1C
KM  0
HC     2
ZW C=FLOW
*
*
KKUWLAKE
KM CULTURAL CENTER LAKE LOWER LAKE
* CULTURAL LAKE HAS BEEN RELOCATED AND THE THE GRADING REVISED.
* THE LAKE NOW CONSISTS OF AN UPPER LAKE AND A LOWER LAKE.
* THE UPPER LAKE IS UPLAKE. THIS IS LOWER LAKE.  UPPER LAKE IS
* DESIGNATED UPLAKE
* REVISION DATE 7/7/2006
KO     1
RS     1    ELEV    6133
SA  0.98    2.89    3.08    3.34    3.65    4.01
SE  6119    6133    6134    6136    6138    6140
SQ     0     1.8    10.5    54.1   116.9   194.2   283.6   383.6   493.2
SE  6133  6133.6    6134    6135    6136    6137    6138    6139    6140
ZW C=FLOW
*
*
KKUAINWQ
KM   AT MD1C1
RS     1    FLOW      -1
SV  0.00    0.34    0.69    1.03    1.38    1.83    2.29    2.86    3.44
SQ   0.0     0.5     1.0     8.5    30.0    60.0   100.0   150.0   600.0
ZW C=FLOW
*
KK MD1C4
KM    MD1C4
BA0.0169
PB
* PI
BF -38.7
LU  0.10  0.2240   2.000    0.10  0.2240  90.000
UK   400  0.0500   0.600      95
UK    50  0.0200   0.110       5
RD  1800  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
*
KKU1C4WQ
KM   AT MD1C4
RS     1    FLOW      -1
SV  0.00    0.23    0.51    0.92    1.24    1.60    1.95    2.30
SQ   0.0     0.3     0.5     0.8     1.0     1.5    45.0   500.0
ZW C=FLOW
*
* - - - - - -
*
*
KK   MA1
KM     MA1
BA0.2995
PB
* PI
```

```
BF -38.7
LU  0.10  0.1910   2.000
UK  1600  0.2340   0.600  100.00
RD  3500  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK   MA2
KM     MA2
BA0.5483
PB
* PI
BF -38.7
LU  0.10  0.2000   2.000
UK  2200  0.2840   0.600  100.00
RD  4300  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK   MA3
KM     MA3
BA0.6259
PB
* PI
BF -38.7
LU  0.10  0.2290   2.000
UK  2300  0.2720   0.600  100.00
RD  7500  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK   MA4
KM     MA4
BA0.2870
PB
* PI
BF -38.7
LU  0.10  0.2270   2.000
UK  2000  0.3000   0.600  100.00
RD  3300  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK   MA5
KM     MA5
BA0.2025
PB
* PI
BF -38.7
LU  0.10  0.2140   2.000
UK  1500  0.1830   0.600  100.00
RD  2500  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK   MA6
KM     MA6
BA0.4152
PB
* PI
BF -38.7
LU  0.10  0.2280   2.000
UK  1800  0.0970   0.600  100.00
RD  3000  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK YMA6C
KM  0
HC     2
ZW C=FLOW
*
KK   MA7
KM     MA7
BA0.2326
PB
* PI
BF -38.7
LU  0.10  0.2330   2.000
UK  3300  0.2270   0.600  100.00
RD  1500  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YMA7C
KM  0
HC     2
ZW C=FLOW
*
KK   MA8
KM     MA8
BA0.4308
PB
* PI
BF -38.7
LU  0.10  0.1650   2.000
UK  1250  0.3200   0.600  100.00
RD  5500  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YMA8C
```

```
KM  0
HC     2
ZW C=FLOW
*
KK   MA9
KM     MA9
BA0.0913
PB
* PI
BF -38.7
LU  0.10  0.2370   2.000
UK   600  0.2080   0.600  100.00
RD  1500  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK MA10A
KM    MA10A
BA0.2885
PB
* PI
BF -38.7
LU  0.10  0.2410   2.000    0.10  0.2410  15.000
UK  1600  0.0380   0.600      85
UK   200  0.0200   0.240      15
RD  2800  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK MA10B
KM    MA10B
BA0.0100
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   900  0.0900   0.600      90
UK    50  0.0200   0.110      10
RD   200  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYA10BC
KM  0
HC     2
ZW C=FLOW
*
*
KKU0DCUL
KM  0
RS     1    FLOW      -1
SV  0.00    2.50    5.00    8.50   12.50
SQ   0.0   500.0  1200.0  2300.0  3500.0
ZW C=FLOW
*
* - - - - - -
*
*
KKMB7B3A
KM    MB7B3A
BA0.0051
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   500  0.0800   0.600      95
UK    50  0.0200   0.110       5
RD   550  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKMB7B4A
KM    MB7B4A
BA0.0156
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   500  0.0900   0.600      95
UK    50  0.0200   0.110       5
RD   570  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKMB7B3B
KM    MB7B3B
BA0.0064
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.0800   0.600      95
UK    50  0.0200   0.110       5
RD   600  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKMB7B4B
KM    MB7B4B
BA0.0044
```

```
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   400  0.0700   0.600      95
UK    50  0.0200   0.110       5
RD   500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYB7B34
KM  0
HC     3
ZW C=FLOW
*
KKMB7B4C
KM    MB7B4C
BA0.0023
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   170  0.0530   0.600      95
UK    50  0.0200   0.110       5
RD   300  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
*
KKUA10EQ
KM  0
RS     1    FLOW      -1
SV  0.00    0.05    0.10    0.15    0.20    0.25
SQ   0.0     0.0     0.0     0.0    30.0    60.0
ZW C=FLOW
*
KKYA10EC
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KKMB7B1A
KM    MB7B1A
BA0.0709
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1300  0.1920   0.600  100.00
RD  3000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKMB7B1C
KM    MB7B1C
BA0.0041
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   400  0.0800   0.600      95
UK    50  0.0200   0.110       5
RD   200  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKMB7B1B
KM    MB7B1B
BA0.0107
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   500  0.0800   0.600      95
UK    50  0.0200   0.110       5
RD   600  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYMB7B1
KM  0
HC     2
ZW C=FLOW
*
KKMB7B1D
KM    MB7B1D
BA0.0146
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   500  0.0700   0.600      95
UK    50  0.0200   0.110       5
RD   650  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
```

```
KKMB7B1E
KM    MB7B1E
BA0.0054
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   500  0.0500   0.600      95
UK    50  0.0200   0.110       5
RD   350  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
*
KKUB7B1Q
KM  0
RS     1    FLOW      -1
SV  0.00    0.10    0.20    0.30    0.40    0.50
SQ   0.0     0.1     0.1     0.7    20.0    80.0
ZW C=FLOW
*
KK MB7B2
KM    MB7B2
BA0.0216
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK  1300  0.1920   0.600      95
UK    50  0.0200   0.110       5
RD   600  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
*
KKUB7B2Q
KM  0
RS     1    FLOW      -1
SV  0.00    0.33    0.66    1.00    1.33
SQ   0.0     0.2     0.3     0.3   150.0
ZW C=FLOW
*
KKYMB7BC
KM  0
HC     2
ZW C=FLOW
*
*
KKUPONDD
KM  0
RS     1    FLOW      -1
SV  0.00    1.00    2.00    3.00    4.00    5.00    6.00    7.00    8.00
SQ   0.0    50.0   100.0   200.0   400.0   600.0  1000.0  2000.0  4000.0
ZW C=FLOW
*
* - - - - - -
*
*
KK   MB1
KM     MB1
BA0.5333
PB
* PI
BF -38.7
LU  0.10  0.1880   2.000
UK  4000  0.2750   0.600  100.00
RD  2700  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK   MB2
KM     MB2
BA1.2667
PB
* PI
BF -38.7
LU  0.10  0.1920   2.000
UK  2800  0.3390   0.600  100.00
RD  3400  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK   MB3
KM     MB3
BA0.5006
PB
* PI
BF -38.7
LU  0.10  0.2180   2.000
UK  1800  0.2780   0.600  100.00
RD  1600  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK   MB4
KM     MB4
BA0.6535
PB
* PI
```

```
BF -38.7
LU  0.10  0.2450   2.000
UK  1900  0.1840   0.600  100.00
RD  4000  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK   MB5
KM     MB5
BA0.1602
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1800  0.2780   0.600  100.00
RD  1500  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK  MB6A
KM   AREA = 7.0 AC
BA0.0073
PB
* PI
BF -38.7
LU  0.10  0.2500   6.600
UK  1335  0.1543   0.600  100.00
RD   625  0.0800   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
*
KKUB6ADT
KM  0
RS     1    FLOW      -1
SV  0.00    0.15    0.30    0.45
SQ   0.0   100.0   200.0   300.0
ZW C=FLOW
*
KKYMB6AC
KM  0
HC     2
ZW C=FLOW
*
*
KKUB6CUL
KM  0
RS     1    FLOW      -1
SV  0.00    2.50    5.00    8.50   12.50
SQ   0.0   500.0  1100.0  2000.0  3000.0
ZW C=FLOW
*
KK  MB6B
KM   AREA = 3.9 AC
BA0.0061
PB
* PI
BF -38.7
LU  0.10  0.2500  11.800
UK   240  0.0708   0.600  100.00
RD   520  0.0800   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
*
KKUB6BDT
KM  0
RS     1    FLOW      -1
SV  0.00    0.15    0.30    0.45
SQ   0.0   100.0   200.0   300.0
ZW C=FLOW
*
KKYMB6BC
KM  0
HC     2
ZW C=FLOW
*
KK  MB6C
KM   AREA = 3.2 AC
BA0.0039
PB
* PI
BF -38.7
LU  0.10  0.2500   7.600
UK   370  0.1081   0.600  100.00
RD   490  0.0683   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
*
KKUB6CDT
KM  0
RS     1    FLOW      -1
SV  0.00    0.15    0.30    0.45
SQ   0.0   100.0   200.0   300.0
ZW C=FLOW
*
KKYMB6CC
KM  0
```

```
HC     2
ZW C=FLOW
*
KK  MB6D
KM    MB6D
BA0.0223
PB
* PI
BF -38.7
LU  0.10  0.2460   2.000    0.10  0.2460  15.000
UK   200  0.1250   0.600      65
UK   200  0.0200   0.240      35
RD  1500  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK  MB6G
KM  MB6G
BA0.0109
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   500  0.1250   0.600      30
UK   200  0.0200   0.240      70
RD   500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  MB6F
KM  MB6F
BA0.0062
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   500  0.1250   0.600      30
UK   200  0.0200   0.240      70
RD   500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MB6D1
KM  MB6D1
BA0.0036
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   500  0.1250   0.600      30
UK   200  0.0200   0.240      70
RD   500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMB6D1
KM  0
HC     3
ZW C=FLOW
*
KK  MB6E
KM    MB6E
BA0.0050
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   500  0.1250   0.600      30
UK   200  0.0200   0.240      70
RD   500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMB6E
KM  0
HC     2
ZW C=FLOW
*
*
KKUB6EDT
KM  0
RS     1    FLOW      -1
SV  0.00    0.15    0.30    0.45
SQ   0.0   100.0   200.0   300.0
ZW C=FLOW
*
KKYMB6EC
KM  0
HC     2
ZW C=FLOW
*
KKYMB6DD
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
```

```
KK MB7A1
KM     MB7A1
BA0.1465
PB
* PI
BF -38.7
LU  0.10  0.2080   2.000    0.10  0.2080  95.000
UK  1300  0.1920   0.600      97
UK    50  0.0200   0.110       3
RD  2500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKMB7A2A
KM     MB7A2A
BA0.0247
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   550  0.1920   0.600      92
UK    50  0.0200   0.110       8
RD   580  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKMB7A2B
KM     MB7A2B
BA0.0059
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   300  0.1920   0.600  100.00
RD   500  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
*
KKUB7A2Q
KM  0
RS     1    FLOW      -1
SV  0.00    0.12    0.25    0.38    0.50    0.62
SQ   0.0     0.1     0.1     0.1    20.0   120.0
ZW C=FLOW
*
KK  MB7C
KM     MB7C
BA0.0236
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   200  0.1000   0.600      92
UK    50  0.0200   0.110       8
RD   500  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKMB7D1A
KM     MB7D1A
BA0.0044
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   500  0.1000   0.600      79
UK    50  0.0200   0.110      21
RD   200  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKMB7D1B
KM     MB7D1B
BA0.0025
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   300  0.1000   0.600      79
UK    50  0.0200   0.110      21
RD   400  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYB7D1C
KM  0
HC     2
ZW C=FLOW
*
KK MB7D1
KM     MB7D1
BA0.0011
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   100  0.1000   0.600  100.00
RD   300  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
```

```
*
KK MB7D2
KM     MB7D2
BA0.0215
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   200  0.1000   0.600      95
UK    50  0.0200   0.110       5
RD   500  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYMB7CC
KM  0
HC     2
ZW C=FLOW
*
KK  MB7E
KM     MB7E
BA0.0585
PB
* PI
BF -38.7
LU  0.10  0.2470   2.000    0.10  0.2470  95.000
UK   200  0.1000   0.600      96
UK    50  0.0200   0.110       4
RD  1500  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
*
KKUB8SWQ
KM  0
RS     1    FLOW      -1
SV  0.00    0.25    0.50    0.75    1.00
SQ   0.0     0.2     0.2     0.2   200.0
ZW C=FLOW
*
KKYMB7EC
KM  0
HC     2
ZW C=FLOW
*
KK   MB8
KM     MB8
BA0.0545
PB
* PI
BF -38.7
LU  0.10  0.2140   2.000    0.10  0.2140  15.000
UK  1000  0.1000   0.600      85
UK   200  0.0200   0.240      15
RD  2500  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
* - - - - - -
*
*
KK   MC1
KM   AREA = 258.6 AC
BA0.4041
PB
* PI
BF -38.7
LU  0.10  0.2390   2.000
UK  1530  0.4281   0.600  100.00
RD  5300  0.2394   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  MC2A
KM   AREA = 59.1 AC
BA0.0923
PB
* PI
BF -38.7
LU  0.10  0.2500   2.200
UK  1035  0.4010   0.600  100.00
RD  2590  0.3421   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMC2AC
KM  0
HC     2
ZW C=FLOW
*
KK  MC2B
KM   AREA = 0.9 AC
BA0.0014
PB
* PI
BF -38.7
LU  0.10  0.2500  10.300
UK   550  0.0764   0.600  100.00
RD   200  0.0800   0.060            TRAP     0.1     1.0
```

```
ZW C=FLOW
*
KK  MC2K
KM  MC2K
BA0.0001
PB
* PI
BF -38.7
LU  0.10  0.2500   4.700
UK  1225  0.1551   0.600  100.00
RD   565  0.0800   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
KK YMC2K
KM  0
HC     2
ZW C=FLOW
*
*
KKUC2BDT
KM  0
RS     1    FLOW      -1
SV  0.00    0.15    0.30    0.45
SQ   0.0   100.0   200.0   300.0
ZW C=FLOW
*
KKYMC2BC
KM  0
HC     2
ZW C=FLOW
*
KK  MD1D
KM     MD1d AREA = 5.9 AC
BA0.0092
PB
* PI
BF -38.7
LU  0.10  0.2500   3.400
UK   800  0.2375   0.600  100.00
RD   190  0.0414   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
KK  MD1B
KM     MD1b AREA = 5.9 AC
BA0.0092
PB
* PI
BF -38.7
LU  0.10  0.2500   3.600
UK   800  0.2375   0.600  100.00
RD   260  0.0414   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
KK YMD1B
KM  0
HC     2
ZW C=FLOW
*
KK MC2A2
KM  MC2A2
BA0.0061
PB
* PI
BF -38.7
LU  0.10  0.2500   4.700
UK  1225  0.1551   0.600  100.00
RD   565  0.0800   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
KKYMC2A2
KM  0
HC     3
ZW C=FLOW
*
KK  MD1C
KM    MD1c AREA = 2.9 AC
BA0.0045
PB
* PI
BF -38.7
LU  0.10  0.2500   7.900
UK   500  0.2178   0.600  100.00
RD   364  0.2178   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MC2A3
KM  MC2A3
BA0.0044
PB
* PI
BF -38.7
LU  0.10  0.2500   4.700
UK  1225  0.1551   0.600  100.00
RD   565  0.0800   0.060            TRAP     0.1     1.0
```

```
ZW C=FLOW
*
KKYMC2A3
KM  0
HC     3
ZW C=FLOW
*
KK  MC2D
KM   AREA = 7.8 AC
BA0.0122
PB
* PI
BF -38.7
LU  0.10  0.2500   4.700
UK  1225  0.1551   0.600  100.00
RD   565  0.0800   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
*
KKUC2DDT
KM  0
RS     1    FLOW      -1
SV  0.00    0.15    0.30    0.45
SQ   0.0   100.0   200.0   300.0
ZW C=FLOW
*
KK  MC2E
KM   AREA = 3.9 AC
BA0.0060
PB
* PI
BF -38.7
LU  0.10  0.2500   8.500
UK   895  0.1777   0.600  100.00
RD   565  0.0800   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
*
KKUC2EDT
KM  0
RS     1    FLOW      -1
SV  0.00    0.15    0.30    0.45
SQ   0.0   100.0   200.0   300.0
ZW C=FLOW
*
KKYMC2EC
KM  0
HC     2
ZW C=FLOW
*
KK  MC2G
KM   AREA = 9.7 AC
BA0.0151
PB
* PI
BF -38.7
LU  0.10  0.2500  90.000
UK   395  0.2051   0.600  100.00
RD   360  0.0800   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
KK YMC2G
KM  0
HC     2
ZW C=FLOW
*
KK  MC2H
KM   AREA = 2.4 AC
BA0.0038
PB
* PI
BF -38.7
LU  0.10  0.2500   9.500
UK   365  0.1096   0.600  100.00
RD   530  0.0800   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
KKYMC2HC
KM  0
HC     2
ZW C=FLOW
*
KK  MC2L
KM  MC2L
BA0.0519
PB
* PI
BF -38.7
LU  0.10  0.2500  10.300
UK   550  0.0764   0.600  100.00
RD   200  0.0800   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
KK YMC2L
```

```
KM  0
HC     3
ZW C=FLOW
*
KK  MC2I
KM   AREA = 0.7 AC
BA0.0011
PB
* PI
BF -38.7
LU  0.10  0.2500  24.300
UK   225  0.1289   0.600  100.00
RD   100  0.0800   0.060           TRAP     0.1     1.0
ZW C=FLOW
*
KK  MC2J
KM   AREA = 0.6 AC
BA0.0011
PB
* PI
BF -38.7
LU  0.10  0.2500  19.200
UK   225  0.1600   0.600  100.00
RD   310  0.0800   0.060           TRAP     0.1     1.0
ZW C=FLOW
*
KKYMC2IC
KM  0
HC     2
ZW C=FLOW
*
KK YMC2I
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK  MD4A
KM     MD4A
BA0.1163
PB
* PI
BF -38.7
LU  0.10  0.2500   2.500
UK   500  0.4140   0.600  100.00
RD  2399  0.3040   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK  MD3C
KM     MD3c AREA = 6.9 AC = 0.01078 SQ MI % IMPERV = 4.6
BA0.0108
PB
* PI
BF -38.7
LU  0.10  0.2500   4.400
UK   500  0.3184   0.600  100.00
RD   737  0.3184   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD3C
KM  0
HC     2
ZW C=FLOW
*
KK  MD3B
KM     MD3b AREA = 8.5 AC = 0.01328 SQ MI % IMPERV = 3.8
BA0.0133
PB
* PI
BF -38.7
LU  0.10  0.2500   3.600
UK   500  0.3073   0.600  100.00
RD  1173  0.3073   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD3BC
KM  0
HC     2
ZW C=FLOW
*
KK MD3A1
KM     MD3a AREA = 25.4 AC = 0.03969 SQ MI % IMPERV = 2.6
BA0.0397
PB
* PI
BF -38.7
LU  0.10  0.2500   2.500
UK   500  0.3458   0.600  100.00
RD  2530  0.3458   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD3A1
```

```
KM  0
HC     2
ZW C=FLOW
*
KK MD1A1
KM     MD1a  AREA = 3.0 AC = 0.00469 SQ MI % IMPERV = 7.1
BA0.0047
PB
* PI
BF -38.7
LU  0.10  0.2500   6.400
UK   500  0.2420   0.600  100.00
RD   135  0.2420   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD1A1
KM  0
HC     2
ZW C=FLOW
*
KK MC2A4
KM   AREA = 59.1 AC
BA0.0022
PB
* PI
BF -38.7
LU  0.10  0.2500   2.200
UK  1035  0.4010   0.600  100.00
RD  2590  0.3421   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMC2A4
KM  0
HC     2
ZW C=FLOW
*
KKYC2A4C
KM  0
HC     2
ZW C=FLOW
*
KK YMD8C
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK MD1B1
KM   MD1B1
BA0.0157
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   800  0.0500   0.600      51
UK    50  0.0200   0.110      49
RD  1000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MD1B2
KM   MD1B2
BA0.0392
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   800  0.0800   0.600      94
UK    50  0.0200   0.110       6
RD  1000  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYMD1B2
KM  0
HC     2
ZW C=FLOW
*
KK  MD1A
KM     MD1a  AREA = 3.0 AC = 0.00469 SQ MI % IMPERV = 7.1
BA0.0581
PB
* PI
BF -38.7
LU  0.10  0.1940   6.400
UK   500  0.2420   0.600  100.00
RD   135  0.2420   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD1A
KM  0
HC     2
ZW C=FLOW
*
```

```
KKYMD1C4
KM  0
HC     2
ZW C=FLOW
*
KK  MD2D
KM     MD2D
BA0.0040
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   550  0.0350   0.600      90
UK    50  0.0200   0.110      10
RD   350  0.0300   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK YMD2D
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK  MD3D
KM     MD3d
BA0.0094
PB
* PI
BF -38.7
LU  0.10  0.2500   8.000
UK   682  0.1610   0.600  100.00
RD   200  0.2350   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKMD1E1A
KM  MD1E1A
BA0.0018
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.0800   0.600      95
UK    50  0.0200   0.110       5
RD  1000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYD1E1A
KM  0
HC     2
ZW C=FLOW
*
KK   MD6
KM     MD6
BA0.0072
PB
* PI
BF -38.7
LU  0.10  0.2500   7.500
UK   635  0.1560   0.600  100.00
RD   300  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  YMD6
KM  0
HC     2
ZW C=FLOW
*
KK   MD1
KM     MD1  AREA = 5.7 AC = 0.00891 SQ MI % IMPERV = 14.0
BA0.0088
PB
* PI
BF -38.7
LU  0.10  0.2500  13.000
UK   483  0.1451   0.600  100.00
RD   100  0.1451   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  MD2A
KM  MD2A
BA0.0026
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   250  0.0350   0.600      90
UK    50  0.0200   0.110      10
RD   300  0.0400   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK YMD2A
KM  0
```

```
HC     2
ZW C=FLOW
*
KKYMD6CC
KM  0
HC     2
ZW C=FLOW
*
KK  MD27
KM     MD27
BA0.0048
PB
* PI
BF -38.7
LU  0.10  0.2500  11.000
UK   559  0.0500   0.600  100.00
RD   123  0.3210   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD27
KM  0
HC     2
ZW C=FLOW
*
KK MD28A
KM     MD28A
BA0.0043
PB
* PI
BF -38.7
LU  0.10  0.2500  15.200
UK   559  0.0500   0.600  100.00
RD   123  0.3210   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD28A
KM  0
HC     2
ZW C=FLOW
*
KK MD28B
KM     MD28B
BA0.0092
PB
* PI
BF -38.7
LU  0.10  0.2500   4.800
UK   559  0.0500   0.600  100.00
RD   123  0.3210   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK  MD3A
KM     MD3a AREA = 25.4 AC = 0.03969 SQ MI % IMPERV = 2.6
BA0.0076
PB
* PI
BF -38.7
LU  0.10  0.2500   2.500
UK   500  0.3458   0.600  100.00
RD  2530  0.3458   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD28B
KM  0
HC     3
ZW C=FLOW
*
KK YMD3A
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK  MD7B
KM     MD7B
BA0.0042
PB
* PI
BF -38.7
LU  0.10  0.2500   9.000
UK   760  0.0500   0.600  100.00
RD   160  0.3210   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
*
KKUD7BDT
KM  0
RS     1    FLOW      -1
SV  0.00    0.15    0.30    0.45
SQ   0.0   100.0   200.0   300.0
ZW C=FLOW
*
```

```
KK  MD4C
KM     MD4c
BA0.0056
PB
* PI
BF -38.7
LU  0.10  0.2500   8.800
UK   626  0.0500   0.600  100.00
RD   200  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD4C
KM  0
HC     2
ZW C=FLOW
*
KK  MD4E
KM  MD4E
BA0.0016
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1500  0.2830   0.600  100.00
RD  1100  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD4E
KM  0
HC     2
ZW C=FLOW
*
KK  MD4D
KM     MD4d
BA0.0062
PB
* PI
BF -38.7
LU  0.10  0.2500   7.500
UK   895  0.1010   0.600  100.00
RD   350  0.2980   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD4D
KM  0
HC     2
ZW C=FLOW
*
KK   MD9
KM     MD9
BA0.0106
PB
* PI
BF -38.7
LU  0.10  0.2500   7.900
UK   824  0.2530   0.600  100.00
RD   572  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK   MD8
KM     MD8
BA0.0047
PB
* PI
BF -38.7
LU  0.10  0.2500   4.800
UK   519  0.1260   0.600  100.00
RD   354  0.2350   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  YMD8
KM  0
HC     3
ZW C=FLOW
*
KK  YMD9
KM  0
HC     2
ZW C=FLOW
*
KK  MD6A
KM  MD6A
BA0.1279
PB
* PI
BF -38.7
LU  0.10  0.2190   7.500
UK   635  0.1560   0.600  100.00
RD   300  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD6A
KM  0
HC     2
```

```
ZW C=FLOW
*
* - - - - - -
*
*
KK  MD7D
KM     MD7d
BA0.0051
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   500  0.1060   0.600  100.00
RD   723  0.0640   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  MD7C
KM     MD7c
BA0.0061
PB
* PI
BF -38.7
LU  0.10  0.2500   3.200
UK   500  0.1060   0.600  100.00
RD   741  0.0640   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD7C
KM  0
HC     2
ZW C=FLOW
*
KK  MD7E
KM  MD7E
BA0.0094
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK  1200  0.3130   0.600      90
UK  1200  0.3000   0.240      10
RD  2000  0.0200   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD7E
KM  0
HC     2
ZW C=FLOW
*
KK  MD7F
KM  MD7F
BA0.0067
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK  1200  0.3130   0.600      90
UK  1200  0.3000   0.240      10
RD  2000  0.0200   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD7F
KM  0
HC     2
ZW C=FLOW
*
KK  MD11
KM     MD11
BA0.0056
PB
* PI
BF -38.7
LU  0.10  0.2500   4.800
UK   595  0.0500   0.600  100.00
RD   200  0.3330   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD11
KM  0
HC     2
ZW C=FLOW
*
KKYMD7FC
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK  MD2B
KM     MD2B
BA0.0056
PB
```

```
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   690  0.0460   0.600      90
UK    50  0.0200   0.110      10
RD   130  0.0100   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK  ME3A
KM     ME3A
BA0.0040
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   420  0.0380   0.600      90
UK    50  0.0200   0.110      10
RD   200  0.0300   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK YME3A
KM  0
HC     2
ZW C=FLOW
*
*
KKUE3CUL
KM  0
RS     1    FLOW      -1
SV  0.00    2.50    5.00    8.50   12.50   17.50
SQ   0.0   500.0  1200.0  2300.0  3500.0  5500.0
ZW C=FLOW
*
KKYME3AC
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK  MD17
KM     MD17
BA0.0075
PB
* PI
BF -38.7
LU  0.10  0.2500   5.700
UK   830  0.1260   0.600  100.00
RD   150  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  MD18
KM    MD18
BA0.0051
PB
* PI
BF -38.7
LU  0.10  0.2500   6.000
UK   930  0.1480   0.600  100.00
RD   200  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  MD19
KM     MD19
BA0.0056
PB
* PI
BF -38.7
LU  0.10  0.2500   6.100
UK  1055  0.2100   0.600  100.00
RD   150  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD19
KM  0
HC     3
ZW C=FLOW
*
KKYMD19C
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK MD2A1
KM     MD2A
BA0.0019
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
```

```
UK   250  0.0350   0.600      90
UK    50  0.0200   0.110      10
RD   300  0.0400   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK   MD2
KM     MD2
BA0.0059
PB
* PI
BF -38.7
LU  0.10  0.2500  16.800
UK   295  0.1250   0.600  100.00
RD   200  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  YMD2
KM  0
HC     2
ZW C=FLOW
*
KK ME3A2
KM    ME3A2
BA0.0062
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   500  0.0440   0.600      90
UK    50  0.0200   0.110      10
RD   300  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK YMD2C
KM  0
HC     2
ZW C=FLOW
*
KKYME3A2
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK  MD13
KM     MD13
BA0.4368
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   500  0.4770   0.600  100.00
RD  5450  0.3010   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKME6_19
KM  ME6_19
BA0.0236
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   330  0.0530   0.600  100.00
RD   522  0.0880   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKME6_14
KM  ME6_14
BA0.0063
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   330  0.0530   0.600  100.00
RD   522  0.0880   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME614
KM  0
HC     2
ZW C=FLOW
*
KK YMD13
KM  0
HC     2
ZW C=FLOW
*
KK  MD12
KM     MD12
BA0.0428
PB
* PI
```

```
BF -38.7
LU  0.10  0.2500   2.500
UK   500  0.1060   0.600  100.00
RD  2855  0.0640   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD12
KM  0
HC     2
ZW C=FLOW
*
KK MD12B
KM     MD12b
BA0.0024
PB
* PI
BF -38.7
LU  0.10  0.2500  24.700
UK   352  0.2560   0.600  100.00
RD   190  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MD12C
KM     MD12c
BA0.0084
PB
* PI
BF -38.7
LU  0.10  0.2500   6.500
UK   500  0.2050   0.600  100.00
RD   498  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD12C
KM  0
HC     2
ZW C=FLOW
*
KK MD14B
KM     MD14b
BA0.0016
PB
* PI
BF -38.7
LU  0.10  0.2500  12.600
UK   500  0.1060   0.600  100.00
RD    42  0.0640   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD14B
KM  0
HC     2
ZW C=FLOW
*
KK MD14C
KM     MD14c
BA0.0060
PB
* PI
BF -38.7
LU  0.10  0.2500   4.300
UK   500  0.1060   0.600  100.00
RD   406  0.0640   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD14C
KM  0
HC     3
ZW C=FLOW
*
KKME6_13
KM   1.17 AC
BA0.0022
PB
* PI
BF -38.7
LU  0.10  0.2500   2.900
UK   525  0.1750   0.600  100.00
RD   345  0.0800   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK ME8_3
KM   3.07 AC
BA0.0048
PB
* PI
BF -38.7
LU  0.10  0.2500   7.400
UK   675  0.1640   0.600  100.00
RD   100  0.1700   0.060            TRAP     0.1     2.0
ZW C=FLOW
*
KKYME8_3
KM  0
```

```
HC     2
ZW C=FLOW
*
KK YME83
KM  0
HC     2
ZW C=FLOW
*
KK MD13B
KM  MD13B
BA0.0392
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   500  0.4770   0.600  100.00
RD  5450  0.3010   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD13B
KM  0
HC     2
ZW C=FLOW
*
KK  MD14
KM     MD14
BA0.0060
PB
* PI
BF -38.7
LU  0.10  0.2500   9.300
UK   663  0.1650   0.600  100.00
RD   280  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MD14A
KM  MD14A
BA0.0009
PB
* PI
BF -38.7
LU  0.10  0.2500   9.300
UK   663  0.1650   0.600  100.00
RD   280  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD14A
KM  0
HC     2
ZW C=FLOW
*
KKYD14AC
KM  0
HC     2
ZW C=FLOW
*
KK ME3_5
KM  ME3_5
BA0.0007
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   300  0.1000   0.600      65
UK   300  0.1000   0.240      35
RD  1500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME3_5
KM  0
HC     2
ZW C=FLOW
*
KK  MD15
KM    MD15
BA0.0073
PB
* PI
BF -38.7
LU  0.10  0.2500   9.200
UK   870  0.1590   0.600  100.00
RD   140  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MD15A
KM  MD15A
BA0.0002
PB
* PI
BF -38.7
LU  0.10  0.2500   9.200
UK   870  0.1590   0.600  100.00
RD   140  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
```

```
*
KKYMD15A
KM  0
HC      2
ZW C=FLOW
*
KK MD16A
KM  MD16A
BA0.0036
PB
* PI
BF -38.7
LU  0.10  0.2500  10.000
UK   772  0.1250   0.600  100.00
RD   150  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD16A
KM  0
HC      2
ZW C=FLOW
*
KK  MD16
KM     MD16
BA0.0063
PB
* PI
BF -38.7
LU  0.10  0.2500  10.000
UK   772  0.1250   0.600  100.00
RD   150  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD16
KM  0
HC      2
ZW C=FLOW
*
KKYMD16C
KM  0
HC      2
ZW C=FLOW
*
KK MD13C
KM  MD13C
BA0.0068
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   500  0.4770   0.600  100.00
RD  5450  0.3010   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD13C
KM  0
HC      2
ZW C=FLOW
*
KK  MD20
KM     MD20
BA0.0020
PB
* PI
BF -38.7
LU  0.10  0.2500   9.000
UK   740  0.0500   0.600  100.00
RD   180  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD20
KM  0
HC      2
ZW C=FLOW
*
KKYD13CC
KM  0
HC      2
ZW C=FLOW
*
KK  ME3B
KM     ME3B
BA0.0182
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   300  0.1000   0.600      65
UK   300  0.1000   0.240      35
RD  1500  0.1000   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
* - - - - - -
*
```

```
*
KKGS31B1
KM    GS31B1
BA0.0029
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   580  0.0380   0.600      90
UK    50  0.0200   0.110      10
RD   275  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKGS31B2
KM    GS31B2
BA0.0047
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   690  0.0570   0.600      90
UK    50  0.0200   0.110      10
RD   340  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKGS31B3
KM    GS31B3
BA0.0056
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   530  0.0600   0.600      90
UK    50  0.0200   0.110      10
RD   250  0.0400   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYGS311
KM  0
HC     3
ZW C=FLOW
*
KKGS31B4
KM    GS31B4
BA0.0012
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   250  0.0480   0.600      90
UK    50  0.0200   0.110      10
RD   150  0.0400   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKGS31B5
KM    GS31B5
BA0.0056
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   500  0.0500   0.600      90
UK    50  0.0200   0.110      10
RD   350  0.0400   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYGS312
KM  0
HC     3
ZW C=FLOW
*
KKYS31BC
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK ME8_1
KM   0.48 AC
BA0.0007
PB
* PI
BF -38.7
LU  0.10  0.2500  26.000
UK   180  0.0660   0.600  100.00
RD    80  0.0600   0.060            TRAP     0.1     2.0
ZW C=FLOW
*
KK ME3_1
KM  ME3_1
BA0.0009
PB
```

```
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   300  0.1000   0.600      65
UK   300  0.1000   0.240      35
RD  1500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME3_1
KM  0
HC     2
ZW C=FLOW
*
KK ME3_2
KM  ME3_2
BA0.0024
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   300  0.1000   0.600      65
UK   300  0.1000   0.240      35
RD  1500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME3_2
KM  0
HC     2
ZW C=FLOW
*
KK ME3_3
KM  ME3_3
BA0.0031
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   300  0.1000   0.600      65
UK   300  0.1000   0.240      35
RD  1500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME3_3
KM  0
HC     2
ZW C=FLOW
*
KK ME3_4
KM  ME3_4
BA0.0024
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   300  0.1000   0.600      65
UK   300  0.1000   0.240      35
RD  1500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME3_4
KM  0
HC     2
ZW C=FLOW
*
KK  MD21
KM     MD21
BA0.0033
PB
* PI
BF -38.7
LU  0.10  0.2500   7.200
UK   640  0.0500   0.600  100.00
RD   150  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD21
KM  0
HC     2
ZW C=FLOW
*
KK ME3C3
KM  ME3C3
BA0.0066
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   300  0.1000   0.600      65
UK   300  0.1000   0.240      35
RD  1500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME3C3
KM  0
```

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HC     2
ZW C=FLOW
*
KK ME3C1
KM  ME3C1
BA0.0016
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   300  0.1000   0.600      65
UK   300  0.1000   0.240      35
RD  1500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME3C1
KM  0
HC     2
ZW C=FLOW
*
KKYME3CC
KM  0
HC     2
ZW C=FLOW
*
KK  ME4A
KM     ME4A
BA0.0939
PB
* PI
BF -38.7
LU  0.10  0.2320   2.000    0.10  0.2320  15.000
UK   500  0.1200   0.600      90
UK   300  0.1200   0.240      10
RD  2500  0.1000   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
* - - - - - -
*
*
KKME6_11
KM   0.13 AC
BA0.0002
PB
* PI
BF -38.7
LU  0.10  0.2500  49.100
UK    30  0.0200   0.110  100.00
RD    95  0.0600   0.060            TRAP     0.1    50.0
ZW C=FLOW
*
KKME6_10
KM   0.21 AC
BA0.0003
PB
* PI
BF -38.7
LU  0.10  0.2500  67.300
UK    30  0.0200   0.110  100.00
RD   235  0.0600   0.060            TRAP     0.1    50.0
ZW C=FLOW
*
KKYME610
KM  CME610
HC     2
ZW C=FLOW
*
KKME6_25
KM   7.81 AC
BA0.0094
PB
* PI
BF -38.7
LU  0.10  0.2500   7.100
UK   125  0.1600   0.600  100.00
RD   235  0.1149   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME625
KM  0
HC     2
ZW C=FLOW
*
KKME6_33
KM  ME6_33
BA0.0026
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   330  0.0530   0.600  100.00
RD   522  0.0880   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
```

```
KKYME633
KM  0
HC     2
ZW C=FLOW
*
KKME6_26
KM   0.43 AC
BA0.0008
PB
* PI
BF -38.7
LU  0.10  0.2500   3.000
UK   200  0.1300   0.600  100.00
RD   205  0.1268   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME626
KM  0
HC     2
ZW C=FLOW
*
KK ME7_1
KM   8.34 AC
BA0.0127
PB
* PI
BF -38.7
LU  0.10  0.2500   4.600
UK   470  0.2468   0.600  100.00
RD   340  0.1471   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME7_1
KM  CME7_1
HC     2
ZW C=FLOW
*
KK ME7_2
KM   0.25 AC
BA0.0004
PB
* PI
BF -38.7
LU  0.10  0.2500  83.600
UK    30  0.0200   0.110  100.00
RD   620  0.0800   0.060            TRAP     0.1    50.0
ZW C=FLOW
*
KKYME7_2
KM  0
HC     2
ZW C=FLOW
*
KK ME7D6
KM  ME7D6
BA0.0060
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   500  0.1800   0.600      75
UK   300  0.1800   0.240      25
RD  1000  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME7D6
KM  0
HC     2
ZW C=FLOW
*
KKME7D14
KM  ME7D14
BA0.0037
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   150  0.1300   0.600  100.00
RD   300  0.1200   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKME7D16
KM  ME7D16
BA0.0018
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   177  0.0450   0.600  100.00
RD   430  0.1200   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKME7D15
KM  ME7D15
```

```
BA0.0031
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   175  0.0570   0.600  100.00
RD   570  0.1100   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYM7D14
KM  0
HC     2
ZW C=FLOW
*
KKME7D24
KM  ME7D24
BA0.0022
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   144  0.0900   0.600  100.00
RD   270  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYM7D24
KM  0
HC     2
ZW C=FLOW
*
KKME4B13
KM  ME4B13
BA0.0056
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   270  0.0200   0.600  100.00
RD   515  0.0540   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYM4B13
KM  0
HC     2
ZW C=FLOW
*
KK ME7C4
KM  ME7C4
BA0.0054
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   500  0.1500   0.600       5
UK   300  0.1500   0.240      95
RD  1000  0.1000   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK ME7C5
KM  ME7C5
BA0.0061
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   500  0.1500   0.600       5
UK   300  0.1500   0.240      95
RD  1000  0.1000   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYME7C5
KM  0
HC     2
ZW C=FLOW
*
KK ME4B3
KM  ME4B3
BA0.0029
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   300  0.0500   0.600      15
UK   300  0.0500   0.240      85
RD  2000  0.1000   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYME4B3
KM  0
HC     2
ZW C=FLOW
*
*
KKUE4BDT
```

```
KM  0
RS     1    FLOW      -1
SV  0.00    0.15    0.30    0.45
SQ   0.0   100.0   200.0   300.0
ZW C=FLOW
*
KKME4B12
KM  ME4B12
BA0.0065
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   430  0.0180   0.600  100.00
RD   720  0.0700   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME4BC
KM  0
HC     2
ZW C=FLOW
*
KKYM4BCC
KM  0
HC     2
ZW C=FLOW
*
KKME4B23
KM  ME4B23
BA0.0088
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   210  0.0700   0.600  100.00
RD   400  0.0600   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKME4B22
KM  ME4B22
BA0.0074
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   220  0.1000   0.600  100.00
RD   720  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK ME3C2
KM  ME3C2
BA0.0032
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   300  0.1600   0.600      60
UK   300  0.1600   0.240      40
RD  1500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKME4B11
KM  ME4B11
BA0.0049
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   340  0.0530   0.600  100.00
RD   530  0.0750   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKME4B21
KM  ME4B21
BA0.0024
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   220  0.1000   0.600  100.00
RD   720  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKME4B10
KM  ME4B-10
BA0.0027
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   150  0.0800   0.600  100.00
RD   275  0.0700   0.060           TRAP     10.0    10.0
ZW C=FLOW
*
```

```
KK  ME4B
KM     ME4B
BA0.0055
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   300  0.0500   0.600      15
UK   300  0.0500   0.240      85
RD  2000  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YME4B
KM  0
HC     2
ZW C=FLOW
*
KKYME4CC
KM  0
HC     3
ZW C=FLOW
*
KKYM4CCC
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KKMG3_3B
KM  MG3_3B
BA0.1460
PB
* PI
BF -38.7
LU  0.10  0.2500   2.900
UK   575  0.2250   0.600  100.00
RD   925  0.2260   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKMG3_3C
KM  MG3_3C
BA0.0127
PB
* PI
BF -38.7
LU  0.10  0.2500   2.900
UK   575  0.2250   0.600  100.00
RD   925  0.2260   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMG_3C
KM  0
HC     2
ZW C=FLOW
*
KKME6_12
KM   14.48 AC
BA0.0096
PB
* PI
BF -38.7
LU  0.10  0.2500   3.400
UK   600  0.2950   0.600  100.00
RD  1920  0.2495   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME_12
KM  0
HC     2
ZW C=FLOW
*
KKME6_16
KM   10.41 AC
BA0.0002
PB
* PI
BF -38.7
LU  0.10  0.2500   4.400
UK   600  0.2950   0.600  100.00
RD  1595  0.3003   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME_16
KM  0
HC     2
ZW C=FLOW
*
KKME6_18
KM   2.92 AC
BA0.0046
PB
* PI
```

```
BF -38.7
LU  0.10  0.2500  10.200
UK   150  0.2133   0.600  100.00
RD   155  0.1032   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME_18
KM  0
HC     2
ZW C=FLOW
*
KKME6_20
KM   3.75 AC
BA0.0060
PB
* PI
BF -38.7
LU  0.10  0.2500   6.300
UK   200  0.2100   0.600  100.00
RD   155  0.2330   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKME6_24
KM   0.70 AC
BA0.0026
PB
* PI
BF -38.7
LU  0.10  0.2500  18.600
UK   305  0.0910   0.600  100.00
RD   120  0.0300   0.060            TRAP     0.1    50.0
ZW C=FLOW
*
KKYME_24
KM  0
HC     3
ZW C=FLOW
*
KKME6_23
KM   4.19 AC
BA0.0065
PB
* PI
BF -38.7
LU  0.10  0.2500   8.200
UK   200  0.1700   0.600  100.00
RD   265  0.1060   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKME6_32
KM   0.39 AC
BA0.0006
PB
* PI
BF -38.7
LU  0.10  0.2500  33.900
UK    24  0.0200   0.110  100.00
RD   415  0.0800   0.060            TRAP     0.1    50.0
ZW C=FLOW
*
KKYME_32
KM  0
HC     2
ZW C=FLOW
*
KKME6_28
KM   4.93 AC
BA0.0077
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   355  0.1130   0.600  100.00
RD   590  0.1010   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK ME627
KM   1.77 AC
BA0.0027
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   120  0.1070   0.600  100.00
RD   400  0.1057   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME627
KM  0
HC     2
ZW C=FLOW
*
KKME6_29
KM   1.37 AC
```

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BA0.0021
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   370  0.1140   0.600  100.00
RD   335  0.0930   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME_29
KM  0
HC     2
ZW C=FLOW
*
KKME6_30
KM   1.27 AC
BA0.0020
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   295  0.0880   0.600  100.00
RD   195  0.0790   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKME6A25
KM  ME6A25
BA0.0029
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   330  0.0530   0.600  100.00
RD   522  0.0880   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYM6A25
KM  0
HC     2
ZW C=FLOW
*
KK  ME7B
KM     ME7B
BA0.0270
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   400  0.0500   0.600      75
UK   300  0.0500   0.240      25
RD  1500  0.1000   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
*
KKUE7BDT
KM  0
RS     1    FLOW      -1
SV  0.00    0.15    0.30    0.45
SQ   0.0   100.0   200.0   300.0
ZW C=FLOW
*
KK  ME7A
KM     ME7A
BA0.1404
PB
* PI
BF -38.7
LU  0.10  0.2270   2.000    0.10  0.2270  15.000
UK  1300  0.1920   0.600      10
UK   300  0.1900   0.240      90
RD  3000  0.1000   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYME7AC
KM  0
HC     2
ZW C=FLOW
*
KK YGSMC
KM  0
HC     2
ZW C=FLOW
*
KKVGSMCR
KM  0
RD  2000  0.0100   0.040            TRAP    10.0    10.0
ZW C=FLOW
*
KK   MF1
KM     MF1
BA0.3780
PB
* PI
BF -38.7
```

```
LU  0.10  0.2050   2.000
UK  1500  0.0870   0.600  100.00
RD  2000  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YMF1C
KM  0
HC     2
ZW C=FLOW
*
KKVMF1CR
KM  0
RD  2000  0.0100   0.040           TRAP    10.0    10.0
ZW C=FLOW
*
KK   MF2
KM     MF2
BA0.0582
PB
* PI
BF -38.7
LU  0.10  0.2470   2.000
UK  1000  0.0700   0.600  100.00
RD  2000  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YMF2C
KM  0
HC     2
ZW C=FLOW
*
KKVMF2CR
KM  0
RD  3000  0.0100   0.040           TRAP    10.0    10.0
ZW C=FLOW
*
* - - - - - -
*
*
KKMD4_1A
KM     MD4
BA0.1899
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1500  0.2830   0.600  100.00
RD  1100  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKMG4_1B
KM     6.35 AC
BA0.0100
PB
* PI
BF -38.7
LU  0.10  0.2500   2.100
UK   500  0.3500   0.600  100.00
RD   491  0.4296   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKMG5_2A
KM   8.61 AC
BA0.0134
PB
* PI
BF -38.7
LU  0.10  0.2500   3.200
UK   600  0.2033   0.600  100.00
RD  1065  0.3014   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMG52A
KM  0
HC     3
ZW C=FLOW
*
KK MG3_1
KM   1.78 AC
BA0.0028
PB
* PI
BF -38.7
LU  0.10  0.2500   5.400
UK   500  0.2800   0.600  100.00
RD  1070  0.3293   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKMG3_1A
KM   1.00 AC
BA0.0016
PB
* PI
BF -38.7
```

```
LU  0.10  0.2500   5.400
UK   498  0.2800   0.600  100.00
RD   575  0.3270   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMG31A
KM  0
HC     2
ZW C=FLOW
*
KKMG3_1C
KM   1.47 AC
BA0.0023
PB
* PI
BF -38.7
LU  0.10  0.2500   5.400
UK   498  0.2811   0.600  100.00
RD   567  0.3422   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMG31C
KM  0
HC     2
ZW C=FLOW
*
KK MG3_6
KM   0.09 AC
BA0.0002
PB
* PI
BF -38.7
LU  0.10  0.2500  90.000
UK    30  0.0200   0.110  100.00
RD   360  0.0120   0.060           TRAP     0.1     1.0
ZW C=FLOW
*
KK YMG36
KM  0
HC     2
ZW C=FLOW
*
KK MG4_2
KM   4.61 AC
BA0.0072
PB
* PI
BF -38.7
LU  0.10  0.2500   3.100
UK   500  0.2840   0.600  100.00
RD   535  0.3551   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YMG42
KM  0
HC     2
ZW C=FLOW
*
KKMG4_3B
KM  MG4_3B
BA0.0002
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK  2300  0.3260   0.600      95
UK   600  0.2500   0.240       5
RD  2500  0.1000   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMG43B
KM  0
HC     2
ZW C=FLOW
*
KKMG4_3A
KM   0.07 AC
BA0.0001
PB
* PI
BF -38.7
LU  0.10  0.2500  90.000
UK    30  0.0200   0.110  100.00
RD   250  0.0098   0.060           TRAP     0.1     1.0
ZW C=FLOW
*
KKYMG43A
KM  0
HC     2
ZW C=FLOW
*
KKMG5_2B
KM   0.06 AC
BA0.0001
```

```
PB
* PI
BF -38.7
LU  0.10  0.2500  90.000
UK    12  0.0100   0.600  100.00
RD   400  0.0500   0.060            TRAP    10.0    50.0
ZW C=FLOW
*
KK MG4_4
KM   0.10 AC
BA0.0002
PB
* PI
BF -38.7
LU  0.10  0.2500  90.000
UK    30  0.0200   0.110  100.00
RD   350  0.0098   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
KK YMG44
KM  0
HC     2
ZW C=FLOW
*
KKMG4_5C
KM  MG4_5C
BA0.0078
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK  2300  0.3260   0.600      95
UK   600  0.2500   0.240       5
RD  2500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMG45C
KM  0
HC     4
ZW C=FLOW
*
KKMG5_1A
KM   18.98 AC
BA0.0296
PB
* PI
BF -38.7
LU  0.10  0.2500   2.800
UK   600  0.1550   0.600  100.00
RD  1820  0.2357   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKMG5_1B
KM  MG5_1B
BA0.0090
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   200  0.1000   0.600       5
UK   200  0.1000   0.240      95
RD   500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMG51B
KM  0
HC     2
ZW C=FLOW
*
KK MG5_3
KM   0.04 AC
BA0.0001
PB
* PI
BF -38.7
LU  0.10  0.2500  90.000
UK    30  0.0200   0.110  100.00
RD   300  0.0775   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
KK MG5_4
KM   0.15 AC
BA0.0003
PB
* PI
BF -38.7
LU  0.10  0.2500  90.000
UK    30  0.0200   0.110  100.00
RD   300  0.0775   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
KK YMG54
KM  0
HC     3
```

```
ZW C=FLOW
*
KK MG5_5
KM  MG5_5
BA0.0024
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   200  0.1000   0.600       5
UK   200  0.1000   0.240      95
RD   500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMG55
KM  0
HC     2
ZW C=FLOW
*
KKYMG55C
KM  0
HC     2
ZW C=FLOW
*
KKMG3_3A
KM   8.25 AC
BA0.0129
PB
* PI
BF -38.7
LU  0.10  0.2500   2.900
UK   575  0.2250   0.600  100.00
RD   925  0.2260   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MG3_2
KM   2.58 AC
BA0.0040
PB
* PI
BF -38.7
LU  0.10  0.2500   6.100
UK   390  0.2051   0.600  100.00
RD   370  0.3000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MG3_4
KM   014 AC
BA0.0002
PB
* PI
BF -38.7
LU  0.10  0.2500  88.800
UK    30  0.0200   0.110  100.00
RD   300  0.0691   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
KK YMG34
KM  0
HC     3
ZW C=FLOW
*
KKMG3_1B
KM   0.87 AC
BA0.0014
PB
* PI
BF -38.7
LU  0.10  0.2500   5.400
UK   500  0.2800   0.600  100.00
RD   300  0.3467   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKMG3_1D
KM   0.57 AC
BA0.0009
PB
* PI
BF -38.7
LU  0.10  0.2500   5.400
UK   504  0.2778   0.600  100.00
RD   360  0.3083   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MG3_5
KM   0.07 AC
BA0.0001
PB
* PI
BF -38.7
LU  0.10  0.2500  90.000
UK    30  0.0200   0.110  100.00
RD   350  0.0094   0.060            TRAP     0.1     1.0
ZW C=FLOW
```

```
*
KK YMG35
KM  0
HC     3
ZW C=FLOW
*
KKMG3_5A
KM  MG3_5A
BA0.0073
PB
* PI
BF -38.7
LU  0.10  0.2500   2.900
UK   575  0.2250   0.600  100.00
RD   925  0.2260   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMG35A
KM  0
HC     3
ZW C=FLOW
*
KK ME6_1
KM   10.24 AC
BA0.0082
PB
* PI
BF -38.7
LU  0.10  0.2500   3.900
UK   310  0.1740   0.600  100.00
RD   250  0.1640   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK ME6_2
KM   1.28 AC
BA0.0099
PB
* PI
BF -38.7
LU  0.10  0.2500   6.900
UK   505  0.1940   0.600  100.00
RD   235  0.0800   0.060           TRAP     0.1    50.0
ZW C=FLOW
*
KK ME6_3
KM   0.02 AC
BA0.0003
PB
* PI
BF -38.7
LU  0.10  0.2500  86.500
UK    15  0.0200   0.600  100.00
RD   235  0.0800   0.060           TRAP     0.1    50.0
ZW C=FLOW
*
KKYM6123
KM  0
HC     3
ZW C=FLOW
*
KK ME6_5
KM   1.40 AC
BA0.0022
PB
* PI
BF -38.7
LU  0.10  0.2500  16.500
UK   160  0.1500   0.600  100.00
RD   365  0.0800   0.060           TRAP     0.1    50.0
ZW C=FLOW
*
KK YME65
KM  0
HC     2
ZW C=FLOW
*
KK ME6_7
KM   0.81 AC
BA0.0013
PB
* PI
BF -38.7
LU  0.10  0.2500  16.200
UK   190  0.1680   0.600  100.00
RD   145  0.1100   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YME67
KM  0
HC     2
ZW C=FLOW
*
KK ME6_8
KM    .44 AC
```

```
BA0.0007
PB
* PI
BF -38.7
LU  0.10  0.2500  87.800
UK    20  0.0200   0.600  100.00
RD   555  0.0560   0.060            TRAP    10.0    50.0
ZW C=FLOW
*
KK YME68
KM  0
HC     2
ZW C=FLOW
*
KK MG1_2
KM   0.67 AC
BA0.0010
PB
* PI
BF -38.7
LU  0.10  0.2500  11.100
UK   100  0.1400   0.600  100.00
RD   255  0.1686   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MG1_3
KM   1.89 AC
BA0.0025
PB
* PI
BF -38.7
LU  0.10  0.2500   9.500
UK   300  0.0700   0.600  100.00
RD   205  0.2293   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MG1_1
KM   1.38 AC
BA0.0026
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   185  0.1946   0.600  100.00
RD   205  0.0600   0.060            TRAP     0.1     2.0
ZW C=FLOW
*
KK MG1_4
KM   0.18 AC
BA0.0003
PB
* PI
BF -38.7
LU  0.10  0.2500  46.900
UK    30  0.0200   0.110  100.00
RD   295  0.0800   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
KKYG1234
KM  0
HC     5
ZW C=FLOW
*
KKMG3_33
KM  MG3_33
BA0.0087
PB
* PI
BF -38.7
LU  0.10  0.2500   2.900
UK   575  0.2250   0.600  100.00
RD   925  0.2260   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMG33
KM  0
HC     2
ZW C=FLOW
*
KKME6_8A
KM  ME6_8A
BA0.0006
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   330  0.0530   0.600  100.00
RD   522  0.0880   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME68A
KM  0
HC     3
ZW C=FLOW
```

```
*
KK   MG2
KM     MG2
BA0.1195
PB
* PI
BF -38.7
LU  0.10  0.2450   2.000    0.10  0.2450  15.000
UK   700  0.1430   0.600      90
UK   700  0.1400   0.240      10
RD  1500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  YMG2
KM  0
HC     3
ZW C=FLOW
*
* - - - - - -
*
*
KK ME6_6
KM   0.16 AC
BA0.0003
PB
* PI
BF -38.7
LU  0.10  0.2500  73.000
UK    30  0.0200   0.110  100.00
RD   340  0.0800   0.060            TRAP     0.1    50.0
ZW C=FLOW
*
KKME6_21
KM   2.50 AC
BA0.0039
PB
* PI
BF -38.7
LU  0.10  0.2500  12.000
UK   200  0.1250   0.600  100.00
RD   235  0.1490   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKME6_31
KM   0.44 AC
BA0.0007
PB
* PI
BF -38.7
LU  0.10  0.2500  42.900
UK    24  0.0200   0.110  100.00
RD   480  0.0800   0.060            TRAP     0.1    50.0
ZW C=FLOW
*
KKYME631
KM  0
HC     3
ZW C=FLOW
*
KKMG1B19
KM  MG1B19
BA0.0072
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   150  0.0400   0.600  100.00
RD   780  0.1300   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKMG1B20
KM  MG1B20
BA0.0039
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   240  0.0800   0.600  100.00
RD   710  0.1200   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  ME6A
KM     ME6A
BA0.0030
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   300  0.1200   0.600      50
UK   300  0.1200   0.240      50
RD  1500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YME6A
```

```
KM  0
HC     3
ZW C=FLOW
*
KKMG1B26
KM  MG1B26
BA0.0038
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   250  0.0960   0.600  100.00
RD   550  0.0910   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK  MG1B
KM     MG1B
BA0.0119
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   300  0.1000   0.600      50
UK   200  0.1000   0.240      50
RD   800  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKME6A27
KM  ME6A27
BA0.0094
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   230  0.0950   0.600  100.00
RD   520  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMG1B
KM  0
HC     3
ZW C=FLOW
*
KK  MG1A
KM     MG1A
BA0.0185
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   200  0.1000   0.600      50
UK   200  0.1000   0.240      50
RD  1000  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMG1A
KM  0
HC     2
ZW C=FLOW
*
KK YMGCC
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK MG5B1
KM  MG5B1
BA0.1242
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   200  0.1000   0.600       5
UK   200  0.1000   0.240      95
RD   500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MG5A2
KM  MG5A2
BA0.0613
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   200  0.1000   0.600       5
UK   200  0.1000   0.240      95
RD   500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMG5A2
KM  0
```

```
HC     2
ZW C=FLOW
*
KK  MG6B
KM     MG6B
BA0.0479
PB
* PI
BF -38.7
LU  0.10  0.2010   2.000    0.10  0.2010  15.000
UK  1000  0.2500   0.600      85
UK   400  0.2500   0.240      15
RD  1500  0.1000   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK MG5A1
KM  MG5A1
BA0.0134
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   200  0.1000   0.600       5
UK   200  0.1000   0.240      95
RD   500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMG5A1
KM  0
HC     2
ZW C=FLOW
*
KK YMGCC
KM  0
HC     2
ZW C=FLOW
*
KK   MG7
KM     MG7
BA0.1439
PB
* PI
BF -38.7
LU  0.10  0.2070   2.160
UK   600  0.2500   0.600  100.00
RD  3500  0.0100   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK NS24A
KM  NS24A
BA0.0297
PB
* PI
BF -38.7
LU  0.10  0.2500   2.080
UK   900  0.1000   0.600  100.00
RD  1000  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK NS24B
KM  NS24B
BA0.0120
PB
* PI
BF -38.7
LU  0.10  0.2500   5.580
UK   300  0.1000   0.600  100.00
RD   500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS24B
KM  0
HC     2
ZW C=FLOW
*
KK NS24C
KM  NS24C
BA0.0400
PB
* PI
BF -38.7
LU  0.10  0.1820   2.680
UK   800  0.1000   0.600  100.00
RD  1000  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS24C
KM  0
HC     3
ZW C=FLOW
*
KK  NS25
KM  NS25
BA0.0370
```

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PB
* PI
BF -38.7
LU  0.10  0.2490   2.140
UK   800  0.0500   0.600  100.00
RD  1200  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YNS25
KM  0
HC     2
ZW C=FLOW
*
KK  NS26
KM  NS26
BA0.1102
PB
* PI
BF -38.7
LU  0.10  0.1220   2.800
UK  1000  0.0500   0.600  100.00
RD  1500  0.0200   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YNS26
KM  0
HC     3
ZW C=FLOW
*
*
KKUW4END
KM  ROUTE FOR BACKWATER AT NW4
RS     1    FLOW      -1
SV  0.00    0.46    1.70    6.66   46.30  520.00
SQ   0.0   178.0  1833.0  2500.0  4382.0  8550.0
ZW C=FLOW
*
* - - - - - -
*
*
KK NS22A
KM  NS22A
BA0.0103
PB
* PI
BF -38.7
LU  0.10  0.2500   2.830
UK   750  0.1000   0.600  100.00
RD  1000  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK NS22C
KM  NS22C
BA0.0063
PB
* PI
BF -38.7
LU  0.10  0.2500   4.580
UK   300  0.1000   0.600  100.00
RD   500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS22C
KM  0
HC     2
ZW C=FLOW
*
KK NS23A
KM  NS23A
BA0.0374
PB
* PI
BF -38.7
LU  0.10  0.1900   2.000
UK   950  0.0700   0.600  100.00
RD  1100  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS23A
KM  0
HC     2
ZW C=FLOW
*
KK  NS27
KM  NS27
BA0.0574
PB
* PI
BF -38.7
LU  0.10  0.1000   2.180
UK   830  0.0300   0.600  100.00
RD  1000  0.0200   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
```

```
KK YNS27
KM  0
HC     4
ZW C=FLOW
*
KK NS28B
KM  NS28B
BA0.0417
PB
* PI
BF -38.7
LU  0.10  0.1000   2.000
UK   500  0.0100   0.600  100.00
RD  1000  0.0100   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  E85Z
KM  E85Z
BA0.0291
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   400  0.0200   0.600  100.00
RD   500  0.0500   0.060            TRAP    20.0    10.0
ZW C=FLOW
*
KKYNS28B
KM  0
HC     3
ZW C=FLOW
*
KK NS28A
KM  NS28A
BA0.0415
PB
* PI
BF -38.7
LU  0.10  0.1000   2.000
UK   500  0.0100   0.600  100.00
RD  1000  0.0100   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS28A
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK  NS22
KM  NS22
BA0.2037
PB
* PI
BF -38.7
LU  0.10  0.2500   2.070
UK  2100  0.0800   0.600  100.00
RD  2500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  NS31
KM  NS31
BA0.0592
PB
* PI
BF -38.7
LU  0.10  0.2500   2.370
UK  1250  0.1000   0.600  100.00
RD  1300  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YNS31
KM  0
HC     2
ZW C=FLOW
*
KK NS22B
KM  NS22B
BA0.0098
PB
* PI
BF -38.7
LU  0.10  0.2500   4.910
UK   500  0.1000   0.600  100.00
RD   500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS22B
KM  0
HC     2
ZW C=FLOW
*
```

```
KK NS23B
KM  NS23B
BA0.1061
PB
* PI
BF -38.7
LU  0.10  0.1910   2.040
UK  1350  0.0500   0.600  100.00
RD  1500  0.0200   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS23B
KM  0
HC     2
ZW C=FLOW
*
KK NS32A
KM  NS32A
BA0.0191
PB
* PI
BF -38.7
LU  0.10  0.2500   3.080
UK   500  0.1000   0.600  100.00
RD  1000  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK NS32B
KM  NS32B
BA0.1481
PB
* PI
BF -38.7
LU  0.10  0.1650   2.130
UK  1500  0.0800   0.600  100.00
RD  2500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS32B
KM  0
HC     3
ZW C=FLOW
*
KK   NS1
KM   BASIN 1 - 330 Ac
BA0.5174
PB
* PI
BF -38.7
LU  0.10  0.1780   2.000    0.10  0.1780   2.000
UK  3300  0.2400   0.800      57
UK  3300  0.2400   0.600      43
RD  2800  0.1800   0.060            TRAP     5.0     3.0
RD  2800  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
*
KKUR-NS1
KM   ROUTE NS-1
RS     1    FLOW      -1
SV  0.70    1.10    1.50    1.90    2.20    2.80    3.90    4.90
SQ 100.0   200.0   300.0   400.0   500.0   700.0  1100.0  1500.0
ZW C=FLOW
*
KK   NS2
KM   BASIN 2 - 267 Ac
BA0.4184
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500   2.000
UK  2800  0.2500   0.800      54
UK  2800  0.2500   0.600      46
RD  2200  0.1600   0.060            TRAP     5.0     3.0
RD  2200  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKYCMB-2
KM   COMBINE NS-1 & 2
HC     2
ZW C=FLOW
*
*
KKUCMB-2
KM   ROUTE CMB-2
RS     1    FLOW      -1
SV  0.70    1.00    1.40    1.70    2.00    2.50    3.40    4.30
SQ 100.0   200.0   300.0   400.0   500.0   700.0  1100.0  1500.0
ZW C=FLOW
*
KK   NS3
KM   BASIN 3 - 331 Ac
BA0.5218
PB
```

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* PI
BF -38.7
LU  0.10  0.2500  65.000    0.10  0.2500   2.000
UK  2950  0.1800   0.240       3
UK  2950  0.1800   0.600      98
RD  3000  0.2000   0.060            TRAP     5.0     3.0
RD  3000  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKYCMB-3
KM   COMBINE NS-1 THRU 3
HC     2
ZW C=FLOW
*
*
KKUCMB-3
KM   ROUTE CMB-3
RS     1    FLOW      -1
SV  1.40    2.30    3.00    3.70    4.20    5.70    7.70    9.20
SQ 100.0   200.0   300.0   400.0   500.0   700.0  1100.0  1500.0
ZW C=FLOW
*
KK   NS4
KM   BASIN 4 - 166 Ac
BA0.2602
PB
* PI
BF -38.7
LU  0.10  0.2500  65.000    0.10  0.2500   2.000
UK  2110  0.2200   0.240      29
UK  2110  0.2200   0.600      71
RD  2500  0.1000   0.060            TRAP     5.0     3.0
RD  2500  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKYCMB-4
KM   COMBINE NS-1 THRU 4
HC     2
ZW C=FLOW
*
*
KKUCMB-4
KM   ROUTE CMB-4
RS     1    FLOW      -1
SV  0.20    0.30    0.40    0.40    0.50    0.60    2.20    2.90
SQ 100.0   200.0   300.0   400.0   500.0   700.0  1100.0  1500.0
ZW C=FLOW
*
KK   NS5
KM   BASIN 5 - 21 Ac
BA0.0319
PB
* PI
BF -38.7
LU  0.10  0.2500  65.000    0.10  0.2500   2.000
UK  1400  0.2500   0.240      36
UK  1400  0.2500   0.600      64
RD   700  0.1400   0.060            TRAP     5.0     3.0
RD   700  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKYCMB-5
KM   COMBINE NS-1 THRU 5
HC     2
ZW C=FLOW
*
*
KKUCMB-5
KM   ROUTE CMB-5
RS     1    FLOW      -1
SV  0.40    0.60    0.80    1.10    1.30    1.60    2.30    2.90
SQ 100.0   200.0   300.0   400.0   500.0   700.0  1100.0  1500.0
ZW C=FLOW
*
KK   NS6
KM   BASIN 6 - 178 Ac
BA0.2162
PB
* PI
BF -38.7
LU  0.10  0.2500  65.000    0.10  0.2500   2.000
UK  3100  0.2700   0.240      71
UK  3100  0.2700   0.600      29
RD  3100  0.1600   0.060            TRAP     5.0     3.0
RD  3100  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKVR-NS6
KM   ROUTE NS-6
RD   970  0.0700   0.015            TRAP     1.0     1.0
ZW C=FLOW
*
KK   NS7
KM   BASIN 7 - 38 Ac
```

```
BA0.0602
PB
* PI
BF -38.7
LU  0.10  0.2500  65.270    0.10  0.2500   2.000
UK  1570  0.1900   0.240      69
UK  1570  0.1900   0.600      31
RD   800  0.0800   0.060            TRAP     2.0     1.0
RD   800  0.0010   0.060            TRAP     2.0     1.0
ZW C=FLOW
*
KKYCMB-7
KM   COMBINE NS-6 & 7
HC     2
ZW C=FLOW
*
KKYMB-7A
KM   COMBINE NS-1 THRU 7
HC     2
ZW C=FLOW
*
*
KKUCMB7A
KM   ROUTE CMB-7A
RS     1    FLOW      -1
SV  0.60    1.10    1.40    1.70    2.10    2.60    3.60    4.60
SQ 100.0   200.0   300.0   400.0   500.0   700.0  1100.0  1500.0
ZW C=FLOW
*
KK   NS8
KM   BASIN 8 - 673 Ac
BA1.1304
PB
* PI
BF -38.7
LU  0.10  0.2390   2.000    0.10  0.2390   2.000
UK  4200  0.2100   0.800      92
UK  4200  0.2100   0.600       9
RD  1900  0.0800   0.060            TRAP     5.0     3.0
RD  1900  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
*
KKURES-A
KM   RESERVOIR A
RS     1    FLOW      -1
SV  0.00    3.40    6.80   10.20   13.60   17.00   20.40   23.80   27.20   34.00
SQ   0.0    23.9    67.5   124.0   190.0   266.0   350.0   441.0   540.0   754.0
ZW C=FLOW
*
KKV-RESA
KM   ROUTE RES-A
RD  1400  0.1100   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KK   NS9
KM   BASIN 9 - 144 Ac
BA0.1855
PB
* PI
BF -38.7
LU  0.10  0.2490   2.000
UK  4400  0.2000   0.600  100.00
RD  1200  0.1100   0.060            TRAP     5.0     3.0
RD  1200  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKYCMB-9
KM   COMBINE NS-8 & 9
HC     2
ZW C=FLOW
*
KKVCMB-9
KM   ROUTE CMB-9
RD  2800  0.1100   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KK  NS10
KM   BASIN 10 - 214 Ac
BA0.3581
PB
* PI
BF -38.7
LU  0.10  0.2230   2.000
UK  3905  0.2000   0.600  100.00
RD  2200  0.0900   0.060            TRAP     5.0     3.0
RD  2200  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKYMB-10
KM   COMBINE NS-8 THRU 10
HC     2
ZW C=FLOW
*
```

```
KKVCMB10
KM   ROUTE CMB-10
RD  3600  0.0800   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KK  NS11
KM   BASIN 11 - 60 Ac
BA0.0389
PB
* PI
BF -38.7
LU  0.10  0.2490  65.000    0.10  0.2490   2.000
UK  1600  0.3400   0.240       6
UK  1600  0.3400   0.600      95
RD  3600  0.0800   0.060            TRAP     5.0     3.0
RD  3600  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKYMB-11
KM   COMBINE NS-8 THRU 11
HC     2
ZW C=FLOW
*
KKYMB11A
KM   COMBINE NS-1 THRU 11
HC     2
ZW C=FLOW
*
*
KKUCM11A
KM   ROUTE CMB11A
RS     1    FLOW      -1
SV  0.20    0.30    0.50    0.60    0.70    0.90    1.20    1.60
SQ 100.0   200.0   300.0   400.0   500.0   700.0  1100.0  1500.0
ZW C=FLOW
*
KK NS11B
KM   BASIN 11 - 60 Ac
BA0.0546
PB
* PI
BF -38.7
LU  0.10  0.2500  65.000    0.10  0.2500   2.000
UK  1600  0.3400   0.240       6
UK  1600  0.3400   0.600      95
RD  3600  0.0800   0.060            TRAP     5.0     3.0
RD  3600  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKYNS11B
KM  0
HC     2
ZW C=FLOW
*
KK  NS12
KM   BASIN 12 - 40 Ac
BA0.0619
PB
* PI
BF -38.7
LU  0.10  0.2500  65.340    0.10  0.2500   2.000
UK   400  0.1000   0.240      71
UK   400  0.1000   0.800      30
RD  1500  0.0700   0.060            TRAP     5.0     3.0
RD  1500  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKYMB-12
KM   COMBINE NS-1 THRU 12
HC     2
ZW C=FLOW
*
KK  NS13
KM   BASIN 13 - 15 Ac
BA0.1459
PB
* PI
BF -38.7
LU  0.10  0.2500  65.200    0.10  0.2500  98.000
UK   500  0.1600   0.240      86
UK   500  0.1600   0.110      14
RD   900  0.1300   0.060            TRAP     5.0     3.0
RD   900  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKV-NS13
KM   ROUTE NS-13
RD  1400  0.0800   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KK  NS14
KM   BASIN 14 - 47 Ac
BA0.0434
PB
```

```
* PI
BF -38.7
LU  0.10  0.2500  65.980    0.10  0.2500  98.000
UK   775  0.3500   0.240      90
UK   775  0.3500   0.110      10
RD   800  0.0600   0.060            TRAP     5.0     3.0
RD   800  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKYMB-14
KM   COMBINE NS-13 & 14
HC     2
ZW C=FLOW
*
KK NS14B
KM  NS14B
BA0.0204
PB
* PI
BF -38.7
LU  0.10  0.2500   2.860
UK   500  0.1000   0.600  100.00
RD   500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMB14A
KM   COMBINE NS-1 THRU 14
HC     3
ZW C=FLOW
*
KK NS20B
KM  NS20B
BA0.0322
PB
* PI
BF -38.7
LU  0.10  0.2500   3.400
UK   640  0.1000   0.600  100.00
RD  1000  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  NS15
KM  NS15
BA0.0860
PB
* PI
BF -38.7
LU  0.10  0.2500   2.400
UK  1000  0.0800   0.600  100.00
RD  1500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YNS15
KM  0
HC     2
ZW C=FLOW
*
KKYNS15C
KM  0
HC     2
ZW C=FLOW
*
KK  NS16
KM  NS16
BA0.1019
PB
* PI
BF -38.7
LU  0.10  0.2460   2.000
UK  1600  0.1000   0.600  100.00
RD  2100  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  NS17
KM  NS17
BA0.0811
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1500  0.0800   0.600  100.00
RD  1200  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YNS17
KM  0
HC     2
ZW C=FLOW
*
KK  NS18
KM  NS18
BA0.1877
PB
* PI
```

```
BF -38.7
LU  0.10  0.2500   2.000
UK  3200  0.1000   0.600  100.00
RD  3000  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK  NS19
KM  NS19
BA0.0434
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1600  0.0500   0.600  100.00
RD  1000  0.0400   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YNS19
KM  0
HC     2
ZW C=FLOW
*
KKYNS19C
KM  0
HC     2
ZW C=FLOW
*
KK  NS20
KM  NS20
BA0.0548
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   600  0.0800   0.600  100.00
RD  1200  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YNS20
KM  0
HC     2
ZW C=FLOW
*
KKYNS20C
KM  0
HC     2
ZW C=FLOW
*
KK  NS21
KM  NS21
BA0.1390
PB
* PI
BF -38.7
LU  0.10  0.2480   2.130
UK  1450  0.0500   0.600  100.00
RD  2500  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YNS21
KM  0
HC     2
ZW C=FLOW
*
KK NS30D
KM  NS30D
BA0.0577
PB
* PI
BF -38.7
LU  0.10  0.2500   2.500
UK   900  0.0800   0.600  100.00
RD  1400  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK NS30A
KM  NS30A
BA0.0266
PB
* PI
BF -38.7
LU  0.10  0.2440   2.780
UK   800  0.0800   0.600  100.00
RD  1600  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS30A
KM  0
HC     2
ZW C=FLOW
*
KKYS30CC
KM  0
HC     2
```

```
ZW C=FLOW
*
KK NS30B
KM  NS30B
BA0.1400
PB
* PI
BF -38.7
LU  0.10  0.2360   2.060
UK  1600  0.1000   0.600  100.00
RD  2000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS30B
KM  0
HC     2
ZW C=FLOW
*
KK NS30E
KM  NS30E
BA0.0022
PB
* PI
BF -38.7
LU  0.10  0.2500   4.370
UK   200  0.1000   0.600  100.00
RD   500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS30E
KM  0
HC     2
ZW C=FLOW
*
KK NS30F
KM  NS30F
BA0.0023
PB
* PI
BF -38.7
LU  0.10  0.2500   5.380
UK   200  0.1000   0.600  100.00
RD   500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS30F
KM  0
HC     2
ZW C=FLOW
*
KK NS30C
KM  NS30C
BA0.1237
PB
* PI
BF -38.7
LU  0.10  0.1510   2.010
UK  1600  0.0800   0.600  100.00
RD  2000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS30C
KM  0
HC     2
ZW C=FLOW
*
KKY30CCC
KM  0
HC     2
ZW C=FLOW
*
KK NS33B
KM  NS33B
BA0.0301
PB
* PI
BF -38.7
LU  0.10  0.1000   2.000
UK  1000  0.0500   0.600  100.00
RD  1000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS33B
KM  0
HC     2
ZW C=FLOW
*
KKYNSALL
KM  0
HC     2
ZW C=FLOW
*
*
KKUW5END
```

```
KM  ROUTE FOR BACKWATER AT NW5
RS     1    FLOW      -1
SV  0.00    0.75   54.40  131.20  377.00 1086.00
SQ   0.0   267.0  2853.0  3500.0  6287.0  9653.0
ZW C=FLOW
*
* - - - - - -
*
*
KK  NS34
KM  NS34
BA0.0437
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   900  0.0800   0.600  100.00
RD   900  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK  NS35
KM  NS35
BA0.1517
PB
* PI
BF -38.7
LU  0.10  0.1850   2.000
UK  1900  0.0500   0.600  100.00
RD  2500  0.0400   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YNS35
KM  0
HC     2
ZW C=FLOW
*
KK XMAR1
KM  XMAR1
BA0.2922
PB
* PI
BF -38.7
LU  0.10  0.2440   2.000
UK  1900  0.1000   0.600  100.00
RD  2000  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK XMAR2
KM  XMAR2
BA0.4066
PB
* PI
BF -38.7
LU  0.10  0.2410   2.000
UK  2200  0.1000   0.600  100.00
RD  3100  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK XMAR3
KM  XMAR3
BA0.6221
PB
* PI
BF -38.7
LU  0.10  0.2480   2.000
UK  3500  0.1000   0.600  100.00
RD  3400  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK XMAR4
KM  XMAR4
BA0.2489
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  2300  0.1000   0.600  100.00
RD  1100  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK XMAR5
KM  XMAR5
BA0.3335
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1700  0.1000   0.600  100.00
RD  2600  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YMAR5
KM  0
HC     2
```

```
ZW C=FLOW
*
KK XMAR6
KM  XMAR6
BA0.1147
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1500  0.1000   0.600  100.00
RD  1650  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK XMAR7
KM  XMAR7
BA0.3439
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  2800  0.1000   0.600  100.00
RD  1400  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMAR7
KM  0
HC     2
ZW C=FLOW
*
KK XMAR8
KM  XMAR8
BA0.2218
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  2200  0.1000   0.600  100.00
RD  3500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMAR8
KM  0
HC     2
ZW C=FLOW
*
KK XMAR9
KM  XMAR9
BA0.2500
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  2100  0.1000   0.600  100.00
RD  3400  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKXMAR10
KM  XMAR10
BA0.2272
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  2300  0.1000   0.600  100.00
RD  2400  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKXMAR11
KM  XMAR11
BA0.1037
PB
* PI
BF -38.7
LU  0.10  0.1850   2.000
UK  1100  0.1000   0.600  100.00
RD  1500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMAR11
KM  0
HC     2
ZW C=FLOW
*
KKXMAR12
KM  XMAR12
BA0.1361
PB
* PI
BF -38.7
LU  0.10  0.2060   2.000
UK  1250  0.1000   0.600  100.00
RD  2200  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
```

```
KKXMAR13
KM  XMAR13
BA0.2679
PB
* PI
BF -38.7
LU  0.10  0.2490   2.000
UK  1800  0.1000   0.600  100.00
RD  4000  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMAR13
KM  0
HC     2
ZW C=FLOW
*
KKYMARC1
KM  0
HC     2
ZW C=FLOW
*
KKXMAR14
KM  XMAR14
BA0.0483
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   500  0.1000   0.600  100.00
RD   500  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKXMAR15
KM  XMAR15
BA0.0140
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   500  0.1000   0.600  100.00
RD   500  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMAR15
KM  0
HC     3
ZW C=FLOW
*
KKXMAR17
KM  XMAR17
BA0.2288
PB
* PI
BF -38.7
LU  0.10  0.2200   2.000
UK  1300  0.1000   0.600  100.00
RD  2700  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMAR17
KM  0
HC     2
ZW C=FLOW
*
KKMAR19A
KM  MAR19A
BA0.0295
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1000  0.1000   0.600  100.00
RD  1000  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKMAR19B
KM  MAR19B
BA0.0074
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   500  0.1000   0.600  100.00
RD  1000  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKXMAR18
KM  XMAR18
BA0.1517
PB
* PI
BF -38.7
LU  0.10  0.2480   2.000
UK  1600  0.1000   0.600  100.00
```

```
RD  2500  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMAR18
KM  0
HC     3
ZW C=FLOW
*
KKXMAR20
KM  XMAR20
BA0.2009
PB
* PI
BF -38.7
LU  0.10  0.2440   2.000
UK  1700  0.1000   0.600  100.00
RD  2700  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKMAR21A
KM  MAR21A
BA0.0602
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   500  0.1000   0.600  100.00
RD   500  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKMAR21B
KM  MAR21B
BA0.0241
PB
* PI
BF -38.7
LU  0.10  0.2450   2.000
UK   500  0.1000   0.600  100.00
RD  1000  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK YR21B
KM  0
HC     2
ZW C=FLOW
*
* SA Note: Use New Overflow analysis instead
* DIVERT At Upstream Highway Crossing, where water can't cross under roadway
KK N11DV
DTN11DIV
DI     0     190     200     800    1600    5000
DQ     0       1       5     604    1403    4802
ZW C=FLOW
*
KKMAR22B
KM  MAR22B
BA0.0266
PB
* PI
BF -38.7
LU  0.10  0.2300   2.000
UK   500  0.1000   0.600  100.00
RD  1000  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKMAR22A
KM  MAR22A
BA0.0165
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   500  0.1000   0.600  100.00
RD   500  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YR22A
KM  0
HC     2
ZW C=FLOW
*
KKXMAR23
KM  XMAR23
BA0.0439
PB
* PI
BF -38.7
LU  0.10  0.1380   2.000
UK   500  0.0500   0.600  100.00
RD  2000  0.0200   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYMAR23
KM  0
```

```
HC     2
ZW C=FLOW
*
*
KK UWEND
KM  ROUTE FOR BACKWATER AT W1
RS     1    FLOW      -1
SV  0.00   10.00   49.20  292.00  859.70  867.00
SQ   0.0    18.0   239.0   244.0   250.0  1034.0
ZW C=FLOW
*
KKXMAR24
KM  XMAR24
BA0.0055
PB
* PI
BF -38.7
LU  0.10  0.1000   2.000
UK   200  0.0200   0.600  100.00
RD   500  0.0100   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKXMAR25
KM  XMAR25
BA0.0147
PB
* PI
BF -38.7
LU  0.10  0.1260   2.000
UK  1000  0.0200   0.600  100.00
RD  1000  0.0100   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMAR25
KM  0
HC     3
ZW C=FLOW
*
KK NS33A
KM  NS33A
BA0.0118
PB
* PI
BF -38.7
LU  0.10  0.1970   2.000
UK  1000  0.0200   0.600  100.00
RD  1000  0.0200   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS33A
KM  0
HC     2
ZW C=FLOW
*
*
KK  UHWY
KM  ROUTE FOR BACKWATER AT HWY
RS     1    FLOW      -1
SV  0.00    0.13    0.60   32.40   61.60  114.60  266.00  330.00
SQ   0.0   200.0   491.0  3074.0  4293.0  5718.0  8410.0  9000.0
* SV  0.00    0.13    0.60   32.40   61.60  114.60  265.30  266.00  330.00
* SQ   0.0   200.0   491.0  3074.0  4293.0  5718.0  5847.0  8410.0  9000.0
ZW C=FLOW
*
KKN11DIV
DRN11DIV
ZW C=FLOW
*
*
KK  E30A
KM  Drains Away
BA0.0064
PB
* PI
BF -38.7
LU  0.10  0.2500  10.060
UK   600  0.0380   0.600  100.00
RD  1900  0.0140   0.060           TRAP    15.0    10.0
ZW C=FLOW
*
* ----------END---------------
*
*
ZZ
```

B-1B. HEC-1 Post-Project PDP Input WARM EVENT HIGHWAY TRAIL ALTERNATIVE

```
ID PLACER COUNTY WATERSHED MODEL, PLACER COUNTY, CA
ID WATERSHED UPDATE MODELS - DRAFT ULT BUILDOUT
ID DRAFT MODEL FOR HYD ROUTING - HEC1VOLS UTILITY
ID CESI 2/22/2012
ID
IT     5 13FEB08       0     300
IO     5               0
IN     5       0       0
*DIAGRAM
*
*
KK    E2
KM    Large Offsite Shed  155.8ac
BA0.2434
PB
* PI
BF -38.7
LU  0.10  0.2110   2.000
UK  1500  0.0830   0.600  100.00
RD  4000  0.0300   0.060            TRAP     2.0    25.0
ZW C=FLOW
*
KK   E15
KM   Other Large Upstream offsite shed 111.1 ac
BA0.1736
PB
* PI
BF -38.7
LU  0.10  0.1470   2.000
UK  1000  0.0580   0.600  100.00
RD  2500  0.0300   0.060            TRAP     2.0    10.0     YES
ZW C=FLOW
*
KK   E10
KM    Large Undeveloped upstream watershed. (139.2)
BA0.0311
PB
* PI
BF -38.7
LU  0.10  0.1790   2.000
UK  2000  0.0750   0.600  100.00
RD  3200  0.0700   0.060   .0500    TRAP    20.0    40.0
RD  3300  0.0010   0.040   .1500    TRAP    20.0    20.0
ZW C=FLOW
*
KK YE10C
KM    Upstream of Project
HC     2
ZW C=FLOW
*
KK VE12R
KM    ROUTE TO BOTTOM OF E20
RD  1500  0.0170   0.040            TRAP    15.0     5.0
ZW C=FLOW
*
KK  E20A
KM    12.0 AC
BA0.0106
PB
* PI
BF -38.7
LU  0.10  0.2430   3.000
UK  1200  0.0580   0.600  100.00
RD   700  0.0170   0.060            TRAP    15.0     5.0
ZW C=FLOW
*
KK YE20A
KM  0
HC     2
ZW C=FLOW
*
KK  E14A
KM    Small Roadway Shed 4 ac
BA0.0063
PB
* PI
BF -38.7
LU  0.10  0.1000  10.000
UK   500  0.0300   0.600  100.00
RD   500  0.0300   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  E18A
KM    Small Hopkins Roadway Drain 3.6ac
BA0.0057
PB
* PI
BF -38.7
LU  0.10  0.2070  10.000
UK   450  0.0300   0.600  100.00
RD   500  0.0300   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK  E16A
```

```
KM    Small Hopkins Roadway Drain 0.4ac
BA0.0006
PB
* PI
BF -38.7
LU  0.10  0.2130  90.000
UK    50  0.0200   0.600  100.00
RD   100  0.0300   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYE16AC
KM  0
HC     2
ZW C=FLOW
*
KK  E20B
KM    10.9 AC
BA0.0182
PB
* PI
BF -38.7
LU  0.10  0.2000   5.000
UK   800  0.0700   0.600  100.00
RD   200  0.0170   0.060            TRAP    15.0     5.0
ZW C=FLOW
*
KK YE20B
KM  0
HC     2
ZW C=FLOW
*
KKVE16AR
KM    ROUTE TO BOTTOM OF E20
RD  2000  0.0170   0.040            TRAP    15.0     5.0
ZW C=FLOW
*
KK  E20C
KM    4.8 AC
BA0.0075
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  90.000
UK   500  0.0500   0.600      90
UK    18  0.0200   0.110      10
RD   200  0.0170   0.060   .0500    TRAP    15.0     5.0
RD   500  0.0010   0.040            TRAP    15.0     5.0
ZW C=FLOW
*
KK YE20C
KM  0
HC     3
ZW C=FLOW
*
KK  E20D
KM    10.6 AC
BA0.0166
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000    0.10  0.2500  90.000
UK   500  0.0500   0.600      89
UK    18  0.0200   0.110      11
RD   200  0.0170   0.060   .0500    TRAP    15.0     5.0
RD   600  0.0010   0.040            TRAP    15.0     5.0
ZW C=FLOW
*
KK  E20E
KM    8.4 AC Mostly diverted area added to this shed
BA0.0132
PB
* PI
BF -38.7
LU  0.10  0.2500  12.000    0.10  0.2500  90.000
UK   900  0.0200   0.600      90
UK    18  0.0200   0.110      10
RD   200  0.0170   0.060   .0500    TRAP    15.0     5.0
RD   600  0.0010   0.040            TRAP    15.0     5.0
ZW C=FLOW
*
KK YE20D
KM  0
HC     3
ZW C=FLOW
*
KK   E30
KM    MAIN SHED ABOVE TWIN CULVERTS IN S. MILL RD.  40.8AC
BA0.0638
PB
* PI
BF -38.7
LU  0.10  0.2500   8.990
UK   600  0.0380   0.600  100.00
RD  1900  0.0140   0.060            TRAP    15.0    10.0     YES
```

```
ZW C=FLOW
*
KK   E19
KM    HILLSIDE ABOVE SM RD.     4.2AC
BA0.0065
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  90.000
UK   400  0.0180   0.600      89
UK    18  0.0200   0.110      11
RD   570  0.0140   0.060            TRAP     2.0    25.0
RD   550  0.0010   0.012            CIRC     1.0     0.0      NO
ZW C=FLOW
*
KK VE19R
KM    ROUTE TO BOTTOM OF E20
RD   600  0.0400   0.040            TRAP    10.0    40.0
ZW C=FLOW
*
KK   E21
KM    HILLSIDE ABOVE ROAD           5.7AC
BA0.0084
PB
* PI
BF -38.7
LU  0.10  0.2500   7.000    0.10  0.2500  90.000
UK   600  0.0170   0.600      74
UK    18  0.0200   0.110      26
RD   800  0.0150   0.060            TRAP     2.0    25.0
RD   800  0.0010   0.015            TRAP     2.0    25.0      NO
ZW C=FLOW
*
KK  YE21
KM  0
HC     2
ZW C=FLOW
*
KK   E22
KM  "  HILLSIDE ABOVE 15"" CULVERT   2.9AC                                                "
BA0.0045
PB
* PI
BF -38.7
LU  0.10  0.2500   7.000
UK   350  0.0270   0.600  100.00
RD   250  0.0300   0.060            TRAP     2.0    10.0      NO
ZW C=FLOW
*
KK YE22C
KM    COMBINE E21 AND E22
HC     2
ZW C=FLOW
*
KK VE22R
KM    ROUTE TO BOTTOM OF E30
RD   700  0.0140   0.040            TRAP    15.0    10.0
ZW C=FLOW
*
KK   E23
KM    PORTION OF S.MILL RD.     0.5AC
BA0.0008
PB
* PI
BF -38.7
LU  0.10  0.2500  90.000
UK    18  0.0200   0.110  100.00
RD   500  0.0240   0.060            TRAP     2.0    25.0      NO
ZW C=FLOW
*
KK  YE23
KM  0
HC     2
ZW C=FLOW
*
KK VE23R
KM    ROUTE TO BOTTOM OF E30
RD   400  0.0140   0.040            TRAP    15.0    10.0
ZW C=FLOW
*
KK YE30C
KM     COMBINE AT BOTTOM OF E30
HC     2
ZW C=FLOW
*
*
KKUE30CR
KM  0
RS     1    FLOW      -1
SV  0.00    0.54    0.84    1.03    1.34    1.56    1.82    2.09    7.48
SQ   0.0    73.0   104.0   125.0   153.0   173.0   195.0   217.0   700.0
ZW C=FLOW
*
KK   E40
```

```
KM    LARGE SHED DOWNSTREAM OF S. MILL RD.    85.5Ac
BA0.1147
PB
* PI
BF -38.7
LU  0.10  0.1800   8.480
UK  1600  0.0340   0.600  100.00
RD   600  0.0400   0.060   .0100    TRAP    10.0    40.0
RD  3000  0.0010   0.040            TRAP    40.0    20.0     YES
ZW C=FLOW
*
KK  E40B
KM    LARGE SHED DOWNSTREAM OF S. MILL RD.    85.5Ac
BA0.0190
PB
* PI
BF -38.7
LU  0.10  0.2480  10.920
UK   600  0.0100   0.600  100.00
RD   600  0.0400   0.060   .0100    TRAP    10.0    40.0
RD  1000  0.0010   0.040            TRAP    40.0    20.0
ZW C=FLOW
*
KKYE40BC
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK  E14C
KM    OFF-SITE SHED WEST OF S. MILL RD.    3.6AC
BA0.0059
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   600  0.0800   0.600  100.00
RD   500  0.0070   0.060   .0030    TRAP     2.0    25.0
RD   500  0.0010   0.040            TRAP     2.0    10.0      NO
ZW C=FLOW
*
KK VE60R
KM    ROUTE TO MAIN CHANNEL OF E64
RD  1100  0.0700   0.060            TRAP    40.0    40.0
ZW C=FLOW
*
KK  E64A
KM    EAST OF S. MILL RD.      16.1AC
BA0.0248
PB
* PI
BF -38.7
LU  0.10  0.1590  14.000    0.10  0.1590  90.000
UK  1000  0.0500   0.600      94
UK    18  0.0200   0.110       6
RD  1000  0.0700   0.060   .0140    TRAP    40.0    40.0
RD   500  0.0010   0.040            TRAP    20.0    10.0
ZW C=FLOW
*
KK YE64A
KM  0
HC     2
ZW C=FLOW
*
KK  E64B
KM    EAST OF S. MILL RD.      12.1AC
BA0.0190
PB
* PI
BF -38.7
LU  0.10  0.1750  15.000    0.10  0.1750  90.000
UK   800  0.0700   0.600      97
UK    18  0.0200   0.110       3
RD  1000  0.0700   0.060   .0140    TRAP    40.0    40.0
RD   500  0.0010   0.040            TRAP    20.0    10.0
ZW C=FLOW
*
KK YE64B
KM  0
HC     2
ZW C=FLOW
*
KK VE64R
KM    ROUTE TO MAIN CHANNEL OF E75
RD  1000  0.0350   0.040            TRAP    40.0    10.0
ZW C=FLOW
*
* - - - - - -
*
*
KK   E70
KM    OFF-SITE- LAHONTAN UNITS 7&8 AND LAHONTAN II    78.6AC
```

```
BA0.1255
PB
* PI
BF -38.7
LU  0.10  0.1710   8.000    0.10  0.1710  90.000
UK  1200  0.0410   0.600      95
UK    18  0.0200   0.110       5
RD   450  0.0140   0.060   .0100    TRAP     2.0    25.0
RD  1800  0.0010   0.040            TRAP    20.0    10.0      NO
ZW C=FLOW
*
KK   E71
KM    OFF-SITE PORTION OF LAHONTAN II    17.8Ac
BA0.0279
PB
* PI
BF -38.7
LU  0.10  0.2270  19.100
UK  1400  0.0500   0.600  100.00
RD   700  0.0300   0.060   .0070    TRAP     2.0    25.0
RD   400  0.0010   0.040   .0150    TRAP     2.0     5.0
ZW C=FLOW
*
KK   E72
KM    OFF-SITE PORTION OF LAHONTAN II   12.1Ac
BA0.0178
PB
* PI
BF -38.7
LU  0.10  0.1980   9.600
UK  1700  0.0370   0.600  100.00
RD   850  0.0530   0.060   .0100    TRAP    20.0    20.0
RD   700  0.0010   0.040            TRAP    10.0    20.0      NO
ZW C=FLOW
*
KKYE7012
KM  0
HC     2
ZW C=FLOW
*
KK VE72R
KM    ROUTE TO MAIN CHANNEL OF E75
RD   750  0.0300   0.040            TRAP    40.0    10.0
ZW C=FLOW
*
KKY72&64
KM    ROUTE TO MAIN CHANNEL OF E75
HC     2
ZW C=FLOW
*
KK   E75
KM    MOSTLY OFF-SITE AND DOWNSTREAM SHED  57.9Ac
BA0.0905
PB
* PI
BF -38.7
LU  0.10  0.1910   3.200
UK  1200  0.0580   0.600  100.00
RD   600  0.0500   0.060   .0050    TRAP    20.0    20.0
RD  1400  0.0010   0.040            TRAP    10.0    50.0     YES
ZW C=FLOW
*
KK  YE75
KM  0
HC     2
ZW C=FLOW
*
*
KKUE75CR
KM  0
RS     1    FLOW      -1
SV  0.00    0.33    0.45    0.52    0.61    0.67    0.73    0.79    0.87    2.95
SQ   0.0    24.0    35.0    42.0    51.0    58.0    66.0    73.0    83.0   400.0
ZW C=FLOW
*
* - - - - - -
*
*
KK  E14B
KM    OFF-SITE SHED WEST OF S. MILL RD.
BA0.0397
PB
* PI
BF -38.7
LU  0.10  0.1920   2.000
UK   800  0.0800   0.600  100.00
RD   800  0.0300   0.060   .0200    TRAP    40.0    40.0
RD   400  0.0010   0.040            TRAP     2.0     6.0      NO
ZW C=FLOW
*
KK VE50R
KM    ROUTE TO MAIN CHANNEL OF E55
RD   850  0.0700   0.060            TRAP    40.0    40.0
ZW C=FLOW
```

```
*
KK  E55A
KM    EAST OF S. MILL RD.   16.7AC
BA0.0261
PB
* PI
BF -38.7
LU  0.10  0.1360  20.000
UK   500  0.0400   0.600  100.00
RD   400  0.0700   0.060   .0070    TRAP    40.0    40.0
RD   500  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KK YE55A
KM  0
HC     2
ZW C=FLOW
*
*
KKUE55AR
KM  0
RS     1    FLOW      -1
SV  0.00    0.08    0.10    0.12    0.14    0.15    0.16    0.17    0.30
SQ   0.0    18.0    25.0    30.0    36.0    41.0    45.0    49.0    80.0
ZW C=FLOW
*
KK  E58D
KM    EAST OF S. MILL RD.   23.7AC
BA0.0229
PB
* PI
BF -38.7
LU  0.10  0.2500   9.500
UK   800  0.0400   0.600  100.00
RD   400  0.0700   0.060   .0070    TRAP    40.0    40.0
RD  1400  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KK YE58D
KM  0
HC     2
ZW C=FLOW
*
KK  E55B
KM    EAST OF S. MILL RD.   3.2AC
BA0.0050
PB
* PI
BF -38.7
LU  0.10  0.1920  40.000
UK   200  0.0500   0.600  100.00
RD   400  0.0700   0.060   .0070    TRAP    40.0    40.0
RD   500  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KK  E55C
KM    EAST OF S. MILL RD.   7.7AC
BA0.0120
PB
* PI
BF -38.7
LU  0.10  0.2470  22.000
UK   200  0.0500   0.600  100.00
RD   400  0.0700   0.060   .0070    TRAP    40.0    40.0
RD   500  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KK YE55C
KM  0
HC     2
ZW C=FLOW
*
*
KKU55CCR
KM  0
RS     1    FLOW      -1
SV  0.00    0.55    0.76    0.91    1.13    1.28    1.62    2.09    2.89
SQ   0.0    20.0    28.0    34.0    42.0    47.0    53.0    59.0    80.0
ZW C=FLOW
*
KK  E55E
KM    EAST OF S. MILL RD.   3.6AC
BA0.0056
PB
* PI
BF -38.7
LU  0.10  0.2500  25.000
UK   300  0.0200   0.600  100.00
RD   400  0.0700   0.060   .0070    TRAP    40.0    40.0
RD   500  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KK YE55E
KM  0
```

```
HC     2
ZW C=FLOW
*
KK  E55F
KM    EAST OF S. MILL RD.   1.8AC
BA0.0028
PB
* PI
BF -38.7
LU  0.10  0.2500  25.000
UK   250  0.0300   0.600  100.00
RD   200  0.0700   0.060   .0070    TRAP    40.0    40.0
RD   300  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KK  E55G
KM    EAST OF S. MILL RD.   1AC
BA0.0015
PB
* PI
BF -38.7
LU  0.10  0.2500  11.000
UK   150  0.0200   0.600  100.00
RD   200  0.0700   0.060   .0070    TRAP    40.0    40.0
RD   300  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KKYE55GC
KM  0
HC     2
ZW C=FLOW
*
KK YE55G
KM  0
HC     2
ZW C=FLOW
*
*
KKUE55CR
KM  0
RS     1    FLOW      -1
SV  0.00    0.55    0.76    0.91    1.13    1.28    1.62    2.09    2.89
SQ   0.0    20.0    28.0    34.0    42.0    47.0    53.0    59.0    80.0
ZW C=FLOW
*
KK  E58C
KM    EAST OF S. MILL RD.   5.6AC
BA0.0088
PB
* PI
BF -38.7
LU  0.10  0.2500  36.000
UK   250  0.0600   0.600  100.00
RD   200  0.0700   0.060   .0070    TRAP    40.0    40.0
RD   500  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KK YE58C
KM  0
HC     2
ZW C=FLOW
*
KK  E55H
KM    EAST OF S. MILL RD.                             44.1AC
BA0.0057
PB
* PI
BF -38.7
LU  0.10  0.2500   2.400
UK   400  0.0200   0.600  100.00
RD   400  0.0700   0.060   .0300    TRAP    40.0    40.0
RD  1000  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KK YE55H
KM  0
HC     2
ZW C=FLOW
*
KK  E58A
KM    EAST OF S. MILL RD.   5.3AC
BA0.0083
PB
* PI
BF -38.7
LU  0.10  0.2500  22.000
UK   300  0.0400   0.600  100.00
RD   200  0.0700   0.060   .0070    TRAP    40.0    40.0
RD   500  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KK YE58A
KM  0
HC     2
```

```
ZW C=FLOW
*
KK  E58E
KM    EAST OF S. MILL RD.   3.7AC
BA0.0370
PB
* PI
BF -38.7
LU  0.10  0.2250  22.000
UK   300  0.0200   0.600  100.00
RD   200  0.0700   0.060   .0070    TRAP    40.0    40.0
RD   500  0.0010   0.040            TRAP    10.0     5.0
ZW C=FLOW
*
KK YE58E
KM  0
HC     2
ZW C=FLOW
*
KK   E80
KM    LAST DOWNSTREAM SHED
BA0.0452
PB
* PI
BF -38.7
LU  0.10  0.1310   2.000
UK  1300  0.0400   0.600  100.00
RD  1000  0.0250   0.060   .0200    TRAP    20.0    20.0
RD  1100  0.0010   0.040            TRAP    10.0    50.0     YES
ZW C=FLOW
*
KKYE5875
KM  0
HC     3
ZW C=FLOW
*
KK YE80C
KM    COMBINE WITH E40 FOR TOTAL AT LAST DOWNSTREAM POINT
HC     2
ZW C=FLOW
*
KK  E40C
KM    LARGE SHED DOWNSTREAM OF S. MILL RD.    85.5Ac
BA0.0344
PB
* PI
BF -38.7
LU  0.10  0.1660   9.310
UK  1200  0.0100   0.600  100.00
RD   600  0.0400   0.060   .0100    TRAP    10.0    40.0
RD  1000  0.0010   0.040            TRAP    40.0    20.0
ZW C=FLOW
*
KK  E40E
KM    LARGE SHED DOWNSTREAM OF S. MILL RD.    85.5Ac
BA0.0058
PB
* PI
BF -38.7
LU  0.10  0.2500  10.510
UK   600  0.0100   0.600  100.00
RD   600  0.0400   0.060   .0100    TRAP    10.0    40.0
RD  1000  0.0010   0.040            TRAP    40.0    20.0
ZW C=FLOW
*
KK  E40D
KM    LARGE SHED DOWNSTREAM OF S. MILL RD.    85.5Ac
BA0.0074
PB
* PI
BF -38.7
LU  0.10  0.1940   8.270
UK   600  0.0100   0.600  100.00
RD   600  0.0400   0.060   .0100    TRAP    10.0    40.0
RD  1000  0.0010   0.040            TRAP    40.0    20.0
ZW C=FLOW
*
KK YE40D
KM  0
HC     3
ZW C=FLOW
*
KKYE40DC
KM  0
HC     2
ZW C=FLOW
*
KK   E85
KM    OFFSITE DOWNSTREAM SHED     313.9
BA0.4599
PB
* PI
BF -38.7
LU  0.10  0.1750   2.150
```

```
UK  2500  0.0625   0.600  100.00
RD  2000  0.0250   0.060   .1000    TRAP    20.0    20.0
RD  5000  0.0010   0.040            TRAP    10.0    50.0
ZW C=FLOW
*
KK  YE85
KM  0
HC     2
ZW C=FLOW
*
KK  E85B
KM  E85B
BA0.0312
PB
* PI
BF -38.7
LU  0.10  0.2300   3.350
UK   400  0.0200   0.600  100.00
RD   500  0.0500   0.060            TRAP    20.0    10.0
ZW C=FLOW
*
KK YE85B
KM  0
HC     2
ZW C=FLOW
*
*
KKUW3END
KM  ROUTE FOR BACKWATER AT NW3
RS     1    FLOW      -1
SV  0.00    0.01    0.03   20.60  247.00  250.00
SQ   0.0    40.0   243.0   508.0   637.0   800.0
ZW C=FLOW
*
KK  E85C
KM  E85C
BA0.0079
PB
* PI
BF -38.7
LU  0.10  0.2380   2.430
UK   400  0.0200   0.600  100.00
RD   500  0.0500   0.060            TRAP    20.0    10.0
ZW C=FLOW
*
KKYE85CC
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK  E5A1
KM    E5A1 Drop Inlet
BA0.0730
PB
* PI
BF -38.7
LU  0.10  0.2040   2.000    0.10  0.2040  95.000
UK  1350  0.1330   0.600      98
UK   200  0.0200   0.110       3
RD  2000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK   E5B
KM    E5B
BA0.0139
PB
* PI
BF -38.7
LU  0.10  0.2450   2.000    0.10  0.2450  95.000
UK   600  0.0800   0.600      91
UK   200  0.0200   0.110       9
RD  2000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  YE5B
KM  0
HC     2
ZW C=FLOW
*
KK   E5C
KM    E5C
BA0.0051
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.0700   0.600      92
UK   200  0.0200   0.110       8
RD   500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
```

```
KK  YE5C
KM  0
HC     2
ZW C=FLOW
*
*
KKUE5ADT
KM  0
RS     1    FLOW      -1
SV  0.00    0.10    0.20    0.30    0.40    1.70    2.40
SQ   0.0     0.0     0.1     2.0    50.0    80.0   200.0
ZW C=FLOW
*
KK   E5D
KM    E5D
BA0.0850
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1500  0.0500   0.600  100.00
RD  1500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YE5DC
KM  0
HC     2
ZW C=FLOW
*
KK  E6A1
KM    E6A1
BA0.0570
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1000  0.0680   0.600  100.00
RD  2700  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK  E6A2
KM    E6A2
BA0.0149
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   600  0.0680   0.600  100.00
RD   800  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYE6A1C
KM  0
HC     2
ZW C=FLOW
*
KK   E6C
KM    E6C
BA0.0939
PB
* PI
BF -38.7
LU  0.10  0.2460   2.000
UK  1600  0.0900   0.600  100.00
RD  1400  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YE6CC
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK GS10D
KM    GS10D
BA0.0124
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   900  0.0700   0.600      79
UK   100  0.0200   0.110      21
RD   200  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK GS10C
KM    GS10C
BA0.0169
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
```

```
UK   300  0.0600   0.600      91
UK   100  0.0200   0.110       9
RD   400  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYS10CC
KM  0
HC     2
ZW C=FLOW
*
KK GS10B
KM    GS10B
BA0.0044
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.0800   0.600      86
UK   100  0.0200   0.110      14
RD   400  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKGS10A1
KM    GS10A1
BA0.0290
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.0800   0.600      96
UK   100  0.0200   0.110       4
RD   500  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK GS10F
KM    GS10F
BA0.0248
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.0800   0.600      92
UK   100  0.0200   0.110       8
RD   900  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKY10FCC
KM  0
HC     2
ZW C=FLOW
*
KK GS10E
KM    GS10E
BA0.0153
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   300  0.0800   0.600      78
UK   100  0.0200   0.110      22
RD   600  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYS10AC
KM   COMBINATION AT MEADOWS ROUTING AREA
HC     2
ZW C=FLOW
*
KKGS10A2
KM   GS10A2
BA0.0278
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK  1400  0.0800   0.600      96
UK   100  0.0200   0.110       4
RD  1400  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYGDTCC
KM  0
HC     2
ZW C=FLOW
*
*
KKUGS10R
KM   MEADOWS WQ AND DETENTION RESERVOIR AT GS10E
RS     1    FLOW      -1
SV 11.60   13.00   15.95
SQ  61.0   100.0   330.0
ZW C=FLOW
*
*
```

```
KKUS10ER
KM   Channel Attenuation downstream of GS10R
RS     1    FLOW      -1
SV  0.00    0.05    0.27    0.50    0.72    0.95    1.15
SQ   0.0     0.0     5.0    15.0    27.0    37.0    62.0
ZW C=FLOW
*
KK GS10J
KM    GS10J
BA0.0099
PB
* PI
BF -38.7
LU  0.10  0.2500  83.000    0.10  0.2500  95.000
UK   300  0.0800   0.600      92
UK   200  0.0200   0.110       8
RD   500  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYS10JC
KM  0
HC     2
ZW C=FLOW
*
KK GS10G
KM    GS10G
BA0.0081
PB
* PI
BF -38.7
LU  0.10  0.2500  83.000    0.10  0.2500  95.000
UK   300  0.0800   0.600      90
UK   200  0.0200   0.110      10
RD   500  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
*
KKUS10JR
KM   Channel Attenuation From GS10J to GS10I
RS     1    FLOW      -1
SV  0.00    0.05    0.10    0.12    0.19    0.22    0.35
SQ   0.0     0.0     5.0    15.0    27.0    37.0    80.0
ZW C=FLOW
*
KK GS10H
KM    GS10H
BA0.0066
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   300  0.0800   0.600      81
UK   200  0.0200   0.110      19
RD   400  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK GS10I
KM    GS10I
BA0.0071
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   300  0.0600   0.600      78
UK   200  0.0200   0.110      22
RD   400  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK   E8A
KM    E8A
BA0.0049
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   200  0.1200   0.600      73
UK   100  0.0200   0.110      27
RD   300  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
*
KKUE8ASQ
KM  0
RS     1    FLOW      -1
SV  0.00    0.03    0.05    0.08    0.10    0.20    1.00
SQ   0.0     0.0     0.0     0.0     3.5    80.0   200.0
ZW C=FLOW
*
KK   E8B
KM    E8B
BA0.0122
PB
* PI
BF -38.7
```

```
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   400  0.0800   0.600      95
UK   100  0.0200   0.110       5
RD  1400  0.1000   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK   E8C
KM    E8C
BA0.0244
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   800  0.0800   0.600  100.00
RD  1400  0.1000   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YE8CC
KM  0
HC     2
ZW C=FLOW
*
KKYGS10C
KM  0
HC     2
ZW C=FLOW
*
KKYS10IC
KM  0
HC     2
ZW C=FLOW
*
*
KKUS10IR
KM   Storage Upstream of Siller Ranch Road -  Channel Routing Meadow to Schaffer m
RS     1    FLOW      -1
SV  0.00    0.05    0.12    0.19    0.26    0.33    1.55
SQ   0.0     0.0     5.0    15.0    27.0    37.0   400.0
ZW C=FLOW
*
*
KK UGS9R
KM  0
RS     1    FLOW      -1
SV  0.00    0.09    0.17    0.24    0.41    0.59    0.83    0.94    4.03
SQ   0.0    33.0    55.0    76.0   114.0   145.0   177.0   206.0   644.0
ZW C=FLOW
*
KK    E9
KM    E9
BA0.0213
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   600  0.0800   0.600  100.00
RD  1000  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
*
KKUGS11R
KM  0
RS     1    FLOW      -1
SV  0.00    0.25    0.42    0.58    0.95    1.37    2.24    2.77    6.95
SQ   0.0    33.0    55.0    76.0   114.0   145.0   177.0   206.0   644.0
ZW C=FLOW
*
KK GS11B
KM    GS11B
BA0.0031
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   700  0.1000   0.600  100.00
RD   300  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK GS11A
KM    GS11A
BA0.0354
PB
* PI
BF -38.7
LU  0.10  0.2370   2.000
UK   700  0.1000   0.600  100.00
RD  1100  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYGS11A
KM  0
HC     2
ZW C=FLOW
*
```

```
*
KKUS11RR
KM  0
RS     1    FLOW      -1
SV  0.00    1.25    1.51    1.75    2.27    2.78    3.53    4.26    4.67
SQ   0.0    33.0    55.0    76.0   114.0   145.0   177.0   206.0   244.0
ZW C=FLOW
*
KK GS13C
KM   GS13C
BA0.0066
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   300  0.0700   0.600  100.00
RD   300  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK GS13B
KM   GS13B
BA0.0168
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   300  0.0700   0.600  100.00
RD  1100  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK GS18A
KM   GS18A
BA0.0020
PB
* PI
BF -38.7
LU  0.10  0.2500   3.000
UK   800  0.0940   0.600  100.00
RD   300  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  GS18
KM    GS18
BA0.0248
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   800  0.0940   0.600  100.00
RD  1600  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYGS18C
KM  0
HC     2
ZW C=FLOW
*
KK GS13A
KM   GS13A
BA0.0196
PB
* PI
BF -38.7
LU  0.10  0.1810   2.000
UK   600  0.0670   0.600  100.00
RD  1100  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYGS13A
KM  0
HC     2
ZW C=FLOW
*
KK YGS13
KM  0
HC     2
ZW C=FLOW
*
KK  GS19
KM    GS19
BA0.0617
PB
* PI
BF -38.7
LU  0.10  0.1920   2.000
UK   700  0.0860   0.600  100.00
RD  1000  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK  GS20
KM    GS20
BA0.0178
PB
* PI
```

```
BF -38.7
LU  0.10  0.1680   2.000
UK   600  0.1000   0.600  100.00
RD   600  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYGS20C
KM  0
HC     2
ZW C=FLOW
*
*
KKUOOSED
KM   GOOSENECK LAKE RESERVOIR _ CURRENT ROUTING/DISCHARGE RATING
RS     1    FLOW      -1
SV  0.00   43.30   90.10  144.10  173.90  205.40  238.90  274.10
SQ   0.0     2.0    84.8   360.0   670.8  1273.0  3585.0  8880.0
ZW C=FLOW
*
* - - - - - -
*
*
KKGS21B1
KM            4.2 AC.
BA0.0065
PB
* PI
BF -38.7
LU  0.10  0.2500  10.060
UK   300  0.0700   0.600  100.00
RD   800  0.1000   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKVR21B1
KM   ROUTE GS21B1
RD   540  0.0704   0.015            CIRC     2.0     0.0
ZW C=FLOW
*
KKGS21B2
KM            3.2 AC.
BA0.0050
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   300  0.0700   0.600  100.00
RD   900  0.0800   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKYQG21B
KM     COMBINE
HC     2
ZW C=FLOW
*
KK GS21A
KM   GS21A
BA0.0412
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK  1000  0.0700   0.600      80
UK   200  0.0200   0.240      20
RD  2500  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK  GS22
KM    GS22
BA0.0741
PB
* PI
BF -38.7
LU  0.10  0.2490   2.000
UK   700  0.0570   0.600  100.00
RD  1000  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYGS21A
KM     COMBINE
HC     2
ZW C=FLOW
*
*
KKUGS22R
KM  0
RS     1    FLOW      -1
SV  0.00    0.67    0.84    0.97    1.28    1.45    1.87    2.23    5.29
SQ   0.0    65.0    85.0   102.0   144.0   184.0   232.0   291.0   575.0
ZW C=FLOW
*
KK  GS23
KM    GS23
BA0.0596
PB
```

```
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  2000  0.0400   0.600  100.00
RD  1100  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK  GS24
KM    GS24
BA0.0352
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   500  0.1000   0.600  100.00
RD   900  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYGS24C
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KKGS25B3
KM           1.2 AC.
BA0.0019
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   300  0.0700   0.600  100.00
RD   310  0.0500   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKGS25B4
KM            1.8 AC.
BA0.0029
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   300  0.0700   0.600  100.00
RD   440  0.1200   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKYC25B4
KM     COMBINE
HC     2
ZW C=FLOW
*
KKGS25C4
KM            4.4 AC.
BA0.0069
PB
* PI
BF -38.7
LU  0.10  0.2500  11.750
UK   300  0.0700   0.600  100.00
RD   550  0.1000   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKGS25C5
KM            1.7 AC.
BA0.0026
PB
* PI
BF -38.7
LU  0.10  0.2500   9.800
UK   300  0.0700   0.600  100.00
RD   450  0.1100   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKYC25C5
KM     COMBINE
HC     2
ZW C=FLOW
*
KKGS25C6
KM            1.6 AC.
BA0.0023
PB
* PI
BF -38.7
LU  0.10  0.2500   4.600
UK   300  0.0700   0.600  100.00
RD   240  0.1080   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKYC25C6
KM     COMBINE
HC     3
```

```
ZW C=FLOW
*
KKGS25C9
KM            3.0 AC.
BA0.0047
PB
* PI
BF -38.7
LU  0.10  0.2500  11.360
UK   300  0.0700   0.600  100.00
RD   550  0.0509   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKGS21A2
KM            1.3 AC.
BA0.0020
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   300  0.0700   0.600  100.00
RD   750  0.0825   0.060            CIRC     2.0     0.0
ZW C=FLOW
*
KKGS25C1
KM            .4 AC.
BA0.0006
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   300  0.0700   0.600  100.00
RD   290  0.0621   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKYC25C1
KM   COMBINE
HC     2
ZW C=FLOW
*
KKVR25C1
KM     ROUTR COMBINED GS25C1
RD   312  0.0401   0.015          CIRC       2.0     0.0
ZW C=FLOW
*
KKYC25C9
KM     COMBINE
HC     3
ZW C=FLOW
*
KKGS25C3
KM            3.9 AC.
BA0.0060
PB
* PI
BF -38.7
LU  0.10  0.2500  11.230
UK   300  0.0700   0.600  100.00
RD  1045  0.0670   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKGS25C7
KM            3.8 AC.
BA0.0060
PB
* PI
BF -38.7
LU  0.10  0.2500  13.180
UK   300  0.0700   0.600  100.00
RD   620  0.0452   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKYC25C7
KM     COMBINE
HC     3
ZW C=FLOW
*
KK GS27C
KM            2.8 AC.
BA0.0044
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   300  0.0700   0.600  100.00
RD   220  0.0636   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KK GS23B
KM  0
BA0.0061
PB
* PI
BF -38.7
```

```
LU  0.10  0.2500  15.000
UK   300  0.0700   0.600  100.00
RD   470  0.0638   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKYWQ25C
KM     COMBINE
HC     3
ZW C=FLOW
*
KK GS25E
KM    GS25E
BA0.0340
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   900  0.1000   0.600  100.00
RD  1000  0.1000   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKY25ECC
KM  0
HC     2
ZW C=FLOW
*
KKGS25A2
KM             1.9 AC.
BA0.0029
PB
* PI
BF -38.7
LU  0.10  0.2500   8.500
UK   300  0.0700   0.600  100.00
RD   700  0.0500   0.060           TRAP     2.0     3.0
ZW C=FLOW
*
KKGS25A1
KM             .4 AC.
BA0.0007
PB
* PI
BF -38.7
LU  0.10  0.2500   8.500
UK   300  0.0700   0.600  100.00
RD  1400  0.0660   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKGS25A3
KM             1.2 AC.
BA0.0018
PB
* PI
BF -38.7
LU  0.10  0.2500   8.500
UK   300  0.0700   0.600  100.00
RD  1010  0.0620   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKYC25A3
KM     COMBINE
HC     3
ZW C=FLOW
*
KKVR25A3
KM       ROUTE COMBINED GS25A3
RD   561  0.0238   0.015           CIRC     2.0     0.0
ZW C=FLOW
*
KKGS25D3
KM             1.3 AC.
BA0.0022
PB
* PI
BF -38.7
LU  0.10  0.2500  11.100
UK   300  0.0700   0.600  100.00
RD   900  0.0650   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKYC25D3
KM     COMBINE
HC     2
ZW C=FLOW
*
KKGS25D2
KM             2.9 AC.
BA0.0045
PB
* PI
BF -38.7
LU  0.10  0.2500   8.500
UK   300  0.0700   0.600  100.00
RD   840  0.0710   0.060           TRAP    10.0     1.0
```

```
ZW C=FLOW
*
KKYC25D2
KM     COMBINE
HC     2
ZW C=FLOW
*
KKGS25D1
KM             4.1 AC
BA0.0062
PB
* PI
BF -38.7
LU  0.10  0.2500   8.500
UK   300  0.0700   0.600  100.00
RD  1520  0.0700   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKYC25D1
KM     COMBINE
HC     2
ZW C=FLOW
*
KKVR25D1
KM     ROUTE COMBINED GS25D1
RD   923  0.0368   0.015            CIRC     2.0     0.0
ZW C=FLOW
*
KKGS28B2
KM            6.7 AC.
BA0.0105
PB
* PI
BF -38.7
LU  0.10  0.2500   5.250
UK   300  0.0700   0.600  100.00
RD  1780  0.0625   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKGS27B1
KM         5.5 AC.
BA0.0087
PB
* PI
BF -38.7
LU  0.10  0.2500   8.500
UK   300  0.0700   0.600  100.00
RD  1040  0.0557   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KK YC27B
KM     COMBINE
HC     3
ZW C=FLOW
*
KKGS25C2
KM            3.0 AC
BA0.0047
PB
* PI
BF -38.7
LU  0.10  0.2500   9.930
UK   300  0.0700   0.600  100.00
RD  1800  0.0566   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKYC25C2
KM     COMBINE
HC     2
ZW C=FLOW
*
KKGS27B3
KM            3.3 AC.
BA0.0052
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   300  0.0700   0.600  100.00
RD   660  0.0720   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKGS27B2
KM  0
BA0.0053
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   300  0.0700   0.600  100.00
RD   560  0.0640   0.060            TRAP    10.0     1.0
ZW C=FLOW
*
KKYQG27B
```

```
KM     COMBINE
HC     3
ZW C=FLOW
*
KKGS25E1
KM    GS25E
BA0.0131
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   900  0.1000   0.600  100.00
RD  1000  0.1000   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYGS25E
KM  0
HC     2
ZW C=FLOW
*
KK GS30B
KM            1.1 AC
BA0.0018
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   300  0.0700   0.600  100.00
RD   800  0.0350   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKGS28B1
KM            1.6 AC.
BA0.0025
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   300  0.0700   0.600  100.00
RD  1000  0.0437   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKYC28B1
KM     COMBINE
HC     2
ZW C=FLOW
*
KKGS28B3
KM            .09 AC.
BA0.0015
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   300  0.0700   0.600  100.00
RD   830  0.0554   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKYC28B3
KM     COMBINE
HC     2
ZW C=FLOW
*
KKGS28A1
KM            7.6 AC.
BA0.0120
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   300  0.0700   0.600  100.00
RD  1000  0.0690   0.060           TRAP    10.0     1.0
ZW C=FLOW
*
KKYQG28B
KM     COMBINE
HC     2
ZW C=FLOW
*
KKGS28A2
KM   GS28A
BA0.0154
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   500  0.0710   0.600      50
UK   200  0.0200   0.240      50
RD   500  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYGS28A
KM  0
HC     2
```

```
ZW C=FLOW
*
KKYGS29C
KM  0
HC     2
ZW C=FLOW
*
KK GS30A
KM    GS30
BA0.0427
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   900  0.0560   0.600      89
UK    50  0.0200   0.110      11
RD  1400  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK GS31A
KM   GS31A
BA0.0843
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK  1000  0.0500   0.600      90
UK   200  0.0200   0.400      10
RD  1100  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYGS31C
KM  0
HC     2
ZW C=FLOW
*
KKYS31CC
KM  0
HC     2
ZW C=FLOW
*
KK  GS32
KM    GS32
BA0.0320
PB
* PI
BF -38.7
LU  0.10  0.2300   2.000
UK   500  0.1000   0.600  100.00
RD  1800  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
* - - - - - -
*
*
KK MD1H3
KM   MD1H3
BA0.0040
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   300  0.1200   0.600      75
UK    50  0.0200   0.110      25
RD   400  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MD1H2
KM   MD1H2
BA0.0027
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   300  0.1200   0.600      75
UK    50  0.0200   0.110      25
RD   300  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYD1H2C
KM  0
HC     2
ZW C=FLOW
*
KK MD1E4
KM   MD1E4
BA0.0132
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   300  0.1000   0.600      87
UK    50  0.0200   0.110      13
RD   600  0.0500   0.060            TRAP     2.0     2.0
```

```
ZW C=FLOW
*
KKYD1H2D
KM  0
HC     2
ZW C=FLOW
*
KK MD1E3
KM   MD1E3
BA0.0039
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   300  0.1000   0.600      78
UK    50  0.0200   0.110      22
RD   500  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYD1E3C
KM  0
HC     2
ZW C=FLOW
*
KK MD1E2
KM   MD1E2
BA0.0031
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   300  0.1000   0.600      84
UK    50  0.0200   0.110      16
RD   600  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYD1E2C
KM  0
HC     2
ZW C=FLOW
*
KKMD1E1E
KM   MD1E1-2
BA0.0042
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1200  0.1070   0.600  100.00
RD   800  0.0640   0.060            TRAP    10.0     0.0
ZW C=FLOW
*
KK YMD1E
KM  0
HC     2
ZW C=FLOW
*
KKMD1E1C
KM   MD1E1-3
BA0.0686
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1000  0.0800   0.600  100.00
RD  1858  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKMD1E1B
KM   MD1E1-2
BA0.0141
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1200  0.1070   0.600  100.00
RD   800  0.0640   0.060            TRAP    10.0     0.0
ZW C=FLOW
*
KKYM1E1B
KM  0
HC     2
ZW C=FLOW
*
KK MD1H1
KM    MD1H1-1
BA0.0073
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   400  0.0600   0.600  100.00
RD   200  0.0080   0.060            TRAP    10.0    10.0
ZW C=FLOW
```

```
*
KK MD1H4
KM    MD1H1-2
BA0.0049
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   650  0.0600   0.600  100.00
RD   100  0.0030   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKMD1I_1
KM    MD1I-1
BA0.0242
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1000  0.1000   0.600  100.00
RD   350  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYD1H1C
KM  0
HC     3
ZW C=FLOW
*
KK MD1G3
KM   MD1G3
BA0.0096
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   300  0.0800   0.600      90
UK    50  0.0200   0.110      10
RD   600  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYD1G3C
KM  0
HC     2
ZW C=FLOW
*
KKVD1G3R
KM  0
RD  1600  0.0500   0.040           TRAP    10.0    10.0
ZW C=FLOW
*
KK MD1G2
KM   MD1G2
BA0.0033
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   200  0.0800   0.600      72
UK    50  0.0200   0.110      28
RD   300  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKMD1G2B
KM   MD1G2B
BA0.0055
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   200  0.0850   0.600  100.00
RD   300  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYM1G2B
KM  0
HC     2
ZW C=FLOW
*
KKMD1G1B
KM   MD1G1-2
BA0.0195
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1300  0.0600   0.600  100.00
RD  1568  0.1070   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYM1G1B
KM  0
HC     2
ZW C=FLOW
*
```

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KKY26OUP
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK GS26A
KM    GS26A
BA0.0074
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.1000   0.600      85
UK    50  0.0200   0.110      15
RD   400  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK GS26B
KM    GS26B
BA0.0139
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.2000   0.600      89
UK    50  0.0200   0.110      11
RD   800  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK GS26C
KM    GS26C
BA0.0126
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.2000   0.600      90
UK    50  0.0200   0.110      10
RD   800  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK GS26D
KM    GS26D
BA0.0144
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.1000   0.600      89
UK    50  0.0200   0.110      11
RD   400  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYS26DC
KM  0
HC     2
ZW C=FLOW
*
KK GS26E
KM    GS26E
BA0.0028
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   300  0.0800   0.600      75
UK    50  0.0200   0.110      25
RD   600  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK GS26F
KM    GS26F
BA0.0074
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   400  0.1000   0.600      87
UK    50  0.0200   0.110      13
RD   400  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KKGS26N1
KM    GS26N-1
BA0.0046
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   335  0.0200   0.110  100.00
RD   500  0.0500   0.060            TRAP     2.0     2.0
```

```
ZW C=FLOW
*
KK GS26G
KM    GS26G
BA0.0231
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.1000   0.600      91
UK    50  0.0200   0.110       9
RD   400  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KKYS26NC
KM  0
HC     2
ZW C=FLOW
*
KK GS26H
KM    GS26H
BA0.0026
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   100  0.0800   0.600      75
UK    50  0.0200   0.110      25
RD   500  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK GS15C
KM    GS15C
BA0.0106
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.1500   0.600      91
UK    50  0.0200   0.110       9
RD   400  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK GS15D
KM    GS15D
BA0.0133
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   300  0.1350   0.600      91
UK    50  0.0200   0.110       9
RD   400  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK GS15A
KM    GS15A
BA0.0913
PB
* PI
BF -38.7
LU  0.10  0.2370   2.000    0.10  0.2370  95.000
UK  1800  0.1200   0.600      97
UK    50  0.0200   0.110       3
RD   600  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK GS15B
KM    GS15B
BA0.0151
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   400  0.1000   0.600      94
UK    50  0.0200   0.110       6
RD   600  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KKYS15BC
KM  0
HC     2
ZW C=FLOW
*
KKGS16A1
KM    GS16A1
BA0.0190
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   400  0.1000   0.600      96
UK    50  0.0200   0.110       4
RD   500  0.0500   0.060            TRAP     2.0     2.0     YES
```

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ZW C=FLOW
*
KKGS16A2
KM    GS16A2
BA0.0137
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   400  0.1000   0.600      91
UK    50  0.0200   0.110       9
RD   600  0.0500   0.060          TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK GS16B
KM    GS16B
BA0.0260
PB
* PI
BF -38.7
LU  0.10  0.2330   2.000    0.10  0.2330  95.000
UK  1800  0.1500   0.600      93
UK    50  0.0200   0.110       7
RD   500  0.0500   0.060          TRAP     2.0     2.0
ZW C=FLOW
*
KK GS16C
KM    GS16C
BA0.0141
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   400  0.1500   0.600      89
UK    50  0.0200   0.110      11
RD   400  0.0500   0.060          TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK GS17C
KM    GS17C
BA0.0147
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.1200   0.600      91
UK    50  0.0200   0.110       9
RD   600  0.0500   0.060          TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK  E6A3
KM    E6A3
BA0.0421
PB
* PI
BF -38.7
LU  0.10  0.1800   2.000    0.10  0.1800  95.000
UK  1800  0.2000   0.600      94
UK    50  0.0200   0.110       6
RD   800  0.0500   0.060          TRAP     2.0     2.0
ZW C=FLOW
*
KK GS12B
KM    GS12B
BA0.0089
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.1200   0.600      89
UK    50  0.0200   0.110      11
RD   600  0.0500   0.060          TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK GS12C
KM    GS12C
BA0.0068
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   300  0.1200   0.600      70
UK    50  0.0200   0.110      30
RD  1600  0.0500   0.060          TRAP     2.0     2.0
ZW C=FLOW
*
KKY12CCC
KM  0
HC     2
ZW C=FLOW
*
KK GS12F
KM    GS12F
BA0.0082
```

```
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   400  0.1000   0.600      94
UK    50  0.0200   0.110       6
RD   400  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYS12FC
KM  0
HC     2
ZW C=FLOW
*
KK GS12H
KM    GS12H
BA0.0082
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   800  0.1000   0.600      94
UK    50  0.0200   0.110       6
RD   600  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK GS12D
KM    GS12D
BA0.0044
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   400  0.1500   0.600      84
UK    50  0.0200   0.110      16
RD   300  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK GS12E
KM    GS12E
BA0.0044
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   400  0.1500   0.600      90
UK    50  0.0200   0.110      10
RD   400  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KKY12ECC
KM  0
HC     2
ZW C=FLOW
*
KK GS12I
KM    GS12I
BA0.0177
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   800  0.1000   0.600      95
UK    50  0.0200   0.110       5
RD  1000  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYS12IC
KM  0
HC     2
ZW C=FLOW
*
KKVNTOLK
KM  0
RD  1000  0.0500   0.040            TRAP     2.0     2.0
ZW C=FLOW
*
KKYGS17C
KM  0
HC     2
ZW C=FLOW
*
KKYGS16A
KM  0
HC     2
ZW C=FLOW
*
KK GS17A
KM    GS17A
BA0.0226
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
```

```
UK   800  0.1000   0.600      90
UK    50  0.0200   0.110      10
RD  1000  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYAKCOM
KM  0
HC     3
ZW C=FLOW
*
*
KKULFDT2
KM   DETENTION AT GS17A
RS     1    FLOW      -1
SV  0.00    0.55    1.91    3.69    7.81
SQ   0.0    60.0   170.0   311.0   630.0
ZW C=FLOW
*
KK GS26N
KM   GS26N-2
BA0.0299
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1419  0.0660   0.600  100.00
RD  1800  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
*
KKUSTDET
KM GOLF LAKE/WET MEADOW AT SOUTH SIDE OF B STREET
* NEW 10-11-04
* NEW 12-04 for 30ft weir @ 6177.2 and low swq below
KO     1
RS     1    ELEV    6176
* SV     0    6.92   8.320   9.821  11.439   13.17
*  sv Revised by BAT 2/15/05 TO REFLECT NORMAL POOL ELEV AT 6176
SA     0    0.01    1.34    1.67    2.15
SE  6166  6175.9    6176    6178    6180
SQ     0    .001    0.50    64.0   217.0   421.0
SE  6166    6176    6177    6178    6179    6180
ZW C=FLOW
*
KKGS26OA
KM    AREA=20.2 AC
BA0.0321
PB
* PI
BF -38.7
LU  0.10  0.2500  86.000    0.10  0.2500  90.000
UK   800  0.0500   0.600      95
UK    50  0.0200   0.110       5
RD   800  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKGS26OB
KM    AREA=3.3 AC UNIT 4A
BA0.0047
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  90.000
UK   600  0.0500   0.600      95
UK    50  0.0200   0.110       5
RD   600  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYS26OC
KM  0
HC     4
ZW C=FLOW
*
*
KKUPLAKE
KM   CONCERT PARK LAKE
KO     1
RS     1    ELEV    6149
SA  0.01    0.25    0.32    0.36
SE  6140    6148    6149    6150
*  LOW FLOW PIPE (SL RECORD) IS A DUMMY
SL  6146   0.001    0.62     0.5
SS  6148      20     2.6     1.5
ZW C=FLOW
*
KK MD1C2
KM    MD1C2
BA0.0063
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  90.000
UK   250  0.0500   0.600      90
UK    50  0.0200   0.110      10
```

```
RD   300  0.0500   0.060           TRAP     2.0     2.0
ZW C=FLOW
*
KKYMD1C2
KM  0
HC     2
ZW C=FLOW
*
KKGS26L3
KM    AREA=0.7 AC   UNIT 4A
BA0.0012
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  90.000
UK   500  0.0580   0.600      90
UK    50  0.0200   0.110      10
RD   500  0.0500   0.060           TRAP     2.0     2.0
ZW C=FLOW
*
KKYNIT4A
KM  0
HC     2
ZW C=FLOW
*
KKMD1F-1
KM    MD1F-1
BA0.0069
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.0800   0.600      90
UK    50  0.0200   0.110      10
RD  1000  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK  MD1F
KM    MD1F-2
BA0.0035
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   500  0.0800   0.600      90
UK    50  0.0200   0.110      10
RD  1000  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD1F
KM  0
HC     2
ZW C=FLOW
*
KKMD1D1D
KM    MD1D1D
BA0.0124
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   800  0.0600   0.600  100.00
RD   400  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYD1D1D
KM  0
HC     2
ZW C=FLOW
*
KKMD1D1C
KM    MD1D1C
BA0.0074
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   500  0.0500   0.600  100.00
RD   200  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYD1D1C
KM  0
HC     2
ZW C=FLOW
*
KK  MD1E
KM    MD1E
BA0.0160
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.0800   0.600      95
```

```
UK    50  0.0200   0.110       5
RD  1000  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
*
KKUD1EWQ
KM  0
RS     1    FLOW      -1
SV  0.00    0.25    0.50    0.75
SQ   0.0     0.1    30.0    60.0
ZW C=FLOW
*
KKMD1D1A
KM    MD1D1A
BA0.0059
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   400  0.1200   0.600  100.00
RD   500  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKMD1D1B
KM    MD1D1B
BA0.0028
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   400  0.1200   0.600  100.00
RD   500  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYD1D1B
KM  0
HC     2
ZW C=FLOW
*
KK MD1D2
KM    MD1D2
BA0.0077
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   600  0.2000   0.600  100.00
RD  1000  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYD1D2D
KM  0
HC     3
ZW C=FLOW
*
KKYD1C2C
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK GS26J
KM    GS26J
BA0.0023
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   230  0.0780   0.600  100.00
RD   250  0.0770   0.060           TRAP     2.0     2.0
ZW C=FLOW
*
KK GS26K
KM    GS26K
BA0.0032
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   194  0.0920   0.600  100.00
RD   200  0.0830   0.060           TRAP     2.0     2.0
ZW C=FLOW
*
KKYGS26K
KM  0
HC     2
ZW C=FLOW
*
KK GS26L
KM    GS26L REVISED AREA = 5.8 AC UNIT 4A
BA0.0091
PB
```

```
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  90.000
UK   500  0.0580   0.600      90
UK    50  0.0200   0.110      10
RD   500  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYGS26L
KM  0
HC     2
ZW C=FLOW
*
KKGS26L2
KM    GS26L2
BA0.0029
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  90.000
UK   250  0.0470   0.600      90
UK    50  0.0200   0.110      10
RD   250  0.0300   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KK MD1C1
KM    MD1C1
BA0.0155
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  90.000
UK   400  0.0500   0.600      85
UK    50  0.0200   0.110      15
RD  1800  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
KKYD1C1C
KM  0
HC     2
ZW C=FLOW
*
*
KKUWLAKE
KM CULTURAL CENTER LAKE LOWER LAKE
* CULTURAL LAKE HAS BEEN RELOCATED AND THE THE GRADING REVISED.
* THE LAKE NOW CONSISTS OF AN UPPER LAKE AND A LOWER LAKE.
* THE UPPER LAKE IS UPLAKE. THIS IS LOWER LAKE.  UPPER LAKE IS
* DESIGNATED UPLAKE
* REVISION DATE 7/7/2006
KO     1
RS     1    ELEV    6133
SA  0.98    2.89    3.08    3.34    3.65    4.01
SE  6119    6133    6134    6136    6138    6140
SQ     0     1.8    10.5    54.1   116.9   194.2   283.6   383.6   493.2
SE  6133  6133.6    6134    6135    6136    6137    6138    6139    6140
ZW C=FLOW
*
*
KKUAINWQ
KM   AT MD1C1
RS     1    FLOW      -1
SV  0.00    0.34    0.69    1.03    1.38    1.83    2.29    2.86    3.44
SQ   0.0     0.5     1.0     8.5    30.0    60.0   100.0   150.0   600.0
ZW C=FLOW
*
KK MD1C4
KM    MD1C4
BA0.0169
PB
* PI
BF -38.7
LU  0.10  0.2240   2.000    0.10  0.2240  90.000
UK   400  0.0500   0.600      95
UK    50  0.0200   0.110       5
RD  1800  0.0500   0.060            TRAP     2.0     2.0     YES
ZW C=FLOW
*
*
KKU1C4WQ
KM   AT MD1C4
RS     1    FLOW      -1
SV  0.00    0.23    0.51    0.92    1.24    1.60    1.95    2.30
SQ   0.0     0.3     0.5     0.8     1.0     1.5    45.0   500.0
ZW C=FLOW
*
* - - - - - -
*
*
KK   MA1
KM     MA1
BA0.2995
PB
* PI
```

```
BF -38.7
LU  0.10  0.1910   2.000
UK  1600  0.2340   0.600  100.00
RD  3500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK   MA2
KM     MA2
BA0.5483
PB
* PI
BF -38.7
LU  0.10  0.2000   2.000
UK  2200  0.2840   0.600  100.00
RD  4300  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK   MA3
KM     MA3
BA0.6259
PB
* PI
BF -38.7
LU  0.10  0.2290   2.000
UK  2300  0.2720   0.600  100.00
RD  7500  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK   MA4
KM     MA4
BA0.2870
PB
* PI
BF -38.7
LU  0.10  0.2270   2.000
UK  2000  0.3000   0.600  100.00
RD  3300  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK   MA5
KM     MA5
BA0.2025
PB
* PI
BF -38.7
LU  0.10  0.2140   2.000
UK  1500  0.1830   0.600  100.00
RD  2500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK   MA6
KM     MA6
BA0.4152
PB
* PI
BF -38.7
LU  0.10  0.2280   2.000
UK  1800  0.0970   0.600  100.00
RD  3000  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK YMA6C
KM  0
HC     2
ZW C=FLOW
*
KK   MA7
KM     MA7
BA0.2326
PB
* PI
BF -38.7
LU  0.10  0.2330   2.000
UK  3300  0.2270   0.600  100.00
RD  1500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMA7C
KM  0
HC     2
ZW C=FLOW
*
KK   MA8
KM     MA8
BA0.4308
PB
* PI
BF -38.7
LU  0.10  0.1650   2.000
UK  1250  0.3200   0.600  100.00
RD  5500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMA8C
```

```
KM  0
HC     2
ZW C=FLOW
*
KK   MA9
KM     MA9
BA0.0913
PB
* PI
BF -38.7
LU  0.10  0.2370   2.000
UK   600  0.2080   0.600  100.00
RD  1500  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK MA10A
KM    MA10A
BA0.2885
PB
* PI
BF -38.7
LU  0.10  0.2410   2.000    0.10  0.2410  15.000
UK  1600  0.0380   0.600      85
UK   200  0.0200   0.240      15
RD  2800  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK MA10B
KM    MA10B
BA0.0100
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   900  0.0900   0.600      90
UK    50  0.0200   0.110      10
RD   200  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYA10BC
KM  0
HC     2
ZW C=FLOW
*
*
KKU0DCUL
KM  0
RS     1    FLOW      -1
SV  0.00    2.50    5.00    8.50   12.50
SQ   0.0   500.0  1200.0  2300.0  3500.0
ZW C=FLOW
*
* - - - - - -
*
*
KKMB7B3A
KM    MB7B3A
BA0.0051
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   500  0.0800   0.600      95
UK    50  0.0200   0.110       5
RD   550  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKMB7B4A
KM    MB7B4A
BA0.0156
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   500  0.0900   0.600      95
UK    50  0.0200   0.110       5
RD   570  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKMB7B3B
KM    MB7B3B
BA0.0064
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.0800   0.600      95
UK    50  0.0200   0.110       5
RD   600  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKMB7B4B
KM    MB7B4B
BA0.0044
```

```
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   400  0.0700   0.600      95
UK    50  0.0200   0.110       5
RD   500  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYB7B34
KM  0
HC     3
ZW C=FLOW
*
KKMB7B4C
KM    MB7B4C
BA0.0023
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   170  0.0530   0.600      95
UK    50  0.0200   0.110       5
RD   300  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
*
KKUA10EQ
KM  0
RS     1    FLOW      -1
SV  0.00    0.05    0.10    0.15    0.20    0.25
SQ   0.0     0.0     0.0     0.0    30.0    60.0
ZW C=FLOW
*
KKYA10EC
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KKMB7B1A
KM    MB7B1A
BA0.0709
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1300  0.1920   0.600  100.00
RD  3000  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKMB7B1C
KM    MB7B1C
BA0.0041
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   400  0.0800   0.600      95
UK    50  0.0200   0.110       5
RD   200  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKMB7B1B
KM    MB7B1B
BA0.0107
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   500  0.0800   0.600      95
UK    50  0.0200   0.110       5
RD   600  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYMB7B1
KM  0
HC     2
ZW C=FLOW
*
KKMB7B1D
KM    MB7B1D
BA0.0146
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   500  0.0700   0.600      95
UK    50  0.0200   0.110       5
RD   650  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
```

```
KKMB7B1E
KM    MB7B1E
BA0.0054
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   500  0.0500   0.600      95
UK    50  0.0200   0.110       5
RD   350  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
*
KKUB7B1Q
KM  0
RS     1    FLOW      -1
SV  0.00    0.10    0.20    0.30    0.40    0.50
SQ   0.0     0.1     0.1     0.7    20.0    80.0
ZW C=FLOW
*
KK MB7B2
KM    MB7B2
BA0.0216
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK  1300  0.1920   0.600      95
UK    50  0.0200   0.110       5
RD   600  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
*
KKUB7B2Q
KM  0
RS     1    FLOW      -1
SV  0.00    0.33    0.66    1.00    1.33
SQ   0.0     0.2     0.3     0.3   150.0
ZW C=FLOW
*
KKYMB7BC
KM  0
HC     2
ZW C=FLOW
*
*
KKUPONDD
KM  0
RS     1    FLOW      -1
SV  0.00    1.00    2.00    3.00    4.00    5.00    6.00    7.00    8.00
SQ   0.0    50.0   100.0   200.0   400.0   600.0  1000.0  2000.0  4000.0
ZW C=FLOW
*
* - - - - - -
*
*
KK   MB1
KM     MB1
BA0.5333
PB
* PI
BF -38.7
LU  0.10  0.1880   2.000
UK  4000  0.2750   0.600  100.00
RD  2700  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK   MB2
KM     MB2
BA1.2667
PB
* PI
BF -38.7
LU  0.10  0.1920   2.000
UK  2800  0.3390   0.600  100.00
RD  3400  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK   MB3
KM     MB3
BA0.5006
PB
* PI
BF -38.7
LU  0.10  0.2180   2.000
UK  1800  0.2780   0.600  100.00
RD  1600  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK   MB4
KM     MB4
BA0.6535
PB
* PI
```

```
BF -38.7
LU  0.10  0.2450   2.000
UK  1900  0.1840   0.600  100.00
RD  4000  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK   MB5
KM     MB5
BA0.1602
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1800  0.2780   0.600  100.00
RD  1500  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK  MB6A
KM   AREA = 7.0 AC
BA0.0073
PB
* PI
BF -38.7
LU  0.10  0.2500   6.600
UK  1335  0.1543   0.600  100.00
RD   625  0.0800   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
*
KKUB6ADT
KM  0
RS     1    FLOW      -1
SV  0.00    0.15    0.30    0.45
SQ   0.0   100.0   200.0   300.0
ZW C=FLOW
*
KKYMB6AC
KM  0
HC     2
ZW C=FLOW
*
*
KKUB6CUL
KM  0
RS     1    FLOW      -1
SV  0.00    2.50    5.00    8.50   12.50
SQ   0.0   500.0  1100.0  2000.0  3000.0
ZW C=FLOW
*
KK  MB6B
KM   AREA = 3.9 AC
BA0.0061
PB
* PI
BF -38.7
LU  0.10  0.2500  11.800
UK   240  0.0708   0.600  100.00
RD   520  0.0800   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
*
KKUB6BDT
KM  0
RS     1    FLOW      -1
SV  0.00    0.15    0.30    0.45
SQ   0.0   100.0   200.0   300.0
ZW C=FLOW
*
KKYMB6BC
KM  0
HC     2
ZW C=FLOW
*
KK  MB6C
KM   AREA = 3.2 AC
BA0.0039
PB
* PI
BF -38.7
LU  0.10  0.2500   7.600
UK   370  0.1081   0.600  100.00
RD   490  0.0683   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
*
KKUB6CDT
KM  0
RS     1    FLOW      -1
SV  0.00    0.15    0.30    0.45
SQ   0.0   100.0   200.0   300.0
ZW C=FLOW
*
KKYMB6CC
KM  0
```

```
HC     2
ZW C=FLOW
*
KK  MB6D
KM    MB6D
BA0.0223
PB
* PI
BF -38.7
LU  0.10  0.2460   2.000    0.10  0.2460  15.000
UK   200  0.1250   0.600      65
UK   200  0.0200   0.240      35
RD  1500  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK  MB6G
KM  MB6G
BA0.0109
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   500  0.1250   0.600      30
UK   200  0.0200   0.240      70
RD   500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  MB6F
KM  MB6F
BA0.0062
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   500  0.1250   0.600      30
UK   200  0.0200   0.240      70
RD   500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MB6D1
KM  MB6D1
BA0.0036
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   500  0.1250   0.600      30
UK   200  0.0200   0.240      70
RD   500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMB6D1
KM  0
HC     3
ZW C=FLOW
*
KK  MB6E
KM    MB6E
BA0.0050
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   500  0.1250   0.600      30
UK   200  0.0200   0.240      70
RD   500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMB6E
KM  0
HC     2
ZW C=FLOW
*
*
KKUB6EDT
KM  0
RS     1    FLOW      -1
SV  0.00    0.15    0.30    0.45
SQ   0.0   100.0   200.0   300.0
ZW C=FLOW
*
KKYMB6EC
KM  0
HC     2
ZW C=FLOW
*
KKYMB6DD
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
```

```
KK MB7A1
KM     MB7A1
BA0.1465
PB
* PI
BF -38.7
LU  0.10  0.2080   2.000    0.10  0.2080  95.000
UK  1300  0.1920   0.600      97
UK    50  0.0200   0.110       3
RD  2500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKMB7A2A
KM     MB7A2A
BA0.0247
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   550  0.1920   0.600      92
UK    50  0.0200   0.110       8
RD   580  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKMB7A2B
KM     MB7A2B
BA0.0059
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   300  0.1920   0.600  100.00
RD   500  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
*
KKUB7A2Q
KM  0
RS     1    FLOW      -1
SV  0.00    0.12    0.25    0.38    0.50    0.62
SQ   0.0     0.1     0.1     0.1    20.0   120.0
ZW C=FLOW
*
KK  MB7C
KM     MB7C
BA0.0236
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   200  0.1000   0.600      92
UK    50  0.0200   0.110       8
RD   500  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKMB7D1A
KM     MB7D1A
BA0.0044
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   500  0.1000   0.600      79
UK    50  0.0200   0.110      21
RD   200  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKMB7D1B
KM     MB7D1B
BA0.0025
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   300  0.1000   0.600      79
UK    50  0.0200   0.110      21
RD   400  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYB7D1C
KM  0
HC     2
ZW C=FLOW
*
KK MB7D1
KM     MB7D1
BA0.0011
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   100  0.1000   0.600  100.00
RD   300  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
```

```
*
KK MB7D2
KM     MB7D2
BA0.0215
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   200  0.1000   0.600      95
UK    50  0.0200   0.110       5
RD   500  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYMB7CC
KM  0
HC     2
ZW C=FLOW
*
KK  MB7E
KM     MB7E
BA0.0585
PB
* PI
BF -38.7
LU  0.10  0.2470   2.000    0.10  0.2470  95.000
UK   200  0.1000   0.600      96
UK    50  0.0200   0.110       4
RD  1500  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
*
KKUB8SWQ
KM  0
RS     1    FLOW      -1
SV  0.00    0.25    0.50    0.75    1.00
SQ   0.0     0.2     0.2     0.2   200.0
ZW C=FLOW
*
KKYMB7EC
KM  0
HC     2
ZW C=FLOW
*
KK   MB8
KM     MB8
BA0.0545
PB
* PI
BF -38.7
LU  0.10  0.2140   2.000    0.10  0.2140  15.000
UK  1000  0.1000   0.600      85
UK   200  0.0200   0.240      15
RD  2500  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
* - - - - - -
*
*
KK   MC1
KM   AREA = 258.6 AC
BA0.4041
PB
* PI
BF -38.7
LU  0.10  0.2390   2.000
UK  1530  0.4281   0.600  100.00
RD  5300  0.2394   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  MC2A
KM   AREA = 59.1 AC
BA0.0923
PB
* PI
BF -38.7
LU  0.10  0.2500   2.200
UK  1035  0.4010   0.600  100.00
RD  2590  0.3421   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMC2AC
KM  0
HC     2
ZW C=FLOW
*
KK  MC2B
KM   AREA = 0.9 AC
BA0.0014
PB
* PI
BF -38.7
LU  0.10  0.2500  10.300
UK   550  0.0764   0.600  100.00
RD   200  0.0800   0.060            TRAP     0.1     1.0
```

```
ZW C=FLOW
*
KK  MC2K
KM  MC2K
BA0.0001
PB
* PI
BF -38.7
LU  0.10  0.2500   4.700
UK  1225  0.1551   0.600  100.00
RD   565  0.0800   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
KK YMC2K
KM  0
HC     2
ZW C=FLOW
*
*
KKUC2BDT
KM  0
RS     1    FLOW      -1
SV  0.00    0.15    0.30    0.45
SQ   0.0   100.0   200.0   300.0
ZW C=FLOW
*
KKYMC2BC
KM  0
HC     2
ZW C=FLOW
*
KK  MD1D
KM     MD1d AREA = 5.9 AC
BA0.0092
PB
* PI
BF -38.7
LU  0.10  0.2500   3.400
UK   800  0.2375   0.600  100.00
RD   190  0.0414   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
KK  MD1B
KM     MD1b AREA = 5.9 AC
BA0.0092
PB
* PI
BF -38.7
LU  0.10  0.2500   3.600
UK   800  0.2375   0.600  100.00
RD   260  0.0414   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
KK YMD1B
KM  0
HC     2
ZW C=FLOW
*
KK MC2A2
KM  MC2A2
BA0.0061
PB
* PI
BF -38.7
LU  0.10  0.2500   4.700
UK  1225  0.1551   0.600  100.00
RD   565  0.0800   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
KKYMC2A2
KM  0
HC     3
ZW C=FLOW
*
KK  MD1C
KM    MD1c AREA = 2.9 AC
BA0.0045
PB
* PI
BF -38.7
LU  0.10  0.2500   7.900
UK   500  0.2178   0.600  100.00
RD   364  0.2178   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MC2A3
KM  MC2A3
BA0.0044
PB
* PI
BF -38.7
LU  0.10  0.2500   4.700
UK  1225  0.1551   0.600  100.00
RD   565  0.0800   0.060            TRAP     0.1     1.0
```

```
ZW C=FLOW
*
KKYMC2A3
KM  0
HC     3
ZW C=FLOW
*
KK  MC2D
KM   AREA = 7.8 AC
BA0.0122
PB
* PI
BF -38.7
LU  0.10  0.2500   4.700
UK  1225  0.1551   0.600  100.00
RD   565  0.0800   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
*
KKUC2DDT
KM  0
RS     1    FLOW      -1
SV  0.00    0.15    0.30    0.45
SQ   0.0   100.0   200.0   300.0
ZW C=FLOW
*
KK  MC2E
KM   AREA = 3.9 AC
BA0.0060
PB
* PI
BF -38.7
LU  0.10  0.2500   8.500
UK   895  0.1777   0.600  100.00
RD   565  0.0800   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
*
KKUC2EDT
KM  0
RS     1    FLOW      -1
SV  0.00    0.15    0.30    0.45
SQ   0.0   100.0   200.0   300.0
ZW C=FLOW
*
KKYMC2EC
KM  0
HC     2
ZW C=FLOW
*
KK  MC2G
KM   AREA = 9.7 AC
BA0.0151
PB
* PI
BF -38.7
LU  0.10  0.2500  90.000
UK   395  0.2051   0.600  100.00
RD   360  0.0800   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
KK YMC2G
KM  0
HC     2
ZW C=FLOW
*
KK  MC2H
KM   AREA = 2.4 AC
BA0.0038
PB
* PI
BF -38.7
LU  0.10  0.2500   9.500
UK   365  0.1096   0.600  100.00
RD   530  0.0800   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
KKYMC2HC
KM  0
HC     2
ZW C=FLOW
*
KK  MC2L
KM  MC2L
BA0.0519
PB
* PI
BF -38.7
LU  0.10  0.2500  10.300
UK   550  0.0764   0.600  100.00
RD   200  0.0800   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
KK YMC2L
```

```
KM  0
HC     3
ZW C=FLOW
*
KK  MC2I
KM   AREA = 0.7 AC
BA0.0011
PB
* PI
BF -38.7
LU  0.10  0.2500  24.300
UK   225  0.1289   0.600  100.00
RD   100  0.0800   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
KK  MC2J
KM   AREA = 0.6 AC
BA0.0011
PB
* PI
BF -38.7
LU  0.10  0.2500  19.200
UK   225  0.1600   0.600  100.00
RD   310  0.0800   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
KKYMC2IC
KM  0
HC     2
ZW C=FLOW
*
KK YMC2I
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK  MD4A
KM     MD4A
BA0.1163
PB
* PI
BF -38.7
LU  0.10  0.2500   2.500
UK   500  0.4140   0.600  100.00
RD  2399  0.3040   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  MD3C
KM     MD3c AREA = 6.9 AC = 0.01078 SQ MI % IMPERV = 4.6
BA0.0108
PB
* PI
BF -38.7
LU  0.10  0.2500   4.400
UK   500  0.3184   0.600  100.00
RD   737  0.3184   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD3C
KM  0
HC     2
ZW C=FLOW
*
KK  MD3B
KM     MD3b AREA = 8.5 AC = 0.01328 SQ MI % IMPERV = 3.8
BA0.0133
PB
* PI
BF -38.7
LU  0.10  0.2500   3.600
UK   500  0.3073   0.600  100.00
RD  1173  0.3073   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD3BC
KM  0
HC     2
ZW C=FLOW
*
KK MD3A1
KM     MD3a AREA = 25.4 AC = 0.03969 SQ MI % IMPERV = 2.6
BA0.0397
PB
* PI
BF -38.7
LU  0.10  0.2500   2.500
UK   500  0.3458   0.600  100.00
RD  2530  0.3458   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD3A1
```

```
KM  0
HC     2
ZW C=FLOW
*
KK MD1A1
KM     MD1a  AREA = 3.0 AC = 0.00469 SQ MI % IMPERV = 7.1
BA0.0047
PB
* PI
BF -38.7
LU  0.10  0.2500   6.400
UK   500  0.2420   0.600  100.00
RD   135  0.2420   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD1A1
KM  0
HC     2
ZW C=FLOW
*
KK MC2A4
KM   AREA = 59.1 AC
BA0.0022
PB
* PI
BF -38.7
LU  0.10  0.2500   2.200
UK  1035  0.4010   0.600  100.00
RD  2590  0.3421   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMC2A4
KM  0
HC     2
ZW C=FLOW
*
KKYC2A4C
KM  0
HC     2
ZW C=FLOW
*
KK YMD8C
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK MD1B1
KM   MD1B1
BA0.0157
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   800  0.0500   0.600      51
UK    50  0.0200   0.110      49
RD  1000  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK MD1B2
KM   MD1B2
BA0.0392
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   800  0.0800   0.600      94
UK    50  0.0200   0.110       6
RD  1000  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYMD1B2
KM  0
HC     2
ZW C=FLOW
*
KK  MD1A
KM     MD1a  AREA = 3.0 AC = 0.00469 SQ MI % IMPERV = 7.1
BA0.0581
PB
* PI
BF -38.7
LU  0.10  0.1940   6.400
UK   500  0.2420   0.600  100.00
RD   135  0.2420   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD1A
KM  0
HC     2
ZW C=FLOW
*
```

```
KKYMD1C4
KM  0
HC     2
ZW C=FLOW
*
KK  MD2D
KM     MD2D
BA0.0040
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   550  0.0350   0.600      90
UK    50  0.0200   0.110      10
RD   350  0.0300   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK YMD2D
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK  MD3D
KM     MD3d
BA0.0094
PB
* PI
BF -38.7
LU  0.10  0.2500   8.000
UK   682  0.1610   0.600  100.00
RD   200  0.2350   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKMD1E1A
KM  MD1E1A
BA0.0018
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   600  0.0800   0.600      95
UK    50  0.0200   0.110       5
RD  1000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYD1E1A
KM  0
HC     2
ZW C=FLOW
*
KK   MD6
KM     MD6
BA0.0072
PB
* PI
BF -38.7
LU  0.10  0.2500   7.500
UK   635  0.1560   0.600  100.00
RD   300  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  YMD6
KM  0
HC     2
ZW C=FLOW
*
KK   MD1
KM     MD1  AREA = 5.7 AC = 0.00891 SQ MI % IMPERV = 14.0
BA0.0088
PB
* PI
BF -38.7
LU  0.10  0.2500  13.000
UK   483  0.1451   0.600  100.00
RD   100  0.1451   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  MD2A
KM  MD2A
BA0.0026
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   250  0.0350   0.600      90
UK    50  0.0200   0.110      10
RD   300  0.0400   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK YMD2A
KM  0
```

```
HC     2
ZW C=FLOW
*
KKYMD6CC
KM  0
HC     2
ZW C=FLOW
*
KK  MD27
KM     MD27
BA0.0048
PB
* PI
BF -38.7
LU  0.10  0.2500  11.000
UK   559  0.0500   0.600  100.00
RD   123  0.3210   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD27
KM  0
HC     2
ZW C=FLOW
*
KK MD28A
KM     MD28A
BA0.0043
PB
* PI
BF -38.7
LU  0.10  0.2500  15.200
UK   559  0.0500   0.600  100.00
RD   123  0.3210   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD28A
KM  0
HC     2
ZW C=FLOW
*
KK MD28B
KM     MD28B
BA0.0092
PB
* PI
BF -38.7
LU  0.10  0.2500   4.800
UK   559  0.0500   0.600  100.00
RD   123  0.3210   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK  MD3A
KM     MD3a AREA = 25.4 AC = 0.03969 SQ MI % IMPERV = 2.6
BA0.0076
PB
* PI
BF -38.7
LU  0.10  0.2500   2.500
UK   500  0.3458   0.600  100.00
RD  2530  0.3458   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD28B
KM  0
HC     3
ZW C=FLOW
*
KK YMD3A
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK  MD7B
KM     MD7B
BA0.0042
PB
* PI
BF -38.7
LU  0.10  0.2500   9.000
UK   760  0.0500   0.600  100.00
RD   160  0.3210   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
*
KKUD7BDT
KM  0
RS     1    FLOW      -1
SV  0.00    0.15    0.30    0.45
SQ   0.0   100.0   200.0   300.0
ZW C=FLOW
*
```

```
KK  MD4C
KM     MD4c
BA0.0056
PB
* PI
BF -38.7
LU  0.10  0.2500   8.800
UK   626  0.0500   0.600  100.00
RD   200  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD4C
KM  0
HC     2
ZW C=FLOW
*
KK  MD4E
KM  MD4E
BA0.0016
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1500  0.2830   0.600  100.00
RD  1100  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD4E
KM  0
HC     2
ZW C=FLOW
*
KK  MD4D
KM     MD4d
BA0.0062
PB
* PI
BF -38.7
LU  0.10  0.2500   7.500
UK   895  0.1010   0.600  100.00
RD   350  0.2980   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD4D
KM  0
HC     2
ZW C=FLOW
*
KK   MD9
KM     MD9
BA0.0106
PB
* PI
BF -38.7
LU  0.10  0.2500   7.900
UK   824  0.2530   0.600  100.00
RD   572  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK   MD8
KM     MD8
BA0.0047
PB
* PI
BF -38.7
LU  0.10  0.2500   4.800
UK   519  0.1260   0.600  100.00
RD   354  0.2350   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  YMD8
KM  0
HC     3
ZW C=FLOW
*
KK  YMD9
KM  0
HC     2
ZW C=FLOW
*
KK  MD6A
KM  MD6A
BA0.1279
PB
* PI
BF -38.7
LU  0.10  0.2190   7.500
UK   635  0.1560   0.600  100.00
RD   300  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD6A
KM  0
HC     2
```

```
ZW C=FLOW
*
* - - - - - -
*
*
KK  MD7D
KM     MD7d
BA0.0051
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   500  0.1060   0.600  100.00
RD   723  0.0640   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  MD7C
KM     MD7c
BA0.0061
PB
* PI
BF -38.7
LU  0.10  0.2500   3.200
UK   500  0.1060   0.600  100.00
RD   741  0.0640   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD7C
KM  0
HC     2
ZW C=FLOW
*
KK  MD7E
KM  MD7E
BA0.0094
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK  1200  0.3130   0.600      90
UK  1200  0.3000   0.240      10
RD  2000  0.0200   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD7E
KM  0
HC     2
ZW C=FLOW
*
KK  MD7F
KM  MD7F
BA0.0067
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK  1200  0.3130   0.600      90
UK  1200  0.3000   0.240      10
RD  2000  0.0200   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD7F
KM  0
HC     2
ZW C=FLOW
*
KK  MD11
KM     MD11
BA0.0056
PB
* PI
BF -38.7
LU  0.10  0.2500   4.800
UK   595  0.0500   0.600  100.00
RD   200  0.3330   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD11
KM  0
HC     2
ZW C=FLOW
*
KKYMD7FC
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK  MD2B
KM     MD2B
BA0.0056
PB
```

```
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   690  0.0460   0.600      90
UK    50  0.0200   0.110      10
RD   130  0.0100   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK  ME3A
KM     ME3A
BA0.0040
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   420  0.0380   0.600      90
UK    50  0.0200   0.110      10
RD   200  0.0300   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK YME3A
KM  0
HC     2
ZW C=FLOW
*
*
KKUE3CUL
KM  0
RS     1    FLOW      -1
SV  0.00    2.50    5.00    8.50   12.50   17.50
SQ   0.0   500.0  1200.0  2300.0  3500.0  5500.0
ZW C=FLOW
*
KKYME3AC
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK  MD17
KM     MD17
BA0.0075
PB
* PI
BF -38.7
LU  0.10  0.2500   5.700
UK   830  0.1260   0.600  100.00
RD   150  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  MD18
KM    MD18
BA0.0051
PB
* PI
BF -38.7
LU  0.10  0.2500   6.000
UK   930  0.1480   0.600  100.00
RD   200  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  MD19
KM     MD19
BA0.0056
PB
* PI
BF -38.7
LU  0.10  0.2500   6.100
UK  1055  0.2100   0.600  100.00
RD   150  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD19
KM  0
HC     3
ZW C=FLOW
*
KKYMD19C
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK MD2A1
KM     MD2A
BA0.0019
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
```

```
UK   250  0.0350   0.600      90
UK    50  0.0200   0.110      10
RD   300  0.0400   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK   MD2
KM     MD2
BA0.0059
PB
* PI
BF -38.7
LU  0.10  0.2500  16.800
UK   295  0.1250   0.600  100.00
RD   200  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  YMD2
KM  0
HC     2
ZW C=FLOW
*
KK ME3A2
KM    ME3A2
BA0.0062
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   500  0.0440   0.600      90
UK    50  0.0200   0.110      10
RD   300  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KK YMD2C
KM  0
HC     2
ZW C=FLOW
*
KKYME3A2
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK  MD13
KM     MD13
BA0.4368
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   500  0.4770   0.600  100.00
RD  5450  0.3010   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKME6_19
KM  ME6_19
BA0.0236
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   330  0.0530   0.600  100.00
RD   522  0.0880   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKME6_14
KM  ME6_14
BA0.0063
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   330  0.0530   0.600  100.00
RD   522  0.0880   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME614
KM  0
HC     2
ZW C=FLOW
*
KK YMD13
KM  0
HC     2
ZW C=FLOW
*
KK  MD12
KM     MD12
BA0.0428
PB
* PI
```

```
BF -38.7
LU  0.10  0.2500   2.500
UK   500  0.1060   0.600  100.00
RD  2855  0.0640   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD12
KM  0
HC     2
ZW C=FLOW
*
KK MD12B
KM     MD12b
BA0.0024
PB
* PI
BF -38.7
LU  0.10  0.2500  24.700
UK   352  0.2560   0.600  100.00
RD   190  0.3210   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK MD12C
KM     MD12c
BA0.0084
PB
* PI
BF -38.7
LU  0.10  0.2500   6.500
UK   500  0.2050   0.600  100.00
RD   498  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD12C
KM  0
HC     2
ZW C=FLOW
*
KK MD14B
KM     MD14b
BA0.0016
PB
* PI
BF -38.7
LU  0.10  0.2500  12.600
UK   500  0.1060   0.600  100.00
RD    42  0.0640   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD14B
KM  0
HC     2
ZW C=FLOW
*
KK MD14C
KM     MD14c
BA0.0060
PB
* PI
BF -38.7
LU  0.10  0.2500   4.300
UK   500  0.1060   0.600  100.00
RD   406  0.0640   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD14C
KM  0
HC     3
ZW C=FLOW
*
KKME6_13
KM   1.17 AC
BA0.0022
PB
* PI
BF -38.7
LU  0.10  0.2500   2.900
UK   525  0.1750   0.600  100.00
RD   345  0.0800   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK ME8_3
KM   3.07 AC
BA0.0048
PB
* PI
BF -38.7
LU  0.10  0.2500   7.400
UK   675  0.1640   0.600  100.00
RD   100  0.1700   0.060           TRAP     0.1     2.0
ZW C=FLOW
*
KKYME8_3
KM  0
```

```
HC     2
ZW C=FLOW
*
KK YME83
KM  0
HC     2
ZW C=FLOW
*
KK MD13B
KM  MD13B
BA0.0392
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   500  0.4770   0.600  100.00
RD  5450  0.3010   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD13B
KM  0
HC     2
ZW C=FLOW
*
KK  MD14
KM     MD14
BA0.0060
PB
* PI
BF -38.7
LU  0.10  0.2500   9.300
UK   663  0.1650   0.600  100.00
RD   280  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MD14A
KM  MD14A
BA0.0009
PB
* PI
BF -38.7
LU  0.10  0.2500   9.300
UK   663  0.1650   0.600  100.00
RD   280  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD14A
KM  0
HC     2
ZW C=FLOW
*
KKYD14AC
KM  0
HC     2
ZW C=FLOW
*
KK ME3_5
KM  ME3_5
BA0.0007
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   300  0.1000   0.600      65
UK   300  0.1000   0.240      35
RD  1500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME3_5
KM  0
HC     2
ZW C=FLOW
*
KK  MD15
KM    MD15
BA0.0073
PB
* PI
BF -38.7
LU  0.10  0.2500   9.200
UK   870  0.1590   0.600  100.00
RD   140  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MD15A
KM  MD15A
BA0.0002
PB
* PI
BF -38.7
LU  0.10  0.2500   9.200
UK   870  0.1590   0.600  100.00
RD   140  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
```

```
*
KKYMD15A
KM  0
HC     2
ZW C=FLOW
*
KK MD16A
KM  MD16A
BA0.0036
PB
* PI
BF -38.7
LU  0.10  0.2500  10.000
UK   772  0.1250   0.600  100.00
RD   150  0.3210   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD16A
KM  0
HC     2
ZW C=FLOW
*
KK  MD16
KM     MD16
BA0.0063
PB
* PI
BF -38.7
LU  0.10  0.2500  10.000
UK   772  0.1250   0.600  100.00
RD   150  0.3210   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD16
KM  0
HC     2
ZW C=FLOW
*
KKYMD16C
KM  0
HC     2
ZW C=FLOW
*
KK MD13C
KM  MD13C
BA0.0068
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   500  0.4770   0.600  100.00
RD  5450  0.3010   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMD13C
KM  0
HC     2
ZW C=FLOW
*
KK  MD20
KM     MD20
BA0.0020
PB
* PI
BF -38.7
LU  0.10  0.2500   9.000
UK   740  0.0500   0.600  100.00
RD   180  0.3210   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD20
KM  0
HC     2
ZW C=FLOW
*
KKYD13CC
KM  0
HC     2
ZW C=FLOW
*
KK  ME3B
KM     ME3B
BA0.0182
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   300  0.1000   0.600      65
UK   300  0.1000   0.240      35
RD  1500  0.1000   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
* - - - - - -
*
```

```
*
KKGS31B1
KM    GS31B1
BA0.0029
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   580  0.0380   0.600      90
UK    50  0.0200   0.110      10
RD   275  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKGS31B2
KM    GS31B2
BA0.0047
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   690  0.0570   0.600      90
UK    50  0.0200   0.110      10
RD   340  0.0500   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKGS31B3
KM    GS31B3
BA0.0056
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   530  0.0600   0.600      90
UK    50  0.0200   0.110      10
RD   250  0.0400   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYGS311
KM  0
HC     3
ZW C=FLOW
*
KKGS31B4
KM    GS31B4
BA0.0012
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   250  0.0480   0.600      90
UK    50  0.0200   0.110      10
RD   150  0.0400   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKGS31B5
KM    GS31B5
BA0.0056
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  95.000
UK   500  0.0500   0.600      90
UK    50  0.0200   0.110      10
RD   350  0.0400   0.060            TRAP     2.0     2.0
ZW C=FLOW
*
KKYGS312
KM  0
HC     3
ZW C=FLOW
*
KKYS31BC
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK ME8_1
KM   0.48 AC
BA0.0007
PB
* PI
BF -38.7
LU  0.10  0.2500  26.000
UK   180  0.0660   0.600  100.00
RD    80  0.0600   0.060            TRAP     0.1     2.0
ZW C=FLOW
*
KK ME3_1
KM  ME3_1
BA0.0009
PB
```

```
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   300  0.1000   0.600      65
UK   300  0.1000   0.240      35
RD  1500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME3_1
KM  0
HC     2
ZW C=FLOW
*
KK ME3_2
KM  ME3_2
BA0.0024
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   300  0.1000   0.600      65
UK   300  0.1000   0.240      35
RD  1500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME3_2
KM  0
HC     2
ZW C=FLOW
*
KK ME3_3
KM  ME3_3
BA0.0031
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   300  0.1000   0.600      65
UK   300  0.1000   0.240      35
RD  1500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME3_3
KM  0
HC     2
ZW C=FLOW
*
KK ME3_4
KM  ME3_4
BA0.0024
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   300  0.1000   0.600      65
UK   300  0.1000   0.240      35
RD  1500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME3_4
KM  0
HC     2
ZW C=FLOW
*
KK  MD21
KM     MD21
BA0.0033
PB
* PI
BF -38.7
LU  0.10  0.2500   7.200
UK   640  0.0500   0.600  100.00
RD   150  0.3210   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMD21
KM  0
HC     2
ZW C=FLOW
*
KK ME3C3
KM  ME3C3
BA0.0066
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   300  0.1000   0.600      65
UK   300  0.1000   0.240      35
RD  1500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME3C3
KM  0
```

```
HC     2
ZW C=FLOW
*
KK ME3C1
KM  ME3C1
BA0.0016
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   300  0.1000   0.600      65
UK   300  0.1000   0.240      35
RD  1500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME3C1
KM  0
HC     2
ZW C=FLOW
*
KKYME3CC
KM  0
HC     2
ZW C=FLOW
*
KK  ME4A
KM     ME4A
BA0.0939
PB
* PI
BF -38.7
LU  0.10  0.2320   2.000    0.10  0.2320  15.000
UK   500  0.1200   0.600      90
UK   300  0.1200   0.240      10
RD  2500  0.1000   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
* - - - - - -
*
*
KKME6_11
KM   0.13 AC
BA0.0002
PB
* PI
BF -38.7
LU  0.10  0.2500  49.100
UK    30  0.0200   0.110  100.00
RD    95  0.0600   0.060            TRAP     0.1    50.0
ZW C=FLOW
*
KKME6_10
KM   0.21 AC
BA0.0003
PB
* PI
BF -38.7
LU  0.10  0.2500  67.300
UK    30  0.0200   0.110  100.00
RD   235  0.0600   0.060            TRAP     0.1    50.0
ZW C=FLOW
*
KKYME610
KM  CME610
HC     2
ZW C=FLOW
*
KKME6_25
KM   7.81 AC
BA0.0094
PB
* PI
BF -38.7
LU  0.10  0.2500   7.100
UK   125  0.1600   0.600  100.00
RD   235  0.1149   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME625
KM  0
HC     2
ZW C=FLOW
*
KKME6_33
KM  ME6_33
BA0.0026
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   330  0.0530   0.600  100.00
RD   522  0.0880   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
```

```
KKYME633
KM  0
HC     2
ZW C=FLOW
*
KKME6_26
KM   0.43 AC
BA0.0008
PB
* PI
BF -38.7
LU  0.10  0.2500   3.000
UK   200  0.1300   0.600  100.00
RD   205  0.1268   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME626
KM  0
HC     2
ZW C=FLOW
*
KK ME7_1
KM   8.34 AC
BA0.0127
PB
* PI
BF -38.7
LU  0.10  0.2500   4.600
UK   470  0.2468   0.600  100.00
RD   340  0.1471   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME7_1
KM  CME7_1
HC     2
ZW C=FLOW
*
KK ME7_2
KM   0.25 AC
BA0.0004
PB
* PI
BF -38.7
LU  0.10  0.2500  83.600
UK    30  0.0200   0.110  100.00
RD   620  0.0800   0.060            TRAP     0.1    50.0
ZW C=FLOW
*
KKYME7_2
KM  0
HC     2
ZW C=FLOW
*
KK ME7D6
KM  ME7D6
BA0.0060
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   500  0.1800   0.600      75
UK   300  0.1800   0.240      25
RD  1000  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME7D6
KM  0
HC     2
ZW C=FLOW
*
KKME7D14
KM  ME7D14
BA0.0037
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   150  0.1300   0.600  100.00
RD   300  0.1200   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKME7D16
KM  ME7D16
BA0.0018
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   177  0.0450   0.600  100.00
RD   430  0.1200   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKME7D15
KM  ME7D15
```

```
BA0.0031
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   175  0.0570   0.600  100.00
RD   570  0.1100   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYM7D14
KM  0
HC     2
ZW C=FLOW
*
KKME7D24
KM  ME7D24
BA0.0022
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   144  0.0900   0.600  100.00
RD   270  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYM7D24
KM  0
HC     2
ZW C=FLOW
*
KKME4B13
KM  ME4B13
BA0.0056
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   270  0.0200   0.600  100.00
RD   515  0.0540   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYM4B13
KM  0
HC     2
ZW C=FLOW
*
KK ME7C4
KM  ME7C4
BA0.0054
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   500  0.1500   0.600       5
UK   300  0.1500   0.240      95
RD  1000  0.1000   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK ME7C5
KM  ME7C5
BA0.0061
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   500  0.1500   0.600       5
UK   300  0.1500   0.240      95
RD  1000  0.1000   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYME7C5
KM  0
HC     2
ZW C=FLOW
*
KK ME4B3
KM  ME4B3
BA0.0029
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   300  0.0500   0.600      15
UK   300  0.0500   0.240      85
RD  2000  0.1000   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYME4B3
KM  0
HC     2
ZW C=FLOW
*
*
KKUE4BDT
```

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KM  0
RS     1    FLOW      -1
SV  0.00    0.15    0.30    0.45
SQ   0.0   100.0   200.0   300.0
ZW C=FLOW
*
KKME4B12
KM  ME4B12
BA0.0065
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   430  0.0180   0.600  100.00
RD   720  0.0700   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME4BC
KM  0
HC     2
ZW C=FLOW
*
KKYM4BCC
KM  0
HC     2
ZW C=FLOW
*
KKME4B23
KM  ME4B23
BA0.0088
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   210  0.0700   0.600  100.00
RD   400  0.0600   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKME4B22
KM  ME4B22
BA0.0074
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   220  0.1000   0.600  100.00
RD   720  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK ME3C2
KM  ME3C2
BA0.0032
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   300  0.1600   0.600      60
UK   300  0.1600   0.240      40
RD  1500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKME4B11
KM  ME4B11
BA0.0049
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   340  0.0530   0.600  100.00
RD   530  0.0750   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKME4B21
KM  ME4B21
BA0.0024
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   220  0.1000   0.600  100.00
RD   720  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKME4B10
KM  ME4B-10
BA0.0027
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   150  0.0800   0.600  100.00
RD   275  0.0700   0.060           TRAP     10.0    10.0
ZW C=FLOW
*
```

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KK  ME4B
KM     ME4B
BA0.0055
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   300  0.0500   0.600      15
UK   300  0.0500   0.240      85
RD  2000  0.1000   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YME4B
KM  0
HC     2
ZW C=FLOW
*
KKYME4CC
KM  0
HC     3
ZW C=FLOW
*
KKYM4CCC
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KKMG3_3B
KM  MG3_3B
BA0.1460
PB
* PI
BF -38.7
LU  0.10  0.2500   2.900
UK   575  0.2250   0.600  100.00
RD   925  0.2260   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKMG3_3C
KM  MG3_3C
BA0.0127
PB
* PI
BF -38.7
LU  0.10  0.2500   2.900
UK   575  0.2250   0.600  100.00
RD   925  0.2260   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMG_3C
KM  0
HC     2
ZW C=FLOW
*
KKME6_12
KM   14.48 AC
BA0.0096
PB
* PI
BF -38.7
LU  0.10  0.2500   3.400
UK   600  0.2950   0.600  100.00
RD  1920  0.2495   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYME_12
KM  0
HC     2
ZW C=FLOW
*
KKME6_16
KM   10.41 AC
BA0.0002
PB
* PI
BF -38.7
LU  0.10  0.2500   4.400
UK   600  0.2950   0.600  100.00
RD  1595  0.3003   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYME_16
KM  0
HC     2
ZW C=FLOW
*
KKME6_18
KM   2.92 AC
BA0.0046
PB
* PI
```

```
BF -38.7
LU  0.10  0.2500  10.200
UK   150  0.2133   0.600  100.00
RD   155  0.1032   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYME_18
KM  0
HC     2
ZW C=FLOW
*
KKME6_20
KM   3.75 AC
BA0.0060
PB
* PI
BF -38.7
LU  0.10  0.2500   6.300
UK   200  0.2100   0.600  100.00
RD   155  0.2330   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKME6_24
KM   0.70 AC
BA0.0026
PB
* PI
BF -38.7
LU  0.10  0.2500  18.600
UK   305  0.0910   0.600  100.00
RD   120  0.0300   0.060           TRAP     0.1    50.0
ZW C=FLOW
*
KKYME_24
KM  0
HC     3
ZW C=FLOW
*
KKME6_23
KM   4.19 AC
BA0.0065
PB
* PI
BF -38.7
LU  0.10  0.2500   8.200
UK   200  0.1700   0.600  100.00
RD   265  0.1060   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKME6_32
KM   0.39 AC
BA0.0006
PB
* PI
BF -38.7
LU  0.10  0.2500  33.900
UK    24  0.0200   0.110  100.00
RD   415  0.0800   0.060           TRAP     0.1    50.0
ZW C=FLOW
*
KKYME_32
KM  0
HC     2
ZW C=FLOW
*
KKME6_28
KM   4.93 AC
BA0.0077
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   355  0.1130   0.600  100.00
RD   590  0.1010   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK ME627
KM   1.77 AC
BA0.0027
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   120  0.1070   0.600  100.00
RD   400  0.1057   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYME627
KM  0
HC     2
ZW C=FLOW
*
KKME6_29
KM   1.37 AC
```

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BA0.0021
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   370  0.1140   0.600  100.00
RD   335  0.0930   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYME_29
KM  0
HC     2
ZW C=FLOW
*
KKME6_30
KM   1.27 AC
BA0.0020
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   295  0.0880   0.600  100.00
RD   195  0.0790   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKME6A25
KM  ME6A25
BA0.0029
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   330  0.0530   0.600  100.00
RD   522  0.0880   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYM6A25
KM  0
HC     2
ZW C=FLOW
*
KK  ME7B
KM     ME7B
BA0.0270
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   400  0.0500   0.600      75
UK   300  0.0500   0.240      25
RD  1500  0.1000   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
*
KKUE7BDT
KM  0
RS     1    FLOW      -1
SV  0.00    0.15    0.30    0.45
SQ   0.0   100.0   200.0   300.0
ZW C=FLOW
*
KK  ME7A
KM     ME7A
BA0.1404
PB
* PI
BF -38.7
LU  0.10  0.2270   2.000    0.10  0.2270  15.000
UK  1300  0.1920   0.600      10
UK   300  0.1900   0.240      90
RD  3000  0.1000   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYME7AC
KM  0
HC     2
ZW C=FLOW
*
KK YGSMC
KM  0
HC     2
ZW C=FLOW
*
KKVGSMCR
KM  0
RD  2000  0.0100   0.040           TRAP    10.0    10.0
ZW C=FLOW
*
KK   MF1
KM     MF1
BA0.3780
PB
* PI
BF -38.7
```

```
LU  0.10  0.2050   2.000
UK  1500  0.0870   0.600  100.00
RD  2000  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YMF1C
KM  0
HC     2
ZW C=FLOW
*
KKVMF1CR
KM  0
RD  2000  0.0100   0.040           TRAP    10.0    10.0
ZW C=FLOW
*
KK   MF2
KM     MF2
BA0.0582
PB
* PI
BF -38.7
LU  0.10  0.2470   2.000
UK  1000  0.0700   0.600  100.00
RD  2000  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YMF2C
KM  0
HC     2
ZW C=FLOW
*
KKVMF2CR
KM  0
RD  3000  0.0100   0.040           TRAP    10.0    10.0
ZW C=FLOW
*
* - - - - - -
*
*
KKMD4_1A
KM     MD4
BA0.1899
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1500  0.2830   0.600  100.00
RD  1100  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKMG4_1B
KM     6.35 AC
BA0.0100
PB
* PI
BF -38.7
LU  0.10  0.2500   2.100
UK   500  0.3500   0.600  100.00
RD   491  0.4296   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKMG5_2A
KM   8.61 AC
BA0.0134
PB
* PI
BF -38.7
LU  0.10  0.2500   3.200
UK   600  0.2033   0.600  100.00
RD  1065  0.3014   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMG52A
KM  0
HC     3
ZW C=FLOW
*
KK MG3_1
KM   1.78 AC
BA0.0028
PB
* PI
BF -38.7
LU  0.10  0.2500   5.400
UK   500  0.2800   0.600  100.00
RD  1070  0.3293   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKMG3_1A
KM   1.00 AC
BA0.0016
PB
* PI
BF -38.7
```

```
LU  0.10  0.2500   5.400
UK   498  0.2800   0.600  100.00
RD   575  0.3270   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMG31A
KM  0
HC     2
ZW C=FLOW
*
KKMG3_1C
KM   1.47 AC
BA0.0023
PB
* PI
BF -38.7
LU  0.10  0.2500   5.400
UK   498  0.2811   0.600  100.00
RD   567  0.3422   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMG31C
KM  0
HC     2
ZW C=FLOW
*
KK MG3_6
KM   0.09 AC
BA0.0002
PB
* PI
BF -38.7
LU  0.10  0.2500  90.000
UK    30  0.0200   0.110  100.00
RD   360  0.0120   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
KK YMG36
KM  0
HC     2
ZW C=FLOW
*
KK MG4_2
KM   4.61 AC
BA0.0072
PB
* PI
BF -38.7
LU  0.10  0.2500   3.100
UK   500  0.2840   0.600  100.00
RD   535  0.3551   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMG42
KM  0
HC     2
ZW C=FLOW
*
KKMG4_3B
KM  MG4_3B
BA0.0002
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK  2300  0.3260   0.600      95
UK   600  0.2500   0.240       5
RD  2500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMG43B
KM  0
HC     2
ZW C=FLOW
*
KKMG4_3A
KM   0.07 AC
BA0.0001
PB
* PI
BF -38.7
LU  0.10  0.2500  90.000
UK    30  0.0200   0.110  100.00
RD   250  0.0098   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
KKYMG43A
KM  0
HC     2
ZW C=FLOW
*
KKMG5_2B
KM   0.06 AC
BA0.0001
```

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PB
* PI
BF -38.7
LU  0.10  0.2500  90.000
UK    12  0.0100   0.600  100.00
RD   400  0.0500   0.060           TRAP    10.0    50.0
ZW C=FLOW
*
KK MG4_4
KM   0.10 AC
BA0.0002
PB
* PI
BF -38.7
LU  0.10  0.2500  90.000
UK    30  0.0200   0.110  100.00
RD   350  0.0098   0.060           TRAP     0.1     1.0
ZW C=FLOW
*
KK YMG44
KM  0
HC     2
ZW C=FLOW
*
KKMG4_5C
KM  MG4_5C
BA0.0078
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK  2300  0.3260   0.600      95
UK   600  0.2500   0.240       5
RD  2500  0.1000   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMG45C
KM  0
HC     4
ZW C=FLOW
*
KKMG5_1A
KM   18.98 AC
BA0.0296
PB
* PI
BF -38.7
LU  0.10  0.2500   2.800
UK   600  0.1550   0.600  100.00
RD  1820  0.2357   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKMG5_1B
KM  MG5_1B
BA0.0090
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   200  0.1000   0.600       5
UK   200  0.1000   0.240      95
RD   500  0.1000   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMG51B
KM  0
HC     2
ZW C=FLOW
*
KK MG5_3
KM   0.04 AC
BA0.0001
PB
* PI
BF -38.7
LU  0.10  0.2500  90.000
UK    30  0.0200   0.110  100.00
RD   300  0.0775   0.060           TRAP     0.1     1.0
ZW C=FLOW
*
KK MG5_4
KM   0.15 AC
BA0.0003
PB
* PI
BF -38.7
LU  0.10  0.2500  90.000
UK    30  0.0200   0.110  100.00
RD   300  0.0775   0.060           TRAP     0.1     1.0
ZW C=FLOW
*
KK YMG54
KM  0
HC     3
```

```
ZW C=FLOW
*
KK MG5_5
KM  MG5_5
BA0.0024
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   200  0.1000   0.600       5
UK   200  0.1000   0.240      95
RD   500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMG55
KM  0
HC     2
ZW C=FLOW
*
KKYMG55C
KM  0
HC     2
ZW C=FLOW
*
KKMG3_3A
KM   8.25 AC
BA0.0129
PB
* PI
BF -38.7
LU  0.10  0.2500   2.900
UK   575  0.2250   0.600  100.00
RD   925  0.2260   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MG3_2
KM   2.58 AC
BA0.0040
PB
* PI
BF -38.7
LU  0.10  0.2500   6.100
UK   390  0.2051   0.600  100.00
RD   370  0.3000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MG3_4
KM   014 AC
BA0.0002
PB
* PI
BF -38.7
LU  0.10  0.2500  88.800
UK    30  0.0200   0.110  100.00
RD   300  0.0691   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
KK YMG34
KM  0
HC     3
ZW C=FLOW
*
KKMG3_1B
KM   0.87 AC
BA0.0014
PB
* PI
BF -38.7
LU  0.10  0.2500   5.400
UK   500  0.2800   0.600  100.00
RD   300  0.3467   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKMG3_1D
KM   0.57 AC
BA0.0009
PB
* PI
BF -38.7
LU  0.10  0.2500   5.400
UK   504  0.2778   0.600  100.00
RD   360  0.3083   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MG3_5
KM   0.07 AC
BA0.0001
PB
* PI
BF -38.7
LU  0.10  0.2500  90.000
UK    30  0.0200   0.110  100.00
RD   350  0.0094   0.060            TRAP     0.1     1.0
ZW C=FLOW
```

```
*
KK YMG35
KM  0
HC     3
ZW C=FLOW
*
KKMG3_5A
KM  MG3_5A
BA0.0073
PB
* PI
BF -38.7
LU  0.10  0.2500   2.900
UK   575  0.2250   0.600  100.00
RD   925  0.2260   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMG35A
KM  0
HC     3
ZW C=FLOW
*
KK ME6_1
KM   10.24 AC
BA0.0082
PB
* PI
BF -38.7
LU  0.10  0.2500   3.900
UK   310  0.1740   0.600  100.00
RD   250  0.1640   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK ME6_2
KM   1.28 AC
BA0.0099
PB
* PI
BF -38.7
LU  0.10  0.2500   6.900
UK   505  0.1940   0.600  100.00
RD   235  0.0800   0.060            TRAP     0.1    50.0
ZW C=FLOW
*
KK ME6_3
KM   0.02 AC
BA0.0003
PB
* PI
BF -38.7
LU  0.10  0.2500  86.500
UK    15  0.0200   0.600  100.00
RD   235  0.0800   0.060            TRAP     0.1    50.0
ZW C=FLOW
*
KKYM6123
KM  0
HC     3
ZW C=FLOW
*
KK ME6_5
KM   1.40 AC
BA0.0022
PB
* PI
BF -38.7
LU  0.10  0.2500  16.500
UK   160  0.1500   0.600  100.00
RD   365  0.0800   0.060            TRAP     0.1    50.0
ZW C=FLOW
*
KK YME65
KM  0
HC     2
ZW C=FLOW
*
KK ME6_7
KM   0.81 AC
BA0.0013
PB
* PI
BF -38.7
LU  0.10  0.2500  16.200
UK   190  0.1680   0.600  100.00
RD   145  0.1100   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YME67
KM  0
HC     2
ZW C=FLOW
*
KK ME6_8
KM    .44 AC
```

```
BA0.0007
PB
* PI
BF -38.7
LU  0.10  0.2500  87.800
UK    20  0.0200   0.600  100.00
RD   555  0.0560   0.060            TRAP    10.0    50.0
ZW C=FLOW
*
KK YME68
KM  0
HC     2
ZW C=FLOW
*
KK MG1_2
KM   0.67 AC
BA0.0010
PB
* PI
BF -38.7
LU  0.10  0.2500  11.100
UK   100  0.1400   0.600  100.00
RD   255  0.1686   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MG1_3
KM   1.89 AC
BA0.0025
PB
* PI
BF -38.7
LU  0.10  0.2500   9.500
UK   300  0.0700   0.600  100.00
RD   205  0.2293   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MG1_1
KM   1.38 AC
BA0.0026
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   185  0.1946   0.600  100.00
RD   205  0.0600   0.060            TRAP     0.1     2.0
ZW C=FLOW
*
KK MG1_4
KM   0.18 AC
BA0.0003
PB
* PI
BF -38.7
LU  0.10  0.2500  46.900
UK    30  0.0200   0.110  100.00
RD   295  0.0800   0.060            TRAP     0.1     1.0
ZW C=FLOW
*
KKYG1234
KM  0
HC     5
ZW C=FLOW
*
KKMG3_33
KM  MG3_33
BA0.0087
PB
* PI
BF -38.7
LU  0.10  0.2500   2.900
UK   575  0.2250   0.600  100.00
RD   925  0.2260   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMG33
KM  0
HC     2
ZW C=FLOW
*
KKME6_8A
KM  ME6_8A
BA0.0006
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   330  0.0530   0.600  100.00
RD   522  0.0880   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYME68A
KM  0
HC     3
ZW C=FLOW
```

```
*
KK   MG2
KM     MG2
BA0.1195
PB
* PI
BF -38.7
LU  0.10  0.2450   2.000    0.10  0.2450  15.000
UK   700  0.1430   0.600      90
UK   700  0.1400   0.240      10
RD  1500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  YMG2
KM  0
HC     3
ZW C=FLOW
*
* - - - - - -
*
*
KK ME6_6
KM   0.16 AC
BA0.0003
PB
* PI
BF -38.7
LU  0.10  0.2500  73.000
UK    30  0.0200   0.110  100.00
RD   340  0.0800   0.060            TRAP     0.1    50.0
ZW C=FLOW
*
KKME6_21
KM   2.50 AC
BA0.0039
PB
* PI
BF -38.7
LU  0.10  0.2500  12.000
UK   200  0.1250   0.600  100.00
RD   235  0.1490   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKME6_31
KM   0.44 AC
BA0.0007
PB
* PI
BF -38.7
LU  0.10  0.2500  42.900
UK    24  0.0200   0.110  100.00
RD   480  0.0800   0.060            TRAP     0.1    50.0
ZW C=FLOW
*
KKYME631
KM  0
HC     3
ZW C=FLOW
*
KKMG1B19
KM  MG1B19
BA0.0072
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   150  0.0400   0.600  100.00
RD   780  0.1300   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKMG1B20
KM  MG1B20
BA0.0039
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   240  0.0800   0.600  100.00
RD   710  0.1200   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  ME6A
KM     ME6A
BA0.0030
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   300  0.1200   0.600      50
UK   300  0.1200   0.240      50
RD  1500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YME6A
```

```
KM  0
HC     3
ZW C=FLOW
*
KKMG1B26
KM  MG1B26
BA0.0038
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   250  0.0960   0.600  100.00
RD   550  0.0910   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK  MG1B
KM     MG1B
BA0.0119
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   300  0.1000   0.600      50
UK   200  0.1000   0.240      50
RD   800  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKME6A27
KM  ME6A27
BA0.0094
PB
* PI
BF -38.7
LU  0.10  0.2500  15.000
UK   230  0.0950   0.600  100.00
RD   520  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMG1B
KM  0
HC     3
ZW C=FLOW
*
KK  MG1A
KM     MG1A
BA0.0185
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   200  0.1000   0.600      50
UK   200  0.1000   0.240      50
RD  1000  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMG1A
KM  0
HC     2
ZW C=FLOW
*
KK YMGCC
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK MG5B1
KM  MG5B1
BA0.1242
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   200  0.1000   0.600       5
UK   200  0.1000   0.240      95
RD   500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK MG5A2
KM  MG5A2
BA0.0613
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   200  0.1000   0.600       5
UK   200  0.1000   0.240      95
RD   500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMG5A2
KM  0
```

```
HC     2
ZW C=FLOW
*
KK  MG6B
KM     MG6B
BA0.0479
PB
* PI
BF -38.7
LU  0.10  0.2010   2.000    0.10  0.2010  15.000
UK  1000  0.2500   0.600      85
UK   400  0.2500   0.240      15
RD  1500  0.1000   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK MG5A1
KM  MG5A1
BA0.0134
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500  15.000
UK   200  0.1000   0.600       5
UK   200  0.1000   0.240      95
RD   500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMG5A1
KM  0
HC     2
ZW C=FLOW
*
KK YMGCC
KM  0
HC     2
ZW C=FLOW
*
KK   MG7
KM     MG7
BA0.1439
PB
* PI
BF -38.7
LU  0.10  0.2070   2.000
UK   600  0.2500   0.600  100.00
RD  3500  0.0100   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK NS24A
KM  NS24A
BA0.0297
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   900  0.1000   0.600  100.00
RD  1000  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK NS24B
KM  NS24B
BA0.0120
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   300  0.1000   0.600  100.00
RD   500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS24B
KM  0
HC     2
ZW C=FLOW
*
KK NS24C
KM  NS24C
BA0.0400
PB
* PI
BF -38.7
LU  0.10  0.1820   2.000
UK   800  0.1000   0.600  100.00
RD  1000  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS24C
KM  0
HC     3
ZW C=FLOW
*
KK  NS25
KM  NS25
BA0.0370
```

```
PB
* PI
BF -38.7
LU  0.10  0.2490   2.000
UK   800  0.0500   0.600  100.00
RD  1200  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YNS25
KM  0
HC     2
ZW C=FLOW
*
KK  NS26
KM  NS26
BA0.1102
PB
* PI
BF -38.7
LU  0.10  0.1220   2.000
UK  1000  0.0500   0.600  100.00
RD  1500  0.0200   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YNS26
KM  0
HC     3
ZW C=FLOW
*
*
KKUW4END
KM  ROUTE FOR BACKWATER AT NW4
RS     1    FLOW      -1
SV  0.00    0.46    1.70    6.66   46.30  520.00
SQ   0.0   178.0  1833.0  2500.0  4382.0  8550.0
ZW C=FLOW
*
* - - - - - -
*
*
KK NS22A
KM  NS22A
BA0.0103
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   750  0.1000   0.600  100.00
RD  1000  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK NS22C
KM  NS22C
BA0.0063
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   300  0.1000   0.600  100.00
RD   500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS22C
KM  0
HC     2
ZW C=FLOW
*
KK NS23A
KM  NS23A
BA0.0374
PB
* PI
BF -38.7
LU  0.10  0.1900   2.000
UK   950  0.0700   0.600  100.00
RD  1100  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS23A
KM  0
HC     2
ZW C=FLOW
*
KK  NS27
KM  NS27
BA0.0574
PB
* PI
BF -38.7
LU  0.10  0.1000   2.000
UK   830  0.0300   0.600  100.00
RD  1000  0.0200   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
```

```
KK YNS27
KM  0
HC     4
ZW C=FLOW
*
KK NS28B
KM  NS28B
BA0.0417
PB
* PI
BF -38.7
LU  0.10  0.1000   2.850
UK   500  0.0100   0.600  100.00
RD  1000  0.0100   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  E85Z
KM  E85Z
BA0.0291
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   400  0.0200   0.600  100.00
RD   500  0.0500   0.060            TRAP    20.0    10.0
ZW C=FLOW
*
KKYNS28B
KM  0
HC     3
ZW C=FLOW
*
KK NS28A
KM  NS28A
BA0.0415
PB
* PI
BF -38.7
LU  0.10  0.1000   2.000
UK   500  0.0100   0.600  100.00
RD  1000  0.0100   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS28A
KM  0
HC     2
ZW C=FLOW
*
* - - - - - -
*
*
KK  NS22
KM  NS22
BA0.2037
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  2100  0.0800   0.600  100.00
RD  2500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  NS31
KM  NS31
BA0.0592
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1250  0.1000   0.600  100.00
RD  1300  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YNS31
KM  0
HC     2
ZW C=FLOW
*
KK NS22B
KM  NS22B
BA0.0098
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   500  0.1000   0.600  100.00
RD   500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS22B
KM  0
HC     2
ZW C=FLOW
*
```

```
KK NS23B
KM  NS23B
BA0.1061
PB
* PI
BF -38.7
LU  0.10  0.1910   2.000
UK  1350  0.0500   0.600  100.00
RD  1500  0.0200   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS23B
KM  0
HC     2
ZW C=FLOW
*
KK NS32A
KM  NS32A
BA0.0191
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   500  0.1000   0.600  100.00
RD  1000  0.1000   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK NS32B
KM  NS32B
BA0.1481
PB
* PI
BF -38.7
LU  0.10  0.1650   2.000
UK  1500  0.0800   0.600  100.00
RD  2500  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS32B
KM  0
HC     3
ZW C=FLOW
*
KK   NS1
KM   BASIN 1 - 330 Ac
BA0.5174
PB
* PI
BF -38.7
LU  0.10  0.1780   2.000    0.10  0.1780   2.000
UK  3300  0.2400   0.800      57
UK  3300  0.2400   0.600      43
RD  2800  0.1800   0.060           TRAP     5.0     3.0
RD  2800  0.0010   0.060           TRAP     5.0     3.0
ZW C=FLOW
*
*
KKUR-NS1
KM   ROUTE NS-1
RS     1    FLOW      -1
SV  0.70    1.10    1.50    1.90    2.20    2.80    3.90    4.90
SQ 100.0   200.0   300.0   400.0   500.0   700.0  1100.0  1500.0
ZW C=FLOW
*
KK   NS2
KM   BASIN 2 - 267 Ac
BA0.4184
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000    0.10  0.2500   2.000
UK  2800  0.2500   0.800      54
UK  2800  0.2500   0.600      46
RD  2200  0.1600   0.060           TRAP     5.0     3.0
RD  2200  0.0010   0.060           TRAP     5.0     3.0
ZW C=FLOW
*
KKYCMB-2
KM   COMBINE NS-1 & 2
HC     2
ZW C=FLOW
*
*
KKUCMB-2
KM   ROUTE CMB-2
RS     1    FLOW      -1
SV  0.70    1.00    1.40    1.70    2.00    2.50    3.40    4.30
SQ 100.0   200.0   300.0   400.0   500.0   700.0  1100.0  1500.0
ZW C=FLOW
*
KK   NS3
KM   BASIN 3 - 331 Ac
BA0.5218
PB
```

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* PI
BF -38.7
LU  0.10  0.2500  65.000    0.10  0.2500   2.000
UK  2950  0.1800   0.240       3
UK  2950  0.1800   0.600      98
RD  3000  0.2000   0.060            TRAP     5.0     3.0
RD  3000  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKYCMB-3
KM   COMBINE NS-1 THRU 3
HC     2
ZW C=FLOW
*
*
KKUCMB-3
KM   ROUTE CMB-3
RS     1    FLOW      -1
SV  1.40    2.30    3.00    3.70    4.20    5.70    7.70    9.20
SQ 100.0   200.0   300.0   400.0   500.0   700.0  1100.0  1500.0
ZW C=FLOW
*
KK   NS4
KM   BASIN 4 - 166 Ac
BA0.2602
PB
* PI
BF -38.7
LU  0.10  0.2500  65.000    0.10  0.2500   2.000
UK  2110  0.2200   0.240      29
UK  2110  0.2200   0.600      71
RD  2500  0.1000   0.060            TRAP     5.0     3.0
RD  2500  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKYCMB-4
KM   COMBINE NS-1 THRU 4
HC     2
ZW C=FLOW
*
*
KKUCMB-4
KM   ROUTE CMB-4
RS     1    FLOW      -1
SV  0.20    0.30    0.40    0.40    0.50    0.60    2.20    2.90
SQ 100.0   200.0   300.0   400.0   500.0   700.0  1100.0  1500.0
ZW C=FLOW
*
KK   NS5
KM   BASIN 5 - 21 Ac
BA0.0319
PB
* PI
BF -38.7
LU  0.10  0.2500  65.000    0.10  0.2500   2.000
UK  1400  0.2500   0.240      36
UK  1400  0.2500   0.600      64
RD   700  0.1400   0.060            TRAP     5.0     3.0
RD   700  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKYCMB-5
KM   COMBINE NS-1 THRU 5
HC     2
ZW C=FLOW
*
*
KKUCMB-5
KM   ROUTE CMB-5
RS     1    FLOW      -1
SV  0.40    0.60    0.80    1.10    1.30    1.60    2.30    2.90
SQ 100.0   200.0   300.0   400.0   500.0   700.0  1100.0  1500.0
ZW C=FLOW
*
KK   NS6
KM   BASIN 6 - 178 Ac
BA0.2162
PB
* PI
BF -38.7
LU  0.10  0.2500  65.000    0.10  0.2500   2.000
UK  3100  0.2700   0.240      71
UK  3100  0.2700   0.600      29
RD  3100  0.1600   0.060            TRAP     5.0     3.0
RD  3100  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKVR-NS6
KM   ROUTE NS-6
RD   970  0.0700   0.015            TRAP     1.0     1.0
ZW C=FLOW
*
KK   NS7
KM   BASIN 7 - 38 Ac
```

```
BA0.0602
PB
* PI
BF -38.7
LU  0.10  0.2500  65.790    0.10  0.2500   2.000
UK  1570  0.1900   0.240      69
UK  1570  0.1900   0.600      31
RD   800  0.0800   0.060            TRAP     2.0     1.0
RD   800  0.0010   0.060            TRAP     2.0     1.0
ZW C=FLOW
*
KKYCMB-7
KM   COMBINE NS-6 & 7
HC     2
ZW C=FLOW
*
KKYMB-7A
KM   COMBINE NS-1 THRU 7
HC     2
ZW C=FLOW
*
*
KKUCMB7A
KM   ROUTE CMB-7A
RS     1    FLOW      -1
SV  0.60    1.10    1.40    1.70    2.10    2.60    3.60    4.60
SQ 100.0   200.0   300.0   400.0   500.0   700.0  1100.0  1500.0
ZW C=FLOW
*
KK   NS8
KM   BASIN 8 - 673 Ac
BA1.1304
PB
* PI
BF -38.7
LU  0.10  0.2390   2.000    0.10  0.2390   2.000
UK  4200  0.2100   0.800      92
UK  4200  0.2100   0.600       9
RD  1900  0.0800   0.060            TRAP     5.0     3.0
RD  1900  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
*
KKURES-A
KM   RESERVOIR A
RS     1    FLOW      -1
SV  0.00    3.40    6.80   10.20   13.60   17.00   20.40   23.80   27.20   34.00
SQ   0.0    23.9    67.5   124.0   190.0   266.0   350.0   441.0   540.0   754.0
ZW C=FLOW
*
KKV-RESA
KM   ROUTE RES-A
RD  1400  0.1100   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KK   NS9
KM   BASIN 9 - 144 Ac
BA0.1855
PB
* PI
BF -38.7
LU  0.10  0.2490   2.000
UK  4400  0.2000   0.600  100.00
RD  1200  0.1100   0.060            TRAP     5.0     3.0
RD  1200  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKYCMB-9
KM   COMBINE NS-8 & 9
HC     2
ZW C=FLOW
*
KKVCMB-9
KM   ROUTE CMB-9
RD  2800  0.1100   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KK  NS10
KM   BASIN 10 - 214 Ac
BA0.3581
PB
* PI
BF -38.7
LU  0.10  0.2230   2.000
UK  3905  0.2000   0.600  100.00
RD  2200  0.0900   0.060            TRAP     5.0     3.0
RD  2200  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKYMB-10
KM   COMBINE NS-8 THRU 10
HC     2
ZW C=FLOW
*
```

```
KKVCMB10
KM   ROUTE CMB-10
RD  3600  0.0800   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KK  NS11
KM   BASIN 11 - 60 Ac
BA0.0389
PB
* PI
BF -38.7
LU  0.10  0.2490  65.070    0.10  0.2490   2.000
UK  1600  0.3400   0.240       6
UK  1600  0.3400   0.600      95
RD  3600  0.0800   0.060            TRAP     5.0     3.0
RD  3600  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKYMB-11
KM   COMBINE NS-8 THRU 11
HC     2
ZW C=FLOW
*
KKYMB11A
KM   COMBINE NS-1 THRU 11
HC     2
ZW C=FLOW
*
*
KKUCM11A
KM   ROUTE CMB11A
RS     1    FLOW      -1
SV  0.20    0.30    0.50    0.60    0.70    0.90    1.20    1.60
SQ 100.0   200.0   300.0   400.0   500.0   700.0  1100.0  1500.0
ZW C=FLOW
*
KK NS11B
KM   BASIN 11 - 60 Ac
BA0.0546
PB
* PI
BF -38.7
LU  0.10  0.2500  72.440    0.10  0.2500   2.000
UK  1600  0.3400   0.240       6
UK  1600  0.3400   0.600      95
RD  3600  0.0800   0.060            TRAP     5.0     3.0
RD  3600  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKYNS11B
KM  0
HC     2
ZW C=FLOW
*
KK  NS12
KM   BASIN 12 - 40 Ac
BA0.0619
PB
* PI
BF -38.7
LU  0.10  0.2500  65.000    0.10  0.2500   2.000
UK   400  0.1000   0.240      71
UK   400  0.1000   0.800      30
RD  1500  0.0700   0.060            TRAP     5.0     3.0
RD  1500  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKYMB-12
KM   COMBINE NS-1 THRU 12
HC     2
ZW C=FLOW
*
KK  NS13
KM   BASIN 13 - 15 Ac
BA0.1459
PB
* PI
BF -38.7
LU  0.10  0.2500  65.000    0.10  0.2500  98.000
UK   500  0.1600   0.240      86
UK   500  0.1600   0.110      14
RD   900  0.1300   0.060            TRAP     5.0     3.0
RD   900  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKV-NS13
KM   ROUTE NS-13
RD  1400  0.0800   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KK  NS14
KM   BASIN 14 - 47 Ac
BA0.0434
PB
```

```
* PI
BF -38.7
LU  0.10  0.2500  65.000    0.10  0.2500  98.000
UK   775  0.3500   0.240      90
UK   775  0.3500   0.110      10
RD   800  0.0600   0.060            TRAP     5.0     3.0
RD   800  0.0010   0.060            TRAP     5.0     3.0
ZW C=FLOW
*
KKYMB-14
KM   COMBINE NS-13 & 14
HC     2
ZW C=FLOW
*
KK NS14B
KM  NS14B
BA0.0204
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   500  0.1000   0.600  100.00
RD   500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMB14A
KM   COMBINE NS-1 THRU 14
HC     3
ZW C=FLOW
*
KK NS20B
KM  NS20B
BA0.0322
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   640  0.1000   0.600  100.00
RD  1000  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  NS15
KM  NS15
BA0.0860
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1000  0.0800   0.600  100.00
RD  1500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YNS15
KM  0
HC     2
ZW C=FLOW
*
KKYNS15C
KM  0
HC     2
ZW C=FLOW
*
KK  NS16
KM  NS16
BA0.1019
PB
* PI
BF -38.7
LU  0.10  0.2460   2.130
UK  1600  0.1000   0.600  100.00
RD  2100  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  NS17
KM  NS17
BA0.0811
PB
* PI
BF -38.7
LU  0.10  0.2500   3.470
UK  1500  0.0800   0.600  100.00
RD  1200  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YNS17
KM  0
HC     2
ZW C=FLOW
*
KK  NS18
KM  NS18
BA0.1877
PB
* PI
```

```
BF -38.7
LU  0.10  0.2500   2.610
UK  3200  0.1000   0.600  100.00
RD  3000  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK  NS19
KM  NS19
BA0.0434
PB
* PI
BF -38.7
LU  0.10  0.2500   3.070
UK  1600  0.0500   0.600  100.00
RD  1000  0.0400   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YNS19
KM  0
HC     2
ZW C=FLOW
*
KKYNS19C
KM  0
HC     2
ZW C=FLOW
*
KK  NS20
KM  NS20
BA0.0548
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   600  0.0800   0.600  100.00
RD  1200  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YNS20
KM  0
HC     2
ZW C=FLOW
*
KKYNS20C
KM  0
HC     2
ZW C=FLOW
*
KK  NS21
KM  NS21
BA0.1390
PB
* PI
BF -38.7
LU  0.10  0.2480   2.050
UK  1450  0.0500   0.600  100.00
RD  2500  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YNS21
KM  0
HC     2
ZW C=FLOW
*
KK NS30D
KM  NS30D
BA0.0577
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   900  0.0800   0.600  100.00
RD  1400  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK NS30A
KM  NS30A
BA0.0266
PB
* PI
BF -38.7
LU  0.10  0.2440   2.000
UK   800  0.0800   0.600  100.00
RD  1600  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS30A
KM  0
HC     2
ZW C=FLOW
*
KKYS30CC
KM  0
HC     2
```

```
ZW C=FLOW
*
KK NS30B
KM  NS30B
BA0.1400
PB
* PI
BF -38.7
LU  0.10  0.2360   2.000
UK  1600  0.1000   0.600  100.00
RD  2000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS30B
KM  0
HC     2
ZW C=FLOW
*
KK NS30E
KM  NS30E
BA0.0022
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   200  0.1000   0.600  100.00
RD   500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS30E
KM  0
HC     2
ZW C=FLOW
*
KK NS30F
KM  NS30F
BA0.0023
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   200  0.1000   0.600  100.00
RD   500  0.1000   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS30F
KM  0
HC     2
ZW C=FLOW
*
KK NS30C
KM  NS30C
BA0.1237
PB
* PI
BF -38.7
LU  0.10  0.1510   2.000
UK  1600  0.0800   0.600  100.00
RD  2000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS30C
KM  0
HC     2
ZW C=FLOW
*
KKY30CCC
KM  0
HC     2
ZW C=FLOW
*
KK NS33B
KM  NS33B
BA0.0301
PB
* PI
BF -38.7
LU  0.10  0.1000   2.490
UK  1000  0.0500   0.600  100.00
RD  1000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS33B
KM  0
HC     2
ZW C=FLOW
*
KKYNSALL
KM  0
HC     2
ZW C=FLOW
*
*
KKUW5END
```

```
KM  ROUTE FOR BACKWATER AT NW5
RS     1    FLOW      -1
SV  0.00    0.75   54.40  131.20  377.00 1086.00
SQ   0.0   267.0  2853.0  3500.0  6287.0  9653.0
ZW C=FLOW
*
* - - - - - -
*
*
KK  NS34
KM  NS34
BA0.0437
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK   900  0.0800   0.600  100.00
RD   900  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK  NS35
KM  NS35
BA0.1517
PB
* PI
BF -38.7
LU  0.10  0.1850   2.150
UK  1900  0.0500   0.600  100.00
RD  2500  0.0400   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YNS35
KM  0
HC     2
ZW C=FLOW
*
KK XMAR1
KM  XMAR1
BA0.2922
PB
* PI
BF -38.7
LU  0.10  0.2440   2.000
UK  1900  0.1000   0.600  100.00
RD  2000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK XMAR2
KM  XMAR2
BA0.4066
PB
* PI
BF -38.7
LU  0.10  0.2410   2.000
UK  2200  0.1000   0.600  100.00
RD  3100  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK XMAR3
KM  XMAR3
BA0.6221
PB
* PI
BF -38.7
LU  0.10  0.2480   2.000
UK  3500  0.1000   0.600  100.00
RD  3400  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK XMAR4
KM  XMAR4
BA0.2489
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  2300  0.1000   0.600  100.00
RD  1100  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK XMAR5
KM  XMAR5
BA0.3335
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1700  0.1000   0.600  100.00
RD  2600  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMAR5
KM  0
HC     2
```

```
ZW C=FLOW
*
KK XMAR6
KM  XMAR6
BA0.1147
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  1500  0.1000   0.600  100.00
RD  1650  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK XMAR7
KM  XMAR7
BA0.3439
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  2800  0.1000   0.600  100.00
RD  1400  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMAR7
KM  0
HC     2
ZW C=FLOW
*
KK XMAR8
KM  XMAR8
BA0.2218
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  2200  0.1000   0.600  100.00
RD  3500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KK YMAR8
KM  0
HC     2
ZW C=FLOW
*
KK XMAR9
KM  XMAR9
BA0.2500
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  2100  0.1000   0.600  100.00
RD  3400  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKXMAR10
KM  XMAR10
BA0.2272
PB
* PI
BF -38.7
LU  0.10  0.2500   2.000
UK  2300  0.1000   0.600  100.00
RD  2400  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKXMAR11
KM  XMAR11
BA0.1037
PB
* PI
BF -38.7
LU  0.10  0.1850   2.000
UK  1100  0.1000   0.600  100.00
RD  1500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMAR11
KM  0
HC     2
ZW C=FLOW
*
KKXMAR12
KM  XMAR12
BA0.1361
PB
* PI
BF -38.7
LU  0.10  0.2060   2.000
UK  1250  0.1000   0.600  100.00
RD  2200  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
```

```
KKXMAR13
KM  XMAR13
BA0.2679
PB
* PI
BF -38.7
LU  0.10  0.2490   2.000
UK  1800  0.1000   0.600  100.00
RD  4000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMAR13
KM  0
HC     2
ZW C=FLOW
*
KKYMARC1
KM  0
HC     2
ZW C=FLOW
*
KKXMAR14
KM  XMAR14
BA0.0483
PB
* PI
BF -38.7
LU  0.10  0.2500   3.520
UK   500  0.1000   0.600  100.00
RD   500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKXMAR15
KM  XMAR15
BA0.0140
PB
* PI
BF -38.7
LU  0.10  0.2500   2.230
UK   500  0.1000   0.600  100.00
RD   500  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMAR15
KM  0
HC     3
ZW C=FLOW
*
KKXMAR17
KM  XMAR17
BA0.2288
PB
* PI
BF -38.7
LU  0.10  0.2200   2.000
UK  1300  0.1000   0.600  100.00
RD  2700  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKYMAR17
KM  0
HC     2
ZW C=FLOW
*
KKMAR19A
KM  MAR19A
BA0.0295
PB
* PI
BF -38.7
LU  0.10  0.2500   2.480
UK  1000  0.1000   0.600  100.00
RD  1000  0.0500   0.060            TRAP    10.0    10.0
ZW C=FLOW
*
KKMAR19B
KM  MAR19B
BA0.0074
PB
* PI
BF -38.7
LU  0.10  0.2500   4.110
UK   500  0.1000   0.600  100.00
RD  1000  0.0500   0.060            TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKXMAR18
KM  XMAR18
BA0.1517
PB
* PI
BF -38.7
LU  0.10  0.2480   2.000
UK  1600  0.1000   0.600  100.00
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RD  2500  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMAR18
KM  0
HC     3
ZW C=FLOW
*
KKXMAR20
KM  XMAR20
BA0.2009
PB
* PI
BF -38.7
LU  0.10  0.2440   2.000
UK  1700  0.1000   0.600  100.00
RD  2700  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKMAR21A
KM  MAR21A
BA0.0602
PB
* PI
BF -38.7
LU  0.10  0.2500   2.470
UK   500  0.1000   0.600  100.00
RD   500  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKMAR21B
KM  MAR21B
BA0.0241
PB
* PI
BF -38.7
LU  0.10  0.2450   4.750
UK   500  0.1000   0.600  100.00
RD  1000  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KK YR21B
KM  0
HC     2
ZW C=FLOW
*
* SA Note: Use New Overflow analysis instead
* DIVERT At Upstream Highway Crossing, where water can't cross under roadway
KK N11DV
DTN11DIV
DI     0     190     200     800    1600    5000
DQ     0       1       5     604    1403    4802
ZW C=FLOW
*
KKMAR22B
KM  MAR22B
BA0.0266
PB
* PI
BF -38.7
LU  0.10  0.2300   3.020
UK   500  0.1000   0.600  100.00
RD  1000  0.0500   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKMAR22A
KM  MAR22A
BA0.0165
PB
* PI
BF -38.7
LU  0.10  0.2500   3.400
UK   500  0.1000   0.600  100.00
RD   500  0.0500   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KK YR22A
KM  0
HC     2
ZW C=FLOW
*
KKXMAR23
KM  XMAR23
BA0.0439
PB
* PI
BF -38.7
LU  0.10  0.1380   2.690
UK   500  0.0500   0.600  100.00
RD  2000  0.0200   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKYMAR23
KM  0
```

```
HC     2
ZW C=FLOW
*
*
KK UWEND
KM  ROUTE FOR BACKWATER AT W1
RS     1    FLOW      -1
SV  0.00   10.00   49.20  292.00  859.70  867.00
SQ   0.0    18.0   239.0   244.0   250.0  1034.0
ZW C=FLOW
*
KKXMAR24
KM  XMAR24
BA0.0055
PB
* PI
BF -38.7
LU  0.10  0.1000   2.430
UK   200  0.0200   0.600  100.00
RD   500  0.0100   0.060           TRAP    10.0    10.0     YES
ZW C=FLOW
*
KKXMAR25
KM  XMAR25
BA0.0147
PB
* PI
BF -38.7
LU  0.10  0.1260   7.950
UK  1000  0.0200   0.600  100.00
RD  1000  0.0100   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYMAR25
KM  0
HC     3
ZW C=FLOW
*
KK NS33A
KM  NS33A
BA0.0118
PB
* PI
BF -38.7
LU  0.10  0.1970   2.000
UK  1000  0.0200   0.600  100.00
RD  1000  0.0200   0.060           TRAP    10.0    10.0
ZW C=FLOW
*
KKYNS33A
KM  0
HC     2
ZW C=FLOW
*
*
KK  UHWY
KM  ROUTE FOR BACKWATER AT HWY
RS     1    FLOW      -1
SV  0.00    0.13    0.60   32.40   61.60  114.60  266.00  330.00
SQ   0.0   200.0   491.0  3074.0  4293.0  5718.0  8410.0  9000.0
* SV  0.00    0.13    0.60   32.40   61.60  114.60  265.30  266.00  330.00
* SQ   0.0   200.0   491.0  3074.0  4293.0  5718.0  5847.0  8410.0  9000.0
ZW C=FLOW
*
KKN11DIV
DRN11DIV
ZW C=FLOW
*
*
KK  E30A
KM  Drains Away
BA0.0064
PB
* PI
BF -38.7
LU  0.10  0.2500   8.000
UK   600  0.0380   0.600  100.00
RD  1900  0.0140   0.060           TRAP    15.0    10.0
ZW C=FLOW
*
* ----------END---------------
*
*
ZZ
```

C-1. HEC-RAS Pre-Project Warm Condition SUMMARY TABLE

Reach	River Sta	Profile	Q Total	Min Ch El		W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope		Vel Chnl	Flow Area
	Top Width		Froude # Chl									
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
NW	100.0000	500YR	477.00	5912.01	5913.54	5913.54	5914.15	0.020066	6.74	86.61	80.79	0.99
NW	100.0000	100YR	345.50	5912.01	5913.30	5913.30	5913.80	0.020600	6.05	67.92	74.01	0.97
NW	100.0000	10YR	179.40	5912.01	5912.89	5912.89	5913.24	0.023971	4.96	40.61	61.00	0.98
NW	100.0000	2YR	62.60	5912.01	5912.49	5912.48	5912.68	0.027273	3.54	18.97	49.41	0.94
NW	99.5000	500YR	477.00	5909.28	5910.87	5910.87	5911.34	0.023380	7.50	106.96	108.59	1.07
NW	99.5000	100YR	345.50	5909.28	5910.64	5910.64	5911.04	0.024331	6.86	83.21	98.75	1.06
NW	99.5000	10YR	179.40	5909.28	5910.27	5910.27	5910.57	0.026234	5.68	49.99	81.32	1.04
NW	99.5000	2YR	62.60	5909.28	5909.91	5909.91	5910.08	0.024875	3.98	23.55	63.70	0.94
NW	99.0000	500YR	477.00	5906.01	5907.77		5908.18	0.014233	5.54	100.84	83.83	0.83
NW	99.0000	100YR	345.50	5906.01	5907.49		5907.85	0.014892	5.12	78.31	76.49	0.82
NW	99.0000	10YR	179.40	5906.01	5907.06		5907.31	0.014978	4.19	48.52	65.11	0.78
NW	99.0000	2YR	62.60	5906.01	5906.62	5906.52	5906.75	0.014721	2.95	22.78	50.43	0.71
NW	98.5000	500YR	477.00	5903.51	5905.45	5905.32	5905.85	0.015446	7.09	121.06	112.07	0.91
NW	98.5000	100YR	345.50	5903.51	5905.23		5905.55	0.014235	6.26	97.06	100.52	0.85
NW	98.5000	10YR	179.40	5903.51	5904.79		5905.03	0.014055	5.10	58.40	78.35	0.80
NW	98.5000	2YR	62.60	5903.51	5904.30		5904.45	0.014425	3.69	25.63	54.60	0.75
NW	98.0000	500YR	477.00	5900.13	5902.87	5902.87	5903.44	0.013258	7.95	112.72	102.35	0.88
NW	98.0000	100YR	345.50	5900.13	5902.49	5902.49	5903.06	0.015200	7.64	78.87	76.93	0.92
NW	98.0000	10YR	179.40	5900.13	5901.87	5901.87	5902.36	0.017833	6.60	41.25	46.33	0.94
NW	98.0000	2YR	62.60	5900.13	5901.20	5901.20	5901.52	0.021121	4.92	16.43	28.74	0.93
NW	97.5000	500YR	477.00	5898.01	5900.70		5901.05	0.007105	5.57	136.22	127.54	0.64
NW	97.5000	100YR	345.50	5898.01	5900.44		5900.72	0.006390	4.88	105.08	109.90	0.59
NW	97.5000	10YR	179.40	5898.01	5899.90		5900.08	0.005490	3.73	61.98	56.57	0.52
NW	97.5000	2YR	62.60	5898.01	5899.25		5899.33	0.004629	2.40	30.53	39.45	0.44
NW	97.0000	500YR	477.00	5896.81	5898.60	5898.56	5899.01	0.027339	8.95	109.99	113.13	1.19
NW	97.0000	100YR	345.50	5896.81	5898.34	5898.33	5898.74	0.031336	8.62	82.43	99.78	1.24
NW	97.0000	10YR	179.40	5896.81	5897.94	5897.94	5898.26	0.033508	7.23	46.87	70.55	1.22
NW	97.0000	2YR	62.60	5896.81	5897.55	5897.55	5897.73	0.031993	5.25	22.37	54.58	1.10
NW	96.5000	500YR	477.00	5894.01	5896.24		5896.55	0.006812	5.09	132.59	98.63	0.61
NW	96.5000	100YR	345.50	5894.01	5895.94		5896.19	0.006662	4.54	104.23	86.72	0.59
NW	96.5000	10YR	179.40	5894.01	5895.43		5895.60	0.006160	3.53	64.92	69.39	0.54
NW	96.5000	2YR	62.60	5894.01	5894.85		5894.93	0.006173	2.43	29.90	50.53	0.49
NW	96.0000	500YR	548.60	5892.01	5894.11	5894.11	5894.69	0.016476	7.58	118.11	103.36	0.94
NW	96.0000	100YR	399.10	5892.01	5893.84	5893.84	5894.35	0.016541	6.90	91.63	92.96	0.92
NW	96.0000	10YR	208.00	5892.01	5893.35	5893.35	5893.75	0.018452	5.84	51.52	69.74	0.92
NW	96.0000	2YR	72.90	5892.01	5892.83	5892.80	5893.07	0.019269	4.17	21.76	45.47	0.86
NW	95.5000	500YR	548.60	5890.01	5891.46		5891.63	0.005285	3.41	171.14	134.12	0.50
NW	95.5000	100YR	399.10	5890.01	5891.20		5891.34	0.005465	3.05	137.93	128.98	0.50
NW	95.5000	10YR	208.00	5890.01	5890.81		5890.90	0.005926	2.43	88.50	119.92	0.48
NW	95.5000	2YR	72.90	5890.01	5890.41		5890.46	0.007581	1.74	42.40	111.35	0.49
NW	95.0000	500YR	548.60	5888.01	5889.96	5889.88	5890.41	0.013271	6.04	123.98	110.07	0.82
NW	95.0000	100YR	399.10	5888.01	5889.71	5889.62	5890.10	0.013286	5.49	97.22	103.94	0.80
NW	95.0000	10YR	208.00	5888.01	5889.28	5889.19	5889.56	0.013676	4.48	56.98	81.53	0.77
NW	95.0000	2YR	72.90	5888.01	5888.83		5888.97	0.012562	3.04	24.68	48.66	0.68
NW	94.5000	500YR	548.60	5886.01	5887.76		5888.10	0.009995	5.25	138.18	110.54	0.71
NW	94.5000	100YR	399.10	5886.01	5887.50		5887.78	0.010072	4.71	110.06	104.14	0.69
NW	94.5000	10YR	208.00	5886.01	5887.09		5887.27	0.009561	3.72	69.92	91.13	0.64
NW	94.5000	2YR	72.90	5886.01	5886.61	5886.46	5886.71	0.010240	2.62	31.79	67.03	0.60
NW	94.0000	500YR	548.60	5884.01	5886.31		5886.65	0.012555	6.87	145.04	112.99	0.83
NW	94.0000	100YR	399.10	5884.01	5886.06		5886.35	0.012264	6.24	116.99	107.56	0.80
NW	94.0000	10YR	208.00	5884.01	5885.54		5885.78	0.014368	5.43	66.81	83.89	0.82
NW	94.0000	2YR	72.90	5884.01	5884.99		5885.14	0.014964	3.93	29.10	55.13	0.77
NW	93.5000	500YR	548.60	5882.01	5884.30	5884.10	5884.58	0.009416	6.23	170.35	142.71	0.73

NW	**93.5000**	**100YR**	**399.10**	**5882.01**	**5884.06**	**5883.68**	**5884.31**	**0.009296**	**5.75**	**136.37**	**138.53**	**0.71**
NW	**93.5000**	**10YR**	**208.00**	**5882.01**	**5883.56**	**5883.18**	**5883.73**	**0.008207**	**4.47**	**80.27**	**89.16**	**0.64**
NW	**93.5000**	**2YR**	**72.90**	**5882.01**	**5882.96**	**5882.76**	**5883.07**	**0.008235**	**3.23**	**35.35**	**60.48**	**0.59**
NW	**93.0000**	**500YR**	**548.60**	**5880.01**	**5881.77**	**5881.63**	**5882.13**	**0.012134**	**5.77**	**147.69**	**150.56**	**0.79**
NW	**93.0000**	**100YR**	**399.10**	**5880.01**	**5881.53**	**5881.40**	**5881.84**	**0.012619**	**5.29**	**112.70**	**132.24**	**0.78**
NW	**93.0000**	**10YR**	**208.00**	**5880.01**	**5881.13**	**5880.97**	**5881.36**	**0.013281**	**4.36**	**65.54**	**102.95**	**0.76**
NW	**93.0000**	**2YR**	**72.90**	**5880.01**	**5880.69**		**5880.80**	**0.012173**	**2.92**	**29.96**	**63.39**	**0.66**
NW	**92.5000**	**500YR**	**548.60**	**5878.01**	**5879.66**		**5879.77**	**0.006286**	**3.83**	**217.37**	**156.91**	**0.55**
NW	**92.5000**	**100YR**	**399.10**	**5878.01**	**5879.40**		**5879.49**	**0.006077**	**3.31**	**177.87**	**149.12**	**0.53**
NW	**92.5000**	**10YR**	**208.00**	**5878.01**	**5878.98**		**5879.03**	**0.005824**	**2.45**	**117.55**	**135.77**	**0.48**
NW	**92.5000**	**2YR**	**72.90**	**5878.01**	**5878.54**		**5878.56**	**0.005910**	**1.48**	**60.26**	**122.41**	**0.43**
NW	**92.0000**	**500YR**	**548.60**	**5875.73**	**5876.81**	**5876.64**	**5876.98**	**0.020540**	**5.46**	**177.59**	**233.26**	**0.94**
NW	**92.0000**	**100YR**	**399.10**	**5875.73**	**5876.68**		**5876.81**	**0.019563**	**4.87**	**146.99**	**227.03**	**0.90**
NW	**92.0000**	**10YR**	**208.00**	**5875.73**	**5876.47**		**5876.55**	**0.017122**	**3.83**	**100.78**	**215.42**	**0.81**
NW	**92.0000**	**2YR**	**72.90**	**5875.73**	**5876.25**	**5876.19**	**5876.29**	**0.013380**	**2.64**	**55.56**	**203.23**	**0.67**
NW	**91.5000**	**500YR**	**548.60**	**5874.01**	**5875.14**		**5875.24**	**0.004821**	**2.74**	**230.81**	**246.97**	**0.46**
NW	**91.5000**	**100YR**	**399.10**	**5874.01**	**5874.94**		**5875.03**	**0.005125**	**2.48**	**183.56**	**239.26**	**0.46**
NW	**91.5000**	**10YR**	**208.00**	**5874.01**	**5874.63**		**5874.70**	**0.005839**	**2.04**	**113.27**	**219.60**	**0.46**
NW	**91.5000**	**2YR**	**72.90**	**5874.01**	**5874.34**		**5874.37**	**0.007145**	**1.47**	**52.24**	**186.06**	**0.46**
NW	**91.0000**	**500YR**	**632.10**	**5872.01**	**5873.47**		**5873.72**	**0.008739**	**4.40**	**187.22**	**190.31**	**0.65**
NW	**91.0000**	**100YR**	**463.40**	**5872.01**	**5873.25**		**5873.46**	**0.008750**	**3.95**	**147.99**	**172.18**	**0.63**
NW	**91.0000**	**10YR**	**243.50**	**5872.01**	**5872.91**		**5873.04**	**0.008385**	**3.09**	**93.28**	**141.56**	**0.59**
NW	**91.0000**	**2YR**	**85.40**	**5872.01**	**5872.53**		**5872.59**	**0.007885**	**2.06**	**45.59**	**111.19**	**0.52**
NW	**90.5000**	**500YR**	**632.10**	**5868.01**	**5869.44**	**5869.44**	**5870.00**	**0.020469**	**6.46**	**117.18**	**107.40**	**0.98**
NW	**90.5000**	**100YR**	**463.40**	**5868.01**	**5869.20**	**5869.20**	**5869.67**	**0.021445**	**5.88**	**92.46**	**98.46**	**0.98**
NW	**90.5000**	**10YR**	**243.50**	**5868.01**	**5868.81**	**5868.81**	**5869.15**	**0.024743**	**4.89**	**56.44**	**85.70**	**0.98**
NW	**90.5000**	**2YR**	**85.40**	**5868.01**	**5868.43**	**5868.43**	**5868.62**	**0.029679**	**3.53**	**26.31**	**74.08**	**0.97**
NW	**90.0000**	**500YR**	**632.10**	**5864.61**	**5866.53**	**5865.89**	**5866.60**	**0.003405**	**3.33**	**362.97**	**317.93**	**0.43**
NW	**90.0000**	**100YR**	**463.40**	**5864.61**	**5866.32**	**5865.75**	**5866.38**	**0.003304**	**3.03**	**296.24**	**304.12**	**0.41**
NW	**90.0000**	**10YR**	**243.50**	**5864.61**	**5865.96**	**5865.54**	**5866.00**	**0.003139**	**2.52**	**191.55**	**274.12**	**0.38**
NW	**90.0000**	**2YR**	**85.40**	**5864.61**	**5865.48**		**5865.51**	**0.003225**	**1.90**	**82.30**	**180.43**	**0.36**
NW	**89.5000**	**500YR**	**632.10**	**5862.01**	**5862.90**	**5862.90**	**5863.21**	**0.054295**	**6.35**	**145.78**	**235.83**	**1.41**
NW	**89.5000**	**100YR**	**463.40**	**5862.01**	**5862.78**	**5862.78**	**5863.04**	**0.057958**	**6.02**	**116.28**	**224.75**	**1.43**
NW	**89.5000**	**10YR**	**243.50**	**5862.01**	**5862.58**	**5862.58**	**5862.77**	**0.062294**	**5.29**	**74.66**	**207.70**	**1.42**
NW	**89.5000**	**2YR**	**85.40**	**5862.01**	**5862.41**	**5862.41**	**5862.49**	**0.039777**	**3.42**	**39.54**	**149.07**	**1.08**
NW	**89.0000**	**500YR**	**1096.70**	**5856.01**	**5857.77**		**5857.90**	**0.003673**	**3.27**	**441.25**	**373.89**	**0.44**
NW	**89.0000**	**100YR**	**805.50**	**5856.01**	**5857.48**		**5857.60**	**0.003877**	**2.99**	**341.13**	**331.94**	**0.43**
NW	**89.0000**	**10YR**	**428.30**	**5856.01**	**5857.05**		**5857.13**	**0.004048**	**2.41**	**210.30**	**270.49**	**0.42**
NW	**89.0000**	**2YR**	**156.00**	**5856.01**	**5856.59**		**5856.63**	**0.004371**	**1.69**	**100.68**	**208.65**	**0.39**
NW	**88.5000**	**500YR**	**1096.70**	**5854.01**	**5855.95**		**5856.08**	**0.003344**	**3.33**	**474.97**	**393.18**	**0.42**
NW	**88.5000**	**100YR**	**805.50**	**5854.01**	**5855.69**		**5855.80**	**0.003141**	**2.94**	**380.42**	**347.76**	**0.40**
NW	**88.5000**	**10YR**	**428.30**	**5854.01**	**5855.23**		**5855.30**	**0.003136**	**2.36**	**234.07**	**275.97**	**0.38**
NW	**88.5000**	**2YR**	**156.00**	**5854.01**	**5854.72**		**5854.76**	**0.003109**	**1.63**	**111.87**	**206.70**	**0.34**
NW	**88.0000**	**500YR**	**1096.70**	**5852.01**	**5853.88**	**5853.88**	**5854.35**	**0.016742**	**7.18**	**266.83**	**273.39**	**0.94**
NW	**88.0000**	**100YR**	**805.50**	**5852.01**	**5853.57**	**5853.57**	**5854.04**	**0.020293**	**6.98**	**189.84**	**219.66**	**1.00**
NW	**88.0000**	**10YR**	**428.30**	**5852.01**	**5853.15**	**5853.15**	**5853.52**	**0.022146**	**5.87**	**110.20**	**160.84**	**0.99**
NW	**88.0000**	**2YR**	**156.00**	**5852.01**	**5852.68**	**5852.68**	**5852.93**	**0.027326**	**4.49**	**46.40**	**108.06**	**1.00**
NW	**87.5000**	**500YR**	**1096.70**	**5850.01**	**5852.39**		**5852.44**	**0.001563**	**2.60**	**829.95**	**708.23**	**0.30**
NW	**87.5000**	**100YR**	**805.50**	**5850.01**	**5852.16**		**5852.20**	**0.001520**	**2.40**	**669.73**	**689.68**	**0.29**
NW	**87.5000**	**10YR**	**428.30**	**5850.01**	**5851.67**		**5851.70**	**0.001358**	**1.91**	**394.71**	**444.22**	**0.26**
NW	**87.5000**	**2YR**	**156.00**	**5850.01**	**5851.11**		**5851.13**	**0.001262**	**1.39**	**177.88**	**314.43**	**0.24**
NW	**87.0000**	**500YR**	**1096.70**	**5847.98**	**5849.50**	**5849.50**	**5849.77**	**0.025988**	**7.72**	**335.75**	**543.71**	**1.12**
NW	**87.0000**	**100YR**	**805.50**	**5847.98**	**5849.23**	**5849.23**	**5849.53**	**0.030066**	**7.25**	**203.85**	**396.78**	**1.17**
NW	**87.0000**	**10YR**	**428.30**	**5847.98**	**5848.80**	**5848.80**	**5849.11**	**0.045299**	**6.62**	**105.53**	**174.00**	**1.33**
NW	**87.0000**	**2YR**	**156.00**	**5847.98**	**5848.45**	**5848.45**	**5848.63**	**0.054306**	**4.81**	**50.01**	**142.29**	**1.32**

NW2	**110.0000**	**500YR**	**26.20**	**5864.01**	**5864.37**		**5864.39**	**0.003896**	**1.13**	**24.69**	**81.74**	**0.34**
NW2	**110.0000**	**100YR**	**19.10**	**5864.01**	**5864.31**		**5864.33**	**0.003866**	**1.01**	**19.99**	**78.24**	**0.33**
NW2	**110.0000**	**10YR**	**10.00**	**5864.01**	**5864.22**		**5864.23**	**0.003773**	**0.79**	**13.13**	**71.65**	**0.31**
NW2	**110.0000**	**2YR**	**3.20**	**5864.01**	**5864.12**		**5864.13**	**0.003477**	**0.49**	**6.49**	**63.26**	**0.27**
NW2	**109.5000**	**500YR**	**26.20**	**5861.97**	**5862.20**	**5862.20**	**5862.29**	**0.067496**	**3.16**	**11.45**	**63.03**	**1.29**
NW2	**109.5000**	**100YR**	**19.10**	**5861.97**	**5862.17**	**5862.17**	**5862.24**	**0.068286**	**2.84**	**9.35**	**61.72**	**1.26**
NW2	**109.5000**	**10YR**	**10.00**	**5861.97**	**5862.11**	**5862.11**	**5862.16**	**0.072688**	**2.32**	**6.12**	**59.71**	**1.22**
NW2	**109.5000**	**2YR**	**3.20**	**5861.97**	**5862.06**	**5862.06**	**5862.08**	**0.101468**	**1.86**	**2.67**	**56.87**	**1.31**
NW2	**109.0000**	**500YR**	**26.20**	**5858.01**	**5858.74**		**5858.78**	**0.002856**	**1.57**	**21.70**	**48.72**	**0.33**
NW2	**109.0000**	**100YR**	**19.10**	**5858.01**	**5858.65**		**5858.67**	**0.002726**	**1.38**	**17.16**	**43.10**	**0.31**
NW2	**109.0000**	**10YR**	**10.00**	**5858.01**	**5858.48**	**5858.24**	**5858.49**	**0.002541**	**1.07**	**10.70**	**33.27**	**0.29**
NW2	**109.0000**	**2YR**	**3.20**	**5858.01**	**5858.28**		**5858.28**	**0.002308**	**0.68**	**4.90**	**25.09**	**0.25**
NW2	**108.875***	**500YR**	**26.20**	**5857.51**	**5857.95**		**5858.06**	**0.020846**	**2.75**	**9.99**	**31.88**	**0.80**
NW2	**108.875***	**100YR**	**19.10**	**5857.51**	**5857.88**		**5857.98**	**0.020953**	**2.45**	**8.03**	**29.30**	**0.78**
NW2	**108.875***	**10YR**	**10.00**	**5857.51**	**5857.78**		**5857.84**	**0.021460**	**1.95**	**5.13**	**24.38**	**0.74**
NW2	**108.875***	**2YR**	**3.20**	**5857.51**	**5857.65**		**5857.68**	**0.021223**	**1.33**	**2.40**	**19.70**	**0.67**
NW2	**108.75***	**500YR**	**26.20**	**5857.01**	**5857.48**	**5857.39**	**5857.57**	**0.013549**	**2.30**	**11.76**	**34.10**	**0.65**
NW2	**108.75***	**100YR**	**19.10**	**5857.01**	**5857.42**	**5857.32**	**5857.48**	**0.013119**	**2.03**	**9.55**	**31.92**	**0.62**
NW2	**108.75***	**10YR**	**10.00**	**5857.01**	**5857.30**		**5857.34**	**0.013040**	**1.61**	**6.19**	**26.36**	**0.59**
NW2	**108.75***	**2YR**	**3.20**	**5857.01**	**5857.16**		**5857.18**	**0.013476**	**1.12**	**2.86**	**21.68**	**0.54**
NW2	**108.625***	**500YR**	**26.20**	**5856.51**	**5856.90**		**5857.02**	**0.026719**	**2.76**	**9.48**	**30.86**	**0.88**
NW2	**108.625***	**100YR**	**19.10**	**5856.51**	**5856.83**		**5856.93**	**0.028095**	**2.55**	**7.50**	**28.69**	**0.88**
NW2	**108.625***	**10YR**	**10.00**	**5856.51**	**5856.74**		**5856.80**	**0.027191**	**2.04**	**4.91**	**25.57**	**0.82**
NW2	**108.625***	**2YR**	**3.20**	**5856.51**	**5856.63**		**5856.66**	**0.024034**	**1.32**	**2.43**	**22.12**	**0.70**
NW2	**108.5000**	**500YR**	**26.20**	**5856.01**	**5856.50**		**5856.56**	**0.009629**	**1.94**	**13.57**	**37.37**	**0.55**
NW2	**108.5000**	**100YR**	**19.10**	**5856.01**	**5856.43**		**5856.48**	**0.009398**	**1.73**	**11.05**	**33.18**	**0.53**
NW2	**108.5000**	**10YR**	**10.00**	**5856.01**	**5856.29**		**5856.33**	**0.010358**	**1.45**	**6.89**	**28.95**	**0.52**
NW2	**108.5000**	**2YR**	**3.20**	**5856.01**	**5856.15**		**5856.17**	**0.012611**	**1.05**	**3.06**	**24.37**	**0.52**
NW2	**108.0000**	**500YR**	**37.90**	**5853.40**	**5854.14**	**5854.10**	**5854.23**	**0.010515**	**2.80**	**22.38**	**88.23**	**0.62**
NW2	**108.0000**	**100YR**	**27.50**	**5853.40**	**5854.07**	**5853.98**	**5854.16**	**0.010670**	**2.60**	**16.12**	**82.83**	**0.61**
NW2	**108.0000**	**10YR**	**14.30**	**5853.40**	**5853.92**		**5853.98**	**0.010156**	**2.05**	**8.25**	**31.47**	**0.57**
NW2	**108.0000**	**2YR**	**4.60**	**5853.40**	**5853.73**	**5853.64**	**5853.76**	**0.009362**	**1.31**	**3.57**	**18.55**	**0.49**
NW2	**107.5000**	**500YR**	**37.90**	**5852.01**	**5852.36**		**5852.41**	**0.009649**	**1.79**	**21.70**	**68.78**	**0.54**
NW2	**107.5000**	**100YR**	**27.50**	**5852.01**	**5852.30**	**5852.20**	**5852.34**	**0.009460**	**1.57**	**17.80**	**66.61**	**0.52**
NW2	**107.5000**	**10YR**	**14.30**	**5852.01**	**5852.21**		**5852.24**	**0.009141**	**1.20**	**11.97**	**62.50**	**0.48**
NW2	**107.5000**	**2YR**	**4.60**	**5852.01**	**5852.12**		**5852.13**	**0.008802**	**0.76**	**6.02**	**58.72**	**0.42**
NW2	**107.0000**	**500YR**	**37.90**	**5848.01**	**5848.77**	**5848.77**	**5848.97**	**0.021686**	**4.28**	**14.28**	**37.53**	**0.91**
NW2	**107.0000**	**100YR**	**27.50**	**5848.01**	**5848.67**	**5848.67**	**5848.84**	**0.023403**	**3.97**	**10.57**	**31.36**	**0.92**
NW2	**107.0000**	**10YR**	**14.30**	**5848.01**	**5848.49**	**5848.49**	**5848.64**	**0.026912**	**3.37**	**5.85**	**23.09**	**0.93**
NW2	**107.0000**	**2YR**	**4.60**	**5848.01**	**5848.30**	**5848.30**	**5848.38**	**0.032279**	**2.42**	**2.21**	**14.52**	**0.91**
NW3	**79.5000**	**500YR**	**1134.50**	**5846.01**	**5848.23**		**5848.36**	**0.004176**	**4.01**	**505.55**	**399.00**	**0.48**
NW3	**79.5000**	**100YR**	**833.00**	**5846.01**	**5847.94**		**5848.05**	**0.004190**	**3.65**	**396.64**	**353.26**	**0.47**
NW3	**79.5000**	**10YR**	**442.50**	**5846.01**	**5847.47**		**5847.57**	**0.004662**	**3.18**	**241.03**	**313.07**	**0.47**
NW3	**79.5000**	**2YR**	**160.50**	**5846.01**	**5846.97**		**5847.04**	**0.005084**	**2.46**	**98.47**	**211.62**	**0.46**
NW3	**79.0000**	**500YR**	**1134.50**	**5844.01**	**5846.94**		**5847.17**	**0.005210**	**5.04**	**382.50**	**272.07**	**0.55**
NW3	**79.0000**	**100YR**	**833.00**	**5844.01**	**5846.57**		**5846.79**	**0.005869**	**4.82**	**287.09**	**238.60**	**0.57**
NW3	**79.0000**	**10YR**	**442.50**	**5844.01**	**5845.94**		**5846.13**	**0.006866**	**4.18**	**156.57**	**150.15**	**0.58**
NW3	**79.0000**	**2YR**	**160.50**	**5844.01**	**5845.14**		**5845.29**	**0.009507**	**3.52**	**60.66**	**90.64**	**0.63**
NW3	**78.5000**	**500YR**	**1134.50**	**5842.01**	**5845.63**		**5845.87**	**0.003686**	**5.02**	**388.56**	**218.61**	**0.49**
NW3	**78.5000**	**100YR**	**833.00**	**5842.01**	**5845.26**		**5845.47**	**0.003438**	**4.49**	**312.67**	**200.71**	**0.46**
NW3	**78.5000**	**10YR**	**442.50**	**5842.01**	**5844.59**		**5844.75**	**0.003310**	**3.71**	**188.79**	**167.65**	**0.43**
NW3	**78.5000**	**2YR**	**160.50**	**5842.01**	**5843.76**		**5843.85**	**0.002833**	**2.55**	**78.98**	**81.89**	**0.37**
NW3	**78.0000**	**500YR**	**1468.40**	**5842.01**	**5844.69**		**5844.95**	**0.003943**	**4.45**	**426.81**	**259.33**	**0.48**
NW3	**78.0000**	**100YR**	**1075.30**	**5842.01**	**5844.01**		**5844.31**	**0.006499**	**4.67**	**274.22**	**188.65**	**0.59**
NW3	**78.0000**	**10YR**	**565.50**	**5842.01**	**5843.42**		**5843.62**	**0.006517**	**3.69**	**172.83**	**159.61**	**0.56**
NW3	**78.0000**	**2YR**	**191.80**	**5842.01**	**5842.83**		**5842.91**	**0.005394**	**2.30**	**87.92**	**129.03**	**0.46**

NW3	**77.5000**	**500YR**	**1468.40**	**5840.01**	**5844.44**		**5844.54**	**0.001079**	**3.19**	**769.24**	**396.85**	**0.27**
NW3	**77.5000**	**100YR**	**1075.30**	**5840.01**	**5842.40**		**5842.84**	**0.008794**	**5.88**	**238.95**	**166.26**	**0.70**
NW3	**77.5000**	**10YR**	**565.50**	**5840.01**	**5841.71**		**5842.04**	**0.010287**	**4.94**	**138.57**	**125.02**	**0.71**
NW3	**77.5000**	**2YR**	**191.80**	**5840.01**	**5840.85**	**5840.79**	**5841.11**	**0.019602**	**4.20**	**50.01**	**80.76**	**0.87**
NW3	**77.0000**	**500YR**	**1490.30**	**5838.01**	**5844.40**		**5844.43**	**0.000349**	**2.36**	**1262.12**	**383.20**	**0.17**
NW3	**77.0000**	**100YR**	**1090.90**	**5838.01**	**5841.61**		**5841.85**	**0.004040**	**5.44**	**367.15**	**202.85**	**0.51**
NW3	**77.0000**	**10YR**	**573.70**	**5838.01**	**5840.90**		**5841.08**	**0.003575**	**4.40**	**234.92**	**171.51**	**0.46**
NW3	**77.0000**	**2YR**	**195.00**	**5838.01**	**5839.96**		**5840.07**	**0.002964**	**3.05**	**92.92**	**80.43**	**0.39**
NW3	**76.5000**	**500YR**	**1490.30**	**5838.01**	**5844.36**		**5844.38**	**0.000194**	**1.77**	**1482.94**	**365.40**	**0.12**
NW3	**76.5000**	**100YR**	**1090.90**	**5838.01**	**5841.06**		**5841.20**	**0.002708**	**4.04**	**458.47**	**256.64**	**0.41**
NW3	**76.5000**	**10YR**	**573.70**	**5838.01**	**5840.32**		**5840.45**	**0.002968**	**3.51**	**275.57**	**240.23**	**0.41**
NW3	**76.5000**	**2YR**	**195.00**	**5838.01**	**5839.51**		**5839.57**	**0.002227**	**2.27**	**123.96**	**136.60**	**0.33**
NW3	**76.0000**	**500YR**	**1490.30**	**5838.01**	**5844.33**		**5844.35**	**0.000139**	**1.49**	**1629.74**	**444.58**	**0.10**
NW3	**76.0000**	**100YR**	**1090.90**	**5838.01**	**5839.73**	**5839.64**	**5840.27**	**0.014323**	**6.27**	**211.12**	**172.99**	**0.85**
NW3	**76.0000**	**10YR**	**573.70**	**5838.01**	**5839.53**		**5839.73**	**0.006406**	**3.85**	**176.80**	**161.29**	**0.56**
NW3	**76.0000**	**2YR**	**195.00**	**5838.01**	**5838.81**		**5838.92**	**0.007970**	**2.75**	**76.20**	**119.29**	**0.56**
NW3	**75.5000**	**500YR**	**1490.30**	**5835.60**	**5844.32**		**5844.33**	**0.000047**	**1.07**	**2588.66**	**418.04**	**0.06**
NW3	**75.5000**	**100YR**	**1090.90**	**5835.60**	**5838.57**		**5838.64**	**0.002751**	**4.02**	**534.05**	**283.95**	**0.41**
NW3	**75.5000**	**10YR**	**573.70**	**5835.60**	**5837.32**		**5837.46**	**0.010590**	**5.47**	**213.54**	**215.56**	**0.74**
NW3	**75.5000**	**2YR**	**195.00**	**5835.60**	**5836.77**		**5836.83**	**0.007077**	**3.46**	**111.94**	**156.33**	**0.56**
NW3	**75.0000**	**500YR**	**1490.30**	**5833.31**	**5844.32**		**5844.32**	**0.000018**	**0.79**	**3558.30**	**482.60**	**0.04**
NW3	**75.0000**	**100YR**	**1090.90**	**5833.31**	**5838.50**		**5838.51**	**0.000224**	**1.66**	**1183.90**	**326.52**	**0.13**
NW3	**75.0000**	**10YR**	**573.70**	**5833.31**	**5834.83**		**5835.03**	**0.013333**	**5.63**	**187.82**	**195.87**	**0.81**
NW3	**75.0000**	**2YR**	**195.00**	**5833.31**	**5834.18**	**5834.17**	**5834.37**	**0.024301**	**5.21**	**72.70**	**156.70**	**0.99**
NW3	**74.5000**	**500YR**	**1490.30**	**5831.30**	**5844.31**		**5844.32**	**0.000011**	**0.69**	**4161.50**	**485.90**	**0.03**
NW3	**74.5000**	**100YR**	**1090.90**	**5831.30**	**5838.48**		**5838.49**	**0.000064**	**1.10**	**1771.37**	**338.29**	**0.07**
NW3	**74.5000**	**10YR**	**573.70**	**5831.30**	**5833.07**		**5833.17**	**0.006085**	**4.21**	**248.01**	**205.17**	**0.56**
NW3	**74.5000**	**2YR**	**195.00**	**5831.30**	**5832.50**		**5832.54**	**0.004273**	**2.70**	**136.98**	**182.35**	**0.44**
NW3	**74.0000**	**500YR**	**1490.30**	**5828.71**	**5844.31**		**5844.31**	**0.000004**	**0.44**	**6889.16**	**716.49**	**0.02**
NW3	**74.0000**	**100YR**	**1090.90**	**5828.71**	**5838.48**		**5838.48**	**0.000015**	**0.65**	**3265.98**	**504.32**	**0.04**
NW3	**74.0000**	**10YR**	**573.70**	**5828.71**	**5830.31**		**5830.44**	**0.010713**	**5.22**	**218.87**	**227.14**	**0.73**
NW3	**74.0000**	**2YR**	**195.00**	**5828.71**	**5829.64**		**5829.77**	**0.020322**	**4.97**	**81.65**	**166.35**	**0.92**
NW3	**73.5000**	**500YR**	**1490.30**	**5828.01**	**5844.31**		**5844.31**	**0.000002**	**0.34**	**8508.87**	**820.62**	**0.01**
NW3	**73.5000**	**100YR**	**1090.90**	**5828.01**	**5838.48**		**5838.48**	**0.000007**	**0.48**	**4202.34**	**607.73**	**0.03**
NW3	**73.5000**	**10YR**	**573.70**	**5828.01**	**5829.80**		**5829.85**	**0.002362**	**2.66**	**365.20**	**286.06**	**0.35**
NW3	**73.5000**	**2YR**	**195.00**	**5828.01**	**5829.10**		**5829.12**	**0.002075**	**1.78**	**180.48**	**231.77**	**0.30**
NW3	**73.375***	**500YR**	**1490.30**	**5827.56**	**5844.31**		**5844.31**	**0.000002**	**0.35**	**8380.19**	**793.37**	**0.01**
NW3	**73.375***	**100YR**	**1090.90**	**5827.56**	**5838.47**		**5838.48**	**0.000008**	**0.50**	**4167.24**	**605.53**	**0.03**
NW3	**73.375***	**10YR**	**573.70**	**5827.56**	**5829.36**		**5829.47**	**0.005181**	**3.93**	**264.54**	**247.06**	**0.52**
NW3	**73.375***	**2YR**	**195.00**	**5827.56**	**5828.69**		**5828.77**	**0.005347**	**2.92**	**118.78**	**192.10**	**0.49**
NW3	**73.25***	**500YR**	**1490.30**	**5827.12**	**5844.31**		**5844.31**	**0.000002**	**0.35**	**8356.84**	**770.17**	**0.01**
NW3	**73.25***	**100YR**	**1090.90**	**5827.12**	**5838.47**		**5838.48**	**0.000008**	**0.52**	**4169.84**	**607.48**	**0.03**
NW3	**73.25***	**10YR**	**573.70**	**5827.12**	**5829.20**		**5829.33**	**0.005045**	**4.25**	**256.67**	**228.06**	**0.52**
NW3	**73.25***	**2YR**	**195.00**	**5827.12**	**5828.54**		**5828.63**	**0.004547**	**3.12**	**118.97**	**186.80**	**0.47**
NW3	**73.125***	**500YR**	**1490.30**	**5826.67**	**5844.31**		**5844.31**	**0.000002**	**0.36**	**8377.54**	**761.83**	**0.01**
NW3	**73.125***	**100YR**	**1090.90**	**5826.67**	**5838.47**		**5838.48**	**0.000008**	**0.54**	**4187.30**	**618.65**	**0.03**
NW3	**73.125***	**10YR**	**573.70**	**5826.67**	**5828.96**		**5829.16**	**0.006787**	**5.20**	**223.73**	**212.24**	**0.62**
NW3	**73.125***	**2YR**	**195.00**	**5826.67**	**5828.40**		**5828.51**	**0.004302**	**3.41**	**114.64**	**173.25**	**0.47**
NW3	**73.0000**	**500YR**	**604.50**	**5826.22**	**5844.31**		**5844.31**	**0.000000**	**0.15**	**8414.99**	**759.08**	**0.01**
NW3	**73.0000**	**100YR**	**557.00**	**5826.22**	**5838.47**		**5838.48**	**0.000002**	**0.28**	**4213.74**	**623.70**	**0.01**
NW3	**73.0000**	**10YR**	**499.70**	**5826.22**	**5828.73**		**5828.95**	**0.007438**	**5.67**	**188.74**	**185.89**	**0.65**
NW3	**73.0000**	**2YR**	**195.80**	**5826.22**	**5828.14**		**5828.35**	**0.007284**	**4.63**	**88.88**	**153.69**	**0.61**
NW3	**72.5000**	**500YR**	**604.50**	**5826.01**	**5844.31**		**5844.31**	**0.000000**	**0.11**	**10057.74**	**817.18**	**0.00**
NW3	**72.5000**	**100YR**	**557.00**	**5826.01**	**5838.48**		**5838.48**	**0.000001**	**0.20**	**5462.81**	**739.00**	**0.01**
NW3	**72.5000**	**10YR**	**499.70**	**5826.01**	**5828.07**	**5827.48**	**5828.23**	**0.004356**	**3.88**	**213.37**	**209.67**	**0.48**

NW3	**72.5000**	**2YR**	**195.80**	**5826.01**	**5827.12**		**5827.29**	**0.009710**	**3.75**	**70.33**	**106.46**	**0.65**
NW3	**72.0000**	**500YR**	**604.50**	**5824.01**	**5844.31**		**5844.31**	**0.000000**	**0.06**	**15601.29**	**962.53**	**0.00**
NW3	**72.0000**	**100YR**	**557.00**	**5824.01**	**5838.48**		**5838.48**	**0.000000**	**0.09**	**10079.40**	**926.22**	**0.00**
NW3	**72.0000**	**10YR**	**499.70**	**5824.01**	**5824.70**	**5824.67**	**5824.96**	**0.030566**	**5.05**	**135.07**	**224.45**	**1.07**
NW3	**72.0000**	**2YR**	**195.80**	**5824.01**	**5824.67**		**5824.72**	**0.005533**	**2.08**	**128.08**	**222.90**	**0.45**
NW3	**71.5000**	**500YR**	**604.50**	**5822.01**	**5844.31**		**5844.31**	**0.000000**	**0.04**	**24875.10**	**1362.90**	**0.00**
NW3	**71.5000**	**100YR**	**557.00**	**5822.01**	**5838.48**		**5838.48**	**0.000000**	**0.06**	**16996.87**	**1336.92**	**0.00**
NW3	**71.5000**	**10YR**	**499.70**	**5822.01**	**5824.74**		**5824.75**	**0.000229**	**1.06**	**991.35**	**851.08**	**0.12**
NW3	**71.5000**	**2YR**	**195.80**	**5822.01**	**5822.80**	**5822.80**	**5823.03**	**0.020772**	**4.22**	**60.63**	**142.90**	**0.89**
NW4	**69.5000**	**500YR**	**8564.10**	**5852.01**	**5860.45**		**5860.85**	**0.003641**	**8.97**	**2003.48**	**469.02**	**0.55**
NW4	**69.5000**	**100YR**	**6190.30**	**5852.01**	**5859.40**		**5859.78**	**0.004195**	**8.78**	**1523.31**	**437.79**	**0.58**
NW4	**69.5000**	**10YR**	**3077.90**	**5852.01**	**5857.59**		**5858.01**	**0.006067**	**8.69**	**798.98**	**343.98**	**0.66**
NW4	**69.5000**	**2YR**	**1100.30**	**5852.01**	**5856.22**	**5856.22**	**5856.66**	**0.006824**	**7.56**	**355.05**	**304.61**	**0.67**
NW4	**69.0000**	**500YR**	**8564.10**	**5852.01**	**5859.96**		**5860.25**	**0.002213**	**6.78**	**2255.45**	**441.58**	**0.43**
NW4	**69.0000**	**100YR**	**6190.30**	**5852.01**	**5858.87**		**5859.12**	**0.002309**	**6.26**	**1785.93**	**423.31**	**0.43**
NW4	**69.0000**	**10YR**	**3077.90**	**5852.01**	**5856.92**		**5857.13**	**0.002869**	**5.52**	**1016.90**	**363.44**	**0.45**
NW4	**69.0000**	**2YR**	**1100.30**	**5852.01**	**5854.99**		**5855.23**	**0.005703**	**5.44**	**376.25**	**279.47**	**0.58**
NW4	**68.5000**	**500YR**	**8610.70**	**5850.01**	**5859.12**		**5859.63**	**0.003405**	**9.42**	**1851.51**	**378.34**	**0.55**
NW4	**68.5000**	**100YR**	**6225.20**	**5850.01**	**5858.07**		**5858.50**	**0.003278**	**8.52**	**1471.31**	**343.53**	**0.53**
NW4	**68.5000**	**10YR**	**3097.80**	**5850.01**	**5856.24**		**5856.51**	**0.002648**	**6.44**	**927.15**	**267.31**	**0.46**
NW4	**68.5000**	**2YR**	**1106.00**	**5850.01**	**5854.29**		**5854.46**	**0.002267**	**4.64**	**458.09**	**216.29**	**0.40**
NW4	**68.4166***	**500YR**	**8610.70**	**5849.60**	**5856.93**		**5858.23**	**0.008904**	**13.18**	**1227.79**	**306.17**	**0.86**
NW4	**68.4166***	**100YR**	**6225.20**	**5849.60**	**5855.93**		**5857.11**	**0.009292**	**12.21**	**939.15**	**271.47**	**0.86**
NW4	**68.4166***	**10YR**	**3097.80**	**5849.60**	**5854.42**	**5853.54**	**5855.32**	**0.008982**	**9.99**	**560.58**	**230.30**	**0.80**
NW4	**68.4166***	**2YR**	**1106.00**	**5849.60**	**5852.53**	**5852.53**	**5853.29**	**0.011621**	**8.13**	**212.54**	**141.90**	**0.84**
NW4	**68.3333***	**500YR**	**8610.70**	**5849.20**	**5856.57**		**5857.87**	**0.007721**	**12.32**	**1251.07**	**310.48**	**0.80**
NW4	**68.3333***	**100YR**	**6225.20**	**5849.20**	**5855.47**	**5855.06**	**5856.73**	**0.008672**	**11.71**	**928.00**	**274.89**	**0.83**
NW4	**68.3333***	**10YR**	**3097.80**	**5849.20**	**5853.37**	**5853.04**	**5854.79**	**0.014056**	**11.34**	**434.39**	**197.86**	**0.98**
NW4	**68.3333***	**2YR**	**1106.00**	**5849.20**	**5851.81**	**5851.81**	**5852.64**	**0.013198**	**8.01**	**188.96**	**129.82**	**0.88**
NW4	**68.25***	**500YR**	**8610.70**	**5848.79**	**5856.45**		**5857.52**	**0.005549**	**10.71**	**1371.08**	**319.22**	**0.68**
NW4	**68.25***	**100YR**	**6225.20**	**5848.79**	**5855.38**		**5856.34**	**0.005737**	**9.85**	**1046.90**	**283.41**	**0.68**
NW4	**68.25***	**10YR**	**3097.80**	**5848.79**	**5853.35**		**5854.21**	**0.007289**	**8.66**	**543.73**	**213.52**	**0.72**
NW4	**68.25***	**2YR**	**1106.00**	**5848.79**	**5851.44**	**5851.04**	**5852.03**	**0.008757**	**6.59**	**217.34**	**137.16**	**0.72**
NW4	**68.1666***	**500YR**	**8610.70**	**5848.39**	**5856.43**		**5857.25**	**0.003794**	**9.15**	**1547.61**	**334.17**	**0.57**
NW4	**68.1666***	**100YR**	**6225.20**	**5848.39**	**5855.36**		**5856.07**	**0.003718**	**8.23**	**1209.82**	**301.67**	**0.55**
NW4	**68.1666***	**10YR**	**3097.80**	**5848.39**	**5853.34**		**5853.89**	**0.004046**	**6.82**	**668.93**	**231.08**	**0.54**
NW4	**68.1666***	**2YR**	**1106.00**	**5848.39**	**5851.40**		**5851.71**	**0.003926**	**4.80**	**296.29**	**157.68**	**0.49**
NW4	**68.0833***	**500YR**	**8610.70**	**5847.98**	**5856.43**		**5857.06**	**0.002602**	**7.83**	**1751.13**	**348.77**	**0.48**
NW4	**68.0833***	**100YR**	**6225.20**	**5847.98**	**5855.37**		**5855.88**	**0.002445**	**6.94**	**1395.54**	**319.61**	**0.45**
NW4	**68.0833***	**10YR**	**3097.80**	**5847.98**	**5853.34**		**5853.70**	**0.002397**	**5.53**	**808.57**	**253.29**	**0.42**
NW4	**68.0833***	**2YR**	**1106.00**	**5847.98**	**5851.38**		**5851.55**	**0.001890**	**3.62**	**390.69**	**176.57**	**0.35**
NW4	**68.0000**	**500YR**	**8610.70**	**5847.58**	**5856.44**		**5856.93**	**0.001841**	**6.80**	**1967.90**	**365.36**	**0.40**
NW4	**68.0000**	**100YR**	**6225.20**	**5847.58**	**5855.38**		**5855.76**	**0.001655**	**5.92**	**1596.29**	**336.24**	**0.37**
NW4	**68.0000**	**10YR**	**3097.80**	**5847.58**	**5853.33**		**5853.59**	**0.001493**	**4.58**	**963.64**	**277.84**	**0.34**
NW4	**68.0000**	**2YR**	**1106.00**	**5847.58**	**5851.37**		**5851.48**	**0.000995**	**2.82**	**498.34**	**197.41**	**0.26**
NW4	**67.875***	**500YR**	**8610.70**	**5847.30**	**5854.75**	**5854.75**	**5856.67**	**0.011445**	**12.92**	**973.98**	**266.32**	**0.94**
NW4	**67.875***	**100YR**	**6225.20**	**5847.30**	**5853.90**	**5853.90**	**5855.53**	**0.011419**	**11.63**	**757.87**	**241.92**	**0.91**
NW4	**67.875***	**10YR**	**3097.80**	**5847.30**	**5852.06**	**5852.06**	**5853.38**	**0.015572**	**10.04**	**385.84**	**161.12**	**0.99**
NW4	**67.875***	**2YR**	**1106.00**	**5847.30**	**5850.59**	**5850.59**	**5851.34**	**0.018367**	**7.26**	**175.93**	**126.97**	**0.97**
NW4	**67.75***	**500YR**	**8610.70**	**5845.86**	**5853.65**	**5853.65**	**5855.34**	**0.010241**	**11.39**	**1025.48**	**327.89**	**0.87**
NW4	**67.75***	**100YR**	**6225.20**	**5845.86**	**5852.79**	**5852.79**	**5854.31**	**0.011116**	**10.53**	**756.86**	**288.90**	**0.88**
NW4	**67.75***	**10YR**	**3097.80**	**5845.86**	**5851.16**	**5851.16**	**5852.38**	**0.015108**	**9.06**	**379.29**	**181.54**	**0.95**
NW4	**67.75***	**2YR**	**1106.00**	**5845.86**	**5849.56**	**5849.56**	**5850.41**	**0.020698**	**7.40**	**149.42**	**91.24**	**1.02**
NW4	**67.625***	**500YR**	**8610.70**	**5844.51**	**5851.38**	**5851.38**	**5853.06**	**0.014313**	**15.58**	**1060.32**	**303.70**	**1.07**
NW4	**67.625***	**100YR**	**6225.20**	**5844.51**	**5850.57**	**5850.57**	**5852.04**	**0.014287**	**14.26**	**826.46**	**271.02**	**1.04**

NW4	**67.625***	**10YR**	**3097.80**	**5844.51**	**5849.25**	**5849.25**	**5850.32**	**0.013014**	**11.46**	**501.79**	**221.67**	**0.95**
NW4	**67.625***	**2YR**	**1106.00**	**5844.51**	**5847.88**	**5847.85**	**5848.55**	**0.010914**	**8.23**	**235.38**	**163.86**	**0.82**
NW4	**67.5000**	**500YR**	**8610.70**	**5844.01**	**5850.85**	**5850.85**	**5852.46**	**0.014172**	**15.45**	**1099.16**	**325.44**	**1.06**
NW4	**67.5000**	**100YR**	**6225.20**	**5844.01**	**5850.11**	**5850.11**	**5851.49**	**0.013508**	**13.93**	**870.69**	**292.62**	**1.02**
NW4	**67.5000**	**10YR**	**3097.80**	**5844.01**	**5848.91**	**5848.83**	**5849.86**	**0.011313**	**10.93**	**547.09**	**246.85**	**0.89**
NW4	**67.5000**	**2YR**	**1106.00**	**5844.01**	**5847.77**		**5848.25**	**0.006885**	**7.05**	**291.91**	**197.43**	**0.67**
NW4	**67.0000**	**500YR**	**8610.70**	**5844.01**	**5849.25**		**5849.79**	**0.006633**	**9.05**	**1725.35**	**522.40**	**0.70**
NW4	**67.0000**	**100YR**	**6225.20**	**5844.01**	**5848.66**		**5849.09**	**0.006099**	**8.00**	**1421.37**	**502.52**	**0.66**
NW4	**67.0000**	**10YR**	**3097.80**	**5844.01**	**5847.54**		**5847.84**	**0.005867**	**6.51**	**883.29**	**451.64**	**0.62**
NW4	**67.0000**	**2YR**	**1106.00**	**5844.01**	**5846.32**		**5846.58**	**0.007135**	**5.39**	**384.76**	**362.15**	**0.63**
NW4	**66.5000**	**500YR**	**8610.70**	**5842.01**	**5846.38**		**5847.17**	**0.010399**	**10.08**	**1543.28**	**608.91**	**0.85**
NW4	**66.5000**	**100YR**	**6225.20**	**5842.01**	**5845.78**		**5846.51**	**0.011173**	**9.46**	**1186.98**	**565.99**	**0.86**
NW4	**66.5000**	**10YR**	**3097.80**	**5842.01**	**5844.71**		**5845.27**	**0.011799**	**7.77**	**668.24**	**420.72**	**0.84**
NW4	**66.5000**	**2YR**	**1106.00**	**5842.01**	**5843.55**		**5843.82**	**0.010796**	**5.08**	**295.96**	**232.27**	**0.73**
NW4	**66.0000**	**500YR**	**8610.70**	**5840.01**	**5845.18**		**5845.72**	**0.003815**	**6.85**	**1800.30**	**532.80**	**0.53**
NW4	**66.0000**	**100YR**	**6225.20**	**5840.01**	**5843.84**		**5844.51**	**0.006622**	**7.38**	**1139.81**	**450.96**	**0.67**
NW4	**66.0000**	**10YR**	**3097.80**	**5840.01**	**5842.63**		**5843.10**	**0.007244**	**5.98**	**651.59**	**357.19**	**0.65**
NW4	**66.0000**	**2YR**	**1106.00**	**5840.01**	**5841.50**		**5841.74**	**0.007327**	**4.12**	**306.72**	**257.24**	**0.60**
NW4	**65.5000**	**500YR**	**9600.30**	**5836.92**	**5844.73**		**5844.86**	**0.001330**	**5.32**	**3578.70**	**759.30**	**0.34**
NW4	**65.5000**	**100YR**	**6951.00**	**5836.92**	**5842.12**		**5842.39**	**0.004829**	**7.72**	**1817.77**	**603.27**	**0.60**
NW4	**65.5000**	**10YR**	**3461.10**	**5836.92**	**5840.80**		**5840.97**	**0.004667**	**6.24**	**1122.97**	**484.26**	**0.56**
NW4	**65.5000**	**2YR**	**1265.00**	**5836.92**	**5839.55**		**5839.64**	**0.004755**	**4.84**	**568.98**	**403.64**	**0.53**
NW4	**65.0000**	**500YR**	**9600.30**	**5836.01**	**5844.43**		**5844.53**	**0.000769**	**4.23**	**4345.13**	**818.60**	**0.26**
NW4	**65.0000**	**100YR**	**6951.00**	**5836.01**	**5840.37**		**5840.70**	**0.005561**	**7.27**	**1657.71**	**537.63**	**0.62**
NW4	**65.0000**	**10YR**	**3461.10**	**5836.01**	**5839.36**		**5839.53**	**0.004195**	**5.27**	**1138.10**	**489.29**	**0.52**
NW4	**65.0000**	**2YR**	**1265.00**	**5836.01**	**5838.21**		**5838.30**	**0.003605**	**3.65**	**612.51**	**431.33**	**0.44**
NW4	**64.5000**	**500YR**	**9600.30**	**5834.01**	**5844.37**		**5844.40**	**0.000211**	**2.55**	**6932.97**	**1026.21**	**0.14**
NW4	**64.5000**	**100YR**	**6951.00**	**5834.01**	**5838.85**		**5839.22**	**0.004598**	**7.12**	**1778.59**	**629.98**	**0.57**
NW4	**64.5000**	**10YR**	**3461.10**	**5834.01**	**5836.98**	**5836.84**	**5837.58**	**0.011636**	**8.15**	**738.55**	**477.00**	**0.84**
NW4	**64.5000**	**2YR**	**1265.00**	**5834.01**	**5835.80**	**5835.71**	**5836.32**	**0.016449**	**6.82**	**272.27**	**258.32**	**0.92**
NW4	**64.0000**	**500YR**	**9600.30**	**5830.01**	**5844.33**		**5844.36**	**0.000103**	**2.21**	**8339.83**	**890.24**	**0.10**
NW4	**64.0000**	**100YR**	**6951.00**	**5830.01**	**5838.57**		**5838.65**	**0.000759**	**4.26**	**3424.91**	**732.72**	**0.26**
NW4	**64.0000**	**10YR**	**3461.10**	**5830.01**	**5834.50**		**5834.87**	**0.006356**	**7.98**	**938.99**	**447.60**	**0.67**
NW4	**64.0000**	**2YR**	**1265.00**	**5830.01**	**5833.19**		**5833.44**	**0.005546**	**5.90**	**445.97**	**314.76**	**0.59**
NW4	**63.5000**	**500YR**	**9600.30**	**5828.01**	**5844.32**		**5844.33**	**0.000046**	**1.61**	**10638.88**	**900.87**	**0.07**
NW4	**63.5000**	**100YR**	**6951.00**	**5828.01**	**5838.50**		**5838.53**	**0.000200**	**2.49**	**5483.80**	**873.09**	**0.14**
NW4	**63.5000**	**10YR**	**3461.10**	**5828.01**	**5831.85**		**5832.40**	**0.010153**	**8.91**	**838.72**	**531.76**	**0.82**
NW4	**63.5000**	**2YR**	**1265.00**	**5828.01**	**5830.83**	**5830.83**	**5831.26**	**0.009076**	**6.79**	**383.40**	**399.37**	**0.73**
NW4	**63.0000**	**500YR**	**9600.30**	**5826.01**	**5844.31**		**5844.32**	**0.000023**	**1.21**	**13665.85**	**1020.09**	**0.05**
NW4	**63.0000**	**100YR**	**6951.00**	**5826.01**	**5838.48**		**5838.50**	**0.000069**	**1.63**	**7843.70**	**979.61**	**0.08**
NW4	**63.0000**	**10YR**	**3461.10**	**5826.01**	**5830.12**		**5830.59**	**0.006298**	**7.19**	**895.39**	**509.89**	**0.65**
NW4	**63.0000**	**2YR**	**1265.00**	**5826.01**	**5828.83**	**5828.67**	**5829.19**	**0.006521**	**5.55**	**371.23**	**338.08**	**0.62**
NW4	**62.5000**	**500YR**	**9600.30**	**5824.01**	**5844.31**		**5844.32**	**0.000017**	**1.14**	**14548.68**	**925.19**	**0.04**
NW4	**62.5000**	**100YR**	**6951.00**	**5824.01**	**5838.47**		**5838.48**	**0.000041**	**1.38**	**9150.05**	**916.02**	**0.06**
NW4	**62.5000**	**10YR**	**3461.10**	**5824.01**	**5828.03**	**5827.60**	**5828.44**	**0.007876**	**7.94**	**924.54**	**545.58**	**0.72**
NW4	**62.5000**	**2YR**	**1265.00**	**5824.01**	**5827.12**	**5826.88**	**5827.35**	**0.005300**	**5.41**	**493.43**	**436.96**	**0.57**
NW4	**62.0000**	**500YR**	**9600.30**	**5822.01**	**5844.31**		**5844.31**	**0.000005**	**0.66**	**23777.73**	**1251.52**	**0.02**
NW4	**62.0000**	**100YR**	**6951.00**	**5822.01**	**5838.47**		**5838.48**	**0.000009**	**0.71**	**16471.50**	**1251.52**	**0.03**
NW4	**62.0000**	**10YR**	**3461.10**	**5822.01**	**5824.45**	**5823.91**	**5824.83**	**0.017162**	**8.36**	**816.48**	**657.72**	**0.98**
NW4	**62.0000**	**2YR**	**1265.00**	**5822.01**	**5823.27**	**5823.27**	**5823.68**	**0.039333**	**7.75**	**273.08**	**335.93**	**1.31**
NW5	**59.5000**	**500YR**	**7744.20**	**5818.15**	**5844.31**		**5844.31**	**0.000010**	**1.03**	**13899.36**	**721.49**	**0.04**
NW5	**59.5000**	**100YR**	**6205.90**	**5818.15**	**5838.47**		**5838.47**	**0.000018**	**1.19**	**9824.10**	**676.59**	**0.05**
NW5	**59.5000**	**10YR**	**3837.10**	**5818.15**	**5824.65**		**5824.74**	**0.001396**	**4.82**	**1637.14**	**415.76**	**0.33**
NW5	**59.5000**	**2YR**	**1450.70**	**5818.15**	**5821.87**		**5821.98**	**0.003757**	**5.45**	**606.05**	**324.44**	**0.50**
NW5	**59.0000**	**500YR**	**7744.20**	**5818.01**	**5844.31**		**5844.31**	**0.000006**	**0.83**	**15449.35**	**769.00**	**0.03**

NW5	**59.0000**	**100YR**	**6205.90**	**5818.01**	**5838.46**		**5838.47**	**0.000011**	**0.94**	**11063.97**	**733.62**	**0.04**
NW5	**59.0000**	**10YR**	**3837.10**	**5818.01**	**5824.44**		**5824.52**	**0.000591**	**3.11**	**1930.75**	**426.61**	**0.22**
NW5	**59.0000**	**2YR**	**1450.70**	**5818.01**	**5820.61**		**5820.89**	**0.004865**	**4.86**	**455.17**	**348.80**	**0.53**
NW5	**58.5000**	**500YR**	**7744.20**	**5816.01**	**5844.31**		**5844.31**	**0.000003**	**0.64**	**20660.93**	**940.60**	**0.02**
NW5	**58.5000**	**100YR**	**6205.90**	**5816.01**	**5838.47**		**5838.47**	**0.000006**	**0.70**	**15294.36**	**898.52**	**0.03**
NW5	**58.5000**	**10YR**	**3837.10**	**5816.01**	**5824.39**		**5824.42**	**0.000187**	**2.08**	**3329.68**	**651.38**	**0.13**
NW5	**58.5000**	**2YR**	**1450.70**	**5816.01**	**5818.75**	**5818.68**	**5819.21**	**0.007986**	**6.41**	**390.84**	**358.01**	**0.69**
NW5	**58.0000**	**500YR**	**7744.20**	**5814.01**	**5844.31**		**5844.31**	**0.000003**	**0.60**	**23279.76**	**1059.88**	**0.02**
NW5	**58.0000**	**100YR**	**6205.90**	**5814.01**	**5838.46**		**5838.47**	**0.000004**	**0.65**	**17303.01**	**991.83**	**0.02**
NW5	**58.0000**	**10YR**	**3837.10**	**5814.01**	**5824.36**		**5824.38**	**0.000104**	**1.78**	**4334.19**	**746.19**	**0.10**
NW5	**58.0000**	**2YR**	**1450.70**	**5814.01**	**5817.46**		**5817.63**	**0.003322**	**4.74**	**592.51**	**357.96**	**0.46**
NW5	**57.5000**	**500YR**	**7786.40**	**5812.01**	**5844.30**		**5844.31**	**0.000003**	**0.63**	**22497.08**	**1095.86**	**0.02**
NW5	**57.5000**	**100YR**	**6240.70**	**5812.01**	**5838.46**		**5838.47**	**0.000005**	**0.68**	**16604.84**	**941.04**	**0.02**
NW5	**57.5000**	**10YR**	**3862.30**	**5812.01**	**5824.33**		**5824.35**	**0.000101**	**1.90**	**4424.19**	**796.76**	**0.10**
NW5	**57.5000**	**2YR**	**1462.90**	**5812.01**	**5816.61**		**5816.78**	**0.002928**	**5.04**	**643.11**	**388.10**	**0.44**
NW5	**57.0000**	**500YR**	**7786.40**	**5812.01**	**5844.30**		**5844.31**	**0.000002**	**0.55**	**24680.71**	**1107.39**	**0.02**
NW5	**57.0000**	**100YR**	**6240.70**	**5812.01**	**5838.46**		**5838.46**	**0.000003**	**0.60**	**18255.44**	**1076.30**	**0.02**
NW5	**57.0000**	**10YR**	**3862.30**	**5812.01**	**5824.32**		**5824.33**	**0.000039**	**1.23**	**5677.63**	**763.79**	**0.06**
NW5	**57.0000**	**2YR**	**1462.90**	**5812.01**	**5816.36**		**5816.42**	**0.000575**	**2.36**	**1021.11**	**446.86**	**0.20**
NW5	**56.5000**	**500YR**	**7814.30**	**5808.01**	**5844.30**		**5844.30**	**0.000002**	**0.50**	**29025.67**	**1165.82**	**0.01**
NW5	**56.5000**	**100YR**	**6264.20**	**5808.01**	**5838.46**		**5838.46**	**0.000002**	**0.55**	**22215.74**	**1165.82**	**0.02**
NW5	**56.5000**	**10YR**	**3879.30**	**5808.01**	**5824.31**		**5824.32**	**0.000024**	**1.17**	**7292.09**	**862.30**	**0.05**
NW5	**56.5000**	**2YR**	**1471.60**	**5808.01**	**5816.31**		**5816.32**	**0.000150**	**1.83**	**1734.75**	**430.64**	**0.11**
NW5	**56.0000**	**500YR**	**10636.00**	**5806.02**	**5844.30**		**5844.30**	**0.000002**	**0.52**	**37736.30**	**1364.52**	**0.01**
NW5	**56.0000**	**100YR**	**8334.80**	**5806.02**	**5838.46**		**5838.46**	**0.000002**	**0.53**	**29765.71**	**1364.52**	**0.02**
NW5	**56.0000**	**10YR**	**4940.80**	**5806.02**	**5824.31**		**5824.31**	**0.000018**	**1.07**	**10713.09**	**1251.30**	**0.04**
NW5	**56.0000**	**2YR**	**1980.30**	**5806.02**	**5816.25**		**5816.28**	**0.000159**	**2.12**	**2415.85**	**685.09**	**0.12**
W1	**49.5000**	**500YR**	**1639.60**	**5989.65**	**5993.19**	**5993.19**	**5994.48**	**0.023512**	**12.80**	**204.25**	**80.04**	**1.23**
W1	**49.5000**	**100YR**	**1064.70**	**5989.65**	**5992.44**	**5992.44**	**5993.48**	**0.025560**	**11.28**	**146.88**	**72.42**	**1.23**
W1	**49.5000**	**10YR**	**483.10**	**5989.65**	**5991.42**	**5991.42**	**5992.13**	**0.030682**	**8.93**	**79.61**	**59.52**	**1.24**
W1	**49.5000**	**2YR**	**240.70**	**5989.65**	**5990.83**	**5990.83**	**5991.32**	**0.036577**	**7.21**	**46.89**	**51.49**	**1.25**
W1	**49.0000**	**500YR**	**1639.60**	**5980.99**	**5984.09**	**5984.09**	**5985.26**	**0.033440**	**14.29**	**202.32**	**89.33**	**1.44**
W1	**49.0000**	**100YR**	**1064.70**	**5980.99**	**5983.48**	**5983.48**	**5984.39**	**0.034411**	**12.50**	**149.79**	**82.87**	**1.41**
W1	**49.0000**	**10YR**	**483.10**	**5980.99**	**5982.68**	**5982.68**	**5983.26**	**0.036461**	**9.88**	**86.98**	**74.30**	**1.36**
W1	**49.0000**	**2YR**	**240.70**	**5980.99**	**5982.24**	**5982.24**	**5982.62**	**0.035867**	**7.94**	**55.19**	**69.34**	**1.28**
W1	**48.5000**	**500YR**	**1639.60**	**5972.01**	**5975.83**	**5975.83**	**5976.88**	**0.017592**	**11.61**	**245.36**	**108.08**	**1.07**
W1	**48.5000**	**100YR**	**1064.70**	**5972.01**	**5975.24**	**5975.24**	**5976.07**	**0.016754**	**10.08**	**184.18**	**100.88**	**1.02**
W1	**48.5000**	**10YR**	**483.10**	**5972.01**	**5974.46**	**5974.46**	**5975.01**	**0.014691**	**7.76**	**109.50**	**90.60**	**0.91**
W1	**48.5000**	**2YR**	**240.70**	**5972.01**	**5974.00**	**5974.00**	**5974.38**	**0.011871**	**6.01**	**69.53**	**83.56**	**0.78**
W1	**48.0000**	**500YR**	**1639.60**	**5964.02**	**5967.68**	**5967.68**	**5968.65**	**0.021323**	**11.69**	**243.65**	**114.22**	**1.14**
W1	**48.0000**	**100YR**	**1064.70**	**5964.02**	**5967.18**	**5967.18**	**5967.92**	**0.019966**	**10.12**	**187.44**	**110.94**	**1.08**
W1	**48.0000**	**10YR**	**483.10**	**5964.02**	**5965.97**	**5965.97**	**5967.74**	**0.080258**	**13.76**	**59.27**	**73.01**	**1.96**
W1	**48.0000**	**2YR**	**240.70**	**5964.02**	**5965.97**	**5965.97**	**5966.41**	**0.019809**	**6.84**	**59.41**	**73.13**	**0.97**
W1	**47.5000**	**500YR**	**1639.60**	**5956.02**	**5960.12**	**5960.12**	**5961.29**	**0.017374**	**11.36**	**232.66**	**99.52**	**1.06**
W1	**47.5000**	**100YR**	**1064.70**	**5956.02**	**5959.48**	**5959.48**	**5960.40**	**0.016909**	**9.83**	**172.45**	**91.15**	**1.01**
W1	**47.5000**	**10YR**	**483.10**	**5956.02**	**5958.68**	**5958.68**	**5959.26**	**0.014795**	**7.42**	**102.46**	**82.09**	**0.90**
W1	**47.5000**	**2YR**	**240.70**	**5956.02**	**5957.79**	**5957.79**	**5958.34**	**0.025643**	**6.82**	**45.63**	**45.29**	**1.08**
W1	**47.25**		**Lat Struct**									
W1	**47.0000**	**500YR**	**1639.60**	**5942.10**	**5954.94**	**5951.91**	**5955.11**	**0.001210**	**4.23**	**683.49**	**212.38**	**0.26**
W1	**47.0000**	**100YR**	**1064.70**	**5942.10**	**5954.18**	**5950.98**	**5954.30**	**0.000921**	**3.46**	**529.29**	**192.52**	**0.22**
W1	**47.0000**	**10YR**	**483.10**	**5942.10**	**5952.96**	**5948.67**	**5953.02**	**0.000455**	**2.16**	**344.66**	**130.16**	**0.15**
W1	**47.0000**	**2YR**	**240.70**	**5942.10**	**5951.89**	**5945.85**	**5951.92**	**0.000286**	**1.51**	**223.08**	**98.41**	**0.12**
W1	**46.75**		**Culvert**									
W1	**46.5000**	**500YR**	**1639.60**	**5938.06**	**5945.64**	**5945.64**	**5946.72**	**0.016540**	**10.19**	**245.46**	**117.82**	**0.92**

W1	46.5000	100YR	1064.70	5938.06	5945.03	5945.03	5945.91	0.015123	8.89	178.02	101.31	0.86
W1	46.5000	10YR	483.10	5938.06	5944.05	5944.05	5944.74	0.013445	7.14	92.02	76.14	0.77
W1	46.5000	2YR	240.70	5938.06	5942.83	5942.83	5943.67	0.025125	7.35	33.11	25.65	0.97
W1	46.0000	500YR	1639.60	5935.43	5937.94	5937.94	5938.90	0.035883	12.93	218.79	112.62	1.44
W1	46.0000	100YR	1064.70	5935.43	5937.43	5937.43	5938.17	0.038836	11.53	161.93	108.21	1.45
W1	46.0000	10YR	483.10	5935.43	5936.81	5936.81	5937.26	0.040877	9.21	96.60	102.47	1.39
W1	46.0000	2YR	240.70	5935.43	5936.46	5936.46	5936.76	0.042044	7.67	61.68	98.92	1.34
W1	45.5000	500YR	1639.60	5922.01	5924.06	5924.06	5924.81	0.029630	9.88	261.64	170.84	1.25
W1	45.5000	100YR	1064.70	5922.01	5923.67	5923.67	5924.25	0.030958	8.69	196.04	165.99	1.23
W1	45.5000	10YR	483.10	5922.01	5923.19	5923.19	5923.54	0.030477	6.73	118.69	158.44	1.15
W1	45.5000	2YR	240.70	5922.01	5922.93	5922.93	5923.16	0.027598	5.31	77.99	154.45	1.05
W1	45.0000	500YR	230.70	5911.54	5913.22	5913.22	5913.78	0.021811	7.17	45.99	42.85	1.03
W1	45.0000	100YR	221.20	5911.54	5913.18	5913.18	5913.73	0.022234	7.12	44.31	42.31	1.04
W1	45.0000	10YR	208.90	5911.54	5913.14	5913.14	5913.67	0.022167	6.97	42.56	41.74	1.03
W1	45.0000	2YR	199.90	5911.54	5913.10	5913.10	5913.62	0.022333	6.88	41.12	41.26	1.03
W1	44.5000	500YR	230.70	5896.01	5897.70	5897.70	5898.32	0.018687	6.60	40.74	35.95	0.95
W1	44.5000	100YR	221.20	5896.01	5897.66	5897.66	5898.27	0.018869	6.51	39.38	35.46	0.95
W1	44.5000	10YR	208.90	5896.01	5897.61	5897.61	5898.20	0.019322	6.43	37.46	34.69	0.95
W1	44.5000	2YR	199.90	5896.01	5897.56	5897.56	5898.15	0.019862	6.38	35.90	34.01	0.96
W1	44.0000	500YR	251.50	5886.67	5888.12	5888.12	5888.63	0.030776	7.30	49.97	54.45	1.18
W1	44.0000	100YR	236.30	5886.67	5888.08	5888.08	5888.57	0.030432	7.10	47.95	53.19	1.17
W1	44.0000	10YR	216.90	5886.67	5888.01	5888.01	5888.49	0.031831	6.97	44.33	51.12	1.18
W1	44.0000	2YR	202.50	5886.67	5887.96	5887.96	5888.42	0.033182	6.87	41.56	49.51	1.19
W1	43.5000	500YR	251.50	5878.01	5880.41	5880.41	5881.15	0.015595	7.04	40.43	34.49	0.90
W1	43.5000	100YR	236.30	5878.01	5880.33	5880.33	5881.06	0.016125	6.96	37.77	32.93	0.91
W1	43.5000	10YR	216.90	5878.01	5880.19	5880.19	5880.93	0.018016	6.98	33.50	28.85	0.95
W1	43.5000	2YR	202.50	5878.01	5880.10	5880.10	5880.83	0.018869	6.90	31.13	26.18	0.96
W1	43.0000	500YR	251.50	5872.88	5874.44	5874.44	5874.97	0.025850	7.59	51.32	49.95	1.12
W1	43.0000	100YR	236.30	5872.88	5874.39	5874.39	5874.90	0.026146	7.46	48.90	49.22	1.12
W1	43.0000	10YR	216.90	5872.88	5874.33	5874.33	5874.82	0.026387	7.27	45.85	48.21	1.11
W1	43.0000	2YR	202.50	5872.88	5874.28	5874.28	5874.75	0.026684	7.12	43.47	47.35	1.11
W1	42.5000	500YR	251.50	5866.01	5866.89	5866.87	5867.14	0.019481	4.25	72.87	134.23	0.87
W1	42.5000	100YR	236.30	5866.01	5866.87	5866.85	5867.10	0.018749	4.12	70.51	133.60	0.85
W1	42.5000	10YR	216.90	5866.01	5866.84	5866.82	5867.06	0.018979	4.05	65.71	132.31	0.85
W1	42.5000	2YR	202.50	5866.01	5866.81	5866.75	5867.03	0.019213	3.99	61.98	131.29	0.85
W1	42.0000	500YR	251.50	5860.42	5861.32	5861.32	5861.60	0.026641	5.46	70.87	116.41	1.04
W1	42.0000	100YR	236.30	5860.42	5861.29	5861.29	5861.57	0.027942	5.44	66.85	115.38	1.06
W1	42.0000	10YR	216.90	5860.42	5861.26	5861.26	5861.52	0.027629	5.27	63.32	114.45	1.05
W1	42.0000	2YR	202.50	5860.42	5861.23	5861.23	5861.49	0.027324	5.14	60.64	113.66	1.03
W1	41.5000	500YR	251.50	5852.23	5853.28	5853.28	5853.54	0.018554	4.80	79.46	149.59	0.88
W1	41.5000	100YR	236.30	5852.23	5853.25	5853.25	5853.51	0.018278	4.69	76.19	148.36	0.87
W1	41.5000	10YR	216.90	5852.23	5853.24	5853.22	5853.47	0.016349	4.40	74.45	147.71	0.82
W1	41.5000	2YR	202.50	5852.23	5853.19	5853.19	5853.43	0.018848	4.53	66.63	143.25	0.87
W1	41.0000	500YR	296.30	5841.51	5844.30		5844.30	0.000065	0.59	947.43	510.13	0.06
W1	41.0000	100YR	267.00	5841.51	5842.39	5842.39	5842.56	0.029514	5.69	109.43	299.32	1.09
W1	41.0000	10YR	230.90	5841.51	5842.36	5842.36	5842.51	0.028935	5.48	99.07	291.33	1.07
W1	41.0000	2YR	208.20	5841.51	5842.36	5842.36	5842.48	0.024118	4.99	98.21	291.01	0.98
W1	40.5000	500YR	296.30	5831.44	5844.30		5844.30	0.000000	0.07	7446.63	772.48	0.00
W1	40.5000	100YR	267.00	5831.44	5838.46		5838.46	0.000001	0.14	3207.10	623.23	0.01
W1	40.5000	10YR	230.90	5831.44	5832.40	5832.40	5832.56	0.017328	4.41	104.32	288.50	0.84
W1	40.5000	2YR	208.20	5831.44	5832.37	5832.37	5832.53	0.016703	4.25	97.58	287.02	0.82
W1	40.0000	500YR	459.20	5820.01	5844.30		5844.30	0.000000	0.06	12928.60	680.37	0.00
W1	40.0000	100YR	383.80	5820.01	5838.46		5838.46	0.000000	0.07	9060.57	650.10	0.00
W1	40.0000	10YR	289.60	5820.01	5824.30		5824.32	0.000211	1.36	452.87	333.90	0.12
W1	40.0000	2YR	224.80	5820.01	5821.49	5821.49	5822.07	0.020845	6.18	37.89	34.73	0.98

W1	**39.5000**	**500YR**	**246.70**	**5814.02**	**5844.30**		**5844.30**	**0.000000**	**0.02**	**19866.60**	**816.93**	**0.00**
W1	**39.5000**	**100YR**	**244.30**	**5814.02**	**5838.46**		**5838.46**	**0.000000**	**0.03**	**15213.18**	**781.21**	**0.00**
W1	**39.5000**	**10YR**	**239.70**	**5814.02**	**5824.31**		**5824.31**	**0.000000**	**0.11**	**4404.04**	**746.00**	**0.01**
W1	**39.5000**	**2YR**	**212.30**	**5814.02**	**5816.24**		**5816.30**	**0.001468**	**2.25**	**165.77**	**200.23**	**0.28**
W1	**39.0000**	**500YR**	**246.70**	**5808.01**	**5844.30**		**5844.30**	**0.000000**	**0.01**	**34105.26**	**1264.92**	**0.00**
W1	**39.0000**	**100YR**	**244.30**	**5808.01**	**5838.46**		**5838.46**	**0.000000**	**0.02**	**26945.21**	**1194.46**	**0.00**
W1	**39.0000**	**10YR**	**239.70**	**5808.01**	**5824.31**		**5824.31**	**0.000000**	**0.05**	**10557.29**	**1123.05**	**0.00**
W1	**39.0000**	**2YR**	**212.30**	**5808.01**	**5816.28**		**5816.28**	**0.000001**	**0.15**	**2874.41**	**680.12**	**0.01**
SP1	**199.0000**	**500YR**	**1171.50**	**5882.02**	**5886.40**		**5887.03**	**0.009092**	**9.24**	**241.86**	**106.51**	**0.79**
SP1	**199.0000**	**100YR**	**862.00**	**5882.02**	**5885.88**		**5886.46**	**0.009336**	**8.59**	**189.11**	**96.42**	**0.79**
SP1	**199.0000**	**10YR**	**461.60**	**5882.02**	**5884.87**	**5884.71**	**5885.43**	**0.011856**	**7.83**	**104.15**	**71.95**	**0.84**
SP1	**199.0000**	**2YR**	**180.10**	**5882.02**	**5883.90**	**5883.82**	**5884.32**	**0.013316**	**6.17**	**46.03**	**47.92**	**0.83**
SP1	**198.5000**	**500YR**	**1171.50**	**5880.01**	**5883.64**	**5883.64**	**5884.80**	**0.013083**	**9.47**	**165.33**	**78.70**	**0.91**
SP1	**198.5000**	**100YR**	**862.00**	**5880.01**	**5883.10**	**5883.10**	**5884.14**	**0.014044**	**8.74**	**125.84**	**69.30**	**0.92**
SP1	**198.5000**	**10YR**	**461.60**	**5880.01**	**5882.42**	**5882.24**	**5883.05**	**0.011718**	**6.62**	**82.68**	**57.32**	**0.80**
SP1	**198.5000**	**2YR**	**180.10**	**5880.01**	**5881.60**		**5881.91**	**0.010604**	**4.54**	**42.02**	**41.04**	**0.70**
SP1	**198.0000**	**500YR**	**1171.50**	**5876.72**	**5879.38**	**5879.28**	**5880.01**	**0.025410**	**11.20**	**206.83**	**129.86**	**1.22**
SP1	**198.0000**	**100YR**	**862.00**	**5876.72**	**5879.04**	**5878.96**	**5879.60**	**0.027441**	**10.59**	**163.41**	**122.34**	**1.24**
SP1	**198.0000**	**10YR**	**461.60**	**5876.72**	**5878.47**	**5878.44**	**5878.92**	**0.030439**	**9.19**	**100.06**	**100.76**	**1.25**
SP1	**198.0000**	**2YR**	**180.10**	**5876.72**	**5877.90**	**5877.84**	**5878.18**	**0.028390**	**6.73**	**49.34**	**69.50**	**1.12**
SP1	**197.5000**	**500YR**	**1171.50**	**5874.01**	**5876.80**	**5876.80**	**5877.73**	**0.015585**	**9.11**	**189.38**	**109.34**	**0.97**
SP1	**197.5000**	**100YR**	**862.00**	**5874.01**	**5876.40**	**5876.40**	**5877.21**	**0.016030**	**8.32**	**147.94**	**98.22**	**0.96**
SP1	**197.5000**	**10YR**	**461.60**	**5874.01**	**5875.74**	**5875.74**	**5876.34**	**0.017031**	**6.90**	**89.52**	**79.93**	**0.93**
SP1	**197.5000**	**2YR**	**180.10**	**5874.01**	**5875.03**	**5875.03**	**5875.42**	**0.020532**	**5.26**	**40.67**	**56.61**	**0.94**
SP1	**197.375***	**500YR**	**1171.50**	**5873.51**	**5876.27**	**5876.27**	**5877.19**	**0.013941**	**8.42**	**185.52**	**111.87**	**0.91**
SP1	**197.375***	**100YR**	**862.00**	**5873.51**	**5875.84**	**5875.84**	**5876.65**	**0.014907**	**7.75**	**141.12**	**96.70**	**0.91**
SP1	**197.375***	**10YR**	**461.60**	**5873.51**	**5875.12**	**5875.12**	**5875.75**	**0.018195**	**6.61**	**80.55**	**72.67**	**0.95**
SP1	**197.375***	**2YR**	**180.10**	**5873.51**	**5874.45**	**5874.44**	**5874.82**	**0.021875**	**4.92**	**38.25**	**53.80**	**0.94**
SP1	**197.25***	**500YR**	**1171.50**	**5873.01**	**5875.59**	**5875.59**	**5876.54**	**0.014977**	**8.18**	**170.30**	**103.82**	**0.93**
SP1	**197.25***	**100YR**	**862.00**	**5873.01**	**5875.18**	**5875.18**	**5876.00**	**0.016067**	**7.49**	**130.64**	**90.09**	**0.93**
SP1	**197.25***	**10YR**	**461.60**	**5873.01**	**5874.49**	**5874.49**	**5875.11**	**0.020261**	**6.36**	**76.06**	**69.50**	**0.98**
SP1	**197.25***	**2YR**	**180.10**	**5873.01**	**5873.92**	**5873.87**	**5874.23**	**0.020235**	**4.42**	**40.79**	**54.64**	**0.89**
SP1	**197.125***	**500YR**	**1171.50**	**5872.51**	**5874.92**	**5874.92**	**5875.87**	**0.016204**	**7.94**	**161.44**	**100.26**	**0.95**
SP1	**197.125***	**100YR**	**862.00**	**5872.51**	**5874.53**	**5874.53**	**5875.33**	**0.017694**	**7.26**	**124.77**	**86.64**	**0.96**
SP1	**197.125***	**10YR**	**461.60**	**5872.51**	**5873.90**	**5873.90**	**5874.47**	**0.022225**	**6.09**	**76.14**	**69.42**	**1.00**
SP1	**197.125***	**2YR**	**180.10**	**5872.51**	**5873.33**	**5873.29**	**5873.64**	**0.022858**	**4.44**	**40.52**	**57.49**	**0.93**
SP1	**197.0000**	**500YR**	**1171.50**	**5872.01**	**5874.27**	**5874.27**	**5875.19**	**0.017736**	**7.73**	**156.34**	**95.52**	**0.97**
SP1	**197.0000**	**100YR**	**862.00**	**5872.01**	**5873.89**	**5873.89**	**5874.67**	**0.019821**	**7.08**	**122.81**	**84.00**	**0.99**
SP1	**197.0000**	**10YR**	**461.60**	**5872.01**	**5873.35**	**5873.32**	**5873.87**	**0.020942**	**5.73**	**80.53**	**73.00**	**0.96**
SP1	**197.0000**	**2YR**	**180.10**	**5872.01**	**5872.85**	**5872.74**	**5873.09**	**0.017007**	**3.91**	**46.02**	**63.30**	**0.81**
SP1	**196.5000**	**500YR**	**1171.50**	**5868.01**	**5869.74**	**5869.74**	**5870.43**	**0.019735**	**6.75**	**181.72**	**144.36**	**0.98**
SP1	**196.5000**	**100YR**	**862.00**	**5868.01**	**5869.47**	**5869.47**	**5870.05**	**0.021491**	**6.14**	**144.24**	**131.43**	**0.99**
SP1	**196.5000**	**10YR**	**461.60**	**5868.01**	**5869.02**	**5869.02**	**5869.43**	**0.024282**	**5.20**	**90.11**	**110.43**	**0.99**
SP1	**196.5000**	**2YR**	**180.10**	**5868.01**	**5868.57**	**5868.57**	**5868.82**	**0.029023**	**3.98**	**45.34**	**92.24**	**0.99**
SP1	**196.0000**	**500YR**	**1171.50**	**5862.01**	**5865.01**		**5865.27**	**0.008181**	**6.15**	**351.16**	**238.01**	**0.69**
SP1	**196.0000**	**100YR**	**862.00**	**5862.01**	**5864.72**		**5864.95**	**0.008138**	**5.67**	**285.39**	**230.01**	**0.67**
SP1	**196.0000**	**10YR**	**461.60**	**5862.01**	**5864.27**	**5863.63**	**5864.46**	**0.008346**	**4.91**	**182.81**	**217.19**	**0.65**
SP1	**196.0000**	**2YR**	**180.10**	**5862.01**	**5863.74**		**5863.87**	**0.006503**	**3.55**	**86.40**	**124.44**	**0.55**
SP1	**195.5000**	**500YR**	**1171.50**	**5859.11**	**5860.45**	**5860.45**	**5860.79**	**0.030991**	**7.85**	**298.36**	**395.61**	**1.21**
SP1	**195.5000**	**100YR**	**862.00**	**5859.11**	**5860.33**	**5860.33**	**5860.61**	**0.028654**	**7.08**	**250.63**	**389.96**	**1.14**
SP1	**195.5000**	**10YR**	**461.60**	**5859.11**	**5860.14**	**5860.14**	**5860.33**	**0.023723**	**5.73**	**176.75**	**383.33**	**1.01**
SP1	**195.5000**	**2YR**	**180.10**	**5859.11**	**5859.79**	**5859.79**	**5859.98**	**0.031995**	**5.00**	**66.49**	**193.06**	**1.09**
SP1	**195.0000**	**500YR**	**1171.50**	**5854.01**	**5855.57**	**5855.15**	**5855.69**	**0.009996**	**3.31**	**444.76**	**443.37**	**0.50**
SP1	**195.0000**	**100YR**	**862.00**	**5854.01**	**5855.38**	**5855.02**	**5855.47**	**0.010014**	**3.00**	**361.49**	**421.27**	**0.49**
SP1	**195.0000**	**10YR**	**461.60**	**5854.01**	**5855.07**	**5854.83**	**5855.14**	**0.010013**	**2.48**	**238.41**	**390.03**	**0.47**
SP1	**195.0000**	**2YR**	**180.10**	**5854.01**	**5854.77**	**5854.59**	**5854.81**	**0.009989**	**1.89**	**125.95**	**349.73**	**0.45**

SP2	**189.5000**	**500YR**	**142.70**	**6082.02**	**6084.36**	**6084.36**	**6085.12**	**0.019710**	**7.15**	**21.44**	**14.86**	**0.97**
SP2	**189.5000**	**100YR**	**100.00**	**6082.02**	**6083.96**	**6083.96**	**6084.62**	**0.021338**	**6.58**	**15.95**	**13.07**	**0.98**
SP2	**189.5000**	**10YR**	**42.50**	**6082.02**	**6083.28**	**6083.28**	**6083.71**	**0.026208**	**5.28**	**8.08**	**9.88**	**1.01**
SP2	**189.5000**	**2YR**	**12.80**	**6082.02**	**6082.72**	**6082.72**	**6082.95**	**0.032109**	**3.90**	**3.29**	**7.15**	**1.01**
SP2	**189.0000**	**500YR**	**142.70**	**6064.54**	**6066.75**	**6066.75**	**6067.44**	**0.022463**	**7.26**	**23.21**	**16.80**	**1.03**
SP2	**189.0000**	**100YR**	**100.00**	**6064.54**	**6066.40**	**6066.40**	**6066.99**	**0.022916**	**6.64**	**17.72**	**15.20**	**1.02**
SP2	**189.0000**	**10YR**	**42.50**	**6064.54**	**6065.76**	**6065.76**	**6066.16**	**0.025144**	**5.40**	**9.06**	**11.66**	**1.00**
SP2	**189.0000**	**2YR**	**12.80**	**6064.54**	**6065.20**	**6065.20**	**6065.43**	**0.029672**	**3.97**	**3.53**	**8.16**	**0.99**
SP2	**188.5000**	**500YR**	**194.60**	**6041.85**	**6044.08**	**6044.08**	**6044.88**	**0.034807**	**8.53**	**28.66**	**19.91**	**1.25**
SP2	**188.5000**	**100YR**	**135.70**	**6041.85**	**6043.74**	**6043.74**	**6044.38**	**0.034617**	**7.61**	**22.17**	**17.81**	**1.22**
SP2	**188.5000**	**10YR**	**59.20**	**6041.85**	**6043.08**	**6043.08**	**6043.51**	**0.038563**	**6.21**	**11.80**	**13.88**	**1.21**
SP2	**188.5000**	**2YR**	**17.60**	**6041.85**	**6042.50**	**6042.50**	**6042.74**	**0.047613**	**4.62**	**4.75**	**10.30**	**1.23**
SP2	**188.0000**	**500YR**	**194.60**	**6021.78**	**6024.03**	**6024.03**	**6024.79**	**0.024410**	**7.68**	**30.06**	**20.86**	**1.08**
SP2	**188.0000**	**100YR**	**135.70**	**6021.78**	**6023.68**	**6023.68**	**6024.30**	**0.024584**	**6.95**	**23.09**	**18.80**	**1.06**
SP2	**188.0000**	**10YR**	**59.20**	**6021.78**	**6023.02**	**6023.02**	**6023.45**	**0.027286**	**5.68**	**12.16**	**14.60**	**1.05**
SP2	**188.0000**	**2YR**	**17.60**	**6021.78**	**6022.44**	**6022.44**	**6022.68**	**0.031060**	**4.14**	**4.86**	**10.48**	**1.02**
SP2	**187.5000**	**500YR**	**194.60**	**6010.01**	**6011.72**	**6011.72**	**6012.34**	**0.020204**	**6.42**	**31.99**	**27.57**	**0.97**
SP2	**187.5000**	**100YR**	**135.70**	**6010.01**	**6011.40**	**6011.40**	**6011.93**	**0.021864**	**5.85**	**23.92**	**24.22**	**0.98**
SP2	**187.5000**	**10YR**	**59.20**	**6010.01**	**6011.19**		**6011.34**	**0.008126**	**3.18**	**18.90**	**22.08**	**0.58**
SP2	**187.5000**	**2YR**	**17.60**	**6010.01**	**6010.44**	**6010.44**	**6010.62**	**0.032735**	**3.35**	**5.25**	**14.86**	**0.99**
SP2	**187.375***	**500YR**	**194.60**	**6008.30**	**6011.68**		**6011.77**	**0.001134**	**2.60**	**99.49**	**52.16**	**0.26**
SP2	**187.375***	**100YR**	**135.70**	**6008.30**	**6011.53**		**6011.58**	**0.000679**	**1.94**	**91.57**	**50.18**	**0.20**
SP2	**187.375***	**10YR**	**59.20**	**6008.30**	**6011.28**		**6011.29**	**0.000185**	**0.95**	**79.34**	**46.73**	**0.10**
SP2	**187.375***	**2YR**	**17.60**	**6008.30**	**6009.85**		**6009.86**	**0.000284**	**0.71**	**26.84**	**26.61**	**0.11**
SP2	**187.25***	**500YR**	**194.60**	**6006.60**	**6011.72**		**6011.74**	**0.000170**	**1.38**	**225.11**	**78.44**	**0.11**
SP2	**187.25***	**100YR**	**135.70**	**6006.60**	**6011.55**		**6011.56**	**0.000097**	**1.02**	**211.72**	**76.46**	**0.08**
SP2	**187.25***	**10YR**	**59.20**	**6006.60**	**6011.28**		**6011.28**	**0.000024**	**0.48**	**191.55**	**73.20**	**0.04**
SP2	**187.25***	**2YR**	**17.60**	**6006.60**	**6009.86**		**6009.86**	**0.000011**	**0.25**	**99.87**	**55.13**	**0.03**
SP2	**187.125***	**500YR**	**194.60**	**6004.90**	**6011.73**	**6006.73**	**6011.74**	**0.000042**	**0.84**	**414.42**	**107.53**	**0.06**
SP2	**187.125***	**100YR**	**135.70**	**6004.90**	**6011.56**	**6006.41**	**6011.56**	**0.000023**	**0.61**	**395.66**	**105.41**	**0.04**
SP2	**187.125***	**10YR**	**59.20**	**6004.90**	**6011.28**	**6005.89**	**6011.28**	**0.000005**	**0.29**	**367.33**	**102.13**	**0.02**
SP2	**187.125***	**2YR**	**17.60**	**6004.90**	**6009.86**	**6005.44**	**6009.86**	**0.000001**	**0.13**	**235.00**	**83.32**	**0.01**
SP2	**187.1**		**Culvert**									
SP2	**187.0000**	**500YR**	**194.60**	**6003.19**	**6004.92**	**6004.92**	**6005.43**	**0.017911**	**6.87**	**43.30**	**43.26**	**0.95**
SP2	**187.0000**	**100YR**	**135.70**	**6003.19**	**6004.63**	**6004.63**	**6005.09**	**0.019573**	**6.31**	**31.60**	**37.95**	**0.96**
SP2	**187.0000**	**10YR**	**59.20**	**6003.19**	**6004.16**	**6004.16**	**6004.47**	**0.021467**	**4.94**	**15.98**	**28.29**	**0.94**
SP2	**187.0000**	**2YR**	**17.60**	**6003.19**	**6003.72**	**6003.72**	**6003.90**	**0.027123**	**3.48**	**5.78**	**18.64**	**0.94**
SP2	**186.5000**	**500YR**	**194.60**	**5977.77**	**5980.02**	**5980.02**	**5980.74**	**0.021064**	**6.81**	**28.97**	**21.40**	**0.99**
SP2	**186.5000**	**100YR**	**135.70**	**5977.77**	**5979.67**	**5979.67**	**5980.27**	**0.022927**	**6.21**	**21.87**	**18.39**	**1.00**
SP2	**186.5000**	**10YR**	**59.20**	**5977.77**	**5979.04**	**5979.04**	**5979.45**	**0.026115**	**5.14**	**11.51**	**14.22**	**1.01**
SP2	**186.5000**	**2YR**	**17.60**	**5977.77**	**5978.47**	**5978.47**	**5978.70**	**0.031444**	**3.85**	**4.57**	**10.09**	**1.01**
SP2	**186.0000**	**500YR**	**194.60**	**5962.23**	**5964.32**	**5964.32**	**5965.03**	**0.017193**	**7.20**	**33.26**	**26.28**	**0.94**
SP2	**186.0000**	**100YR**	**135.70**	**5962.23**	**5963.97**	**5963.97**	**5964.57**	**0.018490**	**6.47**	**24.65**	**23.17**	**0.94**
SP2	**186.0000**	**10YR**	**59.20**	**5962.23**	**5963.37**	**5963.37**	**5963.77**	**0.023132**	**5.11**	**12.43**	**17.73**	**0.97**
SP2	**186.0000**	**2YR**	**17.60**	**5962.23**	**5962.87**	**5962.87**	**5963.08**	**0.032001**	**3.63**	**4.85**	**11.89**	**1.00**
SP2	**185.5000**	**500YR**	**203.30**	**5947.58**	**5949.45**	**5949.45**	**5950.07**	**0.022726**	**7.12**	**36.57**	**32.86**	**1.04**
SP2	**185.5000**	**100YR**	**141.80**	**5947.58**	**5949.15**	**5949.15**	**5949.67**	**0.025020**	**6.41**	**27.36**	**29.22**	**1.05**
SP2	**185.5000**	**10YR**	**61.70**	**5947.58**	**5948.67**	**5948.67**	**5948.99**	**0.028408**	**4.98**	**14.79**	**23.18**	**1.04**
SP2	**185.5000**	**2YR**	**19.00**	**5947.58**	**5948.26**	**5948.26**	**5948.44**	**0.027766**	**3.56**	**6.34**	**18.05**	**0.95**
SP2	**185.0000**	**500YR**	**203.30**	**5938.02**	**5939.86**	**5939.86**	**5940.46**	**0.020575**	**6.51**	**35.98**	**32.10**	**0.98**
SP2	**185.0000**	**100YR**	**141.80**	**5938.02**	**5939.57**	**5939.57**	**5940.07**	**0.021204**	**5.92**	**27.01**	**28.23**	**0.97**
SP2	**185.0000**	**10YR**	**61.70**	**5938.02**	**5939.03**	**5939.03**	**5939.38**	**0.024252**	**4.80**	**13.75**	**21.20**	**0.97**
SP2	**185.0000**	**2YR**	**19.00**	**5938.02**	**5938.58**	**5938.58**	**5938.76**	**0.031450**	**3.48**	**5.48**	**14.92**	**0.99**
SP2	**184.5000**	**500YR**	**203.30**	**5924.07**	**5925.58**	**5925.58**	**5926.12**	**0.024398**	**7.47**	**41.62**	**39.77**	**1.09**

SP2	**184.5000**	**100YR**	**141.80**	**5924.07**	**5925.33**	**5925.33**	**5925.77**	**0.024866**	**6.66**	**32.02**	**36.74**	**1.07**
SP2	**184.5000**	**10YR**	**61.70**	**5924.07**	**5924.88**	**5924.88**	**5925.17**	**0.028937**	**5.24**	**16.77**	**29.85**	**1.06**
SP2	**184.5000**	**2YR**	**19.00**	**5924.07**	**5924.52**	**5924.52**	**5924.67**	**0.031620**	**3.56**	**7.10**	**23.94**	**1.00**
SP2	**184.0000**	**500YR**	**203.30**	**5908.28**	**5909.80**	**5909.80**	**5910.24**	**0.020971**	**6.50**	**46.48**	**52.42**	**0.99**
SP2	**184.0000**	**100YR**	**141.80**	**5908.28**	**5909.55**	**5909.55**	**5909.94**	**0.022688**	**5.92**	**34.48**	**46.73**	**1.00**
SP2	**184.0000**	**10YR**	**61.70**	**5908.28**	**5909.16**	**5909.16**	**5909.42**	**0.024376**	**4.56**	**18.14**	**37.08**	**0.96**
SP2	**184.0000**	**2YR**	**19.00**	**5908.28**	**5908.81**	**5908.81**	**5908.96**	**0.029448**	**3.31**	**6.91**	**23.67**	**0.95**
SP2	**183.5000**	**500YR**	**203.30**	**5895.98**	**5897.61**	**5897.16**	**5897.76**	**0.010003**	**5.10**	**78.36**	**85.36**	**0.71**
SP2	**183.5000**	**100YR**	**141.80**	**5895.98**	**5897.35**	**5896.98**	**5897.48**	**0.010009**	**4.54**	**58.44**	**69.89**	**0.69**
SP2	**183.5000**	**10YR**	**61.70**	**5895.98**	**5896.90**	**5896.61**	**5896.98**	**0.010019**	**3.44**	**31.22**	**51.33**	**0.64**
SP2	**183.5000**	**2YR**	**19.00**	**5895.98**	**5896.48**	**5896.31**	**5896.52**	**0.009984**	**2.28**	**13.42**	**36.61**	**0.58**
MAIN	**39.5000**	**500YR**	**8462.60**	**5806.01**	**5844.30**		**5844.30**	**0.000002**	**0.58**	**27318.96**	**1050.27**	**0.02**
MAIN	**39.5000**	**100YR**	**7076.30**	**5806.01**	**5838.46**		**5838.46**	**0.000003**	**0.63**	**21294.60**	**1004.16**	**0.02**
MAIN	**39.5000**	**10YR**	**4440.60**	**5806.01**	**5824.30**		**5824.31**	**0.000023**	**1.22**	**7783.35**	**852.86**	**0.05**
MAIN	**39.5000**	**2YR**	**2140.70**	**5806.01**	**5816.23**		**5816.27**	**0.000195**	**2.40**	**1961.97**	**538.08**	**0.13**
MAIN	**39.375***	**500YR**	**8462.60**	**5806.01**	**5844.30**		**5844.30**	**0.000002**	**0.65**	**24858.80**	**997.26**	**0.02**
MAIN	**39.375***	**100YR**	**7076.30**	**5806.01**	**5838.46**		**5838.46**	**0.000004**	**0.72**	**19151.34**	**948.00**	**0.02**
MAIN	**39.375***	**10YR**	**4440.60**	**5806.01**	**5824.29**		**5824.31**	**0.000037**	**1.55**	**6469.45**	**793.61**	**0.06**
MAIN	**39.375***	**2YR**	**2140.70**	**5806.01**	**5816.15**		**5816.25**	**0.000344**	**3.17**	**1396.87**	**391.71**	**0.18**
MAIN	**39.25***	**500YR**	**8462.60**	**5806.01**	**5844.30**		**5844.30**	**0.000003**	**0.73**	**22610.99**	**944.24**	**0.02**
MAIN	**39.25***	**100YR**	**7076.30**	**5806.01**	**5838.46**		**5838.46**	**0.000005**	**0.82**	**17226.69**	**890.51**	**0.03**
MAIN	**39.25***	**10YR**	**4440.60**	**5806.01**	**5824.29**		**5824.31**	**0.000057**	**1.92**	**5432.65**	**720.51**	**0.08**
MAIN	**39.25***	**2YR**	**2140.70**	**5806.01**	**5816.04**		**5816.23**	**0.000638**	**4.28**	**1000.24**	**317.78**	**0.24**
MAIN	**39.125***	**500YR**	**8462.60**	**5806.01**	**5844.30**		**5844.30**	**0.000004**	**0.82**	**20576.52**	**891.23**	**0.02**
MAIN	**39.125***	**100YR**	**7076.30**	**5806.01**	**5838.46**		**5838.46**	**0.000006**	**0.93**	**15529.52**	**827.05**	**0.03**
MAIN	**39.125***	**10YR**	**4440.60**	**5806.01**	**5824.27**		**5824.30**	**0.000081**	**2.29**	**4672.90**	**653.95**	**0.09**
MAIN	**39.125***	**2YR**	**2140.70**	**5806.01**	**5815.77**		**5816.18**	**0.001259**	**5.90**	**670.12**	**244.97**	**0.34**
MAIN	**39.0000**	**500YR**	**8462.60**	**5806.01**	**5844.30**	**5818.98**	**5844.30**	**0.000005**	**0.91**	**18755.69**	**838.21**	**0.03**
MAIN	**39.0000**	**100YR**	**7076.30**	**5806.01**	**5838.46**	**5818.59**	**5838.46**	**0.000008**	**1.03**	**14091.36**	**755.61**	**0.03**
MAIN	**39.0000**	**10YR**	**4440.60**	**5806.01**	**5824.26**	**5814.64**	**5824.30**	**0.000118**	**2.75**	**4079.48**	**623.71**	**0.11**
MAIN	**39.0000**	**2YR**	**2140.70**	**5806.01**	**5815.27**	**5811.92**	**5816.10**	**0.002497**	**8.02**	**413.41**	**144.25**	**0.47**
MAIN	**38.75**		**Culvert**									
MAIN	**38.5000**	**500YR**	**8462.60**	**5804.96**	**5814.35**		**5815.61**	**0.007264**	**12.58**	**1260.91**	**303.05**	**0.78**
MAIN	**38.5000**	**100YR**	**7076.30**	**5804.96**	**5813.83**		**5815.01**	**0.007134**	**11.93**	**1106.32**	**292.70**	**0.76**
MAIN	**38.5000**	**10YR**	**4440.60**	**5804.96**	**5812.63**		**5813.66**	**0.007049**	**10.57**	**770.11**	**265.66**	**0.74**
MAIN	**38.5000**	**2YR**	**2140.70**	**5804.96**	**5811.09**	**5811.09**	**5812.07**	**0.007592**	**9.12**	**386.71**	**229.04**	**0.73**
MAIN	**38.0000**	**500YR**	**8462.60**	**5804.24**	**5814.98**	**5811.96**	**5815.15**	**0.001002**	**5.27**	**3463.09**	**804.27**	**0.30**
MAIN	**38.0000**	**100YR**	**7076.30**	**5804.24**	**5814.41**	**5811.63**	**5814.57**	**0.001000**	**5.06**	**3014.47**	**763.47**	**0.30**
MAIN	**38.0000**	**10YR**	**4440.60**	**5804.24**	**5813.11**	**5810.71**	**5813.26**	**0.001001**	**4.57**	**2077.73**	**667.04**	**0.29**
MAIN	**38.0000**	**2YR**	**2140.70**	**5804.24**	**5811.39**	**5809.36**	**5811.53**	**0.001000**	**3.87**	**1075.20**	**465.54**	**0.28**
NS18	**20.0000**	**500YR**	**112.60**	**6274.72**	**6276.51**	**6276.51**	**6277.06**	**0.020612**	**6.03**	**20.08**	**19.80**	**0.96**
NS18	**20.0000**	**100YR**	**78.50**	**6274.72**	**6276.22**	**6276.22**	**6276.69**	**0.022585**	**5.56**	**14.75**	**16.93**	**0.97**
NS18	**20.0000**	**10YR**	**30.30**	**6274.72**	**6275.68**	**6275.68**	**6275.97**	**0.028614**	**4.35**	**6.97**	**12.05**	**1.00**
NS18	**20.0000**	**2YR**	**10.40**	**6274.72**	**6275.31**	**6275.31**	**6275.48**	**0.032958**	**3.35**	**3.11**	**8.79**	**0.99**
NS18	**19.0000**	**500YR**	**112.60**	**6261.80**	**6263.53**	**6263.53**	**6264.09**	**0.023762**	**5.96**	**18.88**	**17.40**	**1.01**
NS18	**19.0000**	**100YR**	**78.50**	**6261.80**	**6263.26**	**6263.26**	**6263.72**	**0.025092**	**5.48**	**14.33**	**15.63**	**1.01**
NS18	**19.0000**	**10YR**	**30.30**	**6261.80**	**6262.72**	**6262.72**	**6263.02**	**0.028888**	**4.37**	**6.93**	**11.85**	**1.01**
NS18	**19.0000**	**2YR**	**10.40**	**6261.80**	**6262.35**	**6262.35**	**6262.53**	**0.033677**	**3.39**	**3.07**	**8.66**	**1.00**
NS18	**18.0000**	**500YR**	**112.60**	**6245.73**	**6247.60**	**6247.60**	**6248.20**	**0.022901**	**6.24**	**18.18**	**16.01**	**1.00**
NS18	**18.0000**	**100YR**	**78.50**	**6245.73**	**6247.31**	**6247.31**	**6247.81**	**0.024875**	**5.67**	**13.83**	**14.16**	**1.01**
NS18	**18.0000**	**10YR**	**30.30**	**6245.73**	**6246.73**	**6246.73**	**6247.05**	**0.028751**	**4.56**	**6.64**	**10.54**	**1.01**
NS18	**18.0000**	**2YR**	**10.40**	**6245.73**	**6246.33**	**6246.33**	**6246.52**	**0.032905**	**3.52**	**2.96**	**7.74**	**1.00**
NS18	**17.75***	**500YR**	**112.60**	**6240.01**	**6241.82**	**6241.82**	**6242.41**	**0.023693**	**6.14**	**18.36**	**16.48**	**1.01**
NS18	**17.75***	**100YR**	**78.50**	**6240.01**	**6241.55**	**6241.55**	**6242.03**	**0.025025**	**5.60**	**14.02**	**14.69**	**1.01**
NS18	**17.75***	**10YR**	**30.30**	**6240.01**	**6240.98**	**6240.98**	**6241.29**	**0.028734**	**4.49**	**6.74**	**10.98**	**1.01**

NS18	**17.75***	**2YR**	**10.40**	**6240.01**	**6240.59**	**6240.59**	**6240.77**	**0.032820**	**3.46**	**3.01**	**8.04**	**1.00**
NS18	**17.5***	**500YR**	**112.60**	**6234.29**	**6236.04**	**6236.04**	**6236.61**	**0.023121**	**6.06**	**18.72**	**17.48**	**1.00**
NS18	**17.5***	**100YR**	**78.50**	**6234.29**	**6235.77**	**6235.77**	**6236.24**	**0.024984**	**5.48**	**14.34**	**15.67**	**1.01**
NS18	**17.5***	**10YR**	**30.30**	**6234.29**	**6235.23**	**6235.23**	**6235.53**	**0.028586**	**4.39**	**6.89**	**11.59**	**1.00**
NS18	**17.5***	**2YR**	**10.40**	**6234.29**	**6234.84**	**6234.84**	**6235.03**	**0.034752**	**3.47**	**3.00**	**8.36**	**1.02**
NS18	**17.25***	**500YR**	**112.60**	**6228.57**	**6230.24**	**6230.24**	**6230.79**	**0.022698**	**5.96**	**19.25**	**19.01**	**0.99**
NS18	**17.25***	**100YR**	**78.50**	**6228.57**	**6229.98**	**6229.98**	**6230.44**	**0.024869**	**5.41**	**14.56**	**16.90**	**1.00**
NS18	**17.25***	**10YR**	**30.30**	**6228.57**	**6229.47**	**6229.47**	**6229.76**	**0.029458**	**4.32**	**7.01**	**12.39**	**1.01**
NS18	**17.25***	**2YR**	**10.40**	**6228.57**	**6229.10**	**6229.10**	**6229.28**	**0.034466**	**3.37**	**3.09**	**8.95**	**1.01**
NS18	**17.0000**	**500YR**	**112.60**	**6222.85**	**6224.44**	**6224.44**	**6224.97**	**0.022149**	**5.84**	**20.15**	**21.25**	**0.98**
NS18	**17.0000**	**100YR**	**78.50**	**6222.85**	**6224.20**	**6224.20**	**6224.63**	**0.023925**	**5.28**	**15.15**	**18.92**	**0.98**
NS18	**17.0000**	**10YR**	**30.30**	**6222.85**	**6223.72**	**6223.72**	**6223.98**	**0.029358**	**4.15**	**7.30**	**13.69**	**1.00**
NS18	**17.0000**	**2YR**	**10.40**	**6222.85**	**6223.36**	**6223.36**	**6223.53**	**0.034806**	**3.29**	**3.16**	**9.62**	**1.01**
NS18	**16.0000**	**500YR**	**112.60**	**6207.42**	**6209.08**	**6209.08**	**6209.66**	**0.023059**	**6.10**	**18.51**	**16.86**	**1.00**
NS18	**16.0000**	**100YR**	**78.50**	**6207.42**	**6208.82**	**6208.82**	**6209.29**	**0.024809**	**5.51**	**14.24**	**15.24**	**1.00**
NS18	**16.0000**	**10YR**	**30.30**	**6207.42**	**6208.28**	**6208.28**	**6208.58**	**0.028635**	**4.35**	**6.97**	**11.95**	**1.00**
NS18	**16.0000**	**2YR**	**10.40**	**6207.42**	**6207.92**	**6207.92**	**6208.09**	**0.034342**	**3.33**	**3.12**	**9.22**	**1.01**
NS18	**15.0000**	**500YR**	**112.60**	**6191.66**	**6193.24**	**6193.24**	**6193.77**	**0.023523**	**6.08**	**20.53**	**20.75**	**1.02**
NS18	**15.0000**	**100YR**	**78.50**	**6191.66**	**6192.99**	**6192.99**	**6193.43**	**0.024553**	**5.53**	**15.54**	**18.41**	**1.01**
NS18	**15.0000**	**10YR**	**30.30**	**6191.66**	**6192.49**	**6192.49**	**6192.77**	**0.027108**	**4.31**	**7.48**	**13.85**	**0.98**
NS18	**15.0000**	**2YR**	**10.40**	**6191.66**	**6192.14**	**6192.14**	**6192.31**	**0.032169**	**3.27**	**3.27**	**10.32**	**0.98**
NS18	**14.0000**	**500YR**	**112.60**	**6172.79**	**6174.14**	**6173.93**	**6174.37**	**0.010000**	**4.32**	**36.25**	**43.51**	**0.68**
NS18	**14.0000**	**100YR**	**78.50**	**6172.79**	**6173.93**	**6173.74**	**6174.11**	**0.010007**	**3.82**	**27.58**	**38.87**	**0.66**
NS18	**14.0000**	**10YR**	**30.30**	**6172.79**	**6173.52**	**6173.38**	**6173.63**	**0.009998**	**2.75**	**13.54**	**30.14**	**0.61**
NS18	**14.0000**	**2YR**	**10.40**	**6172.79**	**6173.24**	**6173.14**	**6173.30**	**0.010017**	**1.87**	**6.11**	**22.52**	**0.55**

C-2. HEC-RAS Pre-Project FROZEN Condition SUMMARY TABLE

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
NW	100.0000	500YR	527.62	5912.01	5913.65	5913.65	5914.28	0.018861	6.86	95.69	85.19	0.97
NW	100.0000	100YR	398.19	5912.01	5913.41	5913.41	5913.95	0.019578	6.26	76.64	77.08	0.96
NW	100.0000	10YR	235.60	5912.01	5913.04	5913.04	5913.45	0.022595	5.40	50.00	65.30	0.98
NW	100.0000	2YR	120.49	5912.01	5912.71	5912.70	5912.99	0.026412	4.39	30.04	54.61	0.98
NW	99.5000	500YR	527.62	5909.28	5910.91	5910.91	5911.43	0.025187	7.94	111.92	110.04	1.12
NW	99.5000	100YR	398.19	5909.28	5910.73	5910.73	5911.16	0.024345	7.17	92.01	101.54	1.08
NW	99.5000	10YR	235.60	5909.28	5910.41	5910.41	5910.75	0.025289	6.14	62.02	88.70	1.05
NW	99.5000	2YR	120.49	5909.28	5910.11	5910.11	5910.36	0.025982	5.00	37.81	75.98	1.01
NW	99.0000	500YR	527.62	5906.01	5907.86	5907.68	5908.30	0.014145	5.69	108.97	86.71	0.83
NW	99.0000	100YR	398.19	5906.01	5907.61		5907.99	0.014439	5.28	87.86	79.61	0.82
NW	99.0000	10YR	235.60	5906.01	5907.23		5907.52	0.014583	4.52	59.71	69.59	0.79
NW	99.0000	2YR	120.49	5906.01	5906.88		5907.07	0.014069	3.61	37.18	59.93	0.74
NW	98.5000	500YR	527.62	5903.51	5905.54	5905.38	5905.96	0.015642	7.35	130.79	117.66	0.92
NW	98.5000	100YR	398.19	5903.51	5905.32	5905.16	5905.68	0.014952	6.64	106.31	104.69	0.88
NW	98.5000	10YR	235.60	5903.51	5904.95	5904.81	5905.23	0.014521	5.61	71.30	86.28	0.83
NW	98.5000	2YR	120.49	5903.51	5904.56	5904.48	5904.77	0.015130	4.61	41.64	66.93	0.81
NW	98.0000	500YR	527.62	5900.13	5902.97	5902.97	5903.55	0.013063	8.11	123.80	106.62	0.88
NW	98.0000	100YR	398.19	5900.13	5902.66	5902.66	5903.22	0.014073	7.73	92.87	87.46	0.89
NW	98.0000	10YR	235.60	5900.13	5902.12	5902.12	5902.64	0.016111	6.96	54.55	57.86	0.91
NW	98.0000	2YR	120.49	5900.13	5901.60	5901.60	5902.00	0.017802	5.80	29.83	39.08	0.91
NW	97.5000	500YR	527.62	5898.01	5900.78		5901.15	0.007430	5.82	146.73	132.93	0.65
NW	97.5000	100YR	398.19	5898.01	5900.54		5900.86	0.006852	5.22	116.62	117.28	0.62
NW	97.5000	10YR	235.60	5898.01	5900.11		5900.33	0.006029	4.23	75.07	74.45	0.56
NW	97.5000	2YR	120.49	5898.01	5899.63		5899.76	0.005045	3.14	47.38	49.38	0.49
NW	97.0000	500YR	527.62	5896.81	5898.70	5898.63	5899.10	0.025637	8.97	120.77	116.53	1.16
NW	97.0000	100YR	398.19	5896.81	5898.47	5898.45	5898.86	0.027888	8.59	95.80	107.11	1.19
NW	97.0000	10YR	235.60	5896.81	5898.15	5898.15	5898.46	0.029204	7.57	63.57	89.41	1.17
NW	97.0000	2YR	120.49	5896.81	5897.76	5897.76	5898.03	0.034613	6.51	34.68	62.94	1.20
NW	96.5000	500YR	527.62	5894.01	5896.34		5896.67	0.006967	5.30	142.04	101.93	0.62
NW	96.5000	100YR	398.19	5894.01	5896.05		5896.33	0.007002	4.84	114.07	90.37	0.61
NW	96.5000	10YR	235.60	5894.01	5895.64		5895.83	0.006096	3.87	79.98	75.37	0.55
NW	96.5000	2YR	120.49	5894.01	5895.17		5895.30	0.006147	3.06	48.08	59.73	0.52
NW	96.0000	500YR	607.31	5892.01	5894.21	5894.21	5894.80	0.016221	7.77	128.70	107.03	0.94
NW	96.0000	100YR	459.96	5892.01	5893.98	5893.98	5894.50	0.015643	7.07	105.07	99.02	0.91
NW	96.0000	10YR	273.65	5892.01	5893.51	5893.51	5893.98	0.018781	6.41	63.85	76.99	0.95
NW	96.0000	2YR	140.34	5892.01	5893.13	5893.13	5893.46	0.018394	5.13	37.48	59.74	0.89
NW	95.5000	500YR	607.31	5890.01	5891.55		5891.73	0.005227	3.54	183.46	135.81	0.51
NW	95.5000	100YR	459.96	5890.01	5891.31		5891.47	0.005387	3.20	151.77	131.07	0.50
NW	95.5000	10YR	273.65	5890.01	5890.95		5891.06	0.005786	2.68	106.29	123.91	0.49
NW	95.5000	2YR	140.34	5890.01	5890.63		5890.70	0.006453	2.14	67.22	116.58	0.48
NW	95.0000	500YR	607.31	5888.01	5890.05	5889.94	5890.52	0.013178	6.21	134.39	113.18	0.82
NW	95.0000	100YR	459.96	5888.01	5889.82	5889.69	5890.23	0.013200	5.72	108.85	107.47	0.81
NW	95.0000	10YR	273.65	5888.01	5889.45	5889.37	5889.77	0.013403	4.87	71.73	91.03	0.78
NW	95.0000	2YR	140.34	5888.01	5889.09	5889.00	5889.31	0.013280	3.90	42.06	74.74	0.74
NW	94.5000	500YR	607.31	5886.01	5887.85		5888.20	0.010066	5.45	147.84	111.85	0.72
NW	94.5000	100YR	459.96	5886.01	5887.61		5887.91	0.010077	4.95	121.82	107.62	0.70
NW	94.5000	10YR	273.65	5886.01	5887.25		5887.47	0.009765	4.11	84.94	97.53	0.66
NW	94.5000	2YR	140.34	5886.01	5886.88		5887.03	0.009809	3.27	51.86	82.28	0.63
NW	94.0000	500YR	607.31	5884.01	5886.41		5886.76	0.012600	7.08	155.56	114.97	0.84
NW	94.0000	100YR	459.96	5884.01	5886.17		5886.48	0.012361	6.51	128.88	109.87	0.81
NW	94.0000	10YR	273.65	5884.01	5885.74		5886.00	0.013438	5.77	84.68	93.42	0.81
NW	94.0000	2YR	140.34	5884.01	5885.30		5885.51	0.014717	4.84	48.59	71.17	0.81
NW	93.5000	500YR	607.31	5882.01	5884.39	5884.16	5884.68	0.009483	6.41	182.39	143.88	0.74

NW	93.5000	100YR	459.96	5882.01	5884.16	5883.69	5884.43	0.009400	5.97	150.56	140.71	0.72
NW	93.5000	10YR	273.65	5882.01	5883.76	5883.34	5883.97	0.008542	4.96	99.74	104.47	0.66
NW	93.5000	2YR	140.34	5882.01	5883.31	5882.97	5883.46	0.008107	3.95	59.41	77.74	0.61
NW	93.0000	500YR	607.31	5880.01	5881.87	5881.70	5882.24	0.011844	5.91	161.73	157.07	0.78
NW	93.0000	100YR	459.96	5880.01	5881.64	5881.49	5881.97	0.012160	5.46	127.93	139.69	0.78
NW	93.0000	10YR	273.65	5880.01	5881.28	5881.17	5881.55	0.013217	4.76	81.87	114.48	0.77
NW	93.0000	2YR	140.34	5880.01	5880.93		5881.12	0.013093	3.77	47.71	81.18	0.73
NW	92.5000	500YR	607.31	5878.01	5879.75		5879.86	0.006435	4.02	230.73	159.26	0.56
NW	92.5000	100YR	459.96	5878.01	5879.50		5879.60	0.006303	3.55	192.77	151.57	0.54
NW	92.5000	10YR	273.65	5878.01	5879.15		5879.21	0.005853	2.78	140.50	141.32	0.50
NW	92.5000	2YR	140.34	5878.01	5878.78		5878.82	0.005790	2.03	91.36	129.26	0.46
NW	92.0000	500YR	607.31	5875.73	5876.86	5876.67	5877.04	0.020292	5.62	190.30	235.48	0.95
NW	92.0000	100YR	459.96	5875.73	5876.75		5876.89	0.018818	5.02	163.21	230.90	0.89
NW	92.0000	10YR	273.65	5875.73	5876.55		5876.65	0.018410	4.26	117.85	221.70	0.85
NW	92.0000	2YR	140.34	5875.73	5876.38	5876.27	5876.44	0.015569	3.32	80.87	211.43	0.75
NW	91.5000	500YR	607.31	5874.01	5875.20		5875.31	0.004825	2.85	246.68	249.38	0.47
NW	91.5000	100YR	459.96	5874.01	5875.01		5875.11	0.005226	2.63	200.23	242.12	0.47
NW	91.5000	10YR	273.65	5874.01	5874.75		5874.82	0.005488	2.21	139.04	226.77	0.46
NW	91.5000	2YR	140.34	5874.01	5874.50		5874.55	0.006331	1.81	84.45	203.50	0.46
NW	91.0000	500YR	699.31	5872.01	5873.55		5873.81	0.008664	4.55	202.57	195.59	0.65
NW	91.0000	100YR	532.88	5872.01	5873.37		5873.59	0.008150	4.05	168.81	181.71	0.62
NW	91.0000	10YR	318.10	5872.01	5873.04		5873.20	0.008603	3.43	112.62	154.22	0.61
NW	91.0000	2YR	163.05	5872.01	5872.74		5872.84	0.008268	2.66	70.45	129.72	0.56
NW	90.5000	500YR	699.31	5868.01	5869.52	5869.52	5870.12	0.020368	6.68	126.03	109.62	0.99
NW	90.5000	100YR	532.88	5868.01	5869.26	5869.26	5869.81	0.023894	6.39	98.13	100.09	1.04
NW	90.5000	10YR	318.10	5868.01	5868.96	5868.96	5869.35	0.023160	5.27	69.45	91.56	0.98
NW	90.5000	2YR	163.05	5868.01	5868.64	5868.64	5868.91	0.026317	4.30	42.20	80.50	0.98
NW	90.0000	500YR	699.31	5864.61	5866.61	5865.97	5866.68	0.003459	3.44	386.71	322.10	0.43
NW	90.0000	100YR	532.88	5864.61	5866.41	5865.80	5866.47	0.003382	3.17	323.20	309.13	0.42
NW	90.0000	10YR	318.10	5864.61	5866.10	5865.64	5866.14	0.003259	2.74	229.74	290.34	0.40
NW	90.0000	2YR	163.05	5864.61	5865.76	5865.37	5865.80	0.003069	2.24	140.83	234.54	0.37
NW	89.5000	500YR	699.31	5862.01	5862.96	5862.96	5863.28	0.052244	6.43	158.04	240.84	1.39
NW	89.5000	100YR	532.88	5862.01	5862.84	5862.84	5863.11	0.053333	6.05	131.60	233.09	1.38
NW	89.5000	10YR	318.10	5862.01	5862.67	5862.67	5862.87	0.055855	5.41	92.24	216.39	1.37
NW	89.5000	2YR	163.05	5862.01	5862.51	5862.51	5862.65	0.059555	4.75	58.51	201.18	1.36
NW	89.0000	500YR	1206.50	5856.01	5857.84		5857.99	0.003766	3.41	470.51	385.67	0.44
NW	89.0000	100YR	918.25	5856.01	5857.59		5857.72	0.003859	3.12	377.81	348.85	0.44
NW	89.0000	10YR	545.97	5856.01	5857.19		5857.29	0.004021	2.62	250.99	285.15	0.43
NW	89.0000	2YR	279.82	5856.01	5856.83		5856.89	0.003948	2.04	156.38	239.90	0.40
NW	88.5000	500YR	1206.50	5854.01	5856.07		5856.20	0.003179	3.38	522.45	411.26	0.42
NW	88.5000	100YR	918.25	5854.01	5855.82		5855.93	0.003080	3.05	426.57	373.39	0.40
NW	88.5000	10YR	545.97	5854.01	5855.40		5855.48	0.003070	2.55	283.95	301.83	0.38
NW	88.5000	2YR	279.82	5854.01	5854.97		5855.02	0.003342	2.07	166.90	244.01	0.38
NW	88.0000	500YR	1206.50	5852.01	5853.90	5853.90	5854.44	0.019231	7.75	272.21	277.63	1.01
NW	88.0000	100YR	918.25	5852.01	5853.65	5853.65	5854.17	0.021177	7.39	208.33	234.16	1.03
NW	88.0000	10YR	545.97	5852.01	5853.28	5853.28	5853.71	0.022568	6.40	132.60	177.27	1.02
NW	88.0000	2YR	279.82	5852.01	5852.96	5852.96	5853.24	0.020007	4.94	82.42	141.49	0.91
NW	87.5000	500YR	1206.50	5850.01	5852.46		5852.51	0.001582	2.68	884.10	713.47	0.30
NW	87.5000	100YR	918.25	5850.01	5852.24		5852.29	0.001574	2.50	727.54	694.91	0.30
NW	87.5000	10YR	545.97	5850.01	5851.86		5851.90	0.001376	2.07	487.66	530.54	0.27
NW	87.5000	2YR	279.82	5850.01	5851.41		5851.43	0.001316	1.67	284.42	388.71	0.25
NW	87.0000	500YR	1206.50	5847.98	5849.55	5849.55	5849.83	0.025942	7.88	361.79	556.39	1.13
NW	87.0000	100YR	918.25	5847.98	5849.36	5849.36	5849.62	0.026098	7.23	261.55	493.50	1.11
NW	87.0000	10YR	545.97	5847.98	5848.91	5848.91	5849.26	0.045185	7.22	124.61	182.02	1.36
NW	87.0000	2YR	279.82	5847.98	5848.63	5848.63	5848.87	0.048897	5.79	76.66	157.33	1.33

NW2	**110.0000**	**500YR**	**28.51**	**5864.01**	**5864.39**		**5864.41**	**0.003886**	**1.17**	**26.18**	**83.03**	**0.34**
NW2	**110.0000**	**100YR**	**21.47**	**5864.01**	**5864.33**		**5864.35**	**0.003901**	**1.05**	**21.57**	**79.72**	**0.34**
NW2	**110.0000**	**10YR**	**12.38**	**5864.01**	**5864.25**		**5864.26**	**0.003567**	**0.84**	**15.39**	**73.26**	**0.31**
NW2	**110.0000**	**2YR**	**6.10**	**5864.01**	**5864.18**		**5864.18**	**0.003194**	**0.62**	**10.04**	**66.65**	**0.27**
NW2	**109.5000**	**500YR**	**28.51**	**5861.97**	**5862.21**	**5862.21**	**5862.31**	**0.068036**	**3.26**	**12.10**	**64.17**	**1.30**
NW2	**109.5000**	**100YR**	**21.47**	**5861.97**	**5862.18**	**5862.18**	**5862.26**	**0.066721**	**2.94**	**10.14**	**62.20**	**1.26**
NW2	**109.5000**	**10YR**	**12.38**	**5861.97**	**5862.12**	**5862.12**	**5862.19**	**0.097333**	**2.75**	**6.38**	**59.88**	**1.43**
NW2	**109.5000**	**2YR**	**6.10**	**5861.97**	**5862.08**	**5862.08**	**5862.12**	**0.093753**	**2.18**	**4.13**	**58.11**	**1.33**
NW2	**109.0000**	**500YR**	**28.51**	**5858.01**	**5858.77**		**5858.81**	**0.002884**	**1.62**	**23.12**	**50.06**	**0.33**
NW2	**109.0000**	**100YR**	**21.47**	**5858.01**	**5858.68**		**5858.71**	**0.002733**	**1.44**	**18.82**	**45.25**	**0.32**
NW2	**109.0000**	**10YR**	**12.38**	**5858.01**	**5858.53**		**5858.55**	**0.002576**	**1.16**	**12.48**	**35.50**	**0.29**
NW2	**109.0000**	**2YR**	**6.10**	**5858.01**	**5858.38**	**5858.18**	**5858.39**	**0.002426**	**0.88**	**7.59**	**29.17**	**0.27**
NW2	**108.875***	**500YR**	**28.51**	**5857.51**	**5857.97**		**5858.09**	**0.021009**	**2.84**	**10.56**	**32.76**	**0.81**
NW2	**108.875***	**100YR**	**21.47**	**5857.51**	**5857.90**		**5858.01**	**0.021681**	**2.58**	**8.60**	**29.93**	**0.80**
NW2	**108.875***	**10YR**	**12.38**	**5857.51**	**5857.81**		**5857.88**	**0.021776**	**2.12**	**5.88**	**26.58**	**0.76**
NW2	**108.875***	**2YR**	**6.10**	**5857.51**	**5857.72**		**5857.76**	**0.021168**	**1.65**	**3.69**	**21.86**	**0.71**
NW2	**108.75***	**500YR**	**28.51**	**5857.01**	**5857.51**	**5857.41**	**5857.59**	**0.013227**	**2.35**	**12.59**	**34.97**	**0.65**
NW2	**108.75***	**100YR**	**21.47**	**5857.01**	**5857.45**	**5857.35**	**5857.51**	**0.012488**	**2.09**	**10.53**	**32.90**	**0.62**
NW2	**108.75***	**10YR**	**12.38**	**5857.01**	**5857.34**		**5857.38**	**0.013323**	**1.74**	**7.10**	**27.76**	**0.60**
NW2	**108.75***	**2YR**	**6.10**	**5857.01**	**5857.23**		**5857.26**	**0.013652**	**1.40**	**4.36**	**23.90**	**0.58**
NW2	**108.625***	**500YR**	**28.51**	**5856.51**	**5856.91**	**5856.89**	**5857.04**	**0.028377**	**2.91**	**9.82**	**32.03**	**0.91**
NW2	**108.625***	**100YR**	**21.47**	**5856.51**	**5856.85**	**5856.83**	**5856.96**	**0.030222**	**2.71**	**7.93**	**29.17**	**0.92**
NW2	**108.625***	**10YR**	**12.38**	**5856.51**	**5856.77**	**5856.75**	**5856.84**	**0.027782**	**2.20**	**5.62**	**26.46**	**0.84**
NW2	**108.625***	**2YR**	**6.10**	**5856.51**	**5856.69**		**5856.73**	**0.024754**	**1.67**	**3.65**	**23.91**	**0.75**
NW2	**108.5000**	**500YR**	**28.51**	**5856.01**	**5856.53**		**5856.59**	**0.008800**	**1.94**	**14.82**	**38.50**	**0.53**
NW2	**108.5000**	**100YR**	**21.47**	**5856.01**	**5856.47**		**5856.51**	**0.008729**	**1.75**	**12.28**	**34.34**	**0.52**
NW2	**108.5000**	**10YR**	**12.38**	**5856.01**	**5856.33**		**5856.37**	**0.010121**	**1.54**	**8.02**	**30.16**	**0.53**
NW2	**108.5000**	**2YR**	**6.10**	**5856.01**	**5856.22**		**5856.24**	**0.011726**	**1.28**	**4.76**	**26.53**	**0.53**
NW2	**108.0000**	**500YR**	**41.46**	**5853.40**	**5854.15**	**5854.13**	**5854.25**	**0.011332**	**2.94**	**23.46**	**88.68**	**0.65**
NW2	**108.0000**	**100YR**	**31.14**	**5853.40**	**5854.09**	**5854.08**	**5854.18**	**0.011403**	**2.75**	**17.75**	**83.74**	**0.64**
NW2	**108.0000**	**10YR**	**18.07**	**5853.40**	**5853.97**		**5854.04**	**0.010180**	**2.22**	**9.95**	**33.75**	**0.58**
NW2	**108.0000**	**2YR**	**8.92**	**5853.40**	**5853.83**	**5853.73**	**5853.87**	**0.009592**	**1.70**	**5.78**	**25.97**	**0.53**
NW2	**107.5000**	**500YR**	**41.46**	**5852.01**	**5852.39**		**5852.44**	**0.008821**	**1.80**	**23.66**	**69.79**	**0.52**
NW2	**107.5000**	**100YR**	**31.14**	**5852.01**	**5852.33**		**5852.37**	**0.008863**	**1.62**	**19.67**	**67.73**	**0.51**
NW2	**107.5000**	**10YR**	**18.07**	**5852.01**	**5852.24**		**5852.27**	**0.009355**	**1.32**	**13.72**	**63.73**	**0.49**
NW2	**107.5000**	**2YR**	**8.92**	**5852.01**	**5852.17**		**5852.18**	**0.009170**	**1.00**	**8.96**	**60.52**	**0.46**
NW2	**107.0000**	**500YR**	**41.46**	**5848.01**	**5848.78**	**5848.78**	**5849.00**	**0.024874**	**4.62**	**14.54**	**37.95**	**0.97**
NW2	**107.0000**	**100YR**	**31.14**	**5848.01**	**5848.69**	**5848.69**	**5848.89**	**0.025733**	**4.27**	**11.25**	**32.36**	**0.97**
NW2	**107.0000**	**10YR**	**18.07**	**5848.01**	**5848.55**	**5848.55**	**5848.70**	**0.024866**	**3.55**	**7.31**	**26.02**	**0.91**
NW2	**107.0000**	**2YR**	**8.92**	**5848.01**	**5848.40**	**5848.40**	**5848.52**	**0.028130**	**2.92**	**3.94**	**19.08**	**0.91**
NW3	**79.5000**	**500YR**	**1247.90**	**5846.01**	**5848.31**		**5848.45**	**0.004267**	**4.16**	**539.46**	**410.89**	**0.49**
NW3	**79.5000**	**100YR**	**949.40**	**5846.01**	**5848.04**		**5848.16**	**0.004456**	**3.89**	**431.76**	**375.25**	**0.49**
NW3	**79.5000**	**10YR**	**564.03**	**5846.01**	**5847.65**		**5847.75**	**0.004210**	**3.27**	**298.38**	**327.43**	**0.46**
NW3	**79.5000**	**2YR**	**288.73**	**5846.01**	**5847.23**		**5847.32**	**0.005165**	**2.95**	**167.96**	**291.71**	**0.48**
NW3	**79.0000**	**500YR**	**1247.90**	**5844.01**	**5847.18**		**5847.38**	**0.004117**	**4.76**	**451.54**	**291.05**	**0.50**
NW3	**79.0000**	**100YR**	**949.40**	**5844.01**	**5846.82**		**5847.01**	**0.004563**	**4.57**	**350.57**	**262.82**	**0.51**
NW3	**79.0000**	**10YR**	**564.03**	**5844.01**	**5846.18**		**5846.39**	**0.006788**	**4.55**	**200.47**	**206.31**	**0.59**
NW3	**79.0000**	**2YR**	**288.73**	**5844.01**	**5845.58**		**5845.75**	**0.007503**	**3.81**	**106.93**	**120.47**	**0.59**
NW3	**78.5000**	**500YR**	**1247.90**	**5842.01**	**5846.57**		**5846.69**	**0.001411**	**3.67**	**658.91**	**346.50**	**0.31**
NW3	**78.5000**	**100YR**	**949.40**	**5842.01**	**5846.23**		**5846.33**	**0.001284**	**3.31**	**545.01**	**321.69**	**0.29**
NW3	**78.5000**	**10YR**	**564.03**	**5842.01**	**5844.82**		**5845.00**	**0.003382**	**4.00**	**229.38**	**179.02**	**0.44**
NW3	**78.5000**	**2YR**	**288.73**	**5842.01**	**5844.23**		**5844.36**	**0.003094**	**3.20**	**132.16**	**149.50**	**0.41**
NW3	**78.0000**	**500YR**	**1620.20**	**5842.01**	**5846.40**		**5846.47**	**0.000605**	**2.43**	**1008.78**	**411.45**	**0.21**
NW3	**78.0000**	**100YR**	**1227.10**	**5842.01**	**5846.10**		**5846.15**	**0.000477**	**2.06**	**886.17**	**390.01**	**0.18**
NW3	**78.0000**	**10YR**	**727.31**	**5842.01**	**5843.63**		**5843.86**	**0.006483**	**4.04**	**206.56**	**167.27**	**0.57**
NW3	**78.0000**	**2YR**	**368.89**	**5842.01**	**5843.12**		**5843.27**	**0.006615**	**3.15**	**127.76**	**144.69**	**0.54**

NW3	77.5000	500YR	1620.20	5840.01	5846.37	5846.39	0.000207	1.80	1582.77	453.93	0.13
NW3	77.5000	100YR	1227.10	5840.01	5846.07	5846.09	0.000149	1.47	1450.97	438.95	0.11
NW3	77.5000	10YR	727.31	5840.01	5841.96	5842.33	0.009656	5.30	171.18	137.59	0.71
NW3	77.5000	2YR	368.89	5840.01	5841.36	5841.63	0.011226	4.33	98.52	106.48	0.71
NW3	77.0000	500YR	1644.10	5838.01	5846.35	5846.37	0.000109	1.58	2067.76	444.64	0.10
NW3	77.0000	100YR	1246.80	5838.01	5846.06	5846.07	0.000074	1.27	1940.60	431.82	0.08
NW3	77.0000	10YR	738.74	5838.01	5841.15	5841.35	0.003798	4.80	278.84	181.77	0.48
NW3	77.0000	2YR	374.88	5838.01	5840.50	5840.66	0.003523	3.94	169.10	155.93	0.45
NW3	76.5000	500YR	1644.10	5838.01	5846.34	5846.35	0.000075	1.32	2264.36	438.50	0.08
NW3	76.5000	100YR	1246.80	5838.01	5846.05	5846.06	0.000050	1.06	2140.66	429.29	0.07
NW3	76.5000	10YR	738.74	5838.01	5840.57	5840.70	0.002949	3.75	335.00	246.04	0.41
NW3	76.5000	2YR	374.88	5838.01	5839.96	5840.05	0.002752	3.01	192.61	171.33	0.38
NW3	76.0000	500YR	1644.10	5838.01	5846.33	5846.34	0.000051	1.09	2621.37	560.76	0.07
NW3	76.0000	100YR	1246.80	5838.01	5846.05	5846.05	0.000034	0.86	2467.40	535.05	0.05
NW3	76.0000	10YR	738.74	5838.01	5839.80	5840.02	0.005672	4.05	222.80	176.11	0.54
NW3	76.0000	2YR	374.88	5838.01	5839.20	5839.37	0.006708	3.34	127.64	142.15	0.55
NW3	75.5000	500YR	1644.10	5835.60	5846.32	5846.33	0.000024	0.89	3459.06	453.28	0.05
NW3	75.5000	100YR	1246.80	5835.60	5846.04	5846.05	0.000015	0.69	3332.74	445.52	0.04
NW3	75.5000	10YR	738.74	5835.60	5837.36	5837.57	0.015531	6.73	222.75	217.67	0.90
NW3	75.5000	2YR	374.88	5835.60	5837.07	5837.17	0.009286	4.62	163.52	188.44	0.67
NW3	75.0000	500YR	1644.10	5833.31	5846.32	5846.32	0.000011	0.68	4577.82	531.12	0.03
NW3	75.0000	100YR	1246.80	5833.31	5846.04	5846.04	0.000007	0.53	4429.49	527.41	0.03
NW3	75.0000	10YR	738.74	5833.31	5835.23	5835.38	0.007688	5.00	269.39	215.24	0.64
NW3	75.0000	2YR	374.88	5833.31	5834.53	5834.71	0.016015	5.32	131.58	177.73	0.85
NW3	74.5000	500YR	1644.10	5831.30	5846.32	5846.32	0.000008	0.62	5191.70	542.45	0.03
NW3	74.5000	100YR	1246.80	5831.30	5846.04	5846.04	0.000005	0.48	5041.17	535.16	0.02
NW3	74.5000	10YR	738.74	5831.30	5832.91	5833.13	0.015572	6.30	214.74	198.45	0.88
NW3	74.5000	2YR	374.88	5831.30	5832.81	5832.88	0.005261	3.52	196.32	194.63	0.51
NW3	74.0000	500YR	1644.10	5828.71	5846.32	5846.32	0.000002	0.39	8341.60	729.89	0.02
NW3	74.0000	100YR	1246.80	5828.71	5846.04	5846.04	0.000002	0.30	8137.63	728.17	0.01
NW3	74.0000	10YR	738.74	5828.71	5831.05	5831.11	0.002983	3.55	397.99	260.74	0.41
NW3	74.0000	2YR	374.88	5828.71	5830.01	5830.13	0.013530	5.09	152.09	210.11	0.79
NW3	73.5000	500YR	1644.10	5828.01	5846.32	5846.32	0.000001	0.31	10180.37	843.21	0.01
NW3	73.5000	100YR	1246.80	5828.01	5846.04	5846.04	0.000001	0.24	9945.16	841.04	0.01
NW3	73.5000	10YR	738.74	5828.01	5830.94	5830.96	0.000520	1.73	721.14	334.93	0.18
NW3	73.5000	2YR	374.88	5828.01	5829.48	5829.52	0.002227	2.26	277.46	263.59	0.33
NW3	73.375*	500YR	1644.10	5827.56	5846.32	5846.32	0.000001	0.32	10001.12	822.09	0.01
NW3	73.375*	100YR	1246.80	5827.56	5846.04	5846.04	0.000001	0.25	9772.08	818.15	0.01
NW3	73.375*	10YR	738.74	5827.56	5830.88	5830.90	0.000510	1.86	714.26	327.74	0.18
NW3	73.375*	2YR	374.88	5827.56	5829.06	5829.15	0.005098	3.45	195.23	222.95	0.50
NW3	73.25*	500YR	1644.10	5827.12	5846.32	5846.32	0.000001	0.32	9924.55	793.16	0.01
NW3	73.25*	100YR	1246.80	5827.12	5846.04	5846.04	0.000001	0.25	9703.55	789.22	0.01
NW3	73.25*	10YR	738.74	5827.12	5830.87	5830.89	0.000464	1.92	731.78	324.74	0.18
NW3	73.25*	2YR	374.88	5827.12	5828.91	5829.01	0.004838	3.75	191.85	214.72	0.50
NW3	73.125*	500YR	1644.10	5826.67	5846.32	5846.32	0.000001	0.32	9922.60	777.15	0.01
NW3	73.125*	100YR	1246.80	5826.67	5846.04	5846.04	0.000001	0.25	9705.81	775.17	0.01
NW3	73.125*	10YR	738.74	5826.67	5830.85	5830.88	0.000447	2.01	737.75	322.75	0.18
NW3	73.125*	2YR	374.88	5826.67	5828.71	5828.86	0.005699	4.40	172.62	195.02	0.55
NW3	73.0000	500YR	638.13	5826.22	5846.32	5846.32	0.000000	0.13	9950.70	771.81	0.00
NW3	73.0000	100YR	580.14	5826.22	5846.04	5846.04	0.000000	0.12	9735.43	769.77	0.00
NW3	73.0000	10YR	521.65	5826.22	5830.85	5830.86	0.000227	1.52	732.30	322.69	0.13
NW3	73.0000	2YR	340.64	5826.22	5828.50	5828.69	0.006530	4.96	147.68	173.79	0.60
NW3	72.5000	500YR	638.13	5826.01	5846.32	5846.32	0.000000	0.10	11723.94	841.38	0.00
NW3	72.5000	100YR	580.14	5826.01	5846.04	5846.04	0.000000	0.09	11489.25	839.17	0.00
NW3	72.5000	10YR	521.65	5826.01	5830.84	5830.85	0.000079	0.94	1026.23	369.77	0.08

NW3	**72.5000**	**2YR**	**340.64**	**5826.01**	**5827.43**	**5827.24**	**5827.68**	**0.010217**	**4.58**	**106.36**	**127.23**	**0.70**
NW3	**72.0000**	**500YR**	**638.13**	**5824.01**	**5846.32**		**5846.32**	**0.000000**	**0.06**	**17541.76**	**971.01**	**0.00**
NW3	**72.0000**	**100YR**	**580.14**	**5824.01**	**5846.04**		**5846.04**	**0.000000**	**0.06**	**17270.74**	**969.76**	**0.00**
NW3	**72.0000**	**10YR**	**521.65**	**5824.01**	**5830.84**		**5830.84**	**0.000004**	**0.26**	**3559.29**	**772.03**	**0.02**
NW3	**72.0000**	**2YR**	**340.64**	**5824.01**	**5824.90**		**5824.97**	**0.005769**	**2.60**	**180.92**	**235.67**	**0.49**
NW3	**71.5000**	**500YR**	**638.13**	**5822.01**	**5846.32**		**5846.32**	**0.000000**	**0.04**	**27620.33**	**1372.32**	**0.00**
NW3	**71.5000**	**100YR**	**580.14**	**5822.01**	**5846.04**		**5846.04**	**0.000000**	**0.04**	**27237.23**	**1371.01**	**0.00**
NW3	**71.5000**	**10YR**	**521.65**	**5822.01**	**5830.84**		**5830.84**	**0.000001**	**0.13**	**7351.59**	**1189.19**	**0.01**
NW3	**71.5000**	**2YR**	**340.64**	**5822.01**	**5823.05**	**5823.05**	**5823.32**	**0.018235**	**4.76**	**103.26**	**193.42**	**0.87**
NW4	**69.5000**	**500YR**	**10035.00**	**5852.01**	**5860.96**		**5861.38**	**0.003572**	**9.25**	**2245.85**	**480.09**	**0.55**
NW4	**69.5000**	**100YR**	**7695.90**	**5852.01**	**5860.03**		**5860.44**	**0.003961**	**9.03**	**1808.65**	**458.23**	**0.57**
NW4	**69.5000**	**10YR**	**4740.10**	**5852.01**	**5858.57**		**5858.99**	**0.005204**	**9.01**	**1172.64**	**411.37**	**0.63**
NW4	**69.5000**	**2YR**	**2480.30**	**5852.01**	**5857.16**		**5857.62**	**0.006875**	**8.76**	**656.10**	**332.36**	**0.70**
NW4	**69.0000**	**500YR**	**10035.00**	**5852.01**	**5860.44**		**5860.78**	**0.002336**	**7.26**	**2473.77**	**456.06**	**0.45**
NW4	**69.0000**	**100YR**	**7695.90**	**5852.01**	**5859.51**		**5859.79**	**0.002343**	**6.70**	**2057.62**	**433.25**	**0.44**
NW4	**69.0000**	**10YR**	**4740.10**	**5852.01**	**5857.97**		**5858.21**	**0.002621**	**6.04**	**1411.12**	**388.25**	**0.45**
NW4	**69.0000**	**2YR**	**2480.30**	**5852.01**	**5856.37**		**5856.58**	**0.003472**	**5.58**	**819.52**	**350.89**	**0.49**
NW4	**68.5000**	**500YR**	**10083.00**	**5850.01**	**5859.51**		**5860.10**	**0.003789**	**10.23**	**2002.63**	**391.19**	**0.59**
NW4	**68.5000**	**100YR**	**7739.90**	**5850.01**	**5858.61**		**5859.13**	**0.003677**	**9.42**	**1662.80**	**363.27**	**0.57**
NW4	**68.5000**	**10YR**	**4760.70**	**5850.01**	**5857.17**		**5857.55**	**0.003227**	**7.81**	**1190.59**	**298.78**	**0.52**
NW4	**68.5000**	**2YR**	**2495.40**	**5850.01**	**5855.62**		**5855.89**	**0.002855**	**6.24**	**768.05**	**249.40**	**0.47**
NW4	**68.4166***	**500YR**	**10083.00**	**5849.34**	**5856.92**	**5856.51**	**5858.43**	**0.011850**	**15.51**	**1273.20**	**306.96**	**1.00**
NW4	**68.4166***	**100YR**	**7739.90**	**5849.34**	**5856.12**	**5855.75**	**5857.49**	**0.011979**	**14.47**	**1038.45**	**281.56**	**0.98**
NW4	**68.4166***	**10YR**	**4760.70**	**5849.34**	**5854.85**	**5854.67**	**5856.03**	**0.012490**	**12.85**	**708.18**	**242.54**	**0.97**
NW4	**68.4166***	**2YR**	**2495.40**	**5849.34**	**5853.53**	**5853.38**	**5854.48**	**0.012880**	**10.86**	**414.70**	**178.59**	**0.94**
NW4	**68.3333***	**500YR**	**10083.00**	**5848.68**	**5856.29**	**5855.95**	**5857.91**	**0.012288**	**15.80**	**1246.60**	**304.91**	**1.01**
NW4	**68.3333***	**100YR**	**7739.90**	**5848.68**	**5855.47**	**5855.22**	**5856.95**	**0.012651**	**14.83**	**1005.80**	**276.92**	**1.01**
NW4	**68.3333***	**10YR**	**4760.70**	**5848.68**	**5854.27**	**5854.17**	**5855.49**	**0.012415**	**12.89**	**698.26**	**239.02**	**0.97**
NW4	**68.3333***	**2YR**	**2495.40**	**5848.68**	**5852.88**	**5852.88**	**5853.90**	**0.013622**	**11.13**	**401.38**	**177.84**	**0.97**
NW4	**68.25***	**500YR**	**10083.00**	**5848.01**	**5855.70**	**5855.44**	**5857.37**	**0.012348**	**15.88**	**1232.85**	**303.61**	**1.02**
NW4	**68.25***	**100YR**	**7739.90**	**5848.01**	**5854.90**	**5854.64**	**5856.41**	**0.012453**	**14.80**	**999.34**	**274.64**	**1.00**
NW4	**68.25***	**10YR**	**4760.70**	**5848.01**	**5853.61**	**5853.57**	**5854.93**	**0.013156**	**13.22**	**671.94**	**234.11**	**0.99**
NW4	**68.25***	**2YR**	**2495.40**	**5848.01**	**5852.28**	**5852.28**	**5853.31**	**0.013362**	**11.07**	**398.30**	**177.51**	**0.96**
NW4	**68.1666***	**500YR**	**10083.00**	**5847.34**	**5855.03**	**5854.88**	**5856.82**	**0.012996**	**16.22**	**1197.21**	**300.33**	**1.04**
NW4	**68.1666***	**100YR**	**7739.90**	**5847.34**	**5854.26**	**5854.13**	**5855.86**	**0.012862**	**15.01**	**975.28**	**271.78**	**1.02**
NW4	**68.1666***	**10YR**	**4760.70**	**5847.34**	**5852.94**	**5852.94**	**5854.35**	**0.013741**	**13.43**	**647.68**	**226.33**	**1.01**
NW4	**68.1666***	**2YR**	**2495.40**	**5847.34**	**5851.60**	**5851.60**	**5852.70**	**0.013996**	**11.24**	**383.96**	**173.95**	**0.98**
NW4	**68.0833***	**500YR**	**10083.00**	**5846.68**	**5854.51**	**5854.33**	**5856.27**	**0.012360**	**15.93**	**1208.23**	**301.68**	**1.01**
NW4	**68.0833***	**100YR**	**7739.90**	**5846.68**	**5853.61**	**5853.55**	**5855.29**	**0.013258**	**15.17**	**950.98**	**267.58**	**1.03**
NW4	**68.0833***	**10YR**	**4760.70**	**5846.68**	**5852.22**	**5852.22**	**5853.72**	**0.014691**	**13.69**	**616.15**	**211.46**	**1.04**
NW4	**68.0833***	**2YR**	**2495.40**	**5846.68**	**5850.92**	**5850.92**	**5852.05**	**0.014438**	**11.28**	**371.33**	**168.19**	**0.99**
NW4	**68.0000**	**500YR**	**10083.00**	**5846.01**	**5853.66**	**5853.66**	**5855.69**	**0.014329**	**16.78**	**1123.93**	**289.22**	**1.08**
NW4	**68.0000**	**100YR**	**7739.90**	**5846.01**	**5852.91**	**5852.91**	**5854.71**	**0.013977**	**15.44**	**917.49**	**261.51**	**1.05**
NW4	**68.0000**	**10YR**	**4760.70**	**5846.01**	**5851.59**	**5851.59**	**5853.08**	**0.014348**	**13.51**	**610.68**	**205.59**	**1.03**
NW4	**68.0000**	**2YR**	**2495.40**	**5846.01**	**5850.17**	**5850.17**	**5851.36**	**0.015531**	**11.45**	**352.50**	**158.49**	**1.02**
NW4	**67.875***	**500YR**	**10083.00**	**5845.51**	**5853.05**	**5853.05**	**5854.96**	**0.014062**	**16.46**	**1153.33**	**298.88**	**1.07**
NW4	**67.875***	**100YR**	**7739.90**	**5845.51**	**5852.23**	**5852.23**	**5854.00**	**0.014532**	**15.46**	**922.66**	**266.81**	**1.07**
NW4	**67.875***	**10YR**	**4760.70**	**5845.51**	**5851.00**	**5851.00**	**5852.44**	**0.014538**	**13.45**	**627.53**	**217.76**	**1.03**
NW4	**67.875***	**2YR**	**2495.40**	**5845.51**	**5849.71**	**5849.71**	**5850.82**	**0.014758**	**11.23**	**375.00**	**172.36**	**0.99**
NW4	**67.75***	**500YR**	**10083.00**	**5845.01**	**5852.38**	**5852.38**	**5854.26**	**0.014526**	**16.48**	**1162.01**	**306.31**	**1.09**
NW4	**67.75***	**100YR**	**7739.90**	**5845.01**	**5851.63**	**5851.63**	**5853.33**	**0.014597**	**15.34**	**943.11**	**276.45**	**1.07**
NW4	**67.75***	**10YR**	**4760.70**	**5845.01**	**5850.50**	**5850.50**	**5851.86**	**0.014086**	**13.23**	**655.94**	**233.33**	**1.02**
NW4	**67.75***	**2YR**	**2495.40**	**5845.01**	**5849.29**	**5849.29**	**5850.33**	**0.013775**	**10.99**	**399.98**	**188.28**	**0.96**
NW4	**67.625***	**500YR**	**10083.00**	**5844.51**	**5851.79**	**5851.79**	**5853.61**	**0.014616**	**16.39**	**1188.75**	**320.25**	**1.09**
NW4	**67.625***	**100YR**	**7739.90**	**5844.51**	**5851.11**	**5851.11**	**5852.71**	**0.014128**	**15.06**	**980.67**	**292.09**	**1.05**

NW4	**67.625***	**10YR**	**4760.70**	**5844.51**	**5850.03**	**5850.03**	**5851.31**	**0.013605**	**13.04**	**686.30**	**251.30**	**1.00**
NW4	**67.625***	**2YR**	**2495.40**	**5844.51**	**5848.91**	**5848.91**	**5849.88**	**0.012640**	**10.72**	**429.01**	**209.69**	**0.93**
NW4	**67.5000**	**500YR**	**10083.00**	**5844.01**	**5851.28**	**5851.28**	**5852.98**	**0.014244**	**16.14**	**1240.26**	**344.20**	**1.08**
NW4	**67.5000**	**100YR**	**7739.90**	**5844.01**	**5850.59**	**5850.59**	**5852.13**	**0.014087**	**14.98**	**1014.56**	**313.43**	**1.05**
NW4	**67.5000**	**10YR**	**4760.70**	**5844.01**	**5849.58**	**5849.58**	**5850.80**	**0.013072**	**12.84**	**718.87**	**271.80**	**0.98**
NW4	**67.5000**	**2YR**	**2495.40**	**5844.01**	**5848.62**	**5848.57**	**5849.46**	**0.010415**	**10.04**	**477.32**	**234.42**	**0.85**
NW4	**67.0000**	**500YR**	**10083.00**	**5844.01**	**5849.35**		**5850.04**	**0.008310**	**10.27**	**1779.33**	**525.54**	**0.79**
NW4	**67.0000**	**100YR**	**7739.90**	**5844.01**	**5848.80**		**5849.40**	**0.008174**	**9.45**	**1492.31**	**506.61**	**0.77**
NW4	**67.0000**	**10YR**	**4760.70**	**5844.01**	**5848.18**		**5848.56**	**0.006060**	**7.41**	**1184.00**	**486.38**	**0.64**
NW4	**67.0000**	**2YR**	**2495.40**	**5844.01**	**5847.26**		**5847.54**	**0.005811**	**6.13**	**759.29**	**434.98**	**0.61**
NW4	**66.5000**	**500YR**	**10083.00**	**5842.01**	**5847.30**		**5847.83**	**0.005766**	**8.53**	**2119.19**	**653.28**	**0.66**
NW4	**66.5000**	**100YR**	**7739.90**	**5842.01**	**5846.75**		**5847.22**	**0.005683**	**7.87**	**1769.87**	**626.35**	**0.64**
NW4	**66.5000**	**10YR**	**4760.70**	**5842.01**	**5845.32**		**5845.97**	**0.011320**	**8.72**	**941.49**	**483.17**	**0.85**
NW4	**66.5000**	**2YR**	**2495.40**	**5842.01**	**5844.45**	**5844.28**	**5844.96**	**0.011931**	**7.30**	**563.04**	**390.74**	**0.83**
NW4	**66.0000**	**500YR**	**10083.00**	**5840.01**	**5846.75**		**5847.08**	**0.001803**	**5.62**	**2713.53**	**635.31**	**0.38**
NW4	**66.0000**	**100YR**	**7739.90**	**5840.01**	**5846.34**		**5846.58**	**0.001374**	**4.70**	**2457.75**	**608.60**	**0.33**
NW4	**66.0000**	**10YR**	**4760.70**	**5840.01**	**5843.29**		**5843.90**	**0.007069**	**6.88**	**906.34**	**405.33**	**0.67**
NW4	**66.0000**	**2YR**	**2495.40**	**5840.01**	**5842.33**		**5842.76**	**0.007390**	**5.58**	**550.99**	**333.99**	**0.65**
NW4	**65.5000**	**500YR**	**11231.00**	**5836.92**	**5846.54**		**5846.63**	**0.000717**	**4.49**	**5103.77**	**933.69**	**0.26**
NW4	**65.5000**	**100YR**	**8605.10**	**5836.92**	**5846.19**		**5846.25**	**0.000503**	**3.67**	**4778.23**	**907.01**	**0.21**
NW4	**65.5000**	**10YR**	**5289.70**	**5836.92**	**5841.55**		**5841.77**	**0.004663**	**7.01**	**1498.73**	**529.88**	**0.58**
NW4	**65.5000**	**2YR**	**2775.40**	**5836.92**	**5840.47**		**5840.62**	**0.004683**	**5.88**	**965.35**	**461.33**	**0.55**
NW4	**65.0000**	**500YR**	**11231.00**	**5836.01**	**5846.39**		**5846.46**	**0.000381**	**3.43**	**5958.55**	**827.25**	**0.19**
NW4	**65.0000**	**100YR**	**8605.10**	**5836.01**	**5846.09**		**5846.13**	**0.000257**	**2.76**	**5705.56**	**825.42**	**0.15**
NW4	**65.0000**	**10YR**	**5289.70**	**5836.01**	**5840.01**		**5840.25**	**0.004628**	**6.25**	**1466.92**	**521.82**	**0.56**
NW4	**65.0000**	**2YR**	**2775.40**	**5836.01**	**5839.06**		**5839.21**	**0.004018**	**4.83**	**994.53**	**472.79**	**0.50**
NW4	**64.5000**	**500YR**	**11231.00**	**5834.01**	**5846.36**		**5846.39**	**0.000127**	**2.22**	**8985.58**	**1033.67**	**0.11**
NW4	**64.5000**	**100YR**	**8605.10**	**5834.01**	**5846.06**		**5846.08**	**0.000083**	**1.77**	**8681.95**	**1032.23**	**0.09**
NW4	**64.5000**	**10YR**	**5289.70**	**5834.01**	**5837.65**		**5838.29**	**0.010175**	**8.75**	**1079.94**	**538.22**	**0.81**
NW4	**64.5000**	**2YR**	**2775.40**	**5834.01**	**5836.69**	**5836.60**	**5837.27**	**0.012316**	**7.81**	**604.15**	**445.68**	**0.85**
NW4	**64.0000**	**500YR**	**11231.00**	**5830.01**	**5846.33**		**5846.36**	**0.000076**	**2.07**	**10134.36**	**902.35**	**0.09**
NW4	**64.0000**	**100YR**	**8605.10**	**5830.01**	**5846.05**		**5846.06**	**0.000048**	**1.63**	**9877.40**	**899.93**	**0.07**
NW4	**64.0000**	**10YR**	**5289.70**	**5830.01**	**5835.18**	**5834.45**	**5835.63**	**0.006862**	**9.11**	**1262.66**	**509.74**	**0.71**
NW4	**64.0000**	**2YR**	**2775.40**	**5830.01**	**5834.18**		**5834.52**	**0.006232**	**7.51**	**799.10**	**419.33**	**0.65**
NW4	**63.5000**	**500YR**	**11231.00**	**5828.01**	**5846.32**		**5846.34**	**0.000038**	**1.58**	**12455.44**	**910.08**	**0.07**
NW4	**63.5000**	**100YR**	**8605.10**	**5828.01**	**5846.04**		**5846.05**	**0.000024**	**1.24**	**12199.67**	**908.73**	**0.05**
NW4	**63.5000**	**10YR**	**5289.70**	**5828.01**	**5832.39**		**5833.01**	**0.010543**	**9.93**	**1141.55**	**586.51**	**0.85**
NW4	**63.5000**	**2YR**	**2775.40**	**5828.01**	**5831.53**		**5832.06**	**0.010305**	**8.45**	**682.67**	**458.39**	**0.81**
NW4	**63.0000**	**500YR**	**11231.00**	**5826.01**	**5846.32**		**5846.33**	**0.000020**	**1.22**	**15730.67**	**1030.89**	**0.05**
NW4	**63.0000**	**100YR**	**8605.10**	**5826.01**	**5846.04**		**5846.05**	**0.000012**	**0.95**	**15441.74**	**1030.89**	**0.04**
NW4	**63.0000**	**10YR**	**5289.70**	**5826.01**	**5831.14**		**5831.51**	**0.004148**	**6.83**	**1443.28**	**567.75**	**0.55**
NW4	**63.0000**	**2YR**	**2775.40**	**5826.01**	**5829.71**	**5829.38**	**5830.17**	**0.006780**	**6.91**	**706.53**	**426.91**	**0.66**
NW4	**62.5000**	**500YR**	**11231.00**	**5824.01**	**5846.32**		**5846.32**	**0.000016**	**1.16**	**16405.39**	**925.19**	**0.04**
NW4	**62.5000**	**100YR**	**8605.10**	**5824.01**	**5846.04**		**5846.04**	**0.000010**	**0.91**	**16147.89**	**925.19**	**0.03**
NW4	**62.5000**	**10YR**	**5289.70**	**5824.01**	**5830.84**		**5830.92**	**0.000904**	**3.90**	**2673.49**	**695.76**	**0.27**
NW4	**62.5000**	**2YR**	**2775.40**	**5824.01**	**5827.93**	**5827.44**	**5828.23**	**0.005748**	**6.67**	**874.88**	**521.55**	**0.61**
NW4	**62.0000**	**500YR**	**11231.00**	**5822.01**	**5846.32**		**5846.32**	**0.000005**	**0.70**	**26289.33**	**1251.52**	**0.03**
NW4	**62.0000**	**100YR**	**8605.10**	**5822.01**	**5846.04**		**5846.04**	**0.000003**	**0.54**	**25941.00**	**1251.52**	**0.02**
NW4	**62.0000**	**10YR**	**5289.70**	**5822.01**	**5830.83**		**5830.84**	**0.000076**	**1.36**	**7098.94**	**1176.79**	**0.08**
NW4	**62.0000**	**2YR**	**2775.40**	**5822.01**	**5823.84**	**5823.84**	**5824.47**	**0.034333**	**9.61**	**474.98**	**369.82**	**1.32**
NW5	**59.5000**	**500YR**	**8888.50**	**5818.15**	**5846.31**		**5846.32**	**0.000010**	**1.07**	**15364.04**	**738.75**	**0.04**
NW5	**59.5000**	**100YR**	**7266.20**	**5818.15**	**5846.04**		**5846.04**	**0.000007**	**0.88**	**15159.13**	**736.24**	**0.03**
NW5	**59.5000**	**10YR**	**5273.30**	**5818.15**	**5830.82**		**5830.84**	**0.000127**	**2.27**	**4817.30**	**634.10**	**0.11**
NW5	**59.5000**	**2YR**	**3047.10**	**5818.15**	**5822.94**		**5823.11**	**0.004104**	**6.74**	**971.46**	**361.93**	**0.54**
NW5	**59.0000**	**500YR**	**8888.50**	**5818.01**	**5846.31**		**5846.32**	**0.000006**	**0.86**	**17008.35**	**784.53**	**0.03**

NW5	**59.0000**	**100YR**	**7266.20**	**5818.01**	**5846.04**		**5846.04**	**0.000004**	**0.71**	**16791.07**	**782.38**	**0.02**
NW5	**59.0000**	**10YR**	**5273.30**	**5818.01**	**5830.80**		**5830.82**	**0.000068**	**1.67**	**5585.98**	**696.17**	**0.08**
NW5	**59.0000**	**2YR**	**3047.10**	**5818.01**	**5822.02**		**5822.26**	**0.002770**	**4.92**	**966.64**	**375.10**	**0.43**
NW5	**58.5000**	**500YR**	**8888.50**	**5816.01**	**5846.31**		**5846.32**	**0.000003**	**0.67**	**22565.32**	**957.91**	**0.02**
NW5	**58.5000**	**100YR**	**7266.20**	**5816.01**	**5846.04**		**5846.04**	**0.000002**	**0.55**	**22300.05**	**954.99**	**0.02**
NW5	**58.5000**	**10YR**	**5273.30**	**5816.01**	**5830.79**		**5830.80**	**0.000025**	**1.11**	**8570.67**	**855.60**	**0.05**
NW5	**58.5000**	**2YR**	**3047.10**	**5816.01**	**5821.82**		**5821.89**	**0.000657**	**3.06**	**1830.28**	**541.13**	**0.22**
NW5	**58.0000**	**500YR**	**8888.50**	**5814.01**	**5846.31**		**5846.31**	**0.000003**	**0.63**	**25438.21**	**1091.76**	**0.02**
NW5	**58.0000**	**100YR**	**7266.20**	**5814.01**	**5846.04**		**5846.04**	**0.000002**	**0.52**	**25135.49**	**1087.02**	**0.02**
NW5	**58.0000**	**10YR**	**5273.30**	**5814.01**	**5830.79**		**5830.79**	**0.000018**	**1.01**	**9963.08**	**921.00**	**0.04**
NW5	**58.0000**	**2YR**	**3047.10**	**5814.01**	**5821.73**		**5821.76**	**0.000251**	**2.27**	**2604.31**	**580.91**	**0.15**
NW5	**57.5000**	**500YR**	**8933.30**	**5812.01**	**5846.31**		**5846.31**	**0.000003**	**0.65**	**24720.19**	**1121.26**	**0.02**
NW5	**57.5000**	**100YR**	**7302.00**	**5812.01**	**5846.03**		**5846.04**	**0.000002**	**0.54**	**24410.42**	**1116.56**	**0.02**
NW5	**57.5000**	**10YR**	**5300.20**	**5812.01**	**5830.78**		**5830.79**	**0.000017**	**1.05**	**9783.38**	**848.06**	**0.04**
NW5	**57.5000**	**2YR**	**3063.60**	**5812.01**	**5821.68**		**5821.70**	**0.000151**	**1.96**	**2918.29**	**503.47**	**0.11**
NW5	**57.0000**	**500YR**	**8933.30**	**5812.01**	**5846.31**		**5846.31**	**0.000002**	**0.57**	**26903.06**	**1107.39**	**0.02**
NW5	**57.0000**	**100YR**	**7302.00**	**5812.01**	**5846.03**		**5846.04**	**0.000001**	**0.47**	**26597.02**	**1107.39**	**0.01**
NW5	**57.0000**	**10YR**	**5300.20**	**5812.01**	**5830.78**		**5830.79**	**0.000010**	**0.84**	**10708.19**	**794.92**	**0.03**
NW5	**57.0000**	**2YR**	**3063.60**	**5812.01**	**5821.66**		**5821.67**	**0.000066**	**1.37**	**3850.73**	**625.63**	**0.08**
NW5	**56.5000**	**500YR**	**8961.40**	**5808.01**	**5846.31**		**5846.31**	**0.000002**	**0.53**	**31365.83**	**1165.82**	**0.02**
NW5	**56.5000**	**100YR**	**7324.60**	**5808.01**	**5846.03**		**5846.04**	**0.000001**	**0.44**	**31043.65**	**1165.82**	**0.01**
NW5	**56.5000**	**10YR**	**5317.70**	**5808.01**	**5830.78**		**5830.78**	**0.000008**	**0.82**	**13340.69**	**1113.46**	**0.03**
NW5	**56.5000**	**2YR**	**3073.40**	**5808.01**	**5821.65**		**5821.65**	**0.000048**	**1.44**	**5036.12**	**818.08**	**0.07**
NW5	**56.0000**	**500YR**	**12448.00**	**5806.02**	**5846.31**		**5846.31**	**0.000002**	**0.56**	**40475.34**	**1364.52**	**0.02**
NW5	**56.0000**	**100YR**	**10094.00**	**5806.02**	**5846.03**		**5846.03**	**0.000001**	**0.46**	**40098.23**	**1364.52**	**0.01**
NW5	**56.0000**	**10YR**	**7125.30**	**5806.02**	**5830.78**		**5830.78**	**0.000006**	**0.77**	**19281.30**	**1364.52**	**0.03**
NW5	**56.0000**	**2YR**	**4087.50**	**5806.02**	**5821.63**		**5821.64**	**0.000037**	**1.38**	**7453.21**	**1178.17**	**0.06**
W1	**49.5000**	**500YR**	**2691.20**	**5989.65**	**5994.28**	**5994.28**	**5995.94**	**0.021943**	**14.90**	**297.65**	**91.30**	**1.24**
W1	**49.5000**	**100YR**	**1968.10**	**5989.65**	**5993.53**	**5993.53**	**5994.98**	**0.023547**	**13.66**	**232.11**	**83.48**	**1.25**
W1	**49.5000**	**10YR**	**1104.20**	**5989.65**	**5992.49**	**5992.49**	**5993.56**	**0.025648**	**11.44**	**150.46**	**72.94**	**1.23**
W1	**49.5000**	**2YR**	**587.62**	**5989.65**	**5991.63**	**5991.63**	**5992.42**	**0.029696**	**9.52**	**92.24**	**62.63**	**1.24**
W1	**49.0000**	**500YR**	**2691.20**	**5980.99**	**5985.07**	**5985.07**	**5986.54**	**0.030343**	**16.40**	**296.30**	**102.08**	**1.44**
W1	**49.0000**	**100YR**	**1968.10**	**5980.99**	**5984.44**	**5984.44**	**5985.69**	**0.031570**	**14.93**	**234.43**	**93.87**	**1.43**
W1	**49.0000**	**10YR**	**1104.20**	**5980.99**	**5983.53**	**5983.53**	**5984.45**	**0.034409**	**12.65**	**153.53**	**83.39**	**1.41**
W1	**49.0000**	**2YR**	**587.62**	**5980.99**	**5982.85**	**5982.85**	**5983.49**	**0.035636**	**10.43**	**99.78**	**76.23**	**1.36**
W1	**48.5000**	**500YR**	**2691.20**	**5972.01**	**5976.68**	**5976.68**	**5978.07**	**0.018382**	**13.64**	**340.67**	**116.26**	**1.13**
W1	**48.5000**	**100YR**	**1968.10**	**5972.01**	**5976.11**	**5976.11**	**5977.28**	**0.017948**	**12.33**	**276.68**	**111.09**	**1.10**
W1	**48.5000**	**10YR**	**1104.20**	**5972.01**	**5975.29**	**5975.29**	**5976.13**	**0.016842**	**10.21**	**188.63**	**101.42**	**1.02**
W1	**48.5000**	**2YR**	**587.62**	**5972.01**	**5974.64**	**5974.62**	**5975.23**	**0.014731**	**8.18**	**126.17**	**92.96**	**0.92**
W1	**48.0000**	**500YR**	**2691.20**	**5964.02**	**5968.44**	**5968.44**	**5969.77**	**0.022359**	**13.79**	**333.71**	**122.00**	**1.21**
W1	**48.0000**	**100YR**	**1968.10**	**5964.02**	**5967.93**	**5967.93**	**5969.02**	**0.021939**	**12.46**	**272.28**	**116.30**	**1.18**
W1	**48.0000**	**10YR**	**1104.20**	**5964.02**	**5967.22**	**5967.22**	**5967.97**	**0.020138**	**10.25**	**191.45**	**111.16**	**1.08**
W1	**48.0000**	**2YR**	**587.62**	**5964.02**	**5965.98**	**5965.98**	**5968.54**	**0.114888**	**16.55**	**60.09**	**73.68**	**2.35**
W1	**47.5000**	**500YR**	**2691.20**	**5956.02**	**5961.13**	**5961.13**	**5962.61**	**0.016693**	**13.15**	**342.41**	**118.52**	**1.08**
W1	**47.5000**	**100YR**	**1968.10**	**5956.02**	**5960.42**	**5960.42**	**5961.74**	**0.017756**	**12.13**	**263.88**	**104.57**	**1.09**
W1	**47.5000**	**10YR**	**1104.20**	**5956.02**	**5959.53**	**5959.53**	**5960.47**	**0.016895**	**9.94**	**177.00**	**91.70**	**1.01**
W1	**47.5000**	**2YR**	**587.62**	**5956.02**	**5958.85**	**5958.85**	**5959.50**	**0.015359**	**7.96**	**116.66**	**84.05**	**0.93**
W1	**47.25**		**Lat Struct**									
W1	**47.0000**	**500YR**	**235.02**	**5942.10**	**5951.85**	**5945.79**	**5951.88**	**0.000285**	**1.50**	**218.73**	**97.48**	**0.12**
W1	**47.0000**	**100YR**	**225.51**	**5942.10**	**5951.73**	**5945.70**	**5951.75**	**0.000294**	**1.50**	**207.07**	**94.29**	**0.12**
W1	**47.0000**	**10YR**	**213.06**	**5942.10**	**5951.59**	**5945.58**	**5951.62**	**0.000300**	**1.48**	**194.46**	**90.96**	**0.12**
W1	**47.0000**	**2YR**	**204.19**	**5942.10**	**5951.45**	**5945.49**	**5951.48**	**0.000316**	**1.49**	**181.78**	**87.31**	**0.12**
W1	**46.75**		**Culvert**									
W1	**46.5000**	**500YR**	**235.02**	**5938.06**	**5942.77**	**5942.77**	**5943.63**	**0.026749**	**7.44**	**31.66**	**20.52**	**1.00**

W1	**46.5000**	**100YR**	**225.51**	**5938.06**	**5942.70**	**5942.70**	**5943.56**	**0.027852**	**7.44**	**30.33**	**18.69**	**1.01**
W1	**46.5000**	**10YR**	**213.06**	**5938.06**	**5942.64**	**5942.64**	**5943.47**	**0.027674**	**7.30**	**29.21**	**17.84**	**1.00**
W1	**46.5000**	**2YR**	**204.19**	**5938.06**	**5942.56**	**5942.56**	**5943.40**	**0.028239**	**7.36**	**27.75**	**16.77**	**1.01**
W1	**46.0000**	**500YR**	**235.02**	**5935.43**	**5936.46**	**5936.46**	**5936.74**	**0.040991**	**7.55**	**61.24**	**98.87**	**1.33**
W1	**46.0000**	**100YR**	**225.51**	**5935.43**	**5936.44**	**5936.44**	**5936.72**	**0.040502**	**7.44**	**59.89**	**98.73**	**1.32**
W1	**46.0000**	**10YR**	**213.06**	**5935.43**	**5936.42**	**5936.42**	**5936.69**	**0.041057**	**7.37**	**57.53**	**98.48**	**1.32**
W1	**46.0000**	**2YR**	**204.19**	**5935.43**	**5936.41**	**5936.41**	**5936.67**	**0.038931**	**7.15**	**56.96**	**98.42**	**1.28**
W1	**45.5000**	**500YR**	**235.02**	**5922.01**	**5922.93**	**5922.93**	**5923.15**	**0.027343**	**5.26**	**77.01**	**154.36**	**1.04**
W1	**45.5000**	**100YR**	**225.51**	**5922.01**	**5922.91**	**5922.91**	**5923.13**	**0.027473**	**5.21**	**74.83**	**154.15**	**1.04**
W1	**45.5000**	**10YR**	**213.06**	**5922.01**	**5922.91**	**5922.91**	**5923.11**	**0.024977**	**4.95**	**74.37**	**154.11**	**0.99**
W1	**45.5000**	**2YR**	**204.19**	**5922.01**	**5922.90**	**5922.90**	**5923.09**	**0.024481**	**4.86**	**72.79**	**153.95**	**0.98**
W1	**45.0000**	**500YR**	**235.02**	**5911.54**	**5913.23**	**5913.23**	**5913.80**	**0.021746**	**7.21**	**46.66**	**43.07**	**1.03**
W1	**45.0000**	**100YR**	**225.51**	**5911.54**	**5913.20**	**5913.20**	**5913.75**	**0.021952**	**7.13**	**45.13**	**42.58**	**1.03**
W1	**45.0000**	**10YR**	**213.06**	**5911.54**	**5913.15**	**5913.15**	**5913.69**	**0.021959**	**7.00**	**43.32**	**41.99**	**1.03**
W1	**45.0000**	**2YR**	**204.19**	**5911.54**	**5913.12**	**5913.12**	**5913.65**	**0.022254**	**6.92**	**41.81**	**41.49**	**1.03**
W1	**44.5000**	**500YR**	**235.02**	**5896.01**	**5897.72**	**5897.72**	**5898.34**	**0.018586**	**6.63**	**41.38**	**36.18**	**0.95**
W1	**44.5000**	**100YR**	**225.51**	**5896.01**	**5897.68**	**5897.68**	**5898.29**	**0.018844**	**6.56**	**39.96**	**35.67**	**0.95**
W1	**44.5000**	**10YR**	**213.06**	**5896.01**	**5897.62**	**5897.62**	**5898.22**	**0.019410**	**6.48**	**37.94**	**34.89**	**0.96**
W1	**44.5000**	**2YR**	**204.19**	**5896.01**	**5897.58**	**5897.58**	**5898.17**	**0.019737**	**6.42**	**36.57**	**34.30**	**0.96**
W1	**44.0000**	**500YR**	**258.22**	**5886.67**	**5888.13**	**5888.13**	**5888.66**	**0.030929**	**7.38**	**50.85**	**54.98**	**1.18**
W1	**44.0000**	**100YR**	**243.07**	**5886.67**	**5888.09**	**5888.09**	**5888.60**	**0.031211**	**7.24**	**48.50**	**53.54**	**1.18**
W1	**44.0000**	**10YR**	**223.49**	**5886.67**	**5888.03**	**5888.03**	**5888.52**	**0.031647**	**7.04**	**45.41**	**51.76**	**1.18**
W1	**44.0000**	**2YR**	**209.52**	**5886.67**	**5887.98**	**5887.98**	**5888.45**	**0.033287**	**6.97**	**42.53**	**50.04**	**1.20**
W1	**43.5000**	**500YR**	**258.22**	**5878.01**	**5880.44**	**5880.44**	**5881.19**	**0.015318**	**7.06**	**41.69**	**35.20**	**0.89**
W1	**43.5000**	**100YR**	**243.07**	**5878.01**	**5880.36**	**5880.36**	**5881.10**	**0.016004**	**7.01**	**38.82**	**33.56**	**0.91**
W1	**43.5000**	**10YR**	**223.49**	**5878.01**	**5880.24**	**5880.24**	**5880.97**	**0.017162**	**6.95**	**35.05**	**30.46**	**0.93**
W1	**43.5000**	**2YR**	**209.52**	**5878.01**	**5880.15**	**5880.15**	**5880.88**	**0.018406**	**6.93**	**32.29**	**27.52**	**0.95**
W1	**43.0000**	**500YR**	**258.22**	**5872.88**	**5874.46**	**5874.46**	**5874.99**	**0.025872**	**7.66**	**52.27**	**50.23**	**1.12**
W1	**43.0000**	**100YR**	**243.07**	**5872.88**	**5874.42**	**5874.42**	**5874.93**	**0.025904**	**7.51**	**50.05**	**49.58**	**1.11**
W1	**43.0000**	**10YR**	**223.49**	**5872.88**	**5874.36**	**5874.36**	**5874.85**	**0.025937**	**7.30**	**47.13**	**48.64**	**1.11**
W1	**43.0000**	**2YR**	**209.52**	**5872.88**	**5874.31**	**5874.31**	**5874.79**	**0.026543**	**7.19**	**44.63**	**47.78**	**1.11**
W1	**42.5000**	**500YR**	**258.22**	**5866.01**	**5866.90**	**5866.89**	**5867.15**	**0.019315**	**4.27**	**74.57**	**134.68**	**0.87**
W1	**42.5000**	**100YR**	**243.07**	**5866.01**	**5866.88**	**5866.86**	**5867.12**	**0.018860**	**4.17**	**71.89**	**133.97**	**0.85**
W1	**42.5000**	**10YR**	**223.49**	**5866.01**	**5866.85**	**5866.83**	**5867.08**	**0.019256**	**4.10**	**66.87**	**132.62**	**0.86**
W1	**42.5000**	**2YR**	**209.52**	**5866.01**	**5866.82**	**5866.81**	**5867.05**	**0.019271**	**4.03**	**63.58**	**131.73**	**0.85**
W1	**42.0000**	**500YR**	**258.22**	**5860.42**	**5861.33**	**5861.33**	**5861.62**	**0.026854**	**5.52**	**71.95**	**116.69**	**1.05**
W1	**42.0000**	**100YR**	**243.07**	**5860.42**	**5861.30**	**5861.30**	**5861.59**	**0.027596**	**5.47**	**68.43**	**115.79**	**1.05**
W1	**42.0000**	**10YR**	**223.49**	**5860.42**	**5861.27**	**5861.27**	**5861.54**	**0.027090**	**5.29**	**65.05**	**114.92**	**1.04**
W1	**42.0000**	**2YR**	**209.52**	**5860.42**	**5861.25**	**5861.25**	**5861.51**	**0.027164**	**5.19**	**62.20**	**114.15**	**1.04**
W1	**41.5000**	**500YR**	**258.22**	**5852.23**	**5853.29**	**5853.29**	**5853.55**	**0.018734**	**4.85**	**80.78**	**150.08**	**0.89**
W1	**41.5000**	**100YR**	**243.07**	**5852.23**	**5853.26**	**5853.26**	**5853.52**	**0.018640**	**4.76**	**77.27**	**148.77**	**0.88**
W1	**41.5000**	**10YR**	**223.49**	**5852.23**	**5853.24**	**5853.24**	**5853.48**	**0.017889**	**4.58**	**73.59**	**147.38**	**0.86**
W1	**41.5000**	**2YR**	**209.52**	**5852.23**	**5853.21**	**5853.21**	**5853.45**	**0.018480**	**4.54**	**69.02**	**144.76**	**0.87**
W1	**41.0000**	**500YR**	**306.89**	**5841.51**	**5846.31**		**5846.31**	**0.000007**	**0.27**	**2045.60**	**581.24**	**0.02**
W1	**41.0000**	**100YR**	**278.14**	**5841.51**	**5846.03**		**5846.03**	**0.000007**	**0.26**	**1885.85**	**572.96**	**0.02**
W1	**41.0000**	**10YR**	**242.34**	**5841.51**	**5842.37**	**5842.37**	**5842.53**	**0.029974**	**5.61**	**101.20**	**292.15**	**1.10**
W1	**41.0000**	**2YR**	**218.93**	**5841.51**	**5842.36**	**5842.36**	**5842.50**	**0.024864**	**5.10**	**100.63**	**291.94**	**1.00**
W1	**40.5000**	**500YR**	**306.89**	**5831.44**	**5846.31**		**5846.31**	**0.000000**	**0.06**	**8997.24**	**772.48**	**0.00**
W1	**40.5000**	**100YR**	**278.14**	**5831.44**	**5846.03**		**5846.03**	**0.000000**	**0.05**	**8783.38**	**772.48**	**0.00**
W1	**40.5000**	**10YR**	**242.34**	**5831.44**	**5832.42**	**5832.42**	**5832.58**	**0.016857**	**4.42**	**110.43**	**296.60**	**0.83**
W1	**40.5000**	**2YR**	**218.93**	**5831.44**	**5832.37**	**5832.37**	**5832.55**	**0.018469**	**4.47**	**97.58**	**287.02**	**0.86**
W1	**40.0000**	**500YR**	**490.29**	**5820.01**	**5846.31**		**5846.31**	**0.000000**	**0.06**	**14294.32**	**680.37**	**0.00**
W1	**40.0000**	**100YR**	**414.42**	**5820.01**	**5846.03**		**5846.03**	**0.000000**	**0.05**	**14105.96**	**680.37**	**0.00**
W1	**40.0000**	**10YR**	**322.31**	**5820.01**	**5830.78**		**5830.78**	**0.000001**	**0.15**	**4132.18**	**632.69**	**0.01**
W1	**40.0000**	**2YR**	**259.19**	**5820.01**	**5821.61**	**5821.61**	**5822.24**	**0.020241**	**6.44**	**42.28**	**36.30**	**0.97**

W1	**39.5000**	**500YR**	**247.21**	**5814.02**	**5846.31**		**5846.31**	**0.000000**	**0.02**	**21506.45**	**816.93**	**0.00**
W1	**39.5000**	**100YR**	**244.72**	**5814.02**	**5846.03**		**5846.03**	**0.000000**	**0.02**	**21280.27**	**816.93**	**0.00**
W1	**39.5000**	**10YR**	**241.82**	**5814.02**	**5830.78**		**5830.78**	**0.000000**	**0.05**	**9284.20**	**762.47**	**0.00**
W1	**39.5000**	**2YR**	**224.31**	**5814.02**	**5821.64**		**5821.64**	**0.000002**	**0.20**	**2441.06**	**685.15**	**0.01**
W1	**39.0000**	**500YR**	**247.21**	**5808.01**	**5846.31**		**5846.31**	**0.000000**	**0.01**	**36644.37**	**1264.92**	**0.00**
W1	**39.0000**	**100YR**	**244.72**	**5808.01**	**5846.03**		**5846.03**	**0.000000**	**0.01**	**36294.17**	**1264.92**	**0.00**
W1	**39.0000**	**10YR**	**241.82**	**5808.01**	**5830.78**		**5830.78**	**0.000000**	**0.03**	**17918.13**	**1154.10**	**0.00**
W1	**39.0000**	**2YR**	**224.31**	**5808.01**	**5821.64**		**5821.64**	**0.000000**	**0.06**	**7590.48**	**1066.13**	**0.00**
SP1	**199.0000**	**500YR**	**1394.60**	**5882.02**	**5886.76**		**5887.40**	**0.008647**	**9.52**	**281.27**	**113.02**	**0.78**
SP1	**199.0000**	**100YR**	**1058.50**	**5882.02**	**5886.21**		**5886.83**	**0.009359**	**9.09**	**221.80**	**103.49**	**0.80**
SP1	**199.0000**	**10YR**	**646.06**	**5882.02**	**5885.38**		**5885.95**	**0.010470**	**8.26**	**143.82**	**84.89**	**0.81**
SP1	**199.0000**	**2YR**	**335.63**	**5882.02**	**5884.50**	**5884.38**	**5885.01**	**0.012271**	**7.23**	**79.39**	**63.11**	**0.83**
SP1	**198.5000**	**500YR**	**1394.60**	**5880.01**	**5883.94**	**5883.94**	**5885.22**	**0.013151**	**10.05**	**189.77**	**84.14**	**0.93**
SP1	**198.5000**	**100YR**	**1058.50**	**5880.01**	**5883.47**	**5883.47**	**5884.57**	**0.013089**	**9.15**	**152.47**	**75.88**	**0.91**
SP1	**198.5000**	**10YR**	**646.06**	**5880.01**	**5882.77**	**5882.68**	**5883.59**	**0.012925**	**7.69**	**103.49**	**63.09**	**0.86**
SP1	**198.5000**	**2YR**	**335.63**	**5880.01**	**5882.09**	**5881.90**	**5882.60**	**0.011574**	**5.88**	**64.84**	**51.01**	**0.77**
SP1	**198.0000**	**500YR**	**1394.60**	**5876.72**	**5879.57**	**5879.47**	**5880.27**	**0.026228**	**11.90**	**230.99**	**134.43**	**1.26**
SP1	**198.0000**	**100YR**	**1058.50**	**5876.72**	**5879.24**	**5879.17**	**5879.86**	**0.027384**	**11.19**	**188.10**	**126.69**	**1.26**
SP1	**198.0000**	**10YR**	**646.06**	**5876.72**	**5878.75**	**5878.71**	**5879.26**	**0.028811**	**9.90**	**129.84**	**110.74**	**1.24**
SP1	**198.0000**	**2YR**	**335.63**	**5876.72**	**5878.29**	**5878.24**	**5878.65**	**0.027993**	**8.16**	**82.20**	**94.41**	**1.17**
SP1	**197.5000**	**500YR**	**1394.60**	**5874.01**	**5877.10**	**5877.10**	**5878.06**	**0.014387**	**9.38**	**224.36**	**119.77**	**0.95**
SP1	**197.5000**	**100YR**	**1058.50**	**5874.01**	**5876.68**	**5876.68**	**5877.55**	**0.015182**	**8.73**	**176.88**	**106.02**	**0.95**
SP1	**197.5000**	**10YR**	**646.06**	**5874.01**	**5876.07**	**5876.07**	**5876.78**	**0.016530**	**7.64**	**117.19**	**89.11**	**0.95**
SP1	**197.5000**	**2YR**	**335.63**	**5874.01**	**5875.44**	**5875.44**	**5875.99**	**0.019319**	**6.45**	**66.64**	**70.43**	**0.96**
SP1	**197.375***	**500YR**	**1394.60**	**5873.51**	**5876.53**	**5876.53**	**5877.52**	**0.013538**	**8.83**	**216.04**	**120.81**	**0.91**
SP1	**197.375***	**100YR**	**1058.50**	**5873.51**	**5876.11**	**5876.11**	**5877.01**	**0.014337**	**8.21**	**169.05**	**106.78**	**0.91**
SP1	**197.375***	**10YR**	**646.06**	**5873.51**	**5875.48**	**5875.48**	**5876.20**	**0.016361**	**7.21**	**108.36**	**83.58**	**0.93**
SP1	**197.375***	**2YR**	**335.63**	**5873.51**	**5874.86**	**5874.86**	**5875.39**	**0.019245**	**5.99**	**62.32**	**65.70**	**0.94**
SP1	**197.25***	**500YR**	**1394.60**	**5873.01**	**5875.87**	**5875.87**	**5876.89**	**0.013930**	**8.50**	**201.91**	**115.93**	**0.91**
SP1	**197.25***	**100YR**	**1058.50**	**5873.01**	**5875.45**	**5875.45**	**5876.35**	**0.015148**	**7.92**	**156.56**	**99.31**	**0.92**
SP1	**197.25***	**10YR**	**646.06**	**5873.01**	**5874.83**	**5874.83**	**5875.56**	**0.017933**	**6.96**	**101.09**	**79.28**	**0.95**
SP1	**197.25***	**2YR**	**335.63**	**5873.01**	**5874.25**	**5874.23**	**5874.75**	**0.021270**	**5.71**	**60.18**	**63.14**	**0.97**
SP1	**197.125***	**500YR**	**1394.60**	**5872.51**	**5875.19**	**5875.19**	**5876.20**	**0.015048**	**8.27**	**189.85**	**109.68**	**0.93**
SP1	**197.125***	**100YR**	**1058.50**	**5872.51**	**5874.78**	**5874.78**	**5875.68**	**0.016865**	**7.74**	**147.36**	**94.69**	**0.96**
SP1	**197.125***	**10YR**	**646.06**	**5872.51**	**5874.20**	**5874.20**	**5874.90**	**0.019965**	**6.74**	**98.04**	**76.52**	**0.98**
SP1	**197.125***	**2YR**	**335.63**	**5872.51**	**5873.68**	**5873.67**	**5874.14**	**0.022629**	**5.45**	**61.58**	**64.41**	**0.98**
SP1	**197.0000**	**500YR**	**1394.60**	**5872.01**	**5874.53**	**5874.53**	**5875.52**	**0.016341**	**8.06**	**182.46**	**107.70**	**0.95**
SP1	**197.0000**	**100YR**	**1058.50**	**5872.01**	**5874.14**	**5874.14**	**5875.01**	**0.018429**	**7.51**	**143.92**	**90.82**	**0.98**
SP1	**197.0000**	**10YR**	**646.06**	**5872.01**	**5873.60**	**5873.60**	**5874.26**	**0.021612**	**6.51**	**99.37**	**77.79**	**1.00**
SP1	**197.0000**	**2YR**	**335.63**	**5872.01**	**5873.17**	**5873.09**	**5873.55**	**0.018993**	**5.00**	**67.11**	**69.39**	**0.90**
SP1	**196.5000**	**500YR**	**1394.60**	**5868.01**	**5869.92**	**5869.92**	**5870.68**	**0.018931**	**7.12**	**207.69**	**151.16**	**0.98**
SP1	**196.5000**	**100YR**	**1058.50**	**5868.01**	**5869.65**	**5869.65**	**5870.30**	**0.020232**	**6.54**	**168.28**	**140.90**	**0.98**
SP1	**196.5000**	**10YR**	**646.06**	**5868.01**	**5869.24**	**5869.24**	**5869.74**	**0.022827**	**5.68**	**116.01**	**119.17**	**0.99**
SP1	**196.5000**	**2YR**	**335.63**	**5868.01**	**5868.83**	**5868.83**	**5869.19**	**0.026409**	**4.80**	**70.56**	**102.95**	**1.00**
SP1	**196.0000**	**500YR**	**1394.60**	**5862.01**	**5865.18**		**5865.47**	**0.008335**	**6.50**	**393.34**	**243.86**	**0.70**
SP1	**196.0000**	**100YR**	**1058.50**	**5862.01**	**5864.91**		**5865.16**	**0.008095**	**5.96**	**328.87**	**235.11**	**0.68**
SP1	**196.0000**	**10YR**	**646.06**	**5862.01**	**5864.49**		**5864.70**	**0.008339**	**5.32**	**231.66**	**222.81**	**0.67**
SP1	**196.0000**	**2YR**	**335.63**	**5862.01**	**5864.07**		**5864.26**	**0.009079**	**4.73**	**140.24**	**211.98**	**0.67**
SP1	**195.5000**	**500YR**	**1394.60**	**5859.11**	**5860.54**	**5860.54**	**5860.91**	**0.031584**	**8.26**	**332.16**	**400.03**	**1.23**
SP1	**195.5000**	**100YR**	**1058.50**	**5859.11**	**5860.41**	**5860.41**	**5860.73**	**0.030588**	**7.62**	**280.45**	**393.25**	**1.19**
SP1	**195.5000**	**10YR**	**646.06**	**5859.11**	**5860.24**	**5860.24**	**5860.47**	**0.025445**	**6.33**	**215.91**	**387.26**	**1.06**
SP1	**195.5000**	**2YR**	**335.63**	**5859.11**	**5860.07**	**5860.07**	**5860.23**	**0.019668**	**4.99**	**151.60**	**379.83**	**0.91**
SP1	**195.0000**	**500YR**	**1394.60**	**5854.01**	**5855.69**	**5855.24**	**5855.82**	**0.010011**	**3.51**	**499.32**	**454.85**	**0.51**
SP1	**195.0000**	**100YR**	**1058.50**	**5854.01**	**5855.50**	**5855.10**	**5855.61**	**0.010017**	**3.21**	**415.05**	**435.87**	**0.50**
SP1	**195.0000**	**10YR**	**646.06**	**5854.01**	**5855.22**	**5854.92**	**5855.31**	**0.009994**	**2.75**	**298.87**	**408.76**	**0.48**
SP1	**195.0000**	**2YR**	**335.63**	**5854.01**	**5854.95**	**5854.74**	**5855.01**	**0.009998**	**2.25**	**192.73**	**376.86**	**0.46**

SP2	**189.5000**	**500YR**	**174.01**	**6082.02**	**6084.60**	**6084.60**	**6085.44**	**0.019341**	**7.54**	**25.11**	**15.92**	**0.97**
SP2	**189.5000**	**100YR**	**131.46**	**6082.02**	**6084.26**	**6084.26**	**6085.00**	**0.020028**	**7.01**	**20.03**	**14.42**	**0.97**
SP2	**189.5000**	**10YR**	**77.60**	**6082.02**	**6083.73**	**6083.73**	**6084.31**	**0.022292**	**6.15**	**13.03**	**11.99**	**0.98**
SP2	**189.5000**	**2YR**	**39.34**	**6082.02**	**6083.23**	**6083.23**	**6083.65**	**0.026492**	**5.16**	**7.65**	**9.68**	**1.00**
SP2	**189.0000**	**500YR**	**174.01**	**6064.54**	**6066.96**	**6066.96**	**6067.73**	**0.022326**	**7.64**	**26.95**	**17.81**	**1.04**
SP2	**189.0000**	**100YR**	**131.46**	**6064.54**	**6066.66**	**6066.66**	**6067.33**	**0.022745**	**7.14**	**21.75**	**16.39**	**1.03**
SP2	**189.0000**	**10YR**	**77.60**	**6064.54**	**6066.19**	**6066.19**	**6066.71**	**0.023388**	**6.24**	**14.56**	**14.05**	**1.01**
SP2	**189.0000**	**2YR**	**39.34**	**6064.54**	**6065.72**	**6065.72**	**6066.10**	**0.024676**	**5.24**	**8.62**	**11.43**	**0.99**
SP2	**188.5000**	**500YR**	**234.68**	**6041.85**	**6044.31**	**6044.31**	**6045.19**	**0.032322**	**9.07**	**33.39**	**21.31**	**1.23**
SP2	**188.5000**	**100YR**	**177.14**	**6041.85**	**6044.00**	**6044.00**	**6044.74**	**0.034018**	**8.16**	**27.08**	**19.42**	**1.23**
SP2	**188.5000**	**10YR**	**104.47**	**6041.85**	**6043.50**	**6043.50**	**6044.07**	**0.036043**	**7.16**	**18.09**	**16.35**	**1.22**
SP2	**188.5000**	**2YR**	**53.34**	**6041.85**	**6043.02**	**6043.02**	**6043.42**	**0.039264**	**6.06**	**10.90**	**13.48**	**1.21**
SP2	**188.0000**	**500YR**	**234.68**	**6021.78**	**6024.23**	**6024.23**	**6025.09**	**0.023393**	**8.17**	**34.50**	**22.06**	**1.08**
SP2	**188.0000**	**100YR**	**177.14**	**6021.78**	**6023.94**	**6023.94**	**6024.65**	**0.024127**	**7.44**	**28.23**	**20.35**	**1.07**
SP2	**188.0000**	**10YR**	**104.47**	**6021.78**	**6023.44**	**6023.44**	**6024.00**	**0.025271**	**6.51**	**18.90**	**17.35**	**1.06**
SP2	**188.0000**	**2YR**	**53.34**	**6021.78**	**6022.96**	**6022.96**	**6023.36**	**0.027770**	**5.55**	**11.21**	**14.15**	**1.05**
SP2	**187.5000**	**500YR**	**234.68**	**6010.01**	**6011.91**	**6011.91**	**6012.58**	**0.019283**	**6.71**	**37.48**	**29.91**	**0.96**
SP2	**187.5000**	**100YR**	**177.14**	**6010.01**	**6011.62**	**6011.62**	**6012.23**	**0.020832**	**6.29**	**29.51**	**26.48**	**0.98**
SP2	**187.5000**	**10YR**	**104.47**	**6010.01**	**6011.26**	**6011.21**	**6011.68**	**0.019890**	**5.18**	**20.56**	**22.81**	**0.92**
SP2	**187.5000**	**2YR**	**53.34**	**6010.01**	**6011.26**		**6011.37**	**0.005193**	**2.65**	**20.55**	**22.80**	**0.47**
SP2	**187.375***	**500YR**	**234.68**	**6008.30**	**6011.83**		**6011.94**	**0.001355**	**2.93**	**107.59**	**54.12**	**0.29**
SP2	**187.375***	**100YR**	**177.14**	**6008.30**	**6011.70**		**6011.77**	**0.000913**	**2.34**	**100.62**	**52.44**	**0.24**
SP2	**187.375***	**10YR**	**104.47**	**6008.30**	**6011.50**		**6011.53**	**0.000415**	**1.51**	**90.42**	**49.89**	**0.16**
SP2	**187.375***	**2YR**	**53.34**	**6008.30**	**6011.32**		**6011.33**	**0.000140**	**0.84**	**81.50**	**47.35**	**0.09**
SP2	**187.25***	**500YR**	**234.68**	**6006.60**	**6011.89**		**6011.91**	**0.000215**	**1.58**	**237.98**	**80.39**	**0.12**
SP2	**187.25***	**100YR**	**177.14**	**6006.60**	**6011.74**		**6011.75**	**0.000139**	**1.25**	**226.15**	**78.59**	**0.10**
SP2	**187.25***	**10YR**	**104.47**	**6006.60**	**6011.52**		**6011.53**	**0.000059**	**0.79**	**209.30**	**76.09**	**0.06**
SP2	**187.25***	**2YR**	**53.34**	**6006.60**	**6011.33**		**6011.33**	**0.000018**	**0.43**	**194.81**	**73.75**	**0.04**
SP2	**187.125***	**500YR**	**234.68**	**6004.90**	**6011.90**	**6006.90**	**6011.90**	**0.000054**	**0.98**	**432.34**	**109.57**	**0.07**
SP2	**187.125***	**100YR**	**177.14**	**6004.90**	**6011.74**	**6006.63**	**6011.75**	**0.000034**	**0.77**	**415.68**	**107.67**	**0.05**
SP2	**187.125***	**10YR**	**104.47**	**6004.90**	**6011.52**	**6006.24**	**6011.52**	**0.000014**	**0.48**	**392.06**	**104.97**	**0.03**
SP2	**187.125***	**2YR**	**53.34**	**6004.90**	**6011.33**	**6005.85**	**6011.33**	**0.000004**	**0.26**	**371.83**	**102.67**	**0.02**
SP2	**187.1**		**Culvert**									
SP2	**187.0000**	**500YR**	**234.68**	**6003.19**	**6005.06**	**6005.06**	**6005.63**	**0.018109**	**7.31**	**49.81**	**45.79**	**0.97**
SP2	**187.0000**	**100YR**	**177.14**	**6003.19**	**6004.84**	**6004.84**	**6005.33**	**0.018087**	**6.69**	**40.13**	**42.05**	**0.95**
SP2	**187.0000**	**10YR**	**104.47**	**6003.19**	**6004.45**	**6004.45**	**6004.86**	**0.020679**	**5.89**	**25.13**	**33.89**	**0.96**
SP2	**187.0000**	**2YR**	**53.34**	**6003.19**	**6004.11**	**6004.11**	**6004.41**	**0.021909**	**4.80**	**14.62**	**27.27**	**0.94**
SP2	**186.5000**	**500YR**	**234.68**	**5977.77**	**5980.23**	**5980.23**	**5981.02**	**0.020326**	**7.15**	**33.51**	**22.58**	**0.99**
SP2	**186.5000**	**100YR**	**177.14**	**5977.77**	**5979.92**	**5979.92**	**5980.61**	**0.021669**	**6.66**	**26.85**	**20.82**	**1.00**
SP2	**186.5000**	**10YR**	**104.47**	**5977.77**	**5979.45**	**5979.45**	**5979.98**	**0.023982**	**5.86**	**17.82**	**16.92**	**1.01**
SP2	**186.5000**	**2YR**	**53.34**	**5977.77**	**5978.98**	**5978.98**	**5979.37**	**0.026466**	**5.02**	**10.63**	**13.79**	**1.01**
SP2	**186.0000**	**500YR**	**234.68**	**5962.23**	**5964.53**	**5964.53**	**5965.30**	**0.016475**	**7.58**	**39.01**	**28.18**	**0.94**
SP2	**186.0000**	**100YR**	**177.14**	**5962.23**	**5964.22**	**5964.22**	**5964.90**	**0.017368**	**6.98**	**30.85**	**25.44**	**0.94**
SP2	**186.0000**	**10YR**	**104.47**	**5962.23**	**5963.76**	**5963.76**	**5964.28**	**0.019380**	**5.97**	**19.95**	**21.27**	**0.94**
SP2	**186.0000**	**2YR**	**53.34**	**5962.23**	**5963.31**	**5963.31**	**5963.69**	**0.023841**	**4.95**	**11.43**	**17.20**	**0.97**
SP2	**185.5000**	**500YR**	**245.13**	**5947.58**	**5949.63**	**5949.63**	**5950.31**	**0.021269**	**7.47**	**42.91**	**35.01**	**1.03**
SP2	**185.5000**	**100YR**	**185.05**	**5947.58**	**5949.37**	**5949.37**	**5949.96**	**0.022871**	**6.89**	**34.10**	**31.94**	**1.04**
SP2	**185.5000**	**10YR**	**109.27**	**5947.58**	**5948.97**	**5948.97**	**5949.42**	**0.027360**	**5.97**	**22.19**	**26.80**	**1.07**
SP2	**185.5000**	**2YR**	**55.98**	**5947.58**	**5948.62**	**5948.62**	**5948.93**	**0.029046**	**4.88**	**13.70**	**22.64**	**1.04**
SP2	**185.0000**	**500YR**	**245.13**	**5938.02**	**5940.05**	**5940.05**	**5940.69**	**0.019706**	**6.76**	**42.30**	**34.83**	**0.98**
SP2	**185.0000**	**100YR**	**185.05**	**5938.02**	**5939.77**	**5939.77**	**5940.35**	**0.021201**	**6.40**	**33.07**	**30.74**	**0.99**
SP2	**185.0000**	**10YR**	**109.27**	**5938.02**	**5939.38**	**5939.38**	**5939.83**	**0.021789**	**5.53**	**21.95**	**25.90**	**0.96**
SP2	**185.0000**	**2YR**	**55.98**	**5938.02**	**5938.98**	**5938.98**	**5939.31**	**0.024940**	**4.69**	**12.67**	**20.46**	**0.97**
SP2	**184.5000**	**500YR**	**245.13**	**5924.07**	**5925.73**	**5925.73**	**5926.32**	**0.024121**	**7.93**	**47.76**	**41.59**	**1.10**

SP2	**184.5000**	**100YR**	**185.05**	**5924.07**	**5925.51**	**5925.51**	**5926.02**	**0.024728**	**7.27**	**38.74**	**38.88**	**1.09**
SP2	**184.5000**	**10YR**	**109.27**	**5924.07**	**5925.16**	**5925.16**	**5925.55**	**0.026883**	**6.24**	**25.85**	**34.31**	**1.08**
SP2	**184.5000**	**2YR**	**55.98**	**5924.07**	**5924.84**	**5924.84**	**5925.11**	**0.028785**	**5.05**	**15.68**	**29.27**	**1.05**
SP2	**184.0000**	**500YR**	**245.13**	**5908.28**	**5909.91**	**5909.91**	**5910.42**	**0.021962**	**7.02**	**52.44**	**54.61**	**1.03**
SP2	**184.0000**	**100YR**	**185.05**	**5908.28**	**5909.73**	**5909.73**	**5910.16**	**0.021324**	**6.34**	**43.12**	**51.16**	**0.99**
SP2	**184.0000**	**10YR**	**109.27**	**5908.28**	**5909.40**	**5909.40**	**5909.75**	**0.023998**	**5.52**	**27.77**	**42.81**	**1.00**
SP2	**184.0000**	**2YR**	**55.98**	**5908.28**	**5909.13**	**5909.13**	**5909.37**	**0.024896**	**4.45**	**16.76**	**36.04**	**0.96**
SP2	**183.5000**	**500YR**	**245.13**	**5895.98**	**5897.75**	**5897.28**	**5897.91**	**0.010006**	**5.38**	**90.32**	**91.08**	**0.72**
SP2	**183.5000**	**100YR**	**185.05**	**5895.98**	**5897.54**	**5897.11**	**5897.68**	**0.010005**	**4.95**	**72.44**	**80.38**	**0.70**
SP2	**183.5000**	**10YR**	**109.27**	**5895.98**	**5897.18**	**5896.83**	**5897.29**	**0.010009**	**4.15**	**47.53**	**61.30**	**0.67**
SP2	**183.5000**	**2YR**	**55.98**	**5895.98**	**5896.85**	**5896.58**	**5896.93**	**0.010004**	**3.33**	**29.06**	**49.58**	**0.64**
MAIN	**39.5000**	**500YR**	**9993.10**	**5806.01**	**5846.31**		**5846.31**	**0.000002**	**0.63**	**29427.20**	**1050.27**	**0.02**
MAIN	**39.5000**	**100YR**	**8446.80**	**5806.01**	**5846.03**		**5846.03**	**0.000002**	**0.54**	**29136.93**	**1050.27**	**0.01**
MAIN	**39.5000**	**10YR**	**5796.90**	**5806.01**	**5830.78**		**5830.78**	**0.000007**	**0.85**	**13767.69**	**956.22**	**0.03**
MAIN	**39.5000**	**2YR**	**3793.30**	**5806.01**	**5821.63**		**5821.64**	**0.000043**	**1.49**	**5585.55**	**787.36**	**0.07**
MAIN	**39.375***	**500YR**	**9993.10**	**5806.01**	**5846.31**		**5846.31**	**0.000003**	**0.70**	**26859.65**	**997.26**	**0.02**
MAIN	**39.375***	**100YR**	**8446.80**	**5806.01**	**5846.03**		**5846.03**	**0.000002**	**0.60**	**26584.52**	**997.26**	**0.02**
MAIN	**39.375***	**10YR**	**5796.90**	**5806.01**	**5830.77**		**5830.78**	**0.000010**	**1.00**	**12068.60**	**894.41**	**0.04**
MAIN	**39.375***	**2YR**	**3793.30**	**5806.01**	**5821.61**		**5821.63**	**0.000075**	**1.98**	**4443.09**	**707.90**	**0.09**
MAIN	**39.25***	**500YR**	**9993.10**	**5806.01**	**5846.31**		**5846.31**	**0.000003**	**0.79**	**24505.46**	**944.24**	**0.02**
MAIN	**39.25***	**100YR**	**8446.80**	**5806.01**	**5846.03**		**5846.03**	**0.000002**	**0.67**	**24244.96**	**944.24**	**0.02**
MAIN	**39.25***	**10YR**	**5796.90**	**5806.01**	**5830.77**		**5830.78**	**0.000014**	**1.17**	**10617.19**	**831.30**	**0.04**
MAIN	**39.25***	**2YR**	**3793.30**	**5806.01**	**5821.59**		**5821.63**	**0.000116**	**2.46**	**3628.47**	**615.60**	**0.11**
MAIN	**39.125***	**500YR**	**9993.10**	**5806.01**	**5846.31**		**5846.31**	**0.000004**	**0.88**	**22364.64**	**891.23**	**0.02**
MAIN	**39.125***	**100YR**	**8446.80**	**5806.01**	**5846.03**		**5846.03**	**0.000003**	**0.75**	**22119.20**	**891.23**	**0.02**
MAIN	**39.125***	**10YR**	**5796.90**	**5806.01**	**5830.77**		**5830.78**	**0.000019**	**1.35**	**9421.58**	**766.42**	**0.05**
MAIN	**39.125***	**2YR**	**3793.30**	**5806.01**	**5821.57**		**5821.63**	**0.000178**	**3.05**	**3029.72**	**557.95**	**0.14**
MAIN	**39.0000**	**500YR**	**9993.10**	**5806.01**	**5846.31**	**5819.48**	**5846.31**	**0.000005**	**0.97**	**20437.43**	**838.21**	**0.03**
MAIN	**39.0000**	**100YR**	**8446.80**	**5806.01**	**5846.03**	**5819.02**	**5846.03**	**0.000004**	**0.83**	**20206.59**	**838.21**	**0.02**
MAIN	**39.0000**	**10YR**	**5796.90**	**5806.01**	**5830.77**	**5817.52**	**5830.78**	**0.000024**	**1.53**	**8479.53**	**703.99**	**0.05**
MAIN	**39.0000**	**2YR**	**3793.30**	**5806.01**	**5821.52**	**5814.08**	**5821.62**	**0.000278**	**3.79**	**2533.48**	**513.14**	**0.17**
MAIN	**38.75**		**Culvert**									
MAIN	**38.5000**	**500YR**	**9993.10**	**5804.96**	**5845.00**		**5845.00**	**0.000004**	**0.79**	**24810.17**	**1037.83**	**0.02**
MAIN	**38.5000**	**100YR**	**8446.80**	**5804.96**	**5845.00**		**5845.00**	**0.000003**	**0.67**	**24810.68**	**1037.83**	**0.02**
MAIN	**38.5000**	**10YR**	**5796.90**	**5804.96**	**5813.30**		**5814.40**	**0.007006**	**11.26**	**954.01**	**280.58**	**0.75**
MAIN	**38.5000**	**2YR**	**3793.30**	**5804.96**	**5812.27**	**5812.10**	**5813.28**	**0.007088**	**10.19**	**675.78**	**258.77**	**0.73**
MAIN	**38.0000**	**500YR**	**9993.10**	**5804.24**	**5845.00**	**5812.06**	**5845.00**	**0.000001**	**0.48**	**37466.09**	**1315.04**	**0.01**
MAIN	**38.0000**	**100YR**	**8446.80**	**5804.24**	**5845.00**	**5811.96**	**5845.00**	**0.000001**	**0.40**	**37466.09**	**1315.04**	**0.01**
MAIN	**38.0000**	**10YR**	**5796.90**	**5804.24**	**5813.83**	**5811.19**	**5813.98**	**0.001001**	**4.84**	**2581.37**	**728.65**	**0.29**
MAIN	**38.0000**	**2YR**	**3793.30**	**5804.24**	**5812.73**	**5810.40**	**5812.88**	**0.001002**	**4.42**	**1829.99**	**645.22**	**0.29**
NS18	**20.0000**	**500YR**	**142.00**	**6274.72**	**6276.70**	**6276.70**	**6277.32**	**0.019904**	**6.46**	**24.10**	**21.63**	**0.96**
NS18	**20.0000**	**100YR**	**107.90**	**6274.72**	**6276.47**	**6276.47**	**6277.01**	**0.020782**	**5.97**	**19.37**	**19.45**	**0.96**
NS18	**20.0000**	**10YR**	**64.00**	**6274.72**	**6276.08**	**6276.08**	**6276.51**	**0.023820**	**5.29**	**12.44**	**15.61**	**0.98**
NS18	**20.0000**	**2YR**	**32.70**	**6274.72**	**6275.71**	**6275.71**	**6276.02**	**0.028258**	**4.45**	**7.36**	**12.32**	**1.00**
NS18	**19.0000**	**500YR**	**142.00**	**6261.80**	**6263.73**	**6263.73**	**6264.36**	**0.022513**	**6.35**	**22.45**	**18.70**	**1.00**
NS18	**19.0000**	**100YR**	**107.90**	**6261.80**	**6263.50**	**6263.50**	**6264.04**	**0.024049**	**5.91**	**18.26**	**17.17**	**1.01**
NS18	**19.0000**	**10YR**	**64.00**	**6261.80**	**6263.12**	**6263.12**	**6263.54**	**0.025893**	**5.22**	**12.26**	**14.75**	**1.01**
NS18	**19.0000**	**2YR**	**32.70**	**6261.80**	**6262.76**	**6262.76**	**6263.06**	**0.028550**	**4.45**	**7.35**	**12.11**	**1.01**
NS18	**18.0000**	**500YR**	**142.00**	**6245.73**	**6247.81**	**6247.81**	**6248.50**	**0.021294**	**6.68**	**21.68**	**17.42**	**0.99**
NS18	**18.0000**	**100YR**	**107.90**	**6245.73**	**6247.56**	**6247.56**	**6248.15**	**0.023029**	**6.16**	**17.61**	**15.78**	**1.00**
NS18	**18.0000**	**10YR**	**64.00**	**6245.73**	**6247.16**	**6247.16**	**6247.62**	**0.025847**	**5.43**	**11.79**	**13.23**	**1.01**
NS18	**18.0000**	**2YR**	**32.70**	**6245.73**	**6246.76**	**6246.76**	**6247.10**	**0.028268**	**4.64**	**7.05**	**10.78**	**1.01**
NS18	**17.75***	**500YR**	**142.00**	**6240.01**	**6242.04**	**6242.04**	**6242.69**	**0.021979**	**6.49**	**22.07**	**17.84**	**1.00**
NS18	**17.75***	**100YR**	**107.90**	**6240.01**	**6241.79**	**6241.79**	**6242.36**	**0.023771**	**6.06**	**17.82**	**16.27**	**1.01**
NS18	**17.75***	**10YR**	**64.00**	**6240.01**	**6241.41**	**6241.41**	**6241.85**	**0.025428**	**5.32**	**12.02**	**13.78**	**1.00**

NS18	**17.75***	**2YR**	**32.70**	**6240.01**	**6241.01**	**6241.01**	**6241.34**	**0.028473**	**4.58**	**7.14**	**11.21**	**1.01**
NS18	**17.5***	**500YR**	**142.00**	**6234.29**	**6236.24**	**6236.24**	**6236.88**	**0.021710**	**6.43**	**22.49**	**18.92**	**0.99**
NS18	**17.5***	**100YR**	**107.90**	**6234.29**	**6236.00**	**6236.00**	**6236.56**	**0.023494**	**6.00**	**18.08**	**17.23**	**1.01**
NS18	**17.5***	**10YR**	**64.00**	**6234.29**	**6235.63**	**6235.63**	**6236.06**	**0.025939**	**5.23**	**12.23**	**14.66**	**1.01**
NS18	**17.5***	**2YR**	**32.70**	**6234.29**	**6235.26**	**6235.26**	**6235.57**	**0.028446**	**4.48**	**7.30**	**11.86**	**1.01**
NS18	**17.25***	**500YR**	**142.00**	**6228.57**	**6230.44**	**6230.44**	**6231.06**	**0.021300**	**6.32**	**23.23**	**20.56**	**0.98**
NS18	**17.25***	**100YR**	**107.90**	**6228.57**	**6230.21**	**6230.21**	**6230.75**	**0.022910**	**5.89**	**18.63**	**18.74**	**0.99**
NS18	**17.25***	**10YR**	**64.00**	**6228.57**	**6229.86**	**6229.86**	**6230.26**	**0.025628**	**5.08**	**12.61**	**15.93**	**1.00**
NS18	**17.25***	**2YR**	**32.70**	**6228.57**	**6229.51**	**6229.51**	**6229.80**	**0.028493**	**4.36**	**7.49**	**12.73**	**1.00**
NS18	**17.0000**	**500YR**	**142.00**	**6222.85**	**6224.64**	**6224.64**	**6225.22**	**0.020907**	**6.19**	**24.38**	**23.00**	**0.97**
NS18	**17.0000**	**100YR**	**107.90**	**6222.85**	**6224.42**	**6224.42**	**6224.92**	**0.022048**	**5.74**	**19.57**	**21.01**	**0.97**
NS18	**17.0000**	**10YR**	**64.00**	**6222.85**	**6224.07**	**6224.07**	**6224.46**	**0.025501**	**5.02**	**12.87**	**17.60**	**1.00**
NS18	**17.0000**	**2YR**	**32.70**	**6222.85**	**6223.74**	**6223.74**	**6224.02**	**0.029891**	**4.27**	**7.66**	**13.98**	**1.02**
NS18	**16.0000**	**500YR**	**142.00**	**6207.42**	**6209.29**	**6209.29**	**6209.95**	**0.021137**	**6.52**	**22.10**	**18.14**	**0.99**
NS18	**16.0000**	**100YR**	**107.90**	**6207.42**	**6209.05**	**6209.05**	**6209.61**	**0.023591**	**6.04**	**17.90**	**16.64**	**1.01**
NS18	**16.0000**	**10YR**	**64.00**	**6207.42**	**6208.68**	**6208.68**	**6209.11**	**0.025686**	**5.25**	**12.18**	**14.40**	**1.01**
NS18	**16.0000**	**2YR**	**32.70**	**6207.42**	**6208.32**	**6208.32**	**6208.62**	**0.027976**	**4.41**	**7.41**	**12.18**	**1.00**
NS18	**15.0000**	**500YR**	**142.00**	**6191.66**	**6193.43**	**6193.43**	**6194.03**	**0.022038**	**6.52**	**24.54**	**22.62**	**1.01**
NS18	**15.0000**	**100YR**	**107.90**	**6191.66**	**6193.21**	**6193.21**	**6193.73**	**0.023704**	**5.99**	**19.92**	**20.46**	**1.01**
NS18	**15.0000**	**10YR**	**64.00**	**6191.66**	**6192.86**	**6192.86**	**6193.26**	**0.025078**	**5.25**	**13.28**	**17.27**	**1.00**
NS18	**15.0000**	**2YR**	**32.70**	**6191.66**	**6192.52**	**6192.52**	**6192.81**	**0.027534**	**4.44**	**7.87**	**14.12**	**1.00**
NS18	**14.0000**	**500YR**	**142.00**	**6172.79**	**6174.30**	**6174.06**	**6174.55**	**0.010009**	**4.67**	**43.40**	**47.66**	**0.69**
NS18	**14.0000**	**100YR**	**107.90**	**6172.79**	**6174.12**	**6173.90**	**6174.33**	**0.010007**	**4.26**	**35.07**	**42.83**	**0.68**
NS18	**14.0000**	**10YR**	**64.00**	**6172.79**	**6173.83**	**6173.65**	**6173.99**	**0.010016**	**3.56**	**23.63**	**36.52**	**0.65**
NS18	**14.0000**	**2YR**	**32.70**	**6172.79**	**6173.55**	**6173.41**	**6173.66**	**0.010012**	**2.82**	**14.33**	**30.80**	**0.61**

D-1. HEC-RAS Post-Project WARM Condition SUMMARY TABLE

Reach	River Sta	Profile	Q Total	Min Ch El		W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope		Vel Chnl	Flow Area
	Top Width		Froude # Chl									
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
NW2	110.0000	500YR	26.20	5864.01	5864.37		5864.39	0.003915	1.13	24.65	81.72	0.34
NW2	110.0000	100YR	19.20	5864.01	5864.32		5864.33	0.003842	1.01	20.11	78.42	0.33
NW2	110.0000	10YR	10.00	5864.01	5864.22	5864.11	5864.23	0.003803	0.79	13.09	71.62	0.31
NW2	110.0000	2YR	3.30	5864.01	5864.07	5864.07	5864.08	0.036590	1.03	3.21	58.43	0.77
NW2	109.5000	500YR	26.20	5861.97	5862.20	5862.20	5862.29	0.067496	3.16	11.45	63.03	1.29
NW2	109.5000	100YR	19.20	5861.97	5862.17	5862.17	5862.24	0.069717	2.87	9.32	61.70	1.27
NW2	109.5000	10YR	10.00	5861.97	5862.11	5862.11	5862.16	0.072688	2.32	6.12	59.71	1.22
NW2	109.5000	2YR	3.30	5861.97	5862.06	5862.06	5862.09	0.107909	1.91	2.67	56.87	1.35
NW2	109.0000	500YR	26.20	5858.01	5858.62	5858.42	5858.67	0.006139	2.01	15.98	41.52	0.47
NW2	109.0000	100YR	19.20	5858.01	5858.53	5858.35	5858.58	0.006065	1.79	12.58	35.70	0.45
NW2	109.0000	10YR	10.00	5858.01	5858.39	5858.24	5858.42	0.005628	1.38	8.00	29.81	0.41
NW2	109.0000	2YR	3.30	5858.01	5858.23	5858.14	5858.25	0.004829	0.86	3.89	22.70	0.35
NW2	108.9		Bridge									
NW2	108.875*	500YR	26.20	5857.51	5857.95		5858.06	0.020846	2.75	9.99	31.88	0.80
NW2	108.875*	100YR	19.20	5857.51	5857.88		5857.98	0.021065	2.46	8.04	29.31	0.78
NW2	108.875*	10YR	10.00	5857.51	5857.78		5857.84	0.020847	1.93	5.18	24.53	0.73
NW2	108.875*	2YR	3.30	5857.51	5857.64		5857.68	0.029428	1.50	2.20	19.34	0.78
NW2	108.75*	500YR	26.20	5857.01	5857.48	5857.39	5857.57	0.013549	2.30	11.76	34.10	0.65
NW2	108.75*	100YR	19.20	5857.01	5857.42	5857.32	5857.48	0.013194	2.04	9.57	31.93	0.63
NW2	108.75*	10YR	10.00	5857.01	5857.30		5857.34	0.013781	1.65	6.08	26.21	0.60
NW2	108.75*	2YR	3.30	5857.01	5857.18	5857.12	5857.19	0.010578	1.04	3.16	22.14	0.49
NW2	108.625*	500YR	26.20	5856.51	5856.90		5857.02	0.026719	2.76	9.48	30.86	0.88
NW2	108.625*	100YR	19.20	5856.51	5856.84		5856.94	0.027776	2.54	7.56	28.76	0.87
NW2	108.625*	10YR	10.00	5856.51	5856.74		5856.80	0.025399	1.99	5.02	25.71	0.79
NW2	108.625*	2YR	3.30	5856.51	5856.62	5856.62	5856.66	0.037836	1.54	2.14	21.63	0.87
NW2	108.5000	500YR	26.20	5856.01	5856.50		5856.56	0.009629	1.94	13.57	37.37	0.55
NW2	108.5000	100YR	19.20	5856.01	5856.43		5856.48	0.009456	1.74	11.06	33.20	0.53
NW2	108.5000	10YR	10.00	5856.01	5856.29		5856.33	0.010748	1.47	6.81	28.86	0.53
NW2	108.5000	2YR	3.30	5856.01	5856.17		5856.19	0.007845	0.91	3.64	25.16	0.42
NW2	108.0000	500YR	37.90	5853.40	5854.14	5854.10	5854.23	0.010515	2.80	22.38	88.23	0.62
NW2	108.0000	100YR	27.60	5853.40	5854.07	5853.97	5854.16	0.010649	2.60	16.20	82.87	0.61
NW2	108.0000	10YR	14.40	5853.40	5853.92		5853.98	0.009930	2.04	8.38	31.71	0.56
NW2	108.0000	2YR	4.70	5853.40	5853.71	5853.64	5853.74	0.013713	1.48	3.19	17.15	0.59
NW2	107.5000	500YR	37.90	5852.01	5852.36		5852.41	0.009649	1.79	21.70	68.78	0.54
NW2	107.5000	100YR	27.60	5852.01	5852.31		5852.34	0.009366	1.57	17.90	66.67	0.51
NW2	107.5000	10YR	14.40	5852.01	5852.21		5852.24	0.009269	1.21	11.97	62.50	0.48
NW2	107.5000	2YR	4.70	5852.01	5852.13		5852.14	0.006197	0.69	6.80	59.19	0.36
NW2	107.0000	500YR	37.90	5848.01	5848.77	5848.77	5848.97	0.021686	4.28	14.28	37.53	0.91
NW2	107.0000	100YR	27.60	5848.01	5848.67	5848.67	5848.84	0.023658	3.99	10.55	31.34	0.92
NW2	107.0000	10YR	14.40	5848.01	5848.50	5848.50	5848.64	0.026155	3.35	5.95	23.30	0.91
NW2	107.0000	2YR	4.70	5848.01	5848.30	5848.30	5848.39	0.035714	2.52	2.16	14.35	0.96
NW	100.0000	500YR	477.00	5912.01	5913.54	5913.54	5914.15	0.020066	6.74	86.61	80.79	0.99
NW	100.0000	100YR	345.50	5912.01	5913.30	5913.30	5913.80	0.020600	6.05	67.92	74.01	0.97
NW	100.0000	10YR	179.40	5912.01	5912.89	5912.89	5913.24	0.023971	4.96	40.61	61.00	0.98
NW	100.0000	2YR	62.60	5912.01	5912.49	5912.48	5912.68	0.027273	3.54	18.97	49.41	0.94
NW	99.5000	500YR	477.00	5909.28	5910.87	5910.87	5911.34	0.023380	7.50	106.96	108.59	1.07
NW	99.5000	100YR	345.50	5909.28	5910.64	5910.64	5911.04	0.024331	6.86	83.21	98.75	1.06
NW	99.5000	10YR	179.40	5909.28	5910.27	5910.27	5910.57	0.026234	5.68	49.99	81.32	1.04
NW	99.5000	2YR	62.60	5909.28	5909.91	5909.91	5910.08	0.024875	3.98	23.55	63.70	0.94
NW	99.0000	500YR	477.00	5906.01	5907.77		5908.18	0.014233	5.54	100.84	83.83	0.83
NW	99.0000	100YR	345.50	5906.01	5907.49		5907.85	0.014892	5.12	78.31	76.49	0.82
NW	99.0000	10YR	179.40	5906.01	5907.06		5907.31	0.014978	4.19	48.52	65.11	0.78
NW	99.0000	2YR	62.60	5906.01	5906.62	5906.52	5906.75	0.014721	2.95	22.78	50.43	0.71

NW	**98.5000**	**500YR**	**477.00**	**5903.51**	**5905.45**	**5905.32**	**5905.85**	**0.015446**	**7.09**	**121.06**	**112.07**	**0.91**
NW	**98.5000**	**100YR**	**345.50**	**5903.51**	**5905.23**		**5905.55**	**0.014235**	**6.26**	**97.06**	**100.52**	**0.85**
NW	**98.5000**	**10YR**	**179.40**	**5903.51**	**5904.79**		**5905.03**	**0.014055**	**5.10**	**58.40**	**78.35**	**0.80**
NW	**98.5000**	**2YR**	**62.60**	**5903.51**	**5904.30**		**5904.45**	**0.014425**	**3.69**	**25.63**	**54.60**	**0.75**
NW	**98.0000**	**500YR**	**477.00**	**5900.13**	**5902.87**	**5902.87**	**5903.44**	**0.013258**	**7.95**	**112.72**	**102.35**	**0.88**
NW	**98.0000**	**100YR**	**345.50**	**5900.13**	**5902.49**	**5902.49**	**5903.06**	**0.015200**	**7.64**	**78.87**	**76.93**	**0.92**
NW	**98.0000**	**10YR**	**179.40**	**5900.13**	**5901.87**	**5901.87**	**5902.36**	**0.017833**	**6.60**	**41.25**	**46.33**	**0.94**
NW	**98.0000**	**2YR**	**62.60**	**5900.13**	**5901.20**	**5901.20**	**5901.52**	**0.021121**	**4.92**	**16.43**	**28.74**	**0.93**
NW	**97.5000**	**500YR**	**477.00**	**5898.01**	**5900.70**		**5901.05**	**0.007140**	**5.58**	**135.91**	**127.39**	**0.64**
NW	**97.5000**	**100YR**	**345.50**	**5898.01**	**5900.44**		**5900.72**	**0.006390**	**4.88**	**105.08**	**109.90**	**0.59**
NW	**97.5000**	**10YR**	**179.40**	**5898.01**	**5899.90**		**5900.08**	**0.005490**	**3.73**	**61.98**	**56.57**	**0.52**
NW	**97.5000**	**2YR**	**62.60**	**5898.01**	**5899.25**		**5899.33**	**0.004629**	**2.40**	**30.53**	**39.45**	**0.44**
NW	**97.0000**	**500YR**	**477.00**	**5896.81**	**5898.61**	**5898.56**	**5899.01**	**0.027120**	**8.92**	**110.32**	**113.30**	**1.18**
NW	**97.0000**	**100YR**	**345.50**	**5896.81**	**5898.35**	**5898.33**	**5898.74**	**0.031285**	**8.61**	**82.48**	**99.80**	**1.24**
NW	**97.0000**	**10YR**	**179.40**	**5896.81**	**5897.94**	**5897.94**	**5898.26**	**0.033508**	**7.23**	**46.87**	**70.55**	**1.22**
NW	**97.0000**	**2YR**	**62.60**	**5896.81**	**5897.55**	**5897.55**	**5897.73**	**0.031993**	**5.25**	**22.37**	**54.58**	**1.10**
NW	**96.5000**	**500YR**	**477.00**	**5894.01**	**5896.24**		**5896.55**	**0.006844**	**5.10**	**132.35**	**98.54**	**0.61**
NW	**96.5000**	**100YR**	**345.50**	**5894.01**	**5895.94**		**5896.19**	**0.006676**	**4.55**	**104.14**	**86.69**	**0.59**
NW	**96.5000**	**10YR**	**179.40**	**5894.01**	**5895.43**		**5895.60**	**0.006160**	**3.53**	**64.92**	**69.39**	**0.54**
NW	**96.5000**	**2YR**	**62.60**	**5894.01**	**5894.85**		**5894.93**	**0.006145**	**2.42**	**29.95**	**50.55**	**0.49**
NW	**96.0000**	**500YR**	**548.70**	**5892.01**	**5894.11**	**5894.11**	**5894.69**	**0.016392**	**7.57**	**118.37**	**103.44**	**0.94**
NW	**96.0000**	**100YR**	**399.20**	**5892.01**	**5893.84**	**5893.84**	**5894.35**	**0.016447**	**6.89**	**91.86**	**93.05**	**0.92**
NW	**96.0000**	**10YR**	**208.00**	**5892.01**	**5893.35**	**5893.35**	**5893.75**	**0.018452**	**5.84**	**51.52**	**69.74**	**0.92**
NW	**96.0000**	**2YR**	**73.00**	**5892.01**	**5892.82**	**5892.81**	**5893.07**	**0.019576**	**4.19**	**21.65**	**45.38**	**0.87**
NW	**95.5000**	**500YR**	**548.70**	**5890.01**	**5891.46**		**5891.63**	**0.005293**	**3.41**	**171.07**	**134.11**	**0.50**
NW	**95.5000**	**100YR**	**399.20**	**5890.01**	**5891.20**		**5891.34**	**0.005475**	**3.05**	**137.87**	**128.97**	**0.50**
NW	**95.5000**	**10YR**	**208.00**	**5890.01**	**5890.81**		**5890.90**	**0.005926**	**2.43**	**88.50**	**119.92**	**0.48**
NW	**95.5000**	**2YR**	**73.00**	**5890.01**	**5890.41**		**5890.46**	**0.007509**	**1.74**	**42.56**	**111.39**	**0.49**
NW	**95.0000**	**500YR**	**548.70**	**5888.01**	**5889.96**	**5889.88**	**5890.41**	**0.013245**	**6.03**	**124.09**	**110.09**	**0.82**
NW	**95.0000**	**100YR**	**399.20**	**5888.01**	**5889.72**	**5889.62**	**5890.10**	**0.013152**	**5.47**	**97.62**	**104.08**	**0.80**
NW	**95.0000**	**10YR**	**208.00**	**5888.01**	**5889.28**	**5889.19**	**5889.56**	**0.013676**	**4.48**	**56.98**	**81.53**	**0.77**
NW	**95.0000**	**2YR**	**73.00**	**5888.01**	**5888.83**		**5888.97**	**0.012697**	**3.06**	**24.61**	**48.59**	**0.68**
NW	**94.5000**	**500YR**	**548.70**	**5886.01**	**5887.76**		**5888.10**	**0.009998**	**5.25**	**138.18**	**110.54**	**0.71**
NW	**94.5000**	**100YR**	**399.20**	**5886.01**	**5887.50**		**5887.78**	**0.010063**	**4.71**	**110.11**	**104.16**	**0.69**
NW	**94.5000**	**10YR**	**208.00**	**5886.01**	**5887.09**		**5887.27**	**0.009561**	**3.72**	**69.92**	**91.13**	**0.64**
NW	**94.5000**	**2YR**	**73.00**	**5886.01**	**5886.61**	**5886.46**	**5886.71**	**0.010118**	**2.61**	**31.96**	**67.13**	**0.60**
NW	**94.0000**	**500YR**	**548.70**	**5884.01**	**5886.31**		**5886.65**	**0.012546**	**6.87**	**145.09**	**113.00**	**0.83**
NW	**94.0000**	**100YR**	**399.20**	**5884.01**	**5886.06**		**5886.35**	**0.012301**	**6.25**	**116.88**	**107.54**	**0.80**
NW	**94.0000**	**10YR**	**208.00**	**5884.01**	**5885.54**		**5885.78**	**0.014368**	**5.43**	**66.81**	**83.89**	**0.82**
NW	**94.0000**	**2YR**	**73.00**	**5884.01**	**5884.99**		**5885.14**	**0.014967**	**3.93**	**29.13**	**55.15**	**0.77**
NW	**93.5000**	**500YR**	**548.70**	**5882.01**	**5884.30**	**5884.10**	**5884.58**	**0.009409**	**6.23**	**170.42**	**142.71**	**0.73**
NW	**93.5000**	**100YR**	**399.20**	**5882.01**	**5884.06**	**5883.69**	**5884.32**	**0.009251**	**5.74**	**136.64**	**138.59**	**0.71**
NW	**93.5000**	**10YR**	**208.00**	**5882.01**	**5883.56**	**5883.18**	**5883.73**	**0.008207**	**4.47**	**80.27**	**89.16**	**0.64**
NW	**93.5000**	**2YR**	**73.00**	**5882.01**	**5882.96**	**5882.76**	**5883.07**	**0.008238**	**3.23**	**35.38**	**60.49**	**0.59**
NW	**93.0000**	**500YR**	**548.70**	**5880.01**	**5881.78**	**5881.62**	**5882.13**	**0.012122**	**5.77**	**147.76**	**150.58**	**0.79**
NW	**93.0000**	**100YR**	**399.20**	**5880.01**	**5881.52**	**5881.39**	**5881.84**	**0.012682**	**5.30**	**112.50**	**132.18**	**0.78**
NW	**93.0000**	**10YR**	**208.00**	**5880.01**	**5881.13**	**5880.97**	**5881.36**	**0.013281**	**4.36**	**65.54**	**102.95**	**0.76**
NW	**93.0000**	**2YR**	**73.00**	**5880.01**	**5880.69**		**5880.80**	**0.012137**	**2.92**	**30.02**	**63.43**	**0.66**
NW	**92.5000**	**500YR**	**548.70**	**5878.01**	**5879.66**		**5879.77**	**0.006295**	**3.83**	**217.29**	**156.89**	**0.55**
NW	**92.5000**	**100YR**	**399.20**	**5878.01**	**5879.40**		**5879.49**	**0.006057**	**3.31**	**178.08**	**149.16**	**0.53**
NW	**92.5000**	**10YR**	**208.00**	**5878.01**	**5878.98**		**5879.03**	**0.005824**	**2.45**	**117.55**	**135.77**	**0.48**
NW	**92.5000**	**2YR**	**73.00**	**5878.01**	**5878.54**		**5878.56**	**0.005907**	**1.48**	**60.32**	**122.43**	**0.43**
NW	**92.0000**	**500YR**	**548.70**	**5875.73**	**5876.81**	**5876.64**	**5876.98**	**0.020466**	**5.45**	**177.82**	**233.31**	**0.94**
NW	**92.0000**	**100YR**	**399.20**	**5875.73**	**5876.68**		**5876.81**	**0.019572**	**4.87**	**146.99**	**227.03**	**0.90**
NW	**92.0000**	**10YR**	**208.00**	**5875.73**	**5876.47**		**5876.55**	**0.017122**	**3.83**	**100.78**	**215.42**	**0.81**

NW	**92.0000**	**2YR**	**73.00**	**5875.73**	**5876.25**	**5876.18**	**5876.29**	**0.013195**	**2.63**	**55.86**	**203.28**	**0.67**
NW	**91.5000**	**500YR**	**548.70**	**5874.01**	**5875.13**		**5875.24**	**0.004838**	**2.75**	**230.57**	**246.93**	**0.46**
NW	**91.5000**	**100YR**	**399.20**	**5874.01**	**5874.94**		**5875.03**	**0.005118**	**2.48**	**183.68**	**239.28**	**0.46**
NW	**91.5000**	**10YR**	**208.00**	**5874.01**	**5874.63**		**5874.70**	**0.005839**	**2.04**	**113.27**	**219.60**	**0.46**
NW	**91.5000**	**2YR**	**73.00**	**5874.01**	**5874.33**		**5874.37**	**0.007240**	**1.47**	**52.06**	**185.59**	**0.46**
NW	**91.0000**	**500YR**	**632.40**	**5872.01**	**5873.47**		**5873.72**	**0.008712**	**4.40**	**187.49**	**190.37**	**0.65**
NW	**91.0000**	**100YR**	**463.70**	**5872.01**	**5873.25**		**5873.46**	**0.008734**	**3.95**	**148.15**	**172.22**	**0.63**
NW	**91.0000**	**10YR**	**243.80**	**5872.01**	**5872.91**		**5873.04**	**0.008370**	**3.09**	**93.42**	**141.60**	**0.58**
NW	**91.0000**	**2YR**	**85.70**	**5872.01**	**5872.53**		**5872.60**	**0.007779**	**2.05**	**45.92**	**111.31**	**0.51**
NW	**90.5000**	**500YR**	**632.40**	**5868.01**	**5869.44**	**5869.44**	**5870.00**	**0.020515**	**6.47**	**117.13**	**107.39**	**0.98**
NW	**90.5000**	**100YR**	**463.70**	**5868.01**	**5869.20**	**5869.20**	**5869.67**	**0.021505**	**5.88**	**92.41**	**98.45**	**0.98**
NW	**90.5000**	**10YR**	**243.80**	**5868.01**	**5868.81**	**5868.81**	**5869.15**	**0.025077**	**4.91**	**56.23**	**85.63**	**0.99**
NW	**90.5000**	**2YR**	**85.70**	**5868.01**	**5868.43**	**5868.43**	**5868.62**	**0.030386**	**3.56**	**26.17**	**74.02**	**0.98**
NW	**90.0000**	**500YR**	**632.40**	**5864.61**	**5866.53**	**5865.89**	**5866.60**	**0.003412**	**3.33**	**362.81**	**317.90**	**0.43**
NW	**90.0000**	**100YR**	**463.70**	**5864.61**	**5866.32**	**5865.79**	**5866.38**	**0.003279**	**3.02**	**297.13**	**304.30**	**0.41**
NW	**90.0000**	**10YR**	**243.80**	**5864.61**	**5865.97**	**5865.54**	**5866.01**	**0.003060**	**2.50**	**193.42**	**274.56**	**0.38**
NW	**90.0000**	**2YR**	**85.70**	**5864.61**	**5865.48**		**5865.51**	**0.003219**	**1.90**	**82.57**	**180.52**	**0.36**
NW	**89.5000**	**500YR**	**632.40**	**5862.01**	**5862.91**	**5862.91**	**5863.21**	**0.053791**	**6.33**	**146.35**	**236.34**	**1.40**
NW	**89.5000**	**100YR**	**463.70**	**5862.01**	**5862.77**	**5862.77**	**5863.04**	**0.059609**	**6.08**	**115.29**	**224.51**	**1.44**
NW	**89.5000**	**10YR**	**243.80**	**5862.01**	**5862.57**	**5862.57**	**5862.77**	**0.069954**	**5.54**	**72.02**	**207.00**	**1.50**
NW	**89.5000**	**2YR**	**85.70**	**5862.01**	**5862.41**	**5862.41**	**5862.49**	**0.040947**	**3.46**	**39.25**	**148.82**	**1.09**
NW	**89.0000**	**500YR**	**1097.00**	**5856.01**	**5857.75**		**5857.89**	**0.003788**	**3.30**	**436.33**	**372.83**	**0.44**
NW	**89.0000**	**100YR**	**805.80**	**5856.01**	**5857.48**		**5857.60**	**0.003870**	**2.98**	**341.45**	**332.06**	**0.43**
NW	**89.0000**	**10YR**	**428.60**	**5856.01**	**5857.05**		**5857.13**	**0.004033**	**2.41**	**210.69**	**270.64**	**0.42**
NW	**89.0000**	**2YR**	**156.40**	**5856.01**	**5856.59**		**5856.63**	**0.004393**	**1.69**	**100.68**	**208.65**	**0.40**
NW	**88.5000**	**500YR**	**1097.00**	**5854.01**	**5855.97**		**5856.09**	**0.003197**	**3.28**	**483.05**	**394.42**	**0.41**
NW	**88.5000**	**100YR**	**805.80**	**5854.01**	**5855.69**		**5855.80**	**0.003143**	**2.94**	**380.42**	**347.76**	**0.40**
NW	**88.5000**	**10YR**	**428.60**	**5854.01**	**5855.22**		**5855.30**	**0.003150**	**2.36**	**233.80**	**275.83**	**0.38**
NW	**88.5000**	**2YR**	**156.40**	**5854.01**	**5854.72**		**5854.76**	**0.003085**	**1.63**	**112.37**	**207.02**	**0.34**
NW	**88.0000**	**500YR**	**1097.00**	**5852.01**	**5853.84**	**5853.84**	**5854.35**	**0.018409**	**7.44**	**257.41**	**270.52**	**0.98**
NW	**88.0000**	**100YR**	**805.80**	**5852.01**	**5853.57**	**5853.57**	**5854.05**	**0.020279**	**6.98**	**189.95**	**219.71**	**1.00**
NW	**88.0000**	**10YR**	**428.60**	**5852.01**	**5853.15**	**5853.15**	**5853.52**	**0.021644**	**5.83**	**111.23**	**161.39**	**0.98**
NW	**88.0000**	**2YR**	**156.40**	**5852.01**	**5852.68**	**5852.68**	**5852.93**	**0.027467**	**4.50**	**46.40**	**108.06**	**1.00**
NW	**87.5000**	**500YR**	**1097.00**	**5850.01**	**5852.42**		**5852.46**	**0.001450**	**2.53**	**852.46**	**710.41**	**0.29**
NW	**87.5000**	**100YR**	**805.80**	**5850.01**	**5852.14**		**5852.18**	**0.001613**	**2.45**	**655.27**	**688.30**	**0.30**
NW	**87.5000**	**10YR**	**428.60**	**5850.01**	**5851.67**		**5851.70**	**0.001354**	**1.90**	**395.36**	**444.42**	**0.26**
NW	**87.5000**	**2YR**	**156.40**	**5850.01**	**5851.11**		**5851.14**	**0.001260**	**1.40**	**179.75**	**324.57**	**0.24**
NW	**87.0000**	**500YR**	**1097.00**	**5847.98**	**5849.33**	**5849.33**	**5849.75**	**0.041303**	**8.98**	**249.12**	**486.37**	**1.39**
NW	**87.0000**	**100YR**	**805.80**	**5847.98**	**5849.34**	**5849.34**	**5849.56**	**0.021846**	**6.55**	**251.49**	**487.74**	**1.01**
NW	**87.0000**	**10YR**	**428.60**	**5847.98**	**5848.80**	**5848.80**	**5849.11**	**0.045468**	**6.63**	**105.44**	**173.95**	**1.34**
NW	**87.0000**	**2YR**	**156.40**	**5847.98**	**5848.45**	**5848.45**	**5848.63**	**0.056212**	**4.87**	**49.52**	**141.97**	**1.34**
NW4	**69.5000**	**500YR**	**8564.10**	**5852.01**	**5860.17**		**5860.63**	**0.004445**	**9.68**	**1870.89**	**461.71**	**0.61**
NW4	**69.5000**	**100YR**	**6190.30**	**5852.01**	**5859.16**		**5859.61**	**0.005117**	**9.48**	**1420.98**	**429.76**	**0.64**
NW4	**69.5000**	**10YR**	**3077.90**	**5852.01**	**5857.51**		**5857.97**	**0.006658**	**9.02**	**773.52**	**342.23**	**0.69**
NW4	**69.5000**	**2YR**	**1100.30**	**5852.01**	**5856.22**	**5856.22**	**5856.66**	**0.006824**	**7.56**	**355.05**	**304.61**	**0.67**
NW4	**69.0000**	**500YR**	**8564.10**	**5852.01**	**5859.53**		**5859.88**	**0.002857**	**7.41**	**2068.41**	**433.60**	**0.48**
NW4	**69.0000**	**100YR**	**6190.30**	**5852.01**	**5858.46**		**5858.77**	**0.003129**	**6.97**	**1611.50**	**416.61**	**0.49**
NW4	**69.0000**	**10YR**	**3077.90**	**5852.01**	**5856.63**		**5856.89**	**0.003924**	**6.19**	**912.65**	**356.80**	**0.52**
NW4	**69.0000**	**2YR**	**1100.30**	**5852.01**	**5855.01**		**5855.24**	**0.005458**	**5.35**	**382.40**	**280.24**	**0.57**
NW4	**68.5000**	**500YR**	**8610.70**	**5850.01**	**5858.15**		**5858.96**	**0.005983**	**11.59**	**1500.53**	**348.34**	**0.72**
NW4	**68.5000**	**100YR**	**6225.20**	**5850.01**	**5857.21**		**5857.85**	**0.005373**	**10.12**	**1202.28**	**299.88**	**0.67**
NW4	**68.5000**	**10YR**	**3097.80**	**5850.01**	**5855.24**		**5855.79**	**0.006273**	**8.82**	**674.65**	**240.20**	**0.68**
NW4	**68.5000**	**2YR**	**1106.00**	**5850.01**	**5853.25**		**5853.74**	**0.008589**	**7.48**	**269.33**	**163.52**	**0.74**
NW4	**68.4166***	**500YR**	**8610.70**	**5849.60**	**5857.88**		**5858.72**	**0.005141**	**10.87**	**1537.67**	**351.74**	**0.67**
NW4	**68.4166***	**100YR**	**6225.20**	**5849.60**	**5856.98**		**5857.64**	**0.004496**	**9.41**	**1243.83**	**307.64**	**0.61**

NW4	**68.4166***	**10YR**	**3097.80**	**5849.60**	**5854.03**	**5853.54**	**5855.33**	**0.013826**	**11.72**	**474.27**	**220.13**	**0.98**
NW4	**68.4166***	**2YR**	**1106.00**	**5849.60**	**5852.53**	**5852.53**	**5853.29**	**0.011621**	**8.13**	**212.54**	**141.90**	**0.84**
NW4	**68.3333***	**500YR**	**8610.70**	**5849.20**	**5857.75**		**5858.50**	**0.003887**	**9.66**	**1645.55**	**356.83**	**0.58**
NW4	**68.3333***	**100YR**	**6225.20**	**5849.20**	**5856.87**		**5857.46**	**0.003336**	**8.32**	**1346.42**	**319.74**	**0.53**
NW4	**68.3333***	**10YR**	**3097.80**	**5849.20**	**5853.49**	**5853.04**	**5854.78**	**0.012401**	**10.86**	**458.46**	**204.27**	**0.93**
NW4	**68.3333***	**2YR**	**1106.00**	**5849.20**	**5851.81**	**5851.81**	**5852.64**	**0.013198**	**8.01**	**188.96**	**129.82**	**0.88**
NW4	**68.25***	**500YR**	**8610.70**	**5848.79**	**5857.70**		**5858.33**	**0.002829**	**8.46**	**1800.82**	**368.68**	**0.50**
NW4	**68.25***	**100YR**	**6225.20**	**5848.79**	**5856.83**		**5857.30**	**0.002357**	**7.21**	**1493.91**	**336.04**	**0.45**
NW4	**68.25***	**10YR**	**3097.80**	**5848.79**	**5853.47**		**5854.25**	**0.006448**	**8.30**	**571.08**	**217.35**	**0.68**
NW4	**68.25***	**2YR**	**1106.00**	**5848.79**	**5851.72**		**5852.16**	**0.005808**	**5.75**	**257.59**	**149.02**	**0.60**
NW4	**68.1666***	**500YR**	**8610.70**	**5848.39**	**5857.69**		**5858.19**	**0.002009**	**7.34**	**1993.97**	**378.61**	**0.43**
NW4	**68.1666***	**100YR**	**6225.20**	**5848.39**	**5856.82**		**5857.19**	**0.001608**	**6.15**	**1681.52**	**347.37**	**0.37**
NW4	**68.1666***	**10YR**	**3097.80**	**5848.39**	**5853.46**		**5853.97**	**0.003651**	**6.59**	**697.29**	**235.63**	**0.52**
NW4	**68.1666***	**2YR**	**1106.00**	**5848.39**	**5851.70**		**5851.93**	**0.002661**	**4.22**	**345.32**	**166.39**	**0.41**
NW4	**68.0833***	**500YR**	**8610.70**	**5847.98**	**5857.68**		**5858.08**	**0.001445**	**6.40**	**2214.05**	**392.82**	**0.36**
NW4	**68.0833***	**100YR**	**6225.20**	**5847.98**	**5856.82**		**5857.11**	**0.001122**	**5.30**	**1889.62**	**361.84**	**0.31**
NW4	**68.0833***	**10YR**	**3097.80**	**5847.98**	**5853.46**		**5853.80**	**0.002175**	**5.35**	**840.08**	**256.87**	**0.40**
NW4	**68.0833***	**2YR**	**1106.00**	**5847.98**	**5851.69**		**5851.83**	**0.001333**	**3.22**	**446.97**	**185.29**	**0.30**
NW4	**68.0000**	**500YR**	**8610.70**	**5847.58**	**5857.69**		**5858.01**	**0.001061**	**5.64**	**2451.25**	**409.32**	**0.31**
NW4	**68.0000**	**100YR**	**6225.20**	**5847.58**	**5856.83**		**5857.05**	**0.000805**	**4.62**	**2111.94**	**378.31**	**0.27**
NW4	**68.0000**	**10YR**	**3097.80**	**5847.58**	**5853.46**		**5853.70**	**0.001370**	**4.45**	**998.27**	**283.56**	**0.32**
NW4	**68.0000**	**2YR**	**1106.00**	**5847.58**	**5851.68**		**5851.77**	**0.000729**	**2.55**	**562.38**	**208.21**	**0.22**
NW4	**67.875***	**500YR**	**8610.70**	**5847.30**	**5857.31**	**5854.75**	**5857.93**	**0.002576**	**7.79**	**1774.27**	**365.09**	**0.47**
NW4	**67.875***	**100YR**	**6225.20**	**5847.30**	**5856.55**	**5853.90**	**5856.99**	**0.002004**	**6.45**	**1509.38**	**334.57**	**0.41**
NW4	**67.875***	**10YR**	**3097.80**	**5847.30**	**5852.72**	**5852.06**	**5853.56**	**0.007845**	**8.08**	**500.18**	**185.33**	**0.72**
NW4	**67.875***	**2YR**	**1106.00**	**5847.30**	**5851.41**	**5850.59**	**5851.71**	**0.004483**	**4.64**	**287.94**	**144.82**	**0.51**
NW4	**67.8**		**Bridge**									
NW4	**67.75***	**500YR**	**8610.70**	**5845.86**	**5853.65**	**5853.65**	**5855.34**	**0.010241**	**11.39**	**1025.48**	**327.89**	**0.87**
NW4	**67.75***	**100YR**	**6225.20**	**5845.86**	**5852.79**	**5852.79**	**5854.31**	**0.011116**	**10.53**	**756.86**	**288.90**	**0.88**
NW4	**67.75***	**10YR**	**3097.80**	**5845.86**	**5851.16**	**5851.16**	**5852.38**	**0.015108**	**9.06**	**379.29**	**181.54**	**0.95**
NW4	**67.75***	**2YR**	**1106.00**	**5845.86**	**5849.56**	**5849.56**	**5850.41**	**0.020698**	**7.40**	**149.42**	**91.24**	**1.02**
NW4	**67.625***	**500YR**	**8610.70**	**5844.51**	**5851.38**	**5851.38**	**5853.06**	**0.014313**	**15.58**	**1060.32**	**303.70**	**1.07**
NW4	**67.625***	**100YR**	**6225.20**	**5844.51**	**5850.57**	**5850.57**	**5852.04**	**0.014287**	**14.26**	**826.46**	**271.02**	**1.04**
NW4	**67.625***	**10YR**	**3097.80**	**5844.51**	**5849.25**	**5849.25**	**5850.32**	**0.013014**	**11.46**	**501.79**	**221.67**	**0.95**
NW4	**67.625***	**2YR**	**1106.00**	**5844.51**	**5847.88**	**5847.85**	**5848.55**	**0.010941**	**8.23**	**235.14**	**163.81**	**0.82**
NW4	**67.5000**	**500YR**	**8610.70**	**5844.01**	**5850.81**	**5850.81**	**5852.45**	**0.014616**	**15.61**	**1084.45**	**321.30**	**1.08**
NW4	**67.5000**	**100YR**	**6225.20**	**5844.01**	**5850.11**	**5850.11**	**5851.49**	**0.013502**	**13.92**	**870.83**	**292.63**	**1.02**
NW4	**67.5000**	**10YR**	**3097.80**	**5844.01**	**5848.91**	**5848.83**	**5849.86**	**0.011313**	**10.93**	**547.09**	**246.85**	**0.89**
NW4	**67.5000**	**2YR**	**1106.00**	**5844.01**	**5847.76**		**5848.25**	**0.006901**	**7.06**	**291.63**	**197.37**	**0.67**
NW4	**67.0000**	**500YR**	**8610.70**	**5844.01**	**5849.25**		**5849.79**	**0.006639**	**9.05**	**1724.84**	**522.37**	**0.70**
NW4	**67.0000**	**100YR**	**6225.20**	**5844.01**	**5848.66**		**5849.09**	**0.006099**	**8.00**	**1421.37**	**502.52**	**0.66**
NW4	**67.0000**	**10YR**	**3097.80**	**5844.01**	**5847.54**		**5847.84**	**0.005867**	**6.51**	**883.29**	**451.64**	**0.62**
NW4	**67.0000**	**2YR**	**1106.00**	**5844.01**	**5846.32**		**5846.58**	**0.007109**	**5.38**	**385.29**	**362.20**	**0.63**
NW4	**66.5000**	**500YR**	**8610.70**	**5842.01**	**5846.38**		**5847.17**	**0.010387**	**10.08**	**1543.88**	**608.96**	**0.85**
NW4	**66.5000**	**100YR**	**6225.20**	**5842.01**	**5845.78**		**5846.51**	**0.011181**	**9.46**	**1186.70**	**565.96**	**0.86**
NW4	**66.5000**	**10YR**	**3097.80**	**5842.01**	**5844.71**		**5845.27**	**0.011790**	**7.77**	**668.44**	**420.77**	**0.84**
NW4	**66.5000**	**2YR**	**1106.00**	**5842.01**	**5843.55**		**5843.82**	**0.010796**	**5.08**	**295.96**	**232.27**	**0.73**
NW4	**66.0000**	**500YR**	**8610.70**	**5840.01**	**5845.19**		**5845.73**	**0.003780**	**6.83**	**1806.54**	**533.29**	**0.53**
NW4	**66.0000**	**100YR**	**6225.20**	**5840.01**	**5843.84**		**5844.51**	**0.006618**	**7.38**	**1140.03**	**450.97**	**0.67**
NW4	**66.0000**	**10YR**	**3097.80**	**5840.01**	**5842.63**		**5843.10**	**0.007250**	**5.98**	**651.41**	**357.15**	**0.65**
NW4	**66.0000**	**2YR**	**1106.00**	**5840.01**	**5841.50**		**5841.74**	**0.007318**	**4.12**	**306.85**	**257.27**	**0.60**
NW4	**65.5000**	**500YR**	**9600.70**	**5836.92**	**5844.75**		**5844.88**	**0.001316**	**5.30**	**3592.05**	**760.03**	**0.33**
NW4	**65.5000**	**100YR**	**6951.20**	**5836.92**	**5842.12**		**5842.39**	**0.004832**	**7.72**	**1817.48**	**603.23**	**0.60**
NW4	**65.5000**	**10YR**	**3461.40**	**5836.92**	**5840.81**		**5840.97**	**0.004665**	**6.24**	**1123.21**	**484.29**	**0.56**
NW4	**65.5000**	**2YR**	**1265.10**	**5836.92**	**5839.55**		**5839.64**	**0.004756**	**4.84**	**568.98**	**403.64**	**0.53**

NW4	**65.0000**	**500YR**	**9600.70**	**5836.01**	**5844.45**		**5844.55**	**0.000759**	**4.21**	**4362.72**	**818.69**	**0.26**
NW4	**65.0000**	**100YR**	**6951.20**	**5836.01**	**5840.37**		**5840.70**	**0.005562**	**7.27**	**1657.71**	**537.63**	**0.62**
NW4	**65.0000**	**10YR**	**3461.40**	**5836.01**	**5839.36**		**5839.54**	**0.004193**	**5.26**	**1138.34**	**489.31**	**0.52**
NW4	**65.0000**	**2YR**	**1265.10**	**5836.01**	**5838.21**		**5838.30**	**0.003617**	**3.66**	**611.88**	**431.27**	**0.45**
NW4	**64.5000**	**500YR**	**9600.70**	**5834.01**	**5844.39**		**5844.43**	**0.000209**	**2.54**	**6956.02**	**1026.28**	**0.14**
NW4	**64.5000**	**100YR**	**6951.20**	**5834.01**	**5838.85**		**5839.23**	**0.004585**	**7.12**	**1780.44**	**630.17**	**0.57**
NW4	**64.5000**	**10YR**	**3461.40**	**5834.01**	**5836.98**	**5836.84**	**5837.58**	**0.011647**	**8.15**	**738.31**	**476.94**	**0.84**
NW4	**64.5000**	**2YR**	**1265.10**	**5834.01**	**5835.80**	**5835.71**	**5836.32**	**0.016335**	**6.81**	**273.03**	**260.13**	**0.91**
NW4	**64.0000**	**500YR**	**9600.70**	**5830.01**	**5844.35**		**5844.38**	**0.000102**	**2.20**	**8359.82**	**890.35**	**0.10**
NW4	**64.0000**	**100YR**	**6951.20**	**5830.01**	**5838.57**		**5838.66**	**0.000757**	**4.25**	**3427.77**	**732.87**	**0.26**
NW4	**64.0000**	**10YR**	**3461.40**	**5830.01**	**5834.50**		**5834.87**	**0.006341**	**7.97**	**939.86**	**447.73**	**0.67**
NW4	**64.0000**	**2YR**	**1265.10**	**5830.01**	**5833.19**		**5833.44**	**0.005583**	**5.91**	**444.90**	**314.62**	**0.59**
NW4	**63.5000**	**500YR**	**9600.70**	**5828.01**	**5844.34**		**5844.35**	**0.000046**	**1.61**	**10659.12**	**900.97**	**0.07**
NW4	**63.5000**	**100YR**	**6951.20**	**5828.01**	**5838.50**		**5838.53**	**0.000200**	**2.49**	**5487.21**	**873.10**	**0.14**
NW4	**63.5000**	**10YR**	**3461.40**	**5828.01**	**5831.85**		**5832.40**	**0.010189**	**8.92**	**837.69**	**531.67**	**0.82**
NW4	**63.5000**	**2YR**	**1265.10**	**5828.01**	**5830.83**	**5830.83**	**5831.26**	**0.009077**	**6.79**	**383.40**	**399.37**	**0.73**
NW4	**63.0000**	**500YR**	**9600.70**	**5826.01**	**5844.34**		**5844.35**	**0.000023**	**1.21**	**13688.77**	**1020.36**	**0.05**
NW4	**63.0000**	**100YR**	**6951.20**	**5826.01**	**5838.49**		**5838.50**	**0.000069**	**1.63**	**7847.53**	**979.63**	**0.08**
NW4	**63.0000**	**10YR**	**3461.40**	**5826.01**	**5830.13**		**5830.59**	**0.006268**	**7.18**	**897.13**	**510.14**	**0.65**
NW4	**63.0000**	**2YR**	**1265.10**	**5826.01**	**5828.83**	**5828.66**	**5829.19**	**0.006483**	**5.54**	**372.22**	**338.26**	**0.61**
NW4	**62.5000**	**500YR**	**9600.70**	**5824.01**	**5844.33**		**5844.34**	**0.000017**	**1.13**	**14569.46**	**925.19**	**0.04**
NW4	**62.5000**	**100YR**	**6951.20**	**5824.01**	**5838.48**		**5838.49**	**0.000041**	**1.38**	**9153.62**	**916.10**	**0.06**
NW4	**62.5000**	**10YR**	**3461.40**	**5824.01**	**5828.02**	**5827.65**	**5828.44**	**0.007986**	**7.98**	**920.01**	**545.25**	**0.73**
NW4	**62.5000**	**2YR**	**1265.10**	**5824.01**	**5827.11**	**5826.88**	**5827.35**	**0.005368**	**5.44**	**491.08**	**436.76**	**0.57**
NW4	**62.0000**	**500YR**	**9600.70**	**5822.01**	**5844.33**		**5844.33**	**0.000005**	**0.66**	**23805.84**	**1251.52**	**0.02**
NW4	**62.0000**	**100YR**	**6951.20**	**5822.01**	**5838.48**		**5838.48**	**0.000009**	**0.71**	**16476.38**	**1251.52**	**0.03**
NW4	**62.0000**	**10YR**	**3461.40**	**5822.01**	**5824.46**	**5823.95**	**5824.84**	**0.016740**	**8.29**	**823.55**	**658.72**	**0.97**
NW4	**62.0000**	**2YR**	**1265.10**	**5822.01**	**5823.28**	**5823.28**	**5823.68**	**0.038112**	**7.67**	**275.87**	**336.38**	**1.29**
NW3	**79.5000**	**500YR**	**1134.80**	**5846.01**	**5848.23**		**5848.36**	**0.004179**	**4.01**	**505.55**	**399.00**	**0.48**
NW3	**79.5000**	**100YR**	**833.40**	**5846.01**	**5847.94**		**5848.05**	**0.004194**	**3.65**	**396.64**	**353.26**	**0.47**
NW3	**79.5000**	**10YR**	**443.00**	**5846.01**	**5847.48**		**5847.57**	**0.004649**	**3.17**	**241.49**	**313.26**	**0.47**
NW3	**79.5000**	**2YR**	**161.10**	**5846.01**	**5846.97**		**5847.04**	**0.005072**	**2.46**	**98.89**	**211.97**	**0.46**
NW3	**79.0000**	**500YR**	**1134.80**	**5844.01**	**5846.94**		**5847.17**	**0.005203**	**5.03**	**382.76**	**272.13**	**0.55**
NW3	**79.0000**	**100YR**	**833.40**	**5844.01**	**5846.57**		**5846.79**	**0.005868**	**4.82**	**287.21**	**238.62**	**0.57**
NW3	**79.0000**	**10YR**	**443.00**	**5844.01**	**5845.94**		**5846.13**	**0.006863**	**4.18**	**156.72**	**150.21**	**0.58**
NW3	**79.0000**	**2YR**	**161.10**	**5844.01**	**5845.14**		**5845.30**	**0.009508**	**3.52**	**60.84**	**90.75**	**0.63**
NW3	**78.5000**	**500YR**	**1134.80**	**5842.01**	**5845.63**		**5845.87**	**0.003686**	**5.02**	**388.67**	**218.69**	**0.49**
NW3	**78.5000**	**100YR**	**833.40**	**5842.01**	**5845.26**		**5845.47**	**0.003444**	**4.49**	**312.58**	**200.69**	**0.46**
NW3	**78.5000**	**10YR**	**443.00**	**5842.01**	**5844.59**		**5844.75**	**0.003310**	**3.71**	**188.96**	**167.69**	**0.43**
NW3	**78.5000**	**2YR**	**161.10**	**5842.01**	**5843.77**		**5843.86**	**0.002833**	**2.55**	**79.22**	**81.99**	**0.37**
NW3	**78.0000**	**500YR**	**1468.90**	**5842.01**	**5844.70**		**5844.96**	**0.003864**	**4.42**	**430.49**	**260.76**	**0.48**
NW3	**78.0000**	**100YR**	**1076.00**	**5842.01**	**5844.01**		**5844.31**	**0.006445**	**4.66**	**275.23**	**189.28**	**0.59**
NW3	**78.0000**	**10YR**	**566.10**	**5842.01**	**5843.42**		**5843.62**	**0.006514**	**3.69**	**172.99**	**159.67**	**0.56**
NW3	**78.0000**	**2YR**	**192.70**	**5842.01**	**5842.84**		**5842.92**	**0.005375**	**2.30**	**88.30**	**129.22**	**0.46**
NW3	**77.5000**	**500YR**	**1468.90**	**5840.01**	**5844.46**		**5844.56**	**0.001053**	**3.16**	**777.78**	**397.46**	**0.27**
NW3	**77.5000**	**100YR**	**1076.00**	**5840.01**	**5842.40**		**5842.84**	**0.008799**	**5.88**	**239.03**	**166.36**	**0.70**
NW3	**77.5000**	**10YR**	**566.10**	**5840.01**	**5841.71**		**5842.04**	**0.010284**	**4.94**	**138.69**	**125.07**	**0.71**
NW3	**77.5000**	**2YR**	**192.70**	**5840.01**	**5840.85**	**5840.79**	**5841.11**	**0.019744**	**4.22**	**50.05**	**80.79**	**0.87**
NW3	**77.0000**	**500YR**	**1490.90**	**5838.01**	**5844.42**		**5844.45**	**0.000343**	**2.35**	**1270.36**	**383.78**	**0.16**
NW3	**77.0000**	**100YR**	**1091.60**	**5838.01**	**5841.61**		**5841.85**	**0.004040**	**5.44**	**367.34**	**202.88**	**0.51**
NW3	**77.0000**	**10YR**	**574.40**	**5838.01**	**5840.90**		**5841.08**	**0.003577**	**4.41**	**235.08**	**171.54**	**0.46**
NW3	**77.0000**	**2YR**	**196.00**	**5838.01**	**5839.96**		**5840.07**	**0.002969**	**3.05**	**93.24**	**80.57**	**0.39**
NW3	**76.5000**	**500YR**	**1490.90**	**5838.01**	**5844.38**		**5844.40**	**0.000191**	**1.76**	**1491.15**	**365.88**	**0.12**
NW3	**76.5000**	**100YR**	**1091.60**	**5838.01**	**5841.06**		**5841.20**	**0.002710**	**4.04**	**458.59**	**256.65**	**0.41**
NW3	**76.5000**	**10YR**	**574.40**	**5838.01**	**5840.32**		**5840.45**	**0.002969**	**3.51**	**275.80**	**240.26**	**0.41**

NW3	76.5000	2YR	196.00	5838.01	5839.51		5839.57	0.002253	2.28	123.90	136.54	0.33
NW3	76.0000	500YR	1490.90	5838.01	5844.35		5844.37	0.000137	1.48	1639.73	445.47	0.10
NW3	76.0000	100YR	1091.60	5838.01	5839.73	5839.59	5840.27	0.014341	6.28	211.12	172.99	0.85
NW3	76.0000	10YR	574.40	5838.01	5839.53		5839.74	0.006359	3.84	177.43	161.46	0.56
NW3	76.0000	2YR	196.00	5838.01	5838.84		5838.95	0.007054	2.65	79.72	121.10	0.53
NW3	75.5000	500YR	1490.90	5835.60	5844.34		5844.35	0.000046	1.07	2598.05	418.43	0.06
NW3	75.5000	100YR	1091.60	5835.60	5838.57		5838.65	0.002744	4.02	534.74	284.03	0.41
NW3	75.5000	10YR	574.40	5835.60	5837.32		5837.45	0.010688	5.49	212.91	214.94	0.74
NW3	75.5000	2YR	196.00	5835.60	5836.73		5836.79	0.008577	3.72	105.20	153.60	0.62
NW3	75.0000	500YR	1490.90	5833.31	5844.34		5844.34	0.000018	0.78	3569.14	483.03	0.04
NW3	75.0000	100YR	1091.60	5833.31	5838.50		5838.52	0.000224	1.66	1184.85	326.62	0.13
NW3	75.0000	10YR	574.40	5833.31	5834.84		5835.03	0.013224	5.62	188.49	195.99	0.81
NW3	75.0000	2YR	196.00	5833.31	5834.25		5834.39	0.016959	4.57	82.94	162.38	0.84
NW3	74.5000	500YR	1490.90	5831.30	5844.34		5844.34	0.000011	0.69	4172.42	486.50	0.03
NW3	74.5000	100YR	1091.60	5831.30	5838.49		5838.49	0.000064	1.10	1772.53	338.37	0.07
NW3	74.5000	10YR	574.40	5831.30	5833.07		5833.17	0.006190	4.23	246.81	204.95	0.57
NW3	74.5000	2YR	196.00	5831.30	5832.45		5832.49	0.005358	2.94	127.60	180.08	0.49
NW3	74.0000	500YR	1490.90	5828.71	5844.33		5844.34	0.000004	0.44	6905.26	716.63	0.02
NW3	74.0000	100YR	1091.60	5828.71	5838.48		5838.48	0.000015	0.65	3267.71	504.48	0.04
NW3	74.0000	10YR	574.40	5828.71	5830.32		5830.45	0.010386	5.17	221.31	227.63	0.72
NW3	74.0000	2YR	196.00	5828.71	5829.74		5829.83	0.012163	4.13	99.14	180.39	0.72
NW3	73.5000	500YR	1490.90	5828.01	5844.33		5844.34	0.000002	0.34	8527.31	820.91	0.01
NW3	73.5000	100YR	1091.60	5828.01	5838.48		5838.48	0.000007	0.48	4204.42	607.88	0.03
NW3	73.5000	10YR	574.40	5828.01	5829.60		5829.67	0.003868	3.14	307.97	271.76	0.44
NW3	73.5000	2YR	196.00	5828.01	5828.94		5828.97	0.003961	2.21	144.68	217.12	0.41
NW3	73.375*	500YR	1490.90	5827.56	5844.33		5844.34	0.000002	0.35	8398.02	793.79	0.01
NW3	73.375*	100YR	1091.60	5827.56	5838.48		5838.48	0.000008	0.50	4169.90	605.71	0.03
NW3	73.375*	10YR	574.40	5827.56	5829.47		5829.56	0.003992	3.58	290.98	255.24	0.46
NW3	73.375*	2YR	196.00	5827.56	5828.83		5828.88	0.003156	2.42	145.04	204.39	0.38
NW3	73.25*	500YR	1490.90	5827.12	5844.33	5829.40	5844.34	0.000002	0.35	8374.15	770.38	0.01
NW3	73.25*	100YR	1091.60	5827.12	5838.48	5829.20	5838.48	0.000008	0.52	4172.52	608.05	0.03
NW3	73.25*	10YR	574.40	5827.12	5829.36	5828.77	5829.45	0.003463	3.70	293.40	234.86	0.44
NW3	73.25*	2YR	196.00	5827.12	5828.76	5828.27	5828.80	0.002100	2.33	161.16	204.00	0.32
NW3	73.2		Bridge									
NW3	73.125*	500YR	1490.90	5826.67	5844.33		5844.34	0.000002	0.35	8394.65	762.05	0.01
NW3	73.125*	100YR	1091.60	5826.67	5838.48		5838.48	0.000008	0.54	4189.72	619.00	0.03
NW3	73.125*	10YR	574.40	5826.67	5828.96		5829.16	0.006779	5.20	224.04	212.32	0.62
NW3	73.125*	2YR	196.00	5826.67	5828.40		5828.51	0.004304	3.41	115.14	173.68	0.47
NW3	73.0000	500YR	604.60	5826.22	5844.34		5844.34	0.000000	0.15	8432.04	759.22	0.01
NW3	73.0000	100YR	557.20	5826.22	5838.48		5838.48	0.000002	0.28	4216.18	623.84	0.01
NW3	73.0000	10YR	500.30	5826.22	5828.73		5828.96	0.007428	5.67	189.01	185.98	0.65
NW3	73.0000	2YR	196.80	5826.22	5828.14		5828.35	0.007276	4.63	89.33	153.82	0.61
NW3	72.5000	500YR	604.60	5826.01	5844.34		5844.34	0.000000	0.11	10076.10	817.54	0.00
NW3	72.5000	100YR	557.20	5826.01	5838.48		5838.48	0.000001	0.20	5465.70	739.13	0.01
NW3	72.5000	10YR	500.30	5826.01	5828.07	5827.49	5828.23	0.004418	3.90	212.35	209.34	0.49
NW3	72.5000	2YR	196.80	5826.01	5827.12		5827.30	0.009735	3.76	70.54	106.55	0.65
NW3	72.0000	500YR	604.60	5824.01	5844.34		5844.34	0.000000	0.06	15622.91	962.62	0.00
NW3	72.0000	100YR	557.20	5824.01	5838.48		5838.48	0.000000	0.09	10083.02	926.25	0.00
NW3	72.0000	10YR	500.30	5824.01	5824.71	5824.67	5824.96	0.029364	4.99	136.94	224.87	1.06
NW3	72.0000	2YR	196.80	5824.01	5824.67		5824.72	0.005532	2.09	128.52	222.99	0.45
NW3	71.5000	500YR	604.60	5822.01	5844.34		5844.34	0.000000	0.04	24905.71	1363.00	0.00
NW3	71.5000	100YR	557.20	5822.01	5838.48		5838.48	0.000000	0.06	17002.09	1336.94	0.00
NW3	71.5000	10YR	500.30	5822.01	5824.75		5824.76	0.000226	1.06	996.34	851.30	0.12
NW3	71.5000	2YR	196.80	5822.01	5822.80	5822.80	5823.03	0.020872	4.24	60.77	143.07	0.89

W1	**49.5000**	**500YR**	**1639.70**	**5989.65**	**5993.17**	**5993.17**	**5994.48**	**0.023866**	**12.86**	**203.19**	**79.91**	**1.24**
W1	**49.5000**	**100YR**	**1065.00**	**5989.65**	**5992.44**	**5992.44**	**5993.48**	**0.025574**	**11.29**	**146.88**	**72.42**	**1.23**
W1	**49.5000**	**10YR**	**483.10**	**5989.65**	**5991.42**	**5991.42**	**5992.13**	**0.030682**	**8.93**	**79.61**	**59.52**	**1.24**
W1	**49.5000**	**2YR**	**241.20**	**5989.65**	**5990.83**	**5990.83**	**5991.32**	**0.037024**	**7.24**	**46.76**	**51.45**	**1.26**
W1	**49.0000**	**500YR**	**1639.70**	**5980.99**	**5984.09**	**5984.09**	**5985.26**	**0.033362**	**14.28**	**202.49**	**89.36**	**1.44**
W1	**49.0000**	**100YR**	**1065.00**	**5980.99**	**5983.49**	**5983.49**	**5984.39**	**0.034102**	**12.46**	**150.28**	**82.94**	**1.40**
W1	**49.0000**	**10YR**	**483.10**	**5980.99**	**5982.68**	**5982.68**	**5983.26**	**0.036461**	**9.88**	**86.98**	**74.30**	**1.36**
W1	**49.0000**	**2YR**	**241.20**	**5980.99**	**5982.24**	**5982.24**	**5982.62**	**0.036216**	**7.98**	**55.09**	**69.32**	**1.28**
W1	**48.5000**	**500YR**	**1639.70**	**5972.01**	**5975.82**	**5975.82**	**5976.88**	**0.017659**	**11.63**	**245.04**	**108.05**	**1.07**
W1	**48.5000**	**100YR**	**1065.00**	**5972.01**	**5975.24**	**5975.24**	**5976.07**	**0.016763**	**10.09**	**184.18**	**100.88**	**1.02**
W1	**48.5000**	**10YR**	**483.10**	**5972.01**	**5974.46**	**5974.46**	**5975.01**	**0.014691**	**7.76**	**109.50**	**90.60**	**0.91**
W1	**48.5000**	**2YR**	**241.20**	**5972.01**	**5974.00**	**5974.00**	**5974.38**	**0.011920**	**6.02**	**69.53**	**83.56**	**0.79**
W1	**48.0000**	**500YR**	**1639.70**	**5964.02**	**5967.68**	**5967.68**	**5968.65**	**0.021296**	**11.69**	**243.76**	**114.23**	**1.14**
W1	**48.0000**	**100YR**	**1065.00**	**5964.02**	**5967.18**	**5967.18**	**5967.92**	**0.019907**	**10.11**	**187.66**	**110.95**	**1.08**
W1	**48.0000**	**10YR**	**483.10**	**5964.02**	**5965.97**	**5965.97**	**5967.74**	**0.080258**	**13.76**	**59.27**	**73.01**	**1.96**
W1	**48.0000**	**2YR**	**241.20**	**5964.02**	**5965.97**	**5965.97**	**5966.41**	**0.020123**	**6.88**	**59.13**	**72.91**	**0.98**
W1	**47.5000**	**500YR**	**1639.70**	**5956.02**	**5960.11**	**5960.11**	**5961.29**	**0.017436**	**11.37**	**232.36**	**99.47**	**1.06**
W1	**47.5000**	**100YR**	**1065.00**	**5956.02**	**5959.50**	**5959.50**	**5960.40**	**0.016625**	**9.78**	**173.52**	**91.28**	**1.00**
W1	**47.5000**	**10YR**	**483.10**	**5956.02**	**5958.68**	**5958.68**	**5959.26**	**0.014795**	**7.42**	**102.46**	**82.09**	**0.90**
W1	**47.5000**	**2YR**	**241.20**	**5956.02**	**5957.78**	**5957.78**	**5958.35**	**0.026216**	**6.87**	**45.35**	**45.15**	**1.09**
W1	**47.25**		**Lat Struct**									
W1	**47.0000**	**500YR**	**1639.70**	**5942.10**	**5954.94**	**5951.92**	**5955.10**	**0.001214**	**4.23**	**682.55**	**212.23**	**0.26**
W1	**47.0000**	**100YR**	**1065.00**	**5942.10**	**5954.19**	**5950.99**	**5954.31**	**0.000912**	**3.44**	**531.83**	**192.83**	**0.22**
W1	**47.0000**	**10YR**	**483.10**	**5942.10**	**5952.96**	**5948.67**	**5953.02**	**0.000455**	**2.16**	**344.66**	**130.16**	**0.15**
W1	**47.0000**	**2YR**	**241.20**	**5942.10**	**5951.91**	**5945.86**	**5951.94**	**0.000283**	**1.50**	**224.72**	**98.87**	**0.12**
W1	**46.75**		**Culvert**									
W1	**46.5000**	**500YR**	**1639.70**	**5938.06**	**5945.64**	**5945.64**	**5946.72**	**0.016542**	**10.19**	**245.46**	**117.82**	**0.92**
W1	**46.5000**	**100YR**	**1065.00**	**5938.06**	**5945.03**	**5945.03**	**5945.91**	**0.015132**	**8.89**	**178.02**	**101.31**	**0.86**
W1	**46.5000**	**10YR**	**483.10**	**5938.06**	**5944.05**	**5944.05**	**5944.74**	**0.013445**	**7.14**	**92.02**	**76.14**	**0.77**
W1	**46.5000**	**2YR**	**241.20**	**5938.06**	**5942.84**	**5942.84**	**5943.67**	**0.024951**	**7.34**	**33.28**	**25.98**	**0.97**
W1	**46.0000**	**500YR**	**1639.70**	**5935.43**	**5937.93**	**5937.93**	**5938.90**	**0.036432**	**13.00**	**217.74**	**112.55**	**1.45**
W1	**46.0000**	**100YR**	**1065.00**	**5935.43**	**5937.43**	**5937.43**	**5938.17**	**0.038818**	**11.53**	**161.98**	**108.21**	**1.44**
W1	**46.0000**	**10YR**	**483.10**	**5935.43**	**5936.81**	**5936.81**	**5937.26**	**0.040877**	**9.21**	**96.60**	**102.47**	**1.39**
W1	**46.0000**	**2YR**	**241.20**	**5935.43**	**5936.47**	**5936.47**	**5936.76**	**0.040686**	**7.58**	**62.40**	**98.99**	**1.32**
W1	**45.5000**	**500YR**	**1639.70**	**5922.01**	**5924.06**	**5924.06**	**5924.81**	**0.029485**	**9.86**	**262.06**	**170.86**	**1.25**
W1	**45.5000**	**100YR**	**1065.00**	**5922.01**	**5923.67**	**5923.67**	**5924.25**	**0.030618**	**8.66**	**196.77**	**166.05**	**1.23**
W1	**45.5000**	**10YR**	**483.10**	**5922.01**	**5923.19**	**5923.19**	**5923.54**	**0.030477**	**6.73**	**118.69**	**158.44**	**1.15**
W1	**45.5000**	**2YR**	**241.20**	**5922.01**	**5922.93**	**5922.93**	**5923.16**	**0.028041**	**5.34**	**77.69**	**154.42**	**1.05**
W1	**45.0000**	**500YR**	**231.00**	**5911.54**	**5913.21**	**5913.21**	**5913.78**	**0.022173**	**7.22**	**45.76**	**42.78**	**1.04**
W1	**45.0000**	**100YR**	**221.20**	**5911.54**	**5913.18**	**5913.18**	**5913.73**	**0.022234**	**7.12**	**44.31**	**42.31**	**1.04**
W1	**45.0000**	**10YR**	**209.00**	**5911.54**	**5913.14**	**5913.14**	**5913.67**	**0.022012**	**6.95**	**42.68**	**41.78**	**1.03**
W1	**45.0000**	**2YR**	**200.00**	**5911.54**	**5913.10**	**5913.10**	**5913.62**	**0.022325**	**6.88**	**41.14**	**41.27**	**1.03**
W1	**44.5000**	**500YR**	**231.00**	**5896.01**	**5897.70**	**5897.70**	**5898.32**	**0.018825**	**6.61**	**40.67**	**35.93**	**0.95**
W1	**44.5000**	**100YR**	**221.20**	**5896.01**	**5897.66**	**5897.66**	**5898.27**	**0.018869**	**6.51**	**39.38**	**35.46**	**0.95**
W1	**44.5000**	**10YR**	**209.00**	**5896.01**	**5897.61**	**5897.61**	**5898.20**	**0.019438**	**6.44**	**37.40**	**34.66**	**0.96**
W1	**44.5000**	**2YR**	**200.00**	**5896.01**	**5897.56**	**5897.56**	**5898.15**	**0.020052**	**6.41**	**35.79**	**33.96**	**0.97**
W1	**44.0000**	**500YR**	**252.10**	**5886.67**	**5888.11**	**5888.11**	**5888.63**	**0.031653**	**7.37**	**49.55**	**54.19**	**1.19**
W1	**44.0000**	**100YR**	**236.40**	**5886.67**	**5888.08**	**5888.08**	**5888.57**	**0.030732**	**7.13**	**47.79**	**53.10**	**1.17**
W1	**44.0000**	**10YR**	**217.00**	**5886.67**	**5888.01**	**5888.01**	**5888.49**	**0.032008**	**6.99**	**44.26**	**51.07**	**1.18**
W1	**44.0000**	**2YR**	**202.70**	**5886.67**	**5887.96**	**5887.96**	**5888.42**	**0.032923**	**6.86**	**41.70**	**49.59**	**1.19**
W1	**43.5000**	**500YR**	**252.10**	**5878.01**	**5880.41**	**5880.41**	**5881.15**	**0.015490**	**7.03**	**40.64**	**34.60**	**0.90**
W1	**43.5000**	**100YR**	**236.40**	**5878.01**	**5880.33**	**5880.33**	**5881.06**	**0.016075**	**6.95**	**37.83**	**32.97**	**0.91**
W1	**43.5000**	**10YR**	**217.00**	**5878.01**	**5880.19**	**5880.19**	**5880.93**	**0.018069**	**6.99**	**33.48**	**28.82**	**0.95**
W1	**43.5000**	**2YR**	**202.70**	**5878.01**	**5880.10**	**5880.10**	**5880.83**	**0.018867**	**6.90**	**31.15**	**26.22**	**0.96**

W1	**43.0000**	**500YR**	**252.10**	**5872.88**	**5874.45**	**5874.45**	**5874.97**	**0.025662**	**7.58**	**51.54**	**50.02**	**1.11**
W1	**43.0000**	**100YR**	**236.40**	**5872.88**	**5874.40**	**5874.40**	**5874.90**	**0.025668**	**7.41**	**49.23**	**49.33**	**1.11**
W1	**43.0000**	**10YR**	**217.00**	**5872.88**	**5874.33**	**5874.33**	**5874.82**	**0.026298**	**7.26**	**45.92**	**48.24**	**1.11**
W1	**43.0000**	**2YR**	**202.70**	**5872.88**	**5874.28**	**5874.28**	**5874.75**	**0.026895**	**7.14**	**43.38**	**47.31**	**1.12**
W1	**42.5000**	**500YR**	**252.10**	**5866.01**	**5866.89**	**5866.87**	**5867.14**	**0.019435**	**4.25**	**73.06**	**134.28**	**0.87**
W1	**42.5000**	**100YR**	**236.40**	**5866.01**	**5866.87**	**5866.85**	**5867.10**	**0.019041**	**4.15**	**70.12**	**133.49**	**0.86**
W1	**42.5000**	**10YR**	**217.00**	**5866.01**	**5866.84**	**5866.82**	**5867.06**	**0.019142**	**4.06**	**65.52**	**132.25**	**0.85**
W1	**42.5000**	**2YR**	**202.70**	**5866.01**	**5866.81**	**5866.74**	**5867.03**	**0.018852**	**3.96**	**62.49**	**131.43**	**0.84**
W1	**42.0000**	**500YR**	**252.10**	**5860.42**	**5861.32**	**5861.32**	**5861.61**	**0.026705**	**5.47**	**70.93**	**116.43**	**1.04**
W1	**42.0000**	**100YR**	**236.40**	**5860.42**	**5861.29**	**5861.29**	**5861.57**	**0.027417**	**5.41**	**67.30**	**115.50**	**1.05**
W1	**42.0000**	**10YR**	**217.00**	**5860.42**	**5861.26**	**5861.26**	**5861.52**	**0.027369**	**5.26**	**63.54**	**114.51**	**1.04**
W1	**42.0000**	**2YR**	**202.70**	**5860.42**	**5861.23**	**5861.23**	**5861.49**	**0.027818**	**5.17**	**60.31**	**113.54**	**1.04**
W1	**41.5000**	**500YR**	**252.10**	**5852.23**	**5853.28**	**5853.28**	**5853.54**	**0.018508**	**4.80**	**79.68**	**149.67**	**0.88**
W1	**41.5000**	**100YR**	**236.40**	**5852.23**	**5853.28**	**5853.26**	**5853.51**	**0.015852**	**4.46**	**80.48**	**149.97**	**0.81**
W1	**41.5000**	**10YR**	**217.00**	**5852.23**	**5853.24**	**5853.22**	**5853.47**	**0.016738**	**4.43**	**73.80**	**147.46**	**0.83**
W1	**41.5000**	**2YR**	**202.70**	**5852.23**	**5853.20**	**5853.19**	**5853.43**	**0.018023**	**4.46**	**67.89**	**144.05**	**0.85**
W1	**41.0000**	**500YR**	**296.60**	**5841.51**	**5844.33**		**5844.33**	**0.000063**	**0.58**	**959.15**	**511.25**	**0.06**
W1	**41.0000**	**100YR**	**267.00**	**5841.51**	**5842.39**	**5842.39**	**5842.56**	**0.029514**	**5.69**	**109.43**	**299.32**	**1.09**
W1	**41.0000**	**10YR**	**231.10**	**5841.51**	**5842.36**	**5842.36**	**5842.51**	**0.028162**	**5.42**	**100.06**	**291.72**	**1.06**
W1	**41.0000**	**2YR**	**208.40**	**5841.51**	**5842.35**	**5842.35**	**5842.48**	**0.025953**	**5.14**	**95.80**	**290.08**	**1.02**
W1	**40.5000**	**500YR**	**296.60**	**5831.44**	**5844.33**		**5844.33**	**0.000000**	**0.07**	**7463.98**	**772.48**	**0.00**
W1	**40.5000**	**100YR**	**267.00**	**5831.44**	**5838.47**		**5838.47**	**0.000001**	**0.14**	**3209.54**	**623.33**	**0.01**
W1	**40.5000**	**10YR**	**231.10**	**5831.44**	**5832.40**	**5832.40**	**5832.56**	**0.017418**	**4.42**	**104.18**	**288.47**	**0.84**
W1	**40.5000**	**2YR**	**208.40**	**5831.44**	**5832.37**	**5832.37**	**5832.53**	**0.016795**	**4.26**	**97.44**	**286.98**	**0.82**
W1	**40.0000**	**500YR**	**459.80**	**5820.01**	**5844.33**		**5844.33**	**0.000000**	**0.06**	**12943.88**	**680.37**	**0.00**
W1	**40.0000**	**100YR**	**384.00**	**5820.01**	**5838.47**		**5838.47**	**0.000000**	**0.07**	**9063.11**	**650.11**	**0.00**
W1	**40.0000**	**10YR**	**289.90**	**5820.01**	**5824.31**		**5824.33**	**0.000209**	**1.36**	**455.64**	**334.38**	**0.12**
W1	**40.0000**	**2YR**	**225.10**	**5820.01**	**5821.48**	**5821.48**	**5822.07**	**0.021061**	**6.20**	**37.79**	**34.69**	**0.98**
W1	**39.5000**	**500YR**	**246.80**	**5814.02**	**5844.33**		**5844.33**	**0.000000**	**0.02**	**19884.95**	**816.93**	**0.00**
W1	**39.5000**	**100YR**	**244.30**	**5814.02**	**5838.47**		**5838.47**	**0.000000**	**0.03**	**15216.23**	**781.22**	**0.00**
W1	**39.5000**	**10YR**	**239.70**	**5814.02**	**5824.32**		**5824.32**	**0.000000**	**0.11**	**4410.23**	**746.02**	**0.01**
W1	**39.5000**	**2YR**	**212.40**	**5814.02**	**5816.45**		**5816.48**	**0.000852**	**1.83**	**209.33**	**214.48**	**0.22**
W1	**39.0000**	**500YR**	**246.80**	**5808.01**	**5844.33**		**5844.33**	**0.000000**	**0.01**	**34133.67**	**1264.92**	**0.00**
W1	**39.0000**	**100YR**	**244.30**	**5808.01**	**5838.47**		**5838.47**	**0.000000**	**0.02**	**26949.88**	**1194.47**	**0.00**
W1	**39.0000**	**10YR**	**239.70**	**5808.01**	**5824.32**		**5824.32**	**0.000000**	**0.05**	**10566.61**	**1123.08**	**0.00**
W1	**39.0000**	**2YR**	**212.40**	**5808.01**	**5816.47**		**5816.47**	**0.000001**	**0.15**	**3008.61**	**694.48**	**0.01**
NW5	**59.5000**	**500YR**	**7744.50**	**5818.15**	**5844.33**		**5844.33**	**0.000010**	**1.03**	**13915.56**	**721.67**	**0.04**
NW5	**59.5000**	**100YR**	**6206.10**	**5818.15**	**5838.47**		**5838.48**	**0.000018**	**1.19**	**9826.74**	**676.62**	**0.05**
NW5	**59.5000**	**10YR**	**3838.10**	**5818.15**	**5824.66**		**5824.75**	**0.001390**	**4.82**	**1639.78**	**415.93**	**0.33**
NW5	**59.5000**	**2YR**	**1451.90**	**5818.15**	**5821.87**		**5821.98**	**0.003763**	**5.45**	**606.05**	**324.44**	**0.50**
NW5	**59.0000**	**500YR**	**7744.50**	**5818.01**	**5844.33**		**5844.33**	**0.000006**	**0.83**	**15466.61**	**769.16**	**0.03**
NW5	**59.0000**	**100YR**	**6206.10**	**5818.01**	**5838.47**		**5838.48**	**0.000011**	**0.94**	**11066.83**	**733.65**	**0.04**
NW5	**59.0000**	**10YR**	**3838.10**	**5818.01**	**5824.44**		**5824.53**	**0.000589**	**3.11**	**1933.87**	**426.83**	**0.22**
NW5	**59.0000**	**2YR**	**1451.90**	**5818.01**	**5820.61**		**5820.89**	**0.004824**	**4.85**	**457.04**	**348.89**	**0.53**
NW5	**58.5000**	**500YR**	**7744.50**	**5816.01**	**5844.33**		**5844.33**	**0.000003**	**0.64**	**20682.06**	**940.77**	**0.02**
NW5	**58.5000**	**100YR**	**6206.10**	**5816.01**	**5838.47**		**5838.47**	**0.000006**	**0.70**	**15297.87**	**898.54**	**0.03**
NW5	**58.5000**	**10YR**	**3838.10**	**5816.01**	**5824.40**		**5824.43**	**0.000186**	**2.08**	**3334.78**	**653.60**	**0.13**
NW5	**58.5000**	**2YR**	**1451.90**	**5816.01**	**5818.74**	**5818.67**	**5819.21**	**0.008098**	**6.44**	**388.75**	**357.67**	**0.69**
NW5	**58.0000**	**500YR**	**7744.50**	**5814.01**	**5844.33**		**5844.33**	**0.000003**	**0.60**	**23303.57**	**1060.24**	**0.02**
NW5	**58.0000**	**100YR**	**6206.10**	**5814.01**	**5838.47**		**5838.47**	**0.000004**	**0.65**	**17306.89**	**991.87**	**0.02**
NW5	**58.0000**	**10YR**	**3838.10**	**5814.01**	**5824.37**		**5824.39**	**0.000104**	**1.78**	**4340.39**	**746.53**	**0.10**
NW5	**58.0000**	**2YR**	**1451.90**	**5814.01**	**5817.47**		**5817.64**	**0.003237**	**4.70**	**598.46**	**358.54**	**0.45**
NW5	**57.5000**	**500YR**	**7786.70**	**5812.01**	**5844.33**		**5844.33**	**0.000003**	**0.63**	**22521.70**	**1096.11**	**0.02**
NW5	**57.5000**	**100YR**	**6241.00**	**5812.01**	**5838.47**		**5838.47**	**0.000005**	**0.68**	**16608.51**	**941.13**	**0.02**
NW5	**57.5000**	**10YR**	**3863.30**	**5812.01**	**5824.34**		**5824.36**	**0.000101**	**1.90**	**4430.81**	**797.45**	**0.10**
NW5	**57.5000**	**2YR**	**1464.10**	**5812.01**	**5816.75**		**5816.88**	**0.002335**	**4.61**	**697.99**	**392.23**	**0.39**

NW5	57.0000	500YR	7786.70	5812.01	5844.33		5844.33	0.000002	0.55	24705.58	1107.39	0.02
NW5	57.0000	100YR	6241.00	5812.01	5838.47		5838.47	0.000003	0.60	18259.64	1076.35	0.02
NW5	57.0000	10YR	3863.30	5812.01	5824.33		5824.34	0.000038	1.23	5683.97	763.83	0.06
NW5	57.0000	2YR	1464.10	5812.01	5816.54		5816.59	0.000468	2.19	1104.54	452.44	0.18
NW5	56.5000	500YR	7814.60	5808.01	5844.33		5844.33	0.000002	0.50	29051.85	1165.82	0.01
NW5	56.5000	100YR	6264.40	5808.01	5838.47		5838.47	0.000002	0.55	22220.29	1165.82	0.02
NW5	56.5000	10YR	3880.30	5808.01	5824.32		5824.33	0.000024	1.16	7299.25	862.37	0.05
NW5	56.5000	2YR	1472.80	5808.01	5816.50		5816.51	0.000134	1.75	1817.97	442.73	0.11
NW5	56.0000	500YR	10636.00	5806.02	5844.33		5844.33	0.000002	0.52	37766.95	1364.52	0.01
NW5	56.0000	100YR	8335.70	5806.02	5838.47		5838.47	0.000002	0.53	29771.05	1364.52	0.02
NW5	56.0000	10YR	4942.70	5806.02	5824.31		5824.32	0.000018	1.07	10723.48	1251.41	0.04
NW5	56.0000	2YR	1982.60	5806.02	5816.45		5816.47	0.000139	2.01	2553.24	703.03	0.11
MAIN	39.5000	500YR	8463.00	5806.01	5844.32		5844.33	0.000002	0.58	27342.55	1050.27	0.02
MAIN	39.5000	100YR	7077.00	5806.01	5838.46		5838.47	0.000003	0.63	21298.52	1004.19	0.02
MAIN	39.5000	10YR	4442.10	5806.01	5824.31		5824.32	0.000023	1.22	7790.43	853.17	0.05
MAIN	39.5000	2YR	2142.90	5806.01	5816.43		5816.47	0.000172	2.28	2070.91	546.24	0.13
MAIN	39.375*	500YR	8463.00	5806.01	5844.32		5844.33	0.000002	0.65	24881.20	997.26	0.02
MAIN	39.375*	100YR	7077.00	5806.01	5838.46		5838.47	0.000004	0.72	19155.51	948.03	0.02
MAIN	39.375*	10YR	4442.10	5806.01	5824.31		5824.32	0.000037	1.55	6477.59	793.93	0.06
MAIN	39.375*	2YR	2142.90	5806.01	5816.38		5816.46	0.000302	3.01	1486.09	404.96	0.17
MAIN	39.25*	500YR	8463.00	5806.01	5844.32	5816.96	5844.33	0.000003	0.73	22632.19	944.24	0.02
MAIN	39.25*	100YR	7077.00	5806.01	5838.46	5816.30	5838.47	0.000005	0.82	17230.60	890.54	0.03
MAIN	39.25*	10YR	4442.10	5806.01	5824.30	5814.55	5824.32	0.000057	1.91	5440.04	720.82	0.08
MAIN	39.25*	2YR	2142.90	5806.01	5816.28	5811.08	5816.44	0.000550	4.04	1078.81	329.66	0.22
MAIN	39.2		Bridge									
MAIN	39.125*	500YR	8463.00	5806.01	5844.32		5844.33	0.000004	0.82	20596.54	891.23	0.02
MAIN	39.125*	100YR	7077.00	5806.01	5838.46		5838.47	0.000006	0.93	15533.16	827.11	0.03
MAIN	39.125*	10YR	4442.10	5806.01	5824.28		5824.31	0.000081	2.29	4676.74	654.43	0.09
MAIN	39.125*	2YR	2142.90	5806.01	5815.78		5816.19	0.001255	5.90	672.27	245.28	0.34
MAIN	39.0000	500YR	8463.00	5806.01	5844.32	5818.98	5844.33	0.000005	0.91	18774.51	838.21	0.03
MAIN	39.0000	100YR	7077.00	5806.01	5838.46	5818.59	5838.47	0.000008	1.03	14094.67	755.64	0.03
MAIN	39.0000	10YR	4442.10	5806.01	5824.27	5814.64	5824.31	0.000118	2.75	4083.13	623.93	0.11
MAIN	39.0000	2YR	2142.90	5806.01	5815.28	5811.92	5816.11	0.002491	8.01	414.68	144.63	0.47
MAIN	38.75		Culvert									
MAIN	38.5000	500YR	8463.00	5804.96	5814.35		5815.61	0.007262	12.58	1261.06	303.06	0.78
MAIN	38.5000	100YR	7077.00	5804.96	5813.83		5815.01	0.007138	11.93	1106.18	292.69	0.76
MAIN	38.5000	10YR	4442.10	5804.96	5812.63		5813.66	0.007051	10.57	770.24	265.67	0.74
MAIN	38.5000	2YR	2142.90	5804.96	5811.09	5811.09	5812.07	0.007595	9.12	387.05	229.07	0.73
MAIN	38.0000	500YR	8463.00	5804.24	5814.98	5811.97	5815.15	0.001002	5.27	3463.09	804.27	0.30
MAIN	38.0000	100YR	7077.00	5804.24	5814.41	5811.61	5814.57	0.001001	5.06	3014.47	763.47	0.30
MAIN	38.0000	10YR	4442.10	5804.24	5813.11	5810.70	5813.26	0.001001	4.57	2078.38	667.13	0.29
MAIN	38.0000	2YR	2142.90	5804.24	5811.40	5809.34	5811.53	0.001000	3.87	1076.11	465.74	0.28
SP2	189.5000	500YR	142.70	6082.02	6084.36	6084.36	6085.12	0.019710	7.15	21.44	14.86	0.97
SP2	189.5000	100YR	100.10	6082.02	6083.97	6083.97	6084.62	0.021266	6.57	15.98	13.08	0.98
SP2	189.5000	10YR	42.50	6082.02	6083.28	6083.28	6083.71	0.026208	5.28	8.08	9.88	1.01
SP2	189.5000	2YR	12.80	6082.02	6082.72	6082.72	6082.95	0.032109	3.90	3.29	7.15	1.01
SP2	189.0000	500YR	142.70	6064.54	6066.75	6066.75	6067.44	0.022463	7.26	23.21	16.80	1.03
SP2	189.0000	100YR	100.10	6064.54	6066.41	6066.41	6066.99	0.022832	6.64	17.76	15.21	1.01
SP2	189.0000	10YR	42.50	6064.54	6065.76	6065.76	6066.16	0.025144	5.40	9.06	11.66	1.00
SP2	189.0000	2YR	12.80	6064.54	6065.20	6065.20	6065.43	0.029672	3.97	3.53	8.16	0.99
SP2	188.5000	500YR	194.70	6041.85	6044.08	6044.08	6044.88	0.035304	8.57	28.54	19.87	1.26
SP2	188.5000	100YR	135.80	6041.85	6043.74	6043.74	6044.38	0.034258	7.59	22.27	17.84	1.21
SP2	188.5000	10YR	59.40	6041.85	6043.09	6043.09	6043.51	0.038508	6.21	11.84	13.89	1.21
SP2	188.5000	2YR	17.70	6041.85	6042.50	6042.50	6042.74	0.047268	4.62	4.78	10.32	1.22

SP2	**188.0000**	**500YR**	**194.70**	**6021.78**	**6024.02**	**6024.02**	**6024.79**	**0.025058**	**7.74**	**29.82**	**20.79**	**1.10**
SP2	**188.0000**	**100YR**	**135.80**	**6021.78**	**6023.68**	**6023.68**	**6024.30**	**0.024408**	**6.93**	**23.16**	**18.82**	**1.06**
SP2	**188.0000**	**10YR**	**59.40**	**6021.78**	**6023.02**	**6023.02**	**6023.45**	**0.027784**	**5.72**	**12.11**	**14.57**	**1.06**
SP2	**188.0000**	**2YR**	**17.70**	**6021.78**	**6022.44**	**6022.44**	**6022.68**	**0.032361**	**4.21**	**4.81**	**10.44**	**1.04**
SP2	**187.5000**	**500YR**	**194.70**	**6010.01**	**6011.71**	**6011.71**	**6012.34**	**0.020573**	**6.46**	**31.79**	**27.49**	**0.98**
SP2	**187.5000**	**100YR**	**135.80**	**6010.01**	**6011.40**	**6011.40**	**6011.93**	**0.022171**	**5.88**	**23.81**	**24.18**	**0.98**
SP2	**187.5000**	**10YR**	**59.40**	**6010.01**	**6011.08**		**6011.28**	**0.012099**	**3.62**	**16.53**	**20.88**	**0.70**
SP2	**187.5000**	**2YR**	**17.70**	**6010.01**	**6010.44**	**6010.44**	**6010.62**	**0.033108**	**3.37**	**5.25**	**14.86**	**1.00**
SP2	**187.375***	**500YR**	**194.70**	**6008.30**	**6011.63**		**6011.72**	**0.001222**	**2.66**	**96.58**	**51.44**	**0.27**
SP2	**187.375***	**100YR**	**135.80**	**6008.30**	**6011.45**		**6011.51**	**0.000754**	**2.01**	**87.88**	**49.19**	**0.21**
SP2	**187.375***	**10YR**	**59.40**	**6008.30**	**6011.20**		**6011.21**	**0.000210**	**0.99**	**75.68**	**45.68**	**0.11**
SP2	**187.375***	**2YR**	**17.70**	**6008.30**	**6008.77**	**6008.77**	**6008.96**	**0.033809**	**3.49**	**5.08**	**13.85**	**1.01**
SP2	**187.25***	**500YR**	**194.70**	**6006.60**	**6011.67**		**6011.69**	**0.000179**	**1.40**	**220.92**	**77.83**	**0.11**
SP2	**187.25***	**100YR**	**135.80**	**6006.60**	**6011.48**		**6011.49**	**0.000104**	**1.04**	**206.26**	**75.62**	**0.09**
SP2	**187.25***	**10YR**	**59.40**	**6006.60**	**6011.20**		**6011.21**	**0.000026**	**0.50**	**185.83**	**72.26**	**0.04**
SP2	**187.25***	**2YR**	**17.70**	**6006.60**	**6007.62**		**6007.64**	**0.001911**	**1.37**	**13.71**	**20.78**	**0.27**
SP2	**187.125***	**500YR**	**194.70**	**6004.90**	**6011.68**	**6006.73**	**6011.68**	**0.000043**	**0.85**	**408.67**	**106.86**	**0.06**
SP2	**187.125***	**100YR**	**135.80**	**6004.90**	**6011.48**	**6006.42**	**6011.49**	**0.000024**	**0.62**	**388.12**	**104.55**	**0.04**
SP2	**187.125***	**10YR**	**59.40**	**6004.90**	**6011.20**	**6005.87**	**6011.20**	**0.000006**	**0.29**	**359.29**	**101.14**	**0.02**
SP2	**187.125***	**2YR**	**17.70**	**6004.90**	**6007.63**	**6005.44**	**6007.63**	**0.000023**	**0.33**	**81.62**	**53.36**	**0.04**
SP2	**187.1**		**Culvert**									
SP2	**187.0000**	**500YR**	**194.70**	**6003.19**	**6004.91**	**6004.91**	**6005.43**	**0.018183**	**6.90**	**43.06**	**43.17**	**0.96**
SP2	**187.0000**	**100YR**	**135.80**	**6003.19**	**6004.64**	**6004.64**	**6005.09**	**0.019312**	**6.28**	**31.78**	**38.05**	**0.95**
SP2	**187.0000**	**10YR**	**59.40**	**6003.19**	**6004.16**	**6004.16**	**6004.47**	**0.021090**	**4.91**	**16.13**	**28.40**	**0.93**
SP2	**187.0000**	**2YR**	**17.70**	**6003.19**	**6003.73**	**6003.73**	**6003.90**	**0.026307**	**3.45**	**5.87**	**18.73**	**0.92**
SP2	**186.5000**	**500YR**	**194.70**	**5977.77**	**5980.02**	**5980.02**	**5980.74**	**0.021216**	**6.83**	**28.91**	**21.38**	**1.00**
SP2	**186.5000**	**100YR**	**135.80**	**5977.77**	**5979.67**	**5979.67**	**5980.27**	**0.023039**	**6.22**	**21.84**	**18.38**	**1.01**
SP2	**186.5000**	**10YR**	**59.40**	**5977.77**	**5979.04**	**5979.04**	**5979.45**	**0.026026**	**5.14**	**11.55**	**14.24**	**1.01**
SP2	**186.5000**	**2YR**	**17.70**	**5977.77**	**5978.48**	**5978.48**	**5978.70**	**0.031027**	**3.84**	**4.61**	**10.12**	**1.00**
SP2	**186.0000**	**500YR**	**194.70**	**5962.23**	**5964.32**	**5964.32**	**5965.03**	**0.017107**	**7.18**	**33.34**	**26.30**	**0.94**
SP2	**186.0000**	**100YR**	**135.80**	**5962.23**	**5963.98**	**5963.98**	**5964.57**	**0.018202**	**6.44**	**24.81**	**23.23**	**0.94**
SP2	**186.0000**	**10YR**	**59.40**	**5962.23**	**5963.38**	**5963.38**	**5963.77**	**0.022699**	**5.08**	**12.54**	**17.79**	**0.96**
SP2	**186.0000**	**2YR**	**17.70**	**5962.23**	**5962.88**	**5962.88**	**5963.08**	**0.031727**	**3.63**	**4.88**	**11.93**	**1.00**
SP2	**185.5000**	**500YR**	**203.40**	**5947.58**	**5949.45**	**5949.45**	**5950.07**	**0.022446**	**7.10**	**36.75**	**32.92**	**1.04**
SP2	**185.5000**	**100YR**	**141.90**	**5947.58**	**5949.15**	**5949.15**	**5949.67**	**0.025055**	**6.42**	**27.36**	**29.22**	**1.06**
SP2	**185.5000**	**10YR**	**61.80**	**5947.58**	**5948.67**	**5948.67**	**5948.99**	**0.028871**	**5.02**	**14.73**	**23.15**	**1.05**
SP2	**185.5000**	**2YR**	**19.20**	**5947.58**	**5948.26**	**5948.26**	**5948.44**	**0.027834**	**3.57**	**6.38**	**18.08**	**0.95**
SP2	**185.0000**	**500YR**	**203.40**	**5938.02**	**5939.86**	**5939.86**	**5940.46**	**0.020664**	**6.52**	**35.93**	**32.08**	**0.98**
SP2	**185.0000**	**100YR**	**141.90**	**5938.02**	**5939.57**	**5939.57**	**5940.07**	**0.020950**	**5.90**	**27.15**	**28.29**	**0.97**
SP2	**185.0000**	**10YR**	**61.80**	**5938.02**	**5939.03**	**5939.03**	**5939.38**	**0.024783**	**4.84**	**13.65**	**21.14**	**0.98**
SP2	**185.0000**	**2YR**	**19.20**	**5938.02**	**5938.57**	**5938.57**	**5938.77**	**0.033033**	**3.55**	**5.43**	**14.87**	**1.01**
SP2	**184.5000**	**500YR**	**203.40**	**5924.07**	**5925.58**	**5925.58**	**5926.12**	**0.024422**	**7.48**	**41.62**	**39.77**	**1.09**
SP2	**184.5000**	**100YR**	**141.90**	**5924.07**	**5925.33**	**5925.33**	**5925.77**	**0.024743**	**6.65**	**32.09**	**36.77**	**1.06**
SP2	**184.5000**	**10YR**	**61.80**	**5924.07**	**5924.88**	**5924.88**	**5925.17**	**0.029030**	**5.25**	**16.77**	**29.85**	**1.06**
SP2	**184.5000**	**2YR**	**19.20**	**5924.07**	**5924.52**	**5924.52**	**5924.67**	**0.032440**	**3.60**	**7.09**	**23.93**	**1.01**
SP2	**184.0000**	**500YR**	**203.40**	**5908.28**	**5909.80**	**5909.80**	**5910.24**	**0.020960**	**6.50**	**46.50**	**52.43**	**0.99**
SP2	**184.0000**	**100YR**	**141.90**	**5908.28**	**5909.55**	**5909.55**	**5909.94**	**0.023206**	**5.97**	**34.20**	**46.57**	**1.01**
SP2	**184.0000**	**10YR**	**61.80**	**5908.28**	**5909.16**	**5909.16**	**5909.42**	**0.024859**	**4.60**	**18.03**	**37.00**	**0.97**
SP2	**184.0000**	**2YR**	**19.20**	**5908.28**	**5908.81**	**5908.81**	**5908.96**	**0.030071**	**3.35**	**6.91**	**23.67**	**0.96**
SP2	**183.5000**	**500YR**	**203.40**	**5895.98**	**5897.61**	**5897.16**	**5897.76**	**0.009999**	**5.10**	**78.40**	**85.38**	**0.71**
SP2	**183.5000**	**100YR**	**141.90**	**5895.98**	**5897.35**	**5896.98**	**5897.48**	**0.010007**	**4.54**	**58.47**	**69.90**	**0.69**
SP2	**183.5000**	**10YR**	**61.80**	**5895.98**	**5896.90**	**5896.61**	**5896.98**	**0.010009**	**3.44**	**31.27**	**51.37**	**0.64**
SP2	**183.5000**	**2YR**	**19.20**	**5895.98**	**5896.49**	**5896.31**	**5896.53**	**0.010000**	**2.29**	**13.51**	**36.68**	**0.58**
SP1	**199.0000**	**500YR**	**1172.00**	**5882.02**	**5886.40**		**5887.03**	**0.009105**	**9.25**	**241.80**	**106.51**	**0.79**

SP1	**199.0000**	**100YR**	**862.00**	**5882.02**	**5885.84**		**5886.44**	**0.009903**	**8.77**	**184.66**	**95.21**	**0.81**
SP1	**199.0000**	**10YR**	**461.60**	**5882.02**	**5884.85**	**5884.71**	**5885.42**	**0.012333**	**7.94**	**102.51**	**71.39**	**0.85**
SP1	**199.0000**	**2YR**	**180.20**	**5882.02**	**5883.87**	**5883.81**	**5884.31**	**0.014689**	**6.39**	**44.22**	**46.95**	**0.86**
SP1	**198.5000**	**500YR**	**1172.00**	**5880.01**	**5883.64**	**5883.64**	**5884.80**	**0.013072**	**9.47**	**165.45**	**78.73**	**0.91**
SP1	**198.5000**	**100YR**	**862.00**	**5880.01**	**5883.16**	**5883.10**	**5884.14**	**0.012972**	**8.51**	**129.90**	**70.41**	**0.89**
SP1	**198.5000**	**10YR**	**461.60**	**5880.01**	**5882.44**	**5882.24**	**5883.05**	**0.011232**	**6.53**	**84.05**	**57.70**	**0.79**
SP1	**198.5000**	**2YR**	**180.20**	**5880.01**	**5881.64**		**5881.93**	**0.009468**	**4.38**	**43.80**	**41.82**	**0.67**
SP1	**198.0000**	**500YR**	**1172.00**	**5876.72**	**5879.28**	**5879.28**	**5880.00**	**0.030842**	**12.01**	**193.62**	**127.64**	**1.34**
SP1	**198.0000**	**100YR**	**862.00**	**5876.72**	**5878.96**	**5878.96**	**5879.60**	**0.032502**	**11.24**	**153.50**	**118.98**	**1.34**
SP1	**198.0000**	**10YR**	**461.60**	**5876.72**	**5878.44**	**5878.44**	**5878.92**	**0.032996**	**9.45**	**97.08**	**99.36**	**1.29**
SP1	**198.0000**	**2YR**	**180.20**	**5876.72**	**5877.84**	**5877.84**	**5878.17**	**0.035463**	**7.28**	**45.59**	**67.64**	**1.24**
SP1	**197.5000**	**500YR**	**1172.00**	**5874.01**	**5878.11**		**5878.39**	**0.003029**	**5.21**	**360.91**	**149.48**	**0.46**
SP1	**197.5000**	**100YR**	**862.00**	**5874.01**	**5877.24**		**5877.56**	**0.004524**	**5.43**	**241.94**	**123.42**	**0.53**
SP1	**197.5000**	**10YR**	**461.60**	**5874.01**	**5876.01**		**5876.40**	**0.009520**	**5.68**	**111.78**	**86.85**	**0.71**
SP1	**197.5000**	**2YR**	**180.20**	**5874.01**	**5875.22**		**5875.47**	**0.010390**	**4.23**	**52.49**	**62.70**	**0.69**
SP1	**197.375***	**500YR**	**1172.00**	**5873.51**	**5878.12**	**5876.28**	**5878.30**	**0.001556**	**4.00**	**448.80**	**170.43**	**0.33**
SP1	**197.375***	**100YR**	**862.00**	**5873.51**	**5877.25**	**5875.84**	**5877.44**	**0.002078**	**4.01**	**311.81**	**143.24**	**0.37**
SP1	**197.375***	**10YR**	**461.60**	**5873.51**	**5876.01**	**5875.12**	**5876.20**	**0.003213**	**3.78**	**158.12**	**102.47**	**0.43**
SP1	**197.375***	**2YR**	**180.20**	**5873.51**	**5875.23**	**5874.44**	**5875.31**	**0.002167**	**2.39**	**88.44**	**76.28**	**0.33**
SP1	**197.3**		**Bridge**									
SP1	**197.25***	**500YR**	**1172.00**	**5873.01**	**5875.59**	**5875.59**	**5876.54**	**0.014978**	**8.18**	**170.35**	**103.84**	**0.93**
SP1	**197.25***	**100YR**	**862.00**	**5873.01**	**5875.18**	**5875.18**	**5876.00**	**0.016067**	**7.49**	**130.64**	**90.09**	**0.93**
SP1	**197.25***	**10YR**	**461.60**	**5873.01**	**5874.49**	**5874.49**	**5875.11**	**0.020261**	**6.36**	**76.06**	**69.50**	**0.98**
SP1	**197.25***	**2YR**	**180.20**	**5873.01**	**5873.92**	**5873.86**	**5874.23**	**0.020096**	**4.41**	**40.89**	**54.69**	**0.89**
SP1	**197.125***	**500YR**	**1172.00**	**5872.51**	**5874.92**	**5874.92**	**5875.87**	**0.016217**	**7.94**	**161.44**	**100.26**	**0.95**
SP1	**197.125***	**100YR**	**862.00**	**5872.51**	**5874.53**	**5874.53**	**5875.33**	**0.017694**	**7.26**	**124.77**	**86.64**	**0.96**
SP1	**197.125***	**10YR**	**461.60**	**5872.51**	**5873.90**	**5873.90**	**5874.47**	**0.022225**	**6.09**	**76.14**	**69.42**	**1.00**
SP1	**197.125***	**2YR**	**180.20**	**5872.51**	**5873.33**	**5873.30**	**5873.64**	**0.023075**	**4.46**	**40.41**	**57.45**	**0.94**
SP1	**197.0000**	**500YR**	**1172.00**	**5872.01**	**5874.27**	**5874.27**	**5875.19**	**0.017690**	**7.72**	**156.53**	**95.59**	**0.97**
SP1	**197.0000**	**100YR**	**862.00**	**5872.01**	**5873.89**	**5873.89**	**5874.67**	**0.019821**	**7.08**	**122.81**	**84.00**	**0.99**
SP1	**197.0000**	**10YR**	**461.60**	**5872.01**	**5873.35**	**5873.32**	**5873.87**	**0.020942**	**5.73**	**80.53**	**73.00**	**0.96**
SP1	**197.0000**	**2YR**	**180.20**	**5872.01**	**5872.85**	**5872.74**	**5873.09**	**0.016683**	**3.89**	**46.33**	**63.39**	**0.80**
SP1	**196.5000**	**500YR**	**1172.00**	**5868.01**	**5869.74**	**5869.74**	**5870.43**	**0.019888**	**6.76**	**181.30**	**144.25**	**0.98**
SP1	**196.5000**	**100YR**	**862.00**	**5868.01**	**5869.47**	**5869.47**	**5870.05**	**0.021491**	**6.14**	**144.24**	**131.43**	**0.99**
SP1	**196.5000**	**10YR**	**461.60**	**5868.01**	**5869.02**	**5869.02**	**5869.43**	**0.024282**	**5.20**	**90.11**	**110.43**	**0.99**
SP1	**196.5000**	**2YR**	**180.20**	**5868.01**	**5868.57**	**5868.57**	**5868.82**	**0.029687**	**4.01**	**45.02**	**92.08**	**1.00**
SP1	**196.0000**	**500YR**	**1172.00**	**5862.01**	**5865.01**		**5865.27**	**0.008172**	**6.15**	**351.39**	**238.04**	**0.69**
SP1	**196.0000**	**100YR**	**862.00**	**5862.01**	**5864.72**		**5864.95**	**0.008138**	**5.67**	**285.39**	**230.01**	**0.67**
SP1	**196.0000**	**10YR**	**461.60**	**5862.01**	**5864.27**	**5863.63**	**5864.46**	**0.008346**	**4.91**	**182.81**	**217.19**	**0.65**
SP1	**196.0000**	**2YR**	**180.20**	**5862.01**	**5863.74**		**5863.87**	**0.006499**	**3.55**	**86.46**	**124.47**	**0.55**
SP1	**195.5000**	**500YR**	**1172.00**	**5859.11**	**5860.45**	**5860.45**	**5860.79**	**0.031017**	**7.85**	**298.36**	**395.61**	**1.21**
SP1	**195.5000**	**100YR**	**862.00**	**5859.11**	**5860.33**	**5860.33**	**5860.61**	**0.028654**	**7.08**	**250.63**	**389.96**	**1.14**
SP1	**195.5000**	**10YR**	**461.60**	**5859.11**	**5860.14**	**5860.14**	**5860.33**	**0.023723**	**5.73**	**176.75**	**383.33**	**1.01**
SP1	**195.5000**	**2YR**	**180.20**	**5859.11**	**5859.79**	**5859.79**	**5859.98**	**0.032031**	**5.00**	**66.49**	**193.06**	**1.09**
SP1	**195.0000**	**500YR**	**1172.00**	**5854.01**	**5855.57**	**5855.15**	**5855.69**	**0.010005**	**3.32**	**444.76**	**443.37**	**0.50**
SP1	**195.0000**	**100YR**	**862.00**	**5854.01**	**5855.38**	**5855.02**	**5855.47**	**0.010014**	**3.00**	**361.49**	**421.27**	**0.49**
SP1	**195.0000**	**10YR**	**461.60**	**5854.01**	**5855.07**	**5854.82**	**5855.14**	**0.010013**	**2.48**	**238.41**	**390.03**	**0.47**
SP1	**195.0000**	**2YR**	**180.20**	**5854.01**	**5854.77**	**5854.59**	**5854.81**	**0.010000**	**1.89**	**125.95**	**349.73**	**0.45**
NS18	**20.0000**	**500YR**	**113.40**	**6274.72**	**6276.52**	**6276.52**	**6277.06**	**0.020467**	**6.03**	**20.24**	**19.88**	**0.96**
NS18	**20.0000**	**100YR**	**79.30**	**6274.72**	**6276.22**	**6276.22**	**6276.70**	**0.022772**	**5.59**	**14.81**	**16.97**	**0.98**
NS18	**20.0000**	**10YR**	**31.40**	**6274.72**	**6275.69**	**6275.69**	**6276.00**	**0.029191**	**4.43**	**7.09**	**12.13**	**1.01**
NS18	**20.0000**	**2YR**	**11.20**	**6274.72**	**6275.32**	**6275.32**	**6275.51**	**0.034959**	**3.49**	**3.21**	**8.89**	**1.03**
NS18	**19.0000**	**500YR**	**113.40**	**6261.80**	**6263.54**	**6263.54**	**6264.09**	**0.023837**	**5.98**	**18.95**	**17.43**	**1.01**
NS18	**19.0000**	**100YR**	**79.30**	**6261.80**	**6263.26**	**6263.26**	**6263.73**	**0.025226**	**5.50**	**14.41**	**15.67**	**1.01**
NS18	**19.0000**	**10YR**	**31.40**	**6261.80**	**6262.74**	**6262.74**	**6263.04**	**0.028522**	**4.40**	**7.14**	**11.98**	**1.00**

NS18	**19.0000**	**2YR**	**11.20**	**6261.80**	**6262.37**	**6262.37**	**6262.55**	**0.033189**	**3.44**	**3.25**	**8.86**	**1.00**
NS18	**18.0000**	**500YR**	**113.40**	**6245.73**	**6248.15**	**6247.61**	**6248.43**	**0.006394**	**4.24**	**28.10**	**19.74**	**0.56**
NS18	**18.0000**	**100YR**	**79.30**	**6245.73**	**6247.84**	**6247.32**	**6248.05**	**0.006100**	**3.63**	**22.31**	**17.66**	**0.53**
NS18	**18.0000**	**10YR**	**31.40**	**6245.73**	**6246.75**	**6246.75**	**6247.07**	**0.028013**	**4.57**	**6.87**	**10.67**	**1.00**
NS18	**18.0000**	**2YR**	**11.20**	**6245.73**	**6246.35**	**6246.35**	**6246.55**	**0.032697**	**3.58**	**3.13**	**7.91**	**1.00**
NS18	**17.8**		**Bridge**									
NS18	**17.75***	**500YR**	**113.40**	**6240.01**	**6241.83**	**6241.83**	**6242.42**	**0.023688**	**6.16**	**18.45**	**16.51**	**1.01**
NS18	**17.75***	**100YR**	**79.30**	**6240.01**	**6241.56**	**6241.56**	**6242.04**	**0.024829**	**5.60**	**14.16**	**14.76**	**1.01**
NS18	**17.75***	**10YR**	**31.40**	**6240.01**	**6241.00**	**6241.00**	**6241.31**	**0.028535**	**4.53**	**6.93**	**11.09**	**1.01**
NS18	**17.75***	**2YR**	**11.20**	**6240.01**	**6240.61**	**6240.61**	**6240.80**	**0.031978**	**3.50**	**3.20**	**8.23**	**0.99**
NS18	**17.5***	**500YR**	**113.40**	**6234.29**	**6236.04**	**6236.04**	**6236.61**	**0.022927**	**6.06**	**18.86**	**17.54**	**1.00**
NS18	**17.5***	**100YR**	**79.30**	**6234.29**	**6235.78**	**6235.78**	**6236.25**	**0.024834**	**5.48**	**14.46**	**15.73**	**1.00**
NS18	**17.5***	**10YR**	**31.40**	**6234.29**	**6235.24**	**6235.24**	**6235.55**	**0.029068**	**4.47**	**7.03**	**11.68**	**1.01**
NS18	**17.5***	**2YR**	**11.20**	**6234.29**	**6234.86**	**6234.86**	**6235.05**	**0.034423**	**3.53**	**3.17**	**8.54**	**1.02**
NS18	**17.25***	**500YR**	**113.40**	**6228.57**	**6230.24**	**6230.24**	**6230.80**	**0.022927**	**6.00**	**19.28**	**19.02**	**1.00**
NS18	**17.25***	**100YR**	**79.30**	**6228.57**	**6229.98**	**6229.98**	**6230.44**	**0.025422**	**5.47**	**14.56**	**16.89**	**1.01**
NS18	**17.25***	**10YR**	**31.40**	**6228.57**	**6229.48**	**6229.48**	**6229.78**	**0.029245**	**4.35**	**7.21**	**12.53**	**1.01**
NS18	**17.25***	**2YR**	**11.20**	**6228.57**	**6229.13**	**6229.13**	**6229.30**	**0.033050**	**3.39**	**3.30**	**9.19**	**1.00**
NS18	**17.0000**	**500YR**	**113.40**	**6222.85**	**6224.45**	**6224.45**	**6224.97**	**0.022306**	**5.86**	**20.20**	**21.28**	**0.98**
NS18	**17.0000**	**100YR**	**79.30**	**6222.85**	**6224.20**	**6224.20**	**6224.64**	**0.024162**	**5.32**	**15.21**	**18.95**	**0.99**
NS18	**17.0000**	**10YR**	**31.40**	**6222.85**	**6223.73**	**6223.73**	**6224.00**	**0.029391**	**4.20**	**7.48**	**13.84**	**1.01**
NS18	**17.0000**	**2YR**	**11.20**	**6222.85**	**6223.38**	**6223.38**	**6223.55**	**0.033919**	**3.32**	**3.37**	**9.87**	**1.00**
NS18	**16.0000**	**500YR**	**113.40**	**6207.42**	**6209.08**	**6209.08**	**6209.67**	**0.023421**	**6.15**	**18.50**	**16.86**	**1.01**
NS18	**16.0000**	**100YR**	**79.30**	**6207.42**	**6208.82**	**6208.82**	**6209.30**	**0.024765**	**5.52**	**14.35**	**15.28**	**1.00**
NS18	**16.0000**	**10YR**	**31.40**	**6207.42**	**6208.30**	**6208.30**	**6208.60**	**0.028678**	**4.40**	**7.14**	**12.04**	**1.01**
NS18	**16.0000**	**2YR**	**11.20**	**6207.42**	**6207.94**	**6207.94**	**6208.12**	**0.033091**	**3.36**	**3.33**	**9.43**	**1.00**
NS18	**15.0000**	**500YR**	**113.40**	**6191.66**	**6193.25**	**6193.25**	**6193.78**	**0.023085**	**6.06**	**20.76**	**20.86**	**1.01**
NS18	**15.0000**	**100YR**	**79.30**	**6191.66**	**6193.00**	**6193.00**	**6193.44**	**0.024284**	**5.53**	**15.72**	**18.50**	**1.00**
NS18	**15.0000**	**10YR**	**31.40**	**6191.66**	**6192.50**	**6192.50**	**6192.79**	**0.027039**	**4.36**	**7.69**	**13.99**	**0.99**
NS18	**15.0000**	**2YR**	**11.20**	**6191.66**	**6192.16**	**6192.16**	**6192.33**	**0.032659**	**3.36**	**3.42**	**10.48**	**0.99**
NS18	**14.0000**	**500YR**	**113.40**	**6172.79**	**6174.15**	**6173.93**	**6174.37**	**0.010004**	**4.33**	**36.44**	**43.61**	**0.68**
NS18	**14.0000**	**100YR**	**79.30**	**6172.79**	**6173.94**	**6173.75**	**6174.12**	**0.010008**	**3.83**	**27.79**	**38.97**	**0.66**
NS18	**14.0000**	**10YR**	**31.40**	**6172.79**	**6173.54**	**6173.40**	**6173.64**	**0.009992**	**2.78**	**13.91**	**30.45**	**0.61**
NS18	**14.0000**	**2YR**	**11.20**	**6172.79**	**6173.26**	**6173.15**	**6173.31**	**0.010007**	**1.92**	**6.46**	**23.02**	**0.55**

D-2. HEC-RAS Post-Project FROZEN Condition SUMMARY TABLE

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
NW2	110.0000	500YR	28.51	5864.01	5864.39		5864.41	0.003903	1.17	26.14	82.99	0.34
NW2	110.0000	100YR	21.47	5864.01	5864.33		5864.35	0.003881	1.05	21.61	79.75	0.33
NW2	110.0000	10YR	12.38	5864.01	5864.25	5864.13	5864.26	0.003567	0.84	15.39	73.26	0.31
NW2	110.0000	2YR	6.10	5864.01	5864.17	5864.07	5864.18	0.003577	0.64	9.69	66.32	0.29
NW2	109.5000	500YR	28.51	5861.97	5862.21	5862.21	5862.31	0.068036	3.26	12.10	64.17	1.30
NW2	109.5000	100YR	21.47	5861.97	5862.18	5862.18	5862.26	0.066721	2.94	10.14	62.20	1.26
NW2	109.5000	10YR	12.38	5861.97	5862.12	5862.12	5862.19	0.097333	2.75	6.38	59.88	1.43
NW2	109.5000	2YR	6.10	5861.97	5862.08	5862.08	5862.12	0.093753	2.18	4.13	58.11	1.33
NW2	109.0000	500YR	28.51	5858.01	5858.65	5858.44	5858.71	0.006076	2.07	17.16	43.10	0.47
NW2	109.0000	100YR	21.47	5858.01	5858.56	5858.37	5858.61	0.006098	1.87	13.69	37.78	0.46
NW2	109.0000	10YR	12.38	5858.01	5858.43	5858.27	5858.46	0.005773	1.50	9.26	31.53	0.42
NW2	109.0000	2YR	6.10	5858.01	5858.31	5858.18	5858.33	0.005179	1.11	5.80	26.47	0.38
NW2	108.9		Bridge									
NW2	108.875*	500YR	28.51	5857.51	5857.97		5858.09	0.021009	2.84	10.56	32.76	0.81
NW2	108.875*	100YR	21.47	5857.51	5857.90		5858.01	0.021681	2.58	8.60	29.93	0.80
NW2	108.875*	10YR	12.38	5857.51	5857.81		5857.88	0.021776	2.12	5.88	26.58	0.76
NW2	108.875*	2YR	6.10	5857.51	5857.72		5857.76	0.021168	1.65	3.69	21.86	0.71
NW2	108.75*	500YR	28.51	5857.01	5857.51	5857.41	5857.59	0.013227	2.35	12.59	34.97	0.65
NW2	108.75*	100YR	21.47	5857.01	5857.45	5857.35	5857.51	0.012488	2.09	10.53	32.90	0.62
NW2	108.75*	10YR	12.38	5857.01	5857.34		5857.38	0.013323	1.74	7.10	27.76	0.60
NW2	108.75*	2YR	6.10	5857.01	5857.23		5857.26	0.013652	1.40	4.36	23.90	0.58
NW2	108.625*	500YR	28.51	5856.51	5856.91	5856.89	5857.04	0.028377	2.91	9.82	32.03	0.91
NW2	108.625*	100YR	21.47	5856.51	5856.85	5856.83	5856.96	0.030222	2.71	7.93	29.17	0.92
NW2	108.625*	10YR	12.38	5856.51	5856.77	5856.75	5856.84	0.027782	2.20	5.62	26.46	0.84
NW2	108.625*	2YR	6.10	5856.51	5856.69		5856.73	0.024754	1.67	3.65	23.91	0.75
NW2	108.5000	500YR	28.51	5856.01	5856.53		5856.59	0.008800	1.94	14.82	38.50	0.53
NW2	108.5000	100YR	21.47	5856.01	5856.47		5856.51	0.008729	1.75	12.28	34.34	0.52
NW2	108.5000	10YR	12.38	5856.01	5856.33		5856.37	0.010121	1.54	8.02	30.16	0.53
NW2	108.5000	2YR	6.10	5856.01	5856.22		5856.24	0.011726	1.28	4.76	26.53	0.53
NW2	108.0000	500YR	41.46	5853.40	5854.15	5854.13	5854.25	0.011332	2.94	23.46	88.68	0.65
NW2	108.0000	100YR	31.14	5853.40	5854.09	5854.08	5854.18	0.011403	2.75	17.75	83.74	0.64
NW2	108.0000	10YR	18.07	5853.40	5853.97		5854.04	0.010180	2.22	9.95	33.75	0.58
NW2	108.0000	2YR	8.92	5853.40	5853.83	5853.73	5853.87	0.009592	1.70	5.78	25.97	0.53
NW2	107.5000	500YR	41.46	5852.01	5852.39		5852.44	0.008821	1.80	23.66	69.79	0.52
NW2	107.5000	100YR	31.14	5852.01	5852.33		5852.37	0.008863	1.62	19.67	67.73	0.51
NW2	107.5000	10YR	18.07	5852.01	5852.24		5852.27	0.009355	1.32	13.72	63.73	0.49
NW2	107.5000	2YR	8.92	5852.01	5852.17		5852.18	0.009170	1.00	8.96	60.52	0.46
NW2	107.0000	500YR	41.46	5848.01	5848.78	5848.78	5849.00	0.024874	4.62	14.54	37.95	0.97
NW2	107.0000	100YR	31.14	5848.01	5848.69	5848.69	5848.89	0.025733	4.27	11.25	32.36	0.97
NW2	107.0000	10YR	18.07	5848.01	5848.55	5848.55	5848.70	0.024866	3.55	7.31	26.02	0.91
NW2	107.0000	2YR	8.92	5848.01	5848.40	5848.40	5848.52	0.028130	2.92	3.94	19.08	0.91
NW	100.0000	500YR	527.62	5912.01	5913.65	5913.65	5914.28	0.018861	6.86	95.69	85.19	0.97
NW	100.0000	100YR	398.19	5912.01	5913.41	5913.41	5913.95	0.019578	6.26	76.64	77.08	0.96
NW	100.0000	10YR	235.60	5912.01	5913.04	5913.04	5913.45	0.022595	5.40	50.00	65.30	0.98
NW	100.0000	2YR	120.49	5912.01	5912.71	5912.70	5912.99	0.026412	4.39	30.04	54.61	0.98
NW	99.5000	500YR	527.62	5909.28	5910.91	5910.91	5911.43	0.025187	7.94	111.92	110.04	1.12
NW	99.5000	100YR	398.19	5909.28	5910.73	5910.73	5911.16	0.024345	7.17	92.01	101.54	1.08
NW	99.5000	10YR	235.60	5909.28	5910.41	5910.41	5910.75	0.025289	6.14	62.02	88.70	1.05
NW	99.5000	2YR	120.49	5909.28	5910.11	5910.11	5910.36	0.025982	5.00	37.81	75.98	1.01
NW	99.0000	500YR	527.62	5906.01	5907.86	5907.68	5908.30	0.014145	5.69	108.97	86.71	0.83
NW	99.0000	100YR	398.19	5906.01	5907.61		5907.99	0.014439	5.28	87.86	79.61	0.82
NW	99.0000	10YR	235.60	5906.01	5907.23		5907.52	0.014583	4.52	59.71	69.59	0.79
NW	99.0000	2YR	120.49	5906.01	5906.88		5907.07	0.014069	3.61	37.18	59.93	0.74

NW	**98.5000**	**500YR**	**527.62**	**5903.51**	**5905.54**	**5905.38**	**5905.96**	**0.015642**	**7.35**	**130.79**	**117.66**	**0.92**
NW	**98.5000**	**100YR**	**398.19**	**5903.51**	**5905.32**	**5905.16**	**5905.68**	**0.014952**	**6.64**	**106.31**	**104.69**	**0.88**
NW	**98.5000**	**10YR**	**235.60**	**5903.51**	**5904.95**	**5904.81**	**5905.23**	**0.014521**	**5.61**	**71.30**	**86.28**	**0.83**
NW	**98.5000**	**2YR**	**120.49**	**5903.51**	**5904.56**	**5904.48**	**5904.77**	**0.015130**	**4.61**	**41.64**	**66.93**	**0.81**
NW	**98.0000**	**500YR**	**527.62**	**5900.13**	**5902.97**	**5902.97**	**5903.55**	**0.013063**	**8.11**	**123.80**	**106.62**	**0.88**
NW	**98.0000**	**100YR**	**398.19**	**5900.13**	**5902.66**	**5902.66**	**5903.22**	**0.014073**	**7.73**	**92.87**	**87.46**	**0.89**
NW	**98.0000**	**10YR**	**235.60**	**5900.13**	**5902.12**	**5902.12**	**5902.64**	**0.016111**	**6.96**	**54.55**	**57.86**	**0.91**
NW	**98.0000**	**2YR**	**120.49**	**5900.13**	**5901.60**	**5901.60**	**5902.00**	**0.017802**	**5.80**	**29.83**	**39.08**	**0.91**
NW	**97.5000**	**500YR**	**527.62**	**5898.01**	**5900.78**		**5901.15**	**0.007430**	**5.82**	**146.73**	**132.93**	**0.65**
NW	**97.5000**	**100YR**	**398.19**	**5898.01**	**5900.54**		**5900.86**	**0.006852**	**5.22**	**116.62**	**117.28**	**0.62**
NW	**97.5000**	**10YR**	**235.60**	**5898.01**	**5900.11**		**5900.33**	**0.006029**	**4.23**	**75.07**	**74.45**	**0.56**
NW	**97.5000**	**2YR**	**120.49**	**5898.01**	**5899.63**		**5899.76**	**0.005045**	**3.14**	**47.38**	**49.38**	**0.49**
NW	**97.0000**	**500YR**	**527.62**	**5896.81**	**5898.70**	**5898.63**	**5899.10**	**0.025637**	**8.97**	**120.77**	**116.53**	**1.16**
NW	**97.0000**	**100YR**	**398.19**	**5896.81**	**5898.47**	**5898.45**	**5898.86**	**0.027888**	**8.59**	**95.80**	**107.11**	**1.19**
NW	**97.0000**	**10YR**	**235.60**	**5896.81**	**5898.15**	**5898.15**	**5898.46**	**0.029204**	**7.57**	**63.57**	**89.41**	**1.17**
NW	**97.0000**	**2YR**	**120.49**	**5896.81**	**5897.76**	**5897.76**	**5898.03**	**0.034613**	**6.51**	**34.68**	**62.94**	**1.20**
NW	**96.5000**	**500YR**	**527.62**	**5894.01**	**5896.34**		**5896.67**	**0.006967**	**5.30**	**142.04**	**101.93**	**0.62**
NW	**96.5000**	**100YR**	**398.19**	**5894.01**	**5896.05**		**5896.33**	**0.007002**	**4.84**	**114.07**	**90.37**	**0.61**
NW	**96.5000**	**10YR**	**235.60**	**5894.01**	**5895.64**		**5895.83**	**0.006096**	**3.87**	**79.98**	**75.37**	**0.55**
NW	**96.5000**	**2YR**	**120.49**	**5894.01**	**5895.17**		**5895.30**	**0.006147**	**3.06**	**48.08**	**59.73**	**0.52**
NW	**96.0000**	**500YR**	**607.31**	**5892.01**	**5894.21**	**5894.21**	**5894.80**	**0.016221**	**7.77**	**128.70**	**107.03**	**0.94**
NW	**96.0000**	**100YR**	**459.96**	**5892.01**	**5893.98**	**5893.98**	**5894.50**	**0.015643**	**7.07**	**105.07**	**99.02**	**0.91**
NW	**96.0000**	**10YR**	**273.65**	**5892.01**	**5893.51**	**5893.51**	**5893.98**	**0.018781**	**6.41**	**63.85**	**76.99**	**0.95**
NW	**96.0000**	**2YR**	**140.34**	**5892.01**	**5893.13**	**5893.13**	**5893.46**	**0.018394**	**5.13**	**37.48**	**59.74**	**0.89**
NW	**95.5000**	**500YR**	**607.31**	**5890.01**	**5891.55**		**5891.73**	**0.005227**	**3.54**	**183.46**	**135.81**	**0.51**
NW	**95.5000**	**100YR**	**459.96**	**5890.01**	**5891.31**		**5891.47**	**0.005387**	**3.20**	**151.77**	**131.07**	**0.50**
NW	**95.5000**	**10YR**	**273.65**	**5890.01**	**5890.95**		**5891.06**	**0.005786**	**2.68**	**106.29**	**123.91**	**0.49**
NW	**95.5000**	**2YR**	**140.34**	**5890.01**	**5890.63**		**5890.70**	**0.006453**	**2.14**	**67.22**	**116.58**	**0.48**
NW	**95.0000**	**500YR**	**607.31**	**5888.01**	**5890.05**	**5889.94**	**5890.52**	**0.013178**	**6.21**	**134.39**	**113.18**	**0.82**
NW	**95.0000**	**100YR**	**459.96**	**5888.01**	**5889.82**	**5889.69**	**5890.23**	**0.013200**	**5.72**	**108.85**	**107.47**	**0.81**
NW	**95.0000**	**10YR**	**273.65**	**5888.01**	**5889.45**	**5889.37**	**5889.77**	**0.013403**	**4.87**	**71.73**	**91.03**	**0.78**
NW	**95.0000**	**2YR**	**140.34**	**5888.01**	**5889.09**	**5889.00**	**5889.31**	**0.013280**	**3.90**	**42.06**	**74.74**	**0.74**
NW	**94.5000**	**500YR**	**607.31**	**5886.01**	**5887.85**		**5888.20**	**0.010066**	**5.45**	**147.84**	**111.85**	**0.72**
NW	**94.5000**	**100YR**	**459.96**	**5886.01**	**5887.61**		**5887.91**	**0.010077**	**4.95**	**121.82**	**107.62**	**0.70**
NW	**94.5000**	**10YR**	**273.65**	**5886.01**	**5887.25**		**5887.47**	**0.009765**	**4.11**	**84.94**	**97.53**	**0.66**
NW	**94.5000**	**2YR**	**140.34**	**5886.01**	**5886.88**		**5887.03**	**0.009809**	**3.27**	**51.86**	**82.28**	**0.63**
NW	**94.0000**	**500YR**	**607.31**	**5884.01**	**5886.41**		**5886.76**	**0.012600**	**7.08**	**155.56**	**114.97**	**0.84**
NW	**94.0000**	**100YR**	**459.96**	**5884.01**	**5886.17**		**5886.48**	**0.012361**	**6.51**	**128.88**	**109.87**	**0.81**
NW	**94.0000**	**10YR**	**273.65**	**5884.01**	**5885.74**		**5886.00**	**0.013438**	**5.77**	**84.68**	**93.42**	**0.81**
NW	**94.0000**	**2YR**	**140.34**	**5884.01**	**5885.30**		**5885.51**	**0.014717**	**4.84**	**48.59**	**71.17**	**0.81**
NW	**93.5000**	**500YR**	**607.31**	**5882.01**	**5884.39**	**5884.16**	**5884.68**	**0.009483**	**6.41**	**182.39**	**143.88**	**0.74**
NW	**93.5000**	**100YR**	**459.96**	**5882.01**	**5884.16**	**5883.69**	**5884.43**	**0.009400**	**5.97**	**150.56**	**140.71**	**0.72**
NW	**93.5000**	**10YR**	**273.65**	**5882.01**	**5883.76**	**5883.34**	**5883.97**	**0.008542**	**4.96**	**99.74**	**104.47**	**0.66**
NW	**93.5000**	**2YR**	**140.34**	**5882.01**	**5883.31**	**5882.97**	**5883.46**	**0.008107**	**3.95**	**59.41**	**77.74**	**0.61**
NW	**93.0000**	**500YR**	**607.31**	**5880.01**	**5881.87**	**5881.70**	**5882.24**	**0.011844**	**5.91**	**161.73**	**157.07**	**0.78**
NW	**93.0000**	**100YR**	**459.96**	**5880.01**	**5881.64**	**5881.49**	**5881.97**	**0.012160**	**5.46**	**127.93**	**139.69**	**0.78**
NW	**93.0000**	**10YR**	**273.65**	**5880.01**	**5881.28**	**5881.17**	**5881.55**	**0.013217**	**4.76**	**81.87**	**114.48**	**0.77**
NW	**93.0000**	**2YR**	**140.34**	**5880.01**	**5880.93**		**5881.12**	**0.013093**	**3.77**	**47.71**	**81.18**	**0.73**
NW	**92.5000**	**500YR**	**607.31**	**5878.01**	**5879.75**		**5879.86**	**0.006435**	**4.02**	**230.73**	**159.26**	**0.56**
NW	**92.5000**	**100YR**	**459.96**	**5878.01**	**5879.50**		**5879.60**	**0.006303**	**3.55**	**192.77**	**151.57**	**0.54**
NW	**92.5000**	**10YR**	**273.65**	**5878.01**	**5879.15**		**5879.21**	**0.005853**	**2.78**	**140.50**	**141.32**	**0.50**
NW	**92.5000**	**2YR**	**140.34**	**5878.01**	**5878.78**		**5878.82**	**0.005790**	**2.03**	**91.36**	**129.26**	**0.46**
NW	**92.0000**	**500YR**	**607.31**	**5875.73**	**5876.86**	**5876.67**	**5877.04**	**0.020292**	**5.62**	**190.30**	**235.48**	**0.95**
NW	**92.0000**	**100YR**	**459.96**	**5875.73**	**5876.75**		**5876.89**	**0.018818**	**5.02**	**163.21**	**230.90**	**0.89**
NW	**92.0000**	**10YR**	**273.65**	**5875.73**	**5876.55**		**5876.65**	**0.018410**	**4.26**	**117.85**	**221.70**	**0.85**

NW	**92.0000**	**2YR**	**140.34**	**5875.73**	**5876.38**	**5876.27**	**5876.44**	**0.015569**	**3.32**	**80.87**	**211.43**	**0.75**
NW	**91.5000**	**500YR**	**607.31**	**5874.01**	**5875.20**		**5875.31**	**0.004825**	**2.85**	**246.68**	**249.38**	**0.47**
NW	**91.5000**	**100YR**	**459.96**	**5874.01**	**5875.01**		**5875.11**	**0.005226**	**2.63**	**200.23**	**242.12**	**0.47**
NW	**91.5000**	**10YR**	**273.65**	**5874.01**	**5874.75**		**5874.82**	**0.005488**	**2.21**	**139.04**	**226.77**	**0.46**
NW	**91.5000**	**2YR**	**140.34**	**5874.01**	**5874.50**		**5874.55**	**0.006331**	**1.81**	**84.45**	**203.50**	**0.46**
NW	**91.0000**	**500YR**	**699.31**	**5872.01**	**5873.55**		**5873.81**	**0.008664**	**4.55**	**202.57**	**195.59**	**0.65**
NW	**91.0000**	**100YR**	**532.88**	**5872.01**	**5873.37**		**5873.59**	**0.008150**	**4.05**	**168.81**	**181.71**	**0.62**
NW	**91.0000**	**10YR**	**318.10**	**5872.01**	**5873.04**		**5873.20**	**0.008603**	**3.43**	**112.62**	**154.22**	**0.61**
NW	**91.0000**	**2YR**	**163.05**	**5872.01**	**5872.74**		**5872.84**	**0.008268**	**2.66**	**70.45**	**129.72**	**0.56**
NW	**90.5000**	**500YR**	**699.31**	**5868.01**	**5869.52**	**5869.52**	**5870.12**	**0.020368**	**6.68**	**126.03**	**109.62**	**0.99**
NW	**90.5000**	**100YR**	**532.88**	**5868.01**	**5869.26**	**5869.26**	**5869.81**	**0.023894**	**6.39**	**98.13**	**100.09**	**1.04**
NW	**90.5000**	**10YR**	**318.10**	**5868.01**	**5868.96**	**5868.96**	**5869.35**	**0.023160**	**5.27**	**69.45**	**91.56**	**0.98**
NW	**90.5000**	**2YR**	**163.05**	**5868.01**	**5868.64**	**5868.64**	**5868.91**	**0.026317**	**4.30**	**42.20**	**80.50**	**0.98**
NW	**90.0000**	**500YR**	**699.31**	**5864.61**	**5866.61**	**5865.97**	**5866.68**	**0.003459**	**3.44**	**386.71**	**322.10**	**0.43**
NW	**90.0000**	**100YR**	**532.88**	**5864.61**	**5866.41**	**5865.80**	**5866.47**	**0.003382**	**3.17**	**323.20**	**309.13**	**0.42**
NW	**90.0000**	**10YR**	**318.10**	**5864.61**	**5866.10**	**5865.64**	**5866.14**	**0.003259**	**2.74**	**229.74**	**290.34**	**0.40**
NW	**90.0000**	**2YR**	**163.05**	**5864.61**	**5865.76**	**5865.37**	**5865.80**	**0.003069**	**2.24**	**140.83**	**234.54**	**0.37**
NW	**89.5000**	**500YR**	**699.31**	**5862.01**	**5862.96**	**5862.96**	**5863.28**	**0.052244**	**6.43**	**158.04**	**240.84**	**1.39**
NW	**89.5000**	**100YR**	**532.88**	**5862.01**	**5862.84**	**5862.84**	**5863.11**	**0.053333**	**6.05**	**131.60**	**233.09**	**1.38**
NW	**89.5000**	**10YR**	**318.10**	**5862.01**	**5862.67**	**5862.67**	**5862.87**	**0.055855**	**5.41**	**92.24**	**216.39**	**1.37**
NW	**89.5000**	**2YR**	**163.05**	**5862.01**	**5862.51**	**5862.51**	**5862.65**	**0.059555**	**4.75**	**58.51**	**201.18**	**1.36**
NW	**89.0000**	**500YR**	**1206.50**	**5856.01**	**5857.84**		**5857.99**	**0.003770**	**3.41**	**470.32**	**385.62**	**0.44**
NW	**89.0000**	**100YR**	**918.25**	**5856.01**	**5857.59**		**5857.72**	**0.003859**	**3.12**	**377.81**	**348.85**	**0.44**
NW	**89.0000**	**10YR**	**545.97**	**5856.01**	**5857.19**		**5857.29**	**0.004021**	**2.62**	**250.99**	**285.15**	**0.43**
NW	**89.0000**	**2YR**	**279.82**	**5856.01**	**5856.83**		**5856.89**	**0.003948**	**2.04**	**156.38**	**239.90**	**0.40**
NW	**88.5000**	**500YR**	**1206.50**	**5854.01**	**5856.07**		**5856.20**	**0.003186**	**3.38**	**522.05**	**411.18**	**0.42**
NW	**88.5000**	**100YR**	**918.25**	**5854.01**	**5855.82**		**5855.93**	**0.003080**	**3.05**	**426.57**	**373.39**	**0.40**
NW	**88.5000**	**10YR**	**545.97**	**5854.01**	**5855.40**		**5855.48**	**0.003070**	**2.55**	**283.95**	**301.83**	**0.38**
NW	**88.5000**	**2YR**	**279.82**	**5854.01**	**5854.97**		**5855.02**	**0.003342**	**2.07**	**166.90**	**244.01**	**0.38**
NW	**88.0000**	**500YR**	**1206.50**	**5852.01**	**5853.90**	**5853.90**	**5854.44**	**0.019082**	**7.73**	**273.03**	**278.32**	**1.00**
NW	**88.0000**	**100YR**	**918.25**	**5852.01**	**5853.65**	**5853.65**	**5854.17**	**0.021177**	**7.39**	**208.33**	**234.16**	**1.03**
NW	**88.0000**	**10YR**	**545.97**	**5852.01**	**5853.28**	**5853.28**	**5853.71**	**0.022568**	**6.40**	**132.60**	**177.27**	**1.02**
NW	**88.0000**	**2YR**	**279.82**	**5852.01**	**5852.96**	**5852.96**	**5853.24**	**0.020007**	**4.94**	**82.42**	**141.49**	**0.91**
NW	**87.5000**	**500YR**	**1206.50**	**5850.01**	**5852.50**		**5852.55**	**0.001454**	**2.59**	**910.62**	**716.03**	**0.29**
NW	**87.5000**	**100YR**	**918.25**	**5850.01**	**5852.24**		**5852.29**	**0.001557**	**2.49**	**730.26**	**695.14**	**0.30**
NW	**87.5000**	**10YR**	**545.97**	**5850.01**	**5851.86**		**5851.90**	**0.001376**	**2.07**	**487.66**	**530.54**	**0.27**
NW	**87.5000**	**2YR**	**279.82**	**5850.01**	**5851.41**		**5851.43**	**0.001319**	**1.67**	**284.23**	**388.63**	**0.25**
NW	**87.0000**	**500YR**	**1206.50**	**5847.98**	**5849.37**	**5849.37**	**5849.81**	**0.042636**	**9.31**	**268.33**	**497.33**	**1.42**
NW	**87.0000**	**100YR**	**918.25**	**5847.98**	**5849.35**	**5849.35**	**5849.62**	**0.027316**	**7.36**	**256.03**	**490.34**	**1.13**
NW	**87.0000**	**10YR**	**545.97**	**5847.98**	**5848.92**	**5848.92**	**5849.26**	**0.044220**	**7.18**	**125.77**	**183.21**	**1.35**
NW	**87.0000**	**2YR**	**279.82**	**5847.98**	**5848.63**	**5848.63**	**5848.87**	**0.048747**	**5.78**	**76.74**	**157.36**	**1.32**
NW4	**69.5000**	**500YR**	**10035.00**	**5852.01**	**5860.70**		**5861.18**	**0.004222**	**9.86**	**2122.14**	**474.68**	**0.60**
NW4	**69.5000**	**100YR**	**7695.90**	**5852.01**	**5859.80**		**5860.27**	**0.004691**	**9.64**	**1705.01**	**450.77**	**0.62**
NW4	**69.5000**	**10YR**	**4740.10**	**5852.01**	**5858.41**		**5858.89**	**0.006114**	**9.60**	**1107.07**	**404.54**	**0.68**
NW4	**69.5000**	**2YR**	**2480.30**	**5852.01**	**5857.15**		**5857.61**	**0.006998**	**8.82**	**651.89**	**331.92**	**0.70**
NW4	**69.0000**	**500YR**	**10035.00**	**5852.01**	**5860.07**		**5860.46**	**0.002848**	**7.77**	**2306.27**	**444.27**	**0.49**
NW4	**69.0000**	**100YR**	**7695.90**	**5852.01**	**5859.14**		**5859.48**	**0.002968**	**7.28**	**1900.36**	**427.52**	**0.49**
NW4	**69.0000**	**10YR**	**4740.10**	**5852.01**	**5857.61**		**5857.91**	**0.003539**	**6.72**	**1273.55**	**380.02**	**0.51**
NW4	**69.0000**	**2YR**	**2480.30**	**5852.01**	**5856.22**		**5856.47**	**0.004190**	**5.98**	**767.34**	**347.61**	**0.53**
NW4	**68.5000**	**500YR**	**10083.00**	**5850.01**	**5858.66**		**5859.52**	**0.006066**	**12.15**	**1680.40**	**364.80**	**0.73**
NW4	**68.5000**	**100YR**	**7739.90**	**5850.01**	**5857.85**		**5858.57**	**0.005523**	**10.86**	**1401.05**	**320.25**	**0.68**
NW4	**68.5000**	**10YR**	**4760.70**	**5850.01**	**5856.11**		**5856.81**	**0.006931**	**10.28**	**892.54**	**263.55**	**0.74**
NW4	**68.5000**	**2YR**	**2495.40**	**5850.01**	**5854.74**	**5853.83**	**5855.28**	**0.006864**	**8.62**	**556.15**	**227.26**	**0.70**
NW4	**68.4166***	**500YR**	**10083.00**	**5849.60**	**5858.36**		**5859.28**	**0.005337**	**11.50**	**1710.52**	**367.99**	**0.69**
NW4	**68.4166***	**100YR**	**7739.90**	**5849.60**	**5857.57**		**5858.35**	**0.004907**	**10.35**	**1431.65**	**333.78**	**0.65**

NW4	**68.4166***	**10YR**	**4760.70**	**5849.60**	**5855.75**		**5856.52**	**0.006287**	**9.84**	**888.30**	**265.58**	**0.70**
NW4	**68.4166***	**2YR**	**2495.40**	**5849.60**	**5853.53**	**5853.51**	**5854.79**	**0.014962**	**11.25**	**370.33**	**173.83**	**1.00**
NW4	**68.3333***	**500YR**	**10083.00**	**5849.20**	**5858.22**		**5859.06**	**0.004152**	**10.34**	**1814.47**	**373.05**	**0.61**
NW4	**68.3333***	**100YR**	**7739.90**	**5849.20**	**5857.44**		**5858.14**	**0.003758**	**9.26**	**1535.92**	**347.37**	**0.57**
NW4	**68.3333***	**10YR**	**4760.70**	**5849.20**	**5855.57**		**5856.27**	**0.004697**	**8.72**	**956.82**	**278.71**	**0.61**
NW4	**68.3333***	**2YR**	**2495.40**	**5849.20**	**5853.06**	**5853.01**	**5854.18**	**0.012050**	**9.97**	**378.23**	**166.39**	**0.90**
NW4	**68.25***	**500YR**	**10083.00**	**5848.79**	**5858.15**		**5858.87**	**0.003088**	**9.14**	**1970.45**	**384.27**	**0.53**
NW4	**68.25***	**100YR**	**7739.90**	**5848.79**	**5857.40**		**5857.97**	**0.002676**	**8.04**	**1690.77**	**357.38**	**0.48**
NW4	**68.25***	**10YR**	**4760.70**	**5848.79**	**5855.53**		**5856.05**	**0.003039**	**7.28**	**1091.20**	**290.85**	**0.50**
NW4	**68.25***	**2YR**	**2495.40**	**5848.79**	**5852.92**		**5853.69**	**0.007157**	**8.04**	**456.43**	**192.16**	**0.70**
NW4	**68.1666***	**500YR**	**10083.00**	**5848.39**	**5858.13**		**5858.71**	**0.002238**	**7.99**	**2165.97**	**394.14**	**0.45**
NW4	**68.1666***	**100YR**	**7739.90**	**5848.39**	**5857.39**		**5857.84**	**0.001875**	**6.93**	**1882.17**	**367.68**	**0.41**
NW4	**68.1666***	**10YR**	**4760.70**	**5848.39**	**5855.53**		**5855.91**	**0.001955**	**6.07**	**1260.35**	**305.89**	**0.40**
NW4	**68.1666***	**2YR**	**2495.40**	**5848.39**	**5852.90**		**5853.38**	**0.003889**	**6.29**	**571.18**	**215.89**	**0.52**
NW4	**68.0833***	**500YR**	**10083.00**	**5847.98**	**5858.13**		**5858.60**	**0.001639**	**7.02**	**2391.28**	**409.99**	**0.39**
NW4	**68.0833***	**100YR**	**7739.90**	**5847.98**	**5857.39**		**5857.74**	**0.001336**	**6.03**	**2098.19**	**382.28**	**0.35**
NW4	**68.0833***	**10YR**	**4760.70**	**5847.98**	**5855.53**		**5855.81**	**0.001296**	**5.13**	**1448.59**	**322.97**	**0.33**
NW4	**68.0833***	**2YR**	**2495.40**	**5847.98**	**5852.90**		**5853.21**	**0.002210**	**5.02**	**701.51**	**235.92**	**0.40**
NW4	**68.0000**	**500YR**	**10083.00**	**5847.58**	**5858.13**		**5858.51**	**0.001215**	**6.21**	**2636.25**	**426.21**	**0.34**
NW4	**68.0000**	**100YR**	**7739.90**	**5847.58**	**5857.39**		**5857.67**	**0.000973**	**5.29**	**2330.04**	**398.63**	**0.30**
NW4	**68.0000**	**10YR**	**4760.70**	**5847.58**	**5855.54**		**5855.75**	**0.000887**	**4.39**	**1650.82**	**340.27**	**0.28**
NW4	**68.0000**	**2YR**	**2495.40**	**5847.58**	**5852.89**		**5853.10**	**0.001343**	**4.12**	**845.12**	**261.00**	**0.32**
NW4	**67.875***	**500YR**	**10083.00**	**5847.30**	**5857.69**	**5855.25**	**5858.43**	**0.002897**	**8.51**	**1917.74**	**376.91**	**0.50**
NW4	**67.875***	**100YR**	**7739.90**	**5847.30**	**5857.04**	**5854.47**	**5857.60**	**0.002381**	**7.33**	**1679.46**	**354.23**	**0.45**
NW4	**67.875***	**10YR**	**4760.70**	**5847.30**	**5855.22**	**5852.94**	**5855.68**	**0.002553**	**6.42**	**1100.88**	**280.31**	**0.45**
NW4	**67.875***	**2YR**	**2495.40**	**5847.30**	**5852.19**	**5851.67**	**5852.97**	**0.008689**	**7.71**	**407.90**	**165.12**	**0.74**
NW4	**67.8**		**Bridge**									
NW4	**67.75***	**500YR**	**10083.00**	**5845.86**	**5854.07**	**5854.07**	**5855.89**	**0.010244**	**11.98**	**1167.31**	**359.26**	**0.88**
NW4	**67.75***	**100YR**	**7739.90**	**5845.86**	**5853.36**	**5853.36**	**5854.99**	**0.010517**	**11.10**	**929.15**	**315.34**	**0.88**
NW4	**67.75***	**10YR**	**4760.70**	**5845.86**	**5852.03**	**5852.03**	**5853.51**	**0.013279**	**10.17**	**557.41**	**234.17**	**0.93**
NW4	**67.75***	**2YR**	**2495.40**	**5845.86**	**5850.80**	**5850.80**	**5851.89**	**0.015998**	**8.50**	**316.88**	**163.82**	**0.96**
NW4	**67.625***	**500YR**	**10083.00**	**5844.51**	**5851.79**	**5851.79**	**5853.61**	**0.014616**	**16.39**	**1188.75**	**320.25**	**1.09**
NW4	**67.625***	**100YR**	**7739.90**	**5844.51**	**5851.11**	**5851.11**	**5852.71**	**0.014128**	**15.06**	**980.67**	**292.09**	**1.05**
NW4	**67.625***	**10YR**	**4760.70**	**5844.51**	**5850.03**	**5850.03**	**5851.31**	**0.013605**	**13.04**	**686.30**	**251.30**	**1.00**
NW4	**67.625***	**2YR**	**2495.40**	**5844.51**	**5848.91**	**5848.91**	**5849.88**	**0.012640**	**10.72**	**429.01**	**209.69**	**0.93**
NW4	**67.5000**	**500YR**	**10083.00**	**5844.01**	**5851.28**	**5851.28**	**5852.98**	**0.014228**	**16.14**	**1240.76**	**344.25**	**1.07**
NW4	**67.5000**	**100YR**	**7739.90**	**5844.01**	**5850.59**	**5850.59**	**5852.13**	**0.014082**	**14.98**	**1014.71**	**313.45**	**1.05**
NW4	**67.5000**	**10YR**	**4760.70**	**5844.01**	**5849.58**	**5849.58**	**5850.80**	**0.013072**	**12.84**	**718.87**	**271.80**	**0.98**
NW4	**67.5000**	**2YR**	**2495.40**	**5844.01**	**5848.62**	**5848.57**	**5849.46**	**0.010415**	**10.04**	**477.32**	**234.42**	**0.85**
NW4	**67.0000**	**500YR**	**10083.00**	**5844.01**	**5849.35**		**5850.04**	**0.008310**	**10.27**	**1779.33**	**525.54**	**0.79**
NW4	**67.0000**	**100YR**	**7739.90**	**5844.01**	**5848.80**		**5849.40**	**0.008174**	**9.45**	**1492.31**	**506.61**	**0.77**
NW4	**67.0000**	**10YR**	**4760.70**	**5844.01**	**5848.18**		**5848.56**	**0.006060**	**7.41**	**1184.00**	**486.38**	**0.64**
NW4	**67.0000**	**2YR**	**2495.40**	**5844.01**	**5847.26**		**5847.54**	**0.005811**	**6.13**	**759.29**	**434.98**	**0.61**
NW4	**66.5000**	**500YR**	**10083.00**	**5842.01**	**5847.30**		**5847.83**	**0.005766**	**8.53**	**2119.19**	**653.28**	**0.66**
NW4	**66.5000**	**100YR**	**7739.90**	**5842.01**	**5846.75**		**5847.22**	**0.005683**	**7.87**	**1769.87**	**626.35**	**0.64**
NW4	**66.5000**	**10YR**	**4760.70**	**5842.01**	**5845.32**		**5845.97**	**0.011320**	**8.72**	**941.49**	**483.17**	**0.85**
NW4	**66.5000**	**2YR**	**2495.40**	**5842.01**	**5844.45**	**5844.28**	**5844.96**	**0.011931**	**7.30**	**563.04**	**390.74**	**0.83**
NW4	**66.0000**	**500YR**	**10083.00**	**5840.01**	**5846.75**		**5847.08**	**0.001803**	**5.62**	**2713.53**	**635.31**	**0.38**
NW4	**66.0000**	**100YR**	**7739.90**	**5840.01**	**5846.34**		**5846.58**	**0.001374**	**4.70**	**2457.75**	**608.60**	**0.33**
NW4	**66.0000**	**10YR**	**4760.70**	**5840.01**	**5843.29**		**5843.90**	**0.007069**	**6.88**	**906.34**	**405.33**	**0.67**
NW4	**66.0000**	**2YR**	**2495.40**	**5840.01**	**5842.33**		**5842.76**	**0.007390**	**5.58**	**550.99**	**333.99**	**0.65**
NW4	**65.5000**	**500YR**	**11231.00**	**5836.92**	**5846.54**		**5846.63**	**0.000717**	**4.49**	**5103.32**	**933.67**	**0.26**
NW4	**65.5000**	**100YR**	**8605.10**	**5836.92**	**5846.19**		**5846.25**	**0.000503**	**3.67**	**4778.23**	**907.01**	**0.21**
NW4	**65.5000**	**10YR**	**5289.70**	**5836.92**	**5841.55**		**5841.77**	**0.004663**	**7.01**	**1498.73**	**529.88**	**0.58**
NW4	**65.5000**	**2YR**	**2775.40**	**5836.92**	**5840.47**		**5840.62**	**0.004683**	**5.88**	**965.35**	**461.33**	**0.55**

NW4	**65.0000**	**500YR**	**11231.00**	**5836.01**	**5846.39**		**5846.46**	**0.000381**	**3.43**	**5958.14**	**827.25**	**0.19**
NW4	**65.0000**	**100YR**	**8605.10**	**5836.01**	**5846.09**		**5846.13**	**0.000257**	**2.76**	**5705.56**	**825.42**	**0.15**
NW4	**65.0000**	**10YR**	**5289.70**	**5836.01**	**5840.01**		**5840.25**	**0.004628**	**6.25**	**1466.92**	**521.82**	**0.56**
NW4	**65.0000**	**2YR**	**2775.40**	**5836.01**	**5839.06**		**5839.21**	**0.004018**	**4.83**	**994.53**	**472.79**	**0.50**
NW4	**64.5000**	**500YR**	**11231.00**	**5834.01**	**5846.36**		**5846.39**	**0.000127**	**2.22**	**8985.07**	**1033.66**	**0.11**
NW4	**64.5000**	**100YR**	**8605.10**	**5834.01**	**5846.06**		**5846.08**	**0.000083**	**1.77**	**8681.95**	**1032.23**	**0.09**
NW4	**64.5000**	**10YR**	**5289.70**	**5834.01**	**5837.65**		**5838.29**	**0.010175**	**8.75**	**1079.94**	**538.22**	**0.81**
NW4	**64.5000**	**2YR**	**2775.40**	**5834.01**	**5836.69**	**5836.60**	**5837.27**	**0.012316**	**7.81**	**604.15**	**445.68**	**0.85**
NW4	**64.0000**	**500YR**	**11231.00**	**5830.01**	**5846.33**		**5846.36**	**0.000076**	**2.07**	**10133.92**	**902.35**	**0.09**
NW4	**64.0000**	**100YR**	**8605.10**	**5830.01**	**5846.05**		**5846.06**	**0.000048**	**1.63**	**9877.40**	**899.93**	**0.07**
NW4	**64.0000**	**10YR**	**5289.70**	**5830.01**	**5835.18**	**5834.44**	**5835.63**	**0.006862**	**9.11**	**1262.66**	**509.74**	**0.71**
NW4	**64.0000**	**2YR**	**2775.40**	**5830.01**	**5834.18**		**5834.52**	**0.006232**	**7.51**	**799.10**	**419.33**	**0.65**
NW4	**63.5000**	**500YR**	**11231.00**	**5828.01**	**5846.32**		**5846.34**	**0.000038**	**1.58**	**12454.99**	**910.08**	**0.07**
NW4	**63.5000**	**100YR**	**8605.10**	**5828.01**	**5846.04**		**5846.05**	**0.000024**	**1.24**	**12199.67**	**908.73**	**0.05**
NW4	**63.5000**	**10YR**	**5289.70**	**5828.01**	**5832.39**		**5833.01**	**0.010543**	**9.93**	**1141.55**	**586.51**	**0.85**
NW4	**63.5000**	**2YR**	**2775.40**	**5828.01**	**5831.53**		**5832.06**	**0.010305**	**8.45**	**682.67**	**458.39**	**0.81**
NW4	**63.0000**	**500YR**	**11231.00**	**5826.01**	**5846.32**		**5846.33**	**0.000020**	**1.22**	**15730.16**	**1030.89**	**0.05**
NW4	**63.0000**	**100YR**	**8605.10**	**5826.01**	**5846.04**		**5846.05**	**0.000012**	**0.95**	**15441.74**	**1030.89**	**0.04**
NW4	**63.0000**	**10YR**	**5289.70**	**5826.01**	**5831.14**		**5831.51**	**0.004146**	**6.83**	**1443.56**	**567.77**	**0.55**
NW4	**63.0000**	**2YR**	**2775.40**	**5826.01**	**5829.71**	**5829.38**	**5830.17**	**0.006780**	**6.91**	**706.53**	**426.91**	**0.66**
NW4	**62.5000**	**500YR**	**11231.00**	**5824.01**	**5846.32**		**5846.32**	**0.000016**	**1.16**	**16404.93**	**925.19**	**0.04**
NW4	**62.5000**	**100YR**	**8605.10**	**5824.01**	**5846.04**		**5846.04**	**0.000010**	**0.91**	**16147.89**	**925.19**	**0.03**
NW4	**62.5000**	**10YR**	**5289.70**	**5824.01**	**5830.84**		**5830.92**	**0.000903**	**3.90**	**2673.83**	**695.78**	**0.27**
NW4	**62.5000**	**2YR**	**2775.40**	**5824.01**	**5827.93**	**5827.44**	**5828.23**	**0.005762**	**6.67**	**874.11**	**521.49**	**0.61**
NW4	**62.0000**	**500YR**	**11231.00**	**5822.01**	**5846.32**		**5846.32**	**0.000005**	**0.70**	**26288.71**	**1251.52**	**0.03**
NW4	**62.0000**	**100YR**	**8605.10**	**5822.01**	**5846.04**		**5846.04**	**0.000003**	**0.54**	**25941.00**	**1251.52**	**0.02**
NW4	**62.0000**	**10YR**	**5289.70**	**5822.01**	**5830.83**		**5830.84**	**0.000076**	**1.36**	**7099.51**	**1176.79**	**0.08**
NW4	**62.0000**	**2YR**	**2775.40**	**5822.01**	**5823.85**	**5823.85**	**5824.47**	**0.034061**	**9.59**	**476.24**	**370.09**	**1.31**
NW3	**79.5000**	**500YR**	**1247.90**	**5846.01**	**5848.31**		**5848.45**	**0.004267**	**4.16**	**539.46**	**410.89**	**0.49**
NW3	**79.5000**	**100YR**	**949.40**	**5846.01**	**5848.04**		**5848.16**	**0.004456**	**3.89**	**431.76**	**375.25**	**0.49**
NW3	**79.5000**	**10YR**	**564.03**	**5846.01**	**5847.65**		**5847.75**	**0.004210**	**3.27**	**298.38**	**327.43**	**0.46**
NW3	**79.5000**	**2YR**	**288.73**	**5846.01**	**5847.23**		**5847.32**	**0.005133**	**2.94**	**168.38**	**292.00**	**0.48**
NW3	**79.0000**	**500YR**	**1247.90**	**5844.01**	**5847.18**		**5847.38**	**0.004117**	**4.76**	**451.54**	**291.05**	**0.50**
NW3	**79.0000**	**100YR**	**949.40**	**5844.01**	**5846.82**		**5847.01**	**0.004563**	**4.57**	**350.57**	**262.82**	**0.51**
NW3	**79.0000**	**10YR**	**564.03**	**5844.01**	**5846.18**		**5846.39**	**0.006788**	**4.55**	**200.47**	**206.31**	**0.59**
NW3	**79.0000**	**2YR**	**288.73**	**5844.01**	**5845.58**		**5845.75**	**0.007492**	**3.80**	**106.99**	**120.48**	**0.59**
NW3	**78.5000**	**500YR**	**1247.90**	**5842.01**	**5846.57**		**5846.69**	**0.001412**	**3.67**	**658.74**	**346.47**	**0.31**
NW3	**78.5000**	**100YR**	**949.40**	**5842.01**	**5846.23**		**5846.33**	**0.001284**	**3.31**	**545.01**	**321.69**	**0.29**
NW3	**78.5000**	**10YR**	**564.03**	**5842.01**	**5844.82**		**5845.00**	**0.003382**	**4.00**	**229.38**	**179.02**	**0.44**
NW3	**78.5000**	**2YR**	**288.73**	**5842.01**	**5844.23**		**5844.36**	**0.003098**	**3.20**	**132.09**	**149.48**	**0.41**
NW3	**78.0000**	**500YR**	**1620.20**	**5842.01**	**5846.40**		**5846.47**	**0.000606**	**2.43**	**1008.58**	**411.41**	**0.21**
NW3	**78.0000**	**100YR**	**1227.10**	**5842.01**	**5846.10**		**5846.15**	**0.000477**	**2.06**	**886.17**	**390.01**	**0.18**
NW3	**78.0000**	**10YR**	**727.31**	**5842.01**	**5843.63**		**5843.86**	**0.006483**	**4.04**	**206.56**	**167.27**	**0.57**
NW3	**78.0000**	**2YR**	**368.89**	**5842.01**	**5843.12**		**5843.27**	**0.006604**	**3.15**	**127.84**	**144.71**	**0.54**
NW3	**77.5000**	**500YR**	**1620.20**	**5840.01**	**5846.37**		**5846.39**	**0.000207**	**1.80**	**1582.55**	**453.91**	**0.13**
NW3	**77.5000**	**100YR**	**1227.10**	**5840.01**	**5846.07**		**5846.09**	**0.000149**	**1.47**	**1450.97**	**438.95**	**0.11**
NW3	**77.5000**	**10YR**	**727.31**	**5840.01**	**5841.96**		**5842.33**	**0.009656**	**5.30**	**171.18**	**137.59**	**0.71**
NW3	**77.5000**	**2YR**	**368.89**	**5840.01**	**5841.36**		**5841.63**	**0.011243**	**4.34**	**98.47**	**106.45**	**0.71**
NW3	**77.0000**	**500YR**	**1644.10**	**5838.01**	**5846.35**		**5846.37**	**0.000109**	**1.58**	**2067.54**	**444.62**	**0.10**
NW3	**77.0000**	**100YR**	**1246.80**	**5838.01**	**5846.06**		**5846.07**	**0.000074**	**1.27**	**1940.60**	**431.82**	**0.08**
NW3	**77.0000**	**10YR**	**738.74**	**5838.01**	**5841.15**		**5841.35**	**0.003795**	**4.80**	**278.93**	**181.79**	**0.48**
NW3	**77.0000**	**2YR**	**374.88**	**5838.01**	**5840.50**		**5840.66**	**0.003519**	**3.94**	**169.17**	**155.95**	**0.45**
NW3	**76.5000**	**500YR**	**1644.10**	**5838.01**	**5846.34**		**5846.35**	**0.000075**	**1.32**	**2264.15**	**438.48**	**0.08**
NW3	**76.5000**	**100YR**	**1246.80**	**5838.01**	**5846.05**		**5846.06**	**0.000050**	**1.06**	**2140.66**	**429.29**	**0.07**
NW3	**76.5000**	**10YR**	**738.74**	**5838.01**	**5840.57**		**5840.70**	**0.002946**	**3.75**	**335.12**	**246.05**	**0.41**

NW3	**76.5000**	**2YR**	**374.88**	**5838.01**	**5839.96**		**5840.05**	**0.002758**	**3.01**	**192.45**	**171.28**	**0.38**
NW3	**76.0000**	**500YR**	**1644.10**	**5838.01**	**5846.33**		**5846.34**	**0.000051**	**1.09**	**2621.09**	**560.74**	**0.07**
NW3	**76.0000**	**100YR**	**1246.80**	**5838.01**	**5846.05**		**5846.05**	**0.000034**	**0.86**	**2467.40**	**535.05**	**0.05**
NW3	**76.0000**	**10YR**	**738.74**	**5838.01**	**5839.81**		**5840.03**	**0.005542**	**4.02**	**224.69**	**176.61**	**0.54**
NW3	**76.0000**	**2YR**	**374.88**	**5838.01**	**5839.21**		**5839.37**	**0.006496**	**3.30**	**129.10**	**142.63**	**0.54**
NW3	**75.5000**	**500YR**	**1644.10**	**5835.60**	**5846.32**		**5846.33**	**0.000024**	**0.89**	**3458.84**	**453.27**	**0.05**
NW3	**75.5000**	**100YR**	**1246.80**	**5835.60**	**5846.04**		**5846.05**	**0.000015**	**0.69**	**3332.74**	**445.52**	**0.04**
NW3	**75.5000**	**10YR**	**738.74**	**5835.60**	**5837.34**		**5837.56**	**0.016522**	**6.89**	**218.08**	**216.69**	**0.92**
NW3	**75.5000**	**2YR**	**374.88**	**5835.60**	**5837.06**		**5837.16**	**0.009811**	**4.71**	**160.49**	**187.62**	**0.69**
NW3	**75.0000**	**500YR**	**1644.10**	**5833.31**	**5846.32**		**5846.32**	**0.000011**	**0.68**	**4577.56**	**531.12**	**0.03**
NW3	**75.0000**	**100YR**	**1246.80**	**5833.31**	**5846.04**		**5846.04**	**0.000007**	**0.53**	**4429.49**	**527.41**	**0.03**
NW3	**75.0000**	**10YR**	**738.74**	**5833.31**	**5835.26**		**5835.41**	**0.007166**	**4.88**	**276.03**	**216.78**	**0.62**
NW3	**75.0000**	**2YR**	**374.88**	**5833.31**	**5834.56**		**5834.72**	**0.014541**	**5.14**	**135.93**	**178.87**	**0.82**
NW3	**74.5000**	**500YR**	**1644.10**	**5831.30**	**5846.32**		**5846.32**	**0.000008**	**0.62**	**5191.43**	**542.44**	**0.03**
NW3	**74.5000**	**100YR**	**1246.80**	**5831.30**	**5846.04**		**5846.04**	**0.000005**	**0.48**	**5041.17**	**535.16**	**0.02**
NW3	**74.5000**	**10YR**	**738.74**	**5831.30**	**5832.85**	**5832.62**	**5833.10**	**0.018513**	**6.69**	**202.80**	**195.98**	**0.96**
NW3	**74.5000**	**2YR**	**374.88**	**5831.30**	**5832.78**		**5832.86**	**0.005794**	**3.64**	**190.16**	**193.33**	**0.53**
NW3	**74.0000**	**500YR**	**1644.10**	**5828.71**	**5846.32**		**5846.32**	**0.000002**	**0.39**	**8341.24**	**729.89**	**0.02**
NW3	**74.0000**	**100YR**	**1246.80**	**5828.71**	**5846.04**		**5846.04**	**0.000002**	**0.30**	**8137.63**	**728.17**	**0.01**
NW3	**74.0000**	**10YR**	**738.74**	**5828.71**	**5831.14**		**5831.19**	**0.002527**	**3.35**	**421.52**	**265.46**	**0.38**
NW3	**74.0000**	**2YR**	**374.88**	**5828.71**	**5830.06**		**5830.17**	**0.011022**	**4.73**	**163.74**	**216.03**	**0.72**
NW3	**73.5000**	**500YR**	**1644.10**	**5828.01**	**5846.32**		**5846.32**	**0.000001**	**0.31**	**10179.96**	**843.20**	**0.01**
NW3	**73.5000**	**100YR**	**1246.80**	**5828.01**	**5846.04**		**5846.04**	**0.000001**	**0.24**	**9945.16**	**841.04**	**0.01**
NW3	**73.5000**	**10YR**	**738.74**	**5828.01**	**5831.05**		**5831.06**	**0.000451**	**1.65**	**756.34**	**338.51**	**0.17**
NW3	**73.5000**	**2YR**	**374.88**	**5828.01**	**5829.29**		**5829.35**	**0.004005**	**2.76**	**227.10**	**250.76**	**0.43**
NW3	**73.375***	**500YR**	**1644.10**	**5827.56**	**5846.32**		**5846.32**	**0.000001**	**0.32**	**10000.72**	**822.08**	**0.01**
NW3	**73.375***	**100YR**	**1246.80**	**5827.56**	**5846.04**		**5846.04**	**0.000001**	**0.25**	**9772.08**	**818.15**	**0.01**
NW3	**73.375***	**10YR**	**738.74**	**5827.56**	**5831.03**		**5831.05**	**0.000418**	**1.74**	**764.30**	**333.09**	**0.16**
NW3	**73.375***	**2YR**	**374.88**	**5827.56**	**5829.17**		**5829.24**	**0.003694**	**3.07**	**218.59**	**228.46**	**0.43**
NW3	**73.25***	**500YR**	**1644.10**	**5827.12**	**5846.32**	**5829.46**	**5846.32**	**0.000001**	**0.32**	**9924.16**	**793.16**	**0.01**
NW3	**73.25***	**100YR**	**1246.80**	**5827.12**	**5846.04**	**5829.27**	**5846.04**	**0.000001**	**0.25**	**9703.55**	**789.22**	**0.01**
NW3	**73.25***	**10YR**	**738.74**	**5827.12**	**5831.02**	**5828.91**	**5831.04**	**0.000381**	**1.79**	**782.22**	**329.23**	**0.16**
NW3	**73.25***	**2YR**	**374.88**	**5827.12**	**5829.07**	**5828.57**	**5829.15**	**0.002987**	**3.13**	**228.37**	**222.66**	**0.40**
NW3	**73.2**		**Bridge**									
NW3	**73.125***	**500YR**	**1644.10**	**5826.67**	**5846.32**		**5846.32**	**0.000001**	**0.32**	**9922.23**	**777.14**	**0.01**
NW3	**73.125***	**100YR**	**1246.80**	**5826.67**	**5846.04**		**5846.04**	**0.000001**	**0.25**	**9705.81**	**775.17**	**0.01**
NW3	**73.125***	**10YR**	**738.74**	**5826.67**	**5830.85**		**5830.88**	**0.000447**	**2.01**	**737.91**	**322.77**	**0.18**
NW3	**73.125***	**2YR**	**374.88**	**5826.67**	**5828.71**		**5828.86**	**0.005699**	**4.40**	**172.62**	**195.02**	**0.55**
NW3	**73.0000**	**500YR**	**638.13**	**5826.22**	**5846.32**		**5846.32**	**0.000000**	**0.13**	**9950.33**	**771.81**	**0.00**
NW3	**73.0000**	**100YR**	**580.14**	**5826.22**	**5846.04**		**5846.04**	**0.000000**	**0.12**	**9735.43**	**769.77**	**0.00**
NW3	**73.0000**	**10YR**	**521.65**	**5826.22**	**5830.85**		**5830.86**	**0.000227**	**1.52**	**732.46**	**322.71**	**0.13**
NW3	**73.0000**	**2YR**	**340.64**	**5826.22**	**5828.50**		**5828.69**	**0.006530**	**4.96**	**147.68**	**173.79**	**0.60**
NW3	**72.5000**	**500YR**	**638.13**	**5826.01**	**5846.32**		**5846.32**	**0.000000**	**0.10**	**11723.53**	**841.38**	**0.00**
NW3	**72.5000**	**100YR**	**580.14**	**5826.01**	**5846.04**		**5846.04**	**0.000000**	**0.09**	**11489.25**	**839.17**	**0.00**
NW3	**72.5000**	**10YR**	**521.65**	**5826.01**	**5830.84**		**5830.85**	**0.000079**	**0.94**	**1026.41**	**369.78**	**0.08**
NW3	**72.5000**	**2YR**	**340.64**	**5826.01**	**5827.43**	**5827.24**	**5827.68**	**0.010217**	**4.58**	**106.36**	**127.23**	**0.70**
NW3	**72.0000**	**500YR**	**638.13**	**5824.01**	**5846.32**		**5846.32**	**0.000000**	**0.06**	**17541.29**	**971.01**	**0.00**
NW3	**72.0000**	**100YR**	**580.14**	**5824.01**	**5846.04**		**5846.04**	**0.000000**	**0.06**	**17270.74**	**969.76**	**0.00**
NW3	**72.0000**	**10YR**	**521.65**	**5824.01**	**5830.84**		**5830.84**	**0.000004**	**0.26**	**3559.67**	**772.04**	**0.02**
NW3	**72.0000**	**2YR**	**340.64**	**5824.01**	**5824.90**		**5824.97**	**0.005769**	**2.60**	**180.92**	**235.67**	**0.49**
NW3	**71.5000**	**500YR**	**638.13**	**5822.01**	**5846.32**		**5846.32**	**0.000000**	**0.04**	**27619.66**	**1372.32**	**0.00**
NW3	**71.5000**	**100YR**	**580.14**	**5822.01**	**5846.04**		**5846.04**	**0.000000**	**0.04**	**27237.23**	**1371.01**	**0.00**
NW3	**71.5000**	**10YR**	**521.65**	**5822.01**	**5830.84**		**5830.84**	**0.000001**	**0.13**	**7352.17**	**1189.20**	**0.01**
NW3	**71.5000**	**2YR**	**340.64**	**5822.01**	**5823.05**	**5823.05**	**5823.32**	**0.018235**	**4.76**	**103.26**	**193.42**	**0.87**

W1	49.5000	500YR	2691.20	5989.65	5994.28	5994.28	5995.94	0.021943	14.90	297.65	91.30	1.24
W1	49.5000	100YR	1968.10	5989.65	5993.53	5993.53	5994.98	0.023547	13.66	232.11	83.48	1.25
W1	49.5000	10YR	1104.20	5989.65	5992.49	5992.49	5993.56	0.025648	11.44	150.46	72.94	1.23
W1	49.5000	2YR	587.62	5989.65	5991.63	5991.63	5992.42	0.029696	9.52	92.24	62.63	1.24
W1	49.0000	500YR	2691.20	5980.99	5985.07	5985.07	5986.54	0.030343	16.40	296.30	102.08	1.44
W1	49.0000	100YR	1968.10	5980.99	5984.44	5984.44	5985.69	0.031570	14.93	234.43	93.87	1.43
W1	49.0000	10YR	1104.20	5980.99	5983.53	5983.53	5984.45	0.034409	12.65	153.53	83.39	1.41
W1	49.0000	2YR	587.62	5980.99	5982.85	5982.85	5983.49	0.035636	10.43	99.78	76.23	1.36
W1	48.5000	500YR	2691.20	5972.01	5976.68	5976.68	5978.07	0.018382	13.64	340.67	116.26	1.13
W1	48.5000	100YR	1968.10	5972.01	5976.11	5976.11	5977.28	0.017948	12.33	276.68	111.09	1.10
W1	48.5000	10YR	1104.20	5972.01	5975.29	5975.29	5976.13	0.016842	10.21	188.63	101.42	1.02
W1	48.5000	2YR	587.62	5972.01	5974.64	5974.62	5975.23	0.014731	8.18	126.17	92.96	0.92
W1	48.0000	500YR	2691.20	5964.02	5968.44	5968.44	5969.77	0.022359	13.79	333.71	122.00	1.21
W1	48.0000	100YR	1968.10	5964.02	5967.93	5967.93	5969.02	0.021939	12.46	272.28	116.30	1.18
W1	48.0000	10YR	1104.20	5964.02	5967.22	5967.22	5967.97	0.020138	10.25	191.45	111.16	1.08
W1	48.0000	2YR	587.62	5964.02	5965.98	5965.98	5968.54	0.114888	16.55	60.09	73.68	2.35
W1	47.5000	500YR	2691.20	5956.02	5961.13	5961.13	5962.61	0.016693	13.15	342.41	118.52	1.08
W1	47.5000	100YR	1968.10	5956.02	5960.42	5960.42	5961.74	0.017756	12.13	263.88	104.57	1.09
W1	47.5000	10YR	1104.20	5956.02	5959.53	5959.53	5960.47	0.016895	9.94	177.00	91.70	1.01
W1	47.5000	2YR	587.62	5956.02	5958.85	5958.85	5959.50	0.015359	7.96	116.66	84.05	0.93
W1	47.25		Lat Struct									
W1	47.0000	500YR	235.02	5942.10	5951.85	5945.79	5951.88	0.000285	1.50	218.73	97.48	0.12
W1	47.0000	100YR	225.51	5942.10	5951.73	5945.70	5951.75	0.000294	1.50	207.07	94.29	0.12
W1	47.0000	10YR	213.06	5942.10	5951.59	5945.58	5951.62	0.000300	1.48	194.46	90.96	0.12
W1	47.0000	2YR	204.19	5942.10	5951.45	5945.49	5951.48	0.000316	1.49	181.78	87.31	0.12
W1	46.75		Culvert									
W1	46.5000	500YR	235.02	5938.06	5942.77	5942.77	5943.63	0.026749	7.44	31.66	20.52	1.00
W1	46.5000	100YR	225.51	5938.06	5942.70	5942.70	5943.56	0.027852	7.44	30.33	18.69	1.01
W1	46.5000	10YR	213.06	5938.06	5942.64	5942.64	5943.47	0.027674	7.30	29.21	17.84	1.00
W1	46.5000	2YR	204.19	5938.06	5942.56	5942.56	5943.40	0.028239	7.36	27.75	16.77	1.01
W1	46.0000	500YR	235.02	5935.43	5936.46	5936.46	5936.74	0.040991	7.55	61.24	98.87	1.33
W1	46.0000	100YR	225.51	5935.43	5936.44	5936.44	5936.72	0.040502	7.44	59.89	98.73	1.32
W1	46.0000	10YR	213.06	5935.43	5936.42	5936.42	5936.69	0.041057	7.37	57.53	98.48	1.32
W1	46.0000	2YR	204.19	5935.43	5936.41	5936.41	5936.67	0.038931	7.15	56.96	98.42	1.28
W1	45.5000	500YR	235.02	5922.01	5922.93	5922.93	5923.15	0.027343	5.26	77.01	154.36	1.04
W1	45.5000	100YR	225.51	5922.01	5922.91	5922.91	5923.13	0.027473	5.21	74.83	154.15	1.04
W1	45.5000	10YR	213.06	5922.01	5922.91	5922.91	5923.11	0.024977	4.95	74.37	154.11	0.99
W1	45.5000	2YR	204.19	5922.01	5922.90	5922.90	5923.09	0.024481	4.86	72.79	153.95	0.98
W1	45.0000	500YR	235.02	5911.54	5913.23	5913.23	5913.80	0.021746	7.21	46.66	43.07	1.03
W1	45.0000	100YR	225.51	5911.54	5913.20	5913.20	5913.75	0.021952	7.13	45.13	42.58	1.03
W1	45.0000	10YR	213.06	5911.54	5913.15	5913.15	5913.69	0.021959	7.00	43.32	41.99	1.03
W1	45.0000	2YR	204.19	5911.54	5913.12	5913.12	5913.65	0.022254	6.92	41.81	41.49	1.03
W1	44.5000	500YR	235.02	5896.01	5897.72	5897.72	5898.34	0.018586	6.63	41.38	36.18	0.95
W1	44.5000	100YR	225.51	5896.01	5897.68	5897.68	5898.29	0.018844	6.56	39.96	35.67	0.95
W1	44.5000	10YR	213.06	5896.01	5897.62	5897.62	5898.22	0.019410	6.48	37.94	34.89	0.96
W1	44.5000	2YR	204.19	5896.01	5897.58	5897.58	5898.17	0.019737	6.42	36.57	34.30	0.96
W1	44.0000	500YR	258.22	5886.67	5888.13	5888.13	5888.66	0.030929	7.38	50.85	54.98	1.18
W1	44.0000	100YR	243.07	5886.67	5888.09	5888.09	5888.60	0.031211	7.24	48.50	53.54	1.18
W1	44.0000	10YR	223.49	5886.67	5888.03	5888.03	5888.52	0.031647	7.04	45.41	51.76	1.18
W1	44.0000	2YR	209.52	5886.67	5887.98	5887.98	5888.45	0.033287	6.97	42.53	50.04	1.20
W1	43.5000	500YR	258.22	5878.01	5880.44	5880.44	5881.19	0.015318	7.06	41.69	35.20	0.89
W1	43.5000	100YR	243.07	5878.01	5880.36	5880.36	5881.10	0.016004	7.01	38.82	33.56	0.91
W1	43.5000	10YR	223.49	5878.01	5880.24	5880.24	5880.97	0.017162	6.95	35.05	30.46	0.93
W1	43.5000	2YR	209.52	5878.01	5880.15	5880.15	5880.88	0.018406	6.93	32.29	27.52	0.95

W1	**43.0000**	**500YR**	**258.22**	**5872.88**	**5874.46**	**5874.46**	**5874.99**	**0.025872**	**7.66**	**52.27**	**50.23**	**1.12**
W1	**43.0000**	**100YR**	**243.07**	**5872.88**	**5874.42**	**5874.42**	**5874.93**	**0.025904**	**7.51**	**50.05**	**49.58**	**1.11**
W1	**43.0000**	**10YR**	**223.49**	**5872.88**	**5874.36**	**5874.36**	**5874.85**	**0.025937**	**7.30**	**47.13**	**48.64**	**1.11**
W1	**43.0000**	**2YR**	**209.52**	**5872.88**	**5874.31**	**5874.31**	**5874.79**	**0.026543**	**7.19**	**44.63**	**47.78**	**1.11**
W1	**42.5000**	**500YR**	**258.22**	**5866.01**	**5866.90**	**5866.89**	**5867.15**	**0.019315**	**4.27**	**74.57**	**134.68**	**0.87**
W1	**42.5000**	**100YR**	**243.07**	**5866.01**	**5866.88**	**5866.86**	**5867.12**	**0.018860**	**4.17**	**71.89**	**133.97**	**0.85**
W1	**42.5000**	**10YR**	**223.49**	**5866.01**	**5866.85**	**5866.83**	**5867.08**	**0.019256**	**4.10**	**66.87**	**132.62**	**0.86**
W1	**42.5000**	**2YR**	**209.52**	**5866.01**	**5866.82**	**5866.81**	**5867.05**	**0.019271**	**4.03**	**63.58**	**131.73**	**0.85**
W1	**42.0000**	**500YR**	**258.22**	**5860.42**	**5861.33**	**5861.33**	**5861.62**	**0.026854**	**5.52**	**71.95**	**116.69**	**1.05**
W1	**42.0000**	**100YR**	**243.07**	**5860.42**	**5861.30**	**5861.30**	**5861.59**	**0.027596**	**5.47**	**68.43**	**115.79**	**1.05**
W1	**42.0000**	**10YR**	**223.49**	**5860.42**	**5861.27**	**5861.27**	**5861.54**	**0.027090**	**5.29**	**65.05**	**114.92**	**1.04**
W1	**42.0000**	**2YR**	**209.52**	**5860.42**	**5861.25**	**5861.25**	**5861.51**	**0.027164**	**5.19**	**62.20**	**114.15**	**1.04**
W1	**41.5000**	**500YR**	**258.22**	**5852.23**	**5853.29**	**5853.29**	**5853.55**	**0.018734**	**4.85**	**80.78**	**150.08**	**0.89**
W1	**41.5000**	**100YR**	**243.07**	**5852.23**	**5853.26**	**5853.26**	**5853.52**	**0.018640**	**4.76**	**77.27**	**148.77**	**0.88**
W1	**41.5000**	**10YR**	**223.49**	**5852.23**	**5853.24**	**5853.24**	**5853.48**	**0.017889**	**4.58**	**73.59**	**147.38**	**0.86**
W1	**41.5000**	**2YR**	**209.52**	**5852.23**	**5853.21**	**5853.21**	**5853.45**	**0.018480**	**4.54**	**69.02**	**144.76**	**0.87**
W1	**41.0000**	**500YR**	**306.89**	**5841.51**	**5846.31**		**5846.31**	**0.000007**	**0.27**	**2045.32**	**581.23**	**0.02**
W1	**41.0000**	**100YR**	**278.14**	**5841.51**	**5846.03**		**5846.03**	**0.000007**	**0.26**	**1885.85**	**572.96**	**0.02**
W1	**41.0000**	**10YR**	**242.34**	**5841.51**	**5842.37**	**5842.37**	**5842.53**	**0.029974**	**5.61**	**101.20**	**292.15**	**1.10**
W1	**41.0000**	**2YR**	**218.93**	**5841.51**	**5842.36**	**5842.36**	**5842.50**	**0.024864**	**5.10**	**100.63**	**291.94**	**1.00**
W1	**40.5000**	**500YR**	**306.89**	**5831.44**	**5846.31**		**5846.31**	**0.000000**	**0.06**	**8996.87**	**772.48**	**0.00**
W1	**40.5000**	**100YR**	**278.14**	**5831.44**	**5846.03**		**5846.03**	**0.000000**	**0.05**	**8783.38**	**772.48**	**0.00**
W1	**40.5000**	**10YR**	**242.34**	**5831.44**	**5832.42**	**5832.42**	**5832.58**	**0.016857**	**4.42**	**110.43**	**296.60**	**0.83**
W1	**40.5000**	**2YR**	**218.93**	**5831.44**	**5832.37**	**5832.37**	**5832.55**	**0.018469**	**4.47**	**97.58**	**287.02**	**0.86**
W1	**40.0000**	**500YR**	**490.29**	**5820.01**	**5846.31**		**5846.31**	**0.000000**	**0.06**	**14293.99**	**680.37**	**0.00**
W1	**40.0000**	**100YR**	**414.42**	**5820.01**	**5846.03**		**5846.03**	**0.000000**	**0.05**	**14105.96**	**680.37**	**0.00**
W1	**40.0000**	**10YR**	**322.31**	**5820.01**	**5830.78**		**5830.78**	**0.000001**	**0.15**	**4132.49**	**632.69**	**0.01**
W1	**40.0000**	**2YR**	**259.19**	**5820.01**	**5821.61**	**5821.61**	**5822.24**	**0.020241**	**6.44**	**42.28**	**36.30**	**0.97**
W1	**39.5000**	**500YR**	**247.21**	**5814.02**	**5846.31**		**5846.31**	**0.000000**	**0.02**	**21506.05**	**816.93**	**0.00**
W1	**39.5000**	**100YR**	**244.72**	**5814.02**	**5846.03**		**5846.03**	**0.000000**	**0.02**	**21280.27**	**816.93**	**0.00**
W1	**39.5000**	**10YR**	**241.82**	**5814.02**	**5830.78**		**5830.78**	**0.000000**	**0.05**	**9284.57**	**762.47**	**0.00**
W1	**39.5000**	**2YR**	**224.31**	**5814.02**	**5821.65**		**5821.65**	**0.000002**	**0.20**	**2444.74**	**685.38**	**0.01**
W1	**39.0000**	**500YR**	**247.21**	**5808.01**	**5846.31**		**5846.31**	**0.000000**	**0.01**	**36643.75**	**1264.92**	**0.00**
W1	**39.0000**	**100YR**	**244.72**	**5808.01**	**5846.03**		**5846.03**	**0.000000**	**0.01**	**36294.17**	**1264.92**	**0.00**
W1	**39.0000**	**10YR**	**241.82**	**5808.01**	**5830.78**		**5830.78**	**0.000000**	**0.03**	**17918.69**	**1154.10**	**0.00**
W1	**39.0000**	**2YR**	**224.31**	**5808.01**	**5821.65**		**5821.65**	**0.000000**	**0.06**	**7596.21**	**1066.46**	**0.00**
NW5	**59.5000**	**500YR**	**8888.50**	**5818.15**	**5846.31**		**5846.32**	**0.000010**	**1.07**	**15363.68**	**738.75**	**0.04**
NW5	**59.5000**	**100YR**	**7266.20**	**5818.15**	**5846.04**		**5846.04**	**0.000007**	**0.88**	**15159.13**	**736.24**	**0.03**
NW5	**59.5000**	**10YR**	**5273.30**	**5818.15**	**5830.82**		**5830.84**	**0.000127**	**2.27**	**4817.61**	**634.10**	**0.11**
NW5	**59.5000**	**2YR**	**3047.10**	**5818.15**	**5822.94**		**5823.11**	**0.004100**	**6.74**	**971.81**	**361.97**	**0.54**
NW5	**59.0000**	**500YR**	**8888.50**	**5818.01**	**5846.31**		**5846.32**	**0.000006**	**0.86**	**17007.96**	**784.53**	**0.03**
NW5	**59.0000**	**100YR**	**7266.20**	**5818.01**	**5846.04**		**5846.04**	**0.000004**	**0.71**	**16791.07**	**782.38**	**0.02**
NW5	**59.0000**	**10YR**	**5273.30**	**5818.01**	**5830.80**		**5830.82**	**0.000068**	**1.67**	**5586.32**	**696.17**	**0.08**
NW5	**59.0000**	**2YR**	**3047.10**	**5818.01**	**5822.03**		**5822.27**	**0.002758**	**4.91**	**968.11**	**375.17**	**0.43**
NW5	**58.5000**	**500YR**	**8888.50**	**5816.01**	**5846.31**		**5846.32**	**0.000003**	**0.67**	**22564.86**	**957.91**	**0.02**
NW5	**58.5000**	**100YR**	**7266.20**	**5816.01**	**5846.04**		**5846.04**	**0.000002**	**0.55**	**22300.05**	**954.99**	**0.02**
NW5	**58.5000**	**10YR**	**5273.30**	**5816.01**	**5830.79**		**5830.80**	**0.000025**	**1.11**	**8571.09**	**855.60**	**0.05**
NW5	**58.5000**	**2YR**	**3047.10**	**5816.01**	**5821.82**		**5821.89**	**0.000655**	**3.05**	**1832.66**	**541.26**	**0.22**
NW5	**58.0000**	**500YR**	**8888.50**	**5814.01**	**5846.31**		**5846.31**	**0.000003**	**0.63**	**25437.68**	**1091.75**	**0.02**
NW5	**58.0000**	**100YR**	**7266.20**	**5814.01**	**5846.04**		**5846.04**	**0.000002**	**0.52**	**25135.49**	**1087.02**	**0.02**
NW5	**58.0000**	**10YR**	**5273.30**	**5814.01**	**5830.79**		**5830.80**	**0.000018**	**1.01**	**9963.53**	**921.01**	**0.04**
NW5	**58.0000**	**2YR**	**3047.10**	**5814.01**	**5821.74**		**5821.77**	**0.000251**	**2.27**	**2607.43**	**581.20**	**0.15**
NW5	**57.5000**	**500YR**	**8933.30**	**5812.01**	**5846.31**		**5846.31**	**0.000003**	**0.65**	**24719.64**	**1121.26**	**0.02**
NW5	**57.5000**	**100YR**	**7302.00**	**5812.01**	**5846.03**		**5846.04**	**0.000002**	**0.54**	**24410.42**	**1116.56**	**0.02**
NW5	**57.5000**	**10YR**	**5300.20**	**5812.01**	**5830.79**		**5830.79**	**0.000017**	**1.05**	**9783.80**	**848.06**	**0.04**
NW5	**57.5000**	**2YR**	**3063.60**	**5812.01**	**5821.69**		**5821.71**	**0.000151**	**1.96**	**2921.00**	**503.63**	**0.11**

NW5	**57.0000**	**500YR**	**8933.30**	**5812.01**	**5846.31**		**5846.31**	**0.000002**	**0.57**	**26902.52**	**1107.39**	**0.02**
NW5	**57.0000**	**100YR**	**7302.00**	**5812.01**	**5846.03**		**5846.04**	**0.000001**	**0.47**	**26597.02**	**1107.39**	**0.01**
NW5	**57.0000**	**10YR**	**5300.20**	**5812.01**	**5830.78**		**5830.79**	**0.000010**	**0.84**	**10708.58**	**794.92**	**0.03**
NW5	**57.0000**	**2YR**	**3063.60**	**5812.01**	**5821.66**		**5821.68**	**0.000066**	**1.37**	**3854.09**	**625.79**	**0.08**
NW5	**56.5000**	**500YR**	**8961.40**	**5808.01**	**5846.31**		**5846.31**	**0.000002**	**0.53**	**31365.27**	**1165.82**	**0.02**
NW5	**56.5000**	**100YR**	**7324.60**	**5808.01**	**5846.03**		**5846.04**	**0.000001**	**0.44**	**31043.65**	**1165.82**	**0.01**
NW5	**56.5000**	**10YR**	**5317.70**	**5808.01**	**5830.78**		**5830.78**	**0.000008**	**0.82**	**13341.23**	**1113.47**	**0.03**
NW5	**56.5000**	**2YR**	**3073.40**	**5808.01**	**5821.65**		**5821.66**	**0.000047**	**1.44**	**5040.51**	**818.30**	**0.07**
NW5	**56.0000**	**500YR**	**12448.00**	**5806.02**	**5846.31**		**5846.31**	**0.000002**	**0.56**	**40474.67**	**1364.52**	**0.02**
NW5	**56.0000**	**100YR**	**10094.00**	**5806.02**	**5846.03**		**5846.03**	**0.000001**	**0.46**	**40098.23**	**1364.52**	**0.01**
NW5	**56.0000**	**10YR**	**7125.30**	**5806.02**	**5830.78**		**5830.78**	**0.000006**	**0.77**	**19281.97**	**1364.52**	**0.03**
NW5	**56.0000**	**2YR**	**4087.50**	**5806.02**	**5821.64**		**5821.65**	**0.000037**	**1.38**	**7459.54**	**1178.45**	**0.06**
NS18	**20.0000**	**500YR**	**142.00**	**6274.72**	**6276.70**	**6276.70**	**6277.32**	**0.019904**	**6.46**	**24.10**	**21.63**	**0.96**
NS18	**20.0000**	**100YR**	**107.90**	**6274.72**	**6276.47**	**6276.47**	**6277.01**	**0.020782**	**5.97**	**19.37**	**19.45**	**0.96**
NS18	**20.0000**	**10YR**	**64.00**	**6274.72**	**6276.08**	**6276.08**	**6276.51**	**0.023820**	**5.29**	**12.44**	**15.61**	**0.98**
NS18	**20.0000**	**2YR**	**32.70**	**6274.72**	**6275.71**	**6275.71**	**6276.02**	**0.028258**	**4.45**	**7.36**	**12.32**	**1.00**
NS18	**19.0000**	**500YR**	**142.00**	**6261.80**	**6263.73**	**6263.73**	**6264.36**	**0.022513**	**6.35**	**22.45**	**18.70**	**1.00**
NS18	**19.0000**	**100YR**	**107.90**	**6261.80**	**6263.50**	**6263.50**	**6264.04**	**0.024049**	**5.91**	**18.26**	**17.17**	**1.01**
NS18	**19.0000**	**10YR**	**64.00**	**6261.80**	**6263.12**	**6263.12**	**6263.54**	**0.026151**	**5.24**	**12.22**	**14.73**	**1.01**
NS18	**19.0000**	**2YR**	**32.70**	**6261.80**	**6262.75**	**6262.75**	**6263.06**	**0.028876**	**4.47**	**7.32**	**12.09**	**1.01**
NS18	**18.0000**	**500YR**	**142.00**	**6245.73**	**6248.37**	**6247.81**	**6248.70**	**0.006659**	**4.67**	**32.56**	**21.19**	**0.59**
NS18	**18.0000**	**100YR**	**107.90**	**6245.73**	**6248.11**	**6247.56**	**6248.37**	**0.006315**	**4.14**	**27.25**	**19.45**	**0.56**
NS18	**18.0000**	**10YR**	**64.00**	**6245.73**	**6247.16**	**6247.16**	**6247.62**	**0.025847**	**5.43**	**11.79**	**13.23**	**1.01**
NS18	**18.0000**	**2YR**	**32.70**	**6245.73**	**6246.76**	**6246.76**	**6247.10**	**0.028268**	**4.64**	**7.05**	**10.78**	**1.01**
NS18	**17.8**		**Bridge**									
NS18	**17.75***	**500YR**	**142.00**	**6240.01**	**6242.04**	**6242.04**	**6242.69**	**0.021979**	**6.49**	**22.07**	**17.84**	**1.00**
NS18	**17.75***	**100YR**	**107.90**	**6240.01**	**6241.79**	**6241.79**	**6242.36**	**0.023771**	**6.06**	**17.82**	**16.27**	**1.01**
NS18	**17.75***	**10YR**	**64.00**	**6240.01**	**6241.41**	**6241.41**	**6241.85**	**0.025428**	**5.32**	**12.02**	**13.78**	**1.00**
NS18	**17.75***	**2YR**	**32.70**	**6240.01**	**6241.01**	**6241.01**	**6241.34**	**0.028473**	**4.58**	**7.14**	**11.21**	**1.01**
NS18	**17.5***	**500YR**	**142.00**	**6234.29**	**6236.24**	**6236.24**	**6236.88**	**0.021710**	**6.43**	**22.49**	**18.92**	**0.99**
NS18	**17.5***	**100YR**	**107.90**	**6234.29**	**6236.00**	**6236.00**	**6236.56**	**0.023494**	**6.00**	**18.08**	**17.23**	**1.01**
NS18	**17.5***	**10YR**	**64.00**	**6234.29**	**6235.63**	**6235.63**	**6236.06**	**0.025939**	**5.23**	**12.23**	**14.66**	**1.01**
NS18	**17.5***	**2YR**	**32.70**	**6234.29**	**6235.26**	**6235.26**	**6235.57**	**0.028446**	**4.48**	**7.30**	**11.86**	**1.01**
NS18	**17.25***	**500YR**	**142.00**	**6228.57**	**6230.44**	**6230.44**	**6231.06**	**0.021300**	**6.32**	**23.23**	**20.56**	**0.98**
NS18	**17.25***	**100YR**	**107.90**	**6228.57**	**6230.21**	**6230.21**	**6230.75**	**0.022910**	**5.89**	**18.63**	**18.74**	**0.99**
NS18	**17.25***	**10YR**	**64.00**	**6228.57**	**6229.86**	**6229.86**	**6230.26**	**0.025628**	**5.08**	**12.61**	**15.93**	**1.00**
NS18	**17.25***	**2YR**	**32.70**	**6228.57**	**6229.51**	**6229.51**	**6229.80**	**0.028493**	**4.36**	**7.49**	**12.73**	**1.00**
NS18	**17.0000**	**500YR**	**142.00**	**6222.85**	**6224.64**	**6224.64**	**6225.22**	**0.020907**	**6.19**	**24.38**	**23.00**	**0.97**
NS18	**17.0000**	**100YR**	**107.90**	**6222.85**	**6224.42**	**6224.42**	**6224.92**	**0.022048**	**5.74**	**19.57**	**21.01**	**0.97**
NS18	**17.0000**	**10YR**	**64.00**	**6222.85**	**6224.07**	**6224.07**	**6224.46**	**0.025501**	**5.02**	**12.87**	**17.60**	**1.00**
NS18	**17.0000**	**2YR**	**32.70**	**6222.85**	**6223.74**	**6223.74**	**6224.02**	**0.029891**	**4.27**	**7.66**	**13.98**	**1.02**
NS18	**16.0000**	**500YR**	**142.00**	**6207.42**	**6209.29**	**6209.29**	**6209.95**	**0.021137**	**6.52**	**22.10**	**18.14**	**0.99**
NS18	**16.0000**	**100YR**	**107.90**	**6207.42**	**6209.05**	**6209.05**	**6209.61**	**0.023591**	**6.04**	**17.90**	**16.64**	**1.01**
NS18	**16.0000**	**10YR**	**64.00**	**6207.42**	**6208.68**	**6208.68**	**6209.11**	**0.025686**	**5.25**	**12.18**	**14.40**	**1.01**
NS18	**16.0000**	**2YR**	**32.70**	**6207.42**	**6208.32**	**6208.32**	**6208.62**	**0.027976**	**4.41**	**7.41**	**12.18**	**1.00**
NS18	**15.0000**	**500YR**	**142.00**	**6191.66**	**6193.43**	**6193.43**	**6194.03**	**0.021895**	**6.50**	**24.60**	**22.65**	**1.01**
NS18	**15.0000**	**100YR**	**107.90**	**6191.66**	**6193.21**	**6193.21**	**6193.73**	**0.023704**	**5.99**	**19.92**	**20.46**	**1.01**
NS18	**15.0000**	**10YR**	**64.00**	**6191.66**	**6192.86**	**6192.86**	**6193.26**	**0.025078**	**5.25**	**13.28**	**17.27**	**1.00**
NS18	**15.0000**	**2YR**	**32.70**	**6191.66**	**6192.52**	**6192.52**	**6192.81**	**0.027534**	**4.44**	**7.87**	**14.12**	**1.00**
NS18	**14.0000**	**500YR**	**142.00**	**6172.79**	**6174.30**	**6174.06**	**6174.55**	**0.010009**	**4.67**	**43.40**	**47.66**	**0.69**
NS18	**14.0000**	**100YR**	**107.90**	**6172.79**	**6174.12**	**6173.90**	**6174.33**	**0.010007**	**4.26**	**35.07**	**42.83**	**0.68**
NS18	**14.0000**	**10YR**	**64.00**	**6172.79**	**6173.83**	**6173.65**	**6173.99**	**0.010016**	**3.56**	**23.63**	**36.52**	**0.65**
NS18	**14.0000**	**2YR**	**32.70**	**6172.79**	**6173.55**	**6173.41**	**6173.66**	**0.010012**	**2.82**	**14.33**	**30.80**	**0.61**
SP1	**199.0000**	**500YR**	**1394.60**	**5882.02**	**5886.76**		**5887.40**	**0.008647**	**9.52**	**281.27**	**113.02**	**0.78**

SP1	**199.0000**	**100YR**	**1058.50**	**5882.02**	**5886.21**		**5886.83**	**0.009376**	**9.10**	**221.65**	**103.46**	**0.80**
SP1	**199.0000**	**10YR**	**646.06**	**5882.02**	**5885.35**		**5885.94**	**0.010893**	**8.37**	**141.51**	**84.15**	**0.83**
SP1	**199.0000**	**2YR**	**335.63**	**5882.02**	**5884.47**	**5884.38**	**5885.00**	**0.013051**	**7.39**	**77.46**	**62.45**	**0.86**
SP1	**198.5000**	**500YR**	**1394.60**	**5880.01**	**5883.94**	**5883.94**	**5885.22**	**0.013151**	**10.05**	**189.77**	**84.14**	**0.93**
SP1	**198.5000**	**100YR**	**1058.50**	**5880.01**	**5883.47**	**5883.47**	**5884.57**	**0.013089**	**9.15**	**152.47**	**75.88**	**0.91**
SP1	**198.5000**	**10YR**	**646.06**	**5880.01**	**5882.80**	**5882.68**	**5883.59**	**0.012281**	**7.57**	**105.59**	**63.69**	**0.84**
SP1	**198.5000**	**2YR**	**335.63**	**5880.01**	**5882.13**	**5881.90**	**5882.61**	**0.010766**	**5.75**	**66.67**	**51.67**	**0.75**
SP1	**198.0000**	**500YR**	**1394.60**	**5876.72**	**5879.47**	**5879.47**	**5880.26**	**0.031044**	**12.64**	**217.62**	**131.65**	**1.36**
SP1	**198.0000**	**100YR**	**1058.50**	**5876.72**	**5879.17**	**5879.17**	**5879.86**	**0.031324**	**11.74**	**179.67**	**125.24**	**1.34**
SP1	**198.0000**	**10YR**	**646.06**	**5876.72**	**5878.71**	**5878.71**	**5879.25**	**0.031872**	**10.26**	**125.12**	**109.01**	**1.30**
SP1	**198.0000**	**2YR**	**335.63**	**5876.72**	**5878.25**	**5878.25**	**5878.65**	**0.032243**	**8.60**	**78.26**	**93.18**	**1.25**
SP1	**197.5000**	**500YR**	**1394.60**	**5874.01**	**5878.31**		**5878.64**	**0.003478**	**5.77**	**391.33**	**154.47**	**0.49**
SP1	**197.5000**	**100YR**	**1058.50**	**5874.01**	**5877.74**		**5878.04**	**0.003748**	**5.43**	**306.18**	**138.01**	**0.50**
SP1	**197.5000**	**10YR**	**646.06**	**5874.01**	**5876.49**		**5876.90**	**0.007654**	**5.91**	**157.59**	**101.39**	**0.66**
SP1	**197.5000**	**2YR**	**335.63**	**5874.01**	**5875.66**		**5876.03**	**0.010973**	**5.35**	**83.01**	**77.82**	**0.74**
SP1	**197.375***	**500YR**	**1394.60**	**5873.51**	**5878.32**	**5876.53**	**5878.54**	**0.001824**	**4.46**	**483.78**	**176.06**	**0.36**
SP1	**197.375***	**100YR**	**1058.50**	**5873.51**	**5877.74**	**5876.11**	**5877.94**	**0.001839**	**4.11**	**386.76**	**159.03**	**0.36**
SP1	**197.375***	**10YR**	**646.06**	**5873.51**	**5876.50**	**5875.48**	**5876.72**	**0.003024**	**4.15**	**212.57**	**119.79**	**0.43**
SP1	**197.375***	**2YR**	**335.63**	**5873.51**	**5875.66**	**5874.86**	**5875.82**	**0.003083**	**3.34**	**124.68**	**89.94**	**0.41**
SP1	**197.3**		**Bridge**									
SP1	**197.25***	**500YR**	**1394.60**	**5873.01**	**5875.87**	**5875.87**	**5876.89**	**0.013930**	**8.50**	**201.91**	**115.93**	**0.91**
SP1	**197.25***	**100YR**	**1058.50**	**5873.01**	**5875.45**	**5875.45**	**5876.35**	**0.015148**	**7.92**	**156.56**	**99.31**	**0.92**
SP1	**197.25***	**10YR**	**646.06**	**5873.01**	**5874.83**	**5874.83**	**5875.56**	**0.017933**	**6.96**	**101.09**	**79.28**	**0.95**
SP1	**197.25***	**2YR**	**335.63**	**5873.01**	**5874.25**	**5874.23**	**5874.75**	**0.021270**	**5.71**	**60.18**	**63.14**	**0.97**
SP1	**197.125***	**500YR**	**1394.60**	**5872.51**	**5875.19**	**5875.19**	**5876.20**	**0.015048**	**8.27**	**189.85**	**109.68**	**0.93**
SP1	**197.125***	**100YR**	**1058.50**	**5872.51**	**5874.78**	**5874.78**	**5875.68**	**0.016865**	**7.74**	**147.36**	**94.69**	**0.96**
SP1	**197.125***	**10YR**	**646.06**	**5872.51**	**5874.20**	**5874.20**	**5874.90**	**0.019965**	**6.74**	**98.04**	**76.52**	**0.98**
SP1	**197.125***	**2YR**	**335.63**	**5872.51**	**5873.68**	**5873.67**	**5874.14**	**0.022629**	**5.45**	**61.58**	**64.41**	**0.98**
SP1	**197.0000**	**500YR**	**1394.60**	**5872.01**	**5874.53**	**5874.53**	**5875.52**	**0.016341**	**8.06**	**182.46**	**107.70**	**0.95**
SP1	**197.0000**	**100YR**	**1058.50**	**5872.01**	**5874.14**	**5874.14**	**5875.01**	**0.018429**	**7.51**	**143.92**	**90.82**	**0.98**
SP1	**197.0000**	**10YR**	**646.06**	**5872.01**	**5873.60**	**5873.60**	**5874.26**	**0.021612**	**6.51**	**99.37**	**77.79**	**1.00**
SP1	**197.0000**	**2YR**	**335.63**	**5872.01**	**5873.17**	**5873.09**	**5873.55**	**0.018993**	**5.00**	**67.11**	**69.39**	**0.90**
SP1	**196.5000**	**500YR**	**1394.60**	**5868.01**	**5869.92**	**5869.92**	**5870.68**	**0.018931**	**7.12**	**207.69**	**151.16**	**0.98**
SP1	**196.5000**	**100YR**	**1058.50**	**5868.01**	**5869.65**	**5869.65**	**5870.30**	**0.020232**	**6.54**	**168.28**	**140.90**	**0.98**
SP1	**196.5000**	**10YR**	**646.06**	**5868.01**	**5869.24**	**5869.24**	**5869.74**	**0.022827**	**5.68**	**116.01**	**119.17**	**0.99**
SP1	**196.5000**	**2YR**	**335.63**	**5868.01**	**5868.83**	**5868.83**	**5869.19**	**0.026409**	**4.80**	**70.56**	**102.95**	**1.00**
SP1	**196.0000**	**500YR**	**1394.60**	**5862.01**	**5865.18**		**5865.47**	**0.008335**	**6.50**	**393.34**	**243.86**	**0.70**
SP1	**196.0000**	**100YR**	**1058.50**	**5862.01**	**5864.91**		**5865.16**	**0.008095**	**5.96**	**328.87**	**235.11**	**0.68**
SP1	**196.0000**	**10YR**	**646.06**	**5862.01**	**5864.49**		**5864.70**	**0.008339**	**5.32**	**231.66**	**222.81**	**0.67**
SP1	**196.0000**	**2YR**	**335.63**	**5862.01**	**5864.07**		**5864.26**	**0.009079**	**4.73**	**140.24**	**211.98**	**0.67**
SP1	**195.5000**	**500YR**	**1394.60**	**5859.11**	**5860.54**	**5860.54**	**5860.91**	**0.031584**	**8.26**	**332.16**	**400.03**	**1.23**
SP1	**195.5000**	**100YR**	**1058.50**	**5859.11**	**5860.41**	**5860.41**	**5860.73**	**0.030588**	**7.62**	**280.45**	**393.25**	**1.19**
SP1	**195.5000**	**10YR**	**646.06**	**5859.11**	**5860.24**	**5860.24**	**5860.47**	**0.025445**	**6.33**	**215.91**	**387.26**	**1.06**
SP1	**195.5000**	**2YR**	**335.63**	**5859.11**	**5860.07**	**5860.07**	**5860.23**	**0.019668**	**4.99**	**151.60**	**379.83**	**0.91**
SP1	**195.0000**	**500YR**	**1394.60**	**5854.01**	**5855.69**	**5855.24**	**5855.82**	**0.010011**	**3.51**	**499.32**	**454.85**	**0.51**
SP1	**195.0000**	**100YR**	**1058.50**	**5854.01**	**5855.50**	**5855.10**	**5855.61**	**0.010017**	**3.21**	**415.05**	**435.87**	**0.50**
SP1	**195.0000**	**10YR**	**646.06**	**5854.01**	**5855.22**	**5854.92**	**5855.31**	**0.009994**	**2.75**	**298.87**	**408.76**	**0.48**
SP1	**195.0000**	**2YR**	**335.63**	**5854.01**	**5854.95**	**5854.74**	**5855.01**	**0.009998**	**2.25**	**192.73**	**376.86**	**0.46**
SP2	**189.5000**	**500YR**	**174.01**	**6082.02**	**6084.60**	**6084.60**	**6085.44**	**0.019341**	**7.54**	**25.11**	**15.92**	**0.97**
SP2	**189.5000**	**100YR**	**131.46**	**6082.02**	**6084.26**	**6084.26**	**6085.00**	**0.020028**	**7.01**	**20.03**	**14.42**	**0.97**
SP2	**189.5000**	**10YR**	**77.60**	**6082.02**	**6083.73**	**6083.73**	**6084.31**	**0.022292**	**6.15**	**13.03**	**11.99**	**0.98**
SP2	**189.5000**	**2YR**	**39.34**	**6082.02**	**6083.23**	**6083.23**	**6083.65**	**0.026492**	**5.16**	**7.65**	**9.68**	**1.00**
SP2	**189.0000**	**500YR**	**174.01**	**6064.54**	**6066.96**	**6066.96**	**6067.73**	**0.022326**	**7.64**	**26.95**	**17.81**	**1.04**
SP2	**189.0000**	**100YR**	**131.46**	**6064.54**	**6066.66**	**6066.66**	**6067.33**	**0.022745**	**7.14**	**21.75**	**16.39**	**1.03**
SP2	**189.0000**	**10YR**	**77.60**	**6064.54**	**6066.19**	**6066.19**	**6066.71**	**0.023388**	**6.24**	**14.56**	**14.05**	**1.01**

SP2	**189.0000**	**2YR**	**39.34**	**6064.54**	**6065.72**	**6065.72**	**6066.10**	**0.024676**	**5.24**	**8.62**	**11.43**	**0.99**
SP2	**188.5000**	**500YR**	**234.68**	**6041.85**	**6044.31**	**6044.31**	**6045.19**	**0.032322**	**9.07**	**33.39**	**21.31**	**1.23**
SP2	**188.5000**	**100YR**	**177.14**	**6041.85**	**6044.00**	**6044.00**	**6044.74**	**0.034018**	**8.16**	**27.08**	**19.42**	**1.23**
SP2	**188.5000**	**10YR**	**104.47**	**6041.85**	**6043.50**	**6043.50**	**6044.07**	**0.036043**	**7.16**	**18.09**	**16.35**	**1.22**
SP2	**188.5000**	**2YR**	**53.34**	**6041.85**	**6043.02**	**6043.02**	**6043.42**	**0.039264**	**6.06**	**10.90**	**13.48**	**1.21**
SP2	**188.0000**	**500YR**	**234.68**	**6021.78**	**6024.23**	**6024.23**	**6025.09**	**0.023393**	**8.17**	**34.50**	**22.06**	**1.08**
SP2	**188.0000**	**100YR**	**177.14**	**6021.78**	**6023.94**	**6023.94**	**6024.65**	**0.024127**	**7.44**	**28.23**	**20.35**	**1.07**
SP2	**188.0000**	**10YR**	**104.47**	**6021.78**	**6023.44**	**6023.44**	**6024.00**	**0.025271**	**6.51**	**18.90**	**17.35**	**1.06**
SP2	**188.0000**	**2YR**	**53.34**	**6021.78**	**6022.96**	**6022.96**	**6023.36**	**0.027770**	**5.55**	**11.21**	**14.15**	**1.05**
SP2	**187.5000**	**500YR**	**234.68**	**6010.01**	**6011.91**	**6011.91**	**6012.58**	**0.019283**	**6.71**	**37.48**	**29.91**	**0.96**
SP2	**187.5000**	**100YR**	**177.14**	**6010.01**	**6011.62**	**6011.62**	**6012.23**	**0.020832**	**6.29**	**29.51**	**26.48**	**0.98**
SP2	**187.5000**	**10YR**	**104.47**	**6010.01**	**6011.21**	**6011.21**	**6011.67**	**0.023178**	**5.45**	**19.49**	**22.34**	**0.98**
SP2	**187.5000**	**2YR**	**53.34**	**6010.01**	**6011.01**		**6011.20**	**0.012489**	**3.52**	**15.22**	**20.17**	**0.70**
SP2	**187.375***	**500YR**	**234.68**	**6008.30**	**6011.72**		**6011.85**	**0.001563**	**3.07**	**101.64**	**52.69**	**0.31**
SP2	**187.375***	**100YR**	**177.14**	**6008.30**	**6011.62**		**6011.70**	**0.001015**	**2.42**	**96.46**	**51.41**	**0.25**
SP2	**187.375***	**10YR**	**104.47**	**6008.30**	**6011.39**		**6011.42**	**0.000488**	**1.59**	**84.81**	**48.32**	**0.17**
SP2	**187.375***	**2YR**	**53.34**	**6008.30**	**6011.13**		**6011.14**	**0.000188**	**0.92**	**72.52**	**44.76**	**0.10**
SP2	**187.25***	**500YR**	**234.68**	**6006.60**	**6011.78**		**6011.81**	**0.000235**	**1.63**	**229.65**	**79.11**	**0.13**
SP2	**187.25***	**100YR**	**177.14**	**6006.60**	**6011.66**		**6011.68**	**0.000149**	**1.28**	**220.16**	**77.72**	**0.10**
SP2	**187.25***	**10YR**	**104.47**	**6006.60**	**6011.41**		**6011.41**	**0.000066**	**0.82**	**200.79**	**74.74**	**0.07**
SP2	**187.25***	**2YR**	**53.34**	**6006.60**	**6011.13**		**6011.13**	**0.000022**	**0.46**	**180.75**	**71.41**	**0.04**
SP2	**187.125***	**500YR**	**234.68**	**6004.90**	**6011.79**	**6006.90**	**6011.80**	**0.000058**	**1.00**	**420.96**	**108.27**	**0.07**
SP2	**187.125***	**100YR**	**177.14**	**6004.90**	**6011.67**	**6006.63**	**6011.67**	**0.000036**	**0.78**	**407.47**	**106.73**	**0.05**
SP2	**187.125***	**10YR**	**104.47**	**6004.90**	**6011.41**	**6006.25**	**6011.41**	**0.000015**	**0.49**	**380.34**	**103.66**	**0.03**
SP2	**187.125***	**2YR**	**53.34**	**6004.90**	**6011.13**	**6005.85**	**6011.13**	**0.000005**	**0.27**	**352.21**	**100.25**	**0.02**
SP2	**187.1**		**Culvert**									
SP2	**187.0000**	**500YR**	**234.68**	**6003.19**	**6005.06**	**6005.06**	**6005.63**	**0.018109**	**7.31**	**49.81**	**45.79**	**0.97**
SP2	**187.0000**	**100YR**	**177.14**	**6003.19**	**6004.84**	**6004.84**	**6005.33**	**0.018087**	**6.69**	**40.13**	**42.05**	**0.95**
SP2	**187.0000**	**10YR**	**104.47**	**6003.19**	**6004.45**	**6004.45**	**6004.86**	**0.020679**	**5.89**	**25.13**	**33.89**	**0.96**
SP2	**187.0000**	**2YR**	**53.34**	**6003.19**	**6004.11**	**6004.11**	**6004.41**	**0.021909**	**4.80**	**14.62**	**27.27**	**0.94**
SP2	**186.5000**	**500YR**	**234.68**	**5977.77**	**5980.23**	**5980.23**	**5981.02**	**0.020326**	**7.15**	**33.51**	**22.58**	**0.99**
SP2	**186.5000**	**100YR**	**177.14**	**5977.77**	**5979.92**	**5979.92**	**5980.61**	**0.021669**	**6.66**	**26.85**	**20.82**	**1.00**
SP2	**186.5000**	**10YR**	**104.47**	**5977.77**	**5979.45**	**5979.45**	**5979.98**	**0.023982**	**5.86**	**17.82**	**16.92**	**1.01**
SP2	**186.5000**	**2YR**	**53.34**	**5977.77**	**5978.98**	**5978.98**	**5979.37**	**0.026466**	**5.02**	**10.63**	**13.79**	**1.01**
SP2	**186.0000**	**500YR**	**234.68**	**5962.23**	**5964.53**	**5964.53**	**5965.30**	**0.016475**	**7.58**	**39.01**	**28.18**	**0.94**
SP2	**186.0000**	**100YR**	**177.14**	**5962.23**	**5964.22**	**5964.22**	**5964.90**	**0.017368**	**6.98**	**30.85**	**25.44**	**0.94**
SP2	**186.0000**	**10YR**	**104.47**	**5962.23**	**5963.76**	**5963.76**	**5964.28**	**0.019380**	**5.97**	**19.95**	**21.27**	**0.94**
SP2	**186.0000**	**2YR**	**53.34**	**5962.23**	**5963.31**	**5963.31**	**5963.69**	**0.023841**	**4.95**	**11.43**	**17.20**	**0.97**
SP2	**185.5000**	**500YR**	**245.13**	**5947.58**	**5949.63**	**5949.63**	**5950.31**	**0.021269**	**7.47**	**42.91**	**35.01**	**1.03**
SP2	**185.5000**	**100YR**	**185.05**	**5947.58**	**5949.37**	**5949.37**	**5949.96**	**0.022871**	**6.89**	**34.10**	**31.94**	**1.04**
SP2	**185.5000**	**10YR**	**109.27**	**5947.58**	**5948.97**	**5948.97**	**5949.42**	**0.027360**	**5.97**	**22.19**	**26.80**	**1.07**
SP2	**185.5000**	**2YR**	**55.98**	**5947.58**	**5948.62**	**5948.62**	**5948.93**	**0.029046**	**4.88**	**13.70**	**22.64**	**1.04**
SP2	**185.0000**	**500YR**	**245.13**	**5938.02**	**5940.05**	**5940.05**	**5940.69**	**0.019706**	**6.76**	**42.30**	**34.83**	**0.98**
SP2	**185.0000**	**100YR**	**185.05**	**5938.02**	**5939.77**	**5939.77**	**5940.35**	**0.021201**	**6.40**	**33.07**	**30.74**	**0.99**
SP2	**185.0000**	**10YR**	**109.27**	**5938.02**	**5939.38**	**5939.38**	**5939.83**	**0.021789**	**5.53**	**21.95**	**25.90**	**0.96**
SP2	**185.0000**	**2YR**	**55.98**	**5938.02**	**5938.98**	**5938.98**	**5939.31**	**0.024940**	**4.69**	**12.67**	**20.46**	**0.97**
SP2	**184.5000**	**500YR**	**245.13**	**5924.07**	**5925.73**	**5925.73**	**5926.32**	**0.024121**	**7.93**	**47.76**	**41.59**	**1.10**
SP2	**184.5000**	**100YR**	**185.05**	**5924.07**	**5925.51**	**5925.51**	**5926.02**	**0.024728**	**7.27**	**38.74**	**38.88**	**1.09**
SP2	**184.5000**	**10YR**	**109.27**	**5924.07**	**5925.16**	**5925.16**	**5925.55**	**0.026883**	**6.24**	**25.85**	**34.31**	**1.08**
SP2	**184.5000**	**2YR**	**55.98**	**5924.07**	**5924.84**	**5924.84**	**5925.11**	**0.028785**	**5.05**	**15.68**	**29.27**	**1.05**
SP2	**184.0000**	**500YR**	**245.13**	**5908.28**	**5909.92**	**5909.92**	**5910.42**	**0.021205**	**6.94**	**53.13**	**54.90**	**1.01**
SP2	**184.0000**	**100YR**	**185.05**	**5908.28**	**5909.73**	**5909.73**	**5910.16**	**0.021190**	**6.33**	**43.22**	**51.20**	**0.99**
SP2	**184.0000**	**10YR**	**109.27**	**5908.28**	**5909.40**	**5909.40**	**5909.75**	**0.023998**	**5.52**	**27.77**	**42.81**	**1.00**
SP2	**184.0000**	**2YR**	**55.98**	**5908.28**	**5909.13**	**5909.13**	**5909.37**	**0.024896**	**4.45**	**16.76**	**36.04**	**0.96**

SP2	**183.5000**	**500YR**	**245.13**	**5895.98**	**5897.75**	**5897.29**	**5897.91**	**0.010006**	**5.38**	**90.32**	**91.08**	**0.72**
SP2	**183.5000**	**100YR**	**185.05**	**5895.98**	**5897.54**	**5897.13**	**5897.68**	**0.010005**	**4.95**	**72.44**	**80.38**	**0.70**
SP2	**183.5000**	**10YR**	**109.27**	**5895.98**	**5897.18**	**5896.83**	**5897.29**	**0.010009**	**4.15**	**47.53**	**61.30**	**0.67**
SP2	**183.5000**	**2YR**	**55.98**	**5895.98**	**5896.85**	**5896.58**	**5896.93**	**0.010004**	**3.33**	**29.06**	**49.58**	**0.64**
MAIN	**39.5000**	**500YR**	**9993.10**	**5806.01**	**5846.31**		**5846.31**	**0.000002**	**0.63**	**29426.68**	**1050.27**	**0.02**
MAIN	**39.5000**	**100YR**	**8446.80**	**5806.01**	**5846.03**		**5846.03**	**0.000002**	**0.54**	**29136.93**	**1050.27**	**0.01**
MAIN	**39.5000**	**10YR**	**5796.90**	**5806.01**	**5830.78**		**5830.78**	**0.000007**	**0.85**	**13768.16**	**956.22**	**0.03**
MAIN	**39.5000**	**2YR**	**3793.30**	**5806.01**	**5821.63**		**5821.65**	**0.000043**	**1.49**	**5589.78**	**787.55**	**0.07**
MAIN	**39.375***	**500YR**	**9993.10**	**5806.01**	**5846.31**		**5846.31**	**0.000003**	**0.70**	**26859.65**	**997.26**	**0.02**
MAIN	**39.375***	**100YR**	**8446.80**	**5806.01**	**5846.03**		**5846.03**	**0.000002**	**0.60**	**26584.52**	**997.26**	**0.02**
MAIN	**39.375***	**10YR**	**5796.90**	**5806.01**	**5830.78**		**5830.78**	**0.000010**	**1.00**	**12069.47**	**894.42**	**0.04**
MAIN	**39.375***	**2YR**	**3793.30**	**5806.01**	**5821.62**		**5821.64**	**0.000075**	**1.97**	**4449.66**	**708.34**	**0.09**
MAIN	**39.25***	**500YR**	**9993.10**	**5806.01**	**5846.31**	**5817.59**	**5846.31**	**0.000003**	**0.79**	**24505.46**	**944.24**	**0.02**
MAIN	**39.25***	**100YR**	**8446.80**	**5806.01**	**5846.03**	**5816.78**	**5846.03**	**0.000002**	**0.67**	**24244.96**	**944.24**	**0.02**
MAIN	**39.25***	**10YR**	**5796.90**	**5806.01**	**5830.77**	**5815.68**	**5830.78**	**0.000014**	**1.17**	**10618.01**	**831.31**	**0.04**
MAIN	**39.25***	**2YR**	**3793.30**	**5806.01**	**5821.60**	**5812.80**	**5821.64**	**0.000116**	**2.46**	**3634.18**	**615.96**	**0.11**
MAIN	**39.2**		**Bridge**									
MAIN	**39.125***	**500YR**	**9993.10**	**5806.01**	**5846.31**		**5846.31**	**0.000004**	**0.88**	**22364.64**	**891.23**	**0.02**
MAIN	**39.125***	**100YR**	**8446.80**	**5806.01**	**5846.03**		**5846.03**	**0.000003**	**0.75**	**22119.20**	**891.23**	**0.02**
MAIN	**39.125***	**10YR**	**5796.90**	**5806.01**	**5830.77**		**5830.78**	**0.000019**	**1.35**	**9421.58**	**766.42**	**0.05**
MAIN	**39.125***	**2YR**	**3793.30**	**5806.01**	**5821.57**		**5821.63**	**0.000178**	**3.05**	**3029.72**	**557.95**	**0.14**
MAIN	**39.0000**	**500YR**	**9993.10**	**5806.01**	**5846.31**	**5819.48**	**5846.31**	**0.000005**	**0.97**	**20437.43**	**838.21**	**0.03**
MAIN	**39.0000**	**100YR**	**8446.80**	**5806.01**	**5846.03**	**5819.02**	**5846.03**	**0.000004**	**0.83**	**20206.59**	**838.21**	**0.02**
MAIN	**39.0000**	**10YR**	**5796.90**	**5806.01**	**5830.77**	**5817.52**	**5830.78**	**0.000024**	**1.53**	**8479.53**	**703.99**	**0.05**
MAIN	**39.0000**	**2YR**	**3793.30**	**5806.01**	**5821.52**	**5814.08**	**5821.62**	**0.000278**	**3.79**	**2533.48**	**513.14**	**0.17**
MAIN	**38.75**		**Culvert**									
MAIN	**38.5000**	**500YR**	**9993.10**	**5804.96**	**5845.00**		**5845.00**	**0.000004**	**0.79**	**24810.17**	**1037.83**	**0.02**
MAIN	**38.5000**	**100YR**	**8446.80**	**5804.96**	**5845.00**		**5845.00**	**0.000003**	**0.67**	**24810.68**	**1037.83**	**0.02**
MAIN	**38.5000**	**10YR**	**5796.90**	**5804.96**	**5813.30**		**5814.40**	**0.007011**	**11.27**	**953.74**	**280.56**	**0.75**
MAIN	**38.5000**	**2YR**	**3793.30**	**5804.96**	**5812.26**	**5812.10**	**5813.28**	**0.007111**	**10.21**	**674.90**	**258.71**	**0.73**
MAIN	**38.0000**	**500YR**	**9993.10**	**5804.24**	**5845.00**	**5812.51**	**5845.00**	**0.000001**	**0.48**	**37466.09**	**1315.04**	**0.01**
MAIN	**38.0000**	**100YR**	**8446.80**	**5804.24**	**5845.00**	**5811.94**	**5845.00**	**0.000001**	**0.40**	**37466.09**	**1315.04**	**0.01**
MAIN	**38.0000**	**10YR**	**5796.90**	**5804.24**	**5813.83**	**5811.22**	**5813.98**	**0.001001**	**4.84**	**2581.37**	**728.65**	**0.29**
MAIN	**38.0000**	**2YR**	**3793.30**	**5804.24**	**5812.73**	**5810.40**	**5812.88**	**0.001002**	**4.42**	**1829.99**	**645.22**	**0.29**

F. Project HEC-1 and HEC-RAS files Disk

G. Oversized Exhibits

STORMWATER MANAGEMENT
&
WATER QUALITY PLAN

Northstar Community Services District
Multi-Purpose Trail

MARTIS VALLEY, PLACER COUNTY, CALIFORNIA

Prepared for:

Northstar Community Services District
908 Northstar Drive
Northstar, CA 96161
Mike Staudenmayer
(530) 562-0747

Prepared by:

Walter Auerbach, P.E.
AUERBACH ENGINEERING CORPORATION
3092 NORTH LAKE BLVD.
TAHOE CITY, CA 96145
530-581-1116

March, 2012

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GOAL

Auerbach Engineering Corporation (AEC) has prepared this Stormwater Management and Water Quality Plan (SMWQP) for the Martis Valley Regional Trail for the purpose of demonstrating methods and means for protection of the existing water ways within and downstream of the proposed project area. This plan outlines construction details which will ensure that stormwater runoff quantity and water quality will not result in significant impacts to the existing environment including the waterways; soils; soils hydrology; vegetation; wildlife and human health and recreation. An additional goal of this Plan is to assist the requirements of the Environmental Impact Report (EIR) by revealing possible environmental impacts due to the project in regards to water quality, and identify available mitigation methods needed to ensure that those impacts are less than significant.

METHODS

The stormwater management practices utilized within this Plan are based primarily on the requirements set forth within the Placer County Stormwater Management Manual (PCSWMM). Best Management Practices (BMPs) utilized for the project correspond to the California Stormwater Quality Association (CASQA) Stormwater Best Management Practice Handbooks and the 'Erosion and Sediment Control for Developing Areas of the Sierra Foothills and Mountains' prepared by the High Sierra Resource Conversation and Development Council, 1991. Preference will be given to stormwater management systems, structures and BMPs that correspond to Low Impact Development (LID) techniques and practices as explained within the 'Low Impact Development Manual for Southern California' as recommended by CASQA.

DESIGN CRITERIA, RESOURCES AND REFERENCES

Pre-project and preliminary post-project hydrology has been modeled by Civil Engineering Solutions, Inc. (Martis Valley Trail Project Hydrology Study; March, 2012). Holdrege & Kull has studied the soil types and corresponding infiltration capacities within the project area and has developed project specific trail sections that will mitigate stormwater run-off (Preliminary Soil Evaluation and Storm Water BMP Design Report, NCSD Multi-Purpose Trail; January, 2012). These reports contain the majority of the design variables required for designing the stormwater management system. Additional design variables and constraints are found within the PCSWMM.

The PCSWMM requires that "all new development shall be planned and designed so that no damages occur to structures or improvements during the 100-year event and no inundation of private property occurs during the 10-year event". Also "The 10-year event is the minimum design storm for new developments in all drainages and all dedicated drainage facilities will be sized for this event. The development plan will also identify the effects of the 100-year event and provisions will be made in the plan to prevent loss of life and damages to property during a 100-year event". The PCSWMM allows the use for both storage and infiltration of run-off as methods for stormwater management. Both methods will be used for this project.

Civil Solution's Hydrology Study indicates that the project, as a whole, will increase the flow of the existing waterways by a maximum of approximately 1.9% during a 10-yr event and 0.9% during the 100-yr event. See Table I.II.C.15: Estimated Post-Project Peak Flow Rates – Warm Event – Peak of All Alternatives. Note that the Civil Solutions study does not incorporate the positive effect of stormwater BMP's on the project hydrology, and while these flow increases are likely insignificant by themselves, they can be reduced through implementation of additional measures as discussed below. It is the intent of this project to minimize environmental impacts to the most practical extent available.

STORMWATER MANAGEMENT

Trail

The proposed trail is a linear project, and as such it is not practical or feasible to design a centralized stormwater management system for the entire project. The best management practice for the majority of the project is to maximize on-site infiltration and perpetuate existing sheet flow conditions. This will be done by utilizing up slope swales that collect sheet flow and allow infiltration for low flow (2 and 10-yr storm) events and route stormwater runoff to under-trail drains that disperse runoff as sheet flow on the downslope side of the trail. Figure 1, Typical Trail Section, and Figure 1A, Cross Drain, detail these functions. Runoff from larger storm events will utilize the under-trail drains as well as cross the trail similar to existing sheet flow conditions.

The proposed trail system bisects several environments – such as meadows, riparian areas, upland grasses, and steep forested areas - each with their own characteristics and specific design constraints. It is the intent of the design of the trail system to not impede the natural hydrology of these differing environments.

Figure 2, Wet Meadow Section, is a possible solution provided by Holdrege & Kull which will allow existing sheet flow conditions encountered during smaller (2-yr and 10-yr) rain events to proceed unabated through the trail footprint where prolonged wet conditions occur.

Figure 3, Plumas Ivesia Section, is another trail design option provided by Holdrege & Kull for mitigating drainage within and adjacent to areas where plumas ivesia is found. Plumas ivesia grows in a particular soil type with poor infiltration capacity. A trail section such as that shown within Figure 3, will allow up slope drainage to continue through the trail footprint.

Trail sections traversing the steeper forested areas will require design features similar to those shown on Figure 4, Infiltration Trench Section, and Figure 5, Rockery Wall Section. The purpose of these designs is to infiltrate runoff and to promoting sheet flow to the down slope areas in order to avoid channelizing surface flows.

The trail will cross over larger existing storm water drainage courses. The crossings will utilize appropriately sized culverts based on the information provided within Civil Solution's Hydrology Study.

As shown on Figure 6, 100-yr Flood, the 100-yr flood event completely inundates portions of the proposed trail system. Civil Solution's Hydrology Study shows that the trail and vertical structures (i.e. bridges and boardwalks) will not impede the flow of these larger events. Therefore, the requirements set forth within the PCSWMM regarding the 100-yr storm events are met.

Trail structures for spanning existing drainage crossings, such as boardwalks and bridges, are designed to pass the 10-yr rain event without impeding the flows. The exception is the bridge located where Frank's Fishing bridge is now located – Station 29+00 of Highway Trail Segment 3A. The 10-yr event will flow well above the proposed bridge as it occurs now with the existing bridge. As such, the bridge will be designed to withstand the impacts of inundation of the 10 and 100-yr flood events.

FIGURE 1
TYPICAL TRAIL SECTION

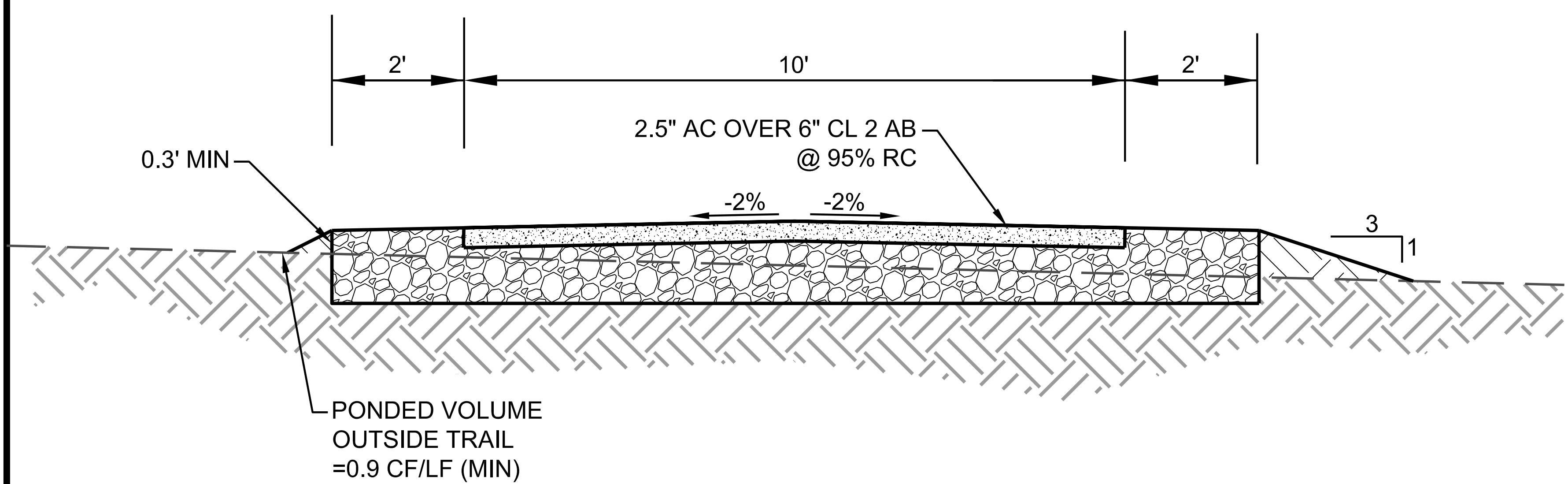

FIGURE 1
TYPICAL TRAIL SECTION
STORMWATER MANAGEMENT & WATER QUALITY PLAN
MULTI-PURPOSE TRAIL
NORTHSTAR COMMUNITY SERVICES DISTRICT
PROJECT NO.: 985.14B MARCH 2012

AUERBACH ENGINEERING CORPORATION

FIGURE 1A
DRAIN ROCK CROSS DRAIN

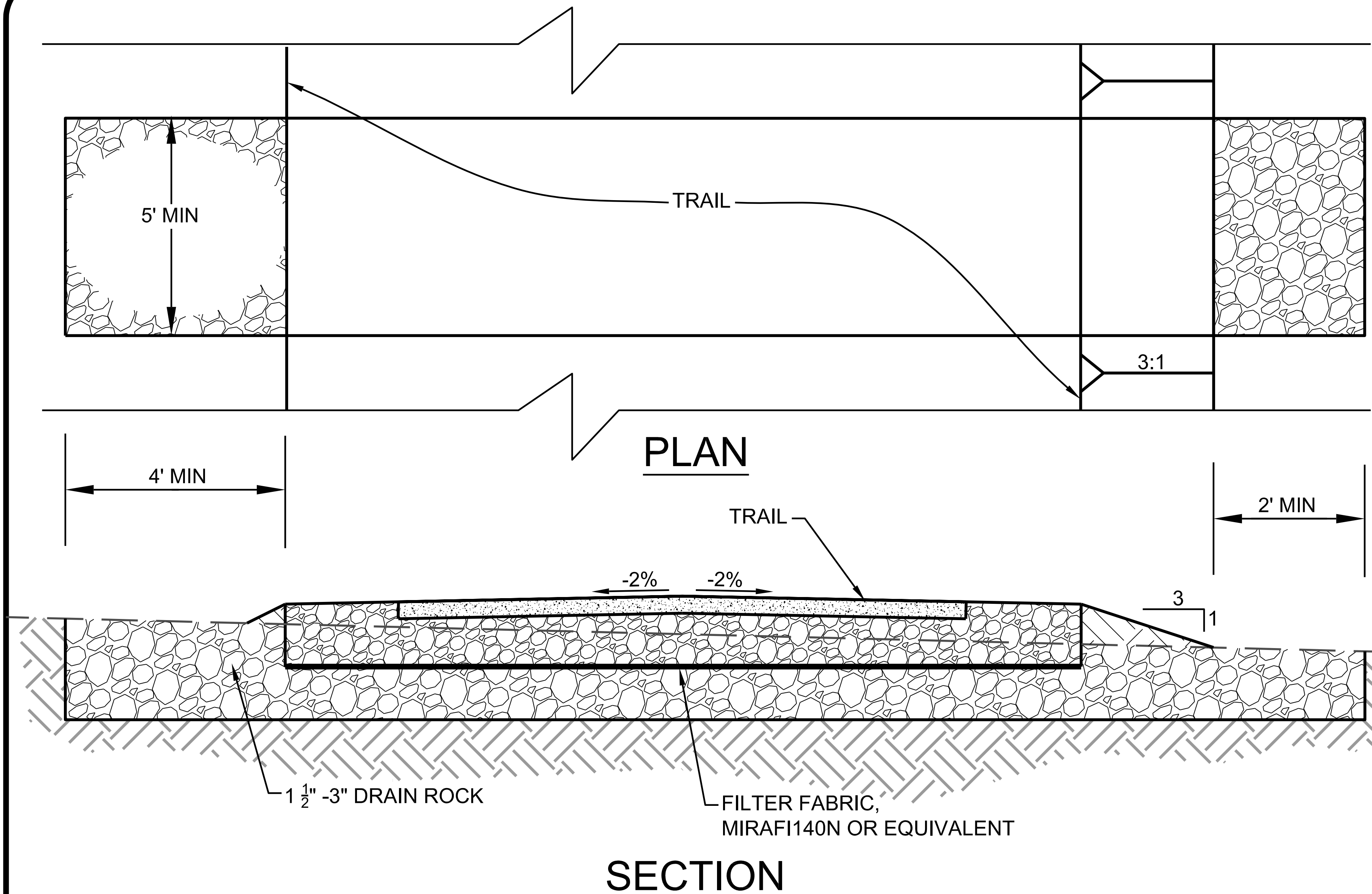

FIGURE 1A
DRAIN ROCK CROSS DRAIN DETAIL
STORMWATER MANAGEMENT & WATER QUALITY PLAN
MULTI-PURPOSE TRAIL
NORTHSTAR COMMUNITY SERVICES DISTRICT
PROJECT NO.: 985.14B   MARCH 2012

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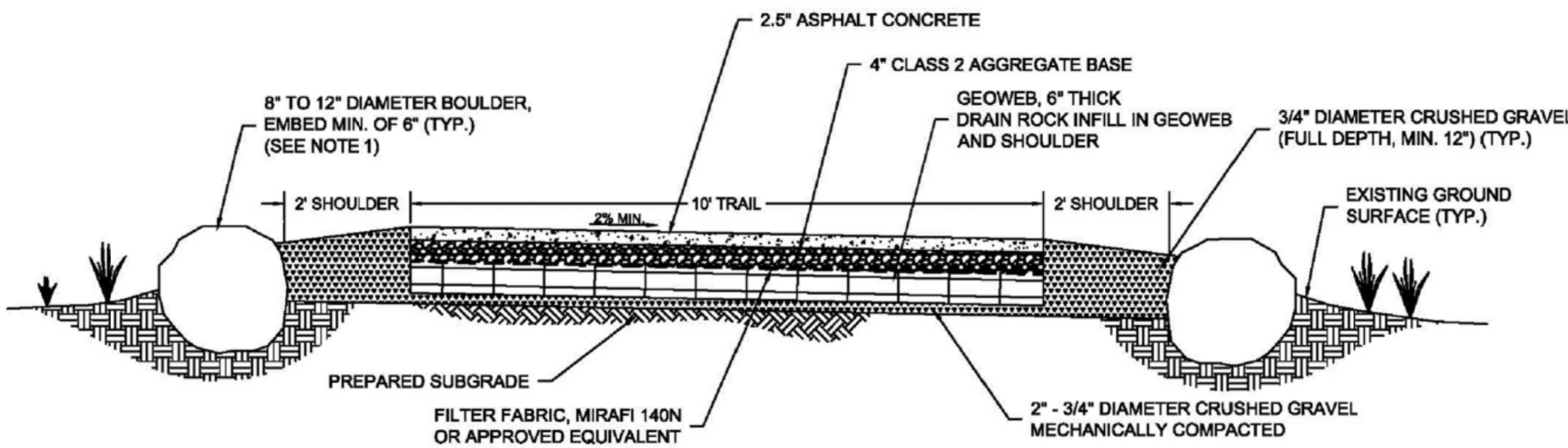
FIGURE 2
TYPICAL WET-MEADOW SECTION



NOTES:

1. PLACE BOULDERS ONLY AS CONDITIONS REQUIRE TO SUPPORT CUT AND/OR FILL MATERIAL.
2. FIGURE TAKEN FROM 'PRELIMINARY SOIL EVALUATION AND STORM WATER BMP DESIGN REPORT FOR NORTHSTAR COMMUNITY SERVICES DISTRICT MULTI-PURPOSE TRAIL' BY HOLDREGE & KULL.

FIGURE 2
WET MEADOW TRAIL SECTION
STORMWATER MANAGEMENT & WATER QUALITY PLAN
MULTI-PURPOSE TRAIL
NORTHSTAR COMMUNITY SERVICES DISTRICT
PROJECT NO.: 985.14B MARCH 2012

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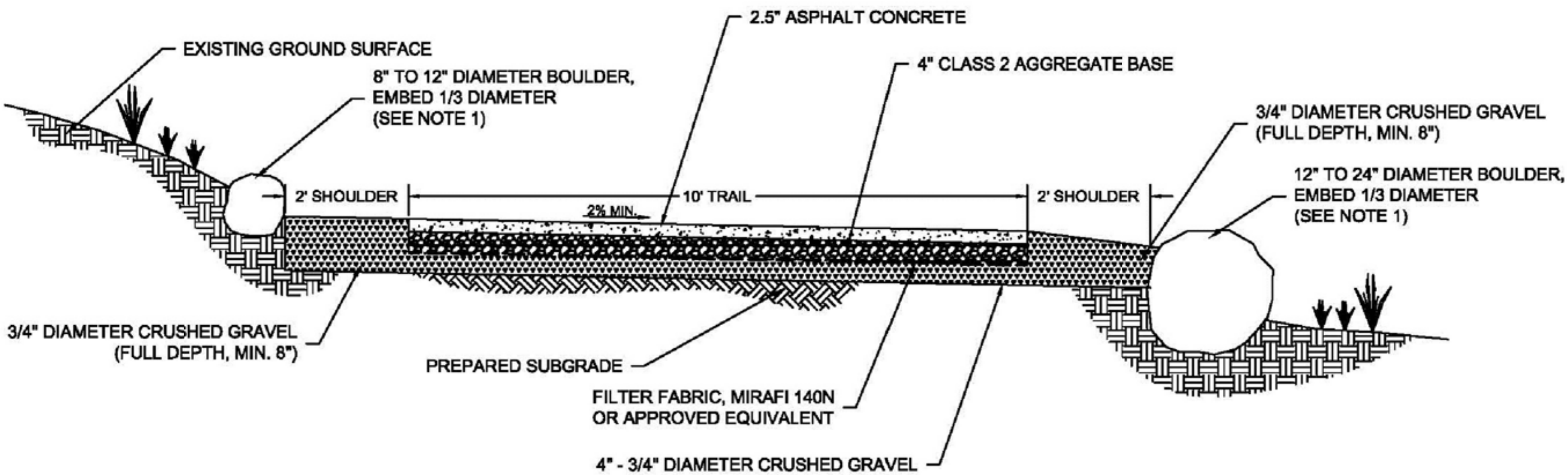
FIGURE 3
TYPICAL PLUMAS IVESIA SECTION



NOTES:
1. PLACE BOULDERS ONLY AS CONDITIONS REQUIRE TO SUPPORT CUT AND/OR FILL MATERIAL.
2. FIGURE TAKEN FROM 'PRELIMINARY SOIL EVALUATION AND STORM WATER BMP DESIGN REPORT FOR NORTHSTAR COMMUNITY SERVICES DISTRICT MULTI-PURPOSE TRAIL' BY HOLDREGE & KULL.

FIGURE 3
PLUMAS IVESIA TRAIL SECTION
STORMWATER MANAGEMENT & WATER QUALITY PLAN
MULTI-PURPOSE TRAIL
NORTHSTAR COMMUNITY SERVICES DISTRICT
PROJECT NO.: 985.14B MARCH 2012

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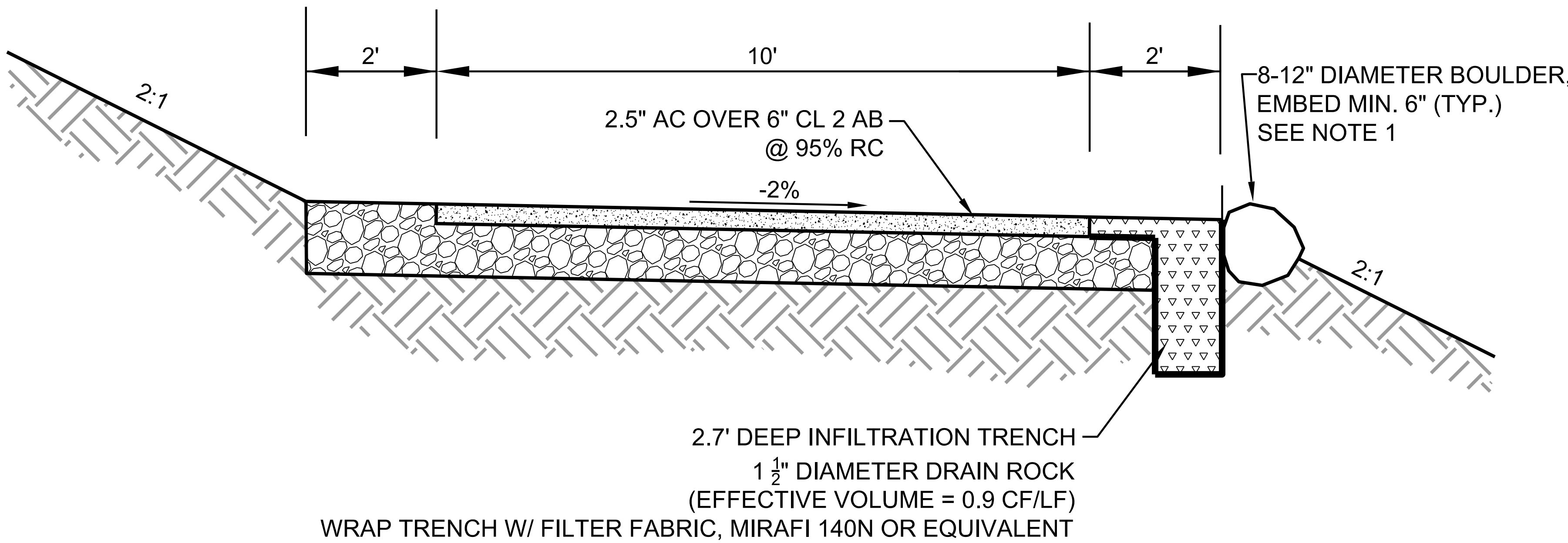
FIGURE4
INFILTRATION TRENCH SECTION



NOTES:

1. PLACE BOULDERS ONLY AS CONDITIONS REQUIRE TO SUPPORT CUT AND/OR FILL MATERIAL.

FIGURE 4

INFILTRATION TRENCH TRAIL SECTION

STORMWATER MANAGEMENT & WATER QUALITY PLAN

MULTI-PURPOSE TRAIL

NORTHSTAR COMMUNITY SERVICES DISTRICT

PROJECT NO.: 985.14B MARCH 2012

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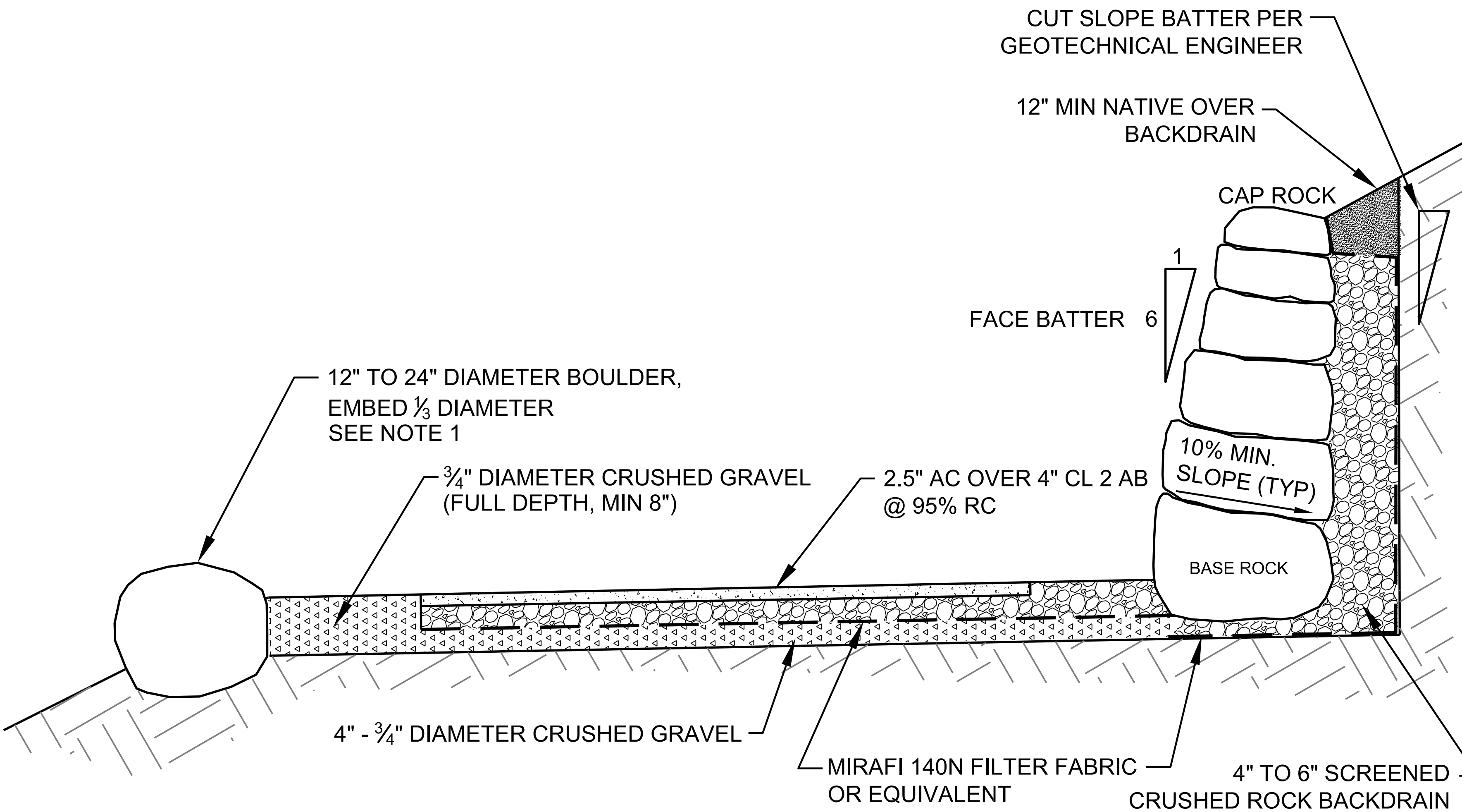
FIGURE 5
TYPICAL ROCKERY WALL SECTION



NOTES:
1. PLACE BOULDERS ONLY AS CONDITIONS REQUIRE TO SUPPORT CUT AND/OR FILL MATERIAL.
2. INSTALL INFILTRATION TRENCH AS SHOWN ON FIGURE 4 AS RECOMMENDED BY ENGINEER

FIGURE 5
ROCKERY WALL TRAIL SECTION
STORMWATER MANAGEMENT & WATER QUALITY PLAN
MULTI-PURPOSE TRAIL
NORTHSTAR COMMUNITY SERVICES DISTRICT
PROJECT NO.: 985.14B MARCH 2012
AUERBACH ENGINEERING CORPORATION

FIGURE 6
100-YR FLOODPLAIN

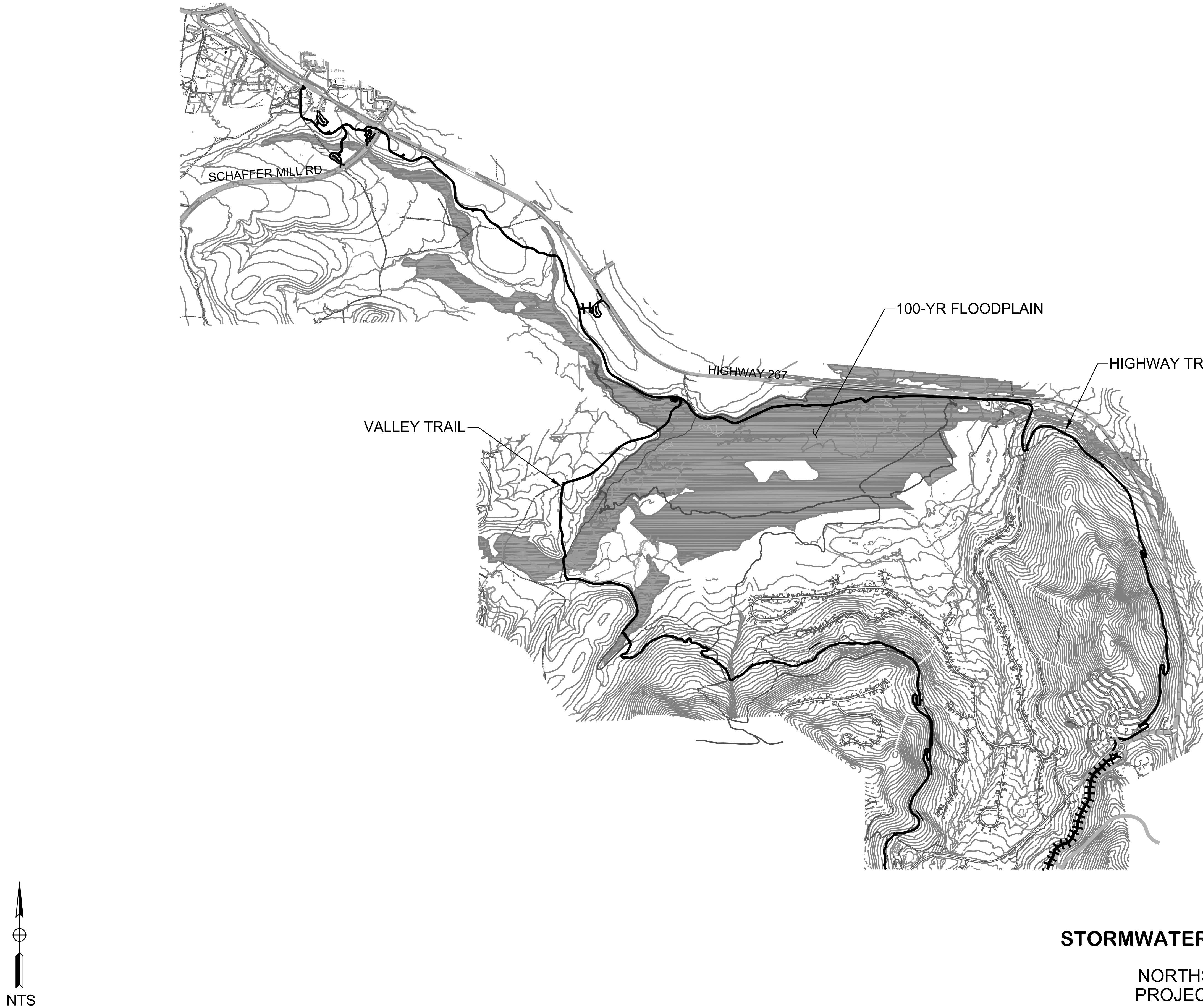


FIGURE 6
100-YR FLOODPLAIN
STORMWATER MANAGEMENT & WATER QUALITY PLAN
MULTI-PURPOSE TRAIL
NORTHSTAR COMMUNITY SERVICES DISTRICT
PROJECT NO.: 985.14B   MARCH 2012

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Rest Stops, Trail Junctions, Trail Heads and Wildlife Viewing Area

The surfaces of the rest stop, trail junctions, trail heads and the Wildlife Viewing Area will be made of permeable pavers. These areas will be designed with intention of providing full infiltration of runoff from the 10-yr storm event within 12 hours. Additional soil investigations by Holdrege & Kull will be needed for each location to provide the actual available infiltration rates. If full infiltration within 12 hours is not feasible, an underdrain system will be included that will collect filtered stormwater and release the runoff downslope as sheet flow. Runoff released from these structures will be, at a maximum, 90% of pre-project runoff rates. Figure 7, Permeable Paver Section, details the materials used for the underdrain system.

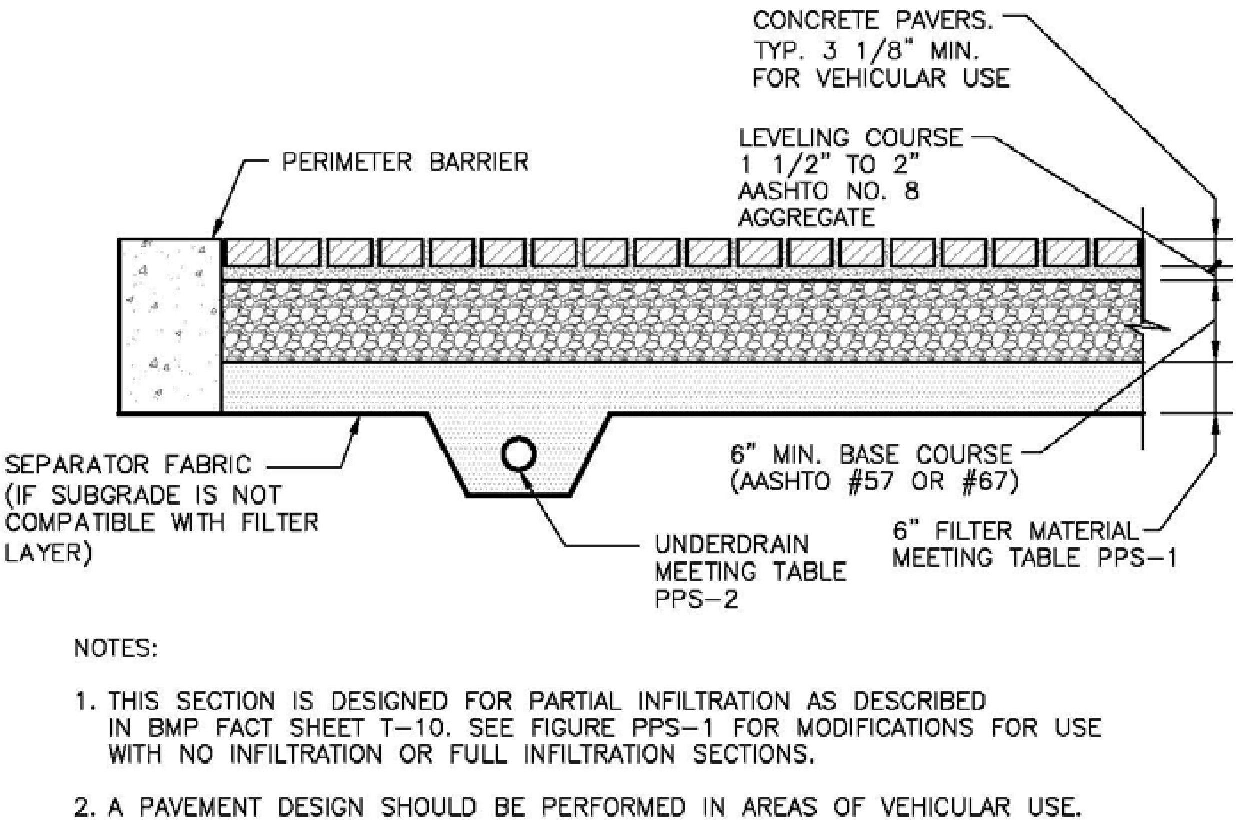

Figure 7. Permeable Paver Section. From the Urban Drainage and Flood Control District Urban Storm Drainage Criteria Manual Volume 3, BMP Fact Sheet T-10.1

Native American Interpretive Area

The surface of the Native American Interpretive Area that will receive direct rainfall will be constructed with permeable pavers as described above. Run-off from the roof will be routed to an adjacent rain garden that is sized to detain and infiltrate a 10-yr storm event. Rain gardens are highly recommended bioretention systems and LID techniques. Bioretention systems are designed to infiltrate stormwater runoff utilizing thick sections of growing media which provide stormwater runoff storage instead of open water storage which create vector-borne issues (i.e.

mosquitoes), while being aesthetically pleasing by growing native wetland vegetation. The design will incorporate an overflow system to route runoff from larger storm events as sheet flow to the downslope areas at a maximum rate of 90% of pre-project runoff rates.

Parking Area

At this time there exist four (4) potential locations for the proposed parking area. The alternative parking areas have similar layouts and will treat stormwater run-off in a similar manner with the exception of the vegetated swale location and discharge from the rain garden/detention basin, which are dependent onsite characteristics of each alternative location.

The proposed parking area will treat stormwater run-off utilizing permeable parking stalls, a vegetated swale and a rain garden/detention basin. Stormwater run-off will be routed over the permeable parking stalls to capture and treat initial run-off. Stormwater volumes exceeding the capacity of the permeable parking stalls will be routed to the vegetated swale installed either in the center of the parking area or around the downstream perimeter of the parking area. Excess stormwater not infiltrated within the vegetated swale will be routed to the rain garden/detention basin. Smaller rain events (2-yr and 10-yr) will be treated primarily by the rain garden feature allowing for infiltration. Larger events will be handled by the detention basin that is sized to release stormwater run-off at a rate of 90% of pre-project run-off rates. Release from the detention basin will be routed through an additional vegetated swale prior to entering existing water ways or will be released in a manner which reflects existing sheet flow characteristics.

WATER QUALITY

It is not anticipated that the final state of the Martis Valley Trail project will pose a threat to the water quality of the project area or downstream areas. The trail will be closed to motorized vehicles, with the exception of occasional maintenance vehicles, and as such no potential pollutant sources are foreseen to be associated with the intended uses of the trail system. However, by maintaining the existing sheet flow and infiltration characteristics of the area stormwater runoff from the trail will be naturally filtered and treated prior to introduction to the local waterways.

The parking area is a location susceptible to potential pollutants associated with vehicles. The use of permeable pavers for the parking stalls will be the initial treatment of stormwater in regard to water quality. As described above, additional runoff will be routed through the vegetated swale, rain garden/ detention basin – all of which serve to improve water quality while reducing run-off quantity; pollutants are absorbed by plants and vegetation while microbes within the root/soil matrix degrade to the pollutants. Plants and vegetation chosen for the vegetated swale, rain garden and detention basin will be a diversity of local plant types and species to ensure tolerance of pests, disease, climate and other environmental stresses. These treatment qualities will be similar at the proposed rest stops, picnic areas, trail heads, wildlife viewing area and the Native American Interpretive Area.

Erosion and sediment control during construction will be in the form of temporary BMPs such as fiber wattles, silt fences, water bars, sediment basins, mulching of disturbed soil areas, channel linings and drainage inlet protection. The project specific Stormwater Pollution Prevention Plan (SWPPP) will address design, implementation, management and monitoring of construction specific BMPs.

Permanent BMPs for erosion and sediment control will include rock slope protection (RSP), vegetated swales, rain gardens, detention basins, rock energy dissipaters, vegetation of disturbed soil areas, as well as the stormwater management methods explained in the above section. These permanent BMPs will be inherent within the design.

CONCLUSION

The Martis Valley Trail, as shown within Civil Engineering Solution, Inc's Hydrology Study, has an insignificant impact in terms of stormwater run-off with a maximum increase of 1.9% over existing flows. Utilization of infiltration trenches, vegetated swales, permeable pavers, rain gardens and the surrounding native soil and plant life will bring run-off quantities to below levels of insignificance.

Design features will be incorporated to allow existing drainage courses and overland surface flows to remain unimpeded.

Stream, creek and wetland crossings have been designed to clear the 10-yr storm event water levels. The exception to this is the location of the existing Frank's Bridge. In this instance the bridge has been designed to withstand the 10-yr and 100-yr flood events. The bridge is not anticipated to obstruct flows to a significant extent.

Increased run-off from rest areas, trail heads, trail junctions and the wildlife viewing area will be allowed to infiltrate to the underlying soil with the use of permeable pavers. The Native American Interpretive Area will also incorporate permeable pavers. Addition stormwater will be routed to a rain garden for soil infiltration. Runoff from larger storm events will routed to the surround areas as sheet flow.

The parking area will incorporate permeable parking stalls, vegetated swales and a combination rain garden/detention basin. These LID techniques will reduce stormwater run-off to 90% of existing levels and will also treat potential pollutants. This is the only area within the project anticipated to be susceptible to potential pollutants.

PRELIMINARY SOIL EVALUATION AND STORM WATER BMP DESIGN REPORT
for
Northstar Community Services District
Multi-Purpose Trail
Martis Valley
Placer County, California

Prepared for:
Auerbach Engineering Corporation
P.O. Box 5399
Tahoe City, California

Prepared by:
Holdrege & Kull
10775 Pioneer Trail Suite 213
Truckee, California 96161

Project No. 41548-01
January 30, 2012

HK HOLDREGE & KULL
CONSULTING ENGINEERS • GEOLOGISTS

Project No. 41548-01
January 30, 2012

Auerbach Engineering Corporation
P.O. Box 5399
Tahoe City, California 96145

Attention: Mr. Wally Auerbach

Reference: ***Northstar Community Services District Multi-Purpose Trail***
Martis Valley
Placer County, California

Subject: ***Preliminary Soil Evaluation and Storm Water BMP Design Report***

This report presents the results of our preliminary soil evaluation and Storm Water Best Management Practice (BMP) design for the Northstar Community Services District (NCSD) Multi-Purpose Trail Project to be constructed in Truckee, California. The project will involve construction of a paved multi use trail that will provide a regional connection between existing trails in the Town of Truckee and trails in the Lake Tahoe Basin. The purpose of our services was to evaluate surface and near-surface soil infiltration characteristics for design of low impact development (LID) BMP features for surface water and drainage and water quality protection.

The findings presented in this report are based on our surface reconnaissance, literature review, engineering analysis, and our experience with near-surface soil conditions in the project area. Our conclusions regarding soil and surface water drainage conditions for the proposed BMP features are provided in the following report.

Please contact the undersigned if you have any questions regarding our observations or the recommendations presented in this report.

Sincerely,
Holdrege & Kull

Prepared By:

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APPENDICES

1. INTRODUCTION

At the request of Auerbach Engineering Corporation (AEC), Holdrege & Kull (H&K) preformed a preliminary soil evaluation for the design of low impact development (LID) Storm Water Best Management Practices (BMP) to be incorporated into the proposed Northstar Community Services District (NCSD) Multi-Purpose Trail Project in Truckee, California. We performed our assessment in general accordance with our revised proposal dated July 15, 2011 for the project. A copy of the proposal is included as Appendix A of this report.

1.1 Site Description

The project area is located within Martis Valley in eastern Placer County, California. The proposed trail will start near Schaffer Mill Road at the Nevada-Placer County line and extend southeast and terminate at two possible locations near Northstar Drive, as shown on Figure 1. The trail will generally parallel Highway 267 and then trend south across Martis Valley to Northstar. Properties surrounding the project area consist of residential, undeveloped recreational areas, Highway 267, and the Northstar golf course.

Topography within the project area varies from gently sloping meadow and riparian land to moderately steep mountainous terrain. Surface water drainage is concentrated into Martis Creek and affiliated tributaries, with the exception of surface water drainage off of Highway 267, which flows adjacent to Segment 3A. The general direction of surface water flow occurs to the north-northeast. Vegetation in the project area consists of riparian bushes, grasses, upland shrubs, and conifer trees.

1.2 Purpose

The purpose of our services was to evaluate surface and near-surface soil infiltration characteristics for design of low impact development (LID) BMP features for surface water and drainage and water quality protection.

1.3 Scope of Services

To prepare this report we performed the following scope of services:

- Literature review regarding regional geology, soil, groundwater, and hydrologic characteristics in the project area.

- Surface reconnaissance along the proposed trail routes to evaluate current surface and near-surface soil conditions.
- Engineering analysis for design of LID BMP features for surface water and drainage and water quality protection.
- Preparation of this preliminary report.

1.4 Proposed Improvements

Information about the proposed project was obtained from our site visits, conversations with Wally Auerbach of AEC, preliminary trail alignment plans provided by AEC, and our previous experience in the project area. The project will involve construction of an approximately ten foot wide paved trail with two-foot wide unpaved shoulders. Pedestrian bridges, culverts, and elevated boardwalks will be needed at locations where the trail crosses existing streams, small drainages and/or wet areas. Two alternative routes are currently under consideration for the new trail. The first alternative includes Segments 1, 2A, and 2B. The second alternative includes Segments 1, 3A, and 3B, as shown on Figure 1 and described below:

- Segment 1 – The Nevada County-Placer County line to the Martis Creek Wildlife Viewing Area (approximately 1.8 miles long). This segment will contour along existing topography and other natural features and will require new trail construction where none currently exist.
- Segment 2A –Martis Creek Viewing Area and terminus of Segment 1 to the property line between Martis Creek Lake Recreation Area and Northstar Resort (approximately 1.6 miles long). This segment will following existing trails and access roads and will require a bridge crossing over Martis Creek and replacement of an existing pedestrian bridge over an affiliated tributary.
- Segment 2B – Southern terminus of Segment 2A to the bus loop at Northstar Village (approximately 1.9 miles long). This segment will require new trail construction and follow existing trails along steep terrain within open space owned by Northstar Resort. A bridge crossing will be required over a Martis Creek tributary.
- Segment 3A – The Martis Creek Viewing Area to the Northstar Resort property line (approximately 1.1 miles long). This segment will meander through Martis Valley adjacent to Highway 267 and follow an existing unimproved trail. A new pedestrian bridge will be required to span over Middle Martis Creek. The new bridge will replace an existing pedestrian bridge crossing.

- Segment 3B – Eastern terminus of Segment 3A to the existing tiered parking lot owned by Northstar Resort (approximately 1.4 miles long). This segment will traverse across steep terrain along an existing unpaved access road and will require some new trail construction.

Another trail segment, 3F, is not included in this study but may be constructed at a later date as funding becomes available.

2. METHODS OF INVESTIGATION

2.1 Literature Review

2.1.1 Site Soil

Soil information throughout the project area was researched by accessing the Natural Resources Conservation Service (NRCS) web soil survey (http://websoilsurvey.nrcs.usda.gov). Based on our review of the NRCS web site, several different soil types are mapped across the project including units from the Euer, Marts, Aquolls-Borolls, Kyburz, Trojan, Umpa, Fugawee, Tahoma, and Jorge Series. The following is a description of anticipated soil types within each of the proposed trail segments, as shown on Figure 2:

- Segment 1 – Three soil types are mapped along the proposed alignment of Segment 1, including the Euer-Martis variant, 2 to 5 percent slopes (EUB), Martis-Euer variant complex, 2 to 5 percent slopes (MEB), and the Aquolls and Borolls, 0 to 5 percent slopes (AQB). The Euer and Martis soil types consist of deep (4 to 6 feet), well-drained soils formed in glacial outwash and volcanic sources that have medium runoff and moderately slow permeability rates. The Aquolls and Borolls soil type consist of shallow to moderately deep (less than 3 feet), very poorly drained soil, subject to flooding and high water tables and has a high erosion hazard. Aquolls soil is typically formed in flood plains of streams, whereas Borolls soils contain abundant rock fragments and accumulate in valleys and drainages. Much of the Segment 1 trail is mapped as being underlain by AQB soil, a small section near the center of the trail alignment is shown as MEB soil, and a small area near the northwestern terminus of the trail is mapped as EUB soil.

- Segment 2A – Three soil types are mapped along the proposed Segment 2A alignment, including AQB, EUB, and pits and borrows (PX). The AQB soil is mapped within the low-lying portion of the trail segment and the creek crossing (northern and southern areas of the trail). The EUB soil is mapped along the terrace sections of the trail between a volcanic rock outcrop and the low-lying portions of the trail. The PX soil type is mapped within a former borrow pit area with volcanic rock exposures in the central portion of the trail and is generally devoid of soil coverage.

- Segment 2B – Six soil types are mapped along the alignment of trail Segment 2B, including variants of the Euer, Umpa, Jorge, and Fugawee Series. The first leg of the trail segment southeast of Martis Creek is mapped as the Euer-Martis variant complex, 5 to 30 percent slopes (EUE) soil type. The EUE soil type is also mapped along most of the western portions of the trail alignment above Martis Valley and a small area near the southern terminus of the trail. Umpa soil types, including Umpa stony sandy loam, 30 to 50 percent slopes (UMF) and Umpa-rock outcrop complex, 2 to 30 percent slopes (UOE) are mapped along the central portion of the trail alignment. The Umpa soil types are moderately deep (less than 4 feet), well-drained, have a medium to rapid runoff potential, and moderately rapid permeability rates. These soil types are generally formed by the weathering of andesite volcanic rock. The Jorge very stony sandy loam, 30 to 50 percent slopes (JTF) is mapped along the southern section of the trail north of Northstar Drive. JTF soil types are generally deep to very deep (7 feet), well-drained, have a low to high runoff potential, moderate permeability rates, and are formed by the weathering of basaltic volcanic rock types. The Fugawee-Tahoma complex, 2 to 30 percent slopes (FTE) soil type is mapped along the southernmost portion of the trail near the Northstar Village and is generated by the weathering of basaltic volcanic rock types. FTE soil types are moderately deep (less than 3 feet), well-drained, have slow to rapid runoff potential, and moderate to very slow permeability rates with depth.

- Segment 3A – Three soil types are mapped along the Segment 3A trail alignment, including AQB, PX, and the Inville-Riverwash-Aquolls complex, 2 to 5 percent slopes (EWB). AQB soil is mapped along the western sections of the trail alignment within low-lying areas adjacent to Highway 267. The PX soil type is mapped along the central portion of the trail adjacent to the Northstar golf course. The EWB soil type is mapped along the eastern portion of the trail adjacent to the Northstar Golf Course, is well-drained, has a moderately high to high permeability rate, and is formed by river wash deposits.

- Segment 3B – Three soil types are mapped along the alignment of the Segment 3B trail, including FUE and other Kyburz variants. The FUE soil type is mapped within the northern sections of the trail alignment adjacent to Highway 267. The Kyburz-Rock Outcrop-Trojan complex, 30 to 50 percent slopes (KRF) are mapped within the central sloping portions of the trail segment. The KRF soil unit consist of moderately to very deep (greater than 5 feet), well-drained soil with medium to high erosion hazard and moderately slow permeability rates, and are formed within colluvial deposits on hillsides. The Kyburz-Rock Outcrop-Trojan complex, 2 to 30 percent slopes (KRE) is mapped within the southern portion of the trail alignment near the ridgeline leading to the parking lot. The KRE soil unit has characteristics similar to those of KRF soil types.

2.1.2 Site Geology

We reviewed the following maps pertaining to geology within the project area:

- *Geologic Map of the Chico Quadrangle, California*, by G.J. Saucedo and D.L. Wagner, California Division of Mines and Geology, 1992 (Saucedo and Wagner 1992).

- *Geologic Map of the Lake Tahoe Basin, California and Nevada,* by George J. Saucedo, California Geological Survey, 2005 (Saucedo 2005).

The geologic maps referenced above differ in scale and detail, but generally agree that the low-lying portions of the project area are underlain by alluvial and glacial deposits and the sloping portions of the project are underlain by andesitic and basaltic volcanic rock types. The scale and detail of the Saucedo (2005) geologic map provides more detail regarding the geology of the project site; therefore, the following descriptions are based on this reference.

Several geologic units are mapped within the project area (Saucedo, 2005), including alluvium (Q), alluvial fan deposits (Qf), glacial outwash deposits (Qogo), Bald Mountain olivine latite volcanic rock (Qvbm), Prosser Creek Alluvium (Qpc), and andesitic volcanic rock and flows (Mva).

The alluvium consists of unconsolidated sand, silt and gravel and the alluvial fan deposits consist of sand, gravel, and boulders; both of these units are mapped within low-lying areas throughout the project. Glacial outwash deposits consist of silt, sand, gravel, cobbles and boulders that are generally mapped within the broad and elevated valley north of the project area. Bald Mountain olivine latite generally consists of dark gray volcanic rock that forms the sloping terrain north of Martis Creek. The Prosser Creek Alluvium consists of silt, sand, gravel, cobbles and boulders and forms the low-lying terraces in the northwest portion of the project area. The andesitic volcanic rock generally consists of a mixture of volcanic flows and volcaniclastic sediments that form the sloping terrain in the southern portions of the project area.

Most of Segment 1 is mapped as being underlain by Prosser Creek Alluvium. A small portion along the southeast portion of the trail alignment adjacent to the creek is mapped as alluvium. Alluvium, Prosser Creek Alluvium, and andesitic volcanic rock and flows are mapped along the alignment of Segment 2A. Segment 3A is mapped as being underlain by alluvium, alluvial fan, glacial outwash, and Prosser Creek Alluvium. Segments 2B and 3B are mapped as being underlain by andesitic volcanic rock and flows.

Based on the results of our surface reconnaissance, we generally concur with the geologic units mapped by Saucedo (2005), with the exception of the Prosser Creek Alluvium mapped along the western portions of Segment 1. Volcanic rock cobbles and boulders were observed on the ground surface throughout the central portion of Segment 1, which indicates that this portion of the trail alignment may be underlain by Bald Mountain volcanic rock (Qvbm) rather than Prosser Creek Alluvium (Qpc).

The referenced geologic maps show several active and potentially active faults located near the project area, including a group of unnamed faults southeast of Truckee (potentially active to active, located approximately 1.0 to 2.0 miles west of the site); the Dog Valley Fault (active, approximately 8 miles northwest); the Polaris Fault (active, approximately 2 miles northeast); the West Lake Tahoe Fault (active, approximately 14 miles south); and the North Tahoe Fault (active, approximately 9.5 miles southeast). The Genoa Fault trends in a north-south direction approximately 18 miles east of the site and is capable of very large earthquakes. Earthquakes associated with these faults may cause strong ground shaking at the project site.

Several discontinuous faults are mapped within the project area. These faults are relatively short approximately less than 100 feet to 2.5 miles long, and mapped as dashed (approximately located) or dotted (concealed). The potential hazard associated with earthquake faults involves surface rupture and strong ground motion. The unnamed discontinuous faults mapped within the immediate project area are considered inactive to potentially active and either approximately located or concealed. Segment 2A crosses a potentially active fault. All other faults crossing proposed trail alignments are considered inactive. Therefore, the potential for surface rupture crossing the trail is considered low. Earthquakes centered on regional faults in the area, such as the Genoa or West Tahoe Faults, would likely result in higher ground motion at the site than earthquakes centered on smaller faults that are mapped closer to the site.

2.1.4 Groundwater and Surface Water

The project area is located within the Martis Valley Groundwater Basin Watershed that encompasses approximately 58 square miles of land. The near-surface groundwater is a result of direct precipitation and snow melt. In addition, several springs located on the edges of Martis Valley contribute to surface water and near-surface groundwater. Seasonal saturation of near-surface soil and shallow groundwater seepage occurs in the project area during and immediately following seasonal snow melt. Low areas near creek crossings may be saturated into early- to mid-summer.

The proposed trail route will predominantly cross well-drained soil types with moderate permeability. However, soils in the low lying areas and on gentle slopes in Martis Valley have relatively low infiltration and permeability rates. Soil in these areas, particularly in areas of Aquolls and Borolls soil types, may be saturated for much of the year. Due to the already low infiltration, construction of a paved trail in these areas will not significantly increase surface runoff.

Several creeks cross the project area including Martis Creek, West Martis Creek, Middle Martis Creek and two unnamed tributaries. Martis Creek, Middle Martis Creek, and West Martis Creek are perennial streams, whereas the unnamed tributaries are ephemeral. The creeks and affiliated tributaries drain to a topographic low point near an existing concrete culvert that passes under Highway 267 near the center of Segment 3A.

2.2. Surface Reconnaissance

We performed a surface reconnaissance along Segments 1, 2A, 2B, 3A, and 3B to observe existing conditions within the project area. The following section provides descriptions of our observations along each of the proposed trail segments.

2.2.1 Segment 1

The trail will extend along the west shoulder of an existing paved roadway between Stations 0+00 and 4+00. Existing erosion control features (detention basin, rock-lined swale, and culverts) are located adjacent to the proposed trail alignment between Stations 0+00 and 2+00. Loose granular soil was observed between Stations 7+00 and 19+00, and 22+00 to 31+00. The proposed trail will travel adjacent to and cross areas containing Plumas ivesia between Stations 42+00 to 64+00 and 79+00 to 82+00; and near Station 94+00. Plumas ivesia is a small flowering perennial herb that grows in Martis Valley and is considered rare and potentially endangered. Plumas ivesia appears to be associated with near-surface saturated soil. We observed poorly drained bare soil within areas containing Plumas ivesia and along sections containing volcanic cobbles and boulders over much of Segment 1. Steep slopes containing volcanic cobbles and boulders were observed between Stations 73+00 and 81+00. The trail crosses a wide drainage at Station 14+00 and incised channels at Stations 48+00 and 58+00. The small stream channel located in the meadow area west of the trail appears to be incised or trenched into the meadow surface. The incision is possibly due to increased runoff from roads or other areas upstream or a result of upstream culverts.

2.2.2 Segment 2A

An existing 8-inch diameter culvert crosses under the existing trail at Station 107+00 and channel erosion was observed downstream from the culvert. Plumas ivesia is located near Stations 107+00 and 109+00. Volcanic rock is exposed at the ground surface between Stations 127+00 and 128+00. A former borrow pit is located west of the proposed trail in this area and drainage may have been modified in this area. Eroded soil was observed in this area leading to Martis Creek. An existing wooden plank crosses over Martis Creek between Stations 129+00 and 130+00 and channel erosion was observed near this crossing. The trail will extend along sloping terrain above and adjacent to a tributary of Martis Creek between Stations 145+00 and 151+00. An existing pedestrian bridge designated as “Jake’s Bridge” is located at Station 152+00 crossing the tributary. Surface erosion along the banks of the creek crossing were observed.

2.2.3 Segment 2B

This trail segment will follow the slope contour up moderately steep terrain through a conifer forest between Jake’s Bridge and the bus loop at Northstar Village. Erosion rills were observed on the existing slopes over much of the existing trail. An existing culvert was observed at Station 29+00 and the bank below and downslope of the trail crossing was eroded. The channel appears scoured both upstream and downstream of the culvert. Volcanic rock outcrops and boulders were observed along the ground surface within steep terrain between Stations 50+00 and 122+00. Eroded soil was observed along the cut banks where the existing trail traversed steep terrain. Wide drainage areas were observed at Stations 96+00 and 104+00 that contained minor erosion rills. An 18-inch diameter culvert crosses beneath the existing trail near Station 117+00. The trail travels adjacent to an existing detention basin between Stations 126+00 and 128+00. An 18-inch diameter culvert crosses beneath the intersection of Northstar Drive and a paved access road near Station 126+00.

2.2.4 Segment 3A

Trail Segment 3A generally parallels Highway 267 within the meadow area of Martis Valley. The proposed trail follows an existing trail and is close to the highway at the eastern end of the segment. Erosion rills and gullies were observed along the eastern portion of this trail segment adjacent to Highway 267 (Stations 49+00 to 54+00). Concentrated surface water from Highway 267 with high sediment loads runs into meadow in this area of Martis Valley and significantly impacts the vegetation and water quality. A small amount of standing water was observed in an existing drainage ditch adjacent to Highway 267 between Stations 4+00 and 14+00. A concrete culvert extends beneath Highway 267 near Station 29+00 and a detention basin is located between the trail and Highway 267 near Station 22+00. We observed a channel on the south side of the proposed trail between Stations 30+00 and 34+00 that has eroded the existing trail towards the east side of the existing pedestrian bridge. Boulder riprap has been placed in places along the roadway embankment between the trail and Highway 267 near Stations 35+00 and 37+00. An existing 24-inch diameter culvert crosses under the access road at Station 48+00 and erosion was observed from roadway runoff in this area.

2.2.5 Segment 3B

The soil type generally exposed along most of this trail consists of granular soil with scattered volcanic cobbles and boulders. Localized erosion rills were observed within the existing trail between Stations 109+00 to 131+00. The northern terminus of this trail will extend along the western shoulder of an existing access road adjacent to the Northstar golf course that may contain existing fill. Erosion rills were observed on the cut slope below Stations 64+00 to 66+00. Sheet erosion from Highway 267 was observed on the ground surface above an existing culvert at Station 56+00.

3. CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and preliminary geotechnical engineering recommendations are based on our understanding of the project as currently proposed, our field observations, literature review, the engineering analysis, and our experience in the project area.

3.1 LID Management Measures for Surface and Subsurface Drainage and Water Quality Protection

Much of Martis Valley and the surface water flow have been significantly impacted by barrow pits used for Martis Dam construction and road construction. Concentrated surface water from Highway 267 with high sediment load runs into meadow areas of Martis Valley and significantly impacts the vegetation and water quality. Drainage control structures, such as culverts for the existing dirt roads, have concentrated surface water flow, often resulting in localized erosion. Given these existing drainage problems, there are many opportunities for restoration and habitat improvement in Martis Valley along the proposed trail alignment.

To help protect water quality and habitat trail design and construction should use low impact development (LID) techniques. LID is a storm water management and land development strategy applied at the parcel scale that emphasizes conservation and use of on-site features integrated with engineered and small scale hydrologic controls to more closely mimic the natural hydrologic function.

We developed four preliminary generalized cross-sections and a culvert under drain using LID design strategies for the proposed trail segments (see Figures 3, 4, and 5). The preliminary designs incorporate LID strategies to control surface and near-surface water drainage to help provide water quality protection. The generalized drawings reflect different standard designs based on surface features and soil types we observed on each of the trail segments during our assessment.

In general, we recommend a minimum pavement section of 2.5 inches of asphalt concrete (AC) on 6 inches of Class II aggregate base (AB). In areas where the pavement section is underlain by a minimum 6-inch thick layer of ¾-inch diameter crushed gravel, the AB may be reduced to 4 inches thick. A non-woven filter fabric, such as Mirafi 140N or equivalent, should be placed between the AB and crushed gravel. The upper 6 inches of native soil should be compacted to at least of 95 percent of the maximum dry density per ASTM D1557 prior to placing the crushed gravel. Aggregate base and crushed gravel should also be compacted to a minimum of 95 percent.

The standard LID design sections provide infiltration along both shoulders and under the proposed trail, as shown on Figures 3 and 4. In general, surface water along the proposed trail should not be collected and discharged at points. The trail should slope to one side or be crowned so that all runoff should be continuously infiltrated at the shoulder of the trail. Water should not be collected in ditches or curbs to be discharged at points. LID strategy mimics natural drainage as much as possible. At small drainages and swales, the trail should be constructed with blanket drains to allow near-surface groundwater to pass under the trail without concentrating the flow. Vegetation at the side of the trail should be protected to help infiltrate and filter surface water runoff. Infiltration gravel provides retention and infiltration of surface water runoff, which helps reduce runoff volume and peak flow rates, and disconnects the flow path that would otherwise concentrate drainage. The infiltration gravel or blankets were designed using a permeability rate of 0.5 inch per hour for a one inch 20 year storm event. The infiltration gravel should be a minimum of 8 inches deep and 2 feet wide, separated from the aggregate base by a non-woven filter fabric, and filled with ¾-inch diameter crushed gravel. To help maintain gravel from migrating out of the infiltration blanket, we recommend a boulder border be placed along the outboard edge of the trenches. Boulder dimensions and embedment will vary depending on terrain and area to be infiltrated, as shown on Figures 3 and 4.

To help control subsurface water flow below trail segments that cross drainage areas subject to flooding, we recommend using blanket drains comprised of ¾-inch crushed gravel wrapped in non-woven filter fabric or Geoweb textile beneath the pavement as shown on Figure 3. The Geoweb should be a minimum of 6 inches thick and filled with drain rock to allow water to flow beneath the pavement section. A 2-inch thick layer of ¾-inch diameter crushed gravel should be placed below the Geoweb textile on prepared subgrade as discussed above.

More detailed discussions of recommended trail design for each of the proposed segments are described in the following section.

3.2 Trail Segment Conclusions and Preliminary Design Recommendations

3.2.1 Segment 1

Segment 1 follows an existing road for about 400 feet and then will follow the contour at the top of a broad terrace past Schaffer Mill Road. Loose granular soil was exposed along a wide drainage located near Station 14+00. Depending on the volume of runoff, a blanket drain trail design, as shown on Figure 3; or a culvert, as shown on Figure 5, should be installed at this location. The proposed trail segment crosses incised drainage channels near Stations 48+00 and 58+00. We recommend using blanket drains around stream crossing structures in areas that cross channels along this trail segment. The incised channels may provide an opportunity for restoration and habitat improvement.

Segment 1 is underlain by poorly drained soil between Stations 31+00 to 65+00, Stations 79+00 to 82+00, and near Stations 87+00 to 95+00. Plumas ivesia is located between Stations 42+00 and 85+00 and listed as a rare and endangered plant species by the California Native Plant Society (CNPS). The Plumas ivesia habitat is vernally mesic and generally grows in volcanic-rich soils of low permeability and poor infiltration. These soils are saturated much of the time and are relatively soft when saturated. Trail construction along portions of the trail that cross areas containing Plumas ivesia should include methods to help maintain the saturated soil conditions. Deep earthwork cuts should be avoided where possible. We recommend using the generalized trail section as shown on Figure 3 for trail segments that will be located adjacent to Plumas ivesia.
Steep eroded terrain was observed between Stations 73+00 and 78+00. We recommend considering relocating the trail either upslope or downslope to avoid the steep terrain and potential increase in erosion.

3.2.2 Segment 2A

In general, soil types observed along Segment 2A vary from poorly drained soil types subject to flooding and saturation to well-drained granular soil types on steep slopes. Plumas ivesia is located between Stations 108+00 and 110+00 and an incised channel is located below an 8-inch culvert at Station 107+00. Drainage from Station 109+00 flows along the existing trail to Station 107+00. We recommend possible realignment of the trail in this area to cross the culvert and incised channel at a 90 degree angle, install a blanket drain (Figure 5), and/or install two or more 8-inch culverts to reduce concentrated water flow and prevent further channel incision.

A boardwalk and creek overlook is proposed for where the trail crosses Martis Creek between approximate Stations 129+00 and 130+00. The approaches on both sides of the creek may require a free draining trail section such as that shown on Figure 3. Blanket drains should also be considered between approximate Stations 149+00 and 151+00 where the trail approaches and is located adjacent to and upslope of a Martis Creek tributary. A second boardwalk and creek overlook is proposed for this stream crossing.

3.2.3 Segment 2B

General soil conditions observed along Segment 2B consist of granular soil types that are well-drained, but susceptible to erosion. Trail segment 2B traverses moderate to steep terrain and contains localized areas of eroded soil. Erosion rills were observed on the ground surface across portions of the existing trail and along steep cut slopes above the existing trail. Volcanic rock outcrops were observed near Station 51+00. Rock slope protection and/or revegetation should be considered along proposed cut and fill slopes that traverse moderate to steep terrain. The proposed trail makes two switchback turns at approximate Stations 70+00 and 85+00. Drainage control and discharge will be important at these turns and may require intensive revegetation and/or infiltration structures such as trenches or vegetated swales.

The proposed trail segment crosses Northstar Drive at Station 123+00 and is then adjacent to the road for a couple of hundred feet. A detention pond is located adjacent to Stations 126+00 to 128+00 near the southern terminus of Segment 2B. Surface water drainage from the proposed trail should be controlled and infiltrated away from the detention pond and the existing drainage ditch located adjacent to Northstar Drive.

3.2.4 Segment 3A

Soil conditions along Segment 3A vary from poorly drained soil lowland types that are susceptible to flooding and saturation, to moderately well-drained soil types. The proposed trail follows the slope contour north of Martis Creek. Portions of the trail from the beginning of Segment 3A to the Middle Fork of Martis Creek are exposed to surface water sheet flow over low permeability soil. Blanket drains similar to Figure 3 or culvert under drains similar to Figure 5 should be considered at approximate Stations 4+00 and 14+00. Middle Martis Creek flows through a concrete culvert that extends below Highway 267 near Station 29+00. A bridge is proposed to cross Middle Martis Creek. As previously stated, the area along proposed Segment 3A east of Middle Martis Creek is highly impacted by surface water runoff from Highway 267. Concentrated surface water from Highway 267 with high sediment loads runs into the meadow area along Segment 3A. The proposed trail may actually provide an erosion control barrier between Highway 267 and the adjacent meadow habitat. The surface water control associated with the trail segment should be designed to capture coarse sediment and infiltrate the surface runoff. The trail could help protect and separate the meadow habitat from Highway 267. Clearly, the drainage channel would have to be designed and restored for the expected stream flow.

Channel erosion was observed within the meadow adjacent to Stations 30+00 to 34+00 and 35+00 and 37+00. We recommend restoring these areas by infiltrating surface water drainage, as shown on Figure 4.

Segment 3A receives a significant amount of surface water drainage from Highway 267 and irrigation from the Northstar Golf Course, particularly between Stations 46+00 and 56+00. Erosion rills and ponded water were observed within an existing drainage ditch located adjacent to Highway 267. Where the trail will be located adjacent to Highway 267, we recommend placing rock slope protection between the trail and existing drainage ditch to help reduce erosion and channel scour, as shown on Figure 4. Due to the relatively high velocity and volume of water, the channel may be subject to moderately severe erosion. The existing drainage ditch should be sized for the estimated run-on flow volume, partly rock lined and revegetated to help slow surface water runoff and reduce erosion. A sediment trap basin that can be easily cleaned and maintained should be constructed near the highway, upstream of most of the vegetation, to help reduce the amount of sand that is carried into the meadow area and stream channel.

3.2.5 Segment 3B

The soil types observed along Segment 3B generally consist of well-drained soil that again is susceptible to erosion. Most of Segment 3B traverses moderate to steep terrain and contains localized areas of eroded soil. Erosion rills were observed on the ground surface and within existing cut slopes at localized areas along the trail segment. Rock slope protection and/or revegetation should be considered in proposed cut and fill slopes that traverse moderate to steep terrain.

A 36-inch culvert crosses below an existing unpaved access road between Stations 56+00 and 57+00 in Segment 3B. Concrete-filled bags have been used in an attempt to stabilize the channel between the top of the culvert and access road. This area has been subject to excessive erosion. The access road at this location is topographically lower than the surrounding grade and it appears that surface water from Highway 267 is flowing down the road. Drainage improvements in this area will be needed prior to trail construction along this segment.

3.3 Temporary and Permanent Best Management Practices and Erosion Control

Based on our site observations and experience in the area, site soil will be moderately to highly susceptible to erosion, particularly on steep, unprotected slopes and in areas containing poorly drained soil types. Best management practices (BMPs) should be incorporated into the design and construction of this project. A reference regarding appropriate BMPs is the “Erosion and Sediment Control Guidelines for Developing Areas of the Sierra Foothills and Mountains”, prepared by the High Sierra Resource Conversation and Development Council, 1991. The California Regional Water Quality Control Board, Lahontan Region, Best Management Practices Plan is anther source of BMPs.

Erosion and sediment control measures can be categorized as temporary or permanent. Temporary measures should be installed to provide short-term protection until the permanent measures are installed and effective. Temporary erosion control structures are designed to slow runoff velocity and intercept suspended sediment to prevent sediment discharge from the construction area while allowing runoff to continue down gradient. Typical temporary measures include properly installed silt fences, straw wattles, sediment logs, water bars, detention basins, covering of exposed soil, channel linings, and inlet protection. Following completion of construction and planting/seeding, temporary erosion control measures may be left in place, possibly for a complete growing season. Temporary erosion control measures require regular inspection and maintenance.

The selection and sizing of a sediment barrier is dependent on slope angle, slope length, and soil type. Sediment barriers should be installed down gradient and at the edges of all disturbed areas and around topsoil and spoil piles where necessary. Sediment barriers should be placed as needed on slope contours, within small drainages, and in gently sloping swales. The unprotected slope length above each barrier should not exceed 100 feet.

Berms, waterbars and ditches should be used to divert or channel storm water runoff away from sensitive, disturbed or construction areas. Waterbars are intended to slow water traveling down a disturbed slope and divert water off disturbed soil into adjacent stable often well-vegetated areas. Where possible, interceptor ditches and waterbars should take advantage of existing terrain and vegetation to divert runoff before it reaches slopes and disturbed areas. Waterbars should be constructed above and within disturbed areas. The spacing for temporary waterbars should be as needed to divert water off the disturbed areas. Waterbars should be located adjacent to non-erodible (vegetated or rocky) receiving areas. If stable receiving areas are not present, flow energy dissipaters or “J-hook” shaped silt fences should be positioned at the waterbar outlet. In highly erodible soils, waterbar ditches should be protected by temporary lining or by decreasing waterbar spacing and length of flow line slopes.

Permanent erosion and sediment control measures may include rock slope protection (RSP), rock lined ditches and inlet/outlet protection, rock energy dissipaters, infiltration/detention basins, and vegetation. All areas disturbed by construction should be revegetated, and existing vegetation should be protected and undisturbed where possible. Revegetation should consist of native brush and grass species. Slope faces should be temporarily protected against erosion resulting from direct rain impact and melting snow using the methods described above until permanent vegetation can be established. Surface water drainage should not be directed to flow over slope faces. Interceptor (brow) ditches should be considered at the tops of slopes in order to collect and divert runoff which otherwise would flow over the slope face. The intercepted water should be discharged into natural drainage courses or into other collection and disposal structures.

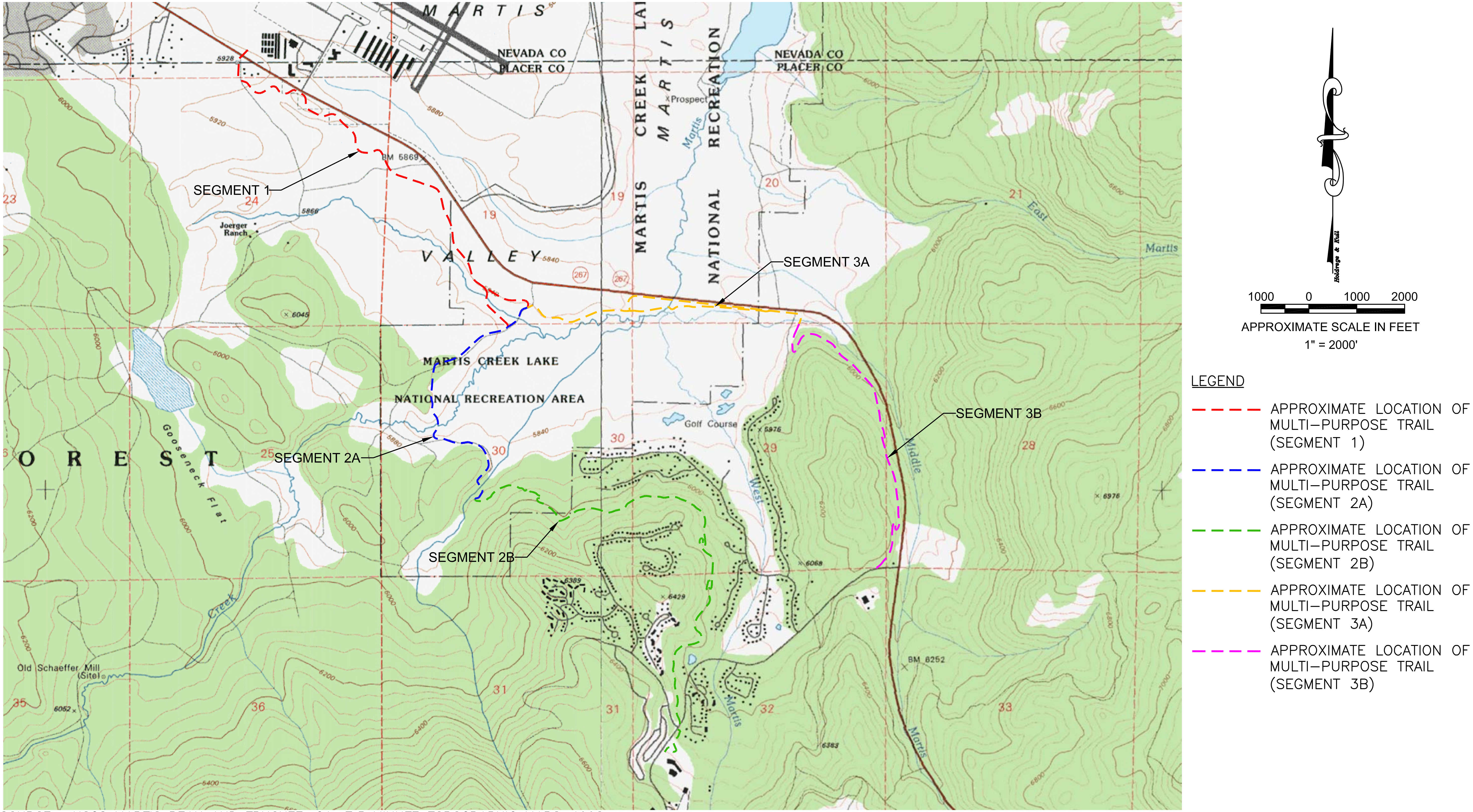
4. LIMITATIONS

The recommendations in this report are preliminary in nature. Actual subsurface conditions may vary from those described above. A full geotechnical investigation must be performed prior to construction. This report is only valid if Holdrege & Kull performs a subsurface exploration prior to or at the time of construction.

Our professional services were performed consistent with the generally accepted geotechnical engineering principles and practices employed in the site area at the time the report was prepared. No warranty, express or implied, is intended.

Our scope of services did not include evaluating the project site for the presence of hazardous materials or petroleum products. Although we did not observe evidence of hazardous materials or petroleum products at the time of our site visit, project personnel should take necessary precautions should hazardous materials be encountered during construction.

FIGURES



SOURCE: USGS MARTIS PEAK AND TRUCKEE, CA, 7.5 MINUTE TOPOGRAPHIC MAPS, 1992.

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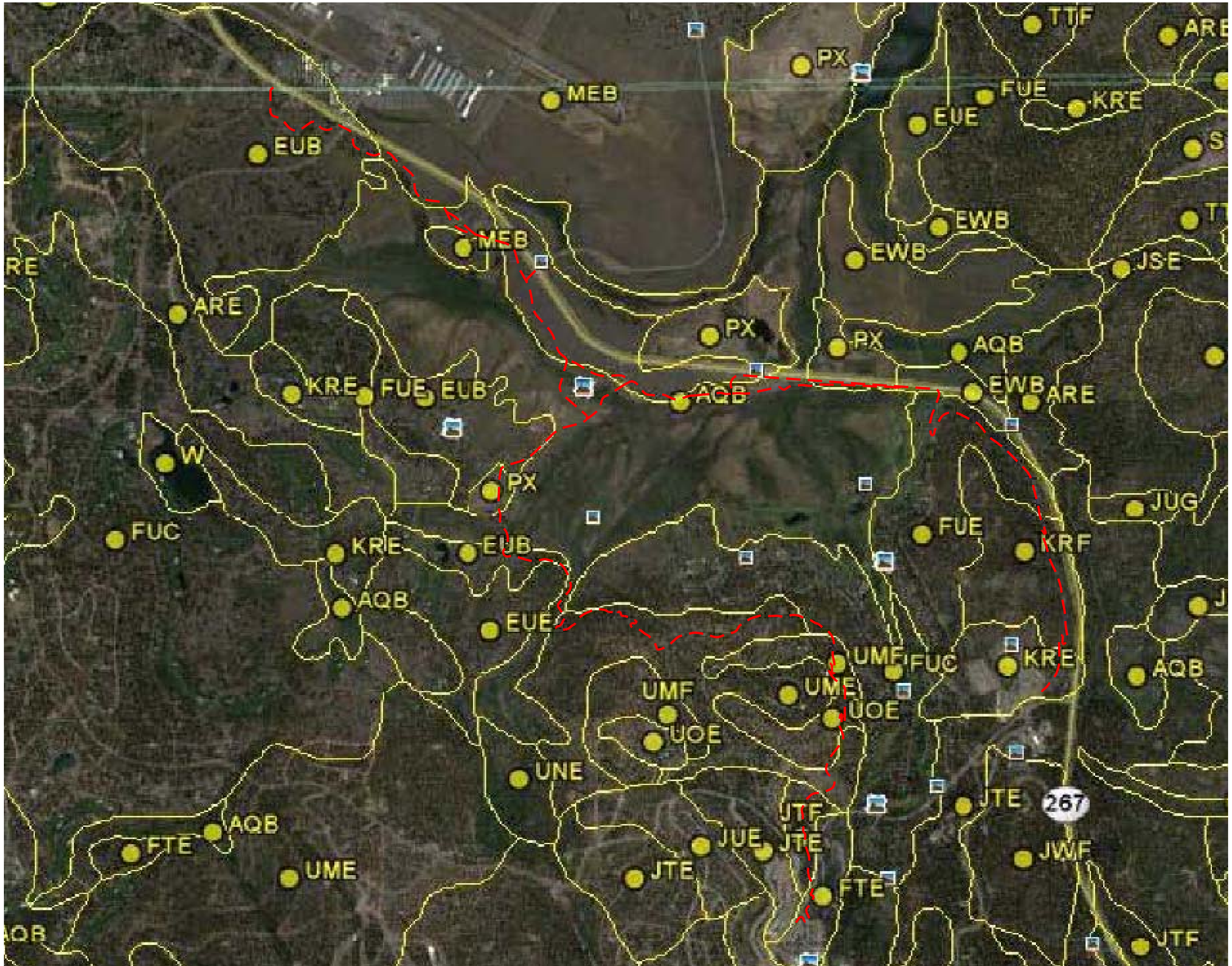
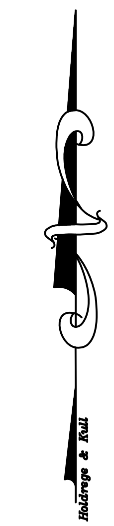
SITE VICINITY MAP
NORTHSTAR COMMUNITY SERVICES DISTRICT
MULTI–USE TRAIL PROJECT
PLACER COUNTY, CALIFORNIA

DRAWN BY: MED	CHECKED BY: JKH
PROJECT NO.: 41548–01	
DATE: JANUARY 2012	
FIGURE NO.: 1	





1000 0 1000 2000

SCALE IN FEET
1" = 2000'

LEGEND

— — —	APPROXIMATE LOCATION OF MULTI-PURPOSE TRAIL
AQB	AQUOLLS AND BORAUS, 0–5% SLOPES
EUB	EUER–MARTIS VARIANT, 2–5% SLOPES
EUE	EUER–MARTIS VARIANT COMPLEX, 5–30% SLOPES
FTE	FUGAWEE–TAHOMA COMPLEX, 2–30% SLOPES
FUC	KYBURZ–TROJAN–SIERRAVILLE COMPLEX, 2–9% SLOPES
FUE	KYBURZ–TROJAN COMPLEX, 9–30% SLOPES
JSE	JORGE–CRYUMBREPTS, WET–TAHOMA COMPLEX, 2–30% SLOPES
JTE	JORGE–TAHOMA COMPLEX, 2–30% SLOPES
JTF	JORGE VERY STONY SANDY LOAM, 30–5–% SLOPES
JUG	JORGE–RUBBLE LAND COMPLEX, 30–75% SLOPES
JWF	JORGE–WACA–TAHOMA COMPLEX, 30–50% SLOPES
KRE	KYBURZ–ROCK OUTCROP–TROJAN COMPLEX, 2–30% SLOPES
KRF	KYBURZ–ROCK OUTCROP–TROJAN COMPLEX, 30–50% SLOPES
MEB	MARTIS–EUER VARIANT COMPLEX, 2–5% SLOPES
PX	PITS, BORROW
UME	UMPA STONY SANDY LOAM, 2–30% SLOPES
UMF	UMPA STONY SANDY LOAM, 30–50% SLOPES
UOE	UMPA–ROCK OUTCROP COMPLEX, 2–30% SLOPES

SOURCES: 2011 GOOGLE IMAGE WITH NRCS SOIL MAP (IMAGERY DATE 06/14/11) AND PROPOSED TRAIL MAP PREPARED BY AUERBACH ENGINEERING.

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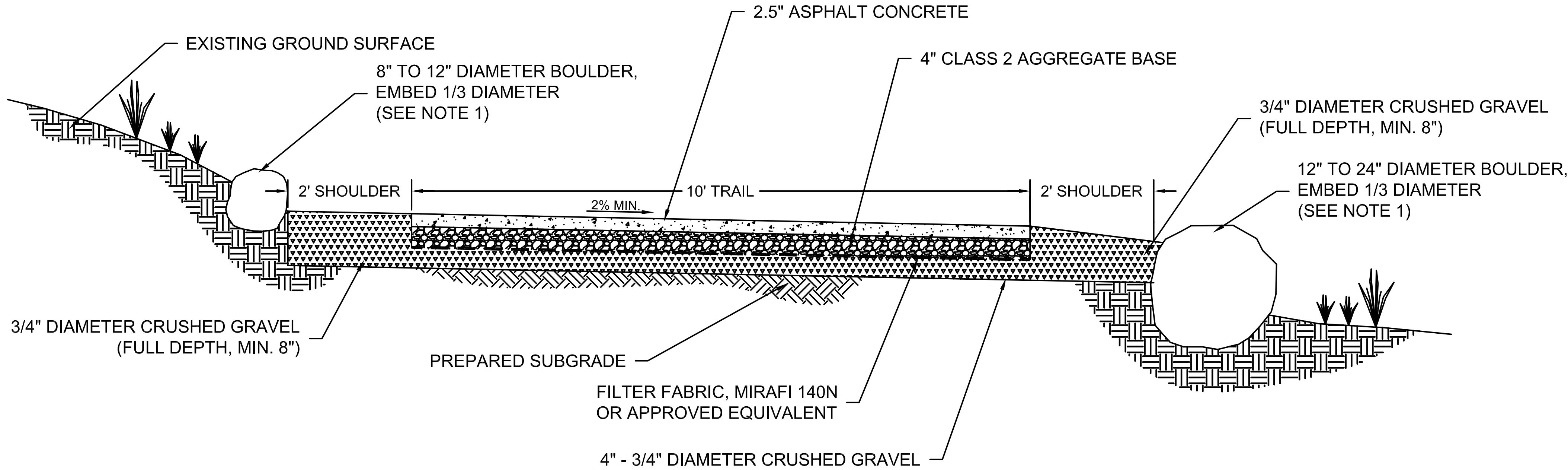
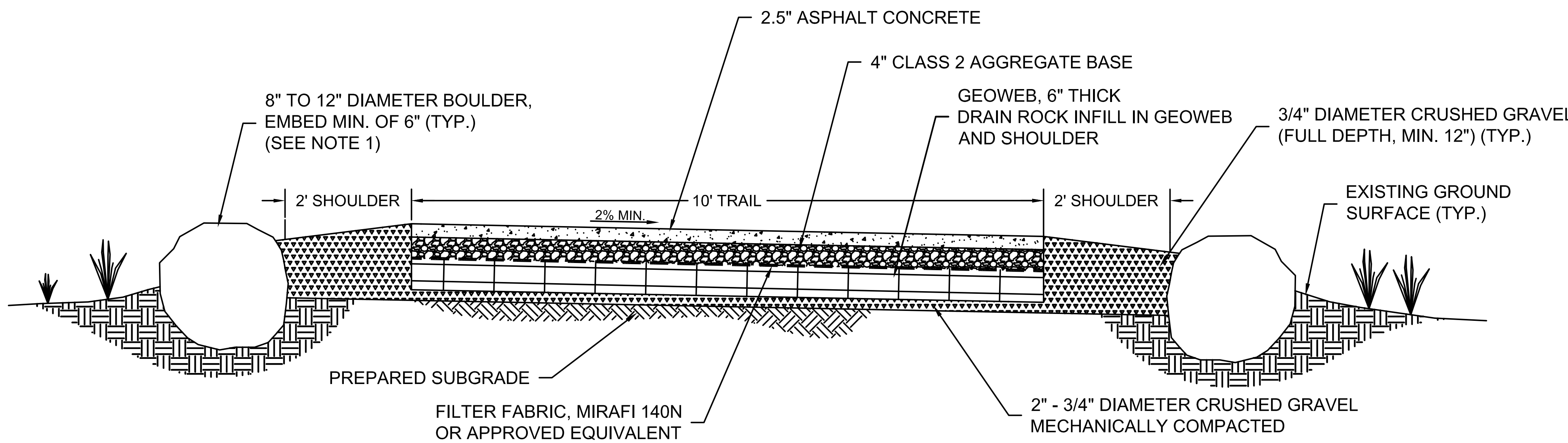
SITE SOIL MAP
NORTHSTAR COMMUNITY SERVICES DISTRICT
MULTI–USE TRAIL PROJECT
PLACER COUNTY, CALIFORNIA

DRAWN BY: MED	*CHECKED BY:* JKH
PROJECT NO.: 41548–01	
DATE: JANUARY 2012	
FIGURE NO.: 2	



A GENERALIZED SECTION AT PLUMAS IVESIA AREA

N.T.S.



B TYPICAL BLANKET DRAIN

N.T.S.

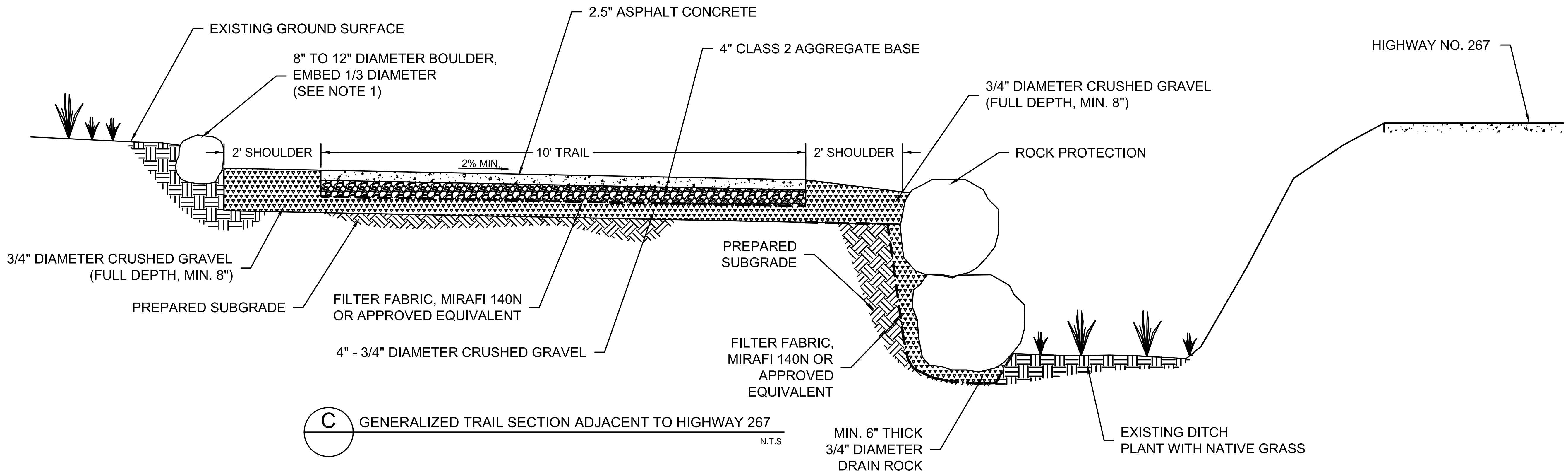
NOTES:

1. PLACE BOULDERS AS CONDITIONS REQUIRE TO MAINTAIN STABILITY OF FILL MATERIAL

HK HOLDREGE & KULL
CONSULTING ENGINEERS • GEOLOGISTS
10775 PIONEER TRAIL SUITE 213
TRUCKEE, CA 96161
(530) 587-5156 FAX 587-5196

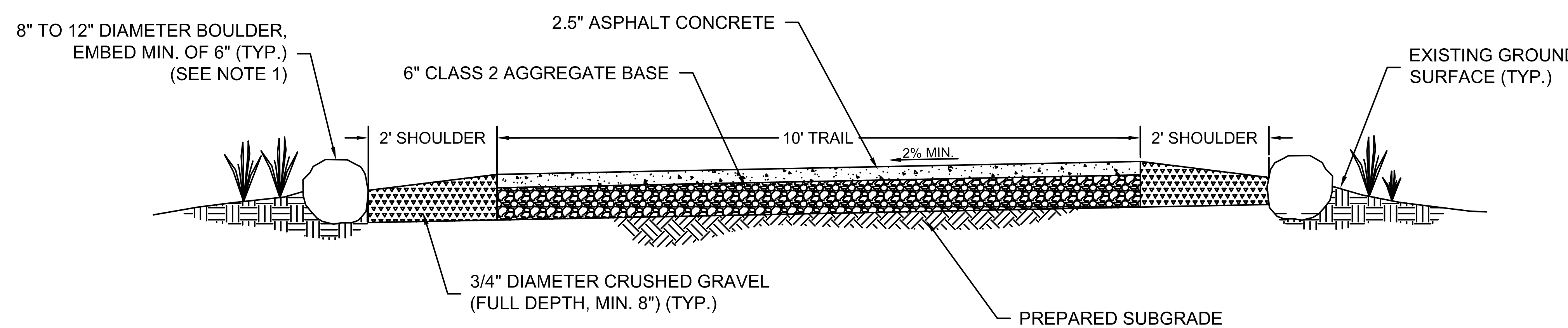
GENERALIZED TRAIL SECTIONS A & B
NORTHSTAR COMMUNITY SERVICES DISTRICT
MULTI-USE TRAIL PROJECT
PLACER COUNTY, CALIFORNIA

DRAWN BY: MED	CHECKED BY: JKH
PROJECT NO.: 41548-01	
DATE: JANUARY 2012	
FIGURE NO.: 3	



C GENERALIZED TRAIL SECTION ADJACENT TO HIGHWAY 267

N.T.S.



D GENERALIZED TRAIL SECTION ADJACENT TO RESTORATION AREAS

N.T.S.

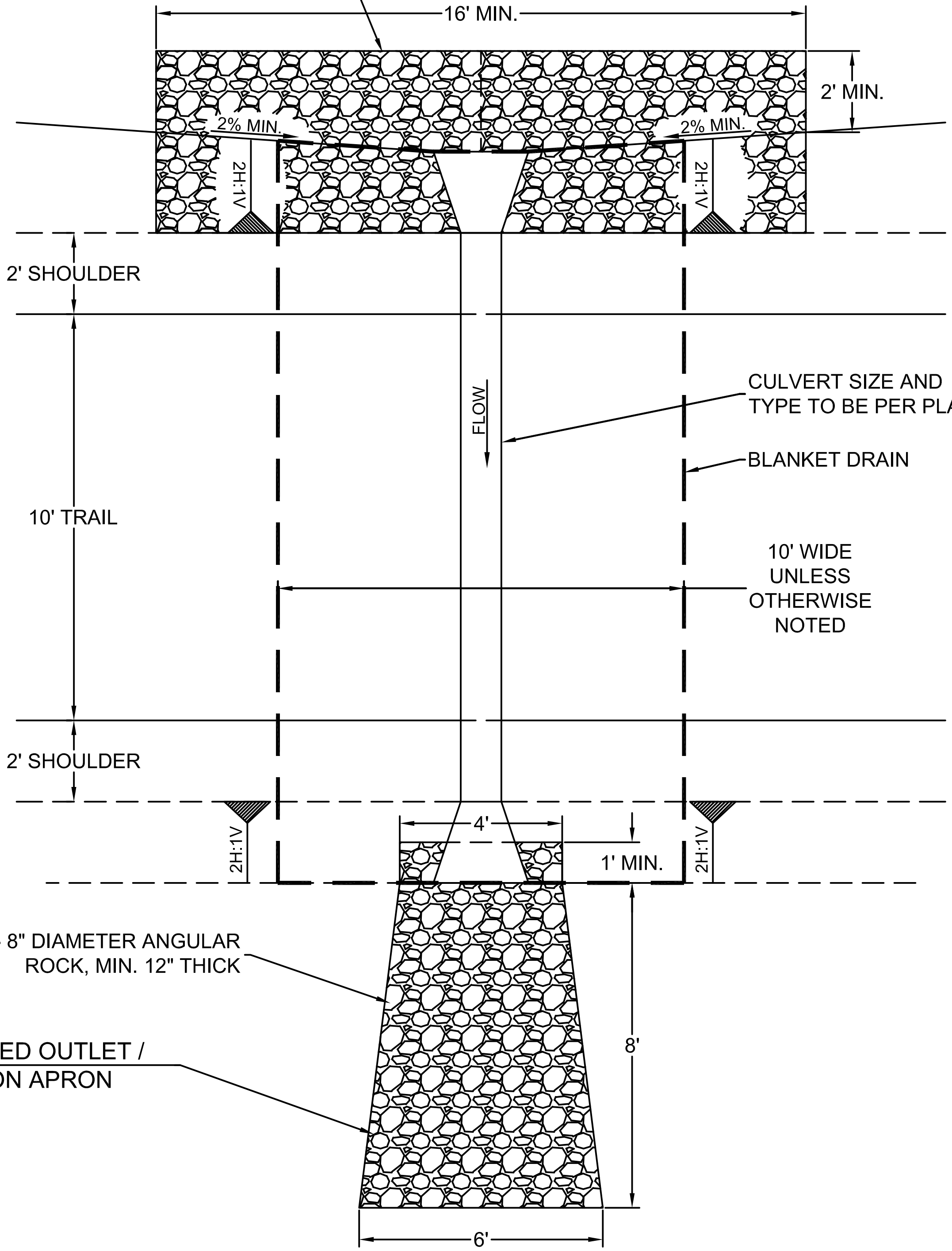
NOTES:

1. PLACE BOULDERS AS CONDITIONS REQUIRE TO MAINTAIN STABILITY OF FILL MATERIAL

HOLDREGE & KULL
CONSULTING ENGINEERS • GEOLOGISTS
10775 PIONEER TRAIL SUITE 213
TRUCKEE, CA 96161
(530) 587-5156 FAX 587-5196

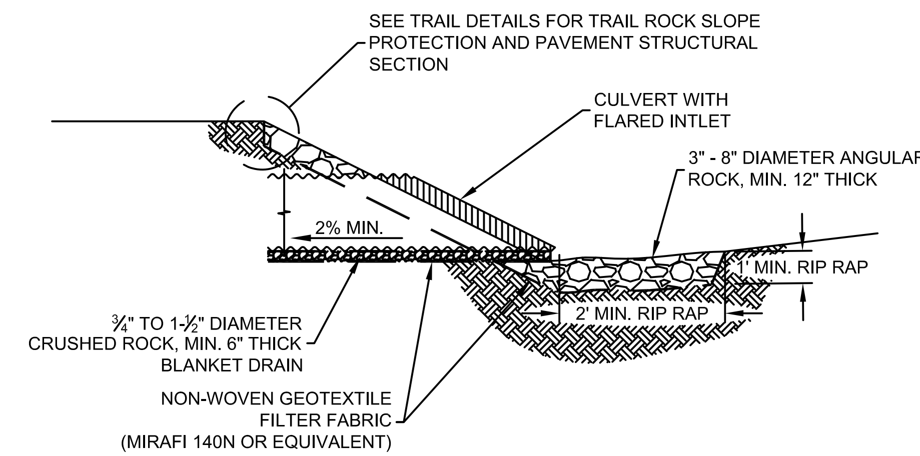
GENERALIZED TRAIL SECTIONS C & D
NORTHSTAR COMMUNITY SERVICES DISTRICT
MULTI-USE TRAIL PROJECT
PLACER COUNTY, CALIFORNIA

DRAWN BY: MED	CHECKED BY: JKH
PROJECT NO.: 41548-01	
DATE: JANUARY 2012	
FIGURE NO.: 4	



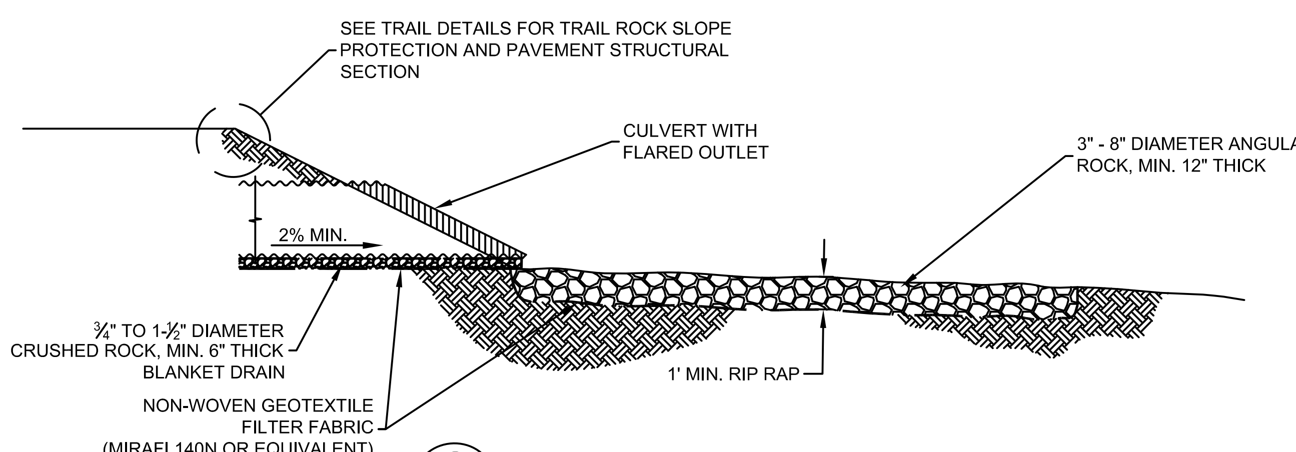
E GENERALIZED TRAIL CULVERT CROSSING

N.T.S.



F RIP RAP LINED INLET

N.T.S.



G RIP RAP LINED OUTLET / INFILTRATION APRON

N.T.S.

HOLDREGE & KULL
CONSULTING ENGINEERS • GEOLOGISTS
10775 PIONEER TRAIL SUITE 213
TRUCKEE, CA 96161
(530) 587-5156 FAX 587-5196

GENERALIZED TRAIL CULVERT CROSSING DETAILS
NORTHSTAR COMMUNITY SERVICES DISTRICT
MULTI-USE TRAIL PROJECT
PLACER COUNTY, CALIFORNIA

DRAWN BY: MED	CHECKED BY: JKH
PROJECT NO.: 41548-01	
DATE: JANUARY 2012	
FIGURE NO.: 5	

APPENDIX A Proposal

EXHIBIT"A"

HOLDREGE & KULL
CONSULTING ENGINEERS • GEOLOGISTS

Proposal No. PT09050
April 17, 2009 (Revised July 15, 2011)

Auerbach Engineering Corporation
P.O. Box 5399
Tahoe City, California 96145

Attention: Mr. Wally Auerbach

Reference: ***Northstar Community Services District Multi-Purpose Trail***
Martis Valley
Placer County, California

Subject: ***Proposal for Preliminary Soil Evaluation and Storm Water BMP Design Services***

This letter presents our proposal to provide preliminary soil evaluation and storm water (BMP) design services for the proposed Northstar Community Services District Multi-Purpose Trail project located in Truckee, California. Our original proposal, dated April 17, 2009 has been revised to reflect changes in our scope of services based on recent phone conversations with you.

The purpose of our services will be to evaluate surface and near-surface soil infiltration characteristics for design of low impact development (LID) BMP features for surface water drainage and water quality protection. Included in this proposal is a brief summary of our understanding of the project, the scope of services we can provide, and an estimate of our fees.

PROJECT DESCRIPTION

This proposal is based on conversations with you, our brief review of the Martis Valley Regional Trail Initial Study prepared by the Northstar Community Services District (NCSD), dated December 2010, and review of preliminary project plans prepared by Auerbach Engineering Corporation (AEC) dated May 25, 2011. The project will involve construction of paved multi use trail that will provide a regional connection between existing trails in the Town of Truckee and trails in the Lake Tahoe Basin. The trail will accommodate pedestrians, bicyclists, and other non-motorized transportation, and will be constructed to meet the standards of the Americans with Disabilities Act (ADA). We understand that the project is currently in a focused Environmental Impact Report (EIR) review process and that final design is not part of the scope of services needed at this time.

We understand that the project will involve constructing an approximately 9.5 mile long multi-use trail that will eventually extend from the Nevada/Placer County line near the southern Town of Truckee limit to a paved Forest Service road located near the top of a ridge adjacent to Sawmill Flat known locally as "Four Corners." Two possible alternative routes are currently under consideration for the new trail. Our scope of work will primarily involve Segments 1 through 3. The proposed trail will be constructed in multiple phases (Phases 1, 2A, 2B, 3, and 4) and will consist of a 10 foot wide asphalt concrete pathway with one to two foot wide unpaved shoulders. Two possible alternative routes are currently under consideration for the new trail. We understand that pedestrian bridges will be needed to cross over Martis Creek. However, geotechnical engineering recommendations for bridge foundation design are not needed at this time, but will be needed after the preferred trail route is selected.

ANTICIPATED CONDITIONS

In preparation of this proposal, we reviewed geologic maps and reports in our files regarding subsurface conditions in the project vicinity. Based on this information and our experience in the site area, we anticipate that several geologic units are likely present within both possible trail alignment areas and include alluvium, alluvial fan deposits, glacial outwash deposits, and andesite volcanic rock.

We anticipate that groundwater may be seasonally present near the ground surface at some locations and may affect the proposed project. We anticipate that the site can be accessed by foot.

SCOPE OF SERVICES

Review of Available Literature

Prior to our surface reconnaissance, we will review local and regional geologic maps and reports in our files from other nearby sites. We will review the National Resources Conservation Service (NRCS) Soil Survey.

Site Reconnaissance

We plan to complete a surface reconnaissance along the proposed trail routes to evaluate current surface and near-surface soil conditions. We anticipate that a topographic base map will be made available for our use during the surface reconnaissance.

Analysis and Preliminary Report

Based on the results of our literature review and surface reconnaissance, we will provide our preliminary design recommendations regarding the following:

- Anticipated soil and groundwater conditions along the trail alignments, with emphasis on how the conditions are expected to affect surface and near-surface water drainage;
- Preliminary surface and subsurface drainage and water quality protection recommendations;
- Discussion of temporary and permanent erosion control measures; and,
- Discussion of preliminary LID features for surface water drainage and water quality protection.

We will present our recommendations in a written letter report with figures showing generalized LID features. The information collected during our initial study can be used for site-specific design of LID features and further subsurface investigation and geotechnical engineering design for asphalt concrete pavement sections.

SCHEDULE AND FEES

At the present time, we can complete our surface reconnaissance within one to two weeks of your authorization to proceed. If weather, access, or site conditions restrict our field operations, we may need to revise our work scope and fee estimate. We anticipate submitting our preliminary letter report within two weeks after completion of our surface reconnaissance. If requested, we can provide preliminary and verbal information with respect to our anticipated conclusions and recommendations prior to completion of our final report.

We will provide the scope of work described above for a lump sum fee of
Billing will be monthly on a percent complete basis. Additional services beyond the scope of this proposal performed at the client's request will be billed on a time and materials basis using the fee schedule applicable at the time the services are provided.

CLOSING

Holdrege & Kull will perform its services in a manner consistent with the standard of care and skill ordinarily exercised by members of the profession practicing under similar conditions in the geographic vicinity and at the time the services will be performed. No warranty or guarantee, express or implied, is part of the services offered by this proposal. We understand that you will provide a contract agreement for our services described in this proposal.

We appreciate the opportunity to submit this proposal and look forward to working with you on this project. If you have any questions or need additional information, please contact the undersigned.

Sincerely,

Holdrege & Kull

PJ Raynak

Pamela J. Raynak, P.G.
Project Geologist

John Hudson

John K. Hudson, P.E., C.E.G.
Principal

APPENDIX C

Visual Impact Analysis

VISUAL IMPACT ANALYSIS FOR PHASE 1
OF THE
MARTIS VALLEY REGIONAL TRAIL PROJECT

PLACER COUNTY, CALIFORNIA

Prepared for:

Northstar Community Services District
908 Northstar Drive
Northstar, CA 96161

Prepared by:

north fork associates
110 Maple Street, Auburn, California 95603
(530) 887-8500

October 14, 2009

TABLE OF CONTENTS

FIGURES

VISUAL IMPACT ANALYSIS FOR PHASE 1
OF THE
MARTIS VALLEY REGIONAL TRAIL PROJECT

INTRODUCTION

This report includes an inventory of viewer and landscape setting characteristics and a description of the aesthetic effects anticipated to result from implementation of Phase 1 of the proposed Martis Valley Regional Trail Project. This aesthetics analysis has been prepared to analyze the effects of Phase 1 (Segments 1 and 2) of the proposed trail alignment, the portion of the trail currently proposed for construction, and does not provide an analysis of Phase 2 (Segments 3C, 3D, 3E, and 4) of the proposed trail or any alternatives to the proposed alignment for Phase 1 (Segments 3A and 3B).

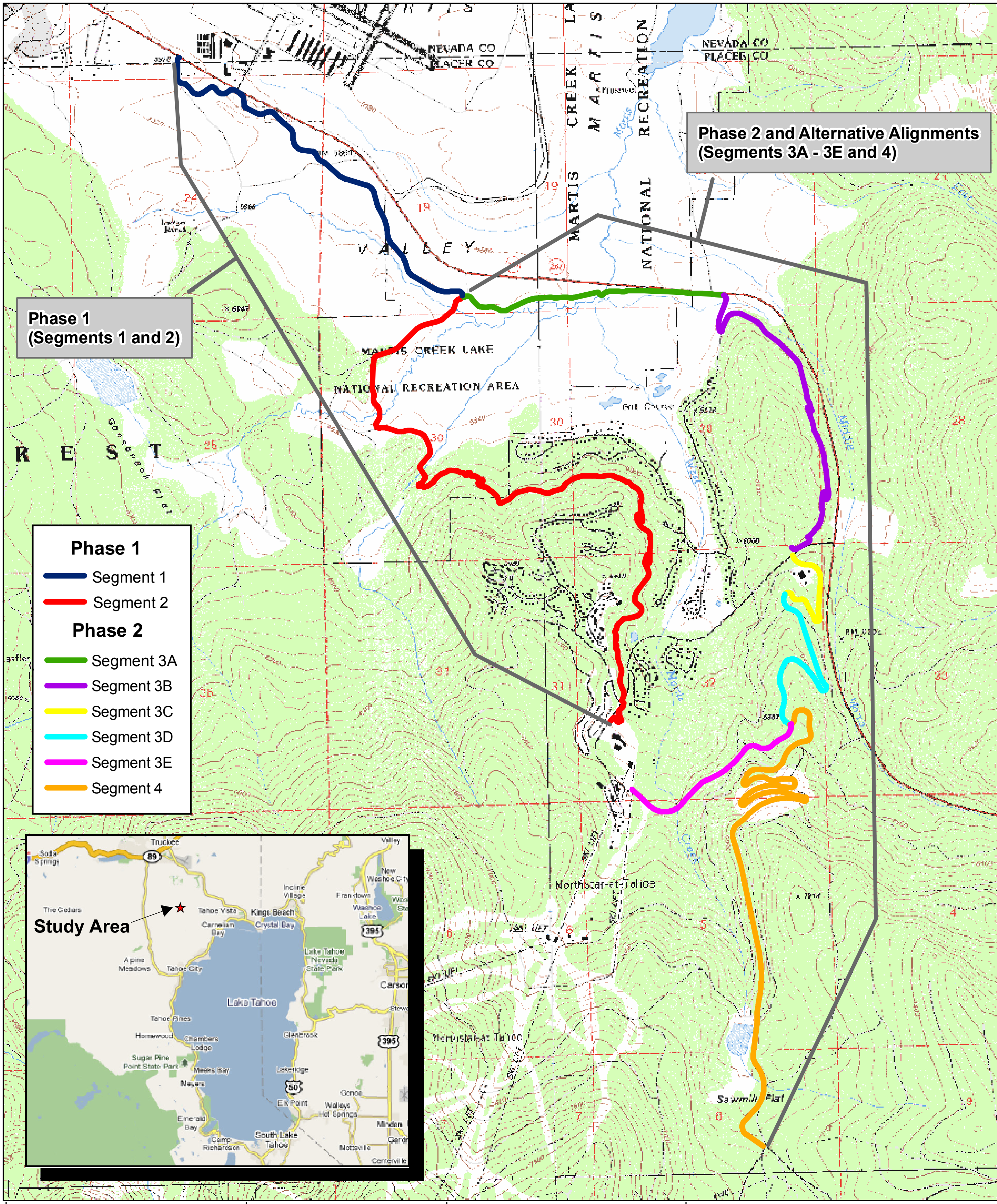
Project Location

The proposed Phase 1 Martis Valley Regional Trail alignment stretches from the eastern limits of the Town of Truckee east and south through Martis Valley to the Village at Northstar. The trail corridor is located within Townships 16N and 17N and Ranges 16E and 17E of the Truckee and Martis Peak U.S. Geological Survey 7.5 minute quadrangles. State Route (SR) 267 provides the primary vehicular access through the project area. The project area, including proposed future phases and alternative alignments, is shown on a USGS map in Figure 1. Figure 2 depicts the Phase 1 alignment, the subject of this visual impacts analysis, on an aerial photograph of the project area. Figure 2 also identifies photopoints used in this visual impacts analysis. Figures 3a – 3F are photos taken from the photopoints referenced in Figure 2. The existing Tomkins Memorial Trail (TMT) map is provided as Figure 4.

Project Description

The proposed project would construct a multiple-use paved trail from the southern limits of the Town of Truckee at the Nevada/Placer County line to the Four Corners area at Brockway Summit. The trail would provide a regional connection between existing trails in the Town of Truckee and trails in the Lake Tahoe Basin. The trail would allow for pedestrian and bicycle use, and would be constructed to meet the standards of the Americans with Disabilities Act (ADA). The maximum grade of the trail would be five percent, and the width of the trail would generally be ten feet, with two-foot unpaved shoulders on either side. Bridges would be used to span Martis Creek and one perennial tributary to Martis Creek and would be designed to be consistent in design with other wetland and stream crossing structures used on the existing TMT. The trail alignment has been located to minimize visibility and noise exposure associated with traffic traveling SR 267, by taking advantage of screening afforded by existing vegetation and topographical relief.

The Northstar CSD is proposing to construct Segments 1 and 2 of the proposed trail, Phase 1, with funding currently identified. Phase 1 would connect the Town of Truckee with the Village at Northstar and would construct a trail through Martis Valley. Segment 1 of Phase 1 travels over relatively flat terrain within Martis Valley, south of and generally parallel to SR 267. Segment 2 of Phase 1 travels south and east through Martis Valley, moving away from SR 267, and climbs into steeper terrain within the Northstar at Tahoe property. Segment 2 crosses



N

0 750 1,500 3,000

Scale in Feet

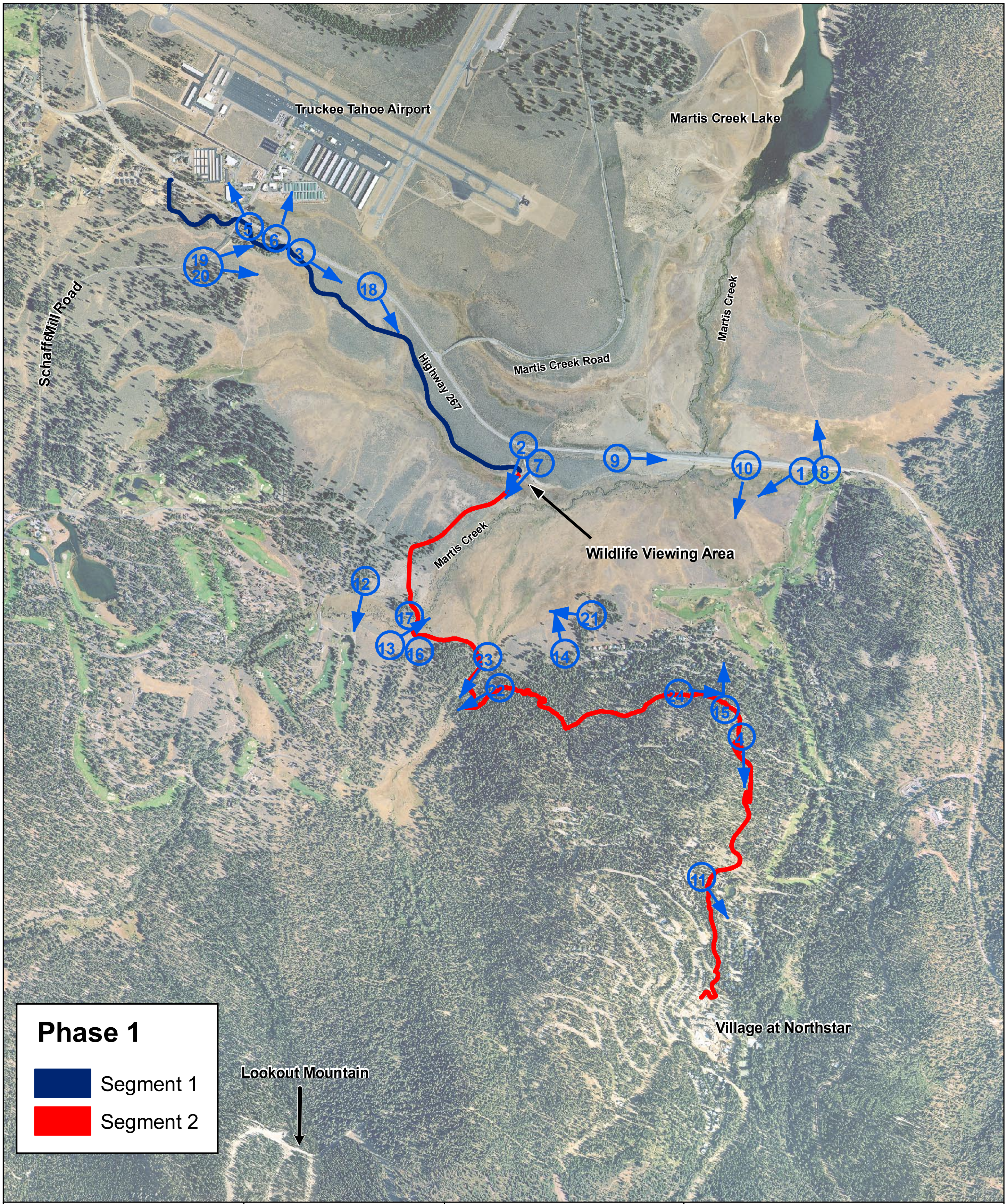
USGS Base Map:
Truckee & Martis Peak, CA
7.5 minute topographic quadrangle
Sections:
5,8,13,19,20,24,28,29,30,32,33
Township: 16N,17N
Range: 16E,17E

Figure 1

SITE & VICINITY MAP

Martis Valley Regional Trail

Placer County, California



north fork associates

N

0 500 1,000 2,000

Scale in Feet

Aerial Photo: Placer County, 2005

Figure 2

PHOTOPOINT MAP

Martis Valley Regional Trail

Placer County, California

Martis Creek and one perennial tributary to Martis Creek. To the extent possible, the proposed trail alignment has been designed to avoid sensitive natural resources, while following existing topographic contours to minimize grades, and discourage erosion from runoff on steep profiles. An effort was made to minimize new impacts by designing portions of the Segment 2 alignment to follow existing and well used unpaved trails in the valley.

Primary access from the north to the Phase 1 portion of the trail would be from existing trails and roadways within the Town of Truckee, while access from the south would be from existing trails and roadways in the Village at Northstar. The Phase 1 section of trail would also be accessible in the Martis Valley from the Martis Creek Wildlife Viewing Area.

Environmental Setting

Landscape Character

The proposed Phase 1 trail alignment is located on the eastern side of the Sierra Nevada Mountains, north of Lake Tahoe and southeast of the Town of Truckee. The topography is gently rolling to generally flat within Martis Valley, and steep outside of the valley toward the Northstar resort. Adjacent land uses include the Northstar Community (including Northstar at Tahoe golf course), Lahontan Golf Club, Truckee-Tahoe Airport, and Martis Creek Lake.

Natural Features: The proposed trail alignment crosses through four distinct habitat types, including coniferous forest, sagebrush scrub, wet meadow, and riparian. Riparian and wet meadow habitat types are hydrologically supported by several drainages that course through Martis Valley, including Martis Creek, which is the primary drainage in the valley. The floor of Martis Valley is characterized by wide and relatively flat meadows associated with Martis Creek and its tributaries. Riparian vegetation, primarily willows, occurs as a distinct feature along the meandering courses of Martis Creek and its tributaries and contrasts in color and relief with adjacent meadow vegetation (Photos 1 and 2). Sagebrush scrub vegetation is generally adjacent to and at a slightly higher elevation than meadow vegetation, occurring on flat to gently rolling topography in the vicinity of SR 267 (Photo 3). Dense, even-aged coniferous forest occupies higher elevations, dominating the slopes east and south of the valley and the terrain in the vicinity of the Village at Northstar (Photo 2 and 4). When under snow cover, the valley is characterized by flat expanses of snow distinctly contrasting with the darker conifer forest on the slopes east and south of the valley floor.

Constructed Features: Constructed features in the valley are associated with the Truckee-Tahoe Airport, office/commercial in the vicinity of Truckee-Tahoe Airport Road and Soaring Way, recreational and facilities development associated with Martis Creek Lake and Martis Creek Wildlife Viewing Area, Lahontan Golf Club and residential development, and the Northstar Community (including Northstar at Tahoe golf course, residential development, and public facilities).

SR 267, a heavily traveled two lane highway connecting Interstate 80 to SR 28 in the Lake Tahoe Basin, bisects the valley floor on a slightly elevated west-east alignment and represents a prominent constructed landscape feature through the valley (Photos 1, 3, and 9). SR 267 also represents the primary viewpoint from which the trail alignment and Martis Valley are viewed, as it provides a slightly elevated vantage point to many motorists crossing the valley daily. SR 267 is designated by the Placer County as a scenic route.

At the north end of the alignment in the vicinity of Schaffer Mill Road / Truckee-Tahoe Airport Road / SR 267 intersection, dominant constructed landscape features include office/commercial development on the north side of SR 267 where airplane hangars and rows of self-storage buildings are visually prominent (Photos 5 and 6). Ski runs in the Lookout Mountain portion of the Northstar ski area are visually prominent as a modified natural feature as linear swaths where trees have been removed. These linear swaths generally appear as an "N" shape when viewed from the valley or SR 267 to the north and are more distinct in winter as snow cover contrasts with dark hues of the conifer forest (Photo 2). While existing unpaved multi-use trails exist on the slopes south of Martis Valley, they are screened by dense forest and are not visible from the valley floor or SR 267. In the vicinity of the parking area for the Martis Creek Wildlife Viewing Area, portions of the unpaved multi-use TMT (TMT) are visible from SR 267, particularly the section leading southwest from the parking area through a bench of sagebrush scrub habitat (Photo 7). Portions of the existing TMT in the vicinity of the crossing of West Martis Creek and running along Middle Martis Creek are also visible from the highway. Snow cover obscures these portions of trail during much of winter and into spring.

Martis Creek Dam is a visually prominent feature of the landscape north of SR 267, appearing as a level and elevated embankment when not under snow cover (Photo 8). At its current level, Martis Creek Lake is not a prominent feature as viewed from SR 267 (Photo 8). When not under snow cover, the north end of the Northstar at Tahoe golf course is a prominent landscape feature at the east side of the valley at the base of the coniferous forest, as the bright green of the course contrasts with the color of natural vegetation in the valley (Photos 9 and 10). Homes situated on the south and east edge of the golf course are visible from the valley and SR 267, but are somewhat screened by mature conifers and are not considered a primary visual component of the landscape. Other constructed landscape features visible in the valley include power poles at the east end of the valley floor, fencing, and a sewer lift station building south of SR 267, just north of the Northstar at Tahoe golf course (Photo 10).

Within the Northstar Community, the constructed landscape is characterized by residential development visually screened by dense conifer forest. Near Big Springs Drive, the Northstar CSD office is visible south and east of the proposed trail alignment and is visually characterized by a parking lot, cleared area, and several smaller buildings (Photo 11). The existing unpaved multi-use trail within the Northstar Community is largely obscured by conifer forest and shrubby vegetation and is not a prominent landscape feature in the vicinity of the Northstar Community or as viewed from Northstar Drive. The existing unpaved multi-use trail is likely visible from several condominium units at the end of Gold Bend Road in the Northstar Community, although it is not considered a prominent landscape feature in this area as the view to the trail is nearly completely obscured by vegetation. In winter the trail surface is covered by snow and is not visible, although use for cross-country skiing or snowshoe recreation may be evident as tracks in the snow.

Regional Features: Long range views within the region include Castle Peak and the Sierra Nevada crest to the west. Martis Peak and other mountain peaks surrounding the Lake Tahoe Basin are visible generally east of the valley.

Existing Trail Facilities

The proposed trail would follow an alignment similar to the existing TMT from the Wildlife Viewing Area parking lot south into the Northstar Community to the Village at Northstar. The existing trail alignment crosses Martis Creek on an elevated pathway (Pappe's Bridge) in a location allowing views directly up the easternmost fairway of the Lahontan Golf Course (Photo 12). The views from the existing trail system in the valley are dominated by near-distant views to meadow areas associated with Martis Creek and its tributaries, broken up by linear riparian shrub vegetation following the course of the streams. The Northstar at Tahoe golf course is a prominent element along the portion of the TMT adjacent to the golf course north of Basque Drive (see Figure 4). While the raised alignment of SR 267 is visible from many portions of the existing trail system in the valley, the surface of the road is rarely visible and the road surface is not a primary visual component of the landscape as viewed from the existing trail system (Photos 13 and 14). However, cars traveling the roadway are visible and are distinct in the landscape, particularly along the portion of the existing trail that runs just south of the highway east of the Wildlife Viewing Area parking lot. As the existing trail climbs toward Northstar, views to the valley are obstructed or filtered by conifer forest. In places where views to the valley are possible, views are characterized by meadow features and Martis Creek Lake (Photo 15).

Guidance Documents

Several planning documents have been prepared to provide guidance for development and management of Martis Valley. These include Placer County documents, including the 2003 Martis Valley Community Plan and the 1994 Placer County General Plan that govern development of lands in the valley under County jurisdiction, including portions of Segment 1 of the trail alignment south of the Town of Truckee and the southern portion of Segment 2 of the trail alignment within the Northstar Community. The 1977 Martis Creek Lake Master Plan prepared by the U.S. Army Corps of Engineers governs development and use of the federally owned lands north and south of SR 267 associated with Martis Creek Lake and the Wildlife Viewing Area, through which portions of Segments 1 and 2 of the trail alignment pass. These documents were reviewed to identify policies and guidelines pertinent to the analysis of visual impacts of the proposed trail. A summary of the applicable portions of each document is provided below.

Martis Valley Community Plan

Section I.E "Major Plan Area Findings" of the Martis Valley Community Plan (MVCP) states:

> *The visual quality of the Martis Valley Community Plan area has a profound effect on the vitality of the local economy and the quality of life for residents and visitors. While virtually the entire valley could be classified as moderately to highly scenic, there remains the potential to accommodate substantial development, including recreational uses, without significant negative impacts on the visual quality of the Martis Valley.*
>
> *Any development within the open meadow and sagebrush flats of the Martis Valley visible from SR267, must be considered very carefully. This area cannot support and the Plan does not allow any new residential or commercial development (structures)... Construction of roads and trails within the*

open valley or even recreational uses could result in substantial visual impacts and such facilities, although permitted, should be carefully sited.

Section IV "Community Design" of the MVCP identifies three goals for the preservation of aesthetic values of the Martis Valley and includes 25 policies and two implementation programs to facilitate meeting these goals. Implementation programs require that proposed development projects be reviewed for consistency with Section IV of the MVCP, as well as the County's Design and Landscape Design Guidelines and also designate SR 267, Schaffer Mill Road, and Northstar Drive as scenic routes. Policies included in Section IV of the MVCP that would be applicable to visual and design aspects of the proposed project include Policies 4.A.4(c, d), 4.B.1, 4.B.2, 4.B.6(d), 4.B.7, 4.B.8, 4.C.1, and 4.C.2. These policies include provisions requiring that new development be designed to fit and blend with the natural terrain, maintain the character and visual quality of the area, minimize grading, minimize visibility of graded areas, minimize erosion from trails and paths, and use natural landforms and vegetation for screening. Policy 4.C.1 designates SR 267, Schaffer Mill Road, and Northstar Drive as scenic routes. (None of these routes are designated State scenic highways.) Policy 4.C.2 requires the County to protect and enhance scenic corridors by implementing the design review process in regulation of the design and placement of signs and use of vegetative screening. Figure 3 of Section VII of the MVCP "Recreation and Trails" identifies the Wildlife Viewing Area parking lot as a Scenic Overlook.

Section IV of the MVCP also includes Design Guidelines for specific sub-areas of the plan area. Design Guidelines for recreational uses within the Northstar at Tahoe Community call for trail construction to include "minimal grading or disturbance of the natural terrain." These Design Guidelines state that recreational development may include various improvements "compatible with the natural setting and a year-round resort community."

Placer County General Plan

The 1994 Placer County General Plan Land Use Element contains policies to ensure protection of visual and scenic resources that echo or duplicate those contained in the MVCP. Policy 1.L.7 specifically applies to scenic corridors and states that the County "shall encourage the use of bicycles as an alternative mode of travel for recreational purposes in scenic corridors."

Martis Creek Lake Master Plan

The 1977 Martis Creek Lake Master Plan was prepared by the U.S. Army Corps of Engineers to guide management and development for Corps-owned property in the Martis Valley, including Martis Creek Lake and the large meadow area south of SR 267 accessed from the Wildlife Viewing Area. The Master Plan identifies the area south of SR 267 as a wildlife management area "for the protection and improvement of wildlife habitat" and assigns it a land use category of "Operations: wildlife management." The plan contemplates a "nature interpretive" trail system within the area, stating that "intensive recreation would cause habitat loss." The plan includes resource use objectives for the plan area. The plan states that these objectives "reflect the policy of the Chief of Engineers to provide the public with safe, healthful, and varied opportunities for outdoor recreation and to protect, enhance, and manage all project resources." Resource use objectives identified include providing quality outdoor recreation opportunities for a variety of activities, establishing and maintaining a wildlife management area (within the area south of SR 267), and preserving the aesthetics of the area for the recreating public. Primary scenic qualities of the valley cited in the Master Plan include open grassy meadows along Martis Creek and its tributaries, sagebrush covered alluvial terraces, and densely forested hillsides, as well as distant views of "often snow-covered granite peaks…" (page 13). An example of efforts to maintain the scenic value of the area is evidenced in the plan's call for grass seeding in the fluctuation area of Martis Creek Lake to avoid visual impacts associated with exposed dead vegetation below the high water mark during times of low pool in the lake (page 37).

Impacts

Method of Analysis

The project area was assessed by surveying the existing and proposed trail alignments on foot and by bicycle, reviewing aerial photographs, and taking/reviewing site photographs. In addition, the applicable design guidelines and planning guidance documents were reviewed to identify any visual elements given special consideration by the community. Since the Martis Valley is recognized as a scenic resource within a scenic corridor, an effort was made to identify important visual elements of the existing environment in the valley and important characteristics of those elements to evaluate the significance of changes to those elements and characteristics thereof that would result from implementation of the proposed trail project.

Viewer Groups and Viewer Sensitivity

Key viewpoints and photo locations, shown in Figure 2, were chosen to represent the typical views that could be affected by the proposed project. Examples of those views are shown in photographs in Figures 3a – 3f.

Viewpoints looking toward the project site lie within "external viewsheds." The primary external viewsheds are from SR 267, as this viewshed is experienced by all motorists traveling SR 267; the viewshed from homes within the Northstar Community, particularly those on the north side of Basque Drive, the west side of Skidder Trail, and at the end of Gold Bend Road; and those views experienced by users of the existing TMT (see Figure 4 for locations of referenced roads). These views are generally characterized by meadow and riparian vegetation, SR 267, golf course greens and fairways, conifer forest, and adjacent residential development. When snow cover is present, meadow and riparian vegetation, and golf course features are not as visually prominent.

Viewpoints located along the project corridor looking outward are considered to be within the "internal viewshed." The view from the project alignment is characterized by office / commercial development at its western terminus; conifer forest and ski runs on slopes ascending from the valley; and meadow, riparian, and sagebrush scrub vegetation within the valley. Vehicles traveling SR 267, although moving, are also characteristic of the internal viewshed experienced from the trail alignment. Within the portion of the trail alignment in conifer forest, views are typically characterized by dense forest and understory forest shrubs, although adjacent residential development is visible in places.

Factors that influence the visual quality of the local landscape character include:

- The intact nature of the large meadow and linear riparian habitat on the valley floor;
- Intact long distance views west to the Sierra Crest and Castle Peak;
- Seasonal variety in views;
- Visual contrast and continuity associated with constructed and natural elements of the existing landscape;
- Presence of existing alterations of the natural aesthetic state by constructed features including SR 267 (and cars traveling the highway), office / commercial development, golf courses, trails, ski area development, power lines, Martis Creek Dam, and residential development;

When assessing the above factors with respect to the project vicinity, the visual quality of the area may be characterized as moderate in terms of vividness, intactness, and unity, since the site is largely characterized by mixed natural and constructed visual components. However, visual response to the area is considered to be high, as the meadow and valley floor is the primary and dominant visual component of the landscape and, although bisected by SR 267 and altered by Martis Creek Dam and other constructed features, remains largely intact and is a well used recreational area.

Changes to the visual environment and aesthetic character of the project area resulting from the proposed Class 1 trail were evaluated based on review of trail design information and standard criteria for construction of Class 1 trails. In particular, impacts have been evaluated in response to Appendix G of the CEQA Guidelines as it applies to evaluating project impacts to aesthetic values. Appendix G prompts for the evaluation of impacts to visual resources are provided below.

Would the proposed project:

a) Have a substantial adverse effect on a scenic vista?

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

c) Substantially degrade the existing visual character or quality of the site and its surroundings?

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Impact Analysis

a) ***Would the project have a substantial adverse effect on a scenic vista?***

Figure 3 in Section VII "Recreation and Trails" of the MVCP identifies the Wildlife Viewing Area parking lot as a Scenic Overlook. Section I.E "Major Plan Area Findings" of the MVCP identifies the valley as moderately to highly scenic, but states that recreational and other development, if carefully sited, can be accommodated within the valley without significant negative impacts on the visual quality of the valley. Section I.E specifically states that "Any development within the open meadow and sagebrush flats of the Martis Valley visible from SR 267, must be considered very carefully... Construction of roads and trails within the open valley or even recreational uses could result in substantial visual impacts and such facilities, although permitted, should be carefully sited."

While Section I.E the MVCP indicates that additional recreational uses could be accommodated without degrading the special visual qualities of the valley, it recognizes a need for careful consideration of any development, including trails, to ensure that visual impacts are kept to a minimum.

The 1977 Martis Creek Lake Master Plan prepared by the U.S. Army Corps of Engineers identifies the area south of SR 267 as a wildlife management area and includes resource use objectives for the area. Resource use objectives include preserving the aesthetics of the area for the recreating public. Primary scenic qualities of the valley cited in the Master Plan include open grassy meadows along Martis Creek and its tributaries, sagebrush covered alluvial terraces, and densely forested hillsides, as well as distant views of "often snow-covered granite peaks…"

From the Wildlife Viewing Area scenic overlook, a wide existing trail is clearly visible leading southwest across a meadow area and continuing onto a bench of sagebrush scrub. The trail remains visible until gaining slightly in elevation on a sparsely forested knoll (Photo 7). The trail in this location appears as a small dirt and gravel road and is wide enough for motor vehicle access. The light color of the bare soil and gravel surface of the trail contrasts with the appearance of the natural meadow and sagebrush vegetation in the valley and is a visually prominent constructed feature in the landscape. Other portions of the TMT along SR 267 and Martis Creek are also visible west and south of the Wildlife Viewing Area.

The proposed trail would follow the alignment of the existing gravel track leading southwest from the Wildlife Viewing Area until the proposed alignment departs from the existing path on the forested knoll, where it descends gradually, partially along an existing gravel path, to a proposed new crossing of Martis Creek (Photos 16 and 17). The proposed new crossing of Martis Creek and the proposed new trail alignment departing from the existing trail and leading south to the crossing area is screened from view by vegetation and topography and would not be visible from the Wildlife Viewing Area.

The primary viewshed from the Wildlife Viewing Area overlook is generally to the valley southwest, south, and southeast and is characterized by views of the natural valley features of meadow, riparian, conifer, and sagebrush vegetation. From the Wildlife Viewing Area, existing constructed features at the eastern edge of the valley, including the Northstar at Tahoe golf course, homes at the valley edge, the sewer lift station, and powerpoles are in the distance and do not represent prominent landscape features. Recreational use within the valley, in the form of existing trails, is evident in the view from the Wildlife Viewing Area. The proposed trail would replace the existing gravel and soil surfaced path visible from the overlook with a slightly wider path surfaced with asphalt pavement. Installation of the wider asphalt path, and the resulting visual contrast of the asphalt pavement with vegetation in the valley, would make more vivid the constructed or artificial landscape feature represented by the trail as viewed from the Wildlife Viewing Area and would alter the scenic quality of the open sagebrush terrace and meadow area. The addition of standard asphalt paving to the portion of trail visible looking southwest from the Wildlife Viewing Area, and the resulting contrast with the natural vegetation and soil substrate, would potentially degrade the view enjoyed from the Wildlife Viewing Area scenic overlook. Long distance views west to Castle Peak and the Sierra Crest would not be affected by the proposed trail.

Recommendation

It is recommended that natural or earth tone surfacing be used for this portion of the trail, as determined appropriate to minimize contrast with the natural colors of the vegetation and soils of the valley (concrete could be mixed to match the tone of the dominant sagebrush or natural soil color along this section). Colored concrete or equivalent, mixed to a color determined to be appropriate by a landscape architect, is recommended to retain the current aesthetic values enjoyed by viewers from the Wildlife Viewing Area. The color and material proposed for surfacing the trail would be subject to review and approval by the U.S. Army Corps of Engineers, as this section of trail is on federal lands. Use of pavement colored to blend with the existing vegetation or soils that characterize the natural meadow and sagebrush visual component of the valley as viewed from the overlook would ensure that the contrast in pavement and the addition of this constructed feature would result in no substantial impact in the view of Martis Valley enjoyed from the Wildlife Viewing Area scenic overlook.

b) ***Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?***

The project would result in no impacts to any resources adjacent to or within the viewshed of a state scenic highway. None of the roadways in the vicinity of the proposed trail are designated as state scenic highways. However, Policy 4.C.1 of the MVCP designates SR 267, Schaffer Mill Road, and Northstar Drive as scenic routes.

The view of the valley by passersby on SR 267 from west to east includes development in the vicinity of the airport (Photos 5 and 6), Martis Creek Dam to the north (Photo 8), wide expanses of sagebrush and meadow areas with trails on the valley floor and ski runs on the forested slopes above the valley (Photo 2), and golf course greens and fairways and homes at the eastern edge of the valley (Photo 10). Existing portions of the TMT recreational trail system ranging from 3 to 12 feet in width are visible to motorists traveling SR 267, particularly westbound lanes, from the entrance to the Wildlife Viewing Area west to the sewer lift station building on the south side of SR 267 at the eastern edge of the valley floor. These trails generally appear as light areas of bare soil contrasting with slightly darker surrounding vegetation (Photos 2, 7, 10). The primary view along the SR 267 corridor through Martis Valley is therefore visually characterized by the prominent natural features of the meadow and sagebrush areas, as well as by development consistent with the values and passive and active recreational pursuits of a resort community.

From SR 267, the proposed trail alignment and surface of the trail would be visible in several places where it is proposed within sagebrush areas just south of the Highway along Segment 1. Presently, no trail exists within these areas (Photos 3, 9, 18). The proposed trail would also be visible as it heads southwest from the Wildlife Viewing Area along the alignment of the existing trail, as discussed in (a) above.

The view from Schaffer Mill Road in the vicinity of the proposed trail alignment is generally characterized by meadow and sagebrush areas to the east and southeast, commercial development and residential to the north and northwest, and sparse conifer forest to the northeast. The trail alignment would be visible from northbound Schaffer Mill Road in several places both west and east of the proposed trail crossing of Schaffer Mill Road at the SR 267 / Schaffer Mill / Truckee-Tahoe Airport Road intersection. The proposed trail would potentially be most visible as it travels within the stand of trees just east of the intersection and along the sagebrush scrub adjacent to SR 267 (Photos 19 and 20).

The portion of Schaffer Mill Road from which the proposed trail would be viewable is at a lower elevation than the proposed trail through conifer forest just east of the intersection and nearly even with the more distant portion of proposed trail along SR 267, and therefore views of the trail surface would be nearly entirely obscured by vegetation. In areas where the trail would be visible, it would appear as a linear feature, as it would be viewed from the side, and would not be considered a prominent visual feature of the landscape. Slightly more of the trail surface may be visible from Schaffer Mill Road on the portion of the alignment lower than the road and west of the intersection, although the view north and northwest from Schaffer Mill Road is dominated by existing commercial and residential development and is not considered a primary viewshed within the Schaffer Mill scenic corridor. The proposed trail would result in no substantial impact to scenic views from Schaffer Mill Road.

Views from Northstar Drive in the vicinity of the trail alignment are limited by topography and dense conifer forest and are generally characterized by resort and community facilities development and short to mid-range views of conifer forest. Development on Big Springs Drive and the Northstar Community Services District and Northstar Fire Station are all located near the proposed trail alignment. An existing portion of the TMT follows an alignment similar to the proposed alignment. Views from Northstar Drive to the existing trail and the proposed trail alignment are nearly entirely screened by vegetation and topography; views to the proposed trail would be similarly screened. Impacts of the proposed trail to views from Northstar Drive would not be substantial.

Construction of the proposed multi-use trail would be visually consistent with existing resort community and recreational development, including golf courses, resort signage, existing trails, and airport development along the scenic corridors of SR 267, Schaffer Mill Road, and Northstar Drive. However, as discussed in (a) above, standard asphalt paving of the trail could visually degrade the natural visual landscape component represented by the open meadow and sagebrush area on the valley floor.

Recommendation

It is recommended that colored surfacing, as described in (a) also be used for the portion of the proposed trail west of the SR 267 / Schaffer Mill / Truckee-Tahoe Airport Road intersection to its connection with Segment 2 and on to the forested knoll southwest of the Wildlife Viewing Area. The portion of Segment 1 crossing private lands west of the Martis Creek Road intersection would require a use permit from Placer County and would be subject to review and approval by the Design Review Committee to ensure trail design, surface colors, and materials used are appropriate and would be consistent with policies and guidelines contained in the MVCP and General Plan.

Use of pavement colored to blend with the existing vegetation or soils that characterize the natural sagebrush visual component of the valley as viewed from SR 267 and implementation of the Design Review process by the County for portions of the trail under County jurisdiction would ensure that the proposed paved trail does not visually degrade the view of natural areas of the valley from SR 267.

c) ***Would the project substantially degrade the existing visual character or quality of the site and its surroundings?***

The project would construct a paved trail ten feet wide with two-foot unpaved shoulders on each side through Martis Valley and to the Village at Northstar. As discussed in (a) and (b) above, the visual character of the valley includes commercial, residential, and passive and active recreational development, in addition to natural landscape features. The proposed trail would be most visually prominent in the open meadow and sagebrush areas along 267 and leading southwest away from the Wildlife Viewing Area, since SR 267 and the Wildlife Viewing Area both represent primary viewing locations. The existing visual character and quality of the natural area of the Martis Valley is also observed by occupants of homes along the golf course, golfers, skiers at Northstar, and users of the existing TMT trail system. Visual impacts to these viewer groups are discussed in this section.

Views west and northwest to the area of the proposed trail alignment are distant from areas on the east side of the valley floor, including residences, the golf course, and portions of the TMT on the east side of the valley (Photos 1, 14, 21). The primary constructed features visible from within the trail system and areas on the east side of the valley floor are the road surface leading off of SR 267 to the Wildlife Viewing Area and the raised alignment of SR 267, although the surface of SR 267 is not visible (Photos 13, 14). Existing trails within the valley are partially to fully screened by topography and vegetation from most viewing areas within and adjacent to the valley. The area of the proposed new crossing of Martis Creek along Segment 2 is obscured by topography and dense vegetation and would not be visually prominent from any substantial distance (Photos 16, 17, 21). It is noted that there is an existing use path at the proposed crossing (Photo 16). The proposed new crossing of Martis Creek will place the proposed trail in a location that will screen it from views of and from Lahontan golf course (the existing TMT trail alignment allows for views directly to and from the trail to a fairway on the golf course (Photo 12)).

The proposed new crossing of the perennial stream that is tributary to Martis Creek would also be well screened by vegetation and would not be a significant visual element except in the immediate vicinity of the crossing (Photos 22 and 23). Hillside portions of existing trails are entirely obscured by conifer forest and are not visible from the valley. While some trees will be removed and small retaining walls will be built to construct the trail, it is unlikely that trees or retaining walls will be visible from the valley floor. The proposed trail would be consistent with existing visual elements associated with recreational and resort uses in and around the valley and would result in less than significant impacts to the existing visual character or quality of the site presently experienced by viewers in and adjacent to the valley.

Views to the existing portions of the TMT within the Northstar Community are nearly entirely obscured by conifers or shrubby vegetation in most places. The proposed alignment will follow a similar alignment to the existing TMT and will travel through dense conifer forest. Similar to the existing trail, the proposed trail will be mostly obscured by understory vegetation and conifer forest (Photos 4, 24). The proposed trail would be visually consistent with other recreational and resort development within the Northstar Community. The proposed trail would result in no substantial impacts to the existing visual character or quality of the site presently experienced by viewers in and around the Northstar Community.

d) ***Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?***

No lighting is proposed as part of the trail project. The proposed trail would be constructed using non-reflective materials and finishes for the surface of the pathway and retaining wall surfaces. Any reflective striping used for pathway markings would not result in substantial glare or adversely affect day or nighttime views in the area. Signage would be designed to be consistent with existing signs used for the TMT and would be subject to the County's Design Review process and approval by the Corps of Engineers for portions of the trail on federal lands. Impacts resulting from glare or addition of lighting would not be substantial.

Photo 1 – Looking west from Highway 267 across Martis Valley.

Photo 2 – View to south across Martis Valley from the entrance to the Wildlife Viewing Area. Note ski runs on Lookout Mountain.

Photo 3 – View from Highway 267 looking east across Martis Valley.

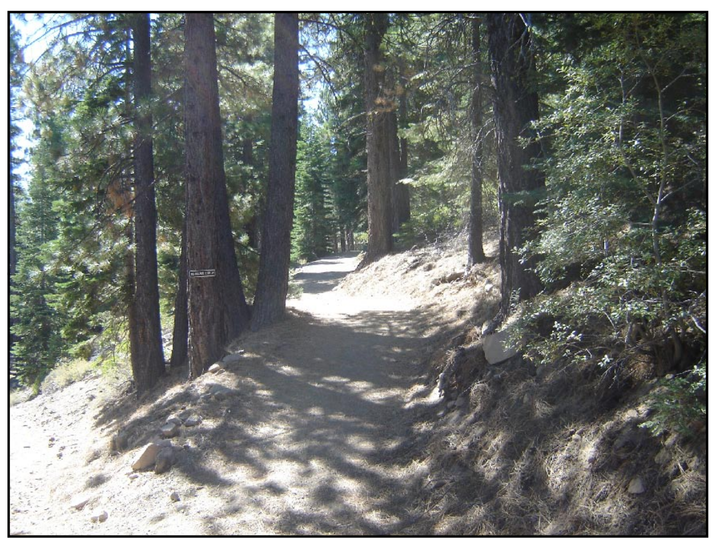


Photo 4 – Typical portion of existing trail through coniferous forest in the vicinity of the Northstar Community.

north fork associates

Photo Date: September 20, 2009

Figure 3a

Photopoints

Martis Valley Regional Trail

Placer County, California

Photo 5 – Photo looking north to commercial development at Schaffer Mill Road / SR 267 intersection.

Photo 6 – View from 267 north to self-storage facility and airport area at west side of Martis Valley.

Photo 7 – View from Highway 267 looking southwest to portion of existing Tomkins Memorial Trail through sagebrush scrub.

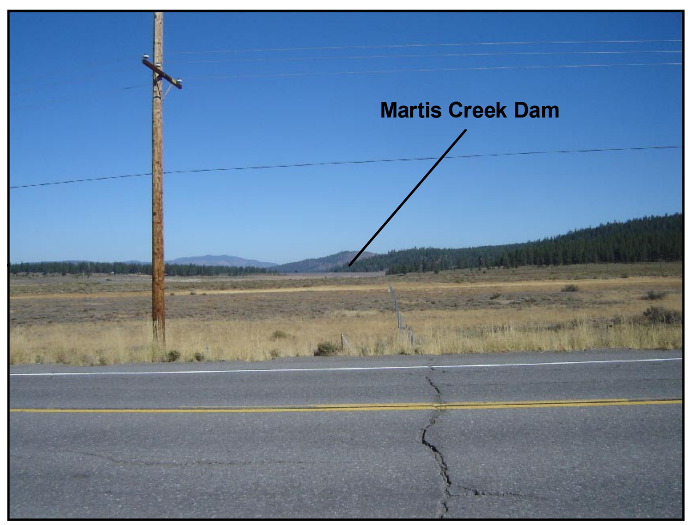


Photo 8 – Looking north from Highway 267 to Martis Creek Lake and dam.

north fork associates

Photo Date: September 20, 2009

Figure 3b

Photopoints

Martis Valley Regional Trail

Placer County, California

Photo 9 – Looking east from Highway 267 in Martis Valley near the entrance to the Wildlife Viewing Area. The Northstar at Tahoe golf course is prominent at the east side of the valley floor.

Photo 10 – View from Highway 267 southwest to Northstar at Tahoe golf course. Ski runs on Lookout Mountain, homes at the edge of the golf course, and power poles are visible. Lift station is out of picture to left. No existing trails are visible within conifer forest area.

Photo 11 – Looking southeast from existing trail to Northstar CSDand Fire Department facilities area. Trail is east and downslope from the Gold Bend Condominiums in this location.

Photo 12 – Looking south from existing Tomkins Memorial Trail to existing crossing of Martis Creek. A fairway in the Lahontan golf course is clearly visible from this location.

north fork associates

Photo Date: September 20, 2009

Figure 3c

Photopoints

Martis Valley Regional Trail

Placer County, California

Photo 13 – Looking northeast from section of existing Tomkins Memorial Trail near south of the existing crossing of Martis Creek.

Photo 14 – View looking north from the Tomkins Memorial Trail near Squeak's Bridge, west of Basque Drive. The Wildlife Viewing Area parking lot and airport development are visible.

Photo 15 – Filtered views north to Martis Valley from the existingTomkins Memorial Trail north of Martis Landing Road in the Northstar Community. Martis Lake is visible in the valley.

Photo 16 – Looking north from existing Tomkins Memorial Trail in area proposed for new crossing of Martis Creek. Forested knoll is visible at left. Meadow and riparian vegetation are visible in foreground along existing use path.

north fork associates

Photo Date: September 20, 2009

Figure 3d

Photopoints

Martis Valley Regional Trail

Placer County, California

Photo 17 – Looking northeast to area of riparian and meadow area in vicinity of proposed new crossing of Martis Creek. Existing use trail crossing is visible in this photo.

Photo 18 – View southeast from shoulder of Highway 267 toward sagebrush in area proposed for new trail.

Photo 19 – View northeast from Schaffer Mill Road to area proposed for new trail.

Photo 20 – View from Schaffer Mill Road looking east toward proposed trail alignment along Highway 267.

Photo Date: September 20, 2009

Figure 3e

Photopoints

Martis Valley Regional Trail

Placer County, California

Photo 21 – Looking west across the valley floor from existing Tomkins Memorial Trail approximately 500 feet north of Basque Drive. View is to forested knoll and riparian vegetation in area of proposed new crossing of Martis Creek.

Photo 22 – Looking west from existing Tomkins Memorial Trail to area proposed for new crossing of tributary to Martis Creek.

Photo 23 – Looking southeast from existing Tomkins Memorial Trail to area proposed for new crossing of tributary to Martis Creek. Area is characterized by dense riparian (willow) and forest vegetation.

Photo 24 – Example of dense conifer forest along TMT in Northstar Community.

north fork associates

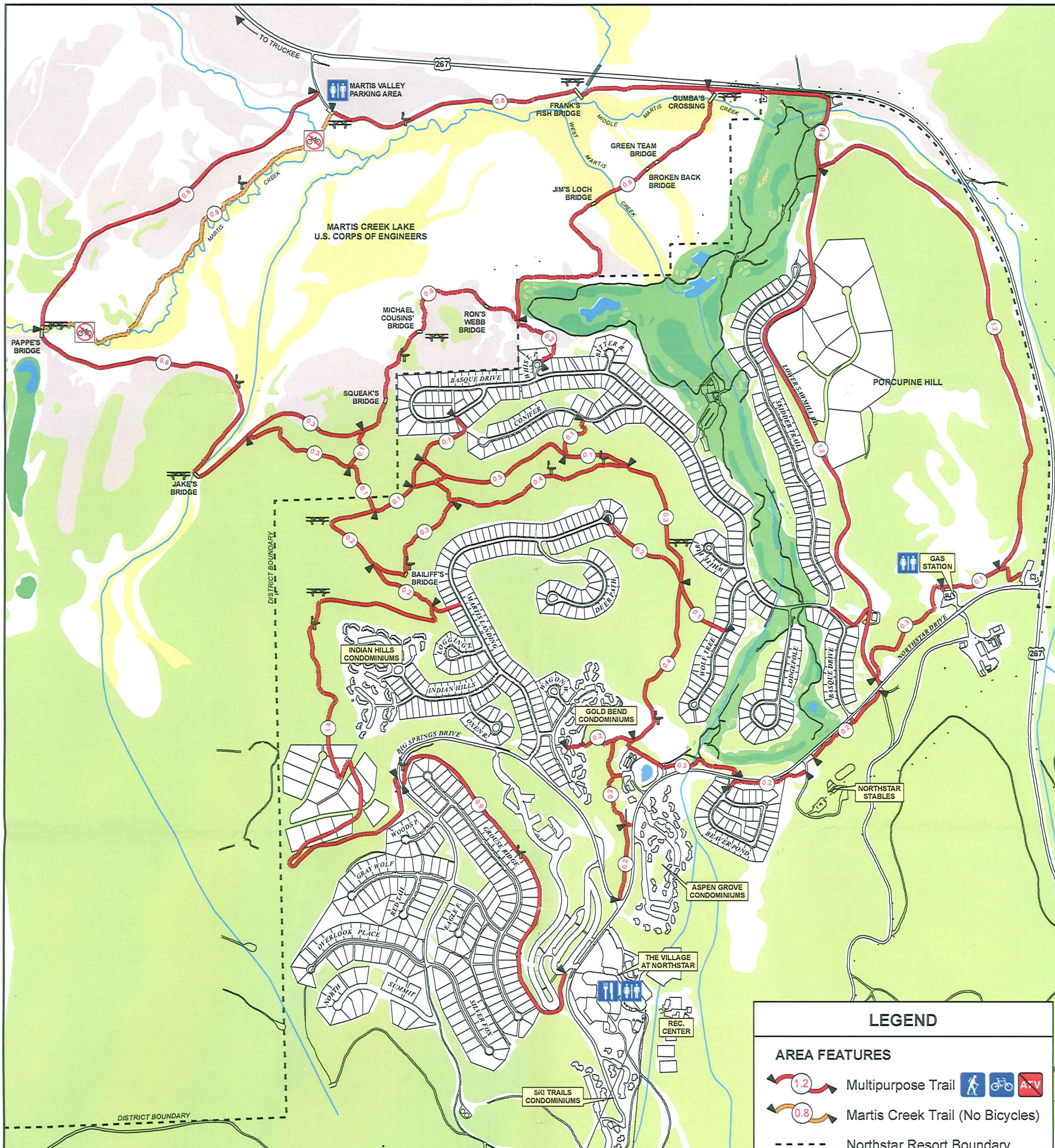
Photo Date: September 20, 2009

Figure 3f

Photopoints

Martis Valley Regional Trail

Placer County, California



The Tompkins Memorial Trail is being constructed with the cooperation of the U.S. Army Corps of Engineers, Northstar-at-Tahoe, and the Northstar Community Services District. Currently the Tompkins Memorial Trail consists of 14.6 miles of hiking, running, and biking trails.

This map was created using a Global Positioning System with sub-meter accuracy. All trail distances shown have been rounded to the nearest tenth of a mile. Trail sections without an indicated distance are less than one tenth of a mile.

U.S. State Plane NAD 1983 California Zone II 0402

TOMPKINS MEMORIAL TRAIL

Scale: 1:13,000

0 0.25 0.5 0.75 1 Kilometers

0 1,000 2,000 3,000 4,000 Feet

0 0.25 0.5 0.75 1 Miles

Produced by RET

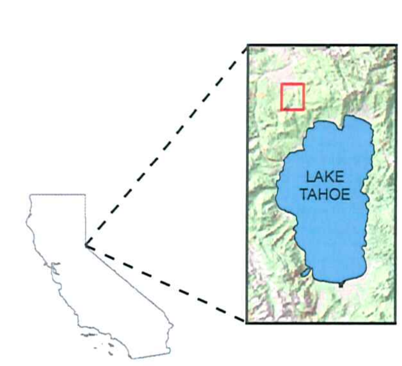


Figure 4

REFERENCES AND OTHER SOURCES

Auerbach Engineering Corporation. *Martis Valley Trail Alignment.* AutoCAD file. August 26, 2009.

Federal Highway Administration. Memorandum to Regions "Aesthetics and Visual Quality Guidance Information". August 1986.

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Placer County. *Placer County Design Guidelines Manual.* May 21, 1996.

Placer County. *Placer County General Plan*. August 1994.

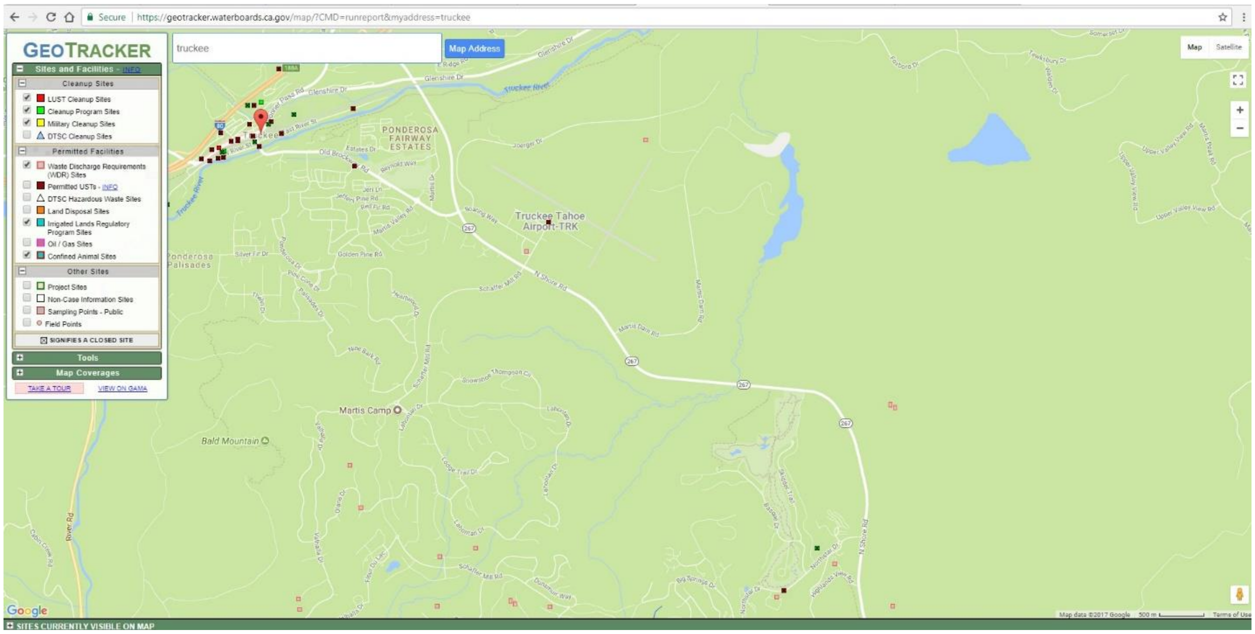
Town of Truckee. *Trails & Bikeways Master Plan.* May 2007.

U.S. Army Corps of Engineers. *Martis Creek Lake Master Plan.* November 1977.

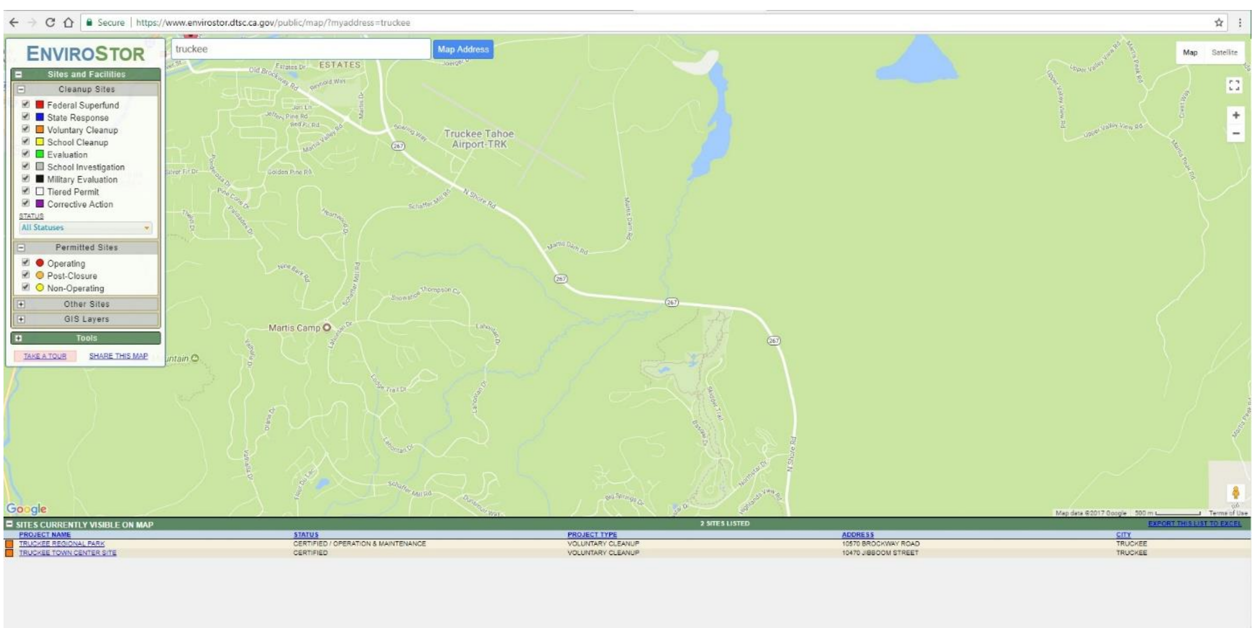
APPENDIX D

Hazardous Materials Database Searches

SRWCB. 2017. Geostracker.
https://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=truckee



DTSC. 2017. Envirostar. https://www.envirostor.dtsc.ca.gov/public/map/?myaddress=truckee



APPENDIX E
Draft MVT Public Comments Summary and Responses

During the open comment period the Corps received comments from 109 entities including the Washoe tribe. The Corps appreciates all individuals that have taken an interest in this proposed regional trail project. The table below lists the comments and Corps responses. There were 125 general comments received in support of the Paved Trail within the MCLDP Alternative. 11 comments expressed concern regarding the proximity and potential relocation of the MVT if CalTrans widened SR 267. The potential trail within the Caltrans easement would not need to be relocated due to SR 267 widening. Caltrans and Corps have established a standoff distance to avoid placing the trail on the immediate shoulder of the roadway. The Washoe provided 29 comments in a letter regarding the EA and the project in general. The Corps will continue consulting with the Washoe through the appropriate process as laid out in Section 106; the comments submitted by the Washoe are not reflected in the following summary table.

Further comments were received regarding the California Environmental Quality Act (CEQA) document prepared for the entire Martis Valley Regional Trail as compared to this draft National Environmental Policy Act (NEPA) document the Corps is creating. The state requirements under CEQA have different thresholds in regards to evaluating significance of impacts to resources. Based on two comments received regarding bicycle use on unpaved trails, chapter 7 of the EA will be updated to better explain the user conflict between mountain bikers and other trail users. An email received from the Truckee River Watershed Council recommends that the EA be revised to address this issue and incorporate specific measures to prevent and manage invasive weeds. Chapter 4 of the EA will be updated to address the potential for trail construction to lead to the spread of invasive weeds.

Draft Martis Valley Trail EA Public Comments Summary and Responses

Comment number	Commenter and date of comment	Method of submission	Comment Summary	Response
1 - 1	Mike Staudenmayer, General Manager, Northstar CSD; 1/30/17	Letter	The comment identifies the Northstar Community Services District (District) as the Lead Agency under the California Environmental Quality Act for considering the environmental effects to the full Martis Valley Trail and summarizes the reasons that the District selected the proposed alignment. The comment indicates that the District concurs with the analysis in the EA demonstrating that the potentially significant environmental effects of constructing and using the preferred alignment can be reduced to less than	Thank you for the comment; page 7.7 of the EA addresses safety of the proposed action.

Comment number	Commenter and date of comment	Method of submission	Comment Summary	Response
			significant levels with implementation of the identified mitigation measures. The comment elaborates on the reasons to support the paved trail in the preferred alignment, the "Paved Trail within the MCLDP Alternative" evaluated in the EA. These include: **Safety** – The alignment within the Caltrans easement would expose trail users to substantial risks associated due to their proximity to a high-speed roadway (SR 267) that has a record of multiple accidents, including fatalities.	
1 - 2			**Visual Impacts** – The alignment within the Caltrans easement would introduce another built-environment element in a scenic corridor. The preferred alignment would be primarily out of sight of SR 267, which would benefit both travelers on SR 267 and trail users.	The Corps appreciates your comment. Chapter 8 of the EA addresses the visual impacts of the proposed trail to the valley. To the extent possible impacts to the greater visual value of the valley were considered.
1 - 3			**Public Investment –** Future plans to widen SR 267 to a four-lane facility would likely require relocating the trail if it were built within the Caltrans easement. This would require an unnecessary significant expenditure of public money. Additionally, the Caltrans easement was not evaluated in the District's prior California Environmental Quality Act analysis, thus it would require additional expense and time to complete this analysis.	Caltrans and Corps have discussed the potential widening project and how it might impact a potential trail adjacent to the current Caltrans easement. A standoff distance of 80' from centerline was established to avoid conflict. The Corps' NEPA process requires reasonable alternatives to be evaluated. Historic documentation, consultations and baseline surveys exist regarding the area the Caltrans easement.

Comment number	Commenter and date of comment	Method of submission	Comment Summary	Response
1 - 4			**Cultural –** The preferred alignment was designed to maximize avoidance of known cultural deposits and utilize existing disturbed corridors where feasible. The District concurs with the EA finding that the preferred alignment would be less impactful to cultural resources than the Caltrans easement alternative and would improve upon existing conditions.	The Corps has begun consultation with the State Historic Preservation Office (SHPO) regarding potential adverse effects to cultural resources under either alignment. The Corps has added some additional analysis to Chapter 5 to further explain and clarify the impacts to cultural resources. The Caltrans alignment is within a previously disturbed area, while the trail within the MCLDP area has unknown/undisturbed cultural resources.
1 - 5			The comment concludes by reiterating the District's support for the Paved Trail within the MCLDP Alternative as this alternative is least impactful to the environment, is a better investment of public money, and will create a legacy project benefiting people within the region for generations to come.	The Corps appreciates your comment.
2	Evan Specter; 1/30/17	Email	The comment supports the trail within the MCLDP.	The Corps appreciates your comment.
3	K. Valerie Green; 1/31/17	Email	The comment supports the Paved Trail within the MCLDP Alternative because it would be more scenic and further from SR 267 and would result in less overall disturbance, earthwork, and impacts to cultural resources than the Caltrans easement alternative.	The Corps appreciates your comment. The Corps has added some additional analysis to Chapter 5 to further explain and clarify the impacts to cultural resources. As described in chapter 5, the Caltrans alternative results in 150,637 square feet of disturbance as compared to 157,565 square feet of disturbance for the trail within MCLDP alternative.
4	John Gaston; 1/31/17	Email	The comment identifies the commenter's qualifications as a professional civil engineer and the commenter's use of and support for	The Corps appreciates your comment.

Comment number	Commenter and date of comment	Method of submission	Comment Summary	Response
			trails in the Truckee region. The comment supports the Paved Trail within the MCLDP Alternative because it: • Offers more flexibility in terms of routing • Allows for more opportunities for turnout and rest stops • Would not be disrupted by construction work within the SR 267 right of way • Would provide improved aesthetics • Would be less disruptive to SR 267 traffic during trail construction Meets standard engineering principles of providing a redundant route.	
5	James Porter; 1/31/17	Email	The comment offers support for the Paved Trail in the MCLDP Alternative and notes that the environmental analysis of the project demonstrates that this alternative is superior to the Caltrans easement alternative.	The Corps appreciates your comment.
6 - 1	Andy Buckley; 1/31/17	Letter	The comment states that an unpaved trail would impair usage of the full Martis Valley Trail because the segments of trail to which the trail within the MCLDP would connect would be paved, and there would be periods during which the paved trail segments are usable but the unpaved segments are not.	The unpaved alternative was included in the EA analysis to match the current trail system on Corps property.
6 - 2			The comment supports the Paved Trail within the MCLDP Alternative because this alignment would be more scenic and would provide a safer environment for trail users.	The Corps appreciates your comment and has incorporated the safety of future users in the evaluation of this project. For example, the Corps has established a

Comment number	Commenter and date of comment	Method of submission	Comment Summary	Response
				standoff distance of 80’ from the centerline of SR 267 to avoid conflict with trail users.
6 - 3			The comment also supports the Paved Trail within the MCLDP Alternative because this alignment would result in less ground disturbance overall and less disturbance to cultural resources.	The Corps appreciates your comment, consultations are ongoing to determine the level of impacts to the resources. The Corps has added some additional analysis to Chapter 5 to further explain and clarify the impacts to cultural resources. As described in chapter 5, the Caltrans alternative results in 150,637 square feet of disturbance as compared to 157,565 square feet of disturbance for the trail within MCLDP alternative.
6 - 4			The comment indicates concern that the Caltrans Easement alternative would be dangerous, and that this adverse effect would increase with the planned widening of SR 267.	Caltrans and Corps have discussed the potential widening project and how it might impact a potential trail adjacent to the current Caltrans easement. A standoff distance of 80’ from centerline was established.
7 - 1	Allison Pedley, Truckee Trails Foundation; 2/1/17	Email	The comment offers support for the Paved Trail within the MCLDP Alternative because it would provide a superior trail user experience by being more scenic and further away from SR 267.	The Corps appreciates your comment.
7 - 2			The comment also offers support for the Paved Trail within the MCLDP Alternative because it would require less overall ground disturbance and earthwork than the Caltrans Easement Alternative, and would result in less impact to cultural resources.	The Corps has begun consultation with the State Historic Preservation Office (SHPO) regarding potential adverse effects to cultural resources under either alignment. The Corps has added some additional analysis to Chapter 5 to further explain and clarify the impacts to cultural resources. As indicated in Chapter 5 – impacts to

Comment number	Commenter and date of comment	Method of submission	Comment Summary	Response
				previously disturbed areas minimizes the greater impact to potentially unknown buried sites within the project area. Furthermore, the Caltrans alternative results in 150,637 square feet of disturbance as compared to 157,565 square feet of disturbance for the trail within MCLDP alternative.
7 - 4			The comment indicates concern that the Caltrans Easement Alternative would bring trail users closer to SR 267, exposing those users to dangerous conditions and increased noise and pollution.	The Corps appreciates your comment and has incorporated the safety of future users in the evaluation of this project. For example, the Corps has established a standoff distance of 80’ from the centerline of SR 267 to avoid conflict with trail users.
7 - 5			The comment also indicates concern that the Caltrans Easement Alternative would have increased safety concerns when SR 267 is widened; and for potential expense associated with relocating the trail after the highway is widened.	The potential trail within the Caltrans easement would not need to be relocated due to SR 267 widening. Caltrans and Corps have established a standoff distance of 80’ from centerline.
7 - 6			The comment offers support for a paved trail because it enables a wider range of users, particularly as a paved trail would be constructed to meet the Americans with Disabilities Act standards. The comment also supports a paved trail because it would allow for a longer season of use.	The Corps appreciates your comment.
7 - 7			The comment states that the EA is incorrect that an unpaved trail would not be used by bicyclists. The comment states that the EA should recognize that bicyclists would use an unpaved trail, and thus the unpaved trail	The Corps appreciates your comment and has reworded some language in Chapter 7 to better explain potential user conflicts. Based on current trail use the Corps

Comment number	Commenter and date of comment	Method of submission	Comment Summary	Response
			alternative could result in the potential for user conflict.	recognizes that specifically mountain bikers utilize the Tompkins Memorial Trail.
7 - 8			The comment concludes by reiterating support for the Paved Trail within the MCLDP Alternative and concerns that the Caltrans Easement Alternative would receive less use while putting users at risk.	The Corps appreciates your comment and has incorporated the safety of future users in the evaluation of this project. For example, the Corps has established a standoff distance of 80' from the centerline of SR 267 to avoid conflict with trail users.
8	Ksenya Gusak; 2/1/17	Public Meeting	The comment offers support for a paved trail in the preferred alignment as a safer and healthier alternative because it is farther from SR 267. Further, the comment states that this alignment would not interfere with widening of SR 267.	Thank you for participating at the public meeting. Caltrans and Corps have discussed the potential widening project and how it might impact a potential trail adjacent to the current Caltrans easement. A standoff distance of 80' from centerline was established.
9	Nancy Woolf; 2/1/17	Public Meeting	The comment offers support for a paved trail in the preferred alignment as a safer and more enjoyable alternative because it is farther from 267.	Thank you for participating at the public meeting, the Corps appreciates your comment and has incorporated the safety of future users in the evaluation of this project. For example, the Corps has established a standoff distance of 80' from the centerline of SR 267 to avoid conflict with trail users.
10	Rachel Elste; 2/1/17	Public Meeting	The comment offers support for a paved trail in the preferred alignment because it would be more pleasant than the alignment within the Caltrans easement, it would be safer for people and dogs, and it would not interfere with widening of SR 267. The comment also indicates a preference for a parking area, including a restroom, along Schaffer Mill Road.	Thank you for participating at the public meeting. Caltrans and Corps have discussed the potential widening project and how it might impact a potential trail adjacent to the current Caltrans easement. A standoff distance of 80' from centerline was established. The Corps does not have authority to develop along Schaffer Mill Road.

Comment number	Commenter and date of comment	Method of submission	Comment Summary	Response
11	Christopher Parker; 2/1/17	Public Meeting	The comment offers support for a paved trail in the preferred alignment because trail users would have less exposure to traffic, noise, and hazards than would occur under the Caltrans easement alternative.	Thank you for participating at the public meeting, the Corps appreciates your comment. The proposed trail will be offset from SR 267 to ensure a pleasant experience for all.
12	John Svahn; 2/1/17	Public Meeting	The comment offers support for a paved trail in the preferred alignment because it would be safer and more pleasant and would be better for cyclists.	Thank you for participating at the public meeting, the Corps appreciates your comment. The intent is for the trail alignments to be offset from SR 267 to provide a pleasant experience for all.
13	Peter Morris; 2/7/17	Email	The comment offers support for a paved trail in the preferred alignment and states that the Caltrans Easement alternative "is a waste."	The Corps appreciates your comment. Alternatives were developed to ensure adequate evaluation of potential impacts.
14 - 1	Keenan L. Hawkins; 2/8/17	Email	The comment offers support for Paved Trail in the MCLDP Alternative because it provide a better trail user experience by being farther from SR 267. The comment states that this alternative achieves the project objective of providing an enjoyable and high-quality user experience.	The Corps appreciates your comment. The project objectives are considered in all trail alternatives. The intent is for the trail alignments to be offset from SR 267 to provide a pleasant experience for all.
14 - 2			The comment states that the Caltrans Easement alternative would be a waste of money because it would result in a poor trail experience due to noise, trash, exhaust, harassment from passing cars, and an "industrial feel that dissuades use." The comment states that this alternative does not achieve the project objective of providing an enjoyable and high-quality user experience.	The Corps appreciates your comment, project objectives are considered in all alternatives. The Caltrans alignment is designed to be offset from the road to separate the public from SR 267 to provide a pleasant experience for all.

Comment number	Commenter and date of comment	Method of submission	Comment Summary	Response
14 - 3			The comment supports the paved trail surface because it enables use by a wider range of users, allows a longer and more consistent season of use, and would provide regional trail connectivity.	The Corps appreciates your comment.
14- 4			The comment states that the EA should recognize that user conflicts would occur under the Unpaved Trail alternative because bicyclists use both paved and unpaved trails.	The Corps appreciates your comment and has reworded some language in Chapter 7 to better explain potential user conflicts.
15	Carl Toeppner; 2/8/17	Email	The comment offers support for a paved trail in the preferred alignment.	The Corps appreciates your comment.
16	Annie Carrino; 2/8/17	Email	The comment offers support for a paved trail in the preferred alignment. The commenter states that she is a cyclist who has been hit by a car and identifies her preference for the preferred alignment because the increased distance from SR 267 would provide better safety for trail users. The comment also notes that the preferred alignment would have fewer visual impacts than the Caltrans easement alternative.	The Corps appreciates your comment. The Caltrans alignment is intended to be offset from SR 267 to create separation between trail users and automobiles. Visual impacts to the greater Martis Valley landscape would be less than significant because the trail would be situated within a transportation corridor to minimize and consolidate any visual impacts.
17	Mark Henry; 2/8/17	Email	The comment offers support for a trail in the preferred alignment.	The Corps appreciates your comment.
18	Otis Kantz; 2/8/17	Email	The comment offers support for a trail in the preferred alignment because it would be more scenic than the Caltrans easement alternative.	The Corps appreciates your comment.
19	Katie Shaffer; 2/8/17	Email	The comment offers support for a trail in the preferred alignment because it would be more user-friendly and safer than the Caltrans easement alternative.	The Corps appreciates your comment. The Caltrans alignment is designed to create a standoff distance between the roadway and trail users.

Comment number	Commenter and date of comment	Method of submission	Comment Summary	Response
20	Kim Yamauchi; 2/8/17	Email	The comment offers support for a trail in the preferred alignment because it would be more user-friendly and safer than the Caltrans easement alternative.	The Corps appreciates your comment. The Caltrans alignment is designed to create a standoff distance between the roadway and trail users.
21	John Goodman; 2/8/17	Email	The comment offers support for a trail in the preferred alignment because it would be more scenic and safer than the Caltrans easement alternative.	The Corps appreciates your comment. The Caltrans alignment is designed to create a standoff distance between the roadway and trail users.
22	Jeff Shloss; 2/8/17	Email	The comment offers support for a paved trail in the preferred alignment because it would be safer and would provide a better experience than the Caltrans easement alternative.	The Corps appreciates your comment. The Caltrans alignment is designed to create a standoff distance between the roadway and trail users.
23	Bob Yoder; 2/8/17	Email	The comment offers support for a trail in the preferred alignment.	The Corps appreciates your comment.
24	Carol Lindsay; 2/8/17	Email	The comment offers support for a paved trail in the preferred alignment because it would support the high levels of use in the area, including use of bicycles for commuters, and would provide a safer and quieter trail than the Caltrans easement alternative.	The Corps appreciates your comment. The Caltrans alignment is designed to create a standoff distance between the roadway and trail users, exposure to sound would be less than 1 mile of the greater regional trail system.
25	Patrick Flora; 2/8/17	Email	The comment offers support for a trail in the preferred alignment.	The Corps appreciates your comment.
26	Fred Ilfeld; 2/8/17	Email	The comment offers support for a trail through the valley rather than the Caltrans easement alternative because this would allow a “wilderness immersion” experience compared to riding along the busy, noisy, and smelly SR 267.	The Corps appreciates your comment. Access to the Tompkins Memorial Trail system will still be available to provide a more wilderness experience.

Comment number	Commenter and date of comment	Method of submission	Comment Summary	Response
27	Alicia Barr; 2/8/17	Email	The comment offers support for a paved trail in the preferred alignment because it would be more pleasant and environmentally superior.	The Corps appreciates your comment and is weighing the environmental impacts of all alignments.
28	Conrad Snover; 2/8/17	Email	The comment offers support for a paved trail in the preferred alignment because it would be more pleasant and safer for trail users and drivers along SR 267.	The Corps appreciates your comment and has incorporated the safety of future users in the evaluation of this project. For example, the Corps has established a standoff distance of 80’ from the centerline of SR 267 to avoid conflict with trail users.
29	John Ariza; 2/8/17	Email	The comment offers support for a paved trail in the preferred alignment because would have the same or less impacts than the Caltrans easement alternative and it would offer a better user experience that is closer to nature and result in less noise exposure for trail users.	The Corps appreciates your comment. To limit impacts, preference is given to any alignments that avoid or minimize known resources in the project area.
30 - 1	Maggie Hargrave; 2/8/17	Email	The comment offers support for Paved Trail in the MCLDP Alternative because it provide a better trail user experience by being farther from SR 267. The comment states that this alternative achieves the project objective of providing an enjoyable and high-quality user experience.	The Corps appreciates your comment.
30 - 2			The comment states that the Caltrans Easement alternative would be a waste of money because it would result in a poor trail experience due to noise, trash, exhaust, harassment from passing cars, and an “industrial feel that dissuades use.” The comment states that this alternative does not achieve the project objective of	The Corps appreciates your comment, project objectives are considered in all alternatives. The Caltrans alignment is designed to be offset from the road to separate the public from SR 267 to the extent possible.

Comment number	Commenter and date of comment	Method of submission	Comment Summary	Response
			providing an enjoyable and high-quality user experience.	
30 - 3			The comment supports the paved trail surface because it enables use by a wider range of users, allows a longer and more consistent season of use, and would provide regional trail connectivity.	The Corps appreciates your comment.
30 - 4			The comment states that the EA should recognize that user conflicts would occur under the Unpaved Trail alternative because bicyclists use both paved and unpaved trails.	The Corps appreciates your comment and has reworded some language in Chapter 7 to better explain potential user conflicts.
31	Jenelle Potvin; 2/8/17	Email	The comment offers support for a trail in the preferred alignment because the Caltrans easement alternative is not user-friendly or safe.	The Corps appreciates your comment and has incorporated the safety of future users in the evaluation of this project. For example, the Corps has established a standoff distance of 80’ from the centerline of SR 267 to avoid conflict with trail users.
32	Matt Reynolds; 2/8/17	Email	The comment offers support for a trail in the preferred alignment compared to the Caltrans easement alternative because it would be less noisy, safer, and more reflective of the high-quality trails in the region.	The Corps appreciates your comment and has incorporated the safety of future users in the evaluation of this project. The trail would be offset from SR 267 in an area of previous disturbance to limit impacts to known resources in the area and separate the users from the roadway.
33	Allan Crawford; 2/8/17	Email	The comment offers support for a trail in the preferred alignment because it would be a well-used and scenic trail. The commenter does not support the Caltrans easement alternative because it would not be user-friendly or scenic.	The Corps appreciates your comment. The trail in either alignment would still meet the intended purpose for the user.

Comment number	Commenter and date of comment	Method of submission	Comment Summary	Response
34	Jordan McElroy; 2/8/17	Email	The comment offers support for a trail in the preferred alignment because it would be safer for trail users than the Caltrans easement alternative.	The Corps appreciates your comment. The Caltrans alignment is offset from the road to separate the user from passing traffic.
35	Christy Curtis; 2/8/17	Email	The comment offers support for a trail in the preferred alignment and opposition to the Caltrans easement alternative.	The Corps appreciates your comment.
36	Chris Cloyd; 2/8/17	Email	The comment offers support for a trail in the preferred alignment and opposition to the Caltrans easement alternative because it would be unsafe and would not be user-friendly.	The Corps appreciates your comment. The trail alignment would meet the objective of a regional trail system, and be set back away from SR 267 to separate user from passing traffic.
37	Margaret Skillicorn; 2/8/17	Email	The comment offers support for a paved trail in the preferred alignment because it would be more user-friendly and safe. The comment suggests that safety and trail appeal should be key concerns for selecting the project alternative.	The Corps appreciates your comment. Safety is one aspect considered within the alignments presented in the EA. There are many resources and concerns in Martis Valley, all of which contribute to the decision process of the Corps.
38	JoJo Toeppner; 2/8/17	Email	The comment requests that the safe trail be selected.	The Corps appreciates your comment, and has incorporated safety into each alignment.
39	Bryan D. Hoadley; 2/8/17	Email	The comment offers support for a trail in the preferred alignment because it would be more enjoyable and appealing than the Caltrans easement alternative.	The Corps appreciates your comment.
40	Susan Dorwart; 2/9/17	Email	The comment offers support for a trail in the preferred alignment because it would put trail users further from traffic on SR 267, noting the commenter's experience of having been hit by a car's passenger side mirror while riding in the bike lane.	The Corps appreciates your comment. None of the trail alignments in the EA place the trail along the shoulder of SR 267 and thus keep the potential trail users away from passing traffic.

Comment number	Commenter and date of comment	Method of submission	Comment Summary	Response
41	Pam Straley; 2/9/17	Email	The comment offers support for a trail in the preferred alignment because it would be more pleasant and safer than the Caltrans easement alternative. The commenter notes her experience bicycling along SR 267 and her desire to avoid the high speed traffic along this road.	The Corps appreciates your comment. None of the trail alignments in the EA place the trail along the shoulder of SR 267 and thus keep the potential trail users away from passing traffic.
42	Tim Lombard; 2/9/17	Email	The comment offers support for a trail in the preferred alignment because it would be more pleasant and safer than the Caltrans easement alternative.	The Corps appreciates your comment. The Caltrans alignment would create separation from SR 267 keeping users away from passing vehicles.
43	Katerina Nash; 2/9/17	Email	The comment offers support for a trail in the preferred alignment because it would be safer by keeping trail users further from SR 267. The commenter notes her experience as an elite bike racer and the safety and scenic benefits associated with separating trail users and vehicle traffic.	The Corps appreciates your comment. None of the trail alignments in the EA place the trail along the shoulder of SR 267 and thus keep the potential trail users away from passing traffic.
44	Clara Castellar; 2/9/17	Email	The comment offers support for a trail in the preferred alignment because it would provide a much better and safer user experience than the Caltrans easement alternative.	The Corps appreciates your comment. The Caltrans alignment would create separation from SR 267 keeping users away from passing vehicles.
45	Karen Seward; 2/9/17	Email	The comment offers support for a paved trail in the preferred alignment.	The Corps appreciates your comment.
46	Gary Schmitt; 2/9/17	Email	The comment offers support for a bike trail in the preferred alignment.	The Corps appreciates your comment.
47	Kat Severin; 2/9/17	Email	The comment offers support for a trail in the preferred alignment because it would be safer and more scenic than the Caltrans easement alternative.	The Corps appreciates your comment. The Caltrans alignment would create separation from SR 267 keeping users away from passing vehicles while enjoying the valley's scenery.

Comment number	Commenter and date of comment	Method of submission	Comment Summary	Response
48	Sven Klovstad; 2/9/17	Email	The comment offers support for a bike trail in the preferred alignment.	The Corps appreciates your comment.
49	Geoffrey Griffin; 2/9/17	Email	The comment offers support for a paved trail in the preferred alignment because it would continue the existing trail that extends from Shaffer Mill Road, would be safer, quieter and more scenic, and would provide a much more positive user experience than the Caltrans easement alternative. The comment states that the Caltrans easement alternative would be dangerous due to heavy traffic volumes, high speeds, and frequent ground fog.	The Corps appreciates your comment. The Caltrans alignment would create separation from SR 267 keeping users away from passing vehicles while enjoying the valley's scenery.
50	Dave Giacomini; 2/9/17	Email	The comment identifies opposition to the Caltrans easement alternative because it is unsafe and inappropriate. The comment offers support for a trail in the preferred alignment.	The Corps appreciates your comment. The Caltrans alignment is offset to create separation from SR 267 between users and vehicle traffic.
51	Peter Broomhall; 2/9/17	Email	The comment offers support for a paved trail in the preferred alignment because it would provide a better and safer trail user experience than the Caltrans easement alternative.	The Corps appreciates your comment. The Caltrans alignment is offset to create separation from SR 267 between users and vehicle traffic.
52	Alex Castellar; 2/9/17	Email	The comment offers support for a paved trail in the preferred alignment because it would provide a better and safer trail user experience than the Caltrans easement alternative.	The Corps appreciates your comment, and has incorporated the safety of future users in the evaluation of this project.
53	Helen Pelster; 2/9/17	Email	The comment offers support for a trail in the preferred alignment because it would yield the best and safest user experience.	The Corps appreciates your comment, and has incorporated the safety of future users in the evaluation of this project.

Comment number	Commenter and date of comment	Method of submission	Comment Summary	Response
54	Moné Haen; 2/9/17	Email	The comment offers support for a trail in the preferred alignment and opposition to the Caltrans easement alternative due to safety concerns.	The Corps appreciates your comment, and has incorporated the safety of future users in the evaluation of this project.
55 - 1	Steve Kasper; 2/9/17	Email	The comment offers support for a trail in the preferred alignment because this alternative would have the same or less impact than the Caltrans easement alternative, including that the preferred alignment would be less visible from SR 267 while the Caltrans easement alternative would be more visible and distracting.	The Corps appreciates your comment. While impacts are similar, the Caltrans alignment is in an area of previous disturbance while the MCLDP alternative would go through sections untouched by development. As the user moves west to east across the property the terrain drops below the road grade making the user less apparent.
55 - 2			The comment states that the preferred alignment would result in less impact to biological resources than the Caltrans easement alternative because it would result in less ground disturbance and earthwork.	The Corps appreciates your comment. Through consultation, all alignments have the same less than significant impact to wildlife. As described in chapter 5, the Caltrans alternative results in 150,637 square feet of disturbance as compared to 157,565 square feet of disturbance for the trail within MCLDP alternative.
55 - 3			The comment states that the preferred alignment would result in less impact to cultural resources than the Caltrans easement alternative because it avoids areas with higher concentrations of deposits.	The Corps appreciates your comment. The higher concentrations along SR 267 are due to the ground disturbing work of the past (old SR 267 route, underground utilities) bringing the deposits to the surface. As indicated in Chapter 5 – impacts to previously disturbed areas minimizes the greater impact to potentially unknown buried sites within the project area.
55 - 4			The comment states that the preferred alignment would be safer than the Caltrans	The potential trail with the current Caltrans easement would not need to be relocated

Comment number	Commenter and date of comment	Method of submission	Comment Summary	Response
			easement alternative due to the increased distance from SR 267. The comment also notes concern that the Caltrans easement alternative would need to be relocated when SR 267 is widened, resulting in wasteful expenditure of public money.	due to 267 widening. Caltrans and Corps have established a standoff distance of 80' from centerline.
55 - 5			The comment states that the preferred alignment is supported by a certified EIR that finds the project can be constructed with all impacts mitigated to a less than significant level.	The Corps appreciates your comment. The state requirements under CEQA have different thresholds in regards to evaluating significance of impacts.
55 - 6			The comment states that the user experience of a trail within the preferred alignment would be superior to the user experience under the Caltrans easement alternative.	The Corps appreciates your comment.
56	Matt Hanson; 2/9/17	Email	The commenter identifies his experience with frightening roadside incidents while bicycling, leading to his preference for off-highway bike paths and his excitement about a bike trail connection to Northstar. The comment offers support for a trail in the preferred alignment because it would be safer than the Caltrans easement alternative and would avoid exposing trail users to vehicle exhaust and road dust.	The Corps appreciates your comment, none of the alternatives put users on the roadside. The established standoff distance between Caltrans and the Corps would keep separation between traffic and trail users.
57	Robert White; 2/9/17	Email	The comment offers support for a trail in the preferred alignment.	The Corps appreciates your comment.
58	Robin Reese and Bill Fakes; 2/9/17	Email	The commenter identifies herself as president of the Tahoe Donner Hiking Club, which has 475 members. The comment offers support for a trail in the preferred	The Corps appreciates your comment.

Comment number	Commenter and date of comment	Method of submission	Comment Summary	Response
			alignment because the Caltrans easement alternative would not be user-friendly.	
59	Nancy Rosenblum; 2/9/17	Email	The comment offers support for a trail in the preferred alignment because it would be safer and more visually appealing and will serve the local community well for generations to come. The comment identifies opposition to the Caltrans easement alternative as unsafe and not fulfilling the vision for the Martis Valley Trail project.	The Corps appreciates your comment, and has incorporated the safety of future users in the evaluation of this project. The objectives of the trail system can be met under any alignment.
60	Barnett Family; 2/9/17	Email	The comment offers support for a trail in the preferred alignment and opposition to the Caltrans easement alternative.	The Corps appreciates your comment.
61	Thomas Hannah; 2/9/17	Email	The comment offers support for a trail in the preferred alignment because it would provide a safer and more enjoyable ride.	The Corps appreciates your comment, and has incorporated the safety of future users in the evaluation of this project.
62	Javier Castellar; 2/9/17	Email	The comment offers support for a trail in the preferred alignment because it would provide a much better and safer user experience than the Caltrans easement alternative.	The Corps appreciates your comment, and has incorporated the safety of future users in the evaluation of this project.
63	John Morrison; 2/9/17	Email	The comment offers support for a paved trail in the preferred alignment because it would be a better option for trail users.	The Corps appreciates your comment.
64	Melissa Leebove; 2/9/17	Email	The comment offers support for a trail in the preferred alignment and opposition to the Caltrans easement alternative because it is not a user-friendly or safe option.	The Corps appreciates your comment, and has incorporated the safety of future users in the evaluation of this project.
65	Bill Levin; 2/9/17	Email	The comment offers support for a trail in the preferred alignment.	The Corps appreciates your comment.

Comment number	Commenter and date of comment	Method of submission	Comment Summary	Response
66	Patrick Mahoney; 2/10/17	Email	The comment offers support for keeping the trail as far away from SR 267 as possible.	The Corps appreciates your comment.
67	Laurie Stevenson; 2/10/17	Email	The comment supports a trail in the preferred alignment because it would be safer than the Caltrans easement alternative. The comment states that SR 267 has a high volume of high speed traffic and the preferred alignment keeps cyclists away from this traffic and the future widening of the highway.	The potential trail along the current Caltrans easement would not need to be relocated due to 267 widening. Caltrans and Corps have established a standoff distance of 80' from centerline.
68	Megan Galindo; 2/10/17	Email	The comment offers support for a trail in the preferred alignment and opposition to the Caltrans easement alternative noting that the preferred alignment would be more user friendly and safer.	The Corps appreciates your comment, and has incorporated the safety of future users in the evaluation of this project.
69	Leslie Suen; 2/10/17	Email	The comment offers support for the Martis Valley Trail and the preferred alignment rather than the Caltrans easement alternative.	The Corps appreciates your comment.
70	Chris Sacca; 2/10/17	Email	The comment offers support for a trail in the preferred alignment and opposition to the Caltrans easement alternative because it is not safe or scenic, noting that the preferred alignment would be more consistent with the scenic qualities of the Tahoe region.	The Corps appreciates your comment, and has incorporated the safety of future users in the evaluation of this project.
71	Brad Murphy; 2/10/17	Email	The comment offers support for a trail in the preferred alignment and opposition to the Caltrans easement alternative because it is not safe and not user-friendly.	The Corps appreciates your comment, and has incorporated the safety of future users in the evaluation of this project.

Comment number	Commenter and date of comment	Method of submission	Comment Summary	Response
72	Maud Brillet; 2/10/17	Email	The comment offers support for a trail in the preferred alignment because it would be a safer and more scenic route than the Caltrans easement alternative.	The Corps appreciates your comment, and has incorporated the safety of future users in the evaluation of this project.
73	Gary Sjoquist, Advocacy Director, Quality Bicycle Products; 2/10/17	Email	The comment offers support for a trail in the preferred alignment because it would provide better safety for cyclists of all ages and abilities than the Caltrans easement alternative. The comment indicates opposition to the Caltrans easement alternative because it would be too close to SR 267. The commenter notes his experience as a bike trail advocate and planner and states that the number of cyclists and pedestrians using the trail would be severely reduced, and a valuable connection between Truckee and Northstar would be lost, if the Caltrans easement alternative is selected.	The Corps appreciates your comment, and has incorporated the safety of future users in the evaluation of this project. The alignment along SR 267 would be at a minimum 80’ from centerline. Access to the Tompkins Memorial Trail system would still be available while the Martis Valley Trail would provide the regional connection for the communities.
74	Helga and Art Sable; 2/10/17	Email	The comment offers support for a trail in the preferred alignment because it would provide cyclists a route that does not require riding on SR 267.	The Corps appreciates your comment, neither alternative will require riding on SR 267.
75	William Thauvette; 2/10/17	Email	The comment offers support for a trail in the preferred alignment.	The Corps appreciates your comment.
76	Brad Mason; 2/10/17	Email	The comment offers support for a trail in the preferred alignment.	The Corps appreciates your comment.
77	Mark Johnson; 2/10/17	Email	The comment offers support for a trail in the preferred alignment because it is safer than the Caltrans easement alternative due to the increased distance of the trail from SR 267.	The Corps appreciates your comment, and has incorporated the safety of future users in the evaluation of this project.

Comment number	Commenter and date of comment	Method of submission	Comment Summary	Response
78	Kelley Carroll; 2/10/17	Email	The comment offers support for a trail in the preferred alignment and opposition to the Caltrans easement alternative, noting the commenter's experience in bicycling along SR 267.	The Corps appreciates your comment, and has incorporated the safety of future users in the evaluation of this project. None of the alignments within the EA will require the need to ride on SR 267.
79	John Vars; 2/10/17	Email	The comment offers support for a trail in the preferred alignment and opposition to the Caltrans easement alternative.	The Corps appreciates your comment.
80	Janet R Phillips, President, Tahoe-Pyramid Bikeway; 2/10/17	Email	The comment offers support for a trail in the preferred alignment because it would provide a better user experience away from high-speed traffic.	The Corps appreciates your comment.
81	Bill Gage; 2/10/17	Email	The comment offers support for a trail in the preferred alignment and keeping the trail away from SR 267.	The Corps appreciates your comment.
82	David Stepner; 2/10/17	Email	The comment offers support for a trail in the preferred alignment and opposition for the Caltrans easement alternative, noting the commenter's experience of having been hit by a car.	The Corps appreciates your comment, and has incorporated the safety of future users in the evaluation of this project. None of the proposed trail routes will put the users on SR 267.
83	Patricia Kelley; 2/11/17	Email	The comment offers support for a trail in the preferred alignment.	The Corps appreciates your comment.
84	Jane Ragan; 2/11/17	Email	The comment offers support for a trail in the preferred alignment and opposition to the Caltrans easement alternative because it is not user-friendly or safe. The comment notes the importance of trails for public health, quality of life, and economic benefits.	The Corps appreciates your comment, and has incorporated the safety of future users in the evaluation of this project.
85	John Gerbino; 2/11/17	Email	The comment offers support for a paved trail in the preferred alignment noting that it would get more use than the Caltrans	The Corps appreciates your comment, and has incorporated the safety of future users in the evaluation of this project.

Comment number	Commenter and date of comment	Method of submission	Comment Summary	Response
			easement alternative because it would be more scenic and peaceful, with less road noise. The comment also indicates that the preferred alignment would be safer for bikers with less road noise allowing them to hear other bikers approaching from behind; would reduce exposure of trail users to exhaust fumes; and would provide a more enjoyable experience for users.	
86	Paco Lindsay; 2/11/17	Email	The comment offers support for a paved trail in the preferred alignment and opposition to the Caltrans easement alternative. The comment states that the Caltrans easement alternative would provide a less desirable user experience because it would be more dangerous and noisy and that when SR 267 is widened, the trail would have to be relocated (resulting in a large expense) or would become essentially a shoulder to the highway.	The potential trail along the Caltrans easement would not need to be relocated due to 267 widening. Caltrans and Corps have established a minimum standoff distance of 80' from centerline to keep trail users and vehicle traffic separate.
87	Richard Molsby; 2/12/17	Email	The comment offers support for a trail in the preferred alignment and opposition to the Caltrans easement alternative because the Caltrans alternative would be dangerous and unhealthy, and would not be user-friendly.	The Corps appreciates your comment, and has incorporated the safety of future users in the evaluation of this project.
88	Steven Poncelet; 2/13/17	Email	The comment offers support for a trail in the preferred alignment and opposition to the Caltrans easement alternative because the preferred alignment has less environmental impact, would be safer and	The Corps appreciates your comment, and has incorporated the safety of future users in the evaluation of this project. The impact to environmental resources along all alternatives are under review.

Comment number	Commenter and date of comment	Method of submission	Comment Summary	Response
			more scenic, and would provide a better trail user-experience.	
89	Jonathan Laine; 2/13/17	Email	The comment offers support for a trail in the preferred alignment and requests consideration for keeping the trail away from SR 267.	The Corps appreciates your comment.
90	Eillie Hyatt; 2/13/17	Email	The comment offers support for a paved trail in the preferred alignment. The comment states that the Caltrans easement alternative would be noisy and unsafe, and notes that a community member was killed after being hit by a vehicle when he had been bicycling on SR 267. The comment notes that SR 267 carries high-speed traffic and the Caltrans easement alternative would be undesirable for families.	The Corps appreciates your comment, and has incorporated the safety of future users in the evaluation of this project. Caltrans and Corps have established a minimum standoff distance of 80' from centerline to keep trail users and vehicle traffic separate.
91	Leanna Jacuzzi; 2/13/17	Email	The comment offers support for a trail in the preferred alignment.	The Corps appreciates your comment.
92 - 1	Dave Sick; 2/13/17	Email	The comment offers support for a paved trail in the preferred alignment noting that it would provide the best trail user experience by being more scenic and further away from SR 267.	The Corps appreciates your comment.
92 - 2			The comment also supports the preferred alignment because it would result in less overall new disturbance and earthwork than the Caltrans Easement alternative, along with less impact to cultural resources.	The Corps appreciates your comment. The alignment adjacent to the Caltrans easement boundary roadway is designed almost entirely within areas of previous disturbance. As described in chapter 5, the Caltrans alternative results in 150,637 square feet of disturbance as compared to 157,565 square feet of disturbance for the trail within MCLDP alternative.

Comment number	Commenter and date of comment	Method of submission	Comment Summary	Response
93	Jessica Chon; 2/13/17	Email	The comment offers support for a trail in the preferred alignment.	The Corps appreciates your comment.
94	Nancy Richards; 2/13/17	Email	The comment offers support for a trail in the preferred alignment and opposition to the Caltrans easement alternative because it is not user friendly, noting highway noise and exhaust would make the trail experience unpleasant, and may not be as safe.	The Corps appreciates your comment, and has incorporated the safety of future users in the evaluation of this project. Caltrans and Corps have established a minimum standoff distance of 80' from centerline to keep trail users and vehicle traffic separate.
95	Blake Tresan; 2/13/17	Email	The comment offers support for a trail in the preferred alignment because it is a better option for the community than the Caltrans easement alternative.	The Corps appreciates your comment and looks forward to continuing to serve the community.
96	Mike Schrupp; 2/13/17	Email	The comment offers support for a trail in the preferred alignment because it is separated from SR 267 in both elevation and distance. The comment states that this alignment is superior to the Caltrans easement alternative.	The Corps appreciates your comment.
97	Ted Rheingold; 2/13/17	Email	The comment offers support for a trail in the preferred alignment and opposition to the Caltrans easement alternative.	The Corps appreciates your comment.
98 - 1	Tony Lashbrook, Town of Truckee; 2/131/7	U.S. Postal Service	The comment offers the support of the Town of Truckee for the Martis Valley Trail and highlights the importance of this trail as a component of the regional trail network. The comment notes the Town's concurrence with the EA findings that the trail can be constructed with mitigation to reduce all impacts to less than significant levels, and that the impacts of the preferred alignment would be equal to or less than	The Corps appreciates your comment. When resources are to be impacted the process is to attempt to avoid, minimize, and then mitigate. The potential new disturbance adjacent to SR 267 easement is lower than other alignments due to the previous development along that transportation corridor. Minimizing the impacts along that route would decrease the amount of mitigation and cost.

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			the impacts of the Caltrans easement alternative.	
98 - 2			The comment indicates safety concerns associated with the Caltrans easement alternative due to proximity to the high-speed traffic on SR 267 and noting that the preferred alignment improves trail user safety by increasing the distance between the trail and the highway.	The Corps appreciates your comment, and has incorporated the safety of future users in the evaluation of this project. Caltrans and Corps have established a minimum standoff distance of 80' from centerline to keep trail users and vehicle traffic separate.
98 - 3			The comment states that the preferred alignment would result in reduced visual impacts compared to the Caltrans easement alternative because it would reduce the visibility of asphalt surfaces within the Martis Valley scenic corridor.	The Corps appreciates your comment. All trail options will incorporate aesthetic treatments to the extent possible.
98 - 4			The comment states that the preferred alignment would reduce impacts to biological resources compared to the Caltrans easement alternative because it would require less new ground disturbance and earthwork. The comment concludes by reiterating the Town's support for the paved trail within the preferred alignment as a trail that will contribute to the regional trail network, will be safer, and will be visually and environmentally preferable to the Caltrans easement alternative.	The Corps appreciates your comment. Through consultations with USFWS, any alternative within the EA has a less than significant finding regarding biological resources. The alignment along the roadway is designed almost entirely within areas of previous disturbance. As described in chapter 5, the Caltrans alternative results in 150,637 square feet of disturbance as compared to 157,565 square feet of disturbance for the trail within MCLDP alternative.
99 - 1	Jamie Wright, Executive Director, Truckee North Tahoe Transportation	Email	The comment offers the support of the Truckee North Tahoe Transportation Management Agency (TMA) for the paved trail in the preferred alignment, noting the	The Corps appreciates your comment.

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	Management Association; 2/13/17		TMAs involvement in development of the Martis Valley Trail, the trail's anticipated contribution to the regional trail network, and the consistency of the preferred alignment with the EIR that the Northstar CSD certified for the overall Martis Valley Trail project.	
99 - 2			The comment states opposition to the Caltrans easement alternative noting that future widening of SR 267 would make the trail essentially adjacent to a busy, four-lane freeway, and that this would result in serious safety concerns.	The Corps appreciates your comment, and has incorporated the safety of future users in the evaluation of this project. Caltrans and Corps have established a minimum standoff distance of 80' from centerline to keep trail users and vehicle traffic separate.
99 - 3			The comment further opposes the Caltrans easement alternative based on the EA findings that this alternative would result in greater visual, biological, and cultural impacts.	The Corps appreciates your comment. Through consultations with USFWS, any alternative within the EA has a less than significant finding regarding biological resources. The alignment adjacent to the roadway easement is designed almost entirely within areas of previous disturbance which would result in less new disturbance to cultural deposits.
99 - 4			The comment letter concludes with support for relocating the existing wildlife viewing area parking lot and for the interpretative program included in the proposed project and reiterates support for the Paved Trail within the MCLDP Alternative.	The Corps appreciates your comment.
100	Helga Roghers; 2/13/17	Email	The comment identifies opposition to the Caltrans easement alternative because the traffic, noise and pollution would adversely affect enjoyment of the trail.	The Corps appreciates your comment.

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101	Aparna Reddy; 2/14/17	Email	The comment offers support for a trail in the preferred alignment and opposition to the Caltrans easement alternative because it is not a user-friendly or safe option.	The Corps appreciates your comment, and has incorporated the safety of future users in the evaluation of this project. Caltrans and Corps have established a minimum standoff distance of 80’ from centerline to keep trail users and vehicle traffic separate.
102	John Eaton; 2/15/17	Email	The comment offers support for a trail in the preferred alignment because it would be farther from SR 267, will have less environmental impact, will avoid cultural assets, and would not need to be relocated when SR 267 is widened.	The Corps appreciates your comment. Through consultations with USFWS, any alternative within the EA has a less than significant finding regarding biological resources. The alignment along the roadway is designed almost entirely within areas of previous disturbance which would result in less new disturbance to cultural assets. The standoff distance of 80’ between Caltrans and the Corps would not require the relocation of the trail if SR 267 is widened.
103 - 1	Cindy Gustafson; Tahoe City Public Utility District; 2/16/17	U.S. Postal Service and email	The comment offers the Tahoe City Public Utility District’s (TCPUD) support for the Paved Trail within the MCLDP alternative, noting that the trail will become an important component of the regional trail network and referencing the EA finding that the trail can be constructed with mitigation to ensure all impacts remain less than significant. The comment notes that TCPUD has built and operated trails since 1972 and has collected extensive utilization data for its trails. The comment states that based on that data, the preferred alignment would attract more users than the Caltrans easement alternative, which would result in	The Corps appreciates your comment. When resources are to be impacted the process is to attempt to avoid, minimize, and then mitigate. The potential new disturbance adjacent to the SR 267 easement is lower than other alignments due to the previous development along that transportation corridor. Minimizing the impacts along that route would decrease the amount of mitigation and cost.

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			greater benefits in the region with respect to reducing greenhouse gas emissions.	
103 - 2			The comment states that TCPUD's data indicates that the preferred alignment would attract more use than the Caltrans easement alternative because it would be further from SR 267 which provides a safer experience for families and multi-generational users, a healthier experience due to separation from sources of air pollution, and a more aesthetically inspiring experience. The comment further states that TCPUD's data shows that families are the largest trail user group and that safety is a critical concern for families in determining trail usage. The comment concludes by reiterating TCPUD's support for the preferred alignment as a safer, healthier, environmentally sustainable, and more economical solution to the trail construction.	The Corps appreciates your comment, and has incorporated the safety of future users in the evaluation of this project. Caltrans and Corps have established a minimum standoff distance of 80' from centerline to keep trail users and vehicle traffic separate.
104	Todd and Carol Huckins; 2/17/17	Email	The comment offers support for a trail in the preferred alignment.	The Corps appreciates your comment.
105 - 1	Nadia Guerriero, Vice President and General Manager, Northstar Resort; 2/17/17	Email	The comment offers support for the Paved Trail in the MCLDP Alternative over the unpaved trail alternative and the Caltrans easement alternative. The comment notes that the preferred alignment would provide a better user-experience and connection with the natural landscape while the	The Corps appreciates your comment, and has incorporated the safety of future users in the evaluation of this project. Caltrans and Corps have established a minimum standoff distance of 80' from centerline to keep trail users and vehicle traffic separate.

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			Caltrans easement alternative could be unsafe and not as enjoyable for trail users.	
105 - 2			The comment state that the preferred alignment is superior to the Caltrans easement alternative because it would not require relocation if SR 267 is widened or otherwise improved. The comment concludes by noting that the preferred alignment is consistent with the alignment considered in the EIR certified by the Northstar CSD and which found that all impacts of the trail could be mitigated to less than significant levels.	The potential trail along the Caltrans easement would not need to be relocated due to 267 widening. Caltrans and Corps have established a standoff distance of 80' from centerline to avoid future conflicts with development. There is some divergence between the laws and standards for determining significance under CEQA and NEPA.
106 - 1	Steve Teshara, Sustainable Community Advocates; 2/19/17	U.S. Postal Service and email	The comment offers support for the Paved Trail within the MCLDP Alternative because this alternative best meets the Project Purpose and Need.	The Corps appreciates your comment and has incorporated the purpose and need of the project in the evaluation.
106 - 2			The comment offers support for the Paved Trail within the MCLDP Alternative because this alternative is far safer than the Caltrans easement alternative which would place trail users in proximity to SR 267, and trail users would be even closer to SR 267 traffic when the highway is widened.	The Corps appreciates your comment, and has incorporated the safety of future users in the evaluation of this project. The potential trail along the Caltrans easement would not need to be relocated due to 267 widening. Caltrans and Corps have established a standoff distance of 80' from centerline.
106 - 3			The comment offers support for the Paved Trail within the MCLDP Alternative because it would result in reduced visual impacts because most of this trail would not be visible from SR 267 while most of the Caltrans easement alternative would be	The Corps appreciates your comment. All trail options will incorporate aesthetic treatments to the extent possible.

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			visible from SR 267 and could result in driver distractions.	
106 - 4			The comment offers support for the Paved Trail within the MCLDP Alternative because it would result in less ground disturbance and earthwork than the Caltrans easement alternative, thus reducing impacts to biological resources.	The Corps appreciates your comment. The alignment adjacent to the roadway easement is designed almost entirely within areas of previous disturbance. As described in chapter 5, the Caltrans alternative results in 150,637 square feet of disturbance as compared to 157,565 square feet of disturbance for the trail within MCLDP alternative.
106 - 5			The comment offers support for the Paved Trail within the MCLDP Alternative because it would avoid areas with higher concentrations of cultural deposits and would result in reduced impacts to cultural resources.	The Corps appreciates your comment. The higher concentrations along SR 267 are due to the ground disturbing work of the past (old SR 267 route, underground utilities) bringing the deposits to the surface. The MCLDP alternative would disturb new areas of cultural resources.
106 - 6			The comment offers support for the Paved Trail within the MCLDP Alternative because it is consistent with the EIR certified by Northstar CSD which found that all impacts of the trail could be reduced to less than significant levels and is consistent with other approved planning, recreation, transportation, and regional trails documents. The comment also offers support for the Paved Trail within the MCLDP Alternative because it would provide a better user experience and create a legacy project that would benefit future generations.	The Corps appreciates your comment. There is some divergence between the laws and standards for determining significance under CEQA and NEPA.

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106 - 7			The comment offers additional support for the interpretive exhibit included in the proposed project and relocation of the existing wildlife viewing area parking lot. The comment concludes by requesting that the Corps complete the NEPA review and project approval processes in a timely manner.	The Corps appreciates your comment.
107 - 1	Geoff Stephens, General Manager, Northstar Property Owners Association; 2/20/17	Email	The comment identifies the Northstar Property Owners Association (NPOA) as representing 1,480 property owners within the Northstar California Resort and discusses the importance of completing the NEPA review and project approval processes in a timely manner, noting the strong public support for the project and the NPOA support for a trail in the preferred alignment because selection of the Caltrans easement alternative would result in additional processing delays.	The Corps appreciates your comment and is diligently assessing the impacts of the proposed action.
107 - 2			The comment offers support for a trail in the preferred alignment based on the EA findings that this alignment would have less impact than the Caltrans easement alternative.	The Corps appreciates your comment. The Corps has added some additional analysis to Chapter 5 to further explain and clarify the impacts to cultural resources. As indicated in Chapter 5 – impacts to previously disturbed areas minimizes the greater impact to potentially unknown buried sites within the project area. Furthermore, the Caltrans alternative results in 150,637 square feet of disturbance as compared to 157,565 square feet of disturbance for the trail within MCLDP alternative.

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107 - 3			The comment indicates concern that if the Caltrans easement alternative is selected, the project could be jeopardized by future decisions by Caltrans to widen SR 267, which could result in wasteful expenditure of public money and creation of additional environmental impacts.	The potential trail along the Caltrans easement would not be jeopardized due to SR 267 widening. Caltrans and Corps have established a standoff distance of 80’ from centerline to avoid any future development conflicts.
108 - 1	Lisa Wallace, Executive Director, and Michele Prestowitz, Program Manager, Truckee River Watershed Council; 2/22/17	Email	The comment identifies that the mission of the Truckee River Watershed Council (TRWC) is to being the community together to protect, enhance, and restore the Truckee River watershed. The comment states that TRWC concurs with the findings of the EA that mitigation measures in the EA will adequately address the impacts identified in the EA with respect to biological resources, hydrology, and water quality. The comment states that the EA does not adequately address the potential for impacts associated with spread of invasive weed species. The comment recommends that the EA be revised to address this issue and incorporate specific measures to prevent and manage invasive weeds, as outlined in the California Invasive Plant Council’s “Preventing the Spread of Invasive Weeds: Best Management Practices for Transportation and Utility Easements.”	The Corps appreciates your comment and has added language in Chapter 4 to identify and mitigate the potential for trail construction to introduce or spread invasive weeds in the area.
108 - 2			The comment summarizes recent efforts by TWRC to reduce sedimentation and enhance natural habitat in the Martis Valley	The Corps appreciates your comment.

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			region. The comment concludes with TWRC's support for a paved trail within the preferred alignment as an opportunity to improve recreation and connectivity in the community while minimizing impacts and protecting natural resources.	