Appendix A
Wildlife Habitat Survey Report

AMERICAN RIVER COMMON FEATURES 2016
PROJECT AMERICAN RIVER CONTRACT 1

Wildlife Habitat Survey Report

Prepared for
U.S. Army Corps of Engineers
Central Valley Flood Protection Board
Sacramento Area Flood Control Agency

November 2019

ESA



AMERICAN RIVER COMMON FEATURES 2016
PROJECT AMERICAN RIVER CONTRACT 1

Wildlife Habitat Survey Report

Prepared for
U.S. Army Corps of Engineers
Central Valley Flood Protection Board
Sacramento Area Flood Control Agency

November 2019

2600 Capitol Avenue
Suite 200
Sacramento, CA 95816
916.564.4500
esassoc.com

Bend
Camarillo
Delray Beach
Destin
Irvine
Los Angeles
Oakland
Orlando
Pasadena
Petaluma
Portland
Sacramento
San Diego
San Francisco
Santa Monica
Sarasota
Seattle
Tampa

TABLE OF CONTENTS

American River Common Features 2016 Project American River Contract 1 Wildlife Habitat Survey Report

Page

Acronyms and Other Abbreviations ..... **iii**

Executive Summary **ES-1**

Chapter 1, Introduction **1-1**
1.1 Background and Purpose 1-1
1.2 Property Location 1-1

Chapter 2, Methods **2-1**
2.1 Survey Area 2-1
2.2 Survey Methodology 2-1
2.3 Review of Background Information 2-2

Chapter 3, Environmental Setting **3-1**
3.1 Natural Communities and Associated Wildlife Habitats 3-1
3.2 Special-Status Species 3-10

Chapter 4, References and Report Preparation **4-1**
4.1 References 4-1
4.2 Document Preparation 4-4

Appendices

A. Natural Communities Crosswalk A-1
B. Wildlife and Plant Species Observed during Reconnaissance Surveys B-1

List of Figures

1 Regional Location 1-3
2 Survey Area 1-4
3a Natural Communities of the Lower American River Subreach 2 3-3
3b Natural Communities of the Lower American River Subreach 2 3-4
3c Natural Communities of the Lower American River Subreach 2 3-5
4 Special-Status Species Occurrences within 5 miles of the Survey Area 3-14

Page

List of Tables

1 Special-Status Animal Species Considered in the Survey Area 3-11

Acronyms and Other Abbreviations

ARCF GRR EIS/EIR	*American River Common Features General Reevaluation Report, Final Environmental Impact Statement/Environmental Impact Report*
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
Corps	U.S. Army Corps of Engineers
FESA	Federal Endangered Species Act
LAR	Lower American River
MBTA	Migratory Bird Treaty Act
NEPA	National Environmental Policy Act
Project	American River Common Features 2016 Project
RM	river mile
USC	U.S. Code
USFWS	U.S. Fish and Wildlife Service
VELB	valley elderberry longhorn beetle

EXECUTIVE SUMMARY

In an effort to reduce flood risk in the Sacramento Region, the U.S. Army Corps of Engineers (Corps), the Central Valley Flood Protection Board, and the Sacramento Area Flood Control Agency have partnered to complete the American River Common Features 2016 Project (Project). In July 2018, Congress granted the Corps construction funding to complete this urgent flood control project under the Bipartisan Budget Act of 2018.

Most of the Project's environmental effects were addressed in the Revised 2016 American River Common Features General Reevaluation Report (ARCF GRR), Final Environmental Impact Statement/Environmental Impact Report (EIS/EIR) (Corps, 2016). This report was prepared to support a supplemental National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) analysis by characterizing terrestrial wildlife species and the natural communities along the Lower American River (LAR) covering approximately 134.12 acres from approximately river mile (RM) 5.0 to RM 7.8. This reach is referred to as Subreach 2 and is one of four recently established subreaches along the LAR for the Project. It is important to note that Subreach 2 is within the area identified in the GRR as Reach A for both the American River North (ARN) and American River South (ARS) study basins. The survey area encompasses a large portion of Subreach 2; it includes three sites which have been identified as having an unacceptable risk of levee failure due to erosion. Erosion protection measures have been proposed for these sites to improve the levees. The survey area includes the three sites, their associated work areas, staging areas, access routes, and associated buffers. Two buffer areas were established for the survey: a 100-foot buffer where the survey area abuts residential and commercial neighborhoods, and a 500-foot buffer in parkway areas along the Lower American River where the potential for sensitive species to be present is higher.

Although the constructed levee system and surrounding infrastructure have modified most of the survey area's native vegetation types and habitats, remnant stands of native vegetation are present. Natural communities present in the survey area include riverine (open water), annual grassland, mixed oak woodland, upland scrub, riparian scrub, and riparian woodland. Several sensitive natural communities (present in the aforementioned communities) also occur within the survey area. The natural communities were cross referenced with the California Wildlife Habitat Relationships System, which describes predominant wildlife species observed in these communities. Non-native communities and disturbed/developed areas that do not correspond to natural communities are also present in the survey area. Although these areas generally provide fewer habitat opportunities for wildlife, they may still provide cover and forage for some species.

One California species of special concern, the western pond turtle, was observed during field surveys in the survey area. In addition, although it was not observed, the Federally listed threatened valley elderberry longhorn beetle was assumed present based on the occurrence of its host plant and exit holes indicating its presence. Several other sensitive species have high potential to occur in the survey area, including nesting migratory birds and raptors and protected bat species.

CHAPTER 1
Introduction

1.1 Background and Purpose

The U.S. Army Corps of Engineers (Corps), the Central Valley Flood Protection Board, and the Sacramento Area Flood Control Agency are partnering to complete the American River Common Features 2016 Project (Project) to reduce flood risk for the Sacramento region. This report was prepared to support a supplemental environmental analysis of planned levee improvements to address erosion within Subreach 2, one of the four subreaches of the leveed reach of the American River that have been established for the purposes of analysis for this Project. Although most of the Project's environmental effects were addressed in the 2016 *American River Common Features General Reevaluation Report, Final Environmental Impact Statement/Environmental Impact Report* (ARCF GRR EIS/EIR), a supplemental environmental analysis under the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) is underway to address the environmental effects of changed circumstances and new information regarding the Project that were not covered in the ARCF GRR EIS/EIR.

Subreach 2 is located along the Lower American River (LAR) from river mile (RM) 5.2 to RM 7.8. This subreach is the most hydraulically constrained and thus was the first to undergo an analysis of potential erosion repairs. Within Subreach 2, three sites requiring levee modification were identified: Site 2-1, Site 2-2, and Site 2-3. Subreach 2 is within the area identified in the GRR as Reach A for both the American River North (ARN) and American River South (ARS) study basins.

The intent and scope of this report are to characterize biological resources present within the survey area, their associated work areas, staging areas, access routes, and associated buffers. Two buffer areas were established for the survey: a 100-foot buffer where the survey area abuts residential and commercial neighborhoods, and a 500-foot buffer in parkway areas along the Lower American River where the potential for sensitive species to be present is higher. The surveys focused on terrestrial wildlife and natural communities that could provide habitat for these species. The regulatory context for the Project is presented in **Appendix A**.

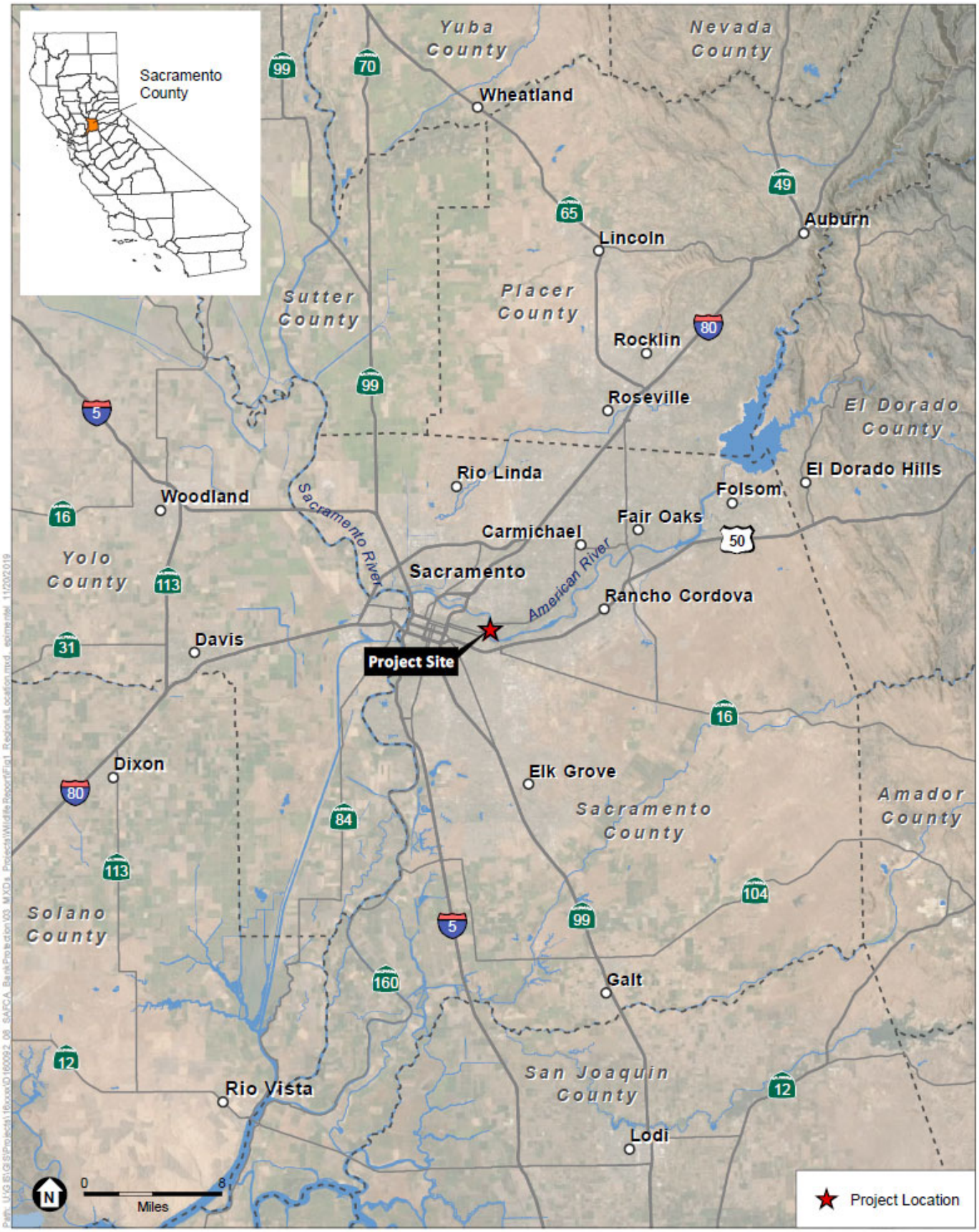
1.2 Property Location

The project area, American River Contract 1, also referred to as Subreach 2, is located in the LAR, Sacramento, and extends from RM 5.2 to 7.8, between Paradise Bend and the Howe Avenue boat launch (**Figure 1**). The LAR drains into the Sacramento River approximately five miles downstream of the survey area. Residential neighborhoods and the Campus Commons Golf

Course lie to the east; and California State University, Sacramento, and additional residential neighborhoods are south and west of the survey area (**Figure 2**).

The survey area includes three sites requiring levee modification, along with their associated staging areas and access roads, between RM 5.0 and RM 7.8 (Figure 2):

- *Site 2-1* encompasses 0.8 miles of the left (west) bank of the LAR between RM 5.2 and RM 6.6. At this site, a minimal-width (20-foot) bench separates the levee toe from the river. The site extends from Glen Hall Park, at Paradise Bend, to California State University, Sacramento's Desmond Hall student housing building, approximately 0.15 RM upstream otf the H Street Bridge.
- *Site 2-2* is located on the right (north) bank, extending from about 250 feet upstream of the Howe Avenue Bridge to about 900 feet downstream of the bridge, i.e., from RM 7.45 to RM 7.7.
- *Site 2-3* is located on the right (north/east) bank and extends from about RM 7.2 downstream to RM 5.9, located along the Campus Commons Golf Course, crosses the H Street Bridge and the Guy West Bridge, and its upstream end is approximately across from the E. A. Fairbairn Water Treatment Plant's intake facility.

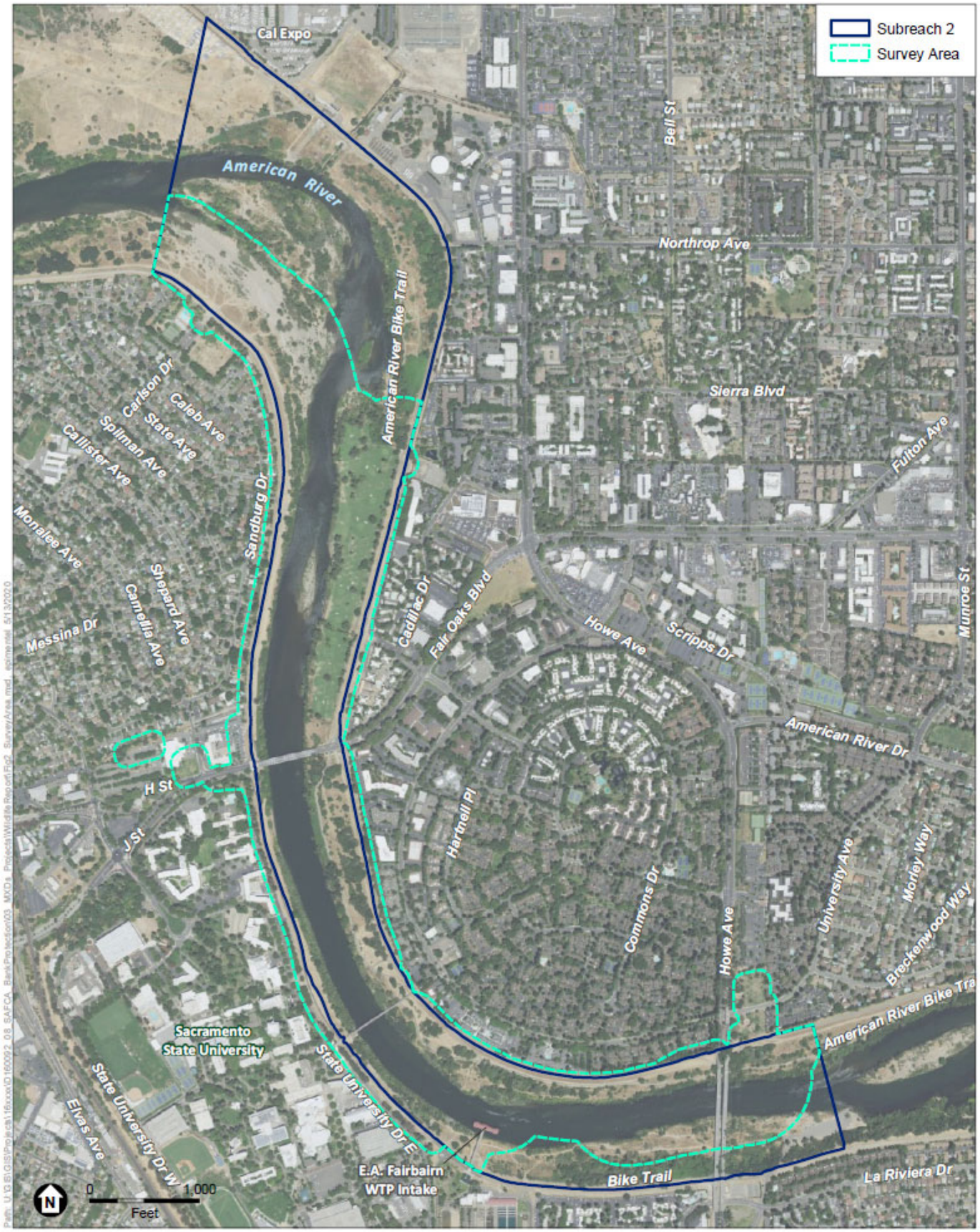


SOURCE: Esri, 2018; ESA, 2019

American River Common Features 2016 Project American River Contract 1

Figure 1
Regional Location

ESA



SOURCE: NHC, 2019; ESA 2019

American River Common Features 2016 Project American River Contract 1

Figure 2
Survey Area

ESA

CHAPTER 2
Methods

2.1 Survey Area

In this report, the term "survey area" refers to the area where direct, indirect, or cumulative effects on biological resources could occur as a result of the proposed levee work. This area includes the three levee modification sites and the associated staging areas and access roads. The footprint of proposed Project activities was generally the starting point for defining the biological survey area; however, in practical terms, biological resources have varied sensitivity to disturbance and many species need a somewhat larger survey area. The Project's survey area therefore includes the footprint of the proposed facilities, plus a buffer ranging from approximately 100 feet to 500 feet, depending on habitat quality and access (Figure 2).

2.2 Survey Methodology

2.2.1 Survey Dates and Survey Personnel

ESA wildlife biologist Christy Dawson and botanist Joseph Sanders conducted a reconnaissance-level wildlife survey and habitat assessment of the survey area on June 28, 2019. The survey was conducted to observe and characterize vegetation communities, previously mapped in 2018, to assess habitat quality, and to determine the potential for common and special-status wildlife species to occur.

In addition to this general survey, focused surveys for valley elderberry longhorn beetle (VELB) were conducted by ESA biologists Kelly Bayne and Laura Dodson and ESA botanist Joseph Sanders from August 22 to August 30, 2018. These surveys were performed in accordance with methods described in U.S. Fish and Wildlife Service (USFWS) publications for VELB (USFWS, 1999, 2017).

2.2.2 Natural Communities and Vegetation Surveys

Vegetation communities were surveyed in the survey area in August 2018 to map natural and sensitive communities to the alliance level as described in the *Manual of California Vegetation*. Protocol-level botanical surveys were also conducted for the survey area and reported separately from this report.

2.2.3 Wildlife Surveys

The wildlife surveys cataloged any common or special-status wildlife species observed in the survey area and determined the potential for the presence of suitable habitat for special-status

wildlife species. The wildlife surveys were performed by walking meandering transects over the entire survey area to identify features that support wildlife species. A record was kept of all wildlife species encountered. Special-status species were mapped and global positioning system coordinates were collected for each occurrence.

2.3 Review of Background Information

Before conducting reconnaissance-level vegetation and wildlife surveys, ESA reviewed publicly available and subscription-based data on biological resources. The field surveys provided partial confirmation of the accuracy of publicly available data. The following data sources assisted in this analysis:

- Topographic maps (Sacramento East and surrounding eight 7.5-minute quadrangles)
- Historic and current aerial imagery
- California Wildlife Habitat Relationships database
- The California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB)
- The California Native Plant Society online database
- A USFWS species list

In addition to the above resources, background information for the Project can be found in the ARCF GRR Final EIS/EIR (Corps, 2016), which was reviewed during preparation of this report.

CHAPTER 3
Environmental Setting

3.1 Natural Communities and Associated Wildlife Habitats

Natural communities are assemblages of plant species that occur together in the same area, and are defined by species composition and relative abundance. The natural communities described here are largely consistent with the CDFW natural communities, which comply with the National Vegetation Classification Standard. These communities were crosswalked from previously mapped alliances, in accordance with the membership rules described in the *Manual of California Vegetation* (Sawyer et al. 2009). A crosswalk table is presented in **Appendix A**.

Botanical taxonomy and nomenclature conform to *The Jepson Manual: Vascular Plants of California, second edition* (Baldwin et al., 2012), as revised by the Jepson eFlora (Jepson Flora Project, 2019). Common names of plant species are derived from the Jepson Manual or Calflora (2019). Plant communities generally correlate with wildlife habitat types; wildlife habitats were classified and evaluated using *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer, 1988).

Natural communities present in the survey area include riverine (open water), annual grassland, mixed oak woodland, upland scrub, riparian scrub, and riparian woodland, all of which support various life stages for a wide array of wildlife. Non-native communities, invasive plants, and disturbed/developed areas that do not correspond to natural communities also are present in the survey area. Although these areas generally provide fewer habitat opportunities for wildlife, they may still provide cover and forage. **Figures 3a** through **3c** identify the distribution of native and non-native communities in the survey area.

Appendix B, Tables B-1 and B-2, respectively, present lists of wildlife and plant species that were observed during focused and reconnaissance-level surveys.

3.1.1 California Annual Grassland

Grasslands can be found throughout the survey area, typically in upland areas, and consist mainly of non-native grasses and forbs.[1] Common grass species observed in this community include wild oat (*Avena barbata*), bromes (*Bromus diandrus, B. hordeaceus*), foxtail barley (*Hordeum murinum*), rattail sixweeks grass (*Festuca myuros*), Bermuda grass (*Cynodon dactylon*), and Pacific bentgrass (*Agrostis avenacea*). Pockets of native grasses such as beardless wild rye

[1] Annual grasslands were previously called "ruderal herbaceous" in the 2016 ARCF GRR EIS/EIR.

(*Elymus triticoides*) and purple needle grass (*Stipa pulchra*) occur sporadically throughout the grasslands in the survey area as well.

An assemblage of native and non-native forbs also occurs in these grasslands. Among the many common non-native forbs observed are hairy vetch (*Vicia villosa*), cutleaf geranium (*Geranium dissectum*), Italian thistle (*Carduus pycnocephalus*), yellow star thistle (*Centaurea solstitialis*), prickly lettuce (*Lactuca serriola*), poison hemlock (*Conium maculatum*), wild radish (*Raphanus sativus*), wild mustard (*Hirschfeldia incana*), rose clover (*Trifolium hirtum*), and white sweet clover (*Melilotus indicus*). Some common native forbs observed include Canada horseweed (*Erigeron canadensis*), telegraph weed (*Heterotheca grandiflora*), ragweed (*Ambrosia psilostachya*), elegant clarkia (*Clarkia unguiculata*), and turkey-mullein (*Croton setiger*).

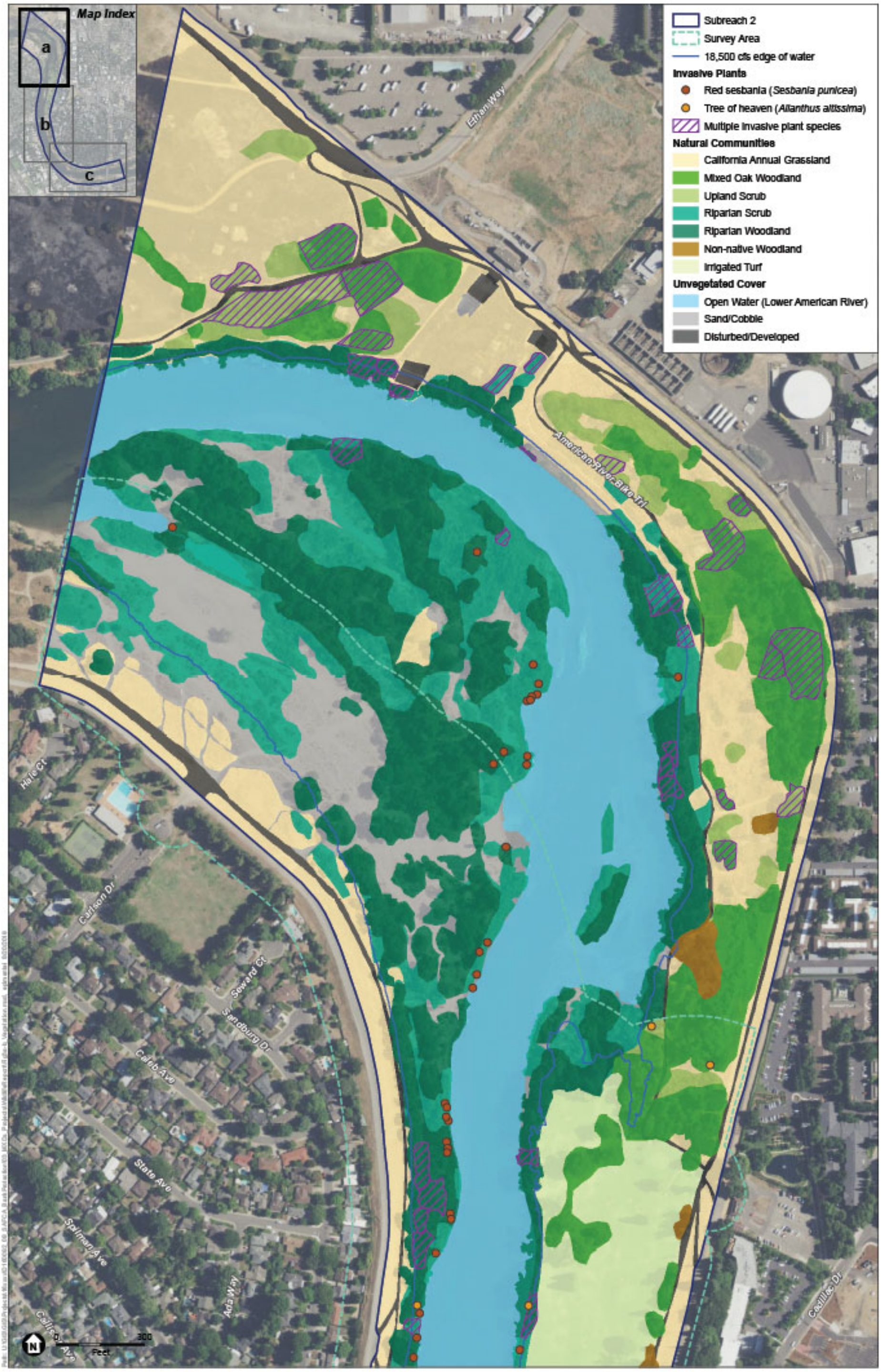
The species composition and structure of grasslands in the survey area vary. Some areas are relatively homogeneous, dominated by one or two species such as yellow star thistle and Bermuda grass, and other areas are much more heterogeneous, with several species occurring. Also, although annual grasslands occur on levee slopes, most of these areas are mowed regularly and thus may provide fewer habitat opportunities for some wildlife species than unmowed grassland areas.

Wildlife Habitat Relationship with California Grassland

Annual grassland provides little cover for most wildlife, yet numerous species forage and several species breed in this habitat type. Grasslands attract bumblebees and other insects that rely on flowering grassland species. They also attract reptiles and amphibians, such as western fence lizard (*Sceloporus occidentalis*), common garter snake (*Thamnophis sirtalis*), and gopher snake (*Pituophis melanoleucus*); and birds, including California quail (*Callipepla californica*), western bluebird (*Sialia mexicana*), lesser goldfinch *(Carduelis psaltria*), and barn swallow (*Hirundo rustica*).

Common small mammals expected to occur in grasslands in the survey area include western harvest mouse (*Reithrodontomys megalotis*), deer mouse (*Mus musculus*), California vole (*Microtus californicus*), black-tailed jackrabbit (*Lepus californicus*), and Botta's pocket gopher (*Thomomys bottae*). Small rodents, reptiles, and invertebrates attract raptors (birds of prey) including red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Accipiter striatus*), and American kestrel (*Falco sparverius*), and special-status birds such as white-tailed kite (*Elanus leucurus*), burrowing owl (*Athene cunicularia*), and Swainson's hawk (*Buteo swainsoni*).

Non-native grasslands are important foraging grounds for aerial and ground-foraging insect eaters such as *Myotis* bat species and pallid bats. Larger mammals such as black-tailed deer (*Odocoileus hemionus*) and coyote (*Canis latrans*) were observed regularly moving through grasslands in the survey area during the biological resources surveys conducted in 2018 and 2019.

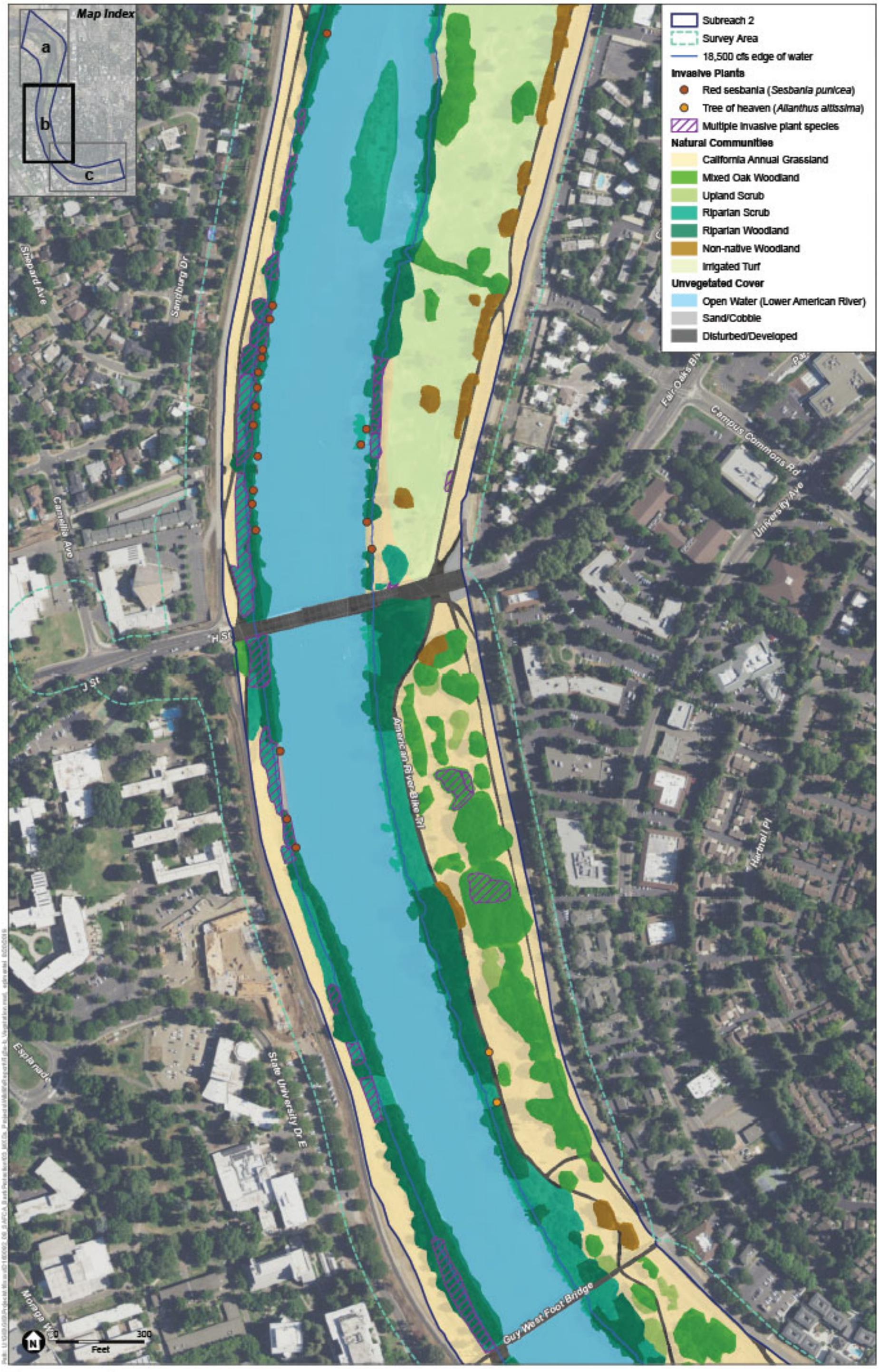


SOURCE: NHC, 2018; ESA, 2019

American River Common Features 2016 Project American River Contract 1

Figure 3a
Natural Communities of the
Lower American River Subreach 2

ESA

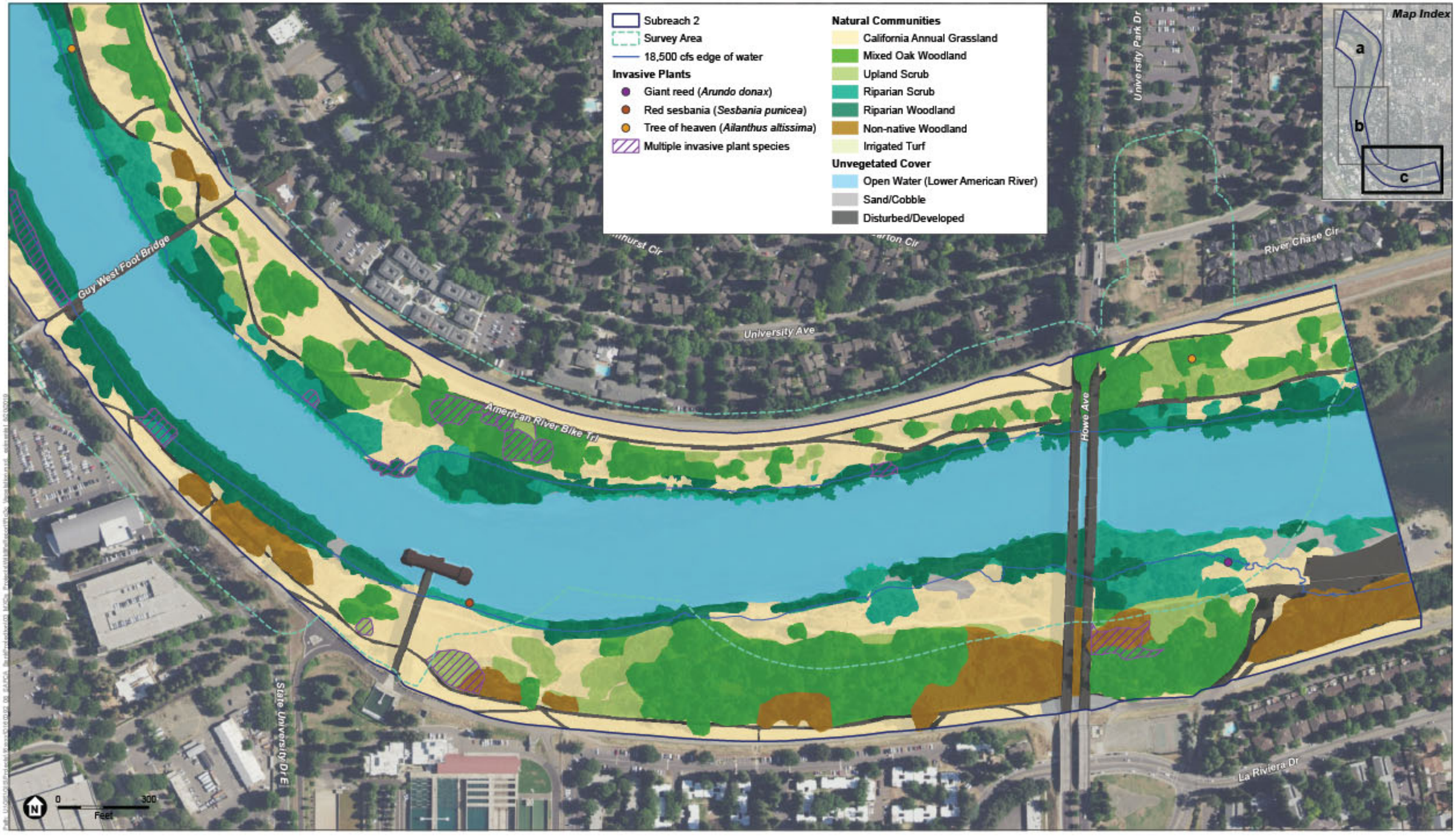


SOURCE: NHC, 2018; ESA, 2019

American River Common Features 2016 Project American River Contract 1

Figure 3b
Natural Communities of the
Lower American River Subreach 2

ESA



SOURCE: NHC, 2016; ESA, 2019

American River Common Features 2016 Project American River Contract 1

Figure 3c
Natural Communities of the
Lower American River Subreach 2

ESA

3.1.2 Mixed Oak Woodland and Upland Scrub

Oak Woodland

Oak woodlands within the survey area are dominated by coast live oak (*Quercus agrifolia*), valley oak (*Q. lobata*), and interior live oak (*Q. wislizeni*); Northern California black walnut (*Juglans hindsii*) and California bay (*Umbellularia californica*) are less frequent contributors to the tree canopy.

Oak woodlands in the survey area support a variety of understory plant species and vegetative structures. When no shrub layer is present, an annual grassland is the dominant understory and includes the common species described above for the California annual grassland community description. When oak woodlands support understory shrubs, common native shrubs observed include California rose (*Rosa californica*), California blackberry (*Rubus ursinus*), blue elderberry (*Sambucus nigra* ssp. *caerulea*), and coyote brush (*Baccharis pilularis* ssp. *consanguinea*). Himalayan blackberry (*Rubus armeniacus*) was the only common non-native shrub observed in the understory of oak woodlands.

Oak woodland is considered a sensitive natural community by CDFW and includes Great Valley valley oak/oak riparian forest.

Upland Scrub

Upland scrub habitat in the survey area consists of areas dominated by native and non-native shrubs that have no tree cover and contain the common herbaceous species described above for California annual grassland. Common native shrub species observed are coyote brush, blue elderberry, California rose, California blackberry, California grape (*Vitis californica*), and western redbud (*Cercis occidentalis*).

Wildlife Habitat Relationships with Mixed Oak Woodland and Upland Scrub

Animals within oak woodland habitat in the survey area include those heavily reliant on acorns, such as the acorn disseminators western scrub jay (*Aphelocoma californica*), acorn woodpecker (*Melanerpes formicivorus*), and western gray squirrel (*Sciurus griseus*). Wild turkey (*Meleagris gallopavo*), California quail, and black-tailed deer use acorns as a major food source.

Deer also use the foliage of several hardwoods. Oak titmouse (*Baeolophus inornatus*), dark-eyed junco (*Junco hyemalis*), ash-throated flycatcher (*Myiarchus tuberculifer*), northern flicker (*Colaptes auratus*), lesser goldfinch (*Carduelis psaltria*), and great horned owl (*Bubo virginianus*) nest in woodland habitat. Cavity nesters include western bluebird, and ash-throated flycatcher. Special-status birds such as Cooper's hawk (*Accipiter cooperii*) and sharp-shinned hawk (*A. striatus*) are known to nest in these woodlands. The pallid bat, also a special-status species, may inhabit these woodlands as well.

Amphibians and reptiles can be found on the forest floor where moisture is retained under fallen wood and in tree crevices; among these species are California toad (*Anaxyrus boreas halophilus*)

and Sierran treefrog (*Pseudacris sierra*). Reptiles include western fence lizard, southern alligator lizard (*Elgaria multicarinata* ssp. *multicarinata*), ringneck snake (*Diadophis punctatus*), gopher snake, western rattlesnake (*Crotalus viridis helleri*), and California king snake (*Lampropeltis zonata*). Many of these species will also use adjacent upland scrub areas for foraging or cover.

3.1.3 Valley Foothill Riparian

Riparian Scrub

Riparian scrub habitat in the survey area consists of shrub-dominated areas that are subject to hydrologic influence from the LAR. These areas are dominated by sandbar willow (*Salix exigua*), arroyo willow (*S. lasiolepis*), common button bush (*Cephalanthus occidentalis*), California rose, California blackberry, California wild grape, blue elderberry, and Himalayan blackberry. Areas that experience high flows typically do not support herb species and cobbles tend to be the dominant ground cover. Areas that experience slower flows support a variety of herb species including mugwort (*Artemisia douglasiana*), marsh brittlegrass (*Setaria parviflora*), Santa Barbara sedge (*Carex barbarae*), horsetails (*Equisetum arvense* and *E. hymale* ssp. *affine*), rushes (*Juncus balticus*, *J. bufonius*, *J. effusus*, and *J. patens*), beardless wildrye (*Elymus triticoides*), and water iris (*Iris pseudacorus*).

Riparian Woodland

Riparian woodlands in the survey area are tree-dominated areas that are subject to frequent hydrologic influence from the LAR. These areas are dominated by Fremont cottonwood (*Populus fremontii*), Goodding's willow (*Salix gooddingii*), red willow (*S. laevigata*), white alder (*Alnus rhombifolia*), Oregon ash (*Fraxinus latifolia*), and/or California sycamore (*Platanus racemosa*). Pacific willow (*Salix lasiandra*), valley oak, American elm (*Ulmus americana*), and black locust as less frequent contributors to the tree canopy. Riparian woodlands support a variety of shrubs and herbs similar to those described above for the riparian scrub community.

Wildlife Habitat Relationships with Valley Foothill Riparian

Many wildlife species are dependent on riparian habitats for water, food, and cover. Several species of raptors—red-shouldered hawk, Cooper's hawk, great horned owl, and the State-listed Swainson's hawk—build their nests in the crowns of cottonwood, valley oak, and other large trees that grow on the landside and waterside of the levees in the survey area. Natural cavities and woodpecker holes provide nesting sites for cavity-nesting species, including wood duck (*Aix sponsa*), common merganser (*Mergus merganser*), American kestrel, tree swallow (*Tachycineta bicolor*), western bluebird, and western screech owl (*Megascops kennicottii*).

Riparian scrub supports large numbers of insects and attracts passerine birds, including several species of flycatchers, warblers, and hummingbirds. In addition, a number of Federally listed species rely on riparian corridors, including VELB and the western yellow-billed cuckoo. Riparian habitat is listed as a sensitive natural community by the CNDDB (CDFW, 2018) and includes Great Valley cottonwood riparian forest and Northern California black walnut.

3.1.4 Riverine

Riverine habitat includes inundated areas including the LAR. Such areas support some submerged aquatic vegetation including Brazilian waterweed (*Egeria densa*), curly pondweed (*Potamogeton crispus*), and water primrose (*Ludwigia hexapetala*).

Shaded Riverine Aquatic Habitat

Shaded riverine aquatic habitat is defined as the nearshore aquatic area located at the interface between a river and adjacent woody riparian habitat. This valuable cover type has two principal attributes: (1) The adjacent bank is composed of natural, eroding substrates supporting riparian vegetation that either overhangs or protrudes into the water; and (2) the water contains variable amounts of woody debris, such as leaves, logs, branches, and roots, as well as variable depths, velocities, and currents. Shaded riverine aquatic habitat is present throughout the survey area along the riverbanks and levees and is contained within the other identified habitat types in these areas.

Wildlife Habitat Relationships with Riverine

Many bird species use open waters for resting, hunting, and escape cover. Common species include gulls, waterfowl, osprey (*Pandion haliaetus*), and bald eagle (*Haliaeetus leucocephalus*). Shorelines provide hunting grounds for wading birds such as herons and egrets, and for kingfisher, waterfowl, and shorebirds. Flycatchers, swallows, and other insectivorous birds catch their prey over water. Mammal species that occur in this habitat type include river otter (*Lontra canadensis*) and beaver (*Castor canadensis*).

3.1.5 Disturbed/Developed

The levee system has substantially altered the habitat within the LAR parkway and surrounding areas are urbanized. In addition to the levee system, existing facilities in the survey area include a golf course, a bike path, a large pump facility, and three bridges (Figure 3). Staging and access areas are located mostly in existing parking areas, open parks, and on existing gravel or paved roads and paths. Disturbed portions of the survey area include bare ground or manicured areas that are subject to continued disturbance.

Invasive Plant Species

In the survey area, invasive non-native plant species occur in all plant communities, but most commonly with and adjacent to annual grasslands. Areas dominated by non-native vegetation are generally associated with recent human disturbance and include dredged mine tailings, maintained levee slopes, landscaped areas, and areas subject to frequent flood inundation or scour. Non-native weeds dominate some areas, especially along the side slopes of the levees. To a lesser degree, invasive plants are also found in other plant communities such as riparian and oak woodland.

Non-native Woodland

Several locations in the survey area are dominated by non-native trees. These single-species tree stands consist of either Australian pine (*Casuarina equisetifolia*), black locust (*Robinia pseudoacacia*), or tree of heaven (*Ailanthus altissima*). With the exception of black locust stands, non-native woodlands in the survey area do not support a shrub understory, and are dominated by the common herbaceous species described above for California annual grassland. Some black locust stands support blue elderberry shrubs in the understory.

Irrigated Turf

The Campus Commons Golf Course and University Park contain irrigated lawns that are mowed regularly and are dominated by Bermuda grass. Irrigated turf is not considered a sensitive natural community.

Wildlife Habitat Relationships with Disturbed/Developed

The survey area outside of the LAR parkway combines urban residential zones featuring lawns, shade trees, and ornamental plants with areas of mature vegetation as encountered in the parks, on the university campus, and along the periphery of the golf course. Although these areas are disturbed, they can still support wildlife, and the more mature areas can sometimes approximate the natural environment. Bird species that may use these habitat types include scrub jay, Northern mockingbird (*Mimus polyglottos*), house finch (*Carpodacus mexicanus*), California quail, and western bluebird. Common mammals include black-tailed deer, raccoon (*Procyon lotor*), and opossum (*Didelphis virginiana*). Gopher snake and western fence lizard also occur in this habitat type.

Wildlife also use manmade structures such as the H Street Bridge, which is being used as a day roost for unidentified bat species (possibly pallid bat [*Antrozous pallidus*] and/or myotis bats [*Myotis* sp.]). Cliff swallows were observed nesting on the Howe Avenue Bridge. The potential also exists for nesting birds to occur in the trees located in the parking lots and dog park that would be used for Project staging areas.

3.2 Special-Status Species

Several wildlife species known to occur in or in the vicinity of the survey area are protected under Federal and/or State endangered species laws or have been designated as species of special concern by CDFW. In addition, Section 15380(b) of the State CEQA Guidelines provides a definition of rare, endangered, or threatened species that are not included in any listing. Species recognized under these terms are referred to collectively as “special-status species.”

A list of special-status wildlife species with potential to occur in or in the vicinity of the survey area was compiled from a nine-quadrangle search of the CNDDB (CDFW, 2019a), a search of the USFWS Information for Planning and Consultation endangered species database (USFWS, 2019), and biological literature of the region. The search encompassed the following 7.5-minute U.S. Geological Survey topographic quadrangles:

Taylor Monument	Rio Linda	Citrus Heights
Sacramento West	Sacramento East	Carmichael
Clarksburg	Florin	Elk Grove

Each species on the list was assessed individually based on its habitat requirements and distribution relative to the location and vegetation communities that occur in and around the survey area. **Table 1** provides a comprehensive list of special-status wildlife species that were considered in the analysis. Those species with a moderate or high potential to occur in the survey area are described below in greater detail. See **Figure 4** for a map of CNDDB special-status species occurrences within five miles of the survey area. If habitat was not present or the survey area is outside of the known range of the species, the species was assumed absent and excluded from the list.

The "Potential to Occur" categories are defined as follows:

- **Low**: The survey area provides only limited and low-quality habitat for a particular species. In addition, the known range for a particular species may be outside of the survey area.
- **Moderate**: The survey area and/or immediate vicinity provides suitable habitat for a particular species.
- **High**: The survey area and/or immediate vicinity provide ideal habitat conditions for a particular species and/or known populations occur in the survey areas or within its immediate vicinity.
- **Present:** The species was observed during the biological surveys within the survey area.

TABLE 1
SPECIAL-STATUS ANIMAL SPECIES CONSIDERED IN THE SURVEY AREA

Common Name Scientific Name	Status Fed/State	Habitat	Potential to Occur
Listed Species			
Invertebrates			
Crotch bumble bee *Bombus crotchii*	–/CP	Open grasslands and scrub habitat in California with available underground nesting habitat in fossorial animal burrows.	**Moderate.** Annual grassland and scrub habitats are available and several commonly visited flower species were identified as occurring in the survey area. However, there are few recent sightings in the vicinity.
Western bumble bee *Bombus occidentalis occidentalis*	–/CP	Nests, forages, and overwinters in meadows and grasslands with abundant floral resources and available underground nesting habitat in fossorial animal burrows. Range is throughout California, but more common in the Sierra Nevada and Coast Ranges than in the Central Valley.	**Low.** Grassland habitat is available, but the western bumble bee is uncommon in the Central Valley.

TABLE 1
SPECIAL-STATUS ANIMAL SPECIES CONSIDERED IN THE SURVEY AREA

Common Name Scientific Name	Status Fed/State	Habitat	Potential to Occur
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	FT/–	Mature elderberry shrubs.	**High.** Elderberry plants are present in the survey area. Exit holes observed.
Reptiles			
Giant garter snake *Thamnophis gigas*	FT/CT	Permanent or semipermanent water and dense emergent vegetation; freshwater marshes, streams, and canals with permanent water.	**Low.** The American River lacks suitable habitat (USFWS AFRC BO 2014-F-0518).
Birds			
Western yellow-billed cuckoo *Coccyzus americanus occidentalis*	FT/CE	In California, western cuckoos are largely restricted to river valleys in the north-central (e.g., Sacramento River) and southwestern (e.g., Kern River) regions. Western cuckoos prefer to nest in willow (*Salix* spp.), cottonwood (*Populus* spp.), and mesquite (*Prosopis* spp.), but they will also use orchards.	**Moderate.** Vocalization recently documented approximately three miles upstream on a densely forested island in the American River. Submarginal nesting habitat occurs in the survey area, but it may be used by transient birds.
Tricolored blackbird *Agelaius tricolor*	–/CT	Breeds near freshwater in dense emergent vegetation or dense brush.	**Low.** Marginal nesting habitat in the willow riparian area. Closest known occurrence is greater than five miles away.
Swainson's hawk *Buteo swainsoni*	–/CT	Often nests near riparian systems, but will also use lone trees in agricultural fields or pastures and roadside trees when available and adjacent to suitable foraging habitat.	**High.** Known to occur within 0.5 miles of the survey area.
Bank swallow (nesting) *Riparia riparia*	–/CT	Colonial nester mostly along coastal areas and rivers in Northern and Central California. Nesting restricted to vertical banks or bluffs with friable soils suitable for burrowing. Vegetation is varied; nesting sites are selected mostly based on the suitability of the nesting bank.	**Moderate.** Previously observed approximately 0.5 miles downstream of the survey area. No bank nesting habitat observed within the survey area, but may use the survey area for foraging.
Nonlisted Special-Status Species			
Reptiles			
Western pond turtle *Actinemys marmorata*	–/CSC	Variety of aquatic habitats, both permanent and intermittent, with suitable aerial and aquatic basking sites. Needs upland habitats for nesting, overwintering, and aestivating.	**Present**. Observed in the survey area during surveys.
Birds			
Cooper's hawk *Accipiter cooperii*	–/WL	A common migrant and winter resident. Nests and forages in a wide variety of forest and woodland habitats.	**High**. Known to occur within 0.5 miles of the survey area.
Great egret *Ardea alba*	MBTA/–	Colonial nester in large trees. Rookery sites located near marshes, tide flats, irrigated pastures, and margins of rivers and lakes.	**Moderate**. Potential nesting habitat in the survey area. There is an egret rookery approximately five miles upstream of the survey area on the American River.

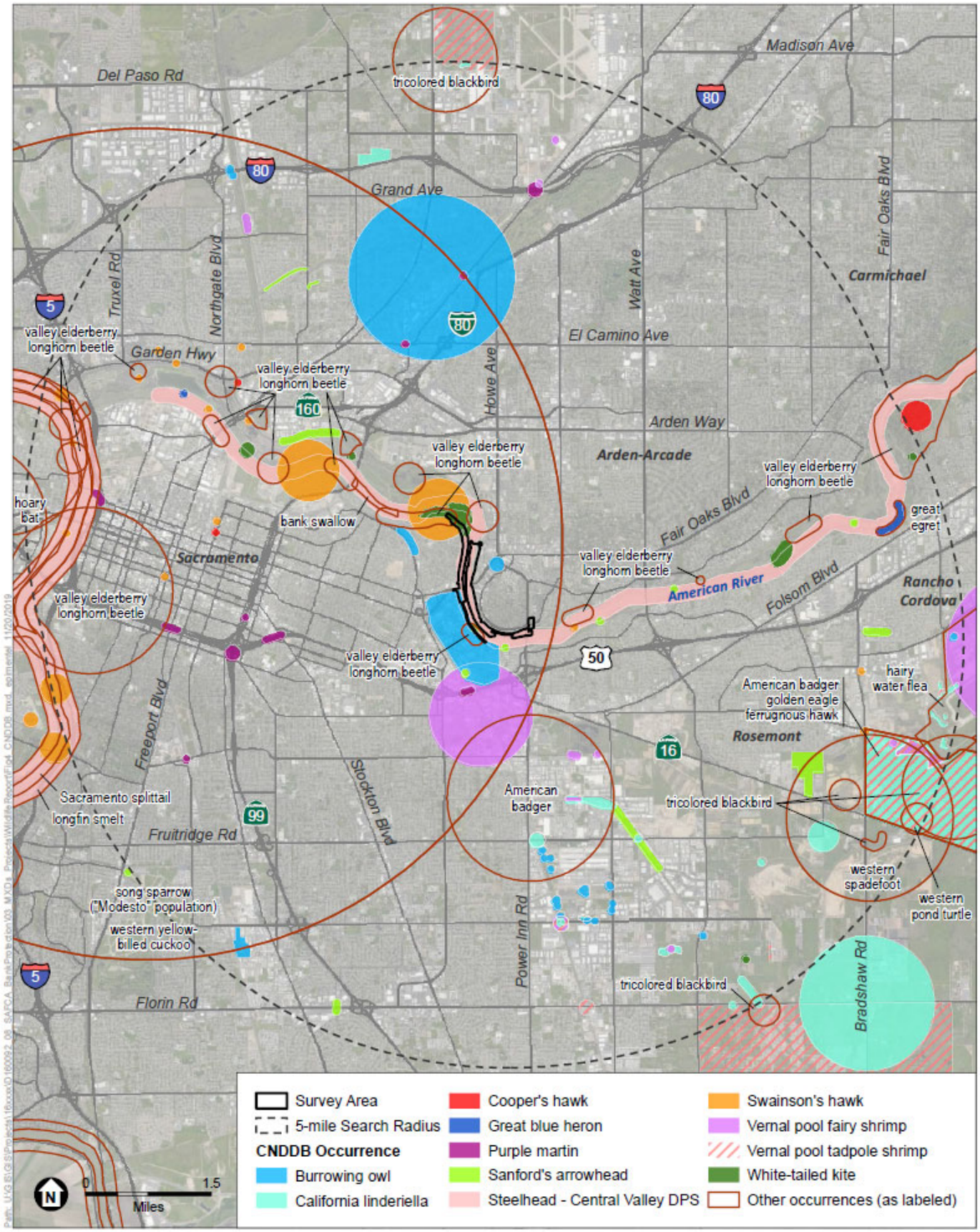
TABLE 1
SPECIAL-STATUS ANIMAL SPECIES CONSIDERED IN THE SURVEY AREA

Common Name Scientific Name	Status Fed/State	Habitat	Potential to Occur
Great blue heron (rookery site) *Ardea herodias*	MBTA/–	Variety of habitats near sources of water. Nests commonly high in the tops of secluded large snags or live trees.	**Moderate**. Potential nesting habitat in the survey area. There is a heron rookery within five miles downstream of the survey area on the American River.
Burrowing owl *Athene cunicularia*	–/CSC	Nests and roosts in burrows, usually of ground squirrels, in grasslands and ruderal habitats.	**High**. Known to occur in the survey area near the university. Several ground squirrel burrows observed along the levee corridor.
White-tailed kite (nesting) *Elanus leucurus*	–/FP	Savanna, open woodland, marshes, partially cleared lands and cultivated fields, mostly in lowland habitats. Nests in trees, often near marshes.	**High**. Known to occur in the survey area on the south side.
Purple martin *Progne subis*	–/CSC	Nests mostly in old woodpecker cavities; also nests in human-made structures. Nest is often located in tall, isolated trees/snags.	**Moderate**. Potential nesting habitat in the survey area. Known to occur on bridge and overpass structures within one mile of the survey area.
Mammals			
Pallid bat *Antrozous pallidus*	–/CSC	Arid deserts and grasslands of low elevations in California; often near rocky outcrops and water. Usually roosts in rock crevices or buildings, less often in caves, tree hollows, mines, etc. Prefers narrow crevices in caves as hibernation sites.	**High**. This species may roost in buildings and bridges in the survey area; however, roosting is not reported by the CNDDB within five miles of the survey area or within the nine-quadrangle area that includes the survey area.
Western red bat *Lasiurus blossevillii*	–/CSC	Associated with riparian habitat. Roosts primarily in the foliage of trees or shrubs, but may also occasionally use caves. Day roosts commonly in edge habitats.	**High**. This species may roost in mixed oak woodland habitat in the survey area; however, roosting is not reported by the CNDDB within five miles of the survey area or within the nine-quadrangle area that includes the survey area.
American badger *Taxidea taxus*	–/CSC	Requires sufficient food, friable soils to excavate dens and pursue prey, and relatively open, uncultivated ground.	**Moderate.** The potential exists for this species to use the parkway. Although no signs of presence were observed, there were small fossorial mammal burrows and ground squirrel activity. There are two known occurrences within five miles; however, the most recent sighting was from 1991.

NOTES:
CNDDB = California Natural Diversity Database

FEDERAL	STATE	STATE
FC: Federal candidate for listing	CE: State listed as endangered	FP: California fully protected species
FE: Federally listed as endangered	CT: State listed as threatened	CSC: California species of special concern
FT: Federally listed as threatened	CD: State delisted	*: CDFW protected
FD: Federally delisted	CP: State proposed for listing	WL = CDFW watch list
MMPA: Marine Mammal Protection Act		
MBTA: Migratory Bird Treaty Act		

SOURCES: CDFW, 2019a; Jennings and Hayes, 1994; Ron Melcer Jr., Delta Stewardship Council, pers. comm., July 28, 2019; Shuford and Gardali, 2008; USFWS, 2019; WBWG, 2005; Zeiner et al., 1988, 1990a, 1990b



SOURCE: Esri, 2012; CDFW, 2019; ESA, 2019

American River Common Features 2016 Project American River Contract 1

Figure 4
Special-status Species Occurrences within 5 miles of the Survey Area

ESA

The analysis below includes consideration of special-status species categorized as present, or with a medium or high potential to occur.

3.2.1 Federally Listed and State-Listed Wildlife Species

Crotch Bumble Bee

The crotch bumble bee was recommended to be added to the State endangered species list and was listed as a candidate species by CDFW in June 2019. It inhabits open grassland and scrub habitats throughout California. Crotch bumble bees primarily nest underground in mammal burrows, but are occasionally observed in old logs and cavities in trees, among other aboveground locations. They are generalist foragers, with short tongues, and thus have a preference for foraging on open flowers with short corollas. They overwinter in soft disturbed soil or under leaf litter (CDFW, 2019b).

This species was historically common throughout the Central Valley, but now is mostly absent. The closest somewhat recent occurrence documented in the CNDDB, last recorded in 1998, was just southwest of Davis, approximately 18 miles west of the Project area. Two more recent occurrences were documented in the CNDDB in 2007; the first was just outside of Fairfield, approximately 36 miles to the southwest, and the second was near the Tisdale Weir in Colusa County, approximately 38 miles to the north. More recent occurrences are in the Sierra Nevada and the Coast Ranges. Nonetheless, suitable habitat occurs in the survey area in annual grassland and scrub habitats.

Valley Elderberry Longhorn Beetle

The valley elderberry longhorn beetle is Federally listed as threatened. Suitable habitat for the VELB is typically defined as live elderberry (*Sambucus* spp.) stems measuring at least one inch in diameter at ground level. These beetles seldom occur above 3,000 feet in elevation. They are generally found along waterways and in floodplains that support remnant stands of riparian vegetation. The VELB is completely dependent on its host plant, the elderberry, which is a common component of the riparian forests and adjacent upland habitats of California's Central Valley and foothills. Elderberry shrubs with VELB populations occur in a variety of habitats and plant communities, but are most often found in riparian areas (USFWS, 1999, 2017).

Records for this species are restricted to small, scattered populations along the Sacramento, American, San Joaquin, Kings, Kaweah, and Tule Rivers and their tributaries. However, the species has the potential to occupy shrubs in the Central Valley and Sierra Nevada foothills. For this reason, elderberry shrubs of sufficient size (measuring at least one inch in diameter at ground level) are considered suitable habitat for this species. There are documented occurrences of VELB in the survey area from 1984, when 11 beetles were captured. Fresh exit holes were observed in 2009 (CDFW, 2019a), 2018 (Environmental Science Associates, 2018), and during this survey.

Yellow-billed Cuckoo

The western yellow-billed cuckoo is a subspecies of the yellow-billed cuckoo and has been recognized through designation of a distinct population segment (USFWS, 2001). In 1988, the cuckoo was listed by the State as endangered under the California Endangered Species Act (CDFW, 2019c). In 2014, the cuckoo was Federally listed as threatened under the Federal Endangered Species Act, and critical habitat was proposed throughout its range, including a 69-mile-long, contiguous segment of the Sacramento River from Red Bluff to Colusa (USFWS, 2014a, 2014b). The cuckoo is typically found in riparian forests with dense deciduous trees and shrubs, primarily in riparian forests and associated bottomlands dominated by willow, cottonwood, or mesquite (Gaines and Laymon, 1984; Laymon and Halterman, 1987; Hughes, 1999; Halterman et al., 2001).

This subspecies was once common throughout California (Grinnell and Miller, 1944), but the population has declined over the last 100 years following extensive loss of riparian habitat. In California, cuckoos are consistently found in only a few isolated areas: the Sacramento Valley (between Red Bluff and Colusa), the Feather River (between Gridley and Nicolaus), the South Fork of the Kern River, and several Lower Colorado River Multi-Species Conservation Program restoration sites on the California side of the lower Colorado River (Gaines and Laymon, 1984; Laymon and Halterman, 1989; Laymon, 1998; Halterman et al., 2001; Dettling and Seavy, 2012).

Until recently, the Upper Sacramento River was believed to have one of the largest cuckoo populations in California. However, surveys have documented a dramatic decline in this population (Halterman et al., 2001; Dettling and Howell, 2011; Dettling et al., 2014). Riparian vegetation in this area has increased by almost 5,000 acres since 1996 as a result of restoration efforts (Golet et al., 2008). Gaines and Laymon (1984) suggested, however, that many large patches along the Sacramento River in Tehama County and along the Feather River appeared to be unoccupied even though they apparently represent suitable habitat. Follow-up surveys were conducted in 1987 and 1999, and between one and six individuals were found along the Feather River between Oroville and Nicolaus (Laymon and Halterman, 1989; Halterman et al., 2001).

Until very recently, the last documented occurrence in the CNDDB in the vicinity of the survey area was from the late 1800s. However, on July 27, 2019, a cuckoo vocalization was documented approximately three miles upstream on a heavily forested island in the American River (Ron Melcer Jr., Delta Stewardship Council, pers. comm., July 28, 2019). The bird was not observed and the nesting status is unknown.

The survey area provides marginal remnant riparian habitat that may be used for foraging or dispersal. However, the riparian habitat in the survey area does not meet the typical size requirements (25 contiguous acres or more) for home ranges of nesting yellow-billed cuckoos (USFWS, 2001).

Swainson's Hawk

Swainson's hawk is State-listed as threatened. It once occupied large grassland and shrub steppe habitats, as well as canyons, foothills, and smaller interior valleys in otherwise mountainous

regions. Currently, the species is most common in the Central Valley and Great Basin. Nesting habitat for Swainson's hawk includes mature trees with relatively dense canopies such as oaks or cottonwoods in or near riparian habitat, agricultural fields, or suburban neighborhoods near suitable foraging habitat. They forage in grasslands, irrigated pastures, and grain fields. In California, Swainson's hawks begin nesting in late March, and the young usually leave the nest (fledge) by August.

The closest CNDDB occurrence of Swainson's hawk is approximately 0.5 miles west of the survey area. The pair was last observed nesting in 2011. A pair was observed in the same vicinity in 2012, but nesting was not confirmed. The most recently documented CNDDB occurrence, in 2017, was a nest approximately 1.5 miles west of the survey area. Additionally, there has been a regularly documented nest just upstream of Howe Avenue (Sorgen, K. C. pers. comm., 2019) and a potential nesting pair was observed in May 2019 by a DWR survey team on the river's right bank just downstream of Watt Ave, approximately 1.4 miles east of the survey area (Lori Price, pers. comm., 2019). The survey area and landscape within 0.5 miles was assessed for potential Swainson's hawk nesting and foraging habitat. The large trees within the riparian corridor and adjacent parks could provide nesting sites and annual grasslands and nearby parks provide suitable foraging habitat.

Bank Swallow

The bank swallow is State-listed as threatened. It is a neotropical migrant that arrives in California in May and breeds before returning to South America in late July or August. Swallows primarily inhabit riparian and lowland habitats with vertical banks, bluffs, and cliffs where they dig holes for nesting in sandy or fine-textured soil (CDFG, 1999a). The species' range in California is estimated to have been reduced by 50 percent since 1900 (CDFG, 1999a). Bank swallow was formerly more common as a breeder in California. Now, only approximately 110–120 colonies remain in the state. Perhaps 75 percent of the current breeding population in California occurs along the banks of the Sacramento and Feather Rivers in the northern Central Valley (CDFG, 1999a).

Historically, a population of nesting bank swallows, was documented in the CNDDB, approximately 0.5 miles downstream of the survey area. The most recent record was from for this location 1986. The closest recent (2017) CNDDB record is from the vicinity of Knights Landing, which is 17 miles from the survey area. Although nesting habitat in the survey area is limited, as the banks are mostly covered in dense vegetation, there is high-quality foraging habitat that bank swallows may use.

3.2.2 Nonlisted Special-Status Wildlife Species

Western Pond Turtle

The western pond turtle is a California species of special concern. This moderate-sized aquatic turtle is commonly found in ponds, lakes, marshes, rivers, streams, and irrigation ditches with rocky or muddy substrates. Its habitat often exhibits shoreline basking areas that may or may not be bordered by aquatic vegetation. Aquatic sites are often within woodlands, grasslands, and open forests, between sea level and 6,000 feet in elevation. Pond turtles bask on logs or other objects when

water temperatures are lower than air temperatures. Their nests are created in upland areas with friable soils, often up to 0.25 miles from an aquatic site (Jennings and Hayes, 1994; Stebbins, 2003; Zeiner et al., 1988).

Western pond turtles are discontinuously distributed throughout California west of the Cascade-Sierran crest (Jennings and Hayes, 1994). They were documented by the CNDDB within the nine-quadrangle area and were observed in the survey area just downstream of the Campus Commons Golf Course, on river right, basking on a log in the water.

Cooper's Hawk

The Cooper's hawk is a CDFW watch list species. This medium-sized accipiter is a resident of wooded areas throughout California, with breeding described throughout the Coast Ranges and Sierra Nevada foothills. The Cooper's hawk forages mostly on small birds and mammals, although it will also take reptiles and amphibians. The species' peak nesting season is May through July, although nesting may occur any time from March to August (Zeiner et al., 1990a).

A Cooper's hawk nest was recorded by the CNDDB within one mile south of the survey area in 2007 (CDFW, 2019a). Woodland habitat in and near the survey area provides potential nesting opportunities for this species.

Western Burrowing Owl

Western burrowing owls are California species of special concern. They inhabit grassland, desert, and open shrub habitats throughout the state from sea level to approximately 5,300 feet (CDFG, 1999b). Unlike many sensitive species, burrowing owls persist and even thrive in some landscapes that are highly altered by human activity. The characteristics of suitable habitat are burrows for roosting and nesting, and relatively short vegetation with only sparse shrubs and taller vegetation. Individuals in agricultural environments nest along roadsides and water conveyance structures. Breeding occurs February through August (CDFG, 2012).

The closest CNDDB occurrence of burrowing owl is just east of Site 2-1 on the university campus and approximately 0.5 miles east of the survey area. The levee and bike path along the project corridor in the survey area, especially Site 2-2, consists of disturbed grasslands with small mammal burrows and ground squirrel activity. This area provides potential nesting habitat for burrowing owl. During reconnaissance-level surveys, no burrowing owls or signs of occupied burrows were found.

White-Tailed Kite

The white-tailed kite is a fully protected species under the California Fish and Game Code. This species nests primarily in riparian and lowland habitats often associated with agricultural areas throughout cismontane California. White-tailed kites typically nest in dense vegetation at the tops of oaks, willows, or other native trees. They prey primarily on voles and other diurnal mammals (CDFG, 2005). Their numbers and range have increased in the past few decades (CDFG, 2005).

There are two known CNDDB occurrences of white-tailed kite in the survey area, the most recent documented in 2009. The survey area provides trees suitable for nesting and potential foraging habitat is available along the levees and in nearby parks and open grasslands. White-tailed kites were not observed during the surveys.

Other Breeding and Migratory Birds

The Federal Migratory Bird Treaty Act and California Fish and Game Code protect raptors, most native migratory birds, and breeding birds that could be present in the survey area. The LAR parkway corridor provides high-quality foraging and nesting opportunities for a variety of resident and migratory birds. Common raptor species that may nest in the mature trees of the parkway could include red-tailed hawk, red-shouldered hawk (observed), and great horned owl. Wading birds such as the great egret and the great blue heron are known to nest upstream and downstream of the survey area, and have been observed foraging in the survey area. Among the many passerine species observed in the survey area and with the potential to nest are western scrub jay, acorn woodpecker, downy woodpecker, northern flicker, black phoebe, American robin, western bluebird, and ash-throated flycatcher. Cliff swallows were observed nesting under the Howe Avenue Bridge. Purple martin, a California species of special concern, is also known to occur in the area and has the potential to nest in the survey area. A full list of species observed in the survey area is provided in Appendix B, Table B-1.

Pallid Bat

The pallid bat, a California species of special concern, occurs throughout California except in parts of the high Sierra and the northwestern corner of the state (Zeiner et al., 1990b). The pallid bat inhabits a variety of habitats, such as grasslands, shrublands, woodlands, and forests; however, it is most abundant in open, dry habitats with rocky areas for roosting. Pallid bats roost alone, in small groups, or gregariously (WBWG, 2005). Roosts include caves, crevices in rocky outcrops and cliffs, mines, trees, and various manmade structures (e.g., bridges, barns, porches); they generally have unobstructed entrances/exits and are high above the ground, warm, and inaccessible to terrestrial predators. Year-to-year and night-to-night roost reuse is common; however, bats may switch day roosts on a daily and seasonal basis (WBWG, 2005).

The pallid bat is the most widely described special-status bat species in central California. No occurrences are reported within five miles of the survey area, or within the nine-quadrangle area that includes the survey area. However, during reconnaissance-level surveys, bats were observed using the H Street Bridge for a day roost. The bats were not identified to species, but the bridge may provide suitable roosting habitat for this species.

Western Red Bat

The western red bat is a California species of special concern. This is a riparian obligate species (i.e., dependent on riparian habitat) that is ubiquitous throughout California except the northern Great Basin region. Western red bats roost individually in dense clumps of tree foliage in riparian areas, orchards, and suburban areas. They are primarily moth specialists, but will forage for a variety of other insects. Individuals have been observed foraging around street lamps and floodlights in suburban areas (WBWG, 2005).

Based on its tendency to roost within tree foliage, this species may be intermittently present in the riparian and woodland habitat in the survey area; however, roosting occurrences are not reported by the CNDDB within five miles of the survey area or within the nine-quadrangle area that includes the survey area.

American Badger

The American badger is a California species of special concern. This species prefers open grasslands and riparian habitat within the valley areas, although it occurs throughout multiple habitat types in California. The principal requirements seem to be sufficient food, friable soils to excavate dens and pursue prey, and relatively open, uncultivated ground. In California, badgers range throughout the state, except for the humid coastal forests of northwestern California in Del Norte County and the northwestern portion of Humboldt County (Williams, 1986).

Reconnaissance-level wildlife surveys of the survey area in summer did not detect any badger excavations or other signs of species presence. This species was previously observed in the vicinity of the survey area (two miles to the south), but the observation is almost 30 years old. Nonetheless, suitable habitat occurs in the survey area in annual grasslands.

Critical Habitat for Listed Wildlife Species

USFWS defines the term “critical habitat” in the Federal Endangered Species Act as a specific geographic area(s) that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. The survey area is not within designated critical habitat for any listed terrestrial wildlife species.

CHAPTER 4
References and Report Preparation

4.1 References

Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken, eds. 2012. *The Jepson Manual: Vascular Plants of California*, second edition. Berkeley: University of California Press.

Calflora. 2019. Information on California plants for education, research, and conservation [web application]. Berkeley, CA: The Calflora Database [a nonprofit organization]. Available: http://www.calflora.org/. Accessed July 2019.

California Department of Fish and Game (CDFG). 1999a. California Wildlife Habitat Relationships System California Interagency Wildlife Task Group: Bank Swallow.

———. 1999b. California Wildlife Habitat Relationships System California Interagency Wildlife Task Group: Western Burrowing Owl.

———. 2005. California Wildlife Habitat Relationships System California Interagency Wildlife Task Group: White-Tailed Kite.

———. 2012. *Staff Report on Burrowing Owl Mitigation*. March 7, 2012.

California Department of Fish and Wildlife (CDFW). 2018. California Sensitive Natural Communities. October 15, 2018.

———. 2019a. California Natural Diversity Database (CNDDB) search for the U.S. Geological Survey 7.5-minute Sacramento East topographic quadrangle, and surrounding eight quadrangles. Information accessed June 25, 2019.

———. 2019b. *Report to the Fish and Game Commission: Evaluation of the Petition from the Xerces Society, Defenders of Wildlife, and The Center for Food Safety to List Four Species of Bumble Bees as Endangered under the California Endangered Species Act.*

———. 2019c. State and Federally Listed Endangered and Threatened Animals of California. California Natural Diversity Database. August 7, 2019.

Dettling, M. D., and C. A. Howell. 2011. *Status of the Yellow-Billed Cuckoo along the Sacramento River in 2010*. Report to California Department of Fish and Game. PRBO Contribution #1794.

Dettling, M. D., and N. E. Seavy. 2012. *Yellow-Billed Cuckoo Survey Effort along the Sacramento and Feather Rivers*. Report to the California Department of Fish and Game. PRBO Contribution #1915.

Dettling, M. D., N. E. Seavy, and T. Gardali. 2014. *Current Status of Western Yellow-Billed Cuckoo along the Sacramento River*. AOU Joint Venture Annual Meeting, oral presentation. Estes Park, CO. September 9, 2014.

Environmental Science Associates. 2018. *Lower American River Subreach 2 Draft Final Resource Assessment.* November 2018.

Gaines, D., and S. A. Laymon. 1984. Decline, status and preservation of the yellow-billed cuckoo in California. *Western Birds* 15:49–80.

Golet, G. H., T. Gardali, C. A. Howell, J. Hunt, R. A. Luster, W. Rainey, M. D. Roberts, J. Silveira, H. Swaggerty, and N. Williams. 2008. Wildlife responses to riparian restoration on the Sacramento River. *San Francisco Estuary and Watershed Science* 6(2): Article 1.

Grinnell, J., and A. H. Miller. 1944. *The Distribution of the Birds of California*. Pacific Coast Avifauna No. 27, publ. 1944, reprinted by Artemisia Press in 1986. Lee Vining, CA.

Halterman, M. D., D. S. Gilmer, S. A. Laymon, and G. A. Falxa. 2001. *Status of the Yellow-Billed Cuckoo in California: 1999–2000*. May. USGS-BRD-WERC. Final report submitted to U.S. Fish and Wildlife Service and U.S. Bureau of Reclamation.

Hughes, J. M. 1999. Yellow-billed cuckoo (*Coccyzus americanus*). No. 148 in A. Poole and F. Gill, eds., *The Birds of North America.* Philadelphia, PA: The Birds of North America, Inc.

Jennings, M. R., and M. P. Hayes. 1994. *Amphibian and Reptile Species of Special Concern in California*. Final report submitted to the California Department of Fish and Game, Inland Fisheries Division, Rancho Cordova, CA.

Jepson Flora Project (eds.). 2019. Jepson eFlora. Available: ucjeps.berkeley.edu/eflora/. Accessed July 2019.

Laymon, S. A. 1998. Yellow-billed cuckoo (*Coccyzus americanus*). In *The Riparian Bird Conservation Plan: A Strategy for Reversing the Decline of Riparian-Associated Birds in California.* California Partners in Flight. Available: http://www.prbo.org/calpif/htmldocs/species/riparian/yellow-billed_cuckoo.htm.

Laymon, S. A., and M. D. Halterman. 1987. Can the western subspecies of the yellow-billed cuckoo be saved from extinction? *Western Birds* 18:19–25.

———. 1989. *A proposed habitat management plan for yellow-billed cuckoos in California.* Pages 272–277 in D. L. Abell (tech. coord.), *Proceedings of the California Riparian Systems Conference: Protection, Management, and Restoration for the 1990s,* September 22–24, 1988, Davis, CA. General Technical Report PSW-GTR-110. U.S. Forest Service, Pacific Southwest Forest and Range Experiment Station, Berkeley, CA.

Mayer, K. E., and W. F. Laudenslayer Jr. (eds.) 1988. *A Guide to Wildlife Habitats of California.* Sacramento: California Department of Fish and Game.

Price, Lori. 2019. Personal communication. Environmental Scientist, Flood Projects Office, California Department of Water Resources, Sacramento, CA. Comments on an administrative draft of this report. August 30, 2019.

Sawyer, J. O., T. Keeler-Wolf, and J. M. Evens. 2009. *A Manual of California Vegetation*, second edition. Sacramento: California Native Plant Society.

Shuford, W. D., and T. Gardali (eds.). 2008. *California Bird Species of Special Concern. Studies of Western Birds 1*. Camarillo and Sacramento, CA: Western Field Ornithologists and California Department of Fish and Game.

Sorgen, K.C. 2019. Personal communication. Senior Natural Resources Specialist, Sacramento Area Flood Control Agency, Sacramento, CA. Comments on an administrative draft of this report. September 10, 2019.

Stebbins, R. C. 2003. *A Field Guide to Western Reptiles and Amphibians*. Third edition. Boston, MA: Houghton Mifflin Company.

U.S. Army Corps of Engineers (Corps). 2016. *American River Watershed Common Features General Reevaluation Report, Final Environmental Impact Statement/Environmental Impact Report.* State Clearinghouse No. 2005072046. December 2015, revised May 2016.

U.S. Fish and Wildlife Service (USFWS). 1999. *Conservation Guidelines for Valley Elderberry Longhorn Beetle, Sacramento, California*.

———. 2001. Endangered and Threatened Wildlife and Plants; 12-Month Finding for a Petition to List the Yellow-Billed Cuckoo (*Coccyzus americanus*) in the Western Continental United States. *Federal Register* 66:38611–38626, July 25, 2001.

———. 2014a. Endangered and Threatened Wildlife and Plants; Determination of Threatened Status for the Western Distinct Population Segment of the Yellow-billed Cuckoo (*Coccyzus americanus*). Final Determination. *Federal Register* 79:59991–60038, October 3, 2014.

———. 2014b. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Western Distinct Population Segment of the Yellow-Billed Cuckoo; Proposed Rule. *Federal Register* 79:48548–48652, August 15, 2014.

———. 2017. *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle* (Desmocerus californicus dimorphus).

———. 2019. *Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Sacramento East U.S.G.S. 7 1/2 Minute Quads*. Species list generated June 25, 2019.

Western Bat Working Group (WBWG). 2005. Western Bat Working Group Species Accounts for all Bats. Available: http://www.wbwg.org/speciesinfo/species_accounts/allbats.pdf.

Williams, D. F. 1986. *Mammalian Species of Special Concern in California*. Wildlife Management Division Administrative Report 86-1. Sacramento: California Department of Fish and Game. June 1986.

Zeiner, D. C., W. F. Laudenslayer Jr., and K. E. Mayer (comp. eds.). 1988. *California's Wildlife. Volume I: Amphibians and Reptiles.* California Statewide Wildlife Habitat Relationships System. Sacramento: California Department of Fish and Game.

Zeiner, D. C., W. F. Laudenslayer, Jr., K. E. Mayer, and M. White (eds.). 1990a. *California's Wildlife. Volume II: Birds.* Sacramento: California Department of Fish and Game.

———. 1990b. *California's Wildlife. Volume III: Mammals.* Sacramento: California Department of Fish and Game.

4.2 Document Preparation

Prepared by: Christy Dawson
Environmental Science Associates
2600 Capitol Avenue, Suite 200
Sacramento, CA 95816

Joseph Sanders
Environmental Science Associates
180 Grand Avenue, Suite 1050
Oakland, CA 94612-2036

Appendix A
Natural Communities Crosswalk

TABLE A-1
CROSSWALK TABLE OF NATURAL COMMUNITIES

Natural Community	CWHR	Manual of California Vegetation Alliance
Annual grassland	Annual grassland	Annual brome grassland
		Yellow star-thistle fields
		Western ragweed meadow
		Wild oats grassland
		Poison hemlock or fennel patch
Oak woodland	Coastal oak woodland	Coast live oak woodland
	Valley oak woodland	Valley oak woodland
		Hind's walnut and related stand
	Montane hardwood	Interior live oak woodland
Upland scrub	Coastal scrub	Coyote brush scrub
	Valley foothill riparian	California rose briar patch
		Coastal bramble
		Blue elderberry stand
Non-native woodland	Eucalyptus	Eucalyptus–tree of heaven–black locust grove
Riparian woodland	Valley foothill riparian	Fremont cottonwood forest
		Box-elder forest
		Red willow thicket
		Black willow thicket
		White alder grove
		Valley oak woodland
		California sycamore woodland
		Oregon ash grove
Riparian scrub	Valley foothill riparian	Sandbar willow thicket
		Arroyo willow thicket
		Pacific willow thicket
		Button willow thicket
		Blue elderberry stand
		California rose briar patch

NOTES:

CWHR = California Wildlife Habitat Relationship System

* Areas dominated by non-native trees, and some native shrubs, do not conform to recognized *Manual of California Vegetation* alliances.

** Areas with remnant riparian species that no longer experience hydrologic influence are now considered upland habitat types.

SOURCE: Data compiled by ESA in 2019

Appendix B
Wildlife and Plant Species Observed during Reconnaissance Surveys

TABLE B-1
WILDLIFE SPECIES OBSERVED IN THE SURVEY AREA

COMMON NAME	SCIENTIFIC NAME
REPTILES	
western pond turtle	*Actinemys marmorata*
western fence lizard	*Sceloporus occidentalis*
red-eared slider	*Trachemys scripta elegans*
BIRDS	
red-shouldered hawk	*Accipiter striatus*
mallard	*Anas platyrhynchos*
western scrub-jay	*Aphelocoma californica*
great egret	*Ardea alba*
Canada goose	*Branta canadensis*
California quail	*Callipepla californica*
Anna's hummingbird	*Calypte anna*
house finch	*Carpodacus mexicanus*
turkey vulture	*Cathartes aura*
northern flicker	*Colaptes auratus*
rock dove	*Columba livia*
American crow	*Corvus brachyrhynchos*
dark-eyed junco	*Junco hyemalis*
belted kingfisher	*Megaceryle alcyon*
acorn woodpecker	*Melanerpes formicivorus*
wild turkey	*Meleagris gallopavo*
song sparrow	*Melospiza melodia*
California towhee	*Melozone crissalis*
common merganser	*Mergus merganser*
northern mockingbird	*Mimus polyglottos*
ash-throated flycatcher	*Myiarchus cinerascens*
cliff swallow	*Petrochelidon pyrrhonota*
Nuttall's woodpecker	*Picoides nuttallii*
spotted towhee	*Pipilo maculatus*
bushtit	*Psaltriparus minimus*
black phoebe	*Sayornis nigricans*
western bluebird	*Sialia mexicana*
lesser goldfinch	*Spinus psaltria*
European starling	*Sturnus vulgaris*
house wren	*Troglodytes aedon*
American robin	*Turdus migratorius*
mourning dove	*Zenaida macroura*

TABLE B-1
WILDLIFE SPECIES OBSERVED IN THE SURVEY AREA

COMMON NAME	SCIENTIFIC NAME
MAMMALS	
bat (unidentified to species)	unknown
coyote	*Canis latrans*
American beaver	*Castor canadensis*
black-tailed jackrabbit	*Lepus californicus*
black-tailed deer	*Odocoileus hemionus*
western gray squirrel	*Sciurus griseus*
brush rabbit	*Sylvilagus bachmani*

TABLE B-2
PLANT SPECIES OBSERVED IN THE SURVEY AREA

Scientific Name	Common Name	Family
Acer buergerianum	trident maple	Sapindaceae
Acer negundo	boxelder	Sapindaceae
Acer saccharinum	silver maple	Sapindaceae
Acmispon americanus	American bird's foot trefoil	Fabaceae
Aesculus californica	California buckeye	Sapindaceae
Agrostis avenacea	Pacific bentgrass	Poaceae
Agrostis stolonifera	creeping bentgrass	Poaceae
Ailanthus altissima	tree of heaven	Simaroubaceae
Alnus rhombifolia	white alder	Betulaceae
Amaranthus albus	tumbleweed	Amaranthaceae
Ambrosia psilostachya	ragweed	Asteraceae
Anthemis cotula	stinking chamomile	Asteraceae
Anthriscus caucalis	bur chervil	Apiaceae
Apocynum cannabinum	Indian hemp	Apocynaceae
Aristolochia californica	California pipe vine	Aristolochiaceae
Artemisia douglasiana	California mugwort	Asteraceae
Artemisia dracunculus	wild tarragon	Asteraceae
Avena barbata	slender oat	Poaceae
Baccharis pilularis ssp. *consanguinea*	coyote brush	Asteraceae
Baccharis salicifolia	mule fat	Asteraceae
Betula sp.	birch	Betulaceae
Bidens frondosa	sticktight	Asteraceae
Brassica nigra	black mustard	Brassicaceae
Brickellia californica	California brickellia	Asteraceae
Bromus catharticus	rescue grass	Poaceae

TABLE B-2
PLANT SPECIES OBSERVED IN THE SURVEY AREA

Scientific Name	Common Name	Family
Bromus diandrus	ripgut brome	Poaceae
Bromus hordeaceus	soft brome	Poaceae
Cardamine oligosperma	bitter cress	Brassicaceae
Carduus pycnocephalus	Italian thistle	Asteraceae
Carex barbarae	Santa Barbara sedge	Cyperaceae
Casuarina equisetifolia	Australian pine	Casuarinaceae
Catalpa bignonioides	Southern catalpa	Bignoniaceae
Celtis australis	European hackberry	Cannabaceae
Centaurea solstitialis	yellow star thistle	Asteraceae
Centromadia pungens ssp. *pungens*	common tarweed	Asteraceae
Cephalanthus occidentalis	common buttonbush	Rubiaceae
Cercis occidentalis	Western redbud	Fabaceae
Chenopodium album	lambs quarters	Chenopodiaceae
Chondrilla juncea	skeleton weed	Asteraceae
Cinnamomum camphora	camphortree	Lauraceae
Clarkia unguiculata	elegant clarkia	Onagraceae
Clematis lasiantha	pipestem	Ranunculaceae
Conium maculatum	poison hemlock	Apiaceae
Convolvulus arvensis	field bindweed	Convulvulaceae
Crassula aquatica	water pigmyweed	Crassulaceae
Croton setiger	turkey-mullein	Euphorbiaceae
Cuscuta subinclusa	canyon dodder	Convulvulaceae
Cynodon dactylon	Bermuda grass	Poaceae
Cynosurus echinatus	dogtail grass	Poaceae
Cyperus eragrostis	tall flatsedge	Cyperaceae
Cyperus esculentus	yellow nutgrass	Cyperaceae
Datura wrightii	jimsonweed	Solanaceae
Daucus carota	wild carrot	Apiaceae
Digitaria sanguinalis	hairy crabgrass	Poaceae
Dittrichia graveolens	stinkwort	Asteraceae
Dysphania ambrosioides	Mexican tea	Chenopodiaceae
Egeria densa	brazilian waterweed	Hydrocharitaceae
Elymus triticoides	beardless wildrye	Poaceae
Epilobium brachycarpum	annual fireweed	Onagraceae
Epilobium ciliatum	slender willow herb	Onagraceae
Equisetum arvense	common horsetail	Equisetaceae
Equisetum hymale ssp. affine	common scouring rush	Equisetaceae
Erigeron canadensis	Canada horseweed	Asteraceae
Erodium botrys	long-beaked filaree	Geraniaceae

TABLE B-2
PLANT SPECIES OBSERVED IN THE SURVEY AREA

Scientific Name	Common Name	Family
Erodium cicutarium	red-stemmed filaree	Geraniaceae
Erodium moschatum	white-stemmed filaree	Geraniaceae
Erythranthe guttata	yellow monkey flower	Phrymaceae
Eschscholzia californica	California poppy	Papaveraceae
Eucalyptus camaldulensis	red river gum	Myrtaceae
Euphorbia maculata	spotted spurge	Euphorbiaceae
Euphorbia peplus	petty spruge	Euphorbiaceae
Festuca myuros	rattail sixweeks grass	Poaceae
Foeniculum vulgare	fennel	Apiaceae
Fraxinus latifolia	Oregon ash	Oleaceae
Fraxinus veluntina	Arizona ash	Oleaceae
Galium aparine	stickywilly	Rubiaceae
Galium murale	tiny bedstraw	Rubiaceae
Galium parisiense	wall bedstraw	Rubiaceae
Geranium dissectum	cutleaf geranium	Geraniaceae
Hedera helix	English ivy	Araliaceae
Helminthotheca echioides	bristly ox-tongue	Asteraceae
Heterotheca grandiflora	telegraph weed	Asteraceae
Heterotheca oregana	Oregon golden aster	Asteraceae
Hirschfeldia incana	wild mustard	Brassicaceae
Hordeum marinum	seaside barley	Poaceae
Hordeum murinum	foxtail barley	Poaceae
Hydrocotyle verticillata	whorled marsh pennywort	Araliaceae
Hypericum perforatum	Klamath weed	Hypericaceae
Iris pseudacorus	water iris	Iridaceae
Isolepis cernua	low bulrush	Cyperaceae
Juglans californica	Southern California black walnut	Juglandaceae
Juglans hindsii	Northern California black walnut	Juglandaceae
Juncus balticus	baltic rush	Juncaceae
Juncus bufonius	toad rush	Juncaceae
Juncus effusus ssp. *pacificus*	Pacific rush	Juncaceae
Juncus patens	spreading rush	Juncaceae
Kickxia elatine	sharp-leaved fluellin	Plantaginaceae
Lactuca serriola	prickly lettuce	Asteraceae
Lathyrus jepsonii var. *californicus*	California tule pea	Fabaceae
Leersia oryzoides	rice cutgrass	Poaceae
Lepidium didymum	lesser swine cress	Brassicaceae
Lepidium latifolium	perennial pepperweed	Brassicaceae
Ligustrum japonicum	Japanese privet	Oleaceae

TABLE B-2
PLANT SPECIES OBSERVED IN THE SURVEY AREA

Scientific Name	Common Name	Family
Lindernia dubia	yellowseed false pimpernel	Plantaginaceae
Liquidambar styraciflua	sweetgum	Hamamelidaceae
Logfia gallica	narrowleaf cottonrose	Asteraceae
Ludwigia hexapetala	ludwigia	Onagraceae
Lysimachia arvensis	scarlet pimpernel	Myrsinaceae
Lythrum hyssopifolia	hyssop loosestrife	Lythraceae
Madia elegans	common madia	Asteraceae
Malva neglecta	common mallow	Malvaceae
Marah fabacea	California man-root	Cucurbitaceaev
Marrubium vulgare	white horehound	Lamiaceae
Medicago polymorpha	bur clover	Fabaceae
Melilotus albus	white sweet clover	Fabaceae
Melilotus indicus	annual yellow sweet clover	Fabaceae
Mentha pulegium	pennyroyal	Lamiaceae
Morus alba	white mulberry	Moraceae
Myriophyllum aquatica	parrot's feather	Haloragaceae
Nerium oleander	oleander	Apocynaceae
Nicotiana acuminata var. *multiflora*	may flowered tobacco	Solanaceae
Nicotiana glauca	tree tobacco	Solanaceae
Oenothera elata	evening primrose	Onagraceae
Olea europaea	olive	Oleaceae
Oxalis radicosa	dwarf woodsorrel	Oxalidaceae
Paspalum dilatatum	dallis grass	Poaceae
Paspalum distichum	knot grass	Poaceae
Paspalum urvillei	Vasey's grass	Poaceae
Persicaria punctata	dotted smartweek	Polygonaceae
Petrorhagia dubia	Windmill pink	Caryophyllaceae
Phoradendron leucarpum	mistletoe	Viscaceae
Phyla nodiflora	common lippia	Verbenaceae
Phytolacca americana	American pokeweed	Phytolaccaceae
Pistacia chinensis	Chinese pistachio	Anacardiaceae
Plantago lanceolata	narrow leaved plantain	Plantaginaceae
Platanus racemosa	California sycamore	Platanaceae
Platanusx hispanica	London plane tree	Platanaceae
Poa annua	annual blue grass	Poaceae
Polycarpon tetraphyllum var. *tetraphyllum*	four leaved allseed	Caryophyllaceae
Polygonum aviculare	prostrate knotweed	Polygonaceae
Polypogon monspeliensis	rabbitsfoot grass	Poaceae
Portulaca oleracea	common purslane	Portulacaceae

TABLE B-2
PLANT SPECIES OBSERVED IN THE SURVEY AREA

Scientific Name	Common Name	Family
Potamogeton crispus	curly pondweed	Potamogetonaceae
Prunus cerasifera	cherry plum	Rosaceae
Prunus dulcis	domestic almond	Rosaceae
Pseudognaphalium beneolens	cudweed	Asteraceae
Pseudognaphalium luteoalbum	Jersey cudweed	Asteraceae
Pseudognaphalium stramineum	cottonbatting plant	Asteraceae
Quercus agrifolia	coast live oak	Fagaceae
Quercus chrysolepis	canyon live oak	Fagaceae
Quercus ilex	holly oak	Fagaceae
Quercus kelloggii	black oak	Fagaceae
Quercus lobata	valley oak	Fagaceae
Quercus suber	cork oak	Fagaceae
Quercus wislizeni	Interior live oak	Fagaceae
Raphanus sativus	wild radish	Brassicaceae
Robinia pseudoacacia	black locust	Fabaceae
Rorippa curvisiliqua	curvepod yellow cress	Brassicaceae
Rosa californica	California wild rose	Rosaceae
Rubus armeniacus	Himalayan blackberry	Rosaceae
Rubus ursinus	California blackberry	Rosaceae
Rumex conglomeratus	Clustered dock	Polygonaceae
Rumex crispus	curly dock	Polygonaceae
Rumex stenophyllus	narrowleaf dock	Polygonaceae
Salix laevigata	red willow	Salicaceae
Salix lasiandra	Pacific willow	Salicaceae
Salix lasiolepis	arroyo willow	Salicaceae
Salsola tragus	prickly russian thistle	Chenopodiaceae
Sambucus nigra ssp. *caerulea*	blue elderberry	Adoxaceae
Saponaria officinalis	bouncing bet	Caryophyllaceae
Senecio vulgaris	common groundsel	Asteraceae
Sesbania punicea	red sesbania	Fabaceae
Setaria parviflora	marsh bristlegrass	Poaceae
Silybum marianum	milk thistle	Asteraceae
Solanum americanum	white nightshade	Solanaceae
Solanum elaeagnifolium	silver leaved horsenettle	Solanaceae
Sonchus asper	spiny sowthistle	Asteraceae
Sonchus oleraceus	common sow thistle	Asteraceae
Sorghum halepense	Johnsongrass	Poaceae
Spergularia bocconi	Boccone's sand spurry	Caryophyllaceae
Spergularia rubra	purple sand spurry	Caryophyllaceae

TABLE B-2
PLANT SPECIES OBSERVED IN THE SURVEY AREA

Scientific Name	Common Name	Family
Stipa pulchra	purple needle grass	Poaceae
Symphoricarpos albus	common snowberry	Caprifoliaceae
Teraxacum officinale	common dandelion	Asteraceae
Torilis arvensis	field hedge parsley	Apiaceae
Triadica sebifera	Chinese tallowtree	Euphorbiaceae
Tribulus terrestris	puncture vine	Zygophyllaceae
Trifolium hirtum	rose clover	Fabaceae
Trifolium repens	white clover	Fabaceae
Typha latifolia	broadleaf cattail	Typhaceae
Ulmus americana	American elm	Ulmaceae
Ulmus minor	English elm	Ulmaceae
Ulmus parviflora	Chinese elm	Ulmaceae
Ulmus pumila	Siberian elm	Ulmaceae
Umbellularia californica	California bay	Lauraceae
Urtica dioica	stinging nettle	Urticaeae
Verbascum blattaria	moth mullein	Scrophulariaceae
Verbascum thapsus	woolly mullein	Scrophulariaceae
Verbena litoralis	seashore vervain	Verbenaceae
Veronica peregrina ssp. *xalapensis*	purslane speedwell	Plantaginaceae
Vicia villosa	hairy vetch	Fabaceae
Vinca major	bigleaf periwinkle	Apocynaceae
Viola odorata	English violet	Violaceae
Vitis californica	California wild grape	Vitaceae
Xanthium strumarium	rough cockleburr	Asteraceae
Zeltnera muehlenbergii	Meuhlenberg's centaury	Gentianaceae

Appendix B

Special Status Plant Survey Report

AMERICAN RIVER COMMON FEATURES 2016
PROJECT AMERICAN RIVER CONTRACT 1

Special-Status Plant Survey Report

Prepared for
U.S. Army Corps of Engineers
Central Valley Flood Protection Board
Sacramento Area Flood Control Agency

November 2019

ESA



AMERICAN RIVER COMMON FEATURES 2016
PROJECT AMERICAN RIVER CONTRACT 1

Special-Status Plant Survey Report

Prepared for
U.S. Army Corps of Engineers
Central Valley Flood Protection Board
Sacramento Area Flood Control Agency

November 2019

2600 Capitol Avenue
Suite 200
Sacramento, CA 95816
916.564.4500
esassoc.com

ESA

Bend	Oakland	San Diego
Camarillo	Orlando	San Francisco
Delray Beach	Pasadena	Santa Monica
Destin	Petaluma	Sarasota
Irvine	Portland	Seattle
Los Angeles	Sacramento	Tampa

160092.08

TABLE OF CONTENTS

American River Common Features 2016 Project American River Contract 1 Special-Status Plant Survey Report

Page

Chapter 1, Introduction and Summary 1-1
1.1 Introduction 1-1
1.2 Summary of Results 1-1

Chapter 2, Methodology 2-1
2.1 Survey Area 2-1
2.2 Background Research 2-1
2.3 Field Survey and Follow-Up Visit 2-4

Chapter 3, Setting 3-1
3.1 Climate 3-1
3.2 Soils 3-1
3.3 Natural Communities 3-1

Chapter 4, Results and Discussion 4-1
4.1 Special-Status Plant Species 4-1
4.2 Special-Status Plants in the Study Area 4-1
4.3 Discussion 4-3

Chapter 5, Report Preparation and References 5-1
5.1 Report Preparation 5-1
5.2 References and Sources Consulted 5-1

Appendices

A. Database Queries A-1
B. NRCS Soils Report B-1
C. Plant Species Observed C-1
D. Site Photos D-1

List of Figures

1 Regional Location 2-2
2 Survey Area 2-3
a Natural Communities of the Lower American River Subreach 2 3-3
3b Natural Communities of the Lower American River Subreach 2 3-4
3c Natural Communities of the Lower American River Subreach 2 3-5

CHAPTER 1
Introduction and Summary

1.1 Introduction

This report documents the results of special-status plant surveys conducted in July 2019 for the American River Common Features 2016 Project, American River Contract 1. Environmental Science Associates (ESA) conducted the surveys on behalf of the U.S. Army Corps of Engineers, Central Valley Flood Protection Board, and Sacramento Area Flood Control Agency. The objective of the surveys was to locate and document any special-status plants in the survey area.

1.2 Summary of Results

Four Sanford's arrowhead (*Sagittaria sanfordii*) plants were observed in the survey area. Sanford's arrowhead is a California Rare Plant Rank (CRPR) 1B.2 species. No other special-status plants were observed.

CHAPTER 2
Methodology

2.1 Survey Area

The survey area is in northwestern Sacramento County, California, within the Sacramento city limits (**Figures 1** and **2**). The survey area totals 134.12 acres, encompassing the project footprint along the Lower American River plus a 20-foot buffer around the project perimeter. It extends from Paradise Bend at approximately river mile 5.4, near the City of Sacramento's Glenn Hall Park, upstream along the American River to just past the Howe Avenue Bridge at approximately river mile 7.9.

The survey area is mostly within the American River Parkway and includes several paved, gravel, and dirt trails. It includes all or portions of the Campus Commons Golf Course, the H Street Bridge, the Guy West Bridge, the Howe Avenue Bridge, and University Park.

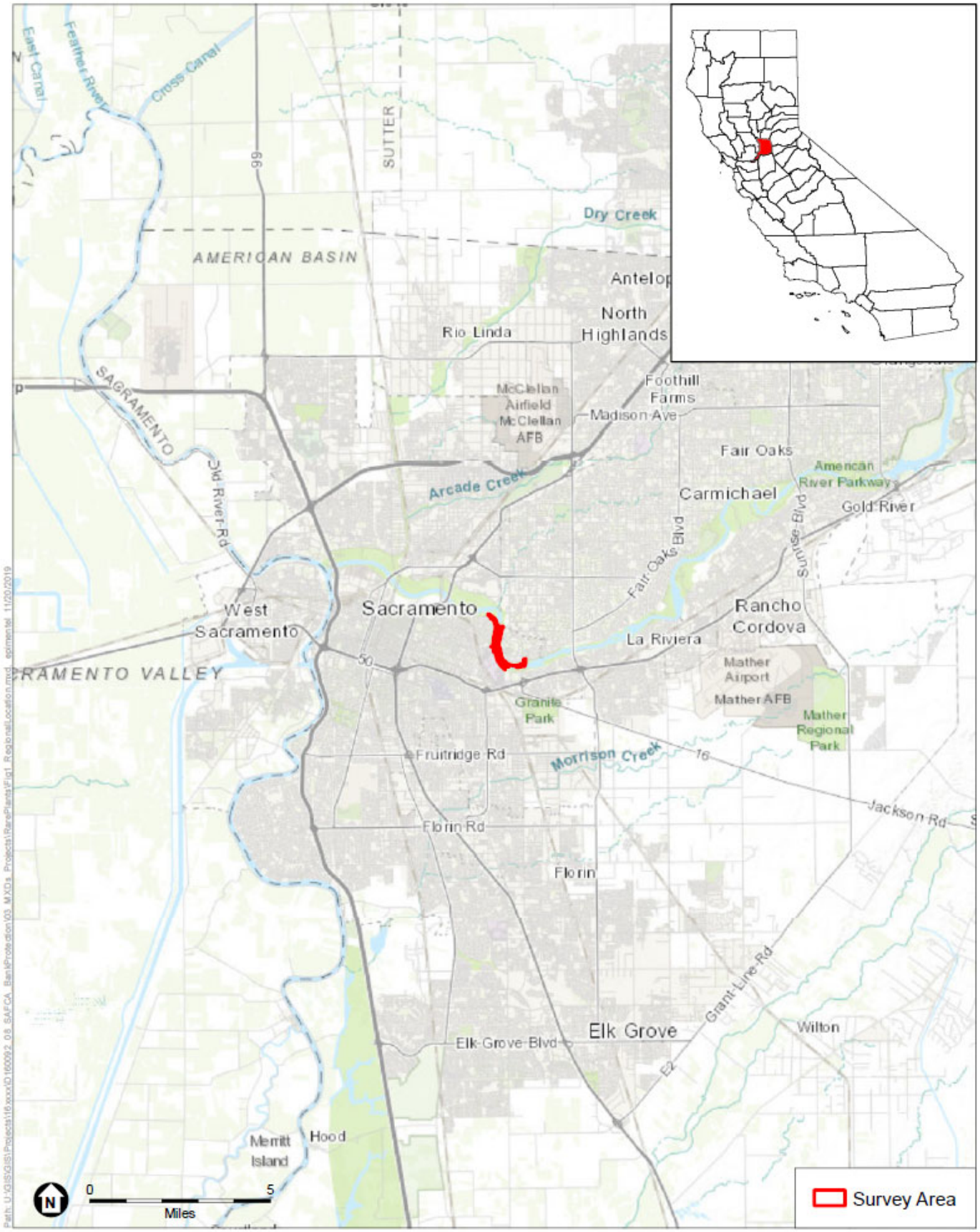
The survey area falls within Sections 3, 10, and 11 (Township 8 North, Range 5 East) of the Sacramento East, California U.S. Geological Survey 7.5-minute series quadrangle. The approximate centroid of the survey area is 38.567864º North, 121.422750º West. Elevations range from approximately 17 feet to 47 feet above mean sea level.

Ecologically, the survey area is located within the Great Central Valley subregion of the California Floristic Province (Baldwin et al., 2012). Regional natural plant communities typical of the Central Valley are grassland, mixed oak woodland, upland scrub, riparian woodland, and riparian scrub. Most of the area surrounding the survey area is urbanized.

2.2 Background Research

Before conducting the field surveys, ESA compiled a list of special-status plants that occur or may occur in the vicinity of the survey area and for which suitable habitat may be present in the survey area (**Appendix A**). Data sources consulted included the California Natural Diversity Database (CDFW, 2019); the U.S. Fish and Wildlife Service IPaC Trust Resources Report (USFWS, 2019); and the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants (CNPS, 2019).

The list compiled includes 21 special-status plants with potential to occur in the regional project vicinity (**Appendix A**). Each species' habitat requirements were compared to available habitats in the survey area to determine the special-status plants with potential to occur in the survey area.

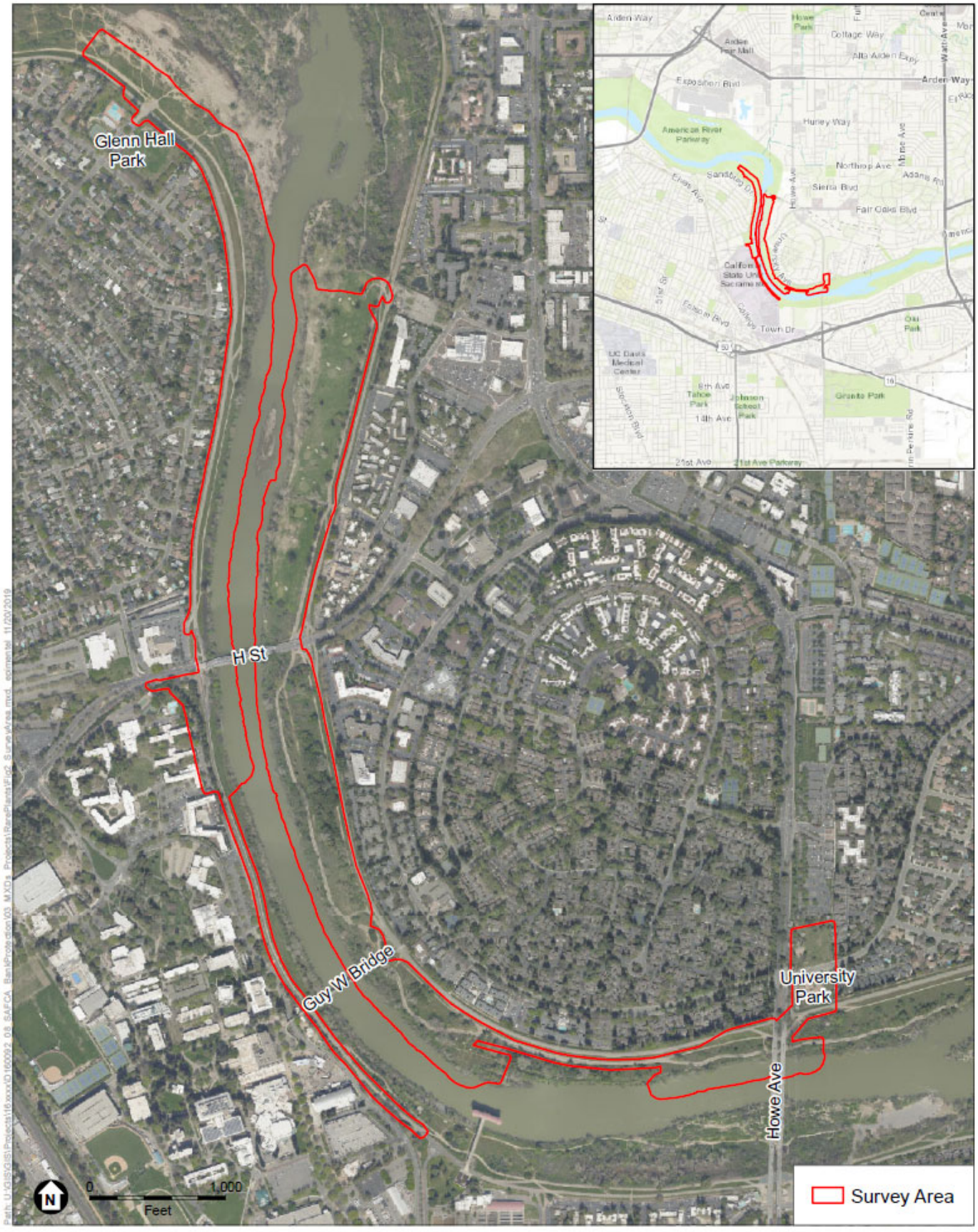


SOURCE: Esri, 2018; ESA, 2019

American River Common Features 2016 Project American River Contract 1

Figure 1
Regional Location

ESA



SOURCE: Esri, 2018; ESA, 2019

American River Common Features 2016 Project American River Contract 1

Figure 2
Survey Area

ESA

2.3 Field Survey and Follow-Up Visit

The field survey was conducted by ESA botanists Chuck Hughes and Joseph Sanders on July 9, 2019. A follow-up visit was conducted by Chuck Hughes and ESA biologist Emily Dorrance on July 24, 2019. Surveys followed the procedures described in the California Department of Fish and Wildlife (CDFW) *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFW, 2018a) and the U.S. Fish and Wildlife Service *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants* (USFWS, 1996).

The surveys were floristic in nature: Every plant taxon found in the survey area was identified to the taxonomic level necessary to determine its rarity and listing status. Botanical taxonomy and nomenclature conform to *The Jepson Manual: Vascular Plants of California,* second edition (Baldwin et al., 2012) as revised by the Jepson eFlora (Jepson Flora Project, 2019).

Conditions at the time of the surveys were typical for summer in western Sacramento County (warm to hot and dry). The timing of the surveys corresponded to the flowering season for all species with at least moderate potential to occur in the survey area based on background research. The survey area was searched systematically using transects spaced about 50 feet apart where vegetation allowed. Frequent deviations were made to thoroughly search areas deemed more suitable for special-status plants, to identify additional plant species, or to go around impenetrable vegetation. Any observed special-status plants were mapped in the field with a global positioning system (GPS). Data were collected on a custom ArcCollector map using an iPad connected to a Trimble R-1, an external, submeter-accuracy GPS receiver.

CHAPTER 3
Setting

3.1 Climate

The survey area's climate is Mediterranean, characterized by warm, dry summers and cool, wet winters. The bulk of precipitation occurs as rain in the winter months. Sacramento's mean annual precipitation is 20.27 inches and temperatures range from a mean annual maximum of 73.1 degrees Fahrenheit to an average minimum temperature of 49.8 degrees Fahrenheit. Precipitation from July 1, 2018, through June 30, 2019, totaled 26.11 inches, 129 percent of average annual rainfall (NWSFO, 2019); the previous winter was wetter than normal. The survey area was experiencing normal dry summertime conditions during the field survey.

3.2 Soils

The U.S. Department of Agriculture, Natural Resources Conservation Service Web Soil Survey was consulted to determine the soil units occurring in the survey area. The *Custom Soil Resource Report for Sacramento County, California – American River Common Features, American River Contract 1: Special-Status Plant Survey* (NRCS, 2019; included as **Appendix B** to this report) shows five map units in the survey area. See Appendix B for a soils map and soil unit descriptions.

3.3 Natural Communities

Natural communities are assemblages of plant species that occur together in the same area, and are defined by species composition and relative abundance. In summer 2018, vegetation was mapped by ESA to an alliance level based on the dominant plant species and in accordance with the membership rules described in the *Manual of California Vegetation* (Sawyer et al. 2009). As described below, these alliances were then grouped into broader natural communities to more closely conform with the CDFW natural communities, which comply with the National Vegetation Classification Standard. **Appendix C** presents a list of plant species observed and **Figures 3a through 3c** depict the natural communities.

California Annual Grassland

Grasslands can be found throughout the survey area, typically in upland areas, and consist mainly of non-native grasses and forbs. Most of the grassland habitat is interspersed amongst woodland and other habitats and present adjacent to urban areas. Annual grasslands on levee slopes are mowed regularly.

Common grass species observed in this community include wild oat (*Avena barbata*), bromes (*Bromus diandrus, B. hordeaceus*), foxtail barley (*Hordeum murinum*), rattail sixweeks grass (*Festuca myuros*), Bermuda grass (*Cynodon dactylon*), and Pacific bentgrass (*Agrostis avenacea*). Pockets of native grasses such as beardless wild rye (*Elymus triticoides*) and purple needle grass (*Stipa pulchra*) occur sporadically throughout the grasslands in the survey area and may have been seeded on the levee slopes.

An assemblage of native and non-native forbs also occurs in these grasslands. Among the many common non-native forbs observed are hairy vetch (*Vicia villosa*), cutleaf geranium (*Geranium dissectum*), Italian thistle (*Carduus pycnocephalus*), yellow star thistle (*Centaurea solstitialis*), prickly lettuce (*Lactuca serriola*), poison hemlock (*Conium maculatum*), wild radish (*Raphanus sativus*), wild mustard (*Hirschfeldia incana*), rose clover (*Trifolium hirtum*), and white sweet clover (*Melilotus indicus*). Some common native forbs observed include Canada horseweed (*Erigeron canadensis*), telegraph weed (*Heterotheca grandiflora*), ragweed (*Ambrosia psilostachya*), elegant clarkia (*Clarkia unguiculata*), and turkey-mullein (*Croton setiger*).

Annual grassland dominated by bromes (CDFW Natural Community Code = 42.026.00) or wild oat (44.150.00) is not considered a sensitive natural community by CDFW (2018b).

Mixed Oak Woodland

Oak woodlands in the survey area are dominated by coast live oak (*Quercus agrifolia*) and valley oak (*Q. lobata*); interior live oak (*Q. wislizeni*) and Northern California black walnut (*Juglans hindsii*) are less frequent contributors to the tree canopy.

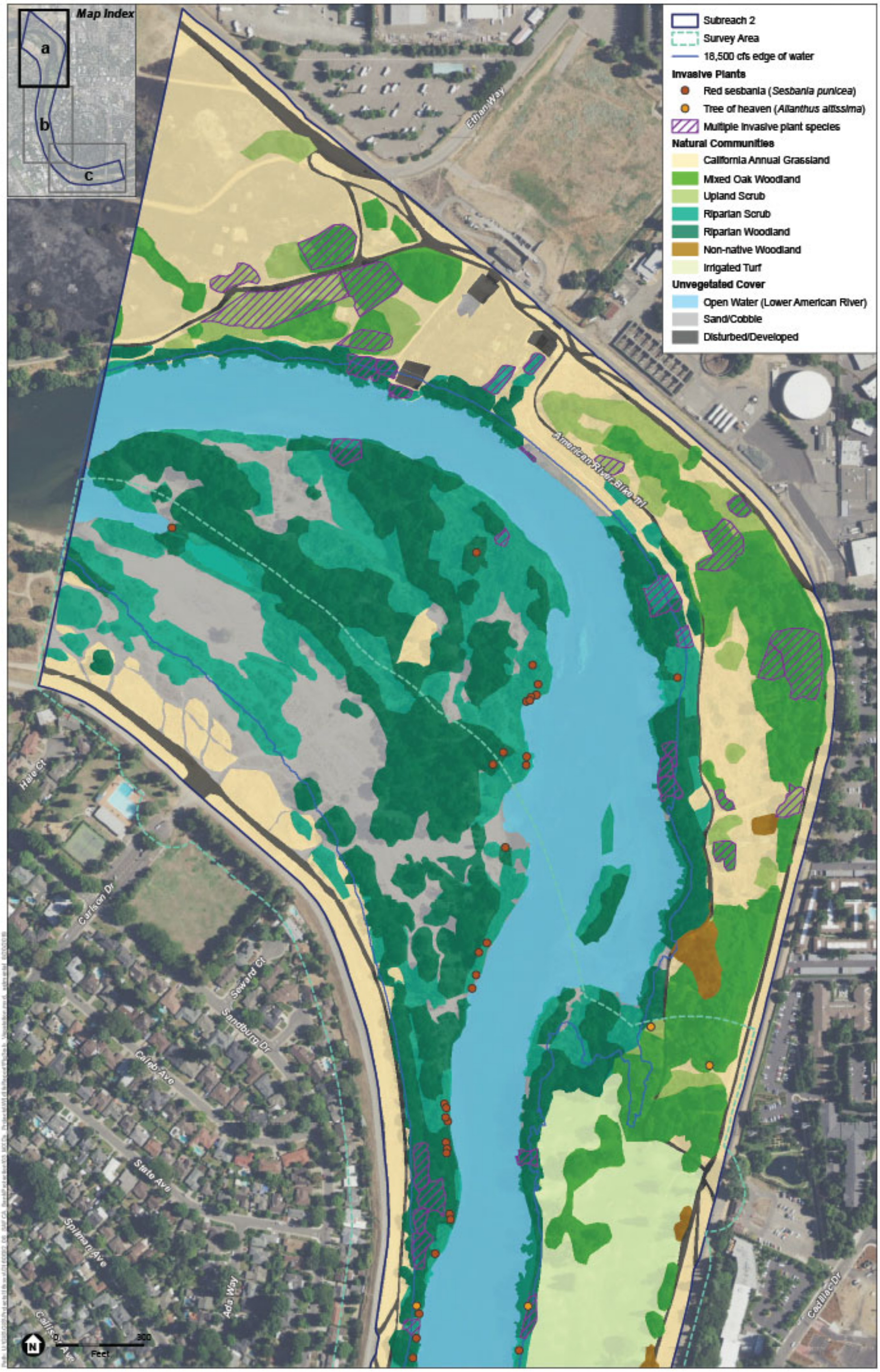
Oak woodlands in the survey area support a variety of understory plant species, vegetative structures, and densities. When no shrub layer is present, annual grassland is the dominant understory and includes the common species described above for the California annual grassland community. When a shrub layer is present, common native shrubs observed include California rose (*Rosa californica*), California blackberry (*Rubus ursinus*), blue elderberry (*Sambucus nigra* ssp. *caerulea*), and coyote brush (*Baccharis pilularis* ssp. *consanguinea*). Himalayan blackberry (*Rubus armeniacus*) was the only common non-native shrub observed in the understory of oak woodlands.

Oak woodlands co-dominated by coast live oak and valley oak (71.040.06) are considered a sensitive natural community by CDFW (2018b).

Non-native Woodland

Portions of the survey area are dominated by non-native trees. These single-species tree stands consist of either Australian pine (*Casuarina equisetifolia*), black locust (*Robinia pseudoacacia*), or tree of heaven (*Ailanthus altissima*). With the exception of black locust stands, non-native woodlands in the survey area do not support a shrub understory, and are dominated by the common herbaceous species described above for California annual grassland. Some black locust stands support blue elderberry shrubs in the understory.

Woodlands dominated by non-native trees are not considered a sensitive natural community by CDFW (2018b).

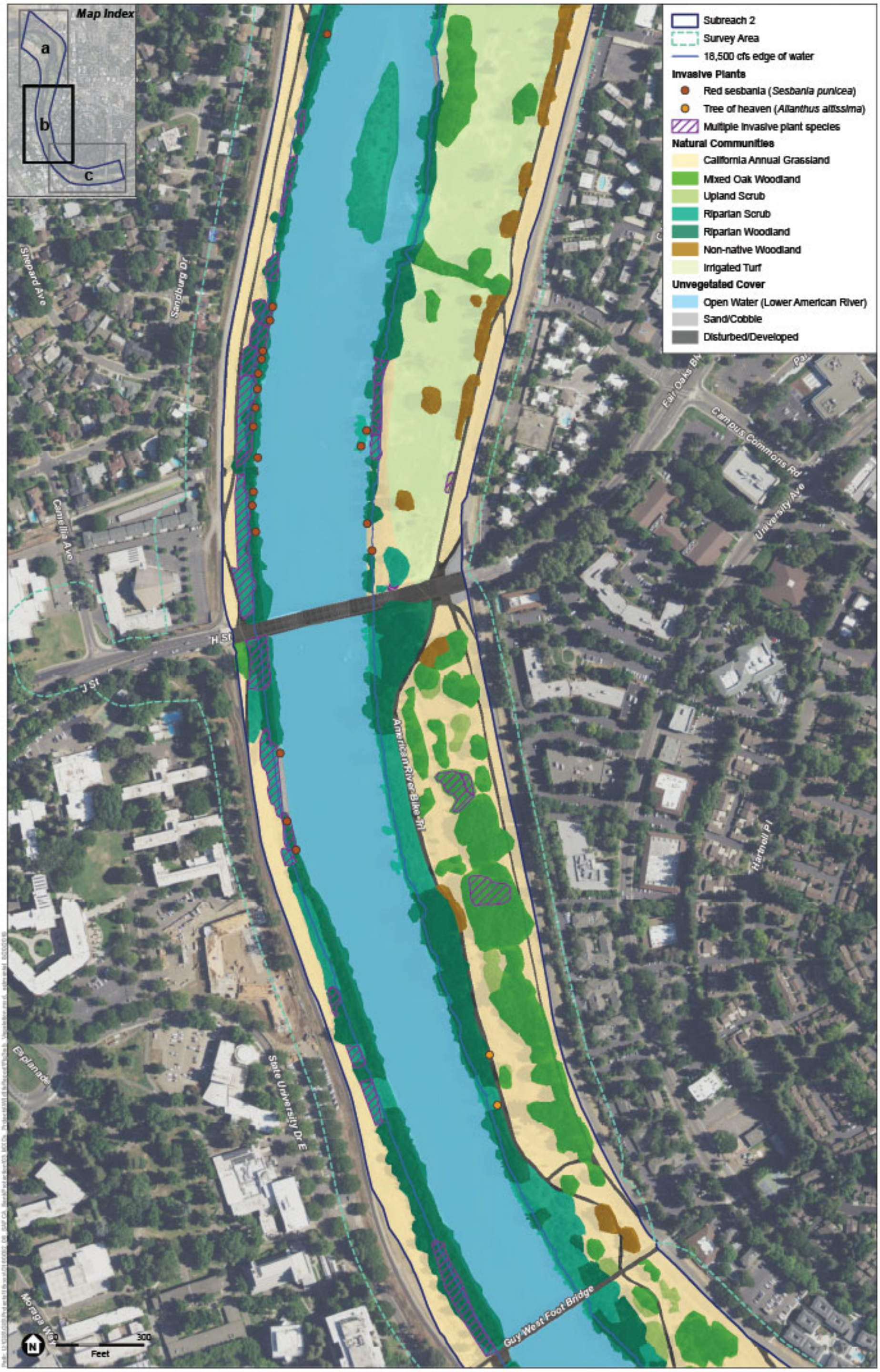


SOURCE: NHC, 2018; ESA, 2019

American River Common Features 2016 Project American River Contract 1

Figure 3a
Natural Communities of the
Lower American River Subreach 2

ESA

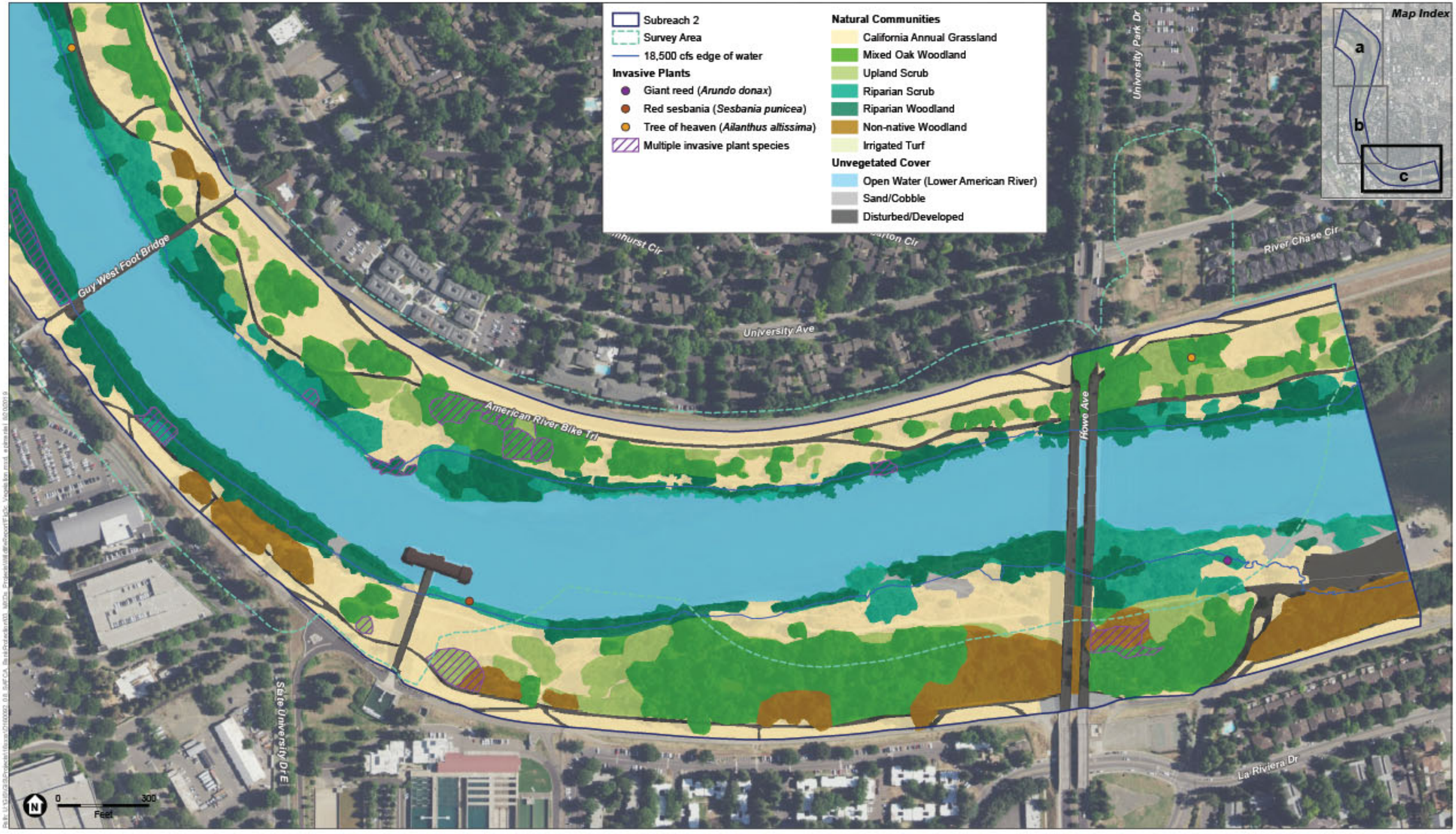


SOURCE: NHC, 2018; ESA, 2019

American River Common Features 2016 Project American River Contract 1

Figure 3b
Natural Communities of the
Lower American River Subreach 2

ESA



SOURCE: NHC, 2018; ESA, 2019

American River Common Features 2016 Project American River Contract 1

Figure 3c
Natural Communities of the
Lower American River Subreach 2

ESA

Upland Scrub

Upland scrub habitat in the survey area consists of areas dominated by native and non-native shrubs that have no tree cover and contain the common herbaceous species described above for California annual grassland. The most common native shrub species in this community are coyote brush, California blackberry, and Himalayan blackberry. Other woody species present include blue elderberry, California rose, California grape (*Vitis californica*), and western redbud (*Cercis occidentalis*).

Scrub dominated by coyote brush and blackberry (32.060.15) is not considered a sensitive natural community by CDFW (2018b).

Riparian Scrub

Riparian scrub habitat in the survey area consists of shrub-dominated areas that are subject to hydrologic influence from the Lower American River. These areas are dominated by sandbar willow (*Salix exigua*), arroyo willow (*S. lasiolepis*), common button bush (*Cephalanthus occidentalis*), California rose, California blackberry, California wild grape, blue elderberry, and/or Himalayan blackberry. Areas that experience frequent high flows typically do not support herb species, and cobbles tend to be the dominant ground cover. Areas that experience less frequent, slower flows support a variety of herb species including mugwort (*Artemisia douglasiana*), marsh brittlegrass (*Setaria parviflora*), Santa Barbara sedge (*Carex barbarae*), horsetails (*Equisetum arvense* and *E. hyemale* ssp. *affine*), rushes (*Juncus balticus*, *J. effusus*, and *J. patens*), and beardless wildrye (*Elymus triticoides*).

Riparian scrub dominated by sandbar willow and arroyo willow (61.209.07) is not considered a sensitive natural community by CDFW (2018b). However, riparian areas are potentially subject to the provisions of Section 1600 of the California Fish and Game Code.

Riparian Woodland

Riparian woodlands in the survey area are tree-dominated areas that are subject to hydrologic influence from the Lower American River. These areas are dominated by Fremont cottonwood (*Populus fremontii*), Goodding's willow (*Salix gooddingii*), red willow (*S. laevigata*), white alder (*Alnus rhombifolia*), Oregon ash (*Fraxinus latifolia*), and/or California sycamore (*Platanus racemosa*). Arroyo willow, valley oak, American elm (*Ulmus americana*), and black locust are less frequent contributors to the tree canopy. Riparian woodlands support a variety of shrubs and herbs similar to those described above for the riparian scrub community.

Riparian woodland dominated by Fremont cottonwood and other riparian trees (61.130.00) is considered a sensitive natural community by CDFW (2018b).

Irrigated Turf

The Campus Commons Golf Course and University Park contain irrigated lawns that are mowed regularly and are dominated by Bermuda grass. Irrigated turf is not considered a sensitive natural community.

Riverine

Riverine habitat consists of areas inundated by the Lower American River. Such areas support some submerged or floating aquatic vegetation: Brazilian waterweed (*Egeria densa*), curly pondweed (*Potamogeton crispus*), and water primrose (*Ludwigia hexapetala*). The Lower American River is an aquatic resource subject to Sections 404 and 401 of the Clean Water Act and Section 1600 of the California Fish and Game Code.

Disturbed/Developed

Urban/developed habitat is present in unvegetated portions of the survey area. Paved, gravel, and dirt bike and walking paths and three bridges dissect the survey area. Disturbed/developed habitat is not a sensitive natural community.

CHAPTER 4
Results and Discussion

4.1 Special-Status Plant Species

For the purpose of this report, "special-status plants" include those species, subspecies, and varieties afforded legal protection under the California and/or Federal Endangered Species Acts or that are considered sufficiently rare by the scientific community to potentially qualify for such listing. Special-status plants include plants that fall into one or more of the following categories:

1. Plants listed or proposed for listing as threatened or endangered under the Federal Endangered Species Act (Code of Federal Regulations Title 50, Section 17.12).
2. Plants that are candidates for possible future listing as threatened or endangered under the Federal Endangered Species Act (*Federal Register* Volume 61, No. 40, February 28, 1996).
3. Plants listed or proposed for listing by the State of California as threatened or endangered under the California Endangered Species Act (California Code of Regulations Title 14, Section 670.5).
4. Plants listed as rare or endangered under the California Native Plant Protection Act (California Fish and Game Code, Section 1900 et seq.).
5. Plants that meet the definitions of rare and endangered under the California Environmental Quality Act (CEQA). CEQA Section 15380 provides that a plant or animal species may be treated as "rare or endangered" even if not on one of the official lists (State CEQA Guidelines, Section 15380).
6. Plants considered by the CNPS and CDFW to be "rare, threatened or endangered in California" (CRPR 1A, 1B, and 2 in CNPS, 2019) and CNPS Rank 3 and 4[1] plant species.

4.2 Special-Status Plants in the Study Area

As discussed below, Sanford's arrowhead was observed in the survey area during the ESA special-status plant surveys conducted in July 2019.

[1] CRPR 3 and 4 plants may be analyzed under CEQA Section 15380 if sufficient information is available to assess potential impacts on such plants. Factors such as regional rarity versus statewide rarity should be considered in determining whether cumulative impacts on a CRPR 3 or 4 plant are significant even if individual project impacts are not. CRPR 3 and 4 plants may be considered regionally significant if, for example, the occurrence is located at the periphery of the species' range, or exhibits unusual morphology, or occurs in an unusual habitat/substrate. For these reasons, CRPR 3 and 4 plants should be included in the special-status species analysis. CRPR 3 and 4 plants are also included in the California Natural Diversity Database's Special Plants, Bryophytes, and Lichens List. (See the current online published list at http://www.dfg.ca.gov/biogeodata.)

Sanford's Arrowhead

Description

Sanford's arrowhead (*Sagittaria sanfordii*) (CRPR 1B.2) is an aquatic emergent herb and a member of the Alismataceae family. It grows from a perennial underground tuber. This plant has both aquatic and emergent leaves, each with different morphology. The roots of the *Sagittaria* genus are septate, unlike other Alismataceae genera in California. The species is monoecious, with individuals bearing separate male and female flowers on the same inflorescence. It flowers between May and October. Growth of emergent leaves, and flowering, begins when waters start to recede. Sanford's arrowhead can be distinguished from most other Sagittaria taxa by its linear to lanceolate (non-sagittate) emergent leaves, and by its recurved fruit pedicels. It grows in freshwater ponds, ditches, swamps, and other assorted shallow freshwater habitats from 0 to 650 meters.

Survey Results

Four individual plants determined to potentially be Sanford's arrowhead were observed during the survey on July 9, 2019. The plants were growing within a few square feet of each other in about 4 inches of water, in an area of mud substrate. Observed plant associates include ludwigia (*Ludwigia hexapetala*), whorled marsh pennywort (*Hydrocotyle verticulata*), and water iris (*Iris pseudacorus*). Three of the Sanford's arrowhead plants had only aquatic leaves (**Appendix D,** Photo 1). The fourth plant was just beginning to develop emergent leaves. The emergent leaves were not sufficiently developed to determine whether they would be sagittate. A single root from the largest plant was dug out of the mud and was septate (Appendix D, Photo 2), indicating that the plant was not water plantain (*Alisma* sp.), which looks similar. The plants were located on the left (west) bank of the river at approximately river mile 6, adjacent to Site 2-1.

On July 9, 2019, ESA botanists visited a reference population of Sanford's arrowhead (California Natural Diversity Database Occurrence #97) about 3.3 miles northwest of the survey area. Sanford's arrowhead plants were flowering at the location of the reference population, and were growing in much less water than in the survey area. Also in flower at the location of the reference population was lanceleaf water plantain (*Alisma lanceolatum*), a non-native plant with leaves similar to those of Sanford's arrowhead. When in flower, lanceleaf water plantain and Sanford's arrowhead are obviously different, but when only leaves (aquatic or emergent) are present, they appear similar. The roots of both species at the reference population location were compared to observe septation. Only the Sanford's arrowhead root was clearly septate (Appendix D, Photo 3).

During the first visit by ESA to the survey area, the emergent leaves on the largest plant were not developed enough to determine whether they would be sagittate. Sanford's arrowhead does not have sagittate leaves, unlike most other members of the genus. A follow-up visit was made on July 24, 2019. The largest plant had developed two mature emergent leaves by the time of the follow-up visit (Appendix D, Photos 4 and 5). The emergent leaves were lanceolate, not sagittate. The only other member of the genus in California with lanceolate leaves is *Sagittaria rigida*. All collections of *S. rigida* are either near Point Reyes or north of Red Bluff, far from the survey area. Based on the septate roots, the lanceolate leaves, and the comparison with the reference population, the four plants are most likely *Sagittaria sanfordii* (Sanford's arrowhead).

4.3 Discussion

Based on the appropriate timing of the surveys, above average precipitation during water year 2019, and the presence of target special-status plants in the survey area and at reference sites, no factors known to the investigators have affected the results of the survey. The survey results presented in this report are considered representative of the environmental setting, plant communities, and special-status plant populations in the survey area.

CHAPTER 5
Report Preparation and References

5.1 Report Preparation

Environmental Science Associates
2600 Capitol Avenue, Suite 200
Sacramento, CA 95816
(916) 564-4500

Senior Review:	Gerrit Platenkamp, PhD
Special-Status Plant Surveys:	Chuck Hughes, Joseph Sanders, Emily Dorrance
Report Preparation:	Joseph Sanders, Chuck Hughes

5.2 References and Sources Consulted

References

Baldwin, B. G., D. H. Goldman, D. J. Keil, R. Patterson, T. J. Rosatti, and D. H. Wilken, eds. 2012. *The Jepson Manual: Vascular Plants of California*, second edition. Berkeley: University of California Press.

California Department of Fish and Wildlife (CDFW). 2018a. *Protocols for Surveying and Evaluating Impacts to Special-status Native Plant Populations and Natural Communities*. California Natural Resources Agency. March 20, 2018.

———. 2018b. California Sensitive Natural Communities. October 15, 2018.

———. 2019. California Natural Diversity Database (CNDDB). RareFind 5.0. Version 5.2.14. Biogeographic Data Branch.

California Native Plant Society (CNPS). 2019. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Rare Plant Program. Available: www.rareplants.cnps.org. Accessed July 2019.

Jepson Flora Project (eds.). 2019. Jepson eFlora. Available: ucjeps.berkeley.edu/eflora/. Accessed July 2019.

Natural Resources Conservation Service (NRCS). 2019. Custom Soil Resource Report for Sacramento County. Available: http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm. Accessed July 2019.

National Weather Service Forecast Office (NWSFO). 2019. Preliminary monthly climate data for downtown Sacramento, CA. Available: https://w2.weather.gov/climate/index.php?wfo=sto. Accessed July 2019.

Sawyer, J. O., T. Keeler-Wolf, and J. M. Evens. 2009. *A Manual of California Vegetation*, second edition. Sacramento: California Native Plant Society.

U.S. Fish and Wildlife Service (USFWS). 1996. *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants*. Sacramento, CA: Sacramento Fish and Wildlife Office.

———. 2019. *IPaC Trust Resource Report of Federally Endangered and Threatened Species in the Vicinity of the Lower American River Commons Features Contract 1.*

Sources Consulted

Calflora. 2019. Information on California plants for education, research, and conservation [web application]. Berkeley, CA: The Calflora Database [a nonprofit organization]. Available: http://www.calflora.org/. Accessed July 2019.

Preston, R. E. 2013. A revision of *Brodiaea coronaria* (Asparagaceae: Brodiaeoideae): Morphometric analysis and recognition of new and emended taxa. *Systematic Botany* 38(4):1012–1028.

Western Regional Climate Center. 2019. Period of Record General Climate Summary for Sacramento 5 ESE, California (047633), 1877–2016. Available: www.wrcc.dri.edu/coopmap. Accessed July 2019.

Appendix A
Database Queries

TABLE 1
SPECIAL-STATUS PLANTS WITH POTENTIAL TO OCCUR IN THE STUDY AREA

Scientific and Common Names	Status Federal/State/ CRPR or Other	Habitat Requirements	Potential Occurrence in Study Area
Astragalus tener var. *tener* Ferris' milk-vetch	--/--/1B.1	Vernally mesic meadows and seeps; sub alkaline grasslands. 1-60 meters. April - May	**Low.** Suitable alkaline substrate not present within the Study Area.
Brodiaea rosea subsp. *vallicola* valley brodiaea	--/--/4.2	Silty, sandy and gravelly loam soils; valley and foothill grasslands along swales; vernal pools. 10-335 meters. Grows in grasslands on old alluvial terraces that have developed a perched water table, in vernal pool landscapes (Preston 2013*). April - May (June)	**Low.** Vernal pool landscapes and hydrology not present.
Carex comosa bristly sedge	--/--/2B.1	Coastal prairie; margins of marshes and swamps; valley and foothill grassland. 0-625 meters. May - September	**Moderate.** Suitable habitat present.
Centromadia parryi subsp. *parryi* pappose tarplant	--/--/1B.2	Often on alkaline soils; chaparral; coastal prairie; meadows and seeps; coastal salt marshes and swaps; vernally mesic valley and foothill grassland. 0-420 meters. May - November	**Moderate.** Suitable habitat present.
Centromadia parryi subsp. *rudis* Parry's rough tarplant	--/--/4.2	Valley and foothill grassland on alkaline, vernally mesic soils; seeps; sometimes roadsides; vernal pools. 0-100 meters May - October	**Low.** Suitable soils not present.
Cuscuta obtusiflora var. *glandulosa* Peruvian dodder	--/--/2B.2	Freshwater marshes and swamps. 15-280 meters. July - October	**Low**. Suitable habitat present, but last seen in 1948 in Merced County. Observations in Sacramento County have not yet been verified.
Downingia pusilla dwarf downingia	--/--/2B.2	Mesic valley and foothill grassland; vernal pools; roadside ditches. 1-445 meters. March - May	**Low.** Suitable habitat not present.
Fritillaria agrestis stinkbells	--/--/4.2	Clay or sometimes serpentine soils; chaparral; cismontane woodland; pinyon and juniper woodland; valley foothill grassland. 10-1555 meters. March - June	**Low.** Suitable habitat on suitable soil is not present.
Gratiola heterosepala Boggs Lake hedge-hyssop	--/CE/1B.2	Clay soils; margins of marshes and swamps; vernal pools. 10-2375 meters. April – August	**Low.** Suitable habitat not present.
Hesperevax caulescens	--/--/4.2	Valley and foothill grassland on mesic, clay soils; vernal pools. 0-505 meters.	**Low.** Suitable habitat on suitable soil is not present.

TABLE 3 (CONTINUED)
SPECIAL-STATUS PLANTS WITH POTENTIAL TO OCCUR IN THE STUDY AREA

Scientific and Common Names	Status Federal/State/ CRPR or Other	Habitat Requirements	Potential Occurrence in Study Area
hogwallow starfish		March - June	
Hibiscus lasiocarpos var. *occidentalis* woolly rose-mallow	--/--/1B.2	Often in riprap on sides of levees; freshwater marshes and swamps. 0-120 meters. June - September	**Moderate.** Suitable habitat present.
Juglans hindsii Northern California black walnut		Deciduous tree found in riparian forests and riparian woodlands up to 460 meters. Widely naturalized as a result of agricultural use as a rootstock for English walnuts. Considered native and special-status in stands at three sites. April - May	**Low**. None of the special-status native stands are near the study area.
Juncus leiospermus var. *ahartii* Ahart's dwarf rush	--/--/1B.2	Vernal pools; mesic valley and foothill grassland. 30-229 meters. March - May	**Low.** Study area outside elevation range.
Legenere limosa legenere	--/--/1B.1	Vernal pools. 1-880 meters. April - June	**Low.** Suitable habitat not present.
Lepidium latipes var. *heckardii* Heckard's pepper-grass	--/--/1B.2	Alkaline flats within valley and foothill grassland. 2-200 meters. March - May	**Low.** Suitable soils not present.
Lilaeopsis masonii Mason's lilaeopsis	--/CR/1B.1	Freshwater or brackish marshes and swamps; riparian scrub. 0-10 meters June - September	**Low.** No occurrences this far upriver.
Navarretia eriocephala hoary navarretia	--/--/4.3	Vernally mesic cismontane woodland, and valley and foothill grassland. 105-400 meters. May – June	**Low.** Study area outside elevation range.
Packera layneae Layne's ragwort		Rocky serpentine or gabbroic soils in chaparral and cismontane woodland. 200 - 1,085 meters. April – August	**Low.** Suitable soils not present.
Sagittaria sanfordii Sanford's arrowhead	--/--/1B.2	Assorted shallow freshwater marshes and swamps. 0-650 meters. May – October (November)	**High.** Suitable habitat present and observed recently within 3 miles of study area.
Symphyotrichum lentum Suisun Marsh aster	--/--/1B.2	Brackish and freshwater marshes and swamps. 0-3 meters. (April) May - November	**Low.** Marginal suitable habitat present.
Trifolium hydrophilum saline clover	--/--/1B.2	Marshes and swamps; mesic, alkaline valley and foothill grassland; vernal pools. 0-300 meters April - June	**Low.** Suitable soils not present.

TABLE 3 (CONTINUED)
SPECIAL-STATUS PLANTS WITH POTENTIAL TO OCCUR IN THE STUDY AREA

Scientific and Common Names	Status Federal/State/ CRPR or Other	Habitat Requirements	Potential Occurrence in Study Area

NOTES:

Potential Occurrence in the Project area:
High = The project site and/or immediate project area provide ideal habitat conditions for a particular species and/or known populations occur in the immediate project area or within the project site.
Moderate = The project site and/or immediate project area provides suitable habitat for a particular species.
Low = The project site only provides limited and low quality habitat for a particular species. In addition, the known range for a particular species may be outside of the immediate project area.
Unlikely = The project site does not support suitable habitat for a particular species and/or the project site is outside of the species known range.

Status Codes:

Federal
FE = listed as endangered under the ESA
FT = listed as threatened under the ESA
--- = no listing

State
SE = listed as endangered under CESA
ST = listed as threatened under CESA

California Rare Plant Rank (CRPR)
Rank 1A = Plants presumed extirpated in California and either rare or extinct elsewhere.
Rank 1B = Plants rare, threatened, or endangered in California and elsewhere.
Rank 2A = Plants presumed extirpated in California, but more common elsewhere.
Rank 2B = Plants rare, threatened, or endangered in California, but more common elsewhere.

An extension reflecting the level of threat to each species is appended to each rarity category as follows:
.1 – Seriously endangered in California.
.2 – Fairly endangered in California.
.3 – Not very endangered in California.

SOURCE: USFWS, 2019; CDFW, 2019; and CNPS, 2019.

* Preston, Rob E. 2013. A revision of *Brodiaea coronaria* (Asparagaceae: Brodiaeoideae): Morphometric analysis and recognition of new and emended taxa. Systematic Botany 38(4):1012-1028. DOI: 10.1600/036364413X674913

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Sacramento East (3812154) OR Taylor Monument (3812165) OR Rio Linda (3812164) OR Citrus Heights (3812163) OR Sacramento West (3812155) OR Carmichael (3812153) OR Clarksburg (3812145) OR Florin (3812144) OR Elk Grove (3812143))
 AND Taxonomic Group IS (Ferns OR Gymnosperms OR Monocots OR Dicots OR Lichens OR Bryophytes)

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Astragalus tener var. ferrisiae Ferris' milk-vetch	PDFAB0F8R3	None	None	G2T1	S1	1B.1
Carex comosa bristly sedge	PMCYP032Y0	None	None	G5	S2	2B.1
Centromadia parryi ssp. parryi pappose tarplant	PDAST4R0P2	None	None	G3T2	S2	1B.2
Cuscuta obtusiflora var. glandulosa Peruvian dodder	PDCUS01111	None	None	G5T4?	SH	2B.2
Downingia pusilla dwarf downingia	PDCAM060C0	None	None	GU	S2	2B.2
Fritillaria agrestis stinkbells	PMLIL0V010	None	None	G3	S3	4.2
Gratiola heterosepala Boggs Lake hedge-hyssop	PDSCR0R060	None	Endangered	G2	S2	1B.2
Hibiscus lasiocarpos var. occidentalis woolly rose-mallow	PDMAL0H0R3	None	None	G5T3	S3	1B.2
Juglans hindsii Northern California black walnut	PDJUG02040	None	None	G5	S5	CBR
Juncus leiospermus var. ahartii Ahart's dwarf rush	PMJUN011L1	None	None	G2T1	S1	1B.2
Legenere limosa legenere	PDCAM0C010	None	None	G2	S2	1B.1
Lepidium latipes var. heckardii Heckard's pepper-grass	PDBRA1M0K1	None	None	G4T1	S1	1B.2
Lilaeopsis masonii Mason's lilaeopsis	PDAPI19030	None	Rare	G2	S2	1B.1
Orcuttia tenuis slender Orcutt grass	PMPOA4G050	Threatened	Endangered	G2	S2	1B.1
Orcuttia viscida Sacramento Orcutt grass	PMPOA4G070	Endangered	Endangered	G1	S1	1B.1
Sagittaria sanfordii Sanford's arrowhead	PMALI040Q0	None	None	G3	S3	1B.2
Symphyotrichum lentum Suisun Marsh aster	PDASTE8470	None	None	G2	S2	1B.2
Trifolium hydrophilum saline clover	PDFAB400R5	None	None	G2	S2	1B.2

Record Count: 18

CNPS California Native Plant Society

*The database used to provide updates to the Online Inventory is under construction. View updates and changes made since May 2019 here.

Plant List

22 matches found. *Click on scientific name for details*

Search Criteria

Found in Quads 3812165, 3812164, 3812163, 3812155, 3812154, 3812153, 3812145 3812144 and 3812143;

Modify Search Criteria | Export to Excel | Modify Columns | Modify Sort | Display Photos

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Astragalus tener var. ferrisiae	Ferris' milk-vetch	Fabaceae	annual herb	Apr-May	1B.1	S1	G2T1
Brodiaea rosea ssp. vallicola	valley brodiaea	Themidaceae	perennial bulbiferous herb	Apr-May(Jun)	4.2	S3	G5T3
Carex comosa	bristly sedge	Cyperaceae	perennial rhizomatous herb	May-Sep	2B.1	S2	G5
Centromadia parryi ssp. parryi	pappose tarplant	Asteraceae	annual herb	May-Nov	1B.2	S2	G3T2
Centromadia parryi ssp. rudis	Parry's rough tarplant	Asteraceae	annual herb	May-Oct	4.2	S3	G3T3
Cuscuta obtusiflora var. glandulosa	Peruvian dodder	Convolvulaceae	annual vine (parasitic)	Jul-Oct	2B.2	SH	G5T4?
Downingia pusilla	dwarf downingia	Campanulaceae	annual herb	Mar-May	2B.2	S2	GU
Fritillaria agrestis	stinkbells	Liliaceae	perennial bulbiferous herb	Mar-Jun	4.2	S3	G3
Gratiola heterosepala	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	Apr-Aug	1B.2	S2	G2
Hesperevax caulescens	hogwallow starfish	Asteraceae	annual herb	Mar-Jun	4.2	S3	G3
Hibiscus lasiocarpos var. occidentalis	woolly rose-mallow	Malvaceae	perennial rhizomatous herb (emergent)	Jun-Sep	1B.2	S3	G5T3
Juglans hindsii	Northern California black walnut	Juglandaceae	perennial deciduous tree	Apr-May	1B.1	S1	G1
Juncus leiospermus var. ahartii	Ahart's dwarf rush	Juncaceae	annual herb	Mar-May	1B.2	S1	G2T1
Legenere limosa	legenere	Campanulaceae	annual herb	Apr-Jun	1B.1	S2	G2
Lepidium latipes var. heckardii	Heckard's pepper-grass	Brassicaceae	annual herb	Mar-May	1B.2	S1	G4T1
Lilaeopsis masonii	Mason's lilaeopsis	Apiaceae	perennial rhizomatous herb	Apr-Nov	1B.1	S2	G2

Navarretia eriocephala	hoary navarretia	Polemoniaceae	annual herb	May-Jun	4.3	S4?	G4?
Orcuttia tenuis	slender Orcutt grass	Poaceae	annual herb	May-Sep(Oct)	1B.1	S2	G2
Orcuttia viscida	Sacramento Orcutt grass	Poaceae	annual herb	Apr-Jul(Sep)	1B.1	S1	G1
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	1B.2	S3	G3
Symphyotrichum lentum	Suisun Marsh aster	Asteraceae	perennial rhizomatous herb	(Apr)May-Nov	1B.2	S2	G2
Trifolium hydrophilum	saline clover	Fabaceae	annual herb	Apr-Jun	1B.2	S2	G2

Suggested Citation

California Native Plant Society, Rare Plant Program. 2019. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 15 August 2019].

Search the Inventory
Simple Search
Advanced Search
Glossary

Information
About the Inventory
About the Rare Plant Program
CNPS Home Page
About CNPS
Join CNPS

Contributors
The Calflora Database
The California Lichen Society
California Natural Diversity Database
The Jepson Flora Project
The Consortium of California Herbaria
CalPhotos

Questions and Comments
rareplants@cnps.org

© Copyright 2010-2018 California Native Plant Society. All rights reserved.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To: August 15, 2019
Consultation Code: 08ESMF00-2019-SLI-2780
Event Code: 08ESMF00-2019-E-08876
Project Name: AMERICAN RIVER COMMON FEATURES PROJECT AMERICAN RIVER CONTRACT 1

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

Project Summary

Consultation Code: 08ESMF00-2019-SLI-2780

Event Code: 08ESMF00-2019-E-08876

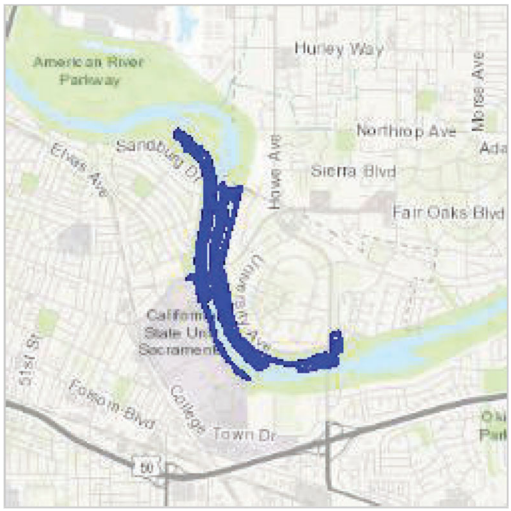
Project Name: AMERICAN RIVER COMMON FEATURES PROJECT AMERICAN RIVER CONTRACT 1

Project Type: LAND - FLOODING

Project Description: levee improvements

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/38.57036711951812N121.42353694604317W



Counties: Sacramento, CA

Endangered Species Act Species

There is a total of 7 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Reptiles

NAME	STATUS
Giant Garter Snake *Thamnophis gigas* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4482	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii* There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander *Ambystoma californiense* Population: U.S.A. (Central CA DPS) There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus*	Threatened

There is final critical habitat for this species. Your location is outside the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/321

Insects

NAME	STATUS
Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus*	Threatened

There is final critical habitat for this species. Your location is outside the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/7850
Habitat assessment guidelines:
https://ecos.fws.gov/ipac/guideline/assessment/population/436/office/11420.pdf

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp *Branchinecta lynchi*	Threatened

There is final critical habitat for this species. Your location is outside the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/498

Vernal Pool Tadpole Shrimp *Lepidurus packardi*	Endangered

There is final critical habitat for this species. Your location is outside the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/2246

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Appendix B
NRCS Soils Report

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Sacramento County, California

American River Common Features, American River Contract 1



August 2, 2019

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

Preface.....2
How Soil Surveys Are Made.....5
Soil Map.....8
Soil Map.....9
Legend.....10
Map Unit Legend.....11
Map Unit Descriptions.....11
Sacramento County, California.....13
203—Riverwash.....13
205—Rossmoor-Urban land complex, 0 to 2 percent slopes.....14
242—Xerofluvents, 0 to 2 percent slopes, flooded.....15
247—Water.....16
References.....17

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

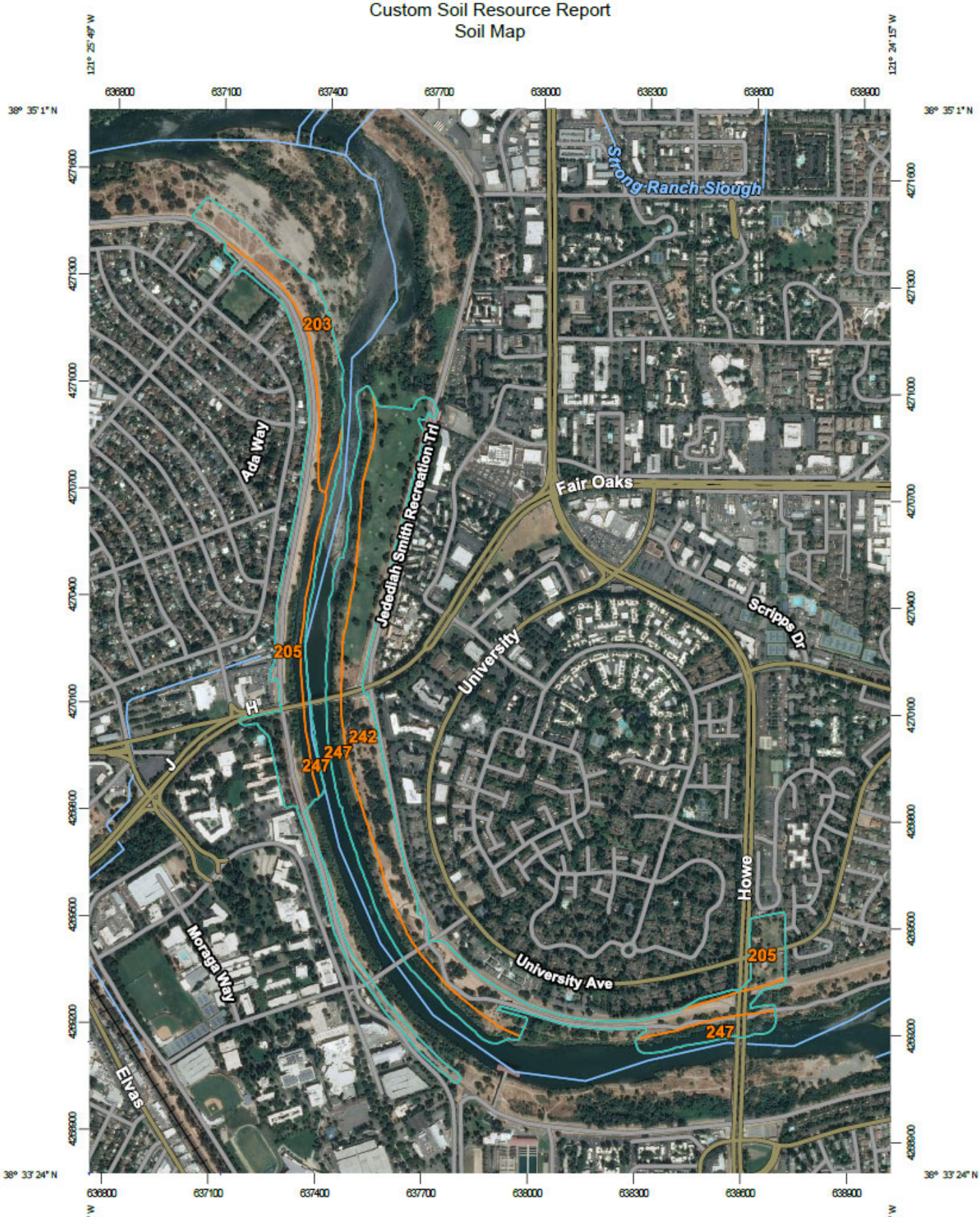
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Sacramento County, California
Survey Area Data: Version 17, Sep 14, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 6, 2018—Aug 17, 2018

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
203	Riverwash	15.6	11.6%
205	Rossmoor-Urban land complex, 0 to 2 percent slopes	35.8	26.7%
242	Xerofluvents, 0 to 2 percent slopes, flooded	50.0	37.3%
247	Water	32.7	24.3%
Totals for Area of Interest		**134.1**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Sacramento County, California

203—Riverwash

Map Unit Setting

National map unit symbol: hhpj
Elevation: 20 to 130 feet
Mean annual precipitation: 18 to 20 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 250 to 300 days
Farmland classification: Not prime farmland

Map Unit Composition

Riverwash: 85 percent
Xerofluvents and similar soils: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Riverwash

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Gravelly alluvium

Typical profile

H1 - 0 to 60 inches: variable

Properties and qualities

Slope: 0 to 2 percent
Runoff class: Negligible
Depth to water table: About 0 inches
Frequency of flooding: Frequent

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8w
Hydric soil rating: Yes

Description of Xerofluvents

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear

Properties and qualities

Depth to restrictive feature: More than 80 inches
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydric soil rating: No

205—Rossmoor-Urban land complex, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: hhpl
Elevation: 30 to 110 feet
Mean annual precipitation: 20 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 275 to 300 days
Farmland classification: Not prime farmland

Map Unit Composition

Rossmoor and similar soils: 55 percent
Urban land: 30 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rossmoor

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

H1 - 0 to 6 inches: fine sandy loam
H2 - 6 to 62 inches: fine sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Available water storage in profile: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3c

Hydrologic Soil Group: A
Hydric soil rating: No

Description of Urban Land

Typical profile
H1 - 0 to 6 inches: variable

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: No

Minor Components

Columbia
Percent of map unit: 6 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Hydric soil rating: Yes

Americanos
Percent of map unit: 5 percent
Hydric soil rating: No

Unnamed, gravelly substratum
Percent of map unit: 2 percent
Hydric soil rating: No

Unnamed, unloamy sandamed
Percent of map unit: 2 percent
Hydric soil rating: No

242—Xerofluvents, 0 to 2 percent slopes, flooded

Map Unit Setting
National map unit symbol: hhqs
Elevation: 20 to 140 feet
Mean annual precipitation: 14 inches
Mean annual air temperature: 61 degrees F
Frost-free period: 250 to 300 days
Farmland classification: Not prime farmland

Map Unit Composition
Xerofluvents and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Xerofluvents

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium

Typical profile

H1 - 0 to 60 inches: variable

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat excessively drained
Runoff class: Very low
Depth to water table: More than 80 inches
Frequency of flooding: Occasional
Frequency of ponding: None

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6w
Hydric soil rating: Yes

Minor Components

Riverwash

Percent of map unit: 4 percent
Landform: Channels
Hydric soil rating: Yes

Rossmoor

Percent of map unit: 3 percent
Hydric soil rating: No

Xerorthents

Percent of map unit: 3 percent
Hydric soil rating: No

247—Water

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

Appendix C
Plant Species Observed

TABLE C-1
VASCULAR FLORA RECORDED FROM THE AMERICAN RIVER CONTRACT 1 SURVEY AREA

Scientific Name	Common Name
Adoxaceae	
Sambucus nigra subsp. *caerulea*	blue elderberry
Alismataceae	
Sagittaria sanfordii	Sanford's arrowhead
Amaranthaceae	
Amaranthus albus	tumbleweed
Anacardiaceae	
Pistacia chinensis	*Chinese pistachio*
Apiaceae	
Anthriscus caucalis	bur chervil
Conium maculatum	poison hemlock
Daucus carota	wild carrot
Foeniculum vulgare	fennel
Torilis arvensis	field hedge parsley
Apocynaceae	
Apocynum cannabinum	Indian hemp
Nerium oleander	oleander
Vinca major	bigleaf periwinkle
Araliaceae	
Hedera helix	English ivy
Hydrocotyle verticillata	whorled marsh pennywort
Aristolochiaceae	
Aristolochia californica	California pipe vine
Asteraceae	
Ambrosia psilostachya	ragweed
Anthemis cotula	stinking chamomile
Artemisia douglasiana	California mugwort
Artemisia dracunculus	wild tarragon
Baccharis pilularis subsp. *consanguinea*	Coyote brush
Baccharis salicifolia	mule fat
Bidens frondosa	sticktight
Brickellia californica	California brickellia
Carduus pycnocephalus	Italian thistle
Centaurea solstitialis	yellow star thistle
Centromadia pungens subsp. *pungens*	common tarweed

TABLE C-1
VASCULAR FLORA RECORDED FROM THE AMERICAN RIVER CONTRACT 1 SURVEY AREA

Scientific Name	Common Name
Chondrilla juncea	skeleton weed
Dittrichia graveolens	stinkwort
Erigeron canadensis	Canada horseweed
Asteraceae (cont.)	
Helminthotheca echioides	bristly ox-tongue
Heterotheca grandiflora	telegraph weed
Heterotheca oregana	Oregon golden aster
Lactuca serriola	prickly lettuce
Logfia gallica	narrowleaf cottenrose
Madia elegans	common madia
Pseudognaphalium beneolens	cudweed
Pseudognaphalium luteoalbum	Jersey cudweed
Pseudognaphalium stramineum	cottonbatting plant
Senecio vulgaris	common groundsel
Silybum marianum	milk thistle
Sonchus asper	spiny sowthistle
Sonchus oleraceus	common sow thistle
Taraxacum officinale	common dandelion
Xanthium strumarium	rough cockleburr
Betulaceae	
Alnus rhombifolia	white alder
Betula sp.	birch
Bignoniaceae	
Catalpa bignonioides	Southern catalpa
Brassicaceae	
Brassica nigra	black mustard
Cardamine oligosperma	bitter cress
Hirschfeldia incana	wild mustard
Lepidium didymum	lesser swine cress
Lepidium latifolium	perennial pepperweed
Raphanus sativus	wild radish
Rorippa curvisiliqua	curvepod yellow cress

TABLE C-1
VASCULAR FLORA RECORDED FROM THE AMERICAN RIVER CONTRACT 1 SURVEY AREA

Scientific Name	Common Name
Cannabaceae	
Celtis australis	European hackberry
Caprifoliaceae	
Symphoricarpos albus	Common snowberry
Caryophyllaceae	
Petrorhagia dubia	Windmill pink
Polycarpon tetraphyllum var. *tetraphyllum*	four leaved allseed
Saponaria officinalis	bouncing bet
Spergularia bocconi	Boccone's sand spurry
Spergularia rubra	purple sand spurry
Casuarinaceae	
Casuarina equisetifolia	Australian pine
Chenopodiaceae	
Chenopodium album	lambs quarters
Dysphania ambrosioides	Mexican tea
Salsola tragus	prickly Russian thistle
Convolvulaceae	
Convolvulus arvensis	field bindweed
Cuscuta subinclusa	canyon dodder
Crassulaceae	
Crassula aquatica	water pigmyweed
Cucurbitaceae	
Marah fabacea	California man-root
Cyperaceae	
Carex barbarae	Santa Barbara sedge
Cyperus eragrostis	tall flatsedge
Cyperus esculentus	yellow nutgrass
Isolepis cernua	low bulrush
Equisetaceae	
Equisetum arvense	common horsetail
Equisetum hyemale subsp. *affine*	common scouring rush
Euphorbiaceae	
Croton setiger	turkey-mullein
Euphorbia maculata	spotted spurge
Euphorbia peplus	petty spurge
Triadica sebifera	Chinese tallowtree

TABLE C-1
VASCULAR FLORA RECORDED FROM THE AMERICAN RIVER CONTRACT 1 SURVEY AREA

Scientific Name	Common Name
Fabaceae	
Acmispon americanus	American bird's foot trefoil
Cercis occidentalis	Western redbud
Lathyrus jepsonii var. *californicus*	California tule pea
Medicago polymorpha	bur clover
Melilotus albus	white sweet clover
Melilotus indicus	annual yellow sweet clover
Robinia pseudoacacia	black locust
Sesbania punicea	red sesbania
Trifolium hirtum	rose clover
Trifolium repens	white clover
Vicia villosa	hairy vetch
Fagaceae	
Quercus agrifolia	coast live oak
Quercus chrysolepis	canyon live oak
Quercus ilex	holly oak
Quercus kelloggii	black oak
Quercus lobata	valley oak
Quercus suber	cork oak
Quercus wislizeni	Interior live oak
Gentianaceae	
Zeltnera muehlenbergii	Meuhlenberg's centaury
Geraniaceae	
Erodium botrys	long beaked filaree
Erodium cicutarium	red stemmed filaree
Erodium moschatum	white stemmed filaree
Geranium dissectum	cutleaf geranium
Haloragaceae	
Myriophyllum aquatica	parrot's feather
Hamamelidaceae	
Liquidambar styraciflua	sweetgum
Hydrocharitaceae	
Egeria densa	Brazilian waterweed
Hypericaceae	
Hypericum perforatum	Klamath weed
Iridaceae	
Iris pseudacorus	water iris

TABLE C-1
VASCULAR FLORA RECORDED FROM THE AMERICAN RIVER CONTRACT 1 SURVEY AREA

Scientific Name	Common Name
Juglandaceae	
Juglans californica	Southern California black walnut
Juglans hindsii	Northern California black walnut
Juncaceae	
Juncus balticus	baltic rush
Juncus bufonius	toad rush
Juncus effusus subsp. *pacificus*	Pacific rush
Juncus patens	spreading rush
Lamiaceae	
Marrubium vulgare	white horehound
Mentha pulegium	pennyroyal
Laurceae	
Cinnamomum camphora	Camphor tree
Umbellularia californica	California bay
Lythraceae	
Lythrum hyssopifolia	hyssop loosestrife
Malvaceae	
Malva neglecta	common mallow
Moraceae	
Morus alba	white mulberry
Myrsinaceae	
Lysimachia arvensis	scarlet pimpernel
Myrtaceae	
Eucalyptus camaldulensis	red river gum
Oleaceae	
Fraxinus latifolia	Oregon ash
Fraxinus velutina	Arizona ash
Ligustrum japonicum	Japanese privet
Olea europaea	olive
Onagraceae	
Clarkia unguiculata	Elegant clarkia
Epilobium brachycarpum	annual fireweed
Epilobium ciliatum	slender willow herb
Ludwigia hexapetala	ludwigia
Oenothera elata	evening primrose
Oxalidaceae	
Oxalis radicosa	dwarf woodsorrel

TABLE C-1
VASCULAR FLORA RECORDED FROM THE AMERICAN RIVER CONTRACT 1 SURVEY AREA

Scientific Name	Common Name
Papaveraceae	
Eschscholzia californica	California poppy
Phrymaceae	
Erythranthe guttata	yellow monkey flower
Phytolaccaceae	
Phytolacca americana	American pokeweed
Plantaginaceae	
Kickxia elatine	sharp leaved fluellin
Lindernia dubia	yellowseed false pimpernel
Plantago lanceolata	narrow leaved plantain
Veronica peregrina subsp. *xalapensis*	purslane speedwell
Plantanaceae	
Platanus racemosa	California sycamore
Platanus x *hispanica*	London plane tree
Poaceae	
Agrostis avenacea	Pacific bentgrass
Agrostis stolonifera	creeping bentgrass
Avena barbata	slender oat
Bromus catharticus	rescue grass
Bromus diandrus	ripgut brome
Bromus hordeaceus	soft brome
Cynodon dactylon	Bermuda grass
Cynosurus echinatus	dogtail grass
Digitaria sanguinalis	hairy crabgrass
Elymus triticoides	beardless wildrye
Festuca myuros	rattail sixweeks grass
Hordeum marinum	seaside barley
Hordeum murinum	foxtail barley
Leersia oryzoides	rice cutgrass
Paspalum dilatatum	dallis grass
Paspalum distichum	knot grass
Paspalum urvillei	Vasey's grass
Poa annua	annual blue grass
Polypogon monspeliensis	rabbitsfoot grass
Setaria parviflora	marsh bristlegrass
Sorghum halepense	Johnsongrass
Stipa pulchra	purple needle grass

TABLE C-1
VASCULAR FLORA RECORDED FROM THE AMERICAN RIVER CONTRACT 1 SURVEY AREA

Scientific Name	Common Name
Polygonaceae	
Persicaria punctata	dotted smartweek
Polygonum aviculare	prostrate knotweed
Rumex conglomeratus	Clustered dock
Rumex crispus	curly dock
Rumex stenophyllus	narrowleaf dock
Portulacaceae	
Portulaca oleracea	common purslane
Potamogetonaceae	
Potamogeton crispus	curly pondweed
Ranunculaceae	
Clematis lasiantha	pipestem
Rosaceae	
Prunus cerasifera	cherry plum
Prunus dulcis	domestic almond
Rosa californica	California wild rose
Rubus armeniacus	Himalayan blackberry
Rubus ursinus	California blackberry
Rubiaceae	
Cephalanthus occidentalis	common buttonbush
Galium aparine	stickywilly
Galium murale	tiny bedstraw
Galium parisiense	wall bedstraw
Salicaceae	
Salix exigua	narrow leaved willow
Salix gooddingii	Goodding's willow
Salix laevigata	red willow
Salix lasiandra	Pacific willow
Salix lasiolepis	arroyo willow
Sapindaceae	
Acer buergerianum	trident maple
Acer negundo	boxelder
Acer saccharinum	silver maple
Aesculus californica	California buckeye
Scrophulariaceae	
Verbascum blattaria	moth mullein
Verbascum thapsus	woolly mullein

TABLE C-1
VASCULAR FLORA RECORDED FROM THE AMERICAN RIVER CONTRACT 1 SURVEY AREA

Scientific Name	Common Name
Simaroubaceae	
Ailanthus altissima	tree of heaven
Solanaceae	
Datura wrightii	jimsonweed
Nicotiana acuminata var. *multiflora*	may flowered tobacco
Nicotiana glauca	tree tobacco
Solanum americanum	white nightshade
Solanum elaeagnifolium	silver leaved horsenettle
Typhaceae	
Typha latifolia	broadleaf cattail
Ulmaceae	
Ulmus americana	American elm
Ulmus minor	English elm
Ulmus parviflora	Chinese elm
Ulmus pumila	Siberian elm
Urticaeae	
Urtica dioica	stinging nettle
Verbenaceae	
Phyla nodiflora	common lippia
Verbena litoralis	seashore vervain
Violaceae	
Viola odorata	English violet
Viscaceae	
Phoradendron leucarpum	mistletoe
Vitaceae	
Vitis californica	California wild grape
Zygophyllaceae	
Tribulus terrestris	puncture vine

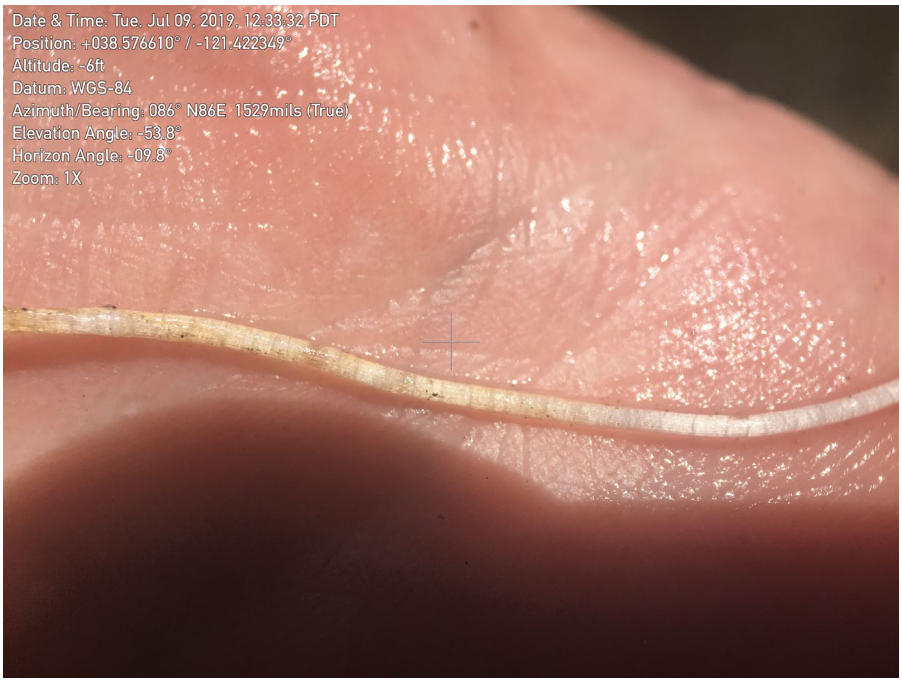
SOURCE: ESA, 2019

Appendix D
Site Photos



SOURCE: ESA 2019 D160092.08 American River Common Features Project Contract 1

Photo 1
Photo of Sanford's arrowhead aquatic leaves taken at the reference population on July 9, 2019.



SOURCE: ESA 2019 D160092.08 American River Common Features Project Contract 1

Photo 2
Photo of septate roots of Sanford's arrowhead (*Sagittaria sanfordii*) taken from the plants in the study area on July 9, 2019



SOURCE: ESA 2019 D160092.08 American River Common Features Project Contract 1

Photo 3
Photo of a root of lanceleaf water plantain (*Alisma lanceolatum*) below the roots of Sanford's arrowhead taken at the reference population on July 9, 2019.



SOURCE: ESA 2019 D160092.08 American River Common Features Project Contract 1

Photo 4
Photo of Sanford's arrowhead emergent leaves taken during the follow-up visit on July 24, 2019.



SOURCE: ESA 2019 D160092.08 American River Common Features Project Contract 1

Photo 5
Photo of an Sanford's arrowhead emergent leaf taken during the follow-up visit on July 24, 2019.



SOURCE: ESA 2019 D160092.08 American River Common Features Project Contract 1

Photo 6
Photo of an Sanford's arrowhead habitat taken on July 24, 2019.

Appendix C

Standard Assessment Methodology Analysis

APPENDIX C

American River Common Features 2016 American River Contract 1 Standard Assessment Methodology Analysis

Introduction

When the NMFS Biological Opinion (BO) on the American River Common Features (ARCF) 2016 General Reevaluation Report (GRR) was issued on September 15, 2015, specific project designs were not yet developed. Consequently, impacts to relevant fish taxa were analyzed at a feasibility level of design using "reasonable worst-case" parameters using a Standard Assessment Methodology (SAM) analysis (NMFS 2015, p. 174). The BO stated that site-specific SAM analyses would be conducted once site designs were completed, to better evaluate impacts and use SAM results in the negotiation of appropriate mitigation for project actions (NMFS 2015, p. 180).

With the October 2019 completion of 65% designs for the ARCF 2016 American River Contract 1, at the Lower American River (LAR), impacts can be re-analyzed using SAM parameters measured from the site-specific designs. Results of this updated SAM analysis are provided in the Results section below.

The updated SAM analysis was conducted following the same methods as were described in the original NMFS BO (NMFS 2015). The SAM computations were performed using the SAM Electronic Calculation Template Version 4.0 (April 2012), with a few updates made in coordination with NMFS biologists. These updates are described in the Methods section below. This analysis is only conducted on Site 2-1.

Methods

The first update was the inclusion of Winter-run Chinook salmon. Recent research indicates that some juvenile Winter-run Chinook salmon use the Lower American River for non-natal rearing habitat (Phillis et al. 2018). Little information exists about the seasonal timing of this habitat use and the default SAM life-history timing table for Winter-run Chinook salmon in the Lower American River shows no occurrence of any life stage. Consequently, the default SAM life-history timing table for Winter-run Chinook salmon in the section of the Sacramento River that includes the American River confluence (**Figure 1**) was used for this analysis. For all other Evolutionarily Significant Units (ESUs) their default SAM life-history timing tables for the Lower American River were used (Figure 1).

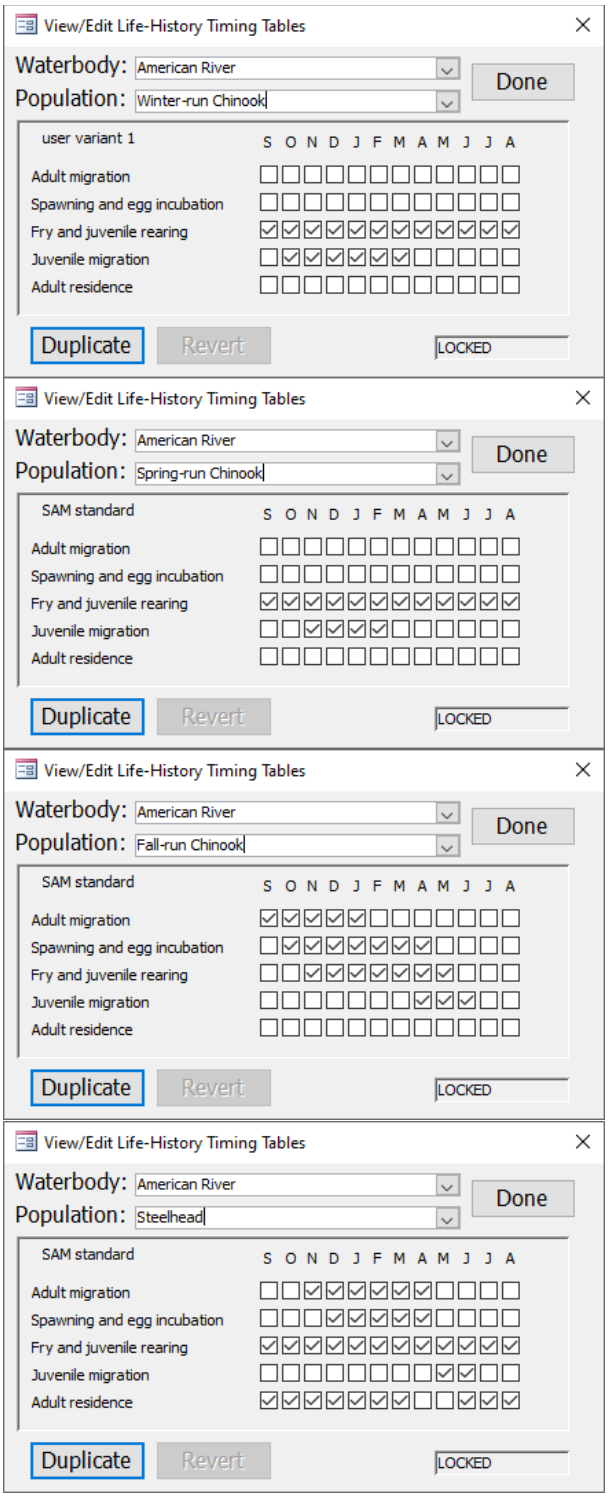


Figure 1. SAM life-history timing tables used in this analysis

The second update was the addition of temporal change (decay) for Instream Structure in both existing and 65% design conditions. Decay of instream structure was estimated using the data compiled in Roni et al. (2015), with a logistic regression used to fit the data and produce estimates of remaining structure at years 0, 1, 5, 15, 25, and 50 (**Table 1**). These estimates were used to scale down the measured values of instream structure shoreline coverage (**Tables 7 and 8**) over time.

TABLE 1
ESTIMATES OF REMAINING INSTREAM STRUCTURE OVER THE 50-YEAR SAM MODELING PERIOD

Year	Percentage of Maximum Instream Structure Shoreline Coverage
0	100%
1	95%
5	90%
15	85%
25	80%
50	48%

Temporal change in the SAM variables Overhanging Shade and Aquatic Vegetation followed the same methods as described in the original NMFS BO, namely use of previous growth models for shade and vegetation in the 65% design condition only (NMFS 2015). Consistent with the original NMFS BO, existing conditions of shade and vegetation were assumed to stay constant for 50 years.

For Overhanging Shade, a botanist determined that the Contract 1 overstory planting designs were reasonably approximated by the Undulating Riparian Bench generalized overstory planting plan (U. S. Army Corps of Engineers [USACE] 2009, Table 3). Consequently, the Undulating Riparian Bench generalized overstory planting plan's shade evolution model (USACE 2009, Table 4f) was applied for the Contract 1 SAM analysis, as shown in **Table 2**.

TABLE 2
ESTIMATES OF GROWTH IN OVERHANGING SHADE OVER THE 50-YEAR SAM MODELING PERIOD

Year	Percentage of Maximum Planted Overhanging Shade Shoreline Coverage			
	Fall	Winter	Spring	Summer
0	0%	1%	2%	0%
1	0%	1%	4%	0%
5	0%	16%	49%	0%
15	100%	25%	75%	100%
25	100%	25%	75%	100%
50	100%	25%	75%	100%

For Aquatic Vegetation, temporal change followed the approach used in the original NMFS BO, as shown in **Table 3**.

TABLE 3
ESTIMATES OF GROWTH IN AQUATIC VEGETATION OVER THE 50-YEAR SAM MODELING PERIOD

Year	Percentage of Maximum Planted Aquatic Vegetation Shoreline Coverage			
	Fall	Winter	Spring	Summer
0	0%	0%	0%	0%
1	10%	25%	50%	50%
5	100%	100%	100%	100%
15	100%	100%	100%	100%
25	100%	100%	100%	100%
50	100%	100%	100%	100%

Measurements

Tables 4 and 5 show the measured values of the SAM variables at existing and 65% design conditions for each Contract 1 site 2-1. Tables 6 and 7 show the values of the SAM variables in the format used for input to the SAM Electronic Calculation Tool (ECT) version 4.0.

TABLE 4
EXISTING CONDITION (2018) MEASUREMENTS OF THE SAM VARIABLES FOR SITE 2-1

	EXISTING CONDITIONS	
	S/F	W/S
Shoreline Length (ft.)	3,403	3,404
Bank Slope (run/rise)	3.6	3.0
Floodplain Area (sq. ft.)	--	814,911
Substrate Size (D_{50}, in.)	3.94	4.50
Instream Structure (ft.)	421	555
Aquatic Vegetation (ft.)	1,219	1,843
Overhanging Shade (ft.)	3,006	3,011

TABLE 5
65% DESIGN CONDITION MEASUREMENTS OF THE SAM VARIABLES FOR SITE 2-1

	65% DESIGN CONDITIONS	
	S/F	W/S
Shoreline Length (ft.)	4,099	4,033
Bank Slope (run/rise)	5.3	8.3
Floodplain Area (sq. ft.)	--	785,618
Substrate Size (D_{50}, in.)	9.90	0.01
Instream Structure (ft.)	1,785	2,011
Aquatic Vegetation (ft.)	2,428	3,283
Overhanging Shade (ft.)	3,814	3,758

TABLE 6
EXISTING CONDITION (2018) MODEL INPUT VALUES OF THE SAM VARIABLES FOR SITE 2-1

	EXISTING CONDITIONS	
	S/F	W/S
Shoreline Length (ft.)	3,403	3,404
Bank Slope (run/rise)	3.6	3.0
Floodplain Area ratio (AQ_2:AQ_{avg})	1.00	1.14
Substrate Size (D_{50}, in.)	3.94	4.50
Instream Structure coverage (%)	12%	16%
Aquatic Vegetation coverage (%)	36%	54%
Overhanging Shade coverage (%)[1]	88%	*22% / 66%*

NOTE:
1 Separate winter and spring values for overhanging shade account for seasonal defoliation/refoliation.

TABLE 7
65% DESIGN CONDITION MODEL INPUT VALUES OF THE SAM VARIABLES FOR SITE 2-1

	65% DESIGN CONDITIONS	
	S/F	W/S
Shoreline Length (ft.)	4,099	4,033
Bank Slope (run/rise)	5.3	8.3
Floodplain Area ratio (AQ_2:AQ_{avg})	1.00	1.25
Substrate Size (D_{50}, in.)	9.90	0.01
Instream Structure coverage (%)	44%	50%
Aquatic Vegetation coverage (%)	59%	81%
Overhanging Shade coverage (%)[1]	93%	*23% / 70%*

NOTE:
1 Separate winter and spring values for overhanging shade account for seasonal defoliation/refoliation.

Results

As described in the original NMFS BO (NMFS 2015, pp. 25-26), SAM results are weighted relative response index (WRI) values that represent the difference between modeled fish response to existing (without-project) and designed (with-project) conditions. Negative WRI values indicate that existing conditions are better for fish and positive WRI values indicate that designed conditions are better for fish. Consistent with the original NMFS BO, WRI values are weighted by shoreline length. Results are presented as WRI values for Site 2-1 project designs in Contract 1.

WRI values do not directly represent actual quantities of river bank, SRA habitat, or riparian habitat, but NMFS has used WRI values as proxies when determining mitigation (NMFS 2015, p. 177). Mitigation for long-term effects is accomplished through on-site mitigation features (e.g., planted vegetation, placed woody material) and, if necessary, purchase of off-site mitigation credits (NMFS 2015, p. 181). If long-term effects do not recover to baseline conditions over the life of a project (50 years) then the purchase of off-site mitigation credits is necessary (NMFS 2015, p. 181). Recovery to baseline conditions and appropriate mitigation was determined by identifying the maximum negative WRI for all salmonid ESUs and evaluating the timeline of that ESU, life stage, and season over 50 years (NMFS 2015, pp. 180-182).

Analysis of Site 2-1

A comprehensive analysis of Site 2-1 was used to assess the effects of American River Contract 1 levee improvements on Site 2-1 on the listed species. This analysis does not allow a comprehensive assessment of the effects of the project on the listed species in the Action Area.

The yearly WRI values are shown in **Figures 2-5** for any life stage that had any negative WRI values. Life stages with exclusively positive WRI values were not plotted, but are included in the summary of maximum WRI values (negative and positive) in **Table 8**. The maximum negative WRI for Spring-run Chinook salmon was -334 (juvenile migration in fall). The maximum negative WRI for Winter-run Chinook salmon was -334 (juvenile migration in fall). The maximum negative WRI for Fall-run Chinook salmon was -163 (juvenile migration in summer). The maximum negative WRI for steelhead was -151 (juvenile rearing in fall). For the SAM-modeled 50-year period, WRI values were predominantly positive and the longest duration of a WRI deficit was 15 years.

TABLE 8
MAXIMUM SAM-MODELED WRI DEFICITS AND BENEFITS FOR SITE 2-1

Season	Life Stage	Maximum WRI Deficit (feet)	Deficit Duration (years)	Maximum WRI Benefit (feet)	Benefit Duration (years)
Spring-Run Chinook salmon					
Fall	Adult Migration [1]	na	na	na	na
	Spawning & Egg Incubation [1]	na	na	na	na
	Fry & Juvenile Rearing	-119	15	56	35
	Juvenile Migration	-334	6	540	44

TABLE 8
MAXIMUM SAM-MODELED WRI DEFICITS AND BENEFITS FOR SITE 2-1

Season	Life Stage	Maximum WRI Deficit (feet)	Deficit Duration (years)	Maximum WRI Benefit (feet)	Benefit Duration (years)
Winter	Adult Migration [1]	na	na	na	na
	Spawning & Egg Incubation [1]	na	na	na	na
	Fry & Juvenile Rearing	none	none	293	50
	Juvenile Migration	-33	1	825	49
Spring	Adult Migration [1]	na	na	na	na
	Spawning & Egg Incubation [1]	na	na	na	na
	Fry & Juvenile Rearing	none	none	400	50
	Juvenile Migration	none	none	873	50
Summer	Adult Migration [1]	na	na	na	na
	Spawning & Egg Incubation [1]	na	na	na	na
	Fry & Juvenile Rearing	-92	14	60	36
	Juvenile Migration [2]	na	na	na	na
Winter-Run Chinook salmon					
Fall	Adult Migration [1]	na	na	na	na
	Spawning & Egg Incubation [1]	na	na	na	na
	Fry & Juvenile Rearing	-119	15	56	35
	Juvenile Migration	**-334**	6	540	44
Winter	Adult Migration [1]	na	na	na	na
	Spawning & Egg Incubation [1]	na	na	na	na
	Fry & Juvenile Rearing	none	none	293	50
	Juvenile Migration	-33	1	825	49
Spring	Adult Migration [1]	na	na	na	na
	Spawning & Egg Incubation [1]	na	na	na	na
	Fry & Juvenile Rearing	none	none	400	50
	Juvenile Migration	none	none	873	50
Summer	Adult Migration [1]	na	na	na	na
	Spawning & Egg Incubation [1]	na	na	na	na
	Fry & Juvenile Rearing	-92	14	60	36
	Juvenile Migration [2]	na	na	na	na
Fall-Run Chinook salmon					
Fall	Adult Migration	none	none	783	50
	Spawning & Egg Incubation	none	none	696	50
	Fry & Juvenile Rearing	-119	15	56	35
	Juvenile Migration [3]	na	na	na	na
Winter	Adult Migration	none	none	710	50
	Spawning & Egg Incubation	none	none	629	50
	Fry & Juvenile Rearing	none	none	293	50
	Juvenile Migration	-33	1	825	49

TABLE 8
MAXIMUM SAM-MODELED WRI DEFICITS AND BENEFITS FOR SITE 2-1

Season	Life Stage	Maximum WRI Deficit (feet)	Deficit Duration (years)	Maximum WRI Benefit (feet)	Benefit Duration (years)
Spring	Adult Migration [4]	na	na	na	na
	Spawning & Egg Incubation [4]	na	na	na	na
	Fry & Juvenile Rearing	none	none	400	50
	Juvenile Migration	none	none	873	50
Summer	Adult Migration [4]	na	na	na	na
	Spawning & Egg Incubation [4]	na	na	na	na
	Fry & Juvenile Rearing	-92	14	60	36
	Juvenile Migration	**-163**	2	557	48
Steelhead					
Fall	Adult Migration	none	none	920	50
	Spawning & Egg Incubation [5]	na	na	na	na
	Fry & Juvenile Rearing	**-151**	12	125	38
	Juvenile Migration [6]	na	na	na	na
	Adult Residence	none	none	920	50
Winter	Adult Migration	none	none	831	50
	Spawning & Egg Incubation	none	none	629	50
	Fry & Juvenile Rearing	none	none	414	50
	Juvenile Migration [6]	na	na	na	na
	Adult Residence	none	none	831	50
Spring	Adult Migration	none	none	857	50
	Spawning & Egg Incubation	none	none	629	50
	Fry & Juvenile Rearing	none	none	523	50
	Juvenile Migration	none	none	774	50
	Adult Residence	none	none	857	50
Summer	Adult Migration [7]	na	na	na	na
	Spawning & Egg Incubation [7]	na	na	na	na
	Fry & Juvenile Rearing	-107	11	131	39
	Juvenile Migration	-24	1	592	49
	Adult Residence	none	none	920	50

NOTES:
1 Not applicable, adult Spring- and Winter-run Chinook salmon are unlikely to occur in the American River.
2 Not applicable, emigrating juvenile Spring- and Winter-run Chinook salmon are unlikely to occur in the American River during summer months.
3 Not applicable, emigrating juvenile Fall-run Chinook salmon are unlikely to occur in the American River during fall months.
4 Not applicable, adult Fall-run Chinook salmon are unlikely to occur in the American River in spring or summer months.
5 Not applicable, steelhead spawning is unlikely to occur in the American River during fall months.
6 Not applicable, emigrating juvenile steelhead are unlikely to occur in the American River during fall or winter months.
7 Not applicable, adult steelhead are unlikely to occur in the American River during summer months.

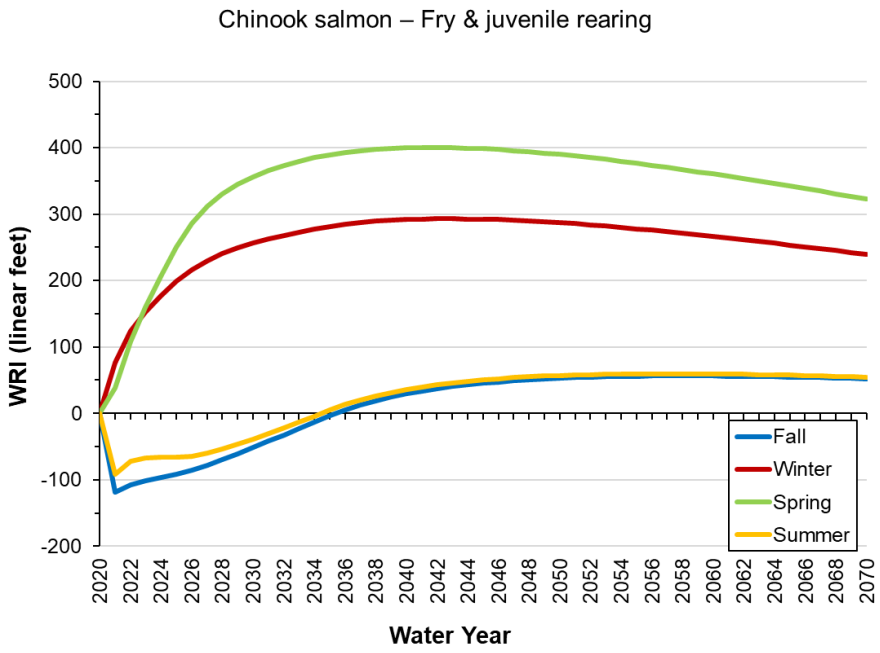


Figure 2. Yearly SAM-modeled WRI values for Chinook salmon juvenile rearing in each season for Site 2-1. Values apply to any Chinook salmon ESU that occurs in the American River Contract 1 area

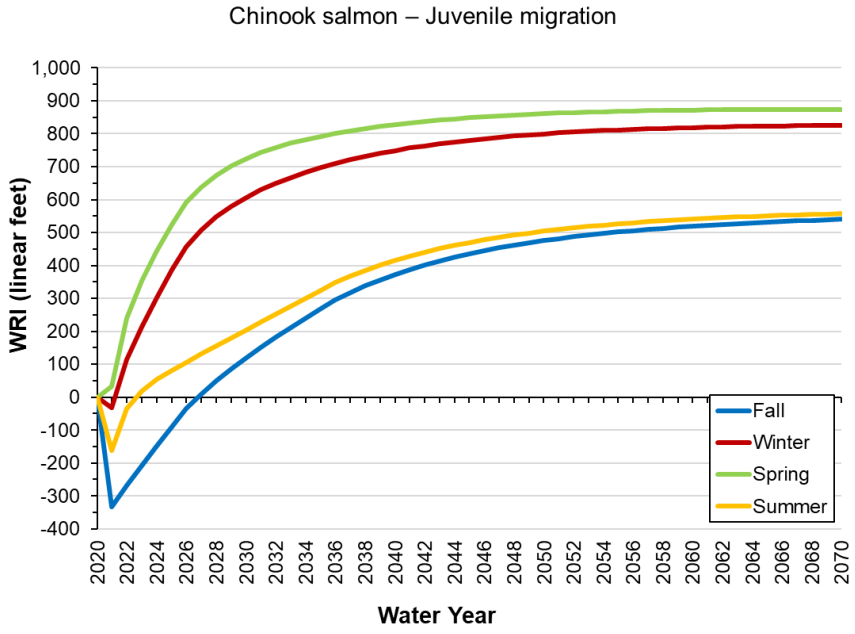


Figure 3. Yearly SAM-modeled WRI values for Chinook salmon juvenile migration in each season for Site 2-1. Values apply to any Chinook salmon ESU that occurs in the American River Contract 1 area

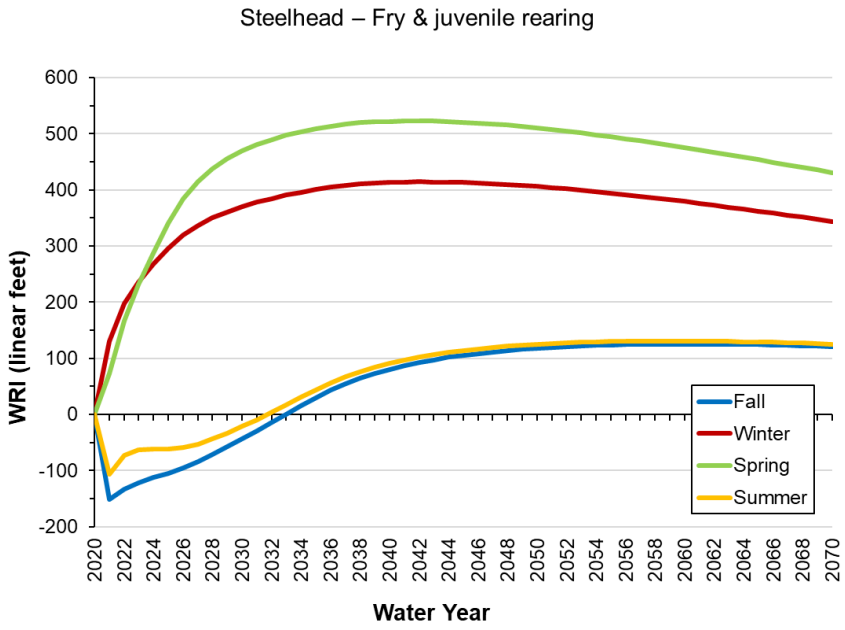


Figure 4. Yearly SAM-modeled WRI values for steelhead juvenile rearing in each season for Site 2-1.

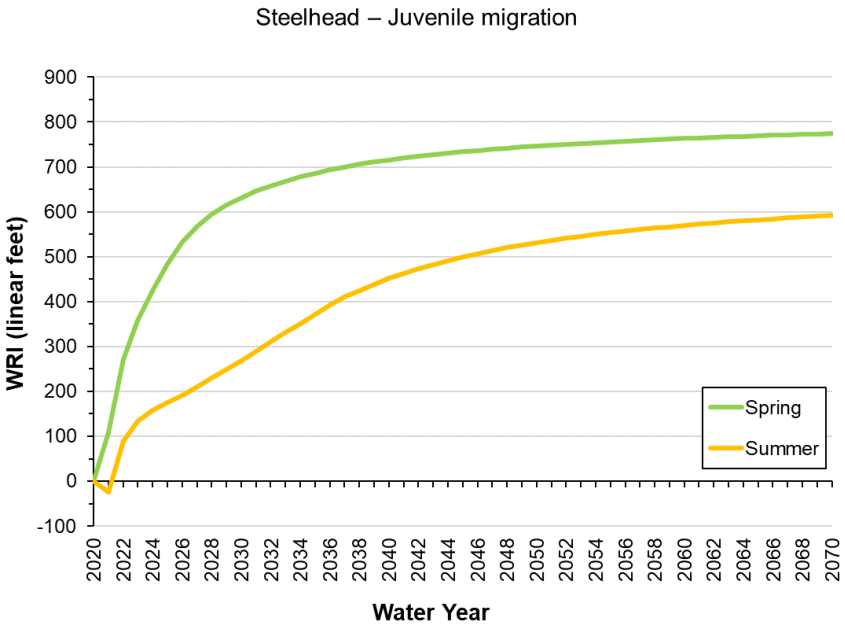


Figure 5. Yearly SAM-modeled WRI values for steelhead juvenile migration in each season for Site 2-1.

References

National Marine Fisheries Service (NMFS). 2015. *Endangered Species Act Section 7(a)(2) Biological Opinion, and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response, for the American River Common Features General Reevaluation Report* (Common Features GRR). 235 pp.

Phillis, C. C., A. M. Sturrock, R.C. Johnson, and P. K. Weber. 2018. Endangered winter-run Chinook salmon rely on diverse rearing habitats in a highly altered landscape. Biological Conservation 217:358–362. https://doi.org/10.1016/j.biocon.2017.10.023.

Roni, P., T. Beechie, G. Pess, K. Hanson, and B. Jonsson. 2015. Wood placement in river restoration: fact, fiction, and future direction. Canadian Journal of Fisheries and Aquatic Sciences 72: 466–478. https://doi.org/10.1139/cjfas-2014-0344.

U.S. Army Corps of Engineers (USACE). 2009. *Draft Environmental Assessment/Initial Study for Levee Repair of 25 Erosion Sites: Sacramento River Bank Protection Project.* Prepared by North State Resources, Inc., Redding, California, and Stillwater Sciences, Inc., Berkeley, California, for U.S. Army Corps of Engineers, Sacramento District and Central Valley Flood Protection Board, Sacramento, California. U.S. Army Corps of Engineers Contract W91238-07-D-0022. April 2009.

Appendix D
Noise Modeling Data

Attenuation Calculations for Stationary Noise Sources

KEY: Orange cells are for input.
Grey cells are intermediate calculations performed by the model.
Green cells are data to present in a written analysis (output).

STEP 1: Identify the noise source and enter the reference noise level (dBA and distance).

STEP 2: Select the ground type (hard or soft), and enter the source and receiver heights.

STEP 3: Select the distance to the receiver.

Noise Source/ID	Reference Noise Level			Attenuation Characteristics				Attenuated Noise Level at Receptor		
	noise level (dBA)	@	distance (ft)	Ground Type (soft/hard)	Source Height (ft)	Receiver Height (ft)	Ground Factor	noise level (dBA)	@	distance (ft)
Rip Rap	88.0	@	50	soft	12	5	0.60	88.0	@	50
Rip Rap	88.0	@	50	soft	12	5	0.60	80.2	@	100
Rip Rap	88.0	@	50	soft	12	5	0.60	72.4	@	200
Rip Rap	88.0	@	50.00	soft	12	5	0.60	67.8	@	300
Rip Rap	88.0	@	50	soft	12	5	0.60	64.5	@	400
Rip Rap	88.0	@	50	soft	12	5	0.60	62.0	@	500
Rip Rap	88.0	@	50	soft	12	5	0.60	54.2	@	1000
Rip Rap	88.0	@	50	soft	12	5	0.60	49.6	@	1500
Rip Rap	88.0	@	50	soft	12	5	0.60	46.4	@	2000
Rip Rap	88.0	@	50	soft	12	5	0.60	41.8	@	3000
							0.66			
							0.66			
							0.66			
							0.66			

Notes:

Estimates of attenuated noise levels do not account for reductions from intervening barriers, including walls, trees, vegetation, or structures of any type.

Computation of the attenuated noise level is based on the equation presented on pg. 12-3 and 12-4 of FTA 2006.

Computation of the ground factor is based on the equation presentd in Figure 6-23 on pg. 6-23 of FTA 2006, where the distance of the reference noise leve can be adjusted and the usage factor is not applied (i.e., the usage factor is equal to 1).

Sources:

Federal Transit Association (FTA). 2006 (May). Transit Noise and Vibration Impact Assessment. FTA-VA-90-1003-06. Washington, D.C. Available: <http://www.fta.dot.gov/documents/FTA_Noise_and_Vibration_Manual.pdf>. Accessed: September 24, 2010.

Traffic Noise Spreadsheet Calculator

Existing Conditions

Project: Subreach 2

Noise Level Descriptor: CNEL
Site Conditions: Hard
Traffic Input: ADT
Traffic K-Factor:

Segment Description and Location				Input										Output				
						Distance to Directional Centerline, (feet)[4]		Traffic Distribution Characteristics						CNEL,	Distance to Contour, (feet)[3]			
Number	Name	From	To	ADT	Speed (mph)	Near	Far	% Auto	% Medium	% Heavy	% Day	% Eve	% Night	(dBA)[5,6,7]	70 dBA	65 dBA	60 dBA	55 dBA
1	i-80	Howe		136,000	65	100	100	85.0%	10.0%	5.0%	85.0%	10.0%	5.0%	82.2	1647	5207	16466	52068
	SR 50	SR 16		189,000	65	100	100	85.0%	10.0%	5.0%	85.0%	10.0%	5.0%	83.6	2288	7236	22882	72360

Traffic Noise Spreadsheet Calculator
Existing Plus Project Conditions

Noise Level Descriptor: Leq
Site Conditions: Soft
Traffic Input: Peak
Traffic K-Factor:

Segment Description and Location				Peak Hour	Speed	Centerline, (feet)$_4$		Traffic Distribution Characteristics						Leq,	Distance to Contour, (feet)$_3$			
Number	Name	From	To	Volume	(mph)	Near	Far	% Auto	% Medium	% Heavy	% Day	% Eve	% Night	(dBA)$_{5,6,7}$	70 dBA	65 dBA	60 dBA	55 dBA
Hauling																		
1	Generic	here	there	25	40	78	122	0.0%	0.0%	100.0%	100.0%	0.0%	0.0%	57.1	14	29	63	135

Citation #	Citations	
1	Caltrans Technical Noise Supplement. 2009 (November). Table (5-11), Pg 5-60.	Caltrans Technical Noise Supplement. 2013 (September). Table (4-2), Pg 4-17.
2	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-26), Pg 5-60.	Caltrans Technical Noise Supplement. 2013 (September). Equation (4-5), Pg 4-17.
3	Caltrans Technical Noise Supplement. 2009 (November). Equation (2-16), Pg 2-32.	FHWA 2004 TNM Version 2.5
4	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-11), Pg 5-47, 48.	FHWA 2004 TNM Version 2.5
5	Caltrans Technical Noise Supplement. 2009 (November). Equation (2-26), Pg 2-55, 56.	Caltrans Technical Noise Supplement. 2013 (September). Equation (2-23), Pg 2-51, 52.
6	Caltrans Technical Noise Supplement. 2009 (November). Equation (2-27), Pg 2-57.	Caltrans Technical Noise Supplement. 2013 (September). Equation (2-24), Pg 2-53.
7	Caltrans Technical Noise Supplement. 2009 (November). Pg 2-53.	Caltrans Technical Noise Supplement. 2013 (September). Pg 2-57.
8	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-7), Pg 5-45.	FHWA 2004 TNM Version 2.5
9	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-8), Pg 5-45.	FHWA 2004 TNM Version 2.5
10	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-9), Pg 5-45.	FHWA 2004 TNM Version 2.5
11	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-13), Pg 5-49.	FHWA 2004 TNM Version 2.5
12	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-14), Pg 5-49.	FHWA 2004 TNM Version 2.5
13	Federal Highway Administration Traffic Noise Model Technical Manual. Report No. FHWA-PD-96-010. 1998 (January). Equation (16), Pg 67	
14	Federal Highway Administration Traffic Noise Model Technical Manual. Report No. FHWA-PD-96-010. 1998 (January). Equation (20), Pg 69	
15	Federal Highway Administration Traffic Noise Model Technical Manual. Report No. FHWA-PD-96-010. 1998 (January). Equation (18), Pg 69	

References

California Department of Transportation (Caltrans). 2009 (November). Technical Noise Supplement. Available: http://www.dot.ca.gov/hq/env/noise/pub/tens_complete.pdf. Accessed August 17, 2017.

California Department of Transportation (Caltrans). 2013 (September). Technical Noise Supplement. Available: http://www.dot.ca.gov/hq/env/noise/pub/TeNS_Sept_2013A.pdf. Accessed August 17, 2017.

Federal Highway Administration. 2004. Traffic Noise Model Version 2.5. Available: https://www.fhwa.dot.gov/environment/noise/traffic_noise_model/tnm_v25/. Accessed August 17, 2017.

Distance Propagation Calculations for Stationary Sources of Ground Vibration

KEY: Orange cells are for input.

Grey cells are intermediate calculations performed by the model.

Green cells are data to present in a written analysis (output).

STEP 1: Determine units in which to perform calculation.

— If vibration decibels (VdB), then use Table A and proceed to Steps 2A and 3A.

— If peak particle velocity (PPV), then use Table B and proceed to Steps 2B and 3B.

STEP 2A: Identify the vibration source and enter the reference vibration level (VdB) and distance.

STEP 3A: Select the distance to the receiver.

Table A. Propagation of vibration decibels (VdB) with distance

Noise Source/ID	Reference Noise Level			Attenuated Noise Level at Receptor		
	vibration level (VdB)	@	distance (ft)	vibration level (VdB)	@	distance (ft)
Haul truck	86	@	25	77.0	@	50

STEP 2B: Identify the vibration source and enter the reference peak particle velocity (PPV) and distance.

STEP 3B: Select the distance to the receiver.

Table B. Propagation of peak particle velocity (PPV) with distance

Noise Source/ID	Reference Noise Level			Attenuated Noise Level at Receptor		
	vibration level (PPV)	@	distance (ft)	vibration level (PPV)	@	distance (ft)
Haul truck	0.076	@	25	0.027	@	50

Notes:

Computation of propagated vibration levels is based on the equations presented on pg. 12-11 of FTA 2006. Estimates of attenuated vibration levels do not account for reductions from intervening underground barriers or other underground structures of any type, or changes in soil type.

Sources:

Federal Transit Association (FTA). 2006 (May). Transit Noise and Vibration Impact Assessment. FTA-VA-90-1003-06. Washington, D.C. Available: <http://www.fta.dot.gov/documents/FTA_Noise_and_Vibration_Manual.pdf>. Accessed: September 24, 2010.

Appendix E

Air Quality/Greenhouse Gas Emissions/Health Risk Assessment Modeling Data

Schedule constraints:

1. In-water work window for listed fish species (Aug 1 - Nov 30)
2. Tree removal/elderberry transplant window (Nov 1 - Feb 15)
3. Tree removal in Jan-Feb could be limited/infeasible by high water levels near desired planting bench and toe protection areas

Month	2021 Construction Season Forecast Repair Site 2-1
January	1. Tree removal and pruning (Preferable to do in November/December when flows are likely to be lower?)
February	
March	No activity
April	
May	2. Temporary BMPs, access roads, staging areas, and pedestrian trail reroutes 3. Rock haul from quarry (44,800 CY, 30cy/truck/day for 60 days = 25 trucks) 4. Excavate for buried rock toe and bank protection, prep subgrade (91,700 CY). Export native material (20,300 CY). (188cy/day/excavator @ 60 days = 9 excavators & 18 dump trucks) 5. Import and place filter material (9,600 CY, 188cy/day/excavator @ 60 days = 1 excavator & 6 dump trucks) 6. Place buried launchable rock toe (29,800 CY) and backfill native material (84,000 CY). (188cy/day/excavator @ 50 days = 13 excavators & 26 dump trucks) 7. Bank protection earthwork and bank protection rock (15,000 CY). (188cy/day/excavator @ 60 days = 2 excavators & 4 dump trucks)
June	
July	
August	8. Control of water 9. Rock haul from quarry (102,300 CY, 30cy/truck/day for 60 days = 57 trucks) 10. Excavate and prep subgrade, export native material (26,800 CY) (188cy/day/excavator @ 60 days = 3 excavators & 6 dump trucks) 11. Import and place filter material (22,400 CY, 188cy/day/excavator @ 60 days = 2 excavators & 13 dump trucks) 12. Launchable rock toe excavation and installation (58,300 CY, 188cy/day/excavator @ 60 days = 6 excavators & 12 dump trucks) 13. Bank protection earthwork and bank protection rock (44,000 CY, 188cy/day/excavator @ 60 days = 4 excavators & 8 dump trucks) 14. Import and place planting bench fill (16,000 CY, 100cy/day/excavator @ 50 days = 4 excavators & 8 dump trucks) 15. Import and place Topsoil and Soil Fill and Decomposed Granite (44,000 CY, 100cy/day/excavator @ 60 days = 8 excavators & 16 dump trucks) 16. IWM anchorages, 1 excavator 17. Filter fabric, planting bench earthwork, IWM installation (300 trees)
September	
October	
November	18. Planting bench fine grading 19. Bank protection seeding, erosion control, and winterization
December	Winter/BMP Monitoring
January	
February	
March	
April	
May	
June	GC Closeout
July	20. Irrigation installation 21. Willow poles, and container plants
August	
September	

Maximum Daily Emissions by Site - 16 CY Trucks

Site 2-1

Date Range	Activity Number	ROG (lb/day)	CO (lb/day)	NOx (lb/day)	PM10 Exhaust (lb/day)	PM10 Fugitive (lb/day)	PM10 Total (lb/day)	PM2.5 Exhaust (lb/day)	PM2.5 Fugitive (lb/day)	PM2.5 Total (lb/day)
May-July	7 (4)	8.7	92.2	193.9	2.2	29.9	32.0	2.2	3.0	5.1
August-October	13 (9)	8.1	96.0	164.2	2.0	27.2	29.2	1.8	2.7	4.6
	14 (11)	5.2	45.2	155.6	1.4	30.0	31.4	2.7	3.0	5.7
	new (old)									

Annual Total by Site - 16 CY Trucks

Site 2-1

Year	ROG (tons/year)	CO (tons/year)	NOx (tons/year)	PM10 (tons/year)	PM2.5 (tons/year)	CO2 (MT/year)	CH4 (MT/year)	N2O (MT/year)	MTCO2e/year
2021	0.79	10.81	11.99	0.1778	0.16	8,729.2	0.388	0.519	8,893.5
2022	0.0002	0.002	0.0023	0.0	0.0	0.971	0.000013	0.000120	1.007

Glen Hall Mitigation Site

Nov 2020 -Feb 2021	ROG (tons/year)	CO (tons/year)	NOx (tons/year)	PM10 (tons/year)	PM2.5 (tons/year)	CO2 (MT/year)	CH4 (MT/year)	N2O (MT/year)	MTCO2e/year
Hauling/Delivery	0.0000516	0.000309	0.001912	0.000016	0.000014	0.619	0.0000022	0.000097	0.648
Off-Road Equip + Worker Trips	0.0405295	0.689705	0.233982	0.011365	0.010316	208.122	0.0287285	0.000886	209.105
2-1 + Glen Hall Mit. TOTAL(2021):	0.79	10.81	11.99	0.18	0.16	8,729.8	0.388	0.519	8,894.20

Glen Hall Mitigation Site Assumptions: 8 trips hauling away (5 chips and 3 trunks) + 6 trips deliveries to site (3 trees and 3 fencing), assume all occur on 1 day and each trip = 25 miles (one-way only)

Rio Americano West Mitigation Site

Nov 2020 -Feb 2021	ROG (tons/year)	CO (tons/year)	NOx (tons/year)	PM10 (tons/year)	PM2.5 (tons/year)	CO2 (MT/year)	CH4 (MT/year)	N2O (MT/year)	MTCO2e/year
Hauling/Delivery	0.0000221	0.000132	0.000819	0.000007	0.000006	0.265	0.0000009	0.000042	0.278
Off-Road Equip + Worker Trips	0.035368	0.582709	0.211021	0.010139	0.009189	180.94	0.024629	0.000771	181.783

Rio American West Mitigation Site Assumptions: 6 delivery trips to site (3 trees and 3 fencing), assume all occur on 1 day and each trip = 25 miles (one-way only)

Rio Americano East Mitigation Site

Nov 2020 -Feb 2021	ROG (tons/year)	CO (tons/year)	NOx (tons/year)	PM10 (tons/year)	PM2.5 (tons/year)	CO2 (MT/year)	CH4 (MT/year)	N2O (MT/year)	MTCO2e/year
Hauling/Delivery	0.0000221	0.000132	0.000819	0.000007	0.000006	0.265	0.0000009	0.000042	0.278
Off-Road Equip + Worker Trips	0.034189	0.565025	0.196355	0.009287	0.008405	180.39	0.024190	0.000749	181.217

Rio American East Mitigation Site Assumptions: 6 delivery trips to site (3 trees and 3 fencing), assume all occur on 1 day and each trip = 25 miles (one-way only)

	ROG (tons/year)	CO (tons/year)	NOx (tons/year)	PM10 (tons/year)	PM2.5 (tons/year)	CO2 (MT/year)	CH4 (MT/year)	N2O (MT/year)	MTCO2e/year
TOTAL ALL SITES (2020-2022):	**0.898**	**12.6**	**12.6**	**0.21**	**0.19**	**9,301**	**0.47**	**0.52**	**9,468**

Ton/year

Emissions Summary by Year	ROG	CO	NOx	PM10	PM2.5	MTCO2e/year
2020	0.07	1.23	0.43	0.02	0.02	382.21
2021	0.82	11.42	12.21	0.19	0.17	9,084.65
2022	0.000	0.002	0.002	0.000	0.000	1.007

Construction-Related Energy Consumption by Site - 16 CY Trucks

Site 2-1

Heavy-Duty Equipment (Diesel)

Equipment Type	Total Usage Hours	HP	LF	Average Daily Factor	Diesel Fuel Usage
Loader	4,800	203	0.36	0.6	210,470
Grader	200	187	0.41	0.6	9,200
Dozer	1,600	247	0.4	0.6	94,848
Excavator	11,700	158	0.38	0.6	421,481
Pump	3,200	124	0.44	0.6	104,755
Water Truck	600	402	0.38	0.6	54,994
Total					895,748

Haul Truck Trips (includes Mitigation Site Haul Trips)

Vehicle Type	Total VMT	Gallons of Diesel
Haul Truck from Quarry/to Natomas	1,770,344	307,782
Flat Bed Truck	7,850	1,365
Internal Haul Truck	43,708	7,599

Worker Commute Trips

Vehicle Type	Total VMT	Gallons of Gasoline
Mixed LDA/LDT	167,880	6,035

Site 2-1 Total

Gallons of Diesel	Gallons of Gasoline
1,212,494	**6,035**

Glen Hall Site

Heavy-Duty Equipment (Diesel)

Equipment Type	Total Usage Hours	HP	LF	Average Daily Factor	Diesel Fuel Usage
Chipper	150	174	0.78	0.6	12,215
Backhoe	500	127	0.37	0.6	14,097
Dozer	500	474	0.40	0.6	56,880
Excavator	650	97	0.38	0.6	14,375
Backhoe (Bobcat)	500	40	0.37	0.6	4,440
Total					102,007

Gasoline Equipment

Equipment Type	Total Usage Hours	HP	LF	Average Daily Factor	Gasoline Usage
Chainsaw	200	25	0.70	0.6	2,100
Trimmer	1000	5	0.91	0.6	2,730
Trenching Machine	500	16	0.50	0.6	2,400
Water Pump	500	5	0.74	0.6	1,110
Total					8,340

Worker Commute Trips

Vehicle Type	Total VMT	Gal Gas
Mixed LDA/LDT	9,000	324

Glen Hall Site Total

Gallons of Diesel	Gallons of Gasoline
102,007	**8,664**

Rio Americano East

Heavy-Duty Equipment (Diesel)

Equipment Type	Total Usage Hours	HP	LF	Average Daily Factor	Diesel Fuel Usage
Backhoe	500	127	0.37	0.6	14,097
Dozer	500	474	0.40	0.6	56,880
Excavator	500	97	0.38	0.6	11,058
Backhoe (Bobcat)	500	40	0.37	0.6	4,440
Total					86,475

Gasoline Equipment

Equipment Type	Total Usage Hours	HP	LF	Average Daily Factor	Gasoline Usage
Trimmer	1000	5	0.91	0.6	2,730
Trenching Machine	500	16	0.50	0.6	2,400
Water Pump	500	5	0.74	0.6	1,110
Total					6,240

Worker Commute Trips

Vehicle Type	Total VMT	Gal Gas
Mixed LDA/LDT	8,000	288

Glen Hall Site Total

Gallons of Diesel	Gallons of Gasoline
86,475	**6,528**

Rio Americano West

Heavy-Duty Equipment (Diesel)

Equipment Type	Total Usage Hours	HP	LF	Average Daily Factor	Diesel Fuel Usage
Backhoe	500	127	0.37	0.6	14,097
Dozer	500	474	0.40	0.6	56,880
Excavator	500	97	0.38	0.6	11,058
Backhoe (Bobcat)	500	40	0.37	0.6	4,440
Total					86,475

Gasoline Equipment

Equipment Type	Total Usage Hours	HP	LF	Average Daily Factor	Gasoline Usage
Trimmer	1000	5.5	0.91	0.6	3,003
Trenching Machine	500	16	0.50	0.6	2,400
Portable Drill	500	5	0.74	0.6	1,110
Water Pump	500	5	0.74	0.6	1,110
Total					7,623

Worker Commute Trips

Vehicle Type	Total VMT	Gal Gas
Mixed LDA/LDT	9,000	324

Glen Hall Site Total

Gallons of Diesel	Gallons of Gasoline
86,475	**7,947**

LOWER AMERICAN RIVER SITE 2-1						
	1	MOB/DEMOB (% of Scour Bid Items)	LS	3%	-	$ -
	2	MATERIAL EXPORT	CY		27,600	
	3	FILTER LAYER	CY		31,200	
	4	CLASS 1A ROCK (36" MINUS)	TN		134,400	
	5	CLASS 1B ROCK	TN		0	
	6	CLASS 1C ROCK (36" 60/40)	TN		4,200	
	7	CLASS 2A ROCK	TN		0	
	8	CLASS 2B ROCK (24" 70/30)	TN		86,400	
	9	CLASS 2C ROCK	TN		0	
	10	SOIL FILL	TN		34,300	
	11	TOPSOIL	TN		41,800	
	12	PLANTING BENCH FILL	TN		31,200	
	13	GEOTEXTILE	SY		18,600	
	14	EROSION CONTROL FABRIC	SY		15,400	
	15	IWM	EA		300	
	16	DECOMPOSED GRANITE BASE	CY		3,000	
SUBTOTAL						**$ -**

CY
27,600
31,200
84,000
0
2,625
0
54,000
0
17,150
20,900
15,600

Construction Schedule

Phase	Start Date	End Date
Site Prep	1/1/2021	4/31/2021
Construction	5/1/2021	11/30/2021
BMPs	12/1/2021	5/31/2022

	Repair Site 2-1	Source		
Rip Rap (tons)	286,560	calc		
Rip Rap (CY)	179,100	proj desc	table 2-1	
Levee (linear feet)	5,300	proj desc		
Disturbance area (acres)	2.5	proj desc		
Top soil (tons)	114,000	calc		
Top soil (CY)	57,000	proj desc	table 2-1	Haul from Chico
IWM trees	300	proj desc	table 2-1	

Line Emissions from Construction Equipment

Type of Equipment	Maximum Number per Day	Total Operation Days	Workers
Excavator	26	120	65
Dozer	1	60	1
Front End Loader	5	120	5
Roller or grader	1	60	1
Dump Truck	48	120	48
Transfer Dump Truck	46	120	46
Flatbed truck	1	60	1
4" pump	4	60	
Water truck	1	120	1
		Total	168

Repair Site 2-1

Activity Number	Start Date	End Date	Total Days	Equipment Used	Material Moved	One-Way Daily Dump Truck Trips (16 CY)	One-Way Daily Dump Truck Trips (32 CY)	Activity
3	5/1/2021	7/31/2021	60	25 transfer dump trucks	44800 CY			Rock Haul from quarry
4 (was 5)	5/1/2021	7/31/2021	60	9 excavators, 18 dump trucks	112000 CY (TOTAL)	117	58	Bank protection; Export native material
5 (new)	5/1/2021	7/31/2021	60	1 excavator, 6 dump trucks	9600 CY	10	5	Import and place filter material
6	5/1/2021	7/31/2021	50	13 excavators, 26 dump trucks	113800CY (TOTAL)	142	71	Buried launchable rock toe; backfill native material
7 (was 4)	5/1/2021	7/31/2021	60	2 excavators, 4 dump trucks	15000 CY	16	8	Bank protection earthwork and rock
9 (was 8)	8/1/2021	10/31/2021	60	57 transfer dump trucks	102300 CY	107	53	Rock Haul from quarry
10 (new)	8/1/2021	10/31/2021	60	3 excavators, 6 dump trucks	26800 CY	28	14	Excavate and prep subgrade
11 (new)	8/1/2021	10/31/2021	60	2 excavators, 13 dump trucks	22400 CY	23	12	Import and place filter material
12 (was 10)	8/1/2021	10/31/2021	60	6 excavators, 12 dump trucks	58300 CY	61	30	Launchable rock toe installation
13 (was 9)	8/1/2021	10/31/2021	60	4 excavators, 8 dump trucks	44000 CY	46	23	Bank protection earthwork and rock
14 (was 11)	8/1/2021	10/31/2021	50	4 excavators, 8 dump trucks	16000 CY	17	8	Planting bench fill
15 (new)	8/1/2021	10/31/2021	60	8 excavators, 16 dump trucks	44000 CY	46	23	Import and place topsoil
16 (was 12)	8/1/2021	10/31/2021		1 excavator				IWM anchorages
17 (was 13)	8/1/2021	10/31/2021	30	1 flat bed truck				IWM installation (300 trees)

Site 2-1

Off-Road Equipment - Tier 4

Date Range	Activity Number new (old)	Equipment Type	Total Equipment Number	Off-Road Daily VMT	HP	LF	Hours/Day	Total Days	ROG (g/hp-hr)	ROG (lb/day)	ROG (tons/year)	CO (g/hp-hr)	CO (lb/day)
January-February	1	Loader	1		203	0.36	10	40	0.15	0.22	0.00	2.60	3.77
May - July	2	Grader	1		187	0.41	10	20	0.15	0.23	0.00	2.60	3.96
	2	Dozer	1		247	0.4	10	20	0.15	0.29	0.00	2.60	5.10
	7 (4)	Excavator	5		158	0.38	10	60	0.15	0.89	0.03	3.70	22.04
	7 (4)	Pump	4		124	0.44	10	30	0.15	0.65	0.01	3.70	16.02
	7 (4)	Loader	4		203	0.36	10	60	0.15	0.87	0.03	2.60	15.08
	5	Excavator	1		158	0.38	10	60	0.15	0.18	0.01	3.70	4.41
	5	Loader	1		203	0.36	10	60	0.15	0.22	0.01	2.60	3.77
	4 (5)	Excavator	3		158	0.38	10	60	0.15	0.54	0.02	3.70	13.22
	4 (5)	Dozer	1		247	0.4	10	60	0.15	0.29	0.01	2.60	5.10
	6	Excavator	2		158	0.38	10	50	0.15	0.36	0.01	3.70	8.82
August-October	10	Excavator	3		158	0.38	10	60	0.1498	0.54	0.02	3.7	13.22
	10	Loader	3		203	0.36	10	60	0.1498	0.65	0.02	2.6	11.31
	11	Excavator	2		158	0.38	10	60	0.1498	0.36	0.01	3.7	8.82
	11	Loader	2		203	0.36	10	60	0.1498	0.43	0.01	2.6	7.54
	13 (9)	Excavator	3		158	0.38	10	50	0.15	0.54	0.01	3.70	13.22
	13 (9)	Pump	4		84	0.74	10	50	0.15	0.74	0.02	3.70	18.25
	13 (9)	Loader	4		203	0.5	10	50	0.15	1.21	0.03	3.70	29.81
	12 (10)	Excavator	4		158	0.38	10	60	0.15	0.71	0.02	3.70	17.63
	14 (11)	Excavator	3		158	0.38	10	60	0.15	0.54	0.02	3.70	13.22
	14 (11)	Dozer	1		247	0.4	10	60	0.15	0.29	0.01	2.60	5.10
	15	Excavator	7		158	0.38	10	60	0.1498	1.43	0.04	3.7	35.26
	15	Loader	4		203	0.36	10	60	0.1498	0.87	0.03	2.6	15.08
	16 (12)	Excavator	1		158	0.38	10	20	0.15	0.18	0.00	3.70	4.41
November	18 (14)	Dozer	1		247	0.4	10	20	0.15	0.29	0.00	2.60	5.10

				Exhaust						Fugitive Dust[1]						
CO (tons/year)	NOX (g/hp-hr)	NOX (lb/day)	NOX (tons/year)	PM10 (g-hp/hr)	PM10 (lb/day)	PM10 (tons/year)	PM2.5 (g/hp-hr)	PM2.5 (lb/day)	PM2.5 (tons/year)	PM10 (lb/day)	PM10 (tons/year)	PM2.5 (lb/day)	PM2.5 (tons/year)	CO2 (g/hp-hr)	CO2 (lb/day)	CO2 (MT/year)
0.08	0.30	0.44	0.01	0.02	0.02	0.00	0.01	0.02	0.00	-	-	-	-	473.0459	685.92865	18.04595973
0.04	0.30	0.46	0.00	0.02	0.02	0.00	0.01	0.02	0.00	2.78	0.00	0.28	0.00	478.5289	727.96543	10.04635976
0.05	0.30	0.59	0.01	0.02	0.03	0.00	0.01	0.03	0.00	2.71	0.00	0.27	0.00	474.7984	930.77201	16.55284941
0.66	0.30	1.79	0.05	0.02	0.09	0.00	0.01	0.08	0.00	-	-	-	-	472.3586	2813.5824	456.1042148
0.24	0.30	1.30	0.02	0.02	0.06	0.00	0.01	0.06	0.00	-	-	-	-	568.299	2460.8683	145.0061711
0.45	0.30	1.74	0.05	0.02	0.09	0.00	0.01	0.08	0.00	-	-	-	-	469.5642	2723.5204	429.91532
0.13	0.30	0.36	0.01	0.02	0.02	0.00	0.01	0.02	0.00	-	-	-	-	472.36	562.71648	18.24416859
0.11	0.30	0.44	0.01	0.02	0.02	0.00	0.01	0.02	0.00	-	-	-	-	469.56	680.8801	26.8697075
0.40	0.30	1.07	0.03	0.02	0.05	0.00	0.01	0.05	0.00	-	-	-	-	472.3586	1688.1494	164.1975173
0.15	0.30	0.59	0.02	0.02	0.03	0.00	0.0138	0.03	0.00	2.71	0.00	0.27	0.00	474.7984	930.77201	49.65854824
0.22	0.30	0.71	0.02	0.02	0.04	0.00	0.01	0.03	0.00	-	-	-	-	472.3586	1125.433	60.81389531
0.40	0.3	1.07	0.03	0.015	0.05	0.00	0.0138	0.05	0.00	-	-	-	-	472.3586	1688.1494	164.1975173
0.34	0.3	1.31	0.04	0.015	0.07	0.00	0.0138	0.06	0.00	-	-	-	-	469.5642	2042.6403	241.8273675
0.26	0.3	0.71	0.02	0.015	0.04	0.00	0.0138	0.03	0.00	-	-	-	-	472.3586	1125.433	72.97667437
0.23	0.3	0.87	0.03	0.015	0.04	0.00	0.0138	0.04	0.00	-	-	-	-	469.5642	1361.7602	107.47883
0.33	0.30	1.07	0.03	0.02	0.05	0.00	0.01	0.05	0.00	-	-	-	-	472.3586	1688.1494	136.8312644
0.46	0.30	1.48	0.04	0.02	0.07	0.00	0.01	0.07	0.00	-	-	-	-	568.3	2803.6628	313.6962212
0.75	0.30	2.42	0.06	0.02	0.12	0.00	0.01	0.11	0.00	-	-	-	-	472.4636	3806.0239	695.3605672
0.53	0.30	1.43	0.04	0.02	0.07	0.00	0.01	0.07	0.00	-	-	-	-	472.3586	2250.8659	291.9066975
0.40	0.30	1.07	0.03	0.02	0.05	0.00	0.01	0.05	0.00	-	-	-	-	472.3586	1688.1494	164.1975173
0.15	0.30	0.59	0.02	0.02	0.03	0.00	0.01	0.03	0.00	2.71	0.00	0.27	0.00	474.7984	930.77201	49.65854824
1.06	0.3	2.86	0.09	0.015	0.14	0.00	0.0138	0.13	0.00					472.3586	4501.7318	1167.62679
0.45	0.3	1.74	0.05	0.015	0.09	0.00	0.0138	0.08	0.00					469.5642	2723.5204	429.91532
0.04	0.30	0.36	0.00	0.02	0.02	0.00	0.01	0.02	0.00	-	-	-	-	472.3586	562.71648	6.081389531
0.05	0.30	0.59	0.01	0.02	0.03	0.00	0.01	0.03	0.00	2.71	0.00	0.27	0.00	474.7984	930.77201	16.55284941

CH4 (g/hp-hr)	CH4 (lb/day)	CH4 (MT/year)	N2O (g/hp-hr)	N2O (lb/day)	N2O (MT/year)
0.153	0.2218539	0.004025246	0.004273924	0.0061973	0.000112442
0.1548	0.2354906	0.002136333	0.004273924	0.0065017	5.89827E-05
0.1536	0.3011101	0.002731622	0.004273924	0.0083784	7.60075E-05
0.1528	0.9101462	0.024770102	0.004273924	0.0254574	0.000692837
0.057	0.2468234	0.003358714	0.004751392	0.0205746	0.000279975
0.1519	0.8810355	0.02397784	0.004273924	0.0247892	0.000674651
0.1528	0.1820292	0.00495402	0.004274	0.0050915	0.000138567
0.15	0.2202589	0.00599446	0.0043	0.0061973	0.000168663
0.1528	0.5460877	0.0149	0.0043	0.0153	0.0004
0.1524	0.2987577	0.008130845	0.004273924	0.0083784	0.000228022
0.1528	0.3640585	0.008256701	0.004273924	0.010183	0.000230946
0.1528	0.5460877	0.014862061	0.004273924	0.0152745	0.000415702
0.1519	0.6607767	0.01798338	0.004273924	0.0185919	0.000505988
0.1528	0.3640585	0.009908041	0.004273924	0.010183	0.000277135
0.1519	0.4405178	0.01198892	0.004273924	0.0123946	0.000337325
0.1528	0.5460877	0.012385051	0.004273924	0.0152745	0.000346419
0.031	0.152936	0.003468528	0.004273924	0.0210851	0.000478201
0.1528	1.2309106	0.02791656	0.004273924	0.0344294	0.000780846
0.1528	0.728117	0.019816082	0.004273924	0.0203659	0.00055427
0.1528	0.5460877	0.014862061	0.004273924	0.0152745	0.000415702
0.1524	0.2987577	0.008130845	0.004273924	0.0083784	0.000228022
0.1528	1.4562339	0.039632164	0.004273924	0.0407319	0.00110854
0.1519	0.8810355	0.02397784	0.004273924	0.0247892	0.000674651
0.1528	0.1820292	0.00165134	0.004273924	0.0050915	4.61892E-05
0.1519	0.2977775	0.00270139	0.004273924	0.0083784	7.60075E-05

Off-Road Equipment - Non Tier 4

Date Range	Activity Number new (old)	Equipment Type	Equipment Number	Off-Road Daily VMT	HP	LF	Hours/Day	Total Days	ROG (g/hp-hr)	ROG (lb/day)	ROG (tons/year)	CO (g/hp-hr)	CO (lb/day)
January-February	1	Loader	0		203	0.36	10	40	0.2661	0.04	0.00	1.24034	0.19983608
	2	Grader	0		187	0.41	10	60	0.5053	0.09	0.00	3.55896	0.601565864
	2	Dozer	0		247	0.4	10	60	0.6005	0.13	0.00	2.31719	0.504723126
	7 (4)	Excavator	1		158	0.38	10	60	0.275	0.18	0.01	3.49196	2.311077779
	7 (4)	Water Truck	1		402	0.38	10	60	0.2494	0.84	0.03	1.34839	4.541086624
	7 (4)	Pump	0		84	0.74	10	30	0.347	0.19	0.00	3.412	1.870314468
May - July	7 (4)	Loader	0		203	0.36	10	60	0.2661	0.17	0.01	1.24034	0.79934432
	5	Excavator	0		158	0.38	10	60	0.275	0.04	0.00	3.49196	0.462215556
	5	Loader	0		203	0.36	10	60	0.2661	0.04	0.00	1.24034	0.19983608
	4 (5)	Excavator	0		158	0.38	10	60	0.275	0.11	0.00	3.49196	1.386646667
	4 (5)	Dozer	0		247	0.4	10	60	0.6005	0.13	0.00	2.31719	0.504723126
	6	Excavator	0		158	0.38	10	60	0.275	0.07	0.00	3.49196	0.924431112
	10	Excavator	0		158	0.38	10	60	0.275	0.11	0.00	3.49196	1.386646667
	10	Loader	0		203	0.36	10	60	0.2661	0.13	0.00	1.24034	0.59950824
	11	Excavator	0		158	0.38	10	60	0.275	0.07	0.00	3.49196	0.924431112
	11	Loader	0		203	0.36	10	60	0.2661	0.09	0.00	1.24034	0.39967216
	13 (9)	Excavator	0		158	0.38	10	60	0.275	0.11	0.00	3.49196	1.386646667
	13 (9)	Water Truck	1		402	0.38	10	60	0.2494	0.84	0.03	1.34839	4.541086624
August-	13 (9)	Loader	0		203	0.36	10	30	0.2661	0.17	0.00	1.24034	0.79934432
October	13 (9)	Pump	0		84	0.74	10	60	0.347	0.19	0.01	3.412	1.870314468
	12 (10)	Excavator	0		158	0.38	10	60	0.275	0.15	0.00	3.49196	1.848862223
	14 (11)	Excavator	0		158	0.38	10	60	0.275	0.11	0.00	3.49196	1.386646667
	14 (11)	Dozer	0		247	0.4	10	60	0.6005	0.13	0.00	2.31719	0.504723126
	15	Excavator	1		158	0.38	10	60	0.275	0.29	0.01	3.49196	3.697724447
	15	Loader	0		203	0.36	10	60	0.2661	0.17	0.01	1.24034	0.79934432
	16 (12)	Excavator	0		158	0.38	10	20	0.275	0.04	0.00	3.49196	0.462215556
November	18 (14)	Dozer	0		247	0.4	10	20	0.6005	0.13	0.00	2.31719	0.504723126

				Exhaust						Fugitive Dust[1]						
CO (tons/year)	NOX (g/hp-hr)	NOX (lb/day)	NOX (tons/year)	PM10 (g/hp-hr)	PM10 (lb/day)	PM10 (tons/year)	PM2.5 (g/hp-hr)	PM2.5 (lb/day)	PM2.5 (tons/year)	PM10 (lb/day)	PM10 (tons/year)	PM2.5 (lb/day)	PM2.5 (tons/year)	CO2 (g/hp-hr)	CO2 (lb/day)	CO2 (MT/year)
0.003996717	2.9977	0.482971296	0.009659415	0.1	0.016111395	0.00032223	0.092	0.014822484	0.00029645	-	-	-	-	469.5642	75.653344	1.372630069
0.018046956	4.83947	0.818008618	0.024540231	0.27	0.04563771	0.00136913	0.2484	0.041986693	0.0012596	0.31	0.00	0.03	0.00	478.5289	80.885048	2.201328646
0.015141677	6.29617	1.371412185	0.04114232	0.3056	0.066564842	0.00199694	0.2811	0.061228329	0.00183685	0.30	0.00	0.03	0.00	474.7984	103.41911	2.814604915
0.069332257	2.84891	1.885489122	0.056564611	0.1606	0.106289617	0.00318868	0.1478	0.097818215	0.00293454	-	-	-	-	472.3586	312.62027	8.508123103
0.136232449	2.10869	7.101613	0.213048155	0.0821	0.276495088	0.00829484	0.0755	0.254267712	0.00762802	-	-	-	-	470.1932	1583.5093	43.09602794
0.028054686	3.5889	1.967283585	0.029509221	0.2194	0.120265825	0.00180399	0.2018	0.110618247	0.00165927	-	-	-	-	568.3	311.51809	4.23906336
0.023980303	2.9977	1.931885183	0.057956492	0.1000	0.064445581	0.00193337	0.092	0.059289935	0.0017787	-	-	-	-	469.5642	302.61338	8.235780417
0.013866451	2.84891	0.377097824	0.011312922	0.1606	0.021257923	0.00063774	0.1478	0.019563643	0.00058691	-	-	-	-	472.3586	62.524053	1.701624621
0.005995076	2.9977	0.482971296	0.014489123	0.1000	0.016111395	0.00048334	0.092	0.014822484	0.00044467	-	-	-	-	469.5642	75.653344	2.058945104
0.041599354	2.84891	1.131293473	0.033938767	0.1606	0.06377377	0.00191321	0.1478	0.058690929	0.00176073	-	-	-	-	472.3586	187.57216	5.104873862
0.015141677	6.29617	1.371412185	0.04114232	0.3056	0.066564842	0.00199694	0.2811	0.061228329	0.00183685	0.30	0.00	0.03	0.00	474.7984	103.41911	2.814604915
0.027732903	2.84891	0.754195649	0.022625845	0.1606	0.042515847	0.00127547	0.1478	0.039127286	0.00117382	-	-	-	-	472.3586	125.04811	3.403249241
0.041599354	2.84891	1.131293473	0.033938767	0.1606	0.06377377	0.00191321	0.1478	0.058690929	0.00176073	-	-	-	-	472.3586	187.57216	5.104873862
0.017985227	2.9977	1.448913887	0.043467369	0.1000	0.048334186	0.00145002	0.092	0.044467451	0.00133402	-	-	-	-	469.5642	226.96003	6.176835312
0.027732903	2.84891	0.754195649	0.022625845	0.1606	0.042515847	0.00127547	0.1478	0.039127286	0.00117382	-	-	-	-	472.3586	125.04811	3.403249241
0.011990152	2.9977	0.965942592	0.028978246	0.1000	0.032222791	0.00096668	0.092	0.029644967	0.00088935	-	-	-	-	469.5642	151.30669	4.117890208
0.041599354	2.84891	1.131293473	0.033938767	0.1606	0.06377377	0.00191321	0.1478	0.058690929	0.00176073	-	-	-	-	472.3586	187.57216	5.104873862
0.136232449	2.10869	7.101613	0.213048155	0.0821	0.276495088	0.00829484	0.0755	0.254267712	0.00762802	-	-	-	-	470.1932	1583.5093	43.09602794
0.011990152	2.9977	1.931885183	0.028978246	0.1000	0.064445581	0.00096668	0.092	0.059289935	0.00088935	-	-	-	-	469.5642	302.61338	4.117890208
0.056109372	3.5889	1.967283585	0.059018443	0.2194	0.120265825	0.00360797	0.2018	0.110618247	0.00331854	-	-	-	-	568.3	311.51809	8.47812672
0.055465806	2.84891	1.508391298	0.045251689	0.1606	0.085031694	0.00255095	0.1478	0.078254572	0.00234763	-	-	-	-	472.3586	250.09621	6.806498483
0.041599354	2.84891	1.131293473	0.033938767	0.1606	0.06377377	0.00191321	0.1478	0.058690929	0.00176073	-	-	-	-	472.3586	187.57216	5.104873862
0.015141677	6.29617	1.371412185	0.04114232	0.3056	0.066564842	0.00199694	0.2811	0.061228329	0.00183685	0.30	0.00	0.03	0.00	474.7984	103.41911	2.814604915
0.110931611	2.84891	3.016782596	0.090503378	0.1606	0.170063387	0.0051019	0.1478	0.156509145	0.00469527	-	-	-	-	472.3586	500.19243	13.61299697
0.023980303	2.9977	1.931885183	0.057956492	0.1000	0.064445581	0.00193337	0.092	0.059289935	0.0017787	-	-	-	-	469.5642	302.61338	8.235780417
0.00462215	2.84891	0.377097824	0.003770974	0.1606	0.021257923	0.00021258	0.1478	0.019563643	0.00019564	-	-	-	-	472.3586	62.524053	0.567208207
0.005047226	6.29617	1.371412185	0.013714107	0.3056	0.066564842	0.00066565	0.2811	0.061228329	0.00061228	0.30	0.00	0.03	0.00	474.7984	103.41911	0.938201638

CH4 (g/hp-hr)	CH4 (lb/day)	CH4 (MT/year)	N2O (g/hp-hr)	N2O (lb/day)	N2O (MT/year)
0.1519	0.0244732	0.000444034	0.004273924	0.0006886	1.24935E-05
0.1548	0.0261656	0.000712111	0.004273924	0.0007224	1.96609E-05
0.1536	0.0334567	0.000910541	0.004273924	0.0009309	2.53358E-05
0.1528	0.1011274	0.002752234	0.004273924	0.0028286	7.69819E-05
0.1521	0.51224	0.013940878	0.004273924	0.0143937	0.000391731
0.031	0.0169929	0.000231235	0.004273924	0.0023428	3.18801E-05
0.1519	0.0978928	0.002664204	0.004273924	0.0027544	7.49612E-05
0.1528	0.0202255	0.000550447	0.004273924	0.0005657	1.53964E-05
0.1519	0.0244732	0.000666051	0.004273924	0.0006886	1.87403E-05
0.1528	0.0606764	0.00165134	0.004273924	0.0016972	4.61892E-05
0.1536	0.0334567	0.000910541	0.004273924	0.0009309	2.53358E-05
0.1528	0.0404509	0.001100893	0.004273924	0.0011314	3.07928E-05
0.1528	0.0606764	0.00165134	0.004273924	0.0016972	4.61892E-05
0.1519	0.0734196	0.001998153	0.004273924	0.0020658	5.62209E-05
0.1528	0.0404509	0.001100893	0.004273924	0.0011314	3.07928E-05
0.1519	0.0489464	0.001332102	0.004273924	0.0013772	3.74806E-05
0.1528	0.0606764	0.00165134	0.004273924	0.0016972	4.61892E-05
0.1521	0.51224	0.013940878	0.004273924	0.0143937	0.000391731
0.1519	0.0978928	0.001332102	0.004273924	0.0027544	3.74806E-05
0.031	0.0169929	0.00046247	0.004273924	0.0023428	6.37601E-05
0.1528	0.0809019	0.002201787	0.004273924	0.0022629	6.15855E-05
0.1528	0.0606764	0.00165134	0.004273924	0.0016972	4.61892E-05
0.1536	0.0334567	0.000910541	0.004273924	0.0009309	2.53358E-05
0.1528	0.1618038	0.004403574	0.004273924	0.0045258	0.000123171
0.1519	0.0978928	0.002664204	0.004273924	0.0027544	7.49612E-05
0.1528	0.0202255	0.000183482	0.004273924	0.0005657	5.13213E-06
0.1536	0.0334567	0.000303514	0.004273924	0.0009309	8.44527E-06

Aggregate Storage Pile Fugitive Dust

Date Range	Material Type	Total Quantity	Unit	Total Days	Daily Quantity	Unit	PM10 (lb/day)	PM10 (tons/year)	PM2.5 (lb/day)	PM2.5 (tons/year)
May-July	Rock	71,680	tons	60	1200	tons	1.0087	0.0301	0.1009	0.0030
August-October	Rock	163,680	tons	60	2736	tons	2.2997	0.0688	0.2300	0.0069

On-Road Hauling

Date Range	Material Movement	Equipment Type	Amount to Haul (CY)	Total Hauling Days	Number of Truck Trips/Day	Number of Truck Trips/Hour	Trip Length Roundtrip (mi)	Total Daily VMT	Total Annual VMT	ROG (lb/day)	ROG (tons/year)	NOX (lb/day)	NOX (tons/year)
January-February	Export	Flat Bed Truck		40	1		20	20	800	0.01	0.00	0.22	0.00
May-July	Import	Haul Trucks (16 CY)	89,550	60	93	9	146	13,619	817,144	4.02	0.12	148.81	4.46
	Import	Haul Trucks (32 CY)	89,550	60	47	5	146	6,810	408,572	2.01	0.06	74.41	2.23
	Import*	Haul Trucks (16 CY)	28,500	60	30	3	60	1,781	106,875	0.53	0.02	19.46	0.58
	Import*	Haul Trucks (32 CY)	28,500	60	15	1	60	891	53,438	0.26	0.01	9.73	0.29
	Export	Haul Trucks (16 CY)	20,300	60	21	2	23	486	29,181	0.14	0.00	5.31	0.16
	Export	Haul Trucks (32 CY)	20,300	60	11	1	23	243	14,591	0.07	0.00	2.66	0.08
August - October	Import	Haul Trucks (16 CY)	89,550	60	93	9	146	13,619	817,144	4.02	0.12	148.81	4.46
	Import	Haul Trucks (32 CY)	89,550	60	47	5	146	6,810	408,572	2.01	0.06	74.41	2.23
	Import	Flat Bed Truck	NA	30	1		200	200	6,000	0.06	0.00	2.19	0.03
July-September	NA	Flat Bed Truck	NA	20	1		20	20	400	0.01	0.00	0.22	0.00
November	NA	Flat Bed Truck (Glen Hall Mitigation Site)**	NA	1	14		25	350	350	0.10	0.00	3.82	0.00
November	NA	Flat Bed Truck (Rio Am West Mit Site)***	NA	1	6		25	150	150	0.04	0.00	1.64	0.00
November	NA	Flat Bed Truck (Rio Am East Mit Site)***	NA	1	6		25	150	150	0.04	0.00	1.64	0.00

*57,000 CY of planting bench soil from Yolo, 60 miles RT (25 mi one-way)

**8 trips hauling away (5 chips and 3 trunks) + 6 delivery trips to site (3 trees and 3 fencing), assume 1 day

***6 trips delivery trips to site (3 trees and 3 fencing), assume 1 day

Exhaust				Fugitive Dust[1]								
PM10 (lb/day)	PM10 (tons/year)	PM2.5 (lb/day)	PM2.5 (tons/year)	PM10 (lb/day)	PM10 (tons/year)	PM2.5 (lb/day)	PM2.5 (tons/year)	CO (lb/day)	CO (tons/year)	CO2 (MT/year)	CH4 (MT/year)	N2O (MT/year)
0.00	0.00	0.00	0.00	0.04	0.000	0.00	0.00	0.04	0.00	1.42	0.00	0.00
1.16	0.03	1.11	0.03	24.25	0.002	2.42	0.00	24.04	0.72	1,446.07	0.01	0.23
0.58	0.02	0.55	0.02	12.12	0.001	1.21	0.00	12.02	0.36	723.04	0.00	0.11
0.15	0.00	0.14	0.00	3.17	0.000	0.32	0.00	3.14	0.09	189.13	0.00	0.03
0.08	0.00	0.07	0.00	1.59	0.000	0.16	0.00	1.57	0.05	94.57	0.00	0.01
0.04	0.00	0.04	0.00	0.87	0.000	0.09	0.00	0.86	0.03	51.64	0.00	0.01
0.02	0.00	0.02	0.00	0.43	0.000	0.04	0.00	0.43	0.01	25.82	0.00	0.00
1.16	0.03	1.11	0.03	24.25	0.002	2.42	0.00	24.04	0.72	1,446.07	0.01	0.23
0.58	0.02	0.55	0.02	12.12	0.001	1.21	0.00	12.02	0.36	723.04	0.00	0.11
0.02	0.00	0.02	0.00	0.36	0.000	0.04	0.00	0.35	0.01	10.62	0.00	0.00
0.00	0.00	0.00	0.00	0.04	0.000	0.00	0.00	0.04	0.00	0.71	0.00	0.00
0.03	0.00	0.03	0.00	0.62	0.000	0.06	0.00	0.62	0.00	0.62	0.00	0.00
0.01	0.00	0.01	0.00	0.27	0.000	0.03	0.00	0.26	0.00	0.27	0.00	0.00
0.01	0.00	0.01	0.00	0.27	0.000	0.03	0.00	0.26	0.00	0.27	0.00	0.00

Off-Road Hauling

Date Range	Activity Number new (old)	Truck Size	Equipment Type	Total Equipment Number	Off-Road Daily VMT	Total Days	Annual VMT	ROG (lb/day)	ROG (tons/year)	NOX (lb/day)	NOX (tons/year)	Exhaus PM10 (lb/day)	PM10 (tons/year)
May-July	7 (4)	16 CY	Dump Truck	10	233	60	14,000	0.07	0.00	2.55	0.08	0.02	0.00
	7 (4)	32 CY	Dump Truck	10	117	60	7,000	0.03	0.00	1.27	0.04	0.01	0.00
	6	16 CY	Dump Truck	4	285	60	17,070	0.08	0.00	3.11	0.09	0.02	0.00
	6	32 CY	Dump Truck	4	142	60	8,535	0.04	0.00	1.55	0.05	0.01	0.00
August-October	13 (9)	16 CY	Dump Truck	6	56	60	3,350	0.02	0.00	0.61	0.02	0.00	0.00
	13 (9)	32 CY	Dump Truck	6	28	60	1,675	0.01	0.00	0.31	0.01	0.00	0.00
	12 (10)	16 CY	Dump Truck	8	121	60	7,288	0.04	0.00	1.33	0.04	0.01	0.00
	12 (10)	32 CY	Dump Truck	8	61	60	3,644	0.02	0.00	0.66	0.02	0.01	0.00
	14 (11)	16 CY	Dump Truck	6	33	60	2,000	0.01	0.00	0.36	0.01	0.00	0.00
	14 (11)	32 CY	Dump Truck	6	17	60	1,000	0.00	0.00	0.18	0.01	0.00	0.00

Worker Commute

Date Range	Activity Number new (old)	Number of Workers/Day	Average Trip Length (one way)	Number of Work Days	Daily VMT	Annual VMT	ROG (lb/day)	ROG (tons/year)	NOX (lb/day)	NOX (tons/year)	Exhaust PM10 (lb/day)	PM10 (tons/year)	PM2.5 (lb/day)
January-February	1	3	10	40	60	2400	0.018753353	0.000375067	0.01274236	0.000254847	0.000250805	5.0161E-06	0.000230975
May-July	2	2	10	60	40	2400	0.012502235	0.000375067	0.00849491	0.000254847	0.000167203	5.0161E-06	0.000153983
	5	4	10	60	80	4800	0.025004471	0.000750134	0.01698982	0.000509694	0.000334407	1.00322E-05	0.000307967
	7 (4)	20	10	60	400	24000	0.125022354	0.003750671	0.08494908	0.002548472	0.001672034	5.0161E-05	0.001539835
	4 (5)	10	10	60	200	12000	0.062511177	0.001875335	0.04247454	0.001274236	0.000836017	2.50805E-05	0.000769917
	6	6	10	60	120	7200	0.037506706	0.001125201	0.02548472	0.000764542	0.00050161	1.50483E-05	0.00046195
August - October	10	11	10	60	220	13200	0.068762295	0.002062869	0.04672199	0.00140166	0.000919619	2.75886E-05	0.000846909
	11	7	10	60	140	8400	0.043757824	0.001312735	0.02973218	0.000891965	0.000585212	1.75564E-05	0.000538942
	13 (9)	30	10	60	600	36000	0.187533531	0.005626006	0.12742362	0.003822708	0.002508051	7.52415E-05	0.002309752
	12 (10)	12	10	60	240	14400	0.075013412	0.002250402	0.05096945	0.001529083	0.001003221	3.00966E-05	0.000923901
	14 (11)	10	10	60	200	12000	0.062511177	0.001875335	0.04247454	0.001274236	0.000836017	2.50805E-05	0.000769917
	15	24	10	60	480	28800	0.150026825	0.004500805	0.10193889	0.003058167	0.002006441	6.01932E-05	0.001847802
	16 (12)	1	10	20	20	400	0.006251118	6.25112E-05	0.00424745	4.24745E-05	8.36017E-05	8.36017E-07	7.69917E-05
	17 (13)	1	10	30	20	600	0.006251118	9.37668E-05	0.00424745	6.37118E-05	8.36017E-05	1.25403E-06	7.69917E-05
November	18 (14)	1	10	20	20	400	0.006251118	6.25112E-05	0.00424745	4.24745E-05	8.36017E-05	8.36017E-07	7.69917E-05
December-May		1	10	24	20	480	0.006251118	7.50134E-05	0.00424745	5.09694E-05	8.36017E-05	1.00322E-06	7.69917E-05
July-September	20/21 (16/17)	1	10	20	20	400	0.006251118	6.25112E-05	0.00424745	4.24745E-05	8.36017E-05	8.36017E-07	7.69917E-05

[1]Fugitive Dust PM2.5 was calculated based on a 0.1 ratio of PM2.5/PM10 as indicated in EPA 2006 AP-42 Background Document for Revisions to Fine Fraction Ratios used for AP-42 Fugitive Dust Emission Factors

Assumptions:

1 worker per piece of equipment

10 hours per equipment per day

Average trip length for workers estimated from CalEEMod

		Unit	Source
Mass Conversion Rates	453.59	g/lb	google.com
	907185	g/ton	google.com

st		Fugitive Dust[1]								
PM2.5 (lb/day)	PM2.5 (tons/year)	PM10 (lb/day)	PM10 (tons/year)	PM2.5 (lb/day)	PM2.5 (tons/year)	CO (lb/day)	CO (tons/year)	CO2 (MT/year)	CH4 (MT/year)	N2O (MT/year)
0.02	0.00	0.42	0.00	0.04	0.00	0.41	0.01	24.78	0.00	0.00
0.01	0.00	0.21	0.00	0.02	0.00	0.21	0.01	12.39	0.00	0.00
0.02	0.00	0.51	0.00	0.05	0.00	0.50	0.02	30.21	0.00	0.00
0.01	0.00	0.25	0.00	0.03	0.00	0.25	0.01	15.10	0.00	0.00
0.00	0.00	0.10	0.00	0.01	0.00	0.10	0.00	5.93	0.00	0.00
0.00	0.00	0.05	0.00	0.00	0.00	0.05	0.00	2.96	0.00	0.00
0.01	0.00	0.22	0.00	0.02	0.00	0.21	0.01	12.90	0.00	0.00
0.00	0.00	0.11	0.00	0.01	0.00	0.11	0.00	6.45	0.00	0.00
0.00	0.00	0.06	0.00	0.01	0.00	0.06	0.00	3.54	0.00	0.00
0.00	0.00	0.03	0.00	0.00	0.00	0.03	0.00	1.77	0.00	0.00

	Fugitive Dust[1]								
PM2.5 (tons/year)	PM10 (lb/day)	PM10 (tons/year)	PM2.5 (lb/day)	PM2.5 (tons/year)	CO (lb/day)	CO (tons/year)	CO2 (MT/year)	CH4 (MT/year)	N2O (MT/year)
4.6195E-06	0.021033101	9.27401E-07	0.00210331	9.274E-08	0.158882339	0.00317765	0.71651679	2.96075E-05	2.4005E-05
4.6195E-06	0.014022067	9.27401E-07	0.001402207	9.274E-08	0.10592156	0.00317765	0.71651679	2.96075E-05	2.4005E-05
9.23901E-06	0.028044135	1.8548E-06	0.002804413	1.8548E-07	0.211843119	0.00635529	1.43303358	5.92149E-05	4.801E-05
4.6195E-05	0.140220673	9.27401E-06	0.014022067	9.274E-07	1.059215596	0.03177647	7.16516792	0.000296075	0.00024005
2.30975E-05	0.070110336	4.637E-06	0.007011034	4.637E-07	0.529607798	0.01588823	3.58258396	0.000148037	0.00012003
1.38585E-05	0.042066202	2.7822E-06	0.00420662	2.7822E-07	0.317764679	0.00953294	2.14955038	8.88224E-05	7.2015E-05
2.54073E-05	0.07712137	5.1007E-06	0.007712137	5.1007E-07	0.582568578	0.01747706	3.94084236	0.000162841	0.00013203
1.61683E-05	0.049077236	3.2459E-06	0.004907724	3.2459E-07	0.370725458	0.01112176	2.50780877	0.000103626	8.4018E-05
6.92926E-05	0.210331009	1.3911E-05	0.021033101	1.3911E-06	1.588823393	0.0476647	10.7477519	0.000444112	0.00036008
2.7717E-05	0.084132404	5.5644E-06	0.00841324	5.5644E-07	0.635529357	0.01906588	4.29910075	0.000177645	0.00014403
2.30975E-05	0.070110336	4.637E-06	0.007011034	4.637E-07	0.529607798	0.01588823	3.58258396	0.000148037	0.00012003
5.54341E-05	0.168264808	1.11288E-05	0.016826481	1.1129E-06	1.271058715	0.03813176	8.59820151	0.000355289	0.00028806
7.69917E-07	0.007011034	1.54567E-07	0.000701103	1.5457E-08	0.05296078	0.00052961	0.11941947	4.93458E-06	4.0008E-06
1.15488E-06	0.007011034	2.3185E-07	0.000701103	2.3185E-08	0.05296078	0.00079441	0.1791292	7.40186E-06	6.0013E-06
7.69917E-07	0.007011034	1.54567E-07	0.000701103	1.5457E-08	0.05296078	0.00052961	0.11941947	4.93458E-06	4.0008E-06
9.23901E-07	0.007011034	1.8548E-07	0.000701103	1.8548E-08	0.05296078	0.00063553	0.14330336	5.92149E-06	4.801E-06
7.69917E-07	0.007011034	1.54567E-07	0.000701103	1.5457E-08	0.05296078	0.00052961	0.11941947	4.93458E-06	4.0008E-06

Equipment List for Mitigation Sites

Glen Hall Site

Number	Equipment	Size	Fuel	Purpose
1	backhoe w/auger	127 hp	diesel	holes for staging area signs
2	chainsaws	64cc/2-stroke	gasoline	fell trees (50)
1	chipper	174 hp	diesel	chip trees
1	excavator	97 hp	diesel	remove stumps (50)
2	string trimmers	35cc	gasoline	trim grasses
1	dozer	474 hp	diesel	rip site 18'' x 7.38 acres
1	backhoe	127 hp	diesel	culti-pack/graded
1	trenching machine	16 hp	gasoline	trenching
1	water pump	5 hp	gasoline	pumping
1	backhoe w/auger	127 hp	diesel	holes for deer fence posts
1	dozer	474 hp	diesel	blading/grading
1	excavator	97 hp	diesel	remove shrubs
1	backhoe	127 hp	diesel	excavate shrub receiving holes (4'x3')
1	Bobcat w/ auger	40 hp	diesel	prepare seedling planting holes

Rio American West Site

Number	Equipment	Size	Fuel	Purpose
1	backhoe w/auger	127 hp	diesel	holes for staging area signs
2	string trimmers	35cc	gasoline	trim grasses
1	dozer	474 hp	diesel	rip site 18'' x 3.38 acres
1	backhoe	127 hp	diesel	culti-pack/graded
1	trenching machine	16 hp	gasoline	trenching
1	portable drill	5.5 hp	gasoline	create hole under bike path
1	water pump	5 hp	gasoline	pumping
1	backhoe w/auger	127 hp	diesel	holes for deer fence posts
1	dozer	474 hp	diesel	blading/grading
1	excavator	97 hp	diesel	remove shrubs
1	backhoe	127 hp	diesel	excavate shrub receiving holes (4'x3')
1	Bobcat w/ auger	40 hp	diesel	prepare seedling planting holes

Rio American East Site

Number	Equipment	Size	Fuel	Purpose
1	backhoe w/auger	127 hp	diesel	holes for staging area signs
2	string trimmers	35cc	gasoline	trim grasses
1	dozer	474 hp	diesel	rip site 18'' x 2.12 acres
1	backhoe	127 hp	diesel	culti-pack/graded
1	trenching machine	16 hp	gasoline	trenching
1	water pump	5 hp	gasoline	pumping
1	backhoe w/auger	127 hp	diesel	holes for deer fence posts
1	dozer	474 hp	diesel	blading/grading
1	excavator	97 hp	diesel	remove shrubs
1	backhoe	127 hp	diesel	excavate shrub receiving holes (4'x3')
1	Bobcat w/ auger	40 hp	diesel	prepare seedling planting holes

Mitigation Sites (Glen Hall, Rio Americano West, Rio Americano East)

Off-Road Equipment - Tier 4

Date Range	Activity	Equipment Type	Total Equipment Number	Off-Road Daily VMT	HP	LF	Hours/Day	Total Days	ROG (g/hp-hr)	ROG (lb/day)	ROG (tons/year)	CO (g/hp-hr)	CO (lb/day)	CO (tons/year)	NOX (g/hp-hr)	NOX (lb/day)	NOX (tons/year)	PM10 (g-hp/hr)
Nov 1 - Dec 4	Tree/Stump Removal*	chainsaws	2		25	0.70	10	10	0.30	0.21	0.001	4.90	3.40	0.02	5.32	3.69	0.02	0.30
		chipper	1		174	0.78	10	15	0.15	0.40	0.003	3.70	9.96	0.07	0.30	0.81	0.01	0.02
		excavator	1		97	0.38	10	15	0.15	0.11	0.001	3.70	2.71	0.02	0.30	0.22	0.00	0.02
Dec 7 - Feb 12	Site Prep	string trimmers	2		5	0.91	10	50	0.30	0.05	0.001	6.00	1.08	0.03	5.32	0.96	0.02	0.30
		backhoe w/auger	1		127	0.37	10	50	0.15	0.14	0.003	3.70	3.45	0.09	0.30	0.28	0.01	0.02
		dozer	1		474	0.40	10	50	0.15	0.56	0.014	2.60	9.78	0.24	0.30	1.13	0.03	0.02
		trenching machine	1		16	0.50	10	50	0.30	0.05	0.001	4.90	0.78	0.02	5.32	0.84	0.02	0.30
		water pump	1		5	0.74	10	50	0.30	0.02	0.001	6.00	0.44	0.01	5.32	0.39	0.01	0.30
		excavator	1		97	0.38	10	50	0.15	0.11	0.003	3.70	2.71	0.07	0.30	0.22	0.01	0.02
		backhoe w/ auger	1		40	0.37	10	50	0.19	0.05	0.001	4.10	1.20	0.03	3.33	0.98	0.02	0.02
		portable drill**	1		5.5	0.91	10	50	0.30	0.03	0.001	6.00	0.60	0.01	5.32	0.53	0.01	0.30

*Tree/Stump Removal: Glen Hall Only

**Rio Americano West Only

Off-Road Equipment - Non Tier 4

Date Range	Activity	Equipment Type	Equipment Number	Off-Road Daily VMT	HP	LF	Hours/Day	Total Days	ROG (g/hp-hr)	ROG (lb/day)	ROG (tons/year)	CO (g/hp-hr)	CO (lb/day)	CO (tons/year)	NOX (g/hp-hr)	NOX (lb/day)	NOX (tons/year)	PM10 (g/hp-hr)
Nov 1 - Dec 4	Tree/Stump Removal*	chainsaws	0.2		25	0.70	10	10	1.0095	0.08	0.00	5.30749	0.409535772	0.002047677	4.90234	0.378273647	0.001891366	0.3816
		chipper	0.1		174	0.78	10	15	0.3295	0.10	0.00	3.18275	0.952315804	0.007142361	3.43847	1.028830201	0.007716218	0.1798
		excavator	0.1		97	0.38	10	15	0.2750	0.02	0.00	3.4920	0.283765246	0.002128237	2.8489	0.231509424	0.001736319	0.1606
Dec 7 - Feb 12	Site Prep	string trimmers	0.2		5	0.91	10	50	1.0095	0.02	0.00	5.30749	0.106479301	0.00266198	4.90234	0.098351148	0.002458776	0.3816
		backhoe w/auger	0.1		127	0.37	10	50	0.2959	0.03	0.00	3.57072	0.369909815	0.009247735	2.995	0.310267928	0.00775669	0.1766
		dozer	0.1		474	0.40	10	50	0.4922	0.21	0.01	4.04107	1.689154288	0.042228811	5.081	2.12384169	0.053095984	0.2321
		trenching machine	0.1		16	0.50	10	50	0.8090	0.01	0.00	4.6658	0.082289987	0.002057247	4.4589	0.078641775	0.001966042	0.3133
		water pump	0.1		5	0.74	10	50	1.0095	0.01	0.00	5.30749	0.043293782	0.001082343	4.90234	0.039988928	0.000999722	0.3816
		excavator	0.1		97	0.38	10	50	0.2750	0.02	0.00	3.4920	0.283765246	0.007094123	2.8489	0.231509424	0.005787729	0.1606
		backhoe w/ auger	0.1		40	0.37	10	50	0.7560	0.02	0.00	4.9017	0.159935484	0.003998383	4.2264	0.137901824	0.003447542	0.2545
		portable drill**	0.1		5.5	0.91	10	50	1.0095	0.01	0.00	5.31	0.058563615	0.001464089	4.90	0.054093131	0.001352327	0.38

*Tree/Stump Removal: Glen Hall Only

**Rio Americano West Only

Nov 1 - Dec 4	Tree/Stump Removal*	2	10	10	40	400	0.012502235	6.25112E-05	0.00849491	4.24745E-05	0.000167203	8.36017E-07	0.000153983	7.69917E-07	0.014022067	1.54567E-07	0.001402207	1.5457E-08
		1	10	15	20	300	0.006251118	4.68834E-05	0.00424745	3.18559E-05	8.36017E-05	6.27013E-07	7.69917E-05	5.77438E-07	0.007011034	1.15925E-07	0.000701103	1.1593E-08
		1	10	15	20	300	0.006251118	4.68834E-05	0.00424745	3.18559E-05	8.36017E-05	6.27013E-07	7.69917E-05	5.77438E-07	0.007011034	1.15925E-07	0.000701103	1.1593E-08
Dec 7 - Feb 12	Site Prep	2	10	50	40	2000	0.012502235	0.000312556	0.00849491	0.000212373	0.000167203	4.18009E-06	0.000153983	3.84959E-06	0.014022067	7.72834E-07	0.001402207	7.7283E-08
		1	10	50	20	1000	0.006251118	0.000156278	0.00424745	0.000106186	8.36017E-05	2.09004E-06	7.69917E-05	1.92479E-06	0.007011034	3.86417E-07	0.000701103	3.8642E-08
		1	10	50	20	1000	0.006251118	0.000156278	0.00424745	0.000106186	8.36017E-05	2.09004E-06	7.69917E-05	1.92479E-06	0.007011034	3.86417E-07	0.000701103	3.8642E-08
		1	10	50	20	1000	0.006251118	0.000156278	0.00424745	0.000106186	8.36017E-05	2.09004E-06	7.69917E-05	1.92479E-06	0.007011034	3.86417E-07	0.000701103	3.8642E-08
		1	10	50	20	1000	0.006251118	0.000156278	0.00424745	0.000106186	8.36017E-05	2.09004E-06	7.69917E-05	1.92479E-06	0.007011034	3.86417E-07	0.000701103	3.8642E-08
		1	10	50	20	1000	0.006251118	0.000156278	0.00424745	0.000106186	8.36017E-05	2.09004E-06	7.69917E-05	1.92479E-06	0.007011034	3.86417E-07	0.000701103	3.8642E-08
	**	1	10	50	20	1000	0.006251118	0.000156278	0.00424745	0.000106186	8.36017E-05	2.09004E-06	7.69917E-05	1.92479E-06	0.007011034	3.86417E-07	0.000701103	3.8642E-08

*Tree/Stump Removal: Glen Hall Only

**Rio Americano West Only

[1]Fugitive Dust PM2.5 was calculated based on a 0.1 ratio of PM2.5/PM10 as indicated in EPA 2006 AP-42 Background Document for Revisions to Fine Fraction Ratios used for AP-42 Fugitive Dust Emission Factors

Average trip length for workers estimated from CalEEMod

Mass Conversion Rates	453.59	g/lb	google.com
	907185	g/ton	google.com
	1000000	g/MT	

Exhaust					Fugitive Dust[1]												
PM10 (lb/day)	PM10 (tons/year)	PM2.5 (g/hp-hr)	PM2.5 (lb/day)	PM2.5 (tons/year)	PM10 (lb/day)	PM10 (tons/year)	PM2.5 (lb/day)	PM2.5 (tons/year)	CO2 (g/hp-hr)	CO2 (lb/day)	CO2 (MT/year)	CH4 (g/hp-hr)	CH4 (lb/day)	CH4 (MT/year)	N2O (g/hp-hr)	N2O (lb/day)	N2O (MT/year)
0.21	0.00	0.28	0.19	0.00	-	-	-	-	527.7834	366.52271	1.15454655	0.1707	0.1185438	0.000537705	0.0047514	0.0032996	1.49669E-05
0.04	0.00	0.01	0.04	0.00	-	-	-	-	469.7642	1265.0302	23.17813619	0.1519	0.4090522	0.002783142	0.0042739	0.0115093	7.83077E-05
0.01	0.00	0.01	0.01	0.00	-	-	-	-	467.7906	342.12432	1.702444819	0.1513	0.1106551	0.000752884	0.0042739	0.0031258	2.12675E-05
0.05	0.00	0.28	0.05	0.00	-	-	-	-	527.7834	95.295906	0.390236734	0.1707	0.0308214	0.000699017	0.0047514	0.0008579	1.9457E-05
0.01	0.00	0.01	0.01	0.00	-	-	-	-	475.3621	443.20752	9.371844628	0.1537	0.1433034	0.003250063	0.0042739	0.0039848	9.03743E-05
0.06	0.00	0.01	0.05	0.00	2.71	0.00	0.27	0.00	478.9868	1801.9345	153.7410519	0.1549	0.5827293	0.013216068	0.0042739	0.0160784	0.000364651
0.05	0.00	0.28	0.04	0.00	-	-	-	-	527.02	83.654888	0.301157597	0.1704	0.0270481	0.00061344	0.0047514	0.0007542	1.7105E-05
0.02	0.00	0.28	0.02	0.00	-	-	-	-	527.7834	38.746687	0.064513234	0.1707	0.0125318	0.0003	0.0047514	0.0003	0.0000
0.01	0.00	0.01	0.01	0.00	-	-	-	-	467.7906	342.12432	5.674816062	0.1513	0.1106551	0.002509613	0.0042739	0.0031258	7.08916E-05
0.01	0.00	0.02	0.01	0.00	-	-	-	-	515.1213	151.26845	1.007447853	0.1666	0.0489231	0.001109556	0.0047514	0.0013953	3.16443E-05
0.03	0.00	0.28	0.03	0.00	-	-	-	-	527.7834	52.412748	0.118046612	0.1707	0.0169518	0.000384459	0.004751392	0.0004718	1.07013E-05

Exhaust					Fugitive Dust[1]												
PM10 (lb/day)	PM10 (tons/year)	PM2.5 (g/hp-hr)	PM2.5 (lb/day)	PM2.5 (tons/year)	PM10 (lb/day)	PM10 (tons/year)	PM2.5 (lb/day)	PM2.5 (tons/year)	CO2 (g/hp-hr)	CO2 (lb/day)	CO2 (MT/year)	CH4 (g/hp-hr)	CH4 (lb/day)	CH4 (MT/year)	N2O (g/hp-hr)	N2O (lb/day)	N2O (MT/year)
0.029444964	0.00014722	0.351	0.027083811	0.00013542	-	-	-	-	527.7834	40.724746	0.18472419	0.1707	0.0131715	0.000059745	0.0048	0.0003666	1.66299E-06
0.05379825	0.00040349	0.1654	0.049489603	0.00037117	-	-	-	-	469.7642	140.55891	0.956345958	0.1519	0.0454502	0.000309238	0.0043	0.0012788	8.70085E-06
0.01305075	9.7881E-05	0.1478	0.012010591	9.0079E-05	-	-	-	-	467.7906	38.013813	0.258641423	0.1513	0.012295	8.36538E-05	0.0043	0.0003473	2.36305E-06
0.007655691	0.00019139	0.351	0.007041791	0.00017604	-	-	-	-	527.7834	10.588434	0.240141447	0.1707	0.0034246	7.76685E-05	0.0048	9.532E-05	2.16188E-06
0.01829493	0.00045737	0.1625	0.016834236	0.00042086	-	-	-	-	475.3621	49.24528	1.116863254	0.1537	0.0159226	0.000361118	0.0043	0.0004428	1.00416E-05
0.097017055	0.00242542	0.2135	0.089242315	0.00223106	0.3011	0.00	0.03	0.00	478.9868	200.21494	4.540794864	0.1549	0.0647477	0.001468452	0.0043	0.0017865	4.05168E-05
0.005525671	0.00013814	0.2882	0.005082982	0.00012707	-	-	-	-	527.02	9.2949876	0.2108066	0.1704	0.0030053	0.00006816	0.0048	8.38E-05	1.90056E-06
0.003112753	7.7819E-05	0.351	0.002863146	7.1579E-05	-	-	-	-	527.7834	4.3051874	0.097639929	0.1707	0.0013924	3.15795E-05	0.0048	3.876E-05	8.79008E-07
0.01305075	0.00032627	0.1478	0.012010591	0.00030026	-	-	-	-	467.7906	38.013813	0.862138076	0.1513	0.012295	0.000278846	0.0043	0.0003473	7.87684E-06
0.008303938	0.0002076	0.2341	0.007638318	0.00019096	-	-	-	-	515.1213	16.807605	0.381189762	0.1666	0.0054359	0.000123284	0.0048	0.000155	3.51603E-06
0.00421063	0.00010527	0.35	0.003872985	9.6825E-05	-	-	-	-	527.7834	5.8236387	0.132077796	0.1707	0.0018835	4.27177E-05	0.004751392	5.243E-05	1.18904E-06

0.10592156	0.00052961	0.11941947	4.93458E-06	4.0008E-06
0.05296078	0.00039721	0.0895646	3.70093E-06	3.0006E-06
0.05296078	0.00039721	0.0895646	3.70093E-06	3.0006E-06
0.10592156	0.00264804	0.59709733	2.46729E-05	2.0004E-05
0.05296078	0.00132402	0.29854866	1.23364E-05	1.0002E-05
0.05296078	0.00132402	0.29854866	1.23364E-05	1.0002E-05
0.05296078	0.00132402	0.29854866	1.23364E-05	1.0002E-05
0.05296078	0.00132402	0.29854866	1.23364E-05	1.0002E-05
0.05296078	0.00132402	0.29854866	1.23364E-05	1.0002E-05
0.05296078	0.00132402	0.29854866	1.23364E-05	1.0002E-05
0.05296078	0.00132402	0.29854866	1.23364E-05	1.0002E-05

2014		g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr
Equipment	**MaxHP**	ROG	CO	NOX	SOX	PM10	PM2.5	CO2	CH4	N2O
Aerial Lifts	15	0.165	3.114	2.922	0.005	0.027	0.024	525.074	0.170	0.005
Aerial Lifts	25	0.165	3.114	2.922	0.005	0.027	0.024	525.074	0.170	0.005
Aerial Lifts	50	0.165	3.114	2.922	0.005	0.027	0.024	525.074	0.170	0.005
Aerial Lifts	120	0.109	3.176	1.744	0.005	0.033	0.031	472.114	0.153	0.004
Aerial Lifts	500	0.072	0.951	0.640	0.005	0.009	0.008	472.055	0.153	0.004
Aerial Lifts	750	0.187	1.004	1.610	0.005	0.050	0.050	568.299	0.016	0.004
Air Compressors	15	0.717	3.531	4.462	0.008	0.214	0.214	568.299	0.064	0.005
Air Compressors	25	0.752	2.446	4.497	0.007	0.201	0.201	568.299	0.067	0.005
Air Compressors	50	0.887	5.021	4.221	0.007	0.212	0.212	568.299	0.080	0.005
Air Compressors	120	0.442	3.670	3.083	0.006	0.190	0.190	568.299	0.039	0.004
Air Compressors	175	0.343	3.192	2.218	0.006	0.115	0.115	568.299	0.030	0.004
Air Compressors	250	0.268	1.108	1.859	0.006	0.060	0.060	568.299	0.024	0.004
Air Compressors	500	0.261	1.064	1.663	0.005	0.058	0.058	568.299	0.023	0.004
Air Compressors	750	0.262	1.064	1.699	0.005	0.058	0.058	568.299	0.023	0.004
Air Compressors	1000	0.284	1.134	3.565	0.005	0.082	0.082	568.300	0.025	0.004
Bore/Drill Rigs	15	0.711	4.548	4.634	0.006	0.291	0.268	535.378	0.173	0.005
Bore/Drill Rigs	25	0.711	4.548	4.634	0.006	0.291	0.268	535.378	0.173	0.005
Bore/Drill Rigs	50	0.711	4.548	4.634	0.006	0.291	0.268	535.378	0.173	0.005
Bore/Drill Rigs	120	0.217	3.306	2.737	0.005	0.131	0.121	464.973	0.150	0.004
Bore/Drill Rigs	175	0.154	2.961	1.598	0.005	0.070	0.064	477.048	0.154	0.004
Bore/Drill Rigs	250	0.133	1.064	1.551	0.005	0.047	0.043	467.992	0.151	0.004
Bore/Drill Rigs	500	0.117	1.015	1.221	0.005	0.041	0.038	469.816	0.152	0.004
Bore/Drill Rigs	750	0.098	0.972	0.955	0.005	0.033	0.031	474.079	0.153	0.004
Bore/Drill Rigs	1000	0.136	0.993	3.058	0.005	0.061	0.057	471.816	0.153	0.004
Cement and Mortar Mixers	15	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059	0.005
Cement and Mortar Mixers	25	0.712	2.381	4.419	0.007	0.180	0.180	568.299	0.064	0.005
Concrete/Industrial Saws	25	0.685	2.340	4.332	0.007	0.161	0.161	568.299	0.061	0.005
Concrete/Industrial Saws	50	0.722	4.481	4.063	0.007	0.184	0.184	568.300	0.065	0.005

2014		g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr
Equipment	**MaxHP**	ROG	CO	NOX	SOX	PM10	PM2.5	CO2	CH4	N2O
Concrete/Industrial Saws	120	0.369	3.523	2.913	0.006	0.166	0.166	568.299	0.033	0.004
Concrete/Industrial Saws	175	0.286	3.072	2.055	0.006	0.101	0.101	568.299	0.025	0.004
Cranes	50	2.115	7.489	6.014	0.005	0.631	0.581	517.900	0.168	0.005
Cranes	120	0.651	4.065	5.731	0.005	0.398	0.366	469.887	0.152	0.004
Cranes	175	0.498	3.516	5.113	0.005	0.273	0.251	474.546	0.154	0.004
Cranes	250	0.350	1.678	4.104	0.005	0.167	0.153	472.906	0.153	0.004
Cranes	500	0.295	2.448	3.443	0.005	0.139	0.127	472.455	0.153	0.004
Cranes	750	0.228	1.440	2.727	0.005	0.107	0.098	470.550	0.152	0.004
Cranes	9999	0.192	1.008	2.374	0.005	0.061	0.057	472.055	0.153	0.004
Crawler Tractors	50	2.064	7.349	5.615	0.005	0.591	0.543	516.108	0.167	0.005
Crawler Tractors	120	0.673	4.005	5.657	0.005	0.466	0.429	476.437	0.154	0.004
Crawler Tractors	175	0.436	3.310	4.395	0.005	0.245	0.225	471.421	0.153	0.004
Crawler Tractors	250	0.343	1.515	4.334	0.005	0.163	0.150	472.925	0.153	0.004
Crawler Tractors	500	0.283	2.024	3.276	0.005	0.129	0.119	474.484	0.154	0.004
Crawler Tractors	750	0.239	1.270	2.825	0.005	0.104	0.096	473.094	0.153	0.004
Crawler Tractors	1000	0.399	1.896	6.399	0.005	0.182	0.167	471.822	0.153	0.004
Crushing/Proc. Equipment	50	0.862	5.136	4.211	0.007	0.201	0.201	568.299	0.077	0.005
Crushing/Proc. Equipment	120	0.438	3.711	2.989	0.006	0.178	0.178	568.299	0.039	0.004
Crushing/Proc. Equipment	175	0.344	3.235	2.114	0.006	0.109	0.109	568.299	0.031	0.004
Crushing/Proc. Equipment	250	0.274	1.119	1.756	0.006	0.057	0.057	568.299	0.024	0.004
Crushing/Proc. Equipment	500	0.268	1.072	1.574	0.005	0.055	0.055	568.300	0.024	0.004
Crushing/Proc. Equipment	750	0.268	1.072	1.606	0.005	0.055	0.055	568.299	0.024	0.004
Crushing/Proc. Equipment	9999	0.314	1.136	3.487	0.005	0.080	0.080	568.299	0.028	0.004
Dumpers/Tenders	25	0.685	2.339	4.333	0.007	0.163	0.163	568.299	0.061	0.005
Excavators	25	0.562	4.461	3.919	0.005	0.202	0.186	525.377	0.170	0.005
Excavators	50	0.562	4.461	3.919	0.005	0.202	0.186	525.377	0.170	0.005
Excavators	120	0.275	3.492	2.849	0.005	0.161	0.148	467.791	0.151	0.004
Excavators	175	0.216	3.090	2.034	0.005	0.099	0.091	472.359	0.153	0.004
Excavators	250	0.163	1.103	1.706	0.005	0.052	0.048	471.793	0.153	0.004
Excavators	500	0.143	1.088	1.332	0.005	0.045	0.041	469.616	0.152	0.004
Excavators	750	0.165	1.150	1.619	0.005	0.056	0.052	469.547	0.152	0.004
Forklifts	50	1.002	5.535	4.520	0.005	0.318	0.292	525.483	0.170	0.005
Forklifts	120	0.412	3.720	3.756	0.005	0.267	0.245	471.529	0.153	0.004
Forklifts	175	0.308	3.231	2.921	0.005	0.158	0.145	472.106	0.153	0.004
Forklifts	250	0.249	1.337	2.582	0.005	0.099	0.091	473.326	0.153	0.004

2014		g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr
Equipment	**MaxHP**	ROG	CO	NOX	SOX	PM10	PM2.5	CO2	CH4	N2O
Forklifts	500	0.254	1.485	2.303	0.005	0.094	0.086	473.615	0.153	0.004
Generator Sets	15	0.634	3.531	4.441	0.008	0.201	0.201	568.299	0.057	0.005
Generator Sets	25	0.712	2.446	4.497	0.007	0.196	0.196	568.299	0.064	0.005
Generator Sets	50	0.613	3.905	3.916	0.007	0.165	0.165	568.299	0.055	0.005
Generator Sets	120	0.326	3.361	2.888	0.006	0.153	0.153	568.299	0.029	0.004
Generator Sets	175	0.243	2.925	2.068	0.006	0.091	0.091	568.299	0.021	0.004
Generator Sets	250	0.183	1.016	1.730	0.006	0.049	0.049	568.299	0.016	0.004
Generator Sets	500	0.175	0.996	1.562	0.005	0.048	0.048	568.299	0.015	0.004
Generator Sets	750	0.177	0.996	1.596	0.005	0.048	0.048	568.299	0.016	0.004
Generator Sets	9999	0.220	1.060	3.372	0.005	0.070	0.070	568.300	0.019	0.004
Graders	50	2.235	7.626	5.485	0.005	0.631	0.581	492.935	0.159	0.005
Graders	120	0.901	4.452	7.125	0.005	0.570	0.524	469.070	0.152	0.004
Graders	175	0.505	3.559	4.839	0.005	0.270	0.248	478.529	0.155	0.004
Graders	250	0.335	1.307	4.381	0.005	0.139	0.128	474.539	0.154	0.004
Graders	500	0.322	1.460	3.013	0.005	0.117	0.108	471.898	0.153	0.004
Graders	750	0.303	1.207	1.808	0.005	0.064	0.064	568.299	0.027	0.004
Off-Highway Tractors	120	0.395	3.743	3.773	0.005	0.261	0.240	474.516	0.154	0.004
Off-Highway Tractors	175	0.259	3.220	2.660	0.005	0.129	0.118	472.924	0.153	0.004
Off-Highway Tractors	250	0.200	1.162	2.113	0.005	0.072	0.067	471.003	0.152	0.004
Off-Highway Tractors	750	0.181	1.122	1.715	0.005	0.063	0.058	471.806	0.153	0.004
Off-Highway Tractors	1000	0.160	1.033	2.414	0.005	0.064	0.059	472.055	0.153	0.004
Off-Highway Trucks	175	0.278	3.324	2.246	0.005	0.113	0.104	470.290	0.152	0.004
Off-Highway Trucks	250	0.249	1.348	2.109	0.005	0.082	0.076	470.193	0.152	0.004
Off-Highway Trucks	500	0.225	1.338	1.954	0.005	0.072	0.066	474.542	0.154	0.004
Off-Highway Trucks	750	0.293	1.935	2.668	0.005	0.106	0.098	472.991	0.153	0.004
Off-Highway Trucks	1000	0.256	1.252	4.158	0.005	0.099	0.091	471.055	0.152	0.004
Other Construction Equipment	15	1.010	5.307	4.902	0.005	0.382	0.351	527.783	0.171	0.005
Other Construction Equipment	25	1.010	5.307	4.902	0.005	0.382	0.351	527.783	0.171	0.005

2014		g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr
Equipment	**MaxHP**	ROG	CO	NOX	SOX	PM10	PM2.5	CO2	CH4	N2O
Other Construction Equipment	50	1.010	5.307	4.902	0.005	0.382	0.351	527.783	0.171	0.005
Other Construction Equipment	120	0.482	3.703	4.456	0.005	0.323	0.298	472.275	0.153	0.004
Other Construction Equipment	175	0.330	3.183	3.438	0.005	0.180	0.165	469.764	0.152	0.004
Other Construction Equipment	500	0.215	1.599	2.428	0.005	0.090	0.083	475.212	0.154	0.004
Other General Industrial Equipment	15	0.831	5.314	4.425	0.005	0.289	0.266	526.176	0.170	0.005
Other General Industrial Equipment	25	0.831	5.314	4.425	0.005	0.289	0.266	526.176	0.170	0.005
Other General Industrial Equipment	50	0.831	5.314	4.425	0.005	0.289	0.266	526.176	0.170	0.005
Other General Industrial Equipment	120	0.404	3.740	3.718	0.005	0.256	0.235	470.000	0.152	0.004
Other General Industrial Equipment	175	0.254	3.234	2.347	0.005	0.121	0.111	471.850	0.153	0.004
Other General Industrial Equipment	250	0.204	1.171	2.094	0.005	0.070	0.064	473.223	0.153	0.004
Other General Industrial Equipment	500	0.195	1.330	1.796	0.005	0.064	0.059	472.929	0.153	0.004
Other General Industrial Equipment	750	0.166	1.463	1.387	0.005	0.054	0.050	473.464	0.153	0.004
Other General Industrial Equipment	1000	0.276	1.093	4.876	0.005	0.120	0.110	472.055	0.153	0.004
Other Material Handling Equipment	50	1.108	5.960	4.966	0.005	0.396	0.364	523.709	0.169	0.005
Other Material Handling Equipment	120	0.294	3.602	2.956	0.005	0.166	0.152	473.588	0.153	0.004
Other Material Handling Equipment	175	0.249	3.196	2.246	0.005	0.114	0.105	472.219	0.153	0.004

2014		g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr
Equipment	**MaxHP**	ROG	CO	NOX	SOX	PM10	PM2.5	CO2	CH4	N2O
Other Material Handling Equipment	250	0.269	1.309	3.082	0.005	0.102	0.094	471.482	0.153	0.004
Other Material Handling Equipment	500	0.254	1.442	2.602	0.005	0.101	0.093	470.297	0.152	0.004
Other Material Handling Equipment	9999	0.073	0.972	2.318	0.005	0.020	0.018	472.055	0.153	0.004
Pavers	25	1.208	5.302	4.602	0.005	0.370	0.340	526.515	0.170	0.005
Pavers	50	1.208	5.302	4.602	0.005	0.370	0.340	526.515	0.170	0.005
Pavers	120	0.420	3.563	4.026	0.005	0.285	0.263	469.774	0.152	0.004
Pavers	175	0.256	3.016	2.695	0.005	0.130	0.120	472.555	0.153	0.004
Pavers	250	0.166	1.024	2.484	0.005	0.070	0.064	472.477	0.153	0.004
Pavers	500	0.164	0.988	2.053	0.005	0.074	0.068	465.591	0.151	0.004
Paving Equipment	25	0.587	4.211	3.882	0.005	0.200	0.184	520.397	0.168	0.005
Paving Equipment	50	0.587	4.211	3.882	0.005	0.200	0.184	520.397	0.168	0.005
Paving Equipment	120	0.355	3.554	3.451	0.005	0.219	0.202	473.221	0.153	0.004
Paving Equipment	175	0.229	3.032	2.315	0.005	0.114	0.105	470.650	0.152	0.004
Paving Equipment	250	0.211	1.209	2.582	0.005	0.092	0.085	472.151	0.153	0.004
Plate Compactors	15	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059	0.005
Pressure Washers	15	0.634	3.531	4.441	0.008	0.201	0.201	568.299	0.057	0.005
Pressure Washers	25	0.712	2.446	4.497	0.007	0.196	0.196	568.299	0.064	0.005
Pressure Washers	50	0.439	3.329	3.765	0.007	0.136	0.136	568.299	0.039	0.005
Pressure Washers	120	0.264	3.210	2.766	0.006	0.129	0.129	568.299	0.023	0.004
Pressure Washers	175	0.238	2.907	2.118	0.006	0.093	0.093	568.299	0.021	0.004
Pressure Washers	250	0.098	0.986	0.265	0.006	0.009	0.009	568.299	0.008	0.004
Pumps	15	0.717	3.531	4.462	0.008	0.214	0.214	568.299	0.064	0.005
Pumps	25	0.752	2.446	4.497	0.007	0.201	0.201	568.299	0.067	0.005
Pumps	50	0.671	4.099	3.966	0.007	0.175	0.175	568.299	0.060	0.005
Pumps	120	0.347	3.412	2.928	0.006	0.162	0.162	568.300	0.031	0.004
Pumps	175	0.260	2.968	2.101	0.006	0.096	0.096	568.299	0.023	0.004
Pumps	250	0.197	1.031	1.759	0.006	0.052	0.052	568.299	0.017	0.004
Pumps	500	0.189	1.007	1.584	0.005	0.050	0.050	568.299	0.017	0.004
Pumps	750	0.191	1.007	1.618	0.005	0.050	0.050	568.299	0.017	0.004
Pumps	9999	0.233	1.074	3.409	0.005	0.072	0.072	568.300	0.021	0.004
Rollers	15	0.848	4.597	4.351	0.005	0.294	0.270	525.791	0.170	0.005
Rollers	25	0.848	4.597	4.351	0.005	0.294	0.270	525.791	0.170	0.005
Rollers	50	0.848	4.597	4.351	0.005	0.294	0.270	525.791	0.170	0.005
Rollers	120	0.353	3.507	3.589	0.005	0.219	0.202	473.901	0.153	0.004
Rollers	175	0.193	2.926	2.117	0.005	0.097	0.090	471.980	0.153	0.004
Rollers	250	0.197	1.228	2.493	0.005	0.081	0.075	473.470	0.153	0.004
Rollers	500	0.221	1.950	2.589	0.005	0.100	0.092	479.329	0.155	0.004

2014		g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr
Equipment	**MaxHP**	ROG	CO	NOX	SOX	PM10	PM2.5	CO2	CH4	N2O
Rough Terrain Forklifts	50	0.969	4.657	4.411	0.005	0.304	0.280	525.384	0.170	0.005
Rough Terrain Forklifts	120	0.175	3.252	2.285	0.005	0.089	0.082	473.110	0.153	0.004
Rough Terrain Forklifts	175	0.130	2.845	1.617	0.005	0.060	0.055	471.758	0.153	0.004
Rough Terrain Forklifts	250	0.115	0.984	1.612	0.005	0.037	0.034	472.547	0.153	0.004
Rough Terrain Forklifts	500	0.092	0.946	1.302	0.005	0.028	0.026	465.744	0.151	0.004
Rubber Tired Dozers	175	0.691	3.848	6.790	0.005	0.386	0.356	472.975	0.153	0.004
Rubber Tired Dozers	250	0.601	2.317	6.296	0.005	0.306	0.281	474.798	0.154	0.004
Rubber Tired Dozers	500	0.492	4.041	5.081	0.005	0.232	0.214	478.987	0.155	0.004
Rubber Tired Dozers	750	0.458	2.604	6.123	0.005	0.218	0.201	473.046	0.153	0.004
Rubber Tired Dozers	1000	0.497	2.057	5.095	0.005	0.150	0.150	568.299	0.044	0.004
Rubber Tired Loaders	25	1.326	6.449	4.974	0.005	0.409	0.377	524.551	0.170	0.005
Rubber Tired Loaders	50	1.326	6.449	4.974	0.005	0.409	0.377	524.551	0.170	0.005
Rubber Tired Loaders	120	0.498	3.892	4.215	0.005	0.316	0.291	466.421	0.151	0.004
Rubber Tired Loaders	175	0.346	3.354	3.119	0.005	0.171	0.157	471.080	0.152	0.004
Rubber Tired Loaders	250	0.266	1.240	2.998	0.005	0.100	0.092	469.564	0.152	0.004
Rubber Tired Loaders	500	0.264	1.529	2.610	0.005	0.097	0.090	467.928	0.151	0.004
Rubber Tired Loaders	750	0.271	1.397	2.641	0.005	0.102	0.094	462.055	0.149	0.004
Rubber Tired Loaders	1000	0.294	1.206	4.975	0.005	0.128	0.118	471.258	0.152	0.004
Scrapers	120	0.704	4.218	6.659	0.005	0.512	0.471	483.713	0.156	0.004
Scrapers	175	0.432	3.456	4.341	0.005	0.232	0.213	478.654	0.155	0.004
Scrapers	250	0.391	1.884	4.367	0.005	0.189	0.174	469.126	0.152	0.004
Scrapers	500	0.299	2.255	3.445	0.005	0.134	0.123	472.464	0.153	0.004
Scrapers	750	0.250	1.658	2.887	0.005	0.105	0.097	471.786	0.153	0.004
Signal Boards	15	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059	0.005
Signal Boards	50	0.714	4.380	4.002	0.007	0.179	0.179	568.299	0.064	0.005
Signal Boards	120	0.363	3.493	2.889	0.006	0.162	0.162	568.299	0.032	0.004

2014		g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr
Equipment	**MaxHP**	ROG	CO	NOX	SOX	PM10	PM2.5	CO2	CH4	N2O
Signal Boards	175	0.278	3.043	2.043	0.006	0.098	0.098	568.299	0.025	0.004
Signal Boards	250	0.260	1.273	2.053	0.007	0.063	0.063	686.695	0.023	0.004
Skid Steer Loaders	25	0.409	3.732	3.573	0.005	0.126	0.116	527.450	0.171	0.005
Skid Steer Loaders	50	0.409	3.732	3.573	0.005	0.126	0.116	527.450	0.171	0.005
Skid Steer Loaders	120	0.178	3.277	2.366	0.005	0.096	0.089	471.977	0.153	0.004
Surfacing Equipment	50	0.507	3.932	4.189	0.006	0.204	0.188	535.784	0.173	0.005
Surfacing Equipment	120	0.312	3.436	3.461	0.005	0.191	0.175	474.091	0.153	0.004
Surfacing Equipment	175	0.258	2.919	3.099	0.005	0.145	0.134	469.169	0.152	0.004
Surfacing Equipment	250	0.207	1.219	2.994	0.005	0.092	0.085	476.802	0.154	0.004
Surfacing Equipment	500	0.141	1.202	1.753	0.005	0.064	0.058	471.748	0.153	0.004
Surfacing Equipment	750	0.125	0.992	1.597	0.005	0.062	0.057	470.409	0.152	0.004
Sweepers/Scrubbers	15	1.219	5.900	4.849	0.005	0.412	0.379	525.328	0.170	0.005
Sweepers/Scrubbers	25	1.219	5.900	4.849	0.005	0.412	0.379	525.328	0.170	0.005
Sweepers/Scrubbers	50	1.219	5.900	4.849	0.005	0.412	0.379	525.328	0.170	0.005
Sweepers/Scrubbers	120	0.440	3.757	3.962	0.005	0.291	0.268	474.116	0.153	0.004
Sweepers/Scrubbers	175	0.385	3.247	3.707	0.005	0.187	0.172	473.122	0.153	0.004
Sweepers/Scrubbers	250	0.164	1.108	1.758	0.005	0.055	0.051	470.126	0.152	0.004
Tractors/Loaders/Backhoes	25	0.756	4.902	4.226	0.005	0.255	0.234	515.121	0.167	0.005
Tractors/Loaders/Backhoes	50	0.756	4.902	4.226	0.005	0.255	0.234	515.121	0.167	0.005
Tractors/Loaders/Backhoes	120	0.296	3.571	2.995	0.005	0.177	0.163	475.362	0.154	0.004
Tractors/Loaders/Backhoes	175	0.221	3.091	2.062	0.005	0.104	0.096	467.529	0.151	0.004
Tractors/Loaders/Backhoes	250	0.209	1.186	2.369	0.005	0.080	0.074	470.572	0.152	0.004
Tractors/Loaders/Backhoes	500	0.179	1.341	1.776	0.005	0.064	0.059	469.303	0.152	0.004
Tractors/Loaders/Backhoes	750	0.247	1.433	2.754	0.005	0.104	0.096	466.456	0.151	0.004
Trenchers	15	0.809	4.666	4.459	0.005	0.313	0.288	527.017	0.170	0.005
Trenchers	25	0.809	4.666	4.459	0.005	0.313	0.288	527.017	0.170	0.005
Trenchers	50	0.809	4.666	4.459	0.005	0.313	0.288	527.017	0.170	0.005
Trenchers	120	0.556	3.789	5.106	0.005	0.371	0.341	475.287	0.154	0.004
Trenchers	175	0.407	3.304	4.272	0.005	0.219	0.201	467.734	0.151	0.004
Trenchers	250	0.356	1.668	4.360	0.005	0.172	0.158	473.854	0.153	0.004
Trenchers	500	0.221	1.865	2.491	0.005	0.100	0.092	470.701	0.152	0.004
Trenchers	750	0.066	0.947	0.475	0.005	0.009	0.008	472.529	0.153	0.004
Welders	15	0.717	3.531	4.462	0.008	0.214	0.214	568.299	0.064	0.005

2014		g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr	g/hp/hr
Equipment	**MaxHP**	ROG	CO	NOX	SOX	PM10	PM2.5	CO2	CH4	N2O
Welders	25	0.752	2.446	4.497	0.007	0.201	0.201	568.299	0.067	0.005
Welders	50	0.829	4.708	4.133	0.007	0.203	0.203	568.299	0.074	0.005
Welders	120	0.411	3.579	3.042	0.006	0.184	0.184	568.299	0.037	0.004
Welders	175	0.315	3.112	2.189	0.006	0.110	0.110	568.299	0.028	0.004
Welders	250	0.243	1.081	1.836	0.006	0.057	0.057	568.299	0.021	0.004
Welders	500	0.236	1.044	1.642	0.005	0.055	0.055	568.299	0.021	0.004
Water Trucks	175	0.278	3.324	2.246	0.005	0.113	0.104	470.290	0.152	0.004
Water Trucks	250	0.249	1.348	2.109	0.005	0.082	0.076	470.193	0.152	0.004
Water Trucks	500	0.225	1.338	1.954	0.005	0.072	0.066	474.542	0.154	0.004
Water Trucks	750	0.293	1.935	2.668	0.005	0.106	0.098	472.991	0.153	0.004
Water Trucks	1000	0.256	1.252	4.158	0.005	0.099	0.091	471.055	0.152	0.004

Off-road Equipment Tier 4 Emission Factors

HP Bin		Emission Factor (g/bhp-hr)					
Low HP	High HP	ROG	CO	NOx	PM10	PM2.5	92 % of PM2.5 in PM10 (from CEIDARS)
0	11	0.30	6.00	5.32	0.30	0.28	95 % of NOx in NMHC+NOx (from http://www.arb.ca.gov/msprog/moyer/guidelines/2005_Carl_Moyer_Guidelines_Part4.pdf)
11	25	0.30	4.90	5.32	0.30	0.28	1.07 VOC/NMHC
25	50	0.19	4.10	3.33	0.02	0.02	
50	75	0.19	3.70	3.33	0.02	0.02	
75	100	0.15	3.70	0.30	0.02	0.01	
100	175	0.15	3.70	0.30	0.02	0.01	
175	300	0.15	2.60	0.30	0.02	0.01	
300	600	0.15	2.60	0.30	0.02	0.01	
600	750	0.15	2.60	0.30	0.02	0.01	
750	1200	0.15	2.60	2.60	0.03	0.03	
1200	9999	0.15	2.60	2.60	0.03	0.03	

Note:

1. Tier 4 Emission Factors are converted from EPA Non-road Diesel Engine Standards. Available at www.arb.ca.gov/msprog/ordiesel/documents/Off-Road_Diesel_Stds.xls
2. Assume PM2.5 is 92% of PM10.

Default Horsepower and Load Factor

OFFROAD Equipment Type	Horsepower	Load Factor
Aerial Lifts	63	0.31
Air Compressors	78	0.48
Bore/Drill Rigs	221	0.5
Cement and Mortar Mixers	9	0.56
Concrete/Industrial Saws	81	0.73
Cranes	231	0.29
Crawler Tractors	212	0.43
Crushing/Proc. Equipment	85	0.78
Excavators	158	0.38
Forklifts	89	0.2
Generator Sets	84	0.74
Graders	187	0.41
Off-Highway Tractors	124	0.44
Off-Highway Trucks	402	0.38
Other Construction Equipment	172	0.42
Other General Industrial Equipment	88	0.34
Other Material Handling Equipment	168	0.4
Pavers	130	0.42
Paving Equipment	132	0.36
Plate Compactors	8	0.43
Pressure Washers	13	0.3
Pumps	84	0.74
Rollers	80	0.38
Rough Terrain Forklifts	100	0.4
Rubber Tired Dozers	247	0.4
Rubber Tired Loaders	203	0.36
Scrapers	367	0.48
Signal Boards	6	0.82
Skid Steer Loaders	65	0.37
Surfacing Equipment	263	0.3
Sweepers/Scrubbers	64	0.46
Tractors/Loaders/Backhoes	97	0.37
Trenchers	78	0.5
Welders	46	0.45

Default Horsepower and Load Factor from CalEEMod2016 Appendix D: Table 3.3

EMFAC2017 (v1.0.2) Emissions Inventory
Region Type: County
Region: SACRAMENTO
Calendar Year: 2021
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	Calendar Y	Vehicle Cat	Model Yea	Speed	Fuel	Population	mi/day VMT	Trips	ton/day ROG_TOTAL
SACRAMENTO	2021	LDA	Aggregated	Aggregated	GAS	576916.863	20787700	2693629	2.689416616
SACRAMENTO	2021	LDA	Aggregated	Aggregated	DSL	5127.4431	187775.71	23866.73	0.00371525
SACRAMENTO	2021	LDA	Aggregated	Aggregated	ELEC	8079.66002	321842.1	40368.83	0.000506149
SACRAMENTO	2021	LDT1	Aggregated	Aggregated	GAS	63439.2803	2114017.8	287695.6	0.654913716
SACRAMENTO	2021	LDT1	Aggregated	Aggregated	DSL	209.61768	3849.4037	780.139	0.000543736
SACRAMENTO	2021	LDT1	Aggregated	Aggregated	ELEC	295.476368	11205.521	1446.841	1.83513E-05
SACRAMENTO	2021	LDT2	Aggregated	Aggregated	GAS	203602.053	7045516.1	940182.8	1.424538637
SACRAMENTO	2021	LDT2	Aggregated	Aggregated	DSL	998.721478	41538.702	4905.297	0.000728932
SACRAMENTO	2021	LDT2	Aggregated	Aggregated	ELEC	1133.37867	37589.13	5738.72	7.14096E-05
SACRAMENTO	2021	T7 CAIRP c	Aggregated	Aggregated	DSL	48.6084812	8783.412	219.7571	0.001295194

Emission Factors	**ROG**		**CO**		**NOX**		**PM10**		**PM2**
Vehicle Category	lb/mi	ton/mi	lb/mi	ton/mi	lb/mi	ton/mi	lb/mi	ton/mi	lb/mi
Truck Hauling (T7 CAIRP construction)	0.000295	1.47E-07	0.001765	8.83E-07	0.010927	5.4633E-06	8.489E-05	4.24E-08	8.12196E-05
Worker Commute (composite of LDA, LDT)	0.000313	1.56E-07	0.002648	1.32E-06	0.000212	1.0619E-07	4.18E-06	2.09E-09	3.84959E-06

Fuel Consumption									
Region	Calendar Year	Vehicle Category	Model Year	Speed miles/hr	Fuel	Population vehicles	VMT miles/day	Trips trips/day	Fuel Consumption 1000 gallons/day
SACRAMENTO	2021	LDA	Aggregated	Aggregated	GAS	576916.863	20787700	2693629	680.3867171
SACRAMENTO	2021	LDT1	Aggregated	Aggregated	GAS	63439.2803	2114017.8	287695.6	80.67265944
SACRAMENTO	2021	LDT2	Aggregated	Aggregated	GAS	203602.053	7045516.1	940182.8	294.1321023
SACRAMENTO	2021	T7 CAIRP c	Aggregated	Aggregated	DSL	48.6084812	8783.412	219.7571	1.527035248

tons/mi	CO_TOTEX	tons/mi	NOx_TOTEX	tons/mi	CO2_TOTE	tons/mi	CH4_TOTEX	tons/mi	PM10_TOTEX	tons/mi
1.29375E-07	25.13193414	1.20898E-06	1.762842759	8.48022E-08	6445.913	0.00031	0.253007518	1.2171E-08	0.041661605	2.00415E-09
1.97856E-08	0.050598276	2.69461E-07	0.022824042	1.21549E-07	42.56451	0.000227	0.000172566	9.19E-10	0.001878258	1.00027E-08
1.57266E-09	0	0	0	0	0	0	0	0	0	0
3.09796E-07	3.992615107	1.88864E-06	0.358638257	1.69648E-07	764.2843	0.000362	0.042869595	2.0279E-08	0.005746734	2.71839E-09
1.41252E-07	0.004358504	1.13225E-06	0.005163874	1.34147E-06	1.98827	0.000517	2.52555E-05	6.5609E-09	0.000356795	9.26883E-08
1.6377E-09	0	0	0	0	0	0	0	0	0	0
2.02191E-07	11.26449036	1.59882E-06	1.09252659	1.55067E-07	2786.577	0.000396	0.119342308	1.6939E-08	0.013966261	1.98229E-09
1.75483E-08	0.006168762	1.48506E-07	0.002107213	5.07289E-08	12.81958	0.000309	3.38575E-05	8.1508E-10	0.000243316	5.85757E-09
1.89974E-09	0	0	0	0	0	0	0	0	0	0
	0.007752054		0.047986631		17.13401		6.01584E-05		0.000372821	

2.5	**CO2**	**CH4**	**N2O**
ton/mi	MT/mi	MT/mi	MT/mi
4.06098E-08	0.001769668	6.2134E-09	2.78167E-07
1.92479E-09	0.000298549	1.23364E-08	1.00021E-08

Miles per gallon	Gasoline miles per gallon	Diesel miles per gallon
30.55	27.82	
26.20		
23.95		
5.75		5.75

PM2_5_TOTEX	tons/mi	N2O_TOTEX	tons/mi	Fuel Consu	Ratio of Vehicle/Fuel Type to Total VMT
0.038307323	1.84279E-09	0.201037384	9.67098E-09	680.3867	0.680425
0.001797006	9.56996E-09	0.006690549	3.56305E-08	3.793479	0.006146
0	0	0	0	0	0.010535
0.005284147	2.49958E-09	0.03018691	1.42794E-08	80.67266	0.069196
0.00034136	8.86787E-08	0.000312528	8.11888E-08	0.177201	0.000126
0	0	0	0	0	0.000367
0.012841805	1.82269E-09	0.096595189	1.37102E-08	294.1321	0.230615
0.00023279	5.60417E-09	0.002015059	4.85104E-08	1.14252	0.00136
0	0	0	0	0	0.00123
0.000356693		0.002693228		1.527035	

Fugitive Dust Emission Factors

1 Aggregate Storage Piles [1]

Emissions result from several distinct processes within the stockpiling cycle: 1. loading in of materials through batch or drop operations, 2. equipment traffic in storage areas, 3. wind erosion of piles, 4. loadout of material through batch or drop operations

E(lb/ton)=(k)(0.0032)(U/5)^1.3/(M/2)^1.4

Where:	**PM10**	Unit	Source
k= Particle Size Multiplier:	0.35	lbs/ton	AP-42 Chapter 13.2.4-3, PM10 emissions
U=mean wind speed	7.1	mph	CalEEMod for Sacramento County
M=moisture content (%)	3.4	constant	AP-42 Chapter 13.2.4-3, Table 13.2.4-1, exposed ground
	0.00084	**lbs/ton**	

2 Travel on Unpaved Roads (Heavy Duty Trucks)[2]

E(lbs/VMT)=(k)(s/12)^a (W/3)^b

Where:	**PM10**	Unit	Source
k= Particle Size Multiplier:	1.5	lbs/VMT	AP-42 Chapter 13.2.2-2, PM10 emissions; industrial roads
s= Silt Content	0.043	constant	AP-42 Chapter 13.2.2-2, service roads
a=	0.9	constant	AP-42 Chapter 13.2.2-2, industrial roads
b=	0.45	constant	AP-42 Chapter 13.2.2-2, industrial roads
W=Vehicle Weight	10	tons	Average weight of loaded and unloaded truck: assumed empty truck weights 2 tons, 10 CY truck capacity and 1 CY of fill equals 1.6 tons ((2+(10cy truck capacity*1.6 tons+2))/2)
	0.02	lbs/VMT	

2a Correction for Natural Precipitation[3]

E(ext)=E[(365-P)/365]

Where:		Unit	Source
P=#days/yr with>=0.01 precip	58	days	CalEEMod for Sacramento County
	0.014	lbs/VMT	

3 Travel on Paved Roads (Heavy Duty Trucks)[4]

E(lbs/VMT)=(k)(sL)^.91 (W)^1.02-C

Where:	**PM10**	Unit	Source
k= Particle Size Multiplier:	0.0022	lbs/VMT	AP-42 Chapter 13.2.1, Table 13.2.1-1, PM10 emissions
sL= road surface silt loading	0.06	g/m^2	AP-42 Chapter 13.2.1, Table 13.2.1-2
C= exhaust, break, tire wear	0.00047	lbs/VMT	AP-42 Chapter 13.2.1, Background Documentation Pg 2-5
W=Vehicle Weight	2.1	tons	Worker Commute Vehicles
W=Vehicle Weight	10	tons	Average weight of loaded and unloaded truck: assumed empty truck weights 2 tons, 10 CY truck capacity and 1 CY of fill equals 1.6 tons ((2+(10cy truck capacity*1.6 tons+2))/2)
	0.002	lbs/VMT	Heavy Duty Haul Trucks
	0.00037	lbs/VMT	Worker Commute Vehicles

3a Correction for Natural Precipitation[5]

E(ext)=E[(1-P/4N)]

Where:		Unit	Source
P=#days/yr with>=0.01 precip	58	days	CalEEMod for Sacramento County
N=# days in aversaging period	365	days	
	0.002	lbs/VMT	Heavy Duty Haul Trucks
	0.0004	lbs/VMT	Worker Commute Vehicles

Worker Commute Vehicle Weight Calculation

Parameters and Calculations for Worker Commute Trips (i.e., passenger vehicles)

			Source
Vehicle class for worker trips	LDA, LDT1, LDT2		default value in CalEEMod's tab for Trips and VMT in the Construction module
Weight	4230	lb	average of vehicle categoriy weight (LDA-3,190 lbs, LDT1-3,750 lbs, LDT2-5,750 lbs) from EMFAC2011
Mass conversion	2000	lb/ton	google.com
Weight	2.12	ton	calculation

4 Bulldozing[6]

Equation is applied to graders and dozers to estimate fugitive dust from grading activity
Emissions factors for P10 from bulldozing are scaled from those of PM15

E(lbs/hr)=C(PM15)*s^1.5/M^1.5
Where
E(PM10)=E(PM15)*F(PM10)

		PM15		
Where:		Unit		Source
C=	coeffiecient	1	constant	AP-42 Table 11.9-1, PM15,overburden
M=	material moisture content	7.9	%	AP-42 Table 11.9-3,Overburden
s=	material silt content	6.9	%	AP-42 Table 11.9-3,Overburden
F=	scaling factor	0.75	constant	AP-42 Table 11.9-1, PM10
		1.00	lbs/hr	
		PM10		
		0.75	lbs/hr	

Sources

1 EPA 2006.AP-42, Chapter 13.2.4 Miscellaneous Sources, Aggregate Storage Piles, Equation 1
2 EPA 2006. AP-42, Chapter 13.2.4 Miscellaneous Sources, Upaved Roads, Equation 1a
3 EPA 2006. AP-42, Chapter 13.2.4 Miscellaneous Sources, Upaved Roads, Equation 2
4 EPA 2011. AP-42, Chapter 13.2.4 Miscellaneous Sources, Paved Roads, Equation 1
5 EPA 2011. AP-42, Chapter 13.2.4 Miscellaneous Sources, Paved Roads, Equation 2
6 EPA 1998. AP-42 Chapter 11.9 Mineral Products Industry, Western Surface Coal Mining, Equation 11.9-1 Bulldozing

Control Pathway

Dispersion Options

Titles

C:\Users\chris.lovett\Desktop\NEW ARCF HRA (2020)\New SRCF HRA\New S

Dispersion Options

☑ Regulatory Default ☐ Non-Default Options

Dispersion Coefficient

Rural

Output Type

☑ Concentration
☐ Total Deposition (Dry & Wet)
☐ Dry Deposition
☐ Wet Deposition

Plume Depletion

☐ Dry Removal
☐ Wet Removal

Output Warnings

☐ No Output Warnings
☐ Non-fatal Warnings for Non-sequential Met Data

Pollutant / Averaging Time / Terrain Options

Pollutant Type

PM10

Averaging Time Options

Hours: ☑ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 6 ☐ 8 ☐ 12 ☐ 24

☐ Month ☑ Period ☐ Annual

Exponential Decay

Option not available

Terrain Height Options

☐ Flat ☑ Elevated

SO: Meters
RE: Meters
TG: Meters

Flagpole Receptors

☐ Yes ☑ No

Default Height = 0.00 m

Control Pathway

Optional Files

Re-Start File	Init File	Multi-Year Analyses	Event Input File	Error Listing File
☐	☐	☐	☐	■

Detailed Error Listing File

Filename: New ARCF HRA All Sources.err

Source Pathway - Source Inputs

Source Pathway - Source Inputs

Volume Sources

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	1_1	637060.00 Site 2-1	4271450.00	10.36	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	2_1	637060.00	4271500.00	9.32	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	3_1	637110.00	4271400.00	10.30	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	4_1	637110.00	4271450.00	10.63	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	5_1	637160.00	4271350.00	9.80	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	6_1	637160.00	4271400.00	9.27	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	7_1	637160.00	4271450.00	10.45	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	8_1	637210.00	4271300.00	10.62	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	9_1	637210.00	4271350.00	9.89	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	10_1	637210.00	4271400.00	9.54	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	11_1	637260.00	4270056.62	8.17	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	12_1	637260.00	4270128.47	8.41	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	13_1	637257.71	4270178.51	8.46	5.00	0.00013	50.00	Surface-Based	23.26	1.00

Source Pathway - Source Inputs

AERMOD

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	14_1	637260.00	4271250.00	10.36	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	15_1	637260.00	4271300.00	10.66	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	16_1	637260.00	4271350.00	10.40	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	17_1	637321.28	4269901.25	7.45	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	18_1	637310.00	4269950.00	7.92	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	19_1	637310.00	4270000.00	7.70	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	20_1	637310.00	4270050.00	7.66	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	21_1	637310.00	4270100.00	7.21	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	22_1	637310.00	4270150.00	5.01	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	23_1	637310.00	4270200.00	5.03	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	24_1	637296.15	4270250.00	6.71	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	25_1	637296.15	4270302.13	6.73	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	26_1	637294.02	4270351.07	7.46	5.00	0.00013	50.00	Surface-Based	23.26	1.00

Source Pathway - Source Inputs

AERMOD

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	27_1	637294.02	4270400.00	8.11	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	28_1	637310.00	4270450.00	8.05	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	29_1	637310.00	4270500.00	8.11	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	30_1	637310.00	4270550.00	8.44	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	31_1	637329.93	4270599.81	8.30	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	32_1	637310.00	4271150.00	9.46	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	33_1	637310.00	4271200.00	9.71	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	34_1	637310.00	4271250.00	10.23	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	35_1	637310.00	4271300.00	10.40	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	36_1	637360.00	4269850.00	6.28	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	37_1	637371.28	4269898.75	4.72	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	38_1	637360.00	4269950.00	4.57	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	39_1	637360.00	4270000.00	4.57	5.00	0.00013	50.00	Surface-Based	23.26	1.00

Source Pathway - Source Inputs

AERMOD

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	40_1	637360.00	4270050.00	4.57	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	41_1	637360.00	4270100.00	4.57	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	42_1	637360.00	4270150.00	4.57	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	43_1	637360.00	4270200.00	4.57	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	44_1	637347.22	4270248.93	4.57	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	45_1	637347.22	4270298.93	4.57	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	46_1	637345.09	4270350.00	4.57	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	47_1	637342.96	4270398.93	4.68	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	48_1	637360.00	4270450.00	4.57	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	49_1	637360.00	4270500.00	4.57	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	50_1	637360.00	4270550.00	5.87	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	51_1	637377.98	4270598.93	4.57	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	52_1	637341.89	4270650.00	7.99	5.00	0.00013	50.00	Surface-Based	23.26	1.00

Source Pathway - Source Inputs

AERMOD

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	53_1	637360.00	4270700.00	7.62	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	54_1	637360.00	4270750.00	7.62	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	55_1	637360.00	4270800.00	7.69	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	56_1	637360.00	4270850.00	7.62	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	57_1	637360.00	4270900.00	7.62	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	58_1	637360.00	4270950.00	7.83	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	59_1	637360.00	4271000.00	8.75	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	60_1	637360.00	4271050.00	9.12	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	61_1	637360.00	4271100.00	9.14	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	62_1	637360.00	4271150.00	9.31	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	63_1	637360.00	4271200.00	9.57	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	64_1	637360.00	4271250.00	9.90	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	65_1	637410.00	4270700.00	4.57	5.00	0.00013	50.00	Surface-Based	23.26	1.00

Source Pathway - Source Inputs

AERMOD

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	66_1	637410.00	4270750.00	4.57	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	67_1	637410.00	4270800.00	4.57	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	68_1	637410.00	4270850.00	4.57	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	69_1	637410.00	4270900.00	4.57	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	70_1	637410.00	4270950.00	4.57	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	71_1	637410.00	4271000.00	4.57	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	72_1	637410.00	4271050.00	7.63	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	73_1	637410.00	4271100.00	8.07	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	74_1	637410.00	4271150.00	7.94	5.00	0.00013	50.00	Surface-Based	23.26	1.00
VOLUME	75_1	636951.76	4270123.72	10.67	5.00	0.00013	39.74	Surface-Based	18.48	1.00
VOLUME	76_1	636991.50	4270134.22	10.67	5.00	0.00013	38.64	Surface-Based	17.97	1.00
VOLUME	77_1	637105.31	4270075.72	10.05	5.00	0.00013	40.66	Surface-Based	18.91	1.00
VOLUME	78_1	637118.70	4270095.63	10.06	5.00	0.00013	41.15	Surface-Based	19.14	1.00

Source Pathway - Source Inputs

AERMOD

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	1_2	636680.00 Glen Hall Mitig Site	4271580.00	4.72	5.00	0.00013	40.00	Surface-Based	18.60	1.00
VOLUME	2_2	636720.00	4271580.00	6.55	5.00	0.00013	40.00	Surface-Based	18.60	1.00
VOLUME	3_2	636760.00	4271580.00	6.72	5.00	0.00013	40.00	Surface-Based	18.60	1.00
VOLUME	4_2	636800.00	4271580.00	7.12	5.00	0.00013	40.00	Surface-Based	18.60	1.00
VOLUME	5_2	636840.00	4271580.00	8.04	5.00	0.00013	40.00	Surface-Based	18.60	1.00
VOLUME	6_2	636880.00	4271580.00	8.49	5.00	0.00013	40.00	Surface-Based	18.60	1.00
VOLUME	7_2	636920.00	4271580.00	9.52	5.00	0.00013	40.00	Surface-Based	18.60	1.00
VOLUME	8_2	636960.00	4271580.00	9.79	5.00	0.00013	40.00	Surface-Based	18.60	1.00
VOLUME	9_2	637000.00	4271580.00	9.21	5.00	0.00013	40.00	Surface-Based	18.60	1.00
VOLUME	10_2	636640.00	4271540.00	5.22	5.00	0.00013	40.00	Surface-Based	18.60	1.00
VOLUME	11_2	636680.00	4271540.00	6.65	5.00	0.00013	40.00	Surface-Based	18.60	1.00
VOLUME	12_2	636720.00	4271540.00	7.06	5.00	0.00013	40.00	Surface-Based	18.60	1.00
VOLUME	13_2	636760.00	4271540.00	8.17	5.00	0.00013	40.00	Surface-Based	18.60	1.00

Source Pathway - Source Inputs

AERMOD

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	14_2	636800.00	4271540.00	8.92	5.00	0.00013	40.00	Surface-Based	18.60	1.00
VOLUME	15_2	636840.00	4271540.00	8.92	5.00	0.00013	40.00	Surface-Based	18.60	1.00
VOLUME	16_2	636880.00	4271540.00	9.10	5.00	0.00013	40.00	Surface-Based	18.60	1.00
VOLUME	17_2	636920.00	4271540.00	9.19	5.00	0.00013	40.00	Surface-Based	18.60	1.00
VOLUME	18_2	636960.00	4271540.00	9.21	5.00	0.00013	40.00	Surface-Based	18.60	1.00
VOLUME	19_2	637000.00	4271540.00	9.42	5.00	0.00013	40.00	Surface-Based	18.60	1.00
VOLUME	20_2	636640.00	4271500.00	5.88	5.00	0.00013	40.00	Surface-Based	18.60	1.00
VOLUME	21_2	636680.00	4271500.00	7.39	5.00	0.00013	40.00	Surface-Based	18.60	1.00
VOLUME	22_2	636720.00	4271500.00	7.51	5.00	0.00013	40.00	Surface-Based	18.60	1.00
VOLUME	23_2	636760.00	4271500.00	8.26	5.00	0.00013	40.00	Surface-Based	18.60	1.00
VOLUME	24_2	636800.00	4271500.00	8.82	5.00	0.00013	40.00	Surface-Based	18.60	1.00
VOLUME	25_2	636840.00	4271500.00	8.94	5.00	0.00013	40.00	Surface-Based	18.60	1.00
VOLUME	26_2	636880.00	4271500.00	9.14	5.00	0.00013	40.00	Surface-Based	18.60	1.00

Source Pathway - Source Inputs

AERMOD

Source Type	Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation (Optional)	Release Height [m]	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dim. [m]	Initial Vertical Dim. [m]
VOLUME	27_2	636920.00	4271500.00	9.14	5.00	0.00013	40.00	Surface-Based	18.60	1.00
VOLUME	28_2	636960.00	4271500.00	9.21	5.00	0.00013	40.00	Surface-Based	18.60	1.00
VOLUME	29_2	637000.00	4271500.00	9.48	5.00	0.00013	40.00	Surface-Based	18.60	1.00

Source Pathway - Source Inputs

Line Volume Sources

Source Type: LINE VOLUME

Source: SLINE21BIN (Haul Route 2-1B inbound)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
8.44	0.01056	Surface-Based	636309.43	4273915.46	14.45	2.07
			637478.67	4273218.60	12.18	2.07
			637543.09	4273150.28	11.53	2.07
			637584.08	4273021.45	10.28	2.07
			637605.55	4272353.87	9.54	2.07
			638015.47	4272353.87	12.17	2.07
			638038.89	4270710.29	10.67	2.07
			637927.63	4270634.17	10.66	2.07
			637718.77	4270308.18	10.05	2.07
			637646.54	4270214.49	10.36	2.07
			637605.55	4270183.26	10.67	2.07
			637517.71	4270144.22	9.24	2.07
			636844.28	4269988.06	11.15	2.07
			636809.14	4270142.26	10.69	2.07
			636772.05	4270193.02	10.72	2.07
			636701.78	4270243.77	10.69	2.07
			636647.12	4270280.86	10.67	2.07
			636584.66	4270362.84	10.67	2.07
			636563.19	4270444.82	10.42	2.07
			636555.38	4270489.72	10.38	2.07
			636580.76	4270624.41	9.68	2.07
			636594.42	4270653.69	9.14	2.07
			636848.66	4270967.37	9.45	2.07
			637137.07	4271323.22	9.75	2.07

Source Pathway - Source Inputs

Source Type: LINE VOLUME

Source: SLINE21BOUT (Haul Route 2-1B outbound)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
8.44	0.01056	Surface-Based	637297.02	4270089.86	7.72	2.07
			637324.99	4269884.45	7.80	2.07
			637341.19	4269821.87	7.92	2.07
			637416.29	4269614.24	7.87	2.07
			637456.05	4269466.99	8.01	2.07
			637490.65	4269391.16	8.82	2.07
			637583.42	4269271.15	8.27	2.07
			637768.95	4269076.78	9.15	2.07
			637787.36	4268977.39	9.49	2.07
			637802.08	4268506.19	10.67	2.07
			637807.97	4268496.62	10.67	2.07
			638214.38	4268498.09	10.39	2.07
			638228.37	4268491.47	10.53	2.07
			638378.56	4268495.88	10.67	2.07
			638396.23	4268501.04	10.67	2.07
			638409.49	4268509.14	10.67	2.07
			638422.74	4268518.71	10.67	2.07
			638472.80	4268608.53	10.67	2.07
			638500.04	4268625.46	10.67	2.07
			638531.70	4268636.51	10.69	2.07
			638599.44	4268636.51	11.00	2.07
			638597.97	4270220.91	10.67	2.07
			638593.55	4270245.21	10.67	2.07
			638526.55	4270332.09	10.67	2.07
			638479.43	4270368.90	10.67	2.07
			638152.54	4270538.24	10.67	2.07
			638045.04	4270710.52	10.67	2.07
			638015.59	4272351.61	12.18	2.07
			637604.03	4272350.14	9.52	2.07
			637582.18	4273037.55	10.36	2.07
			637542.62	4273152.64	11.54	2.07

Source Pathway - Source Inputs

Source Type: LINE VOLUME

Source: SLINE21BOUT (Haul Route 2-1B outbound)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
8.44	0.01056	Surface-Based	637471.88	4273224.58	12.18	2.07
			636826.88	4273604.63	10.92	2.07
			636306.56	4273917.54	14.41	2.07

Source Pathway - Source Inputs

Source Type: LINE VOLUME

Source: SLINE21C (Haul Route 2-1C)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
8.44	0.01056	Surface-Based	636617.39	4270688.83	9.14	2.07
			636514.91	4270776.57	9.14	2.07
			636449.18	4270844.93	9.15	2.07
			636413.68	4270885.69	9.38	2.07
			636368.98	4270967.20	9.45	2.07
			636305.22	4271054.63	9.21	2.07
			636261.84	4271105.90	9.14	2.07
			636227.65	4271144.03	9.14	2.07
			636169.81	4271240.66	9.14	2.07
			636150.74	4271266.29	9.14	2.07
			636123.14	4271288.64	9.14	2.07
			636150.74	4271322.82	8.84	2.07
			636182.95	4271348.46	8.55	2.07
			636238.17	4271375.41	8.27	2.07
			636261.84	4271378.04	8.25	2.07
			636303.25	4271372.78	8.27	2.07
			636386.07	4271358.98	8.54	2.07
			636438.66	4271350.43	8.56	2.07
			636469.79	4271350.26	8.55	2.07
			636466.01	4271327.27	8.86	2.07
			636452.97	4271301.19	9.14	2.07
			636443.37	4271289.53	9.14	2.07
			636482.14	4271256.59	9.14	2.07
			636513.37	4271238.40	9.14	2.07
			636614.59	4271199.28	9.14	2.07
			636683.91	4271168.06	9.14	2.07
			636727.49	4271143.69	9.15	2.07
			636789.25	4271103.89	9.45	2.07
			636816.71	4271081.58	9.45	2.07
			636891.85	4271020.16	9.45	2.07

Source Pathway - Source Inputs

Source Type: LINE VOLUME

Source: SLINE21D (Haul Route 2-1D)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
8.44	0.01056	Surface-Based	635531.61	4273201.78	7.80	2.07
			635794.96	4273110.54	7.87	2.07
			635900.72	4273079.44	7.65	2.07
			636213.84	4273056.63	8.57	2.07
			636468.90	4273033.82	9.14	2.07
			636790.31	4273017.23	9.00	2.07
			636968.65	4273027.59	8.80	2.07
			637242.37	4273064.92	11.58	2.07
			637543.05	4273122.98	11.34	2.07

Source Type: LINE VOLUME

Source: SLINE21E (Haul Route 2-1E)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
8.44	0.01056	Surface-Based	636583.47	4270384.29	10.67	2.07
			637207.30	4270624.15	10.42	2.07
			637156.10	4270733.17	9.43	2.07
			637114.39	4270796.69	9.37	2.07
			637058.45	4270866.85	9.35	2.07
			637001.57	4270928.47	9.31	2.07
			636892.54	4271018.54	9.45	2.07

Source Pathway - Source Inputs

Source Type: LINE VOLUME

Source: SLINE21F (Haul Route 2-1F)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
8.44	0.01056	Surface-Based	636808.87	4270147.96	10.68	2.07
			636889.81	4270182.31	10.67	2.07
			637016.16	4270230.06	10.67	2.07
			637097.68	4270263.25	10.67	2.07
			637150.09	4270065.86	9.59	2.07

Source Type: LINE VOLUME

Source: SLINE21G (Haul Route 2-1G)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
8.44	0.01056	Surface-Based	637119.67	4270200.55	10.67	2.07
			637271.43	4270253.12	8.93	2.07

Source Type: LINE VOLUME

Source: SLINE21H (Haul Route 2-1H)

Length of Side [m]	Emission Rate [g/ s]	Building Height [m]	X Coordinate for Points [m]	Y Coordinate for points [m]	Base Elevation [m]	Release Height [m]
8.44	0.01056	Surface-Based	637153.12	4271336.43	9.95	2.07
			637259.37	4271256.75	10.61	2.07
			637304.04	4271195.17	9.70	2.07
			637341.47	4271084.09	9.14	2.07
			637366.82	4270913.86	7.40	2.07
			637348.71	4270743.62	7.64	2.07
			637289.55	4270395.90	8.23	2.07
			637278.68	4270255.84	8.36	2.07

Source Pathway - Source Inputs

Volume Sources Generated from Line Sources

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21BIN	L0032855	636313.05	4273913.30	14.80	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032856	636327.54	4273904.67	14.88	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032857	636342.03	4273896.03	14.12	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032858	636356.52	4273887.40	13.30	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032859	636371.01	4273878.76	12.23	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032860	636385.49	4273870.13	11.27	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032861	636399.98	4273861.49	10.58	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032862	636414.47	4273852.86	10.07	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032863	636428.96	4273844.23	9.59	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032864	636443.44	4273835.59	9.36	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032865	636457.93	4273826.96	9.35	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032866	636472.42	4273818.32	9.43	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032867	636486.91	4273809.69	9.40	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032868	636501.40	4273801.05	9.31	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032869	636515.88	4273792.42	9.22	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032870	636530.37	4273783.78	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032871	636544.86	4273775.15	9.22	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032872	636559.35	4273766.51	9.24	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032873	636573.84	4273757.88	9.36	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032874	636588.32	4273749.24	9.70	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032875	636602.81	4273740.61	9.99	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032876	636617.30	4273731.97	10.22	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032877	636631.79	4273723.34	10.47	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032878	636646.28	4273714.71	10.72	2.07	0.00002	8.44	Surface-Based	7.84	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21BIN	L0032879	636660.76	4273706.07	10.86	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032880	636675.25	4273697.44	10.95	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032881	636689.74	4273688.80	10.91	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032882	636704.23	4273680.17	10.82	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032883	636718.71	4273671.53	10.72	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032884	636733.20	4273662.90	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032885	636747.69	4273654.26	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032886	636762.18	4273645.63	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032887	636776.67	4273636.99	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032888	636791.15	4273628.36	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032889	636805.64	4273619.72	10.68	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032890	636820.13	4273611.09	10.83	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032891	636834.62	4273602.45	10.97	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032892	636849.11	4273593.82	10.97	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032893	636863.59	4273585.19	10.97	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032894	636878.08	4273576.55	10.97	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032895	636892.57	4273567.92	10.97	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032896	636907.06	4273559.28	10.97	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032897	636921.54	4273550.65	10.97	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032898	636936.03	4273542.01	11.10	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032899	636950.52	4273533.38	11.24	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032900	636965.01	4273524.74	11.28	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032901	636979.50	4273516.11	11.28	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032902	636993.98	4273507.47	11.28	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032903	637008.47	4273498.84	11.28	2.07	0.00002	8.44	Surface-Based	7.84	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21BIN	L0032904	637022.96	4273490.20	11.35	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032905	637037.45	4273481.57	11.52	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032906	637051.94	4273472.93	11.58	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032907	637066.42	4273464.30	11.58	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032908	637080.91	4273455.66	11.65	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032909	637095.40	4273447.03	11.80	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032910	637109.89	4273438.40	11.92	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032911	637124.38	4273429.76	12.06	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032912	637138.86	4273421.13	12.19	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032913	637153.35	4273412.49	12.19	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032914	637167.84	4273403.86	12.19	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032915	637182.33	4273395.22	12.19	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032916	637196.81	4273386.59	12.19	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032917	637211.30	4273377.95	12.19	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032918	637225.79	4273369.32	12.19	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032919	637240.28	4273360.68	12.15	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032920	637254.77	4273352.05	12.06	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032921	637269.25	4273343.41	12.08	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032922	637283.74	4273334.78	12.19	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032923	637298.23	4273326.14	12.19	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032924	637312.72	4273317.51	12.19	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032925	637327.21	4273308.88	12.33	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032926	637341.69	4273300.24	12.48	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032927	637356.18	4273291.61	12.50	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032928	637370.67	4273282.97	12.50	2.07	0.00002	8.44	Surface-Based	7.84	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21BIN	L0032929	637385.16	4273274.34	12.50	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032930	637399.65	4273265.70	12.50	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032931	637414.13	4273257.07	12.50	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032932	637428.62	4273248.43	12.50	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032933	637443.11	4273239.80	12.40	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032934	637457.60	4273231.16	12.26	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032935	637472.08	4273222.53	12.19	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032936	637484.98	4273211.91	12.20	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032937	637496.55	4273199.64	12.17	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032938	637508.12	4273187.37	12.05	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032939	637519.69	4273175.10	11.85	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032940	637531.26	4273162.83	11.64	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032941	637542.83	4273150.55	11.55	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032942	637548.09	4273134.57	11.42	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032943	637553.20	4273118.49	11.22	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032944	637558.32	4273102.42	11.04	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032945	637563.43	4273086.35	10.89	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032946	637568.54	4273070.28	10.72	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032947	637573.66	4273054.21	10.56	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032948	637578.77	4273038.13	10.40	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032949	637583.89	4273022.06	10.23	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032950	637584.60	4273005.24	10.07	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032951	637585.14	4272988.38	9.91	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032952	637585.69	4272971.52	9.73	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032953	637586.23	4272954.66	9.56	2.07	0.00002	8.44	Surface-Based	7.84	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21BIN	L0032954	637586.77	4272937.81	9.39	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032955	637587.31	4272920.95	9.26	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032956	637587.85	4272904.09	9.21	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032957	637588.40	4272887.24	9.19	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032958	637588.94	4272870.38	9.17	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032959	637589.48	4272853.52	9.15	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032960	637590.02	4272836.66	9.18	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032961	637590.57	4272819.81	9.21	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032962	637591.11	4272802.95	9.22	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032963	637591.65	4272786.09	9.20	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032964	637592.19	4272769.24	9.16	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032965	637592.73	4272752.38	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032966	637593.28	4272735.52	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032967	637593.82	4272718.66	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032968	637594.36	4272701.81	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032969	637594.90	4272684.95	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032970	637595.44	4272668.09	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032971	637595.99	4272651.24	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032972	637596.53	4272634.38	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032973	637597.07	4272617.52	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032974	637597.61	4272600.66	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032975	637598.16	4272583.81	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032976	637598.70	4272566.95	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032977	637599.24	4272550.09	9.12	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032978	637599.78	4272533.24	9.03	2.07	0.00002	8.44	Surface-Based	7.84	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21BIN	L0032979	637600.32	4272516.38	9.03	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032980	637600.87	4272499.52	9.12	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032981	637601.41	4272482.66	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032982	637601.95	4272465.81	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032983	637602.49	4272448.95	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032984	637603.04	4272432.09	9.20	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032985	637603.58	4272415.24	9.54	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032986	637604.12	4272398.38	9.76	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032987	637604.66	4272381.52	9.77	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032988	637605.20	4272364.66	9.72	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032989	637611.62	4272353.87	9.79	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032990	637628.48	4272353.87	10.04	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032991	637645.35	4272353.87	10.20	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032992	637662.21	4272353.87	9.65	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032993	637679.08	4272353.87	8.98	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032994	637695.95	4272353.87	8.06	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032995	637712.81	4272353.87	8.61	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032996	637729.68	4272353.87	10.49	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032997	637746.54	4272353.87	11.45	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032998	637763.41	4272353.87	12.08	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0032999	637780.28	4272353.87	12.32	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033000	637797.14	4272353.87	12.46	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033001	637814.01	4272353.87	12.29	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033002	637830.87	4272353.87	12.19	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033003	637847.74	4272353.87	12.19	2.07	0.00002	8.44	Surface-Based	7.84	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21BIN	L0033004	637864.61	4272353.87	12.12	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033005	637881.47	4272353.87	12.00	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033006	637898.34	4272353.87	11.93	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033007	637915.20	4272353.87	11.89	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033008	637932.07	4272353.87	11.89	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033009	637948.93	4272353.87	11.90	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033010	637965.80	4272353.87	11.95	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033011	637982.67	4272353.87	12.04	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033012	637999.53	4272353.87	12.16	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033013	638015.48	4272352.94	12.22	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033014	638015.72	4272336.08	12.16	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033015	638015.96	4272319.21	12.09	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033016	638016.20	4272302.35	11.86	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033017	638016.44	4272285.49	11.59	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033018	638016.68	4272268.62	11.42	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033019	638016.92	4272251.76	11.25	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033020	638017.17	4272234.89	11.07	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033021	638017.41	4272218.03	10.93	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033022	638017.65	4272201.17	10.84	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033023	638017.89	4272184.30	10.76	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033024	638018.13	4272167.44	10.68	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033025	638018.37	4272150.57	10.52	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033026	638018.61	4272133.71	10.36	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033027	638018.85	4272116.84	10.36	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033028	638019.09	4272099.98	10.31	2.07	0.00002	8.44	Surface-Based	7.84	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21BIN	L0033029	638019.33	4272083.12	10.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033030	638019.57	4272066.25	9.97	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033031	638019.81	4272049.39	9.80	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033032	638020.05	4272032.52	9.75	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033033	638020.29	4272015.66	9.75	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033034	638020.53	4271998.80	9.59	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033035	638020.77	4271981.93	9.45	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033036	638021.01	4271965.07	9.45	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033037	638021.25	4271948.20	9.38	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033038	638021.49	4271931.34	9.21	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033039	638021.73	4271914.48	8.42	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033040	638021.97	4271897.61	7.26	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033041	638022.21	4271880.75	8.20	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033042	638022.45	4271863.88	9.45	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033043	638022.69	4271847.02	9.45	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033044	638022.93	4271830.15	9.50	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033045	638023.17	4271813.29	9.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033046	638023.41	4271796.43	9.75	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033047	638023.65	4271779.56	9.75	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033048	638023.89	4271762.70	9.80	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033049	638024.14	4271745.83	9.85	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033050	638024.38	4271728.97	9.96	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033051	638024.62	4271712.11	10.12	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033052	638024.86	4271695.24	10.46	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033053	638025.10	4271678.38	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21BIN	L0033054	638025.34	4271661.51	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033055	638025.58	4271644.65	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033056	638025.82	4271627.79	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033057	638026.06	4271610.92	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033058	638026.30	4271594.06	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033059	638026.54	4271577.19	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033060	638026.78	4271560.33	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033061	638027.02	4271543.46	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033062	638027.26	4271526.60	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033063	638027.50	4271509.74	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033064	638027.74	4271492.87	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033065	638027.98	4271476.01	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033066	638028.22	4271459.14	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033067	638028.46	4271442.28	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033068	638028.70	4271425.42	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033069	638028.94	4271408.55	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033070	638029.18	4271391.69	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033071	638029.42	4271374.82	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033072	638029.66	4271357.96	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033073	638029.90	4271341.10	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033074	638030.14	4271324.23	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033075	638030.38	4271307.37	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033076	638030.62	4271290.50	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033077	638030.86	4271273.64	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033078	638031.11	4271256.77	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21BIN	L0033079	638031.35	4271239.91	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033080	638031.59	4271223.05	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033081	638031.83	4271206.18	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033082	638032.07	4271189.32	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033083	638032.31	4271172.45	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033084	638032.55	4271155.59	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033085	638032.79	4271138.73	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033086	638033.03	4271121.86	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033087	638033.27	4271105.00	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033088	638033.51	4271088.13	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033089	638033.75	4271071.27	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033090	638033.99	4271054.40	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033091	638034.23	4271037.54	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033092	638034.47	4271020.68	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033093	638034.71	4271003.81	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033094	638034.95	4270986.95	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033095	638035.19	4270970.08	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033096	638035.43	4270953.22	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033097	638035.67	4270936.36	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033098	638035.91	4270919.49	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033099	638036.15	4270902.63	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033100	638036.39	4270885.76	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033101	638036.63	4270868.90	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033102	638036.87	4270852.04	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033103	638037.11	4270835.17	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21BIN	L0033104	638037.35	4270818.31	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033105	638037.59	4270801.44	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033106	638037.83	4270784.58	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033107	638038.08	4270767.71	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033108	638038.32	4270750.85	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033109	638038.56	4270733.99	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033110	638038.80	4270717.12	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033111	638030.61	4270704.63	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033112	638016.69	4270695.10	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033113	638002.77	4270685.58	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033114	637988.85	4270676.05	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033115	637974.93	4270666.53	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033116	637961.01	4270657.01	10.62	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033117	637947.09	4270647.48	10.65	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033118	637933.17	4270637.96	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033119	637922.15	4270625.62	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033120	637913.06	4270611.42	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033121	637903.96	4270597.22	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033122	637894.86	4270583.02	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033123	637885.76	4270568.82	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033124	637876.66	4270554.62	10.62	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033125	637867.56	4270540.42	10.48	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033126	637858.46	4270526.21	10.38	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033127	637849.36	4270512.01	10.36	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033128	637840.27	4270497.81	10.28	2.07	0.00002	8.44	Surface-Based	7.84	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21BIN	L0033129	637831.17	4270483.61	10.13	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033130	637822.07	4270469.41	10.06	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033131	637812.97	4270455.21	10.06	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033132	637803.87	4270441.01	10.06	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033133	637794.77	4270426.81	10.06	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033134	637785.67	4270412.61	10.06	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033135	637776.57	4270398.41	10.06	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033136	637767.47	4270384.20	10.05	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033137	637758.38	4270370.00	10.06	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033138	637749.28	4270355.80	10.01	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033139	637740.18	4270341.60	10.01	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033140	637731.08	4270327.40	10.06	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033141	637721.98	4270313.20	10.06	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033142	637712.11	4270299.54	10.06	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033143	637701.81	4270286.19	10.08	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033144	637691.51	4270272.83	10.20	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033145	637681.22	4270259.47	10.33	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033146	637670.92	4270246.11	10.36	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033147	637660.62	4270232.75	10.36	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033148	637650.33	4270219.40	10.36	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033149	637638.06	4270208.02	10.43	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033150	637624.64	4270197.80	10.54	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033151	637611.23	4270187.58	10.64	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033152	637596.66	4270179.30	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033153	637581.25	4270172.45	10.59	2.07	0.00002	8.44	Surface-Based	7.84	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21BIN	L0033154	637565.83	4270165.60	10.12	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033155	637550.42	4270158.75	9.70	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033156	637535.01	4270151.90	9.38	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033157	637519.60	4270145.05	9.17	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033158	637503.29	4270140.87	9.26	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033159	637486.86	4270137.06	9.17	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033160	637470.43	4270133.25	8.92	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033161	637454.00	4270129.44	8.61	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033162	637437.57	4270125.63	8.29	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033163	637421.14	4270121.82	6.61	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033164	637404.71	4270118.01	4.66	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033165	637388.28	4270114.20	4.57	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033166	637371.85	4270110.39	4.57	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033167	637355.42	4270106.58	4.57	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033168	637338.99	4270102.77	4.94	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033169	637322.56	4270098.96	6.45	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033170	637306.13	4270095.15	7.68	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033171	637289.70	4270091.35	7.87	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033172	637273.27	4270087.54	8.03	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033173	637256.84	4270083.73	8.20	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033174	637240.41	4270079.92	8.50	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033175	637223.98	4270076.11	8.84	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033176	637207.55	4270072.30	9.01	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033177	637191.12	4270068.49	9.18	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033178	637174.69	4270064.68	9.34	2.07	0.00002	8.44	Surface-Based	7.84	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21BIN	L0033179	637158.26	4270060.87	9.51	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033180	637141.83	4270057.06	9.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033181	637125.40	4270053.25	9.84	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033182	637108.97	4270049.44	10.01	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033183	637092.54	4270045.63	10.06	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033184	637076.11	4270041.82	10.06	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033185	637059.68	4270038.01	10.20	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033186	637043.25	4270034.20	10.37	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033187	637026.82	4270030.39	10.54	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033188	637010.39	4270026.58	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033189	636993.96	4270022.77	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033190	636977.53	4270018.96	10.70	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033191	636961.10	4270015.15	10.82	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033192	636944.67	4270011.34	10.83	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033193	636928.24	4270007.53	10.71	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033194	636911.81	4270003.72	10.68	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033195	636895.39	4269999.91	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033196	636878.96	4269996.10	10.71	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033197	636862.53	4269992.29	10.81	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033198	636846.10	4269988.48	11.02	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033199	636840.94	4270002.68	10.92	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033200	636837.20	4270019.12	10.81	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033201	636833.45	4270035.57	10.68	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033202	636829.70	4270052.01	10.73	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033203	636825.96	4270068.46	10.75	2.07	0.00002	8.44	Surface-Based	7.84	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21BIN	L0033204	636822.21	4270084.90	10.79	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033205	636818.46	4270101.35	10.79	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033206	636814.72	4270117.79	10.71	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033207	636810.97	4270134.24	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033208	636804.05	4270149.23	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033209	636794.10	4270162.85	10.74	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033210	636784.14	4270176.47	10.72	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033211	636774.19	4270190.08	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033212	636761.32	4270200.77	10.73	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033213	636747.65	4270210.64	10.71	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033214	636733.98	4270220.51	10.75	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033215	636720.30	4270230.39	10.78	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033216	636706.63	4270240.26	10.72	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033217	636692.78	4270249.88	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033218	636678.82	4270259.35	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033219	636664.86	4270268.82	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033220	636650.91	4270278.29	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033221	636639.67	4270290.63	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033222	636629.45	4270304.05	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033223	636619.23	4270317.47	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033224	636609.01	4270330.88	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033225	636598.79	4270344.30	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033226	636588.57	4270357.71	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033227	636582.02	4270372.92	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033228	636577.75	4270389.24	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21BIN	L0033229	636573.47	4270405.55	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033230	636569.20	4270421.87	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033231	636564.93	4270438.18	10.54	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033232	636561.47	4270454.68	10.37	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033233	636558.58	4270471.29	10.36	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033234	636555.70	4270487.91	10.36	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033235	636558.16	4270504.49	10.36	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033236	636561.29	4270521.06	10.36	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033237	636564.41	4270537.64	10.37	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033238	636567.53	4270554.21	10.48	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033239	636570.65	4270570.79	10.64	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033240	636573.78	4270587.36	10.59	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033241	636576.90	4270603.93	10.41	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033242	636580.02	4270620.51	9.94	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033243	636586.21	4270636.09	9.37	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033244	636593.34	4270651.38	9.15	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033245	636603.44	4270664.81	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033246	636614.06	4270677.91	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033247	636624.68	4270691.02	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033248	636635.30	4270704.12	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033249	636645.91	4270717.22	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033250	636656.53	4270730.32	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033251	636667.15	4270743.43	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033252	636677.77	4270756.53	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033253	636688.39	4270769.63	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21BIN	L0033254	636699.01	4270782.73	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033255	636709.63	4270795.84	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033256	636720.25	4270808.94	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033257	636730.87	4270822.04	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033258	636741.49	4270835.15	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033259	636752.11	4270848.25	9.23	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033260	636762.73	4270861.35	9.33	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033261	636773.35	4270874.45	9.44	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033262	636783.97	4270887.56	9.45	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033263	636794.59	4270900.66	9.45	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033264	636805.21	4270913.76	9.45	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033265	636815.83	4270926.86	9.45	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033266	636826.45	4270939.97	9.45	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033267	636837.07	4270953.07	9.45	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033268	636847.69	4270966.17	9.45	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033269	636858.31	4270979.27	9.45	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033270	636868.93	4270992.38	9.45	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033271	636879.55	4271005.48	9.45	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033272	636890.17	4271018.58	9.45	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033273	636900.79	4271031.68	9.45	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033274	636911.41	4271044.79	9.45	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033275	636922.03	4271057.89	9.42	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033276	636932.65	4271070.99	9.29	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033277	636943.26	4271084.10	9.15	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033278	636953.88	4271097.20	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21BIN	L0033279	636964.50	4271110.30	9.16	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033280	636975.12	4271123.40	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033281	636985.74	4271136.51	9.15	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033282	636996.36	4271149.61	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033283	637006.98	4271162.71	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033284	637017.60	4271175.81	9.18	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033285	637028.22	4271188.92	9.29	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033286	637038.84	4271202.02	9.40	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033287	637049.46	4271215.12	9.45	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033288	637060.08	4271228.22	9.45	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033289	637070.70	4271241.33	9.45	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033290	637081.32	4271254.43	9.50	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033291	637091.94	4271267.53	9.64	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033292	637102.56	4271280.64	9.75	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033293	637113.18	4271293.74	9.75	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033294	637123.80	4271306.84	9.75	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033295	637134.42	4271319.94	9.76	2.07	0.00002	8.44	Surface-Based	7.84	1.93

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21BOUT	L0033296	637297.59	4270085.68	7.79	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033297	637299.86	4270068.98	7.76	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033298	637302.13	4270052.28	7.74	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033299	637304.41	4270035.59	7.72	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033300	637306.68	4270018.89	7.69	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033301	637308.96	4270002.19	7.69	2.07	0.00002	8.44	Surface-Based	7.84	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21BOUT	L0033302	637311.23	4269985.49	7.83	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033303	637313.51	4269968.79	7.92	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033304	637315.78	4269952.10	7.72	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033305	637318.05	4269935.40	7.47	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033306	637320.33	4269918.70	7.21	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033307	637322.60	4269902.00	7.34	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033308	637324.88	4269885.30	7.80	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033309	637329.00	4269868.97	7.77	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033310	637333.22	4269852.66	7.74	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033311	637337.44	4269836.34	7.83	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033312	637341.84	4269820.08	7.93	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033313	637347.57	4269804.23	7.89	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033314	637353.30	4269788.38	7.83	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033315	637359.03	4269772.54	7.77	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033316	637364.77	4269756.69	7.80	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033317	637370.50	4269740.84	7.90	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033318	637376.23	4269724.99	7.82	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033319	637381.96	4269709.15	7.79	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033320	637387.69	4269693.30	7.84	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033321	637393.43	4269677.45	7.91	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033322	637399.16	4269661.61	7.95	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033323	637404.89	4269645.76	7.87	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033324	637410.62	4269629.91	7.72	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033325	637416.34	4269614.06	7.92	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033326	637420.73	4269597.79	7.92	2.07	0.00002	8.44	Surface-Based	7.84	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21BOUT	L0033327	637425.12	4269581.52	7.93	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033328	637429.52	4269565.25	7.95	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033329	637433.91	4269548.98	7.93	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033330	637438.30	4269532.71	7.91	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033331	637442.70	4269516.44	7.92	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033332	637447.09	4269500.17	7.92	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033333	637451.48	4269483.90	7.97	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033334	637455.87	4269467.63	8.00	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033335	637462.77	4269452.26	8.07	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033336	637469.76	4269436.93	8.15	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033337	637476.76	4269421.60	8.37	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033338	637483.75	4269406.27	8.61	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033339	637490.80	4269390.97	9.02	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033340	637501.11	4269377.63	9.15	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033341	637511.41	4269364.30	9.29	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033342	637521.72	4269350.97	9.35	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033343	637532.03	4269337.64	9.26	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033344	637542.33	4269324.30	8.97	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033345	637552.64	4269310.97	8.63	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033346	637562.94	4269297.64	8.53	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033347	637573.25	4269284.30	8.45	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033348	637583.58	4269270.99	8.24	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033349	637595.21	4269258.80	8.12	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033350	637606.85	4269246.61	8.08	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033351	637618.48	4269234.42	8.12	2.07	0.00002	8.44	Surface-Based	7.84	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21BOUT	L0033352	637630.12	4269222.23	8.30	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033353	637641.76	4269210.04	8.54	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033354	637653.39	4269197.85	8.86	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033355	637665.03	4269185.65	9.11	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033356	637676.66	4269173.46	9.12	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033357	637688.30	4269161.27	9.16	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033358	637699.94	4269149.08	9.17	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033359	637711.57	4269136.89	9.13	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033360	637723.21	4269124.70	9.18	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033361	637734.84	4269112.51	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033362	637746.48	4269100.32	9.17	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033363	637758.12	4269088.13	9.18	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033364	637769.16	4269075.64	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033365	637772.23	4269059.07	9.26	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033366	637775.30	4269042.50	9.34	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033367	637778.37	4269025.93	9.40	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033368	637781.44	4269009.36	9.45	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033369	637784.51	4268992.79	9.45	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033370	637787.39	4268976.20	9.54	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033371	637787.92	4268959.36	9.71	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033372	637788.45	4268942.51	9.75	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033373	637788.97	4268925.67	9.75	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033374	637789.50	4268908.82	9.78	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033375	637790.03	4268891.98	9.82	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033376	637790.55	4268875.14	9.97	2.07	0.00002	8.44	Surface-Based	7.84	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21BOUT	L0033377	637791.08	4268858.29	10.06	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033378	637791.61	4268841.45	10.06	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033379	637792.13	4268824.61	10.06	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033380	637792.66	4268807.76	10.06	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033381	637793.18	4268790.92	10.06	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033382	637793.71	4268774.07	10.06	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033383	637794.24	4268757.23	10.06	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033384	637794.76	4268740.39	10.06	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033385	637795.29	4268723.54	10.06	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033386	637795.82	4268706.70	10.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033387	637796.34	4268689.85	10.31	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033388	637796.87	4268673.01	10.36	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033389	637797.40	4268656.17	10.36	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033390	637797.92	4268639.32	10.36	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033391	637798.45	4268622.48	10.36	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033392	637798.97	4268605.63	10.36	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033393	637799.50	4268588.79	10.36	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033394	637800.03	4268571.95	10.36	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033395	637800.55	4268555.10	10.44	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033396	637801.08	4268538.26	10.57	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033397	637801.61	4268521.41	10.63	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033398	637802.93	4268504.81	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033399	637815.21	4268496.65	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033400	637832.06	4268496.71	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033401	637848.91	4268496.77	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21BOUT	L0033402	637865.76	4268496.83	10.58	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033403	637882.62	4268496.89	10.45	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033404	637899.47	4268496.95	10.44	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033405	637916.32	4268497.01	10.44	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033406	637933.17	4268497.07	10.44	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033407	637950.02	4268497.13	10.44	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033408	637966.88	4268497.20	10.44	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033409	637983.73	4268497.26	10.42	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033410	638000.58	4268497.32	10.37	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033411	638017.43	4268497.38	10.36	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033412	638034.28	4268497.44	10.36	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033413	638051.14	4268497.50	10.36	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033414	638067.99	4268497.56	10.36	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033415	638084.84	4268497.62	10.36	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033416	638101.69	4268497.68	10.36	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033417	638118.54	4268497.75	10.36	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033418	638135.40	4268497.81	10.39	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033419	638152.25	4268497.87	10.43	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033420	638169.10	4268497.93	10.43	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033421	638185.95	4268497.99	10.43	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033422	638202.80	4268498.05	10.43	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033423	638219.15	4268495.83	10.49	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033424	638235.02	4268491.66	10.62	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033425	638251.86	4268492.16	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033426	638268.71	4268492.65	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21BOUT	L0033427	638285.55	4268493.15	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033428	638302.39	4268493.64	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033429	638319.24	4268494.14	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033430	638336.08	4268494.63	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033431	638352.93	4268495.13	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033432	638369.77	4268495.63	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033433	638386.30	4268498.14	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033434	638401.78	4268504.43	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033435	638415.83	4268513.72	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033436	638426.79	4268525.98	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033437	638435.00	4268540.70	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033438	638443.20	4268555.42	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033439	638451.41	4268570.14	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033440	638459.61	4268584.86	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033441	638467.82	4268599.58	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033442	638478.42	4268612.02	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033443	638492.73	4268620.92	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033444	638507.82	4268628.18	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033445	638523.74	4268633.73	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033446	638540.12	4268636.51	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033447	638556.97	4268636.51	10.80	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033448	638573.82	4268636.51	10.97	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033449	638590.67	4268636.51	10.97	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033450	638599.43	4268644.60	10.97	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033451	638599.42	4268661.45	10.97	2.07	0.00002	8.44	Surface-Based	7.84	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21BOUT	L0033452	638599.40	4268678.30	10.97	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033453	638599.38	4268695.15	11.06	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033454	638599.37	4268712.00	11.21	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033455	638599.35	4268728.86	11.23	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033456	638599.34	4268745.71	11.24	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033457	638599.32	4268762.56	11.41	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033458	638599.31	4268779.41	11.57	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033459	638599.29	4268796.26	11.72	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033460	638599.27	4268813.12	11.88	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033461	638599.26	4268829.97	12.05	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033462	638599.24	4268846.82	12.12	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033463	638599.23	4268863.67	12.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033464	638599.21	4268880.53	12.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033465	638599.20	4268897.38	12.12	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033466	638599.18	4268914.23	11.95	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033467	638599.16	4268931.08	11.45	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033468	638599.15	4268947.93	10.40	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033469	638599.13	4268964.79	9.69	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033470	638599.12	4268981.64	9.23	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033471	638599.10	4268998.49	9.01	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033472	638599.09	4269015.34	8.83	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033473	638599.07	4269032.19	8.49	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033474	638599.05	4269049.05	8.19	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033475	638599.04	4269065.90	8.02	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033476	638599.02	4269082.75	7.85	2.07	0.00002	8.44	Surface-Based	7.84	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21BOUT	L0033477	638599.01	4269099.60	7.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033478	638598.99	4269116.46	7.03	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033479	638598.98	4269133.31	6.18	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033480	638598.96	4269150.16	6.10	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033481	638598.95	4269167.01	6.10	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033482	638598.93	4269183.86	6.10	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033483	638598.91	4269200.72	6.10	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033484	638598.90	4269217.57	6.10	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033485	638598.88	4269234.42	6.58	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033486	638598.87	4269251.27	7.43	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033487	638598.85	4269268.12	7.75	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033488	638598.84	4269284.98	7.92	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033489	638598.82	4269301.83	7.92	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033490	638598.80	4269318.68	7.92	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033491	638598.79	4269335.53	7.92	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033492	638598.77	4269352.39	8.00	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033493	638598.76	4269369.24	8.17	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033494	638598.74	4269386.09	8.23	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033495	638598.73	4269402.94	8.23	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033496	638598.71	4269419.79	8.23	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033497	638598.69	4269436.65	8.25	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033498	638598.68	4269453.50	8.42	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033499	638598.66	4269470.35	8.53	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033500	638598.65	4269487.20	8.53	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033501	638598.63	4269504.05	8.53	2.07	0.00002	8.44	Surface-Based	7.84	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21BOUT	L0033502	638598.62	4269520.91	8.53	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033503	638598.60	4269537.76	8.66	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033504	638598.59	4269554.61	8.84	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033505	638598.57	4269571.46	8.84	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033506	638598.55	4269588.32	8.87	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033507	638598.54	4269605.17	9.04	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033508	638598.52	4269622.02	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033509	638598.51	4269638.87	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033510	638598.49	4269655.72	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033511	638598.48	4269672.58	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033512	638598.46	4269689.43	9.29	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033513	638598.44	4269706.28	9.45	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033514	638598.43	4269723.13	9.45	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033515	638598.41	4269739.98	9.45	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033516	638598.40	4269756.84	9.45	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033517	638598.38	4269773.69	9.45	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033518	638598.37	4269790.54	9.45	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033519	638598.35	4269807.39	9.45	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033520	638598.33	4269824.25	9.45	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033521	638598.32	4269841.10	9.61	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033522	638598.30	4269857.95	9.75	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033523	638598.29	4269874.80	9.75	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033524	638598.27	4269891.65	9.75	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033525	638598.26	4269908.51	9.75	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033526	638598.24	4269925.36	9.86	2.07	0.00002	8.44	Surface-Based	7.84	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21BOUT	L0033527	638598.22	4269942.21	10.03	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033528	638598.21	4269959.06	10.06	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033529	638598.19	4269975.91	10.06	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033530	638598.18	4269992.77	10.06	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033531	638598.16	4270009.62	10.10	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033532	638598.15	4270026.47	10.23	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033533	638598.13	4270043.32	10.32	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033534	638598.12	4270060.18	10.35	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033535	638598.10	4270077.03	10.36	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033536	638598.08	4270093.88	10.36	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033537	638598.07	4270110.73	10.36	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033538	638598.05	4270127.58	10.39	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033539	638598.04	4270144.44	10.56	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033540	638598.02	4270161.29	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033541	638598.01	4270178.14	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033542	638597.99	4270194.99	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033543	638597.97	4270211.84	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033544	638596.57	4270228.57	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033545	638593.56	4270245.15	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033546	638583.29	4270258.51	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033547	638573.00	4270271.85	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033548	638562.71	4270285.20	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033549	638552.42	4270298.54	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033550	638542.13	4270311.89	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033551	638531.84	4270325.23	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21BOUT	L0033552	638520.09	4270337.13	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033553	638506.81	4270347.51	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033554	638493.53	4270357.88	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033555	638480.25	4270368.26	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033556	638465.39	4270376.17	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033557	638450.43	4270383.92	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033558	638435.46	4270391.67	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033559	638420.50	4270399.42	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033560	638405.54	4270407.18	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033561	638390.57	4270414.93	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033562	638375.61	4270422.68	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033563	638360.65	4270430.43	10.70	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033564	638345.68	4270438.18	10.77	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033565	638330.72	4270445.93	10.76	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033566	638315.76	4270453.68	10.68	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033567	638300.79	4270461.44	10.68	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033568	638285.83	4270469.19	10.76	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033569	638270.86	4270476.94	10.90	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033570	638255.90	4270484.69	10.79	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033571	638240.94	4270492.44	10.69	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033572	638225.97	4270500.19	10.76	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033573	638211.01	4270507.94	10.73	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033574	638196.05	4270515.70	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033575	638181.08	4270523.45	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033576	638166.12	4270531.20	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21BOUT	L0033577	638151.71	4270539.55	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033578	638142.79	4270553.85	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033579	638133.87	4270568.15	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033580	638124.95	4270582.45	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033581	638116.03	4270596.74	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033582	638107.11	4270611.04	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033583	638098.19	4270625.34	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033584	638089.27	4270639.64	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033585	638080.35	4270653.93	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033586	638071.43	4270668.23	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033587	638062.51	4270682.53	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033588	638053.59	4270696.83	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033589	638045.03	4270711.23	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033590	638044.73	4270728.08	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033591	638044.43	4270744.93	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033592	638044.12	4270761.78	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033593	638043.82	4270778.63	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033594	638043.52	4270795.48	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033595	638043.22	4270812.33	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033596	638042.91	4270829.18	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033597	638042.61	4270846.03	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033598	638042.31	4270862.88	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033599	638042.01	4270879.73	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033600	638041.70	4270896.58	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033601	638041.40	4270913.42	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21BOUT	L0033602	638041.10	4270930.27	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033603	638040.80	4270947.12	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033604	638040.50	4270963.97	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033605	638040.19	4270980.82	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033606	638039.89	4270997.67	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033607	638039.59	4271014.52	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033608	638039.29	4271031.37	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033609	638038.98	4271048.22	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033610	638038.68	4271065.07	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033611	638038.38	4271081.92	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033612	638038.08	4271098.77	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033613	638037.77	4271115.62	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033614	638037.47	4271132.47	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033615	638037.17	4271149.32	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033616	638036.87	4271166.17	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033617	638036.56	4271183.02	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033618	638036.26	4271199.87	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033619	638035.96	4271216.71	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033620	638035.66	4271233.56	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033621	638035.36	4271250.41	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033622	638035.05	4271267.26	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033623	638034.75	4271284.11	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033624	638034.45	4271300.96	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033625	638034.15	4271317.81	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033626	638033.84	4271334.66	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21BOUT	L0033627	638033.54	4271351.51	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033628	638033.24	4271368.36	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033629	638032.94	4271385.21	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033630	638032.63	4271402.06	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033631	638032.33	4271418.91	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033632	638032.03	4271435.76	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033633	638031.73	4271452.61	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033634	638031.42	4271469.46	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033635	638031.12	4271486.31	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033636	638030.82	4271503.16	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033637	638030.52	4271520.00	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033638	638030.21	4271536.85	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033639	638029.91	4271553.70	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033640	638029.61	4271570.55	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033641	638029.31	4271587.40	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033642	638029.01	4271604.25	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033643	638028.70	4271621.10	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033644	638028.40	4271637.95	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033645	638028.10	4271654.80	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033646	638027.80	4271671.65	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033647	638027.49	4271688.50	10.60	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033648	638027.19	4271705.35	10.25	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033649	638026.89	4271722.20	10.00	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033650	638026.59	4271739.05	9.87	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033651	638026.28	4271755.90	9.80	2.07	0.00002	8.44	Surface-Based	7.84	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21BOUT	L0033652	638025.98	4271772.75	9.76	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033653	638025.68	4271789.60	9.75	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033654	638025.38	4271806.45	9.74	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033655	638025.07	4271823.29	9.57	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033656	638024.77	4271840.14	9.45	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033657	638024.47	4271856.99	9.45	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033658	638024.17	4271873.84	8.75	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033659	638023.87	4271890.69	7.44	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033660	638023.56	4271907.54	7.96	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033661	638023.26	4271924.39	9.11	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033662	638022.96	4271941.24	9.31	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033663	638022.66	4271958.09	9.45	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033664	638022.35	4271974.94	9.45	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033665	638022.05	4271991.79	9.52	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033666	638021.75	4272008.64	9.69	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033667	638021.45	4272025.49	9.75	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033668	638021.14	4272042.34	9.75	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033669	638020.84	4272059.19	9.90	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033670	638020.54	4272076.04	10.07	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033671	638020.24	4272092.89	10.24	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033672	638019.93	4272109.73	10.36	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033673	638019.63	4272126.58	10.36	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033674	638019.33	4272143.43	10.45	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033675	638019.03	4272160.28	10.62	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033676	638018.72	4272177.13	10.73	2.07	0.00002	8.44	Surface-Based	7.84	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21BOUT	L0033677	638018.42	4272193.98	10.81	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033678	638018.12	4272210.83	10.90	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033679	638017.82	4272227.68	11.00	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033680	638017.52	4272244.53	11.17	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033681	638017.21	4272261.38	11.34	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033682	638016.91	4272278.23	11.51	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033683	638016.61	4272295.08	11.75	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033684	638016.31	4272311.93	12.02	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033685	638016.00	4272328.78	12.13	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033686	638015.70	4272345.63	12.19	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033687	638004.73	4272351.57	12.19	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033688	637987.88	4272351.51	12.06	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033689	637971.03	4272351.45	11.95	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033690	637954.17	4272351.39	11.91	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033691	637937.32	4272351.33	11.89	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033692	637920.47	4272351.27	11.89	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033693	637903.62	4272351.21	11.91	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033694	637886.76	4272351.15	11.94	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033695	637869.91	4272351.09	12.06	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033696	637853.06	4272351.03	12.19	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033697	637836.21	4272350.97	12.19	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033698	637819.36	4272350.91	12.24	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033699	637802.50	4272350.85	12.41	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033700	637785.65	4272350.79	12.40	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033701	637768.80	4272350.73	12.19	2.07	0.00002	8.44	Surface-Based	7.84	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21BOUT	L0033702	637751.95	4272350.67	11.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033703	637735.10	4272350.61	11.02	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033704	637718.24	4272350.55	9.21	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033705	637701.39	4272350.49	7.74	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033706	637684.54	4272350.43	8.50	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033707	637667.69	4272350.37	9.23	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033708	637650.84	4272350.31	9.90	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033709	637633.98	4272350.25	10.05	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033710	637617.13	4272350.19	9.84	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033711	637603.91	4272353.89	9.61	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033712	637603.38	4272370.73	9.71	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033713	637602.84	4272387.58	9.72	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033714	637602.31	4272404.42	9.70	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033715	637601.77	4272421.26	9.39	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033716	637601.24	4272438.11	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033717	637600.70	4272454.95	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033718	637600.16	4272471.80	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033719	637599.63	4272488.64	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033720	637599.09	4272505.48	9.09	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033721	637598.56	4272522.33	9.01	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033722	637598.02	4272539.17	9.07	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033723	637597.49	4272556.01	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033724	637596.95	4272572.86	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033725	637596.42	4272589.70	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033726	637595.88	4272606.54	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21BOUT	L0033727	637595.35	4272623.39	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033728	637594.81	4272640.23	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033729	637594.28	4272657.08	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033730	637593.74	4272673.92	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033731	637593.21	4272690.76	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033732	637592.67	4272707.61	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033733	637592.13	4272724.45	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033734	637591.60	4272741.29	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033735	637591.06	4272758.14	9.14	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033736	637590.53	4272774.98	9.17	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033737	637589.99	4272791.82	9.20	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033738	637589.46	4272808.67	9.20	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033739	637588.92	4272825.51	9.19	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033740	637588.39	4272842.36	9.16	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033741	637587.85	4272859.20	9.15	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033742	637587.32	4272876.04	9.17	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033743	637586.78	4272892.89	9.18	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033744	637586.25	4272909.73	9.19	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033745	637585.71	4272926.57	9.28	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033746	637585.17	4272943.42	9.43	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033747	637584.64	4272960.26	9.61	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033748	637584.10	4272977.11	9.78	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033749	637583.57	4272993.95	9.94	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033750	637583.03	4273010.79	10.11	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033751	637582.50	4273027.64	10.29	2.07	0.00002	8.44	Surface-Based	7.84	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21BOUT	L0033752	637579.93	4273044.11	10.46	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033753	637574.45	4273060.04	10.62	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033754	637568.97	4273075.98	10.78	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033755	637563.49	4273091.92	10.94	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033756	637558.02	4273107.85	11.09	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033757	637552.54	4273123.79	11.28	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033758	637547.06	4273139.73	11.46	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033759	637540.38	4273154.92	11.58	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033760	637528.56	4273166.94	11.69	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033761	637516.75	4273178.95	11.91	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033762	637504.93	4273190.97	12.08	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033763	637493.12	4273202.99	12.20	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033764	637481.30	4273215.00	12.19	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033765	637468.94	4273226.31	12.19	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033766	637454.42	4273234.87	12.29	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033767	637439.90	4273243.42	12.44	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033768	637425.38	4273251.98	12.50	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033769	637410.86	4273260.53	12.50	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033770	637396.34	4273269.09	12.50	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033771	637381.82	4273277.64	12.50	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033772	637367.30	4273286.20	12.50	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033773	637352.78	4273294.75	12.50	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033774	637338.26	4273303.31	12.44	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033775	637323.74	4273311.86	12.29	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033776	637309.23	4273320.42	12.19	2.07	0.00002	8.44	Surface-Based	7.84	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21BOUT	L0033777	637294.71	4273328.97	12.19	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033778	637280.19	4273337.53	12.16	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033779	637265.67	4273346.08	12.08	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033780	637251.15	4273354.64	12.09	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033781	637236.63	4273363.19	12.17	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033782	637222.11	4273371.75	12.19	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033783	637207.59	4273380.30	12.19	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033784	637193.07	4273388.86	12.19	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033785	637178.55	4273397.41	12.19	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033786	637164.03	4273405.97	12.19	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033787	637149.51	4273414.52	12.19	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033788	637135.00	4273423.08	12.19	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033789	637120.48	4273431.63	12.02	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033790	637105.96	4273440.19	11.90	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033791	637091.44	4273448.74	11.76	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033792	637076.92	4273457.30	11.61	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033793	637062.40	4273465.85	11.58	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033794	637047.88	4273474.41	11.58	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033795	637033.36	4273482.96	11.47	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033796	637018.84	4273491.52	11.32	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033797	637004.32	4273500.07	11.28	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033798	636989.80	4273508.63	11.28	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033799	636975.28	4273517.18	11.28	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033800	636960.77	4273525.74	11.28	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033801	636946.25	4273534.29	11.20	2.07	0.00002	8.44	Surface-Based	7.84	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21BOUT	L0033802	636931.73	4273542.85	11.05	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033803	636917.21	4273551.40	10.97	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033804	636902.69	4273559.96	10.97	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033805	636888.17	4273568.51	10.97	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033806	636873.65	4273577.07	10.97	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033807	636859.13	4273585.62	10.97	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033808	636844.61	4273594.18	10.97	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033809	636830.09	4273602.73	10.93	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033810	636815.63	4273611.39	10.79	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033811	636801.19	4273620.08	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033812	636786.75	4273628.76	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033813	636772.31	4273637.45	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033814	636757.87	4273646.13	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033815	636743.42	4273654.82	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033816	636728.98	4273663.50	10.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033817	636714.54	4273672.19	10.74	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033818	636700.10	4273680.87	10.83	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033819	636685.66	4273689.56	10.92	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033820	636671.22	4273698.24	10.94	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033821	636656.77	4273706.93	10.85	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033822	636642.33	4273715.61	10.68	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033823	636627.89	4273724.30	10.41	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033824	636613.45	4273732.98	10.17	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033825	636599.01	4273741.67	9.94	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033826	636584.56	4273750.35	9.61	2.07	0.00002	8.44	Surface-Based	7.84	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21BOUT	L0033827	636570.12	4273759.04	9.30	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033828	636555.68	4273767.72	9.24	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033829	636541.24	4273776.41	9.20	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033830	636526.80	4273785.09	9.15	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033831	636512.36	4273793.78	9.23	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033832	636497.91	4273802.46	9.32	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033833	636483.47	4273811.15	9.41	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033834	636469.03	4273819.83	9.41	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033835	636454.59	4273828.52	9.34	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033836	636440.15	4273837.20	9.40	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033837	636425.71	4273845.89	9.67	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033838	636411.26	4273854.57	10.16	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033839	636396.82	4273863.26	10.71	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033840	636382.38	4273871.94	11.45	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033841	636367.94	4273880.63	12.45	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033842	636353.50	4273889.31	13.53	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033843	636339.05	4273898.00	14.29	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033844	636324.61	4273906.68	14.95	2.07	0.00002	8.44	Surface-Based	7.84	1.93
	L0033845	636310.17	4273915.37	14.76	2.07	0.00002	8.44	Surface-Based	7.84	1.93

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21C	L0033846	636614.18	4270691.57	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033847	636601.40	4270702.52	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033848	636588.61	4270713.47	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033849	636575.83	4270724.41	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21C	L0033850	636563.04	4270735.36	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033851	636550.26	4270746.31	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033852	636537.47	4270757.25	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033853	636524.69	4270768.20	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033854	636512.17	4270779.43	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033855	636500.50	4270791.56	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033856	636488.84	4270803.69	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033857	636477.17	4270815.82	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033858	636465.50	4270827.96	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033859	636453.84	4270840.09	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033860	636442.54	4270852.56	9.23	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033861	636431.49	4270865.25	9.39	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033862	636420.43	4270877.94	9.42	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033863	636410.53	4270891.44	9.27	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033864	636402.44	4270906.20	9.27	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033865	636394.34	4270920.95	9.40	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033866	636386.25	4270935.71	9.45	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033867	636378.16	4270950.47	9.39	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033868	636370.07	4270965.23	9.45	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033869	636360.39	4270978.98	9.34	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033870	636350.47	4270992.58	9.16	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033871	636340.56	4271006.18	9.26	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033872	636330.64	4271019.78	9.40	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033873	636320.72	4271033.37	9.42	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033874	636310.80	4271046.97	9.32	2.07	0.00010	8.44	Surface-Based	7.83	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21C	L0033875	636300.47	4271060.24	9.21	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033876	636289.60	4271073.09	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033877	636278.72	4271085.94	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033878	636267.85	4271098.79	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033879	636256.82	4271111.50	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033880	636245.58	4271124.03	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033881	636234.35	4271136.56	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033882	636224.16	4271149.86	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033883	636215.51	4271164.30	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033884	636206.87	4271178.75	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033885	636198.22	4271193.19	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033886	636189.58	4271207.63	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033887	636180.93	4271222.07	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033888	636172.29	4271236.51	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033889	636162.65	4271250.29	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033890	636152.60	4271263.79	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033891	636140.08	4271274.92	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033892	636127.00	4271285.51	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033893	636130.58	4271297.87	9.11	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033894	636141.16	4271310.96	8.98	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033895	636151.98	4271323.81	8.85	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033896	636165.15	4271334.29	8.74	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033897	636178.32	4271344.77	8.64	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033898	636192.75	4271353.24	8.55	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033899	636207.88	4271360.63	8.48	2.07	0.00010	8.44	Surface-Based	7.83	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21C	L0033900	636223.00	4271368.01	8.40	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033901	636238.13	4271375.39	8.33	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033902	636254.85	4271377.27	8.31	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033903	636271.56	4271376.81	8.31	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033904	636288.26	4271374.69	8.33	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033905	636304.95	4271372.50	8.36	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033906	636321.55	4271369.73	8.38	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033907	636338.15	4271366.97	8.41	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033908	636354.75	4271364.20	8.44	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033909	636371.36	4271361.43	8.47	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033910	636387.96	4271358.67	8.50	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033911	636404.57	4271355.97	8.52	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033912	636421.19	4271353.27	8.55	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033913	636437.80	4271350.57	8.58	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033914	636454.62	4271350.35	8.58	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033915	636469.52	4271348.63	8.60	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033916	636466.79	4271332.02	8.77	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033917	636460.64	4271316.52	8.92	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033918	636453.11	4271301.46	9.08	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033919	636444.45	4271288.61	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033920	636457.27	4271277.71	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033921	636470.10	4271266.82	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033922	636483.03	4271256.07	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033923	636497.58	4271247.60	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033924	636512.12	4271239.13	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21C	L0033925	636527.72	4271232.85	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033926	636543.42	4271226.79	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033927	636559.12	4271220.72	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033928	636574.82	4271214.65	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033929	636590.52	4271208.59	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033930	636606.22	4271202.52	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033931	636621.75	4271196.06	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033932	636637.10	4271189.14	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033933	636652.44	4271182.23	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033934	636667.79	4271175.32	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033935	636683.14	4271168.40	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033936	636697.86	4271160.26	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033937	636712.55	4271152.04	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033938	636727.24	4271143.83	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033939	636741.40	4271134.73	9.14	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033940	636755.55	4271125.61	9.26	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033941	636769.69	4271116.49	9.41	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033942	636783.84	4271107.38	9.45	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033943	636797.32	4271097.33	9.45	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033944	636810.38	4271086.72	9.45	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033945	636823.43	4271076.09	9.45	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033946	636836.46	4271065.44	9.45	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033947	636849.49	4271054.79	9.45	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033948	636862.52	4271044.13	9.45	2.07	0.00010	8.44	Surface-Based	7.83	1.93
	L0033949	636875.56	4271033.48	9.45	2.07	0.00010	8.44	Surface-Based	7.83	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21C	L0033950	636888.59	4271022.83	9.45	2.07	0.00010	8.44	Surface-Based	7.83	1.93

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21D	L0033951	635535.59	4273200.40	7.88	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033952	635551.47	4273194.90	7.85	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033953	635567.35	4273189.40	7.69	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033954	635583.23	4273183.90	7.63	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033955	635599.11	4273178.39	7.63	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033956	635614.99	4273172.89	7.78	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033957	635630.87	4273167.39	8.05	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033958	635646.75	4273161.89	8.42	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033959	635662.63	4273156.39	8.80	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033960	635678.51	4273150.89	8.97	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033961	635694.39	4273145.38	9.15	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033962	635710.27	4273139.88	9.23	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033963	635726.15	4273134.38	9.31	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033964	635742.03	4273128.88	9.04	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033965	635757.91	4273123.38	8.68	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033966	635773.79	4273117.88	8.16	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033967	635789.67	4273112.37	7.90	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033968	635805.71	4273107.38	7.80	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033969	635821.83	4273102.64	7.76	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033970	635837.96	4273097.89	7.87	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033971	635854.08	4273093.15	7.91	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033972	635870.20	4273088.41	7.86	2.07	0.00009	8.44	Surface-Based	7.82	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21D	L0033973	635886.33	4273083.67	7.81	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033974	635902.52	4273079.30	7.77	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033975	635919.28	4273078.08	7.84	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033976	635936.04	4273076.86	7.92	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033977	635952.80	4273075.64	7.92	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033978	635969.56	4273074.42	7.92	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033979	635986.32	4273073.20	7.92	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033980	636003.09	4273071.98	7.92	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033981	636019.85	4273070.76	7.92	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033982	636036.61	4273069.54	7.92	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033983	636053.37	4273068.32	7.92	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033984	636070.13	4273067.09	7.92	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033985	636086.89	4273065.87	7.92	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033986	636103.65	4273064.65	7.92	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033987	636120.42	4273063.43	7.99	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033988	636137.18	4273062.21	8.14	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033989	636153.94	4273060.99	8.20	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033990	636170.70	4273059.77	8.22	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033991	636187.46	4273058.55	8.37	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033992	636204.22	4273057.33	8.54	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033993	636220.97	4273055.99	8.59	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033994	636237.71	4273054.49	8.67	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033995	636254.45	4273052.99	8.78	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033996	636271.19	4273051.50	8.87	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033997	636287.93	4273050.00	8.96	2.07	0.00009	8.44	Surface-Based	7.82	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21D	L0033998	636304.67	4273048.50	9.01	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0033999	636321.41	4273047.01	9.02	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034000	636338.15	4273045.51	9.04	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034001	636354.89	4273044.01	9.05	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034002	636371.63	4273042.51	8.93	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034003	636388.36	4273041.02	8.88	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034004	636405.10	4273039.52	9.05	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034005	636421.84	4273038.02	9.14	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034006	636438.58	4273036.53	9.14	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034007	636455.32	4273035.03	9.14	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034008	636472.07	4273033.65	9.14	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034009	636488.85	4273032.79	9.14	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034010	636505.63	4273031.92	9.14	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034011	636522.42	4273031.05	9.14	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034012	636539.20	4273030.19	9.14	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034013	636555.99	4273029.32	9.14	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034014	636572.77	4273028.45	9.14	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034015	636589.55	4273027.59	9.14	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034016	636606.34	4273026.72	9.14	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034017	636623.12	4273025.86	9.14	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034018	636639.90	4273024.99	9.14	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034019	636656.69	4273024.12	9.14	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034020	636673.47	4273023.26	9.14	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034021	636690.25	4273022.39	9.14	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034022	636707.04	4273021.52	9.14	2.07	0.00009	8.44	Surface-Based	7.82	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21D	L0034023	636723.82	4273020.66	9.14	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034024	636740.60	4273019.79	9.14	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034025	636757.39	4273018.93	9.14	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034026	636774.17	4273018.06	9.14	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034027	636790.95	4273017.26	9.04	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034028	636807.73	4273018.24	8.96	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034029	636824.51	4273019.21	8.89	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034030	636841.29	4273020.19	8.84	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034031	636858.06	4273021.17	8.84	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034032	636874.84	4273022.14	8.84	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034033	636891.62	4273023.12	8.84	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034034	636908.40	4273024.09	8.89	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034035	636925.17	4273025.07	8.94	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034036	636941.95	4273026.04	8.88	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034037	636958.73	4273027.02	8.83	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034038	636975.45	4273028.52	8.79	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034039	636992.11	4273030.79	8.80	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034040	637008.76	4273033.06	8.82	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034041	637025.41	4273035.34	8.84	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034042	637042.06	4273037.61	8.87	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034043	637058.71	4273039.88	8.89	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034044	637075.36	4273042.15	8.91	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034045	637092.02	4273044.42	8.94	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034046	637108.67	4273046.69	8.99	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034047	637125.32	4273048.96	9.10	2.07	0.00009	8.44	Surface-Based	7.82	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21D	L0034048	637141.97	4273051.23	9.54	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034049	637158.62	4273053.50	10.34	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034050	637175.27	4273055.77	11.03	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034051	637191.93	4273058.04	11.61	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034052	637208.58	4273060.31	11.41	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034053	637225.23	4273062.58	11.14	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034054	637241.88	4273064.85	11.34	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034055	637258.39	4273068.01	11.79	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034056	637274.89	4273071.20	12.47	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034057	637291.39	4273074.39	12.64	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034058	637307.89	4273077.57	12.41	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034059	637324.39	4273080.76	12.60	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034060	637340.89	4273083.95	13.02	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034061	637357.39	4273087.13	12.97	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034062	637373.89	4273090.32	12.80	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034063	637390.39	4273093.51	12.94	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034064	637406.90	4273096.69	13.06	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034065	637423.40	4273099.88	12.86	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034066	637439.90	4273103.06	12.66	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034067	637456.40	4273106.25	12.46	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034068	637472.90	4273109.44	12.12	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034069	637489.40	4273112.62	11.74	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034070	637505.90	4273115.81	11.58	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034071	637522.40	4273119.00	11.48	2.07	0.00009	8.44	Surface-Based	7.82	1.93
	L0034072	637538.90	4273122.18	11.39	2.07	0.00009	8.44	Surface-Based	7.82	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21E	L0034073	636587.41	4270385.80	10.67	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034074	636603.03	4270391.81	10.67	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034075	636618.65	4270397.81	10.67	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034076	636634.27	4270403.82	10.67	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034077	636649.88	4270409.82	10.67	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034078	636665.50	4270415.83	10.67	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034079	636681.12	4270421.83	10.67	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034080	636696.74	4270427.84	10.67	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034081	636712.36	4270433.84	10.67	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034082	636727.98	4270439.85	10.67	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034083	636743.60	4270445.86	10.67	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034084	636759.22	4270451.86	10.51	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034085	636774.84	4270457.87	10.36	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034086	636790.45	4270463.87	10.31	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034087	636806.07	4270469.88	10.20	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034088	636821.69	4270475.88	10.10	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034089	636837.31	4270481.89	10.06	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034090	636852.93	4270487.89	10.06	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034091	636868.55	4270493.90	10.06	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034092	636884.17	4270499.90	10.06	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034093	636899.79	4270505.91	10.12	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034094	636915.41	4270511.92	10.28	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034095	636931.03	4270517.92	10.36	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034096	636946.64	4270523.93	10.36	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034097	636962.26	4270529.93	10.41	2.07	0.00015	8.44	Surface-Based	7.78	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21E	L0034098	636977.88	4270535.94	10.44	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034099	636993.50	4270541.94	10.48	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034100	637009.12	4270547.95	10.59	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034101	637024.74	4270553.95	10.61	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034102	637040.36	4270559.96	10.65	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034103	637055.98	4270565.97	10.67	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034104	637071.60	4270571.97	10.67	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034105	637087.21	4270577.98	10.65	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034106	637102.83	4270583.98	10.58	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034107	637118.45	4270589.99	10.51	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034108	637134.07	4270595.99	10.45	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034109	637149.69	4270602.00	10.38	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034110	637165.31	4270608.00	10.33	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034111	637180.93	4270614.01	10.32	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034112	637196.55	4270620.01	10.38	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034113	637205.08	4270628.87	10.39	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034114	637197.96	4270644.02	10.27	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034115	637190.85	4270659.16	10.09	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034116	637183.74	4270674.31	9.86	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034117	637176.63	4270689.46	9.63	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034118	637169.51	4270704.61	9.47	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034119	637162.40	4270719.75	9.45	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034120	637155.05	4270734.77	9.38	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034121	637145.87	4270748.75	9.35	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034122	637136.68	4270762.74	9.35	2.07	0.00015	8.44	Surface-Based	7.78	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21E	L0034123	637127.50	4270776.73	9.27	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034124	637118.31	4270790.72	9.30	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034125	637108.41	4270804.19	9.40	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034126	637097.98	4270817.27	9.43	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034127	637087.55	4270830.35	9.38	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034128	637077.12	4270843.44	9.42	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034129	637066.68	4270856.52	9.36	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034130	637056.06	4270869.44	9.35	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034131	637044.71	4270881.74	9.37	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034132	637033.36	4270894.03	9.32	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034133	637022.01	4270906.33	9.36	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034134	637010.66	4270918.62	9.32	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034135	636999.00	4270930.59	9.32	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034136	636986.10	4270941.25	9.43	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034137	636973.20	4270951.91	9.45	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034138	636960.30	4270962.57	9.45	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034139	636947.40	4270973.22	9.45	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034140	636934.49	4270983.88	9.45	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034141	636921.59	4270994.54	9.45	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034142	636908.69	4271005.20	9.45	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034143	636895.79	4271015.85	9.45	2.07	0.00015	8.44	Surface-Based	7.78	1.93

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21F	L0034144	636812.75	4270149.61	10.67	2.07	0.00033	8.44	Surface-Based	7.60	1.93
	L0034145	636827.80	4270156.00	10.67	2.07	0.00033	8.44	Surface-Based	7.60	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21F	L0034146	636842.85	4270162.38	10.67	2.07	0.00033	8.44	Surface-Based	7.60	1.93
	L0034147	636857.90	4270168.77	10.67	2.07	0.00033	8.44	Surface-Based	7.60	1.93
	L0034148	636872.95	4270175.16	10.67	2.07	0.00033	8.44	Surface-Based	7.60	1.93
	L0034149	636888.00	4270181.55	10.67	2.07	0.00033	8.44	Surface-Based	7.60	1.93
	L0034150	636903.26	4270187.40	10.67	2.07	0.00033	8.44	Surface-Based	7.60	1.93
	L0034151	636918.56	4270193.18	10.67	2.07	0.00033	8.44	Surface-Based	7.60	1.93
	L0034152	636933.85	4270198.96	10.67	2.07	0.00033	8.44	Surface-Based	7.60	1.93
	L0034153	636949.14	4270204.74	10.67	2.07	0.00033	8.44	Surface-Based	7.60	1.93
	L0034154	636964.44	4270210.52	10.67	2.07	0.00033	8.44	Surface-Based	7.60	1.93
	L0034155	636979.73	4270216.30	10.67	2.07	0.00033	8.44	Surface-Based	7.60	1.93
	L0034156	636995.02	4270222.07	10.67	2.07	0.00033	8.44	Surface-Based	7.60	1.93
	L0034157	637010.32	4270227.85	10.67	2.07	0.00033	8.44	Surface-Based	7.60	1.93
	L0034158	637025.52	4270233.87	10.67	2.07	0.00033	8.44	Surface-Based	7.60	1.93
	L0034159	637040.66	4270240.04	10.67	2.07	0.00033	8.44	Surface-Based	7.60	1.93
	L0034160	637055.80	4270246.20	10.67	2.07	0.00033	8.44	Surface-Based	7.60	1.93
	L0034161	637070.94	4270252.37	10.67	2.07	0.00033	8.44	Surface-Based	7.60	1.93
	L0034162	637086.09	4270258.53	10.67	2.07	0.00033	8.44	Surface-Based	7.60	1.93
	L0034163	637098.67	4270259.55	10.67	2.07	0.00033	8.44	Surface-Based	7.60	1.93
	L0034164	637102.86	4270243.75	10.67	2.07	0.00033	8.44	Surface-Based	7.60	1.93
	L0034165	637107.06	4270227.95	10.67	2.07	0.00033	8.44	Surface-Based	7.60	1.93
	L0034166	637111.25	4270212.15	10.67	2.07	0.00033	8.44	Surface-Based	7.60	1.93
	L0034167	637115.45	4270196.35	10.67	2.07	0.00033	8.44	Surface-Based	7.60	1.93
	L0034168	637119.64	4270180.55	10.64	2.07	0.00033	8.44	Surface-Based	7.60	1.93
	L0034169	637123.84	4270164.74	10.53	2.07	0.00033	8.44	Surface-Based	7.60	1.93
	L0034170	637128.03	4270148.94	10.36	2.07	0.00033	8.44	Surface-Based	7.60	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21F	L0034171	637132.23	4270133.14	10.16	2.07	0.00033	8.44	Surface-Based	7.60	1.93
	L0034172	637136.42	4270117.34	10.03	2.07	0.00033	8.44	Surface-Based	7.60	1.93
	L0034173	637140.62	4270101.54	9.99	2.07	0.00033	8.44	Surface-Based	7.60	1.93
	L0034174	637144.81	4270085.74	9.85	2.07	0.00033	8.44	Surface-Based	7.60	1.93
	L0034175	637149.01	4270069.94	9.65	2.07	0.00033	8.44	Surface-Based	7.60	1.93

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21G	L0034176	637123.66	4270201.93	10.67	2.07	0.00096	8.44	Surface-Based	7.08	1.93
	L0034177	637138.04	4270206.91	10.66	2.07	0.00096	8.44	Surface-Based	7.08	1.93
	L0034178	637152.41	4270211.89	10.65	2.07	0.00096	8.44	Surface-Based	7.08	1.93
	L0034179	637166.79	4270216.88	10.62	2.07	0.00096	8.44	Surface-Based	7.08	1.93
	L0034180	637181.17	4270221.86	10.46	2.07	0.00096	8.44	Surface-Based	7.08	1.93
	L0034181	637195.55	4270226.84	10.36	2.07	0.00096	8.44	Surface-Based	7.08	1.93
	L0034182	637209.93	4270231.82	10.38	2.07	0.00096	8.44	Surface-Based	7.08	1.93
	L0034183	637224.31	4270236.80	10.50	2.07	0.00096	8.44	Surface-Based	7.08	1.93
	L0034184	637238.69	4270241.78	10.42	2.07	0.00096	8.44	Surface-Based	7.08	1.93
	L0034185	637253.07	4270246.76	10.30	2.07	0.00096	8.44	Surface-Based	7.08	1.93
	L0034186	637267.45	4270251.74	9.22	2.07	0.00096	8.44	Surface-Based	7.08	1.93

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21H	L0034187	637156.49	4271333.90	9.91	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034188	637169.87	4271323.87	10.06	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034189	637183.26	4271313.83	10.20	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034190	637196.64	4271303.79	10.50	2.07	0.00015	8.44	Surface-Based	7.78	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21H	L0034191	637210.02	4271293.76	10.66	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034192	637223.40	4271283.72	10.67	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034193	637236.78	4271273.68	10.67	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034194	637250.16	4271263.65	10.64	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034195	637262.43	4271252.52	10.42	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034196	637272.26	4271238.98	10.14	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034197	637282.08	4271225.44	9.96	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034198	637291.90	4271211.90	9.82	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034199	637301.72	4271198.36	9.71	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034200	637308.12	4271183.05	9.57	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034201	637313.46	4271167.20	9.45	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034202	637318.80	4271151.35	9.45	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034203	637324.14	4271135.50	9.35	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034204	637329.49	4271119.65	9.19	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034205	637334.83	4271103.80	9.14	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034206	637340.17	4271087.95	9.14	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034207	637343.33	4271071.57	9.14	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034208	637345.80	4271055.03	9.14	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034209	637348.26	4271038.48	9.00	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034210	637350.72	4271021.94	8.88	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034211	637353.19	4271005.39	8.73	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034212	637355.65	4270988.85	8.52	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034213	637358.12	4270972.30	8.12	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034214	637360.58	4270955.76	7.85	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034215	637363.04	4270939.21	7.75	2.07	0.00015	8.44	Surface-Based	7.78	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21H	L0034216	637365.51	4270922.67	7.67	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034217	637365.99	4270906.08	7.62	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034218	637364.22	4270889.45	7.62	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034219	637362.45	4270872.82	7.62	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034220	637360.69	4270856.18	7.62	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034221	637358.92	4270839.55	7.62	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034222	637357.15	4270822.92	7.62	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034223	637355.38	4270806.28	7.67	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034224	637353.61	4270789.65	7.79	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034225	637351.84	4270773.02	7.76	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034226	637350.07	4270756.38	7.63	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034227	637348.06	4270739.78	7.62	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034228	637345.25	4270723.29	7.62	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034229	637342.45	4270706.80	7.64	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034230	637339.64	4270690.31	7.70	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034231	637336.84	4270673.82	7.86	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034232	637334.03	4270657.33	8.08	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034233	637331.22	4270640.84	8.55	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034234	637328.42	4270624.35	8.71	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034235	637325.61	4270607.86	8.54	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034236	637322.81	4270591.37	8.43	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034237	637320.00	4270574.88	8.35	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034238	637317.20	4270558.39	8.27	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034239	637314.39	4270541.90	8.18	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034240	637311.59	4270525.41	8.14	2.07	0.00015	8.44	Surface-Based	7.78	1.93

Source Pathway - Source Inputs

AERMOD

Line Source ID	Volume Source ID	X Coordinate [m]	Y Coordinate [m]	Base Elevation [m]	Release Height [m[	Emission Rate [g/s]	Length of Side [m]	Building Height [m]	Initial Lateral Dimencion [m]	Initial Vertical Dimencion [m]
SLINE21H	L0034241	637308.78	4270508.92	8.18	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034242	637305.97	4270492.43	8.27	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034243	637303.17	4270475.94	8.33	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034244	637300.36	4270459.45	8.36	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034245	637297.56	4270442.96	8.42	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034246	637294.75	4270426.47	8.51	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034247	637291.95	4270409.98	8.33	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034248	637289.36	4270393.47	8.12	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034249	637288.07	4270376.79	8.15	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034250	637286.77	4270360.11	8.08	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034251	637285.48	4270343.44	7.88	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034252	637284.19	4270326.76	7.98	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034253	637282.89	4270310.08	8.20	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034254	637281.60	4270293.40	8.18	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034255	637280.30	4270276.73	8.09	2.07	0.00015	8.44	Surface-Based	7.78	1.93
	L0034256	637279.01	4270260.05	8.35	2.07	0.00015	8.44	Surface-Based	7.78	1.93

Receptor Pathway

Receptor Networks

Note: Terrain Elavations and Flagpole Heights for Network Grids are in Page RE 2 - 1 (If applicable)
Generated Discrete Receptors for Multi-Tier (Risk) Grid and Receptor Locations for Fenceline Grid are in Page RE3 - 1 (If applicable)

Discrete Receptors

Discrete Cartesian Receptors

Record Number	X-Coordinate [m]	Y-Coordinate [m]	Group Name (Optional)	Terrain Elevations	Flagpole Heights [m] (Optional)
1	637540.00	4268400.00	UCART2	10.82	
2	637580.00	4268400.00	UCART2	10.69	
3	637620.00	4268400.00	UCART2	10.67	
4	637660.00	4268400.00	UCART2	10.67	
5	637700.00	4268400.00	UCART2	10.67	
6	637740.00	4268400.00	UCART2	10.67	
7	637780.00	4268400.00	UCART2	10.67	
8	637820.00	4268400.00	UCART2	10.67	
9	637860.00	4268400.00	UCART2	10.67	
10	637900.00	4268400.00	UCART2	10.67	
11	637940.00	4268400.00	UCART2	10.67	
12	637980.00	4268400.00	UCART2	10.67	
13	638020.00	4268400.00	UCART2	10.67	
14	638060.00	4268400.00	UCART2	10.67	
15	638100.00	4268400.00	UCART2	10.67	
16	638140.00	4268400.00	UCART2	10.67	
17	638180.00	4268400.00	UCART2	10.67	
18	638220.00	4268400.00	UCART2	10.67	
19	638260.00	4268400.00	UCART2	10.67	
20	638300.00	4268400.00	UCART2	10.67	
21	638340.00	4268400.00	UCART2	10.70	
22	638380.00	4268400.00	UCART2	10.74	
23	638420.00	4268400.00	UCART2	10.67	
24	638460.00	4268400.00	UCART2	10.67	
25	638500.00	4268400.00	UCART2	10.67	
26	638540.00	4268400.00	UCART2	10.67	
27	638580.00	4268400.00	UCART2	10.67	
28	638620.00	4268400.00	UCART2	10.67	
29	638660.00	4268400.00	UCART2	10.67	
30	638700.00	4268400.00	UCART2	10.67	

31	638740.00	4268400.00	UCART2	10.67
32	638780.00	4268400.00	UCART2	10.67
33	638820.00	4268400.00	UCART2	10.67
34	638860.00	4268400.00	UCART2	10.67
35	638900.00	4268400.00	UCART2	10.67
36	638940.00	4268400.00	UCART2	10.70
37	637540.00	4268440.00	UCART2	10.67
38	637580.00	4268440.00	UCART2	10.67
39	637620.00	4268440.00	UCART2	10.67
40	637660.00	4268440.00	UCART2	10.67
41	637700.00	4268440.00	UCART2	10.67
42	637740.00	4268440.00	UCART2	10.67
43	637780.00	4268440.00	UCART2	10.67
44	637820.00	4268440.00	UCART2	10.67
45	637860.00	4268440.00	UCART2	10.67
46	637900.00	4268440.00	UCART2	10.67
47	637940.00	4268440.00	UCART2	10.67
48	637980.00	4268440.00	UCART2	10.67
49	638020.00	4268440.00	UCART2	10.67
50	638060.00	4268440.00	UCART2	10.67
51	638100.00	4268440.00	UCART2	10.67
52	638140.00	4268440.00	UCART2	10.67
53	638180.00	4268440.00	UCART2	10.67
54	638220.00	4268440.00	UCART2	10.67
55	638260.00	4268440.00	UCART2	10.67
56	638300.00	4268440.00	UCART2	10.67
57	638340.00	4268440.00	UCART2	10.67
58	638380.00	4268440.00	UCART2	10.67
59	638420.00	4268440.00	UCART2	10.67
60	638460.00	4268440.00	UCART2	10.67
61	638500.00	4268440.00	UCART2	10.67
62	638540.00	4268440.00	UCART2	10.67
63	638580.00	4268440.00	UCART2	10.67
64	638620.00	4268440.00	UCART2	10.80
65	638660.00	4268440.00	UCART2	10.92
66	638700.00	4268440.00	UCART2	10.92
67	638740.00	4268440.00	UCART2	10.79
68	638780.00	4268440.00	UCART2	10.67

69	638820.00	4268440.00	UCART2	10.67
70	638860.00	4268440.00	UCART2	10.67
71	638900.00	4268440.00	UCART2	10.67
72	638940.00	4268440.00	UCART2	10.67
73	637540.00	4268480.00	UCART2	10.67
74	637580.00	4268480.00	UCART2	10.67
75	637620.00	4268480.00	UCART2	10.67
76	637660.00	4268480.00	UCART2	10.67
77	637700.00	4268480.00	UCART2	10.67
78	637740.00	4268480.00	UCART2	10.67
79	637780.00	4268480.00	UCART2	10.67
80	637820.00	4268480.00	UCART2	10.67
81	637860.00	4268480.00	UCART2	10.66
82	637900.00	4268480.00	UCART2	10.62
83	637940.00	4268480.00	UCART2	10.62
84	637980.00	4268480.00	UCART2	10.57
85	638020.00	4268480.00	UCART2	10.36
86	638060.00	4268480.00	UCART2	10.36
87	638100.00	4268480.00	UCART2	10.36
88	638140.00	4268480.00	UCART2	10.50
89	638180.00	4268480.00	UCART2	10.62
90	638220.00	4268480.00	UCART2	10.63
91	638260.00	4268480.00	UCART2	10.67
92	638300.00	4268480.00	UCART2	10.67
93	638340.00	4268480.00	UCART2	10.67
94	638380.00	4268480.00	UCART2	10.67
95	638420.00	4268480.00	UCART2	10.67
96	638460.00	4268480.00	UCART2	10.67
97	638500.00	4268480.00	UCART2	10.67
98	638540.00	4268480.00	UCART2	10.67
99	638580.00	4268480.00	UCART2	10.68
100	638620.00	4268480.00	UCART2	10.86
101	638660.00	4268480.00	UCART2	10.97
102	638700.00	4268480.00	UCART2	10.97
103	638740.00	4268480.00	UCART2	10.97
104	638780.00	4268480.00	UCART2	10.97
105	638820.00	4268480.00	UCART2	10.92
106	638860.00	4268480.00	UCART2	10.69

107	638900.00	4268480.00	UCART2	10.67
108	638940.00	4268480.00	UCART2	10.67
109	637540.00	4268520.00	UCART2	10.67
110	637580.00	4268520.00	UCART2	10.67
111	637620.00	4268520.00	UCART2	10.67
112	637660.00	4268520.00	UCART2	10.67
113	637700.00	4268520.00	UCART2	10.67
114	637740.00	4268520.00	UCART2	10.67
115	637780.00	4268520.00	UCART2	10.67
116	637820.00	4268520.00	UCART2	10.53
117	637860.00	4268520.00	UCART2	10.48
118	637900.00	4268520.00	UCART2	10.36
119	637940.00	4268520.00	UCART2	10.36
120	637980.00	4268520.00	UCART2	10.36
121	638020.00	4268520.00	UCART2	10.36
122	638060.00	4268520.00	UCART2	10.36
123	638100.00	4268520.00	UCART2	10.36
124	638140.00	4268520.00	UCART2	10.36
125	638180.00	4268520.00	UCART2	10.36
126	638220.00	4268520.00	UCART2	10.39
127	638260.00	4268520.00	UCART2	10.60
128	638300.00	4268520.00	UCART2	10.67
129	638340.00	4268520.00	UCART2	10.67
130	638380.00	4268520.00	UCART2	10.67
131	638420.00	4268520.00	UCART2	10.67
132	638460.00	4268520.00	UCART2	10.67
133	638500.00	4268520.00	UCART2	10.67
134	638540.00	4268520.00	UCART2	10.67
135	638580.00	4268520.00	UCART2	10.73
136	638620.00	4268520.00	UCART2	10.97
137	638660.00	4268520.00	UCART2	10.97
138	638700.00	4268520.00	UCART2	10.97
139	638740.00	4268520.00	UCART2	10.97
140	638780.00	4268520.00	UCART2	10.97
141	638820.00	4268520.00	UCART2	10.97
142	638860.00	4268520.00	UCART2	10.89
143	638900.00	4268520.00	UCART2	10.82
144	638940.00	4268520.00	UCART2	10.67

145	637540.00	4268560.00	UCART2	10.67
146	637580.00	4268560.00	UCART2	10.67
147	637620.00	4268560.00	UCART2	10.41
148	637660.00	4268560.00	UCART2	10.55
149	637700.00	4268560.00	UCART2	10.67
150	637740.00	4268560.00	UCART2	10.67
151	637780.00	4268560.00	UCART2	10.53
152	637820.00	4268560.00	UCART2	10.37
153	637860.00	4268560.00	UCART2	10.36
154	637900.00	4268560.00	UCART2	10.36
155	637940.00	4268560.00	UCART2	10.36
156	637980.00	4268560.00	UCART2	10.36
157	638020.00	4268560.00	UCART2	10.36
158	638060.00	4268560.00	UCART2	10.36
159	638100.00	4268560.00	UCART2	10.36
160	638140.00	4268560.00	UCART2	10.36
161	638180.00	4268560.00	UCART2	10.36
162	638220.00	4268560.00	UCART2	10.36
163	638260.00	4268560.00	UCART2	10.39
164	638300.00	4268560.00	UCART2	10.41
165	638340.00	4268560.00	UCART2	10.41
166	638380.00	4268560.00	UCART2	10.55
167	638420.00	4268560.00	UCART2	10.67
168	638460.00	4268560.00	UCART2	10.67
169	638500.00	4268560.00	UCART2	10.67
170	638540.00	4268560.00	UCART2	10.67
171	638580.00	4268560.00	UCART2	10.73
172	638620.00	4268560.00	UCART2	10.97
173	638660.00	4268560.00	UCART2	10.97
174	638700.00	4268560.00	UCART2	10.97
175	638740.00	4268560.00	UCART2	11.11
176	638780.00	4268560.00	UCART2	11.01
177	638820.00	4268560.00	UCART2	10.97
178	638860.00	4268560.00	UCART2	10.97
179	638900.00	4268560.00	UCART2	10.97
180	637500.00	4268600.00	UCART2	10.67
181	637540.00	4268600.00	UCART2	10.67
182	637580.00	4268600.00	UCART2	10.67

183	637620.00	4268600.00	UCART2	10.62
184	637660.00	4268600.00	UCART2	10.55
185	637700.00	4268600.00	UCART2	10.67
186	637740.00	4268600.00	UCART2	10.57
187	637780.00	4268600.00	UCART2	10.36
188	637820.00	4268600.00	UCART2	10.36
189	637860.00	4268600.00	UCART2	10.36
190	637900.00	4268600.00	UCART2	10.36
191	637940.00	4268600.00	UCART2	10.36
192	637980.00	4268600.00	UCART2	10.31
193	638020.00	4268600.00	UCART2	10.31
194	638060.00	4268600.00	UCART2	10.31
195	638100.00	4268600.00	UCART2	10.31
196	638140.00	4268600.00	UCART2	10.31
197	638180.00	4268600.00	UCART2	10.31
198	638220.00	4268600.00	UCART2	10.31
199	638260.00	4268600.00	UCART2	10.34
200	638300.00	4268600.00	UCART2	10.36
201	638340.00	4268600.00	UCART2	10.36
202	638380.00	4268600.00	UCART2	10.50
203	638420.00	4268600.00	UCART2	10.66
204	638460.00	4268600.00	UCART2	10.67
205	638500.00	4268600.00	UCART2	10.67
206	638540.00	4268600.00	UCART2	10.67
207	638580.00	4268600.00	UCART2	10.77
208	638620.00	4268600.00	UCART2	11.00
209	638660.00	4268600.00	UCART2	11.24
210	638700.00	4268600.00	UCART2	11.28
211	638740.00	4268600.00	UCART2	11.28
212	638780.00	4268600.00	UCART2	11.28
213	638820.00	4268600.00	UCART2	11.28
214	638860.00	4268600.00	UCART2	11.28
215	638900.00	4268600.00	UCART2	11.28
216	637500.00	4268640.00	UCART2	10.67
217	637540.00	4268640.00	UCART2	10.67
218	637580.00	4268640.00	UCART2	10.67
219	637620.00	4268640.00	UCART2	10.67
220	637660.00	4268640.00	UCART2	10.67

221	637700.00	4268640.00	UCART2	10.67
222	637740.00	4268640.00	UCART2	10.36
223	637780.00	4268640.00	UCART2	10.36
224	637820.00	4268640.00	UCART2	10.36
225	637860.00	4268640.00	UCART2	10.33
226	637900.00	4268640.00	UCART2	10.21
227	637940.00	4268640.00	UCART2	10.21
228	637980.00	4268640.00	UCART2	10.06
229	638020.00	4268640.00	UCART2	10.06
230	638060.00	4268640.00	UCART2	10.06
231	638100.00	4268640.00	UCART2	10.06
232	638140.00	4268640.00	UCART2	10.06
233	638180.00	4268640.00	UCART2	10.06
234	638220.00	4268640.00	UCART2	10.06
235	638260.00	4268640.00	UCART2	10.14
236	638300.00	4268640.00	UCART2	10.21
237	638340.00	4268640.00	UCART2	10.36
238	638380.00	4268640.00	UCART2	10.36
239	638420.00	4268640.00	UCART2	10.49
240	638460.00	4268640.00	UCART2	10.67
241	638500.00	4268640.00	UCART2	10.67
242	638540.00	4268640.00	UCART2	10.67
243	638580.00	4268640.00	UCART2	10.97
244	638620.00	4268640.00	UCART2	11.14
245	638660.00	4268640.00	UCART2	11.28
246	638700.00	4268640.00	UCART2	11.28
247	638740.00	4268640.00	UCART2	11.28
248	638780.00	4268640.00	UCART2	11.28
249	638820.00	4268640.00	UCART2	11.43
250	638860.00	4268640.00	UCART2	11.43
251	638900.00	4268640.00	UCART2	11.43
252	637500.00	4268680.00	UCART2	10.67
253	637540.00	4268680.00	UCART2	10.67
254	637580.00	4268680.00	UCART2	10.67
255	637620.00	4268680.00	UCART2	10.67
256	637660.00	4268680.00	UCART2	10.67
257	637700.00	4268680.00	UCART2	10.67
258	637740.00	4268680.00	UCART2	10.36

259	637780.00	4268680.00	UCART2	10.36
260	637820.00	4268680.00	UCART2	10.36
261	637860.00	4268680.00	UCART2	10.10
262	637900.00	4268680.00	UCART2	10.06
263	637940.00	4268680.00	UCART2	10.06
264	637980.00	4268680.00	UCART2	10.06
265	638020.00	4268680.00	UCART2	10.06
266	638060.00	4268680.00	UCART2	10.06
267	638100.00	4268680.00	UCART2	10.06
268	638140.00	4268680.00	UCART2	10.06
269	638180.00	4268680.00	UCART2	10.06
270	638220.00	4268680.00	UCART2	10.06
271	638260.00	4268680.00	UCART2	10.06
272	638300.00	4268680.00	UCART2	10.06
273	638340.00	4268680.00	UCART2	10.16
274	638380.00	4268680.00	UCART2	10.36
275	638420.00	4268680.00	UCART2	10.36
276	638460.00	4268680.00	UCART2	10.46
277	638500.00	4268680.00	UCART2	10.67
278	638540.00	4268680.00	UCART2	10.67
279	638580.00	4268680.00	UCART2	10.97
280	638620.00	4268680.00	UCART2	11.14
281	638660.00	4268680.00	UCART2	11.28
282	638700.00	4268680.00	UCART2	11.53
283	638740.00	4268680.00	UCART2	11.53
284	638780.00	4268680.00	UCART2	11.53
285	638820.00	4268680.00	UCART2	11.58
286	638860.00	4268680.00	UCART2	11.72
287	638900.00	4268680.00	UCART2	11.84
288	637300.00	4268720.00	UCART2	10.97
289	637340.00	4268720.00	UCART2	10.97
290	637380.00	4268720.00	UCART2	10.96
291	637420.00	4268720.00	UCART2	10.79
292	637460.00	4268720.00	UCART2	10.67
293	637500.00	4268720.00	UCART2	10.67
294	637540.00	4268720.00	UCART2	10.67
295	637580.00	4268720.00	UCART2	10.67
296	637620.00	4268720.00	UCART2	10.67

297	637660.00	4268720.00	UCART2	10.67
298	637700.00	4268720.00	UCART2	10.40
299	637740.00	4268720.00	UCART2	10.36
300	637780.00	4268720.00	UCART2	10.20
301	637820.00	4268720.00	UCART2	10.06
302	637860.00	4268720.00	UCART2	10.06
303	637900.00	4268720.00	UCART2	10.06
304	637940.00	4268720.00	UCART2	10.06
305	637980.00	4268720.00	UCART2	10.06
306	638020.00	4268720.00	UCART2	10.03
307	638060.00	4268720.00	UCART2	10.01
308	638100.00	4268720.00	UCART2	10.01
309	638140.00	4268720.00	UCART2	10.01
310	638180.00	4268720.00	UCART2	9.79
311	638220.00	4268720.00	UCART2	9.75
312	638260.00	4268720.00	UCART2	9.75
313	638300.00	4268720.00	UCART2	9.97
314	638340.00	4268720.00	UCART2	10.02
315	638380.00	4268720.00	UCART2	10.06
316	638420.00	4268720.00	UCART2	10.28
317	638460.00	4268720.00	UCART2	10.36
318	638500.00	4268720.00	UCART2	10.53
319	638540.00	4268720.00	UCART2	10.67
320	638580.00	4268720.00	UCART2	11.03
321	638620.00	4268720.00	UCART2	11.31
322	638660.00	4268720.00	UCART2	11.55
323	638700.00	4268720.00	UCART2	11.63
324	638740.00	4268720.00	UCART2	11.63
325	638780.00	4268720.00	UCART2	11.85
326	638820.00	4268720.00	UCART2	11.89
327	638860.00	4268720.00	UCART2	11.91
328	638900.00	4268720.00	UCART2	11.94
329	637300.00	4268760.00	UCART2	10.97
330	637340.00	4268760.00	UCART2	10.97
331	637380.00	4268760.00	UCART2	10.91
332	637420.00	4268760.00	UCART2	10.67
333	637460.00	4268760.00	UCART2	10.67
334	637500.00	4268760.00	UCART2	10.67

335	637540.00	4268760.00	UCART2	10.67
336	637580.00	4268760.00	UCART2	10.67
337	637620.00	4268760.00	UCART2	10.67
338	637660.00	4268760.00	UCART2	10.67
339	637700.00	4268760.00	UCART2	10.40
340	637740.00	4268760.00	UCART2	10.36
341	637780.00	4268760.00	UCART2	10.20
342	637820.00	4268760.00	UCART2	10.06
343	637860.00	4268760.00	UCART2	10.06
344	637900.00	4268760.00	UCART2	10.06
345	637940.00	4268760.00	UCART2	9.93
346	637980.00	4268760.00	UCART2	9.91
347	638020.00	4268760.00	UCART2	9.82
348	638060.00	4268760.00	UCART2	9.75
349	638100.00	4268760.00	UCART2	9.75
350	638140.00	4268760.00	UCART2	9.75
351	638180.00	4268760.00	UCART2	9.75
352	638220.00	4268760.00	UCART2	9.75
353	638260.00	4268760.00	UCART2	9.75
354	638300.00	4268760.00	UCART2	9.75
355	638340.00	4268760.00	UCART2	9.78
356	638380.00	4268760.00	UCART2	9.91
357	638420.00	4268760.00	UCART2	10.04
358	638460.00	4268760.00	UCART2	10.24
359	638500.00	4268760.00	UCART2	10.53
360	638540.00	4268760.00	UCART2	10.67
361	638580.00	4268760.00	UCART2	11.19
362	638620.00	4268760.00	UCART2	11.59
363	638660.00	4268760.00	UCART2	11.74
364	638700.00	4268760.00	UCART2	11.92
365	638740.00	4268760.00	UCART2	12.04
366	638780.00	4268760.00	UCART2	12.04
367	638820.00	4268760.00	UCART2	12.04
368	638860.00	4268760.00	UCART2	12.12
369	638900.00	4268760.00	UCART2	12.19
370	637300.00	4268800.00	UCART2	10.97
371	637340.00	4268800.00	UCART2	10.97
372	637380.00	4268800.00	UCART2	10.91

373	637420.00	4268800.00	UCART2	10.67
374	637460.00	4268800.00	UCART2	10.67
375	637500.00	4268800.00	UCART2	10.67
376	637540.00	4268800.00	UCART2	10.67
377	637580.00	4268800.00	UCART2	10.67
378	637620.00	4268800.00	UCART2	10.67
379	637660.00	4268800.00	UCART2	10.67
380	637700.00	4268800.00	UCART2	10.40
381	637740.00	4268800.00	UCART2	10.31
382	637780.00	4268800.00	UCART2	10.08
383	637820.00	4268800.00	UCART2	10.06
384	637860.00	4268800.00	UCART2	10.06
385	637900.00	4268800.00	UCART2	9.92
386	637940.00	4268800.00	UCART2	9.76
387	637980.00	4268800.00	UCART2	9.75
388	638020.00	4268800.00	UCART2	9.75
389	638060.00	4268800.00	UCART2	9.75
390	638100.00	4268800.00	UCART2	9.75
391	638140.00	4268800.00	UCART2	9.75
392	638180.00	4268800.00	UCART2	9.75
393	638220.00	4268800.00	UCART2	9.75
394	638260.00	4268800.00	UCART2	9.75
395	638300.00	4268800.00	UCART2	9.75
396	638340.00	4268800.00	UCART2	9.75
397	638380.00	4268800.00	UCART2	9.75
398	638420.00	4268800.00	UCART2	9.80
399	638460.00	4268800.00	UCART2	10.12
400	638500.00	4268800.00	UCART2	10.53
401	638540.00	4268800.00	UCART2	10.89
402	638580.00	4268800.00	UCART2	11.39
403	638620.00	4268800.00	UCART2	11.86
404	638660.00	4268800.00	UCART2	12.11
405	638700.00	4268800.00	UCART2	12.15
406	638740.00	4268800.00	UCART2	12.19
407	638780.00	4268800.00	UCART2	12.19
408	638820.00	4268800.00	UCART2	12.14
409	638860.00	4268800.00	UCART2	11.94
410	638900.00	4268800.00	UCART2	11.94

411	637300.00	4268840.00	UCART2	10.97
412	637340.00	4268840.00	UCART2	10.97
413	637380.00	4268840.00	UCART2	10.67
414	637420.00	4268840.00	UCART2	10.67
415	637460.00	4268840.00	UCART2	10.67
416	637500.00	4268840.00	UCART2	10.67
417	637540.00	4268840.00	UCART2	10.67
418	637580.00	4268840.00	UCART2	10.67
419	637620.00	4268840.00	UCART2	10.67
420	637660.00	4268840.00	UCART2	10.50
421	637700.00	4268840.00	UCART2	10.36
422	637740.00	4268840.00	UCART2	10.26
423	637780.00	4268840.00	UCART2	10.06
424	637820.00	4268840.00	UCART2	10.01
425	637860.00	4268840.00	UCART2	9.96
426	637900.00	4268840.00	UCART2	9.75
427	637940.00	4268840.00	UCART2	9.75
428	637980.00	4268840.00	UCART2	9.70
429	638020.00	4268840.00	UCART2	9.70
430	638060.00	4268840.00	UCART2	9.48
431	638100.00	4268840.00	UCART2	9.45
432	638140.00	4268840.00	UCART2	9.45
433	638180.00	4268840.00	UCART2	9.45
434	638220.00	4268840.00	UCART2	9.45
435	638260.00	4268840.00	UCART2	9.45
436	638300.00	4268840.00	UCART2	9.45
437	638340.00	4268840.00	UCART2	9.50
438	638380.00	4268840.00	UCART2	9.70
439	638420.00	4268840.00	UCART2	9.70
440	638460.00	4268840.00	UCART2	9.76
441	638500.00	4268840.00	UCART2	10.33
442	638540.00	4268840.00	UCART2	11.19
443	638580.00	4268840.00	UCART2	11.75
444	638620.00	4268840.00	UCART2	12.19
445	638660.00	4268840.00	UCART2	12.15
446	638700.00	4268840.00	UCART2	12.04
447	638740.00	4268840.00	UCART2	11.84
448	638780.00	4268840.00	UCART2	11.84

449	638820.00	4268840.00	UCART2	11.73
450	638860.00	4268840.00	UCART2	11.53
451	638900.00	4268840.00	UCART2	11.53
452	637300.00	4268880.00	UCART2	10.97
453	637340.00	4268880.00	UCART2	10.84
454	637380.00	4268880.00	UCART2	10.67
455	637420.00	4268880.00	UCART2	10.67
456	637460.00	4268880.00	UCART2	10.67
457	637500.00	4268880.00	UCART2	10.67
458	637540.00	4268880.00	UCART2	10.67
459	637580.00	4268880.00	UCART2	10.67
460	637620.00	4268880.00	UCART2	10.64
461	637660.00	4268880.00	UCART2	10.43
462	637700.00	4268880.00	UCART2	10.23
463	637740.00	4268880.00	UCART2	10.06
464	637780.00	4268880.00	UCART2	9.98
465	637820.00	4268880.00	UCART2	9.77
466	637860.00	4268880.00	UCART2	9.75
467	637900.00	4268880.00	UCART2	9.67
468	637940.00	4268880.00	UCART2	9.60
469	637980.00	4268880.00	UCART2	9.45
470	638020.00	4268880.00	UCART2	9.45
471	638060.00	4268880.00	UCART2	9.45
472	638100.00	4268880.00	UCART2	9.30
473	638140.00	4268880.00	UCART2	9.30
474	638180.00	4268880.00	UCART2	9.30
475	638220.00	4268880.00	UCART2	9.30
476	638260.00	4268880.00	UCART2	9.30
477	638300.00	4268880.00	UCART2	9.30
478	638340.00	4268880.00	UCART2	9.33
479	638380.00	4268880.00	UCART2	9.45
480	638420.00	4268880.00	UCART2	9.45
481	638460.00	4268880.00	UCART2	9.48
482	638500.00	4268880.00	UCART2	9.93
483	638540.00	4268880.00	UCART2	10.87
484	638580.00	4268880.00	UCART2	11.95
485	638620.00	4268880.00	UCART2	12.11
486	638660.00	4268880.00	UCART2	11.77

487	638700.00	4268880.00	UCART2	11.43
488	638740.00	4268880.00	UCART2	11.35
489	638780.00	4268880.00	UCART2	11.28
490	638820.00	4268880.00	UCART2	11.12
491	638860.00	4268880.00	UCART2	11.12
492	638900.00	4268880.00	UCART2	11.12
493	637300.00	4268920.00	UCART2	10.84
494	637340.00	4268920.00	UCART2	10.67
495	637380.00	4268920.00	UCART2	10.67
496	637420.00	4268920.00	UCART2	10.67
497	637460.00	4268920.00	UCART2	10.67
498	637500.00	4268920.00	UCART2	10.67
499	637540.00	4268920.00	UCART2	10.67
500	637580.00	4268920.00	UCART2	10.67
501	637620.00	4268920.00	UCART2	10.61
502	637660.00	4268920.00	UCART2	10.23
503	637700.00	4268920.00	UCART2	10.06
504	637740.00	4268920.00	UCART2	10.01
505	637780.00	4268920.00	UCART2	9.78
506	637820.00	4268920.00	UCART2	9.75
507	637860.00	4268920.00	UCART2	9.50
508	637900.00	4268920.00	UCART2	9.47
509	637940.00	4268920.00	UCART2	9.45
510	637980.00	4268920.00	UCART2	9.19
511	638020.00	4268920.00	UCART2	9.19
512	638060.00	4268920.00	UCART2	9.19
513	638100.00	4268920.00	UCART2	9.14
514	638140.00	4268920.00	UCART2	9.14
515	638180.00	4268920.00	UCART2	9.14
516	638220.00	4268920.00	UCART2	9.14
517	638260.00	4268920.00	UCART2	9.14
518	638300.00	4268920.00	UCART2	9.14
519	638340.00	4268920.00	UCART2	9.15
520	638380.00	4268920.00	UCART2	9.19
521	638420.00	4268920.00	UCART2	9.19
522	638460.00	4268920.00	UCART2	9.19
523	638500.00	4268920.00	UCART2	9.52
524	638540.00	4268920.00	UCART2	10.33

525	638580.00	4268920.00	UCART2	11.69
526	638620.00	4268920.00	UCART2	11.64
527	638660.00	4268920.00	UCART2	11.11
528	638700.00	4268920.00	UCART2	10.77
529	638740.00	4268920.00	UCART2	10.74
530	638780.00	4268920.00	UCART2	10.72
531	638820.00	4268920.00	UCART2	10.72
532	638860.00	4268920.00	UCART2	10.72
533	638900.00	4268920.00	UCART2	10.72
534	637300.00	4268960.00	UCART2	10.67
535	637340.00	4268960.00	UCART2	10.67
536	637380.00	4268960.00	UCART2	10.67
537	637420.00	4268960.00	UCART2	10.67
538	637460.00	4268960.00	UCART2	10.67
539	637500.00	4268960.00	UCART2	10.67
540	637540.00	4268960.00	UCART2	10.64
541	637580.00	4268960.00	UCART2	10.40
542	637620.00	4268960.00	UCART2	10.26
543	637660.00	4268960.00	UCART2	10.06
544	637700.00	4268960.00	UCART2	10.01
545	637740.00	4268960.00	UCART2	9.74
546	637780.00	4268960.00	UCART2	9.70
547	637820.00	4268960.00	UCART2	9.48
548	637860.00	4268960.00	UCART2	9.44
549	637900.00	4268960.00	UCART2	9.26
550	637940.00	4268960.00	UCART2	9.14
551	637980.00	4268960.00	UCART2	9.08
552	638020.00	4268960.00	UCART2	9.04
553	638060.00	4268960.00	UCART2	9.00
554	638100.00	4268960.00	UCART2	7.65
555	638140.00	4268960.00	UCART2	7.77
556	638180.00	4268960.00	UCART2	8.13
557	638220.00	4268960.00	UCART2	8.13
558	638260.00	4268960.00	UCART2	8.15
559	638300.00	4268960.00	UCART2	7.74
560	638340.00	4268960.00	UCART2	8.34
561	638380.00	4268960.00	UCART2	8.92
562	638420.00	4268960.00	UCART2	9.09

563	638460.00	4268960.00	UCART2	9.09
564	638500.00	4268960.00	UCART2	9.09
565	638540.00	4268960.00	UCART2	9.14
566	638580.00	4268960.00	UCART2	9.50
567	638620.00	4268960.00	UCART2	9.93
568	638660.00	4268960.00	UCART2	9.96
569	638700.00	4268960.00	UCART2	10.01
570	638740.00	4268960.00	UCART2	10.01
571	638780.00	4268960.00	UCART2	10.23
572	638820.00	4268960.00	UCART2	10.27
573	638860.00	4268960.00	UCART2	10.31
574	638900.00	4268960.00	UCART2	10.31
575	637300.00	4269000.00	UCART2	10.67
576	637340.00	4269000.00	UCART2	10.67
577	637380.00	4269000.00	UCART2	10.67
578	637420.00	4269000.00	UCART2	10.67
579	637460.00	4269000.00	UCART2	10.67
580	637500.00	4269000.00	UCART2	10.64
581	637540.00	4269000.00	UCART2	10.43
582	637580.00	4269000.00	UCART2	10.23
583	637620.00	4269000.00	UCART2	10.06
584	637660.00	4269000.00	UCART2	9.98
585	637700.00	4269000.00	UCART2	9.77
586	637740.00	4269000.00	UCART2	9.57
587	637780.00	4269000.00	UCART2	9.45
588	637820.00	4269000.00	UCART2	9.32
589	637860.00	4269000.00	UCART2	9.27
590	637900.00	4269000.00	UCART2	8.98
591	637940.00	4269000.00	UCART2	8.70
592	637980.00	4269000.00	UCART2	8.35
593	638020.00	4269000.00	UCART2	8.15
594	638060.00	4269000.00	UCART2	7.94
595	638100.00	4269000.00	UCART2	7.86
596	638140.00	4269000.00	UCART2	7.62
597	638180.00	4269000.00	UCART2	7.62
598	638220.00	4269000.00	UCART2	7.62
599	638260.00	4269000.00	UCART2	7.78
600	638300.00	4269000.00	UCART2	7.92

601	638340.00	4269000.00	UCART2	8.11
602	638380.00	4269000.00	UCART2	8.31
603	638420.00	4269000.00	UCART2	8.51
604	638460.00	4269000.00	UCART2	8.56
605	638500.00	4269000.00	UCART2	8.69
606	638540.00	4269000.00	UCART2	8.82
607	638580.00	4269000.00	UCART2	8.99
608	638620.00	4269000.00	UCART2	9.07
609	638660.00	4269000.00	UCART2	9.14
610	638700.00	4269000.00	UCART2	9.48
611	638740.00	4269000.00	UCART2	9.60
612	638780.00	4269000.00	UCART2	9.60
613	638820.00	4269000.00	UCART2	9.66
614	638860.00	4269000.00	UCART2	9.91
615	638900.00	4269000.00	UCART2	9.91
616	637300.00	4269040.00	UCART2	10.67
617	637340.00	4269040.00	UCART2	10.67
618	637380.00	4269040.00	UCART2	10.67
619	637420.00	4269040.00	UCART2	10.67
620	637460.00	4269040.00	UCART2	10.67
621	637500.00	4269040.00	UCART2	10.40
622	637540.00	4269040.00	UCART2	10.23
623	637580.00	4269040.00	UCART2	10.06
624	637620.00	4269040.00	UCART2	9.80
625	637660.00	4269040.00	UCART2	9.78
626	637700.00	4269040.00	UCART2	9.53
627	637740.00	4269040.00	UCART2	9.45
628	637780.00	4269040.00	UCART2	9.31
629	637820.00	4269040.00	UCART2	9.15
630	637860.00	4269040.00	UCART2	8.79
631	637900.00	4269040.00	UCART2	8.19
632	637940.00	4269040.00	UCART2	7.76
633	637980.00	4269040.00	UCART2	7.21
634	638020.00	4269040.00	UCART2	6.37
635	638060.00	4269040.00	UCART2	6.35
636	638100.00	4269040.00	UCART2	6.35
637	638140.00	4269040.00	UCART2	6.35
638	638180.00	4269040.00	UCART2	6.35

639	638220.00	4269040.00	UCART2	6.35
640	638260.00	4269040.00	UCART2	6.37
641	638300.00	4269040.00	UCART2	6.40
642	638340.00	4269040.00	UCART2	6.40
643	638380.00	4269040.00	UCART2	7.10
644	638420.00	4269040.00	UCART2	7.94
645	638460.00	4269040.00	UCART2	7.98
646	638500.00	4269040.00	UCART2	8.16
647	638540.00	4269040.00	UCART2	8.28
648	638580.00	4269040.00	UCART2	8.33
649	638620.00	4269040.00	UCART2	8.47
650	638660.00	4269040.00	UCART2	8.58
651	638700.00	4269040.00	UCART2	8.70
652	638740.00	4269040.00	UCART2	9.08
653	638780.00	4269040.00	UCART2	9.19
654	638820.00	4269040.00	UCART2	9.26
655	638860.00	4269040.00	UCART2	9.50
656	638900.00	4269040.00	UCART2	9.50
657	637300.00	4269080.00	UCART2	10.67
658	637340.00	4269080.00	UCART2	10.45
659	637380.00	4269080.00	UCART2	10.67
660	637420.00	4269080.00	UCART2	10.64
661	637460.00	4269080.00	UCART2	10.40
662	637500.00	4269080.00	UCART2	10.26
663	637540.00	4269080.00	UCART2	10.03
664	637580.00	4269080.00	UCART2	9.79
665	637620.00	4269080.00	UCART2	9.74
666	637660.00	4269080.00	UCART2	9.57
667	637700.00	4269080.00	UCART2	9.45
668	637740.00	4269080.00	UCART2	9.35
669	637780.00	4269080.00	UCART2	9.09
670	637820.00	4269080.00	UCART2	8.78
671	637860.00	4269080.00	UCART2	7.97
672	637900.00	4269080.00	UCART2	7.23
673	637940.00	4269080.00	UCART2	6.23
674	637980.00	4269080.00	UCART2	6.10
675	638020.00	4269080.00	UCART2	6.10
676	638060.00	4269080.00	UCART2	6.10

677	638100.00	4269080.00	UCART2	6.10
678	638140.00	4269080.00	UCART2	6.10
679	638180.00	4269080.00	UCART2	6.10
680	638220.00	4269080.00	UCART2	6.10
681	638260.00	4269080.00	UCART2	6.10
682	638300.00	4269080.00	UCART2	6.10
683	638340.00	4269080.00	UCART2	6.10
684	638380.00	4269080.00	UCART2	6.10
685	638420.00	4269080.00	UCART2	7.20
686	638460.00	4269080.00	UCART2	7.41
687	638500.00	4269080.00	UCART2	7.62
688	638540.00	4269080.00	UCART2	7.84
689	638580.00	4269080.00	UCART2	7.87
690	638620.00	4269080.00	UCART2	7.87
691	638660.00	4269080.00	UCART2	7.87
692	638700.00	4269080.00	UCART2	7.72
693	638740.00	4269080.00	UCART2	8.13
694	638780.00	4269080.00	UCART2	8.35
695	638820.00	4269080.00	UCART2	8.44
696	638860.00	4269080.00	UCART2	8.85
697	638900.00	4269080.00	UCART2	9.03
698	637300.00	4269120.00	UCART2	10.67
699	637340.00	4269120.00	UCART2	10.67
700	637380.00	4269120.00	UCART2	10.67
701	637420.00	4269120.00	UCART2	10.50
702	637460.00	4269120.00	UCART2	10.23
703	637500.00	4269120.00	UCART2	10.03
704	637540.00	4269120.00	UCART2	9.74
705	637580.00	4269120.00	UCART2	9.60
706	637620.00	4269120.00	UCART2	9.57
707	637660.00	4269120.00	UCART2	9.45
708	637700.00	4269120.00	UCART2	9.32
709	637740.00	4269120.00	UCART2	9.08
710	637780.00	4269120.00	UCART2	8.51
711	637820.00	4269120.00	UCART2	7.30
712	637860.00	4269120.00	UCART2	6.70
713	637900.00	4269120.00	UCART2	6.10
714	637940.00	4269120.00	UCART2	6.10

715	637980.00	4269120.00	UCART2	6.86
716	638020.00	4269120.00	UCART2	6.86
717	638060.00	4269120.00	UCART2	6.86
718	638100.00	4269120.00	UCART2	6.86
719	638140.00	4269120.00	UCART2	6.86
720	638180.00	4269120.00	UCART2	6.20
721	638220.00	4269120.00	UCART2	6.10
722	638260.00	4269120.00	UCART2	6.10
723	638300.00	4269120.00	UCART2	6.10
724	638340.00	4269120.00	UCART2	6.10
725	638380.00	4269120.00	UCART2	6.10
726	638420.00	4269120.00	UCART2	6.10
727	638460.00	4269120.00	UCART2	6.25
728	638500.00	4269120.00	UCART2	6.85
729	638540.00	4269120.00	UCART2	6.85
730	638580.00	4269120.00	UCART2	6.85
731	638620.00	4269120.00	UCART2	6.85
732	638660.00	4269120.00	UCART2	6.85
733	638700.00	4269120.00	UCART2	6.25
734	638740.00	4269120.00	UCART2	6.85
735	638780.00	4269120.00	UCART2	6.85
736	638820.00	4269120.00	UCART2	6.88
737	638860.00	4269120.00	UCART2	7.09
738	638900.00	4269120.00	UCART2	8.09
739	637300.00	4269160.00	UCART2	10.67
740	637340.00	4269160.00	UCART2	10.67
741	637380.00	4269160.00	UCART2	10.67
742	637420.00	4269160.00	UCART2	10.50
743	637460.00	4269160.00	UCART2	10.10
744	637500.00	4269160.00	UCART2	9.74
745	637540.00	4269160.00	UCART2	9.47
746	637580.00	4269160.00	UCART2	9.23
747	637620.00	4269160.00	UCART2	9.25
748	637660.00	4269160.00	UCART2	9.31
749	637700.00	4269160.00	UCART2	9.15
750	637740.00	4269160.00	UCART2	8.26
751	637780.00	4269160.00	UCART2	7.03
752	637820.00	4269160.00	UCART2	6.14

753	637860.00	4269160.00	UCART2	6.10
754	637900.00	4269160.00	UCART2	6.78
755	637940.00	4269160.00	UCART2	7.37
756	637980.00	4269160.00	UCART2	7.62
757	638020.00	4269160.00	UCART2	7.62
758	638060.00	4269160.00	UCART2	7.62
759	638100.00	4269160.00	UCART2	7.87
760	638140.00	4269160.00	UCART2	7.74
761	638180.00	4269160.00	UCART2	7.40
762	638220.00	4269160.00	UCART2	7.37
763	638260.00	4269160.00	UCART2	7.37
764	638300.00	4269160.00	UCART2	6.26
765	638420.00	4269160.00	UCART2	6.10
766	638460.00	4269160.00	UCART2	6.10
767	638500.00	4269160.00	UCART2	6.10
768	638540.00	4269160.00	UCART2	6.10
769	638580.00	4269160.00	UCART2	6.10
770	638620.00	4269160.00	UCART2	6.10
771	638660.00	4269160.00	UCART2	6.10
772	638700.00	4269160.00	UCART2	6.10
773	638740.00	4269160.00	UCART2	6.10
774	638780.00	4269160.00	UCART2	6.10
775	638820.00	4269160.00	UCART2	6.10
776	638860.00	4269160.00	UCART2	6.10
777	638900.00	4269160.00	UCART2	6.36
778	637300.00	4269200.00	UCART2	10.67
779	637340.00	4269200.00	UCART2	10.67
780	637380.00	4269200.00	UCART2	10.66
781	637420.00	4269200.00	UCART2	10.48
782	637460.00	4269200.00	UCART2	10.10
783	637500.00	4269200.00	UCART2	9.69
784	637540.00	4269200.00	UCART2	9.26
785	637580.00	4269200.00	UCART2	8.83
786	637620.00	4269200.00	UCART2	8.94
787	637660.00	4269200.00	UCART2	8.84
788	637700.00	4269200.00	UCART2	8.01
789	637740.00	4269200.00	UCART2	6.10
790	637780.00	4269200.00	UCART2	6.10

791	637820.00	4269200.00	UCART2	6.10
792	637980.00	4269200.00	UCART2	7.72
793	638020.00	4269200.00	UCART2	7.92
794	638060.00	4269200.00	UCART2	7.92
795	638100.00	4269200.00	UCART2	7.92
796	638140.00	4269200.00	UCART2	7.92
797	638180.00	4269200.00	UCART2	7.92
798	638220.00	4269200.00	UCART2	7.92
799	638260.00	4269200.00	UCART2	7.92
800	638300.00	4269200.00	UCART2	7.70
801	638660.00	4269200.00	UCART2	6.10
802	638700.00	4269200.00	UCART2	6.10
803	638740.00	4269200.00	UCART2	6.10
804	638780.00	4269200.00	UCART2	6.10
805	638820.00	4269200.00	UCART2	6.10
806	638860.00	4269200.00	UCART2	6.10
807	638900.00	4269200.00	UCART2	6.10
808	637300.00	4269240.00	UCART2	10.67
809	637340.00	4269240.00	UCART2	10.67
810	637380.00	4269240.00	UCART2	10.64
811	637420.00	4269240.00	UCART2	10.43
812	637460.00	4269240.00	UCART2	10.10
813	637500.00	4269240.00	UCART2	9.69
814	637540.00	4269240.00	UCART2	9.12
815	637580.00	4269240.00	UCART2	8.44
816	637620.00	4269240.00	UCART2	8.05
817	637660.00	4269240.00	UCART2	7.43
818	637700.00	4269240.00	UCART2	6.22
819	637740.00	4269240.00	UCART2	6.10
820	637780.00	4269240.00	UCART2	6.10
821	637940.00	4269240.00	UCART2	7.90
822	637980.00	4269240.00	UCART2	7.92
823	638020.00	4269240.00	UCART2	7.92
824	638060.00	4269240.00	UCART2	7.92
825	638100.00	4269240.00	UCART2	7.92
826	638140.00	4269240.00	UCART2	7.92
827	638180.00	4269240.00	UCART2	7.92
828	638220.00	4269240.00	UCART2	7.92

829	638260.00	4269240.00	UCART2	7.92
830	638300.00	4269240.00	UCART2	7.92
831	638340.00	4269240.00	UCART2	7.80
832	638380.00	4269240.00	UCART2	7.84
833	638460.00	4269240.00	UCART2	7.62
834	638500.00	4269240.00	UCART2	7.62
835	638700.00	4269240.00	UCART2	6.86
836	638740.00	4269240.00	UCART2	6.45
837	638780.00	4269240.00	UCART2	6.10
838	638820.00	4269240.00	UCART2	6.10
839	638860.00	4269240.00	UCART2	6.10
840	638900.00	4269240.00	UCART2	6.10
841	637300.00	4269280.00	UCART2	10.67
842	637340.00	4269280.00	UCART2	10.67
843	637380.00	4269280.00	UCART2	10.67
844	637420.00	4269280.00	UCART2	10.64
845	637460.00	4269280.00	UCART2	10.57
846	637500.00	4269280.00	UCART2	10.35
847	637540.00	4269280.00	UCART2	9.24
848	637620.00	4269280.00	UCART2	7.61
849	637660.00	4269280.00	UCART2	6.21
850	637700.00	4269280.00	UCART2	6.10
851	637740.00	4269280.00	UCART2	6.35
852	637980.00	4269280.00	UCART2	7.92
853	638020.00	4269280.00	UCART2	7.92
854	638060.00	4269280.00	UCART2	7.92
855	638100.00	4269280.00	UCART2	7.92
856	638140.00	4269280.00	UCART2	7.92
857	638180.00	4269280.00	UCART2	7.92
858	638220.00	4269280.00	UCART2	7.92
859	638260.00	4269280.00	UCART2	7.92
860	638300.00	4269280.00	UCART2	7.92
861	638340.00	4269280.00	UCART2	7.92
862	638380.00	4269280.00	UCART2	7.92
863	638420.00	4269280.00	UCART2	7.92
864	638460.00	4269280.00	UCART2	7.87
865	638500.00	4269280.00	UCART2	7.74
866	638540.00	4269280.00	UCART2	7.62

867	638580.00	4269280.00	UCART2	7.87
868	638620.00	4269280.00	UCART2	7.74
869	638660.00	4269280.00	UCART2	7.84
870	638700.00	4269280.00	UCART2	7.62
871	638740.00	4269280.00	UCART2	7.49
872	638780.00	4269280.00	UCART2	7.37
873	638820.00	4269280.00	UCART2	7.37
874	638860.00	4269280.00	UCART2	7.37
875	638900.00	4269280.00	UCART2	7.37
876	637300.00	4269320.00	UCART2	10.36
877	637340.00	4269320.00	UCART2	10.32
878	637380.00	4269320.00	UCART2	10.41
879	637420.00	4269320.00	UCART2	10.64
880	637460.00	4269320.00	UCART2	10.67
881	637500.00	4269320.00	UCART2	10.47
882	637540.00	4269320.00	UCART2	9.08
883	637580.00	4269320.00	UCART2	7.96
884	637620.00	4269320.00	UCART2	6.10
885	637660.00	4269320.00	UCART2	6.10
886	637700.00	4269320.00	UCART2	6.32
887	637860.00	4269320.00	UCART2	7.92
888	637900.00	4269320.00	UCART2	7.92
889	637940.00	4269320.00	UCART2	7.92
890	637980.00	4269320.00	UCART2	7.94
891	638020.00	4269320.00	UCART2	7.98
892	638060.00	4269320.00	UCART2	7.98
893	638100.00	4269320.00	UCART2	8.23
894	638140.00	4269320.00	UCART2	8.23
895	638180.00	4269320.00	UCART2	8.23
896	638220.00	4269320.00	UCART2	8.23
897	638260.00	4269320.00	UCART2	8.09
898	638300.00	4269320.00	UCART2	7.98
899	638340.00	4269320.00	UCART2	7.98
900	638380.00	4269320.00	UCART2	7.95
901	638420.00	4269320.00	UCART2	7.92
902	638460.00	4269320.00	UCART2	7.92
903	638500.00	4269320.00	UCART2	7.92
904	638540.00	4269320.00	UCART2	7.92

905	638580.00	4269320.00	UCART2	7.92
906	638620.00	4269320.00	UCART2	7.92
907	638660.00	4269320.00	UCART2	7.92
908	638700.00	4269320.00	UCART2	7.92
909	638740.00	4269320.00	UCART2	7.92
910	638780.00	4269320.00	UCART2	7.92
911	638820.00	4269320.00	UCART2	7.92
912	638860.00	4269320.00	UCART2	7.92
913	638900.00	4269320.00	UCART2	7.92
914	637300.00	4269360.00	UCART2	10.21
915	637340.00	4269360.00	UCART2	9.95
916	637380.00	4269360.00	UCART2	10.09
917	637420.00	4269360.00	UCART2	10.29
918	637460.00	4269360.00	UCART2	10.49
919	637500.00	4269360.00	UCART2	9.84
920	637540.00	4269360.00	UCART2	8.58
921	637580.00	4269360.00	UCART2	7.04
922	637620.00	4269360.00	UCART2	6.10
923	637660.00	4269360.00	UCART2	6.51
924	637780.00	4269360.00	UCART2	7.85
925	637860.00	4269360.00	UCART2	7.92
926	637900.00	4269360.00	UCART2	7.92
927	637940.00	4269360.00	UCART2	8.06
928	637980.00	4269360.00	UCART2	8.11
929	638020.00	4269360.00	UCART2	8.23
930	638060.00	4269360.00	UCART2	8.23
931	638100.00	4269360.00	UCART2	8.23
932	638140.00	4269360.00	UCART2	8.23
933	638180.00	4269360.00	UCART2	8.23
934	638220.00	4269360.00	UCART2	8.23
935	638260.00	4269360.00	UCART2	8.23
936	638300.00	4269360.00	UCART2	8.23
937	638340.00	4269360.00	UCART2	8.23
938	638380.00	4269360.00	UCART2	8.15
939	638420.00	4269360.00	UCART2	8.08
940	638460.00	4269360.00	UCART2	8.08
941	638500.00	4269360.00	UCART2	8.08
942	638540.00	4269360.00	UCART2	8.08

943	638580.00	4269360.00	UCART2	8.08
944	638620.00	4269360.00	UCART2	8.08
945	638660.00	4269360.00	UCART2	8.08
946	638700.00	4269360.00	UCART2	8.08
947	638740.00	4269360.00	UCART2	8.08
948	638780.00	4269360.00	UCART2	7.94
949	638820.00	4269360.00	UCART2	7.92
950	638860.00	4269360.00	UCART2	7.92
951	638900.00	4269360.00	UCART2	7.92
952	637300.00	4269400.00	UCART2	9.92
953	637340.00	4269400.00	UCART2	9.76
954	637380.00	4269400.00	UCART2	9.51
955	637420.00	4269400.00	UCART2	9.55
956	637460.00	4269400.00	UCART2	9.15
957	637500.00	4269400.00	UCART2	8.55
958	637540.00	4269400.00	UCART2	7.84
959	637580.00	4269400.00	UCART2	6.30
960	637620.00	4269400.00	UCART2	6.10
961	637820.00	4269400.00	UCART2	7.92
962	637860.00	4269400.00	UCART2	7.92
963	637900.00	4269400.00	UCART2	8.06
964	637940.00	4269400.00	UCART2	8.22
965	637980.00	4269400.00	UCART2	8.23
966	638020.00	4269400.00	UCART2	8.23
967	638060.00	4269400.00	UCART2	8.23
968	638100.00	4269400.00	UCART2	8.23
969	638140.00	4269400.00	UCART2	8.23
970	638180.00	4269400.00	UCART2	8.45
971	638220.00	4269400.00	UCART2	8.43
972	638260.00	4269400.00	UCART2	8.23
973	638300.00	4269400.00	UCART2	8.23
974	638340.00	4269400.00	UCART2	8.23
975	638380.00	4269400.00	UCART2	8.23
976	638420.00	4269400.00	UCART2	8.23
977	638460.00	4269400.00	UCART2	8.23
978	638500.00	4269400.00	UCART2	8.23
979	638540.00	4269400.00	UCART2	8.23
980	638580.00	4269400.00	UCART2	8.23

981	638620.00	4269400.00	UCART2	8.23
982	638660.00	4269400.00	UCART2	8.23
983	638700.00	4269400.00	UCART2	8.23
984	638740.00	4269400.00	UCART2	8.23
985	638780.00	4269400.00	UCART2	8.19
986	638820.00	4269400.00	UCART2	8.18
987	638860.00	4269400.00	UCART2	8.18
988	638900.00	4269400.00	UCART2	8.18
989	637300.00	4269440.00	UCART2	9.75
990	637340.00	4269440.00	UCART2	9.49
991	637380.00	4269440.00	UCART2	9.34
992	637420.00	4269440.00	UCART2	8.90
993	637460.00	4269440.00	UCART2	8.25
994	637500.00	4269440.00	UCART2	7.86
995	637540.00	4269440.00	UCART2	6.80
996	637580.00	4269440.00	UCART2	6.10
997	637740.00	4269440.00	UCART2	7.92
998	637780.00	4269440.00	UCART2	7.92
999	637820.00	4269440.00	UCART2	7.97
1,000	637860.00	4269440.00	UCART2	8.23
1,001	637900.00	4269440.00	UCART2	8.23
1,002	637940.00	4269440.00	UCART2	8.23
1,003	638064.14	4269473.13	UCART2	8.53
1,004	638100.00	4269440.00	UCART2	8.53
1,005	638140.00	4269440.00	UCART2	8.53
1,006	638180.00	4269440.00	UCART2	8.53
1,007	638220.00	4269440.00	UCART2	8.53
1,008	638260.00	4269440.00	UCART2	8.53
1,009	638300.00	4269440.00	UCART2	8.53
1,010	638340.00	4269440.00	UCART2	8.28
1,011	638380.00	4269440.00	UCART2	8.28
1,012	638420.00	4269440.00	UCART2	8.28
1,013	638460.00	4269440.00	UCART2	8.28
1,014	638500.00	4269440.00	UCART2	8.28
1,015	638540.00	4269440.00	UCART2	8.28
1,016	638580.00	4269440.00	UCART2	8.28
1,017	638620.00	4269440.00	UCART2	8.28
1,018	638660.00	4269440.00	UCART2	8.28

1,019	638700.00	4269440.00	UCART2	8.33
1,020	638740.00	4269440.00	UCART2	8.40
1,021	638780.00	4269440.00	UCART2	8.28
1,022	638820.00	4269440.00	UCART2	8.28
1,023	638860.00	4269440.00	UCART2	8.28
1,024	638900.00	4269440.00	UCART2	8.24
1,025	637292.90	4269469.34	UCART2	9.74
1,026	637340.00	4269470.73	UCART2	9.43
1,027	637380.00	4269470.73	UCART2	9.02
1,028	637420.00	4269470.73	UCART2	8.45
1,029	637460.00	4269470.73	UCART2	7.96
1,030	637500.00	4269470.73	UCART2	7.76
1,031	637540.00	4269470.73	UCART2	6.67
1,032	637580.00	4269470.73	UCART2	6.35
1,033	637660.00	4269480.00	UCART2	7.78
1,034	637780.00	4269480.00	UCART2	8.08
1,035	637886.16	4269471.72	UCART2	8.23
1,036	638100.00	4269480.00	UCART2	8.53
1,037	638140.00	4269480.00	UCART2	8.53
1,038	638180.00	4269480.00	UCART2	8.53
1,039	638220.00	4269480.00	UCART2	8.53
1,040	638260.00	4269480.00	UCART2	8.53
1,041	638300.00	4269480.00	UCART2	8.53
1,042	638340.00	4269480.00	UCART2	8.53
1,043	638380.00	4269480.00	UCART2	8.53
1,044	638420.00	4269480.00	UCART2	8.53
1,045	638460.00	4269480.00	UCART2	8.53
1,046	638500.00	4269480.00	UCART2	8.53
1,047	638540.00	4269480.00	UCART2	8.53
1,048	638580.00	4269480.00	UCART2	8.53
1,049	638620.00	4269480.00	UCART2	8.53
1,050	638660.00	4269480.00	UCART2	8.53
1,051	638700.00	4269480.00	UCART2	8.53
1,052	638740.00	4269480.00	UCART2	8.53
1,053	638780.00	4269480.00	UCART2	8.53
1,054	638820.00	4269480.00	UCART2	8.53
1,055	638860.00	4269480.00	UCART2	8.53
1,056	638900.00	4269480.00	UCART2	8.40

1,057	637580.00	4269520.00	UCART2	7.42
1,058	637660.00	4269520.00	UCART2	7.90
1,059	638100.00	4269520.00	UCART2	8.79
1,060	638140.00	4269520.00	UCART2	8.79
1,061	638180.00	4269520.00	UCART2	8.79
1,062	638220.00	4269520.00	UCART2	8.79
1,063	638260.00	4269520.00	UCART2	8.65
1,064	638300.00	4269520.00	UCART2	8.53
1,065	638340.00	4269520.00	UCART2	8.53
1,066	638380.00	4269520.00	UCART2	8.53
1,067	638420.00	4269520.00	UCART2	8.53
1,068	638460.00	4269520.00	UCART2	8.53
1,069	638500.00	4269520.00	UCART2	8.53
1,070	638540.00	4269520.00	UCART2	8.53
1,071	638580.00	4269520.00	UCART2	8.53
1,072	638620.00	4269520.00	UCART2	8.53
1,073	638660.00	4269520.00	UCART2	8.53
1,074	638700.00	4269520.00	UCART2	8.53
1,075	638740.00	4269520.00	UCART2	8.53
1,076	638780.00	4269520.00	UCART2	8.53
1,077	638820.00	4269520.00	UCART2	8.53
1,078	638860.00	4269520.00	UCART2	8.53
1,079	638900.00	4269520.00	UCART2	8.53
1,080	638100.00	4269560.00	UCART2	8.84
1,081	638140.00	4269560.00	UCART2	8.84
1,082	638180.00	4269560.00	UCART2	8.84
1,083	638220.00	4269560.00	UCART2	8.84
1,084	638260.00	4269560.00	UCART2	8.84
1,085	638300.00	4269560.00	UCART2	8.84
1,086	638340.00	4269560.00	UCART2	8.84
1,087	638380.00	4269560.00	UCART2	8.84
1,088	638420.00	4269560.00	UCART2	8.84
1,089	638460.00	4269560.00	UCART2	8.84
1,090	638500.00	4269560.00	UCART2	8.84
1,091	638540.00	4269560.00	UCART2	8.84
1,092	638580.00	4269560.00	UCART2	8.84
1,093	638620.00	4269560.00	UCART2	8.84
1,094	638660.00	4269560.00	UCART2	8.84

1,095	638700.00	4269560.00	UCART2	8.84
1,096	638740.00	4269560.00	UCART2	8.84
1,097	638780.00	4269560.00	UCART2	8.84
1,098	638820.00	4269560.00	UCART2	8.84
1,099	638860.00	4269560.00	UCART2	8.84
1,100	638900.00	4269560.00	UCART2	8.84
1,101	637620.00	4269600.00	UCART2	7.92
1,102	638100.00	4269600.00	UCART2	8.99
1,103	638140.00	4269600.00	UCART2	8.99
1,104	638180.00	4269600.00	UCART2	8.99
1,105	638220.00	4269600.00	UCART2	8.99
1,106	638260.00	4269600.00	UCART2	8.99
1,107	638300.00	4269600.00	UCART2	8.86
1,108	638340.00	4269600.00	UCART2	8.84
1,109	638380.00	4269600.00	UCART2	8.84
1,110	638420.00	4269600.00	UCART2	8.84
1,111	638460.00	4269600.00	UCART2	8.87
1,112	638500.00	4269600.00	UCART2	8.99
1,113	638540.00	4269600.00	UCART2	8.99
1,114	638580.00	4269600.00	UCART2	8.99
1,115	638620.00	4269600.00	UCART2	8.99
1,116	638660.00	4269600.00	UCART2	8.99
1,117	638700.00	4269600.00	UCART2	8.99
1,118	638740.00	4269600.00	UCART2	8.99
1,119	638780.00	4269600.00	UCART2	8.99
1,120	638820.00	4269600.00	UCART2	8.99
1,121	638860.00	4269600.00	UCART2	8.99
1,122	638900.00	4269600.00	UCART2	8.99
1,123	637620.00	4269640.00	UCART2	7.92
1,124	638100.00	4269640.00	UCART2	9.14
1,125	638140.00	4269640.00	UCART2	9.14
1,126	638180.00	4269640.00	UCART2	9.14
1,127	638220.00	4269640.00	UCART2	9.14
1,128	638260.00	4269640.00	UCART2	9.14
1,129	638300.00	4269640.00	UCART2	9.10
1,130	638340.00	4269640.00	UCART2	9.09
1,131	638380.00	4269640.00	UCART2	9.09
1,132	638420.00	4269640.00	UCART2	9.09

1,133	638460.00	4269640.00	UCART2	9.10
1,134	638500.00	4269640.00	UCART2	9.14
1,135	638540.00	4269640.00	UCART2	9.14
1,136	638580.00	4269640.00	UCART2	9.14
1,137	638620.00	4269640.00	UCART2	9.14
1,138	638660.00	4269640.00	UCART2	9.14
1,139	638700.00	4269640.00	UCART2	9.14
1,140	638740.00	4269640.00	UCART2	9.14
1,141	638780.00	4269640.00	UCART2	9.14
1,142	638820.00	4269640.00	UCART2	9.14
1,143	638860.00	4269640.00	UCART2	9.14
1,144	638900.00	4269640.00	UCART2	9.14
1,145	637580.00	4269680.00	UCART2	7.89
1,146	637620.00	4269680.00	UCART2	7.99
1,147	638100.00	4269680.00	UCART2	9.20
1,148	638140.00	4269680.00	UCART2	9.20
1,149	638180.00	4269680.00	UCART2	9.20
1,150	638220.00	4269680.00	UCART2	9.20
1,151	638260.00	4269680.00	UCART2	9.20
1,152	638300.00	4269680.00	UCART2	9.15
1,153	638340.00	4269680.00	UCART2	9.14
1,154	638380.00	4269680.00	UCART2	9.14
1,155	638420.00	4269680.00	UCART2	9.14
1,156	638460.00	4269680.00	UCART2	9.14
1,157	638500.00	4269680.00	UCART2	9.14
1,158	638540.00	4269680.00	UCART2	9.14
1,159	638580.00	4269680.00	UCART2	9.20
1,160	638620.00	4269680.00	UCART2	9.20
1,161	638660.00	4269680.00	UCART2	9.20
1,162	638700.00	4269680.00	UCART2	9.20
1,163	638740.00	4269680.00	UCART2	9.20
1,164	638780.00	4269680.00	UCART2	9.20
1,165	638820.00	4269680.00	UCART2	9.20
1,166	638860.00	4269680.00	UCART2	9.20
1,167	638900.00	4269680.00	UCART2	9.20
1,168	637580.00	4269720.00	UCART2	7.92
1,169	637620.00	4269720.00	UCART2	8.14
1,170	638100.00	4269720.00	UCART2	9.45

1,171	638140.00	4269720.00	UCART2	9.45
1,172	638180.00	4269720.00	UCART2	9.45
1,173	638220.00	4269720.00	UCART2	9.45
1,174	638260.00	4269720.00	UCART2	9.45
1,175	638300.00	4269720.00	UCART2	9.32
1,176	638340.00	4269720.00	UCART2	9.30
1,177	638380.00	4269720.00	UCART2	9.30
1,178	638420.00	4269720.00	UCART2	9.30
1,179	638460.00	4269720.00	UCART2	9.30
1,180	638500.00	4269720.00	UCART2	9.30
1,181	638540.00	4269720.00	UCART2	9.30
1,182	638580.00	4269720.00	UCART2	9.45
1,183	638620.00	4269720.00	UCART2	9.45
1,184	638660.00	4269720.00	UCART2	9.45
1,185	638700.00	4269720.00	UCART2	9.45
1,186	638740.00	4269720.00	UCART2	9.45
1,187	638780.00	4269720.00	UCART2	9.45
1,188	638820.00	4269720.00	UCART2	9.45
1,189	638860.00	4269720.00	UCART2	9.45
1,190	638900.00	4269720.00	UCART2	9.45
1,191	637500.00	4269760.00	UCART2	6.40
1,192	637580.00	4269760.00	UCART2	8.15
1,193	637620.00	4269760.00	UCART2	8.55
1,194	638100.00	4269760.00	UCART2	9.45
1,195	638140.00	4269760.00	UCART2	9.45
1,196	638180.00	4269760.00	UCART2	9.45
1,197	638220.00	4269760.00	UCART2	9.45
1,198	638260.00	4269760.00	UCART2	9.45
1,199	638300.00	4269760.00	UCART2	9.45
1,200	638340.00	4269760.00	UCART2	9.45
1,201	638380.00	4269760.00	UCART2	9.45
1,202	638420.00	4269760.00	UCART2	9.45
1,203	638460.00	4269760.00	UCART2	9.45
1,204	638500.00	4269760.00	UCART2	9.45
1,205	638540.00	4269760.00	UCART2	9.45
1,206	638580.00	4269760.00	UCART2	9.45
1,207	638620.00	4269760.00	UCART2	9.45
1,208	638660.00	4269760.00	UCART2	9.45

1,209	638700.00	4269760.00	UCART2	9.45
1,210	638740.00	4269760.00	UCART2	9.45
1,211	638780.00	4269760.00	UCART2	9.45
1,212	638820.00	4269760.00	UCART2	9.45
1,213	638860.00	4269760.00	UCART2	9.45
1,214	638900.00	4269760.00	UCART2	9.67
1,215	637460.00	4269800.00	UCART2	4.57
1,216	637580.00	4269800.00	UCART2	8.23
1,217	637620.00	4269800.00	UCART2	8.71
1,218	638100.00	4269800.00	UCART2	9.75
1,219	638140.00	4269800.00	UCART2	9.75
1,220	638180.00	4269800.00	UCART2	9.75
1,221	638220.00	4269800.00	UCART2	9.75
1,222	638260.00	4269800.00	UCART2	9.62
1,223	638300.00	4269800.00	UCART2	9.50
1,224	638340.00	4269800.00	UCART2	9.50
1,225	638380.00	4269800.00	UCART2	9.47
1,226	638420.00	4269800.00	UCART2	9.45
1,227	638460.00	4269800.00	UCART2	9.45
1,228	638500.00	4269800.00	UCART2	9.45
1,229	638540.00	4269800.00	UCART2	9.45
1,230	638580.00	4269800.00	UCART2	9.45
1,231	638620.00	4269800.00	UCART2	9.45
1,232	638660.00	4269800.00	UCART2	9.49
1,233	638700.00	4269800.00	UCART2	9.50
1,234	638740.00	4269800.00	UCART2	9.50
1,235	638780.00	4269800.00	UCART2	9.50
1,236	638820.00	4269800.00	UCART2	9.75
1,237	638860.00	4269800.00	UCART2	9.75
1,238	638900.00	4269800.00	UCART2	9.80
1,239	637540.00	4269840.00	UCART2	8.01
1,240	637580.00	4269840.00	UCART2	8.47
1,241	637620.00	4269840.00	UCART2	9.08
1,242	638100.00	4269840.00	UCART2	9.91
1,243	638140.00	4269840.00	UCART2	9.91
1,244	638180.00	4269840.00	UCART2	9.91
1,245	638220.00	4269840.00	UCART2	9.88
1,246	638260.00	4269840.00	UCART2	9.75

1,247	638300.00	4269840.00	UCART2	9.75
1,248	638340.00	4269840.00	UCART2	9.75
1,249	638380.00	4269840.00	UCART2	9.67
1,250	638420.00	4269840.00	UCART2	9.60
1,251	638460.00	4269840.00	UCART2	9.60
1,252	638500.00	4269840.00	UCART2	9.60
1,253	638540.00	4269840.00	UCART2	9.60
1,254	638580.00	4269840.00	UCART2	9.60
1,255	638620.00	4269840.00	UCART2	9.60
1,256	638660.00	4269840.00	UCART2	9.73
1,257	638700.00	4269840.00	UCART2	9.75
1,258	638740.00	4269840.00	UCART2	9.75
1,259	638780.00	4269840.00	UCART2	9.75
1,260	638820.00	4269840.00	UCART2	9.78
1,261	638860.00	4269840.00	UCART2	9.91
1,262	638900.00	4269840.00	UCART2	10.04
1,263	637300.00	4269880.00	UCART2	8.07
1,264	637540.00	4269880.00	UCART2	8.34
1,265	637580.00	4269880.00	UCART2	8.75
1,266	637620.00	4269880.00	UCART2	9.26
1,267	638100.00	4269880.00	UCART2	10.31
1,268	638140.00	4269880.00	UCART2	10.18
1,269	638180.00	4269880.00	UCART2	10.06
1,270	638220.00	4269880.00	UCART2	10.05
1,271	638260.00	4269880.00	UCART2	10.01
1,272	638300.00	4269880.00	UCART2	10.01
1,273	638340.00	4269880.00	UCART2	9.75
1,274	638380.00	4269880.00	UCART2	9.75
1,275	638420.00	4269880.00	UCART2	9.75
1,276	638460.00	4269880.00	UCART2	9.75
1,277	638500.00	4269880.00	UCART2	9.75
1,278	638540.00	4269880.00	UCART2	9.75
1,279	638580.00	4269880.00	UCART2	9.75
1,280	638620.00	4269880.00	UCART2	9.75
1,281	638660.00	4269880.00	UCART2	9.75
1,282	638700.00	4269880.00	UCART2	9.75
1,283	638740.00	4269880.00	UCART2	9.89
1,284	638780.00	4269880.00	UCART2	10.01

1,285	638820.00	4269880.00	UCART2	10.02
1,286	638860.00	4269880.00	UCART2	10.06
1,287	638900.00	4269880.00	UCART2	10.28
1,288	637300.00	4269920.00	UCART2	8.04
1,289	637540.00	4269920.00	UCART2	8.42
1,290	637580.00	4269920.00	UCART2	8.85
1,291	637620.00	4269920.00	UCART2	9.52
1,292	638060.00	4269920.00	UCART2	10.41
1,293	638100.00	4269920.00	UCART2	10.41
1,294	638140.00	4269920.00	UCART2	10.41
1,295	638180.00	4269920.00	UCART2	10.37
1,296	638220.00	4269920.00	UCART2	10.31
1,297	638260.00	4269920.00	UCART2	10.11
1,298	638300.00	4269920.00	UCART2	10.07
1,299	638340.00	4269920.00	UCART2	10.06
1,300	638380.00	4269920.00	UCART2	9.92
1,301	638420.00	4269920.00	UCART2	9.81
1,302	638460.00	4269920.00	UCART2	9.79
1,303	638500.00	4269920.00	UCART2	9.75
1,304	638540.00	4269920.00	UCART2	9.80
1,305	638580.00	4269920.00	UCART2	9.81
1,306	638620.00	4269920.00	UCART2	9.94
1,307	638660.00	4269920.00	UCART2	10.06
1,308	638700.00	4269920.00	UCART2	10.06
1,309	638740.00	4269920.00	UCART2	10.06
1,310	638780.00	4269920.00	UCART2	10.10
1,311	638820.00	4269920.00	UCART2	10.16
1,312	638860.00	4269920.00	UCART2	10.36
1,313	638900.00	4269920.00	UCART2	10.41
1,314	637300.00	4269960.00	UCART2	7.92
1,315	637420.00	4269960.00	UCART2	5.31
1,316	637540.00	4269960.00	UCART2	8.56
1,317	637580.00	4269960.00	UCART2	9.10
1,318	637620.00	4269960.00	UCART2	9.57
1,319	636960.00	4269500.00	UCART1	11.22
1,320	637000.00	4269500.00	UCART1	10.97
1,321	637040.00	4269500.00	UCART1	10.75
1,322	637080.00	4269500.00	UCART1	10.67

1,323	637120.00	4269500.00	UCART1	10.50
1,324	637160.00	4269500.00	UCART1	10.36
1,325	637200.00	4269500.00	UCART1	10.06
1,326	637240.00	4269500.00	UCART1	9.90
1,327	637280.00	4269500.00	UCART1	9.71
1,328	637320.00	4269500.00	UCART1	9.39
1,329	637360.00	4269500.00	UCART1	8.98
1,330	637400.00	4269500.00	UCART1	8.53
1,331	637440.00	4269500.00	UCART1	7.92
1,332	637480.00	4269500.00	UCART1	7.62
1,333	637520.00	4269500.00	UCART1	6.26
1,334	637560.00	4269500.00	UCART1	6.40
1,335	637720.00	4269500.00	UCART1	7.95
1,336	637760.00	4269500.00	UCART1	8.20
1,337	637800.00	4269500.00	UCART1	8.23
1,338	637840.00	4269500.00	UCART1	8.23
1,339	637920.00	4269500.00	UCART1	8.28
1,340	637960.00	4269500.00	UCART1	8.42
1,341	638000.00	4269500.00	UCART1	8.53
1,342	638040.00	4269500.00	UCART1	8.53
1,343	636960.00	4269540.00	UCART1	11.22
1,344	637000.00	4269540.00	UCART1	10.97
1,345	637040.00	4269540.00	UCART1	10.97
1,346	637080.00	4269540.00	UCART1	10.67
1,347	637120.00	4269540.00	UCART1	10.50
1,348	637160.00	4269540.00	UCART1	10.36
1,349	637200.00	4269540.00	UCART1	10.06
1,350	637240.00	4269540.00	UCART1	9.90
1,351	637280.00	4269540.00	UCART1	9.49
1,352	637320.00	4269540.00	UCART1	9.23
1,353	637360.00	4269540.00	UCART1	8.83
1,354	637400.00	4269540.00	UCART1	8.29
1,355	637440.00	4269540.00	UCART1	7.89
1,356	637480.00	4269540.00	UCART1	6.88
1,357	637520.00	4269540.00	UCART1	6.10
1,358	637560.00	4269540.00	UCART1	6.40
1,359	637640.00	4269540.00	UCART1	7.88
1,360	637680.00	4269540.00	UCART1	7.96

1,361	637720.00	4269540.00	UCART1	8.16
1,362	637760.00	4269540.00	UCART1	8.23
1,363	637800.00	4269540.00	UCART1	8.23
1,364	637840.00	4269540.00	UCART1	8.31
1,365	637920.00	4269540.00	UCART1	8.53
1,366	637960.00	4269540.00	UCART1	8.53
1,367	638000.00	4269540.00	UCART1	8.67
1,368	638040.00	4269540.00	UCART1	8.69
1,369	636960.00	4269580.00	UCART1	11.27
1,370	637000.00	4269580.00	UCART1	11.09
1,371	637040.00	4269580.00	UCART1	10.97
1,372	637080.00	4269580.00	UCART1	10.67
1,373	637120.00	4269580.00	UCART1	10.50
1,374	637160.00	4269580.00	UCART1	10.36
1,375	637200.00	4269580.00	UCART1	10.01
1,376	637240.00	4269580.00	UCART1	9.64
1,377	637280.00	4269580.00	UCART1	9.23
1,378	637320.00	4269580.00	UCART1	8.83
1,379	637360.00	4269580.00	UCART1	8.42
1,380	637400.00	4269580.00	UCART1	8.01
1,381	637440.00	4269580.00	UCART1	7.61
1,382	637480.00	4269580.00	UCART1	6.21
1,383	637520.00	4269580.00	UCART1	6.10
1,384	637640.00	4269580.00	UCART1	7.92
1,385	637680.00	4269580.00	UCART1	8.19
1,386	637720.00	4269580.00	UCART1	8.23
1,387	637760.00	4269580.00	UCART1	8.45
1,388	637800.00	4269580.00	UCART1	8.48
1,389	637840.00	4269580.00	UCART1	8.51
1,390	637920.00	4269580.00	UCART1	8.59
1,391	637960.00	4269580.00	UCART1	8.79
1,392	638000.00	4269580.00	UCART1	8.83
1,393	638040.00	4269580.00	UCART1	8.84
1,394	636800.00	4269620.00	UCART1	12.19
1,395	636840.00	4269620.00	UCART1	11.93
1,396	636880.00	4269620.00	UCART1	11.89
1,397	636920.00	4269620.00	UCART1	11.67
1,398	636960.00	4269620.00	UCART1	11.53

1,399	637000.00	4269620.00	UCART1	11.17
1,400	637040.00	4269620.00	UCART1	10.98
1,401	637080.00	4269620.00	UCART1	10.67
1,402	637120.00	4269620.00	UCART1	10.50
1,403	637160.00	4269620.00	UCART1	10.10
1,404	637200.00	4269620.00	UCART1	9.95
1,405	637240.00	4269620.00	UCART1	9.54
1,406	637280.00	4269620.00	UCART1	9.13
1,407	637320.00	4269620.00	UCART1	8.73
1,408	637360.00	4269620.00	UCART1	8.35
1,409	637400.00	4269620.00	UCART1	7.96
1,410	637440.00	4269620.00	UCART1	7.31
1,411	637480.00	4269620.00	UCART1	6.10
1,412	637520.00	4269620.00	UCART1	6.10
1,413	637640.00	4269620.00	UCART1	7.92
1,414	637680.00	4269620.00	UCART1	8.24
1,415	637720.00	4269620.00	UCART1	8.42
1,416	637760.00	4269620.00	UCART1	8.53
1,417	637800.00	4269620.00	UCART1	8.54
1,418	637840.00	4269620.00	UCART1	8.59
1,419	637920.00	4269620.00	UCART1	8.85
1,420	637960.00	4269620.00	UCART1	8.89
1,421	638000.00	4269620.00	UCART1	8.89
1,422	638040.00	4269620.00	UCART1	9.14
1,423	636800.00	4269660.00	UCART1	12.17
1,424	636840.00	4269660.00	UCART1	12.16
1,425	636880.00	4269660.00	UCART1	12.04
1,426	636920.00	4269660.00	UCART1	11.91
1,427	636960.00	4269660.00	UCART1	11.70
1,428	637000.00	4269660.00	UCART1	11.42
1,429	637040.00	4269660.00	UCART1	11.01
1,430	637080.00	4269660.00	UCART1	10.79
1,431	637120.00	4269660.00	UCART1	10.50
1,432	637160.00	4269660.00	UCART1	10.10
1,433	637200.00	4269660.00	UCART1	9.69
1,434	637240.00	4269660.00	UCART1	9.29
1,435	637280.00	4269660.00	UCART1	8.88
1,436	637320.00	4269660.00	UCART1	8.47

1,437	637360.00	4269660.00	UCART1	8.15
1,438	637440.00	4269660.00	UCART1	6.10
1,439	637480.00	4269660.00	UCART1	6.10
1,440	637520.00	4269660.00	UCART1	6.76
1,441	637640.00	4269660.00	UCART1	8.06
1,442	637680.00	4269660.00	UCART1	8.29
1,443	637720.00	4269660.00	UCART1	8.53
1,444	637760.00	4269660.00	UCART1	8.67
1,445	637800.00	4269660.00	UCART1	8.72
1,446	637840.00	4269660.00	UCART1	8.84
1,447	637920.00	4269660.00	UCART1	9.02
1,448	637960.00	4269660.00	UCART1	9.14
1,449	638000.00	4269660.00	UCART1	9.14
1,450	638040.00	4269660.00	UCART1	9.14
1,451	636800.00	4269700.00	UCART1	12.15
1,452	636840.00	4269700.00	UCART1	12.19
1,453	636880.00	4269700.00	UCART1	12.19
1,454	636920.00	4269700.00	UCART1	12.15
1,455	636960.00	4269700.00	UCART1	11.88
1,456	637000.00	4269700.00	UCART1	11.67
1,457	637040.00	4269700.00	UCART1	11.27
1,458	637080.00	4269700.00	UCART1	10.91
1,459	637120.00	4269700.00	UCART1	10.50
1,460	637160.00	4269700.00	UCART1	10.10
1,461	637200.00	4269700.00	UCART1	9.69
1,462	637240.00	4269700.00	UCART1	9.29
1,463	637280.00	4269700.00	UCART1	8.88
1,464	637320.00	4269700.00	UCART1	8.47
1,465	637360.00	4269700.00	UCART1	8.07
1,466	637400.00	4269700.00	UCART1	7.70
1,467	637440.00	4269700.00	UCART1	6.10
1,468	637480.00	4269700.00	UCART1	6.10
1,469	637520.00	4269700.00	UCART1	7.42
1,470	637560.00	4269700.00	UCART1	7.88
1,471	637640.00	4269700.00	UCART1	8.19
1,472	637680.00	4269700.00	UCART1	8.55
1,473	637720.00	4269700.00	UCART1	8.79
1,474	637760.00	4269700.00	UCART1	8.83

1,475	637800.00	4269700.00	UCART1	8.84
1,476	637840.00	4269700.00	UCART1	8.98
1,477	637920.00	4269700.00	UCART1	9.14
1,478	637960.00	4269700.00	UCART1	9.28
1,479	638000.00	4269700.00	UCART1	9.40
1,480	638040.00	4269700.00	UCART1	9.40
1,481	636640.00	4269740.00	UCART1	11.44
1,482	636680.00	4269740.00	UCART1	11.58
1,483	636720.00	4269740.00	UCART1	11.68
1,484	636760.00	4269740.00	UCART1	12.05
1,485	636800.00	4269740.00	UCART1	11.79
1,486	636840.00	4269740.00	UCART1	12.23
1,487	636880.00	4269740.00	UCART1	12.19
1,488	636920.00	4269740.00	UCART1	12.19
1,489	636960.00	4269740.00	UCART1	12.14
1,490	637000.00	4269740.00	UCART1	11.78
1,491	637040.00	4269740.00	UCART1	11.32
1,492	637080.00	4269740.00	UCART1	10.91
1,493	637120.00	4269740.00	UCART1	10.48
1,494	637160.00	4269740.00	UCART1	10.05
1,495	637200.00	4269740.00	UCART1	9.39
1,496	637240.00	4269740.00	UCART1	8.98
1,497	637280.00	4269740.00	UCART1	8.57
1,498	637320.00	4269740.00	UCART1	8.22
1,499	637360.00	4269740.00	UCART1	8.01
1,500	637400.00	4269740.00	UCART1	6.33
1,501	637440.00	4269740.00	UCART1	6.10
1,502	637480.00	4269740.00	UCART1	6.10
1,503	637560.00	4269740.00	UCART1	7.94
1,504	637640.00	4269740.00	UCART1	8.55
1,505	637680.00	4269740.00	UCART1	8.65
1,506	637720.00	4269740.00	UCART1	8.89
1,507	637760.00	4269740.00	UCART1	9.11
1,508	637800.00	4269740.00	UCART1	9.15
1,509	637840.00	4269740.00	UCART1	9.20
1,510	637920.00	4269740.00	UCART1	9.45
1,511	637960.00	4269740.00	UCART1	9.45
1,512	638000.00	4269740.00	UCART1	9.45

1,513	638040.00	4269740.00	UCART1	9.45
1,514	636640.00	4269780.00	UCART1	11.59
1,515	636680.00	4269780.00	UCART1	11.74
1,516	636720.00	4269780.00	UCART1	11.89
1,517	636760.00	4269780.00	UCART1	12.05
1,518	636800.00	4269780.00	UCART1	11.67
1,519	636840.00	4269780.00	UCART1	11.98
1,520	636880.00	4269780.00	UCART1	12.26
1,521	636920.00	4269780.00	UCART1	12.19
1,522	636960.00	4269780.00	UCART1	12.19
1,523	637000.00	4269780.00	UCART1	12.03
1,524	637040.00	4269780.00	UCART1	11.36
1,525	637080.00	4269780.00	UCART1	10.88
1,526	637120.00	4269780.00	UCART1	10.27
1,527	637160.00	4269780.00	UCART1	9.79
1,528	637200.00	4269780.00	UCART1	9.39
1,529	637240.00	4269780.00	UCART1	8.98
1,530	637280.00	4269780.00	UCART1	8.57
1,531	637320.00	4269780.00	UCART1	8.17
1,532	637360.00	4269780.00	UCART1	7.76
1,533	637400.00	4269780.00	UCART1	5.63
1,534	637440.00	4269780.00	UCART1	5.33
1,535	637640.00	4269780.00	UCART1	8.93
1,536	637680.00	4269780.00	UCART1	9.18
1,537	637720.00	4269780.00	UCART1	9.38
1,538	637760.00	4269780.00	UCART1	9.32
1,539	637800.00	4269780.00	UCART1	9.33
1,540	637840.00	4269780.00	UCART1	9.45
1,541	637920.00	4269780.00	UCART1	9.60
1,542	637960.00	4269780.00	UCART1	9.60
1,543	638000.00	4269780.00	UCART1	9.60
1,544	638040.00	4269780.00	UCART1	9.60
1,545	636640.00	4269820.00	UCART1	11.88
1,546	636680.00	4269820.00	UCART1	12.14
1,547	636720.00	4269820.00	UCART1	11.89
1,548	636760.00	4269820.00	UCART1	12.05
1,549	636800.00	4269820.00	UCART1	12.19
1,550	636840.00	4269820.00	UCART1	11.93

1,551	636880.00	4269820.00	UCART1	11.86
1,552	636920.00	4269820.00	UCART1	11.97
1,553	636960.00	4269820.00	UCART1	12.14
1,554	637000.00	4269820.00	UCART1	11.91
1,555	637040.00	4269820.00	UCART1	11.36
1,556	637080.00	4269820.00	UCART1	10.85
1,557	637120.00	4269820.00	UCART1	10.20
1,558	637160.00	4269820.00	UCART1	9.79
1,559	637200.00	4269820.00	UCART1	9.39
1,560	637240.00	4269820.00	UCART1	8.98
1,561	637280.00	4269820.00	UCART1	8.57
1,562	637320.00	4269820.00	UCART1	7.96
1,563	637400.00	4269820.00	UCART1	4.97
1,564	637440.00	4269820.00	UCART1	4.57
1,565	637640.00	4269820.00	UCART1	9.32
1,566	637680.00	4269820.00	UCART1	9.81
1,567	637720.00	4269820.00	UCART1	10.10
1,568	637760.00	4269820.00	UCART1	9.97
1,569	637800.00	4269820.00	UCART1	9.91
1,570	637840.00	4269820.00	UCART1	9.70
1,571	637920.00	4269820.00	UCART1	9.75
1,572	637960.00	4269820.00	UCART1	9.75
1,573	638000.00	4269820.00	UCART1	9.75
1,574	638040.00	4269820.00	UCART1	9.75
1,575	636640.00	4269860.00	UCART1	11.93
1,576	636680.00	4269860.00	UCART1	12.19
1,577	636720.00	4269860.00	UCART1	12.14
1,578	636760.00	4269860.00	UCART1	11.94
1,579	636800.00	4269860.00	UCART1	11.94
1,580	636840.00	4269860.00	UCART1	11.94
1,581	636880.00	4269860.00	UCART1	11.57
1,582	636920.00	4269860.00	UCART1	12.10
1,583	636960.00	4269860.00	UCART1	12.19
1,584	637000.00	4269860.00	UCART1	11.89
1,585	637040.00	4269860.00	UCART1	11.32
1,586	637080.00	4269860.00	UCART1	10.81
1,587	637120.00	4269860.00	UCART1	10.20
1,588	637160.00	4269860.00	UCART1	9.79

1,589	637200.00	4269860.00	UCART1	9.38
1,590	637240.00	4269860.00	UCART1	8.93
1,591	637280.00	4269860.00	UCART1	8.30
1,592	637320.00	4269860.00	UCART1	7.86
1,593	637440.00	4269860.00	UCART1	4.68
1,594	637640.00	4269860.00	UCART1	9.45
1,595	637680.00	4269860.00	UCART1	10.22
1,596	637720.00	4269860.00	UCART1	10.67
1,597	637760.00	4269860.00	UCART1	10.45
1,598	637800.00	4269860.00	UCART1	10.31
1,599	637840.00	4269860.00	UCART1	10.08
1,600	637920.00	4269860.00	UCART1	9.86
1,601	637960.00	4269860.00	UCART1	10.06
1,602	638000.00	4269860.00	UCART1	10.06
1,603	638040.00	4269860.00	UCART1	10.06
1,604	636400.00	4269900.00	UCART1	10.36
1,605	636440.00	4269900.00	UCART1	10.36
1,606	636480.00	4269900.00	UCART1	10.55
1,607	636520.00	4269900.00	UCART1	10.75
1,608	636560.00	4269900.00	UCART1	10.95
1,609	636600.00	4269900.00	UCART1	11.37
1,610	636640.00	4269900.00	UCART1	11.90
1,611	636680.00	4269900.00	UCART1	12.04
1,612	636720.00	4269900.00	UCART1	12.19
1,613	636760.00	4269900.00	UCART1	12.19
1,614	636800.00	4269900.00	UCART1	12.19
1,615	636840.00	4269900.00	UCART1	11.95
1,616	636880.00	4269900.00	UCART1	11.54
1,617	636920.00	4269900.00	UCART1	11.78
1,618	636960.00	4269900.00	UCART1	12.16
1,619	637000.00	4269900.00	UCART1	11.88
1,620	637040.00	4269900.00	UCART1	11.20
1,621	637080.00	4269900.00	UCART1	10.61
1,622	637120.00	4269900.00	UCART1	10.12
1,623	637160.00	4269900.00	UCART1	9.64
1,624	637200.00	4269900.00	UCART1	9.20
1,625	637240.00	4269900.00	UCART1	8.68
1,626	637280.00	4269900.00	UCART1	8.27

1,627	637400.00	4269900.00	UCART1	4.57
1,628	637440.00	4269900.00	UCART1	5.19
1,629	637520.00	4269900.00	UCART1	8.19
1,630	637640.00	4269900.00	UCART1	9.69
1,631	637680.00	4269900.00	UCART1	10.42
1,632	637720.00	4269900.00	UCART1	10.67
1,633	637760.00	4269900.00	UCART1	10.67
1,634	637800.00	4269900.00	UCART1	10.49
1,635	637840.00	4269900.00	UCART1	10.28
1,636	637920.00	4269900.00	UCART1	10.21
1,637	637960.00	4269900.00	UCART1	10.21
1,638	638000.00	4269900.00	UCART1	10.21
1,639	638040.00	4269900.00	UCART1	10.21
1,640	636400.00	4269940.00	UCART1	10.48
1,641	636440.00	4269940.00	UCART1	10.36
1,642	636480.00	4269940.00	UCART1	10.42
1,643	636520.00	4269940.00	UCART1	10.69
1,644	636560.00	4269940.00	UCART1	10.94
1,645	636600.00	4269940.00	UCART1	11.34
1,646	636640.00	4269940.00	UCART1	11.75
1,647	636680.00	4269940.00	UCART1	11.89
1,648	636720.00	4269940.00	UCART1	11.99
1,649	636760.00	4269940.00	UCART1	12.19
1,650	636800.00	4269940.00	UCART1	11.97
1,651	636840.00	4269940.00	UCART1	11.75
1,652	636880.00	4269940.00	UCART1	11.10
1,653	636920.00	4269940.00	UCART1	11.79
1,654	636960.00	4269940.00	UCART1	11.93
1,655	637000.00	4269940.00	UCART1	11.59
1,656	637040.00	4269940.00	UCART1	11.02
1,657	637080.00	4269940.00	UCART1	10.35
1,658	637120.00	4269940.00	UCART1	9.92
1,659	637160.00	4269940.00	UCART1	9.49
1,660	637200.00	4269940.00	UCART1	9.08
1,661	637240.00	4269940.00	UCART1	8.68
1,662	637280.00	4269940.00	UCART1	8.05
1,663	637400.00	4269940.00	UCART1	4.57
1,664	637520.00	4269940.00	UCART1	8.19

1,665	637640.00	4269940.00	UCART1	9.93
1,666	637680.00	4269940.00	UCART1	10.42
1,667	637720.00	4269940.00	UCART1	10.67
1,668	637760.00	4269940.00	UCART1	10.67
1,669	637800.00	4269940.00	UCART1	10.61
1,670	637840.00	4269940.00	UCART1	10.36
1,671	637920.00	4269940.00	UCART1	10.36
1,672	637960.00	4269940.00	UCART1	10.36
1,673	638000.00	4269940.00	UCART1	10.36
1,674	638040.00	4269940.00	UCART1	10.41
1,675	636400.00	4269980.00	UCART1	10.50
1,676	636440.00	4269980.00	UCART1	10.36
1,677	636480.00	4269980.00	UCART1	10.42
1,678	636520.00	4269980.00	UCART1	10.67
1,679	636560.00	4269980.00	UCART1	10.89
1,680	636600.00	4269980.00	UCART1	11.03
1,681	636640.00	4269980.00	UCART1	11.44
1,682	636680.00	4269980.00	UCART1	11.80
1,683	636720.00	4269980.00	UCART1	11.89
1,684	636760.00	4269980.00	UCART1	11.86
1,685	636800.00	4269980.00	UCART1	11.57
1,686	636840.00	4269980.00	UCART1	11.16
1,687	636880.00	4269980.00	UCART1	10.79
1,688	636920.00	4269980.00	UCART1	10.89
1,689	636960.00	4269980.00	UCART1	11.16
1,690	637000.00	4269980.00	UCART1	10.92
1,691	637040.00	4269980.00	UCART1	10.66
1,692	637080.00	4269980.00	UCART1	10.25
1,693	637120.00	4269980.00	UCART1	9.87
1,694	637160.00	4269980.00	UCART1	9.49
1,695	637200.00	4269980.00	UCART1	8.78
1,696	637240.00	4269980.00	UCART1	8.37
1,697	637280.00	4269980.00	UCART1	7.96
1,698	637400.00	4269980.00	UCART1	4.57
1,699	637520.00	4269980.00	UCART1	8.24
1,700	637560.00	4269980.00	UCART1	8.91
1,701	637600.00	4269980.00	UCART1	9.36
1,702	637640.00	4269980.00	UCART1	9.98

1,703	637680.00	4269980.00	UCART1	10.17
1,704	637720.00	4269980.00	UCART1	10.64
1,705	637760.00	4269980.00	UCART1	10.67
1,706	637800.00	4269980.00	UCART1	10.41
1,707	637840.00	4269980.00	UCART1	10.41
1,708	637880.00	4269980.00	UCART1	10.41
1,709	637920.00	4269980.00	UCART1	10.41
1,710	637960.00	4269980.00	UCART1	10.55
1,711	638000.00	4269980.00	UCART1	10.67
1,712	638040.00	4269980.00	UCART1	10.62
1,713	638080.00	4269980.00	UCART1	10.64
1,714	638120.00	4269980.00	UCART1	10.67
1,715	638160.00	4269980.00	UCART1	10.67
1,716	638200.00	4269980.00	UCART1	10.67
1,717	638240.00	4269980.00	UCART1	10.67
1,718	638280.00	4269980.00	UCART1	10.40
1,719	638320.00	4269980.00	UCART1	10.23
1,720	636400.00	4270020.00	UCART1	10.43
1,721	636440.00	4270020.00	UCART1	10.36
1,722	636480.00	4270020.00	UCART1	10.55
1,723	636520.00	4270020.00	UCART1	10.67
1,724	636560.00	4270020.00	UCART1	10.67
1,725	636600.00	4270020.00	UCART1	11.03
1,726	636640.00	4270020.00	UCART1	11.44
1,727	636680.00	4270020.00	UCART1	11.58
1,728	636720.00	4270020.00	UCART1	11.73
1,729	636760.00	4270020.00	UCART1	11.57
1,730	636800.00	4270020.00	UCART1	11.30
1,731	636840.00	4270020.00	UCART1	10.79
1,732	636880.00	4270020.00	UCART1	10.67
1,733	636920.00	4270020.00	UCART1	10.67
1,734	636960.00	4270020.00	UCART1	10.79
1,735	637000.00	4270020.00	UCART1	10.67
1,736	637040.00	4270020.00	UCART1	10.40
1,737	637080.00	4270020.00	UCART1	10.03
1,738	637120.00	4270020.00	UCART1	9.82
1,739	637160.00	4270020.00	UCART1	9.49
1,740	637200.00	4270020.00	UCART1	8.90

1,741	637240.00	4270020.00	UCART1	8.37
1,742	637280.00	4270020.00	UCART1	7.97
1,743	637400.00	4270020.00	UCART1	4.57
1,744	637520.00	4270020.00	UCART1	8.63
1,745	637560.00	4270020.00	UCART1	9.12
1,746	637600.00	4270020.00	UCART1	9.68
1,747	637640.00	4270020.00	UCART1	10.02
1,748	637680.00	4270020.00	UCART1	10.12
1,749	637720.00	4270020.00	UCART1	10.53
1,750	637760.00	4270020.00	UCART1	10.67
1,751	637800.00	4270020.00	UCART1	10.67
1,752	637840.00	4270020.00	UCART1	10.67
1,753	637880.00	4270020.00	UCART1	10.67
1,754	637920.00	4270020.00	UCART1	10.67
1,755	637960.00	4270020.00	UCART1	10.59
1,756	638000.00	4270020.00	UCART1	10.51
1,757	638040.00	4270020.00	UCART1	10.36
1,758	638080.00	4270020.00	UCART1	10.44
1,759	638120.00	4270020.00	UCART1	10.65
1,760	638160.00	4270020.00	UCART1	10.67
1,761	638200.00	4270020.00	UCART1	10.67
1,762	638240.00	4270020.00	UCART1	10.67
1,763	638280.00	4270020.00	UCART1	10.61
1,764	638320.00	4270020.00	UCART1	10.36
1,765	636400.00	4270060.00	UCART1	10.36
1,766	636440.00	4270060.00	UCART1	10.36
1,767	636480.00	4270060.00	UCART1	10.67
1,768	636520.00	4270060.00	UCART1	10.67
1,769	636560.00	4270060.00	UCART1	10.67
1,770	636600.00	4270060.00	UCART1	11.03
1,771	636640.00	4270060.00	UCART1	11.30
1,772	636680.00	4270060.00	UCART1	11.55
1,773	636720.00	4270060.00	UCART1	11.53
1,774	636760.00	4270060.00	UCART1	11.30
1,775	636800.00	4270060.00	UCART1	11.06
1,776	636840.00	4270060.00	UCART1	10.67
1,777	636880.00	4270060.00	UCART1	10.67
1,778	636920.00	4270060.00	UCART1	10.67

1,779	636960.00	4270060.00	UCART1	10.67
1,780	637000.00	4270060.00	UCART1	10.67
1,781	637040.00	4270060.00	UCART1	10.40
1,782	637080.00	4270060.00	UCART1	10.06
1,783	637120.00	4270060.00	UCART1	9.90
1,784	637160.00	4270060.00	UCART1	9.49
1,785	637200.00	4270060.00	UCART1	9.07
1,786	637400.00	4270060.00	UCART1	4.57
1,787	637520.00	4270060.00	UCART1	9.01
1,788	637560.00	4270060.00	UCART1	9.52
1,789	637600.00	4270060.00	UCART1	10.01
1,790	637640.00	4270060.00	UCART1	10.05
1,791	637680.00	4270060.00	UCART1	10.12
1,792	637720.00	4270060.00	UCART1	10.39
1,793	637760.00	4270060.00	UCART1	10.41
1,794	637800.00	4270060.00	UCART1	10.41
1,795	637840.00	4270060.00	UCART1	10.41
1,796	637880.00	4270060.00	UCART1	10.41
1,797	637920.00	4270060.00	UCART1	10.41
1,798	637960.00	4270060.00	UCART1	10.25
1,799	638000.00	4270060.00	UCART1	10.11
1,800	638040.00	4270060.00	UCART1	10.16
1,801	638080.00	4270060.00	UCART1	10.36
1,802	638120.00	4270060.00	UCART1	10.41
1,803	638160.00	4270060.00	UCART1	10.67
1,804	638200.00	4270060.00	UCART1	10.67
1,805	638240.00	4270060.00	UCART1	10.67
1,806	638280.00	4270060.00	UCART1	10.66
1,807	638320.00	4270060.00	UCART1	10.48
1,808	636400.00	4270100.00	UCART1	10.36
1,809	636440.00	4270100.00	UCART1	10.63
1,810	636480.00	4270100.00	UCART1	10.73
1,811	636520.00	4270100.00	UCART1	10.84
1,812	636560.00	4270100.00	UCART1	10.72
1,813	636600.00	4270100.00	UCART1	10.97
1,814	636640.00	4270100.00	UCART1	11.11
1,815	636680.00	4270100.00	UCART1	11.27
1,816	636720.00	4270100.00	UCART1	11.27

1,817	636760.00	4270100.00	UCART1	11.09
1,818	636800.00	4270100.00	UCART1	10.93
1,819	636840.00	4270100.00	UCART1	10.67
1,820	636880.00	4270100.00	UCART1	10.67
1,821	636920.00	4270100.00	UCART1	10.67
1,822	636960.00	4270100.00	UCART1	10.67
1,823	637000.00	4270100.00	UCART1	10.67
1,824	637040.00	4270100.00	UCART1	10.45
1,825	637080.00	4270100.00	UCART1	10.35
1,826	637120.00	4270100.00	UCART1	10.08
1,827	637160.00	4270100.00	UCART1	9.79
1,828	637200.00	4270100.00	UCART1	9.12
1,829	637240.00	4270100.00	UCART1	8.54
1,830	637280.00	4270100.00	UCART1	7.97
1,831	637360.00	4270100.00	UCART1	4.57
1,832	637400.00	4270100.00	UCART1	4.57
1,833	637560.00	4270100.00	UCART1	10.13
1,834	637600.00	4270100.00	UCART1	10.41
1,835	637640.00	4270100.00	UCART1	10.37
1,836	637680.00	4270100.00	UCART1	10.11
1,837	637720.00	4270100.00	UCART1	10.25
1,838	637760.00	4270100.00	UCART1	10.63
1,839	637800.00	4270100.00	UCART1	10.26
1,840	637840.00	4270100.00	UCART1	10.03
1,841	637880.00	4270100.00	UCART1	10.01
1,842	637920.00	4270100.00	UCART1	10.01
1,843	637960.00	4270100.00	UCART1	9.84
1,844	638000.00	4270100.00	UCART1	9.70
1,845	638040.00	4270100.00	UCART1	10.02
1,846	638080.00	4270100.00	UCART1	10.22
1,847	638120.00	4270100.00	UCART1	10.41
1,848	638160.00	4270100.00	UCART1	10.67
1,849	638200.00	4270100.00	UCART1	10.67
1,850	638240.00	4270100.00	UCART1	10.67
1,851	638280.00	4270100.00	UCART1	10.67
1,852	638320.00	4270100.00	UCART1	10.51
1,853	636400.00	4270140.00	UCART1	10.36
1,854	636440.00	4270140.00	UCART1	10.63

1,855	636480.00	4270140.00	UCART1	10.70
1,856	636520.00	4270140.00	UCART1	10.90
1,857	636560.00	4270140.00	UCART1	10.97
1,858	636600.00	4270140.00	UCART1	10.97
1,859	636640.00	4270140.00	UCART1	10.97
1,860	636680.00	4270140.00	UCART1	11.10
1,861	636720.00	4270140.00	UCART1	11.09
1,862	636760.00	4270140.00	UCART1	10.97
1,863	636800.00	4270140.00	UCART1	10.71
1,864	636840.00	4270140.00	UCART1	10.67
1,865	636880.00	4270140.00	UCART1	10.67
1,866	636920.00	4270140.00	UCART1	10.67
1,867	636960.00	4270140.00	UCART1	10.67
1,868	637000.00	4270140.00	UCART1	10.67
1,869	637040.00	4270140.00	UCART1	10.67
1,870	637080.00	4270140.00	UCART1	10.64
1,871	637120.00	4270140.00	UCART1	10.35
1,872	637160.00	4270140.00	UCART1	9.95
1,873	637200.00	4270140.00	UCART1	9.48
1,874	637240.00	4270140.00	UCART1	8.75
1,875	637280.00	4270140.00	UCART1	8.01
1,876	637360.00	4270140.00	UCART1	4.57
1,877	637400.00	4270140.00	UCART1	4.57
1,878	637480.00	4270140.00	UCART1	9.08
1,879	637520.00	4270140.00	UCART1	9.16
1,880	637560.00	4270140.00	UCART1	10.06
1,881	637600.00	4270140.00	UCART1	10.67
1,882	637640.00	4270140.00	UCART1	10.54
1,883	637680.00	4270140.00	UCART1	10.52
1,884	637720.00	4270140.00	UCART1	10.52
1,885	637760.00	4270140.00	UCART1	10.65
1,886	637800.00	4270140.00	UCART1	10.15
1,887	637840.00	4270140.00	UCART1	9.74
1,888	637880.00	4270140.00	UCART1	9.60
1,889	637920.00	4270140.00	UCART1	9.60
1,890	637960.00	4270140.00	UCART1	9.52
1,891	638000.00	4270140.00	UCART1	9.32
1,892	638040.00	4270140.00	UCART1	9.75

1,893	638080.00	4270140.00	UCART1	10.36
1,894	638120.00	4270140.00	UCART1	10.63
1,895	638160.00	4270140.00	UCART1	10.67
1,896	638200.00	4270140.00	UCART1	10.67
1,897	638240.00	4270140.00	UCART1	10.67
1,898	638280.00	4270140.00	UCART1	10.67
1,899	638320.00	4270140.00	UCART1	10.51
1,900	638360.00	4270140.00	UCART1	10.36
1,901	636400.00	4270180.00	UCART1	10.36
1,902	636440.00	4270180.00	UCART1	10.63
1,903	636480.00	4270180.00	UCART1	10.67
1,904	636520.00	4270180.00	UCART1	10.69
1,905	636560.00	4270180.00	UCART1	10.72
1,906	636600.00	4270180.00	UCART1	10.97
1,907	636640.00	4270180.00	UCART1	10.97
1,908	636680.00	4270180.00	UCART1	10.97
1,909	636720.00	4270180.00	UCART1	10.97
1,910	636760.00	4270180.00	UCART1	10.84
1,911	636800.00	4270180.00	UCART1	10.67
1,912	636840.00	4270180.00	UCART1	10.67
1,913	636880.00	4270180.00	UCART1	10.67
1,914	636920.00	4270180.00	UCART1	10.67
1,915	636960.00	4270180.00	UCART1	10.67
1,916	637000.00	4270180.00	UCART1	10.67
1,917	637040.00	4270180.00	UCART1	10.67
1,918	637080.00	4270180.00	UCART1	10.67
1,919	637120.00	4270180.00	UCART1	10.64
1,920	637160.00	4270180.00	UCART1	10.35
1,921	637200.00	4270180.00	UCART1	9.68
1,922	637240.00	4270180.00	UCART1	8.94
1,923	637360.00	4270180.00	UCART1	4.57
1,924	637400.00	4270180.00	UCART1	4.57
1,925	637520.00	4270180.00	UCART1	10.02
1,926	637560.00	4270180.00	UCART1	9.94
1,927	637600.00	4270180.00	UCART1	10.67
1,928	637640.00	4270180.00	UCART1	10.67
1,929	637680.00	4270180.00	UCART1	10.62
1,930	637720.00	4270180.00	UCART1	10.41

1,931	637760.00	4270180.00	UCART1	10.19
1,932	637800.00	4270180.00	UCART1	9.53
1,933	637840.00	4270180.00	UCART1	9.22
1,934	637880.00	4270180.00	UCART1	9.42
1,935	637920.00	4270180.00	UCART1	9.40
1,936	637960.00	4270180.00	UCART1	9.19
1,937	638000.00	4270180.00	UCART1	9.15
1,938	638040.00	4270180.00	UCART1	9.64
1,939	638080.00	4270180.00	UCART1	10.52
1,940	638120.00	4270180.00	UCART1	10.66
1,941	638160.00	4270180.00	UCART1	10.67
1,942	638200.00	4270180.00	UCART1	10.67
1,943	638240.00	4270180.00	UCART1	10.67
1,944	638280.00	4270180.00	UCART1	10.67
1,945	638320.00	4270180.00	UCART1	10.64
1,946	638360.00	4270180.00	UCART1	10.40
1,947	636400.00	4270220.00	UCART1	10.39
1,948	636440.00	4270220.00	UCART1	10.41
1,949	636480.00	4270220.00	UCART1	10.67
1,950	636520.00	4270220.00	UCART1	10.67
1,951	636560.00	4270220.00	UCART1	10.67
1,952	636600.00	4270220.00	UCART1	10.67
1,953	636640.00	4270220.00	UCART1	10.80
1,954	636680.00	4270220.00	UCART1	10.92
1,955	636720.00	4270220.00	UCART1	10.87
1,956	636760.00	4270220.00	UCART1	10.67
1,957	636800.00	4270220.00	UCART1	10.67
1,958	636840.00	4270220.00	UCART1	10.67
1,959	636880.00	4270220.00	UCART1	10.67
1,960	636920.00	4270220.00	UCART1	10.67
1,961	636960.00	4270220.00	UCART1	10.67
1,962	637000.00	4270220.00	UCART1	10.67
1,963	637040.00	4270220.00	UCART1	10.67
1,964	637080.00	4270220.00	UCART1	10.67
1,965	637120.00	4270220.00	UCART1	10.67
1,966	637160.00	4270220.00	UCART1	10.62
1,967	637200.00	4270220.00	UCART1	10.32
1,968	637240.00	4270220.00	UCART1	9.73

1,969	637360.00	4270220.00	UCART1	4.57
1,970	637400.00	4270220.00	UCART1	4.57
1,971	637480.00	4270220.00	UCART1	9.96
1,972	637520.00	4270220.00	UCART1	10.67
1,973	637560.00	4270220.00	UCART1	10.36
1,974	637600.00	4270220.00	UCART1	10.36
1,975	637640.00	4270220.00	UCART1	10.36
1,976	637680.00	4270220.00	UCART1	10.36
1,977	637720.00	4270220.00	UCART1	10.20
1,978	637760.00	4270220.00	UCART1	9.79
1,979	637800.00	4270220.00	UCART1	9.40
1,980	637840.00	4270220.00	UCART1	9.17
1,981	637880.00	4270220.00	UCART1	9.14
1,982	637920.00	4270220.00	UCART1	9.14
1,983	637960.00	4270220.00	UCART1	9.31
1,984	638000.00	4270220.00	UCART1	10.42
1,985	638040.00	4270220.00	UCART1	10.40
1,986	638080.00	4270220.00	UCART1	10.53
1,987	638120.00	4270220.00	UCART1	10.67
1,988	638160.00	4270220.00	UCART1	10.67
1,989	638200.00	4270220.00	UCART1	10.67
1,990	638240.00	4270220.00	UCART1	10.67
1,991	638280.00	4270220.00	UCART1	10.67
1,992	638320.00	4270220.00	UCART1	10.67
1,993	638360.00	4270220.00	UCART1	10.67
1,994	636400.00	4270260.00	UCART1	10.53
1,995	636440.00	4270260.00	UCART1	10.67
1,996	636480.00	4270260.00	UCART1	10.67
1,997	636520.00	4270260.00	UCART1	10.67
1,998	636560.00	4270260.00	UCART1	10.67
1,999	636600.00	4270260.00	UCART1	10.67
2,000	636640.00	4270260.00	UCART1	10.67
2,001	636680.00	4270260.00	UCART1	10.67
2,002	636720.00	4270260.00	UCART1	10.67
2,003	636760.00	4270260.00	UCART1	10.67
2,004	636800.00	4270260.00	UCART1	10.67
2,005	636840.00	4270260.00	UCART1	10.67
2,006	636880.00	4270260.00	UCART1	10.67

2,007	636920.00	4270260.00	UCART1	10.67
2,008	636960.00	4270260.00	UCART1	10.67
2,009	637000.00	4270260.00	UCART1	10.67
2,010	637040.00	4270260.00	UCART1	10.67
2,011	637080.00	4270260.00	UCART1	10.67
2,012	637120.00	4270260.00	UCART1	10.67
2,013	637160.00	4270260.00	UCART1	10.40
2,014	637200.00	4270260.00	UCART1	10.06
2,015	637240.00	4270260.00	UCART1	9.89
2,016	637360.00	4270260.00	UCART1	4.57
2,017	637400.00	4270260.00	UCART1	4.57
2,018	637520.00	4270260.00	UCART1	10.65
2,019	637560.00	4270260.00	UCART1	10.49
2,020	637600.00	4270260.00	UCART1	10.36
2,021	637640.00	4270260.00	UCART1	10.36
2,022	637680.00	4270260.00	UCART1	10.33
2,023	637720.00	4270260.00	UCART1	10.13
2,024	637760.00	4270260.00	UCART1	9.79
2,025	637800.00	4270260.00	UCART1	9.57
2,026	637840.00	4270260.00	UCART1	9.37
2,027	637880.00	4270260.00	UCART1	9.16
2,028	637920.00	4270260.00	UCART1	9.14
2,029	637960.00	4270260.00	UCART1	9.23
2,030	638000.00	4270260.00	UCART1	9.82
2,031	638040.00	4270260.00	UCART1	10.52
2,032	638080.00	4270260.00	UCART1	10.76
2,033	638120.00	4270260.00	UCART1	10.84
2,034	638160.00	4270260.00	UCART1	10.67
2,035	638200.00	4270260.00	UCART1	10.67
2,036	638240.00	4270260.00	UCART1	10.67
2,037	638280.00	4270260.00	UCART1	10.67
2,038	638320.00	4270260.00	UCART1	10.67
2,039	638360.00	4270260.00	UCART1	10.67
2,040	636400.00	4270300.00	UCART1	10.64
2,041	636440.00	4270300.00	UCART1	10.67
2,042	636480.00	4270300.00	UCART1	10.67
2,043	636520.00	4270300.00	UCART1	10.67
2,044	636560.00	4270300.00	UCART1	10.67

2,045	636600.00	4270300.00	UCART1	10.67
2,046	636640.00	4270300.00	UCART1	10.67
2,047	636680.00	4270300.00	UCART1	10.67
2,048	636720.00	4270300.00	UCART1	10.67
2,049	636760.00	4270300.00	UCART1	10.67
2,050	636800.00	4270300.00	UCART1	10.67
2,051	636840.00	4270300.00	UCART1	10.67
2,052	636880.00	4270300.00	UCART1	10.53
2,053	636920.00	4270300.00	UCART1	10.41
2,054	636960.00	4270300.00	UCART1	10.41
2,055	637000.00	4270300.00	UCART1	10.55
2,056	637040.00	4270300.00	UCART1	10.67
2,057	637080.00	4270300.00	UCART1	10.67
2,058	637120.00	4270300.00	UCART1	10.53
2,059	637160.00	4270300.00	UCART1	10.59
2,060	637200.00	4270300.00	UCART1	10.41
2,061	637240.00	4270300.00	UCART1	9.39
2,062	637360.00	4270300.00	UCART1	4.57
2,063	637400.00	4270300.00	UCART1	4.57
2,064	637440.00	4270300.00	UCART1	7.33
2,065	637480.00	4270300.00	UCART1	8.99
2,066	637520.00	4270300.00	UCART1	10.49
2,067	637560.00	4270300.00	UCART1	10.61
2,068	637600.00	4270300.00	UCART1	10.36
2,069	637640.00	4270300.00	UCART1	10.36
2,070	637680.00	4270300.00	UCART1	10.30
2,071	637720.00	4270300.00	UCART1	10.06
2,072	637760.00	4270300.00	UCART1	9.79
2,073	637800.00	4270300.00	UCART1	9.69
2,074	637840.00	4270300.00	UCART1	9.45
2,075	637880.00	4270300.00	UCART1	9.41
2,076	637920.00	4270300.00	UCART1	9.14
2,077	637960.00	4270300.00	UCART1	9.14
2,078	638000.00	4270300.00	UCART1	9.45
2,079	638040.00	4270300.00	UCART1	10.68
2,080	638080.00	4270300.00	UCART1	11.11
2,081	638120.00	4270300.00	UCART1	11.23
2,082	638160.00	4270300.00	UCART1	11.13

2,083	638200.00	4270300.00	UCART1	10.92
2,084	638240.00	4270300.00	UCART1	10.92
2,085	638280.00	4270300.00	UCART1	10.92
2,086	638320.00	4270300.00	UCART1	10.79
2,087	638360.00	4270300.00	UCART1	10.67
2,088	636400.00	4270340.00	UCART1	10.67
2,089	636440.00	4270340.00	UCART1	10.67
2,090	636480.00	4270340.00	UCART1	10.67
2,091	636520.00	4270340.00	UCART1	10.67
2,092	636560.00	4270340.00	UCART1	10.67
2,093	636600.00	4270340.00	UCART1	10.67
2,094	636640.00	4270340.00	UCART1	10.67
2,095	636680.00	4270340.00	UCART1	10.67
2,096	636720.00	4270340.00	UCART1	10.67
2,097	636760.00	4270340.00	UCART1	10.67
2,098	636800.00	4270340.00	UCART1	10.62
2,099	636840.00	4270340.00	UCART1	10.36
2,100	636880.00	4270340.00	UCART1	10.36
2,101	636920.00	4270340.00	UCART1	10.36
2,102	636960.00	4270340.00	UCART1	10.36
2,103	637000.00	4270340.00	UCART1	10.53
2,104	637040.00	4270340.00	UCART1	10.67
2,105	637080.00	4270340.00	UCART1	10.61
2,106	637120.00	4270340.00	UCART1	10.20
2,107	637160.00	4270340.00	UCART1	10.06
2,108	637200.00	4270340.00	UCART1	10.29
2,109	637240.00	4270340.00	UCART1	9.23
2,110	637480.00	4270340.00	UCART1	8.69
2,111	637520.00	4270340.00	UCART1	10.47
2,112	637560.00	4270340.00	UCART1	10.62
2,113	637600.00	4270340.00	UCART1	10.55
2,114	637640.00	4270340.00	UCART1	10.45
2,115	637680.00	4270340.00	UCART1	10.31
2,116	637720.00	4270340.00	UCART1	10.08
2,117	637760.00	4270340.00	UCART1	9.84
2,118	637800.00	4270340.00	UCART1	9.75
2,119	637840.00	4270340.00	UCART1	9.62
2,120	637880.00	4270340.00	UCART1	9.46

2,121	637920.00	4270340.00	UCART1	9.40
2,122	637960.00	4270340.00	UCART1	9.20
2,123	638000.00	4270340.00	UCART1	9.15
2,124	638040.00	4270340.00	UCART1	10.22
2,125	638080.00	4270340.00	UCART1	11.82
2,126	638120.00	4270340.00	UCART1	11.72
2,127	638160.00	4270340.00	UCART1	11.58
2,128	638200.00	4270340.00	UCART1	11.38
2,129	638240.00	4270340.00	UCART1	11.38
2,130	638280.00	4270340.00	UCART1	11.23
2,131	638320.00	4270340.00	UCART1	11.00
2,132	638360.00	4270340.00	UCART1	10.71
2,133	636400.00	4270380.00	UCART1	10.67
2,134	636440.00	4270380.00	UCART1	10.67
2,135	636480.00	4270380.00	UCART1	10.67
2,136	636520.00	4270380.00	UCART1	10.67
2,137	636560.00	4270380.00	UCART1	10.67
2,138	636600.00	4270380.00	UCART1	10.67
2,139	636640.00	4270380.00	UCART1	10.67
2,140	636680.00	4270380.00	UCART1	10.67
2,141	636720.00	4270380.00	UCART1	10.67
2,142	636760.00	4270380.00	UCART1	10.67
2,143	636800.00	4270380.00	UCART1	10.40
2,144	636840.00	4270380.00	UCART1	10.33
2,145	636880.00	4270380.00	UCART1	10.21
2,146	636920.00	4270380.00	UCART1	10.34
2,147	636960.00	4270380.00	UCART1	10.39
2,148	637000.00	4270380.00	UCART1	10.60
2,149	637040.00	4270380.00	UCART1	10.67
2,150	637080.00	4270380.00	UCART1	10.48
2,151	637120.00	4270380.00	UCART1	10.20
2,152	637160.00	4270380.00	UCART1	10.06
2,153	637200.00	4270380.00	UCART1	10.03
2,154	637240.00	4270380.00	UCART1	9.58
2,155	637360.00	4270380.00	UCART1	4.57
2,156	637400.00	4270380.00	UCART1	4.57
2,157	637480.00	4270380.00	UCART1	8.51
2,158	637520.00	4270380.00	UCART1	10.47

2,159	637560.00	4270380.00	UCART1	10.79
2,160	637600.00	4270380.00	UCART1	10.67
2,161	637640.00	4270380.00	UCART1	10.67
2,162	637680.00	4270380.00	UCART1	10.36
2,163	637720.00	4270380.00	UCART1	10.20
2,164	637760.00	4270380.00	UCART1	10.06
2,165	637800.00	4270380.00	UCART1	9.88
2,166	637840.00	4270380.00	UCART1	9.75
2,167	637880.00	4270380.00	UCART1	9.62
2,168	637920.00	4270380.00	UCART1	9.60
2,169	637960.00	4270380.00	UCART1	9.68
2,170	638000.00	4270380.00	UCART1	9.62
2,171	638040.00	4270380.00	UCART1	9.60
2,172	638080.00	4270380.00	UCART1	10.94
2,173	638120.00	4270380.00	UCART1	11.98
2,174	638160.00	4270380.00	UCART1	12.04
2,175	638200.00	4270380.00	UCART1	12.04
2,176	638240.00	4270380.00	UCART1	11.91
2,177	638280.00	4270380.00	UCART1	11.37
2,178	638320.00	4270380.00	UCART1	11.04
2,179	638360.00	4270380.00	UCART1	10.71
2,180	636400.00	4270420.00	UCART1	10.67
2,181	636440.00	4270420.00	UCART1	10.67
2,182	636480.00	4270420.00	UCART1	10.41
2,183	636520.00	4270420.00	UCART1	10.41
2,184	636560.00	4270420.00	UCART1	10.63
2,185	636600.00	4270420.00	UCART1	10.67
2,186	636640.00	4270420.00	UCART1	10.67
2,187	636680.00	4270420.00	UCART1	10.67
2,188	636720.00	4270420.00	UCART1	10.67
2,189	636760.00	4270420.00	UCART1	10.53
2,190	636800.00	4270420.00	UCART1	10.37
2,191	636840.00	4270420.00	UCART1	10.10
2,192	636880.00	4270420.00	UCART1	10.06
2,193	636920.00	4270420.00	UCART1	10.32
2,194	636960.00	4270420.00	UCART1	10.42
2,195	637000.00	4270420.00	UCART1	10.67
2,196	637040.00	4270420.00	UCART1	10.67

2,197	637080.00	4270420.00	UCART1	10.57
2,198	637120.00	4270420.00	UCART1	10.20
2,199	637160.00	4270420.00	UCART1	10.28
2,200	637200.00	4270420.00	UCART1	10.37
2,201	637240.00	4270420.00	UCART1	10.13
2,202	637280.00	4270420.00	UCART1	8.87
2,203	637400.00	4270420.00	UCART1	4.57
2,204	637520.00	4270420.00	UCART1	9.33
2,205	637560.00	4270420.00	UCART1	10.71
2,206	637600.00	4270420.00	UCART1	10.67
2,207	637640.00	4270420.00	UCART1	10.67
2,208	637680.00	4270420.00	UCART1	10.36
2,209	637720.00	4270420.00	UCART1	10.20
2,210	637760.00	4270420.00	UCART1	10.06
2,211	637800.00	4270420.00	UCART1	10.05
2,212	637840.00	4270420.00	UCART1	10.01
2,213	637880.00	4270420.00	UCART1	10.01
2,214	637920.00	4270420.00	UCART1	10.06
2,215	637960.00	4270420.00	UCART1	10.43
2,216	638000.00	4270420.00	UCART1	10.79
2,217	638040.00	4270420.00	UCART1	10.35
2,218	638080.00	4270420.00	UCART1	10.62
2,219	638120.00	4270420.00	UCART1	10.85
2,220	638160.00	4270420.00	UCART1	11.17
2,221	638200.00	4270420.00	UCART1	12.19
2,222	638240.00	4270420.00	UCART1	12.15
2,223	638280.00	4270420.00	UCART1	11.26
2,224	638320.00	4270420.00	UCART1	10.97
2,225	638360.00	4270420.00	UCART1	10.71
2,226	636400.00	4270460.00	UCART1	10.67
2,227	636440.00	4270460.00	UCART1	10.62
2,228	636480.00	4270460.00	UCART1	10.32
2,229	636520.00	4270460.00	UCART1	10.36
2,230	636560.00	4270460.00	UCART1	10.36
2,231	636600.00	4270460.00	UCART1	10.67
2,232	636640.00	4270460.00	UCART1	10.67
2,233	636680.00	4270460.00	UCART1	10.67
2,234	636720.00	4270460.00	UCART1	10.66

2,235	636760.00	4270460.00	UCART1	10.48
2,236	636800.00	4270460.00	UCART1	10.32
2,237	636840.00	4270460.00	UCART1	10.06
2,238	636880.00	4270460.00	UCART1	10.06
2,239	636920.00	4270460.00	UCART1	10.10
2,240	636960.00	4270460.00	UCART1	10.42
2,241	637000.00	4270460.00	UCART1	10.67
2,242	637040.00	4270460.00	UCART1	10.67
2,243	637080.00	4270460.00	UCART1	10.66
2,244	637120.00	4270460.00	UCART1	10.51
2,245	637160.00	4270460.00	UCART1	10.41
2,246	637200.00	4270460.00	UCART1	10.67
2,247	637240.00	4270460.00	UCART1	10.37
2,248	637280.00	4270460.00	UCART1	9.05
2,249	637400.00	4270460.00	UCART1	4.57
2,250	637520.00	4270460.00	UCART1	9.02
2,251	637560.00	4270460.00	UCART1	9.61
2,252	637600.00	4270460.00	UCART1	10.35
2,253	637640.00	4270460.00	UCART1	10.35
2,254	637680.00	4270460.00	UCART1	10.36
2,255	637720.00	4270460.00	UCART1	10.36
2,256	637760.00	4270460.00	UCART1	10.10
2,257	637800.00	4270460.00	UCART1	10.06
2,258	637840.00	4270460.00	UCART1	10.09
2,259	637880.00	4270460.00	UCART1	10.11
2,260	637920.00	4270460.00	UCART1	10.47
2,261	637960.00	4270460.00	UCART1	10.67
2,262	638000.00	4270460.00	UCART1	10.67
2,263	638040.00	4270460.00	UCART1	10.67
2,264	638080.00	4270460.00	UCART1	10.67
2,265	638120.00	4270460.00	UCART1	10.67
2,266	638160.00	4270460.00	UCART1	10.72
2,267	638200.00	4270460.00	UCART1	10.81
2,268	638240.00	4270460.00	UCART1	11.55
2,269	638280.00	4270460.00	UCART1	10.71
2,270	638320.00	4270460.00	UCART1	10.67
2,271	638360.00	4270460.00	UCART1	10.67
2,272	636400.00	4270500.00	UCART1	10.74

2,273	636440.00	4270500.00	UCART1	10.40
2,274	636480.00	4270500.00	UCART1	10.09
2,275	636520.00	4270500.00	UCART1	10.29
2,276	636560.00	4270500.00	UCART1	10.36
2,277	636600.00	4270500.00	UCART1	10.67
2,278	636640.00	4270500.00	UCART1	10.67
2,279	636680.00	4270500.00	UCART1	10.67
2,280	636720.00	4270500.00	UCART1	10.61
2,281	636760.00	4270500.00	UCART1	10.28
2,282	636800.00	4270500.00	UCART1	10.08
2,283	636840.00	4270500.00	UCART1	10.06
2,284	636880.00	4270500.00	UCART1	10.06
2,285	636920.00	4270500.00	UCART1	10.32
2,286	636960.00	4270500.00	UCART1	10.42
2,287	637000.00	4270500.00	UCART1	10.67
2,288	637040.00	4270500.00	UCART1	10.67
2,289	637080.00	4270500.00	UCART1	10.52
2,290	637120.00	4270500.00	UCART1	10.60
2,291	637160.00	4270500.00	UCART1	10.67
2,292	637200.00	4270500.00	UCART1	10.67
2,293	637240.00	4270500.00	UCART1	10.51
2,294	637280.00	4270500.00	UCART1	9.44
2,295	637400.00	4270500.00	UCART1	4.57
2,296	637440.00	4270500.00	UCART1	5.09
2,297	637520.00	4270500.00	UCART1	8.70
2,298	637560.00	4270500.00	UCART1	9.05
2,299	637600.00	4270500.00	UCART1	9.46
2,300	637640.00	4270500.00	UCART1	10.40
2,301	637680.00	4270500.00	UCART1	10.36
2,302	637720.00	4270500.00	UCART1	10.36
2,303	637760.00	4270500.00	UCART1	10.23
2,304	637800.00	4270500.00	UCART1	10.21
2,305	637840.00	4270500.00	UCART1	10.29
2,306	637880.00	4270500.00	UCART1	10.36
2,307	637920.00	4270500.00	UCART1	10.67
2,308	637960.00	4270500.00	UCART1	10.67
2,309	638000.00	4270500.00	UCART1	10.67
2,310	638040.00	4270500.00	UCART1	10.67

2,311	638080.00	4270500.00	UCART1	10.67
2,312	638120.00	4270500.00	UCART1	10.67
2,313	638160.00	4270500.00	UCART1	10.67
2,314	638200.00	4270500.00	UCART1	10.75
2,315	638240.00	4270500.00	UCART1	10.69
2,316	638280.00	4270500.00	UCART1	10.79
2,317	638320.00	4270500.00	UCART1	10.67
2,318	638360.00	4270500.00	UCART1	10.67
2,319	636400.00	4270540.00	UCART1	10.69
2,320	636440.00	4270540.00	UCART1	10.18
2,321	636480.00	4270540.00	UCART1	10.06
2,322	636520.00	4270540.00	UCART1	10.22
2,323	636560.00	4270540.00	UCART1	10.36
2,324	636600.00	4270540.00	UCART1	10.67
2,325	636640.00	4270540.00	UCART1	10.67
2,326	636680.00	4270540.00	UCART1	10.45
2,327	636720.00	4270540.00	UCART1	10.35
2,328	636760.00	4270540.00	UCART1	10.08
2,329	636800.00	4270540.00	UCART1	10.06
2,330	636840.00	4270540.00	UCART1	10.06
2,331	636880.00	4270540.00	UCART1	10.19
2,332	636920.00	4270540.00	UCART1	10.36
2,333	636960.00	4270540.00	UCART1	10.37
2,334	637000.00	4270540.00	UCART1	10.55
2,335	637040.00	4270540.00	UCART1	10.67
2,336	637080.00	4270540.00	UCART1	10.63
2,337	637120.00	4270540.00	UCART1	10.67
2,338	637160.00	4270540.00	UCART1	10.45
2,339	637200.00	4270540.00	UCART1	10.46
2,340	637240.00	4270540.00	UCART1	10.64
2,341	637280.00	4270540.00	UCART1	9.60
2,342	637400.00	4270540.00	UCART1	4.57
2,343	637440.00	4270540.00	UCART1	5.07
2,344	637560.00	4270540.00	UCART1	9.10
2,345	637600.00	4270540.00	UCART1	9.44
2,346	637640.00	4270540.00	UCART1	10.54
2,347	637680.00	4270540.00	UCART1	10.57
2,348	637720.00	4270540.00	UCART1	10.36

2,349	637760.00	4270540.00	UCART1	10.36
2,350	637800.00	4270540.00	UCART1	10.36
2,351	637840.00	4270540.00	UCART1	10.36
2,352	637880.00	4270540.00	UCART1	10.58
2,353	637920.00	4270540.00	UCART1	10.67
2,354	637960.00	4270540.00	UCART1	10.67
2,355	638000.00	4270540.00	UCART1	10.67
2,356	638040.00	4270540.00	UCART1	10.67
2,357	638080.00	4270540.00	UCART1	10.67
2,358	638120.00	4270540.00	UCART1	10.67
2,359	638160.00	4270540.00	UCART1	10.67
2,360	638200.00	4270540.00	UCART1	10.67
2,361	638240.00	4270540.00	UCART1	10.67
2,362	638280.00	4270540.00	UCART1	10.67
2,363	638320.00	4270540.00	UCART1	10.67
2,364	638360.00	4270540.00	UCART1	10.67
2,365	636400.00	4270580.00	UCART1	10.62
2,366	636440.00	4270580.00	UCART1	10.05
2,367	636480.00	4270580.00	UCART1	10.07
2,368	636520.00	4270580.00	UCART1	10.25
2,369	636560.00	4270580.00	UCART1	10.63
2,370	636600.00	4270580.00	UCART1	10.49
2,371	636640.00	4270580.00	UCART1	9.91
2,372	636680.00	4270580.00	UCART1	9.43
2,373	636720.00	4270580.00	UCART1	9.66
2,374	636760.00	4270580.00	UCART1	9.73
2,375	636800.00	4270580.00	UCART1	9.97
2,376	636840.00	4270580.00	UCART1	10.06
2,377	636880.00	4270580.00	UCART1	10.06
2,378	636920.00	4270580.00	UCART1	10.28
2,379	636960.00	4270580.00	UCART1	10.32
2,380	637000.00	4270580.00	UCART1	10.36
2,381	637040.00	4270580.00	UCART1	10.58
2,382	637080.00	4270580.00	UCART1	10.66
2,383	637120.00	4270580.00	UCART1	10.62
2,384	637160.00	4270580.00	UCART1	10.40
2,385	637200.00	4270580.00	UCART1	10.42
2,386	637240.00	4270580.00	UCART1	10.67

2,387	637280.00	4270580.00	UCART1	9.92
2,388	637400.00	4270580.00	UCART1	4.57
2,389	637440.00	4270580.00	UCART1	5.12
2,390	637560.00	4270580.00	UCART1	8.86
2,391	637640.00	4270580.00	UCART1	10.15
2,392	637680.00	4270580.00	UCART1	10.63
2,393	637720.00	4270580.00	UCART1	10.67
2,394	637760.00	4270580.00	UCART1	10.67
2,395	637800.00	4270580.00	UCART1	10.67
2,396	637840.00	4270580.00	UCART1	10.67
2,397	637880.00	4270580.00	UCART1	10.67
2,398	637920.00	4270580.00	UCART1	10.67
2,399	637960.00	4270580.00	UCART1	10.64
2,400	638000.00	4270580.00	UCART1	10.66
2,401	638040.00	4270580.00	UCART1	10.67
2,402	638080.00	4270580.00	UCART1	10.67
2,403	638120.00	4270580.00	UCART1	10.67
2,404	638160.00	4270580.00	UCART1	10.67
2,405	638200.00	4270580.00	UCART1	10.67
2,406	638240.00	4270580.00	UCART1	10.67
2,407	638280.00	4270580.00	UCART1	10.67
2,408	638320.00	4270580.00	UCART1	10.67
2,409	638360.00	4270580.00	UCART1	10.67
2,410	636400.00	4270620.00	UCART1	10.42
2,411	636440.00	4270620.00	UCART1	9.81
2,412	636480.00	4270620.00	UCART1	10.24
2,413	636520.00	4270620.00	UCART1	10.45
2,414	636560.00	4270620.00	UCART1	10.38
2,415	636600.00	4270620.00	UCART1	9.54
2,416	636640.00	4270620.00	UCART1	9.21
2,417	636680.00	4270620.00	UCART1	9.14
2,418	636720.00	4270620.00	UCART1	9.17
2,419	636760.00	4270620.00	UCART1	9.46
2,420	636800.00	4270620.00	UCART1	9.73
2,421	636840.00	4270620.00	UCART1	9.91
2,422	636880.00	4270620.00	UCART1	9.91
2,423	636920.00	4270620.00	UCART1	10.04
2,424	636960.00	4270620.00	UCART1	10.09

2,425	637000.00	4270620.00	UCART1	10.21
2,426	637040.00	4270620.00	UCART1	10.21
2,427	637080.00	4270620.00	UCART1	10.33
2,428	637120.00	4270620.00	UCART1	10.21
2,429	637160.00	4270620.00	UCART1	10.21
2,430	637200.00	4270620.00	UCART1	10.39
2,431	637240.00	4270620.00	UCART1	10.60
2,432	637280.00	4270620.00	UCART1	10.40
2,433	637400.00	4270620.00	UCART1	4.57
2,434	637440.00	4270620.00	UCART1	5.15
2,435	637640.00	4270620.00	UCART1	9.54
2,436	637680.00	4270620.00	UCART1	10.12
2,437	637720.00	4270620.00	UCART1	10.44
2,438	637760.00	4270620.00	UCART1	10.51
2,439	637800.00	4270620.00	UCART1	10.51
2,440	637840.00	4270620.00	UCART1	10.60
2,441	637880.00	4270620.00	UCART1	10.67
2,442	637920.00	4270620.00	UCART1	10.67
2,443	637960.00	4270620.00	UCART1	10.51
2,444	638000.00	4270620.00	UCART1	10.49
2,445	638040.00	4270620.00	UCART1	10.67
2,446	638080.00	4270620.00	UCART1	10.67
2,447	638120.00	4270620.00	UCART1	10.67
2,448	638160.00	4270620.00	UCART1	10.67
2,449	638200.00	4270620.00	UCART1	10.67
2,450	638240.00	4270620.00	UCART1	10.67
2,451	638280.00	4270620.00	UCART1	10.67
2,452	638320.00	4270620.00	UCART1	10.67
2,453	638360.00	4270620.00	UCART1	10.67
2,454	636400.00	4270660.00	UCART1	10.21
2,455	636440.00	4270660.00	UCART1	9.76
2,456	636480.00	4270660.00	UCART1	10.52
2,457	636520.00	4270660.00	UCART1	9.73
2,458	636560.00	4270660.00	UCART1	9.31
2,459	636600.00	4270660.00	UCART1	9.14
2,460	636640.00	4270660.00	UCART1	9.14
2,461	636680.00	4270660.00	UCART1	9.14
2,462	636720.00	4270660.00	UCART1	9.14

2,463	636760.00	4270660.00	UCART1	9.31
2,464	636800.00	4270660.00	UCART1	9.49
2,465	636840.00	4270660.00	UCART1	9.75
2,466	636880.00	4270660.00	UCART1	9.75
2,467	636920.00	4270660.00	UCART1	9.80
2,468	636960.00	4270660.00	UCART1	9.80
2,469	637000.00	4270660.00	UCART1	9.80
2,470	637040.00	4270660.00	UCART1	9.80
2,471	637080.00	4270660.00	UCART1	9.80
2,472	637120.00	4270660.00	UCART1	9.80
2,473	637160.00	4270660.00	UCART1	9.80
2,474	637200.00	4270660.00	UCART1	10.11
2,475	637240.00	4270660.00	UCART1	10.27
2,476	637280.00	4270660.00	UCART1	10.41
2,477	637320.00	4270660.00	UCART1	8.16
2,478	637440.00	4270660.00	UCART1	5.24
2,479	637560.00	4270660.00	UCART1	8.90
2,480	637600.00	4270660.00	UCART1	9.14
2,481	637640.00	4270660.00	UCART1	9.19
2,482	637680.00	4270660.00	UCART1	9.56
2,483	637720.00	4270660.00	UCART1	9.97
2,484	637760.00	4270660.00	UCART1	10.11
2,485	637800.00	4270660.00	UCART1	10.36
2,486	637840.00	4270660.00	UCART1	10.39
2,487	637880.00	4270660.00	UCART1	10.63
2,488	637920.00	4270660.00	UCART1	10.67
2,489	637960.00	4270660.00	UCART1	10.64
2,490	638000.00	4270660.00	UCART1	10.62
2,491	638040.00	4270660.00	UCART1	10.67
2,492	638080.00	4270660.00	UCART1	10.67
2,493	638120.00	4270660.00	UCART1	10.67
2,494	638160.00	4270660.00	UCART1	10.67
2,495	638200.00	4270660.00	UCART1	10.67
2,496	638240.00	4270660.00	UCART1	10.67
2,497	638280.00	4270660.00	UCART1	10.67
2,498	638320.00	4270660.00	UCART1	10.67
2,499	638360.00	4270660.00	UCART1	10.67
2,500	636400.00	4270700.00	UCART1	9.77

2,501	636440.00	4270700.00	UCART1	9.18
2,502	636480.00	4270700.00	UCART1	9.40
2,503	636520.00	4270700.00	UCART1	9.26
2,504	636560.00	4270700.00	UCART1	9.14
2,505	636600.00	4270700.00	UCART1	9.14
2,506	636640.00	4270700.00	UCART1	9.14
2,507	636680.00	4270700.00	UCART1	9.14
2,508	636720.00	4270700.00	UCART1	9.14
2,509	636760.00	4270700.00	UCART1	9.31
2,510	636800.00	4270700.00	UCART1	9.45
2,511	636840.00	4270700.00	UCART1	9.50
2,512	636880.00	4270700.00	UCART1	9.70
2,513	636920.00	4270700.00	UCART1	9.70
2,514	636960.00	4270700.00	UCART1	9.70
2,515	637000.00	4270700.00	UCART1	9.70
2,516	637040.00	4270700.00	UCART1	9.70
2,517	637080.00	4270700.00	UCART1	9.65
2,518	637120.00	4270700.00	UCART1	9.45
2,519	637160.00	4270700.00	UCART1	9.45
2,520	637200.00	4270700.00	UCART1	9.65
2,521	637240.00	4270700.00	UCART1	9.49
2,522	637280.00	4270700.00	UCART1	8.82
2,523	637320.00	4270700.00	UCART1	7.86
2,524	637440.00	4270700.00	UCART1	4.57
2,525	637560.00	4270700.00	UCART1	8.07
2,526	637600.00	4270700.00	UCART1	9.00
2,527	637640.00	4270700.00	UCART1	9.14
2,528	637680.00	4270700.00	UCART1	9.51
2,529	637720.00	4270700.00	UCART1	9.75
2,530	637760.00	4270700.00	UCART1	10.02
2,531	637800.00	4270700.00	UCART1	10.16
2,532	637840.00	4270700.00	UCART1	10.36
2,533	637880.00	4270700.00	UCART1	10.63
2,534	637920.00	4270700.00	UCART1	10.67
2,535	637960.00	4270700.00	UCART1	10.67
2,536	638000.00	4270700.00	UCART1	10.67
2,537	638040.00	4270700.00	UCART1	10.67
2,538	638080.00	4270700.00	UCART1	10.67

2,539	638120.00	4270700.00	UCART1	10.67
2,540	638160.00	4270700.00	UCART1	10.67
2,541	638200.00	4270700.00	UCART1	10.67
2,542	638240.00	4270700.00	UCART1	10.67
2,543	638280.00	4270700.00	UCART1	10.67
2,544	638320.00	4270700.00	UCART1	10.67
2,545	638360.00	4270700.00	UCART1	10.67
2,546	636400.00	4270740.00	UCART1	9.21
2,547	636440.00	4270740.00	UCART1	9.14
2,548	636480.00	4270740.00	UCART1	9.14
2,549	636520.00	4270740.00	UCART1	9.14
2,550	636560.00	4270740.00	UCART1	9.14
2,551	636600.00	4270740.00	UCART1	9.14
2,552	636640.00	4270740.00	UCART1	9.14
2,553	636680.00	4270740.00	UCART1	9.14
2,554	636720.00	4270740.00	UCART1	9.14
2,555	636760.00	4270740.00	UCART1	9.31
2,556	636800.00	4270740.00	UCART1	9.45
2,557	636840.00	4270740.00	UCART1	9.45
2,558	636880.00	4270740.00	UCART1	9.45
2,559	636920.00	4270740.00	UCART1	9.45
2,560	636960.00	4270740.00	UCART1	9.45
2,561	637000.00	4270740.00	UCART1	9.45
2,562	637040.00	4270740.00	UCART1	9.45
2,563	637080.00	4270740.00	UCART1	9.45
2,564	637120.00	4270740.00	UCART1	9.45
2,565	637160.00	4270740.00	UCART1	9.32
2,566	637200.00	4270740.00	UCART1	8.99
2,567	637240.00	4270740.00	UCART1	8.83
2,568	637280.00	4270740.00	UCART1	8.29
2,569	637320.00	4270740.00	UCART1	7.86
2,570	637440.00	4270740.00	UCART1	4.57
2,571	637480.00	4270740.00	UCART1	6.12
2,572	637560.00	4270740.00	UCART1	7.87
2,573	637600.00	4270740.00	UCART1	9.00
2,574	637640.00	4270740.00	UCART1	9.14
2,575	637680.00	4270740.00	UCART1	9.51
2,576	637720.00	4270740.00	UCART1	9.84

2,577	637760.00	4270740.00	UCART1	10.04
2,578	637800.00	4270740.00	UCART1	10.36
2,579	637840.00	4270740.00	UCART1	10.45
2,580	637880.00	4270740.00	UCART1	10.65
2,581	637920.00	4270740.00	UCART1	10.67
2,582	637960.00	4270740.00	UCART1	10.67
2,583	638000.00	4270740.00	UCART1	10.67
2,584	638040.00	4270740.00	UCART1	10.67
2,585	638080.00	4270740.00	UCART1	10.67
2,586	638120.00	4270740.00	UCART1	10.67
2,587	638160.00	4270740.00	UCART1	10.67
2,588	638200.00	4270740.00	UCART1	10.67
2,589	638240.00	4270740.00	UCART1	10.67
2,590	638280.00	4270740.00	UCART1	10.67
2,591	638320.00	4270740.00	UCART1	10.67
2,592	638360.00	4270740.00	UCART1	10.67
2,593	636400.00	4270780.00	UCART1	8.77
2,594	636440.00	4270780.00	UCART1	9.11
2,595	636480.00	4270780.00	UCART1	9.14
2,596	636520.00	4270780.00	UCART1	9.14
2,597	636560.00	4270780.00	UCART1	9.14
2,598	636600.00	4270780.00	UCART1	9.14
2,599	636640.00	4270780.00	UCART1	9.14
2,600	636680.00	4270780.00	UCART1	9.14
2,601	636720.00	4270780.00	UCART1	9.14
2,602	636760.00	4270780.00	UCART1	9.31
2,603	636800.00	4270780.00	UCART1	9.45
2,604	636840.00	4270780.00	UCART1	9.45
2,605	636880.00	4270780.00	UCART1	9.45
2,606	636920.00	4270780.00	UCART1	9.45
2,607	636960.00	4270780.00	UCART1	9.45
2,608	637000.00	4270780.00	UCART1	9.45
2,609	637040.00	4270780.00	UCART1	9.45
2,610	637080.00	4270780.00	UCART1	9.45
2,611	637120.00	4270780.00	UCART1	9.31
2,612	637160.00	4270780.00	UCART1	9.15
2,613	637200.00	4270780.00	UCART1	8.79
2,614	637240.00	4270780.00	UCART1	8.42

2,615	637280.00	4270780.00	UCART1	8.02
2,616	637320.00	4270780.00	UCART1	7.91
2,617	637440.00	4270780.00	UCART1	4.57
2,618	637480.00	4270780.00	UCART1	6.04
2,619	637560.00	4270780.00	UCART1	7.87
2,620	637600.00	4270780.00	UCART1	9.00
2,621	637640.00	4270780.00	UCART1	9.14
2,622	637680.00	4270780.00	UCART1	9.51
2,623	637720.00	4270780.00	UCART1	9.92
2,624	637760.00	4270780.00	UCART1	10.28
2,625	637800.00	4270780.00	UCART1	10.41
2,626	637840.00	4270780.00	UCART1	10.64
2,627	637880.00	4270780.00	UCART1	10.67
2,628	637920.00	4270780.00	UCART1	10.67
2,629	637960.00	4270780.00	UCART1	10.67
2,630	638000.00	4270780.00	UCART1	10.67
2,631	638040.00	4270780.00	UCART1	10.67
2,632	638080.00	4270780.00	UCART1	10.67
2,633	638120.00	4270780.00	UCART1	10.67
2,634	638160.00	4270780.00	UCART1	10.67
2,635	638200.00	4270780.00	UCART1	10.67
2,636	638240.00	4270780.00	UCART1	10.67
2,637	638280.00	4270780.00	UCART1	10.67
2,638	638320.00	4270780.00	UCART1	10.67
2,639	638360.00	4270780.00	UCART1	10.67
2,640	636400.00	4270820.00	UCART1	8.51
2,641	636440.00	4270820.00	UCART1	9.15
2,642	636480.00	4270820.00	UCART1	9.14
2,643	636520.00	4270820.00	UCART1	9.14
2,644	636560.00	4270820.00	UCART1	9.14
2,645	636600.00	4270820.00	UCART1	9.14
2,646	636640.00	4270820.00	UCART1	9.14
2,647	636680.00	4270820.00	UCART1	9.14
2,648	636720.00	4270820.00	UCART1	9.14
2,649	636760.00	4270820.00	UCART1	9.31
2,650	636800.00	4270820.00	UCART1	9.45
2,651	636840.00	4270820.00	UCART1	9.45
2,652	636880.00	4270820.00	UCART1	9.45

2,653	636920.00	4270820.00	UCART1	9.45
2,654	636960.00	4270820.00	UCART1	9.45
2,655	637000.00	4270820.00	UCART1	9.45
2,656	637040.00	4270820.00	UCART1	9.45
2,657	637080.00	4270820.00	UCART1	9.44
2,658	637120.00	4270820.00	UCART1	9.26
2,659	637160.00	4270820.00	UCART1	8.88
2,660	637200.00	4270820.00	UCART1	8.78
2,661	637240.00	4270820.00	UCART1	8.37
2,662	637280.00	4270820.00	UCART1	8.01
2,663	637320.00	4270820.00	UCART1	7.86
2,664	637440.00	4270820.00	UCART1	4.57
2,665	637480.00	4270820.00	UCART1	6.04
2,666	637560.00	4270820.00	UCART1	7.62
2,667	637600.00	4270820.00	UCART1	8.97
2,668	637640.00	4270820.00	UCART1	9.14
2,669	637680.00	4270820.00	UCART1	9.52
2,670	637720.00	4270820.00	UCART1	10.10
2,671	637760.00	4270820.00	UCART1	10.41
2,672	637800.00	4270820.00	UCART1	10.66
2,673	637840.00	4270820.00	UCART1	10.62
2,674	637880.00	4270820.00	UCART1	10.62
2,675	637920.00	4270820.00	UCART1	10.36
2,676	637960.00	4270820.00	UCART1	10.36
2,677	638000.00	4270820.00	UCART1	10.63
2,678	638040.00	4270820.00	UCART1	10.67
2,679	638080.00	4270820.00	UCART1	10.67
2,680	638120.00	4270820.00	UCART1	10.67
2,681	638160.00	4270820.00	UCART1	10.67
2,682	638200.00	4270820.00	UCART1	10.67
2,683	638240.00	4270820.00	UCART1	10.67
2,684	638280.00	4270820.00	UCART1	10.67
2,685	638320.00	4270820.00	UCART1	10.67
2,686	638360.00	4270820.00	UCART1	10.67
2,687	636400.00	4270860.00	UCART1	9.02
2,688	636440.00	4270860.00	UCART1	9.32
2,689	636480.00	4270860.00	UCART1	9.14
2,690	636520.00	4270860.00	UCART1	9.14

2,691	636560.00	4270860.00	UCART1	9.14
2,692	636600.00	4270860.00	UCART1	9.14
2,693	636640.00	4270860.00	UCART1	9.14
2,694	636680.00	4270860.00	UCART1	9.14
2,695	636720.00	4270860.00	UCART1	9.14
2,696	636760.00	4270860.00	UCART1	9.31
2,697	636800.00	4270860.00	UCART1	9.45
2,698	636840.00	4270860.00	UCART1	9.45
2,699	636880.00	4270860.00	UCART1	9.45
2,700	636920.00	4270860.00	UCART1	9.45
2,701	636960.00	4270860.00	UCART1	9.45
2,702	637000.00	4270860.00	UCART1	9.45
2,703	637040.00	4270860.00	UCART1	9.45
2,704	637080.00	4270860.00	UCART1	9.27
2,705	637120.00	4270860.00	UCART1	9.14
2,706	637160.00	4270860.00	UCART1	8.88
2,707	637200.00	4270860.00	UCART1	8.78
2,708	637240.00	4270860.00	UCART1	8.45
2,709	637280.00	4270860.00	UCART1	8.25
2,710	637320.00	4270860.00	UCART1	7.86
2,711	637440.00	4270860.00	UCART1	4.57
2,712	637480.00	4270860.00	UCART1	6.04
2,713	637560.00	4270860.00	UCART1	7.44
2,714	637680.00	4270860.00	UCART1	9.57
2,715	637720.00	4270860.00	UCART1	10.22
2,716	637760.00	4270860.00	UCART1	10.63
2,717	637800.00	4270860.00	UCART1	10.48
2,718	637840.00	4270860.00	UCART1	10.36
2,719	637880.00	4270860.00	UCART1	10.36
2,720	637920.00	4270860.00	UCART1	10.36
2,721	637960.00	4270860.00	UCART1	10.36
2,722	638000.00	4270860.00	UCART1	10.63
2,723	638040.00	4270860.00	UCART1	10.67
2,724	638080.00	4270860.00	UCART1	10.67
2,725	638120.00	4270860.00	UCART1	10.67
2,726	638160.00	4270860.00	UCART1	10.67
2,727	638200.00	4270860.00	UCART1	10.67
2,728	638240.00	4270860.00	UCART1	10.67

2,729	638280.00	4270860.00	UCART1	10.67
2,730	638320.00	4270860.00	UCART1	10.67
2,731	638360.00	4270860.00	UCART1	10.67
2,732	636400.00	4270900.00	UCART1	9.27
2,733	636440.00	4270900.00	UCART1	9.42
2,734	636480.00	4270900.00	UCART1	9.14
2,735	636520.00	4270900.00	UCART1	9.14
2,736	636560.00	4270900.00	UCART1	9.14
2,737	636600.00	4270900.00	UCART1	9.14
2,738	636640.00	4270900.00	UCART1	9.14
2,739	636680.00	4270900.00	UCART1	9.14
2,740	636720.00	4270900.00	UCART1	9.14
2,741	636760.00	4270900.00	UCART1	9.31
2,742	636800.00	4270900.00	UCART1	9.45
2,743	636840.00	4270900.00	UCART1	9.45
2,744	636880.00	4270900.00	UCART1	9.45
2,745	636920.00	4270900.00	UCART1	9.45
2,746	636960.00	4270900.00	UCART1	9.45
2,747	637000.00	4270900.00	UCART1	9.45
2,748	637040.00	4270900.00	UCART1	9.23
2,749	637080.00	4270900.00	UCART1	9.14
2,750	637120.00	4270900.00	UCART1	9.01
2,751	637160.00	4270900.00	UCART1	8.85
2,752	637200.00	4270900.00	UCART1	8.78
2,753	637240.00	4270900.00	UCART1	8.53
2,754	637280.00	4270900.00	UCART1	8.27
2,755	637320.00	4270900.00	UCART1	7.86
2,756	637440.00	4270900.00	UCART1	4.57
2,757	637480.00	4270900.00	UCART1	5.90
2,758	637680.00	4270900.00	UCART1	9.57
2,759	637720.00	4270900.00	UCART1	10.36
2,760	637760.00	4270900.00	UCART1	10.44
2,761	637800.00	4270900.00	UCART1	10.11
2,762	637840.00	4270900.00	UCART1	10.11
2,763	637880.00	4270900.00	UCART1	10.11
2,764	637920.00	4270900.00	UCART1	10.16
2,765	637960.00	4270900.00	UCART1	10.36
2,766	638000.00	4270900.00	UCART1	10.63

2,767	638040.00	4270900.00	UCART1	10.67
2,768	638080.00	4270900.00	UCART1	10.67
2,769	638120.00	4270900.00	UCART1	10.67
2,770	638160.00	4270900.00	UCART1	10.67
2,771	638200.00	4270900.00	UCART1	10.67
2,772	638240.00	4270900.00	UCART1	10.67
2,773	638280.00	4270900.00	UCART1	10.67
2,774	638320.00	4270900.00	UCART1	10.67
2,775	638360.00	4270900.00	UCART1	10.67
2,776	636400.00	4270940.00	UCART1	9.45
2,777	636440.00	4270940.00	UCART1	9.18
2,778	636480.00	4270940.00	UCART1	9.14
2,779	636520.00	4270940.00	UCART1	9.14
2,780	636560.00	4270940.00	UCART1	9.14
2,781	636600.00	4270940.00	UCART1	9.14
2,782	636640.00	4270940.00	UCART1	9.14
2,783	636680.00	4270940.00	UCART1	9.14
2,784	636720.00	4270940.00	UCART1	9.14
2,785	636760.00	4270940.00	UCART1	9.31
2,786	636800.00	4270940.00	UCART1	9.45
2,787	636840.00	4270940.00	UCART1	9.45
2,788	636880.00	4270940.00	UCART1	9.45
2,789	636920.00	4270940.00	UCART1	9.45
2,790	636960.00	4270940.00	UCART1	9.45
2,791	637000.00	4270940.00	UCART1	9.29
2,792	637040.00	4270940.00	UCART1	9.14
2,793	637080.00	4270940.00	UCART1	9.14
2,794	637120.00	4270940.00	UCART1	9.01
2,795	637160.00	4270940.00	UCART1	8.85
2,796	637200.00	4270940.00	UCART1	8.79
2,797	637240.00	4270940.00	UCART1	8.56
2,798	637280.00	4270940.00	UCART1	8.53
2,799	637320.00	4270940.00	UCART1	8.22
2,800	637360.00	4270940.00	UCART1	7.79
2,801	637480.00	4270940.00	UCART1	5.52
2,802	637560.00	4270940.00	UCART1	6.56
2,803	637600.00	4270940.00	UCART1	8.22
2,804	637640.00	4270940.00	UCART1	9.14

2,805	637720.00	4270940.00	UCART1	10.00
2,806	637760.00	4270940.00	UCART1	10.04
2,807	637800.00	4270940.00	UCART1	9.75
2,808	637840.00	4270940.00	UCART1	9.89
2,809	637880.00	4270940.00	UCART1	10.05
2,810	637920.00	4270940.00	UCART1	10.12
2,811	637960.00	4270940.00	UCART1	10.36
2,812	638000.00	4270940.00	UCART1	10.63
2,813	638040.00	4270940.00	UCART1	10.67
2,814	638080.00	4270940.00	UCART1	10.67
2,815	638120.00	4270940.00	UCART1	10.67
2,816	638160.00	4270940.00	UCART1	10.67
2,817	638200.00	4270940.00	UCART1	10.67
2,818	638240.00	4270940.00	UCART1	10.67
2,819	638280.00	4270940.00	UCART1	10.67
2,820	638320.00	4270940.00	UCART1	10.67
2,821	638360.00	4270940.00	UCART1	10.67
2,822	636400.00	4270980.00	UCART1	9.45
2,823	636440.00	4270980.00	UCART1	9.18
2,824	636480.00	4270980.00	UCART1	9.14
2,825	636520.00	4270980.00	UCART1	9.14
2,826	636560.00	4270980.00	UCART1	9.14
2,827	636600.00	4270980.00	UCART1	9.14
2,828	636640.00	4270980.00	UCART1	9.14
2,829	636680.00	4270980.00	UCART1	9.14
2,830	636720.00	4270980.00	UCART1	9.17
2,831	636760.00	4270980.00	UCART1	9.38
2,832	636800.00	4270980.00	UCART1	9.45
2,833	636840.00	4270980.00	UCART1	9.45
2,834	636880.00	4270980.00	UCART1	9.45
2,835	636920.00	4270980.00	UCART1	9.45
2,836	636960.00	4270980.00	UCART1	9.45
2,837	637000.00	4270980.00	UCART1	9.37
2,838	637040.00	4270980.00	UCART1	9.16
2,839	637080.00	4270980.00	UCART1	9.14
2,840	637120.00	4270980.00	UCART1	9.14
2,841	637160.00	4270980.00	UCART1	9.01
2,842	637200.00	4270980.00	UCART1	8.84

2,843	637240.00	4270980.00	UCART1	8.76
2,844	637280.00	4270980.00	UCART1	8.69
2,845	637320.00	4270980.00	UCART1	8.50
2,846	637440.00	4270980.00	UCART1	4.57
2,847	637480.00	4270980.00	UCART1	4.57
2,848	637560.00	4270980.00	UCART1	7.32
2,849	637600.00	4270980.00	UCART1	7.68
2,850	637640.00	4270980.00	UCART1	8.93
2,851	637680.00	4270980.00	UCART1	9.33
2,852	637720.00	4270980.00	UCART1	9.45
2,853	637760.00	4270980.00	UCART1	9.58
2,854	637800.00	4270980.00	UCART1	9.60
2,855	637840.00	4270980.00	UCART1	9.68
2,856	637880.00	4270980.00	UCART1	9.89
2,857	637920.00	4270980.00	UCART1	10.12
2,858	637960.00	4270980.00	UCART1	10.36
2,859	638000.00	4270980.00	UCART1	10.63
2,860	638040.00	4270980.00	UCART1	10.67
2,861	638080.00	4270980.00	UCART1	10.67
2,862	638120.00	4270980.00	UCART1	10.67
2,863	638160.00	4270980.00	UCART1	10.67
2,864	638200.00	4270980.00	UCART1	10.67
2,865	638240.00	4270980.00	UCART1	10.67
2,866	638280.00	4270980.00	UCART1	10.67
2,867	638320.00	4270980.00	UCART1	10.67
2,868	638360.00	4270980.00	UCART1	10.67
2,869	636400.00	4271020.00	UCART1	9.45
2,870	636440.00	4271020.00	UCART1	9.18
2,871	636480.00	4271020.00	UCART1	9.14
2,872	636520.00	4271020.00	UCART1	9.14
2,873	636560.00	4271020.00	UCART1	9.14
2,874	636600.00	4271020.00	UCART1	9.14
2,875	636640.00	4271020.00	UCART1	9.14
2,876	636680.00	4271020.00	UCART1	9.37
2,877	636720.00	4271020.00	UCART1	9.41
2,878	636760.00	4271020.00	UCART1	9.45
2,879	636800.00	4271020.00	UCART1	9.45
2,880	636840.00	4271020.00	UCART1	9.45

2,881	636880.00	4271020.00	UCART1	9.45
2,882	636920.00	4271020.00	UCART1	9.45
2,883	636960.00	4271020.00	UCART1	9.45
2,884	637000.00	4271020.00	UCART1	9.45
2,885	637040.00	4271020.00	UCART1	9.41
2,886	637080.00	4271020.00	UCART1	9.14
2,887	637120.00	4271020.00	UCART1	9.14
2,888	637160.00	4271020.00	UCART1	9.14
2,889	637200.00	4271020.00	UCART1	9.04
2,890	637240.00	4271020.00	UCART1	8.84
2,891	637280.00	4271020.00	UCART1	8.84
2,892	637320.00	4271020.00	UCART1	8.79
2,893	637440.00	4271020.00	UCART1	4.57
2,894	637480.00	4271020.00	UCART1	4.57
2,895	637520.00	4271020.00	UCART1	4.83
2,896	637560.00	4271020.00	UCART1	8.02
2,897	637600.00	4271020.00	UCART1	8.52
2,898	637640.00	4271020.00	UCART1	8.86
2,899	637680.00	4271020.00	UCART1	9.10
2,900	637720.00	4271020.00	UCART1	8.91
2,901	637760.00	4271020.00	UCART1	8.93
2,902	637800.00	4271020.00	UCART1	9.25
2,903	637840.00	4271020.00	UCART1	9.61
2,904	637880.00	4271020.00	UCART1	9.75
2,905	637920.00	4271020.00	UCART1	10.07
2,906	637960.00	4271020.00	UCART1	10.24
2,907	638000.00	4271020.00	UCART1	10.63
2,908	638040.00	4271020.00	UCART1	10.67
2,909	638080.00	4271020.00	UCART1	10.67
2,910	638120.00	4271020.00	UCART1	10.89
2,911	638160.00	4271020.00	UCART1	10.92
2,912	638200.00	4271020.00	UCART1	10.92
2,913	638240.00	4271020.00	UCART1	10.70
2,914	638280.00	4271020.00	UCART1	10.67
2,915	638320.00	4271020.00	UCART1	10.67
2,916	638360.00	4271020.00	UCART1	10.67
2,917	636400.00	4271060.00	UCART1	9.45
2,918	636440.00	4271060.00	UCART1	9.18

2,919	636480.00	4271060.00	UCART1	9.14
2,920	636520.00	4271060.00	UCART1	9.14
2,921	636560.00	4271060.00	UCART1	9.14
2,922	636600.00	4271060.00	UCART1	9.14
2,923	636640.00	4271060.00	UCART1	9.14
2,924	636680.00	4271060.00	UCART1	9.14
2,925	636720.00	4271060.00	UCART1	9.41
2,926	636760.00	4271060.00	UCART1	9.45
2,927	636800.00	4271060.00	UCART1	9.45
2,928	636840.00	4271060.00	UCART1	9.45
2,929	636880.00	4271060.00	UCART1	9.42
2,930	636920.00	4271060.00	UCART1	9.40
2,931	636960.00	4271060.00	UCART1	9.41
2,932	637000.00	4271060.00	UCART1	9.45
2,933	637040.00	4271060.00	UCART1	9.45
2,934	637080.00	4271060.00	UCART1	9.40
2,935	637120.00	4271060.00	UCART1	9.17
2,936	637160.00	4271060.00	UCART1	9.14
2,937	637200.00	4271060.00	UCART1	9.14
2,938	637240.00	4271060.00	UCART1	9.14
2,939	637280.00	4271060.00	UCART1	8.92
2,940	637320.00	4271060.00	UCART1	9.14
2,941	637440.00	4271060.00	UCART1	4.57
2,942	637480.00	4271060.00	UCART1	4.57
2,943	637520.00	4271060.00	UCART1	4.57
2,944	637560.00	4271060.00	UCART1	7.10
2,945	637600.00	4271060.00	UCART1	7.37
2,946	637640.00	4271060.00	UCART1	8.06
2,947	637680.00	4271060.00	UCART1	7.67
2,948	637720.00	4271060.00	UCART1	8.04
2,949	637760.00	4271060.00	UCART1	8.44
2,950	637800.00	4271060.00	UCART1	8.90
2,951	637840.00	4271060.00	UCART1	9.31
2,952	637880.00	4271060.00	UCART1	9.67
2,953	637920.00	4271060.00	UCART1	9.81
2,954	637960.00	4271060.00	UCART1	10.22
2,955	638000.00	4271060.00	UCART1	10.63
2,956	638040.00	4271060.00	UCART1	10.67

2,957	638080.00	4271060.00	UCART1	10.80
2,958	638120.00	4271060.00	UCART1	10.92
2,959	638160.00	4271060.00	UCART1	10.92
2,960	638200.00	4271060.00	UCART1	10.79
2,961	638240.00	4271060.00	UCART1	10.67
2,962	638280.00	4271060.00	UCART1	10.57
2,963	638320.00	4271060.00	UCART1	10.34
2,964	638360.00	4271060.00	UCART1	10.31
2,965	636400.00	4271100.00	UCART1	9.45
2,966	636440.00	4271100.00	UCART1	9.18
2,967	636480.00	4271100.00	UCART1	9.14
2,968	636520.00	4271100.00	UCART1	9.14
2,969	636560.00	4271100.00	UCART1	9.14
2,970	636600.00	4271100.00	UCART1	9.14
2,971	636640.00	4271100.00	UCART1	9.14
2,972	636680.00	4271100.00	UCART1	9.14
2,973	636720.00	4271100.00	UCART1	9.17
2,974	636760.00	4271100.00	UCART1	9.38
2,975	636800.00	4271100.00	UCART1	9.45
2,976	636840.00	4271100.00	UCART1	9.42
2,977	636880.00	4271100.00	UCART1	9.21
2,978	636920.00	4271100.00	UCART1	9.14
2,979	636960.00	4271100.00	UCART1	9.17
2,980	637000.00	4271100.00	UCART1	9.38
2,981	637040.00	4271100.00	UCART1	9.45
2,982	637080.00	4271100.00	UCART1	9.45
2,983	637120.00	4271100.00	UCART1	9.37
2,984	637160.00	4271100.00	UCART1	9.30
2,985	637200.00	4271100.00	UCART1	9.14
2,986	637240.00	4271100.00	UCART1	9.14
2,987	637280.00	4271100.00	UCART1	9.14
2,988	637480.00	4271100.00	UCART1	4.57
2,989	637520.00	4271100.00	UCART1	4.57
2,990	637560.00	4271100.00	UCART1	4.57
2,991	637600.00	4271100.00	UCART1	4.57
2,992	637640.00	4271100.00	UCART1	7.22
2,993	637680.00	4271100.00	UCART1	7.62
2,994	637720.00	4271100.00	UCART1	7.78

2,995	637760.00	4271100.00	UCART1	8.19
2,996	637800.00	4271100.00	UCART1	8.75
2,997	637840.00	4271100.00	UCART1	9.15
2,998	637880.00	4271100.00	UCART1	9.43
2,999	637920.00	4271100.00	UCART1	9.81
3,000	637960.00	4271100.00	UCART1	10.22
3,001	638000.00	4271100.00	UCART1	10.63
3,002	638040.00	4271100.00	UCART1	10.67
3,003	638080.00	4271100.00	UCART1	10.67
3,004	638120.00	4271100.00	UCART1	10.67
3,005	638160.00	4271100.00	UCART1	10.67
3,006	638200.00	4271100.00	UCART1	10.67
3,007	638240.00	4271100.00	UCART1	10.53
3,008	638280.00	4271100.00	UCART1	10.36
3,009	638320.00	4271100.00	UCART1	10.20
3,010	638360.00	4271100.00	UCART1	9.79
3,011	636400.00	4271140.00	UCART1	9.31
3,012	636440.00	4271140.00	UCART1	9.15
3,013	636480.00	4271140.00	UCART1	9.14
3,014	636520.00	4271140.00	UCART1	9.14
3,015	636560.00	4271140.00	UCART1	9.14
3,016	636600.00	4271140.00	UCART1	9.14
3,017	636640.00	4271140.00	UCART1	9.14
3,018	636680.00	4271140.00	UCART1	9.14
3,019	636720.00	4271140.00	UCART1	9.14
3,020	636760.00	4271140.00	UCART1	9.31
3,021	636800.00	4271140.00	UCART1	9.45
3,022	636840.00	4271140.00	UCART1	9.39
3,023	636880.00	4271140.00	UCART1	9.14
3,024	636920.00	4271140.00	UCART1	9.14
3,025	636960.00	4271140.00	UCART1	9.14
3,026	637000.00	4271140.00	UCART1	9.17
3,027	637040.00	4271140.00	UCART1	9.42
3,028	637080.00	4271140.00	UCART1	9.45
3,029	637120.00	4271140.00	UCART1	9.45
3,030	637160.00	4271140.00	UCART1	9.45
3,031	637200.00	4271140.00	UCART1	9.40
3,032	637240.00	4271140.00	UCART1	9.40

3,033	637480.00	4271140.00	UCART1	5.28
3,034	637520.00	4271140.00	UCART1	4.57
3,035	637560.00	4271140.00	UCART1	4.57
3,036	637600.00	4271140.00	UCART1	4.57
3,037	637640.00	4271140.00	UCART1	7.22
3,038	637680.00	4271140.00	UCART1	7.62
3,039	637720.00	4271140.00	UCART1	7.78
3,040	637760.00	4271140.00	UCART1	8.19
3,041	637800.00	4271140.00	UCART1	8.60
3,042	637840.00	4271140.00	UCART1	9.00
3,043	637880.00	4271140.00	UCART1	9.41
3,044	637920.00	4271140.00	UCART1	9.81
3,045	637960.00	4271140.00	UCART1	10.22
3,046	638000.00	4271140.00	UCART1	10.63
3,047	638040.00	4271140.00	UCART1	10.67
3,048	638080.00	4271140.00	UCART1	10.67
3,049	638120.00	4271140.00	UCART1	10.67
3,050	638160.00	4271140.00	UCART1	10.67
3,051	638200.00	4271140.00	UCART1	10.53
3,052	638240.00	4271140.00	UCART1	10.37
3,053	638280.00	4271140.00	UCART1	10.31
3,054	638320.00	4271140.00	UCART1	9.95
3,055	638360.00	4271140.00	UCART1	9.50
3,056	636400.00	4271180.00	UCART1	9.14
3,057	636440.00	4271180.00	UCART1	9.14
3,058	636480.00	4271180.00	UCART1	9.14
3,059	636520.00	4271180.00	UCART1	9.14
3,060	636560.00	4271180.00	UCART1	9.14
3,061	636600.00	4271180.00	UCART1	9.14
3,062	636640.00	4271180.00	UCART1	9.14
3,063	636680.00	4271180.00	UCART1	9.14
3,064	636720.00	4271180.00	UCART1	9.14
3,065	636760.00	4271180.00	UCART1	9.28
3,066	636800.00	4271180.00	UCART1	9.44
3,067	636840.00	4271180.00	UCART1	9.45
3,068	636880.00	4271180.00	UCART1	9.31
3,069	636920.00	4271180.00	UCART1	9.15
3,070	636960.00	4271180.00	UCART1	9.14

3,071	637000.00	4271180.00	UCART1	9.14
3,072	637040.00	4271180.00	UCART1	9.41
3,073	637080.00	4271180.00	UCART1	9.45
3,074	637120.00	4271180.00	UCART1	9.48
3,075	637160.00	4271180.00	UCART1	9.50
3,076	637200.00	4271180.00	UCART1	9.55
3,077	637480.00	4271180.00	UCART1	6.30
3,078	637520.00	4271180.00	UCART1	4.81
3,079	637560.00	4271180.00	UCART1	4.57
3,080	637600.00	4271180.00	UCART1	4.57
3,081	637640.00	4271180.00	UCART1	7.22
3,082	637680.00	4271180.00	UCART1	7.77
3,083	637720.00	4271180.00	UCART1	8.08
3,084	637760.00	4271180.00	UCART1	7.91
3,085	637800.00	4271180.00	UCART1	8.35
3,086	637840.00	4271180.00	UCART1	9.00
3,087	637880.00	4271180.00	UCART1	9.41
3,088	637920.00	4271180.00	UCART1	9.81
3,089	637960.00	4271180.00	UCART1	10.22
3,090	638000.00	4271180.00	UCART1	10.63
3,091	638040.00	4271180.00	UCART1	10.67
3,092	638080.00	4271180.00	UCART1	10.51
3,093	638120.00	4271180.00	UCART1	10.36
3,094	638160.00	4271180.00	UCART1	10.36
3,095	638200.00	4271180.00	UCART1	10.36
3,096	638240.00	4271180.00	UCART1	10.32
3,097	638280.00	4271180.00	UCART1	10.05
3,098	638320.00	4271180.00	UCART1	9.87
3,099	638360.00	4271180.00	UCART1	9.49
3,100	636400.00	4271220.00	UCART1	9.14
3,101	636440.00	4271220.00	UCART1	9.14
3,102	636480.00	4271220.00	UCART1	9.14
3,103	636520.00	4271220.00	UCART1	9.14
3,104	636560.00	4271220.00	UCART1	9.14
3,105	636600.00	4271220.00	UCART1	9.14
3,106	636640.00	4271220.00	UCART1	9.14
3,107	636680.00	4271220.00	UCART1	9.14
3,108	636720.00	4271220.00	UCART1	9.14

3,109	636760.00	4271220.00	UCART1	9.14
3,110	636800.00	4271220.00	UCART1	9.41
3,111	636840.00	4271220.00	UCART1	9.45
3,112	636880.00	4271220.00	UCART1	9.45
3,113	636920.00	4271220.00	UCART1	9.32
3,114	636960.00	4271220.00	UCART1	9.30
3,115	637000.00	4271220.00	UCART1	9.30
3,116	637040.00	4271220.00	UCART1	9.43
3,117	637080.00	4271220.00	UCART1	9.45
3,118	637120.00	4271220.00	UCART1	9.61
3,119	637480.00	4271220.00	UCART1	6.66
3,120	637520.00	4271220.00	UCART1	4.77
3,121	637560.00	4271220.00	UCART1	4.57
3,122	637600.00	4271220.00	UCART1	4.57
3,123	637640.00	4271220.00	UCART1	7.22
3,124	637680.00	4271220.00	UCART1	7.65
3,125	637720.00	4271220.00	UCART1	8.26
3,126	637760.00	4271220.00	UCART1	7.89
3,127	637800.00	4271220.00	UCART1	8.38
3,128	637840.00	4271220.00	UCART1	9.16
3,129	637880.00	4271220.00	UCART1	9.43
3,130	637920.00	4271220.00	UCART1	9.81
3,131	637960.00	4271220.00	UCART1	10.22
3,132	638000.00	4271220.00	UCART1	10.63
3,133	638040.00	4271220.00	UCART1	10.67
3,134	638080.00	4271220.00	UCART1	10.51
3,135	638120.00	4271220.00	UCART1	10.36
3,136	638160.00	4271220.00	UCART1	10.36
3,137	638200.00	4271220.00	UCART1	10.28
3,138	638240.00	4271220.00	UCART1	10.08
3,139	638280.00	4271220.00	UCART1	9.87
3,140	638320.00	4271220.00	UCART1	9.75
3,141	638360.00	4271220.00	UCART1	9.49
3,142	636400.00	4271260.00	UCART1	9.14
3,143	636440.00	4271260.00	UCART1	9.14
3,144	636480.00	4271260.00	UCART1	9.14
3,145	636520.00	4271260.00	UCART1	9.14
3,146	636560.00	4271260.00	UCART1	9.14

3,147	636600.00	4271260.00	UCART1	9.14
3,148	636640.00	4271260.00	UCART1	9.14
3,149	636680.00	4271260.00	UCART1	9.14
3,150	636720.00	4271260.00	UCART1	9.14
3,151	636760.00	4271260.00	UCART1	9.14
3,152	636800.00	4271260.00	UCART1	9.41
3,153	636840.00	4271260.00	UCART1	9.45
3,154	636880.00	4271260.00	UCART1	9.45
3,155	636920.00	4271260.00	UCART1	9.45
3,156	636960.00	4271260.00	UCART1	9.45
3,157	637000.00	4271260.00	UCART1	9.45
3,158	637040.00	4271260.00	UCART1	9.45
3,159	637080.00	4271260.00	UCART1	9.50
3,160	637440.00	4271260.00	UCART1	8.75
3,161	637480.00	4271260.00	UCART1	6.69
3,162	637520.00	4271260.00	UCART1	4.77
3,163	637560.00	4271260.00	UCART1	4.57
3,164	637600.00	4271260.00	UCART1	4.57
3,165	637640.00	4271260.00	UCART1	7.00
3,166	637680.00	4271260.00	UCART1	7.68
3,167	637720.00	4271260.00	UCART1	7.98
3,168	637760.00	4271260.00	UCART1	8.12
3,169	637800.00	4271260.00	UCART1	8.62
3,170	637840.00	4271260.00	UCART1	9.31
3,171	637880.00	4271260.00	UCART1	9.45
3,172	637920.00	4271260.00	UCART1	9.81
3,173	637960.00	4271260.00	UCART1	10.22
3,174	638000.00	4271260.00	UCART1	10.63
3,175	638040.00	4271260.00	UCART1	10.67
3,176	638080.00	4271260.00	UCART1	10.51
3,177	638120.00	4271260.00	UCART1	10.36
3,178	638160.00	4271260.00	UCART1	10.31
3,179	638200.00	4271260.00	UCART1	10.08
3,180	638240.00	4271260.00	UCART1	10.06
3,181	638280.00	4271260.00	UCART1	9.75
3,182	638320.00	4271260.00	UCART1	9.62
3,183	638360.00	4271260.00	UCART1	9.46
3,184	636400.00	4271300.00	UCART1	9.09

3,185	636440.00	4271300.00	UCART1	9.09
3,186	636480.00	4271300.00	UCART1	9.09
3,187	636520.00	4271300.00	UCART1	9.09
3,188	636560.00	4271300.00	UCART1	8.87
3,189	636600.00	4271300.00	UCART1	9.10
3,190	636640.00	4271300.00	UCART1	9.14
3,191	636680.00	4271300.00	UCART1	9.14
3,192	636720.00	4271300.00	UCART1	9.14
3,193	636760.00	4271300.00	UCART1	9.14
3,194	636800.00	4271300.00	UCART1	9.14
3,195	636840.00	4271300.00	UCART1	9.45
3,196	636880.00	4271300.00	UCART1	9.45
3,197	636920.00	4271300.00	UCART1	9.45
3,198	636960.00	4271300.00	UCART1	9.46
3,199	637000.00	4271300.00	UCART1	9.50
3,200	637040.00	4271300.00	UCART1	9.50
3,201	637440.00	4271300.00	UCART1	8.99
3,202	637480.00	4271300.00	UCART1	5.78
3,203	637520.00	4271300.00	UCART1	4.57
3,204	637560.00	4271300.00	UCART1	4.57
3,205	637600.00	4271300.00	UCART1	4.57
3,206	637640.00	4271300.00	UCART1	6.55
3,207	637680.00	4271300.00	UCART1	7.62
3,208	637720.00	4271300.00	UCART1	7.65
3,209	637760.00	4271300.00	UCART1	8.86
3,210	637800.00	4271300.00	UCART1	8.85
3,211	637840.00	4271300.00	UCART1	9.03
3,212	637880.00	4271300.00	UCART1	9.41
3,213	637920.00	4271300.00	UCART1	9.81
3,214	637960.00	4271300.00	UCART1	10.22
3,215	638000.00	4271300.00	UCART1	10.63
3,216	638040.00	4271300.00	UCART1	10.67
3,217	638080.00	4271300.00	UCART1	10.51
3,218	638120.00	4271300.00	UCART1	10.36
3,219	638160.00	4271300.00	UCART1	10.26
3,220	638200.00	4271300.00	UCART1	10.06
3,221	638240.00	4271300.00	UCART1	10.01
3,222	638280.00	4271300.00	UCART1	9.75

3,223	638320.00	4271300.00	UCART1	9.59
3,224	638360.00	4271300.00	UCART1	9.45
3,225	636400.00	4271340.00	UCART1	8.69
3,226	636440.00	4271340.00	UCART1	8.69
3,227	636480.00	4271340.00	UCART1	8.69
3,228	636520.00	4271340.00	UCART1	8.69
3,229	636560.00	4271340.00	UCART1	8.82
3,230	636600.00	4271340.00	UCART1	9.02
3,231	636640.00	4271340.00	UCART1	9.14
3,232	636680.00	4271340.00	UCART1	9.14
3,233	636720.00	4271340.00	UCART1	9.14
3,234	636760.00	4271340.00	UCART1	9.14
3,235	636800.00	4271340.00	UCART1	9.14
3,236	636840.00	4271340.00	UCART1	9.30
3,237	636880.00	4271340.00	UCART1	9.38
3,238	636920.00	4271340.00	UCART1	9.45
3,239	636960.00	4271340.00	UCART1	9.51
3,240	637000.00	4271340.00	UCART1	9.75
3,241	637040.00	4271340.00	UCART1	9.75
3,242	637400.00	4271340.00	UCART1	10.52
3,243	637440.00	4271340.00	UCART1	8.65
3,244	637480.00	4271340.00	UCART1	5.98
3,245	637520.00	4271340.00	UCART1	4.67
3,246	637560.00	4271340.00	UCART1	4.57
3,247	637600.00	4271340.00	UCART1	4.57
3,248	637640.00	4271340.00	UCART1	4.57
3,249	637680.00	4271340.00	UCART1	7.62
3,250	637720.00	4271340.00	UCART1	7.78
3,251	637760.00	4271340.00	UCART1	8.45
3,252	637800.00	4271340.00	UCART1	8.90
3,253	637840.00	4271340.00	UCART1	9.14
3,254	637880.00	4271340.00	UCART1	9.41
3,255	637920.00	4271340.00	UCART1	9.81
3,256	637960.00	4271340.00	UCART1	10.22
3,257	638000.00	4271340.00	UCART1	10.63
3,258	638040.00	4271340.00	UCART1	10.67
3,259	638080.00	4271340.00	UCART1	10.51
3,260	638120.00	4271340.00	UCART1	10.36

3,261	638160.00	4271340.00	UCART1	10.06
3,262	638200.00	4271340.00	UCART1	10.06
3,263	638240.00	4271340.00	UCART1	9.79
3,264	638280.00	4271340.00	UCART1	9.75
3,265	638320.00	4271340.00	UCART1	9.59
3,266	638360.00	4271340.00	UCART1	9.45
3,267	636400.00	4271380.00	UCART1	8.28
3,268	636440.00	4271380.00	UCART1	8.28
3,269	636480.00	4271380.00	UCART1	8.28
3,270	636520.00	4271380.00	UCART1	8.42
3,271	636560.00	4271380.00	UCART1	8.80
3,272	636600.00	4271380.00	UCART1	9.14
3,273	636640.00	4271380.00	UCART1	9.14
3,274	636680.00	4271380.00	UCART1	9.14
3,275	636720.00	4271380.00	UCART1	9.14
3,276	636760.00	4271380.00	UCART1	9.14
3,277	636800.00	4271380.00	UCART1	9.14
3,278	636840.00	4271380.00	UCART1	9.14
3,279	636880.00	4271380.00	UCART1	9.17
3,280	636920.00	4271380.00	UCART1	9.42
3,281	636960.00	4271380.00	UCART1	9.51
3,282	637000.00	4271380.00	UCART1	9.75
3,283	637320.00	4271380.00	UCART1	10.63
3,284	637360.00	4271380.00	UCART1	10.53
3,285	637400.00	4271380.00	UCART1	9.97
3,286	637440.00	4271380.00	UCART1	7.35
3,287	637480.00	4271380.00	UCART1	6.28
3,288	637520.00	4271380.00	UCART1	6.10
3,289	637560.00	4271380.00	UCART1	5.79
3,290	637600.00	4271380.00	UCART1	4.57
3,291	637640.00	4271380.00	UCART1	4.57
3,292	637680.00	4271380.00	UCART1	7.62
3,293	637720.00	4271380.00	UCART1	7.65
3,294	637760.00	4271380.00	UCART1	8.64
3,295	637800.00	4271380.00	UCART1	8.90
3,296	637840.00	4271380.00	UCART1	9.14
3,297	637880.00	4271380.00	UCART1	9.41
3,298	637920.00	4271380.00	UCART1	9.81

3,299	637960.00	4271380.00	UCART1	10.22
3,300	638000.00	4271380.00	UCART1	10.63
3,301	638040.00	4271380.00	UCART1	10.67
3,302	638080.00	4271380.00	UCART1	10.51
3,303	638120.00	4271380.00	UCART1	10.36
3,304	638160.00	4271380.00	UCART1	10.06
3,305	638200.00	4271380.00	UCART1	10.06
3,306	638240.00	4271380.00	UCART1	9.79
3,307	638280.00	4271380.00	UCART1	9.75
3,308	638320.00	4271380.00	UCART1	9.59
3,309	638360.00	4271380.00	UCART1	9.45
3,310	636400.00	4271420.00	UCART1	7.87
3,311	636440.00	4271420.00	UCART1	7.87
3,312	636480.00	4271420.00	UCART1	7.88
3,313	636520.00	4271420.00	UCART1	8.55
3,314	636560.00	4271420.00	UCART1	9.14
3,315	636600.00	4271420.00	UCART1	9.14
3,316	636640.00	4271420.00	UCART1	9.14
3,317	636680.00	4271420.00	UCART1	9.14
3,318	636720.00	4271420.00	UCART1	9.14
3,319	636760.00	4271420.00	UCART1	9.14
3,320	636800.00	4271420.00	UCART1	9.14
3,321	636840.00	4271420.00	UCART1	9.14
3,322	636880.00	4271420.00	UCART1	9.14
3,323	636920.00	4271420.00	UCART1	9.14
3,324	636960.00	4271420.00	UCART1	9.51
3,325	637000.00	4271420.00	UCART1	9.89
3,326	637280.00	4271420.00	UCART1	10.58
3,327	637320.00	4271420.00	UCART1	10.54
3,328	637360.00	4271420.00	UCART1	9.84
3,329	637400.00	4271420.00	UCART1	8.24
3,330	637440.00	4271420.00	UCART1	6.50
3,331	637480.00	4271420.00	UCART1	6.10
3,332	637520.00	4271420.00	UCART1	6.36
3,333	637560.00	4271420.00	UCART1	6.03
3,334	637600.00	4271420.00	UCART1	4.79
3,335	637640.00	4271420.00	UCART1	4.63
3,336	637680.00	4271420.00	UCART1	7.62

3,337	637720.00	4271420.00	UCART1	7.62
3,338	637760.00	4271420.00	UCART1	8.90
3,339	637800.00	4271420.00	UCART1	8.89
3,340	637840.00	4271420.00	UCART1	9.12
3,341	637880.00	4271420.00	UCART1	9.41
3,342	637920.00	4271420.00	UCART1	9.81
3,343	637960.00	4271420.00	UCART1	10.22
3,344	638000.00	4271420.00	UCART1	10.63
3,345	638040.00	4271420.00	UCART1	10.67
3,346	638080.00	4271420.00	UCART1	10.51
3,347	638120.00	4271420.00	UCART1	10.36
3,348	638160.00	4271420.00	UCART1	10.06
3,349	638200.00	4271420.00	UCART1	9.90
3,350	638240.00	4271420.00	UCART1	9.75
3,351	638280.00	4271420.00	UCART1	9.69
3,352	638320.00	4271420.00	UCART1	9.45
3,353	638360.00	4271420.00	UCART1	9.45
3,354	636400.00	4271460.00	UCART1	6.32
3,355	636440.00	4271460.00	UCART1	5.32
3,356	636480.00	4271460.00	UCART1	5.35
3,357	636520.00	4271460.00	UCART1	6.86
3,358	636560.00	4271460.00	UCART1	8.20
3,359	636600.00	4271460.00	UCART1	8.44
3,360	636640.00	4271460.00	UCART1	8.93
3,361	636680.00	4271460.00	UCART1	9.14
3,362	636720.00	4271460.00	UCART1	9.14
3,363	636760.00	4271460.00	UCART1	9.14
3,364	636800.00	4271460.00	UCART1	9.14
3,365	636840.00	4271460.00	UCART1	9.14
3,366	636880.00	4271460.00	UCART1	9.14
3,367	636920.00	4271460.00	UCART1	9.14
3,368	636960.00	4271460.00	UCART1	9.36
3,369	637000.00	4271460.00	UCART1	9.68
3,370	637240.00	4271460.00	UCART1	9.83
3,371	637280.00	4271460.00	UCART1	10.04
3,372	637320.00	4271460.00	UCART1	9.48
3,373	637360.00	4271460.00	UCART1	8.58
3,374	637400.00	4271460.00	UCART1	7.04

3,375	637440.00	4271460.00	UCART1	6.22
3,376	637480.00	4271460.00	UCART1	6.18
3,377	637520.00	4271460.00	UCART1	6.38
3,378	637560.00	4271460.00	UCART1	6.03
3,379	637600.00	4271460.00	UCART1	5.79
3,380	637640.00	4271460.00	UCART1	4.87
3,381	637680.00	4271460.00	UCART1	6.89
3,382	637720.00	4271460.00	UCART1	7.62
3,383	637760.00	4271460.00	UCART1	8.68
3,384	637800.00	4271460.00	UCART1	8.72
3,385	637840.00	4271460.00	UCART1	9.00
3,386	637880.00	4271460.00	UCART1	9.41
3,387	637920.00	4271460.00	UCART1	9.81
3,388	637960.00	4271460.00	UCART1	10.22
3,389	638000.00	4271460.00	UCART1	10.63
3,390	638040.00	4271460.00	UCART1	10.64
3,391	638080.00	4271460.00	UCART1	10.43
3,392	638120.00	4271460.00	UCART1	10.36
3,393	638160.00	4271460.00	UCART1	10.03
3,394	638200.00	4271460.00	UCART1	9.82
3,395	638240.00	4271460.00	UCART1	9.75
3,396	638280.00	4271460.00	UCART1	9.57
3,397	638320.00	4271460.00	UCART1	9.45
3,398	638360.00	4271460.00	UCART1	9.45
3,399	636400.00	4271500.00	UCART1	3.37
3,400	636440.00	4271500.00	UCART1	3.05
3,401	636480.00	4271500.00	UCART1	3.05
3,402	636520.00	4271500.00	UCART1	3.42
3,403	636560.00	4271500.00	UCART1	3.75
3,404	636600.00	4271500.00	UCART1	3.82
3,405	636640.00	4271500.00	UCART1	5.88
3,406	636680.00	4271500.00	UCART1	7.39
3,407	636720.00	4271500.00	UCART1	7.51
3,408	636760.00	4271500.00	UCART1	8.26
3,409	636800.00	4271500.00	UCART1	8.82
3,410	636840.00	4271500.00	UCART1	8.94
3,411	636880.00	4271500.00	UCART1	9.14
3,412	636920.00	4271500.00	UCART1	9.14

3,413	636960.00	4271500.00	UCART1	9.21
3,414	637000.00	4271500.00	UCART1	9.48
3,415	637240.00	4271500.00	UCART1	9.50
3,416	637280.00	4271500.00	UCART1	9.28
3,417	637320.00	4271500.00	UCART1	8.72
3,418	637360.00	4271500.00	UCART1	7.70
3,419	637400.00	4271500.00	UCART1	6.31
3,420	637440.00	4271500.00	UCART1	6.14
3,421	637480.00	4271500.00	UCART1	6.12
3,422	637520.00	4271500.00	UCART1	5.04
3,423	637560.00	4271500.00	UCART1	6.03
3,424	637600.00	4271500.00	UCART1	5.58
3,425	637640.00	4271500.00	UCART1	4.82
3,426	637680.00	4271500.00	UCART1	6.51
3,427	637720.00	4271500.00	UCART1	7.50
3,428	637760.00	4271500.00	UCART1	8.68
3,429	637800.00	4271500.00	UCART1	8.14
3,430	637840.00	4271500.00	UCART1	8.88
3,431	637880.00	4271500.00	UCART1	9.41
3,432	637920.00	4271500.00	UCART1	9.81
3,433	637960.00	4271500.00	UCART1	10.22
3,434	638000.00	4271500.00	UCART1	10.63
3,435	638040.00	4271500.00	UCART1	10.61
3,436	638080.00	4271500.00	UCART1	10.36
3,437	638120.00	4271500.00	UCART1	10.14
3,438	638160.00	4271500.00	UCART1	10.00
3,439	638200.00	4271500.00	UCART1	9.75
3,440	638240.00	4271500.00	UCART1	9.53
3,441	638280.00	4271500.00	UCART1	9.45
3,442	638320.00	4271500.00	UCART1	9.45
3,443	638360.00	4271500.00	UCART1	9.45
3,444	636400.00	4271540.00	UCART1	3.05
3,445	636440.00	4271540.00	UCART1	3.05
3,446	636480.00	4271540.00	UCART1	3.05
3,447	636520.00	4271540.00	UCART1	3.05
3,448	636560.00	4271540.00	UCART1	3.05
3,449	636600.00	4271540.00	UCART1	3.15
3,450	636640.00	4271540.00	UCART1	5.22

3,451	636680.00	4271540.00	UCART1	6.65
3,452	636720.00	4271540.00	UCART1	7.06
3,453	636760.00	4271540.00	UCART1	8.17
3,454	636800.00	4271540.00	UCART1	8.92
3,455	636840.00	4271540.00	UCART1	8.92
3,456	636880.00	4271540.00	UCART1	9.10
3,457	636920.00	4271540.00	UCART1	9.19
3,458	636960.00	4271540.00	UCART1	9.21
3,459	637000.00	4271540.00	UCART1	9.42
3,460	637200.00	4271540.00	UCART1	9.38
3,461	637240.00	4271540.00	UCART1	9.21
3,462	637280.00	4271540.00	UCART1	9.10
3,463	637320.00	4271540.00	UCART1	8.44
3,464	637360.00	4271540.00	UCART1	6.98
3,465	637400.00	4271540.00	UCART1	6.07
3,466	637440.00	4271540.00	UCART1	6.11
3,467	637480.00	4271540.00	UCART1	5.98
3,468	637520.00	4271540.00	UCART1	4.74
3,469	637560.00	4271540.00	UCART1	6.04
3,470	637600.00	4271540.00	UCART1	5.84
3,471	637640.00	4271540.00	UCART1	6.07
3,472	637680.00	4271540.00	UCART1	7.24
3,473	637720.00	4271540.00	UCART1	7.98
3,474	637760.00	4271540.00	UCART1	8.38
3,475	637800.00	4271540.00	UCART1	7.85
3,476	637840.00	4271540.00	UCART1	8.86
3,477	637880.00	4271540.00	UCART1	9.41
3,478	637920.00	4271540.00	UCART1	9.81
3,479	637960.00	4271540.00	UCART1	10.22
3,480	638000.00	4271540.00	UCART1	10.63
3,481	638040.00	4271540.00	UCART1	10.67
3,482	638080.00	4271540.00	UCART1	10.51
3,483	638120.00	4271540.00	UCART1	10.10
3,484	638160.00	4271540.00	UCART1	9.74
3,485	638200.00	4271540.00	UCART1	9.57
3,486	638240.00	4271540.00	UCART1	9.40
3,487	638280.00	4271540.00	UCART1	9.14
3,488	638320.00	4271540.00	UCART1	9.14

3,489	638360.00	4271540.00	UCART1	9.14
3,490	636400.00	4271580.00	UCART1	3.81
3,491	636440.00	4271580.00	UCART1	3.81
3,492	636480.00	4271580.00	UCART1	3.78
3,493	636520.00	4271580.00	UCART1	3.05
3,494	636560.00	4271580.00	UCART1	3.05
3,495	636600.00	4271580.00	UCART1	3.35
3,496	636640.00	4271580.00	UCART1	4.64
3,497	636680.00	4271580.00	UCART1	4.72
3,498	636720.00	4271580.00	UCART1	6.55
3,499	636760.00	4271580.00	UCART1	6.72
3,500	636800.00	4271580.00	UCART1	7.12
3,501	636840.00	4271580.00	UCART1	8.04
3,502	636880.00	4271580.00	UCART1	8.49
3,503	636920.00	4271580.00	UCART1	9.52
3,504	636960.00	4271580.00	UCART1	9.79
3,505	637000.00	4271580.00	UCART1	9.21
3,506	637040.00	4271580.00	UCART1	9.01
3,507	637080.00	4271580.00	UCART1	9.23
3,508	637120.00	4271580.00	UCART1	9.52
3,509	637160.00	4271580.00	UCART1	10.37
3,510	637200.00	4271580.00	UCART1	8.84
3,511	637240.00	4271580.00	UCART1	8.39
3,512	637280.00	4271580.00	UCART1	8.27
3,513	637320.00	4271580.00	UCART1	7.25
3,514	637360.00	4271580.00	UCART1	5.99
3,515	637400.00	4271580.00	UCART1	5.51
3,516	637440.00	4271580.00	UCART1	6.00
3,517	637480.00	4271580.00	UCART1	5.35
3,518	637520.00	4271580.00	UCART1	5.24
3,519	637560.00	4271580.00	UCART1	5.18
3,520	637600.00	4271580.00	UCART1	4.57
3,521	637640.00	4271580.00	UCART1	6.95
3,522	637680.00	4271580.00	UCART1	7.53
3,523	637720.00	4271580.00	UCART1	8.18
3,524	637760.00	4271580.00	UCART1	8.01
3,525	637800.00	4271580.00	UCART1	8.20
3,526	637840.00	4271580.00	UCART1	8.93

3,527	637880.00	4271580.00	UCART1	9.41
3,528	637920.00	4271580.00	UCART1	9.81
3,529	637960.00	4271580.00	UCART1	10.22
3,530	638000.00	4271580.00	UCART1	10.63
3,531	638040.00	4271580.00	UCART1	10.64
3,532	638080.00	4271580.00	UCART1	10.43
3,533	638120.00	4271580.00	UCART1	10.10
3,534	638160.00	4271580.00	UCART1	9.69
3,535	638200.00	4271580.00	UCART1	9.37
3,536	638240.00	4271580.00	UCART1	9.16
3,537	638280.00	4271580.00	UCART1	9.14
3,538	638320.00	4271580.00	UCART1	9.14
3,539	638360.00	4271580.00	UCART1	9.14
3,540	636400.00	4271620.00	UCART1	6.00
3,541	636440.00	4271620.00	UCART1	6.58
3,542	636480.00	4271620.00	UCART1	6.29
3,543	636520.00	4271620.00	UCART1	5.71
3,544	636560.00	4271620.00	UCART1	3.39
3,545	636600.00	4271620.00	UCART1	3.05
3,546	636640.00	4271620.00	UCART1	3.05
3,547	636680.00	4271620.00	UCART1	3.05
3,548	636720.00	4271620.00	UCART1	3.60
3,549	636760.00	4271620.00	UCART1	5.12
3,550	636800.00	4271620.00	UCART1	6.41
3,551	636840.00	4271620.00	UCART1	6.56
3,552	636880.00	4271620.00	UCART1	6.94
3,553	636920.00	4271620.00	UCART1	7.63
3,554	636960.00	4271620.00	UCART1	8.89
3,555	637000.00	4271620.00	UCART1	9.16
3,556	637040.00	4271620.00	UCART1	10.28
3,557	637080.00	4271620.00	UCART1	10.32
3,558	637120.00	4271620.00	UCART1	10.28
3,559	637160.00	4271620.00	UCART1	9.09
3,560	637200.00	4271620.00	UCART1	7.99
3,561	637240.00	4271620.00	UCART1	7.53
3,562	637280.00	4271620.00	UCART1	7.15
3,563	637320.00	4271620.00	UCART1	6.37
3,564	637360.00	4271620.00	UCART1	5.79

3,565	637400.00	4271620.00	UCART1	5.52
3,566	637440.00	4271620.00	UCART1	5.60
3,567	637480.00	4271620.00	UCART1	5.16
3,568	637520.00	4271620.00	UCART1	6.34
3,569	637560.00	4271620.00	UCART1	4.57
3,570	637600.00	4271620.00	UCART1	5.93
3,571	637640.00	4271620.00	UCART1	7.25
3,572	637680.00	4271620.00	UCART1	7.67
3,573	637720.00	4271620.00	UCART1	7.82
3,574	637760.00	4271620.00	UCART1	8.13
3,575	637800.00	4271620.00	UCART1	8.56
3,576	637840.00	4271620.00	UCART1	9.00
3,577	637880.00	4271620.00	UCART1	9.41
3,578	637920.00	4271620.00	UCART1	9.81
3,579	637960.00	4271620.00	UCART1	10.22
3,580	638000.00	4271620.00	UCART1	10.63
3,581	638040.00	4271620.00	UCART1	10.61
3,582	638080.00	4271620.00	UCART1	10.23
3,583	638120.00	4271620.00	UCART1	10.07
3,584	638160.00	4271620.00	UCART1	9.69
3,585	638200.00	4271620.00	UCART1	9.29
3,586	638240.00	4271620.00	UCART1	9.14
3,587	638280.00	4271620.00	UCART1	9.20
3,588	638320.00	4271620.00	UCART1	9.40
3,589	638360.00	4271620.00	UCART1	9.40
3,590	636400.00	4271660.00	UCART1	6.92
3,591	636440.00	4271660.00	UCART1	8.39
3,592	636480.00	4271660.00	UCART1	10.09
3,593	636520.00	4271660.00	UCART1	9.67
3,594	636560.00	4271660.00	UCART1	10.66
3,595	636600.00	4271660.00	UCART1	4.16
3,596	636640.00	4271660.00	UCART1	3.05
3,597	636680.00	4271660.00	UCART1	3.05
3,598	636720.00	4271660.00	UCART1	3.05
3,599	636760.00	4271660.00	UCART1	3.05
3,600	636800.00	4271660.00	UCART1	3.05
3,601	636840.00	4271660.00	UCART1	3.61
3,602	636880.00	4271660.00	UCART1	5.83

3,603	636920.00	4271660.00	UCART1	5.83
3,604	636960.00	4271660.00	UCART1	6.24
3,605	637000.00	4271660.00	UCART1	6.99
3,606	637040.00	4271660.00	UCART1	7.32
3,607	637080.00	4271660.00	UCART1	7.06
3,608	637120.00	4271660.00	UCART1	6.86
3,609	637160.00	4271660.00	UCART1	6.86
3,610	637200.00	4271660.00	UCART1	6.60
3,611	637240.00	4271660.00	UCART1	6.47
3,612	637280.00	4271660.00	UCART1	6.30
3,613	637320.00	4271660.00	UCART1	6.04
3,614	637360.00	4271660.00	UCART1	6.04
3,615	637400.00	4271660.00	UCART1	5.61
3,616	637440.00	4271660.00	UCART1	5.18
3,617	637480.00	4271660.00	UCART1	4.57
3,618	637520.00	4271660.00	UCART1	4.57
3,619	637560.00	4271660.00	UCART1	5.68
3,620	637600.00	4271660.00	UCART1	7.48
3,621	637640.00	4271660.00	UCART1	7.63
3,622	637680.00	4271660.00	UCART1	7.83
3,623	637720.00	4271660.00	UCART1	7.83
3,624	637760.00	4271660.00	UCART1	8.24
3,625	637800.00	4271660.00	UCART1	8.70
3,626	637840.00	4271660.00	UCART1	9.31
3,627	637880.00	4271660.00	UCART1	9.71
3,628	637920.00	4271660.00	UCART1	9.87
3,629	637960.00	4271660.00	UCART1	10.34
3,630	638000.00	4271660.00	UCART1	10.63
3,631	638040.00	4271660.00	UCART1	10.61
3,632	638080.00	4271660.00	UCART1	10.20
3,633	638120.00	4271660.00	UCART1	9.79
3,634	638160.00	4271660.00	UCART1	9.69
3,635	638200.00	4271660.00	UCART1	9.20
3,636	638240.00	4271660.00	UCART1	9.12
3,637	638280.00	4271660.00	UCART1	9.45
3,638	638320.00	4271660.00	UCART1	9.45
3,639	638360.00	4271660.00	UCART1	9.49
3,640	636440.00	4271700.00	UCART1	10.22

3,641	636480.00	4271700.00	UCART1	10.88
3,642	636520.00	4271700.00	UCART1	10.52
3,643	636560.00	4271700.00	UCART1	10.65
3,644	636600.00	4271700.00	UCART1	10.15
3,645	636640.00	4271700.00	UCART1	4.83
3,646	636680.00	4271700.00	UCART1	3.05
3,647	636720.00	4271700.00	UCART1	3.05
3,648	636760.00	4271700.00	UCART1	3.05
3,649	636800.00	4271700.00	UCART1	3.05
3,650	636840.00	4271700.00	UCART1	3.05
3,651	636880.00	4271700.00	UCART1	3.05
3,652	636920.00	4271700.00	UCART1	3.05
3,653	636960.00	4271700.00	UCART1	3.35
3,654	637000.00	4271700.00	UCART1	4.57
3,655	637040.00	4271700.00	UCART1	4.57
3,656	637080.00	4271700.00	UCART1	5.33
3,657	637120.00	4271700.00	UCART1	5.33
3,658	637160.00	4271700.00	UCART1	5.33
3,659	637200.00	4271700.00	UCART1	5.33
3,660	637240.00	4271700.00	UCART1	5.33
3,661	637280.00	4271700.00	UCART1	5.20
3,662	637320.00	4271700.00	UCART1	5.18
3,663	637360.00	4271700.00	UCART1	5.18
3,664	637400.00	4271700.00	UCART1	5.18
3,665	637440.00	4271700.00	UCART1	4.57
3,666	637480.00	4271700.00	UCART1	4.57
3,667	637520.00	4271700.00	UCART1	6.17
3,668	637560.00	4271700.00	UCART1	7.86
3,669	637600.00	4271700.00	UCART1	7.62
3,670	637640.00	4271700.00	UCART1	7.75
3,671	637680.00	4271700.00	UCART1	7.87
3,672	637720.00	4271700.00	UCART1	8.39
3,673	637760.00	4271700.00	UCART1	8.67
3,674	637800.00	4271700.00	UCART1	8.90
3,675	637840.00	4271700.00	UCART1	9.31
3,676	637880.00	4271700.00	UCART1	9.71
3,677	637920.00	4271700.00	UCART1	9.81
3,678	637960.00	4271700.00	UCART1	10.22

3,679	638000.00	4271700.00	UCART1	10.36
3,680	638040.00	4271700.00	UCART1	10.33
3,681	638080.00	4271700.00	UCART1	10.05
3,682	638120.00	4271700.00	UCART1	9.77
3,683	638160.00	4271700.00	UCART1	9.57
3,684	638200.00	4271700.00	UCART1	8.55
3,685	638240.00	4271700.00	UCART1	8.96
3,686	638280.00	4271700.00	UCART1	9.45
3,687	638320.00	4271700.00	UCART1	9.53
3,688	638360.00	4271700.00	UCART1	9.73
3,689	636440.00	4271740.00	UCART1	10.67
3,690	636480.00	4271740.00	UCART1	10.71
3,691	636520.00	4271740.00	UCART1	10.53
3,692	636560.00	4271740.00	UCART1	10.41
3,693	636600.00	4271740.00	UCART1	10.62
3,694	636640.00	4271740.00	UCART1	10.02
3,695	636680.00	4271740.00	UCART1	9.67
3,696	636720.00	4271740.00	UCART1	8.14
3,697	636760.00	4271740.00	UCART1	3.05
3,698	636800.00	4271740.00	UCART1	3.05
3,699	636840.00	4271740.00	UCART1	3.05
3,700	636880.00	4271740.00	UCART1	3.05
3,701	636920.00	4271740.00	UCART1	3.05
3,702	636960.00	4271740.00	UCART1	3.35
3,703	637000.00	4271740.00	UCART1	4.57
3,704	637040.00	4271740.00	UCART1	4.57
3,705	637080.00	4271740.00	UCART1	4.57
3,706	637120.00	4271740.00	UCART1	4.57
3,707	637160.00	4271740.00	UCART1	4.57
3,708	637200.00	4271740.00	UCART1	4.57
3,709	637240.00	4271740.00	UCART1	4.57
3,710	637280.00	4271740.00	UCART1	4.57
3,711	637320.00	4271740.00	UCART1	4.57
3,712	637360.00	4271740.00	UCART1	4.57
3,713	637400.00	4271740.00	UCART1	4.57
3,714	637440.00	4271740.00	UCART1	6.61
3,715	637480.00	4271740.00	UCART1	7.36
3,716	637520.00	4271740.00	UCART1	8.54

3,717	637560.00	4271740.00	UCART1	7.82
3,718	637600.00	4271740.00	UCART1	8.91
3,719	637640.00	4271740.00	UCART1	8.04
3,720	637680.00	4271740.00	UCART1	8.56
3,721	637720.00	4271740.00	UCART1	9.07
3,722	637760.00	4271740.00	UCART1	9.09
3,723	637800.00	4271740.00	UCART1	9.10
3,724	637840.00	4271740.00	UCART1	9.31
3,725	637880.00	4271740.00	UCART1	9.71
3,726	637920.00	4271740.00	UCART1	9.81
3,727	637960.00	4271740.00	UCART1	10.09
3,728	638000.00	4271740.00	UCART1	10.07
3,729	638040.00	4271740.00	UCART1	9.80
3,730	638080.00	4271740.00	UCART1	9.78
3,731	638120.00	4271740.00	UCART1	9.75
3,732	638160.00	4271740.00	UCART1	9.30
3,733	638200.00	4271740.00	UCART1	8.77
3,734	638240.00	4271740.00	UCART1	9.33
3,735	638280.00	4271740.00	UCART1	9.50
3,736	638320.00	4271740.00	UCART1	9.73
3,737	638360.00	4271740.00	UCART1	9.97
3,738	636680.00	4271780.00	UCART1	10.93
3,739	636720.00	4271780.00	UCART1	10.88
3,740	636760.00	4271780.00	UCART1	11.53
3,741	636800.00	4271780.00	UCART1	11.14
3,742	636840.00	4271780.00	UCART1	4.43
3,743	636880.00	4271780.00	UCART1	4.42
3,744	636920.00	4271780.00	UCART1	4.40
3,745	636960.00	4271780.00	UCART1	4.65
3,746	637000.00	4271780.00	UCART1	8.36
3,747	637040.00	4271780.00	UCART1	10.72
3,748	637080.00	4271780.00	UCART1	5.66
3,749	637120.00	4271780.00	UCART1	5.66
3,750	637160.00	4271780.00	UCART1	5.66
3,751	637200.00	4271780.00	UCART1	5.61
3,752	637240.00	4271780.00	UCART1	5.58
3,753	637280.00	4271780.00	UCART1	5.28
3,754	637320.00	4271780.00	UCART1	5.70

3,755	637360.00	4271780.00	UCART1	6.93
3,756	637400.00	4271780.00	UCART1	8.73
3,757	637440.00	4271780.00	UCART1	9.65
3,758	637480.00	4271780.00	UCART1	8.00
3,759	637520.00	4271780.00	UCART1	9.46
3,760	637560.00	4271780.00	UCART1	9.11
3,761	637600.00	4271780.00	UCART1	9.97
3,762	637640.00	4271780.00	UCART1	9.27
3,763	637680.00	4271780.00	UCART1	8.94
3,764	637720.00	4271780.00	UCART1	9.31
3,765	637760.00	4271780.00	UCART1	9.45
3,766	637800.00	4271780.00	UCART1	9.46
3,767	637840.00	4271780.00	UCART1	9.50
3,768	637880.00	4271780.00	UCART1	9.72
3,769	637920.00	4271780.00	UCART1	9.70
3,770	637960.00	4271780.00	UCART1	9.73
3,771	638000.00	4271780.00	UCART1	9.75
3,772	638040.00	4271780.00	UCART1	9.74
3,773	638080.00	4271780.00	UCART1	9.70
3,774	638120.00	4271780.00	UCART1	9.75
3,775	638160.00	4271780.00	UCART1	8.98
3,776	638200.00	4271780.00	UCART1	8.32
3,777	638240.00	4271780.00	UCART1	9.42
3,778	638280.00	4271780.00	UCART1	9.55
3,779	638320.00	4271780.00	UCART1	9.78
3,780	638360.00	4271780.00	UCART1	10.02
3,781	636680.00	4271820.00	UCART1	10.93
3,782	636720.00	4271820.00	UCART1	11.03
3,783	636760.00	4271820.00	UCART1	11.28
3,784	636800.00	4271820.00	UCART1	11.41
3,785	636840.00	4271820.00	UCART1	11.09
3,786	636880.00	4271820.00	UCART1	11.05
3,787	636920.00	4271820.00	UCART1	10.86
3,788	636960.00	4271820.00	UCART1	10.97
3,789	637000.00	4271820.00	UCART1	10.97
3,790	637040.00	4271820.00	UCART1	10.97
3,791	637080.00	4271820.00	UCART1	10.97
3,792	637120.00	4271820.00	UCART1	10.97

3,793	637160.00	4271820.00	UCART1	10.84
3,794	637200.00	4271820.00	UCART1	10.67
3,795	637240.00	4271820.00	UCART1	10.51
3,796	637280.00	4271820.00	UCART1	9.18
3,797	637320.00	4271820.00	UCART1	9.14
3,798	637360.00	4271820.00	UCART1	8.58
3,799	637400.00	4271820.00	UCART1	6.75
3,800	637440.00	4271820.00	UCART1	9.26
3,801	637480.00	4271820.00	UCART1	9.23
3,802	637520.00	4271820.00	UCART1	8.10
3,803	637560.00	4271820.00	UCART1	8.04
3,804	637600.00	4271820.00	UCART1	9.47
3,805	637640.00	4271820.00	UCART1	9.49
3,806	637680.00	4271820.00	UCART1	9.30
3,807	637720.00	4271820.00	UCART1	9.38
3,808	637760.00	4271820.00	UCART1	9.45
3,809	637800.00	4271820.00	UCART1	9.63
3,810	637840.00	4271820.00	UCART1	9.75
3,811	637880.00	4271820.00	UCART1	9.62
3,812	637920.00	4271820.00	UCART1	9.45
3,813	637960.00	4271820.00	UCART1	9.53
3,814	638000.00	4271820.00	UCART1	9.60
3,815	638040.00	4271820.00	UCART1	9.57
3,816	638080.00	4271820.00	UCART1	9.45
3,817	638120.00	4271820.00	UCART1	9.45
3,818	638160.00	4271820.00	UCART1	8.26
3,819	638200.00	4271820.00	UCART1	9.24
3,820	638240.00	4271820.00	UCART1	9.45
3,821	638280.00	4271820.00	UCART1	9.78
3,822	638320.00	4271820.00	UCART1	9.99
3,823	638360.00	4271820.00	UCART1	10.19
3,824	636680.00	4271860.00	UCART1	10.71
3,825	636720.00	4271860.00	UCART1	10.98
3,826	636760.00	4271860.00	UCART1	11.02
3,827	636800.00	4271860.00	UCART1	11.02
3,828	636840.00	4271860.00	UCART1	10.92
3,829	636880.00	4271860.00	UCART1	10.72
3,830	636920.00	4271860.00	UCART1	10.67

3,831	636960.00	4271860.00	UCART1	10.77
3,832	637000.00	4271860.00	UCART1	10.97
3,833	637040.00	4271860.00	UCART1	10.97
3,834	637080.00	4271860.00	UCART1	10.72
3,835	637120.00	4271860.00	UCART1	10.72
3,836	637160.00	4271860.00	UCART1	10.45
3,837	637200.00	4271860.00	UCART1	10.41
3,838	637240.00	4271860.00	UCART1	10.39
3,839	637280.00	4271860.00	UCART1	9.79
3,840	637320.00	4271860.00	UCART1	9.35
3,841	637360.00	4271860.00	UCART1	9.14
3,842	637400.00	4271860.00	UCART1	8.49
3,843	637440.00	4271860.00	UCART1	7.15
3,844	637480.00	4271860.00	UCART1	8.38
3,845	637520.00	4271860.00	UCART1	7.51
3,846	637560.00	4271860.00	UCART1	6.93
3,847	637600.00	4271860.00	UCART1	9.67
3,848	637640.00	4271860.00	UCART1	9.68
3,849	637680.00	4271860.00	UCART1	9.45
3,850	637720.00	4271860.00	UCART1	9.58
3,851	637760.00	4271860.00	UCART1	9.48
3,852	637800.00	4271860.00	UCART1	9.55
3,853	637840.00	4271860.00	UCART1	9.75
3,854	637880.00	4271860.00	UCART1	9.49
3,855	637920.00	4271860.00	UCART1	9.45
3,856	637960.00	4271860.00	UCART1	9.45
3,857	638000.00	4271860.00	UCART1	9.45
3,858	638040.00	4271860.00	UCART1	9.45
3,859	638080.00	4271860.00	UCART1	9.31
3,860	638120.00	4271860.00	UCART1	8.04
3,861	638160.00	4271860.00	UCART1	8.46
3,862	638200.00	4271860.00	UCART1	9.31
3,863	638240.00	4271860.00	UCART1	9.67
3,864	638280.00	4271860.00	UCART1	9.81
3,865	638320.00	4271860.00	UCART1	10.06
3,866	638360.00	4271860.00	UCART1	10.32
3,867	637800.00	4271860.00	UCART1	9.55
3,868	637850.00	4271860.00	UCART1	9.75

3,869	637900.00	4271860.00	UCART1	9.45
3,870	637950.00	4271860.00	UCART1	9.45
3,871	638000.00	4271860.00	UCART1	9.45
3,872	638050.00	4271860.00	UCART1	9.45
3,873	638100.00	4271860.00	UCART1	8.93
3,874	638150.00	4271860.00	UCART1	8.23
3,875	638200.00	4271860.00	UCART1	9.31
3,876	638250.00	4271860.00	UCART1	9.71
3,877	637800.00	4271910.00	UCART1	9.51
3,878	637850.00	4271910.00	UCART1	8.74
3,879	637900.00	4271910.00	UCART1	7.94
3,880	637950.00	4271910.00	UCART1	8.87
3,881	638000.00	4271910.00	UCART1	7.99
3,882	638050.00	4271910.00	UCART1	8.32
3,883	638100.00	4271910.00	UCART1	9.05
3,884	638150.00	4271910.00	UCART1	9.30
3,885	638200.00	4271910.00	UCART1	9.53
3,886	638250.00	4271910.00	UCART1	9.81
3,887	637800.00	4271960.00	UCART1	6.51
3,888	637850.00	4271960.00	UCART1	8.48
3,889	637900.00	4271960.00	UCART1	9.20
3,890	637950.00	4271960.00	UCART1	9.45
3,891	638000.00	4271960.00	UCART1	9.45
3,892	638050.00	4271960.00	UCART1	9.45
3,893	638100.00	4271960.00	UCART1	9.46
3,894	638150.00	4271960.00	UCART1	9.50
3,895	638200.00	4271960.00	UCART1	9.75
3,896	638250.00	4271960.00	UCART1	10.06
3,897	637800.00	4272010.00	UCART1	9.40
3,898	637850.00	4272010.00	UCART1	9.44
3,899	637900.00	4272010.00	UCART1	9.45
3,900	637950.00	4272010.00	UCART1	9.70
3,901	638000.00	4272010.00	UCART1	9.70
3,902	638050.00	4272010.00	UCART1	9.70
3,903	638100.00	4272010.00	UCART1	9.71
3,904	638150.00	4272010.00	UCART1	9.75
3,905	638200.00	4272010.00	UCART1	10.01
3,906	638250.00	4272010.00	UCART1	10.06

3,907	637800.00	4272060.00	UCART1	9.63
3,908	637850.00	4272060.00	UCART1	9.75
3,909	637900.00	4272060.00	UCART1	9.84
3,910	637950.00	4272060.00	UCART1	9.91
3,911	638000.00	4272060.00	UCART1	9.91
3,912	638050.00	4272060.00	UCART1	9.99
3,913	638100.00	4272060.00	UCART1	10.06
3,914	638150.00	4272060.00	UCART1	10.06
3,915	638200.00	4272060.00	UCART1	10.06
3,916	638250.00	4272060.00	UCART1	10.24
3,917	637800.00	4272110.00	UCART1	10.11
3,918	637850.00	4272110.00	UCART1	10.11
3,919	637900.00	4272110.00	UCART1	10.11
3,920	637950.00	4272110.00	UCART1	10.11
3,921	638000.00	4272110.00	UCART1	10.33
3,922	638050.00	4272110.00	UCART1	10.36
3,923	638100.00	4272110.00	UCART1	10.36
3,924	638150.00	4272110.00	UCART1	10.36
3,925	638200.00	4272110.00	UCART1	10.36
3,926	638250.00	4272110.00	UCART1	10.36
3,927	637800.00	4272160.00	UCART1	10.36
3,928	637850.00	4272160.00	UCART1	10.36
3,929	637900.00	4272160.00	UCART1	10.36
3,930	637950.00	4272160.00	UCART1	10.36
3,931	638000.00	4272160.00	UCART1	10.58
3,932	638050.00	4272160.00	UCART1	10.62
3,933	638100.00	4272160.00	UCART1	10.41
3,934	638150.00	4272160.00	UCART1	10.62
3,935	638200.00	4272160.00	UCART1	10.48
3,936	638250.00	4272160.00	UCART1	10.36
3,937	637800.00	4272210.00	UCART1	10.82
3,938	637850.00	4272210.00	UCART1	10.82
3,939	637900.00	4272210.00	UCART1	10.59
3,940	637950.00	4272210.00	UCART1	10.70
3,941	638000.00	4272210.00	UCART1	10.82
3,942	638050.00	4272210.00	UCART1	10.89
3,943	638100.00	4272210.00	UCART1	10.82
3,944	638150.00	4272210.00	UCART1	10.82

3,945	638200.00	4272210.00	UCART1	10.74
3,946	638250.00	4272210.00	UCART1	10.64
3,947	637800.00	4272260.00	UCART1	11.58
3,948	637850.00	4272260.00	UCART1	11.34
3,949	637900.00	4272260.00	UCART1	11.02
3,950	637950.00	4272260.00	UCART1	11.09
3,951	638000.00	4272260.00	UCART1	11.33
3,952	638050.00	4272260.00	UCART1	11.33
3,953	638100.00	4272260.00	UCART1	11.32
3,954	638150.00	4272260.00	UCART1	11.06
3,955	638200.00	4272260.00	UCART1	11.02
3,956	638250.00	4272260.00	UCART1	10.71
3,957	637800.00	4272310.00	UCART1	12.14
3,958	637850.00	4272310.00	UCART1	11.88
3,959	637900.00	4272310.00	UCART1	11.65
3,960	637950.00	4272310.00	UCART1	11.59
3,961	638000.00	4272310.00	UCART1	12.06
3,962	638050.00	4272310.00	UCART1	11.84
3,963	638100.00	4272310.00	UCART1	11.78
3,964	638150.00	4272310.00	UCART1	11.53
3,965	638200.00	4272310.00	UCART1	11.14
3,966	638250.00	4272310.00	UCART1	10.91
3,967	637800.00	4272360.00	UCART1	12.44
3,968	637850.00	4272360.00	UCART1	12.19
3,969	637900.00	4272360.00	UCART1	11.96
3,970	637950.00	4272360.00	UCART1	11.92
3,971	638000.00	4272360.00	UCART1	12.17
3,972	638050.00	4272360.00	UCART1	12.26
3,973	638100.00	4272360.00	UCART1	12.01
3,974	638150.00	4272360.00	UCART1	11.89
3,975	638200.00	4272360.00	UCART1	11.81
3,976	638250.00	4272360.00	UCART1	11.52
3,977	637800.00	4272410.00	UCART1	12.15
3,978	637850.00	4272410.00	UCART1	12.19
3,979	637900.00	4272410.00	UCART1	12.19
3,980	637950.00	4272410.00	UCART1	12.19
3,981	638000.00	4272410.00	UCART1	12.24
3,982	638050.00	4272410.00	UCART1	12.50

3,983	638100.00	4272410.00	UCART1	12.24
3,984	638150.00	4272410.00	UCART1	12.24
3,985	638200.00	4272410.00	UCART1	12.19
3,986	638250.00	4272410.00	UCART1	12.14
3,987	637800.00	4272460.00	UCART1	11.23
3,988	637850.00	4272460.00	UCART1	11.90
3,989	637900.00	4272460.00	UCART1	12.19
3,990	637950.00	4272460.00	UCART1	12.40
3,991	638000.00	4272460.00	UCART1	12.46
3,992	638050.00	4272460.00	UCART1	12.50
3,993	638100.00	4272460.00	UCART1	12.50
3,994	638150.00	4272460.00	UCART1	12.50
3,995	638200.00	4272460.00	UCART1	12.45
3,996	638250.00	4272460.00	UCART1	12.45
3,997	637800.00	4272510.00	UCART1	8.17
3,998	637850.00	4272510.00	UCART1	11.37
3,999	637900.00	4272510.00	UCART1	11.73
4,000	637950.00	4272510.00	UCART1	12.10
4,001	638000.00	4272510.00	UCART1	12.08
4,002	638050.00	4272510.00	UCART1	12.20
4,003	638100.00	4272510.00	UCART1	12.53
4,004	638150.00	4272510.00	UCART1	12.52
4,005	638200.00	4272510.00	UCART1	12.49
4,006	638250.00	4272510.00	UCART1	12.10
4,007	637800.00	4272560.00	UCART1	8.20
4,008	637850.00	4272560.00	UCART1	10.87
4,009	637900.00	4272560.00	UCART1	11.23
4,010	637950.00	4272560.00	UCART1	11.53
4,011	638000.00	4272560.00	UCART1	11.51
4,012	638050.00	4272560.00	UCART1	11.70
4,013	638100.00	4272560.00	UCART1	12.58
4,014	638150.00	4272560.00	UCART1	12.32
4,015	637800.00	4272610.00	UCART1	7.95
4,016	637850.00	4272610.00	UCART1	10.04
4,017	637900.00	4272610.00	UCART1	10.60
4,018	637950.00	4272610.00	UCART1	10.77
4,019	638000.00	4272610.00	UCART1	10.75
4,020	638050.00	4272610.00	UCART1	9.40

4,021	638100.00	4272610.00	UCART1	10.60
4,022	638150.00	4272610.00	UCART1	10.55
4,023	637800.00	4272660.00	UCART1	7.93
4,024	637850.00	4272660.00	UCART1	9.54
4,025	637900.00	4272660.00	UCART1	10.22
4,026	637800.00	4272710.00	UCART1	7.93
4,027	637850.00	4272710.00	UCART1	9.41
4,028	637900.00	4272710.00	UCART1	10.22
4,029	637800.00	4272760.00	UCART1	7.93
4,030	637850.00	4272760.00	UCART1	9.63
4,031	637900.00	4272760.00	UCART1	10.22
4,032	637800.00	4272810.00	UCART1	8.05
4,033	637850.00	4272810.00	UCART1	9.54
4,034	637900.00	4272810.00	UCART1	9.84
4,035	637800.00	4272860.00	UCART1	8.15
4,036	637850.00	4272860.00	UCART1	8.19
4,037	637900.00	4272860.00	UCART1	7.84
4,038	637800.00	4272910.00	UCART1	10.73
4,039	637850.00	4272910.00	UCART1	10.97
4,040	637900.00	4272910.00	UCART1	9.98
4,041	637800.00	4272960.00	UCART1	11.22
4,042	637850.00	4272960.00	UCART1	11.45
4,043	637900.00	4272960.00	UCART1	10.96
4,044	637800.00	4273010.00	UCART1	11.99
4,045	637850.00	4273010.00	UCART1	11.97
4,046	638370.00	4269975.00	UCART1	10.06
4,047	638420.00	4269975.00	UCART1	10.06
4,048	638470.00	4269975.00	UCART1	10.06
4,049	638520.00	4269975.00	UCART1	10.06
4,050	638570.00	4269975.00	UCART1	10.06
4,051	638620.00	4269975.00	UCART1	10.06
4,052	638670.00	4269975.00	UCART1	10.06
4,053	638720.00	4269975.00	UCART1	10.32
4,054	638770.00	4269975.00	UCART1	10.36
4,055	638820.00	4269975.00	UCART1	10.43
4,056	638870.00	4269975.00	UCART1	10.67
4,057	638920.00	4269975.00	UCART1	10.67
4,058	638370.00	4270025.00	UCART1	10.06

4,059	638420.00	4270025.00	UCART1	10.06
4,060	638470.00	4270025.00	UCART1	10.06
4,061	638520.00	4270025.00	UCART1	10.06
4,062	638570.00	4270025.00	UCART1	10.06
4,063	638620.00	4270025.00	UCART1	10.26
4,064	638670.00	4270025.00	UCART1	10.36
4,065	638720.00	4270025.00	UCART1	10.36
4,066	638770.00	4270025.00	UCART1	10.36
4,067	638820.00	4270025.00	UCART1	10.67
4,068	638870.00	4270025.00	UCART1	10.49
4,069	638920.00	4270025.00	UCART1	10.36
4,070	638370.00	4270075.00	UCART1	10.30
4,071	638420.00	4270075.00	UCART1	10.06
4,072	638470.00	4270075.00	UCART1	10.06
4,073	638520.00	4270075.00	UCART1	10.20
4,074	638570.00	4270075.00	UCART1	10.36
4,075	638620.00	4270075.00	UCART1	10.36
4,076	638670.00	4270075.00	UCART1	10.36
4,077	638720.00	4270075.00	UCART1	10.36
4,078	638770.00	4270075.00	UCART1	10.57
4,079	638820.00	4270075.00	UCART1	10.67
4,080	638870.00	4270075.00	UCART1	10.67
4,081	638920.00	4270075.00	UCART1	10.67
4,082	638370.00	4270125.00	UCART1	10.36
4,083	638420.00	4270125.00	UCART1	10.10
4,084	638470.00	4270125.00	UCART1	10.22
4,085	638520.00	4270125.00	UCART1	10.36
4,086	638570.00	4270125.00	UCART1	10.36
4,087	638620.00	4270125.00	UCART1	10.53
4,088	638670.00	4270125.00	UCART1	10.67
4,089	638720.00	4270125.00	UCART1	10.67
4,090	638770.00	4270125.00	UCART1	10.67
4,091	638820.00	4270125.00	UCART1	10.67
4,092	638870.00	4270125.00	UCART1	10.67
4,093	638920.00	4270125.00	UCART1	10.67
4,094	638370.00	4270175.00	UCART1	10.36
4,095	638420.00	4270175.00	UCART1	10.36
4,096	638470.00	4270175.00	UCART1	10.36

4,097	638520.00	4270175.00	UCART1	10.38
4,098	638570.00	4270175.00	UCART1	10.64
4,099	638620.00	4270175.00	UCART1	10.67
4,100	638670.00	4270175.00	UCART1	10.67
4,101	638720.00	4270175.00	UCART1	10.67
4,102	638770.00	4270175.00	UCART1	10.67
4,103	638820.00	4270175.00	UCART1	10.67
4,104	638870.00	4270175.00	UCART1	10.67
4,105	638920.00	4270175.00	UCART1	10.67
4,106	638370.00	4270225.00	UCART1	10.63
4,107	638420.00	4270225.00	UCART1	10.38
4,108	638470.00	4270225.00	UCART1	10.36
4,109	638520.00	4270225.00	UCART1	10.38
4,110	638570.00	4270225.00	UCART1	10.64
4,111	638620.00	4270225.00	UCART1	10.67
4,112	638670.00	4270225.00	UCART1	10.67
4,113	638720.00	4270225.00	UCART1	10.67
4,114	638770.00	4270225.00	UCART1	10.67
4,115	638820.00	4270225.00	UCART1	10.69
4,116	638870.00	4270225.00	UCART1	10.77
4,117	638920.00	4270225.00	UCART1	10.77
4,118	638370.00	4270275.00	UCART1	10.67
4,119	638420.00	4270275.00	UCART1	10.67
4,120	638470.00	4270275.00	UCART1	10.67
4,121	638520.00	4270275.00	UCART1	10.67
4,122	638570.00	4270275.00	UCART1	10.67
4,123	638620.00	4270275.00	UCART1	10.67
4,124	638670.00	4270275.00	UCART1	10.67
4,125	638720.00	4270275.00	UCART1	10.67
4,126	638770.00	4270275.00	UCART1	10.97
4,127	638820.00	4270275.00	UCART1	10.97
4,128	638870.00	4270275.00	UCART1	11.24
4,129	638920.00	4270275.00	UCART1	11.28
4,130	638370.00	4270325.00	UCART1	10.67
4,131	638420.00	4270325.00	UCART1	10.67
4,132	638470.00	4270325.00	UCART1	10.67
4,133	638520.00	4270325.00	UCART1	10.67
4,134	638570.00	4270325.00	UCART1	10.67

4,135	638620.00	4270325.00	UCART1	10.67
4,136	638670.00	4270325.00	UCART1	10.71
4,137	638720.00	4270325.00	UCART1	10.96
4,138	638770.00	4270325.00	UCART1	10.97
4,139	638820.00	4270325.00	UCART1	11.28
4,140	638870.00	4270325.00	UCART1	11.45
4,141	638920.00	4270325.00	UCART1	11.69
4,142	638370.00	4270375.00	UCART1	10.67
4,143	638420.00	4270375.00	UCART1	10.67
4,144	638470.00	4270375.00	UCART1	10.67
4,145	638520.00	4270375.00	UCART1	10.77
4,146	638570.00	4270375.00	UCART1	10.95
4,147	638620.00	4270375.00	UCART1	10.97
4,148	638670.00	4270375.00	UCART1	10.97
4,149	638720.00	4270375.00	UCART1	10.97
4,150	638770.00	4270375.00	UCART1	11.14
4,151	638820.00	4270375.00	UCART1	11.34
4,152	638870.00	4270375.00	UCART1	11.67
4,153	638920.00	4270375.00	UCART1	11.99
4,154	638370.00	4270425.00	UCART1	10.67
4,155	638420.00	4270425.00	UCART1	10.67
4,156	638470.00	4270425.00	UCART1	10.83
4,157	638520.00	4270425.00	UCART1	10.97
4,158	638570.00	4270425.00	UCART1	10.97
4,159	638620.00	4270425.00	UCART1	10.97
4,160	638670.00	4270425.00	UCART1	10.97
4,161	638720.00	4270425.00	UCART1	10.97
4,162	638770.00	4270425.00	UCART1	11.28
4,163	638820.00	4270425.00	UCART1	11.58
4,164	638870.00	4270425.00	UCART1	11.85
4,165	638920.00	4270425.00	UCART1	12.19
4,166	638370.00	4270475.00	UCART1	10.67
4,167	638420.00	4270475.00	UCART1	10.67
4,168	638470.00	4270475.00	UCART1	10.83
4,169	638520.00	4270475.00	UCART1	10.97
4,170	638570.00	4270475.00	UCART1	10.97
4,171	638620.00	4270475.00	UCART1	10.97
4,172	638670.00	4270475.00	UCART1	10.97

4,173	638720.00	4270475.00	UCART1	11.15
4,174	638770.00	4270475.00	UCART1	11.28
4,175	638820.00	4270475.00	UCART1	11.62
4,176	638870.00	4270475.00	UCART1	11.96
4,177	638370.00	4270525.00	UCART1	10.67
4,178	638420.00	4270525.00	UCART1	10.67
4,179	638470.00	4270525.00	UCART1	10.67
4,180	638520.00	4270525.00	UCART1	10.97
4,181	638570.00	4270525.00	UCART1	10.97
4,182	638620.00	4270525.00	UCART1	10.97
4,183	638670.00	4270525.00	UCART1	11.03
4,184	638370.00	4270575.00	UCART1	10.67
4,185	638420.00	4270575.00	UCART1	10.67
4,186	638470.00	4270575.00	UCART1	10.67
4,187	638520.00	4270575.00	UCART1	10.97
4,188	638570.00	4270575.00	UCART1	10.97
4,189	638620.00	4270575.00	UCART1	10.97
4,190	638370.00	4270625.00	UCART1	10.67
4,191	638420.00	4270625.00	UCART1	10.67
4,192	638470.00	4270625.00	UCART1	10.67
4,193	638520.00	4270625.00	UCART1	10.67
4,194	638570.00	4270625.00	UCART1	10.67
4,195	638370.00	4270675.00	UCART1	10.67
4,196	638420.00	4270675.00	UCART1	10.67
4,197	638470.00	4270675.00	UCART1	10.67
4,198	638520.00	4270675.00	UCART1	10.67
4,199	637384.34	4272163.28	UCART1	9.04
4,200	637434.34	4272163.28	UCART1	8.84
4,201	637484.34	4272163.28	UCART1	8.12
4,202	637534.34	4272163.28	UCART1	7.91
4,203	637584.34	4272163.28	UCART1	7.91
4,204	637634.34	4272163.28	UCART1	7.72
4,205	637684.34	4272163.28	UCART1	9.25
4,206	637734.34	4272163.28	UCART1	10.35
4,207	637769.50	4272161.43	UCART1	10.33
4,208	637384.34	4272213.28	UCART1	8.96
4,209	637434.34	4272213.28	UCART1	8.84
4,210	637484.34	4272213.28	UCART1	8.72

4,211	637534.34	4272213.28	UCART1	8.31
4,212	637584.34	4272213.28	UCART1	7.92
4,213	637634.34	4272213.28	UCART1	7.72
4,214	637684.34	4272213.28	UCART1	9.73
4,215	637734.34	4272213.28	UCART1	10.85
4,216	637769.50	4272211.43	UCART1	10.84
4,217	637384.34	4272263.28	UCART1	9.14
4,218	637434.34	4272263.28	UCART1	9.14
4,219	637484.34	4272263.28	UCART1	9.14
4,220	637534.34	4272263.28	UCART1	8.73
4,221	637584.34	4272263.28	UCART1	8.31
4,222	637634.34	4272263.28	UCART1	7.80
4,223	637684.34	4272263.28	UCART1	8.89
4,224	637734.34	4272263.28	UCART1	10.98
4,225	637769.50	4272261.43	UCART1	11.45
4,226	637384.34	4272313.28	UCART1	9.14
4,227	637434.34	4272313.28	UCART1	9.14
4,228	637484.34	4272313.28	UCART1	8.86
4,229	637534.34	4272313.28	UCART1	8.83
4,230	637584.34	4272313.28	UCART1	9.11
4,231	637634.34	4272313.28	UCART1	8.60
4,232	637684.34	4272313.28	UCART1	7.81
4,233	637734.34	4272313.28	UCART1	10.98
4,234	637769.50	4272311.43	UCART1	11.94
4,235	637384.34	4272363.28	UCART1	9.14
4,236	637434.34	4272363.28	UCART1	9.14
4,237	637484.34	4272363.28	UCART1	9.03
4,238	637534.34	4272363.28	UCART1	9.03
4,239	637584.34	4272363.28	UCART1	9.15
4,240	637634.34	4272363.28	UCART1	10.27
4,241	637684.34	4272363.28	UCART1	9.20
4,242	637734.34	4272363.28	UCART1	10.99
4,243	637769.50	4272361.43	UCART1	12.11
4,244	637384.34	4272413.28	UCART1	9.14
4,245	637434.34	4272413.28	UCART1	9.14
4,246	637484.34	4272413.28	UCART1	9.14
4,247	637534.34	4272413.28	UCART1	9.14
4,248	637584.34	4272413.28	UCART1	9.15

4,249	637634.34	4272413.28	UCART1	10.27
4,250	637684.34	4272413.28	UCART1	9.65
4,251	637734.34	4272413.28	UCART1	10.98
4,252	637769.50	4272411.43	UCART1	11.88
4,253	637384.34	4272463.28	UCART1	9.14
4,254	637434.34	4272463.28	UCART1	9.14
4,255	637484.34	4272463.28	UCART1	9.14
4,256	637534.34	4272463.28	UCART1	9.14
4,257	637584.34	4272463.28	UCART1	9.14
4,258	637634.34	4272463.28	UCART1	9.18
4,259	637684.34	4272463.28	UCART1	7.90
4,260	637734.34	4272463.28	UCART1	10.98
4,261	637769.50	4272461.43	UCART1	11.27
4,262	637384.34	4272513.28	UCART1	9.14
4,263	637434.34	4272513.28	UCART1	9.14
4,264	637484.34	4272513.28	UCART1	9.14
4,265	637534.34	4272513.28	UCART1	9.14
4,266	637584.34	4272513.28	UCART1	9.14
4,267	637634.34	4272513.28	UCART1	8.67
4,268	637684.34	4272513.28	UCART1	7.88
4,269	637734.34	4272513.28	UCART1	7.82
4,270	637769.50	4272511.43	UCART1	8.69
4,271	637384.34	4272563.28	UCART1	9.14
4,272	637434.34	4272563.28	UCART1	9.14
4,273	637484.34	4272563.28	UCART1	9.14
4,274	637534.34	4272563.28	UCART1	9.14
4,275	637584.34	4272563.28	UCART1	9.14
4,276	637634.34	4272563.28	UCART1	9.14
4,277	637684.34	4272563.28	UCART1	8.87
4,278	637734.34	4272563.28	UCART1	9.63
4,279	637769.50	4272561.43	UCART1	10.11
4,280	637384.34	4272613.28	UCART1	9.14
4,281	637434.34	4272613.28	UCART1	9.14
4,282	637484.34	4272613.28	UCART1	9.14
4,283	637534.34	4272613.28	UCART1	9.14
4,284	637584.34	4272613.28	UCART1	9.14
4,285	637634.34	4272613.28	UCART1	8.95
4,286	637684.34	4272613.28	UCART1	8.94

4,287	637734.34	4272613.28	UCART1	9.19
4,288	637769.50	4272611.43	UCART1	9.01
4,289	637384.34	4272663.28	UCART1	9.14
4,290	637434.34	4272663.28	UCART1	9.14
4,291	637484.34	4272663.28	UCART1	9.14
4,292	637534.34	4272663.28	UCART1	9.14
4,293	637584.34	4272663.28	UCART1	9.14
4,294	637634.34	4272663.28	UCART1	9.06
4,295	637684.34	4272663.28	UCART1	8.84
4,296	637734.34	4272663.28	UCART1	8.46
4,297	637769.50	4272661.43	UCART1	7.87
4,298	637384.34	4272713.28	UCART1	9.14
4,299	637434.34	4272713.28	UCART1	9.14
4,300	637484.34	4272713.28	UCART1	9.14
4,301	637534.34	4272713.28	UCART1	9.14
4,302	637584.34	4272713.28	UCART1	9.14
4,303	637634.34	4272713.28	UCART1	9.14
4,304	637684.34	4272713.28	UCART1	9.18
4,305	637734.34	4272713.28	UCART1	8.78
4,306	637769.50	4272711.43	UCART1	7.87
4,307	637384.34	4272763.28	UCART1	9.14
4,308	637434.34	4272763.28	UCART1	9.14
4,309	637484.34	4272763.28	UCART1	9.14
4,310	637534.34	4272763.28	UCART1	9.14
4,311	637584.34	4272763.28	UCART1	9.14
4,312	637634.34	4272763.28	UCART1	8.95
4,313	637684.34	4272763.28	UCART1	9.84
4,314	637734.34	4272763.28	UCART1	10.31
4,315	637769.50	4272761.43	UCART1	9.19
4,316	637384.34	4272813.28	UCART1	9.14
4,317	637434.34	4272813.28	UCART1	9.14
4,318	637484.34	4272813.28	UCART1	9.14
4,319	637534.34	4272813.28	UCART1	9.14
4,320	637584.34	4272813.28	UCART1	9.15
4,321	637634.34	4272813.28	UCART1	9.45
4,322	637684.34	4272813.28	UCART1	10.29
4,323	637734.34	4272813.28	UCART1	10.67
4,324	637769.50	4272811.43	UCART1	10.14

4,325	637384.34	4272863.28	UCART1	9.14
4,326	637434.34	4272863.28	UCART1	9.06
4,327	637484.34	4272863.28	UCART1	9.05
4,328	637534.34	4272863.28	UCART1	9.14
4,329	637584.34	4272863.28	UCART1	9.15
4,330	637634.34	4272863.28	UCART1	9.88
4,331	637684.34	4272863.28	UCART1	10.06
4,332	637734.34	4272863.28	UCART1	9.48
4,333	637769.50	4272861.43	UCART1	8.95
4,334	637734.34	4272913.28	UCART1	10.08
4,335	637769.50	4272911.43	UCART1	10.61
4,336	637734.34	4272963.28	UCART1	10.85
4,337	637769.50	4272961.43	UCART1	10.89
4,338	637734.34	4273013.28	UCART1	11.06
4,339	637769.50	4273011.43	UCART1	11.46
4,340	637029.73	4272937.59	UCART2	10.61
4,341	637077.15	4272935.73	UCART2	9.87
4,342	637124.57	4272939.44	UCART2	9.91
4,343	637164.57	4272939.44	UCART2	9.95
4,344	637204.57	4272939.44	UCART2	10.45
4,345	637244.57	4272939.44	UCART2	10.64
4,346	637284.57	4272939.44	UCART2	10.44
4,347	637324.57	4272939.44	UCART2	10.09
4,348	637364.57	4272939.44	UCART2	9.55
4,349	637404.57	4272939.44	UCART2	8.84
4,350	637444.57	4272939.44	UCART2	8.93
4,351	637484.57	4272939.44	UCART2	9.13
4,352	637524.57	4272939.44	UCART2	9.15
4,353	637564.57	4272939.44	UCART2	9.39
4,354	637604.57	4272939.44	UCART2	9.47
4,355	637644.57	4272939.44	UCART2	10.01
4,356	637684.57	4272939.44	UCART2	10.42
4,357	637029.73	4272977.59	UCART2	12.57
4,358	637077.15	4272975.73	UCART2	11.42
4,359	637124.57	4272979.44	UCART2	10.69
4,360	637164.57	4272979.44	UCART2	11.65
4,361	637204.57	4272979.44	UCART2	11.63
4,362	637244.57	4272979.44	UCART2	11.95

4,363	637284.57	4272979.44	UCART2	11.81
4,364	637324.57	4272979.44	UCART2	11.57
4,365	637364.57	4272979.44	UCART2	10.58
4,366	637404.57	4272979.44	UCART2	9.58
4,367	637444.57	4272979.44	UCART2	9.19
4,368	637484.57	4272979.44	UCART2	9.19
4,369	637524.57	4272979.44	UCART2	9.20
4,370	637564.57	4272979.44	UCART2	9.60
4,371	637604.57	4272979.44	UCART2	10.04
4,372	637644.57	4272979.44	UCART2	10.16
4,373	637684.57	4272979.44	UCART2	10.78
4,374	637029.73	4273017.59	UCART2	8.76
4,375	637077.15	4273015.73	UCART2	9.08
4,376	637124.57	4273019.44	UCART2	9.95
4,377	637164.57	4273019.44	UCART2	12.41
4,378	637204.57	4273019.44	UCART2	13.31
4,379	637244.57	4273019.44	UCART2	13.32
4,380	637284.57	4273019.44	UCART2	13.40
4,381	637324.57	4273019.44	UCART2	13.19
4,382	637364.57	4273019.44	UCART2	12.46
4,383	637404.57	4273019.44	UCART2	10.50
4,384	637444.57	4273019.44	UCART2	9.89
4,385	637484.57	4273019.44	UCART2	9.79
4,386	637524.57	4273019.44	UCART2	9.75
4,387	637564.57	4273019.44	UCART2	10.10
4,388	637604.57	4273019.44	UCART2	10.42
4,389	637644.57	4273019.44	UCART2	10.67
4,390	637684.57	4273019.44	UCART2	10.72
4,391	637029.73	4273057.59	UCART2	9.07
4,392	637077.15	4273055.73	UCART2	9.05
4,393	637124.57	4273059.44	UCART2	9.13
4,394	637164.57	4273059.44	UCART2	10.50
4,395	637204.57	4273059.44	UCART2	11.50
4,396	637244.57	4273059.44	UCART2	11.72
4,397	637284.57	4273059.44	UCART2	13.21
4,398	637324.57	4273059.44	UCART2	12.89
4,399	637364.57	4273059.44	UCART2	12.93
4,400	637404.57	4273059.44	UCART2	11.90

4,401	637444.57	4273059.44	UCART2	10.94
4,402	637484.57	4273059.44	UCART2	10.57
4,403	637524.57	4273059.44	UCART2	10.56
4,404	637564.57	4273059.44	UCART2	10.61
4,405	637604.57	4273059.44	UCART2	10.61
4,406	637644.57	4273059.44	UCART2	10.42
4,407	637684.57	4273059.44	UCART2	10.67
4,408	637029.73	4273097.59	UCART2	9.32
4,409	637077.15	4273095.73	UCART2	9.46
4,410	637124.57	4273099.44	UCART2	9.75
4,411	637164.57	4273099.44	UCART2	10.71
4,412	637204.57	4273099.44	UCART2	10.71
4,413	637244.57	4273099.44	UCART2	11.34
4,414	637284.57	4273099.44	UCART2	11.94
4,415	637324.57	4273099.44	UCART2	12.48
4,416	637364.57	4273099.44	UCART2	12.87
4,417	637404.57	4273099.44	UCART2	13.05
4,418	637444.57	4273099.44	UCART2	12.65
4,419	637484.57	4273099.44	UCART2	11.71
4,420	637524.57	4273099.44	UCART2	11.06
4,421	637564.57	4273099.44	UCART2	11.00
4,422	637604.57	4273099.44	UCART2	10.97
4,423	637644.57	4273099.44	UCART2	10.72
4,424	637684.57	4273099.44	UCART2	11.02
4,425	637029.73	4273137.59	UCART2	9.65
4,426	637077.15	4273135.73	UCART2	9.99
4,427	637124.57	4273139.44	UCART2	10.42
4,428	637164.57	4273139.44	UCART2	10.98
4,429	637204.57	4273139.44	UCART2	11.17
4,430	637244.57	4273139.44	UCART2	11.69
4,431	637284.57	4273139.44	UCART2	12.19
4,432	637324.57	4273139.44	UCART2	12.30
4,433	637364.57	4273139.44	UCART2	12.60
4,434	637404.57	4273139.44	UCART2	12.65
4,435	637444.57	4273139.44	UCART2	12.44
4,436	637484.57	4273139.44	UCART2	12.13
4,437	637524.57	4273139.44	UCART2	11.58
4,438	637564.57	4273139.44	UCART2	11.32

4,439	637604.57	4273139.44	UCART2	11.12
4,440	637644.57	4273139.44	UCART2	11.12
4,441	637684.57	4273139.44	UCART2	11.38
4,442	637029.73	4272897.59	UCART2	9.69
4,443	637077.15	4272895.73	UCART2	9.23
4,444	637124.57	4272899.44	UCART2	9.03
4,445	637029.73	4273177.59	UCART2	10.02
4,446	637077.15	4273175.73	UCART2	10.57
4,447	637124.57	4273179.44	UCART2	10.65
4,448	637164.57	4273179.44	UCART2	11.23
4,449	637204.57	4273179.44	UCART2	11.63
4,450	637244.57	4273179.44	UCART2	12.04
4,451	637164.57	4272899.44	UCART2	9.14
4,452	637284.57	4273179.44	UCART2	12.19
4,453	637324.57	4273179.44	UCART2	12.30
4,454	637364.57	4273179.44	UCART2	12.50
4,455	637404.57	4273179.44	UCART2	12.50
4,456	637444.57	4273179.44	UCART2	12.50
4,457	637484.57	4273179.44	UCART2	12.29
4,458	637524.57	4273179.44	UCART2	11.83
4,459	637564.57	4273179.44	UCART2	11.56
4,460	637604.57	4273179.44	UCART2	11.53
4,461	637644.57	4273179.44	UCART2	11.53
4,462	637204.57	4272899.44	UCART2	9.55
4,463	637684.57	4273179.44	UCART2	11.65
4,464	637244.57	4272899.44	UCART2	9.74
4,465	637284.57	4272899.44	UCART2	9.29
4,466	637324.57	4272899.44	UCART2	9.24
4,467	637364.57	4272899.44	UCART2	9.14
4,468	637029.73	4273217.59	UCART2	10.54
4,469	637077.15	4273215.73	UCART2	10.70
4,470	637124.57	4273219.44	UCART2	11.00
4,471	637164.57	4273219.44	UCART2	11.33
4,472	637204.57	4273219.44	UCART2	11.74
4,473	637244.57	4273219.44	UCART2	12.11
4,474	637404.57	4272899.44	UCART2	8.99
4,475	637284.57	4273219.44	UCART2	12.24
4,476	637324.57	4273219.44	UCART2	12.50

4,477	637364.57	4273219.44	UCART2	12.50
4,478	637404.57	4273219.44	UCART2	12.50
4,479	637444.57	4273219.44	UCART2	12.39
4,480	637484.57	4273219.44	UCART2	12.19
4,481	637524.57	4273219.44	UCART2	11.93
4,482	637564.57	4273219.44	UCART2	11.80
4,483	637604.57	4273219.44	UCART2	11.63
4,484	637644.57	4273219.44	UCART2	11.63
4,485	637444.57	4272899.44	UCART2	8.84
4,486	637684.57	4273219.44	UCART2	11.99
4,487	637484.57	4272899.44	UCART2	9.05
4,488	637524.57	4272899.44	UCART2	9.14
4,489	637564.57	4272899.44	UCART2	9.14
4,490	637604.57	4272899.44	UCART2	9.45
4,491	637029.73	4273257.59	UCART2	10.74
4,492	637077.15	4273255.73	UCART2	10.81
4,493	637124.57	4273259.44	UCART2	11.33
4,494	637164.57	4273259.44	UCART2	11.73
4,495	637204.57	4273259.44	UCART2	11.99
4,496	637244.57	4273259.44	UCART2	12.19
4,497	637644.57	4272899.44	UCART2	9.76
4,498	637284.57	4273259.44	UCART2	12.35
4,499	637324.57	4273259.44	UCART2	12.50
4,500	637364.57	4273259.44	UCART2	12.50
4,501	637404.57	4273259.44	UCART2	12.50
4,502	637444.57	4273259.44	UCART2	12.39
4,503	637484.57	4273259.44	UCART2	12.19
4,504	637524.57	4273259.44	UCART2	12.19
4,505	637564.57	4273259.44	UCART2	11.89
4,506	637604.57	4273259.44	UCART2	11.89
4,507	637644.57	4273259.44	UCART2	11.89
4,508	637684.57	4272899.44	UCART2	10.11
4,509	637684.57	4273259.44	UCART2	11.99
4,510	637044.57	4273299.44	UCART2	11.22
4,511	637084.57	4273299.44	UCART2	11.33
4,512	637124.57	4273299.44	UCART2	11.74
4,513	637164.57	4273299.44	UCART2	12.14
4,514	637204.57	4273299.44	UCART2	12.07

4,515	637244.57	4273299.44	UCART2	12.11
4,516	637284.57	4273299.44	UCART2	12.19
4,517	637324.57	4273299.44	UCART2	12.34
4,518	637364.57	4273299.44	UCART2	12.50
4,519	637404.57	4273299.44	UCART2	12.50
4,520	637444.57	4273299.44	UCART2	12.48
4,521	637484.57	4273299.44	UCART2	12.27
4,522	637524.57	4273299.44	UCART2	12.19
4,523	637564.57	4273299.44	UCART2	11.98
4,524	637604.57	4273299.44	UCART2	12.14
4,525	637644.57	4273299.44	UCART2	12.14
4,526	637684.57	4273299.44	UCART2	12.24
4,527	637044.57	4273339.44	UCART2	11.33
4,528	637084.57	4273339.44	UCART2	11.69
4,529	637124.57	4273339.44	UCART2	11.92
4,530	637164.57	4273339.44	UCART2	12.19
4,531	637204.57	4273339.44	UCART2	12.10
4,532	637244.57	4273339.44	UCART2	11.93
4,533	637284.57	4273339.44	UCART2	12.19
4,534	637324.57	4273339.44	UCART2	12.30
4,535	637364.57	4273339.44	UCART2	12.50
4,536	637404.57	4273339.44	UCART2	12.50
4,537	637444.57	4273339.44	UCART2	12.50
4,538	637484.57	4273339.44	UCART2	12.53
4,539	637524.57	4273339.44	UCART2	12.49
4,540	637564.57	4273339.44	UCART2	12.21
4,541	637604.57	4273339.44	UCART2	12.15
4,542	636389.02	4272846.20	UCART2	10.58
4,543	636429.02	4272846.20	UCART2	10.58
4,544	636469.02	4272846.20	UCART2	10.58
4,545	636509.02	4272846.20	UCART2	10.56
4,546	636549.02	4272846.20	UCART2	10.23
4,547	636589.02	4272846.20	UCART2	9.73
4,548	636629.02	4272846.20	UCART2	9.87
4,549	636669.02	4272846.20	UCART2	8.93
4,550	636709.02	4272846.20	UCART2	8.82
4,551	636749.02	4272846.20	UCART2	8.75
4,552	636789.02	4272846.20	UCART2	8.86

4,553	636829.02	4272846.20	UCART2	8.97
4,554	636869.02	4272846.20	UCART2	9.18
4,555	636909.02	4272846.20	UCART2	9.16
4,556	636949.02	4272846.20	UCART2	11.88
4,557	636989.02	4272846.20	UCART2	9.83
4,558	636389.02	4272886.20	UCART2	9.67
4,559	636429.02	4272886.20	UCART2	9.59
4,560	636469.02	4272886.20	UCART2	9.98
4,561	636509.02	4272886.20	UCART2	10.00
4,562	636549.02	4272886.20	UCART2	9.45
4,563	636589.02	4272886.20	UCART2	9.39
4,564	636629.02	4272886.20	UCART2	9.63
4,565	636669.02	4272886.20	UCART2	9.00
4,566	636709.02	4272886.20	UCART2	8.84
4,567	636749.02	4272886.20	UCART2	8.90
4,568	636789.02	4272886.20	UCART2	9.14
4,569	636829.02	4272886.20	UCART2	9.39
4,570	636869.02	4272886.20	UCART2	9.85
4,571	636909.02	4272886.20	UCART2	11.11
4,572	636949.02	4272886.20	UCART2	13.12
4,573	636989.02	4272886.20	UCART2	10.02
4,574	636389.02	4272926.20	UCART2	9.02
4,575	636429.02	4272926.20	UCART2	9.24
4,576	636469.02	4272926.20	UCART2	9.30
4,577	636509.02	4272926.20	UCART2	9.75
4,578	636549.02	4272926.20	UCART2	9.60
4,579	636589.02	4272926.20	UCART2	9.19
4,580	636629.02	4272926.20	UCART2	9.14
4,581	636669.02	4272926.20	UCART2	9.14
4,582	636709.02	4272926.20	UCART2	8.99
4,583	636749.02	4272926.20	UCART2	9.14
4,584	636789.02	4272926.20	UCART2	9.14
4,585	636829.02	4272926.20	UCART2	9.14
4,586	636869.02	4272926.20	UCART2	9.58
4,587	636909.02	4272926.20	UCART2	10.38
4,588	636949.02	4272926.20	UCART2	12.24
4,589	636989.02	4272926.20	UCART2	10.52
4,590	636389.02	4272966.20	UCART2	8.96

4,591	636429.02	4272966.20	UCART2	9.14
4,592	636469.02	4272966.20	UCART2	9.14
4,593	636509.02	4272966.20	UCART2	9.54
4,594	636549.02	4272966.20	UCART2	9.49
4,595	636589.02	4272966.20	UCART2	9.19
4,596	636629.02	4272966.20	UCART2	9.14
4,597	636669.02	4272966.20	UCART2	9.14
4,598	636709.02	4272966.20	UCART2	9.14
4,599	636749.02	4272966.20	UCART2	9.14
4,600	636789.02	4272966.20	UCART2	9.14
4,601	636829.02	4272966.20	UCART2	8.96
4,602	636869.02	4272966.20	UCART2	8.94
4,603	636909.02	4272966.20	UCART2	9.37
4,604	636949.02	4272966.20	UCART2	10.95
4,605	636989.02	4272966.20	UCART2	12.61
4,606	636389.02	4273006.20	UCART2	9.08
4,607	636429.02	4273006.20	UCART2	9.00
4,608	636469.02	4273006.20	UCART2	9.14
4,609	636509.02	4273006.20	UCART2	9.14
4,610	636549.02	4273006.20	UCART2	9.14
4,611	636589.02	4273006.20	UCART2	9.14
4,612	636629.02	4273006.20	UCART2	9.14
4,613	636669.02	4273006.20	UCART2	9.14
4,614	636709.02	4273006.20	UCART2	9.14
4,615	636749.02	4273006.20	UCART2	9.14
4,616	636789.02	4273006.20	UCART2	9.00
4,617	636829.02	4273006.20	UCART2	8.84
4,618	636869.02	4273006.20	UCART2	8.84
4,619	636909.02	4273006.20	UCART2	8.99
4,620	636949.02	4273006.20	UCART2	8.89
4,621	636989.02	4273006.20	UCART2	8.55
4,622	636389.02	4273046.20	UCART2	8.89
4,623	636429.02	4273046.20	UCART2	9.14
4,624	636469.02	4273046.20	UCART2	9.14
4,625	636509.02	4273046.20	UCART2	9.14
4,626	636549.02	4273046.20	UCART2	9.14
4,627	636589.02	4273046.20	UCART2	9.14
4,628	636629.02	4273046.20	UCART2	9.14

4,629	636669.02	4273046.20	UCART2	9.14
4,630	636709.02	4273046.20	UCART2	9.14
4,631	636749.02	4273046.20	UCART2	9.14
4,632	636789.02	4273046.20	UCART2	9.14
4,633	636829.02	4273046.20	UCART2	8.99
4,634	636869.02	4273046.20	UCART2	8.84
4,635	636909.02	4273046.20	UCART2	8.84
4,636	636949.02	4273046.20	UCART2	8.84
4,637	636989.02	4273046.20	UCART2	8.86
4,638	636389.02	4272806.20	UCART2	9.98
4,639	636429.02	4272806.20	UCART2	9.98
4,640	636469.02	4272806.20	UCART2	9.98
4,641	636389.02	4273086.20	UCART2	8.85
4,642	636429.02	4273086.20	UCART2	9.04
4,643	636469.02	4273086.20	UCART2	9.14
4,644	636509.02	4273086.20	UCART2	9.14
4,645	636549.02	4273086.20	UCART2	9.14
4,646	636589.02	4273086.20	UCART2	9.14
4,647	636509.02	4272806.20	UCART2	9.97
4,648	636629.02	4273086.20	UCART2	9.18
4,649	636669.02	4273086.20	UCART2	9.36
4,650	636709.02	4273086.20	UCART2	9.36
4,651	636749.02	4273086.20	UCART2	9.18
4,652	636789.02	4273086.20	UCART2	9.36
4,653	636829.02	4273086.20	UCART2	9.18
4,654	636869.02	4273086.20	UCART2	9.02
4,655	636909.02	4273086.20	UCART2	8.84
4,656	636949.02	4273086.20	UCART2	8.84
4,657	636989.02	4273086.20	UCART2	9.07
4,658	636549.02	4272806.20	UCART2	9.81
4,659	636589.02	4272806.20	UCART2	9.97
4,660	636629.02	4272806.20	UCART2	8.99
4,661	636669.02	4272806.20	UCART2	9.14
4,662	636709.02	4272806.20	UCART2	8.88
4,663	636389.02	4273126.20	UCART2	8.84
4,664	636429.02	4273126.20	UCART2	8.84
4,665	636469.02	4273126.20	UCART2	9.09
4,666	636509.02	4273126.20	UCART2	9.14

4,667	636549.02	4273126.20	UCART2	9.30
4,668	636589.02	4273126.20	UCART2	9.45
4,669	636749.02	4272806.20	UCART2	8.72
4,670	636629.02	4273126.20	UCART2	9.45
4,671	636669.02	4273126.20	UCART2	9.45
4,672	636709.02	4273126.20	UCART2	9.45
4,673	636749.02	4273126.20	UCART2	9.45
4,674	636789.02	4273126.20	UCART2	9.45
4,675	636829.02	4273126.20	UCART2	9.19
4,676	636869.02	4273126.20	UCART2	9.14
4,677	636909.02	4273126.20	UCART2	9.00
4,678	636949.02	4273126.20	UCART2	9.10
4,679	636989.02	4273126.20	UCART2	9.21
4,680	636789.02	4272806.20	UCART2	8.63
4,681	636829.02	4272806.20	UCART2	8.53
4,682	636869.02	4272806.20	UCART2	8.57
4,683	636909.02	4272806.20	UCART2	9.03
4,684	636949.02	4272806.20	UCART2	12.36
4,685	636389.02	4273166.20	UCART2	8.84
4,686	636429.02	4273166.20	UCART2	8.84
4,687	636469.02	4273166.20	UCART2	9.00
4,688	636509.02	4273166.20	UCART2	9.14
4,689	636549.02	4273166.20	UCART2	9.30
4,690	636589.02	4273166.20	UCART2	9.45
4,691	636989.02	4272806.20	UCART2	9.65
4,692	636629.02	4273166.20	UCART2	9.45
4,693	636669.02	4273166.20	UCART2	9.45
4,694	636709.02	4273166.20	UCART2	9.54
4,695	636749.02	4273166.20	UCART2	9.54
4,696	636789.02	4273166.20	UCART2	9.45
4,697	636829.02	4273166.20	UCART2	9.19
4,698	636869.02	4273166.20	UCART2	9.14
4,699	636909.02	4273166.20	UCART2	9.14
4,700	636949.02	4273166.20	UCART2	9.14
4,701	636989.02	4273166.20	UCART2	9.61
4,702	636389.02	4273206.20	UCART2	8.84
4,703	636429.02	4273206.20	UCART2	8.84
4,704	636469.02	4273206.20	UCART2	8.84

4,705	636509.02	4273206.20	UCART2	9.14
4,706	636549.02	4273206.20	UCART2	9.19
4,707	636589.02	4273206.20	UCART2	9.41
4,708	636629.02	4273206.20	UCART2	9.45
4,709	636669.02	4273206.20	UCART2	9.45
4,710	636709.02	4273206.20	UCART2	9.70
4,711	636749.02	4273206.20	UCART2	9.74
4,712	636789.02	4273206.20	UCART2	9.56
4,713	636829.02	4273206.20	UCART2	9.19
4,714	636869.02	4273206.20	UCART2	9.36
4,715	636909.02	4273206.20	UCART2	9.36
4,716	636949.02	4273206.20	UCART2	9.54
4,717	636989.02	4273206.20	UCART2	10.02
4,718	636389.02	4273246.20	UCART2	8.84
4,719	636429.02	4273246.20	UCART2	8.84
4,720	636469.02	4273246.20	UCART2	8.84
4,721	636509.02	4273246.20	UCART2	8.89
4,722	636549.02	4273246.20	UCART2	9.14
4,723	636589.02	4273246.20	UCART2	9.14
4,724	636629.02	4273246.20	UCART2	9.44
4,725	636669.02	4273246.20	UCART2	9.44
4,726	636709.02	4273246.20	UCART2	9.70
4,727	636749.02	4273246.20	UCART2	9.76
4,728	636789.02	4273246.20	UCART2	9.77
4,729	636829.02	4273246.20	UCART2	9.52
4,730	636869.02	4273246.20	UCART2	9.78
4,731	636909.02	4273246.20	UCART2	9.78
4,732	636949.02	4273246.20	UCART2	10.28
4,733	636989.02	4273246.20	UCART2	10.43
4,734	635706.79	4272890.75	UCART2	6.71
4,735	635746.79	4272890.75	UCART2	6.94
4,736	635786.79	4272890.75	UCART2	7.01
4,737	635826.79	4272890.75	UCART2	7.01
4,738	635866.79	4272890.75	UCART2	7.20
4,739	635906.79	4272890.75	UCART2	8.63
4,740	635946.79	4272890.75	UCART2	10.54
4,741	635986.79	4272890.75	UCART2	10.32
4,742	636026.79	4272890.75	UCART2	10.42

4,743	636066.79	4272890.75	UCART2	10.37
4,744	636106.79	4272890.75	UCART2	10.89
4,745	636146.79	4272890.75	UCART2	9.69
4,746	636186.79	4272890.75	UCART2	10.21
4,747	636226.79	4272890.75	UCART2	10.36
4,748	636266.79	4272890.75	UCART2	10.79
4,749	636306.79	4272890.75	UCART2	11.48
4,750	636346.79	4272890.75	UCART2	10.72
4,751	635706.79	4272930.75	UCART2	6.71
4,752	635746.79	4272930.75	UCART2	6.94
4,753	635786.79	4272930.75	UCART2	7.03
4,754	635826.79	4272930.75	UCART2	7.10
4,755	635866.79	4272930.75	UCART2	7.13
4,756	635906.79	4272930.75	UCART2	7.75
4,757	635946.79	4272930.75	UCART2	9.30
4,758	635986.79	4272930.75	UCART2	9.29
4,759	636026.79	4272930.75	UCART2	9.50
4,760	636066.79	4272930.75	UCART2	8.90
4,761	636106.79	4272930.75	UCART2	8.43
4,762	636146.79	4272930.75	UCART2	7.94
4,763	636186.79	4272930.75	UCART2	8.41
4,764	636226.79	4272930.75	UCART2	9.07
4,765	636266.79	4272930.75	UCART2	9.46
4,766	636306.79	4272930.75	UCART2	9.78
4,767	636346.79	4272930.75	UCART2	9.43
4,768	635706.79	4272970.75	UCART2	6.71
4,769	635746.79	4272970.75	UCART2	6.94
4,770	635786.79	4272970.75	UCART2	7.28
4,771	635826.79	4272970.75	UCART2	7.30
4,772	635866.79	4272970.75	UCART2	7.31
4,773	635906.79	4272970.75	UCART2	7.35
4,774	635946.79	4272970.75	UCART2	7.70
4,775	635986.79	4272970.75	UCART2	7.75
4,776	636026.79	4272970.75	UCART2	7.76
4,777	636066.79	4272970.75	UCART2	7.94
4,778	636106.79	4272970.75	UCART2	7.93
4,779	636146.79	4272970.75	UCART2	7.95
4,780	636186.79	4272970.75	UCART2	8.38

4,781	636226.79	4272970.75	UCART2	9.01
4,782	636266.79	4272970.75	UCART2	9.17
4,783	636306.79	4272970.75	UCART2	9.41
4,784	636346.79	4272970.75	UCART2	9.41
4,785	635706.79	4273010.75	UCART2	6.56
4,786	635746.79	4273010.75	UCART2	6.94
4,787	635786.79	4273010.75	UCART2	7.40
4,788	635826.79	4273010.75	UCART2	7.62
4,789	635866.79	4273010.75	UCART2	7.62
4,790	635906.79	4273010.75	UCART2	7.62
4,791	635946.79	4273010.75	UCART2	7.62
4,792	635986.79	4273010.75	UCART2	7.62
4,793	636026.79	4273010.75	UCART2	7.62
4,794	636066.79	4273010.75	UCART2	7.65
4,795	636106.79	4273010.75	UCART2	7.87
4,796	636146.79	4273010.75	UCART2	7.95
4,797	636186.79	4273010.75	UCART2	8.36
4,798	636226.79	4273010.75	UCART2	8.77
4,799	636266.79	4273010.75	UCART2	9.09
4,800	636306.79	4273010.75	UCART2	9.14
4,801	636346.79	4273010.75	UCART2	9.14
4,802	635706.79	4273050.75	UCART2	6.54
4,803	635746.79	4273050.75	UCART2	7.02
4,804	635786.79	4273050.75	UCART2	7.62
4,805	635826.79	4273050.75	UCART2	7.62
4,806	635866.79	4273050.75	UCART2	7.62
4,807	635906.79	4273050.75	UCART2	7.64
4,808	635946.79	4273050.75	UCART2	7.78
4,809	635986.79	4273050.75	UCART2	7.78
4,810	636026.79	4273050.75	UCART2	7.78
4,811	636066.79	4273050.75	UCART2	7.84
4,812	636106.79	4273050.75	UCART2	7.92
4,813	636146.79	4273050.75	UCART2	8.10
4,814	636186.79	4273050.75	UCART2	8.36
4,815	636226.79	4273050.75	UCART2	8.64
4,816	636266.79	4273050.75	UCART2	8.85
4,817	636306.79	4273050.75	UCART2	8.98
4,818	636346.79	4273050.75	UCART2	8.98

4,819	635706.79	4273090.75	UCART2	8.43
4,820	635746.79	4273090.75	UCART2	7.87
4,821	635786.79	4273090.75	UCART2	7.86
4,822	635826.79	4273090.75	UCART2	7.73
4,823	635866.79	4273090.75	UCART2	7.88
4,824	635906.79	4273090.75	UCART2	7.89
4,825	635946.79	4273090.75	UCART2	7.92
4,826	635986.79	4273090.75	UCART2	7.92
4,827	636026.79	4273090.75	UCART2	7.92
4,828	636066.79	4273090.75	UCART2	7.92
4,829	636106.79	4273090.75	UCART2	7.92
4,830	636146.79	4273090.75	UCART2	8.23
4,831	636186.79	4273090.75	UCART2	8.36
4,832	636226.79	4273090.75	UCART2	8.53
4,833	636266.79	4273090.75	UCART2	8.84
4,834	636306.79	4273090.75	UCART2	8.84
4,835	636346.79	4273090.75	UCART2	8.84
4,836	635706.79	4272850.75	UCART2	7.03
4,837	635746.79	4272850.75	UCART2	7.01
4,838	635786.79	4272850.75	UCART2	7.01
4,839	635706.79	4273130.75	UCART2	9.25
4,840	635746.79	4273130.75	UCART2	8.93
4,841	635786.79	4273130.75	UCART2	7.98
4,842	635826.79	4273130.75	UCART2	7.98
4,843	635866.79	4273130.75	UCART2	7.98
4,844	635906.79	4273130.75	UCART2	8.01
4,845	635826.79	4272850.75	UCART2	7.01
4,846	635946.79	4273130.75	UCART2	8.23
4,847	635986.79	4273130.75	UCART2	8.23
4,848	636026.79	4273130.75	UCART2	8.23
4,849	636066.79	4273130.75	UCART2	8.23
4,850	636106.79	4273130.75	UCART2	8.23
4,851	636146.79	4273130.75	UCART2	8.23
4,852	636186.79	4273130.75	UCART2	8.36
4,853	636226.79	4273130.75	UCART2	8.53
4,854	636266.79	4273130.75	UCART2	8.84
4,855	636306.79	4273130.75	UCART2	8.84
4,856	635866.79	4272850.75	UCART2	7.24

4,857	636346.79	4273130.75	UCART2	8.84
4,858	635906.79	4272850.75	UCART2	8.95
4,859	635946.79	4272850.75	UCART2	10.16
4,860	635986.79	4272850.75	UCART2	10.40
4,861	636026.79	4272850.75	UCART2	10.67
4,862	635706.79	4273170.75	UCART2	9.14
4,863	635746.79	4273170.75	UCART2	8.93
4,864	635786.79	4273170.75	UCART2	8.38
4,865	635826.79	4273170.75	UCART2	8.23
4,866	635866.79	4273170.75	UCART2	8.23
4,867	635906.79	4273170.75	UCART2	8.24
4,868	636066.79	4272850.75	UCART2	10.67
4,869	635946.79	4273170.75	UCART2	8.39
4,870	635986.79	4273170.75	UCART2	8.39
4,871	636026.79	4273170.75	UCART2	8.23
4,872	636066.79	4273170.75	UCART2	8.23
4,873	636106.79	4273170.75	UCART2	8.23
4,874	636146.79	4273170.75	UCART2	8.23
4,875	636186.79	4273170.75	UCART2	8.36
4,876	636226.79	4273170.75	UCART2	8.66
4,877	636266.79	4273170.75	UCART2	8.84
4,878	636306.79	4273170.75	UCART2	8.84
4,879	636106.79	4272850.75	UCART2	10.67
4,880	636346.79	4273170.75	UCART2	8.84
4,881	636146.79	4272850.75	UCART2	10.67
4,882	636186.79	4272850.75	UCART2	10.56
4,883	636226.79	4272850.75	UCART2	10.34
4,884	636266.79	4272850.75	UCART2	10.33
4,885	635706.79	4273210.75	UCART2	8.88
4,886	635746.79	4273210.75	UCART2	8.88
4,887	635786.79	4273210.75	UCART2	8.77
4,888	635826.79	4273210.75	UCART2	8.49
4,889	635866.79	4273210.75	UCART2	8.49
4,890	635906.79	4273210.75	UCART2	8.50
4,891	636306.79	4272850.75	UCART2	10.79
4,892	635946.79	4273210.75	UCART2	8.53
4,893	635986.79	4273210.75	UCART2	8.53
4,894	636026.79	4273210.75	UCART2	8.47

4,895	636066.79	4273210.75	UCART2	8.23
4,896	636106.79	4273210.75	UCART2	8.23
4,897	636146.79	4273210.75	UCART2	8.25
4,898	636186.79	4273210.75	UCART2	8.51
4,899	636226.79	4273210.75	UCART2	8.77
4,900	636266.79	4273210.75	UCART2	8.86
4,901	636306.79	4273210.75	UCART2	9.10
4,902	636346.79	4272850.75	UCART2	10.65
4,903	636346.79	4273210.75	UCART2	9.10
4,904	635706.79	4273250.75	UCART2	8.84
4,905	635746.79	4273250.75	UCART2	8.84
4,906	635786.79	4273250.75	UCART2	8.82
4,907	635826.79	4273250.75	UCART2	8.59
4,908	635866.79	4273250.75	UCART2	8.59
4,909	635906.79	4273250.75	UCART2	8.59
4,910	635946.79	4273250.75	UCART2	8.70
4,911	635986.79	4273250.75	UCART2	8.65
4,912	636026.79	4273250.75	UCART2	8.53
4,913	636066.79	4273250.75	UCART2	8.40
4,914	636106.79	4273250.75	UCART2	8.23
4,915	636146.79	4273250.75	UCART2	8.48
4,916	636186.79	4273250.75	UCART2	8.56
4,917	636226.79	4273250.75	UCART2	8.78
4,918	636266.79	4273250.75	UCART2	9.14
4,919	636306.79	4273250.75	UCART2	9.14
4,920	636346.79	4273250.75	UCART2	9.14
4,921	635706.79	4273290.75	UCART2	8.84
4,922	635746.79	4273290.75	UCART2	8.84
4,923	635786.79	4273290.75	UCART2	8.84
4,924	635826.79	4273290.75	UCART2	8.84
4,925	635866.79	4273290.75	UCART2	8.84
4,926	635906.79	4273290.75	UCART2	8.84
4,927	635946.79	4273290.75	UCART2	8.84
4,928	635986.79	4273290.75	UCART2	8.84
4,929	636026.79	4273290.75	UCART2	8.53
4,930	636066.79	4273290.75	UCART2	8.47
4,931	636106.79	4273290.75	UCART2	8.27
4,932	636146.79	4273290.75	UCART2	8.40

4,933	636186.79	4273290.75	UCART2	8.66
4,934	636226.79	4273290.75	UCART2	8.84
4,935	636266.79	4273290.75	UCART2	9.14
4,936	636306.79	4273290.75	UCART2	9.14
4,937	636346.79	4273290.75	UCART2	9.14
4,938	637033.84	4272854.63	UCART2	8.94
4,939	637081.26	4272852.78	UCART2	8.75
4,940	637128.67	4272856.49	UCART2	8.55
4,941	637168.67	4272856.49	UCART2	8.89
4,942	637208.67	4272856.49	UCART2	9.15
4,943	637248.67	4272856.49	UCART2	9.40
4,944	637288.67	4272856.49	UCART2	9.14
4,945	637338.13	4272856.49	UCART2	9.14
4,946	637042.20	4272812.80	UCART2	8.74
4,947	637089.62	4272810.94	UCART2	8.53
4,948	637137.04	4272814.65	UCART2	8.57
4,949	637177.04	4272814.65	UCART2	8.88
4,950	637217.04	4272814.65	UCART2	9.10
4,951	637257.04	4272814.65	UCART2	9.14
4,952	637297.04	4272814.65	UCART2	9.14
4,953	637346.50	4272814.65	UCART2	9.14
4,954	635362.14	4273012.40	UCART2	7.30
4,955	635402.14	4273012.40	UCART2	7.56
4,956	635442.14	4273012.40	UCART2	8.78
4,957	635482.14	4273012.40	UCART2	9.64
4,958	635522.14	4273012.40	UCART2	9.55
4,959	635562.14	4273012.40	UCART2	8.06
4,960	635602.14	4273012.40	UCART2	7.41
4,961	635642.14	4273012.40	UCART2	7.13
4,962	635682.14	4273012.40	UCART2	6.54
4,963	635362.14	4273052.40	UCART2	7.33
4,964	635402.14	4273052.40	UCART2	7.52
4,965	635442.14	4273052.40	UCART2	8.71
4,966	635482.14	4273052.40	UCART2	9.26
4,967	635522.14	4273052.40	UCART2	9.44
4,968	635562.14	4273052.40	UCART2	9.06
4,969	635602.14	4273052.40	UCART2	8.53
4,970	635642.14	4273052.40	UCART2	7.86

4,971	635682.14	4273052.40	UCART2	6.69
4,972	635362.14	4273092.40	UCART2	7.60
4,973	635402.14	4273092.40	UCART2	7.76
4,974	635442.14	4273092.40	UCART2	8.60
4,975	635482.14	4273092.40	UCART2	8.86
4,976	635522.14	4273092.40	UCART2	9.09
4,977	635562.14	4273092.40	UCART2	8.68
4,978	635602.14	4273092.40	UCART2	8.85
4,979	635642.14	4273092.40	UCART2	9.01
4,980	635682.14	4273092.40	UCART2	8.83
4,981	635362.14	4273132.40	UCART2	9.37
4,982	635402.14	4273132.40	UCART2	9.05
4,983	635442.14	4273132.40	UCART2	9.08
4,984	635482.14	4273132.40	UCART2	9.07
4,985	635522.14	4273132.40	UCART2	8.43
4,986	635562.14	4273132.40	UCART2	8.15
4,987	635602.14	4273132.40	UCART2	8.08
4,988	635642.14	4273132.40	UCART2	8.67
4,989	635682.14	4273132.40	UCART2	8.93
4,990	635362.14	4273172.40	UCART2	10.39
4,991	635402.14	4273172.40	UCART2	9.98
4,992	635442.14	4273172.40	UCART2	9.33
4,993	635482.14	4273172.40	UCART2	8.69
4,994	635522.14	4273172.40	UCART2	8.11
4,995	635562.14	4273172.40	UCART2	7.82
4,996	635602.14	4273172.40	UCART2	7.63
4,997	635642.14	4273172.40	UCART2	8.22
4,998	635682.14	4273172.40	UCART2	8.95
4,999	635362.14	4273212.40	UCART2	10.42
5,000	635402.14	4273212.40	UCART2	9.00
5,001	635442.14	4273212.40	UCART2	7.99
5,002	635482.14	4273212.40	UCART2	7.70
5,003	635522.14	4273212.40	UCART2	7.72
5,004	635562.14	4273212.40	UCART2	7.74
5,005	635602.14	4273212.40	UCART2	7.88
5,006	635642.14	4273212.40	UCART2	8.65
5,007	635682.14	4273212.40	UCART2	8.95
5,008	635362.14	4272972.40	UCART2	7.29

5,009	635402.14	4272972.40	UCART2	7.88
5,010	635442.14	4272972.40	UCART2	8.88
5,011	635362.14	4273252.40	UCART2	8.64
5,012	635402.14	4273252.40	UCART2	7.92
5,013	635442.14	4273252.40	UCART2	7.70
5,014	635482.14	4273252.40	UCART2	7.70
5,015	635522.14	4273252.40	UCART2	8.01
5,016	635562.14	4273252.40	UCART2	8.14
5,017	635482.14	4272972.40	UCART2	9.95
5,018	635602.14	4273252.40	UCART2	8.29
5,019	635642.14	4273252.40	UCART2	8.92
5,020	635682.14	4273252.40	UCART2	8.96
5,021	635522.14	4272972.40	UCART2	8.80
5,022	635562.14	4272972.40	UCART2	7.11
5,023	635602.14	4272972.40	UCART2	7.27
5,024	635642.14	4272972.40	UCART2	6.93
5,025	635682.14	4272972.40	UCART2	6.71
5,026	635362.14	4273292.40	UCART2	9.02
5,027	635402.14	4273292.40	UCART2	8.50
5,028	635442.14	4273292.40	UCART2	8.28
5,029	635482.14	4273292.40	UCART2	8.11
5,030	635522.14	4273292.40	UCART2	8.31
5,031	635562.14	4273292.40	UCART2	8.48
5,032	635602.14	4273292.40	UCART2	8.70
5,033	635642.14	4273292.40	UCART2	9.05
5,034	635682.14	4273292.40	UCART2	8.96
5,035	635362.14	4273332.40	UCART2	8.88
5,036	635402.14	4273332.40	UCART2	9.04
5,037	635442.14	4273332.40	UCART2	8.81
5,038	635482.14	4273332.40	UCART2	8.79
5,039	635522.14	4273332.40	UCART2	8.81
5,040	635562.14	4273332.40	UCART2	8.81
5,041	635602.14	4273332.40	UCART2	8.84
5,042	635642.14	4273332.40	UCART2	9.14
5,043	635682.14	4273332.40	UCART2	9.13
5,044	635362.14	4273372.40	UCART2	8.93
5,045	635402.14	4273372.40	UCART2	9.14
5,046	635442.14	4273372.40	UCART2	9.14

5,047	635482.14	4273372.40	UCART2	9.14
5,048	635522.14	4273372.40	UCART2	9.14
5,049	635562.14	4273372.40	UCART2	9.01
5,050	635602.14	4273372.40	UCART2	8.92
5,051	635642.14	4273372.40	UCART2	9.16
5,052	635682.14	4273372.40	UCART2	9.17
5,053	635362.14	4273412.40	UCART2	9.14
5,054	635402.14	4273412.40	UCART2	9.01
5,055	635442.14	4273412.40	UCART2	9.14
5,056	635482.14	4273412.40	UCART2	9.14
5,057	635522.14	4273412.40	UCART2	9.19
5,058	635562.14	4273412.40	UCART2	9.32
5,059	635602.14	4273412.40	UCART2	9.15
5,060	635642.14	4273412.40	UCART2	9.18
5,061	635682.14	4273412.40	UCART2	9.19
5,062	638859.19	4268358.94	UCART2	10.67
5,063	638899.19	4268358.94	UCART2	10.67
5,064	638939.19	4268358.94	UCART2	10.99
5,065	637699.19	4268318.94	UCART2	10.68
5,066	637739.19	4268318.94	UCART2	10.67
5,067	637779.19	4268318.94	UCART2	10.67
5,068	637819.19	4268318.94	UCART2	10.67
5,069	637859.19	4268318.94	UCART2	10.67
5,070	637899.19	4268318.94	UCART2	10.67
5,071	637939.19	4268318.94	UCART2	10.72
5,072	637979.19	4268318.94	UCART2	10.72
5,073	638019.19	4268318.94	UCART2	10.67
5,074	638059.19	4268318.94	UCART2	10.67
5,075	638099.19	4268318.94	UCART2	10.67
5,076	638139.19	4268318.94	UCART2	10.67
5,077	638179.19	4268318.94	UCART2	10.67
5,078	638219.19	4268318.94	UCART2	10.73
5,079	638259.19	4268318.94	UCART2	10.70
5,080	638299.19	4268318.94	UCART2	10.92
5,081	638339.19	4268318.94	UCART2	11.75
5,082	638379.19	4268318.94	UCART2	12.10
5,083	638419.19	4268318.94	UCART2	11.49
5,084	638459.19	4268318.94	UCART2	10.84

5,085	638499.19	4268318.94	UCART2	10.79
5,086	638539.19	4268318.94	UCART2	10.79
5,087	638579.19	4268318.94	UCART2	10.78
5,088	638619.19	4268318.94	UCART2	10.70
5,089	638659.19	4268318.94	UCART2	10.67
5,090	638699.19	4268318.94	UCART2	10.67
5,091	638739.19	4268318.94	UCART2	10.67
5,092	638779.19	4268318.94	UCART2	10.67
5,093	638819.19	4268318.94	UCART2	10.74
5,094	638859.19	4268318.94	UCART2	10.91
5,095	638899.19	4268318.94	UCART2	11.08
5,096	638939.19	4268318.94	UCART2	11.39
5,097	637699.19	4268358.94	UCART2	10.67
5,098	637739.19	4268358.94	UCART2	10.67
5,099	637779.19	4268358.94	UCART2	10.67
5,100	637819.19	4268358.94	UCART2	10.67
5,101	637859.19	4268358.94	UCART2	10.67
5,102	637899.19	4268358.94	UCART2	10.67
5,103	637939.19	4268358.94	UCART2	10.67
5,104	637979.19	4268358.94	UCART2	10.67
5,105	638019.19	4268358.94	UCART2	10.67
5,106	638059.19	4268358.94	UCART2	10.67
5,107	638099.19	4268358.94	UCART2	10.67
5,108	638139.19	4268358.94	UCART2	10.67
5,109	638179.19	4268358.94	UCART2	10.67
5,110	638219.19	4268358.94	UCART2	10.67
5,111	638259.19	4268358.94	UCART2	10.67
5,112	638299.19	4268358.94	UCART2	10.67
5,113	638339.19	4268358.94	UCART2	10.99
5,114	638379.19	4268358.94	UCART2	11.08
5,115	638419.19	4268358.94	UCART2	10.71
5,116	638459.19	4268358.94	UCART2	10.67
5,117	638499.19	4268358.94	UCART2	10.67
5,118	638539.19	4268358.94	UCART2	10.67
5,119	638579.19	4268358.94	UCART2	10.67
5,120	638619.19	4268358.94	UCART2	10.67
5,121	638659.19	4268358.94	UCART2	10.67
5,122	638699.19	4268358.94	UCART2	10.67

5,123	638739.19	4268358.94	UCART2	10.67
5,124	638779.19	4268358.94	UCART2	10.67
5,125	638819.19	4268358.94	UCART2	10.67
5,126	636658.03	4273418.65	UCART1	9.99
5,127	636658.03	4273458.65	UCART1	10.14
5,128	636658.03	4273498.65	UCART1	10.39
5,129	636658.03	4273538.65	UCART1	10.60
5,130	636658.03	4273578.65	UCART1	10.67
5,131	636658.03	4273618.65	UCART1	10.67
5,132	636658.03	4273658.65	UCART1	10.67
5,133	636658.03	4273698.65	UCART1	10.93
5,134	636658.03	4273738.65	UCART1	10.53
5,135	636658.03	4273778.65	UCART1	10.36
5,136	636658.03	4273818.65	UCART1	10.36
5,137	636658.03	4273858.65	UCART1	10.36
5,138	636680.85	4273377.61	UCART1	9.58
5,139	636730.85	4273377.61	UCART1	10.23
5,140	636780.85	4273377.61	UCART1	10.53
5,141	636830.85	4273377.61	UCART1	10.67
5,142	636880.85	4273377.61	UCART1	10.90
5,143	636930.85	4273377.61	UCART1	11.00
5,144	636980.85	4273377.61	UCART1	11.26
5,145	637030.85	4273377.61	UCART1	11.45
5,146	637080.85	4273377.61	UCART1	11.65
5,147	637130.85	4273377.61	UCART1	12.16
5,148	637180.85	4273377.61	UCART1	12.19
5,149	637230.85	4273377.61	UCART1	12.19
5,150	637280.85	4273377.61	UCART1	12.19
5,151	637330.85	4273377.61	UCART1	12.29
5,152	637380.85	4273377.61	UCART1	12.40
5,153	637430.85	4273377.61	UCART1	12.50
5,154	637480.85	4273377.61	UCART1	12.72
5,155	637530.85	4273377.61	UCART1	12.60
5,156	637580.85	4273377.61	UCART1	12.07
5,157	636730.85	4273427.61	UCART1	10.38
5,158	636780.85	4273427.61	UCART1	10.67
5,159	636830.85	4273427.61	UCART1	10.67
5,160	636880.85	4273427.61	UCART1	10.97

5,161	636930.85	4273427.61	UCART1	11.04
5,162	636980.85	4273427.61	UCART1	11.27
5,163	637030.85	4273427.61	UCART1	11.45
5,164	637080.85	4273427.61	UCART1	11.65
5,165	637130.85	4273427.61	UCART1	12.14
5,166	637180.85	4273427.61	UCART1	12.16
5,167	637230.85	4273427.61	UCART1	12.10
5,168	637280.85	4273427.61	UCART1	11.89
5,169	637330.85	4273427.61	UCART1	12.18
5,170	637380.85	4273427.61	UCART1	12.19
5,171	637430.85	4273427.61	UCART1	12.44
5,172	637480.85	4273427.61	UCART1	12.98
5,173	636730.85	4273477.61	UCART1	10.63
5,174	636780.85	4273477.61	UCART1	10.67
5,175	636830.85	4273477.61	UCART1	10.67
5,176	636880.85	4273477.61	UCART1	10.97
5,177	636930.85	4273477.61	UCART1	10.97
5,178	636980.85	4273477.61	UCART1	11.25
5,179	637030.85	4273477.61	UCART1	11.45
5,180	637080.85	4273477.61	UCART1	11.60
5,181	637130.85	4273477.61	UCART1	11.66
5,182	637180.85	4273477.61	UCART1	11.89
5,183	637230.85	4273477.61	UCART1	11.89
5,184	637280.85	4273477.61	UCART1	11.89
5,185	637330.85	4273477.61	UCART1	11.93
5,186	637380.85	4273477.61	UCART1	11.96
5,187	637430.85	4273477.61	UCART1	12.17
5,188	637480.85	4273477.61	UCART1	12.91
5,189	636730.85	4273527.61	UCART1	10.59
5,190	636780.85	4273527.61	UCART1	10.67
5,191	636830.85	4273527.61	UCART1	10.67
5,192	636880.85	4273527.61	UCART1	10.97
5,193	636930.85	4273527.61	UCART1	11.04
5,194	636980.85	4273527.61	UCART1	11.28
5,195	637030.85	4273527.61	UCART1	11.28
5,196	637080.85	4273527.61	UCART1	11.48
5,197	637130.85	4273527.61	UCART1	11.58
5,198	637180.85	4273527.61	UCART1	11.58

5,199	637230.85	4273527.61	UCART1	11.58
5,200	637280.85	4273527.61	UCART1	11.58
5,201	637330.85	4273527.61	UCART1	11.83
5,202	637380.85	4273527.61	UCART1	11.89
5,203	636730.85	4273577.61	UCART1	10.67
5,204	636780.85	4273577.61	UCART1	10.67
5,205	636830.85	4273577.61	UCART1	10.94
5,206	636880.85	4273577.61	UCART1	10.97
5,207	636930.85	4273577.61	UCART1	11.04
5,208	636980.85	4273577.61	UCART1	11.28
5,209	637030.85	4273577.61	UCART1	11.28
5,210	637080.85	4273577.61	UCART1	11.28
5,211	637130.85	4273577.61	UCART1	11.28
5,212	637180.85	4273577.61	UCART1	11.55
5,213	637230.85	4273577.61	UCART1	11.55
5,214	637280.85	4273577.61	UCART1	11.55
5,215	636730.85	4273627.61	UCART1	10.67
5,216	636780.85	4273627.61	UCART1	10.67
5,217	636830.85	4273627.61	UCART1	10.94
5,218	636880.85	4273627.61	UCART1	10.97
5,219	636930.85	4273627.61	UCART1	10.99
5,220	636980.85	4273627.61	UCART1	11.25
5,221	637030.85	4273627.61	UCART1	11.28
5,222	637080.85	4273627.61	UCART1	11.28
5,223	637130.85	4273627.61	UCART1	11.28
5,224	637180.85	4273627.61	UCART1	11.28
5,225	636730.85	4273677.61	UCART1	10.72
5,226	636780.85	4273677.61	UCART1	10.67
5,227	636830.85	4273677.61	UCART1	10.94
5,228	636880.85	4273677.61	UCART1	10.97
5,229	636930.85	4273677.61	UCART1	10.97
5,230	636980.85	4273677.61	UCART1	10.97
5,231	636730.85	4273727.61	UCART1	10.65
5,232	636780.85	4273727.61	UCART1	10.67
5,233	636830.85	4273727.61	UCART1	10.67
5,234	636880.85	4273727.61	UCART1	10.97
5,235	636930.85	4273727.61	UCART1	10.97
5,236	636730.85	4273777.61	UCART1	10.63

5,237	636780.85	4273777.61	UCART1	10.67
5,238	636830.85	4273777.61	UCART1	10.67
5,239	636880.85	4273777.61	UCART1	10.74
5,240	636730.85	4273827.61	UCART1	10.67
5,241	636780.85	4273827.61	UCART1	10.67
5,242	636830.85	4273827.61	UCART1	10.67
5,243	636299.24	4273640.64	UCART1	8.94
5,244	636349.24	4273640.64	UCART1	9.14
5,245	636399.24	4273640.64	UCART1	9.14
5,246	636449.24	4273640.64	UCART1	9.19
5,247	636499.24	4273640.64	UCART1	10.11
5,248	636549.24	4273640.64	UCART1	10.58
5,249	636599.24	4273640.64	UCART1	10.61
5,250	636299.24	4273690.64	UCART1	9.19
5,251	636349.24	4273690.64	UCART1	9.41
5,252	636399.24	4273690.64	UCART1	9.41
5,253	636449.24	4273690.64	UCART1	9.36
5,254	636499.24	4273690.64	UCART1	9.22
5,255	636549.24	4273690.64	UCART1	9.69
5,256	636599.24	4273690.64	UCART1	10.02
5,257	636299.24	4273740.64	UCART1	9.49
5,258	636349.24	4273740.64	UCART1	9.47
5,259	636399.24	4273740.64	UCART1	9.29
5,260	636449.24	4273740.64	UCART1	9.26
5,261	636499.24	4273740.64	UCART1	9.14
5,262	636549.24	4273740.64	UCART1	9.22
5,263	636599.24	4273740.64	UCART1	9.95
5,264	636299.24	4273790.64	UCART1	10.47
5,265	636349.24	4273790.64	UCART1	9.77
5,266	636399.24	4273790.64	UCART1	9.14
5,267	636449.24	4273790.64	UCART1	9.15
5,268	636499.24	4273790.64	UCART1	9.20
5,269	636549.24	4273790.64	UCART1	9.36
5,270	636599.24	4273790.64	UCART1	9.87
5,271	636299.24	4273840.64	UCART1	11.96
5,272	636349.24	4273840.64	UCART1	10.21
5,273	636399.24	4273840.64	UCART1	9.67
5,274	636449.24	4273840.64	UCART1	9.41

5,275	636499.24	4273840.64	UCART1	9.45
5,276	636549.24	4273840.64	UCART1	9.87
5,277	636599.24	4273840.64	UCART1	10.33
5,278	636299.24	4273890.64	UCART1	13.78
5,279	636349.24	4273890.64	UCART1	13.66
5,280	636399.24	4273890.64	UCART1	12.15
5,281	636449.24	4273890.64	UCART1	10.92
5,282	636499.24	4273890.64	UCART1	10.40
5,283	636549.24	4273890.64	UCART1	10.76
5,284	636599.24	4273890.64	UCART1	10.67
5,285	636299.24	4273940.64	UCART1	14.74
5,286	636349.24	4273940.64	UCART1	15.24
5,287	636399.24	4273940.64	UCART1	14.65
5,288	636449.24	4273940.64	UCART1	12.38
5,289	636499.24	4273940.64	UCART1	11.33
5,290	636549.24	4273940.64	UCART1	11.28
5,291	636299.24	4273990.64	UCART1	14.52
5,292	636349.24	4273990.64	UCART1	15.24
5,293	636399.24	4273990.64	UCART1	14.52
5,294	636449.24	4273990.64	UCART1	11.90
5,295	636499.24	4273990.64	UCART1	11.06
5,296	636299.24	4274040.64	UCART1	13.28
5,297	636349.24	4274040.64	UCART1	15.17
5,298	636399.24	4274040.64	UCART1	14.49
5,299	636449.24	4274040.64	UCART1	11.29
5,300	636299.24	4274090.64	UCART1	13.87
5,301	636349.24	4274090.64	UCART1	14.52
5,302	636399.24	4274090.64	UCART1	15.34
5,303	636129.86	4273815.70	UCART1	11.14
5,304	636179.86	4273815.70	UCART1	11.22
5,305	636229.86	4273815.70	UCART1	11.00
5,306	636279.86	4273815.70	UCART1	11.16
5,307	636129.86	4273865.70	UCART1	11.39
5,308	636179.86	4273865.70	UCART1	11.55
5,309	636229.86	4273865.70	UCART1	12.24
5,310	636279.86	4273865.70	UCART1	12.68
5,311	636129.86	4273915.70	UCART1	11.69
5,312	636179.86	4273915.70	UCART1	12.09

5,313	636229.86	4273915.70	UCART1	12.85
5,314	636279.86	4273915.70	UCART1	14.10
5,315	636129.86	4273965.70	UCART1	11.89
5,316	636179.86	4273965.70	UCART1	12.25
5,317	636229.86	4273965.70	UCART1	13.27
5,318	636279.86	4273965.70	UCART1	14.19
5,319	636129.86	4274015.70	UCART1	12.14
5,320	636179.86	4274015.70	UCART1	11.98
5,321	636229.86	4274015.70	UCART1	12.32
5,322	636279.86	4274015.70	UCART1	12.99
5,323	636129.86	4274065.70	UCART1	12.30
5,324	636179.86	4274065.70	UCART1	12.19
5,325	636229.86	4274065.70	UCART1	12.19
5,326	636279.86	4274065.70	UCART1	12.89
5,327	636129.86	4274115.70	UCART1	12.64
5,328	636179.86	4274115.70	UCART1	12.45
5,329	636229.86	4274115.70	UCART1	12.73
5,330	636544.37	4273597.92	UCART1	10.40
5,331	636594.37	4273597.92	UCART1	10.60
5,332	637879.71	4269502.90	UCART1	8.23
5,333	637879.71	4269542.90	UCART1	8.41
5,334	637879.71	4269582.90	UCART1	8.53
5,335	637879.71	4269622.90	UCART1	8.81
5,336	637879.71	4269662.90	UCART1	9.00
5,337	637879.71	4269702.90	UCART1	9.14
5,338	637879.71	4269742.90	UCART1	9.42
5,339	637879.71	4269782.90	UCART1	9.61
5,340	637879.71	4269822.90	UCART1	9.75
5,341	637879.71	4269862.90	UCART1	9.87
5,342	637879.71	4269902.90	UCART1	10.24
5,343	637879.71	4269942.90	UCART1	10.36
5,344	637961.45	4269438.76	UCART2	8.23
5,345	638001.45	4269438.76	UCART2	8.27
5,346	638041.45	4269438.76	UCART2	8.34
5,347	637976.60	4269472.54	UCART2	8.33
5,348	637838.22	4269470.47	UCART1	8.23
5,349	637927.26	4269472.54	UCART1	8.23
5,350	638028.73	4269468.40	UCART1	8.53

5,351	637051.46	4269455.35	UCART1	10.74
5,352	637091.46	4269455.35	UCART1	10.67
5,353	637131.46	4269455.35	UCART1	10.39
5,354	637171.46	4269455.35	UCART1	10.36
5,355	637211.46	4269455.35	UCART1	10.19
5,356	637251.46	4269455.35	UCART1	10.06
5,357	637049.92	4269402.06	UCART1	10.92
5,358	637089.92	4269402.06	UCART1	10.68
5,359	637129.92	4269402.06	UCART1	10.67
5,360	637169.92	4269402.06	UCART1	10.39
5,361	637209.92	4269402.06	UCART1	10.38
5,362	637249.92	4269402.06	UCART1	10.12
5,363	637033.01	4273681.78	UCART1	10.97
5,364	637083.01	4273681.78	UCART1	11.01
5,365	637133.01	4273681.78	UCART1	11.11
5,366	636724.97	4273887.14	UCART1	10.67
5,367	636774.97	4273887.14	UCART1	10.67
5,368	636824.97	4273887.14	UCART1	10.67
5,369	636657.19	4273890.16	UCART1	10.52
5,370	636599.81	4273542.86	UCART1	10.33
5,371	637727.34	4273057.81	UCART1	10.78
5,372	637777.34	4273057.81	UCART1	11.72
5,373	637729.67	4273102.97	UCART1	11.27
5,374	637779.67	4273102.97	UCART1	11.92
5,375	637729.61	4273147.30	UCART1	12.12
5,376	637779.61	4273147.30	UCART1	12.46
5,377	637727.04	4273188.37	UCART1	12.36
5,378	637777.04	4273188.37	UCART1	12.53
5,379	636997.77	4273339.17	UCART1	11.14
5,380	636243.42	4270940.78	UCART1	7.70
5,381	636283.42	4270940.78	UCART1	7.90
5,382	636323.42	4270940.78	UCART1	7.74
5,383	636363.42	4270940.78	UCART1	9.11
5,384	636243.42	4270980.78	UCART1	8.34
5,385	636283.42	4270980.78	UCART1	8.66
5,386	636323.42	4270980.78	UCART1	8.71
5,387	636363.42	4270980.78	UCART1	9.34
5,388	636243.42	4271020.78	UCART1	8.89

5,389	636283.42	4271020.78	UCART1	9.13
5,390	636323.42	4271020.78	UCART1	9.40
5,391	636363.42	4271020.78	UCART1	9.42
5,392	636243.42	4271060.78	UCART1	9.14
5,393	636283.42	4271060.78	UCART1	9.14
5,394	636323.42	4271060.78	UCART1	9.44
5,395	636363.42	4271060.78	UCART1	9.45
5,396	636243.42	4271100.78	UCART1	9.14
5,397	636283.42	4271100.78	UCART1	9.14
5,398	636323.42	4271100.78	UCART1	9.44
5,399	636363.42	4271100.78	UCART1	9.45
5,400	636243.42	4271140.78	UCART1	9.14
5,401	636283.42	4271140.78	UCART1	9.14
5,402	636323.42	4271140.78	UCART1	9.44
5,403	636363.42	4271140.78	UCART1	9.45
5,404	636243.42	4271180.78	UCART1	9.14
5,405	636283.42	4271180.78	UCART1	9.14
5,406	636323.42	4271180.78	UCART1	9.38
5,407	636363.42	4271180.78	UCART1	9.31
5,408	636243.42	4271220.78	UCART1	9.14
5,409	636283.42	4271220.78	UCART1	9.14
5,410	636323.42	4271220.78	UCART1	9.14
5,411	636363.42	4271220.78	UCART1	9.14
5,412	636243.42	4271260.78	UCART1	9.14
5,413	636283.42	4271260.78	UCART1	8.97
5,414	636323.42	4271260.78	UCART1	9.14
5,415	636363.42	4271260.78	UCART1	9.14
5,416	636243.42	4271300.78	UCART1	8.78
5,417	636283.42	4271300.78	UCART1	8.78
5,418	636323.42	4271300.78	UCART1	8.84
5,419	636363.42	4271300.78	UCART1	9.08
5,420	636243.42	4271340.78	UCART1	8.53
5,421	636283.42	4271340.78	UCART1	8.53
5,422	636323.42	4271340.78	UCART1	8.68
5,423	636363.42	4271340.78	UCART1	8.68
5,424	636243.42	4271380.78	UCART1	8.27
5,425	636283.42	4271380.78	UCART1	8.27
5,426	636323.42	4271380.78	UCART1	8.27

5,427	636363.42	4271380.78	UCART1	8.27
5,428	636243.42	4271420.78	UCART1	8.09
5,429	636283.42	4271420.78	UCART1	7.92
5,430	636323.42	4271420.78	UCART1	7.92
5,431	636363.42	4271420.78	UCART1	7.91
5,432	636243.42	4271460.78	UCART1	7.76
5,433	636283.42	4271460.78	UCART1	7.76
5,434	636323.42	4271460.78	UCART1	7.76
5,435	636363.42	4271460.78	UCART1	7.56
5,436	636243.42	4271500.78	UCART1	3.68
5,437	636283.42	4271500.78	UCART1	3.68
5,438	636323.42	4271500.78	UCART1	3.68
5,439	636363.42	4271500.78	UCART1	3.64
5,440	636243.42	4271540.78	UCART1	3.05
5,441	636283.42	4271540.78	UCART1	3.05
5,442	636323.42	4271540.78	UCART1	3.05
5,443	636363.42	4271540.78	UCART1	3.05
5,444	636243.42	4271580.78	UCART1	3.90
5,445	636283.42	4271580.78	UCART1	4.22
5,446	636323.42	4271580.78	UCART1	4.34
5,447	636363.42	4271580.78	UCART1	4.07
5,448	636243.42	4271620.78	UCART1	5.82
5,449	636283.42	4271620.78	UCART1	5.72
5,450	636323.42	4271620.78	UCART1	5.75
5,451	636363.42	4271620.78	UCART1	5.68
5,452	636243.42	4271660.78	UCART1	6.10
5,453	636283.42	4271660.78	UCART1	6.06
5,454	636323.42	4271660.78	UCART1	6.09
5,455	636363.42	4271660.78	UCART1	6.48
5,456	636085.38	4270941.64	UCART1	8.52
5,457	636125.38	4270941.64	UCART1	8.14
5,458	636165.38	4270941.64	UCART1	7.78
5,459	636205.38	4270941.64	UCART1	7.69
5,460	636085.38	4270981.64	UCART1	8.53
5,461	636125.38	4270981.64	UCART1	8.33
5,462	636165.38	4270981.64	UCART1	8.13
5,463	636205.38	4270981.64	UCART1	8.10
5,464	636085.38	4271021.64	UCART1	8.53

5,465	636125.38	4271021.64	UCART1	8.52
5,466	636165.38	4271021.64	UCART1	8.50
5,467	636205.38	4271021.64	UCART1	8.52
5,468	636085.38	4271061.64	UCART1	8.54
5,469	636125.38	4271061.64	UCART1	8.69
5,470	636165.38	4271061.64	UCART1	8.84
5,471	636205.38	4271061.64	UCART1	8.92
5,472	636085.38	4271101.64	UCART1	8.71
5,473	636125.38	4271101.64	UCART1	8.84
5,474	636165.38	4271101.64	UCART1	8.96
5,475	636205.38	4271101.64	UCART1	9.14
5,476	636085.38	4271141.64	UCART1	8.85
5,477	636125.38	4271141.64	UCART1	9.11
5,478	636165.38	4271141.64	UCART1	9.13
5,479	636205.38	4271141.64	UCART1	9.14
5,480	636085.38	4271181.64	UCART1	9.08
5,481	636125.38	4271181.64	UCART1	9.14
5,482	636165.38	4271181.64	UCART1	9.14
5,483	636205.38	4271181.64	UCART1	9.14
5,484	636085.38	4271221.64	UCART1	9.02
5,485	636125.38	4271221.64	UCART1	9.14
5,486	636165.38	4271221.64	UCART1	9.14
5,487	636205.38	4271221.64	UCART1	9.14
5,488	636085.38	4271261.64	UCART1	9.14
5,489	636125.38	4271261.64	UCART1	9.14
5,490	636165.38	4271261.64	UCART1	9.14
5,491	636205.38	4271261.64	UCART1	9.14
5,492	636085.38	4271301.64	UCART1	9.08
5,493	636125.38	4271301.64	UCART1	9.08
5,494	636165.38	4271301.64	UCART1	8.91
5,495	636205.38	4271301.64	UCART1	8.84
5,496	636085.38	4271341.64	UCART1	8.83
5,497	636125.38	4271341.64	UCART1	8.67
5,498	636165.38	4271341.64	UCART1	8.67
5,499	636205.38	4271341.64	UCART1	8.66
5,500	636085.38	4271381.64	UCART1	8.57
5,501	636125.38	4271381.64	UCART1	8.43
5,502	636165.38	4271381.64	UCART1	8.26

5,503	636205.38	4271381.64	UCART1	8.26
5,504	636085.38	4271421.64	UCART1	8.16
5,505	636125.38	4271421.64	UCART1	8.16
5,506	636165.38	4271421.64	UCART1	8.16
5,507	636205.38	4271421.64	UCART1	8.16
5,508	636085.38	4271461.64	UCART1	7.75
5,509	636125.38	4271461.64	UCART1	7.75
5,510	636165.38	4271461.64	UCART1	5.94
5,511	636205.38	4271461.64	UCART1	7.75
5,512	636085.38	4271501.64	UCART1	7.17
5,513	636125.38	4271501.64	UCART1	3.55
5,514	636165.38	4271501.64	UCART1	3.19
5,515	636205.38	4271501.64	UCART1	3.55
5,516	636085.38	4271541.64	UCART1	3.05
5,517	636125.38	4271541.64	UCART1	3.05
5,518	636165.38	4271541.64	UCART1	3.05
5,519	636205.38	4271541.64	UCART1	3.05
5,520	636085.38	4271581.64	UCART1	3.05
5,521	636125.38	4271581.64	UCART1	3.05
5,522	636165.38	4271581.64	UCART1	3.05
5,523	636205.38	4271581.64	UCART1	3.09
5,524	636085.38	4271621.64	UCART1	4.42
5,525	636125.38	4271621.64	UCART1	4.57
5,526	636165.38	4271621.64	UCART1	4.79
5,527	636205.38	4271621.64	UCART1	5.25
5,528	636085.38	4271661.64	UCART1	6.21
5,529	636125.38	4271661.64	UCART1	6.29
5,530	636165.38	4271661.64	UCART1	5.95
5,531	636205.38	4271661.64	UCART1	5.87
5,532	636244.35	4270741.52	UCART1	10.39
5,533	636284.35	4270741.52	UCART1	10.08
5,534	636324.35	4270741.52	UCART1	9.72
5,535	636364.35	4270741.52	UCART1	9.37
5,536	636244.35	4270781.52	UCART1	9.81
5,537	636284.35	4270781.52	UCART1	9.58
5,538	636324.35	4270781.52	UCART1	9.44
5,539	636364.35	4270781.52	UCART1	8.78
5,540	636244.35	4270821.52	UCART1	9.38

5,541	636284.35	4270821.52	UCART1	9.13
5,542	636324.35	4270821.52	UCART1	8.49
5,543	636364.35	4270821.52	UCART1	7.58
5,544	636244.35	4270861.52	UCART1	8.70
5,545	636284.35	4270861.52	UCART1	8.62
5,546	636324.35	4270861.52	UCART1	7.15
5,547	636364.35	4270861.52	UCART1	7.66
5,548	636244.35	4270901.52	UCART1	8.06
5,549	636284.35	4270901.52	UCART1	8.26
5,550	636324.35	4270901.52	UCART1	7.55
5,551	636364.35	4270901.52	UCART1	8.38
5,552	636126.31	4270742.38	UCART1	10.19
5,553	636166.31	4270742.38	UCART1	10.41
5,554	636206.31	4270742.38	UCART1	10.49
5,555	636126.31	4270782.38	UCART1	9.78
5,556	636166.31	4270782.38	UCART1	10.01
5,557	636206.31	4270782.38	UCART1	9.81
5,558	636126.31	4270822.38	UCART1	9.19
5,559	636166.31	4270822.38	UCART1	9.43
5,560	636206.31	4270822.38	UCART1	9.16
5,561	636126.31	4270862.38	UCART1	9.00
5,562	636166.31	4270862.38	UCART1	8.93
5,563	636206.31	4270862.38	UCART1	8.45
5,564	636086.31	4270902.38	UCART1	8.56
5,565	636126.31	4270902.38	UCART1	8.35
5,566	636166.31	4270902.38	UCART1	7.78
5,567	636206.31	4270902.38	UCART1	7.67
5,568	636324.89	4270699.29	UCART1	10.33
5,569	636364.89	4270699.29	UCART1	10.42
5,570	636013.78	4270981.30	UCART1	8.53
5,571	636053.78	4270981.30	UCART1	8.53
5,572	636013.78	4271021.30	UCART1	8.53
5,573	636053.78	4271021.30	UCART1	8.53
5,574	635933.78	4271061.30	UCART1	7.92
5,575	635973.78	4271061.30	UCART1	8.23
5,576	636013.78	4271061.30	UCART1	8.23
5,577	636053.78	4271061.30	UCART1	8.53
5,578	635933.78	4271101.30	UCART1	7.92

5,579	635973.78	4271101.30	UCART1	8.06
5,580	636013.78	4271101.30	UCART1	8.17
5,581	636053.78	4271101.30	UCART1	8.53
5,582	635933.78	4271141.30	UCART1	7.92
5,583	635973.78	4271141.30	UCART1	7.92
5,584	636013.78	4271141.30	UCART1	7.95
5,585	636053.78	4271141.30	UCART1	8.53
5,586	635933.78	4271181.30	UCART1	7.86
5,587	635973.78	4271181.30	UCART1	7.78
5,588	636013.78	4271181.30	UCART1	7.62
5,589	636053.78	4271181.30	UCART1	8.53
5,590	635933.78	4271221.30	UCART1	7.62
5,591	635973.78	4271221.30	UCART1	7.62
5,592	636013.78	4271221.30	UCART1	7.73
5,593	636053.78	4271221.30	UCART1	8.70
5,594	635933.78	4271261.30	UCART1	7.62
5,595	635973.78	4271261.30	UCART1	8.15
5,596	636013.78	4271261.30	UCART1	9.07
5,597	636053.78	4271261.30	UCART1	9.11
5,598	635933.78	4271301.30	UCART1	8.90
5,599	635973.78	4271301.30	UCART1	9.31
5,600	636013.78	4271301.30	UCART1	9.14
5,601	636053.78	4271301.30	UCART1	9.14
5,602	635933.78	4271341.30	UCART1	9.14
5,603	635973.78	4271341.30	UCART1	9.09
5,604	636013.78	4271341.30	UCART1	8.98
5,605	636053.78	4271341.30	UCART1	8.98
5,606	635933.78	4271381.30	UCART1	8.88
5,607	635973.78	4271381.30	UCART1	8.86
5,608	636013.78	4271381.30	UCART1	8.66
5,609	636053.78	4271381.30	UCART1	8.57
5,610	635933.78	4271421.30	UCART1	8.47
5,611	635973.78	4271421.30	UCART1	8.47
5,612	636013.78	4271421.30	UCART1	8.31
5,613	636053.78	4271421.30	UCART1	8.17
5,614	635933.78	4271461.30	UCART1	8.07
5,615	635973.78	4271461.30	UCART1	8.06
5,616	636013.78	4271461.30	UCART1	8.06

5,617	636053.78	4271461.30	UCART1	7.93
5,618	635933.78	4271501.30	UCART1	7.93
5,619	635973.78	4271501.30	UCART1	7.66
5,620	636013.78	4271501.30	UCART1	7.66
5,621	636053.78	4271501.30	UCART1	7.39
5,622	635933.78	4271541.30	UCART1	7.19
5,623	635973.78	4271541.30	UCART1	6.33
5,624	636013.78	4271541.30	UCART1	6.17
5,625	636053.78	4271541.30	UCART1	3.07
5,626	635933.78	4271581.30	UCART1	4.71
5,627	635973.78	4271581.30	UCART1	3.05
5,628	636013.78	4271581.30	UCART1	3.05
5,629	636053.78	4271581.30	UCART1	3.05
5,630	636053.78	4271621.30	UCART1	4.39
5,631	636053.78	4271661.30	UCART1	5.94
5,632	636054.71	4270902.03	UCART1	8.83
5,633	636283.31	4270120.53	UCART1	10.06
5,634	636323.31	4270120.53	UCART1	10.10
5,635	636283.31	4270160.53	UCART1	9.95
5,636	636323.31	4270160.53	UCART1	10.06
5,637	636283.31	4270200.53	UCART1	9.95
5,638	636323.31	4270200.53	UCART1	10.06
5,639	636283.31	4270240.53	UCART1	9.95
5,640	636323.31	4270240.53	UCART1	10.31
5,641	636283.31	4270280.53	UCART1	10.10
5,642	636323.31	4270280.53	UCART1	10.36
5,643	636283.31	4270320.53	UCART1	10.26
5,644	636323.31	4270320.53	UCART1	10.52
5,645	636283.31	4270360.53	UCART1	10.26
5,646	636323.31	4270360.53	UCART1	10.66
5,647	636283.31	4270400.53	UCART1	10.26
5,648	636323.31	4270400.53	UCART1	10.66
5,649	636283.31	4270440.53	UCART1	10.26
5,650	636323.31	4270440.53	UCART1	10.66
5,651	636283.31	4270480.53	UCART1	10.42
5,652	636323.31	4270480.53	UCART1	10.67
5,653	636283.31	4270520.53	UCART1	10.54
5,654	636323.31	4270520.53	UCART1	10.67

5,655	636283.31	4270560.53	UCART1	10.51	
5,656	636323.31	4270560.53	UCART1	10.67	
5,657	636283.31	4270600.53	UCART1	10.56	
5,658	636323.31	4270600.53	UCART1	10.67	
5,659	636283.31	4270640.53	UCART1	10.58	
5,660	636323.31	4270640.53	UCART1	10.67	
5,661	635360.29	4272891.50	UCART2	7.32	
5,662	635400.29	4272891.50	UCART2	7.81	
5,663	635440.29	4272891.50	UCART2	8.00	
5,664	635480.29	4272891.50	UCART2	8.71	
5,665	635520.29	4272891.50	UCART2	7.51	
5,666	635560.29	4272891.50	UCART2	7.06	
5,667	635600.29	4272891.50	UCART2	7.01	
5,668	635640.29	4272891.50	UCART2	7.00	
5,669	635674.65	4272892.91	UCART2	6.85	
5,670	635360.29	4272931.50	UCART2	7.10	
5,671	635400.29	4272931.50	UCART2	7.85	
5,672	635440.29	4272931.50	UCART2	8.31	
5,673	635480.29	4272931.50	UCART2	8.67	
5,674	635520.29	4272931.50	UCART2	7.80	
5,675	635560.29	4272931.50	UCART2	6.81	
5,676	635600.29	4272931.50	UCART2	7.01	
5,677	635640.29	4272931.50	UCART2	6.95	
5,678	635674.65	4272932.91	UCART2	6.71	
5,679	635360.29	4272851.50	UCART2	6.41	
5,680	635400.29	4272851.50	UCART2	7.62	
5,681	635440.29	4272851.50	UCART2	7.77	
5,682	635480.29	4272851.50	UCART2	8.39	
5,683	635520.29	4272851.50	UCART2	7.62	
5,684	635560.29	4272851.50	UCART2	7.47	
5,685	635600.29	4272851.50	UCART2	7.35	
5,686	635640.29	4272851.50	UCART2	7.29	
5,687	635674.65	4272852.91	UCART2	7.03	

Plant Boundary Receptors

Receptor Pathway

Receptor Groups

Record Number	Group ID	Group Description
1	UCART1	Receptors generated from Uniform Cartesian Grid
2	UCART2	Site 2-2

Results Summary

C:\Users\chris.lovett\Desktop\NEW ARCF HRA (2020)\New SRCF HRA\New S

PM10 - Concentration - Source Group: ALL

Averaging Period	Rank	Peak	Units	X (m)	Y (m)	ZELEV (m)	ZFLAG (m)	ZHILL (m)	Peak Date, Start Hour
1-HR	1ST	69.24311	ug/m^3	637160.00	4270220.00	10.62	0.00	10.62	3/23/2014, 22
PERIOD		6.86724	ug/m^3	637120.00	4270220.00	10.67	0.00	10.67	
PERIOD		0.80817		637584.34	4272613.28	-99.00	-99.00	-99.00	
PERIOD		6.08680		637120.00	4270220.00	-99.00	-99.00	-99.00	
PERIOD		0.00047		637584.34	4272613.28	-99.00	-99.00	-99.00	
PERIOD		0.37104	ug/m^3	637584.34	4272613.28	9.14	0.00	9.14	

HARP Emissions Inventory		Code		Pollutant		lb/yr	max lb/hr	
ARCF	0	0	9901	DieselExhP	1	346.5016	0.356907	1

Emissions Calcs for HARP - DPM (PM10 Diesel Exhaust Only)

Sites	Total (tons/yr)	0.097803	**Max lb/day**	**Max lb/hr**
Sites	**Total (lbs/yr)**	**195.6066**	**2.1789**	**0.21789**
Haul Routes	Total (tons/yr)	0.075447	**Max lb/day**	**Max lb/hr**
Haul Routes	**Total (lbs/yr)**	**150.8950**	**1.3901**	**0.13901**

TOTAL	Total (tons/yr)	0.173251	**Max lb/day**	**Max lb/hr**
	Total (lbs/yr)	**346.5016**	**3.569074**	**0.356907**

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
1	637540	4268400	2.30E-08
2	637580	4268400	2.39E-08
3	637620	4268400	2.50E-08
4	637660	4268400	2.62E-08
5	637700	4268400	2.77E-08
6	637740	4268400	2.96E-08
7	637780	4268400	3.21E-08
8	637820	4268400	3.48E-08
9	637860	4268400	3.80E-08
10	637900	4268400	3.94E-08
11	637940	4268400	3.98E-08
12	637980	4268400	3.98E-08
13	638020	4268400	3.96E-08
14	638060	4268400	3.93E-08
15	638100	4268400	3.88E-08
16	638140	4268400	3.83E-08
17	638180	4268400	3.78E-08
18	638220	4268400	3.73E-08
19	638260	4268400	3.70E-08
20	638300	4268400	3.65E-08
21	638340	4268400	3.56E-08
22	638380	4268400	3.48E-08
23	638420	4268400	3.34E-08
24	638460	4268400	3.15E-08
25	638500	4268400	2.98E-08
26	638540	4268400	2.81E-08
27	638580	4268400	2.65E-08
28	638620	4268400	2.50E-08
29	638660	4268400	2.38E-08
30	638700	4268400	2.29E-08
31	638740	4268400	2.20E-08
32	638780	4268400	2.10E-08
33	638820	4268400	2.02E-08
34	638860	4268400	1.94E-08
35	638900	4268400	1.87E-08
36	638940	4268400	1.81E-08
37	637540	4268440	2.44E-08
38	637580	4268440	2.54E-08
39	637620	4268440	2.66E-08
40	637660	4268440	2.81E-08
41	637700	4268440	2.99E-08
42	637740	4268440	3.26E-08
43	637780	4268440	3.70E-08
44	637820	4268440	4.34E-08
45	637860	4268440	4.80E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
46	637900	4268440	4.87E-08
47	637940	4268440	4.88E-08
48	637980	4268440	4.86E-08
49	638020	4268440	4.83E-08
50	638060	4268440	4.77E-08
51	638100	4268440	4.70E-08
52	638140	4268440	4.63E-08
53	638180	4268440	4.57E-08
54	638220	4268440	4.56E-08
55	638260	4268440	4.57E-08
56	638300	4268440	4.49E-08
57	638340	4268440	4.41E-08
58	638380	4268440	4.25E-08
59	638420	4268440	3.98E-08
60	638460	4268440	3.59E-08
61	638500	4268440	3.27E-08
62	638540	4268440	3.03E-08
63	638580	4268440	2.82E-08
64	638620	4268440	2.64E-08
65	638660	4268440	2.50E-08
66	638700	4268440	2.39E-08
67	638740	4268440	2.27E-08
68	638780	4268440	2.16E-08
69	638820	4268440	2.07E-08
70	638860	4268440	1.98E-08
71	638900	4268440	1.91E-08
72	638940	4268440	1.85E-08
73	637540	4268480	2.58E-08
74	637580	4268480	2.70E-08
75	637620	4268480	2.85E-08
76	637660	4268480	3.04E-08
77	637700	4268480	3.30E-08
78	637740	4268480	3.72E-08
79	637780	4268480	4.71E-08
80	637820	4268480	6.35E-08
81	637860	4268480	6.95E-08
82	637900	4268480	6.64E-08
83	637940	4268480	7.87E-08
84	637980	4268480	6.67E-08
85	638020	4268480	6.40E-08
86	638060	4268480	7.59E-08
87	638100	4268480	6.32E-08
88	638140	4268480	7.41E-08
89	638180	4268480	7.34E-08
90	638220	4268480	6.37E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
91	638260	4268480	5.27E-08
92	638300	4268480	6.26E-08
93	638340	4268480	5.89E-08
94	638380	4268480	6.97E-08
95	638420	4268480	5.55E-08
96	638460	4268480	4.31E-08
97	638500	4268480	3.64E-08
98	638540	4268480	3.28E-08
99	638580	4268480	3.03E-08
100	638620	4268480	2.81E-08
101	638660	4268480	2.66E-08
102	638700	4268480	2.51E-08
103	638740	4268480	2.36E-08
104	638780	4268480	2.23E-08
105	638820	4268480	2.12E-08
106	638860	4268480	2.03E-08
107	638900	4268480	1.96E-08
108	638940	4268480	1.89E-08
109	637540	4268520	2.71E-08
110	637580	4268520	2.86E-08
111	637620	4268520	3.04E-08
112	637660	4268520	3.30E-08
113	637700	4268520	3.69E-08
114	637740	4268520	4.54E-08
115	637780	4268520	8.52E-08
116	637820	4268520	1.65E-07
117	637860	4268520	1.44E-07
118	637900	4268520	1.41E-07
119	637940	4268520	1.40E-07
120	637980	4268520	1.39E-07
121	638020	4268520	1.39E-07
122	638060	4268520	1.38E-07
123	638100	4268520	1.38E-07
124	638140	4268520	1.37E-07
125	638180	4268520	1.37E-07
126	638220	4268520	1.32E-07
127	638260	4268520	1.25E-07
128	638300	4268520	1.26E-07
129	638340	4268520	1.26E-07
130	638380	4268520	1.28E-07
131	638420	4268520	6.53E-08
132	638460	4268520	5.62E-08
133	638500	4268520	4.12E-08
134	638540	4268520	3.60E-08
135	638580	4268520	3.32E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
136	638620	4268520	3.06E-08
137	638660	4268520	2.85E-08
138	638700	4268520	2.64E-08
139	638740	4268520	2.45E-08
140	638780	4268520	2.30E-08
141	638820	4268520	2.18E-08
142	638860	4268520	2.08E-08
143	638900	4268520	2.00E-08
144	638940	4268520	1.93E-08
145	637540	4268560	2.88E-08
146	637580	4268560	3.06E-08
147	637620	4268560	3.31E-08
148	637660	4268560	3.69E-08
149	637700	4268560	4.38E-08
150	637740	4268560	5.94E-08
151	637780	4268560	1.24E-07
152	637820	4268560	1.53E-07
153	637860	4268560	1.10E-07
154	637900	4268560	1.05E-07
155	637940	4268560	1.03E-07
156	637980	4268560	1.02E-07
157	638020	4268560	1.01E-07
158	638060	4268560	1.00E-07
159	638100	4268560	9.91E-08
160	638140	4268560	9.81E-08
161	638180	4268560	9.70E-08
162	638220	4268560	9.38E-08
163	638260	4268560	9.05E-08
164	638300	4268560	8.96E-08
165	638340	4268560	8.91E-08
166	638380	4268560	9.34E-08
167	638420	4268560	1.29E-07
168	638460	4268560	6.68E-08
169	638500	4268560	5.06E-08
170	638540	4268560	4.19E-08
171	638580	4268560	3.86E-08
172	638620	4268560	3.50E-08
173	638660	4268560	3.13E-08
174	638700	4268560	2.79E-08
175	638740	4268560	2.55E-08
176	638780	4268560	2.38E-08
177	638820	4268560	2.24E-08
178	638860	4268560	2.13E-08
179	638900	4268560	2.04E-08
180	637500	4268600	2.92E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
181	637540	4268600	3.09E-08
182	637580	4268600	3.33E-08
183	637620	4268600	3.67E-08
184	637660	4268600	4.19E-08
185	637700	4268600	5.09E-08
186	637740	4268600	7.16E-08
187	637780	4268600	1.44E-07
188	637820	4268600	1.52E-07
189	637860	4268600	9.91E-08
190	637900	4268600	9.11E-08
191	637940	4268600	8.82E-08
192	637980	4268600	8.63E-08
193	638020	4268600	8.49E-08
194	638060	4268600	8.36E-08
195	638100	4268600	8.24E-08
196	638140	4268600	8.13E-08
197	638180	4268600	7.99E-08
198	638220	4268600	7.78E-08
199	638260	4268600	7.61E-08
200	638300	4268600	7.53E-08
201	638340	4268600	7.58E-08
202	638380	4268600	8.10E-08
203	638420	4268600	1.02E-07
204	638460	4268600	9.63E-08
205	638500	4268600	7.54E-08
206	638540	4268600	5.62E-08
207	638580	4268600	5.25E-08
208	638620	4268600	4.48E-08
209	638660	4268600	3.51E-08
210	638700	4268600	2.98E-08
211	638740	4268600	2.67E-08
212	638780	4268600	2.45E-08
213	638820	4268600	2.30E-08
214	638860	4268600	2.18E-08
215	638900	4268600	2.08E-08
216	637500	4268640	3.12E-08
217	637540	4268640	3.35E-08
218	637580	4268640	3.64E-08
219	637620	4268640	4.03E-08
220	637660	4268640	4.64E-08
221	637700	4268640	5.74E-08
222	637740	4268640	8.08E-08
223	637780	4268640	1.57E-07
224	637820	4268640	1.50E-07
225	637860	4268640	9.47E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
226	637900	4268640	8.35E-08
227	637940	4268640	7.95E-08
228	637980	4268640	7.69E-08
229	638020	4268640	7.51E-08
230	638060	4268640	7.37E-08
231	638100	4268640	7.24E-08
232	638140	4268640	7.11E-08
233	638180	4268640	6.98E-08
234	638220	4268640	6.84E-08
235	638260	4268640	6.74E-08
236	638300	4268640	6.72E-08
237	638340	4268640	6.87E-08
238	638380	4268640	7.38E-08
239	638420	4268640	8.82E-08
240	638460	4268640	1.24E-07
241	638500	4268640	1.18E-07
242	638540	4268640	5.47E-08
243	638580	4268640	6.51E-08
244	638620	4268640	6.65E-08
245	638660	4268640	3.90E-08
246	638700	4268640	3.14E-08
247	638740	4268640	2.76E-08
248	638780	4268640	2.52E-08
249	638820	4268640	2.35E-08
250	638860	4268640	2.22E-08
251	638900	4268640	2.11E-08
252	637500	4268680	3.36E-08
253	637540	4268680	3.60E-08
254	637580	4268680	3.92E-08
255	637620	4268680	4.37E-08
256	637660	4268680	5.08E-08
257	637700	4268680	6.32E-08
258	637740	4268680	8.79E-08
259	637780	4268680	1.68E-07
260	637820	4268680	1.47E-07
261	637860	4268680	9.24E-08
262	637900	4268680	7.93E-08
263	637940	4268680	7.42E-08
264	637980	4268680	7.13E-08
265	638020	4268680	6.93E-08
266	638060	4268680	6.77E-08
267	638100	4268680	6.63E-08
268	638140	4268680	6.51E-08
269	638180	4268680	6.39E-08
270	638220	4268680	6.29E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
271	638260	4268680	6.22E-08
272	638300	4268680	6.22E-08
273	638340	4268680	6.40E-08
274	638380	4268680	6.89E-08
275	638420	4268680	7.85E-08
276	638460	4268680	9.42E-08
277	638500	4268680	1.11E-07
278	638540	4268680	1.13E-07
279	638580	4268680	1.40E-07
280	638620	4268680	1.00E-07
281	638660	4268680	4.37E-08
282	638700	4268680	3.33E-08
283	638740	4268680	2.87E-08
284	638780	4268680	2.59E-08
285	638820	4268680	2.40E-08
286	638860	4268680	2.26E-08
287	638900	4268680	2.15E-08
288	637300	4268720	2.88E-08
289	637340	4268720	2.96E-08
290	637380	4268720	3.06E-08
291	637420	4268720	3.20E-08
292	637460	4268720	3.37E-08
293	637500	4268720	3.58E-08
294	637540	4268720	3.84E-08
295	637580	4268720	4.19E-08
296	637620	4268720	4.70E-08
297	637660	4268720	5.49E-08
298	637700	4268720	6.81E-08
299	637740	4268720	9.34E-08
300	637780	4268720	1.62E-07
301	637820	4268720	1.44E-07
302	637860	4268720	9.15E-08
303	637900	4268720	7.71E-08
304	637940	4268720	7.09E-08
305	637980	4268720	6.75E-08
306	638020	4268720	6.53E-08
307	638060	4268720	6.35E-08
308	638100	4268720	6.22E-08
309	638140	4268720	6.09E-08
310	638180	4268720	5.97E-08
311	638220	4268720	5.88E-08
312	638260	4268720	5.84E-08
313	638300	4268720	5.90E-08
314	638340	4268720	6.07E-08
315	638380	4268720	6.44E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
316	638420	4268720	7.10E-08
317	638460	4268720	7.92E-08
318	638500	4268720	8.84E-08
319	638540	4268720	9.58E-08
320	638580	4268720	1.40E-07
321	638620	4268720	1.18E-07
322	638660	4268720	4.96E-08
323	638700	4268720	3.58E-08
324	638740	4268720	3.01E-08
325	638780	4268720	2.69E-08
326	638820	4268720	2.47E-08
327	638860	4268720	2.32E-08
328	638900	4268720	2.19E-08
329	637300	4268760	3.04E-08
330	637340	4268760	3.13E-08
331	637380	4268760	3.25E-08
332	637420	4268760	3.39E-08
333	637460	4268760	3.57E-08
334	637500	4268760	3.79E-08
335	637540	4268760	4.08E-08
336	637580	4268760	4.48E-08
337	637620	4268760	5.04E-08
338	637660	4268760	5.88E-08
339	637700	4268760	7.25E-08
340	637740	4268760	9.81E-08
341	637780	4268760	1.63E-07
342	637820	4268760	1.42E-07
343	637860	4268760	9.11E-08
344	637900	4268760	7.59E-08
345	637940	4268760	6.86E-08
346	637980	4268760	6.48E-08
347	638020	4268760	6.23E-08
348	638060	4268760	6.05E-08
349	638100	4268760	5.91E-08
350	638140	4268760	5.79E-08
351	638180	4268760	5.69E-08
352	638220	4268760	5.63E-08
353	638260	4268760	5.60E-08
354	638300	4268760	5.65E-08
355	638340	4268760	5.79E-08
356	638380	4268760	6.08E-08
357	638420	4268760	6.50E-08
358	638460	4268760	7.06E-08
359	638500	4268760	7.79E-08
360	638540	4268760	8.99E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
361	638580	4268760	1.44E-07
362	638620	4268760	1.27E-07
363	638660	4268760	5.57E-08
364	638700	4268760	3.83E-08
365	638740	4268760	3.15E-08
366	638780	4268760	2.79E-08
367	638820	4268760	2.55E-08
368	638860	4268760	2.38E-08
369	638900	4268760	2.24E-08
370	637300	4268800	3.21E-08
371	637340	4268800	3.31E-08
372	637380	4268800	3.43E-08
373	637420	4268800	3.58E-08
374	637460	4268800	3.77E-08
375	637500	4268800	4.01E-08
376	637540	4268800	4.33E-08
377	637580	4268800	4.76E-08
378	637620	4268800	5.36E-08
379	637660	4268800	6.24E-08
380	637700	4268800	7.63E-08
381	637740	4268800	1.02E-07
382	637780	4268800	1.52E-07
383	637820	4268800	1.40E-07
384	637860	4268800	9.09E-08
385	637900	4268800	7.50E-08
386	637940	4268800	6.72E-08
387	637980	4268800	6.29E-08
388	638020	4268800	6.03E-08
389	638060	4268800	5.85E-08
390	638100	4268800	5.70E-08
391	638140	4268800	5.59E-08
392	638180	4268800	5.50E-08
393	638220	4268800	5.44E-08
394	638260	4268800	5.43E-08
395	638300	4268800	5.47E-08
396	638340	4268800	5.58E-08
397	638380	4268800	5.79E-08
398	638420	4268800	6.10E-08
399	638460	4268800	6.56E-08
400	638500	4268800	7.28E-08
401	638540	4268800	8.80E-08
402	638580	4268800	1.46E-07
403	638620	4268800	1.32E-07
404	638660	4268800	6.08E-08
405	638700	4268800	4.10E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
406	638740	4268800	3.31E-08
407	638780	4268800	2.89E-08
408	638820	4268800	2.62E-08
409	638860	4268800	2.44E-08
410	638900	4268800	2.29E-08
411	637300	4268840	3.38E-08
412	637340	4268840	3.49E-08
413	637380	4268840	3.62E-08
414	637420	4268840	3.78E-08
415	637460	4268840	3.98E-08
416	637500	4268840	4.24E-08
417	637540	4268840	4.59E-08
418	637580	4268840	5.04E-08
419	637620	4268840	5.67E-08
420	637660	4268840	6.58E-08
421	637700	4268840	7.98E-08
422	637740	4268840	1.06E-07
423	637780	4268840	1.81E-07
424	637820	4268840	1.39E-07
425	637860	4268840	9.07E-08
426	637900	4268840	7.43E-08
427	637940	4268840	6.63E-08
428	637980	4268840	6.18E-08
429	638020	4268840	5.90E-08
430	638060	4268840	5.69E-08
431	638100	4268840	5.54E-08
432	638140	4268840	5.43E-08
433	638180	4268840	5.34E-08
434	638220	4268840	5.28E-08
435	638260	4268840	5.27E-08
436	638300	4268840	5.30E-08
437	638340	4268840	5.40E-08
438	638380	4268840	5.59E-08
439	638420	4268840	5.85E-08
440	638460	4268840	6.23E-08
441	638500	4268840	7.00E-08
442	638540	4268840	8.73E-08
443	638580	4268840	1.48E-07
444	638620	4268840	1.35E-07
445	638660	4268840	6.45E-08
446	638700	4268840	4.38E-08
447	638740	4268840	3.46E-08
448	638780	4268840	3.00E-08
449	638820	4268840	2.70E-08
450	638860	4268840	2.50E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
451	638900	4268840	2.34E-08
452	637300	4268880	3.55E-08
453	637340	4268880	3.67E-08
454	637380	4268880	3.81E-08
455	637420	4268880	3.98E-08
456	637460	4268880	4.20E-08
457	637500	4268880	4.48E-08
458	637540	4268880	4.85E-08
459	637580	4268880	5.32E-08
460	637620	4268880	5.98E-08
461	637660	4268880	6.91E-08
462	637700	4268880	8.31E-08
463	637740	4268880	1.10E-07
464	637780	4268880	1.67E-07
465	637820	4268880	1.36E-07
466	637860	4268880	9.02E-08
467	637900	4268880	7.39E-08
468	637940	4268880	6.58E-08
469	637980	4268880	6.10E-08
470	638020	4268880	5.80E-08
471	638060	4268880	5.59E-08
472	638100	4268880	5.43E-08
473	638140	4268880	5.31E-08
474	638180	4268880	5.22E-08
475	638220	4268880	5.17E-08
476	638260	4268880	5.16E-08
477	638300	4268880	5.19E-08
478	638340	4268880	5.28E-08
479	638380	4268880	5.44E-08
480	638420	4268880	5.68E-08
481	638460	4268880	6.06E-08
482	638500	4268880	6.82E-08
483	638540	4268880	8.60E-08
484	638580	4268880	1.49E-07
485	638620	4268880	1.37E-07
486	638660	4268880	6.73E-08
487	638700	4268880	4.63E-08
488	638740	4268880	3.63E-08
489	638780	4268880	3.10E-08
490	638820	4268880	2.78E-08
491	638860	4268880	2.55E-08
492	638900	4268880	2.38E-08
493	637300	4268920	3.74E-08
494	637340	4268920	3.86E-08
495	637380	4268920	4.01E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
496	637420	4268920	4.20E-08
497	637460	4268920	4.43E-08
498	637500	4268920	4.73E-08
499	637540	4268920	5.11E-08
500	637580	4268920	5.61E-08
501	637620	4268920	6.29E-08
502	637660	4268920	7.23E-08
503	637700	4268920	8.65E-08
504	637740	4268920	1.14E-07
505	637780	4268920	1.61E-07
506	637820	4268920	1.35E-07
507	637860	4268920	8.94E-08
508	637900	4268920	7.35E-08
509	637940	4268920	6.55E-08
510	637980	4268920	6.05E-08
511	638020	4268920	5.73E-08
512	638060	4268920	5.51E-08
513	638100	4268920	5.34E-08
514	638140	4268920	5.22E-08
515	638180	4268920	5.14E-08
516	638220	4268920	5.09E-08
517	638260	4268920	5.08E-08
518	638300	4268920	5.11E-08
519	638340	4268920	5.19E-08
520	638380	4268920	5.33E-08
521	638420	4268920	5.57E-08
522	638460	4268920	5.96E-08
523	638500	4268920	6.72E-08
524	638540	4268920	8.44E-08
525	638580	4268920	1.48E-07
526	638620	4268920	1.37E-07
527	638660	4268920	6.92E-08
528	638700	4268920	4.84E-08
529	638740	4268920	3.79E-08
530	638780	4268920	3.21E-08
531	638820	4268920	2.86E-08
532	638860	4268920	2.61E-08
533	638900	4268920	2.43E-08
534	637300	4268960	3.93E-08
535	637340	4268960	4.06E-08
536	637380	4268960	4.22E-08
537	637420	4268960	4.42E-08
538	637460	4268960	4.67E-08
539	637500	4268960	4.98E-08
540	637540	4268960	5.39E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
541	637580	4268960	5.92E-08
542	637620	4268960	6.62E-08
543	637660	4268960	7.57E-08
544	637700	4268960	9.02E-08
545	637740	4268960	1.18E-07
546	637780	4268960	1.86E-07
547	637820	4268960	1.32E-07
548	637860	4268960	8.87E-08
549	637900	4268960	7.32E-08
550	637940	4268960	6.52E-08
551	637980	4268960	6.02E-08
552	638020	4268960	5.69E-08
553	638060	4268960	5.45E-08
554	638100	4268960	5.21E-08
555	638140	4268960	5.09E-08
556	638180	4268960	5.03E-08
557	638220	4268960	4.98E-08
558	638260	4268960	4.97E-08
559	638300	4268960	4.96E-08
560	638340	4268960	5.08E-08
561	638380	4268960	5.27E-08
562	638420	4268960	5.53E-08
563	638460	4268960	5.94E-08
564	638500	4268960	6.68E-08
565	638540	4268960	8.23E-08
566	638580	4268960	1.37E-07
567	638620	4268960	1.32E-07
568	638660	4268960	6.99E-08
569	638700	4268960	5.00E-08
570	638740	4268960	3.94E-08
571	638780	4268960	3.31E-08
572	638820	4268960	2.93E-08
573	638860	4268960	2.67E-08
574	638900	4268960	2.48E-08
575	637300	4269000	4.13E-08
576	637340	4269000	4.27E-08
577	637380	4269000	4.45E-08
578	637420	4269000	4.66E-08
579	637460	4269000	4.92E-08
580	637500	4269000	5.26E-08
581	637540	4269000	5.69E-08
582	637580	4269000	6.24E-08
583	637620	4269000	6.97E-08
584	637660	4269000	7.95E-08
585	637700	4269000	9.42E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
586	637740	4269000	1.23E-07
587	637780	4269000	1.77E-07
588	637820	4269000	1.27E-07
589	637860	4269000	8.76E-08
590	637900	4269000	7.28E-08
591	637940	4269000	6.48E-08
592	637980	4269000	5.97E-08
593	638020	4269000	5.62E-08
594	638060	4269000	5.37E-08
595	638100	4269000	5.20E-08
596	638140	4269000	5.06E-08
597	638180	4269000	4.98E-08
598	638220	4269000	4.93E-08
599	638260	4269000	4.92E-08
600	638300	4269000	4.96E-08
601	638340	4269000	5.05E-08
602	638380	4269000	5.21E-08
603	638420	4269000	5.47E-08
604	638460	4269000	5.90E-08
605	638500	4269000	6.68E-08
606	638540	4269000	8.34E-08
607	638580	4269000	1.43E-07
608	638620	4269000	1.34E-07
609	638660	4269000	7.06E-08
610	638700	4269000	5.14E-08
611	638740	4269000	4.08E-08
612	638780	4269000	3.42E-08
613	638820	4269000	3.00E-08
614	638860	4269000	2.73E-08
615	638900	4269000	2.53E-08
616	637300	4269040	4.35E-08
617	637340	4269040	4.50E-08
618	637380	4269040	4.69E-08
619	637420	4269040	4.91E-08
620	637460	4269040	5.19E-08
621	637500	4269040	5.55E-08
622	637540	4269040	6.01E-08
623	637580	4269040	6.60E-08
624	637620	4269040	7.36E-08
625	637660	4269040	8.40E-08
626	637700	4269040	1.00E-07
627	637740	4269040	1.34E-07
628	637780	4269040	1.73E-07
629	637820	4269040	1.19E-07
630	637860	4269040	8.59E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
631	637900	4269040	7.19E-08
632	637940	4269040	6.41E-08
633	637980	4269040	5.90E-08
634	638020	4269040	5.51E-08
635	638060	4269040	5.28E-08
636	638100	4269040	5.10E-08
637	638140	4269040	4.98E-08
638	638180	4269040	4.90E-08
639	638220	4269040	4.84E-08
640	638260	4269040	4.83E-08
641	638300	4269040	4.85E-08
642	638340	4269040	4.92E-08
643	638380	4269040	5.12E-08
644	638420	4269040	5.45E-08
645	638460	4269040	5.89E-08
646	638500	4269040	6.70E-08
647	638540	4269040	8.43E-08
648	638580	4269040	1.45E-07
649	638620	4269040	1.36E-07
650	638660	4269040	7.15E-08
651	638700	4269040	5.23E-08
652	638740	4269040	4.20E-08
653	638780	4269040	3.53E-08
654	638820	4269040	3.09E-08
655	638860	4269040	2.79E-08
656	638900	4269040	2.58E-08
657	637300	4269080	4.59E-08
658	637340	4269080	4.75E-08
659	637380	4269080	4.95E-08
660	637420	4269080	5.19E-08
661	637460	4269080	5.49E-08
662	637500	4269080	5.88E-08
663	637540	4269080	6.38E-08
664	637580	4269080	7.02E-08
665	637620	4269080	7.86E-08
666	637660	4269080	9.04E-08
667	637700	4269080	1.10E-07
668	637740	4269080	1.62E-07
669	637780	4269080	1.85E-07
670	637820	4269080	1.10E-07
671	637860	4269080	8.33E-08
672	637900	4269080	7.06E-08
673	637940	4269080	6.29E-08
674	637980	4269080	5.83E-08
675	638020	4269080	5.51E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
676	638060	4269080	5.28E-08
677	638100	4269080	5.10E-08
678	638140	4269080	4.98E-08
679	638180	4269080	4.89E-08
680	638220	4269080	4.84E-08
681	638260	4269080	4.83E-08
682	638300	4269080	4.85E-08
683	638340	4269080	4.93E-08
684	638380	4269080	5.07E-08
685	638420	4269080	5.43E-08
686	638460	4269080	5.89E-08
687	638500	4269080	6.74E-08
688	638540	4269080	8.54E-08
689	638580	4269080	1.47E-07
690	638620	4269080	1.37E-07
691	638660	4269080	7.20E-08
692	638700	4269080	5.28E-08
693	638740	4269080	4.29E-08
694	638780	4269080	3.63E-08
695	638820	4269080	3.17E-08
696	638860	4269080	2.86E-08
697	638900	4269080	2.63E-08
698	637300	4269120	4.84E-08
699	637340	4269120	5.02E-08
700	637380	4269120	5.23E-08
701	637420	4269120	5.49E-08
702	637460	4269120	5.82E-08
703	637500	4269120	6.26E-08
704	637540	4269120	6.82E-08
705	637580	4269120	7.55E-08
706	637620	4269120	8.57E-08
707	637660	4269120	1.01E-07
708	637700	4269120	1.40E-07
709	637740	4269120	1.83E-07
710	637780	4269120	1.48E-07
711	637820	4269120	9.91E-08
712	637860	4269120	7.97E-08
713	637900	4269120	6.91E-08
714	637940	4269120	6.29E-08
715	637980	4269120	5.90E-08
716	638020	4269120	5.58E-08
717	638060	4269120	5.34E-08
718	638100	4269120	5.17E-08
719	638140	4269120	5.04E-08
720	638180	4269120	4.92E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
721	638220	4269120	4.86E-08
722	638260	4269120	4.85E-08
723	638300	4269120	4.88E-08
724	638340	4269120	4.96E-08
725	638380	4269120	5.12E-08
726	638420	4269120	5.38E-08
727	638460	4269120	5.83E-08
728	638500	4269120	6.73E-08
729	638540	4269120	8.46E-08
730	638580	4269120	1.43E-07
731	638620	4269120	1.34E-07
732	638660	4269120	7.20E-08
733	638700	4269120	5.28E-08
734	638740	4269120	4.34E-08
735	638780	4269120	3.70E-08
736	638820	4269120	3.24E-08
737	638860	4269120	2.91E-08
738	638900	4269120	2.69E-08
739	637300	4269160	5.12E-08
740	637340	4269160	5.31E-08
741	637380	4269160	5.54E-08
742	637420	4269160	5.83E-08
743	637460	4269160	6.21E-08
744	637500	4269160	6.70E-08
745	637540	4269160	7.39E-08
746	637580	4269160	8.31E-08
747	637620	4269160	9.77E-08
748	637660	4269160	1.33E-07
749	637700	4269160	1.66E-07
750	637740	4269160	1.59E-07
751	637780	4269160	1.15E-07
752	637820	4269160	9.09E-08
753	637860	4269160	7.73E-08
754	637900	4269160	6.94E-08
755	637940	4269160	6.39E-08
756	637980	4269160	5.97E-08
757	638020	4269160	5.65E-08
758	638060	4269160	5.41E-08
759	638100	4269160	5.25E-08
760	638140	4269160	5.11E-08
761	638180	4269160	5.01E-08
762	638220	4269160	4.97E-08
763	638260	4269160	4.96E-08
764	638300	4269160	4.93E-08
765	638420	4269160	5.44E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
766	638460	4269160	5.90E-08
767	638500	4269160	6.73E-08
768	638540	4269160	8.49E-08
769	638580	4269160	1.47E-07
770	638620	4269160	1.36E-07
771	638660	4269160	7.23E-08
772	638700	4269160	5.37E-08
773	638740	4269160	4.40E-08
774	638780	4269160	3.77E-08
775	638820	4269160	3.31E-08
776	638860	4269160	2.97E-08
777	638900	4269160	2.73E-08
778	637300	4269200	5.42E-08
779	637340	4269200	5.63E-08
780	637380	4269200	5.88E-08
781	637420	4269200	6.22E-08
782	637460	4269200	6.66E-08
783	637500	4269200	7.27E-08
784	637540	4269200	8.17E-08
785	637580	4269200	9.56E-08
786	637620	4269200	1.28E-07
787	637660	4269200	1.55E-07
788	637700	4269200	1.61E-07
789	637740	4269200	1.20E-07
790	637780	4269200	1.00E-07
791	637820	4269200	8.61E-08
792	637980	4269200	6.00E-08
793	638020	4269200	5.70E-08
794	638060	4269200	5.47E-08
795	638100	4269200	5.29E-08
796	638140	4269200	5.16E-08
797	638180	4269200	5.08E-08
798	638220	4269200	5.03E-08
799	638260	4269200	5.03E-08
800	638300	4269200	5.06E-08
801	638660	4269200	7.34E-08
802	638700	4269200	5.46E-08
803	638740	4269200	4.48E-08
804	638780	4269200	3.85E-08
805	638820	4269200	3.40E-08
806	638860	4269200	3.06E-08
807	638900	4269200	2.79E-08
808	637300	4269240	5.75E-08
809	637340	4269240	5.98E-08
810	637380	4269240	6.28E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
811	637420	4269240	6.67E-08
812	637460	4269240	7.23E-08
813	637500	4269240	8.05E-08
814	637540	4269240	9.42E-08
815	637580	4269240	1.25E-07
816	637620	4269240	1.68E-07
817	637660	4269240	1.62E-07
818	637700	4269240	1.25E-07
819	637740	4269240	1.07E-07
820	637780	4269240	9.32E-08
821	637940	4269240	6.44E-08
822	637980	4269240	6.05E-08
823	638020	4269240	5.75E-08
824	638060	4269240	5.52E-08
825	638100	4269240	5.35E-08
826	638140	4269240	5.22E-08
827	638180	4269240	5.13E-08
828	638220	4269240	5.08E-08
829	638260	4269240	5.07E-08
830	638300	4269240	5.12E-08
831	638340	4269240	5.22E-08
832	638380	4269240	5.41E-08
833	638460	4269240	6.24E-08
834	638500	4269240	7.19E-08
835	638700	4269240	5.60E-08
836	638740	4269240	4.58E-08
837	638780	4269240	3.94E-08
838	638820	4269240	3.49E-08
839	638860	4269240	3.14E-08
840	638900	4269240	2.87E-08
841	637300	4269280	6.12E-08
842	637340	4269280	6.39E-08
843	637380	4269280	6.74E-08
844	637420	4269280	7.23E-08
845	637460	4269280	7.95E-08
846	637500	4269280	9.14E-08
847	637540	4269280	1.20E-07
848	637620	4269280	1.72E-07
849	637660	4269280	1.29E-07
850	637700	4269280	1.11E-07
851	637740	4269280	9.96E-08
852	637980	4269280	6.09E-08
853	638020	4269280	5.80E-08
854	638060	4269280	5.58E-08
855	638100	4269280	5.41E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
856	638140	4269280	5.27E-08
857	638180	4269280	5.18E-08
858	638220	4269280	5.13E-08
859	638260	4269280	5.12E-08
860	638300	4269280	5.16E-08
861	638340	4269280	5.27E-08
862	638380	4269280	5.46E-08
863	638420	4269280	5.78E-08
864	638460	4269280	6.33E-08
865	638500	4269280	7.28E-08
866	638540	4269280	9.24E-08
867	638580	4269280	1.58E-07
868	638620	4269280	1.43E-07
869	638660	4269280	7.72E-08
870	638700	4269280	5.74E-08
871	638740	4269280	4.71E-08
872	638780	4269280	4.06E-08
873	638820	4269280	3.60E-08
874	638860	4269280	3.25E-08
875	638900	4269280	2.96E-08
876	637300	4269320	6.55E-08
877	637340	4269320	6.87E-08
878	637380	4269320	7.30E-08
879	637420	4269320	7.92E-08
880	637460	4269320	8.94E-08
881	637500	4269320	1.11E-07
882	637540	4269320	1.56E-07
883	637580	4269320	1.86E-07
884	637620	4269320	1.34E-07
885	637660	4269320	1.16E-07
886	637700	4269320	1.04E-07
887	637860	4269320	7.40E-08
888	637900	4269320	6.90E-08
889	637940	4269320	6.48E-08
890	637980	4269320	6.14E-08
891	638020	4269320	5.87E-08
892	638060	4269320	5.65E-08
893	638100	4269320	5.48E-08
894	638140	4269320	5.35E-08
895	638180	4269320	5.25E-08
896	638220	4269320	5.19E-08
897	638260	4269320	5.17E-08
898	638300	4269320	5.21E-08
899	638340	4269320	5.32E-08
900	638380	4269320	5.51E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
901	638420	4269320	5.84E-08
902	638460	4269320	6.40E-08
903	638500	4269320	7.38E-08
904	638540	4269320	9.37E-08
905	638580	4269320	1.60E-07
906	638620	4269320	1.45E-07
907	638660	4269320	7.80E-08
908	638700	4269320	5.83E-08
909	638740	4269320	4.81E-08
910	638780	4269320	4.16E-08
911	638820	4269320	3.70E-08
912	638860	4269320	3.33E-08
913	638900	4269320	3.04E-08
914	637300	4269360	7.04E-08
915	637340	4269360	7.43E-08
916	637380	4269360	7.97E-08
917	637420	4269360	8.83E-08
918	637460	4269360	1.05E-07
919	637500	4269360	1.48E-07
920	637540	4269360	2.11E-07
921	637580	4269360	1.47E-07
922	637620	4269360	1.22E-07
923	637660	4269360	1.10E-07
924	637780	4269360	8.52E-08
925	637860	4269360	7.33E-08
926	637900	4269360	6.89E-08
927	637940	4269360	6.52E-08
928	637980	4269360	6.20E-08
929	638020	4269360	5.94E-08
930	638060	4269360	5.73E-08
931	638100	4269360	5.55E-08
932	638140	4269360	5.41E-08
933	638180	4269360	5.31E-08
934	638220	4269360	5.24E-08
935	638260	4269360	5.22E-08
936	638300	4269360	5.26E-08
937	638340	4269360	5.37E-08
938	638380	4269360	5.57E-08
939	638420	4269360	5.91E-08
940	638460	4269360	6.47E-08
941	638500	4269360	7.47E-08
942	638540	4269360	9.48E-08
943	638580	4269360	1.61E-07
944	638620	4269360	1.45E-07
945	638660	4269360	7.89E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
946	638700	4269360	5.92E-08
947	638740	4269360	4.89E-08
948	638780	4269360	4.24E-08
949	638820	4269360	3.77E-08
950	638860	4269360	3.41E-08
951	638900	4269360	3.11E-08
952	637300	4269400	7.59E-08
953	637340	4269400	8.06E-08
954	637380	4269400	8.82E-08
955	637420	4269400	1.01E-07
956	637460	4269400	1.40E-07
957	637500	4269400	1.94E-07
958	637540	4269400	1.62E-07
959	637580	4269400	1.29E-07
960	637620	4269400	1.14E-07
961	637820	4269400	7.78E-08
962	637860	4269400	7.29E-08
963	637900	4269400	6.90E-08
964	637940	4269400	6.57E-08
965	637980	4269400	6.27E-08
966	638020	4269400	6.02E-08
967	638060	4269400	5.80E-08
968	638100	4269400	5.62E-08
969	638140	4269400	5.48E-08
970	638180	4269400	5.37E-08
971	638220	4269400	5.30E-08
972	638260	4269400	5.27E-08
973	638300	4269400	5.31E-08
974	638340	4269400	5.42E-08
975	638380	4269400	5.63E-08
976	638420	4269400	5.97E-08
977	638460	4269400	6.55E-08
978	638500	4269400	7.56E-08
979	638540	4269400	9.58E-08
980	638580	4269400	1.62E-07
981	638620	4269400	1.46E-07
982	638660	4269400	7.97E-08
983	638700	4269400	5.99E-08
984	638740	4269400	4.97E-08
985	638780	4269400	4.31E-08
986	638820	4269400	3.84E-08
987	638860	4269400	3.48E-08
988	638900	4269400	3.18E-08
989	637300	4269440	8.21E-08
990	637340	4269440	8.84E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
991	637380	4269440	9.82E-08
992	637420	4269440	1.19E-07
993	637460	4269440	1.75E-07
994	637500	4269440	1.87E-07
995	637540	4269440	1.41E-07
996	637580	4269440	1.22E-07
997	637740	4269440	8.91E-08
998	637780	4269440	8.28E-08
999	637820	4269440	7.74E-08
1000	637860	4269440	7.31E-08
1001	637900	4269440	6.94E-08
1002	637940	4269440	6.62E-08
1003	638064.1	4269473	5.93E-08
1004	638100	4269440	5.70E-08
1005	638140	4269440	5.55E-08
1006	638180	4269440	5.43E-08
1007	638220	4269440	5.36E-08
1008	638260	4269440	5.33E-08
1009	638300	4269440	5.37E-08
1010	638340	4269440	5.48E-08
1011	638380	4269440	5.69E-08
1012	638420	4269440	6.05E-08
1013	638460	4269440	6.63E-08
1014	638500	4269440	7.65E-08
1015	638540	4269440	9.67E-08
1016	638580	4269440	1.63E-07
1017	638620	4269440	1.47E-07
1018	638660	4269440	8.05E-08
1019	638700	4269440	6.07E-08
1020	638740	4269440	5.04E-08
1021	638780	4269440	4.38E-08
1022	638820	4269440	3.90E-08
1023	638860	4269440	3.54E-08
1024	638900	4269440	3.24E-08
1025	637292.9	4269469	8.63E-08
1026	637340	4269471	9.49E-08
1027	637380	4269471	1.07E-07
1028	637420	4269471	1.39E-07
1029	637460	4269471	2.18E-07
1030	637500	4269471	1.69E-07
1031	637540	4269471	1.34E-07
1032	637580	4269471	1.19E-07
1033	637660	4269480	1.02E-07
1034	637780	4269480	8.25E-08
1035	637886.2	4269472	7.09E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
1036	638100	4269480	5.77E-08
1037	638140	4269480	5.61E-08
1038	638180	4269480	5.49E-08
1039	638220	4269480	5.41E-08
1040	638260	4269480	5.39E-08
1041	638300	4269480	5.43E-08
1042	638340	4269480	5.55E-08
1043	638380	4269480	5.77E-08
1044	638420	4269480	6.13E-08
1045	638460	4269480	6.72E-08
1046	638500	4269480	7.74E-08
1047	638540	4269480	9.77E-08
1048	638580	4269480	1.64E-07
1049	638620	4269480	1.48E-07
1050	638660	4269480	8.13E-08
1051	638700	4269480	6.14E-08
1052	638740	4269480	5.11E-08
1053	638780	4269480	4.45E-08
1054	638820	4269480	3.97E-08
1055	638860	4269480	3.60E-08
1056	638900	4269480	3.30E-08
1057	637580	4269520	1.18E-07
1058	637660	4269520	1.01E-07
1059	638100	4269520	5.84E-08
1060	638140	4269520	5.68E-08
1061	638180	4269520	5.55E-08
1062	638220	4269520	5.48E-08
1063	638260	4269520	5.46E-08
1064	638300	4269520	5.50E-08
1065	638340	4269520	5.62E-08
1066	638380	4269520	5.85E-08
1067	638420	4269520	6.21E-08
1068	638460	4269520	6.81E-08
1069	638500	4269520	7.83E-08
1070	638540	4269520	9.86E-08
1071	638580	4269520	1.65E-07
1072	638620	4269520	1.48E-07
1073	638660	4269520	8.19E-08
1074	638700	4269520	6.21E-08
1075	638740	4269520	5.17E-08
1076	638780	4269520	4.51E-08
1077	638820	4269520	4.03E-08
1078	638860	4269520	3.66E-08
1079	638900	4269520	3.36E-08
1080	638100	4269560	5.91E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
1081	638140	4269560	5.74E-08
1082	638180	4269560	5.62E-08
1083	638220	4269560	5.55E-08
1084	638260	4269560	5.54E-08
1085	638300	4269560	5.59E-08
1086	638340	4269560	5.71E-08
1087	638380	4269560	5.94E-08
1088	638420	4269560	6.31E-08
1089	638460	4269560	6.90E-08
1090	638500	4269560	7.92E-08
1091	638540	4269560	9.95E-08
1092	638580	4269560	1.66E-07
1093	638620	4269560	1.49E-07
1094	638660	4269560	8.27E-08
1095	638700	4269560	6.28E-08
1096	638740	4269560	5.24E-08
1097	638780	4269560	4.58E-08
1098	638820	4269560	4.10E-08
1099	638860	4269560	3.73E-08
1100	638900	4269560	3.43E-08
1101	637620	4269600	1.09E-07
1102	638100	4269600	5.99E-08
1103	638140	4269600	5.82E-08
1104	638180	4269600	5.71E-08
1105	638220	4269600	5.64E-08
1106	638260	4269600	5.63E-08
1107	638300	4269600	5.68E-08
1108	638340	4269600	5.81E-08
1109	638380	4269600	6.03E-08
1110	638420	4269600	6.40E-08
1111	638460	4269600	7.00E-08
1112	638500	4269600	8.01E-08
1113	638540	4269600	1.00E-07
1114	638580	4269600	1.67E-07
1115	638620	4269600	1.50E-07
1116	638660	4269600	8.34E-08
1117	638700	4269600	6.36E-08
1118	638740	4269600	5.32E-08
1119	638780	4269600	4.65E-08
1120	638820	4269600	4.17E-08
1121	638860	4269600	3.79E-08
1122	638900	4269600	3.49E-08
1123	637620	4269640	1.10E-07
1124	638100	4269640	6.07E-08
1125	638140	4269640	5.91E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
1126	638180	4269640	5.80E-08
1127	638220	4269640	5.74E-08
1128	638260	4269640	5.73E-08
1129	638300	4269640	5.78E-08
1130	638340	4269640	5.91E-08
1131	638380	4269640	6.13E-08
1132	638420	4269640	6.50E-08
1133	638460	4269640	7.09E-08
1134	638500	4269640	8.11E-08
1135	638540	4269640	1.01E-07
1136	638580	4269640	1.68E-07
1137	638620	4269640	1.50E-07
1138	638660	4269640	8.42E-08
1139	638700	4269640	6.43E-08
1140	638740	4269640	5.39E-08
1141	638780	4269640	4.72E-08
1142	638820	4269640	4.23E-08
1143	638860	4269640	3.86E-08
1144	638900	4269640	3.55E-08
1145	637580	4269680	1.21E-07
1146	637620	4269680	1.12E-07
1147	638100	4269680	6.17E-08
1148	638140	4269680	6.02E-08
1149	638180	4269680	5.91E-08
1150	638220	4269680	5.85E-08
1151	638260	4269680	5.84E-08
1152	638300	4269680	5.89E-08
1153	638340	4269680	6.01E-08
1154	638380	4269680	6.23E-08
1155	638420	4269680	6.60E-08
1156	638460	4269680	7.19E-08
1157	638500	4269680	8.20E-08
1158	638540	4269680	1.02E-07
1159	638580	4269680	1.69E-07
1160	638620	4269680	1.51E-07
1161	638660	4269680	8.50E-08
1162	638700	4269680	6.51E-08
1163	638740	4269680	5.46E-08
1164	638780	4269680	4.79E-08
1165	638820	4269680	4.30E-08
1166	638860	4269680	3.92E-08
1167	638900	4269680	3.61E-08
1168	637580	4269720	1.24E-07
1169	637620	4269720	1.14E-07
1170	638100	4269720	6.29E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
1171	638140	4269720	6.14E-08
1172	638180	4269720	6.03E-08
1173	638220	4269720	5.97E-08
1174	638260	4269720	5.96E-08
1175	638300	4269720	6.00E-08
1176	638340	4269720	6.12E-08
1177	638380	4269720	6.34E-08
1178	638420	4269720	6.70E-08
1179	638460	4269720	7.29E-08
1180	638500	4269720	8.30E-08
1181	638540	4269720	1.03E-07
1182	638580	4269720	1.70E-07
1183	638620	4269720	1.52E-07
1184	638660	4269720	8.58E-08
1185	638700	4269720	6.59E-08
1186	638740	4269720	5.54E-08
1187	638780	4269720	4.86E-08
1188	638820	4269720	4.36E-08
1189	638860	4269720	3.97E-08
1190	638900	4269720	3.66E-08
1191	637500	4269760	1.53E-07
1192	637580	4269760	1.27E-07
1193	637620	4269760	1.18E-07
1194	638100	4269760	6.42E-08
1195	638140	4269760	6.26E-08
1196	638180	4269760	6.15E-08
1197	638220	4269760	6.09E-08
1198	638260	4269760	6.07E-08
1199	638300	4269760	6.12E-08
1200	638340	4269760	6.24E-08
1201	638380	4269760	6.45E-08
1202	638420	4269760	6.81E-08
1203	638460	4269760	7.40E-08
1204	638500	4269760	8.40E-08
1205	638540	4269760	1.04E-07
1206	638580	4269760	1.72E-07
1207	638620	4269760	1.53E-07
1208	638660	4269760	8.66E-08
1209	638700	4269760	6.66E-08
1210	638740	4269760	5.60E-08
1211	638780	4269760	4.91E-08
1212	638820	4269760	4.41E-08
1213	638860	4269760	4.02E-08
1214	638900	4269760	3.69E-08
1215	637460	4269800	1.75E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
1216	637580	4269800	1.32E-07
1217	637620	4269800	1.21E-07
1218	638100	4269800	6.53E-08
1219	638140	4269800	6.38E-08
1220	638180	4269800	6.26E-08
1221	638220	4269800	6.20E-08
1222	638260	4269800	6.19E-08
1223	638300	4269800	6.24E-08
1224	638340	4269800	6.35E-08
1225	638380	4269800	6.57E-08
1226	638420	4269800	6.92E-08
1227	638460	4269800	7.50E-08
1228	638500	4269800	8.50E-08
1229	638540	4269800	1.05E-07
1230	638580	4269800	1.72E-07
1231	638620	4269800	1.53E-07
1232	638660	4269800	8.72E-08
1233	638700	4269800	6.72E-08
1234	638740	4269800	5.65E-08
1235	638780	4269800	4.95E-08
1236	638820	4269800	4.43E-08
1237	638860	4269800	4.04E-08
1238	638900	4269800	3.72E-08
1239	637540	4269840	1.50E-07
1240	637580	4269840	1.37E-07
1241	637620	4269840	1.26E-07
1242	638100	4269840	6.68E-08
1243	638140	4269840	6.52E-08
1244	638180	4269840	6.40E-08
1245	638220	4269840	6.33E-08
1246	638260	4269840	6.31E-08
1247	638300	4269840	6.34E-08
1248	638340	4269840	6.45E-08
1249	638380	4269840	6.66E-08
1250	638420	4269840	7.01E-08
1251	638460	4269840	7.58E-08
1252	638500	4269840	8.58E-08
1253	638540	4269840	1.06E-07
1254	638580	4269840	1.73E-07
1255	638620	4269840	1.53E-07
1256	638660	4269840	8.76E-08
1257	638700	4269840	6.75E-08
1258	638740	4269840	5.68E-08
1259	638780	4269840	4.97E-08
1260	638820	4269840	4.45E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
1261	638860	4269840	4.05E-08
1262	638900	4269840	3.73E-08
1263	637300	4269880	3.07E-07
1264	637540	4269880	1.57E-07
1265	637580	4269880	1.42E-07
1266	637620	4269880	1.30E-07
1267	638100	4269880	6.82E-08
1268	638140	4269880	6.65E-08
1269	638180	4269880	6.53E-08
1270	638220	4269880	6.45E-08
1271	638260	4269880	6.43E-08
1272	638300	4269880	6.46E-08
1273	638340	4269880	6.56E-08
1274	638380	4269880	6.76E-08
1275	638420	4269880	7.10E-08
1276	638460	4269880	7.66E-08
1277	638500	4269880	8.65E-08
1278	638540	4269880	1.06E-07
1279	638580	4269880	1.74E-07
1280	638620	4269880	1.54E-07
1281	638660	4269880	8.80E-08
1282	638700	4269880	6.78E-08
1283	638740	4269880	5.70E-08
1284	638780	4269880	4.98E-08
1285	638820	4269880	4.46E-08
1286	638860	4269880	4.06E-08
1287	638900	4269880	3.74E-08
1288	637300	4269920	3.64E-07
1289	637540	4269920	1.64E-07
1290	637580	4269920	1.48E-07
1291	637620	4269920	1.36E-07
1292	638060	4269920	7.20E-08
1293	638100	4269920	6.97E-08
1294	638140	4269920	6.79E-08
1295	638180	4269920	6.65E-08
1296	638220	4269920	6.56E-08
1297	638260	4269920	6.52E-08
1298	638300	4269920	6.54E-08
1299	638340	4269920	6.64E-08
1300	638380	4269920	6.83E-08
1301	638420	4269920	7.17E-08
1302	638460	4269920	7.72E-08
1303	638500	4269920	8.70E-08
1304	638540	4269920	1.07E-07
1305	638580	4269920	1.74E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
1306	638620	4269920	1.54E-07
1307	638660	4269920	8.82E-08
1308	638700	4269920	6.79E-08
1309	638740	4269920	5.69E-08
1310	638780	4269920	4.97E-08
1311	638820	4269920	4.45E-08
1312	638860	4269920	4.05E-08
1313	638900	4269920	3.74E-08
1314	637300	4269960	4.18E-07
1315	637420	4269960	2.81E-07
1316	637540	4269960	1.73E-07
1317	637580	4269960	1.55E-07
1318	637620	4269960	1.42E-07
1319	636960	4269500	6.58E-08
1320	637000	4269500	6.88E-08
1321	637040	4269500	7.18E-08
1322	637080	4269500	7.48E-08
1323	637120	4269500	7.76E-08
1324	637160	4269500	8.00E-08
1325	637200	4269500	8.24E-08
1326	637240	4269500	8.57E-08
1327	637280	4269500	9.02E-08
1328	637320	4269500	9.72E-08
1329	637360	4269500	1.08E-07
1330	637400	4269500	1.33E-07
1331	637440	4269500	2.06E-07
1332	637480	4269500	1.86E-07
1333	637520	4269500	1.39E-07
1334	637560	4269500	1.23E-07
1335	637720	4269500	9.11E-08
1336	637760	4269500	8.52E-08
1337	637800	4269500	8.00E-08
1338	637840	4269500	7.55E-08
1339	637920	4269500	6.86E-08
1340	637960	4269500	6.59E-08
1341	638000	4269500	6.34E-08
1342	638040	4269500	6.11E-08
1343	636960	4269540	7.05E-08
1344	637000	4269540	7.41E-08
1345	637040	4269540	7.75E-08
1346	637080	4269540	8.08E-08
1347	637120	4269540	8.36E-08
1348	637160	4269540	8.61E-08
1349	637200	4269540	8.89E-08
1350	637240	4269540	9.27E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
1351	637280	4269540	9.87E-08
1352	637320	4269540	1.07E-07
1353	637360	4269540	1.22E-07
1354	637400	4269540	1.56E-07
1355	637440	4269540	2.22E-07
1356	637480	4269540	1.68E-07
1357	637520	4269540	1.35E-07
1358	637560	4269540	1.21E-07
1359	637640	4269540	1.05E-07
1360	637680	4269540	9.73E-08
1361	637720	4269540	9.11E-08
1362	637760	4269540	8.54E-08
1363	637800	4269540	8.04E-08
1364	637840	4269540	7.61E-08
1365	637920	4269540	6.95E-08
1366	637960	4269540	6.67E-08
1367	638000	4269540	6.42E-08
1368	638040	4269540	6.18E-08
1369	636960	4269580	7.57E-08
1370	637000	4269580	8.00E-08
1371	637040	4269580	8.39E-08
1372	637080	4269580	8.75E-08
1373	637120	4269580	9.05E-08
1374	637160	4269580	9.30E-08
1375	637200	4269580	9.62E-08
1376	637240	4269580	1.01E-07
1377	637280	4269580	1.08E-07
1378	637320	4269580	1.18E-07
1379	637360	4269580	1.37E-07
1380	637400	4269580	1.87E-07
1381	637440	4269580	2.42E-07
1382	637480	4269580	1.59E-07
1383	637520	4269580	1.34E-07
1384	637640	4269580	1.05E-07
1385	637680	4269580	9.77E-08
1386	637720	4269580	9.15E-08
1387	637760	4269580	8.61E-08
1388	637800	4269580	8.12E-08
1389	637840	4269580	7.70E-08
1390	637920	4269580	7.04E-08
1391	637960	4269580	6.76E-08
1392	638000	4269580	6.50E-08
1393	638040	4269580	6.26E-08
1394	636800	4269620	6.18E-08
1395	636840	4269620	6.54E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
1396	636880	4269620	6.97E-08
1397	636920	4269620	7.53E-08
1398	636960	4269620	8.11E-08
1399	637000	4269620	8.66E-08
1400	637040	4269620	9.12E-08
1401	637080	4269620	9.52E-08
1402	637120	4269620	9.82E-08
1403	637160	4269620	1.01E-07
1404	637200	4269620	1.05E-07
1405	637240	4269620	1.11E-07
1406	637280	4269620	1.19E-07
1407	637320	4269620	1.32E-07
1408	637360	4269620	1.55E-07
1409	637400	4269620	2.06E-07
1410	637440	4269620	2.19E-07
1411	637480	4269620	1.56E-07
1412	637520	4269620	1.35E-07
1413	637640	4269620	1.05E-07
1414	637680	4269620	9.85E-08
1415	637720	4269620	9.25E-08
1416	637760	4269620	8.71E-08
1417	637800	4269620	8.23E-08
1418	637840	4269620	7.81E-08
1419	637920	4269620	7.14E-08
1420	637960	4269620	6.85E-08
1421	638000	4269620	6.58E-08
1422	638040	4269620	6.34E-08
1423	636800	4269660	6.67E-08
1424	636840	4269660	7.01E-08
1425	636880	4269660	7.45E-08
1426	636920	4269660	8.04E-08
1427	636960	4269660	8.73E-08
1428	637000	4269660	9.37E-08
1429	637040	4269660	9.93E-08
1430	637080	4269660	1.04E-07
1431	637120	4269660	1.07E-07
1432	637160	4269660	1.10E-07
1433	637200	4269660	1.15E-07
1434	637240	4269660	1.22E-07
1435	637280	4269660	1.32E-07
1436	637320	4269660	1.47E-07
1437	637360	4269660	1.78E-07
1438	637440	4269660	1.93E-07
1439	637480	4269660	1.55E-07
1440	637520	4269660	1.38E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
1441	637640	4269660	1.07E-07
1442	637680	4269660	9.99E-08
1443	637720	4269660	9.38E-08
1444	637760	4269660	8.84E-08
1445	637800	4269660	8.36E-08
1446	637840	4269660	7.94E-08
1447	637920	4269660	7.25E-08
1448	637960	4269660	6.95E-08
1449	638000	4269660	6.68E-08
1450	638040	4269660	6.43E-08
1451	636800	4269700	7.26E-08
1452	636840	4269700	7.60E-08
1453	636880	4269700	8.03E-08
1454	636920	4269700	8.64E-08
1455	636960	4269700	9.41E-08
1456	637000	4269700	1.02E-07
1457	637040	4269700	1.08E-07
1458	637080	4269700	1.14E-07
1459	637120	4269700	1.18E-07
1460	637160	4269700	1.21E-07
1461	637200	4269700	1.26E-07
1462	637240	4269700	1.35E-07
1463	637280	4269700	1.47E-07
1464	637320	4269700	1.66E-07
1465	637360	4269700	2.15E-07
1466	637400	4269700	2.66E-07
1467	637440	4269700	1.87E-07
1468	637480	4269700	1.57E-07
1469	637520	4269700	1.41E-07
1470	637560	4269700	1.28E-07
1471	637640	4269700	1.09E-07
1472	637680	4269700	1.02E-07
1473	637720	4269700	9.57E-08
1474	637760	4269700	9.01E-08
1475	637800	4269700	8.52E-08
1476	637840	4269700	8.09E-08
1477	637920	4269700	7.37E-08
1478	637960	4269700	7.06E-08
1479	638000	4269700	6.78E-08
1480	638040	4269700	6.53E-08
1481	636640	4269740	6.00E-08
1482	636680	4269740	6.49E-08
1483	636720	4269740	7.02E-08
1484	636760	4269740	7.52E-08
1485	636800	4269740	7.98E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
1486	636840	4269740	8.34E-08
1487	636880	4269740	8.77E-08
1488	636920	4269740	9.39E-08
1489	636960	4269740	1.02E-07
1490	637000	4269740	1.11E-07
1491	637040	4269740	1.19E-07
1492	637080	4269740	1.25E-07
1493	637120	4269740	1.30E-07
1494	637160	4269740	1.34E-07
1495	637200	4269740	1.41E-07
1496	637240	4269740	1.51E-07
1497	637280	4269740	1.66E-07
1498	637320	4269740	1.91E-07
1499	637360	4269740	2.53E-07
1500	637400	4269740	2.40E-07
1501	637440	4269740	1.86E-07
1502	637480	4269740	1.60E-07
1503	637560	4269740	1.31E-07
1504	637640	4269740	1.12E-07
1505	637680	4269740	1.04E-07
1506	637720	4269740	9.78E-08
1507	637760	4269740	9.21E-08
1508	637800	4269740	8.70E-08
1509	637840	4269740	8.25E-08
1510	637920	4269740	7.51E-08
1511	637960	4269740	7.19E-08
1512	638000	4269740	6.91E-08
1513	638040	4269740	6.66E-08
1514	636640	4269780	6.30E-08
1515	636680	4269780	6.81E-08
1516	636720	4269780	7.43E-08
1517	636760	4269780	8.10E-08
1518	636800	4269780	8.77E-08
1519	636840	4269780	9.26E-08
1520	636880	4269780	9.72E-08
1521	636920	4269780	1.04E-07
1522	636960	4269780	1.12E-07
1523	637000	4269780	1.22E-07
1524	637040	4269780	1.31E-07
1525	637080	4269780	1.39E-07
1526	637120	4269780	1.45E-07
1527	637160	4269780	1.49E-07
1528	637200	4269780	1.58E-07
1529	637240	4269780	1.71E-07
1530	637280	4269780	1.89E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
1531	637320	4269780	2.24E-07
1532	637360	4269780	2.90E-07
1533	637400	4269780	2.29E-07
1534	637440	4269780	1.88E-07
1535	637640	4269780	1.15E-07
1536	637680	4269780	1.07E-07
1537	637720	4269780	1.00E-07
1538	637760	4269780	9.43E-08
1539	637800	4269780	8.90E-08
1540	637840	4269780	8.43E-08
1541	637920	4269780	7.64E-08
1542	637960	4269780	7.32E-08
1543	638000	4269780	7.03E-08
1544	638040	4269780	6.78E-08
1545	636640	4269820	6.67E-08
1546	636680	4269820	7.18E-08
1547	636720	4269820	7.88E-08
1548	636760	4269820	8.68E-08
1549	636800	4269820	9.54E-08
1550	636840	4269820	1.03E-07
1551	636880	4269820	1.10E-07
1552	636920	4269820	1.17E-07
1553	636960	4269820	1.25E-07
1554	637000	4269820	1.35E-07
1555	637040	4269820	1.46E-07
1556	637080	4269820	1.56E-07
1557	637120	4269820	1.63E-07
1558	637160	4269820	1.68E-07
1559	637200	4269820	1.80E-07
1560	637240	4269820	1.96E-07
1561	637280	4269820	2.18E-07
1562	637320	4269820	2.71E-07
1563	637400	4269820	2.23E-07
1564	637440	4269820	1.93E-07
1565	637640	4269820	1.19E-07
1566	637680	4269820	1.10E-07
1567	637720	4269820	1.03E-07
1568	637760	4269820	9.63E-08
1569	637800	4269820	9.09E-08
1570	637840	4269820	8.61E-08
1571	637920	4269820	7.82E-08
1572	637960	4269820	7.48E-08
1573	638000	4269820	7.19E-08
1574	638040	4269820	6.92E-08
1575	636640	4269860	7.16E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
1576	636680	4269860	7.68E-08
1577	636720	4269860	8.42E-08
1578	636760	4269860	9.35E-08
1579	636800	4269860	1.04E-07
1580	636840	4269860	1.15E-07
1581	636880	4269860	1.25E-07
1582	636920	4269860	1.34E-07
1583	636960	4269860	1.41E-07
1584	637000	4269860	1.51E-07
1585	637040	4269860	1.64E-07
1586	637080	4269860	1.77E-07
1587	637120	4269860	1.87E-07
1588	637160	4269860	1.93E-07
1589	637200	4269860	2.08E-07
1590	637240	4269860	2.28E-07
1591	637280	4269860	2.55E-07
1592	637320	4269860	2.98E-07
1593	637440	4269860	2.05E-07
1594	637640	4269860	1.23E-07
1595	637680	4269860	1.13E-07
1596	637720	4269860	1.05E-07
1597	637760	4269860	9.89E-08
1598	637800	4269860	9.33E-08
1599	637840	4269860	8.83E-08
1600	637920	4269860	8.02E-08
1601	637960	4269860	7.66E-08
1602	638000	4269860	7.35E-08
1603	638040	4269860	7.08E-08
1604	636400	4269900	5.13E-08
1605	636440	4269900	5.44E-08
1606	636480	4269900	5.80E-08
1607	636520	4269900	6.21E-08
1608	636560	4269900	6.70E-08
1609	636600	4269900	7.24E-08
1610	636640	4269900	7.75E-08
1611	636680	4269900	8.34E-08
1612	636720	4269900	9.13E-08
1613	636760	4269900	1.02E-07
1614	636800	4269900	1.14E-07
1615	636840	4269900	1.29E-07
1616	636880	4269900	1.45E-07
1617	636920	4269900	1.56E-07
1618	636960	4269900	1.63E-07
1619	637000	4269900	1.72E-07
1620	637040	4269900	1.87E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
1621	637080	4269900	2.04E-07
1622	637120	4269900	2.17E-07
1623	637160	4269900	2.27E-07
1624	637200	4269900	2.47E-07
1625	637240	4269900	2.69E-07
1626	637280	4269900	2.97E-07
1627	637400	4269900	2.58E-07
1628	637440	4269900	2.21E-07
1629	637520	4269900	1.69E-07
1630	637640	4269900	1.27E-07
1631	637680	4269900	1.17E-07
1632	637720	4269900	1.09E-07
1633	637760	4269900	1.02E-07
1634	637800	4269900	9.61E-08
1635	637840	4269900	9.09E-08
1636	637920	4269900	8.22E-08
1637	637960	4269900	7.85E-08
1638	638000	4269900	7.53E-08
1639	638040	4269900	7.25E-08
1640	636400	4269940	5.38E-08
1641	636440	4269940	5.75E-08
1642	636480	4269940	6.15E-08
1643	636520	4269940	6.59E-08
1644	636560	4269940	7.10E-08
1645	636600	4269940	7.72E-08
1646	636640	4269940	8.43E-08
1647	636680	4269940	9.18E-08
1648	636720	4269940	1.01E-07
1649	636760	4269940	1.13E-07
1650	636800	4269940	1.29E-07
1651	636840	4269940	1.50E-07
1652	636880	4269940	1.73E-07
1653	636920	4269940	1.85E-07
1654	636960	4269940	1.94E-07
1655	637000	4269940	2.03E-07
1656	637040	4269940	2.18E-07
1657	637080	4269940	2.39E-07
1658	637120	4269940	2.60E-07
1659	637160	4269940	2.77E-07
1660	637200	4269940	3.02E-07
1661	637240	4269940	3.22E-07
1662	637280	4269940	3.57E-07
1663	637400	4269940	2.67E-07
1664	637520	4269940	1.78E-07
1665	637640	4269940	1.32E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
1666	637680	4269940	1.21E-07
1667	637720	4269940	1.13E-07
1668	637760	4269940	1.06E-07
1669	637800	4269940	9.92E-08
1670	637840	4269940	9.37E-08
1671	637920	4269940	8.44E-08
1672	637960	4269940	8.05E-08
1673	638000	4269940	7.71E-08
1674	638040	4269940	7.41E-08
1675	636400	4269980	5.67E-08
1676	636440	4269980	6.07E-08
1677	636480	4269980	6.54E-08
1678	636520	4269980	7.06E-08
1679	636560	4269980	7.63E-08
1680	636600	4269980	8.28E-08
1681	636640	4269980	9.11E-08
1682	636680	4269980	1.02E-07
1683	636720	4269980	1.14E-07
1684	636760	4269980	1.30E-07
1685	636800	4269980	1.54E-07
1686	636840	4269980	1.91E-07
1687	636880	4269980	2.17E-07
1688	636920	4269980	2.37E-07
1689	636960	4269980	2.42E-07
1690	637000	4269980	2.50E-07
1691	637040	4269980	2.64E-07
1692	637080	4269980	2.88E-07
1693	637120	4269980	3.23E-07
1694	637160	4269980	3.55E-07
1695	637200	4269980	3.80E-07
1696	637240	4269980	3.87E-07
1697	637280	4269980	4.15E-07
1698	637400	4269980	2.99E-07
1699	637520	4269980	1.89E-07
1700	637560	4269980	1.68E-07
1701	637600	4269980	1.52E-07
1702	637640	4269980	1.37E-07
1703	637680	4269980	1.26E-07
1704	637720	4269980	1.17E-07
1705	637760	4269980	1.09E-07
1706	637800	4269980	1.03E-07
1707	637840	4269980	9.66E-08
1708	637880	4269980	9.13E-08
1709	637920	4269980	8.66E-08
1710	637960	4269980	8.24E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
1711	638000	4269980	7.87E-08
1712	638040	4269980	7.55E-08
1713	638080	4269980	7.27E-08
1714	638120	4269980	7.03E-08
1715	638160	4269980	6.84E-08
1716	638200	4269980	6.71E-08
1717	638240	4269980	6.63E-08
1718	638280	4269980	6.61E-08
1719	638320	4269980	6.66E-08
1720	636400	4270020	6.13E-08
1721	636440	4270020	6.52E-08
1722	636480	4270020	7.01E-08
1723	636520	4270020	7.60E-08
1724	636560	4270020	8.28E-08
1725	636600	4270020	9.04E-08
1726	636640	4270020	9.92E-08
1727	636680	4270020	1.12E-07
1728	636720	4270020	1.29E-07
1729	636760	4270020	1.53E-07
1730	636800	4270020	2.01E-07
1731	636840	4270020	2.69E-07
1732	636880	4270020	3.46E-07
1733	636920	4270020	3.24E-07
1734	636960	4270020	2.74E-07
1735	637000	4270020	3.00E-07
1736	637040	4270020	3.14E-07
1737	637080	4270020	3.74E-07
1738	637120	4270020	4.35E-07
1739	637160	4270020	5.11E-07
1740	637200	4270020	4.89E-07
1741	637240	4270020	4.66E-07
1742	637280	4270020	4.94E-07
1743	637400	4270020	3.28E-07
1744	637520	4270020	2.01E-07
1745	637560	4270020	1.78E-07
1746	637600	4270020	1.58E-07
1747	637640	4270020	1.44E-07
1748	637680	4270020	1.32E-07
1749	637720	4270020	1.22E-07
1750	637760	4270020	1.14E-07
1751	637800	4270020	1.06E-07
1752	637840	4270020	9.94E-08
1753	637880	4270020	9.35E-08
1754	637920	4270020	8.84E-08
1755	637960	4270020	8.39E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
1756	638000	4270020	7.99E-08
1757	638040	4270020	7.64E-08
1758	638080	4270020	7.33E-08
1759	638120	4270020	7.07E-08
1760	638160	4270020	6.87E-08
1761	638200	4270020	6.73E-08
1762	638240	4270020	6.65E-08
1763	638280	4270020	6.63E-08
1764	638320	4270020	6.69E-08
1765	636400	4270060	6.79E-08
1766	636440	4270060	7.22E-08
1767	636480	4270060	7.75E-08
1768	636520	4270060	8.37E-08
1769	636560	4270060	9.11E-08
1770	636600	4270060	1.00E-07
1771	636640	4270060	1.11E-07
1772	636680	4270060	1.26E-07
1773	636720	4270060	1.49E-07
1774	636760	4270060	1.86E-07
1775	636800	4270060	2.71E-07
1776	636840	4270060	3.73E-07
1777	636880	4270060	3.62E-07
1778	636920	4270060	3.74E-07
1779	636960	4270060	3.99E-07
1780	637000	4270060	4.35E-07
1781	637040	4270060	4.78E-07
1782	637080	4270060	5.56E-07
1783	637120	4270060	6.13E-07
1784	637160	4270060	7.43E-07
1785	637200	4270060	6.28E-07
1786	637400	4270060	3.73E-07
1787	637520	4270060	2.16E-07
1788	637560	4270060	1.89E-07
1789	637600	4270060	1.67E-07
1790	637640	4270060	1.51E-07
1791	637680	4270060	1.38E-07
1792	637720	4270060	1.27E-07
1793	637760	4270060	1.18E-07
1794	637800	4270060	1.09E-07
1795	637840	4270060	1.02E-07
1796	637880	4270060	9.52E-08
1797	637920	4270060	8.96E-08
1798	637960	4270060	8.47E-08
1799	638000	4270060	8.05E-08
1800	638040	4270060	7.67E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
1801	638080	4270060	7.35E-08
1802	638120	4270060	7.08E-08
1803	638160	4270060	6.88E-08
1804	638200	4270060	6.74E-08
1805	638240	4270060	6.67E-08
1806	638280	4270060	6.66E-08
1807	638320	4270060	6.72E-08
1808	636400	4270100	7.52E-08
1809	636440	4270100	8.08E-08
1810	636480	4270100	8.75E-08
1811	636520	4270100	9.54E-08
1812	636560	4270100	1.05E-07
1813	636600	4270100	1.15E-07
1814	636640	4270100	1.29E-07
1815	636680	4270100	1.48E-07
1816	636720	4270100	1.77E-07
1817	636760	4270100	2.31E-07
1818	636800	4270100	3.78E-07
1819	636840	4270100	4.95E-07
1820	636880	4270100	4.43E-07
1821	636920	4270100	4.35E-07
1822	636960	4270100	4.47E-07
1823	637000	4270100	4.78E-07
1824	637040	4270100	5.43E-07
1825	637080	4270100	6.67E-07
1826	637120	4270100	1.35E-06
1827	637160	4270100	1.85E-06
1828	637200	4270100	8.81E-07
1829	637240	4270100	7.82E-07
1830	637280	4270100	6.97E-07
1831	637360	4270100	4.62E-07
1832	637400	4270100	4.29E-07
1833	637560	4270100	2.03E-07
1834	637600	4270100	1.79E-07
1835	637640	4270100	1.60E-07
1836	637680	4270100	1.45E-07
1837	637720	4270100	1.32E-07
1838	637760	4270100	1.21E-07
1839	637800	4270100	1.11E-07
1840	637840	4270100	1.03E-07
1841	637880	4270100	9.61E-08
1842	637920	4270100	9.01E-08
1843	637960	4270100	8.49E-08
1844	638000	4270100	8.06E-08
1845	638040	4270100	7.67E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
1846	638080	4270100	7.34E-08
1847	638120	4270100	7.08E-08
1848	638160	4270100	6.89E-08
1849	638200	4270100	6.76E-08
1850	638240	4270100	6.70E-08
1851	638280	4270100	6.70E-08
1852	638320	4270100	6.78E-08
1853	636400	4270140	8.23E-08
1854	636440	4270140	8.95E-08
1855	636480	4270140	9.80E-08
1856	636520	4270140	1.09E-07
1857	636560	4270140	1.21E-07
1858	636600	4270140	1.37E-07
1859	636640	4270140	1.57E-07
1860	636680	4270140	1.84E-07
1861	636720	4270140	2.24E-07
1862	636760	4270140	3.01E-07
1863	636800	4270140	4.30E-07
1864	636840	4270140	8.75E-07
1865	636880	4270140	6.84E-07
1866	636920	4270140	6.00E-07
1867	636960	4270140	5.70E-07
1868	637000	4270140	6.02E-07
1869	637040	4270140	6.95E-07
1870	637080	4270140	9.76E-07
1871	637120	4270140	1.89E-06
1872	637160	4270140	1.91E-06
1873	637200	4270140	1.11E-06
1874	637240	4270140	9.23E-07
1875	637280	4270140	8.24E-07
1876	637360	4270140	5.89E-07
1877	637400	4270140	5.23E-07
1878	637480	4270140	3.02E-07
1879	637520	4270140	2.51E-07
1880	637560	4270140	2.36E-07
1881	637600	4270140	1.97E-07
1882	637640	4270140	1.71E-07
1883	637680	4270140	1.51E-07
1884	637720	4270140	1.35E-07
1885	637760	4270140	1.23E-07
1886	637800	4270140	1.12E-07
1887	637840	4270140	1.04E-07
1888	637880	4270140	9.63E-08
1889	637920	4270140	9.01E-08
1890	637960	4270140	8.53E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
1891	638000	4270140	8.09E-08
1892	638040	4270140	7.68E-08
1893	638080	4270140	7.36E-08
1894	638120	4270140	7.11E-08
1895	638160	4270140	6.92E-08
1896	638200	4270140	6.81E-08
1897	638240	4270140	6.77E-08
1898	638280	4270140	6.79E-08
1899	638320	4270140	6.87E-08
1900	638360	4270140	7.03E-08
1901	636400	4270180	8.91E-08
1902	636440	4270180	9.80E-08
1903	636480	4270180	1.08E-07
1904	636520	4270180	1.22E-07
1905	636560	4270180	1.38E-07
1906	636600	4270180	1.59E-07
1907	636640	4270180	1.88E-07
1908	636680	4270180	2.30E-07
1909	636720	4270180	3.02E-07
1910	636760	4270180	4.75E-07
1911	636800	4270180	1.13E-06
1912	636840	4270180	2.15E-06
1913	636880	4270180	8.13E-07
1914	636920	4270180	9.34E-07
1915	636960	4270180	9.64E-07
1916	637000	4270180	8.96E-07
1917	637040	4270180	9.52E-07
1918	637080	4270180	1.39E-06
1919	637120	4270180	2.55E-06
1920	637160	4270180	2.43E-06
1921	637200	4270180	1.61E-06
1922	637240	4270180	1.26E-06
1923	637360	4270180	6.04E-07
1924	637400	4270180	4.80E-07
1925	637520	4270180	3.32E-07
1926	637560	4270180	2.76E-07
1927	637600	4270180	2.10E-07
1928	637640	4270180	1.94E-07
1929	637680	4270180	1.60E-07
1930	637720	4270180	1.39E-07
1931	637760	4270180	1.25E-07
1932	637800	4270180	1.14E-07
1933	637840	4270180	1.05E-07
1934	637880	4270180	9.72E-08
1935	637920	4270180	9.09E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
1936	637960	4270180	8.56E-08
1937	638000	4270180	8.12E-08
1938	638040	4270180	7.72E-08
1939	638080	4270180	7.41E-08
1940	638120	4270180	7.16E-08
1941	638160	4270180	6.99E-08
1942	638200	4270180	6.90E-08
1943	638240	4270180	6.87E-08
1944	638280	4270180	6.90E-08
1945	638320	4270180	6.99E-08
1946	638360	4270180	7.15E-08
1947	636400	4270220	9.54E-08
1948	636440	4270220	1.06E-07
1949	636480	4270220	1.19E-07
1950	636520	4270220	1.35E-07
1951	636560	4270220	1.57E-07
1952	636600	4270220	1.86E-07
1953	636640	4270220	2.29E-07
1954	636680	4270220	3.00E-07
1955	636720	4270220	4.00E-07
1956	636760	4270220	6.45E-07
1957	636800	4270220	9.48E-07
1958	636840	4270220	1.37E-06
1959	636880	4270220	1.74E-06
1960	636920	4270220	2.13E-06
1961	636960	4270220	1.68E-06
1962	637000	4270220	1.12E-06
1963	637040	4270220	1.59E-06
1964	637080	4270220	2.27E-06
1965	637120	4270220	6.09E-06
1966	637160	4270220	2.66E-06
1967	637200	4270220	2.07E-06
1968	637240	4270220	2.31E-06
1969	637360	4270220	6.12E-07
1970	637400	4270220	4.81E-07
1971	637480	4270220	3.38E-07
1972	637520	4270220	2.96E-07
1973	637560	4270220	2.77E-07
1974	637600	4270220	2.74E-07
1975	637640	4270220	2.07E-07
1976	637680	4270220	1.86E-07
1977	637720	4270220	1.48E-07
1978	637760	4270220	1.29E-07
1979	637800	4270220	1.16E-07
1980	637840	4270220	1.06E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
1981	637880	4270220	9.80E-08
1982	637920	4270220	9.15E-08
1983	637960	4270220	8.63E-08
1984	638000	4270220	8.15E-08
1985	638040	4270220	7.78E-08
1986	638080	4270220	7.47E-08
1987	638120	4270220	7.23E-08
1988	638160	4270220	7.08E-08
1989	638200	4270220	6.99E-08
1990	638240	4270220	6.98E-08
1991	638280	4270220	7.03E-08
1992	638320	4270220	7.12E-08
1993	638360	4270220	7.28E-08
1994	636400	4270260	1.02E-07
1995	636440	4270260	1.14E-07
1996	636480	4270260	1.30E-07
1997	636520	4270260	1.51E-07
1998	636560	4270260	1.81E-07
1999	636600	4270260	2.25E-07
2000	636640	4270260	3.03E-07
2001	636680	4270260	3.63E-07
2002	636720	4270260	5.34E-07
2003	636760	4270260	6.34E-07
2004	636800	4270260	8.31E-07
2005	636840	4270260	1.08E-06
2006	636880	4270260	1.33E-06
2007	636920	4270260	1.55E-06
2008	636960	4270260	1.83E-06
2009	637000	4270260	2.25E-06
2010	637040	4270260	3.06E-06
2011	637080	4270260	2.98E-06
2012	637120	4270260	4.58E-06
2013	637160	4270260	4.79E-06
2014	637200	4270260	5.27E-06
2015	637240	4270260	6.05E-06
2016	637360	4270260	6.02E-07
2017	637400	4270260	4.81E-07
2018	637520	4270260	2.78E-07
2019	637560	4270260	2.55E-07
2020	637600	4270260	2.44E-07
2021	637640	4270260	2.58E-07
2022	637680	4270260	1.85E-07
2023	637720	4270260	1.67E-07
2024	637760	4270260	1.36E-07
2025	637800	4270260	1.20E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
2026	637840	4270260	1.08E-07
2027	637880	4270260	9.91E-08
2028	637920	4270260	9.23E-08
2029	637960	4270260	8.69E-08
2030	638000	4270260	8.21E-08
2031	638040	4270260	7.83E-08
2032	638080	4270260	7.52E-08
2033	638120	4270260	7.30E-08
2034	638160	4270260	7.16E-08
2035	638200	4270260	7.10E-08
2036	638240	4270260	7.11E-08
2037	638280	4270260	7.16E-08
2038	638320	4270260	7.26E-08
2039	638360	4270260	7.44E-08
2040	636400	4270300	1.11E-07
2041	636440	4270300	1.26E-07
2042	636480	4270300	1.46E-07
2043	636520	4270300	1.75E-07
2044	636560	4270300	2.18E-07
2045	636600	4270300	2.95E-07
2046	636640	4270300	3.98E-07
2047	636680	4270300	4.74E-07
2048	636720	4270300	5.22E-07
2049	636760	4270300	6.22E-07
2050	636800	4270300	7.68E-07
2051	636840	4270300	9.39E-07
2052	636880	4270300	1.12E-06
2053	636920	4270300	1.30E-06
2054	636960	4270300	1.53E-06
2055	637000	4270300	1.85E-06
2056	637040	4270300	2.40E-06
2057	637080	4270300	3.21E-06
2058	637120	4270300	3.29E-06
2059	637160	4270300	3.41E-06
2060	637200	4270300	3.61E-06
2061	637240	4270300	3.43E-06
2062	637360	4270300	6.53E-07
2063	637400	4270300	4.90E-07
2064	637440	4270300	3.89E-07
2065	637480	4270300	3.21E-07
2066	637520	4270300	2.71E-07
2067	637560	4270300	2.44E-07
2068	637600	4270300	2.30E-07
2069	637640	4270300	2.31E-07
2070	637680	4270300	2.65E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
2071	637720	4270300	1.85E-07
2072	637760	4270300	1.48E-07
2073	637800	4270300	1.24E-07
2074	637840	4270300	1.10E-07
2075	637880	4270300	1.01E-07
2076	637920	4270300	9.31E-08
2077	637960	4270300	8.74E-08
2078	638000	4270300	8.30E-08
2079	638040	4270300	7.88E-08
2080	638080	4270300	7.57E-08
2081	638120	4270300	7.36E-08
2082	638160	4270300	7.24E-08
2083	638200	4270300	7.22E-08
2084	638240	4270300	7.26E-08
2085	638280	4270300	7.33E-08
2086	638320	4270300	7.45E-08
2087	638360	4270300	7.67E-08
2088	636400	4270340	1.24E-07
2089	636440	4270340	1.42E-07
2090	636480	4270340	1.66E-07
2091	636520	4270340	2.04E-07
2092	636560	4270340	2.71E-07
2093	636600	4270340	4.03E-07
2094	636640	4270340	4.88E-07
2095	636680	4270340	4.94E-07
2096	636720	4270340	5.45E-07
2097	636760	4270340	6.28E-07
2098	636800	4270340	7.40E-07
2099	636840	4270340	8.66E-07
2100	636880	4270340	1.02E-06
2101	636920	4270340	1.18E-06
2102	636960	4270340	1.36E-06
2103	637000	4270340	1.62E-06
2104	637040	4270340	2.00E-06
2105	637080	4270340	2.36E-06
2106	637120	4270340	2.48E-06
2107	637160	4270340	2.54E-06
2108	637200	4270340	2.65E-06
2109	637240	4270340	2.47E-06
2110	637480	4270340	3.29E-07
2111	637520	4270340	2.76E-07
2112	637560	4270340	2.44E-07
2113	637600	4270340	2.26E-07
2114	637640	4270340	2.19E-07
2115	637680	4270340	2.29E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
2116	637720	4270340	2.43E-07
2117	637760	4270340	1.88E-07
2118	637800	4270340	1.33E-07
2119	637840	4270340	1.14E-07
2120	637880	4270340	1.03E-07
2121	637920	4270340	9.48E-08
2122	637960	4270340	8.86E-08
2123	638000	4270340	8.39E-08
2124	638040	4270340	7.98E-08
2125	638080	4270340	7.64E-08
2126	638120	4270340	7.45E-08
2127	638160	4270340	7.38E-08
2128	638200	4270340	7.40E-08
2129	638240	4270340	7.47E-08
2130	638280	4270340	7.58E-08
2131	638320	4270340	7.76E-08
2132	638360	4270340	8.11E-08
2133	636400	4270380	1.42E-07
2134	636440	4270380	1.64E-07
2135	636480	4270380	1.94E-07
2136	636520	4270380	2.43E-07
2137	636560	4270380	3.79E-07
2138	636600	4270380	4.89E-07
2139	636640	4270380	6.15E-07
2140	636680	4270380	5.83E-07
2141	636720	4270380	6.05E-07
2142	636760	4270380	6.62E-07
2143	636800	4270380	7.41E-07
2144	636840	4270380	8.38E-07
2145	636880	4270380	9.50E-07
2146	636920	4270380	1.09E-06
2147	636960	4270380	1.25E-06
2148	637000	4270380	1.46E-06
2149	637040	4270380	1.70E-06
2150	637080	4270380	1.89E-06
2151	637120	4270380	2.00E-06
2152	637160	4270380	2.04E-06
2153	637200	4270380	2.07E-06
2154	637240	4270380	2.02E-06
2155	637360	4270380	7.21E-07
2156	637400	4270380	5.36E-07
2157	637480	4270380	3.39E-07
2158	637520	4270380	2.83E-07
2159	637560	4270380	2.48E-07
2160	637600	4270380	2.27E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
2161	637640	4270380	2.15E-07
2162	637680	4270380	2.15E-07
2163	637720	4270380	2.36E-07
2164	637760	4270380	2.06E-07
2165	637800	4270380	1.55E-07
2166	637840	4270380	1.22E-07
2167	637880	4270380	1.07E-07
2168	637920	4270380	9.75E-08
2169	637960	4270380	9.06E-08
2170	638000	4270380	8.55E-08
2171	638040	4270380	8.14E-08
2172	638080	4270380	7.84E-08
2173	638120	4270380	7.64E-08
2174	638160	4270380	7.60E-08
2175	638200	4270380	7.69E-08
2176	638240	4270380	7.82E-08
2177	638280	4270380	8.04E-08
2178	638320	4270380	8.43E-08
2179	638360	4270380	9.16E-08
2180	636400	4270420	1.60E-07
2181	636440	4270420	1.87E-07
2182	636480	4270420	2.26E-07
2183	636520	4270420	3.05E-07
2184	636560	4270420	5.68E-07
2185	636600	4270420	9.99E-07
2186	636640	4270420	6.43E-07
2187	636680	4270420	6.17E-07
2188	636720	4270420	7.00E-07
2189	636760	4270420	7.65E-07
2190	636800	4270420	7.86E-07
2191	636840	4270420	8.37E-07
2192	636880	4270420	9.17E-07
2193	636920	4270420	1.03E-06
2194	636960	4270420	1.17E-06
2195	637000	4270420	1.32E-06
2196	637040	4270420	1.47E-06
2197	637080	4270420	1.60E-06
2198	637120	4270420	1.68E-06
2199	637160	4270420	1.71E-06
2200	637200	4270420	1.72E-06
2201	637240	4270420	1.75E-06
2202	637280	4270420	1.86E-06
2203	637400	4270420	5.51E-07
2204	637520	4270420	2.94E-07
2205	637560	4270420	2.54E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
2206	637600	4270420	2.29E-07
2207	637640	4270420	2.13E-07
2208	637680	4270420	2.07E-07
2209	637720	4270420	2.15E-07
2210	637760	4270420	2.56E-07
2211	637800	4270420	1.72E-07
2212	637840	4270420	1.38E-07
2213	637880	4270420	1.15E-07
2214	637920	4270420	1.02E-07
2215	637960	4270420	9.44E-08
2216	638000	4270420	8.86E-08
2217	638040	4270420	8.43E-08
2218	638080	4270420	8.14E-08
2219	638120	4270420	8.02E-08
2220	638160	4270420	8.08E-08
2221	638200	4270420	8.24E-08
2222	638240	4270420	8.51E-08
2223	638280	4270420	9.12E-08
2224	638320	4270420	1.04E-07
2225	638360	4270420	1.11E-07
2226	636400	4270460	1.79E-07
2227	636440	4270460	2.12E-07
2228	636480	4270460	2.64E-07
2229	636520	4270460	3.67E-07
2230	636560	4270460	5.89E-07
2231	636600	4270460	7.56E-07
2232	636640	4270460	9.09E-07
2233	636680	4270460	1.06E-06
2234	636720	4270460	1.27E-06
2235	636760	4270460	8.40E-07
2236	636800	4270460	7.81E-07
2237	636840	4270460	9.58E-07
2238	636880	4270460	9.59E-07
2239	636920	4270460	1.02E-06
2240	636960	4270460	1.11E-06
2241	637000	4270460	1.22E-06
2242	637040	4270460	1.32E-06
2243	637080	4270460	1.41E-06
2244	637120	4270460	1.46E-06
2245	637160	4270460	1.48E-06
2246	637200	4270460	1.49E-06
2247	637240	4270460	1.55E-06
2248	637280	4270460	1.92E-06
2249	637400	4270460	5.77E-07
2250	637520	4270460	3.02E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
2251	637560	4270460	2.60E-07
2252	637600	4270460	2.32E-07
2253	637640	4270460	2.13E-07
2254	637680	4270460	2.03E-07
2255	637720	4270460	2.03E-07
2256	637760	4270460	2.20E-07
2257	637800	4270460	2.58E-07
2258	637840	4270460	1.74E-07
2259	637880	4270460	1.26E-07
2260	637920	4270460	1.09E-07
2261	637960	4270460	9.95E-08
2262	638000	4270460	9.30E-08
2263	638040	4270460	8.85E-08
2264	638080	4270460	8.58E-08
2265	638120	4270460	8.59E-08
2266	638160	4270460	8.93E-08
2267	638200	4270460	9.51E-08
2268	638240	4270460	1.05E-07
2269	638280	4270460	1.24E-07
2270	638320	4270460	1.29E-07
2271	638360	4270460	1.78E-07
2272	636400	4270500	1.98E-07
2273	636440	4270500	2.37E-07
2274	636480	4270500	2.96E-07
2275	636520	4270500	4.10E-07
2276	636560	4270500	5.78E-07
2277	636600	4270500	6.62E-07
2278	636640	4270500	7.60E-07
2279	636680	4270500	8.61E-07
2280	636720	4270500	9.69E-07
2281	636760	4270500	1.10E-06
2282	636800	4270500	1.27E-06
2283	636840	4270500	1.29E-06
2284	636880	4270500	9.42E-07
2285	636920	4270500	1.07E-06
2286	636960	4270500	1.16E-06
2287	637000	4270500	1.19E-06
2288	637040	4270500	1.24E-06
2289	637080	4270500	1.29E-06
2290	637120	4270500	1.32E-06
2291	637160	4270500	1.33E-06
2292	637200	4270500	1.34E-06
2293	637240	4270500	1.41E-06
2294	637280	4270500	1.70E-06
2295	637400	4270500	6.13E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
2296	637440	4270500	4.58E-07
2297	637520	4270500	3.12E-07
2298	637560	4270500	2.67E-07
2299	637600	4270500	2.36E-07
2300	637640	4270500	2.13E-07
2301	637680	4270500	2.01E-07
2302	637720	4270500	1.96E-07
2303	637760	4270500	2.03E-07
2304	637800	4270500	2.32E-07
2305	637840	4270500	2.17E-07
2306	637880	4270500	1.47E-07
2307	637920	4270500	1.19E-07
2308	637960	4270500	1.06E-07
2309	638000	4270500	9.86E-08
2310	638040	4270500	9.40E-08
2311	638080	4270500	9.24E-08
2312	638120	4270500	9.62E-08
2313	638160	4270500	1.10E-07
2314	638200	4270500	1.15E-07
2315	638240	4270500	1.41E-07
2316	638280	4270500	1.84E-07
2317	638320	4270500	1.53E-07
2318	638360	4270500	1.35E-07
2319	636400	4270540	2.17E-07
2320	636440	4270540	2.59E-07
2321	636480	4270540	3.23E-07
2322	636520	4270540	4.30E-07
2323	636560	4270540	5.98E-07
2324	636600	4270540	6.17E-07
2325	636640	4270540	6.76E-07
2326	636680	4270540	7.49E-07
2327	636720	4270540	8.26E-07
2328	636760	4270540	9.13E-07
2329	636800	4270540	1.02E-06
2330	636840	4270540	1.16E-06
2331	636880	4270540	1.32E-06
2332	636920	4270540	1.54E-06
2333	636960	4270540	1.36E-06
2334	637000	4270540	1.14E-06
2335	637040	4270540	1.32E-06
2336	637080	4270540	1.27E-06
2337	637120	4270540	1.26E-06
2338	637160	4270540	1.25E-06
2339	637200	4270540	1.26E-06
2340	637240	4270540	1.31E-06

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
2341	637280	4270540	1.51E-06
2342	637400	4270540	6.50E-07
2343	637440	4270540	4.79E-07
2344	637560	4270540	2.74E-07
2345	637600	4270540	2.39E-07
2346	637640	4270540	2.14E-07
2347	637680	4270540	1.99E-07
2348	637720	4270540	1.91E-07
2349	637760	4270540	1.92E-07
2350	637800	4270540	2.06E-07
2351	637840	4270540	2.56E-07
2352	637880	4270540	1.65E-07
2353	637920	4270540	1.33E-07
2354	637960	4270540	1.14E-07
2355	638000	4270540	1.06E-07
2356	638040	4270540	1.02E-07
2357	638080	4270540	1.03E-07
2358	638120	4270540	1.23E-07
2359	638160	4270540	1.46E-07
2360	638200	4270540	1.95E-07
2361	638240	4270540	1.60E-07
2362	638280	4270540	1.40E-07
2363	638320	4270540	1.27E-07
2364	638360	4270540	1.16E-07
2365	636400	4270580	2.34E-07
2366	636440	4270580	2.78E-07
2367	636480	4270580	3.41E-07
2368	636520	4270580	4.36E-07
2369	636560	4270580	5.64E-07
2370	636600	4270580	6.00E-07
2371	636640	4270580	6.18E-07
2372	636680	4270580	6.64E-07
2373	636720	4270580	7.30E-07
2374	636760	4270580	8.05E-07
2375	636800	4270580	8.95E-07
2376	636840	4270580	9.90E-07
2377	636880	4270580	1.10E-06
2378	636920	4270580	1.22E-06
2379	636960	4270580	1.36E-06
2380	637000	4270580	1.53E-06
2381	637040	4270580	1.76E-06
2382	637080	4270580	1.21E-06
2383	637120	4270580	1.18E-06
2384	637160	4270580	1.30E-06
2385	637200	4270580	1.27E-06

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
2386	637240	4270580	1.25E-06
2387	637280	4270580	1.40E-06
2388	637400	4270580	6.61E-07
2389	637440	4270580	5.04E-07
2390	637560	4270580	2.80E-07
2391	637640	4270580	2.16E-07
2392	637680	4270580	1.98E-07
2393	637720	4270580	1.88E-07
2394	637760	4270580	1.85E-07
2395	637800	4270580	1.91E-07
2396	637840	4270580	2.15E-07
2397	637880	4270580	2.17E-07
2398	637920	4270580	1.64E-07
2399	637960	4270580	1.27E-07
2400	638000	4270580	1.16E-07
2401	638040	4270580	1.14E-07
2402	638080	4270580	1.25E-07
2403	638120	4270580	1.78E-07
2404	638160	4270580	1.87E-07
2405	638200	4270580	1.51E-07
2406	638240	4270580	1.34E-07
2407	638280	4270580	1.22E-07
2408	638320	4270580	1.13E-07
2409	638360	4270580	1.05E-07
2410	636400	4270620	2.49E-07
2411	636440	4270620	2.92E-07
2412	636480	4270620	3.54E-07
2413	636520	4270620	4.38E-07
2414	636560	4270620	5.80E-07
2415	636600	4270620	6.07E-07
2416	636640	4270620	5.90E-07
2417	636680	4270620	6.20E-07
2418	636720	4270620	6.71E-07
2419	636760	4270620	7.36E-07
2420	636800	4270620	8.07E-07
2421	636840	4270620	8.84E-07
2422	636880	4270620	9.66E-07
2423	636920	4270620	1.06E-06
2424	636960	4270620	1.15E-06
2425	637000	4270620	1.25E-06
2426	637040	4270620	1.36E-06
2427	637080	4270620	1.50E-06
2428	637120	4270620	1.65E-06
2429	637160	4270620	1.52E-06
2430	637200	4270620	1.34E-06

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
2431	637240	4270620	1.21E-06
2432	637280	4270620	1.31E-06
2433	637400	4270620	6.99E-07
2434	637440	4270620	5.31E-07
2435	637640	4270620	2.19E-07
2436	637680	4270620	1.98E-07
2437	637720	4270620	1.86E-07
2438	637760	4270620	1.81E-07
2439	637800	4270620	1.82E-07
2440	637840	4270620	1.95E-07
2441	637880	4270620	2.31E-07
2442	637920	4270620	1.84E-07
2443	637960	4270620	1.51E-07
2444	638000	4270620	1.33E-07
2445	638040	4270620	1.33E-07
2446	638080	4270620	1.72E-07
2447	638120	4270620	2.11E-07
2448	638160	4270620	1.58E-07
2449	638200	4270620	1.33E-07
2450	638240	4270620	1.21E-07
2451	638280	4270620	1.11E-07
2452	638320	4270620	1.04E-07
2453	638360	4270620	9.68E-08
2454	636400	4270660	2.62E-07
2455	636440	4270660	3.06E-07
2456	636480	4270660	3.67E-07
2457	636520	4270660	4.40E-07
2458	636560	4270660	5.50E-07
2459	636600	4270660	6.20E-07
2460	636640	4270660	6.06E-07
2461	636680	4270660	6.00E-07
2462	636720	4270660	6.37E-07
2463	636760	4270660	6.89E-07
2464	636800	4270660	7.47E-07
2465	636840	4270660	8.11E-07
2466	636880	4270660	8.78E-07
2467	636920	4270660	9.47E-07
2468	636960	4270660	1.02E-06
2469	637000	4270660	1.09E-06
2470	637040	4270660	1.17E-06
2471	637080	4270660	1.26E-06
2472	637120	4270660	1.36E-06
2473	637160	4270660	1.57E-06
2474	637200	4270660	1.60E-06
2475	637240	4270660	1.20E-06

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
2476	637280	4270660	1.22E-06
2477	637320	4270660	1.62E-06
2478	637440	4270660	5.50E-07
2479	637560	4270660	2.90E-07
2480	637600	4270660	2.50E-07
2481	637640	4270660	2.21E-07
2482	637680	4270660	2.00E-07
2483	637720	4270660	1.85E-07
2484	637760	4270660	1.78E-07
2485	637800	4270660	1.77E-07
2486	637840	4270660	1.83E-07
2487	637880	4270660	2.04E-07
2488	637920	4270660	2.54E-07
2489	637960	4270660	1.88E-07
2490	638000	4270660	1.72E-07
2491	638040	4270660	1.67E-07
2492	638080	4270660	2.13E-07
2493	638120	4270660	1.85E-07
2494	638160	4270660	1.42E-07
2495	638200	4270660	1.23E-07
2496	638240	4270660	1.12E-07
2497	638280	4270660	1.04E-07
2498	638320	4270660	9.71E-08
2499	638360	4270660	9.11E-08
2500	636400	4270700	2.75E-07
2501	636440	4270700	3.20E-07
2502	636480	4270700	3.83E-07
2503	636520	4270700	4.66E-07
2504	636560	4270700	6.03E-07
2505	636600	4270700	6.36E-07
2506	636640	4270700	6.34E-07
2507	636680	4270700	5.94E-07
2508	636720	4270700	6.13E-07
2509	636760	4270700	6.54E-07
2510	636800	4270700	7.02E-07
2511	636840	4270700	7.55E-07
2512	636880	4270700	8.13E-07
2513	636920	4270700	8.69E-07
2514	636960	4270700	9.27E-07
2515	637000	4270700	9.92E-07
2516	637040	4270700	1.06E-06
2517	637080	4270700	1.15E-06
2518	637120	4270700	1.27E-06
2519	637160	4270700	1.72E-06
2520	637200	4270700	1.64E-06

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
2521	637240	4270700	1.18E-06
2522	637280	4270700	1.18E-06
2523	637320	4270700	1.57E-06
2524	637440	4270700	5.68E-07
2525	637560	4270700	2.95E-07
2526	637600	4270700	2.53E-07
2527	637640	4270700	2.23E-07
2528	637680	4270700	2.02E-07
2529	637720	4270700	1.86E-07
2530	637760	4270700	1.77E-07
2531	637800	4270700	1.73E-07
2532	637840	4270700	1.76E-07
2533	637880	4270700	1.88E-07
2534	637920	4270700	2.08E-07
2535	637960	4270700	2.34E-07
2536	638000	4270700	2.00E-07
2537	638040	4270700	2.07E-07
2538	638080	4270700	2.39E-07
2539	638120	4270700	1.63E-07
2540	638160	4270700	1.33E-07
2541	638200	4270700	1.17E-07
2542	638240	4270700	1.06E-07
2543	638280	4270700	9.86E-08
2544	638320	4270700	9.23E-08
2545	638360	4270700	8.67E-08
2546	636400	4270740	2.92E-07
2547	636440	4270740	3.46E-07
2548	636480	4270740	4.27E-07
2549	636520	4270740	5.85E-07
2550	636560	4270740	7.62E-07
2551	636600	4270740	9.11E-07
2552	636640	4270740	7.26E-07
2553	636680	4270740	5.86E-07
2554	636720	4270740	5.99E-07
2555	636760	4270740	6.27E-07
2556	636800	4270740	6.69E-07
2557	636840	4270740	7.14E-07
2558	636880	4270740	7.62E-07
2559	636920	4270740	8.10E-07
2560	636960	4270740	8.63E-07
2561	637000	4270740	9.25E-07
2562	637040	4270740	9.99E-07
2563	637080	4270740	1.10E-06
2564	637120	4270740	1.36E-06
2565	637160	4270740	1.78E-06

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
2566	637200	4270740	1.35E-06
2567	637240	4270740	1.12E-06
2568	637280	4270740	1.12E-06
2569	637320	4270740	1.42E-06
2570	637440	4270740	5.80E-07
2571	637480	4270740	4.75E-07
2572	637560	4270740	3.02E-07
2573	637600	4270740	2.56E-07
2574	637640	4270740	2.26E-07
2575	637680	4270740	2.04E-07
2576	637720	4270740	1.87E-07
2577	637760	4270740	1.77E-07
2578	637800	4270740	1.72E-07
2579	637840	4270740	1.72E-07
2580	637880	4270740	1.77E-07
2581	637920	4270740	1.89E-07
2582	637960	4270740	2.08E-07
2583	638000	4270740	2.49E-07
2584	638040	4270740	3.14E-07
2585	638080	4270740	2.15E-07
2586	638120	4270740	1.54E-07
2587	638160	4270740	1.28E-07
2588	638200	4270740	1.12E-07
2589	638240	4270740	1.02E-07
2590	638280	4270740	9.46E-08
2591	638320	4270740	8.85E-08
2592	638360	4270740	8.31E-08
2593	636400	4270780	3.18E-07
2594	636440	4270780	4.02E-07
2595	636480	4270780	5.79E-07
2596	636520	4270780	7.31E-07
2597	636560	4270780	8.82E-07
2598	636600	4270780	7.08E-07
2599	636640	4270780	6.46E-07
2600	636680	4270780	6.44E-07
2601	636720	4270780	6.14E-07
2602	636760	4270780	6.12E-07
2603	636800	4270780	6.44E-07
2604	636840	4270780	6.83E-07
2605	636880	4270780	7.25E-07
2606	636920	4270780	7.70E-07
2607	636960	4270780	8.23E-07
2608	637000	4270780	8.89E-07
2609	637040	4270780	9.79E-07
2610	637080	4270780	1.15E-06

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
2611	637120	4270780	1.53E-06
2612	637160	4270780	1.60E-06
2613	637200	4270780	1.18E-06
2614	637240	4270780	1.05E-06
2615	637280	4270780	1.07E-06
2616	637320	4270780	1.31E-06
2617	637440	4270780	6.10E-07
2618	637480	4270780	4.93E-07
2619	637560	4270780	3.11E-07
2620	637600	4270780	2.61E-07
2621	637640	4270780	2.28E-07
2622	637680	4270780	2.06E-07
2623	637720	4270780	1.89E-07
2624	637760	4270780	1.78E-07
2625	637800	4270780	1.71E-07
2626	637840	4270780	1.69E-07
2627	637880	4270780	1.71E-07
2628	637920	4270780	1.80E-07
2629	637960	4270780	1.99E-07
2630	638000	4270780	2.52E-07
2631	638040	4270780	3.54E-07
2632	638080	4270780	2.17E-07
2633	638120	4270780	1.50E-07
2634	638160	4270780	1.25E-07
2635	638200	4270780	1.10E-07
2636	638240	4270780	9.94E-08
2637	638280	4270780	9.18E-08
2638	638320	4270780	8.56E-08
2639	638360	4270780	8.02E-08
2640	636400	4270820	3.70E-07
2641	636440	4270820	5.53E-07
2642	636480	4270820	8.42E-07
2643	636520	4270820	8.46E-07
2644	636560	4270820	6.91E-07
2645	636600	4270820	6.18E-07
2646	636640	4270820	5.95E-07
2647	636680	4270820	6.22E-07
2648	636720	4270820	6.14E-07
2649	636760	4270820	6.17E-07
2650	636800	4270820	6.29E-07
2651	636840	4270820	6.61E-07
2652	636880	4270820	7.00E-07
2653	636920	4270820	7.45E-07
2654	636960	4270820	8.04E-07
2655	637000	4270820	8.84E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
2656	637040	4270820	1.02E-06
2657	637080	4270820	1.42E-06
2658	637120	4270820	1.85E-06
2659	637160	4270820	1.27E-06
2660	637200	4270820	1.07E-06
2661	637240	4270820	9.96E-07
2662	637280	4270820	1.03E-06
2663	637320	4270820	1.25E-06
2664	637440	4270820	6.35E-07
2665	637480	4270820	5.09E-07
2666	637560	4270820	3.19E-07
2667	637600	4270820	2.67E-07
2668	637640	4270820	2.30E-07
2669	637680	4270820	2.07E-07
2670	637720	4270820	1.90E-07
2671	637760	4270820	1.78E-07
2672	637800	4270820	1.71E-07
2673	637840	4270820	1.67E-07
2674	637880	4270820	1.68E-07
2675	637920	4270820	1.76E-07
2676	637960	4270820	1.97E-07
2677	638000	4270820	2.59E-07
2678	638040	4270820	3.78E-07
2679	638080	4270820	2.24E-07
2680	638120	4270820	1.50E-07
2681	638160	4270820	1.23E-07
2682	638200	4270820	1.08E-07
2683	638240	4270820	9.74E-08
2684	638280	4270820	8.97E-08
2685	638320	4270820	8.34E-08
2686	638360	4270820	7.79E-08
2687	636400	4270860	4.99E-07
2688	636440	4270860	7.52E-07
2689	636480	4270860	8.42E-07
2690	636520	4270860	6.72E-07
2691	636560	4270860	5.99E-07
2692	636600	4270860	5.65E-07
2693	636640	4270860	5.60E-07
2694	636680	4270860	5.82E-07
2695	636720	4270860	6.38E-07
2696	636760	4270860	6.14E-07
2697	636800	4270860	6.32E-07
2698	636840	4270860	6.51E-07
2699	636880	4270860	6.87E-07
2700	636920	4270860	7.38E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
2701	636960	4270860	8.11E-07
2702	637000	4270860	9.31E-07
2703	637040	4270860	1.28E-06
2704	637080	4270860	1.46E-06
2705	637120	4270860	1.35E-06
2706	637160	4270860	1.10E-06
2707	637200	4270860	9.84E-07
2708	637240	4270860	9.49E-07
2709	637280	4270860	1.00E-06
2710	637320	4270860	1.21E-06
2711	637440	4270860	6.55E-07
2712	637480	4270860	5.20E-07
2713	637560	4270860	3.27E-07
2714	637680	4270860	2.08E-07
2715	637720	4270860	1.90E-07
2716	637760	4270860	1.78E-07
2717	637800	4270860	1.71E-07
2718	637840	4270860	1.67E-07
2719	637880	4270860	1.68E-07
2720	637920	4270860	1.76E-07
2721	637960	4270860	1.98E-07
2722	638000	4270860	2.65E-07
2723	638040	4270860	3.55E-07
2724	638080	4270860	2.28E-07
2725	638120	4270860	1.51E-07
2726	638160	4270860	1.22E-07
2727	638200	4270860	1.07E-07
2728	638240	4270860	9.60E-08
2729	638280	4270860	8.81E-08
2730	638320	4270860	8.17E-08
2731	638360	4270860	7.62E-08
2732	636400	4270900	6.84E-07
2733	636440	4270900	8.72E-07
2734	636480	4270900	6.66E-07
2735	636520	4270900	5.84E-07
2736	636560	4270900	5.46E-07
2737	636600	4270900	5.30E-07
2738	636640	4270900	5.35E-07
2739	636680	4270900	5.56E-07
2740	636720	4270900	5.96E-07
2741	636760	4270900	6.71E-07
2742	636800	4270900	6.46E-07
2743	636840	4270900	6.58E-07
2744	636880	4270900	6.93E-07
2745	636920	4270900	7.57E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
2746	636960	4270900	8.69E-07
2747	637000	4270900	1.15E-06
2748	637040	4270900	1.66E-06
2749	637080	4270900	1.39E-06
2750	637120	4270900	1.12E-06
2751	637160	4270900	9.85E-07
2752	637200	4270900	9.17E-07
2753	637240	4270900	9.08E-07
2754	637280	4270900	9.71E-07
2755	637320	4270900	1.17E-06
2756	637440	4270900	6.80E-07
2757	637480	4270900	5.26E-07
2758	637680	4270900	2.10E-07
2759	637720	4270900	1.90E-07
2760	637760	4270900	1.78E-07
2761	637800	4270900	1.70E-07
2762	637840	4270900	1.67E-07
2763	637880	4270900	1.68E-07
2764	637920	4270900	1.77E-07
2765	637960	4270900	2.01E-07
2766	638000	4270900	2.70E-07
2767	638040	4270900	3.68E-07
2768	638080	4270900	2.31E-07
2769	638120	4270900	1.54E-07
2770	638160	4270900	1.22E-07
2771	638200	4270900	1.06E-07
2772	638240	4270900	9.51E-08
2773	638280	4270900	8.70E-08
2774	638320	4270900	8.04E-08
2775	638360	4270900	7.49E-08
2776	636400	4270940	9.78E-07
2777	636440	4270940	6.82E-07
2778	636480	4270940	5.77E-07
2779	636520	4270940	5.31E-07
2780	636560	4270940	5.11E-07
2781	636600	4270940	5.07E-07
2782	636640	4270940	5.16E-07
2783	636680	4270940	5.38E-07
2784	636720	4270940	5.74E-07
2785	636760	4270940	6.29E-07
2786	636800	4270940	7.24E-07
2787	636840	4270940	6.73E-07
2788	636880	4270940	7.28E-07
2789	636920	4270940	8.34E-07
2790	636960	4270940	1.13E-06

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
2791	637000	4270940	1.37E-06
2792	637040	4270940	1.39E-06
2793	637080	4270940	1.13E-06
2794	637120	4270940	9.84E-07
2795	637160	4270940	9.01E-07
2796	637200	4270940	8.64E-07
2797	637240	4270940	8.74E-07
2798	637280	4270940	9.48E-07
2799	637320	4270940	1.15E-06
2800	637360	4270940	1.66E-06
2801	637480	4270940	5.27E-07
2802	637560	4270940	3.37E-07
2803	637600	4270940	2.84E-07
2804	637640	4270940	2.43E-07
2805	637720	4270940	1.91E-07
2806	637760	4270940	1.78E-07
2807	637800	4270940	1.70E-07
2808	637840	4270940	1.67E-07
2809	637880	4270940	1.69E-07
2810	637920	4270940	1.79E-07
2811	637960	4270940	2.04E-07
2812	638000	4270940	2.75E-07
2813	638040	4270940	3.79E-07
2814	638080	4270940	2.32E-07
2815	638120	4270940	1.56E-07
2816	638160	4270940	1.23E-07
2817	638200	4270940	1.06E-07
2818	638240	4270940	9.44E-08
2819	638280	4270940	8.61E-08
2820	638320	4270940	7.94E-08
2821	638360	4270940	7.39E-08
2822	636400	4270980	7.82E-07
2823	636440	4270980	5.90E-07
2824	636480	4270980	5.24E-07
2825	636520	4270980	4.97E-07
2826	636560	4270980	4.89E-07
2827	636600	4270980	4.91E-07
2828	636640	4270980	5.04E-07
2829	636680	4270980	5.28E-07
2830	636720	4270980	5.63E-07
2831	636760	4270980	6.14E-07
2832	636800	4270980	6.87E-07
2833	636840	4270980	7.69E-07
2834	636880	4270980	8.35E-07
2835	636920	4270980	1.00E-06

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
2836	636960	4270980	1.24E-06
2837	637000	4270980	1.35E-06
2838	637040	4270980	1.11E-06
2839	637080	4270980	9.74E-07
2840	637120	4270980	8.91E-07
2841	637160	4270980	8.40E-07
2842	637200	4270980	8.23E-07
2843	637240	4270980	8.47E-07
2844	637280	4270980	9.33E-07
2845	637320	4270980	1.16E-06
2846	637440	4270980	6.63E-07
2847	637480	4270980	5.19E-07
2848	637560	4270980	3.45E-07
2849	637600	4270980	2.88E-07
2850	637640	4270980	2.47E-07
2851	637680	4270980	2.16E-07
2852	637720	4270980	1.94E-07
2853	637760	4270980	1.79E-07
2854	637800	4270980	1.71E-07
2855	637840	4270980	1.68E-07
2856	637880	4270980	1.70E-07
2857	637920	4270980	1.81E-07
2858	637960	4270980	2.07E-07
2859	638000	4270980	2.79E-07
2860	638040	4270980	3.45E-07
2861	638080	4270980	2.33E-07
2862	638120	4270980	1.58E-07
2863	638160	4270980	1.25E-07
2864	638200	4270980	1.06E-07
2865	638240	4270980	9.38E-08
2866	638280	4270980	8.54E-08
2867	638320	4270980	7.86E-08
2868	638360	4270980	7.30E-08
2869	636400	4271020	6.37E-07
2870	636440	4271020	5.33E-07
2871	636480	4271020	4.91E-07
2872	636520	4271020	4.75E-07
2873	636560	4271020	4.75E-07
2874	636600	4271020	4.82E-07
2875	636640	4271020	4.99E-07
2876	636680	4271020	5.27E-07
2877	636720	4271020	5.66E-07
2878	636760	4271020	6.20E-07
2879	636800	4271020	7.02E-07
2880	636840	4271020	8.59E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
2881	636880	4271020	9.80E-07
2882	636920	4271020	1.67E-06
2883	636960	4271020	1.26E-06
2884	637000	4271020	1.08E-06
2885	637040	4271020	9.59E-07
2886	637080	4271020	8.74E-07
2887	637120	4271020	8.22E-07
2888	637160	4271020	7.94E-07
2889	637200	4271020	7.92E-07
2890	637240	4271020	8.29E-07
2891	637280	4271020	9.32E-07
2892	637320	4271020	1.22E-06
2893	637440	4271020	6.59E-07
2894	637480	4271020	5.16E-07
2895	637520	4271020	4.09E-07
2896	637560	4271020	3.49E-07
2897	637600	4271020	2.94E-07
2898	637640	4271020	2.51E-07
2899	637680	4271020	2.19E-07
2900	637720	4271020	1.96E-07
2901	637760	4271020	1.80E-07
2902	637800	4271020	1.72E-07
2903	637840	4271020	1.69E-07
2904	637880	4271020	1.71E-07
2905	637920	4271020	1.83E-07
2906	637960	4271020	2.09E-07
2907	638000	4271020	2.84E-07
2908	638040	4271020	3.67E-07
2909	638080	4271020	2.33E-07
2910	638120	4271020	1.60E-07
2911	638160	4271020	1.26E-07
2912	638200	4271020	1.06E-07
2913	638240	4271020	9.35E-08
2914	638280	4271020	8.47E-08
2915	638320	4271020	7.80E-08
2916	638360	4271020	7.24E-08
2917	636400	4271060	5.56E-07
2918	636440	4271060	4.95E-07
2919	636480	4271060	4.69E-07
2920	636520	4271060	4.63E-07
2921	636560	4271060	4.69E-07
2922	636600	4271060	4.81E-07
2923	636640	4271060	5.02E-07
2924	636680	4271060	5.35E-07
2925	636720	4271060	5.85E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
2926	636760	4271060	6.59E-07
2927	636800	4271060	8.04E-07
2928	636840	4271060	9.91E-07
2929	636880	4271060	1.44E-06
2930	636920	4271060	1.20E-06
2931	636960	4271060	1.05E-06
2932	637000	4271060	9.34E-07
2933	637040	4271060	8.57E-07
2934	637080	4271060	8.05E-07
2935	637120	4271060	7.71E-07
2936	637160	4271060	7.58E-07
2937	637200	4271060	7.69E-07
2938	637240	4271060	8.20E-07
2939	637280	4271060	9.45E-07
2940	637320	4271060	1.34E-06
2941	637440	4271060	6.49E-07
2942	637480	4271060	5.11E-07
2943	637520	4271060	4.06E-07
2944	637560	4271060	3.47E-07
2945	637600	4271060	2.94E-07
2946	637640	4271060	2.54E-07
2947	637680	4271060	2.21E-07
2948	637720	4271060	1.97E-07
2949	637760	4271060	1.82E-07
2950	637800	4271060	1.72E-07
2951	637840	4271060	1.69E-07
2952	637880	4271060	1.72E-07
2953	637920	4271060	1.83E-07
2954	637960	4271060	2.11E-07
2955	638000	4271060	2.87E-07
2956	638040	4271060	3.73E-07
2957	638080	4271060	2.32E-07
2958	638120	4271060	1.61E-07
2959	638160	4271060	1.28E-07
2960	638200	4271060	1.07E-07
2961	638240	4271060	9.36E-08
2962	638280	4271060	8.42E-08
2963	638320	4271060	7.73E-08
2964	638360	4271060	7.17E-08
2965	636400	4271100	5.06E-07
2966	636440	4271100	4.71E-07
2967	636480	4271100	4.58E-07
2968	636520	4271100	4.61E-07
2969	636560	4271100	4.73E-07
2970	636600	4271100	4.91E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
2971	636640	4271100	5.21E-07
2972	636680	4271100	5.67E-07
2973	636720	4271100	6.43E-07
2974	636760	4271100	8.16E-07
2975	636800	4271100	8.58E-07
2976	636840	4271100	1.19E-06
2977	636880	4271100	1.08E-06
2978	636920	4271100	1.05E-06
2979	636960	4271100	9.27E-07
2980	637000	4271100	8.50E-07
2981	637040	4271100	7.90E-07
2982	637080	4271100	7.54E-07
2983	637120	4271100	7.34E-07
2984	637160	4271100	7.32E-07
2985	637200	4271100	7.54E-07
2986	637240	4271100	8.20E-07
2987	637280	4271100	9.79E-07
2988	637480	4271100	5.02E-07
2989	637520	4271100	4.03E-07
2990	637560	4271100	3.36E-07
2991	637600	4271100	2.86E-07
2992	637640	4271100	2.56E-07
2993	637680	4271100	2.25E-07
2994	637720	4271100	2.00E-07
2995	637760	4271100	1.84E-07
2996	637800	4271100	1.74E-07
2997	637840	4271100	1.70E-07
2998	637880	4271100	1.73E-07
2999	637920	4271100	1.84E-07
3000	637960	4271100	2.13E-07
3001	638000	4271100	2.91E-07
3002	638040	4271100	3.85E-07
3003	638080	4271100	2.32E-07
3004	638120	4271100	1.62E-07
3005	638160	4271100	1.29E-07
3006	638200	4271100	1.08E-07
3007	638240	4271100	9.40E-08
3008	638280	4271100	8.40E-08
3009	638320	4271100	7.68E-08
3010	638360	4271100	7.11E-08
3011	636400	4271140	4.76E-07
3012	636440	4271140	4.59E-07
3013	636480	4271140	4.58E-07
3014	636520	4271140	4.72E-07
3015	636560	4271140	4.93E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
3016	636600	4271140	5.24E-07
3017	636640	4271140	5.76E-07
3018	636680	4271140	6.74E-07
3019	636720	4271140	7.61E-07
3020	636760	4271140	1.03E-06
3021	636800	4271140	1.05E-06
3022	636840	4271140	9.49E-07
3023	636880	4271140	9.03E-07
3024	636920	4271140	8.92E-07
3025	636960	4271140	9.11E-07
3026	637000	4271140	7.86E-07
3027	637040	4271140	7.48E-07
3028	637080	4271140	7.18E-07
3029	637120	4271140	7.07E-07
3030	637160	4271140	7.15E-07
3031	637200	4271140	7.51E-07
3032	637240	4271140	8.37E-07
3033	637480	4271140	4.97E-07
3034	637520	4271140	3.98E-07
3035	637560	4271140	3.34E-07
3036	637600	4271140	2.87E-07
3037	637640	4271140	2.58E-07
3038	637680	4271140	2.28E-07
3039	637720	4271140	2.04E-07
3040	637760	4271140	1.86E-07
3041	637800	4271140	1.75E-07
3042	637840	4271140	1.71E-07
3043	637880	4271140	1.74E-07
3044	637920	4271140	1.85E-07
3045	637960	4271140	2.14E-07
3046	638000	4271140	2.94E-07
3047	638040	4271140	3.91E-07
3048	638080	4271140	2.31E-07
3049	638120	4271140	1.62E-07
3050	638160	4271140	1.30E-07
3051	638200	4271140	1.09E-07
3052	638240	4271140	9.47E-08
3053	638280	4271140	8.42E-08
3054	638320	4271140	7.65E-08
3055	638360	4271140	7.07E-08
3056	636400	4271180	4.60E-07
3057	636440	4271180	4.60E-07
3058	636480	4271180	4.78E-07
3059	636520	4271180	5.14E-07
3060	636560	4271180	5.58E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
3061	636600	4271180	6.44E-07
3062	636640	4271180	6.72E-07
3063	636680	4271180	8.01E-07
3064	636720	4271180	1.04E-06
3065	636760	4271180	9.21E-07
3066	636800	4271180	8.56E-07
3067	636840	4271180	8.18E-07
3068	636880	4271180	7.99E-07
3069	636920	4271180	7.92E-07
3070	636960	4271180	7.98E-07
3071	637000	4271180	8.45E-07
3072	637040	4271180	7.29E-07
3073	637080	4271180	6.97E-07
3074	637120	4271180	6.91E-07
3075	637160	4271180	7.09E-07
3076	637200	4271180	7.62E-07
3077	637480	4271180	4.91E-07
3078	637520	4271180	3.93E-07
3079	637560	4271180	3.31E-07
3080	637600	4271180	2.86E-07
3081	637640	4271180	2.59E-07
3082	637680	4271180	2.31E-07
3083	637720	4271180	2.07E-07
3084	637760	4271180	1.89E-07
3085	637800	4271180	1.77E-07
3086	637840	4271180	1.73E-07
3087	637880	4271180	1.75E-07
3088	637920	4271180	1.86E-07
3089	637960	4271180	2.15E-07
3090	638000	4271180	2.97E-07
3091	638040	4271180	3.65E-07
3092	638080	4271180	2.29E-07
3093	638120	4271180	1.62E-07
3094	638160	4271180	1.30E-07
3095	638200	4271180	1.10E-07
3096	638240	4271180	9.56E-08
3097	638280	4271180	8.47E-08
3098	638320	4271180	7.66E-08
3099	638360	4271180	7.04E-08
3100	636400	4271220	4.61E-07
3101	636440	4271220	4.86E-07
3102	636480	4271220	5.57E-07
3103	636520	4271220	6.38E-07
3104	636560	4271220	6.74E-07
3105	636600	4271220	9.44E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
3106	636640	4271220	9.77E-07
3107	636680	4271220	8.82E-07
3108	636720	4271220	8.19E-07
3109	636760	4271220	7.75E-07
3110	636800	4271220	7.49E-07
3111	636840	4271220	7.32E-07
3112	636880	4271220	7.25E-07
3113	636920	4271220	7.22E-07
3114	636960	4271220	7.27E-07
3115	637000	4271220	7.48E-07
3116	637040	4271220	7.73E-07
3117	637080	4271220	7.05E-07
3118	637120	4271220	6.86E-07
3119	637480	4271220	4.76E-07
3120	637520	4271220	3.84E-07
3121	637560	4271220	3.27E-07
3122	637600	4271220	2.85E-07
3123	637640	4271220	2.59E-07
3124	637680	4271220	2.32E-07
3125	637720	4271220	2.10E-07
3126	637760	4271220	1.91E-07
3127	637800	4271220	1.80E-07
3128	637840	4271220	1.75E-07
3129	637880	4271220	1.76E-07
3130	637920	4271220	1.87E-07
3131	637960	4271220	2.17E-07
3132	638000	4271220	3.00E-07
3133	638040	4271220	3.74E-07
3134	638080	4271220	2.28E-07
3135	638120	4271220	1.62E-07
3136	638160	4271220	1.31E-07
3137	638200	4271220	1.11E-07
3138	638240	4271220	9.65E-08
3139	638280	4271220	8.54E-08
3140	638320	4271220	7.69E-08
3141	638360	4271220	7.03E-08
3142	636400	4271260	4.86E-07
3143	636440	4271260	5.96E-07
3144	636480	4271260	7.54E-07
3145	636520	4271260	1.04E-06
3146	636560	4271260	8.91E-07
3147	636600	4271260	8.16E-07
3148	636640	4271260	7.68E-07
3149	636680	4271260	7.36E-07
3150	636720	4271260	7.10E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
3151	636760	4271260	6.90E-07
3152	636800	4271260	6.79E-07
3153	636840	4271260	6.72E-07
3154	636880	4271260	6.70E-07
3155	636920	4271260	6.71E-07
3156	636960	4271260	6.77E-07
3157	637000	4271260	6.94E-07
3158	637040	4271260	7.31E-07
3159	637080	4271260	7.23E-07
3160	637440	4271260	5.68E-07
3161	637480	4271260	4.56E-07
3162	637520	4271260	3.75E-07
3163	637560	4271260	3.22E-07
3164	637600	4271260	2.83E-07
3165	637640	4271260	2.58E-07
3166	637680	4271260	2.33E-07
3167	637720	4271260	2.11E-07
3168	637760	4271260	1.94E-07
3169	637800	4271260	1.83E-07
3170	637840	4271260	1.77E-07
3171	637880	4271260	1.78E-07
3172	637920	4271260	1.89E-07
3173	637960	4271260	2.18E-07
3174	638000	4271260	3.03E-07
3175	638040	4271260	3.77E-07
3176	638080	4271260	2.27E-07
3177	638120	4271260	1.62E-07
3178	638160	4271260	1.31E-07
3179	638200	4271260	1.11E-07
3180	638240	4271260	9.73E-08
3181	638280	4271260	8.62E-08
3182	638320	4271260	7.74E-08
3183	638360	4271260	7.05E-08
3184	636400	4271300	5.74E-07
3185	636440	4271300	7.65E-07
3186	636480	4271300	1.02E-06
3187	636520	4271300	7.91E-07
3188	636560	4271300	7.17E-07
3189	636600	4271300	6.88E-07
3190	636640	4271300	6.68E-07
3191	636680	4271300	6.53E-07
3192	636720	4271300	6.41E-07
3193	636760	4271300	6.32E-07
3194	636800	4271300	6.27E-07
3195	636840	4271300	6.28E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
3196	636880	4271300	6.29E-07
3197	636920	4271300	6.32E-07
3198	636960	4271300	6.41E-07
3199	637000	4271300	6.58E-07
3200	637040	4271300	6.89E-07
3201	637440	4271300	5.33E-07
3202	637480	4271300	4.30E-07
3203	637520	4271300	3.63E-07
3204	637560	4271300	3.17E-07
3205	637600	4271300	2.80E-07
3206	637640	4271300	2.56E-07
3207	637680	4271300	2.33E-07
3208	637720	4271300	2.12E-07
3209	637760	4271300	1.98E-07
3210	637800	4271300	1.86E-07
3211	637840	4271300	1.79E-07
3212	637880	4271300	1.80E-07
3213	637920	4271300	1.90E-07
3214	637960	4271300	2.20E-07
3215	638000	4271300	3.06E-07
3216	638040	4271300	3.57E-07
3217	638080	4271300	2.26E-07
3218	638120	4271300	1.62E-07
3219	638160	4271300	1.31E-07
3220	638200	4271300	1.12E-07
3221	638240	4271300	9.80E-08
3222	638280	4271300	8.70E-08
3223	638320	4271300	7.81E-08
3224	638360	4271300	7.09E-08
3225	636400	4271340	6.93E-07
3226	636440	4271340	1.00E-06
3227	636480	4271340	8.43E-07
3228	636520	4271340	6.81E-07
3229	636560	4271340	6.30E-07
3230	636600	4271340	6.13E-07
3231	636640	4271340	6.03E-07
3232	636680	4271340	5.97E-07
3233	636720	4271340	5.93E-07
3234	636760	4271340	5.91E-07
3235	636800	4271340	5.91E-07
3236	636840	4271340	5.94E-07
3237	636880	4271340	5.98E-07
3238	636920	4271340	6.04E-07
3239	636960	4271340	6.15E-07
3240	637000	4271340	6.34E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
3241	637040	4271340	6.68E-07
3242	637400	4271340	5.96E-07
3243	637440	4271340	4.99E-07
3244	637480	4271340	4.13E-07
3245	637520	4271340	3.53E-07
3246	637560	4271340	3.11E-07
3247	637600	4271340	2.77E-07
3248	637640	4271340	2.48E-07
3249	637680	4271340	2.33E-07
3250	637720	4271340	2.14E-07
3251	637760	4271340	1.99E-07
3252	637800	4271340	1.88E-07
3253	637840	4271340	1.82E-07
3254	637880	4271340	1.82E-07
3255	637920	4271340	1.92E-07
3256	637960	4271340	2.22E-07
3257	638000	4271340	3.10E-07
3258	638040	4271340	4.05E-07
3259	638080	4271340	2.24E-07
3260	638120	4271340	1.61E-07
3261	638160	4271340	1.31E-07
3262	638200	4271340	1.12E-07
3263	638240	4271340	9.84E-08
3264	638280	4271340	8.77E-08
3265	638320	4271340	7.88E-08
3266	638360	4271340	7.14E-08
3267	636400	4271380	1.03E-06
3268	636440	4271380	1.06E-06
3269	636480	4271380	8.70E-07
3270	636520	4271380	6.14E-07
3271	636560	4271380	5.73E-07
3272	636600	4271380	5.62E-07
3273	636640	4271380	5.59E-07
3274	636680	4271380	5.59E-07
3275	636720	4271380	5.61E-07
3276	636760	4271380	5.63E-07
3277	636800	4271380	5.67E-07
3278	636840	4271380	5.72E-07
3279	636880	4271380	5.78E-07
3280	636920	4271380	5.87E-07
3281	636960	4271380	6.01E-07
3282	637000	4271380	6.25E-07
3283	637320	4271380	7.73E-07
3284	637360	4271380	6.50E-07
3285	637400	4271380	5.50E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
3286	637440	4271380	4.63E-07
3287	637480	4271380	3.98E-07
3288	637520	4271380	3.50E-07
3289	637560	4271380	3.09E-07
3290	637600	4271380	2.73E-07
3291	637640	4271380	2.47E-07
3292	637680	4271380	2.32E-07
3293	637720	4271380	2.14E-07
3294	637760	4271380	2.01E-07
3295	637800	4271380	1.90E-07
3296	637840	4271380	1.84E-07
3297	637880	4271380	1.84E-07
3298	637920	4271380	1.94E-07
3299	637960	4271380	2.24E-07
3300	638000	4271380	3.13E-07
3301	638040	4271380	3.64E-07
3302	638080	4271380	2.23E-07
3303	638120	4271380	1.61E-07
3304	638160	4271380	1.31E-07
3305	638200	4271380	1.12E-07
3306	638240	4271380	9.87E-08
3307	638280	4271380	8.82E-08
3308	638320	4271380	7.94E-08
3309	638360	4271380	7.19E-08
3310	636400	4271420	7.58E-07
3311	636440	4271420	7.50E-07
3312	636480	4271420	6.72E-07
3313	636520	4271420	5.79E-07
3314	636560	4271420	5.38E-07
3315	636600	4271420	5.27E-07
3316	636640	4271420	5.29E-07
3317	636680	4271420	5.36E-07
3318	636720	4271420	5.42E-07
3319	636760	4271420	5.49E-07
3320	636800	4271420	5.55E-07
3321	636840	4271420	5.62E-07
3322	636880	4271420	5.69E-07
3323	636920	4271420	5.81E-07
3324	636960	4271420	5.99E-07
3325	637000	4271420	6.23E-07
3326	637280	4271420	7.94E-07
3327	637320	4271420	6.87E-07
3328	637360	4271420	5.90E-07
3329	637400	4271420	5.04E-07
3330	637440	4271420	4.32E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
3331	637480	4271420	3.80E-07
3332	637520	4271420	3.40E-07
3333	637560	4271420	3.03E-07
3334	637600	4271420	2.70E-07
3335	637640	4271420	2.45E-07
3336	637680	4271420	2.31E-07
3337	637720	4271420	2.14E-07
3338	637760	4271420	2.02E-07
3339	637800	4271420	1.92E-07
3340	637840	4271420	1.86E-07
3341	637880	4271420	1.87E-07
3342	637920	4271420	1.97E-07
3343	637960	4271420	2.26E-07
3344	638000	4271420	3.17E-07
3345	638040	4271420	3.72E-07
3346	638080	4271420	2.22E-07
3347	638120	4271420	1.61E-07
3348	638160	4271420	1.31E-07
3349	638200	4271420	1.12E-07
3350	638240	4271420	9.89E-08
3351	638280	4271420	8.86E-08
3352	638320	4271420	7.99E-08
3353	638360	4271420	7.25E-08
3354	636400	4271460	5.98E-07
3355	636440	4271460	5.68E-07
3356	636480	4271460	5.38E-07
3357	636520	4271460	5.22E-07
3358	636560	4271460	5.04E-07
3359	636600	4271460	4.99E-07
3360	636640	4271460	5.02E-07
3361	636680	4271460	5.19E-07
3362	636720	4271460	5.30E-07
3363	636760	4271460	5.39E-07
3364	636800	4271460	5.47E-07
3365	636840	4271460	5.55E-07
3366	636880	4271460	5.65E-07
3367	636920	4271460	5.76E-07
3368	636960	4271460	5.93E-07
3369	637000	4271460	6.16E-07
3370	637240	4271460	7.79E-07
3371	637280	4271460	6.99E-07
3372	637320	4271460	6.15E-07
3373	637360	4271460	5.34E-07
3374	637400	4271460	4.61E-07
3375	637440	4271460	4.06E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
3376	637480	4271460	3.65E-07
3377	637520	4271460	3.29E-07
3378	637560	4271460	2.96E-07
3379	637600	4271460	2.68E-07
3380	637640	4271460	2.43E-07
3381	637680	4271460	2.29E-07
3382	637720	4271460	2.14E-07
3383	637760	4271460	2.03E-07
3384	637800	4271460	1.93E-07
3385	637840	4271460	1.88E-07
3386	637880	4271460	1.89E-07
3387	637920	4271460	1.99E-07
3388	637960	4271460	2.29E-07
3389	638000	4271460	3.21E-07
3390	638040	4271460	3.88E-07
3391	638080	4271460	2.21E-07
3392	638120	4271460	1.60E-07
3393	638160	4271460	1.31E-07
3394	638200	4271460	1.12E-07
3395	638240	4271460	9.91E-08
3396	638280	4271460	8.89E-08
3397	638320	4271460	8.03E-08
3398	638360	4271460	7.30E-08
3399	636400	4271500	4.90E-07
3400	636440	4271500	4.80E-07
3401	636480	4271500	4.64E-07
3402	636520	4271500	4.52E-07
3403	636560	4271500	4.41E-07
3404	636600	4271500	4.34E-07
3405	636640	4271500	4.50E-07
3406	636680	4271500	4.78E-07
3407	636720	4271500	4.95E-07
3408	636760	4271500	5.12E-07
3409	636800	4271500	5.24E-07
3410	636840	4271500	5.33E-07
3411	636880	4271500	5.42E-07
3412	636920	4271500	5.53E-07
3413	636960	4271500	5.70E-07
3414	637000	4271500	6.02E-07
3415	637240	4271500	6.86E-07
3416	637280	4271500	6.22E-07
3417	637320	4271500	5.53E-07
3418	637360	4271500	4.87E-07
3419	637400	4271500	4.27E-07
3420	637440	4271500	3.85E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
3421	637480	4271500	3.49E-07
3422	637520	4271500	3.13E-07
3423	637560	4271500	2.89E-07
3424	637600	4271500	2.63E-07
3425	637640	4271500	2.40E-07
3426	637680	4271500	2.27E-07
3427	637720	4271500	2.14E-07
3428	637760	4271500	2.03E-07
3429	637800	4271500	1.93E-07
3430	637840	4271500	1.90E-07
3431	637880	4271500	1.91E-07
3432	637920	4271500	2.02E-07
3433	637960	4271500	2.31E-07
3434	638000	4271500	3.26E-07
3435	638040	4271500	3.53E-07
3436	638080	4271500	2.20E-07
3437	638120	4271500	1.60E-07
3438	638160	4271500	1.31E-07
3439	638200	4271500	1.12E-07
3440	638240	4271500	9.91E-08
3441	638280	4271500	8.90E-08
3442	638320	4271500	8.06E-08
3443	638360	4271500	7.33E-08
3444	636400	4271540	4.44E-07
3445	636440	4271540	4.40E-07
3446	636480	4271540	4.33E-07
3447	636520	4271540	4.28E-07
3448	636560	4271540	4.25E-07
3449	636600	4271540	4.29E-07
3450	636640	4271540	4.45E-07
3451	636680	4271540	4.77E-07
3452	636720	4271540	5.02E-07
3453	636760	4271540	5.23E-07
3454	636800	4271540	5.38E-07
3455	636840	4271540	5.44E-07
3456	636880	4271540	5.53E-07
3457	636920	4271540	5.64E-07
3458	636960	4271540	5.78E-07
3459	637000	4271540	6.01E-07
3460	637200	4271540	6.50E-07
3461	637240	4271540	6.11E-07
3462	637280	4271540	5.62E-07
3463	637320	4271540	5.05E-07
3464	637360	4271540	4.47E-07
3465	637400	4271540	4.00E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
3466	637440	4271540	3.65E-07
3467	637480	4271540	3.34E-07
3468	637520	4271540	3.01E-07
3469	637560	4271540	2.81E-07
3470	637600	4271540	2.59E-07
3471	637640	4271540	2.40E-07
3472	637680	4271540	2.26E-07
3473	637720	4271540	2.14E-07
3474	637760	4271540	2.03E-07
3475	637800	4271540	1.94E-07
3476	637840	4271540	1.91E-07
3477	637880	4271540	1.94E-07
3478	637920	4271540	2.04E-07
3479	637960	4271540	2.34E-07
3480	638000	4271540	3.30E-07
3481	638040	4271540	3.95E-07
3482	638080	4271540	2.20E-07
3483	638120	4271540	1.60E-07
3484	638160	4271540	1.31E-07
3485	638200	4271540	1.12E-07
3486	638240	4271540	9.91E-08
3487	638280	4271540	8.89E-08
3488	638320	4271540	8.07E-08
3489	638360	4271540	7.35E-08
3490	636400	4271580	4.19E-07
3491	636440	4271580	4.19E-07
3492	636480	4271580	4.17E-07
3493	636520	4271580	4.13E-07
3494	636560	4271580	4.21E-07
3495	636600	4271580	4.43E-07
3496	636640	4271580	4.68E-07
3497	636680	4271580	5.00E-07
3498	636720	4271580	5.32E-07
3499	636760	4271580	5.43E-07
3500	636800	4271580	5.52E-07
3501	636840	4271580	5.69E-07
3502	636880	4271580	5.81E-07
3503	636920	4271580	6.04E-07
3504	636960	4271580	6.11E-07
3505	637000	4271580	6.12E-07
3506	637040	4271580	6.26E-07
3507	637080	4271580	6.26E-07
3508	637120	4271580	6.22E-07
3509	637160	4271580	6.12E-07
3510	637200	4271580	5.78E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
3511	637240	4271580	5.45E-07
3512	637280	4271580	5.07E-07
3513	637320	4271580	4.58E-07
3514	637360	4271580	4.11E-07
3515	637400	4271580	3.74E-07
3516	637440	4271580	3.47E-07
3517	637480	4271580	3.18E-07
3518	637520	4271580	2.93E-07
3519	637560	4271580	2.71E-07
3520	637600	4271580	2.50E-07
3521	637640	4271580	2.39E-07
3522	637680	4271580	2.25E-07
3523	637720	4271580	2.13E-07
3524	637760	4271580	2.02E-07
3525	637800	4271580	1.95E-07
3526	637840	4271580	1.93E-07
3527	637880	4271580	1.95E-07
3528	637920	4271580	2.07E-07
3529	637960	4271580	2.37E-07
3530	638000	4271580	3.35E-07
3531	638040	4271580	3.76E-07
3532	638080	4271580	2.19E-07
3533	638120	4271580	1.60E-07
3534	638160	4271580	1.31E-07
3535	638200	4271580	1.12E-07
3536	638240	4271580	9.91E-08
3537	638280	4271580	8.90E-08
3538	638320	4271580	8.08E-08
3539	638360	4271580	7.37E-08
3540	636400	4271620	4.17E-07
3541	636440	4271620	4.26E-07
3542	636480	4271620	4.26E-07
3543	636520	4271620	4.28E-07
3544	636560	4271620	4.20E-07
3545	636600	4271620	4.42E-07
3546	636640	4271620	4.79E-07
3547	636680	4271620	5.02E-07
3548	636720	4271620	5.36E-07
3549	636760	4271620	5.63E-07
3550	636800	4271620	5.85E-07
3551	636840	4271620	5.90E-07
3552	636880	4271620	5.97E-07
3553	636920	4271620	6.11E-07
3554	636960	4271620	6.31E-07
3555	637000	4271620	6.19E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
3556	637040	4271620	6.17E-07
3557	637080	4271620	5.88E-07
3558	637120	4271620	5.72E-07
3559	637160	4271620	5.48E-07
3560	637200	4271620	5.19E-07
3561	637240	4271620	4.91E-07
3562	637280	4271620	4.59E-07
3563	637320	4271620	4.21E-07
3564	637360	4271620	3.85E-07
3565	637400	4271620	3.55E-07
3566	637440	4271620	3.29E-07
3567	637480	4271620	3.05E-07
3568	637520	4271620	2.88E-07
3569	637560	4271620	2.62E-07
3570	637600	4271620	2.49E-07
3571	637640	4271620	2.36E-07
3572	637680	4271620	2.23E-07
3573	637720	4271620	2.11E-07
3574	637760	4271620	2.02E-07
3575	637800	4271620	1.96E-07
3576	637840	4271620	1.94E-07
3577	637880	4271620	1.97E-07
3578	637920	4271620	2.09E-07
3579	637960	4271620	2.40E-07
3580	638000	4271620	3.40E-07
3581	638040	4271620	3.77E-07
3582	638080	4271620	2.18E-07
3583	638120	4271620	1.61E-07
3584	638160	4271620	1.31E-07
3585	638200	4271620	1.12E-07
3586	638240	4271620	9.91E-08
3587	638280	4271620	8.90E-08
3588	638320	4271620	8.09E-08
3589	638360	4271620	7.39E-08
3590	636400	4271660	4.06E-07
3591	636440	4271660	4.19E-07
3592	636480	4271660	4.27E-07
3593	636520	4271660	4.41E-07
3594	636560	4271660	4.58E-07
3595	636600	4271660	4.46E-07
3596	636640	4271660	4.66E-07
3597	636680	4271660	5.02E-07
3598	636720	4271660	5.27E-07
3599	636760	4271660	5.39E-07
3600	636800	4271660	5.44E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
3601	636840	4271660	5.53E-07
3602	636880	4271660	5.78E-07
3603	636920	4271660	5.78E-07
3604	636960	4271660	5.75E-07
3605	637000	4271660	5.69E-07
3606	637040	4271660	5.49E-07
3607	637080	4271660	5.20E-07
3608	637120	4271660	5.01E-07
3609	637160	4271660	4.85E-07
3610	637200	4271660	4.67E-07
3611	637240	4271660	4.46E-07
3612	637280	4271660	4.21E-07
3613	637320	4271660	3.93E-07
3614	637360	4271660	3.65E-07
3615	637400	4271660	3.38E-07
3616	637440	4271660	3.13E-07
3617	637480	4271660	2.91E-07
3618	637520	4271660	2.73E-07
3619	637560	4271660	2.59E-07
3620	637600	4271660	2.47E-07
3621	637640	4271660	2.33E-07
3622	637680	4271660	2.21E-07
3623	637720	4271660	2.10E-07
3624	637760	4271660	2.02E-07
3625	637800	4271660	1.97E-07
3626	637840	4271660	1.96E-07
3627	637880	4271660	1.99E-07
3628	637920	4271660	2.11E-07
3629	637960	4271660	2.43E-07
3630	638000	4271660	3.45E-07
3631	638040	4271660	3.79E-07
3632	638080	4271660	2.18E-07
3633	638120	4271660	1.61E-07
3634	638160	4271660	1.32E-07
3635	638200	4271660	1.13E-07
3636	638240	4271660	9.92E-08
3637	638280	4271660	8.91E-08
3638	638320	4271660	8.08E-08
3639	638360	4271660	7.39E-08
3640	636440	4271700	4.04E-07
3641	636480	4271700	4.09E-07
3642	636520	4271700	4.24E-07
3643	636560	4271700	4.44E-07
3644	636600	4271700	4.73E-07
3645	636640	4271700	4.66E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
3646	636680	4271700	4.72E-07
3647	636720	4271700	4.93E-07
3648	636760	4271700	5.05E-07
3649	636800	4271700	5.11E-07
3650	636840	4271700	5.15E-07
3651	636880	4271700	5.16E-07
3652	636920	4271700	5.14E-07
3653	636960	4271700	5.08E-07
3654	637000	4271700	5.05E-07
3655	637040	4271700	4.87E-07
3656	637080	4271700	4.72E-07
3657	637120	4271700	4.54E-07
3658	637160	4271700	4.39E-07
3659	637200	4271700	4.25E-07
3660	637240	4271700	4.08E-07
3661	637280	4271700	3.87E-07
3662	637320	4271700	3.65E-07
3663	637360	4271700	3.42E-07
3664	637400	4271700	3.20E-07
3665	637440	4271700	2.98E-07
3666	637480	4271700	2.81E-07
3667	637520	4271700	2.70E-07
3668	637560	4271700	2.58E-07
3669	637600	4271700	2.43E-07
3670	637640	4271700	2.30E-07
3671	637680	4271700	2.18E-07
3672	637720	4271700	2.09E-07
3673	637760	4271700	2.02E-07
3674	637800	4271700	1.97E-07
3675	637840	4271700	1.96E-07
3676	637880	4271700	2.01E-07
3677	637920	4271700	2.13E-07
3678	637960	4271700	2.45E-07
3679	638000	4271700	3.46E-07
3680	638040	4271700	3.62E-07
3681	638080	4271700	2.18E-07
3682	638120	4271700	1.61E-07
3683	638160	4271700	1.32E-07
3684	638200	4271700	1.12E-07
3685	638240	4271700	9.93E-08
3686	638280	4271700	8.92E-08
3687	638320	4271700	8.08E-08
3688	638360	4271700	7.39E-08
3689	636440	4271740	3.87E-07
3690	636480	4271740	3.96E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
3691	636520	4271740	4.10E-07
3692	636560	4271740	4.28E-07
3693	636600	4271740	4.49E-07
3694	636640	4271740	4.76E-07
3695	636680	4271740	5.02E-07
3696	636720	4271740	5.15E-07
3697	636760	4271740	4.72E-07
3698	636800	4271740	4.79E-07
3699	636840	4271740	4.82E-07
3700	636880	4271740	4.82E-07
3701	636920	4271740	4.79E-07
3702	636960	4271740	4.73E-07
3703	637000	4271740	4.72E-07
3704	637040	4271740	4.56E-07
3705	637080	4271740	4.38E-07
3706	637120	4271740	4.21E-07
3707	637160	4271740	4.07E-07
3708	637200	4271740	3.93E-07
3709	637240	4271740	3.78E-07
3710	637280	4271740	3.61E-07
3711	637320	4271740	3.42E-07
3712	637360	4271740	3.22E-07
3713	637400	4271740	3.04E-07
3714	637440	4271740	2.94E-07
3715	637480	4271740	2.80E-07
3716	637520	4271740	2.67E-07
3717	637560	4271740	2.51E-07
3718	637600	4271740	2.40E-07
3719	637640	4271740	2.26E-07
3720	637680	4271740	2.17E-07
3721	637720	4271740	2.09E-07
3722	637760	4271740	2.02E-07
3723	637800	4271740	1.98E-07
3724	637840	4271740	1.97E-07
3725	637880	4271740	2.02E-07
3726	637920	4271740	2.15E-07
3727	637960	4271740	2.47E-07
3728	638000	4271740	3.50E-07
3729	638040	4271740	3.84E-07
3730	638080	4271740	2.18E-07
3731	638120	4271740	1.62E-07
3732	638160	4271740	1.32E-07
3733	638200	4271740	1.13E-07
3734	638240	4271740	9.97E-08
3735	638280	4271740	8.92E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
3736	638320	4271740	8.09E-08
3737	638360	4271740	7.39E-08
3738	636680	4271780	4.64E-07
3739	636720	4271780	4.82E-07
3740	636760	4271780	4.93E-07
3741	636800	4271780	5.04E-07
3742	636840	4271780	4.63E-07
3743	636880	4271780	4.62E-07
3744	636920	4271780	4.58E-07
3745	636960	4271780	4.53E-07
3746	637000	4271780	4.74E-07
3747	637040	4271780	4.65E-07
3748	637080	4271780	4.20E-07
3749	637120	4271780	4.05E-07
3750	637160	4271780	3.91E-07
3751	637200	4271780	3.77E-07
3752	637240	4271780	3.62E-07
3753	637280	4271780	3.45E-07
3754	637320	4271780	3.30E-07
3755	637360	4271780	3.17E-07
3756	637400	4271780	3.05E-07
3757	637440	4271780	2.89E-07
3758	637480	4271780	2.72E-07
3759	637520	4271780	2.60E-07
3760	637560	4271780	2.47E-07
3761	637600	4271780	2.35E-07
3762	637640	4271780	2.24E-07
3763	637680	4271780	2.14E-07
3764	637720	4271780	2.07E-07
3765	637760	4271780	2.02E-07
3766	637800	4271780	1.98E-07
3767	637840	4271780	1.98E-07
3768	637880	4271780	2.03E-07
3769	637920	4271780	2.16E-07
3770	637960	4271780	2.48E-07
3771	638000	4271780	3.55E-07
3772	638040	4271780	3.63E-07
3773	638080	4271780	2.18E-07
3774	638120	4271780	1.63E-07
3775	638160	4271780	1.33E-07
3776	638200	4271780	1.13E-07
3777	638240	4271780	1.00E-07
3778	638280	4271780	8.94E-08
3779	638320	4271780	8.09E-08
3780	638360	4271780	7.40E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
3781	636680	4271820	4.38E-07
3782	636720	4271820	4.51E-07
3783	636760	4271820	4.62E-07
3784	636800	4271820	4.70E-07
3785	636840	4271820	4.74E-07
3786	636880	4271820	4.73E-07
3787	636920	4271820	4.69E-07
3788	636960	4271820	4.62E-07
3789	637000	4271820	4.50E-07
3790	637040	4271820	4.35E-07
3791	637080	4271820	4.19E-07
3792	637120	4271820	4.04E-07
3793	637160	4271820	3.89E-07
3794	637200	4271820	3.74E-07
3795	637240	4271820	3.59E-07
3796	637280	4271820	3.42E-07
3797	637320	4271820	3.25E-07
3798	637360	4271820	3.08E-07
3799	637400	4271820	2.87E-07
3800	637440	4271820	2.78E-07
3801	637480	4271820	2.65E-07
3802	637520	4271820	2.51E-07
3803	637560	4271820	2.40E-07
3804	637600	4271820	2.31E-07
3805	637640	4271820	2.21E-07
3806	637680	4271820	2.12E-07
3807	637720	4271820	2.06E-07
3808	637760	4271820	2.01E-07
3809	637800	4271820	1.98E-07
3810	637840	4271820	1.99E-07
3811	637880	4271820	2.04E-07
3812	637920	4271820	2.17E-07
3813	637960	4271820	2.50E-07
3814	638000	4271820	3.60E-07
3815	638040	4271820	4.00E-07
3816	638080	4271820	2.18E-07
3817	638120	4271820	1.63E-07
3818	638160	4271820	1.33E-07
3819	638200	4271820	1.14E-07
3820	638240	4271820	1.00E-07
3821	638280	4271820	8.96E-08
3822	638320	4271820	8.10E-08
3823	638360	4271820	7.40E-08
3824	636680	4271860	4.15E-07
3825	636720	4271860	4.26E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
3826	636760	4271860	4.35E-07
3827	636800	4271860	4.41E-07
3828	636840	4271860	4.44E-07
3829	636880	4271860	4.44E-07
3830	636920	4271860	4.40E-07
3831	636960	4271860	4.33E-07
3832	637000	4271860	4.22E-07
3833	637040	4271860	4.09E-07
3834	637080	4271860	3.96E-07
3835	637120	4271860	3.82E-07
3836	637160	4271860	3.69E-07
3837	637200	4271860	3.54E-07
3838	637240	4271860	3.40E-07
3839	637280	4271860	3.25E-07
3840	637320	4271860	3.10E-07
3841	637360	4271860	2.95E-07
3842	637400	4271860	2.80E-07
3843	637440	4271860	2.65E-07
3844	637480	4271860	2.55E-07
3845	637520	4271860	2.43E-07
3846	637560	4271860	2.32E-07
3847	637600	4271860	2.26E-07
3848	637640	4271860	2.17E-07
3849	637680	4271860	2.10E-07
3850	637720	4271860	2.04E-07
3851	637760	4271860	2.00E-07
3852	637800	4271860	1.98E-07
3853	637840	4271860	1.99E-07
3854	637880	4271860	2.05E-07
3855	637920	4271860	2.19E-07
3856	637960	4271860	2.53E-07
3857	638000	4271860	3.66E-07
3858	638040	4271860	3.93E-07
3859	638080	4271860	2.18E-07
3860	638120	4271860	1.61E-07
3861	638160	4271860	1.34E-07
3862	638200	4271860	1.15E-07
3863	638240	4271860	1.01E-07
3864	638280	4271860	8.99E-08
3865	638320	4271860	8.12E-08
3866	638360	4271860	7.41E-08
3867	637800	4271860	1.98E-07
3868	637850	4271860	2.00E-07
3869	637900	4271860	2.10E-07
3870	637950	4271860	2.41E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
3871	638000	4271860	3.66E-07
3872	638050	4271860	3.24E-07
3873	638100	4271860	1.85E-07
3874	638150	4271860	1.39E-07
3875	638200	4271860	1.15E-07
3876	638250	4271860	9.80E-08
3877	637800	4271910	1.98E-07
3878	637850	4271910	1.99E-07
3879	637900	4271910	2.06E-07
3880	637950	4271910	2.41E-07
3881	638000	4271910	3.55E-07
3882	638050	4271910	3.12E-07
3883	638100	4271910	1.86E-07
3884	638150	4271910	1.42E-07
3885	638200	4271910	1.16E-07
3886	638250	4271910	9.85E-08
3887	637800	4271960	1.91E-07
3888	637850	4271960	1.99E-07
3889	637900	4271960	2.12E-07
3890	637950	4271960	2.46E-07
3891	638000	4271960	3.82E-07
3892	638050	4271960	3.19E-07
3893	638100	4271960	1.88E-07
3894	638150	4271960	1.43E-07
3895	638200	4271960	1.17E-07
3896	638250	4271960	9.92E-08
3897	637800	4272010	1.97E-07
3898	637850	4272010	2.02E-07
3899	637900	4272010	2.14E-07
3900	637950	4272010	2.49E-07
3901	638000	4272010	3.90E-07
3902	638050	4272010	3.16E-07
3903	638100	4272010	1.89E-07
3904	638150	4272010	1.44E-07
3905	638200	4272010	1.18E-07
3906	638250	4272010	9.99E-08
3907	637800	4272060	1.97E-07
3908	637850	4272060	2.02E-07
3909	637900	4272060	2.16E-07
3910	637950	4272060	2.51E-07
3911	638000	4272060	3.98E-07
3912	638050	4272060	3.13E-07
3913	638100	4272060	1.89E-07
3914	638150	4272060	1.44E-07
3915	638200	4272060	1.18E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
3916	638250	4272060	1.01E-07
3917	637800	4272110	1.98E-07
3918	637850	4272110	2.03E-07
3919	637900	4272110	2.17E-07
3920	637950	4272110	2.53E-07
3921	638000	4272110	4.05E-07
3922	638050	4272110	3.10E-07
3923	638100	4272110	1.89E-07
3924	638150	4272110	1.44E-07
3925	638200	4272110	1.19E-07
3926	638250	4272110	1.01E-07
3927	637800	4272160	1.99E-07
3928	637850	4272160	2.05E-07
3929	637900	4272160	2.19E-07
3930	637950	4272160	2.56E-07
3931	638000	4272160	4.13E-07
3932	638050	4272160	3.07E-07
3933	638100	4272160	1.88E-07
3934	638150	4272160	1.44E-07
3935	638200	4272160	1.19E-07
3936	638250	4272160	1.02E-07
3937	637800	4272210	2.02E-07
3938	637850	4272210	2.08E-07
3939	637900	4272210	2.23E-07
3940	637950	4272210	2.59E-07
3941	638000	4272210	4.22E-07
3942	638050	4272210	3.04E-07
3943	638100	4272210	1.86E-07
3944	638150	4272210	1.44E-07
3945	638200	4272210	1.20E-07
3946	638250	4272210	1.03E-07
3947	637800	4272260	2.10E-07
3948	637850	4272260	2.16E-07
3949	637900	4272260	2.30E-07
3950	637950	4272260	2.67E-07
3951	638000	4272260	4.20E-07
3952	638050	4272260	2.99E-07
3953	638100	4272260	1.84E-07
3954	638150	4272260	1.43E-07
3955	638200	4272260	1.20E-07
3956	638250	4272260	1.03E-07
3957	637800	4272310	2.35E-07
3958	637850	4272310	2.41E-07
3959	637900	4272310	2.54E-07
3960	637950	4272310	2.89E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
3961	638000	4272310	4.38E-07
3962	638050	4272310	2.90E-07
3963	638100	4272310	1.80E-07
3964	638150	4272310	1.41E-07
3965	638200	4272310	1.19E-07
3966	638250	4272310	1.03E-07
3967	637800	4272360	2.73E-07
3968	637850	4272360	2.77E-07
3969	637900	4272360	2.89E-07
3970	637950	4272360	3.17E-07
3971	638000	4272360	4.04E-07
3972	638050	4272360	2.65E-07
3973	638100	4272360	1.72E-07
3974	638150	4272360	1.37E-07
3975	638200	4272360	1.17E-07
3976	638250	4272360	1.02E-07
3977	637800	4272410	3.35E-07
3978	637850	4272410	3.38E-07
3979	637900	4272410	3.43E-07
3980	637950	4272410	3.52E-07
3981	638000	4272410	3.33E-07
3982	638050	4272410	2.32E-07
3983	638100	4272410	1.66E-07
3984	638150	4272410	1.34E-07
3985	638200	4272410	1.15E-07
3986	638250	4272410	1.01E-07
3987	637800	4272460	2.78E-07
3988	637850	4272460	2.80E-07
3989	637900	4272460	2.80E-07
3990	637950	4272460	2.75E-07
3991	638000	4272460	2.48E-07
3992	638050	4272460	2.00E-07
3993	638100	4272460	1.59E-07
3994	638150	4272460	1.32E-07
3995	638200	4272460	1.14E-07
3996	638250	4272460	1.01E-07
3997	637800	4272510	2.37E-07
3998	637850	4272510	2.45E-07
3999	637900	4272510	2.41E-07
4000	637950	4272510	2.31E-07
4001	638000	4272510	2.09E-07
4002	638050	4272510	1.79E-07
4003	638100	4272510	1.52E-07
4004	638150	4272510	1.29E-07
4005	638200	4272510	1.13E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
4006	638250	4272510	1.00E-07
4007	637800	4272560	2.21E-07
4008	637850	4272560	2.21E-07
4009	637900	4272560	2.14E-07
4010	637950	4272560	2.03E-07
4011	638000	4272560	1.85E-07
4012	638050	4272560	1.63E-07
4013	638100	4272560	1.44E-07
4014	638150	4272560	1.26E-07
4015	637800	4272610	2.06E-07
4016	637850	4272610	2.03E-07
4017	637900	4272610	1.95E-07
4018	637950	4272610	1.84E-07
4019	638000	4272610	1.69E-07
4020	638050	4272610	1.51E-07
4021	638100	4272610	1.37E-07
4022	638150	4272610	1.23E-07
4023	637800	4272660	1.95E-07
4024	637850	4272660	1.89E-07
4025	637900	4272660	1.80E-07
4026	637800	4272710	1.86E-07
4027	637850	4272710	1.78E-07
4028	637900	4272710	1.69E-07
4029	637800	4272760	1.79E-07
4030	637850	4272760	1.70E-07
4031	637900	4272760	1.61E-07
4032	637800	4272810	1.72E-07
4033	637850	4272810	1.63E-07
4034	637900	4272810	1.53E-07
4035	637800	4272860	1.67E-07
4036	637850	4272860	1.55E-07
4037	637900	4272860	1.45E-07
4038	637800	4272910	1.64E-07
4039	637850	4272910	1.52E-07
4040	637900	4272910	1.42E-07
4041	637800	4272960	1.59E-07
4042	637850	4272960	1.47E-07
4043	637900	4272960	1.37E-07
4044	637800	4273010	1.54E-07
4045	637850	4273010	1.43E-07
4046	638370	4269975	6.84E-08
4047	638420	4269975	7.23E-08
4048	638470	4269975	7.96E-08
4049	638520	4269975	9.53E-08
4050	638570	4269975	1.45E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
4051	638620	4269975	1.54E-07
4052	638670	4269975	8.16E-08
4053	638720	4269975	6.16E-08
4054	638770	4269975	5.11E-08
4055	638820	4269975	4.44E-08
4056	638870	4269975	3.96E-08
4057	638920	4269975	3.59E-08
4058	638370	4270025	6.88E-08
4059	638420	4270025	7.27E-08
4060	638470	4270025	8.00E-08
4061	638520	4270025	9.57E-08
4062	638570	4270025	1.45E-07
4063	638620	4270025	1.54E-07
4064	638670	4270025	8.17E-08
4065	638720	4270025	6.14E-08
4066	638770	4270025	5.09E-08
4067	638820	4270025	4.44E-08
4068	638870	4270025	3.96E-08
4069	638920	4270025	3.60E-08
4070	638370	4270075	6.94E-08
4071	638420	4270075	7.33E-08
4072	638470	4270075	8.06E-08
4073	638520	4270075	9.63E-08
4074	638570	4270075	1.46E-07
4075	638620	4270075	1.54E-07
4076	638670	4270075	8.17E-08
4077	638720	4270075	6.12E-08
4078	638770	4270075	5.09E-08
4079	638820	4270075	4.44E-08
4080	638870	4270075	3.97E-08
4081	638920	4270075	3.60E-08
4082	638370	4270125	7.04E-08
4083	638420	4270125	7.43E-08
4084	638470	4270125	8.17E-08
4085	638520	4270125	9.74E-08
4086	638570	4270125	1.47E-07
4087	638620	4270125	1.55E-07
4088	638670	4270125	8.12E-08
4089	638720	4270125	6.10E-08
4090	638770	4270125	5.09E-08
4091	638820	4270125	4.44E-08
4092	638870	4270125	3.98E-08
4093	638920	4270125	3.62E-08
4094	638370	4270175	7.18E-08
4095	638420	4270175	7.58E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
4096	638470	4270175	8.33E-08
4097	638520	4270175	9.90E-08
4098	638570	4270175	1.49E-07
4099	638620	4270175	1.55E-07
4100	638670	4270175	8.03E-08
4101	638720	4270175	6.07E-08
4102	638770	4270175	5.07E-08
4103	638820	4270175	4.44E-08
4104	638870	4270175	3.98E-08
4105	638920	4270175	3.63E-08
4106	638370	4270225	7.35E-08
4107	638420	4270225	7.76E-08
4108	638470	4270225	8.54E-08
4109	638520	4270225	1.02E-07
4110	638570	4270225	1.55E-07
4111	638620	4270225	1.49E-07
4112	638670	4270225	7.86E-08
4113	638720	4270225	6.00E-08
4114	638770	4270225	5.04E-08
4115	638820	4270225	4.42E-08
4116	638870	4270225	3.97E-08
4117	638920	4270225	3.62E-08
4118	638370	4270275	7.58E-08
4119	638420	4270275	8.06E-08
4120	638470	4270275	8.98E-08
4121	638520	4270275	1.12E-07
4122	638570	4270275	1.72E-07
4123	638620	4270275	1.25E-07
4124	638670	4270275	7.58E-08
4125	638720	4270275	5.88E-08
4126	638770	4270275	4.97E-08
4127	638820	4270275	4.38E-08
4128	638870	4270275	3.94E-08
4129	638920	4270275	3.60E-08
4130	638370	4270325	8.00E-08
4131	638420	4270325	8.73E-08
4132	638470	4270325	1.03E-07
4133	638520	4270325	1.42E-07
4134	638570	4270325	1.67E-07
4135	638620	4270325	1.01E-07
4136	638670	4270325	7.21E-08
4137	638720	4270325	5.73E-08
4138	638770	4270325	4.89E-08
4139	638820	4270325	4.31E-08
4140	638870	4270325	3.89E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
4141	638920	4270325	3.55E-08
4142	638370	4270375	9.20E-08
4143	638420	4270375	1.15E-07
4144	638470	4270375	1.33E-07
4145	638520	4270375	1.74E-07
4146	638570	4270375	1.19E-07
4147	638620	4270375	8.60E-08
4148	638670	4270375	6.75E-08
4149	638720	4270375	5.56E-08
4150	638770	4270375	4.78E-08
4151	638820	4270375	4.24E-08
4152	638870	4270375	3.83E-08
4153	638920	4270375	3.51E-08
4154	638370	4270425	1.24E-07
4155	638420	4270425	1.87E-07
4156	638470	4270425	1.50E-07
4157	638520	4270425	1.21E-07
4158	638570	4270425	9.60E-08
4159	638620	4270425	7.61E-08
4160	638670	4270425	6.31E-08
4161	638720	4270425	5.37E-08
4162	638770	4270425	4.68E-08
4163	638820	4270425	4.17E-08
4164	638870	4270425	3.78E-08
4165	638920	4270425	3.46E-08
4166	638370	4270475	1.51E-07
4167	638420	4270475	1.30E-07
4168	638470	4270475	1.14E-07
4169	638520	4270475	9.83E-08
4170	638570	4270475	8.29E-08
4171	638620	4270475	6.93E-08
4172	638670	4270475	5.95E-08
4173	638720	4270475	5.19E-08
4174	638770	4270475	4.59E-08
4175	638820	4270475	4.11E-08
4176	638870	4270475	3.73E-08
4177	638370	4270525	1.19E-07
4178	638420	4270525	1.08E-07
4179	638470	4270525	9.68E-08
4180	638520	4270525	8.57E-08
4181	638570	4270525	7.47E-08
4182	638620	4270525	6.45E-08
4183	638670	4270525	5.66E-08
4184	638370	4270575	1.04E-07
4185	638420	4270575	9.51E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
4186	638470	4270575	8.63E-08
4187	638520	4270575	7.78E-08
4188	638570	4270575	6.92E-08
4189	638620	4270575	6.10E-08
4190	638370	4270625	9.45E-08
4191	638420	4270625	8.69E-08
4192	638470	4270625	7.96E-08
4193	638520	4270625	7.25E-08
4194	638570	4270625	6.53E-08
4195	638370	4270675	8.79E-08
4196	638420	4270675	8.11E-08
4197	638470	4270675	7.47E-08
4198	638520	4270675	6.86E-08
4199	637384.3	4272163	2.22E-07
4200	637434.3	4272163	2.15E-07
4201	637484.3	4272163	2.08E-07
4202	637534.3	4272163	2.04E-07
4203	637584.3	4272163	2.00E-07
4204	637634.3	4272163	1.97E-07
4205	637684.3	4272163	1.97E-07
4206	637734.3	4272163	1.97E-07
4207	637769.5	4272161	1.98E-07
4208	637384.3	4272213	2.15E-07
4209	637434.3	4272213	2.09E-07
4210	637484.3	4272213	2.04E-07
4211	637534.3	4272213	2.01E-07
4212	637584.3	4272213	1.99E-07
4213	637634.3	4272213	1.97E-07
4214	637684.3	4272213	2.01E-07
4215	637734.3	4272213	2.01E-07
4216	637769.5	4272211	2.01E-07
4217	637384.3	4272263	2.09E-07
4218	637434.3	4272263	2.04E-07
4219	637484.3	4272263	2.01E-07
4220	637534.3	4272263	2.00E-07
4221	637584.3	4272263	2.01E-07
4222	637634.3	4272263	2.04E-07
4223	637684.3	4272263	2.09E-07
4224	637734.3	4272263	2.09E-07
4225	637769.5	4272261	2.09E-07
4226	637384.3	4272313	2.05E-07
4227	637434.3	4272313	2.01E-07
4228	637484.3	4272313	1.99E-07
4229	637534.3	4272313	2.01E-07
4230	637584.3	4272313	2.13E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
4231	637634.3	4272313	2.36E-07
4232	637684.3	4272313	2.34E-07
4233	637734.3	4272313	2.38E-07
4234	637769.5	4272311	2.36E-07
4235	637384.3	4272363	2.01E-07
4236	637434.3	4272363	1.99E-07
4237	637484.3	4272363	2.00E-07
4238	637534.3	4272363	2.09E-07
4239	637584.3	4272363	2.79E-07
4240	637634.3	4272363	3.25E-07
4241	637684.3	4272363	3.02E-07
4242	637734.3	4272363	2.93E-07
4243	637769.5	4272361	2.94E-07
4244	637384.3	4272413	1.99E-07
4245	637434.3	4272413	1.99E-07
4246	637484.3	4272413	2.06E-07
4247	637534.3	4272413	2.32E-07
4248	637584.3	4272413	3.92E-07
4249	637634.3	4272413	3.93E-07
4250	637684.3	4272413	3.38E-07
4251	637734.3	4272413	3.27E-07
4252	637769.5	4272411	3.32E-07
4253	637384.3	4272463	1.99E-07
4254	637434.3	4272463	2.03E-07
4255	637484.3	4272463	2.15E-07
4256	637534.3	4272463	2.55E-07
4257	637584.3	4272463	4.30E-07
4258	637634.3	4272463	3.68E-07
4259	637684.3	4272463	2.87E-07
4260	637734.3	4272463	2.83E-07
4261	637769.5	4272461	2.80E-07
4262	637384.3	4272513	2.00E-07
4263	637434.3	4272513	2.06E-07
4264	637484.3	4272513	2.23E-07
4265	637534.3	4272513	2.71E-07
4266	637584.3	4272513	4.23E-07
4267	637634.3	4272513	3.52E-07
4268	637684.3	4272513	2.67E-07
4269	637734.3	4272513	2.47E-07
4270	637769.5	4272511	2.43E-07
4271	637384.3	4272563	2.01E-07
4272	637434.3	4272563	2.09E-07
4273	637484.3	4272563	2.30E-07
4274	637534.3	4272563	2.80E-07
4275	637584.3	4272563	4.39E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
4276	637634.3	4272563	3.47E-07
4277	637684.3	4272563	2.60E-07
4278	637734.3	4272563	2.38E-07
4279	637769.5	4272561	2.31E-07
4280	637384.3	4272613	2.01E-07
4281	637434.3	4272613	2.12E-07
4282	637484.3	4272613	2.34E-07
4283	637534.3	4272613	2.86E-07
4284	637584.3	4272613	4.53E-07
4285	637634.3	4272613	3.36E-07
4286	637684.3	4272613	2.52E-07
4287	637734.3	4272613	2.26E-07
4288	637769.5	4272611	2.16E-07
4289	637384.3	4272663	2.03E-07
4290	637434.3	4272663	2.14E-07
4291	637484.3	4272663	2.37E-07
4292	637534.3	4272663	2.90E-07
4293	637584.3	4272663	4.22E-07
4294	637634.3	4272663	3.28E-07
4295	637684.3	4272663	2.45E-07
4296	637734.3	4272663	2.15E-07
4297	637769.5	4272661	2.03E-07
4298	637384.3	4272713	2.04E-07
4299	637434.3	4272713	2.16E-07
4300	637484.3	4272713	2.40E-07
4301	637534.3	4272713	2.94E-07
4302	637584.3	4272713	4.29E-07
4303	637634.3	4272713	3.21E-07
4304	637684.3	4272713	2.40E-07
4305	637734.3	4272713	2.09E-07
4306	637769.5	4272711	1.94E-07
4307	637384.3	4272763	2.05E-07
4308	637434.3	4272763	2.18E-07
4309	637484.3	4272763	2.42E-07
4310	637534.3	4272763	2.97E-07
4311	637584.3	4272763	4.36E-07
4312	637634.3	4272763	3.12E-07
4313	637684.3	4272763	2.35E-07
4314	637734.3	4272763	2.04E-07
4315	637769.5	4272761	1.90E-07
4316	637384.3	4272813	2.08E-07
4317	637434.3	4272813	2.20E-07
4318	637484.3	4272813	2.44E-07
4319	637534.3	4272813	3.01E-07
4320	637584.3	4272813	4.42E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
4321	637634.3	4272813	3.07E-07
4322	637684.3	4272813	2.30E-07
4323	637734.3	4272813	1.98E-07
4324	637769.5	4272811	1.84E-07
4325	637384.3	4272863	2.11E-07
4326	637434.3	4272863	2.23E-07
4327	637484.3	4272863	2.47E-07
4328	637534.3	4272863	3.04E-07
4329	637584.3	4272863	4.48E-07
4330	637634.3	4272863	3.01E-07
4331	637684.3	4272863	2.24E-07
4332	637734.3	4272863	1.91E-07
4333	637769.5	4272861	1.77E-07
4334	637734.3	4272913	1.86E-07
4335	637769.5	4272911	1.73E-07
4336	637734.3	4272963	1.82E-07
4337	637769.5	4272961	1.68E-07
4338	637734.3	4273013	1.77E-07
4339	637769.5	4273011	1.63E-07
4340	637029.7	4272938	2.24E-07
4341	637077.2	4272936	2.20E-07
4342	637124.6	4272939	2.19E-07
4343	637164.6	4272939	2.17E-07
4344	637204.6	4272939	2.16E-07
4345	637244.6	4272939	2.15E-07
4346	637284.6	4272939	2.15E-07
4347	637324.6	4272939	2.16E-07
4348	637364.6	4272939	2.19E-07
4349	637404.6	4272939	2.24E-07
4350	637444.6	4272939	2.35E-07
4351	637484.6	4272939	2.56E-07
4352	637524.6	4272939	2.96E-07
4353	637564.6	4272939	4.25E-07
4354	637604.6	4272939	4.48E-07
4355	637644.6	4272939	2.68E-07
4356	637684.6	4272939	2.15E-07
4357	637029.7	4272978	2.46E-07
4358	637077.2	4272976	2.43E-07
4359	637124.6	4272979	2.42E-07
4360	637164.6	4272979	2.38E-07
4361	637204.6	4272979	2.35E-07
4362	637244.6	4272979	2.32E-07
4363	637284.6	4272979	2.31E-07
4364	637324.6	4272979	2.30E-07
4365	637364.6	4272979	2.32E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
4366	637404.6	4272979	2.35E-07
4367	637444.6	4272979	2.44E-07
4368	637484.6	4272979	2.64E-07
4369	637524.6	4272979	3.03E-07
4370	637564.6	4272979	4.38E-07
4371	637604.6	4272979	4.35E-07
4372	637644.6	4272979	2.62E-07
4373	637684.6	4272979	2.11E-07
4374	637029.7	4273018	3.63E-07
4375	637077.2	4273016	3.22E-07
4376	637124.6	4273019	3.10E-07
4377	637164.6	4273019	2.90E-07
4378	637204.6	4273019	2.77E-07
4379	637244.6	4273019	2.70E-07
4380	637284.6	4273019	2.64E-07
4381	637324.6	4273019	2.59E-07
4382	637364.6	4273019	2.57E-07
4383	637404.6	4273019	2.56E-07
4384	637444.6	4273019	2.62E-07
4385	637484.6	4273019	2.79E-07
4386	637524.6	4273019	3.18E-07
4387	637564.6	4273019	4.62E-07
4388	637604.6	4273019	4.18E-07
4389	637644.6	4273019	2.56E-07
4390	637684.6	4273019	2.07E-07
4391	637029.7	4273058	6.50E-07
4392	637077.2	4273056	4.80E-07
4393	637124.6	4273059	4.53E-07
4394	637164.6	4273059	3.16E-07
4395	637204.6	4273059	3.05E-07
4396	637244.6	4273059	3.08E-07
4397	637284.6	4273059	2.80E-07
4398	637324.6	4273059	3.56E-07
4399	637364.6	4273059	3.29E-07
4400	637404.6	4273059	3.09E-07
4401	637444.6	4273059	3.03E-07
4402	637484.6	4273059	3.14E-07
4403	637524.6	4273059	3.51E-07
4404	637564.6	4273059	4.56E-07
4405	637604.6	4273059	3.78E-07
4406	637644.6	4273059	2.47E-07
4407	637684.6	4273059	2.01E-07
4408	637029.7	4273098	4.69E-07
4409	637077.2	4273096	4.92E-07
4410	637124.6	4273099	4.94E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
4411	637164.6	4273099	5.11E-07
4412	637204.6	4273099	5.21E-07
4413	637244.6	4273099	5.58E-07
4414	637284.6	4273099	5.94E-07
4415	637324.6	4273099	6.71E-07
4416	637364.6	4273099	3.52E-07
4417	637404.6	4273099	3.45E-07
4418	637444.6	4273099	3.37E-07
4419	637484.6	4273099	3.33E-07
4420	637524.6	4273099	4.63E-07
4421	637564.6	4273099	4.86E-07
4422	637604.6	4273099	3.33E-07
4423	637644.6	4273099	2.36E-07
4424	637684.6	4273099	1.94E-07
4425	637029.7	4273138	3.90E-07
4426	637077.2	4273136	4.02E-07
4427	637124.6	4273139	4.05E-07
4428	637164.6	4273139	4.16E-07
4429	637204.6	4273139	4.27E-07
4430	637244.6	4273139	4.41E-07
4431	637284.6	4273139	4.62E-07
4432	637324.6	4273139	4.83E-07
4433	637364.6	4273139	5.16E-07
4434	637404.6	4273139	5.52E-07
4435	637444.6	4273139	6.01E-07
4436	637484.6	4273139	6.72E-07
4437	637524.6	4273139	7.96E-07
4438	637564.6	4273139	5.18E-07
4439	637604.6	4273139	2.95E-07
4440	637644.6	4273139	2.22E-07
4441	637684.6	4273139	1.86E-07
4442	637029.7	4272898	2.11E-07
4443	637077.2	4272896	2.09E-07
4444	637124.6	4272899	2.07E-07
4445	637029.7	4273178	3.44E-07
4446	637077.2	4273176	3.52E-07
4447	637124.6	4273179	3.55E-07
4448	637164.6	4273179	3.64E-07
4449	637204.6	4273179	3.73E-07
4450	637244.6	4273179	3.84E-07
4451	637164.6	4272899	2.06E-07
4452	637284.6	4273179	3.96E-07
4453	637324.6	4273179	4.12E-07
4454	637364.6	4273179	4.32E-07
4455	637404.6	4273179	4.56E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
4456	637444.6	4273179	4.90E-07
4457	637484.6	4273179	5.57E-07
4458	637524.6	4273179	6.27E-07
4459	637564.6	4273179	4.38E-07
4460	637604.6	4273179	2.72E-07
4461	637644.6	4273179	2.12E-07
4462	637204.6	4272899	2.06E-07
4463	637684.6	4273179	1.80E-07
4464	637244.6	4272899	2.05E-07
4465	637284.6	4272899	2.06E-07
4466	637324.6	4272899	2.08E-07
4467	637364.6	4272899	2.12E-07
4468	637029.7	4273218	3.13E-07
4469	637077.2	4273216	3.20E-07
4470	637124.6	4273219	3.24E-07
4471	637164.6	4273219	3.31E-07
4472	637204.6	4273219	3.39E-07
4473	637244.6	4273219	3.49E-07
4474	637404.6	4272899	2.18E-07
4475	637284.6	4273219	3.60E-07
4476	637324.6	4273219	3.75E-07
4477	637364.6	4273219	3.94E-07
4478	637404.6	4273219	4.25E-07
4479	637444.6	4273219	4.84E-07
4480	637484.6	4273219	5.56E-07
4481	637524.6	4273219	5.14E-07
4482	637564.6	4273219	3.57E-07
4483	637604.6	4273219	2.53E-07
4484	637644.6	4273219	2.03E-07
4485	637444.6	4272899	2.30E-07
4486	637684.6	4273219	1.75E-07
4487	637484.6	4272899	2.50E-07
4488	637524.6	4272899	2.91E-07
4489	637564.6	4272899	4.14E-07
4490	637604.6	4272899	4.44E-07
4491	637029.7	4273258	2.92E-07
4492	637077.2	4273256	2.98E-07
4493	637124.6	4273259	3.03E-07
4494	637164.6	4273259	3.10E-07
4495	637204.6	4273259	3.18E-07
4496	637244.6	4273259	3.29E-07
4497	637644.6	4272899	2.73E-07
4498	637284.6	4273259	3.43E-07
4499	637324.6	4273259	3.65E-07
4500	637364.6	4273259	4.10E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
4501	637404.6	4273259	4.38E-07
4502	637444.6	4273259	5.76E-07
4503	637484.6	4273259	4.99E-07
4504	637524.6	4273259	3.92E-07
4505	637564.6	4273259	3.04E-07
4506	637604.6	4273259	2.37E-07
4507	637644.6	4273259	1.94E-07
4508	637684.6	4272899	2.20E-07
4509	637684.6	4273259	1.70E-07
4510	637044.6	4273299	2.78E-07
4511	637084.6	4273299	2.83E-07
4512	637124.6	4273299	2.90E-07
4513	637164.6	4273299	2.99E-07
4514	637204.6	4273299	3.10E-07
4515	637244.6	4273299	3.27E-07
4516	637284.6	4273299	3.59E-07
4517	637324.6	4273299	3.86E-07
4518	637364.6	4273299	4.33E-07
4519	637404.6	4273299	5.13E-07
4520	637444.6	4273299	4.46E-07
4521	637484.6	4273299	3.86E-07
4522	637524.6	4273299	3.25E-07
4523	637564.6	4273299	2.69E-07
4524	637604.6	4273299	2.22E-07
4525	637644.6	4273299	1.87E-07
4526	637684.6	4273299	1.64E-07
4527	637044.6	4273339	2.69E-07
4528	637084.6	4273339	2.76E-07
4529	637124.6	4273339	2.85E-07
4530	637164.6	4273339	3.00E-07
4531	637204.6	4273339	3.25E-07
4532	637244.6	4273339	3.65E-07
4533	637284.6	4273339	4.17E-07
4534	637324.6	4273339	5.19E-07
4535	637364.6	4273339	4.48E-07
4536	637404.6	4273339	4.02E-07
4537	637444.6	4273339	3.64E-07
4538	637484.6	4273339	3.23E-07
4539	637524.6	4273339	2.82E-07
4540	637564.6	4273339	2.42E-07
4541	637604.6	4273339	2.08E-07
4542	636389	4272846	1.85E-07
4543	636429	4272846	1.88E-07
4544	636469	4272846	1.91E-07
4545	636509	4272846	1.94E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
4546	636549	4272846	1.96E-07
4547	636589	4272846	1.98E-07
4548	636629	4272846	2.00E-07
4549	636669	4272846	2.01E-07
4550	636709	4272846	2.02E-07
4551	636749	4272846	2.03E-07
4552	636789	4272846	2.04E-07
4553	636829	4272846	2.05E-07
4554	636869	4272846	2.05E-07
4555	636909	4272846	2.05E-07
4556	636949	4272846	2.04E-07
4557	636989	4272846	2.05E-07
4558	636389	4272886	1.91E-07
4559	636429	4272886	1.94E-07
4560	636469	4272886	1.97E-07
4561	636509	4272886	2.00E-07
4562	636549	4272886	2.02E-07
4563	636589	4272886	2.04E-07
4564	636629	4272886	2.06E-07
4565	636669	4272886	2.07E-07
4566	636709	4272886	2.08E-07
4567	636749	4272886	2.10E-07
4568	636789	4272886	2.11E-07
4569	636829	4272886	2.12E-07
4570	636869	4272886	2.12E-07
4571	636909	4272886	2.11E-07
4572	636949	4272886	2.08E-07
4573	636989	4272886	2.10E-07
4574	636389	4272926	2.02E-07
4575	636429	4272926	2.06E-07
4576	636469	4272926	2.09E-07
4577	636509	4272926	2.12E-07
4578	636549	4272926	2.15E-07
4579	636589	4272926	2.17E-07
4580	636629	4272926	2.19E-07
4581	636669	4272926	2.20E-07
4582	636709	4272926	2.22E-07
4583	636749	4272926	2.24E-07
4584	636789	4272926	2.25E-07
4585	636829	4272926	2.25E-07
4586	636869	4272926	2.25E-07
4587	636909	4272926	2.24E-07
4588	636949	4272926	2.20E-07
4589	636989	4272926	2.21E-07
4590	636389	4272966	2.24E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
4591	636429	4272966	2.30E-07
4592	636469	4272966	2.35E-07
4593	636509	4272966	2.39E-07
4594	636549	4272966	2.43E-07
4595	636589	4272966	2.46E-07
4596	636629	4272966	2.49E-07
4597	636669	4272966	2.52E-07
4598	636709	4272966	2.55E-07
4599	636749	4272966	2.58E-07
4600	636789	4272966	2.60E-07
4601	636829	4272966	2.59E-07
4602	636869	4272966	2.57E-07
4603	636909	4272966	2.54E-07
4604	636949	4272966	2.49E-07
4605	636989	4272966	2.40E-07
4606	636389	4273006	2.87E-07
4607	636429	4273006	2.99E-07
4608	636469	4273006	3.14E-07
4609	636509	4273006	3.25E-07
4610	636549	4273006	3.36E-07
4611	636589	4273006	3.49E-07
4612	636629	4273006	3.62E-07
4613	636669	4273006	3.27E-07
4614	636709	4273006	3.26E-07
4615	636749	4273006	2.88E-07
4616	636789	4273006	3.41E-07
4617	636829	4273006	3.29E-07
4618	636869	4273006	3.37E-07
4619	636909	4273006	3.70E-07
4620	636949	4273006	3.53E-07
4621	636989	4273006	3.29E-07
4622	636389	4273046	2.78E-07
4623	636429	4273046	3.44E-07
4624	636469	4273046	3.72E-07
4625	636509	4273046	4.98E-07
4626	636549	4273046	7.03E-07
4627	636589	4273046	6.86E-07
4628	636629	4273046	6.67E-07
4629	636669	4273046	6.50E-07
4630	636709	4273046	6.35E-07
4631	636749	4273046	6.18E-07
4632	636789	4273046	6.03E-07
4633	636829	4273046	6.16E-07
4634	636869	4273046	6.32E-07
4635	636909	4273046	6.46E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
4636	636949	4273046	6.64E-07
4637	636989	4273046	4.81E-07
4638	636389	4272806	1.83E-07
4639	636429	4272806	1.86E-07
4640	636469	4272806	1.89E-07
4641	636389	4273086	5.13E-07
4642	636429	4273086	5.03E-07
4643	636469	4273086	4.95E-07
4644	636509	4273086	4.89E-07
4645	636549	4273086	4.83E-07
4646	636589	4273086	4.78E-07
4647	636509	4272806	1.92E-07
4648	636629	4273086	4.72E-07
4649	636669	4273086	4.66E-07
4650	636709	4273086	4.60E-07
4651	636749	4273086	4.55E-07
4652	636789	4273086	4.52E-07
4653	636829	4273086	4.56E-07
4654	636869	4273086	4.62E-07
4655	636909	4273086	4.67E-07
4656	636949	4273086	4.74E-07
4657	636989	4273086	4.86E-07
4658	636549	4272806	1.94E-07
4659	636589	4272806	1.96E-07
4660	636629	4272806	1.97E-07
4661	636669	4272806	1.99E-07
4662	636709	4272806	1.99E-07
4663	636389	4273126	4.06E-07
4664	636429	4273126	4.00E-07
4665	636469	4273126	3.99E-07
4666	636509	4273126	3.96E-07
4667	636549	4273126	3.94E-07
4668	636589	4273126	3.91E-07
4669	636749	4272806	2.00E-07
4670	636629	4273126	3.88E-07
4671	636669	4273126	3.85E-07
4672	636709	4273126	3.83E-07
4673	636749	4273126	3.80E-07
4674	636789	4273126	3.80E-07
4675	636829	4273126	3.82E-07
4676	636869	4273126	3.86E-07
4677	636909	4273126	3.89E-07
4678	636949	4273126	3.93E-07
4679	636989	4273126	4.00E-07
4680	636789	4272806	2.01E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
4681	636829	4272806	2.01E-07
4682	636869	4272806	2.02E-07
4683	636909	4272806	2.03E-07
4684	636949	4272806	2.01E-07
4685	636389	4273166	3.47E-07
4686	636429	4273166	3.45E-07
4687	636469	4273166	3.44E-07
4688	636509	4273166	3.43E-07
4689	636549	4273166	3.42E-07
4690	636589	4273166	3.40E-07
4691	636989	4272806	2.02E-07
4692	636629	4273166	3.39E-07
4693	636669	4273166	3.37E-07
4694	636709	4273166	3.36E-07
4695	636749	4273166	3.35E-07
4696	636789	4273166	3.36E-07
4697	636829	4273166	3.37E-07
4698	636869	4273166	3.40E-07
4699	636909	4273166	3.43E-07
4700	636949	4273166	3.46E-07
4701	636989	4273166	3.50E-07
4702	636389	4273206	3.10E-07
4703	636429	4273206	3.08E-07
4704	636469	4273206	3.07E-07
4705	636509	4273206	3.07E-07
4706	636549	4273206	3.07E-07
4707	636589	4273206	3.06E-07
4708	636629	4273206	3.06E-07
4709	636669	4273206	3.05E-07
4710	636709	4273206	3.04E-07
4711	636749	4273206	3.04E-07
4712	636789	4273206	3.05E-07
4713	636829	4273206	3.07E-07
4714	636869	4273206	3.09E-07
4715	636909	4273206	3.11E-07
4716	636949	4273206	3.14E-07
4717	636989	4273206	3.17E-07
4718	636389	4273246	2.82E-07
4719	636429	4273246	2.82E-07
4720	636469	4273246	2.81E-07
4721	636509	4273246	2.81E-07
4722	636549	4273246	2.81E-07
4723	636589	4273246	2.81E-07
4724	636629	4273246	2.81E-07
4725	636669	4273246	2.81E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
4726	636709	4273246	2.81E-07
4727	636749	4273246	2.82E-07
4728	636789	4273246	2.83E-07
4729	636829	4273246	2.84E-07
4730	636869	4273246	2.86E-07
4731	636909	4273246	2.88E-07
4732	636949	4273246	2.91E-07
4733	636989	4273246	2.94E-07
4734	635706.8	4272891	1.23E-07
4735	635746.8	4272891	1.29E-07
4736	635786.8	4272891	1.34E-07
4737	635826.8	4272891	1.40E-07
4738	635866.8	4272891	1.45E-07
4739	635906.8	4272891	1.51E-07
4740	635946.8	4272891	1.56E-07
4741	635986.8	4272891	1.60E-07
4742	636026.8	4272891	1.64E-07
4743	636066.8	4272891	1.68E-07
4744	636106.8	4272891	1.70E-07
4745	636146.8	4272891	1.74E-07
4746	636186.8	4272891	1.77E-07
4747	636226.8	4272891	1.80E-07
4748	636266.8	4272891	1.82E-07
4749	636306.8	4272891	1.84E-07
4750	636346.8	4272891	1.88E-07
4751	635706.8	4272931	1.27E-07
4752	635746.8	4272931	1.33E-07
4753	635786.8	4272931	1.39E-07
4754	635826.8	4272931	1.45E-07
4755	635866.8	4272931	1.51E-07
4756	635906.8	4272931	1.58E-07
4757	635946.8	4272931	1.63E-07
4758	635986.8	4272931	1.68E-07
4759	636026.8	4272931	1.72E-07
4760	636066.8	4272931	1.76E-07
4761	636106.8	4272931	1.79E-07
4762	636146.8	4272931	1.82E-07
4763	636186.8	4272931	1.85E-07
4764	636226.8	4272931	1.89E-07
4765	636266.8	4272931	1.92E-07
4766	636306.8	4272931	1.96E-07
4767	636346.8	4272931	2.00E-07
4768	635706.8	4272971	1.33E-07
4769	635746.8	4272971	1.40E-07
4770	635786.8	4272971	1.48E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
4771	635826.8	4272971	1.55E-07
4772	635866.8	4272971	1.63E-07
4773	635906.8	4272971	1.69E-07
4774	635946.8	4272971	1.76E-07
4775	635986.8	4272971	1.81E-07
4776	636026.8	4272971	1.86E-07
4777	636066.8	4272971	1.91E-07
4778	636106.8	4272971	1.95E-07
4779	636146.8	4272971	1.98E-07
4780	636186.8	4272971	2.03E-07
4781	636226.8	4272971	2.08E-07
4782	636266.8	4272971	2.13E-07
4783	636306.8	4272971	2.17E-07
4784	636346.8	4272971	2.23E-07
4785	635706.8	4273011	1.43E-07
4786	635746.8	4273011	1.52E-07
4787	635786.8	4273011	1.63E-07
4788	635826.8	4273011	1.74E-07
4789	635866.8	4273011	1.85E-07
4790	635906.8	4273011	1.95E-07
4791	635946.8	4273011	2.03E-07
4792	635986.8	4273011	2.10E-07
4793	636026.8	4273011	2.17E-07
4794	636066.8	4273011	2.24E-07
4795	636106.8	4273011	2.31E-07
4796	636146.8	4273011	2.37E-07
4797	636186.8	4273011	2.45E-07
4798	636226.8	4273011	2.54E-07
4799	636266.8	4273011	2.64E-07
4800	636306.8	4273011	2.75E-07
4801	636346.8	4273011	2.87E-07
4802	635706.8	4273051	1.59E-07
4803	635746.8	4273051	1.74E-07
4804	635786.8	4273051	1.94E-07
4805	635826.8	4273051	2.14E-07
4806	635866.8	4273051	2.40E-07
4807	635906.8	4273051	2.72E-07
4808	635946.8	4273051	2.92E-07
4809	635986.8	4273051	3.11E-07
4810	636026.8	4273051	3.30E-07
4811	636066.8	4273051	3.00E-07
4812	636106.8	4273051	3.08E-07
4813	636146.8	4273051	2.71E-07
4814	636186.8	4273051	3.44E-07
4815	636226.8	4273051	2.94E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
4816	636266.8	4273051	3.09E-07
4817	636306.8	4273051	3.34E-07
4818	636346.8	4273051	3.32E-07
4819	635706.8	4273091	2.05E-07
4820	635746.8	4273091	2.37E-07
4821	635786.8	4273091	3.00E-07
4822	635826.8	4273091	2.70E-07
4823	635866.8	4273091	3.32E-07
4824	635906.8	4273091	3.33E-07
4825	635946.8	4273091	3.41E-07
4826	635986.8	4273091	4.67E-07
4827	636026.8	4273091	6.44E-07
4828	636066.8	4273091	6.22E-07
4829	636106.8	4273091	5.98E-07
4830	636146.8	4273091	5.84E-07
4831	636186.8	4273091	5.66E-07
4832	636226.8	4273091	5.50E-07
4833	636266.8	4273091	5.38E-07
4834	636306.8	4273091	5.21E-07
4835	636346.8	4273091	5.08E-07
4836	635706.8	4272851	1.21E-07
4837	635746.8	4272851	1.26E-07
4838	635786.8	4272851	1.31E-07
4839	635706.8	4273131	3.32E-07
4840	635746.8	4273131	3.30E-07
4841	635786.8	4273131	6.93E-07
4842	635826.8	4273131	5.87E-07
4843	635866.8	4273131	5.16E-07
4844	635906.8	4273131	4.74E-07
4845	635826.8	4272851	1.36E-07
4846	635946.8	4273131	4.62E-07
4847	635986.8	4273131	4.55E-07
4848	636026.8	4273131	4.49E-07
4849	636066.8	4273131	4.42E-07
4850	636106.8	4273131	4.36E-07
4851	636146.8	4273131	4.29E-07
4852	636186.8	4273131	4.23E-07
4853	636226.8	4273131	4.18E-07
4854	636266.8	4273131	4.15E-07
4855	636306.8	4273131	4.08E-07
4856	635866.8	4272851	1.41E-07
4857	636346.8	4273131	4.03E-07
4858	635906.8	4272851	1.47E-07
4859	635946.8	4272851	1.52E-07
4860	635986.8	4272851	1.56E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
4861	636026.8	4272851	1.60E-07
4862	635706.8	4273171	5.83E-07
4863	635746.8	4273171	5.04E-07
4864	635786.8	4273171	4.53E-07
4865	635826.8	4273171	4.18E-07
4866	635866.8	4273171	3.92E-07
4867	635906.8	4273171	3.76E-07
4868	636066.8	4272851	1.63E-07
4869	635946.8	4273171	3.70E-07
4870	635986.8	4273171	3.68E-07
4871	636026.8	4273171	3.65E-07
4872	636066.8	4273171	3.63E-07
4873	636106.8	4273171	3.60E-07
4874	636146.8	4273171	3.57E-07
4875	636186.8	4273171	3.54E-07
4876	636226.8	4273171	3.53E-07
4877	636266.8	4273171	3.51E-07
4878	636306.8	4273171	3.48E-07
4879	636106.8	4272851	1.66E-07
4880	636346.8	4273171	3.45E-07
4881	636146.8	4272851	1.69E-07
4882	636186.8	4272851	1.72E-07
4883	636226.8	4272851	1.75E-07
4884	636266.8	4272851	1.77E-07
4885	635706.8	4273211	4.09E-07
4886	635746.8	4273211	3.81E-07
4887	635786.8	4273211	3.59E-07
4888	635826.8	4273211	3.42E-07
4889	635866.8	4273211	3.29E-07
4890	635906.8	4273211	3.22E-07
4891	636306.8	4272851	1.80E-07
4892	635946.8	4273211	3.18E-07
4893	635986.8	4273211	3.17E-07
4894	636026.8	4273211	3.16E-07
4895	636066.8	4273211	3.15E-07
4896	636106.8	4273211	3.14E-07
4897	636146.8	4273211	3.12E-07
4898	636186.8	4273211	3.12E-07
4899	636226.8	4273211	3.11E-07
4900	636266.8	4273211	3.10E-07
4901	636306.8	4273211	3.10E-07
4902	636346.8	4272851	1.83E-07
4903	636346.8	4273211	3.09E-07
4904	635706.8	4273251	3.33E-07
4905	635746.8	4273251	3.18E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
4906	635786.8	4273251	3.06E-07
4907	635826.8	4273251	2.97E-07
4908	635866.8	4273251	2.90E-07
4909	635906.8	4273251	2.86E-07
4910	635946.8	4273251	2.84E-07
4911	635986.8	4273251	2.83E-07
4912	636026.8	4273251	2.83E-07
4913	636066.8	4273251	2.83E-07
4914	636106.8	4273251	2.82E-07
4915	636146.8	4273251	2.82E-07
4916	636186.8	4273251	2.82E-07
4917	636226.8	4273251	2.82E-07
4918	636266.8	4273251	2.82E-07
4919	636306.8	4273251	2.82E-07
4920	636346.8	4273251	2.81E-07
4921	635706.8	4273291	2.87E-07
4922	635746.8	4273291	2.79E-07
4923	635786.8	4273291	2.72E-07
4924	635826.8	4273291	2.66E-07
4925	635866.8	4273291	2.62E-07
4926	635906.8	4273291	2.60E-07
4927	635946.8	4273291	2.59E-07
4928	635986.8	4273291	2.59E-07
4929	636026.8	4273291	2.59E-07
4930	636066.8	4273291	2.59E-07
4931	636106.8	4273291	2.59E-07
4932	636146.8	4273291	2.59E-07
4933	636186.8	4273291	2.59E-07
4934	636226.8	4273291	2.60E-07
4935	636266.8	4273291	2.60E-07
4936	636306.8	4273291	2.60E-07
4937	636346.8	4273291	2.60E-07
4938	637033.8	4272855	2.04E-07
4939	637081.3	4272853	2.02E-07
4940	637128.7	4272856	2.00E-07
4941	637168.7	4272856	2.00E-07
4942	637208.7	4272856	2.00E-07
4943	637248.7	4272856	2.00E-07
4944	637288.7	4272856	2.01E-07
4945	637338.1	4272856	2.04E-07
4946	637042.2	4272813	2.00E-07
4947	637089.6	4272811	1.99E-07
4948	637137	4272815	1.98E-07
4949	637177	4272815	1.97E-07
4950	637217	4272815	1.97E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
4951	637257	4272815	1.97E-07
4952	637297	4272815	1.98E-07
4953	637346.5	4272815	2.02E-07
4954	635362.1	4273012	8.75E-08
4955	635402.1	4273012	9.17E-08
4956	635442.1	4273012	9.66E-08
4957	635482.1	4273012	1.02E-07
4958	635522.1	4273012	1.08E-07
4959	635562.1	4273012	1.15E-07
4960	635602.1	4273012	1.22E-07
4961	635642.1	4273012	1.30E-07
4962	635682.1	4273012	1.38E-07
4963	635362.1	4273052	8.83E-08
4964	635402.1	4273052	9.29E-08
4965	635442.1	4273052	9.83E-08
4966	635482.1	4273052	1.04E-07
4967	635522.1	4273052	1.12E-07
4968	635562.1	4273052	1.21E-07
4969	635602.1	4273052	1.33E-07
4970	635642.1	4273052	1.44E-07
4971	635682.1	4273052	1.53E-07
4972	635362.1	4273092	8.94E-08
4973	635402.1	4273092	9.42E-08
4974	635442.1	4273092	1.00E-07
4975	635482.1	4273092	1.08E-07
4976	635522.1	4273092	1.18E-07
4977	635562.1	4273092	1.33E-07
4978	635602.1	4273092	1.52E-07
4979	635642.1	4273092	1.71E-07
4980	635682.1	4273092	1.93E-07
4981	635362.1	4273132	9.13E-08
4982	635402.1	4273132	9.67E-08
4983	635442.1	4273132	1.03E-07
4984	635482.1	4273132	1.13E-07
4985	635522.1	4273132	1.31E-07
4986	635562.1	4273132	1.62E-07
4987	635602.1	4273132	1.99E-07
4988	635642.1	4273132	2.48E-07
4989	635682.1	4273132	3.37E-07
4990	635362.1	4273172	9.39E-08
4991	635402.1	4273172	1.01E-07
4992	635442.1	4273172	1.10E-07
4993	635482.1	4273172	1.25E-07
4994	635522.1	4273172	1.65E-07
4995	635562.1	4273172	2.38E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
4996	635602.1	4273172	2.69E-07
4997	635642.1	4273172	3.38E-07
4998	635682.1	4273172	6.35E-07
4999	635362.1	4273212	9.71E-08
5000	635402.1	4273212	1.06E-07
5001	635442.1	4273212	1.20E-07
5002	635482.1	4273212	1.52E-07
5003	635522.1	4273212	3.58E-07
5004	635562.1	4273212	6.09E-07
5005	635602.1	4273212	5.26E-07
5006	635642.1	4273212	4.70E-07
5007	635682.1	4273212	4.27E-07
5008	635362.1	4272972	8.66E-08
5009	635402.1	4272972	9.07E-08
5010	635442.1	4272972	9.51E-08
5011	635362.1	4273252	1.03E-07
5012	635402.1	4273252	1.16E-07
5013	635442.1	4273252	1.40E-07
5014	635482.1	4273252	1.86E-07
5015	635522.1	4273252	3.00E-07
5016	635562.1	4273252	3.87E-07
5017	635482.1	4272972	9.99E-08
5018	635602.1	4273252	3.78E-07
5019	635642.1	4273252	3.60E-07
5020	635682.1	4273252	3.41E-07
5021	635522.1	4272972	1.05E-07
5022	635562.1	4272972	1.10E-07
5023	635602.1	4272972	1.16E-07
5024	635642.1	4272972	1.23E-07
5025	635682.1	4272972	1.29E-07
5026	635362.1	4273292	1.11E-07
5027	635402.1	4273292	1.26E-07
5028	635442.1	4273292	1.48E-07
5029	635482.1	4273292	1.88E-07
5030	635522.1	4273292	2.48E-07
5031	635562.1	4273292	2.93E-07
5032	635602.1	4273292	3.05E-07
5033	635642.1	4273292	2.99E-07
5034	635682.1	4273292	2.91E-07
5035	635362.1	4273332	1.15E-07
5036	635402.1	4273332	1.28E-07
5037	635442.1	4273332	1.49E-07
5038	635482.1	4273332	1.80E-07
5039	635522.1	4273332	2.16E-07
5040	635562.1	4273332	2.44E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
5041	635602.1	4273332	2.59E-07
5042	635642.1	4273332	2.60E-07
5043	635682.1	4273332	2.57E-07
5044	635362.1	4273372	1.15E-07
5045	635402.1	4273372	1.28E-07
5046	635442.1	4273372	1.47E-07
5047	635482.1	4273372	1.71E-07
5048	635522.1	4273372	1.95E-07
5049	635562.1	4273372	2.14E-07
5050	635602.1	4273372	2.27E-07
5051	635642.1	4273372	2.33E-07
5052	635682.1	4273372	2.32E-07
5053	635362.1	4273412	1.15E-07
5054	635402.1	4273412	1.28E-07
5055	635442.1	4273412	1.44E-07
5056	635482.1	4273412	1.62E-07
5057	635522.1	4273412	1.80E-07
5058	635562.1	4273412	1.94E-07
5059	635602.1	4273412	2.05E-07
5060	635642.1	4273412	2.11E-07
5061	635682.1	4273412	2.13E-07
5062	638859.2	4268359	1.90E-08
5063	638899.2	4268359	1.83E-08
5064	638939.2	4268359	1.77E-08
5065	637699.2	4268319	2.45E-08
5066	637739.2	4268319	2.57E-08
5067	637779.2	4268319	2.69E-08
5068	637819.2	4268319	2.79E-08
5069	637859.2	4268319	2.93E-08
5070	637899.2	4268319	3.08E-08
5071	637939.2	4268319	3.17E-08
5072	637979.2	4268319	3.20E-08
5073	638019.2	4268319	3.21E-08
5074	638059.2	4268319	3.20E-08
5075	638099.2	4268319	3.17E-08
5076	638139.2	4268319	3.14E-08
5077	638179.2	4268319	3.09E-08
5078	638219.2	4268319	3.05E-08
5079	638259.2	4268319	2.99E-08
5080	638299.2	4268319	2.93E-08
5081	638339.2	4268319	2.87E-08
5082	638379.2	4268319	2.81E-08
5083	638419.2	4268319	2.74E-08
5084	638459.2	4268319	2.66E-08
5085	638499.2	4268319	2.57E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
5086	638539.2	4268319	2.48E-08
5087	638579.2	4268319	2.38E-08
5088	638619.2	4268319	2.27E-08
5089	638659.2	4268319	2.18E-08
5090	638699.2	4268319	2.11E-08
5091	638739.2	4268319	2.05E-08
5092	638779.2	4268319	1.98E-08
5093	638819.2	4268319	1.92E-08
5094	638859.2	4268319	1.85E-08
5095	638899.2	4268319	1.79E-08
5096	638939.2	4268319	1.74E-08
5097	637699.2	4268359	2.59E-08
5098	637739.2	4268359	2.74E-08
5099	637779.2	4268359	2.90E-08
5100	637819.2	4268359	3.05E-08
5101	637859.2	4268359	3.25E-08
5102	637899.2	4268359	3.42E-08
5103	637939.2	4268359	3.48E-08
5104	637979.2	4268359	3.51E-08
5105	638019.2	4268359	3.51E-08
5106	638059.2	4268359	3.49E-08
5107	638099.2	4268359	3.45E-08
5108	638139.2	4268359	3.40E-08
5109	638179.2	4268359	3.35E-08
5110	638219.2	4268359	3.31E-08
5111	638259.2	4268359	3.27E-08
5112	638299.2	4268359	3.20E-08
5113	638339.2	4268359	3.13E-08
5114	638379.2	4268359	3.07E-08
5115	638419.2	4268359	2.98E-08
5116	638459.2	4268359	2.87E-08
5117	638499.2	4268359	2.75E-08
5118	638539.2	4268359	2.63E-08
5119	638579.2	4268359	2.50E-08
5120	638619.2	4268359	2.38E-08
5121	638659.2	4268359	2.28E-08
5122	638699.2	4268359	2.20E-08
5123	638739.2	4268359	2.12E-08
5124	638779.2	4268359	2.04E-08
5125	638819.2	4268359	1.97E-08
5126	636658	4273419	2.25E-07
5127	636658	4273459	2.18E-07
5128	636658	4273499	2.13E-07
5129	636658	4273539	2.11E-07
5130	636658	4273579	2.12E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
5131	636658	4273619	2.19E-07
5132	636658	4273659	2.44E-07
5133	636658	4273699	2.96E-07
5134	636658	4273739	4.18E-07
5135	636658	4273779	3.23E-07
5136	636658	4273819	2.78E-07
5137	636658	4273859	2.49E-07
5138	636680.9	4273378	2.35E-07
5139	636730.9	4273378	2.37E-07
5140	636780.9	4273378	2.39E-07
5141	636830.9	4273378	2.41E-07
5142	636880.9	4273378	2.45E-07
5143	636930.9	4273378	2.49E-07
5144	636980.9	4273378	2.55E-07
5145	637030.9	4273378	2.64E-07
5146	637080.9	4273378	2.77E-07
5147	637130.9	4273378	3.02E-07
5148	637180.9	4273378	3.55E-07
5149	637230.9	4273378	4.37E-07
5150	637280.9	4273378	4.61E-07
5151	637330.9	4273378	3.98E-07
5152	637380.9	4273378	3.59E-07
5153	637430.9	4273378	3.24E-07
5154	637480.9	4273378	2.86E-07
5155	637530.9	4273378	2.48E-07
5156	637580.9	4273378	2.11E-07
5157	636730.9	4273428	2.27E-07
5158	636780.9	4273428	2.30E-07
5159	636830.9	4273428	2.34E-07
5160	636880.9	4273428	2.39E-07
5161	636930.9	4273428	2.46E-07
5162	636980.9	4273428	2.57E-07
5163	637030.9	4273428	2.76E-07
5164	637080.9	4273428	3.24E-07
5165	637130.9	4273428	3.69E-07
5166	637180.9	4273428	4.77E-07
5167	637230.9	4273428	4.00E-07
5168	637280.9	4273428	3.56E-07
5169	637330.9	4273428	3.28E-07
5170	637380.9	4273428	3.02E-07
5171	637430.9	4273428	2.77E-07
5172	637480.9	4273428	2.49E-07
5173	636730.9	4273478	2.21E-07
5174	636780.9	4273478	2.25E-07
5175	636830.9	4273478	2.32E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
5176	636880.9	4273478	2.41E-07
5177	636930.9	4273478	2.57E-07
5178	636980.9	4273478	2.91E-07
5179	637030.9	4273478	3.34E-07
5180	637080.9	4273478	5.04E-07
5181	637130.9	4273478	4.01E-07
5182	637180.9	4273478	3.56E-07
5183	637230.9	4273478	3.26E-07
5184	637280.9	4273478	3.03E-07
5185	637330.9	4273478	2.83E-07
5186	637380.9	4273478	2.64E-07
5187	637430.9	4273478	2.44E-07
5188	637480.9	4273478	2.23E-07
5189	636730.9	4273528	2.19E-07
5190	636780.9	4273528	2.28E-07
5191	636830.9	4273528	2.41E-07
5192	636880.9	4273528	2.67E-07
5193	636930.9	4273528	3.10E-07
5194	636980.9	4273528	4.02E-07
5195	637030.9	4273528	4.16E-07
5196	637080.9	4273528	3.58E-07
5197	637130.9	4273528	3.24E-07
5198	637180.9	4273528	3.01E-07
5199	637230.9	4273528	2.82E-07
5200	637280.9	4273528	2.66E-07
5201	637330.9	4273528	2.52E-07
5202	637380.9	4273528	2.36E-07
5203	636730.9	4273578	2.27E-07
5204	636780.9	4273578	2.48E-07
5205	636830.9	4273578	3.01E-07
5206	636880.9	4273578	3.36E-07
5207	636930.9	4273578	4.38E-07
5208	636980.9	4273578	3.66E-07
5209	637030.9	4273578	3.26E-07
5210	637080.9	4273578	2.99E-07
5211	637130.9	4273578	2.80E-07
5212	637180.9	4273578	2.66E-07
5213	637230.9	4273578	2.53E-07
5214	637280.9	4273578	2.40E-07
5215	636730.9	4273628	2.69E-07
5216	636780.9	4273628	3.11E-07
5217	636830.9	4273628	4.74E-07
5218	636880.9	4273628	3.77E-07
5219	636930.9	4273628	3.29E-07
5220	636980.9	4273628	3.01E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
5221	637030.9	4273628	2.80E-07
5222	637080.9	4273628	2.65E-07
5223	637130.9	4273628	2.52E-07
5224	637180.9	4273628	2.40E-07
5225	636730.9	4273678	3.47E-07
5226	636780.9	4273678	3.92E-07
5227	636830.9	4273678	3.36E-07
5228	636880.9	4273678	3.03E-07
5229	636930.9	4273678	2.80E-07
5230	636980.9	4273678	2.63E-07
5231	636730.9	4273728	3.44E-07
5232	636780.9	4273728	3.06E-07
5233	636830.9	4273728	2.80E-07
5234	636880.9	4273728	2.63E-07
5235	636930.9	4273728	2.49E-07
5236	636730.9	4273778	2.82E-07
5237	636780.9	4273778	2.63E-07
5238	636830.9	4273778	2.48E-07
5239	636880.9	4273778	2.36E-07
5240	636730.9	4273828	2.47E-07
5241	636780.9	4273828	2.35E-07
5242	636830.9	4273828	2.25E-07
5243	636299.2	4273641	1.77E-07
5244	636349.2	4273641	1.80E-07
5245	636399.2	4273641	1.83E-07
5246	636449.2	4273641	1.87E-07
5247	636499.2	4273641	1.93E-07
5248	636549.2	4273641	2.00E-07
5249	636599.2	4273641	2.10E-07
5250	636299.2	4273691	1.72E-07
5251	636349.2	4273691	1.76E-07
5252	636399.2	4273691	1.81E-07
5253	636449.2	4273691	1.88E-07
5254	636499.2	4273691	1.97E-07
5255	636549.2	4273691	2.10E-07
5256	636599.2	4273691	2.34E-07
5257	636299.2	4273741	1.69E-07
5258	636349.2	4273741	1.75E-07
5259	636399.2	4273741	1.84E-07
5260	636449.2	4273741	1.97E-07
5261	636499.2	4273741	2.16E-07
5262	636549.2	4273741	2.58E-07
5263	636599.2	4273741	2.93E-07
5264	636299.2	4273791	1.69E-07
5265	636349.2	4273791	1.80E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
5266	636399.2	4273791	1.98E-07
5267	636449.2	4273791	2.31E-07
5268	636499.2	4273791	2.71E-07
5269	636549.2	4273791	3.82E-07
5270	636599.2	4273791	3.62E-07
5271	636299.2	4273841	1.74E-07
5272	636349.2	4273841	2.02E-07
5273	636399.2	4273841	2.71E-07
5274	636449.2	4273841	3.03E-07
5275	636499.2	4273841	3.85E-07
5276	636549.2	4273841	3.21E-07
5277	636599.2	4273841	2.87E-07
5278	636299.2	4273891	1.98E-07
5279	636349.2	4273891	2.65E-07
5280	636399.2	4273891	3.98E-07
5281	636449.2	4273891	3.26E-07
5282	636499.2	4273891	2.89E-07
5283	636549.2	4273891	2.64E-07
5284	636599.2	4273891	2.47E-07
5285	636299.2	4273941	2.78E-07
5286	636349.2	4273941	3.08E-07
5287	636399.2	4273941	2.66E-07
5288	636449.2	4273941	2.58E-07
5289	636499.2	4273941	2.44E-07
5290	636549.2	4273941	2.32E-07
5291	636299.2	4273991	2.21E-07
5292	636349.2	4273991	2.36E-07
5293	636399.2	4273991	2.28E-07
5294	636449.2	4273991	2.27E-07
5295	636499.2	4273991	2.19E-07
5296	636299.2	4274041	1.94E-07
5297	636349.2	4274041	2.02E-07
5298	636399.2	4274041	2.04E-07
5299	636449.2	4274041	2.05E-07
5300	636299.2	4274091	1.76E-07
5301	636349.2	4274091	1.83E-07
5302	636399.2	4274091	1.82E-07
5303	636129.9	4273816	1.52E-07
5304	636179.9	4273816	1.55E-07
5305	636229.9	4273816	1.59E-07
5306	636279.9	4273816	1.66E-07
5307	636129.9	4273866	1.49E-07
5308	636179.9	4273866	1.53E-07
5309	636229.9	4273866	1.59E-07
5310	636279.9	4273866	1.71E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
5311	636129.9	4273916	1.47E-07
5312	636179.9	4273916	1.53E-07
5313	636229.9	4273916	1.64E-07
5314	636279.9	4273916	1.96E-07
5315	636129.9	4273966	1.47E-07
5316	636179.9	4273966	1.56E-07
5317	636229.9	4273966	1.70E-07
5318	636279.9	4273966	2.12E-07
5319	636129.9	4274016	1.46E-07
5320	636179.9	4274016	1.53E-07
5321	636229.9	4274016	1.66E-07
5322	636279.9	4274016	1.94E-07
5323	636129.9	4274066	1.41E-07
5324	636179.9	4274066	1.49E-07
5325	636229.9	4274066	1.62E-07
5326	636279.9	4274066	1.78E-07
5327	636129.9	4274116	1.37E-07
5328	636179.9	4274116	1.45E-07
5329	636229.9	4274116	1.55E-07
5330	636544.4	4273598	1.98E-07
5331	636594.4	4273598	2.04E-07
5332	637879.7	4269503	7.19E-08
5333	637879.7	4269543	7.27E-08
5334	637879.7	4269583	7.36E-08
5335	637879.7	4269623	7.47E-08
5336	637879.7	4269663	7.59E-08
5337	637879.7	4269703	7.72E-08
5338	637879.7	4269743	7.87E-08
5339	637879.7	4269783	8.02E-08
5340	637879.7	4269823	8.21E-08
5341	637879.7	4269863	8.42E-08
5342	637879.7	4269903	8.65E-08
5343	637879.7	4269943	8.90E-08
5344	637961.5	4269439	6.46E-08
5345	638001.5	4269439	6.20E-08
5346	638041.5	4269439	5.98E-08
5347	637976.6	4269473	6.43E-08
5348	637838.2	4269470	7.54E-08
5349	637927.3	4269473	6.76E-08
5350	638028.7	4269468	6.11E-08
5351	637051.5	4269455	6.69E-08
5352	637091.5	4269455	6.97E-08
5353	637131.5	4269455	7.22E-08
5354	637171.5	4269455	7.44E-08
5355	637211.5	4269455	7.67E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
5356	637251.5	4269455	7.96E-08
5357	637049.9	4269402	6.08E-08
5358	637089.9	4269402	6.34E-08
5359	637129.9	4269402	6.57E-08
5360	637169.9	4269402	6.77E-08
5361	637209.9	4269402	6.96E-08
5362	637249.9	4269402	7.21E-08
5363	637033	4273682	2.48E-07
5364	637083	4273682	2.37E-07
5365	637133	4273682	2.27E-07
5366	636725	4273887	2.21E-07
5367	636775	4273887	2.13E-07
5368	636825	4273887	2.06E-07
5369	636657.2	4273890	2.33E-07
5370	636599.8	4273543	2.06E-07
5371	637727.3	4273058	1.75E-07
5372	637777.3	4273058	1.56E-07
5373	637729.7	4273103	1.68E-07
5374	637779.7	4273103	1.50E-07
5375	637729.6	4273147	1.62E-07
5376	637779.6	4273147	1.45E-07
5377	637727	4273188	1.58E-07
5378	637777	4273188	1.42E-07
5379	636997.8	4273339	2.63E-07
5380	636243.4	4270941	2.42E-07
5381	636283.4	4270941	2.93E-07
5382	636323.4	4270941	3.75E-07
5383	636363.4	4270941	6.38E-07
5384	636243.4	4270981	2.74E-07
5385	636283.4	4270981	3.47E-07
5386	636323.4	4270981	5.10E-07
5387	636363.4	4270981	6.98E-07
5388	636243.4	4271021	3.20E-07
5389	636283.4	4271021	4.47E-07
5390	636323.4	4271021	7.25E-07
5391	636363.4	4271021	8.76E-07
5392	636243.4	4271061	4.01E-07
5393	636283.4	4271061	5.96E-07
5394	636323.4	4271061	1.02E-06
5395	636363.4	4271061	6.69E-07
5396	636243.4	4271101	5.80E-07
5397	636283.4	4271101	7.71E-07
5398	636323.4	4271101	7.15E-07
5399	636363.4	4271101	5.69E-07
5400	636243.4	4271141	7.22E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
5401	636283.4	4271141	7.46E-07
5402	636323.4	4271141	5.89E-07
5403	636363.4	4271141	5.12E-07
5404	636243.4	4271181	7.91E-07
5405	636283.4	4271181	6.04E-07
5406	636323.4	4271181	5.22E-07
5407	636363.4	4271181	4.79E-07
5408	636243.4	4271221	6.38E-07
5409	636283.4	4271221	5.34E-07
5410	636323.4	4271221	4.86E-07
5411	636363.4	4271221	4.64E-07
5412	636243.4	4271261	5.64E-07
5413	636283.4	4271261	4.98E-07
5414	636323.4	4271261	4.73E-07
5415	636363.4	4271261	4.68E-07
5416	636243.4	4271301	5.34E-07
5417	636283.4	4271301	4.94E-07
5418	636323.4	4271301	4.86E-07
5419	636363.4	4271301	5.08E-07
5420	636243.4	4271341	5.74E-07
5421	636283.4	4271341	5.48E-07
5422	636323.4	4271341	5.73E-07
5423	636363.4	4271341	6.35E-07
5424	636243.4	4271381	6.11E-07
5425	636283.4	4271381	6.02E-07
5426	636323.4	4271381	7.73E-07
5427	636363.4	4271381	1.02E-06
5428	636243.4	4271421	7.93E-07
5429	636283.4	4271421	7.74E-07
5430	636323.4	4271421	7.52E-07
5431	636363.4	4271421	7.46E-07
5432	636243.4	4271461	6.29E-07
5433	636283.4	4271461	6.30E-07
5434	636323.4	4271461	6.25E-07
5435	636363.4	4271461	6.23E-07
5436	636243.4	4271501	4.76E-07
5437	636283.4	4271501	4.86E-07
5438	636323.4	4271501	4.89E-07
5439	636363.4	4271501	4.92E-07
5440	636243.4	4271541	4.21E-07
5441	636283.4	4271541	4.34E-07
5442	636323.4	4271541	4.40E-07
5443	636363.4	4271541	4.43E-07
5444	636243.4	4271581	3.91E-07
5445	636283.4	4271581	4.10E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
5446	636323.4	4271581	4.19E-07
5447	636363.4	4271581	4.20E-07
5448	636243.4	4271621	3.81E-07
5449	636283.4	4271621	3.96E-07
5450	636323.4	4271621	4.07E-07
5451	636363.4	4271621	4.11E-07
5452	636243.4	4271661	3.59E-07
5453	636283.4	4271661	3.75E-07
5454	636323.4	4271661	3.87E-07
5455	636363.4	4271661	3.97E-07
5456	636085.4	4270942	1.51E-07
5457	636125.4	4270942	1.67E-07
5458	636165.4	4270942	1.86E-07
5459	636205.4	4270942	2.11E-07
5460	636085.4	4270982	1.60E-07
5461	636125.4	4270982	1.79E-07
5462	636165.4	4270982	2.02E-07
5463	636205.4	4270982	2.32E-07
5464	636085.4	4271022	1.70E-07
5465	636125.4	4271022	1.92E-07
5466	636165.4	4271022	2.20E-07
5467	636205.4	4271022	2.59E-07
5468	636085.4	4271062	1.81E-07
5469	636125.4	4271062	2.07E-07
5470	636165.4	4271062	2.43E-07
5471	636205.4	4271062	3.00E-07
5472	636085.4	4271102	1.94E-07
5473	636125.4	4271102	2.27E-07
5474	636165.4	4271102	2.77E-07
5475	636205.4	4271102	3.72E-07
5476	636085.4	4271142	2.11E-07
5477	636125.4	4271142	2.57E-07
5478	636165.4	4271142	3.34E-07
5479	636205.4	4271142	5.58E-07
5480	636085.4	4271182	2.34E-07
5481	636125.4	4271182	3.00E-07
5482	636165.4	4271182	4.43E-07
5483	636205.4	4271182	8.07E-07
5484	636085.4	4271222	2.64E-07
5485	636125.4	4271222	3.70E-07
5486	636165.4	4271222	6.09E-07
5487	636205.4	4271222	9.45E-07
5488	636085.4	4271262	3.08E-07
5489	636125.4	4271262	5.48E-07
5490	636165.4	4271262	8.03E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
5491	636205.4	4271262	7.10E-07
5492	636085.4	4271302	3.85E-07
5493	636125.4	4271302	6.53E-07
5494	636165.4	4271302	8.51E-07
5495	636205.4	4271302	6.26E-07
5496	636085.4	4271342	4.44E-07
5497	636125.4	4271342	7.84E-07
5498	636165.4	4271342	7.60E-07
5499	636205.4	4271342	6.31E-07
5500	636085.4	4271382	4.41E-07
5501	636125.4	4271382	6.17E-07
5502	636165.4	4271382	8.13E-07
5503	636205.4	4271382	9.74E-07
5504	636085.4	4271422	4.15E-07
5505	636125.4	4271422	5.26E-07
5506	636165.4	4271422	6.42E-07
5507	636205.4	4271422	7.39E-07
5508	636085.4	4271462	3.89E-07
5509	636125.4	4271462	4.64E-07
5510	636165.4	4271462	4.97E-07
5511	636205.4	4271462	5.97E-07
5512	636085.4	4271502	3.60E-07
5513	636125.4	4271502	3.70E-07
5514	636165.4	4271502	4.09E-07
5515	636205.4	4271502	4.49E-07
5516	636085.4	4271542	3.03E-07
5517	636125.4	4271542	3.37E-07
5518	636165.4	4271542	3.68E-07
5519	636205.4	4271542	3.97E-07
5520	636085.4	4271582	2.86E-07
5521	636125.4	4271582	3.14E-07
5522	636165.4	4271582	3.39E-07
5523	636205.4	4271582	3.64E-07
5524	636085.4	4271622	2.81E-07
5525	636125.4	4271622	3.07E-07
5526	636165.4	4271622	3.31E-07
5527	636205.4	4271622	3.57E-07
5528	636085.4	4271662	2.81E-07
5529	636125.4	4271662	3.04E-07
5530	636165.4	4271662	3.22E-07
5531	636205.4	4271662	3.40E-07
5532	636244.4	4270742	1.78E-07
5533	636284.4	4270742	1.99E-07
5534	636324.4	4270742	2.24E-07
5535	636364.4	4270742	2.56E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
5536	636244.4	4270782	1.86E-07
5537	636284.4	4270782	2.09E-07
5538	636324.4	4270782	2.38E-07
5539	636364.4	4270782	2.73E-07
5540	636244.4	4270822	1.96E-07
5541	636284.4	4270822	2.22E-07
5542	636324.4	4270822	2.54E-07
5543	636364.4	4270822	2.96E-07
5544	636244.4	4270862	2.08E-07
5545	636284.4	4270862	2.40E-07
5546	636324.4	4270862	2.74E-07
5547	636364.4	4270862	3.45E-07
5548	636244.4	4270902	2.24E-07
5549	636284.4	4270902	2.64E-07
5550	636324.4	4270902	3.17E-07
5551	636364.4	4270902	4.46E-07
5552	636126.3	4270742	1.34E-07
5553	636166.3	4270742	1.47E-07
5554	636206.3	4270742	1.62E-07
5555	636126.3	4270782	1.41E-07
5556	636166.3	4270782	1.54E-07
5557	636206.3	4270782	1.69E-07
5558	636126.3	4270822	1.46E-07
5559	636166.3	4270822	1.60E-07
5560	636206.3	4270822	1.77E-07
5561	636126.3	4270862	1.52E-07
5562	636166.3	4270862	1.67E-07
5563	636206.3	4270862	1.85E-07
5564	636086.3	4270902	1.44E-07
5565	636126.3	4270902	1.58E-07
5566	636166.3	4270902	1.74E-07
5567	636206.3	4270902	1.95E-07
5568	636324.9	4270699	2.13E-07
5569	636364.9	4270699	2.43E-07
5570	636013.8	4270981	1.33E-07
5571	636053.8	4270981	1.47E-07
5572	636013.8	4271021	1.40E-07
5573	636053.8	4271021	1.55E-07
5574	635933.8	4271061	1.22E-07
5575	635973.8	4271061	1.33E-07
5576	636013.8	4271061	1.47E-07
5577	636053.8	4271061	1.64E-07
5578	635933.8	4271101	1.27E-07
5579	635973.8	4271101	1.40E-07
5580	636013.8	4271101	1.54E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
5581	636053.8	4271101	1.74E-07
5582	635933.8	4271141	1.32E-07
5583	635973.8	4271141	1.46E-07
5584	636013.8	4271141	1.63E-07
5585	636053.8	4271141	1.86E-07
5586	635933.8	4271181	1.38E-07
5587	635973.8	4271181	1.53E-07
5588	636013.8	4271181	1.72E-07
5589	636053.8	4271181	2.01E-07
5590	635933.8	4271221	1.45E-07
5591	635973.8	4271221	1.61E-07
5592	636013.8	4271221	1.84E-07
5593	636053.8	4271221	2.21E-07
5594	635933.8	4271261	1.53E-07
5595	635973.8	4271261	1.73E-07
5596	636013.8	4271261	2.03E-07
5597	636053.8	4271261	2.46E-07
5598	635933.8	4271301	1.65E-07
5599	635973.8	4271301	1.88E-07
5600	636013.8	4271301	2.22E-07
5601	636053.8	4271301	2.81E-07
5602	635933.8	4271341	1.75E-07
5603	635973.8	4271341	2.03E-07
5604	636013.8	4271341	2.45E-07
5605	636053.8	4271341	3.20E-07
5606	635933.8	4271381	1.84E-07
5607	635973.8	4271381	2.15E-07
5608	636013.8	4271381	2.60E-07
5609	636053.8	4271381	3.39E-07
5610	635933.8	4271421	1.92E-07
5611	635973.8	4271421	2.24E-07
5612	636013.8	4271421	2.71E-07
5613	636053.8	4271421	3.40E-07
5614	635933.8	4271461	1.99E-07
5615	635973.8	4271461	2.32E-07
5616	636013.8	4271461	2.76E-07
5617	636053.8	4271461	3.35E-07
5618	635933.8	4271501	2.06E-07
5619	635973.8	4271501	2.36E-07
5620	636013.8	4271501	2.76E-07
5621	636053.8	4271501	3.22E-07
5622	635933.8	4271541	2.08E-07
5623	635973.8	4271541	2.31E-07
5624	636013.8	4271541	2.63E-07
5625	636053.8	4271541	2.77E-07

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
5626	635933.8	4271581	1.98E-07
5627	635973.8	4271581	2.13E-07
5628	636013.8	4271581	2.38E-07
5629	636053.8	4271581	2.64E-07
5630	636053.8	4271621	2.62E-07
5631	636053.8	4271661	2.62E-07
5632	636054.7	4270902	1.35E-07
5633	636283.3	4270121	6.38E-08
5634	636323.3	4270121	6.83E-08
5635	636283.3	4270161	6.85E-08
5636	636323.3	4270161	7.34E-08
5637	636283.3	4270201	7.27E-08
5638	636323.3	4270201	7.83E-08
5639	636283.3	4270241	7.60E-08
5640	636323.3	4270241	8.27E-08
5641	636283.3	4270281	8.01E-08
5642	636323.3	4270281	8.75E-08
5643	636283.3	4270321	8.72E-08
5644	636323.3	4270321	9.53E-08
5645	636283.3	4270361	9.65E-08
5646	636323.3	4270361	1.07E-07
5647	636283.3	4270401	1.07E-07
5648	636323.3	4270401	1.19E-07
5649	636283.3	4270441	1.17E-07
5650	636323.3	4270441	1.32E-07
5651	636283.3	4270481	1.28E-07
5652	636323.3	4270481	1.44E-07
5653	636283.3	4270521	1.39E-07
5654	636323.3	4270521	1.57E-07
5655	636283.3	4270561	1.51E-07
5656	636323.3	4270561	1.71E-07
5657	636283.3	4270601	1.62E-07
5658	636323.3	4270601	1.83E-07
5659	636283.3	4270641	1.73E-07
5660	636323.3	4270641	1.95E-07
5661	635360.3	4272892	8.50E-08
5662	635400.3	4272892	8.87E-08
5663	635440.3	4272892	9.27E-08
5664	635480.3	4272892	9.70E-08
5665	635520.3	4272892	1.01E-07
5666	635560.3	4272892	1.05E-07
5667	635600.3	4272892	1.09E-07
5668	635640.3	4272892	1.14E-07
5669	635674.7	4272893	1.19E-07
5670	635360.3	4272932	8.55E-08

HARP Cancer Risk at each receptor location

REC	X	Y	RISK_SUM
5671	635400.3	4272932	8.95E-08
5672	635440.3	4272932	9.36E-08
5673	635480.3	4272932	9.81E-08
5674	635520.3	4272932	1.02E-07
5675	635560.3	4272932	1.06E-07
5676	635600.3	4272932	1.12E-07
5677	635640.3	4272932	1.17E-07
5678	635674.7	4272933	1.23E-07
5679	635360.3	4272852	8.42E-08
5680	635400.3	4272852	8.83E-08
5681	635440.3	4272852	9.21E-08
5682	635480.3	4272852	9.63E-08
5683	635520.3	4272852	1.00E-07
5684	635560.3	4272852	1.04E-07
5685	635600.3	4272852	1.08E-07
5686	635640.3	4272852	1.13E-07
5687	635674.7	4272853	1.17E-07

HARP Project Summary Report 3/31/2020 12:45:30 PM

PROJECT INFORMATION
HARP Version: 19121
Project Name: ARCF-REVISED
Project Output Directory: C:\Users\chris.lovett\Desktop\NEW ARCF HRA (2020)\New ARCF HRA All Sources\ARCF-REVISED
HARP Database: NA

FACILITY INFORMATION
Origin
X (m):0
Y (m):0
Zone:1
No. of Sources:0
No. of Buildings:0

EMISSION INVENTORY
No. of Pollutants:1
No. of Background Pollutants:0

Emissions

ScrID	StkID	ProID	PolID	PolAbbrev	Multi	Annual Ems (lbs/yr)	MaxHr Ems (lbs/hr)	MWAF
ARCF	0	0	9901	DieselExhPM	1	346.5016	0.356907	1

Background

PolID	PolAbbrev	Conc (ug/m^3)	MWAF

Ground level concentration files (\glc\)

9901MAXHR.txt
9901PER.txt

POLLUTANT HEALTH INFORMATION
Health Database: C:\HARP2\Tables\HEALTH17320.mdb
Health Table Version: HEALTH19252
Official: True

PolID	PolAbbrev	InhCancer	OralCancer	AcuteREL	InhChronicREL	OralChronicREL	InhChronic8HRREL
9901	DieselExhPM	1.1			5		

AIR DISPERSION MODELING INFORMATION
Versions used in HARP. All executables were obtained from USEPA's Support Center for Regulatory Atmospheric Modeling website (http://www.epa.gov/scram001/)
AERMOD: 18081
AERMAP: 18081

BPIPPRM: 04274
AERPLOT: 13329

METEOROLOGICAL INFORMATION
Version:
Surface File:
Profile File:
Surface Station:
Upper Station:
On-Site Station:

LIST OF AIR DISPERSION FILES
AERMOD Input File:
AERMOD Output File:
AERMOD Error File:
Plotfile list

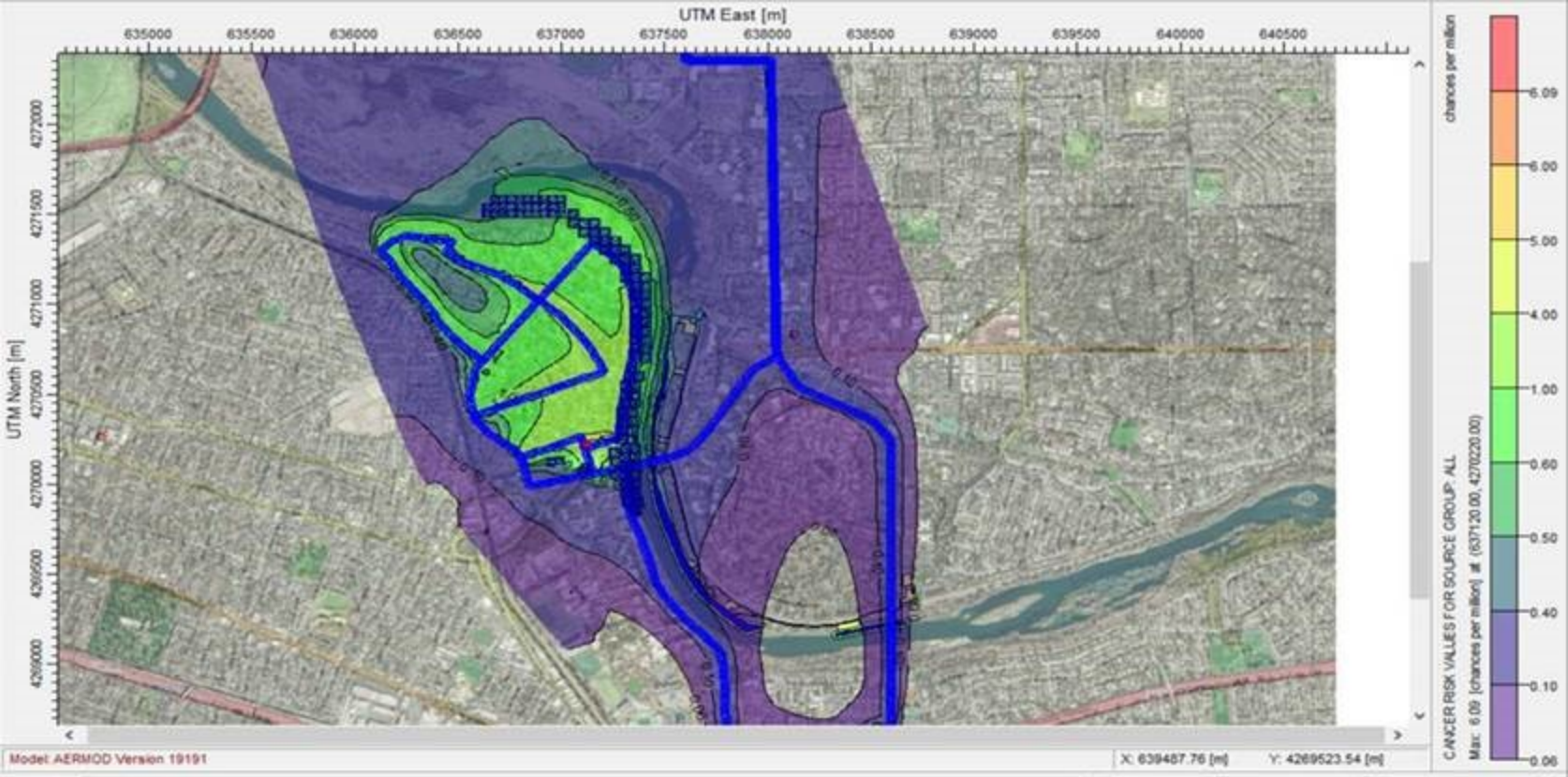
_____

LIST OF RISK ASSESSMENT FILES
Health risk analysis files (\hra\)

_____
ARCFrevCancerRisk.csv
ARCFrevCancerRiskSumByRec.csv
ARCFrevGLCList.csv
ARCFrevHRAInput.hra
ARCFrevNCAcuteRisk.csv
ARCFrevNCAcuteRiskSumByRec.csv
ARCFrevNCChronicRisk.csv
ARCFrevNCChronicRiskSumByRec.csv
ARCFrevOutput.txt
ARCFrevPathwayRec.csv
ARCFrevPolDB.csv

Spatial averaging files (\sa\)

_____



Model: AERMOD Version 19191

X: 639487.76 [m] Y: 4269523.54 [m]

Plotfile List: ARCF-RevisedCancerRisk.plt

Output Type: Concentration

ALUES FOR SOURCE GROUP: ALL

Max: 6.0868 [chances per million] at (637120.00, 4270220.00

Appendix F
General Conformity Determination

Notice of Availability of Draft General Conformity Determination for American River Watershed Common Features, Water Resources Development Act of 2016 Project (ARCF 2016 Project)

The Clean Air Act (CAA) requires all federal actions to conform to applicable state plans to attain and maintain national air quality standards (i.e., SIP, or State Implementation Plan) (42 U.S.C. 7506(c), section 176(c)). The U.S. Army Corps of Engineers (USACE) prepared a Draft General Conformity Determination for American River Watershed Common Features, Water Resources Development Act of 2016 Project (ARCF 2016 Project), to demonstrate conformity with the California SIP, in accordance with the requirements established by the U.S. Environmental Protection Agency (40 CFR 93.150 *et seq*.)

Project Location: In and around the City of Sacramento, California along the banks of the Sacramento and American Rivers, local tributaries, the associated drainage and levee network, and at the Sacramento Weir and Bypass.

Project Description: Construction of approximately $1.5 billion in structural improvements to the Sacramento metropolitan area flood protection system of levees and bypasses, as recommended in the American River Common Features General Reevaluation Report (ARCF GRR, January 2016). The USACE, Central Valley Flood Protection Board (CVFPB), and Sacramento Area Flood Control Agency (SAFCA) joint Project aims to reduce flood damage and protect public safety within the Greater Sacramento area within the next four to five years. Congress appropriated full funding for the ARCF 2016 Project under the Bipartisan Budget Act (Public Law 115-123). Environmental effects of the levee improvements were analyzed in the Environmental Impact Statement/Environmental Impact Report (ARCF EIS/EIR, January 2016).

The Draft General Conformity Determination provides the opportunity for public and agency involvement and comment. During the 30-day public review period, the USACE encourages public questions and comments on the air quality General Conformity Determination for American River Watershed Common Features, Water Resources Development Act of 2016.

Comments on the Draft General Conformity Determination will be accepted from March 25, 2020 to April 25, 2020. Written comments may be submitted to: *General Conformity Determination ARCF 2016 – Planning Team*, U.S. Army Corps of Engineers, Sacramento District, 1325 J Street, Sacramento, California 95814 or email: spk-pao@usace.army.mil.

The Draft General Conformity Determination is available electronically at sacleveeupgrades.com and the USACE website: http://www.spk.usace.army.mil/Media/USACEProjectPublicNotices.aspx, or the Central Valley Flood Protection Board website: http://www.cvfpb.ca.gov. Copies of the Draft Determination available upon request. Contact our Public Affairs Office at (916) 557-5100, or spk-pao@usace.army.mil.

Draft General Conformity Determination

American River Watershed Common Features
2016 Project

March 13, 2020

Prepared by



U.S. Army Corps of Engineers, Sacramento District

Moore Noise, LLC

GEI Consultants, Inc.

General Conformity Determination
American River Watershed Common Features 2016 Project

Table of Contents

Project Purpose and Description 1

Regulatory Background 2

National Ambient Air Quality Standards 2

Attainment Status 4

General Conformity 5

Emissions Analysis 5

Applicability 7

Mitigation Commitments 8

Agency Reporting and Public Review 10

General Conformity Determination 10

References 12

List of Tables

Table 1. National Ambient Air Quality Standards 3

Table 2. Attainment Status for the ARCF 2016 Project Area 4

Table 3. Estimated Uncontrolled Emissions by Year and Control Area 6

Table 4. General Conformity *De Minimis* Thresholds for the ARCF 2016 Project Area 7

Table 5. Estimated Controlled Emissions in the SFONA by Year and Air District 8

List of Appendices

Appendix A: (DRAFT) YSAQMD – ARCF 2016 NO_X Offset Agreement

Appendix B: *American River Common Features (ARCF) 2016 Air Pollutant Emissions Methods and Results to Support a General Conformity Determination*. Memorandum from Moore Noise, LLC. February 4, 2020

Appendix C: Updated Emissions Summary Tables (Based on Project Schedule as of March 2020)

Acronyms and Abbreviations

ARCF	American River Common Features
CAA	Clean Air Act
CFR	Code of Federal Regulations
CO	Carbon monoxide
EPA	U.S. Environmental Protection Agency
GRR	General Reevaluation Report
NAAQS	National Ambient Air Quality Standards
NO_2	Nitrogen dioxide
NO_X	Nitrogen oxides
PM_{10}	Particulate matter with an aerodynamic diameter of 10 micrometers or less
$PM_{2.5}$	Particulate matter with an aerodynamic diameter of 2.5 micrometers or less
ppb	Parts per billion
ppm	Parts per million
RCEM	Road Construction Emissions Model
ROG	Reactive organic gases
SIP	State Implementation Plan
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO_2	Sulfur dioxide
USACE	U.S. Army Corps of Engineers
VOC	Volatile organic compounds
YSAQMD	Yolo-Solano Air Quality Management District
$\mu g/m^3$	Micrograms per cubic meter

General Conformity Determination
American River Watershed Common Features 2016 Project

The General Conformity regulations at Title 40 Code of Federal Regulations (CFR) Subchapter C Part 93 ensure that the actions taken by federal agencies do not interfere with a state's plans to attain and maintain national standards for air quality. This General Conformity Determination documents how the American River Common Features (ARCF) 2016 Project will meet the requirements of the General Conformity regulations.

Project Purpose and Description

The purpose of the ARCF 2016 Project is to reduce the risk of flooding within the Greater Sacramento metropolitan area.

The Sacramento metropolitan area is one of the urban regions most at risk of flooding in the United States. Constructed in the mid-twentieth century, the Sacramento River Flood Control Project was designed to protect the city from floodwaters as high as the known flood of record, which at the time of construction was the flood of 1927. A new record flood occurred in 1986, followed by a slightly smaller flood in January 1997, each of which caused levee failures and localized flooding. The primary risks to levee performance are seepage, underseepage, stability, erosion, and overtopping.

High water flows in both the American and Sacramento Rivers place considerable stresses on the network of levees protecting the Sacramento area. Without prompt improvement of weakened or sub-standard levee reaches, the levee system will remain at heightened risk of failure during periods of high water in the two rivers. The consequences of a major levee failure could be catastrophic because the protected area is highly urbanized and flooding could reach 20 feet deep, causing severe property damage, possible loss of life and serious contamination of drinking water supplies for downstream users.

The ARCF 2016 Project will construct approximately $1.5 billion in improvements to the Sacramento metropolitan area flood protection system, as recommended by the *American River Watershed Common Features General Reevaluation Report (GRR)*. Recommendations in the GRR include construction of levee improvement measures to address seepage, instability, erosion, and overtopping risks identified for the Sacramento River, Arcade Creek, Natomas East Main Drainage Canal (NEMDC), and Magpie Creek, as well as erosion control measures for specific locations along the American River, and widening of the Sacramento Weir and Bypass to provide capacity for diversion of a higher volume of flood flows into the Yolo Bypass.

In 2018, under the Bipartisan Budget Act (Public Law 115-123), Congress appropriated full funding for the ARCF 2016 Project under the Long-Term Disaster Recovery Investment Program (LTDRIP). U.S. Army Corps of Engineers (USACE) implementation guidance for the LTDRIP (Civil Works Director's Policy Memorandum # DPM CW 2018-09) requires that the project be implemented on a much accelerated schedule to meet the obligations of the federal funding under this program. To meet the accelerated schedule, this project must be completed by January of 2024. If not completed on this timeline, exposure to significant flood risk persist, including loss of life, loss of agricultural production, damage to homes and businesses, and damage to public facilities.

Regulatory Background

This document pertains only to the federal General Conformity regulations. Applicable state and municipal air quality regulations are discussed in the *American River Watershed Common Features General Reevaluation Report Final Environmental Impact Statement /Environmental Impact Report (December 2015)* and in subsequent project-level reviews.

National Ambient Air Quality Standards

The U.S. Environmental Protection Agency (EPA) develops and enforces federal regulations that govern air quality. The Federal Clean Air Act (CAA) requires EPA to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. The EPA has identified six "criteria" air pollutants of nationwide concern: ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead, and particulate matter. Particulate matter is further subdivided into particulate with an aerodynamic diameter of 10 micrometers or less (PM_{10}) and particulates with an aerodynamic diameter of 2.5 micrometers or less ($PM_{2.5}$). Ozone is not directly emitted but is instead formed in heat and sunlight from the precursor pollutants of nitrogen oxides (NO_X) and volatile organic compounds (VOC). Although the definition varies slightly, Reactive Organic Gases (ROG) are frequently referred to interchangeably with VOC. SO_2, NO_X, and in some cases VOC and ammonia, are precursor pollutants for the formation of $PM_{2.5}$. Regulatory programs for the control of ozone focus on control of the precursor pollutants. Regulatory programs for the control of $PM_{2.5}$ focus on both direct emissions of $PM_{2.5}$ and precursor pollutants appropriate to the specific nonattainment area.

The CAA identifies two types of national ambient air quality standards. Primary standards provide public health protection, including protecting the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.

EPA designates areas of the State as attainment, nonattainment, maintenance, or unclassified for the various pollutant standards. An "attainment" designation for an area signifies that pollutant concentrations do not exceed the established standard. In contrast to attainment, a "nonattainment" designation indicates that a pollutant concentration has exceeded, and continues to exceed, the established standard. Nonattainment may vary in severity. To identify the severity of the issue and the extent of planning and actions required to meet the standard, nonattainment areas are assigned classifications that are commensurate with the severity of their pollution. Areas that previously exceeded a standard, but have come into compliance, are referred to as maintenance areas. Upon redesignation to maintenance status, an area is required to operate under a maintenance plan which establishes emission reduction measures that will ensure continued compliance with the NAAQS. The maintenance planning period extends for 20 years (two 10-year periods) after the redesignation date. Once the 20-year maintenance planning period is over, the CAA General Conformity Rule no longer applies and the area is considered to be in attainment.

Table 1 shows the NAAQS standards for each of the criteria pollutants. Several NAAQS have been revoked and replaced with more stringent standards over the years. Areas that were in nonattainment of the revoked standards are still subject to requirements to demonstrate compliance, however General Conformity does not apply to revoked NAAQS. Revoked NAAQS are not shown in Table 1.

Under the provisions of the CAA, the EPA requires each state with regions that have not attained the NAAQS to prepare a State Implementation Plan (SIP) detailing how these standards are to be met in each local area. The SIP is a legal agreement between each state and the federal government to commit resources to improving air quality. It serves as the template for conducting regional- and project- level air quality analysis. The SIP is not a single document but a compilation of new and previously submitted attainment plans, maintenance plans, emissions reduction programs, district rules, state regulations, and federal controls. Nonattainment and maintenance areas have a unique geography for each pollutant based on the physical region of the nonattainment area, and the meteorology, sources, and mechanisms that contribute to violations of the NAAQS.

Table 1. National Ambient Air Quality Standards

Pollutant	Averaging Time	Primary Standards	Secondary Standards	Form
Carbon Monoxide (CO)	8-hour 1-hour	9 ppm 35 ppm	—	Not to be exceeded more than once per year
Lead (Pb)	Rolling 3-month average	0.15 µg/m^3	Same as Primary	Not to be exceeded
Nitrogen Dioxide (NO_2)	Annual	53 ppb	Same as Primary	Annual mean
	1-hour	100 ppb	—	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
Particulate Matter (PM_{10})	24-hour	150 µg/m^3	Same as Primary	Not to be exceeded more than once per year on average over 3 years
Particulate Matter ($PM_{2.5}$)	Annual	12.0 µg/m^3	15.0 µg/m^3	Annual mean, averaged over 3 years
	24-hour	35 µg/m^3	Same as Primary	98th percentile, averaged over 3 years
Ozone (2015)	8-hour	70 ppb	Same as Primary	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
Ozone (2008)	8-hour	75 ppb	Same as Primary	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
Sulfur Dioxide (SO_2)	1-hour	75 ppb	—	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	3-hour	—	0.5 ppm	Not to be exceeded more than once per year

Source: EPA 2019. ppm = parts per million; ppb = parts per billion; µg/m^3= micrograms per cubic meter; "—" = no applicable standard.

Attainment Status

Construction of the ARCF 2016 Project currently includes elements in Sacramento and Yolo Counties, and although construction is not currently planned in Solano, Sutter and Placer Counties, minor elements could affect these counties and they are included for completeness. Project emissions will also occur in the San Francisco Bay Area as materials are shipped, by barge, from expected locations adjacent to San Francisco and San Pablo Bays.

Table 2 lists the nonattainment and maintenance areas in the five counties, and their classification. The nonattainment and maintenance areas shown in Table 2 are located within two separate air basins: the Sacramento Valley and the San Francisco Bay Area.

Table 2. Attainment Status for the ARCF 2016 Project Area

Area Name Counties of Interest	**NAAQS** (Specific Standard)	**Status**	**Classification**
Sacramento Metro* Sacramento & Yolo (partial El Dorado, Placer, Solano, & Sutter)	**8-hr Ozone (2008)** 8-hr Ozone (2015)	***Nonattainment*** Nonattainment (recommended)	***Severe-15*** Moderate
Sacramento Sacramento; (partial El Dorado, Placer, Solano, & Yolo)	8-hr CO (2011) **$PM_{2.5}$ (2006)**	Maintenance** ***Nonattainment†***	Moderate Moderate
Sacramento County	PM_{10} (1987)	Maintenance	Moderate
San Francisco Bay Area (partial Solano)	8-Hour Ozone (2008) 8-Hour Ozone (2015) $PM_{2.5}$ (2006)	*Nonattainment* *Nonattainment* *Nonattainment*	Marginal Marginal Moderate
San Francisco-Oakland-San Jose (partial Solano)	8-hr CO (2011)	Maintenance	Moderate
Lake Tahoe North Shore (partial Placer)	8-hr CO (2011)	Maintenance	Not Classified
Sutter Buttes (partial Sutter)	8-hr Ozone (2015)	Nonattainment	Marginal
Yuba City-Marysville (partial Sutter)	$PM_{2.5}$ (2006)	Maintenance	Moderate

Source: EPA 2019, EPA Greenbook, https://www3.epa.gov/airquality/greenbook/anayo_ca.html
*Sacramento Federal Ozone Nonattainment Area (SFONA)
**Sacramento completed its 20 years of maintenance of the CO standard on June 1, 2018.
† USEPA determined Sacramento $PM_{2.5}$ area attained the 2006 24-hr. (2006) NAAQS in May 2017, based on certified 2013-2015 monitoring data. Redesignation Request to be updated and submitted to USEPA.

The boundaries of the nonattainment and maintenance areas designated for implementation of rules and regulations to improve air quality are described in the individual SIPs for the pollutants in question, or are published in the Federal Register at Title 40 CFR, Subchapter C Part 81. The nonattainment and maintenance areas expected to be affected by ARCF 2016 Project emissions are:

- The Sacramento Federal Ozone Nonattainment Area (SFONA) which includes all of Sacramento and Yolo counties and portions of Placer, El Dorado, Solano, and Sutter counties.
- The Sacramento Federal $PM_{2.5}$ Nonattainment Area which is slightly smaller than the ozone nonattainment area and includes all of Sacramento County and portions of Yolo, Solano, Placer and El Dorado counties.
- The Sacramento PM_{10} Maintenance Area which includes all of Sacramento County.
- The San Francisco Bay Area Intrastate Air Quality Control Area (San Francisco AQCA, the 8-hour Ozone and $PM_{2.5}$ nonattainment area) which includes all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara counties and portions of Sonoma and Solano counties.

For the Sacramento Valley Air Basin, the ozone, PM_{10}, and $PM_{2.5}$ nonattainment and maintenance areas have different geographic footprints. For screening purposes, total project emissions for the entire SFONA, which has the largest geographic area, are analyzed and the smaller nonattainment or maintenance area emissions are only considered separately if needed.

General Conformity

The General Conformity process has four main components: an emissions analysis, an applicability determination, mitigation commitments, and an agency and public review. A discussion of each component of the process follows. The General Conformity Determination is the responsibility of the federal agency (USACE for the ARCF 2016 Project) and is subject to review by the air agencies for the local airsheds, the EPA, other agencies, and the public.

Emissions Analysis

An analysis of all direct and indirect emissions associated with the federal action must be completed and compared to *de minimis* thresholds to determine if General Conformity is applicable to the action. For the ARCF 2016 Project, emissions were estimated using the Sacramento Metropolitan Air Quality Management District's (SMAQMD's) *Road Construction Emissions Model* (RCEM), Version 8.1.0. The RCEM was developed by SMAQMD to analyze emissions from linear projects such as roadways, and for the ARCF 2016 Project. Emissions from barges were estimated using the SMAQMD *Harborcraft, Dredge and Barge Emissions Factor Calculator.* The emissions analysis is documented in a memorandum titled *American River Common Features 2016 Air Pollutant Emissions Methods and Results to Support a General Conformity Determination*, which is included in Appendix B to this document. Emission sources analyzed included a wide range of construction equipment and activities, on-road mobile sources (construction material delivery trucks and motor vehicles driven by contractor employees), as well as barge emissions resulting from the delivery of quarry rock and aggregate. The analysis memorandum evaluated two cases to address possible schedule slippage for project elements.

After the memorandum was prepared, USACE updated its anticipated project schedule. Although the component projects, the underlying modeling assumptions, and results did not change, the expected year of construction changed for many of the component projects. Erosion projects which were originally planned to be constructed in multiple years were consolidated into single construction seasons. As a result, the way that the component projects and model results were distributed among calendar years changed. Appendix C to this document contains several tables from the memorandum, updated to reflect USACE's best available schedule assumptions as of March 2020. Emission tables included in this General Conformity Determination document are consistent with these best available schedule assumptions.

The ARCF 2016 Project will be completed through numerous separate contracts over a minimum five-year period. Many elements of the Project are still in the design phase. Consequently, actual emissions will vary from the estimates set forth in this document. Conservative assumptions regarding construction methods and timing were used in the emissions analysis to determine the overall levels of control and mitigation that will be required. Table 3 shows the estimated total uncontrolled (no equipment controls applied; standard vehicle fleet assumptions) project emissions by year in the SFONA and the San Francisco AQCA. See Appendix C for project components and emission summation by year. Only nonattainment and maintenance pollutants are included in Table 3. Uncontrolled SO_2 emissions are estimated to be negligible in both the SFONA and the San Francisco AQCA and therefore are not shown in Table 3.

Table 3. Estimated Uncontrolled Emissions by Year and Control Area

Control Area	**Pollutant Emissions** (tons per year)			
SFONA	**ROG**	**NO_X**	**PM_{10}**	**$PM_{2.5}$**
2019	0.0	0.5	3.3	0.7
2020	3.4	**38.2**	8.3	2.9
2021	4.8	**52.6**	47.1	11.3
2022	7.8	**94.6**	97.2	22.8
2023	5.5	**65.1**	53.4	13.0
San Francisco AQCA	**ROG**	**NO_X**	**PM_{10}**	**$PM_{2.5}$**
2020	0.1	1.3	0.1	0.1
2021	0.5	8.0	0.4	0.3
2022	0.8	13.2	0.6	0.5
2023	1.0	16.8	0.8	0.7

Applicability

The General Conformity Rules established *de minimis* thresholds to screen projects for the potential to impose significant adverse air quality effects. Projects with annual total emissions from direct and indirect emissions less than the *de minimis* thresholds are not considered to be significant and do not require a General Conformity Determination. The *de minimis* thresholds vary based upon the severity of ambient pollution in an area. Table 4 summarizes the *de minimis* thresholds applicable for the ARCF 2016 Project area. Project emissions above these thresholds require a General Conformity Determination to demonstrate how emissions will be controlled and mitigated.

Table 4. General Conformity *De Minimis* Thresholds for the ARCF 2016 Project Area

Control Area	**Pollutant** (NAAQS Standard)	**Classification**	***De Minimis* Threshold** (tons per year)
SFONA	**Ozone (2008)**	**Severe – 15**	**25** (VOC and NO_X)
	PM_{10} (1987)	Maintenance	100
	$PM_{2.5}$ (2006)	Moderate	100 ($PM_{2.5}$, SO_2, and NO_X)
San Francisco AQCA	Ozone (2008)	Marginal	100
	$PM_{2.5}$ (2006)	Moderate	100 ($PM_{2.5}$, SO_2, and NO_X)

Note: VOC and ammonia are not considered precursor pollutants of concern for $PM_{2.5}$ formation in the Sacramento and San Francisco control areas.

Project emissions of criteria pollutants occurring within a nonattainment or maintenance area are compared to the applicable thresholds for that pollutant, as displayed in Table 4 above. A comparison of the estimated uncontrolled ARCF 2016 Project emissions in Table 3 to the General Conformity thresholds in Table 4 shows that uncontrolled project pollutant emissions estimated within the San Francisco AQCA are a minor fraction of the *de minimis* threshold for any pollutant. Within the SFONA, the estimated uncontrolled project emissions of all pollutants except NO_X as an ozone precursor pollutant, are well below the *de minimis* thresholds. Estimated project NO_X emissions are below *de minimis* levels as a $PM_{2.5}$ precursor pollutant.

Uncontrolled project NO_X emissions as a contributor to ozone formation within the SFONA are estimated to be higher than the *de minimis* threshold and therefore a General Conformity Determination is required for NO_X emissions within the SFONA.

Mitigation Commitments

Although General Conformity applies only to emissions over the thresholds, state and municipal air regulations require control of project pollutant emissions, and related reduction and mitigation commitments, as prescribed through the California Environmental Quality Act process. These commitments are discussed in the *American River Watershed Common Features General Reevaluation Report Final Environmental Impact Statement /Environmental Impact Report (December 2015)* and in supplemental documents addressing individual project elements.

Table 5. Estimated Controlled Emissions in the SFONA by Year and Air District

Year	**NO_x Emissions** (tons per year)		
	SFONA	***SMAQMD***	***YSAQMD***
2019	0.5	0.5	--
2020	5.1	5.1	--
2021	15.9	9.9	6.0
2022	**35.3**	30.8	4.5
2023	**30.3**	24.0	6.3

NOTE: Emissions calculations assume on-road equipment fleet achieves overall emissions of 2010 or newer model vehicles and 90% of the on-site equipment meets Tier 4 standards.

Construction of the ARCF 2016 Project will require the use of many pieces of heavy construction equipment. The volume of required equipment can affect the ability of construction and equipment rental companies to provide a low-emitting vehicle fleet. USACE performed outreach to the construction industry to get feedback on the level of emissions control available on the overall construction fleet potentially available to complete the ARCF 2016 Project. Feedback from the construction industry supported USACE's proposal that it is feasible to achieve an equipment fleet for construction of ARCF 2016 with 90 percent of off-road equipment having engines meeting EPA Tier 4 standards. Additionally, USACE has determined that further emission reductions can be achieved by requiring the use of equipment that meets a minimum Tier 1 standard (i.e., no Tier 0 or uncontrolled equipment would be allowed on site, without approval by the Corps. In order to gain approval, contractors must provide updated emissions estimates showing how the Tier 1 standard could be achieved through offsets or additional mitigation implementation).

USACE will first reduce NO_X emissions through specification of an emissions-controlled vehicle fleet, and secondly through obtaining NO_X offsets for any year in which the emissions with implementation of equipment controls exceed the *de minimis* threshold of 25 tons of NO_X emitted within the SFONA boundary. Table 5 shows the estimated NO_X emissions in the SFONA for the ARCF 2016 Project with equipment controls applied, assuming on-road truck emissions will be equivalent to emissions from model year 2010 or newer for the entire on-road truck fleet, and off-road equipment will achieve a fleetwide NO_X reduction equivalent to 90 percent of the emissions reduction if all equipment were equipped with Tier 4 engines.

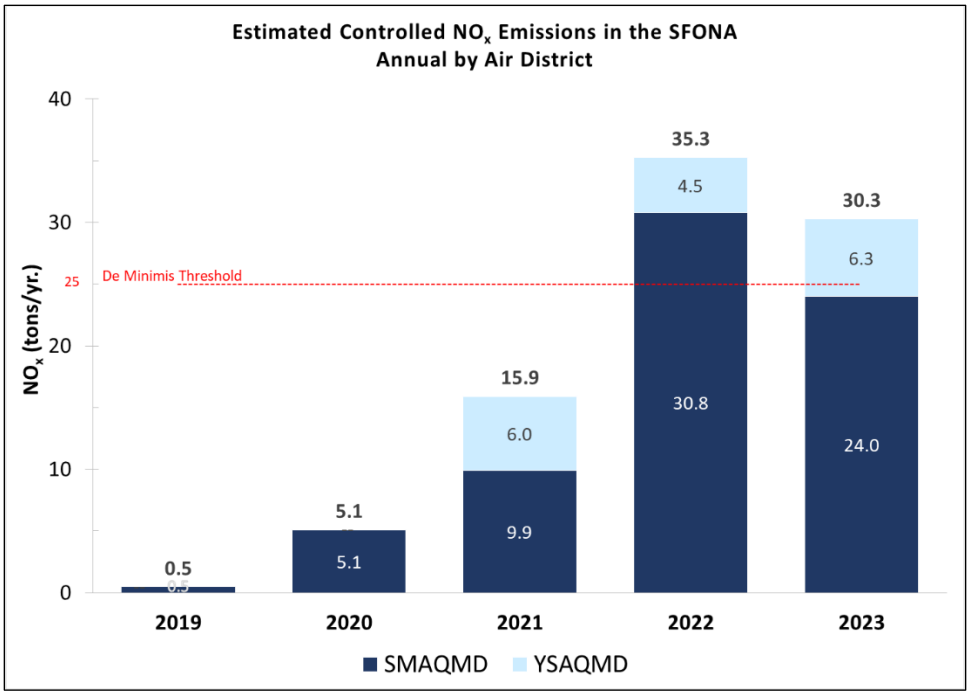


Figure 1. Estimated NO_x emissions in the SFONA Sacramento Metro and Yolo-Solano Air Quality Management Districts.

All direct and indirect emissions occurring within the SFONA must be considered in determining General Conformity applicability. The SFONA overlaps portions of multiple local air quality management districts. Figure 1 and Table 5 show the relative portions of estimated annual SFONA emissions generated in the Sacramento Metro AQMD and Yolo-Solano AQMD by ARCF 2016 Project construction. The Project emissions will primarily be generated from within the SMAQMD. The Sacramento Weir widening and associated levee improvement contracts occur within the Yolo-Solano Air Quality Management District (YSAQMD). No ARCF 2016 Project construction is planned in the higher elevation local air quality jurisdictions. That upper northeastern reach of the SFONA extends into parts of the Placer County Air Pollution Control District, Feather River AQMD, and El Dorado County AQMD.

To mitigate NO_X emissions within the SFONA, USACE will obtain NO_X emissions offsets from the local air quality agencies to fully offset total NO_X emissions – with construction fleet emissions controls applied – in 2022 and 2023. Emission offsets will not be required if emissions can be maintained below 25 tons per year of NO_X in the SFONA through equipment control measures.

Agency Reporting and Public Review

USACE must provide a 30-day notice which describes the proposed action and the Federal agency's Draft General Conformity Determination on the action. USACE must notify the same agencies, planning and land mangers that were notified of the Draft General Conformity Determination within 30 days after making a Final General Conformity Determination. Notice must be given to:

- The EPA Region 9 Office
- State and local air quality agencies
- Any federally-recognized Indian tribal government in the SFONA
- Where applicable, affected Federal land managers
- The agency designated under section 174 of the Act (the California Air Resources Board)
- The Metropolitan Planning Organization

USACE must make public its Draft General Conformity Determination by placing a notice by prominent advertisement in a daily newspaper of general circulation in the area affected by the ARCF 2016 Project and by providing 30 days for written public comment prior to taking any formal action on the draft determination. Following the public comment period on the Draft General Conformity Determination, the USACE must document responses to all comments received. The Final General Conformity Determination must be made public by placing a notice by prominent advertisement in a daily newspaper of general circulation in the area affected by the action within 30 days of the Final General Conformity Determination. Upon request by any person, comments and responses must be made available within 30 days of the Final General Conformity Determination. Both Draft and Final General Conformity Determinations for American River Watershed Common Features 2016 Project will be available on the USACE website for Sacramento Area Levees: sacleveeupgrades.com.

General Conformity Determination

The ARCF 2016 Project will be in conformity with the Clean Air Act and will not cause or contribute to a new violation, nor increase the frequency or severity of existing violations of the NAAQS. The following mitigation measures will be implemented to maintain conformity:

Measure 1: Actual emissions of nonattainment and maintenance pollutants occurring within the SFONA will be tracked monthly using tools acceptable to the SMAQMD and YSAQMD. The tracking data will be used to verify that all pollutants remain below the General Conformity *de minimis* thresholds or are fully mitigated and offset. If actual tracked emissions exceed 25 tons per year NOx, yet the emissions were prospectively estimated at below the *de minimis* threshold, then USACE would obtain offsets and fully mitigate emissions accordingly.

Measure 2: In any calendar year where equipment control measures are projected to be insufficient to maintain project NO_X emissions within the SFONA below the general conformity *de minimis* threshold of 25 tons per year, offsets will be obtained (through purchase or loan) to fully offset the project's total direct and indirect NO_X emissions for that year.

Measure 3 (equipment control measure): USACE will require the use of on-road trucks with 2010 or newer model year engines, or an equivalent emission reduction, in all construction contracts. Construction contracts will allow the use of older model trucks in limited circumstances with a contractor proposed program to reduce vehicle miles travelled and with pre-approved total project emissions estimates for the year.

Measure 4 (equipment control measure): USACE will require the use of Tier 4 emission control technology equivalent to a minimum 90 percent reduction, based on off-road equipment horsepower, relative to the reduction achievable if all equipment used Tier 4 control technology for NO_X emissions from off-road construction equipment. For the remaining 10%, all equipment must meet a minimum Tier 1 standard. No Tier 0 or uncontrolled equipment will be allowed on site, without approval by USACE. In order to gain approval, contractors must provide updated emissions estimates showing how the Tier 1 standard could be achieved through offsets or additional mitigation implementation.

Measure 5: Mitigation offsets will be obtained from SMAQMD to offset NO_X emissions occurring within Sacramento County through the use of Rule 205 Community Bank and Priority Reserve Bank. Mitigation NO_X offsets will be obtained through the normal process described in SMAQMD Rule 205. Specific sections of Rule 205 applicable to meeting the timing requirements of General Conformity Offsets are:

- Section 310 – Community Bank Account Approval Process,
- Section 314 – Reserving Essential Public Services Account Credits,
- Section 405 – Loan Initiation Date, and 500 – Monitoring and Records.

SMAQMD Emission Reduction Credit loan applications must be submitted to the SMAQMD by April 1 of the year prior to emissions being offset, in order to process the transaction and pay all fees prior to January 1 of the following year.

Measure 6: A mitigation offset agreement will be maintained with YSAQMD to offset NO_X emissions occurring within the YSAQMD and the SFONA boundaries. Mitigation NO_X offsets will be purchased as described in the agreement. The NO_X offset agreement for YSAQMD will be similar to the DRAFT *YSAQMD - ARCF 2016 NO_X Offset Agreement* included as Appendix A.

Measure 7: If enough NO_X mitigation offsets are not available from the SMAQMD Community Bank and Priority Reserve, additional offsets will be purchased from the YSAQMD under an agreement (similar to the DRAFT NO_X Offset Agreement in Appendix A) to meet the full offset requirement within the SFONA.

References

Moore Noise, LLC. Memorandum - American River Common Features (ARCF) 2016 Air Pollutant Emissions Methods and Results to Support a General Conformity Determination. February 4, 2020.

Sacramento Metropolitan Air Quality Management District (SMAQMD). *Road Construction Emissions Model* (RCEM), Version 8.1.0. Updated May 9, 2016.

Sacramento Metropolitan Air Quality Management District (SMAQMD). *Harborcraft, Dredge and Barge Emissions Factor Calculator.* Created September 15, 2006.

US Army Corps of Engineers, Central Valley Flood Protection Board, Sacramento Area Flood Control Agency. *American River Watershed Common Features General Reevaluation Report, Final Report*. December 2015.

US Army Corps of Engineers, Central Valley Flood Protection Board, Sacramento Area Flood Control Agency. American River Watershed Common Features General Reevaluation Report Final Environmental Impact Statement /Environmental Impact Report. December 2015, Revised May 2016.

US Environmental Protection Agency. *NAAQS Table*. Accessed October 16, 2019, https://www.epa.gov/criteria-air-pollutants/naaqs-table

US Environmental Protection Agency. Greenbook Nonattainment Areas - *California Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants*. Accessed October 16, 2019. https://www3.epa.gov/airquality/greenbook/anayo_ca.html

APPENDIX A

DRAFT

YSAQMD – ARCF 2016 NO_X Offset Agreement

NOx Offset Agreement Between Yolo-Solano Air Quality Maintenance District (YSAQMD) and the U.S. Army Corps of Engineers (USACE), Sacramento District

Background

The U.S. Army Corp of Engineers (USACE) is planning to construct a program of improvements to levees in the Sacramento area under the American River Watershed Common Features (ARCF) 2016 Project. The construction program is expected to generate emissions that will exceed the Federal General Conformity thresholds for nitrogen oxides (NO_X) within the Sacramento Federal Ozone Nonattainment Area (SFONA). USACE will mitigate NOx emissions using several measures, including obtaining offsets for NOx emissions within the SFONA. This agreement is a voluntary compliance agreement, as allowed under 40 CFR §93.160 ('Mitigation of Air Quality Impacts'). The General Conformity regulations requires voluntary compliance agreements to contain a description of the proposed mitigation measures, and implementation schedules tied to explicit timelines (see 40 CFR §93.160(a)).

Mitigation Agreement

USACE and YSAQMD agree to the following conditions for obtaining qualifying offsets under General Conformity for NO_X emissions in the SFONA:

1) NO_X emissions generated by the ARCF 2016 Project within the YSAQMD jurisdiction will be offset within the District and the SFONA boundaries. NO_X emissions generated outside of the YSAQMD jurisdictional boundary may also be offset within the YSAQMD boundary with agreement from another local air quality agency with jurisdiction over the emissions and within the SFONA. In accordance with 40 CFR §93.158, the ARCF 2016 Project mitigation measures will "effect emissions reduction equal to or greater than the total of direct and indirect emissions... so that there is no net increase in emissions of that pollutant."
2) YSAQMD manages equipment retirement and replacement programs to achieve NO_X emission reductions within the District. YSAQMD has verified with the U.S. Environmental Protection Agency that equipment replacement programs may accept NO_X mitigation payments from the USACE for mitigation of emissions from construction of the ARCF 2016 project, in conformance with 40 CFR §93.160 and §93.163(a).
    a. Upon receipt by YSAQMD of mitigation payments from USACE, YSAQMD will appropriately offset ARCF 2016 Project emissions with emissions credits generated by equipment under one of YSAQMD's equipment retirement and replacement programs. YSAQMD will take full responsibility for generating offsets that meet the following language of §93.163(a): "the emissions reductions from an offset or mitigation measure used to demonstrate conformity must occur during the same calendar year as the emission increases from the action." USACE shall not be liable for any offset penalty or cost arising from improper use by YSAQMD of mitigation funds received from USACE.
3) USACE agrees to pay a mitigation fee of $18,262 per ton of NO_X offset credits to YSAQMD, plus a ten percent (10%) administration fee on the total mitigation offset charge for NO_X emissions within YSAQMD.
4) Before January 15, 2020 USACE will provide YSAQMD an initial estimate of required offset credits for calendar years 2020, 2021, 2022, and future years if needed, for mitigation of up to 12 tons per year of NO_X (but not to exceed a total of 35 tons NO_X for the entire construction period).

5) USACE will pay YSAQMD in full for offset credits to mitigate for the ARCF 2016 project's NO_X emission offset estimated for calendar years 2022 and 2023 within YSAQMD jurisdiction by February 1, 2022.
6) YSAQMD will procure the offset credits purchased as exclusive to USACE for the applicable calendar years of 2021 through and including 2025. Emission credits will not return to a community bank or be available for use by other projects or persons during the construction period of the ARCF 2016 Project.
7) Any surplus of NO_X emission offset credits (purchased credits in excess of actual emissions) will be held for use in future years for offsetting the emissions from future USACE ARCF 2016 Project contracts.
8) During the period of project construction USACE will provide a calculation of actual emissions within the YSAQMD for each calendar year by February 15 of the following year. USACE will use emission calculation tools required by the Sacramento Metropolitan Air Quality Management District (SMAQMD) for the calculations.
9) USACE will provide a revised estimate of required offsets by 1/15/2023 for calendar year 2023 and future construction years.
10) USACE will pay in full for estimated offsets for calendar year 2023 and future years by 2/1/2023. Future offset payment amounts will be reduced by any surplus purchased offset credits in excess of actual emissions for previous years.

Appendix G

Clean Water Act
Section 404(b)(1) Evaluation

APPENDIX G
Clean Water Act Section 404(b)(1) Evaluation

Introduction

The Sacramento Metropolitan area is one of the most at risk areas for flooding in the United States. There is a high probability that flows in either the American or Sacramento Rivers will stress the network of levees protecting the Sacramento area to the point that levees could fail. The consequences of such a levee failure would be catastrophic since the inundated area is highly urbanized and the flooding could be up to 20 feet deep.

The purpose of the American River Watershed Common Features project (ARCF) is to improve the existing infrastructure to reduce flood risk along the American and Sacramento Rivers. This project covers approximately 22 miles of American River levees, 12 miles of Sacramento River levees, and 5.5 miles of the Natomas Cross Canal levee in Natomas.

The ARCF General Reevaluation Report (GRR) Final Environmental Impact Statement / Environmental Impact Report (EIS/EIR) (U.S. Army Corps of Engineers [USACE] 2016)[1] previously analyzed several alternatives, including a No Action/No Project Alternative and two action alternatives. The Proposed Action, a component of the preferred alternative, includes the installation of erosion protection features along about 1.5 mile of the American River. For a full description of the Proposed Action, see "Alternative 4—Bank Protection-Launchable Rock Trench Combination (Proposed Action)" below.

The Proposed Action would be located in the City of Sacramento and in Sacramento County, California along the descending left bank of the American River, from approximately River Mile (RM) 5.1 at Paradise Beach at Glenn Hall Park upstream to approximately RM 6.6, just upstream of the H Street Bridge. The basic purpose of the Proposed Action is to reduce flood risk to the Riverpark neighborhood and Sacramento. The overall purpose of the proposed action is to improve the existing infrastructure along an approximately 5,500-foot-long reach of the left bank of the Lower American River, to reduce flood risk resulting from erosion.

[1] U.S. Army Corps of Engineers and Central Valley Flood Protection Board. 2016. *American River Watershed General Reevaluation Report, Final Environmental Impact Statement / Environmental Impact Report.* December. Sacramento, California. State Clearing House Number 2005072046.

The basis of this consistency analysis is an evaluation of the consistency of the Proposed Action, and alternatives to the Proposed Action (as described below and in the American River Contract 1 Supplemental Environmental Assessment(EA)/EIR), with the determinations of the 2015 404(b)(1) evaluation and the applicability of the findings of the 2015 404(b)(1) evaluation to the Proposed Action. The source materials are:

- USACE (2015) *Draft Section 404(b)(1) Water Quality Evaluation American River Common Features General Reevaluation Report*. Appendix E in USACE (2016). This Clean Water Act Section 404(b)(1) evaluation first describes the alternatives considered, including the No Action and the Proposed Action. The differences between the alternatives are associated with the type of erosion protection, whether it be through construction of a launchable rock filled trench, bank protection, or a combination of the two. The alternatives description section also provides information on why certain alternatives were not selected, based on impacts to Waters of the U.S. and practicability factors. Lastly, the Proposed Action is compared to the determinations and findings 2015 404(b)(1) to demonstrate how the Proposed Action is consistent with those findings and is the Least Environmentally Damaging Practicable Alternative (LEDPA).

- USACE. 2016. *American River Watershed General Reevaluation Report, Final Environmental Impact Statement / Environmental Impact Report.* May. Sacramento, California. State Clearing House Number 2005072046.

- USACE. 2020. *American River Watershed Common Features Water Resources Development Act 2016 Contract 1 Draft Supplemental Environmental Assessment / Environmental Impact Report*. Sacramento, California. State Clearing House Number 2005072046.

Alternatives

Below are descriptions of the alternatives, including the No Action and Proposed Action. The overall purpose of the proposed action is to improve the existing infrastructure along an approximately 5,500-foot-long reach of the left bank of the Lower American River, to reduce flood risk resulting from erosion (Figure 1). The Proposed Action is specific to the Lower American River; therefore, offsite alternatives were not considered.

Alternative 1—No Action

Under the No Action Alternative, the Proposed Action would not be constructed. As a result, this segment of the levee would remain susceptible to failure because of erosion and would continue to be a weak spot in the system. The levees within the Project Area could fail and result in flooding of the East Sacramento area, leading to catastrophic loss of life and property. This area of Sacramento includes numerous residences and businesses, as well as Sacramento State University, which is located adjacent and immediately to the east of this levee segment. Major government facilities also would be impacted until flood waters recede. Damage to infrastructure, utility systems, and commercial and residential interests would be substantial. Workers would be unable to perform their duties until the buildings are restored and could be occupied. This could cause a temporary shutdown or slowdown of many State and local government functions. Also, there are transportation corridors within the Project Area that could be flooded if levees were to fail.

The Sacramento metropolitan area would continue to be subject to an unacceptably high risk of levee failure and subsequent catastrophic flooding. A flood in the Sacramento metropolitan area would have substantial repercussions that would affect the entire State; the national economy; and Federal, State, and local government operations and infrastructure.

Alternative 2—Launchable Rock Trench

This alternative would entail construction of a launchable rock filled trench, designed to deploy once erosion has removed the bank material beneath it (Figures 2 and 3); rock would also be placed on some areas of the levee slope. The launchable rock trench would be constructed outside of the natural river channel. This location would still be on the water side of the levee at the project site but would be higher on the bank and would not include the lower elevation, in-channel portions of the footprint of Alternatives 3 and 4.

The vegetation would be removed from the footprint of the trench and the levee slope prior to excavation of the trench. All soil removed during trench excavation would be stockpiled for reuse or disposal. The trench configuration would include a (horizontal : vertical) 2H:1V (2:1) landside slope and 1:1 waterside slope and would be excavated at the toe of the existing levee. The bottom of the trench would be constructed close to the summer mean water surface elevation to reduce the rock launching distance and amount of rock required.



SOURCE: NHC, 2020; ESA 2020

ARCF 2016 American River Contract 1

Figure 1
Site 2-1

ESA

After excavation, the trench would be filled with rock that would be imported from an offsite location. The trench would be covered after rock placement with a minimum of three feet of stockpiled soil to allow for planting over the trench. Rock placed on the levee slope would be covered with stockpiled soil. All disturbed areas would be reseeded with native grasses and small shrubs where appropriate. Vegetation would be planted over the trench outside the specified vegetation-free zone required by USACE Engineer Pamphlet (EP) 1110-2-18. This vegetation would likely be limited to native grasses, shrubs, and trees with shallow root systems to ensure that they do not limit the functionality of the trench during a flood event. This vegetation would only be permitted in a way that does not put undue burden on the local maintaining agency and in locations that do not interfere with the conveyance capacity of the channel.

This alternative was not selected because installation of launchable rock trench is not logistically practicable in portions of the project site where the levee is in close proximity to the river channel and insufficient space exists to install launchable rock trench without extensive modification of the levee (i.e., changes to its footprint, profile, or both).

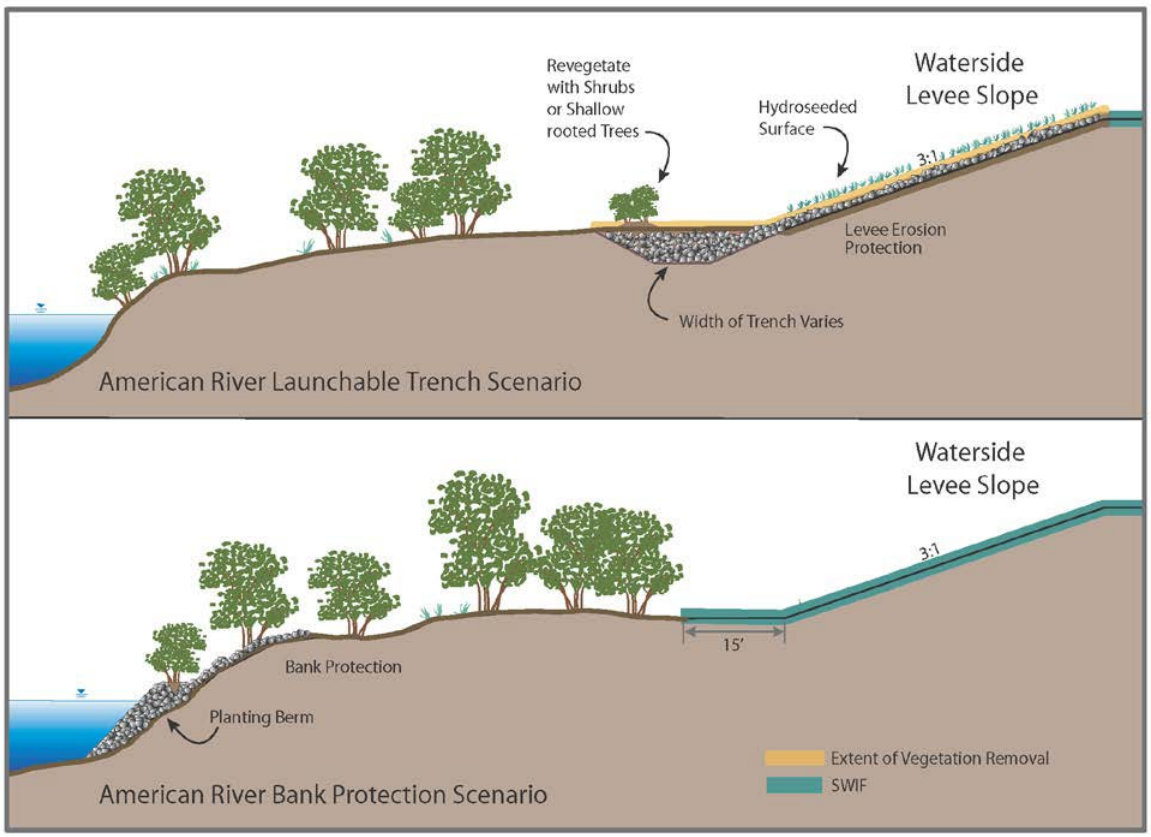


Figure 2
Launchable Rock Trench and Bank Protection Measures

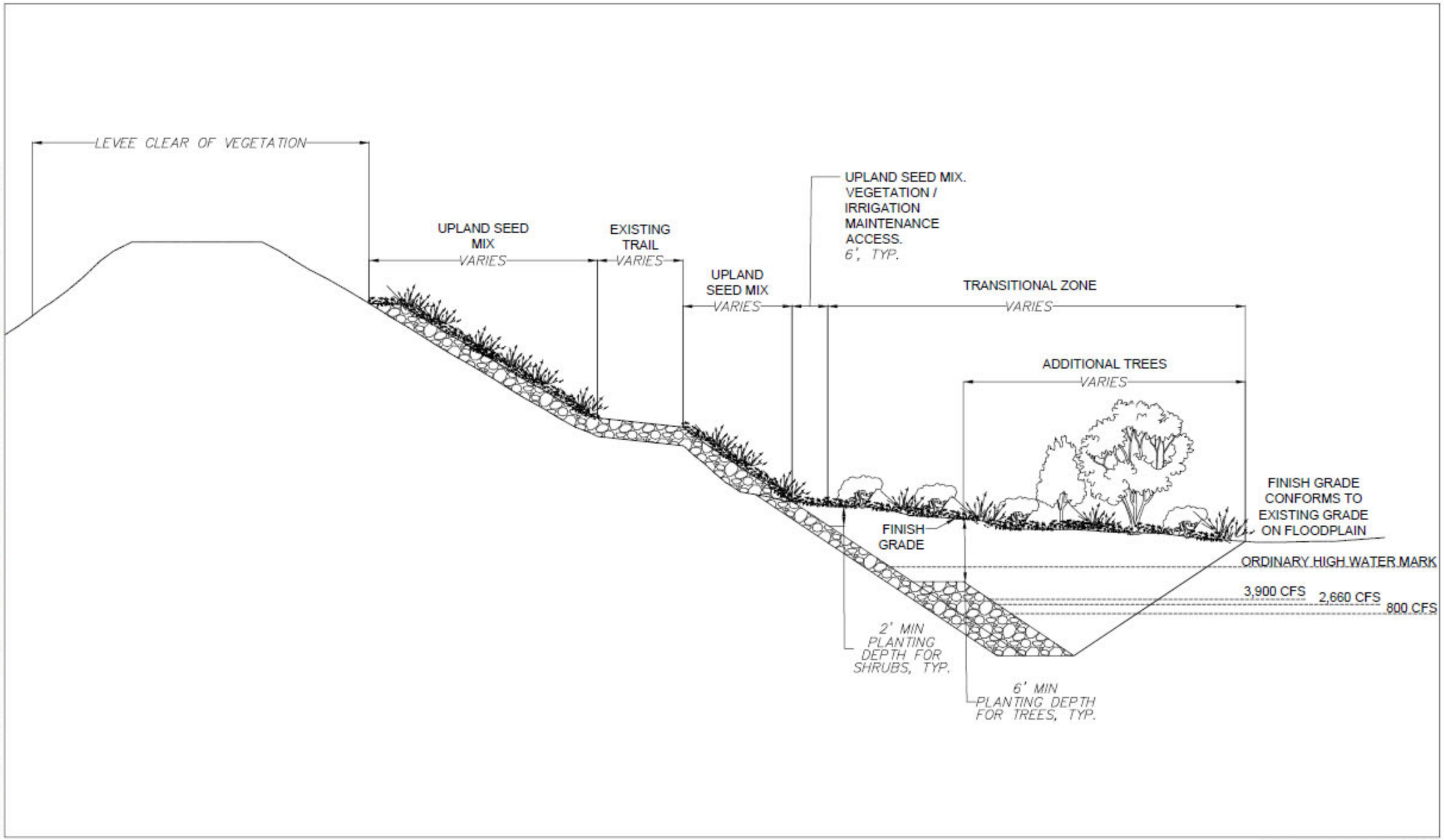
Alternative 3—Bank Protection

This alternative consists of placing rock revetment on the river's bank to prevent erosion (Figures 2 and 4). When necessary, the eroded portion of the bank would be filled and compacted prior to the rock placement. The site would be prepared by clearing and stripping the site prior to construction. Vegetation and loose materials would be removed. Where possible, native trees would remain at these sites. Temporary access ramps would be constructed, if needed, using imported borrow material that would be trucked on site.

Revetment would be imported from an offsite location via haul trucks and temporarily stored at staging areas located in the immediate vicinity of the construction sites. A loader would be used to move revetment from the staging area to a transfer dump truck which would deliver the revetment to areas along the levees where excavators would be moving the material where needed for bank protection. The excavators would place a large rock berm in the water up to an elevation slightly above the mean summer water surface. A planting trench would be established on these rock surfaces for revegetation purposes. The excavators would either be working from the top of the bank placing revetment on the bank beneath it and in the water, or from on top of the rock berm that would previously be established.

The revetment would be placed on the existing bank at a slope varying from a 2:1 to 3:1 slope depending on site-specific conditions along the length of the project site. After revetment placement has been completed, a small planting berm would be constructed in the rock where feasible to allow for some revegetation of the site, outside of the vegetation free zone as required by USACE Engineering Pamphlet (EP) 1110-2-18. This vegetation would be designed on a site-specific basis to minimize the operation and maintenance responsibility of the local maintaining agency and in such a way to not impact the hydraulic conveyance of the channel.

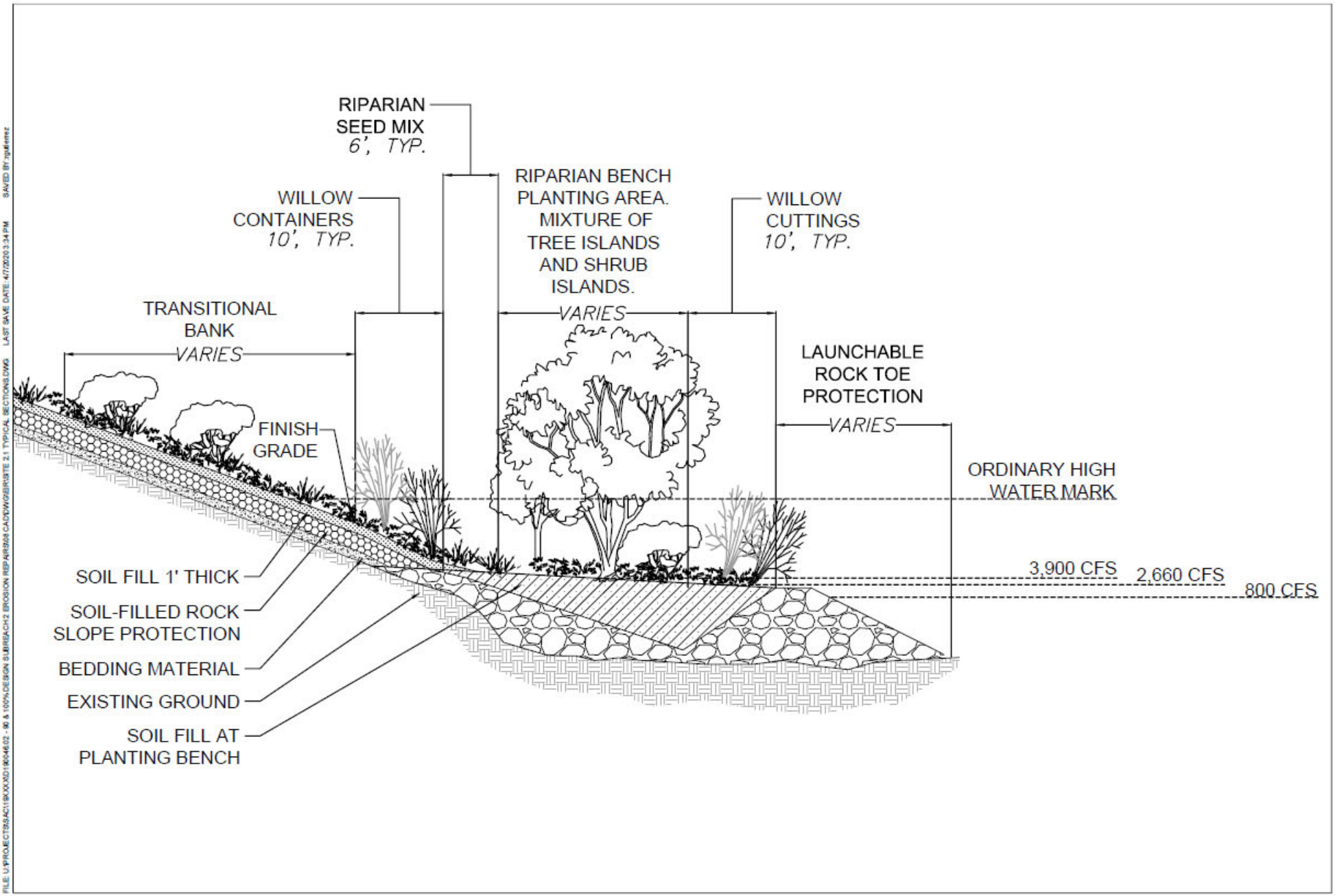
Alternative 3 was not selected because it would result in greater quantities of fill in the active channel of the American River, greater net fill in waters of the U.S., and greater impacts to aquatic resources than Alternative 4 (the Proposed Action). The downstream portion of the project site, from RM 5.1 to RM 5.8 is sufficiently far from the river channel that launchable rock trench can be installed, which would avoid in-channel fill and have no net fill in waters of the U.S. Furthermore, in this portion of the project site, the levee could be protected from erosion with a much shorter length of launchable rock trench than of bank protection because the channel bank is along a river bend and much longer than the adjacent levee, which is relatively straight and located near the base of the bend.



ARCF 2016 American River Contract 1

ESA

Figure 3
Launchable Rock Trench Cross Section



ARCF 2016 American River Contract 1

ESA

Figure 4
Planting Bench Cross Section

Alternative 4—Bank Protection-Launchable Rock Trench Combination (Proposed Action)

The Proposed Action would install both launchable rock trench and bank protection at different locations along this segment of levee; rock would also be installed on some areas of levee slope. Bank protection and launchable rock trench would be designed as described for Alternative 2 and Alternative 3, respectively.

Bank protection would be installed from the upstream terminus of Paradise Beach at RM 5.8 to the upstream terminus of the improvements at RM 6.6. Along this section, the levee is very close to the shoreline, and consequently a launchable rock trench is not practicable here. Therefore, erosion protection in this section would consist of riprap (large angular rocks) placed as bank protection along the waterside slope of the levee that would transition downward into planting benches along the shoreline, which would be supported by a submerged launchable riprap toe. The riprap would augment existing bank protection along the levee.

Launchable rock trench would be installed from Glenn Hall Park at RM 5.1 to the upstream end of Paradise Beach at RM 5.8. Along this section, the levee is setback a considerable distance from the shoreline. Therefore, erosion protection in this section would consist of riprap along the waterside levee slope extending and connecting to a buried launchable rock trench (i.e., a trench filled with riprap), which would be outside of the active channel and at a considerable distance from the active shoreline.

Rock slope protection has been designed to provide roughness to the levee to withstand modeled shear stresses of the design flow magnitude. The minimum required toe protection below the planting bench is 5-feet thick with Class C quarry stone (18 – 36 inches large). Soil filled quarry stone will be used on the levee slope above the planting bench. Rock sizing and layer thickness are based on Engineer Manual (EM) 1110-2-1601. Up to 179,100 cubic yards (cy) of quarry stone will be needed for the Proposed Action. The material would be imported from a licensed, permitted facility that meets all Federal and State standards and requirements. The material would be transported to the project site via trucks.

During development of the detailed design of the Proposed Action, appropriate and practicable steps to minimize potential adverse effects of discharge and fill on the aquatic ecosystem were taken including confining fill to the smallest practicable area. This was done by conducting an erosion assessment that identified the areas most in need of protection and only those areas would be treated. A hydraulic model was used to determine the minimum required rock protection of the site to avoid mobilizing the material. Also, the areas disturbed by construction would be returned as close as possible to pre-project conditions where practicable.

A combination of measures would be used to reduce impacts to water quality. The use of the quarry stone bank protection will allow for sediment traveling downstream to get trapped in the spaces between. The planting bench incorporated into the levee design will be planted with native vegetation like willows and cottonwood and in-stream woody material will aid in shading the water for temperature control and as fish habitat enhancement.

The design of the Proposed Action was prepared to: (1) minimize impacts on hydraulic capacity and fisheries; (2) maximize the width of the planting benches without impacting hydraulic capacity; (3) minimize excavation into the existing berm and preserving existing resources where possible; and, (4) minimize the footprint into the existing channel.

This alternative was selected as the LEDPA as it meets the basic and overall purpose by reducing flood risk resulting from erosion; it is practicable (compared to Alternative 2); results in the least amount of impacts to Waters of the U.S. (compared to Alternative 3); and consistent with the 2015 404(b)(1) analysis (see "Comparisons" section below).

Other Alternatives Not Considered

Other alternatives that were not considered include smaller bank protection footprints to minimize impacts to existing vegetation and the use of bioengineered techniques for protecting banks. As stated above, this activity is site specific because the erosion control is targeted for this specific erosion site and the other alternatives did not meet the needs for this site.

Reducing the footprint is not possible because the extent of this individual erosion site and the need to withstand 200-year flood events and tie in with adjacent levee protection work. The height of the levee improvements was determined adequate to withstand modeled shear stresses of the design flow magnitude.

Bioengineered techniques are not sufficient to provide the bank protection required due to the high velocities in the river at flood stage. The bank protection is engineered for a 200-year flood event and bioengineered materials would not provide adequate bank protection during a 200-year event at the project site.

Comparisons

This section contains an evaluation of the potential short-term or long-term effects of the Proposed Action and a conclusion regarding the consistency of these effects of the Proposed Action with the 2015 404(b)(1) evaluation. Actions to minimize effects and secondary effects are included in the discussions.

Physical Substrate

Existing Substrate and Fill

The Proposed Action would create a permanent change of substrate on the riverbanks from alluvial soils to stone riprap. However, the rock berms would be covered with a silty or sandy layer of soil to allow for the planting of vegetation along the river banks. This silty or sandy layer of soil would be from on-site or of a similar substrate type to the existing condition.

Fill material for protecting the waterside levee slope would consist of a mix of 70% rock and 30% soil covered by topsoil or aggregate (at existing trails/roads). The rock would be large stone riprap ranging from 8 to 36-inch diameter. Soil and fill would come from on-site or from clean, imported fill material. Rock would be imported. Imported fill material would be from either a tested and approved borrow site, or from a commercial source. *This is consistent with the 2015 404(b)(1) evaluation.*

Changes to Disposal Area Elevation

The Proposed Action would place rock on the river's banks and on bench slopes. This fill would vary in thickness. The riprap bank protection along levee slopes would be a minimum of 2-foot thick layer composed of a mix of 70% rock and 30% soil to promote vegetation establishment and would be covered with a one-foot layer of topsoil or with an aggregate base where there are existing roads. At the lower part of the bank slope where the launchable toe and planting bench are located, the thickness would be about 5 feet thick or thicker. *This is substantially consistent with the 2015 404(b)(1) evaluation.*

Duration and Extent of Substrate Change

The Proposed Action would create an effectively permanent change of substrate on the riverbanks from alluvial soils to stone riprap covered with a silty or sandy layer of soil from on-site or of a similar substrate type to the existing condition. A typical bank protection site has an approximate life span of 50 years. *This is consistent with the 2015 404(b)(1) evaluation.*

Migration of Fill

The Proposed Action is designed to avoid significant migration of newly placed fill through the use of geotextiles and the establishment of on-site vegetation. However,

during the life span of the bank protection, there would be natural erosion and migration of fill occurring at the project site, but at a slower rate than without bank protection. Also, continued bank erosion would lead to the movement of revetment from the launchable toe of bank protection or from the launchable rock trench onto the lower bank and adjacent channel bed. This would be a localized, rare event, but is likely to occur during the next 50 years. The Proposed Action's erosion protection measures are likely to somewhat reduce the sediment supply for riverine reaches directly downstream because the riprap would hold the bank or levee in place. However, from a system sediment perspective, the bank material that would be protected in the project reaches is not a major source of sediment on the American River. *This is consistent with the 2015 404(b)(1) evaluation.*

Changes to Environmental Quality and Value

Potential impacts to environmental quality and value include a potential temporary increase in turbidity during bank protection construction, runoff of exposed soils, and cement, slurry, or fuel spills during construction. Emissions from construction equipment, haul trucks, and barges also pose a potential impact to environmental quality and value during the duration of construction activities. Best management practices (BMPs) and measures incorporated from the GRR EIS/EIR, with clarifying modifications, would be implemented during construction. There would be a permanent change in substrate in the footprint of the placement area. However, these sites would be designed to be as consistent as feasible with natural riverbanks through the placement of silt over the rock layer and the planting of on-site shrubby vegetation and native grasses. To the extent feasible, large trees on the lower waterside slope would be left in place to maintain shaded riverine aquatic habitat for special status fish species. *This is consistent with the 2015 404(b)(1) evaluation.*

The Proposed Action would implement BMPs and incorporate the measures from the GRR EIS/EIR, with clarifying modifications. These BMPs and measures include:

- Implementing Sacramento Metropolitan Air Quality Management District's (SMAQMD's) Basic Construction Emission Control Practices and other BMPs to control fugitive dust, runoff, and emissions.

- Implementing enhanced fugitive dust control practices and enhanced on-site exhaust controls in addition to SMAQMD's Basic Construction Emission Control Practices and other BMPs

- Implementing a Storm Water Pollution Prevention Plan (SWPPP), Spill Prevention Control and Countermeasures Plan, and associated BMPs.

- Conducting earthwork during low flow periods (generally May 1 through November 30).

- To the extent possible, staging construction equipment and materials on the landside of the subject levee reaches in areas that have already been disturbed.

- Minimizing ground and vegetation disturbance during project construction by establishing designated equipment staging areas, ingress and egress corridors, spoils disposal and soil stockpile areas, and equipment exclusion zones prior to the commencement of any grading operations.

- Stockpiling soil on the landside of the levee reaches, and install sediment barriers (e.g., silt fences, fiber rolls, and straw bales) around the base of stockpiles to intercept runoff and sediment during storm events. If necessary, cover stockpiles with geotextile fabric to provide further protection against wind and water erosion.

- Installing sediment barriers on graded or otherwise disturbed slopes as needed to prevent sediment from leaving the project site and entering nearby surface waters.

- Installing plant materials to stabilize cut and fill slopes and other disturbed areas once construction is complete. Plant materials could include an erosion control seed mixture or shrub and tree container stock. Temporary structural BMPs, such as sediment barriers, erosion control blankets, mulch, and mulch tackifier, would be installed as needed to stabilize disturbed areas until vegetation becomes established.

- Conducting water quality tests specifically for increases in turbidity and sedimentation caused by construction activities.

This is consistent with the 2015 404(b)(1) evaluation.

Water Circulation, Fluctuation, and Salinity

Because the Proposed Action consists of erosion protection measures that are fix-in-place levee improvements, its implementation would have no effect on current patterns and water circulation. *This is consistent with the 2015 404(b)(1) evaluation.*

Because the American River system is regulated by upstream dams that allow a specific amount of water to be released into system, the Proposed Action would not change water level fluctuation patterns. *This is consistent with the 2015 404(b)(1) evaluation.*

Because the project site is located in a freshwater riverine system, the Proposed Project would not alter salinity gradients. *This is consistent with the 2015 404(b)(1) evaluation.*

Water Quality

Water Chemistry

The Project Area is in the Sacramento Hydrologic Basin Planning Area and Lower American Hydrologic Subarea, as designated by the Central Valley Regional Water Quality Control Board (RWQCB). Water quality standards for this basin are contained in

the Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin (Basin Plan) per Section 303 of the Clean Water Act.

The Basin Plan objective for pH is between 6.5 and 8.5, and discharges cannot result in changes of pH that exceed 0.5. The proposed construction materials (rock and sand or silt soil) have little potential to affect the pH of the American River, and the proposed action.

The Lower American River is listed as impaired for chlorodane, dichlorodiphenyltrichlorothane (DDT), diazinon, dieldrin, mercury, polychlorinated biphenyls (PCBs), and an unknown toxicity.[2] However, the Proposed Action would not involve use of materials containing significant amounts of PCBs, mercury, or pesticides. (Diazinon, dieldrin, chlorodane, and DDT are pesticides.)

Construction of the Proposed Action would include ground disturbance activities that could expose soils to increased rates of erosion during storm events that could increase the rate of sedimentation in receiving waters. Sediment input into the river and turbidity caused by sediment-laden runoff or placement of rock in the river could cause a turbidity plume in the water that could exceed the Basin Plan objective for turbidity in the American River (10 nephelometric turbidity units [NTUs], except during periods of storm runoff). Also use and storage of equipment could result in the accidental spills of fuel, oil, and other construction equipment related materials that could also be carried in stormwater runoff to receiving waters. As a result, there is the potential for construction activities to adversely affect receiving water chemistry.

Construction contractors would be required to prepare and implement a SWPPP and comply with the conditions of the National Pollutant Discharge Elimination System (NPDES) general stormwater permit for construction activity. The contractor would be required to obtain a permit from the Central Valley RWQCB detailing a plan to control any spills that could occur during construction. The plan would describe the construction activities to be conducted, BMPs that would be implemented to prevent discharges of contaminated stormwater into waterways, and inspection and monitoring activities that would be conducted. These avoidance and minimization measures would reduce effects on water chemistry and ensure that the Proposed Action would not violate State water quality standards identified in the Basin Plan or the Toxic Effluent Standards of Section 307 of the Clean Water Act. *This is consistent with the 2015 404(b)(1) evaluation.*

Clarity

Placement of fill materials would temporarily reduce clarity due to an increase in total suspended solids within the Project Area. Clarity is not expected to be substantially affected outside the immediate Project Area. However, the reduction of clarity caused by

[2] State Water Resources Control Board. 2010. *303(d) List of Impaired Waters*. https://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/impaired_waters_list/#intrpt2018. Accessed December 2019.

construction activities would be short in duration and would return to pre-construction levels upon project completion. *This is consistent with the 2015 404(b)(1) evaluation.*

Color

The Proposed Action is expected to affect color only during fill activities. Placement of fill materials would temporarily induce a color change due to an increase in turbidity. These effects would be consistent with those discussed above for clarity. The change in color caused by construction activities would be short in duration and would return to pre-construction levels upon project completion. *This is consistent with the 2015 404(b)(1) evaluation.*

Odor

The Proposed Action would not result in any major sources of odor, and would not involve operation of any of the common types of facilities that are known to produce odors in water (e.g., wastewater treatment facility). Air-borne odors associated with diesel exhaust emissions from the use of onsite construction equipment may be noticeable from time to time by adjacent receptors. However, the odors would be intermittent and temporary, would dissipate rapidly from the source with an increase in distance, and are unlikely to affect water odor. Furthermore, as required by California Air Resources Board (CARB) regulation 13 CCR 2449(d)(3), no in-use off-road diesel vehicles may idle for more than 5 consecutive minutes. In addition, implementation of mitigation measures, which are required to reduce other air quality effects, would further reduce exhaust emissions and provide advanced notification of construction activity. *This is consistent with the 2015 404(b)(1) evaluation.*

Taste

The proposed materials and construction activities are not expected to affect taste. *This is consistent with the 2015 404(b)(1) evaluation.*

Dissolved gases

The proposed materials and construction activities are not expected to directly affect dissolved gases. However, to the extent that the Proposed Action results in a temporary increase in water temperature at the project site, the concentration of dissolved gases would be reduced. The potential effects on water temperature are described in the following section. *This is consistent with the 2015 404(b)(1) evaluation.*

Temperature

The Proposed Action's construction activities have the potential to affect water temperatures by creating substantial turbidity and by removing many trees along the lower waterside slope. The project includes measures to control turbidity, in particular the preparation and implementation of a SWPPP, installation of a turbidity curtain and/or

other control measures approved by the National Marine Fisheries Service (NMFS), and so the effect of turbidity on water temperature would be minimized. Also, the Proposed Action's design includes a berm on which trees and shrubs would be planted and that in the long term would provide shade and result in a beneficial effect on water temperatures. Nonetheless, in the short term the Proposed Action could impact (increase) water temperatures. This effect would be mitigated by installing offsite compensatory shaded riverine aquatic (SRA) habitat. *This is consistent with the 2015 404(b)(1) evaluation.*

Nutrients

The Proposed Action's construction activities have the potential to affect nutrient levels during construction and in the long term. Release of suspended sediments during construction could potentially cause thresholds for nutrients to be exceeded. However, the construction contractor would implement a SWPPP including BMPs that would prevent release of excess nutrients during construction. Long-term nutrient levels would not be substantially altered by the Proposed Action because its design includes a berm on which trees and shrubs would be planted and at maturity would provide nutrient inputs comparable to the existing shaded riverine aquatic corridor on the project site. In addition, nutrients from the upstream watershed would remain in the system. *This is consistent with the 2015 404(b)(1) evaluation.*

Eutrophication

The Proposed Action is not expected to contribute excess nutrients into the stream or promote excessive plant growth during construction or in the long-term. Also, a SWPPP would be prepared and implemented with BMPs that would prevent release of excessive nutrients during construction. Post-construction, surfaces would be revegetated, which would limit nutrient inputs (e.g., from overland flow), and nutrient inputs from overland or subsurface flow would be further limited by the high content of rock in the fill material. *This is consistent with the 2015 404(b)(1) evaluation.*

Suspended Particulates/Turbidity

The Proposed Action would alter suspended particulate type and concentration or turbidity by:

- Placement of riprap, which would temporarily generate increased turbidity in the immediate vicinity, and could result in a sediment plume affecting areas further downstream.

- Stormwater runoff from landside construction areas affecting turbidity.

Placement of riprap in the water could result in a sediment plume, generated from the channel bottom and levee side, becoming suspended in the water and could generate turbidity levels above those identified as acceptable by the Basin Plan. As rock riprap is placed in the open water, significant indirect effects could result as a turbidity plume

drifts further downstream and later affects water qualify in downstream areas. To reduce these to a less-than-significant level, the construction contractor would prepare and implement a SWPPP, and would install, prior to in-water work, a turbidity curtain or other comparable minimization measure. (See also "Actions to Minimize Effects" below.) *This is consistent with the 2015 404(b)(1) evaluation.*

To minimize impacts to water quality, including turbidity, the construction contractor would prepare and implement a SWPPP and comply with the conditions of the National Pollution Discharge Elimination System (NPDES) Construction General Permit. Also, a turbidity curtain or other comparable minimization measures approved by NMFS and the U.S. Fish and Wildlife Service (USFWS) would be installed prior to any in-water work conducted on the waterside of the levee. The SWPPP would describe the construction activities to be conducted, and BMPs that would be implemented to contain spills and prevent discharges of stormwater into waterways. BMPs could include but are not limited to straw waddles, geotextile and coir mats, tire wash stations at ingress/egress points to prevent tracking soil offsite onto roadways and entering the municipal stormwater collection system, and sand filter bags at stormwater collection inverts. Potential turbidity effects from landside construction (e.g., vehicle, staging, placement of construction equipment) would be limited to stormwater runoff carrying loose soil from staging areas and construction vehicle access areas. Following construction of the levee repairs BMPs would continue to be monitored and implemented while vegetation matures enough to stabilize surface soil in the Project Area. Further, the installed bank protection would include plantings of riparian vegetation that could slow flows down and reduce turbidity during flood flows. *This is consistent with the 2015 404(b)(1) evaluation.*

Contaminants

The Proposed Action's construction activities would involve the use of potentially hazardous material, such as fuels, oils and lubricants, and cleaners, which are commonly used in construction projects. Also, although the five hazardous waste/materials sites identified in the study area of the GRR are not in the Project Area, and no sites in the Project Area were identified through a November 2019 review of the Department of Toxic Substances Control Envirostor database and State Water Resources Control Board Geotracker,[3,4] contaminants could already be present at the construction site.

To minimize the impacts associated with contaminants, the Proposed Action would incorporate the following measures described in the GRR EIS/EIR.

- Construction contractors would be required to use, store, and transport hazardous materials in compliance with Federal, State, and local regulations during project construction and operation.

[3] Department of Toxic Substances Control, 2019. Available: https://www.envirostor.dtsc.ca.gov/public/map/?global_id=CAT080031115. Accessed November 21, 2019 and December 13, 2019.

[4] State Water Resources Control Board. 2019. Geotracker Available: https://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=sacramento. Accessed November 21, 2019 and December 13, 2019.

- Testing of borrow sites would occur prior to the use of material and sites which have contaminated soils would not be used for this project.

- Any hazardous substance encountered during construction would be removed and properly disposed of by a licensed contractor in accordance with Federal, State, and local regulations.

- The risk of significant hazards associated with the transport, use, and disposal of these materials is low, and compliance with applicable regulations would reduce the potential for accidental release of hazardous materials during transport and construction activities.

- Project areas would be tested contaminants prior to construction, and any materials found would be disposed of in accordance with all Federal, State, and local regulations at an approved disposal site.

- The contractor would be required to prepare a SWPPP and a Spill Prevention Control and Countermeasures Plan (SPCCP), which detail the contractor's plans, including BMPs, to prevent discharges from the construction site into drainage systems, lakes, or rivers.

This is consistent with the 2015 404(b)(1) evaluation.

Aquatic Ecosystems and Organisms

Plankton

Plankton are drifting plant and animal organisms that inhabit the pelagic zone of oceans, seas, or bodies of fresh water, including the Lower American River at the project site. Because project construction activities would affect turbidity, incident radiation, water temperature, and inputs of organic matter from bank vegetation at the project site, the Proposed Action would affect plankton as they passed through this area in the flowing water of the Lower American River. Because project effects on turbidity, water temperature, and incident radiation would be local, temporary, and minimized to less-than-significant levels, and because most plankton would only be transiently present at the project site, effects on plankton would be less than significant. (See also the preceding sections "Water Quality" and "Suspended Particulates/Turbidity.") *This is consistent with the 2015 404(b)(1) evaluation.*

Benthos

The American River at the project site has a sandy/silty bottom and natural banks, which have benthic macroinvertebrates. Disturbance during construction and placement of revetment on banks and the immediately adjoining channel bed will cause temporary impacts to benthic organisms. But following construction, the rock berm would be covered with a silty soil layer, and native benthic organisms would be expected to

recolonize the area. After the project is complete, the spaces between the quarry stone will capture sediment traveling downstream, providing benthic surfaces similar to existing conditions, which benthic organisms would be expected to recolonize. *This is consistent with the 2015 404(b)(1) evaluation.*

Nekton

Nekton are actively swimming aquatic organisms that range in size and complexity from plankton to marine mammals. Native fish present in the Project Area can be separated into anadromous species and resident species. Native anadromous species include Central Valley spring-run Chinook salmon, Sacramento River winter-run Chinook salmon, fall/late-fall run Chinook salmon, and California Central Valley steelhead trout.

Rock placement during construction would most likely disturb the native resident fish by increasing vibration, water turbulence, and turbidity, which could affect fish physiology, behavior, and habitat. The Proposed Action would temporarily eliminate the bankside vegetation that is an element of SRA habitat. The Proposed Action includes the installation of instream woody material and a planting bench that would have a beneficial effect on SRA habitat once the trees and shrubs mature. The natural bank element of SRA habitat would also be temporarily lost with the placement of rock along banks. Over time sediment would settle into the rock voids and provide similar substrate characteristics as a natural bank. The temporary reduction in SRA habitat resulting from the project would be mitigated by creation of riparian habitat along the Lower American River within the American River Parkway.

The direct and indirect effects resulting from the Proposed Action would not substantially worsen existing conditions, and would not result in a substantial reduction in population abundance, movement, and distribution. *This is consistent with the 2015 404(b)(1) evaluation.*

Aquatic Food Web

Effects on the plankton, benthic, and nekton communities can affect the broader the aquatic food web, which includes marine mammals that feed on Chinook salmon and steelhead that spawn and rear in the Lower American River before migrating to the Pacific Ocean. However, the Proposed Action's effects on the aquatic food web, or the plankton, benthic, and nekton communities, and thus the aquatic food web would be temporary, as described in the preceding sections. *This is consistent with the 2015 404(b)(1) evaluation.*

Special Aquatic Sites

Within the Project Area, there are no sanctuaries and refuges, mud flats, vegetated shallows, coral reefs, or riffle and pool complexes.

However, wetlands are present at the project site and would be affected by the Proposed Action. During development of the detailed design of the Proposed Action, reasonable efforts were taken to avoid disturbance of these existing wetlands and to implement environmentally sustainable designs. Nonetheless, 5.51 acres of forested wetland would be impacted, and would be replaced with 7.59 acre of riparian habitat on site, and 0.12 acre of emergent wetland. In addition, this impact would be mitigated by 8.10 acres of forested wetland at a mitigation site in the American River Parkway that will be selected and designed in coordination with NMFS and USFWS as part of the consultation under the Endangered Species Act. *This is consistent with the 2015 404(b)(1) evaluation.*

Threatened and Endangered Species

Two species federally listed as threatened are known to be present in the Project Area, and thus would be affected by the Proposed Action: Valley elderberry longhorn beetle (VELB) and California Central Valley steelhead. Three other federally listed species are likely to occur in the Project Area: western yellow-billed cuckoo (threatened), Sacramento River winter-run Chinook salmon (endangered), and Central Valley spring-run Chinook salmon (threatened). The Project Area is not within designated critical habitat for any listed terrestrial wildlife species, but is within designated critical habitat for Central Valley spring-run Chinook and California Central Valley steelhead.

One elderberry shrub without beetle exit holes would be directly affected by construction of Site 2-1, and 0.08 acres of riparian habitat within 25 meters (82 feet) of elderberry shrubs that is considered VELB habitat would be removed. Measures to minimize and mitigate these impacts would be implemented in accordance with the 2017 *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle*[5].

The Project Area is unlikely to support nesting western yellow-billed cuckoos because nesting cuckoos have not been documented in along the Lower American River, and riparian vegetation in the Project Area is narrow with a high level of human disturbance. Nonetheless, pre-construction surveys would be conducted for the species. If nesting birds are detected, worker environmental awareness training would be conducted and avoidance buffers would be established. Riparian habitat within the Project Area also could support foraging cuckoos. Construction of Site 2-1 would remove of 10.43 acres of riparian habitat, and subsequently create 12.86 acres of replacement habitat on site. The project would also incorporate the creation of 8.10 acres of riparian habitat off site to mitigate the impact to yellow-billed cuckoo habitat.

The Proposed Action incorporates a riparian planting bench and instream woody material that in the long-term would improve habitat conditions for California Central Valley steelhead, Sacramento River winter-run Chinook salmon, and Central Valley spring-run Chinook salmon. However, in the short term, while trees and shrubs on the planting bench are maturing, there be an adverse impact on SRA habitat for these species. To

[5] U.S. Fish and Wildlife Service. 2017. *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle* (Desmocerus californicus dimorphus). U.S. Fish and Wildlife Service; Sacramento, CA.

mitigate this short-term impact, the Proposed Action would create off-site SRA habitat in the American River Parkway.

The placement of fill materials by the Proposed Action would not jeopardize the continued existence of any species listed as threatened or endangered or result in the likelihood of destruction or adverse modification of any critical habitat as specified by the Endangered Species Act of 1973. *This is consistent with the 2015 404(b)(1) evaluation.*

Other Wildlife

The project site is used by a variety of species associated with annual grassland, mixed oak woodland, upland and riparian scrubs, riparian woodland, non-native woodland, and riverine habitats. Effects on fish species using riverine habitat at the project site are discussed in the preceding section regarding effects on the nekton. Grading and other ground-disturbing activities, noise from construction activities, and removal of vegetation could disrupt movement and foraging, or displace, injure, or kill wildlife. However, these effects would be temporary and many affected species would be expected to return to areas affected by construction once such work is completed. Additionally, there would be extensive similar, unaffected, areas of riparian, oak woodland, and grassland habitat in the vicinity of the project site and along the Lower American River that could be used by these species. Therefore, for most species of terrestrial wildlife, the Proposed Action would not result in a substantial reduction in population abundance, movement, and distribution; and thus, the effects on these species would be less than significant. However, in addition to the federally listed as threatened or endangered that were discussed previously, a number of special-status species likely use the project site. These species are less abundant, have more limited distributions, and are more vulnerable to population-level effects than common wildlife species. These special-status species include western pond turtle, American badger, pallid bat and western red bat, and several raptors and other birds that may nest at or in the vicinity of the project site (Swainson's hawk, Cooper's hawk, white-tailed kite, burrowing owl, great egret, great blue heron, and purple martin).

To minimize potential effects on these special-status species, the applicable avoidance and minimization measures from the GRR EIS/EIR have been incorporated into the Proposed Action, with revisions to reflect the revised Project Area and current mitigation requirements. These measures include worker environmental awareness training; pre-construction surveys for western pond turtles, bat maternity roosts, American badger dens, and nesting birds (note: removal of trees in the project footprint would occur before the nesting season); and establishment of avoidance buffers as necessary. Implementing these measures would protect maternity roosts of special-status bats, and avoid or minimize effects on western pond turtle, American badger, and nesting birds. In addition to GRR EIS/EIR measures incorporated into the project, a measure has been incorporated to avoid or minimize impacts to nests of Crotch's bumblebee, a candidate for State listing as threatened or endangered.

Furthermore, on-site replacement of riparian habitat and restoration of riparian habitat off-site as compensatory mitigation would provide replacement habitat at a 2:1 ratio, which in the long-term would improve habitat conditions for riparian-associated species. *This is consistent with the 2015 404(b)(1) evaluation.*

Cumulative Effects on the Aquatic Ecosystem

Effects of the proposed action include temporary reductions in nearshore aquatic and riparian habitats that are used by aquatic and terrestrial species, and permanent placement of riprap on earthen banks alters natural fluvial processes that sustain high-value nearshore and floodplain habitats in alluvial river systems.

Ongoing non-federal activities that effect listed salmonids and valley elderberry longhorn beetle, and their habitat, will likely continue in the short- term, at intensities similar to those of recent years. However, some activities associated with the State's proposed Central Valley Flood Protection Plan or state or local efforts to implement the Engineering Pamphlet (EP) 1110-2-18 could result in increased effects on listed species. Potential cumulative effects on fish also may include any continuing or future non-federal diversions of water that may entrain adult or larval fish or that may incrementally decrease outflows or water quality, thus changing habitat for these species.

Potential cumulative effects on all species discussed above could include: wave action in the water channel caused by boats that may degrade riparian and wetland habitat and erode banks; dumping of domestic and industrial garbage; land uses that result in increased discharges of pesticides, herbicides, oil, and other contaminants; and conversion of riparian areas for urban development. In addition, routine vegetation clearing and mowing associated with agricultural practices may affect or remove habitat for the valley elderberry longhorn beetle.

Human Use Characteristics

Municipal and Private Water Supplies

Proposed Action's fill material would not violate Environmental Protection Agency or State water quality standards or violate the primary drinking water standards of the Safe Drinking Water Act (42 USC 300f-300j). Also, the Proposed Action's design, compliance with State water quality thresholds and standard construction and erosion practices would preclude the introduction of substances into surrounding waters, and materials removed for disposal off-site would be disposed of in an appropriate landfill or other upland area. *This is consistent with the 2015 404(b)(1) evaluation.*

Recreation and Commercial Fisheries

The Proposed Action would cause temporary closure of recreation facilities in the American River Parkway during construction. At Site 2-1, the entire length of the upper levee crown trail and lower landside and waterside trails would be closed entirely during

the construction period, while the lower landside bicycle recreational trail from the H Street Bridge south to the exit onto State University Drive at the Hornet Bookstore could be closed during most of the active construction season. Haul trucks and other construction equipment would use portions of the recreational trails to move materials along the banks of the river, reducing accessibility to recreationists. Access along all the open available recreational trails would be impaired at locations where construction equipment would cross from landside staging areas or hauling in materials from off site to the staging areas. Construction staging areas would also restrict the use of and access to recreational areas, such as the staging areas at Paradise Beach and Glenn Hall Park reducing the quality of recreational experiences in those areas. Access to the staging area for Site 2-1 would also impact access to residents using the parking lot entrance to the Glenn Hall Pool and Glenn Hall Park. Also, recreational access to the banks at Site 2-1 would be completely restricted during the construction period due to construction activities and potential hazards to recreationists, including fishing, swimming, and boating. To minimize these effects on recreation, the Proposed Action incorporates, with clarifying modifications, the related mitigation measure in the GRR EIS/EIR This measure includes notification and coordination with user groups, posting signage, use of flaggers and traffic control, provision of marked detours, posting alternative access points if any access points are closed, and restoring access and repairing any damage to recreational facilities to pre-project conditions. *This is consistent with the 2015 404(b)(1) evaluation.*

The Proposed Action would impact habitat for commercial fish species by causing temporary increases in turbidity and short-term loss of the elements of SRA habitat. (The Proposed Action incorporates a riparian planting bench and instream woody debris that in the long-term would improve SRA habitat conditions.) As described previously under "Suspended Particulates/Turbidity," increases in turbidity would be minimized to a less-than-significant level through implementation of a SWPPP and associated BMPs, and installation, prior to in-water work, of a turbidity curtain or other comparable minimization measure. The short-term adverse impact on SRA habitat would be mitigated by the creation of off-site SRA habitat in the American River Parkway. *This is consistent with the 2015 404(b)(1) evaluation.*

Aesthetics

The Proposed Action would result in vegetation loss and construction activities that would disrupt the existing visual conditions in the Parkway. Trees would be planted after construction is completed on planting berms and on top of launchable rock trenches and disturbed areas would be reseeded with native grasses. However, there would still be a temporal loss of vegetation. In addition, the Proposed Action incorporates an GRR EIS/EIR mitigation measure that would also plant additional trees at other areas in the Parkway according to the Parkway Plan to mitigate for the removal of the trees. *This is consistent with the 2015 404(b)(1) evaluation.*

Parks, National and Historic Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves

The Proposed Action would affect the American River Parkway. Construction of the Proposed Action would last for one year. During that time, it would affect Paradise Beach, Glenn Hall Park, and the upper levee crown trail and lower landside and waterside trails at Site 2-1. The Proposed Action incorporates, with clarifying modifications, the mitigation measure in the GRR EIS/EIR that would minimize potential effects to recreational users. This measure includes notification and coordination with user groups, posting signage, use of flaggers and traffic control, provision of marked detours, posting alternative access points if any access points are closed, and restoring access and repairing any damage to recreational facilities to pre-project conditions. *This is consistent with the 2015 404(b)(1) evaluation.*

The Proposed Action would result in only localized and temporary closures, and the proposed improvements at Site 2-1 would reduce the potential for future closures of recreational facilities. The Proposed Action would also not preclude future access to recreational areas. Therefore, it would not conflict with the purposes and intents of the American River Parkway Plan and the Wild and Scenic Rivers Act. *This is substantially consistent with the 2015 404(b)(1) evaluation.*

Other Considerations

The revegetation within the planting bench is in accordance of EP 1110-2-18, which provides guidelines to assure that landscape planting and vegetation management provide aesthetic and environmental benefits without compromising the reliability of levees, floodwalls, embankment dams, and appurtenant structures.

Logistically, there are no major encumbrances to completing the work. Local ordinances and real estate are not an issue for this site.

The proposed action is fully funded. This action is part of the American River Common Features Project which was included in the FY18 Bipartisan Budget Act (Public Law [P.L.]115-123) which funded $1.56B of the remaining design and construction efforts (full first cost). Receipt of full-funding changed the approach of the project execution substantially and reduced the overall timeline to five years, with a targeted completion of all flood risk reduction features by January 2023. The construction schedule has the construction to be completed in 2022.

Appendix H

Comments and Responses on the Draft Supplemental Environmental Assessment/ Environmental Impact Report

STATE OF CALIFORNIA GAVIN NEWSOM, *Governor*

CALIFORNIA STATE LANDS COMMISSION
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825-8202

Established in 1938

JENNIFER LUCCHESI, *Executive Officer*
(916) 574-1800 *Fax* **(916) 574-1810**
California Relay Service TDD Phone **1-800-735-2929**
from Voice Phone **1-800-735-2922**

Contact Phone: **(916) 574-1890**

July 17, 2020

File Ref: SCH #2005072046

Mr. Miles Claret
Central Valley Flood Protection Board
3310 El Camino Avenue, Suite 170
Sacramento, CA 95821

VIA ELECTRONIC MAIL: (PublicComment@cvflood.ca.gov)

Subject: Draft Supplemental Environmental Assessment/Environmental Impact Report (SEA/EIR) for the American River Common Features, Water Resources Development Act of 2016, American River Contract 1, Sacramento County

Dear Mr. Claret:

The California State Lands Commission (Commission) staff has reviewed the subject Draft SEA/EIR for the American River Common Features Development Act of 2016, American River Contract 1 (Project), which is being prepared by the Central Valley Flood Protection Board (CVFPB), as the lead agency under the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.), and the U.S. Army Corps of Engineers (Corps) as the lead agency under the National Environmental Policy Act (NEPA) (42 U.S.C. § 4321 et seq.). The Commission is a trustee agency for projects that could directly or indirectly affect sovereign lands and their accompanying Public Trust resources or uses. Additionally, because the Project involves work on sovereign lands, the Commission will act as a responsible agency.

Commission Jurisdiction and Public Trust Lands

The Commission has jurisdiction and management authority over all ungranted tidelands, submerged lands, and the beds of navigable lakes and waterways. The Commission also has certain residual and review authority for tidelands and submerged lands legislatively granted in trust to local jurisdictions (Pub. Resources Code, §§ 6009, subd. (c); 6009.1; 6301; 6306). All tidelands and submerged lands granted or ungranted, as well as navigable lakes and waterways, are subject to the protections of the common law Public Trust Doctrine.

As general background, the State of California acquired sovereign ownership of all tidelands and submerged lands and beds of navigable lakes and waterways upon its

admission to the United States in 1850. The State holds these lands for the benefit of all people of the State for statewide Public Trust purposes, which include but are not limited to waterborne commerce, navigation, fisheries, water-related recreation, habitat preservation, and open space.

Based on the information submitted in the SEA/EIR, a portion of Site 2-1 is located on State-owned sovereign land in the lower American River below the ordinary low water mark. To the extent that any portion of the proposed levee improvement project involves State-owned sovereign lands in the American River, a lease will be required. The Department of Water Resources submitted an application to the Commission on January 6, 2020. Access from the American River to the three mitigation sites addressed in the SEA/EIR may also require approval from the Commission. If you have any questions, please contact Joanne Holt, Public Land Management Specialist (see contact information below) to discuss the Commission's leasing requirements. 1-1

Please also be advised that the waterways involved in the Project are subject to a public navigational easement. This easement provides that the public has the right to navigate and exercise the incidences of navigation in a lawful manner on State waters that are capable of being physically navigated by oar or motor-propelled small craft. Such uses may include, but are not limited to, boating, rafting, sailing, rowing, fishing, fowling, bathing, skiing, and other water-related public uses. The activities completed under the Project must not restrict or impede the easement right of the public. 1-2

Project Description

CVFPB proposes to install erosion protection features along the Lower American River at levee site 2-1. The purpose of the Project is to reduce the overall flood risk within the study area. The design of Site 2-1 was prepared to:

- Minimize impacts on hydraulic capacity
- Maximize the width of the planting benches without impacting hydraulic capacity
- Minimize excavation into the existing berm and preserving existing resources where possible
- Minimize the footprint into the existing channel.

From the Project Description, Commission staff understands that the Project would include the following components that have potential to affect State sovereign land:

- Bank protection (rock revetment) would be placed on the existing bank at a slope varying from a 2:1 slope to a 3:1 slope, extending below the ordinary low-water mark (OLWM).

- A planting bench (trench) would be constructed in the rock, filled with soil, and planted with native grasses, shrubs, and trees with shallow root systems to ensure that they do not limit the functionality of the trench during a flood event.

- Small dead trees with intact root wads, also referred to as in-stream woody material (IWM), would be anchored in lower elevation bench areas, and a mix of water dependent herbaceous plants would be planted.

Environmental Review

Commission staff requests that the lead agencies consider the following comments on the Project's Draft SEA/EIR.

General Comments

1. In Section 2.3.1.2, the SEA/EIR states that "All launchable-rock trenches would be constructed outside of the natural river channel;" however on Figure 2-5, the trench is shown to be below the ordinary high-water mark (OHWM); therefore, staff suggests that "natural river channel" be replaced with the phrase "main channel." In addition, the section states that "[t]he bottom of the trench would be constructed close to the summer mean water surface elevation…". Please clarify whether the "summer mean water surface elevation" is comparable to the ordinary low water mark (OLWM), to help establish what activities would be performed on lands under the jurisdiction of the Commission. 1-3

Cultural Resources

2. Tribal Consultation: Page 3-91 states that the Shingle Springs Band of Miwok Indians, Wilton Rancheria, and the United Auburn Indian Community (UAIC) requested consultation in February of 2020 and that the consultation is ongoing at this time. Commission staff requests that the results of consultation be provided when complete. 1-4

3. Title to Resources: Commission staff requests the Archaeological Discovery Plan (Mitigation Measure [MM] CR-2, found on page 3-96) include a statement that the title to all archaeological sites, and historic or cultural resources on or in the tide and submerged lands of California is vested in the State and under the jurisdiction of the Commission (Pub. Resources Code, § 6313). Commission staff also requests that MM CR-4 include the following statement: "The final disposition of archaeological, historical, and paleontological resources recovered on State lands under the jurisdiction of the California State Lands Commission must be approved by the Commission." Finally, Commission staff requests that the lead agencies consult with staff attorney Jamie Garrett (see contact information below) should any cultural resources on State lands be discovered during construction of the proposed Project. 1-5

Climate Change

4. Climate change is mentioned in Section 3.10, *Greenhouse Gas Emissions and Energy Consumption* of the Draft SEA/EIR; however, there is no distinct discussion of how the Project would address aspects of climate change other than greenhouse gases that are relevant to the Project. The Project area is located in a portion of the 1-6

American River that is not tidally influenced and therefore, would not be subject to sea-level rise. However, as stated in *Safeguarding California Plan: 2018 Update* (California Natural Resources Agency 2018), climate change is projected to increase the frequency and severity of natural disasters related to flooding, drought, and storms. In rivers, more frequent and powerful storms can result in increased flooding conditions and damage from storm-created debris as well as decreased bank stability and structure. Conversely, climate-change induced droughts could decrease river levels and flow for extended periods of time. Although relevant information is provided throughout the document, Staff suggests that CVFPB consider adding a separate discussion of how the work purposed at Site 2-1 addresses the potential effects of climate change noted above.

1-6 (cont.)

Recreation

5. The SEA/EIR (page 3-144) states that no fishing, swimming, or boating would be possible at the site during construction; however, it is unclear if boaters would have access past the site and if so, what offshore safety measures would be implemented?

1-7

Thank you for the opportunity to comment on the Draft SEA/EIR for the Project. As a responsible and trustee agency, the Commission will need to rely on the Final SEIR for the issuance of any lease as specified above and, therefore, we request that you consider our comments prior to certification of the SEIR. Please send copies of future Project-related documents, including electronic copies of the certified SEIR, Mitigation Monitoring and Reporting Program, Notice of Determination, Findings, Statement of Overriding Considerations, and approving resolution when they become available. Please refer questions concerning environmental review to Cynthia Herzog, Senior Environmental Scientist, at (916) 574-1310 or cynthia.herzog@slc.ca.gov. For questions concerning archaeological or historic resources under Commission jurisdiction, please contact Staff Attorney Jamie Garrett, at (916) 574-0398 or jamie.garrett@slc.ca.gov. For questions concerning Commission leasing jurisdiction, please contact Joanne Holt Public Land Management Specialist, at (916) 574-1832 or Joanne.Holt@slc.ca.gov.

1-8

Sincerely,

Eric Gillies, Acting Chief
Division of Environmental Planning
and Management

cc: Office of Planning and Research
C. Herzog, Commission
J. Garrett, Commission
N. Lee, Commission
J. Holt, Commission

Letter 2

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

June 29, 2020

Sent Via Email Only

Mr. Miles Claret
Department of Water Resources
3464 El Camino Avenue Room 150
Sacramento, CA 95821
Email: PublicComment@cvflood.ca.gov

Public Affairs Office
USACE Sacramento District
1325 J Street Room 1513
Sacramento, CA 95814
Email: spk-pao@usace.army.mil

RE: Draft Supplemental EA/EIR for American River Watershed Common Features, Water Resources Development Act of 2016, American River Contract 1 Project (SAC201301442)

Dear Mr. Claret and USACE Public Affairs Office:

Thank you for providing the Draft Supplemental Environmental Assessment/Environmental Impact Report (DSEA/EIR) for the American River Contract 1 Project to the Sacramento Metropolitan Air Quality Management District (Sac Metro Air District) for review. The project includes approximately 5,500 linear feet of bank stabilization work along the American River between Paradise Beach and the Guy West Bridge. The purpose of the DSEA/EIR is to analyze modifications and refinements made to the project since the publication of the American River Watershed Common Features General Reevaluation Report (GRR) Final Environmental Impact Statement/Environmental Impact Report, December 2015 (revised May 2016). Sac Metro Air District staff comments on the American River Contract 1 Project DSEA/EIR follow.

Because the American River Contract 1 Project is part of the GRR, all mitigation measures and project environmental commitments from the GRR and its General Conformity Determination (copy in Appendix F) must be included. 2-1

- Specifically, mitigation measure AQ-3: Develop and Implement a Plan for Enhanced On-Site Exhaust Controls, should clearly include the commitments from the GRR General Conformity Determination to use 90% Tier 4 off-road construction equipment (Measure 4), prohibit the use of Tier 0 off-road construction equipment (Measure 4), and to use on-road haul trucks with 2010 or newer engines (Measure 3). These GRR measures were designed to reduce construction emissions to below General Conformity levels in the years the American River Contract 1 work will be conducted. 2-2
- It is not necessary to use the Sac Metro Air District's current mitigation measure language requiring a 10% NOX reduction (noted on pages 3-117 and 3-120) since the project must apply the more stringent measures noted in the above bullet. 2-3
- Measure 1 of the GRR General Conformity Determination requires monthly equipment submittals and emissions tracking. The Sac Metro Air District's construction mitigation language currently included in AQ-3 specifies only 2 reports, an initial and final. This language should be replaced with the monthly reporting language from Measure 1. 2-4

Sac Metro Air District recommends minor modifications to the DSEA/EIR to provide accuracy and clarity.

- Off-site emissions reductions fees collected by the Sac Metro Air District are used to fund emission reduction programs. The Heavy-Duty Vehicle Incentive Program is only one program that may be funded (page 3-111). 2-5

- Correct the emission modeling and assumptions reference from Appendix D to Appendix E (pages 3-113 and 3-127).
- Table 3.9-1 on page 3-116 can be misleading by showing zero thresholds for PM10 and PM2.5 and then stating the project does not exceed those. Suggest putting the non-zero thresholds in the table and modifying Footnote 2 to state that although the thresholds are zero, since the project includes best management practices, the non-zero thresholds can be used to determine project significance.
- Correct the reference to the Sac Metro Air District's greenhouse gas thresholds adoption and the CAPCOA document on pages 3-127 and 3-128. The Sac Metro Air District's Board of Directors adopted greenhouse gas thresholds of significance on October 23, 2014. The 2008 CAPCOA document referenced was used to inform the thresholds development.

2-5 (cont.)

All projects are subject to Sac Metro Air District rules in effect at the time of construction. A list of common construction related rules[i] and the complete listing of rules[ii] are available on the Sac Metro Air District's website. Links are provided in the endnotes.

2-6

You may contact me at 916-874-4881 or khuss@airquality.org if you have questions regarding these comments.

Sincerely,

Karen Huss

Karen Huss
Associate Air Quality Planner/Analyst

cc: Paul Philley, AICP, Sac Metro Air District CEQA and Land Use Section Supervisor

---

End Notes
[i] http://www.airquality.org/LandUseTransportation/Documents/Rules%20attachment_6-18Final.pdf
[ii] http://www.airquality.org/Businesses/Rules-Regulations

CALIFORNIA Water Boards

GAVIN NEWSOM
GOVERNOR

JARED BLUMENFELD
SECRETARY FOR
ENVIRONMENTAL PROTECTION

Central Valley Regional Water Quality Control Board

20 July 2020

Miles Claret
Department of Water Resources
3464 El Camino Avenue, Suite 150
Sacramento, CA 95821

COMMENTS TO REQUEST FOR REVIEW FOR THE DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT, AMERICAN RIVER WATERSHED COMMON FEATURES, WATER RESOURCES DEVELOPMENT ACT OF 2016, AMERICAN RIVER CONTRACT 1 PROJECT, SCH#2005072046, SACRAMENTO COUNTY

Pursuant to the State Clearinghouse's 5 June 2020 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Request for Review for the Draft Supplemental Environmental Impact Report* for the American River Watershed Common Features, Water Resources Development Act of 2016, American River Contract 1 Project, located in Sacramento County.

Our agency is delegated with the responsibility of protecting the quality of surface and groundwaters of the state; therefore our comments will address concerns surrounding those issues.

Central Valley Water Board staff recommends including turbidity language from section 3.1.21 of the Basin Plan specific to Folsom Lake and the Lower American River to turbidity language included in Mitigation Measure WQ-1. The recommended additional language is underlined below:

- During working hours, the construction activity would not cause the turbidity in the adjacent water body down current from the construction sites to exceed the Basin Plan turbidity objectives. Specifically, where natural turbidity is between 0 and 5 nephelometric turbidity units (NTUs), increases would not exceed 1 NTU; where natural turbidity is between 5 and 50 NTUs, increases would not exceed 20 percent; where natural turbidity is between 50 and 100 NTUs, increases would not exceed 10 NTUs; and where natural turbidity is greater than 100 NTUs, increases would not exceed 10 percent. 19 In determining compliance with these limits, appropriate averaging periods could be applied, provided that beneficial uses would be fully protected. <u>Exceptions to the above limits will be considered when a dredging operation can cause</u>

3-1

an increase in turbidity. In those cases, an allowable zone of dilution within which turbidity in excess of the limits may be tolerated will be defined for the operation and prescribed in a discharge permit. For Folsom Lake and American River (Folsom Dam to Sacramento River), except for periods of storm runoff, the turbidity shall be less than or equal 10 NTUs. To the extent of any conflict with the general turbidity objective, the more stringent applies.

3-1 (cont.)

I. Regulatory Setting

Basin Plan

The Central Valley Water Board is required to formulate and adopt Basin Plans for all areas within the Central Valley region under Section 13240 of the Porter-Cologne Water Quality Control Act. Each Basin Plan must contain water quality objectives to ensure the reasonable protection of beneficial uses, as well as a program of implementation for achieving water quality objectives with the Basin Plans. Federal regulations require each state to adopt water quality standards to protect the public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act. In California, the beneficial uses, water quality objectives, and the Antidegradation Policy are the State's water quality standards. Water quality standards are also contained in the National Toxics Rule, 40 CFR Section 131.36, and the California Toxics Rule, 40 CFR Section 131.38.

The Basin Plan is subject to modification as necessary, considering applicable laws, policies, technologies, water quality conditions and priorities. The original Basin Plans were adopted in 1975, and have been updated and revised periodically as required, using Basin Plan amendments. Once the Central Valley Water Board has adopted a Basin Plan amendment in noticed public hearings, it must be approved by the State Water Resources Control Board (State Water Board), Office of Administrative Law (OAL) and in some cases, the United States Environmental Protection Agency (USEPA). Basin Plan amendments only become effective after they have been approved by the OAL and in some cases, the USEPA. Every three (3) years, a review of the Basin Plan is completed that assesses the appropriateness of existing standards and evaluates and prioritizes Basin Planning issues. For more information on the *Water Quality Control Plan for the Sacramento and San Joaquin River Basins*, please visit our website:
http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/

3-2

Antidegradation Considerations

All wastewater discharges must comply with the Antidegradation Policy (State Water Board Resolution 68-16) and the Antidegradation Implementation Policy contained in the Basin Plan. The Antidegradation Implementation Policy is available on page 74 at:
https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr_201805.pdf

In part it states:

Any discharge of waste to high quality waters must apply best practicable treatment or control not only to prevent a condition of pollution or nuisance from occurring, but

also to maintain the highest water quality possible consistent with the maximum benefit to the people of the State.

This information must be presented as an analysis of the impacts and potential impacts of the discharge on water quality, as measured by background concentrations and applicable water quality objectives.

The antidegradation analysis is a mandatory element in the National Pollutant Discharge Elimination System and land discharge Waste Discharge Requirements (WDRs) permitting processes. The environmental review document should evaluate potential impacts to both surface and groundwater quality.

II. Permitting Requirements

Construction Storm Water General Permit

Dischargers whose project disturb one or more acres of soil or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction Activities (Construction General Permit), Construction General Permit Order No. 2009-009-DWQ. Construction activity subject to this permit includes clearing, grading, grubbing, disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). For more information on the Construction General Permit, visit the State Water Resources Control Board website at: http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml

3-2 (cont.)

Clean Water Act Section 404 Permit

If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACE). If a Section 404 permit is required by the USACE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements. If you have any questions regarding the Clean Water Act Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACE at (916) 557-5250.

Clean Water Act Section 401 Permit – Water Quality Certification

If an USACE permit (e.g., Non-Reporting Nationwide Permit, Nationwide Permit, Letter of Permission, Individual Permit, Regional General Permit, Programmatic General Permit), or any other federal permit (e.g., Section 10 of the Rivers and Harbors Act or Section 9 from the United States Coast Guard), is required for this project due to the disturbance of waters of the United States (such as streams and wetlands), then a Water Quality Certification must be obtained from the Central

Valley Water Board prior to initiation of project activities. There are no waivers for 401 Water Quality Certifications. For more information on the Water Quality Certification, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/water_issues/water_quality_certification/

Waste Discharge Requirements – Discharges to Waters of the State

If USACE determines that only non-jurisdictional waters of the State (i.e., "non-federal" waters of the State) are present in the proposed project area, the proposed project may require a Waste Discharge Requirement (WDR) permit to be issued by Central Valley Water Board. Under the California Porter-Cologne Water Quality Control Act, discharges to all waters of the State, including all wetlands and other waters of the State including, but not limited to, isolated wetlands, are subject to State regulation. For more information on the Waste Discharges to Surface Water NPDES Program and WDR processes, visit the Central Valley Water Board website at:https://www.waterboards.ca.gov/centralvalley/water_issues/waste_to_surface_water/

Projects involving excavation or fill activities impacting less than 0.2 acre or 400 linear feet of non-jurisdictional waters of the state and projects involving dredging activities impacting less than 50 cubic yards of non-jurisdictional waters of the state may be eligible for coverage under the State Water Resources Control Board Water Quality Order No. 2004-0004-DWQ (General Order 2004-0004). For more information on the General Order 2004-0004, visit the State Water Resources Control Board website at: https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2004/wqo/wqo2004-0004.pdf

3-2 (cont.)

Dewatering Permit

If the proposed project includes construction or groundwater dewatering to be discharged to land, the proponent may apply for coverage under State Water Board General Water Quality Order (Low Threat General Order) 2003-0003 or the Central Valley Water Board's Waiver of Report of Waste Discharge and Waste Discharge Requirements (Low Threat Waiver) R5-2018-0085. Small temporary construction dewatering projects are projects that discharge groundwater to land from excavation activities or dewatering of underground utility vaults. Dischargers seeking coverage under the General Order or Waiver must file a Notice of Intent with the Central Valley Water Board prior to beginning discharge.

For more information regarding the Low Threat General Order and the application process, visit the Central Valley Water Board website at: http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wqo/wqo2003-0003.pdf

For more information regarding the Low Threat Waiver and the application process, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/waivers/r5-2018-0085.pdf

Limited Threat General NPDES Permit

If the proposed project includes construction dewatering and it is necessary to discharge the groundwater to waters of the United States, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. Dewatering discharges are typically considered a low or limited threat to water quality and may be covered under the General Order for *Limited Threat Discharges to Surface Water* (Limited Threat General Order). A complete Notice of Intent must be submitted to the Central Valley Water Board to obtain coverage under the Limited Threat General Order. For more information regarding the Limited Threat General Order and the application process, visit the Central Valley Water Board website at:
https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2016-0076-01.pdf

3-2 (cont.)

NPDES Permit

If the proposed project discharges waste that could affect the quality of surface waters of the State, other than into a community sewer system, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. A complete Report of Waste Discharge must be submitted with the Central Valley Water Board to obtain a NPDES Permit. For more information regarding the NPDES Permit and the application process, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/help/permit/

If you have questions regarding these comments, please contact me at (916) 464-4812 or Jordan.Hensley@waterboards.ca.gov.

Jordan Hensley
Environmental Scientist

cc: State Clearinghouse unit, Governor's Office of Planning and Research, Sacramento

Letter 4

Regional Parks Department
Liz Bellas, Director

County of Sacramento

Divisions
Administration
Golf
Leisure Services
Maintenance
Rangers
Therapeutic Recreation Services

July 17, 2020

Department of Water Resources
Attention: Miles Claret
3464 El Camino Avenue Room 150
Sacramento, CA 95821
Email: PublicComment@cvflood.ca.gov

RE: County of Sacramento Department of Regional Parks Comments on the Draft Supplemental EA/EIR for American River Watershed Common Features, Water Development Act of 2016, American River Contract 1

Dear Mr. Claret:

Thank you for providing Sacramento County Department of Regional Parks the opportunity to provide comments on the proposed project's Draft Supplemental EA/EIR (Document). The project entails building bank protection with a planting bench and launchable rock toe, anchored trees and tie backs. Proposed off-site mitigation areas are located at Paradise Beach/Glenn Hall Park and the Rio Americano East and West Sites. We understand that the project partners will continue to coordinate with Sacramento County Department of Regional Parks, through the Bank Protection Working Group, as well as with our planning efforts to align on the most reasonable long-term approach to mitigation in the American River Parkway (Parkway). Our comments pertain to public outreach, trail closures, and long-term maintenance of the bank protection site.

Public Outreach:

- The project should provide a project description, alongside the signage for closure and detours, to communicate to Parkway users, that are passing through the area, what is happening in the area. 4-1

10361 Rockingham Drive, Suite 100 Sacramento, CA 95827 • phone (916) 875-6961 • fax (916) 875-6632 • www.saccounty.net

- We appreciate the public outreach that the USACE continues to provide to the Parkway users, stakeholders, and to the surrounding community through press releases, public meetings, social media, and other public outreach.
- We appreciate that the project team is coordinating with other projects, (such as CalTrans and City of Sacramento) occurring in the area to mitigate cumulative project impacts to the community and to community services.
- We request that the rebuilding of the maintenance road at Site 2-1 be coordinated to support the construction of the City of Sacramento's Two Rivers Trail, as Project Mitigation for significant recreational impacts.

4-1 (cont.)

Trail Closures:

The Document states that the Proposed Action at the off-site Rio Americano mitigation areas would result in temporary closures of parts of the Jedediah Smith Recreation Trail during construction activities.

- We request that paved trail closures be minimized through the use of flagpersons, and that
- off-site mitigation construction traffic use maintenance roads as feasible.

The Document also states that on Site 2-1, the entire length of the upper levee crown trail and maintenance road, and informal waterside paths would be closed entirely during the construction period, while the lower landside bicycle recreational trail from the H Street Bridge south to the exit onto State University Drive at the Hornet Bookstore could be closed during most of the active construction season.

- Our trail closure policy requires a 14 day notice for paved trail closures: We request that Mitigation Measure REC-1 be changed to say "Closures of the paved trails require a *14 day* advance notice to trail users, via signage at the detour locations."
- We also request that the paved trails, trail levee crown, and/or maintenance roads at Site 2-1 be made available to the public during times when it is safe and feasible to do so. The Document states that the closure may be as long as 1 ½ years, which we request be shortened, or broken into shorter closure times as feasible. For example, it may be possible to open the levee top to recreational use after major construction has been completed, and the site is being planted.

4-2

Long-Term Maintenance of Bank Protection Site:

- The Operations and Maintenance Manual (O&M Manual) for this project should require that the Site 2-1 planting bench be repaired and/or rebuilt, as needed to benefit fish and wildlife habitat, especially if the rock trench launches during a flood event.

4-3

Finally, our Department's name has changed over the years and needs to be consistent in the Document to read "Sacramento County Department of Regional Parks".

4-4

We appreciate the opportunity to comment. If you have any questions please contact Mary Maret at (916) 875-4918 or maretm@saccounty.net.

Sincerely,



Liz Bellas

Cc: U.S. Army Corps of Engineers email: spk-pao@usace.army.mil

Letter 5

Regional Parks Department
Liz Bellas, Director

County of Sacramento

Divisions
Administration
Golf
Leisure Services
Maintenance
Rangers
Therapeutic Recreation Services

July 20, 2020

Department of Water Resources
Attention: Miles Claret
3464 El Camino Avenue Room 150
Sacramento, CA 95821
Email: PublicComment@cvflood.ca.gov

RE: County of Sacramento Department of Regional Parks Comments on the Draft Supplemental EA/EIR for American River Watershed Common Features, Water Development Act of 2016, American River Contract 1

Dear Mr. Claret:

Thank you for providing Sacramento County Department of Regional Parks the opportunity to provide comments on the proposed project's Draft Supplemental EA/EIR (Document). The project entails building bank protection with a planting bench and launchable rock toe, anchored trees and tie backs. Proposed off-site mitigation areas are located at Paradise Beach/Glenn Hall Park and the Rio Americano East and West Sites. We understand that the project partners will continue to coordinate with Sacramento County Department of Regional Parks, through the Bank Protection Working Group, as well as with our planning efforts to align on the most reasonable long-term approach to mitigation in the American River Parkway (Parkway). Our comments pertain to public outreach, trail closures, and long-term maintenance of the bank protection site.

Public Outreach:

- The project should provide a project description, alongside the signage for closure and detours, to communicate to Parkway users that are passing through the area, what is happening in the area.

5-1

- We appreciate the public outreach that the USACE continues to provide to the Parkway users, stakeholders, and to the surrounding community through press releases, public meetings, social media, and other public outreach.
- We appreciate that the project team is coordinating with other projects, (such as CalTrans and City of Sacramento) occurring in the area to mitigate cumulative project impacts to the community and to community services.
- We request that the rebuilding of the maintenance road at Site 2-1 be coordinated to support the construction of the City of Sacramento's Two Rivers Trail, as Project Mitigation for significant recreational impacts.

5-1 (cont.)

Trail Closures:

The Document states that the Proposed Action at the off-site Rio Americano mitigation areas would result in temporary closures of parts of the Jedediah Smith Recreation Trail during construction activities.

- We request that paved trail closures be minimized through the use of flagpersons, and that
- off-site mitigation construction traffic use maintenance roads as feasible.

The Document also states that on Site 2-1, the entire length of the upper levee crown trail and maintenance road, and informal waterside paths would be closed entirely during the construction period, while the lower landside bicycle recreational trail from the H Street Bridge south to the exit onto State University Drive at the Hornet Bookstore could be closed during most of the active construction season.

- Our trail closure policy requires a 14 day notice for paved trail closures: We request that Mitigation Measure REC-1 be changed to say "Closures of the paved trails require a *14 day* advance notice to trail users, via signage at the detour locations."
- We also request that the paved trails, trail levee crown, and/or maintenance roads at Site 2-1 be made available to the public during times when it is safe and feasible to do so. The Document states that the closure may be as long as 1 ½ years, which we request be shortened, or broken into shorter closure times as feasible. For example, it may be possible to open the levee top to recreational use after major construction has been completed, and the site is being planted.

5-2

Long-Term Maintenance of Bank Protection Site:

- The Operations and Maintenance Manual (O&M Manual) for this project should require that the Site 2-1 planting bench be repaired and/or rebuilt, as needed to benefit fish and wildlife habitat, especially if the rock trench launches during a flood event.

5-3

Finally, our Department's name has changed over the years and needs to be consistent in the Document to read "Sacramento County Department of Regional Parks".

5-4

We appreciate the opportunity to comment. If you have any questions please contact Mary Maret at (916) 875-4918 or maretm@saccounty.net.

Sincerely,

Liz Bellas

Cc: U.S. Army Corps of Engineers email: spk-pao@usace.army.mil

Powering forward. Together.

SMUD®

Sent Via E-Mail

July 20,2020

Miles Claret
Department of Water Resources
3464 El Camino Ave, Room 150
Sacramento, CA 95821
PublicComment@cvflood.ca.gov

Subject: **American River Watershed Common Features, Water Resources Development Act of 2016, American River Contract 1 | EIR | 2005072046**

Dear Mr. Claret:

The Sacramento Municipal Utility District (SMUD) appreciates the opportunity to provide comments on the Draft Environmental Impact Report (EIR) for the American River Watershed Common Features, Water Resources Development Act of 2016, American River Contract 1 (Project, SCH 2005072046). SMUD is the primary energy provider for Sacramento County and the proposed Project area. SMUD's vision is to empower our customers with solutions and options that increase energy efficiency, protect the environment, reduce global warming, and lower the cost to serve our region. As a Responsible Agency, SMUD aims to ensure that the proposed Project limits the potential for significant environmental effects on SMUD facilities, employees, and customers.

It is our desire that the Project EIR will acknowledge any Project impacts related to the following:

- Overhead and or underground transmission and distribution line easements. Please view the following links on smud.org for more information regarding transmission encroachment: 6-1
  - https://www.smud.org/en/Business-Solutions-and-Rebates/Design-and-Construction-Services
  - https://www.smud.org/en/Corporate/Do-Business-with-SMUD/Land-Use/Transmission-Right-of-Way
- Utility line routing
- Electrical load needs/requirements
- Energy Efficiency 6-2
- Climate Change 6-3
- Cumulative impacts related to the need for increased electrical delivery 6-4
- The potential need to relocate and or remove any SMUD infrastructure that may be affected in or around the project area 6-5

More specifically, SMUD would like to have the following details related to the electrical infrastructure incorporated into the project description:

SMUD has existing electrical facilities located throughout the project area footprint. All CalOSHA and State of California Public Utilities Commission safety clearances must be maintained during construction and upon completion. If any clearances cannot be maintained the project proponent shall be responsible for the cost of utility relocation. Upon project completion, all access and clearances must be maintained around all SMUD facilities. Public utility easements may be required for any new construction. 6-6

Both overhead 21kV lines and underground 12kV lines run adjacent to or within the project area and must remain. 6-7

SMUD would like to be involved with discussing the above areas of interest as well as discussing any other potential issues. We aim to be partners in the efficient and sustainable delivery of the proposed Project. Please ensure that the information included in this response is conveyed to the Project planners and the appropriate Project proponents. 6-8

Environmental leadership is a core value of SMUD and we look forward to collaborating with you on this Project. Again, we appreciate the opportunity to provide input on this EIR. If you have any questions regarding this letter, please do not hesitate to contact me at 916.732.6676, or by email at rob.ferrera@smud.org.

Sincerely,

Rob Ferrera
Environmental Services Specialist
Sacramento Municipal Utility District
6201 S Street
Sacramento, CA 95817

cc: Entitlements

Letter 7

CALIFORNIA NATIVE PLANT SOCIETY
SACRAMENTO VALLEY CHAPTER

July 20, 2020

Public Affairs Office
U.S. Army Corps of Engineers
1325 J Street Room 1513
Sacramento, CA 95814
spk-pao@usace.army.mil

Public Affairs Office of the U.S. Army Corps of Engineers:

I am writing on behalf of the Sacramento Valley Chapter of the California Native Plant Society regarding the Draft Supplemental EA/EIR for the American River Contract 1 - American River Watershed Common Features GRR.

Our comments are as follows:

1. Provide clarification on proposed habitat restoration for Site 2-1 impacts as showna on Table 3.4-2, and proposed to occur at Site 2-1 and on "off-site" mitigationa areas as shown on Figure 2-9. Based on Table 3.4-2 and information in Section 3,a it appears that 12.86 acres of restored riparian habitat will be provided "on-site" ata Site 2-1. An additional 8.1 acres of restored riparian habitat is also proposed,a along with 4.81 acres of native grassland and 3.51 acres of "Other" habitat.a
    a. Table 2.1 shows 12.88 plantable acres for the three "off-site" mitigation areas, and Figures 2-9 a, b and c, show 15.14 plantable acres for the same mitigation sites. However, it appears 16.42 acres of off-site habitat restoration is being proposed.
    b. It is not clear what kind of habitat is proposed under "Other" to restore 3.51 acres due to impacts to "unvegetated" habitat. Native grasslands/forbs would appear to be appropriate.a
    c. Page 3-33 indicates that 8.10 acres of off-site riparian habitat will be restored at a mitigation site in the Lower American River Parkwaya (Parkway) to be selected and designed in coordination with NMFS and

7-1

USFWS as part of the consultation under the Endangered Species Act and would be located below the Ordinary High Water Mark (OHWM). If this mitigation will not be occurring at the off-site mitigation areas shown on Figure 2-9, then this mitigation site should be added to the project description and fully evaluated in the supplemental environmental documents.

d. Table 3.4-2 shows 6.85 acres of habitat being impacted within the Temporary Project Area, but no restored habitat is clearly identified to address these impacts. Show at least 1:1 mitigation and provide locations and specific establishment protocols, performance standards, and monitoring for this restored habitat.

7-1 (cont.)

2. More detail is needed on the proposed on-site and off-site mitigation sites. There is no detailed description of the proposed "off-site" mitigation sites, including criteria for site selection, and other relevant information including vegetation surveys, soils and drainage information and the location of the sites relative to the OHWM. Indicate how these mitigation sites relate to the analyses and recommendations of the County's proposed Natural Resources Management Plan.

7-2

3. Develop a Habitat Restoration Plan for the project mitigation plantings to be reviewed and approved by an appropropriate advisory group focused on American River natural resources issues such as the Lower American River Task Force. At a minimum, the plan should include the following:
   a. Define a desired goal state (e.g. plant species composition and structure) for each habitat type and location. Plant species and habitat design should be based on appropriate plant groupings and community associations and must consider restoration site conditions based on relevant site factors including soil conditions, topography, hydrology, groundwater levels, existing ecological communities (including exotic plant species), prior disturbances, and microclimates. Site-specific information should be used along with information developed for the County's proposed Natural Resources Management Plan.
   b. For each habitat type the proposed design should consider resource requirements for target species over space and time; structural habitat complexity; minimum patch size; and the proximity to, and connectivity

7-3

with adjacent habitat in the Parkway. Incorporate the needs of a range of species from different functional groups and "keystone species" to provide functional self-sustaining habitat that is resilient to disturbances and that can prevent or limit non-native weed species from colonizing and/or spreading on the site. Mosaics of structure and density in riparian restoration plantings should provide a range of nesting, foraging, and cover for wildlife. Grasslands habitat should include a variety of flowering forbs to encourage diverse native pollinators and insects.

c. Plants, cuttings, seedlings and seeds for restoration plantings should be obtained from ecotypes/ecoregions consistent with the proposed habitat types on the Parkway to ensure genetic suitability of the plantings, and should be grown without use of herbicides and pesticides, and with appropriate phytophthora controls. If suitable plantings are in short supply, consideration should be given to use of contract grows to assure adequate and appropriate quantity and sources of plantings for Contract 1 and subsequent American River mitigation plantings.

7-3 (cont.)

4. Performance Standards and Monitoring
   a. The Project Description and VEG-1 and VEG-2 Mitigation Measures must explicitly require compliance with the American River Common Features GRR Habitat Mitigation and Monitoring Plan (HMMP) that contains specific requirements for monitoring protocols and performance standards (success criteria) for each habitat type. The Riparian, SRA, Elderberry and Oak Woodland performance standards in the HMMP extend out to 5 years rather than 3 years shown in Table 2-5 of the Draft EA/EIR. The Project Description and Mitigation Measures should also indicate actions to be taken if performance standards are not met after 5 years and how ultimate achievement will be assured and documented. It is recommended that the monitoring period be extended an additional two years if performance standards are not met after 5 years.
   b. The HHMP (Table 9) provides Performance Standards for Riparian, Oak Woodland, and SRA habitats and indicates the "percent cover of non-native species" is to be less than 15%. For this project, it is also recommended that there be a list of invasive weed species for which there shall be zero tolerance during the performance period, to be accomplished

7-4

CALIFORNIA NATIVE PLANT SOCIETY
SACRAMENTO VALLEY CHAPTER

by periodic weeding as part of regular maintenance activities. The Cal-IPC list of invasive plants for the "Great Valley" appears to be an appropriate plant list.

7-4 (cont.)

5. Monitoring should be conducted not only to evaluate identified performance standards, but also to assess use of the restoration plantings by wildlife species. Biological monitoring should be conducted in Year 3 and Year 5 of the Project. This biological monitoring would be independent of the project performance standards and is intended to provide meaningful information on wildlife responses to the mitigation plantings, including use by target species of mammals, birds, insects and pollinators. This information will be useful in designing future mitigation sites on the Parkway and can provide the option for future monitoring by the long-term steward of the property. The Contractor shall provide a Final Biological Monitoring Report to Sacramento County and the U.S. Army Corps of Engineers at the conclusion of Year 5 that includes the biological monitoring plan objectives, methods, materials, results, recommendations, and as-built drawings of the final plantings and species compositions, along with information on additional plantings made to address performance standards. This plan should include documentation of monitoring plots and photo points across the mitigation sites that could be used for future monitoring, if desired.

7-5

6. Project Contract Bid specifications should include the following:
    a. Contractor must demonstrate at least five years prior experience designing, restoring, maintaining and monitoring wild native plant landscapes within sensitive resources in California. Contractor must have a qualified biologist supervise the day-to-day on-site habitat restoration, maintenance and monitoring activities.

7-6

Sincerely,

Dan Meier

Dan Meier
SacValley CNPS Board Member
Homegrown Habitat Co-Chair



California Native Plant Society
Sacramento Valley Chapter

Cc: Will Van Wildren, Christina Lewis

California Native Plant Society
CNPS is a not-for-profit organization
2707 K Street, Suite 1, Sacramento, CA 95816
www.CNPS.org

Letter 8

Joseph E. O'Connor Jr.
2629 Escobar Way
Sacramento, CA 95827

20 July 2020

Public Affairs Office
U.S. Army Corps of Engineers
1325 J Street Room 1513
Sacramento, CA 95814

To Whom It May Concern:

I have concerns regarding the recent addition of the Two Rivers Bike Trail to Project 2.1 up river of Paradise Bend. Twice, it's been relayed to me that the trail will use the maintenance road without fully answering my questions. I'm a member of the Bank Protection Working Group that has been briefed on the Project from its beginning until recently. While a bike trail was mentioned once by a group from the City, the proposal was to cut it into the levee, and that was was rejected. It now appears the bike trail is back and the proposal is for dual use of the maintenance road. This still leaves questions.

This area of the river has some of its fastest and highest flows, and during high water levels, models show these fast flows would reach high on the levee itself. The reach from the levee toe to the water is fairly narrow even during low flows. The current maintenance road is about the width of a small truck, but a bike trail with walking and jogging shoulders would be about 22 feet. Parts of the current maintenance road appear in fairly low areas and seem subject to flooding often with fast moving flows that would erode a bike trail. Additionally, even if a bike trail were to be placed high up on the levee, in this area it would have a steep slope to the river side, which would present a serious hazard to anyone riding, runner, or walker accidently moving in that direction. There's also the question regarding how much of an opportunity for planting benches is being sacrificed for the bike trail in this narrow section.

To be clear, I'm not against bike trails. I believe they are great. I'm just wondering if it's advisable to have one in this particular stretch of Parkway. However, the issues raised above need attention.

8-1

Sincerely,
Joseph E. O'Connor Jr.

July 20, 2020

U.S. Army Corps of Engineers

1325 J Street Room 1513

Sacramento, CA 95814

Via email: spk-pao@usace.army.mil

Re: American River Contract 1 -- comments on the Revised DEIR

I am writing as a resident of the River Park neighborhood, the area closest to the Contract 1 project area.

My comments comprise three separate sections. The first section includes some of my questions and comments submitted at the Virtual Public Meeting on June 15 and re-submitted here. The second section is in support of and expanding upon the Save the American River Association (SARA) comment letter of July 16. The third section is one question regarding the phasing of this project and the project immediately across the River – roughly the area of the Campus Commons Golf Course.

Section One

1) Will access to Paradise Beach be affected? If so, will signage be placed at the entrances to River Park? 9-1

3) How will the haul routes and traffic impact be scheduled and coordinated with the community? Will coordination occur with the ongoing City of Sacramento Water Meter Installation Project? 9-2

4) Which parts of the project area will receive the launchable rock trenches and which part will receive the planting bench systems? Will these systems all be at the water's edge, or will the system be closer to the levee where the beach area is broad? 9-3

Section Two

These comments relate to the SARA letter of July 16

1) I strongly support the suggestion that the launchable rock toe be covered with soil (p. 2). This will minimize the esthetics of an artificial system of benches. 9-4
2) Staging area (p.2) Contractor must return the staging area to its prior condition, including removing any rock pads or other surface changes. This staging area is visible to anyone who comes over the levee and if it is left in a deteriorated state that will be unfortunate. 9-5
3) The proposed mitigation area near Paradise Beach (p. 3) at Glenn Hall Park provides an enormous opportunity for habitat restoration. However, it could just as easily become a nightmare of cross-trails, broken trees, and unsightly failed plantings. It is crucial that the County and the Corps at least discuss and hopefully coordinate the planting to integrate it into a 9-6

system that meets the strict standards in the Parkway Plan for this very vulnerable section of the Parkway.

9-6 (cont.)

Section Three

Phasing of Contract 1 and the Common Features project at the Campus Commons Golf Course.

Contract 1 is the first of the projects along the lower American River. Later, improvements will be made across the River by the Campus Commons Golf Course. As I understand it, that project has been designed to work in synch with Contract 1. Contract 1 will build out the launchable rock into the River, and the project across the River will compensate for that loss of channel.

However, there will be a time gap where Contract 1 will be complete and its opposite number will not yet be complete. If there is a high water event during this gap, there could be loss of Contract 1 improvements. This may not be a significant probability, but I am hoping it's been planned for.

9-7

Thank you so much for your work to make our neighborhood safer, and thanks for providing the opportunity to comment on this plan.

Sincerely,

Kate Riley

916-716-3102

Cc: RPNA

CM Harris

Supervisor Serna

Liz Bellas Sacramento County Director of Regional Parks Department

Betsy Weiland, SARA

Letter 10

July 20, 2020

U.S. Army Corps of Engineers, Public Affairs Office
1325 J Street, Room 1513
Sacramento, California 95814

Subject: SEA/EIR for the American River Watershed Common Features Project, American River Contract 1

To Whom It May Concern,

Thank you for the opportunity to make the following comments on the above mentioned subject as it relates to the City of Sacramento's Two Rivers Trail project proposed for construction in the area of the levee improvements at Site 2.1 on the lower American River.

The USACE stated in all public workshops/meetings, when asked, that the Corps and the City of Sacramento are working together to ensure the coordination of each project as it relates to required mitigation for impacts to natural resources. However, the SEA/EIR provided no details regarding this cooperative planning. It would have been helpful to have a representative from the City of Sacramento participate in the public workshops in order to better understand how the two projects work together to successfully mitigate the loss of riparian habitat and conserve the replacement trees and vegetation. 10-1

Given the scale of the levee project, and the extensive widening and intensive new use of the current unpaved maintenance road, the SEA/EIR should provide an underlying map of the levee project with the Two Rivers Trail plan superimposed to better portray the relationship between the two projects and their impacts on the natural resources. 10-2

From the description of Fencing and Fire Breaks on 2-32 in the SEA/EIR, it is unclear whether the 7.75 acre mitigation site RM 4.9 will be fenced entirely for the 3 growing seasons following the initial planting installation period. It should be entirely fenced given the mitigation site's proximity to a heavily use area of the Parkway by residents and visitors alike. Paradise Beach and the surrounding areas are especially plagued by off-leash dogs and off paved trail cycling. Users crisscross these areas with many rogue trails looking for easy access. 10-3

While the SEA/EIR under 2.3.6 Operations and Maintenance describes the levee project's less than significant impacts on the Two Rivers Trail (currently unpaved maintenance road), it does not describe the cumulative impacts of the operations and maintenance activities by the City of Sacramento and the American River Flood Control District. The unpaved maintenance road, soon to be the Two Rivers Trail, needs a comprehensive management plan between the City of Sacramento, the American River Flood Control District, and the USACE to avoid potentially dangerous interactions with bicyclists and pedestrians, and to coordinate riparian habitat management. The flood control district is unwavering in its assertion that user interactions are hazardous and they are ineffectual in eliminating these hazards with safety procedures. The City of Sacramento will be assuming the responsibility for keeping the paved bicycle trail free of unsafe conditions caused by degradation of the pavement, encroaching 10-4

vegetation, diseased and dying tree limbs, trash, etc. As stated in the SEA/EIR, the USACE will be monitoring for a five-year establishment period, using the Two Rivers Trail for inspections, weed abatement, removal of encroachments, and high-hazard vegetation to ensure levee integrity and adequate levee access along the levee toe road, etc. Without an integrated plan, the riparian habitats adjacent to the Two Rivers Trail will be subject to three entities' separate operations and management actions, leaving them vulnerable to degradation, and as we sometimes observe in the Parkway, elimination.

10-4 (cont.)

During the five-year establishment period will the USACE be responsible for the removal of illegal camps and trash abatement in the project area?

During the five-year establishment period will the USACE be responsible for enforcing actions that threaten the mitigation site RM.9 in particular?

10-5

And finally, through the SEA/EIR, will USACE please confirm their commitment to not moving forward with the tree and vegetation removal if the construction phase is delayed.

10-6

I would like to sincerely thank Mr. Patrick Caden, Project Manager, and his team for the unstinting time they gave to the public through workshops and meetings to help stakeholders better understand this important but impactful levee project. They managed, despite Covid-19, to respond to everyone's requests for help understanding complicated levee engineering and natural resources mitigation solutions. It cannot be overstated that the Corps, through the Bank Protection Working Group, and public workshops, has made every effort to work with the Sacramento community to achieve flood protection while respecting the priceless American River Parkway.

Sincerely,

Betsy Weiland
(916) 488-3894

SARA
SAVE THE AMERICAN

Save the American River Association

8836 Greenback Lane, Suite C • Orangevale, CA 95662
916-936-4555 • E-mail: info@SARAriverwatch.org • www.SARAriverwatch.org

2020 Board of Directors
Officers
Stephen Green, *President*
Warren Truitt, *Vice Pres.*
Mary Beth Metcalf, *Treasurer*
Kathy Kayner, *Secretary*

Directors
Kelly Cohen
John Cox
Elke Guenter
Kathy Kayner
Joseph Klun
Jeff Miller
Jim Morgan
George Nyberg
Felix Smith
Betsy Weiland
Alan Wade, *Past Pres.*
Dan Winkelman

Volunteers & Staff
Sara Stephens, *Office Mgr.*

Advisory Council
Dan Bacher
Anne Baron
Dave Clark
Maxine Clark
Al Freitas
Guy Galante
Jane Hagedorn
Callie Hurd
Gary Kukkola
Pam Lapinski
Dave Lydick
Clyde Macdonald, *Past Pres.*
Randy Smith
Dale Steele
Ron Stork
Ron Suter
David Thesell
Eric Webb

July 16, 2020

Public Affairs Office
U.S. Army Corps of Engineers
1325 J Street, Room 1513
Sacramento, CA 95814

By email: spk-pao@usace.army.mil

Subject: American River Contract 1: Draft Supplemental Environmental Assessment/Supplemental Environmental Impact Report

To Whom It May Concern:

These are the comments of the Save the American River Association (SARA) on the Draft American River Watershed Common Features, Water Resource Development Act of 2016, American River Contract 1: Supplemental Environmental Assessment/Supplemental Environmental Impact Report (DSEA/SEIR) dated June 2020.

On the whole we are pleased with the design of the project being proposed. We compliment the U.S. Army Corps of Engineers (USACE), the Lower American River Task Force Bank Protection Working Group (BPWG), and the various agencies, non-governmental organizations, and interested individuals in the BPWG for a good job.

However, we do have one significant recommendation for improvement of the project design. Also, we have some comments on the DSEA/SEIR itself.

Recommendation for Improvement

The design of the Planting Bench segment of the project, as shown in Figures 2-6d and 2-6e, has the rock levee and bank protection covered with soil and vegetated. Covering with soil and vegetation is a very important feature with many benefits. However, the launchable rock toe is apparently not covered with soil. We note in particular that on p. 2-14 it states that: "The launchable rock toe would be filled with maximum 36-inch rock only." However, somewhat later on it states that: "The launchable toe would be buried, if needed, to reduce the hydraulic impacts of rock projecting

11-1

into the main channel." On p. 3-14, it states that: "Comparison of the existing and Proposed Action conditions shows that construction of the levee improvements at Site 2-1 would cause a rise in water surface elevations upstream of the project site to the upstream end of the leveed reach. The rise is due to the placement of rock along the toe at Site 2-1 as part of the design." Further on it indicates that the rise at 160,000 or 115,000 cfs would be around 0.2 feet initially and 0.4 feet as the vegetation matures.

Our recommendation is that the launchable rock toe should be covered with soil as is suggested on p. 2-14. This would reduce the rise in water surface elevations under flood conditions and be valuable from an esthetic viewpoint. Reducing the rise in flood water surface elevation would give greater flexibility to other parts of the flood protection work that are still in design stages. Large, angular rock (to 36 inches) is obviously unnatural at that position in the river channel, and would likely be exposed in some months of some years. This would permanently detract from the appearance of the project for people on the opposite shoreline as well as recreationalists on the river itself. If the rock is not to be covered with soil, an explanation of why should be part of the final environmental documents.

11-1 (cont.)

Comments

p. 1-1:
The second paragraph discusses the 1985 American River Parkway Plan as well as the 2002 Lower American River Corridor Management Plan. The latter is indicated as intended to serve as a "catalyst" for updating the 1985 Parkway Plan. It is odd that the more recent 2008 Parkway Plan is not mentioned here, although it is cited on subsequent pages (e.g. p. 2-33).

11-2

Figures 2-4a and 2-4b
There are efforts underway to extend the Two Rivers bike trail into the area of the proposed project. It is our understanding that the current concept is to utilize the existing maintenance road shown in Figures 2-4a and 2-4b. However, this raises some questions that were not addressed in the DSEA/SEIR. First, on site measurements show the maintenance road to be about 6 to 7 feet wide. However, bike trails are usually considerably wider, perhaps as much as 22 feet, including walking paths on either side. How is this to be accommodated? What effects would this have on project performance (e.g. would it increase the elevation of the river under flood conditions)? Also, how often are river levels expected to inundate the proposed bike trail? Can you provide cross-sectional diagrams comparing the elevation of the river flows in comparison to the proposed bike trail?

11-3

Figure 2-3 and p. 2-25:
On Figure 2-3, there is a staging area of some size proposed inside the Parkway downstream from the launchable rock project area. As discussed on p. 2-25, "Any staging area would be restored to pre-existing contour and condition or as agreed to by the property owner."

11-4

Previous experience with a staging area inside the Parkway serves as a cautionary example. Specifically, the Kansas Access staging area for the Mayhew-Gristmill levee raise and widening around 2008 is problematic. The contractor laid down a construction pad composed of compacted clay and rocky fill, which was up to 20 inches deep at the downstream end. This created a very hard and impermeable layer. However, the contractor refused to remove the pad when the project was completed. Apparently, the contractor asserted that no survey of the area was completed prior to constructing the pad, and said the pad did not exist. Most of the pad remains to this day. The result has been that revegetation has been marginal at best in this area, remaining sparse and stunted compared to adjacent areas. Recently (in the last few years), Yellow Starthistle has managed to grow fairly well. However, this is not a desirable outcome.

The USACE and any other parties involved should require a survey of the staging area to establish the pre-existiug contour before construction commences.

11-4 (cont.)

p. 2-27
The first paragraph states: "If desired transplantation sites in the American River Parkway cannot be identified in coordination with the County of Sacramento prior to start of levee construction, or if County of Sacramento approvals caunot be acquired, USACE would find a USFWS-approved conservation bank that is accepting elderberry shrubs."

As it is more ecologically advantageous to the Parkway for mitigation transplanting to he within the Parkway, we would like to encourage appropriate efforts are made to locate suitable sites and obtain approvals prior to start of work.

11-5

p. 2-27
Paragraph 3 states: "Each mitigation site would require temporary access for initial ground preparation and mitigation site establishment activities with permanent access for long-term maintenance. Temporary activities include access to the river for irrigation water and deer fence installation, which would only be required during the establishment period. Maintenance activities are explained further below. A temporary staging area would also be established to house an 8-foot by 16-foot storage container, a portable toilet, and a wash station at each." (Emphasis added.)

If possible, the temporary and permanent access should be the same to minimize disturbance to habitat. All temporary disturbance to land or vegetation should be restored to an undisturbed, natural condition.

11-6

Figures 2-9a, 2-9 b and 2-19c
Efforts should be made to ensure that habitat adjacent to mitigation sites that are currently un-impacted by a lot of human use aren't left with trails or new access that

11-7

will encourage increased use and impacts to mitigation. (E.g., Rio Americana West Mitigation Site.)

11-7 (cont.)

Figure 2-9a
The Glenn Hall mitigation site, with 7.7 plantable acres, is well-chosen for mitigation based on its size and the adjacent downriver habitat. If successful, it will contribute to an already well-vegetated contiguous stretch of habitat at that location, which will provide for wildlife movement, protective cover, and breeding habitat for a diversity of species. If well-managed during and after its establishment, it has potential to be restored to and function as a healthy ecosystem where wildlife and natural processes can thrive.

Because of it's location immediately adjacent to heavily used Paradise Beach, it will require educational, interpretive signage, a clearly marked and delineated main trail, and, where needed to prevent random cross trail-creation, creation of a couple of cross trails to the destinations between what were several trails.

11-8

Other management strategies and monitoring may need to be employed to protect the restored habitat, such as removal or conversion of features that serve as attractions (e.g. removal of logs and rocks that can serve as seats to locations on Paradise Beach). Also, species such as California rose and blackberry and wild grape can be planted throughout, which could discourage travel off trail. Adjacent riverside beach areas can be densely planted with willows, alders, California blackberry and sycamore to protect the mitigation area from overuse. See figure.



Glenn Hall Park mitigation area

p. 2-32
Paragraph 4 (Elderberry transplanting) states: "The rows would undulate to make the plantings appear more natural, rather than having the appearance of an orchard." (Emphasis added)

Because of the high recreational use of Paradise Beach and current disturbance of the site, in order to help give the mitigation a greater opportunity for long-term success, it is suggested to strategically and naturally (i.e., strategic randomness) arrange the elderberry and other mid-high canopy riparian species, such that frequent users of Paradise Beach who used the site as a travel-way, won't habitually take that route and begin the re-creation of those trails.

Non-vegetated 'lines' tend to be followed as pathways and would be best avoided in the vegetation layout. A suggested approach for breaking up any "lines" would be to densely plant riparian scrub species and forbs throughout and under the existing and future gaps (when plants mature) in the canopy between the mid-high canopy species, as densely as the site's growing conditions and requirements for each species allows, plant low-mid canopy scrub species, which couldn't be simply stepped over. The goal would be to make it inconvenient to go off the main trail or any established offshoots, and to discourage use of beach areas in the mitigation site.

A disturbed patchwork, akin to the current condition, is less beneficial to the diversity of wildlife species that would otherwise be present throughout their life cycles. Complex, multi-layered vegetation and protected wildlife movement corridors, are also required. The vegetation layers needed for wildlife movement depends on the species, e.g., low ground cover that is a couple to few inches high is needed by rodents and reptiles, whereas medium-sized mammals like rabbits, hares, skunks, and others, require medium shrubs. Avian species like California quail and California towhees, and dark-eyed juncos use this cover for safety and finding food.

11-9

p. 2-33
In paragraph 4, it states: "...general clean-up maintenance of the sites would occur throughout the year, clean-up maintenance would generally include picking up trash, vandalism repairs, and the removal of used planting accessories (e.g., bamboo stakes, ties, browse guards). For watering maintenance, crews would connect the pump to the irrigation system for each irrigation cycle per the irrigation schedule described in Table 2-5. Crews would weed within the watering basins of the transplants and within an 18-inch readius of each woody and grass associated plant, so nonnative herbaceous growth would not compete for soil moisture per the schedule in Table 2-5. Maintenance crews would mow weeds to below six inches...."

11-10

Efforts should be made during maintenance to avoid creating habitual trails and compacted soil around and between maintained plantings, by using different approaches and by gently "fluffing soil" and lifting upright the plants compressed underfoot. The goal is to leave little evidence of paths to, from, and around the site and its mitigation plantings, which could attract continued use when the fencing comes down and lead to disturbance of and reduction in vegetation, ultimately returning the site to a disturbed state.

11-10 (cont.)

p. 3-32, Table 3.4-2
Table 3.4-2, Existing and Restored Habitat at Site 2-1, provides extensive and informative information on the habitat types at the main project site that would be lost and gained due to the project. However, there are proposed to be three off-site mitigation areas (Figures 2-9a, 2-9b, and 2-9c, also Table 2-4) that would also be impacted, and presumably have losses and gains of various types of vegetation. No table comparable to 3.4-2 was provided for these off-site areas. As planting plans do not appear to have been created for these areas, at least a table with types of vegetation that currently exist in these areas should be provided. Our concern here is that the grassland habitat type may be slated to be lost by conversion to scrub or woodland. As the DSEA/SEIR correctly points out, this habitat type is quite valuable (p. 3-19 to 3-20). It may be that the loss of this habitat type would be something that needs to be mitigated in it's own right.

11-11

p. 3-32
On p. 3-32 it states that Valley Elderberry Longhorn Beetle (VELB) habitat lost would be replaced at a 3:1 (replaced:original) ratio, and that Yellow Billed Cuckoo habitat lost would be replaced on a 2:1 ratio. No basis for selecting these ratios was given. What is the basis for this selection?

11-12

p. 3-37
Paragraph 3 states: "In summary, to address the impacts on the 10.43 acres of riparian habitat (including forested wetland below OHWM) that would be affected by construction of the Proposed Action, replacement riparian habitat would be created, including 12.84 acres on site and 8.10 acres off site. Implementing this compensatory mitigation would reduce long-term impacts on any natural community or wildlife habitat within the Project Area to a less-than-significant level by creating on-site and off-site riparian habitat. Short-term impacts on vegetation and wildlife habitat would remain significant and unavoidable, because it would take a number of years (e.g., 10–15 years) for riparian habitat to become fully mature and provide the same values as existing riparian habitat." (Emphasis added.)

Because of the 10-15 or more years of delay in the full and intended performance of the replaced riparian habitat, we would be interested in exploring with you the palette of species you are considering and based on that, if applicable, looking at the

11-13

availability and feasibility of options that in the interim could reduce or help offset the delay to full maturity and value.

11-13 (cont.)

p. 3-37
Paragraph 4 states: "In addition, because impacts on migratory and movement conditions for terrestrial wildlife would be minor or temporary in duration and mitigated by on-site replacement, off-site mitigation, the impacts on the quality or quantity of important habitat, or access to such habitat for wildlife species, would be less than significant with on-site and off-site mitigation, and no additional mitigation measures are necessary."

It should be noted that impacts on movement conditions and access to customary habitat can cost an individual a generation of recruitment. As would be expected, there is greater impact for sensitive or listed species.

One such species is the western pond turtle, a California sensitive species. If a western pond turtle loses access for movement between her river habitat and her upland habitat during breeding season, she may lose the ability to excavate and lay her eggs, or she may be unable to return to the river, putting her life in danger. The high mortality rate for hatchlings is a major factor in recruitment, which will negatively impact the species by its inability to access its habitat.

Our suggested mitigation is that in project locations where western pond turtles have been observed or determined to be likely, and where there is upland habitat suitable for excavation, a biological monitor should check the upland area daily for turtles that may be headed back to the river so that they may be relocated.

11-14

p. 3-63
On p. 3-63 there is a reference to Table 3.6-3, which is described as showing a loss of 10.43 acres of riparian habitat on the proposed project site. However, Table 3.6-3 does not exist. It is also curious that table 3.6-3 was omitted from the Table of Contents. This would be a useful table to put back in.

11-15

p. 3-88 to 3-89
On p. 3-88 to 3-89 three additional mitigation measures are described (BATS-1, BADGER-1 and BEE-1) that go beyond the previous measures described in the USACE's General Reevaluation Report. These measures are described as being the responsibility of the Central Valley Flood Protection Board. Why are these measures not the responsibility of the USACE?

11-16

p. 3-121
Paragraph 2 states: "Implementation of the mitigation measures contained in the ARCF GRR FEIS/EIR would reduce construction-generated NOX emissions to a less-than-significant level that would not result in adverse health effects (as was shown in the HRA). In addition, with incorporation of dust control measures, PM (fugitive

11-17

dust) emissions would be further reduced (i.e., by up to 75 percent) and would not exceed applicable SMAQMD thresholds or result in adverse health effects."

Sensitive receptors include wildlife--avian, terrestrial and aquatic--in addition to the people of Sacramento. None of the mitigation measures for reducing air pollution during construction requires the limiting of engine idling, though it is required by SMAQMD regulations. Please include the limiting of engine idling as an air quality mitigation measure and to the P S & Es (Project Specifications & Estimates), if not already there, and stipulate that the project manager informs the workers and enforces it.

11-17 (cont.)

p. 3-140
Paragraph 3 states as a noise mitigation measure: "Limit unnecessary engine idling (i.e., longer than 5 minutes) as required by State air quality regulations."

Sensitive receptors include wildlife--avian, terrestrial and aquatic--in addition to the people of Sacramento. The limiting of engine idling is cited as a noise mitigation and it references SMAQMD regulations, but is not an included mitigation measure under Air Quality. It is requested that it be added as a mitigation measure under both categories.

Thank you for your attention to the above recommendation and comments.

Stephen Green
President, SARA

James Morgan
Board member, SARA

cc: SARA Board
Ron Stork, Friends of the River

Letter 1: California State Lands Commission

1-1 The Department of Water Resources will continue to work with the State Lands Commission to acquire a lease for lands in the Project Area within the Commission's jurisdiction.

1-2 As stated on pages 2-20 and 2-21 in Chapter 2, *Alternatives* of the Draft Supplemental EA/EIR, the design of the Proposed Action would allow recreational users of the river to use shore access and would not impede or restrict use of the river by recreationists, except in areas of active temporary construction activities along the shore. The Draft Supplemental EA/EIR also provides analysis of effects on recreation on pages 3-144 to 3-145 in Chapter 3, *Affected Environment and Environmental Consequences*, and includes mitigation measures to reduce impacts on recreation facilities by, among other measures, coordinating with user groups within the American River Parkway (Parkway), including those using the river. While the Draft Supplemental EA/EIR concludes that temporary construction impacts would be significant and unavoidable, navigation within the American River outside of the active construction zone would not be impeded or restricted by the Proposed Action.

1-3 In response to the comment, text on page 2-7, paragraph two in Chapter 2, *Alternatives* of the Draft Supplemental EA/EIR has been revised.

To clarify, the summer mean water surface elevation is not the same as the Ordinary Low Water Mark. The term OLWM is used solely for tidally influenced submerged lands, and the American River adjacent to the Project Area is not tidally influenced.

1-4 The California State Lands Commission will be provided a copy of the Final Identification and Evaluation Report and Monitoring and Discovery Plan along with proof of the State Historic Preservation Officer concurrence once that has been received by the U.S. Army Corps of Engineers (USACE) and Central Valley Flood Protection Board (CVFPB).

1-5 The ARCF Historic Properties Management Plan (HPMP) and ARCF Programmatic Agreement (PA) describe the procedures that will be followed by the USACE and CVFPB in case any cultural resources are discovered during the construction the proposed action, including coordination with the land owner. Mitigation Measures CR-2 and CR-4 on pages 3-96 and 3-97 in Chapter 3, *Affected Environment and Environmental Consequences* refer to and rely on these documents.

The USACE and CVFPB are aware that title to all archaeological sites, and historic or cultural resources are vested in the landowner, which for submerged lands of California is the State and they are also aware that those lands are under

the jurisdiction of the California State Lands Commission (the Project Area does not include any tide lands).

Further, the USACE and CVFPB are also aware that the final disposition of archaeological, historical, and paleontological resources recovered must be approved by the landowner, which on State lands under the jurisdiction of the California State Lands Commission must be approved by the Commission. If during construction of the Proposed Action any cultural resources would be discovered on State lands, the California State Lands Commission's staff attorney will be contacted. The USACE and CVFPB appreciate that the Commission has provided the contact information for their attorney for this purpose. There is no need to revise the mitigation measures to cite the Public Resources Code.

1-6 Climate change is discussed in Section 3.10, *Greenhouse Gas Emissions and Energy Consumption* of the Draft Supplemental EA/EIR. As described on pages 3-129 and 3-130, construction-related greenhouse gas (GHG) emissions would constitute a potentially significant climate change impact. However, the Proposed Action would increase the likelihood that the flood management system could accommodate future flood events as a result of climate change and would improve the resiliency of the levee system with respect to changing climatic conditions, potentially reducing exposure of property or persons to the effects of climate change. Nevertheless, because the Proposed Action would exceed SMAQMD GHG thresholds, climate change impacts would be significant. Implementation of Mitigation Measure GHG-1: Avoid, Minimize, and Compensate for Greenhouse Gas Emissions Effects, would reduce impacts attributed to increased GHG emissions to a less than significant level. Further, the design of the Proposed Action includes river flows that are regulated upstream at Folsom Dam at a maximum rate of 160,000 cubic feet per second. These maximum flows are the result of recent improvements at the dam to increase storage and controlled releases of flows during storm events that are forecasted with future potential climate change events included in the design and operation of the dam. See pages 3-9 to 3-14 in Chapter 3, *Affected Environment and Environmental Consequences* of the Draft Supplemental EA/EIR for the analysis of effects related to the design of the Proposed Action to meet safety criteria for maximum regulated flows.

1-7 As shown on figures in Chapter 2, *Alternatives*, the footprint of the Proposed Action only encroaches minimally on the channel of the American River. Therefore, boaters would have access past the Project Area during construction activities.

1-8 This comment is noted.

Letter 2: Sacramento Metropolitan Air Quality Management District

2-1 Comment noted. Please see response 2-2.

2-2 As stated on page 2-22 in Chapter 2, *Alternatives* and on page 3-113 in Chapter 3, *Affected Environment and Environmental Consequences* requirements included in Measures 3 and 4 of the GRR General Conformity Determination are Project commitments and would be enforced through construction contractor bid specifications. Because these measures are part of the Project, they were considered in the air emissions modeling. Therefore, duplicating these measures as mitigation in the Draft Supplemental EA/EIR is not necessary.

2-3 In response to the comment, pages 3-117 and 3-120 in Chapter 3, *Affected Environment and Environmental Consequences* of the Draft Supplemental EA/EIR have been revised.

2-4 In response to the comment, Mitigation Measure AQ-3 on page 3-120 in Chapter 3, *Affected Environment and Environmental Consequences* of the Draft Supplemental EA/EIR has been revised.

2-5 In response to the comment, text on pages 3-111, 3-113, 3-116, and 3-128 in Chapter 3, *Affected Environment and Environmental Consequences* of the Draft Supplemental EA/EIR have been revised. In addition, Table 3.9-1 on page 3-116 in Chapter 3, *Affected Environment and Environmental Consequences* of the Supplemental EA/EIR has been revised to indicate that PM10 and PM2.5 thresholds of zero pounds/day were exceeded.

2-6 Comment noted.

Letter 3: Central Valley Regional Water Quality Control Board

3-1 The comment recommends including turbidity language from section 3.1.21 of the Basin Plan specific to Folsom Lake and the lower American River that addresses dredging operations to Mitigation Measure WQ-1. The Proposed Action would not involve any dredging activities, however, so no changes to Mitigation Measure WQ-1 are required. The Proposed Action would involve work below the ordinary high water mark (OHWM) that would result in increases in turbidity. The Corps and CVFPB will apply for and comply with all required conditions of a Water Quality Certification under Section 401 of the Clean Water Act.

3-2 This comment is noted. It describes the Basin Plan and regulatory permits under the purview of the CVRWQCB to protect receiving water quality. Chapter 5 of the ARCF GRR FEIS/FEIR summarizes the environmental laws and regulations that apply to the ARCF Project and describes the status of compliance with those laws and regulations. Section 3.3, *Hydrology and Water Quality* of the Draft Supplemental EA/EIR, lists additional applicable laws and regulations which are

described in Chapter 5, *Compliance with Federal and State Laws and Regulations*. Implementation of the Proposed Action will comply with all applicable laws and regulations.

Letter 4: Sacramento County Department of Regional Parks

4-1 The USACE, the CVFPB, and Sacramento Area Flood Control Agency (SAFCA) would ensure that signage would be posted along the Parkway to alert users of the Parkway and neighboring communities prior to commencement of activities for the Proposed Action. Publication of the Draft Supplemental EA/EIR was noticed in the Sacramento Bee, in postcards sent to neighboring communities, and on the USACE website, as stated in the comment and as documented in Chapter 6, *Coordination and Review* of the Draft Supplemental EA/EIR. Appendix J summarizes the public involvement efforts for the Proposed Action.

The USACE and CVFPB would replace the maintenance road in-kind, no improvements to the maintenance road have been authorized as part of the Project.

4-2 As stated on pages 3-145 and 3-146 in Chapter 3, *Affected Environment and Environmental Consequences* of the Draft Supplemental EA/EIR, the Proposed Action would provide notices of trail closures and use traffic controls such as flag persons where construction traffic crosses the trail. Construction traffic would make use of maintenance roads when feasible. Use of paved trails, the levee crowns, and/or maintenance roads by the public during construction would be allowed only if conditions are safe enough for recreation use. In addition, public access would be returned once construction activities are completed and prior to planting. Mitigation Measure REC-1 on page 3-145 of the Supplemental EA/EIR has been modified to state that closure of paved trails would be noticed 14 days in advance via signage at the detour locations.

4-3 After the Proposed Action is completed, the operation and maintenance (O&M) of Site 2-1 (Project Area) would be conducted by the local maintaining agency (American River Flood Control District) according to an updated O&M Manual that would be prepared by the USACE. In the very unlikely event that the launchable rock toe would launch, repairs would be made to meet the flood protection criteria according to the O&M Manual. Repair of the planting bench or mitigation plantings would likely not be prescribed by the O&M Manual.

4-4 The Supplemental EA/EIR has been revised to replace Sacramento Department of Parks and Recreation with Sacramento County Department of Regional Parks.

Letter 5: Sacramento County Department of Regional Parks

5-1 See response 4-1.

5-2 See response 4-2.

5-3 See response 4-3.

5-4 See response 4-4.

Letter 6: Sacramento Municipal Utility District

6-1 As described in Section 3.13 *Public Utilities and Service Systems* on page 3-148 of the Draft Supplemental EA/EIR, analysis of potential adverse effects to existing utility infrastructure, including overhead electrical lines and buried infrastructure was evaluated in Section 3.16 of the ARCF GRR FEIS/FEIR (pages 317 through 323). Existing utilities that are functional and operational would be relocated accordingly. Mitigation Measure UTIL-1: Avoid and Minimize Service Disruptions and Damage to Utilities and Infrastructure would ensure that before construction begins, measures would be implemented to avoid and minimize potential damage to utilities and infrastructure, including electrical overhead and/or underground transmission and distribution lines, and to reduce service disruptions during construction. As further described in Mitigation Measure UTIL-1, all applicable utility and service providers would be coordinated with to implement the orderly relocation of utilities that need to be removed or relocated.

6-2 See response 6-1 for discussion of utility removal and/or relocation.

Related to electrical load needs and energy efficiency, as described on pages 3-129 and 3-130, implementation of the Proposed Action would result in an increase in fuel consumption as compared to baseline conditions. The analysis concluded that construction-related fuel consumption would be met through existing fueling infrastructure and would not be considered wasteful, inefficient, or unnecessary. Furthermore, the Proposed Action would not prevent the implementation of goals, policies, or actions contained in a plan to increase renewable energy usage or improve energy efficiency. The Proposed Action involves construction and maintenance of a project that would not generate operational electricity demand. Therefore, energy-related impacts would be less than significant.

6-3 Climate change is discussed in Section 3.10 *Greenhouse Gas Emissions and Energy Consumption* of the Draft Supplemental EA/EIR. As described on pages 3-129 and 3-130, construction-related GHG emissions would constitute a potentially significant climate change impact. However, the Proposed Action would increase the likelihood that the flood management system could accommodate future flood events as a result of climate change and would improve

the resiliency of the levee system with respect to changing climatic conditions, potentially reducing exposure of property or persons to the effects of climate change. Nevertheless, because the Proposed Action would exceed SMAQMD GHG thresholds, climate change impacts would be significant. Implementation of Mitigation Measure GHG-1: Avoid, Minimize, and Compensate for Greenhouse Gas Emissions Effects, would reduce impacts attributed to increased GHG emissions to a less than significant level.

6-4 Cumulative impacts are addressed in Chapter 4, *Cumulative and Growth Inducing Effects* of the Draft Supplemental EA/EIR. Specifically, cumulative energy use is described in Section 4.2.9, *Greenhouse Gas Emissions and Energy Consumption*; and potential disruption to utilities is described in Section 4.2.12, *Public Utilities and Service Systems*. In both cases, the Proposed Action would not result in a considerable incremental contribution to a significant cumulative effect.

6-5 See responses 6-1 and 6-6.

6-6 This comment is noted. As explained in response 6-1, USACE would coordinate with all applicable utility and service providers in order to ensure the orderly relocation of utilities that need to be removed or relocated. USACE is currently working with SMUD to obtain maps of all existing utilities and will continue to coordinate with SMUD on maintaining all safety clearances and on any relocations required for construction.

6-7 This comment is noted. As explained in responses 6-1 and 6-6, all applicable utility and service providers would be coordinated with to implement the orderly relocation of utilities that need to be removed or relocated.

6-8 This comment is noted. As explained in responses 6-1 and 6-6, all applicable utility and service providers, including SMUD, would be coordinated with to implement the orderly relocation of utilities that need to be removed or relocated.

Letter 7: California Native Plant Society Sacramento Valley Chapter

7-1 The following response addresses the comment on habitat restoration, and includes minor updates to impact and mitigation acreages resulting from design refinements.

Item 1a. Table 2-4 (referenced as Table 2-1 in the comment) shows 12.88 plantable acres for the three "off-site" mitigation areas. This acreage has since been modified as part of the design process and is now 10.47 plantable acres. A revised Table 2-4 has been provided in on page 2-27, and Figures 2-9 a, b, and c (pages 2-29 – 2-31) have also been revised to reflect this change.

The total proposed off-site riparian restoration is 10.47 acres as shown in revised Table 2-4 (previously 12.88 acres). Of that 10.47 acres, 8.0 acres would be used

to compensate for impacts to riparian habitat from construction activities at Site 2-1. The 4.81 acres of herbaceous vegetation (4.69 acres of native grassland and 0.12 acres of emergent wetland) and 3.51 acres of unvegetated area, referred to by the commenter, are proposed for on-site restoration and not off-site mitigation, and are included in the acreages in Table 3.4-2 for on-site restoration.

Item 1b. Unvegetated area refers to areas of sand and cobble. These areas are often associated with portions of the channel that experience high velocities during flows greater than a 2-year event and do not necessarily support vegetation. These areas would be restored to pre-construction conditions upon completion of the project.

Item 1c. The mitigation sites shown in Figure 2-9 and discussed in detail on pages 2-26 to 2-34 in section 2.3.7, *Mitigation Sites* of the Draft Supplemental EA/EIR, include three off-site mitigation sites that would be used to transplant elderberry shrubs and compensate for impacts to riparian and valley elderberry longhorn beetle habitat. There is a total of 10.47 acres available within the three sites for mitigation. Of those 10.47 acres, 8.0 acres would be used to compensate for impacts to riparian habitat associated with construction at Site 2-1. The remaining 2.47 acres would be used for future components of the ARCF GRR Project, as described in Mitigation Measure SRA-1 on page 3-87 of the Draft Supplemental EA/EIR.

As described in Table 3.4-2, on-site restoration occurs above and below the OHWM. The off-site locations occur above the OHWM. Additional off-site locations that would support shaded riverine aquatic (SRA) habitat are being pursued, but have yet to be specifically identified. Each mitigation site would undergo evaluation through the NEPA and CEQA process.

The text has been revised to clarify that the 8.10 (now 8.0) acres does not occur below the OHWM.

Item 1d. All 6.85 acres of habitat within the temporary work areas would be mitigated. Within the temporary work areas, 1.96 acres of riparian habitat would be impacted. This area has been included in the total 10.43 acres of riparian impacts (8.47 acres permanent erosion protection sites and 1.96 acres of temporary work areas). All riparian habitat impacts would be mitigated at a 2:1 ratio for a total of 20.86 acres. Approximately 2.34 acres of non-native annual grasslands would also be disturbed and would be restored with native grasslands as indicated on page 3-33. Although the activities in the temporary work areas would be temporary in nature, the removal of riparian habitat from these areas is assumed to be a permanent impact.

7-2 The Draft Supplemental EA/EIR includes a description of the off-site mitigation sites in Section 2.3.7, *Mitigation Sites* (pages 2-26 to 2-34). The Habitat Mitigation, Monitoring, and Adaptive Management Plan (HMMAMP) for the

ARCF GRR Project includes additional requirements that would be met by the off-site mitigation sites. The sites were selected by USACE, CVFPB, and SAFCA in coordination with the Sacramento County Department of Regional Parks for their suitability to provide riparian and elderberry shrub habitat and their compatibility with other Parkway uses. The USACE is a participant in the development of the American River Parkway Natural Resource Management Plan (NRMP), that is currently under development. Text was added to Section 2.3.7.1 on page 2-27 of the Draft Supplemental EA/EIR to explain why the sites were chosen and what their current habitat conditions are.

7-3 Restoration planning would follow the HMMAMP and would be consistent with the American River Parkway Plan.

Item 3a. The habitat goals are consistent in general terms with the HMMAMP performance standards and with the needs of the native species occurring in the American River Parkway, as described in the Draft Supplemental EA/EIR Sections 3.4, 3.5 and 3.6, and will meet the mitigation requirements for impacts to federally listed species, including yellow-billed cuckoo, valley elderberry longhorn beetle, and listed salmonids with potential to occur at Site 2-1, as will be included in the biological opinions to be issued by USFWS and NMFS for the Proposed Action.

The HMMAMP which includes conceptual mitigation proposals, performance standards, and adaptive management tasks was included in the original ARCF GRR FEIS/FEIR. The HMMAMP describes the types of habitats that would be impacted, the potential impacts caused by the project, and describes the types and amounts of mitigation that would be established in order to compensate for habitat losses. This plan also establishes a framework for the creation of mitigation sites and methods to evaluate the success of these sites in order to ensure that the goals and requirements of the Project's required mitigation are accomplished.

The USACE is a participant in the development of the American River Parkway Natural Resource Management Plan (NRMP), that is currently under development.

Item 3b. The HMMAMP along with the American River Parkway Plan are being used as guides to develop the site specific restoration and monitoring plans for Site 2-1 and the off-site mitigation sites. The restoration plans would also be consistent with the permits that will be obtained under Section 7 of the Endangered Species Act and Section 401 of the Clean Water Act.

Item 3c. Restoration plantings would be locally sourced from commercial native plants suppliers as much as feasible. Contract growing would be considered when needed.

7-4 The following response addresses performance standards and monitoring.

Item 4a. Both Mitigation Measures VEG-1 and VEG-2 state that both the on-site and replacement habitat would be created in accordance with the HMMAMP.

Table 2-5 in the Draft Supplemental EA/EIR is a maintenance schedule and was developed for conducting the first 3 years of maintenance activities by the USACE for transplanted elderberry shrubs. The site would be maintained and monitored according to the requirements of the HMMAMP and U.S. Fish and Wildlife Service (USFWS) Biological Opinion, until the performance standards provided in these documents are met.

Table 2-5 does not address the monitoring schedule for transplanted elderberry shrubs, riparian or other habitat restoration, or restored fish habitat. Mitigation Measure VELB-1 on page 3-77 in the Draft Supplemental EA/EIR, which refers back to the Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle (USFWS 2017), requires a minimum of 7 years of monitoring, and Mitigation Measure FISH-3 (on page 3-85) requires monitoring for 10 years after construction pursuant to the HMMAMP. Both Mitigation Measures as well as the HMMAMP incorporate adaptive management and require that additional monitoring would be required if established success criteria are not being met.

Item 4b. The performance standards for this project would comply with the HMMAMP as is stated in Mitigation Measures VEG-1 and VEG-2 on pages 3-35 and 3-36 of the Drfat Supplemental EA/EIR. Figures 3.4-1a –3.4-1c in the Draft Supplemental EA/EIR identify invasive plants and Table 3.4-1 identifies invasive plants on the California Invasive Plant Council (Cal-IPC) list. Chapter 5 in the Draft Supplemental EA/EIR (page 5-6) further addresses invasive species. The Draft Supplemental EA/EIR also addresses measures to prevent the spread of existing invasive species and introduction of new invasive species in Chapter 2, *Alternatives,* on pages 2-25 and 2-32.

7-5 See response 7-4 Item 4a. Monitoring will be conducted and annual reports will be prepared as indicated in the HMMAMP and to comply with the permits and authorizations that will be obtained for the project under Section 7 of the Endangered Species Act and Section 401 of the Clean Water Act. The annual reports would provide detailed notes on the biological conditions, monitoring objectives, methods, results (including photo documentation), and recommendations as needed. As-built drawings would be prepared and submitted to the permitting agencies as required by the HMMAMP and permits.

7-6 The bid specifications will incorporate mitigation measures identified in the Draft Supplemental EA/EIR, the ARCF GRR EIS/EIR, the HMMAMP, and as required by permits that authorize the Proposed Action.

Letter 8: Joseph E. O'Connor Jr.

8-1 As stated on page 2-20 in Chapter 2, *Alternatives,* of the Draft Supplemental EA/EIR, the Proposed Action would deconstruct the existing maintenance road and rebuild it to existing condition. The Proposed Action does not include the City of Sacramento's Two Rivers Trail project. See also response 4-1.

Letter 9: Kate Riley

9-1 As stated on page 3-145 in Chapter 3, *Affected Environment and Environmental Consequences* of the Draft Supplemental EA/EIR, as part of Mitigation Measure REC-1 signage would be installed at major entry points in the neighborhoods for the public to provide information on closures of entry/exit points and provide alternate access routes for those areas that would be affected by the Proposed Action, including bicycle routes. In addition, updates on closures and alternate routes would be provided on the USACE website for the Proposed Action. Construction of the Proposed Action would close entry to Paradise Beach at the Glenn Hall Park entrance for safety reasons. Access to Paradise Beach downstream and outside the construction zone would not be affected.

9-2 See Mitigation Measure TR-1 on pages 3-106 to 3-108 in Chapter 3, *Affected Environment and Environmental Consequences* of the Draft Supplemental EA/EIR for a description of measures to address traffic and circulation, including measures for pedestrians and bicyclists, during construction of the Proposed Action. Residents and travelers would be notified of traffic patterns and road closures at least one week prior to commencement of construction activities. In addition, updates on closures and alternate routes would be provided on the USACE website for the Proposed Action. USACE will also coordinate with the City of Sacramento on any projects that the City will be implementing that could interfere with the Proposed Action, including the City's installation of water meters.

9-3 Please see page 2-8 in Section 2.3.3 *Site Description* of the Draft Supplemental EA/EIR for descriptions of the launchable rock toe and planting benches and the locations of both of these components.

9-4 The launchable toe of the planting bench would be buried into the streambed along much of the site to reduce the visible rock along the shoreline. The amount of rock that is buried into the streambed was optimized to limit impacts to the natural streambed. The launchable toe was set at varying elevations, with the entire toe submerged at flows of 3,900 cfs and above, and portions of the bankline submerged for flows down to 800 cfs (see Figure 2-6e). Covering the launchable rock toe with soil would not be effective, because the exposed soil would be eroding from the rock toe due to passing river flows.

9-5 Please see page 2-25 in Chapter 2, *Alternatives* of the Draft Supplemental EA/EIR for a description of demobilization and cleanup of the Proposed Action site and associated staging areas.

9-6 Please see pages 2-32 and 2-33 in Chapter 2, *Alternatives* of the Draft Supplemental EA/EIR for a description of temporary fencing to be erected around planting sites and maintenance of planting sites, respectively.

9-7 Please see pages 3-9 through 3-14 in Chapter 3, *Affected Environment and Environmental Consequences* of the Draft Supplemental EA/EIR for the analysis of hydraulic effects of the Proposed Action relative to levee safety design criteria, including at high flow events.

Letter 10: Betsy Weiland

10-1 See responses 4-1 and 8-1.

10-2 See responses 4-1 and 8-1.

10-3 As stated on page 2-32 of the Draft Supplemental EA/EIR, a temporary fence would be installed at the perimeter boundary, surrounding the entire area of each mitigation site.

10-4 See responses 4-1 and 8-1. As stated on page 2-20 in Chapter 2, *Alternatives* of the Draft Supplemental EA/EIR operation and maintenance activities will occur as they are currently.

10-5 See response 10-3. See also page 2-33 in Chapter 2, *Alternatives* of the Draft Supplemental EA/EIR that states that maintenance would include picking up trash and making vandalism repairs. Removal of illegal camps or enforcement against actions that threaten mitigation sites are not within the jurisdiction of USACE, CVFPB, or SAFCA, but would be coordinated with the appropriate law enforcement entity (e.g., Sacramento County Department of Regional Parks wardens).

10-6 USACE would delay vegetation or tree removal if there were a delayed construction date.

Letter 11: Save the American River Association

11-1 See response 9-4.

In addition, it is noted that at typical summer water levels, approximately 6 inches of rock would be anticipated to be visible above the summer water level. The visible rock would be intermittent in length as the waterside toe undulates in

elevation above and below the summer water surface, and would be visible above the water level along approximately 30% of the shoreline.

Soil was not mixed into this matrix of rock as it would require mixing soil and rock below the ambient water surface elevation where much of the soil would likely be lost to the flow. Cofferdams and dewatering would likely not be allowed under permit requirements to dewater this area to place soil filled rock. Similarly, soil would be winnowed out of rock placed where it is typically exposed to currents.

Modeled hydraulic impacts were sensitive to Manning's *n* (hydraulic roughness) values of the rock bench, but soil fill would not significantly reduce the hydraulic impacts.

11-2 The text in the introduction of the Draft Supplemental EA/EIR identified by the comment is a historical perspective of events that began over 24 years ago, and included the development of the Lower American River Task Force efforts in preparing the Lower American River Corridor Management Plan that informed updating of the 1985 American River Parkway Plan. As the commenter states, the 2008 Parkway Plan is discussed in later sections of the Draft Supplemental EA/EIR.

11-3 The USACE would restore the maintenance road to a width of 16 feet, which is approximately equal to its current width. See responses 4-1 and 8-1. The Two Rivers Trail Phase II project was not analyzed in the Draft Supplemental EA/EIR, because it is not part of the Proposed Action; therefore, no hydraulic or other analysis was conducted related to the City's bike trail project.

11-4 Page 2-25 of the Draft Supplemental EA/EIR stated: "Any staging area would be restored to original pre-existing contour and condition or as agreed to by the property owner." USACE contract specifications require the Contractor to document pre-construction conditions with video and/or photographic records to compare pre- and post-construction conditions. The following sentence was also added: "Impacts to riparian habitat would be avoided to the extent feasible. Any unavoidable impact to riparian habitat would be mitigated off-site at ratios described in Chapter 3."

11-5 USACE would coordinate with Sacramento County Department of Regional Parks and USFWS to identify transplant sites within the Parkway. That would be the preferred option. However, if no opportunities for valley elderberry longhorn beetle mitigation in the Parkway would be available, USACE would work with USFWS to identify alternative opportunities.

11-6 As shown in Figures 2-9a, 2-9b, and 2-9c on pages 2-29 through 2-31 in Chapter 2, *Alternatives* of the Draft Supplemental EA/EIR, all temporary access routes are

the same as permanent access routes. See response to 11-4 regarding post-construction restoration of areas to original conditions.

11-7 The Proposed Action would not include maintenance of areas outside the easements acquired for implementation of the mitigation areas. See pages 2-33 and 2-34 in Chapter 2, *Alternatives* of the Draft Supplemental EA/EIR for information on the maintenance activities for the mitigation sites, including picking up trash and vandalism repairs.

11-8 This comment is noted. The Proposed Action would not include the creation of trails within the Glenn Hall mitigation site. The planting plan for the mitigation site will include a diversity of plant species, including the ones mentioned in the comment, that would discourage travel off trail. See also response 11-7.

11-9 The mitigation sites would be designed to optimize habitat for the valley elderberry longhorn beetle and its host plant the blue elderberry, consistent with the USFWS (2017) Mitigation Framework. Planting the elderberry shrubs together with other accompanying native riparian plant species ultimately will result in a complex multi-layered plant community. However, for successful elderberry shrub establishment, initially a relatively open canopy is required to provide sufficient sunlight and to allow for understory vegetation management, to reduce competition from non-native plants. During this initial establishment period the mitigation sites would be fenced, and would not be accessible to the public. After the establishment period vegetation becomes dense and attains a more complex canopy structure, fencing would be removed. Given the dense character of the vegetation following the establishment period, it is not likely that informal paths will be created.

11-10 Mitigation measures would be implemented consistent with the HMMAMP, American River Parkway Plan, Biological Opinions, and the NRMP, when it is adopted. The sites would be managed and maintained to leave them, after maintenance activities are completed, as natural as possible, and consistent with the guidance in those documents.

11-11 As stated, planting plans for the mitigation sites are still under development and will be approved as part of the Endangered Species Act Section 7 permitting process. Native species in shrub and woodland habitat would be protected and non-native species, including non-native grasslands, would be removed and replaced with native grasslands, scrub, and woodland habitat appropriate to each site. Text was added to Section 2.3.7.1 on page 2-27 of the Draft Supplemental EA/EIR to explain why the sites were chosen and what their current habitat conditions are.

While the majority of the area in these sites would be planted in native riparian scrub or woodland habitat, the planting plans would promote spatial and structural diversity of native riparian vegetation. For areas where elderberry shrubs would

be planted and/or transplanted, the USFWS guidelines specify that 1 other native riparian plant of a species that typically may co-occur with elderberry shrubs ("native associate") should be planted with every 3 elderberry shrubs to establish a diverse riparian canopy, but also to minimize interspecific competition for sunlight and water (USFWS 2017). Areas that will remain in grasslands would be planted with native grassland species, which would significantly increase the value over non-native grassland in both species diversity and food source for wildlife. Additionally, the herbaceous layer of the scrub and woodland planting areas would be seeded with native grassland species, where appropriate, to provide greater value grassland habitat. Thus, with the improved habitat values, the mitigation sites would create a net gain in habitat value to wildlife.

11-12 Mitigation ratios for these Federally listed species were determined by USFWS in consultation with the USACE under Section 7 of the Endangered Species Act.

11-13 Although it would take 10-15 years for riparian vegetation to become fully *mature*, the planted vegetation is expected to develop into a stand of shrubs and small trees within one or two years due to the rapid growth of early successional species (willows and Fremont cottonwood) in the planting mix. Mitigation sites would be planted in a manner consistent with the American River Parkway Plan, HMMAMP, USFWS and National Marine Fisheries Service (NMFS), and, when completed, the NRMP.

11-14 Mitigation Measure TURTLE-1 on pages 3-83 to 3-84 in Chapter 3, *Affected Environment and Environmental Consequences* of the Draft Supplemental EA/EIR, provides for a pre-construction survey by a qualified biologist, relocation of turtles, if any are found, and requires that if western pond turtles are found on land within the construction footprint during construction, the project activities would stop within 200 feet of the turtle and a qualified biologist would be notified immediately, and provides for relocation and coordination with California Department of Fish and Wildlife (CDFW) if necessary.

The mitigation measure also states that if a western pond turtle nest is unintentionally uncovered during project activities, work would stop in the vicinity of the nest and contacting of CDFW to determine the appropriate next steps.

11-15 The information referenced here (loss of riparian habitat) is provided in Table 3.4-2 in Chapter 3, *Affected Environment and Environmental Consequences* of the Draft Supplemental EA/EIR. The reference to Table 3.6-3 was in error and has been removed. If all of the riparian habitat impacts are added together for both permanent and temporary impacts above and below the ordinary high water mark, they total 10.43 acres. The text has been revised to direct readers to Table 3.4-2.

11-16 CVFPB was replaced with USACE and CVFPB.

11-17 Included in Mitigation Measures AQ-1 and GHG-1 on pages 3-119 and 3-131 in Chapter 3, *Affected Environment and Environmental Consequences* of the Draft Supplemental EA/EIR is a requirement for minimization of idling time to no more than five minutes and clear signage for workers of this requirement in compliance with SMAQMD's basic construction emissions control practices.

Comments Received at the Public Webinar

TABLE H-1
COMMENTS FROM THE PUBLIC WEBINAR WITH RESPONSES

Comment Number	Commenter, Organization	Comment	Response
Attendee Chat Space Comments			
W-1	Wilbur Huang, DWR	Q: Slide 14 - Is the planted bench drainable? Will it trap fish if the slope of the bench is sloping toward the levee/bank instead of toward the river?	The planting benches slope towards the channel and downstream as is shown in Figures 2-4 and 2-6, and is described in Section 2.3.3. Receding water would drain off the planting bench toward the channel and fish would not be trapped.
W-2	Liz Bellas, Sacramento County Regional Parks	Q: can this presentation be given to the Sacramento County Recreation and Parks Commission as well?	The presentation was made to the Sacramento County Recreation and Parks Commission on June 25, 2020.
W-3	Mary Maret, Sacramento County Regional Parks	Q: Project 2.1 road closure (to the public) on page 3-145 was for 1.5 years. This seems like a long time to close a facility to the public. Is this a worst case scenario? Are there alternatives to shorten the closure?	See response 4-2.
W-4	Kelly Cohen, Save the American River Association	Q: Will trees be protected from beavers?	Plantings would be protected from beavers using a combination of fencing and strategic placement of species that are not preferred by beavers (e.g., buttonbush and California grape).
W-5	Kelly Cohen, Save the American River Association	Will tree roots affect slope protection as they grow?	The tree roots are not expected to affect slope protection as they grow. The primary planting location for larger trees would be on the planting bench or above the launchable trench at the toe of the slope where tree roots would be unlikely to penetrate rock protection on the slope above them.
W-6	Kelly Cohen, Save the American River Association	Risk of damage from human using slope?	The slope is geotechnically stable with voids between rocks that are filled with sediment. The riprap on the slope will be covered with 1 foot of topsoil and seeded with grass providing additional stability to the rock protection. The risk of damage would be low.

TABLE H-1
COMMENTS FROM THE PUBLIC WEBINAR WITH RESPONSES

Comment Number	Commenter, Organization	Comment	Response
W-7	Kelly Cohen, Save the American River Association	Will change in bank have any affect on opposing bank?	As is stated in Section 3.3.3.2 Hydrology, the Proposed Action would have no significant hydraulic impact. The (less than significant) effect is mainly noticeable by a small increase in flood stage upstream of the H Street Bridge. No substantial effect on the opposite bank (Campus Commons Golf Course) was observed in the hydraulic analysis.
W-8	Kelly Cohen, Save the American River Association	What prevents undercutting of rock slope protection?	The rock slope protection would extend to the channel bottom at the toe of the slope. The revetment on the channel bottom would include an extra volume of rock designed to fall into any eroded space created by channel lowering that could occur as the result of erosion. This design ensures continuous rock protection to the bottom of the slope in existing and any future channel conditions to prevent undercutting.
W-9	Kelly Cohen, Save the American River Association	Q: Just curious… Why did you choose the Rio Americana site for mitigations?	USACE, DWR, and SAFCA worked with the Sacramento County Department of Regional Parks to select these sites, because of their suitability for habitat development and compatibility with other Parkway uses.
W-10	Kelly Cohen, Save the American River Association	Q: Can & Will soil movement from outside project area result in filling?	The river may deposit sediment on the surface of planting benches over time. This is a natural process for which the native mix of plants to be planted at the site is well adapted. Since this is a natural process, it is considered a positive attribute of the design.
W-11	Kelly Cohen, Save the American River Association	Q: Are tree anchors meant to be permanent? If so, what is their life span (so to speak)?	The anchored trees are intended to provide immediate in-stream habitat and cover. Their anchors, will be large buried rocks (“deadmen”) that will be permanent. The anchored trees will be fastened to the deadmen with hemp rope. These ropes will decay over time, however due to expected growth of adjacent vegetation and some expected accretion of soil the dead trees are expected to become immobile even after the hemp rope has decayed. The trees will decay slowly over a timescale of a decade or so, and when they have decayed, their instream habitat function will have been taken over by mature vegetation.
W-12	Kelly Cohen, Save the American River Association	Q: Would you have to then replace the rock that "launched".	See response 4-3.
W-13	Jim Morgan, Save the American River Association/ Butterfield-Riviera East Community Association	More comment than question: I would encourage the Corps etc. to bury the launchable toe of the planting bench design to minimize hydrologic impact, and also for esthetic and recreational concerns.	See response 9-4.

TABLE H-1
COMMENTS FROM THE PUBLIC WEBINAR WITH RESPONSES

Comment Number	Commenter, Organization	Comment	Response
W-14	Kelly Cohen, Save the American River Association	Q: Thank you for answering my slew of questions. Good meeting.	This comment is noted.
Presenter Chat Space Comments (identical comments from the Attendee Chat Space are not repeated)			
W-15	Kate Riley, Private Citizen	1) How many trees will be removed from the Planting Bench for the project. Perhaps a better question would be how many trees, if any, will be retained?	All trees within the erosion protection footprint will be removed. However, the design engineers walked the site with a licensed arborist to adjust the boundaries of the work area, haul route, and staging areas to avoid native trees where feasible. A total of approximately 400 trees will be removed from the site.
W-16	Kate Riley, Private Citizen	2) Are you coordinating with the City of Sacramento's Water Meter installation project? That is going on in River Park May 20 to May 21 with major traffic and construction in River Park and especially the haul routes.	See response 9-2.
W-17	Kate Riley, Private Citizen	3) Are you coordinating with the City on environmental mitigation which will be required for Two Rivers Trail phase II.	See response 10-4.
W-18	Kate Riley, Private Citizen	Glenn Hall Park is a site for mitigation (which I think is great!) the area proposed is subject to a lot of use that is inconsistent with caring for plants in a mitigation environment. How will that be handled? For example, there's a bike ramp situation that kids have developed near the mitigation area.	See response 9-6.
W-19	Kate Riley, Private Citizen	Where would the bike trail go in the planting bench design? would it be where the maintenance road is now?	The Two Rivers Trail Project and the Proposed Action are independent projects. As part of the Proposed Action the maintenance road would be restored to its existing condition.
W-20	Jim Morgan, Save the American River Association/Butterfield-Riviera East Community Association	Comment: would encourage Corps etc. to bury the launchable toe of the planting bench design, to minimize hydrologic impact, and also for esthetic and recreational effects.	See response 9-4.
Verbal Comments (comments that were read from the Chat Space by the facilitator are not repeated)			
W-21	Mark Johnson, Anderson Dragline Inc.	When will this project likely go out to bid?	At this time the specific date that the project would go to bid cannot be provided, and depends on the date that permits will be issued for the project. Contracting opportunities would be advertised on the USACE's web site: sacleveeupgrades.com.

TABLE H-1
COMMENTS FROM THE PUBLIC WEBINAR WITH RESPONSES

Comment Number	Commenter, Organization	Comment	Response
W-22	Betsy Weiland, Save the American River Association	I think this would apply both to the launchable trench and the toe. If it is launched do you plan on rebuilding it?	See response 4-3.
W-23	Betsy Weiland, Save the American River Association	At what CFS do you expect the launchable toe and trench to activate? Can you anticipate that?	It would likely take a flow of at least 115,000 cfs to create conditions for scour to occur. Although at a flow of 115,000 cfs there would be a *probability* that scour would occur, the occurrence of scour would not be certain. It is unlikely that the scour would occur along the entire length of the site.

Appendix I

Revisions to the Draft Supplemental Environmental Assessment/Environmental Impact Report

This appendix presents corrections and revisions made to the Proposed Action's Draft Supplemental Environmental Assessment/Environmental Impact Report (Supplemental EA/EIR). This appendix does not identify administrative changes to the Supplemental EA/EIR text which do not affect the analysis contained in the Supplemental EA/EIR (for example, updates to the public review process). New text is indicated with a double underline and text to be deleted is reflected by a ~~strike through~~. Text changes are presented in the page order in which they appear in the Supplemental EA/EIR.

The changes identified below are clarifications or amplification of the information and analysis contained in the Supplemental EA/EIR. None of the changes identified below results in a significant impact that was not already identified in the Supplemental EA/EIR. Furthermore, none of the impacts identified in the Supplemental EA/EIR were found to be substantially more severe as the result of the following changes. For these reasons, recirculation of the Supplemental EA/EIR is not warranted.

Chapter 2, *Alternatives*

Page 2-7, second paragraph is revised as follows:

> All launchable-rock trenches would be constructed outside of the ~~natural river~~ main channel…

Page 2-25, last paragraph is revised as follows:

> Any staging area would be restored to original pre-existing contour and condition or as agreed to by the property owner. To avoid erosion, staging areas would be hydro seeded and layered with wood mulch to prevent encroachment of invasive species. Any roads or other access areas damaged by construction would be repaired and restored to prior condition. All trash, excess construction materials, and construction equipment would be removed. Impacts to riparian habitat would be avoided to the extent feasible. Any unavoidable impact to riparian habitat would be mitigated off-site at ratios described in Chapter 3.

Page 2-27, Table 2-4 is revised as follows:

TABLE 2-4
ESTIMATED PLANTABLE AREA FOR RELOCATING ELDERBERRY SHRUBS AND ASSOCIATED RIPARIAN VEGETATION

Site	Site Area (acre)	Plantable Area (acre)
Glenn Hall Park (RM 4.9 L)	~~10.41~~ 9.84	~~7.38~~ 5.03
Rio Americano West (RM 10.4 R)	~~5.39~~ 7.77	~~3.38~~ 3.32
Rio Americano East (RM 11.1 R)	~~2.44~~ 3.40	~~2.12~~ 2.12
TOTAL	~~18.24~~ 21.01	~~12.88~~ 10.47

The following text is inserted below Table 2-4 on page 2-27:

> These mitigation sites were chosen because they were considered suitable for supporting riparian habitat and elderberry shrubs, and because of their limited existing habitat quality. Glenn Hall Park is dominated mostly by non-native woodland with areas of non-native grassland, native scrub, and native woodland. Rio Americano West is a mix of non-native grassland and native woodland with minor components of non-native woodland and native scrub. Rio Americano East consists mostly of non-native grassland with some native scrub and small patches of native and non-native woodlands.

Chapter 3, *Affected Environment and Environmental Consequences*

Page 3-32, the first paragraph is revised as follows:

> To mitigate these impacts, USACE would create a total of 20.8~~4~~6 acres of riparian habitat, which would include 12.8~~4~~6 acres of on-site riparian habitat in the Permanent Project Area. In addition, 8.~~1~~00 acres of off-site riparian habitat would be created (see Section 3.6, *Special Status Species*).

Page 3-33, the fourth paragraph is revised as follows:

> Riparian woodland present within Subreach 2 is considered a sensitive natural community. However, because a total of 12.8~~4~~6 acres would be created on-site and 8.~~1~~00 acres would be created off-site to address impacts on VELB and western yellow-billed cuckoo habitat at a 3:1 and 2:1 ratio, respectively, the Proposed Action would result in a net increase in riparian woodland acreage within and near the Project Area. State and Federally protected wetlands and other jurisdictional waters are also considered to be protected sensitive natural communities. Of the impacted riparian habitat 5.51 acres is located below the OHWM (18,500 cfs water level) and is considered forested wetland. Based on the design of the Proposed Action, this riparian wetland would be replaced with 7.59 acre of riparian habitat located below the OHWM (Table 3.4-2). ~~In addition, the 8.10 acres of~~ Additional off-site riparian habitat would be created at a mitigation site in the American River Parkway that would be selected and designed in coordination with NMFS and USFWS as part of the consultation under the Endangered Species Act and that would be located below the OHWM (See SRA-1 for additional discussion). In addition, 0.12 acre of emergent wetland is proposed to be constructed at the Project Area.

Page 3-37, the fourth paragraph is revised as follows:

> In summary, to address the impacts on the 10.43 acres of riparian habitat (including forested wetland below OHWM) that would be affected by construction of the Proposed Action, replacement riparian habitat would be created, including 12.8~~4~~6 acres on site and 8.~~1~~00 acres off site. Implementing this compensatory mitigation would reduce long-term impacts on any natural community or wildlife habitat within the Project Area to a less-than-significant level by creating on-site and off-site riparian habitat.

Page 3-63, first paragraph under Western Yellow-Billed Cuckoo

> There has been only one recent incidental vocal detection upstream of the Project Area, on a densely vegetated island in the river (see Section 3.6.2 above). Construction of Site 2-1 would result in the loss of 10.43 acres of riparian habitat (**Table ~~3.6-3~~ 3.4-2**). This loss of habitat would be a significant impact.

Page 3-111, the last paragraph is revised as follows:

> In addition, if modeled construction-generated emissions for a project are not reduced to less than SMAQMD's mass emission threshold (85 pounds per day [lb/day]) after the standard construction mitigation is applied, then SMAQMD recommends charging an off-site construction mitigation fee. The fee must be paid before a grading permit can be issued. This fee is charged by SMAQMD to ~~purchase off-site emissions reductions~~ fund emission reduction programs. ~~Such purchases are made through~~ One example is SMAQMD's Heavy Duty Incentive Program, through which select owners of heavy-duty equipment in Sacramento County can repower or retrofit their old engines with cleaner engines or technologies.

Page 3-113, paragraph one is revised as follows:

> The types of construction activities that would generate emissions of air pollutants include clearing of trees, vegetation, and loose materials; degrading and excavating the levee; installation of rock revetment; construction of a launchable-rock-filled trench; reconstruction of the levee; associated worker haul and commute trips; and implementation of mitigation sites. Refer to **Appendix ~~D~~ E** for all inputs, assumptions, and modeling results. Specific methods are described herein. Where significant air quality impacts are identified, mitigation measures to reduce these impacts are specified.

Text in Table 3.9-1 on page 3-116 is revised as follows:

TABLE 3.9-1
ARCF 2016 PROJECT, AMERICAN RIVER CONTRACT 1 CONSTRUCTION EMISSIONS

Maximum Construction Activity	Maximum Daily Emissions (lb/day)[1]				
	ROG	NO_X	CO	PM_{10}	$PM_{2.5}$
2021 (Site 2-1 + Mitigation Sites)	9	194	92	32	5
CEQA Threshold	N/A	85	N/A	0[2]	0[2]
Exceed Threshold?	N/A	Yes	N/A	~~No~~ Yes	~~No~~ Yes

NOTES:

1 Estimates represent a worst-case construction conditions which was assumed to be from May to July 2021. For annual emissions and a comparison to Federal *de minimis* levels, see Appendix ~~E~~ F.

2 SMAQMD has a zero pound per day threshold of PM, when best available controls are not implemented but threshold with incorporated controls are 80 lb/day for PM_{10} and 82 lb/day for $PM_{2.5}$

SOURCE: Modeling conducted by Ascent Environmental in 2020.

On page 3-117, the first paragraph is revised as follows:

As shown in Table 3.9-1, construction-related emissions under the Proposed Action, which included reductions associated with project commitments of higher tiered engines, would exceed SMAQMD's mass daily emission threshold for NO_X, PM_{10}, and $PM_{2.5}$. ~~Although mitigation measures recommended by SMAQMD would reduce NO_X in off-road equipment by 10 percent, construction-related emissions of NO_X would still exceed the threshold.~~ USACE would be required to pay an off-site mitigation fee for NO_X emissions to reduce the impact to a less-than-significant level.

Mitigation measure AQ-3 on page 3-120 is revised as follows:

Mitigation Measure AQ-3: Develop and Implement a Plan for Enhanced On-Site Exhaust Controls. Actual emissions of nonattainment and maintenance pollutants would be tracked monthly using tools acceptable to SMAQMD (e.g., construction mitigation calculator, SMAQMD's Equipment List). USACE shall submit to SMAQMD a comprehensive inventory of all off-road construction equipment ~~USACE would provide a plan for approval by SMAQMD demonstrating that the heavy-duty off-road vehicles~~ (50 horsepower or more) to be used 8 hours or more during project construction. ~~would achieve a project-wide fleet-average 10 percent NO_X reduction compared to the most recent California Air Resources Board (CARB) fleet average. The plan would have two components: an initial report submitted before construction and a final report submitted at the completion of construction.~~ The tracking data would be used to verify that all pollutants remain below the CEQA daily thresholds, General Conformity de minimis thresholds, or are fully mitigated and offset if emissions exceed either.

~~The initial report would be submitted at least 4 business days prior to construction activity using SMAQMD's Construction Mitigation Tool (http://www.airquality.org/businesses/ceqa-land-use-planning/mitigation).~~ The initial report would include all of the following details:

- Information about the project information and the construction company.
- The equipment type, horsepower rating, engine model year, projected hours of use, and CARB equipment identification number for each piece of equipment in the plan.
- All owned, leased, and subcontracted equipment to be used.

~~The final~~ Updated reports would be submitted monthly ~~at the end of the job, phase, or calendar year, as pre-arranged with SMAQMD staff and documented in the approval letter~~, to demonstrate continued project compliance.

SMAQMD may conduct periodic site inspections to determine compliance. Nothing in this mitigation would supersede other air district, State, or Federal rules or regulations.

Mitigation measure AQ-4 on page 3-119 is revised as follows:

> **Mitigation Measure AQ-4: Use Electric Construction Equipment.**
> To the extent available and feasible, c~~C~~onstruction equipment would be powered by electricity, rather than diesel fuel, to reduce construction-related criteria air ~~eliminate emissions of criteria~~ pollutants, TACs, and tailpipe greenhouse gas emissions associated with ~~from~~ diesel combustion. Electrification would result in a small amount of indirect carbon dioxide emissions because of the operation of the electric grid. Various types of construction equipment may feasibly be run on electricity.

Page 3-127, second full paragraph is revised as follows:

> The emission factors and models described there were also used to quantify GHG emissions. GHG emissions were summed over the entire duration of all anticipated activity, including the use of heavy-duty equipment, haul trucks, and worker commute trips. All inputs and assumptions are included in Appendix ~~D~~ E.

Page 3-127, the sixth full paragraph is revised as follows:

> SMAQMD has local jurisdiction over the Project Area. On October 23, 2014, the SMAQMD adopted GHG thresholds, which were informed ~~In January 2008, SMAQMD made a resolution to adopt guidance published~~ by the California Air Pollution Control Officers Association, ~~entitled~~ "CEQA and Climate Change, Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act~~.~~" document.[80] ~~This resolution adopted the following recommended GHG thresholds of significance:~~ The SMAQMD-adopted thresholds are: …

Page 3-145, the fifth paragraph has been revised as follows:

> Advance notice would be given to recreation users, informing them of anticipated activities and detours to reduce the effects. Closures of paved trails would be noticed 14-days in advance via signage at the detour locations.

Appendix J
Public Involvement

This appendix provides information on public involvement for the Draft Supplemental EA/EIR. The Draft Supplemental EA/EIR was circulated on June 5, 2020 for a 45-day public review period ending on July 20, 2020. A notice of availability was published in the Federal Register and the Sacramento Bee on June 5, 2020. An electronic version of the document was posted to the USACE website and hard copies were made available by request to the public.

USACE posted information about the Proposed Action on its website at www.sacleveeupgrades.com, which included summarized information on the Proposed Action, an electronic copy of the Draft Supplemental EA/EIR, a Frequently Asked Questions document prepared by the local sponsor for the project, and instructions as to how to participate in the virtual public meeting held on June 15, 2020. The website was subsequently updated to include the presentation slides used during the public meeting.

A robust public outreach was conducted about the nature and location of the proposed erosion work associated with this draft supplemental document. The neighborhoods directly adjacent to future erosion work and along the proposed haul routes were noticed about the public meeting and where to send comments. A total of 3,444 direct mail notices were sent. The notices contained summary information about the Proposed Action, information about the virtual public meeting, and included a link to the USACE website. A Notice of Availability was sent to 162 interested parties, public agencies, and elected officials regarding the publication of the Draft Supplemental EA/EIR and the virtual public meeting.

A total of 41 people attended the virtual public meeting, comments were solicited during the meeting and responded to in Appendix H of this Final Supplemental EA/EIR.

A total of 23 comments were received during the public meeting. In addition, a total of 69 comments were received by letter and email on the Draft Supplemental EA/EIR. Letters and responses are included in Appendix H of this Final Supplemental EA/EIR.