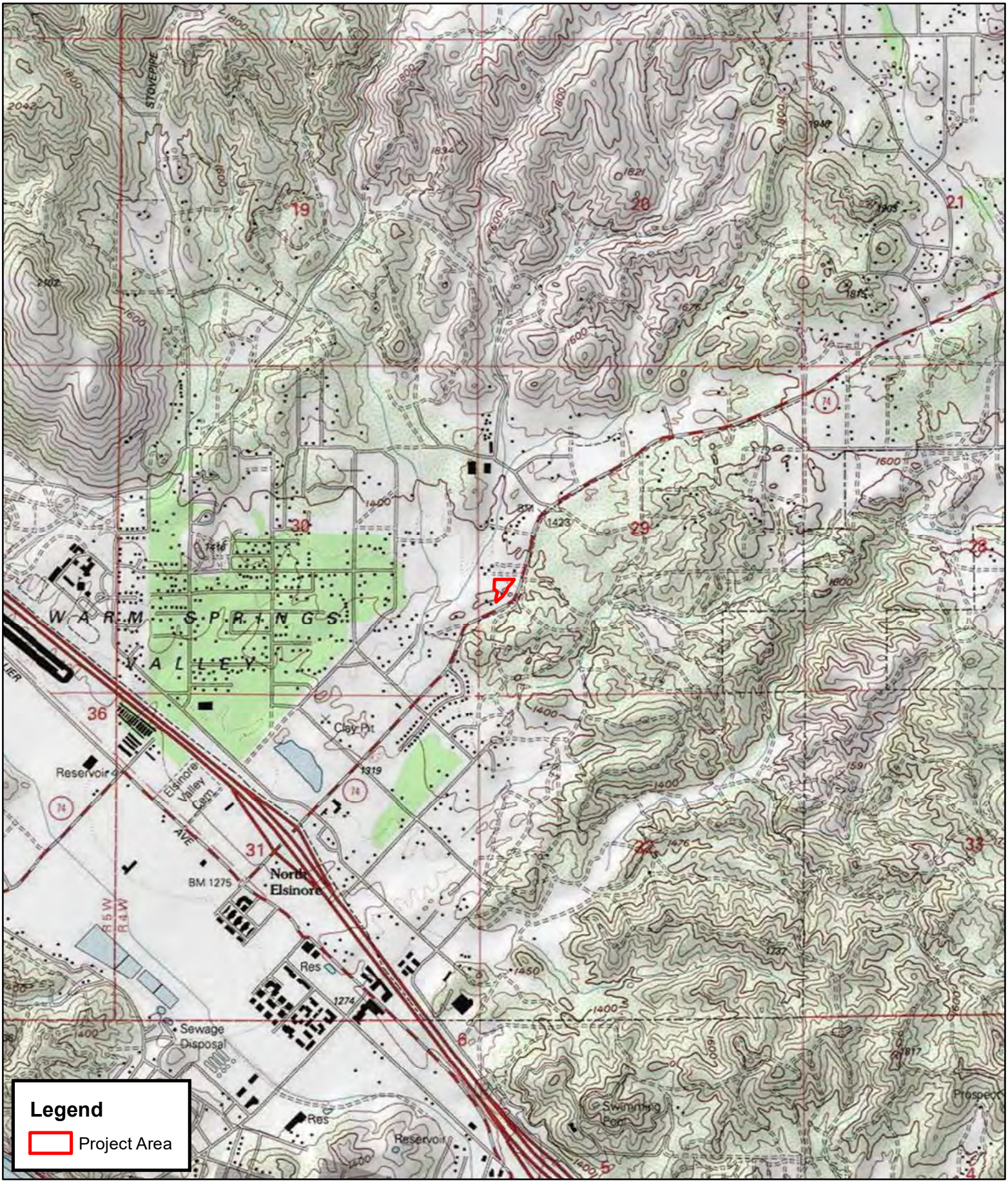


0 250 500 1,000 Meters

0 1,000 2,000 4,000 Feet

1:24,000

RED TAIL ENVIRONMENTAL

RED TAIL ENVIRONMENTAL

February 8, 2021

Mr. Joseph Ontiveros
Cultural Resource Department
Soboba Band of Luiseno Indians
PO Box 487, San Jacinto, CA, 92583
951-663-5279
jontiveros@soboba-nsn.gov

Re: 28771 Highway 74 Project, APNs 347-130-028 and 347-130-029, Riverside County, California

Dear Mr. Ontiveros,

Red Tail Environmental (Red Tail) is conducting an archaeological study of the 28771 Highway 74 Project (project), located on Assessor Parcel Number (APNs) 347-130-028 and 347-130-029, Highway 74, Lake Elsinore, Riverside County, California. The project area is shown on the United States Geologic Survey (USGS) 7.5' *Lake Elsinore, California* topographic quadrangle within Section 29 of Township 5 South, Range 4 West. The Project is being undertaken in compliance with the California Environmental Quality Act (CEQA) and the County of Riverside is overseeing the project as lead agency. The project intends to develop portions of the two parcels for a gas station complex which will include a convenience store, a fueling canopy with six multi-product dispensers, and two underground storage tanks.

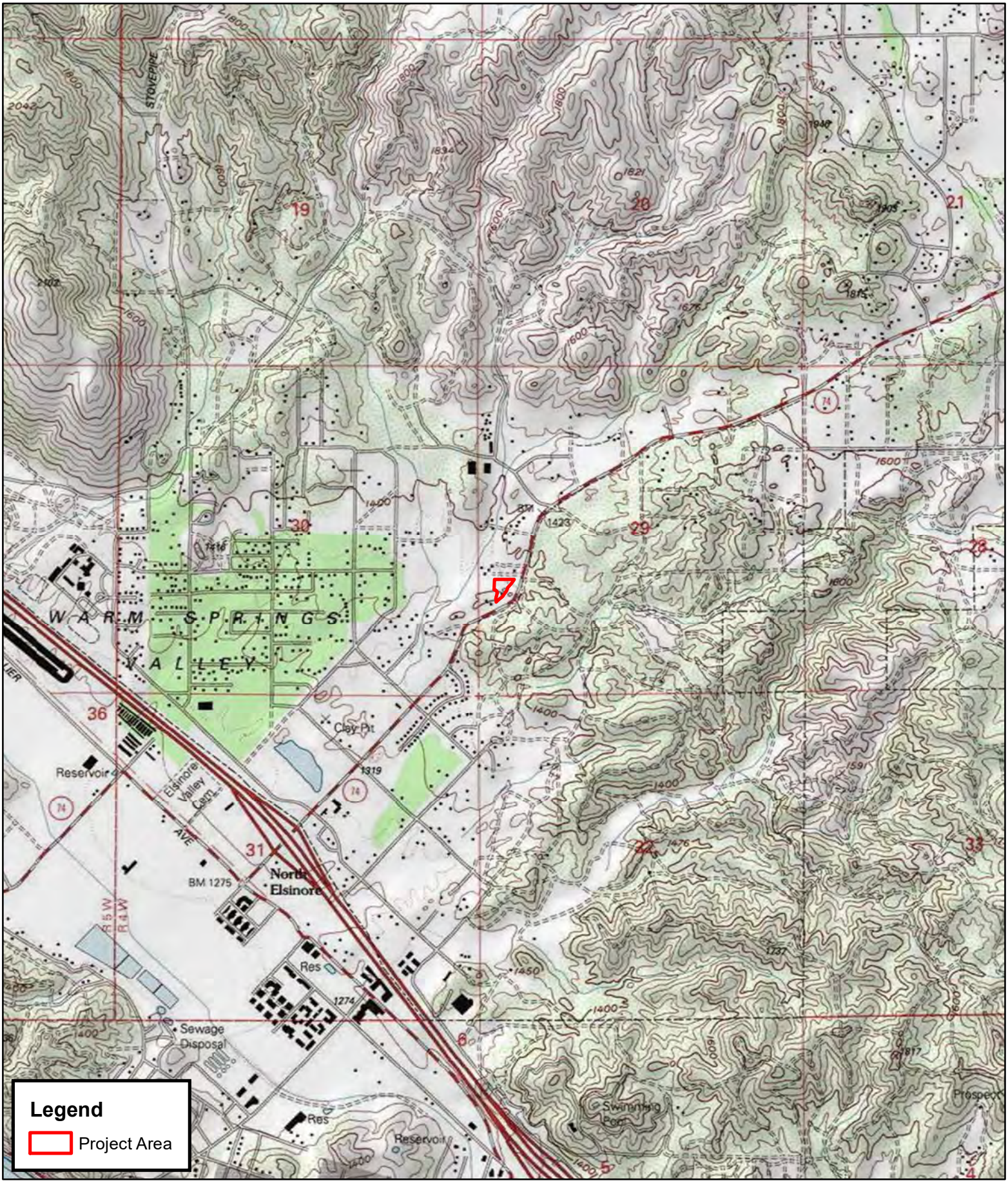
A record search of the Sacred Lands File with the California Native American Heritage Commission was negative. Red Tail is conducting a record search at the Eastern Information Center and a pedestrian survey of the Project Area.

We are contacting you to request additional information regarding the Project area, if you are aware of any issues of cultural concern regarding the area shown on the enclosed map. In particular, we would like to know if you have knowledge of any Traditional Cultural Properties, Sacred Sites, Tribal Cultural Resources, resource collecting areas, or any other areas of concern of which you would wish us to be aware. If you have any questions or concerns regarding the proposed Project, please contact me at the address or phone number listed below, or via email at Shelby@redtailenvironmental.com. We appreciate any input you may have on this project.

Sincerely,

Shelby G. Castells

Shelby Castells, M.A., RPA
Director of Archaeology
Attachments: Figure 1. Project Location Map



0 250 500 1,000 Meters

0 1,000 2,000 4,000 Feet

1:24,000

RED TAIL ENVIRONMENTAL

RED TAIL ENVIRONMENTAL

February 8, 2021

Ms. Joyce Perry
Tribal Manager
Juaneno Band of Mission Indians Acjachemen Nation - Belardes
4955 Paseo Segovia, Irvine, CA, 92603
949-293-8522
kaamalam@gmail.com

Re: 28771 Highway 74 Project, APNs 347-130-028 and 347-130-029, Riverside County, California

Dear Ms. Perry,

Red Tail Environmental (Red Tail) is conducting an archaeological study of the 28771 Highway 74 Project (project), located on Assessor Parcel Number (APNs) 347-130-028 and 347-130-029, Highway 74, Lake Elsinore, Riverside County, California. The project area is shown on the United States Geologic Survey (USGS) 7.5' *Lake Elsinore, California* topographic quadrangle within Section 29 of Township 5 South, Range 4 West. The Project is being undertaken in compliance with the California Environmental Quality Act (CEQA) and the County of Riverside is overseeing the project as lead agency. The project intends to develop portions of the two parcels for a gas station complex which will include a convenience store, a fueling canopy with six multi-product dispensers, and two underground storage tanks.

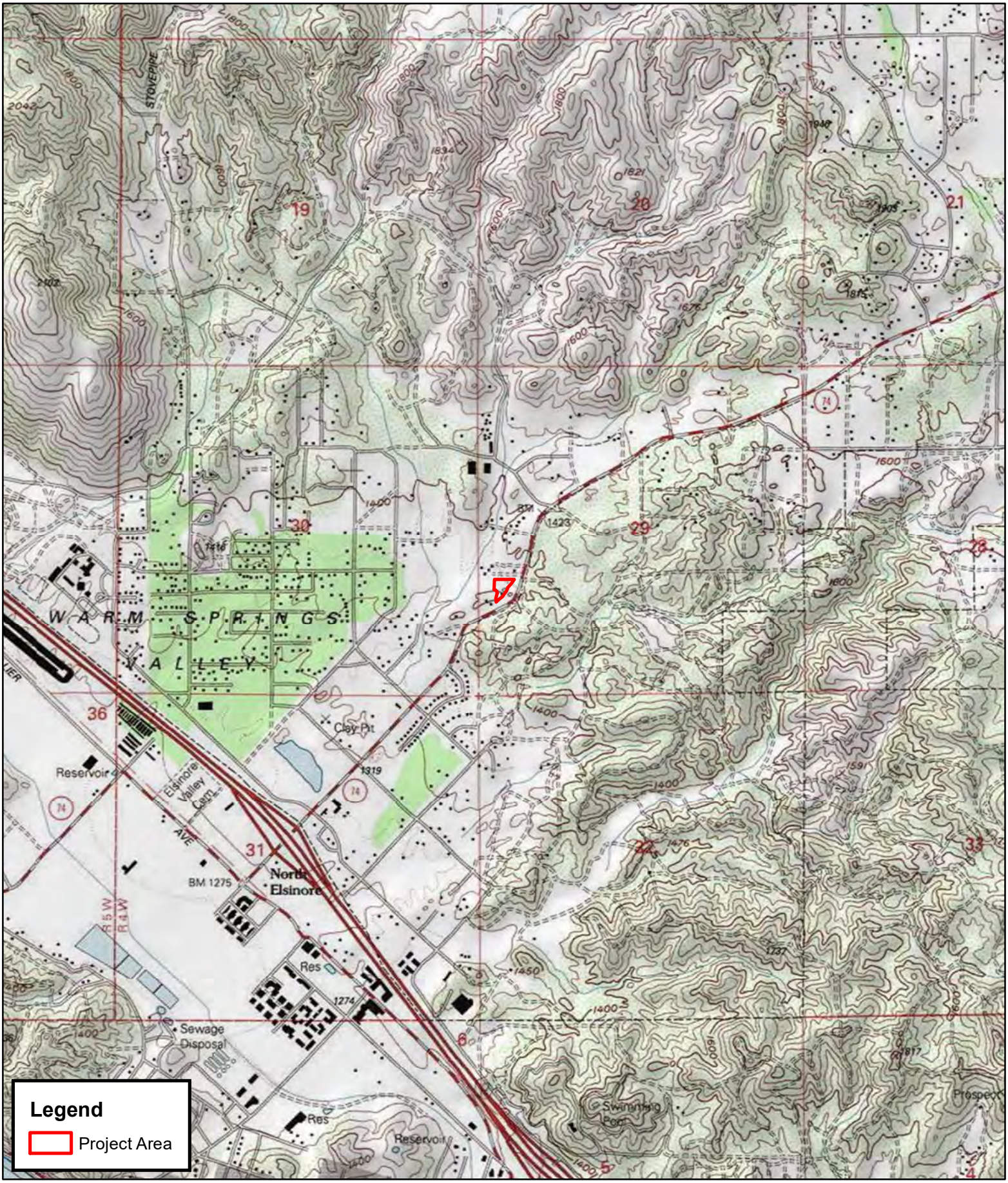
A record search of the Sacred Lands File with the California Native American Heritage Commission was negative. Red Tail is conducting a record search at the Eastern Information Center and a pedestrian survey of the Project Area.

We are contacting you to request additional information regarding the Project area, if you are aware of any issues of cultural concern regarding the area shown on the enclosed map. In particular, we would like to know if you have knowledge of any Traditional Cultural Properties, Sacred Sites, Tribal Cultural Resources, resource collecting areas, or any other areas of concern of which you would wish us to be aware. If you have any questions or concerns regarding the proposed Project, please contact me at the address or phone number listed below, or via email at Shelby@redtailenvironmental.com. We appreciate any input you may have on this project.

Sincerely,

Shelby G. Castells

Shelby Castells, M.A., RPA
Director of Archaeology
Attachments: Figure 1. Project Location Map



0 250 500 1,000 Meters

0 1,000 2,000 4,000 Feet

1:24,000

RED TAIL ENVIRONMENTAL

RED TAIL ENVIRONMENTAL

February 8, 2021

Ms. Lovina Redner
Tribal Chair
Santa Rosa Band of Cahuilla Indians
PO Box 391820, Anza, CA, 92539
951-659-2700
lsaul@santarosacahuilla-nsn.gov

Re: 28771 Highway 74 Project, APNs 347-130-028 and 347-130-029, Riverside County, California

Dear Ms. Redner,

Red Tail Environmental (Red Tail) is conducting an archaeological study of the 28771 Highway 74 Project (project), located on Assessor Parcel Number (APNs) 347-130-028 and 347-130-029, Highway 74, Lake Elsinore, Riverside County, California. The project area is shown on the United States Geologic Survey (USGS) 7.5' *Lake Elsinore, California* topographic quadrangle within Section 29 of Township 5 South, Range 4 West. The Project is being undertaken in compliance with the California Environmental Quality Act (CEQA) and the County of Riverside is overseeing the project as lead agency. The project intends to develop portions of the two parcels for a gas station complex which will include a convenience store, a fueling canopy with six multi-product dispensers, and two underground storage tanks.

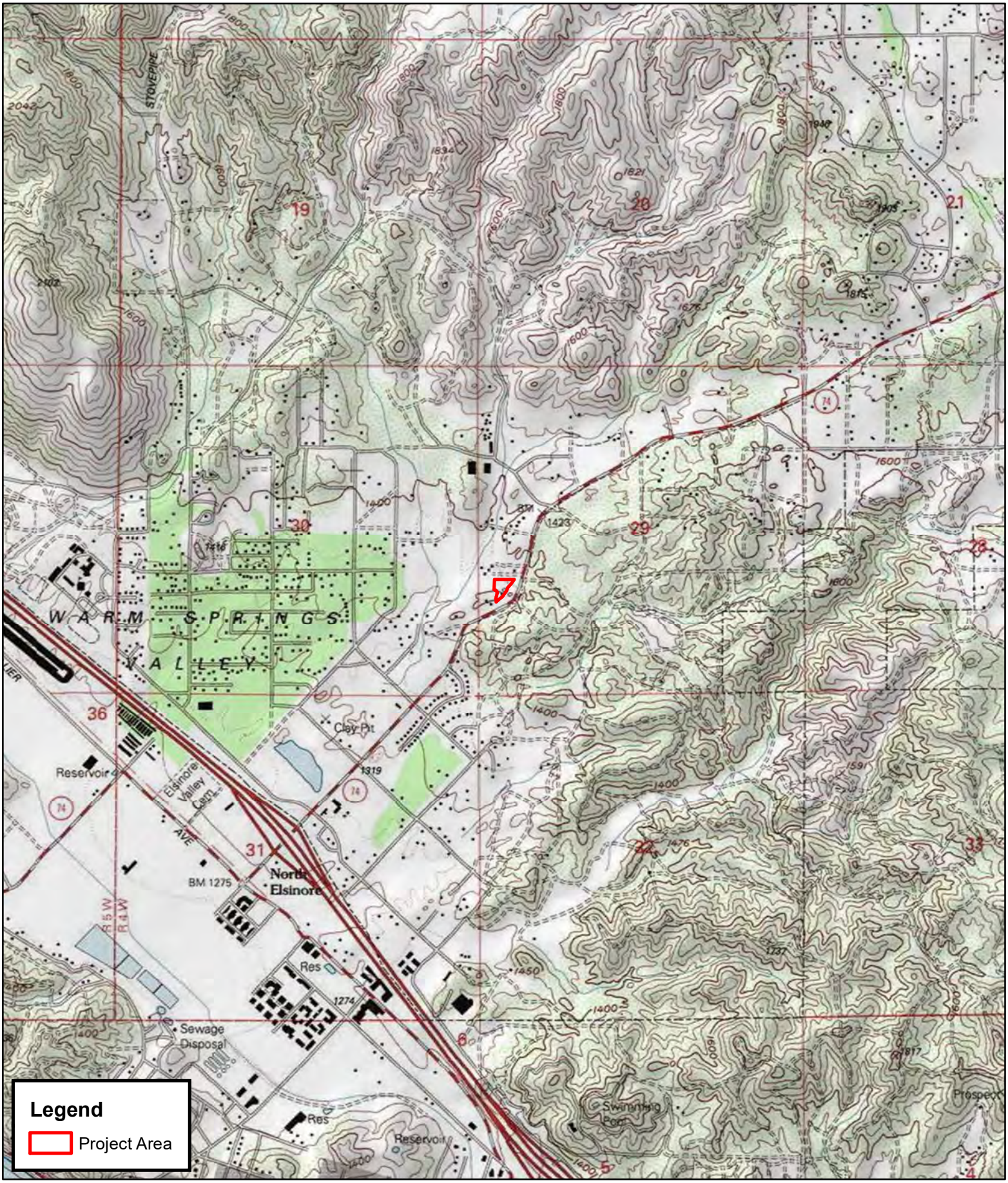
A record search of the Sacred Lands File with the California Native American Heritage Commission was negative. Red Tail is conducting a record search at the Eastern Information Center and a pedestrian survey of the Project Area.

We are contacting you to request additional information regarding the Project area, if you are aware of any issues of cultural concern regarding the area shown on the enclosed map. In particular, we would like to know if you have knowledge of any Traditional Cultural Properties, Sacred Sites, Tribal Cultural Resources, resource collecting areas, or any other areas of concern of which you would wish us to be aware. If you have any questions or concerns regarding the proposed Project, please contact me at the address or phone number listed below, or via email at Shelby@redtailenvironmental.com. We appreciate any input you may have on this project.

Sincerely,

Shelby G. Castells

Shelby Castells, M.A., RPA
Director of Archaeology
Attachments: Figure 1. Project Location Map



0 250 500 1,000 Meters

0 1,000 2,000 4,000 Feet

1:24,000

RED TAIL ENVIRONMENTAL

RED TAIL ENVIRONMENTAL

February 8, 2021

Mr. Matias Belardes
Chairperson
Juaneno Band of Mission Indians Acjachemen Nation - Belardes
32161 Avenida Los Amigos, San Juan Capistrano, CA, 92675
949-293-8522
kaamalam@gmail.com

Re: 28771 Highway 74 Project, APNs 347-130-028 and 347-130-029, Riverside County, California

Dear Mr. Belardes,

Red Tail Environmental (Red Tail) is conducting an archaeological study of the 28771 Highway 74 Project (project), located on Assessor Parcel Number (APNs) 347-130-028 and 347-130-029, Highway 74, Lake Elsinore, Riverside County, California. The project area is shown on the United States Geologic Survey (USGS) 7.5' *Lake Elsinore, California* topographic quadrangle within Section 29 of Township 5 South, Range 4 West. The Project is being undertaken in compliance with the California Environmental Quality Act (CEQA) and the County of Riverside is overseeing the project as lead agency. The project intends to develop portions of the two parcels for a gas station complex which will include a convenience store, a fueling canopy with six multi-product dispensers, and two underground storage tanks.

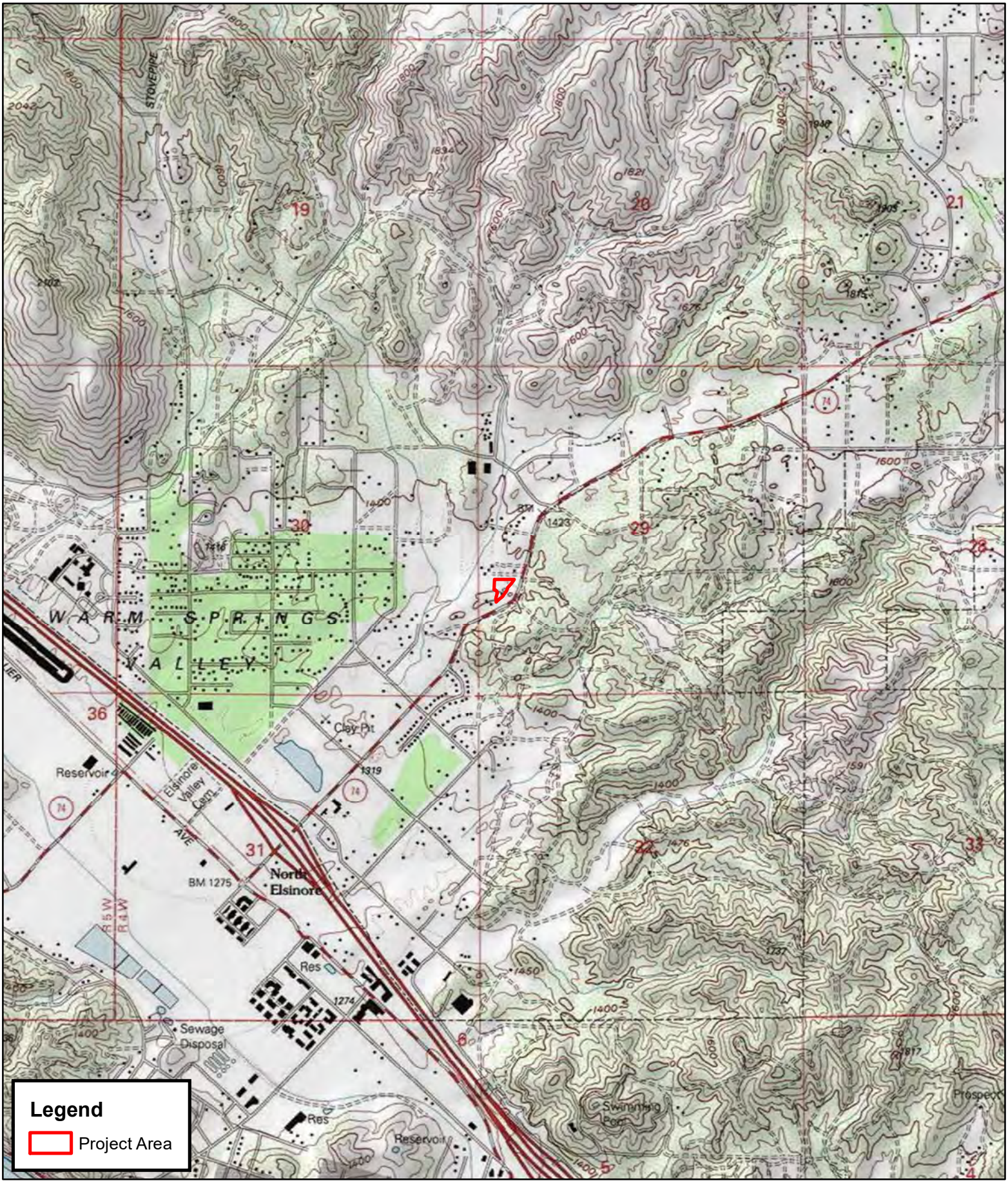
A record search of the Sacred Lands File with the California Native American Heritage Commission was negative. Red Tail is conducting a record search at the Eastern Information Center and a pedestrian survey of the Project Area.

We are contacting you to request additional information regarding the Project area, if you are aware of any issues of cultural concern regarding the area shown on the enclosed map. In particular, we would like to know if you have knowledge of any Traditional Cultural Properties, Sacred Sites, Tribal Cultural Resources, resource collecting areas, or any other areas of concern of which you would wish us to be aware. If you have any questions or concerns regarding the proposed Project, please contact me at the address or phone number listed below, or via email at Shelby@redtailenvironmental.com. We appreciate any input you may have on this project.

Sincerely,

Shelby G. Castells

Shelby Castells, M.A., RPA
Director of Archaeology
Attachments: Figure 1. Project Location Map



0 250 500 1,000 Meters

0 1,000 2,000 4,000 Feet

1:24,000

RED TAIL ENVIRONMENTAL

RED TAIL ENVIRONMENTAL

February 8, 2021

Mr. Mark Macarro
Chairperson
Pechanga Band of Luiseno Indians
PO Box 1477, Temecula, CA, 92593
951-770-6000
epreston@pechanga-nsn.gov

Re: 28771 Highway 74 Project, APNs 347-130-028 and 347-130-029, Riverside County, California

Dear Mr. Macarro,

Red Tail Environmental (Red Tail) is conducting an archaeological study of the 28771 Highway 74 Project (project), located on Assessor Parcel Number (APNs) 347-130-028 and 347-130-029, Highway 74, Lake Elsinore, Riverside County, California. The project area is shown on the United States Geologic Survey (USGS) 7.5' *Lake Elsinore, California* topographic quadrangle within Section 29 of Township 5 South, Range 4 West. The Project is being undertaken in compliance with the California Environmental Quality Act (CEQA) and the County of Riverside is overseeing the project as lead agency. The project intends to develop portions of the two parcels for a gas station complex which will include a convenience store, a fueling canopy with six multi-product dispensers, and two underground storage tanks.

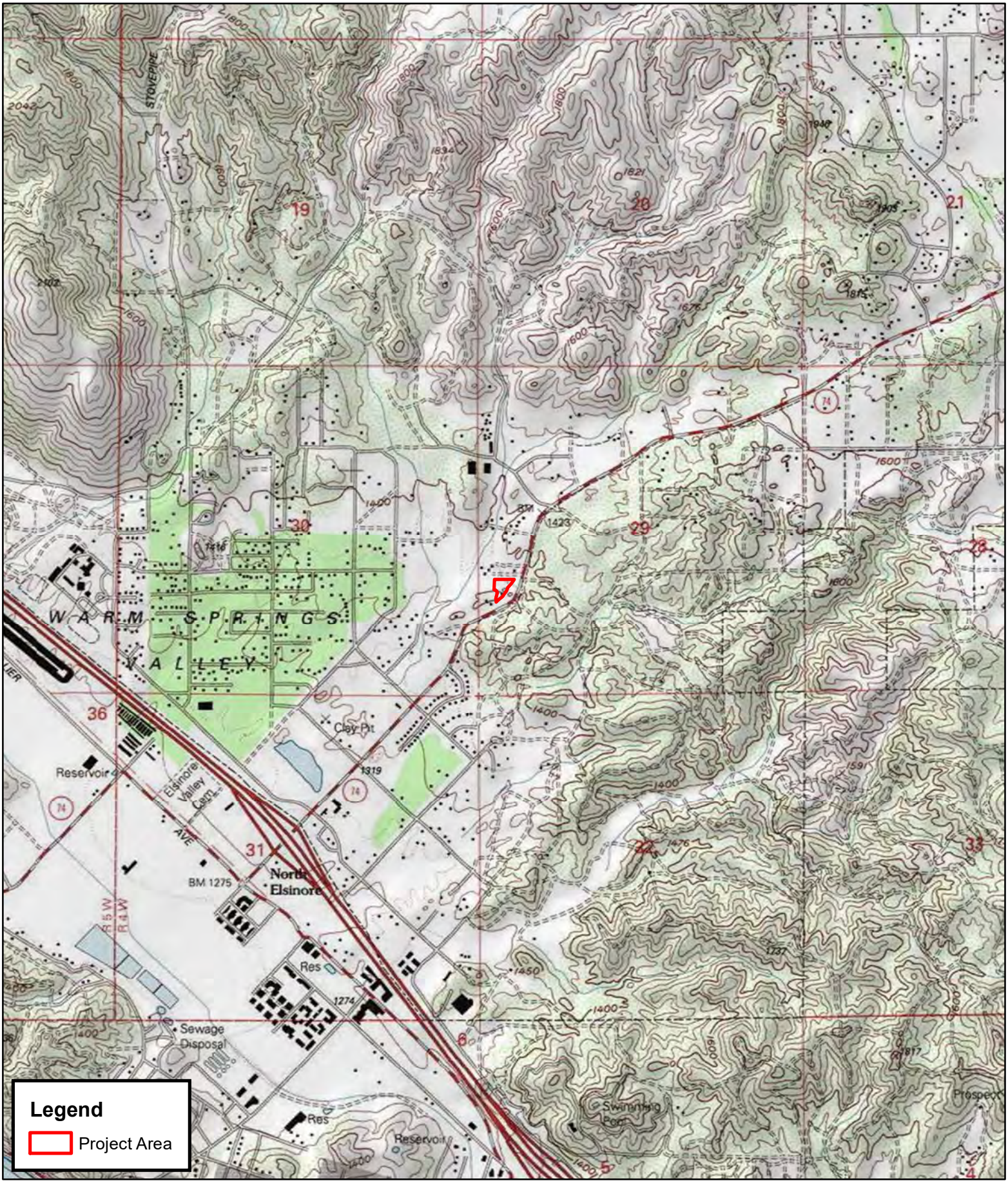
A record search of the Sacred Lands File with the California Native American Heritage Commission was negative. Red Tail is conducting a record search at the Eastern Information Center and a pedestrian survey of the Project Area.

We are contacting you to request additional information regarding the Project area, if you are aware of any issues of cultural concern regarding the area shown on the enclosed map. In particular, we would like to know if you have knowledge of any Traditional Cultural Properties, Sacred Sites, Tribal Cultural Resources, resource collecting areas, or any other areas of concern of which you would wish us to be aware. If you have any questions or concerns regarding the proposed Project, please contact me at the address or phone number listed below, or via email at Shelby@redtailenvironmental.com. We appreciate any input you may have on this project.

Sincerely,

Shelby G. Castells

Shelby Castells, M.A., RPA
Director of Archaeology
Attachments: Figure 1. Project Location Map



0 250 500 1,000 Meters

0 1,000 2,000 4,000 Feet

1:24,000

RED TAIL ENVIRONMENTAL

RED TAIL
ENVIRONMENTAL

February 8, 2021

Mr. Michael Mirelez
Cultural Resource Coordinator
Torres-Martinez Desert Cahuilla Indians
PO Box 1160, Thermal, CA, 92274
760-399-0022
mmirelez@tmdci.org

Re: 28771 Highway 74 Project, APNs 347-130-028 and 347-130-029, Riverside County, California

Dear Mr. Mirelez,

Red Tail Environmental (Red Tail) is conducting an archaeological study of the 28771 Highway 74 Project (project), located on Assessor Parcel Number (APNs) 347-130-028 and 347-130-029, Highway 74, Lake Elsinore, Riverside County, California. The project area is shown on the United States Geologic Survey (USGS) 7.5' *Lake Elsinore, California* topographic quadrangle within Section 29 of Township 5 South, Range 4 West. The Project is being undertaken in compliance with the California Environmental Quality Act (CEQA) and the County of Riverside is overseeing the project as lead agency. The project intends to develop portions of the two parcels for a gas station complex which will include a convenience store, a fueling canopy with six multi-product dispensers, and two underground storage tanks.

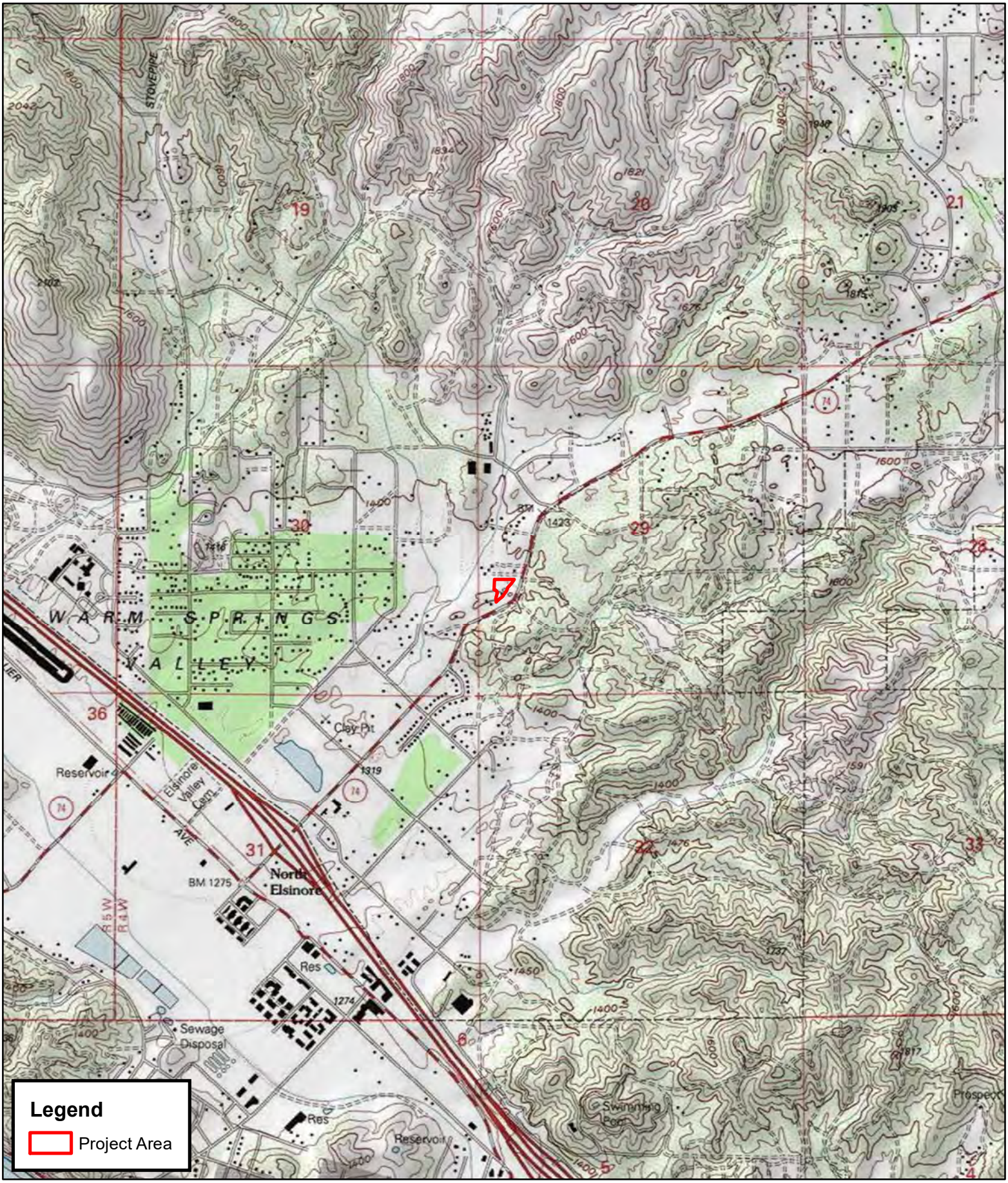
A record search of the Sacred Lands File with the California Native American Heritage Commission was negative. Red Tail is conducting a record search at the Eastern Information Center and a pedestrian survey of the Project Area.

We are contacting you to request additional information regarding the Project area, if you are aware of any issues of cultural concern regarding the area shown on the enclosed map. In particular, we would like to know if you have knowledge of any Traditional Cultural Properties, Sacred Sites, Tribal Cultural Resources, resource collecting areas, or any other areas of concern of which you would wish us to be aware. If you have any questions or concerns regarding the proposed Project, please contact me at the address or phone number listed below, or via email at Shelby@redtailenvironmental.com. We appreciate any input you may have on this project.

Sincerely,

Shelby G. Castells

Shelby Castells, M.A., RPA
Director of Archaeology
Attachments: Figure 1. Project Location Map



0 250 500 1,000 Meters

0 1,000 2,000 4,000 Feet

1:24,000

RED TAIL ENVIRONMENTAL

RED TAIL ENVIRONMENTAL

February 8, 2021

Mr. Manfred Scott
Acting Chairman, Kw'ts'an Cultural Committee
Quechan Tribe of the Fort Yuma Reservation
PO Box 1899, Yuma, AZ, 85366
928-750-2516
scottmanfred@yahoo.com

Re: 28771 Highway 74 Project, APNs 347-130-028 and 347-130-029, Riverside County, California

Dear Mr. Scott,

Red Tail Environmental (Red Tail) is conducting an archaeological study of the 28771 Highway 74 Project (project), located on Assessor Parcel Number (APNs) 347-130-028 and 347-130-029, Highway 74, Lake Elsinore, Riverside County, California. The project area is shown on the United States Geologic Survey (USGS) 7.5' *Lake Elsinore, California* topographic quadrangle within Section 29 of Township 5 South, Range 4 West. The Project is being undertaken in compliance with the California Environmental Quality Act (CEQA) and the County of Riverside is overseeing the project as lead agency. The project intends to develop portions of the two parcels for a gas station complex which will include a convenience store, a fueling canopy with six multi-product dispensers, and two underground storage tanks.

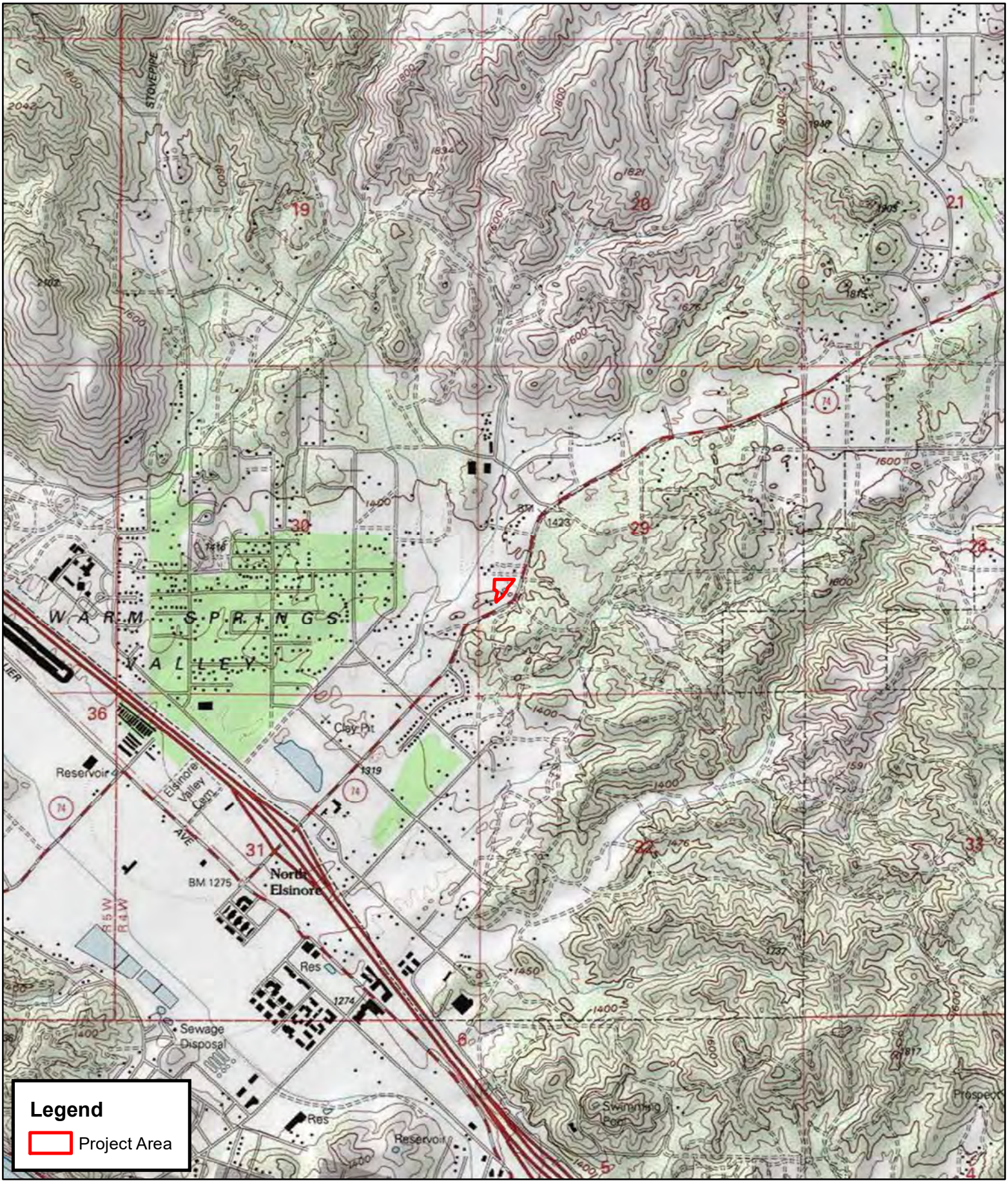
A record search of the Sacred Lands File with the California Native American Heritage Commission was negative. Red Tail is conducting a record search at the Eastern Information Center and a pedestrian survey of the Project Area.

We are contacting you to request additional information regarding the Project area, if you are aware of any issues of cultural concern regarding the area shown on the enclosed map. In particular, we would like to know if you have knowledge of any Traditional Cultural Properties, Sacred Sites, Tribal Cultural Resources, resource collecting areas, or any other areas of concern of which you would wish us to be aware. If you have any questions or concerns regarding the proposed Project, please contact me at the address or phone number listed below, or via email at Shelby@redtailenvironmental.com. We appreciate any input you may have on this project.

Sincerely,

Shelby G. Castells

Shelby Castells, M.A., RPA
Director of Archaeology
Attachments: Figure 1. Project Location Map



0 250 500 1,000 Meters

0 1,000 2,000 4,000 Feet

1:24,000

RED TAIL ENVIRONMENTAL

RED TAIL
ENVIRONMENTAL

February 8, 2021

Ms. Patricia Garcia-Plotkin
Director
Agua Caliente Band of Cahuilla Indians
5401 Dinah Shore Drive, Palm Springs, CA, 92264
760-699-6907
ACBCI-THPO@aguacaliente.net

Re: 28771 Highway 74 Project, APNs 347-130-028 and 347-130-029, Riverside County, California

Dear Ms. Garcia-Plotkin,

Red Tail Environmental (Red Tail) is conducting an archaeological study of the 28771 Highway 74 Project (project), located on Assessor Parcel Number (APNs) 347-130-028 and 347-130-029, Highway 74, Lake Elsinore, Riverside County, California. The project area is shown on the United States Geologic Survey (USGS) 7.5' *Lake Elsinore, California* topographic quadrangle within Section 29 of Township 5 South, Range 4 West. The Project is being undertaken in compliance with the California Environmental Quality Act (CEQA) and the County of Riverside is overseeing the project as lead agency. The project intends to develop portions of the two parcels for a gas station complex which will include a convenience store, a fueling canopy with six multi-product dispensers, and two underground storage tanks.

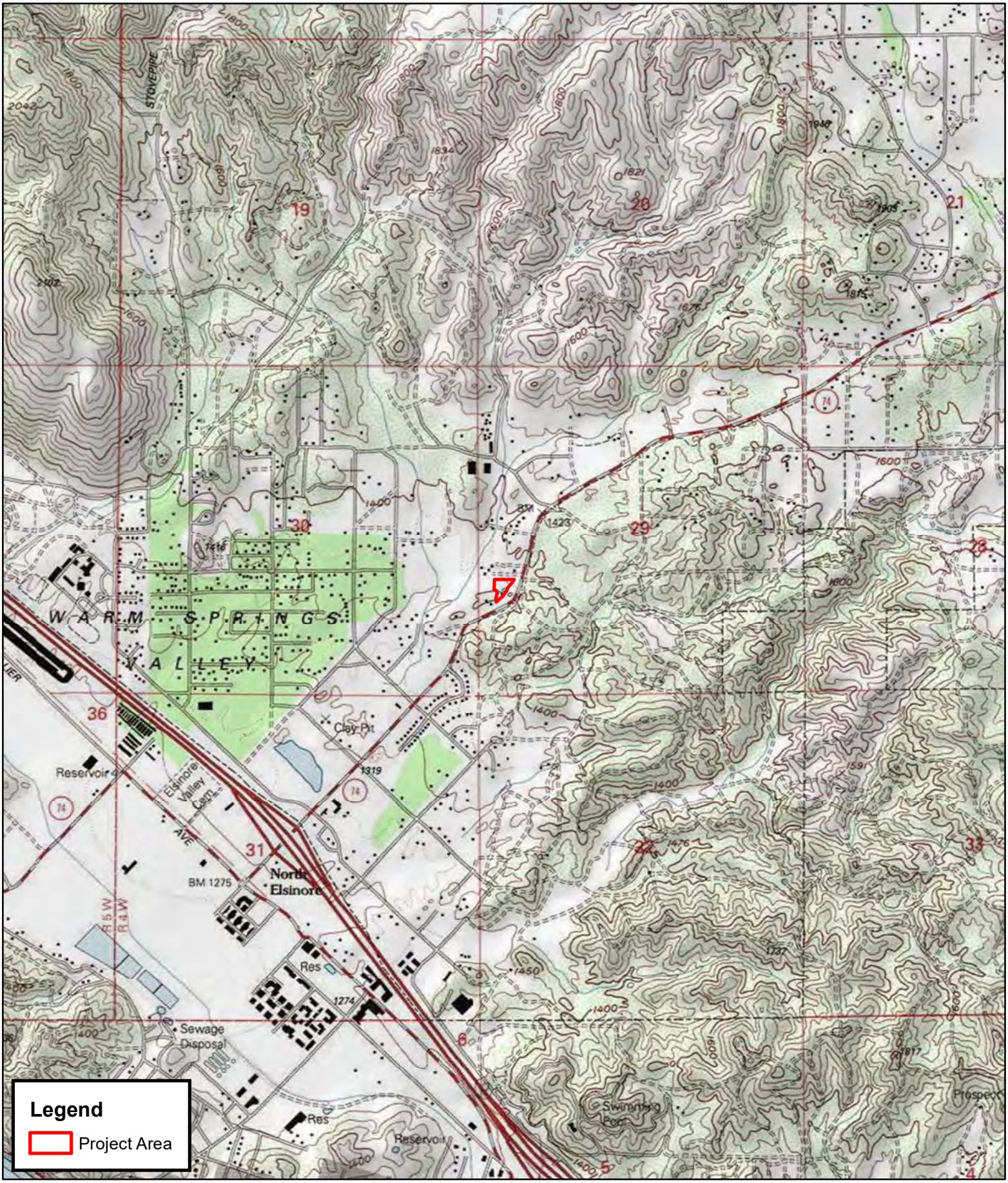
A record search of the Sacred Lands File with the California Native American Heritage Commission was negative. Red Tail is conducting a record search at the Eastern Information Center and a pedestrian survey of the Project Area.

We are contacting you to request additional information regarding the Project area, if you are aware of any issues of cultural concern regarding the area shown on the enclosed map. In particular, we would like to know if you have knowledge of any Traditional Cultural Properties, Sacred Sites, Tribal Cultural Resources, resource collecting areas, or any other areas of concern of which you would wish us to be aware. If you have any questions or concerns regarding the proposed Project, please contact me at the address or phone number listed below, or via email at Shelby@redtailenvironmental.com. We appreciate any input you may have on this project.

Sincerely,

Shelby G. Castells

Shelby Castells, M.A., RPA
Director of Archaeology
Attachments: Figure 1. Project Location Map



0 250 500 1,000 Meters

0 1,000 2,000 4,000 Feet

1:24,000

RED TAIL ENVIRONMENTAL

RED TAIL ENVIRONMENTAL

February 8, 2021

Mr. Paul Macarro
Cultural Resources Coordinator
Pechanga Band of Luiseno Indians
PO Box 1477, Temecula, CA, 92593
951-770-6306
pmacarro@pechanga-nsn.gov

Re: 28771 Highway 74 Project, APNs 347-130-028 and 347-130-029, Riverside County, California

Dear Mr. Macarro,

Red Tail Environmental (Red Tail) is conducting an archaeological study of the 28771 Highway 74 Project (project), located on Assessor Parcel Number (APNs) 347-130-028 and 347-130-029, Highway 74, Lake Elsinore, Riverside County, California. The project area is shown on the United States Geologic Survey (USGS) 7.5' *Lake Elsinore, California* topographic quadrangle within Section 29 of Township 5 South, Range 4 West. The Project is being undertaken in compliance with the California Environmental Quality Act (CEQA) and the County of Riverside is overseeing the project as lead agency. The project intends to develop portions of the two parcels for a gas station complex which will include a convenience store, a fueling canopy with six multi-product dispensers, and two underground storage tanks.

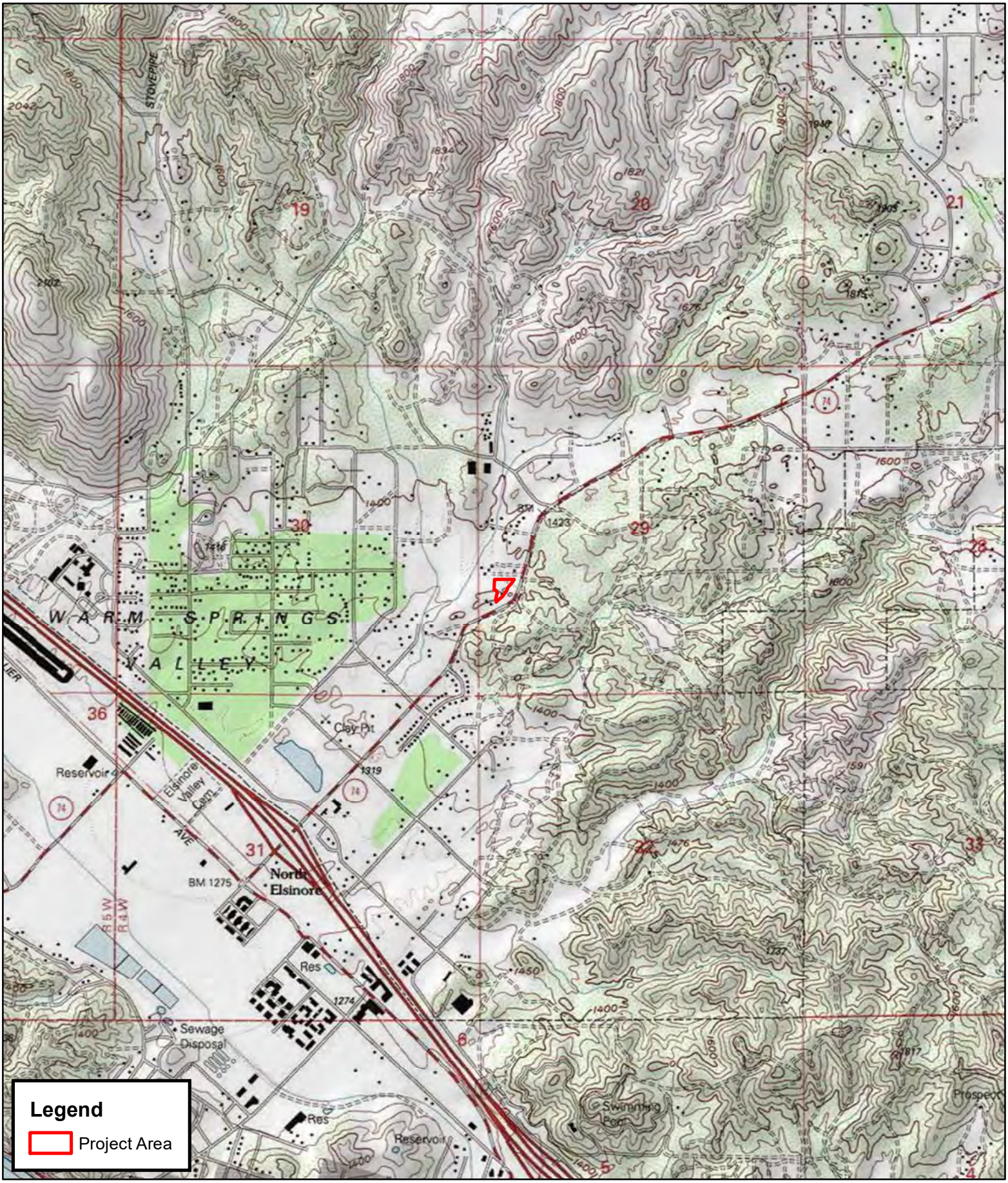
A record search of the Sacred Lands File with the California Native American Heritage Commission was negative. Red Tail is conducting a record search at the Eastern Information Center and a pedestrian survey of the Project Area.

We are contacting you to request additional information regarding the Project area, if you are aware of any issues of cultural concern regarding the area shown on the enclosed map. In particular, we would like to know if you have knowledge of any Traditional Cultural Properties, Sacred Sites, Tribal Cultural Resources, resource collecting areas, or any other areas of concern of which you would wish us to be aware. If you have any questions or concerns regarding the proposed Project, please contact me at the address or phone number listed below, or via email at Shelby@redtailenvironmental.com. We appreciate any input you may have on this project.

Sincerely,

Shelby G. Castells

Shelby Castells, M.A., RPA
Director of Archaeology
Attachments: Figure 1. Project Location Map



0 250 500 1,000 Meters

0 1,000 2,000 4,000 Feet

1:24,000

RED TAIL ENVIRONMENTAL

RED TAIL ENVIRONMENTAL

February 8, 2021

Mr. Robert Martin
Chairperson
Morongo Band of Mission Indians
12700 Pumarra Road, Banning, CA, 92220
951-849-8807
dtorres@morongo-nsn.gov

Re: 28771 Highway 74 Project, APNs 347-130-028 and 347-130-029, Riverside County, California

Dear Mr. Martin,

Red Tail Environmental (Red Tail) is conducting an archaeological study of the 28771 Highway 74 Project (project), located on Assessor Parcel Number (APNs) 347-130-028 and 347-130-029, Highway 74, Lake Elsinore, Riverside County, California. The project area is shown on the United States Geologic Survey (USGS) 7.5' *Lake Elsinore, California* topographic quadrangle within Section 29 of Township 5 South, Range 4 West. The Project is being undertaken in compliance with the California Environmental Quality Act (CEQA) and the County of Riverside is overseeing the project as lead agency. The project intends to develop portions of the two parcels for a gas station complex which will include a convenience store, a fueling canopy with six multi-product dispensers, and two underground storage tanks.

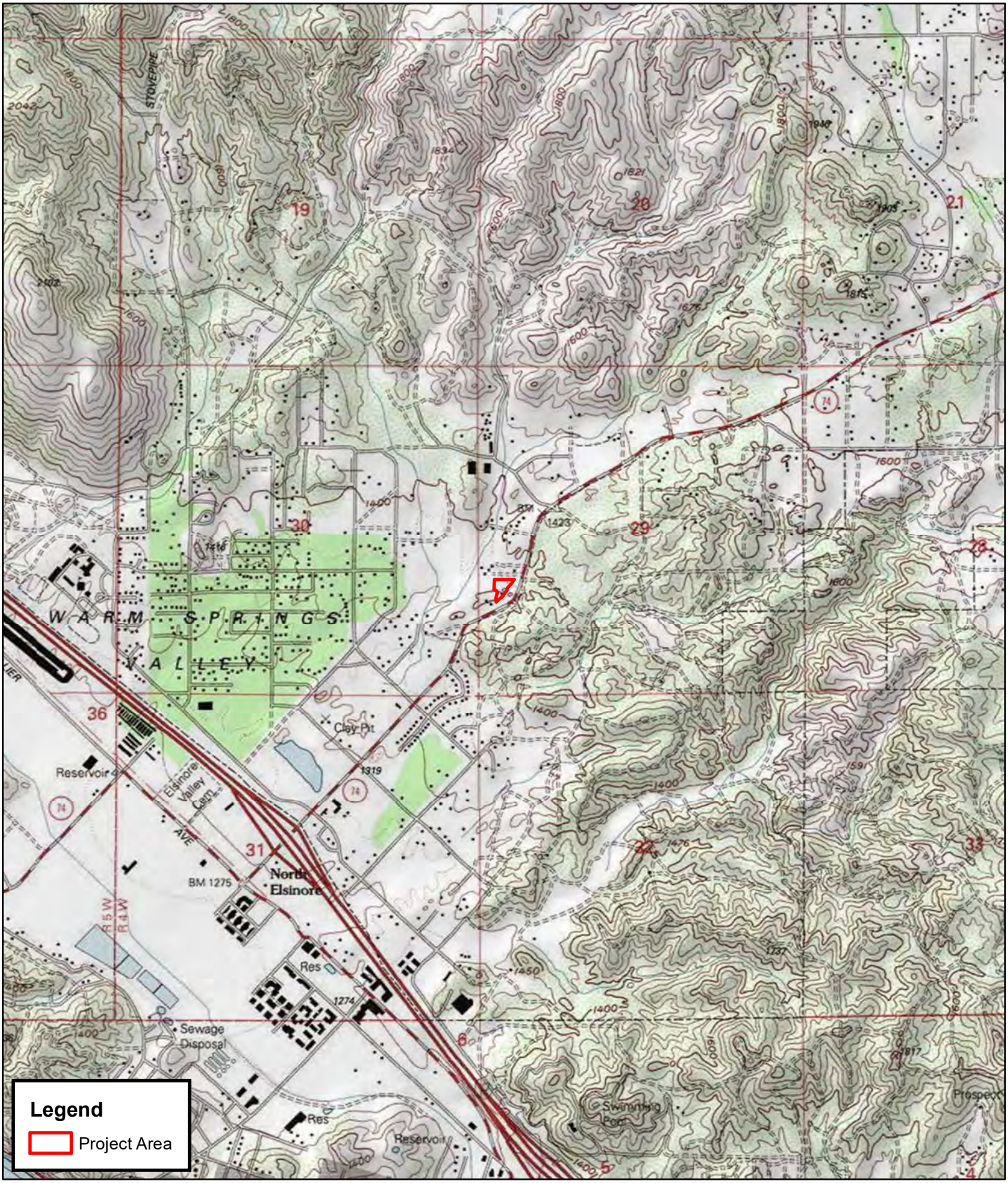
A record search of the Sacred Lands File with the California Native American Heritage Commission was negative. Red Tail is conducting a record search at the Eastern Information Center and a pedestrian survey of the Project Area.

We are contacting you to request additional information regarding the Project area, if you are aware of any issues of cultural concern regarding the area shown on the enclosed map. In particular, we would like to know if you have knowledge of any Traditional Cultural Properties, Sacred Sites, Tribal Cultural Resources, resource collecting areas, or any other areas of concern of which you would wish us to be aware. If you have any questions or concerns regarding the proposed Project, please contact me at the address or phone number listed below, or via email at Shelby@redtailenvironmental.com. We appreciate any input you may have on this project.

Sincerely,

Shelby G. Castells

Shelby Castells, M.A., RPA
Director of Archaeology
Attachments: Figure 1. Project Location Map



0 250 500 1,000 Meters

0 1,000 2,000 4,000 Feet

1:24,000

RED TAIL ENVIRONMENTAL

RED TAIL ENVIRONMENTAL

February 8, 2021

San Luis Rey Tribal Council
San Luis Rey Band of Mission Indians
1889 Sunset Drive, Vista, CA, 92081
760-724-8505
cjmojado@slrmissionindians.org

Re: 28771 Highway 74 Project, APNs 347-130-028 and 347-130-029, Riverside County, California

Dear San Luis Rey Tribal Council ,

Red Tail Environmental (Red Tail) is conducting an archaeological study of the 28771 Highway 74 Project (project), located on Assessor Parcel Number (APNs) 347-130-028 and 347-130-029, Highway 74, Lake Elsinore, Riverside County, California. The project area is shown on the United States Geologic Survey (USGS) 7.5' *Lake Elsinore, California* topographic quadrangle within Section 29 of Township 5 South, Range 4 West. The Project is being undertaken in compliance with the California Environmental Quality Act (CEQA) and the County of Riverside is overseeing the project as lead agency. The project intends to develop portions of the two parcels for a gas station complex which will include a convenience store, a fueling canopy with six multi-product dispensers, and two underground storage tanks.

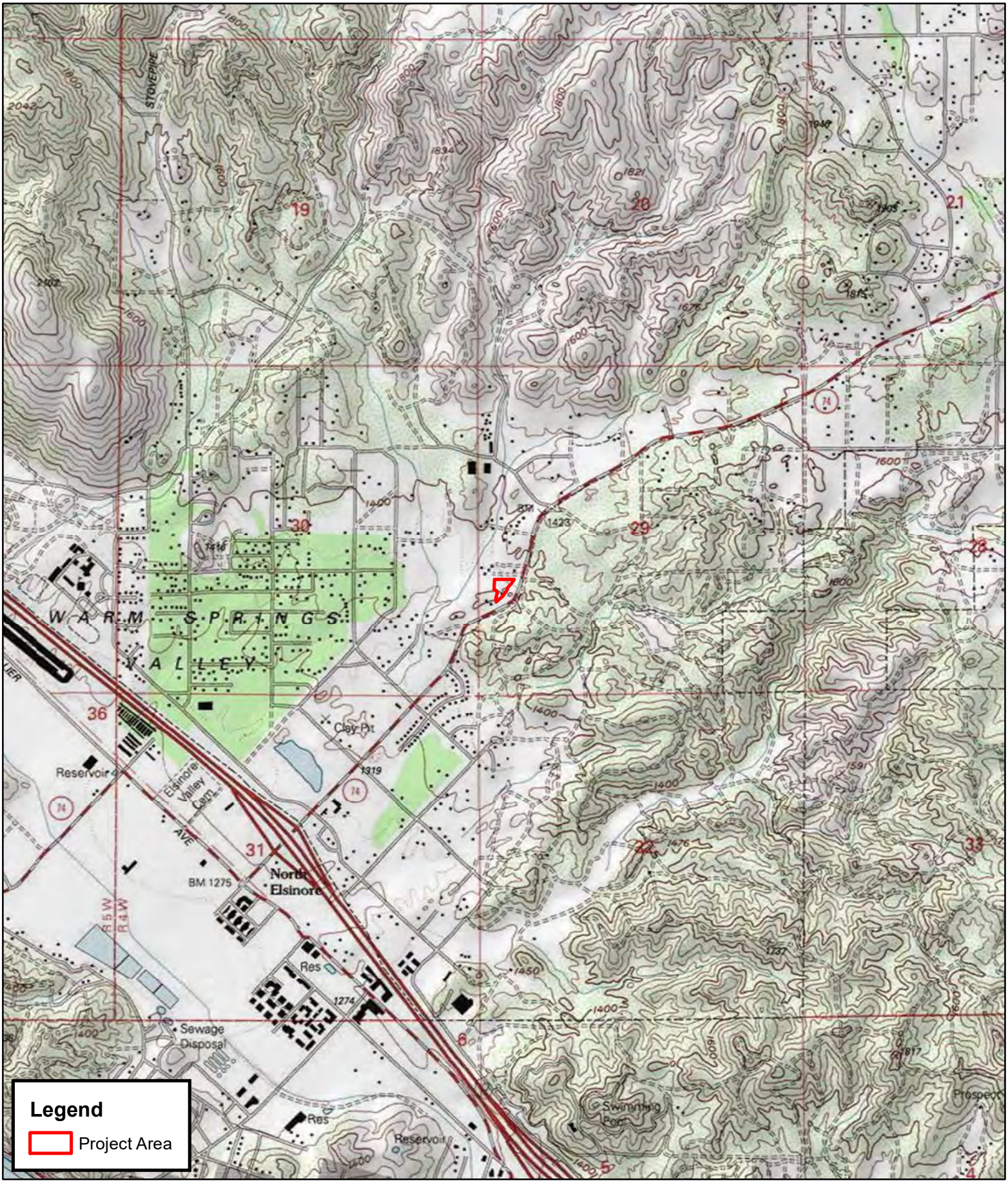
A record search of the Sacred Lands File with the California Native American Heritage Commission was negative. Red Tail is conducting a record search at the Eastern Information Center and a pedestrian survey of the Project Area.

We are contacting you to request additional information regarding the Project area, if you are aware of any issues of cultural concern regarding the area shown on the enclosed map. In particular, we would like to know if you have knowledge of any Traditional Cultural Properties, Sacred Sites, Tribal Cultural Resources, resource collecting areas, or any other areas of concern of which you would wish us to be aware. If you have any questions or concerns regarding the proposed Project, please contact me at the address or phone number listed below, or via email at Shelby@redtailenvironmental.com. We appreciate any input you may have on this project.

Sincerely,

Shelby G. Castells

Shelby Castells, M.A., RPA
Director of Archaeology
Attachments: Figure 1. Project Location Map



0 250 500 1,000 Meters

0 1,000 2,000 4,000 Feet

1:24,000

RED TAIL ENVIRONMENTAL

RED TAIL ENVIRONMENTAL

February 8, 2021

Mr. Shane Chapparosa
Chairperson
Los Coyotes Band of Cahuilla and Cupeño Indians
PO Box 189, Warner Springs, CA, 92086-0189
760-782-0711

Re: 28771 Highway 74 Project, APNs 347-130-028 and 347-130-029, Riverside County, California

Dear Mr. Chapparosa,

Red Tail Environmental (Red Tail) is conducting an archaeological study of the 28771 Highway 74 Project (project), located on Assessor Parcel Number (APNs) 347-130-028 and 347-130-029, Highway 74, Lake Elsinore, Riverside County, California. The project area is shown on the United States Geologic Survey (USGS) 7.5' *Lake Elsinore, California* topographic quadrangle within Section 29 of Township 5 South, Range 4 West. The Project is being undertaken in compliance with the California Environmental Quality Act (CEQA) and the County of Riverside is overseeing the project as lead agency. The project intends to develop portions of the two parcels for a gas station complex which will include a convenience store, a fueling canopy with six multi-product dispensers, and two underground storage tanks.

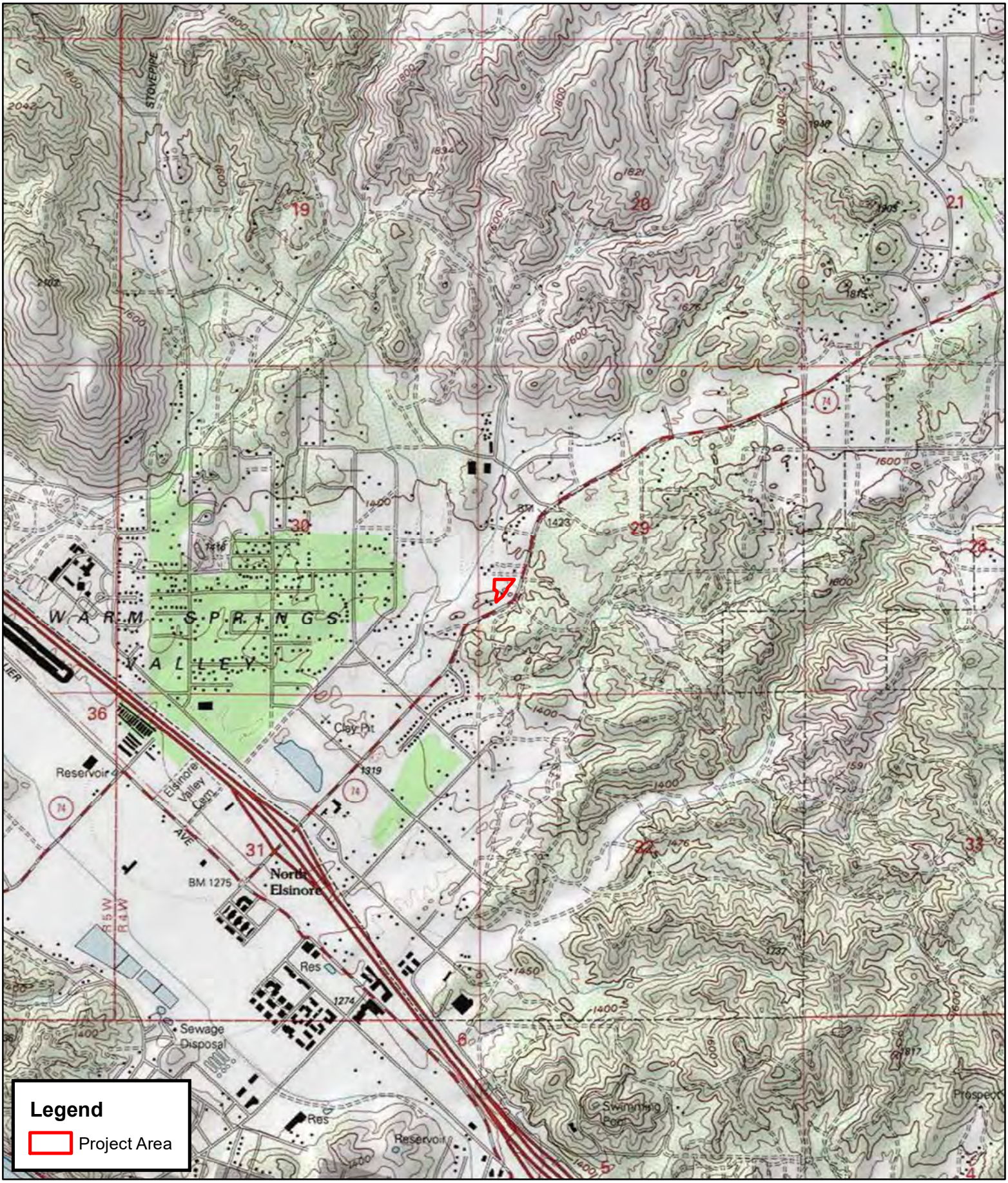
A record search of the Sacred Lands File with the California Native American Heritage Commission was negative. Red Tail is conducting a record search at the Eastern Information Center and a pedestrian survey of the Project Area.

We are contacting you to request additional information regarding the Project area, if you are aware of any issues of cultural concern regarding the area shown on the enclosed map. In particular, we would like to know if you have knowledge of any Traditional Cultural Properties, Sacred Sites, Tribal Cultural Resources, resource collecting areas, or any other areas of concern of which you would wish us to be aware. If you have any questions or concerns regarding the proposed Project, please contact me at the address or phone number listed below, or via email at Shelby@redtailenvironmental.com. We appreciate any input you may have on this project.

Sincerely,

Shelby G. Castells

Shelby Castells, M.A., RPA
Director of Archaeology
Attachments: Figure 1. Project Location Map



0 250 500 1,000 Meters

0 1,000 2,000 4,000 Feet

1:24,000

RED TAIL ENVIRONMENTAL

RED TAIL ENVIRONMENTAL

February 8, 2021

Mr. Scott Cozart
Chairperson
Soboba Band of Luiseno Indians
PO Box 487, San Jacinto, CA, 92583
951-654-2765
jontiveros@soboba-nsn.gov

Re: 28771 Highway 74 Project, APNs 347-130-028 and 347-130-029, Riverside County, California

Dear Mr. Cozart,

Red Tail Environmental (Red Tail) is conducting an archaeological study of the 28771 Highway 74 Project (project), located on Assessor Parcel Number (APNs) 347-130-028 and 347-130-029, Highway 74, Lake Elsinore, Riverside County, California. The project area is shown on the United States Geologic Survey (USGS) 7.5' *Lake Elsinore, California* topographic quadrangle within Section 29 of Township 5 South, Range 4 West. The Project is being undertaken in compliance with the California Environmental Quality Act (CEQA) and the County of Riverside is overseeing the project as lead agency. The project intends to develop portions of the two parcels for a gas station complex which will include a convenience store, a fueling canopy with six multi-product dispensers, and two underground storage tanks.

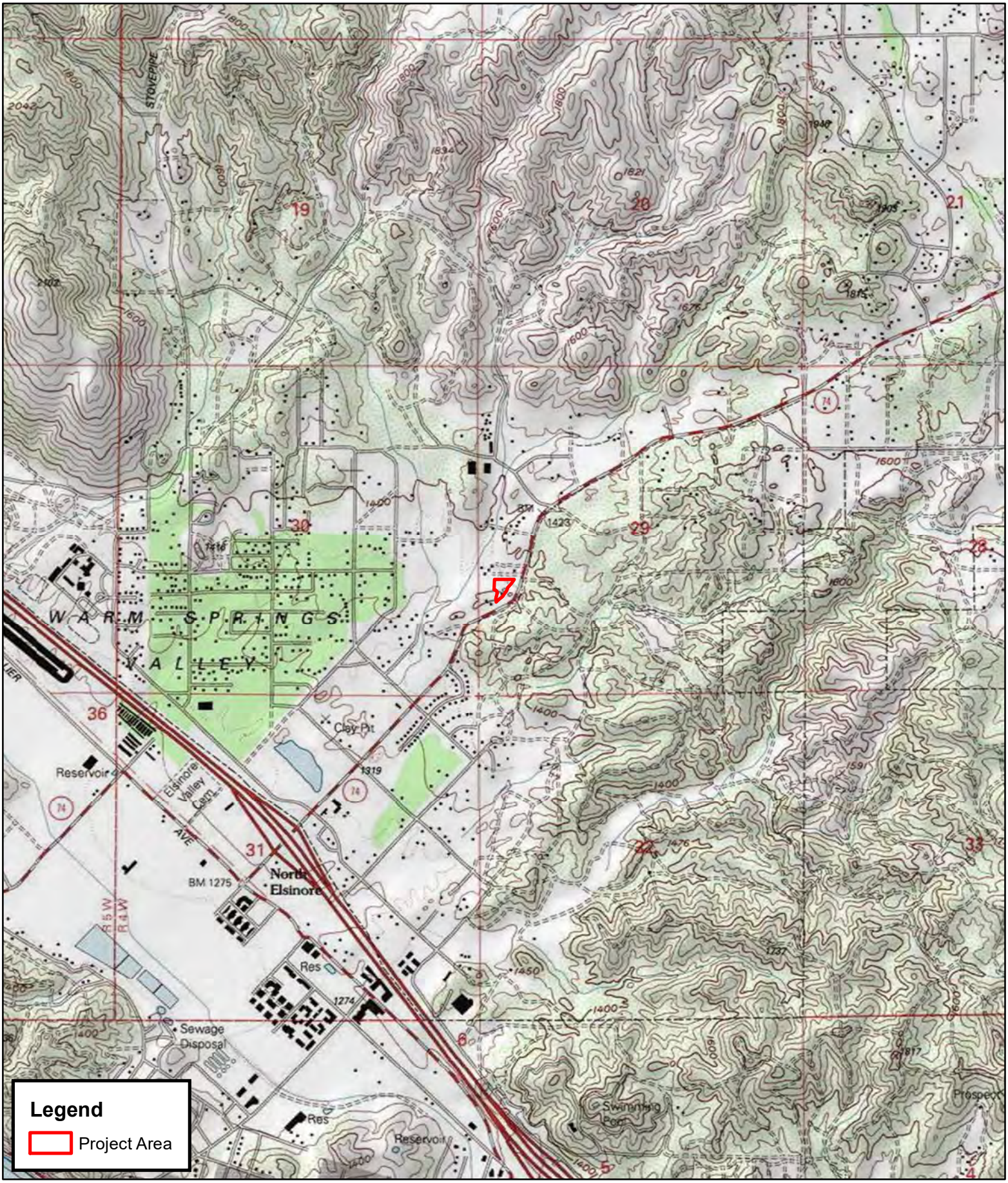
A record search of the Sacred Lands File with the California Native American Heritage Commission was negative. Red Tail is conducting a record search at the Eastern Information Center and a pedestrian survey of the Project Area.

We are contacting you to request additional information regarding the Project area, if you are aware of any issues of cultural concern regarding the area shown on the enclosed map. In particular, we would like to know if you have knowledge of any Traditional Cultural Properties, Sacred Sites, Tribal Cultural Resources, resource collecting areas, or any other areas of concern of which you would wish us to be aware. If you have any questions or concerns regarding the proposed Project, please contact me at the address or phone number listed below, or via email at Shelby@redtailenvironmental.com. We appreciate any input you may have on this project.

Sincerely,

Shelby G. Castells

Shelby Castells, M.A., RPA
Director of Archaeology
Attachments: Figure 1. Project Location Map



0 250 500 1,000 Meters

0 1,000 2,000 4,000 Feet

1:24,000

RED TAIL ENVIRONMENTAL

RED TAIL ENVIRONMENTAL

February 8, 2021

Ms. Shasta Gaughen
Tribal Historic Preservation Officer
Pala Band of Mission Indians
PMB 50, 35008 Pala Temecula Road, Pala, CA, 92059
760-891-3515
sgaughen@palatribe.com

Re: 28771 Highway 74 Project, APNs 347-130-028 and 347-130-029, Riverside County, California

Dear Ms. Gaughen,

Red Tail Environmental (Red Tail) is conducting an archaeological study of the 28771 Highway 74 Project (project), located on Assessor Parcel Number (APNs) 347-130-028 and 347-130-029, Highway 74, Lake Elsinore, Riverside County, California. The project area is shown on the United States Geologic Survey (USGS) 7.5' *Lake Elsinore, California* topographic quadrangle within Section 29 of Township 5 South, Range 4 West. The Project is being undertaken in compliance with the California Environmental Quality Act (CEQA) and the County of Riverside is overseeing the project as lead agency. The project intends to develop portions of the two parcels for a gas station complex which will include a convenience store, a fueling canopy with six multi-product dispensers, and two underground storage tanks.

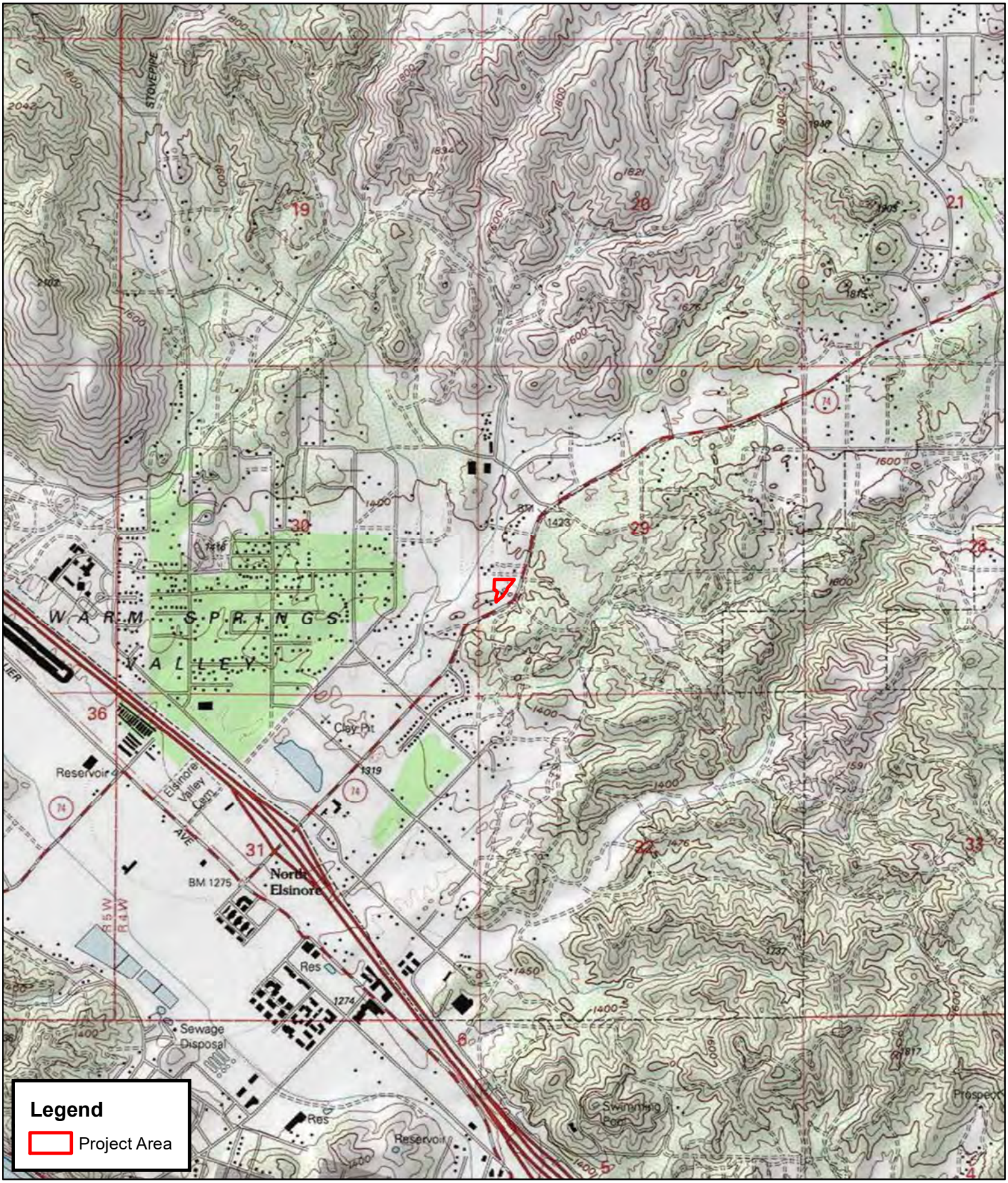
A record search of the Sacred Lands File with the California Native American Heritage Commission was negative. Red Tail is conducting a record search at the Eastern Information Center and a pedestrian survey of the Project Area.

We are contacting you to request additional information regarding the Project area, if you are aware of any issues of cultural concern regarding the area shown on the enclosed map. In particular, we would like to know if you have knowledge of any Traditional Cultural Properties, Sacred Sites, Tribal Cultural Resources, resource collecting areas, or any other areas of concern of which you would wish us to be aware. If you have any questions or concerns regarding the proposed Project, please contact me at the address or phone number listed below, or via email at Shelby@redtailenvironmental.com. We appreciate any input you may have on this project.

Sincerely,

Shelby G. Castells

Shelby Castells, M.A., RPA
Director of Archaeology
Attachments: Figure 1. Project Location Map



0 250 500 1,000 Meters

0 1,000 2,000 4,000 Feet

1:24,000

RED TAIL ENVIRONMENTAL

RED TAIL ENVIRONMENTAL

February 8, 2021

Mr. Temet Aguilar
Chairperson
Pauma Band of Luiseno Indians
PO Box 369, Pauma Valley, CA, 92061
760-742-1289
bennaecalac@aol.com

Re: 28771 Highway 74 Project, APNs 347-130-028 and 347-130-029, Riverside County, California

Dear Mr. Aguilar,

Red Tail Environmental (Red Tail) is conducting an archaeological study of the 28771 Highway 74 Project (project), located on Assessor Parcel Number (APNs) 347-130-028 and 347-130-029, Highway 74, Lake Elsinore, Riverside County, California. The project area is shown on the United States Geologic Survey (USGS) 7.5' *Lake Elsinore, California* topographic quadrangle within Section 29 of Township 5 South, Range 4 West. The Project is being undertaken in compliance with the California Environmental Quality Act (CEQA) and the County of Riverside is overseeing the project as lead agency. The project intends to develop portions of the two parcels for a gas station complex which will include a convenience store, a fueling canopy with six multi-product dispensers, and two underground storage tanks.

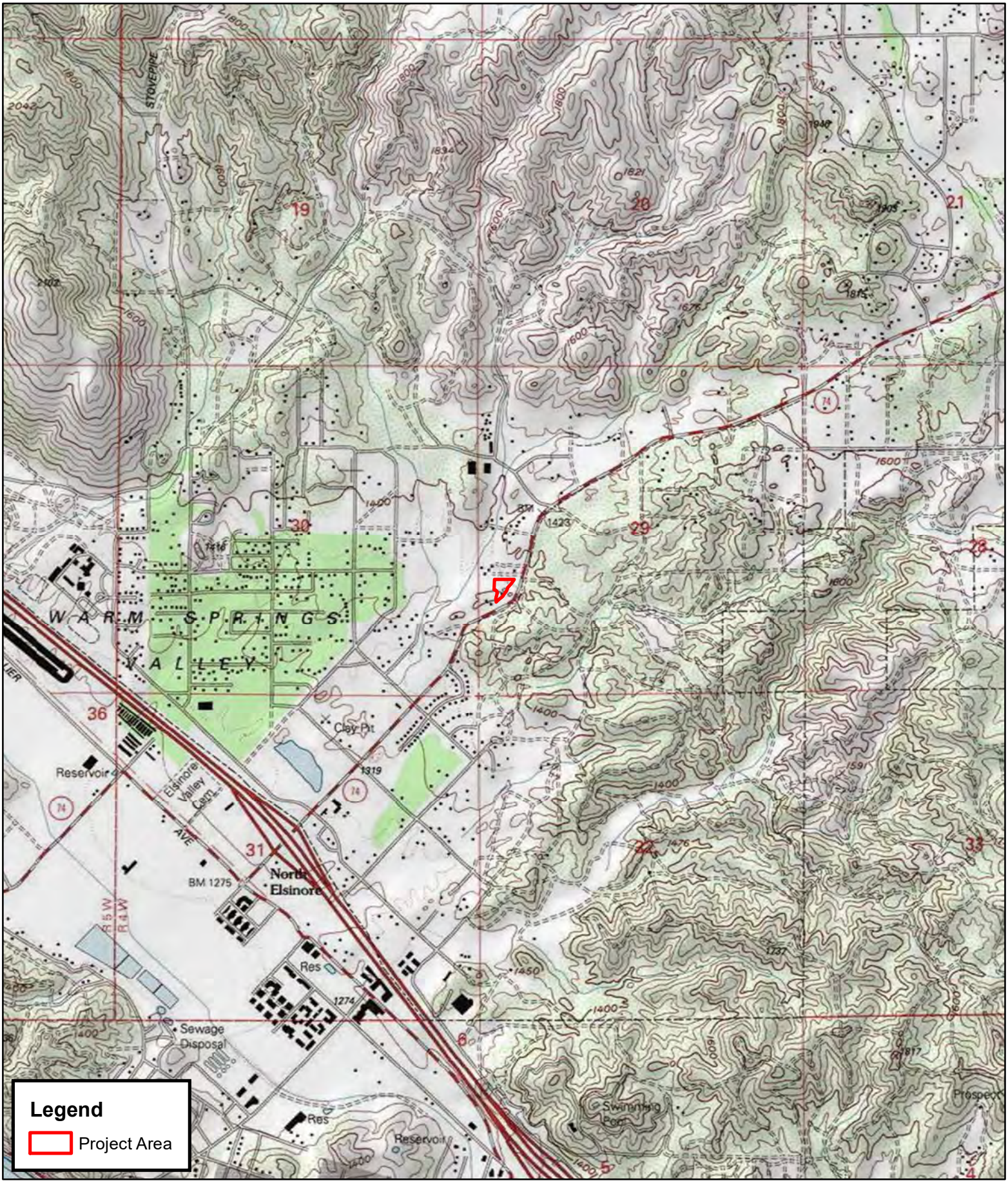
A record search of the Sacred Lands File with the California Native American Heritage Commission was negative. Red Tail is conducting a record search at the Eastern Information Center and a pedestrian survey of the Project Area.

We are contacting you to request additional information regarding the Project area, if you are aware of any issues of cultural concern regarding the area shown on the enclosed map. In particular, we would like to know if you have knowledge of any Traditional Cultural Properties, Sacred Sites, Tribal Cultural Resources, resource collecting areas, or any other areas of concern of which you would wish us to be aware. If you have any questions or concerns regarding the proposed Project, please contact me at the address or phone number listed below, or via email at Shelby@redtailenvironmental.com. We appreciate any input you may have on this project.

Sincerely,

Shelby G. Castells

Shelby Castells, M.A., RPA
Director of Archaeology
Attachments: Figure 1. Project Location Map



0 250 500 1,000 Meters

0 1,000 2,000 4,000 Feet

1:24,000

RED TAIL ENVIRONMENTAL

RED TAIL ENVIRONMENTAL
Powered by Google

Shelby Castells <shelby@redtailenvironmental.com>

28771 Highway 74 Project Information Request Letter

2 messages

Shelby Castells <shelby@redtailenvironmental.com> Mon, Feb 8, 2021 at 10:36 AM
To: kaamalam@gmail.com

Dear Ms. Perry,
Attached is an information request letter for the 28771 Highway 74 Project, Riverside County. Please let me know if you have any questions or need additional information.
Regards,
Shelby

--

Shelby Castells, M.A., RPA
Director of Archaeology
Red Tail Environmental
Native American Owned DBE
www.redtailenvironmental.com
Office: 760.294.3100
Cell: 714.478.9448
1529 Simpson Way
Escondido, CA 92029

RED TAIL ENVIRONMENTAL

28771 Highway 74 Project NAHC Contact Letter_SChapparosa.pdf
2257K

Joyce Perry <kaamalam@gmail.com> Mon, Feb 8, 2021 at 10:50 AM
To: Shelby Castells <shelby@redtailenvironmental.com>
Cc: Ebru Ozdil <eozdil@pechanga-nsn.gov>, Lisa Woodward <lwoodward@pechanga-nsn.gov>, Paul Macarro <pmacarro@pechanga-nsn.gov>

Good Morning Ms. Castells,

I am writing on behalf of the Juaneno Band of Mission Indians, Acachemen Nation- Belardes in response to your 28771 Highway 74 Project Information Request Letter. While we view Lake Elsinore as a part of our traditional cultural territory, we yield all recommendations and monitoring responsibilities to the Pechanga Band of Luiseno Indians. Thank you.

Húu'uni 'óomaqati yáamaqati.
Teach peace
Joyce Stanfield Perry
Payomkawichum Kaamalam - President
Juaneño Band of Mission Indians, Acjachemen Nation
Tribal Manager, Cultural Resource Director

[Quoted text hidden]

RED TAIL ENVIRONMENTAL
Powered by Google

Shelby Castells <shelby@redtailenvironmental.com>

historicpreservation@quechantribe.com

2 messages

Shelby Castells <shelby@redtailenvironmental.com> Mon, Feb 8, 2021 at 10:42 AM
To: historicpreservation@quechantribe.com

Dear Ms. McCormick,
Attached is an information request letter for the 28771 Highway 74 Project, Riverside County. Please let me know if you have any questions or need additional information.
Regards,
Shelby

--

Shelby Castells, M.A., RPA
Director of Archaeology
Red Tail Environmental
Native American Owned DBE
www.redtailenvironmental.com
Office: 760.294.3100
Cell: 714.478.9448
1529 Simpson Way
Escondido, CA 92029

RED TAIL ENVIRONMENTAL

28771 Highway 74 Project NAHC Contact Letter_JMcCormick.pdf
2257K

Quechan Historic Preservation Officer <historicpreservation@quechantribe.com> Mon, Feb 8, 2021 at 11:04 AM
To: Shelby Castells <shelby@redtailenvironmental.com>

This email is to inform you that we have no comments on this project. We defer to the more local Tribes and support their decisions on the project.

[Quoted text hidden]

Virus-free. www.avast.com

February 9, 2021 11:30 am, voice mail from Cami Mojado, San Luis Rey Band of Mission Indians

Regarding the 28771 Highway 74 Project, they are not interested in the project as it is outside of their area. San Luis Rey Band defers to Pechanga or other tribes that may be closer to the Project Area.

APPENDIX D: *CONFIDENTIAL* RECORD SEARCH RESULTS

(Provided Separately)

MD ACOUSTICS
Sound Solutions for Planning and Design
4960 S. Gilbert Road, Ste 1-461
Chandler, AZ 85249
p. (602) 774-1950

AZ Office CA Office
1197 Los Angeles Avenue, Ste C-256
Simi Valley, CA 93065
p. (805) 426-4477

www.mdacoustics.com

December 19, 2022

Mr. Joseph Karaki - President
Karaki WS
4887 E. Las Palmas Ave., Ste 707
Anaheim, CA 92807

Subject: Gas Station & Convenience Store – CEQA Energy Review, County of Riverside, CA

Dear Mr. Karaki:

MD Acoustics, LLC (MD) has completed a CEQA energy review for the proposed Gas Station & Convenience Store project located at 28771 Central Avenue (Hwy 74) in an unincorporated area of the County of Riverside within the Sphere of Influence of the City of Lake Elsinore, California. The Project proposes to develop the approximately 1.44-acre project site with a 4,000 square foot convenience market with 12 pump gas station.

1.0 Existing Energy Conditions

Overview

California's estimated annual energy use as of 2019 included:

- Approximately 277,704 gigawatt hours of electricity; [1]
- Approximately 2,154,030 million cubic feet of natural gas per year[2];and
- Approximately 23.2 billion gallons of transportation fuel (for the year 2015)[3].

As of 2018, the year of most recent data currently available by the United States Energy Information Administration (EIA), energy use in California by demand sector was:

- Approximately 39.1 percent transportation;
- Approximately23.5 percent industrial;
- Approximately 18.3 percent residential; and
- Approximately 19.2 percent commercial.[4]

California's electricity in-state generation system generates approximately 200,475 gigawatt-hours each year. In 2019, California produced approximately 72 percent of the electricity it uses; the rest was imported

[1]California Energy Commission. Energy Almanac. Total Electric Generation. [Online] 2020. https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2019-total-system-electric-generation.

[2]Natural Gas Consumption by End Use. U.S. Energy Information Administration. [Online] August 31, 20020. https://www.eia.gov/dnav/ng/ng_cons_sum_dcu_SCA_a.htm.

[3]California Energy Commission. Revised Transportation Energy Demand Forecast 2018-2030. [Online] April 19, 2018. https://www.energy.ca.gov/assessments/

[4]U.S. Energy Information Administration. California Energy Consumption by by End-Use Sector. California State Profile and Energy Estimates.[Online] January 16, 2020 https://www.eia.gov/state/?sid=CA#tabs-2

from the Pacific Northwest (approximately 9 percent) and the U.S. Southwest (approximately 19 percent). Natural gas is the main source for electricity generation at approximately 42.97 percent of the total in-state electric generation system power as shown in Table 1.

Table 1: Total Electricity System Power (California 2019)

Fuel Type	California In-State Generation (GWh)	Percent of California In-State Generation	Northwest Imports (GWh)	Southwest Imports (GWh)	Total Imports (GWh)	Percent of Imports	California Power Mix (GWh)	Percent California Power Mix
Coal	248	0.12%	219	7,765	7,985	10.34%	8,233	2.96%
Natural Gas	86,136	42.97%	62	8,859	8,921	11.55%	95,057	34.23%
Nuclear	16,163	8.06%	39	8,743	8,782	11.37%	24,945	8.98%
Oil	36	0.02%	0	0	0	0.00%	36	0.01%
Other (Petroleum Coke/Waste Heat)	411	0.20%	0	11	11	0.01%	422	0.15%
Large Hydro	33,145	16.53%	6,387	1,071	7,458	9.66%	40,603	14.62%
Unspecified Sources of Power	0	0.00%	6,609	13,767	20,376	26.38%	20,376	7.34%
Renewables	64,336	32.09%	10,615	13,081	23,696	30.68%	88,032	31.70%
Biomass	5,851	2.92%	903	33	936	1.21%	6,787	2.44%
Geothermal	10,943	5.46%	99	2,218	2,318	3.00%	13,260	4.77%
Somall Hydro	5,349	2.67%	292	4	296	0.38%	5,646	2.03%
Solar	28,513	14.22%	282	5,295	5,577	7.22%	34,090	12.28%
Wind	13,680	6.82%	9,038	5,531	14,569	18.87%	28,249	10.17%
Total	200,475	100.00%	23,930	53,299	77,229	100.00%	277,704	100.00%

Notes:
[1] Source: California Energy Commission. 2019 Total System electric Generation. https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2019-total-system-electric-generation

A summary of and context for energy consumption and energy demands within the State is presented in "U.S. Energy Information Administration, California State Profile and Energy Estimates, Quick Facts" excerpted below:

- California was the seventh-largest producer of crude oil among the 50 states in 2018, and, as of January 2019, it ranked third in oil refining capacity.
- California is the largest consumer of jet fuel among the 50 states and accounted for one-fifth of the nation's jet fuel consumption in 2018.
- California's total energy consumption is the second-highest in the nation, but, in 2018, the State's per capita energy consumption ranked the fourth-lowest, due in part to its mild climate and its energy efficiency programs.
- In 2018, California ranked first in the nation as a producer of electricity from solar, geothermal, and biomass resources and fourth in the nation in conventional hydroelectric power generation.
- In 2018, large- and small-scale solar PV and solar thermal installations provided 19% of California's net electricity generation[5].

5 State Profile and Energy Estimates. Independent Statistics and Analysis. [Online] [Cited: January 16, 2020.] http://www.eia.gov/state/?sid=CA#tabs2.

As indicated above, California is one of the nation's leading energy-producing states, and California per capita energy use is among the nation's most efficient. Given the nature of the proposed project, the remainder of this discussion will focus on the three sources of energy that are most relevant to the project—namely, electricity and natural gas for building uses, and transportation fuel for vehicle trips associated with the proposed project.

Electricity

Electricity would be provided to the project by Southern California Edison (SCE). SCE provides electric power to more than 15 million persons, within a service area encompassing approximately 50,000 square miles.[6] SCE derives electricity from varied energy resources including: fossil fuels, hydroelectric generators, nuclear power plants, geothermal power plants, solar power generation, and wind farms. SCE also purchases from independent power producers and utilities, including out-of-state suppliers.[7] Table 2 identifies SCE's specific proportional shares of electricity sources in 2019.

Table 2: SCE 2019 Power Content Mix

Energy Resources	2019 SCE Power Mix
Eligible Renewable	35%
Biomass & Waste	1%
Geothermal	6%
Eligible Hydroelectric	1%
Solar	16%
Wind	12%
Coal	0%
Large Hydroelectric	8%
Natural Gas	16%
Nuclear	8%
Other	0%
Unspecified Sources of power*	33%
Total	100%

Notes:
[1]https://www.sce.com/sites/default/files/inline-files/SCE_2019PowerContentLabel.pdf
*Unspecified sources of power means electricity from transactions that are not traceable to specific generation sources.

Natural Gas

Natural gas would be provided to the project by Southern California Gas (SoCalGas). The following summary of natural gas resources and service providers, delivery systems, and associated regulation is excerpted from information provided by the California Public Utilities Commission (CPUC).

The CPUC regulates natural gas utility service for approximately 11 million customers that receive natural gas from Pacific Gas and Electric (PG&E), Southern California Gas (SoCalGas), San Diego Gas & Electric (SDG&E), Southwest Gas, and several smaller investor-owned natural gas utilities. The CPUC also regulates

[6] https://www.sce.com/about-us/who-we-are/leadership/our-service-territory
[7] California Energy Commission. Utility Energy Supply plans from 2015. https://www.energy.ca.gov/almanac/electricity_data/supply_forms.html

independent storage operators Lodi Gas Storage, Wild Goose Storage, Central Valley Storage and Gill Ranch Storage.

The vast majority of California's natural gas customers are residential and small commercial customers, referred to as "core" customers. Larger volume gas customers, like electric generators and industrial customers, are called "noncore" customers. Although very small in number relative to core customers, noncore customers consume about 65% of the natural gas delivered by the state's natural gas utilities, while core customers consume about 35%.

The PUC regulates the California utilities' natural gas rates and natural gas services, including in-state transportation over the utilities' transmission and distribution pipeline systems, storage, procurement, metering and billing.

Most of the natural gas used in California comes from out-of-state natural gas basins. In 2017, for example, California utility customers received 38% of their natural gas supply from basins located in the U.S. Southwest, 27% from Canada, 27% from the U.S. Rocky Mountain area, and 8% from production located in California."[8]

Transportation Energy Resources

The project would attract additional vehicle trips with resulting consumption of energy resources, predominantly gasoline and diesel fuel. Gasoline (and other vehicle fuels) are commercially-provided commodities and would be available to the project patrons and employees via commercial outlets.

The most recent data available shows the transportation sector emits 40 percent of the total greenhouse gases in the state and about 84 percent of smog-forming oxides of nitrogen (NOx).[9,10] About 28 percent of total United States energy consumption in 2019 was for transporting people and goods from one place to another. In 2019, petroleum comprised about 91 percent of all transportation energy use, excluding fuel consumed for aviation and most marine vessels.[11] In 2020, about 123.49 billion gallons (or about 2.94 billion barrels) of finished motor gasoline were consumed in the United States, an average of about 337 million gallons (or about 8.03 million barrels) per day.[12]

2.0 Regulatory Background

Federal and state agencies regulate energy use and consumption through various means and programs. On the federal level, the United States Department of Transportation, the United States Department of Energy, and the United States Environmental Protection Agency are three federal agencies with substantial influence over energy policies and programs. On the state level, the PUC and the California Energy

[8]California Public Utilities Commission. Natural Gas and California. http://www.cpuc.ca.gov/natural_gas/
[9]CARB. California Greenhouse Gas Emissions Inventory 2000-2018 -2020 Edition. https://www.arb.ca.gov/cc/inventory/data/data.htm
[10]CARB. 2016 SIP Emission Projection Data. https://www.arb.ca.gov/app/emsinv/2017/emseic1_query.php?F_DIV=-4&F_YR=2012&F_SEASON=A&SP=SIP105ADJ&F_AREA=CA
[11] US Energy Information Administration. Use of Energy in the United States Explained: Energy Use for Transportation. https://www.eia.gov/energyexplained/?page=us_energy_transportation
[12] https://www.eia.gov/tools/faqs/faq.php?id=23&t=10

Commissions (CEC) are two agencies with authority over different aspects of energy. Relevant federal and state energy-related laws and plans are summarized below.

Federal Regulations

Corporate Average Fuel Economy (CAFE) Standards

First established by the U.S. Congress in 1975, the Corporate Average Fuel Economy (CAFE) standards reduce energy consumption by increasing the fuel economy of cars and light trucks. The National Highway Traffic Safety Administration (NHTSA) and U.S. Environmental Protection Agency (USEPA) jointly administer the CAFE standards. The U.S. Congress has specified that CAFE standards must be set at the "maximum feasible level" with consideration given for: (1) technological feasibility; (2) economic practicality; (3) effect of other standards on fuel economy; and (4) need for the nation to conserve energy.[13]

Issued by NHTSA and EPA in March 2020 (published on April 30, 2020 and effective after June 29, 2020), the Safer Affordable Fuel-Efficient Vehicles Rule would maintain the CAFE and CO2 standards applicable in model year 2020 for model years 2021 through 2026. The estimated CAFE and CO2 standards for model year 2020 are 43.7 mpg and 204 grams of CO2 per mile for passenger cars and 31.3 mpg and 284 grams of CO2 per mile for light trucks, projecting an overall industry average of 37 mpg, as compared to 46.7 mpg under the standards issued in 2012.[14]

Intermodal Surface transportation Efficiency Act of 1991 (ISTEA)

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) promoted the development of inter-modal transportation systems to maximize mobility as well as address national and local interests in air quality and energy. ISTEA contained factors that Metropolitan Planning Organizations (MPOs) were to address in developing transportation plans and programs, including some energy-related factors. To meet the new ISTEA requirements, MPOs adopted explicit policies defining the social, economic, energy, and environmental values guiding transportation decisions.

The Transportation Equity Act of the 21st Century (TEA-21)

The Transportation Equity Act for the 21st Century (TEA-21) was signed into law in 1998 and builds upon the initiatives established in the ISTEA legislation, discussed above. TEA-21 authorizes highway, highway safety, transit, and other efficient surface transportation programs. TEA-21 continues the program structure established for highways and transit under ISTEA, such as flexibility in the use of funds, emphasis on measures to improve the environment, and focus on a strong planning process as the foundation of good transportation decisions. TEA-21 also provides for investment in research and its application to maximize the performance of the transportation system through, for example, deployment of Intelligent Transportation Systems, to help improve operations and management of transportation systems and vehicle safety.

[13] https://www.nhtsa.gov/lawsregulations/corporate-average-fuel-economy.
[14] National Highway Traffic Safety Administration (NHTSA) and U.S. Environmental Protection Agency (USEPA), 2018. Federal Register / Vol. 83, No. 165 / Friday, August 24, 2018 / Proposed Rules, The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks 2018. Available at: https://www.epa.gov/regulations-emissions-vehicles-and-engines/safer-affordable-fuel-efficient-safe-vehicles-final-rule.

State Regulations

Integrated Energy Policy Report (IEPR)

Senate Bill 1389 requires the California Energy Commission (CEC) to prepare a biennial integrated energy policy report that assesses major energy trends and issues facing the State's electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the state's economy; and protect public health and safety. The Energy Commission prepares these assessments and associated policy recommendations every two years, with updates in alternate years, as part of the Integrated Energy Policy Report.

The 2019 Integrated Energy Policy Report (2019 IEPR) was adopted February 20, 2020, and continues to work towards improving electricity, natural gas, and transportation fuel energy use in California. The 2019 IEPR focuses on a variety of topics such as decarbonizing buildings, integrating renewables, energy efficiency, energy equity, integrating renewable energy, updates on Southern California electricity reliability, climate adaptation activities for the energy sector, natural gas assessment, transportation energy demand forecast, and the California Energy Demand Forecast.[15]

State of California Energy Plan

The CEC is responsible for preparing the State Energy Plan, which identifies emerging trends related to energy supply, demand, conservation, public health and safety, and the maintenance of a healthy economy. The Plan calls for the state to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators and encouragement of urban designs that reduce vehicle miles traveled and accommodate pedestrian and bicycle access.

California Building Standards Code (Title 24)

California Building Energy Efficiency Standards (Title 24, Part 6)

The California Building Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations, Title 24, Part 6) were adopted to ensure that building construction and system design and installation achieve energy efficiency and preserve outdoor and indoor environmental quality. The current California Building Energy Efficiency Standards (Title 24 standards) are the 2019 Title 24 standards, which became effective on January 1, 2020. The 2019 Title 24 standards include efficiency improvements to the lighting and efficiency improvements to the non-residential standards include alignment with the American Society of Heating and Air-Conditioning Engineers.

[15] California Energy Commission. Final 2019 Integrated Energy Policy Report. February 20, 2020. https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2019-integrated-energy-policy-report

All buildings for which an application for a building permit is submitted on or after January 1, 2020 must follow the 2019 standards. The 2016 residential standards were estimated to be approximately 28 percent more efficient than the 2013 standards, whereas the 2019 residential standards are estimated to be approximately 7 percent more efficient than the 2016 standards. Furthermore, once rooftop solar electricity generation is factored in, 2019 residential standards are estimated to be approximately 53 percent more efficient than the 2016 standards. Under the 2019 standards, nonresidential buildings are estimated to be approximately 30 percent more efficient than the 2016 standards. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas emissions.

California Building Energy Efficiency Standards (Title 24, Part 11)

The 2019 California Green Building Standards Code (California Code of Regulations, Title 24, Part 11), commonly referred to as the CALGreen Code, went into effect on January 1, 2020. The 2019 CALGreen Code includes mandatory measures for non-residential development related to site development; energy efficiency; water efficiency and conservation; material conservation and resource efficiency; and environmental quality.

The Department of Housing and Community Development (HCD) updated CALGreen through the 2019 Triennial Code Adoption Cycle. HCD modified the best management practices for stormwater pollution prevention adding Section 5.106.2; added sections 5.106.4.1.3 and 5.106.4.1.5 in regard to bicycle parking; amended section 5.106.5.3.5 allowing future charging spaces to qualify as designated parking for clean air vehicles; updated section 5.303.3.3 in regard to showerhead flow rates; amended section 5.304.1 for outdoor potable water use in landscape areas and repealed sections 5.304.2 and 5.304.3; and updated Section 5.504.5.3 in regard to the use of MERV filters in mechanically ventilated buildings.

Senate Bill 350

Senate Bill 350 (SB 350) was signed into law October 7, 2015, SB 350 increases California's renewable electricity procurement goal from 33 percent by 2020 to 50 percent by 2030. This will increase the use of Renewables Portfolio Standard (RPS) eligible resources, including solar, wind, biomass, geothermal, and others. In addition, SB 350 requires the state to double statewide energy efficiency savings in electricity and natural gas end uses by 2030. To help ensure these goals are met and the greenhouse gas emission reductions are realized, large utilities will be required to develop and submit Integrated Resource Plans (IRPs). These IRPs will detail how each entity will meet their customers resource needs, reduce greenhouse gas emissions and ramp up the deployment of clean energy resources.

Assembly Bill 32

In 2006 the California State Legislature adopted Assembly Bill 32 (AB 32), the California Global Warming Solutions Act of 2006. AB 32 requires CARB, to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020 through an enforceable statewide emission cap which will be phased in starting in 2012. Emission reductions shall include carbon sequestration projects that would remove carbon from the atmosphere and best management practices that are technologically feasible and cost effective.

Assembly Bill 1493/Pavley Regulations

California Assembly Bill 1493 enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. In 2005, the CARB submitted a "waiver" request to the EPA from a portion of the federal Clean Air Act in order to allow the State to set more stringent tailpipe emission standards for CO_2 and other GHG emissions from passenger vehicles and light duty trucks. On December 19, 2007 the EPA announced that it denied the "waiver" request. On January 21, 2009, CARB submitted a letter to the EPA administrator regarding the State's request to reconsider the waiver denial. The EPA approved the waiver on June 30, 2009.

Executive Order S-1-07/Low Carbon Fuel Standard

Executive Order S-1-07 was issued in 2007 and proclaims that the transportation sector is the main source of GHG emissions in the State, since it generates more than 40 percent of the State's GHG emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in the State by at least ten percent by 2020. This Order also directs CARB to determine whether this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

On April 23, 2009 CARB approved the proposed regulation to implement the low carbon fuel standard and began implementation on January 1, 2011. The low carbon fuel standard is anticipated to reduce GHG emissions by about 16 MMT per year by 2020. CARB approved some amendments to the LCFS in December 2011, which were implemented on January 1, 2013. In September 2015, the Board approved the re-adoption of the LCFS, which became effective on January 1, 2016, to address procedural deficiencies in the way the original regulation was adopted. In 2018, the Board approved amendments to the regulation, which included strengthening and smoothing the carbon intensity benchmarks through 2030 in-line with California's 2030 GHG emission reduction target enacted through SB 32, adding new crediting opportunities to promote zero emission vehicle adoption, alternative jet fuel, carbon capture and sequestration, and advanced technologies to achieve deep decarbonization in the transportation sector.

The LCFS is designed to encourage the use of cleaner low-carbon transportation fuels in California, encourage the production of those fuels, and therefore, reduce GHG emissions and decrease petroleum dependence in the transportation sector. Separate standards are established for gasoline and diesel fuels and the alternative fuels that can replace each. The standards are "back-loaded", with more reductions required in the last five years, than during the first five years. This schedule allows for the development of advanced fuels that are lower in carbon than today's fuels and the market penetration of plug-in hybrid electric vehicles, battery electric vehicles, fuel cell vehicles, and flexible fuel vehicles. It is anticipated that compliance with the low carbon fuel standard will be based on a combination of both lower carbon fuels and more efficient vehicles.

Reformulated gasoline mixed with corn-derived ethanol at ten percent by volume and low sulfur diesel fuel represent the baseline fuels. Lower carbon fuels may be ethanol, biodiesel, renewable diesel, or blends of these fuels with gasoline or diesel as appropriate. Compressed natural gas and liquefied natural gas also may be low carbon fuels. Hydrogen and electricity, when used in fuel cells or electric vehicles are also considered as low carbon fuels for the low carbon fuel standard.

Executive Order N-79-20.

Executive Order N-79-20 was signed into law on September 23, 2020 and mandates 100 percent of in-state sales of new passenger cars and trucks be zero-emission by 2035; 100 percent of medium- and heavy-duty vehicles in the state be zero-emission vehicles by 2045 for all operations where feasible and by 2035 for drayage trucks; and to transition to 100 percent zero-emission off-road vehicles and equipment by 2035 where feasible.

California Air Resources Board

CARB's Advanced Clean Cars Program

Closely associated with the Pavley regulations, the Advanced Clean Cars emissions control program was approved by CARB in 2012. The program combines the control of smog, soot, and GHGs with requirements for greater numbers of zero-emission vehicles for model years 2015–2025. The components of the Advanced Clean Cars program include the Low-Emission Vehicle (LEV) regulations that reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles, and the Zero-Emission Vehicle (ZEV) regulation, which requires manufacturers to produce an increasing number of pure ZEVs (meaning battery electric and fuel cell electric vehicles), with provisions to also produce plug-in hybrid electric vehicles (PHEV) in the 2018 through 2025 model years.[16]

Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling

The Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling (Title 13, California Code of Regulations, Division 3, Chapter 10, Section 2435) was adopted to reduce public exposure to diesel particulate matter and other air contaminants by limiting the idling of diesel-fueled commercial motor vehicles. This section applies to diesel-fueled commercial motor vehicles with gross vehicular weight ratings of greater than 10,000 pounds that are or must be licensed for operation on highways. Reducing idling of diesel-fueled commercial motor vehicles reduces the amount of petroleum-based fuel used by the vehicle.

Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen, and other Criteria Pollutants, form In-Use Heavy-Duty Diesel-Fueled Vehicles

The Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen and other Criteria Pollutants, from In-Use Heavy-Duty Diesel-Fueled Vehicles (Title 13, California Code of Regulations, Division 3, Chapter 1, Section 2025) was adopted to reduce emissions of diesel particulate matter, oxides of nitrogen (NO_X) and other criteria pollutants from in-use diesel-fueled vehicles. This regulation is phased, with full implementation by 2023. The regulation aims to reduce emissions by requiring the installation of diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission-controlled models. The newer emission controlled models would use petroleum-based fuel in a more efficient manner.

[16] California Air Resources Board, California's Advanced Clean Cars Program, January 18, 2017. www.arb.ca.gov/msprog/acc/acc.htm.

Sustainable Communities Strategy

The Sustainable Communities and Climate Protection Act of 2008, or Senate Bill 375 (SB 375), coordinates land use planning, regional transportation plans, and funding priorities to help California meet the GHG reduction mandates established in AB 32.

Senate Bill 375 (SB 375) was adopted September 2008 and aligns regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPO) to adopt a sustainable communities strategy (SCS) or alternate planning strategy (APS) that will prescribe land use allocation in that MPOs Regional Transportation Plan (RTP). CARB, in consultation with each MPO, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. CARB is also charged with reviewing each MPO's sustainable communities strategy or alternate planning strategy for consistency with its assigned targets.

3.0 Evaluation Criteria and Methodology

Evaluation Criteria

CEQA Energy Questions

In compliance with Appendix G of the State CEQA Guidelines, this report analyzes the project's anticipated energy use to determine if the project would:

a) Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

b) Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

In addition, Appendix F of the State CEQA Guidelines states that the means of achieving the goal of energy conservation includes the following:

- Decreasing overall per capita energy consumption;
- Decreasing reliance on fossil fuels such as coal, natural gas and oil; and
- Increasing reliance on renewable energy sources.

Methodology

Information from the CalEEMod 2016.3.2 Daily and Annual Outputs contained in the Central Avenue Gas Station Air Quality and Greenhouse Gas Impact Study (air quality and greenhouse gas analysis) prepared for the proposed project by MD (December 19, 2022), was utilized for this analysis. The CalEEMod outputs detail project related construction equipment, transportation energy demands, and facility energy demands.

4.0 Energy Review

Construction Energy Demand

The construction schedule is anticipated to begin in the beginning of August 2021 and take approximately six months to complete and be completed in one phase. Staging of construction vehicles and equipment will occur on-site.

Construction Equipment Electricity Usage Estimates

As stated previously, electrical service will be provided by the SCE. The focus within this section is the energy implications of the construction process, specifically the power cost from on-site electricity consumption during construction of the proposed project. Based on the 2017 National Construction Estimator, Richard Pray (2017)[17], the typical power cost per 1,000 square feet of building construction per month is estimated to be $2.32. The project plans to develop the site with a 4,000 square foot convenience market with a gasoline service station with 12 fueling pumps over the course of approximately six months. Based on Table 3, the total power cost of the on-site electricity usage during the construction of the proposed project is estimated to be approximately $55.68. Furthermore, as of April 13, 2020, SCE's general service rate schedule (GS-1) is approximately $0.09 per kWh of electricity.[18] As shown in Table 3, the total electricity usage from Project construction related activities is estimated to be approximately 619 kWh.

Table 3: Project Construction Power Cost and Electricity Usage

Power Cost (per 1,000 square foot of building per month of construction)	Total Building Size (1,000 Square Foot)	Construction Duration (months)	Total Project Construction Power Cost
$2.32	4.000	6	$55.68

Cost per kWh	Total Project Construction Electricity Usage (kWh)
$0.09	619

*Assumes the project will be under the GS-1 General Service rate under SCE.

Construction Equipment Fuel Estimates

Fuel consumed by construction equipment would be the primary energy resource expended over the course of project construction. Fuel consumed by construction equipment was evaluated with the following assumptions:

- Construction schedule of approximately 6 months

[17] Pray, Richard. 2017 National Construction Estimator. Carlsbad : Craftsman Book Company, 2017.
[18] Southern California Edison (SCE). Rates & Pricing Choices: General Service/Industrial Rates. https://library.sce.com/content/dam/sce-doclib/public/regulatory/historical/electric/2020/schedules/general-service-&-industrial-rates/ELECTRIC_SCHEDULES_GS-1_2020.pdf

- All construction equipment was assumed to run on diesel fuel
- Typical daily use of 8 hours, with some equipment operating from ~6-7 hours
- Aggregate fuel consumption rate for all equipment was estimated at 18.5 hp-hr/day (from CARB's 2017 Emissions Factors Tables and fuel consumption rate factors as shown in Table D-21 of the Moyer Guidelines: (https://www.arb.ca.gov/msprog/moyer/guidelines/2017gl/2017_gl_appendix_d.pdf).
- Diesel fuel would be the responsibility of the equipment operators/contractors and would be sources within the region.
- Project construction represents a "single-event" for diesel fuel demand and would not require on-going or permanent commitment of diesel fuel resources during long term operation.

Using the CalEEMod data input from the air quality and greenhouse gas analysis (MD Acoustics 2020), the project's construction phase would consume electricity and fossil fuels as a single energy demand, that is, once construction is completed their use would cease. CARB's 2013 Emissions Factors Tables show that on average aggregate fuel consumption (gasoline and diesel fuel) would be approximately 18.5 hp-hr-gal. Table 4 shows the results of the analysis of construction equipment.

Table 4: Construction Equipment Fuel Consumption Estimates

Phase	Number of Days	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	HP hrs/day	Total Fuel Consumption (gal diesel fuel)[1]
Site Preparation	2	Tractors/Loaders/Backhoes	1	8	97	0.37	287	31
Grading	4	Graders	1	6	187	0.41	460	99
	4	Rubber Tired Dozers	1	6	247	0.4	593	128
	4	Tractors/Loaders/Backhoes	1	7	97	0.37	251	54
Building Construction	120	Cranes	2	6	231	0.29	804	5,214
	120	Forklifts	2	6	89	0.2	214	1,386
	120	Generator Sets	1	8	84	0.74	497	3,226
	120	Tractors/Loaders/Backhoes	2	6	97	0.37	431	2,794
	120	Welders	3	8	46	0.45	497	3,222
Paving	10	Cement and Mortar Mixers	1	6	9	0.56	30	16
	10	Pavers	1	6	130	0.42	328	177
	10	Paving Equipment	1	8	132	0.36	380	205
	10	Rollers	1	7	80	0.38	213	115
	10	Tractors/Loaders/Backhoes	1	8	97	0.37	287	155
Architectural Coating	10	Air Compressors	1	6	78	0.48	225	121
CONSTRUCTION FUEL DEMAND (gallons of diesel fuel)								**16,945**

Notes:
[1]Using Carl Moyer Guidelines Table D-21 Fuel consumption rate factors (bhp-hr/gal) for engines less than 750 hp.
(Source: https://www.arb.ca.gov/msprog/moyer/guidelines/2017gl/2017_gl_appendix_d.pdf)

As presented in Table 4, project construction activities would consume an estimated 16,945 gallons of diesel fuel. As stated previously, project construction would represent a "single-event" diesel fuel demand and would not require on-going or permanent commitment of diesel fuel resources for this purpose.

Construction Worker Fuel Estimates

It is assumed that all construction worker trips are from light duty autos (LDA) along area roadways. With respect to estimated VMT, the construction worker trips would generate an estimated 49,216 VMT. Data regarding project related construction worker trips were based on CalEEMod 2016.3.2 model defaults.

Vehicle fuel efficiencies for construction workers were estimated in the air quality and greenhouse gas analysis (MD Acoustics 2020) using information generated using CARB's EMFAC model (see Appendix A for details). An aggregate fuel efficiency of 30.13 miles per gallon (mpg) was used to calculate vehicle miles traveled for construction worker trips. Table 5 shows that an estimated 1,633 gallons of fuel would be consumed for construction worker trips.

Table 5: Construction Worker Fuel Consumption Estimates

Phase	Number of Days	Worker Trips/Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Site Preparation	2	8	14.7	235	30.13	8
Grading	4	8	14.7	470	30.13	16
Building Construction	120	26	14.7	45,864	30.13	1,522
Paving	10	13	14.7	1,911	30.13	63
Architectural Coating	10	5	14.7	735	30.13	24
Total Construction Worker Fuel Consumption						**1,633**

Notes:
[1]Assumptions for the worker trip length and vehicle miles traveled are consistent with CalEEMod 2016.3.2 defaults.

Construction Vendor/Hauling Fuel Estimates

Tables 6 and 7 show the estimated fuel consumption for vendor and hauling during building construction and architectural coating. With respect to estimated VMT, the vendor and hauling trips would generate an estimated 8,280 VMT. Data regarding project related construction worker trips were based on CalEEMod 2016.3.2 model defaults.

For the architectural coatings it is assumed that the contractors would be responsible for bringing coatings and equipment with them in their light duty vehicles. Therefore, vendors delivering construction material or hauling debris from the site during grading would use medium to heavy duty vehicles with an average fuel consumption of 8.93 mpg for medium heavy duty trucks and 6.51 mpg for heavy heavy duty trucks (see Appendix A for details). Tables 6 and 7 show that an estimated 927 gallons of fuel would be consumed for vendor and hauling trips.

<Table 6, next page>

Table 6: Construction Vendor Fuel Consumption Estimates (MHD Trucks)[1]

Phase	Number of Days	Vendor Trips/Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Site Preparation	2	0	6.9	0	8.93	0
Grading	4	0	6.9	0	8.93	0
Building Construction	120	10	6.9	8,280	8.93	927
Paving	10	0	6.9	0	8.93	0
Architectural Coating	10	0	6.9	0	8.93	0
Total Vendor Fuel Consumption						**927**

Notes:
[1] Assumptions for the vendor trip length and vehicle miles traveled are consistent with CalEEMod 2016.3.2 defaults.

Table 7: Construction Hauling Fuel Consumption Estimates (HHD Trucks)[1]

Phase	Number of Days	Hauling Trips/Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Site Preparation	2	0	20	0	6.51	0
Grading	4	0	20	0	6.51	0
Building Construction	120	0	20	0	6.51	0
Paving	10	0	20	0	6.51	0
Architectural Coating	10	0	20	0	6.51	0
Total Construction Hauling Fuel Consumption						**0**

Notes:
[1]Assumptions for the hauling trip length and vehicle miles traveled are consistent with CalEEMod 2016.3.2 defaults.

Construction Energy Efficiency/Conservation Measures

Construction equipment used over the approximately six-month construction phase would conform to CARB regulations and California emissions standards and is evidence of related fuel efficiencies. Construction of the proposed commercial development would require the typical use of energy resources. There are no unusual project characteristics or construction processes that would require the use of equipment that would be more energy intensive than is used for comparable activities; or equipment that would not conform to current emissions standards (and related fuel efficiencies). Equipment employed in construction of the project would therefore not result in inefficient wasteful, or unnecessary consumption of fuel.

CARB has adopted the Airborne Toxic Control Measure to limit heavy-duty diesel motor vehicle idling in order to reduce public exposure to diesel particulate matter and other Toxic Air Contaminants.

Additionally, as required by California Code of Regulations Title 13, Motor Vehicles, section 2449(d)(3) Idling, limits idling times of construction vehicles to no more than five minutes, thereby minimizing or eliminating unnecessary and wasteful consumption of fuel due to unproductive idling of construction equipment. Enforcement of idling limitations is realized through periodic site inspections conducted by City building officials, and/or in response to citizen complaints. Compliance with these measures would result in a more efficient use of construction-related energy and would minimize or eliminate wasteful or unnecessary consumption of energy. Idling restrictions and the use of newer engines and equipment would result in less fuel combustion and energy consumption.

Furthermore, the project has been designed in compliance with California's Energy Efficiency Standards and 2019 CALGreen Standards. These measures include, but are not limited to the use of water conserving plumbing, installation of bicycle racks, the use of LED lighting, and water-efficient irrigation systems.

Operation Energy Demand

Energy consumption in support of or related to project operations would include transportation energy demands (energy consumed by employee and patron vehicles accessing the project site) and facilities energy demands (energy consumed by building operations and site maintenance activities).

Transportation Fuel Consumption

The largest source of operational energy use would be vehicle operation of customers. The site is located is in an urbanized area just east of Highway 74 between Rosetta Canyon Drive and Ardenwood Way. Furthermore, there are existing transit services, provided by RTA, approximately 0.13-mile walking distance of the proposed Project site. The nearest transit service is Riverside Transit Route 22, with a stop along Highway 74 just north of Rosetta Canyon Drive.

Using the CalEEMod output from the air quality and greenhouse gas analysis (MD Acoustics 2020), it is assumed that an average trip for autos were assumed to be 16.6 miles, light trucks were assumed to travel an average of 8.4 miles, and 3- 4-axle trucks were assumed to travel an average of 6.9 miles[19]. As the proposed project is a convenience market with gasoline service station, it was assumed that vehicles would operate 365 days per year. Table 8 shows the worst-case estimated annual fuel consumption for all classes of vehicles from autos to heavy-heavy trucks.[20]

The proposed project would generate approximately 1,217 trips per day. The vehicle fleet mix was used from the CalEEMod output from the air quality and greenhouse gas analysis (MD Acoustics 2020). Table 8 shows that an estimated 264,540 gallons of fuel would be consumed per year for the operation of the proposed project.

<Table 8, next page>

[19] CalEEMod default distance for H-W (home-work) or C-W (commercial-work) is 16.6 miles; 6.9 miles for H-O (home-other) or C-O (commercial-other).
[20] Average fuel economy based on aggregate mileage calculated in EMFAC 2017 for opening year (2022). See Appendix A for EMFAC output.

Table 8: Estimated Vehicle Operations Fuel Consumption

Vehicle Type	Vehicle Mix	Number of Vehicles	Average Trip (miles)[1]	Daily VMT	Average Fuel Economy (mpg)	Total Gallons per Day	Total Annual Fuel Consumption (gallons)
Light Auto	Automobile	664	16.6	11,022	30.95	356.14	129,990
Light Truck	Automobile	45	8.4	378	26.47	14.28	5,212
Light Truck	Automobile	227	8.4	1,907	24.72	77.14	28,155
Medium Truck	Automobile	140	6.9	966	5.97	161.81	59,060
Light Heavy Truck	2-Axle Truck	19	6.9	131	13.53	9.69	3,537
Light Heavy Truck 10,000 lbs +	2-Axle Truck	6	6.9	41	13.88	2.98	1,089
Medium Heavy Truck	3-Axle Truck	21	6.9	145	9.22	15.72	5,736
Heavy Heavy Truck	4-Axle Truck	85	6.9	587	6.74	87.02	31,761
Total		1,217	--	15,177	16.44	724.77	--
Total Annual Fuel Consumption							**264,540**

Notes:
[1]Based on the size of the site and relative location, trips were assumed to be local rather than regional.

Trip generation and VMT generated by the proposed project are consistent with other similar commercial uses of similar scale and configuration as reflected respectively in the Institute of Transportation Engineers (ITE) Trip Generation Manual (20th Edition, 2017). That is, the proposed project does not propose uses or operations that would inherently result in excessive and wasteful vehicle trips and VMT, nor associated excess and wasteful vehicle energy consumption. Furthermore, the state of California consumed approximately 4.2 billion gallons of diesel and 15.1 billion gallons of gasoline in 2015.[21,22] In addition, per EMFAC2017, the County of Riverside is estimated to have an annual fuel consumption of approximately 904,493 thousand gallons in the year 2022.[23] Therefore, the increase in fuel consumption from the proposed project is insignificant in comparison to the State's demand. Therefore, project transportation energy consumption would not be considered inefficient, wasteful, or otherwise unnecessary.

Facility Energy Demands (Electricity and Natural Gas)

Building operation and site maintenance (including landscape maintenance) would result in the consumption of electricity (provided by SCE) and natural gas (provided by Southern California Gas Company). Operation of the proposed project would involve the use of energy for heating, cooling and equipment operation. These facilities would comply with all applicable California Energy Efficiency Standards and 2019 CALGreen Standards.

The annual natural gas and electricity demands were provided per the CalEEMod output from the air quality and greenhouse gas analysis (MD Acoustics 2020) and are provided in Table 9.

[21] https://www.energy.ca.gov/data-reports/energy-almanac/transportation-energy/california-gasoline-data-facts-and-statistics
[22] https://www.energy.ca.gov/data-reports/energy-almanac/transportation-energy/diesel-fuel-data-facts-and-statistics
[23] https://arb.ca.gov/emfac/emissions-inventory/92bccfb9b61dec8923cc5a7c26aadaf58ed0ef68

Table 9: Project Mitigated Annual Operational Energy Demand Summary[1]

Electricity Demand	kWh/year
Gasoline/Service Station	78,680
Parking Lot	4,760
Total	83,440

Notes:
[1]Taken from the CalEEMod 2016.3.2 annual output in the Central Avenue Gas Station Air Quality and Greenhouse Gas Impact Study prepared for the proposed project by MD Acoustics (December 19, 2022).

As shown in Table 9, the estimated electricity demand for the proposed project is approximately 83,440 kWh per year. In 2021, the non-residential sector of the County of Riverside consumed approximately 8,257 million kWh of electricity.[24] Therefore, the increase in electricity demand from the proposed project is insignificant compared to the County's 2021 non-residential sector demand.

Energy use in buildings is divided into energy consumed by the built environment and energy consumed by uses that are independent of the construction of the building such as in plug-in appliances. In California, the California Building Standards Code Title 24 governs energy consumed by the built environment (including HVAC systems, water heaters, electric stoves, ovens, etc.), mechanical systems, and some types of fixed lighting. Non-building energy use, or "plug-in" energy use can be further subdivided by specific end-use (refrigeration, cooking, appliances, etc.).

Furthermore, the proposed project energy demands in total would be comparable to other commercial projects of similar scale and configuration. Therefore, the project facilities' energy demands and energy consumption would not be considered inefficient, wasteful, or otherwise unnecessary.

Renewable Energy and Energy Efficiency Plan Consistency

Regarding federal transportation regulations, the project site is located in an already developed area. Access to/from the project site is from existing roads. These roads are already in place so the project would not interfere with, nor otherwise obstruct intermodal transportation plans or projects that may be proposed pursuant to the ISTEA because SCAG is not planning for intermodal facilities in the project area.

Regarding the State's Energy Plan and compliance with Title 24 CCR energy efficiency standards, the applicant is required to comply with the California Green Building Standard Code requirements for energy efficient buildings and appliances as well as utility energy efficiency programs implemented by the SCE.

Regarding the State's Renewable Energy Portfolio Standards, the project would be required to meet or exceed the energy standards established in the California Green Building Standards Code, Title 24, Part 11 (CALGreen). CalGreen Standards require that new buildings reduce water consumption, employ building commissioning to increase building system efficiencies, divert construction waste from landfills, and install low pollutant-emitting finish materials.

[24] California Energy Commission, Electricity Consumption by County. https://ecdms.energy.ca.gov/elecbycounty.aspx

5.0 Conclusions

As supported by the preceding analyses, neither construction nor operation of the Project would result in wasteful, inefficient, or unnecessary consumption of energy, or wasteful use of energy resources. The proposed project does not include any unusual project characteristics or construction processes that would require the use of equipment that would be more energy intensive than is used for comparable activities and is a commercial project that is not proposing any additional features that would require a larger energy demand than other commercial projects of similar scale and configuration. As the proposed project is consistent with the existing General Plan land use designation, the energy demands of the project are anticipated to be accommodated within the context of available resources and energy delivery systems. The project would therefore not cause or result in the need for additional energy producing or transmission facilities. The project would not engage in wasteful or inefficient uses of energy and aims to achieve energy conservations goals within the State of California.

The Project has been designed in compliance with California's Energy Efficiency Standards and 2019 CALGreen Standards. These measures include, but are not limited to the use of water conserving plumbing, installation of bicycle racks, the use of LED lighting, and water-efficient irrigation systems. The Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency; therefore, impacts would be less than significant.

MD is pleased to provide this CEQA Energy review. If you have any questions regarding this analysis, please don't hesitate to call us at (805) 426-4477.

Sincerely,
MD Acoustics, LLC

Mike Dickerson, INCE
Principal

Appendix A
CARB EMFAC 2017

Source: EMFAC2017 (v1.0.3) Emissions Inventory
Region Type: Air Basin
Region: South Coast
Calendar Year: 2021
Season: Annual
Vehicle Classification: EMFAC2007 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 Year	Speed	Fuel	Population	Trips	Fuel Consumption	Fuel Consumption	Total Fuel Consumption	VMT	Total VMT	Miles Per Gallon	Vehicle Class
South Coast	2021	HHDT	Aggregate	Aggregate	Gasoline	81.3725634	1628.102	1.889707176	1889.707176	1776086.603	7629.442554	11553449.42	6.51	HHD
South Coast	2021	HHDT	Aggregate	Aggregate	Diesel	96726.9495	974405.7	1774.196896	1774196.896		11545819.98			
South Coast	2021	LDA	Aggregate	Aggregate	Gasoline	6276233.77	29647186	8195.759914	8195759.914	8241884.504	246181276.2	248366515	30.13	LDA
South Coast	2021	LDA	Aggregate	Aggregate	Diesel	53709.9025	254840.1	46.1245898	46124.5898		2185238.836			
South Coast	2021	LDA	Aggregate	Aggregate	Electricity	105013.549	525424.1	0	0		4192834.836			
South Coast	2021	LDT1	Aggregate	Aggregate	Gasoline	695145.897	3200417	1009.571346	1009571.346	1009999.543	26066042.38	26075562.75	25.82	LDT1
South Coast	2021	LDT1	Aggregate	Aggregate	Diesel	406.399031	1419.826	0.42819713	428.1971296		9520.378718			
South Coast	2021	LDT1	Aggregate	Aggregate	Electricity	3691.83415	18421.42	0	0		147589.5362			
South Coast	2021	LDT2	Aggregate	Aggregate	Gasoline	2144804.15	10052342	3441.716707	3441716.707	3457561.278	81991235.59	82539629.16	23.87	LDT2
South Coast	2021	LDT2	Aggregate	Aggregate	Diesel	12472.425	61718.11	15.84457068	15844.57068		548393.5724			
South Coast	2021	LDT2	Aggregate	Aggregate	Electricity	16651.9689	84424.2	0	0		552985.8715			
South Coast	2021	LHDT1	Aggregate	Aggregate	Gasoline	172430.216	2568953	598.0686059	598068.6059	809349.9359	6230805.225	10720475.04	13.25	LHDT1
South Coast	2021	LHDT1	Aggregate	Aggregate	Diesel	109610.028	1378756	211.28133	211281.33		4489669.812			
South Coast	2021	LHDT2	Aggregate	Aggregate	Gasoline	28913.8178	430772.8	111.7961286	111796.1286	201931.6877	1014315.328	2744944.158	13.59	LHDT2
South Coast	2021	LHDT2	Aggregate	Aggregate	Diesel	43242.2337	543932.9	90.13555911	90135.55911		1730628.83			
South Coast	2021	MCY	Aggregate	Aggregate	Gasoline	279209.361	558418.7	53.89538804	53895.38804	53895.38804	1958676.919	1958676.919	36.34	MCY
South Coast	2021	MDV	Aggregate	Aggregate	Gasoline	1520877.3	7026646	2808.57758	2808577.58	2854598.975	54421172.7	55643285	19.49	MDV
South Coast	2021	MDV	Aggregate	Aggregate	Diesel	29603.6659	145604.8	46.02139556	46021.39556		1222112.304			
South Coast	2021	MDV	Aggregate	Aggregate	Electricity	7250.17223	37174.04	0	0		249429.9943			
South Coast	2021	MH	Aggregate	Aggregate	Gasoline	34556.2813	3457.01	64.51935527	64519.35527	75563.3084	327720.8034	443086.5288	5.86	MH
South Coast	2021	MH	Aggregate	Aggregate	Diesel	11829.1715	1182.917	11.04395313	11043.95313		115365.7253			
South Coast	2021	MHDT	Aggregate	Aggregate	Gasoline	24683.6081	493869.6	264.5056072	264505.6072	991967.8223	1325210.138	8860357.635	8.93	MHDT
South Coast	2021	MHDT	Aggregate	Aggregate	Diesel	119075.286	1192855	727.4622151	727462.2151		7535147.497			
South Coast	2021	OBUS	Aggregate	Aggregate	Gasoline	5845.39061	116954.6	49.57947234	49579.47234	87256.58216	246477.18	555364.3745	6.36	OBUS
South Coast	2021	OBUS	Aggregate	Aggregate	Diesel	4131.13499	40389.68	37.67710982	37677.10982		308887.1946			
South Coast	2021	SBUS	Aggregate	Aggregate	Gasoline	2414.92674	9659.707	10.85210767	10852.10767	37379.67328	98099.38663	297576.5962	7.96	SBUS
South Coast	2021	SBUS	Aggregate	Aggregate	Diesel	6314.06403	72863.42	26.52756561	26527.56561		199477.2096			
South Coast	2021	UBUS	Aggregate	Aggregate	Gasoline	943.967838	3775.871	18.45610299	18456.10299	18702.89919	88729.36464	90207.45032	4.82	UBUS
South Coast	2021	UBUS	Aggregate	Aggregate	Diesel	14.1414183	56.56567	0.246796198	246.7961984		1478.085683			
South Coast	2021	UBUS	Aggregate	Aggregate	Electricity	12.1169389	48.46776	0			1072.906717			

Source: https://arb.ca.gov/emfac/emissions-inventory

Calendar Year: 2022
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	Calendar Year	Vehicle Ca	Model Year	Speed	Fuel	Population	Trips	Fuel Consumption	Fuel Consumption	Total Fuel Consumption	VMT	Total VMT	Miles Per Gallon	Vehicle Class
South Coast AQMD	2022	HHDT	Aggregate	Aggregate	Gasoline	77.82251	1557.073	1.914672095	1914.672095	1984478.157	7970.981	13381402.09	**6.74**	HHD
South Coast AQMD	2022	HHDT	Aggregate	Aggregate	Diesel	108362	1118617	1982.563485	1982563.485		13373431			
South Coast AQMD	2022	LDA	Aggregate	Aggregate	Gasoline	6542832	30915701	8178.144259	8178144.259	8226568.36	2.52E+08	254602375.4	**30.95**	LDA
South Coast AQMD	2022	LDA	Aggregate	Aggregate	Diesel	58937.5	279973.4	48.42410045	48424.10045		2358230			
South Coast AQMD	2022	LDA	Aggregate	Aggregate	Electricity	127532.6	637025.4	0	0		5177709			
South Coast AQMD	2022	LDT1	Aggregate	Aggregate	Gasoline	736905.6	3399512	1031.447408	1031447.408	1031847.287	27300896	27309932.68	**26.47**	LDT1
South Coast AQMD	2022	LDT1	Aggregate	Aggregate	Diesel	387.1571	1348.408	0.39987912	399.8791198		9037.122			
South Coast AQMD	2022	LDT1	Aggregate	Aggregate	Electricity	5339.042	26794.47	0	0		221507.4			
South Coast AQMD	2022	LDT2	Aggregate	Aggregate	Gasoline	2246303	10535910	3436.155557	3436155.557	3453207.618	84740129	85348125.78	**24.72**	LDT2
South Coast AQMD	2022	LDT2	Aggregate	Aggregate	Diesel	14234.59	70193.22	17.05206088	17052.06088		607996.5			
South Coast AQMD	2022	LDT2	Aggregate	Aggregate	Electricity	22589.96	114302.6	0	0		734756.1			
South Coast AQMD	2022	LHDT1	Aggregate	Aggregate	Gasoline	175903.1	2620694	598.0685493	598068.5493	821513.5103	6298251	11115258.37	**13.53**	LHDT1
South Coast AQMD	2022	LHDT1	Aggregate	Aggregate	Diesel	119380.7	1501659	223.444961	223444.961		4817007			
South Coast AQMD	2022	LHDT2	Aggregate	Aggregate	Gasoline	30009.92	447103.1	113.5150695	113515.0695	209067.0531	1040649	2902289.397	**13.88**	LHDT2
South Coast AQMD	2022	LHDT2	Aggregate	Aggregate	Diesel	47335.63	595422.7	95.55198358	95551.98358		1861640			
South Coast AQMD	2022	MCY	Aggregate	Aggregate	Gasoline	295960.1	591920.2	56.92214589	56922.14589	56922.14589	2072370	2072370.126	**36.41**	MCY
South Coast AQMD	2022	MDV	Aggregate	Aggregate	Gasoline	1579640	7302407	2793.799561	2793799.561	2842944.316	55888916	57233722.8	**20.13**	MDV
South Coast AQMD	2022	MDV	Aggregate	Aggregate	Diesel	33348.92	163526.3	49.14475473	49144.75473		1344806			
South Coast AQMD	2022	MDV	Aggregate	Aggregate	Electricity	11658.48	59625.3	0	0		391944.3			
South Coast AQMD	2022	MH	Aggregate	Aggregate	Gasoline	35097.75	3511.179	64.70410395	64704.10395	76270.38211	333282.4	455641.5746	**5.97**	MH
South Coast AQMD	2022	MH	Aggregate	Aggregate	Diesel	12758.81	1275.881	11.56627815	11566.27815		122359.2			
South Coast AQMD	2022	MHDT	Aggregate	Aggregate	Gasoline	25445.41	509111.8	269.2842176	269284.2176	1009568.488	1367743	9307083.084	**9.22**	MHDT
South Coast AQMD	2022	MHDT	Aggregate	Aggregate	Diesel	123310	1231988	740.28427	740284.27		7939340			
South Coast AQMD	2022	OBUS	Aggregate	Aggregate	Gasoline	5959.443	119236.5	49.67589796	49675.89796	88138.04214	250653.5	576603.5972	**6.54**	OBUS
South Coast AQMD	2022	OBUS	Aggregate	Aggregate	Diesel	4274.499	41607.39	38.46214418	38462.14418		325950.1			
South Coast AQMD	2022	SBUS	Aggregate	Aggregate	Gasoline	2630.829	10523.32	11.7605267	11760.5267	39328.1885	107369.8	316915.9173	**8.06**	SBUS
South Coast AQMD	2022	SBUS	Aggregate	Aggregate	Diesel	6631.313	76524.43	27.5676618	27567.6618		209546.1			
South Coast AQMD	2022	UBUS	Aggregate	Aggregate	Gasoline	952.146	3808.584	18.40085629	18400.85629	18647.65249	89256	90734.08386	**4.87**	UBUS
South Coast AQMD	2022	UBUS	Aggregate	Aggregate	Diesel	14.14142	56.56567	0.246796198	246.7961984		1478.086			
South Coast AQMD	2022	UBUS	Aggregate	Aggregate	Electricity	17.11694	68.46776	0			1343.185			

MD ACOUSTICS
Sound Solutions for Planning and Design
4960 S. Gilbert Road, Ste 1-461
Chandler, AZ 85249
p. (602) 774-1950

AZ Office CA Office
1197 Los Angeles Avenue, Ste C-256
Simi Valley, CA 93065
p. (805) 426-4477

www.mdacoustics.com

December 19, 2022

Mr. Joseph Karaki - President
Karaki WS
4887 E. Las Palmas Ave., Ste 707
Anaheim, CA 92807

Subject: Gas Station & Convenience Store – CEQA Energy Review, County of Riverside, CA

Dear Mr. Karaki:

MD Acoustics, LLC (MD) has completed a CEQA energy review for the proposed Gas Station & Convenience Store project located at 28771 Central Avenue (Hwy 74) in an unincorporated area of the County of Riverside within the Sphere of Influence of the City of Lake Elsinore, California. The Project proposes to develop the approximately 1.44-acre project site with a 4,000 square foot convenience market with 12 pump gas station.

1.0 Existing Energy Conditions

Overview

California's estimated annual energy use as of 2019 included:

- Approximately 277,704 gigawatt hours of electricity; [1]
- Approximately 2,154,030 million cubic feet of natural gas per year[2];and
- Approximately 23.2 billion gallons of transportation fuel (for the year 2015)[3].

As of 2018, the year of most recent data currently available by the United States Energy Information Administration (EIA), energy use in California by demand sector was:

- Approximately 39.1 percent transportation;
- Approximately23.5 percent industrial;
- Approximately 18.3 percent residential; and
- Approximately 19.2 percent commercial.[4]

California's electricity in-state generation system generates approximately 200,475 gigawatt-hours each year. In 2019, California produced approximately 72 percent of the electricity it uses; the rest was imported

[1]California Energy Commission. Energy Almanac. Total Electric Generation. [Online] 2020. https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2019-total-system-electric-generation.

[2]Natural Gas Consumption by End Use. U.S. Energy Information Administration. [Online] August 31, 20020. https://www.eia.gov/dnav/ng/ng_cons_sum_dcu_SCA_a.htm.

[3]California Energy Commission. Revised Transportation Energy Demand Forecast 2018-2030. [Online] April 19, 2018. https://www.energy.ca.gov/assessments/

[4]U.S. Energy Information Administration. California Energy Consumption by by End-Use Sector. California State Profile and Energy Estimates.[Online] January 16, 2020 https://www.eia.gov/state/?sid=CA#tabs-2

from the Pacific Northwest (approximately 9 percent) and the U.S. Southwest (approximately 19 percent). Natural gas is the main source for electricity generation at approximately 42.97 percent of the total in-state electric generation system power as shown in Table 1.

Table 1: Total Electricity System Power (California 2019)

Fuel Type	California In-State Generation (GWh)	Percent of California In-State Generation	Northwest Imports (GWh)	Southwest Imports (GWh)	Total Imports (GWh)	Percent of Imports	California Power Mix (GWh)	Percent California Power Mix
Coal	248	0.12%	219	7,765	7,985	10.34%	8,233	2.96%
Natural Gas	86,136	42.97%	62	8,859	8,921	11.55%	95,057	34.23%
Nuclear	16,163	8.06%	39	8,743	8,782	11.37%	24,945	8.98%
Oil	36	0.02%	0	0	0	0.00%	36	0.01%
Other (Petroleum Coke/Waste Heat)	411	0.20%	0	11	11	0.01%	422	0.15%
Large Hydro	33,145	16.53%	6,387	1,071	7,458	9.66%	40,603	14.62%
Unspecified Sources of Power	0	0.00%	6,609	13,767	20,376	26.38%	20,376	7.34%
Renewables	64,336	32.09%	10,615	13,081	23,696	30.68%	88,032	31.70%
Biomass	5,851	2.92%	903	33	936	1.21%	6,787	2.44%
Geothermal	10,943	5.46%	99	2,218	2,318	3.00%	13,260	4.77%
Somall Hydro	5,349	2.67%	292	4	296	0.38%	5,646	2.03%
Solar	28,513	14.22%	282	5,295	5,577	7.22%	34,090	12.28%
Wind	13,680	6.82%	9,038	5,531	14,569	18.87%	28,249	10.17%
Total	200,475	100.00%	23,930	53,299	77,229	100.00%	277,704	100.00%

Notes:
[1] Source: California Energy Commission. 2019 Total System electric Generation. https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2019-total-system-electric-generation

A summary of and context for energy consumption and energy demands within the State is presented in "U.S. Energy Information Administration, California State Profile and Energy Estimates, Quick Facts" excerpted below:

- California was the seventh-largest producer of crude oil among the 50 states in 2018, and, as of January 2019, it ranked third in oil refining capacity.
- California is the largest consumer of jet fuel among the 50 states and accounted for one-fifth of the nation's jet fuel consumption in 2018.
- California's total energy consumption is the second-highest in the nation, but, in 2018, the State's per capita energy consumption ranked the fourth-lowest, due in part to its mild climate and its energy efficiency programs.
- In 2018, California ranked first in the nation as a producer of electricity from solar, geothermal, and biomass resources and fourth in the nation in conventional hydroelectric power generation.
- In 2018, large- and small-scale solar PV and solar thermal installations provided 19% of California's net electricity generation[5].

5 State Profile and Energy Estimates. Independent Statistics and Analysis. [Online] [Cited: January 16, 2020.] http://www.eia.gov/state/?sid=CA#tabs2.

As indicated above, California is one of the nation's leading energy-producing states, and California per capita energy use is among the nation's most efficient. Given the nature of the proposed project, the remainder of this discussion will focus on the three sources of energy that are most relevant to the project—namely, electricity and natural gas for building uses, and transportation fuel for vehicle trips associated with the proposed project.

Electricity

Electricity would be provided to the project by Southern California Edison (SCE). SCE provides electric power to more than 15 million persons, within a service area encompassing approximately 50,000 square miles.[6] SCE derives electricity from varied energy resources including: fossil fuels, hydroelectric generators, nuclear power plants, geothermal power plants, solar power generation, and wind farms. SCE also purchases from independent power producers and utilities, including out-of-state suppliers.[7] Table 2 identifies SCE's specific proportional shares of electricity sources in 2019.

Table 2: SCE 2019 Power Content Mix

Energy Resources	2019 SCE Power Mix
Eligible Renewable	35%
Biomass & Waste	1%
Geothermal	6%
Eligible Hydroelectric	1%
Solar	16%
Wind	12%
Coal	0%
Large Hydroelectric	8%
Natural Gas	16%
Nuclear	8%
Other	0%
Unspecified Sources of power*	33%
Total	100%

Notes:
[1]https://www.sce.com/sites/default/files/inline-files/SCE_2019PowerContentLabel.pdf
*Unspecified sources of power means electricity from transactions that are not traceable to specific generation sources.

Natural Gas

Natural gas would be provided to the project by Southern California Gas (SoCalGas). The following summary of natural gas resources and service providers, delivery systems, and associated regulation is excerpted from information provided by the California Public Utilities Commission (CPUC).

The CPUC regulates natural gas utility service for approximately 11 million customers that receive natural gas from Pacific Gas and Electric (PG&E), Southern California Gas (SoCalGas), San Diego Gas & Electric (SDG&E), Southwest Gas, and several smaller investor-owned natural gas utilities. The CPUC also regulates

[6] https://www.sce.com/about-us/who-we-are/leadership/our-service-territory
[7] California Energy Commission. Utility Energy Supply plans from 2015. https://www.energy.ca.gov/almanac/electricity_data/supply_forms.html

independent storage operators Lodi Gas Storage, Wild Goose Storage, Central Valley Storage and Gill Ranch Storage.

The vast majority of California's natural gas customers are residential and small commercial customers, referred to as "core" customers. Larger volume gas customers, like electric generators and industrial customers, are called "noncore" customers. Although very small in number relative to core customers, noncore customers consume about 65% of the natural gas delivered by the state's natural gas utilities, while core customers consume about 35%.

The PUC regulates the California utilities' natural gas rates and natural gas services, including in-state transportation over the utilities' transmission and distribution pipeline systems, storage, procurement, metering and billing.

Most of the natural gas used in California comes from out-of-state natural gas basins. In 2017, for example, California utility customers received 38% of their natural gas supply from basins located in the U.S. Southwest, 27% from Canada, 27% from the U.S. Rocky Mountain area, and 8% from production located in California."[8]

Transportation Energy Resources

The project would attract additional vehicle trips with resulting consumption of energy resources, predominantly gasoline and diesel fuel. Gasoline (and other vehicle fuels) are commercially-provided commodities and would be available to the project patrons and employees via commercial outlets.

The most recent data available shows the transportation sector emits 40 percent of the total greenhouse gases in the state and about 84 percent of smog-forming oxides of nitrogen (NOx).[9,10] About 28 percent of total United States energy consumption in 2019 was for transporting people and goods from one place to another. In 2019, petroleum comprised about 91 percent of all transportation energy use, excluding fuel consumed for aviation and most marine vessels.[11] In 2020, about 123.49 billion gallons (or about 2.94 billion barrels) of finished motor gasoline were consumed in the United States, an average of about 337 million gallons (or about 8.03 million barrels) per day.[12]

2.0 Regulatory Background

Federal and state agencies regulate energy use and consumption through various means and programs. On the federal level, the United States Department of Transportation, the United States Department of Energy, and the United States Environmental Protection Agency are three federal agencies with substantial influence over energy policies and programs. On the state level, the PUC and the California Energy

[8]California Public Utilities Commission. Natural Gas and California. http://www.cpuc.ca.gov/natural_gas/
[9]CARB. California Greenhouse Gas Emissions Inventory 2000-2018 -2020 Edition. https://www.arb.ca.gov/cc/inventory/data/data.htm
[10]CARB. 2016 SIP Emission Projection Data. https://www.arb.ca.gov/app/emsinv/2017/emseic1_query.php?F_DIV=-4&F_YR=2012&F_SEASON=A&SP=SIP105ADJ&F_AREA=CA
[11] US Energy Information Administration. Use of Energy in the United States Explained: Energy Use for Transportation. https://www.eia.gov/energyexplained/?page=us_energy_transportation
[12] https://www.eia.gov/tools/faqs/faq.php?id=23&t=10

Commissions (CEC) are two agencies with authority over different aspects of energy. Relevant federal and state energy-related laws and plans are summarized below.

Federal Regulations

Corporate Average Fuel Economy (CAFE) Standards

First established by the U.S. Congress in 1975, the Corporate Average Fuel Economy (CAFE) standards reduce energy consumption by increasing the fuel economy of cars and light trucks. The National Highway Traffic Safety Administration (NHTSA) and U.S. Environmental Protection Agency (USEPA) jointly administer the CAFE standards. The U.S. Congress has specified that CAFE standards must be set at the "maximum feasible level" with consideration given for: (1) technological feasibility; (2) economic practicality; (3) effect of other standards on fuel economy; and (4) need for the nation to conserve energy.[13]

Issued by NHTSA and EPA in March 2020 (published on April 30, 2020 and effective after June 29, 2020), the Safer Affordable Fuel-Efficient Vehicles Rule would maintain the CAFE and CO2 standards applicable in model year 2020 for model years 2021 through 2026. The estimated CAFE and CO2 standards for model year 2020 are 43.7 mpg and 204 grams of CO2 per mile for passenger cars and 31.3 mpg and 284 grams of CO2 per mile for light trucks, projecting an overall industry average of 37 mpg, as compared to 46.7 mpg under the standards issued in 2012.[14]

Intermodal Surface transportation Efficiency Act of 1991 (ISTEA)

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) promoted the development of inter-modal transportation systems to maximize mobility as well as address national and local interests in air quality and energy. ISTEA contained factors that Metropolitan Planning Organizations (MPOs) were to address in developing transportation plans and programs, including some energy-related factors. To meet the new ISTEA requirements, MPOs adopted explicit policies defining the social, economic, energy, and environmental values guiding transportation decisions.

The Transportation Equity Act of the 21st Century (TEA-21)

The Transportation Equity Act for the 21st Century (TEA-21) was signed into law in 1998 and builds upon the initiatives established in the ISTEA legislation, discussed above. TEA-21 authorizes highway, highway safety, transit, and other efficient surface transportation programs. TEA-21 continues the program structure established for highways and transit under ISTEA, such as flexibility in the use of funds, emphasis on measures to improve the environment, and focus on a strong planning process as the foundation of good transportation decisions. TEA-21 also provides for investment in research and its application to maximize the performance of the transportation system through, for example, deployment of Intelligent Transportation Systems, to help improve operations and management of transportation systems and vehicle safety.

[13] https://www.nhtsa.gov/lawsregulations/corporate-average-fuel-economy.
[14] National Highway Traffic Safety Administration (NHTSA) and U.S. Environmental Protection Agency (USEPA), 2018. Federal Register / Vol. 83, No. 165 / Friday, August 24, 2018 / Proposed Rules, The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks 2018. Available at: https://www.epa.gov/regulations-emissions-vehicles-and-engines/safer-affordable-fuel-efficient-safe-vehicles-final-rule.

State Regulations

Integrated Energy Policy Report (IEPR)

Senate Bill 1389 requires the California Energy Commission (CEC) to prepare a biennial integrated energy policy report that assesses major energy trends and issues facing the State's electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the state's economy; and protect public health and safety. The Energy Commission prepares these assessments and associated policy recommendations every two years, with updates in alternate years, as part of the Integrated Energy Policy Report.

The 2019 Integrated Energy Policy Report (2019 IEPR) was adopted February 20, 2020, and continues to work towards improving electricity, natural gas, and transportation fuel energy use in California. The 2019 IEPR focuses on a variety of topics such as decarbonizing buildings, integrating renewables, energy efficiency, energy equity, integrating renewable energy, updates on Southern California electricity reliability, climate adaptation activities for the energy sector, natural gas assessment, transportation energy demand forecast, and the California Energy Demand Forecast.[15]

State of California Energy Plan

The CEC is responsible for preparing the State Energy Plan, which identifies emerging trends related to energy supply, demand, conservation, public health and safety, and the maintenance of a healthy economy. The Plan calls for the state to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators and encouragement of urban designs that reduce vehicle miles traveled and accommodate pedestrian and bicycle access.

California Building Standards Code (Title 24)

California Building Energy Efficiency Standards (Title 24, Part 6)

The California Building Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations, Title 24, Part 6) were adopted to ensure that building construction and system design and installation achieve energy efficiency and preserve outdoor and indoor environmental quality. The current California Building Energy Efficiency Standards (Title 24 standards) are the 2019 Title 24 standards, which became effective on January 1, 2020. The 2019 Title 24 standards include efficiency improvements to the lighting and efficiency improvements to the non-residential standards include alignment with the American Society of Heating and Air-Conditioning Engineers.

[15] California Energy Commission. Final 2019 Integrated Energy Policy Report. February 20, 2020. https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2019-integrated-energy-policy-report

All buildings for which an application for a building permit is submitted on or after January 1, 2020 must follow the 2019 standards. The 2016 residential standards were estimated to be approximately 28 percent more efficient than the 2013 standards, whereas the 2019 residential standards are estimated to be approximately 7 percent more efficient than the 2016 standards. Furthermore, once rooftop solar electricity generation is factored in, 2019 residential standards are estimated to be approximately 53 percent more efficient than the 2016 standards. Under the 2019 standards, nonresidential buildings are estimated to be approximately 30 percent more efficient than the 2016 standards. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas emissions.

California Building Energy Efficiency Standards (Title 24, Part 11)

The 2019 California Green Building Standards Code (California Code of Regulations, Title 24, Part 11), commonly referred to as the CALGreen Code, went into effect on January 1, 2020. The 2019 CALGreen Code includes mandatory measures for non-residential development related to site development; energy efficiency; water efficiency and conservation; material conservation and resource efficiency; and environmental quality.

The Department of Housing and Community Development (HCD) updated CALGreen through the 2019 Triennial Code Adoption Cycle. HCD modified the best management practices for stormwater pollution prevention adding Section 5.106.2; added sections 5.106.4.1.3 and 5.106.4.1.5 in regard to bicycle parking; amended section 5.106.5.3.5 allowing future charging spaces to qualify as designated parking for clean air vehicles; updated section 5.303.3.3 in regard to showerhead flow rates; amended section 5.304.1 for outdoor potable water use in landscape areas and repealed sections 5.304.2 and 5.304.3; and updated Section 5.504.5.3 in regard to the use of MERV filters in mechanically ventilated buildings.

Senate Bill 350

Senate Bill 350 (SB 350) was signed into law October 7, 2015, SB 350 increases California's renewable electricity procurement goal from 33 percent by 2020 to 50 percent by 2030. This will increase the use of Renewables Portfolio Standard (RPS) eligible resources, including solar, wind, biomass, geothermal, and others. In addition, SB 350 requires the state to double statewide energy efficiency savings in electricity and natural gas end uses by 2030. To help ensure these goals are met and the greenhouse gas emission reductions are realized, large utilities will be required to develop and submit Integrated Resource Plans (IRPs). These IRPs will detail how each entity will meet their customers resource needs, reduce greenhouse gas emissions and ramp up the deployment of clean energy resources.

Assembly Bill 32

In 2006 the California State Legislature adopted Assembly Bill 32 (AB 32), the California Global Warming Solutions Act of 2006. AB 32 requires CARB, to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020 through an enforceable statewide emission cap which will be phased in starting in 2012. Emission reductions shall include carbon sequestration projects that would remove carbon from the atmosphere and best management practices that are technologically feasible and cost effective.

Assembly Bill 1493/Pavley Regulations

California Assembly Bill 1493 enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. In 2005, the CARB submitted a "waiver" request to the EPA from a portion of the federal Clean Air Act in order to allow the State to set more stringent tailpipe emission standards for CO_2 and other GHG emissions from passenger vehicles and light duty trucks. On December 19, 2007 the EPA announced that it denied the "waiver" request. On January 21, 2009, CARB submitted a letter to the EPA administrator regarding the State's request to reconsider the waiver denial. The EPA approved the waiver on June 30, 2009.

Executive Order S-1-07/Low Carbon Fuel Standard

Executive Order S-1-07 was issued in 2007 and proclaims that the transportation sector is the main source of GHG emissions in the State, since it generates more than 40 percent of the State's GHG emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in the State by at least ten percent by 2020. This Order also directs CARB to determine whether this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

On April 23, 2009 CARB approved the proposed regulation to implement the low carbon fuel standard and began implementation on January 1, 2011. The low carbon fuel standard is anticipated to reduce GHG emissions by about 16 MMT per year by 2020. CARB approved some amendments to the LCFS in December 2011, which were implemented on January 1, 2013. In September 2015, the Board approved the re-adoption of the LCFS, which became effective on January 1, 2016, to address procedural deficiencies in the way the original regulation was adopted. In 2018, the Board approved amendments to the regulation, which included strengthening and smoothing the carbon intensity benchmarks through 2030 in-line with California's 2030 GHG emission reduction target enacted through SB 32, adding new crediting opportunities to promote zero emission vehicle adoption, alternative jet fuel, carbon capture and sequestration, and advanced technologies to achieve deep decarbonization in the transportation sector.

The LCFS is designed to encourage the use of cleaner low-carbon transportation fuels in California, encourage the production of those fuels, and therefore, reduce GHG emissions and decrease petroleum dependence in the transportation sector. Separate standards are established for gasoline and diesel fuels and the alternative fuels that can replace each. The standards are "back-loaded", with more reductions required in the last five years, than during the first five years. This schedule allows for the development of advanced fuels that are lower in carbon than today's fuels and the market penetration of plug-in hybrid electric vehicles, battery electric vehicles, fuel cell vehicles, and flexible fuel vehicles. It is anticipated that compliance with the low carbon fuel standard will be based on a combination of both lower carbon fuels and more efficient vehicles.

Reformulated gasoline mixed with corn-derived ethanol at ten percent by volume and low sulfur diesel fuel represent the baseline fuels. Lower carbon fuels may be ethanol, biodiesel, renewable diesel, or blends of these fuels with gasoline or diesel as appropriate. Compressed natural gas and liquefied natural gas also may be low carbon fuels. Hydrogen and electricity, when used in fuel cells or electric vehicles are also considered as low carbon fuels for the low carbon fuel standard.

Executive Order N-79-20.

Executive Order N-79-20 was signed into law on September 23, 2020 and mandates 100 percent of in-state sales of new passenger cars and trucks be zero-emission by 2035; 100 percent of medium- and heavy-duty vehicles in the state be zero-emission vehicles by 2045 for all operations where feasible and by 2035 for drayage trucks; and to transition to 100 percent zero-emission off-road vehicles and equipment by 2035 where feasible.

California Air Resources Board

CARB's Advanced Clean Cars Program

Closely associated with the Pavley regulations, the Advanced Clean Cars emissions control program was approved by CARB in 2012. The program combines the control of smog, soot, and GHGs with requirements for greater numbers of zero-emission vehicles for model years 2015–2025. The components of the Advanced Clean Cars program include the Low-Emission Vehicle (LEV) regulations that reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles, and the Zero-Emission Vehicle (ZEV) regulation, which requires manufacturers to produce an increasing number of pure ZEVs (meaning battery electric and fuel cell electric vehicles), with provisions to also produce plug-in hybrid electric vehicles (PHEV) in the 2018 through 2025 model years.[16]

Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling

The Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling (Title 13, California Code of Regulations, Division 3, Chapter 10, Section 2435) was adopted to reduce public exposure to diesel particulate matter and other air contaminants by limiting the idling of diesel-fueled commercial motor vehicles. This section applies to diesel-fueled commercial motor vehicles with gross vehicular weight ratings of greater than 10,000 pounds that are or must be licensed for operation on highways. Reducing idling of diesel-fueled commercial motor vehicles reduces the amount of petroleum-based fuel used by the vehicle.

Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen, and other Criteria Pollutants, form In-Use Heavy-Duty Diesel-Fueled Vehicles

The Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen and other Criteria Pollutants, from In-Use Heavy-Duty Diesel-Fueled Vehicles (Title 13, California Code of Regulations, Division 3, Chapter 1, Section 2025) was adopted to reduce emissions of diesel particulate matter, oxides of nitrogen (NO_X) and other criteria pollutants from in-use diesel-fueled vehicles. This regulation is phased, with full implementation by 2023. The regulation aims to reduce emissions by requiring the installation of diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission-controlled models. The newer emission controlled models would use petroleum-based fuel in a more efficient manner.

[16] California Air Resources Board, California's Advanced Clean Cars Program, January 18, 2017. www.arb.ca.gov/msprog/acc/acc.htm.

Sustainable Communities Strategy

The Sustainable Communities and Climate Protection Act of 2008, or Senate Bill 375 (SB 375), coordinates land use planning, regional transportation plans, and funding priorities to help California meet the GHG reduction mandates established in AB 32.

Senate Bill 375 (SB 375) was adopted September 2008 and aligns regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPO) to adopt a sustainable communities strategy (SCS) or alternate planning strategy (APS) that will prescribe land use allocation in that MPOs Regional Transportation Plan (RTP). CARB, in consultation with each MPO, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. CARB is also charged with reviewing each MPO's sustainable communities strategy or alternate planning strategy for consistency with its assigned targets.

3.0 Evaluation Criteria and Methodology

Evaluation Criteria

CEQA Energy Questions

In compliance with Appendix G of the State CEQA Guidelines, this report analyzes the project's anticipated energy use to determine if the project would:

a) Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

b) Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

In addition, Appendix F of the State CEQA Guidelines states that the means of achieving the goal of energy conservation includes the following:

- Decreasing overall per capita energy consumption;
- Decreasing reliance on fossil fuels such as coal, natural gas and oil; and
- Increasing reliance on renewable energy sources.

Methodology

Information from the CalEEMod 2016.3.2 Daily and Annual Outputs contained in the Central Avenue Gas Station Air Quality and Greenhouse Gas Impact Study (air quality and greenhouse gas analysis) prepared for the proposed project by MD (December 19, 2022), was utilized for this analysis. The CalEEMod outputs detail project related construction equipment, transportation energy demands, and facility energy demands.

4.0 Energy Review

Construction Energy Demand

The construction schedule is anticipated to begin in the beginning of August 2021 and take approximately six months to complete and be completed in one phase. Staging of construction vehicles and equipment will occur on-site.

Construction Equipment Electricity Usage Estimates

As stated previously, electrical service will be provided by the SCE. The focus within this section is the energy implications of the construction process, specifically the power cost from on-site electricity consumption during construction of the proposed project. Based on the 2017 National Construction Estimator, Richard Pray (2017)[17], the typical power cost per 1,000 square feet of building construction per month is estimated to be $2.32. The project plans to develop the site with a 4,000 square foot convenience market with a gasoline service station with 12 fueling pumps over the course of approximately six months. Based on Table 3, the total power cost of the on-site electricity usage during the construction of the proposed project is estimated to be approximately $55.68. Furthermore, as of April 13, 2020, SCE's general service rate schedule (GS-1) is approximately $0.09 per kWh of electricity.[18] As shown in Table 3, the total electricity usage from Project construction related activities is estimated to be approximately 619 kWh.

Table 3: Project Construction Power Cost and Electricity Usage

Power Cost (per 1,000 square foot of building per month of construction)	Total Building Size (1,000 Square Foot)	Construction Duration (months)	Total Project Construction Power Cost
$2.32	4.000	6	$55.68

Cost per kWh	Total Project Construction Electricity Usage (kWh)
$0.09	619

*Assumes the project will be under the GS-1 General Service rate under SCE.

Construction Equipment Fuel Estimates

Fuel consumed by construction equipment would be the primary energy resource expended over the course of project construction. Fuel consumed by construction equipment was evaluated with the following assumptions:

- Construction schedule of approximately 6 months

[17] Pray, Richard. 2017 National Construction Estimator. Carlsbad : Craftsman Book Company, 2017.
[18] Southern California Edison (SCE). Rates & Pricing Choices: General Service/Industrial Rates. https://library.sce.com/content/dam/sce-doclib/public/regulatory/historical/electric/2020/schedules/general-service-&-industrial-rates/ELECTRIC_SCHEDULES_GS-1_2020.pdf

- All construction equipment was assumed to run on diesel fuel
- Typical daily use of 8 hours, with some equipment operating from ~6-7 hours
- Aggregate fuel consumption rate for all equipment was estimated at 18.5 hp-hr/day (from CARB's 2017 Emissions Factors Tables and fuel consumption rate factors as shown in Table D-21 of the Moyer Guidelines: (https://www.arb.ca.gov/msprog/moyer/guidelines/2017gl/2017_gl_appendix_d.pdf).
- Diesel fuel would be the responsibility of the equipment operators/contractors and would be sources within the region.
- Project construction represents a "single-event" for diesel fuel demand and would not require on-going or permanent commitment of diesel fuel resources during long term operation.

Using the CalEEMod data input from the air quality and greenhouse gas analysis (MD Acoustics 2020), the project's construction phase would consume electricity and fossil fuels as a single energy demand, that is, once construction is completed their use would cease. CARB's 2013 Emissions Factors Tables show that on average aggregate fuel consumption (gasoline and diesel fuel) would be approximately 18.5 hp-hr-gal. Table 4 shows the results of the analysis of construction equipment.

Table 4: Construction Equipment Fuel Consumption Estimates

Phase	Number of Days	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	HP hrs/day	Total Fuel Consumption (gal diesel fuel)[1]
Site Preparation	2	Tractors/Loaders/Backhoes	1	8	97	0.37	287	31
Grading	4	Graders	1	6	187	0.41	460	99
	4	Rubber Tired Dozers	1	6	247	0.4	593	128
	4	Tractors/Loaders/Backhoes	1	7	97	0.37	251	54
Building Construction	120	Cranes	2	6	231	0.29	804	5,214
	120	Forklifts	2	6	89	0.2	214	1,386
	120	Generator Sets	1	8	84	0.74	497	3,226
	120	Tractors/Loaders/Backhoes	2	6	97	0.37	431	2,794
	120	Welders	3	8	46	0.45	497	3,222
Paving	10	Cement and Mortar Mixers	1	6	9	0.56	30	16
	10	Pavers	1	6	130	0.42	328	177
	10	Paving Equipment	1	8	132	0.36	380	205
	10	Rollers	1	7	80	0.38	213	115
	10	Tractors/Loaders/Backhoes	1	8	97	0.37	287	155
Architectural Coating	10	Air Compressors	1	6	78	0.48	225	121
CONSTRUCTION FUEL DEMAND (gallons of diesel fuel)								**16,945**

Notes:
[1]Using Carl Moyer Guidelines Table D-21 Fuel consumption rate factors (bhp-hr/gal) for engines less than 750 hp.
(Source: https://www.arb.ca.gov/msprog/moyer/guidelines/2017gl/2017_gl_appendix_d.pdf)

As presented in Table 4, project construction activities would consume an estimated 16,945 gallons of diesel fuel. As stated previously, project construction would represent a "single-event" diesel fuel demand and would not require on-going or permanent commitment of diesel fuel resources for this purpose.

Construction Worker Fuel Estimates

It is assumed that all construction worker trips are from light duty autos (LDA) along area roadways. With respect to estimated VMT, the construction worker trips would generate an estimated 49,216 VMT. Data regarding project related construction worker trips were based on CalEEMod 2016.3.2 model defaults.

Vehicle fuel efficiencies for construction workers were estimated in the air quality and greenhouse gas analysis (MD Acoustics 2020) using information generated using CARB's EMFAC model (see Appendix A for details). An aggregate fuel efficiency of 30.13 miles per gallon (mpg) was used to calculate vehicle miles traveled for construction worker trips. Table 5 shows that an estimated 1,633 gallons of fuel would be consumed for construction worker trips.

Table 5: Construction Worker Fuel Consumption Estimates

Phase	Number of Days	Worker Trips/Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Site Preparation	2	8	14.7	235	30.13	8
Grading	4	8	14.7	470	30.13	16
Building Construction	120	26	14.7	45,864	30.13	1,522
Paving	10	13	14.7	1,911	30.13	63
Architectural Coating	10	5	14.7	735	30.13	24
Total Construction Worker Fuel Consumption						**1,633**

Notes:
[1]Assumptions for the worker trip length and vehicle miles traveled are consistent with CalEEMod 2016.3.2 defaults.

Construction Vendor/Hauling Fuel Estimates

Tables 6 and 7 show the estimated fuel consumption for vendor and hauling during building construction and architectural coating. With respect to estimated VMT, the vendor and hauling trips would generate an estimated 8,280 VMT. Data regarding project related construction worker trips were based on CalEEMod 2016.3.2 model defaults.

For the architectural coatings it is assumed that the contractors would be responsible for bringing coatings and equipment with them in their light duty vehicles. Therefore, vendors delivering construction material or hauling debris from the site during grading would use medium to heavy duty vehicles with an average fuel consumption of 8.93 mpg for medium heavy duty trucks and 6.51 mpg for heavy heavy duty trucks (see Appendix A for details). Tables 6 and 7 show that an estimated 927 gallons of fuel would be consumed for vendor and hauling trips.

<Table 6, next page>

Table 6: Construction Vendor Fuel Consumption Estimates (MHD Trucks)[1]

Phase	Number of Days	Vendor Trips/Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Site Preparation	2	0	6.9	0	8.93	0
Grading	4	0	6.9	0	8.93	0
Building Construction	120	10	6.9	8,280	8.93	927
Paving	10	0	6.9	0	8.93	0
Architectural Coating	10	0	6.9	0	8.93	0
Total Vendor Fuel Consumption						**927**

Notes:
[1] Assumptions for the vendor trip length and vehicle miles traveled are consistent with CalEEMod 2016.3.2 defaults.

Table 7: Construction Hauling Fuel Consumption Estimates (HHD Trucks)[1]

Phase	Number of Days	Hauling Trips/Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Site Preparation	2	0	20	0	6.51	0
Grading	4	0	20	0	6.51	0
Building Construction	120	0	20	0	6.51	0
Paving	10	0	20	0	6.51	0
Architectural Coating	10	0	20	0	6.51	0
Total Construction Hauling Fuel Consumption						**0**

Notes:
[1]Assumptions for the hauling trip length and vehicle miles traveled are consistent with CalEEMod 2016.3.2 defaults.

Construction Energy Efficiency/Conservation Measures

Construction equipment used over the approximately six-month construction phase would conform to CARB regulations and California emissions standards and is evidence of related fuel efficiencies. Construction of the proposed commercial development would require the typical use of energy resources. There are no unusual project characteristics or construction processes that would require the use of equipment that would be more energy intensive than is used for comparable activities; or equipment that would not conform to current emissions standards (and related fuel efficiencies). Equipment employed in construction of the project would therefore not result in inefficient wasteful, or unnecessary consumption of fuel.

CARB has adopted the Airborne Toxic Control Measure to limit heavy-duty diesel motor vehicle idling in order to reduce public exposure to diesel particulate matter and other Toxic Air Contaminants.

Additionally, as required by California Code of Regulations Title 13, Motor Vehicles, section 2449(d)(3) Idling, limits idling times of construction vehicles to no more than five minutes, thereby minimizing or eliminating unnecessary and wasteful consumption of fuel due to unproductive idling of construction equipment. Enforcement of idling limitations is realized through periodic site inspections conducted by City building officials, and/or in response to citizen complaints. Compliance with these measures would result in a more efficient use of construction-related energy and would minimize or eliminate wasteful or unnecessary consumption of energy. Idling restrictions and the use of newer engines and equipment would result in less fuel combustion and energy consumption.

Furthermore, the project has been designed in compliance with California's Energy Efficiency Standards and 2019 CALGreen Standards. These measures include, but are not limited to the use of water conserving plumbing, installation of bicycle racks, the use of LED lighting, and water-efficient irrigation systems.

Operation Energy Demand

Energy consumption in support of or related to project operations would include transportation energy demands (energy consumed by employee and patron vehicles accessing the project site) and facilities energy demands (energy consumed by building operations and site maintenance activities).

Transportation Fuel Consumption

The largest source of operational energy use would be vehicle operation of customers. The site is located is in an urbanized area just east of Highway 74 between Rosetta Canyon Drive and Ardenwood Way. Furthermore, there are existing transit services, provided by RTA, approximately 0.13-mile walking distance of the proposed Project site. The nearest transit service is Riverside Transit Route 22, with a stop along Highway 74 just north of Rosetta Canyon Drive.

Using the CalEEMod output from the air quality and greenhouse gas analysis (MD Acoustics 2020), it is assumed that an average trip for autos were assumed to be 16.6 miles, light trucks were assumed to travel an average of 8.4 miles, and 3- 4-axle trucks were assumed to travel an average of 6.9 miles[19]. As the proposed project is a convenience market with gasoline service station, it was assumed that vehicles would operate 365 days per year. Table 8 shows the worst-case estimated annual fuel consumption for all classes of vehicles from autos to heavy-heavy trucks.[20]

The proposed project would generate approximately 1,217 trips per day. The vehicle fleet mix was used from the CalEEMod output from the air quality and greenhouse gas analysis (MD Acoustics 2020). Table 8 shows that an estimated 264,540 gallons of fuel would be consumed per year for the operation of the proposed project.

<Table 8, next page>

[19] CalEEMod default distance for H-W (home-work) or C-W (commercial-work) is 16.6 miles; 6.9 miles for H-O (home-other) or C-O (commercial-other).
[20] Average fuel economy based on aggregate mileage calculated in EMFAC 2017 for opening year (2022). See Appendix A for EMFAC output.

Table 8: Estimated Vehicle Operations Fuel Consumption

Vehicle Type	Vehicle Mix	Number of Vehicles	Average Trip (miles)[1]	Daily VMT	Average Fuel Economy (mpg)	Total Gallons per Day	Total Annual Fuel Consumption (gallons)
Light Auto	Automobile	664	16.6	11,022	30.95	356.14	129,990
Light Truck	Automobile	45	8.4	378	26.47	14.28	5,212
Light Truck	Automobile	227	8.4	1,907	24.72	77.14	28,155
Medium Truck	Automobile	140	6.9	966	5.97	161.81	59,060
Light Heavy Truck	2-Axle Truck	19	6.9	131	13.53	9.69	3,537
Light Heavy Truck 10,000 lbs +	2-Axle Truck	6	6.9	41	13.88	2.98	1,089
Medium Heavy Truck	3-Axle Truck	21	6.9	145	9.22	15.72	5,736
Heavy Heavy Truck	4-Axle Truck	85	6.9	587	6.74	87.02	31,761
Total		1,217	--	15,177	16.44	724.77	--
Total Annual Fuel Consumption							**264,540**

Notes:
[1]Based on the size of the site and relative location, trips were assumed to be local rather than regional.

Trip generation and VMT generated by the proposed project are consistent with other similar commercial uses of similar scale and configuration as reflected respectively in the Institute of Transportation Engineers (ITE) Trip Generation Manual (20th Edition, 2017). That is, the proposed project does not propose uses or operations that would inherently result in excessive and wasteful vehicle trips and VMT, nor associated excess and wasteful vehicle energy consumption. Furthermore, the state of California consumed approximately 4.2 billion gallons of diesel and 15.1 billion gallons of gasoline in 2015.[21,22] In addition, per EMFAC2017, the County of Riverside is estimated to have an annual fuel consumption of approximately 904,493 thousand gallons in the year 2022.[23] Therefore, the increase in fuel consumption from the proposed project is insignificant in comparison to the State's demand. Therefore, project transportation energy consumption would not be considered inefficient, wasteful, or otherwise unnecessary.

Facility Energy Demands (Electricity and Natural Gas)

Building operation and site maintenance (including landscape maintenance) would result in the consumption of electricity (provided by SCE) and natural gas (provided by Southern California Gas Company). Operation of the proposed project would involve the use of energy for heating, cooling and equipment operation. These facilities would comply with all applicable California Energy Efficiency Standards and 2019 CALGreen Standards.

The annual natural gas and electricity demands were provided per the CalEEMod output from the air quality and greenhouse gas analysis (MD Acoustics 2020) and are provided in Table 9.

[21] https://www.energy.ca.gov/data-reports/energy-almanac/transportation-energy/california-gasoline-data-facts-and-statistics
[22] https://www.energy.ca.gov/data-reports/energy-almanac/transportation-energy/diesel-fuel-data-facts-and-statistics
[23] https://arb.ca.gov/emfac/emissions-inventory/92bccfb9b61dec8923cc5a7c26aadaf58ed0ef68

Table 9: Project Mitigated Annual Operational Energy Demand Summary[1]

Electricity Demand	kWh/year
Gasoline/Service Station	78,680
Parking Lot	4,760
Total	83,440

Notes:
[1]Taken from the CalEEMod 2016.3.2 annual output in the Central Avenue Gas Station Air Quality and Greenhouse Gas Impact Study prepared for the proposed project by MD Acoustics (December 19, 2022).

As shown in Table 9, the estimated electricity demand for the proposed project is approximately 83,440 kWh per year. In 2021, the non-residential sector of the County of Riverside consumed approximately 8,257 million kWh of electricity.[24] Therefore, the increase in electricity demand from the proposed project is insignificant compared to the County's 2021 non-residential sector demand.

Energy use in buildings is divided into energy consumed by the built environment and energy consumed by uses that are independent of the construction of the building such as in plug-in appliances. In California, the California Building Standards Code Title 24 governs energy consumed by the built environment (including HVAC systems, water heaters, electric stoves, ovens, etc.), mechanical systems, and some types of fixed lighting. Non-building energy use, or "plug-in" energy use can be further subdivided by specific end-use (refrigeration, cooking, appliances, etc.).

Furthermore, the proposed project energy demands in total would be comparable to other commercial projects of similar scale and configuration. Therefore, the project facilities' energy demands and energy consumption would not be considered inefficient, wasteful, or otherwise unnecessary.

Renewable Energy and Energy Efficiency Plan Consistency

Regarding federal transportation regulations, the project site is located in an already developed area. Access to/from the project site is from existing roads. These roads are already in place so the project would not interfere with, nor otherwise obstruct intermodal transportation plans or projects that may be proposed pursuant to the ISTEA because SCAG is not planning for intermodal facilities in the project area.

Regarding the State's Energy Plan and compliance with Title 24 CCR energy efficiency standards, the applicant is required to comply with the California Green Building Standard Code requirements for energy efficient buildings and appliances as well as utility energy efficiency programs implemented by the SCE.

Regarding the State's Renewable Energy Portfolio Standards, the project would be required to meet or exceed the energy standards established in the California Green Building Standards Code, Title 24, Part 11 (CALGreen). CalGreen Standards require that new buildings reduce water consumption, employ building commissioning to increase building system efficiencies, divert construction waste from landfills, and install low pollutant-emitting finish materials.

[24] California Energy Commission, Electricity Consumption by County. https://ecdms.energy.ca.gov/elecbycounty.aspx

5.0 Conclusions

As supported by the preceding analyses, neither construction nor operation of the Project would result in wasteful, inefficient, or unnecessary consumption of energy, or wasteful use of energy resources. The proposed project does not include any unusual project characteristics or construction processes that would require the use of equipment that would be more energy intensive than is used for comparable activities and is a commercial project that is not proposing any additional features that would require a larger energy demand than other commercial projects of similar scale and configuration. As the proposed project is consistent with the existing General Plan land use designation, the energy demands of the project are anticipated to be accommodated within the context of available resources and energy delivery systems. The project would therefore not cause or result in the need for additional energy producing or transmission facilities. The project would not engage in wasteful or inefficient uses of energy and aims to achieve energy conservations goals within the State of California.

The Project has been designed in compliance with California's Energy Efficiency Standards and 2019 CALGreen Standards. These measures include, but are not limited to the use of water conserving plumbing, installation of bicycle racks, the use of LED lighting, and water-efficient irrigation systems. The Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency; therefore, impacts would be less than significant.

MD is pleased to provide this CEQA Energy review. If you have any questions regarding this analysis, please don't hesitate to call us at (805) 426-4477.

Sincerely,
MD Acoustics, LLC

Mike Dickerson, INCE
Principal

Appendix A
CARB EMFAC 2017

Source: EMFAC2017 (v1.0.3) Emissions Inventory
Region Type: Air Basin
Region: South Coast
Calendar Year: 2021
Season: Annual
Vehicle Classification: EMFAC2007 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 Year	Speed	Fuel	Population	Trips	Fuel Consumption	Fuel Consumption	Total Fuel Consumption	VMT	Total VMT	Miles Per Gallon	Vehicle Class
South Coast	2021	HHDT	Aggregate	Aggregate	Gasoline	81.3725634	1628.102	1.889707176	1889.707176	1776086.603	7629.442554	11553449.42	6.51	HHD
South Coast	2021	HHDT	Aggregate	Aggregate	Diesel	96726.9495	974405.7	1774.196896	1774196.896		11545819.98			
South Coast	2021	LDA	Aggregate	Aggregate	Gasoline	6276233.77	29647186	8195.759914	8195759.914	8241884.504	246181276.2	248366515	30.13	LDA
South Coast	2021	LDA	Aggregate	Aggregate	Diesel	53709.9025	254840.1	46.1245898	46124.5898		2185238.836			
South Coast	2021	LDA	Aggregate	Aggregate	Electricity	105013.549	525424.1	0	0		4192834.836			
South Coast	2021	LDT1	Aggregate	Aggregate	Gasoline	695145.897	3200417	1009.571346	1009571.346	1009999.543	26066042.38	26075562.75	25.82	LDT1
South Coast	2021	LDT1	Aggregate	Aggregate	Diesel	406.399031	1419.826	0.42819713	428.1971296		9520.378718			
South Coast	2021	LDT1	Aggregate	Aggregate	Electricity	3691.83415	18421.42	0	0		147589.5362			
South Coast	2021	LDT2	Aggregate	Aggregate	Gasoline	2144804.15	10052342	3441.716707	3441716.707	3457561.278	81991235.59	82539629.16	23.87	LDT2
South Coast	2021	LDT2	Aggregate	Aggregate	Diesel	12472.425	61718.11	15.84457068	15844.57068		548393.5724			
South Coast	2021	LDT2	Aggregate	Aggregate	Electricity	16651.9689	84424.2	0	0		552985.8715			
South Coast	2021	LHDT1	Aggregate	Aggregate	Gasoline	172430.216	2568953	598.0686059	598068.6059	809349.9359	6230805.225	10720475.04	13.25	LHDT1
South Coast	2021	LHDT1	Aggregate	Aggregate	Diesel	109610.028	1378756	211.28133	211281.33		4489669.812			
South Coast	2021	LHDT2	Aggregate	Aggregate	Gasoline	28913.8178	430772.8	111.7961286	111796.1286	201931.6877	1014315.328	2744944.158	13.59	LHDT2
South Coast	2021	LHDT2	Aggregate	Aggregate	Diesel	43242.2337	543932.9	90.13555911	90135.55911		1730628.83			
South Coast	2021	MCY	Aggregate	Aggregate	Gasoline	279209.361	558418.7	53.89538804	53895.38804	53895.38804	1958676.919	1958676.919	36.34	MCY
South Coast	2021	MDV	Aggregate	Aggregate	Gasoline	1520877.3	7026646	2808.57758	2808577.58	2854598.975	54421172.7	55643285	19.49	MDV
South Coast	2021	MDV	Aggregate	Aggregate	Diesel	29603.6659	145604.8	46.02139556	46021.39556		1222112.304			
South Coast	2021	MDV	Aggregate	Aggregate	Electricity	7250.17223	37174.04	0	0		249429.9943			
South Coast	2021	MH	Aggregate	Aggregate	Gasoline	34556.2813	3457.01	64.51935527	64519.35527	75563.3084	327720.8034	443086.5288	5.86	MH
South Coast	2021	MH	Aggregate	Aggregate	Diesel	11829.1715	1182.917	11.04395313	11043.95313		115365.7253			
South Coast	2021	MHDT	Aggregate	Aggregate	Gasoline	24683.6081	493869.6	264.5056072	264505.6072	991967.8223	1325210.138	8860357.635	8.93	MHDT
South Coast	2021	MHDT	Aggregate	Aggregate	Diesel	119075.286	1192855	727.4622151	727462.2151		7535147.497			
South Coast	2021	OBUS	Aggregate	Aggregate	Gasoline	5845.39061	116954.6	49.57947234	49579.47234	87256.58216	246477.18	555364.3745	6.36	OBUS
South Coast	2021	OBUS	Aggregate	Aggregate	Diesel	4131.13499	40389.68	37.67710982	37677.10982		308887.1946			
South Coast	2021	SBUS	Aggregate	Aggregate	Gasoline	2414.92674	9659.707	10.85210767	10852.10767	37379.67328	98099.38663	297576.5962	7.96	SBUS
South Coast	2021	SBUS	Aggregate	Aggregate	Diesel	6314.06403	72863.42	26.52756561	26527.56561		199477.2096			
South Coast	2021	UBUS	Aggregate	Aggregate	Gasoline	943.967838	3775.871	18.45610299	18456.10299	18702.89919	88729.36464	90207.45032	4.82	UBUS
South Coast	2021	UBUS	Aggregate	Aggregate	Diesel	14.1414183	56.56567	0.246796198	246.7961984		1478.085683			
South Coast	2021	UBUS	Aggregate	Aggregate	Electricity	12.1169389	48.46776	0			1072.906717			

Source: https://arb.ca.gov/emfac/emissions-inventory

Calendar Year: 2022
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	Calendar Year	Vehicle Ca	Model Year	Speed	Fuel	Population	Trips	Fuel Consumption	Fuel Consumption	Total Fuel Consumption	VMT	Total VMT	Miles Per Gallon	Vehicle Class
South Coast AQMD	2022	HHDT	Aggregate	Aggregate	Gasoline	77.82251	1557.073	1.914672095	1914.672095	1984478.157	7970.981	13381402.09	**6.74**	HHD
South Coast AQMD	2022	HHDT	Aggregate	Aggregate	Diesel	108362	1118617	1982.563485	1982563.485		13373431			
South Coast AQMD	2022	LDA	Aggregate	Aggregate	Gasoline	6542832	30915701	8178.144259	8178144.259	8226568.36	2.52E+08	254602375.4	**30.95**	LDA
South Coast AQMD	2022	LDA	Aggregate	Aggregate	Diesel	58937.5	279973.4	48.42410045	48424.10045		2358230			
South Coast AQMD	2022	LDA	Aggregate	Aggregate	Electricity	127532.6	637025.4	0	0		5177709			
South Coast AQMD	2022	LDT1	Aggregate	Aggregate	Gasoline	736905.6	3399512	1031.447408	1031447.408	1031847.287	27300896	27309932.68	**26.47**	LDT1
South Coast AQMD	2022	LDT1	Aggregate	Aggregate	Diesel	387.1571	1348.408	0.39987912	399.8791198		9037.122			
South Coast AQMD	2022	LDT1	Aggregate	Aggregate	Electricity	5339.042	26794.47	0	0		221507.4			
South Coast AQMD	2022	LDT2	Aggregate	Aggregate	Gasoline	2246303	10535910	3436.155557	3436155.557	3453207.618	84740129	85348125.78	**24.72**	LDT2
South Coast AQMD	2022	LDT2	Aggregate	Aggregate	Diesel	14234.59	70193.22	17.05206088	17052.06088		607996.5			
South Coast AQMD	2022	LDT2	Aggregate	Aggregate	Electricity	22589.96	114302.6	0	0		734756.1			
South Coast AQMD	2022	LHDT1	Aggregate	Aggregate	Gasoline	175903.1	2620694	598.0685493	598068.5493	821513.5103	6298251	11115258.37	**13.53**	LHDT1
South Coast AQMD	2022	LHDT1	Aggregate	Aggregate	Diesel	119380.7	1501659	223.444961	223444.961		4817007			
South Coast AQMD	2022	LHDT2	Aggregate	Aggregate	Gasoline	30009.92	447103.1	113.5150695	113515.0695	209067.0531	1040649	2902289.397	**13.88**	LHDT2
South Coast AQMD	2022	LHDT2	Aggregate	Aggregate	Diesel	47335.63	595422.7	95.55198358	95551.98358		1861640			
South Coast AQMD	2022	MCY	Aggregate	Aggregate	Gasoline	295960.1	591920.2	56.92214589	56922.14589	56922.14589	2072370	2072370.126	**36.41**	MCY
South Coast AQMD	2022	MDV	Aggregate	Aggregate	Gasoline	1579640	7302407	2793.799561	2793799.561	2842944.316	55888916	57233722.8	**20.13**	MDV
South Coast AQMD	2022	MDV	Aggregate	Aggregate	Diesel	33348.92	163526.3	49.14475473	49144.75473		1344806			
South Coast AQMD	2022	MDV	Aggregate	Aggregate	Electricity	11658.48	59625.3	0	0		391944.3			
South Coast AQMD	2022	MH	Aggregate	Aggregate	Gasoline	35097.75	3511.179	64.70410395	64704.10395	76270.38211	333282.4	455641.5746	**5.97**	MH
South Coast AQMD	2022	MH	Aggregate	Aggregate	Diesel	12758.81	1275.881	11.56627815	11566.27815		122359.2			
South Coast AQMD	2022	MHDT	Aggregate	Aggregate	Gasoline	25445.41	509111.8	269.2842176	269284.2176	1009568.488	1367743	9307083.084	**9.22**	MHDT
South Coast AQMD	2022	MHDT	Aggregate	Aggregate	Diesel	123310	1231988	740.28427	740284.27		7939340			
South Coast AQMD	2022	OBUS	Aggregate	Aggregate	Gasoline	5959.443	119236.5	49.67589796	49675.89796	88138.04214	250653.5	576603.5972	**6.54**	OBUS
South Coast AQMD	2022	OBUS	Aggregate	Aggregate	Diesel	4274.499	41607.39	38.46214418	38462.14418		325950.1			
South Coast AQMD	2022	SBUS	Aggregate	Aggregate	Gasoline	2630.829	10523.32	11.7605267	11760.5267	39328.1885	107369.8	316915.9173	**8.06**	SBUS
South Coast AQMD	2022	SBUS	Aggregate	Aggregate	Diesel	6631.313	76524.43	27.5676618	27567.6618		209546.1			
South Coast AQMD	2022	UBUS	Aggregate	Aggregate	Gasoline	952.146	3808.584	18.40085629	18400.85629	18647.65249	89256	90734.08386	**4.87**	UBUS
South Coast AQMD	2022	UBUS	Aggregate	Aggregate	Diesel	14.14142	56.56567	0.246796198	246.7961984		1478.086			
South Coast AQMD	2022	UBUS	Aggregate	Aggregate	Electricity	17.11694	68.46776	0			1343.185			

GEO ENVIRON
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERING CONSULTANTS, INC.
4071 E. La Palma Ave., Ste. B, Anaheim, Ca 92807 • (714) 632-3190 • Fax (714) 632-3191

Job No. 21-215H
April 26, 2021

Joseph Karaki
Karaki Western States
4887 E. La Palma, Suite 707
Anaheim, CA 92807

Subject: **Revised Work Plan for a Supplemental Site Assessment, Proposed Gasoline Service Station, 28771 Central Ave , Lake Elsinore, County of Riverside, California**

Dear Mr. Karaki:

In accordance with your request, presented herein is a work plan to conduct a supplemental site assessment. The objective of this assessment is to identify the vertical and horizontal extent of soil contamination in the region of the former structures in the now vacant lot.

The background, objective and scope of work for this preliminary environmental site assessment will include the professional environmental consulting services described below.

SITE DESCRIPTION

The site is a vacant lot. The site located on the S.E. corner of Central Ave & Ardenwood Way, in the City of Lake Elsinore, Riverside County, California.

BACKGROUND INFORMATION

The site is an existing vacant lot, but based on our Phase 1 assessment, previous structures once existed on the subject property. From speaking to the representatives involved in the transaction of the property, a mobile home, portable office, tool shed, and barn once existed on the lot. The city had required the demolition of the existing structures prior to the sale of the property.

OBJECTIVES

- Based on the data collected at the site, the extent of soil and groundwater contamination should be defined at the site.
- Identify the presence and estimated limits of soil contamination by soil sampling and chemical analysis.
- Evaluate the chemical test data, soil conditions to estimate the extent of contamination, determine potential impact, and make recommendation for remediation, if necessary.

PROPOSED SCOPE OF WORK

The scope of work recommended for this site assessment is as follows:

- Drilling and Soil Sampling of 3 soil borings within the potential contaminated areas
- Soil Sampling @ 5 feet intervals
- Conducting laboratory analyses of soil
- Borings shall be extended to a deepest detectable contamination, 40 feet maximum below grade.
- Chemical analyses by a state certified laboratory at 5 feet intervals.
- Preparation of a formal report containing the findings, conclusions.

FIELD INVESTIGATIONS

Soil borings and Soil Sampling

Soil borings will be drilled to a maximum depth of 15 feet below the ground level. The soil borings will be accomplished with a hollow stem auger. Upon reaching each sampling interval, soil samples will be collected using brass liners placed inside the sampler. To prevent the possibility of cross contamination, the sampling tool and brass sampler liner will be washed between sample collections with a detergent and double rinsed in tap water.

Field screening of soil samples for petroleum hydrocarbon contamination at periodic intervals during field operations using a photoionization detector (PID) or organic vapor analyzer (OVA)

CHEMICAL LABORATORY ANALYSIS

Selected soil samples will be analyzed utilizing the following methods:

- TPH (Gas/ Diesel) per EPA method 8015M
- Volatile Organics per EPA method 8260B
- CAM17 Metals

All proposed sample analyses will be performed by a State of California, Department of Health Services, Certified Hazardous Waste Testing Laboratory.

REPORTING

The findings of our field work, results of laboratory analyses, and conclusions and recommendations will be presented in a formal report. The report will be submitted to the Riverside County Health Care Agency for review.

CLOSURE

The work plan for an environmental site assessment has been prepared using accepted general environmental engineering principles and practices. The work plan is subject to approval by the Riverside County Health Care Agency.

This opportunity to be of service is appreciated. If you have questions regarding this work plan, please contact this office at your earliest convenience.

Respectfully submitted,

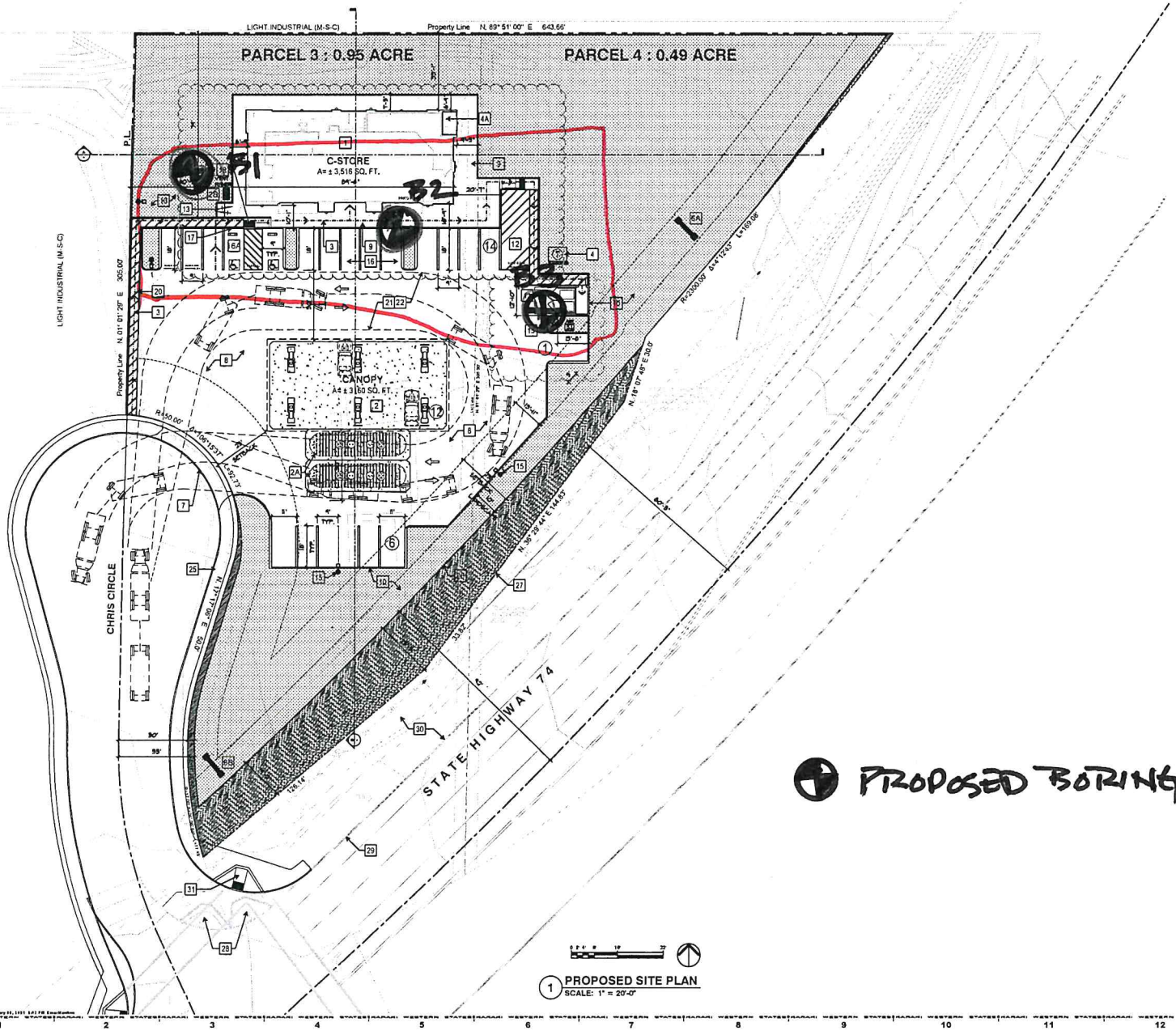
Geo Environ Eng. Consultants, Inc.

Jabed Masud, MSCE
Principal

REGISTERED PROFESSIONAL ENGINEER
ESMAIL RASTEGARI
No. 43332
Exp.03/30/2022
CIVIL
STATE OF CALIFORNIA

Esmail Rastegari, P.E.
Principal

JM/ER/gm



LEGEND

- NO. OF PARKING SPACES
- ACCESSIBLE PARKING
- PROPERTY LINE
- PROPOSED PARCEL SUBDIVISION
- ADA PATH OF TRAVEL
- CONCRETE PAVING AREA
- DECORATIVE PAVING AREA
- LANDSCAPED AREA
- DIRECTIONAL ARROW
- R.O.W. DEDICATION
- AREA LIGHTS
- WALL MOUNTED DECORATIVE AREA LIGHTS
- (E) FIRE HYDRANT
- (E) SEWER MANHOLE
- (E) SEWER CLEANOUT
- (E) POWER POLE
- WM (E) WATER METER
- (E) WATER POINT
- (E) SIGN

SITE KEY NOTES

1. C-STORE
2. GAS STATION CANOPY AND FUEL DISPENSERS
2A. UNDERGROUND STORAGE TANKS
2B. VENT RISER WITH CARBON VAPOR CANISTER. PAINT BLACK & LANDSCAPE SCREENING.
3. ACCESSIBLE PATH OF TRAVEL
4. TRANSFORMER
4A. MAIN SWITCHGEAR
6A. MONUMENT SIGN (UNDER SEPARATE PERMIT)
6B. GAS PRICE SIGN (UNDER SEPARATE PERMIT)
7. (N) DRIVEWAY AS PER R.C. STD 207A
8. ASPHALT PAVING
9. CONCRETE PAVING
10. (N) LANDSCAPE WITH 6" CONCRETE CURB
11. TRASH ENCLOSURE (PER R.C. STANDARDS)
12. LOADING/UNLOADING ZONE
13. CLASS-2 BIKE PARKING RACK (5-BIKE CAPACITY)
14. AIR & WATER UNIT
15. AREA LIGHTS
16. PARKING STRIPING AS PER R.C. STANDARDS WITH WHEELSTOP WHERE REQUIRED
16A. ACCESSIBLE PARKING STRIPING WITH WHEELSTOP WHERE REQUIRED
17. ACCESSIBLE PARKING SIGN
18. ACCESSIBLE ACCESSIBLE RAMP
19. ACCESSIBLE TRUNCATED DOME PAVER
20. ACCESSIBLE PATH STRIPING (2% MAX CROSS SLOPE)
21. FIRE TRUCK PATH OF TRAVEL
22. FUEL TANKER/TRASH TRUCK PATH OF TRAVEL
23. RETAINING WALL PER CIVIL
24. 6' CMU WALL FENCE
25. (N) SIDEWALK
26. (N) RIGHT OF WAY
27. (E) RIGHT OF WAY
28. (E) CURB RAMP TO BE REMOVED TO ACCOMMODATE NEW RIGHT OF WAY, SEE CIVIL DRAWINGS
29. (E) CURB & GUTTER
30. (E) BERM
31. (N) CURB RAMP -SEE CIVIL DRAWINGS

KARAK WS

WESTERN STATES ENGINEERING
A DESIGN-BUILD COMPANY

4887 E. LA PALMA STE. 1
ANAHEIM, CA 92807
TEL (714)694-9800 FAX (714)693-
WWW.WESTERNSES.COM

CONSULTANT/ SEALS

REGISTERED PROFESSIONAL ENGINEER JOSEPH KIM No. C057050 Exp. 9/30/17 CIVIL STATE OF CALIFORNIA

SUBMITTAL

NO.	DESCRIPTION	BY	DATE
1			
2			
3			
4			

REVISIONS

NO.	DESCRIPTION	BY	DATE
△			
△			
△			
△			
△			

OWNER NAME & ADDRESS
DAHER OIL INC.

19851 ESPERANZA RD
YORBA LINDA CA 92886

PROJECT NAME & ADDRESS
GAS STATION & CONVENIENCE STORE

28771 CENTRAL AVE. (74 HWY)
LAKE ELSINORE, CA 92532

NOTE TO CONTRACTOR

CONFIDENTIALITY STATEMENT

DESIGNED BY: WS
DRAWN BY: WS
CHECKED BY: JK
PLOT DATE: 2.5.2021
SCALE: AS SHOWN
SHEET TITLE
PROPOSED SITE PLAN

SHEET NUMBER
AS-1.0

JOB No E99319
PAR / CUP N CUP 20004

GEO ENVIRON
J.N. 21-215H-2

GEO ENVIRON
GEOTECHNICAL AND ENVIRONMENTAL ENGINEERING CONSULTANTS, INC.
4071 E. La Palma Ave., Ste. B, Anaheim, Ca 92807 • (714) 632-3190 • Fax (714) 632-3191

Job No. 21-215H.3
June 15, 2021

Mr. Joseph Karaki
Western State Eng. & Construction, Inc.
4887 E. La Palma Street, Ste # 707
Anaheim, Ca 92807

Subject: **Supplemental Environmental Site Assessment, Vacant Property, 28771 Central Ave, Lake Elsinore, RSCO, California**

Reference:

1) Geo Environ, 12/28/20, "Phase I Report, Vacant Property, 28771 Central Ave, Lake Elsinore, RSCO, California
2) Geo Environ, 5/15/21, "Phase 2 Report, Vacant Property, 28771 Central Ave, Lake Elsinore, RSCO, California

Gentlemen:

In accordance with your request, we have performed a supplemental environmental site assessment on the subject site. The objective of this assessment is to address and discuss the findings of the lab results for the soil sampling that was done at the site.

BACKGROUND HISTORY

The subject property is a vacant land that is 1.12 acres in size, located on the north west corner of Central Ave (74 Hwy) & Ardenwood Way, Lake Elsinore, California. Surrounding the site is vacant land, commercial building, and multi-family buildings.

The site is underlain with 1.5 feet of top soil consisting of a medium brown, silty sand. Below the top soil, a weathered bedrock was encountered.

A phase I Environmental Site Assessment for the subject property was completed on December 28, 2020. The assessment was performed at the request of Karaki Western States. The subject property was evaluated for indications of environmental management activities, and the possible presence of hazardous substances that may have been manufactured, stored, used, or disposed on and/ or near the subject property. The subject property visit was conducted by Mr. Fahad Masud on December 28, 2020.

A phase 2 Environmental Site Assessment for the subject property was completed on May 15, 2021. The Trench pits were excavated to a maximum depth of 5 feet from the existing grade. The soil excavations were accomplished with a backhoe. Upon reaching each sampling interval, soil samples were collected using glass jars.

Field screening of soil samples for petroleum hydrocarbon contamination at periodic intervals during field operations using a photoionization detector (PID) or organic vapor analyzer (OVA)
Initial lab testing was conducted on 5/6/21 & 5/12/21. In the initial testing for the sampling done for TP-2, Arsenic was detected at 21.0, 10.8 and 22.5 mg/kg. Two samples being above the accepted background concentration of 12 mg/kg. The laboratory recommended additional analysis, STLC, for Arsenic, Barium, Copper, Lead, Nickel, Chromium and Vanadium. Additional analyses were performed, as per the lab, to further investigate the potential for exposure of these metals.

During our review of aerial photographs obtained for the nature of the Phase 1 assessment, structures can be seen on the subject property dated back to 2006. Those structures have currently been demolished, but information regarding the nature of the business that may have transpired at the property are unknown. Additional analysis, STLC were conduced on June 12, 2021, and Laboratory results are attached herein.

RESULTS

Element Analyzed	Sample Result	PQL	DF	TTLC Limit	STLC Limit	EPA Method Used
Arsenic	0.133	0.05	1	500	5.0	6010B
Barium	8.30	0.5	1	10,000	100	6010B
Chromium	ND	0.05	1	2,500	650/5.0@	6010B
Copper	0.146	0.1	1	2,500	25	6010B
Lead	0.057	0.05	1	1,000	5.0	6010B
Nickel	0.538	0.25	1	2,000	20	6010B
Vanadium	0.440	0.5	1	2,400	24	6010B

DISCUSSION OF RESULTS & POTENTIAL SOURCES

During the initial testing, the discovery of levels of arsenic led to additional analysis, STLC. The STLC analysis is conducted by extracting the sample and using a 10:1 ratio of citric acid solution to sample. This procedure is also used to simulate a landfill environment and to determine how much of a regulated compound will leach out into the environment. The citric acid extraction solution used for the STLC extraction is much more aggressive than the acetic acid extraction solution used for TCLP. This extraction is used to determine whether certain leachable compounds are present in large enough amounts in a given material that the material need to be dealt with as hazardous waste. During our STLC analysis, it was determined that all elements analyzed, including Arsenic, were found to be considerable lower than the STLC limit. In regards to arsenic, the sample result found 0.1333 mg/L whereas the STLC limit is 5.0 mg/L.

During our phase 1 investigation, our findings found a residential structure had existed on the subject property but was demolished. It is our belief, that the arsenic detected is naturally occurring due to the low levels found in both of our analysis. In the initial testing for the sampling done for TP-2, Arsenic was detected at 21.0, 10.8 and 22.5 mg/kg (or 21.0 ug/g, 10.8 ug/g, 22.5ug/g). Arsenic is widely distributed in the Earth's crust, which contains about 3.4 ppm arsenic (Wedepohl 1991). It is mostly found in nature minerals, such as realgar (As4S4), orpiment (As2S3), and arsenolite (As2O3), and only

found in its elemental form to a small extent. There are over 150 arsenic-bearing minerals (Budavari et al. 2001; Carapella 1992). Arsenic concentrations in soils from various countries can range from 0.1 to 50 μg/g and can vary widely among geographic regions. Typical arsenic concentrations for uncontaminated soils range from 1 to 40 μg/g, with the lowest concentrations in sandy soils and soils derived from granites. Higher arsenic concentrations are found in alluvial soils and soils with high organic content (Mandal and Suzuki 2002). Arsenic in soil may originate from the parent materials that form the soil, industrial wastes, or use of arsenical pesticides. Geological processes that may lead to high arsenic concentrations in rock and subsequently the surrounding soil include hydrothermic activity and pegmatite formation (Peters et al. 1999). In the first case, thermal activity results in the dissolution and transport of metals, including the metalloid arsenic, which are precipitated in fractures in rocks. In the second process, cooling magmas may concentrate metals that are injected into rocks, crystallizing as pegmatites. Areas of volcanic activity include large areas of California, Hawaii, Alaska, Iceland, and New Zealand.

The U.S. Geological Survey reports the mean and range of arsenic in soil and other surficial materials as 7.2 and <0.1–97 μg/g, respectively (USGS 1984). It is assumed that the arsenic encountered is naturally occluding as arsenic is known to be found near fractured bedrock, but the limits of arsenic found are below the detection limits are considered non hazardous waste site.

No structures are planned to be built within the area of concern and will not pose any hazardous or risk of human life. Therefore, no further assessment or remediation is necessary.

CLOSURE & LIMITATIONS

This evaluation was performed in accordance with generally accepted engineering practices. The conclusions and recommendations contained in this report were based on the data collected during the course of the project and the interpretation of such data as dictated by our experience and background and our current understanding and interpretation of environmental regulatory agency regulations, guidelines and policy. Hence, our conclusions and recommendations are professional opinions; no other warranty is offered or implied. This report is limited to the areas of the site specifically described, does not include other areas of the property.

This opportunity to be service is appreciated. If you have questions regarding this plan, please contact this office at your earliest convenience.

Respectfully submitted,

Geo Environ Eng. Consultants, Inc.

Fahad Masud, PE
Vice President

Jabed Masud, MSCE
President

FM/JM/gm

Supplementary Laboratory Result

Enviro – Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

LABORATORY REPORT

CUSTOMER: **Geo Environ Consultants, Inc**
4071 E. La Palma Ave. Ste. B, Anaheim, CA 92807
Tel(714)606-2598 E-Mail: Mjmas@sbcglobal.net
PROJECT: **Proposed Gas Station**
LOCATION: **28771 Highway 74, Lake Elsinore**
MATRIX: SOIL — DATE RECEIVED: 05/05/21
SAMPLING DATE: 05/04/21 — DATE ANALYZED: 06/09-11/21
REPORT TO: MR. JABED MASUD — DATE REPORTED: 06/11/21

SAMPLE I.D.: **TP-2 (-1.0)** — LAB I.D.: 210505-68

SOLUBLE THRESHOLD LIMIT CONCENTRATION (STLC) ANALYSIS
UNIT: mg/L IN THE STLC LEACHATE

ELEMENT ANALYZED	SAMPLE RESULT	PQL	DF	TTLC LIMIT	STLC LIMIT	EPA METHOD USED
Arsenic (As)	0.133	0.05	1	500	5.0	6010B
Barium (Ba)	8.30	0.5	1	10,000	100	6010B
Chromium (Cr)	ND	0.05	1	2,500	560/5.0@	6010B
Copper (Cu)	0.146	0.1	1	2,500	25	6010B
Lead (Pb)	0.057	0.05	1	1,000	5.0	6010B
Nickel (Ni)	0.538	0.25	1	2,000	20	6010B
Vanadium (V)	0.440	0.5	1	2,400	24	6010B

COMMENTS
DF = Dilution Factor
PQL = Practical Quantitation Limit
Actual Detection Limit = PQL X DF
ND = Below the actual detection limit or non-detected
TTLC = Total Threshold Limit Concentration
STLC = Soluble Threshold Limit Concentration
@ = Must meet the TCLP limit/chromium (5.0 mg/L in TCLP leachate)
** = TCLP Chromium/TTLC-Chromium VI recommended (if marked)
*** = The concentration exceeds the STLC Limit, and the sample is defined as hazardous waste as per CAL-TITLE 22 (if marked)

Data Reviewed and Approved by: _____
CAL-DHS ELAP CERTIFICATE No.: 1555

HYDROLOGY REPORT

FOR

28771 Central Avenue Gas Station

28771 CENTRAL AVENUE
LAKE ELSINORE, CALIFORNIA

March 10, 2021

PREPARED UNDER THE DIRECT SUPERVISION OF:

_____DATE_____
Kamal B. Mchantaf RCE 51050

PURPOSE

The purpose of this hydrology study is to determine the post-development peak drainage flow and volume at the subject area for the 10- and 100-year return period storm events. The study is based on the Rational Method as outlined in the Riverside County Hydrology Manual 1978.

DESCRIPTION / METHODOLOGY

The project site in consideration is located at 28771 Central Avenuein the City of Lake Elsinore, Riverside, CA. The property has a total area of 1.324 acre. Most of the project site is undeveloped save of a small portion which has two (2) building structures. Runoff from the project site drains towards a bioretention area on the northwest, the north, and southwest portions. The north portion of the project site is considered a FEMA floodplain and thus development in this area shall be limited.

The proposed development will include a six (6) pump gas station and a convenience store. Parking areas will be provided and landscape areas. The gas station will include two (2) underground tanks that have a capacity of 22,000 gallons each.

The pre-development of the project site consists of one (1) catchment while the post-development has two (2) catchments. The values for the rainfall was provided by the NOAA (Attachment A). The soil in the project site was determined to be soil type A, C and D as per the USDA NRCS Soil Map (Attachment B). The calculations for the runoff and unit hydrograph are shown in Attachment C and the pre- and post-development hydrology maps are shown in Attachment D. The table below summarizes the 24-hr rainfall for the various storm events.

Table 1: Pre-development Peak Flow Rate and Storm Runoff Volume Summary

Drainage ID / Storm Return Period	**Area (acre)**	**1-Hr**		**3-Hr**		**6-Hr**		**24-Hr**	
		Q (cfs)	**V (cf)**	**Q (cfs)**	**V (cf)**	**Q (cfs)**	**V (cf)**	**Q (cfs)**	**V (cf)**
Area A (2-Yr)	1.324	-	1367	0.843	1728	0.810	2136	0.214	2604
Area A (5-Yr)	1.324	-	2331	1.234	2755	1.177	3502	0.390	5202
Area A (10-Yr)	1.324	2.564	3061	1.530	4027	1.455	4670	0.524	7577

Table 2: Post-development Peak Flow Rate and Storm Runoff Volume Summary

Drainage ID / Storm Return Period	**Area (acre)**	**1-Hr**		**3-Hr**		**6-Hr**		**24-Hr**	
		Q (cfs)	**V (cf)**	**Q (cfs)**	**V (cf)**	**Q (cfs)**	**V (cf)**	**Q (cfs)**	**V (cf)**
Area A (2-Yr)	0.582	0.457	349	0.242	462	0.227	591	0.034	903
Area B (2-Yr)	0.742	0.830	748	0.476	1252	0.462	1923	0.117	3683

Area A (5-Yr)	0.582	0.747	627	0.413	734	0.386	913	0.064	1118
Area B (5-Yr)	0.742	1.238	1289	0.698	1686	0.671	2813	0.215	4879
Area A (10-Yr)	0.582	0.967	895	0.543	1031	0.507	1250	0.123	1605
Area B (10-Yr)	0.742	1.547	1698	0.867	2245	0.830	3166	0.289	6082

Table 3: 100-Year 24-Hr Storm Runoff Volume Comparison

Storm Event	**Pre-dev**	**Post-dev**		**Volume Difference**
	Area A	**Area A**	**Area B**	
$V_{10\text{-YR }24\text{-HR}}$	7577	1605	6082	110

CONCLUSION:

Two (2) bioretention basins are proposed with ponding depth of 0.5 ft, soil media depth of 1.5 ft and gravel depth of 1.0 ft. The basins have volume capacities of 1,624 cf for Area A and 3,173 cf for Area B. The volume is more than adequate to contain the increase in the 100-Yr 24-Hr storm volumes from the development.

VICINITY MAP

ATTACHMENT A

NOAA Atlas 14, Volume 6, Version 2
Location name: Lake Elsinore, California, USA*
Latitude: 33.698°, Longitude: -117.3335°
Elevation: 1327.17 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.084** (0.071-0.102)	**0.115** (0.096-0.139)	**0.156** (0.130-0.189)	**0.191** (0.158-0.233)	**0.239** (0.191-0.303)	**0.278** (0.217-0.359)	**0.318** (0.242-0.422)	**0.361** (0.267-0.493)	**0.420** (0.297-0.600)	**0.468** (0.319-0.694)
10-min	**0.121** (0.101-0.146)	**0.165** (0.138-0.199)	**0.224** (0.187-0.271)	**0.273** (0.226-0.334)	**0.343** (0.274-0.434)	**0.398** (0.311-0.515)	**0.456** (0.347-0.605)	**0.517** (0.382-0.707)	**0.603** (0.426-0.861)	**0.671** (0.458-0.994)
15-min	**0.146** (0.123-0.176)	**0.199** (0.167-0.240)	**0.271** (0.226-0.328)	**0.331** (0.274-0.404)	**0.415** (0.331-0.525)	**0.482** (0.376-0.623)	**0.551** (0.420-0.732)	**0.625** (0.462-0.855)	**0.729** (0.515-1.04)	**0.812** (0.554-1.20)
30-min	**0.226** (0.189-0.272)	**0.307** (0.257-0.371)	**0.418** (0.349-0.506)	**0.510** (0.422-0.623)	**0.640** (0.511-0.810)	**0.743** (0.581-0.962)	**0.851** (0.648-1.13)	**0.965** (0.713-1.32)	**1.13** (0.795-1.61)	**1.25** (0.854-1.86)
60-min	**0.355** (0.297-0.428)	**0.483** (0.404-0.583)	**0.657** (0.548-0.795)	**0.802** (0.664-0.980)	**1.01** (0.804-1.27)	**1.17** (0.913-1.51)	**1.34** (1.02-1.78)	**1.52** (1.12-2.07)	**1.77** (1.25-2.53)	**1.97** (1.34-2.92)
2-hr	**0.544** (0.456-0.656)	**0.710** (0.594-0.857)	**0.934** (0.780-1.13)	**1.12** (0.929-1.37)	**1.39** (1.11-1.76)	**1.60** (1.25-2.07)	**1.82** (1.39-2.42)	**2.06** (1.52-2.82)	**2.39** (1.69-3.41)	**2.66** (1.81-3.94)
3-hr	**0.680** (0.570-0.820)	**0.877** (0.734-1.06)	**1.15** (0.955-1.39)	**1.37** (1.13-1.67)	**1.69** (1.35-2.13)	**1.94** (1.51-2.50)	**2.20** (1.67-2.92)	**2.48** (1.83-3.38)	**2.86** (2.03-4.09)	**3.18** (2.17-4.70)
6-hr	**0.978** (0.820-1.18)	**1.27** (1.06-1.53)	**1.65** (1.38-2.00)	**1.97** (1.63-2.41)	**2.41** (1.93-3.05)	**2.76** (2.16-3.57)	**3.12** (2.38-4.14)	**3.50** (2.59-4.79)	**4.02** (2.85-5.75)	**4.44** (3.03-6.58)
12-hr	**1.27** (1.07-1.53)	**1.73** (1.45-2.08)	**2.32** (1.93-2.80)	**2.79** (2.31-3.41)	**3.43** (2.74-4.34)	**3.92** (3.06-5.06)	**4.41** (3.35-5.85)	**4.91** (3.62-6.71)	**5.58** (3.94-7.96)	**6.09** (4.15-9.02)
24-hr	**1.67** (1.48-1.93)	**2.43** (2.15-2.81)	**3.39** (2.98-3.92)	**4.14** (3.62-4.83)	**5.13** (4.34-6.18)	**5.86** (4.86-7.21)	**6.58** (5.33-8.29)	**7.31** (5.76-9.46)	**8.26** (6.26-11.1)	**8.98** (6.58-12.5)
2-day	**1.99** (1.76-2.30)	**3.01** (2.66-3.48)	**4.29** (3.78-4.97)	**5.31** (4.64-6.20)	**6.64** (5.62-8.01)	**7.63** (6.33-9.39)	**8.62** (6.98-10.9)	**9.61** (7.57-12.4)	**10.9** (8.26-14.7)	**11.9** (8.71-16.6)
3-day	**2.16** (1.91-2.50)	**3.32** (2.93-3.83)	**4.79** (4.21-5.54)	**5.96** (5.20-6.95)	**7.51** (6.35-9.05)	**8.67** (7.19-10.7)	**9.83** (7.96-12.4)	**11.0** (8.68-14.2)	**12.6** (9.51-16.9)	**13.7** (10.1-19.1)
4-day	**2.34** (2.07-2.70)	**3.61** (3.18-4.17)	**5.24** (4.61-6.07)	**6.55** (5.72-7.65)	**8.30** (7.02-10.0)	**9.62** (7.98-11.8)	**10.9** (8.87-13.8)	**12.3** (9.70-15.9)	**14.1** (10.7-19.0)	**15.5** (11.3-21.6)
7-day	**2.66** (2.35-3.07)	**4.09** (3.61-4.72)	**5.97** (5.26-6.91)	**7.51** (6.56-8.77)	**9.61** (8.13-11.6)	**11.2** (9.32-13.8)	**12.9** (10.5-16.3)	**14.6** (11.5-18.9)	**17.0** (12.9-22.9)	**18.8** (13.8-26.2)
10-day	**2.82** (2.49-3.25)	**4.31** (3.80-4.98)	**6.30** (5.55-7.30)	**7.96** (6.96-9.30)	**10.3** (8.69-12.4)	**12.1** (10.0-14.9)	**14.0** (11.3-17.6)	**15.9** (12.6-20.6)	**18.7** (14.1-25.2)	**20.9** (15.3-29.0)
20-day	**3.37** (2.98-3.89)	**5.11** (4.51-5.91)	**7.51** (6.61-8.70)	**9.56** (8.35-11.2)	**12.5** (10.6-15.1)	**14.9** (12.3-18.3)	**17.4** (14.1-21.9)	**20.1** (15.8-26.0)	**24.0** (18.2-32.3)	**27.1** (19.9-37.8)
30-day	**3.98** (3.52-4.60)	**5.95** (5.25-6.88)	**8.71** (7.67-10.1)	**11.1** (9.71-13.0)	**14.6** (12.4-17.6)	**17.5** (14.5-21.5)	**20.6** (16.7-25.9)	**24.0** (18.9-31.0)	**28.9** (21.9-38.9)	**33.0** (24.1-45.9)
45-day	**4.70** (4.15-5.42)	**6.86** (6.06-7.93)	**9.95** (8.76-11.5)	**12.7** (11.1-14.8)	**16.7** (14.1-20.1)	**20.1** (16.7-24.7)	**23.8** (19.3-29.9)	**27.9** (22.0-36.1)	**33.9** (25.7-45.7)	**39.0** (28.6-54.3)
60-day	**5.44** (4.81-6.28)	**7.77** (6.86-8.98)	**11.1** (9.80-12.9)	**14.1** (12.3-16.5)	**18.6** (15.7-22.4)	**22.4** (18.6-27.6)	**26.6** (21.6-33.5)	**31.3** (24.7-40.5)	**38.3** (29.0-51.6)	**44.3** (32.5-61.8)

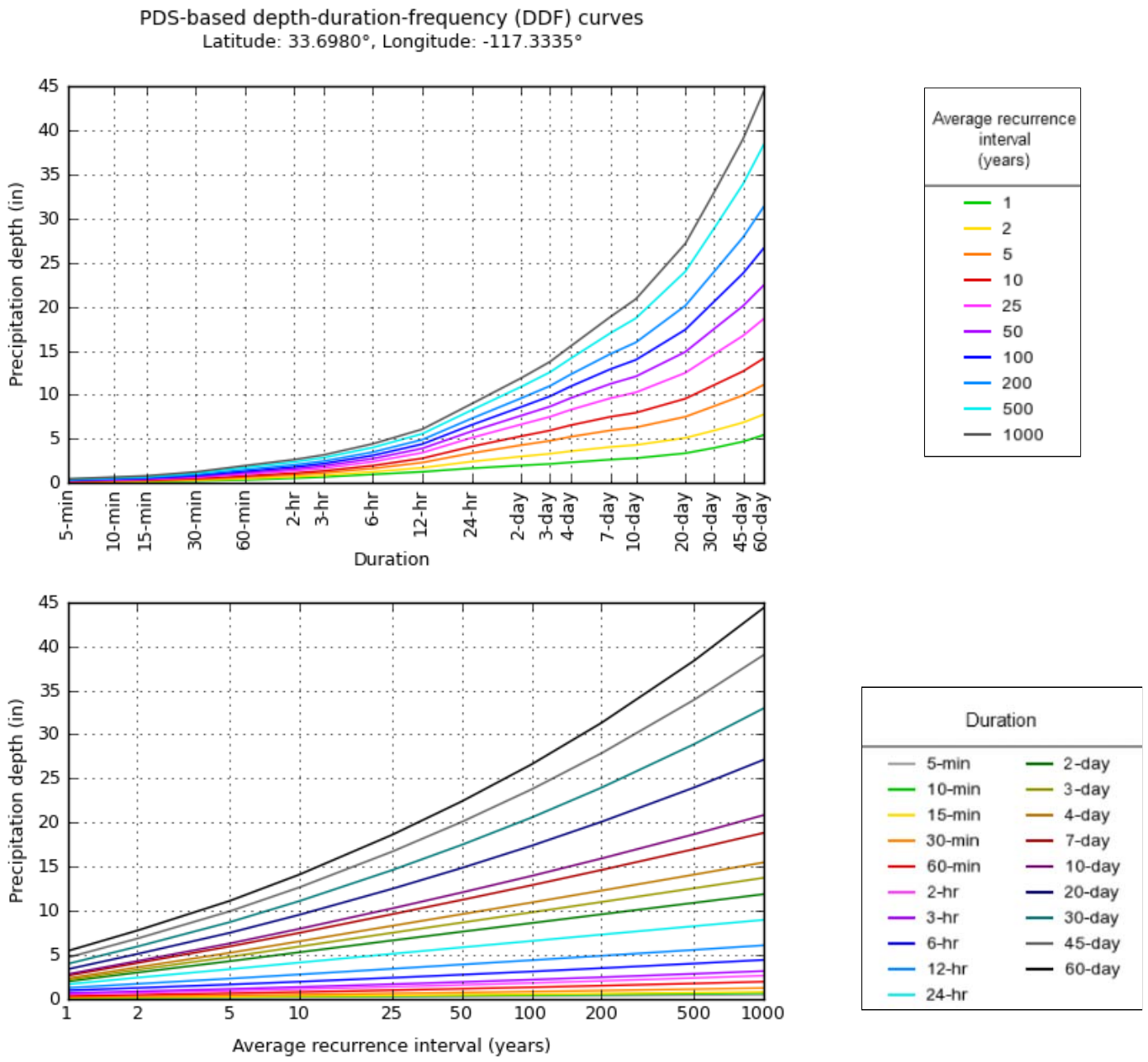
[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

Back to Top

PF graphical



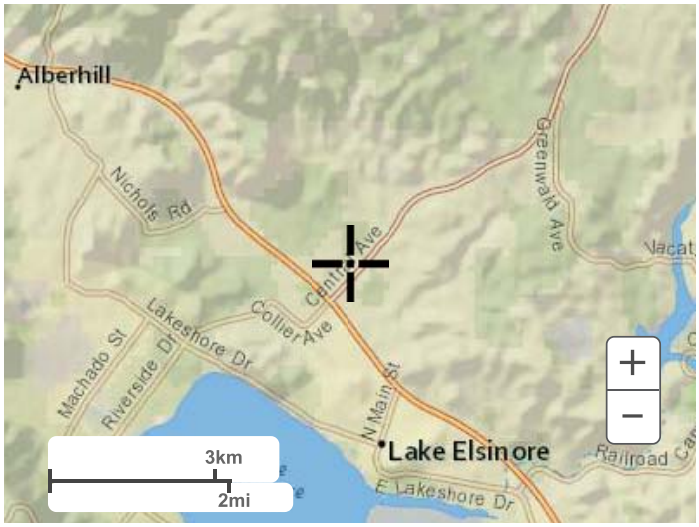
NOAA Atlas 14, Volume 6, Version 2

Created (GMT): Mon Jan 27 06:15:28 2020

Back to Top

Maps & aerials

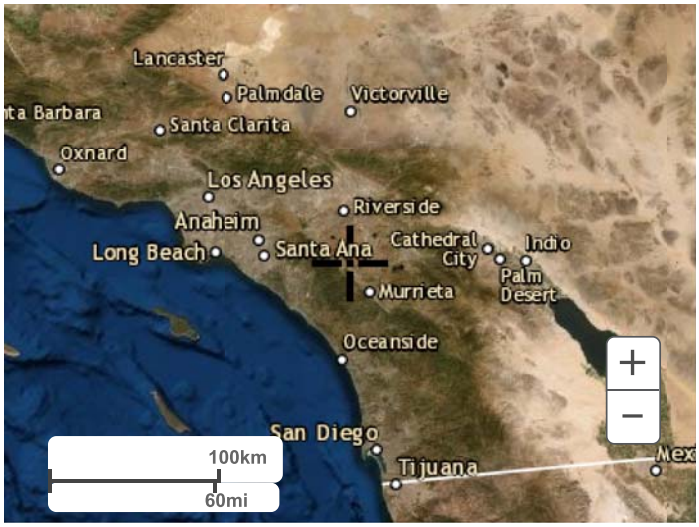
Small scale terrain



Large scale terrain

Large scale map

Large scale aerial



Back to Top

US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

ATTACHMENT B

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 Western Riverside Area, California

September 19, 2020

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
Western Riverside Area, California.....13
AlC—Arbuckle gravelly loam, 2 to 9 percent slopes, dry, MLRA 19.....13
CmC—Cortina cobbly loamy sand, 2 to 8 percent slopes.....14
LpF2—Lodo rocky loam, 25 to 50 percent slopes, eroded.....15
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 Scale: 1:861 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 10 20 40 60

Feet: 0 40 80 160 240

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

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 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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: Western Riverside Area, California
Survey Area Data: Version 13, May 27, 2020

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

Date(s) aerial images were photographed: Apr 17, 2018—Jun 28, 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
AlC	Arbuckle gravelly loam, 2 to 9 percent slopes, dry, MLRA 19	0.1	4.0%
CmC	Cortina cobbly loamy sand, 2 to 8 percent slopes	0.9	64.0%
LpF2	Lodo rocky loam, 25 to 50 percent slopes, eroded	0.4	31.9%
Totals for Area of Interest		**1.4**	**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.

Western Riverside Area, California

AIC—Arbuckle gravelly loam, 2 to 9 percent slopes, dry, MLRA 19

Map Unit Setting

National map unit symbol: 2w8cx
Elevation: 690 to 1,470 feet
Mean annual precipitation: 11 to 18 inches
Mean annual air temperature: 64 to 65 degrees F
Frost-free period: 325 to 359 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Arbuckle and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Arbuckle

Setting

Landform: Fan remnants
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous, metamorphic and sedimentary rock

Typical profile

Ap - 0 to 6 inches: gravelly loam
A - 6 to 12 inches: gravelly very fine sandy loam
Bw - 12 to 26 inches: gravelly loam
Bt1 - 26 to 30 inches: gravelly clay loam
Bt2 - 30 to 45 inches: gravelly clay loam
C - 45 to 68 inches: very gravelly sandy loam

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.2 to 0.5 mmhos/cm)
Available water capacity: Moderate (about 6.7 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: R019XD029CA
Hydric soil rating: No

Minor Components

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

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

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

CmC—Cortina cobbly loamy sand, 2 to 8 percent slopes

Map Unit Setting
National map unit symbol: hcsh
Elevation: 30 to 2,400 feet
Mean annual precipitation: 12 to 40 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 240 to 270 days
Farmland classification: Not prime farmland

Map Unit Composition
Cortina and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cortina

Setting
Landform: Alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from metasedimentary rock

Typical profile
H1 - 0 to 23 inches: cobbly loamy sand
H2 - 23 to 38 inches: stratified very cobbly loamy sand to very cobbly loam
H3 - 38 to 60 inches: stratified very gravelly sand to very gravelly loamy sand

Properties and qualities
Slope: 2 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: 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 capacity: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: A
Ecological site: R019XD069CA - SANDY ALLUVIAL (1975)
Hydric soil rating: No

Minor Components

Riverwash

Percent of map unit: 10 percent
Landform: Channels
Hydric soil rating: Yes

Garretson

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

LpF2—Lodo rocky loam, 25 to 50 percent slopes, eroded

Map Unit Setting

National map unit symbol: hcws
Elevation: 300 to 3,500 feet
Mean annual precipitation: 12 to 35 inches
Mean annual air temperature: 59 to 64 degrees F
Frost-free period: 230 to 250 days
Farmland classification: Not prime farmland

Map Unit Composition

Lodo and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lodo

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Metamorphosed residuum weathered from sandstone

Typical profile

H1 - 0 to 8 inches: gravelly loam
H2 - 8 to 19 inches: unweathered bedrock

Properties and qualities

Slope: 25 to 50 percent
Depth to restrictive feature: 8 to 20 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 1.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Ecological site: R019XD060CA - SHALLOW LOAMY (1975)
Hydric soil rating: No

Minor Components

Escondido

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

Tumescal

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

Vallecitos

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

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

ATTACHMENT C

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 1999, Version 6.0
Study date 09/23/20 File: APRE2YR12.out

++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

28771 Central Avenue Gas Station
Area A
Pre-development
1-Hr 2-Yr Storm Event

Drainage Area = 1.32(Ac.) = 0.002 Sq. Mi.
Length along longest watercourse = 408.00(Ft.)
Length along longest watercourse measured to centroid = 87.50(Ft.)
Length along longest watercourse = 0.077 Mi.
Length along longest watercourse measured to centroid = 0.017 Mi.
Difference in elevation = 16.34(Ft.)
Slope along watercourse = 211.4588 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.021 Hr.
Lag time = 1.24 Min.
25% of lag time = 0.31 Min.
40% of lag time = 0.50 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.32	0.48	0.64

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.32	1.34	1.77

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 0.483(In)
Area Averaged 100-Year Rainfall = 1.340(In)

Point rain (area averaged) = 0.483(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 0.483(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
1.324 83.00 0.059
Total Area Entered = 1.32(Ac.)

RI RI Infil. Rate Impervious Adj. Infil. Rate Area% F
AMC2 AMC-2 (In/Hr) (Dec.%) (In/Hr) (Dec.) (In/Hr)
83.0 83.0 0.210 0.059 0.199 1.000 0.199
Sum (F) = 0.199
Area averaged mean soil loss (F) (In/Hr) = 0.199
Minimum soil loss rate ((In/Hr)) = 0.099
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.853

Slope of intensity-duration curve for a 1 hour storm =0.4800

U n i t H y d r o g r a p h
DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	402.223	65.137	0.869
2	0.167	804.446	34.863	0.465
	Sum = 100.000	Sum=	1.334

Storm Event 3 Effective Rainfall = 0.092(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	4.40	0.048	0.199	0.041	0.01
2	0.17	4.50	0.050	0.199	0.042	0.01
3	0.25	5.40	0.059	0.199	0.051	0.01
4	0.33	5.40	0.059	0.199	0.051	0.01
5	0.42	5.70	0.063	0.199	0.054	0.01
6	0.50	6.40	0.070	0.199	0.060	0.01
7	0.58	7.90	0.087	0.199	0.074	0.01
8	0.67	9.10	0.100	0.199	0.086	0.01
9	0.75	12.80	0.141	0.199	0.120	0.02
10	0.83	25.60	0.282	0.199	---	0.08
11	0.92	7.90	0.087	0.199	0.074	0.01
12	1.00	4.90	0.054	0.199	0.046	0.01
Sum =		100.0		Sum =		0.2

Flood volume = Effective rainfall 0.02(In)
times area 1.3(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)
Total soil loss = 0.07(In)
Total soil loss = 0.008(Ac.Ft)
Total rainfall = 0.09(In)
Flood volume = 81.5 Cubic Feet
Total soil loss = 359.5 Cubic Feet

Storm Event 2 Effective Rainfall = 0.174(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	4.40	0.092	0.199	0.078	0.01
2	0.17	4.50	0.094	0.199	0.080	0.01

3	0.25	5.40	0.113	0.199	0.096	0.02
4	0.33	5.40	0.113	0.199	0.096	0.02
5	0.42	5.70	0.119	0.199	0.101	0.02
6	0.50	6.40	0.134	0.199	0.114	0.02
7	0.58	7.90	0.165	0.199	0.141	0.02
8	0.67	9.10	0.190	0.199	0.162	0.03
9	0.75	12.80	0.267	0.199	---	0.07
10	0.83	25.60	0.534	0.199	---	0.34
11	0.92	7.90	0.165	0.199	0.141	0.02
12	1.00	4.90	0.102	0.199	0.087	0.02
Sum =		100.0			Sum =	0.6

Flood volume = Effective rainfall 0.05(In)
times area 1.3(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)
Total soil loss = 0.12(In)
Total soil loss = 0.014(Ac.Ft)
Total rainfall = 0.17(In)
Flood volume = 237.3 Cubic Feet
Total soil loss = 598.3 Cubic Feet

Storm Event 1 Effective Rainfall = 0.483(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	4.40	0.255	0.199	---	0.06
2	0.17	4.50	0.261	0.199	---	0.06
3	0.25	5.40	0.313	0.199	---	0.11
4	0.33	5.40	0.313	0.199	---	0.11
5	0.42	5.70	0.330	0.199	---	0.13
6	0.50	6.40	0.371	0.199	---	0.17
7	0.58	7.90	0.458	0.199	---	0.26
8	0.67	9.10	0.527	0.199	---	0.33
9	0.75	12.80	0.742	0.199	---	0.54
10	0.83	25.60	1.484	0.199	---	1.29
11	0.92	7.90	0.458	0.199	---	0.26
12	1.00	4.90	0.284	0.199	---	0.09
Sum =		100.0			Sum =	3.4

Flood volume = Effective rainfall 0.28(In)
times area 1.3(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)
Total soil loss = 0.20(In)
Total soil loss = 0.022(Ac.Ft)
Total rainfall = 0.48(In)
Flood volume = 1366.5 Cubic Feet
Total soil loss = 954.8 Cubic Feet

Peak flow rate of this hydrograph =

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 1999, Version 6.0
Study date 09/23/20 File: APRE2YR15.out

++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

28771 Central Avenue Gas Station
Area A
Pre-development
1-Hr 5-Year Storm Event

Drainage Area = 1.32(Ac.) = 0.002 Sq. Mi.
Length along longest watercourse = 408.00(Ft.)
Length along longest watercourse measured to centroid = 87.50(Ft.)
Length along longest watercourse = 0.077 Mi.
Length along longest watercourse measured to centroid = 0.017 Mi.
Difference in elevation = 16.34(Ft.)
Slope along watercourse = 211.4588 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.021 Hr.
Lag time = 1.24 Min.
25% of lag time = 0.31 Min.
40% of lag time = 0.50 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.32	0.48	0.64

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.32	1.34	1.77

STORM EVENT (YEAR) = 5.00
Area Averaged 2-Year Rainfall = 0.483(In)
Area Averaged 100-Year Rainfall = 1.340(In)

Point rain (area averaged) = 0.684(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 0.684(In)

Sub-Area Data:

Area(Ac.) Runoff Index Impervious %
1.324 83.00 0.059
Total Area Entered = 1.32(Ac.)

RI RI Infil. Rate Impervious Adj. Infil. Rate Area% F
AMC2 AMC-2 (In/Hr) (Dec.%) (In/Hr) (Dec.) (In/Hr)
83.0 83.0 0.210 0.059 0.199 1.000 0.199
Sum (F) = 0.199
Area averaged mean soil loss (F) (In/Hr) = 0.199
Minimum soil loss rate ((In/Hr)) = 0.099
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.853

Slope of intensity-duration curve for a 1 hour storm =0.4800

U n i t H y d r o g r a p h
DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	402.223	65.137	0.869
2	0.167	804.446	34.863	0.465
	Sum = 100.000	Sum=	1.334

Storm Event 3 Effective Rainfall = 0.130(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	4.40	0.069	0.199	0.059	0.01
2	0.17	4.50	0.070	0.199	0.060	0.01
3	0.25	5.40	0.084	0.199	0.072	0.01
4	0.33	5.40	0.084	0.199	0.072	0.01
5	0.42	5.70	0.089	0.199	0.076	0.01
6	0.50	6.40	0.100	0.199	0.085	0.01
7	0.58	7.90	0.123	0.199	0.105	0.02
8	0.67	9.10	0.142	0.199	0.121	0.02
9	0.75	12.80	0.200	0.199	---	0.00
10	0.83	25.60	0.399	0.199	---	0.20
11	0.92	7.90	0.123	0.199	0.105	0.02
12	1.00	4.90	0.076	0.199	0.065	0.01
Sum =		100.0		Sum =		0.3

Flood volume = Effective rainfall 0.03(In)
times area 1.3(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)
Total soil loss = 0.10(In)
Total soil loss = 0.011(Ac.Ft)
Total rainfall = 0.13(In)
Flood volume = 137.1 Cubic Feet
Total soil loss = 487.3 Cubic Feet

Storm Event 2 Effective Rainfall = 0.246(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	4.40	0.130	0.199	0.111	0.02
2	0.17	4.50	0.133	0.199	0.113	0.02

3	0.25	5.40	0.159	0.199	0.136	0.02
4	0.33	5.40	0.159	0.199	0.136	0.02
5	0.42	5.70	0.168	0.199	0.144	0.02
6	0.50	6.40	0.189	0.199	0.161	0.03
7	0.58	7.90	0.233	0.199	---	0.03
8	0.67	9.10	0.269	0.199	---	0.07
9	0.75	12.80	0.378	0.199	---	0.18
10	0.83	25.60	0.756	0.199	---	0.56
11	0.92	7.90	0.233	0.199	---	0.03
12	1.00	4.90	0.145	0.199	0.123	0.02
Sum =		100.0		Sum =		1.0

Flood volume = Effective rainfall 0.09(In)
times area 1.3(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)
Total soil loss = 0.16(In)
Total soil loss = 0.018(Ac.Ft)
Total rainfall = 0.25(In)
Flood volume = 414.7 Cubic Feet
Total soil loss = 768.2 Cubic Feet

Storm Event 1 Effective Rainfall = 0.684(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	4.40	0.361	0.199	---	0.16
2	0.17	4.50	0.369	0.199	---	0.17
3	0.25	5.40	0.443	0.199	---	0.24
4	0.33	5.40	0.443	0.199	---	0.24
5	0.42	5.70	0.468	0.199	---	0.27
6	0.50	6.40	0.525	0.199	---	0.33
7	0.58	7.90	0.648	0.199	---	0.45
8	0.67	9.10	0.747	0.199	---	0.55
9	0.75	12.80	1.050	0.199	---	0.85
10	0.83	25.60	2.100	0.199	---	1.90
11	0.92	7.90	0.648	0.199	---	0.45
12	1.00	4.90	0.402	0.199	---	0.20
Sum =		100.0		Sum =		5.8

Flood volume = Effective rainfall 0.49(In)
times area 1.3(Ac.)/[(In)/(Ft.)] = 0.1(Ac.Ft)
Total soil loss = 0.20(In)
Total soil loss = 0.022(Ac.Ft)
Total rainfall = 0.68(In)
Flood volume = 2331.3 Cubic Feet
Total soil loss = 954.8 Cubic Feet

Peak flow rate of this

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 1999, Version 6.0
Study date 09/23/20 File: APRE2YR110.out

++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

28771 Central Avenue Gas Station
Area A
Pre-development
1-Hr 10-Yr Storm Event

Drainage Area = 1.32(Ac.) = 0.002 Sq. Mi.
Length along longest watercourse = 408.00(Ft.)
Length along longest watercourse measured to centroid = 87.50(Ft.)
Length along longest watercourse = 0.077 Mi.
Length along longest watercourse measured to centroid = 0.017 Mi.
Difference in elevation = 16.34(Ft.)
Slope along watercourse = 211.4588 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.021 Hr.
Lag time = 1.24 Min.
25% of lag time = 0.31 Min.
40% of lag time = 0.50 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.32	0.48	0.64

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.32	1.34	1.77

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 0.483(In)
Area Averaged 100-Year Rainfall = 1.340(In)

Point rain (area averaged) = 0.836(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 0.836(In)

Sub-Area Data:

```
Area(Ac.)        Runoff Index   Impervious %
   1.324          83.00         0.059
 Total Area Entered =      1.32(Ac.)


RI    RI   Infil. Rate Impervious   Adj. Infil. Rate  Area%     F
AMC2 AMC-2    (In/Hr)   (Dec.%)    (In/Hr)     (Dec.)    (In/Hr)
83.0  83.0     0.210     0.059       0.199       1.000     0.199
                              Sum (F) =   0.199
Area averaged mean soil loss (F) (In/Hr) =  0.199
Minimum soil loss rate ((In/Hr)) =  0.099
(for 24 hour storm duration)
Soil low loss rate (decimal) =   0.853
------------------------------------------------------------------------
Slope of intensity-duration curve for a 1 hour storm =0.4800
------------------------------------------------------------------------

                          U n i t  H y d r o g r a p h
                                DESERT S-Curve
------------------------------------------------------------------------
                          Unit Hydrograph Data
------------------------------------------------------------------------
Unit time period   Time % of lag   Distribution   Unit Hydrograph
   (hrs)              Graph %          (CFS)
------------------------------------------------------------------------
   1   0.083       402.223        65.137            0.869
   2   0.167       804.446        34.863            0.465
                     Sum = 100.000   Sum=      1.334
------------------------------------------------------------------------


 Unit Time   Pattern   Storm Rain    Loss rate(In./Hr)     Effective
    (Hr.)  Percent   (In/Hr)       Max   |   Low       (In/Hr)
 1   0.08     4.40     0.441        0.199      ---         0.24
 2   0.17     4.50     0.451        0.199      ---         0.25
 3   0.25     5.40     0.541        0.199      ---         0.34
 4   0.33     5.40     0.541        0.199      ---         0.34
 5   0.42     5.70     0.572        0.199      ---         0.37
 6   0.50     6.40     0.642        0.199      ---         0.44
 7   0.58     7.90     0.792        0.199      ---         0.59
 8   0.67     9.10     0.912        0.199      ---         0.71
 9   0.75    12.80     1.283        0.199      ---         1.08
10   0.83    25.60     2.567        0.199      ---         2.37
11   0.92     7.90     0.792        0.199      ---         0.59
12   1.00     4.90     0.491        0.199      ---         0.29
  Sum =     100.0                          Sum =     7.6
          Flood volume = Effective rainfall     0.64(In)
           times area      1.3(Ac.)/[(In)/(Ft.)] =      0.1(Ac.Ft)
          Total soil loss =      0.20(In)
          Total soil loss =     0.022(Ac.Ft)
          Total rainfall =      0.84(In)
          Flood volume =        3061.1 Cubic Feet
          Total soil loss =         954.8 Cubic Feet
          ------------------------------------------------------------------
           Peak flow rate of this hydrograph =      2.564(CFS)
          ------------------------------------------------------------------
          ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                       1 - H O U R   S T O R M
                     R u n o f f     H y d r o g r a p h
          ------------------------------------------------------------------
                   Hydrograph in   5   Minute intervals ((CFS))

          ------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0       2.5       5.0       7.5      10.0
------------------------------------------------------------------------
```

```
  0+ 5     0.0015     0.21  Q       |       |       |       |
  0+10     0.0037     0.33  |QV     |       |       |       |
  0+15     0.0066     0.42  |Q V    |       |       |       |
  0+20     0.0098     0.46  |Q  V   |       |       |       |
  0+25     0.0131     0.48  |Q    V |       |       |       |
  0+30     0.0169     0.56  | Q     V|       |       |       |
  0+35     0.0219     0.72  | Q      | V      |       |       |
  0+40     0.0281     0.90  |  Q     |   V   |       |       |
  0+45     0.0369     1.28  |    Q   |       V       |       |
  0+50     0.0545     2.56  |        Q       |       |V      |
  0+55     0.0657     1.62  |    Q   |       |       |    V  |
  1+ 0     0.0693     0.53  | Q      |       |       |      V|
  1+ 5     0.0703     0.14  Q       |       |       |      V|
--------------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 1999, Version 6.0
Study date 09/23/20 File: APRE2YR32.out

++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

28771 Central Avenue Gas Station
Area A
Pre-development
3-Hr 2-Yr Storm Event

Drainage Area = 1.32(Ac.) = 0.002 Sq. Mi.
Length along longest watercourse = 408.00(Ft.)
Length along longest watercourse measured to centroid = 87.50(Ft.)
Length along longest watercourse = 0.077 Mi.
Length along longest watercourse measured to centroid = 0.017 Mi.
Difference in elevation = 16.34(Ft.)
Slope along watercourse = 211.4588 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.021 Hr.
Lag time = 1.24 Min.
25% of lag time = 0.31 Min.
40% of lag time = 0.50 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.32	0.88	1.16

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.32	2.20	2.91

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 0.877(In)
Area Averaged 100-Year Rainfall = 2.200(In)

Point rain (area averaged) = 0.877(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 0.877(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
1.324	83.00	0.059

Total Area Entered = 1.32(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
83.0	83.0	0.210	0.059	0.199	1.000	0.199

Sum (F) = 0.199

Area averaged mean soil loss (F) (In/Hr) = 0.199

Minimum soil loss rate ((In/Hr)) = 0.099

(for 24 hour storm duration)

Soil low loss rate (decimal) = 0.853

U n i t H y d r o g r a p h

DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Graph %	Distribution (CFS)	Unit Hydrograph
1	0.083	402.223	65.137	0.869
2	0.167	804.446	34.863	0.465

Sum = 100.000 Sum= 1.334

Storm Event 3 Effective Rainfall = 0.167(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.026	0.199	0.022	0.00
2	0.17	1.30	0.026	0.199	0.022	0.00
3	0.25	1.10	0.022	0.199	0.019	0.00
4	0.33	1.50	0.030	0.199	0.026	0.00
5	0.42	1.50	0.030	0.199	0.026	0.00
6	0.50	1.80	0.036	0.199	0.031	0.01
7	0.58	1.50	0.030	0.199	0.026	0.00
8	0.67	1.80	0.036	0.199	0.031	0.01
9	0.75	1.80	0.036	0.199	0.031	0.01
10	0.83	1.50	0.030	0.199	0.026	0.00
11	0.92	1.60	0.032	0.199	0.027	0.00
12	1.00	1.80	0.036	0.199	0.031	0.01
13	1.08	2.20	0.044	0.199	0.038	0.01
14	1.17	2.20	0.044	0.199	0.038	0.01
15	1.25	2.20	0.044	0.199	0.038	0.01
16	1.33	2.00	0.040	0.199	0.034	0.01
17	1.42	2.60	0.052	0.199	0.044	0.01
18	1.50	2.70	0.054	0.199	0.046	0.01
19	1.58	2.40	0.048	0.199	0.041	0.01
20	1.67	2.70	0.054	0.199	0.046	0.01
21	1.75	3.30	0.066	0.199	0.056	0.01
22	1.83	3.10	0.062	0.199	0.053	0.01
23	1.92	2.90	0.058	0.199	0.049	0.01
24	2.00	3.00	0.060	0.199	0.051	0.01
25	2.08	3.10	0.062	0.199	0.053	0.01
26	2.17	4.20	0.084	0.199	0.072	0.01
27	2.25	5.00	0.100	0.199	0.085	0.01
28	2.33	3.50	0.070	0.199	0.060	0.01
29	2.42	6.80	0.136	0.199	0.116	0.02

30	2.50	7.30	0.146	0.199	0.125	0.02
31	2.58	8.20	0.164	0.199	0.140	0.02
32	2.67	5.90	0.118	0.199	0.101	0.02
33	2.75	2.00	0.040	0.199	0.034	0.01
34	2.83	1.80	0.036	0.199	0.031	0.01
35	2.92	1.80	0.036	0.199	0.031	0.01
36	3.00	0.60	0.012	0.199	0.010	0.00
Sum =		100.0			Sum =	0.3

Flood volume = Effective rainfall 0.02(In)
times area 1.3(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)
Total soil loss = 0.14(In)
Total soil loss = 0.016(Ac.Ft)
Total rainfall = 0.17(In)
Flood volume = 117.6 Cubic Feet
Total soil loss = 683.3 Cubic Feet

Storm Event 2 Effective Rainfall = 0.316(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.049	0.199	0.042	0.01
2	0.17	1.30	0.049	0.199	0.042	0.01
3	0.25	1.10	0.042	0.199	0.036	0.01
4	0.33	1.50	0.057	0.199	0.048	0.01
5	0.42	1.50	0.057	0.199	0.048	0.01
6	0.50	1.80	0.068	0.199	0.058	0.01
7	0.58	1.50	0.057	0.199	0.048	0.01
8	0.67	1.80	0.068	0.199	0.058	0.01
9	0.75	1.80	0.068	0.199	0.058	0.01
10	0.83	1.50	0.057	0.199	0.048	0.01
11	0.92	1.60	0.061	0.199	0.052	0.01
12	1.00	1.80	0.068	0.199	0.058	0.01
13	1.08	2.20	0.083	0.199	0.071	0.01
14	1.17	2.20	0.083	0.199	0.071	0.01
15	1.25	2.20	0.083	0.199	0.071	0.01
16	1.33	2.00	0.076	0.199	0.065	0.01
17	1.42	2.60	0.099	0.199	0.084	0.01
18	1.50	2.70	0.102	0.199	0.087	0.02
19	1.58	2.40	0.091	0.199	0.078	0.01
20	1.67	2.70	0.102	0.199	0.087	0.02
21	1.75	3.30	0.125	0.199	0.107	0.02
22	1.83	3.10	0.117	0.199	0.100	0.02
23	1.92	2.90	0.110	0.199	0.094	0.02
24	2.00	3.00	0.114	0.199	0.097	0.02
25	2.08	3.10	0.117	0.199	0.100	0.02
26	2.17	4.20	0.159	0.199	0.136	0.02
27	2.25	5.00	0.189	0.199	0.162	0.03
28	2.33	3.50	0.133	0.199	0.113	0.02
29	2.42	6.80	0.258	0.199	---	0.06
30	2.50	7.30	0.277	0.199	---	0.08
31	2.58	8.20	0.311	0.199	---	0.11
32	2.67	5.90	0.224	0.199	---	0.02
33	2.75	2.00	0.076	0.199	0.065	0.01
34	2.83	1.80	0.068	0.199	0.058	0.01
35	2.92	1.80	0.068	0.199	0.058	0.01
36	3.00	0.60	0.023	0.199	0.019	0.00
Sum =		100.0			Sum =	0.7

Flood volume = Effective rainfall 0.06(In)
times area 1.3(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)
Total soil loss = 0.26(In)
Total soil loss = 0.029(Ac.Ft)
Total rainfall = 0.32(In)
Flood volume = 269.6 Cubic Feet
Total soil loss = 1247.8 Cubic Feet

Storm Event 1 Effective Rainfall = 0.877(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.137	0.199	0.117	0.02
2	0.17	1.30	0.137	0.199	0.117	0.02
3	0.25	1.10	0.116	0.199	0.099	0.02
4	0.33	1.50	0.158	0.199	0.135	0.02
5	0.42	1.50	0.158	0.199	0.135	0.02
6	0.50	1.80	0.189	0.199	0.162	0.03
7	0.58	1.50	0.158	0.199	0.135	0.02
8	0.67	1.80	0.189	0.199	0.162	0.03
9	0.75	1.80	0.189	0.199	0.162	0.03
10	0.83	1.50	0.158	0.199	0.135	0.02
11	0.92	1.60	0.168	0.199	0.144	0.02
12	1.00	1.80	0.189	0.199	0.162	0.03
13	1.08	2.20	0.232	0.199	---	0.03
14	1.17	2.20	0.232	0.199	---	0.03
15	1.25	2.20	0.232	0.199	---	0.03
16	1.33	2.00	0.210	0.199	---	0.01
17	1.42	2.60	0.274	0.199	---	0.07
18	1.50	2.70	0.284	0.199	---	0.09
19	1.58	2.40	0.253	0.199	---	0.05
20	1.67	2.70	0.284	0.199	---	0.09
21	1.75	3.30	0.347	0.199	---	0.15
22	1.83	3.10	0.326	0.199	---	0.13
23	1.92	2.90	0.305	0.199	---	0.11
24	2.00	3.00	0.316	0.199	---	0.12
25	2.08	3.10	0.326	0.199	---	0.13
26	2.17	4.20	0.442	0.199	---	0.24
27	2.25	5.00	0.526	0.199	---	0.33
28	2.33	3.50	0.368	0.199	---	0.17
29	2.42	6.80	0.716	0.199	---	0.52
30	2.50	7.30	0.768	0.199	---	0.57
31	2.58	8.20	0.863	0.199	---	0.66
32	2.67	5.90	0.621	0.199	---	0.42
33	2.75	2.00	0.210	0.199	---	0.01
34	2.83	1.80	0.189	0.199	0.162	0.03
35	2.92	1.80	0.189	0.199	0.162	0.03
36	3.00	0.60	0.063	0.199	0.054	0.01
Sum =		100.0		Sum =		4.3

Flood volume = Effective rainfall 0.36(In)
times area 1.3(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)
Total soil loss = 0.52(In)
Total soil loss = 0.057(Ac.Ft)
Total rainfall = 0.88(In)
Flood volume = 1727.7 Cubic Feet
Total soil loss = 2487.2 Cubic Feet

Peak flow rate of this hydrograph = 0.843(CFS)

++

TOTAL OF: 3 3 - H O U R S T O R M E V E N T S
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0000	0.00	Q	|	|	|	|
0+10	0.0001	0.01	Q	|	|	|	|
0+15	0.0001	0.00	Q	|	|	|	|

0+20	0.0001	0.01	Q	|	|	|	|
0+25	0.0002	0.01	Q	|	|	|	|
0+30	0.0002	0.01	Q	|	|	|	|
0+35	0.0003	0.01	Q	|	|	|	|
0+40	0.0003	0.01	Q	|	|	|	|
0+45	0.0004	0.01	Q	|	|	|	|
0+50	0.0004	0.01	Q	|	|	|	|
0+55	0.0004	0.01	Q	|	|	|	|
1+ 0	0.0005	0.01	Q	|	|	|	|
1+ 5	0.0005	0.01	Q	|	|	|	|
1+10	0.0006	0.01	Q	|	|	|	|
1+15	0.0007	0.01	Q	|	|	|	|
1+20	0.0007	0.01	Q	|	|	|	|
1+25	0.0008	0.01	Q	|	|	|	|
1+30	0.0008	0.01	Q	|	|	|	|
1+35	0.0009	0.01	Q	|	|	|	|
1+40	0.0010	0.01	Q	|	|	|	|
1+45	0.0011	0.01	Q	|	|	|	|
1+50	0.0012	0.01	Q	|	|	|	|
1+55	0.0012	0.01	QV	|	|	|	|
2+ 0	0.0013	0.01	QV	|	|	|	|
2+ 5	0.0014	0.01	QV	|	|	|	|
2+10	0.0015	0.01	QV	|	|	|	|
2+15	0.0016	0.02	QV	|	|	|	|
2+20	0.0017	0.02	QV	|	|	|	|
2+25	0.0019	0.02	QV	|	|	|	|
2+30	0.0021	0.03	QV	|	|	|	|
2+35	0.0023	0.03	QV	|	|	|	|
2+40	0.0025	0.03	Q V	|	|	|	|
2+45	0.0026	0.01	Q V	|	|	|	|
2+50	0.0026	0.01	Q V	|	|	|	|
2+55	0.0027	0.01	Q V	|	|	|	|
3+ 0	0.0027	0.00	Q V	|	|	|	|
3+ 5	0.0027	0.01	Q V	|	|	|	|
3+10	0.0028	0.01	Q V	|	|	|	|
3+15	0.0029	0.01	Q V	|	|	|	|
3+20	0.0029	0.01	Q V	|	|	|	|
3+25	0.0030	0.01	Q V	|	|	|	|
3+30	0.0031	0.01	Q V	|	|	|	|
3+35	0.0032	0.01	Q V	|	|	|	|
3+40	0.0033	0.01	Q V	|	|	|	|
3+45	0.0034	0.01	Q V	|	|	|	|
3+50	0.0034	0.01	Q V	|	|	|	|
3+55	0.0035	0.01	Q V	|	|	|	|
4+ 0	0.0036	0.01	Q V	|	|	|	|
4+ 5	0.0037	0.02	Q V	|	|	|	|
4+10	0.0038	0.02	Q V	|	|	|	|
4+15	0.0039	0.02	Q V	|	|	|	|
4+20	0.0040	0.02	Q V	|	|	|	|
4+25	0.0042	0.02	Q V	|	|	|	|
4+30	0.0043	0.02	Q V	|	|	|	|
4+35	0.0044	0.02	Q V	|	|	|	|
4+40	0.0046	0.02	Q V	|	|	|	|
4+45	0.0047	0.02	Q V	|	|	|	|
4+50	0.0049	0.02	Q V	|	|	|	|
4+55	0.0050	0.02	Q V	|	|	|	|
5+ 0	0.0052	0.02	Q V	|	|	|	|
5+ 5	0.0053	0.02	Q V	|	|	|	|
5+10	0.0055	0.03	Q V	|	|	|	|
5+15	0.0058	0.04	Q V	|	|	|	|
5+20	0.0060	0.03	Q V	|	|	|	|
5+25	0.0064	0.06	Q V	|	|	|	|
5+30	0.0071	0.10	Q V	|	|	|	|
5+35	0.0080	0.13	Q V	|	|	|	|
5+40	0.0085	0.07	Q V	|	|	|	|

```
5+45     0.0086    0.02  Q    V |      |      |      |
5+50     0.0087    0.01  Q    V |      |      |      |
5+55     0.0088    0.01  Q    V |      |      |      |
6+ 0     0.0089    0.01  Q    V |      |      |      |
6+ 5     0.0090    0.02  Q    V |      |      |      |
6+10     0.0092    0.03  Q    V |      |      |      |
6+15     0.0093    0.02  Q    V |      |      |      |
6+20     0.0095    0.03  Q    V |      |      |      |
6+25     0.0097    0.03  Q     V|      |      |      |
6+30     0.0100    0.03  Q     V|      |      |      |
6+35     0.0102    0.03  Q     V|      |      |      |
6+40     0.0105    0.03  Q     V|      |      |      |
6+45     0.0107    0.04  Q     V|      |      |      |
6+50     0.0109    0.03  Q      V|     |      |      |
6+55     0.0112    0.03  Q      V|     |      |      |
7+ 0     0.0114    0.04  Q      V|     |      |      |
7+ 5     0.0117    0.04  Q      V|     |      |      |
7+10     0.0120    0.04  Q      V|     |      |      |
7+15     0.0123    0.04  Q       V     |      |      |
7+20     0.0125    0.03  Q       V     |      |      |
7+25     0.0130    0.07  Q       V     |      |      |
7+30     0.0137    0.11  Q       |V     |      |      |
```

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 1999, Version 6.0
Study date 09/23/20 File: APRE2YR35.out

++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

28771 Central Avenue Gas Station
Area A
Pre-development
3-Hr 5-Yr Storm Event

Drainage Area = 1.32(Ac.) = 0.002 Sq. Mi.
Length along longest watercourse = 408.00(Ft.)
Length along longest watercourse measured to centroid = 87.50(Ft.)
Length along longest watercourse = 0.077 Mi.
Length along longest watercourse measured to centroid = 0.017 Mi.
Difference in elevation = 16.34(Ft.)
Slope along watercourse = 211.4588 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.021 Hr.
Lag time = 1.24 Min.
25% of lag time = 0.31 Min.
40% of lag time = 0.50 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.32	0.88	1.16

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.32	2.20	2.91

STORM EVENT (YEAR) = 5.00
Area Averaged 2-Year Rainfall = 0.877(In)
Area Averaged 100-Year Rainfall = 2.200(In)

Point rain (area averaged) = 1.187(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 1.187(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
1.324	83.00	0.059

Total Area Entered = 1.32(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
83.0	83.0	0.210	0.059	0.199	1.000	0.199

Sum (F) = 0.199

Area averaged mean soil loss (F) (In/Hr) = 0.199

Minimum soil loss rate ((In/Hr)) = 0.099

(for 24 hour storm duration)

Soil low loss rate (decimal) = 0.853

U n i t H y d r o g r a p h

DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	402.223	65.137	0.869
2	0.167	804.446	34.863	0.465
	Sum = 100.000		Sum=	1.334

Storm Event 3 Effective Rainfall = 0.226(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.035	0.199	0.030	0.01
2	0.17	1.30	0.035	0.199	0.030	0.01
3	0.25	1.10	0.030	0.199	0.025	0.00
4	0.33	1.50	0.041	0.199	0.035	0.01
5	0.42	1.50	0.041	0.199	0.035	0.01
6	0.50	1.80	0.049	0.199	0.042	0.01
7	0.58	1.50	0.041	0.199	0.035	0.01
8	0.67	1.80	0.049	0.199	0.042	0.01
9	0.75	1.80	0.049	0.199	0.042	0.01
10	0.83	1.50	0.041	0.199	0.035	0.01
11	0.92	1.60	0.043	0.199	0.037	0.01
12	1.00	1.80	0.049	0.199	0.042	0.01
13	1.08	2.20	0.060	0.199	0.051	0.01
14	1.17	2.20	0.060	0.199	0.051	0.01
15	1.25	2.20	0.060	0.199	0.051	0.01
16	1.33	2.00	0.054	0.199	0.046	0.01
17	1.42	2.60	0.070	0.199	0.060	0.01
18	1.50	2.70	0.073	0.199	0.062	0.01
19	1.58	2.40	0.065	0.199	0.055	0.01
20	1.67	2.70	0.073	0.199	0.062	0.01
21	1.75	3.30	0.089	0.199	0.076	0.01
22	1.83	3.10	0.084	0.199	0.072	0.01
23	1.92	2.90	0.078	0.199	0.067	0.01
24	2.00	3.00	0.081	0.199	0.069	0.01
25	2.08	3.10	0.084	0.199	0.072	0.01
26	2.17	4.20	0.114	0.199	0.097	0.02
27	2.25	5.00	0.135	0.199	0.115	0.02
28	2.33	3.50	0.095	0.199	0.081	0.01
29	2.42	6.80	0.184	0.199	0.157	0.03

30	2.50	7.30	0.198	0.199	0.169	0.03
31	2.58	8.20	0.222	0.199	---	0.02
32	2.67	5.90	0.160	0.199	0.136	0.02
33	2.75	2.00	0.054	0.199	0.046	0.01
34	2.83	1.80	0.049	0.199	0.042	0.01
35	2.92	1.80	0.049	0.199	0.042	0.01
36	3.00	0.60	0.016	0.199	0.014	0.00
Sum =		100.0			Sum =	0.4

Flood volume = Effective rainfall 0.03(In)
times area 1.3(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)
Total soil loss = 0.19(In)
Total soil loss = 0.021(Ac.Ft)
Total rainfall = 0.23(In)
Flood volume = 155.4 Cubic Feet
Total soil loss = 928.4 Cubic Feet

Storm Event 2 Effective Rainfall = 0.427(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.067	0.199	0.057	0.01
2	0.17	1.30	0.067	0.199	0.057	0.01
3	0.25	1.10	0.056	0.199	0.048	0.01
4	0.33	1.50	0.077	0.199	0.066	0.01
5	0.42	1.50	0.077	0.199	0.066	0.01
6	0.50	1.80	0.092	0.199	0.079	0.01
7	0.58	1.50	0.077	0.199	0.066	0.01
8	0.67	1.80	0.092	0.199	0.079	0.01
9	0.75	1.80	0.092	0.199	0.079	0.01
10	0.83	1.50	0.077	0.199	0.066	0.01
11	0.92	1.60	0.082	0.199	0.070	0.01
12	1.00	1.80	0.092	0.199	0.079	0.01
13	1.08	2.20	0.113	0.199	0.096	0.02
14	1.17	2.20	0.113	0.199	0.096	0.02
15	1.25	2.20	0.113	0.199	0.096	0.02
16	1.33	2.00	0.103	0.199	0.087	0.02
17	1.42	2.60	0.133	0.199	0.114	0.02
18	1.50	2.70	0.138	0.199	0.118	0.02
19	1.58	2.40	0.123	0.199	0.105	0.02
20	1.67	2.70	0.138	0.199	0.118	0.02
21	1.75	3.30	0.169	0.199	0.144	0.02
22	1.83	3.10	0.159	0.199	0.136	0.02
23	1.92	2.90	0.149	0.199	0.127	0.02
24	2.00	3.00	0.154	0.199	0.131	0.02
25	2.08	3.10	0.159	0.199	0.136	0.02
26	2.17	4.20	0.215	0.199	---	0.02
27	2.25	5.00	0.256	0.199	---	0.06
28	2.33	3.50	0.179	0.199	0.153	0.03
29	2.42	6.80	0.349	0.199	---	0.15
30	2.50	7.30	0.374	0.199	---	0.18
31	2.58	8.20	0.420	0.199	---	0.22
32	2.67	5.90	0.303	0.199	---	0.10
33	2.75	2.00	0.103	0.199	0.087	0.02
34	2.83	1.80	0.092	0.199	0.079	0.01
35	2.92	1.80	0.092	0.199	0.079	0.01
36	3.00	0.60	0.031	0.199	0.026	0.00
Sum =		100.0			Sum =	1.2

Flood volume = Effective rainfall 0.10(In)
times area 1.3(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)
Total soil loss = 0.33(In)
Total soil loss = 0.036(Ac.Ft)
Total rainfall = 0.43(In)
Flood volume = 479.3 Cubic Feet
Total soil loss = 1574.2 Cubic Feet

Storm Event 1 Effective Rainfall = 1.187(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1 0.08	1.30	0.185	0.199	0.158	0.03
2 0.17	1.30	0.185	0.199	0.158	0.03
3 0.25	1.10	0.157	0.199	0.134	0.02
4 0.33	1.50	0.214	0.199	---	0.01
5 0.42	1.50	0.214	0.199	---	0.01
6 0.50	1.80	0.256	0.199	---	0.06
7 0.58	1.50	0.214	0.199	---	0.01
8 0.67	1.80	0.256	0.199	---	0.06
9 0.75	1.80	0.256	0.199	---	0.06
10 0.83	1.50	0.214	0.199	---	0.01
11 0.92	1.60	0.228	0.199	---	0.03
12 1.00	1.80	0.256	0.199	---	0.06
13 1.08	2.20	0.313	0.199	---	0.11
14 1.17	2.20	0.313	0.199	---	0.11
15 1.25	2.20	0.313	0.199	---	0.11
16 1.33	2.00	0.285	0.199	---	0.09
17 1.42	2.60	0.370	0.199	---	0.17
18 1.50	2.70	0.385	0.199	---	0.19
19 1.58	2.40	0.342	0.199	---	0.14
20 1.67	2.70	0.385	0.199	---	0.19
21 1.75	3.30	0.470	0.199	---	0.27
22 1.83	3.10	0.442	0.199	---	0.24
23 1.92	2.90	0.413	0.199	---	0.21
24 2.00	3.00	0.427	0.199	---	0.23
25 2.08	3.10	0.442	0.199	---	0.24
26 2.17	4.20	0.598	0.199	---	0.40
27 2.25	5.00	0.712	0.199	---	0.51
28 2.33	3.50	0.498	0.199	---	0.30
29 2.42	6.80	0.968	0.199	---	0.77
30 2.50	7.30	1.040	0.199	---	0.84
31 2.58	8.20	1.168	0.199	---	0.97
32 2.67	5.90	0.840	0.199	---	0.64
33 2.75	2.00	0.285	0.199	---	0.09
34 2.83	1.80	0.256	0.199	---	0.06
35 2.92	1.80	0.256	0.199	---	0.06
36 3.00	0.60	0.085	0.199	0.073	0.01
Sum =	100.0		Sum =	7.4	

Flood volume = Effective rainfall 0.61(In)
times area 1.3(Ac.)/[(In)/(Ft.)] = 0.1(Ac.Ft)
Total soil loss = 0.57(In)
Total soil loss = 0.063(Ac.Ft)
Total rainfall = 1.19(In)
Flood volume = 2948.9 Cubic Feet
Total soil loss = 2755.4 Cubic Feet

Peak flow rate of this hydrograph = 1.234(CFS)

++

TOTAL OF: 3 3 - H O U R S T O R M E V E N T S
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0000	0.00	Q	|	|	|	|
0+10	0.0001	0.01	Q	|	|	|	|
0+15	0.0001	0.01	Q	|	|	|	|

0+20	0.0002	0.01	Q	|	|	|	|
0+25	0.0002	0.01	Q	|	|	|	|
0+30	0.0003	0.01	Q	|	|	|	|
0+35	0.0003	0.01	Q	|	|	|	|
0+40	0.0004	0.01	Q	|	|	|	|
0+45	0.0005	0.01	Q	|	|	|	|
0+50	0.0005	0.01	Q	|	|	|	|
0+55	0.0006	0.01	Q	|	|	|	|
1+ 0	0.0007	0.01	Q	|	|	|	|
1+ 5	0.0007	0.01	Q	|	|	|	|
1+10	0.0008	0.01	Q	|	|	|	|
1+15	0.0009	0.01	Q	|	|	|	|
1+20	0.0010	0.01	Q	|	|	|	|
1+25	0.0011	0.01	Q	|	|	|	|
1+30	0.0011	0.01	Q	|	|	|	|
1+35	0.0012	0.01	Q	|	|	|	|
1+40	0.0013	0.01	Q	|	|	|	|
1+45	0.0014	0.02	Q	|	|	|	|
1+50	0.0016	0.02	Q	|	|	|	|
1+55	0.0017	0.02	Q	|	|	|	|
2+ 0	0.0018	0.02	Q	|	|	|	|
2+ 5	0.0019	0.02	Q	|	|	|	|
2+10	0.0020	0.02	Q	|	|	|	|
2+15	0.0022	0.03	QV	|	|	|	|
2+20	0.0024	0.02	QV	|	|	|	|
2+25	0.0026	0.03	QV	|	|	|	|
2+30	0.0028	0.04	QV	|	|	|	|
2+35	0.0031	0.03	QV	|	|	|	|
2+40	0.0033	0.03	QV	|	|	|	|
2+45	0.0034	0.02	QV	|	|	|	|
2+50	0.0035	0.01	QV	|	|	|	|
2+55	0.0035	0.01	QV	|	|	|	|
3+ 0	0.0036	0.01	QV	|	|	|	|
3+ 5	0.0036	0.01	QV	|	|	|	|
3+10	0.0037	0.01	QV	|	|	|	|
3+15	0.0038	0.01	QV	|	|	|	|
3+20	0.0039	0.01	QV	|	|	|	|
3+25	0.0040	0.02	QV	|	|	|	|
3+30	0.0041	0.02	QV	|	|	|	|
3+35	0.0042	0.02	Q V	|	|	|	|
3+40	0.0043	0.02	Q V	|	|	|	|
3+45	0.0045	0.02	Q V	|	|	|	|
3+50	0.0046	0.02	Q V	|	|	|	|
3+55	0.0047	0.02	Q V	|	|	|	|
4+ 0	0.0048	0.02	Q V	|	|	|	|
4+ 5	0.0049	0.02	Q V	|	|	|	|
4+10	0.0051	0.02	Q V	|	|	|	|
4+15	0.0052	0.02	Q V	|	|	|	|
4+20	0.0054	0.02	Q V	|	|	|	|
4+25	0.0056	0.02	Q V	|	|	|	|
4+30	0.0057	0.03	Q V	|	|	|	|
4+35	0.0059	0.03	Q V	|	|	|	|
4+40	0.0061	0.03	Q V	|	|	|	|
4+45	0.0063	0.03	Q V	|	|	|	|
4+50	0.0065	0.03	Q V	|	|	|	|
4+55	0.0067	0.03	Q V	|	|	|	|
5+ 0	0.0069	0.03	Q V	|	|	|	|
5+ 5	0.0071	0.03	Q V	|	|	|	|
5+10	0.0073	0.03	Q V	|	|	|	|
5+15	0.0077	0.06	Q V	|	|	|	|
5+20	0.0081	0.05	Q V	|	|	|	|
5+25	0.0090	0.14	Q V	|	|	|	|
5+30	0.0106	0.22	Q V	|	|	|	|
5+35	0.0125	0.27	|Q V	|	|	|	|
5+40	0.0138	0.19	Q V	|	|	|	|

```
5+45     0.0142    0.06  Q    V  |       |       |       |
5+50     0.0144    0.02  Q    V  |       |       |       |
5+55     0.0145    0.02  Q     V |       |       |       |
6+ 0     0.0145    0.01  Q     V |       |       |       |
6+ 5     0.0147    0.02  Q     V |       |       |       |
6+10     0.0150    0.04  Q     V |       |       |       |
6+15     0.0152    0.03  Q     V |       |       |       |
6+20     0.0153    0.02  Q     V |       |       |       |
6+25     0.0155    0.02  Q     V |       |       |       |
6+30     0.0159    0.06  Q     V |       |       |       |
6+35     0.0162    0.04  Q     V |       |       |       |
6+40     0.0165    0.06  Q      V|       |       |       |
6+45     0.0171    0.08  Q      V|       |       |       |
6+50     0.0174    0.04  Q      V|       |       |       |
6+55     0.0176    0.03  Q      V|       |       |       |
7+ 0     0.0180    0.06  Q     V |       |       |       |
7+ 5     0.0189    0.13  Q      V|       |       |       |
7+10     0.0199    0.15  Q       V|      |       |       |
7+15     0.0210    0.15  Q        V      |       |       |
7+20     0.0219    0.13  Q        V      |       |       |
7+25     0.0232    0.19  Q        |V     |       |       |
7+30     0.0248    0.24  Q        | V    |
```

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 1999, Version 6.0
Study date 09/23/20 File: APRE2YR310.out

++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

28771 Central Avenue Gas Station
Area A
Pre-development
3-Hr 10-Yr Storm Event

Drainage Area = 1.32(Ac.) = 0.002 Sq. Mi.
Length along longest watercourse = 408.00(Ft.)
Length along longest watercourse measured to centroid = 87.50(Ft.)
Length along longest watercourse = 0.077 Mi.
Length along longest watercourse measured to centroid = 0.017 Mi.
Difference in elevation = 16.34(Ft.)
Slope along watercourse = 211.4588 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.021 Hr.
Lag time = 1.24 Min.
25% of lag time = 0.31 Min.
40% of lag time = 0.50 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.32	0.88	1.16

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.32	2.20	2.91

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 0.877(In)
Area Averaged 100-Year Rainfall = 2.200(In)

Point rain (area averaged) = 1.421(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 1.421(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
1.324	83.00	0.059

Total Area Entered = 1.32(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
83.0	83.0	0.210	0.059	0.199	1.000	0.199

Sum (F) = 0.199

Area averaged mean soil loss (F) (In/Hr) = 0.199

Minimum soil loss rate ((In/Hr)) = 0.099

(for 24 hour storm duration)

Soil low loss rate (decimal) = 0.853

U n i t H y d r o g r a p h

DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Graph %	Distribution (CFS)	Unit Hydrograph
1	0.083	402.223	65.137	0.869
2	0.167	804.446	34.863	0.465
		Sum = 100.000	Sum=	1.334

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.222	0.199	---	0.02
2	0.17	1.30	0.222	0.199	---	0.02
3	0.25	1.10	0.188	0.199	0.160	0.03
4	0.33	1.50	0.256	0.199	---	0.06
5	0.42	1.50	0.256	0.199	---	0.06
6	0.50	1.80	0.307	0.199	---	0.11
7	0.58	1.50	0.256	0.199	---	0.06
8	0.67	1.80	0.307	0.199	---	0.11
9	0.75	1.80	0.307	0.199	---	0.11
10	0.83	1.50	0.256	0.199	---	0.06
11	0.92	1.60	0.273	0.199	---	0.07
12	1.00	1.80	0.307	0.199	---	0.11
13	1.08	2.20	0.375	0.199	---	0.18
14	1.17	2.20	0.375	0.199	---	0.18
15	1.25	2.20	0.375	0.199	---	0.18
16	1.33	2.00	0.341	0.199	---	0.14
17	1.42	2.60	0.443	0.199	---	0.24
18	1.50	2.70	0.460	0.199	---	0.26
19	1.58	2.40	0.409	0.199	---	0.21
20	1.67	2.70	0.460	0.199	---	0.26
21	1.75	3.30	0.563	0.199	---	0.36
22	1.83	3.10	0.529	0.199	---	0.33
23	1.92	2.90	0.495	0.199	---	0.30
24	2.00	3.00	0.512	0.199	---	0.31
25	2.08	3.10	0.529	0.199	---	0.33
26	2.17	4.20	0.716	0.199	---	0.52
27	2.25	5.00	0.853	0.199	---	0.65
28	2.33	3.50	0.597	0.199	---	0.40
29	2.42	6.80	1.160	0.199	---	0.96
30	2.50	7.30	1.245	0.199	---	1.05
31	2.58	8.20	1.399	0.199	---	1.20
32	2.67	5.90	1.006	0.199	---	0.81
33	2.75	2.00	0.341	0.199	---	0.14

```
34   2.83    1.80    0.307       0.199     ---         0.11
35   2.92    1.80    0.307       0.199     ---         0.11
36   3.00    0.60    0.102       0.199    0.087        0.02
  Sum =    100.0                          Sum =    10.1
          Flood volume = Effective rainfall     0.84(In)
           times area      1.3(Ac.)/[(In)/(Ft.)] =      0.1(Ac.Ft)
          Total soil loss =     0.58(In)
          Total soil loss =    0.064(Ac.Ft)
          Total rainfall =     1.42(In)
          Flood volume =       4026.6 Cubic Feet
          Total soil loss =    2804.3 Cubic Feet
          ------------------------------------------------------------------------
           Peak flow rate of this hydrograph =     1.530(CFS)
          ------------------------------------------------------------------------
          ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                      3 - H O U R   S T O R M
                    R u n o f f     H y d r o g r a p h
          ------------------------------------------------------------------------
                   Hydrograph in   5   Minute intervals ((CFS))

          ------------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0       2.5      5.0      7.5      10.0
------------------------------------------------------------------------
 0+ 5      0.0001     0.02  Q       |        |        |        |
 0+10      0.0004      0.03  Q       |        |        |        |
 0+15      0.0006      0.03  Q       |        |        |        |
 0+20      0.0010      0.06  Q       |        |        |        |
 0+25      0.0015      0.08  Q       |        |        |        |
 0+30      0.0024      0.12  QV      |        |        |        |
 0+35      0.0031      0.10  QV      |        |        |        |
 0+40      0.0039      0.12  QV      |        |        |        |
 0+45      0.0049      0.14  Q V     |        |        |        |
 0+50      0.0056      0.10  Q V     |        |        |        |
 0+55      0.0062      0.09  Q V     |        |        |        |
 1+ 0      0.0071     0.13  Q  V     |        |        |        |
 1+ 5      0.0085     0.20  Q  V     |        |        |        |
 1+10      0.0101      0.24  Q   V    |        |        |        |
 1+15      0.0118      0.24  Q    V   |        |        |        |
 1+20      0.0132      0.21  Q    V   |        |        |        |
 1+25      0.0151      0.28  |Q    V   |        |        |        |
 1+30      0.0174      0.34  |Q     V  |        |        |        |
 1+35      0.0195      0.31  |Q      V |        |        |        |
 1+40      0.0218      0.33  |Q      V|        |        |        |
 1+45      0.0248      0.44  |Q       V        |        |        |
 1+50      0.0280      0.46  |Q       | V      |        |        |
 1+55      0.0308      0.41  |Q       |  V     |        |        |
 2+ 0      0.0336     0.41  |Q       |   V    |        |        |
 2+ 5      0.0366     0.43  |Q       |    V   |        |        |
 2+10      0.0407      0.60  | Q      |     V  |        |        |
 2+15      0.0463      0.81  |  Q     |      V         |        |
 2+20      0.0508      0.65  | Q      |       |V       |        |
 2+25      0.0578      1.02  |   Q    |       |    V   |        |
 2+30      0.0672      1.36  |    Q   |       |      V|        |
 2+35      0.0777      1.53  |     Q  |       |       |  V     |
 2+40      0.0864      1.26  |    Q   |       |       |     V  |
 2+45      0.0899      0.50  |Q       |       |       |      V |
 2+50      0.0910      0.16  Q        |       |       |      V|
 2+55      0.0920      0.14  Q        |       |       |      V|
 3+ 0      0.0924     0.06  Q        |       |       |      V|
 3+ 5      0.0924     0.01  Q        |       |       |      V|
------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 1999, Version 6.0
Study date 09/23/20 File: APRE2YR62.out

++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

28771 Central Avenue Gas Station
Area A
Pre-development
6-Hr 2-Yr Storm Event

Drainage Area = 1.32(Ac.) = 0.002 Sq. Mi.
Length along longest watercourse = 408.00(Ft.)
Length along longest watercourse measured to centroid = 87.50(Ft.)
Length along longest watercourse = 0.077 Mi.
Length along longest watercourse measured to centroid = 0.017 Mi.
Difference in elevation = 16.34(Ft.)
Slope along watercourse = 211.4588 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.021 Hr.
Lag time = 1.24 Min.
25% of lag time = 0.31 Min.
40% of lag time = 0.50 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.32	1.27	1.68

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.32	3.12	4.13

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 1.270(In)
Area Averaged 100-Year Rainfall = 3.120(In)

Point rain (area averaged) = 1.270(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 1.270(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
1.324	83.00	0.059

Total Area Entered = 1.32(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
83.0	83.0	0.210	0.059	0.199	1.000	0.199

Sum (F) = 0.199

Area averaged mean soil loss (F) (In/Hr) = 0.199

Minimum soil loss rate ((In/Hr)) = 0.099

(for 24 hour storm duration)

Soil low loss rate (decimal) = 0.853

U n i t H y d r o g r a p h

DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	402.223	65.137	0.869
2	0.167	804.446	34.863	0.465
	Sum = 100.000		Sum=	1.334

Storm Event 3 Effective Rainfall = 0.241(In)

	Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.014	0.199	0.012	0.00
2	0.17	0.60	0.017	0.199	0.015	0.00
3	0.25	0.60	0.017	0.199	0.015	0.00
4	0.33	0.60	0.017	0.199	0.015	0.00
5	0.42	0.60	0.017	0.199	0.015	0.00
6	0.50	0.70	0.020	0.199	0.017	0.00
7	0.58	0.70	0.020	0.199	0.017	0.00
8	0.67	0.70	0.020	0.199	0.017	0.00
9	0.75	0.70	0.020	0.199	0.017	0.00
10	0.83	0.70	0.020	0.199	0.017	0.00
11	0.92	0.70	0.020	0.199	0.017	0.00
12	1.00	0.80	0.023	0.199	0.020	0.00
13	1.08	0.80	0.023	0.199	0.020	0.00
14	1.17	0.80	0.023	0.199	0.020	0.00
15	1.25	0.80	0.023	0.199	0.020	0.00
16	1.33	0.80	0.023	0.199	0.020	0.00
17	1.42	0.80	0.023	0.199	0.020	0.00
18	1.50	0.80	0.023	0.199	0.020	0.00
19	1.58	0.80	0.023	0.199	0.020	0.00
20	1.67	0.80	0.023	0.199	0.020	0.00
21	1.75	0.80	0.023	0.199	0.020	0.00
22	1.83	0.80	0.023	0.199	0.020	0.00
23	1.92	0.80	0.023	0.199	0.020	0.00
24	2.00	0.90	0.026	0.199	0.022	0.00
25	2.08	0.80	0.023	0.199	0.020	0.00
26	2.17	0.90	0.026	0.199	0.022	0.00
27	2.25	0.90	0.026	0.199	0.022	0.00
28	2.33	0.90	0.026	0.199	0.022	0.00
29	2.42	0.90	0.026	0.199	0.022	0.00

30	2.50	0.90	0.026	0.199	0.022	0.00
31	2.58	0.90	0.026	0.199	0.022	0.00
32	2.67	0.90	0.026	0.199	0.022	0.00
33	2.75	1.00	0.029	0.199	0.025	0.00
34	2.83	1.00	0.029	0.199	0.025	0.00
35	2.92	1.00	0.029	0.199	0.025	0.00
36	3.00	1.00	0.029	0.199	0.025	0.00
37	3.08	1.00	0.029	0.199	0.025	0.00
38	3.17	1.10	0.032	0.199	0.027	0.00
39	3.25	1.10	0.032	0.199	0.027	0.00
40	3.33	1.10	0.032	0.199	0.027	0.00
41	3.42	1.20	0.035	0.199	0.030	0.01
42	3.50	1.30	0.038	0.199	0.032	0.01
43	3.58	1.40	0.041	0.199	0.035	0.01
44	3.67	1.40	0.041	0.199	0.035	0.01
45	3.75	1.50	0.043	0.199	0.037	0.01
46	3.83	1.50	0.043	0.199	0.037	0.01
47	3.92	1.60	0.046	0.199	0.040	0.01
48	4.00	1.60	0.046	0.199	0.040	0.01
49	4.08	1.70	0.049	0.199	0.042	0.01
50	4.17	1.80	0.052	0.199	0.044	0.01
51	4.25	1.90	0.055	0.199	0.047	0.01
52	4.33	2.00	0.058	0.199	0.049	0.01
53	4.42	2.10	0.061	0.199	0.052	0.01
54	4.50	2.10	0.061	0.199	0.052	0.01
55	4.58	2.20	0.064	0.199	0.054	0.01
56	4.67	2.30	0.067	0.199	0.057	0.01
57	4.75	2.40	0.069	0.199	0.059	0.01
58	4.83	2.40	0.069	0.199	0.059	0.01
59	4.92	2.50	0.072	0.199	0.062	0.01
60	5.00	2.60	0.075	0.199	0.064	0.01
61	5.08	3.10	0.090	0.199	0.077	0.01
62	5.17	3.60	0.104	0.199	0.089	0.02
63	5.25	3.90	0.113	0.199	0.096	0.02
64	5.33	4.20	0.122	0.199	0.104	0.02
65	5.42	4.70	0.136	0.199	0.116	0.02
66	5.50	5.60	0.162	0.199	0.138	0.02
67	5.58	1.90	0.055	0.199	0.047	0.01
68	5.67	0.90	0.026	0.199	0.022	0.00
69	5.75	0.60	0.017	0.199	0.015	0.00
70	5.83	0.50	0.014	0.199	0.012	0.00
71	5.92	0.30	0.009	0.199	0.007	0.00
72	6.00	0.20	0.006	0.199	0.005	0.00
Sum =		100.0			Sum =	0.4

Flood volume = Effective rainfall 0.04(In)
times area 1.3(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)
Total soil loss = 0.21(In)
Total soil loss = 0.023(Ac.Ft)
Total rainfall = 0.24(In)
Flood volume = 170.2 Cubic Feet
Total soil loss = 989.5 Cubic Feet

Storm Event 2 Effective Rainfall = 0.457(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.027	0.199	0.023	0.00
2	0.17	0.60	0.033	0.199	0.028	0.00
3	0.25	0.60	0.033	0.199	0.028	0.00
4	0.33	0.60	0.033	0.199	0.028	0.00
5	0.42	0.60	0.033	0.199	0.028	0.00
6	0.50	0.70	0.038	0.199	0.033	0.01
7	0.58	0.70	0.038	0.199	0.033	0.01
8	0.67	0.70	0.038	0.199	0.033	0.01

9	0.75	0.70	0.038	0.199	0.033	0.01
10	0.83	0.70	0.038	0.199	0.033	0.01
11	0.92	0.70	0.038	0.199	0.033	0.01
12	1.00	0.80	0.044	0.199	0.037	0.01
13	1.08	0.80	0.044	0.199	0.037	0.01
14	1.17	0.80	0.044	0.199	0.037	0.01
15	1.25	0.80	0.044	0.199	0.037	0.01
16	1.33	0.80	0.044	0.199	0.037	0.01
17	1.42	0.80	0.044	0.199	0.037	0.01
18	1.50	0.80	0.044	0.199	0.037	0.01
19	1.58	0.80	0.044	0.199	0.037	0.01
20	1.67	0.80	0.044	0.199	0.037	0.01
21	1.75	0.80	0.044	0.199	0.037	0.01
22	1.83	0.80	0.044	0.199	0.037	0.01
23	1.92	0.80	0.044	0.199	0.037	0.01
24	2.00	0.90	0.049	0.199	0.042	0.01
25	2.08	0.80	0.044	0.199	0.037	0.01
26	2.17	0.90	0.049	0.199	0.042	0.01
27	2.25	0.90	0.049	0.199	0.042	0.01
28	2.33	0.90	0.049	0.199	0.042	0.01
29	2.42	0.90	0.049	0.199	0.042	0.01
30	2.50	0.90	0.049	0.199	0.042	0.01
31	2.58	0.90	0.049	0.199	0.042	0.01
32	2.67	0.90	0.049	0.199	0.042	0.01
33	2.75	1.00	0.055	0.199	0.047	0.01
34	2.83	1.00	0.055	0.199	0.047	0.01
35	2.92	1.00	0.055	0.199	0.047	0.01
36	3.00	1.00	0.055	0.199	0.047	0.01
37	3.08	1.00	0.055	0.199	0.047	0.01
38	3.17	1.10	0.060	0.199	0.051	0.01
39	3.25	1.10	0.060	0.199	0.051	0.01
40	3.33	1.10	0.060	0.199	0.051	0.01
41	3.42	1.20	0.066	0.199	0.056	0.01
42	3.50	1.30	0.071	0.199	0.061	0.01
43	3.58	1.40	0.077	0.199	0.066	0.01
44	3.67	1.40	0.077	0.199	0.066	0.01
45	3.75	1.50	0.082	0.199	0.070	0.01
46	3.83	1.50	0.082	0.199	0.070	0.01
47	3.92	1.60	0.088	0.199	0.075	0.01
48	4.00	1.60	0.088	0.199	0.075	0.01
49	4.08	1.70	0.093	0.199	0.080	0.01
50	4.17	1.80	0.099	0.199	0.084	0.01
51	4.25	1.90	0.104	0.199	0.089	0.02
52	4.33	2.00	0.110	0.199	0.094	0.02
53	4.42	2.10	0.115	0.199	0.098	0.02
54	4.50	2.10	0.115	0.199	0.098	0.02
55	4.58	2.20	0.121	0.199	0.103	0.02
56	4.67	2.30	0.126	0.199	0.108	0.02
57	4.75	2.40	0.132	0.199	0.112	0.02
58	4.83	2.40	0.132	0.199	0.112	0.02
59	4.92	2.50	0.137	0.199	0.117	0.02
60	5.00	2.60	0.143	0.199	0.122	0.02
61	5.08	3.10	0.170	0.199	0.145	0.02
62	5.17	3.60	0.198	0.199	0.169	0.03
63	5.25	3.90	0.214	0.199	---	0.02
64	5.33	4.20	0.230	0.199	---	0.03
65	5.42	4.70	0.258	0.199	---	0.06
66	5.50	5.60	0.307	0.199	---	0.11
67	5.58	1.90	0.104	0.199	0.089	0.02
68	5.67	0.90	0.049	0.199	0.042	0.01
69	5.75	0.60	0.033	0.199	0.028	0.00
70	5.83	0.50	0.027	0.199	0.023	0.00
71	5.92	0.30	0.016	0.199	0.014	0.00
72	6.00	0.20	0.011	0.199	0.009	0.00
	Sum =	100.0			Sum =	0.9

Flood volume = Effective rainfall 0.07(In)
times area 1.3(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)
Total soil loss = 0.38(In)
Total soil loss = 0.042(Ac.Ft)
Total rainfall = 0.46(In)
Flood volume = 349.3 Cubic Feet
Total soil loss = 1848.1 Cubic Feet

Storm Event 1 Effective Rainfall = 1.270(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08 0.50	0.076	0.199	0.065	0.01
2	0.17 0.60	0.091	0.199	0.078	0.01
3	0.25 0.60	0.091	0.199	0.078	0.01
4	0.33 0.60	0.091	0.199	0.078	0.01
5	0.42 0.60	0.091	0.199	0.078	0.01
6	0.50 0.70	0.107	0.199	0.091	0.02
7	0.58 0.70	0.107	0.199	0.091	0.02
8	0.67 0.70	0.107	0.199	0.091	0.02
9	0.75 0.70	0.107	0.199	0.091	0.02
10	0.83 0.70	0.107	0.199	0.091	0.02
11	0.92 0.70	0.107	0.199	0.091	0.02
12	1.00 0.80	0.122	0.199	0.104	0.02
13	1.08 0.80	0.122	0.199	0.104	0.02
14	1.17 0.80	0.122	0.199	0.104	0.02
15	1.25 0.80	0.122	0.199	0.104	0.02
16	1.33 0.80	0.122	0.199	0.104	0.02
17	1.42 0.80	0.122	0.199	0.104	0.02
18	1.50 0.80	0.122	0.199	0.104	0.02
19	1.58 0.80	0.122	0.199	0.104	0.02
20	1.67 0.80	0.122	0.199	0.104	0.02
21	1.75 0.80	0.122	0.199	0.104	0.02
22	1.83 0.80	0.122	0.199	0.104	0.02
23	1.92 0.80	0.122	0.199	0.104	0.02
24	2.00 0.90	0.137	0.199	0.117	0.02
25	2.08 0.80	0.122	0.199	0.104	0.02
26	2.17 0.90	0.137	0.199	0.117	0.02
27	2.25 0.90	0.137	0.199	0.117	0.02
28	2.33 0.90	0.137	0.199	0.117	0.02
29	2.42 0.90	0.137	0.199	0.117	0.02
30	2.50 0.90	0.137	0.199	0.117	0.02
31	2.58 0.90	0.137	0.199	0.117	0.02
32	2.67 0.90	0.137	0.199	0.117	0.02
33	2.75 1.00	0.152	0.199	0.130	0.02
34	2.83 1.00	0.152	0.199	0.130	0.02
35	2.92 1.00	0.152	0.199	0.130	0.02
36	3.00 1.00	0.152	0.199	0.130	0.02
37	3.08 1.00	0.152	0.199	0.130	0.02
38	3.17 1.10	0.168	0.199	0.143	0.02
39	3.25 1.10	0.168	0.199	0.143	0.02
40	3.33 1.10	0.168	0.199	0.143	0.02
41	3.42 1.20	0.183	0.199	0.156	0.03
42	3.50 1.30	0.198	0.199	0.169	0.03
43	3.58 1.40	0.213	0.199	---	0.01
44	3.67 1.40	0.213	0.199	---	0.01
45	3.75 1.50	0.229	0.199	---	0.03
46	3.83 1.50	0.229	0.199	---	0.03
47	3.92 1.60	0.244	0.199	---	0.05
48	4.00 1.60	0.244	0.199	---	0.05
49	4.08 1.70	0.259	0.199	---	0.06
50	4.17 1.80	0.274	0.199	---	0.08
51	4.25 1.90	0.290	0.199	---	0.09
52	4.33 2.00	0.305	0.199	---	0.11

53	4.42	2.10	0.320	0.199	---	0.12
54	4.50	2.10	0.320	0.199	---	0.12
55	4.58	2.20	0.335	0.199	---	0.14
56	4.67	2.30	0.351	0.199	---	0.15
57	4.75	2.40	0.366	0.199	---	0.17
58	4.83	2.40	0.366	0.199	---	0.17
59	4.92	2.50	0.381	0.199	---	0.18
60	5.00	2.60	0.396	0.199	---	0.20
61	5.08	3.10	0.472	0.199	---	0.27
62	5.17	3.60	0.549	0.199	---	0.35
63	5.25	3.90	0.594	0.199	---	0.40
64	5.33	4.20	0.640	0.199	---	0.44
65	5.42	4.70	0.716	0.199	---	0.52
66	5.50	5.60	0.853	0.199	---	0.65
67	5.58	1.90	0.290	0.199	---	0.09
68	5.67	0.90	0.137	0.199	0.117	0.02
69	5.75	0.60	0.091	0.199	0.078	0.01
70	5.83	0.50	0.076	0.199	0.065	0.01
71	5.92	0.30	0.046	0.199	0.039	0.01
72	6.00	0.20	0.030	0.199	0.026	0.00
Sum =		100.0			Sum =	5.3

Flood volume = Effective rainfall 0.44(In)
times area 1.3(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)
Total soil loss = 0.83(In)
Total soil loss = 0.091(Ac.Ft)
Total rainfall = 1.27(In)
Flood volume = 2135.7 Cubic Feet
Total soil loss = 3968.1 Cubic Feet

Peak flow rate of this hydrograph = 0.810(CFS)

++

TOTAL OF: 3 6 - H O U R S T O R M E V E N T S
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0000	0.00	Q	|	|	|	|
0+10	0.0000	0.00	Q	|	|	|	|
0+15	0.0001	0.00	Q	|	|	|	|
0+20	0.0001	0.00	Q	|	|	|	|
0+25	0.0001	0.00	Q	|	|	|	|
0+30	0.0001	0.00	Q	|	|	|	|
0+35	0.0002	0.00	Q	|	|	|	|
0+40	0.0002	0.00	Q	|	|	|	|
0+45	0.0002	0.00	Q	|	|	|	|
0+50	0.0002	0.00	Q	|	|	|	|
0+55	0.0003	0.00	Q	|	|	|	|
1+ 0	0.0003	0.00	Q	|	|	|	|
1+ 5	0.0003	0.00	Q	|	|	|	|
1+10	0.0004	0.00	Q	|	|	|	|
1+15	0.0004	0.00	Q	|	|	|	|
1+20	0.0004	0.00	Q	|	|	|	|
1+25	0.0005	0.00	Q	|	|	|	|
1+30	0.0005	0.00	Q	|	|	|	|
1+35	0.0005	0.00	Q	|	|	|	|
1+40	0.0005	0.00	Q	|	|	|	|
1+45	0.0006	0.00	Q	|	|	|	|
1+50	0.0006	0.00	Q	|	|	|	|
1+55	0.0006	0.00	Q	|	|	|	|
2+ 0	0.0007	0.00	Q	|	|	|	|
2+ 5	0.0007	0.00	Q	|	|	|	|

2+10	0.0007	0.00	Q	|	|	|	|
2+15	0.0008	0.01	Q	|	|	|	|
2+20	0.0008	0.01	Q	|	|	|	|
2+25	0.0008	0.01	Q	|	|	|	|
2+30	0.0009	0.01	Q	|	|	|	|
2+35	0.0009	0.01	Q	|	|	|	|
2+40	0.0010	0.01	Q	|	|	|	|
2+45	0.0010	0.01	Q	|	|	|	|
2+50	0.0010	0.01	Q	|	|	|	|
2+55	0.0011	0.01	Q	|	|	|	|
3+ 0	0.0011	0.01	Q	|	|	|	|
3+ 5	0.0011	0.01	Q	|	|	|	|
3+10	0.0012	0.01	Q	|	|	|	|
3+15	0.0012	0.01	Q	|	|	|	|
3+20	0.0013	0.01	Q	|	|	|	|
3+25	0.0013	0.01	Q	|	|	|	|
3+30	0.0014	0.01	Q	|	|	|	|
3+35	0.0014	0.01	Q	|	|	|	|
3+40	0.0015	0.01	Q	|	|	|	|
3+45	0.0015	0.01	QV	|	|	|	|
3+50	0.0016	0.01	QV	|	|	|	|
3+55	0.0017	0.01	QV	|	|	|	|
4+ 0	0.0017	0.01	QV	|	|	|	|
4+ 5	0.0018	0.01	QV	|	|	|	|
4+10	0.0019	0.01	QV	|	|	|	|
4+15	0.0019	0.01	QV	|	|	|	|
4+20	0.0020	0.01	QV	|	|	|	|
4+25	0.0021	0.01	QV	|	|	|	|
4+30	0.0022	0.01	QV	|	|	|	|
4+35	0.0022	0.01	QV	|	|	|	|
4+40	0.0023	0.01	QV	|	|	|	|
4+45	0.0024	0.01	QV	|	|	|	|
4+50	0.0025	0.01	QV	|	|	|	|
4+55	0.0026	0.01	QV	|	|	|	|
5+ 0	0.0027	0.01	QV	|	|	|	|
5+ 5	0.0028	0.02	QV	|	|	|	|
5+10	0.0030	0.02	QV	|	|	|	|
5+15	0.0031	0.02	Q V	|	|	|	|
5+20	0.0033	0.02	Q V	|	|	|	|
5+25	0.0035	0.03	Q V	|	|	|	|
5+30	0.0037	0.03	Q V	|	|	|	|
5+35	0.0038	0.02	Q V	|	|	|	|
5+40	0.0038	0.01	Q V	|	|	|	|
5+45	0.0039	0.00	Q V	|	|	|	|
5+50	0.0039	0.00	Q V	|	|	|	|
5+55	0.0039	0.00	Q V	|	|	|	|
6+ 0	0.0039	0.00	Q V	|	|	|	|
6+ 5	0.0039	0.00	Q V	|	|	|	|
6+10	0.0040	0.01	Q V	|	|	|	|
6+15	0.0040	0.01	Q V	|	|	|	|
6+20	0.0041	0.01	Q V	|	|	|	|
6+25	0.0041	0.01	Q V	|	|	|	|
6+30	0.0042	0.01	Q V	|	|	|	|
6+35	0.0042	0.01	Q V	|	|	|	|
6+40	0.0043	0.01	Q V	|	|	|	|
6+45	0.0043	0.01	Q V	|	|	|	|
6+50	0.0044	0.01	Q V	|	|	|	|
6+55	0.0044	0.01	Q V	|	|	|	|
7+ 0	0.0045	0.01	Q V	|	|	|	|
7+ 5	0.0045	0.01	Q V	|	|	|	|
7+10	0.0046	0.01	Q V	|	|	|	|
7+15	0.0046	0.01	Q V	|	|	|	|
7+20	0.0047	0.01	Q V	|	|	|	|
7+25	0.0048	0.01	Q V	|	|	|	|
7+30	0.0048	0.01	Q V	|	|	|	|

7+35	0.0049	0.01	Q	V		
7+40	0.0049	0.01	Q	V		
7+45	0.0050	0.01	Q	V		
7+50	0.0051	0.01	Q	V		
7+55	0.0051	0.01	Q	V		
8+ 0	0.0052	0.01	Q	V		
8+ 5	0.0052	0.01	Q	V		
8+10	0.0053	0.01	Q	V		
8+15	0.0054	0.01	Q	V		
8+20	0.0054	0.01	Q	V		
8+25	0.0055	0.01	Q	V		
8+30	0.0056	0.01	Q	V		
8+35	0.0056	0.01	Q	V		
8+40	0.0057	0.01	Q	V		
8+45	0.0058	0.01	Q	V		
8+50	0.0059	0.01	Q	V		
8+55	0.0059	0.01	Q	V		
9+ 0	0.0060	0.01	Q	V		
9+ 5	0.0061	0.01	Q	V		
9+10	0.0062	0.01	Q	V		
9+15	0.0062	0.01	Q	V		
9+20	0.0063	0.01	Q	V		
9+25	0.0064	0.01	Q	V		
9+30	0.0065	0.01	Q	V		
9+35	0.0066	0.01	Q	V		
9+40	0.0067	0.02	Q	V		
9+45	0.0068	0.02	Q	V		
9+50	0.0069	0.02	Q	V		
9+55	0.0070	0.02	Q	V		
10+ 0	0.0072	0.02	Q	V		
10+ 5	0.0073	0.02	Q	V		
10+10	0.0074	0.02	Q	V		
10+15	0.0076	0.02	Q	V		
10+20	0.0077	0.02	Q	V		
10+25	0.0079	0.02	Q	V		
10+30	0.0080	0.02	Q	V		
10+35	0.0082	0.02	Q	V		
10+40	0.0083	0.02	Q	V		
10+45	0.0085	0.03	Q	V		
10+50	0.0087	0.03	Q	V		
10+55	0.0089	0.03	Q	V		
11+ 0	0.0091	0.03	Q	V		
11+ 5	0.0093	0.03	Q	V		
11+10	0.0095	0.04	Q	V		
11+15	0.0097	0.03	Q	V		
11+20	0.0100	0.03	Q	V		
11+25	0.0104	0.07	Q	V		
11+30	0.0112	0.12	Q	V		
11+35	0.0117	0.06	Q	V		
11+40	0.0118	0.01	Q	V		
11+45	0.0118	0.01	Q	V		
11+50	0.0119	0.01	Q	V		
11+55	0.0119	0.00	Q	V		
12+ 0	0.0119	0.00	Q	V		
12+ 5	0.0120	0.01	Q	V		
12+10	0.0121	0.02	Q	V		
12+15	0.0122	0.02	Q	V		
12+20	0.0123	0.02	Q	V		
12+25	0.0125	0.02	Q	V		
12+30	0.0126	0.02	Q	V		
12+35	0.0128	0.02	Q	V		
12+40	0.0129	0.02	Q	V		
12+45	0.0130	0.02	Q	V		
12+50	0.0132	0.02	Q	V		
12+55	0.0133	0.02	Q	V		

```
13+ 0     0.0135    0.02  Q     V |       |       |       |
13+ 5     0.0137    0.02  Q     V |       |       |       |
13+10     0.0138    0.02  Q      V|       |       |       |
13+15     0.0140    0.02  Q      V|       |       |       |
13+20     0.0141    0.02  Q      V|       |       |       |
13+25     0.0143    0.02  Q      V|       |       |       |
13+30     0.0145    0.02  Q      V|       |       |       |
13+35     0.0146    0.02  Q      V|       |       |       |
13+40     0.0148    0.02  Q      V|       |       |       |
13+45     0.0150    0.02  Q      V|       |       |       |
13+50     0.0151    0.02  Q      V|       |       |       |
13+55     0.0153    0.02  Q       V       |       |       |
14+ 0     0.0155    0.03  Q       V       |       |       |
14+ 5     0.0156    0.02  Q       V       |       |       |
14+10     0.0158    0.03  Q       V       |       |       |
14+15     0.0160    0.03  Q       V       |       |       |
14+20     0.0162    0.03  Q       V       |       |       |
14+25     0.0164    0.03  Q       V       |       |       |
14+30     0.0166    0.03  Q       V       |       |       |
14+35     0.0167    0.03  Q       V       |       |       |
14+40     0.0169    0.03  Q       |V      |       |       |
14+45     0.0171    0.03  Q       |V      |       |       |
14+50     0.0173    0.03  Q       |V      |       |       |
14+55     0.0175    0.03  Q       |V      |       |       |
15+ 0     0.0178    0.03  Q       |V      |       |       |
15+ 5     0.0180    0.03  Q       |V      |       |       |
15+10     0.0182    0.03  Q       |V      |       |       |
15+15     0.0184    0.03  Q       | V     |       |       |
15+20     0.0186    0.03  Q       | V     |       |       |
15+25     0.0189    0.03  Q       | V     |       |       |
15+30     0.0191    0.04  Q       | V     |       |       |
15+35     0.0193    0.03  Q       | V     |       |       |
15+40     0.0194    0.02  Q       | V     |       |       |
15+45     0.0197    0.03  Q       | V     |       |       |
15+50     0.0199    0.04  Q       |  V    |       |       |
15+55     0.0203    0.05  Q       |  V    |       |       |
16+ 0     0.0207    0.06  Q       |  V    |       |       |
16+ 5     0.0212    0.07  Q       |  V    |       |       |
16+10     0.0219    0.09  Q       |   V   |       |       |
16+15     0.0227    0.11  Q       |   V   |       |       |
16+20     0.0236    0.13  Q       |    V  |       |       |
16+25     0.0247    0.15  Q       |    V  |       |       |
16+30     0.0258    0.16  Q       |    V  |       |       |
16+35     0.0270    0.18  Q       |     V |       |       |
16+40     0.0283    0.20  Q       |     V |       |       |
16+45     0.0298    0.22  Q       |      V|       |       |
16+50     0.0314    0.22  Q       |       V       |       |
16+55     0.0330    0.24  Q       |       |V      |       |
17+ 0     0.0348    0.26  |Q      |       | V     |       |
17+ 5     0.0370    0.33  |Q      |       |  V    |       |
17+10     0.0400    0.43  |Q      |       |    V  |       |
17+15     0.0435    0.51  | Q     |       |     V |       |
17+20     0.0474    0.57  | Q
```

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 1999, Version 6.0
Study date 09/23/20 File: APRE2YR65.out

++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

28771 Central Avenue Gas Station
Area A
Pre-development
6-Hr 5-Year Storm Event

Drainage Area = 1.32(Ac.) = 0.002 Sq. Mi.
Length along longest watercourse = 408.00(Ft.)
Length along longest watercourse measured to centroid = 87.50(Ft.)
Length along longest watercourse = 0.077 Mi.
Length along longest watercourse measured to centroid = 0.017 Mi.
Difference in elevation = 16.34(Ft.)
Slope along watercourse = 211.4588 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.021 Hr.
Lag time = 1.24 Min.
25% of lag time = 0.31 Min.
40% of lag time = 0.50 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.32	1.27	1.68

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.32	3.12	4.13

STORM EVENT (YEAR) = 5.00
Area Averaged 2-Year Rainfall = 1.270(In)
Area Averaged 100-Year Rainfall = 3.120(In)

Point rain (area averaged) = 1.703(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 1.703(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
1.324	83.00	0.059

Total Area Entered = 1.32(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
83.0	83.0	0.210	0.059	0.199	1.000	0.199

Sum (F) = 0.199

Area averaged mean soil loss (F) (In/Hr) = 0.199

Minimum soil loss rate ((In/Hr)) = 0.099

(for 24 hour storm duration)

Soil low loss rate (decimal) = 0.853

U n i t H y d r o g r a p h

DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	402.223	65.137	0.869
2	0.167	804.446	34.863	0.465
	Sum = 100.000		Sum=	1.334

Storm Event 3 Effective Rainfall = 0.324(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.019	0.199	0.017	0.00
2	0.17	0.60	0.023	0.199	0.020	0.00
3	0.25	0.60	0.023	0.199	0.020	0.00
4	0.33	0.60	0.023	0.199	0.020	0.00
5	0.42	0.60	0.023	0.199	0.020	0.00
6	0.50	0.70	0.027	0.199	0.023	0.00
7	0.58	0.70	0.027	0.199	0.023	0.00
8	0.67	0.70	0.027	0.199	0.023	0.00
9	0.75	0.70	0.027	0.199	0.023	0.00
10	0.83	0.70	0.027	0.199	0.023	0.00
11	0.92	0.70	0.027	0.199	0.023	0.00
12	1.00	0.80	0.031	0.199	0.027	0.00
13	1.08	0.80	0.031	0.199	0.027	0.00
14	1.17	0.80	0.031	0.199	0.027	0.00
15	1.25	0.80	0.031	0.199	0.027	0.00
16	1.33	0.80	0.031	0.199	0.027	0.00
17	1.42	0.80	0.031	0.199	0.027	0.00
18	1.50	0.80	0.031	0.199	0.027	0.00
19	1.58	0.80	0.031	0.199	0.027	0.00
20	1.67	0.80	0.031	0.199	0.027	0.00
21	1.75	0.80	0.031	0.199	0.027	0.00
22	1.83	0.80	0.031	0.199	0.027	0.00
23	1.92	0.80	0.031	0.199	0.027	0.00
24	2.00	0.90	0.035	0.199	0.030	0.01
25	2.08	0.80	0.031	0.199	0.027	0.00
26	2.17	0.90	0.035	0.199	0.030	0.01
27	2.25	0.90	0.035	0.199	0.030	0.01
28	2.33	0.90	0.035	0.199	0.030	0.01
29	2.42	0.90	0.035	0.199	0.030	0.01

30	2.50	0.90	0.035	0.199	0.030	0.01
31	2.58	0.90	0.035	0.199	0.030	0.01
32	2.67	0.90	0.035	0.199	0.030	0.01
33	2.75	1.00	0.039	0.199	0.033	0.01
34	2.83	1.00	0.039	0.199	0.033	0.01
35	2.92	1.00	0.039	0.199	0.033	0.01
36	3.00	1.00	0.039	0.199	0.033	0.01
37	3.08	1.00	0.039	0.199	0.033	0.01
38	3.17	1.10	0.043	0.199	0.036	0.01
39	3.25	1.10	0.043	0.199	0.036	0.01
40	3.33	1.10	0.043	0.199	0.036	0.01
41	3.42	1.20	0.047	0.199	0.040	0.01
42	3.50	1.30	0.050	0.199	0.043	0.01
43	3.58	1.40	0.054	0.199	0.046	0.01
44	3.67	1.40	0.054	0.199	0.046	0.01
45	3.75	1.50	0.058	0.199	0.050	0.01
46	3.83	1.50	0.058	0.199	0.050	0.01
47	3.92	1.60	0.062	0.199	0.053	0.01
48	4.00	1.60	0.062	0.199	0.053	0.01
49	4.08	1.70	0.066	0.199	0.056	0.01
50	4.17	1.80	0.070	0.199	0.060	0.01
51	4.25	1.90	0.074	0.199	0.063	0.01
52	4.33	2.00	0.078	0.199	0.066	0.01
53	4.42	2.10	0.082	0.199	0.070	0.01
54	4.50	2.10	0.082	0.199	0.070	0.01
55	4.58	2.20	0.085	0.199	0.073	0.01
56	4.67	2.30	0.089	0.199	0.076	0.01
57	4.75	2.40	0.093	0.199	0.080	0.01
58	4.83	2.40	0.093	0.199	0.080	0.01
59	4.92	2.50	0.097	0.199	0.083	0.01
60	5.00	2.60	0.101	0.199	0.086	0.01
61	5.08	3.10	0.120	0.199	0.103	0.02
62	5.17	3.60	0.140	0.199	0.119	0.02
63	5.25	3.90	0.151	0.199	0.129	0.02
64	5.33	4.20	0.163	0.199	0.139	0.02
65	5.42	4.70	0.183	0.199	0.156	0.03
66	5.50	5.60	0.217	0.199	---	0.02
67	5.58	1.90	0.074	0.199	0.063	0.01
68	5.67	0.90	0.035	0.199	0.030	0.01
69	5.75	0.60	0.023	0.199	0.020	0.00
70	5.83	0.50	0.019	0.199	0.017	0.00
71	5.92	0.30	0.012	0.199	0.010	0.00
72	6.00	0.20	0.008	0.199	0.007	0.00
Sum =		100.0			Sum =	0.6

Flood volume = Effective rainfall 0.05(In)
times area 1.3(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)
Total soil loss = 0.28(In)
Total soil loss = 0.031(Ac.Ft)
Total rainfall = 0.32(In)
Flood volume = 223.1 Cubic Feet
Total soil loss = 1332.3 Cubic Feet

Storm Event 2 Effective Rainfall = 0.613(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.037	0.199	0.031	0.01
2	0.17	0.60	0.044	0.199	0.038	0.01
3	0.25	0.60	0.044	0.199	0.038	0.01
4	0.33	0.60	0.044	0.199	0.038	0.01
5	0.42	0.60	0.044	0.199	0.038	0.01
6	0.50	0.70	0.052	0.199	0.044	0.01
7	0.58	0.70	0.052	0.199	0.044	0.01
8	0.67	0.70	0.052	0.199	0.044	0.01

9	0.75	0.70	0.052	0.199	0.044	0.01
10	0.83	0.70	0.052	0.199	0.044	0.01
11	0.92	0.70	0.052	0.199	0.044	0.01
12	1.00	0.80	0.059	0.199	0.050	0.01
13	1.08	0.80	0.059	0.199	0.050	0.01
14	1.17	0.80	0.059	0.199	0.050	0.01
15	1.25	0.80	0.059	0.199	0.050	0.01
16	1.33	0.80	0.059	0.199	0.050	0.01
17	1.42	0.80	0.059	0.199	0.050	0.01
18	1.50	0.80	0.059	0.199	0.050	0.01
19	1.58	0.80	0.059	0.199	0.050	0.01
20	1.67	0.80	0.059	0.199	0.050	0.01
21	1.75	0.80	0.059	0.199	0.050	0.01
22	1.83	0.80	0.059	0.199	0.050	0.01
23	1.92	0.80	0.059	0.199	0.050	0.01
24	2.00	0.90	0.066	0.199	0.057	0.01
25	2.08	0.80	0.059	0.199	0.050	0.01
26	2.17	0.90	0.066	0.199	0.057	0.01
27	2.25	0.90	0.066	0.199	0.057	0.01
28	2.33	0.90	0.066	0.199	0.057	0.01
29	2.42	0.90	0.066	0.199	0.057	0.01
30	2.50	0.90	0.066	0.199	0.057	0.01
31	2.58	0.90	0.066	0.199	0.057	0.01
32	2.67	0.90	0.066	0.199	0.057	0.01
33	2.75	1.00	0.074	0.199	0.063	0.01
34	2.83	1.00	0.074	0.199	0.063	0.01
35	2.92	1.00	0.074	0.199	0.063	0.01
36	3.00	1.00	0.074	0.199	0.063	0.01
37	3.08	1.00	0.074	0.199	0.063	0.01
38	3.17	1.10	0.081	0.199	0.069	0.01
39	3.25	1.10	0.081	0.199	0.069	0.01
40	3.33	1.10	0.081	0.199	0.069	0.01
41	3.42	1.20	0.088	0.199	0.075	0.01
42	3.50	1.30	0.096	0.199	0.082	0.01
43	3.58	1.40	0.103	0.199	0.088	0.02
44	3.67	1.40	0.103	0.199	0.088	0.02
45	3.75	1.50	0.110	0.199	0.094	0.02
46	3.83	1.50	0.110	0.199	0.094	0.02
47	3.92	1.60	0.118	0.199	0.100	0.02
48	4.00	1.60	0.118	0.199	0.100	0.02
49	4.08	1.70	0.125	0.199	0.107	0.02
50	4.17	1.80	0.132	0.199	0.113	0.02
51	4.25	1.90	0.140	0.199	0.119	0.02
52	4.33	2.00	0.147	0.199	0.126	0.02
53	4.42	2.10	0.155	0.199	0.132	0.02
54	4.50	2.10	0.155	0.199	0.132	0.02
55	4.58	2.20	0.162	0.199	0.138	0.02
56	4.67	2.30	0.169	0.199	0.144	0.02
57	4.75	2.40	0.177	0.199	0.151	0.03
58	4.83	2.40	0.177	0.199	0.151	0.03
59	4.92	2.50	0.184	0.199	0.157	0.03
60	5.00	2.60	0.191	0.199	0.163	0.03
61	5.08	3.10	0.228	0.199	---	0.03
62	5.17	3.60	0.265	0.199	---	0.07
63	5.25	3.90	0.287	0.199	---	0.09
64	5.33	4.20	0.309	0.199	---	0.11
65	5.42	4.70	0.346	0.199	---	0.15
66	5.50	5.60	0.412	0.199	---	0.21
67	5.58	1.90	0.140	0.199	0.119	0.02
68	5.67	0.90	0.066	0.199	0.057	0.01
69	5.75	0.60	0.044	0.199	0.038	0.01
70	5.83	0.50	0.037	0.199	0.031	0.01
71	5.92	0.30	0.022	0.199	0.019	0.00
72	6.00	0.20	0.015	0.199	0.013	0.00
	Sum =	100.0			Sum =	1.5

Flood volume = Effective rainfall 0.12(In)
times area 1.3(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)
Total soil loss = 0.49(In)
Total soil loss = 0.054(Ac.Ft)
Total rainfall = 0.61(In)
Flood volume = 586.4 Cubic Feet
Total soil loss = 2360.7 Cubic Feet

Storm Event 1 Effective Rainfall = 1.703(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08 0.50	0.102	0.199	0.087	0.02
2	0.17 0.60	0.123	0.199	0.105	0.02
3	0.25 0.60	0.123	0.199	0.105	0.02
4	0.33 0.60	0.123	0.199	0.105	0.02
5	0.42 0.60	0.123	0.199	0.105	0.02
6	0.50 0.70	0.143	0.199	0.122	0.02
7	0.58 0.70	0.143	0.199	0.122	0.02
8	0.67 0.70	0.143	0.199	0.122	0.02
9	0.75 0.70	0.143	0.199	0.122	0.02
10	0.83 0.70	0.143	0.199	0.122	0.02
11	0.92 0.70	0.143	0.199	0.122	0.02
12	1.00 0.80	0.164	0.199	0.140	0.02
13	1.08 0.80	0.164	0.199	0.140	0.02
14	1.17 0.80	0.164	0.199	0.140	0.02
15	1.25 0.80	0.164	0.199	0.140	0.02
16	1.33 0.80	0.164	0.199	0.140	0.02
17	1.42 0.80	0.164	0.199	0.140	0.02
18	1.50 0.80	0.164	0.199	0.140	0.02
19	1.58 0.80	0.164	0.199	0.140	0.02
20	1.67 0.80	0.164	0.199	0.140	0.02
21	1.75 0.80	0.164	0.199	0.140	0.02
22	1.83 0.80	0.164	0.199	0.140	0.02
23	1.92 0.80	0.164	0.199	0.140	0.02
24	2.00 0.90	0.184	0.199	0.157	0.03
25	2.08 0.80	0.164	0.199	0.140	0.02
26	2.17 0.90	0.184	0.199	0.157	0.03
27	2.25 0.90	0.184	0.199	0.157	0.03
28	2.33 0.90	0.184	0.199	0.157	0.03
29	2.42 0.90	0.184	0.199	0.157	0.03
30	2.50 0.90	0.184	0.199	0.157	0.03
31	2.58 0.90	0.184	0.199	0.157	0.03
32	2.67 0.90	0.184	0.199	0.157	0.03
33	2.75 1.00	0.204	0.199	---	0.01
34	2.83 1.00	0.204	0.199	---	0.01
35	2.92 1.00	0.204	0.199	---	0.01
36	3.00 1.00	0.204	0.199	---	0.01
37	3.08 1.00	0.204	0.199	---	0.01
38	3.17 1.10	0.225	0.199	---	0.03
39	3.25 1.10	0.225	0.199	---	0.03
40	3.33 1.10	0.225	0.199	---	0.03
41	3.42 1.20	0.245	0.199	---	0.05
42	3.50 1.30	0.266	0.199	---	0.07
43	3.58 1.40	0.286	0.199	---	0.09
44	3.67 1.40	0.286	0.199	---	0.09
45	3.75 1.50	0.307	0.199	---	0.11
46	3.83 1.50	0.307	0.199	---	0.11
47	3.92 1.60	0.327	0.199	---	0.13
48	4.00 1.60	0.327	0.199	---	0.13
49	4.08 1.70	0.347	0.199	---	0.15
50	4.17 1.80	0.368	0.199	---	0.17
51	4.25 1.90	0.388	0.199	---	0.19
52	4.33 2.00	0.409	0.199	---	0.21

53	4.42	2.10	0.429	0.199	---	0.23
54	4.50	2.10	0.429	0.199	---	0.23
55	4.58	2.20	0.450	0.199	---	0.25
56	4.67	2.30	0.470	0.199	---	0.27
57	4.75	2.40	0.491	0.199	---	0.29
58	4.83	2.40	0.491	0.199	---	0.29
59	4.92	2.50	0.511	0.199	---	0.31
60	5.00	2.60	0.531	0.199	---	0.33
61	5.08	3.10	0.634	0.199	---	0.43
62	5.17	3.60	0.736	0.199	---	0.54
63	5.25	3.90	0.797	0.199	---	0.60
64	5.33	4.20	0.858	0.199	---	0.66
65	5.42	4.70	0.961	0.199	---	0.76
66	5.50	5.60	1.145	0.199	---	0.95
67	5.58	1.90	0.388	0.199	---	0.19
68	5.67	0.90	0.184	0.199	0.157	0.03
69	5.75	0.60	0.123	0.199	0.105	0.02
70	5.83	0.50	0.102	0.199	0.087	0.02
71	5.92	0.30	0.061	0.199	0.052	0.01
72	6.00	0.20	0.041	0.199	0.035	0.01
Sum =		100.0			Sum =	8.7

Flood volume = Effective rainfall 0.73(In)
times area 1.3(Ac.)/[(In)/(Ft.)] = 0.1(Ac.Ft)
Total soil loss = 0.97(In)
Total soil loss = 0.108(Ac.Ft)
Total rainfall = 1.70(In)
Flood volume = 3501.7 Cubic Feet
Total soil loss = 4684.6 Cubic Feet

Peak flow rate of this hydrograph = 1.177(CFS)

++

TOTAL OF: 3 6 - H O U R S T O R M E V E N T S
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0000	0.00	Q	|	|	|	|
0+10	0.0000	0.00	Q	|	|	|	|
0+15	0.0001	0.00	Q	|	|	|	|
0+20	0.0001	0.00	Q	|	|	|	|
0+25	0.0001	0.00	Q	|	|	|	|
0+30	0.0002	0.01	Q	|	|	|	|
0+35	0.0002	0.01	Q	|	|	|	|
0+40	0.0002	0.01	Q	|	|	|	|
0+45	0.0003	0.01	Q	|	|	|	|
0+50	0.0003	0.01	Q	|	|	|	|
0+55	0.0004	0.01	Q	|	|	|	|
1+ 0	0.0004	0.01	Q	|	|	|	|
1+ 5	0.0004	0.01	Q	|	|	|	|
1+10	0.0005	0.01	Q	|	|	|	|
1+15	0.0005	0.01	Q	|	|	|	|
1+20	0.0006	0.01	Q	|	|	|	|
1+25	0.0006	0.01	Q	|	|	|	|
1+30	0.0007	0.01	Q	|	|	|	|
1+35	0.0007	0.01	Q	|	|	|	|
1+40	0.0007	0.01	Q	|	|	|	|
1+45	0.0008	0.01	Q	|	|	|	|
1+50	0.0008	0.01	Q	|	|	|	|
1+55	0.0009	0.01	Q	|	|	|	|
2+ 0	0.0009	0.01	Q	|	|	|	|
2+ 5	0.0009	0.01	Q	|	|	|	|

2+10	0.0010	0.01	Q	|	|	|	|
2+15	0.0010	0.01	Q	|	|	|	|
2+20	0.0011	0.01	Q	|	|	|	|
2+25	0.0011	0.01	Q	|	|	|	|
2+30	0.0012	0.01	Q	|	|	|	|
2+35	0.0012	0.01	Q	|	|	|	|
2+40	0.0013	0.01	Q	|	|	|	|
2+45	0.0013	0.01	Q	|	|	|	|
2+50	0.0014	0.01	Q	|	|	|	|
2+55	0.0014	0.01	Q	|	|	|	|
3+ 0	0.0015	0.01	Q	|	|	|	|
3+ 5	0.0015	0.01	Q	|	|	|	|
3+10	0.0016	0.01	Q	|	|	|	|
3+15	0.0017	0.01	Q	|	|	|	|
3+20	0.0017	0.01	Q	|	|	|	|
3+25	0.0018	0.01	Q	|	|	|	|
3+30	0.0018	0.01	Q	|	|	|	|
3+35	0.0019	0.01	Q	|	|	|	|
3+40	0.0020	0.01	Q	|	|	|	|
3+45	0.0021	0.01	Q	|	|	|	|
3+50	0.0021	0.01	Q	|	|	|	|
3+55	0.0022	0.01	Q	|	|	|	|
4+ 0	0.0023	0.01	Q	|	|	|	|
4+ 5	0.0024	0.01	Q	|	|	|	|
4+10	0.0025	0.01	QV	|	|	|	|
4+15	0.0026	0.01	QV	|	|	|	|
4+20	0.0027	0.01	QV	|	|	|	|
4+25	0.0028	0.02	QV	|	|	|	|
4+30	0.0029	0.02	QV	|	|	|	|
4+35	0.0030	0.02	QV	|	|	|	|
4+40	0.0031	0.02	QV	|	|	|	|
4+45	0.0033	0.02	QV	|	|	|	|
4+50	0.0034	0.02	QV	|	|	|	|
4+55	0.0035	0.02	QV	|	|	|	|
5+ 0	0.0036	0.02	QV	|	|	|	|
5+ 5	0.0038	0.02	QV	|	|	|	|
5+10	0.0040	0.03	QV	|	|	|	|
5+15	0.0042	0.03	QV	|	|	|	|
5+20	0.0044	0.03	QV	|	|	|	|
5+25	0.0046	0.03	QV	|	|	|	|
5+30	0.0048	0.03	QV	|	|	|	|
5+35	0.0050	0.02	Q V	|	|	|	|
5+40	0.0050	0.01	Q V	|	|	|	|
5+45	0.0051	0.01	Q V	|	|	|	|
5+50	0.0051	0.00	Q V	|	|	|	|
5+55	0.0051	0.00	Q V	|	|	|	|
6+ 0	0.0051	0.00	Q V	|	|	|	|
6+ 5	0.0051	0.00	Q V	|	|	|	|
6+10	0.0052	0.01	Q V	|	|	|	|
6+15	0.0053	0.01	Q V	|	|	|	|
6+20	0.0053	0.01	Q V	|	|	|	|
6+25	0.0054	0.01	Q V	|	|	|	|
6+30	0.0055	0.01	Q V	|	|	|	|
6+35	0.0055	0.01	Q V	|	|	|	|
6+40	0.0056	0.01	Q V	|	|	|	|
6+45	0.0057	0.01	Q V	|	|	|	|
6+50	0.0057	0.01	Q V	|	|	|	|
6+55	0.0058	0.01	Q V	|	|	|	|
7+ 0	0.0059	0.01	Q V	|	|	|	|
7+ 5	0.0060	0.01	Q V	|	|	|	|
7+10	0.0060	0.01	Q V	|	|	|	|
7+15	0.0061	0.01	Q V	|	|	|	|
7+20	0.0062	0.01	Q V	|	|	|	|
7+25	0.0063	0.01	Q V	|	|	|	|
7+30	0.0064	0.01	Q V	|	|	|	|

7+35	0.0064	0.01	Q	V	|	|	|	|
7+40	0.0065	0.01	Q	V	|	|	|	|
7+45	0.0066	0.01	Q	V	|	|	|	|
7+50	0.0067	0.01	Q	V	|	|	|	|
7+55	0.0067	0.01	Q	V	|	|	|	|
8+ 0	0.0068	0.01	Q	V	|	|	|	|
8+ 5	0.0069	0.01	Q	V	|	|	|	|
8+10	0.0070	0.01	Q	V	|	|	|	|
8+15	0.0071	0.01	Q	V	|	|	|	|
8+20	0.0072	0.01	Q	V	|	|	|	|
8+25	0.0073	0.01	Q	V	|	|	|	|
8+30	0.0074	0.01	Q	V	|	|	|	|
8+35	0.0075	0.01	Q	V	|	|	|	|
8+40	0.0075	0.01	Q	V	|	|	|	|
8+45	0.0076	0.01	Q	V	|	|	|	|
8+50	0.0077	0.01	Q	V	|	|	|	|
8+55	0.0078	0.01	Q	V	|	|	|	|
9+ 0	0.0079	0.01	Q	V	|	|	|	|
9+ 5	0.0080	0.01	Q	V	|	|	|	|
9+10	0.0081	0.02	Q	V	|	|	|	|
9+15	0.0082	0.02	Q	V	|	|	|	|
9+20	0.0084	0.02	Q	V	|	|	|	|
9+25	0.0085	0.02	Q	V	|	|	|	|
9+30	0.0086	0.02	Q	V	|	|	|	|
9+35	0.0087	0.02	Q	V	|	|	|	|
9+40	0.0089	0.02	Q	V	|	|	|	|
9+45	0.0090	0.02	Q	V	|	|	|	|
9+50	0.0092	0.02	Q	V	|	|	|	|
9+55	0.0093	0.02	Q	V	|	|	|	|
10+ 0	0.0095	0.02	Q	V	|	|	|	|
10+ 5	0.0096	0.02	Q	V	|	|	|	|
10+10	0.0098	0.03	Q	V	|	|	|	|
10+15	0.0100	0.03	Q	V	|	|	|	|
10+20	0.0102	0.03	Q	V	|	|	|	|
10+25	0.0104	0.03	Q	V	|	|	|	|
10+30	0.0106	0.03	Q	V	|	|	|	|
10+35	0.0108	0.03	Q	V	|	|	|	|
10+40	0.0111	0.03	Q	V	|	|	|	|
10+45	0.0113	0.03	Q	V	|	|	|	|
10+50	0.0115	0.03	Q	V	|	|	|	|
10+55	0.0118	0.04	Q	V	|	|	|	|
11+ 0	0.0120	0.04	Q	V	|	|	|	|
11+ 5	0.0123	0.04	Q	V	|	|	|	|
11+10	0.0128	0.07	Q	V	|	|	|	|
11+15	0.0135	0.11	Q	V	|	|	|	|
11+20	0.0145	0.14	Q	V	|	|	|	|
11+25	0.0157	0.18	Q	V	|	|	|	|
11+30	0.0175	0.25	|Q	V	|	|	|	|
11+35	0.0183	0.12	Q	V	|	|	|	|
11+40	0.0184	0.02	Q	V	|	|	|	|
11+45	0.0185	0.01	Q	V	|	|	|	|
11+50	0.0185	0.01	Q	V	|	|	|	|
11+55	0.0185	0.01	Q	V	|	|	|	|
12+ 0	0.0186	0.00	Q	V	|	|	|	|
12+ 5	0.0187	0.01	Q	V	|	|	|	|
12+10	0.0188	0.02	Q	V	|	|	|	|
12+15	0.0190	0.02	Q	V	|	|	|	|
12+20	0.0191	0.02	Q	V	|	|	|	|
12+25	0.0193	0.02	Q	V	|	|	|	|
12+30	0.0195	0.03	Q	V	|	|	|	|
12+35	0.0197	0.03	Q	V	|	|	|	|
12+40	0.0199	0.03	Q	V	|	|	|	|
12+45	0.0201	0.03	Q	V	|	|	|	|
12+50	0.0203	0.03	Q	V	|	|	|	|
12+55	0.0205	0.03	Q	V	|	|	|	|

```
13+ 0    0.0207    0.03  Q     V |       |       |       |
13+ 5    0.0209    0.03  Q     V |       |       |       |
13+10    0.0211    0.03  Q     V |       |       |       |
13+15    0.0213    0.03  Q     V |       |       |       |
13+20    0.0216    0.03  Q     V |       |       |       |
13+25    0.0218    0.03  Q     V |       |       |       |
13+30    0.0220    0.03  Q     V |       |       |       |
13+35    0.0222    0.03  Q     V |       |       |       |
13+40    0.0224    0.03  Q      V|       |       |       |
13+45    0.0227    0.03  Q      V|       |       |       |
13+50    0.0229    0.03  Q      V|       |       |       |
13+55    0.0231    0.03  Q      V|       |       |       |
14+ 0    0.0233    0.03  Q      V|       |       |       |
14+ 5    0.0236    0.03  Q      V|       |       |       |
14+10    0.0238    0.03  Q      V|       |       |       |
14+15    0.0241    0.04  Q      V|       |       |       |
14+20    0.0243    0.04  Q      V|       |       |       |
14+25    0.0246    0.04  Q      V|       |       |       |
14+30    0.0248    0.04  Q       V       |       |       |
14+35    0.0251    0.04  Q       V       |       |       |
14+40    0.0253    0.04  Q       V       |       |       |
14+45    0.0254    0.02  Q       V       |       |       |
14+50    0.0255    0.01  Q       V       |       |       |
14+55    0.0255    0.01  Q       V       |       |       |
15+ 0    0.0256    0.01  Q       V       |       |       |
15+ 5    0.0256    0.01  Q       V       |       |       |
15+10    0.0258    0.03  Q       V       |       |       |
15+15    0.0260    0.03  Q       V       |       |       |
15+20    0.0263    0.03  Q       V       |       |       |
15+25    0.0267    0.05  Q       V       |       |       |
15+30    0.0272    0.08  Q       V       |       |       |
15+35    0.0279    0.11  Q       |V      |       |       |
15+40    0.0287    0.12  Q       |V      |       |       |
15+45    0.0297    0.13  Q       |V      |       |       |
15+50    0.0307    0.14  Q       | V     |       |       |
15+55    0.0318    0.16  Q       | V     |       |       |
16+ 0    0.0330    0.17  Q       |  V    |       |       |
16+ 5    0.0343    0.19  Q       |  V    |       |       |
16+10    0.0358    0.22  Q       |   V   |       |       |
16+15    0.0374    0.24  Q       |   V   |       |       |
16+20    0.0393    0.27  |Q      |    V  |       |       |
16+25    0.0414    0.30  |Q      |    V  |       |       |
16+30    0.0435    0.31  |Q      |     V |       |       |
16+35    0.0457    0.33  |Q      |     V |       |       |
16+40    0.0481    0.35  |Q      |      V|       |       |
16+45    0.0508    0.38  |Q      |       V       |       |
16+50    0.0534    0.39  |Q      |       |V      |       |
16+55    0.0563    0.41  |Q      |       | V     |       |
17+ 0    0.0592    0.43  |Q      |       |  V    |       |
17+ 5    0.0629    0.53  | Q     |       |   V   |       |
17+10    0.0675    0.67  | Q     |       |     V |       |
17+15    0.0728    0.77  |  Q    |       |      V|       |
17+20    0.0787
```

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 1999, Version 6.0
Study date 09/23/20 File: APRE2YR610.out

++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

28771 Central Avenue Gas Station
Area A
Pre-development
6-Hr 10-Yr Storm Event

Drainage Area = 1.32(Ac.) = 0.002 Sq. Mi.
Length along longest watercourse = 408.00(Ft.)
Length along longest watercourse measured to centroid = 87.50(Ft.)
Length along longest watercourse = 0.077 Mi.
Length along longest watercourse measured to centroid = 0.017 Mi.
Difference in elevation = 16.34(Ft.)
Slope along watercourse = 211.4588 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.021 Hr.
Lag time = 1.24 Min.
25% of lag time = 0.31 Min.
40% of lag time = 0.50 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.32	1.27	1.68

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.32	3.12	4.13

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 1.270(In)
Area Averaged 100-Year Rainfall = 3.120(In)

Point rain (area averaged) = 2.031(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 2.031(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
1.324	83.00	0.059

Total Area Entered = 1.32(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
83.0	83.0	0.210	0.059	0.199	1.000	0.199

Sum (F) = 0.199

Area averaged mean soil loss (F) (In/Hr) = 0.199
Minimum soil loss rate ((In/Hr)) = 0.099
(for 24 hour storm duration)
Soil low loss rate (decimal) = 0.853

U n i t H y d r o g r a p h
DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	402.223	65.137	0.869
2	0.167	804.446	34.863	0.465
	Sum = 100.000		Sum=	1.334

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.122	0.199	0.104	0.02
2	0.17	0.60	0.146	0.199	0.125	0.02
3	0.25	0.60	0.146	0.199	0.125	0.02
4	0.33	0.60	0.146	0.199	0.125	0.02
5	0.42	0.60	0.146	0.199	0.125	0.02
6	0.50	0.70	0.171	0.199	0.146	0.03
7	0.58	0.70	0.171	0.199	0.146	0.03
8	0.67	0.70	0.171	0.199	0.146	0.03
9	0.75	0.70	0.171	0.199	0.146	0.03
10	0.83	0.70	0.171	0.199	0.146	0.03
11	0.92	0.70	0.171	0.199	0.146	0.03
12	1.00	0.80	0.195	0.199	0.166	0.03
13	1.08	0.80	0.195	0.199	0.166	0.03
14	1.17	0.80	0.195	0.199	0.166	0.03
15	1.25	0.80	0.195	0.199	0.166	0.03
16	1.33	0.80	0.195	0.199	0.166	0.03
17	1.42	0.80	0.195	0.199	0.166	0.03
18	1.50	0.80	0.195	0.199	0.166	0.03
19	1.58	0.80	0.195	0.199	0.166	0.03
20	1.67	0.80	0.195	0.199	0.166	0.03
21	1.75	0.80	0.195	0.199	0.166	0.03
22	1.83	0.80	0.195	0.199	0.166	0.03
23	1.92	0.80	0.195	0.199	0.166	0.03
24	2.00	0.90	0.219	0.199	---	0.02
25	2.08	0.80	0.195	0.199	0.166	0.03
26	2.17	0.90	0.219	0.199	---	0.02
27	2.25	0.90	0.219	0.199	---	0.02
28	2.33	0.90	0.219	0.199	---	0.02
29	2.42	0.90	0.219	0.199	---	0.02
30	2.50	0.90	0.219	0.199	---	0.02
31	2.58	0.90	0.219	0.199	---	0.02
32	2.67	0.90	0.219	0.199	---	0.02
33	2.75	1.00	0.244	0.199	---	0.05
34	2.83	1.00	0.244	0.199	---	0.05
35	2.92	1.00	0.244	0.199	---	0.05
36	3.00	1.00	0.244	0.199	---	0.05

37	3.08	1.00	0.244	0.199	---	0.05
38	3.17	1.10	0.268	0.199	---	0.07
39	3.25	1.10	0.268	0.199	---	0.07
40	3.33	1.10	0.268	0.199	---	0.07
41	3.42	1.20	0.292	0.199	---	0.09
42	3.50	1.30	0.317	0.199	---	0.12
43	3.58	1.40	0.341	0.199	---	0.14
44	3.67	1.40	0.341	0.199	---	0.14
45	3.75	1.50	0.366	0.199	---	0.17
46	3.83	1.50	0.366	0.199	---	0.17
47	3.92	1.60	0.390	0.199	---	0.19
48	4.00	1.60	0.390	0.199	---	0.19
49	4.08	1.70	0.414	0.199	---	0.22
50	4.17	1.80	0.439	0.199	---	0.24
51	4.25	1.90	0.463	0.199	---	0.26
52	4.33	2.00	0.487	0.199	---	0.29
53	4.42	2.10	0.512	0.199	---	0.31
54	4.50	2.10	0.512	0.199	---	0.31
55	4.58	2.20	0.536	0.199	---	0.34
56	4.67	2.30	0.561	0.199	---	0.36
57	4.75	2.40	0.585	0.199	---	0.39
58	4.83	2.40	0.585	0.199	---	0.39
59	4.92	2.50	0.609	0.199	---	0.41
60	5.00	2.60	0.634	0.199	---	0.44
61	5.08	3.10	0.756	0.199	---	0.56
62	5.17	3.60	0.877	0.199	---	0.68
63	5.25	3.90	0.951	0.199	---	0.75
64	5.33	4.20	1.024	0.199	---	0.83
65	5.42	4.70	1.146	0.199	---	0.95
66	5.50	5.60	1.365	0.199	---	1.17
67	5.58	1.90	0.463	0.199	---	0.26
68	5.67	0.90	0.219	0.199	---	0.02
69	5.75	0.60	0.146	0.199	0.125	0.02
70	5.83	0.50	0.122	0.199	0.104	0.02
71	5.92	0.30	0.073	0.199	0.062	0.01
72	6.00	0.20	0.049	0.199	0.042	0.01
Sum =		100.0			Sum =	11.7

Flood volume = Effective rainfall 0.97(In)
times area 1.3(Ac.)/[(In)/(Ft.)] = 0.1(Ac.Ft)
Total soil loss = 1.06(In)
Total soil loss = 0.117(Ac.Ft)
Total rainfall = 2.03(In)
Flood volume = 4670.0 Cubic Feet
Total soil loss = 5091.6 Cubic Feet

Peak flow rate of this hydrograph = 1.455(CFS)

++

6 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0001	0.02	Q	|	|	|	|
0+10	0.0003	0.03	Q	|	|	|	|
0+15	0.0005	0.03	Q	|	|	|	|
0+20	0.0007	0.03	Q	|	|	|	|
0+25	0.0009	0.03	Q	|	|	|	|
0+30	0.0011	0.03	Q	|	|	|	|
0+35	0.0013	0.03	Q	|	|	|	|
0+40	0.0016	0.03	Q	|	|	|	|
0+45	0.0018	0.03	Q	|	|	|	|

```
 0+50     0.0020     0.03  Q       |       |       |       |
 0+55     0.0023     0.03  Q       |       |       |       |
 1+ 0     0.0025     0.04  Q       |       |       |       |
 1+ 5     0.0028     0.04  QV      |       |       |       |
 1+10     0.0030     0.04  QV      |       |       |       |
 1+15     0.0033     0.04  QV      |       |       |       |
 1+20     0.0036     0.04  QV      |       |       |       |
 1+25     0.0038     0.04  QV      |       |       |       |
 1+30     0.0041     0.04  QV      |       |       |       |
 1+35     0.0043     0.04  QV      |       |       |       |
 1+40     0.0046     0.04  QV      |       |       |       |
 1+45     0.0049     0.04  QV      |       |       |       |
 1+50     0.0051     0.04  QV      |       |       |       |
 1+55     0.0054     0.04  Q V     |       |       |       |
 2+ 0     0.0056     0.03  Q V     |       |       |       |
 2+ 5     0.0059     0.03  Q V     |       |       |       |
 2+10     0.0061     0.03  Q V     |       |       |       |
 2+15     0.0063     0.03  Q V     |       |       |       |
 2+20     0.0065     0.03  Q V     |       |       |       |
 2+25     0.0066     0.03  Q V     |       |       |       |
 2+30     0.0068     0.03  Q V     |       |       |       |
 2+35     0.0070     0.03  Q V     |       |       |       |
 2+40     0.0072     0.03  Q V     |       |       |       |
 2+45     0.0075     0.05  Q V     |       |       |       |
 2+50     0.0080     0.06  Q V     |       |       |       |
 2+55     0.0084     0.06  Q  V    |       |       |       |
 3+ 0     0.0088     0.06  Q  V    |       |       |       |
 3+ 5     0.0092     0.06  Q  V    |       |       |       |
 3+10     0.0098     0.08  Q  V    |       |       |       |
 3+15     0.0104     0.09  Q  V    |       |       |       |
 3+20     0.0110     0.09  Q   V   |       |       |       |
 3+25     0.0118     0.11  Q   V   |       |       |       |
 3+30     0.0128     0.15  Q   V   |       |       |       |
 3+35     0.0141     0.18  Q    V  |       |       |       |
 3+40     0.0154     0.19  Q    V  |       |       |       |
 3+45     0.0168     0.21  Q     V |       |       |       |
 3+50     0.0184     0.22  Q     V |       |       |       |
 3+55     0.0201     0.24  Q     V |       |       |       |
 4+ 0     0.0218     0.26  |Q     V |       |       |       |
 4+ 5     0.0237     0.28  |Q     V |       |       |       |
 4+10     0.0258     0.31  |Q     V|       |       |       |
 4+15     0.0282     0.34  |Q      V       |       |       |
 4+20     0.0308     0.37  |Q      |V      |       |       |
 4+25     0.0336     0.41  |Q      | V     |       |       |
 4+30     0.0365     0.42  |Q      |  V    |       |       |
 4+35     0.0395     0.44  |Q      |   V   |       |       |
 4+40     0.0427     0.47  |Q      |    V  |       |       |
 4+45     0.0462     0.50  | Q     |     V |       |       |
 4+50     0.0498     0.52  | Q     |     V |       |       |
 4+55     0.0535     0.54  | Q     |      V|       |       |
 5+ 0     0.0574     0.57  | Q     |       |V      |       |
 5+ 5     0.0621     0.69  | Q     |       |  V    |       |
 5+10     0.0680     0.85  |  Q    |       |    V  |       |
 5+15     0.0746     0.97  |  Q    |       |     V |       |
 5+20     0.0820     1.07  |   Q   |       |       V       |
 5+25     0.0903     1.21  |   Q   |       |       |  V    |
 5+30     0.1003     1.45  |    Q  |       |       |     V |
 5+35     0.1056     0.77  |  Q    |       |       |      V|
 5+40     0.1066     0.14  Q       |       |       |      V|
 5+45     0.1068     0.03  Q       |       |       |      V|
 5+50     0.1070     0.03  Q       |       |       |      V|
 5+55     0.1071     0.02  Q       |       |       |      V|
 6+ 0     0.1072     0.01  Q       |       |       |      V|
 6+ 5     0.1072     0.00  Q       |       |       |       V
-------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 1999, Version 6.0
Study date 09/23/20 File: APRE2YR242.out

++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

28771 Central Avenue Gas Station
Area A
Pre-development
24-Hr 2-Yr Storm Event

Drainage Area = 1.32(Ac.) = 0.002 Sq. Mi.
Length along longest watercourse = 408.00(Ft.)
Length along longest watercourse measured to centroid = 87.50(Ft.)
Length along longest watercourse = 0.077 Mi.
Length along longest watercourse measured to centroid = 0.017 Mi.
Difference in elevation = 16.34(Ft.)
Slope along watercourse = 211.4588 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.021 Hr.
Lag time = 1.24 Min.
25% of lag time = 0.31 Min.
40% of lag time = 0.50 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.32	2.43	3.22

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.32	6.58	8.71

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 2.430(In)
Area Averaged 100-Year Rainfall = 6.580(In)

Point rain (area averaged) = 2.430(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 2.430(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
1.324	83.00	0.059

Total Area Entered = 1.32(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
83.0	83.0	0.210	0.059	0.199	1.000	0.199

Sum (F) = 0.199

Area averaged mean soil loss (F) (In/Hr) = 0.199

Minimum soil loss rate ((In/Hr)) = 0.099

(for 24 hour storm duration)

Soil low loss rate (decimal) = 0.853

U n i t H y d r o g r a p h

DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	402.223	65.137	0.869
2	0.167	804.446	34.863	0.465
	Sum = 100.000		Sum=	1.334

Storm Event 3 Effective Rainfall = 0.462(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.004	0.352	0.003	0.00
2	0.17	0.07	0.004	0.351	0.003	0.00
3	0.25	0.07	0.004	0.349	0.003	0.00
4	0.33	0.10	0.006	0.348	0.005	0.00
5	0.42	0.10	0.006	0.347	0.005	0.00
6	0.50	0.10	0.006	0.345	0.005	0.00
7	0.58	0.10	0.006	0.344	0.005	0.00
8	0.67	0.10	0.006	0.343	0.005	0.00
9	0.75	0.10	0.006	0.341	0.005	0.00
10	0.83	0.13	0.007	0.340	0.006	0.00
11	0.92	0.13	0.007	0.339	0.006	0.00
12	1.00	0.13	0.007	0.337	0.006	0.00
13	1.08	0.10	0.006	0.336	0.005	0.00
14	1.17	0.10	0.006	0.335	0.005	0.00
15	1.25	0.10	0.006	0.333	0.005	0.00
16	1.33	0.10	0.006	0.332	0.005	0.00
17	1.42	0.10	0.006	0.331	0.005	0.00
18	1.50	0.10	0.006	0.329	0.005	0.00
19	1.58	0.10	0.006	0.328	0.005	0.00
20	1.67	0.10	0.006	0.327	0.005	0.00
21	1.75	0.10	0.006	0.325	0.005	0.00
22	1.83	0.13	0.007	0.324	0.006	0.00
23	1.92	0.13	0.007	0.323	0.006	0.00
24	2.00	0.13	0.007	0.322	0.006	0.00
25	2.08	0.13	0.007	0.320	0.006	0.00
26	2.17	0.13	0.007	0.319	0.006	0.00
27	2.25	0.13	0.007	0.318	0.006	0.00
28	2.33	0.13	0.007	0.316	0.006	0.00
29	2.42	0.13	0.007	0.315	0.006	0.00

30	2.50	0.13	0.007	0.314	0.006	0.00
31	2.58	0.17	0.009	0.312	0.008	0.00
32	2.67	0.17	0.009	0.311	0.008	0.00
33	2.75	0.17	0.009	0.310	0.008	0.00
34	2.83	0.17	0.009	0.309	0.008	0.00
35	2.92	0.17	0.009	0.307	0.008	0.00
36	3.00	0.17	0.009	0.306	0.008	0.00
37	3.08	0.17	0.009	0.305	0.008	0.00
38	3.17	0.17	0.009	0.304	0.008	0.00
39	3.25	0.17	0.009	0.302	0.008	0.00
40	3.33	0.17	0.009	0.301	0.008	0.00
41	3.42	0.17	0.009	0.300	0.008	0.00
42	3.50	0.17	0.009	0.299	0.008	0.00
43	3.58	0.17	0.009	0.297	0.008	0.00
44	3.67	0.17	0.009	0.296	0.008	0.00
45	3.75	0.17	0.009	0.295	0.008	0.00
46	3.83	0.20	0.011	0.294	0.009	0.00
47	3.92	0.20	0.011	0.292	0.009	0.00
48	4.00	0.20	0.011	0.291	0.009	0.00
49	4.08	0.20	0.011	0.290	0.009	0.00
50	4.17	0.20	0.011	0.289	0.009	0.00
51	4.25	0.20	0.011	0.287	0.009	0.00
52	4.33	0.23	0.013	0.286	0.011	0.00
53	4.42	0.23	0.013	0.285	0.011	0.00
54	4.50	0.23	0.013	0.284	0.011	0.00
55	4.58	0.23	0.013	0.282	0.011	0.00
56	4.67	0.23	0.013	0.281	0.011	0.00
57	4.75	0.23	0.013	0.280	0.011	0.00
58	4.83	0.27	0.015	0.279	0.013	0.00
59	4.92	0.27	0.015	0.278	0.013	0.00
60	5.00	0.27	0.015	0.276	0.013	0.00
61	5.08	0.20	0.011	0.275	0.009	0.00
62	5.17	0.20	0.011	0.274	0.009	0.00
63	5.25	0.20	0.011	0.273	0.009	0.00
64	5.33	0.23	0.013	0.272	0.011	0.00
65	5.42	0.23	0.013	0.270	0.011	0.00
66	5.50	0.23	0.013	0.269	0.011	0.00
67	5.58	0.27	0.015	0.268	0.013	0.00
68	5.67	0.27	0.015	0.267	0.013	0.00
69	5.75	0.27	0.015	0.266	0.013	0.00
70	5.83	0.27	0.015	0.265	0.013	0.00
71	5.92	0.27	0.015	0.263	0.013	0.00
72	6.00	0.27	0.015	0.262	0.013	0.00
73	6.08	0.30	0.017	0.261	0.014	0.00
74	6.17	0.30	0.017	0.260	0.014	0.00
75	6.25	0.30	0.017	0.259	0.014	0.00
76	6.33	0.30	0.017	0.258	0.014	0.00
77	6.42	0.30	0.017	0.256	0.014	0.00
78	6.50	0.30	0.017	0.255	0.014	0.00
79	6.58	0.33	0.018	0.254	0.016	0.00
80	6.67	0.33	0.018	0.253	0.016	0.00
81	6.75	0.33	0.018	0.252	0.016	0.00
82	6.83	0.33	0.018	0.251	0.016	0.00
83	6.92	0.33	0.018	0.250	0.016	0.00
84	7.00	0.33	0.018	0.248	0.016	0.00
85	7.08	0.33	0.018	0.247	0.016	0.00
86	7.17	0.33	0.018	0.246	0.016	0.00
87	7.25	0.33	0.018	0.245	0.016	0.00
88	7.33	0.37	0.020	0.244	0.017	0.00
89	7.42	0.37	0.020	0.243	0.017	0.00
90	7.50	0.37	0.020	0.242	0.017	0.00
91	7.58	0.40	0.022	0.241	0.019	0.00
92	7.67	0.40	0.022	0.240	0.019	0.00
93	7.75	0.40	0.022	0.238	0.019	0.00
94	7.83	0.43	0.024	0.237	0.020	0.00

95	7.92	0.43	0.024	0.236	0.020	0.00
96	8.00	0.43	0.024	0.235	0.020	0.00
97	8.08	0.50	0.028	0.234	0.024	0.00
98	8.17	0.50	0.028	0.233	0.024	0.00
99	8.25	0.50	0.028	0.232	0.024	0.00
100	8.33	0.50	0.028	0.231	0.024	0.00
101	8.42	0.50	0.028	0.230	0.024	0.00
102	8.50	0.50	0.028	0.229	0.024	0.00
103	8.58	0.53	0.030	0.228	0.025	0.00
104	8.67	0.53	0.030	0.226	0.025	0.00
105	8.75	0.53	0.030	0.225	0.025	0.00
106	8.83	0.57	0.031	0.224	0.027	0.00
107	8.92	0.57	0.031	0.223	0.027	0.00
108	9.00	0.57	0.031	0.222	0.027	0.00
109	9.08	0.63	0.035	0.221	0.030	0.01
110	9.17	0.63	0.035	0.220	0.030	0.01
111	9.25	0.63	0.035	0.219	0.030	0.01
112	9.33	0.67	0.037	0.218	0.032	0.01
113	9.42	0.67	0.037	0.217	0.032	0.01
114	9.50	0.67	0.037	0.216	0.032	0.01
115	9.58	0.70	0.039	0.215	0.033	0.01
116	9.67	0.70	0.039	0.214	0.033	0.01
117	9.75	0.70	0.039	0.213	0.033	0.01
118	9.83	0.73	0.041	0.212	0.035	0.01
119	9.92	0.73	0.041	0.211	0.035	0.01
120	10.00	0.73	0.041	0.210	0.035	0.01
121	10.08	0.50	0.028	0.209	0.024	0.00
122	10.17	0.50	0.028	0.208	0.024	0.00
123	10.25	0.50	0.028	0.207	0.024	0.00
124	10.33	0.50	0.028	0.206	0.024	0.00
125	10.42	0.50	0.028	0.205	0.024	0.00
126	10.50	0.50	0.028	0.204	0.024	0.00
127	10.58	0.67	0.037	0.203	0.032	0.01
128	10.67	0.67	0.037	0.202	0.032	0.01
129	10.75	0.67	0.037	0.201	0.032	0.01
130	10.83	0.67	0.037	0.200	0.032	0.01
131	10.92	0.67	0.037	0.199	0.032	0.01
132	11.00	0.67	0.037	0.198	0.032	0.01
133	11.08	0.63	0.035	0.197	0.030	0.01
134	11.17	0.63	0.035	0.196	0.030	0.01
135	11.25	0.63	0.035	0.195	0.030	0.01
136	11.33	0.63	0.035	0.194	0.030	0.01
137	11.42	0.63	0.035	0.193	0.030	0.01
138	11.50	0.63	0.035	0.192	0.030	0.01
139	11.58	0.57	0.031	0.191	0.027	0.00
140	11.67	0.57	0.031	0.190	0.027	0.00
141	11.75	0.57	0.031	0.189	0.027	0.00
142	11.83	0.60	0.033	0.188	0.028	0.00
143	11.92	0.60	0.033	0.187	0.028	0.00
144	12.00	0.60	0.033	0.186	0.028	0.00
145	12.08	0.83	0.046	0.185	0.039	0.01
146	12.17	0.83	0.046	0.185	0.039	0.01
147	12.25	0.83	0.046	0.184	0.039	0.01
148	12.33	0.87	0.048	0.183	0.041	0.01
149	12.42	0.87	0.048	0.182	0.041	0.01
150	12.50	0.87	0.048	0.181	0.041	0.01
151	12.58	0.93	0.052	0.180	0.044	0.01
152	12.67	0.93	0.052	0.179	0.044	0.01
153	12.75	0.93	0.052	0.178	0.044	0.01
154	12.83	0.97	0.054	0.177	0.046	0.01
155	12.92	0.97	0.054	0.176	0.046	0.01
156	13.00	0.97	0.054	0.175	0.046	0.01
157	13.08	1.13	0.063	0.175	0.054	0.01
158	13.17	1.13	0.063	0.174	0.054	0.01
159	13.25	1.13	0.063	0.173	0.054	0.01

160	13.33	1.13	0.063	0.172	0.054	0.01
161	13.42	1.13	0.063	0.171	0.054	0.01
162	13.50	1.13	0.063	0.170	0.054	0.01
163	13.58	0.77	0.042	0.169	0.036	0.01
164	13.67	0.77	0.042	0.168	0.036	0.01
165	13.75	0.77	0.042	0.168	0.036	0.01
166	13.83	0.77	0.042	0.167	0.036	0.01
167	13.92	0.77	0.042	0.166	0.036	0.01
168	14.00	0.77	0.042	0.165	0.036	0.01
169	14.08	0.90	0.050	0.164	0.043	0.01
170	14.17	0.90	0.050	0.163	0.043	0.01
171	14.25	0.90	0.050	0.163	0.043	0.01
172	14.33	0.87	0.048	0.162	0.041	0.01
173	14.42	0.87	0.048	0.161	0.041	0.01
174	14.50	0.87	0.048	0.160	0.041	0.01
175	14.58	0.87	0.048	0.159	0.041	0.01
176	14.67	0.87	0.048	0.158	0.041	0.01
177	14.75	0.87	0.048	0.158	0.041	0.01
178	14.83	0.83	0.046	0.157	0.039	0.01
179	14.92	0.83	0.046	0.156	0.039	0.01
180	15.00	0.83	0.046	0.155	0.039	0.01
181	15.08	0.80	0.044	0.154	0.038	0.01
182	15.17	0.80	0.044	0.154	0.038	0.01
183	15.25	0.80	0.044	0.153	0.038	0.01
184	15.33	0.77	0.042	0.152	0.036	0.01
185	15.42	0.77	0.042	0.151	0.036	0.01
186	15.50	0.77	0.042	0.150	0.036	0.01
187	15.58	0.63	0.035	0.150	0.030	0.01
188	15.67	0.63	0.035	0.149	0.030	0.01
189	15.75	0.63	0.035	0.148	0.030	0.01
190	15.83	0.63	0.035	0.147	0.030	0.01
191	15.92	0.63	0.035	0.147	0.030	0.01
192	16.00	0.63	0.035	0.146	0.030	0.01
193	16.08	0.13	0.007	0.145	0.006	0.00
194	16.17	0.13	0.007	0.144	0.006	0.00
195	16.25	0.13	0.007	0.144	0.006	0.00
196	16.33	0.13	0.007	0.143	0.006	0.00
197	16.42	0.13	0.007	0.142	0.006	0.00
198	16.50	0.13	0.007	0.141	0.006	0.00
199	16.58	0.10	0.006	0.141	0.005	0.00
200	16.67	0.10	0.006	0.140	0.005	0.00
201	16.75	0.10	0.006	0.139	0.005	0.00
202	16.83	0.10	0.006	0.139	0.005	0.00
203	16.92	0.10	0.006	0.138	0.005	0.00
204	17.00	0.10	0.006	0.137	0.005	0.00
205	17.08	0.17	0.009	0.137	0.008	0.00
206	17.17	0.17	0.009	0.136	0.008	0.00
207	17.25	0.17	0.009	0.135	0.008	0.00
208	17.33	0.17	0.009	0.134	0.008	0.00
209	17.42	0.17	0.009	0.134	0.008	0.00
210	17.50	0.17	0.009	0.133	0.008	0.00
211	17.58	0.17	0.009	0.132	0.008	0.00
212	17.67	0.17	0.009	0.132	0.008	0.00
213	17.75	0.17	0.009	0.131	0.008	0.00
214	17.83	0.13	0.007	0.131	0.006	0.00
215	17.92	0.13	0.007	0.130	0.006	0.00
216	18.00	0.13	0.007	0.129	0.006	0.00
217	18.08	0.13	0.007	0.129	0.006	0.00
218	18.17	0.13	0.007	0.128	0.006	0.00
219	18.25	0.13	0.007	0.127	0.006	0.00
220	18.33	0.13	0.007	0.127	0.006	0.00
221	18.42	0.13	0.007	0.126	0.006	0.00
222	18.50	0.13	0.007	0.125	0.006	0.00
223	18.58	0.10	0.006	0.125	0.005	0.00
224	18.67	0.10	0.006	0.124	0.005	0.00

225	18.75	0.10	0.006	0.124	0.005	0.00
226	18.83	0.07	0.004	0.123	0.003	0.00
227	18.92	0.07	0.004	0.122	0.003	0.00
228	19.00	0.07	0.004	0.122	0.003	0.00
229	19.08	0.10	0.006	0.121	0.005	0.00
230	19.17	0.10	0.006	0.121	0.005	0.00
231	19.25	0.10	0.006	0.120	0.005	0.00
232	19.33	0.13	0.007	0.120	0.006	0.00
233	19.42	0.13	0.007	0.119	0.006	0.00
234	19.50	0.13	0.007	0.119	0.006	0.00
235	19.58	0.10	0.006	0.118	0.005	0.00
236	19.67	0.10	0.006	0.117	0.005	0.00
237	19.75	0.10	0.006	0.117	0.005	0.00
238	19.83	0.07	0.004	0.116	0.003	0.00
239	19.92	0.07	0.004	0.116	0.003	0.00
240	20.00	0.07	0.004	0.115	0.003	0.00
241	20.08	0.10	0.006	0.115	0.005	0.00
242	20.17	0.10	0.006	0.114	0.005	0.00
243	20.25	0.10	0.006	0.114	0.005	0.00
244	20.33	0.10	0.006	0.113	0.005	0.00
245	20.42	0.10	0.006	0.113	0.005	0.00
246	20.50	0.10	0.006	0.112	0.005	0.00
247	20.58	0.10	0.006	0.112	0.005	0.00
248	20.67	0.10	0.006	0.111	0.005	0.00
249	20.75	0.10	0.006	0.111	0.005	0.00
250	20.83	0.07	0.004	0.111	0.003	0.00
251	20.92	0.07	0.004	0.110	0.003	0.00
252	21.00	0.07	0.004	0.110	0.003	0.00
253	21.08	0.10	0.006	0.109	0.005	0.00
254	21.17	0.10	0.006	0.109	0.005	0.00
255	21.25	0.10	0.006	0.108	0.005	0.00
256	21.33	0.07	0.004	0.108	0.003	0.00
257	21.42	0.07	0.004	0.108	0.003	0.00
258	21.50	0.07	0.004	0.107	0.003	0.00
259	21.58	0.10	0.006	0.107	0.005	0.00
260	21.67	0.10	0.006	0.106	0.005	0.00
261	21.75	0.10	0.006	0.106	0.005	0.00
262	21.83	0.07	0.004	0.106	0.003	0.00
263	21.92	0.07	0.004	0.105	0.003	0.00
264	22.00	0.07	0.004	0.105	0.003	0.00
265	22.08	0.10	0.006	0.105	0.005	0.00
266	22.17	0.10	0.006	0.104	0.005	0.00
267	22.25	0.10	0.006	0.104	0.005	0.00
268	22.33	0.07	0.004	0.104	0.003	0.00
269	22.42	0.07	0.004	0.103	0.003	0.00
270	22.50	0.07	0.004	0.103	0.003	0.00
271	22.58	0.07	0.004	0.103	0.003	0.00
272	22.67	0.07	0.004	0.102	0.003	0.00
273	22.75	0.07	0.004	0.102	0.003	0.00
274	22.83	0.07	0.004	0.102	0.003	0.00
275	22.92	0.07	0.004	0.102	0.003	0.00
276	23.00	0.07	0.004	0.101	0.003	0.00
277	23.08	0.07	0.004	0.101	0.003	0.00
278	23.17	0.07	0.004	0.101	0.003	0.00
279	23.25	0.07	0.004	0.101	0.003	0.00
280	23.33	0.07	0.004	0.100	0.003	0.00
281	23.42	0.07	0.004	0.100	0.003	0.00
282	23.50	0.07	0.004	0.100	0.003	0.00
283	23.58	0.07	0.004	0.100	0.003	0.00
284	23.67	0.07	0.004	0.100	0.003	0.00
285	23.75	0.07	0.004	0.100	0.003	0.00
286	23.83	0.07	0.004	0.099	0.003	0.00
287	23.92	0.07	0.004	0.099	0.003	0.00
288	24.00	0.07	0.004	0.099	0.003	0.00
	Sum =	100.0			Sum =	0.8

Flood volume = Effective rainfall 0.07(In)
times area 1.3(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)
Total soil loss = 0.39(In)
Total soil loss = 0.043(Ac.Ft)
Total rainfall = 0.46(In)
Flood volume = 325.7 Cubic Feet
Total soil loss = 1893.2 Cubic Feet

Storm Event 2 Effective Rainfall = 0.875(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.007	0.352	0.006	0.00
2	0.17	0.07	0.007	0.351	0.006	0.00
3	0.25	0.07	0.007	0.349	0.006	0.00
4	0.33	0.10	0.010	0.348	0.009	0.00
5	0.42	0.10	0.010	0.347	0.009	0.00
6	0.50	0.10	0.010	0.345	0.009	0.00
7	0.58	0.10	0.010	0.344	0.009	0.00
8	0.67	0.10	0.010	0.343	0.009	0.00
9	0.75	0.10	0.010	0.341	0.009	0.00
10	0.83	0.13	0.014	0.340	0.012	0.00
11	0.92	0.13	0.014	0.339	0.012	0.00
12	1.00	0.13	0.014	0.337	0.012	0.00
13	1.08	0.10	0.010	0.336	0.009	0.00
14	1.17	0.10	0.010	0.335	0.009	0.00
15	1.25	0.10	0.010	0.333	0.009	0.00
16	1.33	0.10	0.010	0.332	0.009	0.00
17	1.42	0.10	0.010	0.331	0.009	0.00
18	1.50	0.10	0.010	0.329	0.009	0.00
19	1.58	0.10	0.010	0.328	0.009	0.00
20	1.67	0.10	0.010	0.327	0.009	0.00
21	1.75	0.10	0.010	0.325	0.009	0.00
22	1.83	0.13	0.014	0.324	0.012	0.00
23	1.92	0.13	0.014	0.323	0.012	0.00
24	2.00	0.13	0.014	0.322	0.012	0.00
25	2.08	0.13	0.014	0.320	0.012	0.00
26	2.17	0.13	0.014	0.319	0.012	0.00
27	2.25	0.13	0.014	0.318	0.012	0.00
28	2.33	0.13	0.014	0.316	0.012	0.00
29	2.42	0.13	0.014	0.315	0.012	0.00
30	2.50	0.13	0.014	0.314	0.012	0.00
31	2.58	0.17	0.017	0.312	0.015	0.00
32	2.67	0.17	0.017	0.311	0.015	0.00
33	2.75	0.17	0.017	0.310	0.015	0.00
34	2.83	0.17	0.017	0.309	0.015	0.00
35	2.92	0.17	0.017	0.307	0.015	0.00
36	3.00	0.17	0.017	0.306	0.015	0.00
37	3.08	0.17	0.017	0.305	0.015	0.00
38	3.17	0.17	0.017	0.304	0.015	0.00
39	3.25	0.17	0.017	0.302	0.015	0.00
40	3.33	0.17	0.017	0.301	0.015	0.00
41	3.42	0.17	0.017	0.300	0.015	0.00
42	3.50	0.17	0.017	0.299	0.015	0.00
43	3.58	0.17	0.017	0.297	0.015	0.00
44	3.67	0.17	0.017	0.296	0.015	0.00
45	3.75	0.17	0.017	0.295	0.015	0.00
46	3.83	0.20	0.021	0.294	0.018	0.00
47	3.92	0.20	0.021	0.292	0.018	0.00
48	4.00	0.20	0.021	0.291	0.018	0.00
49	4.08	0.20	0.021	0.290	0.018	0.00
50	4.17	0.20	0.021	0.289	0.018	0.00
51	4.25	0.20	0.021	0.287	0.018	0.00
52	4.33	0.23	0.024	0.286	0.021	0.00

53	4.42	0.23	0.024	0.285	0.021	0.00
54	4.50	0.23	0.024	0.284	0.021	0.00
55	4.58	0.23	0.024	0.282	0.021	0.00
56	4.67	0.23	0.024	0.281	0.021	0.00
57	4.75	0.23	0.024	0.280	0.021	0.00
58	4.83	0.27	0.028	0.279	0.024	0.00
59	4.92	0.27	0.028	0.278	0.024	0.00
60	5.00	0.27	0.028	0.276	0.024	0.00
61	5.08	0.20	0.021	0.275	0.018	0.00
62	5.17	0.20	0.021	0.274	0.018	0.00
63	5.25	0.20	0.021	0.273	0.018	0.00
64	5.33	0.23	0.024	0.272	0.021	0.00
65	5.42	0.23	0.024	0.270	0.021	0.00
66	5.50	0.23	0.024	0.269	0.021	0.00
67	5.58	0.27	0.028	0.268	0.024	0.00
68	5.67	0.27	0.028	0.267	0.024	0.00
69	5.75	0.27	0.028	0.266	0.024	0.00
70	5.83	0.27	0.028	0.265	0.024	0.00
71	5.92	0.27	0.028	0.263	0.024	0.00
72	6.00	0.27	0.028	0.262	0.024	0.00
73	6.08	0.30	0.031	0.261	0.027	0.00
74	6.17	0.30	0.031	0.260	0.027	0.00
75	6.25	0.30	0.031	0.259	0.027	0.00
76	6.33	0.30	0.031	0.258	0.027	0.00
77	6.42	0.30	0.031	0.256	0.027	0.00
78	6.50	0.30	0.031	0.255	0.027	0.00
79	6.58	0.33	0.035	0.254	0.030	0.01
80	6.67	0.33	0.035	0.253	0.030	0.01
81	6.75	0.33	0.035	0.252	0.030	0.01
82	6.83	0.33	0.035	0.251	0.030	0.01
83	6.92	0.33	0.035	0.250	0.030	0.01
84	7.00	0.33	0.035	0.248	0.030	0.01
85	7.08	0.33	0.035	0.247	0.030	0.01
86	7.17	0.33	0.035	0.246	0.030	0.01
87	7.25	0.33	0.035	0.245	0.030	0.01
88	7.33	0.37	0.038	0.244	0.033	0.01
89	7.42	0.37	0.038	0.243	0.033	0.01
90	7.50	0.37	0.038	0.242	0.033	0.01
91	7.58	0.40	0.042	0.241	0.036	0.01
92	7.67	0.40	0.042	0.240	0.036	0.01
93	7.75	0.40	0.042	0.238	0.036	0.01
94	7.83	0.43	0.045	0.237	0.039	0.01
95	7.92	0.43	0.045	0.236	0.039	0.01
96	8.00	0.43	0.045	0.235	0.039	0.01
97	8.08	0.50	0.052	0.234	0.045	0.01
98	8.17	0.50	0.052	0.233	0.045	0.01
99	8.25	0.50	0.052	0.232	0.045	0.01
100	8.33	0.50	0.052	0.231	0.045	0.01
101	8.42	0.50	0.052	0.230	0.045	0.01
102	8.50	0.50	0.052	0.229	0.045	0.01
103	8.58	0.53	0.056	0.228	0.048	0.01
104	8.67	0.53	0.056	0.226	0.048	0.01
105	8.75	0.53	0.056	0.225	0.048	0.01
106	8.83	0.57	0.059	0.224	0.051	0.01
107	8.92	0.57	0.059	0.223	0.051	0.01
108	9.00	0.57	0.059	0.222	0.051	0.01
109	9.08	0.63	0.066	0.221	0.057	0.01
110	9.17	0.63	0.066	0.220	0.057	0.01
111	9.25	0.63	0.066	0.219	0.057	0.01
112	9.33	0.67	0.070	0.218	0.060	0.01
113	9.42	0.67	0.070	0.217	0.060	0.01
114	9.50	0.67	0.070	0.216	0.060	0.01
115	9.58	0.70	0.073	0.215	0.063	0.01
116	9.67	0.70	0.073	0.214	0.063	0.01
117	9.75	0.70	0.073	0.213	0.063	0.01

118	9.83	0.73	0.077	0.212	0.066	0.01
119	9.92	0.73	0.077	0.211	0.066	0.01
120	10.00	0.73	0.077	0.210	0.066	0.01
121	10.08	0.50	0.052	0.209	0.045	0.01
122	10.17	0.50	0.052	0.208	0.045	0.01
123	10.25	0.50	0.052	0.207	0.045	0.01
124	10.33	0.50	0.052	0.206	0.045	0.01
125	10.42	0.50	0.052	0.205	0.045	0.01
126	10.50	0.50	0.052	0.204	0.045	0.01
127	10.58	0.67	0.070	0.203	0.060	0.01
128	10.67	0.67	0.070	0.202	0.060	0.01
129	10.75	0.67	0.070	0.201	0.060	0.01
130	10.83	0.67	0.070	0.200	0.060	0.01
131	10.92	0.67	0.070	0.199	0.060	0.01
132	11.00	0.67	0.070	0.198	0.060	0.01
133	11.08	0.63	0.066	0.197	0.057	0.01
134	11.17	0.63	0.066	0.196	0.057	0.01
135	11.25	0.63	0.066	0.195	0.057	0.01
136	11.33	0.63	0.066	0.194	0.057	0.01
137	11.42	0.63	0.066	0.193	0.057	0.01
138	11.50	0.63	0.066	0.192	0.057	0.01
139	11.58	0.57	0.059	0.191	0.051	0.01
140	11.67	0.57	0.059	0.190	0.051	0.01
141	11.75	0.57	0.059	0.189	0.051	0.01
142	11.83	0.60	0.063	0.188	0.054	0.01
143	11.92	0.60	0.063	0.187	0.054	0.01
144	12.00	0.60	0.063	0.186	0.054	0.01
145	12.08	0.83	0.087	0.185	0.075	0.01
146	12.17	0.83	0.087	0.185	0.075	0.01
147	12.25	0.83	0.087	0.184	0.075	0.01
148	12.33	0.87	0.091	0.183	0.078	0.01
149	12.42	0.87	0.091	0.182	0.078	0.01
150	12.50	0.87	0.091	0.181	0.078	0.01
151	12.58	0.93	0.098	0.180	0.084	0.01
152	12.67	0.93	0.098	0.179	0.084	0.01
153	12.75	0.93	0.098	0.178	0.084	0.01
154	12.83	0.97	0.101	0.177	0.087	0.01
155	12.92	0.97	0.101	0.176	0.087	0.01
156	13.00	0.97	0.101	0.175	0.087	0.01
157	13.08	1.13	0.119	0.175	0.102	0.02
158	13.17	1.13	0.119	0.174	0.102	0.02
159	13.25	1.13	0.119	0.173	0.102	0.02
160	13.33	1.13	0.119	0.172	0.102	0.02
161	13.42	1.13	0.119	0.171	0.102	0.02
162	13.50	1.13	0.119	0.170	0.102	0.02
163	13.58	0.77	0.080	0.169	0.069	0.01
164	13.67	0.77	0.080	0.168	0.069	0.01
165	13.75	0.77	0.080	0.168	0.069	0.01
166	13.83	0.77	0.080	0.167	0.069	0.01
167	13.92	0.77	0.080	0.166	0.069	0.01
168	14.00	0.77	0.080	0.165	0.069	0.01
169	14.08	0.90	0.094	0.164	0.081	0.01
170	14.17	0.90	0.094	0.163	0.081	0.01
171	14.25	0.90	0.094	0.163	0.081	0.01
172	14.33	0.87	0.091	0.162	0.078	0.01
173	14.42	0.87	0.091	0.161	0.078	0.01
174	14.50	0.87	0.091	0.160	0.078	0.01
175	14.58	0.87	0.091	0.159	0.078	0.01
176	14.67	0.87	0.091	0.158	0.078	0.01
177	14.75	0.87	0.091	0.158	0.078	0.01
178	14.83	0.83	0.087	0.157	0.075	0.01
179	14.92	0.83	0.087	0.156	0.075	0.01
180	15.00	0.83	0.087	0.155	0.075	0.01
181	15.08	0.80	0.084	0.154	0.072	0.01
182	15.17	0.80	0.084	0.154	0.072	0.01

183	15.25	0.80	0.084	0.153	0.072	0.01
184	15.33	0.77	0.080	0.152	0.069	0.01
185	15.42	0.77	0.080	0.151	0.069	0.01
186	15.50	0.77	0.080	0.150	0.069	0.01
187	15.58	0.63	0.066	0.150	0.057	0.01
188	15.67	0.63	0.066	0.149	0.057	0.01
189	15.75	0.63	0.066	0.148	0.057	0.01
190	15.83	0.63	0.066	0.147	0.057	0.01
191	15.92	0.63	0.066	0.147	0.057	0.01
192	16.00	0.63	0.066	0.146	0.057	0.01
193	16.08	0.13	0.014	0.145	0.012	0.00
194	16.17	0.13	0.014	0.144	0.012	0.00
195	16.25	0.13	0.014	0.144	0.012	0.00
196	16.33	0.13	0.014	0.143	0.012	0.00
197	16.42	0.13	0.014	0.142	0.012	0.00
198	16.50	0.13	0.014	0.141	0.012	0.00
199	16.58	0.10	0.010	0.141	0.009	0.00
200	16.67	0.10	0.010	0.140	0.009	0.00
201	16.75	0.10	0.010	0.139	0.009	0.00
202	16.83	0.10	0.010	0.139	0.009	0.00
203	16.92	0.10	0.010	0.138	0.009	0.00
204	17.00	0.10	0.010	0.137	0.009	0.00
205	17.08	0.17	0.017	0.137	0.015	0.00
206	17.17	0.17	0.017	0.136	0.015	0.00
207	17.25	0.17	0.017	0.135	0.015	0.00
208	17.33	0.17	0.017	0.134	0.015	0.00
209	17.42	0.17	0.017	0.134	0.015	0.00
210	17.50	0.17	0.017	0.133	0.015	0.00
211	17.58	0.17	0.017	0.132	0.015	0.00
212	17.67	0.17	0.017	0.132	0.015	0.00
213	17.75	0.17	0.017	0.131	0.015	0.00
214	17.83	0.13	0.014	0.131	0.012	0.00
215	17.92	0.13	0.014	0.130	0.012	0.00
216	18.00	0.13	0.014	0.129	0.012	0.00
217	18.08	0.13	0.014	0.129	0.012	0.00
218	18.17	0.13	0.014	0.128	0.012	0.00
219	18.25	0.13	0.014	0.127	0.012	0.00
220	18.33	0.13	0.014	0.127	0.012	0.00
221	18.42	0.13	0.014	0.126	0.012	0.00
222	18.50	0.13	0.014	0.125	0.012	0.00
223	18.58	0.10	0.010	0.125	0.009	0.00
224	18.67	0.10	0.010	0.124	0.009	0.00
225	18.75	0.10	0.010	0.124	0.009	0.00
226	18.83	0.07	0.007	0.123	0.006	0.00
227	18.92	0.07	0.007	0.122	0.006	0.00
228	19.00	0.07	0.007	0.122	0.006	0.00
229	19.08	0.10	0.010	0.121	0.009	0.00
230	19.17	0.10	0.010	0.121	0.009	0.00
231	19.25	0.10	0.010	0.120	0.009	0.00
232	19.33	0.13	0.014	0.120	0.012	0.00
233	19.42	0.13	0.014	0.119	0.012	0.00
234	19.50	0.13	0.014	0.119	0.012	0.00
235	19.58	0.10	0.010	0.118	0.009	0.00
236	19.67	0.10	0.010	0.117	0.009	0.00
237	19.75	0.10	0.010	0.117	0.009	0.00
238	19.83	0.07	0.007	0.116	0.006	0.00
239	19.92	0.07	0.007	0.116	0.006	0.00
240	20.00	0.07	0.007	0.115	0.006	0.00
241	20.08	0.10	0.010	0.115	0.009	0.00
242	20.17	0.10	0.010	0.114	0.009	0.00
243	20.25	0.10	0.010	0.114	0.009	0.00
244	20.33	0.10	0.010	0.113	0.009	0.00
245	20.42	0.10	0.010	0.113	0.009	0.00
246	20.50	0.10	0.010	0.112	0.009	0.00
247	20.58	0.10	0.010	0.112	0.009	0.00

248	20.67	0.10	0.010	0.111	0.009	0.00
249	20.75	0.10	0.010	0.111	0.009	0.00
250	20.83	0.07	0.007	0.111	0.006	0.00
251	20.92	0.07	0.007	0.110	0.006	0.00
252	21.00	0.07	0.007	0.110	0.006	0.00
253	21.08	0.10	0.010	0.109	0.009	0.00
254	21.17	0.10	0.010	0.109	0.009	0.00
255	21.25	0.10	0.010	0.108	0.009	0.00
256	21.33	0.07	0.007	0.108	0.006	0.00
257	21.42	0.07	0.007	0.108	0.006	0.00
258	21.50	0.07	0.007	0.107	0.006	0.00
259	21.58	0.10	0.010	0.107	0.009	0.00
260	21.67	0.10	0.010	0.106	0.009	0.00
261	21.75	0.10	0.010	0.106	0.009	0.00
262	21.83	0.07	0.007	0.106	0.006	0.00
263	21.92	0.07	0.007	0.105	0.006	0.00
264	22.00	0.07	0.007	0.105	0.006	0.00
265	22.08	0.10	0.010	0.105	0.009	0.00
266	22.17	0.10	0.010	0.104	0.009	0.00
267	22.25	0.10	0.010	0.104	0.009	0.00
268	22.33	0.07	0.007	0.104	0.006	0.00
269	22.42	0.07	0.007	0.103	0.006	0.00
270	22.50	0.07	0.007	0.103	0.006	0.00
271	22.58	0.07	0.007	0.103	0.006	0.00
272	22.67	0.07	0.007	0.102	0.006	0.00
273	22.75	0.07	0.007	0.102	0.006	0.00
274	22.83	0.07	0.007	0.102	0.006	0.00
275	22.92	0.07	0.007	0.102	0.006	0.00
276	23.00	0.07	0.007	0.101	0.006	0.00
277	23.08	0.07	0.007	0.101	0.006	0.00
278	23.17	0.07	0.007	0.101	0.006	0.00
279	23.25	0.07	0.007	0.101	0.006	0.00
280	23.33	0.07	0.007	0.100	0.006	0.00
281	23.42	0.07	0.007	0.100	0.006	0.00
282	23.50	0.07	0.007	0.100	0.006	0.00
283	23.58	0.07	0.007	0.100	0.006	0.00
284	23.67	0.07	0.007	0.100	0.006	0.00
285	23.75	0.07	0.007	0.100	0.006	0.00
286	23.83	0.07	0.007	0.099	0.006	0.00
287	23.92	0.07	0.007	0.099	0.006	0.00
288	24.00	0.07	0.007	0.099	0.006	0.00
Sum =		100.0		Sum =		1.5

Flood volume = Effective rainfall 0.13(In)
times area 1.3(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)
Total soil loss = 0.75(In)
Total soil loss = 0.082(Ac.Ft)
Total rainfall = 0.87(In)
Flood volume = 617.2 Cubic Feet
Total soil loss = 3587.2 Cubic Feet

Storm Event 1 Effective Rainfall = 2.430(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.019	0.352	0.017	0.00
2	0.17	0.07	0.019	0.351	0.017	0.00
3	0.25	0.07	0.019	0.349	0.017	0.00
4	0.33	0.10	0.029	0.348	0.025	0.00
5	0.42	0.10	0.029	0.347	0.025	0.00
6	0.50	0.10	0.029	0.345	0.025	0.00
7	0.58	0.10	0.029	0.344	0.025	0.00
8	0.67	0.10	0.029	0.343	0.025	0.00
9	0.75	0.10	0.029	0.341	0.025	0.00
10	0.83	0.13	0.039	0.340	0.033	0.01

11	0.92	0.13	0.039	0.339	0.033	0.01
12	1.00	0.13	0.039	0.337	0.033	0.01
13	1.08	0.10	0.029	0.336	0.025	0.00
14	1.17	0.10	0.029	0.335	0.025	0.00
15	1.25	0.10	0.029	0.333	0.025	0.00
16	1.33	0.10	0.029	0.332	0.025	0.00
17	1.42	0.10	0.029	0.331	0.025	0.00
18	1.50	0.10	0.029	0.329	0.025	0.00
19	1.58	0.10	0.029	0.328	0.025	0.00
20	1.67	0.10	0.029	0.327	0.025	0.00
21	1.75	0.10	0.029	0.325	0.025	0.00
22	1.83	0.13	0.039	0.324	0.033	0.01
23	1.92	0.13	0.039	0.323	0.033	0.01
24	2.00	0.13	0.039	0.322	0.033	0.01
25	2.08	0.13	0.039	0.320	0.033	0.01
26	2.17	0.13	0.039	0.319	0.033	0.01
27	2.25	0.13	0.039	0.318	0.033	0.01
28	2.33	0.13	0.039	0.316	0.033	0.01
29	2.42	0.13	0.039	0.315	0.033	0.01
30	2.50	0.13	0.039	0.314	0.033	0.01
31	2.58	0.17	0.049	0.312	0.041	0.01
32	2.67	0.17	0.049	0.311	0.041	0.01
33	2.75	0.17	0.049	0.310	0.041	0.01
34	2.83	0.17	0.049	0.309	0.041	0.01
35	2.92	0.17	0.049	0.307	0.041	0.01
36	3.00	0.17	0.049	0.306	0.041	0.01
37	3.08	0.17	0.049	0.305	0.041	0.01
38	3.17	0.17	0.049	0.304	0.041	0.01
39	3.25	0.17	0.049	0.302	0.041	0.01
40	3.33	0.17	0.049	0.301	0.041	0.01
41	3.42	0.17	0.049	0.300	0.041	0.01
42	3.50	0.17	0.049	0.299	0.041	0.01
43	3.58	0.17	0.049	0.297	0.041	0.01
44	3.67	0.17	0.049	0.296	0.041	0.01
45	3.75	0.17	0.049	0.295	0.041	0.01
46	3.83	0.20	0.058	0.294	0.050	0.01
47	3.92	0.20	0.058	0.292	0.050	0.01
48	4.00	0.20	0.058	0.291	0.050	0.01
49	4.08	0.20	0.058	0.290	0.050	0.01
50	4.17	0.20	0.058	0.289	0.050	0.01
51	4.25	0.20	0.058	0.287	0.050	0.01
52	4.33	0.23	0.068	0.286	0.058	0.01
53	4.42	0.23	0.068	0.285	0.058	0.01
54	4.50	0.23	0.068	0.284	0.058	0.01
55	4.58	0.23	0.068	0.282	0.058	0.01
56	4.67	0.23	0.068	0.281	0.058	0.01
57	4.75	0.23	0.068	0.280	0.058	0.01
58	4.83	0.27	0.078	0.279	0.066	0.01
59	4.92	0.27	0.078	0.278	0.066	0.01
60	5.00	0.27	0.078	0.276	0.066	0.01
61	5.08	0.20	0.058	0.275	0.050	0.01
62	5.17	0.20	0.058	0.274	0.050	0.01
63	5.25	0.20	0.058	0.273	0.050	0.01
64	5.33	0.23	0.068	0.272	0.058	0.01
65	5.42	0.23	0.068	0.270	0.058	0.01
66	5.50	0.23	0.068	0.269	0.058	0.01
67	5.58	0.27	0.078	0.268	0.066	0.01
68	5.67	0.27	0.078	0.267	0.066	0.01
69	5.75	0.27	0.078	0.266	0.066	0.01
70	5.83	0.27	0.078	0.265	0.066	0.01
71	5.92	0.27	0.078	0.263	0.066	0.01
72	6.00	0.27	0.078	0.262	0.066	0.01
73	6.08	0.30	0.087	0.261	0.075	0.01
74	6.17	0.30	0.087	0.260	0.075	0.01
75	6.25	0.30	0.087	0.259	0.075	0.01

76	6.33	0.30	0.087	0.258	0.075	0.01
77	6.42	0.30	0.087	0.256	0.075	0.01
78	6.50	0.30	0.087	0.255	0.075	0.01
79	6.58	0.33	0.097	0.254	0.083	0.01
80	6.67	0.33	0.097	0.253	0.083	0.01
81	6.75	0.33	0.097	0.252	0.083	0.01
82	6.83	0.33	0.097	0.251	0.083	0.01
83	6.92	0.33	0.097	0.250	0.083	0.01
84	7.00	0.33	0.097	0.248	0.083	0.01
85	7.08	0.33	0.097	0.247	0.083	0.01
86	7.17	0.33	0.097	0.246	0.083	0.01
87	7.25	0.33	0.097	0.245	0.083	0.01
88	7.33	0.37	0.107	0.244	0.091	0.02
89	7.42	0.37	0.107	0.243	0.091	0.02
90	7.50	0.37	0.107	0.242	0.091	0.02
91	7.58	0.40	0.117	0.241	0.100	0.02
92	7.67	0.40	0.117	0.240	0.100	0.02
93	7.75	0.40	0.117	0.238	0.100	0.02
94	7.83	0.43	0.126	0.237	0.108	0.02
95	7.92	0.43	0.126	0.236	0.108	0.02
96	8.00	0.43	0.126	0.235	0.108	0.02
97	8.08	0.50	0.146	0.234	0.124	0.02
98	8.17	0.50	0.146	0.233	0.124	0.02
99	8.25	0.50	0.146	0.232	0.124	0.02
100	8.33	0.50	0.146	0.231	0.124	0.02
101	8.42	0.50	0.146	0.230	0.124	0.02
102	8.50	0.50	0.146	0.229	0.124	0.02
103	8.58	0.53	0.156	0.228	0.133	0.02
104	8.67	0.53	0.156	0.226	0.133	0.02
105	8.75	0.53	0.156	0.225	0.133	0.02
106	8.83	0.57	0.165	0.224	0.141	0.02
107	8.92	0.57	0.165	0.223	0.141	0.02
108	9.00	0.57	0.165	0.222	0.141	0.02
109	9.08	0.63	0.185	0.221	0.158	0.03
110	9.17	0.63	0.185	0.220	0.158	0.03
111	9.25	0.63	0.185	0.219	0.158	0.03
112	9.33	0.67	0.194	0.218	0.166	0.03
113	9.42	0.67	0.194	0.217	0.166	0.03
114	9.50	0.67	0.194	0.216	0.166	0.03
115	9.58	0.70	0.204	0.215	0.174	0.03
116	9.67	0.70	0.204	0.214	0.174	0.03
117	9.75	0.70	0.204	0.213	0.174	0.03
118	9.83	0.73	0.214	0.212	---	0.00
119	9.92	0.73	0.214	0.211	---	0.00
120	10.00	0.73	0.214	0.210	---	0.00
121	10.08	0.50	0.146	0.209	0.124	0.02
122	10.17	0.50	0.146	0.208	0.124	0.02
123	10.25	0.50	0.146	0.207	0.124	0.02
124	10.33	0.50	0.146	0.206	0.124	0.02
125	10.42	0.50	0.146	0.205	0.124	0.02
126	10.50	0.50	0.146	0.204	0.124	0.02
127	10.58	0.67	0.194	0.203	0.166	0.03
128	10.67	0.67	0.194	0.202	0.166	0.03
129	10.75	0.67	0.194	0.201	0.166	0.03
130	10.83	0.67	0.194	0.200	0.166	0.03
131	10.92	0.67	0.194	0.199	0.166	0.03
132	11.00	0.67	0.194	0.198	0.166	0.03
133	11.08	0.63	0.185	0.197	0.158	0.03
134	11.17	0.63	0.185	0.196	0.158	0.03
135	11.25	0.63	0.185	0.195	0.158	0.03
136	11.33	0.63	0.185	0.194	0.158	0.03
137	11.42	0.63	0.185	0.193	0.158	0.03
138	11.50	0.63	0.185	0.192	0.158	0.03
139	11.58	0.57	0.165	0.191	0.141	0.02
140	11.67	0.57	0.165	0.190	0.141	0.02

141	11.75	0.57	0.165	0.189	0.141	0.02
142	11.83	0.60	0.175	0.188	0.149	0.03
143	11.92	0.60	0.175	0.187	0.149	0.03
144	12.00	0.60	0.175	0.186	0.149	0.03
145	12.08	0.83	0.243	0.185	---	0.06
146	12.17	0.83	0.243	0.185	---	0.06
147	12.25	0.83	0.243	0.184	---	0.06
148	12.33	0.87	0.253	0.183	---	0.07
149	12.42	0.87	0.253	0.182	---	0.07
150	12.50	0.87	0.253	0.181	---	0.07
151	12.58	0.93	0.272	0.180	---	0.09
152	12.67	0.93	0.272	0.179	---	0.09
153	12.75	0.93	0.272	0.178	---	0.09
154	12.83	0.97	0.282	0.177	---	0.10
155	12.92	0.97	0.282	0.176	---	0.11
156	13.00	0.97	0.282	0.175	---	0.11
157	13.08	1.13	0.330	0.175	---	0.16
158	13.17	1.13	0.330	0.174	---	0.16
159	13.25	1.13	0.330	0.173	---	0.16
160	13.33	1.13	0.330	0.172	---	0.16
161	13.42	1.13	0.330	0.171	---	0.16
162	13.50	1.13	0.330	0.170	---	0.16
163	13.58	0.77	0.224	0.169	---	0.05
164	13.67	0.77	0.224	0.168	---	0.06
165	13.75	0.77	0.224	0.168	---	0.06
166	13.83	0.77	0.224	0.167	---	0.06
167	13.92	0.77	0.224	0.166	---	0.06
168	14.00	0.77	0.224	0.165	---	0.06
169	14.08	0.90	0.262	0.164	---	0.10
170	14.17	0.90	0.262	0.163	---	0.10
171	14.25	0.90	0.262	0.163	---	0.10
172	14.33	0.87	0.253	0.162	---	0.09
173	14.42	0.87	0.253	0.161	---	0.09
174	14.50	0.87	0.253	0.160	---	0.09
175	14.58	0.87	0.253	0.159	---	0.09
176	14.67	0.87	0.253	0.158	---	0.09
177	14.75	0.87	0.253	0.158	---	0.10
178	14.83	0.83	0.243	0.157	---	0.09
179	14.92	0.83	0.243	0.156	---	0.09
180	15.00	0.83	0.243	0.155	---	0.09
181	15.08	0.80	0.233	0.154	---	0.08
182	15.17	0.80	0.233	0.154	---	0.08
183	15.25	0.80	0.233	0.153	---	0.08
184	15.33	0.77	0.224	0.152	---	0.07
185	15.42	0.77	0.224	0.151	---	0.07
186	15.50	0.77	0.224	0.150	---	0.07
187	15.58	0.63	0.185	0.150	---	0.04
188	15.67	0.63	0.185	0.149	---	0.04
189	15.75	0.63	0.185	0.148	---	0.04
190	15.83	0.63	0.185	0.147	---	0.04
191	15.92	0.63	0.185	0.147	---	0.04
192	16.00	0.63	0.185	0.146	---	0.04
193	16.08	0.13	0.039	0.145	0.033	0.01
194	16.17	0.13	0.039	0.144	0.033	0.01
195	16.25	0.13	0.039	0.144	0.033	0.01
196	16.33	0.13	0.039	0.143	0.033	0.01
197	16.42	0.13	0.039	0.142	0.033	0.01
198	16.50	0.13	0.039	0.141	0.033	0.01
199	16.58	0.10	0.029	0.141	0.025	0.00
200	16.67	0.10	0.029	0.140	0.025	0.00
201	16.75	0.10	0.029	0.139	0.025	0.00
202	16.83	0.10	0.029	0.139	0.025	0.00
203	16.92	0.10	0.029	0.138	0.025	0.00
204	17.00	0.10	0.029	0.137	0.025	0.00
205	17.08	0.17	0.049	0.137	0.041	0.01

206	17.17	0.17	0.049	0.136	0.041	0.01
207	17.25	0.17	0.049	0.135	0.041	0.01
208	17.33	0.17	0.049	0.134	0.041	0.01
209	17.42	0.17	0.049	0.134	0.041	0.01
210	17.50	0.17	0.049	0.133	0.041	0.01
211	17.58	0.17	0.049	0.132	0.041	0.01
212	17.67	0.17	0.049	0.132	0.041	0.01
213	17.75	0.17	0.049	0.131	0.041	0.01
214	17.83	0.13	0.039	0.131	0.033	0.01
215	17.92	0.13	0.039	0.130	0.033	0.01
216	18.00	0.13	0.039	0.129	0.033	0.01
217	18.08	0.13	0.039	0.129	0.033	0.01
218	18.17	0.13	0.039	0.128	0.033	0.01
219	18.25	0.13	0.039	0.127	0.033	0.01
220	18.33	0.13	0.039	0.127	0.033	0.01
221	18.42	0.13	0.039	0.126	0.033	0.01
222	18.50	0.13	0.039	0.125	0.033	0.01
223	18.58	0.10	0.029	0.125	0.025	0.00
224	18.67	0.10	0.029	0.124	0.025	0.00
225	18.75	0.10	0.029	0.124	0.025	0.00
226	18.83	0.07	0.019	0.123	0.017	0.00
227	18.92	0.07	0.019	0.122	0.017	0.00
228	19.00	0.07	0.019	0.122	0.017	0.00
229	19.08	0.10	0.029	0.121	0.025	0.00
230	19.17	0.10	0.029	0.121	0.025	0.00
231	19.25	0.10	0.029	0.120	0.025	0.00
232	19.33	0.13	0.039	0.120	0.033	0.01
233	19.42	0.13	0.039	0.119	0.033	0.01
234	19.50	0.13	0.039	0.119	0.033	0.01
235	19.58	0.10	0.029	0.118	0.025	0.00
236	19.67	0.10	0.029	0.117	0.025	0.00
237	19.75	0.10	0.029	0.117	0.025	0.00
238	19.83	0.07	0.019	0.116	0.017	0.00
239	19.92	0.07	0.019	0.116	0.017	0.00
240	20.00	0.07	0.019	0.115	0.017	0.00
241	20.08	0.10	0.029	0.115	0.025	0.00
242	20.17	0.10	0.029	0.114	0.025	0.00
243	20.25	0.10	0.029	0.114	0.025	0.00
244	20.33	0.10	0.029	0.113	0.025	0.00
245	20.42	0.10	0.029	0.113	0.025	0.00
246	20.50	0.10	0.029	0.112	0.025	0.00
247	20.58	0.10	0.029	0.112	0.025	0.00
248	20.67	0.10	0.029	0.111	0.025	0.00
249	20.75	0.10	0.029	0.111	0.025	0.00
250	20.83	0.07	0.019	0.111	0.017	0.00
251	20.92	0.07	0.019	0.110	0.017	0.00
252	21.00	0.07	0.019	0.110	0.017	0.00
253	21.08	0.10	0.029	0.109	0.025	0.00
254	21.17	0.10	0.029	0.109	0.025	0.00
255	21.25	0.10	0.029	0.108	0.025	0.00
256	21.33	0.07	0.019	0.108	0.017	0.00
257	21.42	0.07	0.019	0.108	0.017	0.00
258	21.50	0.07	0.019	0.107	0.017	0.00
259	21.58	0.10	0.029	0.107	0.025	0.00
260	21.67	0.10	0.029	0.106	0.025	0.00
261	21.75	0.10	0.029	0.106	0.025	0.00
262	21.83	0.07	0.019	0.106	0.017	0.00
263	21.92	0.07	0.019	0.105	0.017	0.00
264	22.00	0.07	0.019	0.105	0.017	0.00
265	22.08	0.10	0.029	0.105	0.025	0.00
266	22.17	0.10	0.029	0.104	0.025	0.00
267	22.25	0.10	0.029	0.104	0.025	0.00
268	22.33	0.07	0.019	0.104	0.017	0.00
269	22.42	0.07	0.019	0.103	0.017	0.00
270	22.50	0.07	0.019	0.103	0.017	0.00

271	22.58	0.07	0.019	0.103	0.017	0.00
272	22.67	0.07	0.019	0.102	0.017	0.00
273	22.75	0.07	0.019	0.102	0.017	0.00
274	22.83	0.07	0.019	0.102	0.017	0.00
275	22.92	0.07	0.019	0.102	0.017	0.00
276	23.00	0.07	0.019	0.101	0.017	0.00
277	23.08	0.07	0.019	0.101	0.017	0.00
278	23.17	0.07	0.019	0.101	0.017	0.00
279	23.25	0.07	0.019	0.101	0.017	0.00
280	23.33	0.07	0.019	0.100	0.017	0.00
281	23.42	0.07	0.019	0.100	0.017	0.00
282	23.50	0.07	0.019	0.100	0.017	0.00
283	23.58	0.07	0.019	0.100	0.017	0.00
284	23.67	0.07	0.019	0.100	0.017	0.00
285	23.75	0.07	0.019	0.100	0.017	0.00
286	23.83	0.07	0.019	0.099	0.017	0.00
287	23.92	0.07	0.019	0.099	0.017	0.00
288	24.00	0.07	0.019	0.099	0.017	0.00
Sum =		100.0		Sum =		6.5

Flood volume = Effective rainfall 0.54(In)
times area 1.3(Ac.)/[(In)/(Ft.)] = 0.1(Ac.Ft)
Total soil loss = 1.89(In)
Total soil loss = 0.208(Ac.Ft)
Total rainfall = 2.43(In)
Flood volume = 2604.3 Cubic Feet
Total soil loss = 9074.5 Cubic Feet

Peak flow rate of this hydrograph = 0.214(CFS)

++

TOTAL OF: 3 24 - H O U R S T O R M E V E N T S
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0000	0.00	Q	|	|	|	|
0+10	0.0000	0.00	Q	|	|	|	|
0+15	0.0000	0.00	Q	|	|	|	|
0+20	0.0000	0.00	Q	|	|	|	|
0+25	0.0000	0.00	Q	|	|	|	|
0+30	0.0000	0.00	Q	|	|	|	|
0+35	0.0000	0.00	Q	|	|	|	|
0+40	0.0000	0.00	Q	|	|	|	|
0+45	0.0001	0.00	Q	|	|	|	|
0+50	0.0001	0.00	Q	|	|	|	|
0+55	0.0001	0.00	Q	|	|	|	|
1+ 0	0.0001	0.00	Q	|	|	|	|
1+ 5	0.0001	0.00	Q	|	|	|	|
1+10	0.0001	0.00	Q	|	|	|	|
1+15	0.0001	0.00	Q	|	|	|	|
1+20	0.0001	0.00	Q	|	|	|	|
1+25	0.0001	0.00	Q	|	|	|	|
1+30	0.0001	0.00	Q	|	|	|	|
1+35	0.0001	0.00	Q	|	|	|	|
1+40	0.0001	0.00	Q	|	|	|	|
1+45	0.0002	0.00	Q	|	|	|	|
1+50	0.0002	0.00	Q	|	|	|	|
1+55	0.0002	0.00	Q	|	|	|	|
2+ 0	0.0002	0.00	Q	|	|	|	|
2+ 5	0.0002	0.00	Q	|	|	|	|
2+10	0.0002	0.00	Q	|	|	|	|
2+15	0.0002	0.00	Q	|	|	|	|

2+20	0.0002	0.00	Q	|	|	|	|
2+25	0.0002	0.00	Q	|	|	|	|
2+30	0.0002	0.00	Q	|	|	|	|
2+35	0.0003	0.00	Q	|	|	|	|
2+40	0.0003	0.00	Q	|	|	|	|
2+45	0.0003	0.00	Q	|	|	|	|
2+50	0.0003	0.00	Q	|	|	|	|
2+55	0.0003	0.00	Q	|	|	|	|
3+ 0	0.0003	0.00	Q	|	|	|	|
3+ 5	0.0003	0.00	Q	|	|	|	|
3+10	0.0003	0.00	Q	|	|	|	|
3+15	0.0004	0.00	Q	|	|	|	|
3+20	0.0004	0.00	Q	|	|	|	|
3+25	0.0004	0.00	Q	|	|	|	|
3+30	0.0004	0.00	Q	|	|	|	|
3+35	0.0004	0.00	Q	|	|	|	|
3+40	0.0004	0.00	Q	|	|	|	|
3+45	0.0004	0.00	Q	|	|	|	|
3+50	0.0004	0.00	Q	|	|	|	|
3+55	0.0005	0.00	Q	|	|	|	|
4+ 0	0.0005	0.00	Q	|	|	|	|
4+ 5	0.0005	0.00	Q	|	|	|	|
4+10	0.0005	0.00	Q	|	|	|	|
4+15	0.0005	0.00	Q	|	|	|	|
4+20	0.0005	0.00	Q	|	|	|	|
4+25	0.0006	0.00	Q	|	|	|	|
4+30	0.0006	0.00	Q	|	|	|	|
4+35	0.0006	0.00	Q	|	|	|	|
4+40	0.0006	0.00	Q	|	|	|	|
4+45	0.0006	0.00	Q	|	|	|	|
4+50	0.0006	0.00	Q	|	|	|	|
4+55	0.0007	0.00	Q	|	|	|	|
5+ 0	0.0007	0.00	Q	|	|	|	|
5+ 5	0.0007	0.00	Q	|	|	|	|
5+10	0.0007	0.00	Q	|	|	|	|
5+15	0.0007	0.00	Q	|	|	|	|
5+20	0.0007	0.00	Q	|	|	|	|
5+25	0.0008	0.00	Q	|	|	|	|
5+30	0.0008	0.00	Q	|	|	|	|
5+35	0.0008	0.00	Q	|	|	|	|
5+40	0.0008	0.00	Q	|	|	|	|
5+45	0.0008	0.00	Q	|	|	|	|
5+50	0.0009	0.00	Q	|	|	|	|
5+55	0.0009	0.00	Q	|	|	|	|
6+ 0	0.0009	0.00	Q	|	|	|	|
6+ 5	0.0009	0.00	Q	|	|	|	|
6+10	0.0009	0.00	Q	|	|	|	|
6+15	0.0010	0.00	Q	|	|	|	|
6+20	0.0010	0.00	Q	|	|	|	|
6+25	0.0010	0.00	Q	|	|	|	|
6+30	0.0010	0.00	Q	|	|	|	|
6+35	0.0011	0.00	Q	|	|	|	|
6+40	0.0011	0.00	Q	|	|	|	|
6+45	0.0011	0.00	Q	|	|	|	|
6+50	0.0011	0.00	Q	|	|	|	|
6+55	0.0012	0.00	Q	|	|	|	|
7+ 0	0.0012	0.00	Q	|	|	|	|
7+ 5	0.0012	0.00	Q	|	|	|	|
7+10	0.0012	0.00	Q	|	|	|	|
7+15	0.0013	0.00	Q	|	|	|	|
7+20	0.0013	0.00	Q	|	|	|	|
7+25	0.0013	0.00	Q	|	|	|	|
7+30	0.0013	0.00	Q	|	|	|	|
7+35	0.0014	0.00	Q	|	|	|	|
7+40	0.0014	0.00	Q	|	|	|	|

7+45	0.0014	0.00	Q	|	|	|	|
7+50	0.0015	0.00	Q	|	|	|	|
7+55	0.0015	0.00	Q	|	|	|	|
8+ 0	0.0015	0.00	Q	|	|	|	|
8+ 5	0.0016	0.01	Q	|	|	|	|
8+10	0.0016	0.01	Q	|	|	|	|
8+15	0.0016	0.01	Q	|	|	|	|
8+20	0.0017	0.01	Q	|	|	|	|
8+25	0.0017	0.01	Q	|	|	|	|
8+30	0.0017	0.01	Q	|	|	|	|
8+35	0.0018	0.01	Q	|	|	|	|
8+40	0.0018	0.01	Q	|	|	|	|
8+45	0.0019	0.01	Q	|	|	|	|
8+50	0.0019	0.01	Q	|	|	|	|
8+55	0.0019	0.01	Q	|	|	|	|
9+ 0	0.0020	0.01	Q	|	|	|	|
9+ 5	0.0020	0.01	Q	|	|	|	|
9+10	0.0021	0.01	QV	|	|	|	|
9+15	0.0021	0.01	QV	|	|	|	|
9+20	0.0022	0.01	QV	|	|	|	|
9+25	0.0022	0.01	QV	|	|	|	|
9+30	0.0023	0.01	QV	|	|	|	|
9+35	0.0023	0.01	QV	|	|	|	|
9+40	0.0024	0.01	QV	|	|	|	|
9+45	0.0024	0.01	QV	|	|	|	|
9+50	0.0025	0.01	QV	|	|	|	|
9+55	0.0025	0.01	QV	|	|	|	|
10+ 0	0.0026	0.01	QV	|	|	|	|
10+ 5	0.0026	0.01	QV	|	|	|	|
10+10	0.0027	0.01	QV	|	|	|	|
10+15	0.0027	0.01	QV	|	|	|	|
10+20	0.0028	0.01	QV	|	|	|	|
10+25	0.0028	0.01	QV	|	|	|	|
10+30	0.0028	0.01	QV	|	|	|	|
10+35	0.0029	0.01	QV	|	|	|	|
10+40	0.0029	0.01	QV	|	|	|	|
10+45	0.0030	0.01	QV	|	|	|	|
10+50	0.0030	0.01	QV	|	|	|	|
10+55	0.0031	0.01	QV	|	|	|	|
11+ 0	0.0031	0.01	QV	|	|	|	|
11+ 5	0.0032	0.01	QV	|	|	|	|
11+10	0.0032	0.01	QV	|	|	|	|
11+15	0.0033	0.01	QV	|	|	|	|
11+20	0.0033	0.01	QV	|	|	|	|
11+25	0.0034	0.01	QV	|	|	|	|
11+30	0.0034	0.01	QV	|	|	|	|
11+35	0.0035	0.01	QV	|	|	|	|
11+40	0.0035	0.01	QV	|	|	|	|
11+45	0.0035	0.01	QV	|	|	|	|
11+50	0.0036	0.01	QV	|	|	|	|
11+55	0.0036	0.01	QV	|	|	|	|
12+ 0	0.0037	0.01	QV	|	|	|	|
12+ 5	0.0037	0.01	QV	|	|	|	|
12+10	0.0038	0.01	QV	|	|	|	|
12+15	0.0039	0.01	QV	|	|	|	|
12+20	0.0039	0.01	QV	|	|	|	|
12+25	0.0040	0.01	QV	|	|	|	|
12+30	0.0040	0.01	QV	|	|	|	|
12+35	0.0041	0.01	Q V	|	|	|	|
12+40	0.0042	0.01	Q V	|	|	|	|
12+45	0.0043	0.01	Q V	|	|	|	|
12+50	0.0043	0.01	Q V	|	|	|	|
12+55	0.0044	0.01	Q V	|	|	|	|
13+ 0	0.0045	0.01	Q V	|	|	|	|
13+ 5	0.0045	0.01	Q V	|	|	|	|

13+10	0.0046	0.01	Q	V		
13+15	0.0047	0.01	Q	V		
13+20	0.0048	0.01	Q	V		
13+25	0.0049	0.01	Q	V		
13+30	0.0050	0.01	Q	V		
13+35	0.0050	0.01	Q	V		
13+40	0.0051	0.01	Q	V		
13+45	0.0052	0.01	Q	V		
13+50	0.0052	0.01	Q	V		
13+55	0.0053	0.01	Q	V		
14+ 0	0.0053	0.01	Q	V		
14+ 5	0.0054	0.01	Q	V		
14+10	0.0055	0.01	Q	V		
14+15	0.0055	0.01	Q	V		
14+20	0.0056	0.01	Q	V		
14+25	0.0057	0.01	Q	V		
14+30	0.0057	0.01	Q	V		
14+35	0.0058	0.01	Q	V		
14+40	0.0059	0.01	Q	V		
14+45	0.0059	0.01	Q	V		
14+50	0.0060	0.01	Q	V		
14+55	0.0060	0.01	Q	V		
15+ 0	0.0061	0.01	Q	V		
15+ 5	0.0062	0.01	Q	V		
15+10	0.0062	0.01	Q	V		
15+15	0.0063	0.01	Q	V		
15+20	0.0063	0.01	Q	V		
15+25	0.0064	0.01	Q	V		
15+30	0.0065	0.01	Q	V		
15+35	0.0065	0.01	Q	V		
15+40	0.0066	0.01	Q	V		
15+45	0.0066	0.01	Q	V		
15+50	0.0066	0.01	Q	V		
15+55	0.0067	0.01	Q	V		
16+ 0	0.0067	0.01	Q	V		
16+ 5	0.0068	0.00	Q	V		
16+10	0.0068	0.00	Q	V		
16+15	0.0068	0.00	Q	V		
16+20	0.0068	0.00	Q	V		
16+25	0.0068	0.00	Q	V		
16+30	0.0068	0.00	Q	V		
16+35	0.0068	0.00	Q	V		
16+40	0.0068	0.00	Q	V		
16+45	0.0068	0.00	Q	V		
16+50	0.0068	0.00	Q	V		
16+55	0.0069	0.00	Q	V		
17+ 0	0.0069	0.00	Q	V		
17+ 5	0.0069	0.00	Q	V		
17+10	0.0069	0.00	Q	V		
17+15	0.0069	0.00	Q	V		
17+20	0.0069	0.00	Q	V		
17+25	0.0069	0.00	Q	V		
17+30	0.0069	0.00	Q	V		
17+35	0.0069	0.00	Q	V		
17+40	0.0070	0.00	Q	V		
17+45	0.0070	0.00	Q	V		
17+50	0.0070	0.00	Q	V		
17+55	0.0070	0.00	Q	V		
18+ 0	0.0070	0.00	Q	V		
18+ 5	0.0070	0.00	Q	V		
18+10	0.0070	0.00	Q	V		
18+15	0.0070	0.00	Q	V		
18+20	0.0070	0.00	Q	V		
18+25	0.0071	0.00	Q	V		
18+30	0.0071	0.00	Q	V		

18+35	0.0071	0.00	Q	V	|	|	|	|
18+40	0.0071	0.00	Q	V	|	|	|	|
18+45	0.0071	0.00	Q	V	|	|	|	|
18+50	0.0071	0.00	Q	V	|	|	|	|
18+55	0.0071	0.00	Q	V	|	|	|	|
19+ 0	0.0071	0.00	Q	V	|	|	|	|
19+ 5	0.0071	0.00	Q	V	|	|	|	|
19+10	0.0071	0.00	Q	V	|	|	|	|
19+15	0.0071	0.00	Q	V	|	|	|	|
19+20	0.0071	0.00	Q	V	|	|	|	|
19+25	0.0071	0.00	Q	V	|	|	|	|
19+30	0.0072	0.00	Q	V	|	|	|	|
19+35	0.0072	0.00	Q	V	|	|	|	|
19+40	0.0072	0.00	Q	V	|	|	|	|
19+45	0.0072	0.00	Q	V	|	|	|	|
19+50	0.0072	0.00	Q	V	|	|	|	|
19+55	0.0072	0.00	Q	V	|	|	|	|
20+ 0	0.0072	0.00	Q	V	|	|	|	|
20+ 5	0.0072	0.00	Q	V	|	|	|	|
20+10	0.0072	0.00	Q	V	|	|	|	|
20+15	0.0072	0.00	Q	V	|	|	|	|
20+20	0.0072	0.00	Q	V	|	|	|	|
20+25	0.0072	0.00	Q	V	|	|	|	|
20+30	0.0072	0.00	Q	V	|	|	|	|
20+35	0.0072	0.00	Q	V	|	|	|	|
20+40	0.0073	0.00	Q	V	|	|	|	|
20+45	0.0073	0.00	Q	V	|	|	|	|
20+50	0.0073	0.00	Q	V	|	|	|	|
20+55	0.0073	0.00	Q	V	|	|	|	|
21+ 0	0.0073	0.00	Q	V	|	|	|	|
21+ 5	0.0073	0.00	Q	V	|	|	|	|
21+10	0.0073	0.00	Q	V	|	|	|	|
21+15	0.0073	0.00	Q	V	|	|	|	|
21+20	0.0073	0.00	Q	V	|	|	|	|
21+25	0.0073	0.00	Q	V	|	|	|	|
21+30	0.0073	0.00	Q	V	|	|	|	|
21+35	0.0073	0.00	Q	V	|	|	|	|
21+40	0.0073	0.00	Q	V	|	|	|	|
21+45	0.0073	0.00	Q	V	|	|	|	|
21+50	0.0073	0.00	Q	V	|	|	|	|
21+55	0.0073	0.00	Q	V	|	|	|	|
22+ 0	0.0073	0.00	Q	V	|	|	|	|
22+ 5	0.0074	0.00	Q	V	|	|	|	|
22+10	0.0074	0.00	Q	V	|	|	|	|
22+15	0.0074	0.00	Q	V	|	|	|	|
22+20	0.0074	0.00	Q	V	|	|	|	|
22+25	0.0074	0.00	Q	V	|	|	|	|
22+30	0.0074	0.00	Q	V	|	|	|	|
22+35	0.0074	0.00	Q	V	|	|	|	|
22+40	0.0074	0.00	Q	V	|	|	|	|
22+45	0.0074	0.00	Q	V	|	|	|	|
22+50	0.0074	0.00	Q	V	|	|	|	|
22+55	0.0074	0.00	Q	V	|	|	|	|
23+ 0	0.0074	0.00	Q	V	|	|	|	|
23+ 5	0.0074	0.00	Q	V	|	|	|	|
23+10	0.0074	0.00	Q	V	|	|	|	|
23+15	0.0074	0.00	Q	V	|	|	|	|
23+20	0.0074	0.00	Q	V	|	|	|	|
23+25	0.0074	0.00	Q	V	|	|	|	|
23+30	0.0074	0.00	Q	V	|	|	|	|
23+35	0.0075	0.00	Q	V	|	|	|	|
23+40	0.0075	0.00	Q	V	|	|	|	|
23+45	0.0075	0.00	Q	V	|	|	|	|
23+50	0.0075	0.00	Q	V	|	|	|	|
23+55	0.0075	0.00	Q	V	|	|	|	|

24+ 0	0.0075	0.00	Q	V	| | | |
24+ 5	0.0075	0.00	Q	V	| | | |
24+10	0.0075	0.00	Q	V	| | | |
24+15	0.0075	0.00	Q	V	| | | |
24+20	0.0075	0.00	Q	V	| | | |
24+25	0.0075	0.00	Q	V	| | | |
24+30	0.0075	0.00	Q	V	| | | |
24+35	0.0076	0.00	Q	V	| | | |
24+40	0.0076	0.00	Q	V	| | | |
24+45	0.0076	0.00	Q	V	| | | |
24+50	0.0076	0.00	Q	V	| | | |
24+55	0.0076	0.00	Q	V	| | | |
25+ 0	0.0076	0.00	Q	V	| | | |
25+ 5	0.0077	0.00	Q	V	| | | |
25+10	0.0077	0.00	Q	V	| | | |
25+15	0.0077	0.00	Q	V	| | | |
25+20	0.0077	0.00	Q	V	| | | |
25+25	0.0077	0.00	Q	V	| | | |
25+30	0.0077	0.00	Q	V	| | | |
25+35	0.0077	0.00	Q	V	| | | |
25+40	0.0078	0.00	Q	V	| | | |
25+45	0.0078	0.00	Q	V	| | | |
25+50	0.0078	0.00	Q	V	| | | |
25+55	0.0078	0.00	Q	V	| | | |
26+ 0	0.0078	0.00	Q	V	| | | |
26+ 5	0.0078	0.00	Q	V	| | | |
26+10	0.0079	0.00	Q	V	| | | |
26+15	0.0079	0.00	Q	V	| | | |
26+20	0.0079	0.00	Q	V	| | | |
26+25	0.0079	0.00	Q	V	| | | |
26+30	0.0079	0.00	Q	V	| | | |
26+35	0.0080	0.00	Q	V	| | | |
26+40	0.0080	0.00	Q	V	| | | |
26+45	0.0080	0.00	Q	V	| | | |
26+50	0.0080	0.00	Q	V	| | | |
26+55	0.0081	0.00	Q	V	| | | |
27+ 0	0.0081	0.00	Q	V	| | | |
27+ 5	0.0081	0.00	Q	V	| | | |
27+10	0.0081	0.00	Q	V	| | | |
27+15	0.0081	0.00	Q	V	| | | |
27+20	0.0082	0.00	Q	V	| | | |
27+25	0.0082	0.00	Q	V	| | | |
27+30	0.0082	0.00	Q	V	| | | |
27+35	0.0082	0.00	Q	V	| | | |
27+40	0.0083	0.00	Q	V	| | | |
27+45	0.0083	0.00	Q	V	| | | |
27+50	0.0083	0.00	Q	V	| | | |
27+55	0.0083	0.00	Q	V	| | | |
28+ 0	0.0084	0.00	Q	V	| | | |
28+ 5	0.0084	0.00	Q	V	| | | |
28+10	0.0084	0.00	Q	V	| | | |
28+15	0.0085	0.00	Q	V	| | | |
28+20	0.0085	0.00	Q	V	| | | |
28+25	0.0085	0.00	Q	V	| | | |
28+30	0.0086	0.00	Q	V	| | | |
28+35	0.0086	0.00	Q	V	| | | |
28+40	0.0086	0.00	Q	V	| | | |
28+45	0.0087	0.00	Q	V	| | | |
28+50	0.0087	0.01	Q	V	| | | |
28+55	0.0087	0.01	Q	V	| | | |
29+ 0	0.0088	0.01	Q	V	| | | |
29+ 5	0.0088	0.00	Q	V	| | | |
29+10	0.0088	0.00	Q	V	| | | |
29+15	0.0089	0.00	Q	V	| | | |
29+20	0.0089	0.00	Q	V	| | | |

29+25	0.0089	0.00	Q	V	|	|	|
29+30	0.0090	0.00	Q	V	|	|	|
29+35	0.0090	0.01	Q	V	|	|	|
29+40	0.0090	0.01	Q	V	|	|	|
29+45	0.0091	0.01	Q	V	|	|	|
29+50	0.0091	0.01	Q	V	|	|	|
29+55	0.0091	0.01	Q	V	|	|	|
30+ 0	0.0092	0.01	Q	V	|	|	|
30+ 5	0.0092	0.01	Q	V	|	|	|
30+10	0.0093	0.01	Q	V	|	|	|
30+15	0.0093	0.01	Q	V	|	|	|
30+20	0.0093	0.01	Q	V	|	|	|
30+25	0.0094	0.01	Q	V	|	|	|
30+30	0.0094	0.01	Q	V	|	|	|
30+35	0.0095	0.01	Q	V	|	|	|
30+40	0.0095	0.01	Q	V	|	|	|
30+45	0.0096	0.01	Q	V	|	|	|
30+50	0.0096	0.01	Q	V	|	|	|
30+55	0.0097	0.01	Q	V	|	|	|
31+ 0	0.0097	0.01	Q	V	|	|	|
31+ 5	0.0098	0.01	Q	V	|	|	|
31+10	0.0098	0.01	Q	V	|	|	|
31+15	0.0099	0.01	Q	V	|	|	|
31+20	0.0099	0.01	Q	V	|	|	|
31+25	0.0100	0.01	Q	V	|	|	|
31+30	0.0100	0.01	Q	V	|	|	|
31+35	0.0101	0.01	Q	V	|	|	|
31+40	0.0101	0.01	Q	V	|	|	|
31+45	0.0102	0.01	Q	V	|	|	|
31+50	0.0102	0.01	Q	V	|	|	|
31+55	0.0103	0.01	Q	V	|	|	|
32+ 0	0.0104	0.01	Q	V	|	|	|
32+ 5	0.0104	0.01	Q	V	|	|	|
32+10	0.0105	0.01	Q	V	|	|	|
32+15	0.0106	0.01	Q	V	|	|	|
32+20	0.0106	0.01	Q	V	|	|	|
32+25	0.0107	0.01	Q	V	|	|	|
32+30	0.0108	0.01	Q	V	|	|	|
32+35	0.0109	0.01	Q	V	|	|	|
32+40	0.0109	0.01	Q	V	|	|	|
32+45	0.0110	0.01	Q	V	|	|	|
32+50	0.0111	0.01	Q	V	|	|	|
32+55	0.0112	0.01	Q	V	|	|	|
33+ 0	0.0112	0.01	Q	V	|	|	|
33+ 5	0.0113	0.01	Q	V	|	|	|
33+10	0.0114	0.01	Q	V	|	|	|
33+15	0.0115	0.01	Q	V	|	|	|
33+20	0.0116	0.01	Q	V	|	|	|
33+25	0.0117	0.01	Q	V	|	|	|
33+30	0.0118	0.01	Q	V	|	|	|
33+35	0.0119	0.01	Q	V	|	|	|
33+40	0.0120	0.01	Q	V	|	|	|
33+45	0.0121	0.01	Q	V	|	|	|
33+50	0.0122	0.01	Q	V	|	|	|
33+55	0.0123	0.02	Q	V	|	|	|
34+ 0	0.0124	0.02	Q	V	|	|	|
34+ 5	0.0125	0.01	Q	V	|	|	|
34+10	0.0126	0.01	Q	V	|	|	|
34+15	0.0126	0.01	Q	V	|	|	|
34+20	0.0127	0.01	Q	V	|	|	|
34+25	0.0128	0.01	Q	V	|	|	|
34+30	0.0128	0.01	Q	V	|	|	|
34+35	0.0129	0.01	Q	V	|	|	|
34+40	0.0130	0.01	Q	V	|	|	|
34+45	0.0131	0.01	Q	V	|	|	|

34+50	0.0132	0.01	Q	V	|	|	|	|
34+55	0.0133	0.01	Q	V	|	|	|	|
35+ 0	0.0134	0.01	Q	V	|	|	|	|
35+ 5	0.0135	0.01	Q	V	|	|	|	|
35+10	0.0136	0.01	Q	V	|	|	|	|
35+15	0.0137	0.01	Q	V	|	|	|	|
35+20	0.0138	0.01	Q	V	|	|	|	|
35+25	0.0138	0.01	Q	V	|	|	|	|
35+30	0.0139	0.01	Q	V	|	|	|	|
35+35	0.0140	0.01	Q	V	|	|	|	|
35+40	0.0141	0.01	Q	V	|	|	|	|
35+45	0.0142	0.01	Q	V	|	|	|	|
35+50	0.0143	0.01	Q	V	|	|	|	|
35+55	0.0143	0.01	Q	V	|	|	|	|
36+ 0	0.0144	0.01	Q	V	|	|	|	|
36+ 5	0.0145	0.02	Q	V	|	|	|	|
36+10	0.0147	0.02	Q	V	|	|	|	|
36+15	0.0148	0.02	Q	V	|	|	|	|
36+20	0.0149	0.02	Q	V	|	|	|	|
36+25	0.0150	0.02	Q	V	|	|	|	|
36+30	0.0151	0.02	Q	V	|	|	|	|
36+35	0.0153	0.02	Q	V	|	|	|	|
36+40	0.0154	0.02	Q	V	|	|	|	|
36+45	0.0155	0.02	Q	V	|	|	|	|
36+50	0.0157	0.02	Q	V	|	|	|	|
36+55	0.0158	0.02	Q	V	|	|	|	|
37+ 0	0.0159	0.02	Q	V	|	|	|	|
37+ 5	0.0161	0.02	Q	V	|	|	|	|
37+10	0.0163	0.02	Q	V	|	|	|	|
37+15	0.0164	0.02	Q	V	|	|	|	|
37+20	0.0166	0.02	Q	V	|	|	|	|
37+25	0.0167	0.02	Q	V	|	|	|	|
37+30	0.0169	0.02	Q	V	|	|	|	|
37+35	0.0170	0.02	Q	V	|	|	|	|
37+40	0.0171	0.02	Q	V	|	|	|	|
37+45	0.0172	0.02	Q	V	|	|	|	|
37+50	0.0174	0.02	Q	V	|	|	|	|
37+55	0.0175	0.02	Q	V	|	|	|	|
38+ 0	0.0176	0.02	Q	V	|	|	|	|
38+ 5	0.0177	0.02	Q	V	|	|	|	|
38+10	0.0178	0.02	Q	V	|	|	|	|
38+15	0.0179	0.02	Q	V	|	|	|	|
38+20	0.0181	0.02	Q	V	|	|	|	|
38+25	0.0182	0.02	Q	V	|	|	|	|
38+30	0.0183	0.02	Q	V	|	|	|	|
38+35	0.0184	0.02	Q	V	|	|	|	|
38+40	0.0186	0.02	Q	V	|	|	|	|
38+45	0.0187	0.02	Q	V	|	|	|	|
38+50	0.0188	0.02	Q	V	|	|	|	|
38+55	0.0189	0.02	Q	V	|	|	|	|
39+ 0	0.0190	0.02	Q	V	|	|	|	|
39+ 5	0.0192	0.02	Q	V	|	|	|	|
39+10	0.0193	0.02	Q	V	|	|	|	|
39+15	0.0194	0.02	Q	V	|	|	|	|
39+20	0.0195	0.02	Q	V	|	|	|	|
39+25	0.0196	0.02	Q	V	|	|	|	|
39+30	0.0197	0.02	Q	V	|	|	|	|
39+35	0.0198	0.01	Q	V	|	|	|	|
39+40	0.0199	0.01	Q	V	|	|	|	|
39+45	0.0200	0.01	Q	V	|	|	|	|
39+50	0.0201	0.01	Q	V	|	|	|	|
39+55	0.0202	0.01	Q	V	|	|	|	|
40+ 0	0.0203	0.01	Q	V	|	|	|	|
40+ 5	0.0203	0.01	Q	V	|	|	|	|
40+10	0.0203	0.00	Q	V	|	|	|	|

40+15	0.0203	0.00	Q	V|	|	|	|
40+20	0.0204	0.00	Q	V|	|	|	|
40+25	0.0204	0.00	Q	V	|	|	|
40+30	0.0204	0.00	Q	V	|	|	|
40+35	0.0204	0.00	Q	V	|	|	|
40+40	0.0204	0.00	Q	V	|	|	|
40+45	0.0204	0.00	Q	V	|	|	|
40+50	0.0205	0.00	Q	V	|	|	|
40+55	0.0205	0.00	Q	V	|	|	|
41+ 0	0.0205	0.00	Q	V	|	|	|
41+ 5	0.0205	0.00	Q	V	|	|	|
41+10	0.0205	0.00	Q	V	|	|	|
41+15	0.0205	0.00	Q	V	|	|	|
41+20	0.0206	0.00	Q	V	|	|	|
41+25	0.0206	0.00	Q	V	|	|	|
41+30	0.0206	0.00	Q	V	|	|	|
41+35	0.0206	0.00	Q	V	|	|	|
41+40	0.0207	0.00	Q	V	|	|	|
41+45	0.0207	0.00	Q	V	|	|	|
41+50	0.0207	0.00	Q	V	|	|	|
41+55	0.0207	0.00	Q	V	|	|	|
42+ 0	0.0207	0.00	Q	V	|	|	|
42+ 5	0.0208	0.00	Q	V	|	|	|
42+10	0.0208	0.00	Q	V	|	|	|
42+15	0.0208	0.00	Q	V	|	|	|
42+20	0.0208	0.00	Q	V	|	|	|
42+25	0.0208	0.00	Q	V	|	|	|
42+30	0.0209	0.00	Q	V	|	|	|
42+35	0.0209	0.00	Q	V	|	|	|
42+40	0.0209	0.00	Q	V	|	|	|
42+45	0.0209	0.00	Q	V	|	|	|
42+50	0.0209	0.00	Q	V	|	|	|
42+55	0.0209	0.00	Q	V	|	|	|
43+ 0	0.0209	0.00	Q	V	|	|	|
43+ 5	0.0209	0.00	Q	V	|	|	|
43+10	0.0210	0.00	Q	V	|	|	|
43+15	0.0210	0.00	Q	V	|	|	|
43+20	0.0210	0.00	Q	V	|	|	|
43+25	0.0210	0.00	Q	V	|	|	|
43+30	0.0210	0.00	Q	V	|	|	|
43+35	0.0210	0.00	Q	V	|	|	|
43+40	0.0211	0.00	Q	V	|	|	|
43+45	0.0211	0.00	Q	V	|	|	|
43+50	0.0211	0.00	Q	V	|	|	|
43+55	0.0211	0.00	Q	V	|	|	|
44+ 0	0.0211	0.00	Q	V	|	|	|
44+ 5	0.0211	0.00	Q	V	|	|	|
44+10	0.0211	0.00	Q	V	|	|	|
44+15	0.0211	0.00	Q	V	|	|	|
44+20	0.0212	0.00	Q	V	|	|	|
44+25	0.0212	0.00	Q	V	|	|	|
44+30	0.0212	0.00	Q	V	|	|	|
44+35	0.0212	0.00	Q	V	|	|	|
44+40	0.0212	0.00	Q	V	|	|	|
44+45	0.0212	0.00	Q	V	|	|	|
44+50	0.0212	0.00	Q	V	|	|	|
44+55	0.0213	0.00	Q	V	|	|	|
45+ 0	0.0213	0.00	Q	V	|	|	|
45+ 5	0.0213	0.00	Q	V	|	|	|
45+10	0.0213	0.00	Q	V	|	|	|
45+15	0.0213	0.00	Q	V	|	|	|
45+20	0.0213	0.00	Q	V	|	|	|
45+25	0.0213	0.00	Q	V	|	|	|
45+30	0.0213	0.00	Q	V	|	|	|
45+35	0.0213	0.00	Q	V	|	|	|

45+40	0.0214	0.00	Q	V	|	|	|
45+45	0.0214	0.00	Q	V	|	|	|
45+50	0.0214	0.00	Q	V	|	|	|
45+55	0.0214	0.00	Q	V	|	|	|
46+ 0	0.0214	0.00	Q	V	|	|	|
46+ 5	0.0214	0.00	Q	V	|	|	|
46+10	0.0214	0.00	Q	V	|	|	|
46+15	0.0214	0.00	Q	V	|	|	|
46+20	0.0215	0.00	Q	V	|	|	|
46+25	0.0215	0.00	Q	V	|	|	|
46+30	0.0215	0.00	Q	V	|	|	|
46+35	0.0215	0.00	Q	V	|	|	|
46+40	0.0215	0.00	Q	V	|	|	|
46+45	0.0215	0.00	Q	V	|	|	|
46+50	0.0215	0.00	Q	V	|	|	|
46+55	0.0215	0.00	Q	V	|	|	|
47+ 0	0.0215	0.00	Q	V	|	|	|
47+ 5	0.0215	0.00	Q	V	|	|	|
47+10	0.0215	0.00	Q	V	|	|	|
47+15	0.0216	0.00	Q	V	|	|	|
47+20	0.0216	0.00	Q	V	|	|	|
47+25	0.0216	0.00	Q	V	|	|	|
47+30	0.0216	0.00	Q	V	|	|	|
47+35	0.0216	0.00	Q	V	|	|	|
47+40	0.0216	0.00	Q	V	|	|	|
47+45	0.0216	0.00	Q	V	|	|	|
47+50	0.0216	0.00	Q	V	|	|	|
47+55	0.0216	0.00	Q	V	|	|	|
48+ 0	0.0216	0.00	Q	V	|	|	|
48+ 5	0.0217	0.00	Q	V	|	|	|
48+10	0.0217	0.00	Q	V	|	|	|
48+15	0.0217	0.00	Q	V	|	|	|
48+20	0.0217	0.01	Q	V	|	|	|
48+25	0.0218	0.01	Q	V	|	|	|
48+30	0.0218	0.01	Q	V	|	|	|
48+35	0.0219	0.01	Q	V	|	|	|
48+40	0.0219	0.01	Q	V	|	|	|
48+45	0.0219	0.01	Q	V	|	|	|
48+50	0.0220	0.01	Q	V	|	|	|
48+55	0.0220	0.01	Q	V	|	|	|
49+ 0	0.0221	0.01	Q	V	|	|	|
49+ 5	0.0221	0.01	Q	V	|	|	|
49+10	0.0222	0.01	Q	V	|	|	|
49+15	0.0222	0.01	Q	V	|	|	|
49+20	0.0223	0.01	Q	V	|	|	|
49+25	0.0223	0.01	Q	V	|	|	|
49+30	0.0223	0.01	Q	V	|	|	|
49+35	0.0224	0.01	Q	V	|	|	|
49+40	0.0224	0.01	Q	|V	|	|	|
49+45	0.0225	0.01	Q	|V	|	|	|
49+50	0.0225	0.01	Q	|V	|	|	|
49+55	0.0226	0.01	Q	|V	|	|	|
50+ 0	0.0226	0.01	Q	|V	|	|	|
50+ 5	0.0227	0.01	Q	|V	|	|	|
50+10	0.0227	0.01	Q	|V	|	|	|
50+15	0.0228	0.01	Q	|V	|	|	|
50+20	0.0228	0.01	Q	|V	|	|	|
50+25	0.0229	0.01	Q	|V	|	|	|
50+30	0.0229	0.01	Q	|V	|	|	|
50+35	0.0230	0.01	Q	|V	|	|	|
50+40	0.0230	0.01	Q	|V	|	|	|
50+45	0.0231	0.01	Q	|V	|	|	|
50+50	0.0232	0.01	Q	|V	|	|	|
50+55	0.0232	0.01	Q	|V	|	|	|
51+ 0	0.0233	0.01	Q	|V	|	|	|

```
51+ 5    0.0234    0.01  Q      |V      |       |       |
51+10    0.0234    0.01  Q      |V      |       |       |
51+15    0.0235    0.01  Q      |V      |       |       |
51+20    0.0236    0.01  Q      |V      |       |       |
51+25    0.0236    0.01  Q      |V      |       |       |
51+30    0.0237    0.01  Q      |V      |       |       |
51+35    0.0238    0.01  Q      |V      |       |       |
51+40    0.0238    0.01  Q      |V      |       |       |
51+45    0.0239    0.01  Q      |V      |       |       |
51+50    0.0240    0.01  Q      |V      |       |       |
51+55    0.0241    0.01  Q      |V      |       |       |
52+ 0    0.0241    0.01  Q      |V      |       |       |
52+ 5    0.0242    0.01  Q      |V      |       |       |
52+10    0.0243    0.01  Q      |V      |       |       |
52+15    0.0244    0.01  Q      |V      |       |       |
52+20    0.0245    0.01  Q      | V     |       |       |
52+25    0.0245    0.01  Q      | V     |       |       |
52+30    0.0246    0.01  Q      | V     |       |       |
52+35    0.0247    0.01  Q      | V     |       |       |
52+40    0.0248    0.01  Q      | V     |       |       |
52+45    0.0249    0.01  Q      | V     |       |       |
52+50    0.0250    0.01  Q      | V     |       |       |
52+55    0.0251    0.02  Q      | V     |       |       |
53+ 0    0.0252    0.02  Q      | V     |       |       |
53+ 5    0.0253    0.01  Q      | V     |       |       |
53+10    0.0254    0.01  Q      | V     |       |       |
53+15    0.0255    0.01  Q      | V     |       |       |
53+20    0.0256    0.01  Q      | V     |       |       |
53+25    0.0257    0.01  Q      | V     |       |       |
53+30    0.0257    0.01  Q      | V     |       |       |
53+35    0.0258    0.01  Q      | V     |       |       |
53+40    0.0259    0.02  Q      | V     |       |       |
53+45    0.0261    0.02  Q      | V     |       |       |
53+50    0.0262    0.02  Q      | V     |       |       |
53+55    0.0263    0.02  Q      | V     |       |       |
54+ 0    0.0264    0.02  Q      | V     |       |       |
54+ 5    0.0265    0.02  Q      |  V    |       |       |
54+10    0.0266    0.02  Q      |  V    |       |       |
54+15    0.0267    0.02  Q      |  V    |       |       |
54+20    0.0268    0.02  Q      |  V    |       |       |
54+25    0.0270    0.02  Q      |  V    |       |       |
54+30    0.0271    0.02  Q      |  V    |       |       |
54+35    0.0272    0.02  Q      |  V    |       |       |
54+40    0.0273    0.02  Q      |  V    |       |       |
54+45    0.0275    0.02  Q      |  V    |       |       |
54+50    0.0276    0.02  Q      |  V    |       |       |
54+55    0.0277    0.02  Q      |  V    |       |       |
55+ 0    0.0279    0.02  Q      |  V    |       |       |
55+ 5    0.0280    0.02  Q      |  V    |       |       |
55+10    0.0281    0.02  Q      |  V    |       |       |
55+15    0.0282    0.02  Q      |  V    |       |       |
55+20    0.0284    0.02  Q      |  V    |       |       |
55+25    0.0285    0.02  Q      |   V   |       |       |
55+30    0.0287    0.02  Q      |   V   |       |       |
55+35    0.0288    0.02  Q      |   V   |       |       |
55+40    0.0290    0.02  Q      |   V   |       |       |
55+45    0.0291    0.02  Q      |   V   |       |       |
55+50    0.0293    0.02  Q      |   V   |       |       |
55+55    0.0295    0.02  Q      |   V   |       |       |
56+ 0    0.0297    0.02  Q      |   V   |       |       |
56+ 5    0.0298    0.03  Q      |   V   |       |       |
56+10    0.0300    0.03  Q      |   V   |       |       |
56+15    0.0302    0.03  Q      |   V   |       |       |
56+20    0.0304    0.03  Q      |   V   |       |       |
56+25    0.0306    0.03  Q      |    V  |       |       |
```

```
56+30    0.0308    0.03  Q      |   V   |       |       |
56+35    0.0310    0.03  Q      |   V   |       |       |
56+40    0.0312    0.03  Q      |   V   |       |       |
56+45    0.0314    0.03  Q      |   V   |       |       |
56+50    0.0317    0.03  Q      |   V   |       |       |
56+55    0.0319    0.03  Q      |   V   |       |       |
57+ 0    0.0321    0.03  Q      |   V   |       |       |
57+ 5    0.0324    0.03  Q      |   V   |       |       |
57+10    0.0326    0.04  Q      |    V  |       |       |
57+15    0.0329    0.04  Q      |    V  |       |       |
57+20    0.0331    0.04  Q      |    V  |       |       |
57+25    0.0334    0.04  Q      |    V  |       |       |
57+30    0.0336    0.04  Q      |    V  |       |       |
57+35    0.0339    0.04  Q      |    V  |       |       |
57+40    0.0342    0.04  Q      |    V  |       |       |
57+45    0.0345    0.04  Q      |    V  |       |       |
57+50    0.0346    0.02  Q      |    V  |       |       |
57+55    0.0346    0.00  Q      |    V  |       |       |
58+ 0    0.0346    0.00  Q      |    V  |       |       |
58+ 5    0.0348    0.02  Q      |    V  |       |       |
58+10    0.0350    0.03  Q      |    V  |       |       |
58+15    0.0352    0.03  Q      |    V  |       |       |
58+20    0.0354    0.03  Q      |    V  |       |       |
58+25    0.0356    0.03  Q      |    V  |       |       |
58+30    0.0357    0.03  Q      |    V  |       |       |
58+35    0.0360    0.03  Q      |    V  |       |       |
58+40    0.0362    0.04  Q      |    V  |       |       |
58+45    0.0365    0.04  Q      |    V  |       |       |
58+50    0.0368    0.04  Q      |     V |       |       |
58+55    0.0370    0.04  Q      |     V |       |       |
59+ 0    0.0373    0.04  Q      |     V |       |       |
59+ 5    0.0376    0.04  Q      |     V |       |       |
59+10    0.0378    0.04  Q      |     V |       |       |
59+15    0.0381    0.04  Q      |     V |       |       |
59+20    0.0383    0.04  Q      |     V |       |       |
59+25    0.0385    0.04  Q      |     V |       |       |
59+30    0.0388    0.04  Q      |      V|       |       |
59+35    0.0390    0.03  Q      |      V|       |       |
59+40    0.0393    0.03  Q      |      V|       |       |
59+45    0.0395    0.03  Q      |      V|       |       |
59+50    0.0397    0.03  Q      |      V|       |       |
59+55    0.0399    0.03  Q      |      V|       |       |
60+ 0    0.0402    0.03  Q      |      V|       |       |
60+ 5    0.0406    0.06  Q      |      V|       |       |
60+10    0.0411    0.08  Q      |       V       |       |
60+15    0.0417    0.08  Q      |       V       |       |
60+20    0.0423    0.09  Q      |       V       |       |
60+25    0.0429    0.09  Q      |       |V      |       |
60+30    0.0436    0.10  Q      |       |V      |       |
60+35    0.0444    0.11  Q      |       |V      |       |
60+40    0.0452    0.12  Q      |       | V     |       |
60+45    0.0461    0.13  Q      |       | V     |       |
60+50    0.0470    0.13  Q      |       |  V    |       |
60+55    0.0480    0.14  Q      |       |  V    |       |
61+ 0    0.0490    0.14  Q      |       |  V    |       |
61+ 5    0.0502    0.19  Q      |       |  V    |       |
61+10    0.0517    0.21  Q      |       |   V   |       |
61+15    0.0531    0.21  Q      |       |    V  |       |
61+20    0.0546    0.21  Q      |       |    V  |       |
61+25    0.0561    0.21  Q      |       |     V |       |
61+30    0.0575    0.21  Q      |       |     V |       |
61+35    0.0584    0.12  Q      |       |     V |       |
61+40    0.0589    0.07  Q      |       |     V |       |
61+45    0.0594    0.07  Q      |       |      V|       |
61+50    0.0599    0.08  Q      |       |      V|       |
```

```
61+55    0.0604    0.08 Q      |      |      V|      |
62+ 0    0.0610    0.08 Q      |      |     V|      |
62+ 5    0.0617    0.11 Q      |      |      V      |
62+10    0.0626    0.13 Q      |      |      V      |
62+15    0.0636    0.13 Q      |      |      |V     |
62+20    0.0644    0.13 Q      |      |      |V     |
62+25    0.0653    0.12 Q      |      |      | V    |
62+30    0.0661    0.12 Q      |      |      | V    |
62+35    0.0670    0.12 Q      |      |      | V    |
62+40    0.0678    0.13 Q      |      |      |  V   |
62+45    0.0687    0.13 Q      |      |      |  V   |
62+50    0.0695    0.12 Q      |      |      |   V  |
62+55    0.0703    0.12 Q      |      |      |   V  |
63+ 0    0.0711    0.12 Q      |      |      |   V  |
63+ 5    0.0719    0.11 Q      |      |      |   V  |
63+10    0.0726    0.11 Q      |      |      |   V  |
63+15    0.0734    0.11 Q      |      |      |    V |
63+20    0.0740    0.10 Q      |      |      |    V |
63+25    0.0747    0.10 Q      |      |      |    V |
63+30    0.0754    0.10 Q      |      |      |     V|
63+35    0.0758    0.06 Q      |      |      |     V|
63+40    0.0762    0.05 Q      |      |      |     V|
63+45    0.0765    0.05 Q      |      |      |     V|
63+50    0.0768    0.05 Q      |      |      |     V|
63+55    0.0772    0.05 Q      |      |      |     V|
64+ 0    0.0775    0.05 Q      |      |      |     V|
64+ 5    0.0777    0.02 Q      |      |      |     V|
64+10    0.0777    0.01 Q      |      |      |     V|
64+15    0.0778    0.01 Q      |      |      |     V|
64+20    0.0778    0.01 Q      |      |      |     V|
64+25    0.0779    0.01 Q      |      |      |     V|
64+30    0.0779    0.01 Q      |      |      |     V|
64+35    0.0780    0.01 Q      |      |      |     V|
64+40    0.0780    0.01 Q      |      |      |     V|
64+45    0.0781    0.01 Q      |      |      |     V|
64+50    0.0781    0.01 Q      |      |      |     V|
64+55    0.0781    0.01 Q      |      |      |     V|
65+ 0    0.0782    0.01 Q      |      |      |     V|
65+ 5    0.0782    0.01 Q      |      |      |     V|
65+10    0.0783    0.01 Q      |      |      |     V|
65+15    0.0784    0.01 Q      |      |      |     V|
65+20    0.0784    0.01 Q      |      |      |     V|
65+25    0.0785    0.01 Q      |      |      |     V|
65+30    0.0786    0.01 Q      |      |      |     V|
65+35    0.0786    0.01 Q      |      |      |     V|
65+40    0.0787    0.01 Q      |      |      |     V|
65+45    0.0788    0.01 Q      |      |      |     V|
65+50    0.0788    0.01 Q      |      |      |     V|
65+55    0.0789    0.01 Q      |      |      |     V|
66+ 0    0.0789    0.01 Q      |      |      |     V|
66+ 5    0.0790    0.01 Q      |      |      |     V|
66+10    0.0790    0.01 Q      |      |      |     V|
66+15    0.0791    0.01 Q      |      |      |     V|
66+20    0.0791    0.01 Q      |      |      |     V|
66+25    0.0792    0.01 Q      |      |      |     V|
66+30    0.0792    0.01 Q      |      |      |     V|
66+35    0.0793    0.01 Q      |      |      |     V|
66+40    0.0793    0.01 Q      |      |      |     V|
66+45    0.0794    0.01 Q      |      |      |     V|
66+50    0.0794    0.00 Q      |      |      |      V|
66+55    0.0794    0.00 Q      |      |      |      V|
67+ 0    0.0795    0.00 Q      |      |      |      V|
67+ 5    0.0795    0.01 Q      |      |      |      V|
67+10    0.0795    0.01 Q      |      |      |      V|
67+15    0.0796    0.01 Q      |      |      |      V|
```

```
 67+20     0.0796     0.01 Q      |       |       |      V|
 67+25     0.0797     0.01 Q      |       |       |      V|
 67+30     0.0797     0.01 Q      |       |       |      V|
 67+35     0.0798     0.01 Q      |       |       |      V|
 67+40     0.0798     0.01 Q      |       |       |      V|
 67+45     0.0798     0.01 Q      |       |       |      V|
 67+50     0.0799     0.00 Q      |       |       |      V|
 67+55     0.0799     0.00 Q      |       |       |      V|
 68+ 0     0.0799     0.00 Q      |       |       |      V|
 68+ 5     0.0800     0.01 Q      |       |       |      V|
 68+10     0.0800     0.01 Q      |       |       |      V|
 68+15     0.0800     0.01 Q      |       |       |      V|
 68+20     0.0801     0.01 Q      |       |       |      V|
 68+25     0.0801     0.01 Q      |       |       |      V|
 68+30     0.0802     0.01 Q      |       |       |      V|
 68+35     0.0802     0.01 Q      |       |       |      V|
 68+40     0.0802     0.01 Q      |       |       |      V|
 68+45     0.0803     0.01 Q      |       |       |      V|
 68+50     0.0803     0.00 Q      |       |       |      V|
 68+55     0.0803     0.00 Q      |       |       |      V|
 69+ 0     0.0804     0.00 Q      |       |       |      V|
 69+ 5     0.0804     0.01 Q      |       |       |      V|
 69+10     0.0804     0.01 Q      |       |       |      V|
 69+15     0.0805     0.01 Q      |       |       |      V|
 69+20     0.0805     0.00 Q      |       |       |      V|
 69+25     0.0805     0.00 Q      |       |       |      V|
 69+30     0.0806     0.00 Q      |       |       |      V|
 69+35     0.0806     0.01 Q      |       |       |      V|
 69+40     0.0806     0.01 Q      |       |       |      V|
 69+45     0.0807     0.01 Q      |       |       |      V|
 69+50     0.0807     0.00 Q      |       |       |      V|
 69+55     0.0807     0.00 Q      |       |       |      V|
 70+ 0     0.0808     0.00 Q      |       |       |      V|
 70+ 5     0.0808     0.01 Q      |       |       |      V|
 70+10     0.0808     0.01 Q      |       |       |      V|
 70+15     0.0809     0.01 Q      |       |       |      V|
 70+20     0.0809     0.00 Q      |       |       |      V|
 70+25     0.0809     0.00 Q      |       |       |      V|
 70+30     0.0809     0.00 Q      |       |       |      V|
 70+35     0.0810     0.00 Q      |       |       |      V|
 70+40     0.0810     0.00 Q      |       |       |      V|
 70+45     0.0810     0.00 Q      |       |       |      V|
 70+50     0.0811     0.00 Q      |       |       |      V|
 70+55     0.0811     0.00 Q      |       |       |      V|
 71+ 0     0.0811     0.00 Q      |       |       |      V|
 71+ 5     0.0811     0.00 Q      |       |       |      V|
 71+10     0.0812     0.00 Q      |       |       |      V|
 71+15     0.0812     0.00 Q      |       |       |      V|
 71+20     0.0812     0.00 Q      |       |       |      V|
 71+25     0.0812     0.00 Q      |       |       |      V|
 71+30     0.0813     0.00 Q      |       |       |      V|
 71+35     0.0813     0.00 Q      |       |       |      V|
 71+40     0.0813     0.00 Q      |       |       |      V|
 71+45     0.0813     0.00 Q      |       |       |      V|
 71+50     0.0814     0.00 Q      |       |       |      V|
 71+55     0.0814     0.00 Q      |       |       |      V|
 72+ 0     0.0814     0.00 Q      |       |       |      V|
 72+ 5     0.0814     0.00 Q      |       |       |      V
--------------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 1999, Version 6.0
Study date 09/23/20 File: APRE2YR245.out

++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

28771 Central Avenue Gas Station
Area A
Pre-development
24-Hr 5-Year Storm Event

Drainage Area = 1.32(Ac.) = 0.002 Sq. Mi.
Length along longest watercourse = 408.00(Ft.)
Length along longest watercourse measured to centroid = 87.50(Ft.)
Length along longest watercourse = 0.077 Mi.
Length along longest watercourse measured to centroid = 0.017 Mi.
Difference in elevation = 16.34(Ft.)
Slope along watercourse = 211.4588 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.021 Hr.
Lag time = 1.24 Min.
25% of lag time = 0.31 Min.
40% of lag time = 0.50 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.32	2.43	3.22

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.32	6.58	8.71

STORM EVENT (YEAR) = 5.00
Area Averaged 2-Year Rainfall = 2.430(In)
Area Averaged 100-Year Rainfall = 6.580(In)

Point rain (area averaged) = 3.402(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 3.402(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
1.324	83.00	0.059

Total Area Entered = 1.32(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
83.0	83.0	0.210	0.059	0.199	1.000	0.199

Sum (F) = 0.199

Area averaged mean soil loss (F) (In/Hr) = 0.199

Minimum soil loss rate ((In/Hr)) = 0.099

(for 24 hour storm duration)

Soil low loss rate (decimal) = 0.853

U n i t H y d r o g r a p h

DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Graph %	Distribution (CFS)	Unit Hydrograph
1	0.083	402.223	65.137	0.869
2	0.167	804.446	34.863	0.465

Sum = 100.000 Sum= 1.334

Storm Event 3 Effective Rainfall = 0.646(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.005	0.352	0.004	0.00
2	0.17	0.07	0.005	0.351	0.004	0.00
3	0.25	0.07	0.005	0.349	0.004	0.00
4	0.33	0.10	0.008	0.348	0.007	0.00
5	0.42	0.10	0.008	0.347	0.007	0.00
6	0.50	0.10	0.008	0.345	0.007	0.00
7	0.58	0.10	0.008	0.344	0.007	0.00
8	0.67	0.10	0.008	0.343	0.007	0.00
9	0.75	0.10	0.008	0.341	0.007	0.00
10	0.83	0.13	0.010	0.340	0.009	0.00
11	0.92	0.13	0.010	0.339	0.009	0.00
12	1.00	0.13	0.010	0.337	0.009	0.00
13	1.08	0.10	0.008	0.336	0.007	0.00
14	1.17	0.10	0.008	0.335	0.007	0.00
15	1.25	0.10	0.008	0.333	0.007	0.00
16	1.33	0.10	0.008	0.332	0.007	0.00
17	1.42	0.10	0.008	0.331	0.007	0.00
18	1.50	0.10	0.008	0.329	0.007	0.00
19	1.58	0.10	0.008	0.328	0.007	0.00
20	1.67	0.10	0.008	0.327	0.007	0.00
21	1.75	0.10	0.008	0.325	0.007	0.00
22	1.83	0.13	0.010	0.324	0.009	0.00
23	1.92	0.13	0.010	0.323	0.009	0.00
24	2.00	0.13	0.010	0.322	0.009	0.00
25	2.08	0.13	0.010	0.320	0.009	0.00
26	2.17	0.13	0.010	0.319	0.009	0.00
27	2.25	0.13	0.010	0.318	0.009	0.00
28	2.33	0.13	0.010	0.316	0.009	0.00
29	2.42	0.13	0.010	0.315	0.009	0.00

30	2.50	0.13	0.010	0.314	0.009	0.00
31	2.58	0.17	0.013	0.312	0.011	0.00
32	2.67	0.17	0.013	0.311	0.011	0.00
33	2.75	0.17	0.013	0.310	0.011	0.00
34	2.83	0.17	0.013	0.309	0.011	0.00
35	2.92	0.17	0.013	0.307	0.011	0.00
36	3.00	0.17	0.013	0.306	0.011	0.00
37	3.08	0.17	0.013	0.305	0.011	0.00
38	3.17	0.17	0.013	0.304	0.011	0.00
39	3.25	0.17	0.013	0.302	0.011	0.00
40	3.33	0.17	0.013	0.301	0.011	0.00
41	3.42	0.17	0.013	0.300	0.011	0.00
42	3.50	0.17	0.013	0.299	0.011	0.00
43	3.58	0.17	0.013	0.297	0.011	0.00
44	3.67	0.17	0.013	0.296	0.011	0.00
45	3.75	0.17	0.013	0.295	0.011	0.00
46	3.83	0.20	0.016	0.294	0.013	0.00
47	3.92	0.20	0.016	0.292	0.013	0.00
48	4.00	0.20	0.016	0.291	0.013	0.00
49	4.08	0.20	0.016	0.290	0.013	0.00
50	4.17	0.20	0.016	0.289	0.013	0.00
51	4.25	0.20	0.016	0.287	0.013	0.00
52	4.33	0.23	0.018	0.286	0.015	0.00
53	4.42	0.23	0.018	0.285	0.015	0.00
54	4.50	0.23	0.018	0.284	0.015	0.00
55	4.58	0.23	0.018	0.282	0.015	0.00
56	4.67	0.23	0.018	0.281	0.015	0.00
57	4.75	0.23	0.018	0.280	0.015	0.00
58	4.83	0.27	0.021	0.279	0.018	0.00
59	4.92	0.27	0.021	0.278	0.018	0.00
60	5.00	0.27	0.021	0.276	0.018	0.00
61	5.08	0.20	0.016	0.275	0.013	0.00
62	5.17	0.20	0.016	0.274	0.013	0.00
63	5.25	0.20	0.016	0.273	0.013	0.00
64	5.33	0.23	0.018	0.272	0.015	0.00
65	5.42	0.23	0.018	0.270	0.015	0.00
66	5.50	0.23	0.018	0.269	0.015	0.00
67	5.58	0.27	0.021	0.268	0.018	0.00
68	5.67	0.27	0.021	0.267	0.018	0.00
69	5.75	0.27	0.021	0.266	0.018	0.00
70	5.83	0.27	0.021	0.265	0.018	0.00
71	5.92	0.27	0.021	0.263	0.018	0.00
72	6.00	0.27	0.021	0.262	0.018	0.00
73	6.08	0.30	0.023	0.261	0.020	0.00
74	6.17	0.30	0.023	0.260	0.020	0.00
75	6.25	0.30	0.023	0.259	0.020	0.00
76	6.33	0.30	0.023	0.258	0.020	0.00
77	6.42	0.30	0.023	0.256	0.020	0.00
78	6.50	0.30	0.023	0.255	0.020	0.00
79	6.58	0.33	0.026	0.254	0.022	0.00
80	6.67	0.33	0.026	0.253	0.022	0.00
81	6.75	0.33	0.026	0.252	0.022	0.00
82	6.83	0.33	0.026	0.251	0.022	0.00
83	6.92	0.33	0.026	0.250	0.022	0.00
84	7.00	0.33	0.026	0.248	0.022	0.00
85	7.08	0.33	0.026	0.247	0.022	0.00
86	7.17	0.33	0.026	0.246	0.022	0.00
87	7.25	0.33	0.026	0.245	0.022	0.00
88	7.33	0.37	0.028	0.244	0.024	0.00
89	7.42	0.37	0.028	0.243	0.024	0.00
90	7.50	0.37	0.028	0.242	0.024	0.00
91	7.58	0.40	0.031	0.241	0.026	0.00
92	7.67	0.40	0.031	0.240	0.026	0.00
93	7.75	0.40	0.031	0.238	0.026	0.00
94	7.83	0.43	0.034	0.237	0.029	0.00

95	7.92	0.43	0.034	0.236	0.029	0.00
96	8.00	0.43	0.034	0.235	0.029	0.00
97	8.08	0.50	0.039	0.234	0.033	0.01
98	8.17	0.50	0.039	0.233	0.033	0.01
99	8.25	0.50	0.039	0.232	0.033	0.01
100	8.33	0.50	0.039	0.231	0.033	0.01
101	8.42	0.50	0.039	0.230	0.033	0.01
102	8.50	0.50	0.039	0.229	0.033	0.01
103	8.58	0.53	0.041	0.228	0.035	0.01
104	8.67	0.53	0.041	0.226	0.035	0.01
105	8.75	0.53	0.041	0.225	0.035	0.01
106	8.83	0.57	0.044	0.224	0.038	0.01
107	8.92	0.57	0.044	0.223	0.038	0.01
108	9.00	0.57	0.044	0.222	0.038	0.01
109	9.08	0.63	0.049	0.221	0.042	0.01
110	9.17	0.63	0.049	0.220	0.042	0.01
111	9.25	0.63	0.049	0.219	0.042	0.01
112	9.33	0.67	0.052	0.218	0.044	0.01
113	9.42	0.67	0.052	0.217	0.044	0.01
114	9.50	0.67	0.052	0.216	0.044	0.01
115	9.58	0.70	0.054	0.215	0.046	0.01
116	9.67	0.70	0.054	0.214	0.046	0.01
117	9.75	0.70	0.054	0.213	0.046	0.01
118	9.83	0.73	0.057	0.212	0.049	0.01
119	9.92	0.73	0.057	0.211	0.049	0.01
120	10.00	0.73	0.057	0.210	0.049	0.01
121	10.08	0.50	0.039	0.209	0.033	0.01
122	10.17	0.50	0.039	0.208	0.033	0.01
123	10.25	0.50	0.039	0.207	0.033	0.01
124	10.33	0.50	0.039	0.206	0.033	0.01
125	10.42	0.50	0.039	0.205	0.033	0.01
126	10.50	0.50	0.039	0.204	0.033	0.01
127	10.58	0.67	0.052	0.203	0.044	0.01
128	10.67	0.67	0.052	0.202	0.044	0.01
129	10.75	0.67	0.052	0.201	0.044	0.01
130	10.83	0.67	0.052	0.200	0.044	0.01
131	10.92	0.67	0.052	0.199	0.044	0.01
132	11.00	0.67	0.052	0.198	0.044	0.01
133	11.08	0.63	0.049	0.197	0.042	0.01
134	11.17	0.63	0.049	0.196	0.042	0.01
135	11.25	0.63	0.049	0.195	0.042	0.01
136	11.33	0.63	0.049	0.194	0.042	0.01
137	11.42	0.63	0.049	0.193	0.042	0.01
138	11.50	0.63	0.049	0.192	0.042	0.01
139	11.58	0.57	0.044	0.191	0.038	0.01
140	11.67	0.57	0.044	0.190	0.038	0.01
141	11.75	0.57	0.044	0.189	0.038	0.01
142	11.83	0.60	0.047	0.188	0.040	0.01
143	11.92	0.60	0.047	0.187	0.040	0.01
144	12.00	0.60	0.047	0.186	0.040	0.01
145	12.08	0.83	0.065	0.185	0.055	0.01
146	12.17	0.83	0.065	0.185	0.055	0.01
147	12.25	0.83	0.065	0.184	0.055	0.01
148	12.33	0.87	0.067	0.183	0.057	0.01
149	12.42	0.87	0.067	0.182	0.057	0.01
150	12.50	0.87	0.067	0.181	0.057	0.01
151	12.58	0.93	0.072	0.180	0.062	0.01
152	12.67	0.93	0.072	0.179	0.062	0.01
153	12.75	0.93	0.072	0.178	0.062	0.01
154	12.83	0.97	0.075	0.177	0.064	0.01
155	12.92	0.97	0.075	0.176	0.064	0.01
156	13.00	0.97	0.075	0.175	0.064	0.01
157	13.08	1.13	0.088	0.175	0.075	0.01
158	13.17	1.13	0.088	0.174	0.075	0.01
159	13.25	1.13	0.088	0.173	0.075	0.01

160	13.33	1.13	0.088	0.172	0.075	0.01
161	13.42	1.13	0.088	0.171	0.075	0.01
162	13.50	1.13	0.088	0.170	0.075	0.01
163	13.58	0.77	0.059	0.169	0.051	0.01
164	13.67	0.77	0.059	0.168	0.051	0.01
165	13.75	0.77	0.059	0.168	0.051	0.01
166	13.83	0.77	0.059	0.167	0.051	0.01
167	13.92	0.77	0.059	0.166	0.051	0.01
168	14.00	0.77	0.059	0.165	0.051	0.01
169	14.08	0.90	0.070	0.164	0.060	0.01
170	14.17	0.90	0.070	0.163	0.060	0.01
171	14.25	0.90	0.070	0.163	0.060	0.01
172	14.33	0.87	0.067	0.162	0.057	0.01
173	14.42	0.87	0.067	0.161	0.057	0.01
174	14.50	0.87	0.067	0.160	0.057	0.01
175	14.58	0.87	0.067	0.159	0.057	0.01
176	14.67	0.87	0.067	0.158	0.057	0.01
177	14.75	0.87	0.067	0.158	0.057	0.01
178	14.83	0.83	0.065	0.157	0.055	0.01
179	14.92	0.83	0.065	0.156	0.055	0.01
180	15.00	0.83	0.065	0.155	0.055	0.01
181	15.08	0.80	0.062	0.154	0.053	0.01
182	15.17	0.80	0.062	0.154	0.053	0.01
183	15.25	0.80	0.062	0.153	0.053	0.01
184	15.33	0.77	0.059	0.152	0.051	0.01
185	15.42	0.77	0.059	0.151	0.051	0.01
186	15.50	0.77	0.059	0.150	0.051	0.01
187	15.58	0.63	0.049	0.150	0.042	0.01
188	15.67	0.63	0.049	0.149	0.042	0.01
189	15.75	0.63	0.049	0.148	0.042	0.01
190	15.83	0.63	0.049	0.147	0.042	0.01
191	15.92	0.63	0.049	0.147	0.042	0.01
192	16.00	0.63	0.049	0.146	0.042	0.01
193	16.08	0.13	0.010	0.145	0.009	0.00
194	16.17	0.13	0.010	0.144	0.009	0.00
195	16.25	0.13	0.010	0.144	0.009	0.00
196	16.33	0.13	0.010	0.143	0.009	0.00
197	16.42	0.13	0.010	0.142	0.009	0.00
198	16.50	0.13	0.010	0.141	0.009	0.00
199	16.58	0.10	0.008	0.141	0.007	0.00
200	16.67	0.10	0.008	0.140	0.007	0.00
201	16.75	0.10	0.008	0.139	0.007	0.00
202	16.83	0.10	0.008	0.139	0.007	0.00
203	16.92	0.10	0.008	0.138	0.007	0.00
204	17.00	0.10	0.008	0.137	0.007	0.00
205	17.08	0.17	0.013	0.137	0.011	0.00
206	17.17	0.17	0.013	0.136	0.011	0.00
207	17.25	0.17	0.013	0.135	0.011	0.00
208	17.33	0.17	0.013	0.134	0.011	0.00
209	17.42	0.17	0.013	0.134	0.011	0.00
210	17.50	0.17	0.013	0.133	0.011	0.00
211	17.58	0.17	0.013	0.132	0.011	0.00
212	17.67	0.17	0.013	0.132	0.011	0.00
213	17.75	0.17	0.013	0.131	0.011	0.00
214	17.83	0.13	0.010	0.131	0.009	0.00
215	17.92	0.13	0.010	0.130	0.009	0.00
216	18.00	0.13	0.010	0.129	0.009	0.00
217	18.08	0.13	0.010	0.129	0.009	0.00
218	18.17	0.13	0.010	0.128	0.009	0.00
219	18.25	0.13	0.010	0.127	0.009	0.00
220	18.33	0.13	0.010	0.127	0.009	0.00
221	18.42	0.13	0.010	0.126	0.009	0.00
222	18.50	0.13	0.010	0.125	0.009	0.00
223	18.58	0.10	0.008	0.125	0.007	0.00
224	18.67	0.10	0.008	0.124	0.007	0.00

225	18.75	0.10	0.008	0.124	0.007	0.00
226	18.83	0.07	0.005	0.123	0.004	0.00
227	18.92	0.07	0.005	0.122	0.004	0.00
228	19.00	0.07	0.005	0.122	0.004	0.00
229	19.08	0.10	0.008	0.121	0.007	0.00
230	19.17	0.10	0.008	0.121	0.007	0.00
231	19.25	0.10	0.008	0.120	0.007	0.00
232	19.33	0.13	0.010	0.120	0.009	0.00
233	19.42	0.13	0.010	0.119	0.009	0.00
234	19.50	0.13	0.010	0.119	0.009	0.00
235	19.58	0.10	0.008	0.118	0.007	0.00
236	19.67	0.10	0.008	0.117	0.007	0.00
237	19.75	0.10	0.008	0.117	0.007	0.00
238	19.83	0.07	0.005	0.116	0.004	0.00
239	19.92	0.07	0.005	0.116	0.004	0.00
240	20.00	0.07	0.005	0.115	0.004	0.00
241	20.08	0.10	0.008	0.115	0.007	0.00
242	20.17	0.10	0.008	0.114	0.007	0.00
243	20.25	0.10	0.008	0.114	0.007	0.00
244	20.33	0.10	0.008	0.113	0.007	0.00
245	20.42	0.10	0.008	0.113	0.007	0.00
246	20.50	0.10	0.008	0.112	0.007	0.00
247	20.58	0.10	0.008	0.112	0.007	0.00
248	20.67	0.10	0.008	0.111	0.007	0.00
249	20.75	0.10	0.008	0.111	0.007	0.00
250	20.83	0.07	0.005	0.111	0.004	0.00
251	20.92	0.07	0.005	0.110	0.004	0.00
252	21.00	0.07	0.005	0.110	0.004	0.00
253	21.08	0.10	0.008	0.109	0.007	0.00
254	21.17	0.10	0.008	0.109	0.007	0.00
255	21.25	0.10	0.008	0.108	0.007	0.00
256	21.33	0.07	0.005	0.108	0.004	0.00
257	21.42	0.07	0.005	0.108	0.004	0.00
258	21.50	0.07	0.005	0.107	0.004	0.00
259	21.58	0.10	0.008	0.107	0.007	0.00
260	21.67	0.10	0.008	0.106	0.007	0.00
261	21.75	0.10	0.008	0.106	0.007	0.00
262	21.83	0.07	0.005	0.106	0.004	0.00
263	21.92	0.07	0.005	0.105	0.004	0.00
264	22.00	0.07	0.005	0.105	0.004	0.00
265	22.08	0.10	0.008	0.105	0.007	0.00
266	22.17	0.10	0.008	0.104	0.007	0.00
267	22.25	0.10	0.008	0.104	0.007	0.00
268	22.33	0.07	0.005	0.104	0.004	0.00
269	22.42	0.07	0.005	0.103	0.004	0.00
270	22.50	0.07	0.005	0.103	0.004	0.00
271	22.58	0.07	0.005	0.103	0.004	0.00
272	22.67	0.07	0.005	0.102	0.004	0.00
273	22.75	0.07	0.005	0.102	0.004	0.00
274	22.83	0.07	0.005	0.102	0.004	0.00
275	22.92	0.07	0.005	0.102	0.004	0.00
276	23.00	0.07	0.005	0.101	0.004	0.00
277	23.08	0.07	0.005	0.101	0.004	0.00
278	23.17	0.07	0.005	0.101	0.004	0.00
279	23.25	0.07	0.005	0.101	0.004	0.00
280	23.33	0.07	0.005	0.100	0.004	0.00
281	23.42	0.07	0.005	0.100	0.004	0.00
282	23.50	0.07	0.005	0.100	0.004	0.00
283	23.58	0.07	0.005	0.100	0.004	0.00
284	23.67	0.07	0.005	0.100	0.004	0.00
285	23.75	0.07	0.005	0.100	0.004	0.00
286	23.83	0.07	0.005	0.099	0.004	0.00
287	23.92	0.07	0.005	0.099	0.004	0.00
288	24.00	0.07	0.005	0.099	0.004	0.00
	Sum =	100.0			Sum =	1.1

Flood volume = Effective rainfall 0.09(In)
times area 1.3(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)
Total soil loss = 0.55(In)
Total soil loss = 0.061(Ac.Ft)
Total rainfall = 0.65(In)
Flood volume = 456.0 Cubic Feet
Total soil loss = 2650.6 Cubic Feet

Storm Event 2 Effective Rainfall = 1.225(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.010	0.352	0.008	0.00
2	0.17	0.07	0.010	0.351	0.008	0.00
3	0.25	0.07	0.010	0.349	0.008	0.00
4	0.33	0.10	0.015	0.348	0.013	0.00
5	0.42	0.10	0.015	0.347	0.013	0.00
6	0.50	0.10	0.015	0.345	0.013	0.00
7	0.58	0.10	0.015	0.344	0.013	0.00
8	0.67	0.10	0.015	0.343	0.013	0.00
9	0.75	0.10	0.015	0.341	0.013	0.00
10	0.83	0.13	0.020	0.340	0.017	0.00
11	0.92	0.13	0.020	0.339	0.017	0.00
12	1.00	0.13	0.020	0.337	0.017	0.00
13	1.08	0.10	0.015	0.336	0.013	0.00
14	1.17	0.10	0.015	0.335	0.013	0.00
15	1.25	0.10	0.015	0.333	0.013	0.00
16	1.33	0.10	0.015	0.332	0.013	0.00
17	1.42	0.10	0.015	0.331	0.013	0.00
18	1.50	0.10	0.015	0.329	0.013	0.00
19	1.58	0.10	0.015	0.328	0.013	0.00
20	1.67	0.10	0.015	0.327	0.013	0.00
21	1.75	0.10	0.015	0.325	0.013	0.00
22	1.83	0.13	0.020	0.324	0.017	0.00
23	1.92	0.13	0.020	0.323	0.017	0.00
24	2.00	0.13	0.020	0.322	0.017	0.00
25	2.08	0.13	0.020	0.320	0.017	0.00
26	2.17	0.13	0.020	0.319	0.017	0.00
27	2.25	0.13	0.020	0.318	0.017	0.00
28	2.33	0.13	0.020	0.316	0.017	0.00
29	2.42	0.13	0.020	0.315	0.017	0.00
30	2.50	0.13	0.020	0.314	0.017	0.00
31	2.58	0.17	0.024	0.312	0.021	0.00
32	2.67	0.17	0.024	0.311	0.021	0.00
33	2.75	0.17	0.024	0.310	0.021	0.00
34	2.83	0.17	0.024	0.309	0.021	0.00
35	2.92	0.17	0.024	0.307	0.021	0.00
36	3.00	0.17	0.024	0.306	0.021	0.00
37	3.08	0.17	0.024	0.305	0.021	0.00
38	3.17	0.17	0.024	0.304	0.021	0.00
39	3.25	0.17	0.024	0.302	0.021	0.00
40	3.33	0.17	0.024	0.301	0.021	0.00
41	3.42	0.17	0.024	0.300	0.021	0.00
42	3.50	0.17	0.024	0.299	0.021	0.00
43	3.58	0.17	0.024	0.297	0.021	0.00
44	3.67	0.17	0.024	0.296	0.021	0.00
45	3.75	0.17	0.024	0.295	0.021	0.00
46	3.83	0.20	0.029	0.294	0.025	0.00
47	3.92	0.20	0.029	0.292	0.025	0.00
48	4.00	0.20	0.029	0.291	0.025	0.00
49	4.08	0.20	0.029	0.290	0.025	0.00
50	4.17	0.20	0.029	0.289	0.025	0.00
51	4.25	0.20	0.029	0.287	0.025	0.00
52	4.33	0.23	0.034	0.286	0.029	0.01

53	4.42	0.23	0.034	0.285	0.029	0.01
54	4.50	0.23	0.034	0.284	0.029	0.01
55	4.58	0.23	0.034	0.282	0.029	0.01
56	4.67	0.23	0.034	0.281	0.029	0.01
57	4.75	0.23	0.034	0.280	0.029	0.01
58	4.83	0.27	0.039	0.279	0.033	0.01
59	4.92	0.27	0.039	0.278	0.033	0.01
60	5.00	0.27	0.039	0.276	0.033	0.01
61	5.08	0.20	0.029	0.275	0.025	0.00
62	5.17	0.20	0.029	0.274	0.025	0.00
63	5.25	0.20	0.029	0.273	0.025	0.00
64	5.33	0.23	0.034	0.272	0.029	0.01
65	5.42	0.23	0.034	0.270	0.029	0.01
66	5.50	0.23	0.034	0.269	0.029	0.01
67	5.58	0.27	0.039	0.268	0.033	0.01
68	5.67	0.27	0.039	0.267	0.033	0.01
69	5.75	0.27	0.039	0.266	0.033	0.01
70	5.83	0.27	0.039	0.265	0.033	0.01
71	5.92	0.27	0.039	0.263	0.033	0.01
72	6.00	0.27	0.039	0.262	0.033	0.01
73	6.08	0.30	0.044	0.261	0.038	0.01
74	6.17	0.30	0.044	0.260	0.038	0.01
75	6.25	0.30	0.044	0.259	0.038	0.01
76	6.33	0.30	0.044	0.258	0.038	0.01
77	6.42	0.30	0.044	0.256	0.038	0.01
78	6.50	0.30	0.044	0.255	0.038	0.01
79	6.58	0.33	0.049	0.254	0.042	0.01
80	6.67	0.33	0.049	0.253	0.042	0.01
81	6.75	0.33	0.049	0.252	0.042	0.01
82	6.83	0.33	0.049	0.251	0.042	0.01
83	6.92	0.33	0.049	0.250	0.042	0.01
84	7.00	0.33	0.049	0.248	0.042	0.01
85	7.08	0.33	0.049	0.247	0.042	0.01
86	7.17	0.33	0.049	0.246	0.042	0.01
87	7.25	0.33	0.049	0.245	0.042	0.01
88	7.33	0.37	0.054	0.244	0.046	0.01
89	7.42	0.37	0.054	0.243	0.046	0.01
90	7.50	0.37	0.054	0.242	0.046	0.01
91	7.58	0.40	0.059	0.241	0.050	0.01
92	7.67	0.40	0.059	0.240	0.050	0.01
93	7.75	0.40	0.059	0.238	0.050	0.01
94	7.83	0.43	0.064	0.237	0.054	0.01
95	7.92	0.43	0.064	0.236	0.054	0.01
96	8.00	0.43	0.064	0.235	0.054	0.01
97	8.08	0.50	0.073	0.234	0.063	0.01
98	8.17	0.50	0.073	0.233	0.063	0.01
99	8.25	0.50	0.073	0.232	0.063	0.01
100	8.33	0.50	0.073	0.231	0.063	0.01
101	8.42	0.50	0.073	0.230	0.063	0.01
102	8.50	0.50	0.073	0.229	0.063	0.01
103	8.58	0.53	0.078	0.228	0.067	0.01
104	8.67	0.53	0.078	0.226	0.067	0.01
105	8.75	0.53	0.078	0.225	0.067	0.01
106	8.83	0.57	0.083	0.224	0.071	0.01
107	8.92	0.57	0.083	0.223	0.071	0.01
108	9.00	0.57	0.083	0.222	0.071	0.01
109	9.08	0.63	0.093	0.221	0.079	0.01
110	9.17	0.63	0.093	0.220	0.079	0.01
111	9.25	0.63	0.093	0.219	0.079	0.01
112	9.33	0.67	0.098	0.218	0.084	0.01
113	9.42	0.67	0.098	0.217	0.084	0.01
114	9.50	0.67	0.098	0.216	0.084	0.01
115	9.58	0.70	0.103	0.215	0.088	0.02
116	9.67	0.70	0.103	0.214	0.088	0.02
117	9.75	0.70	0.103	0.213	0.088	0.02

118	9.83	0.73	0.108	0.212	0.092	0.02
119	9.92	0.73	0.108	0.211	0.092	0.02
120	10.00	0.73	0.108	0.210	0.092	0.02
121	10.08	0.50	0.073	0.209	0.063	0.01
122	10.17	0.50	0.073	0.208	0.063	0.01
123	10.25	0.50	0.073	0.207	0.063	0.01
124	10.33	0.50	0.073	0.206	0.063	0.01
125	10.42	0.50	0.073	0.205	0.063	0.01
126	10.50	0.50	0.073	0.204	0.063	0.01
127	10.58	0.67	0.098	0.203	0.084	0.01
128	10.67	0.67	0.098	0.202	0.084	0.01
129	10.75	0.67	0.098	0.201	0.084	0.01
130	10.83	0.67	0.098	0.200	0.084	0.01
131	10.92	0.67	0.098	0.199	0.084	0.01
132	11.00	0.67	0.098	0.198	0.084	0.01
133	11.08	0.63	0.093	0.197	0.079	0.01
134	11.17	0.63	0.093	0.196	0.079	0.01
135	11.25	0.63	0.093	0.195	0.079	0.01
136	11.33	0.63	0.093	0.194	0.079	0.01
137	11.42	0.63	0.093	0.193	0.079	0.01
138	11.50	0.63	0.093	0.192	0.079	0.01
139	11.58	0.57	0.083	0.191	0.071	0.01
140	11.67	0.57	0.083	0.190	0.071	0.01
141	11.75	0.57	0.083	0.189	0.071	0.01
142	11.83	0.60	0.088	0.188	0.075	0.01
143	11.92	0.60	0.088	0.187	0.075	0.01
144	12.00	0.60	0.088	0.186	0.075	0.01
145	12.08	0.83	0.122	0.185	0.104	0.02
146	12.17	0.83	0.122	0.185	0.104	0.02
147	12.25	0.83	0.122	0.184	0.104	0.02
148	12.33	0.87	0.127	0.183	0.109	0.02
149	12.42	0.87	0.127	0.182	0.109	0.02
150	12.50	0.87	0.127	0.181	0.109	0.02
151	12.58	0.93	0.137	0.180	0.117	0.02
152	12.67	0.93	0.137	0.179	0.117	0.02
153	12.75	0.93	0.137	0.178	0.117	0.02
154	12.83	0.97	0.142	0.177	0.121	0.02
155	12.92	0.97	0.142	0.176	0.121	0.02
156	13.00	0.97	0.142	0.175	0.121	0.02
157	13.08	1.13	0.167	0.175	0.142	0.02
158	13.17	1.13	0.167	0.174	0.142	0.02
159	13.25	1.13	0.167	0.173	0.142	0.02
160	13.33	1.13	0.167	0.172	0.142	0.02
161	13.42	1.13	0.167	0.171	0.142	0.02
162	13.50	1.13	0.167	0.170	0.142	0.02
163	13.58	0.77	0.113	0.169	0.096	0.02
164	13.67	0.77	0.113	0.168	0.096	0.02
165	13.75	0.77	0.113	0.168	0.096	0.02
166	13.83	0.77	0.113	0.167	0.096	0.02
167	13.92	0.77	0.113	0.166	0.096	0.02
168	14.00	0.77	0.113	0.165	0.096	0.02
169	14.08	0.90	0.132	0.164	0.113	0.02
170	14.17	0.90	0.132	0.163	0.113	0.02
171	14.25	0.90	0.132	0.163	0.113	0.02
172	14.33	0.87	0.127	0.162	0.109	0.02
173	14.42	0.87	0.127	0.161	0.109	0.02
174	14.50	0.87	0.127	0.160	0.109	0.02
175	14.58	0.87	0.127	0.159	0.109	0.02
176	14.67	0.87	0.127	0.158	0.109	0.02
177	14.75	0.87	0.127	0.158	0.109	0.02
178	14.83	0.83	0.122	0.157	0.104	0.02
179	14.92	0.83	0.122	0.156	0.104	0.02
180	15.00	0.83	0.122	0.155	0.104	0.02
181	15.08	0.80	0.118	0.154	0.100	0.02
182	15.17	0.80	0.118	0.154	0.100	0.02

183	15.25	0.80	0.118	0.153	0.100	0.02
184	15.33	0.77	0.113	0.152	0.096	0.02
185	15.42	0.77	0.113	0.151	0.096	0.02
186	15.50	0.77	0.113	0.150	0.096	0.02
187	15.58	0.63	0.093	0.150	0.079	0.01
188	15.67	0.63	0.093	0.149	0.079	0.01
189	15.75	0.63	0.093	0.148	0.079	0.01
190	15.83	0.63	0.093	0.147	0.079	0.01
191	15.92	0.63	0.093	0.147	0.079	0.01
192	16.00	0.63	0.093	0.146	0.079	0.01
193	16.08	0.13	0.020	0.145	0.017	0.00
194	16.17	0.13	0.020	0.144	0.017	0.00
195	16.25	0.13	0.020	0.144	0.017	0.00
196	16.33	0.13	0.020	0.143	0.017	0.00
197	16.42	0.13	0.020	0.142	0.017	0.00
198	16.50	0.13	0.020	0.141	0.017	0.00
199	16.58	0.10	0.015	0.141	0.013	0.00
200	16.67	0.10	0.015	0.140	0.013	0.00
201	16.75	0.10	0.015	0.139	0.013	0.00
202	16.83	0.10	0.015	0.139	0.013	0.00
203	16.92	0.10	0.015	0.138	0.013	0.00
204	17.00	0.10	0.015	0.137	0.013	0.00
205	17.08	0.17	0.024	0.137	0.021	0.00
206	17.17	0.17	0.024	0.136	0.021	0.00
207	17.25	0.17	0.024	0.135	0.021	0.00
208	17.33	0.17	0.024	0.134	0.021	0.00
209	17.42	0.17	0.024	0.134	0.021	0.00
210	17.50	0.17	0.024	0.133	0.021	0.00
211	17.58	0.17	0.024	0.132	0.021	0.00
212	17.67	0.17	0.024	0.132	0.021	0.00
213	17.75	0.17	0.024	0.131	0.021	0.00
214	17.83	0.13	0.020	0.131	0.017	0.00
215	17.92	0.13	0.020	0.130	0.017	0.00
216	18.00	0.13	0.020	0.129	0.017	0.00
217	18.08	0.13	0.020	0.129	0.017	0.00
218	18.17	0.13	0.020	0.128	0.017	0.00
219	18.25	0.13	0.020	0.127	0.017	0.00
220	18.33	0.13	0.020	0.127	0.017	0.00
221	18.42	0.13	0.020	0.126	0.017	0.00
222	18.50	0.13	0.020	0.125	0.017	0.00
223	18.58	0.10	0.015	0.125	0.013	0.00
224	18.67	0.10	0.015	0.124	0.013	0.00
225	18.75	0.10	0.015	0.124	0.013	0.00
226	18.83	0.07	0.010	0.123	0.008	0.00
227	18.92	0.07	0.010	0.122	0.008	0.00
228	19.00	0.07	0.010	0.122	0.008	0.00
229	19.08	0.10	0.015	0.121	0.013	0.00
230	19.17	0.10	0.015	0.121	0.013	0.00
231	19.25	0.10	0.015	0.120	0.013	0.00
232	19.33	0.13	0.020	0.120	0.017	0.00
233	19.42	0.13	0.020	0.119	0.017	0.00
234	19.50	0.13	0.020	0.119	0.017	0.00
235	19.58	0.10	0.015	0.118	0.013	0.00
236	19.67	0.10	0.015	0.117	0.013	0.00
237	19.75	0.10	0.015	0.117	0.013	0.00
238	19.83	0.07	0.010	0.116	0.008	0.00
239	19.92	0.07	0.010	0.116	0.008	0.00
240	20.00	0.07	0.010	0.115	0.008	0.00
241	20.08	0.10	0.015	0.115	0.013	0.00
242	20.17	0.10	0.015	0.114	0.013	0.00
243	20.25	0.10	0.015	0.114	0.013	0.00
244	20.33	0.10	0.015	0.113	0.013	0.00
245	20.42	0.10	0.015	0.113	0.013	0.00
246	20.50	0.10	0.015	0.112	0.013	0.00
247	20.58	0.10	0.015	0.112	0.013	0.00

248	20.67	0.10	0.015	0.111	0.013	0.00
249	20.75	0.10	0.015	0.111	0.013	0.00
250	20.83	0.07	0.010	0.111	0.008	0.00
251	20.92	0.07	0.010	0.110	0.008	0.00
252	21.00	0.07	0.010	0.110	0.008	0.00
253	21.08	0.10	0.015	0.109	0.013	0.00
254	21.17	0.10	0.015	0.109	0.013	0.00
255	21.25	0.10	0.015	0.108	0.013	0.00
256	21.33	0.07	0.010	0.108	0.008	0.00
257	21.42	0.07	0.010	0.108	0.008	0.00
258	21.50	0.07	0.010	0.107	0.008	0.00
259	21.58	0.10	0.015	0.107	0.013	0.00
260	21.67	0.10	0.015	0.106	0.013	0.00
261	21.75	0.10	0.015	0.106	0.013	0.00
262	21.83	0.07	0.010	0.106	0.008	0.00
263	21.92	0.07	0.010	0.105	0.008	0.00
264	22.00	0.07	0.010	0.105	0.008	0.00
265	22.08	0.10	0.015	0.105	0.013	0.00
266	22.17	0.10	0.015	0.104	0.013	0.00
267	22.25	0.10	0.015	0.104	0.013	0.00
268	22.33	0.07	0.010	0.104	0.008	0.00
269	22.42	0.07	0.010	0.103	0.008	0.00
270	22.50	0.07	0.010	0.103	0.008	0.00
271	22.58	0.07	0.010	0.103	0.008	0.00
272	22.67	0.07	0.010	0.102	0.008	0.00
273	22.75	0.07	0.010	0.102	0.008	0.00
274	22.83	0.07	0.010	0.102	0.008	0.00
275	22.92	0.07	0.010	0.102	0.008	0.00
276	23.00	0.07	0.010	0.101	0.008	0.00
277	23.08	0.07	0.010	0.101	0.008	0.00
278	23.17	0.07	0.010	0.101	0.008	0.00
279	23.25	0.07	0.010	0.101	0.008	0.00
280	23.33	0.07	0.010	0.100	0.008	0.00
281	23.42	0.07	0.010	0.100	0.008	0.00
282	23.50	0.07	0.010	0.100	0.008	0.00
283	23.58	0.07	0.010	0.100	0.008	0.00
284	23.67	0.07	0.010	0.100	0.008	0.00
285	23.75	0.07	0.010	0.100	0.008	0.00
286	23.83	0.07	0.010	0.099	0.008	0.00
287	23.92	0.07	0.010	0.099	0.008	0.00
288	24.00	0.07	0.010	0.099	0.008	0.00
Sum =	100.0			Sum =	2.2	

Flood volume = Effective rainfall 0.18(In)
times area 1.3(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)
Total soil loss = 1.04(In)
Total soil loss = 0.115(Ac.Ft)
Total rainfall = 1.22(In)
Flood volume = 864.1 Cubic Feet
Total soil loss = 5022.1 Cubic Feet

Storm Event 1 Effective Rainfall = 3.402(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.027	0.352	0.023	0.00
2	0.17	0.07	0.027	0.351	0.023	0.00
3	0.25	0.07	0.027	0.349	0.023	0.00
4	0.33	0.10	0.041	0.348	0.035	0.01
5	0.42	0.10	0.041	0.347	0.035	0.01
6	0.50	0.10	0.041	0.345	0.035	0.01
7	0.58	0.10	0.041	0.344	0.035	0.01
8	0.67	0.10	0.041	0.343	0.035	0.01
9	0.75	0.10	0.041	0.341	0.035	0.01
10	0.83	0.13	0.054	0.340	0.046	0.01

11	0.92	0.13	0.054	0.339	0.046	0.01
12	1.00	0.13	0.054	0.337	0.046	0.01
13	1.08	0.10	0.041	0.336	0.035	0.01
14	1.17	0.10	0.041	0.335	0.035	0.01
15	1.25	0.10	0.041	0.333	0.035	0.01
16	1.33	0.10	0.041	0.332	0.035	0.01
17	1.42	0.10	0.041	0.331	0.035	0.01
18	1.50	0.10	0.041	0.329	0.035	0.01
19	1.58	0.10	0.041	0.328	0.035	0.01
20	1.67	0.10	0.041	0.327	0.035	0.01
21	1.75	0.10	0.041	0.325	0.035	0.01
22	1.83	0.13	0.054	0.324	0.046	0.01
23	1.92	0.13	0.054	0.323	0.046	0.01
24	2.00	0.13	0.054	0.322	0.046	0.01
25	2.08	0.13	0.054	0.320	0.046	0.01
26	2.17	0.13	0.054	0.319	0.046	0.01
27	2.25	0.13	0.054	0.318	0.046	0.01
28	2.33	0.13	0.054	0.316	0.046	0.01
29	2.42	0.13	0.054	0.315	0.046	0.01
30	2.50	0.13	0.054	0.314	0.046	0.01
31	2.58	0.17	0.068	0.312	0.058	0.01
32	2.67	0.17	0.068	0.311	0.058	0.01
33	2.75	0.17	0.068	0.310	0.058	0.01
34	2.83	0.17	0.068	0.309	0.058	0.01
35	2.92	0.17	0.068	0.307	0.058	0.01
36	3.00	0.17	0.068	0.306	0.058	0.01
37	3.08	0.17	0.068	0.305	0.058	0.01
38	3.17	0.17	0.068	0.304	0.058	0.01
39	3.25	0.17	0.068	0.302	0.058	0.01
40	3.33	0.17	0.068	0.301	0.058	0.01
41	3.42	0.17	0.068	0.300	0.058	0.01
42	3.50	0.17	0.068	0.299	0.058	0.01
43	3.58	0.17	0.068	0.297	0.058	0.01
44	3.67	0.17	0.068	0.296	0.058	0.01
45	3.75	0.17	0.068	0.295	0.058	0.01
46	3.83	0.20	0.082	0.294	0.070	0.01
47	3.92	0.20	0.082	0.292	0.070	0.01
48	4.00	0.20	0.082	0.291	0.070	0.01
49	4.08	0.20	0.082	0.290	0.070	0.01
50	4.17	0.20	0.082	0.289	0.070	0.01
51	4.25	0.20	0.082	0.287	0.070	0.01
52	4.33	0.23	0.095	0.286	0.081	0.01
53	4.42	0.23	0.095	0.285	0.081	0.01
54	4.50	0.23	0.095	0.284	0.081	0.01
55	4.58	0.23	0.095	0.282	0.081	0.01
56	4.67	0.23	0.095	0.281	0.081	0.01
57	4.75	0.23	0.095	0.280	0.081	0.01
58	4.83	0.27	0.109	0.279	0.093	0.02
59	4.92	0.27	0.109	0.278	0.093	0.02
60	5.00	0.27	0.109	0.276	0.093	0.02
61	5.08	0.20	0.082	0.275	0.070	0.01
62	5.17	0.20	0.082	0.274	0.070	0.01
63	5.25	0.20	0.082	0.273	0.070	0.01
64	5.33	0.23	0.095	0.272	0.081	0.01
65	5.42	0.23	0.095	0.270	0.081	0.01
66	5.50	0.23	0.095	0.269	0.081	0.01
67	5.58	0.27	0.109	0.268	0.093	0.02
68	5.67	0.27	0.109	0.267	0.093	0.02
69	5.75	0.27	0.109	0.266	0.093	0.02
70	5.83	0.27	0.109	0.265	0.093	0.02
71	5.92	0.27	0.109	0.263	0.093	0.02
72	6.00	0.27	0.109	0.262	0.093	0.02
73	6.08	0.30	0.122	0.261	0.104	0.02
74	6.17	0.30	0.122	0.260	0.104	0.02
75	6.25	0.30	0.122	0.259	0.104	0.02

76	6.33	0.30	0.122	0.258	0.104	0.02
77	6.42	0.30	0.122	0.256	0.104	0.02
78	6.50	0.30	0.122	0.255	0.104	0.02
79	6.58	0.33	0.136	0.254	0.116	0.02
80	6.67	0.33	0.136	0.253	0.116	0.02
81	6.75	0.33	0.136	0.252	0.116	0.02
82	6.83	0.33	0.136	0.251	0.116	0.02
83	6.92	0.33	0.136	0.250	0.116	0.02
84	7.00	0.33	0.136	0.248	0.116	0.02
85	7.08	0.33	0.136	0.247	0.116	0.02
86	7.17	0.33	0.136	0.246	0.116	0.02
87	7.25	0.33	0.136	0.245	0.116	0.02
88	7.33	0.37	0.150	0.244	0.128	0.02
89	7.42	0.37	0.150	0.243	0.128	0.02
90	7.50	0.37	0.150	0.242	0.128	0.02
91	7.58	0.40	0.163	0.241	0.139	0.02
92	7.67	0.40	0.163	0.240	0.139	0.02
93	7.75	0.40	0.163	0.238	0.139	0.02
94	7.83	0.43	0.177	0.237	0.151	0.03
95	7.92	0.43	0.177	0.236	0.151	0.03
96	8.00	0.43	0.177	0.235	0.151	0.03
97	8.08	0.50	0.204	0.234	0.174	0.03
98	8.17	0.50	0.204	0.233	0.174	0.03
99	8.25	0.50	0.204	0.232	0.174	0.03
100	8.33	0.50	0.204	0.231	0.174	0.03
101	8.42	0.50	0.204	0.230	0.174	0.03
102	8.50	0.50	0.204	0.229	0.174	0.03
103	8.58	0.53	0.218	0.228	0.186	0.03
104	8.67	0.53	0.218	0.226	0.186	0.03
105	8.75	0.53	0.218	0.225	0.186	0.03
106	8.83	0.57	0.231	0.224	---	0.01
107	8.92	0.57	0.231	0.223	---	0.01
108	9.00	0.57	0.231	0.222	---	0.01
109	9.08	0.63	0.259	0.221	---	0.04
110	9.17	0.63	0.259	0.220	---	0.04
111	9.25	0.63	0.259	0.219	---	0.04
112	9.33	0.67	0.272	0.218	---	0.05
113	9.42	0.67	0.272	0.217	---	0.06
114	9.50	0.67	0.272	0.216	---	0.06
115	9.58	0.70	0.286	0.215	---	0.07
116	9.67	0.70	0.286	0.214	---	0.07
117	9.75	0.70	0.286	0.213	---	0.07
118	9.83	0.73	0.299	0.212	---	0.09
119	9.92	0.73	0.299	0.211	---	0.09
120	10.00	0.73	0.299	0.210	---	0.09
121	10.08	0.50	0.204	0.209	0.174	0.03
122	10.17	0.50	0.204	0.208	0.174	0.03
123	10.25	0.50	0.204	0.207	0.174	0.03
124	10.33	0.50	0.204	0.206	0.174	0.03
125	10.42	0.50	0.204	0.205	0.174	0.03
126	10.50	0.50	0.204	0.204	---	0.00
127	10.58	0.67	0.272	0.203	---	0.07
128	10.67	0.67	0.272	0.202	---	0.07
129	10.75	0.67	0.272	0.201	---	0.07
130	10.83	0.67	0.272	0.200	---	0.07
131	10.92	0.67	0.272	0.199	---	0.07
132	11.00	0.67	0.272	0.198	---	0.07
133	11.08	0.63	0.259	0.197	---	0.06
134	11.17	0.63	0.259	0.196	---	0.06
135	11.25	0.63	0.259	0.195	---	0.06
136	11.33	0.63	0.259	0.194	---	0.06
137	11.42	0.63	0.259	0.193	---	0.07
138	11.50	0.63	0.259	0.192	---	0.07
139	11.58	0.57	0.231	0.191	---	0.04
140	11.67	0.57	0.231	0.190	---	0.04

141	11.75	0.57	0.231	0.189	---	0.04
142	11.83	0.60	0.245	0.188	---	0.06
143	11.92	0.60	0.245	0.187	---	0.06
144	12.00	0.60	0.245	0.186	---	0.06
145	12.08	0.83	0.340	0.185	---	0.15
146	12.17	0.83	0.340	0.185	---	0.16
147	12.25	0.83	0.340	0.184	---	0.16
148	12.33	0.87	0.354	0.183	---	0.17
149	12.42	0.87	0.354	0.182	---	0.17
150	12.50	0.87	0.354	0.181	---	0.17
151	12.58	0.93	0.381	0.180	---	0.20
152	12.67	0.93	0.381	0.179	---	0.20
153	12.75	0.93	0.381	0.178	---	0.20
154	12.83	0.97	0.395	0.177	---	0.22
155	12.92	0.97	0.395	0.176	---	0.22
156	13.00	0.97	0.395	0.175	---	0.22
157	13.08	1.13	0.463	0.175	---	0.29
158	13.17	1.13	0.463	0.174	---	0.29
159	13.25	1.13	0.463	0.173	---	0.29
160	13.33	1.13	0.463	0.172	---	0.29
161	13.42	1.13	0.463	0.171	---	0.29
162	13.50	1.13	0.463	0.170	---	0.29
163	13.58	0.77	0.313	0.169	---	0.14
164	13.67	0.77	0.313	0.168	---	0.14
165	13.75	0.77	0.313	0.168	---	0.15
166	13.83	0.77	0.313	0.167	---	0.15
167	13.92	0.77	0.313	0.166	---	0.15
168	14.00	0.77	0.313	0.165	---	0.15
169	14.08	0.90	0.367	0.164	---	0.20
170	14.17	0.90	0.367	0.163	---	0.20
171	14.25	0.90	0.367	0.163	---	0.20
172	14.33	0.87	0.354	0.162	---	0.19
173	14.42	0.87	0.354	0.161	---	0.19
174	14.50	0.87	0.354	0.160	---	0.19
175	14.58	0.87	0.354	0.159	---	0.19
176	14.67	0.87	0.354	0.158	---	0.20
177	14.75	0.87	0.354	0.158	---	0.20
178	14.83	0.83	0.340	0.157	---	0.18
179	14.92	0.83	0.340	0.156	---	0.18
180	15.00	0.83	0.340	0.155	---	0.19
181	15.08	0.80	0.327	0.154	---	0.17
182	15.17	0.80	0.327	0.154	---	0.17
183	15.25	0.80	0.327	0.153	---	0.17
184	15.33	0.77	0.313	0.152	---	0.16
185	15.42	0.77	0.313	0.151	---	0.16
186	15.50	0.77	0.313	0.150	---	0.16
187	15.58	0.63	0.259	0.150	---	0.11
188	15.67	0.63	0.259	0.149	---	0.11
189	15.75	0.63	0.259	0.148	---	0.11
190	15.83	0.63	0.259	0.147	---	0.11
191	15.92	0.63	0.259	0.147	---	0.11
192	16.00	0.63	0.259	0.146	---	0.11
193	16.08	0.13	0.054	0.145	0.046	0.01
194	16.17	0.13	0.054	0.144	0.046	0.01
195	16.25	0.13	0.054	0.144	0.046	0.01
196	16.33	0.13	0.054	0.143	0.046	0.01
197	16.42	0.13	0.054	0.142	0.046	0.01
198	16.50	0.13	0.054	0.141	0.046	0.01
199	16.58	0.10	0.041	0.141	0.035	0.01
200	16.67	0.10	0.041	0.140	0.035	0.01
201	16.75	0.10	0.041	0.139	0.035	0.01
202	16.83	0.10	0.041	0.139	0.035	0.01
203	16.92	0.10	0.041	0.138	0.035	0.01
204	17.00	0.10	0.041	0.137	0.035	0.01
205	17.08	0.17	0.068	0.137	0.058	0.01

206	17.17	0.17	0.068	0.136	0.058	0.01
207	17.25	0.17	0.068	0.135	0.058	0.01
208	17.33	0.17	0.068	0.134	0.058	0.01
209	17.42	0.17	0.068	0.134	0.058	0.01
210	17.50	0.17	0.068	0.133	0.058	0.01
211	17.58	0.17	0.068	0.132	0.058	0.01
212	17.67	0.17	0.068	0.132	0.058	0.01
213	17.75	0.17	0.068	0.131	0.058	0.01
214	17.83	0.13	0.054	0.131	0.046	0.01
215	17.92	0.13	0.054	0.130	0.046	0.01
216	18.00	0.13	0.054	0.129	0.046	0.01
217	18.08	0.13	0.054	0.129	0.046	0.01
218	18.17	0.13	0.054	0.128	0.046	0.01
219	18.25	0.13	0.054	0.127	0.046	0.01
220	18.33	0.13	0.054	0.127	0.046	0.01
221	18.42	0.13	0.054	0.126	0.046	0.01
222	18.50	0.13	0.054	0.125	0.046	0.01
223	18.58	0.10	0.041	0.125	0.035	0.01
224	18.67	0.10	0.041	0.124	0.035	0.01
225	18.75	0.10	0.041	0.124	0.035	0.01
226	18.83	0.07	0.027	0.123	0.023	0.00
227	18.92	0.07	0.027	0.122	0.023	0.00
228	19.00	0.07	0.027	0.122	0.023	0.00
229	19.08	0.10	0.041	0.121	0.035	0.01
230	19.17	0.10	0.041	0.121	0.035	0.01
231	19.25	0.10	0.041	0.120	0.035	0.01
232	19.33	0.13	0.054	0.120	0.046	0.01
233	19.42	0.13	0.054	0.119	0.046	0.01
234	19.50	0.13	0.054	0.119	0.046	0.01
235	19.58	0.10	0.041	0.118	0.035	0.01
236	19.67	0.10	0.041	0.117	0.035	0.01
237	19.75	0.10	0.041	0.117	0.035	0.01
238	19.83	0.07	0.027	0.116	0.023	0.00
239	19.92	0.07	0.027	0.116	0.023	0.00
240	20.00	0.07	0.027	0.115	0.023	0.00
241	20.08	0.10	0.041	0.115	0.035	0.01
242	20.17	0.10	0.041	0.114	0.035	0.01
243	20.25	0.10	0.041	0.114	0.035	0.01
244	20.33	0.10	0.041	0.113	0.035	0.01
245	20.42	0.10	0.041	0.113	0.035	0.01
246	20.50	0.10	0.041	0.112	0.035	0.01
247	20.58	0.10	0.041	0.112	0.035	0.01
248	20.67	0.10	0.041	0.111	0.035	0.01
249	20.75	0.10	0.041	0.111	0.035	0.01
250	20.83	0.07	0.027	0.111	0.023	0.00
251	20.92	0.07	0.027	0.110	0.023	0.00
252	21.00	0.07	0.027	0.110	0.023	0.00
253	21.08	0.10	0.041	0.109	0.035	0.01
254	21.17	0.10	0.041	0.109	0.035	0.01
255	21.25	0.10	0.041	0.108	0.035	0.01
256	21.33	0.07	0.027	0.108	0.023	0.00
257	21.42	0.07	0.027	0.108	0.023	0.00
258	21.50	0.07	0.027	0.107	0.023	0.00
259	21.58	0.10	0.041	0.107	0.035	0.01
260	21.67	0.10	0.041	0.106	0.035	0.01
261	21.75	0.10	0.041	0.106	0.035	0.01
262	21.83	0.07	0.027	0.106	0.023	0.00
263	21.92	0.07	0.027	0.105	0.023	0.00
264	22.00	0.07	0.027	0.105	0.023	0.00
265	22.08	0.10	0.041	0.105	0.035	0.01
266	22.17	0.10	0.041	0.104	0.035	0.01
267	22.25	0.10	0.041	0.104	0.035	0.01
268	22.33	0.07	0.027	0.104	0.023	0.00
269	22.42	0.07	0.027	0.103	0.023	0.00
270	22.50	0.07	0.027	0.103	0.023	0.00

271	22.58	0.07	0.027	0.103	0.023	0.00
272	22.67	0.07	0.027	0.102	0.023	0.00
273	22.75	0.07	0.027	0.102	0.023	0.00
274	22.83	0.07	0.027	0.102	0.023	0.00
275	22.92	0.07	0.027	0.102	0.023	0.00
276	23.00	0.07	0.027	0.101	0.023	0.00
277	23.08	0.07	0.027	0.101	0.023	0.00
278	23.17	0.07	0.027	0.101	0.023	0.00
279	23.25	0.07	0.027	0.101	0.023	0.00
280	23.33	0.07	0.027	0.100	0.023	0.00
281	23.42	0.07	0.027	0.100	0.023	0.00
282	23.50	0.07	0.027	0.100	0.023	0.00
283	23.58	0.07	0.027	0.100	0.023	0.00
284	23.67	0.07	0.027	0.100	0.023	0.00
285	23.75	0.07	0.027	0.100	0.023	0.00
286	23.83	0.07	0.027	0.099	0.023	0.00
287	23.92	0.07	0.027	0.099	0.023	0.00
288	24.00	0.07	0.027	0.099	0.023	0.00
Sum =		100.0		Sum =		13.0

Flood volume = Effective rainfall 1.08(In)
times area 1.3(Ac.)/[(In)/(Ft.)] = 0.1(Ac.Ft)
Total soil loss = 2.32(In)
Total soil loss = 0.256(Ac.Ft)
Total rainfall = 3.40(In)
Flood volume = 5202.2 Cubic Feet
Total soil loss = 11148.3 Cubic Feet

Peak flow rate of this hydrograph = 0.390(CFS)

++

TOTAL OF: 3 24 - H O U R S T O R M E V E N T S
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0000	0.00	Q	|	|	|	|
0+10	0.0000	0.00	Q	|	|	|	|
0+15	0.0000	0.00	Q	|	|	|	|
0+20	0.0000	0.00	Q	|	|	|	|
0+25	0.0000	0.00	Q	|	|	|	|
0+30	0.0000	0.00	Q	|	|	|	|
0+35	0.0001	0.00	Q	|	|	|	|
0+40	0.0001	0.00	Q	|	|	|	|
0+45	0.0001	0.00	Q	|	|	|	|
0+50	0.0001	0.00	Q	|	|	|	|
0+55	0.0001	0.00	Q	|	|	|	|
1+ 0	0.0001	0.00	Q	|	|	|	|
1+ 5	0.0001	0.00	Q	|	|	|	|
1+10	0.0001	0.00	Q	|	|	|	|
1+15	0.0002	0.00	Q	|	|	|	|
1+20	0.0002	0.00	Q	|	|	|	|
1+25	0.0002	0.00	Q	|	|	|	|
1+30	0.0002	0.00	Q	|	|	|	|
1+35	0.0002	0.00	Q	|	|	|	|
1+40	0.0002	0.00	Q	|	|	|	|
1+45	0.0002	0.00	Q	|	|	|	|
1+50	0.0002	0.00	Q	|	|	|	|
1+55	0.0002	0.00	Q	|	|	|	|
2+ 0	0.0003	0.00	Q	|	|	|	|
2+ 5	0.0003	0.00	Q	|	|	|	|
2+10	0.0003	0.00	Q	|	|	|	|
2+15	0.0003	0.00	Q	|	|	|	|

2+20	0.0003	0.00	Q	|	|	|	|
2+25	0.0003	0.00	Q	|	|	|	|
2+30	0.0003	0.00	Q	|	|	|	|
2+35	0.0004	0.00	Q	|	|	|	|
2+40	0.0004	0.00	Q	|	|	|	|
2+45	0.0004	0.00	Q	|	|	|	|
2+50	0.0004	0.00	Q	|	|	|	|
2+55	0.0004	0.00	Q	|	|	|	|
3+ 0	0.0004	0.00	Q	|	|	|	|
3+ 5	0.0005	0.00	Q	|	|	|	|
3+10	0.0005	0.00	Q	|	|	|	|
3+15	0.0005	0.00	Q	|	|	|	|
3+20	0.0005	0.00	Q	|	|	|	|
3+25	0.0005	0.00	Q	|	|	|	|
3+30	0.0005	0.00	Q	|	|	|	|
3+35	0.0006	0.00	Q	|	|	|	|
3+40	0.0006	0.00	Q	|	|	|	|
3+45	0.0006	0.00	Q	|	|	|	|
3+50	0.0006	0.00	Q	|	|	|	|
3+55	0.0006	0.00	Q	|	|	|	|
4+ 0	0.0007	0.00	Q	|	|	|	|
4+ 5	0.0007	0.00	Q	|	|	|	|
4+10	0.0007	0.00	Q	|	|	|	|
4+15	0.0007	0.00	Q	|	|	|	|
4+20	0.0007	0.00	Q	|	|	|	|
4+25	0.0008	0.00	Q	|	|	|	|
4+30	0.0008	0.00	Q	|	|	|	|
4+35	0.0008	0.00	Q	|	|	|	|
4+40	0.0008	0.00	Q	|	|	|	|
4+45	0.0009	0.00	Q	|	|	|	|
4+50	0.0009	0.00	Q	|	|	|	|
4+55	0.0009	0.00	Q	|	|	|	|
5+ 0	0.0010	0.00	Q	|	|	|	|
5+ 5	0.0010	0.00	Q	|	|	|	|
5+10	0.0010	0.00	Q	|	|	|	|
5+15	0.0010	0.00	Q	|	|	|	|
5+20	0.0010	0.00	Q	|	|	|	|
5+25	0.0011	0.00	Q	|	|	|	|
5+30	0.0011	0.00	Q	|	|	|	|
5+35	0.0011	0.00	Q	|	|	|	|
5+40	0.0011	0.00	Q	|	|	|	|
5+45	0.0012	0.00	Q	|	|	|	|
5+50	0.0012	0.00	Q	|	|	|	|
5+55	0.0012	0.00	Q	|	|	|	|
6+ 0	0.0013	0.00	Q	|	|	|	|
6+ 5	0.0013	0.00	Q	|	|	|	|
6+10	0.0013	0.00	Q	|	|	|	|
6+15	0.0014	0.00	Q	|	|	|	|
6+20	0.0014	0.00	Q	|	|	|	|
6+25	0.0014	0.00	Q	|	|	|	|
6+30	0.0014	0.00	Q	|	|	|	|
6+35	0.0015	0.00	Q	|	|	|	|
6+40	0.0015	0.01	Q	|	|	|	|
6+45	0.0015	0.01	Q	|	|	|	|
6+50	0.0016	0.01	Q	|	|	|	|
6+55	0.0016	0.01	Q	|	|	|	|
7+ 0	0.0017	0.01	Q	|	|	|	|
7+ 5	0.0017	0.01	Q	|	|	|	|
7+10	0.0017	0.01	Q	|	|	|	|
7+15	0.0018	0.01	Q	|	|	|	|
7+20	0.0018	0.01	Q	|	|	|	|
7+25	0.0018	0.01	Q	|	|	|	|
7+30	0.0019	0.01	Q	|	|	|	|
7+35	0.0019	0.01	Q	|	|	|	|
7+40	0.0020	0.01	Q	|	|	|	|

7+45	0.0020	0.01	Q	|	|	|	|
7+50	0.0020	0.01	Q	|	|	|	|
7+55	0.0021	0.01	Q	|	|	|	|
8+ 0	0.0021	0.01	Q	|	|	|	|
8+ 5	0.0022	0.01	Q	|	|	|	|
8+10	0.0022	0.01	Q	|	|	|	|
8+15	0.0023	0.01	Q	|	|	|	|
8+20	0.0023	0.01	Q	|	|	|	|
8+25	0.0024	0.01	Q	|	|	|	|
8+30	0.0024	0.01	Q	|	|	|	|
8+35	0.0025	0.01	Q	|	|	|	|
8+40	0.0026	0.01	Q	|	|	|	|
8+45	0.0026	0.01	Q	|	|	|	|
8+50	0.0027	0.01	Q	|	|	|	|
8+55	0.0027	0.01	Q	|	|	|	|
9+ 0	0.0028	0.01	Q	|	|	|	|
9+ 5	0.0028	0.01	Q	|	|	|	|
9+10	0.0029	0.01	Q	|	|	|	|
9+15	0.0030	0.01	Q	|	|	|	|
9+20	0.0031	0.01	Q	|	|	|	|
9+25	0.0031	0.01	Q	|	|	|	|
9+30	0.0032	0.01	Q	|	|	|	|
9+35	0.0033	0.01	Q	|	|	|	|
9+40	0.0033	0.01	Q	|	|	|	|
9+45	0.0034	0.01	Q	|	|	|	|
9+50	0.0035	0.01	Q	|	|	|	|
9+55	0.0036	0.01	Q	|	|	|	|
10+ 0	0.0036	0.01	Q	|	|	|	|
10+ 5	0.0037	0.01	Q	|	|	|	|
10+10	0.0038	0.01	QV	|	|	|	|
10+15	0.0038	0.01	QV	|	|	|	|
10+20	0.0039	0.01	QV	|	|	|	|
10+25	0.0039	0.01	QV	|	|	|	|
10+30	0.0040	0.01	QV	|	|	|	|
10+35	0.0040	0.01	QV	|	|	|	|
10+40	0.0041	0.01	QV	|	|	|	|
10+45	0.0042	0.01	QV	|	|	|	|
10+50	0.0042	0.01	QV	|	|	|	|
10+55	0.0043	0.01	QV	|	|	|	|
11+ 0	0.0044	0.01	QV	|	|	|	|
11+ 5	0.0044	0.01	QV	|	|	|	|
11+10	0.0045	0.01	QV	|	|	|	|
11+15	0.0046	0.01	QV	|	|	|	|
11+20	0.0046	0.01	QV	|	|	|	|
11+25	0.0047	0.01	QV	|	|	|	|
11+30	0.0048	0.01	QV	|	|	|	|
11+35	0.0048	0.01	QV	|	|	|	|
11+40	0.0049	0.01	QV	|	|	|	|
11+45	0.0050	0.01	QV	|	|	|	|
11+50	0.0050	0.01	QV	|	|	|	|
11+55	0.0051	0.01	QV	|	|	|	|
12+ 0	0.0051	0.01	QV	|	|	|	|
12+ 5	0.0052	0.01	QV	|	|	|	|
12+10	0.0053	0.01	QV	|	|	|	|
12+15	0.0054	0.01	QV	|	|	|	|
12+20	0.0055	0.01	QV	|	|	|	|
12+25	0.0056	0.01	QV	|	|	|	|
12+30	0.0057	0.01	QV	|	|	|	|
12+35	0.0058	0.01	QV	|	|	|	|
12+40	0.0059	0.01	QV	|	|	|	|
12+45	0.0060	0.01	QV	|	|	|	|
12+50	0.0061	0.01	QV	|	|	|	|
12+55	0.0062	0.01	QV	|	|	|	|
13+ 0	0.0063	0.01	QV	|	|	|	|
13+ 5	0.0064	0.02	QV	|	|	|	|

13+10	0.0065	0.02	Q	V	|	|	|
13+15	0.0066	0.02	Q	V	|	|	|
13+20	0.0067	0.02	Q	V	|	|	|
13+25	0.0068	0.02	Q	V	|	|	|
13+30	0.0070	0.02	Q	V	|	|	|
13+35	0.0071	0.01	Q	V	|	|	|
13+40	0.0071	0.01	Q	V	|	|	|
13+45	0.0072	0.01	Q	V	|	|	|
13+50	0.0073	0.01	Q	V	|	|	|
13+55	0.0074	0.01	Q	V	|	|	|
14+ 0	0.0075	0.01	Q	V	|	|	|
14+ 5	0.0075	0.01	Q	V	|	|	|
14+10	0.0076	0.01	Q	V	|	|	|
14+15	0.0077	0.01	Q	V	|	|	|
14+20	0.0078	0.01	Q	V	|	|	|
14+25	0.0079	0.01	Q	V	|	|	|
14+30	0.0080	0.01	Q	V	|	|	|
14+35	0.0081	0.01	Q	V	|	|	|
14+40	0.0082	0.01	Q	V	|	|	|
14+45	0.0083	0.01	Q	V	|	|	|
14+50	0.0084	0.01	Q	V	|	|	|
14+55	0.0085	0.01	Q	V	|	|	|
15+ 0	0.0085	0.01	Q	V	|	|	|
15+ 5	0.0086	0.01	Q	V	|	|	|
15+10	0.0087	0.01	Q	V	|	|	|
15+15	0.0088	0.01	Q	V	|	|	|
15+20	0.0089	0.01	Q	V	|	|	|
15+25	0.0090	0.01	Q	V	|	|	|
15+30	0.0090	0.01	Q	V	|	|	|
15+35	0.0091	0.01	Q	V	|	|	|
15+40	0.0092	0.01	Q	V	|	|	|
15+45	0.0092	0.01	Q	V	|	|	|
15+50	0.0093	0.01	Q	V	|	|	|
15+55	0.0094	0.01	Q	V	|	|	|
16+ 0	0.0094	0.01	Q	V	|	|	|
16+ 5	0.0095	0.00	Q	V	|	|	|
16+10	0.0095	0.00	Q	V	|	|	|
16+15	0.0095	0.00	Q	V	|	|	|
16+20	0.0095	0.00	Q	V	|	|	|
16+25	0.0095	0.00	Q	V	|	|	|
16+30	0.0095	0.00	Q	V	|	|	|
16+35	0.0096	0.00	Q	V	|	|	|
16+40	0.0096	0.00	Q	V	|	|	|
16+45	0.0096	0.00	Q	V	|	|	|
16+50	0.0096	0.00	Q	V	|	|	|
16+55	0.0096	0.00	Q	V	|	|	|
17+ 0	0.0096	0.00	Q	V	|	|	|
17+ 5	0.0096	0.00	Q	V	|	|	|
17+10	0.0096	0.00	Q	V	|	|	|
17+15	0.0097	0.00	Q	V	|	|	|
17+20	0.0097	0.00	Q	V	|	|	|
17+25	0.0097	0.00	Q	V	|	|	|
17+30	0.0097	0.00	Q	V	|	|	|
17+35	0.0097	0.00	Q	V	|	|	|
17+40	0.0097	0.00	Q	V	|	|	|
17+45	0.0098	0.00	Q	V	|	|	|
17+50	0.0098	0.00	Q	V	|	|	|
17+55	0.0098	0.00	Q	V	|	|	|
18+ 0	0.0098	0.00	Q	V	|	|	|
18+ 5	0.0098	0.00	Q	V	|	|	|
18+10	0.0098	0.00	Q	V	|	|	|
18+15	0.0098	0.00	Q	V	|	|	|
18+20	0.0099	0.00	Q	V	|	|	|
18+25	0.0099	0.00	Q	V	|	|	|
18+30	0.0099	0.00	Q	V	|	|	|

18+35	0.0099	0.00	Q	V	|	|	|
18+40	0.0099	0.00	Q	V	|	|	|
18+45	0.0099	0.00	Q	V	|	|	|
18+50	0.0099	0.00	Q	V	|	|	|
18+55	0.0099	0.00	Q	V	|	|	|
19+ 0	0.0099	0.00	Q	V	|	|	|
19+ 5	0.0100	0.00	Q	V	|	|	|
19+10	0.0100	0.00	Q	V	|	|	|
19+15	0.0100	0.00	Q	V	|	|	|
19+20	0.0100	0.00	Q	V	|	|	|
19+25	0.0100	0.00	Q	V	|	|	|
19+30	0.0100	0.00	Q	V	|	|	|
19+35	0.0100	0.00	Q	V	|	|	|
19+40	0.0100	0.00	Q	V	|	|	|
19+45	0.0100	0.00	Q	V	|	|	|
19+50	0.0101	0.00	Q	V	|	|	|
19+55	0.0101	0.00	Q	V	|	|	|
20+ 0	0.0101	0.00	Q	V	|	|	|
20+ 5	0.0101	0.00	Q	V	|	|	|
20+10	0.0101	0.00	Q	V	|	|	|
20+15	0.0101	0.00	Q	V	|	|	|
20+20	0.0101	0.00	Q	V	|	|	|
20+25	0.0101	0.00	Q	V	|	|	|
20+30	0.0101	0.00	Q	V	|	|	|
20+35	0.0101	0.00	Q	V	|	|	|
20+40	0.0102	0.00	Q	V	|	|	|
20+45	0.0102	0.00	Q	V	|	|	|
20+50	0.0102	0.00	Q	V	|	|	|
20+55	0.0102	0.00	Q	V	|	|	|
21+ 0	0.0102	0.00	Q	V	|	|	|
21+ 5	0.0102	0.00	Q	V	|	|	|
21+10	0.0102	0.00	Q	V	|	|	|
21+15	0.0102	0.00	Q	V	|	|	|
21+20	0.0102	0.00	Q	V	|	|	|
21+25	0.0102	0.00	Q	V	|	|	|
21+30	0.0102	0.00	Q	V	|	|	|
21+35	0.0102	0.00	Q	V	|	|	|
21+40	0.0103	0.00	Q	V	|	|	|
21+45	0.0103	0.00	Q	V	|	|	|
21+50	0.0103	0.00	Q	V	|	|	|
21+55	0.0103	0.00	Q	V	|	|	|
22+ 0	0.0103	0.00	Q	V	|	|	|
22+ 5	0.0103	0.00	Q	V	|	|	|
22+10	0.0103	0.00	Q	V	|	|	|
22+15	0.0103	0.00	Q	V	|	|	|
22+20	0.0103	0.00	Q	V	|	|	|
22+25	0.0103	0.00	Q	V	|	|	|
22+30	0.0103	0.00	Q	V	|	|	|
22+35	0.0103	0.00	Q	V	|	|	|
22+40	0.0104	0.00	Q	V	|	|	|
22+45	0.0104	0.00	Q	V	|	|	|
22+50	0.0104	0.00	Q	V	|	|	|
22+55	0.0104	0.00	Q	V	|	|	|
23+ 0	0.0104	0.00	Q	V	|	|	|
23+ 5	0.0104	0.00	Q	V	|	|	|
23+10	0.0104	0.00	Q	V	|	|	|
23+15	0.0104	0.00	Q	V	|	|	|
23+20	0.0104	0.00	Q	V	|	|	|
23+25	0.0104	0.00	Q	V	|	|	|
23+30	0.0104	0.00	Q	V	|	|	|
23+35	0.0104	0.00	Q	V	|	|	|
23+40	0.0104	0.00	Q	V	|	|	|
23+45	0.0104	0.00	Q	V	|	|	|
23+50	0.0105	0.00	Q	V	|	|	|
23+55	0.0105	0.00	Q	V	|	|	|

24+ 0	0.0105	0.00	Q	V	|	|	|	|
24+ 5	0.0105	0.00	Q	V	|	|	|	|
24+10	0.0105	0.00	Q	V	|	|	|	|
24+15	0.0105	0.00	Q	V	|	|	|	|
24+20	0.0105	0.00	Q	V	|	|	|	|
24+25	0.0105	0.00	Q	V	|	|	|	|
24+30	0.0106	0.00	Q	V	|	|	|	|
24+35	0.0106	0.00	Q	V	|	|	|	|
24+40	0.0106	0.00	Q	V	|	|	|	|
24+45	0.0106	0.00	Q	V	|	|	|	|
24+50	0.0106	0.00	Q	V	|	|	|	|
24+55	0.0107	0.00	Q	V	|	|	|	|
25+ 0	0.0107	0.00	Q	V	|	|	|	|
25+ 5	0.0107	0.00	Q	V	|	|	|	|
25+10	0.0107	0.00	Q	V	|	|	|	|
25+15	0.0108	0.00	Q	V	|	|	|	|
25+20	0.0108	0.00	Q	V	|	|	|	|
25+25	0.0108	0.00	Q	V	|	|	|	|
25+30	0.0108	0.00	Q	V	|	|	|	|
25+35	0.0108	0.00	Q	V	|	|	|	|
25+40	0.0109	0.00	Q	V	|	|	|	|
25+45	0.0109	0.00	Q	V	|	|	|	|
25+50	0.0109	0.00	Q	V	|	|	|	|
25+55	0.0109	0.00	Q	V	|	|	|	|
26+ 0	0.0110	0.00	Q	V	|	|	|	|
26+ 5	0.0110	0.00	Q	V	|	|	|	|
26+10	0.0110	0.00	Q	V	|	|	|	|
26+15	0.0110	0.00	Q	V	|	|	|	|
26+20	0.0111	0.00	Q	V	|	|	|	|
26+25	0.0111	0.00	Q	V	|	|	|	|
26+30	0.0111	0.00	Q	V	|	|	|	|
26+35	0.0111	0.00	Q	V	|	|	|	|
26+40	0.0112	0.00	Q	V	|	|	|	|
26+45	0.0112	0.00	Q	V	|	|	|	|
26+50	0.0112	0.00	Q	V	|	|	|	|
26+55	0.0113	0.00	Q	V	|	|	|	|
27+ 0	0.0113	0.00	Q	V	|	|	|	|
27+ 5	0.0113	0.00	Q	V	|	|	|	|
27+10	0.0114	0.00	Q	V	|	|	|	|
27+15	0.0114	0.00	Q	V	|	|	|	|
27+20	0.0114	0.00	Q	V	|	|	|	|
27+25	0.0115	0.00	Q	V	|	|	|	|
27+30	0.0115	0.00	Q	V	|	|	|	|
27+35	0.0115	0.00	Q	V	|	|	|	|
27+40	0.0116	0.00	Q	V	|	|	|	|
27+45	0.0116	0.00	Q	V	|	|	|	|
27+50	0.0116	0.01	Q	V	|	|	|	|
27+55	0.0117	0.01	Q	V	|	|	|	|
28+ 0	0.0117	0.01	Q	V	|	|	|	|
28+ 5	0.0118	0.01	Q	V	|	|	|	|
28+10	0.0118	0.01	Q	V	|	|	|	|
28+15	0.0118	0.01	Q	V	|	|	|	|
28+20	0.0119	0.01	Q	V	|	|	|	|
28+25	0.0119	0.01	Q	V	|	|	|	|
28+30	0.0120	0.01	Q	V	|	|	|	|
28+35	0.0120	0.01	Q	V	|	|	|	|
28+40	0.0121	0.01	Q	V	|	|	|	|
28+45	0.0121	0.01	Q	V	|	|	|	|
28+50	0.0122	0.01	Q	V	|	|	|	|
28+55	0.0122	0.01	Q	V	|	|	|	|
29+ 0	0.0123	0.01	Q	V	|	|	|	|
29+ 5	0.0123	0.01	Q	V	|	|	|	|
29+10	0.0124	0.01	Q	V	|	|	|	|
29+15	0.0124	0.01	Q	V	|	|	|	|
29+20	0.0124	0.01	Q	V	|	|	|	|

29+25	0.0125	0.01	Q	V		
29+30	0.0125	0.01	Q	V		
29+35	0.0126	0.01	Q	V		
29+40	0.0126	0.01	Q	V		
29+45	0.0127	0.01	Q	V		
29+50	0.0127	0.01	Q	V		
29+55	0.0128	0.01	Q	V		
30+ 0	0.0128	0.01	Q	V		
30+ 5	0.0129	0.01	Q	V		
30+10	0.0130	0.01	Q	V		
30+15	0.0130	0.01	Q	V		
30+20	0.0131	0.01	Q	V		
30+25	0.0131	0.01	Q	V		
30+30	0.0132	0.01	Q	V		
30+35	0.0133	0.01	Q	V		
30+40	0.0133	0.01	Q	V		
30+45	0.0134	0.01	Q	V		
30+50	0.0135	0.01	Q	V		
30+55	0.0135	0.01	Q	V		
31+ 0	0.0136	0.01	Q	V		
31+ 5	0.0137	0.01	Q	V		
31+10	0.0137	0.01	Q	V		
31+15	0.0138	0.01	Q	V		
31+20	0.0139	0.01	Q	V		
31+25	0.0139	0.01	Q	V		
31+30	0.0140	0.01	Q	V		
31+35	0.0141	0.01	Q	V		
31+40	0.0142	0.01	Q	V		
31+45	0.0142	0.01	Q	V		
31+50	0.0143	0.01	Q	V		
31+55	0.0144	0.01	Q	V		
32+ 0	0.0145	0.01	Q	V		
32+ 5	0.0146	0.01	Q	V		
32+10	0.0147	0.01	Q	V		
32+15	0.0148	0.01	Q	V		
32+20	0.0149	0.01	Q	V		
32+25	0.0150	0.01	Q	V		
32+30	0.0151	0.01	Q	V		
32+35	0.0152	0.02	Q	V		
32+40	0.0153	0.02	Q	V		
32+45	0.0154	0.02	Q	V		
32+50	0.0155	0.02	Q	V		
32+55	0.0156	0.02	Q	V		
33+ 0	0.0157	0.02	Q	V		
33+ 5	0.0159	0.02	Q	V		
33+10	0.0160	0.02	Q	V		
33+15	0.0161	0.02	Q	V		
33+20	0.0162	0.02	Q	V		
33+25	0.0164	0.02	Q	V		
33+30	0.0165	0.02	Q	V		
33+35	0.0166	0.02	Q	V		
33+40	0.0168	0.02	Q	V		
33+45	0.0169	0.02	Q	V		
33+50	0.0171	0.02	Q	V		
33+55	0.0172	0.02	Q	V		
34+ 0	0.0174	0.02	Q	V		
34+ 5	0.0175	0.02	Q	V		
34+10	0.0176	0.01	Q	V		
34+15	0.0177	0.01	Q	V		
34+20	0.0178	0.01	Q	V		
34+25	0.0179	0.01	Q	V		
34+30	0.0180	0.01	Q	V		
34+35	0.0181	0.02	Q	V		
34+40	0.0182	0.02	Q	V		
34+45	0.0184	0.02	Q	V		

34+50	0.0185	0.02	Q	V	|	|	|	|
34+55	0.0186	0.02	Q	V	|	|	|	|
35+ 0	0.0188	0.02	Q	V	|	|	|	|
35+ 5	0.0189	0.02	Q	V	|	|	|	|
35+10	0.0190	0.02	Q	V	|	|	|	|
35+15	0.0191	0.02	Q	V	|	|	|	|
35+20	0.0193	0.02	Q	V	|	|	|	|
35+25	0.0194	0.02	Q	V	|	|	|	|
35+30	0.0195	0.02	Q	V	|	|	|	|
35+35	0.0196	0.02	Q	V	|	|	|	|
35+40	0.0197	0.02	Q	V	|	|	|	|
35+45	0.0199	0.02	Q	V	|	|	|	|
35+50	0.0200	0.02	Q	V	|	|	|	|
35+55	0.0201	0.02	Q	V	|	|	|	|
36+ 0	0.0202	0.02	Q	V	|	|	|	|
36+ 5	0.0204	0.02	Q	V	|	|	|	|
36+10	0.0205	0.02	Q	V	|	|	|	|
36+15	0.0207	0.02	Q	V	|	|	|	|
36+20	0.0209	0.02	Q	V	|	|	|	|
36+25	0.0210	0.02	Q	V	|	|	|	|
36+30	0.0212	0.02	Q	V	|	|	|	|
36+35	0.0214	0.03	Q	V	|	|	|	|
36+40	0.0216	0.03	Q	V	|	|	|	|
36+45	0.0217	0.03	Q	V	|	|	|	|
36+50	0.0219	0.03	Q	V	|	|	|	|
36+55	0.0221	0.03	Q	V	|	|	|	|
37+ 0	0.0223	0.03	Q	V	|	|	|	|
37+ 5	0.0225	0.03	Q	V	|	|	|	|
37+10	0.0228	0.03	Q	V	|	|	|	|
37+15	0.0230	0.03	Q	V	|	|	|	|
37+20	0.0232	0.03	Q	V	|	|	|	|
37+25	0.0234	0.03	Q	V	|	|	|	|
37+30	0.0237	0.03	Q	V	|	|	|	|
37+35	0.0238	0.03	Q	V	|	|	|	|
37+40	0.0240	0.02	Q	V	|	|	|	|
37+45	0.0241	0.02	Q	V	|	|	|	|
37+50	0.0243	0.02	Q	V	|	|	|	|
37+55	0.0244	0.02	Q	V	|	|	|	|
38+ 0	0.0246	0.02	Q	V	|	|	|	|
38+ 5	0.0248	0.02	Q	V	|	|	|	|
38+10	0.0249	0.03	Q	V	|	|	|	|
38+15	0.0251	0.03	Q	V	|	|	|	|
38+20	0.0253	0.03	Q	V	|	|	|	|
38+25	0.0255	0.02	Q	V	|	|	|	|
38+30	0.0256	0.02	Q	V	|	|	|	|
38+35	0.0258	0.02	Q	V	|	|	|	|
38+40	0.0260	0.02	Q	V	|	|	|	|
38+45	0.0262	0.02	Q	V	|	|	|	|
38+50	0.0263	0.02	Q	V	|	|	|	|
38+55	0.0265	0.02	Q	V	|	|	|	|
39+ 0	0.0267	0.02	Q	V	|	|	|	|
39+ 5	0.0268	0.02	Q	V	|	|	|	|
39+10	0.0270	0.02	Q	V	|	|	|	|
39+15	0.0271	0.02	Q	V	|	|	|	|
39+20	0.0273	0.02	Q	V	|	|	|	|
39+25	0.0274	0.02	Q	V	|	|	|	|
39+30	0.0276	0.02	Q	V	|	|	|	|
39+35	0.0277	0.02	Q	V	|	|	|	|
39+40	0.0279	0.02	Q	V	|	|	|	|
39+45	0.0280	0.02	Q	V	|	|	|	|
39+50	0.0281	0.02	Q	V	|	|	|	|
39+55	0.0282	0.02	Q	V	|	|	|	|
40+ 0	0.0284	0.02	Q	V	|	|	|	|
40+ 5	0.0284	0.01	Q	V	|	|	|	|
40+10	0.0284	0.00	Q	V	|	|	|	|

40+15	0.0285	0.00	Q	V	|	|	|	|
40+20	0.0285	0.00	Q	V	|	|	|	|
40+25	0.0285	0.00	Q	V	|	|	|	|
40+30	0.0285	0.00	Q	V	|	|	|	|
40+35	0.0286	0.00	Q	V	|	|	|	|
40+40	0.0286	0.00	Q	V	|	|	|	|
40+45	0.0286	0.00	Q	V	|	|	|	|
40+50	0.0286	0.00	Q	V	|	|	|	|
40+55	0.0287	0.00	Q	V	|	|	|	|
41+ 0	0.0287	0.00	Q	V	|	|	|	|
41+ 5	0.0287	0.00	Q	V	|	|	|	|
41+10	0.0287	0.00	Q	V	|	|	|	|
41+15	0.0288	0.00	Q	V	|	|	|	|
41+20	0.0288	0.00	Q	V	|	|	|	|
41+25	0.0288	0.00	Q	V	|	|	|	|
41+30	0.0289	0.00	Q	V	|	|	|	|
41+35	0.0289	0.00	Q	V	|	|	|	|
41+40	0.0289	0.00	Q	V	|	|	|	|
41+45	0.0290	0.00	Q	V	|	|	|	|
41+50	0.0290	0.00	Q	V	|	|	|	|
41+55	0.0290	0.00	Q	V	|	|	|	|
42+ 0	0.0290	0.00	Q	V	|	|	|	|
42+ 5	0.0291	0.00	Q	V	|	|	|	|
42+10	0.0291	0.00	Q	V	|	|	|	|
42+15	0.0291	0.00	Q	V	|	|	|	|
42+20	0.0292	0.00	Q	V	|	|	|	|
42+25	0.0292	0.00	Q	V	|	|	|	|
42+30	0.0292	0.00	Q	V	|	|	|	|
42+35	0.0292	0.00	Q	V	|	|	|	|
42+40	0.0292	0.00	Q	V	|	|	|	|
42+45	0.0293	0.00	Q	V	|	|	|	|
42+50	0.0293	0.00	Q	V	|	|	|	|
42+55	0.0293	0.00	Q	V	|	|	|	|
43+ 0	0.0293	0.00	Q	V	|	|	|	|
43+ 5	0.0293	0.00	Q	V	|	|	|	|
43+10	0.0293	0.00	Q	V	|	|	|	|
43+15	0.0294	0.00	Q	V	|	|	|	|
43+20	0.0294	0.00	Q	V	|	|	|	|
43+25	0.0294	0.00	Q	V	|	|	|	|
43+30	0.0294	0.00	Q	V	|	|	|	|
43+35	0.0295	0.00	Q	V	|	|	|	|
43+40	0.0295	0.00	Q	V	|	|	|	|
43+45	0.0295	0.00	Q	V	|	|	|	|
43+50	0.0295	0.00	Q	V	|	|	|	|
43+55	0.0295	0.00	Q	V	|	|	|	|
44+ 0	0.0295	0.00	Q	V	|	|	|	|
44+ 5	0.0296	0.00	Q	V	|	|	|	|
44+10	0.0296	0.00	Q	V	|	|	|	|
44+15	0.0296	0.00	Q	V	|	|	|	|
44+20	0.0296	0.00	Q	V	|	|	|	|
44+25	0.0296	0.00	Q	V	|	|	|	|
44+30	0.0297	0.00	Q	V	|	|	|	|
44+35	0.0297	0.00	Q	V	|	|	|	|
44+40	0.0297	0.00	Q	V	|	|	|	|
44+45	0.0297	0.00	Q	V	|	|	|	|
44+50	0.0297	0.00	Q	V	|	|	|	|
44+55	0.0298	0.00	Q	V	|	|	|	|
45+ 0	0.0298	0.00	Q	V	|	|	|	|
45+ 5	0.0298	0.00	Q	V	|	|	|	|
45+10	0.0298	0.00	Q	V	|	|	|	|
45+15	0.0298	0.00	Q	V	|	|	|	|
45+20	0.0298	0.00	Q	V	|	|	|	|
45+25	0.0298	0.00	Q	V	|	|	|	|
45+30	0.0299	0.00	Q	V	|	|	|	|
45+35	0.0299	0.00	Q	V	|	|	|	|

45+40	0.0299	0.00	Q	V	|	|	|	|
45+45	0.0299	0.00	Q	V	|	|	|	|
45+50	0.0299	0.00	Q	V	|	|	|	|
45+55	0.0299	0.00	Q	V	|	|	|	|
46+ 0	0.0300	0.00	Q	V	|	|	|	|
46+ 5	0.0300	0.00	Q	V	|	|	|	|
46+10	0.0300	0.00	Q	V	|	|	|	|
46+15	0.0300	0.00	Q	V	|	|	|	|
46+20	0.0300	0.00	Q	V	|	|	|	|
46+25	0.0300	0.00	Q	V	|	|	|	|
46+30	0.0301	0.00	Q	V	|	|	|	|
46+35	0.0301	0.00	Q	V	|	|	|	|
46+40	0.0301	0.00	Q	V	|	|	|	|
46+45	0.0301	0.00	Q	V	|	|	|	|
46+50	0.0301	0.00	Q	V	|	|	|	|
46+55	0.0301	0.00	Q	V	|	|	|	|
47+ 0	0.0301	0.00	Q	V	|	|	|	|
47+ 5	0.0302	0.00	Q	V	|	|	|	|
47+10	0.0302	0.00	Q	V	|	|	|	|
47+15	0.0302	0.00	Q	V	|	|	|	|
47+20	0.0302	0.00	Q	V	|	|	|	|
47+25	0.0302	0.00	Q	V	|	|	|	|
47+30	0.0302	0.00	Q	V	|	|	|	|
47+35	0.0302	0.00	Q	V	|	|	|	|
47+40	0.0302	0.00	Q	V	|	|	|	|
47+45	0.0303	0.00	Q	V	|	|	|	|
47+50	0.0303	0.00	Q	V	|	|	|	|
47+55	0.0303	0.00	Q	V	|	|	|	|
48+ 0	0.0303	0.00	Q	V	|	|	|	|
48+ 5	0.0303	0.00	Q	V	|	|	|	|
48+10	0.0304	0.01	Q	V	|	|	|	|
48+15	0.0304	0.01	Q	V	|	|	|	|
48+20	0.0304	0.01	Q	V	|	|	|	|
48+25	0.0305	0.01	Q	V	|	|	|	|
48+30	0.0306	0.01	Q	V	|	|	|	|
48+35	0.0306	0.01	Q	V	|	|	|	|
48+40	0.0307	0.01	Q	V	|	|	|	|
48+45	0.0307	0.01	Q	V	|	|	|	|
48+50	0.0308	0.01	Q	V	|	|	|	|
48+55	0.0309	0.01	Q	V	|	|	|	|
49+ 0	0.0309	0.01	Q	V	|	|	|	|
49+ 5	0.0310	0.01	Q	V	|	|	|	|
49+10	0.0311	0.01	Q	V	|	|	|	|
49+15	0.0311	0.01	Q	V	|	|	|	|
49+20	0.0312	0.01	Q	V	|	|	|	|
49+25	0.0312	0.01	Q	V	|	|	|	|
49+30	0.0313	0.01	Q	V	|	|	|	|
49+35	0.0313	0.01	Q	V	|	|	|	|
49+40	0.0314	0.01	Q	V	|	|	|	|
49+45	0.0314	0.01	Q	V	|	|	|	|
49+50	0.0315	0.01	Q	V	|	|	|	|
49+55	0.0316	0.01	Q	V	|	|	|	|
50+ 0	0.0317	0.01	Q	V	|	|	|	|
50+ 5	0.0317	0.01	Q	V	|	|	|	|
50+10	0.0318	0.01	Q	V	|	|	|	|
50+15	0.0319	0.01	Q	V	|	|	|	|
50+20	0.0319	0.01	Q	V	|	|	|	|
50+25	0.0320	0.01	Q	V	|	|	|	|
50+30	0.0321	0.01	Q	V	|	|	|	|
50+35	0.0322	0.01	Q	V	|	|	|	|
50+40	0.0323	0.01	Q	V	|	|	|	|
50+45	0.0324	0.01	Q	V	|	|	|	|
50+50	0.0325	0.01	Q	V	|	|	|	|
50+55	0.0325	0.01	Q	V	|	|	|	|
51+ 0	0.0326	0.01	Q	V	|	|	|	|

```
51+ 5     0.0327    0.01 Q     V |       |       |       |
51+10     0.0328    0.01 Q      V |      |       |       |
51+15     0.0329    0.01 Q      V |      |       |       |
51+20     0.0330    0.01 Q      V |      |       |       |
51+25     0.0331    0.01 Q      V |      |       |       |
51+30     0.0332    0.01 Q      V |      |       |       |
51+35     0.0333    0.01 Q      V |      |       |       |
51+40     0.0334    0.01 Q      V |      |       |       |
51+45     0.0335    0.01 Q      V |      |       |       |
51+50     0.0336    0.02 Q      V |      |       |       |
51+55     0.0337    0.02 Q      V |      |       |       |
52+ 0     0.0338    0.02 Q      V|       |       |       |
52+ 5     0.0339    0.02 Q      V|       |       |       |
52+10     0.0340    0.02 Q      V|       |       |       |
52+15     0.0341    0.02 Q      V|       |       |       |
52+20     0.0342    0.02 Q      V|       |       |       |
52+25     0.0344    0.02 Q      V|       |       |       |
52+30     0.0345    0.02 Q      V|       |       |       |
52+35     0.0346    0.02 Q      V|       |       |       |
52+40     0.0348    0.02 Q      V|       |       |       |
52+45     0.0349    0.02 Q      V|       |       |       |
52+50     0.0350    0.02 Q      V|       |       |       |
52+55     0.0352    0.02 Q      V|       |       |       |
53+ 0     0.0353    0.02 Q      V|       |       |       |
53+ 5     0.0354    0.02 Q      V|       |       |       |
53+10     0.0356    0.02 Q      V|       |       |       |
53+15     0.0357    0.02 Q      V|       |       |       |
53+20     0.0358    0.02 Q      V|       |       |       |
53+25     0.0359    0.02 Q      V|       |       |       |
53+30     0.0360    0.02 Q      V|       |       |       |
53+35     0.0362    0.02 Q      V|       |       |       |
53+40     0.0363    0.02 Q      V|       |       |       |
53+45     0.0365    0.02 Q      V|       |       |       |
53+50     0.0366    0.02 Q      V|       |       |       |
53+55     0.0368    0.02 Q      V|       |       |       |
54+ 0     0.0369    0.02 Q      V|       |       |       |
54+ 5     0.0371    0.02 Q      V|       |       |       |
54+10     0.0372    0.02 Q      V|       |       |       |
54+15     0.0374    0.02 Q      V|       |       |       |
54+20     0.0376    0.02 Q       V       |       |       |
54+25     0.0377    0.02 Q       V       |       |       |
54+30     0.0379    0.02 Q       V       |       |       |
54+35     0.0381    0.03 Q       V       |       |       |
54+40     0.0383    0.03 Q       V       |       |       |
54+45     0.0384    0.03 Q       V       |       |       |
54+50     0.0386    0.03 Q       V       |       |       |
54+55     0.0388    0.03 Q       V       |       |       |
55+ 0     0.0390    0.03 Q       V       |       |       |
55+ 5     0.0392    0.03 Q       V       |       |       |
55+10     0.0394    0.03 Q       V       |       |       |
55+15     0.0395    0.03 Q       V       |       |       |
55+20     0.0397    0.03 Q       V       |       |       |
55+25     0.0399    0.03 Q       V       |       |       |
55+30     0.0401    0.03 Q       V       |       |       |
55+35     0.0404    0.03 Q       V       |       |       |
55+40     0.0406    0.03 Q       V       |       |       |
55+45     0.0408    0.03 Q       V       |       |       |
55+50     0.0410    0.03 Q       V       |       |       |
55+55     0.0413    0.03 Q       |V      |       |       |
56+ 0     0.0415    0.03 Q       |V      |       |       |
56+ 5     0.0418    0.04 Q       |V      |       |       |
56+10     0.0421    0.04 Q       |V      |       |       |
56+15     0.0423    0.04 Q       |V      |       |       |
56+20     0.0426    0.04 Q       |V      |       |       |
56+25     0.0429    0.04 Q       |V      |       |       |
```

```
56+30    0.0432    0.04  Q      |V      |       |       |
56+35    0.0434    0.04  Q      |V      |       |       |
56+40    0.0437    0.04  Q      |V      |       |       |
56+45    0.0440    0.04  Q      |V      |       |       |
56+50    0.0442    0.02  Q      |V      |       |       |
56+55    0.0442    0.01  Q      |V      |       |       |
57+ 0    0.0443    0.01  Q      |V      |       |       |
57+ 5    0.0446    0.04  Q      |V      |       |       |
57+10    0.0449    0.05  Q      | V     |       |       |
57+15    0.0453    0.05  Q      | V     |       |       |
57+20    0.0457    0.07  Q      | V     |       |       |
57+25    0.0462    0.07  Q      | V     |       |       |
57+30    0.0468    0.07  Q      | V     |       |       |
57+35    0.0474    0.09  Q      | V     |       |       |
57+40    0.0480    0.10  Q      | V     |       |       |
57+45    0.0487    0.10  Q      |  V    |       |       |
57+50    0.0494    0.11  Q      |  V    |       |       |
57+55    0.0503    0.12  Q      |  V    |       |       |
58+ 0    0.0511    0.12  Q      |  V    |       |       |
58+ 5    0.0515    0.07  Q      |  V    |       |       |
58+10    0.0518    0.04  Q      |  V    |       |       |
58+15    0.0521    0.04  Q      |  V    |       |       |
58+20    0.0524    0.04  Q      |  V    |       |       |
58+25    0.0526    0.04  Q      |   V   |       |       |
58+30    0.0527    0.01  Q      |   V   |       |       |
58+35    0.0532    0.06  Q      |   V   |       |       |
58+40    0.0538    0.09  Q      |   V   |       |       |
58+45    0.0545    0.09  Q      |   V   |       |       |
58+50    0.0551    0.10  Q      |   V   |       |       |
58+55    0.0558    0.10  Q      |   V   |       |       |
59+ 0    0.0565    0.10  Q      |   V   |       |       |
59+ 5    0.0571    0.09  Q      |   V   |       |       |
59+10    0.0576    0.08  Q      |   V   |       |       |
59+15    0.0582    0.08  Q      |   V   |       |       |
59+20    0.0588    0.09  Q      |   V   |       |       |
59+25    0.0594    0.09  Q      |   V   |       |       |
59+30    0.0600    0.09  Q      |    V  |       |       |
59+35    0.0605    0.07  Q      |    V  |       |       |
59+40    0.0609    0.05  Q      |    V  |       |       |
59+45    0.0612    0.06  Q      |    V  |       |       |
59+50    0.0617    0.07  Q      |    V  |       |       |
59+55    0.0622    0.08  Q      |    V  |       |       |
60+ 0    0.0628    0.08  Q      |    V  |       |       |
60+ 5    0.0639    0.16  Q      |    V  |       |       |
60+10    0.0653    0.21  Q      |     V |       |       |
60+15    0.0668    0.21  Q      |     V |       |       |
60+20    0.0683    0.22  Q      |     V |       |       |
60+25    0.0699    0.23  Q      |     V |       |       |
60+30    0.0715    0.23  Q      |      V|       |       |
60+35    0.0732    0.26  |Q     |      V|       |       |
60+40    0.0751    0.27  |Q     |       V       |       |
60+45    0.0769    0.27  |Q     |       V       |       |
60+50    0.0789    0.28  |Q     |       |V      |       |
60+55    0.0809    0.29  |Q     |       |V      |       |
61+ 0    0.0829    0.29  |Q     |       | V     |       |
61+ 5    0.0853    0.35  |Q     |       | V     |       |
61+10    0.0880    0.39  |Q     |       |  V    |       |
61+15    0.0906    0.39  |Q     |       |  V    |       |
61+20    0.0933    0.39  |Q     |       |  V    |       |
61+25    0.0960    0.39  |Q     |       |   V   |       |
61+30    0.0987    0.39  |Q     |       |    V  |       |
61+35    0.1005    0.26  |Q     |       |    V  |       |
61+40    0.1018    0.19  Q      |       |    V  |       |
61+45    0.1031    0.19  Q      |       |    V  |       |
61+50    0.1045    0.19  Q      |       |    V  |       |
```

```
61+55    0.1058    0.20 Q      |      |     V |      |
62+ 0    0.1072    0.20 Q      |      |     V |      |
62+ 5    0.1089    0.25 Q      |      |     V|      |
62+10    0.1108    0.27 |Q     |      |     V|      |
62+15    0.1126    0.27 |Q     |      |      V      |
62+20    0.1144    0.26 |Q     |      |      V      |
62+25    0.1162    0.26 |Q     |      |      |V     |
62+30    0.1180    0.26 |Q     |      |      |V     |
62+35    0.1198    0.26 |Q     |      |      | V    |
62+40    0.1216    0.26 |Q     |      |      | V    |
62+45    0.1234    0.26 |Q     |      |      | V    |
62+50    0.1251    0.25 |Q     |      |      |  V   |
62+55    0.1268    0.25 Q      |      |      |  V   |
63+ 0    0.1285    0.25 Q      |      |      |  V   |
63+ 5    0.1301    0.24 Q      |      |      |  V   |
63+10    0.1317    0.23 Q      |      |      |   V  |
63+15    0.1333    0.23 Q      |      |      |   V  |
63+20    0.1348    0.22 Q      |      |      |   V  |
63+25    0.1363    0.22 Q      |      |      |   V  |
63+30    0.1378    0.22 Q      |      |      |   V  |
63+35    0.1390    0.17 Q      |      |      |    V |
63+40    0.1400    0.15 Q      |      |      |    V |
63+45    0.1410    0.15 Q      |      |      |    V |
63+50    0.1420    0.15 Q      |      |      |    V |
63+55    0.1430    0.15 Q      |      |      |    V |
64+ 0    0.1441    0.15 Q      |      |      |    V |
64+ 5    0.1445    0.06 Q      |      |      |    V |
64+10    0.1446    0.01 Q      |      |      |    V |
64+15    0.1446    0.01 Q      |      |      |    V |
64+20    0.1447    0.01 Q      |      |      |    V |
64+25    0.1448    0.01 Q      |      |      |    V |
64+30    0.1449    0.01 Q      |      |      |    V |
64+35    0.1449    0.01 Q      |      |      |    V |
64+40    0.1450    0.01 Q      |      |      |    V |
64+45    0.1450    0.01 Q      |      |      |    V |
64+50    0.1451    0.01 Q      |      |      |    V |
64+55    0.1451    0.01 Q      |      |      |    V |
65+ 0    0.1452    0.01 Q      |      |      |    V |
65+ 5    0.1453    0.01 Q      |      |      |    V |
65+10    0.1454    0.01 Q      |      |      |    V |
65+15    0.1455    0.01 Q      |      |      |    V |
65+20    0.1455    0.01 Q      |      |      |    V |
65+25    0.1456    0.01 Q      |      |      |    V |
65+30    0.1457    0.01 Q      |      |      |    V |
65+35    0.1458    0.01 Q      |      |      |    V |
65+40    0.1459    0.01 Q      |      |      |    V |
65+45    0.1460    0.01 Q      |      |      |    V|
65+50    0.1461    0.01 Q      |      |      |    V|
65+55    0.1462    0.01 Q      |      |      |    V|
66+ 0    0.1462    0.01 Q      |      |      |    V|
66+ 5    0.1463    0.01 Q      |      |      |    V|
66+10    0.1464    0.01 Q      |      |      |    V|
66+15    0.1464    0.01 Q      |      |      |    V|
66+20    0.1465    0.01 Q      |      |      |    V|
66+25    0.1466    0.01 Q      |      |      |    V|
66+30    0.1467    0.01 Q      |      |      |    V|
66+35    0.1467    0.01 Q      |      |      |    V|
66+40    0.1468    0.01 Q      |      |      |    V|
66+45    0.1468    0.01 Q      |      |      |    V|
66+50    0.1469    0.01 Q      |      |      |    V|
66+55    0.1469    0.01 Q      |      |      |    V|
67+ 0    0.1470    0.01 Q      |      |      |    V|
67+ 5    0.1470    0.01 Q      |      |      |    V|
67+10    0.1471    0.01 Q      |      |      |    V|
67+15    0.1471    0.01 Q      |      |      |    V|
```

```
 67+20     0.1472     0.01 Q      |      |      |      V|
 67+25     0.1473     0.01 Q      |      |      |      V|
 67+30     0.1473     0.01 Q      |      |      |      V|
 67+35     0.1474     0.01 Q      |      |      |      V|
 67+40     0.1474     0.01 Q      |      |      |      V|
 67+45     0.1475     0.01 Q      |      |      |      V|
 67+50     0.1475     0.01 Q      |      |      |      V|
 67+55     0.1476     0.01 Q      |      |      |      V|
 68+ 0     0.1476     0.01 Q      |      |      |      V|
 68+ 5     0.1477     0.01 Q      |      |      |      V|
 68+10     0.1477     0.01 Q      |      |      |      V|
 68+15     0.1478     0.01 Q      |      |      |      V|
 68+20     0.1478     0.01 Q      |      |      |      V|
 68+25     0.1479     0.01 Q      |      |      |      V|
 68+30     0.1479     0.01 Q      |      |      |      V|
 68+35     0.1480     0.01 Q      |      |      |      V|
 68+40     0.1481     0.01 Q      |      |      |      V|
 68+45     0.1481     0.01 Q      |      |      |      V|
 68+50     0.1482     0.01 Q      |      |      |      V|
 68+55     0.1482     0.01 Q      |      |      |      V|
 69+ 0     0.1482     0.01 Q      |      |      |      V|
 69+ 5     0.1483     0.01 Q      |      |      |      V|
 69+10     0.1483     0.01 Q      |      |      |      V|
 69+15     0.1484     0.01 Q      |      |      |      V|
 69+20     0.1484     0.01 Q      |      |      |      V|
 69+25     0.1485     0.01 Q      |      |      |      V|
 69+30     0.1485     0.01 Q      |      |      |      V|
 69+35     0.1485     0.01 Q      |      |      |      V|
 69+40     0.1486     0.01 Q      |      |      |      V|
 69+45     0.1487     0.01 Q      |      |      |      V|
 69+50     0.1487     0.01 Q      |      |      |      V|
 69+55     0.1487     0.01 Q      |      |      |      V|
 70+ 0     0.1488     0.01 Q      |      |      |      V|
 70+ 5     0.1488     0.01 Q      |      |      |      V|
 70+10     0.1489     0.01 Q      |      |      |      V|
 70+15     0.1489     0.01 Q      |      |      |      V|
 70+20     0.1490     0.01 Q      |      |      |      V|
 70+25     0.1490     0.01 Q      |      |      |      V|
 70+30     0.1491     0.01 Q      |      |      |      V|
 70+35     0.1491     0.01 Q      |      |      |      V|
 70+40     0.1491     0.01 Q      |      |      |      V|
 70+45     0.1492     0.01 Q      |      |      |      V|
 70+50     0.1492     0.01 Q      |      |      |      V|
 70+55     0.1492     0.01 Q      |      |      |      V|
 71+ 0     0.1493     0.01 Q      |      |      |      V|
 71+ 5     0.1493     0.01 Q      |      |      |      V|
 71+10     0.1493     0.01 Q      |      |      |      V|
 71+15     0.1494     0.01 Q      |      |      |      V|
 71+20     0.1494     0.01 Q      |      |      |      V|
 71+25     0.1495     0.01 Q      |      |      |      V|
 71+30     0.1495     0.01 Q      |      |      |      V|
 71+35     0.1495     0.01 Q      |      |      |      V|
 71+40     0.1496     0.01 Q      |      |      |      V|
 71+45     0.1496     0.01 Q      |      |      |      V|
 71+50     0.1496     0.01 Q      |      |      |      V|
 71+55     0.1497     0.01 Q      |      |      |      V|
 72+ 0     0.1497     0.01 Q      |      |      |      V|
 72+ 5     0.1497     0.00 Q      |      |      |      V
--------------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 1999, Version 6.0
Study date 09/23/20 File: APRE2YR2410.out

++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

28771 Central Avenue Gas Station
Area A
Pre-development
24-Hr 10-Yr Storm Event

Drainage Area = 1.32(Ac.) = 0.002 Sq. Mi.
Length along longest watercourse = 408.00(Ft.)
Length along longest watercourse measured to centroid = 87.50(Ft.)
Length along longest watercourse = 0.077 Mi.
Length along longest watercourse measured to centroid = 0.017 Mi.
Difference in elevation = 16.34(Ft.)
Slope along watercourse = 211.4588 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.021 Hr.
Lag time = 1.24 Min.
25% of lag time = 0.31 Min.
40% of lag time = 0.50 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.32	2.43	3.22

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
1.32	6.58	8.71

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 2.430(In)
Area Averaged 100-Year Rainfall = 6.580(In)

Point rain (area averaged) = 4.137(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 4.137(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
1.324	83.00	0.059

Total Area Entered = 1.32(Ac.)

RI AMC2	RI AMC-2	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
83.0	83.0	0.210	0.059	0.199	1.000	0.199

Sum (F) = 0.199

Area averaged mean soil loss (F) (In/Hr) = 0.199

Minimum soil loss rate ((In/Hr)) = 0.099

(for 24 hour storm duration)

Soil low loss rate (decimal) = 0.853

U n i t H y d r o g r a p h

DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Graph %	Distribution (CFS)	Unit Hydrograph
1	0.083	402.223	65.137	0.869
2	0.167	804.446	34.863	0.465

Sum = 100.000 Sum= 1.334

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1 0.08	0.07	0.033	0.352	0.028	0.00
2 0.17	0.07	0.033	0.351	0.028	0.00
3 0.25	0.07	0.033	0.349	0.028	0.00
4 0.33	0.10	0.050	0.348	0.042	0.01
5 0.42	0.10	0.050	0.347	0.042	0.01
6 0.50	0.10	0.050	0.345	0.042	0.01
7 0.58	0.10	0.050	0.344	0.042	0.01
8 0.67	0.10	0.050	0.343	0.042	0.01
9 0.75	0.10	0.050	0.341	0.042	0.01
10 0.83	0.13	0.066	0.340	0.056	0.01
11 0.92	0.13	0.066	0.339	0.056	0.01
12 1.00	0.13	0.066	0.337	0.056	0.01
13 1.08	0.10	0.050	0.336	0.042	0.01
14 1.17	0.10	0.050	0.335	0.042	0.01
15 1.25	0.10	0.050	0.333	0.042	0.01
16 1.33	0.10	0.050	0.332	0.042	0.01
17 1.42	0.10	0.050	0.331	0.042	0.01
18 1.50	0.10	0.050	0.329	0.042	0.01
19 1.58	0.10	0.050	0.328	0.042	0.01
20 1.67	0.10	0.050	0.327	0.042	0.01
21 1.75	0.10	0.050	0.325	0.042	0.01
22 1.83	0.13	0.066	0.324	0.056	0.01
23 1.92	0.13	0.066	0.323	0.056	0.01
24 2.00	0.13	0.066	0.322	0.056	0.01
25 2.08	0.13	0.066	0.320	0.056	0.01
26 2.17	0.13	0.066	0.319	0.056	0.01
27 2.25	0.13	0.066	0.318	0.056	0.01
28 2.33	0.13	0.066	0.316	0.056	0.01
29 2.42	0.13	0.066	0.315	0.056	0.01
30 2.50	0.13	0.066	0.314	0.056	0.01
31 2.58	0.17	0.083	0.312	0.071	0.01
32 2.67	0.17	0.083	0.311	0.071	0.01
33 2.75	0.17	0.083	0.310	0.071	0.01

34	2.83	0.17	0.083	0.309	0.071	0.01
35	2.92	0.17	0.083	0.307	0.071	0.01
36	3.00	0.17	0.083	0.306	0.071	0.01
37	3.08	0.17	0.083	0.305	0.071	0.01
38	3.17	0.17	0.083	0.304	0.071	0.01
39	3.25	0.17	0.083	0.302	0.071	0.01
40	3.33	0.17	0.083	0.301	0.071	0.01
41	3.42	0.17	0.083	0.300	0.071	0.01
42	3.50	0.17	0.083	0.299	0.071	0.01
43	3.58	0.17	0.083	0.297	0.071	0.01
44	3.67	0.17	0.083	0.296	0.071	0.01
45	3.75	0.17	0.083	0.295	0.071	0.01
46	3.83	0.20	0.099	0.294	0.085	0.01
47	3.92	0.20	0.099	0.292	0.085	0.01
48	4.00	0.20	0.099	0.291	0.085	0.01
49	4.08	0.20	0.099	0.290	0.085	0.01
50	4.17	0.20	0.099	0.289	0.085	0.01
51	4.25	0.20	0.099	0.287	0.085	0.01
52	4.33	0.23	0.116	0.286	0.099	0.02
53	4.42	0.23	0.116	0.285	0.099	0.02
54	4.50	0.23	0.116	0.284	0.099	0.02
55	4.58	0.23	0.116	0.282	0.099	0.02
56	4.67	0.23	0.116	0.281	0.099	0.02
57	4.75	0.23	0.116	0.280	0.099	0.02
58	4.83	0.27	0.132	0.279	0.113	0.02
59	4.92	0.27	0.132	0.278	0.113	0.02
60	5.00	0.27	0.132	0.276	0.113	0.02
61	5.08	0.20	0.099	0.275	0.085	0.01
62	5.17	0.20	0.099	0.274	0.085	0.01
63	5.25	0.20	0.099	0.273	0.085	0.01
64	5.33	0.23	0.116	0.272	0.099	0.02
65	5.42	0.23	0.116	0.270	0.099	0.02
66	5.50	0.23	0.116	0.269	0.099	0.02
67	5.58	0.27	0.132	0.268	0.113	0.02
68	5.67	0.27	0.132	0.267	0.113	0.02
69	5.75	0.27	0.132	0.266	0.113	0.02
70	5.83	0.27	0.132	0.265	0.113	0.02
71	5.92	0.27	0.132	0.263	0.113	0.02
72	6.00	0.27	0.132	0.262	0.113	0.02
73	6.08	0.30	0.149	0.261	0.127	0.02
74	6.17	0.30	0.149	0.260	0.127	0.02
75	6.25	0.30	0.149	0.259	0.127	0.02
76	6.33	0.30	0.149	0.258	0.127	0.02
77	6.42	0.30	0.149	0.256	0.127	0.02
78	6.50	0.30	0.149	0.255	0.127	0.02
79	6.58	0.33	0.165	0.254	0.141	0.02
80	6.67	0.33	0.165	0.253	0.141	0.02
81	6.75	0.33	0.165	0.252	0.141	0.02
82	6.83	0.33	0.165	0.251	0.141	0.02
83	6.92	0.33	0.165	0.250	0.141	0.02
84	7.00	0.33	0.165	0.248	0.141	0.02
85	7.08	0.33	0.165	0.247	0.141	0.02
86	7.17	0.33	0.165	0.246	0.141	0.02
87	7.25	0.33	0.165	0.245	0.141	0.02
88	7.33	0.37	0.182	0.244	0.155	0.03
89	7.42	0.37	0.182	0.243	0.155	0.03
90	7.50	0.37	0.182	0.242	0.155	0.03
91	7.58	0.40	0.199	0.241	0.169	0.03
92	7.67	0.40	0.199	0.240	0.169	0.03
93	7.75	0.40	0.199	0.238	0.169	0.03
94	7.83	0.43	0.215	0.237	0.184	0.03
95	7.92	0.43	0.215	0.236	0.184	0.03
96	8.00	0.43	0.215	0.235	0.184	0.03
97	8.08	0.50	0.248	0.234	---	0.01
98	8.17	0.50	0.248	0.233	---	0.02

99	8.25	0.50	0.248	0.232	---	0.02
100	8.33	0.50	0.248	0.231	---	0.02
101	8.42	0.50	0.248	0.230	---	0.02
102	8.50	0.50	0.248	0.229	---	0.02
103	8.58	0.53	0.265	0.228	---	0.04
104	8.67	0.53	0.265	0.226	---	0.04
105	8.75	0.53	0.265	0.225	---	0.04
106	8.83	0.57	0.281	0.224	---	0.06
107	8.92	0.57	0.281	0.223	---	0.06
108	9.00	0.57	0.281	0.222	---	0.06
109	9.08	0.63	0.314	0.221	---	0.09
110	9.17	0.63	0.314	0.220	---	0.09
111	9.25	0.63	0.314	0.219	---	0.10
112	9.33	0.67	0.331	0.218	---	0.11
113	9.42	0.67	0.331	0.217	---	0.11
114	9.50	0.67	0.331	0.216	---	0.12
115	9.58	0.70	0.348	0.215	---	0.13
116	9.67	0.70	0.348	0.214	---	0.13
117	9.75	0.70	0.348	0.213	---	0.13
118	9.83	0.73	0.364	0.212	---	0.15
119	9.92	0.73	0.364	0.211	---	0.15
120	10.00	0.73	0.364	0.210	---	0.15
121	10.08	0.50	0.248	0.209	---	0.04
122	10.17	0.50	0.248	0.208	---	0.04
123	10.25	0.50	0.248	0.207	---	0.04
124	10.33	0.50	0.248	0.206	---	0.04
125	10.42	0.50	0.248	0.205	---	0.04
126	10.50	0.50	0.248	0.204	---	0.04
127	10.58	0.67	0.331	0.203	---	0.13
128	10.67	0.67	0.331	0.202	---	0.13
129	10.75	0.67	0.331	0.201	---	0.13
130	10.83	0.67	0.331	0.200	---	0.13
131	10.92	0.67	0.331	0.199	---	0.13
132	11.00	0.67	0.331	0.198	---	0.13
133	11.08	0.63	0.314	0.197	---	0.12
134	11.17	0.63	0.314	0.196	---	0.12
135	11.25	0.63	0.314	0.195	---	0.12
136	11.33	0.63	0.314	0.194	---	0.12
137	11.42	0.63	0.314	0.193	---	0.12
138	11.50	0.63	0.314	0.192	---	0.12
139	11.58	0.57	0.281	0.191	---	0.09
140	11.67	0.57	0.281	0.190	---	0.09
141	11.75	0.57	0.281	0.189	---	0.09
142	11.83	0.60	0.298	0.188	---	0.11
143	11.92	0.60	0.298	0.187	---	0.11
144	12.00	0.60	0.298	0.186	---	0.11
145	12.08	0.83	0.414	0.185	---	0.23
146	12.17	0.83	0.414	0.185	---	0.23
147	12.25	0.83	0.414	0.184	---	0.23
148	12.33	0.87	0.430	0.183	---	0.25
149	12.42	0.87	0.430	0.182	---	0.25
150	12.50	0.87	0.430	0.181	---	0.25
151	12.58	0.93	0.463	0.180	---	0.28
152	12.67	0.93	0.463	0.179	---	0.28
153	12.75	0.93	0.463	0.178	---	0.29
154	12.83	0.97	0.480	0.177	---	0.30
155	12.92	0.97	0.480	0.176	---	0.30
156	13.00	0.97	0.480	0.175	---	0.30
157	13.08	1.13	0.563	0.175	---	0.39
158	13.17	1.13	0.563	0.174	---	0.39
159	13.25	1.13	0.563	0.173	---	0.39
160	13.33	1.13	0.563	0.172	---	0.39
161	13.42	1.13	0.563	0.171	---	0.39
162	13.50	1.13	0.563	0.170	---	0.39
163	13.58	0.77	0.381	0.169	---	0.21

164	13.67	0.77	0.381	0.168	---	0.21
165	13.75	0.77	0.381	0.168	---	0.21
166	13.83	0.77	0.381	0.167	---	0.21
167	13.92	0.77	0.381	0.166	---	0.21
168	14.00	0.77	0.381	0.165	---	0.22
169	14.08	0.90	0.447	0.164	---	0.28
170	14.17	0.90	0.447	0.163	---	0.28
171	14.25	0.90	0.447	0.163	---	0.28
172	14.33	0.87	0.430	0.162	---	0.27
173	14.42	0.87	0.430	0.161	---	0.27
174	14.50	0.87	0.430	0.160	---	0.27
175	14.58	0.87	0.430	0.159	---	0.27
176	14.67	0.87	0.430	0.158	---	0.27
177	14.75	0.87	0.430	0.158	---	0.27
178	14.83	0.83	0.414	0.157	---	0.26
179	14.92	0.83	0.414	0.156	---	0.26
180	15.00	0.83	0.414	0.155	---	0.26
181	15.08	0.80	0.397	0.154	---	0.24
182	15.17	0.80	0.397	0.154	---	0.24
183	15.25	0.80	0.397	0.153	---	0.24
184	15.33	0.77	0.381	0.152	---	0.23
185	15.42	0.77	0.381	0.151	---	0.23
186	15.50	0.77	0.381	0.150	---	0.23
187	15.58	0.63	0.314	0.150	---	0.16
188	15.67	0.63	0.314	0.149	---	0.17
189	15.75	0.63	0.314	0.148	---	0.17
190	15.83	0.63	0.314	0.147	---	0.17
191	15.92	0.63	0.314	0.147	---	0.17
192	16.00	0.63	0.314	0.146	---	0.17
193	16.08	0.13	0.066	0.145	0.056	0.01
194	16.17	0.13	0.066	0.144	0.056	0.01
195	16.25	0.13	0.066	0.144	0.056	0.01
196	16.33	0.13	0.066	0.143	0.056	0.01
197	16.42	0.13	0.066	0.142	0.056	0.01
198	16.50	0.13	0.066	0.141	0.056	0.01
199	16.58	0.10	0.050	0.141	0.042	0.01
200	16.67	0.10	0.050	0.140	0.042	0.01
201	16.75	0.10	0.050	0.139	0.042	0.01
202	16.83	0.10	0.050	0.139	0.042	0.01
203	16.92	0.10	0.050	0.138	0.042	0.01
204	17.00	0.10	0.050	0.137	0.042	0.01
205	17.08	0.17	0.083	0.137	0.071	0.01
206	17.17	0.17	0.083	0.136	0.071	0.01
207	17.25	0.17	0.083	0.135	0.071	0.01
208	17.33	0.17	0.083	0.134	0.071	0.01
209	17.42	0.17	0.083	0.134	0.071	0.01
210	17.50	0.17	0.083	0.133	0.071	0.01
211	17.58	0.17	0.083	0.132	0.071	0.01
212	17.67	0.17	0.083	0.132	0.071	0.01
213	17.75	0.17	0.083	0.131	0.071	0.01
214	17.83	0.13	0.066	0.131	0.056	0.01
215	17.92	0.13	0.066	0.130	0.056	0.01
216	18.00	0.13	0.066	0.129	0.056	0.01
217	18.08	0.13	0.066	0.129	0.056	0.01
218	18.17	0.13	0.066	0.128	0.056	0.01
219	18.25	0.13	0.066	0.127	0.056	0.01
220	18.33	0.13	0.066	0.127	0.056	0.01
221	18.42	0.13	0.066	0.126	0.056	0.01
222	18.50	0.13	0.066	0.125	0.056	0.01
223	18.58	0.10	0.050	0.125	0.042	0.01
224	18.67	0.10	0.050	0.124	0.042	0.01
225	18.75	0.10	0.050	0.124	0.042	0.01
226	18.83	0.07	0.033	0.123	0.028	0.00
227	18.92	0.07	0.033	0.122	0.028	0.00
228	19.00	0.07	0.033	0.122	0.028	0.00

229	19.08	0.10	0.050	0.121	0.042	0.01
230	19.17	0.10	0.050	0.121	0.042	0.01
231	19.25	0.10	0.050	0.120	0.042	0.01
232	19.33	0.13	0.066	0.120	0.056	0.01
233	19.42	0.13	0.066	0.119	0.056	0.01
234	19.50	0.13	0.066	0.119	0.056	0.01
235	19.58	0.10	0.050	0.118	0.042	0.01
236	19.67	0.10	0.050	0.117	0.042	0.01
237	19.75	0.10	0.050	0.117	0.042	0.01
238	19.83	0.07	0.033	0.116	0.028	0.00
239	19.92	0.07	0.033	0.116	0.028	0.00
240	20.00	0.07	0.033	0.115	0.028	0.00
241	20.08	0.10	0.050	0.115	0.042	0.01
242	20.17	0.10	0.050	0.114	0.042	0.01
243	20.25	0.10	0.050	0.114	0.042	0.01
244	20.33	0.10	0.050	0.113	0.042	0.01
245	20.42	0.10	0.050	0.113	0.042	0.01
246	20.50	0.10	0.050	0.112	0.042	0.01
247	20.58	0.10	0.050	0.112	0.042	0.01
248	20.67	0.10	0.050	0.111	0.042	0.01
249	20.75	0.10	0.050	0.111	0.042	0.01
250	20.83	0.07	0.033	0.111	0.028	0.00
251	20.92	0.07	0.033	0.110	0.028	0.00
252	21.00	0.07	0.033	0.110	0.028	0.00
253	21.08	0.10	0.050	0.109	0.042	0.01
254	21.17	0.10	0.050	0.109	0.042	0.01
255	21.25	0.10	0.050	0.108	0.042	0.01
256	21.33	0.07	0.033	0.108	0.028	0.00
257	21.42	0.07	0.033	0.108	0.028	0.00
258	21.50	0.07	0.033	0.107	0.028	0.00
259	21.58	0.10	0.050	0.107	0.042	0.01
260	21.67	0.10	0.050	0.106	0.042	0.01
261	21.75	0.10	0.050	0.106	0.042	0.01
262	21.83	0.07	0.033	0.106	0.028	0.00
263	21.92	0.07	0.033	0.105	0.028	0.00
264	22.00	0.07	0.033	0.105	0.028	0.00
265	22.08	0.10	0.050	0.105	0.042	0.01
266	22.17	0.10	0.050	0.104	0.042	0.01
267	22.25	0.10	0.050	0.104	0.042	0.01
268	22.33	0.07	0.033	0.104	0.028	0.00
269	22.42	0.07	0.033	0.103	0.028	0.00
270	22.50	0.07	0.033	0.103	0.028	0.00
271	22.58	0.07	0.033	0.103	0.028	0.00
272	22.67	0.07	0.033	0.102	0.028	0.00
273	22.75	0.07	0.033	0.102	0.028	0.00
274	22.83	0.07	0.033	0.102	0.028	0.00
275	22.92	0.07	0.033	0.102	0.028	0.00
276	23.00	0.07	0.033	0.101	0.028	0.00
277	23.08	0.07	0.033	0.101	0.028	0.00
278	23.17	0.07	0.033	0.101	0.028	0.00
279	23.25	0.07	0.033	0.101	0.028	0.00
280	23.33	0.07	0.033	0.100	0.028	0.00
281	23.42	0.07	0.033	0.100	0.028	0.00
282	23.50	0.07	0.033	0.100	0.028	0.00
283	23.58	0.07	0.033	0.100	0.028	0.00
284	23.67	0.07	0.033	0.100	0.028	0.00
285	23.75	0.07	0.033	0.100	0.028	0.00
286	23.83	0.07	0.033	0.099	0.028	0.00
287	23.92	0.07	0.033	0.099	0.028	0.00
288	24.00	0.07	0.033	0.099	0.028	0.00
Sum =		100.0		Sum =		18.9

Flood volume = Effective rainfall 1.58(In)
times area 1.3(Ac.)/[(In)/(Ft.)] = 0.2(Ac.Ft)
Total soil loss = 2.56(In)
Total soil loss = 0.283(Ac.Ft)

Total rainfall = 4.14(In)
Flood volume = 7577.1 Cubic Feet
Total soil loss = 12307.4 Cubic Feet

Peak flow rate of this hydrograph = 0.524(CFS)

++

24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0000	0.00	Q				
0+10	0.0001	0.01	Q				
0+15	0.0001	0.01	Q				
0+20	0.0002	0.01	Q				
0+25	0.0002	0.01	Q				
0+30	0.0003	0.01	Q				
0+35	0.0004	0.01	Q				
0+40	0.0004	0.01	Q				
0+45	0.0005	0.01	Q				
0+50	0.0006	0.01	Q				
0+55	0.0007	0.01	Q				
1+ 0	0.0008	0.01	Q				
1+ 5	0.0008	0.01	Q				
1+10	0.0009	0.01	Q				
1+15	0.0010	0.01	Q				
1+20	0.0010	0.01	Q				
1+25	0.0011	0.01	Q				
1+30	0.0012	0.01	Q				
1+35	0.0012	0.01	Q				
1+40	0.0013	0.01	Q				
1+45	0.0014	0.01	Q				
1+50	0.0015	0.01	Q				
1+55	0.0016	0.01	Q				
2+ 0	0.0016	0.01	Q				
2+ 5	0.0017	0.01	Q				
2+10	0.0018	0.01	Q				
2+15	0.0019	0.01	Q				
2+20	0.0020	0.01	Q				
2+25	0.0021	0.01	Q				
2+30	0.0022	0.01	Q				
2+35	0.0023	0.02	Q				
2+40	0.0024	0.02	Q				
2+45	0.0025	0.02	Q				
2+50	0.0026	0.02	Q				
2+55	0.0027	0.02	Q				
3+ 0	0.0028	0.02	Q				
3+ 5	0.0030	0.02	Q				
3+10	0.0031	0.02	Q				
3+15	0.0032	0.02	Q				
3+20	0.0033	0.02	Q				
3+25	0.0034	0.02	Q				
3+30	0.0035	0.02	Q				
3+35	0.0036	0.02	Q				
3+40	0.0037	0.02	Q				
3+45	0.0038	0.02	Q				
3+50	0.0040	0.02	Q				
3+55	0.0041	0.02	Q				
4+ 0	0.0042	0.02	Q				
4+ 5	0.0044	0.02	QV				
4+10	0.0045	0.02	QV				

4+15	0.0046	0.02	QV	|	|	|	|
4+20	0.0048	0.02	QV	|	|	|	|
4+25	0.0049	0.02	QV	|	|	|	|
4+30	0.0051	0.02	QV	|	|	|	|
4+35	0.0053	0.02	QV	|	|	|	|
4+40	0.0054	0.02	QV	|	|	|	|
4+45	0.0056	0.02	QV	|	|	|	|
4+50	0.0057	0.02	QV	|	|	|	|
4+55	0.0059	0.03	QV	|	|	|	|
5+ 0	0.0061	0.03	QV	|	|	|	|
5+ 5	0.0063	0.02	QV	|	|	|	|
5+10	0.0064	0.02	QV	|	|	|	|
5+15	0.0065	0.02	QV	|	|	|	|
5+20	0.0067	0.02	QV	|	|	|	|
5+25	0.0068	0.02	QV	|	|	|	|
5+30	0.0070	0.02	QV	|	|	|	|
5+35	0.0072	0.02	QV	|	|	|	|
5+40	0.0073	0.03	QV	|	|	|	|
5+45	0.0075	0.03	QV	|	|	|	|
5+50	0.0077	0.03	QV	|	|	|	|
5+55	0.0079	0.03	QV	|	|	|	|
6+ 0	0.0080	0.03	QV	|	|	|	|
6+ 5	0.0082	0.03	QV	|	|	|	|
6+10	0.0084	0.03	QV	|	|	|	|
6+15	0.0086	0.03	QV	|	|	|	|
6+20	0.0088	0.03	Q V	|	|	|	|
6+25	0.0090	0.03	Q V	|	|	|	|
6+30	0.0092	0.03	Q V	|	|	|	|
6+35	0.0095	0.03	Q V	|	|	|	|
6+40	0.0097	0.03	Q V	|	|	|	|
6+45	0.0099	0.03	Q V	|	|	|	|
6+50	0.0101	0.03	Q V	|	|	|	|
6+55	0.0104	0.03	Q V	|	|	|	|
7+ 0	0.0106	0.03	Q V	|	|	|	|
7+ 5	0.0108	0.03	Q V	|	|	|	|
7+10	0.0110	0.03	Q V	|	|	|	|
7+15	0.0112	0.03	Q V	|	|	|	|
7+20	0.0115	0.03	Q V	|	|	|	|
7+25	0.0117	0.04	Q V	|	|	|	|
7+30	0.0120	0.04	Q V	|	|	|	|
7+35	0.0122	0.04	Q V	|	|	|	|
7+40	0.0125	0.04	Q V	|	|	|	|
7+45	0.0128	0.04	Q V	|	|	|	|
7+50	0.0131	0.04	Q V	|	|	|	|
7+55	0.0133	0.04	Q V	|	|	|	|
8+ 0	0.0136	0.04	Q V	|	|	|	|
8+ 5	0.0138	0.03	Q V	|	|	|	|
8+10	0.0140	0.02	Q V	|	|	|	|
8+15	0.0141	0.02	Q V	|	|	|	|
8+20	0.0143	0.02	Q V	|	|	|	|
8+25	0.0144	0.02	Q V	|	|	|	|
8+30	0.0146	0.03	Q V	|	|	|	|
8+35	0.0149	0.04	Q V	|	|	|	|
8+40	0.0152	0.05	Q V	|	|	|	|
8+45	0.0156	0.05	Q V	|	|	|	|
8+50	0.0161	0.07	Q V	|	|	|	|
8+55	0.0166	0.08	Q V	|	|	|	|
9+ 0	0.0171	0.08	Q V	|	|	|	|
9+ 5	0.0179	0.11	Q V	|	|	|	|
9+10	0.0188	0.13	Q V	|	|	|	|
9+15	0.0196	0.13	Q V	|	|	|	|
9+20	0.0206	0.14	Q V	|	|	|	|
9+25	0.0217	0.15	Q V	|	|	|	|
9+30	0.0227	0.15	Q V	|	|	|	|
9+35	0.0239	0.17	Q V	|	|	|	|

```
 9+40    0.0251    0.18  Q   V   |       |       |       |
 9+45    0.0263    0.18  Q    V  |       |       |       |
 9+50    0.0277    0.20  Q    V  |       |       |       |
 9+55    0.0291    0.20  Q    V  |       |       |       |
10+ 0    0.0305    0.21  Q     V |       |       |       |
10+ 5    0.0312    0.11  Q     V |       |       |       |
10+10    0.0316    0.05  Q     V |       |       |       |
10+15    0.0320    0.05  Q     V |       |       |       |
10+20    0.0324    0.06  Q     V |       |       |       |
10+25    0.0328    0.06  Q     V |       |       |       |
10+30    0.0332    0.06  Q     V |       |       |       |
10+35    0.0341    0.13  Q     V |       |       |       |
10+40    0.0353    0.17  Q      V|       |       |       |
10+45    0.0365    0.17  Q      V|       |       |       |
10+50    0.0377    0.17  Q      V|       |       |       |
10+55    0.0389    0.18  Q      V|       |       |       |
11+ 0    0.0401    0.18  Q      V|       |       |       |
11+ 5    0.0412    0.16  Q      V|       |       |       |
11+10    0.0423    0.16  Q      V|       |       |       |
11+15    0.0434    0.16  Q      V|       |       |       |
11+20    0.0445    0.16  Q       V       |       |       |
11+25    0.0456    0.16  Q       V       |       |       |
11+30    0.0467    0.16  Q       V       |       |       |
11+35    0.0477    0.14  Q       V       |       |       |
11+40    0.0485    0.12  Q       |V      |       |       |
11+45    0.0494    0.12  Q       |V      |       |       |
11+50    0.0503    0.14  Q       |V      |       |       |
11+55    0.0513    0.15  Q       |V      |       |       |
12+ 0    0.0523    0.15  Q       | V     |       |       |
12+ 5    0.0541    0.25  |Q      | V     |       |       |
12+10    0.0562    0.31  |Q      | V     |       |       |
12+15    0.0583    0.31  |Q      |  V    |       |       |
12+20    0.0605    0.32  |Q      |  V    |       |       |
12+25    0.0628    0.33  |Q      |   V   |       |       |
12+30    0.0651    0.33  |Q      |   V   |       |       |
12+35    0.0676    0.36  |Q      |    V  |       |       |
12+40    0.0702    0.38  |Q      |    V  |       |       |
12+45    0.0728    0.38  |Q      |    V  |       |       |
12+50    0.0755    0.40  |Q      |     V |       |       |
12+55    0.0783    0.40  |Q      |     V |       |       |
13+ 0    0.0811    0.41  |Q      |     V |       |       |
13+ 5    0.0844    0.48  |Q      |     V|       |       |
13+10    0.0880    0.52  | Q     |      V      |       |
13+15    0.0916    0.52  | Q     |       |V      |       |
13+20    0.0952    0.52  | Q     |       |V      |       |
13+25    0.0988    0.52  | Q     |       | V     |       |
13+30    0.1024    0.52  | Q     |       |  V    |       |
13+35    0.1049    0.37  |Q      |       |  V    |       |
13+40    0.1068    0.28  |Q      |       |  V    |       |
13+45    0.1088    0.28  |Q      |       |   V   |       |
13+50    0.1108    0.29  |Q      |       |   V   |       |
13+55    0.1127    0.29  |Q      |       |   V   |       |
14+ 0    0.1147    0.29  |Q      |       |   V   |       |
14+ 5    0.1171    0.35  |Q      |       |   V   |       |
14+10    0.1197    0.38  |Q      |       |    V  |       |
14+15    0.1223    0.38  |Q      |       |    V  |       |
14+20    0.1248    0.37  |Q      |       |    V  |       |
14+25    0.1273    0.36  |Q      |       |     V|       |
14+30    0.1298    0.36  |Q      |       |     V|       |
14+35    0.1323    0.36  |Q      |       |      V      |
14+40    0.1348    0.36  |Q      |       |      V      |
14+45    0.1373    0.36  |Q      |       |       |V    |
14+50    0.1397    0.35  |Q      |       |       | V   |
14+55    0.1421    0.34  |Q      |       |       | V   |
15+ 0    0.1444    0.34  |Q      |       |       | V   |
```

```
15+ 5    0.1467    0.33 |Q     |      |      | V    |
15+10    0.1490    0.32 |Q     |      |      |  V   |
15+15    0.1512    0.33 |Q     |      |      |  V   |
15+20    0.1534    0.31 |Q     |      |      |  V   |
15+25    0.1555    0.31 |Q     |      |      |  V   |
15+30    0.1576    0.31 |Q     |      |      |   V  |
15+35    0.1593    0.25 |Q     |      |      |   V  |
15+40    0.1608    0.22 Q      |      |      |   V  |
15+45    0.1624    0.22 Q      |      |      |    V |
15+50    0.1639    0.22 Q      |      |      |    V |
15+55    0.1654    0.22 Q      |      |      |    V |
16+ 0    0.1670    0.22 Q      |      |      |    V |
16+ 5    0.1676    0.09 Q      |      |      |    V |
16+10    0.1677    0.01 Q      |      |      |    V |
16+15    0.1678    0.01 Q      |      |      |    V |
16+20    0.1678    0.01 Q      |      |      |    V |
16+25    0.1679    0.01 Q      |      |      |    V |
16+30    0.1680    0.01 Q      |      |      |    V |
16+35    0.1681    0.01 Q      |      |      |    V |
16+40    0.1682    0.01 Q      |      |      |    V |
16+45    0.1682    0.01 Q      |      |      |    V |
16+50    0.1683    0.01 Q      |      |      |    V |
16+55    0.1684    0.01 Q      |      |      |    V |
17+ 0    0.1684    0.01 Q      |      |      |    V |
17+ 5    0.1685    0.01 Q      |      |      |    V |
17+10    0.1686    0.02 Q      |      |      |    V |
17+15    0.1687    0.02 Q      |      |      |    V |
17+20    0.1689    0.02 Q      |      |      |    V |
17+25    0.1690    0.02 Q      |      |      |    V |
17+30    0.1691    0.02 Q      |      |      |    V |
17+35    0.1692    0.02 Q      |      |      |    V |
17+40    0.1693    0.02 Q      |      |      |    V |
17+45    0.1694    0.02 Q      |      |      |    V |
17+50    0.1695    0.01 Q      |      |      |    V |
17+55    0.1696    0.01 Q      |      |      |    V|
18+ 0    0.1697    0.01 Q      |      |      |    V|
18+ 5    0.1698    0.01 Q      |      |      |    V|
18+10    0.1699    0.01 Q      |      |      |    V|
18+15    0.1700    0.01 Q      |      |      |    V|
18+20    0.1701    0.01 Q      |      |      |    V|
18+25    0.1701    0.01 Q      |      |      |    V|
18+30    0.1702    0.01 Q      |      |      |    V|
18+35    0.1703    0.01 Q      |      |      |    V|
18+40    0.1704    0.01 Q      |      |      |    V|
18+45    0.1704    0.01 Q      |      |      |    V|
18+50    0.1705    0.01 Q      |      |      |    V|
18+55    0.1705    0.01 Q      |      |      |    V|
19+ 0    0.1706    0.01 Q      |      |      |    V|
19+ 5    0.1706    0.01 Q      |      |      |    V|
19+10    0.1707    0.01 Q      |      |      |    V|
19+15    0.1708    0.01 Q      |      |      |    V|
19+20    0.1709    0.01 Q      |      |      |    V|
19+25    0.1709    0.01 Q      |      |      |    V|
19+30    0.1710    0.01 Q      |      |      |    V|
19+35    0.1711    0.01 Q      |      |      |    V|
19+40    0.1712    0.01 Q      |      |      |    V|
19+45    0.1712    0.01 Q      |      |      |    V|
19+50    0.1713    0.01 Q      |      |      |    V|
19+55    0.1713    0.01 Q      |      |      |    V|
20+ 0    0.1714    0.01 Q      |      |      |    V|
20+ 5    0.1714    0.01 Q      |      |      |    V|
20+10    0.1715    0.01 Q      |      |      |    V|
20+15    0.1716    0.01 Q      |      |      |    V|
20+20    0.1716    0.01 Q      |      |      |    V|
20+25    0.1717    0.01 Q      |      |      |    V|
```

```
 20+30     0.1718    0.01 Q      |      |      |     V|
 20+35     0.1718    0.01 Q      |      |      |     V|
 20+40     0.1719    0.01 Q      |      |      |     V|
 20+45     0.1720    0.01 Q      |      |      |     V|
 20+50     0.1720    0.01 Q      |      |      |     V|
 20+55     0.1721    0.01 Q      |      |      |     V|
 21+ 0     0.1721    0.01 Q      |      |      |     V|
 21+ 5     0.1722    0.01 Q      |      |      |     V|
 21+10     0.1722    0.01 Q      |      |      |     V|
 21+15     0.1723    0.01 Q      |      |      |     V|
 21+20     0.1724    0.01 Q      |      |      |     V|
 21+25     0.1724    0.01 Q      |      |      |     V|
 21+30     0.1725    0.01 Q      |      |      |     V|
 21+35     0.1725    0.01 Q      |      |      |     V|
 21+40     0.1726    0.01 Q      |      |      |     V|
 21+45     0.1727    0.01 Q      |      |      |     V|
 21+50     0.1727    0.01 Q      |      |      |     V|
 21+55     0.1727    0.01 Q      |      |      |     V|
 22+ 0     0.1728    0.01 Q      |      |      |     V|
 22+ 5     0.1729    0.01 Q      |      |      |     V|
 22+10     0.1729    0.01 Q      |      |      |     V|
 22+15     0.1730    0.01 Q      |      |      |     V|
 22+20     0.1730    0.01 Q      |      |      |     V|
 22+25     0.1731    0.01 Q      |      |      |     V|
 22+30     0.1731    0.01 Q      |      |      |     V|
 22+35     0.1732    0.01 Q      |      |      |     V|
 22+40     0.1732    0.01 Q      |      |      |     V|
 22+45     0.1733    0.01 Q      |      |      |     V|
 22+50     0.1733    0.01 Q      |      |      |     V|
 22+55     0.1734    0.01 Q      |      |      |     V|
 23+ 0     0.1734    0.01 Q      |      |      |     V|
 23+ 5     0.1734    0.01 Q      |      |      |     V|
 23+10     0.1735    0.01 Q      |      |      |     V|
 23+15     0.1735    0.01 Q      |      |      |     V|
 23+20     0.1736    0.01 Q      |      |      |     V|
 23+25     0.1736    0.01 Q      |      |      |     V|
 23+30     0.1737    0.01 Q      |      |      |     V|
 23+35     0.1737    0.01 Q      |      |      |     V|
 23+40     0.1738    0.01 Q      |      |      |     V|
 23+45     0.1738    0.01 Q      |      |      |     V|
 23+50     0.1738    0.01 Q      |      |      |     V|
 23+55     0.1739    0.01 Q      |      |      |     V|
 24+ 0     0.1739    0.01 Q      |      |      |     V|
 24+ 5     0.1739    0.00 Q      |      |      |     V
-------------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 1999, Version 6.0
Study date 09/23/20 File: APOST12.out

++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

28771 Central Avenue Gas Station
Area A
Post-development
1-Hr 2-Yr Storm Event

Drainage Area = 0.58(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 345.00(Ft.)
Length along longest watercourse measured to centroid = 97.38(Ft.)
Length along longest watercourse = 0.065 Mi.
Length along longest watercourse measured to centroid = 0.018 Mi.
Difference in elevation = 6.34(Ft.)
Slope along watercourse = 97.0296 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.023 Hr.
Lag time = 1.41 Min.
25% of lag time = 0.35 Min.
40% of lag time = 0.56 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.58	0.48	0.28

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.58	1.34	0.78

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 0.483(In)
Area Averaged 100-Year Rainfall = 1.340(In)

Point rain (area averaged) = 0.483(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 0.483(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
0.582	79.00	0.095

Total Area Entered = 0.58(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
79.0	61.8	0.451	0.095	0.412	1.000	0.412

Sum (F) = 0.412

Area averaged mean soil loss (F) (In/Hr) = 0.412

Minimum soil loss rate ((In/Hr)) = 0.206

(for 24 hour storm duration)

Soil low loss rate (decimal) = 0.824

Slope of intensity-duration curve for a 1 hour storm =0.4800

U n i t H y d r o g r a p h

DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	354.985	61.437	0.360
2	0.167	709.970	35.423	0.208
3	0.250	1064.955	3.140	0.018
		Sum = 100.000	Sum=	0.587

Storm Event 3 Effective Rainfall = 0.092(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	4.40	0.048	0.412	0.040	0.01
2	0.17	4.50	0.050	0.412	0.041	0.01
3	0.25	5.40	0.059	0.412	0.049	0.01
4	0.33	5.40	0.059	0.412	0.049	0.01
5	0.42	5.70	0.063	0.412	0.052	0.01
6	0.50	6.40	0.070	0.412	0.058	0.01
7	0.58	7.90	0.087	0.412	0.072	0.02
8	0.67	9.10	0.100	0.412	0.083	0.02
9	0.75	12.80	0.141	0.412	0.116	0.02
10	0.83	25.60	0.282	0.412	0.232	0.05
11	0.92	7.90	0.087	0.412	0.072	0.02
12	1.00	4.90	0.054	0.412	0.044	0.01
Sum =		100.0		Sum =		0.2

Flood volume = Effective rainfall 0.02(In)

times area 0.6(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)

Total soil loss = 0.08(In)

Total soil loss = 0.004(Ac.Ft)

Total rainfall = 0.09(In)

Flood volume = 34.1 Cubic Feet

Total soil loss = 159.8 Cubic Feet

Storm Event 2 Effective Rainfall = 0.174(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)

1	0.08	4.40	0.092	0.412	0.076	0.02
2	0.17	4.50	0.094	0.412	0.077	0.02
3	0.25	5.40	0.113	0.412	0.093	0.02
4	0.33	5.40	0.113	0.412	0.093	0.02
5	0.42	5.70	0.119	0.412	0.098	0.02
6	0.50	6.40	0.134	0.412	0.110	0.02
7	0.58	7.90	0.165	0.412	0.136	0.03
8	0.67	9.10	0.190	0.412	0.156	0.03
9	0.75	12.80	0.267	0.412	0.220	0.05
10	0.83	25.60	0.534	0.412	---	0.12
11	0.92	7.90	0.165	0.412	0.136	0.03
12	1.00	4.90	0.102	0.412	0.084	0.02
Sum =		100.0		Sum =		0.4

Flood volume = Effective rainfall 0.03(In)
times area 0.6(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)
Total soil loss = 0.14(In)
Total soil loss = 0.007(Ac.Ft)
Total rainfall = 0.17(In)
Flood volume = 69.5 Cubic Feet
Total soil loss = 297.8 Cubic Feet

Storm Event 1 Effective Rainfall = 0.483(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	4.40	0.255	0.412	0.210	0.04
2	0.17	4.50	0.261	0.412	0.215	0.05
3	0.25	5.40	0.313	0.412	0.258	0.06
4	0.33	5.40	0.313	0.412	0.258	0.06
5	0.42	5.70	0.330	0.412	0.272	0.06
6	0.50	6.40	0.371	0.412	0.306	0.07
7	0.58	7.90	0.458	0.412	---	0.05
8	0.67	9.10	0.527	0.412	---	0.12
9	0.75	12.80	0.742	0.412	---	0.33
10	0.83	25.60	1.484	0.412	---	1.07
11	0.92	7.90	0.458	0.412	---	0.05
12	1.00	4.90	0.284	0.412	0.234	0.05
Sum =		100.0		Sum =		2.0

Flood volume = Effective rainfall 0.17(In)
times area 0.6(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)
Total soil loss = 0.32(In)
Total soil loss = 0.015(Ac.Ft)
Total rainfall = 0.48(In)
Flood volume = 348.9 Cubic Feet
Total soil loss = 671.5 Cubic Feet

Peak flow rate of this hydrograph = 0.457(CFS)

++

TOTAL OF: 3 1 - H O U R S T O R M E V E N T S
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0000	0.00	Q	|	|	|	|
0+10	0.0001	0.00	Q	|	|	|	|
0+15	0.0001	0.01	Q	|	|	|	|
0+20	0.0001	0.01	Q	|	|	|	|
0+25	0.0002	0.01	Q	|	|	|	|
0+30	0.0002	0.01	Q	|	|	|	|
0+35	0.0003	0.01	QV	|	|	|	|

```
 0+40     0.0004    0.01 QV      |       |       |       |
 0+45     0.0004    0.01 QV      |       |       |       |
 0+50     0.0006    0.02 Q V     |       |       |       |
 0+55     0.0007    0.02 Q V     |       |       |       |
 1+ 0     0.0008    0.01 Q V     |       |       |       |
 1+ 5     0.0008    0.01 Q  V    |       |       |       |
 1+10     0.0009    0.01 Q  V    |       |       |       |
 1+15     0.0009    0.01 Q  V    |       |       |       |
 1+20     0.0010    0.01 Q  V    |       |       |       |
 1+25     0.0011    0.01 Q   V   |       |       |       |
 1+30     0.0012    0.01 Q   V   |       |       |       |
 1+35     0.0013    0.02 Q    V  |       |       |       |
 1+40     0.0014    0.02 Q    V  |       |       |       |
 1+45     0.0016    0.02 Q     V |       |       |       |
 1+50     0.0020    0.05 Q     V |       |       |       |
 1+55     0.0022    0.04 Q      V|       |       |       |
 2+ 0     0.0023    0.01 Q      V|       |       |       |
 2+ 5     0.0024    0.02 Q      V|       |       |       |
 2+10     0.0026    0.03 Q       V       |       |       |
 2+15     0.0028    0.03 Q       V       |       |       |
 2+20     0.0030    0.03 Q       |V      |       |       |
 2+25     0.0033    0.03 Q       | V     |       |       |
 2+30     0.0035    0.04 Q       |  V    |       |       |
 2+35     0.0037    0.03 Q       |   V   |       |       |
 2+40     0.0041    0.05 Q       |    V  |       |       |
 2+45     0.0051    0.14 Q       |      V|       |       |
 2+50     0.0082    0.46 |Q      |       |       |V      |
 2+55     0.0099    0.25 Q       |       |       |      V|
 3+ 0     0.0103    0.05 Q       |       |       |      V|
 3+ 5     0.0103    0.01 Q       |       |       |      V|
 3+10     0.0103    0.00 Q       |       |       |      V|
-------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 1999, Version 6.0
Study date 09/23/20 File: APOST15.out

++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

28771 Central Avenue Gas Station
Area A
Post-development
1-Hr 5-Yr Storm Event

Drainage Area = 0.58(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 345.00(Ft.)
Length along longest watercourse measured to centroid = 97.38(Ft.)
Length along longest watercourse = 0.065 Mi.
Length along longest watercourse measured to centroid = 0.018 Mi.
Difference in elevation = 6.34(Ft.)
Slope along watercourse = 97.0296 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.023 Hr.
Lag time = 1.41 Min.
25% of lag time = 0.35 Min.
40% of lag time = 0.56 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.58	0.48	0.28

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.58	1.34	0.78

STORM EVENT (YEAR) = 5.00
Area Averaged 2-Year Rainfall = 0.483(In)
Area Averaged 100-Year Rainfall = 1.340(In)

Point rain (area averaged) = 0.684(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 0.684(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
0.582	79.00	0.095

Total Area Entered = 0.58(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
79.0	61.8	0.451	0.095	0.412	1.000	0.412

Sum (F) = 0.412

Area averaged mean soil loss (F) (In/Hr) = 0.412

Minimum soil loss rate ((In/Hr)) = 0.206

(for 24 hour storm duration)

Soil low loss rate (decimal) = 0.824

Slope of intensity-duration curve for a 1 hour storm =0.4800

U n i t H y d r o g r a p h

DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	354.985	61.437	0.360
2	0.167	709.970	35.423	0.208
3	0.250	1064.955	3.140	0.018
		Sum = 100.000	Sum=	0.587

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	4.40	0.361	0.412	0.298	0.06
2	0.17	4.50	0.369	0.412	0.304	0.06
3	0.25	5.40	0.443	0.412	---	0.03
4	0.33	5.40	0.443	0.412	---	0.03
5	0.42	5.70	0.468	0.412	---	0.06
6	0.50	6.40	0.525	0.412	---	0.11
7	0.58	7.90	0.648	0.412	---	0.24
8	0.67	9.10	0.747	0.412	---	0.33
9	0.75	12.80	1.050	0.412	---	0.64
10	0.83	25.60	2.100	0.412	---	1.69
11	0.92	7.90	0.648	0.412	---	0.24
12	1.00	4.90	0.402	0.412	0.331	0.07
Sum =		100.0		Sum =		3.6

Flood volume = Effective rainfall 0.30(In)

times area 0.6(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)

Total soil loss = 0.39(In)

Total soil loss = 0.019(Ac.Ft)

Total rainfall = 0.68(In)

Flood volume = 627.1 Cubic Feet

Total soil loss = 817.4 Cubic Feet

Peak flow rate of this hydrograph = 0.747(CFS)

++

1 - H O U R S T O R M

R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0002	0.02	Q	|	|	|	|
0+10	0.0004	0.04	QV	|	|	|	|
0+15	0.0006	0.03	QV	|	|	|	|
0+20	0.0007	0.02	QV	|	|	|	|
0+25	0.0009	0.03	Q V	|	|	|	|
0+30	0.0013	0.05	Q V	|	|	|	|
0+35	0.0020	0.11	Q V	|	|	|	|
0+40	0.0032	0.17	Q V	|	|	|	|
0+45	0.0053	0.30	|Q	| V	|	|	|
0+50	0.0104	0.75	| Q	|	|	V|	|
0+55	0.0135	0.45	|Q	|	|	|	V |
1+ 0	0.0143	0.11	Q	|	|	|	V|
1+ 5	0.0144	0.02	Q	|	|	|	V|
1+10	0.0144	0.00	Q	|	|	|	V

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 1999, Version 6.0
Study date 09/23/20 File: APOST110.out

++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

28771 Central Avenue Gas Station
Area A
Post-development
1-Hr 10-Yr Storm Event

Drainage Area = 0.58(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 345.00(Ft.)
Length along longest watercourse measured to centroid = 97.38(Ft.)
Length along longest watercourse = 0.065 Mi.
Length along longest watercourse measured to centroid = 0.018 Mi.
Difference in elevation = 6.34(Ft.)
Slope along watercourse = 97.0296 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.023 Hr.
Lag time = 1.41 Min.
25% of lag time = 0.35 Min.
40% of lag time = 0.56 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.58	0.48	0.28

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.58	1.34	0.78

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 0.483(In)
Area Averaged 100-Year Rainfall = 1.340(In)

Point rain (area averaged) = 0.836(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 0.836(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
0.582	79.00	0.095

Total Area Entered = 0.58(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
79.0	61.8	0.451	0.095	0.412	1.000	0.412

Sum (F) = 0.412

Area averaged mean soil loss (F) (In/Hr) = 0.412

Minimum soil loss rate ((In/Hr)) = 0.206

(for 24 hour storm duration)

Soil low loss rate (decimal) = 0.824

Slope of intensity-duration curve for a 1 hour storm =0.4800

U n i t H y d r o g r a p h

DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	354.985	61.437	0.360
2	0.167	709.970	35.423	0.208
3	0.250	1064.955	3.140	0.018
		Sum = 100.000	Sum=	0.587

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	4.40	0.441	0.412	---	0.03
2	0.17	4.50	0.451	0.412	---	0.04
3	0.25	5.40	0.541	0.412	---	0.13
4	0.33	5.40	0.541	0.412	---	0.13
5	0.42	5.70	0.572	0.412	---	0.16
6	0.50	6.40	0.642	0.412	---	0.23
7	0.58	7.90	0.792	0.412	---	0.38
8	0.67	9.10	0.912	0.412	---	0.50
9	0.75	12.80	1.283	0.412	---	0.87
10	0.83	25.60	2.567	0.412	---	2.15
11	0.92	7.90	0.792	0.412	---	0.38
12	1.00	4.90	0.491	0.412	---	0.08
Sum =		100.0	Sum =	5.1		

Flood volume = Effective rainfall 0.42(In)

times area 0.6(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)

Total soil loss = 0.41(In)

Total soil loss = 0.020(Ac.Ft)

Total rainfall = 0.84(In)

Flood volume = 894.5 Cubic Feet

Total soil loss = 870.8 Cubic Feet

Peak flow rate of this hydrograph = 0.967(CFS)

++

1 - H O U R S T O R M

R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0001	0.01	Q	|	|	|	|
0+10	0.0002	0.02	Q	|	|	|	|
0+15	0.0006	0.06	QV	|	|	|	|
0+20	0.0011	0.07	Q V	|	|	|	|
0+25	0.0017	0.09	Q V	|	|	|	|
0+30	0.0025	0.12	Q V	|	|	|	|
0+35	0.0038	0.19	Q V	|	|	|	|
0+40	0.0056	0.26	|Q V	|	|	|	|
0+45	0.0085	0.43	|Q |	V	|	|	|
0+50	0.0152	0.97	| Q |	|	|	V|	|
0+55	0.0193	0.60	| Q |	|	|	|	V |
1+ 0	0.0204	0.15	Q	|	|	|	V|
1+ 5	0.0205	0.02	Q	|	|	|	V|
1+10	0.0205	0.00	Q	|	|	|	V

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 1999, Version 6.0
Study date 09/23/20 File: APOST32.out

++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

28771 Central Avenue Gas Station
Area A
Post-development
3-Hr 2-Yr Storm Event

Drainage Area = 0.58(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 345.00(Ft.)
Length along longest watercourse measured to centroid = 97.38(Ft.)
Length along longest watercourse = 0.065 Mi.
Length along longest watercourse measured to centroid = 0.018 Mi.
Difference in elevation = 6.34(Ft.)
Slope along watercourse = 97.0296 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.023 Hr.
Lag time = 1.41 Min.
25% of lag time = 0.35 Min.
40% of lag time = 0.56 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.58	0.88	0.51

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.58	2.20	1.28

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 0.877(In)
Area Averaged 100-Year Rainfall = 2.200(In)

Point rain (area averaged) = 0.877(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 0.877(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
0.582	79.00	0.095

Total Area Entered = 0.58(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
79.0	61.8	0.451	0.095	0.412	1.000	0.412

Sum (F) = 0.412

Area averaged mean soil loss (F) (In/Hr) = 0.412

Minimum soil loss rate ((In/Hr)) = 0.206

(for 24 hour storm duration)

Soil low loss rate (decimal) = 0.824

U n i t H y d r o g r a p h

DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	354.985	61.437	0.360
2	0.167	709.970	35.423	0.208
3	0.250	1064.955	3.140	0.018
		Sum = 100.000	Sum=	0.587

Storm Event 3 Effective Rainfall = 0.167(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.026	0.412	0.021	0.00
2	0.17	1.30	0.026	0.412	0.021	0.00
3	0.25	1.10	0.022	0.412	0.018	0.00
4	0.33	1.50	0.030	0.412	0.025	0.01
5	0.42	1.50	0.030	0.412	0.025	0.01
6	0.50	1.80	0.036	0.412	0.030	0.01
7	0.58	1.50	0.030	0.412	0.025	0.01
8	0.67	1.80	0.036	0.412	0.030	0.01
9	0.75	1.80	0.036	0.412	0.030	0.01
10	0.83	1.50	0.030	0.412	0.025	0.01
11	0.92	1.60	0.032	0.412	0.026	0.01
12	1.00	1.80	0.036	0.412	0.030	0.01
13	1.08	2.20	0.044	0.412	0.036	0.01
14	1.17	2.20	0.044	0.412	0.036	0.01
15	1.25	2.20	0.044	0.412	0.036	0.01
16	1.33	2.00	0.040	0.412	0.033	0.01
17	1.42	2.60	0.052	0.412	0.043	0.01
18	1.50	2.70	0.054	0.412	0.044	0.01
19	1.58	2.40	0.048	0.412	0.040	0.01
20	1.67	2.70	0.054	0.412	0.044	0.01
21	1.75	3.30	0.066	0.412	0.054	0.01
22	1.83	3.10	0.062	0.412	0.051	0.01
23	1.92	2.90	0.058	0.412	0.048	0.01
24	2.00	3.00	0.060	0.412	0.049	0.01
25	2.08	3.10	0.062	0.412	0.051	0.01
26	2.17	4.20	0.084	0.412	0.069	0.01
27	2.25	5.00	0.100	0.412	0.082	0.02
28	2.33	3.50	0.070	0.412	0.058	0.01

29	2.42	6.80	0.136	0.412	0.112	0.02
30	2.50	7.30	0.146	0.412	0.120	0.03
31	2.58	8.20	0.164	0.412	0.135	0.03
32	2.67	5.90	0.118	0.412	0.097	0.02
33	2.75	2.00	0.040	0.412	0.033	0.01
34	2.83	1.80	0.036	0.412	0.030	0.01
35	2.92	1.80	0.036	0.412	0.030	0.01
36	3.00	0.60	0.012	0.412	0.010	0.00
Sum =		100.0		Sum =		0.4

Flood volume = Effective rainfall 0.03(In)
times area 0.6(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)
Total soil loss = 0.14(In)
Total soil loss = 0.007(Ac.Ft)
Total rainfall = 0.17(In)
Flood volume = 61.9 Cubic Feet
Total soil loss = 290.1 Cubic Feet

Storm Event 2 Effective Rainfall = 0.316(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.049	0.412	0.041	0.01
2	0.17	1.30	0.049	0.412	0.041	0.01
3	0.25	1.10	0.042	0.412	0.034	0.01
4	0.33	1.50	0.057	0.412	0.047	0.01
5	0.42	1.50	0.057	0.412	0.047	0.01
6	0.50	1.80	0.068	0.412	0.056	0.01
7	0.58	1.50	0.057	0.412	0.047	0.01
8	0.67	1.80	0.068	0.412	0.056	0.01
9	0.75	1.80	0.068	0.412	0.056	0.01
10	0.83	1.50	0.057	0.412	0.047	0.01
11	0.92	1.60	0.061	0.412	0.050	0.01
12	1.00	1.80	0.068	0.412	0.056	0.01
13	1.08	2.20	0.083	0.412	0.069	0.01
14	1.17	2.20	0.083	0.412	0.069	0.01
15	1.25	2.20	0.083	0.412	0.069	0.01
16	1.33	2.00	0.076	0.412	0.062	0.01
17	1.42	2.60	0.099	0.412	0.081	0.02
18	1.50	2.70	0.102	0.412	0.084	0.02
19	1.58	2.40	0.091	0.412	0.075	0.02
20	1.67	2.70	0.102	0.412	0.084	0.02
21	1.75	3.30	0.125	0.412	0.103	0.02
22	1.83	3.10	0.117	0.412	0.097	0.02
23	1.92	2.90	0.110	0.412	0.091	0.02
24	2.00	3.00	0.114	0.412	0.094	0.02
25	2.08	3.10	0.117	0.412	0.097	0.02
26	2.17	4.20	0.159	0.412	0.131	0.03
27	2.25	5.00	0.189	0.412	0.156	0.03
28	2.33	3.50	0.133	0.412	0.109	0.02
29	2.42	6.80	0.258	0.412	0.212	0.05
30	2.50	7.30	0.277	0.412	0.228	0.05
31	2.58	8.20	0.311	0.412	0.256	0.05
32	2.67	5.90	0.224	0.412	0.184	0.04
33	2.75	2.00	0.076	0.412	0.062	0.01
34	2.83	1.80	0.068	0.412	0.056	0.01
35	2.92	1.80	0.068	0.412	0.056	0.01
36	3.00	0.60	0.023	0.412	0.019	0.00
Sum =		100.0		Sum =		0.7

Flood volume = Effective rainfall 0.06(In)
times area 0.6(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)
Total soil loss = 0.26(In)
Total soil loss = 0.013(Ac.Ft)
Total rainfall = 0.32(In)
Flood volume = 117.3 Cubic Feet

Total soil loss = 549.7 Cubic Feet

Storm Event 1 Effective Rainfall = 0.877(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.137	0.412	0.113	0.02
2	0.17	1.30	0.137	0.412	0.113	0.02
3	0.25	1.10	0.116	0.412	0.095	0.02
4	0.33	1.50	0.158	0.412	0.130	0.03
5	0.42	1.50	0.158	0.412	0.130	0.03
6	0.50	1.80	0.189	0.412	0.156	0.03
7	0.58	1.50	0.158	0.412	0.130	0.03
8	0.67	1.80	0.189	0.412	0.156	0.03
9	0.75	1.80	0.189	0.412	0.156	0.03
10	0.83	1.50	0.158	0.412	0.130	0.03
11	0.92	1.60	0.168	0.412	0.139	0.03
12	1.00	1.80	0.189	0.412	0.156	0.03
13	1.08	2.20	0.232	0.412	0.191	0.04
14	1.17	2.20	0.232	0.412	0.191	0.04
15	1.25	2.20	0.232	0.412	0.191	0.04
16	1.33	2.00	0.210	0.412	0.173	0.04
17	1.42	2.60	0.274	0.412	0.226	0.05
18	1.50	2.70	0.284	0.412	0.234	0.05
19	1.58	2.40	0.253	0.412	0.208	0.04
20	1.67	2.70	0.284	0.412	0.234	0.05
21	1.75	3.30	0.347	0.412	0.286	0.06
22	1.83	3.10	0.326	0.412	0.269	0.06
23	1.92	2.90	0.305	0.412	0.252	0.05
24	2.00	3.00	0.316	0.412	0.260	0.06
25	2.08	3.10	0.326	0.412	0.269	0.06
26	2.17	4.20	0.442	0.412	---	0.03
27	2.25	5.00	0.526	0.412	---	0.11
28	2.33	3.50	0.368	0.412	0.304	0.06
29	2.42	6.80	0.716	0.412	---	0.30
30	2.50	7.30	0.768	0.412	---	0.36
31	2.58	8.20	0.863	0.412	---	0.45
32	2.67	5.90	0.621	0.412	---	0.21
33	2.75	2.00	0.210	0.412	0.173	0.04
34	2.83	1.80	0.189	0.412	0.156	0.03
35	2.92	1.80	0.189	0.412	0.156	0.03
36	3.00	0.60	0.063	0.412	0.052	0.01
Sum =		100.0		Sum =		2.6

Flood volume = Effective rainfall 0.22(In)
times area 0.6(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)
Total soil loss = 0.66(In)
Total soil loss = 0.032(Ac.Ft)
Total rainfall = 0.88(In)
Flood volume = 461.5 Cubic Feet
Total soil loss = 1391.3 Cubic Feet

Peak flow rate of this hydrograph = 0.242(CFS)

++

TOTAL OF: 3 3 - H O U R S T O R M E V E N T S
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0000	0.00	Q	|	|	|	|
0+10	0.0000	0.00	Q	|	|	|	|

0+15	0.0000	0.00	Q	|	|	|	|
0+20	0.0001	0.00	Q	|	|	|	|
0+25	0.0001	0.00	Q	|	|	|	|
0+30	0.0001	0.00	Q	|	|	|	|
0+35	0.0001	0.00	Q	|	|	|	|
0+40	0.0002	0.00	Q	|	|	|	|
0+45	0.0002	0.00	Q	|	|	|	|
0+50	0.0002	0.00	Q	|	|	|	|
0+55	0.0002	0.00	Q	|	|	|	|
1+ 0	0.0003	0.00	Q	|	|	|	|
1+ 5	0.0003	0.00	Q	|	|	|	|
1+10	0.0003	0.00	Q	|	|	|	|
1+15	0.0003	0.00	Q	|	|	|	|
1+20	0.0004	0.00	QV	|	|	|	|
1+25	0.0004	0.00	QV	|	|	|	|
1+30	0.0004	0.01	QV	|	|	|	|
1+35	0.0005	0.01	QV	|	|	|	|
1+40	0.0005	0.01	QV	|	|	|	|
1+45	0.0006	0.01	QV	|	|	|	|
1+50	0.0006	0.01	QV	|	|	|	|
1+55	0.0006	0.01	QV	|	|	|	|
2+ 0	0.0007	0.01	QV	|	|	|	|
2+ 5	0.0007	0.01	QV	|	|	|	|
2+10	0.0008	0.01	Q V	|	|	|	|
2+15	0.0009	0.01	Q V	|	|	|	|
2+20	0.0009	0.01	Q V	|	|	|	|
2+25	0.0010	0.01	Q V	|	|	|	|
2+30	0.0011	0.01	Q V	|	|	|	|
2+35	0.0012	0.02	Q V	|	|	|	|
2+40	0.0013	0.01	Q V	|	|	|	|
2+45	0.0013	0.01	Q V	|	|	|	|
2+50	0.0014	0.00	Q V	|	|	|	|
2+55	0.0014	0.00	Q V	|	|	|	|
3+ 0	0.0014	0.00	Q V	|	|	|	|
3+ 5	0.0014	0.00	Q V	|	|	|	|
3+10	0.0015	0.00	Q V	|	|	|	|
3+15	0.0015	0.00	Q V	|	|	|	|
3+20	0.0015	0.01	Q V	|	|	|	|
3+25	0.0016	0.01	Q V	|	|	|	|
3+30	0.0016	0.01	Q V	|	|	|	|
3+35	0.0017	0.01	Q V	|	|	|	|
3+40	0.0017	0.01	Q V	|	|	|	|
3+45	0.0018	0.01	Q V	|	|	|	|
3+50	0.0018	0.01	Q V	|	|	|	|
3+55	0.0018	0.01	Q V	|	|	|	|
4+ 0	0.0019	0.01	Q V	|	|	|	|
4+ 5	0.0019	0.01	Q V	|	|	|	|
4+10	0.0020	0.01	Q V	|	|	|	|
4+15	0.0021	0.01	Q V	|	|	|	|
4+20	0.0021	0.01	Q V	|	|	|	|
4+25	0.0022	0.01	Q V	|	|	|	|
4+30	0.0023	0.01	Q V	|	|	|	|
4+35	0.0023	0.01	Q V	|	|	|	|
4+40	0.0024	0.01	Q V	|	|	|	|
4+45	0.0025	0.01	Q V	|	|	|	|
4+50	0.0026	0.01	Q V	|	|	|	|
4+55	0.0026	0.01	Q V	|	|	|	|
5+ 0	0.0027	0.01	Q V	|	|	|	|
5+ 5	0.0028	0.01	Q V	|	|	|	|
5+10	0.0029	0.01	Q V	|	|	|	|
5+15	0.0030	0.02	Q V	|	|	|	|
5+20	0.0031	0.02	Q V	|	|	|	|
5+25	0.0033	0.02	Q V	|	|	|	|
5+30	0.0035	0.03	Q V	|	|	|	|
5+35	0.0037	0.03	Q V	|	|	|	|

```
 5+40     0.0039    0.03 Q      V       |       |       |
 5+45     0.0040    0.01 Q      V       |       |       |
 5+50     0.0040    0.01 Q      V       |       |       |
 5+55     0.0041    0.01 Q      |V      |       |       |
 6+ 0     0.0041    0.00 Q      |V      |       |       |
 6+ 5     0.0042    0.01 Q      |V      |       |       |
 6+10     0.0043    0.01 Q      |V      |       |       |
 6+15     0.0043    0.01 Q      |V      |       |       |
 6+20     0.0044    0.01 Q      | V     |       |       |
 6+25     0.0046    0.02 Q      | V     |       |       |
 6+30     0.0047    0.02 Q      | V     |       |       |
 6+35     0.0048    0.02 Q      |  V    |       |       |
 6+40     0.0049    0.02 Q      |  V    |       |       |
 6+45     0.0051    0.02 Q      |  V    |       |       |
 6+50     0.0052    0.02 Q      |   V   |       |       |
 6+55     0.0053    0.02 Q      |   V   |       |       |
 7+ 0     0.0054    0.02 Q      |   V   |       |       |
 7+ 5     0.0056    0.02 Q      |   V   |       |       |
 7+10     0.0057    0.02 Q      |    V  |       |       |
 7+15     0.0059    0.02 Q      |    V  |       |       |
 7+20     0.0061    0.02 Q      |    V  |       |       |
 7+25     0.0062    0.03 Q      |    V  |       |       |
 7+30     0.0064    0.03 Q      |     V |       |       |
 7+35     0.0066    0.03 Q      |     V |       |       |
 7+40     0.0068    0.03 Q      |     V |       |       |
 7+45     0.0071    0.03 Q      |      V|       |       |
 7+50     0.0073    0.03 Q      |      V|       |       |
 7+55     0.0075    0.03 Q      |       V       |       |
 8+ 0     0.0077    0.03 Q      |       |V      |       |
 8+ 5     0.0080    0.03 Q      |       |V      |       |
 8+10     0.0081    0.02 Q      |       | V     |       |
 8+15     0.0085    0.05 Q      |       |  V    |       |
 8+20     0.0088    0.05 Q      |       |  V    |       |
 8+25     0.0096    0.12 Q      |       |    V  |       |
 8+30     0.0110    0.19 Q      |       |     V|       |
 8+35     0.0126    0.24 Q      |       |      |  V    |
 8+40     0.0138    0.18 Q      |       |      |    V  |
 8+45     0.0143    0.07 Q      |       |      |     V |
 8+50     0.0145    0.02 Q      |       |      |      V|
 8+55     0.0146    0.02 Q      |       |      |      V|
 9+ 0     0.0147    0.01 Q      |       |      |      V|
 9+ 5     0.0147    0.00 Q      |       |      |      V|
 9+10     0.0147    0.00 Q      |       |      |       V
-------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 1999, Version 6.0
Study date 09/23/20 File: APOST35.out

++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

28771 Central Avenue Gas Station
Area A
Post-development
3-Hr 5-Yr Storm Event

Drainage Area = 0.58(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 345.00(Ft.)
Length along longest watercourse measured to centroid = 97.38(Ft.)
Length along longest watercourse = 0.065 Mi.
Length along longest watercourse measured to centroid = 0.018 Mi.
Difference in elevation = 6.34(Ft.)
Slope along watercourse = 97.0296 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.023 Hr.
Lag time = 1.41 Min.
25% of lag time = 0.35 Min.
40% of lag time = 0.56 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.58	0.88	0.51

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.58	2.20	1.28

STORM EVENT (YEAR) = 5.00
Area Averaged 2-Year Rainfall = 0.877(In)
Area Averaged 100-Year Rainfall = 2.200(In)

Point rain (area averaged) = 1.187(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 1.187(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
0.582	79.00	0.095

Total Area Entered = 0.58(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
79.0	61.8	0.451	0.095	0.412	1.000	0.412

Sum (F) = 0.412

Area averaged mean soil loss (F) (In/Hr) = 0.412

Minimum soil loss rate ((In/Hr)) = 0.206

(for 24 hour storm duration)

Soil low loss rate (decimal) = 0.824

U n i t H y d r o g r a p h

DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Graph %	Distribution	Unit Hydrograph (CFS)
1	0.083	354.985	61.437	0.360
2	0.167	709.970	35.423	0.208
3	0.250	1064.955	3.140	0.018
		Sum = 100.000	Sum=	0.587

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.185	0.412	0.153	0.03
2	0.17	1.30	0.185	0.412	0.153	0.03
3	0.25	1.10	0.157	0.412	0.129	0.03
4	0.33	1.50	0.214	0.412	0.176	0.04
5	0.42	1.50	0.214	0.412	0.176	0.04
6	0.50	1.80	0.256	0.412	0.211	0.05
7	0.58	1.50	0.214	0.412	0.176	0.04
8	0.67	1.80	0.256	0.412	0.211	0.05
9	0.75	1.80	0.256	0.412	0.211	0.05
10	0.83	1.50	0.214	0.412	0.176	0.04
11	0.92	1.60	0.228	0.412	0.188	0.04
12	1.00	1.80	0.256	0.412	0.211	0.05
13	1.08	2.20	0.313	0.412	0.258	0.06
14	1.17	2.20	0.313	0.412	0.258	0.06
15	1.25	2.20	0.313	0.412	0.258	0.06
16	1.33	2.00	0.285	0.412	0.235	0.05
17	1.42	2.60	0.370	0.412	0.305	0.07
18	1.50	2.70	0.385	0.412	0.317	0.07
19	1.58	2.40	0.342	0.412	0.282	0.06
20	1.67	2.70	0.385	0.412	0.317	0.07
21	1.75	3.30	0.470	0.412	---	0.06
22	1.83	3.10	0.442	0.412	---	0.03
23	1.92	2.90	0.413	0.412	---	0.00
24	2.00	3.00	0.427	0.412	---	0.02
25	2.08	3.10	0.442	0.412	---	0.03
26	2.17	4.20	0.598	0.412	---	0.19
27	2.25	5.00	0.712	0.412	---	0.30
28	2.33	3.50	0.498	0.412	---	0.09
29	2.42	6.80	0.968	0.412	---	0.56
30	2.50	7.30	1.040	0.412	---	0.63
31	2.58	8.20	1.168	0.412	---	0.76
32	2.67	5.90	0.840	0.412	---	0.43

```
33   2.75    2.00     0.285       0.412    0.235       0.05
34   2.83    1.80     0.256       0.412    0.211       0.05
35   2.92    1.80     0.256       0.412    0.211       0.05
36   3.00    0.60     0.085       0.412    0.070       0.02
  Sum =    100.0                          Sum =     4.2
          Flood volume = Effective rainfall     0.35(In)
           times area      0.6(Ac.)/[(In)/(Ft.)] =      0.0(Ac.Ft)
          Total soil loss =      0.84(In)
          Total soil loss =     0.041(Ac.Ft)
          Total rainfall =      1.19(In)
          Flood volume =        733.6 Cubic Feet
          Total soil loss =       1773.9 Cubic Feet
          ---------------------------------------------------------------------
           Peak flow rate of this hydrograph =      0.413(CFS)
          ---------------------------------------------------------------------
          ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                      3 - H O U R   S T O R M
                    R u n o f f     H y d r o g r a p h
          ---------------------------------------------------------------------
                   Hydrograph in   5   Minute intervals ((CFS))

          ---------------------------------------------------------------------
 Time(h+m) Volume Ac.Ft   Q(CFS)  0       2.5      5.0      7.5      10.0
 ---------------------------------------------------------------------
  0+ 5      0.0001     0.01  Q       |        |        |        |
  0+10      0.0002      0.02  Q       |        |        |        |
  0+15      0.0003      0.02  Q       |        |        |        |
  0+20      0.0005      0.02  QV      |        |        |        |
  0+25      0.0006      0.02  QV      |        |        |        |
  0+30      0.0008      0.02  QV      |        |        |        |
  0+35      0.0009      0.02  Q V     |        |        |        |
  0+40      0.0011      0.02  Q V     |        |        |        |
  0+45      0.0013      0.03  Q  V     |        |        |        |
  0+50      0.0015      0.02  Q  V     |        |        |        |
  0+55      0.0016      0.02  Q  V     |        |        |        |
  1+ 0      0.0018     0.03  Q   V    |        |        |        |
  1+ 5      0.0020     0.03  Q   V    |        |        |        |
  1+10      0.0022      0.03  Q    V   |        |        |        |
  1+15      0.0024      0.03  Q    V   |        |        |        |
  1+20      0.0027      0.03  Q     V  |        |        |        |
  1+25      0.0029      0.03  Q     V  |        |        |        |
  1+30      0.0032      0.04  Q      V |        |        |        |
  1+35      0.0034      0.04  Q      V |        |        |        |
  1+40      0.0037      0.04  Q      V |        |        |        |
  1+45      0.0039      0.04  Q       V|        |        |        |
  1+50      0.0041      0.02  Q       V|        |        |        |
  1+55      0.0041      0.01  Q       V|        |        |        |
  2+ 0      0.0042     0.01  Q       V|        |        |        |
  2+ 5      0.0043     0.01  Q        V        |        |        |
  2+10      0.0048      0.07  Q        |V       |        |        |
  2+15      0.0058      0.15  Q        | V      |        |        |
  2+20      0.0065      0.10  Q        |   V    |        |        |
  2+25      0.0080      0.22  Q        |       V|        |        |
  2+30      0.0104      0.34  |Q       |        |   V    |        |
  2+35      0.0132      0.41  |Q       |        |        |V       |
  2+40      0.0155      0.32  |Q       |        |        |    V   |
  2+45      0.0163      0.12  Q        |        |        |     V  |
  2+50      0.0165      0.03  Q        |        |        |      V|
  2+55      0.0167      0.03  Q        |        |        |      V|
  3+ 0      0.0168     0.02  Q        |        |        |      V|
  3+ 5      0.0168     0.00  Q        |        |        |      V|
  3+10      0.0168      0.00  Q        |        |        |      V|
 ---------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 1999, Version 6.0
Study date 09/23/20 File: APOST310.out

++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

28771 Central Avenue Gas Station
Area A
Post-development
3-Hr 10-Yr Storm Event

Drainage Area = 0.58(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 345.00(Ft.)
Length along longest watercourse measured to centroid = 97.38(Ft.)
Length along longest watercourse = 0.065 Mi.
Length along longest watercourse measured to centroid = 0.018 Mi.
Difference in elevation = 6.34(Ft.)
Slope along watercourse = 97.0296 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.023 Hr.
Lag time = 1.41 Min.
25% of lag time = 0.35 Min.
40% of lag time = 0.56 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.58	0.88	0.51

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.58	2.20	1.28

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 0.877(In)
Area Averaged 100-Year Rainfall = 2.200(In)

Point rain (area averaged) = 1.421(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 1.421(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
0.582	79.00	0.095

Total Area Entered = 0.58(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
79.0	61.8	0.451	0.095	0.412	1.000	0.412

Sum (F) = 0.412

Area averaged mean soil loss (F) (In/Hr) = 0.412

Minimum soil loss rate ((In/Hr)) = 0.206

(for 24 hour storm duration)

Soil low loss rate (decimal) = 0.824

U n i t H y d r o g r a p h

DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag Graph %	Distribution (CFS)	Unit Hydrograph
1	0.083	354.985	61.437	0.360
2	0.167	709.970	35.423	0.208
3	0.250	1064.955	3.140	0.018
		Sum = 100.000	Sum=	0.587

	Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.222	0.412	0.183	0.04
2	0.17	1.30	0.222	0.412	0.183	0.04
3	0.25	1.10	0.188	0.412	0.155	0.03
4	0.33	1.50	0.256	0.412	0.211	0.04
5	0.42	1.50	0.256	0.412	0.211	0.04
6	0.50	1.80	0.307	0.412	0.253	0.05
7	0.58	1.50	0.256	0.412	0.211	0.04
8	0.67	1.80	0.307	0.412	0.253	0.05
9	0.75	1.80	0.307	0.412	0.253	0.05
10	0.83	1.50	0.256	0.412	0.211	0.04
11	0.92	1.60	0.273	0.412	0.225	0.05
12	1.00	1.80	0.307	0.412	0.253	0.05
13	1.08	2.20	0.375	0.412	0.309	0.07
14	1.17	2.20	0.375	0.412	0.309	0.07
15	1.25	2.20	0.375	0.412	0.309	0.07
16	1.33	2.00	0.341	0.412	0.281	0.06
17	1.42	2.60	0.443	0.412	---	0.03
18	1.50	2.70	0.460	0.412	---	0.05
19	1.58	2.40	0.409	0.412	0.337	0.07
20	1.67	2.70	0.460	0.412	---	0.05
21	1.75	3.30	0.563	0.412	---	0.15
22	1.83	3.10	0.529	0.412	---	0.12
23	1.92	2.90	0.495	0.412	---	0.08
24	2.00	3.00	0.512	0.412	---	0.10
25	2.08	3.10	0.529	0.412	---	0.12
26	2.17	4.20	0.716	0.412	---	0.30
27	2.25	5.00	0.853	0.412	---	0.44
28	2.33	3.50	0.597	0.412	---	0.18
29	2.42	6.80	1.160	0.412	---	0.75
30	2.50	7.30	1.245	0.412	---	0.83
31	2.58	8.20	1.399	0.412	---	0.99
32	2.67	5.90	1.006	0.412	---	0.59

33	2.75	2.00	0.341	0.412	0.281	0.06
34	2.83	1.80	0.307	0.412	0.253	0.05
35	2.92	1.80	0.307	0.412	0.253	0.05
36	3.00	0.60	0.102	0.412	0.084	0.02
Sum =		100.0		Sum =		5.9

Flood volume = Effective rainfall 0.49(In)
times area 0.6(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)
Total soil loss = 0.93(In)
Total soil loss = 0.045(Ac.Ft)
Total rainfall = 1.42(In)
Flood volume = 1030.7 Cubic Feet
Total soil loss = 1972.0 Cubic Feet

Peak flow rate of this hydrograph = 0.543(CFS)

++

3 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0001	0.01	Q	|	|	|	|
0+10	0.0002	0.02	Q	|	|	|	|
0+15	0.0004	0.02	Q	|	|	|	|
0+20	0.0006	0.02	Q	|	|	|	|
0+25	0.0007	0.03	QV	|	|	|	|
0+30	0.0009	0.03	QV	|	|	|	|
0+35	0.0011	0.03	QV	|	|	|	|
0+40	0.0013	0.03	Q V	|	|	|	|
0+45	0.0016	0.03	Q V	|	|	|	|
0+50	0.0018	0.03	Q V	|	|	|	|
0+55	0.0019	0.03	Q V	|	|	|	|
1+ 0	0.0022	0.03	Q V	|	|	|	|
1+ 5	0.0024	0.04	Q V	|	|	|	|
1+10	0.0027	0.04	Q V	|	|	|	|
1+15	0.0029	0.04	Q V	|	|	|	|
1+20	0.0032	0.04	Q V	|	|	|	|
1+25	0.0034	0.02	Q V	|	|	|	|
1+30	0.0035	0.03	Q V	|	|	|	|
1+35	0.0038	0.04	Q V	|	|	|	|
1+40	0.0040	0.03	Q V	|	|	|	|
1+45	0.0045	0.07	Q V	|	|	|	|
1+50	0.0050	0.07	Q V	|	|	|	|
1+55	0.0054	0.06	Q V	|	|	|	|
2+ 0	0.0057	0.06	Q V	|	|	|	|
2+ 5	0.0062	0.06	Q V	|	|	|	|
2+10	0.0071	0.14	Q | V	|	|	|	|
2+15	0.0087	0.22	Q | V	|	|	|	|
2+20	0.0098	0.16	Q | V	|	|	|	|
2+25	0.0120	0.32	|Q	|	V	|	|
2+30	0.0151	0.46	|Q	|	| V	|	|
2+35	0.0189	0.54	| Q	|	|	|V	|
2+40	0.0219	0.43	|Q	|	|	| V	|
2+45	0.0230	0.16	Q	|	|	|	V |
2+50	0.0233	0.04	Q	|	|	|	V|
2+55	0.0235	0.03	Q	|	|	|	V|
3+ 0	0.0236	0.02	Q	|	|	|	V|
3+ 5	0.0237	0.00	Q	|	|	|	V|
3+10	0.0237	0.00	Q	|	|	|	V

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 1999, Version 6.0
Study date 09/23/20 File: APOST62.out

++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

28771 Central Avenue Gas Station
Area A
Post-development
6-Hr 2-Yr Storm Event

Drainage Area = 0.58(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 345.00(Ft.)
Length along longest watercourse measured to centroid = 97.38(Ft.)
Length along longest watercourse = 0.065 Mi.
Length along longest watercourse measured to centroid = 0.018 Mi.
Difference in elevation = 6.34(Ft.)
Slope along watercourse = 97.0296 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.023 Hr.
Lag time = 1.41 Min.
25% of lag time = 0.35 Min.
40% of lag time = 0.56 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.58	1.27	0.74

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.58	3.12	1.82

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 1.270(In)
Area Averaged 100-Year Rainfall = 3.120(In)

Point rain (area averaged) = 1.270(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 1.270(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
0.582	79.00	0.095

Total Area Entered = 0.58(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
79.0	61.8	0.451	0.095	0.412	1.000	0.412

Sum (F) = 0.412

Area averaged mean soil loss (F) (In/Hr) = 0.412

Minimum soil loss rate ((In/Hr)) = 0.206

(for 24 hour storm duration)

Soil low loss rate (decimal) = 0.824

U n i t H y d r o g r a p h

DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag Graph %	Distribution (CFS)	Unit Hydrograph
1	0.083	354.985	61.437	0.360
2	0.167	709.970	35.423	0.208
3	0.250	1064.955	3.140	0.018

Sum = 100.000 Sum= 0.587

Storm Event 3 Effective Rainfall = 0.241(In)

Unit Time (Hr.)		Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.014	0.412	0.012	0.00
2	0.17	0.60	0.017	0.412	0.014	0.00
3	0.25	0.60	0.017	0.412	0.014	0.00
4	0.33	0.60	0.017	0.412	0.014	0.00
5	0.42	0.60	0.017	0.412	0.014	0.00
6	0.50	0.70	0.020	0.412	0.017	0.00
7	0.58	0.70	0.020	0.412	0.017	0.00
8	0.67	0.70	0.020	0.412	0.017	0.00
9	0.75	0.70	0.020	0.412	0.017	0.00
10	0.83	0.70	0.020	0.412	0.017	0.00
11	0.92	0.70	0.020	0.412	0.017	0.00
12	1.00	0.80	0.023	0.412	0.019	0.00
13	1.08	0.80	0.023	0.412	0.019	0.00
14	1.17	0.80	0.023	0.412	0.019	0.00
15	1.25	0.80	0.023	0.412	0.019	0.00
16	1.33	0.80	0.023	0.412	0.019	0.00
17	1.42	0.80	0.023	0.412	0.019	0.00
18	1.50	0.80	0.023	0.412	0.019	0.00
19	1.58	0.80	0.023	0.412	0.019	0.00
20	1.67	0.80	0.023	0.412	0.019	0.00
21	1.75	0.80	0.023	0.412	0.019	0.00
22	1.83	0.80	0.023	0.412	0.019	0.00
23	1.92	0.80	0.023	0.412	0.019	0.00
24	2.00	0.90	0.026	0.412	0.021	0.00
25	2.08	0.80	0.023	0.412	0.019	0.00
26	2.17	0.90	0.026	0.412	0.021	0.00
27	2.25	0.90	0.026	0.412	0.021	0.00
28	2.33	0.90	0.026	0.412	0.021	0.00

29	2.42	0.90	0.026	0.412	0.021	0.00
30	2.50	0.90	0.026	0.412	0.021	0.00
31	2.58	0.90	0.026	0.412	0.021	0.00
32	2.67	0.90	0.026	0.412	0.021	0.00
33	2.75	1.00	0.029	0.412	0.024	0.01
34	2.83	1.00	0.029	0.412	0.024	0.01
35	2.92	1.00	0.029	0.412	0.024	0.01
36	3.00	1.00	0.029	0.412	0.024	0.01
37	3.08	1.00	0.029	0.412	0.024	0.01
38	3.17	1.10	0.032	0.412	0.026	0.01
39	3.25	1.10	0.032	0.412	0.026	0.01
40	3.33	1.10	0.032	0.412	0.026	0.01
41	3.42	1.20	0.035	0.412	0.029	0.01
42	3.50	1.30	0.038	0.412	0.031	0.01
43	3.58	1.40	0.041	0.412	0.033	0.01
44	3.67	1.40	0.041	0.412	0.033	0.01
45	3.75	1.50	0.043	0.412	0.036	0.01
46	3.83	1.50	0.043	0.412	0.036	0.01
47	3.92	1.60	0.046	0.412	0.038	0.01
48	4.00	1.60	0.046	0.412	0.038	0.01
49	4.08	1.70	0.049	0.412	0.041	0.01
50	4.17	1.80	0.052	0.412	0.043	0.01
51	4.25	1.90	0.055	0.412	0.045	0.01
52	4.33	2.00	0.058	0.412	0.048	0.01
53	4.42	2.10	0.061	0.412	0.050	0.01
54	4.50	2.10	0.061	0.412	0.050	0.01
55	4.58	2.20	0.064	0.412	0.053	0.01
56	4.67	2.30	0.067	0.412	0.055	0.01
57	4.75	2.40	0.069	0.412	0.057	0.01
58	4.83	2.40	0.069	0.412	0.057	0.01
59	4.92	2.50	0.072	0.412	0.060	0.01
60	5.00	2.60	0.075	0.412	0.062	0.01
61	5.08	3.10	0.090	0.412	0.074	0.02
62	5.17	3.60	0.104	0.412	0.086	0.02
63	5.25	3.90	0.113	0.412	0.093	0.02
64	5.33	4.20	0.122	0.412	0.100	0.02
65	5.42	4.70	0.136	0.412	0.112	0.02
66	5.50	5.60	0.162	0.412	0.134	0.03
67	5.58	1.90	0.055	0.412	0.045	0.01
68	5.67	0.90	0.026	0.412	0.021	0.00
69	5.75	0.60	0.017	0.412	0.014	0.00
70	5.83	0.50	0.014	0.412	0.012	0.00
71	5.92	0.30	0.009	0.412	0.007	0.00
72	6.00	0.20	0.006	0.412	0.005	0.00
Sum =		100.0			Sum =	0.5

Flood volume = Effective rainfall 0.04(In)
times area 0.6(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)
Total soil loss = 0.20(In)
Total soil loss = 0.010(Ac.Ft)
Total rainfall = 0.24(In)
Flood volume = 89.6 Cubic Feet
Total soil loss = 420.2 Cubic Feet

Storm Event 2 Effective Rainfall = 0.457(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.027	0.412	0.023	0.00
2	0.17	0.60	0.033	0.412	0.027	0.01
3	0.25	0.60	0.033	0.412	0.027	0.01
4	0.33	0.60	0.033	0.412	0.027	0.01
5	0.42	0.60	0.033	0.412	0.027	0.01
6	0.50	0.70	0.038	0.412	0.032	0.01
7	0.58	0.70	0.038	0.412	0.032	0.01

8	0.67	0.70	0.038	0.412	0.032	0.01
9	0.75	0.70	0.038	0.412	0.032	0.01
10	0.83	0.70	0.038	0.412	0.032	0.01
11	0.92	0.70	0.038	0.412	0.032	0.01
12	1.00	0.80	0.044	0.412	0.036	0.01
13	1.08	0.80	0.044	0.412	0.036	0.01
14	1.17	0.80	0.044	0.412	0.036	0.01
15	1.25	0.80	0.044	0.412	0.036	0.01
16	1.33	0.80	0.044	0.412	0.036	0.01
17	1.42	0.80	0.044	0.412	0.036	0.01
18	1.50	0.80	0.044	0.412	0.036	0.01
19	1.58	0.80	0.044	0.412	0.036	0.01
20	1.67	0.80	0.044	0.412	0.036	0.01
21	1.75	0.80	0.044	0.412	0.036	0.01
22	1.83	0.80	0.044	0.412	0.036	0.01
23	1.92	0.80	0.044	0.412	0.036	0.01
24	2.00	0.90	0.049	0.412	0.041	0.01
25	2.08	0.80	0.044	0.412	0.036	0.01
26	2.17	0.90	0.049	0.412	0.041	0.01
27	2.25	0.90	0.049	0.412	0.041	0.01
28	2.33	0.90	0.049	0.412	0.041	0.01
29	2.42	0.90	0.049	0.412	0.041	0.01
30	2.50	0.90	0.049	0.412	0.041	0.01
31	2.58	0.90	0.049	0.412	0.041	0.01
32	2.67	0.90	0.049	0.412	0.041	0.01
33	2.75	1.00	0.055	0.412	0.045	0.01
34	2.83	1.00	0.055	0.412	0.045	0.01
35	2.92	1.00	0.055	0.412	0.045	0.01
36	3.00	1.00	0.055	0.412	0.045	0.01
37	3.08	1.00	0.055	0.412	0.045	0.01
38	3.17	1.10	0.060	0.412	0.050	0.01
39	3.25	1.10	0.060	0.412	0.050	0.01
40	3.33	1.10	0.060	0.412	0.050	0.01
41	3.42	1.20	0.066	0.412	0.054	0.01
42	3.50	1.30	0.071	0.412	0.059	0.01
43	3.58	1.40	0.077	0.412	0.063	0.01
44	3.67	1.40	0.077	0.412	0.063	0.01
45	3.75	1.50	0.082	0.412	0.068	0.01
46	3.83	1.50	0.082	0.412	0.068	0.01
47	3.92	1.60	0.088	0.412	0.072	0.02
48	4.00	1.60	0.088	0.412	0.072	0.02
49	4.08	1.70	0.093	0.412	0.077	0.02
50	4.17	1.80	0.099	0.412	0.081	0.02
51	4.25	1.90	0.104	0.412	0.086	0.02
52	4.33	2.00	0.110	0.412	0.090	0.02
53	4.42	2.10	0.115	0.412	0.095	0.02
54	4.50	2.10	0.115	0.412	0.095	0.02
55	4.58	2.20	0.121	0.412	0.099	0.02
56	4.67	2.30	0.126	0.412	0.104	0.02
57	4.75	2.40	0.132	0.412	0.109	0.02
58	4.83	2.40	0.132	0.412	0.109	0.02
59	4.92	2.50	0.137	0.412	0.113	0.02
60	5.00	2.60	0.143	0.412	0.118	0.03
61	5.08	3.10	0.170	0.412	0.140	0.03
62	5.17	3.60	0.198	0.412	0.163	0.03
63	5.25	3.90	0.214	0.412	0.176	0.04
64	5.33	4.20	0.230	0.412	0.190	0.04
65	5.42	4.70	0.258	0.412	0.213	0.05
66	5.50	5.60	0.307	0.412	0.253	0.05
67	5.58	1.90	0.104	0.412	0.086	0.02
68	5.67	0.90	0.049	0.412	0.041	0.01
69	5.75	0.60	0.033	0.412	0.027	0.01
70	5.83	0.50	0.027	0.412	0.023	0.00
71	5.92	0.30	0.016	0.412	0.014	0.00
72	6.00	0.20	0.011	0.412	0.009	0.00

Sum = 100.0 Sum = 1.0

Flood volume = Effective rainfall 0.08(In)

times area 0.6(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)

Total soil loss = 0.38(In)

Total soil loss = 0.018(Ac.Ft)

Total rainfall = 0.46(In)

Flood volume = 169.8 Cubic Feet

Total soil loss = 796.1 Cubic Feet

Storm Event 1 Effective Rainfall = 1.270(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08 0.50	0.076	0.412	0.063	0.01
2	0.17 0.60	0.091	0.412	0.075	0.02
3	0.25 0.60	0.091	0.412	0.075	0.02
4	0.33 0.60	0.091	0.412	0.075	0.02
5	0.42 0.60	0.091	0.412	0.075	0.02
6	0.50 0.70	0.107	0.412	0.088	0.02
7	0.58 0.70	0.107	0.412	0.088	0.02
8	0.67 0.70	0.107	0.412	0.088	0.02
9	0.75 0.70	0.107	0.412	0.088	0.02
10	0.83 0.70	0.107	0.412	0.088	0.02
11	0.92 0.70	0.107	0.412	0.088	0.02
12	1.00 0.80	0.122	0.412	0.100	0.02
13	1.08 0.80	0.122	0.412	0.100	0.02
14	1.17 0.80	0.122	0.412	0.100	0.02
15	1.25 0.80	0.122	0.412	0.100	0.02
16	1.33 0.80	0.122	0.412	0.100	0.02
17	1.42 0.80	0.122	0.412	0.100	0.02
18	1.50 0.80	0.122	0.412	0.100	0.02
19	1.58 0.80	0.122	0.412	0.100	0.02
20	1.67 0.80	0.122	0.412	0.100	0.02
21	1.75 0.80	0.122	0.412	0.100	0.02
22	1.83 0.80	0.122	0.412	0.100	0.02
23	1.92 0.80	0.122	0.412	0.100	0.02
24	2.00 0.90	0.137	0.412	0.113	0.02
25	2.08 0.80	0.122	0.412	0.100	0.02
26	2.17 0.90	0.137	0.412	0.113	0.02
27	2.25 0.90	0.137	0.412	0.113	0.02
28	2.33 0.90	0.137	0.412	0.113	0.02
29	2.42 0.90	0.137	0.412	0.113	0.02
30	2.50 0.90	0.137	0.412	0.113	0.02
31	2.58 0.90	0.137	0.412	0.113	0.02
32	2.67 0.90	0.137	0.412	0.113	0.02
33	2.75 1.00	0.152	0.412	0.126	0.03
34	2.83 1.00	0.152	0.412	0.126	0.03
35	2.92 1.00	0.152	0.412	0.126	0.03
36	3.00 1.00	0.152	0.412	0.126	0.03
37	3.08 1.00	0.152	0.412	0.126	0.03
38	3.17 1.10	0.168	0.412	0.138	0.03
39	3.25 1.10	0.168	0.412	0.138	0.03
40	3.33 1.10	0.168	0.412	0.138	0.03
41	3.42 1.20	0.183	0.412	0.151	0.03
42	3.50 1.30	0.198	0.412	0.163	0.03
43	3.58 1.40	0.213	0.412	0.176	0.04
44	3.67 1.40	0.213	0.412	0.176	0.04
45	3.75 1.50	0.229	0.412	0.188	0.04
46	3.83 1.50	0.229	0.412	0.188	0.04
47	3.92 1.60	0.244	0.412	0.201	0.04
48	4.00 1.60	0.244	0.412	0.201	0.04
49	4.08 1.70	0.259	0.412	0.214	0.05
50	4.17 1.80	0.274	0.412	0.226	0.05
51	4.25 1.90	0.290	0.412	0.239	0.05

52	4.33	2.00	0.305	0.412	0.251	0.05
53	4.42	2.10	0.320	0.412	0.264	0.06
54	4.50	2.10	0.320	0.412	0.264	0.06
55	4.58	2.20	0.335	0.412	0.276	0.06
56	4.67	2.30	0.351	0.412	0.289	0.06
57	4.75	2.40	0.366	0.412	0.301	0.06
58	4.83	2.40	0.366	0.412	0.301	0.06
59	4.92	2.50	0.381	0.412	0.314	0.07
60	5.00	2.60	0.396	0.412	0.327	0.07
61	5.08	3.10	0.472	0.412	---	0.06
62	5.17	3.60	0.549	0.412	---	0.14
63	5.25	3.90	0.594	0.412	---	0.18
64	5.33	4.20	0.640	0.412	---	0.23
65	5.42	4.70	0.716	0.412	---	0.30
66	5.50	5.60	0.853	0.412	---	0.44
67	5.58	1.90	0.290	0.412	0.239	0.05
68	5.67	0.90	0.137	0.412	0.113	0.02
69	5.75	0.60	0.091	0.412	0.075	0.02
70	5.83	0.50	0.076	0.412	0.063	0.01
71	5.92	0.30	0.046	0.412	0.038	0.01
72	6.00	0.20	0.030	0.412	0.025	0.01
Sum =		100.0		Sum =		3.4

Flood volume = Effective rainfall 0.28(In)
times area 0.6(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)
Total soil loss = 0.99(In)
Total soil loss = 0.048(Ac.Ft)
Total rainfall = 1.27(In)
Flood volume = 591.4 Cubic Feet
Total soil loss = 2091.7 Cubic Feet

Peak flow rate of this hydrograph = 0.227(CFS)

++

TOTAL OF: 3 6 - H O U R S T O R M E V E N T S
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0000	0.00	Q	|	|	|	|
0+10	0.0000	0.00	Q	|	|	|	|
0+15	0.0000	0.00	Q	|	|	|	|
0+20	0.0000	0.00	Q	|	|	|	|
0+25	0.0001	0.00	Q	|	|	|	|
0+30	0.0001	0.00	Q	|	|	|	|
0+35	0.0001	0.00	Q	|	|	|	|
0+40	0.0001	0.00	Q	|	|	|	|
0+45	0.0001	0.00	Q	|	|	|	|
0+50	0.0001	0.00	Q	|	|	|	|
0+55	0.0001	0.00	Q	|	|	|	|
1+ 0	0.0002	0.00	Q	|	|	|	|
1+ 5	0.0002	0.00	Q	|	|	|	|
1+10	0.0002	0.00	Q	|	|	|	|
1+15	0.0002	0.00	Q	|	|	|	|
1+20	0.0002	0.00	Q	|	|	|	|
1+25	0.0002	0.00	Q	|	|	|	|
1+30	0.0003	0.00	Q	|	|	|	|
1+35	0.0003	0.00	Q	|	|	|	|
1+40	0.0003	0.00	Q	|	|	|	|
1+45	0.0003	0.00	Q	|	|	|	|
1+50	0.0003	0.00	Q	|	|	|	|
1+55	0.0003	0.00	Q	|	|	|	|
2+ 0	0.0004	0.00	Q	|	|	|	|

2+ 5	0.0004	0.00	Q	|	|	|	|
2+10	0.0004	0.00	Q	|	|	|	|
2+15	0.0004	0.00	Q	|	|	|	|
2+20	0.0004	0.00	Q	|	|	|	|
2+25	0.0004	0.00	Q	|	|	|	|
2+30	0.0005	0.00	Q	|	|	|	|
2+35	0.0005	0.00	Q	|	|	|	|
2+40	0.0005	0.00	QV	|	|	|	|
2+45	0.0005	0.00	QV	|	|	|	|
2+50	0.0005	0.00	QV	|	|	|	|
2+55	0.0006	0.00	QV	|	|	|	|
3+ 0	0.0006	0.00	QV	|	|	|	|
3+ 5	0.0006	0.00	QV	|	|	|	|
3+10	0.0006	0.00	QV	|	|	|	|
3+15	0.0006	0.00	QV	|	|	|	|
3+20	0.0007	0.00	QV	|	|	|	|
3+25	0.0007	0.00	QV	|	|	|	|
3+30	0.0007	0.00	QV	|	|	|	|
3+35	0.0007	0.00	QV	|	|	|	|
3+40	0.0008	0.00	QV	|	|	|	|
3+45	0.0008	0.00	QV	|	|	|	|
3+50	0.0008	0.00	QV	|	|	|	|
3+55	0.0009	0.00	QV	|	|	|	|
4+ 0	0.0009	0.00	QV	|	|	|	|
4+ 5	0.0009	0.00	QV	|	|	|	|
4+10	0.0010	0.01	QV	|	|	|	|
4+15	0.0010	0.01	Q V	|	|	|	|
4+20	0.0011	0.01	Q V	|	|	|	|
4+25	0.0011	0.01	Q V	|	|	|	|
4+30	0.0011	0.01	Q V	|	|	|	|
4+35	0.0012	0.01	Q V	|	|	|	|
4+40	0.0012	0.01	Q V	|	|	|	|
4+45	0.0013	0.01	Q V	|	|	|	|
4+50	0.0013	0.01	Q V	|	|	|	|
4+55	0.0014	0.01	Q V	|	|	|	|
5+ 0	0.0014	0.01	Q V	|	|	|	|
5+ 5	0.0015	0.01	Q V	|	|	|	|
5+10	0.0016	0.01	Q V	|	|	|	|
5+15	0.0016	0.01	Q V	|	|	|	|
5+20	0.0017	0.01	Q V	|	|	|	|
5+25	0.0018	0.01	Q V	|	|	|	|
5+30	0.0019	0.02	Q V	|	|	|	|
5+35	0.0020	0.01	Q V	|	|	|	|
5+40	0.0020	0.00	Q V	|	|	|	|
5+45	0.0020	0.00	Q V	|	|	|	|
5+50	0.0020	0.00	Q V	|	|	|	|
5+55	0.0021	0.00	Q V	|	|	|	|
6+ 0	0.0021	0.00	Q V	|	|	|	|
6+ 5	0.0021	0.00	Q V	|	|	|	|
6+10	0.0021	0.00	Q V	|	|	|	|
6+15	0.0021	0.00	Q V	|	|	|	|
6+20	0.0021	0.00	Q V	|	|	|	|
6+25	0.0022	0.00	Q V	|	|	|	|
6+30	0.0022	0.00	Q V	|	|	|	|
6+35	0.0022	0.00	Q V	|	|	|	|
6+40	0.0022	0.00	Q V	|	|	|	|
6+45	0.0023	0.00	Q V	|	|	|	|
6+50	0.0023	0.00	Q V	|	|	|	|
6+55	0.0023	0.00	Q V	|	|	|	|
7+ 0	0.0024	0.00	Q V	|	|	|	|
7+ 5	0.0024	0.00	Q V	|	|	|	|
7+10	0.0024	0.00	Q V	|	|	|	|
7+15	0.0024	0.00	Q V	|	|	|	|
7+20	0.0025	0.00	Q V	|	|	|	|
7+25	0.0025	0.00	Q V	|	|	|	|

7+30	0.0025	0.00	Q	V	|	|	|	|
7+35	0.0026	0.00	Q	V	|	|	|	|
7+40	0.0026	0.00	Q	V	|	|	|	|
7+45	0.0026	0.00	Q	V	|	|	|	|
7+50	0.0027	0.00	Q	V	|	|	|	|
7+55	0.0027	0.00	Q	V	|	|	|	|
8+ 0	0.0027	0.00	Q	V	|	|	|	|
8+ 5	0.0028	0.00	Q	V	|	|	|	|
8+10	0.0028	0.00	Q	V	|	|	|	|
8+15	0.0028	0.01	Q	V	|	|	|	|
8+20	0.0029	0.01	Q	V	|	|	|	|
8+25	0.0029	0.01	Q	V	|	|	|	|
8+30	0.0029	0.01	Q	V	|	|	|	|
8+35	0.0030	0.01	Q	V	|	|	|	|
8+40	0.0030	0.01	Q	V	|	|	|	|
8+45	0.0030	0.01	Q	V	|	|	|	|
8+50	0.0031	0.01	Q	V	|	|	|	|
8+55	0.0031	0.01	Q	V	|	|	|	|
9+ 0	0.0032	0.01	Q	V	|	|	|	|
9+ 5	0.0032	0.01	Q	V	|	|	|	|
9+10	0.0032	0.01	Q	V	|	|	|	|
9+15	0.0033	0.01	Q	V	|	|	|	|
9+20	0.0033	0.01	Q	V	|	|	|	|
9+25	0.0034	0.01	Q	V	|	|	|	|
9+30	0.0034	0.01	Q	V	|	|	|	|
9+35	0.0035	0.01	Q	V	|	|	|	|
9+40	0.0035	0.01	Q	V	|	|	|	|
9+45	0.0036	0.01	Q	V	|	|	|	|
9+50	0.0036	0.01	Q	V	|	|	|	|
9+55	0.0037	0.01	Q	V	|	|	|	|
10+ 0	0.0038	0.01	Q	V	|	|	|	|
10+ 5	0.0038	0.01	Q	V	|	|	|	|
10+10	0.0039	0.01	Q	V	|	|	|	|
10+15	0.0040	0.01	Q	V	|	|	|	|
10+20	0.0040	0.01	Q	V	|	|	|	|
10+25	0.0041	0.01	Q	V	|	|	|	|
10+30	0.0042	0.01	Q	V	|	|	|	|
10+35	0.0043	0.01	Q	V	|	|	|	|
10+40	0.0044	0.01	Q	V	|	|	|	|
10+45	0.0045	0.01	Q	V	|	|	|	|
10+50	0.0046	0.01	Q	V	|	|	|	|
10+55	0.0047	0.01	Q	V	|	|	|	|
11+ 0	0.0048	0.01	Q	V	|	|	|	|
11+ 5	0.0049	0.02	Q	V	|	|	|	|
11+10	0.0050	0.02	Q	V	|	|	|	|
11+15	0.0052	0.02	Q	V	|	|	|	|
11+20	0.0053	0.02	Q	V	|	|	|	|
11+25	0.0055	0.03	Q	V	|	|	|	|
11+30	0.0057	0.03	Q	V	|	|	|	|
11+35	0.0058	0.02	Q	V	|	|	|	|
11+40	0.0059	0.01	Q	V	|	|	|	|
11+45	0.0059	0.00	Q	V	|	|	|	|
11+50	0.0059	0.00	Q	V	|	|	|	|
11+55	0.0059	0.00	Q	V	|	|	|	|
12+ 0	0.0060	0.00	Q	V	|	|	|	|
12+ 5	0.0060	0.00	Q	V	|	|	|	|
12+10	0.0060	0.01	Q	V	|	|	|	|
12+15	0.0061	0.01	Q	V	|	|	|	|
12+20	0.0062	0.01	Q	V	|	|	|	|
12+25	0.0062	0.01	Q	V	|	|	|	|
12+30	0.0063	0.01	Q	V	|	|	|	|
12+35	0.0064	0.01	Q	V	|	|	|	|
12+40	0.0065	0.01	Q	V	|	|	|	|
12+45	0.0065	0.01	Q	V	|	|	|	|
12+50	0.0066	0.01	Q	V	|	|	|	|

```
12+55    0.0067    0.01 Q      | V    |      |      |
13+ 0    0.0068    0.01 Q      | V    |      |      |
13+ 5    0.0069    0.01 Q      |  V   |      |      |
13+10    0.0069    0.01 Q      |  V   |      |      |
13+15    0.0070    0.01 Q      |  V   |      |      |
13+20    0.0071    0.01 Q      |  V   |      |      |
13+25    0.0072    0.01 Q      |  V   |      |      |
13+30    0.0073    0.01 Q      |  V   |      |      |
13+35    0.0074    0.01 Q      |   V  |      |      |
13+40    0.0075    0.01 Q      |   V  |      |      |
13+45    0.0075    0.01 Q      |   V  |      |      |
13+50    0.0076    0.01 Q      |   V  |      |      |
13+55    0.0077    0.01 Q      |   V  |      |      |
14+ 0    0.0078    0.01 Q      |   V  |      |      |
14+ 5    0.0079    0.01 Q      |   V  |      |      |
14+10    0.0080    0.01 Q      |    V |      |      |
14+15    0.0081    0.01 Q      |    V |      |      |
14+20    0.0082    0.01 Q      |    V |      |      |
14+25    0.0083    0.01 Q      |    V |      |      |
14+30    0.0084    0.01 Q      |    V |      |      |
14+35    0.0085    0.01 Q      |    V |      |      |
14+40    0.0086    0.01 Q      |    V |      |      |
14+45    0.0087    0.02 Q      |    V |      |      |
14+50    0.0088    0.02 Q      |     V|      |      |
14+55    0.0089    0.02 Q      |     V|      |      |
15+ 0    0.0090    0.02 Q      |     V|      |      |
15+ 5    0.0091    0.02 Q      |     V|      |      |
15+10    0.0092    0.02 Q      |     V|      |      |
15+15    0.0094    0.02 Q      |      V|      |      |
15+20    0.0095    0.02 Q      |      V|      |      |
15+25    0.0096    0.02 Q      |      V|      |      |
15+30    0.0097    0.02 Q      |      V|      |      |
15+35    0.0099    0.02 Q      |       V      |      |
15+40    0.0100    0.02 Q      |       V      |      |
15+45    0.0102    0.02 Q      |       V      |      |
15+50    0.0104    0.02 Q      |       |V     |      |
15+55    0.0105    0.02 Q      |       |V     |      |
16+ 0    0.0107    0.03 Q      |       |V     |      |
16+ 5    0.0109    0.03 Q      |       | V    |      |
16+10    0.0111    0.03 Q      |       | V    |      |
16+15    0.0113    0.03 Q      |       |  V   |      |
16+20    0.0115    0.03 Q      |       |  V   |      |
16+25    0.0117    0.03 Q      |       |  V   |      |
16+30    0.0119    0.03 Q      |       |   V  |      |
16+35    0.0122    0.03 Q      |       |   V  |      |
16+40    0.0124    0.04 Q      |       |    V |      |
16+45    0.0127    0.04 Q      |       |    V |      |
16+50    0.0129    0.04 Q      |       |     V|      |
16+55    0.0132    0.04 Q      |       |     V|      |
17+ 0    0.0135    0.04 Q      |       |     V|      |
17+ 5    0.0137    0.04 Q      |       |     V|      |
17+10    0.0142    0.06 Q      |       |      V|     |
17+15    0.0148    0.10 Q      |       |       V     |
17+20    0.0157    0.12 Q      |       |       |V    |
17+25    0.0168    0.16 Q      |       |       |  V  |
17+30    0.0183    0.23 Q      |       |       |    V|
17+35    0.0191    0.12 Q      |       |       |     V|
17+40    0.0193    0.03 Q      |       |       |     V|
17+45    0.0194    0.01 Q      |       |       |     V|
17+50    0.0194    0.01 Q      |       |       |     V|
17+55    0.0195    0.01 Q      |       |       |     V|
18+ 0    0.0195    0.00 Q      |       |       |     V|
18+ 5    0.0195    0.00 Q      |       |       |     V|
18+10    0.0195    0.00 Q      |       |       |     V|
-------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 1999, Version 6.0
Study date 09/23/20 File: APOST65.out

++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

28771 Central Avenue Gas Station
Area A
Post-development
6-Hr 5-Yr Storm Event

Drainage Area = 0.58(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 345.00(Ft.)
Length along longest watercourse measured to centroid = 97.38(Ft.)
Length along longest watercourse = 0.065 Mi.
Length along longest watercourse measured to centroid = 0.018 Mi.
Difference in elevation = 6.34(Ft.)
Slope along watercourse = 97.0296 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.023 Hr.
Lag time = 1.41 Min.
25% of lag time = 0.35 Min.
40% of lag time = 0.56 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.58	1.27	0.74

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.58	3.12	1.82

STORM EVENT (YEAR) = 5.00
Area Averaged 2-Year Rainfall = 1.270(In)
Area Averaged 100-Year Rainfall = 3.120(In)

Point rain (area averaged) = 1.703(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 1.703(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
0.582	79.00	0.095

Total Area Entered = 0.58(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
79.0	61.8	0.451	0.095	0.412	1.000	0.412

Sum (F) = 0.412

Area averaged mean soil loss (F) (In/Hr) = 0.412

Minimum soil loss rate ((In/Hr)) = 0.206

(for 24 hour storm duration)

Soil low loss rate (decimal) = 0.824

U n i t H y d r o g r a p h

DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	354.985	61.437	0.360
2	0.167	709.970	35.423	0.208
3	0.250	1064.955	3.140	0.018
		Sum = 100.000	Sum=	0.587

Unit Time	Pattern	Storm Rain	Loss rate(In./Hr)		Effective
(Hr.)	Percent	(In/Hr)	Max	Low	(In/Hr)
1	0.08	0.50	0.102	0.412	0.084	0.02
2	0.17	0.60	0.123	0.412	0.101	0.02
3	0.25	0.60	0.123	0.412	0.101	0.02
4	0.33	0.60	0.123	0.412	0.101	0.02
5	0.42	0.60	0.123	0.412	0.101	0.02
6	0.50	0.70	0.143	0.412	0.118	0.03
7	0.58	0.70	0.143	0.412	0.118	0.03
8	0.67	0.70	0.143	0.412	0.118	0.03
9	0.75	0.70	0.143	0.412	0.118	0.03
10	0.83	0.70	0.143	0.412	0.118	0.03
11	0.92	0.70	0.143	0.412	0.118	0.03
12	1.00	0.80	0.164	0.412	0.135	0.03
13	1.08	0.80	0.164	0.412	0.135	0.03
14	1.17	0.80	0.164	0.412	0.135	0.03
15	1.25	0.80	0.164	0.412	0.135	0.03
16	1.33	0.80	0.164	0.412	0.135	0.03
17	1.42	0.80	0.164	0.412	0.135	0.03
18	1.50	0.80	0.164	0.412	0.135	0.03
19	1.58	0.80	0.164	0.412	0.135	0.03
20	1.67	0.80	0.164	0.412	0.135	0.03
21	1.75	0.80	0.164	0.412	0.135	0.03
22	1.83	0.80	0.164	0.412	0.135	0.03
23	1.92	0.80	0.164	0.412	0.135	0.03
24	2.00	0.90	0.184	0.412	0.152	0.03
25	2.08	0.80	0.164	0.412	0.135	0.03
26	2.17	0.90	0.184	0.412	0.152	0.03
27	2.25	0.90	0.184	0.412	0.152	0.03
28	2.33	0.90	0.184	0.412	0.152	0.03
29	2.42	0.90	0.184	0.412	0.152	0.03
30	2.50	0.90	0.184	0.412	0.152	0.03
31	2.58	0.90	0.184	0.412	0.152	0.03
32	2.67	0.90	0.184	0.412	0.152	0.03

33	2.75	1.00	0.204	0.412	0.168	0.04
34	2.83	1.00	0.204	0.412	0.168	0.04
35	2.92	1.00	0.204	0.412	0.168	0.04
36	3.00	1.00	0.204	0.412	0.168	0.04
37	3.08	1.00	0.204	0.412	0.168	0.04
38	3.17	1.10	0.225	0.412	0.185	0.04
39	3.25	1.10	0.225	0.412	0.185	0.04
40	3.33	1.10	0.225	0.412	0.185	0.04
41	3.42	1.20	0.245	0.412	0.202	0.04
42	3.50	1.30	0.266	0.412	0.219	0.05
43	3.58	1.40	0.286	0.412	0.236	0.05
44	3.67	1.40	0.286	0.412	0.236	0.05
45	3.75	1.50	0.307	0.412	0.253	0.05
46	3.83	1.50	0.307	0.412	0.253	0.05
47	3.92	1.60	0.327	0.412	0.270	0.06
48	4.00	1.60	0.327	0.412	0.270	0.06
49	4.08	1.70	0.347	0.412	0.286	0.06
50	4.17	1.80	0.368	0.412	0.303	0.06
51	4.25	1.90	0.388	0.412	0.320	0.07
52	4.33	2.00	0.409	0.412	0.337	0.07
53	4.42	2.10	0.429	0.412	---	0.02
54	4.50	2.10	0.429	0.412	---	0.02
55	4.58	2.20	0.450	0.412	---	0.04
56	4.67	2.30	0.470	0.412	---	0.06
57	4.75	2.40	0.491	0.412	---	0.08
58	4.83	2.40	0.491	0.412	---	0.08
59	4.92	2.50	0.511	0.412	---	0.10
60	5.00	2.60	0.531	0.412	---	0.12
61	5.08	3.10	0.634	0.412	---	0.22
62	5.17	3.60	0.736	0.412	---	0.32
63	5.25	3.90	0.797	0.412	---	0.38
64	5.33	4.20	0.858	0.412	---	0.45
65	5.42	4.70	0.961	0.412	---	0.55
66	5.50	5.60	1.145	0.412	---	0.73
67	5.58	1.90	0.388	0.412	0.320	0.07
68	5.67	0.90	0.184	0.412	0.152	0.03
69	5.75	0.60	0.123	0.412	0.101	0.02
70	5.83	0.50	0.102	0.412	0.084	0.02
71	5.92	0.30	0.061	0.412	0.051	0.01
72	6.00	0.20	0.041	0.412	0.034	0.01
Sum =		100.0		Sum =		5.2

Flood volume = Effective rainfall 0.43(In)
times area 0.6(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)
Total soil loss = 1.27(In)
Total soil loss = 0.062(Ac.Ft)
Total rainfall = 1.70(In)
Flood volume = 912.8 Cubic Feet
Total soil loss = 2685.7 Cubic Feet

Peak flow rate of this hydrograph = 0.386(CFS)

++

6 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0000	0.01	Q	|	|	|	|
0+10	0.0001	0.01	Q	|	|	|	|
0+15	0.0002	0.01	Q	|	|	|	|
0+20	0.0003	0.01	Q	|	|	|	|
0+25	0.0004	0.01	Q	|	|	|	|

```
0+30     0.0005    0.01 Q       |       |       |       |
0+35     0.0006    0.01 QV      |       |       |       |
0+40     0.0007    0.01 QV      |       |       |       |
0+45     0.0008    0.01 QV      |       |       |       |
0+50     0.0009    0.01 QV      |       |       |       |
0+55     0.0010    0.01 QV      |       |       |       |
1+ 0     0.0011    0.02 Q V     |       |       |       |
1+ 5     0.0012    0.02 Q V     |       |       |       |
1+10     0.0013    0.02 Q V     |       |       |       |
1+15     0.0014    0.02 Q V     |       |       |       |
1+20     0.0016    0.02 Q V     |       |       |       |
1+25     0.0017    0.02 Q  V    |       |       |       |
1+30     0.0018    0.02 Q  V    |       |       |       |
1+35     0.0019    0.02 Q  V    |       |       |       |
1+40     0.0020    0.02 Q  V    |       |       |       |
1+45     0.0021    0.02 Q   V   |       |       |       |
1+50     0.0023    0.02 Q   V   |       |       |       |
1+55     0.0024    0.02 Q   V   |       |       |       |
2+ 0     0.0025    0.02 Q   V   |       |       |       |
2+ 5     0.0026    0.02 Q   V   |       |       |       |
2+10     0.0027    0.02 Q   V   |       |       |       |
2+15     0.0029    0.02 Q   V   |       |       |       |
2+20     0.0030    0.02 Q   V   |       |       |       |
2+25     0.0031    0.02 Q   V   |       |       |       |
2+30     0.0033    0.02 Q    V  |       |       |       |
2+35     0.0034    0.02 Q    V  |       |       |       |
2+40     0.0035    0.02 Q    V  |       |       |       |
2+45     0.0037    0.02 Q     V |       |       |       |
2+50     0.0038    0.02 Q     V |       |       |       |
2+55     0.0040    0.02 Q     V |       |       |       |
3+ 0     0.0041    0.02 Q     V |       |       |       |
3+ 5     0.0043    0.02 Q     V |       |       |       |
3+10     0.0044    0.02 Q      V|       |       |       |
3+15     0.0046    0.02 Q      V|       |       |       |
3+20     0.0047    0.02 Q      V|       |       |       |
3+25     0.0049    0.02 Q      V|       |       |       |
3+30     0.0051    0.03 Q      V|       |       |       |
3+35     0.0053    0.03 Q       V       |       |       |
3+40     0.0055    0.03 Q       V       |       |       |
3+45     0.0057    0.03 Q       V       |       |       |
3+50     0.0059    0.03 Q       |V      |       |       |
3+55     0.0061    0.03 Q       |V      |       |       |
4+ 0     0.0064    0.03 Q       | V     |       |       |
4+ 5     0.0066    0.04 Q       | V     |       |       |
4+10     0.0069    0.04 Q       |  V    |       |       |
4+15     0.0071    0.04 Q       |  V    |       |       |
4+20     0.0074    0.04 Q       |   V   |       |       |
4+25     0.0076    0.02 Q       |   V   |       |       |
4+30     0.0076    0.01 Q       |   V   |       |       |
4+35     0.0078    0.02 Q       |   V   |       |       |
4+40     0.0080    0.03 Q       |   V   |       |       |
4+45     0.0082    0.04 Q       |   V   |       |       |
4+50     0.0086    0.05 Q       |    V  |       |       |
4+55     0.0089    0.05 Q       |     V |       |       |
5+ 0     0.0094    0.06 Q       |     V |       |       |
5+ 5     0.0101    0.11 Q       |      V|       |       |
5+10     0.0112    0.16 Q       |       |V      |       |
5+15     0.0127    0.21 Q       |       |  V    |       |
5+20     0.0144    0.25 Q       |       |    V  |       |
5+25     0.0164    0.30 |Q      |       |       |V      |
5+30     0.0191    0.39 |Q      |       |       |   V   |
5+35     0.0204    0.19 Q       |       |       |    V  |
5+40     0.0207    0.04 Q       |       |       |     V |
5+45     0.0208    0.02 Q       |       |       |     V |
5+50     0.0209    0.01 Q       |       |       |     V |
```

```
  5+55      0.0209     0.01  Q       |       |       |       V|
  6+ 0      0.0209     0.01  Q       |       |       |       V|
  6+ 5      0.0210     0.00  Q       |       |       |       V|
  6+10      0.0210     0.00  Q       |       |       |       V
--------------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 1999, Version 6.0
Study date 09/23/20 File: APOST610.out

++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

28771 Central Avenue Gas Station
Area A
Post-development
6-Hr 10-Yr Storm Event

Drainage Area = 0.58(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 345.00(Ft.)
Length along longest watercourse measured to centroid = 97.38(Ft.)
Length along longest watercourse = 0.065 Mi.
Length along longest watercourse measured to centroid = 0.018 Mi.
Difference in elevation = 6.34(Ft.)
Slope along watercourse = 97.0296 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.023 Hr.
Lag time = 1.41 Min.
25% of lag time = 0.35 Min.
40% of lag time = 0.56 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.58	1.27	0.74

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.58	3.12	1.82

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 1.270(In)
Area Averaged 100-Year Rainfall = 3.120(In)

Point rain (area averaged) = 2.031(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 2.031(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
0.582	79.00	0.095

Total Area Entered = 0.58(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
79.0	61.8	0.451	0.095	0.412	1.000	0.412

Sum (F) = 0.412

Area averaged mean soil loss (F) (In/Hr) = 0.412

Minimum soil loss rate ((In/Hr)) = 0.206

(for 24 hour storm duration)

Soil low loss rate (decimal) = 0.824

U n i t H y d r o g r a p h

DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Graph %	Distribution (CFS)	Unit Hydrograph
1	0.083	354.985	61.437	0.360
2	0.167	709.970	35.423	0.208
3	0.250	1064.955	3.140	0.018

Sum = 100.000 Sum= 0.587

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.122	0.412	0.100	0.02
2	0.17	0.60	0.146	0.412	0.121	0.03
3	0.25	0.60	0.146	0.412	0.121	0.03
4	0.33	0.60	0.146	0.412	0.121	0.03
5	0.42	0.60	0.146	0.412	0.121	0.03
6	0.50	0.70	0.171	0.412	0.141	0.03
7	0.58	0.70	0.171	0.412	0.141	0.03
8	0.67	0.70	0.171	0.412	0.141	0.03
9	0.75	0.70	0.171	0.412	0.141	0.03
10	0.83	0.70	0.171	0.412	0.141	0.03
11	0.92	0.70	0.171	0.412	0.141	0.03
12	1.00	0.80	0.195	0.412	0.161	0.03
13	1.08	0.80	0.195	0.412	0.161	0.03
14	1.17	0.80	0.195	0.412	0.161	0.03
15	1.25	0.80	0.195	0.412	0.161	0.03
16	1.33	0.80	0.195	0.412	0.161	0.03
17	1.42	0.80	0.195	0.412	0.161	0.03
18	1.50	0.80	0.195	0.412	0.161	0.03
19	1.58	0.80	0.195	0.412	0.161	0.03
20	1.67	0.80	0.195	0.412	0.161	0.03
21	1.75	0.80	0.195	0.412	0.161	0.03
22	1.83	0.80	0.195	0.412	0.161	0.03
23	1.92	0.80	0.195	0.412	0.161	0.03
24	2.00	0.90	0.219	0.412	0.181	0.04
25	2.08	0.80	0.195	0.412	0.161	0.03
26	2.17	0.90	0.219	0.412	0.181	0.04
27	2.25	0.90	0.219	0.412	0.181	0.04
28	2.33	0.90	0.219	0.412	0.181	0.04
29	2.42	0.90	0.219	0.412	0.181	0.04
30	2.50	0.90	0.219	0.412	0.181	0.04
31	2.58	0.90	0.219	0.412	0.181	0.04
32	2.67	0.90	0.219	0.412	0.181	0.04

33	2.75	1.00	0.244	0.412	0.201	0.04
34	2.83	1.00	0.244	0.412	0.201	0.04
35	2.92	1.00	0.244	0.412	0.201	0.04
36	3.00	1.00	0.244	0.412	0.201	0.04
37	3.08	1.00	0.244	0.412	0.201	0.04
38	3.17	1.10	0.268	0.412	0.221	0.05
39	3.25	1.10	0.268	0.412	0.221	0.05
40	3.33	1.10	0.268	0.412	0.221	0.05
41	3.42	1.20	0.292	0.412	0.241	0.05
42	3.50	1.30	0.317	0.412	0.261	0.06
43	3.58	1.40	0.341	0.412	0.281	0.06
44	3.67	1.40	0.341	0.412	0.281	0.06
45	3.75	1.50	0.366	0.412	0.301	0.06
46	3.83	1.50	0.366	0.412	0.301	0.06
47	3.92	1.60	0.390	0.412	0.321	0.07
48	4.00	1.60	0.390	0.412	0.321	0.07
49	4.08	1.70	0.414	0.412	---	0.00
50	4.17	1.80	0.439	0.412	---	0.03
51	4.25	1.90	0.463	0.412	---	0.05
52	4.33	2.00	0.487	0.412	---	0.08
53	4.42	2.10	0.512	0.412	---	0.10
54	4.50	2.10	0.512	0.412	---	0.10
55	4.58	2.20	0.536	0.412	---	0.12
56	4.67	2.30	0.561	0.412	---	0.15
57	4.75	2.40	0.585	0.412	---	0.17
58	4.83	2.40	0.585	0.412	---	0.17
59	4.92	2.50	0.609	0.412	---	0.20
60	5.00	2.60	0.634	0.412	---	0.22
61	5.08	3.10	0.756	0.412	---	0.34
62	5.17	3.60	0.877	0.412	---	0.47
63	5.25	3.90	0.951	0.412	---	0.54
64	5.33	4.20	1.024	0.412	---	0.61
65	5.42	4.70	1.146	0.412	---	0.73
66	5.50	5.60	1.365	0.412	---	0.95
67	5.58	1.90	0.463	0.412	---	0.05
68	5.67	0.90	0.219	0.412	0.181	0.04
69	5.75	0.60	0.146	0.412	0.121	0.03
70	5.83	0.50	0.122	0.412	0.100	0.02
71	5.92	0.30	0.073	0.412	0.060	0.01
72	6.00	0.20	0.049	0.412	0.040	0.01
Sum =		100.0		Sum =		7.1

Flood volume = Effective rainfall 0.59(In)
times area 0.6(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)
Total soil loss = 1.44(In)
Total soil loss = 0.070(Ac.Ft)
Total rainfall = 2.03(In)
Flood volume = 1250.1 Cubic Feet
Total soil loss = 3040.9 Cubic Feet

Peak flow rate of this hydrograph = 0.507(CFS)

++

6 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0001	0.01	Q	|	|	|	|
0+10	0.0001	0.01	Q	|	|	|	|
0+15	0.0003	0.02	Q	|	|	|	|
0+20	0.0004	0.02	Q	|	|	|	|
0+25	0.0005	0.02	Q	|	|	|	|

```
0+30    0.0006    0.02  Q       |       |       |       |
0+35    0.0007    0.02  Q       |       |       |       |
0+40    0.0008    0.02  QV      |       |       |       |
0+45    0.0009    0.02  QV      |       |       |       |
0+50    0.0011    0.02  QV      |       |       |       |
0+55    0.0012    0.02  QV      |       |       |       |
1+ 0    0.0013    0.02  QV      |       |       |       |
1+ 5    0.0014    0.02  Q V     |       |       |       |
1+10    0.0016    0.02  Q V     |       |       |       |
1+15    0.0017    0.02  Q V     |       |       |       |
1+20    0.0019    0.02  Q V     |       |       |       |
1+25    0.0020    0.02  Q V     |       |       |       |
1+30    0.0021    0.02  Q V     |       |       |       |
1+35    0.0023    0.02  Q  V    |       |       |       |
1+40    0.0024    0.02  Q  V    |       |       |       |
1+45    0.0026    0.02  Q  V    |       |       |       |
1+50    0.0027    0.02  Q  V    |       |       |       |
1+55    0.0028    0.02  Q  V    |       |       |       |
2+ 0    0.0030    0.02  Q   V   |       |       |       |
2+ 5    0.0031    0.02  Q   V   |       |       |       |
2+10    0.0033    0.02  Q   V   |       |       |       |
2+15    0.0034    0.02  Q   V   |       |       |       |
2+20    0.0036    0.02  Q    V  |       |       |       |
2+25    0.0037    0.02  Q    V  |       |       |       |
2+30    0.0039    0.02  Q    V  |       |       |       |
2+35    0.0041    0.02  Q    V  |       |       |       |
2+40    0.0042    0.02  Q    V  |       |       |       |
2+45    0.0044    0.02  Q     V |       |       |       |
2+50    0.0046    0.03  Q     V |       |       |       |
2+55    0.0047    0.03  Q     V |       |       |       |
3+ 0    0.0049    0.03  Q     V |       |       |       |
3+ 5    0.0051    0.03  Q     V |       |       |       |
3+10    0.0053    0.03  Q     V |       |       |       |
3+15    0.0054    0.03  Q     V |       |       |       |
3+20    0.0056    0.03  Q     V |       |       |       |
3+25    0.0058    0.03  Q      V|       |       |       |
3+30    0.0061    0.03  Q      V|       |       |       |
3+35    0.0063    0.03  Q      V|       |       |       |
3+40    0.0065    0.04  Q      V|       |       |       |
3+45    0.0068    0.04  Q      V|       |       |       |
3+50    0.0070    0.04  Q      V|       |       |       |
3+55    0.0073    0.04  Q       V       |       |       |
4+ 0    0.0076    0.04  Q       V       |       |       |
4+ 5    0.0077    0.02  Q       V       |       |       |
4+10    0.0078    0.01  Q       V       |       |       |
4+15    0.0079    0.02  Q       |V      |       |       |
4+20    0.0082    0.04  Q       |V      |       |       |
4+25    0.0086    0.05  Q       |V      |       |       |
4+30    0.0090    0.06  Q       | V     |       |       |
4+35    0.0094    0.07  Q       |  V    |       |       |
4+40    0.0100    0.08  Q       |  V    |       |       |
4+45    0.0107    0.10  Q       |   V   |       |       |
4+50    0.0113    0.10  Q       |   V   |       |       |
4+55    0.0121    0.11  Q       |    V  |       |       |
5+ 0    0.0130    0.12  Q       |     V |       |       |
5+ 5    0.0142    0.17  Q       |      V|       |       |
5+10    0.0158    0.24  Q       |       | V     |       |
5+15    0.0179    0.30  |Q      |       |  V    |       |
5+20    0.0202    0.34  |Q      |       |     V |       |
5+25    0.0230    0.40  |Q      |       |       | V     |
5+30    0.0265    0.51  | Q     |       |       |   V   |
5+35    0.0281    0.23  Q       |       |       |     V|
5+40    0.0284    0.04  Q       |       |       |     V|
5+45    0.0285    0.02  Q       |       |       |     V|
5+50    0.0286    0.01  Q       |       |       |     V|
```

```
  5+55      0.0286     0.01  Q        |        |        |       V|
  6+ 0      0.0287     0.01  Q        |        |        |       V|
  6+ 5      0.0287     0.00  Q        |        |        |       V|
  6+10      0.0287     0.00  Q        |        |        |       V
--------------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 1999, Version 6.0
Study date 09/23/20 File: APOST242.out

++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

28771 Central Avenue Gas Station
Area A
Post-development
24-Hr 2-Yr Storm Event

Drainage Area = 0.58(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 345.00(Ft.)
Length along longest watercourse measured to centroid = 97.38(Ft.)
Length along longest watercourse = 0.065 Mi.
Length along longest watercourse measured to centroid = 0.018 Mi.
Difference in elevation = 6.34(Ft.)
Slope along watercourse = 97.0296 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.023 Hr.
Lag time = 1.41 Min.
25% of lag time = 0.35 Min.
40% of lag time = 0.56 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.58	2.43	1.41

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.58	6.58	3.83

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 2.430(In)
Area Averaged 100-Year Rainfall = 6.580(In)

Point rain (area averaged) = 2.430(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 2.430(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
0.582	79.00	0.095

Total Area Entered = 0.58(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
79.0	61.8	0.451	0.095	0.412	1.000	0.412

Sum (F) = 0.412

Area averaged mean soil loss (F) (In/Hr) = 0.412

Minimum soil loss rate ((In/Hr)) = 0.206

(for 24 hour storm duration)

Soil low loss rate (decimal) = 0.824

U n i t H y d r o g r a p h

DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	354.985	61.437	0.360
2	0.167	709.970	35.423	0.208
3	0.250	1064.955	3.140	0.018
		Sum = 100.000	Sum=	0.587

Storm Event 3 Effective Rainfall = 0.462(In)

	Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.004	0.731	0.003	0.00
2	0.17	0.07	0.004	0.728	0.003	0.00
3	0.25	0.07	0.004	0.725	0.003	0.00
4	0.33	0.10	0.006	0.722	0.005	0.00
5	0.42	0.10	0.006	0.719	0.005	0.00
6	0.50	0.10	0.006	0.717	0.005	0.00
7	0.58	0.10	0.006	0.714	0.005	0.00
8	0.67	0.10	0.006	0.711	0.005	0.00
9	0.75	0.10	0.006	0.708	0.005	0.00
10	0.83	0.13	0.007	0.705	0.006	0.00
11	0.92	0.13	0.007	0.703	0.006	0.00
12	1.00	0.13	0.007	0.700	0.006	0.00
13	1.08	0.10	0.006	0.697	0.005	0.00
14	1.17	0.10	0.006	0.694	0.005	0.00
15	1.25	0.10	0.006	0.692	0.005	0.00
16	1.33	0.10	0.006	0.689	0.005	0.00
17	1.42	0.10	0.006	0.686	0.005	0.00
18	1.50	0.10	0.006	0.683	0.005	0.00
19	1.58	0.10	0.006	0.681	0.005	0.00
20	1.67	0.10	0.006	0.678	0.005	0.00
21	1.75	0.10	0.006	0.675	0.005	0.00
22	1.83	0.13	0.007	0.672	0.006	0.00
23	1.92	0.13	0.007	0.670	0.006	0.00
24	2.00	0.13	0.007	0.667	0.006	0.00
25	2.08	0.13	0.007	0.664	0.006	0.00
26	2.17	0.13	0.007	0.662	0.006	0.00
27	2.25	0.13	0.007	0.659	0.006	0.00
28	2.33	0.13	0.007	0.656	0.006	0.00

29	2.42	0.13	0.007	0.654	0.006	0.00
30	2.50	0.13	0.007	0.651	0.006	0.00
31	2.58	0.17	0.009	0.648	0.008	0.00
32	2.67	0.17	0.009	0.646	0.008	0.00
33	2.75	0.17	0.009	0.643	0.008	0.00
34	2.83	0.17	0.009	0.640	0.008	0.00
35	2.92	0.17	0.009	0.638	0.008	0.00
36	3.00	0.17	0.009	0.635	0.008	0.00
37	3.08	0.17	0.009	0.632	0.008	0.00
38	3.17	0.17	0.009	0.630	0.008	0.00
39	3.25	0.17	0.009	0.627	0.008	0.00
40	3.33	0.17	0.009	0.625	0.008	0.00
41	3.42	0.17	0.009	0.622	0.008	0.00
42	3.50	0.17	0.009	0.619	0.008	0.00
43	3.58	0.17	0.009	0.617	0.008	0.00
44	3.67	0.17	0.009	0.614	0.008	0.00
45	3.75	0.17	0.009	0.612	0.008	0.00
46	3.83	0.20	0.011	0.609	0.009	0.00
47	3.92	0.20	0.011	0.606	0.009	0.00
48	4.00	0.20	0.011	0.604	0.009	0.00
49	4.08	0.20	0.011	0.601	0.009	0.00
50	4.17	0.20	0.011	0.599	0.009	0.00
51	4.25	0.20	0.011	0.596	0.009	0.00
52	4.33	0.23	0.013	0.594	0.011	0.00
53	4.42	0.23	0.013	0.591	0.011	0.00
54	4.50	0.23	0.013	0.589	0.011	0.00
55	4.58	0.23	0.013	0.586	0.011	0.00
56	4.67	0.23	0.013	0.584	0.011	0.00
57	4.75	0.23	0.013	0.581	0.011	0.00
58	4.83	0.27	0.015	0.579	0.012	0.00
59	4.92	0.27	0.015	0.576	0.012	0.00
60	5.00	0.27	0.015	0.574	0.012	0.00
61	5.08	0.20	0.011	0.571	0.009	0.00
62	5.17	0.20	0.011	0.569	0.009	0.00
63	5.25	0.20	0.011	0.566	0.009	0.00
64	5.33	0.23	0.013	0.564	0.011	0.00
65	5.42	0.23	0.013	0.561	0.011	0.00
66	5.50	0.23	0.013	0.559	0.011	0.00
67	5.58	0.27	0.015	0.556	0.012	0.00
68	5.67	0.27	0.015	0.554	0.012	0.00
69	5.75	0.27	0.015	0.551	0.012	0.00
70	5.83	0.27	0.015	0.549	0.012	0.00
71	5.92	0.27	0.015	0.546	0.012	0.00
72	6.00	0.27	0.015	0.544	0.012	0.00
73	6.08	0.30	0.017	0.542	0.014	0.00
74	6.17	0.30	0.017	0.539	0.014	0.00
75	6.25	0.30	0.017	0.537	0.014	0.00
76	6.33	0.30	0.017	0.534	0.014	0.00
77	6.42	0.30	0.017	0.532	0.014	0.00
78	6.50	0.30	0.017	0.530	0.014	0.00
79	6.58	0.33	0.018	0.527	0.015	0.00
80	6.67	0.33	0.018	0.525	0.015	0.00
81	6.75	0.33	0.018	0.523	0.015	0.00
82	6.83	0.33	0.018	0.520	0.015	0.00
83	6.92	0.33	0.018	0.518	0.015	0.00
84	7.00	0.33	0.018	0.515	0.015	0.00
85	7.08	0.33	0.018	0.513	0.015	0.00
86	7.17	0.33	0.018	0.511	0.015	0.00
87	7.25	0.33	0.018	0.508	0.015	0.00
88	7.33	0.37	0.020	0.506	0.017	0.00
89	7.42	0.37	0.020	0.504	0.017	0.00
90	7.50	0.37	0.020	0.501	0.017	0.00
91	7.58	0.40	0.022	0.499	0.018	0.00
92	7.67	0.40	0.022	0.497	0.018	0.00
93	7.75	0.40	0.022	0.495	0.018	0.00

94	7.83	0.43	0.024	0.492	0.020	0.00
95	7.92	0.43	0.024	0.490	0.020	0.00
96	8.00	0.43	0.024	0.488	0.020	0.00
97	8.08	0.50	0.028	0.486	0.023	0.00
98	8.17	0.50	0.028	0.483	0.023	0.00
99	8.25	0.50	0.028	0.481	0.023	0.00
100	8.33	0.50	0.028	0.479	0.023	0.00
101	8.42	0.50	0.028	0.477	0.023	0.00
102	8.50	0.50	0.028	0.474	0.023	0.00
103	8.58	0.53	0.030	0.472	0.024	0.01
104	8.67	0.53	0.030	0.470	0.024	0.01
105	8.75	0.53	0.030	0.468	0.024	0.01
106	8.83	0.57	0.031	0.465	0.026	0.01
107	8.92	0.57	0.031	0.463	0.026	0.01
108	9.00	0.57	0.031	0.461	0.026	0.01
109	9.08	0.63	0.035	0.459	0.029	0.01
110	9.17	0.63	0.035	0.457	0.029	0.01
111	9.25	0.63	0.035	0.454	0.029	0.01
112	9.33	0.67	0.037	0.452	0.030	0.01
113	9.42	0.67	0.037	0.450	0.030	0.01
114	9.50	0.67	0.037	0.448	0.030	0.01
115	9.58	0.70	0.039	0.446	0.032	0.01
116	9.67	0.70	0.039	0.444	0.032	0.01
117	9.75	0.70	0.039	0.442	0.032	0.01
118	9.83	0.73	0.041	0.439	0.033	0.01
119	9.92	0.73	0.041	0.437	0.033	0.01
120	10.00	0.73	0.041	0.435	0.033	0.01
121	10.08	0.50	0.028	0.433	0.023	0.00
122	10.17	0.50	0.028	0.431	0.023	0.00
123	10.25	0.50	0.028	0.429	0.023	0.00
124	10.33	0.50	0.028	0.427	0.023	0.00
125	10.42	0.50	0.028	0.425	0.023	0.00
126	10.50	0.50	0.028	0.423	0.023	0.00
127	10.58	0.67	0.037	0.421	0.030	0.01
128	10.67	0.67	0.037	0.419	0.030	0.01
129	10.75	0.67	0.037	0.417	0.030	0.01
130	10.83	0.67	0.037	0.415	0.030	0.01
131	10.92	0.67	0.037	0.412	0.030	0.01
132	11.00	0.67	0.037	0.410	0.030	0.01
133	11.08	0.63	0.035	0.408	0.029	0.01
134	11.17	0.63	0.035	0.406	0.029	0.01
135	11.25	0.63	0.035	0.404	0.029	0.01
136	11.33	0.63	0.035	0.402	0.029	0.01
137	11.42	0.63	0.035	0.400	0.029	0.01
138	11.50	0.63	0.035	0.398	0.029	0.01
139	11.58	0.57	0.031	0.396	0.026	0.01
140	11.67	0.57	0.031	0.394	0.026	0.01
141	11.75	0.57	0.031	0.393	0.026	0.01
142	11.83	0.60	0.033	0.391	0.027	0.01
143	11.92	0.60	0.033	0.389	0.027	0.01
144	12.00	0.60	0.033	0.387	0.027	0.01
145	12.08	0.83	0.046	0.385	0.038	0.01
146	12.17	0.83	0.046	0.383	0.038	0.01
147	12.25	0.83	0.046	0.381	0.038	0.01
148	12.33	0.87	0.048	0.379	0.040	0.01
149	12.42	0.87	0.048	0.377	0.040	0.01
150	12.50	0.87	0.048	0.375	0.040	0.01
151	12.58	0.93	0.052	0.373	0.043	0.01
152	12.67	0.93	0.052	0.371	0.043	0.01
153	12.75	0.93	0.052	0.370	0.043	0.01
154	12.83	0.97	0.054	0.368	0.044	0.01
155	12.92	0.97	0.054	0.366	0.044	0.01
156	13.00	0.97	0.054	0.364	0.044	0.01
157	13.08	1.13	0.063	0.362	0.052	0.01
158	13.17	1.13	0.063	0.360	0.052	0.01

159	13.25	1.13	0.063	0.358	0.052	0.01
160	13.33	1.13	0.063	0.357	0.052	0.01
161	13.42	1.13	0.063	0.355	0.052	0.01
162	13.50	1.13	0.063	0.353	0.052	0.01
163	13.58	0.77	0.042	0.351	0.035	0.01
164	13.67	0.77	0.042	0.349	0.035	0.01
165	13.75	0.77	0.042	0.348	0.035	0.01
166	13.83	0.77	0.042	0.346	0.035	0.01
167	13.92	0.77	0.042	0.344	0.035	0.01
168	14.00	0.77	0.042	0.342	0.035	0.01
169	14.08	0.90	0.050	0.341	0.041	0.01
170	14.17	0.90	0.050	0.339	0.041	0.01
171	14.25	0.90	0.050	0.337	0.041	0.01
172	14.33	0.87	0.048	0.335	0.040	0.01
173	14.42	0.87	0.048	0.334	0.040	0.01
174	14.50	0.87	0.048	0.332	0.040	0.01
175	14.58	0.87	0.048	0.330	0.040	0.01
176	14.67	0.87	0.048	0.329	0.040	0.01
177	14.75	0.87	0.048	0.327	0.040	0.01
178	14.83	0.83	0.046	0.325	0.038	0.01
179	14.92	0.83	0.046	0.324	0.038	0.01
180	15.00	0.83	0.046	0.322	0.038	0.01
181	15.08	0.80	0.044	0.320	0.037	0.01
182	15.17	0.80	0.044	0.319	0.037	0.01
183	15.25	0.80	0.044	0.317	0.037	0.01
184	15.33	0.77	0.042	0.315	0.035	0.01
185	15.42	0.77	0.042	0.314	0.035	0.01
186	15.50	0.77	0.042	0.312	0.035	0.01
187	15.58	0.63	0.035	0.311	0.029	0.01
188	15.67	0.63	0.035	0.309	0.029	0.01
189	15.75	0.63	0.035	0.307	0.029	0.01
190	15.83	0.63	0.035	0.306	0.029	0.01
191	15.92	0.63	0.035	0.304	0.029	0.01
192	16.00	0.63	0.035	0.303	0.029	0.01
193	16.08	0.13	0.007	0.301	0.006	0.00
194	16.17	0.13	0.007	0.300	0.006	0.00
195	16.25	0.13	0.007	0.298	0.006	0.00
196	16.33	0.13	0.007	0.297	0.006	0.00
197	16.42	0.13	0.007	0.295	0.006	0.00
198	16.50	0.13	0.007	0.294	0.006	0.00
199	16.58	0.10	0.006	0.292	0.005	0.00
200	16.67	0.10	0.006	0.291	0.005	0.00
201	16.75	0.10	0.006	0.289	0.005	0.00
202	16.83	0.10	0.006	0.288	0.005	0.00
203	16.92	0.10	0.006	0.286	0.005	0.00
204	17.00	0.10	0.006	0.285	0.005	0.00
205	17.08	0.17	0.009	0.283	0.008	0.00
206	17.17	0.17	0.009	0.282	0.008	0.00
207	17.25	0.17	0.009	0.280	0.008	0.00
208	17.33	0.17	0.009	0.279	0.008	0.00
209	17.42	0.17	0.009	0.278	0.008	0.00
210	17.50	0.17	0.009	0.276	0.008	0.00
211	17.58	0.17	0.009	0.275	0.008	0.00
212	17.67	0.17	0.009	0.273	0.008	0.00
213	17.75	0.17	0.009	0.272	0.008	0.00
214	17.83	0.13	0.007	0.271	0.006	0.00
215	17.92	0.13	0.007	0.269	0.006	0.00
216	18.00	0.13	0.007	0.268	0.006	0.00
217	18.08	0.13	0.007	0.267	0.006	0.00
218	18.17	0.13	0.007	0.265	0.006	0.00
219	18.25	0.13	0.007	0.264	0.006	0.00
220	18.33	0.13	0.007	0.263	0.006	0.00
221	18.42	0.13	0.007	0.262	0.006	0.00
222	18.50	0.13	0.007	0.260	0.006	0.00
223	18.58	0.10	0.006	0.259	0.005	0.00

224	18.67	0.10	0.006	0.258	0.005	0.00
225	18.75	0.10	0.006	0.257	0.005	0.00
226	18.83	0.07	0.004	0.255	0.003	0.00
227	18.92	0.07	0.004	0.254	0.003	0.00
228	19.00	0.07	0.004	0.253	0.003	0.00
229	19.08	0.10	0.006	0.252	0.005	0.00
230	19.17	0.10	0.006	0.251	0.005	0.00
231	19.25	0.10	0.006	0.249	0.005	0.00
232	19.33	0.13	0.007	0.248	0.006	0.00
233	19.42	0.13	0.007	0.247	0.006	0.00
234	19.50	0.13	0.007	0.246	0.006	0.00
235	19.58	0.10	0.006	0.245	0.005	0.00
236	19.67	0.10	0.006	0.244	0.005	0.00
237	19.75	0.10	0.006	0.243	0.005	0.00
238	19.83	0.07	0.004	0.241	0.003	0.00
239	19.92	0.07	0.004	0.240	0.003	0.00
240	20.00	0.07	0.004	0.239	0.003	0.00
241	20.08	0.10	0.006	0.238	0.005	0.00
242	20.17	0.10	0.006	0.237	0.005	0.00
243	20.25	0.10	0.006	0.236	0.005	0.00
244	20.33	0.10	0.006	0.235	0.005	0.00
245	20.42	0.10	0.006	0.234	0.005	0.00
246	20.50	0.10	0.006	0.233	0.005	0.00
247	20.58	0.10	0.006	0.232	0.005	0.00
248	20.67	0.10	0.006	0.231	0.005	0.00
249	20.75	0.10	0.006	0.230	0.005	0.00
250	20.83	0.07	0.004	0.229	0.003	0.00
251	20.92	0.07	0.004	0.228	0.003	0.00
252	21.00	0.07	0.004	0.227	0.003	0.00
253	21.08	0.10	0.006	0.227	0.005	0.00
254	21.17	0.10	0.006	0.226	0.005	0.00
255	21.25	0.10	0.006	0.225	0.005	0.00
256	21.33	0.07	0.004	0.224	0.003	0.00
257	21.42	0.07	0.004	0.223	0.003	0.00
258	21.50	0.07	0.004	0.222	0.003	0.00
259	21.58	0.10	0.006	0.221	0.005	0.00
260	21.67	0.10	0.006	0.221	0.005	0.00
261	21.75	0.10	0.006	0.220	0.005	0.00
262	21.83	0.07	0.004	0.219	0.003	0.00
263	21.92	0.07	0.004	0.218	0.003	0.00
264	22.00	0.07	0.004	0.218	0.003	0.00
265	22.08	0.10	0.006	0.217	0.005	0.00
266	22.17	0.10	0.006	0.216	0.005	0.00
267	22.25	0.10	0.006	0.216	0.005	0.00
268	22.33	0.07	0.004	0.215	0.003	0.00
269	22.42	0.07	0.004	0.214	0.003	0.00
270	22.50	0.07	0.004	0.214	0.003	0.00
271	22.58	0.07	0.004	0.213	0.003	0.00
272	22.67	0.07	0.004	0.212	0.003	0.00
273	22.75	0.07	0.004	0.212	0.003	0.00
274	22.83	0.07	0.004	0.211	0.003	0.00
275	22.92	0.07	0.004	0.211	0.003	0.00
276	23.00	0.07	0.004	0.210	0.003	0.00
277	23.08	0.07	0.004	0.210	0.003	0.00
278	23.17	0.07	0.004	0.209	0.003	0.00
279	23.25	0.07	0.004	0.209	0.003	0.00
280	23.33	0.07	0.004	0.208	0.003	0.00
281	23.42	0.07	0.004	0.208	0.003	0.00
282	23.50	0.07	0.004	0.208	0.003	0.00
283	23.58	0.07	0.004	0.207	0.003	0.00
284	23.67	0.07	0.004	0.207	0.003	0.00
285	23.75	0.07	0.004	0.207	0.003	0.00
286	23.83	0.07	0.004	0.206	0.003	0.00
287	23.92	0.07	0.004	0.206	0.003	0.00
288	24.00	0.07	0.004	0.206	0.003	0.00

Sum = 100.0 Sum = 1.0

Flood volume = Effective rainfall 0.08(In)

times area 0.6(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)

Total soil loss = 0.38(In)

Total soil loss = 0.018(Ac.Ft)

Total rainfall = 0.46(In)

Flood volume = 171.5 Cubic Feet

Total soil loss = 803.9 Cubic Feet

Storm Event 2 Effective Rainfall = 0.875(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.007	0.731	0.006	0.00
2	0.17	0.07	0.007	0.728	0.006	0.00
3	0.25	0.07	0.007	0.725	0.006	0.00
4	0.33	0.10	0.010	0.722	0.009	0.00
5	0.42	0.10	0.010	0.719	0.009	0.00
6	0.50	0.10	0.010	0.717	0.009	0.00
7	0.58	0.10	0.010	0.714	0.009	0.00
8	0.67	0.10	0.010	0.711	0.009	0.00
9	0.75	0.10	0.010	0.708	0.009	0.00
10	0.83	0.13	0.014	0.705	0.012	0.00
11	0.92	0.13	0.014	0.703	0.012	0.00
12	1.00	0.13	0.014	0.700	0.012	0.00
13	1.08	0.10	0.010	0.697	0.009	0.00
14	1.17	0.10	0.010	0.694	0.009	0.00
15	1.25	0.10	0.010	0.692	0.009	0.00
16	1.33	0.10	0.010	0.689	0.009	0.00
17	1.42	0.10	0.010	0.686	0.009	0.00
18	1.50	0.10	0.010	0.683	0.009	0.00
19	1.58	0.10	0.010	0.681	0.009	0.00
20	1.67	0.10	0.010	0.678	0.009	0.00
21	1.75	0.10	0.010	0.675	0.009	0.00
22	1.83	0.13	0.014	0.672	0.012	0.00
23	1.92	0.13	0.014	0.670	0.012	0.00
24	2.00	0.13	0.014	0.667	0.012	0.00
25	2.08	0.13	0.014	0.664	0.012	0.00
26	2.17	0.13	0.014	0.662	0.012	0.00
27	2.25	0.13	0.014	0.659	0.012	0.00
28	2.33	0.13	0.014	0.656	0.012	0.00
29	2.42	0.13	0.014	0.654	0.012	0.00
30	2.50	0.13	0.014	0.651	0.012	0.00
31	2.58	0.17	0.017	0.648	0.014	0.00
32	2.67	0.17	0.017	0.646	0.014	0.00
33	2.75	0.17	0.017	0.643	0.014	0.00
34	2.83	0.17	0.017	0.640	0.014	0.00
35	2.92	0.17	0.017	0.638	0.014	0.00
36	3.00	0.17	0.017	0.635	0.014	0.00
37	3.08	0.17	0.017	0.632	0.014	0.00
38	3.17	0.17	0.017	0.630	0.014	0.00
39	3.25	0.17	0.017	0.627	0.014	0.00
40	3.33	0.17	0.017	0.625	0.014	0.00
41	3.42	0.17	0.017	0.622	0.014	0.00
42	3.50	0.17	0.017	0.619	0.014	0.00
43	3.58	0.17	0.017	0.617	0.014	0.00
44	3.67	0.17	0.017	0.614	0.014	0.00
45	3.75	0.17	0.017	0.612	0.014	0.00
46	3.83	0.20	0.021	0.609	0.017	0.00
47	3.92	0.20	0.021	0.606	0.017	0.00
48	4.00	0.20	0.021	0.604	0.017	0.00
49	4.08	0.20	0.021	0.601	0.017	0.00
50	4.17	0.20	0.021	0.599	0.017	0.00
51	4.25	0.20	0.021	0.596	0.017	0.00

52	4.33	0.23	0.024	0.594	0.020	0.00
53	4.42	0.23	0.024	0.591	0.020	0.00
54	4.50	0.23	0.024	0.589	0.020	0.00
55	4.58	0.23	0.024	0.586	0.020	0.00
56	4.67	0.23	0.024	0.584	0.020	0.00
57	4.75	0.23	0.024	0.581	0.020	0.00
58	4.83	0.27	0.028	0.579	0.023	0.00
59	4.92	0.27	0.028	0.576	0.023	0.00
60	5.00	0.27	0.028	0.574	0.023	0.00
61	5.08	0.20	0.021	0.571	0.017	0.00
62	5.17	0.20	0.021	0.569	0.017	0.00
63	5.25	0.20	0.021	0.566	0.017	0.00
64	5.33	0.23	0.024	0.564	0.020	0.00
65	5.42	0.23	0.024	0.561	0.020	0.00
66	5.50	0.23	0.024	0.559	0.020	0.00
67	5.58	0.27	0.028	0.556	0.023	0.00
68	5.67	0.27	0.028	0.554	0.023	0.00
69	5.75	0.27	0.028	0.551	0.023	0.00
70	5.83	0.27	0.028	0.549	0.023	0.00
71	5.92	0.27	0.028	0.546	0.023	0.00
72	6.00	0.27	0.028	0.544	0.023	0.00
73	6.08	0.30	0.031	0.542	0.026	0.01
74	6.17	0.30	0.031	0.539	0.026	0.01
75	6.25	0.30	0.031	0.537	0.026	0.01
76	6.33	0.30	0.031	0.534	0.026	0.01
77	6.42	0.30	0.031	0.532	0.026	0.01
78	6.50	0.30	0.031	0.530	0.026	0.01
79	6.58	0.33	0.035	0.527	0.029	0.01
80	6.67	0.33	0.035	0.525	0.029	0.01
81	6.75	0.33	0.035	0.523	0.029	0.01
82	6.83	0.33	0.035	0.520	0.029	0.01
83	6.92	0.33	0.035	0.518	0.029	0.01
84	7.00	0.33	0.035	0.515	0.029	0.01
85	7.08	0.33	0.035	0.513	0.029	0.01
86	7.17	0.33	0.035	0.511	0.029	0.01
87	7.25	0.33	0.035	0.508	0.029	0.01
88	7.33	0.37	0.038	0.506	0.032	0.01
89	7.42	0.37	0.038	0.504	0.032	0.01
90	7.50	0.37	0.038	0.501	0.032	0.01
91	7.58	0.40	0.042	0.499	0.035	0.01
92	7.67	0.40	0.042	0.497	0.035	0.01
93	7.75	0.40	0.042	0.495	0.035	0.01
94	7.83	0.43	0.045	0.492	0.037	0.01
95	7.92	0.43	0.045	0.490	0.037	0.01
96	8.00	0.43	0.045	0.488	0.037	0.01
97	8.08	0.50	0.052	0.486	0.043	0.01
98	8.17	0.50	0.052	0.483	0.043	0.01
99	8.25	0.50	0.052	0.481	0.043	0.01
100	8.33	0.50	0.052	0.479	0.043	0.01
101	8.42	0.50	0.052	0.477	0.043	0.01
102	8.50	0.50	0.052	0.474	0.043	0.01
103	8.58	0.53	0.056	0.472	0.046	0.01
104	8.67	0.53	0.056	0.470	0.046	0.01
105	8.75	0.53	0.056	0.468	0.046	0.01
106	8.83	0.57	0.059	0.465	0.049	0.01
107	8.92	0.57	0.059	0.463	0.049	0.01
108	9.00	0.57	0.059	0.461	0.049	0.01
109	9.08	0.63	0.066	0.459	0.055	0.01
110	9.17	0.63	0.066	0.457	0.055	0.01
111	9.25	0.63	0.066	0.454	0.055	0.01
112	9.33	0.67	0.070	0.452	0.058	0.01
113	9.42	0.67	0.070	0.450	0.058	0.01
114	9.50	0.67	0.070	0.448	0.058	0.01
115	9.58	0.70	0.073	0.446	0.061	0.01
116	9.67	0.70	0.073	0.444	0.061	0.01

117	9.75	0.70	0.073	0.442	0.061	0.01
118	9.83	0.73	0.077	0.439	0.063	0.01
119	9.92	0.73	0.077	0.437	0.063	0.01
120	10.00	0.73	0.077	0.435	0.063	0.01
121	10.08	0.50	0.052	0.433	0.043	0.01
122	10.17	0.50	0.052	0.431	0.043	0.01
123	10.25	0.50	0.052	0.429	0.043	0.01
124	10.33	0.50	0.052	0.427	0.043	0.01
125	10.42	0.50	0.052	0.425	0.043	0.01
126	10.50	0.50	0.052	0.423	0.043	0.01
127	10.58	0.67	0.070	0.421	0.058	0.01
128	10.67	0.67	0.070	0.419	0.058	0.01
129	10.75	0.67	0.070	0.417	0.058	0.01
130	10.83	0.67	0.070	0.415	0.058	0.01
131	10.92	0.67	0.070	0.412	0.058	0.01
132	11.00	0.67	0.070	0.410	0.058	0.01
133	11.08	0.63	0.066	0.408	0.055	0.01
134	11.17	0.63	0.066	0.406	0.055	0.01
135	11.25	0.63	0.066	0.404	0.055	0.01
136	11.33	0.63	0.066	0.402	0.055	0.01
137	11.42	0.63	0.066	0.400	0.055	0.01
138	11.50	0.63	0.066	0.398	0.055	0.01
139	11.58	0.57	0.059	0.396	0.049	0.01
140	11.67	0.57	0.059	0.394	0.049	0.01
141	11.75	0.57	0.059	0.393	0.049	0.01
142	11.83	0.60	0.063	0.391	0.052	0.01
143	11.92	0.60	0.063	0.389	0.052	0.01
144	12.00	0.60	0.063	0.387	0.052	0.01
145	12.08	0.83	0.087	0.385	0.072	0.02
146	12.17	0.83	0.087	0.383	0.072	0.02
147	12.25	0.83	0.087	0.381	0.072	0.02
148	12.33	0.87	0.091	0.379	0.075	0.02
149	12.42	0.87	0.091	0.377	0.075	0.02
150	12.50	0.87	0.091	0.375	0.075	0.02
151	12.58	0.93	0.098	0.373	0.081	0.02
152	12.67	0.93	0.098	0.371	0.081	0.02
153	12.75	0.93	0.098	0.370	0.081	0.02
154	12.83	0.97	0.101	0.368	0.084	0.02
155	12.92	0.97	0.101	0.366	0.084	0.02
156	13.00	0.97	0.101	0.364	0.084	0.02
157	13.08	1.13	0.119	0.362	0.098	0.02
158	13.17	1.13	0.119	0.360	0.098	0.02
159	13.25	1.13	0.119	0.358	0.098	0.02
160	13.33	1.13	0.119	0.357	0.098	0.02
161	13.42	1.13	0.119	0.355	0.098	0.02
162	13.50	1.13	0.119	0.353	0.098	0.02
163	13.58	0.77	0.080	0.351	0.066	0.01
164	13.67	0.77	0.080	0.349	0.066	0.01
165	13.75	0.77	0.080	0.348	0.066	0.01
166	13.83	0.77	0.080	0.346	0.066	0.01
167	13.92	0.77	0.080	0.344	0.066	0.01
168	14.00	0.77	0.080	0.342	0.066	0.01
169	14.08	0.90	0.094	0.341	0.078	0.02
170	14.17	0.90	0.094	0.339	0.078	0.02
171	14.25	0.90	0.094	0.337	0.078	0.02
172	14.33	0.87	0.091	0.335	0.075	0.02
173	14.42	0.87	0.091	0.334	0.075	0.02
174	14.50	0.87	0.091	0.332	0.075	0.02
175	14.58	0.87	0.091	0.330	0.075	0.02
176	14.67	0.87	0.091	0.329	0.075	0.02
177	14.75	0.87	0.091	0.327	0.075	0.02
178	14.83	0.83	0.087	0.325	0.072	0.02
179	14.92	0.83	0.087	0.324	0.072	0.02
180	15.00	0.83	0.087	0.322	0.072	0.02
181	15.08	0.80	0.084	0.320	0.069	0.01

182	15.17	0.80	0.084	0.319	0.069	0.01
183	15.25	0.80	0.084	0.317	0.069	0.01
184	15.33	0.77	0.080	0.315	0.066	0.01
185	15.42	0.77	0.080	0.314	0.066	0.01
186	15.50	0.77	0.080	0.312	0.066	0.01
187	15.58	0.63	0.066	0.311	0.055	0.01
188	15.67	0.63	0.066	0.309	0.055	0.01
189	15.75	0.63	0.066	0.307	0.055	0.01
190	15.83	0.63	0.066	0.306	0.055	0.01
191	15.92	0.63	0.066	0.304	0.055	0.01
192	16.00	0.63	0.066	0.303	0.055	0.01
193	16.08	0.13	0.014	0.301	0.012	0.00
194	16.17	0.13	0.014	0.300	0.012	0.00
195	16.25	0.13	0.014	0.298	0.012	0.00
196	16.33	0.13	0.014	0.297	0.012	0.00
197	16.42	0.13	0.014	0.295	0.012	0.00
198	16.50	0.13	0.014	0.294	0.012	0.00
199	16.58	0.10	0.010	0.292	0.009	0.00
200	16.67	0.10	0.010	0.291	0.009	0.00
201	16.75	0.10	0.010	0.289	0.009	0.00
202	16.83	0.10	0.010	0.288	0.009	0.00
203	16.92	0.10	0.010	0.286	0.009	0.00
204	17.00	0.10	0.010	0.285	0.009	0.00
205	17.08	0.17	0.017	0.283	0.014	0.00
206	17.17	0.17	0.017	0.282	0.014	0.00
207	17.25	0.17	0.017	0.280	0.014	0.00
208	17.33	0.17	0.017	0.279	0.014	0.00
209	17.42	0.17	0.017	0.278	0.014	0.00
210	17.50	0.17	0.017	0.276	0.014	0.00
211	17.58	0.17	0.017	0.275	0.014	0.00
212	17.67	0.17	0.017	0.273	0.014	0.00
213	17.75	0.17	0.017	0.272	0.014	0.00
214	17.83	0.13	0.014	0.271	0.012	0.00
215	17.92	0.13	0.014	0.269	0.012	0.00
216	18.00	0.13	0.014	0.268	0.012	0.00
217	18.08	0.13	0.014	0.267	0.012	0.00
218	18.17	0.13	0.014	0.265	0.012	0.00
219	18.25	0.13	0.014	0.264	0.012	0.00
220	18.33	0.13	0.014	0.263	0.012	0.00
221	18.42	0.13	0.014	0.262	0.012	0.00
222	18.50	0.13	0.014	0.260	0.012	0.00
223	18.58	0.10	0.010	0.259	0.009	0.00
224	18.67	0.10	0.010	0.258	0.009	0.00
225	18.75	0.10	0.010	0.257	0.009	0.00
226	18.83	0.07	0.007	0.255	0.006	0.00
227	18.92	0.07	0.007	0.254	0.006	0.00
228	19.00	0.07	0.007	0.253	0.006	0.00
229	19.08	0.10	0.010	0.252	0.009	0.00
230	19.17	0.10	0.010	0.251	0.009	0.00
231	19.25	0.10	0.010	0.249	0.009	0.00
232	19.33	0.13	0.014	0.248	0.012	0.00
233	19.42	0.13	0.014	0.247	0.012	0.00
234	19.50	0.13	0.014	0.246	0.012	0.00
235	19.58	0.10	0.010	0.245	0.009	0.00
236	19.67	0.10	0.010	0.244	0.009	0.00
237	19.75	0.10	0.010	0.243	0.009	0.00
238	19.83	0.07	0.007	0.241	0.006	0.00
239	19.92	0.07	0.007	0.240	0.006	0.00
240	20.00	0.07	0.007	0.239	0.006	0.00
241	20.08	0.10	0.010	0.238	0.009	0.00
242	20.17	0.10	0.010	0.237	0.009	0.00
243	20.25	0.10	0.010	0.236	0.009	0.00
244	20.33	0.10	0.010	0.235	0.009	0.00
245	20.42	0.10	0.010	0.234	0.009	0.00
246	20.50	0.10	0.010	0.233	0.009	0.00

247	20.58	0.10	0.010	0.232	0.009	0.00
248	20.67	0.10	0.010	0.231	0.009	0.00
249	20.75	0.10	0.010	0.230	0.009	0.00
250	20.83	0.07	0.007	0.229	0.006	0.00
251	20.92	0.07	0.007	0.228	0.006	0.00
252	21.00	0.07	0.007	0.227	0.006	0.00
253	21.08	0.10	0.010	0.227	0.009	0.00
254	21.17	0.10	0.010	0.226	0.009	0.00
255	21.25	0.10	0.010	0.225	0.009	0.00
256	21.33	0.07	0.007	0.224	0.006	0.00
257	21.42	0.07	0.007	0.223	0.006	0.00
258	21.50	0.07	0.007	0.222	0.006	0.00
259	21.58	0.10	0.010	0.221	0.009	0.00
260	21.67	0.10	0.010	0.221	0.009	0.00
261	21.75	0.10	0.010	0.220	0.009	0.00
262	21.83	0.07	0.007	0.219	0.006	0.00
263	21.92	0.07	0.007	0.218	0.006	0.00
264	22.00	0.07	0.007	0.218	0.006	0.00
265	22.08	0.10	0.010	0.217	0.009	0.00
266	22.17	0.10	0.010	0.216	0.009	0.00
267	22.25	0.10	0.010	0.216	0.009	0.00
268	22.33	0.07	0.007	0.215	0.006	0.00
269	22.42	0.07	0.007	0.214	0.006	0.00
270	22.50	0.07	0.007	0.214	0.006	0.00
271	22.58	0.07	0.007	0.213	0.006	0.00
272	22.67	0.07	0.007	0.212	0.006	0.00
273	22.75	0.07	0.007	0.212	0.006	0.00
274	22.83	0.07	0.007	0.211	0.006	0.00
275	22.92	0.07	0.007	0.211	0.006	0.00
276	23.00	0.07	0.007	0.210	0.006	0.00
277	23.08	0.07	0.007	0.210	0.006	0.00
278	23.17	0.07	0.007	0.209	0.006	0.00
279	23.25	0.07	0.007	0.209	0.006	0.00
280	23.33	0.07	0.007	0.208	0.006	0.00
281	23.42	0.07	0.007	0.208	0.006	0.00
282	23.50	0.07	0.007	0.208	0.006	0.00
283	23.58	0.07	0.007	0.207	0.006	0.00
284	23.67	0.07	0.007	0.207	0.006	0.00
285	23.75	0.07	0.007	0.207	0.006	0.00
286	23.83	0.07	0.007	0.206	0.006	0.00
287	23.92	0.07	0.007	0.206	0.006	0.00
288	24.00	0.07	0.007	0.206	0.006	0.00
Sum =		100.0		Sum =		1.8

Flood volume = Effective rainfall 0.15(In)
times area 0.6(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)
Total soil loss = 0.72(In)
Total soil loss = 0.035(Ac.Ft)
Total rainfall = 0.87(In)
Flood volume = 324.9 Cubic Feet
Total soil loss = 1523.2 Cubic Feet

Storm Event 1 Effective Rainfall = 2.430(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.019	0.731	0.016	0.00
2	0.17	0.07	0.019	0.728	0.016	0.00
3	0.25	0.07	0.019	0.725	0.016	0.00
4	0.33	0.10	0.029	0.722	0.024	0.01
5	0.42	0.10	0.029	0.719	0.024	0.01
6	0.50	0.10	0.029	0.717	0.024	0.01
7	0.58	0.10	0.029	0.714	0.024	0.01
8	0.67	0.10	0.029	0.711	0.024	0.01
9	0.75	0.10	0.029	0.708	0.024	0.01

10	0.83	0.13	0.039	0.705	0.032	0.01
11	0.92	0.13	0.039	0.703	0.032	0.01
12	1.00	0.13	0.039	0.700	0.032	0.01
13	1.08	0.10	0.029	0.697	0.024	0.01
14	1.17	0.10	0.029	0.694	0.024	0.01
15	1.25	0.10	0.029	0.692	0.024	0.01
16	1.33	0.10	0.029	0.689	0.024	0.01
17	1.42	0.10	0.029	0.686	0.024	0.01
18	1.50	0.10	0.029	0.683	0.024	0.01
19	1.58	0.10	0.029	0.681	0.024	0.01
20	1.67	0.10	0.029	0.678	0.024	0.01
21	1.75	0.10	0.029	0.675	0.024	0.01
22	1.83	0.13	0.039	0.672	0.032	0.01
23	1.92	0.13	0.039	0.670	0.032	0.01
24	2.00	0.13	0.039	0.667	0.032	0.01
25	2.08	0.13	0.039	0.664	0.032	0.01
26	2.17	0.13	0.039	0.662	0.032	0.01
27	2.25	0.13	0.039	0.659	0.032	0.01
28	2.33	0.13	0.039	0.656	0.032	0.01
29	2.42	0.13	0.039	0.654	0.032	0.01
30	2.50	0.13	0.039	0.651	0.032	0.01
31	2.58	0.17	0.049	0.648	0.040	0.01
32	2.67	0.17	0.049	0.646	0.040	0.01
33	2.75	0.17	0.049	0.643	0.040	0.01
34	2.83	0.17	0.049	0.640	0.040	0.01
35	2.92	0.17	0.049	0.638	0.040	0.01
36	3.00	0.17	0.049	0.635	0.040	0.01
37	3.08	0.17	0.049	0.632	0.040	0.01
38	3.17	0.17	0.049	0.630	0.040	0.01
39	3.25	0.17	0.049	0.627	0.040	0.01
40	3.33	0.17	0.049	0.625	0.040	0.01
41	3.42	0.17	0.049	0.622	0.040	0.01
42	3.50	0.17	0.049	0.619	0.040	0.01
43	3.58	0.17	0.049	0.617	0.040	0.01
44	3.67	0.17	0.049	0.614	0.040	0.01
45	3.75	0.17	0.049	0.612	0.040	0.01
46	3.83	0.20	0.058	0.609	0.048	0.01
47	3.92	0.20	0.058	0.606	0.048	0.01
48	4.00	0.20	0.058	0.604	0.048	0.01
49	4.08	0.20	0.058	0.601	0.048	0.01
50	4.17	0.20	0.058	0.599	0.048	0.01
51	4.25	0.20	0.058	0.596	0.048	0.01
52	4.33	0.23	0.068	0.594	0.056	0.01
53	4.42	0.23	0.068	0.591	0.056	0.01
54	4.50	0.23	0.068	0.589	0.056	0.01
55	4.58	0.23	0.068	0.586	0.056	0.01
56	4.67	0.23	0.068	0.584	0.056	0.01
57	4.75	0.23	0.068	0.581	0.056	0.01
58	4.83	0.27	0.078	0.579	0.064	0.01
59	4.92	0.27	0.078	0.576	0.064	0.01
60	5.00	0.27	0.078	0.574	0.064	0.01
61	5.08	0.20	0.058	0.571	0.048	0.01
62	5.17	0.20	0.058	0.569	0.048	0.01
63	5.25	0.20	0.058	0.566	0.048	0.01
64	5.33	0.23	0.068	0.564	0.056	0.01
65	5.42	0.23	0.068	0.561	0.056	0.01
66	5.50	0.23	0.068	0.559	0.056	0.01
67	5.58	0.27	0.078	0.556	0.064	0.01
68	5.67	0.27	0.078	0.554	0.064	0.01
69	5.75	0.27	0.078	0.551	0.064	0.01
70	5.83	0.27	0.078	0.549	0.064	0.01
71	5.92	0.27	0.078	0.546	0.064	0.01
72	6.00	0.27	0.078	0.544	0.064	0.01
73	6.08	0.30	0.087	0.542	0.072	0.02
74	6.17	0.30	0.087	0.539	0.072	0.02

75	6.25	0.30	0.087	0.537	0.072	0.02
76	6.33	0.30	0.087	0.534	0.072	0.02
77	6.42	0.30	0.087	0.532	0.072	0.02
78	6.50	0.30	0.087	0.530	0.072	0.02
79	6.58	0.33	0.097	0.527	0.080	0.02
80	6.67	0.33	0.097	0.525	0.080	0.02
81	6.75	0.33	0.097	0.523	0.080	0.02
82	6.83	0.33	0.097	0.520	0.080	0.02
83	6.92	0.33	0.097	0.518	0.080	0.02
84	7.00	0.33	0.097	0.515	0.080	0.02
85	7.08	0.33	0.097	0.513	0.080	0.02
86	7.17	0.33	0.097	0.511	0.080	0.02
87	7.25	0.33	0.097	0.508	0.080	0.02
88	7.33	0.37	0.107	0.506	0.088	0.02
89	7.42	0.37	0.107	0.504	0.088	0.02
90	7.50	0.37	0.107	0.501	0.088	0.02
91	7.58	0.40	0.117	0.499	0.096	0.02
92	7.67	0.40	0.117	0.497	0.096	0.02
93	7.75	0.40	0.117	0.495	0.096	0.02
94	7.83	0.43	0.126	0.492	0.104	0.02
95	7.92	0.43	0.126	0.490	0.104	0.02
96	8.00	0.43	0.126	0.488	0.104	0.02
97	8.08	0.50	0.146	0.486	0.120	0.03
98	8.17	0.50	0.146	0.483	0.120	0.03
99	8.25	0.50	0.146	0.481	0.120	0.03
100	8.33	0.50	0.146	0.479	0.120	0.03
101	8.42	0.50	0.146	0.477	0.120	0.03
102	8.50	0.50	0.146	0.474	0.120	0.03
103	8.58	0.53	0.156	0.472	0.128	0.03
104	8.67	0.53	0.156	0.470	0.128	0.03
105	8.75	0.53	0.156	0.468	0.128	0.03
106	8.83	0.57	0.165	0.465	0.136	0.03
107	8.92	0.57	0.165	0.463	0.136	0.03
108	9.00	0.57	0.165	0.461	0.136	0.03
109	9.08	0.63	0.185	0.459	0.152	0.03
110	9.17	0.63	0.185	0.457	0.152	0.03
111	9.25	0.63	0.185	0.454	0.152	0.03
112	9.33	0.67	0.194	0.452	0.160	0.03
113	9.42	0.67	0.194	0.450	0.160	0.03
114	9.50	0.67	0.194	0.448	0.160	0.03
115	9.58	0.70	0.204	0.446	0.168	0.04
116	9.67	0.70	0.204	0.444	0.168	0.04
117	9.75	0.70	0.204	0.442	0.168	0.04
118	9.83	0.73	0.214	0.439	0.176	0.04
119	9.92	0.73	0.214	0.437	0.176	0.04
120	10.00	0.73	0.214	0.435	0.176	0.04
121	10.08	0.50	0.146	0.433	0.120	0.03
122	10.17	0.50	0.146	0.431	0.120	0.03
123	10.25	0.50	0.146	0.429	0.120	0.03
124	10.33	0.50	0.146	0.427	0.120	0.03
125	10.42	0.50	0.146	0.425	0.120	0.03
126	10.50	0.50	0.146	0.423	0.120	0.03
127	10.58	0.67	0.194	0.421	0.160	0.03
128	10.67	0.67	0.194	0.419	0.160	0.03
129	10.75	0.67	0.194	0.417	0.160	0.03
130	10.83	0.67	0.194	0.415	0.160	0.03
131	10.92	0.67	0.194	0.412	0.160	0.03
132	11.00	0.67	0.194	0.410	0.160	0.03
133	11.08	0.63	0.185	0.408	0.152	0.03
134	11.17	0.63	0.185	0.406	0.152	0.03
135	11.25	0.63	0.185	0.404	0.152	0.03
136	11.33	0.63	0.185	0.402	0.152	0.03
137	11.42	0.63	0.185	0.400	0.152	0.03
138	11.50	0.63	0.185	0.398	0.152	0.03
139	11.58	0.57	0.165	0.396	0.136	0.03

140	11.67	0.57	0.165	0.394	0.136	0.03
141	11.75	0.57	0.165	0.393	0.136	0.03
142	11.83	0.60	0.175	0.391	0.144	0.03
143	11.92	0.60	0.175	0.389	0.144	0.03
144	12.00	0.60	0.175	0.387	0.144	0.03
145	12.08	0.83	0.243	0.385	0.200	0.04
146	12.17	0.83	0.243	0.383	0.200	0.04
147	12.25	0.83	0.243	0.381	0.200	0.04
148	12.33	0.87	0.253	0.379	0.208	0.04
149	12.42	0.87	0.253	0.377	0.208	0.04
150	12.50	0.87	0.253	0.375	0.208	0.04
151	12.58	0.93	0.272	0.373	0.224	0.05
152	12.67	0.93	0.272	0.371	0.224	0.05
153	12.75	0.93	0.272	0.370	0.224	0.05
154	12.83	0.97	0.282	0.368	0.232	0.05
155	12.92	0.97	0.282	0.366	0.232	0.05
156	13.00	0.97	0.282	0.364	0.232	0.05
157	13.08	1.13	0.330	0.362	0.272	0.06
158	13.17	1.13	0.330	0.360	0.272	0.06
159	13.25	1.13	0.330	0.358	0.272	0.06
160	13.33	1.13	0.330	0.357	0.272	0.06
161	13.42	1.13	0.330	0.355	0.272	0.06
162	13.50	1.13	0.330	0.353	0.272	0.06
163	13.58	0.77	0.224	0.351	0.184	0.04
164	13.67	0.77	0.224	0.349	0.184	0.04
165	13.75	0.77	0.224	0.348	0.184	0.04
166	13.83	0.77	0.224	0.346	0.184	0.04
167	13.92	0.77	0.224	0.344	0.184	0.04
168	14.00	0.77	0.224	0.342	0.184	0.04
169	14.08	0.90	0.262	0.341	0.216	0.05
170	14.17	0.90	0.262	0.339	0.216	0.05
171	14.25	0.90	0.262	0.337	0.216	0.05
172	14.33	0.87	0.253	0.335	0.208	0.04
173	14.42	0.87	0.253	0.334	0.208	0.04
174	14.50	0.87	0.253	0.332	0.208	0.04
175	14.58	0.87	0.253	0.330	0.208	0.04
176	14.67	0.87	0.253	0.329	0.208	0.04
177	14.75	0.87	0.253	0.327	0.208	0.04
178	14.83	0.83	0.243	0.325	0.200	0.04
179	14.92	0.83	0.243	0.324	0.200	0.04
180	15.00	0.83	0.243	0.322	0.200	0.04
181	15.08	0.80	0.233	0.320	0.192	0.04
182	15.17	0.80	0.233	0.319	0.192	0.04
183	15.25	0.80	0.233	0.317	0.192	0.04
184	15.33	0.77	0.224	0.315	0.184	0.04
185	15.42	0.77	0.224	0.314	0.184	0.04
186	15.50	0.77	0.224	0.312	0.184	0.04
187	15.58	0.63	0.185	0.311	0.152	0.03
188	15.67	0.63	0.185	0.309	0.152	0.03
189	15.75	0.63	0.185	0.307	0.152	0.03
190	15.83	0.63	0.185	0.306	0.152	0.03
191	15.92	0.63	0.185	0.304	0.152	0.03
192	16.00	0.63	0.185	0.303	0.152	0.03
193	16.08	0.13	0.039	0.301	0.032	0.01
194	16.17	0.13	0.039	0.300	0.032	0.01
195	16.25	0.13	0.039	0.298	0.032	0.01
196	16.33	0.13	0.039	0.297	0.032	0.01
197	16.42	0.13	0.039	0.295	0.032	0.01
198	16.50	0.13	0.039	0.294	0.032	0.01
199	16.58	0.10	0.029	0.292	0.024	0.01
200	16.67	0.10	0.029	0.291	0.024	0.01
201	16.75	0.10	0.029	0.289	0.024	0.01
202	16.83	0.10	0.029	0.288	0.024	0.01
203	16.92	0.10	0.029	0.286	0.024	0.01
204	17.00	0.10	0.029	0.285	0.024	0.01

205	17.08	0.17	0.049	0.283	0.040	0.01
206	17.17	0.17	0.049	0.282	0.040	0.01
207	17.25	0.17	0.049	0.280	0.040	0.01
208	17.33	0.17	0.049	0.279	0.040	0.01
209	17.42	0.17	0.049	0.278	0.040	0.01
210	17.50	0.17	0.049	0.276	0.040	0.01
211	17.58	0.17	0.049	0.275	0.040	0.01
212	17.67	0.17	0.049	0.273	0.040	0.01
213	17.75	0.17	0.049	0.272	0.040	0.01
214	17.83	0.13	0.039	0.271	0.032	0.01
215	17.92	0.13	0.039	0.269	0.032	0.01
216	18.00	0.13	0.039	0.268	0.032	0.01
217	18.08	0.13	0.039	0.267	0.032	0.01
218	18.17	0.13	0.039	0.265	0.032	0.01
219	18.25	0.13	0.039	0.264	0.032	0.01
220	18.33	0.13	0.039	0.263	0.032	0.01
221	18.42	0.13	0.039	0.262	0.032	0.01
222	18.50	0.13	0.039	0.260	0.032	0.01
223	18.58	0.10	0.029	0.259	0.024	0.01
224	18.67	0.10	0.029	0.258	0.024	0.01
225	18.75	0.10	0.029	0.257	0.024	0.01
226	18.83	0.07	0.019	0.255	0.016	0.00
227	18.92	0.07	0.019	0.254	0.016	0.00
228	19.00	0.07	0.019	0.253	0.016	0.00
229	19.08	0.10	0.029	0.252	0.024	0.01
230	19.17	0.10	0.029	0.251	0.024	0.01
231	19.25	0.10	0.029	0.249	0.024	0.01
232	19.33	0.13	0.039	0.248	0.032	0.01
233	19.42	0.13	0.039	0.247	0.032	0.01
234	19.50	0.13	0.039	0.246	0.032	0.01
235	19.58	0.10	0.029	0.245	0.024	0.01
236	19.67	0.10	0.029	0.244	0.024	0.01
237	19.75	0.10	0.029	0.243	0.024	0.01
238	19.83	0.07	0.019	0.241	0.016	0.00
239	19.92	0.07	0.019	0.240	0.016	0.00
240	20.00	0.07	0.019	0.239	0.016	0.00
241	20.08	0.10	0.029	0.238	0.024	0.01
242	20.17	0.10	0.029	0.237	0.024	0.01
243	20.25	0.10	0.029	0.236	0.024	0.01
244	20.33	0.10	0.029	0.235	0.024	0.01
245	20.42	0.10	0.029	0.234	0.024	0.01
246	20.50	0.10	0.029	0.233	0.024	0.01
247	20.58	0.10	0.029	0.232	0.024	0.01
248	20.67	0.10	0.029	0.231	0.024	0.01
249	20.75	0.10	0.029	0.230	0.024	0.01
250	20.83	0.07	0.019	0.229	0.016	0.00
251	20.92	0.07	0.019	0.228	0.016	0.00
252	21.00	0.07	0.019	0.227	0.016	0.00
253	21.08	0.10	0.029	0.227	0.024	0.01
254	21.17	0.10	0.029	0.226	0.024	0.01
255	21.25	0.10	0.029	0.225	0.024	0.01
256	21.33	0.07	0.019	0.224	0.016	0.00
257	21.42	0.07	0.019	0.223	0.016	0.00
258	21.50	0.07	0.019	0.222	0.016	0.00
259	21.58	0.10	0.029	0.221	0.024	0.01
260	21.67	0.10	0.029	0.221	0.024	0.01
261	21.75	0.10	0.029	0.220	0.024	0.01
262	21.83	0.07	0.019	0.219	0.016	0.00
263	21.92	0.07	0.019	0.218	0.016	0.00
264	22.00	0.07	0.019	0.218	0.016	0.00
265	22.08	0.10	0.029	0.217	0.024	0.01
266	22.17	0.10	0.029	0.216	0.024	0.01
267	22.25	0.10	0.029	0.216	0.024	0.01
268	22.33	0.07	0.019	0.215	0.016	0.00
269	22.42	0.07	0.019	0.214	0.016	0.00

270	22.50	0.07	0.019	0.214	0.016	0.00
271	22.58	0.07	0.019	0.213	0.016	0.00
272	22.67	0.07	0.019	0.212	0.016	0.00
273	22.75	0.07	0.019	0.212	0.016	0.00
274	22.83	0.07	0.019	0.211	0.016	0.00
275	22.92	0.07	0.019	0.211	0.016	0.00
276	23.00	0.07	0.019	0.210	0.016	0.00
277	23.08	0.07	0.019	0.210	0.016	0.00
278	23.17	0.07	0.019	0.209	0.016	0.00
279	23.25	0.07	0.019	0.209	0.016	0.00
280	23.33	0.07	0.019	0.208	0.016	0.00
281	23.42	0.07	0.019	0.208	0.016	0.00
282	23.50	0.07	0.019	0.208	0.016	0.00
283	23.58	0.07	0.019	0.207	0.016	0.00
284	23.67	0.07	0.019	0.207	0.016	0.00
285	23.75	0.07	0.019	0.207	0.016	0.00
286	23.83	0.07	0.019	0.206	0.016	0.00
287	23.92	0.07	0.019	0.206	0.016	0.00
288	24.00	0.07	0.019	0.206	0.016	0.00
Sum =		100.0		Sum =		5.1

Flood volume = Effective rainfall 0.43(In)
times area 0.6(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)
Total soil loss = 2.00(In)
Total soil loss = 0.097(Ac.Ft)
Total rainfall = 2.43(In)
Flood volume = 902.5 Cubic Feet
Total soil loss = 4231.2 Cubic Feet

Peak flow rate of this hydrograph = 0.034(CFS)

++

TOTAL OF: 3 24 - H O U R S T O R M E V E N T S
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0000	0.00	Q	|	|	|	|
0+10	0.0000	0.00	Q	|	|	|	|
0+15	0.0000	0.00	Q	|	|	|	|
0+20	0.0000	0.00	Q	|	|	|	|
0+25	0.0000	0.00	Q	|	|	|	|
0+30	0.0000	0.00	Q	|	|	|	|
0+35	0.0000	0.00	Q	|	|	|	|
0+40	0.0000	0.00	Q	|	|	|	|
0+45	0.0000	0.00	Q	|	|	|	|
0+50	0.0000	0.00	Q	|	|	|	|
0+55	0.0000	0.00	Q	|	|	|	|
1+ 0	0.0000	0.00	Q	|	|	|	|
1+ 5	0.0000	0.00	Q	|	|	|	|
1+10	0.0001	0.00	Q	|	|	|	|
1+15	0.0001	0.00	Q	|	|	|	|
1+20	0.0001	0.00	Q	|	|	|	|
1+25	0.0001	0.00	Q	|	|	|	|
1+30	0.0001	0.00	Q	|	|	|	|
1+35	0.0001	0.00	Q	|	|	|	|
1+40	0.0001	0.00	Q	|	|	|	|
1+45	0.0001	0.00	Q	|	|	|	|
1+50	0.0001	0.00	Q	|	|	|	|
1+55	0.0001	0.00	Q	|	|	|	|
2+ 0	0.0001	0.00	Q	|	|	|	|
2+ 5	0.0001	0.00	Q	|	|	|	|
2+10	0.0001	0.00	Q	|	|	|	|

2+15	0.0001	0.00	Q	|	|	|	|
2+20	0.0001	0.00	Q	|	|	|	|
2+25	0.0001	0.00	Q	|	|	|	|
2+30	0.0001	0.00	Q	|	|	|	|
2+35	0.0001	0.00	Q	|	|	|	|
2+40	0.0001	0.00	Q	|	|	|	|
2+45	0.0001	0.00	Q	|	|	|	|
2+50	0.0002	0.00	Q	|	|	|	|
2+55	0.0002	0.00	Q	|	|	|	|
3+ 0	0.0002	0.00	Q	|	|	|	|
3+ 5	0.0002	0.00	Q	|	|	|	|
3+10	0.0002	0.00	Q	|	|	|	|
3+15	0.0002	0.00	Q	|	|	|	|
3+20	0.0002	0.00	Q	|	|	|	|
3+25	0.0002	0.00	Q	|	|	|	|
3+30	0.0002	0.00	Q	|	|	|	|
3+35	0.0002	0.00	Q	|	|	|	|
3+40	0.0002	0.00	Q	|	|	|	|
3+45	0.0002	0.00	Q	|	|	|	|
3+50	0.0002	0.00	Q	|	|	|	|
3+55	0.0002	0.00	Q	|	|	|	|
4+ 0	0.0002	0.00	Q	|	|	|	|
4+ 5	0.0003	0.00	Q	|	|	|	|
4+10	0.0003	0.00	Q	|	|	|	|
4+15	0.0003	0.00	Q	|	|	|	|
4+20	0.0003	0.00	Q	|	|	|	|
4+25	0.0003	0.00	Q	|	|	|	|
4+30	0.0003	0.00	Q	|	|	|	|
4+35	0.0003	0.00	Q	|	|	|	|
4+40	0.0003	0.00	Q	|	|	|	|
4+45	0.0003	0.00	Q	|	|	|	|
4+50	0.0003	0.00	Q	|	|	|	|
4+55	0.0003	0.00	Q	|	|	|	|
5+ 0	0.0004	0.00	Q	|	|	|	|
5+ 5	0.0004	0.00	Q	|	|	|	|
5+10	0.0004	0.00	Q	|	|	|	|
5+15	0.0004	0.00	Q	|	|	|	|
5+20	0.0004	0.00	Q	|	|	|	|
5+25	0.0004	0.00	Q	|	|	|	|
5+30	0.0004	0.00	Q	|	|	|	|
5+35	0.0004	0.00	Q	|	|	|	|
5+40	0.0004	0.00	Q	|	|	|	|
5+45	0.0004	0.00	Q	|	|	|	|
5+50	0.0005	0.00	Q	|	|	|	|
5+55	0.0005	0.00	Q	|	|	|	|
6+ 0	0.0005	0.00	Q	|	|	|	|
6+ 5	0.0005	0.00	Q	|	|	|	|
6+10	0.0005	0.00	Q	|	|	|	|
6+15	0.0005	0.00	Q	|	|	|	|
6+20	0.0005	0.00	Q	|	|	|	|
6+25	0.0005	0.00	Q	|	|	|	|
6+30	0.0005	0.00	Q	|	|	|	|
6+35	0.0006	0.00	Q	|	|	|	|
6+40	0.0006	0.00	Q	|	|	|	|
6+45	0.0006	0.00	Q	|	|	|	|
6+50	0.0006	0.00	Q	|	|	|	|
6+55	0.0006	0.00	Q	|	|	|	|
7+ 0	0.0006	0.00	Q	|	|	|	|
7+ 5	0.0006	0.00	Q	|	|	|	|
7+10	0.0006	0.00	Q	|	|	|	|
7+15	0.0007	0.00	Q	|	|	|	|
7+20	0.0007	0.00	Q	|	|	|	|
7+25	0.0007	0.00	Q	|	|	|	|
7+30	0.0007	0.00	Q	|	|	|	|
7+35	0.0007	0.00	Q	|	|	|	|

7+40	0.0007	0.00	Q	|	|	|	|
7+45	0.0007	0.00	Q	|	|	|	|
7+50	0.0008	0.00	Q	|	|	|	|
7+55	0.0008	0.00	Q	|	|	|	|
8+ 0	0.0008	0.00	Q	|	|	|	|
8+ 5	0.0008	0.00	QV	|	|	|	|
8+10	0.0008	0.00	QV	|	|	|	|
8+15	0.0009	0.00	QV	|	|	|	|
8+20	0.0009	0.00	QV	|	|	|	|
8+25	0.0009	0.00	QV	|	|	|	|
8+30	0.0009	0.00	QV	|	|	|	|
8+35	0.0009	0.00	QV	|	|	|	|
8+40	0.0010	0.00	QV	|	|	|	|
8+45	0.0010	0.00	QV	|	|	|	|
8+50	0.0010	0.00	QV	|	|	|	|
8+55	0.0010	0.00	QV	|	|	|	|
9+ 0	0.0010	0.00	QV	|	|	|	|
9+ 5	0.0011	0.00	QV	|	|	|	|
9+10	0.0011	0.00	QV	|	|	|	|
9+15	0.0011	0.00	QV	|	|	|	|
9+20	0.0011	0.00	QV	|	|	|	|
9+25	0.0012	0.00	QV	|	|	|	|
9+30	0.0012	0.00	QV	|	|	|	|
9+35	0.0012	0.00	QV	|	|	|	|
9+40	0.0013	0.00	QV	|	|	|	|
9+45	0.0013	0.00	QV	|	|	|	|
9+50	0.0013	0.00	QV	|	|	|	|
9+55	0.0013	0.00	QV	|	|	|	|
10+ 0	0.0014	0.00	QV	|	|	|	|
10+ 5	0.0014	0.00	QV	|	|	|	|
10+10	0.0014	0.00	QV	|	|	|	|
10+15	0.0014	0.00	QV	|	|	|	|
10+20	0.0014	0.00	QV	|	|	|	|
10+25	0.0015	0.00	QV	|	|	|	|
10+30	0.0015	0.00	QV	|	|	|	|
10+35	0.0015	0.00	QV	|	|	|	|
10+40	0.0015	0.00	QV	|	|	|	|
10+45	0.0016	0.00	QV	|	|	|	|
10+50	0.0016	0.00	QV	|	|	|	|
10+55	0.0016	0.00	Q V	|	|	|	|
11+ 0	0.0016	0.00	Q V	|	|	|	|
11+ 5	0.0017	0.00	Q V	|	|	|	|
11+10	0.0017	0.00	Q V	|	|	|	|
11+15	0.0017	0.00	Q V	|	|	|	|
11+20	0.0017	0.00	Q V	|	|	|	|
11+25	0.0018	0.00	Q V	|	|	|	|
11+30	0.0018	0.00	Q V	|	|	|	|
11+35	0.0018	0.00	Q V	|	|	|	|
11+40	0.0018	0.00	Q V	|	|	|	|
11+45	0.0019	0.00	Q V	|	|	|	|
11+50	0.0019	0.00	Q V	|	|	|	|
11+55	0.0019	0.00	Q V	|	|	|	|
12+ 0	0.0019	0.00	Q V	|	|	|	|
12+ 5	0.0020	0.00	Q V	|	|	|	|
12+10	0.0020	0.00	Q V	|	|	|	|
12+15	0.0020	0.00	Q V	|	|	|	|
12+20	0.0021	0.00	Q V	|	|	|	|
12+25	0.0021	0.00	Q V	|	|	|	|
12+30	0.0021	0.00	Q V	|	|	|	|
12+35	0.0022	0.01	Q V	|	|	|	|
12+40	0.0022	0.01	Q V	|	|	|	|
12+45	0.0022	0.01	Q V	|	|	|	|
12+50	0.0023	0.01	Q V	|	|	|	|
12+55	0.0023	0.01	Q V	|	|	|	|
13+ 0	0.0024	0.01	Q V	|	|	|	|

13+ 5	0.0024	0.01	Q	V	|	|	|	|
13+10	0.0024	0.01	Q	V	|	|	|	|
13+15	0.0025	0.01	Q	V	|	|	|	|
13+20	0.0025	0.01	Q	V	|	|	|	|
13+25	0.0026	0.01	Q	V	|	|	|	|
13+30	0.0026	0.01	Q	V	|	|	|	|
13+35	0.0027	0.01	Q	V	|	|	|	|
13+40	0.0027	0.00	Q	V	|	|	|	|
13+45	0.0027	0.00	Q	V	|	|	|	|
13+50	0.0027	0.00	Q	V	|	|	|	|
13+55	0.0028	0.00	Q	V	|	|	|	|
14+ 0	0.0028	0.00	Q	V	|	|	|	|
14+ 5	0.0028	0.00	Q	V	|	|	|	|
14+10	0.0029	0.01	Q	V	|	|	|	|
14+15	0.0029	0.01	Q	V	|	|	|	|
14+20	0.0029	0.01	Q	V	|	|	|	|
14+25	0.0030	0.00	Q	V	|	|	|	|
14+30	0.0030	0.00	Q	V	|	|	|	|
14+35	0.0030	0.00	Q	V	|	|	|	|
14+40	0.0031	0.00	Q	V	|	|	|	|
14+45	0.0031	0.00	Q	V	|	|	|	|
14+50	0.0031	0.00	Q	V	|	|	|	|
14+55	0.0032	0.00	Q	V	|	|	|	|
15+ 0	0.0032	0.00	Q	V	|	|	|	|
15+ 5	0.0032	0.00	Q	V	|	|	|	|
15+10	0.0033	0.00	Q	V	|	|	|	|
15+15	0.0033	0.00	Q	V	|	|	|	|
15+20	0.0033	0.00	Q	V	|	|	|	|
15+25	0.0034	0.00	Q	V	|	|	|	|
15+30	0.0034	0.00	Q	V	|	|	|	|
15+35	0.0034	0.00	Q	V	|	|	|	|
15+40	0.0034	0.00	Q	V	|	|	|	|
15+45	0.0035	0.00	Q	V	|	|	|	|
15+50	0.0035	0.00	Q	V	|	|	|	|
15+55	0.0035	0.00	Q	V	|	|	|	|
16+ 0	0.0035	0.00	Q	V	|	|	|	|
16+ 5	0.0036	0.00	Q	V	|	|	|	|
16+10	0.0036	0.00	Q	V	|	|	|	|
16+15	0.0036	0.00	Q	V	|	|	|	|
16+20	0.0036	0.00	Q	V	|	|	|	|
16+25	0.0036	0.00	Q	V	|	|	|	|
16+30	0.0036	0.00	Q	V	|	|	|	|
16+35	0.0036	0.00	Q	V	|	|	|	|
16+40	0.0036	0.00	Q	V	|	|	|	|
16+45	0.0036	0.00	Q	V	|	|	|	|
16+50	0.0036	0.00	Q	V	|	|	|	|
16+55	0.0036	0.00	Q	V	|	|	|	|
17+ 0	0.0036	0.00	Q	V	|	|	|	|
17+ 5	0.0036	0.00	Q	V	|	|	|	|
17+10	0.0036	0.00	Q	V	|	|	|	|
17+15	0.0036	0.00	Q	V	|	|	|	|
17+20	0.0036	0.00	Q	V	|	|	|	|
17+25	0.0036	0.00	Q	V	|	|	|	|
17+30	0.0037	0.00	Q	V	|	|	|	|
17+35	0.0037	0.00	Q	V	|	|	|	|
17+40	0.0037	0.00	Q	V	|	|	|	|
17+45	0.0037	0.00	Q	V	|	|	|	|
17+50	0.0037	0.00	Q	V	|	|	|	|
17+55	0.0037	0.00	Q	V	|	|	|	|
18+ 0	0.0037	0.00	Q	V	|	|	|	|
18+ 5	0.0037	0.00	Q	V	|	|	|	|
18+10	0.0037	0.00	Q	V	|	|	|	|
18+15	0.0037	0.00	Q	V	|	|	|	|
18+20	0.0037	0.00	Q	V	|	|	|	|
18+25	0.0037	0.00	Q	V	|	|	|	|

18+30	0.0037	0.00	Q	V	|	|	|	|
18+35	0.0037	0.00	Q	V	|	|	|	|
18+40	0.0037	0.00	Q	V	|	|	|	|
18+45	0.0037	0.00	Q	V	|	|	|	|
18+50	0.0037	0.00	Q	V	|	|	|	|
18+55	0.0037	0.00	Q	V	|	|	|	|
19+ 0	0.0037	0.00	Q	V	|	|	|	|
19+ 5	0.0037	0.00	Q	V	|	|	|	|
19+10	0.0037	0.00	Q	V	|	|	|	|
19+15	0.0037	0.00	Q	V	|	|	|	|
19+20	0.0038	0.00	Q	V	|	|	|	|
19+25	0.0038	0.00	Q	V	|	|	|	|
19+30	0.0038	0.00	Q	V	|	|	|	|
19+35	0.0038	0.00	Q	V	|	|	|	|
19+40	0.0038	0.00	Q	V	|	|	|	|
19+45	0.0038	0.00	Q	V	|	|	|	|
19+50	0.0038	0.00	Q	V	|	|	|	|
19+55	0.0038	0.00	Q	V	|	|	|	|
20+ 0	0.0038	0.00	Q	V	|	|	|	|
20+ 5	0.0038	0.00	Q	V	|	|	|	|
20+10	0.0038	0.00	Q	V	|	|	|	|
20+15	0.0038	0.00	Q	V	|	|	|	|
20+20	0.0038	0.00	Q	V	|	|	|	|
20+25	0.0038	0.00	Q	V	|	|	|	|
20+30	0.0038	0.00	Q	V	|	|	|	|
20+35	0.0038	0.00	Q	V	|	|	|	|
20+40	0.0038	0.00	Q	V	|	|	|	|
20+45	0.0038	0.00	Q	V	|	|	|	|
20+50	0.0038	0.00	Q	V	|	|	|	|
20+55	0.0038	0.00	Q	V	|	|	|	|
21+ 0	0.0038	0.00	Q	V	|	|	|	|
21+ 5	0.0038	0.00	Q	V	|	|	|	|
21+10	0.0038	0.00	Q	V	|	|	|	|
21+15	0.0038	0.00	Q	V	|	|	|	|
21+20	0.0038	0.00	Q	V	|	|	|	|
21+25	0.0038	0.00	Q	V	|	|	|	|
21+30	0.0038	0.00	Q	V	|	|	|	|
21+35	0.0039	0.00	Q	V	|	|	|	|
21+40	0.0039	0.00	Q	V	|	|	|	|
21+45	0.0039	0.00	Q	V	|	|	|	|
21+50	0.0039	0.00	Q	V	|	|	|	|
21+55	0.0039	0.00	Q	V	|	|	|	|
22+ 0	0.0039	0.00	Q	V	|	|	|	|
22+ 5	0.0039	0.00	Q	V	|	|	|	|
22+10	0.0039	0.00	Q	V	|	|	|	|
22+15	0.0039	0.00	Q	V	|	|	|	|
22+20	0.0039	0.00	Q	V	|	|	|	|
22+25	0.0039	0.00	Q	V	|	|	|	|
22+30	0.0039	0.00	Q	V	|	|	|	|
22+35	0.0039	0.00	Q	V	|	|	|	|
22+40	0.0039	0.00	Q	V	|	|	|	|
22+45	0.0039	0.00	Q	V	|	|	|	|
22+50	0.0039	0.00	Q	V	|	|	|	|
22+55	0.0039	0.00	Q	V	|	|	|	|
23+ 0	0.0039	0.00	Q	V	|	|	|	|
23+ 5	0.0039	0.00	Q	V	|	|	|	|
23+10	0.0039	0.00	Q	V	|	|	|	|
23+15	0.0039	0.00	Q	V	|	|	|	|
23+20	0.0039	0.00	Q	V	|	|	|	|
23+25	0.0039	0.00	Q	V	|	|	|	|
23+30	0.0039	0.00	Q	V	|	|	|	|
23+35	0.0039	0.00	Q	V	|	|	|	|
23+40	0.0039	0.00	Q	V	|	|	|	|
23+45	0.0039	0.00	Q	V	|	|	|	|
23+50	0.0039	0.00	Q	V	|	|	|	|

23+55	0.0039	0.00	Q	V	|	|	|	|
24+ 0	0.0039	0.00	Q	V	|	|	|	|
24+ 5	0.0039	0.00	Q	V	|	|	|	|
24+10	0.0039	0.00	Q	V	|	|	|	|
24+15	0.0039	0.00	Q	V	|	|	|	|
24+20	0.0040	0.00	Q	V	|	|	|	|
24+25	0.0040	0.00	Q	V	|	|	|	|
24+30	0.0040	0.00	Q	V	|	|	|	|
24+35	0.0040	0.00	Q	V	|	|	|	|
24+40	0.0040	0.00	Q	V	|	|	|	|
24+45	0.0040	0.00	Q	V	|	|	|	|
24+50	0.0040	0.00	Q	V	|	|	|	|
24+55	0.0040	0.00	Q	V	|	|	|	|
25+ 0	0.0040	0.00	Q	V	|	|	|	|
25+ 5	0.0040	0.00	Q	V	|	|	|	|
25+10	0.0040	0.00	Q	V	|	|	|	|
25+15	0.0040	0.00	Q	V	|	|	|	|
25+20	0.0041	0.00	Q	V	|	|	|	|
25+25	0.0041	0.00	Q	V	|	|	|	|
25+30	0.0041	0.00	Q	V	|	|	|	|
25+35	0.0041	0.00	Q	V	|	|	|	|
25+40	0.0041	0.00	Q	V	|	|	|	|
25+45	0.0041	0.00	Q	V	|	|	|	|
25+50	0.0041	0.00	Q	V	|	|	|	|
25+55	0.0041	0.00	Q	V	|	|	|	|
26+ 0	0.0041	0.00	Q	V	|	|	|	|
26+ 5	0.0041	0.00	Q	V	|	|	|	|
26+10	0.0041	0.00	Q	V	|	|	|	|
26+15	0.0041	0.00	Q	V	|	|	|	|
26+20	0.0042	0.00	Q	V	|	|	|	|
26+25	0.0042	0.00	Q	V	|	|	|	|
26+30	0.0042	0.00	Q	V	|	|	|	|
26+35	0.0042	0.00	Q	V	|	|	|	|
26+40	0.0042	0.00	Q	V	|	|	|	|
26+45	0.0042	0.00	Q	V	|	|	|	|
26+50	0.0042	0.00	Q	V	|	|	|	|
26+55	0.0042	0.00	Q	V	|	|	|	|
27+ 0	0.0043	0.00	Q	V	|	|	|	|
27+ 5	0.0043	0.00	Q	V	|	|	|	|
27+10	0.0043	0.00	Q	V	|	|	|	|
27+15	0.0043	0.00	Q	V	|	|	|	|
27+20	0.0043	0.00	Q	V	|	|	|	|
27+25	0.0043	0.00	Q	V	|	|	|	|
27+30	0.0043	0.00	Q	V	|	|	|	|
27+35	0.0043	0.00	Q	V	|	|	|	|
27+40	0.0044	0.00	Q	V	|	|	|	|
27+45	0.0044	0.00	Q	V	|	|	|	|
27+50	0.0044	0.00	Q	V	|	|	|	|
27+55	0.0044	0.00	Q	V	|	|	|	|
28+ 0	0.0044	0.00	Q	V	|	|	|	|
28+ 5	0.0044	0.00	Q	V	|	|	|	|
28+10	0.0044	0.00	Q	V	|	|	|	|
28+15	0.0045	0.00	Q	V	|	|	|	|
28+20	0.0045	0.00	Q	V	|	|	|	|
28+25	0.0045	0.00	Q	V	|	|	|	|
28+30	0.0045	0.00	Q	V	|	|	|	|
28+35	0.0045	0.00	Q	V	|	|	|	|
28+40	0.0045	0.00	Q	V	|	|	|	|
28+45	0.0046	0.00	Q	V	|	|	|	|
28+50	0.0046	0.00	Q	V	|	|	|	|
28+55	0.0046	0.00	Q	V	|	|	|	|
29+ 0	0.0046	0.00	Q	V	|	|	|	|
29+ 5	0.0046	0.00	Q	V	|	|	|	|
29+10	0.0046	0.00	Q	V	|	|	|	|
29+15	0.0047	0.00	Q	V	|	|	|	|

29+20	0.0047	0.00	Q	V	|	|	|	|
29+25	0.0047	0.00	Q	V	|	|	|	|
29+30	0.0047	0.00	Q	V	|	|	|	|
29+35	0.0047	0.00	Q	V	|	|	|	|
29+40	0.0048	0.00	Q	V	|	|	|	|
29+45	0.0048	0.00	Q	V	|	|	|	|
29+50	0.0048	0.00	Q	V	|	|	|	|
29+55	0.0048	0.00	Q	V	|	|	|	|
30+ 0	0.0048	0.00	Q	V	|	|	|	|
30+ 5	0.0049	0.00	Q	V	|	|	|	|
30+10	0.0049	0.00	Q	V	|	|	|	|
30+15	0.0049	0.00	Q	V	|	|	|	|
30+20	0.0049	0.00	Q	V	|	|	|	|
30+25	0.0049	0.00	Q	V	|	|	|	|
30+30	0.0050	0.00	Q	V	|	|	|	|
30+35	0.0050	0.00	Q	V	|	|	|	|
30+40	0.0050	0.00	Q	V	|	|	|	|
30+45	0.0050	0.00	Q	V	|	|	|	|
30+50	0.0051	0.00	Q	V	|	|	|	|
30+55	0.0051	0.00	Q	V	|	|	|	|
31+ 0	0.0051	0.00	Q	V	|	|	|	|
31+ 5	0.0051	0.00	Q	V	|	|	|	|
31+10	0.0052	0.00	Q	V	|	|	|	|
31+15	0.0052	0.00	Q	V	|	|	|	|
31+20	0.0052	0.00	Q	V	|	|	|	|
31+25	0.0052	0.00	Q	V	|	|	|	|
31+30	0.0053	0.00	Q	V	|	|	|	|
31+35	0.0053	0.00	Q	V	|	|	|	|
31+40	0.0053	0.00	Q	V	|	|	|	|
31+45	0.0054	0.00	Q	V	|	|	|	|
31+50	0.0054	0.00	Q	V	|	|	|	|
31+55	0.0054	0.00	Q	V	|	|	|	|
32+ 0	0.0055	0.00	Q	V	|	|	|	|
32+ 5	0.0055	0.01	Q	V	|	|	|	|
32+10	0.0055	0.01	Q	V	|	|	|	|
32+15	0.0056	0.01	Q	V	|	|	|	|
32+20	0.0056	0.01	Q	V	|	|	|	|
32+25	0.0056	0.01	Q	V	|	|	|	|
32+30	0.0057	0.01	Q	V	|	|	|	|
32+35	0.0057	0.01	Q	V	|	|	|	|
32+40	0.0058	0.01	Q	V	|	|	|	|
32+45	0.0058	0.01	Q	V	|	|	|	|
32+50	0.0058	0.01	Q	V	|	|	|	|
32+55	0.0059	0.01	Q	V	|	|	|	|
33+ 0	0.0059	0.01	Q	V	|	|	|	|
33+ 5	0.0060	0.01	Q	V	|	|	|	|
33+10	0.0060	0.01	Q	V	|	|	|	|
33+15	0.0061	0.01	Q	V	|	|	|	|
33+20	0.0061	0.01	Q	V	|	|	|	|
33+25	0.0062	0.01	Q	V	|	|	|	|
33+30	0.0062	0.01	Q	V	|	|	|	|
33+35	0.0063	0.01	Q	V	|	|	|	|
33+40	0.0063	0.01	Q	V	|	|	|	|
33+45	0.0064	0.01	Q	V	|	|	|	|
33+50	0.0064	0.01	Q	V	|	|	|	|
33+55	0.0065	0.01	Q	V	|	|	|	|
34+ 0	0.0065	0.01	Q	V	|	|	|	|
34+ 5	0.0066	0.01	Q	V	|	|	|	|
34+10	0.0066	0.01	Q	V	|	|	|	|
34+15	0.0066	0.01	Q	V	|	|	|	|
34+20	0.0067	0.01	Q	V	|	|	|	|
34+25	0.0067	0.01	Q	V	|	|	|	|
34+30	0.0068	0.01	Q	V	|	|	|	|
34+35	0.0068	0.01	Q	V	|	|	|	|
34+40	0.0068	0.01	Q	V	|	|	|	|

34+45	0.0069	0.01	Q	V	|	|	|	|
34+50	0.0069	0.01	Q	V	|	|	|	|
34+55	0.0070	0.01	Q	V	|	|	|	|
35+ 0	0.0070	0.01	Q	V	|	|	|	|
35+ 5	0.0071	0.01	Q	V	|	|	|	|
35+10	0.0071	0.01	Q	V	|	|	|	|
35+15	0.0072	0.01	Q	V	|	|	|	|
35+20	0.0072	0.01	Q	V	|	|	|	|
35+25	0.0073	0.01	Q	V	|	|	|	|
35+30	0.0073	0.01	Q	V	|	|	|	|
35+35	0.0074	0.01	Q	V	|	|	|	|
35+40	0.0074	0.01	Q	V	|	|	|	|
35+45	0.0075	0.01	Q	V	|	|	|	|
35+50	0.0075	0.01	Q	V	|	|	|	|
35+55	0.0075	0.01	Q	V	|	|	|	|
36+ 0	0.0076	0.01	Q	V	|	|	|	|
36+ 5	0.0076	0.01	Q	V	|	|	|	|
36+10	0.0077	0.01	Q	V	|	|	|	|
36+15	0.0078	0.01	Q	V	|	|	|	|
36+20	0.0078	0.01	Q	V	|	|	|	|
36+25	0.0079	0.01	Q	V	|	|	|	|
36+30	0.0080	0.01	Q	V	|	|	|	|
36+35	0.0080	0.01	Q	V	|	|	|	|
36+40	0.0081	0.01	Q	V	|	|	|	|
36+45	0.0082	0.01	Q	V	|	|	|	|
36+50	0.0082	0.01	Q	V	|	|	|	|
36+55	0.0083	0.01	Q	V	|	|	|	|
37+ 0	0.0084	0.01	Q	V	|	|	|	|
37+ 5	0.0085	0.01	Q	V	|	|	|	|
37+10	0.0086	0.01	Q	V	|	|	|	|
37+15	0.0086	0.01	Q	V	|	|	|	|
37+20	0.0087	0.01	Q	V	|	|	|	|
37+25	0.0088	0.01	Q	V	|	|	|	|
37+30	0.0089	0.01	Q	|V	|	|	|	|
37+35	0.0090	0.01	Q	|V	|	|	|	|
37+40	0.0090	0.01	Q	|V	|	|	|	|
37+45	0.0091	0.01	Q	|V	|	|	|	|
37+50	0.0091	0.01	Q	|V	|	|	|	|
37+55	0.0092	0.01	Q	|V	|	|	|	|
38+ 0	0.0092	0.01	Q	|V	|	|	|	|
38+ 5	0.0093	0.01	Q	|V	|	|	|	|
38+10	0.0094	0.01	Q	|V	|	|	|	|
38+15	0.0094	0.01	Q	|V	|	|	|	|
38+20	0.0095	0.01	Q	|V	|	|	|	|
38+25	0.0096	0.01	Q	|V	|	|	|	|
38+30	0.0096	0.01	Q	| V	|	|	|	|
38+35	0.0097	0.01	Q	| V	|	|	|	|
38+40	0.0098	0.01	Q	| V	|	|	|	|
38+45	0.0098	0.01	Q	| V	|	|	|	|
38+50	0.0099	0.01	Q	| V	|	|	|	|
38+55	0.0100	0.01	Q	| V	|	|	|	|
39+ 0	0.0100	0.01	Q	| V	|	|	|	|
39+ 5	0.0101	0.01	Q	| V	|	|	|	|
39+10	0.0101	0.01	Q	| V	|	|	|	|
39+15	0.0102	0.01	Q	| V	|	|	|	|
39+20	0.0103	0.01	Q	| V	|	|	|	|
39+25	0.0103	0.01	Q	| V	|	|	|	|
39+30	0.0104	0.01	Q	| V	|	|	|	|
39+35	0.0104	0.01	Q	| V	|	|	|	|
39+40	0.0105	0.01	Q	| V	|	|	|	|
39+45	0.0105	0.01	Q	| V	|	|	|	|
39+50	0.0106	0.01	Q	| V	|	|	|	|
39+55	0.0106	0.01	Q	| V	|	|	|	|
40+ 0	0.0107	0.01	Q	| V	|	|	|	|
40+ 5	0.0107	0.00	Q	| V	|	|	|	|

40+10	0.0107	0.00	Q	| V	|	|	|
40+15	0.0107	0.00	Q	| V	|	|	|
40+20	0.0107	0.00	Q	| V	|	|	|
40+25	0.0107	0.00	Q	| V	|	|	|
40+30	0.0107	0.00	Q	| V	|	|	|
40+35	0.0107	0.00	Q	| V	|	|	|
40+40	0.0107	0.00	Q	| V	|	|	|
40+45	0.0108	0.00	Q	| V	|	|	|
40+50	0.0108	0.00	Q	| V	|	|	|
40+55	0.0108	0.00	Q	| V	|	|	|
41+ 0	0.0108	0.00	Q	| V	|	|	|
41+ 5	0.0108	0.00	Q	| V	|	|	|
41+10	0.0108	0.00	Q	| V	|	|	|
41+15	0.0108	0.00	Q	| V	|	|	|
41+20	0.0108	0.00	Q	| V	|	|	|
41+25	0.0108	0.00	Q	| V	|	|	|
41+30	0.0109	0.00	Q	| V	|	|	|
41+35	0.0109	0.00	Q	| V	|	|	|
41+40	0.0109	0.00	Q	| V	|	|	|
41+45	0.0109	0.00	Q	| V	|	|	|
41+50	0.0109	0.00	Q	| V	|	|	|
41+55	0.0109	0.00	Q	| V	|	|	|
42+ 0	0.0109	0.00	Q	| V	|	|	|
42+ 5	0.0109	0.00	Q	| V	|	|	|
42+10	0.0109	0.00	Q	| V	|	|	|
42+15	0.0110	0.00	Q	| V	|	|	|
42+20	0.0110	0.00	Q	| V	|	|	|
42+25	0.0110	0.00	Q	| V	|	|	|
42+30	0.0110	0.00	Q	| V	|	|	|
42+35	0.0110	0.00	Q	| V	|	|	|
42+40	0.0110	0.00	Q	| V	|	|	|
42+45	0.0110	0.00	Q	| V	|	|	|
42+50	0.0110	0.00	Q	| V	|	|	|
42+55	0.0110	0.00	Q	| V	|	|	|
43+ 0	0.0110	0.00	Q	| V	|	|	|
43+ 5	0.0110	0.00	Q	| V	|	|	|
43+10	0.0110	0.00	Q	| V	|	|	|
43+15	0.0110	0.00	Q	| V	|	|	|
43+20	0.0110	0.00	Q	| V	|	|	|
43+25	0.0111	0.00	Q	| V	|	|	|
43+30	0.0111	0.00	Q	| V	|	|	|
43+35	0.0111	0.00	Q	| V	|	|	|
43+40	0.0111	0.00	Q	| V	|	|	|
43+45	0.0111	0.00	Q	| V	|	|	|
43+50	0.0111	0.00	Q	| V	|	|	|
43+55	0.0111	0.00	Q	| V	|	|	|
44+ 0	0.0111	0.00	Q	| V	|	|	|
44+ 5	0.0111	0.00	Q	| V	|	|	|
44+10	0.0111	0.00	Q	| V	|	|	|
44+15	0.0111	0.00	Q	| V	|	|	|
44+20	0.0111	0.00	Q	| V	|	|	|
44+25	0.0111	0.00	Q	| V	|	|	|
44+30	0.0112	0.00	Q	| V	|	|	|
44+35	0.0112	0.00	Q	| V	|	|	|
44+40	0.0112	0.00	Q	| V	|	|	|
44+45	0.0112	0.00	Q	| V	|	|	|
44+50	0.0112	0.00	Q	| V	|	|	|
44+55	0.0112	0.00	Q	| V	|	|	|
45+ 0	0.0112	0.00	Q	| V	|	|	|
45+ 5	0.0112	0.00	Q	| V	|	|	|
45+10	0.0112	0.00	Q	| V	|	|	|
45+15	0.0112	0.00	Q	| V	|	|	|
45+20	0.0112	0.00	Q	| V	|	|	|
45+25	0.0112	0.00	Q	| V	|	|	|
45+30	0.0112	0.00	Q	| V	|	|	|

45+35	0.0112	0.00	Q	| V	|	|	|
45+40	0.0112	0.00	Q	| V	|	|	|
45+45	0.0112	0.00	Q	| V	|	|	|
45+50	0.0113	0.00	Q	| V	|	|	|
45+55	0.0113	0.00	Q	| V	|	|	|
46+ 0	0.0113	0.00	Q	| V	|	|	|
46+ 5	0.0113	0.00	Q	| V	|	|	|
46+10	0.0113	0.00	Q	| V	|	|	|
46+15	0.0113	0.00	Q	| V	|	|	|
46+20	0.0113	0.00	Q	| V	|	|	|
46+25	0.0113	0.00	Q	| V	|	|	|
46+30	0.0113	0.00	Q	| V	|	|	|
46+35	0.0113	0.00	Q	| V	|	|	|
46+40	0.0113	0.00	Q	| V	|	|	|
46+45	0.0113	0.00	Q	| V	|	|	|
46+50	0.0113	0.00	Q	| V	|	|	|
46+55	0.0113	0.00	Q	| V	|	|	|
47+ 0	0.0113	0.00	Q	| V	|	|	|
47+ 5	0.0113	0.00	Q	| V	|	|	|
47+10	0.0113	0.00	Q	| V	|	|	|
47+15	0.0113	0.00	Q	| V	|	|	|
47+20	0.0114	0.00	Q	| V	|	|	|
47+25	0.0114	0.00	Q	| V	|	|	|
47+30	0.0114	0.00	Q	| V	|	|	|
47+35	0.0114	0.00	Q	| V	|	|	|
47+40	0.0114	0.00	Q	| V	|	|	|
47+45	0.0114	0.00	Q	| V	|	|	|
47+50	0.0114	0.00	Q	| V	|	|	|
47+55	0.0114	0.00	Q	| V	|	|	|
48+ 0	0.0114	0.00	Q	| V	|	|	|
48+ 5	0.0114	0.00	Q	| V	|	|	|
48+10	0.0114	0.00	Q	| V	|	|	|
48+15	0.0114	0.00	Q	| V	|	|	|
48+20	0.0114	0.00	Q	| V	|	|	|
48+25	0.0115	0.00	Q	| V	|	|	|
48+30	0.0115	0.00	Q	| V	|	|	|
48+35	0.0115	0.00	Q	| V	|	|	|
48+40	0.0115	0.00	Q	| V	|	|	|
48+45	0.0115	0.00	Q	| V	|	|	|
48+50	0.0116	0.00	Q	| V	|	|	|
48+55	0.0116	0.00	Q	| V	|	|	|
49+ 0	0.0116	0.00	Q	| V	|	|	|
49+ 5	0.0117	0.00	Q	| V	|	|	|
49+10	0.0117	0.00	Q	| V	|	|	|
49+15	0.0117	0.00	Q	| V	|	|	|
49+20	0.0117	0.00	Q	| V	|	|	|
49+25	0.0117	0.00	Q	| V	|	|	|
49+30	0.0118	0.00	Q	| V	|	|	|
49+35	0.0118	0.00	Q	| V	|	|	|
49+40	0.0118	0.00	Q	| V	|	|	|
49+45	0.0118	0.00	Q	| V	|	|	|
49+50	0.0118	0.00	Q	| V	|	|	|
49+55	0.0119	0.00	Q	| V	|	|	|
50+ 0	0.0119	0.00	Q	| V	|	|	|
50+ 5	0.0119	0.00	Q	| V	|	|	|
50+10	0.0120	0.00	Q	| V	|	|	|
50+15	0.0120	0.00	Q	| V	|	|	|
50+20	0.0120	0.00	Q	| V	|	|	|
50+25	0.0120	0.00	Q	| V	|	|	|
50+30	0.0121	0.00	Q	| V	|	|	|
50+35	0.0121	0.00	Q	| V	|	|	|
50+40	0.0121	0.00	Q	| V	|	|	|
50+45	0.0122	0.01	Q	| V	|	|	|
50+50	0.0122	0.01	Q	| V	|	|	|
50+55	0.0122	0.01	Q	| V	|	|	|

```
51+ 0     0.0123    0.01 Q     |  V  |     |     |
51+ 5     0.0123    0.01 Q     |  V  |     |     |
51+10     0.0123    0.01 Q     |  V  |     |     |
51+15     0.0124    0.01 Q     |  V  |     |     |
51+20     0.0124    0.01 Q     |  V  |     |     |
51+25     0.0124    0.01 Q     |  V  |     |     |
51+30     0.0125    0.01 Q     |  V  |     |     |
51+35     0.0125    0.01 Q     |  V  |     |     |
51+40     0.0125    0.01 Q     |  V  |     |     |
51+45     0.0126    0.01 Q     |  V  |     |     |
51+50     0.0126    0.01 Q     |  V  |     |     |
51+55     0.0127    0.01 Q     |  V  |     |     |
52+ 0     0.0127    0.01 Q     |  V  |     |     |
52+ 5     0.0127    0.01 Q     |  V  |     |     |
52+10     0.0128    0.01 Q     |  V  |     |     |
52+15     0.0128    0.01 Q     |  V  |     |     |
52+20     0.0129    0.01 Q     |   V |     |     |
52+25     0.0129    0.01 Q     |   V |     |     |
52+30     0.0130    0.01 Q     |   V |     |     |
52+35     0.0130    0.01 Q     |   V |     |     |
52+40     0.0131    0.01 Q     |   V |     |     |
52+45     0.0131    0.01 Q     |   V |     |     |
52+50     0.0132    0.01 Q     |   V |     |     |
52+55     0.0132    0.01 Q     |   V |     |     |
53+ 0     0.0133    0.01 Q     |  V  |     |     |
53+ 5     0.0133    0.01 Q     |  V  |     |     |
53+10     0.0134    0.01 Q     |   V |     |     |
53+15     0.0134    0.01 Q     |   V |     |     |
53+20     0.0135    0.01 Q     |   V |     |     |
53+25     0.0135    0.01 Q     |   V |     |     |
53+30     0.0135    0.01 Q     |   V |     |     |
53+35     0.0136    0.01 Q     |   V |     |     |
53+40     0.0137    0.01 Q     |   V |     |     |
53+45     0.0137    0.01 Q     |   V |     |     |
53+50     0.0138    0.01 Q     |   V |     |     |
53+55     0.0138    0.01 Q     |   V |     |     |
54+ 0     0.0139    0.01 Q     |   V |     |     |
54+ 5     0.0139    0.01 Q     |   V |     |     |
54+10     0.0140    0.01 Q     |   V |     |     |
54+15     0.0141    0.01 Q     |   V |     |     |
54+20     0.0141    0.01 Q     |   V |     |     |
54+25     0.0142    0.01 Q     |   V |     |     |
54+30     0.0142    0.01 Q     |   V |     |     |
54+35     0.0143    0.01 Q     |   V |     |     |
54+40     0.0144    0.01 Q     |   V |     |     |
54+45     0.0145    0.01 Q     |    V|     |     |
54+50     0.0145    0.01 Q     |    V|     |     |
54+55     0.0146    0.01 Q     |    V|     |     |
55+ 0     0.0147    0.01 Q     |   V |     |     |
55+ 5     0.0147    0.01 Q     |   V |     |     |
55+10     0.0148    0.01 Q     |    V|     |     |
55+15     0.0149    0.01 Q     |    V|     |     |
55+20     0.0149    0.01 Q     |    V|     |     |
55+25     0.0150    0.01 Q     |    V|     |     |
55+30     0.0151    0.01 Q     |    V|     |     |
55+35     0.0152    0.01 Q     |    V|     |     |
55+40     0.0153    0.01 Q     |    V|     |     |
55+45     0.0153    0.01 Q     |    V|     |     |
55+50     0.0154    0.01 Q     |    V|     |     |
55+55     0.0155    0.01 Q     |    V|     |     |
56+ 0     0.0156    0.01 Q     |    V|     |     |
56+ 5     0.0157    0.01 Q     |    V|     |     |
56+10     0.0158    0.01 Q     |    V|     |     |
56+15     0.0159    0.02 Q     |    V|     |     |
56+20     0.0160    0.02 Q     |    V|     |     |
```

56+25	0.0161	0.02	Q	|	V | |
56+30	0.0162	0.02	Q	|	V | |
56+35	0.0163	0.02	Q	|	V | |
56+40	0.0164	0.02	Q	|	V | |
56+45	0.0165	0.02	Q	|	V | |
56+50	0.0167	0.02	Q	|	V | |
56+55	0.0168	0.02	Q	|	V | |
57+ 0	0.0169	0.02	Q	|	|V | |
57+ 5	0.0170	0.02	Q	|	|V | |
57+10	0.0172	0.02	Q	|	|V | |
57+15	0.0173	0.02	Q	|	|V | |
57+20	0.0174	0.02	Q	|	|V | |
57+25	0.0176	0.02	Q	|	|V | |
57+30	0.0177	0.02	Q	|	| V | |
57+35	0.0178	0.02	Q	|	| V | |
57+40	0.0180	0.02	Q	|	| V | |
57+45	0.0181	0.02	Q	|	| V | |
57+50	0.0183	0.02	Q	|	| V | |
57+55	0.0184	0.02	Q	|	| V | |
58+ 0	0.0186	0.02	Q	|	| V | |
58+ 5	0.0187	0.02	Q	|	| V | |
58+10	0.0188	0.02	Q	|	| V | |
58+15	0.0189	0.02	Q	|	| V | |
58+20	0.0190	0.02	Q	|	| V | |
58+25	0.0191	0.02	Q	|	| V | |
58+30	0.0192	0.02	Q	|	| V | |
58+35	0.0193	0.02	Q	|	| V | |
58+40	0.0195	0.02	Q	|	| V | |
58+45	0.0196	0.02	Q	|	| V | |
58+50	0.0198	0.02	Q	|	| V | |
58+55	0.0199	0.02	Q	|	| V | |
59+ 0	0.0200	0.02	Q	|	| V | |
59+ 5	0.0202	0.02	Q	|	| V | |
59+10	0.0203	0.02	Q	|	| V | |
59+15	0.0204	0.02	Q	|	| V | |
59+20	0.0206	0.02	Q	|	| V | |
59+25	0.0207	0.02	Q	|	| V | |
59+30	0.0208	0.02	Q	|	| V | |
59+35	0.0209	0.02	Q	|	| V | |
59+40	0.0211	0.02	Q	|	| V | |
59+45	0.0212	0.02	Q	|	| V | |
59+50	0.0213	0.02	Q	|	| V | |
59+55	0.0214	0.02	Q	|	| V | |
60+ 0	0.0216	0.02	Q	|	| V | |
60+ 5	0.0217	0.02	Q	|	| V | |
60+10	0.0219	0.02	Q	|	| V | |
60+15	0.0221	0.03	Q	|	| V | |
60+20	0.0222	0.03	Q	|	| V | |
60+25	0.0224	0.03	Q	|	| V | |
60+30	0.0226	0.03	Q	|	| V | |
60+35	0.0228	0.03	Q	|	| V | |
60+40	0.0230	0.03	Q	|	| V | |
60+45	0.0232	0.03	Q	|	| V | |
60+50	0.0234	0.03	Q	|	| V| |
60+55	0.0236	0.03	Q	|	| V| |
61+ 0	0.0238	0.03	Q	|	| V| |
61+ 5	0.0240	0.03	Q	|	| V| |
61+10	0.0242	0.03	Q	|	| V |
61+15	0.0245	0.03	Q	|	| V |
61+20	0.0247	0.03	Q	|	| V |
61+25	0.0249	0.03	Q	|	| |V |
61+30	0.0252	0.03	Q	|	| |V |
61+35	0.0253	0.03	Q	|	| |V |
61+40	0.0255	0.02	Q	|	| |V |
61+45	0.0257	0.02	Q	|	| |V |

```
61+50    0.0258    0.02 Q     |      |      | V     |
61+55    0.0260    0.02 Q     |      |      | V     |
62+ 0    0.0261    0.02 Q     |      |      | V     |
62+ 5    0.0263    0.03 Q     |      |      | V     |
62+10    0.0265    0.03 Q     |      |      |  V    |
62+15    0.0267    0.03 Q     |      |      |  V    |
62+20    0.0269    0.03 Q     |      |      |  V    |
62+25    0.0270    0.03 Q     |      |      |  V    |
62+30    0.0272    0.03 Q     |      |      |  V    |
62+35    0.0274    0.03 Q     |      |      |   V   |
62+40    0.0276    0.03 Q     |      |      |   V   |
62+45    0.0278    0.03 Q     |      |      |   V   |
62+50    0.0279    0.03 Q     |      |      |   V   |
62+55    0.0281    0.03 Q     |      |      |    V  |
63+ 0    0.0283    0.03 Q     |      |      |    V  |
63+ 5    0.0285    0.02 Q     |      |      |    V  |
63+10    0.0286    0.02 Q     |      |      |    V  |
63+15    0.0288    0.02 Q     |      |      |    V  |
63+20    0.0290    0.02 Q     |      |      |     V |
63+25    0.0291    0.02 Q     |      |      |     V |
63+30    0.0293    0.02 Q     |      |      |     V |
63+35    0.0294    0.02 Q     |      |      |     V |
63+40    0.0295    0.02 Q     |      |      |     V |
63+45    0.0297    0.02 Q     |      |      |     V |
63+50    0.0298    0.02 Q     |      |      |     V |
63+55    0.0299    0.02 Q     |      |      |     V |
64+ 0    0.0301    0.02 Q     |      |      |     V |
64+ 5    0.0301    0.01 Q     |      |      |     V |
64+10    0.0302    0.00 Q     |      |      |     V |
64+15    0.0302    0.00 Q     |      |      |     V |
64+20    0.0302    0.00 Q     |      |      |     V |
64+25    0.0302    0.00 Q     |      |      |     V |
64+30    0.0303    0.00 Q     |      |      |     V |
64+35    0.0303    0.00 Q     |      |      |     V |
64+40    0.0303    0.00 Q     |      |      |     V |
64+45    0.0303    0.00 Q     |      |      |     V |
64+50    0.0304    0.00 Q     |      |      |     V |
64+55    0.0304    0.00 Q     |      |      |     V |
65+ 0    0.0304    0.00 Q     |      |      |     V |
65+ 5    0.0304    0.00 Q     |      |      |     V |
65+10    0.0305    0.00 Q     |      |      |     V |
65+15    0.0305    0.01 Q     |      |      |     V |
65+20    0.0305    0.01 Q     |      |      |     V |
65+25    0.0306    0.01 Q     |      |      |     V |
65+30    0.0306    0.01 Q     |      |      |     V |
65+35    0.0306    0.01 Q     |      |      |     V |
65+40    0.0307    0.01 Q     |      |      |     V |
65+45    0.0307    0.01 Q     |      |      |     V |
65+50    0.0307    0.00 Q     |      |      |     V |
65+55    0.0308    0.00 Q     |      |      |     V |
66+ 0    0.0308    0.00 Q     |      |      |     V |
66+ 5    0.0308    0.00 Q     |      |      |     V |
66+10    0.0308    0.00 Q     |      |      |     V |
66+15    0.0309    0.00 Q     |      |      |     V |
66+20    0.0309    0.00 Q     |      |      |     V |
66+25    0.0309    0.00 Q     |      |      |     V |
66+30    0.0310    0.00 Q     |      |      |     V |
66+35    0.0310    0.00 Q     |      |      |     V |
66+40    0.0310    0.00 Q     |      |      |     V |
66+45    0.0310    0.00 Q     |      |      |     V |
66+50    0.0310    0.00 Q     |      |      |     V |
66+55    0.0311    0.00 Q     |      |      |     V |
67+ 0    0.0311    0.00 Q     |      |      |     V |
67+ 5    0.0311    0.00 Q     |      |      |     V |
67+10    0.0311    0.00 Q     |      |      |     V |
```

67+15	0.0311	0.00	Q	|	|	|	V |
67+20	0.0312	0.00	Q	|	|	|	V |
67+25	0.0312	0.00	Q	|	|	|	V |
67+30	0.0312	0.00	Q	|	|	|	V |
67+35	0.0312	0.00	Q	|	|	|	V |
67+40	0.0313	0.00	Q	|	|	|	V |
67+45	0.0313	0.00	Q	|	|	|	V |
67+50	0.0313	0.00	Q	|	|	|	V |
67+55	0.0313	0.00	Q	|	|	|	V |
68+ 0	0.0313	0.00	Q	|	|	|	V|
68+ 5	0.0313	0.00	Q	|	|	|	V|
68+10	0.0314	0.00	Q	|	|	|	V|
68+15	0.0314	0.00	Q	|	|	|	V|
68+20	0.0314	0.00	Q	|	|	|	V|
68+25	0.0314	0.00	Q	|	|	|	V|
68+30	0.0314	0.00	Q	|	|	|	V|
68+35	0.0315	0.00	Q	|	|	|	V|
68+40	0.0315	0.00	Q	|	|	|	V|
68+45	0.0315	0.00	Q	|	|	|	V|
68+50	0.0315	0.00	Q	|	|	|	V|
68+55	0.0315	0.00	Q	|	|	|	V|
69+ 0	0.0315	0.00	Q	|	|	|	V|
69+ 5	0.0316	0.00	Q	|	|	|	V|
69+10	0.0316	0.00	Q	|	|	|	V|
69+15	0.0316	0.00	Q	|	|	|	V|
69+20	0.0316	0.00	Q	|	|	|	V|
69+25	0.0316	0.00	Q	|	|	|	V|
69+30	0.0316	0.00	Q	|	|	|	V|
69+35	0.0317	0.00	Q	|	|	|	V|
69+40	0.0317	0.00	Q	|	|	|	V|
69+45	0.0317	0.00	Q	|	|	|	V|
69+50	0.0317	0.00	Q	|	|	|	V|
69+55	0.0317	0.00	Q	|	|	|	V|
70+ 0	0.0318	0.00	Q	|	|	|	V|
70+ 5	0.0318	0.00	Q	|	|	|	V|
70+10	0.0318	0.00	Q	|	|	|	V|
70+15	0.0318	0.00	Q	|	|	|	V|
70+20	0.0318	0.00	Q	|	|	|	V|
70+25	0.0318	0.00	Q	|	|	|	V|
70+30	0.0319	0.00	Q	|	|	|	V|
70+35	0.0319	0.00	Q	|	|	|	V|
70+40	0.0319	0.00	Q	|	|	|	V|
70+45	0.0319	0.00	Q	|	|	|	V|
70+50	0.0319	0.00	Q	|	|	|	V|
70+55	0.0319	0.00	Q	|	|	|	V|
71+ 0	0.0319	0.00	Q	|	|	|	V|
71+ 5	0.0320	0.00	Q	|	|	|	V|
71+10	0.0320	0.00	Q	|	|	|	V|
71+15	0.0320	0.00	Q	|	|	|	V|
71+20	0.0320	0.00	Q	|	|	|	V|
71+25	0.0320	0.00	Q	|	|	|	V|
71+30	0.0320	0.00	Q	|	|	|	V|
71+35	0.0320	0.00	Q	|	|	|	V|
71+40	0.0321	0.00	Q	|	|	|	V|
71+45	0.0321	0.00	Q	|	|	|	V|
71+50	0.0321	0.00	Q	|	|	|	V|
71+55	0.0321	0.00	Q	|	|	|	V|
72+ 0	0.0321	0.00	Q	|	|	|	V|
72+ 5	0.0321	0.00	Q	|	|	|	V|
72+10	0.0321	0.00	Q	|	|	|	V|

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 1999, Version 6.0
Study date 09/23/20 File: APOST245.out

++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

28771 Central Avenue Gas Station
Area A
Post-development
24-Hr 5-Yr Storm Event

Drainage Area = 0.58(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 345.00(Ft.)
Length along longest watercourse measured to centroid = 97.38(Ft.)
Length along longest watercourse = 0.065 Mi.
Length along longest watercourse measured to centroid = 0.018 Mi.
Difference in elevation = 6.34(Ft.)
Slope along watercourse = 97.0296 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.023 Hr.
Lag time = 1.41 Min.
25% of lag time = 0.35 Min.
40% of lag time = 0.56 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.58	2.43	1.41

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.58	6.58	3.83

STORM EVENT (YEAR) = 5.00
Area Averaged 2-Year Rainfall = 2.430(In)
Area Averaged 100-Year Rainfall = 6.580(In)

Point rain (area averaged) = 3.402(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 3.402(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
0.582	79.00	0.095

Total Area Entered = 0.58(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
79.0	61.8	0.451	0.095	0.412	1.000	0.412

Sum (F) = 0.412

Area averaged mean soil loss (F) (In/Hr) = 0.412

Minimum soil loss rate ((In/Hr)) = 0.206

(for 24 hour storm duration)

Soil low loss rate (decimal) = 0.824

U n i t H y d r o g r a p h

DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag Graph %	Distribution (CFS)	Unit Hydrograph
1	0.083	354.985	61.437	0.360
2	0.167	709.970	35.423	0.208
3	0.250	1064.955	3.140	0.018
		Sum = 100.000	Sum=	0.587

Unit Time		Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.027	0.731	0.022	0.00
2	0.17	0.07	0.027	0.728	0.022	0.00
3	0.25	0.07	0.027	0.725	0.022	0.00
4	0.33	0.10	0.041	0.722	0.034	0.01
5	0.42	0.10	0.041	0.719	0.034	0.01
6	0.50	0.10	0.041	0.717	0.034	0.01
7	0.58	0.10	0.041	0.714	0.034	0.01
8	0.67	0.10	0.041	0.711	0.034	0.01
9	0.75	0.10	0.041	0.708	0.034	0.01
10	0.83	0.13	0.054	0.705	0.045	0.01
11	0.92	0.13	0.054	0.703	0.045	0.01
12	1.00	0.13	0.054	0.700	0.045	0.01
13	1.08	0.10	0.041	0.697	0.034	0.01
14	1.17	0.10	0.041	0.694	0.034	0.01
15	1.25	0.10	0.041	0.692	0.034	0.01
16	1.33	0.10	0.041	0.689	0.034	0.01
17	1.42	0.10	0.041	0.686	0.034	0.01
18	1.50	0.10	0.041	0.683	0.034	0.01
19	1.58	0.10	0.041	0.681	0.034	0.01
20	1.67	0.10	0.041	0.678	0.034	0.01
21	1.75	0.10	0.041	0.675	0.034	0.01
22	1.83	0.13	0.054	0.672	0.045	0.01
23	1.92	0.13	0.054	0.670	0.045	0.01
24	2.00	0.13	0.054	0.667	0.045	0.01
25	2.08	0.13	0.054	0.664	0.045	0.01
26	2.17	0.13	0.054	0.662	0.045	0.01
27	2.25	0.13	0.054	0.659	0.045	0.01
28	2.33	0.13	0.054	0.656	0.045	0.01
29	2.42	0.13	0.054	0.654	0.045	0.01
30	2.50	0.13	0.054	0.651	0.045	0.01
31	2.58	0.17	0.068	0.648	0.056	0.01
32	2.67	0.17	0.068	0.646	0.056	0.01

33	2.75	0.17	0.068	0.643	0.056	0.01
34	2.83	0.17	0.068	0.640	0.056	0.01
35	2.92	0.17	0.068	0.638	0.056	0.01
36	3.00	0.17	0.068	0.635	0.056	0.01
37	3.08	0.17	0.068	0.632	0.056	0.01
38	3.17	0.17	0.068	0.630	0.056	0.01
39	3.25	0.17	0.068	0.627	0.056	0.01
40	3.33	0.17	0.068	0.625	0.056	0.01
41	3.42	0.17	0.068	0.622	0.056	0.01
42	3.50	0.17	0.068	0.619	0.056	0.01
43	3.58	0.17	0.068	0.617	0.056	0.01
44	3.67	0.17	0.068	0.614	0.056	0.01
45	3.75	0.17	0.068	0.612	0.056	0.01
46	3.83	0.20	0.082	0.609	0.067	0.01
47	3.92	0.20	0.082	0.606	0.067	0.01
48	4.00	0.20	0.082	0.604	0.067	0.01
49	4.08	0.20	0.082	0.601	0.067	0.01
50	4.17	0.20	0.082	0.599	0.067	0.01
51	4.25	0.20	0.082	0.596	0.067	0.01
52	4.33	0.23	0.095	0.594	0.079	0.02
53	4.42	0.23	0.095	0.591	0.079	0.02
54	4.50	0.23	0.095	0.589	0.079	0.02
55	4.58	0.23	0.095	0.586	0.079	0.02
56	4.67	0.23	0.095	0.584	0.079	0.02
57	4.75	0.23	0.095	0.581	0.079	0.02
58	4.83	0.27	0.109	0.579	0.090	0.02
59	4.92	0.27	0.109	0.576	0.090	0.02
60	5.00	0.27	0.109	0.574	0.090	0.02
61	5.08	0.20	0.082	0.571	0.067	0.01
62	5.17	0.20	0.082	0.569	0.067	0.01
63	5.25	0.20	0.082	0.566	0.067	0.01
64	5.33	0.23	0.095	0.564	0.079	0.02
65	5.42	0.23	0.095	0.561	0.079	0.02
66	5.50	0.23	0.095	0.559	0.079	0.02
67	5.58	0.27	0.109	0.556	0.090	0.02
68	5.67	0.27	0.109	0.554	0.090	0.02
69	5.75	0.27	0.109	0.551	0.090	0.02
70	5.83	0.27	0.109	0.549	0.090	0.02
71	5.92	0.27	0.109	0.546	0.090	0.02
72	6.00	0.27	0.109	0.544	0.090	0.02
73	6.08	0.30	0.122	0.542	0.101	0.02
74	6.17	0.30	0.122	0.539	0.101	0.02
75	6.25	0.30	0.122	0.537	0.101	0.02
76	6.33	0.30	0.122	0.534	0.101	0.02
77	6.42	0.30	0.122	0.532	0.101	0.02
78	6.50	0.30	0.122	0.530	0.101	0.02
79	6.58	0.33	0.136	0.527	0.112	0.02
80	6.67	0.33	0.136	0.525	0.112	0.02
81	6.75	0.33	0.136	0.523	0.112	0.02
82	6.83	0.33	0.136	0.520	0.112	0.02
83	6.92	0.33	0.136	0.518	0.112	0.02
84	7.00	0.33	0.136	0.515	0.112	0.02
85	7.08	0.33	0.136	0.513	0.112	0.02
86	7.17	0.33	0.136	0.511	0.112	0.02
87	7.25	0.33	0.136	0.508	0.112	0.02
88	7.33	0.37	0.150	0.506	0.123	0.03
89	7.42	0.37	0.150	0.504	0.123	0.03
90	7.50	0.37	0.150	0.501	0.123	0.03
91	7.58	0.40	0.163	0.499	0.135	0.03
92	7.67	0.40	0.163	0.497	0.135	0.03
93	7.75	0.40	0.163	0.495	0.135	0.03
94	7.83	0.43	0.177	0.492	0.146	0.03
95	7.92	0.43	0.177	0.490	0.146	0.03
96	8.00	0.43	0.177	0.488	0.146	0.03
97	8.08	0.50	0.204	0.486	0.168	0.04

98	8.17	0.50	0.204	0.483	0.168	0.04
99	8.25	0.50	0.204	0.481	0.168	0.04
100	8.33	0.50	0.204	0.479	0.168	0.04
101	8.42	0.50	0.204	0.477	0.168	0.04
102	8.50	0.50	0.204	0.474	0.168	0.04
103	8.58	0.53	0.218	0.472	0.179	0.04
104	8.67	0.53	0.218	0.470	0.179	0.04
105	8.75	0.53	0.218	0.468	0.179	0.04
106	8.83	0.57	0.231	0.465	0.191	0.04
107	8.92	0.57	0.231	0.463	0.191	0.04
108	9.00	0.57	0.231	0.461	0.191	0.04
109	9.08	0.63	0.259	0.459	0.213	0.05
110	9.17	0.63	0.259	0.457	0.213	0.05
111	9.25	0.63	0.259	0.454	0.213	0.05
112	9.33	0.67	0.272	0.452	0.224	0.05
113	9.42	0.67	0.272	0.450	0.224	0.05
114	9.50	0.67	0.272	0.448	0.224	0.05
115	9.58	0.70	0.286	0.446	0.236	0.05
116	9.67	0.70	0.286	0.444	0.236	0.05
117	9.75	0.70	0.286	0.442	0.236	0.05
118	9.83	0.73	0.299	0.439	0.247	0.05
119	9.92	0.73	0.299	0.437	0.247	0.05
120	10.00	0.73	0.299	0.435	0.247	0.05
121	10.08	0.50	0.204	0.433	0.168	0.04
122	10.17	0.50	0.204	0.431	0.168	0.04
123	10.25	0.50	0.204	0.429	0.168	0.04
124	10.33	0.50	0.204	0.427	0.168	0.04
125	10.42	0.50	0.204	0.425	0.168	0.04
126	10.50	0.50	0.204	0.423	0.168	0.04
127	10.58	0.67	0.272	0.421	0.224	0.05
128	10.67	0.67	0.272	0.419	0.224	0.05
129	10.75	0.67	0.272	0.417	0.224	0.05
130	10.83	0.67	0.272	0.415	0.224	0.05
131	10.92	0.67	0.272	0.412	0.224	0.05
132	11.00	0.67	0.272	0.410	0.224	0.05
133	11.08	0.63	0.259	0.408	0.213	0.05
134	11.17	0.63	0.259	0.406	0.213	0.05
135	11.25	0.63	0.259	0.404	0.213	0.05
136	11.33	0.63	0.259	0.402	0.213	0.05
137	11.42	0.63	0.259	0.400	0.213	0.05
138	11.50	0.63	0.259	0.398	0.213	0.05
139	11.58	0.57	0.231	0.396	0.191	0.04
140	11.67	0.57	0.231	0.394	0.191	0.04
141	11.75	0.57	0.231	0.393	0.191	0.04
142	11.83	0.60	0.245	0.391	0.202	0.04
143	11.92	0.60	0.245	0.389	0.202	0.04
144	12.00	0.60	0.245	0.387	0.202	0.04
145	12.08	0.83	0.340	0.385	0.280	0.06
146	12.17	0.83	0.340	0.383	0.280	0.06
147	12.25	0.83	0.340	0.381	0.280	0.06
148	12.33	0.87	0.354	0.379	0.292	0.06
149	12.42	0.87	0.354	0.377	0.292	0.06
150	12.50	0.87	0.354	0.375	0.292	0.06
151	12.58	0.93	0.381	0.373	---	0.01
152	12.67	0.93	0.381	0.371	---	0.01
153	12.75	0.93	0.381	0.370	---	0.01
154	12.83	0.97	0.395	0.368	---	0.03
155	12.92	0.97	0.395	0.366	---	0.03
156	13.00	0.97	0.395	0.364	---	0.03
157	13.08	1.13	0.463	0.362	---	0.10
158	13.17	1.13	0.463	0.360	---	0.10
159	13.25	1.13	0.463	0.358	---	0.10
160	13.33	1.13	0.463	0.357	---	0.11
161	13.42	1.13	0.463	0.355	---	0.11
162	13.50	1.13	0.463	0.353	---	0.11

163	13.58	0.77	0.313	0.351	0.258	0.06
164	13.67	0.77	0.313	0.349	0.258	0.06
165	13.75	0.77	0.313	0.348	0.258	0.06
166	13.83	0.77	0.313	0.346	0.258	0.06
167	13.92	0.77	0.313	0.344	0.258	0.06
168	14.00	0.77	0.313	0.342	0.258	0.06
169	14.08	0.90	0.367	0.341	---	0.03
170	14.17	0.90	0.367	0.339	---	0.03
171	14.25	0.90	0.367	0.337	---	0.03
172	14.33	0.87	0.354	0.335	---	0.02
173	14.42	0.87	0.354	0.334	---	0.02
174	14.50	0.87	0.354	0.332	---	0.02
175	14.58	0.87	0.354	0.330	---	0.02
176	14.67	0.87	0.354	0.329	---	0.03
177	14.75	0.87	0.354	0.327	---	0.03
178	14.83	0.83	0.340	0.325	---	0.01
179	14.92	0.83	0.340	0.324	---	0.02
180	15.00	0.83	0.340	0.322	---	0.02
181	15.08	0.80	0.327	0.320	---	0.01
182	15.17	0.80	0.327	0.319	---	0.01
183	15.25	0.80	0.327	0.317	---	0.01
184	15.33	0.77	0.313	0.315	0.258	0.06
185	15.42	0.77	0.313	0.314	0.258	0.06
186	15.50	0.77	0.313	0.312	---	0.00
187	15.58	0.63	0.259	0.311	0.213	0.05
188	15.67	0.63	0.259	0.309	0.213	0.05
189	15.75	0.63	0.259	0.307	0.213	0.05
190	15.83	0.63	0.259	0.306	0.213	0.05
191	15.92	0.63	0.259	0.304	0.213	0.05
192	16.00	0.63	0.259	0.303	0.213	0.05
193	16.08	0.13	0.054	0.301	0.045	0.01
194	16.17	0.13	0.054	0.300	0.045	0.01
195	16.25	0.13	0.054	0.298	0.045	0.01
196	16.33	0.13	0.054	0.297	0.045	0.01
197	16.42	0.13	0.054	0.295	0.045	0.01
198	16.50	0.13	0.054	0.294	0.045	0.01
199	16.58	0.10	0.041	0.292	0.034	0.01
200	16.67	0.10	0.041	0.291	0.034	0.01
201	16.75	0.10	0.041	0.289	0.034	0.01
202	16.83	0.10	0.041	0.288	0.034	0.01
203	16.92	0.10	0.041	0.286	0.034	0.01
204	17.00	0.10	0.041	0.285	0.034	0.01
205	17.08	0.17	0.068	0.283	0.056	0.01
206	17.17	0.17	0.068	0.282	0.056	0.01
207	17.25	0.17	0.068	0.280	0.056	0.01
208	17.33	0.17	0.068	0.279	0.056	0.01
209	17.42	0.17	0.068	0.278	0.056	0.01
210	17.50	0.17	0.068	0.276	0.056	0.01
211	17.58	0.17	0.068	0.275	0.056	0.01
212	17.67	0.17	0.068	0.273	0.056	0.01
213	17.75	0.17	0.068	0.272	0.056	0.01
214	17.83	0.13	0.054	0.271	0.045	0.01
215	17.92	0.13	0.054	0.269	0.045	0.01
216	18.00	0.13	0.054	0.268	0.045	0.01
217	18.08	0.13	0.054	0.267	0.045	0.01
218	18.17	0.13	0.054	0.265	0.045	0.01
219	18.25	0.13	0.054	0.264	0.045	0.01
220	18.33	0.13	0.054	0.263	0.045	0.01
221	18.42	0.13	0.054	0.262	0.045	0.01
222	18.50	0.13	0.054	0.260	0.045	0.01
223	18.58	0.10	0.041	0.259	0.034	0.01
224	18.67	0.10	0.041	0.258	0.034	0.01
225	18.75	0.10	0.041	0.257	0.034	0.01
226	18.83	0.07	0.027	0.255	0.022	0.00
227	18.92	0.07	0.027	0.254	0.022	0.00

228	19.00	0.07	0.027	0.253	0.022	0.00
229	19.08	0.10	0.041	0.252	0.034	0.01
230	19.17	0.10	0.041	0.251	0.034	0.01
231	19.25	0.10	0.041	0.249	0.034	0.01
232	19.33	0.13	0.054	0.248	0.045	0.01
233	19.42	0.13	0.054	0.247	0.045	0.01
234	19.50	0.13	0.054	0.246	0.045	0.01
235	19.58	0.10	0.041	0.245	0.034	0.01
236	19.67	0.10	0.041	0.244	0.034	0.01
237	19.75	0.10	0.041	0.243	0.034	0.01
238	19.83	0.07	0.027	0.241	0.022	0.00
239	19.92	0.07	0.027	0.240	0.022	0.00
240	20.00	0.07	0.027	0.239	0.022	0.00
241	20.08	0.10	0.041	0.238	0.034	0.01
242	20.17	0.10	0.041	0.237	0.034	0.01
243	20.25	0.10	0.041	0.236	0.034	0.01
244	20.33	0.10	0.041	0.235	0.034	0.01
245	20.42	0.10	0.041	0.234	0.034	0.01
246	20.50	0.10	0.041	0.233	0.034	0.01
247	20.58	0.10	0.041	0.232	0.034	0.01
248	20.67	0.10	0.041	0.231	0.034	0.01
249	20.75	0.10	0.041	0.230	0.034	0.01
250	20.83	0.07	0.027	0.229	0.022	0.00
251	20.92	0.07	0.027	0.228	0.022	0.00
252	21.00	0.07	0.027	0.227	0.022	0.00
253	21.08	0.10	0.041	0.227	0.034	0.01
254	21.17	0.10	0.041	0.226	0.034	0.01
255	21.25	0.10	0.041	0.225	0.034	0.01
256	21.33	0.07	0.027	0.224	0.022	0.00
257	21.42	0.07	0.027	0.223	0.022	0.00
258	21.50	0.07	0.027	0.222	0.022	0.00
259	21.58	0.10	0.041	0.221	0.034	0.01
260	21.67	0.10	0.041	0.221	0.034	0.01
261	21.75	0.10	0.041	0.220	0.034	0.01
262	21.83	0.07	0.027	0.219	0.022	0.00
263	21.92	0.07	0.027	0.218	0.022	0.00
264	22.00	0.07	0.027	0.218	0.022	0.00
265	22.08	0.10	0.041	0.217	0.034	0.01
266	22.17	0.10	0.041	0.216	0.034	0.01
267	22.25	0.10	0.041	0.216	0.034	0.01
268	22.33	0.07	0.027	0.215	0.022	0.00
269	22.42	0.07	0.027	0.214	0.022	0.00
270	22.50	0.07	0.027	0.214	0.022	0.00
271	22.58	0.07	0.027	0.213	0.022	0.00
272	22.67	0.07	0.027	0.212	0.022	0.00
273	22.75	0.07	0.027	0.212	0.022	0.00
274	22.83	0.07	0.027	0.211	0.022	0.00
275	22.92	0.07	0.027	0.211	0.022	0.00
276	23.00	0.07	0.027	0.210	0.022	0.00
277	23.08	0.07	0.027	0.210	0.022	0.00
278	23.17	0.07	0.027	0.209	0.022	0.00
279	23.25	0.07	0.027	0.209	0.022	0.00
280	23.33	0.07	0.027	0.208	0.022	0.00
281	23.42	0.07	0.027	0.208	0.022	0.00
282	23.50	0.07	0.027	0.208	0.022	0.00
283	23.58	0.07	0.027	0.207	0.022	0.00
284	23.67	0.07	0.027	0.207	0.022	0.00
285	23.75	0.07	0.027	0.207	0.022	0.00
286	23.83	0.07	0.027	0.206	0.022	0.00
287	23.92	0.07	0.027	0.206	0.022	0.00
288	24.00	0.07	0.027	0.206	0.022	0.00
Sum =		100.0			Sum =	6.3

Flood volume = Effective rainfall 0.53(In)
times area 0.6(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)
Total soil loss = 2.87(In)

Total soil loss = 0.139(Ac.Ft)
Total rainfall = 3.40(In)
Flood volume = 1117.7 Cubic Feet
Total soil loss = 6069.7 Cubic Feet

Peak flow rate of this hydrograph = 0.064(CFS)

++

24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0 2.5 5.0 7.5 10.0
0+ 5	0.0000	0.00	Q
0+10	0.0000	0.00	Q
0+15	0.0000	0.00	Q
0+20	0.0001	0.00	Q
0+25	0.0001	0.00	Q
0+30	0.0001	0.00	Q
0+35	0.0002	0.00	Q
0+40	0.0002	0.00	Q
0+45	0.0002	0.00	Q
0+50	0.0003	0.01	Q
0+55	0.0003	0.01	Q
1+ 0	0.0003	0.01	Q
1+ 5	0.0004	0.00	Q
1+10	0.0004	0.00	Q
1+15	0.0004	0.00	Q
1+20	0.0005	0.00	Q
1+25	0.0005	0.00	Q
1+30	0.0005	0.00	Q
1+35	0.0005	0.00	Q
1+40	0.0006	0.00	Q
1+45	0.0006	0.00	Q
1+50	0.0006	0.01	Q
1+55	0.0007	0.01	QV
2+ 0	0.0007	0.01	QV
2+ 5	0.0007	0.01	QV
2+10	0.0008	0.01	QV
2+15	0.0008	0.01	QV
2+20	0.0009	0.01	QV
2+25	0.0009	0.01	QV
2+30	0.0009	0.01	QV
2+35	0.0010	0.01	QV
2+40	0.0010	0.01	QV
2+45	0.0011	0.01	QV
2+50	0.0011	0.01	QV
2+55	0.0012	0.01	QV
3+ 0	0.0012	0.01	QV
3+ 5	0.0013	0.01	QV
3+10	0.0013	0.01	Q V
3+15	0.0014	0.01	Q V
3+20	0.0014	0.01	Q V
3+25	0.0015	0.01	Q V
3+30	0.0015	0.01	Q V
3+35	0.0016	0.01	Q V
3+40	0.0016	0.01	Q V
3+45	0.0017	0.01	Q V
3+50	0.0017	0.01	Q V
3+55	0.0018	0.01	Q V
4+ 0	0.0018	0.01	Q V
4+ 5	0.0019	0.01	Q V

4+10	0.0019	0.01	Q	V	|	|	|	|
4+15	0.0020	0.01	Q	V	|	|	|	|
4+20	0.0021	0.01	Q	V	|	|	|	|
4+25	0.0021	0.01	Q	V	|	|	|	|
4+30	0.0022	0.01	Q	V	|	|	|	|
4+35	0.0023	0.01	Q	V	|	|	|	|
4+40	0.0023	0.01	Q	V	|	|	|	|
4+45	0.0024	0.01	Q	V	|	|	|	|
4+50	0.0025	0.01	Q	V	|	|	|	|
4+55	0.0026	0.01	Q	V	|	|	|	|
5+ 0	0.0026	0.01	Q	V	|	|	|	|
5+ 5	0.0027	0.01	Q	V	|	|	|	|
5+10	0.0028	0.01	Q	V	|	|	|	|
5+15	0.0028	0.01	Q	V	|	|	|	|
5+20	0.0029	0.01	Q	V	|	|	|	|
5+25	0.0029	0.01	Q	V	|	|	|	|
5+30	0.0030	0.01	Q	V	|	|	|	|
5+35	0.0031	0.01	Q	V	|	|	|	|
5+40	0.0032	0.01	Q	V	|	|	|	|
5+45	0.0032	0.01	Q	V	|	|	|	|
5+50	0.0033	0.01	Q	V	|	|	|	|
5+55	0.0034	0.01	Q	V	|	|	|	|
6+ 0	0.0035	0.01	Q	V	|	|	|	|
6+ 5	0.0036	0.01	Q	V	|	|	|	|
6+10	0.0036	0.01	Q	V	|	|	|	|
6+15	0.0037	0.01	Q	V	|	|	|	|
6+20	0.0038	0.01	Q	V	|	|	|	|
6+25	0.0039	0.01	Q	V	|	|	|	|
6+30	0.0040	0.01	Q	V	|	|	|	|
6+35	0.0041	0.01	Q	V	|	|	|	|
6+40	0.0042	0.01	Q	V	|	|	|	|
6+45	0.0043	0.01	Q	V	|	|	|	|
6+50	0.0044	0.01	Q	V	|	|	|	|
6+55	0.0045	0.01	Q	V	|	|	|	|
7+ 0	0.0046	0.01	Q	V	|	|	|	|
7+ 5	0.0047	0.01	Q	V	|	|	|	|
7+10	0.0048	0.01	Q	V	|	|	|	|
7+15	0.0049	0.01	Q	V	|	|	|	|
7+20	0.0050	0.01	Q	V	|	|	|	|
7+25	0.0051	0.02	Q	V	|	|	|	|
7+30	0.0052	0.02	Q	V	|	|	|	|
7+35	0.0053	0.02	Q	V	|	|	|	|
7+40	0.0054	0.02	Q	V	|	|	|	|
7+45	0.0055	0.02	Q	V	|	|	|	|
7+50	0.0056	0.02	Q	V	|	|	|	|
7+55	0.0058	0.02	Q	V	|	|	|	|
8+ 0	0.0059	0.02	Q	V	|	|	|	|
8+ 5	0.0060	0.02	Q	V	|	|	|	|
8+10	0.0062	0.02	Q	V	|	|	|	|
8+15	0.0063	0.02	Q	V	|	|	|	|
8+20	0.0065	0.02	Q	V	|	|	|	|
8+25	0.0066	0.02	Q	V	|	|	|	|
8+30	0.0068	0.02	Q	V	|	|	|	|
8+35	0.0069	0.02	Q	V	|	|	|	|
8+40	0.0071	0.02	Q	|	V	|	|	|
8+45	0.0072	0.02	Q	|	V	|	|	|
8+50	0.0074	0.02	Q	|	V	|	|	|
8+55	0.0075	0.02	Q	|	V	|	|	|
9+ 0	0.0077	0.02	Q	|	V	|	|	|
9+ 5	0.0079	0.03	Q	|	V	|	|	|
9+10	0.0081	0.03	Q	|	V	|	|	|
9+15	0.0082	0.03	Q	|	V	|	|	|
9+20	0.0084	0.03	Q	|	V	|	|	|
9+25	0.0086	0.03	Q	|	V	|	|	|
9+30	0.0088	0.03	Q	|	V	|	|	|

9+35	0.0090	0.03	Q	| V |	|	|
9+40	0.0092	0.03	Q	| V |	|	|
9+45	0.0094	0.03	Q	| V |	|	|
9+50	0.0096	0.03	Q	| V |	|	|
9+55	0.0099	0.03	Q	| V |	|	|
10+ 0	0.0101	0.03	Q	| V |	|	|
10+ 5	0.0102	0.02	Q	| V |	|	|
10+10	0.0104	0.02	Q	| V |	|	|
10+15	0.0105	0.02	Q	| V |	|	|
10+20	0.0107	0.02	Q	| V |	|	|
10+25	0.0108	0.02	Q	| V |	|	|
10+30	0.0110	0.02	Q	| V |	|	|
10+35	0.0111	0.03	Q	| V |	|	|
10+40	0.0113	0.03	Q	| V |	|	|
10+45	0.0115	0.03	Q	| V |	|	|
10+50	0.0117	0.03	Q	| V |	|	|
10+55	0.0119	0.03	Q	| V |	|	|
11+ 0	0.0121	0.03	Q	| V |	|	|
11+ 5	0.0123	0.03	Q	| V |	|	|
11+10	0.0125	0.03	Q	| V |	|	|
11+15	0.0127	0.03	Q	| V |	|	|
11+20	0.0128	0.03	Q	| V |	|	|
11+25	0.0130	0.03	Q	| V |	|	|
11+30	0.0132	0.03	Q	| V |	|	|
11+35	0.0134	0.02	Q	| V |	|	|
11+40	0.0135	0.02	Q	| |V |	|	|
11+45	0.0137	0.02	Q	| |V |	|	|
11+50	0.0139	0.02	Q	| |V |	|	|
11+55	0.0141	0.03	Q	| |V |	|	|
12+ 0	0.0142	0.03	Q	| | V |	|	|
12+ 5	0.0144	0.03	Q	| | V |	|	|
12+10	0.0147	0.03	Q	| | V |	|	|
12+15	0.0149	0.04	Q	| | V |	|	|
12+20	0.0152	0.04	Q	| | V |	|	|
12+25	0.0154	0.04	Q	| | V |	|	|
12+30	0.0157	0.04	Q	| | V |	|	|
12+35	0.0158	0.02	Q	| | V |	|	|
12+40	0.0158	0.01	Q	| | V |	|	|
12+45	0.0159	0.01	Q	| | V |	|	|
12+50	0.0160	0.01	Q	| | V |	|	|
12+55	0.0161	0.02	Q	| | V |	|	|
13+ 0	0.0162	0.02	Q	| | V |	|	|
13+ 5	0.0165	0.04	Q	| | V |	|	|
13+10	0.0169	0.06	Q	| | V |	|	|
13+15	0.0173	0.06	Q	| | V |	|	|
13+20	0.0177	0.06	Q	| | V |	|	|
13+25	0.0182	0.06	Q	| | V |	|	|
13+30	0.0186	0.06	Q	| | V |	|	|
13+35	0.0189	0.04	Q	| | V |	|	|
13+40	0.0191	0.03	Q	| | V |	|	|
13+45	0.0194	0.03	Q	| | V |	|	|
13+50	0.0196	0.03	Q	| | V |	|	|
13+55	0.0198	0.03	Q	| | V |	|	|
14+ 0	0.0200	0.03	Q	| | |V |	|	|
14+ 5	0.0202	0.02	Q	| | |V |	|	|
14+10	0.0203	0.02	Q	| | |V |	|	|
14+15	0.0204	0.02	Q	| | |V |	|	|
14+20	0.0205	0.01	Q	| | |V |	|	|
14+25	0.0206	0.01	Q	| | | V |	|	|
14+30	0.0207	0.01	Q	| | | V |	|	|
14+35	0.0208	0.01	Q	| | | V |	|	|
14+40	0.0209	0.01	Q	| | | V |	|	|
14+45	0.0210	0.02	Q	| | | V |	|	|
14+50	0.0211	0.01	Q	| | | V |	|	|
14+55	0.0211	0.01	Q	| | | V |	|	|

```
15+ 0    0.0212    0.01  Q      |      |      | V    |
15+ 5    0.0212    0.01  Q      |      |      | V    |
15+10    0.0213    0.00  Q      |      |      | V    |
15+15    0.0213    0.01  Q      |      |      | V    |
15+20    0.0215    0.02  Q      |      |      | V    |
15+25    0.0217    0.03  Q      |      |      | V    |
15+30    0.0218    0.01  Q      |      |      | V    |
15+35    0.0219    0.02  Q      |      |      |  V   |
15+40    0.0221    0.03  Q      |      |      |  V   |
15+45    0.0222    0.03  Q      |      |      |  V   |
15+50    0.0224    0.03  Q      |      |      |  V   |
15+55    0.0226    0.03  Q      |      |      |   V  |
16+ 0    0.0228    0.03  Q      |      |      |   V  |
16+ 5    0.0229    0.01  Q      |      |      |   V  |
16+10    0.0229    0.01  Q      |      |      |   V  |
16+15    0.0230    0.01  Q      |      |      |   V  |
16+20    0.0230    0.01  Q      |      |      |   V  |
16+25    0.0231    0.01  Q      |      |      |   V  |
16+30    0.0231    0.01  Q      |      |      |   V  |
16+35    0.0231    0.00  Q      |      |      |    V |
16+40    0.0232    0.00  Q      |      |      |    V |
16+45    0.0232    0.00  Q      |      |      |    V |
16+50    0.0232    0.00  Q      |      |      |    V |
16+55    0.0232    0.00  Q      |      |      |    V |
17+ 0    0.0233    0.00  Q      |      |      |    V |
17+ 5    0.0233    0.01  Q      |      |      |    V |
17+10    0.0234    0.01  Q      |      |      |    V |
17+15    0.0234    0.01  Q      |      |      |    V |
17+20    0.0235    0.01  Q      |      |      |    V |
17+25    0.0235    0.01  Q      |      |      |    V |
17+30    0.0235    0.01  Q      |      |      |    V |
17+35    0.0236    0.01  Q      |      |      |    V |
17+40    0.0236    0.01  Q      |      |      |    V |
17+45    0.0237    0.01  Q      |      |      |    V |
17+50    0.0237    0.01  Q      |      |      |     V |
17+55    0.0238    0.01  Q      |      |      |     V |
18+ 0    0.0238    0.01  Q      |      |      |     V |
18+ 5    0.0239    0.01  Q      |      |      |     V |
18+10    0.0239    0.01  Q      |      |      |     V |
18+15    0.0239    0.01  Q      |      |      |     V |
18+20    0.0240    0.01  Q      |      |      |     V |
18+25    0.0240    0.01  Q      |      |      |     V |
18+30    0.0240    0.01  Q      |      |      |     V |
18+35    0.0241    0.00  Q      |      |      |     V |
18+40    0.0241    0.00  Q      |      |      |     V |
18+45    0.0241    0.00  Q      |      |      |     V |
18+50    0.0242    0.00  Q      |      |      |     V |
18+55    0.0242    0.00  Q      |      |      |     V |
19+ 0    0.0242    0.00  Q      |      |      |     V |
19+ 5    0.0242    0.00  Q      |      |      |     V |
19+10    0.0243    0.00  Q      |      |      |     V |
19+15    0.0243    0.00  Q      |      |      |     V |
19+20    0.0243    0.01  Q      |      |      |     V |
19+25    0.0244    0.01  Q      |      |      |     V |
19+30    0.0244    0.01  Q      |      |      |     V |
19+35    0.0244    0.00  Q      |      |      |     V |
19+40    0.0245    0.00  Q      |      |      |     V |
19+45    0.0245    0.00  Q      |      |      |     V |
19+50    0.0245    0.00  Q      |      |      |     V |
19+55    0.0245    0.00  Q      |      |      |     V |
20+ 0    0.0245    0.00  Q      |      |      |     V |
20+ 5    0.0246    0.00  Q      |      |      |     V |
20+10    0.0246    0.00  Q      |      |      |     V |
20+15    0.0246    0.00  Q      |      |      |     V |
20+20    0.0247    0.00  Q      |      |      |     V |
```

```
 20+25     0.0247     0.00 Q       |       |       |      V |
 20+30     0.0247     0.00 Q       |       |       |      V |
 20+35     0.0247     0.00 Q       |       |       |      V |
 20+40     0.0248     0.00 Q       |       |       |      V |
 20+45     0.0248     0.00 Q       |       |       |      V |
 20+50     0.0248     0.00 Q       |       |       |      V |
 20+55     0.0248     0.00 Q       |       |       |      V |
 21+ 0     0.0249     0.00 Q       |       |       |      V |
 21+ 5     0.0249     0.00 Q       |       |       |      V |
 21+10     0.0249     0.00 Q       |       |       |      V |
 21+15     0.0249     0.00 Q       |       |       |      V |
 21+20     0.0250     0.00 Q       |       |       |      V |
 21+25     0.0250     0.00 Q       |       |       |      V |
 21+30     0.0250     0.00 Q       |       |       |      V |
 21+35     0.0250     0.00 Q       |       |       |      V|
 21+40     0.0251     0.00 Q       |       |       |      V|
 21+45     0.0251     0.00 Q       |       |       |      V|
 21+50     0.0251     0.00 Q       |       |       |      V|
 21+55     0.0251     0.00 Q       |       |       |      V|
 22+ 0     0.0252     0.00 Q       |       |       |      V|
 22+ 5     0.0252     0.00 Q       |       |       |      V|
 22+10     0.0252     0.00 Q       |       |       |      V|
 22+15     0.0252     0.00 Q       |       |       |      V|
 22+20     0.0253     0.00 Q       |       |       |      V|
 22+25     0.0253     0.00 Q       |       |       |      V|
 22+30     0.0253     0.00 Q       |       |       |      V|
 22+35     0.0253     0.00 Q       |       |       |      V|
 22+40     0.0253     0.00 Q       |       |       |      V|
 22+45     0.0254     0.00 Q       |       |       |      V|
 22+50     0.0254     0.00 Q       |       |       |      V|
 22+55     0.0254     0.00 Q       |       |       |      V|
 23+ 0     0.0254     0.00 Q       |       |       |      V|
 23+ 5     0.0254     0.00 Q       |       |       |      V|
 23+10     0.0255     0.00 Q       |       |       |      V|
 23+15     0.0255     0.00 Q       |       |       |      V|
 23+20     0.0255     0.00 Q       |       |       |      V|
 23+25     0.0255     0.00 Q       |       |       |      V|
 23+30     0.0255     0.00 Q       |       |       |      V|
 23+35     0.0256     0.00 Q       |       |       |      V|
 23+40     0.0256     0.00 Q       |       |       |      V|
 23+45     0.0256     0.00 Q       |       |       |      V|
 23+50     0.0256     0.00 Q       |       |       |      V|
 23+55     0.0256     0.00 Q       |       |       |      V|
 24+ 0     0.0256     0.00 Q       |       |       |      V|
 24+ 5     0.0257     0.00 Q       |       |       |      V|
 24+10     0.0257     0.00 Q       |       |       |      V|
--------------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 1999, Version 6.0
Study date 09/23/20 File: APOST2410.out

++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

28771 Central Avenue Gas Station
Area A
Post-development
24-Hr 10-Yr Storm Event

Drainage Area = 0.58(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 345.00(Ft.)
Length along longest watercourse measured to centroid = 97.38(Ft.)
Length along longest watercourse = 0.065 Mi.
Length along longest watercourse measured to centroid = 0.018 Mi.
Difference in elevation = 6.34(Ft.)
Slope along watercourse = 97.0296 Ft./Mi.
Average Manning's 'N' = 0.030
Lag time = 0.023 Hr.
Lag time = 1.41 Min.
25% of lag time = 0.35 Min.
40% of lag time = 0.56 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.58	2.43	1.41

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.58	6.58	3.83

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 2.430(In)
Area Averaged 100-Year Rainfall = 6.580(In)

Point rain (area averaged) = 4.137(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 4.137(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
0.582	79.00	0.095

Total Area Entered = 0.58(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
79.0	61.8	0.451	0.095	0.412	1.000	0.412

Sum (F) = 0.412

Area averaged mean soil loss (F) (In/Hr) = 0.412

Minimum soil loss rate ((In/Hr)) = 0.206

(for 24 hour storm duration)

Soil low loss rate (decimal) = 0.824

U n i t H y d r o g r a p h

DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)		Time % of lag Graph %	Distribution (CFS)	Unit Hydrograph
1	0.083	354.985	61.437	0.360
2	0.167	709.970	35.423	0.208
3	0.250	1064.955	3.140	0.018
		Sum = 100.000	Sum=	0.587

Unit Time		Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.033	0.731	0.027	0.01
2	0.17	0.07	0.033	0.728	0.027	0.01
3	0.25	0.07	0.033	0.725	0.027	0.01
4	0.33	0.10	0.050	0.722	0.041	0.01
5	0.42	0.10	0.050	0.719	0.041	0.01
6	0.50	0.10	0.050	0.717	0.041	0.01
7	0.58	0.10	0.050	0.714	0.041	0.01
8	0.67	0.10	0.050	0.711	0.041	0.01
9	0.75	0.10	0.050	0.708	0.041	0.01
10	0.83	0.13	0.066	0.705	0.055	0.01
11	0.92	0.13	0.066	0.703	0.055	0.01
12	1.00	0.13	0.066	0.700	0.055	0.01
13	1.08	0.10	0.050	0.697	0.041	0.01
14	1.17	0.10	0.050	0.694	0.041	0.01
15	1.25	0.10	0.050	0.692	0.041	0.01
16	1.33	0.10	0.050	0.689	0.041	0.01
17	1.42	0.10	0.050	0.686	0.041	0.01
18	1.50	0.10	0.050	0.683	0.041	0.01
19	1.58	0.10	0.050	0.681	0.041	0.01
20	1.67	0.10	0.050	0.678	0.041	0.01
21	1.75	0.10	0.050	0.675	0.041	0.01
22	1.83	0.13	0.066	0.672	0.055	0.01
23	1.92	0.13	0.066	0.670	0.055	0.01
24	2.00	0.13	0.066	0.667	0.055	0.01
25	2.08	0.13	0.066	0.664	0.055	0.01
26	2.17	0.13	0.066	0.662	0.055	0.01
27	2.25	0.13	0.066	0.659	0.055	0.01
28	2.33	0.13	0.066	0.656	0.055	0.01
29	2.42	0.13	0.066	0.654	0.055	0.01
30	2.50	0.13	0.066	0.651	0.055	0.01
31	2.58	0.17	0.083	0.648	0.068	0.01
32	2.67	0.17	0.083	0.646	0.068	0.01

33	2.75	0.17	0.083	0.643	0.068	0.01
34	2.83	0.17	0.083	0.640	0.068	0.01
35	2.92	0.17	0.083	0.638	0.068	0.01
36	3.00	0.17	0.083	0.635	0.068	0.01
37	3.08	0.17	0.083	0.632	0.068	0.01
38	3.17	0.17	0.083	0.630	0.068	0.01
39	3.25	0.17	0.083	0.627	0.068	0.01
40	3.33	0.17	0.083	0.625	0.068	0.01
41	3.42	0.17	0.083	0.622	0.068	0.01
42	3.50	0.17	0.083	0.619	0.068	0.01
43	3.58	0.17	0.083	0.617	0.068	0.01
44	3.67	0.17	0.083	0.614	0.068	0.01
45	3.75	0.17	0.083	0.612	0.068	0.01
46	3.83	0.20	0.099	0.609	0.082	0.02
47	3.92	0.20	0.099	0.606	0.082	0.02
48	4.00	0.20	0.099	0.604	0.082	0.02
49	4.08	0.20	0.099	0.601	0.082	0.02
50	4.17	0.20	0.099	0.599	0.082	0.02
51	4.25	0.20	0.099	0.596	0.082	0.02
52	4.33	0.23	0.116	0.594	0.095	0.02
53	4.42	0.23	0.116	0.591	0.095	0.02
54	4.50	0.23	0.116	0.589	0.095	0.02
55	4.58	0.23	0.116	0.586	0.095	0.02
56	4.67	0.23	0.116	0.584	0.095	0.02
57	4.75	0.23	0.116	0.581	0.095	0.02
58	4.83	0.27	0.132	0.579	0.109	0.02
59	4.92	0.27	0.132	0.576	0.109	0.02
60	5.00	0.27	0.132	0.574	0.109	0.02
61	5.08	0.20	0.099	0.571	0.082	0.02
62	5.17	0.20	0.099	0.569	0.082	0.02
63	5.25	0.20	0.099	0.566	0.082	0.02
64	5.33	0.23	0.116	0.564	0.095	0.02
65	5.42	0.23	0.116	0.561	0.095	0.02
66	5.50	0.23	0.116	0.559	0.095	0.02
67	5.58	0.27	0.132	0.556	0.109	0.02
68	5.67	0.27	0.132	0.554	0.109	0.02
69	5.75	0.27	0.132	0.551	0.109	0.02
70	5.83	0.27	0.132	0.549	0.109	0.02
71	5.92	0.27	0.132	0.546	0.109	0.02
72	6.00	0.27	0.132	0.544	0.109	0.02
73	6.08	0.30	0.149	0.542	0.123	0.03
74	6.17	0.30	0.149	0.539	0.123	0.03
75	6.25	0.30	0.149	0.537	0.123	0.03
76	6.33	0.30	0.149	0.534	0.123	0.03
77	6.42	0.30	0.149	0.532	0.123	0.03
78	6.50	0.30	0.149	0.530	0.123	0.03
79	6.58	0.33	0.165	0.527	0.136	0.03
80	6.67	0.33	0.165	0.525	0.136	0.03
81	6.75	0.33	0.165	0.523	0.136	0.03
82	6.83	0.33	0.165	0.520	0.136	0.03
83	6.92	0.33	0.165	0.518	0.136	0.03
84	7.00	0.33	0.165	0.515	0.136	0.03
85	7.08	0.33	0.165	0.513	0.136	0.03
86	7.17	0.33	0.165	0.511	0.136	0.03
87	7.25	0.33	0.165	0.508	0.136	0.03
88	7.33	0.37	0.182	0.506	0.150	0.03
89	7.42	0.37	0.182	0.504	0.150	0.03
90	7.50	0.37	0.182	0.501	0.150	0.03
91	7.58	0.40	0.199	0.499	0.164	0.03
92	7.67	0.40	0.199	0.497	0.164	0.03
93	7.75	0.40	0.199	0.495	0.164	0.03
94	7.83	0.43	0.215	0.492	0.177	0.04
95	7.92	0.43	0.215	0.490	0.177	0.04
96	8.00	0.43	0.215	0.488	0.177	0.04
97	8.08	0.50	0.248	0.486	0.205	0.04

98	8.17	0.50	0.248	0.483	0.205	0.04
99	8.25	0.50	0.248	0.481	0.205	0.04
100	8.33	0.50	0.248	0.479	0.205	0.04
101	8.42	0.50	0.248	0.477	0.205	0.04
102	8.50	0.50	0.248	0.474	0.205	0.04
103	8.58	0.53	0.265	0.472	0.218	0.05
104	8.67	0.53	0.265	0.470	0.218	0.05
105	8.75	0.53	0.265	0.468	0.218	0.05
106	8.83	0.57	0.281	0.465	0.232	0.05
107	8.92	0.57	0.281	0.463	0.232	0.05
108	9.00	0.57	0.281	0.461	0.232	0.05
109	9.08	0.63	0.314	0.459	0.259	0.06
110	9.17	0.63	0.314	0.457	0.259	0.06
111	9.25	0.63	0.314	0.454	0.259	0.06
112	9.33	0.67	0.331	0.452	0.273	0.06
113	9.42	0.67	0.331	0.450	0.273	0.06
114	9.50	0.67	0.331	0.448	0.273	0.06
115	9.58	0.70	0.348	0.446	0.286	0.06
116	9.67	0.70	0.348	0.444	0.286	0.06
117	9.75	0.70	0.348	0.442	0.286	0.06
118	9.83	0.73	0.364	0.439	0.300	0.06
119	9.92	0.73	0.364	0.437	0.300	0.06
120	10.00	0.73	0.364	0.435	0.300	0.06
121	10.08	0.50	0.248	0.433	0.205	0.04
122	10.17	0.50	0.248	0.431	0.205	0.04
123	10.25	0.50	0.248	0.429	0.205	0.04
124	10.33	0.50	0.248	0.427	0.205	0.04
125	10.42	0.50	0.248	0.425	0.205	0.04
126	10.50	0.50	0.248	0.423	0.205	0.04
127	10.58	0.67	0.331	0.421	0.273	0.06
128	10.67	0.67	0.331	0.419	0.273	0.06
129	10.75	0.67	0.331	0.417	0.273	0.06
130	10.83	0.67	0.331	0.415	0.273	0.06
131	10.92	0.67	0.331	0.412	0.273	0.06
132	11.00	0.67	0.331	0.410	0.273	0.06
133	11.08	0.63	0.314	0.408	0.259	0.06
134	11.17	0.63	0.314	0.406	0.259	0.06
135	11.25	0.63	0.314	0.404	0.259	0.06
136	11.33	0.63	0.314	0.402	0.259	0.06
137	11.42	0.63	0.314	0.400	0.259	0.06
138	11.50	0.63	0.314	0.398	0.259	0.06
139	11.58	0.57	0.281	0.396	0.232	0.05
140	11.67	0.57	0.281	0.394	0.232	0.05
141	11.75	0.57	0.281	0.393	0.232	0.05
142	11.83	0.60	0.298	0.391	0.246	0.05
143	11.92	0.60	0.298	0.389	0.246	0.05
144	12.00	0.60	0.298	0.387	0.246	0.05
145	12.08	0.83	0.414	0.385	---	0.03
146	12.17	0.83	0.414	0.383	---	0.03
147	12.25	0.83	0.414	0.381	---	0.03
148	12.33	0.87	0.430	0.379	---	0.05
149	12.42	0.87	0.430	0.377	---	0.05
150	12.50	0.87	0.430	0.375	---	0.06
151	12.58	0.93	0.463	0.373	---	0.09
152	12.67	0.93	0.463	0.371	---	0.09
153	12.75	0.93	0.463	0.370	---	0.09
154	12.83	0.97	0.480	0.368	---	0.11
155	12.92	0.97	0.480	0.366	---	0.11
156	13.00	0.97	0.480	0.364	---	0.12
157	13.08	1.13	0.563	0.362	---	0.20
158	13.17	1.13	0.563	0.360	---	0.20
159	13.25	1.13	0.563	0.358	---	0.20
160	13.33	1.13	0.563	0.357	---	0.21
161	13.42	1.13	0.563	0.355	---	0.21
162	13.50	1.13	0.563	0.353	---	0.21

163	13.58	0.77	0.381	0.351	---	0.03
164	13.67	0.77	0.381	0.349	---	0.03
165	13.75	0.77	0.381	0.348	---	0.03
166	13.83	0.77	0.381	0.346	---	0.03
167	13.92	0.77	0.381	0.344	---	0.04
168	14.00	0.77	0.381	0.342	---	0.04
169	14.08	0.90	0.447	0.341	---	0.11
170	14.17	0.90	0.447	0.339	---	0.11
171	14.25	0.90	0.447	0.337	---	0.11
172	14.33	0.87	0.430	0.335	---	0.09
173	14.42	0.87	0.430	0.334	---	0.10
174	14.50	0.87	0.430	0.332	---	0.10
175	14.58	0.87	0.430	0.330	---	0.10
176	14.67	0.87	0.430	0.329	---	0.10
177	14.75	0.87	0.430	0.327	---	0.10
178	14.83	0.83	0.414	0.325	---	0.09
179	14.92	0.83	0.414	0.324	---	0.09
180	15.00	0.83	0.414	0.322	---	0.09
181	15.08	0.80	0.397	0.320	---	0.08
182	15.17	0.80	0.397	0.319	---	0.08
183	15.25	0.80	0.397	0.317	---	0.08
184	15.33	0.77	0.381	0.315	---	0.07
185	15.42	0.77	0.381	0.314	---	0.07
186	15.50	0.77	0.381	0.312	---	0.07
187	15.58	0.63	0.314	0.311	---	0.00
188	15.67	0.63	0.314	0.309	---	0.01
189	15.75	0.63	0.314	0.307	---	0.01
190	15.83	0.63	0.314	0.306	---	0.01
191	15.92	0.63	0.314	0.304	---	0.01
192	16.00	0.63	0.314	0.303	---	0.01
193	16.08	0.13	0.066	0.301	0.055	0.01
194	16.17	0.13	0.066	0.300	0.055	0.01
195	16.25	0.13	0.066	0.298	0.055	0.01
196	16.33	0.13	0.066	0.297	0.055	0.01
197	16.42	0.13	0.066	0.295	0.055	0.01
198	16.50	0.13	0.066	0.294	0.055	0.01
199	16.58	0.10	0.050	0.292	0.041	0.01
200	16.67	0.10	0.050	0.291	0.041	0.01
201	16.75	0.10	0.050	0.289	0.041	0.01
202	16.83	0.10	0.050	0.288	0.041	0.01
203	16.92	0.10	0.050	0.286	0.041	0.01
204	17.00	0.10	0.050	0.285	0.041	0.01
205	17.08	0.17	0.083	0.283	0.068	0.01
206	17.17	0.17	0.083	0.282	0.068	0.01
207	17.25	0.17	0.083	0.280	0.068	0.01
208	17.33	0.17	0.083	0.279	0.068	0.01
209	17.42	0.17	0.083	0.278	0.068	0.01
210	17.50	0.17	0.083	0.276	0.068	0.01
211	17.58	0.17	0.083	0.275	0.068	0.01
212	17.67	0.17	0.083	0.273	0.068	0.01
213	17.75	0.17	0.083	0.272	0.068	0.01
214	17.83	0.13	0.066	0.271	0.055	0.01
215	17.92	0.13	0.066	0.269	0.055	0.01
216	18.00	0.13	0.066	0.268	0.055	0.01
217	18.08	0.13	0.066	0.267	0.055	0.01
218	18.17	0.13	0.066	0.265	0.055	0.01
219	18.25	0.13	0.066	0.264	0.055	0.01
220	18.33	0.13	0.066	0.263	0.055	0.01
221	18.42	0.13	0.066	0.262	0.055	0.01
222	18.50	0.13	0.066	0.260	0.055	0.01
223	18.58	0.10	0.050	0.259	0.041	0.01
224	18.67	0.10	0.050	0.258	0.041	0.01
225	18.75	0.10	0.050	0.257	0.041	0.01
226	18.83	0.07	0.033	0.255	0.027	0.01
227	18.92	0.07	0.033	0.254	0.027	0.01

228	19.00	0.07	0.033	0.253	0.027	0.01
229	19.08	0.10	0.050	0.252	0.041	0.01
230	19.17	0.10	0.050	0.251	0.041	0.01
231	19.25	0.10	0.050	0.249	0.041	0.01
232	19.33	0.13	0.066	0.248	0.055	0.01
233	19.42	0.13	0.066	0.247	0.055	0.01
234	19.50	0.13	0.066	0.246	0.055	0.01
235	19.58	0.10	0.050	0.245	0.041	0.01
236	19.67	0.10	0.050	0.244	0.041	0.01
237	19.75	0.10	0.050	0.243	0.041	0.01
238	19.83	0.07	0.033	0.241	0.027	0.01
239	19.92	0.07	0.033	0.240	0.027	0.01
240	20.00	0.07	0.033	0.239	0.027	0.01
241	20.08	0.10	0.050	0.238	0.041	0.01
242	20.17	0.10	0.050	0.237	0.041	0.01
243	20.25	0.10	0.050	0.236	0.041	0.01
244	20.33	0.10	0.050	0.235	0.041	0.01
245	20.42	0.10	0.050	0.234	0.041	0.01
246	20.50	0.10	0.050	0.233	0.041	0.01
247	20.58	0.10	0.050	0.232	0.041	0.01
248	20.67	0.10	0.050	0.231	0.041	0.01
249	20.75	0.10	0.050	0.230	0.041	0.01
250	20.83	0.07	0.033	0.229	0.027	0.01
251	20.92	0.07	0.033	0.228	0.027	0.01
252	21.00	0.07	0.033	0.227	0.027	0.01
253	21.08	0.10	0.050	0.227	0.041	0.01
254	21.17	0.10	0.050	0.226	0.041	0.01
255	21.25	0.10	0.050	0.225	0.041	0.01
256	21.33	0.07	0.033	0.224	0.027	0.01
257	21.42	0.07	0.033	0.223	0.027	0.01
258	21.50	0.07	0.033	0.222	0.027	0.01
259	21.58	0.10	0.050	0.221	0.041	0.01
260	21.67	0.10	0.050	0.221	0.041	0.01
261	21.75	0.10	0.050	0.220	0.041	0.01
262	21.83	0.07	0.033	0.219	0.027	0.01
263	21.92	0.07	0.033	0.218	0.027	0.01
264	22.00	0.07	0.033	0.218	0.027	0.01
265	22.08	0.10	0.050	0.217	0.041	0.01
266	22.17	0.10	0.050	0.216	0.041	0.01
267	22.25	0.10	0.050	0.216	0.041	0.01
268	22.33	0.07	0.033	0.215	0.027	0.01
269	22.42	0.07	0.033	0.214	0.027	0.01
270	22.50	0.07	0.033	0.214	0.027	0.01
271	22.58	0.07	0.033	0.213	0.027	0.01
272	22.67	0.07	0.033	0.212	0.027	0.01
273	22.75	0.07	0.033	0.212	0.027	0.01
274	22.83	0.07	0.033	0.211	0.027	0.01
275	22.92	0.07	0.033	0.211	0.027	0.01
276	23.00	0.07	0.033	0.210	0.027	0.01
277	23.08	0.07	0.033	0.210	0.027	0.01
278	23.17	0.07	0.033	0.209	0.027	0.01
279	23.25	0.07	0.033	0.209	0.027	0.01
280	23.33	0.07	0.033	0.208	0.027	0.01
281	23.42	0.07	0.033	0.208	0.027	0.01
282	23.50	0.07	0.033	0.208	0.027	0.01
283	23.58	0.07	0.033	0.207	0.027	0.01
284	23.67	0.07	0.033	0.207	0.027	0.01
285	23.75	0.07	0.033	0.207	0.027	0.01
286	23.83	0.07	0.033	0.206	0.027	0.01
287	23.92	0.07	0.033	0.206	0.027	0.01
288	24.00	0.07	0.033	0.206	0.027	0.01
Sum =		100.0		Sum =		9.1

Flood volume = Effective rainfall 0.76(In)
times area 0.6(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)
Total soil loss = 3.38(In)

Total soil loss = 0.164(Ac.Ft)
Total rainfall = 4.14(In)
Flood volume = 1605.3 Cubic Feet
Total soil loss = 7135.5 Cubic Feet

Peak flow rate of this hydrograph = 0.123(CFS)

++

24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0 2.5 5.0 7.5 10.0
0+ 5	0.0000	0.00	Q
0+10	0.0000	0.00	Q
0+15	0.0001	0.00	Q
0+20	0.0001	0.00	Q
0+25	0.0001	0.01	Q
0+30	0.0002	0.01	Q
0+35	0.0002	0.01	Q
0+40	0.0002	0.01	Q
0+45	0.0003	0.01	Q
0+50	0.0003	0.01	Q
0+55	0.0004	0.01	Q
1+ 0	0.0004	0.01	Q
1+ 5	0.0004	0.01	Q
1+10	0.0005	0.01	Q
1+15	0.0005	0.01	Q
1+20	0.0005	0.01	Q
1+25	0.0006	0.01	Q
1+30	0.0006	0.01	Q
1+35	0.0007	0.01	Q
1+40	0.0007	0.01	Q
1+45	0.0007	0.01	Q
1+50	0.0008	0.01	Q
1+55	0.0008	0.01	Q
2+ 0	0.0009	0.01	Q
2+ 5	0.0009	0.01	Q
2+10	0.0010	0.01	QV
2+15	0.0010	0.01	QV
2+20	0.0011	0.01	QV
2+25	0.0011	0.01	QV
2+30	0.0011	0.01	QV
2+35	0.0012	0.01	QV
2+40	0.0013	0.01	QV
2+45	0.0013	0.01	QV
2+50	0.0014	0.01	QV
2+55	0.0014	0.01	QV
3+ 0	0.0015	0.01	QV
3+ 5	0.0016	0.01	QV
3+10	0.0016	0.01	QV
3+15	0.0017	0.01	QV
3+20	0.0017	0.01	QV
3+25	0.0018	0.01	QV
3+30	0.0018	0.01	Q V
3+35	0.0019	0.01	Q V
3+40	0.0020	0.01	Q V
3+45	0.0020	0.01	Q V
3+50	0.0021	0.01	Q V
3+55	0.0022	0.01	Q V
4+ 0	0.0022	0.01	Q V
4+ 5	0.0023	0.01	Q V

4+10	0.0024	0.01	Q	V	|	|	|	|
4+15	0.0024	0.01	Q	V	|	|	|	|
4+20	0.0025	0.01	Q	V	|	|	|	|
4+25	0.0026	0.01	Q	V	|	|	|	|
4+30	0.0027	0.01	Q	V	|	|	|	|
4+35	0.0028	0.01	Q	V	|	|	|	|
4+40	0.0028	0.01	Q	V	|	|	|	|
4+45	0.0029	0.01	Q	V	|	|	|	|
4+50	0.0030	0.01	Q	V	|	|	|	|
4+55	0.0031	0.01	Q	V	|	|	|	|
5+ 0	0.0032	0.01	Q	V	|	|	|	|
5+ 5	0.0033	0.01	Q	V	|	|	|	|
5+10	0.0034	0.01	Q	V	|	|	|	|
5+15	0.0034	0.01	Q	V	|	|	|	|
5+20	0.0035	0.01	Q	V	|	|	|	|
5+25	0.0036	0.01	Q	V	|	|	|	|
5+30	0.0037	0.01	Q	V	|	|	|	|
5+35	0.0038	0.01	Q	V	|	|	|	|
5+40	0.0039	0.01	Q	V	|	|	|	|
5+45	0.0039	0.01	Q	V	|	|	|	|
5+50	0.0040	0.01	Q	V	|	|	|	|
5+55	0.0041	0.01	Q	V	|	|	|	|
6+ 0	0.0042	0.01	Q	V	|	|	|	|
6+ 5	0.0043	0.01	Q	V	|	|	|	|
6+10	0.0044	0.02	Q	V	|	|	|	|
6+15	0.0045	0.02	Q	V	|	|	|	|
6+20	0.0046	0.02	Q	V	|	|	|	|
6+25	0.0048	0.02	Q	V	|	|	|	|
6+30	0.0049	0.02	Q	V	|	|	|	|
6+35	0.0050	0.02	Q	V	|	|	|	|
6+40	0.0051	0.02	Q	V	|	|	|	|
6+45	0.0052	0.02	Q	V	|	|	|	|
6+50	0.0053	0.02	Q	V	|	|	|	|
6+55	0.0054	0.02	Q	V	|	|	|	|
7+ 0	0.0056	0.02	Q	V	|	|	|	|
7+ 5	0.0057	0.02	Q	V	|	|	|	|
7+10	0.0058	0.02	Q	V	|	|	|	|
7+15	0.0059	0.02	Q	V	|	|	|	|
7+20	0.0060	0.02	Q	V	|	|	|	|
7+25	0.0062	0.02	Q	V	|	|	|	|
7+30	0.0063	0.02	Q	V	|	|	|	|
7+35	0.0064	0.02	Q	V	|	|	|	|
7+40	0.0066	0.02	Q	V	|	|	|	|
7+45	0.0067	0.02	Q	V	|	|	|	|
7+50	0.0069	0.02	Q	V	|	|	|	|
7+55	0.0070	0.02	Q	V	|	|	|	|
8+ 0	0.0072	0.02	Q	V	|	|	|	|
8+ 5	0.0073	0.02	Q	V	|	|	|	|
8+10	0.0075	0.03	Q	V	|	|	|	|
8+15	0.0077	0.03	Q	V	|	|	|	|
8+20	0.0079	0.03	Q	V	|	|	|	|
8+25	0.0080	0.03	Q	V	|	|	|	|
8+30	0.0082	0.03	Q	V	|	|	|	|
8+35	0.0084	0.03	Q	V	|	|	|	|
8+40	0.0086	0.03	Q	V	|	|	|	|
8+45	0.0088	0.03	Q	V	|	|	|	|
8+50	0.0090	0.03	Q	V	|	|	|	|
8+55	0.0092	0.03	Q	V	|	|	|	|
9+ 0	0.0094	0.03	Q	V	|	|	|	|
9+ 5	0.0096	0.03	Q	V	|	|	|	|
9+10	0.0098	0.03	Q	V	|	|	|	|
9+15	0.0100	0.03	Q	V	|	|	|	|
9+20	0.0103	0.03	Q	V	|	|	|	|
9+25	0.0105	0.03	Q	V	|	|	|	|
9+30	0.0107	0.03	Q	V	|	|	|	|

9+35	0.0110	0.04	Q	|V	|	|	|
9+40	0.0112	0.04	Q	| V	|	|	|
9+45	0.0115	0.04	Q	| V	|	|	|
9+50	0.0117	0.04	Q	| V	|	|	|
9+55	0.0120	0.04	Q	| V	|	|	|
10+ 0	0.0122	0.04	Q	| V	|	|	|
10+ 5	0.0124	0.03	Q	| V	|	|	|
10+10	0.0126	0.03	Q	| V	|	|	|
10+15	0.0128	0.03	Q	| V	|	|	|
10+20	0.0130	0.03	Q	| V	|	|	|
10+25	0.0132	0.03	Q	| V	|	|	|
10+30	0.0133	0.03	Q	| V	|	|	|
10+35	0.0135	0.03	Q	| V	|	|	|
10+40	0.0138	0.03	Q	| V	|	|	|
10+45	0.0140	0.03	Q	| V	|	|	|
10+50	0.0142	0.03	Q	| V	|	|	|
10+55	0.0145	0.03	Q	| V	|	|	|
11+ 0	0.0147	0.03	Q	| V	|	|	|
11+ 5	0.0149	0.03	Q	| V	|	|	|
11+10	0.0152	0.03	Q	| V	|	|	|
11+15	0.0154	0.03	Q	| V	|	|	|
11+20	0.0156	0.03	Q	| V	|	|	|
11+25	0.0158	0.03	Q	| V	|	|	|
11+30	0.0161	0.03	Q	| V	|	|	|
11+35	0.0163	0.03	Q	| V	|	|	|
11+40	0.0165	0.03	Q	| V	|	|	|
11+45	0.0167	0.03	Q	| V	|	|	|
11+50	0.0169	0.03	Q	| V	|	|	|
11+55	0.0171	0.03	Q	| V	|	|	|
12+ 0	0.0173	0.03	Q	| V	|	|	|
12+ 5	0.0175	0.02	Q	| V	|	|	|
12+10	0.0176	0.02	Q	| V	|	|	|
12+15	0.0177	0.02	Q	| V	|	|	|
12+20	0.0179	0.03	Q	| V	|	|	|
12+25	0.0181	0.03	Q	| V	|	|	|
12+30	0.0183	0.03	Q	| V	|	|	|
12+35	0.0186	0.04	Q	| V	|	|	|
12+40	0.0190	0.05	Q	| V	|	|	|
12+45	0.0194	0.05	Q	| |V	|	|	|
12+50	0.0198	0.06	Q	| |V	|	|	|
12+55	0.0202	0.07	Q	| |V	|	|	|
13+ 0	0.0207	0.07	Q	| | V	|	|	|
13+ 5	0.0214	0.10	Q	| | V	|	|	|
13+10	0.0222	0.12	Q	| | V	|	|	|
13+15	0.0230	0.12	Q	| | V	|	|	|
13+20	0.0238	0.12	Q	| | V	|	|	|
13+25	0.0247	0.12	Q	| | V	|	|	|
13+30	0.0255	0.12	Q	| | V	|	|	|
13+35	0.0259	0.06	Q	| | V	|	|	|
13+40	0.0261	0.02	Q	| | V	|	|	|
13+45	0.0262	0.02	Q	| | V	|	|	|
13+50	0.0263	0.02	Q	| | V	|	|	|
13+55	0.0265	0.02	Q	| | V	|	|	|
14+ 0	0.0266	0.02	Q	| | V	|	|	|
14+ 5	0.0270	0.05	Q	| | V	|	|	|
14+10	0.0274	0.06	Q	| | V	|	|	|
14+15	0.0278	0.06	Q	| | V	|	|	|
14+20	0.0282	0.06	Q	| | V	|	|	|
14+25	0.0286	0.06	Q	| | V	|	|	|
14+30	0.0290	0.06	Q	| | V	|	|	|
14+35	0.0294	0.06	Q	| | V	|	|	|
14+40	0.0298	0.06	Q	| | V	|	|	|
14+45	0.0302	0.06	Q	| | V	|	|	|
14+50	0.0306	0.06	Q	| | V	|	|	|
14+55	0.0310	0.05	Q	| | V	|	|	|

```
15+ 0    0.0314    0.05 Q     |     |     | V   |
15+ 5    0.0317    0.05 Q     |     |     | V   |
15+10    0.0320    0.05 Q     |     |     | V   |
15+15    0.0323    0.05 Q     |     |     |  V  |
15+20    0.0326    0.04 Q     |     |     |  V  |
15+25    0.0329    0.04 Q     |     |     |  V  |
15+30    0.0332    0.04 Q     |     |     |  V  |
15+35    0.0333    0.02 Q     |     |     |   V |
15+40    0.0333    0.00 Q     |     |     |   V |
15+45    0.0333    0.00 Q     |     |     |   V |
15+50    0.0334    0.00 Q     |     |     |   V |
15+55    0.0334    0.01 Q     |     |     |   V |
16+ 0    0.0334    0.01 Q     |     |     |   V |
16+ 5    0.0335    0.01 Q     |     |     |   V |
16+10    0.0335    0.01 Q     |     |     |   V |
16+15    0.0336    0.01 Q     |     |     |   V |
16+20    0.0336    0.01 Q     |     |     |   V |
16+25    0.0337    0.01 Q     |     |     |   V |
16+30    0.0337    0.01 Q     |     |     |   V |
16+35    0.0338    0.01 Q     |     |     |   V |
16+40    0.0338    0.01 Q     |     |     |   V |
16+45    0.0338    0.01 Q     |     |     |   V |
16+50    0.0339    0.01 Q     |     |     |   V |
16+55    0.0339    0.01 Q     |     |     |   V |
17+ 0    0.0339    0.01 Q     |     |     |   V |
17+ 5    0.0340    0.01 Q     |     |     |   V |
17+10    0.0341    0.01 Q     |     |     |   V |
17+15    0.0341    0.01 Q     |     |     |   V |
17+20    0.0342    0.01 Q     |     |     |   V |
17+25    0.0342    0.01 Q     |     |     |   V |
17+30    0.0343    0.01 Q     |     |     |   V |
17+35    0.0343    0.01 Q     |     |     |   V |
17+40    0.0344    0.01 Q     |     |     |   V |
17+45    0.0345    0.01 Q     |     |     |   V |
17+50    0.0345    0.01 Q     |     |     |   V |
17+55    0.0346    0.01 Q     |     |     |   V |
18+ 0    0.0346    0.01 Q     |     |     |   V |
18+ 5    0.0347    0.01 Q     |     |     |   V |
18+10    0.0347    0.01 Q     |     |     |   V |
18+15    0.0348    0.01 Q     |     |     |   V |
18+20    0.0348    0.01 Q     |     |     |   V |
18+25    0.0348    0.01 Q     |     |     |   V |
18+30    0.0349    0.01 Q     |     |     |   V |
18+35    0.0349    0.01 Q     |     |     |   V |
18+40    0.0350    0.01 Q     |     |     |   V |
18+45    0.0350    0.01 Q     |     |     |   V |
18+50    0.0350    0.00 Q     |     |     |    V|
18+55    0.0351    0.00 Q     |     |     |    V|
19+ 0    0.0351    0.00 Q     |     |     |    V|
19+ 5    0.0351    0.00 Q     |     |     |    V|
19+10    0.0351    0.01 Q     |     |     |    V|
19+15    0.0352    0.01 Q     |     |     |    V|
19+20    0.0352    0.01 Q     |     |     |    V|
19+25    0.0353    0.01 Q     |     |     |    V|
19+30    0.0353    0.01 Q     |     |     |    V|
19+35    0.0354    0.01 Q     |     |     |    V|
19+40    0.0354    0.01 Q     |     |     |    V|
19+45    0.0354    0.01 Q     |     |     |    V|
19+50    0.0355    0.00 Q     |     |     |    V|
19+55    0.0355    0.00 Q     |     |     |    V|
20+ 0    0.0355    0.00 Q     |     |     |    V|
20+ 5    0.0355    0.00 Q     |     |     |    V|
20+10    0.0356    0.01 Q     |     |     |    V|
20+15    0.0356    0.01 Q     |     |     |    V|
20+20    0.0356    0.01 Q     |     |     |    V|
```

```
 20+25     0.0357    0.01 Q      |       |       |     V |
 20+30     0.0357    0.01 Q      |       |       |     V |
 20+35     0.0357    0.01 Q      |       |       |     V |
 20+40     0.0358    0.01 Q      |       |       |     V |
 20+45     0.0358    0.01 Q      |       |       |     V |
 20+50     0.0358    0.00 Q      |       |       |     V |
 20+55     0.0359    0.00 Q      |       |       |     V |
 21+ 0     0.0359    0.00 Q      |       |       |     V |
 21+ 5     0.0359    0.00 Q      |       |       |     V |
 21+10     0.0360    0.01 Q      |       |       |     V|
 21+15     0.0360    0.01 Q      |       |       |     V|
 21+20     0.0360    0.00 Q      |       |       |     V|
 21+25     0.0360    0.00 Q      |       |       |     V|
 21+30     0.0361    0.00 Q      |       |       |     V|
 21+35     0.0361    0.00 Q      |       |       |     V|
 21+40     0.0361    0.01 Q      |       |       |     V|
 21+45     0.0362    0.01 Q      |       |       |     V|
 21+50     0.0362    0.00 Q      |       |       |     V|
 21+55     0.0362    0.00 Q      |       |       |     V|
 22+ 0     0.0362    0.00 Q      |       |       |     V|
 22+ 5     0.0363    0.00 Q      |       |       |     V|
 22+10     0.0363    0.01 Q      |       |       |     V|
 22+15     0.0363    0.01 Q      |       |       |     V|
 22+20     0.0364    0.00 Q      |       |       |     V|
 22+25     0.0364    0.00 Q      |       |       |     V|
 22+30     0.0364    0.00 Q      |       |       |     V|
 22+35     0.0364    0.00 Q      |       |       |     V|
 22+40     0.0365    0.00 Q      |       |       |     V|
 22+45     0.0365    0.00 Q      |       |       |     V|
 22+50     0.0365    0.00 Q      |       |       |     V|
 22+55     0.0365    0.00 Q      |       |       |     V|
 23+ 0     0.0366    0.00 Q      |       |       |     V|
 23+ 5     0.0366    0.00 Q      |       |       |     V|
 23+10     0.0366    0.00 Q      |       |       |     V|
 23+15     0.0366    0.00 Q      |       |       |     V|
 23+20     0.0367    0.00 Q      |       |       |     V|
 23+25     0.0367    0.00 Q      |       |       |     V|
 23+30     0.0367    0.00 Q      |       |       |     V|
 23+35     0.0367    0.00 Q      |       |       |     V|
 23+40     0.0367    0.00 Q      |       |       |     V|
 23+45     0.0368    0.00 Q      |       |       |     V|
 23+50     0.0368    0.00 Q      |       |       |     V|
 23+55     0.0368    0.00 Q      |       |       |     V|
 24+ 0     0.0368    0.00 Q      |       |       |     V|
 24+ 5     0.0369    0.00 Q      |       |       |     V|
 24+10     0.0369    0.00 Q      |       |       |      V
-------------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 1999, Version 6.0
Study date 09/23/20 File: BPOST12.out

++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

28771 Central Avenue Gas Station
Area B
Post-development
1-Hr 2-Yr Storm Event

Drainage Area = 0.74(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 284.00(Ft.)
Length along longest watercourse measured to centroid = 86.63(Ft.)
Length along longest watercourse = 0.054 Mi.
Length along longest watercourse measured to centroid = 0.016 Mi.
Difference in elevation = 1.69(Ft.)
Slope along watercourse = 31.4197 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.013 Hr.
Lag time = 0.78 Min.
25% of lag time = 0.19 Min.
40% of lag time = 0.31 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.74	0.48	0.36

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.74	1.34	0.99

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 0.483(In)
Area Averaged 100-Year Rainfall = 1.340(In)

Point rain (area averaged) = 0.483(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 0.483(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
0.742	55.00	0.792

Total Area Entered = 0.74(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
55.0	35.0	0.715	0.792	0.205	1.000	0.205

Sum (F) = 0.205

Area averaged mean soil loss (F) (In/Hr) = 0.205

Minimum soil loss rate ((In/Hr)) = 0.103

(for 24 hour storm duration)

Soil low loss rate (decimal) = 0.266

Slope of intensity-duration curve for a 1 hour storm =0.4800

U n i t H y d r o g r a p h

DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag Graph %	Distribution (CFS)	Unit Hydrograph
1	0.083	645.077	77.129	0.577
2	0.167	1290.154	22.871	0.171

Sum = 100.000 Sum= 0.748

Storm Event 3 Effective Rainfall = 0.092(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	4.40	0.048	0.205	0.013	0.04
2	0.17	4.50	0.050	0.205	0.013	0.04
3	0.25	5.40	0.059	0.205	0.016	0.04
4	0.33	5.40	0.059	0.205	0.016	0.04
5	0.42	5.70	0.063	0.205	0.017	0.05
6	0.50	6.40	0.070	0.205	0.019	0.05
7	0.58	7.90	0.087	0.205	0.023	0.06
8	0.67	9.10	0.100	0.205	0.027	0.07
9	0.75	12.80	0.141	0.205	0.038	0.10
10	0.83	25.60	0.282	0.205	---	0.08
11	0.92	7.90	0.087	0.205	0.023	0.06
12	1.00	4.90	0.054	0.205	0.014	0.04
Sum =		100.0		Sum =		0.7

Flood volume = Effective rainfall 0.06(In)

times area 0.7(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)

Total soil loss = 0.04(In)

Total soil loss = 0.002(Ac.Ft)

Total rainfall = 0.09(In)

Flood volume = 152.1 Cubic Feet

Total soil loss = 95.0 Cubic Feet

Storm Event 2 Effective Rainfall = 0.174(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	4.40	0.092	0.205	0.024	0.07

```
 2   0.17    4.50     0.094       0.205    0.025       0.07
 3   0.25    5.40     0.113       0.205    0.030       0.08
 4   0.33    5.40     0.113       0.205    0.030       0.08
 5   0.42    5.70     0.119       0.205    0.032       0.09
 6   0.50    6.40     0.134       0.205    0.036       0.10
 7   0.58    7.90     0.165       0.205    0.044       0.12
 8   0.67    9.10     0.190       0.205    0.051       0.14
 9   0.75   12.80     0.267       0.205     ---        0.06
10   0.83   25.60     0.534       0.205     ---        0.33
11   0.92    7.90     0.165       0.205    0.044       0.12
12   1.00    4.90     0.102       0.205    0.027       0.08
  Sum =    100.0                          Sum =    1.3
          Flood volume = Effective rainfall     0.11(In)
           times area      0.7(Ac.)/[(In)/(Ft.)] =      0.0(Ac.Ft)
          Total soil loss =     0.06(In)
          Total soil loss =    0.004(Ac.Ft)
          Total rainfall =     0.17(In)
          Flood volume =       299.4 Cubic Feet
          Total soil loss =       169.0 Cubic Feet
---------------------------------------------------------------------------
             Storm Event 1   Effective Rainfall =   0.483(In)
---------------------------------------------------------------------------

 Unit Time   Pattern   Storm Rain    Loss rate(In./Hr)    Effective
    (Hr.)  Percent   (In/Hr)       Max   |   Low       (In/Hr)
 1   0.08    4.40     0.255       0.205     ---        0.05
 2   0.17    4.50     0.261       0.205     ---        0.06
 3   0.25    5.40     0.313       0.205     ---        0.11
 4   0.33    5.40     0.313       0.205     ---        0.11
 5   0.42    5.70     0.330       0.205     ---        0.13
 6   0.50    6.40     0.371       0.205     ---        0.17
 7   0.58    7.90     0.458       0.205     ---        0.25
 8   0.67    9.10     0.527       0.205     ---        0.32
 9   0.75   12.80     0.742       0.205     ---        0.54
10   0.83   25.60     1.484       0.205     ---        1.28
11   0.92    7.90     0.458       0.205     ---        0.25
12   1.00    4.90     0.284       0.205     ---        0.08
  Sum =    100.0                          Sum =    3.3
          Flood volume = Effective rainfall     0.28(In)
           times area      0.7(Ac.)/[(In)/(Ft.)] =      0.0(Ac.Ft)
          Total soil loss =     0.21(In)
          Total soil loss =    0.013(Ac.Ft)
          Total rainfall =     0.48(In)
          Flood volume =       748.2 Cubic Feet
          Total soil loss =       552.7 Cubic Feet
          ---------------------------------------------------------------------
           Peak flow rate of this hydrograph =      0.830(CFS)
          ---------------------------------------------------------------------
          ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
           TOTAL OF: 3      1 - H O U R   S T O R M  E V E N T S
                    R u n o f f     H y d r o g r a p h
          ---------------------------------------------------------------------
                  Hydrograph in   5   Minute intervals ((CFS))

          ---------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0       2.5      5.0      7.5      10.0
---------------------------------------------------------------------------
  0+ 5      0.0001     0.02  Q       |        |        |        |
  0+10      0.0003     0.03  Q       |        |        |        |
  0+15      0.0005     0.03  Q       |        |        |        |
  0+20      0.0008     0.03  QV      |        |        |        |
  0+25      0.0010     0.03  QV      |        |        |        |
  0+30      0.0013     0.04  QV      |        |        |        |
  0+35      0.0016     0.05  Q V     |        |        |        |
  0+40      0.0019     0.05  Q V     |        |        |        |
```

```
0+45     0.0024    0.07 Q V    |       |       |       |
0+50     0.0029    0.06 Q  V   |       |       |       |
0+55     0.0032    0.05 Q  V   |       |       |       |
1+ 0     0.0034    0.03 Q   V  |       |       |       |
1+ 5     0.0037    0.04 Q   V  |       |       |       |
1+10     0.0041    0.05 Q    V |       |       |       |
1+15     0.0045    0.06 Q    V |       |       |       |
1+20     0.0049    0.06 Q    V |       |       |       |
1+25     0.0053    0.06 Q    V |       |       |       |
1+30     0.0058    0.07 Q     V|       |       |       |
1+35     0.0064    0.09 Q     V|       |       |       |
1+40     0.0071    0.10 Q      V       |       |       |
1+45     0.0075    0.06 Q      |V      |       |       |
1+50     0.0089    0.20 Q      | V     |       |       |
1+55     0.0098    0.13 Q      |  V    |       |       |
2+ 0     0.0102    0.06 Q      |   V   |       |       |
2+ 5     0.0104    0.03 Q      |   V   |       |       |
2+10     0.0107    0.04 Q      |    V  |       |       |
2+15     0.0112    0.07 Q      |    V  |       |       |
2+20     0.0118    0.08 Q      |     V |       |       |
2+25     0.0124    0.09 Q      |     V |       |       |
2+30     0.0132    0.12 Q      |      V|       |       |
2+35     0.0144    0.17 Q      |       V       |       |
2+40     0.0160    0.23 Q      |       | V     |       |
2+45     0.0185    0.36 |Q     |       |    V  |       |
2+50     0.0242    0.83 |  Q   |       |       |   V   |
2+55     0.0267    0.36 |Q     |       |       |     V |
3+ 0     0.0273    0.09 Q      |       |       |      V|
3+ 5     0.0274    0.01 Q      |       |       |       V
-------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 1999, Version 6.0
Study date 09/23/20 File: BPOST15.out

++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

28771 Central Avenue Gas Station
Area B
Post-development
1-Hr 5-Yr Storm Event

Drainage Area = 0.74(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 284.00(Ft.)
Length along longest watercourse measured to centroid = 86.63(Ft.)
Length along longest watercourse = 0.054 Mi.
Length along longest watercourse measured to centroid = 0.016 Mi.
Difference in elevation = 1.69(Ft.)
Slope along watercourse = 31.4197 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.013 Hr.
Lag time = 0.78 Min.
25% of lag time = 0.19 Min.
40% of lag time = 0.31 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.74	0.48	0.36

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.74	1.34	0.99

STORM EVENT (YEAR) = 5.00
Area Averaged 2-Year Rainfall = 0.483(In)
Area Averaged 100-Year Rainfall = 1.340(In)

Point rain (area averaged) = 0.684(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 0.684(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
0.742	55.00	0.792

Total Area Entered = 0.74(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
55.0	35.0	0.715	0.792	0.205	1.000	0.205

Sum (F) = 0.205

Area averaged mean soil loss (F) (In/Hr) = 0.205

Minimum soil loss rate ((In/Hr)) = 0.103

(for 24 hour storm duration)

Soil low loss rate (decimal) = 0.266

Slope of intensity-duration curve for a 1 hour storm =0.4800

U n i t H y d r o g r a p h

DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag Graph %	Distribution (CFS)	Unit Hydrograph
1	0.083	645.077	77.129	0.577
2	0.167	1290.154	22.871	0.171

Sum = 100.000 Sum= 0.748

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	4.40	0.361	0.205	---	0.16
2	0.17	4.50	0.369	0.205	---	0.16
3	0.25	5.40	0.443	0.205	---	0.24
4	0.33	5.40	0.443	0.205	---	0.24
5	0.42	5.70	0.468	0.205	---	0.26
6	0.50	6.40	0.525	0.205	---	0.32
7	0.58	7.90	0.648	0.205	---	0.44
8	0.67	9.10	0.747	0.205	---	0.54
9	0.75	12.80	1.050	0.205	---	0.84
10	0.83	25.60	2.100	0.205	---	1.90
11	0.92	7.90	0.648	0.205	---	0.44
12	1.00	4.90	0.402	0.205	---	0.20
Sum =		100.0		Sum =		5.7

Flood volume = Effective rainfall 0.48(In)

times area 0.7(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)

Total soil loss = 0.21(In)

Total soil loss = 0.013(Ac.Ft)

Total rainfall = 0.68(In)

Flood volume = 1288.8 Cubic Feet

Total soil loss = 552.7 Cubic Feet

Peak flow rate of this hydrograph = 1.238(CFS)

++

1 - H O U R S T O R M

R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0

```
---------------------------------------------------------------------------
  0+ 5     0.0006     0.09  Q       |       |       |       |
  0+10     0.0015     0.12  QV      |       |       |       |
  0+15     0.0026     0.17  Q V     |       |       |       |
  0+20     0.0038     0.18  Q   V   |       |       |       |
  0+25     0.0051     0.19  Q    V  |       |       |       |
  0+30     0.0067     0.23  Q      V|       |       |       |
  0+35     0.0089     0.31  |Q      |V      |       |       |
  0+40     0.0115     0.39  |Q      |   V   |       |       |
  0+45     0.0155     0.58  | Q     |       V       |       |
  0+50     0.0241     1.24  |   Q   |       |       | V     |
  0+55     0.0281     0.58  | Q     |       |       |    V  |
  1+ 0     0.0294     0.19  Q       |       |       |      V|
  1+ 5     0.0296     0.03  Q       |       |       |       V
---------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 1999, Version 6.0
Study date 09/23/20 File: BPOST110.out

++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

28771 Central Avenue Gas Station
Area B
Post-development
1-Hr 10-Yr Storm Event

Drainage Area = 0.74(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 284.00(Ft.)
Length along longest watercourse measured to centroid = 86.63(Ft.)
Length along longest watercourse = 0.054 Mi.
Length along longest watercourse measured to centroid = 0.016 Mi.
Difference in elevation = 1.69(Ft.)
Slope along watercourse = 31.4197 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.013 Hr.
Lag time = 0.78 Min.
25% of lag time = 0.19 Min.
40% of lag time = 0.31 Min.
Unit time = 5.00 Min.
Duration of storm = 1 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.74	0.48	0.36

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.74	1.34	0.99

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 0.483(In)
Area Averaged 100-Year Rainfall = 1.340(In)

Point rain (area averaged) = 0.836(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 0.836(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
0.742	55.00	0.792

Total Area Entered = 0.74(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
55.0	35.0	0.715	0.792	0.205	1.000	0.205

Sum (F) = 0.205

Area averaged mean soil loss (F) (In/Hr) = 0.205

Minimum soil loss rate ((In/Hr)) = 0.103

(for 24 hour storm duration)

Soil low loss rate (decimal) = 0.266

Slope of intensity-duration curve for a 1 hour storm =0.4800

U n i t H y d r o g r a p h

DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag Graph %	Distribution (CFS)	Unit Hydrograph
1	0.083	645.077	77.129	0.577
2	0.167	1290.154	22.871	0.171

Sum = 100.000 Sum= 0.748

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	4.40	0.441	0.205	---	0.24
2	0.17	4.50	0.451	0.205	---	0.25
3	0.25	5.40	0.541	0.205	---	0.34
4	0.33	5.40	0.541	0.205	---	0.34
5	0.42	5.70	0.572	0.205	---	0.37
6	0.50	6.40	0.642	0.205	---	0.44
7	0.58	7.90	0.792	0.205	---	0.59
8	0.67	9.10	0.912	0.205	---	0.71
9	0.75	12.80	1.283	0.205	---	1.08
10	0.83	25.60	2.567	0.205	---	2.36
11	0.92	7.90	0.792	0.205	---	0.59
12	1.00	4.90	0.491	0.205	---	0.29
Sum =		100.0		Sum =		7.6

Flood volume = Effective rainfall 0.63(In)

times area 0.7(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)

Total soil loss = 0.21(In)

Total soil loss = 0.013(Ac.Ft)

Total rainfall = 0.84(In)

Flood volume = 1697.8 Cubic Feet

Total soil loss = 552.7 Cubic Feet

Peak flow rate of this hydrograph = 1.547(CFS)

++

1 - H O U R S T O R M

R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0

```
---------------------------------------------------------------------------
 0+ 5     0.0009     0.14  Q       |       |       |       |
 0+10     0.0022     0.18  Q V     |       |       |       |
 0+15     0.0038     0.24  Q  V    |       |       |       |
 0+20     0.0056     0.25  |Q   V   |       |       |       |
 0+25     0.0074     0.27  |Q    V  |       |       |       |
 0+30     0.0096     0.31  |Q     V|       |       |       |
 0+35     0.0124     0.41  |Q      | V     |       |       |
 0+40     0.0159     0.51  | Q     |    V  |       |       |
 0+45     0.0210     0.74  | Q     |       |V      |       |
 0+50     0.0317     1.55  |    Q  |       |       | V     |
 0+55     0.0368     0.74  | Q     |       |       |    V  |
 1+ 0     0.0386     0.27  |Q      |       |       |      V|
 1+ 5     0.0390     0.05  Q       |       |       |      V|
---------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 1999, Version 6.0
Study date 09/23/20 File: BPOST32.out

++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

28771 Central Avenue Gas Station
Area B
Post-development
3-Hr 2-Yr Storm Event

Drainage Area = 0.74(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 284.00(Ft.)
Length along longest watercourse measured to centroid = 86.63(Ft.)
Length along longest watercourse = 0.054 Mi.
Length along longest watercourse measured to centroid = 0.016 Mi.
Difference in elevation = 1.69(Ft.)
Slope along watercourse = 31.4197 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.013 Hr.
Lag time = 0.78 Min.
25% of lag time = 0.19 Min.
40% of lag time = 0.31 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.74	0.88	0.65

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.74	2.20	1.63

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 0.877(In)
Area Averaged 100-Year Rainfall = 2.200(In)

Point rain (area averaged) = 0.877(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 0.877(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
0.742	55.00	0.792

Total Area Entered = 0.74(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
55.0	35.0	0.715	0.792	0.205	1.000	0.205

Sum (F) = 0.205

Area averaged mean soil loss (F) (In/Hr) = 0.205

Minimum soil loss rate ((In/Hr)) = 0.103

(for 24 hour storm duration)

Soil low loss rate (decimal) = 0.266

U n i t H y d r o g r a p h

DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	645.077	77.129	0.577
2	0.167	1290.154	22.871	0.171

Sum = 100.000 Sum= 0.748

Storm Event 3 Effective Rainfall = 0.167(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.026	0.205	0.007	0.02
2	0.17	1.30	0.026	0.205	0.007	0.02
3	0.25	1.10	0.022	0.205	0.006	0.02
4	0.33	1.50	0.030	0.205	0.008	0.02
5	0.42	1.50	0.030	0.205	0.008	0.02
6	0.50	1.80	0.036	0.205	0.010	0.03
7	0.58	1.50	0.030	0.205	0.008	0.02
8	0.67	1.80	0.036	0.205	0.010	0.03
9	0.75	1.80	0.036	0.205	0.010	0.03
10	0.83	1.50	0.030	0.205	0.008	0.02
11	0.92	1.60	0.032	0.205	0.009	0.02
12	1.00	1.80	0.036	0.205	0.010	0.03
13	1.08	2.20	0.044	0.205	0.012	0.03
14	1.17	2.20	0.044	0.205	0.012	0.03
15	1.25	2.20	0.044	0.205	0.012	0.03
16	1.33	2.00	0.040	0.205	0.011	0.03
17	1.42	2.60	0.052	0.205	0.014	0.04
18	1.50	2.70	0.054	0.205	0.014	0.04
19	1.58	2.40	0.048	0.205	0.013	0.04
20	1.67	2.70	0.054	0.205	0.014	0.04
21	1.75	3.30	0.066	0.205	0.018	0.05
22	1.83	3.10	0.062	0.205	0.017	0.05
23	1.92	2.90	0.058	0.205	0.015	0.04
24	2.00	3.00	0.060	0.205	0.016	0.04
25	2.08	3.10	0.062	0.205	0.017	0.05
26	2.17	4.20	0.084	0.205	0.022	0.06
27	2.25	5.00	0.100	0.205	0.027	0.07
28	2.33	3.50	0.070	0.205	0.019	0.05
29	2.42	6.80	0.136	0.205	0.036	0.10

30	2.50	7.30	0.146	0.205	0.039	0.11
31	2.58	8.20	0.164	0.205	0.044	0.12
32	2.67	5.90	0.118	0.205	0.031	0.09
33	2.75	2.00	0.040	0.205	0.011	0.03
34	2.83	1.80	0.036	0.205	0.010	0.03
35	2.92	1.80	0.036	0.205	0.010	0.03
36	3.00	0.60	0.012	0.205	0.003	0.01
Sum =		100.0		Sum =		1.5

Flood volume = Effective rainfall 0.12(In)
times area 0.7(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)
Total soil loss = 0.04(In)
Total soil loss = 0.003(Ac.Ft)
Total rainfall = 0.17(In)
Flood volume = 329.3 Cubic Feet
Total soil loss = 119.5 Cubic Feet

Storm Event 2 Effective Rainfall = 0.316(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.049	0.205	0.013	0.04
2	0.17	1.30	0.049	0.205	0.013	0.04
3	0.25	1.10	0.042	0.205	0.011	0.03
4	0.33	1.50	0.057	0.205	0.015	0.04
5	0.42	1.50	0.057	0.205	0.015	0.04
6	0.50	1.80	0.068	0.205	0.018	0.05
7	0.58	1.50	0.057	0.205	0.015	0.04
8	0.67	1.80	0.068	0.205	0.018	0.05
9	0.75	1.80	0.068	0.205	0.018	0.05
10	0.83	1.50	0.057	0.205	0.015	0.04
11	0.92	1.60	0.061	0.205	0.016	0.04
12	1.00	1.80	0.068	0.205	0.018	0.05
13	1.08	2.20	0.083	0.205	0.022	0.06
14	1.17	2.20	0.083	0.205	0.022	0.06
15	1.25	2.20	0.083	0.205	0.022	0.06
16	1.33	2.00	0.076	0.205	0.020	0.06
17	1.42	2.60	0.099	0.205	0.026	0.07
18	1.50	2.70	0.102	0.205	0.027	0.08
19	1.58	2.40	0.091	0.205	0.024	0.07
20	1.67	2.70	0.102	0.205	0.027	0.08
21	1.75	3.30	0.125	0.205	0.033	0.09
22	1.83	3.10	0.117	0.205	0.031	0.09
23	1.92	2.90	0.110	0.205	0.029	0.08
24	2.00	3.00	0.114	0.205	0.030	0.08
25	2.08	3.10	0.117	0.205	0.031	0.09
26	2.17	4.20	0.159	0.205	0.042	0.12
27	2.25	5.00	0.189	0.205	0.050	0.14
28	2.33	3.50	0.133	0.205	0.035	0.10
29	2.42	6.80	0.258	0.205	---	0.05
30	2.50	7.30	0.277	0.205	---	0.07
31	2.58	8.20	0.311	0.205	---	0.11
32	2.67	5.90	0.224	0.205	---	0.02
33	2.75	2.00	0.076	0.205	0.020	0.06
34	2.83	1.80	0.068	0.205	0.018	0.05
35	2.92	1.80	0.068	0.205	0.018	0.05
36	3.00	0.60	0.023	0.205	0.006	0.02
Sum =		100.0		Sum =		2.2

Flood volume = Effective rainfall 0.19(In)
times area 0.7(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)
Total soil loss = 0.13(In)
Total soil loss = 0.008(Ac.Ft)
Total rainfall = 0.32(In)
Flood volume = 503.5 Cubic Feet
Total soil loss = 346.8 Cubic Feet

Storm Event 1 Effective Rainfall = 0.877(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.137	0.205	0.036	0.10
2	0.17	1.30	0.137	0.205	0.036	0.10
3	0.25	1.10	0.116	0.205	0.031	0.08
4	0.33	1.50	0.158	0.205	0.042	0.12
5	0.42	1.50	0.158	0.205	0.042	0.12
6	0.50	1.80	0.189	0.205	0.050	0.14
7	0.58	1.50	0.158	0.205	0.042	0.12
8	0.67	1.80	0.189	0.205	0.050	0.14
9	0.75	1.80	0.189	0.205	0.050	0.14
10	0.83	1.50	0.158	0.205	0.042	0.12
11	0.92	1.60	0.168	0.205	0.045	0.12
12	1.00	1.80	0.189	0.205	0.050	0.14
13	1.08	2.20	0.232	0.205	---	0.03
14	1.17	2.20	0.232	0.205	---	0.03
15	1.25	2.20	0.232	0.205	---	0.03
16	1.33	2.00	0.210	0.205	---	0.01
17	1.42	2.60	0.274	0.205	---	0.07
18	1.50	2.70	0.284	0.205	---	0.08
19	1.58	2.40	0.253	0.205	---	0.05
20	1.67	2.70	0.284	0.205	---	0.08
21	1.75	3.30	0.347	0.205	---	0.14
22	1.83	3.10	0.326	0.205	---	0.12
23	1.92	2.90	0.305	0.205	---	0.10
24	2.00	3.00	0.316	0.205	---	0.11
25	2.08	3.10	0.326	0.205	---	0.12
26	2.17	4.20	0.442	0.205	---	0.24
27	2.25	5.00	0.526	0.205	---	0.32
28	2.33	3.50	0.368	0.205	---	0.16
29	2.42	6.80	0.716	0.205	---	0.51
30	2.50	7.30	0.768	0.205	---	0.56
31	2.58	8.20	0.863	0.205	---	0.66
32	2.67	5.90	0.621	0.205	---	0.42
33	2.75	2.00	0.210	0.205	---	0.01
34	2.83	1.80	0.189	0.205	0.050	0.14
35	2.92	1.80	0.189	0.205	0.050	0.14
36	3.00	0.60	0.063	0.205	0.017	0.05
Sum =		100.0		Sum =		5.6

Flood volume = Effective rainfall 0.46(In)
times area 0.7(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)
Total soil loss = 0.41(In)
Total soil loss = 0.025(Ac.Ft)
Total rainfall = 0.88(In)
Flood volume = 1252.1 Cubic Feet
Total soil loss = 1110.1 Cubic Feet

Peak flow rate of this hydrograph = 0.476(CFS)

++

TOTAL OF: 3 3 - H O U R S T O R M E V E N T S
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0001	0.01	Q	|	|	|	|
0+10	0.0002	0.01	Q	|	|	|	|
0+15	0.0003	0.01	Q	|	|	|	|

0+20	0.0004	0.02	Q	|	|	|	|
0+25	0.0005	0.02	Q	|	|	|	|
0+30	0.0006	0.02	Q	|	|	|	|
0+35	0.0007	0.02	Q	|	|	|	|
0+40	0.0009	0.02	Q	|	|	|	|
0+45	0.0010	0.02	Q	|	|	|	|
0+50	0.0011	0.02	Q	|	|	|	|
0+55	0.0012	0.02	QV	|	|	|	|
1+ 0	0.0014	0.02	QV	|	|	|	|
1+ 5	0.0015	0.02	QV	|	|	|	|
1+10	0.0017	0.02	QV	|	|	|	|
1+15	0.0019	0.02	QV	|	|	|	|
1+20	0.0020	0.02	QV	|	|	|	|
1+25	0.0022	0.03	QV	|	|	|	|
1+30	0.0024	0.03	Q V	|	|	|	|
1+35	0.0026	0.03	Q V	|	|	|	|
1+40	0.0028	0.03	Q V	|	|	|	|
1+45	0.0030	0.03	Q V	|	|	|	|
1+50	0.0033	0.03	Q V	|	|	|	|
1+55	0.0035	0.03	Q V	|	|	|	|
2+ 0	0.0037	0.03	Q V	|	|	|	|
2+ 5	0.0039	0.03	Q V	|	|	|	|
2+10	0.0042	0.04	Q V	|	|	|	|
2+15	0.0046	0.05	Q V	|	|	|	|
2+20	0.0049	0.04	Q V	|	|	|	|
2+25	0.0054	0.07	Q V	|	|	|	|
2+30	0.0059	0.08	Q V	|	|	|	|
2+35	0.0065	0.09	Q V	|	|	|	|
2+40	0.0070	0.07	Q V	|	|	|	|
2+45	0.0072	0.03	Q V	|	|	|	|
2+50	0.0073	0.02	Q V	|	|	|	|
2+55	0.0075	0.02	Q V	|	|	|	|
3+ 0	0.0075	0.01	Q V	|	|	|	|
3+ 5	0.0077	0.02	Q V	|	|	|	|
3+10	0.0079	0.03	Q V	|	|	|	|
3+15	0.0080	0.02	Q V	|	|	|	|
3+20	0.0082	0.03	Q V	|	|	|	|
3+25	0.0085	0.03	Q V	|	|	|	|
3+30	0.0087	0.04	Q V	|	|	|	|
3+35	0.0089	0.03	Q V	|	|	|	|
3+40	0.0092	0.04	Q V	|	|	|	|
3+45	0.0094	0.04	Q V	|	|	|	|
3+50	0.0097	0.03	Q V	|	|	|	|
3+55	0.0099	0.03	Q V	|	|	|	|
4+ 0	0.0101	0.04	Q V	|	|	|	|
4+ 5	0.0104	0.04	Q V	|	|	|	|
4+10	0.0108	0.05	Q V	|	|	|	|
4+15	0.0111	0.05	Q V	|	|	|	|
4+20	0.0114	0.04	Q V	|	|	|	|
4+25	0.0117	0.05	Q V	|	|	|	|
4+30	0.0121	0.06	Q V	|	|	|	|
4+35	0.0125	0.05	Q V	|	|	|	|
4+40	0.0128	0.05	Q V	|	|	|	|
4+45	0.0133	0.07	Q V	|	|	|	|
4+50	0.0137	0.07	Q V	|	|	|	|
4+55	0.0142	0.06	Q V	|	|	|	|
5+ 0	0.0146	0.06	Q V	|	|	|	|
5+ 5	0.0150	0.06	Q V	|	|	|	|
5+10	0.0156	0.08	Q V	|	|	|	|
5+15	0.0163	0.10	Q V	|	|	|	|
5+20	0.0168	0.08	Q V	|	|	|	|
5+25	0.0172	0.05	Q V	|	|	|	|
5+30	0.0175	0.05	Q V	|	|	|	|
5+35	0.0180	0.07	Q V	|	|	|	|
5+40	0.0182	0.03	Q V	|	|	|	|

```
  5+45     0.0184    0.04  Q      |   V   |       |       |
  5+50     0.0187    0.04  Q      |   V   |       |       |
  5+55     0.0190    0.04  Q      |   V   |       |       |
  6+ 0     0.0191    0.02  Q      |   V   |       |       |
  6+ 5     0.0195    0.06  Q      |   V   |       |       |
  6+10     0.0200    0.08  Q      |    V  |       |       |
  6+15     0.0205    0.07  Q      |    V  |       |       |
  6+20     0.0210    0.08  Q      |    V  |       |       |
  6+25     0.0216    0.09  Q      |     V |       |       |
  6+30     0.0223    0.10  Q      |     V |       |       |
  6+35     0.0229    0.09  Q      |     V|       |       |
  6+40     0.0236    0.10  Q      |     V|       |       |
  6+45     0.0243    0.10  Q      |      V       |       |
  6+50     0.0250    0.09  Q      |      V       |       |
  6+55     0.0256    0.09  Q      |      |V      |       |
  7+ 0     0.0263    0.10  Q      |      |V      |       |
  7+ 5     0.0266    0.04  Q      |      | V     |       |
  7+10     0.0267    0.02  Q      |      | V     |       |
  7+15     0.0268    0.02  Q      |      | V     |       |
  7+20     0.0269    0.01  Q      |      | V     |       |
  7+25     0.0272    0.04  Q      |      | V     |       |
  7+30     0.0275    0.06  Q      |      |  V    |       |
  7+35     0.0278    0.04  Q      |      |  V    |       |
  7+40     0.0282    0.05  Q      |      |  V    |       |
  7+45     0.0289    0.10  Q      |      |   V   |       |
  7+50     0.0295    0.09  Q      |      |   V   |       |
  7+55     0.0300    0.08  Q      |      |   V   |       |
  8+ 0     0.0306    0.08  Q      |      |   V   |       |
  8+ 5     0.0312    0.09  Q      |      |   V   |       |
  8+10     0.0323    0.16  Q      |      |    V  |       |
  8+15     0.0339    0.23  Q      |      |    V  |       |
  8+20     0.0349    0.15  Q      |      |     V|       |
  8+25     0.0371    0.32  |Q     |      |      |V      |
  8+30     0.0399    0.41  |Q     |      |      |  V    |
  8+35     0.0432    0.48  |Q     |      |      |   V   |
  8+40     0.0456    0.35  |Q     |      |      |    V  |
  8+45     0.0462    0.07  Q      |      |      |    V  |
  8+50     0.0467    0.08  Q      |      |      |     V|
  8+55     0.0474    0.10  Q      |      |      |     V|
  9+ 0     0.0478    0.05  Q      |      |      |     V|
  9+ 5     0.0478    0.01  Q      |      |      |      V
--------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 1999, Version 6.0
Study date 09/23/20 File: BPOST35.out

++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

28771 Central Avenue Gas Station
Area B
Post-development
3-Hr 5-Yr Storm Event

Drainage Area = 0.74(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 284.00(Ft.)
Length along longest watercourse measured to centroid = 86.63(Ft.)
Length along longest watercourse = 0.054 Mi.
Length along longest watercourse measured to centroid = 0.016 Mi.
Difference in elevation = 1.69(Ft.)
Slope along watercourse = 31.4197 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.013 Hr.
Lag time = 0.78 Min.
25% of lag time = 0.19 Min.
40% of lag time = 0.31 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.74	0.88	0.65

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.74	2.20	1.63

STORM EVENT (YEAR) = 5.00
Area Averaged 2-Year Rainfall = 0.877(In)
Area Averaged 100-Year Rainfall = 2.200(In)

Point rain (area averaged) = 1.187(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 1.187(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
0.742	55.00	0.792

Total Area Entered = 0.74(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
55.0	35.0	0.715	0.792	0.205	1.000	0.205

Sum (F) = 0.205

Area averaged mean soil loss (F) (In/Hr) = 0.205

Minimum soil loss rate ((In/Hr)) = 0.103

(for 24 hour storm duration)

Soil low loss rate (decimal) = 0.266

U n i t H y d r o g r a p h

DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag Graph %	Distribution (CFS)	Unit Hydrograph
1	0.083	645.077	77.129	0.577
2	0.167	1290.154	22.871	0.171
	Sum = 100.000		Sum=	0.748

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.185	0.205	0.049	0.14
2	0.17	1.30	0.185	0.205	0.049	0.14
3	0.25	1.10	0.157	0.205	0.042	0.11
4	0.33	1.50	0.214	0.205	---	0.01
5	0.42	1.50	0.214	0.205	---	0.01
6	0.50	1.80	0.256	0.205	---	0.05
7	0.58	1.50	0.214	0.205	---	0.01
8	0.67	1.80	0.256	0.205	---	0.05
9	0.75	1.80	0.256	0.205	---	0.05
10	0.83	1.50	0.214	0.205	---	0.01
11	0.92	1.60	0.228	0.205	---	0.02
12	1.00	1.80	0.256	0.205	---	0.05
13	1.08	2.20	0.313	0.205	---	0.11
14	1.17	2.20	0.313	0.205	---	0.11
15	1.25	2.20	0.313	0.205	---	0.11
16	1.33	2.00	0.285	0.205	---	0.08
17	1.42	2.60	0.370	0.205	---	0.17
18	1.50	2.70	0.385	0.205	---	0.18
19	1.58	2.40	0.342	0.205	---	0.14
20	1.67	2.70	0.385	0.205	---	0.18
21	1.75	3.30	0.470	0.205	---	0.26
22	1.83	3.10	0.442	0.205	---	0.24
23	1.92	2.90	0.413	0.205	---	0.21
24	2.00	3.00	0.427	0.205	---	0.22
25	2.08	3.10	0.442	0.205	---	0.24
26	2.17	4.20	0.598	0.205	---	0.39
27	2.25	5.00	0.712	0.205	---	0.51
28	2.33	3.50	0.498	0.205	---	0.29
29	2.42	6.80	0.968	0.205	---	0.76
30	2.50	7.30	1.040	0.205	---	0.83
31	2.58	8.20	1.168	0.205	---	0.96
32	2.67	5.90	0.840	0.205	---	0.64
33	2.75	2.00	0.285	0.205	---	0.08

```
34   2.83    1.80     0.256       0.205     ---         0.05
35   2.92    1.80     0.256       0.205     ---         0.05
36   3.00    0.60     0.085       0.205     0.023       0.06
  Sum =    100.0                          Sum =    7.5
          Flood volume = Effective rainfall     0.63(In)
           times area      0.7(Ac.)/[(In)/(Ft.)] =      0.0(Ac.Ft)
          Total soil loss =     0.56(In)
          Total soil loss =    0.035(Ac.Ft)
          Total rainfall =     1.19(In)
          Flood volume =       1686.2 Cubic Feet
          Total soil loss =    1510.6 Cubic Feet
          --------------------------------------------------------------------
           Peak flow rate of this hydrograph =     0.698(CFS)
          --------------------------------------------------------------------
          ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                      3 - H O U R   S T O R M
                    R u n o f f     H y d r o g r a p h
          --------------------------------------------------------------------
                   Hydrograph in   5   Minute intervals ((CFS))

          --------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0       2.5      5.0      7.5      10.0
-------------------------------------------------------------------------
 0+ 5      0.0005     0.08  Q       |        |        |        |
 0+10      0.0012      0.10  QV      |        |        |        |
 0+15      0.0019      0.09  QV      |        |        |        |
 0+20      0.0020      0.02  Q V     |        |        |        |
 0+25      0.0021      0.01  Q V     |        |        |        |
 0+30      0.0023      0.03  Q V     |        |        |        |
 0+35      0.0024      0.01  Q V     |        |        |        |
 0+40      0.0026      0.03  Q V     |        |        |        |
 0+45      0.0029      0.04  Q V     |        |        |        |
 0+50      0.0029      0.01  Q  V     |        |        |        |
 0+55      0.0030      0.01  Q  V     |        |        |        |
 1+ 0      0.0033     0.03  Q  V     |        |        |        |
 1+ 5      0.0038     0.07  Q  V     |        |        |        |
 1+10      0.0043      0.08  Q   V     |        |        |        |
 1+15      0.0049      0.08  Q    V    |        |        |        |
 1+20      0.0053      0.06  Q    V    |        |        |        |
 1+25      0.0061      0.11  Q     V   |        |        |        |
 1+30      0.0070      0.13  Q      V  |        |        |        |
 1+35      0.0077      0.11  Q      V  |        |        |        |
 1+40      0.0086      0.13  Q       V |        |        |        |
 1+45      0.0099      0.18  Q        V       |        |        |
 1+50      0.0111      0.18  Q       |V       |        |        |
 1+55      0.0122      0.16  Q       | V      |        |        |
 2+ 0      0.0134     0.16  Q       |  V     |        |        |
 2+ 5      0.0146     0.17  Q       |    V   |        |        |
 2+10      0.0164      0.27  |Q      |     V   |        |        |
 2+15      0.0189      0.36  |Q      |       V|        |        |
 2+20      0.0206      0.26  |Q      |        |V       |        |
 2+25      0.0240      0.49  |Q      |        |   V    |        |
 2+30      0.0282      0.61  | Q     |        |       V|        |
 2+35      0.0330      0.70  | Q     |        |        |   V    |
 2+40      0.0367      0.53  | Q     |        |        |     V  |
 2+45      0.0378      0.15  Q       |        |        |      V|
 2+50      0.0381      0.04  Q       |        |        |      V|
 2+55      0.0383      0.04  Q       |        |        |      V|
 3+ 0      0.0386     0.04  Q       |        |        |      V|
 3+ 5      0.0387     0.01  Q       |        |        |       V
-------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 1999, Version 6.0
Study date 09/23/20 File: BPOST310.out

++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

28771 Central Avenue Gas Station
Area B
Post-development
3-Hr 10-Yr Storm Event

Drainage Area = 0.74(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 284.00(Ft.)
Length along longest watercourse measured to centroid = 86.63(Ft.)
Length along longest watercourse = 0.054 Mi.
Length along longest watercourse measured to centroid = 0.016 Mi.
Difference in elevation = 1.69(Ft.)
Slope along watercourse = 31.4197 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.013 Hr.
Lag time = 0.78 Min.
25% of lag time = 0.19 Min.
40% of lag time = 0.31 Min.
Unit time = 5.00 Min.
Duration of storm = 3 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.74	0.88	0.65

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.74	2.20	1.63

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 0.877(In)
Area Averaged 100-Year Rainfall = 2.200(In)

Point rain (area averaged) = 1.421(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 1.421(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
0.742	55.00	0.792

Total Area Entered = 0.74(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
55.0	35.0	0.715	0.792	0.205	1.000	0.205

Sum (F) = 0.205

Area averaged mean soil loss (F) (In/Hr) = 0.205

Minimum soil loss rate ((In/Hr)) = 0.103

(for 24 hour storm duration)

Soil low loss rate (decimal) = 0.266

U n i t H y d r o g r a p h

DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag Graph %	Distribution (CFS)	Unit Hydrograph
1	0.083	645.077	77.129	0.577
2	0.167	1290.154	22.871	0.171
	Sum = 100.000		Sum=	0.748

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	1.30	0.222	0.205	---	0.02
2	0.17	1.30	0.222	0.205	---	0.02
3	0.25	1.10	0.188	0.205	0.050	0.14
4	0.33	1.50	0.256	0.205	---	0.05
5	0.42	1.50	0.256	0.205	---	0.05
6	0.50	1.80	0.307	0.205	---	0.10
7	0.58	1.50	0.256	0.205	---	0.05
8	0.67	1.80	0.307	0.205	---	0.10
9	0.75	1.80	0.307	0.205	---	0.10
10	0.83	1.50	0.256	0.205	---	0.05
11	0.92	1.60	0.273	0.205	---	0.07
12	1.00	1.80	0.307	0.205	---	0.10
13	1.08	2.20	0.375	0.205	---	0.17
14	1.17	2.20	0.375	0.205	---	0.17
15	1.25	2.20	0.375	0.205	---	0.17
16	1.33	2.00	0.341	0.205	---	0.14
17	1.42	2.60	0.443	0.205	---	0.24
18	1.50	2.70	0.460	0.205	---	0.26
19	1.58	2.40	0.409	0.205	---	0.20
20	1.67	2.70	0.460	0.205	---	0.26
21	1.75	3.30	0.563	0.205	---	0.36
22	1.83	3.10	0.529	0.205	---	0.32
23	1.92	2.90	0.495	0.205	---	0.29
24	2.00	3.00	0.512	0.205	---	0.31
25	2.08	3.10	0.529	0.205	---	0.32
26	2.17	4.20	0.716	0.205	---	0.51
27	2.25	5.00	0.853	0.205	---	0.65
28	2.33	3.50	0.597	0.205	---	0.39
29	2.42	6.80	1.160	0.205	---	0.95
30	2.50	7.30	1.245	0.205	---	1.04
31	2.58	8.20	1.399	0.205	---	1.19
32	2.67	5.90	1.006	0.205	---	0.80
33	2.75	2.00	0.341	0.205	---	0.14

```
34   2.83    1.80    0.307       0.205     ---         0.10
35   2.92    1.80    0.307       0.205     ---         0.10
36   3.00    0.60    0.102       0.205    0.027        0.08
  Sum =    100.0                          Sum =    10.0
          Flood volume = Effective rainfall     0.83(In)
           times area      0.7(Ac.)/[(In)/(Ft.)] =      0.1(Ac.Ft)
          Total soil loss =     0.59(In)
          Total soil loss =    0.036(Ac.Ft)
          Total rainfall =     1.42(In)
          Flood volume =       2244.7 Cubic Feet
          Total soil loss =       1583.5 Cubic Feet
          ---------------------------------------------------------------------
           Peak flow rate of this hydrograph =     0.867(CFS)
          ---------------------------------------------------------------------
          ++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
                      3 - H O U R   S T O R M
                    R u n o f f     H y d r o g r a p h
          ---------------------------------------------------------------------
                   Hydrograph in   5   Minute intervals ((CFS))

          ---------------------------------------------------------------------
Time(h+m) Volume Ac.Ft   Q(CFS)  0       2.5      5.0      7.5      10.0
---------------------------------------------------------------------------
 0+ 5      0.0001     0.01  Q       |        |        |        |
 0+10      0.0002      0.01  Q       |        |        |        |
 0+15      0.0007      0.08  Q       |        |        |        |
 0+20      0.0011      0.05  Q       |        |        |        |
 0+25      0.0013      0.04  QV      |        |        |        |
 0+30      0.0018      0.07  QV      |        |        |        |
 0+35      0.0021      0.05  QV      |        |        |        |
 0+40      0.0026      0.07  Q V     |        |        |        |
 0+45      0.0031      0.08  Q V     |        |        |        |
 0+50      0.0034      0.05  Q V     |        |        |        |
 0+55      0.0038      0.05  Q V     |        |        |        |
 1+ 0      0.0042     0.07  Q  V     |        |        |        |
 1+ 5      0.0050     0.12  Q  V     |        |        |        |
 1+10      0.0059      0.13  Q   V    |        |        |        |
 1+15      0.0068      0.13  Q   V    |        |        |        |
 1+20      0.0075      0.11  Q   V    |        |        |        |
 1+25      0.0086      0.16  Q    V   |        |        |        |
 1+30      0.0099      0.19  Q     V  |        |        |        |
 1+35      0.0111      0.16  Q     V  |        |        |        |
 1+40      0.0123      0.18  Q      V|        |        |        |
 1+45      0.0140      0.25  |Q      V        |        |        |
 1+50      0.0157      0.25  Q       | V      |        |        |
 1+55      0.0173      0.22  Q       |  V     |        |        |
 2+ 0      0.0188     0.23  Q       |   V    |        |        |
 2+ 5      0.0205     0.24  Q       |    V   |        |        |
 2+10      0.0229      0.35  |Q      |     V  |        |        |
 2+15      0.0261      0.46  |Q      |       V        |        |
 2+20      0.0284      0.34  |Q      |        | V      |        |
 2+25      0.0326      0.62  | Q     |        |    V   |        |
 2+30      0.0379      0.76  |  Q    |        |       V|        |
 2+35      0.0439      0.87  |  Q    |        |        |   V    |
 2+40      0.0485      0.67  | Q     |        |        |     V  |
 2+45      0.0499      0.22  Q       |        |        |      V |
 2+50      0.0505      0.08  Q       |        |        |       V|
 2+55      0.0510      0.08  Q       |        |        |       V|
 3+ 0      0.0514     0.06  Q       |        |        |       V|
 3+ 5      0.0515     0.01  Q       |        |        |        V
---------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 1999, Version 6.0
Study date 09/23/20 File: BPOST62.out

++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

28771 Central Avenue Gas Station
Area B
Post-development
6-Hr 2-Yr Storm Event

Drainage Area = 0.74(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 284.00(Ft.)
Length along longest watercourse measured to centroid = 86.63(Ft.)
Length along longest watercourse = 0.054 Mi.
Length along longest watercourse measured to centroid = 0.016 Mi.
Difference in elevation = 1.69(Ft.)
Slope along watercourse = 31.4197 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.013 Hr.
Lag time = 0.78 Min.
25% of lag time = 0.19 Min.
40% of lag time = 0.31 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.74	1.27	0.94

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.74	3.12	2.32

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 1.270(In)
Area Averaged 100-Year Rainfall = 3.120(In)

Point rain (area averaged) = 1.270(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 1.270(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
0.742	55.00	0.792

Total Area Entered = 0.74(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
55.0	35.0	0.715	0.792	0.205	1.000	0.205

Sum (F) = 0.205

Area averaged mean soil loss (F) (In/Hr) = 0.205

Minimum soil loss rate ((In/Hr)) = 0.103

(for 24 hour storm duration)

Soil low loss rate (decimal) = 0.266

U n i t H y d r o g r a p h

DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	645.077	77.129	0.577
2	0.167	1290.154	22.871	0.171

Sum = 100.000 Sum= 0.748

Storm Event 3 Effective Rainfall = 0.241(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.014	0.205	0.004	0.01
2	0.17	0.60	0.017	0.205	0.005	0.01
3	0.25	0.60	0.017	0.205	0.005	0.01
4	0.33	0.60	0.017	0.205	0.005	0.01
5	0.42	0.60	0.017	0.205	0.005	0.01
6	0.50	0.70	0.020	0.205	0.005	0.01
7	0.58	0.70	0.020	0.205	0.005	0.01
8	0.67	0.70	0.020	0.205	0.005	0.01
9	0.75	0.70	0.020	0.205	0.005	0.01
10	0.83	0.70	0.020	0.205	0.005	0.01
11	0.92	0.70	0.020	0.205	0.005	0.01
12	1.00	0.80	0.023	0.205	0.006	0.02
13	1.08	0.80	0.023	0.205	0.006	0.02
14	1.17	0.80	0.023	0.205	0.006	0.02
15	1.25	0.80	0.023	0.205	0.006	0.02
16	1.33	0.80	0.023	0.205	0.006	0.02
17	1.42	0.80	0.023	0.205	0.006	0.02
18	1.50	0.80	0.023	0.205	0.006	0.02
19	1.58	0.80	0.023	0.205	0.006	0.02
20	1.67	0.80	0.023	0.205	0.006	0.02
21	1.75	0.80	0.023	0.205	0.006	0.02
22	1.83	0.80	0.023	0.205	0.006	0.02
23	1.92	0.80	0.023	0.205	0.006	0.02
24	2.00	0.90	0.026	0.205	0.007	0.02
25	2.08	0.80	0.023	0.205	0.006	0.02
26	2.17	0.90	0.026	0.205	0.007	0.02
27	2.25	0.90	0.026	0.205	0.007	0.02
28	2.33	0.90	0.026	0.205	0.007	0.02
29	2.42	0.90	0.026	0.205	0.007	0.02

30	2.50	0.90	0.026	0.205	0.007	0.02
31	2.58	0.90	0.026	0.205	0.007	0.02
32	2.67	0.90	0.026	0.205	0.007	0.02
33	2.75	1.00	0.029	0.205	0.008	0.02
34	2.83	1.00	0.029	0.205	0.008	0.02
35	2.92	1.00	0.029	0.205	0.008	0.02
36	3.00	1.00	0.029	0.205	0.008	0.02
37	3.08	1.00	0.029	0.205	0.008	0.02
38	3.17	1.10	0.032	0.205	0.008	0.02
39	3.25	1.10	0.032	0.205	0.008	0.02
40	3.33	1.10	0.032	0.205	0.008	0.02
41	3.42	1.20	0.035	0.205	0.009	0.03
42	3.50	1.30	0.038	0.205	0.010	0.03
43	3.58	1.40	0.041	0.205	0.011	0.03
44	3.67	1.40	0.041	0.205	0.011	0.03
45	3.75	1.50	0.043	0.205	0.012	0.03
46	3.83	1.50	0.043	0.205	0.012	0.03
47	3.92	1.60	0.046	0.205	0.012	0.03
48	4.00	1.60	0.046	0.205	0.012	0.03
49	4.08	1.70	0.049	0.205	0.013	0.04
50	4.17	1.80	0.052	0.205	0.014	0.04
51	4.25	1.90	0.055	0.205	0.015	0.04
52	4.33	2.00	0.058	0.205	0.015	0.04
53	4.42	2.10	0.061	0.205	0.016	0.04
54	4.50	2.10	0.061	0.205	0.016	0.04
55	4.58	2.20	0.064	0.205	0.017	0.05
56	4.67	2.30	0.067	0.205	0.018	0.05
57	4.75	2.40	0.069	0.205	0.019	0.05
58	4.83	2.40	0.069	0.205	0.019	0.05
59	4.92	2.50	0.072	0.205	0.019	0.05
60	5.00	2.60	0.075	0.205	0.020	0.06
61	5.08	3.10	0.090	0.205	0.024	0.07
62	5.17	3.60	0.104	0.205	0.028	0.08
63	5.25	3.90	0.113	0.205	0.030	0.08
64	5.33	4.20	0.122	0.205	0.032	0.09
65	5.42	4.70	0.136	0.205	0.036	0.10
66	5.50	5.60	0.162	0.205	0.043	0.12
67	5.58	1.90	0.055	0.205	0.015	0.04
68	5.67	0.90	0.026	0.205	0.007	0.02
69	5.75	0.60	0.017	0.205	0.005	0.01
70	5.83	0.50	0.014	0.205	0.004	0.01
71	5.92	0.30	0.009	0.205	0.002	0.01
72	6.00	0.20	0.006	0.205	0.002	0.00
Sum =		100.0			Sum =	2.1

Flood volume = Effective rainfall 0.18(In)
times area 0.7(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)
Total soil loss = 0.06(In)
Total soil loss = 0.004(Ac.Ft)
Total rainfall = 0.24(In)
Flood volume = 476.9 Cubic Feet
Total soil loss = 173.1 Cubic Feet

Storm Event 2 Effective Rainfall = 0.457(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.027	0.205	0.007	0.02
2	0.17	0.60	0.033	0.205	0.009	0.02
3	0.25	0.60	0.033	0.205	0.009	0.02
4	0.33	0.60	0.033	0.205	0.009	0.02
5	0.42	0.60	0.033	0.205	0.009	0.02
6	0.50	0.70	0.038	0.205	0.010	0.03
7	0.58	0.70	0.038	0.205	0.010	0.03
8	0.67	0.70	0.038	0.205	0.010	0.03

9	0.75	0.70	0.038	0.205	0.010	0.03
10	0.83	0.70	0.038	0.205	0.010	0.03
11	0.92	0.70	0.038	0.205	0.010	0.03
12	1.00	0.80	0.044	0.205	0.012	0.03
13	1.08	0.80	0.044	0.205	0.012	0.03
14	1.17	0.80	0.044	0.205	0.012	0.03
15	1.25	0.80	0.044	0.205	0.012	0.03
16	1.33	0.80	0.044	0.205	0.012	0.03
17	1.42	0.80	0.044	0.205	0.012	0.03
18	1.50	0.80	0.044	0.205	0.012	0.03
19	1.58	0.80	0.044	0.205	0.012	0.03
20	1.67	0.80	0.044	0.205	0.012	0.03
21	1.75	0.80	0.044	0.205	0.012	0.03
22	1.83	0.80	0.044	0.205	0.012	0.03
23	1.92	0.80	0.044	0.205	0.012	0.03
24	2.00	0.90	0.049	0.205	0.013	0.04
25	2.08	0.80	0.044	0.205	0.012	0.03
26	2.17	0.90	0.049	0.205	0.013	0.04
27	2.25	0.90	0.049	0.205	0.013	0.04
28	2.33	0.90	0.049	0.205	0.013	0.04
29	2.42	0.90	0.049	0.205	0.013	0.04
30	2.50	0.90	0.049	0.205	0.013	0.04
31	2.58	0.90	0.049	0.205	0.013	0.04
32	2.67	0.90	0.049	0.205	0.013	0.04
33	2.75	1.00	0.055	0.205	0.015	0.04
34	2.83	1.00	0.055	0.205	0.015	0.04
35	2.92	1.00	0.055	0.205	0.015	0.04
36	3.00	1.00	0.055	0.205	0.015	0.04
37	3.08	1.00	0.055	0.205	0.015	0.04
38	3.17	1.10	0.060	0.205	0.016	0.04
39	3.25	1.10	0.060	0.205	0.016	0.04
40	3.33	1.10	0.060	0.205	0.016	0.04
41	3.42	1.20	0.066	0.205	0.018	0.05
42	3.50	1.30	0.071	0.205	0.019	0.05
43	3.58	1.40	0.077	0.205	0.020	0.06
44	3.67	1.40	0.077	0.205	0.020	0.06
45	3.75	1.50	0.082	0.205	0.022	0.06
46	3.83	1.50	0.082	0.205	0.022	0.06
47	3.92	1.60	0.088	0.205	0.023	0.06
48	4.00	1.60	0.088	0.205	0.023	0.06
49	4.08	1.70	0.093	0.205	0.025	0.07
50	4.17	1.80	0.099	0.205	0.026	0.07
51	4.25	1.90	0.104	0.205	0.028	0.08
52	4.33	2.00	0.110	0.205	0.029	0.08
53	4.42	2.10	0.115	0.205	0.031	0.08
54	4.50	2.10	0.115	0.205	0.031	0.08
55	4.58	2.20	0.121	0.205	0.032	0.09
56	4.67	2.30	0.126	0.205	0.034	0.09
57	4.75	2.40	0.132	0.205	0.035	0.10
58	4.83	2.40	0.132	0.205	0.035	0.10
59	4.92	2.50	0.137	0.205	0.037	0.10
60	5.00	2.60	0.143	0.205	0.038	0.10
61	5.08	3.10	0.170	0.205	0.045	0.12
62	5.17	3.60	0.198	0.205	0.053	0.14
63	5.25	3.90	0.214	0.205	---	0.01
64	5.33	4.20	0.230	0.205	---	0.03
65	5.42	4.70	0.258	0.205	---	0.05
66	5.50	5.60	0.307	0.205	---	0.10
67	5.58	1.90	0.104	0.205	0.028	0.08
68	5.67	0.90	0.049	0.205	0.013	0.04
69	5.75	0.60	0.033	0.205	0.009	0.02
70	5.83	0.50	0.027	0.205	0.007	0.02
71	5.92	0.30	0.016	0.205	0.004	0.01
72	6.00	0.20	0.011	0.205	0.003	0.01
	Sum =	100.0			Sum =	3.5

Flood volume = Effective rainfall 0.29(In)
times area 0.7(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)
Total soil loss = 0.17(In)
Total soil loss = 0.010(Ac.Ft)
Total rainfall = 0.46(In)
Flood volume = 779.6 Cubic Feet
Total soil loss = 451.8 Cubic Feet

Storm Event 1 Effective Rainfall = 1.270(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08 0.50	0.076	0.205	0.020	0.06
2	0.17 0.60	0.091	0.205	0.024	0.07
3	0.25 0.60	0.091	0.205	0.024	0.07
4	0.33 0.60	0.091	0.205	0.024	0.07
5	0.42 0.60	0.091	0.205	0.024	0.07
6	0.50 0.70	0.107	0.205	0.028	0.08
7	0.58 0.70	0.107	0.205	0.028	0.08
8	0.67 0.70	0.107	0.205	0.028	0.08
9	0.75 0.70	0.107	0.205	0.028	0.08
10	0.83 0.70	0.107	0.205	0.028	0.08
11	0.92 0.70	0.107	0.205	0.028	0.08
12	1.00 0.80	0.122	0.205	0.032	0.09
13	1.08 0.80	0.122	0.205	0.032	0.09
14	1.17 0.80	0.122	0.205	0.032	0.09
15	1.25 0.80	0.122	0.205	0.032	0.09
16	1.33 0.80	0.122	0.205	0.032	0.09
17	1.42 0.80	0.122	0.205	0.032	0.09
18	1.50 0.80	0.122	0.205	0.032	0.09
19	1.58 0.80	0.122	0.205	0.032	0.09
20	1.67 0.80	0.122	0.205	0.032	0.09
21	1.75 0.80	0.122	0.205	0.032	0.09
22	1.83 0.80	0.122	0.205	0.032	0.09
23	1.92 0.80	0.122	0.205	0.032	0.09
24	2.00 0.90	0.137	0.205	0.037	0.10
25	2.08 0.80	0.122	0.205	0.032	0.09
26	2.17 0.90	0.137	0.205	0.037	0.10
27	2.25 0.90	0.137	0.205	0.037	0.10
28	2.33 0.90	0.137	0.205	0.037	0.10
29	2.42 0.90	0.137	0.205	0.037	0.10
30	2.50 0.90	0.137	0.205	0.037	0.10
31	2.58 0.90	0.137	0.205	0.037	0.10
32	2.67 0.90	0.137	0.205	0.037	0.10
33	2.75 1.00	0.152	0.205	0.041	0.11
34	2.83 1.00	0.152	0.205	0.041	0.11
35	2.92 1.00	0.152	0.205	0.041	0.11
36	3.00 1.00	0.152	0.205	0.041	0.11
37	3.08 1.00	0.152	0.205	0.041	0.11
38	3.17 1.10	0.168	0.205	0.045	0.12
39	3.25 1.10	0.168	0.205	0.045	0.12
40	3.33 1.10	0.168	0.205	0.045	0.12
41	3.42 1.20	0.183	0.205	0.049	0.13
42	3.50 1.30	0.198	0.205	0.053	0.15
43	3.58 1.40	0.213	0.205	---	0.01
44	3.67 1.40	0.213	0.205	---	0.01
45	3.75 1.50	0.229	0.205	---	0.02
46	3.83 1.50	0.229	0.205	---	0.02
47	3.92 1.60	0.244	0.205	---	0.04
48	4.00 1.60	0.244	0.205	---	0.04
49	4.08 1.70	0.259	0.205	---	0.05
50	4.17 1.80	0.274	0.205	---	0.07
51	4.25 1.90	0.290	0.205	---	0.08
52	4.33 2.00	0.305	0.205	---	0.10

53	4.42	2.10	0.320	0.205	---	0.11
54	4.50	2.10	0.320	0.205	---	0.11
55	4.58	2.20	0.335	0.205	---	0.13
56	4.67	2.30	0.351	0.205	---	0.15
57	4.75	2.40	0.366	0.205	---	0.16
58	4.83	2.40	0.366	0.205	---	0.16
59	4.92	2.50	0.381	0.205	---	0.18
60	5.00	2.60	0.396	0.205	---	0.19
61	5.08	3.10	0.472	0.205	---	0.27
62	5.17	3.60	0.549	0.205	---	0.34
63	5.25	3.90	0.594	0.205	---	0.39
64	5.33	4.20	0.640	0.205	---	0.43
65	5.42	4.70	0.716	0.205	---	0.51
66	5.50	5.60	0.853	0.205	---	0.65
67	5.58	1.90	0.290	0.205	---	0.08
68	5.67	0.90	0.137	0.205	0.037	0.10
69	5.75	0.60	0.091	0.205	0.024	0.07
70	5.83	0.50	0.076	0.205	0.020	0.06
71	5.92	0.30	0.046	0.205	0.012	0.03
72	6.00	0.20	0.030	0.205	0.008	0.02
Sum =		100.0			Sum =	8.6

Flood volume = Effective rainfall 0.71(In)
times area 0.7(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)
Total soil loss = 0.56(In)
Total soil loss = 0.034(Ac.Ft)
Total rainfall = 1.27(In)
Flood volume = 1923.0 Cubic Feet
Total soil loss = 1497.7 Cubic Feet

Peak flow rate of this hydrograph = 0.462(CFS)

++

TOTAL OF: 3 6 - H O U R S T O R M E V E N T S
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0000	0.01 Q	|	|	|	|	
0+10	0.0001	0.01 Q	|	|	|	|	
0+15	0.0002	0.01 Q	|	|	|	|	
0+20	0.0002	0.01 Q	|	|	|	|	
0+25	0.0003	0.01 Q	|	|	|	|	
0+30	0.0004	0.01 Q	|	|	|	|	
0+35	0.0005	0.01 Q	|	|	|	|	
0+40	0.0005	0.01 Q	|	|	|	|	
0+45	0.0006	0.01 Q	|	|	|	|	
0+50	0.0007	0.01 Q	|	|	|	|	
0+55	0.0008	0.01 Q	|	|	|	|	
1+ 0	0.0008	0.01 Q	|	|	|	|	
1+ 5	0.0009	0.01 Q	|	|	|	|	
1+10	0.0010	0.01 Q	|	|	|	|	
1+15	0.0011	0.01 Q	|	|	|	|	
1+20	0.0012	0.01 Q	|	|	|	|	
1+25	0.0013	0.01 Q	|	|	|	|	
1+30	0.0014	0.01 Q	|	|	|	|	
1+35	0.0015	0.01 Q	|	|	|	|	
1+40	0.0015	0.01 Q	|	|	|	|	
1+45	0.0016	0.01 Q	|	|	|	|	
1+50	0.0017	0.01 Q	|	|	|	|	
1+55	0.0018	0.01 Q	|	|	|	|	
2+ 0	0.0019	0.01 QV	|	|	|	|	
2+ 5	0.0020	0.01 QV	|	|	|	|	

2+10	0.0021	0.01	QV	|	|	|	|
2+15	0.0022	0.01	QV	|	|	|	|
2+20	0.0023	0.01	QV	|	|	|	|
2+25	0.0024	0.01	QV	|	|	|	|
2+30	0.0025	0.01	QV	|	|	|	|
2+35	0.0026	0.01	QV	|	|	|	|
2+40	0.0027	0.01	QV	|	|	|	|
2+45	0.0028	0.02	QV	|	|	|	|
2+50	0.0029	0.02	QV	|	|	|	|
2+55	0.0030	0.02	QV	|	|	|	|
3+ 0	0.0031	0.02	QV	|	|	|	|
3+ 5	0.0032	0.02	QV	|	|	|	|
3+10	0.0033	0.02	QV	|	|	|	|
3+15	0.0035	0.02	QV	|	|	|	|
3+20	0.0036	0.02	QV	|	|	|	|
3+25	0.0037	0.02	Q V	|	|	|	|
3+30	0.0039	0.02	Q V	|	|	|	|
3+35	0.0040	0.02	Q V	|	|	|	|
3+40	0.0042	0.02	Q V	|	|	|	|
3+45	0.0043	0.02	Q V	|	|	|	|
3+50	0.0045	0.02	Q V	|	|	|	|
3+55	0.0047	0.03	Q V	|	|	|	|
4+ 0	0.0048	0.03	Q V	|	|	|	|
4+ 5	0.0050	0.03	Q V	|	|	|	|
4+10	0.0052	0.03	Q V	|	|	|	|
4+15	0.0054	0.03	Q V	|	|	|	|
4+20	0.0056	0.03	Q V	|	|	|	|
4+25	0.0059	0.03	Q V	|	|	|	|
4+30	0.0061	0.03	Q V	|	|	|	|
4+35	0.0063	0.03	Q V	|	|	|	|
4+40	0.0066	0.04	Q V	|	|	|	|
4+45	0.0068	0.04	Q V	|	|	|	|
4+50	0.0071	0.04	Q V	|	|	|	|
4+55	0.0074	0.04	Q V	|	|	|	|
5+ 0	0.0077	0.04	Q V	|	|	|	|
5+ 5	0.0080	0.05	Q V	|	|	|	|
5+10	0.0084	0.06	Q V	|	|	|	|
5+15	0.0088	0.06	Q V	|	|	|	|
5+20	0.0092	0.07	Q V	|	|	|	|
5+25	0.0097	0.07	Q V	|	|	|	|
5+30	0.0103	0.09	Q V	|	|	|	|
5+35	0.0106	0.04	Q V	|	|	|	|
5+40	0.0107	0.02	Q V	|	|	|	|
5+45	0.0108	0.01	Q V	|	|	|	|
5+50	0.0109	0.01	Q V	|	|	|	|
5+55	0.0109	0.01	Q V	|	|	|	|
6+ 0	0.0109	0.00	Q V	|	|	|	|
6+ 5	0.0110	0.01	Q V	|	|	|	|
6+10	0.0111	0.02	Q V	|	|	|	|
6+15	0.0113	0.02	Q V	|	|	|	|
6+20	0.0114	0.02	Q V	|	|	|	|
6+25	0.0115	0.02	Q V	|	|	|	|
6+30	0.0117	0.02	Q V	|	|	|	|
6+35	0.0118	0.02	Q V	|	|	|	|
6+40	0.0119	0.02	Q V	|	|	|	|
6+45	0.0121	0.02	Q V	|	|	|	|
6+50	0.0122	0.02	Q V	|	|	|	|
6+55	0.0124	0.02	Q V	|	|	|	|
7+ 0	0.0125	0.02	Q V	|	|	|	|
7+ 5	0.0127	0.02	Q V	|	|	|	|
7+10	0.0129	0.02	Q V	|	|	|	|
7+15	0.0130	0.02	Q V	|	|	|	|
7+20	0.0132	0.02	Q V	|	|	|	|
7+25	0.0134	0.02	Q V	|	|	|	|
7+30	0.0135	0.02	Q V	|	|	|	|

7+35	0.0137	0.02	Q	V	|	|	|	|
7+40	0.0139	0.02	Q	V	|	|	|	|
7+45	0.0140	0.02	Q	V	|	|	|	|
7+50	0.0142	0.02	Q	V	|	|	|	|
7+55	0.0144	0.02	Q	V	|	|	|	|
8+ 0	0.0145	0.03	Q	V	|	|	|	|
8+ 5	0.0147	0.02	Q	V	|	|	|	|
8+10	0.0149	0.03	Q	V	|	|	|	|
8+15	0.0151	0.03	Q	V	|	|	|	|
8+20	0.0153	0.03	Q	V	|	|	|	|
8+25	0.0155	0.03	Q	V	|	|	|	|
8+30	0.0156	0.03	Q	V	|	|	|	|
8+35	0.0158	0.03	Q	V	|	|	|	|
8+40	0.0160	0.03	Q	V	|	|	|	|
8+45	0.0162	0.03	Q	V	|	|	|	|
8+50	0.0164	0.03	Q	V	|	|	|	|
8+55	0.0166	0.03	Q	V	|	|	|	|
9+ 0	0.0168	0.03	Q	V	|	|	|	|
9+ 5	0.0171	0.03	Q	V	|	|	|	|
9+10	0.0173	0.03	Q	V	|	|	|	|
9+15	0.0175	0.03	Q	V	|	|	|	|
9+20	0.0177	0.03	Q	V	|	|	|	|
9+25	0.0180	0.04	Q	V	|	|	|	|
9+30	0.0182	0.04	Q	V	|	|	|	|
9+35	0.0185	0.04	Q	V	|	|	|	|
9+40	0.0188	0.04	Q	V	|	|	|	|
9+45	0.0191	0.04	Q	V	|	|	|	|
9+50	0.0194	0.05	Q	V	|	|	|	|
9+55	0.0198	0.05	Q	V	|	|	|	|
10+ 0	0.0201	0.05	Q	|V	|	|	|	|
10+ 5	0.0204	0.05	Q	|V	|	|	|	|
10+10	0.0208	0.05	Q	|V	|	|	|	|
10+15	0.0212	0.06	Q	|V	|	|	|	|
10+20	0.0216	0.06	Q	|V	|	|	|	|
10+25	0.0220	0.06	Q	| V	|	|	|	|
10+30	0.0225	0.06	Q	| V	|	|	|	|
10+35	0.0229	0.07	Q	| V	|	|	|	|
10+40	0.0234	0.07	Q	| V	|	|	|	|
10+45	0.0239	0.07	Q	| V	|	|	|	|
10+50	0.0244	0.07	Q	| V	|	|	|	|
10+55	0.0249	0.07	Q	| V	|	|	|	|
11+ 0	0.0254	0.08	Q	| V	|	|	|	|
11+ 5	0.0261	0.09	Q	| V	|	|	|	|
11+10	0.0268	0.10	Q	| V	|	|	|	|
11+15	0.0270	0.03	Q	| V	|	|	|	|
11+20	0.0271	0.02	Q	| V	|	|	|	|
11+25	0.0273	0.03	Q	| V	|	|	|	|
11+30	0.0278	0.07	Q	| V	|	|	|	|
11+35	0.0282	0.06	Q	| V	|	|	|	|
11+40	0.0285	0.03	Q	| V	|	|	|	|
11+45	0.0286	0.02	Q	| V	|	|	|	|
11+50	0.0287	0.02	Q	| V	|	|	|	|
11+55	0.0288	0.01	Q	| V	|	|	|	|
12+ 0	0.0288	0.01	Q	| V	|	|	|	|
12+ 5	0.0291	0.03	Q	| V	|	|	|	|
12+10	0.0294	0.05	Q	| V	|	|	|	|
12+15	0.0297	0.05	Q	| V	|	|	|	|
12+20	0.0301	0.05	Q	| V	|	|	|	|
12+25	0.0304	0.05	Q	| V	|	|	|	|
12+30	0.0308	0.06	Q	| V	|	|	|	|
12+35	0.0312	0.06	Q	| V	|	|	|	|
12+40	0.0316	0.06	Q	| V	|	|	|	|
12+45	0.0320	0.06	Q	| V	|	|	|	|
12+50	0.0324	0.06	Q	| V	|	|	|	|
12+55	0.0328	0.06	Q	| V	|	|	|	|

```
13+ 0     0.0333    0.07 Q      |     V |       |       |
13+ 5     0.0337    0.07 Q      |     V |       |       |
13+10     0.0342    0.07 Q      |      V |      |       |
13+15     0.0347    0.07 Q      |      V |      |       |
13+20     0.0351    0.07 Q      |       V|      |       |
13+25     0.0356    0.07 Q      |       V|      |       |
13+30     0.0360    0.07 Q      |       V|      |       |
13+35     0.0365    0.07 Q      |        V      |       |
13+40     0.0370    0.07 Q      |        V      |       |
13+45     0.0374    0.07 Q      |        V      |       |
13+50     0.0379    0.07 Q      |        V      |       |
13+55     0.0383    0.07 Q      |       |V      |       |
14+ 0     0.0389    0.07 Q      |       |V      |       |
14+ 5     0.0393    0.07 Q      |       |V      |       |
14+10     0.0398    0.07 Q      |       |V      |       |
14+15     0.0403    0.08 Q      |       | V     |       |
14+20     0.0409    0.08 Q      |       | V     |       |
14+25     0.0414    0.08 Q      |       | V     |       |
14+30     0.0419    0.08 Q      |       | V     |       |
14+35     0.0424    0.08 Q      |       |  V    |       |
14+40     0.0429    0.08 Q      |       |  V    |       |
14+45     0.0435    0.08 Q      |       |  V    |       |
14+50     0.0441    0.08 Q      |       |   V   |       |
14+55     0.0447    0.08 Q      |       |   V   |       |
15+ 0     0.0452    0.08 Q      |       |   V   |       |
15+ 5     0.0458    0.08 Q      |       |   V   |       |
15+10     0.0464    0.09 Q      |       |    V  |       |
15+15     0.0471    0.09 Q      |       |    V  |       |
15+20     0.0477    0.09 Q      |       |     V |       |
15+25     0.0484    0.10 Q      |       |     V |       |
15+30     0.0491    0.11 Q      |       |     V |       |
15+35     0.0493    0.03 Q      |       |     V |       |
15+40     0.0494    0.01 Q      |       |     V |       |
15+45     0.0495    0.01 Q      |       |     V |       |
15+50     0.0496    0.02 Q      |       |     V |       |
15+55     0.0498    0.03 Q      |       |     V |       |
16+ 0     0.0500    0.03 Q      |       |     V |       |
16+ 5     0.0502    0.04 Q      |       |     V |       |
16+10     0.0506    0.05 Q      |       |     V |       |
16+15     0.0510    0.06 Q      |       |     V |       |
16+20     0.0515    0.07 Q      |       |     V |       |
16+25     0.0520    0.08 Q      |       |     V |       |
16+30     0.0526    0.09 Q      |       |     V |       |
16+35     0.0533    0.09 Q      |       |      V|       |
16+40     0.0540    0.11 Q      |       |      V|       |
16+45     0.0548    0.12 Q      |       |       V       |
16+50     0.0557    0.12 Q      |       |       V       |
16+55     0.0565    0.13 Q      |       |       V       |
17+ 0     0.0575    0.14 Q      |       |       |V      |
17+ 5     0.0588    0.19 Q      |       |       | V     |
17+10     0.0605    0.24 Q      |       |       |  V    |
17+15     0.0624    0.28 |Q     |       |       |   V   |
17+20     0.0646    0.32 |Q     |       |       |   V   |
17+25     0.0672    0.37 |Q     |       |       |    V  |
17+30     0.0703    0.46 |Q     |       |       |     V |
17+35     0.0714    0.16 Q      |       |       |     V|
17+40     0.0719    0.07 Q      |       |       |     V|
17+45     0.0723    0.06 Q      |       |       |     V|
17+50     0.0726    0.04 Q      |       |       |     V|
17+55     0.0728    0.03 Q      |       |       |     V|
18+ 0     0.0729    0.02 Q      |       |       |     V|
18+ 5     0.0730    0.00 Q      |       |       |      V
---------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 1999, Version 6.0
Study date 09/23/20 File: BPOST65.out

++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

28771 Central Avenue Gas Station
Area B
Post-development
6-Hr 5-Yr Storm Event

Drainage Area = 0.74(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 284.00(Ft.)
Length along longest watercourse measured to centroid = 86.63(Ft.)
Length along longest watercourse = 0.054 Mi.
Length along longest watercourse measured to centroid = 0.016 Mi.
Difference in elevation = 1.69(Ft.)
Slope along watercourse = 31.4197 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.013 Hr.
Lag time = 0.78 Min.
25% of lag time = 0.19 Min.
40% of lag time = 0.31 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.74	1.27	0.94

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.74	3.12	2.32

STORM EVENT (YEAR) = 5.00
Area Averaged 2-Year Rainfall = 1.270(In)
Area Averaged 100-Year Rainfall = 3.120(In)

Point rain (area averaged) = 1.703(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 1.703(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
0.742	55.00	0.792

Total Area Entered = 0.74(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
55.0	35.0	0.715	0.792	0.205	1.000	0.205

Sum (F) = 0.205

Area averaged mean soil loss (F) (In/Hr) = 0.205

Minimum soil loss rate ((In/Hr)) = 0.103

(for 24 hour storm duration)

Soil low loss rate (decimal) = 0.266

U n i t H y d r o g r a p h

DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	645.077	77.129	0.577
2	0.167	1290.154	22.871	0.171
	Sum = 100.000		Sum=	0.748

Unit Time	Pattern	Storm Rain	Loss rate(In./Hr)		Effective
(Hr.)	Percent	(In/Hr)	Max	Low	(In/Hr)
1	0.08	0.50	0.102	0.205	0.027	0.07
2	0.17	0.60	0.123	0.205	0.033	0.09
3	0.25	0.60	0.123	0.205	0.033	0.09
4	0.33	0.60	0.123	0.205	0.033	0.09
5	0.42	0.60	0.123	0.205	0.033	0.09
6	0.50	0.70	0.143	0.205	0.038	0.10
7	0.58	0.70	0.143	0.205	0.038	0.10
8	0.67	0.70	0.143	0.205	0.038	0.10
9	0.75	0.70	0.143	0.205	0.038	0.10
10	0.83	0.70	0.143	0.205	0.038	0.10
11	0.92	0.70	0.143	0.205	0.038	0.10
12	1.00	0.80	0.164	0.205	0.044	0.12
13	1.08	0.80	0.164	0.205	0.044	0.12
14	1.17	0.80	0.164	0.205	0.044	0.12
15	1.25	0.80	0.164	0.205	0.044	0.12
16	1.33	0.80	0.164	0.205	0.044	0.12
17	1.42	0.80	0.164	0.205	0.044	0.12
18	1.50	0.80	0.164	0.205	0.044	0.12
19	1.58	0.80	0.164	0.205	0.044	0.12
20	1.67	0.80	0.164	0.205	0.044	0.12
21	1.75	0.80	0.164	0.205	0.044	0.12
22	1.83	0.80	0.164	0.205	0.044	0.12
23	1.92	0.80	0.164	0.205	0.044	0.12
24	2.00	0.90	0.184	0.205	0.049	0.13
25	2.08	0.80	0.164	0.205	0.044	0.12
26	2.17	0.90	0.184	0.205	0.049	0.13
27	2.25	0.90	0.184	0.205	0.049	0.13
28	2.33	0.90	0.184	0.205	0.049	0.13
29	2.42	0.90	0.184	0.205	0.049	0.13
30	2.50	0.90	0.184	0.205	0.049	0.13
31	2.58	0.90	0.184	0.205	0.049	0.13
32	2.67	0.90	0.184	0.205	0.049	0.13
33	2.75	1.00	0.204	0.205	0.054	0.15

34	2.83	1.00	0.204	0.205	0.054	0.15
35	2.92	1.00	0.204	0.205	0.054	0.15
36	3.00	1.00	0.204	0.205	0.054	0.15
37	3.08	1.00	0.204	0.205	0.054	0.15
38	3.17	1.10	0.225	0.205	---	0.02
39	3.25	1.10	0.225	0.205	---	0.02
40	3.33	1.10	0.225	0.205	---	0.02
41	3.42	1.20	0.245	0.205	---	0.04
42	3.50	1.30	0.266	0.205	---	0.06
43	3.58	1.40	0.286	0.205	---	0.08
44	3.67	1.40	0.286	0.205	---	0.08
45	3.75	1.50	0.307	0.205	---	0.10
46	3.83	1.50	0.307	0.205	---	0.10
47	3.92	1.60	0.327	0.205	---	0.12
48	4.00	1.60	0.327	0.205	---	0.12
49	4.08	1.70	0.347	0.205	---	0.14
50	4.17	1.80	0.368	0.205	---	0.16
51	4.25	1.90	0.388	0.205	---	0.18
52	4.33	2.00	0.409	0.205	---	0.20
53	4.42	2.10	0.429	0.205	---	0.22
54	4.50	2.10	0.429	0.205	---	0.22
55	4.58	2.20	0.450	0.205	---	0.24
56	4.67	2.30	0.470	0.205	---	0.26
57	4.75	2.40	0.491	0.205	---	0.29
58	4.83	2.40	0.491	0.205	---	0.29
59	4.92	2.50	0.511	0.205	---	0.31
60	5.00	2.60	0.531	0.205	---	0.33
61	5.08	3.10	0.634	0.205	---	0.43
62	5.17	3.60	0.736	0.205	---	0.53
63	5.25	3.90	0.797	0.205	---	0.59
64	5.33	4.20	0.858	0.205	---	0.65
65	5.42	4.70	0.961	0.205	---	0.76
66	5.50	5.60	1.145	0.205	---	0.94
67	5.58	1.90	0.388	0.205	---	0.18
68	5.67	0.90	0.184	0.205	0.049	0.13
69	5.75	0.60	0.123	0.205	0.033	0.09
70	5.83	0.50	0.102	0.205	0.027	0.07
71	5.92	0.30	0.061	0.205	0.016	0.04
72	6.00	0.20	0.041	0.205	0.011	0.03
Sum =		100.0		Sum =		12.5

Flood volume = Effective rainfall 1.04(In)
times area 0.7(Ac.)/[(In)/(Ft.)] = 0.1(Ac.Ft)
Total soil loss = 0.66(In)
Total soil loss = 0.041(Ac.Ft)
Total rainfall = 1.70(In)
Flood volume = 2812.5 Cubic Feet
Total soil loss = 1775.3 Cubic Feet

Peak flow rate of this hydrograph = 0.671(CFS)

++

6 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0003	0.04	Q	|	|	|	|
0+10	0.0007	0.06	Q	|	|	|	|
0+15	0.0012	0.07	Q	|	|	|	|
0+20	0.0017	0.07	QV	|	|	|	|
0+25	0.0021	0.07	QV	|	|	|	|
0+30	0.0027	0.08	QV	|	|	|	|

```
0+35    0.0032    0.08  QV      |       |       |       |
0+40    0.0037    0.08  Q V     |       |       |       |
0+45    0.0043    0.08  Q V     |       |       |       |
0+50    0.0048    0.08  Q V     |       |       |       |
0+55    0.0054    0.08  Q  V    |       |       |       |
1+ 0    0.0060    0.09  Q  V    |       |       |       |
1+ 5    0.0066    0.09  Q   V   |       |       |       |
1+10    0.0072    0.09  Q   V   |       |       |       |
1+15    0.0078    0.09  Q   V   |       |       |       |
1+20    0.0084    0.09  Q    V  |       |       |       |
1+25    0.0091    0.09  Q    V  |       |       |       |
1+30    0.0097    0.09  Q    V  |       |       |       |
1+35    0.0103    0.09  Q     V |       |       |       |
1+40    0.0109    0.09  Q     V |       |       |       |
1+45    0.0115    0.09  Q     V |       |       |       |
1+50    0.0121    0.09  Q     V |       |       |       |
1+55    0.0128    0.09  Q     V |       |       |       |
2+ 0    0.0134    0.10  Q     V |       |       |       |
2+ 5    0.0141    0.09  Q     V |       |       |       |
2+10    0.0148    0.10  Q      V|       |       |       |
2+15    0.0155    0.10  Q      V|       |       |       |
2+20    0.0161    0.10  Q       V       |       |       |
2+25    0.0168    0.10  Q       V       |       |       |
2+30    0.0175    0.10  Q       V       |       |       |
2+35    0.0182    0.10  Q       |V      |       |       |
2+40    0.0189    0.10  Q       |V      |       |       |
2+45    0.0197    0.11  Q       | V     |       |       |
2+50    0.0205    0.11  Q       | V     |       |       |
2+55    0.0212    0.11  Q       |  V    |       |       |
3+ 0    0.0220    0.11  Q       |  V    |       |       |
3+ 5    0.0228    0.11  Q       |   V   |       |       |
3+10    0.0230    0.04  Q       |   V   |       |       |
3+15    0.0231    0.01  Q       |   V   |       |       |
3+20    0.0232    0.01  Q       |   V   |       |       |
3+25    0.0234    0.03  Q       |   V   |       |       |
3+30    0.0237    0.04  Q       |   V   |       |       |
3+35    0.0241    0.06  Q       |   V   |       |       |
3+40    0.0245    0.06  Q       |    V  |       |       |
3+45    0.0250    0.07  Q       |    V  |       |       |
3+50    0.0255    0.08  Q       |    V  |       |       |
3+55    0.0261    0.09  Q       |     V |       |       |
4+ 0    0.0268    0.09  Q       |     V |       |       |
4+ 5    0.0275    0.10  Q       |     V |       |       |
4+10    0.0283    0.12  Q       |      V|       |       |
4+15    0.0292    0.13  Q       |      V|       |       |
4+20    0.0302    0.15  Q       |      V|       |       |
4+25    0.0314    0.16  Q       |       V       |       |
4+30    0.0325    0.17  Q       |       V       |       |
4+35    0.0338    0.18  Q       |       V       |       |
4+40    0.0351    0.19  Q       |       |V      |       |
4+45    0.0365    0.21  Q       |       | V     |       |
4+50    0.0380    0.21  Q       |       |  V    |       |
4+55    0.0396    0.23  Q       |       |   V   |       |
5+ 0    0.0412    0.24  Q       |       |    V  |       |
5+ 5    0.0433    0.30  |Q      |       |     V |       |
5+10    0.0459    0.38  |Q      |       |      V|       |
5+15    0.0489    0.43  |Q      |       |       V       |
5+20    0.0522    0.48  |Q      |       |       | V     |
5+25    0.0560    0.55  | Q     |       |       |  V    |
5+30    0.0606    0.67  | Q     |       |       |     V |
5+35    0.0624    0.27  |Q      |       |       |      V|
5+40    0.0632    0.11  Q       |       |       |      V|
5+45    0.0637    0.08  Q       |       |       |      V|
5+50    0.0641    0.06  Q       |       |       |      V|
5+55    0.0644    0.04  Q       |       |       |      V|
```

```
  6+ 0     0.0645    0.03  Q        |        |        |       V|
  6+ 5     0.0646    0.01  Q        |        |        |        V
-------------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 1999, Version 6.0
Study date 09/23/20 File: BPOST610.out

++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

28771 Central Avenue Gas Station
Area B
Post-development
6-Hr 10-Yr Storm Event

Drainage Area = 0.74(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 284.00(Ft.)
Length along longest watercourse measured to centroid = 86.63(Ft.)
Length along longest watercourse = 0.054 Mi.
Length along longest watercourse measured to centroid = 0.016 Mi.
Difference in elevation = 1.69(Ft.)
Slope along watercourse = 31.4197 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.013 Hr.
Lag time = 0.78 Min.
25% of lag time = 0.19 Min.
40% of lag time = 0.31 Min.
Unit time = 5.00 Min.
Duration of storm = 6 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.74	1.27	0.94

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.74	3.12	2.32

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 1.270(In)
Area Averaged 100-Year Rainfall = 3.120(In)

Point rain (area averaged) = 2.031(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 2.031(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
0.742	55.00	0.792

Total Area Entered = 0.74(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
55.0	35.0	0.715	0.792	0.205	1.000	0.205

Sum (F) = 0.205

Area averaged mean soil loss (F) (In/Hr) = 0.205

Minimum soil loss rate ((In/Hr)) = 0.103

(for 24 hour storm duration)

Soil low loss rate (decimal) = 0.266

U n i t H y d r o g r a p h

DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	645.077	77.129	0.577
2	0.167	1290.154	22.871	0.171
		Sum = 100.000	Sum=	0.748

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.50	0.122	0.205	0.032	0.09
2	0.17	0.60	0.146	0.205	0.039	0.11
3	0.25	0.60	0.146	0.205	0.039	0.11
4	0.33	0.60	0.146	0.205	0.039	0.11
5	0.42	0.60	0.146	0.205	0.039	0.11
6	0.50	0.70	0.171	0.205	0.045	0.13
7	0.58	0.70	0.171	0.205	0.045	0.13
8	0.67	0.70	0.171	0.205	0.045	0.13
9	0.75	0.70	0.171	0.205	0.045	0.13
10	0.83	0.70	0.171	0.205	0.045	0.13
11	0.92	0.70	0.171	0.205	0.045	0.13
12	1.00	0.80	0.195	0.205	0.052	0.14
13	1.08	0.80	0.195	0.205	0.052	0.14
14	1.17	0.80	0.195	0.205	0.052	0.14
15	1.25	0.80	0.195	0.205	0.052	0.14
16	1.33	0.80	0.195	0.205	0.052	0.14
17	1.42	0.80	0.195	0.205	0.052	0.14
18	1.50	0.80	0.195	0.205	0.052	0.14
19	1.58	0.80	0.195	0.205	0.052	0.14
20	1.67	0.80	0.195	0.205	0.052	0.14
21	1.75	0.80	0.195	0.205	0.052	0.14
22	1.83	0.80	0.195	0.205	0.052	0.14
23	1.92	0.80	0.195	0.205	0.052	0.14
24	2.00	0.90	0.219	0.205	---	0.01
25	2.08	0.80	0.195	0.205	0.052	0.14
26	2.17	0.90	0.219	0.205	---	0.01
27	2.25	0.90	0.219	0.205	---	0.01
28	2.33	0.90	0.219	0.205	---	0.01
29	2.42	0.90	0.219	0.205	---	0.01
30	2.50	0.90	0.219	0.205	---	0.01
31	2.58	0.90	0.219	0.205	---	0.01
32	2.67	0.90	0.219	0.205	---	0.01
33	2.75	1.00	0.244	0.205	---	0.04

34	2.83	1.00	0.244	0.205	---	0.04
35	2.92	1.00	0.244	0.205	---	0.04
36	3.00	1.00	0.244	0.205	---	0.04
37	3.08	1.00	0.244	0.205	---	0.04
38	3.17	1.10	0.268	0.205	---	0.06
39	3.25	1.10	0.268	0.205	---	0.06
40	3.33	1.10	0.268	0.205	---	0.06
41	3.42	1.20	0.292	0.205	---	0.09
42	3.50	1.30	0.317	0.205	---	0.11
43	3.58	1.40	0.341	0.205	---	0.14
44	3.67	1.40	0.341	0.205	---	0.14
45	3.75	1.50	0.366	0.205	---	0.16
46	3.83	1.50	0.366	0.205	---	0.16
47	3.92	1.60	0.390	0.205	---	0.18
48	4.00	1.60	0.390	0.205	---	0.18
49	4.08	1.70	0.414	0.205	---	0.21
50	4.17	1.80	0.439	0.205	---	0.23
51	4.25	1.90	0.463	0.205	---	0.26
52	4.33	2.00	0.487	0.205	---	0.28
53	4.42	2.10	0.512	0.205	---	0.31
54	4.50	2.10	0.512	0.205	---	0.31
55	4.58	2.20	0.536	0.205	---	0.33
56	4.67	2.30	0.561	0.205	---	0.36
57	4.75	2.40	0.585	0.205	---	0.38
58	4.83	2.40	0.585	0.205	---	0.38
59	4.92	2.50	0.609	0.205	---	0.40
60	5.00	2.60	0.634	0.205	---	0.43
61	5.08	3.10	0.756	0.205	---	0.55
62	5.17	3.60	0.877	0.205	---	0.67
63	5.25	3.90	0.951	0.205	---	0.75
64	5.33	4.20	1.024	0.205	---	0.82
65	5.42	4.70	1.146	0.205	---	0.94
66	5.50	5.60	1.365	0.205	---	1.16
67	5.58	1.90	0.463	0.205	---	0.26
68	5.67	0.90	0.219	0.205	---	0.01
69	5.75	0.60	0.146	0.205	0.039	0.11
70	5.83	0.50	0.122	0.205	0.032	0.09
71	5.92	0.30	0.073	0.205	0.019	0.05
72	6.00	0.20	0.049	0.205	0.013	0.04
Sum =		100.0			Sum =	14.1

Flood volume = Effective rainfall 1.18(In)
times area 0.7(Ac.)/[(In)/(Ft.)] = 0.1(Ac.Ft)
Total soil loss = 0.86(In)
Total soil loss = 0.053(Ac.Ft)
Total rainfall = 2.03(In)
Flood volume = 3165.7 Cubic Feet
Total soil loss = 2305.0 Cubic Feet

Peak flow rate of this hydrograph = 0.830(CFS)

++

6 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0004	0.05	Q	|	|	|	|
0+10	0.0009	0.08	Q	|	|	|	|
0+15	0.0014	0.08	Q	|	|	|	|
0+20	0.0020	0.08	QV	|	|	|	|
0+25	0.0025	0.08	QV	|	|	|	|
0+30	0.0032	0.09	QV	|	|	|	|

```
0+35     0.0038    0.09  Q V     |       |       |       |
0+40     0.0045    0.09  Q V     |       |       |       |
0+45     0.0051    0.09  Q V     |       |       |       |
0+50     0.0057    0.09  Q  V    |       |       |       |
0+55     0.0064    0.09  Q  V    |       |       |       |
1+ 0     0.0071    0.10  Q  V    |       |       |       |
1+ 5     0.0078    0.11  Q   V   |       |       |       |
1+10     0.0086    0.11  Q   V   |       |       |       |
1+15     0.0093    0.11  Q    V  |       |       |       |
1+20     0.0101    0.11  Q    V  |       |       |       |
1+25     0.0108    0.11  Q    V  |       |       |       |
1+30     0.0115    0.11  Q     V |       |       |       |
1+35     0.0123    0.11  Q     V |       |       |       |
1+40     0.0130    0.11  Q     V |       |       |       |
1+45     0.0137    0.11  Q     V |       |       |       |
1+50     0.0145    0.11  Q     V |       |       |       |
1+55     0.0152    0.11  Q      V|       |       |       |
2+ 0     0.0154    0.03  Q      V|       |       |       |
2+ 5     0.0160    0.08  Q      V|       |       |       |
2+10     0.0163    0.03  Q      V|       |       |       |
2+15     0.0163    0.01  Q      V|       |       |       |
2+20     0.0164    0.01  Q       V|      |       |       |
2+25     0.0165    0.01  Q       V|      |       |       |
2+30     0.0165    0.01  Q       V|      |       |       |
2+35     0.0166    0.01  Q       V|      |       |       |
2+40     0.0167    0.01  Q       V|      |       |       |
2+45     0.0169    0.02  Q       V|      |       |       |
2+50     0.0171    0.03  Q       V|      |       |       |
2+55     0.0173    0.03  Q       V|      |       |       |
3+ 0     0.0175    0.03  Q       V|      |       |       |
3+ 5     0.0177    0.03  Q       V|      |       |       |
3+10     0.0180    0.04  Q       V|      |       |       |
3+15     0.0183    0.05  Q        V      |       |       |
3+20     0.0186    0.05  Q        V      |       |       |
3+25     0.0190    0.06  Q        V      |       |       |
3+30     0.0196    0.08  Q        V      |       |       |
3+35     0.0202    0.10  Q       |V      |       |       |
3+40     0.0209    0.10  Q       |V      |       |       |
3+45     0.0217    0.12  Q       |V      |       |       |
3+50     0.0226    0.12  Q       | V     |       |       |
3+55     0.0235    0.13  Q       | V     |       |       |
4+ 0     0.0244    0.14  Q       |  V    |       |       |
4+ 5     0.0255    0.15  Q       |   V   |       |       |
4+10     0.0267    0.17  Q       |   V   |       |       |
4+15     0.0280    0.19  Q       |    V  |       |       |
4+20     0.0294    0.21  Q       |    V  |       |       |
4+25     0.0309    0.23  Q       |     V |       |       |
4+30     0.0325    0.23  Q       |     V |       |       |
4+35     0.0342    0.24  Q       |      V|       |       |
4+40     0.0360    0.26  |Q      |      V|       |       |
4+45     0.0379    0.28  |Q      |       V       |       |
4+50     0.0399    0.28  |Q      |       |V      |       |
4+55     0.0419    0.30  |Q      |       | V     |       |
5+ 0     0.0441    0.32  |Q      |       |  V    |       |
5+ 5     0.0468    0.39  |Q      |       |   V   |       |
5+10     0.0501    0.48  |Q      |       |     V |       |
5+15     0.0539    0.55  | Q     |       |      V|       |
5+20     0.0580    0.60  | Q     |       |       |V      |
5+25     0.0627    0.68  | Q     |       |       |  V    |
5+30     0.0684    0.83  |  Q    |       |       |    V  |
5+35     0.0708    0.35  |Q      |       |       |     V |
5+40     0.0712    0.05  Q       |       |       |      V|
5+45     0.0716    0.06  Q       |       |       |      V|
5+50     0.0721    0.07  Q       |       |       |      V|
5+55     0.0724    0.05  Q       |       |       |      V|
```

```
   6+ 0      0.0726     0.03  Q        |        |        |       V|
   6+ 5      0.0727     0.01  Q        |        |        |       V|
-------------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 1999, Version 6.0
Study date 09/23/20 File: BPOST242.out

++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

28771 Central Avenue Gas Station
Area B
Post-development
24-Hr 2-Yr Storm Event

Drainage Area = 0.74(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 284.00(Ft.)
Length along longest watercourse measured to centroid = 86.63(Ft.)
Length along longest watercourse = 0.054 Mi.
Length along longest watercourse measured to centroid = 0.016 Mi.
Difference in elevation = 1.69(Ft.)
Slope along watercourse = 31.4197 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.013 Hr.
Lag time = 0.78 Min.
25% of lag time = 0.19 Min.
40% of lag time = 0.31 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.74	2.43	1.80

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.74	6.58	4.88

STORM EVENT (YEAR) = 2.00
Area Averaged 2-Year Rainfall = 2.430(In)
Area Averaged 100-Year Rainfall = 6.580(In)

Point rain (area averaged) = 2.430(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 2.430(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
0.742	55.00	0.792

Total Area Entered = 0.74(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
55.0	35.0	0.715	0.792	0.205	1.000	0.205

Sum (F) = 0.205

Area averaged mean soil loss (F) (In/Hr) = 0.205

Minimum soil loss rate ((In/Hr)) = 0.103

(for 24 hour storm duration)

Soil low loss rate (decimal) = 0.266

U n i t H y d r o g r a p h

DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	645.077	77.129	0.577
2	0.167	1290.154	22.871	0.171

Sum = 100.000 Sum= 0.748

Storm Event 3 Effective Rainfall = 0.462(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.004	0.364	0.001	0.00
2	0.17	0.07	0.004	0.362	0.001	0.00
3	0.25	0.07	0.004	0.361	0.001	0.00
4	0.33	0.10	0.006	0.360	0.001	0.00
5	0.42	0.10	0.006	0.358	0.001	0.00
6	0.50	0.10	0.006	0.357	0.001	0.00
7	0.58	0.10	0.006	0.355	0.001	0.00
8	0.67	0.10	0.006	0.354	0.001	0.00
9	0.75	0.10	0.006	0.353	0.001	0.00
10	0.83	0.13	0.007	0.351	0.002	0.01
11	0.92	0.13	0.007	0.350	0.002	0.01
12	1.00	0.13	0.007	0.348	0.002	0.01
13	1.08	0.10	0.006	0.347	0.001	0.00
14	1.17	0.10	0.006	0.346	0.001	0.00
15	1.25	0.10	0.006	0.344	0.001	0.00
16	1.33	0.10	0.006	0.343	0.001	0.00
17	1.42	0.10	0.006	0.342	0.001	0.00
18	1.50	0.10	0.006	0.340	0.001	0.00
19	1.58	0.10	0.006	0.339	0.001	0.00
20	1.67	0.10	0.006	0.338	0.001	0.00
21	1.75	0.10	0.006	0.336	0.001	0.00
22	1.83	0.13	0.007	0.335	0.002	0.01
23	1.92	0.13	0.007	0.333	0.002	0.01
24	2.00	0.13	0.007	0.332	0.002	0.01
25	2.08	0.13	0.007	0.331	0.002	0.01
26	2.17	0.13	0.007	0.329	0.002	0.01
27	2.25	0.13	0.007	0.328	0.002	0.01
28	2.33	0.13	0.007	0.327	0.002	0.01
29	2.42	0.13	0.007	0.325	0.002	0.01

30	2.50	0.13	0.007	0.324	0.002	0.01
31	2.58	0.17	0.009	0.323	0.002	0.01
32	2.67	0.17	0.009	0.321	0.002	0.01
33	2.75	0.17	0.009	0.320	0.002	0.01
34	2.83	0.17	0.009	0.319	0.002	0.01
35	2.92	0.17	0.009	0.318	0.002	0.01
36	3.00	0.17	0.009	0.316	0.002	0.01
37	3.08	0.17	0.009	0.315	0.002	0.01
38	3.17	0.17	0.009	0.314	0.002	0.01
39	3.25	0.17	0.009	0.312	0.002	0.01
40	3.33	0.17	0.009	0.311	0.002	0.01
41	3.42	0.17	0.009	0.310	0.002	0.01
42	3.50	0.17	0.009	0.308	0.002	0.01
43	3.58	0.17	0.009	0.307	0.002	0.01
44	3.67	0.17	0.009	0.306	0.002	0.01
45	3.75	0.17	0.009	0.305	0.002	0.01
46	3.83	0.20	0.011	0.303	0.003	0.01
47	3.92	0.20	0.011	0.302	0.003	0.01
48	4.00	0.20	0.011	0.301	0.003	0.01
49	4.08	0.20	0.011	0.299	0.003	0.01
50	4.17	0.20	0.011	0.298	0.003	0.01
51	4.25	0.20	0.011	0.297	0.003	0.01
52	4.33	0.23	0.013	0.296	0.003	0.01
53	4.42	0.23	0.013	0.294	0.003	0.01
54	4.50	0.23	0.013	0.293	0.003	0.01
55	4.58	0.23	0.013	0.292	0.003	0.01
56	4.67	0.23	0.013	0.291	0.003	0.01
57	4.75	0.23	0.013	0.289	0.003	0.01
58	4.83	0.27	0.015	0.288	0.004	0.01
59	4.92	0.27	0.015	0.287	0.004	0.01
60	5.00	0.27	0.015	0.286	0.004	0.01
61	5.08	0.20	0.011	0.284	0.003	0.01
62	5.17	0.20	0.011	0.283	0.003	0.01
63	5.25	0.20	0.011	0.282	0.003	0.01
64	5.33	0.23	0.013	0.281	0.003	0.01
65	5.42	0.23	0.013	0.279	0.003	0.01
66	5.50	0.23	0.013	0.278	0.003	0.01
67	5.58	0.27	0.015	0.277	0.004	0.01
68	5.67	0.27	0.015	0.276	0.004	0.01
69	5.75	0.27	0.015	0.275	0.004	0.01
70	5.83	0.27	0.015	0.273	0.004	0.01
71	5.92	0.27	0.015	0.272	0.004	0.01
72	6.00	0.27	0.015	0.271	0.004	0.01
73	6.08	0.30	0.017	0.270	0.004	0.01
74	6.17	0.30	0.017	0.268	0.004	0.01
75	6.25	0.30	0.017	0.267	0.004	0.01
76	6.33	0.30	0.017	0.266	0.004	0.01
77	6.42	0.30	0.017	0.265	0.004	0.01
78	6.50	0.30	0.017	0.264	0.004	0.01
79	6.58	0.33	0.018	0.263	0.005	0.01
80	6.67	0.33	0.018	0.261	0.005	0.01
81	6.75	0.33	0.018	0.260	0.005	0.01
82	6.83	0.33	0.018	0.259	0.005	0.01
83	6.92	0.33	0.018	0.258	0.005	0.01
84	7.00	0.33	0.018	0.257	0.005	0.01
85	7.08	0.33	0.018	0.255	0.005	0.01
86	7.17	0.33	0.018	0.254	0.005	0.01
87	7.25	0.33	0.018	0.253	0.005	0.01
88	7.33	0.37	0.020	0.252	0.005	0.01
89	7.42	0.37	0.020	0.251	0.005	0.01
90	7.50	0.37	0.020	0.250	0.005	0.01
91	7.58	0.40	0.022	0.249	0.006	0.02
92	7.67	0.40	0.022	0.247	0.006	0.02
93	7.75	0.40	0.022	0.246	0.006	0.02
94	7.83	0.43	0.024	0.245	0.006	0.02

95	7.92	0.43	0.024	0.244	0.006	0.02
96	8.00	0.43	0.024	0.243	0.006	0.02
97	8.08	0.50	0.028	0.242	0.007	0.02
98	8.17	0.50	0.028	0.241	0.007	0.02
99	8.25	0.50	0.028	0.239	0.007	0.02
100	8.33	0.50	0.028	0.238	0.007	0.02
101	8.42	0.50	0.028	0.237	0.007	0.02
102	8.50	0.50	0.028	0.236	0.007	0.02
103	8.58	0.53	0.030	0.235	0.008	0.02
104	8.67	0.53	0.030	0.234	0.008	0.02
105	8.75	0.53	0.030	0.233	0.008	0.02
106	8.83	0.57	0.031	0.232	0.008	0.02
107	8.92	0.57	0.031	0.231	0.008	0.02
108	9.00	0.57	0.031	0.230	0.008	0.02
109	9.08	0.63	0.035	0.228	0.009	0.03
110	9.17	0.63	0.035	0.227	0.009	0.03
111	9.25	0.63	0.035	0.226	0.009	0.03
112	9.33	0.67	0.037	0.225	0.010	0.03
113	9.42	0.67	0.037	0.224	0.010	0.03
114	9.50	0.67	0.037	0.223	0.010	0.03
115	9.58	0.70	0.039	0.222	0.010	0.03
116	9.67	0.70	0.039	0.221	0.010	0.03
117	9.75	0.70	0.039	0.220	0.010	0.03
118	9.83	0.73	0.041	0.219	0.011	0.03
119	9.92	0.73	0.041	0.218	0.011	0.03
120	10.00	0.73	0.041	0.217	0.011	0.03
121	10.08	0.50	0.028	0.216	0.007	0.02
122	10.17	0.50	0.028	0.215	0.007	0.02
123	10.25	0.50	0.028	0.214	0.007	0.02
124	10.33	0.50	0.028	0.213	0.007	0.02
125	10.42	0.50	0.028	0.212	0.007	0.02
126	10.50	0.50	0.028	0.210	0.007	0.02
127	10.58	0.67	0.037	0.209	0.010	0.03
128	10.67	0.67	0.037	0.208	0.010	0.03
129	10.75	0.67	0.037	0.207	0.010	0.03
130	10.83	0.67	0.037	0.206	0.010	0.03
131	10.92	0.67	0.037	0.205	0.010	0.03
132	11.00	0.67	0.037	0.204	0.010	0.03
133	11.08	0.63	0.035	0.203	0.009	0.03
134	11.17	0.63	0.035	0.202	0.009	0.03
135	11.25	0.63	0.035	0.201	0.009	0.03
136	11.33	0.63	0.035	0.200	0.009	0.03
137	11.42	0.63	0.035	0.199	0.009	0.03
138	11.50	0.63	0.035	0.198	0.009	0.03
139	11.58	0.57	0.031	0.197	0.008	0.02
140	11.67	0.57	0.031	0.196	0.008	0.02
141	11.75	0.57	0.031	0.195	0.008	0.02
142	11.83	0.60	0.033	0.194	0.009	0.02
143	11.92	0.60	0.033	0.193	0.009	0.02
144	12.00	0.60	0.033	0.193	0.009	0.02
145	12.08	0.83	0.046	0.192	0.012	0.03
146	12.17	0.83	0.046	0.191	0.012	0.03
147	12.25	0.83	0.046	0.190	0.012	0.03
148	12.33	0.87	0.048	0.189	0.013	0.04
149	12.42	0.87	0.048	0.188	0.013	0.04
150	12.50	0.87	0.048	0.187	0.013	0.04
151	12.58	0.93	0.052	0.186	0.014	0.04
152	12.67	0.93	0.052	0.185	0.014	0.04
153	12.75	0.93	0.052	0.184	0.014	0.04
154	12.83	0.97	0.054	0.183	0.014	0.04
155	12.92	0.97	0.054	0.182	0.014	0.04
156	13.00	0.97	0.054	0.181	0.014	0.04
157	13.08	1.13	0.063	0.180	0.017	0.05
158	13.17	1.13	0.063	0.179	0.017	0.05
159	13.25	1.13	0.063	0.178	0.017	0.05

160	13.33	1.13	0.063	0.178	0.017	0.05
161	13.42	1.13	0.063	0.177	0.017	0.05
162	13.50	1.13	0.063	0.176	0.017	0.05
163	13.58	0.77	0.042	0.175	0.011	0.03
164	13.67	0.77	0.042	0.174	0.011	0.03
165	13.75	0.77	0.042	0.173	0.011	0.03
166	13.83	0.77	0.042	0.172	0.011	0.03
167	13.92	0.77	0.042	0.171	0.011	0.03
168	14.00	0.77	0.042	0.170	0.011	0.03
169	14.08	0.90	0.050	0.170	0.013	0.04
170	14.17	0.90	0.050	0.169	0.013	0.04
171	14.25	0.90	0.050	0.168	0.013	0.04
172	14.33	0.87	0.048	0.167	0.013	0.04
173	14.42	0.87	0.048	0.166	0.013	0.04
174	14.50	0.87	0.048	0.165	0.013	0.04
175	14.58	0.87	0.048	0.164	0.013	0.04
176	14.67	0.87	0.048	0.164	0.013	0.04
177	14.75	0.87	0.048	0.163	0.013	0.04
178	14.83	0.83	0.046	0.162	0.012	0.03
179	14.92	0.83	0.046	0.161	0.012	0.03
180	15.00	0.83	0.046	0.160	0.012	0.03
181	15.08	0.80	0.044	0.159	0.012	0.03
182	15.17	0.80	0.044	0.159	0.012	0.03
183	15.25	0.80	0.044	0.158	0.012	0.03
184	15.33	0.77	0.042	0.157	0.011	0.03
185	15.42	0.77	0.042	0.156	0.011	0.03
186	15.50	0.77	0.042	0.155	0.011	0.03
187	15.58	0.63	0.035	0.155	0.009	0.03
188	15.67	0.63	0.035	0.154	0.009	0.03
189	15.75	0.63	0.035	0.153	0.009	0.03
190	15.83	0.63	0.035	0.152	0.009	0.03
191	15.92	0.63	0.035	0.151	0.009	0.03
192	16.00	0.63	0.035	0.151	0.009	0.03
193	16.08	0.13	0.007	0.150	0.002	0.01
194	16.17	0.13	0.007	0.149	0.002	0.01
195	16.25	0.13	0.007	0.148	0.002	0.01
196	16.33	0.13	0.007	0.148	0.002	0.01
197	16.42	0.13	0.007	0.147	0.002	0.01
198	16.50	0.13	0.007	0.146	0.002	0.01
199	16.58	0.10	0.006	0.145	0.001	0.00
200	16.67	0.10	0.006	0.145	0.001	0.00
201	16.75	0.10	0.006	0.144	0.001	0.00
202	16.83	0.10	0.006	0.143	0.001	0.00
203	16.92	0.10	0.006	0.142	0.001	0.00
204	17.00	0.10	0.006	0.142	0.001	0.00
205	17.08	0.17	0.009	0.141	0.002	0.01
206	17.17	0.17	0.009	0.140	0.002	0.01
207	17.25	0.17	0.009	0.140	0.002	0.01
208	17.33	0.17	0.009	0.139	0.002	0.01
209	17.42	0.17	0.009	0.138	0.002	0.01
210	17.50	0.17	0.009	0.138	0.002	0.01
211	17.58	0.17	0.009	0.137	0.002	0.01
212	17.67	0.17	0.009	0.136	0.002	0.01
213	17.75	0.17	0.009	0.135	0.002	0.01
214	17.83	0.13	0.007	0.135	0.002	0.01
215	17.92	0.13	0.007	0.134	0.002	0.01
216	18.00	0.13	0.007	0.133	0.002	0.01
217	18.08	0.13	0.007	0.133	0.002	0.01
218	18.17	0.13	0.007	0.132	0.002	0.01
219	18.25	0.13	0.007	0.132	0.002	0.01
220	18.33	0.13	0.007	0.131	0.002	0.01
221	18.42	0.13	0.007	0.130	0.002	0.01
222	18.50	0.13	0.007	0.130	0.002	0.01
223	18.58	0.10	0.006	0.129	0.001	0.00
224	18.67	0.10	0.006	0.128	0.001	0.00

225	18.75	0.10	0.006	0.128	0.001	0.00
226	18.83	0.07	0.004	0.127	0.001	0.00
227	18.92	0.07	0.004	0.127	0.001	0.00
228	19.00	0.07	0.004	0.126	0.001	0.00
229	19.08	0.10	0.006	0.125	0.001	0.00
230	19.17	0.10	0.006	0.125	0.001	0.00
231	19.25	0.10	0.006	0.124	0.001	0.00
232	19.33	0.13	0.007	0.124	0.002	0.01
233	19.42	0.13	0.007	0.123	0.002	0.01
234	19.50	0.13	0.007	0.122	0.002	0.01
235	19.58	0.10	0.006	0.122	0.001	0.00
236	19.67	0.10	0.006	0.121	0.001	0.00
237	19.75	0.10	0.006	0.121	0.001	0.00
238	19.83	0.07	0.004	0.120	0.001	0.00
239	19.92	0.07	0.004	0.120	0.001	0.00
240	20.00	0.07	0.004	0.119	0.001	0.00
241	20.08	0.10	0.006	0.119	0.001	0.00
242	20.17	0.10	0.006	0.118	0.001	0.00
243	20.25	0.10	0.006	0.118	0.001	0.00
244	20.33	0.10	0.006	0.117	0.001	0.00
245	20.42	0.10	0.006	0.117	0.001	0.00
246	20.50	0.10	0.006	0.116	0.001	0.00
247	20.58	0.10	0.006	0.116	0.001	0.00
248	20.67	0.10	0.006	0.115	0.001	0.00
249	20.75	0.10	0.006	0.115	0.001	0.00
250	20.83	0.07	0.004	0.114	0.001	0.00
251	20.92	0.07	0.004	0.114	0.001	0.00
252	21.00	0.07	0.004	0.113	0.001	0.00
253	21.08	0.10	0.006	0.113	0.001	0.00
254	21.17	0.10	0.006	0.112	0.001	0.00
255	21.25	0.10	0.006	0.112	0.001	0.00
256	21.33	0.07	0.004	0.112	0.001	0.00
257	21.42	0.07	0.004	0.111	0.001	0.00
258	21.50	0.07	0.004	0.111	0.001	0.00
259	21.58	0.10	0.006	0.110	0.001	0.00
260	21.67	0.10	0.006	0.110	0.001	0.00
261	21.75	0.10	0.006	0.109	0.001	0.00
262	21.83	0.07	0.004	0.109	0.001	0.00
263	21.92	0.07	0.004	0.109	0.001	0.00
264	22.00	0.07	0.004	0.108	0.001	0.00
265	22.08	0.10	0.006	0.108	0.001	0.00
266	22.17	0.10	0.006	0.108	0.001	0.00
267	22.25	0.10	0.006	0.107	0.001	0.00
268	22.33	0.07	0.004	0.107	0.001	0.00
269	22.42	0.07	0.004	0.107	0.001	0.00
270	22.50	0.07	0.004	0.106	0.001	0.00
271	22.58	0.07	0.004	0.106	0.001	0.00
272	22.67	0.07	0.004	0.106	0.001	0.00
273	22.75	0.07	0.004	0.105	0.001	0.00
274	22.83	0.07	0.004	0.105	0.001	0.00
275	22.92	0.07	0.004	0.105	0.001	0.00
276	23.00	0.07	0.004	0.105	0.001	0.00
277	23.08	0.07	0.004	0.104	0.001	0.00
278	23.17	0.07	0.004	0.104	0.001	0.00
279	23.25	0.07	0.004	0.104	0.001	0.00
280	23.33	0.07	0.004	0.104	0.001	0.00
281	23.42	0.07	0.004	0.104	0.001	0.00
282	23.50	0.07	0.004	0.103	0.001	0.00
283	23.58	0.07	0.004	0.103	0.001	0.00
284	23.67	0.07	0.004	0.103	0.001	0.00
285	23.75	0.07	0.004	0.103	0.001	0.00
286	23.83	0.07	0.004	0.103	0.001	0.00
287	23.92	0.07	0.004	0.103	0.001	0.00
288	24.00	0.07	0.004	0.103	0.001	0.00
	Sum =	100.0			Sum =	4.1

Flood volume = Effective rainfall 0.34(In)
times area 0.7(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)
Total soil loss = 0.12(In)
Total soil loss = 0.008(Ac.Ft)
Total rainfall = 0.46(In)
Flood volume = 912.4 Cubic Feet
Total soil loss = 331.2 Cubic Feet

Storm Event 2 Effective Rainfall = 0.875(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.007	0.364	0.002	0.01
2	0.17	0.07	0.007	0.362	0.002	0.01
3	0.25	0.07	0.007	0.361	0.002	0.01
4	0.33	0.10	0.010	0.360	0.003	0.01
5	0.42	0.10	0.010	0.358	0.003	0.01
6	0.50	0.10	0.010	0.357	0.003	0.01
7	0.58	0.10	0.010	0.355	0.003	0.01
8	0.67	0.10	0.010	0.354	0.003	0.01
9	0.75	0.10	0.010	0.353	0.003	0.01
10	0.83	0.13	0.014	0.351	0.004	0.01
11	0.92	0.13	0.014	0.350	0.004	0.01
12	1.00	0.13	0.014	0.348	0.004	0.01
13	1.08	0.10	0.010	0.347	0.003	0.01
14	1.17	0.10	0.010	0.346	0.003	0.01
15	1.25	0.10	0.010	0.344	0.003	0.01
16	1.33	0.10	0.010	0.343	0.003	0.01
17	1.42	0.10	0.010	0.342	0.003	0.01
18	1.50	0.10	0.010	0.340	0.003	0.01
19	1.58	0.10	0.010	0.339	0.003	0.01
20	1.67	0.10	0.010	0.338	0.003	0.01
21	1.75	0.10	0.010	0.336	0.003	0.01
22	1.83	0.13	0.014	0.335	0.004	0.01
23	1.92	0.13	0.014	0.333	0.004	0.01
24	2.00	0.13	0.014	0.332	0.004	0.01
25	2.08	0.13	0.014	0.331	0.004	0.01
26	2.17	0.13	0.014	0.329	0.004	0.01
27	2.25	0.13	0.014	0.328	0.004	0.01
28	2.33	0.13	0.014	0.327	0.004	0.01
29	2.42	0.13	0.014	0.325	0.004	0.01
30	2.50	0.13	0.014	0.324	0.004	0.01
31	2.58	0.17	0.017	0.323	0.005	0.01
32	2.67	0.17	0.017	0.321	0.005	0.01
33	2.75	0.17	0.017	0.320	0.005	0.01
34	2.83	0.17	0.017	0.319	0.005	0.01
35	2.92	0.17	0.017	0.318	0.005	0.01
36	3.00	0.17	0.017	0.316	0.005	0.01
37	3.08	0.17	0.017	0.315	0.005	0.01
38	3.17	0.17	0.017	0.314	0.005	0.01
39	3.25	0.17	0.017	0.312	0.005	0.01
40	3.33	0.17	0.017	0.311	0.005	0.01
41	3.42	0.17	0.017	0.310	0.005	0.01
42	3.50	0.17	0.017	0.308	0.005	0.01
43	3.58	0.17	0.017	0.307	0.005	0.01
44	3.67	0.17	0.017	0.306	0.005	0.01
45	3.75	0.17	0.017	0.305	0.005	0.01
46	3.83	0.20	0.021	0.303	0.006	0.02
47	3.92	0.20	0.021	0.302	0.006	0.02
48	4.00	0.20	0.021	0.301	0.006	0.02
49	4.08	0.20	0.021	0.299	0.006	0.02
50	4.17	0.20	0.021	0.298	0.006	0.02
51	4.25	0.20	0.021	0.297	0.006	0.02
52	4.33	0.23	0.024	0.296	0.007	0.02

53	4.42	0.23	0.024	0.294	0.007	0.02
54	4.50	0.23	0.024	0.293	0.007	0.02
55	4.58	0.23	0.024	0.292	0.007	0.02
56	4.67	0.23	0.024	0.291	0.007	0.02
57	4.75	0.23	0.024	0.289	0.007	0.02
58	4.83	0.27	0.028	0.288	0.007	0.02
59	4.92	0.27	0.028	0.287	0.007	0.02
60	5.00	0.27	0.028	0.286	0.007	0.02
61	5.08	0.20	0.021	0.284	0.006	0.02
62	5.17	0.20	0.021	0.283	0.006	0.02
63	5.25	0.20	0.021	0.282	0.006	0.02
64	5.33	0.23	0.024	0.281	0.007	0.02
65	5.42	0.23	0.024	0.279	0.007	0.02
66	5.50	0.23	0.024	0.278	0.007	0.02
67	5.58	0.27	0.028	0.277	0.007	0.02
68	5.67	0.27	0.028	0.276	0.007	0.02
69	5.75	0.27	0.028	0.275	0.007	0.02
70	5.83	0.27	0.028	0.273	0.007	0.02
71	5.92	0.27	0.028	0.272	0.007	0.02
72	6.00	0.27	0.028	0.271	0.007	0.02
73	6.08	0.30	0.031	0.270	0.008	0.02
74	6.17	0.30	0.031	0.268	0.008	0.02
75	6.25	0.30	0.031	0.267	0.008	0.02
76	6.33	0.30	0.031	0.266	0.008	0.02
77	6.42	0.30	0.031	0.265	0.008	0.02
78	6.50	0.30	0.031	0.264	0.008	0.02
79	6.58	0.33	0.035	0.263	0.009	0.03
80	6.67	0.33	0.035	0.261	0.009	0.03
81	6.75	0.33	0.035	0.260	0.009	0.03
82	6.83	0.33	0.035	0.259	0.009	0.03
83	6.92	0.33	0.035	0.258	0.009	0.03
84	7.00	0.33	0.035	0.257	0.009	0.03
85	7.08	0.33	0.035	0.255	0.009	0.03
86	7.17	0.33	0.035	0.254	0.009	0.03
87	7.25	0.33	0.035	0.253	0.009	0.03
88	7.33	0.37	0.038	0.252	0.010	0.03
89	7.42	0.37	0.038	0.251	0.010	0.03
90	7.50	0.37	0.038	0.250	0.010	0.03
91	7.58	0.40	0.042	0.249	0.011	0.03
92	7.67	0.40	0.042	0.247	0.011	0.03
93	7.75	0.40	0.042	0.246	0.011	0.03
94	7.83	0.43	0.045	0.245	0.012	0.03
95	7.92	0.43	0.045	0.244	0.012	0.03
96	8.00	0.43	0.045	0.243	0.012	0.03
97	8.08	0.50	0.052	0.242	0.014	0.04
98	8.17	0.50	0.052	0.241	0.014	0.04
99	8.25	0.50	0.052	0.239	0.014	0.04
100	8.33	0.50	0.052	0.238	0.014	0.04
101	8.42	0.50	0.052	0.237	0.014	0.04
102	8.50	0.50	0.052	0.236	0.014	0.04
103	8.58	0.53	0.056	0.235	0.015	0.04
104	8.67	0.53	0.056	0.234	0.015	0.04
105	8.75	0.53	0.056	0.233	0.015	0.04
106	8.83	0.57	0.059	0.232	0.016	0.04
107	8.92	0.57	0.059	0.231	0.016	0.04
108	9.00	0.57	0.059	0.230	0.016	0.04
109	9.08	0.63	0.066	0.228	0.018	0.05
110	9.17	0.63	0.066	0.227	0.018	0.05
111	9.25	0.63	0.066	0.226	0.018	0.05
112	9.33	0.67	0.070	0.225	0.019	0.05
113	9.42	0.67	0.070	0.224	0.019	0.05
114	9.50	0.67	0.070	0.223	0.019	0.05
115	9.58	0.70	0.073	0.222	0.020	0.05
116	9.67	0.70	0.073	0.221	0.020	0.05
117	9.75	0.70	0.073	0.220	0.020	0.05

118	9.83	0.73	0.077	0.219	0.021	0.06
119	9.92	0.73	0.077	0.218	0.021	0.06
120	10.00	0.73	0.077	0.217	0.021	0.06
121	10.08	0.50	0.052	0.216	0.014	0.04
122	10.17	0.50	0.052	0.215	0.014	0.04
123	10.25	0.50	0.052	0.214	0.014	0.04
124	10.33	0.50	0.052	0.213	0.014	0.04
125	10.42	0.50	0.052	0.212	0.014	0.04
126	10.50	0.50	0.052	0.210	0.014	0.04
127	10.58	0.67	0.070	0.209	0.019	0.05
128	10.67	0.67	0.070	0.208	0.019	0.05
129	10.75	0.67	0.070	0.207	0.019	0.05
130	10.83	0.67	0.070	0.206	0.019	0.05
131	10.92	0.67	0.070	0.205	0.019	0.05
132	11.00	0.67	0.070	0.204	0.019	0.05
133	11.08	0.63	0.066	0.203	0.018	0.05
134	11.17	0.63	0.066	0.202	0.018	0.05
135	11.25	0.63	0.066	0.201	0.018	0.05
136	11.33	0.63	0.066	0.200	0.018	0.05
137	11.42	0.63	0.066	0.199	0.018	0.05
138	11.50	0.63	0.066	0.198	0.018	0.05
139	11.58	0.57	0.059	0.197	0.016	0.04
140	11.67	0.57	0.059	0.196	0.016	0.04
141	11.75	0.57	0.059	0.195	0.016	0.04
142	11.83	0.60	0.063	0.194	0.017	0.05
143	11.92	0.60	0.063	0.193	0.017	0.05
144	12.00	0.60	0.063	0.193	0.017	0.05
145	12.08	0.83	0.087	0.192	0.023	0.06
146	12.17	0.83	0.087	0.191	0.023	0.06
147	12.25	0.83	0.087	0.190	0.023	0.06
148	12.33	0.87	0.091	0.189	0.024	0.07
149	12.42	0.87	0.091	0.188	0.024	0.07
150	12.50	0.87	0.091	0.187	0.024	0.07
151	12.58	0.93	0.098	0.186	0.026	0.07
152	12.67	0.93	0.098	0.185	0.026	0.07
153	12.75	0.93	0.098	0.184	0.026	0.07
154	12.83	0.97	0.101	0.183	0.027	0.07
155	12.92	0.97	0.101	0.182	0.027	0.07
156	13.00	0.97	0.101	0.181	0.027	0.07
157	13.08	1.13	0.119	0.180	0.032	0.09
158	13.17	1.13	0.119	0.179	0.032	0.09
159	13.25	1.13	0.119	0.178	0.032	0.09
160	13.33	1.13	0.119	0.178	0.032	0.09
161	13.42	1.13	0.119	0.177	0.032	0.09
162	13.50	1.13	0.119	0.176	0.032	0.09
163	13.58	0.77	0.080	0.175	0.021	0.06
164	13.67	0.77	0.080	0.174	0.021	0.06
165	13.75	0.77	0.080	0.173	0.021	0.06
166	13.83	0.77	0.080	0.172	0.021	0.06
167	13.92	0.77	0.080	0.171	0.021	0.06
168	14.00	0.77	0.080	0.170	0.021	0.06
169	14.08	0.90	0.094	0.170	0.025	0.07
170	14.17	0.90	0.094	0.169	0.025	0.07
171	14.25	0.90	0.094	0.168	0.025	0.07
172	14.33	0.87	0.091	0.167	0.024	0.07
173	14.42	0.87	0.091	0.166	0.024	0.07
174	14.50	0.87	0.091	0.165	0.024	0.07
175	14.58	0.87	0.091	0.164	0.024	0.07
176	14.67	0.87	0.091	0.164	0.024	0.07
177	14.75	0.87	0.091	0.163	0.024	0.07
178	14.83	0.83	0.087	0.162	0.023	0.06
179	14.92	0.83	0.087	0.161	0.023	0.06
180	15.00	0.83	0.087	0.160	0.023	0.06
181	15.08	0.80	0.084	0.159	0.022	0.06
182	15.17	0.80	0.084	0.159	0.022	0.06

183	15.25	0.80	0.084	0.158	0.022	0.06
184	15.33	0.77	0.080	0.157	0.021	0.06
185	15.42	0.77	0.080	0.156	0.021	0.06
186	15.50	0.77	0.080	0.155	0.021	0.06
187	15.58	0.63	0.066	0.155	0.018	0.05
188	15.67	0.63	0.066	0.154	0.018	0.05
189	15.75	0.63	0.066	0.153	0.018	0.05
190	15.83	0.63	0.066	0.152	0.018	0.05
191	15.92	0.63	0.066	0.151	0.018	0.05
192	16.00	0.63	0.066	0.151	0.018	0.05
193	16.08	0.13	0.014	0.150	0.004	0.01
194	16.17	0.13	0.014	0.149	0.004	0.01
195	16.25	0.13	0.014	0.148	0.004	0.01
196	16.33	0.13	0.014	0.148	0.004	0.01
197	16.42	0.13	0.014	0.147	0.004	0.01
198	16.50	0.13	0.014	0.146	0.004	0.01
199	16.58	0.10	0.010	0.145	0.003	0.01
200	16.67	0.10	0.010	0.145	0.003	0.01
201	16.75	0.10	0.010	0.144	0.003	0.01
202	16.83	0.10	0.010	0.143	0.003	0.01
203	16.92	0.10	0.010	0.142	0.003	0.01
204	17.00	0.10	0.010	0.142	0.003	0.01
205	17.08	0.17	0.017	0.141	0.005	0.01
206	17.17	0.17	0.017	0.140	0.005	0.01
207	17.25	0.17	0.017	0.140	0.005	0.01
208	17.33	0.17	0.017	0.139	0.005	0.01
209	17.42	0.17	0.017	0.138	0.005	0.01
210	17.50	0.17	0.017	0.138	0.005	0.01
211	17.58	0.17	0.017	0.137	0.005	0.01
212	17.67	0.17	0.017	0.136	0.005	0.01
213	17.75	0.17	0.017	0.135	0.005	0.01
214	17.83	0.13	0.014	0.135	0.004	0.01
215	17.92	0.13	0.014	0.134	0.004	0.01
216	18.00	0.13	0.014	0.133	0.004	0.01
217	18.08	0.13	0.014	0.133	0.004	0.01
218	18.17	0.13	0.014	0.132	0.004	0.01
219	18.25	0.13	0.014	0.132	0.004	0.01
220	18.33	0.13	0.014	0.131	0.004	0.01
221	18.42	0.13	0.014	0.130	0.004	0.01
222	18.50	0.13	0.014	0.130	0.004	0.01
223	18.58	0.10	0.010	0.129	0.003	0.01
224	18.67	0.10	0.010	0.128	0.003	0.01
225	18.75	0.10	0.010	0.128	0.003	0.01
226	18.83	0.07	0.007	0.127	0.002	0.01
227	18.92	0.07	0.007	0.127	0.002	0.01
228	19.00	0.07	0.007	0.126	0.002	0.01
229	19.08	0.10	0.010	0.125	0.003	0.01
230	19.17	0.10	0.010	0.125	0.003	0.01
231	19.25	0.10	0.010	0.124	0.003	0.01
232	19.33	0.13	0.014	0.124	0.004	0.01
233	19.42	0.13	0.014	0.123	0.004	0.01
234	19.50	0.13	0.014	0.122	0.004	0.01
235	19.58	0.10	0.010	0.122	0.003	0.01
236	19.67	0.10	0.010	0.121	0.003	0.01
237	19.75	0.10	0.010	0.121	0.003	0.01
238	19.83	0.07	0.007	0.120	0.002	0.01
239	19.92	0.07	0.007	0.120	0.002	0.01
240	20.00	0.07	0.007	0.119	0.002	0.01
241	20.08	0.10	0.010	0.119	0.003	0.01
242	20.17	0.10	0.010	0.118	0.003	0.01
243	20.25	0.10	0.010	0.118	0.003	0.01
244	20.33	0.10	0.010	0.117	0.003	0.01
245	20.42	0.10	0.010	0.117	0.003	0.01
246	20.50	0.10	0.010	0.116	0.003	0.01
247	20.58	0.10	0.010	0.116	0.003	0.01

248	20.67	0.10	0.010	0.115	0.003	0.01
249	20.75	0.10	0.010	0.115	0.003	0.01
250	20.83	0.07	0.007	0.114	0.002	0.01
251	20.92	0.07	0.007	0.114	0.002	0.01
252	21.00	0.07	0.007	0.113	0.002	0.01
253	21.08	0.10	0.010	0.113	0.003	0.01
254	21.17	0.10	0.010	0.112	0.003	0.01
255	21.25	0.10	0.010	0.112	0.003	0.01
256	21.33	0.07	0.007	0.112	0.002	0.01
257	21.42	0.07	0.007	0.111	0.002	0.01
258	21.50	0.07	0.007	0.111	0.002	0.01
259	21.58	0.10	0.010	0.110	0.003	0.01
260	21.67	0.10	0.010	0.110	0.003	0.01
261	21.75	0.10	0.010	0.109	0.003	0.01
262	21.83	0.07	0.007	0.109	0.002	0.01
263	21.92	0.07	0.007	0.109	0.002	0.01
264	22.00	0.07	0.007	0.108	0.002	0.01
265	22.08	0.10	0.010	0.108	0.003	0.01
266	22.17	0.10	0.010	0.108	0.003	0.01
267	22.25	0.10	0.010	0.107	0.003	0.01
268	22.33	0.07	0.007	0.107	0.002	0.01
269	22.42	0.07	0.007	0.107	0.002	0.01
270	22.50	0.07	0.007	0.106	0.002	0.01
271	22.58	0.07	0.007	0.106	0.002	0.01
272	22.67	0.07	0.007	0.106	0.002	0.01
273	22.75	0.07	0.007	0.105	0.002	0.01
274	22.83	0.07	0.007	0.105	0.002	0.01
275	22.92	0.07	0.007	0.105	0.002	0.01
276	23.00	0.07	0.007	0.105	0.002	0.01
277	23.08	0.07	0.007	0.104	0.002	0.01
278	23.17	0.07	0.007	0.104	0.002	0.01
279	23.25	0.07	0.007	0.104	0.002	0.01
280	23.33	0.07	0.007	0.104	0.002	0.01
281	23.42	0.07	0.007	0.104	0.002	0.01
282	23.50	0.07	0.007	0.103	0.002	0.01
283	23.58	0.07	0.007	0.103	0.002	0.01
284	23.67	0.07	0.007	0.103	0.002	0.01
285	23.75	0.07	0.007	0.103	0.002	0.01
286	23.83	0.07	0.007	0.103	0.002	0.01
287	23.92	0.07	0.007	0.103	0.002	0.01
288	24.00	0.07	0.007	0.103	0.002	0.01
Sum =	100.0			Sum =	7.7	

Flood volume = Effective rainfall 0.64(In)
times area 0.7(Ac.)/[(In)/(Ft.)] = 0.0(Ac.Ft)
Total soil loss = 0.23(In)
Total soil loss = 0.014(Ac.Ft)
Total rainfall = 0.87(In)
Flood volume = 1728.8 Cubic Feet
Total soil loss = 627.5 Cubic Feet

Storm Event 1 Effective Rainfall = 2.430(In)

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.019	0.364	0.005	0.01
2	0.17	0.07	0.019	0.362	0.005	0.01
3	0.25	0.07	0.019	0.361	0.005	0.01
4	0.33	0.10	0.029	0.360	0.008	0.02
5	0.42	0.10	0.029	0.358	0.008	0.02
6	0.50	0.10	0.029	0.357	0.008	0.02
7	0.58	0.10	0.029	0.355	0.008	0.02
8	0.67	0.10	0.029	0.354	0.008	0.02
9	0.75	0.10	0.029	0.353	0.008	0.02
10	0.83	0.13	0.039	0.351	0.010	0.03

11	0.92	0.13	0.039	0.350	0.010	0.03
12	1.00	0.13	0.039	0.348	0.010	0.03
13	1.08	0.10	0.029	0.347	0.008	0.02
14	1.17	0.10	0.029	0.346	0.008	0.02
15	1.25	0.10	0.029	0.344	0.008	0.02
16	1.33	0.10	0.029	0.343	0.008	0.02
17	1.42	0.10	0.029	0.342	0.008	0.02
18	1.50	0.10	0.029	0.340	0.008	0.02
19	1.58	0.10	0.029	0.339	0.008	0.02
20	1.67	0.10	0.029	0.338	0.008	0.02
21	1.75	0.10	0.029	0.336	0.008	0.02
22	1.83	0.13	0.039	0.335	0.010	0.03
23	1.92	0.13	0.039	0.333	0.010	0.03
24	2.00	0.13	0.039	0.332	0.010	0.03
25	2.08	0.13	0.039	0.331	0.010	0.03
26	2.17	0.13	0.039	0.329	0.010	0.03
27	2.25	0.13	0.039	0.328	0.010	0.03
28	2.33	0.13	0.039	0.327	0.010	0.03
29	2.42	0.13	0.039	0.325	0.010	0.03
30	2.50	0.13	0.039	0.324	0.010	0.03
31	2.58	0.17	0.049	0.323	0.013	0.04
32	2.67	0.17	0.049	0.321	0.013	0.04
33	2.75	0.17	0.049	0.320	0.013	0.04
34	2.83	0.17	0.049	0.319	0.013	0.04
35	2.92	0.17	0.049	0.318	0.013	0.04
36	3.00	0.17	0.049	0.316	0.013	0.04
37	3.08	0.17	0.049	0.315	0.013	0.04
38	3.17	0.17	0.049	0.314	0.013	0.04
39	3.25	0.17	0.049	0.312	0.013	0.04
40	3.33	0.17	0.049	0.311	0.013	0.04
41	3.42	0.17	0.049	0.310	0.013	0.04
42	3.50	0.17	0.049	0.308	0.013	0.04
43	3.58	0.17	0.049	0.307	0.013	0.04
44	3.67	0.17	0.049	0.306	0.013	0.04
45	3.75	0.17	0.049	0.305	0.013	0.04
46	3.83	0.20	0.058	0.303	0.016	0.04
47	3.92	0.20	0.058	0.302	0.016	0.04
48	4.00	0.20	0.058	0.301	0.016	0.04
49	4.08	0.20	0.058	0.299	0.016	0.04
50	4.17	0.20	0.058	0.298	0.016	0.04
51	4.25	0.20	0.058	0.297	0.016	0.04
52	4.33	0.23	0.068	0.296	0.018	0.05
53	4.42	0.23	0.068	0.294	0.018	0.05
54	4.50	0.23	0.068	0.293	0.018	0.05
55	4.58	0.23	0.068	0.292	0.018	0.05
56	4.67	0.23	0.068	0.291	0.018	0.05
57	4.75	0.23	0.068	0.289	0.018	0.05
58	4.83	0.27	0.078	0.288	0.021	0.06
59	4.92	0.27	0.078	0.287	0.021	0.06
60	5.00	0.27	0.078	0.286	0.021	0.06
61	5.08	0.20	0.058	0.284	0.016	0.04
62	5.17	0.20	0.058	0.283	0.016	0.04
63	5.25	0.20	0.058	0.282	0.016	0.04
64	5.33	0.23	0.068	0.281	0.018	0.05
65	5.42	0.23	0.068	0.279	0.018	0.05
66	5.50	0.23	0.068	0.278	0.018	0.05
67	5.58	0.27	0.078	0.277	0.021	0.06
68	5.67	0.27	0.078	0.276	0.021	0.06
69	5.75	0.27	0.078	0.275	0.021	0.06
70	5.83	0.27	0.078	0.273	0.021	0.06
71	5.92	0.27	0.078	0.272	0.021	0.06
72	6.00	0.27	0.078	0.271	0.021	0.06
73	6.08	0.30	0.087	0.270	0.023	0.06
74	6.17	0.30	0.087	0.268	0.023	0.06
75	6.25	0.30	0.087	0.267	0.023	0.06

76	6.33	0.30	0.087	0.266	0.023	0.06
77	6.42	0.30	0.087	0.265	0.023	0.06
78	6.50	0.30	0.087	0.264	0.023	0.06
79	6.58	0.33	0.097	0.263	0.026	0.07
80	6.67	0.33	0.097	0.261	0.026	0.07
81	6.75	0.33	0.097	0.260	0.026	0.07
82	6.83	0.33	0.097	0.259	0.026	0.07
83	6.92	0.33	0.097	0.258	0.026	0.07
84	7.00	0.33	0.097	0.257	0.026	0.07
85	7.08	0.33	0.097	0.255	0.026	0.07
86	7.17	0.33	0.097	0.254	0.026	0.07
87	7.25	0.33	0.097	0.253	0.026	0.07
88	7.33	0.37	0.107	0.252	0.028	0.08
89	7.42	0.37	0.107	0.251	0.028	0.08
90	7.50	0.37	0.107	0.250	0.028	0.08
91	7.58	0.40	0.117	0.249	0.031	0.09
92	7.67	0.40	0.117	0.247	0.031	0.09
93	7.75	0.40	0.117	0.246	0.031	0.09
94	7.83	0.43	0.126	0.245	0.034	0.09
95	7.92	0.43	0.126	0.244	0.034	0.09
96	8.00	0.43	0.126	0.243	0.034	0.09
97	8.08	0.50	0.146	0.242	0.039	0.11
98	8.17	0.50	0.146	0.241	0.039	0.11
99	8.25	0.50	0.146	0.239	0.039	0.11
100	8.33	0.50	0.146	0.238	0.039	0.11
101	8.42	0.50	0.146	0.237	0.039	0.11
102	8.50	0.50	0.146	0.236	0.039	0.11
103	8.58	0.53	0.156	0.235	0.041	0.11
104	8.67	0.53	0.156	0.234	0.041	0.11
105	8.75	0.53	0.156	0.233	0.041	0.11
106	8.83	0.57	0.165	0.232	0.044	0.12
107	8.92	0.57	0.165	0.231	0.044	0.12
108	9.00	0.57	0.165	0.230	0.044	0.12
109	9.08	0.63	0.185	0.228	0.049	0.14
110	9.17	0.63	0.185	0.227	0.049	0.14
111	9.25	0.63	0.185	0.226	0.049	0.14
112	9.33	0.67	0.194	0.225	0.052	0.14
113	9.42	0.67	0.194	0.224	0.052	0.14
114	9.50	0.67	0.194	0.223	0.052	0.14
115	9.58	0.70	0.204	0.222	0.054	0.15
116	9.67	0.70	0.204	0.221	0.054	0.15
117	9.75	0.70	0.204	0.220	0.054	0.15
118	9.83	0.73	0.214	0.219	0.057	0.16
119	9.92	0.73	0.214	0.218	0.057	0.16
120	10.00	0.73	0.214	0.217	0.057	0.16
121	10.08	0.50	0.146	0.216	0.039	0.11
122	10.17	0.50	0.146	0.215	0.039	0.11
123	10.25	0.50	0.146	0.214	0.039	0.11
124	10.33	0.50	0.146	0.213	0.039	0.11
125	10.42	0.50	0.146	0.212	0.039	0.11
126	10.50	0.50	0.146	0.210	0.039	0.11
127	10.58	0.67	0.194	0.209	0.052	0.14
128	10.67	0.67	0.194	0.208	0.052	0.14
129	10.75	0.67	0.194	0.207	0.052	0.14
130	10.83	0.67	0.194	0.206	0.052	0.14
131	10.92	0.67	0.194	0.205	0.052	0.14
132	11.00	0.67	0.194	0.204	0.052	0.14
133	11.08	0.63	0.185	0.203	0.049	0.14
134	11.17	0.63	0.185	0.202	0.049	0.14
135	11.25	0.63	0.185	0.201	0.049	0.14
136	11.33	0.63	0.185	0.200	0.049	0.14
137	11.42	0.63	0.185	0.199	0.049	0.14
138	11.50	0.63	0.185	0.198	0.049	0.14
139	11.58	0.57	0.165	0.197	0.044	0.12
140	11.67	0.57	0.165	0.196	0.044	0.12

141	11.75	0.57	0.165	0.195	0.044	0.12
142	11.83	0.60	0.175	0.194	0.047	0.13
143	11.92	0.60	0.175	0.193	0.047	0.13
144	12.00	0.60	0.175	0.193	0.047	0.13
145	12.08	0.83	0.243	0.192	---	0.05
146	12.17	0.83	0.243	0.191	---	0.05
147	12.25	0.83	0.243	0.190	---	0.05
148	12.33	0.87	0.253	0.189	---	0.06
149	12.42	0.87	0.253	0.188	---	0.06
150	12.50	0.87	0.253	0.187	---	0.07
151	12.58	0.93	0.272	0.186	---	0.09
152	12.67	0.93	0.272	0.185	---	0.09
153	12.75	0.93	0.272	0.184	---	0.09
154	12.83	0.97	0.282	0.183	---	0.10
155	12.92	0.97	0.282	0.182	---	0.10
156	13.00	0.97	0.282	0.181	---	0.10
157	13.08	1.13	0.330	0.180	---	0.15
158	13.17	1.13	0.330	0.179	---	0.15
159	13.25	1.13	0.330	0.178	---	0.15
160	13.33	1.13	0.330	0.178	---	0.15
161	13.42	1.13	0.330	0.177	---	0.15
162	13.50	1.13	0.330	0.176	---	0.15
163	13.58	0.77	0.224	0.175	---	0.05
164	13.67	0.77	0.224	0.174	---	0.05
165	13.75	0.77	0.224	0.173	---	0.05
166	13.83	0.77	0.224	0.172	---	0.05
167	13.92	0.77	0.224	0.171	---	0.05
168	14.00	0.77	0.224	0.170	---	0.05
169	14.08	0.90	0.262	0.170	---	0.09
170	14.17	0.90	0.262	0.169	---	0.09
171	14.25	0.90	0.262	0.168	---	0.09
172	14.33	0.87	0.253	0.167	---	0.09
173	14.42	0.87	0.253	0.166	---	0.09
174	14.50	0.87	0.253	0.165	---	0.09
175	14.58	0.87	0.253	0.164	---	0.09
176	14.67	0.87	0.253	0.164	---	0.09
177	14.75	0.87	0.253	0.163	---	0.09
178	14.83	0.83	0.243	0.162	---	0.08
179	14.92	0.83	0.243	0.161	---	0.08
180	15.00	0.83	0.243	0.160	---	0.08
181	15.08	0.80	0.233	0.159	---	0.07
182	15.17	0.80	0.233	0.159	---	0.07
183	15.25	0.80	0.233	0.158	---	0.08
184	15.33	0.77	0.224	0.157	---	0.07
185	15.42	0.77	0.224	0.156	---	0.07
186	15.50	0.77	0.224	0.155	---	0.07
187	15.58	0.63	0.185	0.155	---	0.03
188	15.67	0.63	0.185	0.154	---	0.03
189	15.75	0.63	0.185	0.153	---	0.03
190	15.83	0.63	0.185	0.152	---	0.03
191	15.92	0.63	0.185	0.151	---	0.03
192	16.00	0.63	0.185	0.151	---	0.03
193	16.08	0.13	0.039	0.150	0.010	0.03
194	16.17	0.13	0.039	0.149	0.010	0.03
195	16.25	0.13	0.039	0.148	0.010	0.03
196	16.33	0.13	0.039	0.148	0.010	0.03
197	16.42	0.13	0.039	0.147	0.010	0.03
198	16.50	0.13	0.039	0.146	0.010	0.03
199	16.58	0.10	0.029	0.145	0.008	0.02
200	16.67	0.10	0.029	0.145	0.008	0.02
201	16.75	0.10	0.029	0.144	0.008	0.02
202	16.83	0.10	0.029	0.143	0.008	0.02
203	16.92	0.10	0.029	0.142	0.008	0.02
204	17.00	0.10	0.029	0.142	0.008	0.02
205	17.08	0.17	0.049	0.141	0.013	0.04

206	17.17	0.17	0.049	0.140	0.013	0.04
207	17.25	0.17	0.049	0.140	0.013	0.04
208	17.33	0.17	0.049	0.139	0.013	0.04
209	17.42	0.17	0.049	0.138	0.013	0.04
210	17.50	0.17	0.049	0.138	0.013	0.04
211	17.58	0.17	0.049	0.137	0.013	0.04
212	17.67	0.17	0.049	0.136	0.013	0.04
213	17.75	0.17	0.049	0.135	0.013	0.04
214	17.83	0.13	0.039	0.135	0.010	0.03
215	17.92	0.13	0.039	0.134	0.010	0.03
216	18.00	0.13	0.039	0.133	0.010	0.03
217	18.08	0.13	0.039	0.133	0.010	0.03
218	18.17	0.13	0.039	0.132	0.010	0.03
219	18.25	0.13	0.039	0.132	0.010	0.03
220	18.33	0.13	0.039	0.131	0.010	0.03
221	18.42	0.13	0.039	0.130	0.010	0.03
222	18.50	0.13	0.039	0.130	0.010	0.03
223	18.58	0.10	0.029	0.129	0.008	0.02
224	18.67	0.10	0.029	0.128	0.008	0.02
225	18.75	0.10	0.029	0.128	0.008	0.02
226	18.83	0.07	0.019	0.127	0.005	0.01
227	18.92	0.07	0.019	0.127	0.005	0.01
228	19.00	0.07	0.019	0.126	0.005	0.01
229	19.08	0.10	0.029	0.125	0.008	0.02
230	19.17	0.10	0.029	0.125	0.008	0.02
231	19.25	0.10	0.029	0.124	0.008	0.02
232	19.33	0.13	0.039	0.124	0.010	0.03
233	19.42	0.13	0.039	0.123	0.010	0.03
234	19.50	0.13	0.039	0.122	0.010	0.03
235	19.58	0.10	0.029	0.122	0.008	0.02
236	19.67	0.10	0.029	0.121	0.008	0.02
237	19.75	0.10	0.029	0.121	0.008	0.02
238	19.83	0.07	0.019	0.120	0.005	0.01
239	19.92	0.07	0.019	0.120	0.005	0.01
240	20.00	0.07	0.019	0.119	0.005	0.01
241	20.08	0.10	0.029	0.119	0.008	0.02
242	20.17	0.10	0.029	0.118	0.008	0.02
243	20.25	0.10	0.029	0.118	0.008	0.02
244	20.33	0.10	0.029	0.117	0.008	0.02
245	20.42	0.10	0.029	0.117	0.008	0.02
246	20.50	0.10	0.029	0.116	0.008	0.02
247	20.58	0.10	0.029	0.116	0.008	0.02
248	20.67	0.10	0.029	0.115	0.008	0.02
249	20.75	0.10	0.029	0.115	0.008	0.02
250	20.83	0.07	0.019	0.114	0.005	0.01
251	20.92	0.07	0.019	0.114	0.005	0.01
252	21.00	0.07	0.019	0.113	0.005	0.01
253	21.08	0.10	0.029	0.113	0.008	0.02
254	21.17	0.10	0.029	0.112	0.008	0.02
255	21.25	0.10	0.029	0.112	0.008	0.02
256	21.33	0.07	0.019	0.112	0.005	0.01
257	21.42	0.07	0.019	0.111	0.005	0.01
258	21.50	0.07	0.019	0.111	0.005	0.01
259	21.58	0.10	0.029	0.110	0.008	0.02
260	21.67	0.10	0.029	0.110	0.008	0.02
261	21.75	0.10	0.029	0.109	0.008	0.02
262	21.83	0.07	0.019	0.109	0.005	0.01
263	21.92	0.07	0.019	0.109	0.005	0.01
264	22.00	0.07	0.019	0.108	0.005	0.01
265	22.08	0.10	0.029	0.108	0.008	0.02
266	22.17	0.10	0.029	0.108	0.008	0.02
267	22.25	0.10	0.029	0.107	0.008	0.02
268	22.33	0.07	0.019	0.107	0.005	0.01
269	22.42	0.07	0.019	0.107	0.005	0.01
270	22.50	0.07	0.019	0.106	0.005	0.01

271	22.58	0.07	0.019	0.106	0.005	0.01
272	22.67	0.07	0.019	0.106	0.005	0.01
273	22.75	0.07	0.019	0.105	0.005	0.01
274	22.83	0.07	0.019	0.105	0.005	0.01
275	22.92	0.07	0.019	0.105	0.005	0.01
276	23.00	0.07	0.019	0.105	0.005	0.01
277	23.08	0.07	0.019	0.104	0.005	0.01
278	23.17	0.07	0.019	0.104	0.005	0.01
279	23.25	0.07	0.019	0.104	0.005	0.01
280	23.33	0.07	0.019	0.104	0.005	0.01
281	23.42	0.07	0.019	0.104	0.005	0.01
282	23.50	0.07	0.019	0.103	0.005	0.01
283	23.58	0.07	0.019	0.103	0.005	0.01
284	23.67	0.07	0.019	0.103	0.005	0.01
285	23.75	0.07	0.019	0.103	0.005	0.01
286	23.83	0.07	0.019	0.103	0.005	0.01
287	23.92	0.07	0.019	0.103	0.005	0.01
288	24.00	0.07	0.019	0.103	0.005	0.01
Sum =		100.0			Sum =	16.4

Flood volume = Effective rainfall 1.37(In)
times area 0.7(Ac.)/[(In)/(Ft.)] = 0.1(Ac.Ft)
Total soil loss = 1.06(In)
Total soil loss = 0.066(Ac.Ft)
Total rainfall = 2.43(In)
Flood volume = 3682.5 Cubic Feet
Total soil loss = 2862.6 Cubic Feet

Peak flow rate of this hydrograph = 0.117(CFS)

++

TOTAL OF: 3 24 - H O U R S T O R M E V E N T S
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0000	0.00	Q	|	|	|	|
0+10	0.0000	0.00	Q	|	|	|	|
0+15	0.0000	0.00	Q	|	|	|	|
0+20	0.0001	0.00	Q	|	|	|	|
0+25	0.0001	0.00	Q	|	|	|	|
0+30	0.0001	0.00	Q	|	|	|	|
0+35	0.0001	0.00	Q	|	|	|	|
0+40	0.0001	0.00	Q	|	|	|	|
0+45	0.0002	0.00	Q	|	|	|	|
0+50	0.0002	0.00	Q	|	|	|	|
0+55	0.0002	0.00	Q	|	|	|	|
1+ 0	0.0002	0.00	Q	|	|	|	|
1+ 5	0.0003	0.00	Q	|	|	|	|
1+10	0.0003	0.00	Q	|	|	|	|
1+15	0.0003	0.00	Q	|	|	|	|
1+20	0.0003	0.00	Q	|	|	|	|
1+25	0.0004	0.00	Q	|	|	|	|
1+30	0.0004	0.00	Q	|	|	|	|
1+35	0.0004	0.00	Q	|	|	|	|
1+40	0.0004	0.00	Q	|	|	|	|
1+45	0.0004	0.00	Q	|	|	|	|
1+50	0.0005	0.00	Q	|	|	|	|
1+55	0.0005	0.00	Q	|	|	|	|
2+ 0	0.0005	0.00	Q	|	|	|	|
2+ 5	0.0005	0.00	Q	|	|	|	|
2+10	0.0006	0.00	Q	|	|	|	|
2+15	0.0006	0.00	Q	|	|	|	|

2+20	0.0006	0.00	Q	|	|	|	|
2+25	0.0007	0.00	Q	|	|	|	|
2+30	0.0007	0.00	Q	|	|	|	|
2+35	0.0007	0.00	Q	|	|	|	|
2+40	0.0008	0.01	Q	|	|	|	|
2+45	0.0008	0.01	Q	|	|	|	|
2+50	0.0008	0.01	Q	|	|	|	|
2+55	0.0009	0.01	Q	|	|	|	|
3+ 0	0.0009	0.01	Q	|	|	|	|
3+ 5	0.0009	0.01	Q	|	|	|	|
3+10	0.0010	0.01	Q	|	|	|	|
3+15	0.0010	0.01	Q	|	|	|	|
3+20	0.0010	0.01	Q	|	|	|	|
3+25	0.0011	0.01	Q	|	|	|	|
3+30	0.0011	0.01	Q	|	|	|	|
3+35	0.0011	0.01	Q	|	|	|	|
3+40	0.0012	0.01	Q	|	|	|	|
3+45	0.0012	0.01	Q	|	|	|	|
3+50	0.0012	0.01	Q	|	|	|	|
3+55	0.0013	0.01	Q	|	|	|	|
4+ 0	0.0013	0.01	Q	|	|	|	|
4+ 5	0.0014	0.01	Q	|	|	|	|
4+10	0.0014	0.01	Q	|	|	|	|
4+15	0.0015	0.01	Q	|	|	|	|
4+20	0.0015	0.01	Q	|	|	|	|
4+25	0.0016	0.01	Q	|	|	|	|
4+30	0.0016	0.01	Q	|	|	|	|
4+35	0.0017	0.01	Q	|	|	|	|
4+40	0.0017	0.01	Q	|	|	|	|
4+45	0.0017	0.01	Q	|	|	|	|
4+50	0.0018	0.01	Q	|	|	|	|
4+55	0.0019	0.01	Q	|	|	|	|
5+ 0	0.0019	0.01	Q	|	|	|	|
5+ 5	0.0020	0.01	Q	|	|	|	|
5+10	0.0020	0.01	Q	|	|	|	|
5+15	0.0020	0.01	Q	|	|	|	|
5+20	0.0021	0.01	Q	|	|	|	|
5+25	0.0021	0.01	Q	|	|	|	|
5+30	0.0022	0.01	Q	|	|	|	|
5+35	0.0022	0.01	Q	|	|	|	|
5+40	0.0023	0.01	Q	|	|	|	|
5+45	0.0024	0.01	Q	|	|	|	|
5+50	0.0024	0.01	Q	|	|	|	|
5+55	0.0025	0.01	Q	|	|	|	|
6+ 0	0.0025	0.01	Q	|	|	|	|
6+ 5	0.0026	0.01	Q	|	|	|	|
6+10	0.0026	0.01	Q	|	|	|	|
6+15	0.0027	0.01	Q	|	|	|	|
6+20	0.0028	0.01	Q	|	|	|	|
6+25	0.0028	0.01	Q	|	|	|	|
6+30	0.0029	0.01	Q	|	|	|	|
6+35	0.0030	0.01	Q	|	|	|	|
6+40	0.0030	0.01	Q	|	|	|	|
6+45	0.0031	0.01	Q	|	|	|	|
6+50	0.0032	0.01	Q	|	|	|	|
6+55	0.0032	0.01	Q	|	|	|	|
7+ 0	0.0033	0.01	Q	|	|	|	|
7+ 5	0.0034	0.01	Q	|	|	|	|
7+10	0.0035	0.01	Q	|	|	|	|
7+15	0.0035	0.01	Q	|	|	|	|
7+20	0.0036	0.01	Q	|	|	|	|
7+25	0.0037	0.01	QV	|	|	|	|
7+30	0.0038	0.01	QV	|	|	|	|
7+35	0.0038	0.01	QV	|	|	|	|
7+40	0.0039	0.01	QV	|	|	|	|

7+45	0.0040	0.01	QV	|	|	|	|
7+50	0.0041	0.01	QV	|	|	|	|
7+55	0.0042	0.01	QV	|	|	|	|
8+ 0	0.0043	0.01	QV	|	|	|	|
8+ 5	0.0044	0.01	QV	|	|	|	|
8+10	0.0045	0.02	QV	|	|	|	|
8+15	0.0046	0.02	QV	|	|	|	|
8+20	0.0047	0.02	QV	|	|	|	|
8+25	0.0048	0.02	QV	|	|	|	|
8+30	0.0049	0.02	QV	|	|	|	|
8+35	0.0050	0.02	QV	|	|	|	|
8+40	0.0051	0.02	QV	|	|	|	|
8+45	0.0052	0.02	QV	|	|	|	|
8+50	0.0053	0.02	QV	|	|	|	|
8+55	0.0055	0.02	QV	|	|	|	|
9+ 0	0.0056	0.02	QV	|	|	|	|
9+ 5	0.0057	0.02	QV	|	|	|	|
9+10	0.0058	0.02	QV	|	|	|	|
9+15	0.0060	0.02	QV	|	|	|	|
9+20	0.0061	0.02	QV	|	|	|	|
9+25	0.0063	0.02	QV	|	|	|	|
9+30	0.0064	0.02	QV	|	|	|	|
9+35	0.0065	0.02	QV	|	|	|	|
9+40	0.0067	0.02	QV	|	|	|	|
9+45	0.0068	0.02	QV	|	|	|	|
9+50	0.0070	0.02	QV	|	|	|	|
9+55	0.0071	0.02	QV	|	|	|	|
10+ 0	0.0073	0.02	Q V	|	|	|	|
10+ 5	0.0074	0.02	Q V	|	|	|	|
10+10	0.0075	0.02	Q V	|	|	|	|
10+15	0.0076	0.02	Q V	|	|	|	|
10+20	0.0077	0.02	Q V	|	|	|	|
10+25	0.0078	0.02	Q V	|	|	|	|
10+30	0.0079	0.02	Q V	|	|	|	|
10+35	0.0081	0.02	Q V	|	|	|	|
10+40	0.0082	0.02	Q V	|	|	|	|
10+45	0.0083	0.02	Q V	|	|	|	|
10+50	0.0085	0.02	Q V	|	|	|	|
10+55	0.0086	0.02	Q V	|	|	|	|
11+ 0	0.0088	0.02	Q V	|	|	|	|
11+ 5	0.0089	0.02	Q V	|	|	|	|
11+10	0.0090	0.02	Q V	|	|	|	|
11+15	0.0092	0.02	Q V	|	|	|	|
11+20	0.0093	0.02	Q V	|	|	|	|
11+25	0.0094	0.02	Q V	|	|	|	|
11+30	0.0096	0.02	Q V	|	|	|	|
11+35	0.0097	0.02	Q V	|	|	|	|
11+40	0.0098	0.02	Q V	|	|	|	|
11+45	0.0099	0.02	Q V	|	|	|	|
11+50	0.0100	0.02	Q V	|	|	|	|
11+55	0.0102	0.02	Q V	|	|	|	|
12+ 0	0.0103	0.02	Q V	|	|	|	|
12+ 5	0.0105	0.02	Q V	|	|	|	|
12+10	0.0106	0.03	Q V	|	|	|	|
12+15	0.0108	0.03	Q V	|	|	|	|
12+20	0.0110	0.03	Q V	|	|	|	|
12+25	0.0112	0.03	Q V	|	|	|	|
12+30	0.0114	0.03	Q V	|	|	|	|
12+35	0.0115	0.03	Q V	|	|	|	|
12+40	0.0117	0.03	Q V	|	|	|	|
12+45	0.0119	0.03	Q V	|	|	|	|
12+50	0.0121	0.03	Q V	|	|	|	|
12+55	0.0123	0.03	Q V	|	|	|	|
13+ 0	0.0125	0.03	Q V	|	|	|	|
13+ 5	0.0128	0.03	Q V	|	|	|	|

13+10	0.0130	0.03	Q	V	|	|	|	|
13+15	0.0132	0.03	Q	V	|	|	|	|
13+20	0.0135	0.03	Q	V	|	|	|	|
13+25	0.0137	0.03	Q	V	|	|	|	|
13+30	0.0140	0.03	Q	V	|	|	|	|
13+35	0.0141	0.03	Q	V	|	|	|	|
13+40	0.0143	0.02	Q	V	|	|	|	|
13+45	0.0145	0.02	Q	V	|	|	|	|
13+50	0.0146	0.02	Q	V	|	|	|	|
13+55	0.0148	0.02	Q	V	|	|	|	|
14+ 0	0.0149	0.02	Q	V	|	|	|	|
14+ 5	0.0151	0.03	Q	V	|	|	|	|
14+10	0.0153	0.03	Q	V	|	|	|	|
14+15	0.0155	0.03	Q	V	|	|	|	|
14+20	0.0157	0.03	Q	V	|	|	|	|
14+25	0.0159	0.03	Q	V	|	|	|	|
14+30	0.0160	0.03	Q	V	|	|	|	|
14+35	0.0162	0.03	Q	V	|	|	|	|
14+40	0.0164	0.03	Q	V	|	|	|	|
14+45	0.0166	0.03	Q	V	|	|	|	|
14+50	0.0168	0.03	Q	V	|	|	|	|
14+55	0.0169	0.03	Q	V	|	|	|	|
15+ 0	0.0171	0.03	Q	V	|	|	|	|
15+ 5	0.0173	0.02	Q	V	|	|	|	|
15+10	0.0175	0.02	Q	V	|	|	|	|
15+15	0.0176	0.02	Q	V	|	|	|	|
15+20	0.0178	0.02	Q	V	|	|	|	|
15+25	0.0179	0.02	Q	V	|	|	|	|
15+30	0.0181	0.02	Q	V	|	|	|	|
15+35	0.0182	0.02	Q	V	|	|	|	|
15+40	0.0184	0.02	Q	V	|	|	|	|
15+45	0.0185	0.02	Q	V	|	|	|	|
15+50	0.0186	0.02	Q	V	|	|	|	|
15+55	0.0188	0.02	Q	V	|	|	|	|
16+ 0	0.0189	0.02	Q	V	|	|	|	|
16+ 5	0.0190	0.01	Q	V	|	|	|	|
16+10	0.0190	0.00	Q	V	|	|	|	|
16+15	0.0190	0.00	Q	V	|	|	|	|
16+20	0.0190	0.00	Q	V	|	|	|	|
16+25	0.0191	0.00	Q	V	|	|	|	|
16+30	0.0191	0.00	Q	V	|	|	|	|
16+35	0.0191	0.00	Q	V	|	|	|	|
16+40	0.0191	0.00	Q	V	|	|	|	|
16+45	0.0192	0.00	Q	V	|	|	|	|
16+50	0.0192	0.00	Q	V	|	|	|	|
16+55	0.0192	0.00	Q	V	|	|	|	|
17+ 0	0.0192	0.00	Q	V	|	|	|	|
17+ 5	0.0193	0.00	Q	V	|	|	|	|
17+10	0.0193	0.01	Q	V	|	|	|	|
17+15	0.0193	0.01	Q	V	|	|	|	|
17+20	0.0194	0.01	Q	V	|	|	|	|
17+25	0.0194	0.01	Q	V	|	|	|	|
17+30	0.0194	0.01	Q	V	|	|	|	|
17+35	0.0195	0.01	Q	V	|	|	|	|
17+40	0.0195	0.01	Q	V	|	|	|	|
17+45	0.0195	0.01	Q	V	|	|	|	|
17+50	0.0196	0.00	Q	V	|	|	|	|
17+55	0.0196	0.00	Q	V	|	|	|	|
18+ 0	0.0196	0.00	Q	V	|	|	|	|
18+ 5	0.0196	0.00	Q	V	|	|	|	|
18+10	0.0197	0.00	Q	V	|	|	|	|
18+15	0.0197	0.00	Q	V	|	|	|	|
18+20	0.0197	0.00	Q	V	|	|	|	|
18+25	0.0198	0.00	Q	V	|	|	|	|
18+30	0.0198	0.00	Q	V	|	|	|	|

18+35	0.0198	0.00	Q	V	|	|	|
18+40	0.0198	0.00	Q	V	|	|	|
18+45	0.0199	0.00	Q	V	|	|	|
18+50	0.0199	0.00	Q	V	|	|	|
18+55	0.0199	0.00	Q	V	|	|	|
19+ 0	0.0199	0.00	Q	V	|	|	|
19+ 5	0.0199	0.00	Q	V	|	|	|
19+10	0.0199	0.00	Q	V	|	|	|
19+15	0.0200	0.00	Q	V	|	|	|
19+20	0.0200	0.00	Q	V	|	|	|
19+25	0.0200	0.00	Q	V	|	|	|
19+30	0.0200	0.00	Q	V	|	|	|
19+35	0.0201	0.00	Q	V	|	|	|
19+40	0.0201	0.00	Q	V	|	|	|
19+45	0.0201	0.00	Q	V	|	|	|
19+50	0.0201	0.00	Q	V	|	|	|
19+55	0.0201	0.00	Q	V	|	|	|
20+ 0	0.0201	0.00	Q	V	|	|	|
20+ 5	0.0202	0.00	Q	V	|	|	|
20+10	0.0202	0.00	Q	V	|	|	|
20+15	0.0202	0.00	Q	V	|	|	|
20+20	0.0202	0.00	Q	V	|	|	|
20+25	0.0202	0.00	Q	V	|	|	|
20+30	0.0203	0.00	Q	V	|	|	|
20+35	0.0203	0.00	Q	V	|	|	|
20+40	0.0203	0.00	Q	V	|	|	|
20+45	0.0203	0.00	Q	V	|	|	|
20+50	0.0203	0.00	Q	V	|	|	|
20+55	0.0204	0.00	Q	V	|	|	|
21+ 0	0.0204	0.00	Q	V	|	|	|
21+ 5	0.0204	0.00	Q	V	|	|	|
21+10	0.0204	0.00	Q	V	|	|	|
21+15	0.0204	0.00	Q	V	|	|	|
21+20	0.0205	0.00	Q	V	|	|	|
21+25	0.0205	0.00	Q	V	|	|	|
21+30	0.0205	0.00	Q	V	|	|	|
21+35	0.0205	0.00	Q	V	|	|	|
21+40	0.0205	0.00	Q	V	|	|	|
21+45	0.0205	0.00	Q	V	|	|	|
21+50	0.0206	0.00	Q	V	|	|	|
21+55	0.0206	0.00	Q	V	|	|	|
22+ 0	0.0206	0.00	Q	V	|	|	|
22+ 5	0.0206	0.00	Q	V	|	|	|
22+10	0.0206	0.00	Q	V	|	|	|
22+15	0.0206	0.00	Q	V	|	|	|
22+20	0.0207	0.00	Q	V	|	|	|
22+25	0.0207	0.00	Q	V	|	|	|
22+30	0.0207	0.00	Q	V	|	|	|
22+35	0.0207	0.00	Q	V	|	|	|
22+40	0.0207	0.00	Q	V	|	|	|
22+45	0.0207	0.00	Q	V	|	|	|
22+50	0.0207	0.00	Q	V	|	|	|
22+55	0.0208	0.00	Q	V	|	|	|
23+ 0	0.0208	0.00	Q	V	|	|	|
23+ 5	0.0208	0.00	Q	V	|	|	|
23+10	0.0208	0.00	Q	V	|	|	|
23+15	0.0208	0.00	Q	V	|	|	|
23+20	0.0208	0.00	Q	V	|	|	|
23+25	0.0208	0.00	Q	V	|	|	|
23+30	0.0209	0.00	Q	V	|	|	|
23+35	0.0209	0.00	Q	V	|	|	|
23+40	0.0209	0.00	Q	V	|	|	|
23+45	0.0209	0.00	Q	V	|	|	|
23+50	0.0209	0.00	Q	V	|	|	|
23+55	0.0209	0.00	Q	V	|	|	|

24+ 0	0.0209	0.00	Q	V	|	|	|	|
24+ 5	0.0210	0.00	Q	V	|	|	|	|
24+10	0.0210	0.00	Q	V	|	|	|	|
24+15	0.0210	0.00	Q	V	|	|	|	|
24+20	0.0211	0.01	Q	V	|	|	|	|
24+25	0.0211	0.01	Q	V	|	|	|	|
24+30	0.0211	0.01	Q	V	|	|	|	|
24+35	0.0212	0.01	Q	V	|	|	|	|
24+40	0.0212	0.01	Q	V	|	|	|	|
24+45	0.0213	0.01	Q	V	|	|	|	|
24+50	0.0213	0.01	Q	V	|	|	|	|
24+55	0.0214	0.01	Q	V	|	|	|	|
25+ 0	0.0214	0.01	Q	V	|	|	|	|
25+ 5	0.0214	0.01	Q	V	|	|	|	|
25+10	0.0215	0.01	Q	V	|	|	|	|
25+15	0.0215	0.01	Q	V	|	|	|	|
25+20	0.0216	0.01	Q	V	|	|	|	|
25+25	0.0216	0.01	Q	V	|	|	|	|
25+30	0.0216	0.01	Q	V	|	|	|	|
25+35	0.0217	0.01	Q	V	|	|	|	|
25+40	0.0217	0.01	Q	V	|	|	|	|
25+45	0.0218	0.01	Q	V	|	|	|	|
25+50	0.0218	0.01	Q	V	|	|	|	|
25+55	0.0219	0.01	Q	V	|	|	|	|
26+ 0	0.0219	0.01	Q	V	|	|	|	|
26+ 5	0.0220	0.01	Q	V	|	|	|	|
26+10	0.0220	0.01	Q	V	|	|	|	|
26+15	0.0221	0.01	Q	V	|	|	|	|
26+20	0.0221	0.01	Q	V	|	|	|	|
26+25	0.0222	0.01	Q	V	|	|	|	|
26+30	0.0222	0.01	Q	V	|	|	|	|
26+35	0.0223	0.01	Q	V	|	|	|	|
26+40	0.0224	0.01	Q	V	|	|	|	|
26+45	0.0224	0.01	Q	V	|	|	|	|
26+50	0.0225	0.01	Q	V	|	|	|	|
26+55	0.0226	0.01	Q	V	|	|	|	|
27+ 0	0.0226	0.01	Q	V	|	|	|	|
27+ 5	0.0227	0.01	Q	V	|	|	|	|
27+10	0.0228	0.01	Q	V	|	|	|	|
27+15	0.0228	0.01	Q	V	|	|	|	|
27+20	0.0229	0.01	Q	V	|	|	|	|
27+25	0.0230	0.01	Q	V	|	|	|	|
27+30	0.0230	0.01	Q	V	|	|	|	|
27+35	0.0231	0.01	Q	V	|	|	|	|
27+40	0.0232	0.01	Q	V	|	|	|	|
27+45	0.0232	0.01	Q	V	|	|	|	|
27+50	0.0233	0.01	Q	V	|	|	|	|
27+55	0.0234	0.01	Q	V	|	|	|	|
28+ 0	0.0235	0.01	Q	V	|	|	|	|
28+ 5	0.0235	0.01	Q	V	|	|	|	|
28+10	0.0236	0.01	Q	V	|	|	|	|
28+15	0.0237	0.01	Q	V	|	|	|	|
28+20	0.0238	0.01	Q	V	|	|	|	|
28+25	0.0239	0.01	Q	V	|	|	|	|
28+30	0.0240	0.01	Q	V	|	|	|	|
28+35	0.0241	0.01	Q	V	|	|	|	|
28+40	0.0242	0.01	Q	V	|	|	|	|
28+45	0.0243	0.01	Q	V	|	|	|	|
28+50	0.0244	0.01	Q	V	|	|	|	|
28+55	0.0245	0.02	Q	V	|	|	|	|
29+ 0	0.0246	0.02	Q	V	|	|	|	|
29+ 5	0.0247	0.01	Q	V	|	|	|	|
29+10	0.0247	0.01	Q	V	|	|	|	|
29+15	0.0248	0.01	Q	V	|	|	|	|
29+20	0.0249	0.01	Q	V	|	|	|	|

29+25	0.0250	0.01	Q	V	|	|	|	|
29+30	0.0251	0.01	Q	V	|	|	|	|
29+35	0.0252	0.01	Q	V	|	|	|	|
29+40	0.0253	0.02	Q	V	|	|	|	|
29+45	0.0254	0.02	Q	V	|	|	|	|
29+50	0.0255	0.02	Q	V	|	|	|	|
29+55	0.0256	0.02	Q	V	|	|	|	|
30+ 0	0.0257	0.02	Q	V	|	|	|	|
30+ 5	0.0258	0.02	Q	V	|	|	|	|
30+10	0.0260	0.02	Q	V	|	|	|	|
30+15	0.0261	0.02	Q	V	|	|	|	|
30+20	0.0262	0.02	Q	V	|	|	|	|
30+25	0.0263	0.02	Q	V	|	|	|	|
30+30	0.0264	0.02	Q	V	|	|	|	|
30+35	0.0266	0.02	Q	V	|	|	|	|
30+40	0.0267	0.02	Q	V	|	|	|	|
30+45	0.0268	0.02	Q	V	|	|	|	|
30+50	0.0270	0.02	Q	V	|	|	|	|
30+55	0.0271	0.02	Q	V	|	|	|	|
31+ 0	0.0272	0.02	Q	V	|	|	|	|
31+ 5	0.0274	0.02	Q	V	|	|	|	|
31+10	0.0275	0.02	Q	V	|	|	|	|
31+15	0.0276	0.02	Q	V	|	|	|	|
31+20	0.0278	0.02	Q	V	|	|	|	|
31+25	0.0279	0.02	Q	V	|	|	|	|
31+30	0.0281	0.02	Q	V	|	|	|	|
31+35	0.0282	0.02	Q	V	|	|	|	|
31+40	0.0284	0.02	Q	V	|	|	|	|
31+45	0.0285	0.02	Q	V	|	|	|	|
31+50	0.0287	0.02	Q	V	|	|	|	|
31+55	0.0289	0.02	Q	V	|	|	|	|
32+ 0	0.0290	0.02	Q	V	|	|	|	|
32+ 5	0.0292	0.03	Q	V	|	|	|	|
32+10	0.0294	0.03	Q	V	|	|	|	|
32+15	0.0296	0.03	Q	V	|	|	|	|
32+20	0.0298	0.03	Q	V	|	|	|	|
32+25	0.0300	0.03	Q	V	|	|	|	|
32+30	0.0302	0.03	Q	V	|	|	|	|
32+35	0.0304	0.03	Q	V	|	|	|	|
32+40	0.0306	0.03	Q	V	|	|	|	|
32+45	0.0309	0.03	Q	V	|	|	|	|
32+50	0.0311	0.03	Q	V	|	|	|	|
32+55	0.0313	0.03	Q	V	|	|	|	|
33+ 0	0.0315	0.03	Q	V	|	|	|	|
33+ 5	0.0318	0.04	Q	V	|	|	|	|
33+10	0.0320	0.04	Q	V	|	|	|	|
33+15	0.0323	0.04	Q	V	|	|	|	|
33+20	0.0325	0.04	Q	V	|	|	|	|
33+25	0.0328	0.04	Q	V	|	|	|	|
33+30	0.0331	0.04	Q	V	|	|	|	|
33+35	0.0333	0.04	Q	V	|	|	|	|
33+40	0.0336	0.04	Q	V	|	|	|	|
33+45	0.0339	0.04	Q	V	|	|	|	|
33+50	0.0342	0.04	Q	V	|	|	|	|
33+55	0.0345	0.04	Q	V	|	|	|	|
34+ 0	0.0348	0.04	Q	V	|	|	|	|
34+ 5	0.0350	0.03	Q	V	|	|	|	|
34+10	0.0352	0.03	Q	V	|	|	|	|
34+15	0.0354	0.03	Q	V	|	|	|	|
34+20	0.0356	0.03	Q	V	|	|	|	|
34+25	0.0358	0.03	Q	V	|	|	|	|
34+30	0.0360	0.03	Q	V	|	|	|	|
34+35	0.0362	0.04	Q	V	|	|	|	|
34+40	0.0365	0.04	Q	V	|	|	|	|
34+45	0.0368	0.04	Q	V	|	|	|	|

34+50	0.0370	0.04	Q	V	|	|	|
34+55	0.0373	0.04	Q	V	|	|	|
35+ 0	0.0376	0.04	Q	V	|	|	|
35+ 5	0.0378	0.04	Q	V	|	|	|
35+10	0.0381	0.04	Q	V	|	|	|
35+15	0.0383	0.04	Q	V	|	|	|
35+20	0.0386	0.04	Q	V	|	|	|
35+25	0.0388	0.04	Q	V	|	|	|
35+30	0.0391	0.04	Q	V	|	|	|
35+35	0.0393	0.03	Q	V	|	|	|
35+40	0.0395	0.03	Q	V	|	|	|
35+45	0.0397	0.03	Q	V	|	|	|
35+50	0.0400	0.03	Q	|V	|	|	|
35+55	0.0402	0.03	Q	|V	|	|	|
36+ 0	0.0405	0.03	Q	|V	|	|	|
36+ 5	0.0408	0.04	Q	|V	|	|	|
36+10	0.0411	0.05	Q	|V	|	|	|
36+15	0.0414	0.05	Q	|V	|	|	|
36+20	0.0418	0.05	Q	|V	|	|	|
36+25	0.0421	0.05	Q	|V	|	|	|
36+30	0.0425	0.05	Q	|V	|	|	|
36+35	0.0428	0.05	Q	|V	|	|	|
36+40	0.0432	0.05	Q	|V	|	|	|
36+45	0.0436	0.05	Q	| V	|	|	|
36+50	0.0439	0.06	Q	| V	|	|	|
36+55	0.0443	0.06	Q	| V	|	|	|
37+ 0	0.0447	0.06	Q	| V	|	|	|
37+ 5	0.0451	0.06	Q	| V	|	|	|
37+10	0.0456	0.07	Q	| V	|	|	|
37+15	0.0460	0.07	Q	| V	|	|	|
37+20	0.0465	0.07	Q	| V	|	|	|
37+25	0.0469	0.07	Q	| V	|	|	|
37+30	0.0474	0.07	Q	| V	|	|	|
37+35	0.0477	0.05	Q	| V	|	|	|
37+40	0.0480	0.04	Q	| V	|	|	|
37+45	0.0483	0.04	Q	| V	|	|	|
37+50	0.0486	0.04	Q	| V	|	|	|
37+55	0.0489	0.04	Q	| V	|	|	|
38+ 0	0.0492	0.04	Q	| V	|	|	|
38+ 5	0.0496	0.05	Q	| V	|	|	|
38+10	0.0500	0.05	Q	| V	|	|	|
38+15	0.0503	0.05	Q	| V	|	|	|
38+20	0.0507	0.05	Q	| V	|	|	|
38+25	0.0510	0.05	Q	| V	|	|	|
38+30	0.0513	0.05	Q	| V	|	|	|
38+35	0.0517	0.05	Q	| V	|	|	|
38+40	0.0520	0.05	Q	| V	|	|	|
38+45	0.0524	0.05	Q	| V	|	|	|
38+50	0.0527	0.05	Q	| V	|	|	|
38+55	0.0530	0.05	Q	| V	|	|	|
39+ 0	0.0534	0.05	Q	| V	|	|	|
39+ 5	0.0537	0.05	Q	| V	|	|	|
39+10	0.0540	0.05	Q	| V	|	|	|
39+15	0.0543	0.05	Q	| V	|	|	|
39+20	0.0546	0.04	Q	| V	|	|	|
39+25	0.0549	0.04	Q	| V	|	|	|
39+30	0.0552	0.04	Q	| V	|	|	|
39+35	0.0555	0.04	Q	| V	|	|	|
39+40	0.0558	0.04	Q	| V	|	|	|
39+45	0.0560	0.04	Q	| V	|	|	|
39+50	0.0563	0.04	Q	| V	|	|	|
39+55	0.0565	0.04	Q	| V	|	|	|
40+ 0	0.0568	0.04	Q	| V	|	|	|
40+ 5	0.0569	0.01	Q	| V	|	|	|
40+10	0.0569	0.01	Q	| V	|	|	|

40+15	0.0570	0.01	Q	| V |	|	|
40+20	0.0570	0.01	Q	| V |	|	|
40+25	0.0571	0.01	Q	| V |	|	|
40+30	0.0571	0.01	Q	| V |	|	|
40+35	0.0572	0.01	Q	| V |	|	|
40+40	0.0572	0.01	Q	| V |	|	|
40+45	0.0572	0.01	Q	| V |	|	|
40+50	0.0573	0.01	Q	| V |	|	|
40+55	0.0573	0.01	Q	| V |	|	|
41+ 0	0.0574	0.01	Q	| V |	|	|
41+ 5	0.0574	0.01	Q	| V |	|	|
41+10	0.0575	0.01	Q	| V |	|	|
41+15	0.0576	0.01	Q	| V |	|	|
41+20	0.0576	0.01	Q	| V |	|	|
41+25	0.0577	0.01	Q	| V |	|	|
41+30	0.0578	0.01	Q	| V |	|	|
41+35	0.0578	0.01	Q	| V |	|	|
41+40	0.0579	0.01	Q	| V |	|	|
41+45	0.0580	0.01	Q	| V |	|	|
41+50	0.0580	0.01	Q	| V |	|	|
41+55	0.0581	0.01	Q	| V |	|	|
42+ 0	0.0581	0.01	Q	| V |	|	|
42+ 5	0.0582	0.01	Q	| V |	|	|
42+10	0.0582	0.01	Q	| V |	|	|
42+15	0.0583	0.01	Q	| V |	|	|
42+20	0.0583	0.01	Q	| V |	|	|
42+25	0.0584	0.01	Q	| V |	|	|
42+30	0.0584	0.01	Q	| V |	|	|
42+35	0.0585	0.01	Q	| V |	|	|
42+40	0.0585	0.01	Q	| V |	|	|
42+45	0.0586	0.01	Q	| V |	|	|
42+50	0.0586	0.00	Q	| V |	|	|
42+55	0.0586	0.00	Q	| V |	|	|
43+ 0	0.0586	0.00	Q	| V |	|	|
43+ 5	0.0587	0.01	Q	| V |	|	|
43+10	0.0587	0.01	Q	| V |	|	|
43+15	0.0588	0.01	Q	| V |	|	|
43+20	0.0588	0.01	Q	| V |	|	|
43+25	0.0589	0.01	Q	| V |	|	|
43+30	0.0589	0.01	Q	| V |	|	|
43+35	0.0590	0.01	Q	| V |	|	|
43+40	0.0590	0.01	Q	| V |	|	|
43+45	0.0590	0.01	Q	| V |	|	|
43+50	0.0591	0.00	Q	| V |	|	|
43+55	0.0591	0.00	Q	| V |	|	|
44+ 0	0.0591	0.00	Q	| V |	|	|
44+ 5	0.0592	0.01	Q	| V |	|	|
44+10	0.0592	0.01	Q	| V |	|	|
44+15	0.0592	0.01	Q	| V |	|	|
44+20	0.0593	0.01	Q	| V |	|	|
44+25	0.0593	0.01	Q	| V |	|	|
44+30	0.0594	0.01	Q	| V |	|	|
44+35	0.0594	0.01	Q	| V |	|	|
44+40	0.0594	0.01	Q	| V |	|	|
44+45	0.0595	0.01	Q	| V |	|	|
44+50	0.0595	0.00	Q	| V |	|	|
44+55	0.0595	0.00	Q	| V |	|	|
45+ 0	0.0596	0.00	Q	| V |	|	|
45+ 5	0.0596	0.01	Q	| V |	|	|
45+10	0.0596	0.01	Q	| V |	|	|
45+15	0.0597	0.01	Q	| V |	|	|
45+20	0.0597	0.00	Q	| V |	|	|
45+25	0.0597	0.00	Q	| V |	|	|
45+30	0.0598	0.00	Q	| V |	|	|
45+35	0.0598	0.01	Q	| V |	|	|

```
45+40    0.0598    0.01 Q      |   V  |      |      |
45+45    0.0599    0.01 Q      |   V  |      |      |
45+50    0.0599    0.00 Q      |   V  |      |      |
45+55    0.0599    0.00 Q      |   V  |      |      |
46+ 0    0.0599    0.00 Q      |   V  |      |      |
46+ 5    0.0600    0.01 Q      |   V  |      |      |
46+10    0.0600    0.01 Q      |   V  |      |      |
46+15    0.0601    0.01 Q      |   V  |      |      |
46+20    0.0601    0.00 Q      |   V  |      |      |
46+25    0.0601    0.00 Q      |   V  |      |      |
46+30    0.0601    0.00 Q      |   V  |      |      |
46+35    0.0602    0.00 Q      |   V  |      |      |
46+40    0.0602    0.00 Q      |   V  |      |      |
46+45    0.0602    0.00 Q      |   V  |      |      |
46+50    0.0603    0.00 Q      |   V  |      |      |
46+55    0.0603    0.00 Q      |   V  |      |      |
47+ 0    0.0603    0.00 Q      |   V  |      |      |
47+ 5    0.0603    0.00 Q      |   V  |      |      |
47+10    0.0604    0.00 Q      |   V  |      |      |
47+15    0.0604    0.00 Q      |   V  |      |      |
47+20    0.0604    0.00 Q      |   V  |      |      |
47+25    0.0604    0.00 Q      |   V  |      |      |
47+30    0.0605    0.00 Q      |   V  |      |      |
47+35    0.0605    0.00 Q      |   V  |      |      |
47+40    0.0605    0.00 Q      |   V  |      |      |
47+45    0.0605    0.00 Q      |   V  |      |      |
47+50    0.0606    0.00 Q      |   V  |      |      |
47+55    0.0606    0.00 Q      |   V  |      |      |
48+ 0    0.0606    0.00 Q      |   V  |      |      |
48+ 5    0.0607    0.01 Q      |   V  |      |      |
48+10    0.0608    0.01 Q      |   V  |      |      |
48+15    0.0608    0.01 Q      |   V  |      |      |
48+20    0.0609    0.01 Q      |   V  |      |      |
48+25    0.0610    0.02 Q      |   V  |      |      |
48+30    0.0611    0.02 Q      |   V  |      |      |
48+35    0.0613    0.02 Q      |   V  |      |      |
48+40    0.0614    0.02 Q      |   V  |      |      |
48+45    0.0615    0.02 Q      |   V  |      |      |
48+50    0.0616    0.02 Q      |   V  |      |      |
48+55    0.0618    0.02 Q      |    V |      |      |
49+ 0    0.0619    0.02 Q      |   V  |      |      |
49+ 5    0.0620    0.02 Q      |   V  |      |      |
49+10    0.0621    0.02 Q      |    V |      |      |
49+15    0.0623    0.02 Q      |    V |      |      |
49+20    0.0624    0.02 Q      |    V |      |      |
49+25    0.0625    0.02 Q      |    V |      |      |
49+30    0.0626    0.02 Q      |    V |      |      |
49+35    0.0627    0.02 Q      |    V |      |      |
49+40    0.0628    0.02 Q      |    V |      |      |
49+45    0.0629    0.02 Q      |    V |      |      |
49+50    0.0631    0.02 Q      |    V |      |      |
49+55    0.0632    0.02 Q      |    V |      |      |
50+ 0    0.0633    0.02 Q      |   V  |      |      |
50+ 5    0.0635    0.02 Q      |   V  |      |      |
50+10    0.0636    0.02 Q      |    V |      |      |
50+15    0.0638    0.02 Q      |    V |      |      |
50+20    0.0639    0.02 Q      |    V |      |      |
50+25    0.0641    0.02 Q      |    V |      |      |
50+30    0.0642    0.02 Q      |    V |      |      |
50+35    0.0644    0.03 Q      |    V |      |      |
50+40    0.0646    0.03 Q      |    V |      |      |
50+45    0.0648    0.03 Q      |    V |      |      |
50+50    0.0650    0.03 Q      |    V |      |      |
50+55    0.0651    0.03 Q      |    V |      |      |
51+ 0    0.0653    0.03 Q      |   V  |      |      |
```

```
51+ 5    0.0655    0.03  Q      |     V |       |       |
51+10    0.0657    0.03  Q      |      V |      |       |
51+15    0.0659    0.03  Q      |      V |      |       |
51+20    0.0661    0.03  Q      |      V |      |       |
51+25    0.0662    0.03  Q      |      V |      |       |
51+30    0.0664    0.03  Q      |      V |      |       |
51+35    0.0666    0.03  Q      |      V |      |       |
51+40    0.0668    0.03  Q      |      V |      |       |
51+45    0.0670    0.03  Q      |      V |      |       |
51+50    0.0672    0.03  Q      |      V |      |       |
51+55    0.0674    0.03  Q      |      V |      |       |
52+ 0    0.0676    0.03  Q      |     V |       |       |
52+ 5    0.0678    0.03  Q      |     V |       |       |
52+10    0.0681    0.03  Q      |      V |      |       |
52+15    0.0683    0.03  Q      |      V |      |       |
52+20    0.0685    0.04  Q      |      V |      |       |
52+25    0.0688    0.04  Q      |      V |      |       |
52+30    0.0691    0.04  Q      |      V|       |       |
52+35    0.0693    0.04  Q      |      V|       |       |
52+40    0.0696    0.04  Q      |      V|       |       |
52+45    0.0698    0.04  Q      |      V|       |       |
52+50    0.0701    0.04  Q      |      V|       |       |
52+55    0.0704    0.04  Q      |      V|       |       |
53+ 0    0.0707    0.04  Q      |     V|       |       |
53+ 5    0.0709    0.03  Q      |     V|       |       |
53+10    0.0712    0.03  Q      |      V|       |       |
53+15    0.0714    0.03  Q      |      V|       |       |
53+20    0.0716    0.04  Q      |      V|       |       |
53+25    0.0719    0.04  Q      |      V|       |       |
53+30    0.0721    0.04  Q      |      V|       |       |
53+35    0.0724    0.04  Q      |      V|       |       |
53+40    0.0727    0.04  Q      |       V       |       |
53+45    0.0730    0.04  Q      |       V       |       |
53+50    0.0733    0.04  Q      |       V       |       |
53+55    0.0736    0.04  Q      |       V       |       |
54+ 0    0.0739    0.04  Q      |       V       |       |
54+ 5    0.0742    0.05  Q      |       V       |       |
54+10    0.0745    0.05  Q      |       V       |       |
54+15    0.0749    0.05  Q      |       V       |       |
54+20    0.0752    0.05  Q      |       V       |       |
54+25    0.0755    0.05  Q      |       V       |       |
54+30    0.0759    0.05  Q      |       V       |       |
54+35    0.0762    0.05  Q      |       |V      |       |
54+40    0.0766    0.05  Q      |       |V      |       |
54+45    0.0770    0.05  Q      |       |V      |       |
54+50    0.0773    0.05  Q      |       |V      |       |
54+55    0.0777    0.05  Q      |       |V      |       |
55+ 0    0.0781    0.05  Q      |       |V      |       |
55+ 5    0.0784    0.05  Q      |       |V      |       |
55+10    0.0788    0.05  Q      |       |V      |       |
55+15    0.0792    0.05  Q      |       |V      |       |
55+20    0.0796    0.06  Q      |       |V      |       |
55+25    0.0800    0.06  Q      |       | V     |       |
55+30    0.0804    0.06  Q      |       | V     |       |
55+35    0.0808    0.06  Q      |       | V     |       |
55+40    0.0812    0.06  Q      |       | V     |       |
55+45    0.0817    0.06  Q      |       | V     |       |
55+50    0.0822    0.07  Q      |       | V     |       |
55+55    0.0826    0.07  Q      |       | V     |       |
56+ 0    0.0831    0.07  Q      |       | V     |       |
56+ 5    0.0836    0.08  Q      |       |  V    |       |
56+10    0.0842    0.08  Q      |       |  V    |       |
56+15    0.0848    0.08  Q      |       |  V    |       |
56+20    0.0853    0.08  Q      |       |  V    |       |
56+25    0.0859    0.08  Q      |       |  V    |       |
```

```
56+30    0.0864    0.08 Q      |      | V    |      |
56+35    0.0870    0.08 Q      |      | V    |      |
56+40    0.0876    0.09 Q      |      |  V   |      |
56+45    0.0882    0.09 Q      |      |  V   |      |
56+50    0.0888    0.09 Q      |      |  V   |      |
56+55    0.0894    0.09 Q      |      |  V   |      |
57+ 0    0.0900    0.09 Q      |      |  V   |      |
57+ 5    0.0907    0.10 Q      |      |  V   |      |
57+10    0.0914    0.10 Q      |      |   V  |      |
57+15    0.0921    0.10 Q      |      |   V  |      |
57+20    0.0928    0.11 Q      |      |   V  |      |
57+25    0.0936    0.11 Q      |      |   V  |      |
57+30    0.0943    0.11 Q      |      |   V  |      |
57+35    0.0951    0.11 Q      |      |    V |      |
57+40    0.0958    0.11 Q      |      |    V |      |
57+45    0.0966    0.11 Q      |      |    V |      |
57+50    0.0974    0.12 Q      |      |    V |      |
57+55    0.0982    0.12 Q      |      |    V |      |
58+ 0    0.0990    0.12 Q      |      |    V |      |
58+ 5    0.0996    0.09 Q      |      |    V |      |
58+10    0.1002    0.08 Q      |      |    V |      |
58+15    0.1007    0.08 Q      |      |    V |      |
58+20    0.1013    0.08 Q      |      |    V |      |
58+25    0.1018    0.08 Q      |      |     V|      |
58+30    0.1024    0.08 Q      |      |     V|      |
58+35    0.1031    0.10 Q      |      |     V|      |
58+40    0.1038    0.11 Q      |      |     V|      |
58+45    0.1046    0.11 Q      |      |     V|      |
58+50    0.1053    0.11 Q      |      |      V|     |
58+55    0.1060    0.11 Q      |      |      V|     |
59+ 0    0.1068    0.11 Q      |      |     V|      |
59+ 5    0.1075    0.10 Q      |      |     V|      |
59+10    0.1082    0.10 Q      |      |      V|     |
59+15    0.1089    0.10 Q      |      |      V|     |
59+20    0.1096    0.10 Q      |      |       V     |
59+25    0.1103    0.10 Q      |      |       V     |
59+30    0.1110    0.10 Q      |      |       V     |
59+35    0.1116    0.09 Q      |      |       V     |
59+40    0.1122    0.09 Q      |      |       V     |
59+45    0.1128    0.09 Q      |      |      |V     |
59+50    0.1135    0.09 Q      |      |      |V     |
59+55    0.1142    0.10 Q      |      |      |V     |
60+ 0    0.1148    0.10 Q      |      |     |V     |
60+ 5    0.1152    0.05 Q      |      |     |V     |
60+10    0.1154    0.04 Q      |      |      |V     |
60+15    0.1157    0.04 Q      |      |      |V     |
60+20    0.1160    0.05 Q      |      |      |V     |
60+25    0.1164    0.05 Q      |      |      | V    |
60+30    0.1167    0.05 Q      |      |      | V    |
60+35    0.1171    0.06 Q      |      |      | V    |
60+40    0.1176    0.07 Q      |      |      | V    |
60+45    0.1180    0.07 Q      |      |      | V    |
60+50    0.1185    0.07 Q      |      |      | V    |
60+55    0.1190    0.07 Q      |      |      | V    |
61+ 0    0.1196    0.08 Q      |      |     | V    |
61+ 5    0.1203    0.10 Q      |      |     |  V   |
61+10    0.1211    0.11 Q      |      |      |  V   |
61+15    0.1218    0.11 Q      |      |      |  V   |
61+20    0.1226    0.11 Q      |      |      |  V   |
61+25    0.1234    0.11 Q      |      |      |   V  |
61+30    0.1242    0.12 Q      |      |      |   V  |
61+35    0.1246    0.05 Q      |      |      |   V  |
61+40    0.1248    0.04 Q      |      |      |   V  |
61+45    0.1251    0.04 Q      |      |      |   V  |
61+50    0.1254    0.04 Q      |      |      |   V  |
```

```
61+55    0.1256    0.04 Q     |      |      |  V    |
62+ 0    0.1259    0.04 Q     |      |      |  V    |
62+ 5    0.1263    0.06 Q     |      |      |  V    |
62+10    0.1268    0.07 Q     |      |      |  V    |
62+15    0.1273    0.07 Q     |      |      |   V   |
62+20    0.1278    0.07 Q     |      |      |   V   |
62+25    0.1282    0.06 Q     |      |      |   V   |
62+30    0.1286    0.07 Q     |      |      |   V   |
62+35    0.1291    0.07 Q     |      |      |   V   |
62+40    0.1296    0.07 Q     |      |      |   V   |
62+45    0.1300    0.07 Q     |      |      |   V   |
62+50    0.1305    0.06 Q     |      |      |   V   |
62+55    0.1309    0.06 Q     |      |      |    V  |
63+ 0    0.1313    0.06 Q     |      |      |   V   |
63+ 5    0.1317    0.06 Q     |      |      |   V   |
63+10    0.1321    0.06 Q     |      |      |    V  |
63+15    0.1325    0.06 Q     |      |      |    V  |
63+20    0.1328    0.05 Q     |      |      |    V  |
63+25    0.1332    0.05 Q     |      |      |    V  |
63+30    0.1335    0.05 Q     |      |      |    V  |
63+35    0.1337    0.03 Q     |      |      |    V  |
63+40    0.1339    0.02 Q     |      |      |    V  |
63+45    0.1340    0.02 Q     |      |      |    V  |
63+50    0.1342    0.02 Q     |      |      |    V  |
63+55    0.1344    0.02 Q     |      |      |    V  |
64+ 0    0.1345    0.03 Q     |      |      |    V  |
64+ 5    0.1347    0.02 Q     |      |      |    V  |
64+10    0.1348    0.02 Q     |      |      |    V  |
64+15    0.1350    0.02 Q     |      |      |    V  |
64+20    0.1351    0.02 Q     |      |      |    V  |
64+25    0.1353    0.02 Q     |      |      |    V  |
64+30    0.1354    0.02 Q     |      |      |    V  |
64+35    0.1355    0.02 Q     |      |      |    V  |
64+40    0.1357    0.02 Q     |      |      |    V  |
64+45    0.1358    0.02 Q     |      |      |    V  |
64+50    0.1359    0.02 Q     |      |      |    V  |
64+55    0.1360    0.02 Q     |      |      |    V  |
65+ 0    0.1361    0.02 Q     |      |      |    V  |
65+ 5    0.1363    0.02 Q     |      |      |    V  |
65+10    0.1364    0.03 Q     |      |      |    V  |
65+15    0.1366    0.03 Q     |      |      |    V  |
65+20    0.1368    0.03 Q     |      |      |    V  |
65+25    0.1370    0.03 Q     |      |      |    V  |
65+30    0.1372    0.03 Q     |      |      |    V  |
65+35    0.1374    0.03 Q     |      |      |    V  |
65+40    0.1375    0.03 Q     |      |      |    V  |
65+45    0.1377    0.03 Q     |      |      |    V  |
65+50    0.1379    0.02 Q     |      |      |    V  |
65+55    0.1380    0.02 Q     |      |      |    V  |
66+ 0    0.1382    0.02 Q     |      |      |    V  |
66+ 5    0.1383    0.02 Q     |      |      |    V  |
66+10    0.1385    0.02 Q     |      |      |    V  |
66+15    0.1386    0.02 Q     |      |      |    V  |
66+20    0.1388    0.02 Q     |      |      |    V  |
66+25    0.1389    0.02 Q     |      |      |    V  |
66+30    0.1391    0.02 Q     |      |      |    V  |
66+35    0.1392    0.02 Q     |      |      |    V  |
66+40    0.1393    0.02 Q     |      |      |    V  |
66+45    0.1394    0.02 Q     |      |      |    V  |
66+50    0.1395    0.01 Q     |      |      |    V  |
66+55    0.1396    0.01 Q     |      |      |    V  |
67+ 0    0.1396    0.01 Q     |      |      |    V  |
67+ 5    0.1397    0.01 Q     |      |      |    V  |
67+10    0.1398    0.02 Q     |      |      |    V  |
67+15    0.1400    0.02 Q     |      |      |    V  |
```

67+20	0.1401	0.02	Q	|	|	|	V |
67+25	0.1402	0.02	Q	|	|	|	V |
67+30	0.1404	0.02	Q	|	|	|	V |
67+35	0.1405	0.02	Q	|	|	|	V |
67+40	0.1406	0.02	Q	|	|	|	V |
67+45	0.1407	0.02	Q	|	|	|	V |
67+50	0.1408	0.01	Q	|	|	|	V |
67+55	0.1409	0.01	Q	|	|	|	V |
68+ 0	0.1410	0.01	Q	|	|	|	V |
68+ 5	0.1411	0.01	Q	|	|	|	V |
68+10	0.1412	0.02	Q	|	|	|	V |
68+15	0.1413	0.02	Q	|	|	|	V |
68+20	0.1414	0.02	Q	|	|	|	V |
68+25	0.1415	0.02	Q	|	|	|	V |
68+30	0.1416	0.02	Q	|	|	|	V|
68+35	0.1417	0.02	Q	|	|	|	V|
68+40	0.1418	0.02	Q	|	|	|	V|
68+45	0.1419	0.02	Q	|	|	|	V|
68+50	0.1420	0.01	Q	|	|	|	V|
68+55	0.1421	0.01	Q	|	|	|	V|
69+ 0	0.1422	0.01	Q	|	|	|	V|
69+ 5	0.1423	0.01	Q	|	|	|	V|
69+10	0.1424	0.02	Q	|	|	|	V|
69+15	0.1425	0.02	Q	|	|	|	V|
69+20	0.1426	0.01	Q	|	|	|	V|
69+25	0.1426	0.01	Q	|	|	|	V|
69+30	0.1427	0.01	Q	|	|	|	V|
69+35	0.1428	0.01	Q	|	|	|	V|
69+40	0.1429	0.02	Q	|	|	|	V|
69+45	0.1430	0.02	Q	|	|	|	V|
69+50	0.1431	0.01	Q	|	|	|	V|
69+55	0.1432	0.01	Q	|	|	|	V|
70+ 0	0.1433	0.01	Q	|	|	|	V|
70+ 5	0.1434	0.01	Q	|	|	|	V|
70+10	0.1435	0.02	Q	|	|	|	V|
70+15	0.1436	0.02	Q	|	|	|	V|
70+20	0.1437	0.01	Q	|	|	|	V|
70+25	0.1437	0.01	Q	|	|	|	V|
70+30	0.1438	0.01	Q	|	|	|	V|
70+35	0.1439	0.01	Q	|	|	|	V|
70+40	0.1440	0.01	Q	|	|	|	V|
70+45	0.1440	0.01	Q	|	|	|	V|
70+50	0.1441	0.01	Q	|	|	|	V|
70+55	0.1442	0.01	Q	|	|	|	V|
71+ 0	0.1443	0.01	Q	|	|	|	V|
71+ 5	0.1443	0.01	Q	|	|	|	V|
71+10	0.1444	0.01	Q	|	|	|	V|
71+15	0.1445	0.01	Q	|	|	|	V|
71+20	0.1446	0.01	Q	|	|	|	V|
71+25	0.1446	0.01	Q	|	|	|	V|
71+30	0.1447	0.01	Q	|	|	|	V|
71+35	0.1448	0.01	Q	|	|	|	V|
71+40	0.1449	0.01	Q	|	|	|	V|
71+45	0.1449	0.01	Q	|	|	|	V|
71+50	0.1450	0.01	Q	|	|	|	V|
71+55	0.1451	0.01	Q	|	|	|	V|
72+ 0	0.1451	0.01	Q	|	|	|	V|
72+ 5	0.1452	0.00	Q	|	|	|	V

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 1999, Version 6.0
Study date 09/23/20 File: BPOST245.out

++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

28771 Central Avenue Gas Station
Area B
Post-development
24-Hr 5-Yr Storm Event

Drainage Area = 0.74(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 284.00(Ft.)
Length along longest watercourse measured to centroid = 86.63(Ft.)
Length along longest watercourse = 0.054 Mi.
Length along longest watercourse measured to centroid = 0.016 Mi.
Difference in elevation = 1.69(Ft.)
Slope along watercourse = 31.4197 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.013 Hr.
Lag time = 0.78 Min.
25% of lag time = 0.19 Min.
40% of lag time = 0.31 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.74	2.43	1.80

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.74	6.58	4.88

STORM EVENT (YEAR) = 5.00
Area Averaged 2-Year Rainfall = 2.430(In)
Area Averaged 100-Year Rainfall = 6.580(In)

Point rain (area averaged) = 3.402(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 3.402(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
0.742	55.00	0.792

Total Area Entered = 0.74(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
55.0	35.0	0.715	0.792	0.205	1.000	0.205

Sum (F) = 0.205

Area averaged mean soil loss (F) (In/Hr) = 0.205

Minimum soil loss rate ((In/Hr)) = 0.103

(for 24 hour storm duration)

Soil low loss rate (decimal) = 0.266

U n i t H y d r o g r a p h

DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag	Distribution Graph %	Unit Hydrograph (CFS)
1	0.083	645.077	77.129	0.577
2	0.167	1290.154	22.871	0.171
	Sum = 100.000		Sum=	0.748

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.027	0.364	0.007	0.02
2	0.17	0.07	0.027	0.362	0.007	0.02
3	0.25	0.07	0.027	0.361	0.007	0.02
4	0.33	0.10	0.041	0.360	0.011	0.03
5	0.42	0.10	0.041	0.358	0.011	0.03
6	0.50	0.10	0.041	0.357	0.011	0.03
7	0.58	0.10	0.041	0.355	0.011	0.03
8	0.67	0.10	0.041	0.354	0.011	0.03
9	0.75	0.10	0.041	0.353	0.011	0.03
10	0.83	0.13	0.054	0.351	0.014	0.04
11	0.92	0.13	0.054	0.350	0.014	0.04
12	1.00	0.13	0.054	0.348	0.014	0.04
13	1.08	0.10	0.041	0.347	0.011	0.03
14	1.17	0.10	0.041	0.346	0.011	0.03
15	1.25	0.10	0.041	0.344	0.011	0.03
16	1.33	0.10	0.041	0.343	0.011	0.03
17	1.42	0.10	0.041	0.342	0.011	0.03
18	1.50	0.10	0.041	0.340	0.011	0.03
19	1.58	0.10	0.041	0.339	0.011	0.03
20	1.67	0.10	0.041	0.338	0.011	0.03
21	1.75	0.10	0.041	0.336	0.011	0.03
22	1.83	0.13	0.054	0.335	0.014	0.04
23	1.92	0.13	0.054	0.333	0.014	0.04
24	2.00	0.13	0.054	0.332	0.014	0.04
25	2.08	0.13	0.054	0.331	0.014	0.04
26	2.17	0.13	0.054	0.329	0.014	0.04
27	2.25	0.13	0.054	0.328	0.014	0.04
28	2.33	0.13	0.054	0.327	0.014	0.04
29	2.42	0.13	0.054	0.325	0.014	0.04
30	2.50	0.13	0.054	0.324	0.014	0.04
31	2.58	0.17	0.068	0.323	0.018	0.05
32	2.67	0.17	0.068	0.321	0.018	0.05
33	2.75	0.17	0.068	0.320	0.018	0.05

34	2.83	0.17	0.068	0.319	0.018	0.05
35	2.92	0.17	0.068	0.318	0.018	0.05
36	3.00	0.17	0.068	0.316	0.018	0.05
37	3.08	0.17	0.068	0.315	0.018	0.05
38	3.17	0.17	0.068	0.314	0.018	0.05
39	3.25	0.17	0.068	0.312	0.018	0.05
40	3.33	0.17	0.068	0.311	0.018	0.05
41	3.42	0.17	0.068	0.310	0.018	0.05
42	3.50	0.17	0.068	0.308	0.018	0.05
43	3.58	0.17	0.068	0.307	0.018	0.05
44	3.67	0.17	0.068	0.306	0.018	0.05
45	3.75	0.17	0.068	0.305	0.018	0.05
46	3.83	0.20	0.082	0.303	0.022	0.06
47	3.92	0.20	0.082	0.302	0.022	0.06
48	4.00	0.20	0.082	0.301	0.022	0.06
49	4.08	0.20	0.082	0.299	0.022	0.06
50	4.17	0.20	0.082	0.298	0.022	0.06
51	4.25	0.20	0.082	0.297	0.022	0.06
52	4.33	0.23	0.095	0.296	0.025	0.07
53	4.42	0.23	0.095	0.294	0.025	0.07
54	4.50	0.23	0.095	0.293	0.025	0.07
55	4.58	0.23	0.095	0.292	0.025	0.07
56	4.67	0.23	0.095	0.291	0.025	0.07
57	4.75	0.23	0.095	0.289	0.025	0.07
58	4.83	0.27	0.109	0.288	0.029	0.08
59	4.92	0.27	0.109	0.287	0.029	0.08
60	5.00	0.27	0.109	0.286	0.029	0.08
61	5.08	0.20	0.082	0.284	0.022	0.06
62	5.17	0.20	0.082	0.283	0.022	0.06
63	5.25	0.20	0.082	0.282	0.022	0.06
64	5.33	0.23	0.095	0.281	0.025	0.07
65	5.42	0.23	0.095	0.279	0.025	0.07
66	5.50	0.23	0.095	0.278	0.025	0.07
67	5.58	0.27	0.109	0.277	0.029	0.08
68	5.67	0.27	0.109	0.276	0.029	0.08
69	5.75	0.27	0.109	0.275	0.029	0.08
70	5.83	0.27	0.109	0.273	0.029	0.08
71	5.92	0.27	0.109	0.272	0.029	0.08
72	6.00	0.27	0.109	0.271	0.029	0.08
73	6.08	0.30	0.122	0.270	0.033	0.09
74	6.17	0.30	0.122	0.268	0.033	0.09
75	6.25	0.30	0.122	0.267	0.033	0.09
76	6.33	0.30	0.122	0.266	0.033	0.09
77	6.42	0.30	0.122	0.265	0.033	0.09
78	6.50	0.30	0.122	0.264	0.033	0.09
79	6.58	0.33	0.136	0.263	0.036	0.10
80	6.67	0.33	0.136	0.261	0.036	0.10
81	6.75	0.33	0.136	0.260	0.036	0.10
82	6.83	0.33	0.136	0.259	0.036	0.10
83	6.92	0.33	0.136	0.258	0.036	0.10
84	7.00	0.33	0.136	0.257	0.036	0.10
85	7.08	0.33	0.136	0.255	0.036	0.10
86	7.17	0.33	0.136	0.254	0.036	0.10
87	7.25	0.33	0.136	0.253	0.036	0.10
88	7.33	0.37	0.150	0.252	0.040	0.11
89	7.42	0.37	0.150	0.251	0.040	0.11
90	7.50	0.37	0.150	0.250	0.040	0.11
91	7.58	0.40	0.163	0.249	0.043	0.12
92	7.67	0.40	0.163	0.247	0.043	0.12
93	7.75	0.40	0.163	0.246	0.043	0.12
94	7.83	0.43	0.177	0.245	0.047	0.13
95	7.92	0.43	0.177	0.244	0.047	0.13
96	8.00	0.43	0.177	0.243	0.047	0.13
97	8.08	0.50	0.204	0.242	0.054	0.15
98	8.17	0.50	0.204	0.241	0.054	0.15

99	8.25	0.50	0.204	0.239	0.054	0.15
100	8.33	0.50	0.204	0.238	0.054	0.15
101	8.42	0.50	0.204	0.237	0.054	0.15
102	8.50	0.50	0.204	0.236	0.054	0.15
103	8.58	0.53	0.218	0.235	0.058	0.16
104	8.67	0.53	0.218	0.234	0.058	0.16
105	8.75	0.53	0.218	0.233	0.058	0.16
106	8.83	0.57	0.231	0.232	0.062	0.17
107	8.92	0.57	0.231	0.231	---	0.00
108	9.00	0.57	0.231	0.230	---	0.00
109	9.08	0.63	0.259	0.228	---	0.03
110	9.17	0.63	0.259	0.227	---	0.03
111	9.25	0.63	0.259	0.226	---	0.03
112	9.33	0.67	0.272	0.225	---	0.05
113	9.42	0.67	0.272	0.224	---	0.05
114	9.50	0.67	0.272	0.223	---	0.05
115	9.58	0.70	0.286	0.222	---	0.06
116	9.67	0.70	0.286	0.221	---	0.06
117	9.75	0.70	0.286	0.220	---	0.07
118	9.83	0.73	0.299	0.219	---	0.08
119	9.92	0.73	0.299	0.218	---	0.08
120	10.00	0.73	0.299	0.217	---	0.08
121	10.08	0.50	0.204	0.216	0.054	0.15
122	10.17	0.50	0.204	0.215	0.054	0.15
123	10.25	0.50	0.204	0.214	0.054	0.15
124	10.33	0.50	0.204	0.213	0.054	0.15
125	10.42	0.50	0.204	0.212	0.054	0.15
126	10.50	0.50	0.204	0.210	0.054	0.15
127	10.58	0.67	0.272	0.209	---	0.06
128	10.67	0.67	0.272	0.208	---	0.06
129	10.75	0.67	0.272	0.207	---	0.06
130	10.83	0.67	0.272	0.206	---	0.07
131	10.92	0.67	0.272	0.205	---	0.07
132	11.00	0.67	0.272	0.204	---	0.07
133	11.08	0.63	0.259	0.203	---	0.06
134	11.17	0.63	0.259	0.202	---	0.06
135	11.25	0.63	0.259	0.201	---	0.06
136	11.33	0.63	0.259	0.200	---	0.06
137	11.42	0.63	0.259	0.199	---	0.06
138	11.50	0.63	0.259	0.198	---	0.06
139	11.58	0.57	0.231	0.197	---	0.03
140	11.67	0.57	0.231	0.196	---	0.03
141	11.75	0.57	0.231	0.195	---	0.04
142	11.83	0.60	0.245	0.194	---	0.05
143	11.92	0.60	0.245	0.193	---	0.05
144	12.00	0.60	0.245	0.193	---	0.05
145	12.08	0.83	0.340	0.192	---	0.15
146	12.17	0.83	0.340	0.191	---	0.15
147	12.25	0.83	0.340	0.190	---	0.15
148	12.33	0.87	0.354	0.189	---	0.17
149	12.42	0.87	0.354	0.188	---	0.17
150	12.50	0.87	0.354	0.187	---	0.17
151	12.58	0.93	0.381	0.186	---	0.20
152	12.67	0.93	0.381	0.185	---	0.20
153	12.75	0.93	0.381	0.184	---	0.20
154	12.83	0.97	0.395	0.183	---	0.21
155	12.92	0.97	0.395	0.182	---	0.21
156	13.00	0.97	0.395	0.181	---	0.21
157	13.08	1.13	0.463	0.180	---	0.28
158	13.17	1.13	0.463	0.179	---	0.28
159	13.25	1.13	0.463	0.178	---	0.28
160	13.33	1.13	0.463	0.178	---	0.29
161	13.42	1.13	0.463	0.177	---	0.29
162	13.50	1.13	0.463	0.176	---	0.29
163	13.58	0.77	0.313	0.175	---	0.14

164	13.67	0.77	0.313	0.174	---	0.14
165	13.75	0.77	0.313	0.173	---	0.14
166	13.83	0.77	0.313	0.172	---	0.14
167	13.92	0.77	0.313	0.171	---	0.14
168	14.00	0.77	0.313	0.170	---	0.14
169	14.08	0.90	0.367	0.170	---	0.20
170	14.17	0.90	0.367	0.169	---	0.20
171	14.25	0.90	0.367	0.168	---	0.20
172	14.33	0.87	0.354	0.167	---	0.19
173	14.42	0.87	0.354	0.166	---	0.19
174	14.50	0.87	0.354	0.165	---	0.19
175	14.58	0.87	0.354	0.164	---	0.19
176	14.67	0.87	0.354	0.164	---	0.19
177	14.75	0.87	0.354	0.163	---	0.19
178	14.83	0.83	0.340	0.162	---	0.18
179	14.92	0.83	0.340	0.161	---	0.18
180	15.00	0.83	0.340	0.160	---	0.18
181	15.08	0.80	0.327	0.159	---	0.17
182	15.17	0.80	0.327	0.159	---	0.17
183	15.25	0.80	0.327	0.158	---	0.17
184	15.33	0.77	0.313	0.157	---	0.16
185	15.42	0.77	0.313	0.156	---	0.16
186	15.50	0.77	0.313	0.155	---	0.16
187	15.58	0.63	0.259	0.155	---	0.10
188	15.67	0.63	0.259	0.154	---	0.10
189	15.75	0.63	0.259	0.153	---	0.11
190	15.83	0.63	0.259	0.152	---	0.11
191	15.92	0.63	0.259	0.151	---	0.11
192	16.00	0.63	0.259	0.151	---	0.11
193	16.08	0.13	0.054	0.150	0.014	0.04
194	16.17	0.13	0.054	0.149	0.014	0.04
195	16.25	0.13	0.054	0.148	0.014	0.04
196	16.33	0.13	0.054	0.148	0.014	0.04
197	16.42	0.13	0.054	0.147	0.014	0.04
198	16.50	0.13	0.054	0.146	0.014	0.04
199	16.58	0.10	0.041	0.145	0.011	0.03
200	16.67	0.10	0.041	0.145	0.011	0.03
201	16.75	0.10	0.041	0.144	0.011	0.03
202	16.83	0.10	0.041	0.143	0.011	0.03
203	16.92	0.10	0.041	0.142	0.011	0.03
204	17.00	0.10	0.041	0.142	0.011	0.03
205	17.08	0.17	0.068	0.141	0.018	0.05
206	17.17	0.17	0.068	0.140	0.018	0.05
207	17.25	0.17	0.068	0.140	0.018	0.05
208	17.33	0.17	0.068	0.139	0.018	0.05
209	17.42	0.17	0.068	0.138	0.018	0.05
210	17.50	0.17	0.068	0.138	0.018	0.05
211	17.58	0.17	0.068	0.137	0.018	0.05
212	17.67	0.17	0.068	0.136	0.018	0.05
213	17.75	0.17	0.068	0.135	0.018	0.05
214	17.83	0.13	0.054	0.135	0.014	0.04
215	17.92	0.13	0.054	0.134	0.014	0.04
216	18.00	0.13	0.054	0.133	0.014	0.04
217	18.08	0.13	0.054	0.133	0.014	0.04
218	18.17	0.13	0.054	0.132	0.014	0.04
219	18.25	0.13	0.054	0.132	0.014	0.04
220	18.33	0.13	0.054	0.131	0.014	0.04
221	18.42	0.13	0.054	0.130	0.014	0.04
222	18.50	0.13	0.054	0.130	0.014	0.04
223	18.58	0.10	0.041	0.129	0.011	0.03
224	18.67	0.10	0.041	0.128	0.011	0.03
225	18.75	0.10	0.041	0.128	0.011	0.03
226	18.83	0.07	0.027	0.127	0.007	0.02
227	18.92	0.07	0.027	0.127	0.007	0.02
228	19.00	0.07	0.027	0.126	0.007	0.02

229	19.08	0.10	0.041	0.125	0.011	0.03
230	19.17	0.10	0.041	0.125	0.011	0.03
231	19.25	0.10	0.041	0.124	0.011	0.03
232	19.33	0.13	0.054	0.124	0.014	0.04
233	19.42	0.13	0.054	0.123	0.014	0.04
234	19.50	0.13	0.054	0.122	0.014	0.04
235	19.58	0.10	0.041	0.122	0.011	0.03
236	19.67	0.10	0.041	0.121	0.011	0.03
237	19.75	0.10	0.041	0.121	0.011	0.03
238	19.83	0.07	0.027	0.120	0.007	0.02
239	19.92	0.07	0.027	0.120	0.007	0.02
240	20.00	0.07	0.027	0.119	0.007	0.02
241	20.08	0.10	0.041	0.119	0.011	0.03
242	20.17	0.10	0.041	0.118	0.011	0.03
243	20.25	0.10	0.041	0.118	0.011	0.03
244	20.33	0.10	0.041	0.117	0.011	0.03
245	20.42	0.10	0.041	0.117	0.011	0.03
246	20.50	0.10	0.041	0.116	0.011	0.03
247	20.58	0.10	0.041	0.116	0.011	0.03
248	20.67	0.10	0.041	0.115	0.011	0.03
249	20.75	0.10	0.041	0.115	0.011	0.03
250	20.83	0.07	0.027	0.114	0.007	0.02
251	20.92	0.07	0.027	0.114	0.007	0.02
252	21.00	0.07	0.027	0.113	0.007	0.02
253	21.08	0.10	0.041	0.113	0.011	0.03
254	21.17	0.10	0.041	0.112	0.011	0.03
255	21.25	0.10	0.041	0.112	0.011	0.03
256	21.33	0.07	0.027	0.112	0.007	0.02
257	21.42	0.07	0.027	0.111	0.007	0.02
258	21.50	0.07	0.027	0.111	0.007	0.02
259	21.58	0.10	0.041	0.110	0.011	0.03
260	21.67	0.10	0.041	0.110	0.011	0.03
261	21.75	0.10	0.041	0.109	0.011	0.03
262	21.83	0.07	0.027	0.109	0.007	0.02
263	21.92	0.07	0.027	0.109	0.007	0.02
264	22.00	0.07	0.027	0.108	0.007	0.02
265	22.08	0.10	0.041	0.108	0.011	0.03
266	22.17	0.10	0.041	0.108	0.011	0.03
267	22.25	0.10	0.041	0.107	0.011	0.03
268	22.33	0.07	0.027	0.107	0.007	0.02
269	22.42	0.07	0.027	0.107	0.007	0.02
270	22.50	0.07	0.027	0.106	0.007	0.02
271	22.58	0.07	0.027	0.106	0.007	0.02
272	22.67	0.07	0.027	0.106	0.007	0.02
273	22.75	0.07	0.027	0.105	0.007	0.02
274	22.83	0.07	0.027	0.105	0.007	0.02
275	22.92	0.07	0.027	0.105	0.007	0.02
276	23.00	0.07	0.027	0.105	0.007	0.02
277	23.08	0.07	0.027	0.104	0.007	0.02
278	23.17	0.07	0.027	0.104	0.007	0.02
279	23.25	0.07	0.027	0.104	0.007	0.02
280	23.33	0.07	0.027	0.104	0.007	0.02
281	23.42	0.07	0.027	0.104	0.007	0.02
282	23.50	0.07	0.027	0.103	0.007	0.02
283	23.58	0.07	0.027	0.103	0.007	0.02
284	23.67	0.07	0.027	0.103	0.007	0.02
285	23.75	0.07	0.027	0.103	0.007	0.02
286	23.83	0.07	0.027	0.103	0.007	0.02
287	23.92	0.07	0.027	0.103	0.007	0.02
288	24.00	0.07	0.027	0.103	0.007	0.02
Sum =		100.0		Sum =		21.7

Flood volume = Effective rainfall 1.81(In)
times area 0.7(Ac.)/[(In)/(Ft.)] = 0.1(Ac.Ft)
Total soil loss = 1.59(In)
Total soil loss = 0.098(Ac.Ft)

Total rainfall = 3.40(In)
Flood volume = 4879.0 Cubic Feet
Total soil loss = 4284.2 Cubic Feet

Peak flow rate of this hydrograph = 0.215(CFS)

++

24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0001	0.01	Q				
0+10	0.0002	0.01	Q				
0+15	0.0003	0.01	Q				
0+20	0.0004	0.02	Q				
0+25	0.0006	0.02	Q				
0+30	0.0007	0.02	Q				
0+35	0.0009	0.02	Q				
0+40	0.0010	0.02	Q				
0+45	0.0012	0.02	Q				
0+50	0.0014	0.03	Q				
0+55	0.0016	0.03	Q				
1+ 0	0.0018	0.03	Q				
1+ 5	0.0020	0.02	Q				
1+10	0.0021	0.02	Q				
1+15	0.0023	0.02	Q				
1+20	0.0024	0.02	Q				
1+25	0.0026	0.02	Q				
1+30	0.0027	0.02	Q				
1+35	0.0029	0.02	QV				
1+40	0.0031	0.02	QV				
1+45	0.0032	0.02	QV				
1+50	0.0034	0.03	QV				
1+55	0.0036	0.03	QV				
2+ 0	0.0038	0.03	QV				
2+ 5	0.0040	0.03	QV				
2+10	0.0042	0.03	QV				
2+15	0.0044	0.03	QV				
2+20	0.0046	0.03	QV				
2+25	0.0048	0.03	QV				
2+30	0.0050	0.03	QV				
2+35	0.0053	0.04	QV				
2+40	0.0055	0.04	QV				
2+45	0.0058	0.04	Q V				
2+50	0.0061	0.04	Q V				
2+55	0.0063	0.04	Q V				
3+ 0	0.0066	0.04	Q V				
3+ 5	0.0068	0.04	Q V				
3+10	0.0071	0.04	Q V				
3+15	0.0073	0.04	Q V				
3+20	0.0076	0.04	Q V				
3+25	0.0079	0.04	Q V				
3+30	0.0081	0.04	Q V				
3+35	0.0084	0.04	Q V				
3+40	0.0086	0.04	Q V				
3+45	0.0089	0.04	Q V				
3+50	0.0092	0.04	Q V				
3+55	0.0095	0.04	Q V				
4+ 0	0.0098	0.04	Q V				
4+ 5	0.0101	0.04	Q V				
4+10	0.0104	0.04	Q V				

```
4+15    0.0107    0.04  Q  V    |      |      |      |
4+20    0.0111    0.05  Q  V    |      |      |      |
4+25    0.0114    0.05  Q   V   |      |      |      |
4+30    0.0118    0.05  Q   V   |      |      |      |
4+35    0.0122    0.05  Q   V   |      |      |      |
4+40    0.0125    0.05  Q   V   |      |      |      |
4+45    0.0129    0.05  Q   V   |      |      |      |
4+50    0.0133    0.06  Q   V   |      |      |      |
4+55    0.0137    0.06  Q   V   |      |      |      |
5+ 0    0.0141    0.06  Q    V  |      |      |      |
5+ 5    0.0144    0.05  Q    V  |      |      |      |
5+10    0.0147    0.04  Q    V  |      |      |      |
5+15    0.0151    0.04  Q    V  |      |      |      |
5+20    0.0154    0.05  Q    V  |      |      |      |
5+25    0.0158    0.05  Q    V  |      |      |      |
5+30    0.0161    0.05  Q    V  |      |      |      |
5+35    0.0165    0.06  Q    V  |      |      |      |
5+40    0.0169    0.06  Q     V |      |      |      |
5+45    0.0173    0.06  Q     V |      |      |      |
5+50    0.0178    0.06  Q     V |      |      |      |
5+55    0.0182    0.06  Q     V |      |      |      |
6+ 0    0.0186    0.06  Q     V |      |      |      |
6+ 5    0.0190    0.07  Q     V |      |      |      |
6+10    0.0195    0.07  Q     V |      |      |      |
6+15    0.0200    0.07  Q     V |      |      |      |
6+20    0.0204    0.07  Q     V |      |      |      |
6+25    0.0209    0.07  Q     V |      |      |      |
6+30    0.0213    0.07  Q     V |      |      |      |
6+35    0.0219    0.07  Q     V |      |      |      |
6+40    0.0224    0.07  Q     V |      |      |      |
6+45    0.0229    0.07  Q     V |      |      |      |
6+50    0.0234    0.07  Q     V |      |      |      |
6+55    0.0239    0.07  Q     V |      |      |      |
7+ 0    0.0244    0.07  Q     V |      |      |      |
7+ 5    0.0249    0.07  Q     V |      |      |      |
7+10    0.0255    0.07  Q      V|      |      |      |
7+15    0.0260    0.07  Q      V|      |      |      |
7+20    0.0265    0.08  Q      V|      |      |      |
7+25    0.0271    0.08  Q      V|      |      |      |
7+30    0.0277    0.08  Q      V|      |      |      |
7+35    0.0283    0.09  Q       V      |      |      |
7+40    0.0289    0.09  Q       V      |      |      |
7+45    0.0295    0.09  Q       V      |      |      |
7+50    0.0301    0.10  Q       V      |      |      |
7+55    0.0308    0.10  Q       |V     |      |      |
8+ 0    0.0315    0.10  Q       |V     |      |      |
8+ 5    0.0322    0.11  Q       |V     |      |      |
8+10    0.0330    0.11  Q       |V     |      |      |
8+15    0.0338    0.11  Q       | V    |      |      |
8+20    0.0346    0.11  Q       | V    |      |      |
8+25    0.0353    0.11  Q       | V    |      |      |
8+30    0.0361    0.11  Q       | V    |      |      |
8+35    0.0369    0.12  Q       |  V   |      |      |
8+40    0.0377    0.12  Q       |  V   |      |      |
8+45    0.0386    0.12  Q       |  V   |      |      |
8+50    0.0394    0.13  Q       |   V  |      |      |
8+55    0.0396    0.03  Q       |   V  |      |      |
9+ 0    0.0396    0.00  Q       |   V  |      |      |
9+ 5    0.0397    0.02  Q       |   V  |      |      |
9+10    0.0399    0.02  Q       |   V  |      |      |
9+15    0.0401    0.02  Q       |   V  |      |      |
9+20    0.0403    0.03  Q       |   V  |      |      |
9+25    0.0405    0.04  Q       |   V  |      |      |
9+30    0.0408    0.04  Q       |   V  |      |      |
9+35    0.0411    0.05  Q       |   V  |      |      |
```

9+40	0.0414	0.05	Q	| V |	|	|
9+45	0.0418	0.05	Q	| V |	|	|
9+50	0.0422	0.06	Q	| V |	|	|
9+55	0.0426	0.06	Q	| V |	|	|
10+ 0	0.0430	0.06	Q	| V |	|	|
10+ 5	0.0437	0.10	Q	| V |	|	|
10+10	0.0445	0.11	Q	| V |	|	|
10+15	0.0453	0.11	Q	| V |	|	|
10+20	0.0460	0.11	Q	| V |	|	|
10+25	0.0468	0.11	Q	| V |	|	|
10+30	0.0476	0.11	Q	| V |	|	|
10+35	0.0480	0.06	Q	| V |	|	|
10+40	0.0483	0.05	Q	| V |	|	|
10+45	0.0487	0.05	Q	| V |	|	|
10+50	0.0490	0.05	Q	| V |	|	|
10+55	0.0493	0.05	Q	| V |	|	|
11+ 0	0.0497	0.05	Q	| V |	|	|
11+ 5	0.0500	0.04	Q	| V |	|	|
11+10	0.0503	0.04	Q	| V |	|	|
11+15	0.0506	0.04	Q	| V |	|	|
11+20	0.0509	0.04	Q	| V |	|	|
11+25	0.0512	0.04	Q	| V |	|	|
11+30	0.0515	0.04	Q	| V |	|	|
11+35	0.0517	0.03	Q	| V |	|	|
11+40	0.0519	0.03	Q	| V |	|	|
11+45	0.0520	0.03	Q	| V |	|	|
11+50	0.0523	0.04	Q	| V |	|	|
11+55	0.0526	0.04	Q	| V |	|	|
12+ 0	0.0528	0.04	Q	| V |	|	|
12+ 5	0.0535	0.09	Q	| V|	|	|
12+10	0.0542	0.11	Q	| V|	|	|
12+15	0.0550	0.11	Q	| V|	|	|
12+20	0.0558	0.12	Q	| V|	|	|
12+25	0.0567	0.12	Q	| V |	|	|
12+30	0.0576	0.12	Q	| V |	|	|
12+35	0.0585	0.14	Q	| V |	|	|
12+40	0.0595	0.15	Q	| |V |	|	|
12+45	0.0606	0.15	Q	| |V |	|	|
12+50	0.0616	0.16	Q	| | V |	|	|
12+55	0.0627	0.16	Q	| | V |	|	|
13+ 0	0.0638	0.16	Q	| | V |	|	|
13+ 5	0.0652	0.20	Q	| | V |	|	|
13+10	0.0667	0.21	Q	| | V |	|	|
13+15	0.0681	0.21	Q	| | V |	|	|
13+20	0.0696	0.21	Q	| | V |	|	|
13+25	0.0711	0.21	Q	| | V |	|	|
13+30	0.0725	0.21	Q	| | V |	|	|
13+35	0.0734	0.13	Q	| | V |	|	|
13+40	0.0741	0.10	Q	| | V |	|	|
13+45	0.0749	0.10	Q	| | V |	|	|
13+50	0.0756	0.11	Q	| | V |	|	|
13+55	0.0763	0.11	Q	| | V |	|	|
14+ 0	0.0770	0.11	Q	| | V |	|	|
14+ 5	0.0780	0.14	Q	| | V |	|	|
14+10	0.0790	0.15	Q	| | V |	|	|
14+15	0.0801	0.15	Q	| | V |	|	|
14+20	0.0810	0.14	Q	| | V |	|	|
14+25	0.0820	0.14	Q	| | V|	|	|
14+30	0.0830	0.14	Q	| | V|	|	|
14+35	0.0839	0.14	Q	| | V|	|	|
14+40	0.0849	0.14	Q	| | V |	|	|
14+45	0.0859	0.14	Q	| | V |	|	|
14+50	0.0868	0.14	Q	| | |V |	|	|
14+55	0.0878	0.13	Q	| | |V |	|	|
15+ 0	0.0887	0.13	Q	| | |V |	|	|

```
15+ 5    0.0896    0.13  Q      |      |      |V      |
15+10    0.0904    0.13  Q      |      |      | V     |
15+15    0.0913    0.13  Q      |      |      | V     |
15+20    0.0921    0.12  Q      |      |      | V     |
15+25    0.0929    0.12  Q      |      |      |  V    |
15+30    0.0937    0.12  Q      |      |      |  V    |
15+35    0.0943    0.09  Q      |      |      |  V    |
15+40    0.0949    0.08  Q      |      |      |  V    |
15+45    0.0954    0.08  Q      |      |      |   V   |
15+50    0.0960    0.08  Q      |      |      |   V   |
15+55    0.0965    0.08  Q      |      |      |   V   |
16+ 0    0.0971    0.08  Q      |      |      |   V   |
16+ 5    0.0973    0.04  Q      |      |      |   V   |
16+10    0.0976    0.03  Q      |      |      |   V   |
16+15    0.0978    0.03  Q      |      |      |   V   |
16+20    0.0980    0.03  Q      |      |      |   V   |
16+25    0.0982    0.03  Q      |      |      |    V  |
16+30    0.0984    0.03  Q      |      |      |    V  |
16+35    0.0985    0.02  Q      |      |      |    V  |
16+40    0.0987    0.02  Q      |      |      |    V  |
16+45    0.0989    0.02  Q      |      |      |    V  |
16+50    0.0990    0.02  Q      |      |      |    V  |
16+55    0.0992    0.02  Q      |      |      |    V  |
17+ 0    0.0993    0.02  Q      |      |      |    V  |
17+ 5    0.0995    0.03  Q      |      |      |    V  |
17+10    0.0998    0.04  Q      |      |      |    V  |
17+15    0.1001    0.04  Q      |      |      |    V  |
17+20    0.1003    0.04  Q      |      |      |    V  |
17+25    0.1006    0.04  Q      |      |      |    V  |
17+30    0.1008    0.04  Q      |      |      |     V |
17+35    0.1011    0.04  Q      |      |      |     V |
17+40    0.1013    0.04  Q      |      |      |     V |
17+45    0.1016    0.04  Q      |      |      |     V |
17+50    0.1018    0.03  Q      |      |      |     V |
17+55    0.1020    0.03  Q      |      |      |     V |
18+ 0    0.1022    0.03  Q      |      |      |    V  |
18+ 5    0.1024    0.03  Q      |      |      |    V  |
18+10    0.1026    0.03  Q      |      |      |     V |
18+15    0.1029    0.03  Q      |      |      |     V |
18+20    0.1031    0.03  Q      |      |      |     V |
18+25    0.1033    0.03  Q      |      |      |     V |
18+30    0.1035    0.03  Q      |      |      |     V |
18+35    0.1036    0.02  Q      |      |      |     V |
18+40    0.1038    0.02  Q      |      |      |     V |
18+45    0.1039    0.02  Q      |      |      |     V |
18+50    0.1041    0.02  Q      |      |      |     V |
18+55    0.1042    0.01  Q      |      |      |     V |
19+ 0    0.1043    0.01  Q      |      |      |     V |
19+ 5    0.1044    0.02  Q      |      |      |     V |
19+10    0.1046    0.02  Q      |      |      |     V |
19+15    0.1047    0.02  Q      |      |      |     V |
19+20    0.1049    0.03  Q      |      |      |     V |
19+25    0.1051    0.03  Q      |      |      |     V |
19+30    0.1053    0.03  Q      |      |      |     V |
19+35    0.1055    0.02  Q      |      |      |     V |
19+40    0.1056    0.02  Q      |      |      |     V |
19+45    0.1058    0.02  Q      |      |      |     V |
19+50    0.1059    0.02  Q      |      |      |     V |
19+55    0.1060    0.01  Q      |      |      |     V |
20+ 0    0.1061    0.01  Q      |      |      |     V |
20+ 5    0.1063    0.02  Q      |      |      |     V |
20+10    0.1064    0.02  Q      |      |      |      V|
20+15    0.1066    0.02  Q      |      |      |      V|
20+20    0.1067    0.02  Q      |      |      |      V|
20+25    0.1069    0.02  Q      |      |      |      V|
```

```
 20+30     0.1070     0.02  Q       |       |       |      V |
 20+35     0.1072     0.02  Q       |       |       |      V |
 20+40     0.1073     0.02  Q       |       |       |      V |
 20+45     0.1075     0.02  Q       |       |       |      V |
 20+50     0.1076     0.02  Q       |       |       |      V |
 20+55     0.1077     0.01  Q       |       |       |      V |
 21+ 0     0.1078     0.01  Q       |       |       |      V |
 21+ 5     0.1080     0.02  Q       |       |       |      V |
 21+10     0.1081     0.02  Q       |       |       |      V |
 21+15     0.1083     0.02  Q       |       |       |      V |
 21+20     0.1084     0.02  Q       |       |       |      V |
 21+25     0.1085     0.01  Q       |       |       |      V |
 21+30     0.1086     0.01  Q       |       |       |      V |
 21+35     0.1087     0.02  Q       |       |       |      V |
 21+40     0.1089     0.02  Q       |       |       |      V |
 21+45     0.1090     0.02  Q       |       |       |      V |
 21+50     0.1092     0.02  Q       |       |       |      V |
 21+55     0.1093     0.01  Q       |       |       |      V|
 22+ 0     0.1094     0.01  Q       |       |       |      V|
 22+ 5     0.1095     0.02  Q       |       |       |      V|
 22+10     0.1097     0.02  Q       |       |       |      V|
 22+15     0.1098     0.02  Q       |       |       |      V|
 22+20     0.1099     0.02  Q       |       |       |      V|
 22+25     0.1100     0.01  Q       |       |       |      V|
 22+30     0.1101     0.01  Q       |       |       |      V|
 22+35     0.1102     0.01  Q       |       |       |      V|
 22+40     0.1103     0.01  Q       |       |       |      V|
 22+45     0.1104     0.01  Q       |       |       |      V|
 22+50     0.1105     0.01  Q       |       |       |      V|
 22+55     0.1106     0.01  Q       |       |       |      V|
 23+ 0     0.1107     0.01  Q       |       |       |      V|
 23+ 5     0.1109     0.01  Q       |       |       |      V|
 23+10     0.1110     0.01  Q       |       |       |      V|
 23+15     0.1111     0.01  Q       |       |       |      V|
 23+20     0.1112     0.01  Q       |       |       |      V|
 23+25     0.1113     0.01  Q       |       |       |      V|
 23+30     0.1114     0.01  Q       |       |       |      V|
 23+35     0.1115     0.01  Q       |       |       |      V|
 23+40     0.1116     0.01  Q       |       |       |      V|
 23+45     0.1117     0.01  Q       |       |       |      V|
 23+50     0.1118     0.01  Q       |       |       |      V|
 23+55     0.1119     0.01  Q       |       |       |      V|
 24+ 0     0.1120     0.01  Q       |       |       |      V|
 24+ 5     0.1120     0.00  Q       |       |       |      V|
-------------------------------------------------------------------------------
```

U n i t H y d r o g r a p h A n a l y s i s

Copyright (c) CIVILCADD/CIVILDESIGN, 1989 - 1999, Version 6.0
Study date 09/23/20 File: BPOST2410.out

++

Riverside County Synthetic Unit Hydrology Method
RCFC & WCD Manual date - April 1978

English (in-lb) Input Units Used
English Rainfall Data (Inches) Input Values Used

English Units used in output format

28771 Central Avenue Gas Station
Area B
Post-development
24-Hr 10-Yr Storm Event

Drainage Area = 0.74(Ac.) = 0.001 Sq. Mi.
Length along longest watercourse = 284.00(Ft.)
Length along longest watercourse measured to centroid = 86.63(Ft.)
Length along longest watercourse = 0.054 Mi.
Length along longest watercourse measured to centroid = 0.016 Mi.
Difference in elevation = 1.69(Ft.)
Slope along watercourse = 31.4197 Ft./Mi.
Average Manning's 'N' = 0.015
Lag time = 0.013 Hr.
Lag time = 0.78 Min.
25% of lag time = 0.19 Min.
40% of lag time = 0.31 Min.
Unit time = 5.00 Min.
Duration of storm = 24 Hour(s)
User Entered Base Flow = 0.00(CFS)

2 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.74	2.43	1.80

100 YEAR Area rainfall data:

Area(Ac.)[1]	Rainfall(In)[2]	Weighting[1*2]
0.74	6.58	4.88

STORM EVENT (YEAR) = 10.00
Area Averaged 2-Year Rainfall = 2.430(In)
Area Averaged 100-Year Rainfall = 6.580(In)

Point rain (area averaged) = 4.137(In)
Areal adjustment factor = 100.00 %
Adjusted average point rain = 4.137(In)

Sub-Area Data:

Area(Ac.)	Runoff Index	Impervious %
0.742	55.00	0.792

Total Area Entered = 0.74(Ac.)

RI AMC2	RI AMC-1	Infil. Rate (In/Hr)	Impervious (Dec.%)	Adj. Infil. Rate (In/Hr)	Area% (Dec.)	F (In/Hr)
55.0	35.0	0.715	0.792	0.205	1.000	0.205

Sum (F) = 0.205

Area averaged mean soil loss (F) (In/Hr) = 0.205

Minimum soil loss rate ((In/Hr)) = 0.103

(for 24 hour storm duration)

Soil low loss rate (decimal) = 0.266

U n i t H y d r o g r a p h

DESERT S-Curve

Unit Hydrograph Data

Unit time period (hrs)	Time % of lag Graph %	Distribution (CFS)	Unit Hydrograph
1	0.083	645.077	77.129	0.577
2	0.167	1290.154	22.871	0.171
	Sum = 100.000		Sum=	0.748

Unit Time (Hr.)	Pattern Percent	Storm Rain (In/Hr)	Loss rate(In./Hr) Max	Low	Effective (In/Hr)
1	0.08	0.07	0.033	0.364	0.009	0.02
2	0.17	0.07	0.033	0.362	0.009	0.02
3	0.25	0.07	0.033	0.361	0.009	0.02
4	0.33	0.10	0.050	0.360	0.013	0.04
5	0.42	0.10	0.050	0.358	0.013	0.04
6	0.50	0.10	0.050	0.357	0.013	0.04
7	0.58	0.10	0.050	0.355	0.013	0.04
8	0.67	0.10	0.050	0.354	0.013	0.04
9	0.75	0.10	0.050	0.353	0.013	0.04
10	0.83	0.13	0.066	0.351	0.018	0.05
11	0.92	0.13	0.066	0.350	0.018	0.05
12	1.00	0.13	0.066	0.348	0.018	0.05
13	1.08	0.10	0.050	0.347	0.013	0.04
14	1.17	0.10	0.050	0.346	0.013	0.04
15	1.25	0.10	0.050	0.344	0.013	0.04
16	1.33	0.10	0.050	0.343	0.013	0.04
17	1.42	0.10	0.050	0.342	0.013	0.04
18	1.50	0.10	0.050	0.340	0.013	0.04
19	1.58	0.10	0.050	0.339	0.013	0.04
20	1.67	0.10	0.050	0.338	0.013	0.04
21	1.75	0.10	0.050	0.336	0.013	0.04
22	1.83	0.13	0.066	0.335	0.018	0.05
23	1.92	0.13	0.066	0.333	0.018	0.05
24	2.00	0.13	0.066	0.332	0.018	0.05
25	2.08	0.13	0.066	0.331	0.018	0.05
26	2.17	0.13	0.066	0.329	0.018	0.05
27	2.25	0.13	0.066	0.328	0.018	0.05
28	2.33	0.13	0.066	0.327	0.018	0.05
29	2.42	0.13	0.066	0.325	0.018	0.05
30	2.50	0.13	0.066	0.324	0.018	0.05
31	2.58	0.17	0.083	0.323	0.022	0.06
32	2.67	0.17	0.083	0.321	0.022	0.06
33	2.75	0.17	0.083	0.320	0.022	0.06

34	2.83	0.17	0.083	0.319	0.022	0.06
35	2.92	0.17	0.083	0.318	0.022	0.06
36	3.00	0.17	0.083	0.316	0.022	0.06
37	3.08	0.17	0.083	0.315	0.022	0.06
38	3.17	0.17	0.083	0.314	0.022	0.06
39	3.25	0.17	0.083	0.312	0.022	0.06
40	3.33	0.17	0.083	0.311	0.022	0.06
41	3.42	0.17	0.083	0.310	0.022	0.06
42	3.50	0.17	0.083	0.308	0.022	0.06
43	3.58	0.17	0.083	0.307	0.022	0.06
44	3.67	0.17	0.083	0.306	0.022	0.06
45	3.75	0.17	0.083	0.305	0.022	0.06
46	3.83	0.20	0.099	0.303	0.026	0.07
47	3.92	0.20	0.099	0.302	0.026	0.07
48	4.00	0.20	0.099	0.301	0.026	0.07
49	4.08	0.20	0.099	0.299	0.026	0.07
50	4.17	0.20	0.099	0.298	0.026	0.07
51	4.25	0.20	0.099	0.297	0.026	0.07
52	4.33	0.23	0.116	0.296	0.031	0.08
53	4.42	0.23	0.116	0.294	0.031	0.08
54	4.50	0.23	0.116	0.293	0.031	0.08
55	4.58	0.23	0.116	0.292	0.031	0.08
56	4.67	0.23	0.116	0.291	0.031	0.08
57	4.75	0.23	0.116	0.289	0.031	0.08
58	4.83	0.27	0.132	0.288	0.035	0.10
59	4.92	0.27	0.132	0.287	0.035	0.10
60	5.00	0.27	0.132	0.286	0.035	0.10
61	5.08	0.20	0.099	0.284	0.026	0.07
62	5.17	0.20	0.099	0.283	0.026	0.07
63	5.25	0.20	0.099	0.282	0.026	0.07
64	5.33	0.23	0.116	0.281	0.031	0.08
65	5.42	0.23	0.116	0.279	0.031	0.08
66	5.50	0.23	0.116	0.278	0.031	0.08
67	5.58	0.27	0.132	0.277	0.035	0.10
68	5.67	0.27	0.132	0.276	0.035	0.10
69	5.75	0.27	0.132	0.275	0.035	0.10
70	5.83	0.27	0.132	0.273	0.035	0.10
71	5.92	0.27	0.132	0.272	0.035	0.10
72	6.00	0.27	0.132	0.271	0.035	0.10
73	6.08	0.30	0.149	0.270	0.040	0.11
74	6.17	0.30	0.149	0.268	0.040	0.11
75	6.25	0.30	0.149	0.267	0.040	0.11
76	6.33	0.30	0.149	0.266	0.040	0.11
77	6.42	0.30	0.149	0.265	0.040	0.11
78	6.50	0.30	0.149	0.264	0.040	0.11
79	6.58	0.33	0.165	0.263	0.044	0.12
80	6.67	0.33	0.165	0.261	0.044	0.12
81	6.75	0.33	0.165	0.260	0.044	0.12
82	6.83	0.33	0.165	0.259	0.044	0.12
83	6.92	0.33	0.165	0.258	0.044	0.12
84	7.00	0.33	0.165	0.257	0.044	0.12
85	7.08	0.33	0.165	0.255	0.044	0.12
86	7.17	0.33	0.165	0.254	0.044	0.12
87	7.25	0.33	0.165	0.253	0.044	0.12
88	7.33	0.37	0.182	0.252	0.048	0.13
89	7.42	0.37	0.182	0.251	0.048	0.13
90	7.50	0.37	0.182	0.250	0.048	0.13
91	7.58	0.40	0.199	0.249	0.053	0.15
92	7.67	0.40	0.199	0.247	0.053	0.15
93	7.75	0.40	0.199	0.246	0.053	0.15
94	7.83	0.43	0.215	0.245	0.057	0.16
95	7.92	0.43	0.215	0.244	0.057	0.16
96	8.00	0.43	0.215	0.243	0.057	0.16
97	8.08	0.50	0.248	0.242	---	0.01
98	8.17	0.50	0.248	0.241	---	0.01

99	8.25	0.50	0.248	0.239	---	0.01
100	8.33	0.50	0.248	0.238	---	0.01
101	8.42	0.50	0.248	0.237	---	0.01
102	8.50	0.50	0.248	0.236	---	0.01
103	8.58	0.53	0.265	0.235	---	0.03
104	8.67	0.53	0.265	0.234	---	0.03
105	8.75	0.53	0.265	0.233	---	0.03
106	8.83	0.57	0.281	0.232	---	0.05
107	8.92	0.57	0.281	0.231	---	0.05
108	9.00	0.57	0.281	0.230	---	0.05
109	9.08	0.63	0.314	0.228	---	0.09
110	9.17	0.63	0.314	0.227	---	0.09
111	9.25	0.63	0.314	0.226	---	0.09
112	9.33	0.67	0.331	0.225	---	0.11
113	9.42	0.67	0.331	0.224	---	0.11
114	9.50	0.67	0.331	0.223	---	0.11
115	9.58	0.70	0.348	0.222	---	0.13
116	9.67	0.70	0.348	0.221	---	0.13
117	9.75	0.70	0.348	0.220	---	0.13
118	9.83	0.73	0.364	0.219	---	0.15
119	9.92	0.73	0.364	0.218	---	0.15
120	10.00	0.73	0.364	0.217	---	0.15
121	10.08	0.50	0.248	0.216	---	0.03
122	10.17	0.50	0.248	0.215	---	0.03
123	10.25	0.50	0.248	0.214	---	0.03
124	10.33	0.50	0.248	0.213	---	0.04
125	10.42	0.50	0.248	0.212	---	0.04
126	10.50	0.50	0.248	0.210	---	0.04
127	10.58	0.67	0.331	0.209	---	0.12
128	10.67	0.67	0.331	0.208	---	0.12
129	10.75	0.67	0.331	0.207	---	0.12
130	10.83	0.67	0.331	0.206	---	0.12
131	10.92	0.67	0.331	0.205	---	0.13
132	11.00	0.67	0.331	0.204	---	0.13
133	11.08	0.63	0.314	0.203	---	0.11
134	11.17	0.63	0.314	0.202	---	0.11
135	11.25	0.63	0.314	0.201	---	0.11
136	11.33	0.63	0.314	0.200	---	0.11
137	11.42	0.63	0.314	0.199	---	0.12
138	11.50	0.63	0.314	0.198	---	0.12
139	11.58	0.57	0.281	0.197	---	0.08
140	11.67	0.57	0.281	0.196	---	0.08
141	11.75	0.57	0.281	0.195	---	0.09
142	11.83	0.60	0.298	0.194	---	0.10
143	11.92	0.60	0.298	0.193	---	0.10
144	12.00	0.60	0.298	0.193	---	0.11
145	12.08	0.83	0.414	0.192	---	0.22
146	12.17	0.83	0.414	0.191	---	0.22
147	12.25	0.83	0.414	0.190	---	0.22
148	12.33	0.87	0.430	0.189	---	0.24
149	12.42	0.87	0.430	0.188	---	0.24
150	12.50	0.87	0.430	0.187	---	0.24
151	12.58	0.93	0.463	0.186	---	0.28
152	12.67	0.93	0.463	0.185	---	0.28
153	12.75	0.93	0.463	0.184	---	0.28
154	12.83	0.97	0.480	0.183	---	0.30
155	12.92	0.97	0.480	0.182	---	0.30
156	13.00	0.97	0.480	0.181	---	0.30
157	13.08	1.13	0.563	0.180	---	0.38
158	13.17	1.13	0.563	0.179	---	0.38
159	13.25	1.13	0.563	0.178	---	0.38
160	13.33	1.13	0.563	0.178	---	0.39
161	13.42	1.13	0.563	0.177	---	0.39
162	13.50	1.13	0.563	0.176	---	0.39
163	13.58	0.77	0.381	0.175	---	0.21

164	13.67	0.77	0.381	0.174	---	0.21
165	13.75	0.77	0.381	0.173	---	0.21
166	13.83	0.77	0.381	0.172	---	0.21
167	13.92	0.77	0.381	0.171	---	0.21
168	14.00	0.77	0.381	0.170	---	0.21
169	14.08	0.90	0.447	0.170	---	0.28
170	14.17	0.90	0.447	0.169	---	0.28
171	14.25	0.90	0.447	0.168	---	0.28
172	14.33	0.87	0.430	0.167	---	0.26
173	14.42	0.87	0.430	0.166	---	0.26
174	14.50	0.87	0.430	0.165	---	0.26
175	14.58	0.87	0.430	0.164	---	0.27
176	14.67	0.87	0.430	0.164	---	0.27
177	14.75	0.87	0.430	0.163	---	0.27
178	14.83	0.83	0.414	0.162	---	0.25
179	14.92	0.83	0.414	0.161	---	0.25
180	15.00	0.83	0.414	0.160	---	0.25
181	15.08	0.80	0.397	0.159	---	0.24
182	15.17	0.80	0.397	0.159	---	0.24
183	15.25	0.80	0.397	0.158	---	0.24
184	15.33	0.77	0.381	0.157	---	0.22
185	15.42	0.77	0.381	0.156	---	0.22
186	15.50	0.77	0.381	0.155	---	0.23
187	15.58	0.63	0.314	0.155	---	0.16
188	15.67	0.63	0.314	0.154	---	0.16
189	15.75	0.63	0.314	0.153	---	0.16
190	15.83	0.63	0.314	0.152	---	0.16
191	15.92	0.63	0.314	0.151	---	0.16
192	16.00	0.63	0.314	0.151	---	0.16
193	16.08	0.13	0.066	0.150	0.018	0.05
194	16.17	0.13	0.066	0.149	0.018	0.05
195	16.25	0.13	0.066	0.148	0.018	0.05
196	16.33	0.13	0.066	0.148	0.018	0.05
197	16.42	0.13	0.066	0.147	0.018	0.05
198	16.50	0.13	0.066	0.146	0.018	0.05
199	16.58	0.10	0.050	0.145	0.013	0.04
200	16.67	0.10	0.050	0.145	0.013	0.04
201	16.75	0.10	0.050	0.144	0.013	0.04
202	16.83	0.10	0.050	0.143	0.013	0.04
203	16.92	0.10	0.050	0.142	0.013	0.04
204	17.00	0.10	0.050	0.142	0.013	0.04
205	17.08	0.17	0.083	0.141	0.022	0.06
206	17.17	0.17	0.083	0.140	0.022	0.06
207	17.25	0.17	0.083	0.140	0.022	0.06
208	17.33	0.17	0.083	0.139	0.022	0.06
209	17.42	0.17	0.083	0.138	0.022	0.06
210	17.50	0.17	0.083	0.138	0.022	0.06
211	17.58	0.17	0.083	0.137	0.022	0.06
212	17.67	0.17	0.083	0.136	0.022	0.06
213	17.75	0.17	0.083	0.135	0.022	0.06
214	17.83	0.13	0.066	0.135	0.018	0.05
215	17.92	0.13	0.066	0.134	0.018	0.05
216	18.00	0.13	0.066	0.133	0.018	0.05
217	18.08	0.13	0.066	0.133	0.018	0.05
218	18.17	0.13	0.066	0.132	0.018	0.05
219	18.25	0.13	0.066	0.132	0.018	0.05
220	18.33	0.13	0.066	0.131	0.018	0.05
221	18.42	0.13	0.066	0.130	0.018	0.05
222	18.50	0.13	0.066	0.130	0.018	0.05
223	18.58	0.10	0.050	0.129	0.013	0.04
224	18.67	0.10	0.050	0.128	0.013	0.04
225	18.75	0.10	0.050	0.128	0.013	0.04
226	18.83	0.07	0.033	0.127	0.009	0.02
227	18.92	0.07	0.033	0.127	0.009	0.02
228	19.00	0.07	0.033	0.126	0.009	0.02

229	19.08	0.10	0.050	0.125	0.013	0.04
230	19.17	0.10	0.050	0.125	0.013	0.04
231	19.25	0.10	0.050	0.124	0.013	0.04
232	19.33	0.13	0.066	0.124	0.018	0.05
233	19.42	0.13	0.066	0.123	0.018	0.05
234	19.50	0.13	0.066	0.122	0.018	0.05
235	19.58	0.10	0.050	0.122	0.013	0.04
236	19.67	0.10	0.050	0.121	0.013	0.04
237	19.75	0.10	0.050	0.121	0.013	0.04
238	19.83	0.07	0.033	0.120	0.009	0.02
239	19.92	0.07	0.033	0.120	0.009	0.02
240	20.00	0.07	0.033	0.119	0.009	0.02
241	20.08	0.10	0.050	0.119	0.013	0.04
242	20.17	0.10	0.050	0.118	0.013	0.04
243	20.25	0.10	0.050	0.118	0.013	0.04
244	20.33	0.10	0.050	0.117	0.013	0.04
245	20.42	0.10	0.050	0.117	0.013	0.04
246	20.50	0.10	0.050	0.116	0.013	0.04
247	20.58	0.10	0.050	0.116	0.013	0.04
248	20.67	0.10	0.050	0.115	0.013	0.04
249	20.75	0.10	0.050	0.115	0.013	0.04
250	20.83	0.07	0.033	0.114	0.009	0.02
251	20.92	0.07	0.033	0.114	0.009	0.02
252	21.00	0.07	0.033	0.113	0.009	0.02
253	21.08	0.10	0.050	0.113	0.013	0.04
254	21.17	0.10	0.050	0.112	0.013	0.04
255	21.25	0.10	0.050	0.112	0.013	0.04
256	21.33	0.07	0.033	0.112	0.009	0.02
257	21.42	0.07	0.033	0.111	0.009	0.02
258	21.50	0.07	0.033	0.111	0.009	0.02
259	21.58	0.10	0.050	0.110	0.013	0.04
260	21.67	0.10	0.050	0.110	0.013	0.04
261	21.75	0.10	0.050	0.109	0.013	0.04
262	21.83	0.07	0.033	0.109	0.009	0.02
263	21.92	0.07	0.033	0.109	0.009	0.02
264	22.00	0.07	0.033	0.108	0.009	0.02
265	22.08	0.10	0.050	0.108	0.013	0.04
266	22.17	0.10	0.050	0.108	0.013	0.04
267	22.25	0.10	0.050	0.107	0.013	0.04
268	22.33	0.07	0.033	0.107	0.009	0.02
269	22.42	0.07	0.033	0.107	0.009	0.02
270	22.50	0.07	0.033	0.106	0.009	0.02
271	22.58	0.07	0.033	0.106	0.009	0.02
272	22.67	0.07	0.033	0.106	0.009	0.02
273	22.75	0.07	0.033	0.105	0.009	0.02
274	22.83	0.07	0.033	0.105	0.009	0.02
275	22.92	0.07	0.033	0.105	0.009	0.02
276	23.00	0.07	0.033	0.105	0.009	0.02
277	23.08	0.07	0.033	0.104	0.009	0.02
278	23.17	0.07	0.033	0.104	0.009	0.02
279	23.25	0.07	0.033	0.104	0.009	0.02
280	23.33	0.07	0.033	0.104	0.009	0.02
281	23.42	0.07	0.033	0.104	0.009	0.02
282	23.50	0.07	0.033	0.103	0.009	0.02
283	23.58	0.07	0.033	0.103	0.009	0.02
284	23.67	0.07	0.033	0.103	0.009	0.02
285	23.75	0.07	0.033	0.103	0.009	0.02
286	23.83	0.07	0.033	0.103	0.009	0.02
287	23.92	0.07	0.033	0.103	0.009	0.02
288	24.00	0.07	0.033	0.103	0.009	0.02
Sum =		100.0		Sum =		27.1

Flood volume = Effective rainfall 2.26(In)
times area 0.7(Ac.)/[(In)/(Ft.)] = 0.1(Ac.Ft)
Total soil loss = 1.88(In)
Total soil loss = 0.116(Ac.Ft)

Total rainfall = 4.14(In)
Flood volume = 6081.8 Cubic Feet
Total soil loss = 5062.0 Cubic Feet

Peak flow rate of this hydrograph = 0.289(CFS)

++

24 - H O U R S T O R M
R u n o f f H y d r o g r a p h

Hydrograph in 5 Minute intervals ((CFS))

Time(h+m)	Volume Ac.Ft	Q(CFS)	0	2.5	5.0	7.5	10.0
0+ 5	0.0001	0.01	Q				
0+10	0.0002	0.02	Q				
0+15	0.0003	0.02	Q				
0+20	0.0005	0.03	Q				
0+25	0.0007	0.03	Q				
0+30	0.0009	0.03	Q				
0+35	0.0011	0.03	Q				
0+40	0.0013	0.03	Q				
0+45	0.0015	0.03	Q				
0+50	0.0017	0.03	Q				
0+55	0.0019	0.04	Q				
1+ 0	0.0022	0.04	Q				
1+ 5	0.0024	0.03	Q				
1+10	0.0026	0.03	Q				
1+15	0.0028	0.03	Q				
1+20	0.0030	0.03	Q				
1+25	0.0031	0.03	Q				
1+30	0.0033	0.03	Q				
1+35	0.0035	0.03	QV				
1+40	0.0037	0.03	QV				
1+45	0.0039	0.03	QV				
1+50	0.0041	0.03	QV				
1+55	0.0044	0.04	QV				
2+ 0	0.0046	0.04	QV				
2+ 5	0.0049	0.04	QV				
2+10	0.0051	0.04	QV				
2+15	0.0054	0.04	QV				
2+20	0.0056	0.04	QV				
2+25	0.0059	0.04	QV				
2+30	0.0061	0.04	QV				
2+35	0.0064	0.04	QV				
2+40	0.0067	0.05	QV				
2+45	0.0071	0.05	Q V				
2+50	0.0074	0.05	Q V				
2+55	0.0077	0.05	Q V				
3+ 0	0.0080	0.05	Q V				
3+ 5	0.0083	0.05	Q V				
3+10	0.0086	0.05	Q V				
3+15	0.0089	0.05	Q V				
3+20	0.0093	0.05	Q V				
3+25	0.0096	0.05	Q V				
3+30	0.0099	0.05	Q V				
3+35	0.0102	0.05	Q V				
3+40	0.0105	0.05	Q V				
3+45	0.0108	0.05	Q V				
3+50	0.0112	0.05	Q V				
3+55	0.0116	0.05	Q V				
4+ 0	0.0119	0.05	Q V				
4+ 5	0.0123	0.05	Q V				
4+10	0.0127	0.05	Q V				

4+15	0.0131	0.05	Q	V	|	|	|	|
4+20	0.0135	0.06	Q	V	|	|	|	|
4+25	0.0139	0.06	Q	V	|	|	|	|
4+30	0.0144	0.06	Q	V	|	|	|	|
4+35	0.0148	0.06	Q	V	|	|	|	|
4+40	0.0152	0.06	Q	V	|	|	|	|
4+45	0.0157	0.06	Q	V	|	|	|	|
4+50	0.0162	0.07	Q	V	|	|	|	|
4+55	0.0167	0.07	Q	V	|	|	|	|
5+ 0	0.0172	0.07	Q	V	|	|	|	|
5+ 5	0.0176	0.06	Q	V	|	|	|	|
5+10	0.0179	0.05	Q	V	|	|	|	|
5+15	0.0183	0.05	Q	V	|	|	|	|
5+20	0.0187	0.06	Q	V	|	|	|	|
5+25	0.0192	0.06	Q	V	|	|	|	|
5+30	0.0196	0.06	Q	V	|	|	|	|
5+35	0.0201	0.07	Q	V	|	|	|	|
5+40	0.0206	0.07	Q	V	|	|	|	|
5+45	0.0211	0.07	Q	V	|	|	|	|
5+50	0.0216	0.07	Q	V	|	|	|	|
5+55	0.0221	0.07	Q	V	|	|	|	|
6+ 0	0.0226	0.07	Q	V	|	|	|	|
6+ 5	0.0231	0.08	Q	V	|	|	|	|
6+10	0.0237	0.08	Q	V	|	|	|	|
6+15	0.0243	0.08	Q	V	|	|	|	|
6+20	0.0248	0.08	Q	V	|	|	|	|
6+25	0.0254	0.08	Q	V	|	|	|	|
6+30	0.0260	0.08	Q	V	|	|	|	|
6+35	0.0266	0.09	Q	V	|	|	|	|
6+40	0.0272	0.09	Q	V	|	|	|	|
6+45	0.0278	0.09	Q	V	|	|	|	|
6+50	0.0284	0.09	Q	V	|	|	|	|
6+55	0.0291	0.09	Q	V	|	|	|	|
7+ 0	0.0297	0.09	Q	V	|	|	|	|
7+ 5	0.0303	0.09	Q	V	|	|	|	|
7+10	0.0310	0.09	Q	V	|	|	|	|
7+15	0.0316	0.09	Q	V	|	|	|	|
7+20	0.0323	0.10	Q	V	|	|	|	|
7+25	0.0329	0.10	Q	V	|	|	|	|
7+30	0.0336	0.10	Q	V	|	|	|	|
7+35	0.0344	0.11	Q	V	|	|	|	|
7+40	0.0351	0.11	Q	V	|	|	|	|
7+45	0.0359	0.11	Q	V	|	|	|	|
7+50	0.0367	0.12	Q	V	|	|	|	|
7+55	0.0375	0.12	Q	V	|	|	|	|
8+ 0	0.0383	0.12	Q	V	|	|	|	|
8+ 5	0.0385	0.03	Q	|V	|	|	|	|
8+10	0.0385	0.01	Q	|V	|	|	|	|
8+15	0.0386	0.01	Q	|V	|	|	|	|
8+20	0.0386	0.01	Q	|V	|	|	|	|
8+25	0.0387	0.01	Q	|V	|	|	|	|
8+30	0.0388	0.01	Q	|V	|	|	|	|
8+35	0.0389	0.02	Q	|V	|	|	|	|
8+40	0.0390	0.02	Q	|V	|	|	|	|
8+45	0.0392	0.02	Q	|V	|	|	|	|
8+50	0.0394	0.03	Q	|V	|	|	|	|
8+55	0.0397	0.04	Q	|V	|	|	|	|
9+ 0	0.0400	0.04	Q	|V	|	|	|	|
9+ 5	0.0404	0.06	Q	|V	|	|	|	|
9+10	0.0408	0.06	Q	|V	|	|	|	|
9+15	0.0413	0.07	Q	|V	|	|	|	|
9+20	0.0418	0.08	Q	|V	|	|	|	|
9+25	0.0423	0.08	Q	| V	|	|	|	|
9+30	0.0429	0.08	Q	| V	|	|	|	|
9+35	0.0435	0.09	Q	| V	|	|	|	|

```
 9+40    0.0442    0.09  Q      | V     |       |       |
 9+45    0.0448    0.10  Q      | V     |       |       |
 9+50    0.0456    0.11  Q      |  V    |       |       |
 9+55    0.0463    0.11  Q      |  V    |       |       |
10+ 0    0.0471    0.11  Q      |  V    |       |       |
10+ 5    0.0474    0.04  Q      |  V    |       |       |
10+10    0.0475    0.02  Q      |  V    |       |       |
10+15    0.0477    0.03  Q      |  V    |       |       |
10+20    0.0479    0.03  Q      |  V    |       |       |
10+25    0.0481    0.03  Q      |  V    |       |       |
10+30    0.0483    0.03  Q      |  V    |       |       |
10+35    0.0488    0.08  Q      |  V    |       |       |
10+40    0.0494    0.09  Q      |   V   |       |       |
10+45    0.0501    0.09  Q      |   V   |       |       |
10+50    0.0507    0.09  Q      |   V   |       |       |
10+55    0.0514    0.09  Q      |   V   |       |       |
11+ 0    0.0520    0.09  Q      |   V   |       |       |
11+ 5    0.0526    0.09  Q      |   V   |       |       |
11+10    0.0532    0.08  Q      |    V  |       |       |
11+15    0.0538    0.08  Q      |    V  |       |       |
11+20    0.0544    0.09  Q      |    V  |       |       |
11+25    0.0549    0.09  Q      |    V  |       |       |
11+30    0.0555    0.09  Q      |    V  |       |       |
11+35    0.0560    0.07  Q      |     V |       |       |
11+40    0.0564    0.06  Q      |     V |       |       |
11+45    0.0569    0.06  Q      |     V |       |       |
11+50    0.0574    0.07  Q      |     V |       |       |
11+55    0.0579    0.08  Q      |     V |       |       |
12+ 0    0.0585    0.08  Q      |    V  |       |       |
12+ 5    0.0595    0.15  Q      |    V  |       |       |
12+10    0.0606    0.17  Q      |     V |       |       |
12+15    0.0618    0.17  Q      |     V |       |       |
12+20    0.0630    0.18  Q      |      V|       |       |
12+25    0.0643    0.18  Q      |      V|       |       |
12+30    0.0655    0.18  Q      |      V|       |       |
12+35    0.0669    0.20  Q      |       V|      |       |
12+40    0.0683    0.21  Q      |       V|      |       |
12+45    0.0698    0.21  Q      |       V|      |       |
12+50    0.0713    0.22  Q      |        V      |       |
12+55    0.0728    0.22  Q      |        V      |       |
13+ 0    0.0744    0.22  Q      |       |V      |       |
13+ 5    0.0762    0.27  |Q     |       |V      |       |
13+10    0.0782    0.29  |Q     |       | V     |       |
13+15    0.0802    0.29  |Q     |       | V     |       |
13+20    0.0822    0.29  |Q     |       |  V    |       |
13+25    0.0842    0.29  |Q     |       |   V   |       |
13+30    0.0861    0.29  |Q     |       |   V   |       |
13+35    0.0874    0.18  Q      |       |   V   |       |
13+40    0.0885    0.15  Q      |       |   V   |       |
13+45    0.0896    0.16  Q      |       |   V   |       |
13+50    0.0906    0.16  Q      |       |   V   |       |
13+55    0.0917    0.16  Q      |       |    V  |       |
14+ 0    0.0928    0.16  Q      |       |    V  |       |
14+ 5    0.0941    0.20  Q      |       |    V  |       |
14+10    0.0956    0.21  Q      |       |     V |       |
14+15    0.0970    0.21  Q      |       |     V |       |
14+20    0.0984    0.20  Q      |       |      V|       |
14+25    0.0997    0.20  Q      |       |      V|       |
14+30    0.1011    0.20  Q      |       |      V|       |
14+35    0.1025    0.20  Q      |       |       V|      |
14+40    0.1038    0.20  Q      |       |       V|      |
14+45    0.1052    0.20  Q      |       |        V      |
14+50    0.1065    0.19  Q      |       |        V      |
14+55    0.1078    0.19  Q      |       |        V      |
15+ 0    0.1091    0.19  Q      |       |       |V      |
```

```
15+ 5    0.1104    0.18  Q      |      |      |V      |
15+10    0.1116    0.18  Q      |      |      |V      |
15+15    0.1128    0.18  Q      |      |      | V     |
15+20    0.1140    0.17  Q      |      |      | V     |
15+25    0.1152    0.17  Q      |      |      | V     |
15+30    0.1163    0.17  Q      |      |      |  V    |
15+35    0.1172    0.13  Q      |      |      |  V    |
15+40    0.1181    0.12  Q      |      |      |  V    |
15+45    0.1189    0.12  Q      |      |      |   V   |
15+50    0.1197    0.12  Q      |      |      |   V   |
15+55    0.1206    0.12  Q      |      |      |   V   |
16+ 0    0.1214    0.12  Q      |      |      |  V    |
16+ 5    0.1218    0.06  Q      |      |      |  V    |
16+10    0.1220    0.04  Q      |      |      |   V   |
16+15    0.1223    0.04  Q      |      |      |   V   |
16+20    0.1225    0.04  Q      |      |      |   V   |
16+25    0.1228    0.04  Q      |      |      |   V   |
16+30    0.1230    0.04  Q      |      |      |   V   |
16+35    0.1232    0.03  Q      |      |      |   V   |
16+40    0.1234    0.03  Q      |      |      |   V   |
16+45    0.1236    0.03  Q      |      |      |   V   |
16+50    0.1238    0.03  Q      |      |      |   V   |
16+55    0.1240    0.03  Q      |      |      |   V   |
17+ 0    0.1242    0.03  Q      |      |      |   V   |
17+ 5    0.1245    0.04  Q      |      |      |   V   |
17+10    0.1248    0.05  Q      |      |      |   V   |
17+15    0.1251    0.05  Q      |      |      |   V   |
17+20    0.1254    0.05  Q      |      |      |   V   |
17+25    0.1257    0.05  Q      |      |      |    V  |
17+30    0.1260    0.05  Q      |      |      |    V  |
17+35    0.1263    0.05  Q      |      |      |    V  |
17+40    0.1267    0.05  Q      |      |      |    V  |
17+45    0.1270    0.05  Q      |      |      |    V  |
17+50    0.1272    0.04  Q      |      |      |    V  |
17+55    0.1275    0.04  Q      |      |      |    V  |
18+ 0    0.1277    0.04  Q      |      |      |   V   |
18+ 5    0.1280    0.04  Q      |      |      |   V   |
18+10    0.1282    0.04  Q      |      |      |    V  |
18+15    0.1285    0.04  Q      |      |      |    V  |
18+20    0.1287    0.04  Q      |      |      |    V  |
18+25    0.1290    0.04  Q      |      |      |    V  |
18+30    0.1292    0.04  Q      |      |      |    V  |
18+35    0.1294    0.03  Q      |      |      |    V  |
18+40    0.1296    0.03  Q      |      |      |    V  |
18+45    0.1298    0.03  Q      |      |      |    V  |
18+50    0.1300    0.02  Q      |      |      |    V  |
18+55    0.1301    0.02  Q      |      |      |    V  |
19+ 0    0.1302    0.02  Q      |      |      |    V  |
19+ 5    0.1304    0.03  Q      |      |      |    V  |
19+10    0.1306    0.03  Q      |      |      |    V  |
19+15    0.1308    0.03  Q      |      |      |    V  |
19+20    0.1310    0.03  Q      |      |      |    V  |
19+25    0.1312    0.04  Q      |      |      |    V  |
19+30    0.1315    0.04  Q      |      |      |    V  |
19+35    0.1317    0.03  Q      |      |      |    V  |
19+40    0.1319    0.03  Q      |      |      |    V  |
19+45    0.1321    0.03  Q      |      |      |    V  |
19+50    0.1322    0.02  Q      |      |      |    V  |
19+55    0.1323    0.02  Q      |      |      |    V  |
20+ 0    0.1325    0.02  Q      |      |      |    V  |
20+ 5    0.1326    0.03  Q      |      |      |    V  |
20+10    0.1328    0.03  Q      |      |      |     V |
20+15    0.1330    0.03  Q      |      |      |     V |
20+20    0.1332    0.03  Q      |      |      |     V |
20+25    0.1334    0.03  Q      |      |      |     V |
```

```
 20+30     0.1336     0.03  Q      |       |       |      V |
 20+35     0.1338     0.03  Q      |       |       |      V |
 20+40     0.1339     0.03  Q      |       |       |      V |
 20+45     0.1341     0.03  Q      |       |       |      V |
 20+50     0.1343     0.02  Q      |       |       |      V |
 20+55     0.1344     0.02  Q      |       |       |      V |
 21+ 0     0.1345     0.02  Q      |       |       |      V |
 21+ 5     0.1347     0.03  Q      |       |       |      V |
 21+10     0.1349     0.03  Q      |       |       |      V |
 21+15     0.1351     0.03  Q      |       |       |      V |
 21+20     0.1352     0.02  Q      |       |       |      V |
 21+25     0.1353     0.02  Q      |       |       |      V |
 21+30     0.1355     0.02  Q      |       |       |      V |
 21+35     0.1356     0.03  Q      |       |       |      V |
 21+40     0.1358     0.03  Q      |       |       |      V |
 21+45     0.1360     0.03  Q      |       |       |      V |
 21+50     0.1361     0.02  Q      |       |       |      V|
 21+55     0.1363     0.02  Q      |       |       |      V|
 22+ 0     0.1364     0.02  Q      |       |       |      V|
 22+ 5     0.1366     0.03  Q      |       |       |      V|
 22+10     0.1368     0.03  Q      |       |       |      V|
 22+15     0.1369     0.03  Q      |       |       |      V|
 22+20     0.1371     0.02  Q      |       |       |      V|
 22+25     0.1372     0.02  Q      |       |       |      V|
 22+30     0.1373     0.02  Q      |       |       |      V|
 22+35     0.1375     0.02  Q      |       |       |      V|
 22+40     0.1376     0.02  Q      |       |       |      V|
 22+45     0.1377     0.02  Q      |       |       |      V|
 22+50     0.1378     0.02  Q      |       |       |      V|
 22+55     0.1380     0.02  Q      |       |       |      V|
 23+ 0     0.1381     0.02  Q      |       |       |      V|
 23+ 5     0.1382     0.02  Q      |       |       |      V|
 23+10     0.1383     0.02  Q      |       |       |      V|
 23+15     0.1385     0.02  Q      |       |       |      V|
 23+20     0.1386     0.02  Q      |       |       |      V|
 23+25     0.1387     0.02  Q      |       |       |      V|
 23+30     0.1388     0.02  Q      |       |       |      V|
 23+35     0.1390     0.02  Q      |       |       |      V|
 23+40     0.1391     0.02  Q      |       |       |      V|
 23+45     0.1392     0.02  Q      |       |       |      V|
 23+50     0.1393     0.02  Q      |       |       |      V|
 23+55     0.1395     0.02  Q      |       |       |      V|
 24+ 0     0.1396     0.02  Q      |       |       |      V|
 24+ 5     0.1396     0.00  Q      |       |       |      V|
-------------------------------------------------------------------------------
```

ATTACHMENT D

AREA "A"
1.324 AC.
SOIL TYPE A

SOIL TYPE C

SOIL TYPE D

N 89°51'00" E 643.66'
250.00'
152.00
177.68'
S 52°51'16" E
63.78'
N 13°49'41" E 43.27'
N 76°10'19" W 50.00'
L = 409 FT
R=2300.00' Δ=12°13'14" L=490.66'
C L IMP RTE 74
R=2450.00' Δ=22°06'32" L=945.39'
302.00'
N 01°01'29" E
246.23'
N 01°01'29" E 364.39'
S 45°58'33" E
150.00'
30.00'
FOUND 1" IRON PIPE W/PLASTIC PLUG LS 4430", PER R/S 123/94-10/B.
1377.90 EG
1394.24 EG
50.00'
R=20.00' Δ=90°15'27" L=31.51'
N 72°42'54" W 50.00'
N 36°29'44" E 14.33'
111.01'
N 76°05'30" W 32.53'
RIM=379.24
33.82'
116.36'
126.14'
N 89°51'00" E 250.00'
S 88°58'31" E 30.00'
R=200.00' Δ=21°19'57" L=74.46'
R=200.00' Δ=26°06'59" L=91.16'
341.29'
32.38'
Δ=6°01'46" L=55.12'
R=573.69' Δ=51°04'49" L=511.46'
Δ=15°53'09" L=411.78'
R=452.69' Δ=51°04'49" L=466.88'
CENTRAL AVENUE
STATE HIGHWAY 74
ARDENWOOD WAY
MEDIO MEDIO
SOUTH SOUTH
PARCEL MAP 9086 P.M.B. 48/72 PARCEL 4
PARCEL MAP 9086 P.M.B. 48/72 PARCEL 3
PARCEL MAP 9086 P.M.B. 48/72 PARCEL 2
PARCEL MAP 9086 P.M.B. 48/72 PARCEL 1
FOUND SPIKE IN CONCRETE

20' 10' 0 20' 40'
GRAPHIC SCALE : 1" = 20'

LEGEND:

- DRAINAGE FLOW
- ROOF
- CONCRETE
- LANDSCAPE OR NATURAL GROUND
- CATCHMENT BOUNDARY
- SOIL TYPE BOUNDARY
- X.XXAC — AREA, IN ACRES
- CP 2 / XXX / XXX / XXX / XXX — CONTROL POINT ID; TIME OF CONCENTRATION, IN MINS.; 2 YR. FLOW, IN CFS; 10 YR. FLOW, IN CFS; 100 YR. FLOW, IN CFS

TOTAL AREA	:	1.324 AC
TOTAL PERVIOUS AREA	:	1.266 AC
TOTAL IMPERVIOUS AREA	:	0.059 AC
SOIL TYPE A	:	0.869 AC
SOIL TYPE C	:	0.053 AC
SOIL TYPE D	:	0.401 AC

TOTAL IMPERVIOUS AREA	= 0.059 AC
TOTAL PERVIOUS AREA	= 1.266 AC
TOTAL AREA	= 1.324 AC

PRE-DEVELOPMENT HYDROLOGY MAP

MARK	REVISIONS	APPR.	DATE

THESE PLANS HAVE BEEN REVIEWED FOR COMPLIANCE WITH THE APPROPRIATE CONDITIONS OF DEVELOPMENT AND/OR CITY AND STATE LAWS AND A PERMIT MAY BE ISSUED

BRAD FAGRELL, RCE No. 43920
CITY ENGINEER
CITY OF LAKE ELSINORE — DATE

PREPARED BY:
KARAKI | Western States
A DESIGN-BUILD COMPANY
4887 E. LA PALMA STE. 707
ANAHEIM, CA 92807
TEL: (714)695-9300 FAX: (714)693-1002
www.westernsec.com
KAMAL McHANTAF, RCE C051050 — DATE

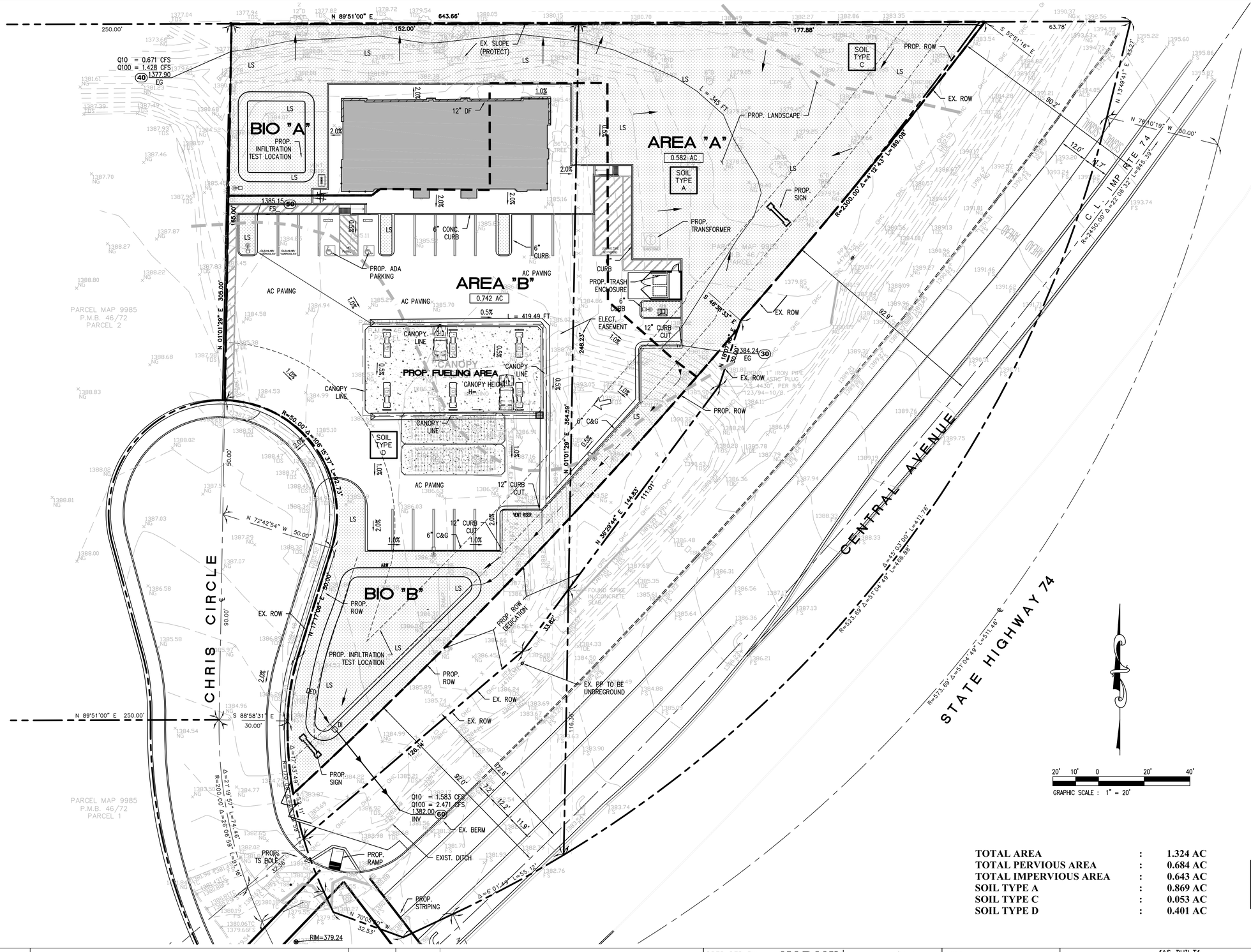
SEAL
REGISTERED PROFESSIONAL ENGINEER — KAMAL B. McHANTAF — No. C051050 Exp. 9-30-21 — CIVIL — STATE OF CALIFORNIA

"AS-BUILT"
RCE _____ EXP _____ DATE:
REVIEWED BY:
INSPECTOR _____ DATE
SCALE : AS NOTED
DATE: AUGUST 30, 2020
BENCH MARK: SEE ABOVE

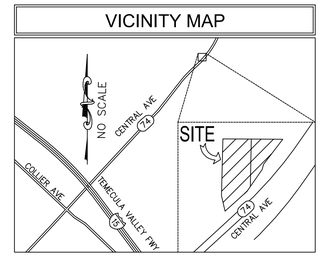
CITY OF LAKE ELSINORE

EXISTING HYDROLOGY MAP
28771 CENTRAL 74 HWY,
LAKE ELSINORE, CA
APN:

SHEET 1 OF 2 SHEETS
FILE No.



VICINITY MAP



VICINITY MAP
NTS

LEGEND:

- DRAINAGE FLOW DIRECTION (PIPE)
- DRAINAGE FLOW
- ROOF
- ASPHALT
- CONCRETE
- LANDSCAPE OR NATURAL GROUND
- CATCHMENT BOUNDARY
- SOIL TYPE BOUNDARY
- X.XXAC — AREA, IN ACRES
- CP 2 — CONTROL POINT ID
- XXX — TIME OF CONCENTRATION, IN MINS.
- XXX — 2 YR. FLOW, IN CFS
- XXX — 10 YR. FLOW, IN CFS
- XXX — 100 YR. FLOW, IN CFS

TOTAL AREA	**:**	**1.324 AC**
TOTAL PERVIOUS AREA	**:**	**0.684 AC**
TOTAL IMPERVIOUS AREA	**:**	**0.643 AC**
SOIL TYPE A	**:**	**0.869 AC**
SOIL TYPE C	**:**	**0.053 AC**
SOIL TYPE D	**:**	**0.401 AC**

TOTAL IMPERVIOUS AREA	= 0.643 AC
TOTAL PERVIOUS AREA	= 0.681 AC
TOTAL AREA	= 1.324 AC

POST-DEVELOPMENT HYDROLOGY MAP

MARK	REVISIONS	APPR.	DATE

THESE PLANS HAVE BEEN REVIEWED FOR COMPLIANCE WITH THE APPROPRIATE CONDITIONS OF DEVELOPMENT AND/OR CITY AND STATE LAWS AND A PERMIT MAY BE ISSUED

BRAD FAGRELL, RCE No. 43920
CITY ENGINEER
CITY OF LAKE ELSINORE — DATE

PREPARED BY:

KARAKI | Western States
A DESIGN-BUILD COMPANY
4887 E. LA PALMA STE. 707
ANAHEIM, CA 92807
TEL: (714)695-9300 FAX: (714)693-1002
www.westernsec.com

KAMAL McHANTAF, RCE C051050 — DATE

SEAL

REGISTERED PROFESSIONAL ENGINEER — KAMAL B. McHANTAF — No. C051050 Exp. 9-30-21 — CIVIL — STATE OF CALIFORNIA

"AS-BUILT"
RCE _____ EXP _____ DATE:
REVIEWED BY:
INSPECTOR — DATE

SCALE : AS NOTED
DATE: JANUARY 18, 2020
BENCH MARK: SEE ABOVE

CITY OF LAKE ELSINORE

PROPOSED HYDROLOGY MAP
28771 CENTRAL 74 HWY,
LAKE ELSINORE, CA
CUP200043

SHEET 2
OF 2 SHEETS
FILE No.

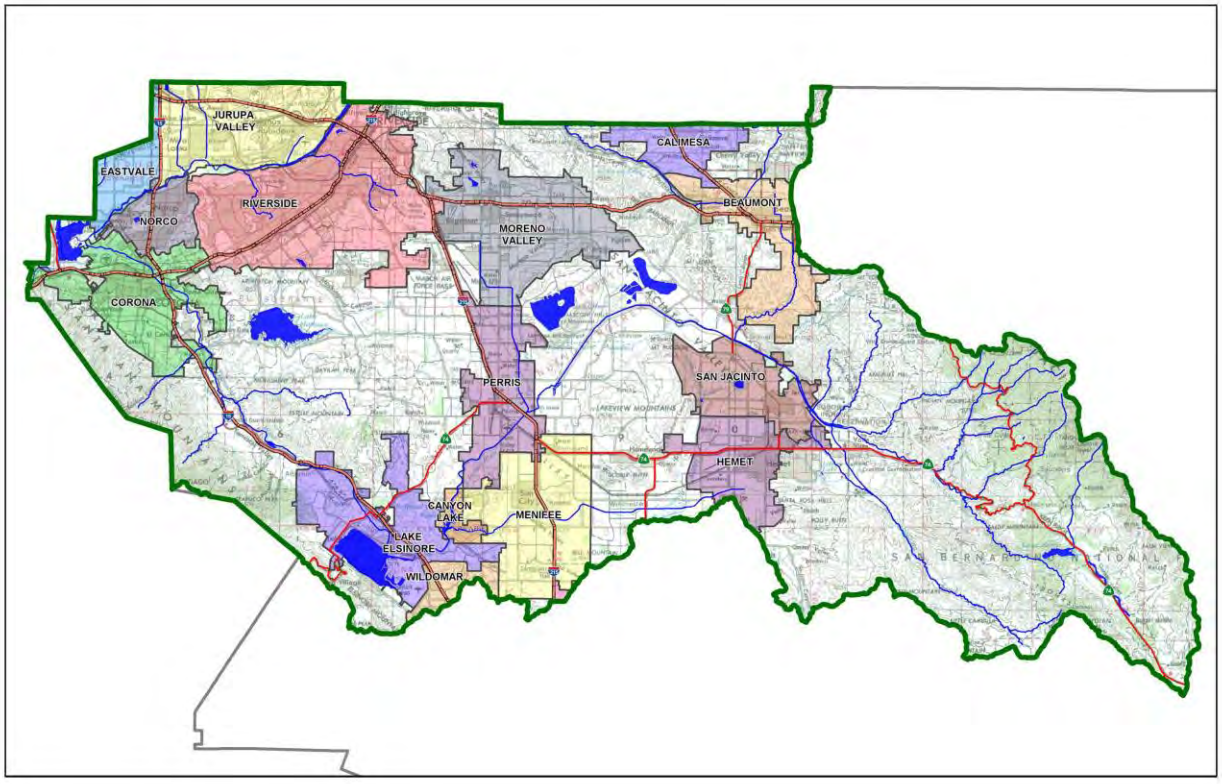
Project Specific Water Quality Management Plan

*A Template for Projects located within the **Santa Ana Watershed** Region of Riverside County*

Project Title: 28771 Central Avenue Gas Station

Development No: Insert text here

Design Review/Case No: PPT210016



Contact Information:

Prepared for:
Daher Oil Inc.
19851 Esperanza Road Yorba Linda, California 92878

☒ **Preliminary**
☐ **Final**

Original Date Prepared: September 23, 2020

Revision Date(s): May 3, 2021

Prepared for Compliance with
Regional Board Order No. **R8-2010-0033**
Template revised June 30, 2016

Prepared by:
Western States Engineering, Inc.
4887 E. La Palma, Ste. 707 Anaheim, Oceanside, California 92807
(714) 695-9300

OWNER'S CERTIFICATION

This Project-Specific Water Quality Management Plan (WQMP) has been prepared for Daher Oil Inc. by Western States Engineering, Inc. for the 28771 Central Avenue Gasoline Station and Convenience Store project.

This WQMP is intended to comply with the requirements of Country of Riverside for R8-2010-0033 which includes the requirement for the preparation and implementation of a Project-Specific WQMP.

The undersigned, while owning the property/project described in the preceding paragraph, shall be responsible for the implementation and funding of this WQMP and will ensure that this WQMP is amended as appropriate to reflect up-to-date conditions on the site. In addition, the property owner accepts responsibility for interim operation and maintenance of Stormwater BMPs until such time as this responsibility is formally transferred to a subsequent owner. This WQMP will be reviewed with the facility operator, facility supervisors, employees, tenants, maintenance and service contractors, or any other party (or parties) having responsibility for implementing portions of this WQMP. At least one copy of this WQMP will be maintained at the project site or project office in perpetuity. The undersigned is authorized to certify and to approve implementation of this WQMP. The undersigned is aware that implementation of this WQMP is enforceable under Riverside Water Quality Ordinance Water Quality Ordinance (Municipal Code SectionR8-2010-0033).

"I, the undersigned, certify under penalty of law that the provisions of this WQMP have been reviewed and accepted and that the WQMP will be transferred to future successors in interest."

Owner's Signature	Date
Salim S. Daher	President
Owner's Printed Name	Owner's Title/Position

PREPARER'S CERTIFICATION

"The selection, sizing and design of stormwater treatment and other stormwater quality and quantity control measures in this plan meet the requirements of Regional Water Quality Control Board Order No. **R8-2010-0033** and any subsequent amendments thereto."

Preparer's Signature	5/3/21 Date
Kamal B. Mchantaf	Owner
Preparer's Printed Name	Preparer's Title/Position

Preparer's Licensure:

Table of Contents

Section A: Project and Site Information 6

A.1 Maps and Site Plans 6
A.2 Identify Receiving Waters 7
A.3 Additional Permits/Approvals required for the Project: 7

Section B: Optimize Site Utilization (LID Principles) 8

Section C: Delineate Drainage Management Areas (DMAs) 9

Section D: Implement LID BMPs 11

D.1 Infiltration Applicability 11
D.2 Harvest and Use Assessment 12
D.3 Bioretention and Biotreatment Assessment 14
D.4 Feasibility Assessment Summaries 15
D.5 LID BMP Sizing 15

Section E: Alternative Compliance (LID Waiver Program) 17

E.1 Identify Pollutants of Concern 18
E.2 Stormwater Credits 19
E.3 Sizing Criteria 19
E.4 Treatment Control BMP Selection 20

Section F: Hydromodification 21

F.1 Hydrologic Conditions of Concern (HCOC) Analysis 21
F.2 HCOC Mitigation 22

Section G: Source Control BMPs 24

Section H: Construction Plan Checklist 27

Section I: Operation, Maintenance and Funding 28

List of Tables

Table A.1 Identification of Receiving Waters 7
Table A.2 Other Applicable Permits 7
Table C.1 DMA Classifications 9
Table C.2 Type 'A', Self-Treating Areas 9
Table C.3 Type 'B', Self-Retaining Areas 9
Table C.4 Type 'C', Areas that Drain to Self-Retaining Areas 10
Table C.5 Type 'D', Areas Draining to BMPs 10
Table D.1 Infiltration Feasibility 11
Table D.2 LID Prioritization Summary Matrix 15
Table D.3 DCV Calculations for LID BMPs 15
Table E.1 Potential Pollutants by Land Use Type 18
Table E.2 Water Quality Credits 19
Table E.3 Treatment Control BMP Sizing 19
Table E.4 Treatment Control BMP Selection 20
Table F.1 Hydrologic Conditions of Concern Summary 21
Table G.1 Permanent and Operational Source Control Measures 24
Table H.1 Construction Plan Cross-reference 27

List of Appendices

Appendix 1: Maps and Site Plans 29
Appendix 2: Construction Plans 30
Appendix 3: Soils Information 31
Appendix 4: Historical Site Conditions 32
Appendix 5: LID Infeasibility 33
Appendix 6: BMP Design Details 34
Appendix 7: Hydromodification 35
Appendix 8: Source Control 36
Appendix 9: O&M 37
Appendix 10: Educational Materials ..... - 6 -

Section A: Project and Site Information

PROJECT INFORMATION		
Type of Project:	Commercial	
Planning Area:	C-P-S	
Community Name:	Warm Springs	
Development Name:	28771 Central Avenue Gasoline Station and Convenience Store	
PROJECT LOCATION		
Latitude & Longitude (DMS): 33°42'11"N, 117°19'35"W		
Project Watershed and Sub-Watershed: Santa Ana River Watershed, Temescal Creek		
Gross Acres: 1.448 APN(s): 347130029 Map Book and Page No.: PM 46/72		
PROJECT CHARACTERISTICS		
Proposed or Potential Land Use(s)	Commercial	
Proposed or Potential SIC Code(s)	44711	
Area of Impervious Project Footprint (SF)	34,888	
Total Area of proposed Impervious Surfaces within the Project Footprint (SF)/or Replacement	34,888	
Does the project consist of offsite road improvements?	☒ Y	☐ N
Does the project propose to construct unpaved roads?	☐ Y	☒ N
Is the project part of a larger common plan of development (phased project)?	☐ Y	☒ N
EXISTING SITE CHARACTERISTICS		
Total area of existing Impervious Surfaces within the Project limits Footprint (SF)	2,549	
Is the project located within any MSHCP Criteria Cell?	☐ Y	☒ N
If so, identify the Cell number:	N/A	
Are there any natural hydrologic features on the project site?	☐ Y	☒ N
Is a Geotechnical Report attached?	☒ Y	☐ N
If no Geotech. Report, list the NRCS soils type(s) present on the site (A, B, C and/or D)	N/A	
What is the Water Quality Design Storm Depth for the project?	0.65	

A.1 Maps and Site Plans

When completing your Project-Specific WQMP, include a map of the local vicinity and existing site. In addition, include all grading, drainage, landscape/plant palette and other pertinent construction plans in Appendix 2. At a **minimum**, your WQMP Site Plan should include the following:

- Drainage Management Areas
- Proposed Structural BMPs
- Drainage Path
- Drainage Infrastructure, Inlets, Overflows
- Source Control BMPs
- Buildings, Roof Lines, Downspouts
- Impervious Surfaces
- Standard Labeling
- BMP Locations (Lat/Long)

Use your discretion on whether or not you may need to create multiple sheets or can appropriately accommodate these features on one or two sheets. Keep in mind that the Co-Permittee plan reviewer must be able to easily analyze your project utilizing this template and its associated site plans and maps.

A.2 Identify Receiving Waters

Using Table A.1 below, list in order of upstream to downstream, the receiving waters that the project site is tributary to. Continue to fill each row with the Receiving Water's 303(d) listed impairments (if any), designated beneficial uses, and proximity, if any, to a RARE beneficial use. Include a map of the receiving waters in Appendix 1.

Table A.1 Identification of Receiving Waters

Receiving Waters	EPA Approved 303(d) List Impairments	Designated Beneficial Uses	Proximity to RARE Beneficial Use
Temescal Creek Reach 5	None	GWR, REC1, REC2, WARM, WILD	N/A
Santa Ana River Reach 3	Indicator Bacteria	AGR, GWR, REC1, REC2	N/A

A.3 Additional Permits/Approvals required for the Project:

Table A.2 Other Applicable Permits

Agency	Permit Required	
State Department of Fish and Game, 1602 Streambed Alteration Agreement	☐ Y	☒ N
State Water Resources Control Board, Clean Water Act (CWA) Section 401 Water Quality Cert.	☐ Y	☒ N
US Army Corps of Engineers, CWA Section 404 Permit	☐ Y	☒ N
US Fish and Wildlife, Endangered Species Act Section 7 Biological Opinion	☐ Y	☒ N
Statewide Construction General Permit Coverage	☐ Y	☒ N
Statewide Industrial General Permit Coverage	☐ Y	☒ N
Western Riverside MSHCP Consistency Approval (e.g., JPR, DBESP)	☐ Y	☒ N
Other *(please list in the space below as required)* City of Riverside Conditional Use Permit	☒ Y	☐ N

If yes is answered to any of the questions above, the Co-Permittee may require proof of approval/coverage from those agencies as applicable including documentation of any associated requirements that may affect this Project-Specific WQMP.

Section B: Optimize Site Utilization (LID Principles)

Site Optimization

The following questions are based upon Section 3.2 of the WQMP Guidance Document. Review of the WQMP Guidance Document will help you determine how best to optimize your site and subsequently identify opportunities and/or constraints, and document compliance.

Did you identify and preserve existing drainage patterns? If so, how? If not, why?

Portion of the development (DMA A) shall preserve the existing drainage pattern although the areas (DMA B) near the Central Avenue will be allowed to drain to the said road's drainage system. The runoff from the area will eventually drain into the Temascal Creek Reach 5.

Did you identify and protect existing vegetation? If so, how? If not, why?

Yes. *Areas within the improvement will be graded while the portions to be left from proposed gasoline station and convenience store shall be left ungraded along with the existing vegetation.*

Did you identify and preserve natural infiltration capacity? If so, how? If not, why?

Yes. Proposed bio-retention basins will be used without any impervious liners. This will allow captured volume to be infiltrated on-site.

Did you identify and minimize impervious area? If so, how? If not, why?

Yes. The project proposes to construct the gasoline station, convenient store and associated development into only a portion of the parcel while leaving a large portion of the project area as undeveloped and ungraded.

Did you identify and disperse runoff to adjacent pervious areas? If so, how? If not, why?

DMA A will be allowed to drain into the natural pervious area by placing the bioretention basin next to it. Any overflow of the captured volume for DMA A will be able to drain to this area that was naturally where the entire project site eventually drains to.

The overflow of DMA B shall drain towards the storm drain system along the Central Avenue. The flows will find its way to the Temascal Creek Reach 5.

Section C: Delineate Drainage Management Areas (DMAs)

Utilizing the procedure in Section 3.3 of the WQMP Guidance Document which discusses the methods of delineating and mapping your project site into individual DMAs, complete Table C.1 below to appropriately categorize the types of classification (e.g., Type A, Type B, etc.) per DMA for your project site. Upon completion of this table, this information will then be used to populate and tabulate the corresponding tables for their respective DMA classifications.

Table C.1 DMA Classifications

DMA Name or ID	Surface Type(s)[1][2]	Area (Sq. Ft.)	DMA Type
A-1	Roof	2,519.08	Type D
A-2	Asphalt/Concrete Pavement	877.78	Type D
A-3	Landscape	2,083.87	Type D
B-1	Roof	4,268.86	Type D
B-2	Asphalt/Concrete Pavement	27,221.98	Type D
B-3	Landscape	7,571.49	Type D

[1]*Reference Table 2-1 in the WQMP Guidance Document to populate this column*
[2]*If multi-surface provide back-up*

Table C.2 Type 'A', Self-Treating Areas

DMA Name or ID	Area (Sq. Ft.)	Stabilization Type	Irrigation Type (if any)
C-1	18,547.21	N/A	None

Table C.3 Type 'B', Self-Retaining Areas

Self-Retaining Area				**Type 'C' DMAs that are draining to the Self-Retaining Area**		
DMA Name/ ID	Post-project surface type	Area (square feet) [A]	Storm Depth (inches) [B]	DMA Name / ID	[C] from Table C.4 = [C]	Required Retention Depth (inches) [D]

$$[D] = [B] + \frac{[B] \cdot [C]}{[A]}$$

Table C.4 Type 'C', Areas that Drain to Self-Retaining Areas

DMA					Receiving Self-Retaining DMA		
DMA Name/ ID	Area (square feet)	Post-project surface type	Impervious fraction	Product		Area (square feet)	Ratio
	[A]		[B]	[C] = [A] x [B]	DMA name /ID	[D]	[C]/[D]

Table C.5 Type 'D', Areas Draining to BMPs

DMA Name or ID	BMP Name or ID
A-1 to A-3	Bioretention BIO-A
B-1 to B-3	Bioretention BIO- B

Note: More than one drainage management area can drain to a single LID BMP, however, one drainage management area may not drain to more than one BMP.

Section D: Implement LID BMPs

D.1 Infiltration Applicability

Is there an approved downstream 'Highest and Best Use' for stormwater runoff (see discussion in Chapter 2.4.4 of the WQMP Guidance Document for further details)? ☐ Y ☒ N

If yes has been checked, Infiltration BMPs shall not be used for the site; proceed to section D.3

If no, continue working through this section to implement your LID BMPs. It is recommended that you contact your Co-Permittee to verify whether or not your project discharges to an approved downstream 'Highest and Best Use' feature.

Geotechnical Report

A Geotechnical Report or Phase I Environmental Site Assessment may be required by the Copermittee to confirm present and past site characteristics that may affect the use of Infiltration BMPs. In addition, the Co-Permittee, at their discretion, may not require a geotechnical report for small projects as described in Chapter 2 of the WQMP Guidance Document. If a geotechnical report has been prepared, include it in Appendix 3. In addition, if a Phase I Environmental Site Assessment has been prepared, include it in Appendix 4.

Is this project classified as a small project consistent with the requirements of Chapter 2 of the WQMP Guidance Document? ☒ Y ☐ N

Infiltration Feasibility

Table D.1 below is meant to provide a simple means of assessing which DMAs on your site support Infiltration BMPs and is discussed in the WQMP Guidance Document in Chapter 2.4.5. Check the appropriate box for each question and then list affected DMAs as applicable. If additional space is needed, add a row below the corresponding answer.

Table D.1 Infiltration Feasibility

Does the project site…	YES	NO
…have any DMAs with a seasonal high groundwater mark shallower than 10 feet?		X
If Yes, list affected DMAs:		
…have any DMAs located within 100 feet of a water supply well?		X
If Yes, list affected DMAs:		
…have any areas identified by the geotechnical report as posing a public safety risk where infiltration of stormwater could have a negative impact?		X
If Yes, list affected DMAs:		
…have measured in-situ infiltration rates of less than 1.6 inches / hour?		X
If Yes, list affected DMAs:		
…have significant cut and/or fill conditions that would preclude in-situ testing of infiltration rates at the final infiltration surface?		X
If Yes, list affected DMAs:		
…geotechnical report identify other site-specific factors that would preclude effective and safe infiltration?		X
Describe here:		

If you answered "Yes" to any of the questions above for any DMA, Infiltration BMPs should not be used for those DMAs and you should proceed to the assessment for Harvest and Use below.

D.2 Harvest and Use Assessment

Please check what applies*:*

☐ Reclaimed water will be used for the non-potable water demands for the project.

☐Downstream water rights may be impacted by Harvest and Use as approved by the Regional Board (verify with the Copermittee).

☐The Design Capture Volume will be addressed using Infiltration Only BMPs. In such a case, Harvest and Use BMPs are still encouraged, but it would not be required if the Design Capture Volume will be infiltrated or evapotranspired.

If any of the above boxes have been checked, Harvest and Use BMPs need not be assessed for the site. If none of the above criteria applies, follow the steps below to assess the feasibility of irrigation use, toilet use and other non-potable uses (e.g., industrial use).

Irrigation Use Feasibility

Complete the following steps to determine the feasibility of harvesting stormwater runoff for Irrigation Use BMPs on your site:

Step 1: Identify the total area of irrigated landscape on the site, and the type of landscaping used.

Total Area of Irrigated Landscape: 0.217 Acres

Type of Landscaping (Conservation Design or Active Turf): Conservative Design (to be confirmed by landscape architect).

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for irrigation use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Total Area of Impervious Surfaces: 0.639 Acres

Step 3: Cross reference the Design Storm depth for the project site (see Exhibit A of the WQMP Guidance Document) with the left column of Table 2-3 in Chapter 2 to determine the minimum area of Effective Irrigated Area per Tributary Impervious Area (EIATIA).

Enter your EIATIA factor: 0.65

Step 4: Multiply the unit value obtained from Step 3 by the total of impervious areas from Step 2 to develop the minimum irrigated area that would be required.

Minimum required irrigated area: 0.415 Acres

Step 5: Determine if harvesting stormwater runoff for irrigation use is feasible for the project by comparing the total area of irrigated landscape (Step 1) to the minimum required irrigated area (Step 4).

Minimum required irrigated area (Step 4)	Available Irrigated Landscape (Step 1)
0.415 Acres	0.217 Acres

Toilet Use Feasibility

Complete the following steps to determine the feasibility of harvesting stormwater runoff for toilet flushing uses on your site:

Step 1: Identify the projected total number of daily toilet users during the wet season, and account for any periodic shut downs or other lapses in occupancy:

Projected Number of Daily Toilet Users: 150

Project Type: Commercial

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for toilet use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Total Area of Impervious Surfaces: 0.639 Acres

Step 3: Enter the Design Storm depth for the project site (see Exhibit A) into the left column of Table 2-2 in Chapter 2 to determine the minimum number or toilet users per tributary impervious acre (TUTIA).

Enter your TUTIA factor: 141

Step 4: Multiply the unit value obtained from Step 3 by the total of impervious areas from Step 2 to develop the minimum number of toilet users that would be required.

Minimum number of toilet users: 90

Step 5: Determine if harvesting stormwater runoff for toilet flushing use is feasible for the project by comparing the Number of Daily Toilet Users (Step 1) to the minimum required number of toilet users (Step 4).

Minimum required Toilet Users (Step 4)	Projected number of toilet users (Step 1)
90	150

Other Non-Potable Use Feasibility

Are there other non-potable uses for stormwater runoff on the site (e.g. industrial use)? See Chapter 2 of the Guidance for further information. If yes, describe below. If no, write N/A.

N/A

Step 1: Identify the projected average daily non-potable demand, in gallons per day, during the wet season and accounting for any periodic shut downs or other lapses in occupancy or operation.

Average Daily Demand: N/A

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for the identified non-potable use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Total Area of Impervious Surfaces: N/A

Step 3: Enter the Design Storm depth for the project site (see Exhibit A) into the left column of Table 2-4 in Chapter 2 to determine the minimum demand for non-potable uses per tributary impervious acre.

Enter the factor from Table 2-4: N/A

Step 4: Multiply the unit value obtained from Step 3 by the total of impervious areas from Step 2 to develop the minimum number of gallons per day of non-potable use that would be required.

Minimum required use: N/A

Step 5: Determine if harvesting stormwater runoff for other non-potable use is feasible for the project by comparing the projected average daily use (Step 1) to the minimum required non-potable use (Step 4).

Minimum required non-potable use (Step 4)	**Projected average daily use (Step 1)**
N/A	N/A

If Irrigation, Toilet and Other Use feasibility anticipated demands are less than the applicable minimum values, Harvest and Use BMPs are not required and you should proceed to utilize LID Bioretention and Biotreatment per Section 3.4.2 of the WQMP Guidance Document.

D.3 Bioretention and Biotreatment Assessment

Other LID Bioretention and Biotreatment BMPs as described in Chapter 2.4.7 of the WQMP Guidance Document are feasible on nearly all development sites with sufficient advance planning.

Select one of the following:

☐ LID Bioretention/Biotreatment BMPs will be used for some or all DMAs of the project as noted below in Section D.4 (note the requirements of Section 3.4.2 in the WQMP Guidance Document).

☐ A site-specific analysis demonstrating the technical infeasibility of all LID BMPs has been performed and is included in Appendix 5. If you plan to submit an analysis demonstrating the technical infeasibility of LID BMPs, request a pre-submittal meeting with the Copermittee to discuss this option. Proceed to Section E to document your alternative compliance measures.

D.4 Feasibility Assessment Summaries

From the Infiltration, Harvest and Use, Bioretention and Biotreatment Sections above, complete Table D.2 below to summarize which LID BMPs are technically feasible, and which are not, based upon the established hierarchy.

Table D.2 LID Prioritization Summary Matrix

DMA Name/ID	LID BMP Hierarchy				No LID (Alternative Compliance)
	1. Infiltration	2. Harvest and use	3. Bioretention	4. Biotreatment	
A	☐	☐	☒	☐	☐
B	☐	☐	☒	☐	☐
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐

For those DMAs where LID BMPs are not feasible, provide a brief narrative below summarizing why they are not feasible, include your technical infeasibility criteria in Appendix 5, and proceed to Section E below to document Alternative Compliance measures for those DMAs. Recall that each proposed DMA must pass through the LID BMP hierarchy before alternative compliance measures may be considered.

D.5 LID BMP Sizing

Each LID BMP must be designed to ensure that the Design Capture Volume will be addressed by the selected BMPs. First**,** calculate the Design Capture Volume for each LID BMP using the V_{BMP} worksheet in Appendix F of the LID BMP Design Handbook. Second**,** design the LID BMP to meet the required V_{BMP} using a method approved by the Copermittee. Utilize the worksheets found in the LID BMP Design Handbook or consult with your Copermittee to assist you in correctly sizing your LID BMPs. Complete Table D.3 below to document the Design Capture Volume and the Proposed Volume for each LID BMP. Provide the completed design procedure sheets for each LID BMP in Appendix 6. You may add additional rows to the table below as needed.

Table D.3 DCV Calculations for LID BMPs

DMA Type/ID	**DMA Area (square feet)**	**Post-Project Surface Type**	**Effective Impervious Fraction, I_f**	**DMA Runoff Factor**	**DMA Areas x Runoff Factor**	***Enter BMP Name / Identifier Here***		
	[A]		[B]	[C]	[A] x [C]			
A-1	*2,519.08*	*Roofs*	*1*	*0.89*	*2,247*	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
A-2	*877.78*	*Concrete or Asphalt*	*1*	*0.89*	*783*			
A-3	*2,083.87*	*Ornamental Landscaping*	*0.1*	*0.11*	*230.2*			
	5,480.73				***3,260.2***	***0.65***	***176.6***	***934***

[B], [C] is obtained as described in Section 2.3.1 of the WQMP Guidance Document
[E] is obtained from Exhibit A in the WQMP Guidance Document
[G] is obtained from a design procedure sheet, such as in LID BMP Design Handbook and placed in Appendix 6

Table D.4 DCV Calculations for LID BMPs

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Impervious Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*BIO-B*		
	[A]		[B]	[C]	[A] x [C]			
B-1	*4,268.86*	*Roofs*	*1*	*0.89*	*3,807.8*	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
B-2	*27,221.98*	*Concrete or Asphalt*	*1*	*0.89*	*24,282*			
B-3	*7,571.49*	*Ornamental Landscaping*	*0.1*	*0.11*	*836.3*			
	39,062.33				***28,926.1***	***0.65***	***1,566.8***	***3,173***

[B], [C] is obtained as described in Section 2.3.1 of the WQMP Guidance Document
[E] is obtained from Exhibit A in the WQMP Guidance Document
[G] is obtained from a design procedure sheet, such as in LID BMP Design Handbook and placed in Appendix 6

Section E: Alternative Compliance (LID Waiver Program)

LID BMPs are expected to be feasible on virtually all projects. Where LID BMPs have been demonstrated to be infeasible as documented in Section D, other Treatment Control BMPs must be used (subject to LID waiver approval by the Copermittee). Check one of the following Boxes:

☒ LID Principles and LID BMPs have been incorporated into the site design to fully address all Drainage Management Areas. No alternative compliance measures are required for this project and thus this Section is not required to be completed.

- *Or* -

☐ The following Drainage Management Areas are unable to be addressed using LID BMPs. A site-specific analysis demonstrating technical infeasibility of LID BMPs has been approved by the Co-Permittee and included in Appendix 5. Additionally, no downstream regional and/or sub-regional LID BMPs exist or are available for use by the project. The following alternative compliance measures on the following pages are being implemented to ensure that any pollutant loads expected to be discharged by not incorporating LID BMPs, are fully mitigated.

E.1 Identify Pollutants of Concern

Utilizing Table A.1 from Section A above which noted your project's receiving waters and their associated EPA approved 303(d) listed impairments, cross reference this information with that of your selected Priority Development Project Category in Table E.1 below. If the identified General Pollutant Categories are the same as those listed for your receiving waters, then these will be your Pollutants of Concern and the appropriate box or boxes will be checked on the last row. The purpose of this is to document compliance and to help you appropriately plan for mitigating your Pollutants of Concern in lieu of implementing LID BMPs.

Table E.1 Potential Pollutants by Land Use Type

Priority Development Project Categories and/or Project Features (check those that apply)	General Pollutant Categories							
	Bacterial Indicators	Metals	Nutrients	Pesticides	Toxic Organic Compounds	Sediments	Trash & Debris	Oil & Grease
☐ Detached Residential Development	P	N	P	P	N	P	P	P
☐ Attached Residential Development	P	N	P	P	N	P	P	P(2)
☒ Commercial/Industrial Development	P(3)	P	P(1)	P(1)	P(5)	P(1)	P	P
☐ Automotive Repair Shops	N	P	N	N	P(4, 5)	N	P	P
☐ Restaurants (>5,000 ft^2)	P	N	N	N	N	N	P	P
☐ Hillside Development (>5,000 ft^2)	P	N	P	P	N	P	P	P
☐ Parking Lots (>5,000 ft^2)	P(6)	P	P(1)	P(1)	P(4)	P(1)	P	P
☒ Retail Gasoline Outlets	N	P	N	N	P	N	P	P
Project Priority Pollutant(s) of Concern	☒	☐	☐	☐	☐	☐	☐	☐

P = Potential

N = Not Potential

(1) A potential Pollutant if non-native landscaping exists or is proposed onsite; otherwise not expected

(2) A potential Pollutant if the project includes uncovered parking areas; otherwise not expected

(3) A potential Pollutant is land use involving animal waste

(4) Specifically petroleum hydrocarbons

(5) Specifically solvents

(6) Bacterial indicators are routinely detected in pavement runoff

E.2 Stormwater Credits

Projects that cannot implement LID BMPs but nevertheless implement smart growth principles are potentially eligible for Stormwater Credits. Utilize Table 3-8 within the WQMP Guidance Document to identify your Project Category and its associated Water Quality Credit. If not applicable, write N/A.

Table E.2 Water Quality Credits

Qualifying Project Categories	Credit Percentage[2]
Total Credit Percentage[1]	

[1]*Cannot Exceed 50%*

[2]*Obtain corresponding data from Table 3-8 in the WQMP Guidance Document*

E.3 Sizing Criteria

After you appropriately considered Stormwater Credits for your project, utilize Table E.3 below to appropriately size them to the DCV, or Design Flow Rate, as applicable. Please reference Chapter 3.5.2 of the WQMP Guidance Document for further information.

Table E.3 Treatment Control BMP Sizing

DMA Type/ID	**DMA Area (square feet)**	**Post-Project Surface Type**	**Effective Impervious Fraction, I_f**	**DMA Runoff Factor**	**DMA Area x Runoff Factor**		***Enter BMP Name / Identifier Here***		
	[A]		[B]	[C]	[A] x [C]				
						Design Storm Depth (in)	*Minimum Design Capture Volume or Design Flow Rate (cubic feet or cfs)*	*Total Storm Water Credit % Reduction*	*Proposed Volume or Flow on Plans (cubic feet or cfs)*
	A_T = Σ[A]				Σ= [D]	[E]	$[F] = \frac{[D]x[E]}{[G]}$	[F] X (1-[H])	[I]

[B], [C] is obtained as described in Section 2.3.1 from the WQMP Guidance Document

[E] is for Flow-Based Treatment Control BMPs [E] = .2, for Volume-Based Control Treatment BMPs, [E] obtained from Exhibit A in the WQMP Guidance Document

[G] is for Flow-Based Treatment Control BMPs [G] = 43,560, for Volume-Based Control Treatment BMPs, [G] = 12

[H] is from the Total Credit Percentage as Calculated from Table E.2 above

[I] as obtained from a design procedure sheet from the BMP manufacturer and should be included in Appendix 6

E.4 Treatment Control BMP Selection

Treatment Control BMPs typically provide proprietary treatment mechanisms to treat potential pollutants in runoff, but do not sustain significant biological processes. Treatment Control BMPs must have a removal efficiency of a medium or high effectiveness as quantified below:

- **High**: equal to or greater than 80% removal efficiency
- **Medium**: between 40% and 80% removal efficiency

Such removal efficiency documentation (e.g., studies, reports, etc.) as further discussed in Chapter 3.5.2 of the WQMP Guidance Document, must be included in Appendix 6. In addition, ensure that proposed Treatment Control BMPs are properly identified on the WQMP Site Plan in Appendix 1.

Table E.4 Treatment Control BMP Selection

Selected Treatment Control BMP Name or ID[1]	Priority Pollutant(s) of Concern to Mitigate[2]	Removal Efficiency Percentage[3]

[1] Treatment Control BMPs must not be constructed within Receiving Waters. In addition, a proposed Treatment Control BMP may be listed more than once if they possess more than one qualifying pollutant removal efficiency.

[2] Cross Reference Table E.1 above to populate this column.

[3] As documented in a Co-Permittee Approved Study and provided in Appendix 6.

Section F: Hydromodification

F.1 Hydrologic Conditions of Concern (HCOC) Analysis

Once you have determined that the LID design is adequate to address water quality requirements, you will need to assess if the proposed LID Design may still create a HCOC. Review Chapters 2 and 3 (including Figure 3-7) of the WQMP Guidance Document to determine if your project must mitigate for Hydromodification impacts. If your project meets one of the following criteria which will be indicated by the check boxes below, you do not need to address Hydromodification at this time. However, if the project does not qualify for Exemptions 1, 2 or 3, then additional measures must be added to the design to comply with HCOC criteria. This is discussed in further detail below in Section F.2.

HCOC EXEMPTION 1: The Priority Development Project disturbs less than one acre. The Copermittee has the discretion to require a Project-Specific WQMP to address HCOCs on projects less than one acre on a case by case basis. The disturbed area calculation should include all disturbances associated with larger common plans of development.

Does the project qualify for this HCOC Exemption? ☐ Y ☒ N

If Yes, HCOC criteria do not apply.

HCOC EXEMPTION 2: The volume and time of concentration[1] of storm water runoff for the post-development condition is not significantly different from the pre-development condition for a 2-year return frequency storm (a difference of 5% or less is considered insignificant) using one of the following methods to calculate:

- Riverside County Hydrology Manual
- Technical Release 55 (TR-55): Urban Hydrology for Small Watersheds (NRCS 1986), or derivatives thereof, such as the Santa Barbara Urban Hydrograph Method
- Other methods acceptable to the Co-Permittee

Does the project qualify for this HCOC Exemption? ☒ Y ☐ N

If Yes, report results in Table F.1 below and provide your substantiated hydrologic analysis in Appendix 7.

Table F.1 Hydrologic Conditions of Concern Summary

	2 year – 24 hour		
	Pre-condition	**Post-condition**	**% Difference**
Time of Concentration	11.17	8.9	20.32
Volume (Cubic Feet)	1,787.5	7,498.5	319

[1] Time of concentration is defined as the time after the beginning of the rainfall when all portions of the drainage basin are contributing to flow at the outlet.

HCOC EXEMPTION 3: All downstream conveyance channels to an adequate sump (for example, Prado Dam, Lake Elsinore, Canyon Lake, Santa Ana River, or other lake, reservoir or naturally erosion resistant feature) that will receive runoff from the project are engineered and regularly maintained to ensure design flow capacity; no sensitive stream habitat areas will be adversely affected; or are not identified on the Co-Permittees Hydromodification Susceptibility Maps.

Does the project qualify for this HCOC Exemption? ☐ Y ☒ N

If Yes, HCOC criteria do not apply and note below which adequate sump applies to this HCOC qualifier:

F.2 HCOC Mitigation

If none of the above HCOC Exemption Criteria are applicable, HCOC criteria is considered mitigated if they meet one of the following conditions:

☐ a. Additional LID BMPS are implemented onsite or offsite to mitigate potential erosion or habitat impacts as a result of HCOCs. This can be conducted by an evaluation of site-specific conditions utilizing accepted professional methodologies published by entities such as the California Stormwater Quality Association (CASQA), the Southern California Coastal Water Research Project (SCCRWP), or other Co-Permittee approved methodologies for site-specific HCOC analysis.

☐ b. The project is developed consistent with an approved Watershed Action Plan that addresses HCOC in Receiving Waters.

☒ c. Mimicking the pre-development hydrograph with the post-development hydrograph, for a 2-year return frequency storm. Generally, the hydrologic conditions of concern are not significant, if the post-development hydrograph is no more than 10% greater than pre-development hydrograph. In cases where excess volume cannot be infiltrated or captured and reused, discharge from the site must be limited to a flow rate no greater than 110% of the pre-development 2-year peak flow.

Be sure to include all pertinent documentation used in your analysis of the items a, b or c in Appendix 7.

For the pre-development stage, a portion of the proposed Chris Circle drains to the southwest corner although this is too small of an area so the calculations included this in the calculations for Area A. Area A drains to the northwest corner and has a 2-year volume of 1,787.5 cf.

For the post-development stage, the area is split into Area, which is mostly landscape and shall follow the natural drain to the northwest corner while the impervious areas of the proposed development can be found in Area B to drain into the proposed bioretention basins and drain to Central Avenue. The 2-year post-development volumes of Areas A and B total to 7,498.5 cf.

Both bioretention basins A and B shall have a combined volume of 5,731 cu.ft. Each basin shall have a ponding depth of 0.5 ft, soil media depth of 3.0 ft and a gravel depth of 1.0 ft. With the basin volume

capacities, there is be a net decrease in the 2-year 24-hour volumes for the total area for the development.

Section G: Source Control BMPs

Source control BMPs include permanent, structural features that may be required in your project plans — such as roofs over and berms around trash and recycling areas — and Operational BMPs, such as regular sweeping and "housekeeping", that must be implemented by the site's occupant or user. The MEP standard typically requires both types of BMPs. In general, Operational BMPs cannot be substituted for a feasible and effective permanent BMP. Using the Pollutant Sources/Source Control Checklist in Appendix 8, review the following procedure to specify Source Control BMPs for your site:

Table G.1 Permanent and Operational Source Control Measures

Potential Sources of Runoff pollutants	Permanent Structural Source Control BMPs	Operational Source Control BMPs
On-site storm drain inlets	• Mark all inlets with the words "No Dumping! Flows to Bay" or similar	• Maintain and periodically repaint or replace inlet markings • Provide stormwater pollution prevention information to new site owners, lessees, or operators • See applicable operational BMPs in Fact Sheet SC-44, "Drainage System Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com • Include the following in lease agreements: 'Tenant shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create a potential discharge to storm drains.
Need for future indoor & structural pest control	• Note building design features that discourage entry of pests.	• Provide Integrated Pest Management information to owners, lessees, and operators.

Potential Sources of Runoff pollutants	Permanent Structural Source Control BMPs	Operational Source Control BMPs
Landscape/Outdoor Pesticide Use	• Preserve existing native trees, shrubs and ground cover to the maximum extent possible. • Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution. • Where landscaped areas are used to retain or detain stormwater, specify plants that are tolerant of saturated soil conditions. • Consider using pest-resistant plants, especially adjacent to hardscapes. • To ensure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, land use, air movement, ecological consistency, and plant interactions.	• Maintain landscaping using minimum or no pesticide. • See applicable operational BMPs in "What you should know for…Landscape and Gardening" at www.rivcocob.org/ords/800/859.pdf • Provide IPM information to new owners, lessees and operators.
Refuse areas	• Show where site refuse and recycled materials will be handled and stored for pickup. See local municipal requirements for sizes and other details of refuse areas. • If dumpsters or other receptacles are outdoors, show how the designated area will be covered, graded, and paved to prevent run-on and show locations of berms. • Any drains from dumpsters, compactors, and tallow bin areas shall be connected to a grease removal device before discharge to sanitary sewer.	State how the following will be implemented: Provide adequate number of receptacles. Inspect receptacles regularly; repair or replace leaky receptacles. Keep receptacles covered. Prohibit/prevent dumping of liquid or hazardous wastes. Keep receptacles covered. Post "no hazardous materials" signs. Inspect and pick up litter daily and clean up spills immediately. Keep spill control materials available on-site. See Fact Sheet SC-34, "Waste Handling and Disposal" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com.
Fuel Dispensing Areas		• The property owner shall dry sweep the fueling area routinely. • See the Business Guide Sheet, "Automotive Service—Service Stations" in the CASQA Stormwater

		Quality Handbooks at www.cabmphandbooks.com
Potential Sources of Runoff pollutants	Permanent Structural Source Control BMPs	Operational Source Control BMPs
Fire Sprinkler Test Water	• Provide a means to drain fire sprinkler test water to the sanitary sewer.	• See the note Fact Sheet SC-41, "Building and Grounds Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com
Miscellaneous Drain or Wash Water Roofing, gutters, and trim	Avoid roofing, gutters, and trim made of copper or other unprotected metals that may leach into runoff.	N/A
Plazas, sidewalks, and parking lots		• Sweep plazas, sidewalks, and parking lots regularly to prevent accumulation of litter and debris. Collect debris from pressure washing to prevent entry into the storm drain system. Collect washwater containing any cleaning agent or degreaser and discharge to the sanitary sewer not to a storm drain.

Section H: Construction Plan Checklist

Populate Table H.1 below to assist the plan checker in an expeditious review of your project. The first two columns will contain information that was prepared in previous steps, while the last column will be populated with the corresponding plan sheets. This table is to be completed with the submittal of your final Project-Specific WQMP.

Table H.1 Construction Plan Cross-reference

BMP No. or ID	BMP Identifier and Description	Corresponding Plan Sheet(s)	BMP Location (Lat/Long)
BIO-A	Landscape	See WQMP Exhibit	33°42'12" 117°19'35"
BIO-B	Landscape	See WQMP Exhibit	33°42'10" 117°19'35"

Note that the updated table — or Construction Plan WQMP Checklist — is **only a reference tool** to facilitate an easy comparison of the construction plans to your Project-Specific WQMP. Co-Permittee staff can advise you regarding the process required to propose changes to the approved Project-Specific WQMP.

Section I: Operation, Maintenance and Funding

The Copermittee will periodically verify that Stormwater BMPs on your site are maintained and continue to operate as designed. To make this possible, your Copermittee will require that you include in Appendix 9 of this Project-Specific WQMP:

1. A means to finance and implement facility maintenance in perpetuity, including replacement cost.
2. Acceptance of responsibility for maintenance from the time the BMPs are constructed until responsibility for operation and maintenance is legally transferred. A warranty covering a period following construction may also be required.
3. An outline of general maintenance requirements for the Stormwater BMPs you have selected.
4. Figures delineating and designating pervious and impervious areas, location, and type of Stormwater BMP, and tables of pervious and impervious areas served by each facility. Geo-locating the BMPs using a coordinate system of latitude and longitude is recommended to help facilitate a future statewide database system.
5. A separate list and location of self-retaining areas or areas addressed by LID Principles that do not require specialized O&M or inspections but will require typical landscape maintenance as noted in Chapter 5, pages 85-86, in the WQMP Guidance. Include a brief description of typical landscape maintenance for these areas.

Your local Co-Permittee will also require that you prepare and submit a detailed Stormwater BMP Operation and Maintenance Plan that sets forth a maintenance schedule for each of the Stormwater BMPs built on your site. An agreement assigning responsibility for maintenance and providing for inspections and certification may also be required.

Details of these requirements and instructions for preparing a Stormwater BMP Operation and Maintenance Plan are in Chapter 5 of the WQMP Guidance Document.

Maintenance Mechanism: Covenant & Agreement to be included. Daher Oil Inc. is responsible for the BMP maintenance.

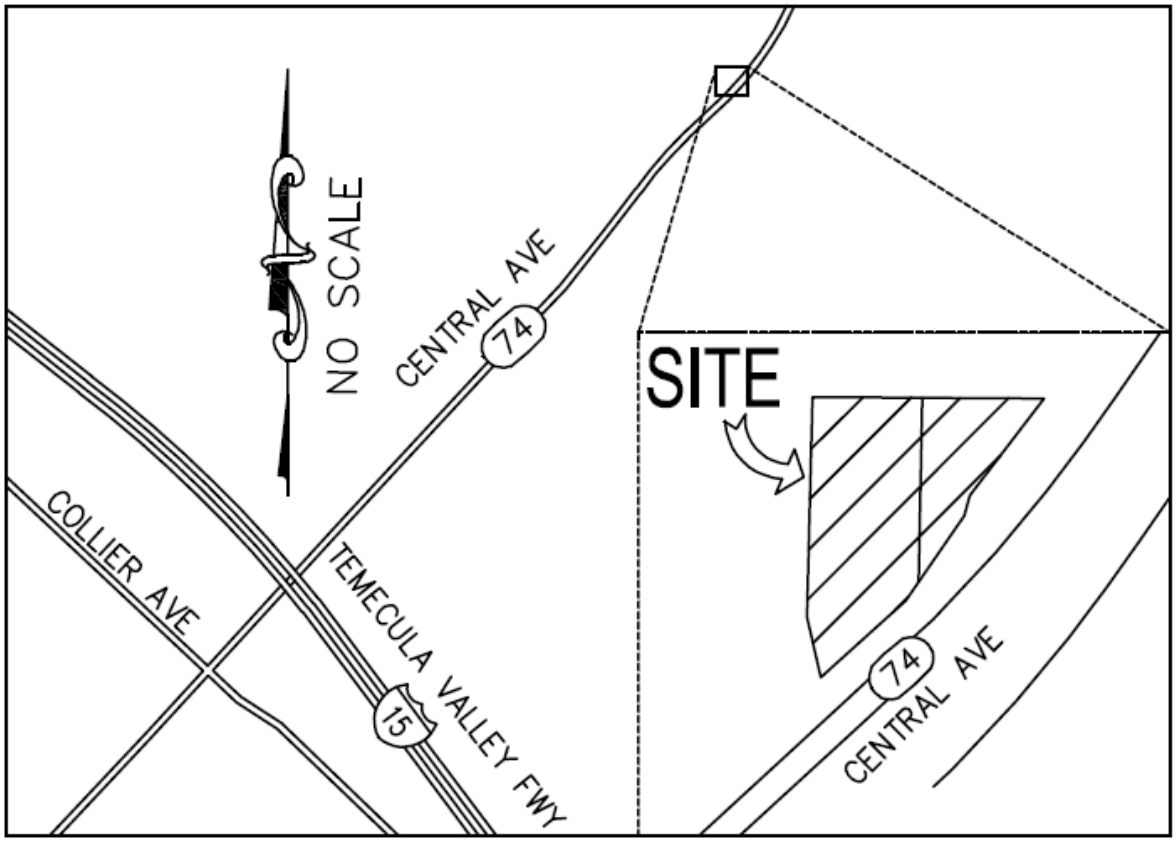
Will the proposed BMPs be maintained by a Home Owners' Association (HOA) or Property Owners Association (POA)?

☐ Y ☒ N

Include your Operation and Maintenance Plan and Maintenance Mechanism in Appendix 9. Additionally, include all pertinent forms of educational materials for those personnel that will be maintaining the proposed BMPs within this Project-Specific WQMP in Appendix 10.

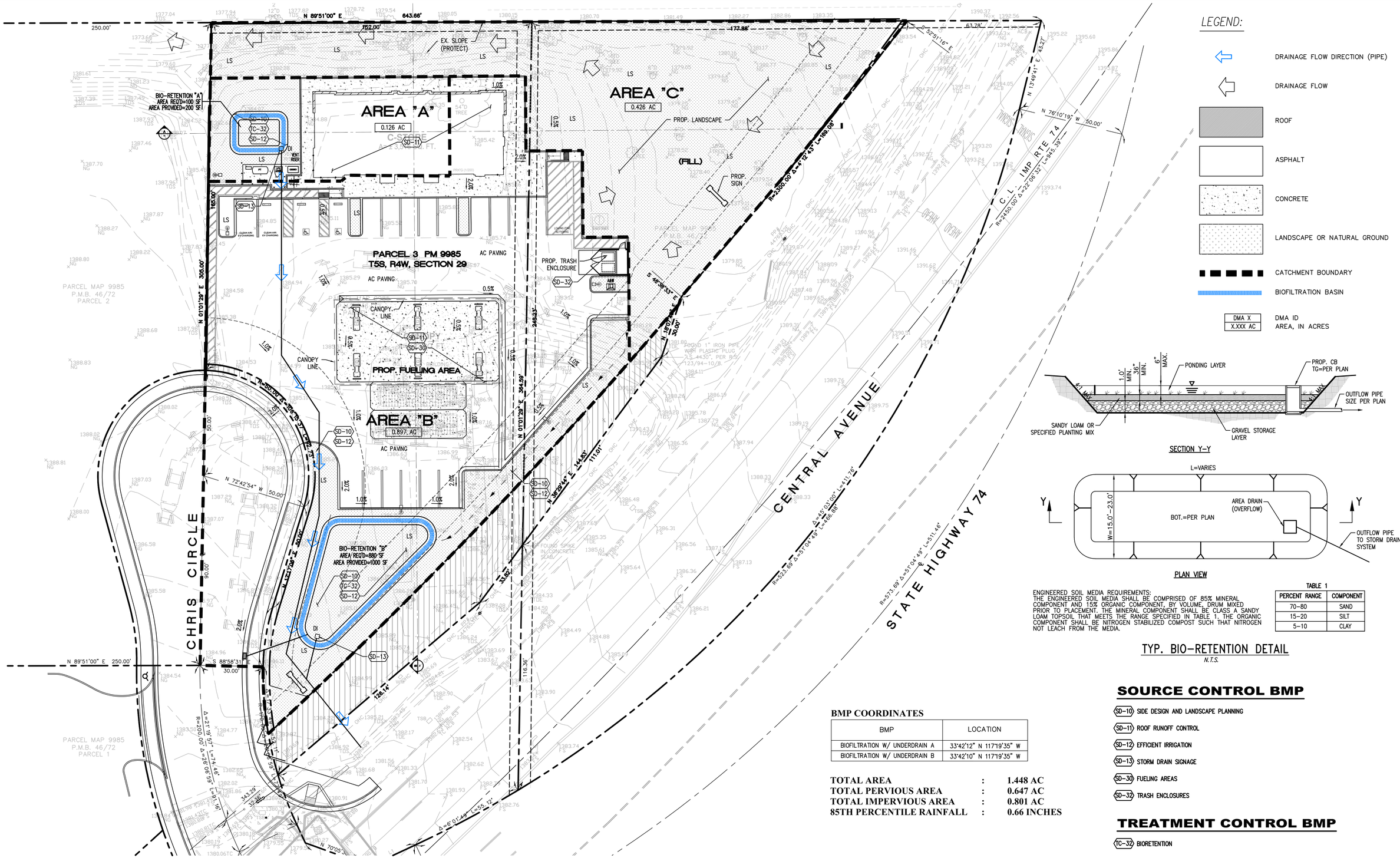
Appendix 1: Maps and Site Plans

Location Map, WQMP Site Plan and Receiving Waters Map



VICINITY MAP
NTS

VICINITY MAP
Not to Scale



LEGEND:

- DRAINAGE FLOW DIRECTION (PIPE)
- DRAINAGE FLOW
- ROOF
- ASPHALT
- CONCRETE
- LANDSCAPE OR NATURAL GROUND
- CATCHMENT BOUNDARY
- BIOFILTRATION BASIN
- DMA ID: DMA X / X.XXX AC — AREA, IN ACRES

SECTION Y-Y

PLAN VIEW

ENGINEERED SOIL MEDIA REQUIREMENTS:
THE ENGINEERED SOIL MEDIA SHALL BE COMPRISED OF 85% MINERAL COMPONENT AND 15% ORGANIC COMPONENT, BY VOLUME, DRUM MIXED PRIOR TO PLACEMENT. THE MINERAL COMPONENT SHALL BE CLASS A SANDY LOAM TOPSOIL THAT MEETS THE RANGE SPECIFIED IN TABLE 1. THE ORGANIC COMPONENT SHALL BE NITROGEN STABILIZED COMPOST SUCH THAT NITROGEN NOT LEACH FROM THE MEDIA.

TABLE 1

PERCENT RANGE	COMPONENT
70–80	SAND
15–20	SILT
5–10	CLAY

TYP. BIO-RETENTION DETAIL

N.T.S.

BMP COORDINATES

BMP	LOCATION
BIOFILTRATION W/ UNDERDRAIN A	33°42'12" N 117°19'35" W
BIOFILTRATION W/ UNDERDRAIN B	33°42'10" N 117°19'35" W

TOTAL AREA	:	1.448 AC
TOTAL PERVIOUS AREA	:	0.647 AC
TOTAL IMPERVIOUS AREA	:	0.801 AC
85TH PERCENTILE RAINFALL	:	0.66 INCHES

SOURCE CONTROL BMP

- SD-10 SIDE DESIGN AND LANDSCAPE PLANNING
- SD-11 ROOF RUNOFF CONTROL
- SD-12 EFFICIENT IRRIGATION
- SD-13 STORM DRAIN SIGNAGE
- SD-30 FUELING AREAS
- SD-32 TRASH ENCLOSURES

TREATMENT CONTROL BMP

- TC-32 BIORETENTION

MARK	REVISIONS	APPR.	DATE

THESE PLANS HAVE BEEN REVIEWED FOR COMPLIANCE WITH THE APPROPRIATE CONDITIONS OF DEVELOPMENT AND/OR CITY AND STATE LAWS AND A PERMIT MAY BE ISSUED

BRAD FAGRELL, RCE No. 43920
CITY ENGINEER
CITY OF LAKE ELSINORE — DATE

PREPARED BY:
KARAKI | Western States
A DESIGN-BUILD COMPANY
4887 E. LA PALMA STE. 707
ANAHEIM, CA 92807
TEL: (714)695-9300 FAX: (714)693-1002
www.westernsec.com

KAMAL McHANTAF, RCE C051050 — DATE

SEAL
REGISTERED PROFESSIONAL ENGINEER
KAMAL B. McHANTAF
No. C051050
Exp. 9-30-21
CIVIL
STATE OF CALIFORNIA

"AS-BUILT"
RCE _____ EXP _____ DATE:
REVIEWED BY:
INSPECTOR _____ DATE
SCALE : AS NOTED
DATE: JANUARY 18, 2020
BENCH MARK:
SEE ABOVE

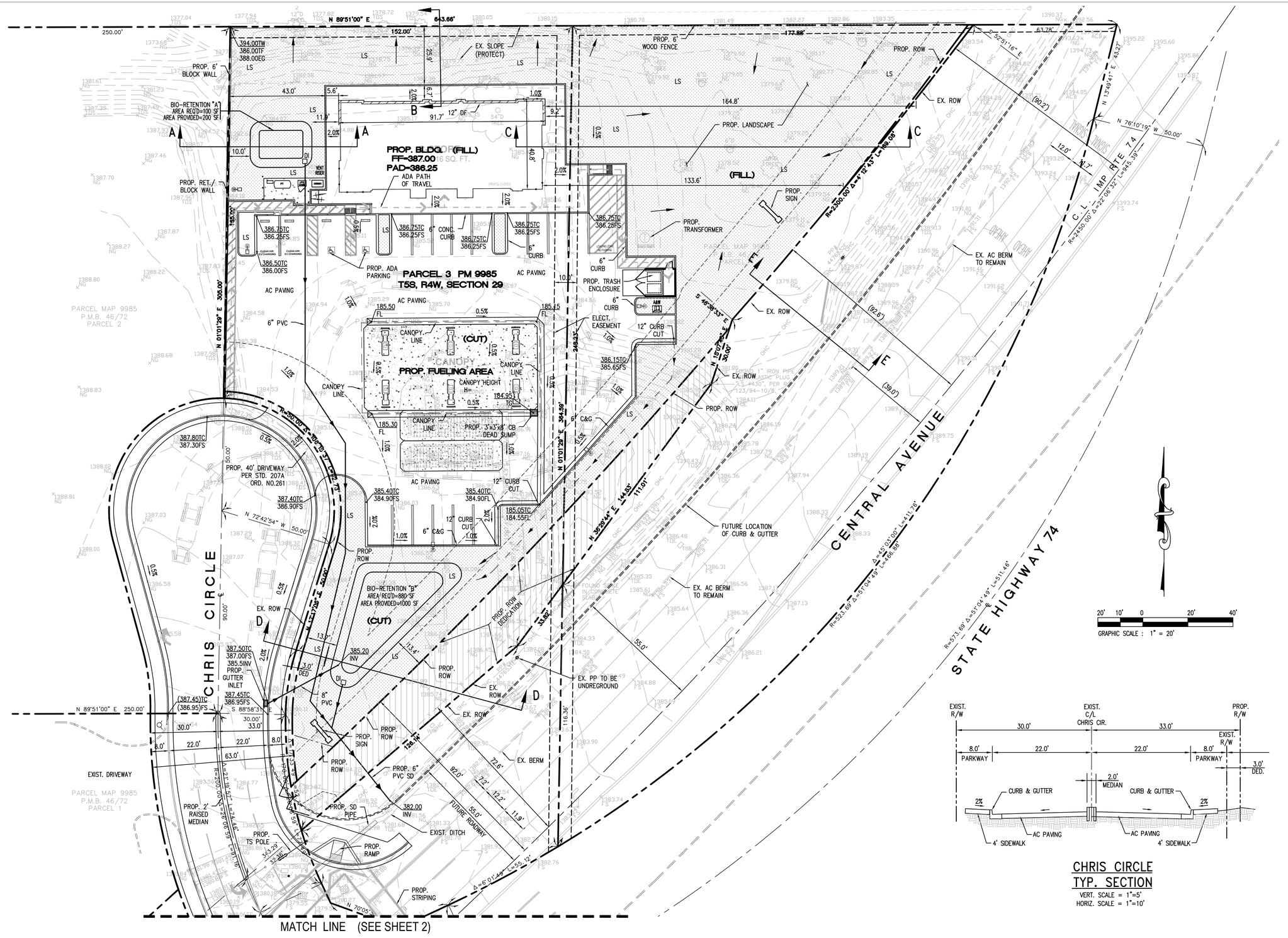
CITY OF LAKE ELSINORE

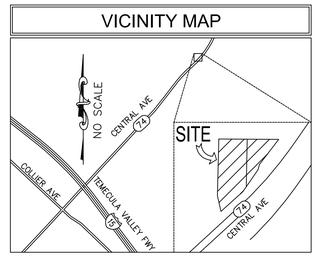
WQMP EXHIBIT
28771 CENTRAL 74 HWY,
LAKE ELSINORE, CA
CUP200043

SHEET 1
OF 1 SHEETS
FILE No.

Appendix 2: Construction Plans

Grading and Drainage Plans





VICINITY MAP
NTS

OWNER / SUBDIVIDER

DAHER OIL INC.
19851 ESPERANZA ROAD
YORBA LINDA, CA 92886
ATTN: ALFRED DAHER

SITE ADDRESS:

28771 HIGHWAY 74
LAKE ELSINORE, CA 92532

LEGAL DESCRIPTION:

REAL PROPERTY IN THE UNINCORPORATED AREA OF THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:

PARCELS 4 OF PARCEL MAP 9985, AS SHOWN BY MAP ON FILE IN BOOK 46, PAGE 72, OF PARCEL MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.

EXCEPTING THEREFROM THAT PORTION CONVEYED TO THE RIVERSIDE COUNTY TRANSPORTATION COMMISSION, BY GRANT DEED RECORDED OCTOBER 09, 2001 AS INSTRUMENT NO. 01-489377, OF OFFICIAL RECORDS OF SAID COUNTY.

ASSESSOR'S PARCEL NUMBER: 347-130-028

TOTAL AREA: 62,757.88 S.F. (1.441 ACRES)

ENGINEER

WESTERN STATES ENGINEERING, INC.
4887 E. LA PALMA, STE 707
ANAHEIM, CA 92807
TEL. (714) 695-9300
FAX (714) 693-1002
ATTN: JOSEPH KARAKI

GEOTECHNICAL ENGINEER

PRELIM. GEOTECHNICAL INVESTIGATION REPORT
PROPOSED GAS STATION AND C-STORE
PREPARED ON SEPTEMBER 11, 2020
BY GEO ENVIRON ENGINEERING CONSULTANTS, INC.
4071 E. LA PALMA AVENUE, SUITE B
ANAHEIM, CA 92807
(714) 632-3190 PHONE
(714) 632-3191 FAX

SURVEYOR

PAYAN SURVEYING, INC.
2404 MARY CLARE STREET
CORONA, CA 92882
PHONE: 951-356-6456
EMAIL:atanacio@payansurveying.com
DATE PREPARED: 12/12/18

EARTHWORK QUANTITIES

RAW CUT :	100 CY
RAW FILL :	100 CY
NET :	0 CY

BASIS OF BEARINGS

THE BEARINGS SHOWN HEREON ARE BASED UPON THE WEST LINE OF PARCELS 1 AND 2, BEING N 01° 01' 29" E AS SHOWN ON PARCEL MAP NO. 9985 FILED IN BOOK 46, PAGE 72, OF PARCEL MAPS, RECORDS OF RIVERSIDE COUNTY.

BENCHMARK

CALIFORNIA DEPARTMENT OF TRANSPORTATION BM 13-A-93
ELEVATION = 1271.61 FEET
CAL D.O.T. BRASS DISK IN WESTERLY CURB RIVERSIDE DRIVE (RTE. 74) AT THE NORTHEASTERLY CORNER OF BRIDGE DECK RIVERSIDE COUNTY FLOOD CONTROL CANNEL (B-1) 150 FEET SOUTHERLY OF LAKECREST DRIVE AND 58 FEET NORTHERLY OF PP# 2105984FC

SHEET INDEX

SHEET 1 - PRELIMINARY GRADING PLAN
SHEET 2 - CROSS SECTIONS/INTERSECTION PLAN

CUP No. 200043
CASE NO. PPT210016

CHRIS CIRCLE
TYP. SECTION
VERT. SCALE = 1"=5'
HORIZ. SCALE = 1"=10'

MARK	REVISIONS	APPR.	DATE

THESE PLANS HAVE BEEN REVIEWED FOR COMPLIANCE WITH THE APPROPRIATE CONDITIONS OF DEVELOPMENT AND/OR CITY AND STATE LAWS AND A PERMIT MAY BE ISSUED

BRAD FAGRELL, RCE No. 43920 — DATE
CITY ENGINEER
CITY OF LAKE ELSINORE

PREPARED BY:
KARAKI | Western States
A DESIGN-BUILD COMPANY
4887 E. LA PALMA STE. 707
ANAHEIM, CA 92807
TEL: (714)695-9300 FAX: (714)693-1002
www.westernsec.com

KAMAL McHANTAF, RCE C051050 — DATE

SEAL
REGISTERED PROFESSIONAL ENGINEER
KAMAL B. McHANTAF
No. C051050
Exp. 9-30-21
CIVIL
STATE OF CALIFORNIA

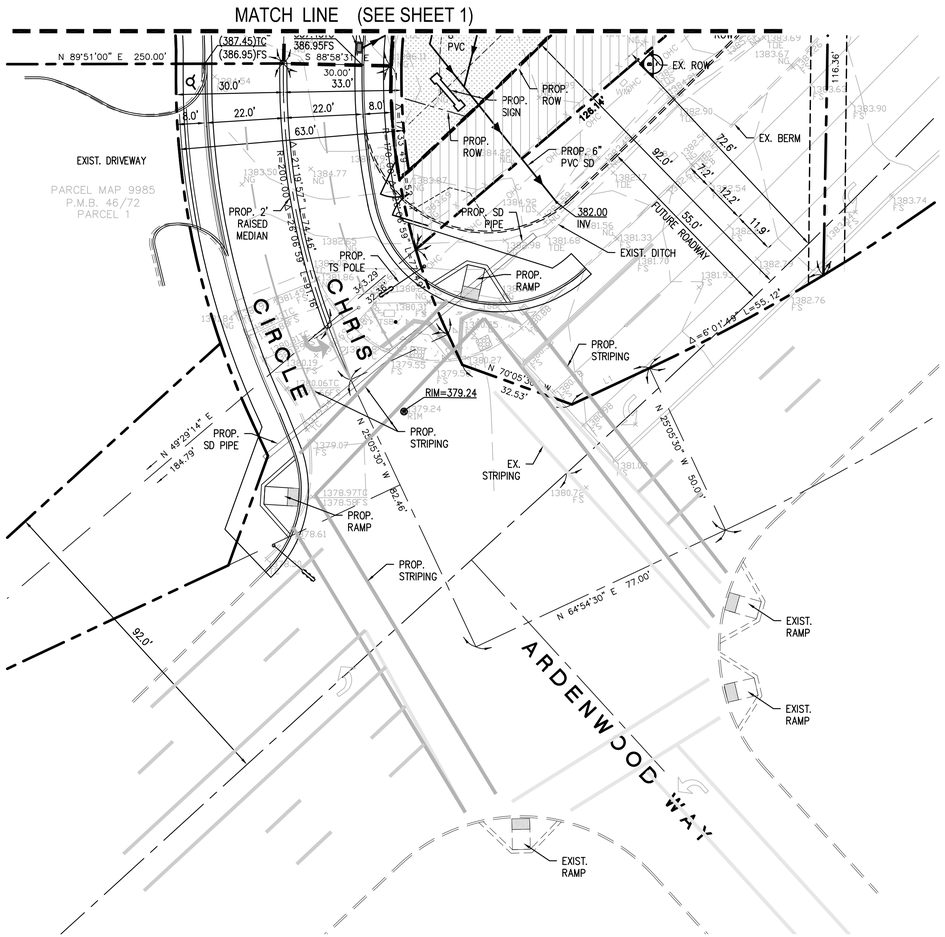
"AS-BUILT"
RCE _____ EXP _____ DATE:
REVIEWED BY:
INSPECTOR _____ DATE

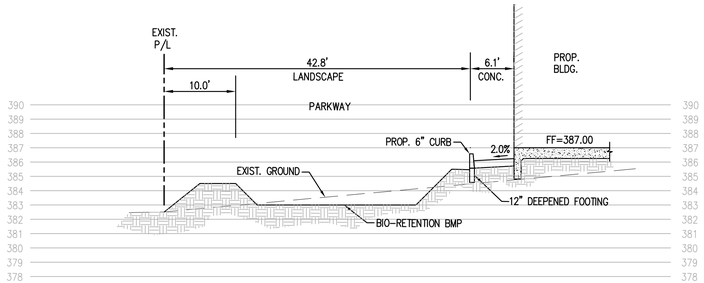
SCALE : AS NOTED
DATE: JANUARY 18, 2020
BENCH MARK:
SEE ABOVE

CITY OF LAKE ELSINORE

PRELIMINARY GRADING PLAN
28771 CENTRAL 74 HWY,
LAKE ELSINORE, CA
CUP200043

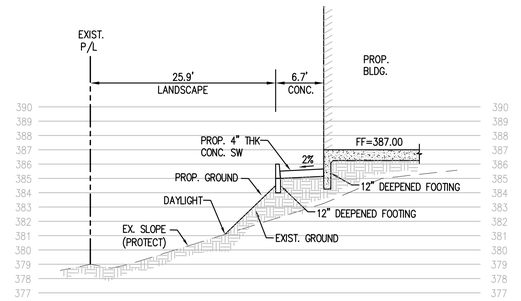
SHEET 1
OF 2 SHEETS
FILE No.





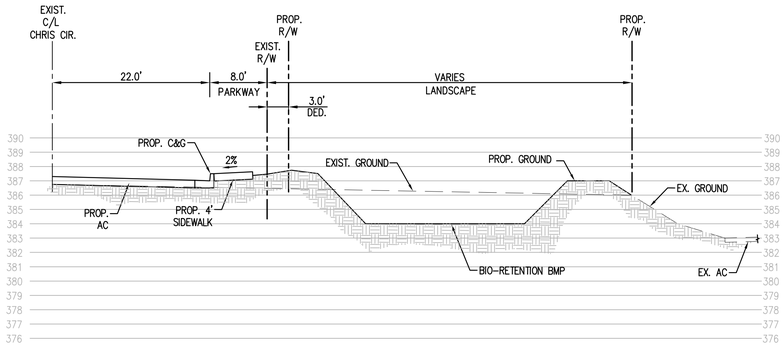
SECTION A–A

VERT. SCALE = 1"=5'
HORIZ. SCALE = 1"=10'



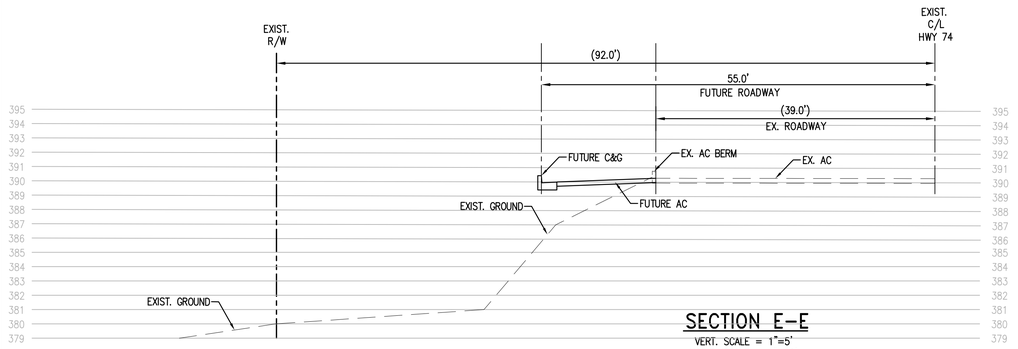
SECTION B–B

VERT. SCALE = 1"=5'
HORIZ. SCALE = 1"=10'



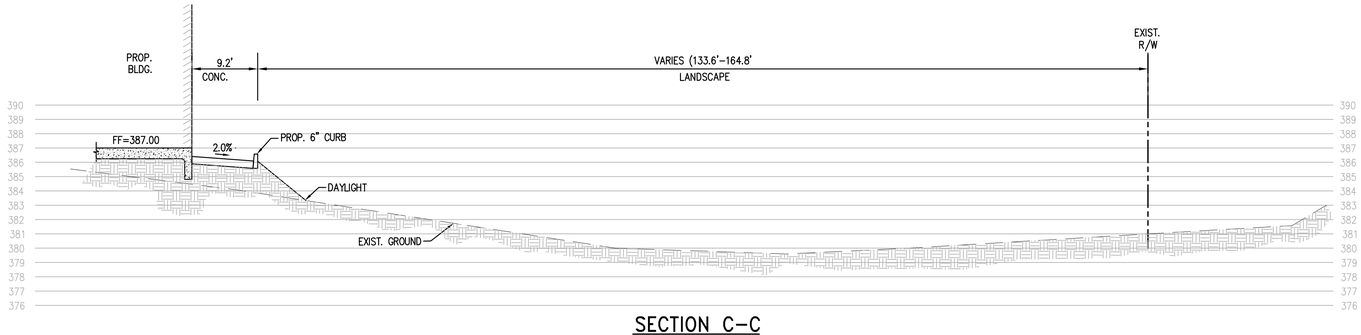
SECTION D–D

VERT. SCALE = 1"=5'
HORIZ. SCALE = 1"=10'



SECTION E–E

VERT. SCALE = 1"=5'
HORIZ. SCALE = 1"=10'



SECTION C–C

VERT. SCALE = 1"=5'
HORIZ. SCALE = 1"=10'

MARK	REVISIONS	APPR.	DATE

THESE PLANS HAVE BEEN REVIEWED FOR COMPLIANCE WITH THE APPROPRIATE CONDITIONS OF DEVELOPMENT AND/OR CITY AND STATE LAWS AND A PERMIT MAY BE ISSUED

BRAD FAGRELL, RCE No. 43920
CITY ENGINEER
CITY OF LAKE ELSINORE

DATE

PREPARED BY:

KARAKI | Western States
A DESIGN-BUILD COMPANY
4887 E. LA PALMA STE. 707
ANAHEIM, CA 92807
TEL: (714)695-9300 FAX: (714)693-1002
www.westernsec.com

KAMAL McHANTAF, RCE C051050

DATE

SEAL

REGISTERED PROFESSIONAL ENGINEER
KAMAL B. McHANTAF
No. C051050
Exp. 9-30-21
CIVIL
STATE OF CALIFORNIA

"AS-BUILT"

RCE _____ EXP _____ DATE: _____

REVIEWED BY:

INSPECTOR _____ DATE _____

SCALE : AS NOTED

DATE: JANUARY 18, 2020

BENCH MARK:
SEE ABOVE

CITY OF LAKE ELSINORE

PRELIMINARY GRADING PLAN

28771 CENTRAL 74 HWY,
LAKE ELSINORE, CA
CUP200043

SHEET 2
OF 2 SHEETS
FILE No.

Appendix 3: Soils Information

Geotechnical Study and Other Infiltration Testing Data

GEOTECHNICAL AND ENVIRONMENTAL ENGINEERING CONSULTANTS, INC.
4071 E. La Palma Ave., Ste. B, Anaheim, Ca 92807 • (714) 632-3190 • Fax (714) 632-3191

Job No. 20-1057P
September 11, 2020

Mr. Joseph Karaki
Western State Eng. & Construction, Inc.
4887 E. La Palma Street, Ste # 707
Anaheim, Ca 92807

Subject: **Preliminary Geotechnical Investigation Report for Foundation Design, Proposed Gasoline Service Station, 28771 Central Ave, Lake Elsinore California**

Reference:

1) WS Eng., Inc , 8/31/20, "Site Plan, Proposed Gas Station and C-Store , 28771 Central Ave (74 Hwy), Lake Elsinore California

Gentlemen:

In accordance with your request and authorization, we have performed a preliminary geotechnical engineering investigation for the subject project. The accompanying report presents the preliminary results of our field exploration work, laboratory tests, our geotechnical experience previously performed in the vicinity of the project site, as well as engineering analysis. The subsurface and foundation conditions are discussed and preliminary recommendations for the geotechnical engineering aspects of the project are presented.

This opportunity to be of service is appreciated. If you have any questions concerning our findings, please call at your convenience.

Respectfully submitted,

Geo Environ Eng. Consultants, Inc.

REGISTERED PROFESSIONAL ENGINEER
ESMAIL RASTEGARI
No. 43332
Exp.03/30/2022
CIVIL
STATE OF CALIFORNIA

Jabed Masud, MSCE
Principal

Esmail Rastegari, P.E.
Principal

JM/ER/gm

Attachments: Appendix 'A' - Drawings, Boring Location
Appendix 'B' - Boring Logs
Appendix 'C' - Laboratory Test Results
Appendix 'D' - Liquefaction Analysis

SCOPE

The scope of this study was designed to determine and evaluate the surface and subsurface conditions of the subject site and to present preliminary recommendations for the foundation systems and grading requirements as they relate to the planned development

The scope included the following geotechnical functions:

- Review of available literature pertaining to the site and vicinity.
- Evaluation of natural and manmade surface features at the site and contiguous areas.
- Drilling and logging of exploratory borings.
- Securing of bulk and undisturbed samples of earth materials from the trenches for laboratory testing.
- Laboratory testing of selected samples.
- Geotechnical engineering analysis of data obtained during the study.
- Preparation of this report and the accompanying illustrations to present the findings, conclusions, and recommendations pertaining to the planned construction.

The scope of work did not include any environmental assessment of the property or opinions relating to possible soil or subsurface contamination by hazardous or toxic substances.

SITE DESCRIPTION

Location & Site Conditions

The subject property upon which the soil exploration has been performed is located at N.E. C Central Ave (74 Hwy) & Arrowwood Way, Lake Elsinore, Riverside County, California. The subject site is a vacant plot of land, 1.4 acres in size. The site is bounded by commercial properties, on the south apartment buildings, on the east residential, and on the west light industrial buildings.

PROPOSED CONSTRUCTION & GRADING

Preliminary details of the proposed construction and the reference drawing were provided by the project Architect.

A C- store (4000 sft), and canopy (3,160 sft) are planned to be constructed within the subject site. Appurtenant construction will include underground utilities, gas pumps, asphalt concrete and concrete pavement , and underground tanks (USTs).

Loads on the foundations are unknown but are expected to be between 2 and 4 kips per linear foot. Column loads are expected to be between 50 and 100 kips. Other structures will remain in place. No grading plans were to provided to this firm for our use during this study. However, cut and fill grading are anticipated within the proposed construction areas. Should details involved in final design vary from those outlined above, this firm should be notified for review and possible revision of our recommendations.

FIELD STUDY

A field study consisting of site observations and subsurface exploration was conducted on September 4, 2020. Three exploratory borings were drilled to a maximum depth of 50 feet below existing surface The soils encountered in the exploratory drilling were logged by our field personnel. The boring log are included in Appendix 'B'. The approximate location of the borings are shown on the plot plan in Appendix 'A'. Disturbed and undisturbed samples of the soils encountered were obtained at frequent intervals in the borings. Undisturbed samples were obtained by driving a thin walled steel sampler with successive drops of a 140-pound weight having a free fall of 30 inches. The blow count for each one foot of penetration is shown on the boring logs. Undisturbed soils were retained in brass rings with a 1-inch height and 2.413-inch inside diameter. The ring samples were retained in close fitting moisture proof containers and transported to our laboratory for testing.

LABORATORY TEST

The results of laboratory tests performed on disturbed, undisturbed, and remolded soil samples are presented in appendix 'C'. Following is a listing and brief explanation of the laboratory tests which were performed as part of this study. The remaining soil samples are stored in our laboratory for future reference. Unless notified to the contrary, all samples will be disposed of 30 days after the date of this report.

Classification

The field classification of the soils were verified in the laboratory in general accordance with the Unified Soil Classification System. The final classification is shown on the boring logs.

Field Moistures and Densities

The field moisture content was determined for each of the disturbed and undisturbed soil samples. The dry density was also determined for each of the undisturbed samples. The dry density was determined in pounds per cubic foot and the field moisture content was determined as a percentage of the dry weight of the soil. Both results are shown on boring logs.

Consolidation Tests

Settlement predictions of the soil's behavior under load were made on the basis of the consolidation tests which are performed in general accordance with ASTM D-2435 procedures. The Consolidation apparatus is designed to receive a one inch high ring.

Expansion Characteristics

Laboratory expansion tests were performed on a near surface soil sample in general accordance with ASTM D-4829 procedures.

Direct Shear Test

Direct Shear test was performed in the Direct Shear Test Machine which is of the strain control type in general with ASTM D-3080 procedure. Each sample was sheared under varying pressures normal to the face of the specimen to determine the shear strength (cohesion and angle of internal friction). Samples were tested in a submerged condition. The result is plotted on the "Direct Shear Test Graph."

GEOTECHNICAL CONDITIONS

Earth Materials

The site consists of top native soils (alluvium) classified as brown-orange, sandy silt, moderately dense, moist with coarse sand & gravel that is found all the way to a depth of 50 feet. A more detailed description of the earth materials encountered is presented on the log borings in Appendix 'B'. The boring locations are presented on the log borings in Appendix 'A'. The soil strata as the boring logs represents the soil conditions in the actual boring locations other variations may occur between the borings. Lines of demarcation represent the approximate boundary between the soil types, but the transition may be gradual.

Groundwater

Groundwater was encountered in the exploratory borings during our subsurface exploration. Based upon our previous investigation in the site vicinity, the groundwater depth is expected to be between 32 to 38 feet below existing surface. Please refer to the referenced boring log B-1A.

Seismicity

The frequency of earthquake and intensity of seismic ground shaking to be expected at the site depends upon which fault produces the earthquake, the earthquake magnitude and the distance to the epicenter.

Nearby active fault lines are the Elsinore-Glen Ivy and Elsinore-Temecula, these have associated postulated, maximum probable earthquake magnitudes of 6.8. In turn, the probabilistic ground motion acceleration range upwards to $\pm$ 0.84g. The related California Building Code factors include the type B, Elsinore-Glen Ivy Fault the near source zone at 5.0 kilometers towards the south-west and a soil profile type of alluvium or Sd.

Based on the California Building Code acceptance of some structural damage without collapse, the subject development may be designed in accordance with the seismic formulas and requirements presented in the latest version of the California Building Code (CBC 2019). It is the responsibility of the project structural engineer to utilize the critical seismic factors to be used for building design and to implement the applicable sections of the code.

Liquefaction

A liquefaction analysis was performed to verify the susceptibility to liquefaction at the subject location due to no current data in existence to verify liquefaction potential in the area. **Our analysis has determined that subject property is NOT susceptible to liquefaction.** Please reference the liquefaction analysis report attached to this report (Appendix 'D').

CONCLUSIONS

- The plan construction and development of the site is considered feasible from a geotechnical engineering point of view provided the engineering recommendations of this report are followed.
- The surface and the subsurface soil on the site will be adequate for the support of the structure and any fill soils proposed for the site.
- The proposed structure, grading, and development of the site will not cause adverse safety hazards or instability to the adjacent properties or their structures.
- Conversely, the adjacent properties or their structures will not cause adverse safety hazards or instability to the planned development.
- Laboratory expansion test indicate that the soils on the site have low expansion potential.
- The site is not susceptible to liquefaction.

RECOMMENDATIONS

Rough Grading Recommendation

The following recommendations may need to be modified and/ or supplemented during rough grading as field conditions necessitate. All earthwork and grading shall be performed in accordance with the recommendations presented herein, and in accordance with all applicable requirements of the Grading Code of the County of Riverside, California.

The proposed building areas should be overexacavated to a depth of 4 .0 feet below the existing soil grade, or 2.0 feet below the proposed footing bottoms, whichever is greater. Where possible, the limits of overexcavation for building areas shall extend at least 5.0 feet beyond the proposed building limits or to the property line whichever is less. The excavated soils free from debris or other organic may be replaced as a certified compacted fill. The depth of the excavations will be determined by the soil engineer during grading and construction, based on the previously placed un-certified fill.

The competency of the exposed overexcavation bottoms must be determined by the soil engineer or his representative at the time they are exposed and prior to scarification or placement of fill. All overexcavation bottoms and any areas to receive fill shall be scarified a minimum of 6 inches, watered or aerated as necessary to achieve optimum moisture content, and properly compacted to at least 90% of maximum dry density prior to filling.

For the purpose of estimating earthwork quantities, a shrinkage factor of 15% (0.15) may be assumed for the existing near surface on-site soil to be used as fill and compacted to 90% of maximum dry density. Subsidence due to grading is estimated to be .1 feet.

Any soil to be placed as fill, whether natural or import, shall be approved by the soil engineer or his representative prior to their placement. The fill material shall be free from vegetation, organic material or debris. Import soil shall be no more expansive than the existing near surface soils on the site.

Suitable fill soil shall be placed in horizontal lifts not exceeding 6 inches in thickness after compaction and uniformly watered or aerated to obtain optimum moisture content. Each layer shall be spread evenly and shall be thoroughly mixed during the spreading to ensure uniformity of the soil and optimum moisture in each layer. After each lift has been placed, it shall be thoroughly compacted to not less than 90% of maximum dry density.

The soil engineer or his representative shall observe the placement of fill and should take sufficient tests to verify the moisture content and the uniformity and degree of compaction obtained. In-place density testing should be performed in accordance with ASTM acceptable to the local building authority. The optimum moisture content and the maximum dry density for compacted soils shall be determined in accordance with ASTM D-1557 procedures.

Due to the possibility of imported fill soil in the building areas and / or variable soil strata that may be exposed in the building pad, typical soil samples should be obtained at completion of rough grading for laboratory testing to confirm the expansion characteristics of the graded site.

FOUNDATION DESIGN RECOMMENDATIONS

Building Footing

- The footings for the proposed building should be founded into certified compacted fills and minimum 24 inches below lowest adjacent finished grade.
- Continuous footing should be reinforced with at least two (2) #4 rebars at the top and at the bottom of the footing in order to minimize the effects of any minor variations in the engineering characteristics in the supporting soils.
- All pad footings should be a minimum of 24 inches square by 24 inches in depth.

Canopy Footings

- The footings for the proposed canopies_should be penetrated into the competent native soils. The preliminary design indicates the size of the foundation to be 5.0 feet in diameter and 8.0 to 10 feet in depths. The project Architect / or Structural Engineer shall determine actual footing widths, depths and reinforcements necessary to resist design vertical, horizontal and uplift forces.

Allowable Soil Bearing Capacities

Based on the field and laboratory test data, **an allowable soil bearing value of 2000 psf is recommended for the design of the continuous and spread footings for the proposed building.** A 1/3 increase in the above bearing value may be used when considering short term loading from wind or seismic sources. **A maximum allowable soil bearing value of 4500 psf is recommended for the design of canopy footings embedded into competent native soils**. A factor of safety of 3 was used in calculation of the soil allowable bearing capacity.

Settlement

Using the recommended bearing value and the maximum assumed wall and column loads, the total settlement is estimated to be 0.5 inches . The differential settlement is estimated to be on the order of 0.25 inches, between similarly loading footing of the same size, over a minimum horizontal distance of 30 feet.

Lateral Bearing Pressure

Additional soil design parameters that may be pertinent to the design and development based on undisturbed natural soil or properly compacted fill are as follows:

- Allowable lateral soil pressures using a factor of safety of 3 (Equivalent Fluid Pressure) Passive case: 300 psf/ft.
- Allowable Coefficient of Friction between concrete and soil: 0.30

Seismic Design

In accordance with the ASCE 7-16 the structural design should consider the following design parameters:

Site Latitude: 33.702551 degree

Site Longitude:117.3264077degree

Site Class: Default

Short Period Site Coefficient- **Fa: 1.2**

Long Period Site Coefficient- **Fv: Null**

Mapped Spectral Response Acceleration-Short Period: (0.2 sec)-**Ss: 1.977**

Mapped Spectral Response Acceleration-Short Period: (1 sec)**-S1: 0.708**

Adjusted Spectral Response Acceleration-Short Period: (0.2 sec)-**Sms: 2.372**

Adjusted Spectral Response Acceleration-Short Period: (1 sec)-**Sm1**: **Null**

Design Spectral Response Acceleration-Short Period: (0.2 sec)-**Sds**: **1.581**

Design Spectral Response Acceleration-Short Period: (1 sec)-**Sd1**: **Null**

FLOOR SLAB RECOMMENDATIONS

Concrete slabs should be constructed in accordance with the following section.

Floor slabs should be a minimum of 4 inches thick. Floor slabs should be reinforced with # 3 rebars at 18- inches on centers.

Concrete slabs should be underlain with a minimum 6 mil polyvinyl chloride membrane vapor retarder with a minimum overlap of 12 inches in all directions. This membrane should be sandwiched between two, two-inch layers of sand.

The slab subgrade should be moisture conditioned to near optimum moisture content condition to a depth of 12 inches immediately prior to placement of the moisture barrier or pouring concrete.

CEMENT TYPE

A very low exposure to sulfate can be expected for concrete placed in contact with on site soil and native material. Therefore, based on the CBC no special cement will be required for concrete in contact with these materials.

Sample	**PH**	Soluble Sulfates per CA 417 (PPM)	**Soluble Sulfates per CA 422 (PPM)**	**Minimum Resistivity per CA 643 (ohm-cm)**
#1	6.0	20	45	2600

RETAINING WALL RECOMMENDATIONS

Retaining walls if planned should be designed to resist the active pressures summarized in the following table. The active pressure is no rmally calculated from the lowermost portion of the footing to the highest ground surface at the back of the wall, including necessary factors for sloping ground. The active and passive pressures indicated in the table are equivalent fluid densities. Walls that are not free to rotate or that are braced at the top should use active pressures that are 50% greater than those indicated in the table. Retaining wall design for passive resistance should neglect the top foot of earth in front of the wall.

Retaining Wall Design Parameters

Equivalent Fluid Pressures

Slope of adjacent ground	**Active Pressure backfill with low expansive soil.**
Level	30 pcf
2:1	45 pcf

The pressures shown on above table are for retaining walls backfilled with non-cohesive granular materials available on the site, and provided with drainage devices such as weep holes or subdrains to prevent the build-up of hydrostatic pressures beyond the design values. Also, it is strongly recommended that all backfill material be compacted to a minimum of 90 percent relative compaction, as this is the density from which the pressure are calculated. This recommendation cannot be overemphasized.

TEMPORARY CONSTRUCTION CUTS

Temporary construction cuts for retaining walls, foundations, utility trenches, etc., in excess of 5 feet in depth should cut back into an inclination not steeper than 1:1 (horizontal to vertical). Where more restrictive, the safety requirements for excavations contained in the State Construction Safety Orders enforced by the State Division of Industrial Safety (CAL-OSHA) and or the safety codes of the local agency having jurisdiction over the project shall apply. All excavations shall be initially observed by the geotechnical engineer or his representative to verify the recommendations presented or to make any additional recommendations necessary to maintain stability.

TRENCH BACKFILL

Trench excavations for utility lines which extend under building and paved areas are within the zone of influence of adjacent foundations shall be properly backfilled and compacted in accordance with the following recommendations.

The pipe should be bedded and backfilled with clean sand or approved granular soil (minimum Sand Equivalent Value of 30) to a depth of at least 1 foot over the pipe. This backfill should be uniformly watered and compacted to a firm condition.

The remainder of the backfill should be on-site soil or very low to low expansive import soil, which should be placed in loose lifts not exceeding 12 inches in thickness, watered or aerated to optimum moisture content, and mechanically compacted to at least 90% of maximum dry density as determined by ASTM D-1557 procedures. Water jetting of the backfill is not allowed.

PAVEMENT RECOMMENDATIONS

For preliminary design purposes, the typical soil anticipated in the subgrade will consist of fine silty sand. Based on this soil type (silty sand), a conservative R-Value of 50 may be estimated for preliminary design of the pavement section. The actual R-Value of the subgrade soil should be tested and verified at the time of construction. The following are our preliminary recommendations for the structural pavement section calculated in general accordance with Caltrans procedures and based on the estimated R-Value and the Traffic Indexes (TI's).

Site Area	Traffic Index	R-value	Pavement Section
Parking	4.5	50	3" A.C. over 4.5" Class II Base
Vehicle Drive Area	5.5	50	4" A.C. over 6" Class II Base
Heavy Truck Area	6.5	50	4" A.C. over 6.0" Class II Base

As an alternative to asphaltic concrete pavement, Portland Cement Concrete (PCC) pavement may be utilized. Concrete driveway and parking slabs shall be at least 5 inches thick and provided with saw cuts or expansion joints every 10 feet or less. The reinforcing shall consist with No. 3 bars spaced 24 inches on centers, both ways. Concrete pavement should be underlain by a minimum 4 inches of base course. The concrete should have a 28-day concrete strength of at least 2500 psi.

To reduce the potential of unsightly cracking concrete pavement for sidewalk and hardscape should be at least 4 inches thick and provided with saw cuts or expansion joints every 6 feet or less.

Subgrade soils should e overexcavated, scarified and compacted to at least 90% + of laboratory maximum dry density as recommended in the previous section of rough grading. Base course should be compacted to at least 95% + of laboratory maximum dry.

PLAN REVIEW

Subsequent to formulation of final development plans and specifications but prior to construction, grading and foundation plans should be reviewed by Geo Environ to verify compatibility with site geotechnical conditions and conformance with recommendations contained herein.

CONSTRUCTION OBSERVATIONS

All rough grading of the property shall be performed under engineering observation of Geo Environ.

Geo Environ shall observe all rough grading, foundation excavations, utility trenches backfill subgrade, and base compaction. Observations should be made prior to installation of concrete forms and reinforcing steel in order to verify or modify, if necessary, conclusions and recommendations in this report.

CLOSURE& LIMITATIONS

The findings, conclusions, and recommendations presented reflect our best estimate of subsurface conditions based on the data obtained from a limited subsurface exploration performed during the field study. The conclusions and recommendations are based on generally accepted geotechnical engineering principles and practices. No further warranties are implied nor made.

Due to the possible variability of soil and subsurface conditions within the site, conditions may be encountered during grading and development that may differ from those presented herein. Should any variation or unusual condition become apparent during grading and development, this office should be contacted to evaluate these conditions prior to continuation of work and necessary_revisions to the recommendations.

This office should be notified if changes of ownership occur or if the final plans for the site development indicate structures areas, type of structures, or structural loading conditions differing from those presented in this report.

If the site is not developed or grading does not begin within 12 months following the date of this report, further studies may be required to ensure that the surface or subsurface conditions have not changed.

Any charges for necessary review or updates will be at the prevailing rate at the time the review work is performed.

TECHNICAL REFERENCES

1. California Building Code 2019 foundation design parameters
2. County of Riverside Building and Grading Code
3. USGS, Ground Acceleration from Earthquakes
4. USGS, Seismic Design Values for Buildings
5. California Division of Mines and Geology (CDMG), Seismic Hazard & Liquefaction Evaluation
6. Geotracker- Historic Groundwater Data

OSHPD

New Service Station

28771 Central Ave, Lake Elsinore, CA 92532, USA

Latitude, Longitude: 33.70255119999999, -117.3264077

Date	9/14/2020, 9:57:07 AM
Design Code Reference Document	ASCE7-16
Risk Category	II
Site Class	D - Default (See Section 11.4.3)

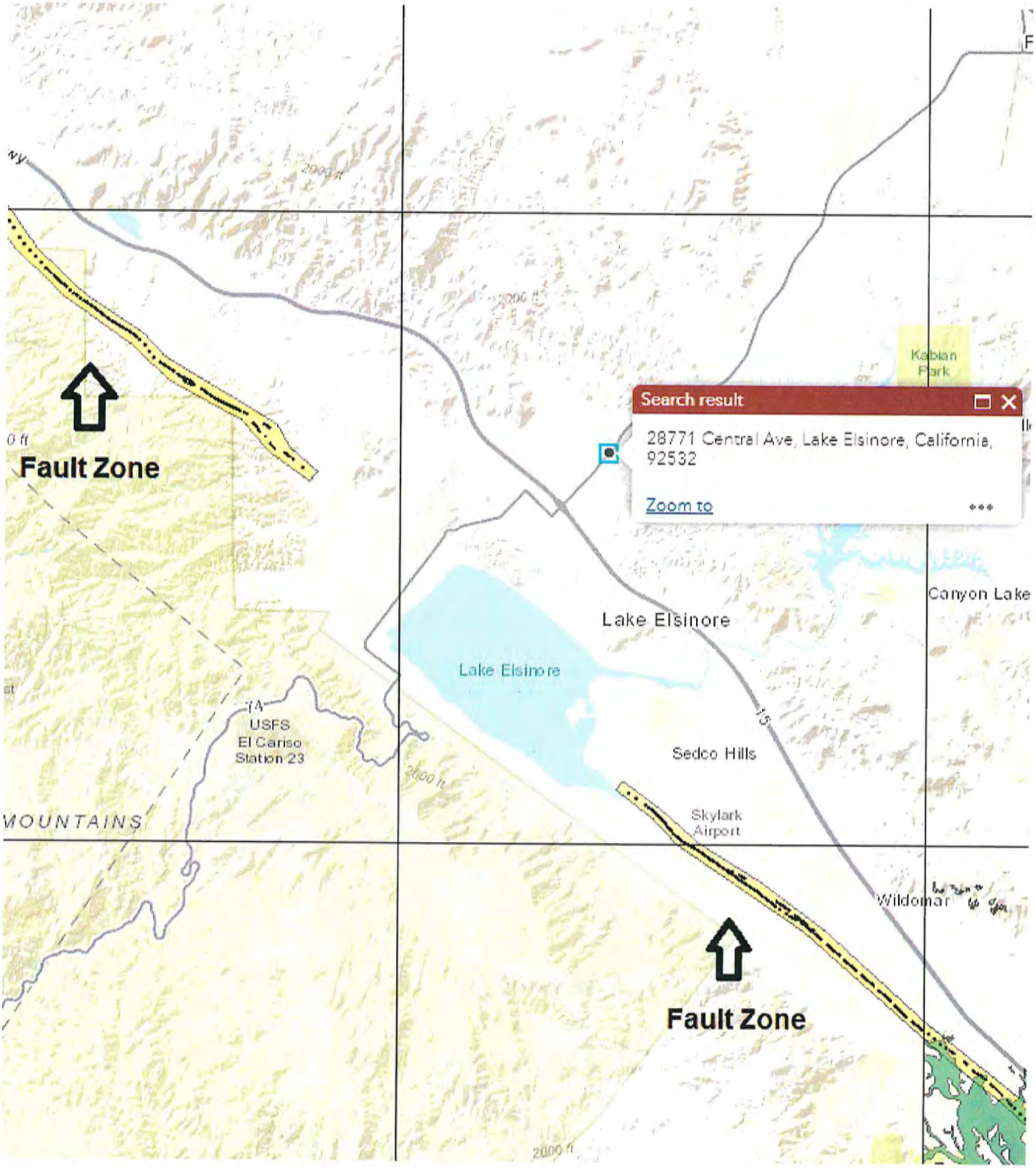
Type	Value	Description
S_S	1.977	MCE_R ground motion. (for 0.2 second period)
S_1	0.708	MCE_R ground motion. (for 1.0s period)
S_{MS}	2.372	Site-modified spectral acceleration value
S_{M1}	null -See Section 11.4.8	Site-modified spectral acceleration value
S_{DS}	1.581	Numeric seismic design value at 0.2 second SA
S_{D1}	null -See Section 11.4.8	Numeric seismic design value at 1.0 second SA

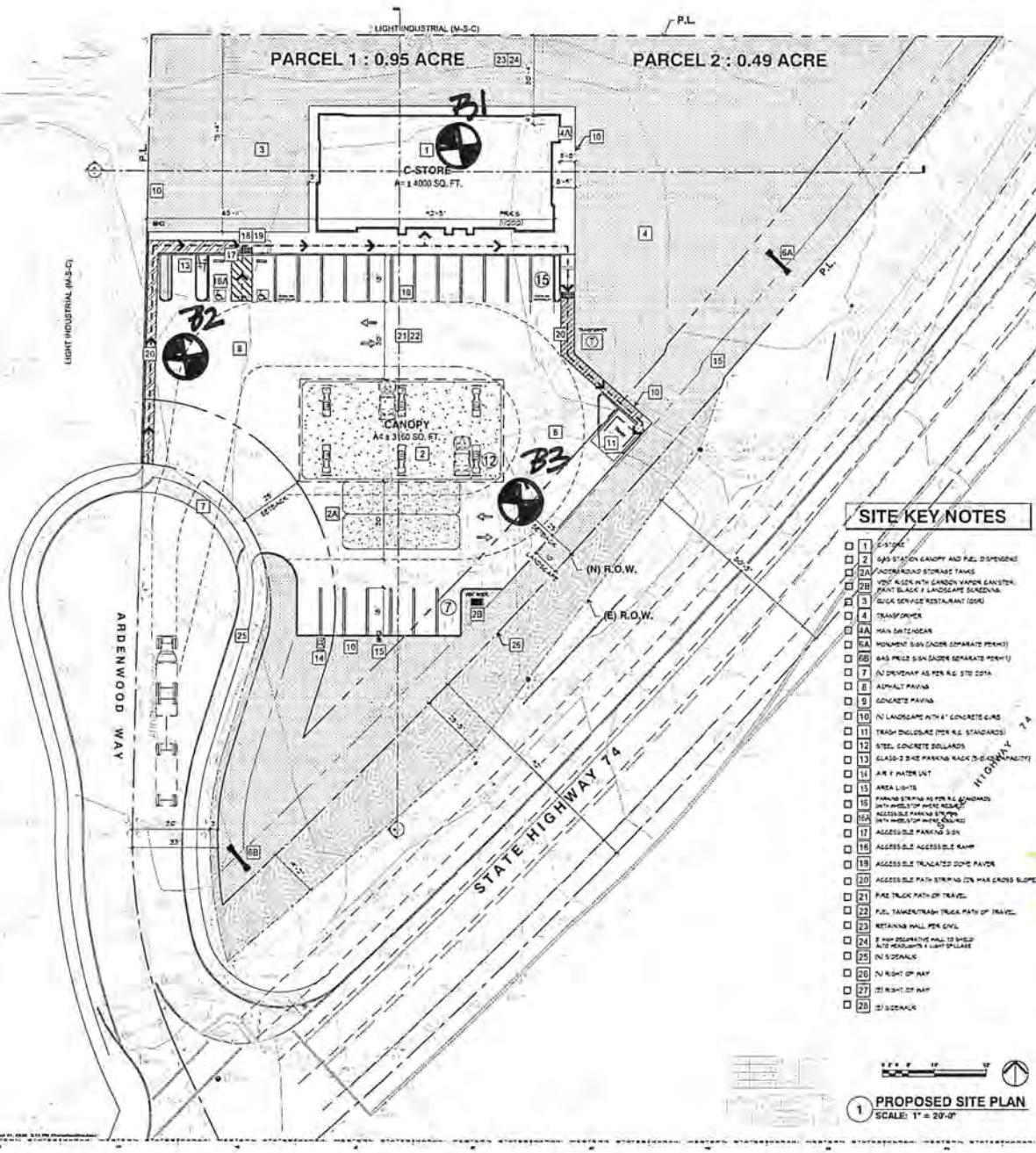
Type	Value	Description
SDC	null -See Section 11.4.8	Seismic design category
F_a	1.2	Site amplification factor at 0.2 second
F_v	null -See Section 11.4.8	Site amplification factor at 1.0 second
PGA	0.838	MCE_G peak ground acceleration
F_{PGA}	1.2	Site amplification factor at PGA
PGA_M	1.006	Site modified peak ground acceleration
T_L	8	Long-period transition period in seconds
SsRT	1.977	Probabilistic risk-targeted ground motion. (0.2 second)
SsUH	2.179	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
SsD	2.01	Factored deterministic acceleration value. (0.2 second)
S1RT	0.708	Probabilistic risk-targeted ground motion. (1.0 second)
S1UH	0.786	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
S1D	0.792	Factored deterministic acceleration value. (1.0 second)
PGAd	0.848	Factored deterministic acceleration value. (Peak Ground Acceleration)
C_{RS}	0.907	Mapped value of the risk coefficient at short periods

APPENDIX A

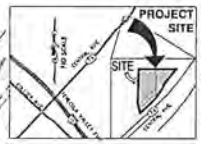
DRAWINGS

SUBJECT PROPERTY
Lindell Rd
Nichols Rd
Riverside St
Eucalyptus Ave
WARM SPRINGS VALLEY
Corona Fwy
Conard Ave
Rosetta Canyon Dr
Collier Ave
Baker St
NORTH ELSINORE
Kee Ave
2nd St
W Minthorn St
Chaney St
Davis St
Lakeshore Dr
Scrivener St
N Lindsay St
N Langstaff St
N Spring St
N Ellis St
E Hill St
Temecula Valley Fwy
Lake Elsinore
Mill St


Search result
28771 Central Ave, Lake Elsinore, California, 92532
Zoom to
Fault Zone
Fault Zone
Lake Elsinore
Lake Elsinore
Canyon Lake
Sedco Hills
Skylark Airport
Wildomar
USFS
El Cariso
Station 23
MOUNTAINS
Kabian Park
15
2000 ft



VICINITY MAP



LEGEND

- NO. OF PARKING SPACES
- ACCESSIBLE PARKING
- PROPERTY LINE
- PROPOSED PARCEL SUBDIVISION
- ADA PATH OF TRAVEL
- CONCRETE PAVING AREA
- DECORATIVE PAVING AREA
- LANDSCAPED AREA
- DIRECTIONAL ARROW
- R.O.W. DEDICATION
- AREA LIGHTS
- WALL MOUNTED DECORATIVE AREA LIGHTS
- (E) FIRE HYDRANT
- (E) SEWER MANHOLE
- (E) SEWER CLEANOUT
- (E) POWER POLE
- WM (E) WATER METER
- (E) WATER POINT
- (E) SIGN

SCOPE OF WORK

PROPOSED DEVELOPMENT

- PROPOSED GAS STATION CONSISTING OF:
- ONE CONVENIENCE STORE (WITH TYPE 20-ABG)
- FUELING CANOPY WITH SIX MULTI-PRODUCT DISPENSERS
- TWO UNDERGROUND STORAGE TANKS

PROJECT DATA

ZONING LIGHT INDUSTRIAL
LAND USE MANUFACTURING-SERVICE COMMERCIAL
AREA OF SITE (GROSS ACREAGE)
TOTAL AREA = ± 62,726 S.F. (1.44 acre)

BLDG SETBACKS	REQUIRED	PROVIDED
FRONT (SOUTH)	25'-0"	25'-0"
REAR (NORTH)	0'-0"	0'-0"
LEFT (WEST)	25'-0"	25'-0"
RIGHT (EAST)	0'-0"	0'-0"
LANDSCAPE AREA	10%	24,002 S.F. (38%)
FLOOR AREA RATIO	-	1.011
MAXIMUM HEIGHT	40'-0"	25'-0"
PARKING	59	51

SITE KEY NOTES

1. C-STORE
2. GAS STATION CANOPY AND FUEL DISPENSERS
2A. UNDERGROUND STORAGE TANKS
2B. VENT RISER WITH CARBON VAPOR CANISTER, PAINT BLACK & LANDSCAPE SCREENING
3. QUICK SERVICE RESTAURANT (DRIVE-THRU)
4. TRANSFORMER
4A. MAIN SWITCHGEAR
5A. MONUMENT SIGN (UNDER SEPARATE PERMIT)
5B. GAS PRICE SIGN (UNDER SEPARATE PERMIT)
7. (N) DRIVEWAY AS PER R.C. STD 207A
8. ASPHALT PAVING
9. CONCRETE PAVING
10. (N) LANDSCAPE WITH 6" CONCRETE CURB
11. TRASH ENCLOSURE (PER R.C. STANDARD)
12. STEEL CONCRETE BOLLARDS
13. CLASS 2 BIKE PARKING RACK (5 BIKE CAPACITY)
14. AIR & WATER UNIT
15. AREA LIGHTS
16. PARKING STRIPING AS PER R.C. STANDARDS (WITH IMPERVIOUS WHITE PAINT)
16A. ACCESSIBLE PARKING STRIPING (WITH IMPERVIOUS WHITE PAINT)
17. ACCESSIBLE PARKING SIGN
18. ACCESSIBLE ACCESSIBLE RAMP
19. ACCESSIBLE TRUNCATED DOME PAVER
20. ACCESSIBLE PATH STRIPING (2% MAX CROSS SLOPE)
21. FIRE TRUCK PATH OF TRAVEL
22. FUEL TANKER/TRASH TRUCK PATH OF TRAVEL
23. RETAINING WALL PER CIVIL
24. 8' HIGH DECORATIVE WALL TO SHIELD ADJACENT RESIDENTS & LIGHT SPILLAGE
25. (N) SIDEWALK
26. (N) RIGHT OF WAY
27. (E) RIGHT OF WAY
28. (E) SIDEWALK

1 PROPOSED SITE PLAN
SCALE: 1" = 20'-0"

BUILDING DATA

C-STORE	
AREAS	± 4,000 SF
OCCUPANCY	M
TYPE OF CONST	V-B
NUMBER OF STORY	1
BLDG HEIGHT	± 25'-0"
SPRINKLERS	NONE
CANOPY	
AREA	± 3,160 SF
OCCUPANCY	M
TYPE OF CONST	II-B
NUMBER OF STORY	1
BLDG HEIGHT	20'-0"
SPRINKLERS	NONE

TOTAL BUILDINGS AREA (GFA) ± 9,160 SF
± 0.15 ACRE (NET ACREAGE)

ASSESSOR'S PARCEL NUMBER

347-130-028 & 347-130-029

LEGAL DESCRIPTION

FIRST AMERICAN TITLE COMPANY
ORDER NO.: 0625-5758488
DATED: SEPTEMBER 11, 2018

LEGAL DESCRIPTION:
REAL PROPERTY IN THE UNINCORPORATED AREA OF THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:

PARCEL 3 OF PARCEL MAP 9983, AS SHOWN BY MAP ON FILE IN BOOK 59, PAGE 72 OF PARCEL MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.

EXCEPTING THEREFROM A PORTION THAT GRANTS TO RIVERSIDE COUNTY TRANSPORTATION COMMISSION, A POLITICAL SUBDIVISION AS DESCRIBED IN DEED RECORDED OCTOBER 02, 2001 AS INSTRUMENT NO. 2001-478038 OF OFFICIAL RECORDS.

APN: 347-130-028

LEGAL DESCRIPTION:
ORDER NO.: 0625-5769283
DATED: SEPTEMBER 12, 2018

REAL PROPERTY IN THE UNINCORPORATED AREA OF THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:

PARCELS 4 OF PARCEL MAP 9983, AS SHOWN BY MAP ON FILE IN BOOK 59, PAGE 72, OF PARCEL MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.

EXCEPTING THEREFROM THAT PORTION CONVEYED TO THE RIVERSIDE COUNTY TRANSPORTATION COMMISSION, BY GRANT DEED RECORDED OCTOBER 09, 2001 AS INSTRUMENT NO. 01-498277, OF OFFICIAL RECORDS OF SAID COUNTY.

ASSESSOR'S PARCEL NUMBER: 347-130-028
TOTAL AREA: 62,757.88 S.F. (1.441 ACRES)

PARKING COMPUTATION

PARKING STANDARDS

TYPE	SIZE
REGULAR	9'-0" X 18'-0"
COMPACT	8'-6" X 16'-0" (UP TO 20% OF TOTAL)
HANDICAP	17'-0" X 18'-0" (VAN ACCESSIBLE)

PARKING REQUIREMENTS

USE	FORMULA	REQUIRED	PROVIDED
C-STORE	(1/200 S.F.)	20	22
CANOPY		-	12
TOTAL PARKING		20	34

HANDICAP PARKING REQUIREMENTS

FORMULA	REQUIRED	PROVIDED
26-50 PARKING SPACES	(2)	(2)

CLEAN AIR/ELECTRIC VEHICLE PARKING

FORMULA		
SECTION 1118.045 R.C. MUN CODE	(2)	(2)

WITH 25-49 PARKING = 2 EV CHARGING SPACES

SOIL BORING

GEO ENVIRO
GEOTECHNICAL & ENVIRONMENTAL ENG. CONSULTAN
4071 E. La Palma Ave., St
Anaheim, CA 92807

KAR
WESTERN STATES E
A DESIGN-BUILD
4081 E. LA PALM
TEL: (714) 630-6400 FA

CONSULTANT SE

SUBMITTAL
NO. DESCRIPTION
1
2
3
4

REVISIONS
NO. DESCRIPTION
△
△
△
△
△

OWNER NAME & A
DAHER OIL I
19511 ESPERAN
YORBA LINDA C

PROJECT NAME &
GAS STATI
CONVENIENCE
25771 CENTRAL AVE
LAKE ELSINORE,

NOTE TO CONTRA

CONFIDENTIALITY

DESIGNED BY: WS
DRAWN BY: WS
CHECKED BY: JK
PLOT DATE: 8/
SCALE: AS
SHEET TITLE
PROPOSE
SITE PLAN

SHEET NUMBER
AS-1.

APPENDIX B

BORING LOGS

Project: C-Store	Project Number: 20-1057P	Client: Westerm States	Boring No. B-1
Address, City, State: 28771 Central Ave Lake Elsinore California		Drilling Contractor: Geo Environ	Drill Rig Type: HSA
Logged By: Fahad Masud	Started: 9:30 AM (4/26/2020)	Bit Type: N/A	Diameter: 2 feet
Drill Crew: N/A	Completed: 12:30 PM	Hammer Type: Automatic Trip Hammer	
USA Ticket Number: N/A	Backfilled:	Hammer Weight: 140 lb	Hammer Drop: 30 inches
	Groundwater Depth: 39 feet	Elevation:	Total Depth of Boring: 50 feet

Depth (feet)	Sample Type	Classification	Blow Counts (blows/foot)	Graphic Log		Dry Density (pcf)	Moisture Content (%)
2		SM	23		Brownish orange, sandy silt, slightly moist, w/ fine-med sand, dense, some gravel	92.3	6.1
5			29			109.9	6.9
10			41		Brownish red, mod. dense, sandy silt, moist, w/ fine-medium coarse sand with gravel	117.4	8.7
15			30			110.1	9.2
20			46			114.9	9.6
25			44			120.1	9.4
30			37		Olive-brown, sandy silt, moist, w/coarse gravel, medium dense	113.7	13.7
35			24			108.4	15.6
40			50/6"		Olive-brown, **sandy silt**, wet, w/ coarse sand and gravel, very dense	120.8	19.9
45			50/6"			122.7	20.4
50			50/6"			121.9	20.6

Standard Penetration Slit Spoon Sampler (SPT)
California Sampler
Shelby Tube
CPP Sampler
Bulk/ Bag Sample
Stablized Ground water
Groundwater At time of Drilling

Project: C-Store	Project Number: 20-1057P	Client: Westerm States	Boring No. B-2
Address, City, State: 28771 Central Ave Lake Elsinore California		Drilling Contractor: Geo Environ	Drill Rig Type: HSA
Logged By: Fahad Masud	Started: 9:30 AM	Bit Type: N/A	Diameter: 2 feet
Drill Crew: N/A	Completed: 12:30 PM	Hammer Type: Automatic Trip Hammer	
USA Ticket Number: N/A	Backfilled:	Hammer Weight: 140 lb	Hammer Drop: 30 inches
	Groundwater Depth: N/A	Elevation:	Total Depth of Boring: 15 feet

4/26/2020

Depth (feet)	Sample Type	Classification	Blow Counts (blows/foot)	Graphic Log		Dry Density (pcf)	Moisture Content (%)
2		SM	21		Brownish orange, **sandy silt**, slightly moist, w/ fine-med sand, dense	91.9	6.6
5			25			108.7	7.2
10			46		Orange-brown, sandy silt, moist, w/ coarse sand and gravel, moderately dense	116.8	8.8
15			29			111.1	9.4
20							
25							
30							
35							
40							
45							
50							

Standard Penetration Slit Spoon Sampler (SPT)
California Sampler
Shelby Tube
CPP Sampler
Bulk/ Bag Sample
Stabllized Ground water
Groundwater At time of Drilling

Project: C-Store	Project Number: 20-1057P	Client: Westerm States	Boring No. B-3
Address, City, State: 28771 Central Ave, Lake Elsinore, California		Drilling Contractor: Geo Environ	Drill Rig Type: HSA
Logged By: Fahad Masud	Started: 9:30 AM (4/26/2020)	Bit Type: N/A	Diameter: 2 feet
Drill Crew: N/A	Completed: 12:30 PM	Hammer Type: Automatic Trip Hammer	
USA Ticket Number: N/A	Backfilled:	Hammer Weight: 140 lb	Hammer Drop: 30 inches
	Groundwater Depth: N/A	Elevation:	Total Depth of Boring: 15 feet

Depth (feet)	Sample Type	Classification	Blow Counts (blows/foot)	Graphic Log		Dry Density (pcf)	Moisture Content (%)
2		SM	17		Reddish brown, sandy silt, slightly moist, w/ fine-med sand, dense	93.9	6.3
5			28			110.4	7.9
10			48		Reddish-brown, sandy silt, moist, w/ coarse sand and gravel, moderately dense	118.6	9.0
15			24			110.7	8.4
20							
25							
30							
35							
40							
45							
50							

Standard Penetration Slit Spoon Sampler (SPT)
California Sampler
Shelby Tube
CPP Sampler
Bulk/ Bag Sample
Stabllized Ground water
Groundwater At time of Drilling

APPENDIX C

LABORATORY TEST RESULTS

EXPANSION CHARACTERISTICS
(ASTM D-2435)

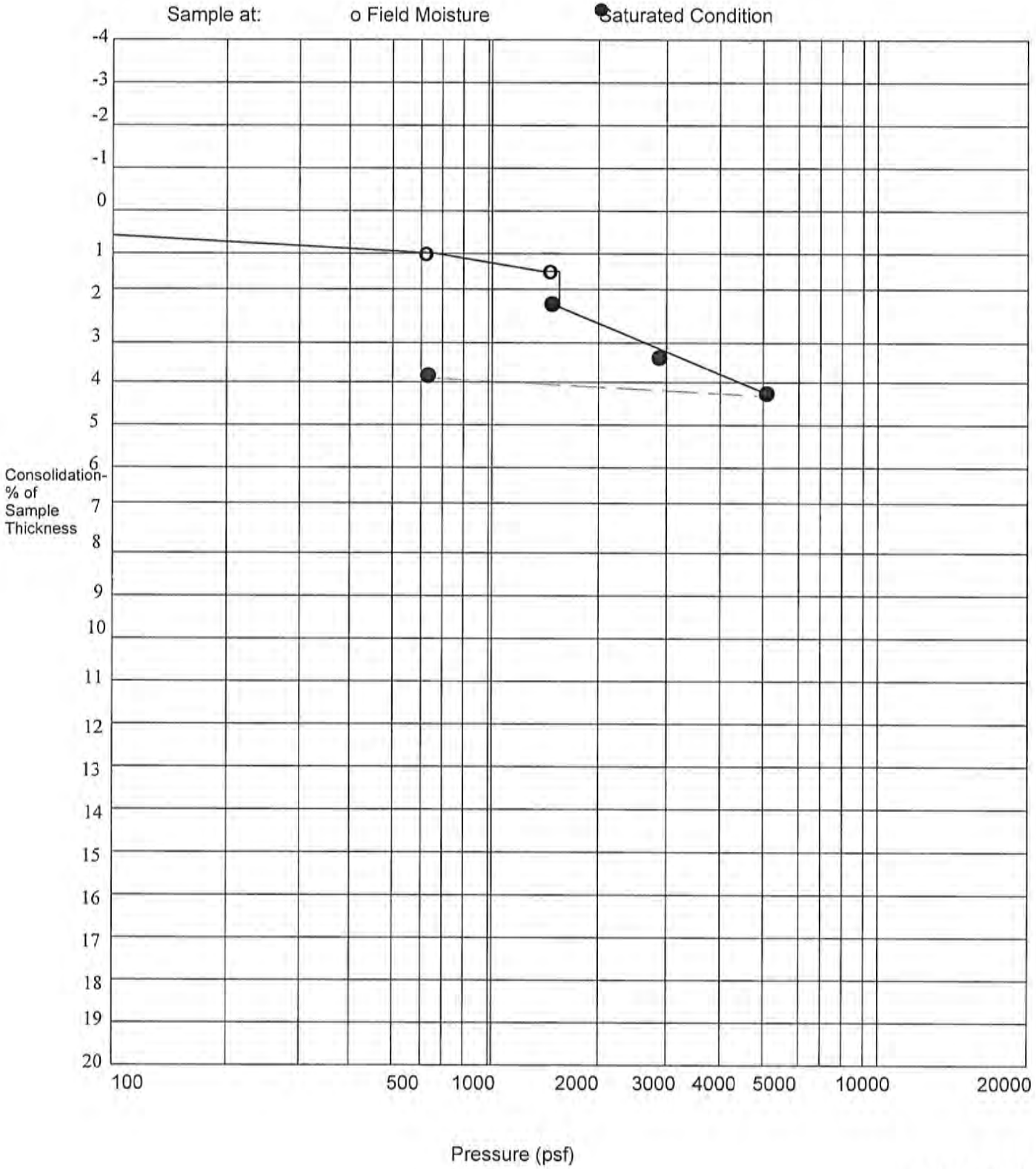
0-21	Very Low
21-50	Low
51-90	Medium
91-130	High
131+	Very High

Sample	Soil Type	Expansion Index	Expansion Classification
B1 @ 0-5'	Fine Sandy Silt	12	Low

MAXIMUM DRY DENSITY
(ASTM D1557)

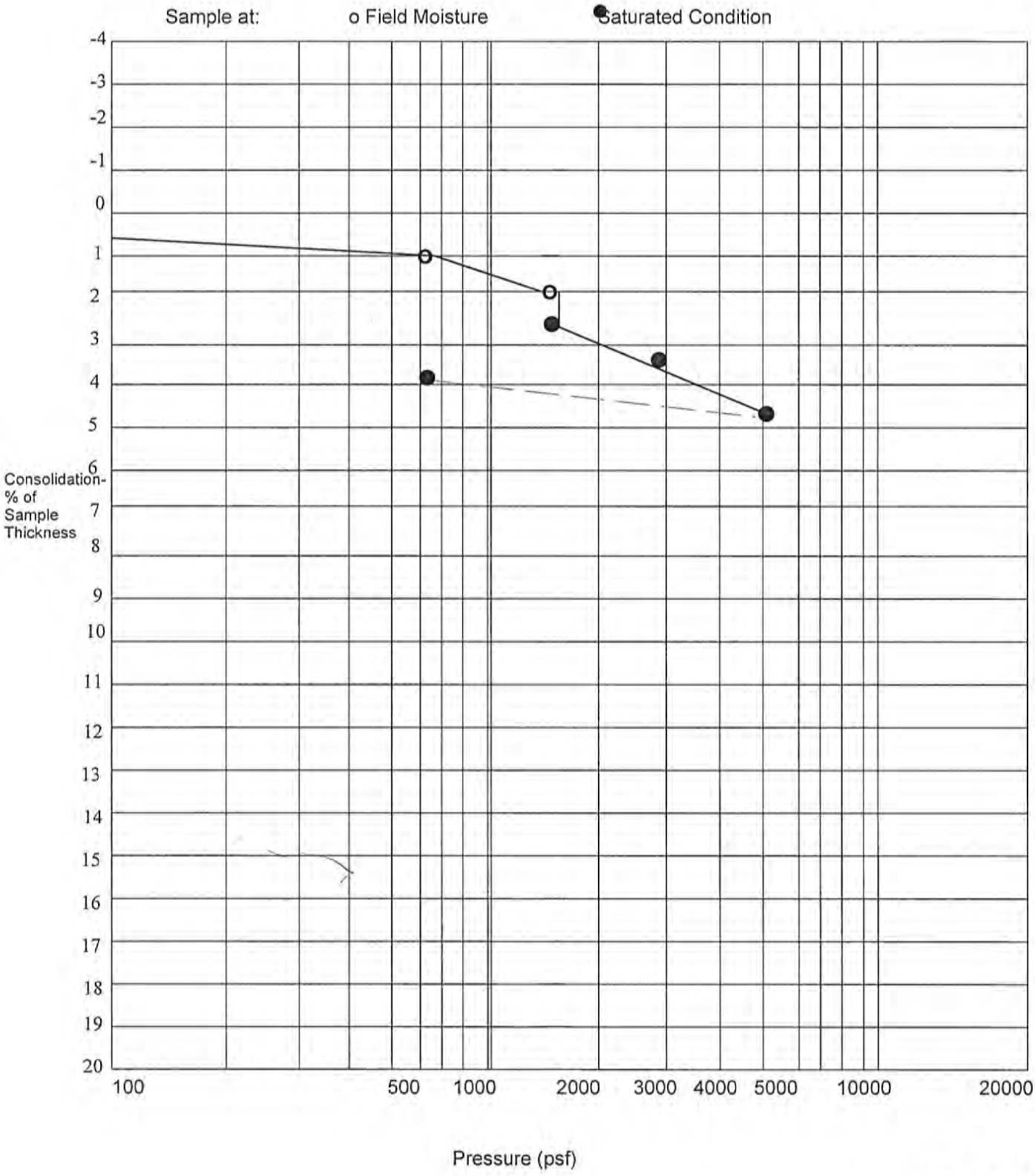
Sample		Max. Density (pcf)	Opt. Mois.(%)
B1 @ 0-5'	Fine Sand and Silt	120.0	12.5

PROJECT NO: 20-1057P
CLIENT: WS Eng.
JOB ADDRESS: 28771 Central Ave, Lake Elsinore
SAMPLE ID: B-1 @ 5'
SOIL CLASS: Fine Sandy Silt
TECH: F.M.
DATE: 9/4/20



GEO ENVIRON

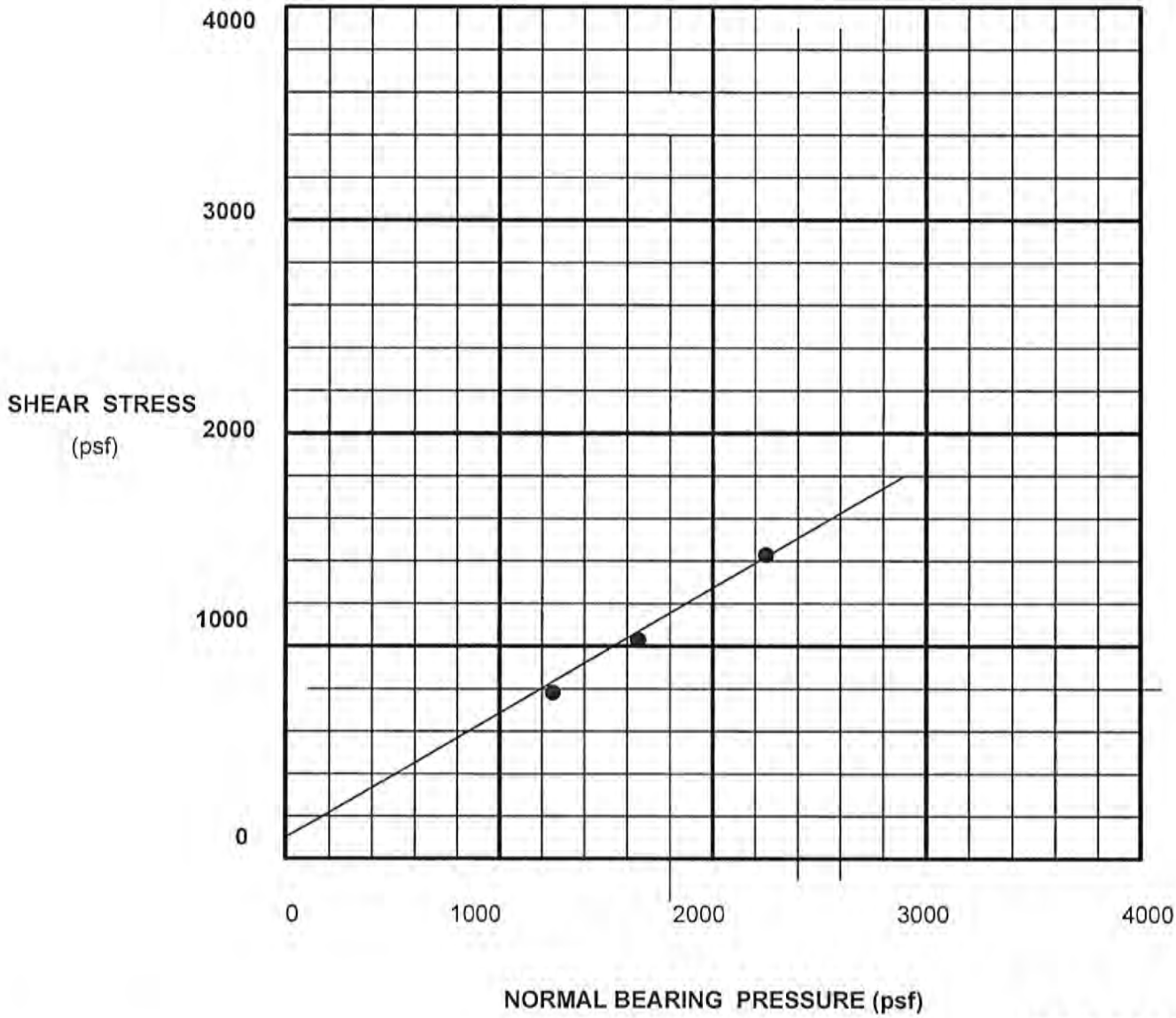
PROJECT NO: 20-1057P
CLIENT: WS Eng.
JOB ADDRESS: 28771 Central Ave, Lake Elsinore
SAMPLE ID: B-2 @ 5'
SOIL CLASS: Fine Silty Sand
TECH: F.M.
DATE: 9/5/20



GEO ENVIRON

DIRECT SHEAR TEST

DATE: 9/4/20
JOB NO: 20-1057P
CLIENT: WS Eng.
JOB ADDRESS: 28771 Central Ave, Lake Elsinore
SAMPLE ID: B- 2 @ 2.5
SOIL CLASS: Sandy Silt
MOIS. CONTENT: 7.2
DRY DENSITY: 108.7
Sample Type: Un-Disturbed
STRAIN RATE: 0.002 in/min
SHEAR STRENGTH: Ultimate
ANGLE OF FRICTION : 30 deg.
COHESION (psf): 75

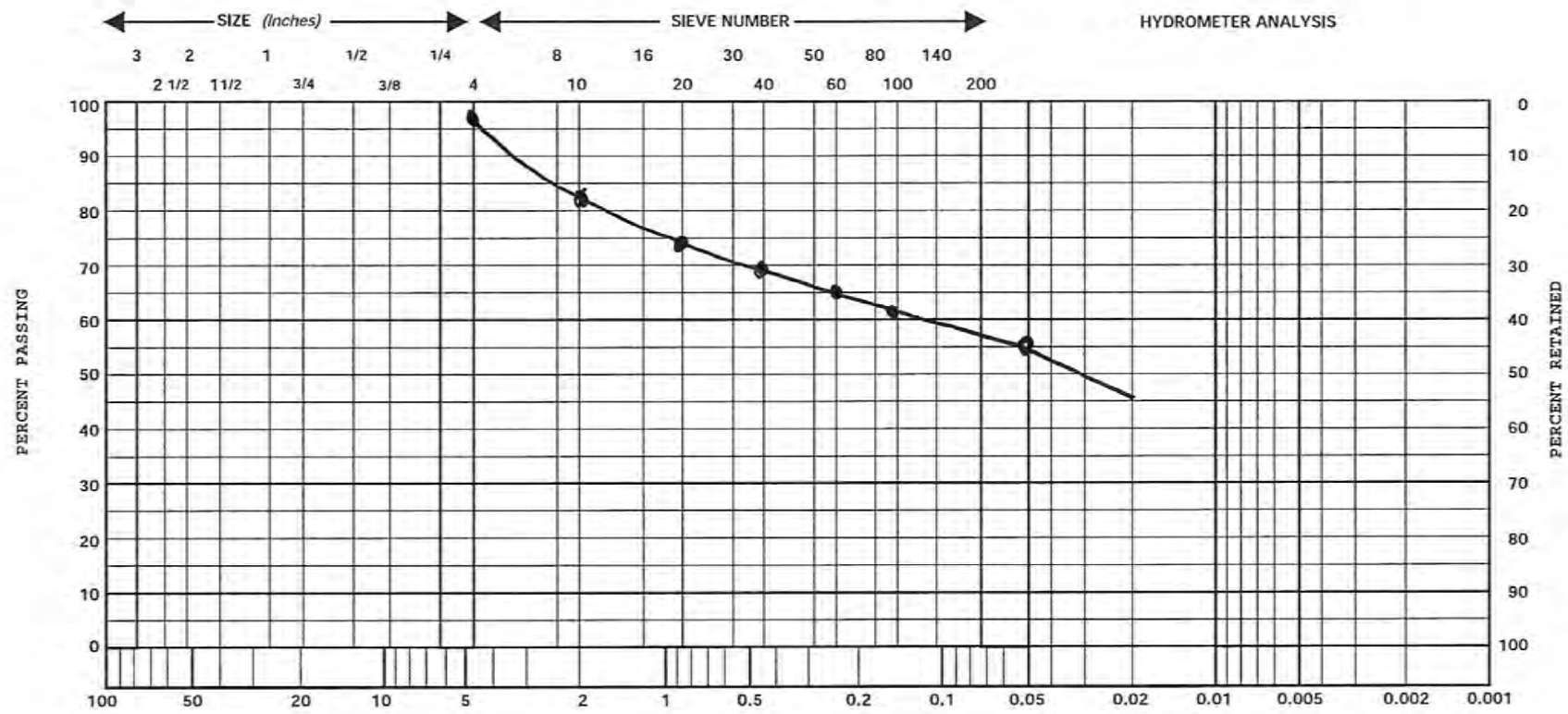


GEO ENVIRON

GRAIN SIZE DISTRIBUTION GRAPH - AGGREGATE GRADATION CHART

1. PROJECT	2. DATE
WS Eng. 28771 Central Ave, Lake Elsinore, LACO,	9/4/20

SIEVE ANALYSIS - US STANDARD SIEVE SIZES



EXCAVATION NUMBER	SAMPLE NUMBER	LL	PL	PI	Cu (D_{60}/D_{10})	Cc ($(D_{30})^2/(D_{60} \times D_{10})$)	SOIL DESCRIPTION/REMARKS	CLASSIFICATION (USCS)
B-1 @ 15							Fine Sandy silt	ML

3. TECHNICIAN *(Signature)*	4. PLOTTED BY *(Signature)*	5. CHECKED BY *(Signature)*
F.M.		J.M.

DD FORM 1207, DEC 1999 PREVIOUS EDITION IS OBSOLETE.

Adobe Professional 7.0

APPENDIX D

LIQUEFACTION ANALYSIS

GEOLOGISMIKI
Geotechnical Software

SPT BASED LIQUEFACTION ANALYSIS REPORT

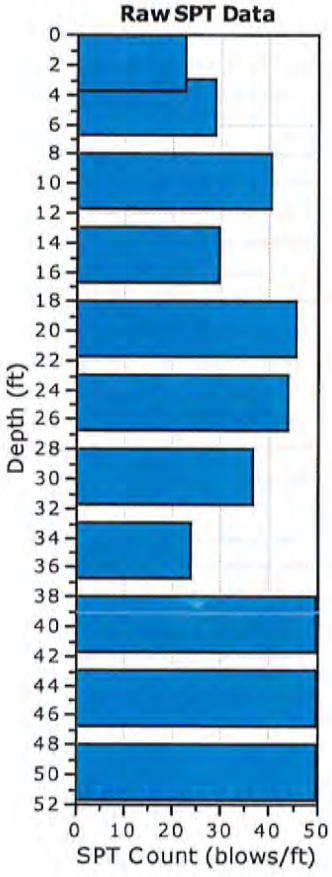
Project title : Karaki Western States 20-1057

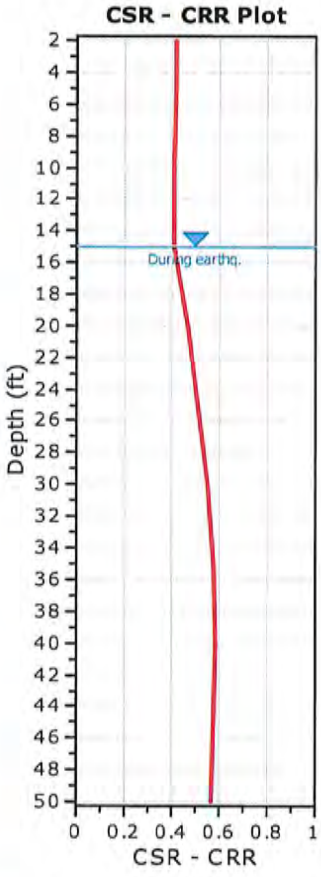
SPT Name: SPT #1

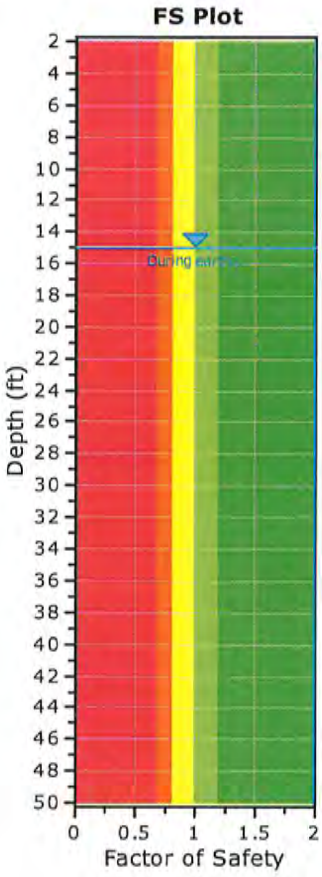
Location : 28771 Lake Elsinore, CA

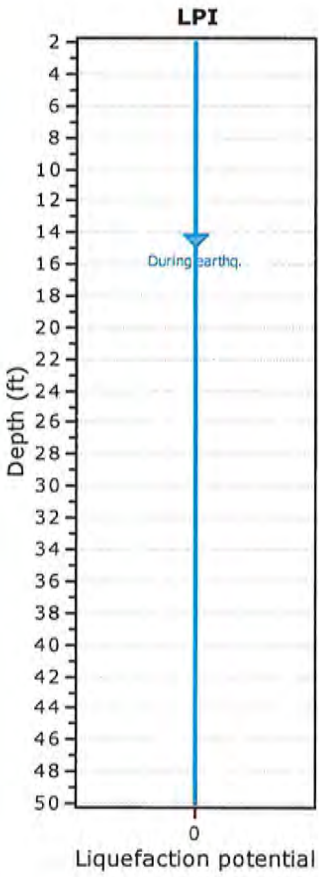
:: Input parameters and analysis properties ::

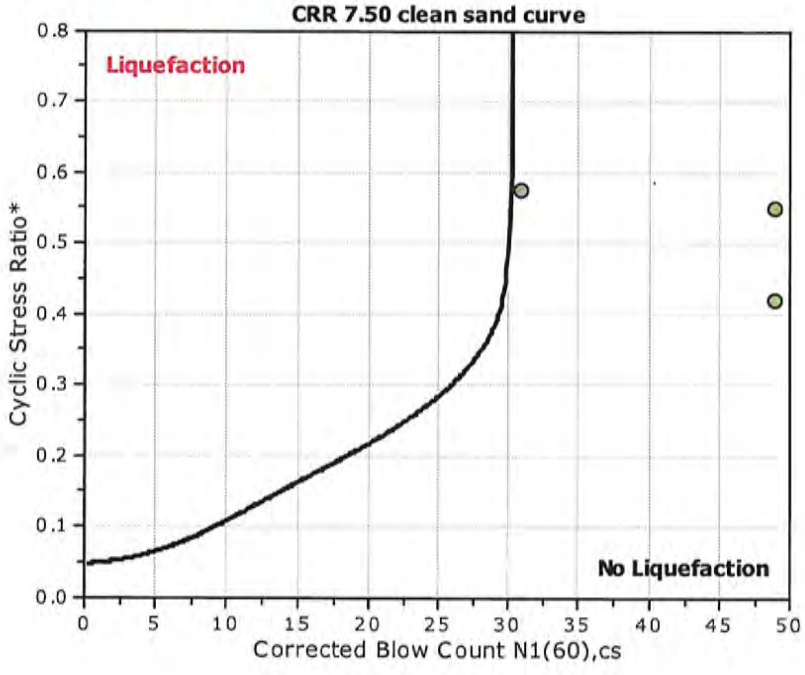
Analysis method:	NCEER 1998	G.W.T. (in-situ):	39.00 ft
Fines correction method:	NCEER 1998	G.W.T. (earthq.):	15.00 ft
Sampling method:	Standard Sampler	Earthquake magnitude M_w:	6.80
Borehole diameter:	150mm	Peak ground acceleration:	0.83 g
Rod length:	5.00 ft	Eq. external load:	0.00 tsf
Hammer energy ratio:	1.20		











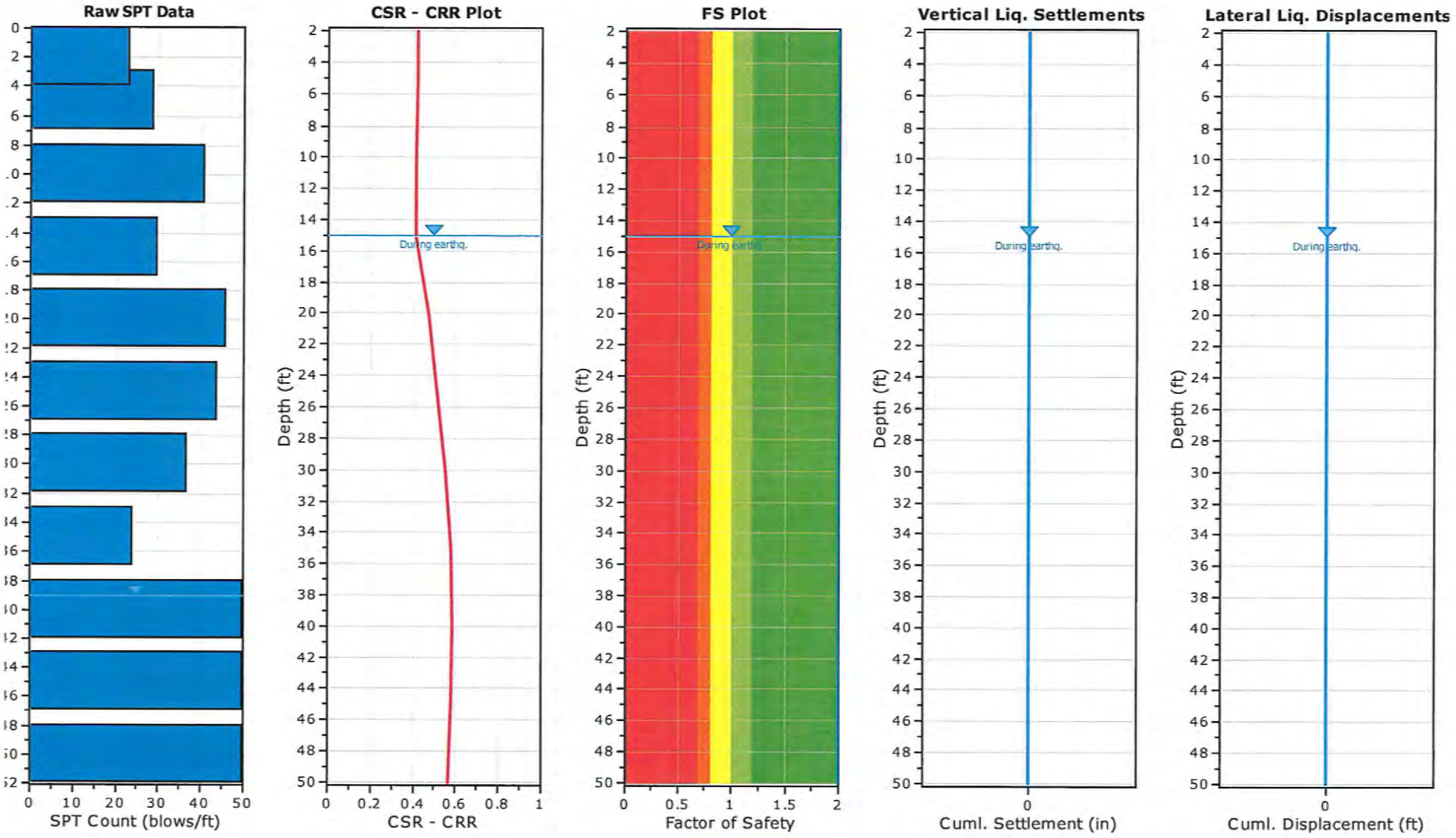
F.S. color scheme

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

LPI color scheme

- Very high risk
- High risk
- Low risk

verall Liquefaction Assessment Analysis Plots ::



:: Field input data ::

Test Depth (ft)	SPT Field Value (blows)	Fines Content (%)	Unit Weight (pcf)	Infl. Thickness (ft)	Can Liquefy
2.00	23	51.00	92.30	5.00	Yes
5.00	29	51.00	109.90	5.00	Yes
10.00	41	51.00	117.40	5.00	Yes
15.00	30	52.00	110.10	5.00	Yes
20.00	46	52.00	114.90	5.00	Yes
25.00	44	52.00	120.10	5.00	Yes
30.00	37	53.00	113.70	5.00	Yes
35.00	24	53.00	108.40	5.00	Yes
40.00	50	55.00	120.80	5.00	Yes
45.00	50	55.00	122.70	5.00	Yes
50.00	50	55.00	121.90	5.00	Yes

Abbreviations

Depth: Depth at which test was performed (ft)
SPT Field Value: Number of blows per foot
Fines Content: Fines content at test depth (%)
Unit Weight: Unit weight at test depth (pcf)
Infl. Thickness: Thickness of the soil layer to be considered in settlements analysis (ft)
Can Liquefy: User defined switch for excluding/including test depth from the analysis procedure

:: Cyclic Resistance Ratio (CRR) calculation data ::

Depth (ft)	SPT Field Value	Unit Weight (pcf)	σ_v (tsf)	u_o (tsf)	σ'_{vo} (tsf)	C_N	C_E	C_B	C_R	C_S	$(N_1)_{60}$	Fines Content (%)	α	β	$(N_1)_{60cs}$	$CRR_{7.5}$
2.00	23	92.30	0.09	0.00	0.09	1.70	1.20	1.05	0.75	1.00	37	51.00	5.00	1.20	49	4.000
5.00	29	109.90	0.26	0.00	0.26	1.52	1.20	1.05	0.75	1.00	42	51.00	5.00	1.20	55	4.000
10.00	41	117.40	0.55	0.00	0.55	1.28	1.20	1.05	0.85	1.00	56	51.00	5.00	1.20	72	4.000
15.00	30	110.10	0.83	0.00	0.83	1.11	1.20	1.05	0.95	1.00	40	52.00	5.00	1.20	53	4.000
20.00	46	114.90	1.11	0.00	1.11	0.98	1.20	1.05	0.95	1.00	54	52.00	5.00	1.20	70	4.000
25.00	44	120.10	1.41	0.00	1.41	0.87	1.20	1.05	0.95	1.00	46	52.00	5.00	1.20	60	4.000
30.00	37	113.70	1.70	0.00	1.70	0.78	1.20	1.05	1.00	1.00	37	53.00	5.00	1.20	49	4.000
35.00	24	108.40	1.97	0.00	1.97	0.72	1.20	1.05	1.00	1.00	22	53.00	5.00	1.20	31	4.000
40.00	50	120.80	2.27	0.03	2.24	0.66	1.20	1.05	1.00	1.00	42	55.00	5.00	1.20	55	4.000
45.00	50	122.70	2.58	0.19	2.39	0.64	1.20	1.05	1.00	1.00	40	55.00	5.00	1.20	53	4.000
50.00	50	121.90	2.88	0.34	2.54	0.61	1.20	1.05	1.00	1.00	39	55.00	5.00	1.20	52	4.000

Abbreviations

σ_v: Total stress during SPT test (tsf)
u_o: Water pore pressure during SPT test (tsf)
σ'_{vo}: Effective overburden pressure during SPT test (tsf)
C_N: Overburden corretion factor
C_E: Energy correction factor
C_B: Borehole diameter correction factor
C_R: Rod length correction factor
C_S: Liner correction factor
$N_{1(60)}$: Corrected N_{SPT} to a 60% energy ratio
α, β: Clean sand equivalent clean sand formula coefficients
$N_{1(60)cs}$: Corected $N_{1(60)}$ value for fines content
$CRR_{7.5}$: Cyclic resistance ratio for M=7.5

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) ::

Depth (ft)	Unit Weight (pcf)	$\sigma_{v,eq}$ (tsf)	$u_{o,eq}$ (tsf)	$\sigma'_{vo,eq}$ (tsf)	r_d	α	CSR	MSF	$CSR_{eq,M=7.5}$	K_{sigma}	CSR^*	FS

:: Cyclic Stress Ratio calculation (CSR fully adjusted and normalized) ::

Depth (ft)	Unit Weight (pcf)	$\sigma_{v,eq}$ (tsf)	$u_{o,eq}$ (tsf)	$\sigma'_{vo,eq}$ (tsf)	r_d	α	CSR	MSF	$CSR_{eq,M=7.5}$	K_{sigma}	CSR^*	FS	
2.00	92.30	0.09	0.00	0.09	1.00	1.00	0.538	1.28	0.419	1.00	0.419	2.000	
5.00	109.90	0.26	0.00	0.26	0.99	1.00	0.534	1.28	0.416	1.00	0.416	2.000	
10.00	117.40	0.55	0.00	0.55	0.98	1.00	0.528	1.28	0.411	1.00	0.411	2.000	
15.00	110.10	0.83	0.00	0.83	0.97	1.00	0.523	1.28	0.407	1.00	0.407	2.000	
20.00	114.90	1.11	0.16	0.96	0.96	1.00	0.600	1.28	0.467	1.00	0.467	2.000	
25.00	120.10	1.41	0.31	1.10	0.94	1.00	0.652	1.28	0.508	0.99	0.512	2.000	
30.00	113.70	1.70	0.47	1.23	0.92	1.00	0.686	1.28	0.534	0.97	0.550	2.000	
35.00	108.40	1.97	0.62	1.34	0.89	1.00	0.704	1.28	0.548	0.95	0.575	2.000	
40.00	120.80	2.27	0.78	1.49	0.85	1.00	0.700	1.28	0.545	0.93	0.583	2.000	
45.00	122.70	2.58	0.94	1.64	0.80	1.00	0.681	1.28	0.530	0.92	0.579	2.000	
50.00	121.90	2.88	1.09	1.79	0.75	1.00	0.654	1.28	0.509	0.90	0.566	2.000	

Abbreviations

$\sigma_{v,eq}$: Total overburden pressure at test point, during earthquake (tsf)
$u_{o,eq}$: Water pressure at test point, during earthquake (tsf)
$\sigma'_{vo,eq}$: Effective overburden pressure, during earthquake (tsf)
r_d : Nonlinear shear mass factor
α: Improvement factor due to stone columns
CSR : Cyclic Stress Ratio (adjusted for improvement)
MSF : Magnitude Scaling Factor
$CSR_{eq,M=7.5}$: CSR adjusted for M=7.5
K_{sigma}: Effective overburden stress factor
CSR^*: CSR fully adjusted (user FS applied)***
FS: Calculated factor of safety against soil liquefaction

*** User FS: 1.00

:: Liquefaction potential according to Iwasaki ::

Depth (ft)	FS	F	wz	Thickness (ft)	I_L
2.00	2.000	0.00	9.70	3.00	0.00
5.00	2.000	0.00	9.24	3.00	0.00
10.00	2.000	0.00	8.48	5.00	0.00
15.00	2.000	0.00	7.71	5.00	0.00
20.00	2.000	0.00	6.95	5.00	0.00
25.00	2.000	0.00	6.19	5.00	0.00
30.00	2.000	0.00	5.43	5.00	0.00
35.00	2.000	0.00	4.67	5.00	0.00
40.00	2.000	0.00	3.90	5.00	0.00
45.00	2.000	0.00	3.14	5.00	0.00
50.00	2.000	0.00	2.38	5.00	0.00

Overall potential I_L : 0.00

I_L = 0.00 - No liquefaction
I_L between 0.00 and 5 - Liquefaction not probable
I_L between 5 and 15 - Liquefaction probable
I_L > 15 - Liquefaction certain

:: Vertical settlements estimation for dry sands ::

Depth (ft)	$(N_1)_{60}$	τ_{av}	p	G_{max} (tsf)	a	b	γ	ε_{15}	N_c	ε_{Nc} (%)	Δh (ft)	ΔS (in)

:: Vertical settlements estimation for dry sands ::

Depth (ft)	$(N_1)_{60}$	τ_{av}	p	G_{max} (tsf)	a	b	γ	ε_{15}	N_c	ε_{Nc} (%)	Δh (ft)	ΔS (in)
5.00	42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	0.000
10.00	56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	0.000

Cumulative settlemetns: 0.000

Abbreviations

τ_{av}: Average cyclic shear stress
p: Average stress
G_{max}: Maximum shear modulus (tsf)
a, b: Shear strain formula variables
γ: Average shear strain
ε_{15}: Volumetric strain after 15 cycles
N_c: Number of cycles
ε_{Nc}: Volumetric strain for number of cycles N_c (%)
Δh: Thickness of soil layer (in)
ΔS: Settlement of soil layer (in)

:: Vertical settlements estimation for saturated sands ::

Depth (ft)	D_{50} (in)	q_c/N	e_v (%)	Δh (ft)	s (in)
15.00	1.00	7.99	0.00	5.00	0.000
20.00	1.00	7.99	0.00	5.00	0.000
25.00	1.00	7.99	0.00	5.00	0.000
30.00	1.00	7.99	0.00	5.00	0.000
35.00	1.00	7.99	0.00	5.00	0.000
40.00	1.00	7.99	0.00	5.00	0.000
45.00	1.00	7.99	0.00	5.00	0.000
50.00	1.00	7.99	0.00	5.00	0.000

Cumulative settlements: 0.000

Abbreviations

D_{50}: Median grain size (in)
q_c/N: Ratio of cone resistance to SPT
e_v: Post liquefaction volumetric strain (%)
Δh: Thickness of soil layer to be considered (ft)
s: Estimated settlement (in)

:: Lateral displacements estimation for saturated sands ::

Depth (ft)	$(N_1)_{60}$	D_r (%)	γ_{max} (%)	d_z (ft)	LDI	LD (ft)
2.00	37	85.16	0.00	5.00	0.000	0.00
5.00	42	90.73	0.00	5.00	0.000	0.00
10.00	56	100.00	0.00	5.00	0.000	0.00
15.00	40	88.54	0.00	5.00	0.000	0.00
20.00	54	100.00	0.00	5.00	0.000	0.00
25.00	46	100.00	0.00	5.00	0.000	0.00
30.00	37	85.16	0.00	5.00	0.000	0.00
35.00	22	65.67	0.00	5.00	0.000	0.00
40.00	42	90.73	0.00	5.00	0.000	0.00
45.00	40	88.54	0.00	5.00	0.000	0.00
50.00	39	87.43	0.00	5.00	0.000	0.00

:: Lateral displacements estimation for saturated sands ::

Depth (ft)	$(N_1)_{60}$	D_r (%)	γ_{max} (%)	d_z (ft)	LDI	LD (ft)

Cumulative lateral displacements: 0.00

Abbreviations

D_r: Relative density (%)
γ_{max}: Maximum amplitude of cyclic shear strain (%)
d_z: Soil layer thickness (ft)
LDI: Lateral displacement index (ft)
LD: Actual estimated displacement (ft)

References

- Ronald D. Andrus, Hossein Hayati, Nisha P. Mohanan, 2009. Correcting Liquefaction Resistance for Aged Sands Using Measured to Estimated Velocity Ratio, Journal of Geotechnical and Geoenvironmental Engineering, Vol. 135, No. 6, June 1

- Boulanger, R.W. and Idriss, I. M., 2014. CPT AND SPT BASED LIQUEFACTION TRIGGERING PROCEDURES. DEPARTMENT OF CIVIL & ENVIRONMENTAL ENGINEERING COLLEGE OF ENGINEERING UNIVERSITY OF CALIFORNIA AT DAVIS

- Dipl.-Ing. Heinz J. Priebe, Vibro Replacement to Prevent Earthquake Induced Liquefaction, Proceedings of the Geotechnique-Colloquium at Darmstadt, Germany, on March 19th, 1998 (also published in Ground Engineering, September 1998), Technical paper 12-57E

- Robertson, P.K. and Cabal, K.L., 2007, Guide to Cone Penetration Testing for Geotechnical Engineering. Available at no cost at http://www.geologismiki.gr/

- Youd, T.L., Idriss, I.M., Andrus, R.D., Arango, I., Castro, G., Christian, J.T., Dobry, R., Finn, W.D.L., Harder, L.F., Hynes, M.E., Ishihara, K., Koester, J., Liao, S., Marcuson III, W.F., Martin, G.R., Mitchell, J.K., Moriwaki, Y., Power, M.S., Robertson, P.K., Seed, R., and Stokoe, K.H., Liquefaction Resistance of Soils: Summary Report from the 1996 NCEER and 1998 NCEER/NSF Workshop on Evaluation of Liquefaction Resistance of Soils, ASCE, Journal of Geotechnical & Geoenvironmental Engineering, Vol. 127, October, pp 817-833

- Zhang, G., Robertson. P.K., Brachman, R., 2002, Estimating Liquefaction Induced Ground Settlements from the CPT, Canadian Geotechnical Journal, 39: pp 1168-1180

- Zhang, G., Robertson. P.K., Brachman, R., 2004, Estimating Liquefaction Induced Lateral Displacements using the SPT and CPT, ASCE, Journal of Geotechnical & Geoenvironmental Engineering, Vol. 130, No. 8, 861-871

- Pradel, D., 1998, Procedure to Evaluate Earthquake-Induced Settlements in Dry Sandy Soils, ASCE, Journal of Geotechnical & Geoenvironmental Engineering, Vol. 124, No. 4, 364-368

- R. Kayen, R. E. S. Moss, E. M. Thompson, R. B. Seed, K. O. Cetin, A. Der Kiureghian, Y. Tanaka, K. Tokimatsu, 2013. Shear-Wave Velocity–Based Probabilistic and Deterministic Assessment of Seismic Soil Liquefaction Potential, Journal of Geotechnical and Geoenvironmental Engineering, Vol. 139, No. 3, March 1

GEOTECHNICAL AND ENVIRONMENTAL ENGINEERING CONSULTANTS, INC.

4071 E. La Palma Ave., Ste. B, Anaheim, Ca 92807 • (714) 632-3190 • Fax (714) 632-3191

Job No. 20-1057P-1
September 11, 2020

Mr. Joseph Karaki
Western State Eng. & Construction, Inc.
4887 E. La Palma Street, Ste # 707
Anaheim, Ca 92807

Subject: **Report of Percolation Testing for the Proposed Infiltration System,** 28771 Central Ave, Lake Elsinore, Riverside County, California

Reference:

1) WS Eng., Inc , 8/31/20, "Site Plan, Proposed Gas Station and C-Store , 28771 Central Ave (74 Hwy), Lake Elsinore California

Gentlemen,

In accordance with your request, we have performed a percolation testing with regard to the proposed infiltration system. The intent of this report is to evaluate the feasibility of the proposed system to be constructed at the subject site.

The percolation rates of the subsurface soils was found to be 1.77 inch per hour. The bottom of the proposed infiltration system is estimated to be within 5.0 feet below the existing natural grade. The percolation testing and the relevant calculations were performed using the method per the Riverside County Manuel.

SITE GEOLOGY & GROUNDWATER

The site is underlain by **older alluvium consists of fine sandy silt and silty sand to 50 feet, the maximum depth explored..** A more detailed description of the earth materials encountered is presented on the log borings in Appendix 'B'. **Groundwater was encountered at approximately 39 feet below the existing surface** during this investigation.

PERCOLATION INVESTIGATION

A preliminary set of percolation tests were performed in order to determine the suitability of the surface soils as an absorb medium for seepage beds. Two (2) soil borings of 8 inches diameters were drilled to satisfy this investigation. The borings were drilled to depths of 15.0 feet below existing surface within the subject site to conduct percolation tests. One additional boring was drilled to depth of 50.0 feet below existing surface to determine depth to groundwater or any impervious layer. The test hole was presaturated over night. After the presaturation was completed, water level measurements were started. From a fixed reference point, the drop in water levels were measured over a 30 minute periods for an hour. The drop that occurred during the final reading was used calculate the percolation rate.

TEST RESULTS

The gross percolation rates of the subsurface soils was found to be 1.77 inch per hour.

CONCLUSION

1. The gross percolation rates of the subsurface soils was found to be 1.77 inch per hour.
2. We drilled to a depth of 15 feet below grade, and no groundwater was encountered. Therefore, the impact of the proposed infiltration system to ground water is nil
3. The site has no potential for liquefaction, and therefore the infiltration system will have minimal effect in the event of an earthquake.
4. There will be a minim 10 feet horizontal and 1:1 (H:V) set back from the proposed building foundation and the expected zone of saturation of the infiltration system. The depth to groundwater is greater than 15 feet from the bottom of the infiltration pit. Therefore, no perched water conditions are expected, or adversely affect the structures.
5. The system will not be located near a retaining wall or basement wall.
6. The site is underlain with non expansive (sandy silt) soils, and there will be no effect on infiltration behavior.
7. Since the proposed or existing structures will have adequate setbacks, therefore the susceptibility of hydro-consolidation from the proposed infiltration system will be very remote.
8. No ground settlements due to soil saturation from the proposed infiltration system are anticipated.

The system will not result in ground settlement that could affect structures, either or adjacent to the site. The infiltration of the storm water will not result in soil saturation that could affect retaining/ basement structures, if any.

CLOSURE & LIMITATIONS

The findings, conclusions, and recommendations presented reflect our best estimate of subsurface conditions based on the data obtained from a limited subsurface exploration performed during the field study. The conclusions and recommendations are based on generally accepted geotechnical engineering principles and practices. No further warranties are implied nor made.

This opportunity to be of service is appreciated. If you have any further questions regarding this matter, please contact our office at your earliest convenience.

Respectfully submitted,

Geo Environ Eng. Consultants, Inc.

Jabed Masud, MSCE
Principal

Esmail Rastegari, P.E.
Principal

JM/ER/gm

Attachments:
Drawings
Boring Logs
Percolation Test Data

PERCOLATION TEST DATA SHEET

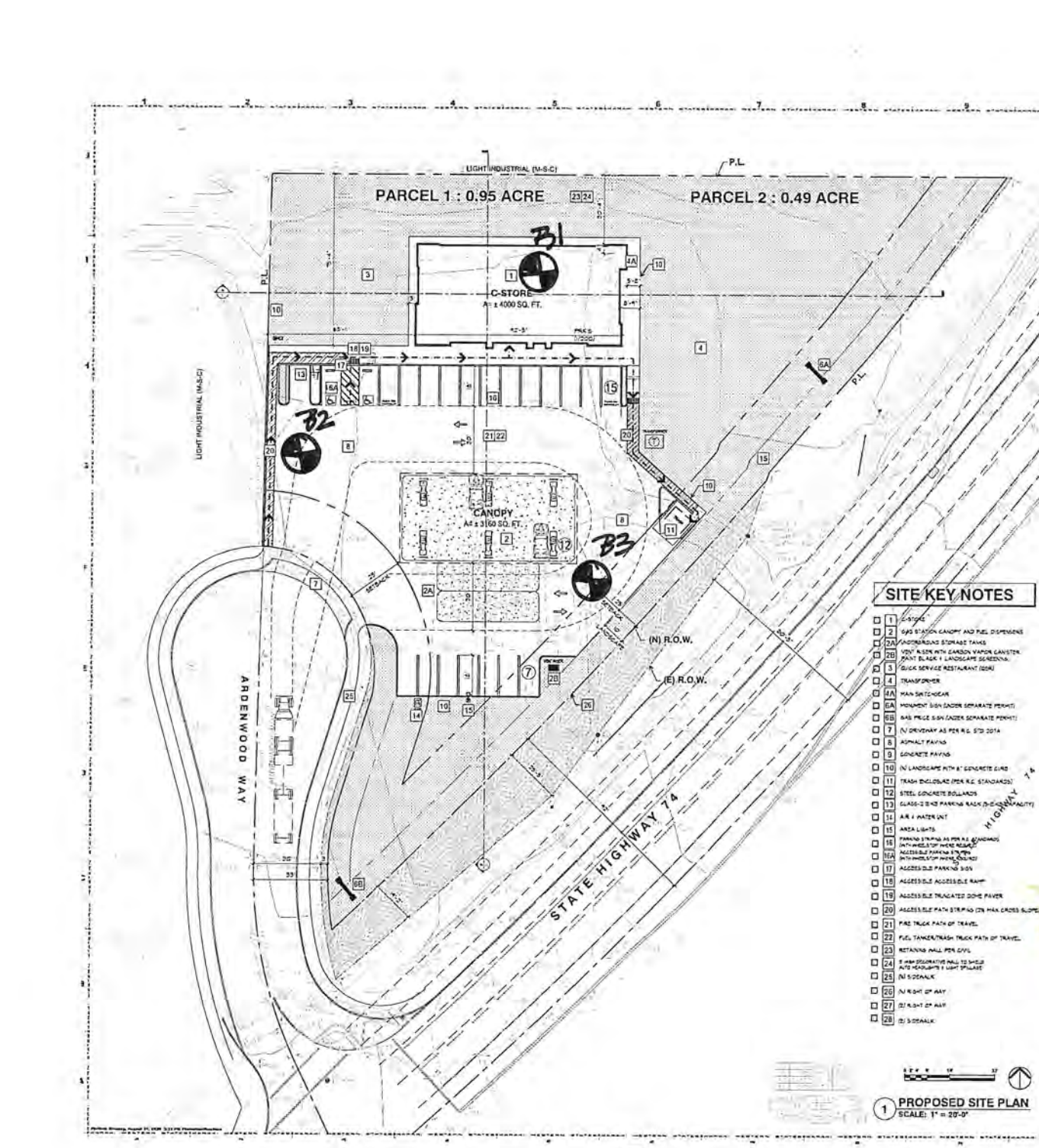
Date: *9/10/20* Project Name: *Service Station & Canopy*
Project No: *20-1057P* Tested By: *F.M*
Depth to Test Hole (Dt) : *15 ft.* USCS Soil Classification: *SC*
Test Hole ID: B-1
Test Hole Dimensions *(inches/ feet)*
Diameters: *8 inch.* Rectangular:

TEST HOLE NO: B-2

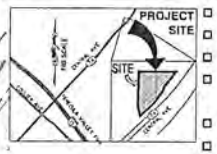
Trial No.	Start Time	Stop Time	/\t Time Interval (min)	Di Initial Depth to Water(inch)	Df Final Depth to water (inch)	/\D Change in Water Level (inch)	Greater than or Equal to 6'?*
1	0:00	12:25	25.00	12	23.1	11.1	Y
2	12:25	12:35	25.00	12	22.9	10.9	Y

Trial No.	Start Time	Stop Time	/\t Time Interval (min)	Di Initial Depth to Water(inch)	Df Final Depth to water (inch)	/\D Change in Water Level (inch)	Percolation Rate (min./in)
1	1:00	1:10	10	12.2	22.3	10.10	1.0
2	1:10	1:20	10	12	21.4	9.40	1.1
3	1:20	1:30	10	12	20.6	8.60	1.2
4	1:30	1:40	10	12.25	20.1	7.85	1.3
5	1:40	1:50	10	12	19.2	7.20	1.4
6	1:50	2:00	10	12.25	19.1	6.85	1.5

TEST HOLE NO: B-1	
Time Interval: t (min)	10
Initial Depth to Water (in), Di	12.25
Final Depth to Water (in), Df	19.1
Total Depth of Test Hole (in): Dt	60
Test Hole Radius, r (in)	4
Hi, initial ht of water @ selected time interval	
Hi = (Dt - Di)	47.8
Hf, final ht. Of water @ selected time interval	
Hf = (Dt- Df)	40.9
/\H (change in ht. over the time interval = (Hi- Hf)	6.85
H (avg) = (Hi + Hf)/ 2	44.3
It = Test Infiltration Rate	
^h*60*R	1644.0
^T(R+2*Havg)	926.5
Rate	**1.77**



VICINITY MAP



LEGEND

- NO. OF PARKING SPACES
- ACCESSIBLE PARKING
- PROPERTY LINE
- PROPOSED PARCEL SUBDIVISION
- ADA PATH OF TRAVEL
- CONCRETE PAVING AREA
- DECORATIVE PAVING AREA
- LANDSCAPED AREA
- DIRECTIONAL ARROW
- R.O.W. DEDICATION
- AREA LIGHTS
- WALL MOUNTED DECORATIVE AREA LIGHTS
- (E) FIRE HYDRANT
- (E) SEWER MANHOLE
- (E) SEWER CLEANOUT
- (E) POWER POLE
- WM (E) WATER METER
- (E) WATER POINT
- (E) SIGN

SCOPE OF WORK

PROPOSED DEVELOPMENT

PROPOSED GAS STATION CONSISTING OF:

CONVENIENCE STORE (WITH TYPE 20-ABG)

CANOPY WITH SIX MULTI-PRODUCT DISPENSERS

TWO UNDERGROUND STORAGE TANKS

PROJECT DATA

ZONING	LIGHT INDUSTRIAL
LAND USE	MANUFACTURING-SERVICE COMMERCIAL

AREA OF SITE (GROSS ACREAGE)

TOTAL AREA = ± 62,726 S.F. (1.44 acre)

BLDG SETBACKS	REQUIRED	PROVIDED
FRONT (SOUTH)	25'-0"	25'-0"
REAR (NORTH)	0'-0"	0'-0"
LEFT (WEST)	25'-0"	25'-0"
RIGHT (EAST)	0'-0"	0'-0"
LANDSCAPE AREA	10%	24,002 S.F. (51%)
FLOOR AREA RATIO	-	1.0
MAXIMUM HEIGHT	40'-0"	25'-0"
PARKING	34	51

SITE KEY NOTES

1. C-STORE
2. GAS STATION CANOPY AND FUEL DISPENSERS
2A. UNDERGROUND STORAGE TANKS
2B. VENT & SUPPLY WITH CARBON VAPOR CANISTER (PAINT BLACK) & LANDSCAPE SCREENING
3. QUICK SERVICE RESTAURANT (DRIVE-THRU)
4. TRANSFORMER
4A. MAN SWITCHGEAR
6A. MONUMENT SIGN (UNDER SEPARATE PERMIT)
6B. GAS PRICE SIGN (UNDER SEPARATE PERMIT)
7. (N) DRIVEWAY AS PER R.E. STD 201A
8. ASPHALT PAVING
9. CONCRETE PAVING
10. (N) LANDSCAPE WITH 6" CONCRETE CURB
11. TRASH ENCLOSURE (PER R.E. STANDARDS)
12. STEEL CONCRETE BOLLARDS
13. CLASS 2 BIKE PARKING RACK (5-BIKE CAPACITY)
14. AIR & WATER UNIT
15. AREA LIGHTS
16. PARKING STRIPING AS PER R.E. STANDARDS (WHITE PAINT WHERE NOTED)
16A. ACCESSIBLE PARKING STRIPING (WHITE PAINT WHERE NOTED)
17. ACCESSIBLE PARKING SIGN
18. ACCESSIBLE ACCESSIBLE RAMP
19. ACCESSIBLE TRUNCATED DOME PAVER
20. ACCESSIBLE PATH STRIPING (2% MAX CROSS SLOPE)
21. FIRE TRUCK PATH OF TRAVEL
22. FUEL TANKER/TRASH TRUCK PATH OF TRAVEL
23. RETAINING WALL PER CIVIL
24. 5' HIGH DECORATIVE WALL TO SHIELD AUTO HEADLIGHTS FROM LIGHT SPILLAGE
25. (N) 5' SIDEWALK
26. (N) RIGHT OF WAY
27. (E) RIGHT OF WAY
28. (E) 5' SIDEWALK

BUILDING DATA

C-STORE	
AREAS	± 4,000 SF
OCCUPANCY	M
TYPE OF CONST	V-B
NUMBER OF STORY	1
BLDG HEIGHT	± 25'-0"
SPRINKLERS	NONE
CANOPY	
AREA	± 3,160 SF
OCCUPANCY	M
TYPE OF CONST	II-B
NUMBER OF STORY	1
BLDG HEIGHT	20'-0"
SPRINKLERS	NONE

TOTAL BUILDINGS AREA (GFA) ± 9,160 SF
± 0.15 ACRE (NET ACREAGE)

ASSESSOR'S PARCEL NUMBER

347-130-028 & 347-130-029

LEGAL DESCRIPTION

FIRST AMERICAN TITLE COMPANY
ORDER NO.: 0625-3758488
DATED: SEPTEMBER 11, 2018

LEGAL DESCRIPTION:

REAL PROPERTY IN THE UNINCORPORATED AREA OF THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:

PARCEL 3 OF PARCEL MAP 9985, AS SHOWN BY MAP ON FILE IN BOOK 66, PAGE 72 OF PARCEL MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.

EXCEPTING THEREFROM A PORTION THAT GRANTS TO RIVERSIDE COUNTY TRANSPORTATION COMMISSION, A POLITICAL SUBDIVISION AS DESCRIBED IN DEED RECORDED OCTOBER 02, 2001 AS INSTRUMENT NO. 2001-418038 OF OFFICIAL RECORDS.

APN: 347-130-029

LEGAL DESCRIPTION:

ORDER NO.: 0625-3758263
DATED: SEPTEMBER 12, 2018

REAL PROPERTY IN THE UNINCORPORATED AREA OF THE COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:

PARCELS 4 OF PARCEL MAP 9985, AS SHOWN BY MAP ON FILE IN BOOK 66, PAGE 72, OF PARCEL MAPS, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.

EXCEPTING THEREFROM THAT PORTION CONVEYED TO THE RIVERSIDE COUNTY TRANSPORTATION COMMISSION, BY GRANT DEED RECORDED OCTOBER 09, 2001 AS INSTRUMENT NO. 01-488317, OF OFFICIAL RECORDS OF SAID COUNTY.

ASSESSOR'S PARCEL NUMBER: 347-130-028

TOTAL AREA 62,757.84 S.F. (1.441 ACRES)

PARKING COMPUTATION

PARKING STANDARDS

TYPE	SIZE
REGULAR	9'-0" X 18'-0"
COMPACT	8'-6" X 16'-0" (UP TO 30% OF TOTAL)
HANDICAP	17'-0" X 18'-0" (VAN ACCESSIBLE)

PARKING REQUIREMENTS

USE	FORMULA	REQUIRED	PROVIDED
C-STORE	(1/200 S.F.)	20	22
CANOPY		-	12
TOTAL PARKING		20	34

HANDICAP PARKING REQUIREMENTS

FORMULA	REQUIRED	PROVIDED
26-50 PARKING SPACES	(2)	(2)
CLEAN AIR/ELECTRIC VEHICLE PARKING FORMULA		
SECTION 11B.045 R.C. MN CODE (WITH 25-49 PARKING = 2 EV CHARGING SPACES	(2)	(2)

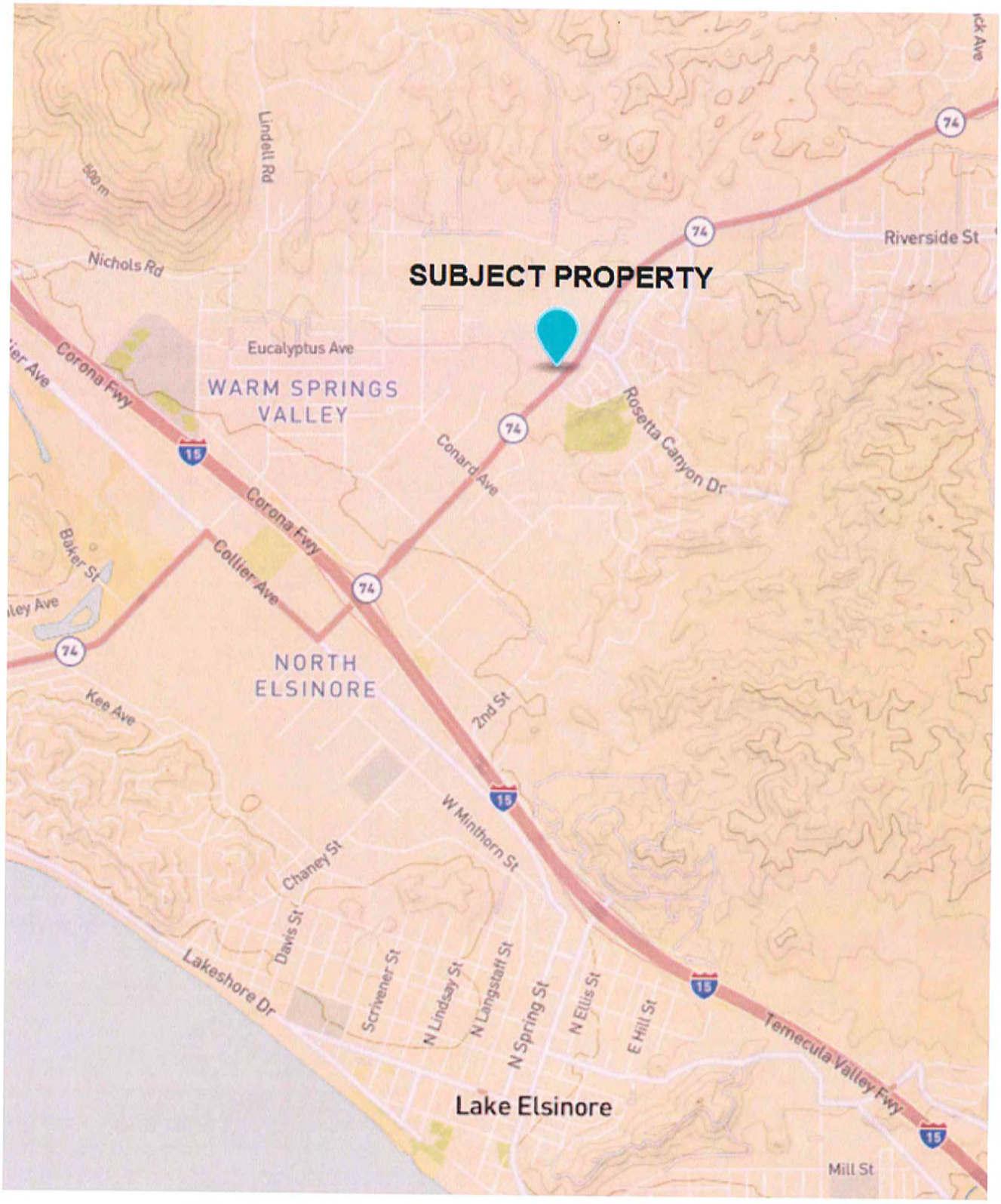
1 PROPOSED SITE PLAN
SCALE: 1" = 20'-0"

SOIL BORING

GEO ENVIRO
GEOTECHNICAL & ENVIRONMENTAL ENG. CONSULTA
4071 E. La Palma Ave., S
Anaheim, CA 92807

KAR
WESTERN STATI
A DESIGN-BU
4007 E. LA P
TEL: (714) 630-
CONSULTANT

SUBMITTAL
NO. DESCRIPTIO
1
2
3
4
REVISIONS
NO. DESCRIPTIO
OWNER NAME
DAHER O
PROJECT NAM
GAS STA
CONVENIEN
NOTE TO CONT
CONFIDENTIAL
DESIGNED BY:
DRAWN BY:
CHECKED BY:
PLOT DATE:
SCALE:
SHEET TITLE
PROPOS
SITE PL
SHEET NUMBER
AS-1


SUBJECT PROPERTY
Lindell Rd
500 m
Nichols Rd
Riverside St
74
Eucalyptus Ave
WARM SPRINGS
VALLEY
Corona Fwy
15
Conard Ave
Rosetta Canyon Dr
Collier Ave
Baker St
NORTH
ELSINORE
Kee Ave
2nd St
W Minthorn St
Chaney St
Davis St
Lakeshore Dr
Scrivener St
N Lindsay St
N Langstaff St
N Spring St
N Ellis St
E Hill St
Temecula Valley Fwy
Lake Elsinore
Mill St

Appendix 4: Historical Site Conditions

Phase I Environmental Site Assessment or Other Information on Past Site Use

Appendix 5: LID Infeasibility

LID Technical Infeasibility Analysis

Appendix 6: BMP Design Details

BMP Sizing, Design Details and other Supporting Documentation

Santa Ana Watershed

V_{BMP} and Q_{BMP} worksheets

These worksheets are to be used to determine the required

Design Capture Volume (V_{BMP})
or the
Design Flow Rate (Q_{BMP})

for BMPs in the Santa Ana Watershed

To verify which watershed your project is located within, visit

www.rcflood.org/npdes

and use the 'Locate my Watershed' tool

If your project is not located in the Santa Ana Watershed,

Do not use these worksheets! Instead visit

www.rcflood.org/npdes/developers.aspx

To access worksheets applicable to your watershed

Use the tabs across the bottom
to access the worksheets for the Santa Ana Watershed

Santa Ana Watershed - BMP Design Volume, V_{BMP}

(Rev. 10-2011)

Legend: Required Entries / Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name	Western States Engineering, Inc.	Date	04/28/2021
Designed by	JR	Case No	TBD
Company Project Number/Name	28771 Central Avenue Lake Elsinore, CA		

BMP Identification

BMP NAME / ID: BIO-A

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

85th Percentile, 24-hour Rainfall Depth, from the Isohyetal Map in Handbook Appendix E

D_{85}= 0.65 inches

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Design Storm Depth (in)*	*Design Capture Volume, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
A-1	*2519.08*	*Roofs*	*1*	*0.89*	*2247*			
A-2	*877.78*	*Concrete or Asphalt*	*1*	*0.89*	*783*			
A-3	*2083.87*	*Ornamental Landscaping*	*0.1*	*0.11*	*230.2*			
	5480.73	**Total**			**3260.2**	**0.65**	**176.6**	**1538**

Notes: