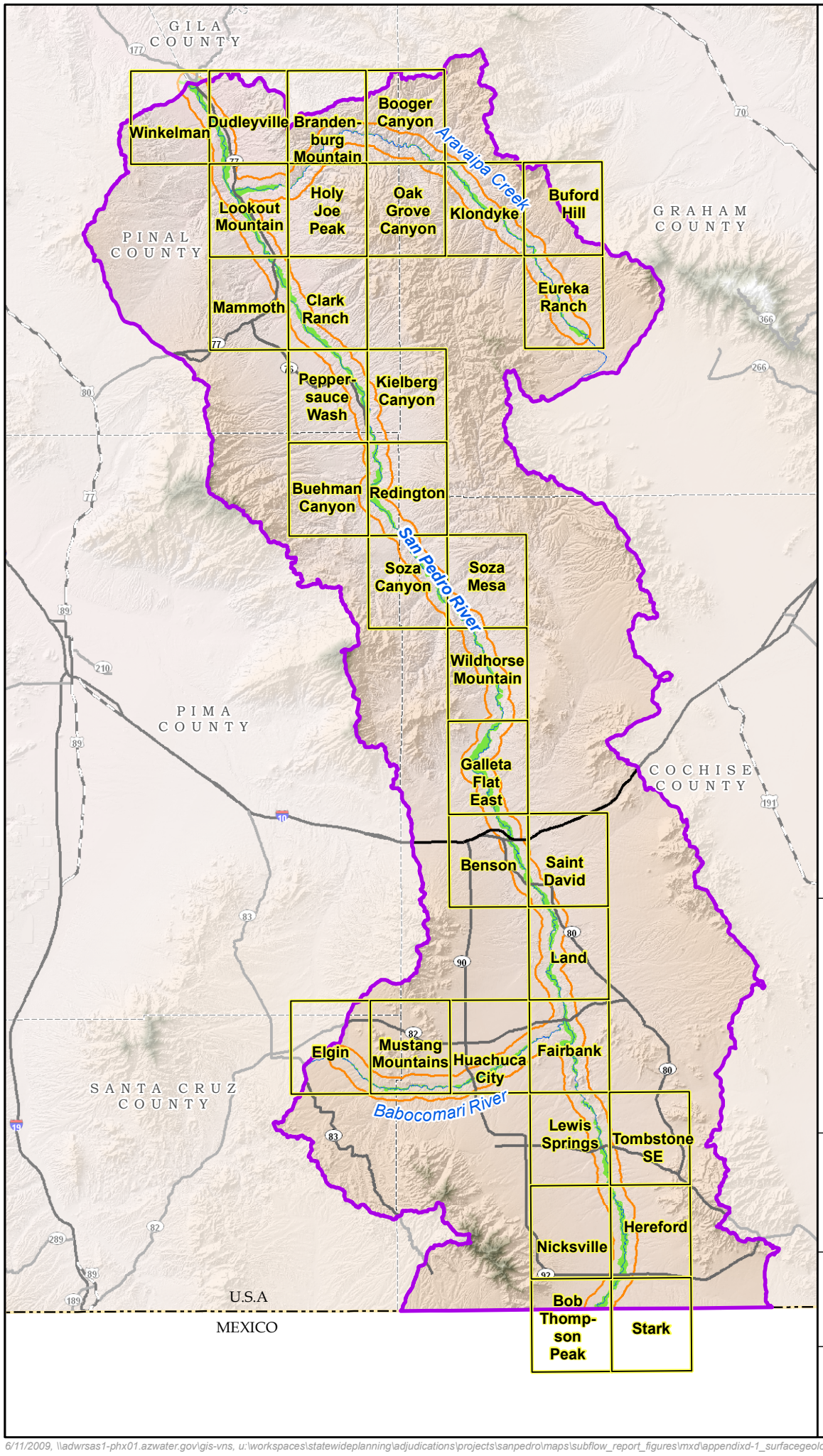
APPENDIX D:
ADWR GEOLOGY MAPS

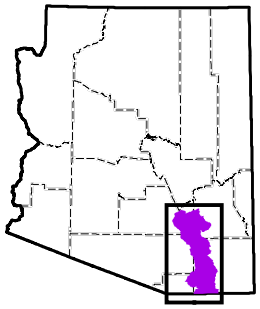
D-1
Generalized Surficial Geology along Streams

Index Map



Legend

- USGS Topo Quad Boundary
- San Pedro River Watershed
- Floodplain Holocene Alluvium (FHA)
- Area Mapped by AZGS (2009)
- Major Stream
- Interstate Highway
- U.S. Route
- State Highway
- County
- State Boundary
- International Boundary



N

ARIZONA DEPARTMENT OF WATER RESOURCES ©

0 5 10 15 Miles

Appendix D-1
Index of Generalized Surficial Geology Maps

Subflow Zone Delineation Report for the San Pedro River Watershed

Quad Maps

Galleta Flat East

Chamiso

Benson

Hosp

Benson

COCHISE COUNTY

Saint David

San Pedro River

Radio Tower

Beacon Well

Cline Well

Sabin Well

Corral

Land

0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

Area Mapped by AZGS (2009)

Generalized Geologic Units

- Floodplain Holocene Alluvium (FHA)
- Tributary Holocene Alluvium (THA)
- Disturbed (unit not determined)
- Basin Fill
- Bedrock

Contact Between FHA and Other Mapped Units

- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)

Base Map: USGS 1:24,000 Topo

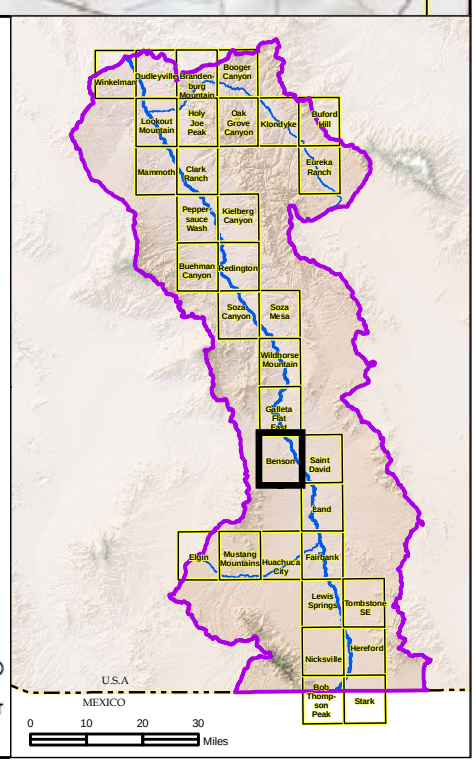
Appendix D-1
Generalized Surficial Geology Along Streams

Benson Quad (Map 1 of 33)

Subflow Zone Delineation Report for the San Pedro River Watershed

- Major Stream
- San Pedro River Watershed
- USGS Topo Quad Boundary
- County
- International Boundary

N



Nicksville

Hereford

COCHISE COUNTY

Bob Thompson Péak

Canyon

San Pedro River

U.S.A

MEXICO

Stark

Bob Thompson Peak

0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

Area Mapped by AZGS (2009)

Generalized Geologic Units

- Floodplain Holocene Alluvium (FHA)
- Tributary Holocene Alluvium (THA)
- Disturbed (unit not determined)
- Basin Fill
- Bedrock

Contact Between FHA and Other Mapped Units

- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)

Base Map: USGS 1:24,000 Topo

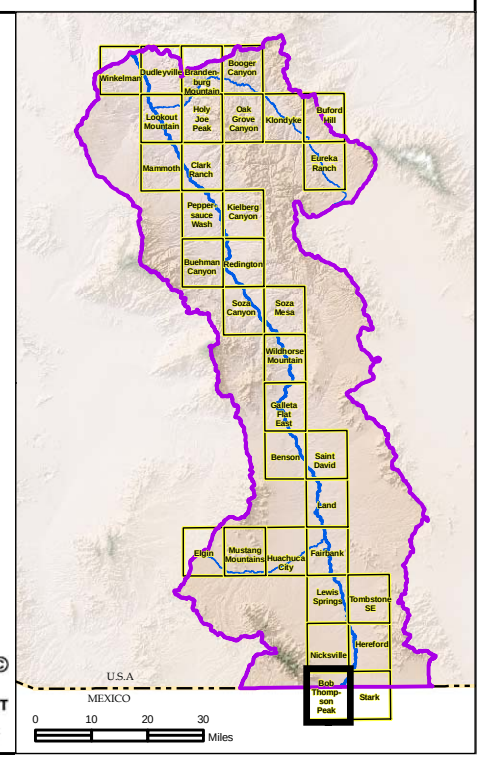
Appendix D-1
Generalized Surficial Geology Along Streams

Bob Thompson Peak Quad (Map 2 of 33)

Subflow Zone Delineation Report for the San Pedro River Watershed

- Major Stream
- San Pedro River Watershed
- USGS Topo Quad Boundary
- County
- International Boundary

N



Appendix D-1
Generalized Surficial Geology Along Streams

Booger Canyon Quad (Map 3 of 33)

Subflow Zone Delineation
Report for the San Pedro
River Watershed

Booger Canyon
Brandenburg Mountain
Holy Joe Peak
Oak Grove Canyon
Klondyke
Aravaipa Creek
PINAL COUNTY
GRAHAM COUNTY

0 0.5 1 1.5 2 Kilometers
0 0.5 1 1.5 2 Miles

Legend

- Area Mapped by AZGS (2009)

Generalized Geologic Units

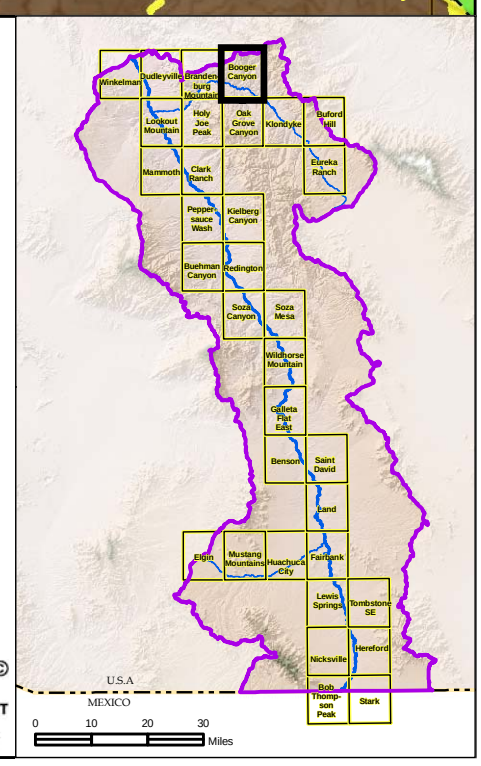
- Floodplain Holocene Alluvium (FHA)
- Tributary Holocene Alluvium (THA)
- Disturbed (unit not determined)
- Basin Fill
- Bedrock

Contact Between FHA and Other Mapped Units

- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)

- Major Stream
- San Pedro River Watershed
- USGS Topo Quad Boundary
- County
- International Boundary

N



Base Map: USGS 1:24,000 Topo

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Appendix D-1
Generalized Surficial Geology Along Streams

Brandenburg Mountain Quad (Map 4 of 33)

Subflow Zone Delineation
Report for the San Pedro
River Watershed

0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

Area Mapped by AZGS (2009)

Generalized Geologic Units

- Floodplain Holocene Alluvium (FHA)
- Tributary Holocene Alluvium (THA)
- Disturbed (unit not determined)
- Basin Fill
- Bedrock

Contact Between FHA and Other Mapped Units

- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)

- Major Stream
- San Pedro River Watershed
- USGS Topo Quad Boundary
- County
- International Boundary

N

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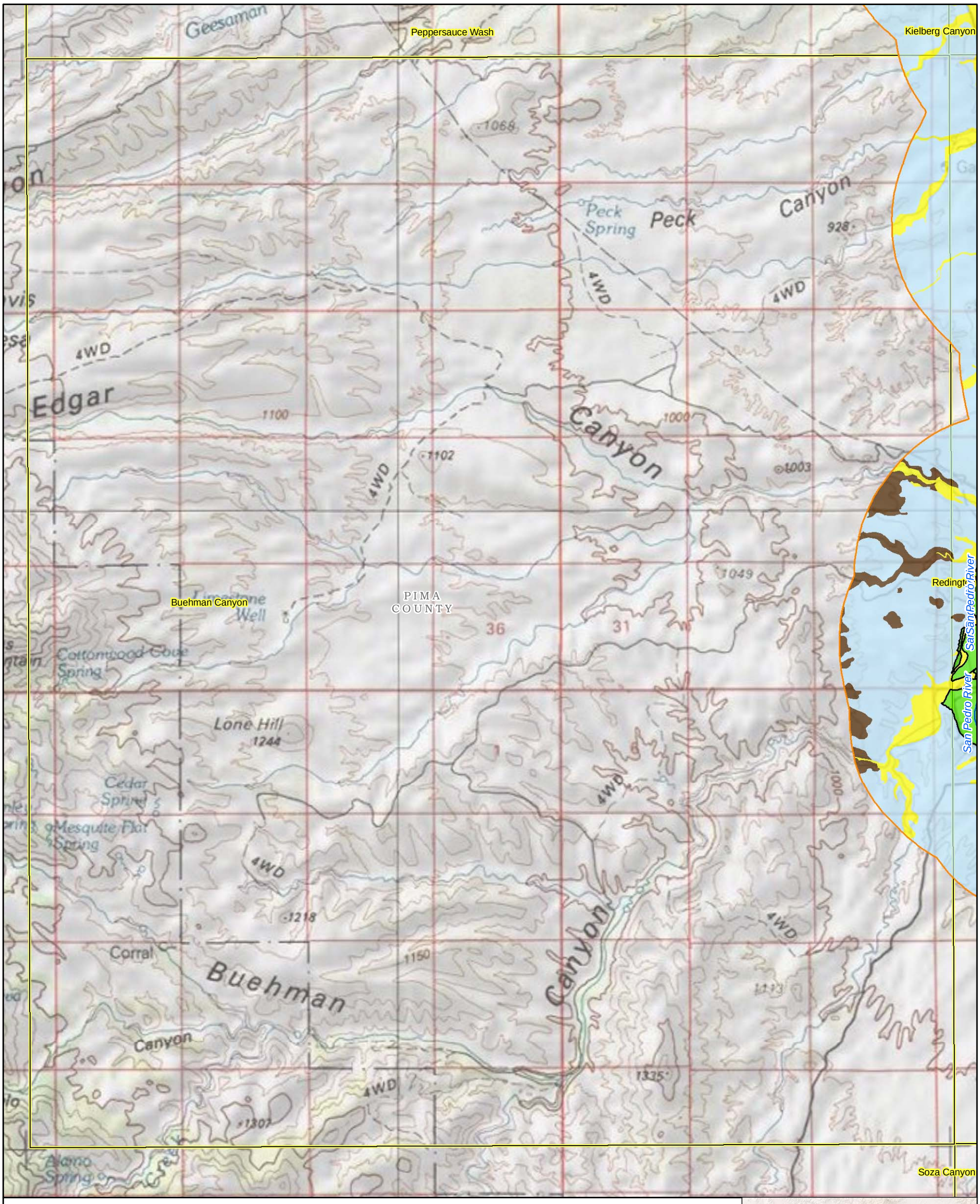
Base Map: USGS 1:24,000 Topo



Legend

Area Mapped by AZGS (2009)

Generalized Geologic Units

- Floodplain Holocene Alluvium (FHA)
- Tributary Holocene Alluvium (THA)
- Disturbed (unit not determined)
- Basin Fill
- Bedrock

Contact Between FHA and Other Mapped Units

- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)

Base Map: USGS 1:24,000 Topo

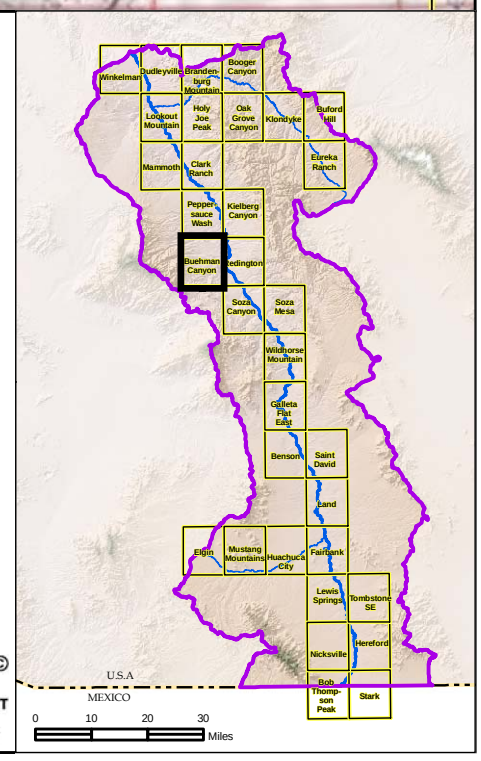
Appendix D-1
Generalized Surficial Geology Along Streams

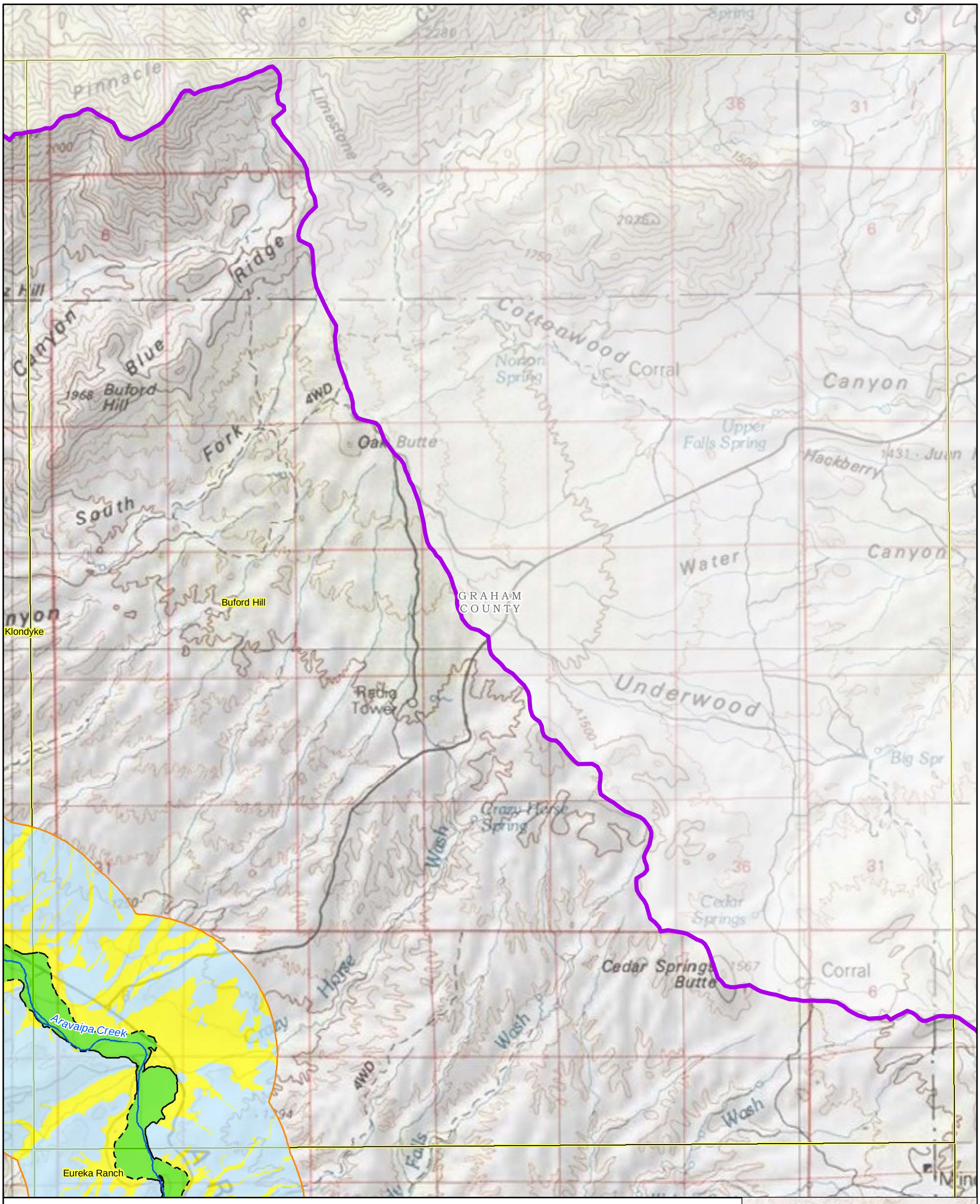
Buehman Canyon Quad (Map 5 of 33)

Subflow Zone Delineation Report for the San Pedro River Watershed

- Major Stream
- San Pedro River Watershed
- USGS Topo Quad Boundary
- County
- International Boundary

N





Legend

- Area Mapped by AZGS (2009)

Generalized Geologic Units

- Floodplain Holocene Alluvium (FHA)
- Tributary Holocene Alluvium (THA)
- Disturbed (unit not determined)
- Basin Fill
- Bedrock

Contact Between FHA and Other Mapped Units

- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)

Base Map: USGS 1:24,000 Topo

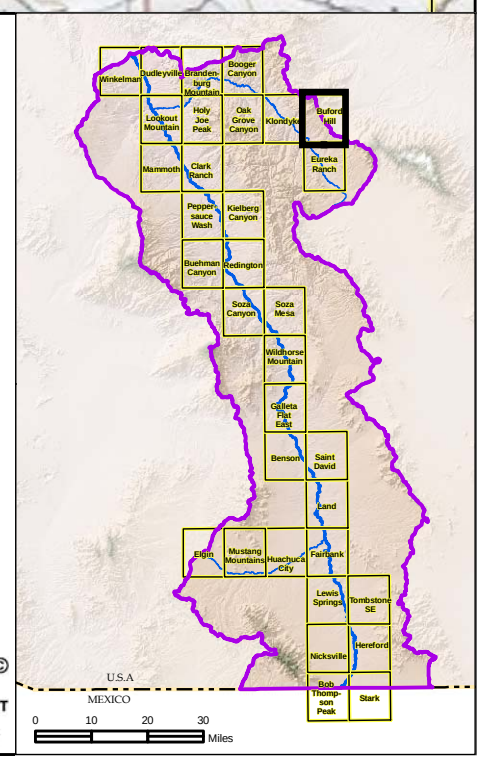
Appendix D-1
Generalized Surficial Geology Along Streams

Buford Hill Quad (Map 6 of 33)

Subflow Zone Delineation Report for the San Pedro River Watershed

- Major Stream
- San Pedro River Watershed
- USGS Topo Quad Boundary
- County
- International Boundary

N



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Lookout Mountain
Holy Joe Peak
Oak Grove Canyon
Peppersauce Wash
Kielberg Canyon
PINAL COUNTY
Clark Ranch
San Pedro River

0 0.5 1 1.5 2 Kilometers
0 0.5 1 1.5 2 Miles

Legend

Area Mapped by AZGS (2009)

Generalized Geologic Units

- Floodplain Holocene Alluvium (FHA)
- Tributary Holocene Alluvium (THA)
- Disturbed (unit not determined)
- Basin Fill
- Bedrock

Contact Between FHA and Other Mapped Units

- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)

Base Map: USGS 1:24,000 Topo

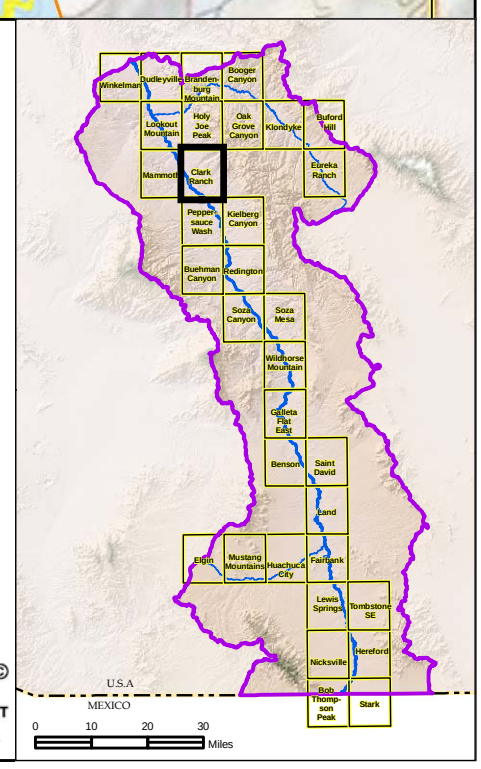
Appendix D-1
Generalized Surficial Geology Along Streams

Clark Ranch Quad (Map 7 of 33)

Subflow Zone Delineation Report for the San Pedro River Watershed

- Major Stream
- San Pedro River Watershed
- USGS Topo Quad Boundary
- County
- International Boundary

N



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Saddle Mtn
Piper Spring
Wash
Kelleys Camp
Eskimazene Ranch
Dudleyville
Brandenburg Mountain
Winkelman
PINAL COUNTY
San Pedro River
Lookout Mountain
Holy Joe Peak

0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

Area Mapped by AZGS (2009)

Generalized Geologic Units

- Floodplain Holocene Alluvium (FHA)
- Tributary Holocene Alluvium (THA)
- Disturbed (unit not determined)
- Basin Fill
- Bedrock

Contact Between FHA and Other Mapped Units

- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)

Base Map: USGS 1:24,000 Topo

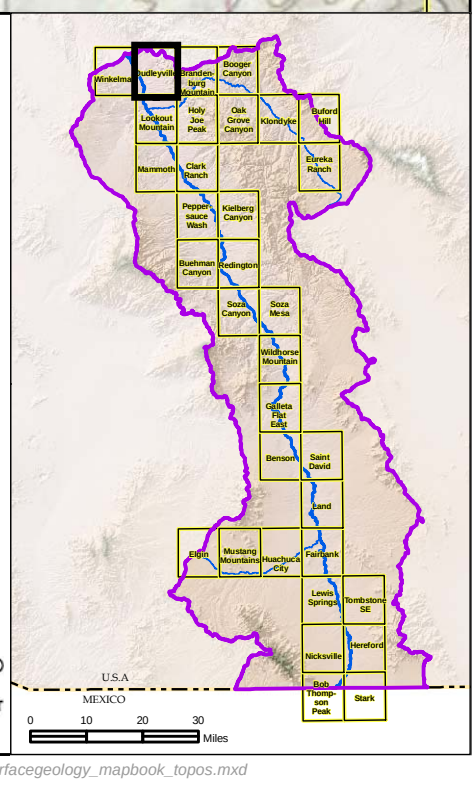
Appendix D-1
Generalized Surficial Geology Along Streams

Dudleyville Quad (Map 8 of 33)

Subflow Zone Delineation Report for the San Pedro River Watershed

- Major Stream
- San Pedro River Watershed
- USGS Topo Quad Boundary
- County
- International Boundary

N



PIMA COUNTY

SANTA CRUZ COUNTY

Elgin

Mustang Mountains

Babocomari River

Canyon

Canyon

0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

Area Mapped by AZGS (2009)

Generalized Geologic Units

- Floodplain Holocene Alluvium (FHA)
- Tributary Holocene Alluvium (THA)
- Disturbed (unit not determined)
- Basin Fill
- Bedrock

Contact Between FHA and Other Mapped Units

- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)

Base Map: USGS 1:24,000 Topo

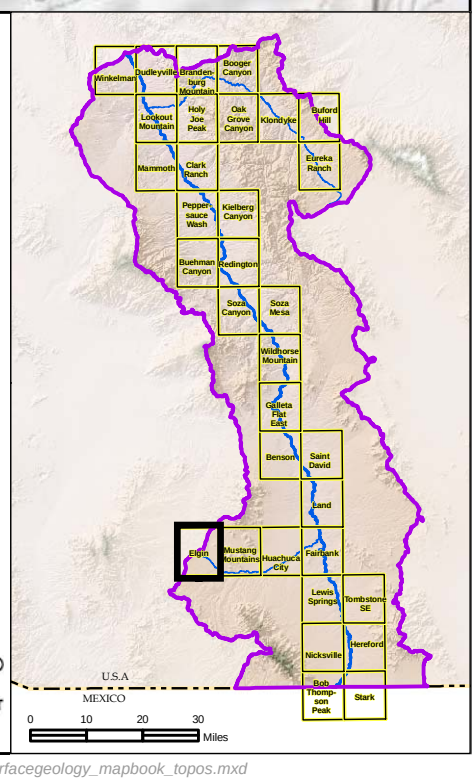
Appendix D-1
Generalized Surficial Geology Along Streams

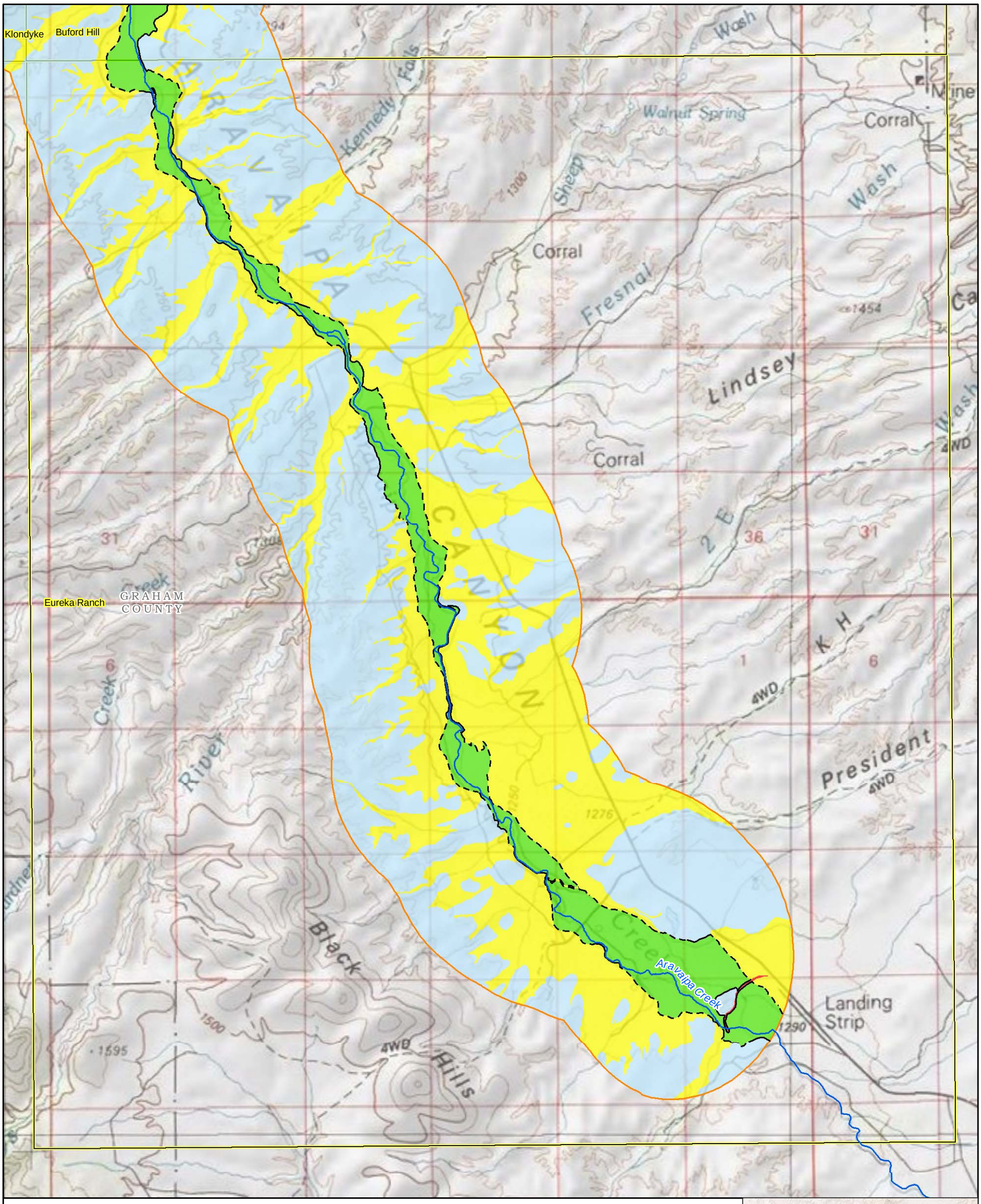
Elgin Quad (Map 9 of 33)

Subflow Zone Delineation Report for the San Pedro River Watershed

- Major Stream
- San Pedro River Watershed
- USGS Topo Quad Boundary
- County
- International Boundary

N





0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

Area Mapped by AZGS (2009)

Generalized Geologic Units

- Floodplain Holocene Alluvium (FHA)
- Tributary Holocene Alluvium (THA)
- Disturbed (unit not determined)
- Basin Fill
- Bedrock

Contact Between FHA and Other Mapped Units

- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)

Base Map: USGS 1:24,000 Topo

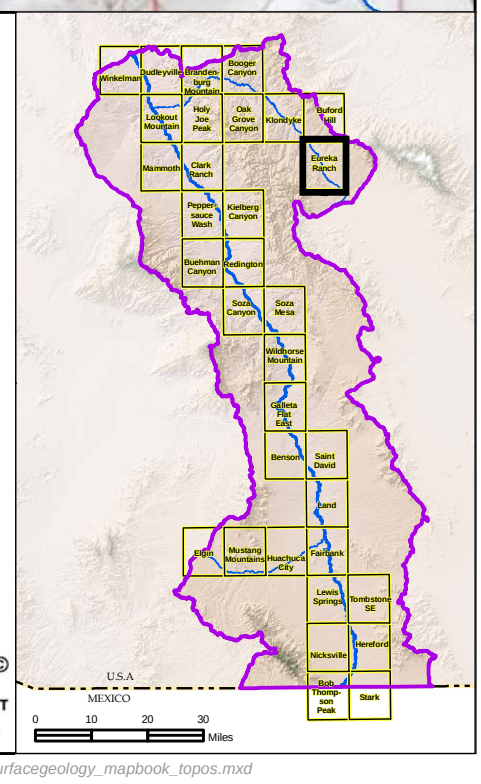
Appendix D-1
Generalized Surficial Geology Along Streams

Eureka Ranch Quad (Map 10 of 33)

Subflow Zone Delineation
Report for the San Pedro
River Watershed

- Major Stream
- San Pedro River Watershed
- USGS Topo Quad Boundary
- County
- International Boundary

N



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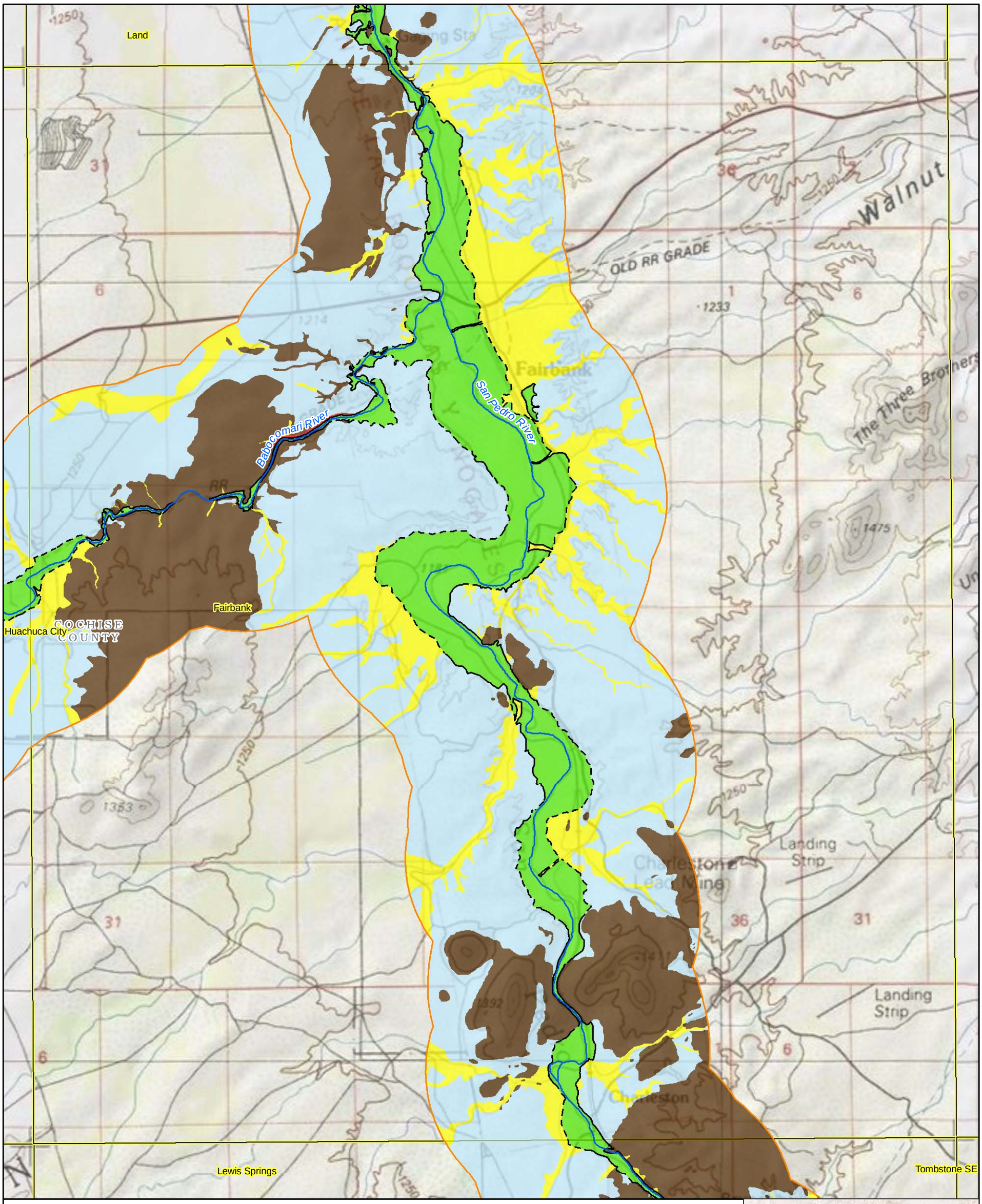


0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

Area Mapped by AZGS (2009)

Generalized Geologic Units

- Floodplain Holocene Alluvium (FHA)
- Tributary Holocene Alluvium (THA)
- Disturbed (unit not determined)
- Basin Fill
- Bedrock

Contact Between FHA and Other Mapped Units

- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)

Base Map: USGS 1:24,000 Topo

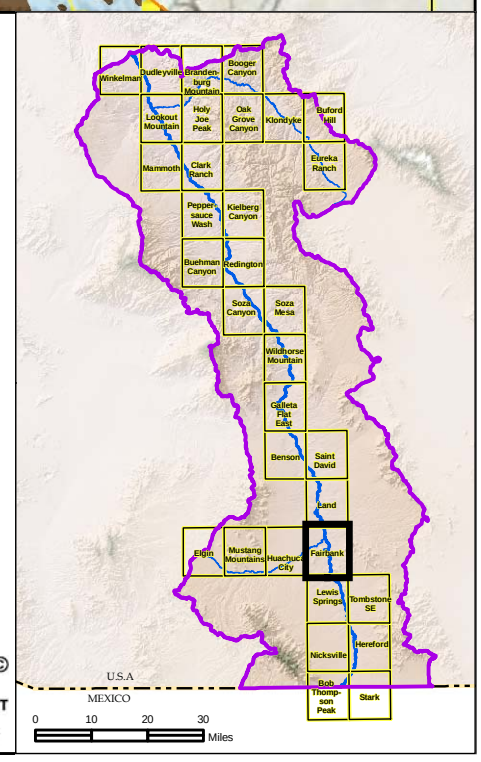
Appendix D-1
Generalized Surficial Geology Along Streams

Fairbank Quad (Map 11 of 33)

Subflow Zone Delineation Report for the San Pedro River Watershed

- Major Stream
- San Pedro River Watershed
- USGS Topo Quad Boundary
- County
- International Boundary

N



Wildhorse Mountain

Galleta Flat East

Benson

Saint David

San Pedro River

COCHISE COUNTY

0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

Area Mapped by AZGS (2009)

Generalized Geologic Units

- Floodplain Holocene Alluvium (FHA)
- Tributary Holocene Alluvium (THA)
- Disturbed (unit not determined)
- Basin Fill
- Bedrock

Contact Between FHA and Other Mapped Units

- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)

Base Map: USGS 1:24,000 Topo

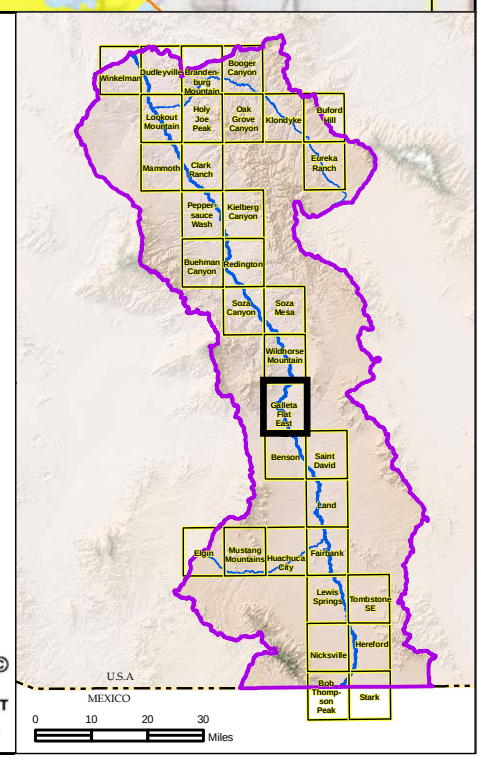
Appendix D-1
Generalized Surficial Geology Along Streams

Galleta Flat East Quad (Map 12 of 33)

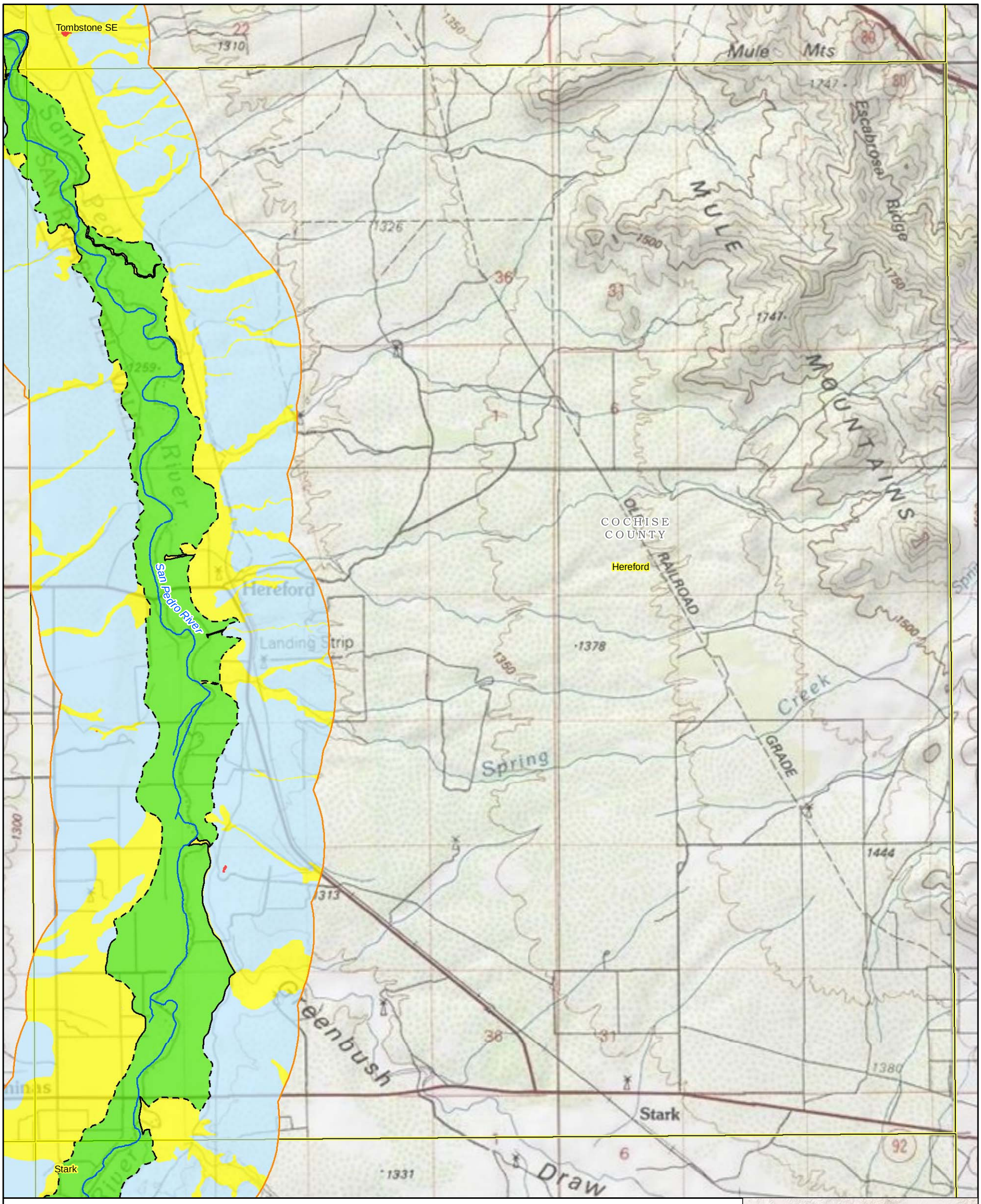
Subflow Zone Delineation Report for the San Pedro River Watershed

- Major Stream
- San Pedro River Watershed
- USGS Topo Quad Boundary
- County
- International Boundary

N



ARIZONA DEPARTMENT OF WATER RESOURCES ©



0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

Area Mapped by AZGS (2009)

Generalized Geologic Units

- Floodplain Holocene Alluvium (FHA)
- Tributary Holocene Alluvium (THA)
- Disturbed (unit not determined)
- Basin Fill
- Bedrock

Contact Between FHA and Other Mapped Units

- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)

Base Map: USGS 1:24,000 Topo

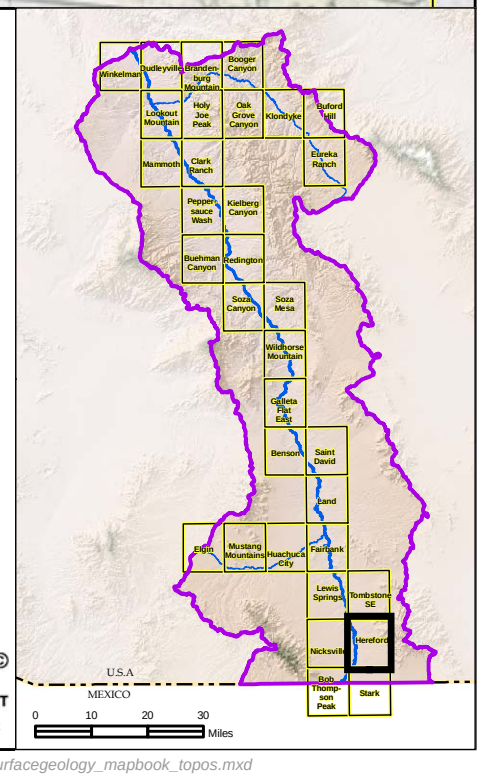
Appendix D-1
Generalized Surficial Geology Along Streams

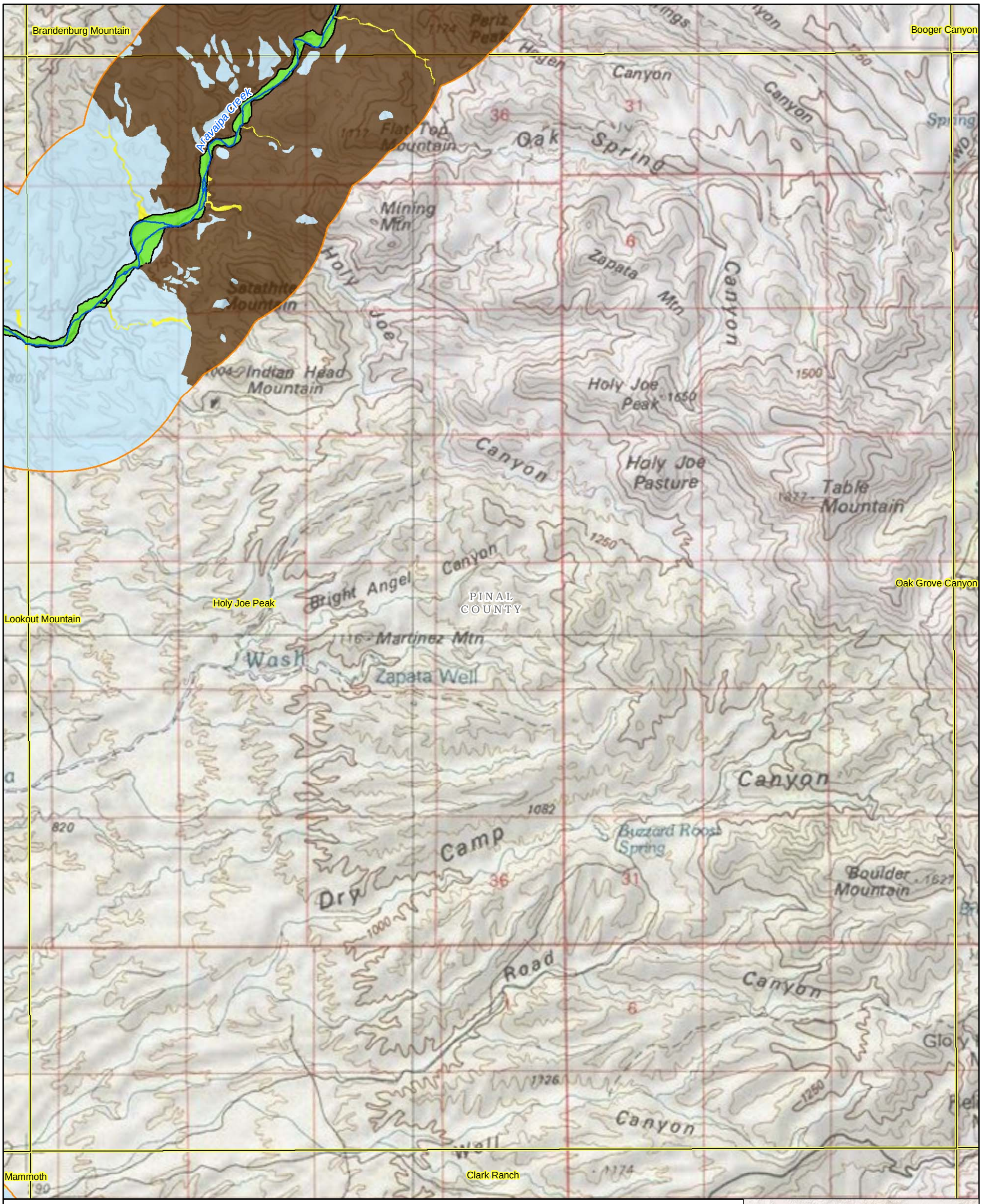
Hereford Quad (Map 13 of 33)

Subflow Zone Delineation Report for the San Pedro River Watershed

- Major Stream
- San Pedro River Watershed
- USGS Topo Quad Boundary
- County
- International Boundary

N





0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

Area Mapped by AZGS (2009)

Generalized Geologic Units

- Floodplain Holocene Alluvium (FHA)
- Tributary Holocene Alluvium (THA)
- Disturbed (unit not determined)
- Basin Fill
- Bedrock

Contact Between FHA and Other Mapped Units

- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)

Base Map: USGS 1:24,000 Topo

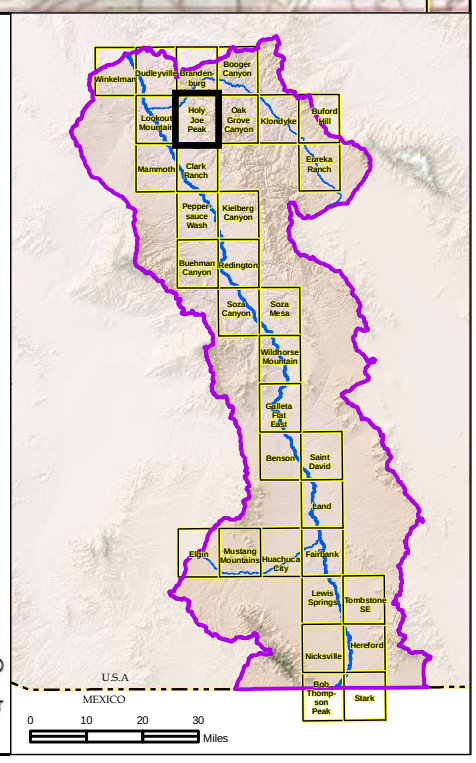
Appendix D-1
Generalized Surficial Geology Along Streams

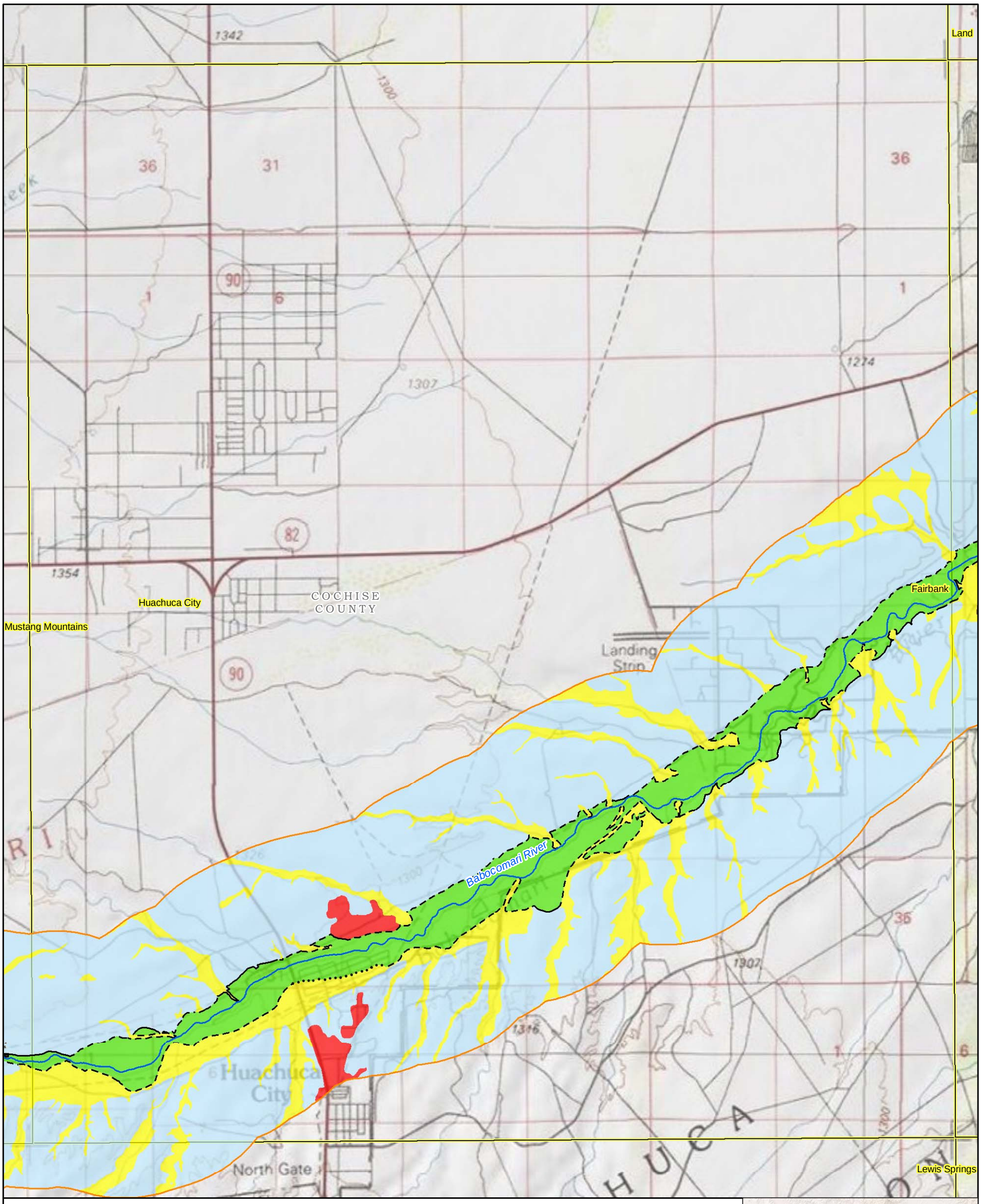
Holy Joe Peak Quad (Map 14 of 33)

Subflow Zone Delineation
Report for the San Pedro
River Watershed

- Major Stream
- San Pedro River Watershed
- USGS Topo Quad Boundary
- County
- International Boundary

N





0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

Area Mapped by AZGS (2009)

Generalized Geologic Units

- Floodplain Holocene Alluvium (FHA)
- Tributary Holocene Alluvium (THA)
- Disturbed (unit not determined)
- Basin Fill
- Bedrock

Contact Between FHA and Other Mapped Units

- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)

Base Map: USGS 1:24,000 Topo

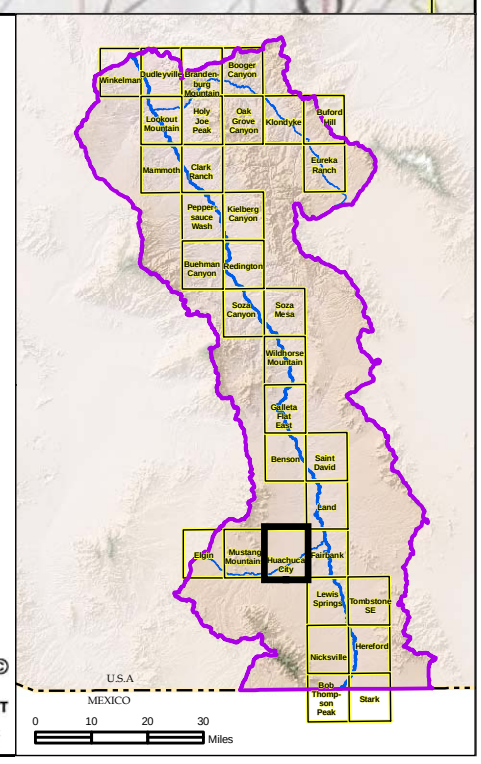
Appendix D-1
Generalized Surficial Geology Along Streams

Huachuca City Quad (Map 15 of 33)

Subflow Zone Delineation
Report for the San Pedro
River Watershed

- Major Stream
- San Pedro River Watershed
- USGS Topo Quad Boundary
- County
- International Boundary

N



Clark Ranch

Kielberg Canyon

Peppersauce Wash

San Pedro River

Redington

0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

Area Mapped by AZGS (2009)

Generalized Geologic Units

- Floodplain Holocene Alluvium (FHA)
- Tributary Holocene Alluvium (THA)
- Disturbed (unit not determined)
- Basin Fill
- Bedrock

Contact Between FHA and Other Mapped Units

- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)

Base Map: USGS 1:24,000 Topo

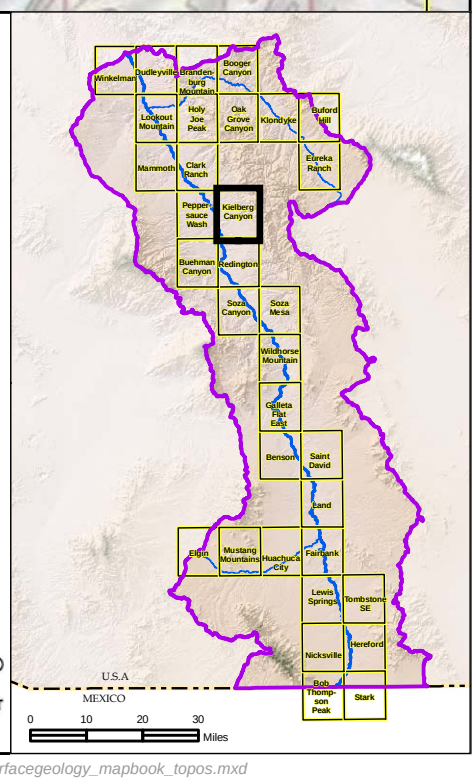
Appendix D-1
Generalized Surficial Geology Along Streams

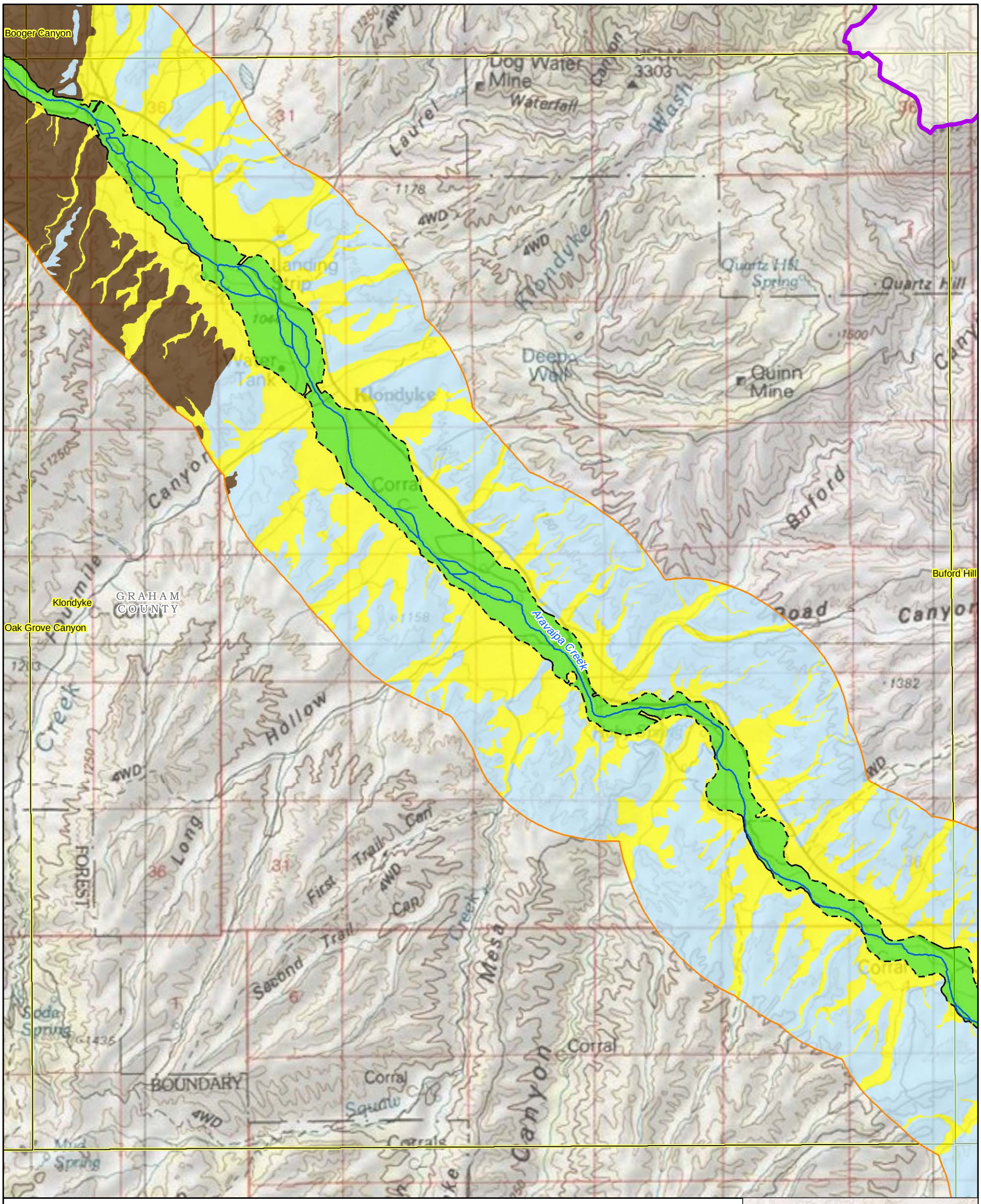
Kielberg Canyon Quad (Map 16 of 33)

Subflow Zone Delineation
Report for the San Pedro
River Watershed

- Major Stream
- San Pedro River Watershed
- USGS Topo Quad Boundary
- County
- International Boundary

N





Legend

- Area Mapped by AZGS (2009)

Generalized Geologic Units

- Floodplain Holocene Alluvium (FHA)
- Tributary Holocene Alluvium (THA)
- Disturbed (unit not determined)
- Basin Fill
- Bedrock

Contact Between FHA and Other Mapped Units

- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)

Base Map: USGS 1:24,000 Topo

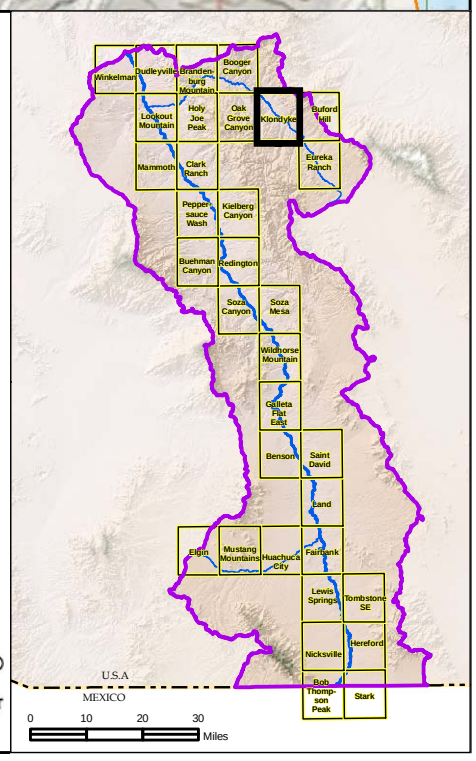
Appendix D-1
Generalized Surficial Geology Along Streams

Klondyke Quad (Map 17 of 33)

Subflow Zone Delineation Report for the San Pedro River Watershed

- Major Stream
- San Pedro River Watershed
- USGS Topo Quad Boundary
- County
- International Boundary

N



Appendix D-1
Generalized Surficial Geology Along Streams

Land Quad (Map 18 of 33)

Subflow Zone Delineation Report for the San Pedro River Watershed

0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

- Area Mapped by AZGS (2009)

Generalized Geologic Units

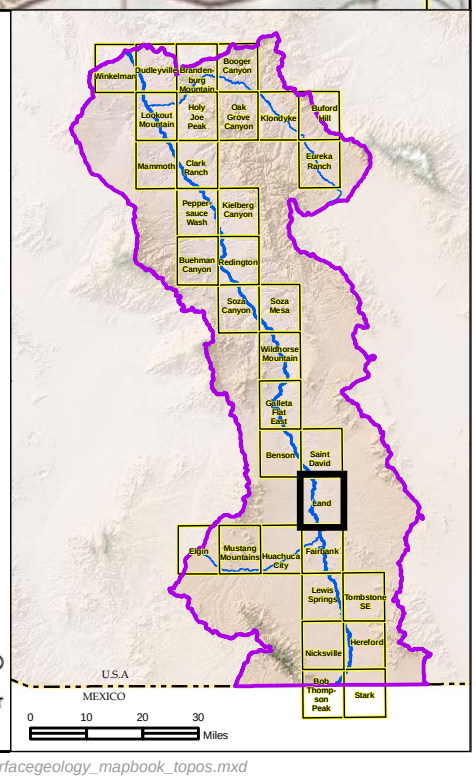
- Floodplain Holocene Alluvium (FHA)
- Tributary Holocene Alluvium (THA)
- Disturbed (unit not determined)
- Basin Fill
- Bedrock

Contact Between FHA and Other Mapped Units

- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)

- Major Stream
- San Pedro River Watershed
- USGS Topo Quad Boundary
- County
- International Boundary

N



Base Map: USGS 1:24,000 Topo

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Huachuca City
Fairbank
Gulch
San Pedro River
BDY
RES
Graveyard
MIL
1296
RAILROAD
GRADE
OLD
AQUEDUCT
Lewis Springs
COCHISE
COUNTY
36
1289
1345
Gravel Pit
1300
Tombstone SE
Nicksville
Hereford

0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

Area Mapped by AZGS (2009)

Generalized Geologic Units

- Floodplain Holocene Alluvium (FHA)
- Tributary Holocene Alluvium (THA)
- Disturbed (unit not determined)
- Basin Fill
- Bedrock

Contact Between FHA and Other Mapped Units

- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)

Base Map: USGS 1:24,000 Topo

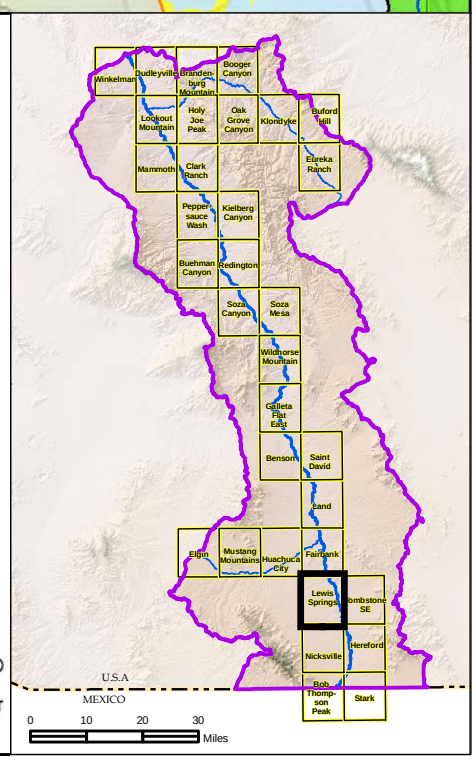
Appendix D-1
Generalized Surficial Geology Along Streams

Lewis Springs Quad (Map 19 of 33)

Subflow Zone Delineation
Report for the San Pedro
River Watershed

- Major Stream
- San Pedro River Watershed
- USGS Topo Quad Boundary
- County
- International Boundary

N



Dudleyville

Brandenburg Mountain

Aravaipa Creek

San Pedro River

Lookout Mountain

PINAL COUNTY

Holy Joe Peak

Mammoth

0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

Area Mapped by AZGS (2009)

Generalized Geologic Units

- Floodplain Holocene Alluvium (FHA)
- Tributary Holocene Alluvium (THA)
- Disturbed (unit not determined)
- Basin Fill
- Bedrock

Contact Between FHA and Other Mapped Units

- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)

Base Map: USGS 1:24,000 Topo

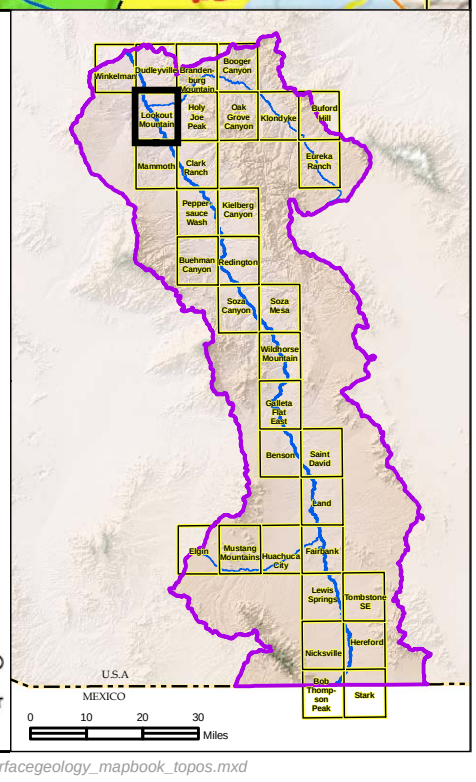
Appendix D-1
Generalized Surficial Geology Along Streams

Lookout Mountain Quad (Map 20 of 33)

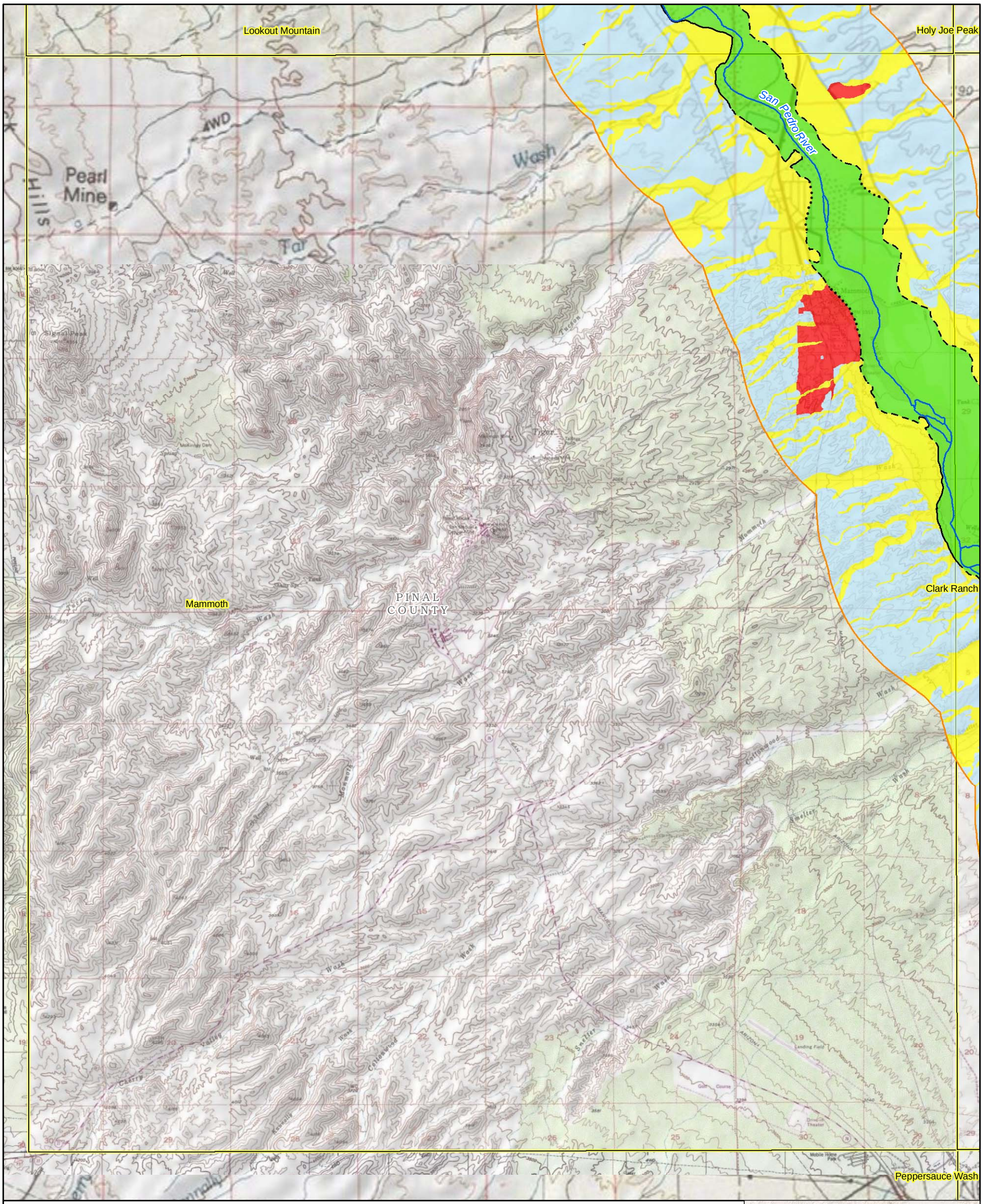
Subflow Zone Delineation Report for the San Pedro River Watershed

- Major Stream
- San Pedro River Watershed
- USGS Topo Quad Boundary
- County
- International Boundary

N



ARIZONA DEPARTMENT OF WATER RESOURCES



Legend

- Area Mapped by AZGS (2009)

Generalized Geologic Units

- Floodplain Holocene Alluvium (FHA)
- Tributary Holocene Alluvium (THA)
- Disturbed (unit not determined)
- Basin Fill
- Bedrock

Contact Between FHA and Other Mapped Units

- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)

Base Map: USGS 1:24,000 Topo

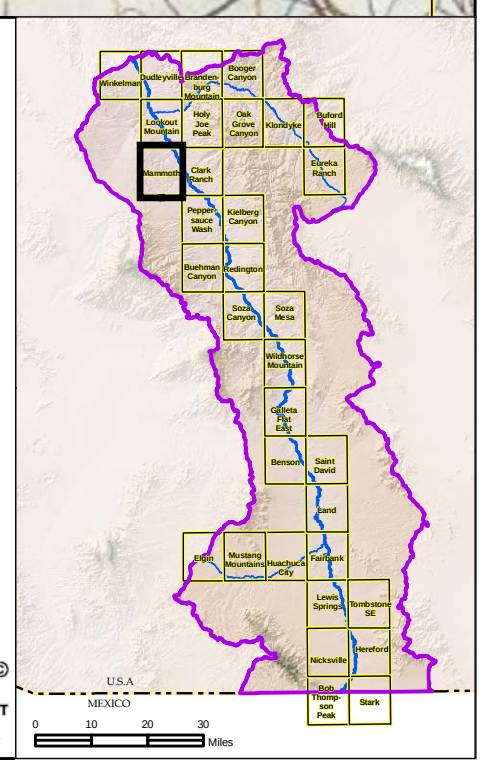
Appendix D-1
Generalized Surficial Geology Along Streams

Mammoth Quad (Map 21 of 33)

Subflow Zone Delineation Report for the San Pedro River Watershed

- Major Stream
- San Pedro River Watershed
- USGS Topo Quad Boundary
- County
- International Boundary

N



Appendix D-1
Generalized Surficial Geology Along Streams

Mustang Mountains Quad (Map 22 of 33)

Subflow Zone Delineation Report for the San Pedro River Watershed

0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

- Area Mapped by AZGS (2009)

Generalized Geologic Units

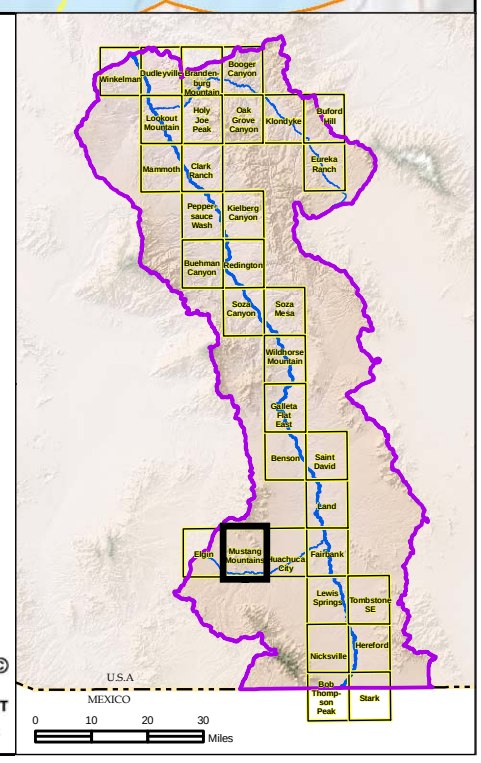
- Floodplain Holocene Alluvium (FHA)
- Tributary Holocene Alluvium (THA)
- Disturbed (unit not determined)
- Basin Fill
- Bedrock

Contact Between FHA and Other Mapped Units

- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)

- Major Stream
- San Pedro River Watershed
- USGS Topo Quad Boundary
- County
- International Boundary

N



Base Map: USGS 1:24,000 Topo

Lewis Springs
Tombstone SE
San Pedro Riv
Nicksville
COCHISE
COUNTY
Hereford
Landing
Strip
Miracle
Valley
Palominas
Canyon
Bob Thompson Peak
Stark

0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

Area Mapped by AZGS (2009)

Generalized Geologic Units

- Floodplain Holocene Alluvium (FHA)
- Tributary Holocene Alluvium (THA)
- Disturbed (unit not determined)
- Basin Fill
- Bedrock

Contact Between FHA and Other Mapped Units

- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)

Base Map: USGS 1:24,000 Topo

Appendix D-1
Generalized Surficial Geology Along Streams

Nicksville Quad (Map 23 of 33)

Subflow Zone Delineation Report for the San Pedro River Watershed

- Major Stream
- San Pedro River Watershed
- USGS Topo Quad Boundary
- County
- International Boundary

N

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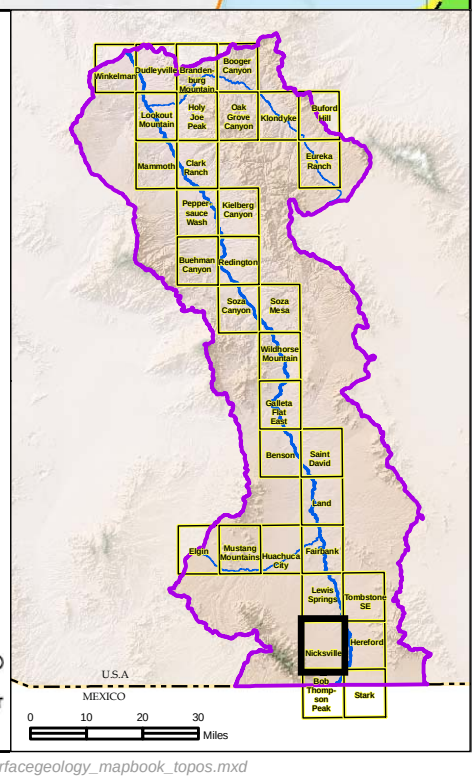


0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

Area Mapped by AZGS (2009)

Generalized Geologic Units

- Floodplain Holocene Alluvium (FHA)
- Tributary Holocene Alluvium (THA)
- Disturbed (unit not determined)
- Basin Fill
- Bedrock

Contact Between FHA and Other Mapped Units

- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)

Base Map: USGS 1:24,000 Topo

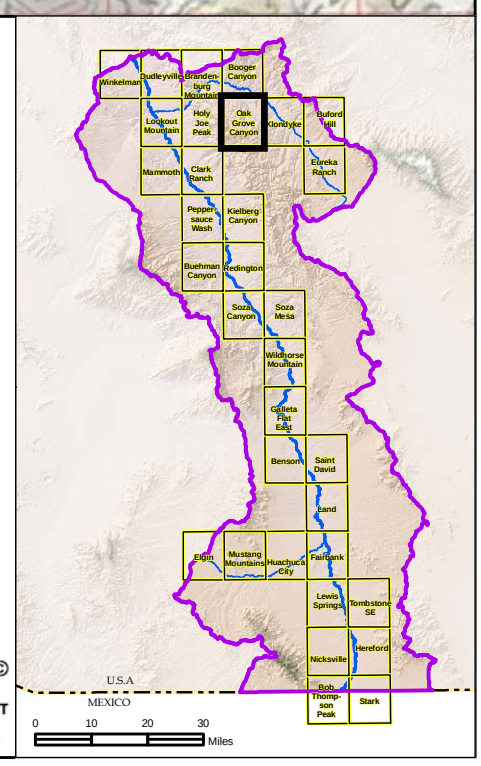
Appendix D-1
Generalized Surficial Geology Along Streams

Oak Grove Canyon Quad (Map 24 of 33)

Subflow Zone Delineation Report for the San Pedro River Watershed

- Major Stream
- San Pedro River Watershed
- USGS Topo Quad Boundary
- County
- International Boundary

N



Mammoth
Clark Ranch
Tailings Pond
Tailings Pond
Tailings Pond
Tailings Pond
Mill
San Manuel
950
1046
PINAL COUNTY
Landing Strip
Peppersauce Wash
Mine Dump
Black Hills Mine
Wash
Wash
Wash
Wash
1112
36
31
Stratton
Geesaman
Alder
6
PIMA COUNTY
Buehman Canyon
Redington
San Pedro River
Kielberg Canyon
904

0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

Area Mapped by AZGS (2009)

Generalized Geologic Units

- Floodplain Holocene Alluvium (FHA)
- Tributary Holocene Alluvium (THA)
- Disturbed (unit not determined)
- Basin Fill
- Bedrock

Contact Between FHA and Other Mapped Units

- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)

Base Map: USGS 1:24,000 Topo

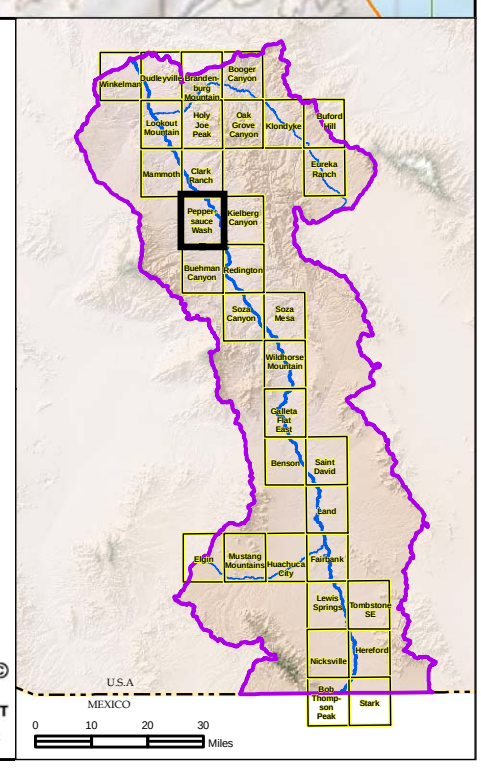
Appendix D-1
Generalized Surficial Geology Along Streams

Peppersauce Wash Quad (Map 25 of 33)

Subflow Zone Delineation Report for the San Pedro River Watershed

- Major Stream
- San Pedro River Watershed
- USGS Topo Quad Boundary
- County
- International Boundary

N



Kielberg Canyon
Gardner Canyon
PIMA CO
GRAHAM CO
Bollen Wash
Spring
Sheep Camp
GRAHAM COUNTY
Markham Canyon
PIMA COUNTY
Redington
Buehman Canyon
Redfield Canyon
GRAHAM CO
COCHISE CO
Aguja Canyon
COCHISE COUNTY
San Pedro River
Soza Canyon
Soza Mesa

0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

Area Mapped by AZGS (2009)

Generalized Geologic Units

- Floodplain Holocene Alluvium (FHA)
- Tributary Holocene Alluvium (THA)
- Disturbed (unit not determined)
- Basin Fill
- Bedrock

Contact Between FHA and Other Mapped Units

- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)

Base Map: USGS 1:24,000 Topo

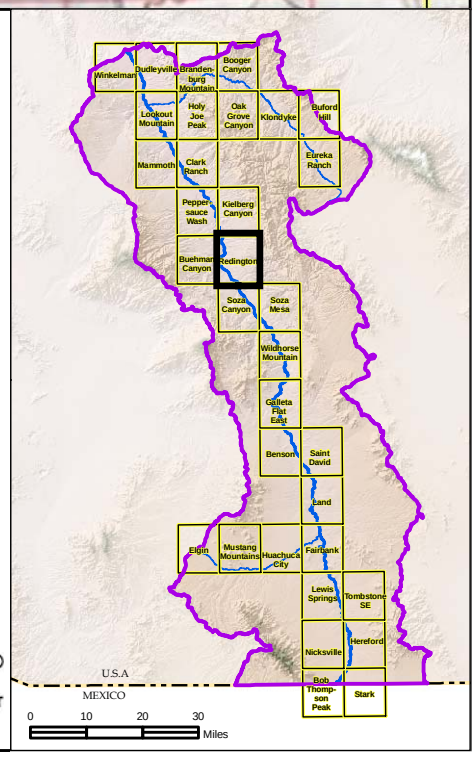
Appendix D-1
Generalized Surficial Geology Along Streams

Redington Quad (Map 26 of 33)

Subflow Zone Delineation Report for the San Pedro River Watershed

- Major Stream
- San Pedro River Watershed
- USGS Topo Quad Boundary
- County
- International Boundary

N



Appendix D-1
Generalized Surficial Geology Along Streams

Saint David Quad (Map 27 of 33)

Subflow Zone Delineation Report for the San Pedro River Watershed

0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

- Area Mapped by AZGS (2009)

Generalized Geologic Units

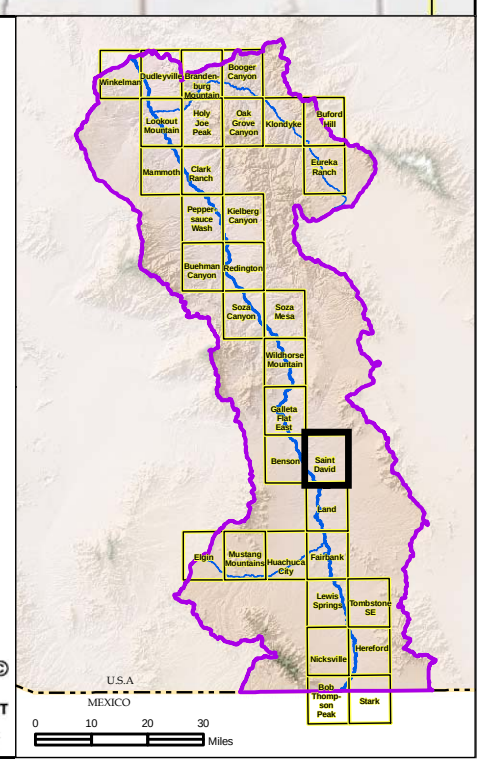
- Floodplain Holocene Alluvium (FHA)
- Tributary Holocene Alluvium (THA)
- Disturbed (unit not determined)
- Basin Fill
- Bedrock

Contact Between FHA and Other Mapped Units

- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)

- Major Stream
- San Pedro River Watershed
- USGS Topo Quad Boundary
- County
- International Boundary

N



Base Map: USGS 1:24,000 Topo

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Buehman Canyon
Redington
San Pedro River
Soza
Soza Canyon
Soza Mesa
Wildhorse Mountain
PIMA COUNTY
COCHISE COUNTY
Canyon
Mineta Ridge
Cañada
Banco
Ridge
Atravesada
Wilke
Espiritu
Roble
Roble Spring
4WD
WT

0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

Area Mapped by AZGS (2009)

Generalized Geologic Units

- Floodplain Holocene Alluvium (FHA)
- Tributary Holocene Alluvium (THA)
- Disturbed (unit not determined)
- Basin Fill
- Bedrock

Contact Between FHA and Other Mapped Units

- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)

Base Map: USGS 1:24,000 Topo

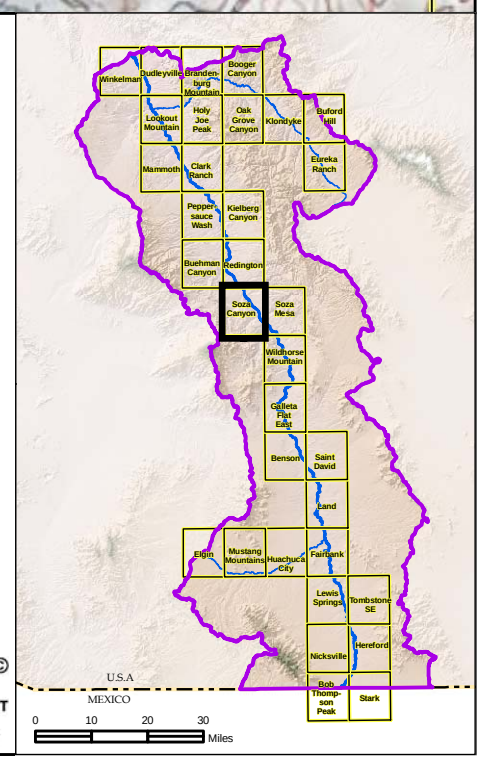
Appendix D-1
Generalized Surficial Geology Along Streams

Soza Canyon Quad (Map 28 of 33)

Subflow Zone Delineation Report for the San Pedro River Watershed

- Major Stream
- San Pedro River Watershed
- USGS Topo Quad Boundary
- County
- International Boundary

N



Redington

Soza Mesa

Wildhorse Mountain

0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

Area Mapped by AZGS (2009)

Generalized Geologic Units

- Floodplain Holocene Alluvium (FHA)
- Tributary Holocene Alluvium (THA)
- Disturbed (unit not determined)
- Basin Fill
- Bedrock

Contact Between FHA and Other Mapped Units

- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)

Base Map: USGS 1:24,000 Topo

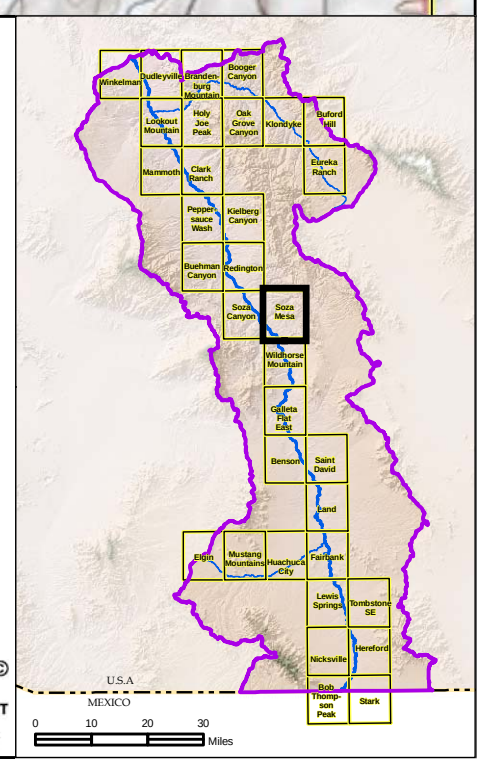
Appendix D-1
Generalized Surficial Geology Along Streams

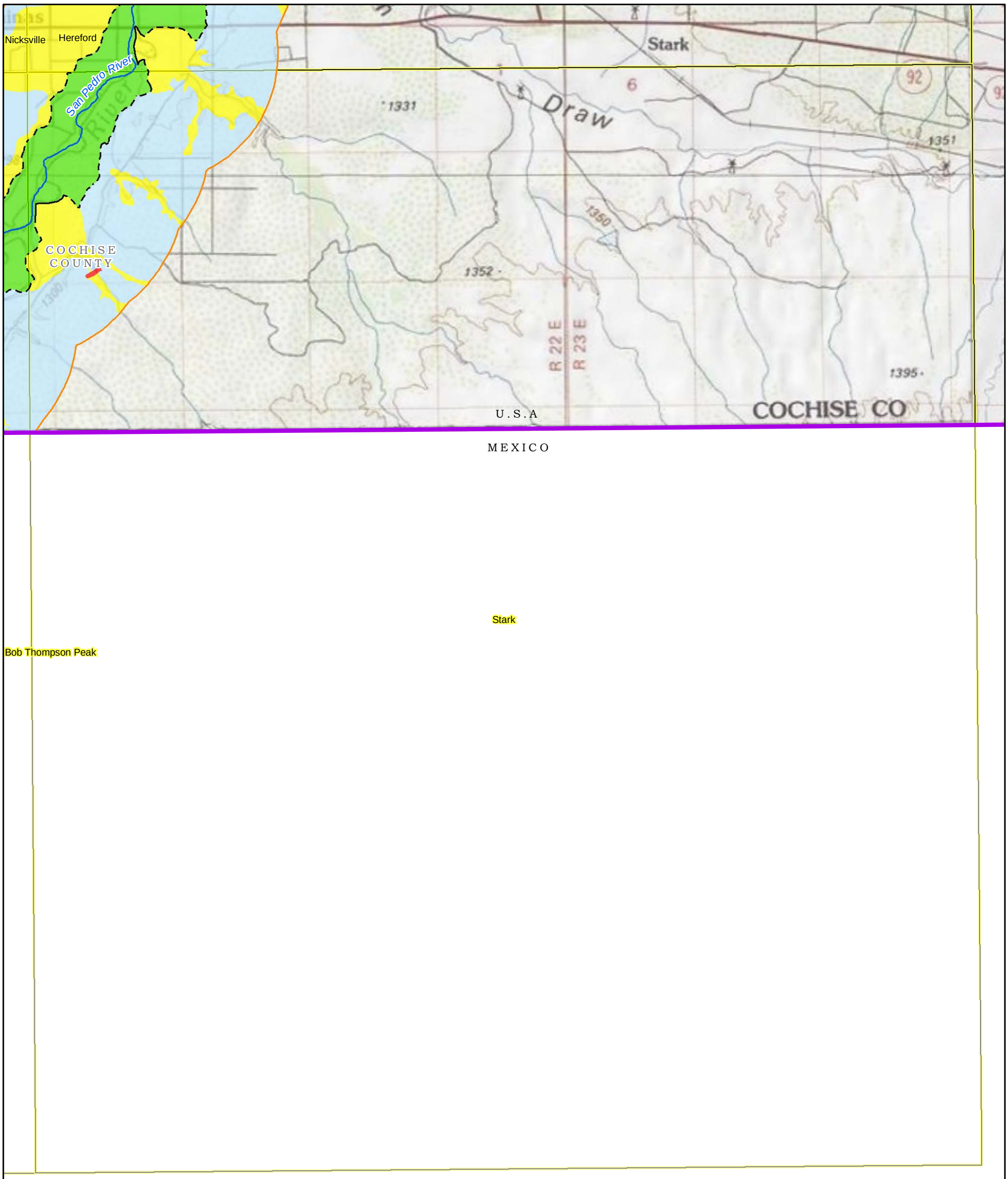
Soza Mesa Quad (Map 29 of 33)

Subflow Zone Delineation Report for the San Pedro River Watershed

- Major Stream
- San Pedro River Watershed
- USGS Topo Quad Boundary
- County
- International Boundary

N





0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

Area Mapped by AZGS (2009)

Generalized Geologic Units

- Floodplain Holocene Alluvium (FHA)
- Tributary Holocene Alluvium (THA)
- Disturbed (unit not determined)
- Basin Fill
- Bedrock

Contact Between FHA and Other Mapped Units

- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)

Base Map: USGS 1:24,000 Topo

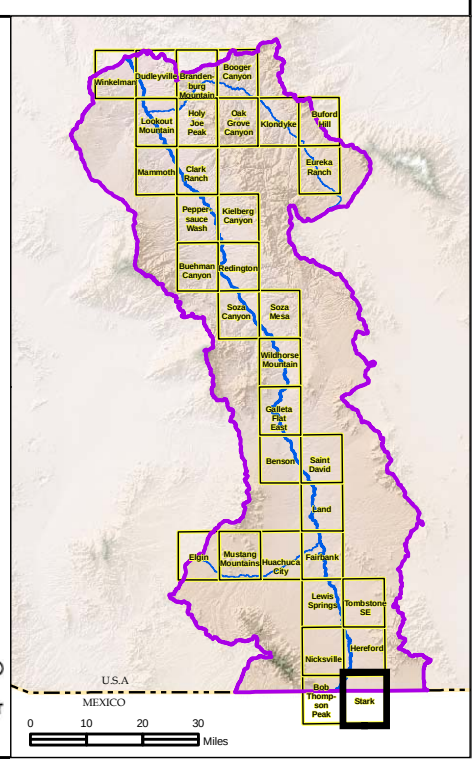
Appendix D-1
Generalized Surficial Geology Along Streams

Stark Quad (Map 30 of 33)

Subflow Zone Delineation Report for the San Pedro River Watershed

- Major Stream
- San Pedro River Watershed
- USGS Topo Quad Boundary
- County
- International Boundary

N



Fairbank

Draw

Government

COCHISE COUNTY

Tombstone SE

Mule Mts

San Pedro River

Hereford

Nicksville

0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

Area Mapped by AZGS (2009)

Generalized Geologic Units

- Floodplain Holocene Alluvium (FHA)
- Tributary Holocene Alluvium (THA)
- Disturbed (unit not determined)
- Basin Fill
- Bedrock

Contact Between FHA and Other Mapped Units

- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)

Base Map: USGS 1:24,000 Topo

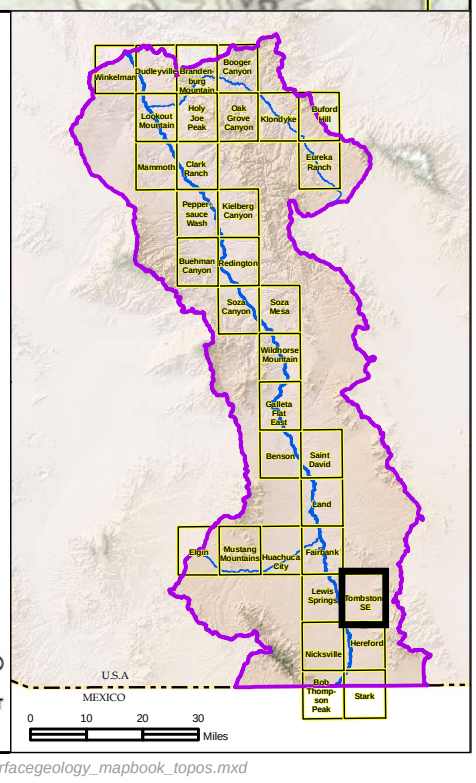
Appendix D-1
Generalized Surficial Geology Along Streams

Tombstone SE Quad (Map 31 of 33)

Subflow Zone Delineation Report for the San Pedro River Watershed

- Major Stream
- San Pedro River Watershed
- USGS Topo Quad Boundary
- County
- International Boundary

N



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Appendix D-1
Generalized Surficial Geology Along Streams

Wildhorse Mountain Quad (Map 32 of 33)

Subflow Zone Delineation
Report for the San Pedro
River Watershed

0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

Area Mapped by AZGS (2009)

Generalized Geologic Units

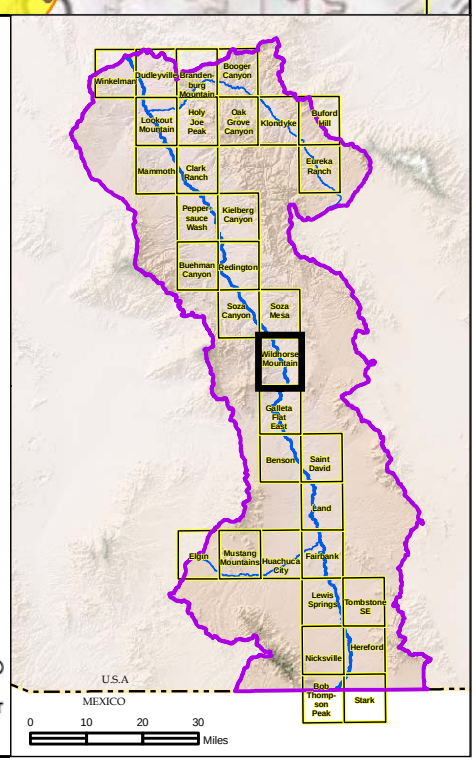
- Floodplain Holocene Alluvium (FHA)
- Tributary Holocene Alluvium (THA)
- Disturbed (unit not determined)
- Basin Fill
- Bedrock

Contact Between FHA and Other Mapped Units

- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)

- Major Stream
- San Pedro River Watershed
- USGS Topo Quad Boundary
- County
- International Boundary

N



Base Map: USGS 1:24,000 Topo

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GILA COUNTY

PINAL COUNTY

San Pedro River

Winkelman

Dudleyville

Lookout Mountain

0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

Area Mapped by AZGS (2009)

Generalized Geologic Units

- Floodplain Holocene Alluvium (FHA)
- Tributary Holocene Alluvium (THA)
- Disturbed (unit not determined)
- Basin Fill
- Bedrock

Contact Between FHA and Other Mapped Units

- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)

Base Map: USGS 1:24,000 Topo

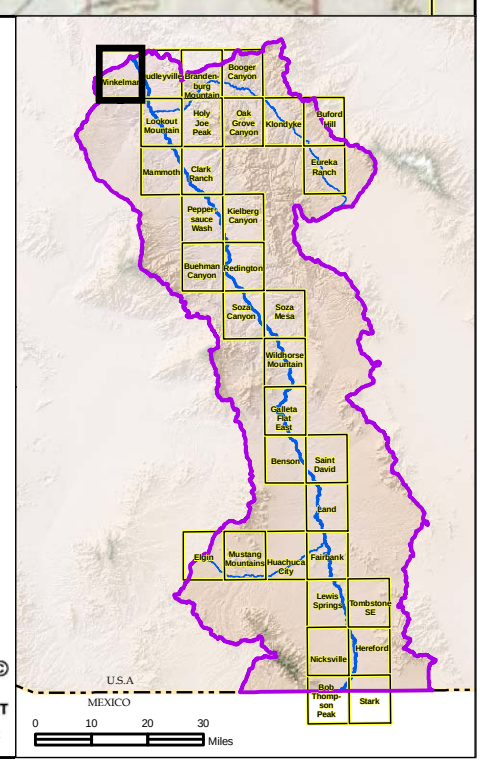
Appendix D-1
Generalized Surficial Geology Along Streams

Winkelman Quad (Map 33 of 33)

Subflow Zone Delineation Report for the San Pedro River Watershed

- Major Stream
- San Pedro River Watershed
- USGS Topo Quad Boundary
- County
- International Boundary

N



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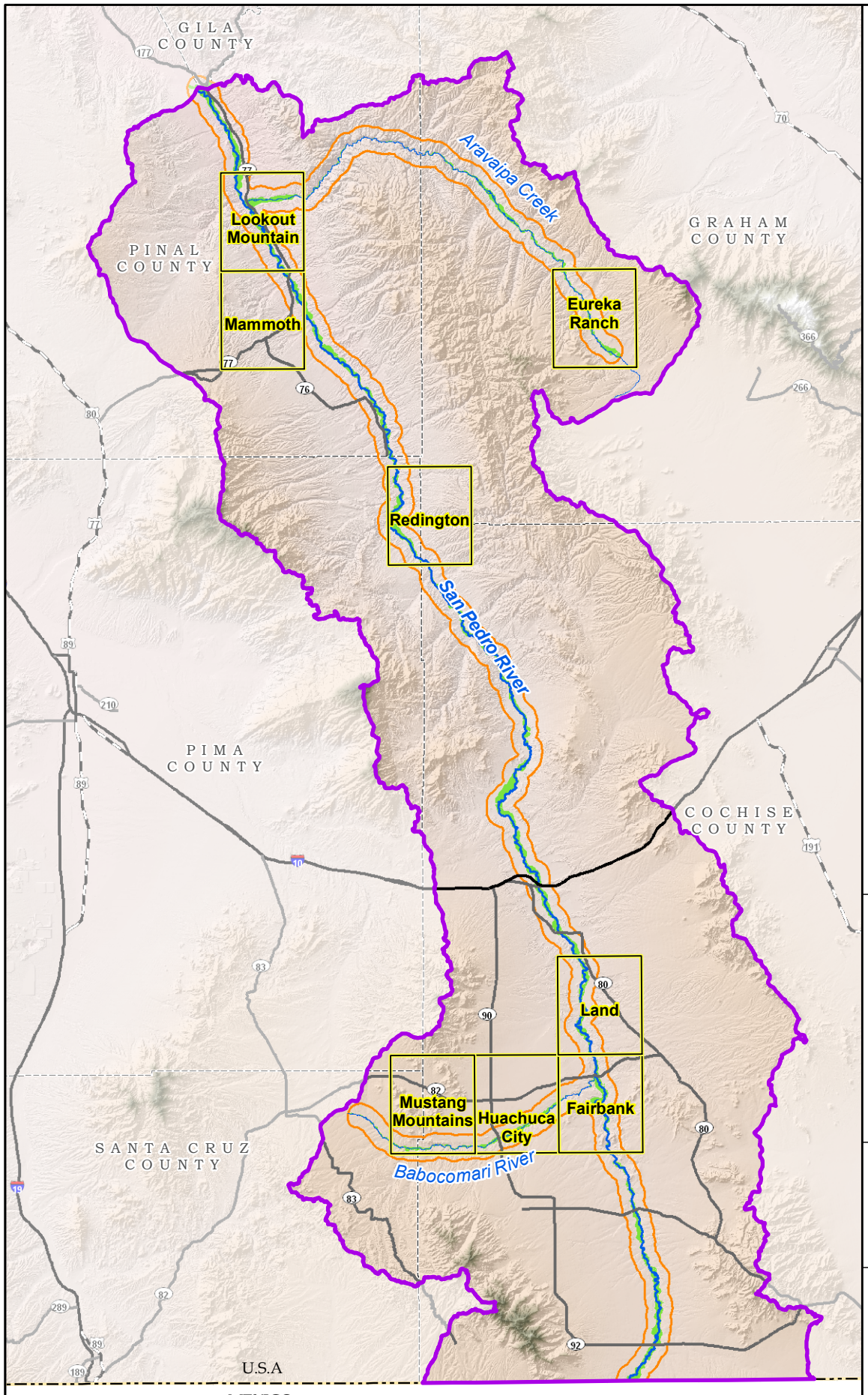
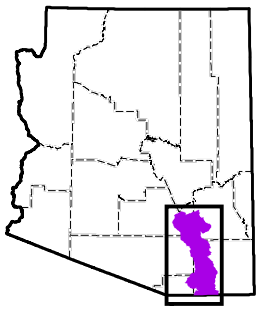
D-2:
Disturbed Areas Mapped Within and/or Bordering Floodplain Holocene Alluvium

Index Map



Legend

- USGS Topo Quad Boundary
- San Pedro River Watershed
- Floodplain Holocene Alluvium (FHA)
- Area Mapped by AZGS (2009)
- Major Stream
- Interstate Highway
- U.S. Route
- State Highway
- County
- State Boundary
- International Boundary



N

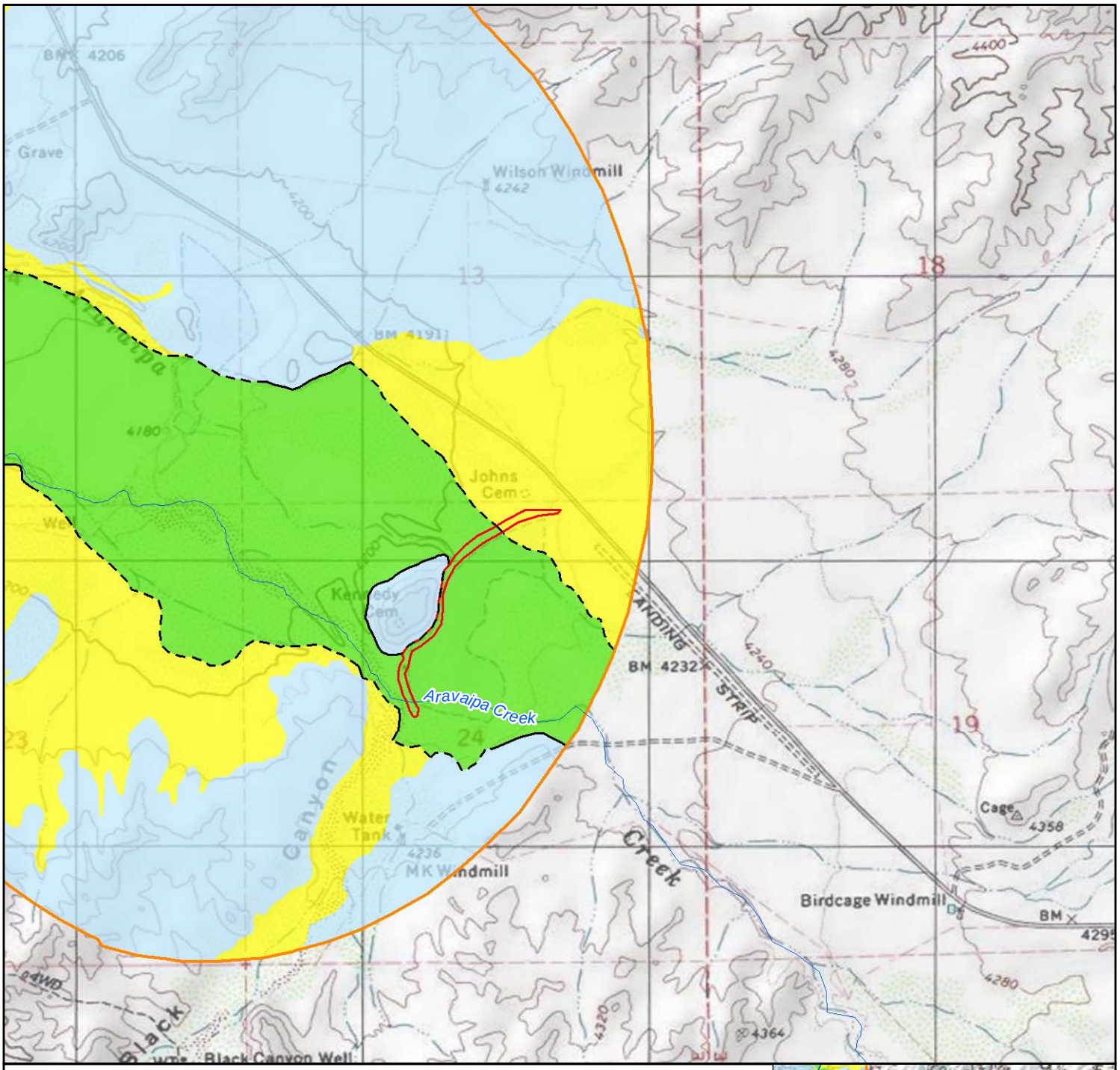
© ARIZONA DEPARTMENT OF WATER RESOURCES

0 5 10 15 Miles

Appendix D-2
Index Map of Disturbed Areas Mapped Within and Bordering Floodplain Holocene Alluvium

Subflow Zone Delineation Report for the San Pedro River Watershed

Quad Maps



0 0.25 0.5 Kilometers

0 0.1 0.2 0.3 0.4 0.5 Miles

Appendix D-2
Disturbed Area Mapped Within and/or Bordering Floodplain Holocene Alluvium
Eureka Ranch Quad (Map 1 of 8)

Subflow Zone Delineation Report for the San Pedro River Watershed

N

Legend

Area Mapped by AZGS (2009)

Generalized Geologic Units

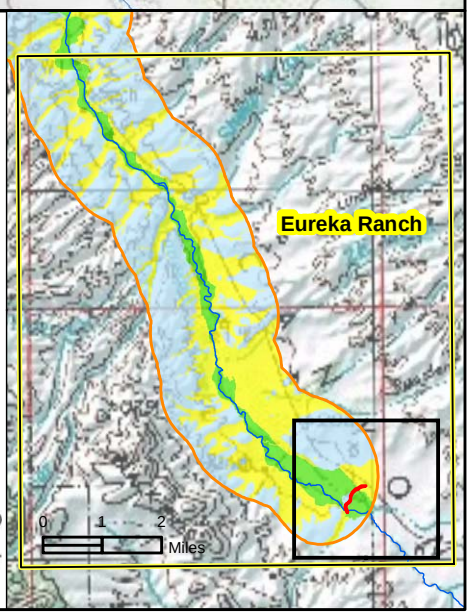
- Floodplain Holocene Alluvium (FHA)
- Tributary Holocene Alluvium (THA)
- Disturbed (unit not determined)
- Basin Fill
- Bedrock

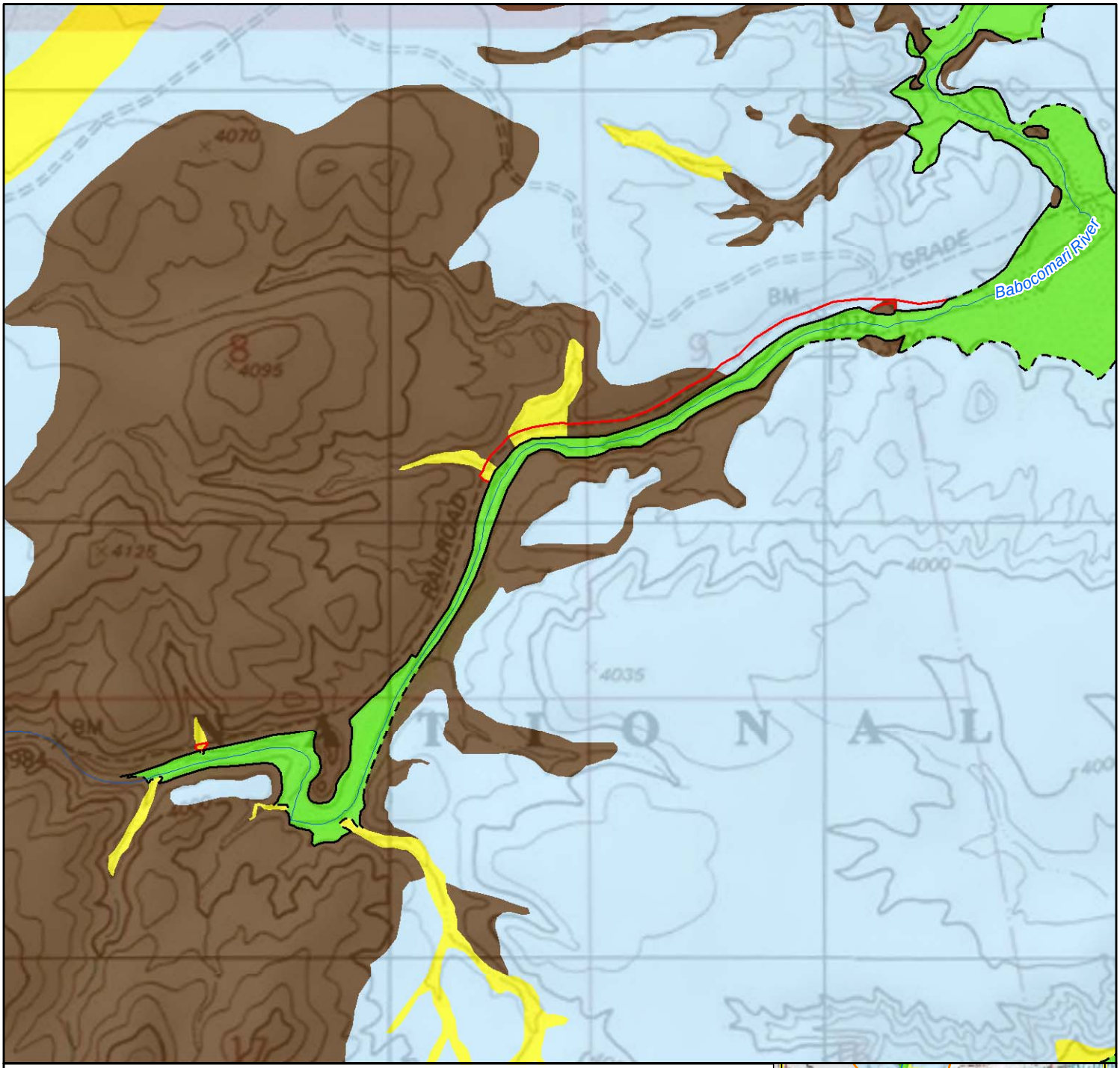
Disturbed Area Where ADWR Assumed Surface Geology and Contact Between Geologic Units

Contact Between FHA and Other Mapped Units

- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)
- Major Stream
- USGS Topo Quad Boundary
- County

Base Map: USGS 1:24,000 Topo



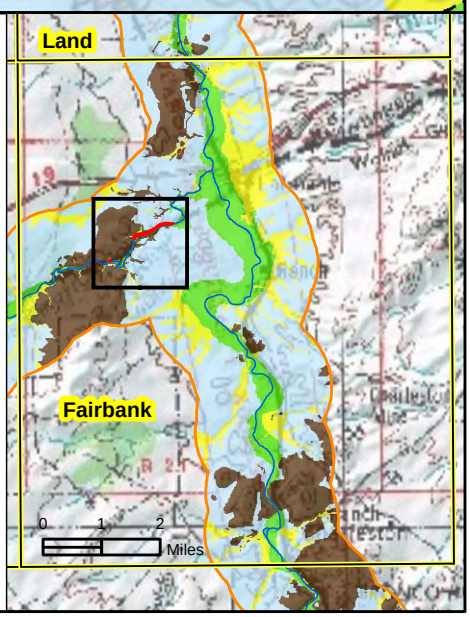


0 0.25 0.5
Kilometers
0 0.1 0.2 0.3 0.4 0.5
Miles

Appendix D-2
Disturbed Area Mapped Within and/or Bordering Floodplain Holocene Alluvium
Fairbank Quad (Map 2 of 8)

Subflow Zone Delineation
Report for the San Pedro
River Watershed

N



Legend

Area Mapped by AZGS (2009)

Generalized Geologic Units

- Floodplain Holocene Alluvium (FHA)
- Tributary Holocene Alluvium (THA)
- Disturbed (unit not determined)
- Basin Fill
- Bedrock

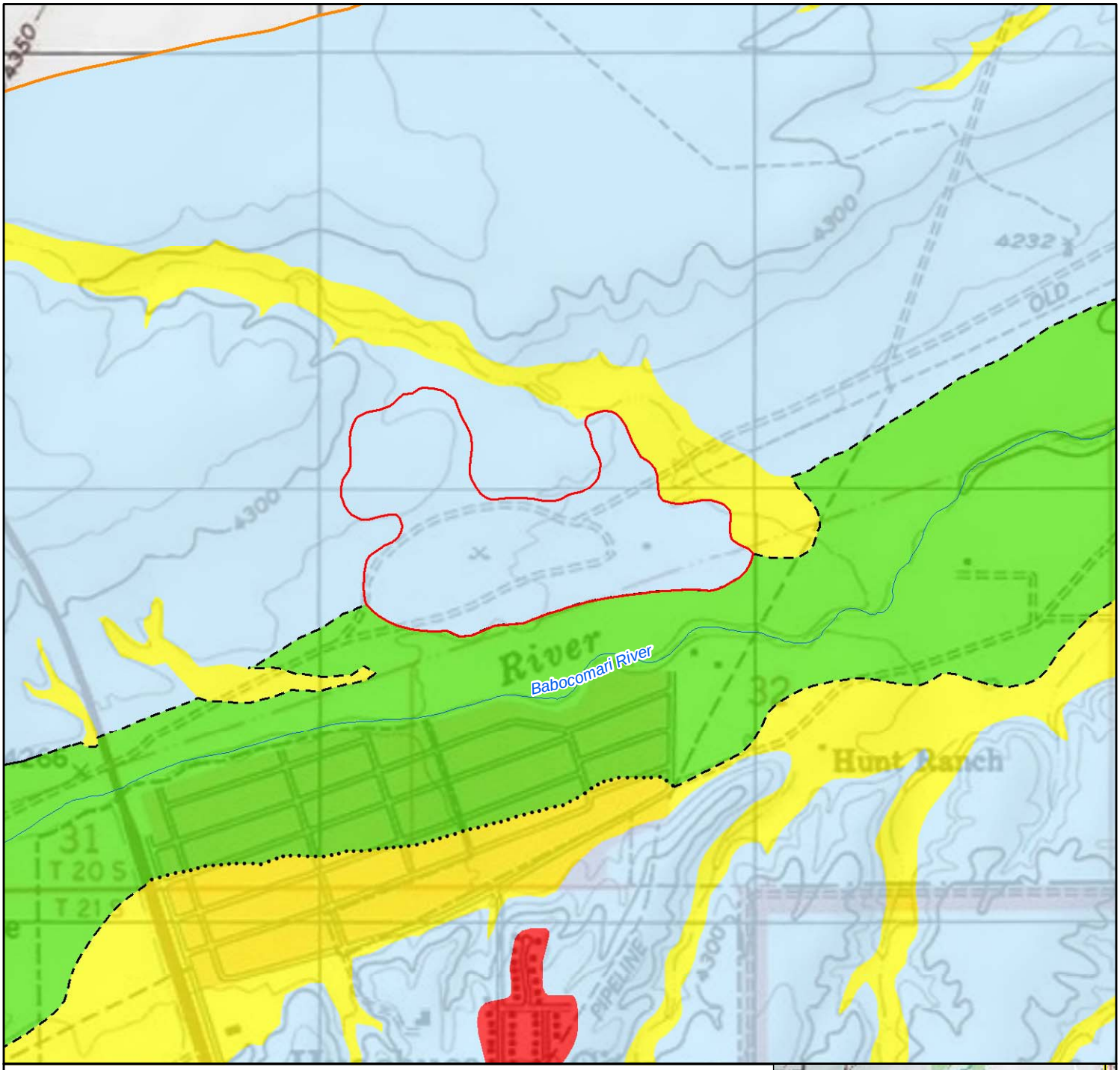
Disturbed Area Where ADWR Assumed Surface Geology and Contact Between Geologic Units

Contact Between FHA and Other Mapped Units

- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)
- Major Stream
- USGS Topo Quad Boundary
- County

ARIZONA DEPARTMENT OF WATER RESOURCES

Base Map: USGS 1:24,000 Topo

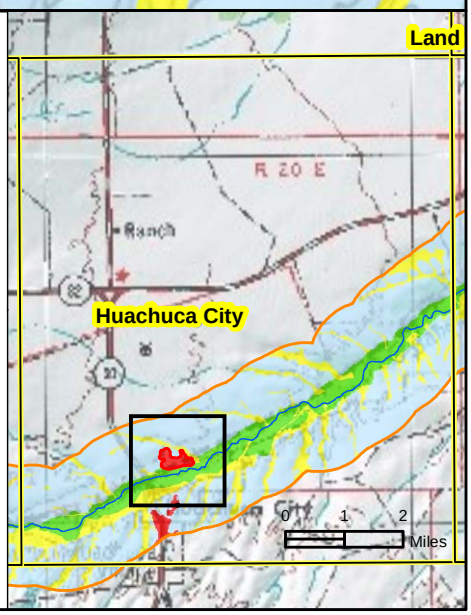


0 0.1 0.2
Kilometers
0 0.1 0.2 0.3 0.4 0.5
Miles

Appendix D-2
Disturbed Area Mapped Within and/or Bordering Floodplain Holocene Alluvium
Huachuca City Quad (Map 3 of 8)

Subflow Zone Delineation
Report for the San Pedro
River Watershed

N



Legend

Area Mapped by AZGS (2009)

Generalized Geologic Units

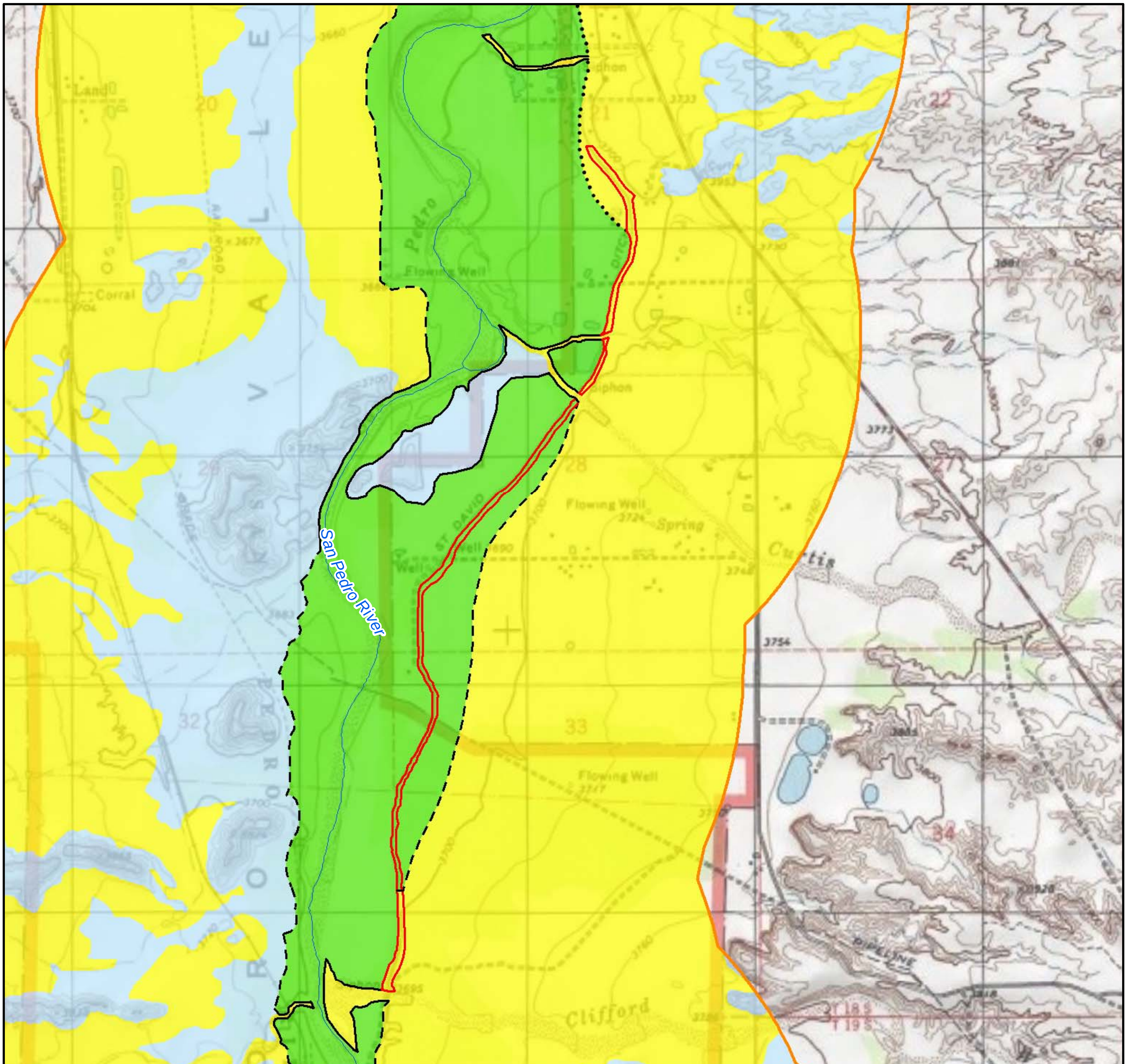
- Floodplain Holocene Alluvium (FHA)
- Tributary Holocene Alluvium (THA)
- Disturbed (unit not determined)
- Basin Fill
- Bedrock
- Disturbed Area Where ADWR Assumed Surface Geology and Contact Between Geologic Units

Contact Between FHA and Other Mapped Units

- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)
- Major Stream
- USGS Topo Quad Boundary
- County

ARIZONA DEPARTMENT OF WATER RESOURCES

Base Map: USGS 1:24,000 Topo



0 0.25 0.5
Kilometers
0 0.1 0.2 0.3 0.4 0.5
Miles

Legend

Area Mapped by AZGS (2009)

Generalized Geologic Units

- Floodplain Holocene Alluvium (FHA)
- Tributary Holocene Alluvium (THA)
- Disturbed (unit not determined)
- Basin Fill
- Bedrock
- Disturbed Area Where ADWR Assumed Surface Geology and Contact Between Geologic Units

Base Map: USGS 1:24,000 Topo

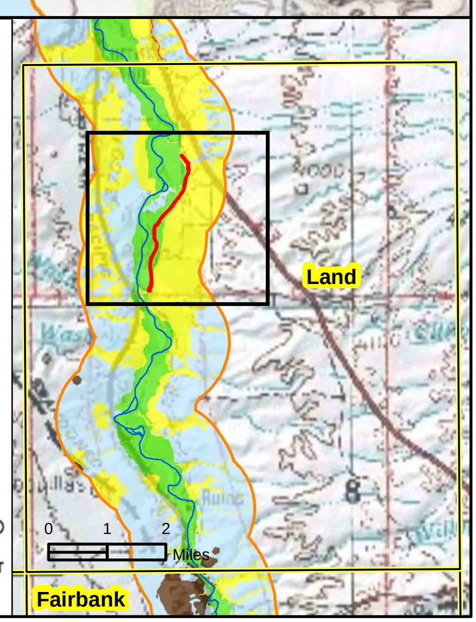
Appendix D-2
Disturbed Area Mapped Within and/or Bordering Floodplain Holocene Alluvium
Land Quad (Map 4 of 8)

Subflow Zone Delineation
Report for the San Pedro
River Watershed

Contact Between FHA and Other Mapped Units

- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)
- Major Stream
- USGS Topo Quad Boundary
- County

N



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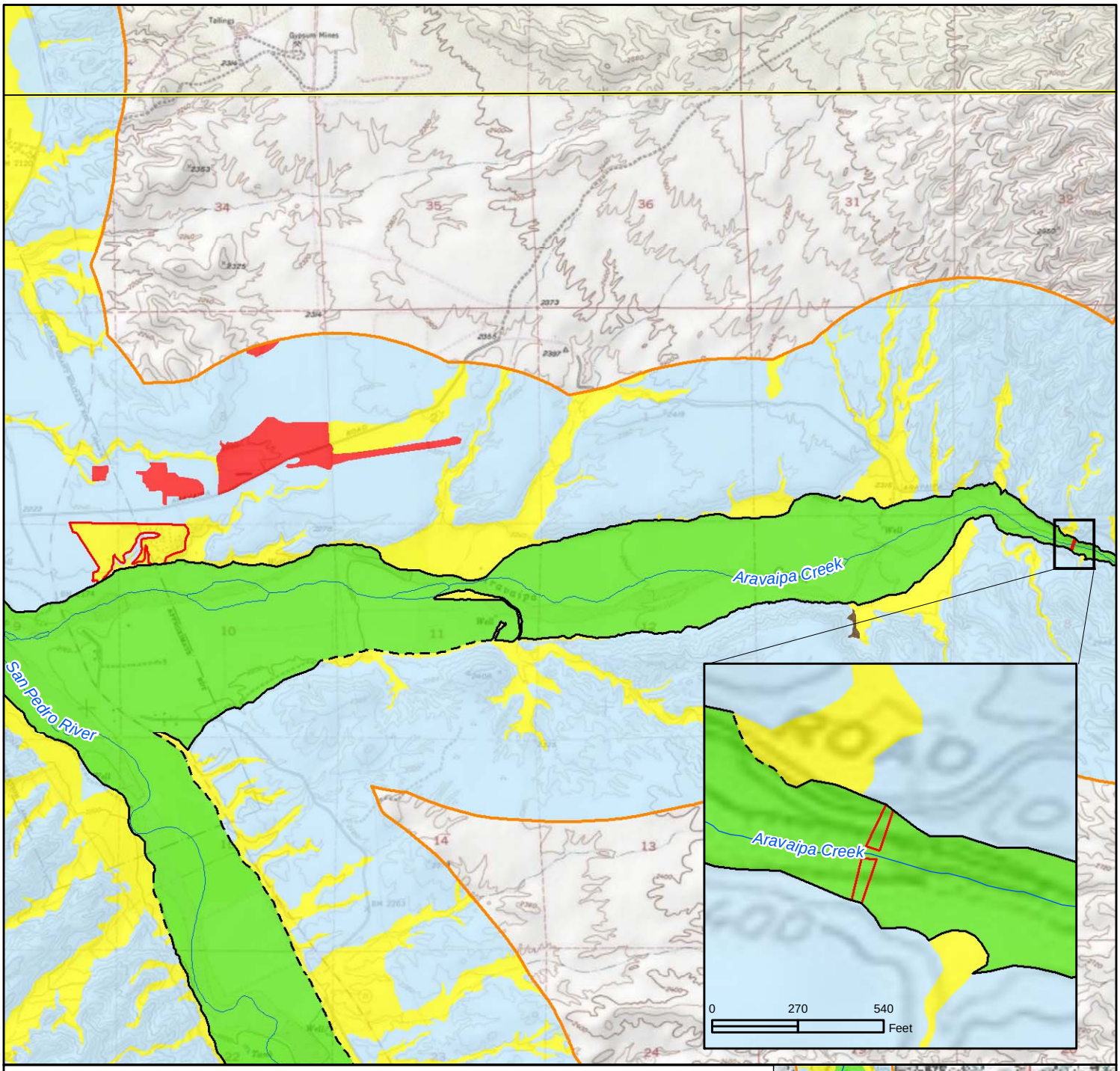


0 0.25 0.5 0.75 1
Kilometers
0 0.25 0.5 0.75 1
Miles

Appendix D-2
Disturbed Area Mapped Within and/or Bordering Floodplain Holocene Alluvium
Lookout Mountain Quad (Map 5 of 8)

Subflow Zone Delineation
Report for the San Pedro
River Watershed

N

Legend

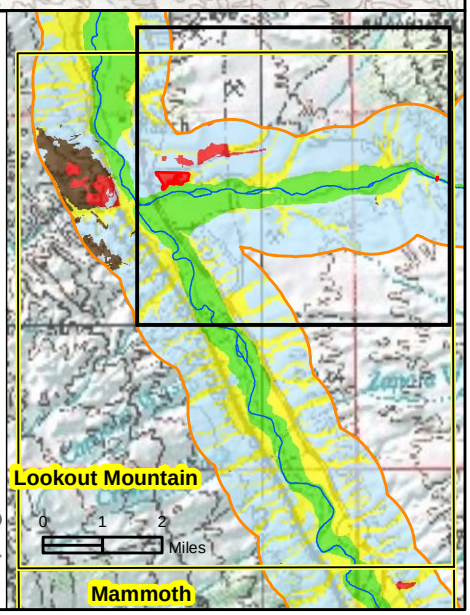
Area Mapped by AZGS (2009)

Generalized Geologic Units

- Floodplain Holocene Alluvium (FHA)
- Tributary Holocene Alluvium (THA)
- Disturbed (unit not determined)
- Basin Fill
- Bedrock
- Disturbed Area Where ADWR Assumed Surface Geology and Contact Between Geologic Units

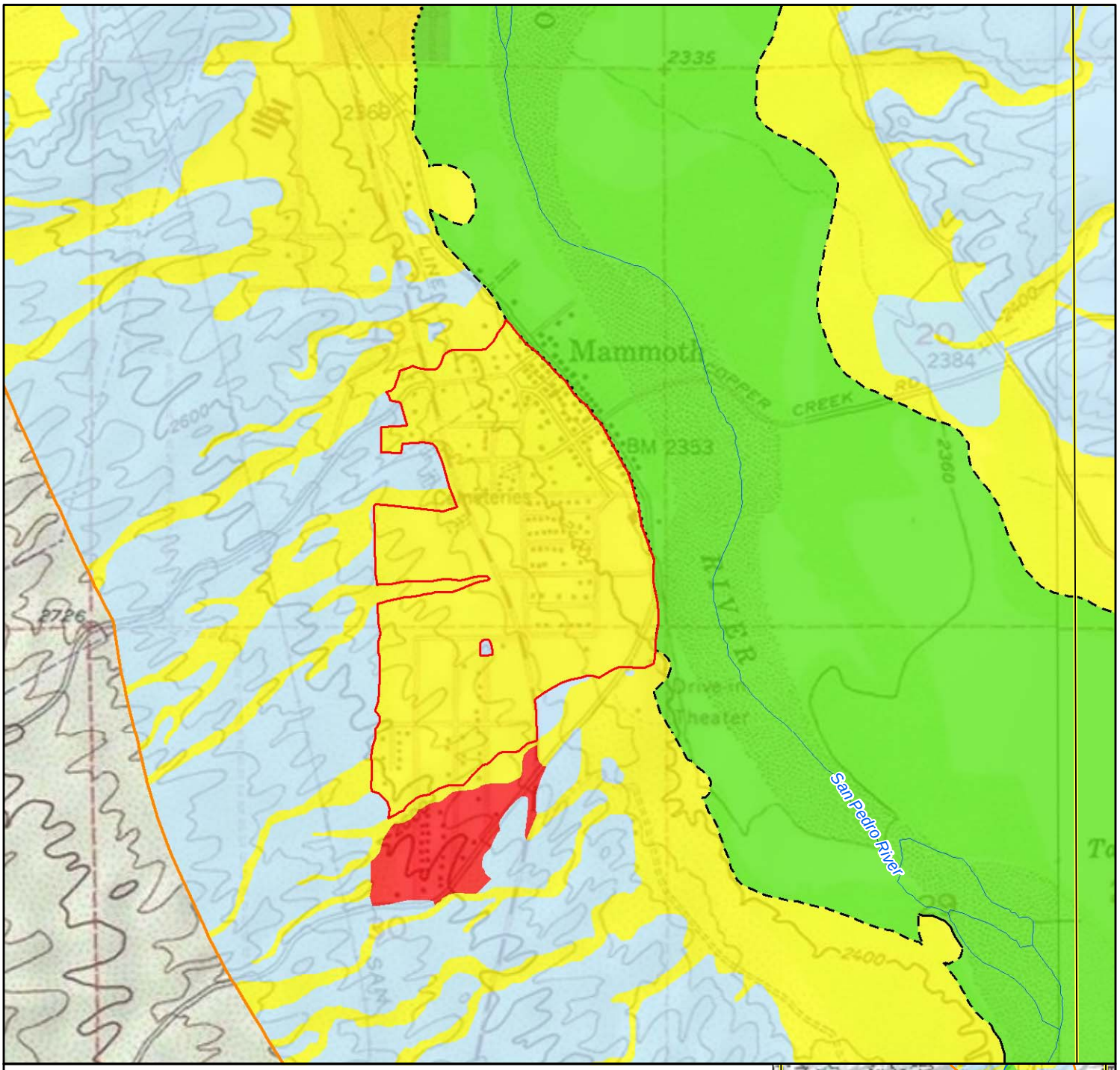
Contact Between FHA and Other Mapped Units

- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)
- Major Stream
- USGS Topo Quad Boundary
- County



ARIZONA DEPARTMENT OF WATER RESOURCES

Base Map: USGS 1:24,000 Topo



0 0.25 0.5
Kilometers
0 0.1 0.2 0.3 0.4 0.5
Miles

Appendix D-2
Disturbed Area Mapped Within and/or Bordering Floodplain Holocene Alluvium
Mammoth Quad (Map 6 of 8)

Subflow Zone Delineation
Report for the San Pedro
River Watershed

N

Legend

Area Mapped by AZGS (2009)

Generalized Geologic Units

- Floodplain Holocene Alluvium (FHA)
- Tributary Holocene Alluvium (THA)
- Disturbed (unit not determined)
- Basin Fill
- Bedrock

Disturbed Area Where ADWR Assumed Surface Geology and Contact Between Geologic Units

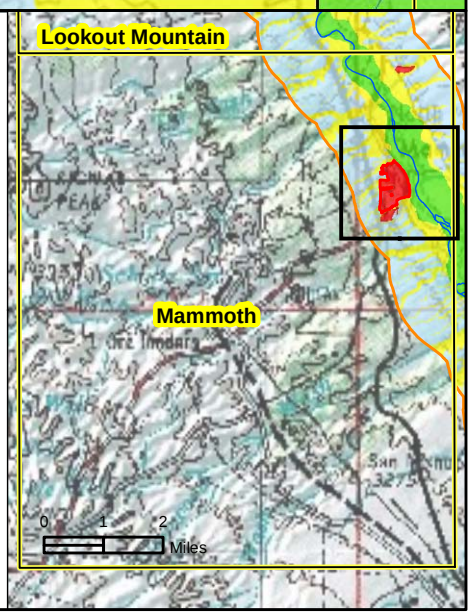
Contact Between FHA and Other Mapped Units

- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)

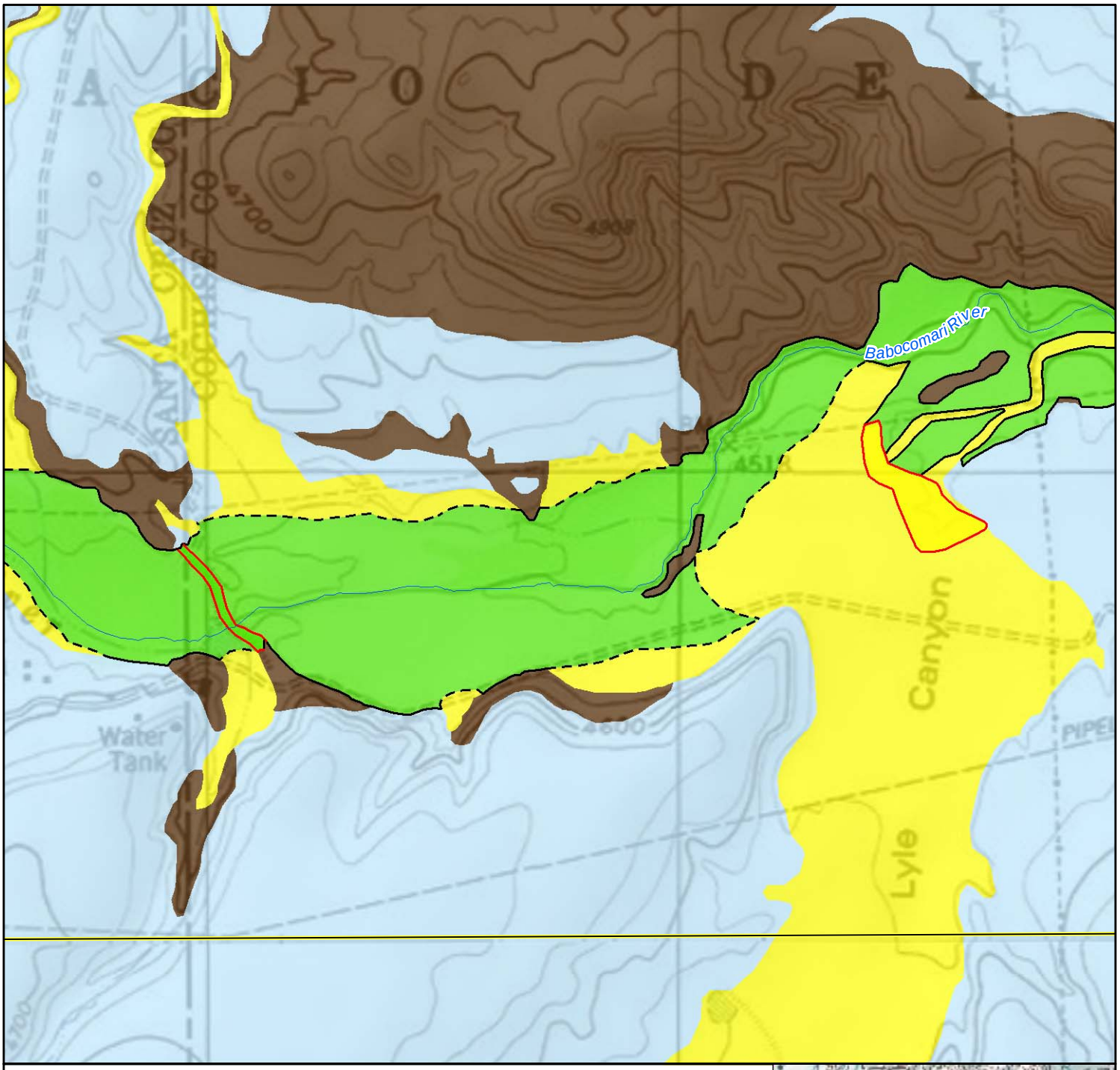
Major Stream

USGS Topo Quad Boundary

County



Base Map: USGS 1:24,000 Topo



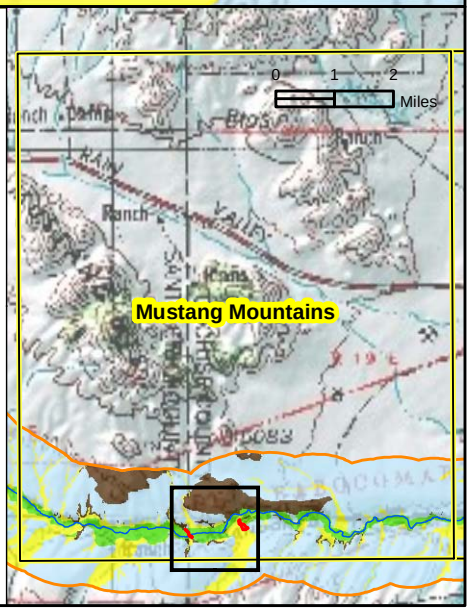
0 0.25 Kilometers

0 0.25 Miles

Appendix D-2
Disturbed Area Mapped Within and/or Bordering Floodplain Holocene Alluvium
Mustang Mountains Quad (Map 7 of 8)

Subflow Zone Delineation
Report for the San Pedro
River Watershed

N



Legend

Area Mapped by AZGS (2009)

Generalized Geologic Units

- Floodplain Holocene Alluvium (FHA)
- Tributary Holocene Alluvium (THA)
- Disturbed (unit not determined)
- Basin Fill
- Bedrock

Disturbed Area Where ADWR Assumed Surface Geology and Contact Between Geologic Units

Contact Between FHA and Other Mapped Units

- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)

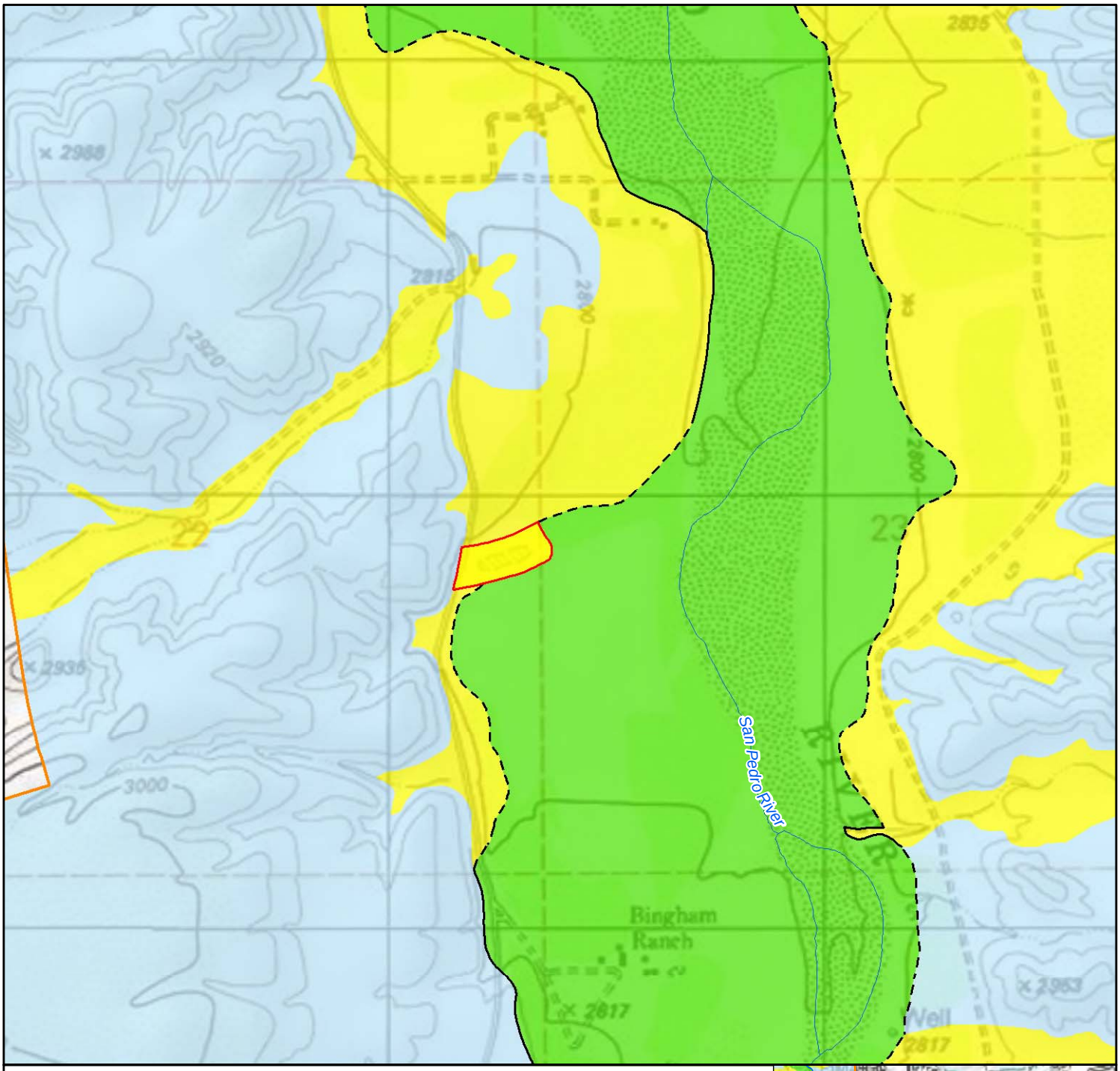
Major Stream

USGS Topo Quad Boundary

County

ARIZONA DEPARTMENT OF WATER RESOURCES

Base Map: USGS 1:24,000 Topo



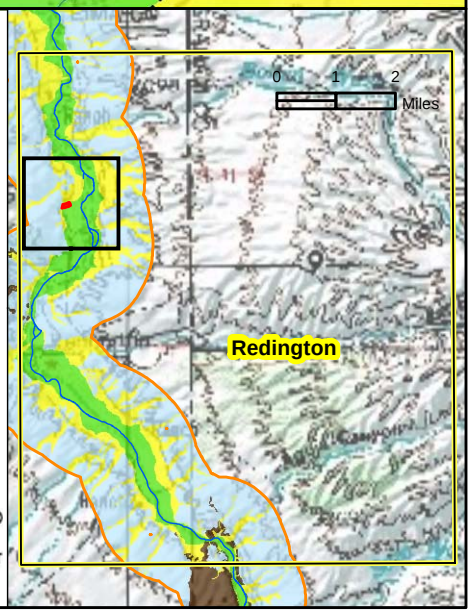
0 0.25 0.5 Kilometers

0 0.25 0.5 Miles

Appendix D-2
Disturbed Area Mapped Within and/or Bordering Floodplain Holocene Alluvium
Redington Quad (Map 8 of 8)

Subflow Zone Delineation Report for the San Pedro River Watershed

N



Legend

Area Mapped by AZGS (2009)

Generalized Geologic Units

- Floodplain Holocene Alluvium (FHA)
- Tributary Holocene Alluvium (THA)
- Disturbed (unit not determined)
- Basin Fill
- Bedrock
- Disturbed Area Where ADWR Assumed Surface Geology and Contact Between Geologic Units

Contact Between FHA and Other Mapped Units

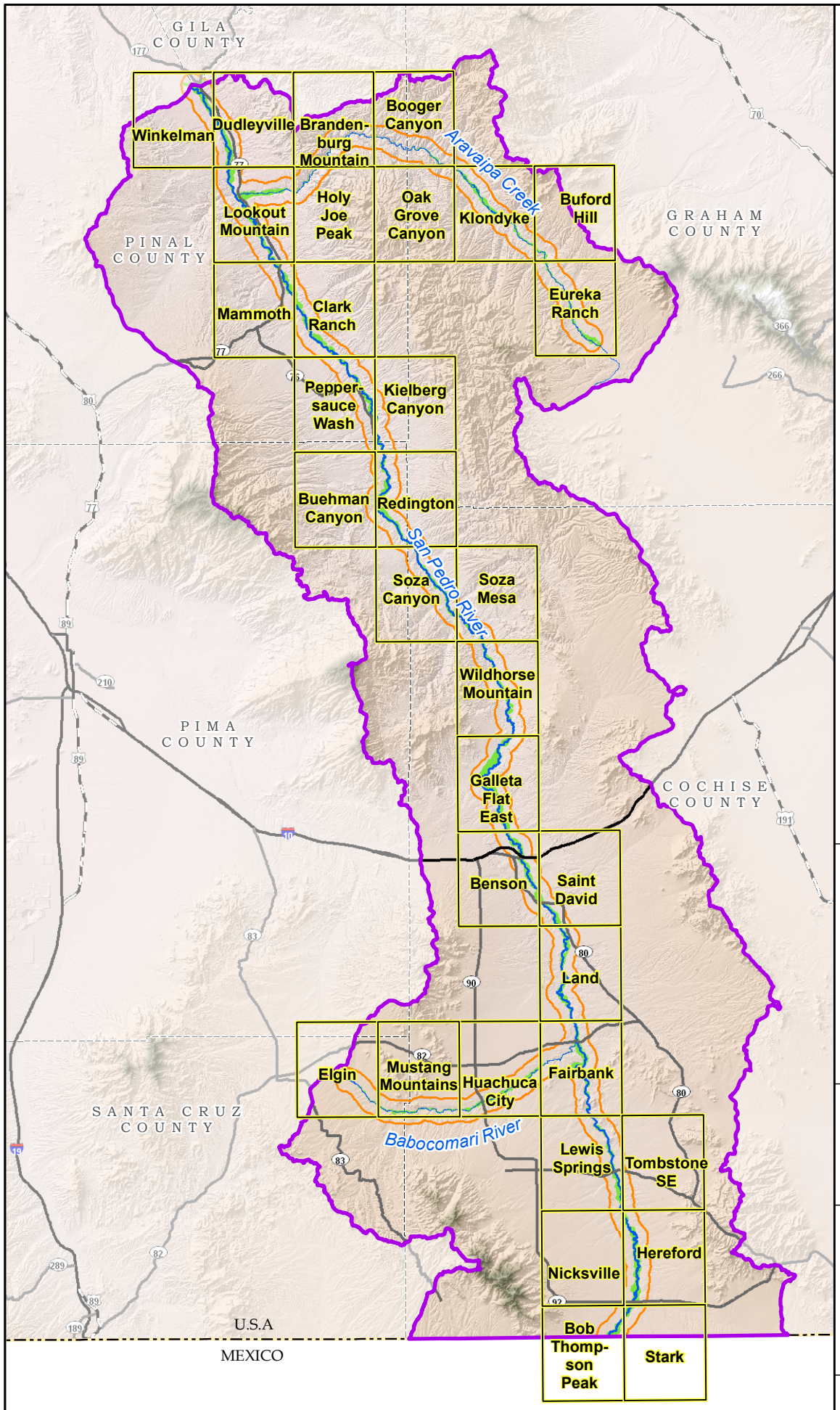
- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)
- Major Stream
- USGS Topo Quad Boundary
- County

Base Map: USGS 1:24,000 Topo

ARIZONA DEPARTMENT OF WATER RESOURCES

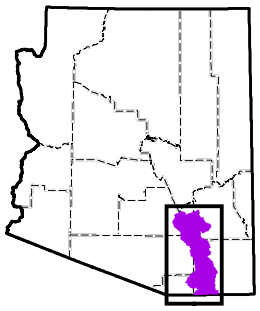
D-3:
Lateral Extent of Floodplain Holocene Alluvium and Setbacks for Side Recharge

Index Map



Legend

- USGS Topo Quad Boundary
- San Pedro River Watershed
- Floodplain Holocene Alluvium (FHA)
- Area Mapped by AZGS (2009)
- Major Stream
- Interstate Highway
- U.S. Route
- State Highway
- County
- State Boundary
- International Boundary



N

© ARIZONA DEPARTMENT OF WATER RESOURCES

0 5 10 15 Miles

Appendix D-3
Index of Maps Showing Lateral Extent of Floodplain Holocene Alluvium and Setbacks for Side Recharge

Subflow Zone Delineation Report for the San Pedro River Watershed

6/12/2009, \\adwrsas1-phx01.azwater.gov\gis-vns, u:\workspaces\statewideplanning\adjudications\projects\sanpedro\maps\subflow_report_figures\mxd\appendixd-3_fhasetbacks\appd-3_fhasetbacks_index.mxd

Quad Maps

Galleta Flat East

Benson

Saint David

Land

0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

- Extent of Floodplain Holocene Alluvium (FHA) With Setbacks for Side Recharge*
- Reach where width of setback is greater than width of FHA
- Reach where FHA not mapped at 1:24,000 scale used by AZGS
- Extent of FHA**
- Other generalized geologic unit mapped within floodplain (includes islands of material and some larger fingers of tributary Holocene alluvium)
- Reach where setbacks overlap with other geologic units in floodplain
- San Pedro River Watershed

Base Map: USGS 1:24,000 Topo

Appendix D-3

Lateral Extent of Floodplain Holocene Alluvium and Setbacks for Side Recharge

Benson Quad (Map 1 of 33)

Subflow Zone Delineation Report for the San Pedro River Watershed

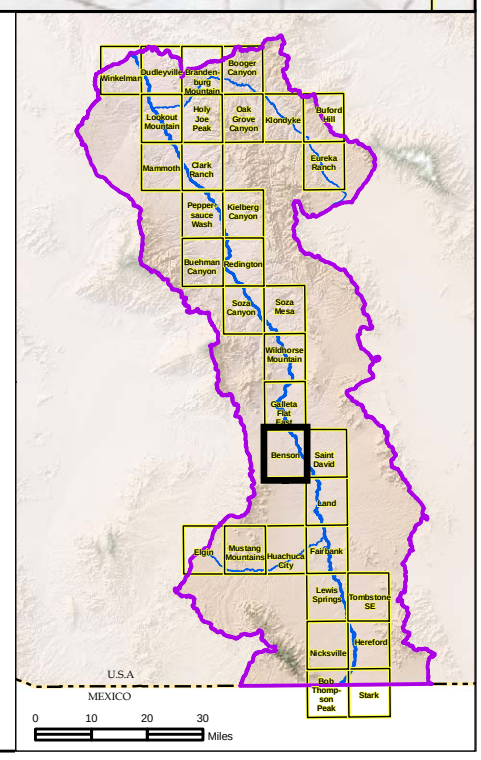
ARIZONA DEPARTMENT OF WATER RESOURCES

- USGS Topo Quad Boundary
- County
- International Boundary

*100-foot and 200-foot setbacks applied where FHA bordered by basin fill and tributary Holocene alluvium deposits, respectively. No setbacks applied where FHA is bordered by bedrock; along these reaches only orange line is shown.

**See Appendices D-1 and D-2 for other generalized geologic units and disturbed areas along the floodplain respectively.

N



Nicksville

Hereford

Bob Thompson Peak

Stark

U.S.A

MEXICO

0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

- Extent of Floodplain Holocene Alluvium (FHA) With Setbacks for Side Recharge*
- Reach where width of setback is greater than width of FHA
- Reach where FHA not mapped at 1:24,000 scale used by AZGS
- Extent of FHA**
- Other generalized geologic unit mapped within floodplain (includes islands of material and some larger fingers of tributary Holocene alluvium)
- Reach where setbacks overlap with other geologic units in floodplain
- San Pedro River Watershed

Base Map: USGS 1:24,000 Topo

Appendix D-3

Lateral Extent of Floodplain Holocene Alluvium and Setbacks for Side Recharge

Bob Thompson Peak Quad (Map 2 of 33)

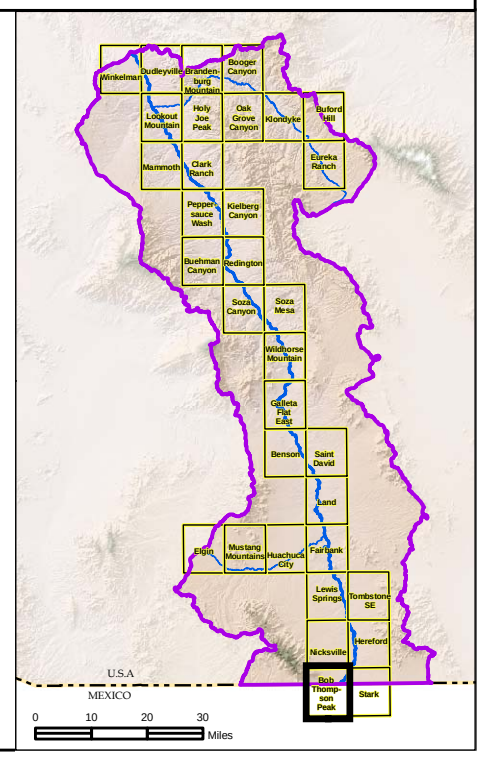
Subflow Zone Delineation Report for the San Pedro River Watershed

- USGS Topo Quad Boundary
- County
- International Boundary

*100-foot and 200-foot setbacks applied where FHA bordered by basin fill and tributary Holocene alluvium deposits, respectively. No setbacks applied where FHA is bordered by bedrock; along these reaches only orange line is shown.

**See Appendices D-1 and D-2 for other generalized geologic units and disturbed areas along the floodplain respectively.

N



Booger Canyon

Brandenburg Mountain

Holy Joe Peak

Oak Grove Canyon

0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

- Extent of Floodplain Holocene Alluvium (FHA) With Setbacks for Side Recharge*
- Reach where width of setback is greater than width of FHA
- Reach where FHA not mapped at 1:24,000 scale used by AZGS
- Extent of FHA**
- Other generalized geologic unit mapped within floodplain (includes islands of material and some larger fingers of tributary Holocene alluvium)
- Reach where setbacks overlap with other geologic units in floodplain
- San Pedro River Watershed

Base Map: USGS 1:24,000 Topo

Appendix D-3

Lateral Extent of Floodplain Holocene Alluvium and Setbacks for Side Recharge

Booger Canyon Quad (Map 3 of 33)

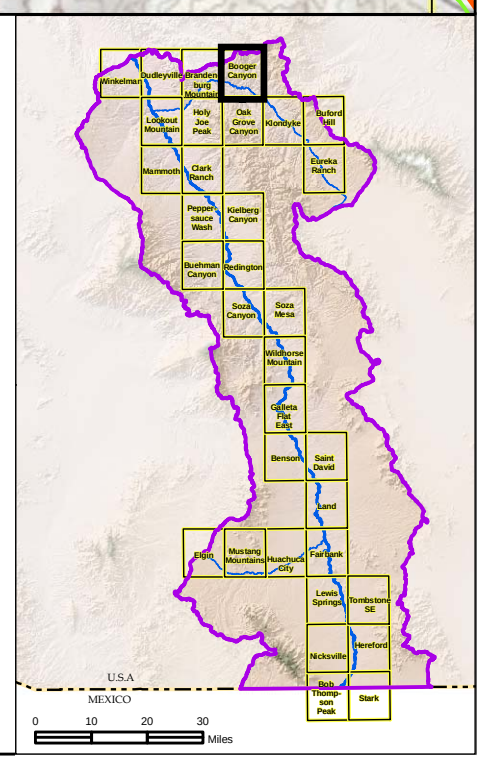
Subflow Zone Delineation Report for the San Pedro River Watershed

- USGS Topo Quad Boundary
- County
- International Boundary

*100-foot and 200-foot setbacks applied where FHA bordered by basin fill and tributary Holocene alluvium deposits, respectively. No setbacks applied where FHA is bordered by bedrock; along these reaches only orange line is shown.

**See Appendices D-1 and D-2 for other generalized geologic units and disturbed areas along the floodplain respectively.

N



Rattlesnake Canyon
Corral
RLOS INDIAN RESERVATION
Creek
Bates
Corral
Spr
Depression
Can
Red Basin
Brandenburg Mountain
Dudleyville
PINAL COUNTY
Javalina
Canyon
Booger Canyon
Cave Can
ARAVAIPA
Buzan
Canyon
Hells Half Acre
Whitewash
Canyon
Curtis Spring
Brandenburg Mtn
Bear Springs
Canyon
Periz Peak
Hayen
Canyon
Lookout Mountain
Holy Joe Peak
Oak Grove Canyon

0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

- Extent of Floodplain Holocene Alluvium (FHA) With Setbacks for Side Recharge*
- Reach where width of setback is greater than width of FHA
- Reach where FHA not mapped at 1:24,000 scale used by AZGS
- Extent of FHA**
- Other generalized geologic unit mapped within floodplain (includes islands of material and some larger fingers of tributary Holocene alluvium)
- Reach where setbacks overlap with other geologic units in floodplain
- San Pedro River Watershed

Base Map: USGS 1:24,000 Topo

Appendix D-3

Lateral Extent of Floodplain Holocene Alluvium and Setbacks for Side Recharge

Brandenburg Mountain Quad (Map 4 of 33)

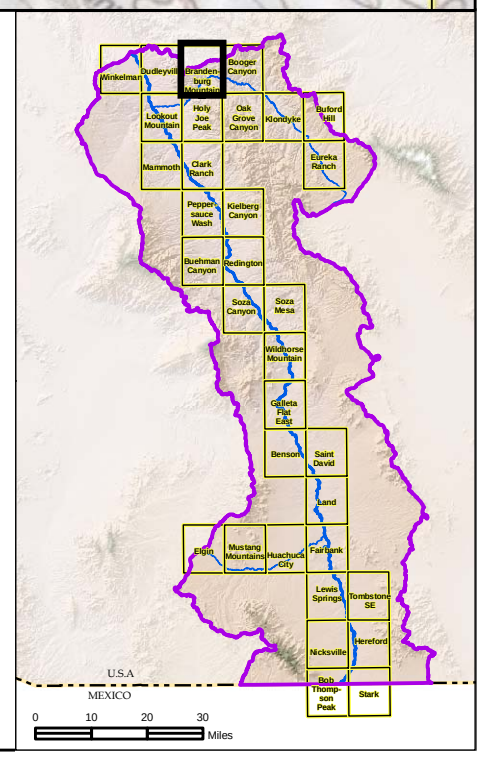
Subflow Zone Delineation Report for the San Pedro River Watershed

- USGS Topo Quad Boundary
- County
- International Boundary

*100-foot and 200-foot setbacks applied where FHA bordered by basin fill and tributary Holocene alluvium deposits, respectively. No setbacks applied where FHA is bordered by bedrock; along these reaches only orange line is shown.

**See Appendices D-1 and D-2 for other generalized geologic units and disturbed areas along the floodplain respectively.

N



Peppersauce Wash

Kielberg Canyon

Buehman Canyon

Redington

Soza Canyon

0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

- Extent of Floodplain Holocene Alluvium (FHA) With Setbacks for Side Recharge*
- Reach where width of setback is greater than width of FHA
- Reach where FHA not mapped at 1:24,000 scale used by AZGS
- Extent of FHA**
- Other generalized geologic unit mapped within floodplain (includes islands of material and some larger fingers of tributary Holocene alluvium)
- Reach where setbacks overlap with other geologic units in floodplain
- San Pedro River Watershed

Base Map: USGS 1:24,000 Topo

Appendix D-3

Lateral Extent of Floodplain Holocene Alluvium and Setbacks for Side Recharge

Buehman Canyon Quad (Map 5 of 33)

Subflow Zone Delineation Report for the San Pedro River Watershed

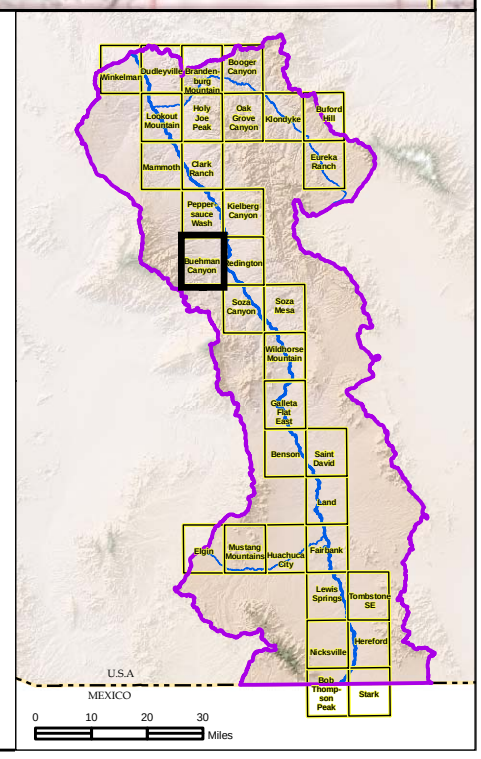
ARIZONA DEPARTMENT OF WATER RESOURCES

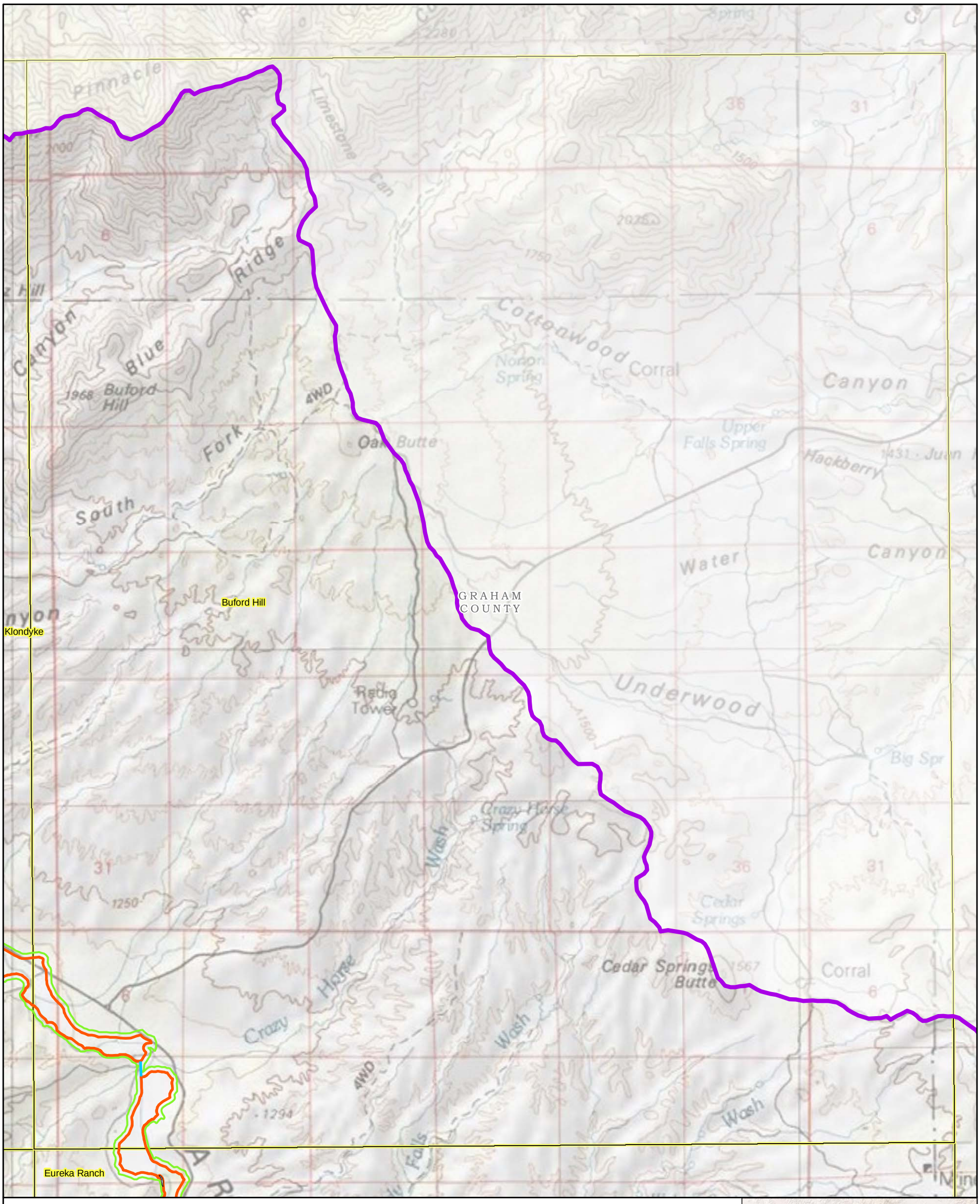
- USGS Topo Quad Boundary
- County
- International Boundary

*100-foot and 200-foot setbacks applied where FHA bordered by basin fill and tributary Holocene alluvium deposits, respectively. No setbacks applied where FHA is bordered by bedrock; along these reaches only orange line is shown.

**See Appendices D-1 and D-2 for other generalized geologic units and disturbed areas along the floodplain respectively.

N





Legend

- Extent of Floodplain Holocene Alluvium (FHA) With Setbacks for Side Recharge*
- Reach where width of setback is greater than width of FHA
- Reach where FHA not mapped at 1:24,000 scale used by AZGS
- Extent of FHA**
- Other generalized geologic unit mapped within floodplain (includes islands of material and some larger fingers of tributary Holocene alluvium)
- Reach where setbacks overlap with other geologic units in floodplain
- San Pedro River Watershed

Base Map: USGS 1:24,000 Topo

Appendix D-3

Lateral Extent of Floodplain Holocene Alluvium and Setbacks for Side Recharge

Buford Hill Quad (Map 6 of 33)

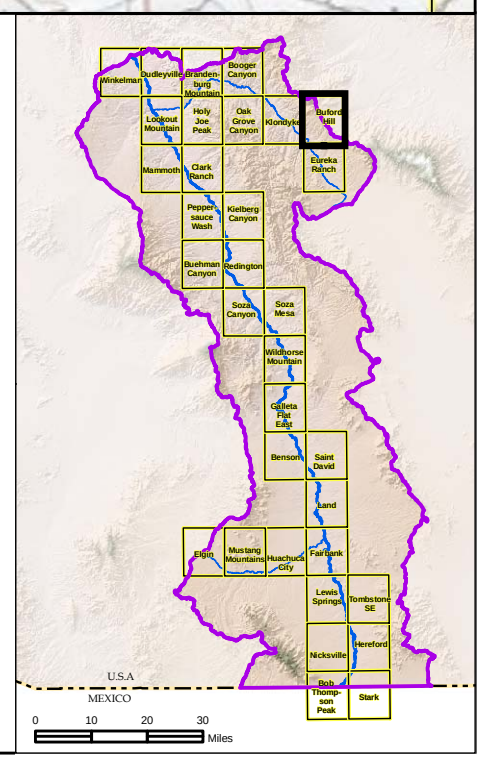
Subflow Zone Delineation Report for the San Pedro River Watershed

- USGS Topo Quad Boundary
- County
- International Boundary

*100-foot and 200-foot setbacks applied where FHA bordered by basin fill and tributary Holocene alluvium deposits, respectively. No setbacks applied where FHA is bordered by bedrock; along these reaches only orange line is shown.

**See Appendices D-1 and D-2 for other generalized geologic units and disturbed areas along the floodplain respectively.

N



Lookout Mountain
Holy Joe Peak
Oak Grove Canyon
Peppersauce Wash
Kielberg Canyon
Mammoth
Clark Ranch

0 0.5 1 1.5 2 Kilometers
0 0.5 1 1.5 2 Miles

Legend

- Extent of Floodplain Holocene Alluvium (FHA) With Setbacks for Side Recharge*
- Reach where width of setback is greater than width of FHA
- Reach where FHA not mapped at 1:24,000 scale used by AZGS
- Extent of FHA**
- Other generalized geologic unit mapped within floodplain (includes islands of material and some larger fingers of tributary Holocene alluvium)
- Reach where setbacks overlap with other geologic units in floodplain
- San Pedro River Watershed

Base Map: USGS 1:24,000 Topo

Appendix D-3

Lateral Extent of Floodplain Holocene Alluvium and Setbacks for Side Recharge

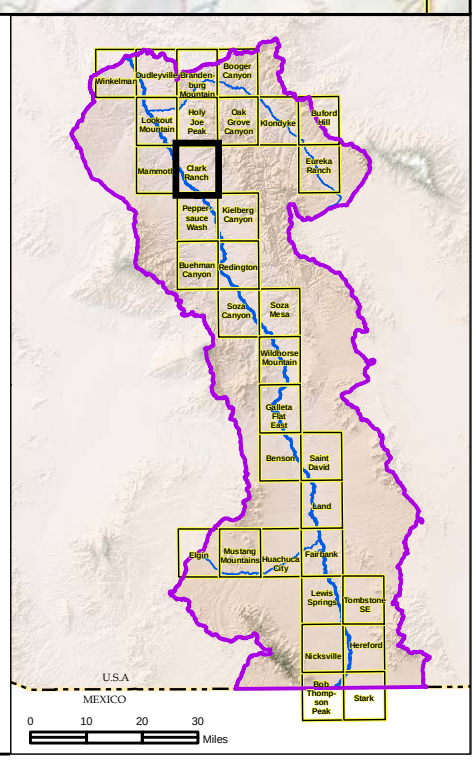
Clark Ranch Quad (Map 7 of 33)

Subflow Zone Delineation Report for the San Pedro River Watershed

- USGS Topo Quad Boundary
- County
- International Boundary

*100-foot and 200-foot setbacks applied where FHA bordered by basin fill and tributary Holocene alluvium deposits, respectively. No setbacks applied where FHA is bordered by bedrock; along these reaches only orange line is shown.
**See Appendices D-1 and D-2 for other generalized geologic units and disturbed areas along the floodplain respectively.

N



Saddle Mtn

Dudleyville

Brandenburg Mountain

Lookout Mountain

Holy Joe Peak

PINAL COUNTY

Kelleys Camp

Eskimazene Ranch

Whittaker Ranch

Wash

Piper Springs

Reach

Lantern Wash

Green Wash

Dodson Wash

SAN PEDRO RIVER

0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

- Extent of Floodplain Holocene Alluvium (FHA) With Setbacks for Side Recharge*
- Reach where width of setback is greater than width of FHA
- Reach where FHA not mapped at 1:24,000 scale used by AZGS
- Extent of FHA**
- Other generalized geologic unit mapped within floodplain (includes islands of material and some larger fingers of tributary Holocene alluvium)
- Reach where setbacks overlap with other geologic units in floodplain
- San Pedro River Watershed

Base Map: USGS 1:24,000 Topo

Appendix D-3

Lateral Extent of Floodplain Holocene Alluvium and Setbacks for Side Recharge

Dudleyville Quad (Map 8 of 33)

Subflow Zone Delineation Report for the San Pedro River Watershed

N

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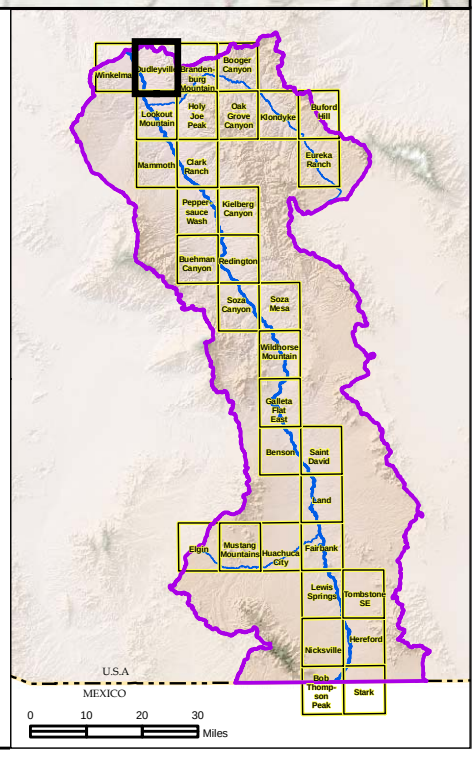
- USGS Topo Quad Boundary
- County
- International Boundary

*100-foot and 200-foot setbacks applied where FHA bordered by basin fill and tributary Holocene alluvium deposits, respectively. No setbacks applied where FHA is bordered by bedrock; along these reaches only orange line is shown.

**See Appendices D-1 and D-2 for other generalized geologic units and disturbed areas along the floodplain respectively.



PIMA COUNTY

SANTA CRUZ COUNTY

Elgin

Mustang Mountains

Babocomari

Cienega

Creek

Canyon

SAN IGNACIO

0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

- Extent of Floodplain Holocene Alluvium (FHA) With Setbacks for Side Recharge*
- Reach where width of setback is greater than width of FHA
- Reach where FHA not mapped at 1:24,000 scale used by AZGS
- Extent of FHA**
- Other generalized geologic unit mapped within floodplain (includes islands of material and some larger fingers of tributary Holocene alluvium)
- Reach where setbacks overlap with other geologic units in floodplain
- San Pedro River Watershed

Base Map: USGS 1:24,000 Topo

Appendix D-3

Lateral Extent of Floodplain Holocene Alluvium and Setbacks for Side Recharge

Elgin Quad (Map 9 of 33)

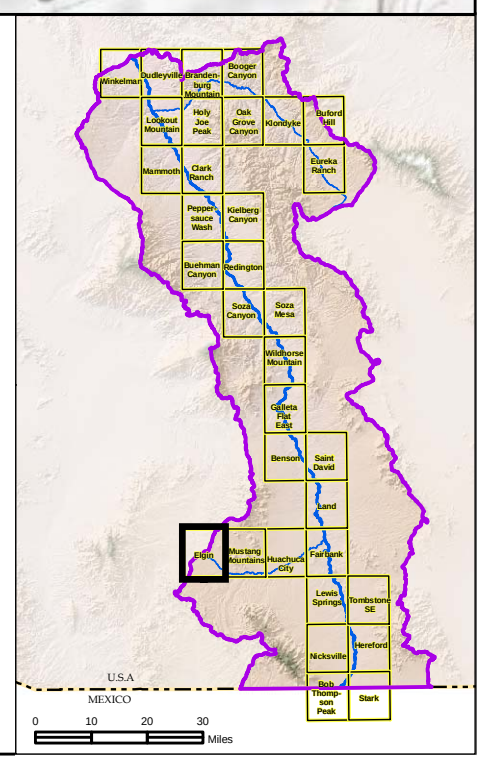
Subflow Zone Delineation Report for the San Pedro River Watershed

N

- USGS Topo Quad Boundary
- County
- International Boundary

*100-foot and 200-foot setbacks applied where FHA bordered by basin fill and tributary Holocene alluvium deposits, respectively. No setbacks applied where FHA is bordered by bedrock; along these reaches only orange line is shown.

**See Appendices D-1 and D-2 for other generalized geologic units and disturbed areas along the floodplain respectively.



Appendix D-3

Lateral Extent of Floodplain Holocene Alluvium and Setbacks for Side Recharge

Eureka Ranch Quad (Map 10 of 33)

Subflow Zone Delineation Report for the San Pedro River Watershed

0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

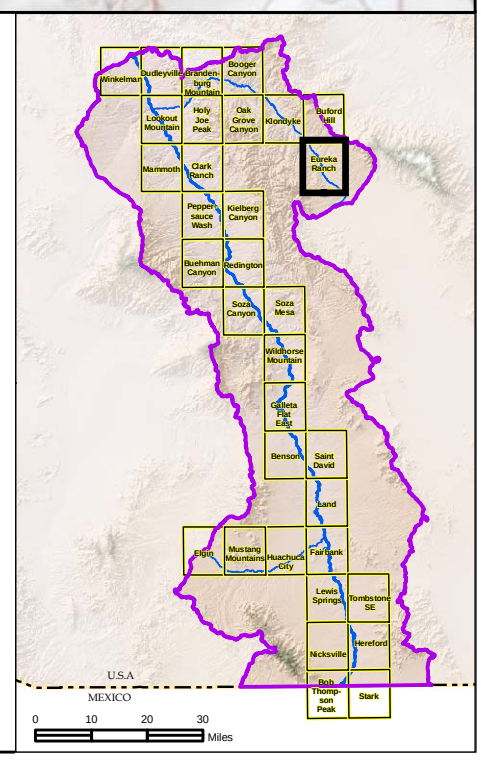
- Extent of Floodplain Holocene Alluvium (FHA) With Setbacks for Side Recharge*
- Reach where width of setback is greater than width of FHA
- Reach where FHA not mapped at 1:24,000 scale used by AZGS
- Extent of FHA**
- Other generalized geologic unit mapped within floodplain (includes islands of material and some larger fingers of tributary Holocene alluvium)
- Reach where setbacks overlap with other geologic units in floodplain
- San Pedro River Watershed
- USGS Topo Quad Boundary
- County
- International Boundary

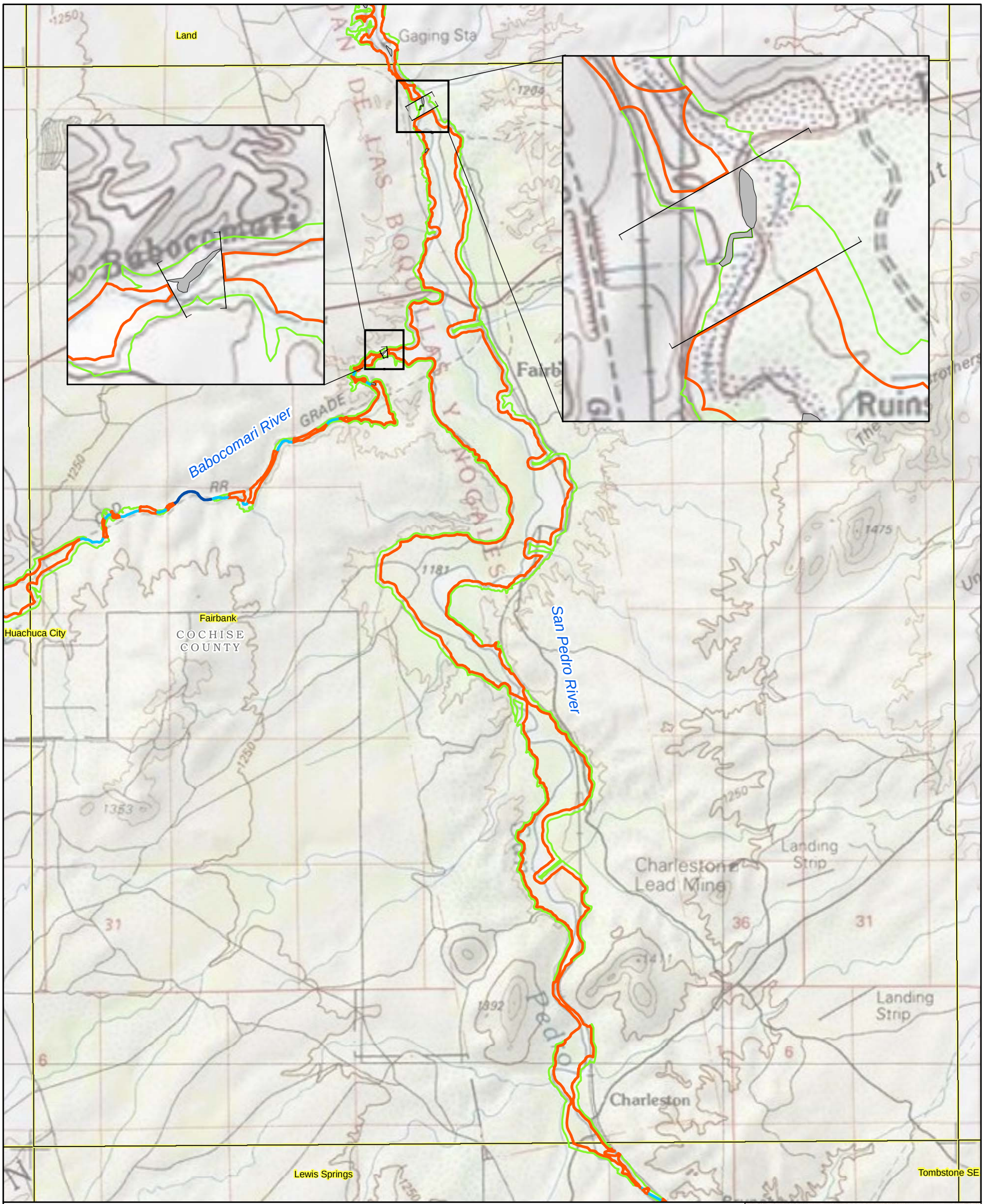
Base Map: USGS 1:24,000 Topo

*100-foot and 200-foot setbacks applied where FHA bordered by basin fill and tributary Holocene alluvium deposits, respectively. No setbacks applied where FHA is bordered by bedrock; along these reaches only orange line is shown.

**See Appendices D-1 and D-2 for other generalized geologic units and disturbed areas along the floodplain respectively.

N





0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

- Extent of Floodplain Holocene Alluvium (FHA) With Setbacks for Side Recharge*
- Reach where width of setback is greater than width of FHA
- Reach where FHA not mapped at 1:24,000 scale used by AZGS
- Extent of FHA**
- Other generalized geologic unit mapped within floodplain (includes islands of material and some larger fingers of tributary Holocene alluvium)
- Reach where setbacks overlap with other geologic units in floodplain
- San Pedro River Watershed

Base Map: USGS 1:24,000 Topo

Appendix D-3

Lateral Extent of Floodplain Holocene Alluvium and Setbacks for Side Recharge

Fairbank Quad (Map 11 of 33)

Subflow Zone Delineation Report for the San Pedro River Watershed

- USGS Topo Quad Boundary
- County
- International Boundary

*100-foot and 200-foot setbacks applied where FHA bordered by basin fill and tributary Holocene alluvium deposits, respectively. No setbacks applied where FHA is bordered by bedrock; along these reaches only orange line is shown.

**See Appendices D-1 and D-2 for other generalized geologic units and disturbed areas along the floodplain respectively.

N

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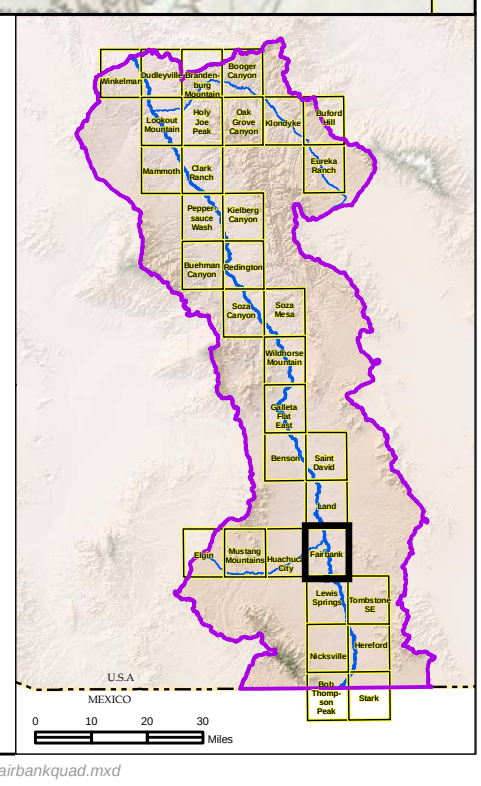

Appendix D-3

Lateral Extent of Floodplain Holocene Alluvium and Setbacks for Side Recharge

Galleta Flat East Quad (Map 12 of 33)

Subflow Zone Delineation Report for the San Pedro River Watershed

0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

- Extent of Floodplain Holocene Alluvium (FHA) With Setbacks for Side Recharge*
- Reach where width of setback is greater than width of FHA
- Reach where FHA not mapped at 1:24,000 scale used by AZGS
- Extent of FHA**
- Other generalized geologic unit mapped within floodplain (includes islands of material and some larger fingers of tributary Holocene alluvium)
- Reach where setbacks overlap with other geologic units in floodplain
- San Pedro River Watershed

Base Map: USGS 1:24,000 Topo

- USGS Topo Quad Boundary
- County
- International Boundary

*100-foot and 200-foot setbacks applied where FHA bordered by basin fill and tributary Holocene alluvium deposits, respectively. No setbacks applied where FHA is bordered by bedrock; along these reaches only orange line is shown.

**See Appendices D-1 and D-2 for other generalized geologic units and disturbed areas along the floodplain respectively.

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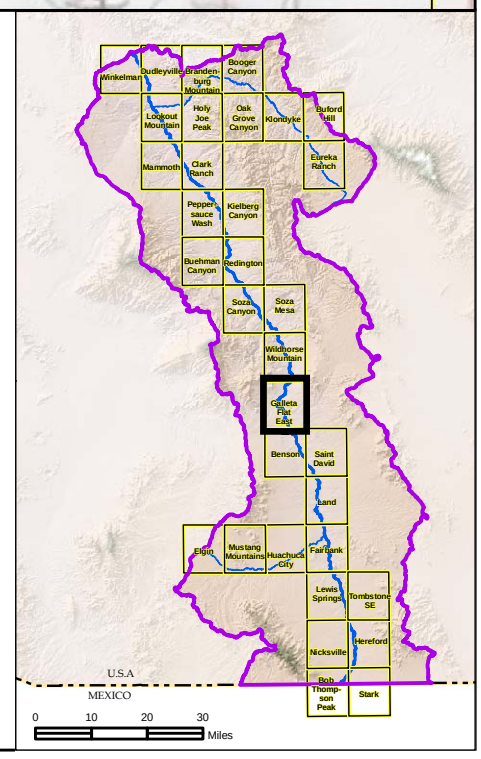
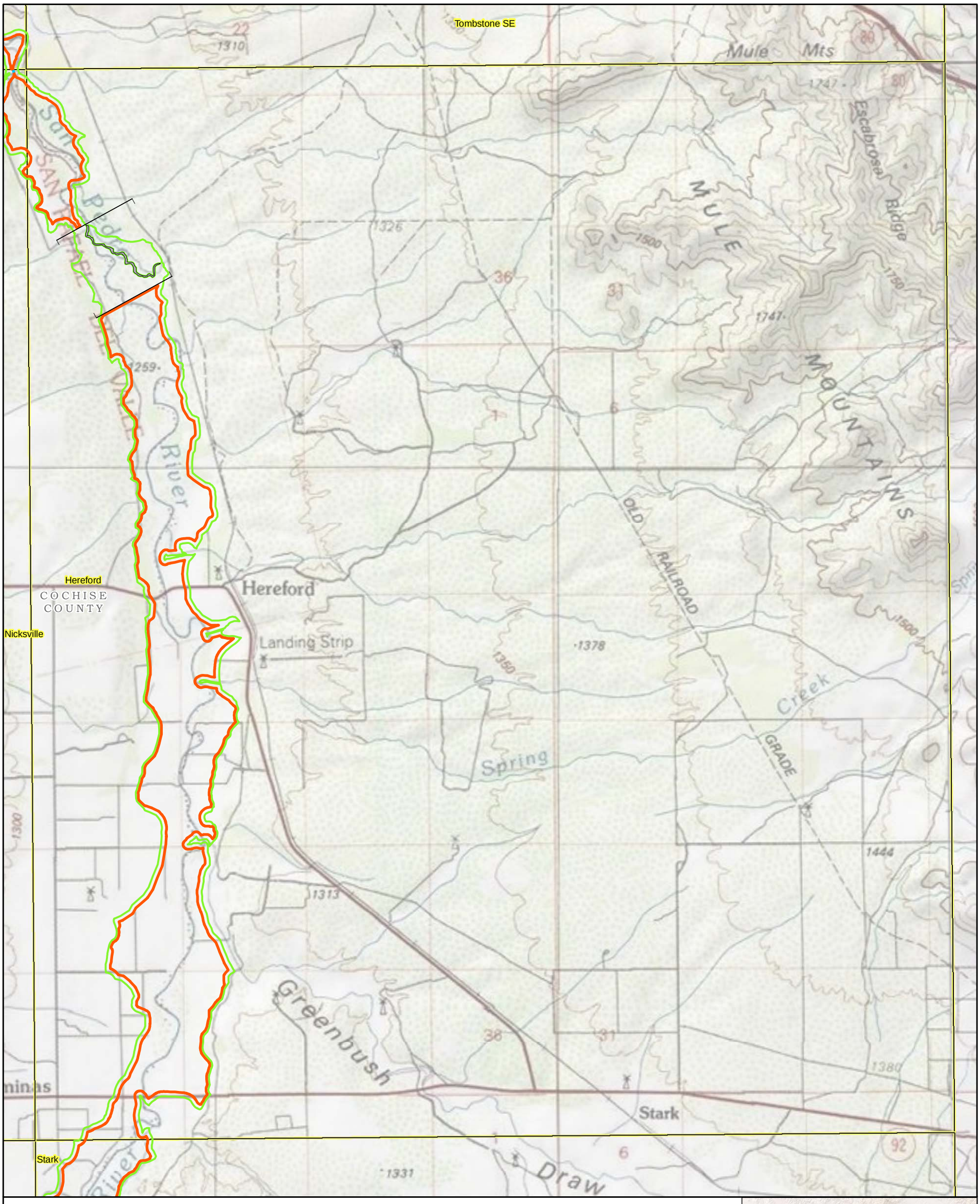




0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

- Extent of Floodplain Holocene Alluvium (FHA) With Setbacks for Side Recharge*
- Reach where width of setback is greater than width of FHA
- Reach where FHA not mapped at 1:24,000 scale used by AZGS
- Extent of FHA**
- Other generalized geologic unit mapped within floodplain (includes islands of material and some larger fingers of tributary Holocene alluvium)
- Reach where setbacks overlap with other geologic units in floodplain
- San Pedro River Watershed

Base Map: USGS 1:24,000 Topo

Appendix D-3

Lateral Extent of Floodplain Holocene Alluvium and Setbacks for Side Recharge

Hereford Quad (Map 13 of 33)

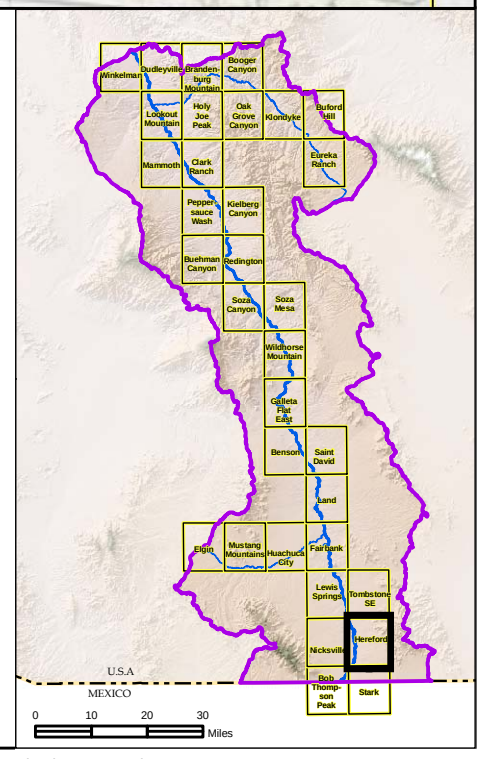
Subflow Zone Delineation Report for the San Pedro River Watershed

N

- USGS Topo Quad Boundary
- County
- International Boundary

*100-foot and 200-foot setbacks applied where FHA bordered by basin fill and tributary Holocene alluvium deposits, respectively. No setbacks applied where FHA is bordered by bedrock; along these reaches only orange line is shown.

**See Appendices D-1 and D-2 for other generalized geologic units and disturbed areas along the floodplain respectively.



Dudleyville
Brandenburg Mountain
Booger Canyon
Holy Joe Peak
Oak Grove Canyon
Lookout Mountain
Mammoth
Clark Ranch

0 0.5 1 1.5 2 Kilometers
0 0.5 1 1.5 2 Miles

Legend

- Extent of Floodplain Holocene Alluvium (FHA) With Setbacks for Side Recharge*
- Reach where width of setback is greater than width of FHA
- Reach where FHA not mapped at 1:24,000 scale used by AZGS
- Extent of FHA**
- Other generalized geologic unit mapped within floodplain (includes islands of material and some larger fingers of tributary Holocene alluvium)
- Reach where setbacks overlap with other geologic units in floodplain
- San Pedro River Watershed

Base Map: USGS 1:24,000 Topo

Appendix D-3

Lateral Extent of Floodplain Holocene Alluvium and Setbacks for Side Recharge

Holy Joe Peak Quad (Map 14 of 33)

Subflow Zone Delineation Report for the San Pedro River Watershed

- USGS Topo Quad Boundary
- County
- International Boundary

*100-foot and 200-foot setbacks applied where FHA bordered by basin fill and tributary Holocene alluvium deposits, respectively. No setbacks applied where FHA is bordered by bedrock; along these reaches only orange line is shown.

**See Appendices D-1 and D-2 for other generalized geologic units and disturbed areas along the floodplain respectively.

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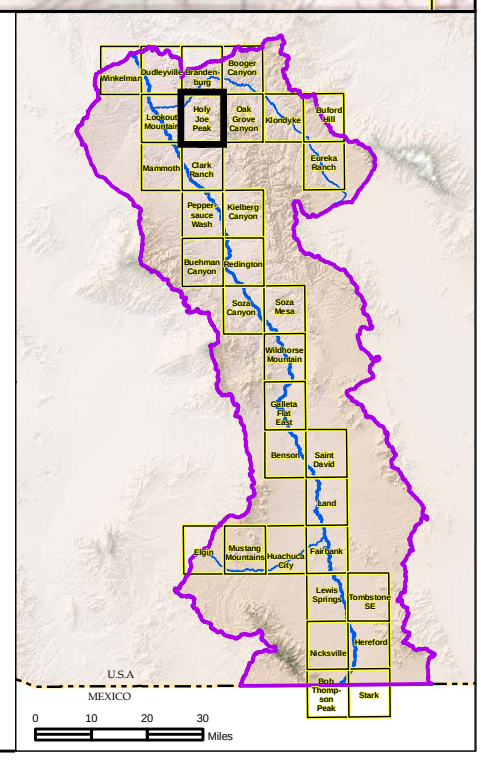


Land

1342

1300

36

31

36

90

6

1

1

1274

1307

82

1354

Huachuca City

COCHISE
COUNTY

Mustang Mountains

90

Landing
Strip

1326

1300

35

1907

1316

6 Huachuca
City

North Gate

Lewis Springs

0 0.5 1 1.5 2
Kilometers
0 0.5 1 1.5 2
Miles

Legend

- Extent of Floodplain Holocene Alluvium (FHA) With Setbacks for Side Recharge*
- Reach where width of setback is greater than width of FHA
- Reach where FHA not mapped at 1:24,000 scale used by AZGS
- Extent of FHA**
- Other generalized geologic unit mapped within floodplain (includes islands of material and some larger fingers of tributary Holocene alluvium)
- Reach where setbacks overlap with other geologic units in floodplain
- San Pedro River Watershed

Base Map: USGS 1:24,000 Topo

Appendix D-3

Lateral Extent of Floodplain
Holocene Alluvium and Setbacks
for Side Recharge

Huachuca City Quad (Map 15 of 33)

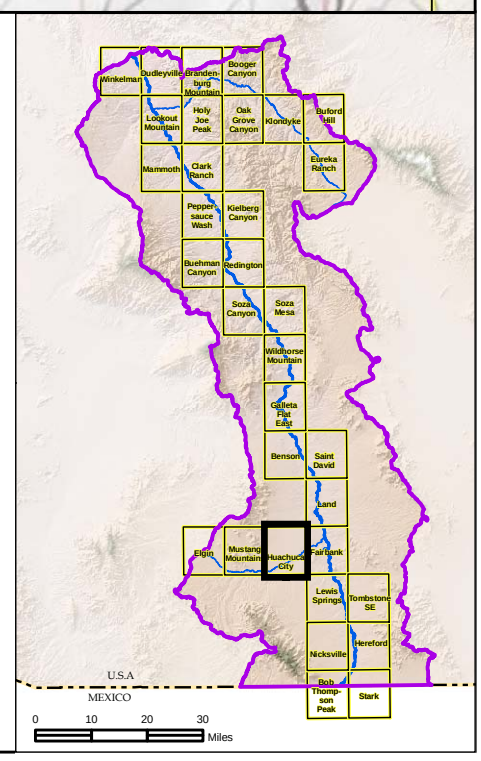
Subflow Zone Delineation
Report for the San Pedro
River Watershed

N

ARIZONA DEPARTMENT OF WATER RESOURCES

- USGS Topo Quad Boundary
- County
- International Boundary

*100-foot and 200-foot setbacks applied where FHA bordered by basin fill and tributary Holocene alluvium deposits, respectively. No setbacks applied where FHA is bordered by bedrock; along these reaches only orange line is shown.
**See Appendices D-1 and D-2 for other generalized geologic units and disturbed areas along the floodplain respectively.



Clark Ranch

Peppersauce Wash

Kielberg Canyon

Redington

0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

- Extent of Floodplain Holocene Alluvium (FHA) With Setbacks for Side Recharge*
- Reach where width of setback is greater than width of FHA
- Reach where FHA not mapped at 1:24,000 scale used by AZGS
- Extent of FHA**
- Other generalized geologic unit mapped within floodplain (includes islands of material and some larger fingers of tributary Holocene alluvium)
- Reach where setbacks overlap with other geologic units in floodplain
- San Pedro River Watershed

Base Map: USGS 1:24,000 Topo

Appendix D-3

Lateral Extent of Floodplain Holocene Alluvium and Setbacks for Side Recharge

Kielberg Canyon Quad (Map 16 of 33)

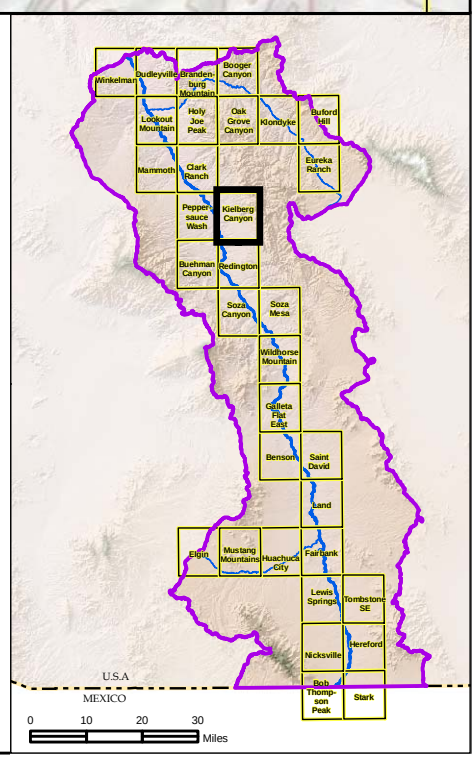
Subflow Zone Delineation Report for the San Pedro River Watershed

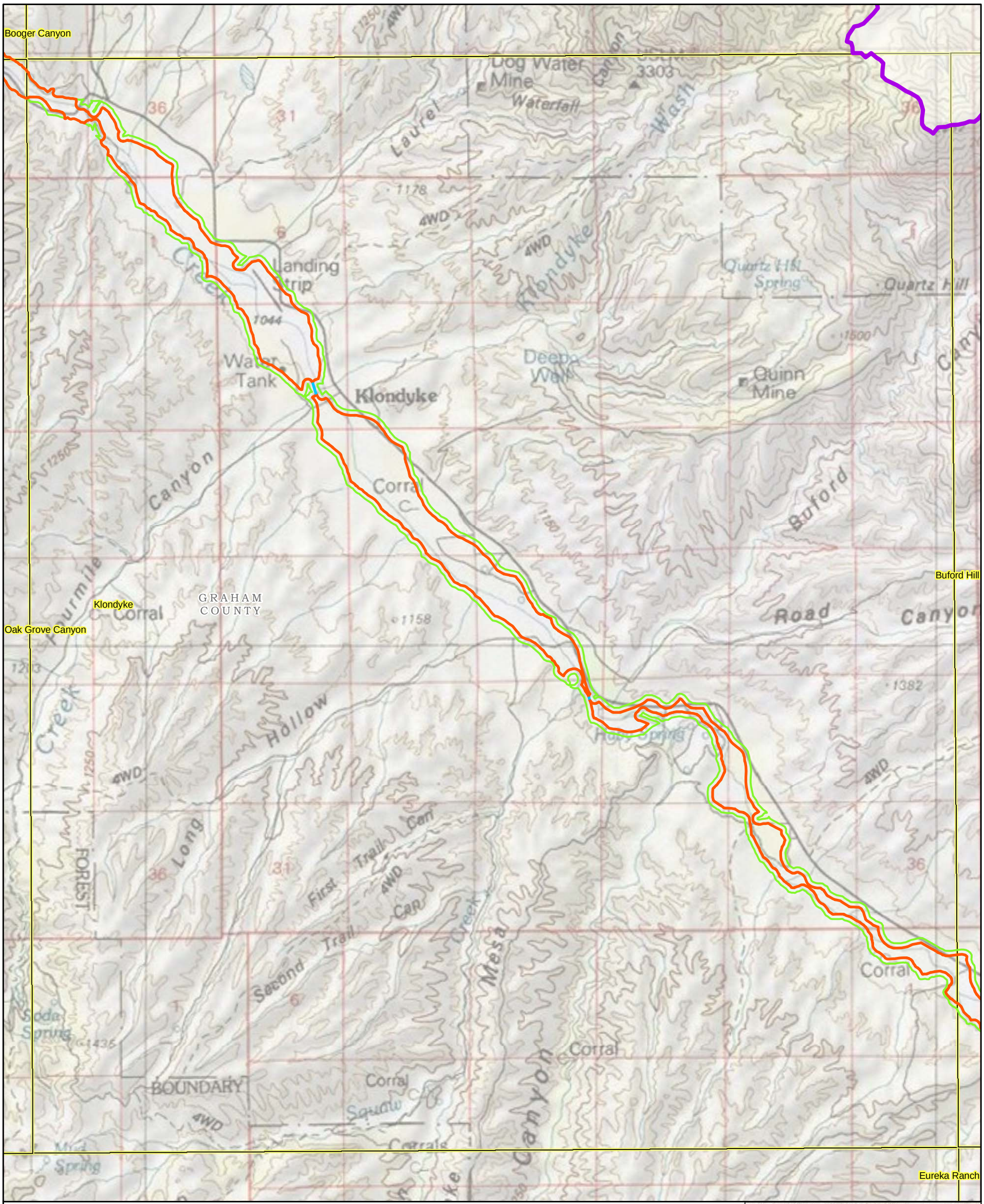
- USGS Topo Quad Boundary
- County
- International Boundary

*100-foot and 200-foot setbacks applied where FHA bordered by basin fill and tributary Holocene alluvium deposits, respectively. No setbacks applied where FHA is bordered by bedrock; along these reaches only orange line is shown.

**See Appendices D-1 and D-2 for other generalized geologic units and disturbed areas along the floodplain respectively.

N





0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

- Extent of Floodplain Holocene Alluvium (FHA) With Setbacks for Side Recharge*
- Reach where width of setback is greater than width of FHA
- Reach where FHA not mapped at 1:24,000 scale used by AZGS
- Extent of FHA**
- Other generalized geologic unit mapped within floodplain (includes islands of material and some larger fingers of tributary Holocene alluvium)
- Reach where setbacks overlap with other geologic units in floodplain
- San Pedro River Watershed

Base Map: USGS 1:24,000 Topo

Appendix D-3

Lateral Extent of Floodplain Holocene Alluvium and Setbacks for Side Recharge

Klondyke Quad (Map 17 of 33)

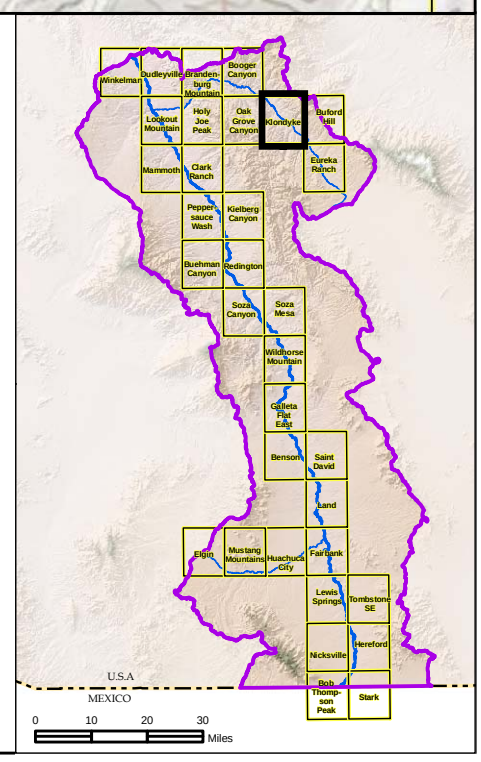
Subflow Zone Delineation Report for the San Pedro River Watershed

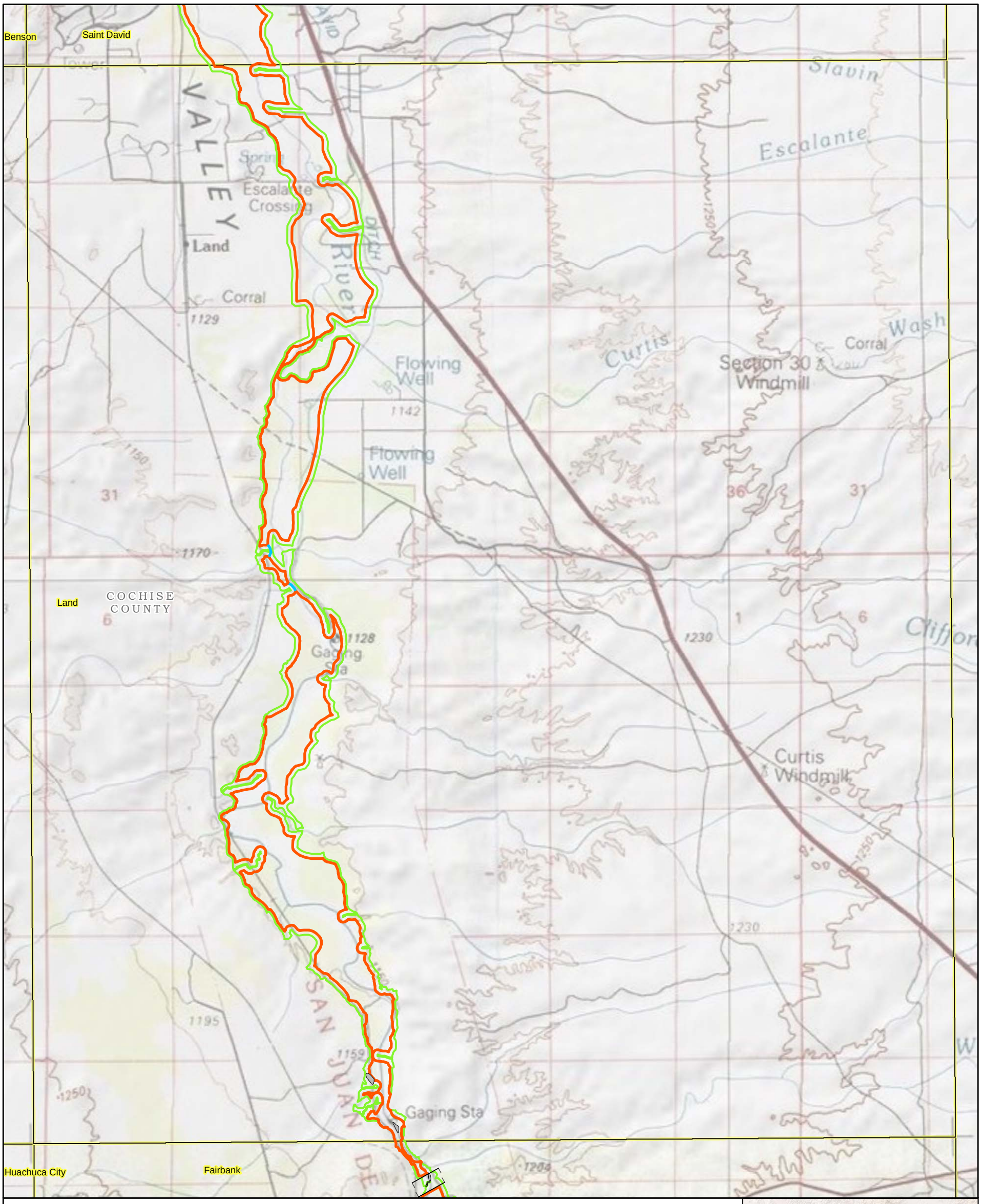
- USGS Topo Quad Boundary
- County
- International Boundary

*100-foot and 200-foot setbacks applied where FHA bordered by basin fill and tributary Holocene alluvium deposits, respectively. No setbacks applied where FHA is bordered by bedrock; along these reaches only orange line is shown.

**See Appendices D-1 and D-2 for other generalized geologic units and disturbed areas along the floodplain respectively.

N





0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

- Extent of Floodplain Holocene Alluvium (FHA) With Setbacks for Side Recharge*
- Reach where width of setback is greater than width of FHA
- Reach where FHA not mapped at 1:24,000 scale used by AZGS
- Extent of FHA**
- Other generalized geologic unit mapped within floodplain (includes islands of material and some larger fingers of tributary Holocene alluvium)
- Reach where setbacks overlap with other geologic units in floodplain
- San Pedro River Watershed

Base Map: USGS 1:24,000 Topo

Appendix D-3

Lateral Extent of Floodplain Holocene Alluvium and Setbacks for Side Recharge

Land Quad (Map 18 of 33)

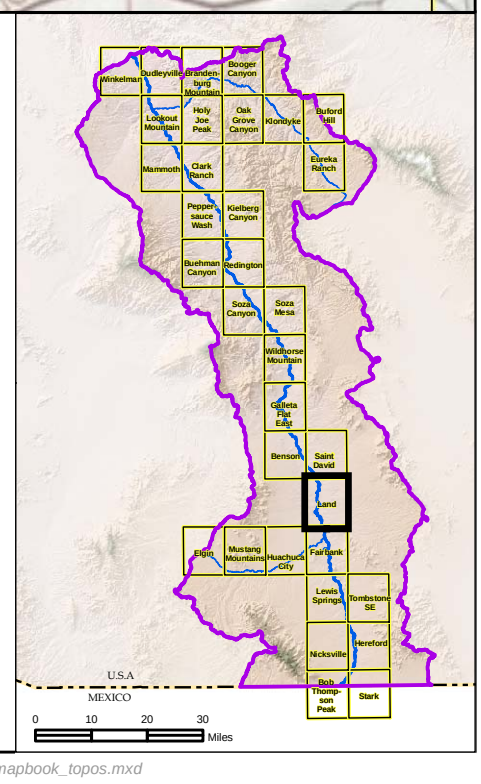
Subflow Zone Delineation Report for the San Pedro River Watershed

N

- USGS Topo Quad Boundary
- County
- International Boundary

*100-foot and 200-foot setbacks applied where FHA bordered by basin fill and tributary Holocene alluvium deposits, respectively. No setbacks applied where FHA is bordered by bedrock; along these reaches only orange line is shown.

**See Appendices D-1 and D-2 for other generalized geologic units and disturbed areas along the floodplain respectively.



Huachuca City
Fairbank
Charleston
Bruocrow Hill
Gulch
BDY
RES
MIL
Graveyard
1296
Lewis Springs
GRADE
RAILROAD
OLD
COCHISE
COUNTY
AQUEDUCT
36
1289
1345
1244
1300
Gravel Pit
Tombstone SE
Nicksville
Hereford

0 0.5 1 1.5 2 Kilometers
0 0.5 1 1.5 2 Miles

Legend

- Extent of Floodplain Holocene Alluvium (FHA) With Setbacks for Side Recharge*
- Reach where width of setback is greater than width of FHA
- Reach where FHA not mapped at 1:24,000 scale used by AZGS
- Extent of FHA**
- Other generalized geologic unit mapped within floodplain (includes islands of material and some larger fingers of tributary Holocene alluvium)
- Reach where setbacks overlap with other geologic units in floodplain
- San Pedro River Watershed

Base Map: USGS 1:24,000 Topo

Appendix D-3

Lateral Extent of Floodplain Holocene Alluvium and Setbacks for Side Recharge

Lewis Springs Quad (Map 19 of 33)

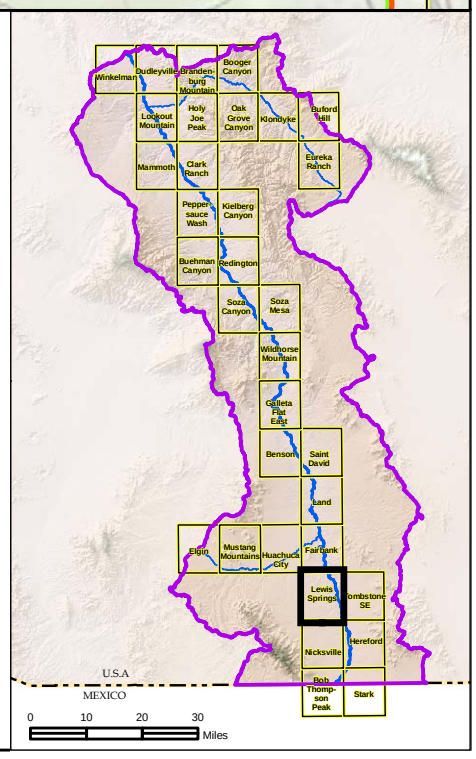
Subflow Zone Delineation Report for the San Pedro River Watershed

- USGS Topo Quad Boundary
- County
- International Boundary

*100-foot and 200-foot setbacks applied where FHA bordered by basin fill and tributary Holocene alluvium deposits, respectively. No setbacks applied where FHA is bordered by bedrock; along these reaches only orange line is shown.

**See Appendices D-1 and D-2 for other generalized geologic units and disturbed areas along the floodplain respectively.

N



Winkelman
Dudleyville
Brandenburg Mountain
Aravaipa Creek
San Pedro River
Lookout Mountain
PINAL COUNTY
Holy Joe Peak
Mammoth
Clark Ranch

0 0.5 1 1.5 2
Kilometers
0 0.5 1 1.5 2
Miles

Legend

- Extent of Floodplain Holocene Alluvium (FHA) With Setbacks for Side Recharge*
- Reach where width of setback is greater than width of FHA
- Reach where FHA not mapped at 1:24,000 scale used by AZGS
- Extent of FHA**
- Other generalized geologic unit mapped within floodplain (includes islands of material and some larger fingers of tributary Holocene alluvium)
- Reach where setbacks overlap with other geologic units in floodplain
- San Pedro River Watershed

Base Map: USGS 1:24,000 Topo

Appendix D-3

Lateral Extent of Floodplain Holocene Alluvium and Setbacks for Side Recharge

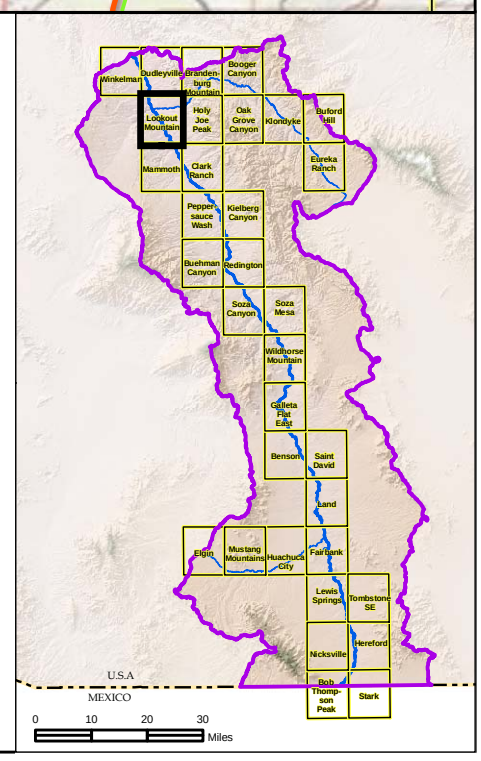
Lookout Mountain Quad (Map 20 of 33)

Subflow Zone Delineation Report for the San Pedro River Watershed

- USGS Topo Quad Boundary
- County
- International Boundary

*100-foot and 200-foot setbacks applied where FHA bordered by basin fill and tributary Holocene alluvium deposits, respectively. No setbacks applied where FHA is bordered by bedrock; along these reaches only orange line is shown.
**See Appendices D-1 and D-2 for other generalized geologic units and disturbed areas along the floodplain respectively.

N



Lookout Mountain

Holy Joe Peak

4WD

Pearl Mine

Hills

Wash

Tar

Mammoth

Wash

Tiger

Wash

PINAL COUNTY

Clark Ranch

Mammoth

Wash

Wash

Wash

Wash

Peppersauce Wash

0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

- Extent of Floodplain Holocene Alluvium (FHA) With Setbacks for Side Recharge*
- Reach where width of setback is greater than width of FHA
- Reach where FHA not mapped at 1:24,000 scale used by AZGS
- Extent of FHA**
- Other generalized geologic unit mapped within floodplain (includes islands of material and some larger fingers of tributary Holocene alluvium)
- Reach where setbacks overlap with other geologic units in floodplain
- San Pedro River Watershed

Base Map: USGS 1:24,000 Topo

Appendix D-3

Lateral Extent of Floodplain Holocene Alluvium and Setbacks for Side Recharge

Mammoth Quad (Map 21 of 33)

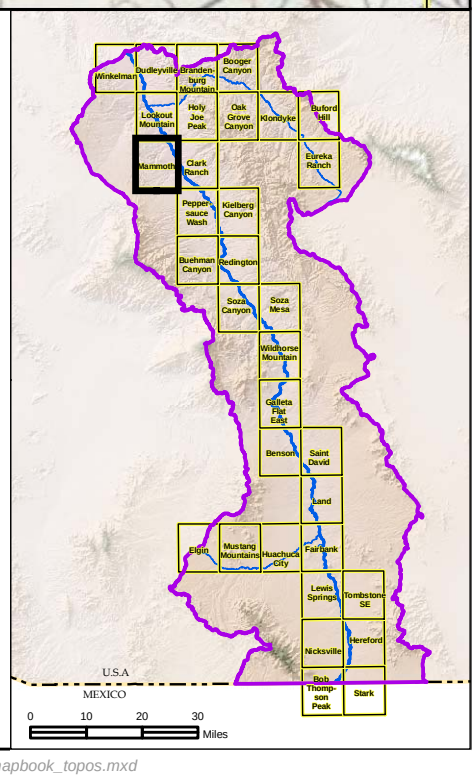
Subflow Zone Delineation Report for the San Pedro River Watershed

N

- USGS Topo Quad Boundary
- County
- International Boundary

*100-foot and 200-foot setbacks applied where FHA bordered by basin fill and tributary Holocene alluvium deposits, respectively. No setbacks applied where FHA is bordered by bedrock; along these reaches only orange line is shown.

**See Appendices D-1 and D-2 for other generalized geologic units and disturbed areas along the floodplain respectively.



Appendix D-3

Lateral Extent of Floodplain Holocene Alluvium and Setbacks for Side Recharge

Mustang Mountains Quad (Map 22 of 33)

Subflow Zone Delineation Report for the San Pedro River Watershed

0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

- Extent of Floodplain Holocene Alluvium (FHA) With Setbacks for Side Recharge*
- Reach where width of setback is greater than width of FHA
- Reach where FHA not mapped at 1:24,000 scale used by AZGS
- Extent of FHA**
- Other generalized geologic unit mapped within floodplain (includes islands of material and some larger fingers of tributary Holocene alluvium)
- Reach where setbacks overlap with other geologic units in floodplain
- San Pedro River Watershed

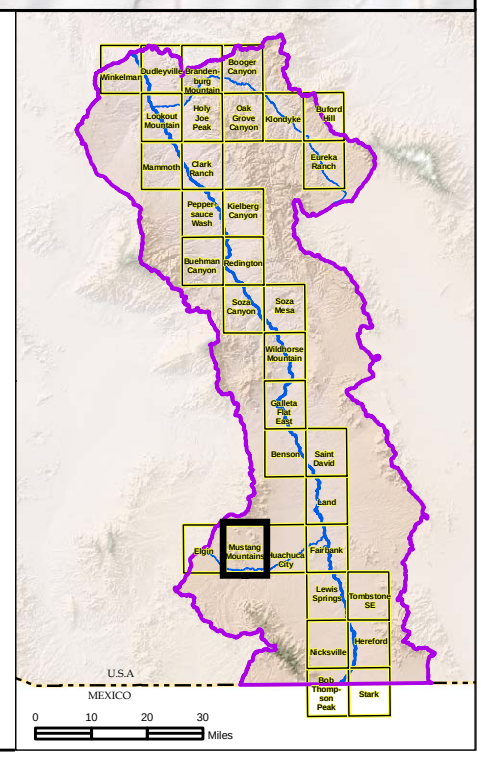
Base Map: USGS 1:24,000 Topo

- USGS Topo Quad Boundary
- County
- International Boundary

*100-foot and 200-foot setbacks applied where FHA bordered by basin fill and tributary Holocene alluvium deposits, respectively. No setbacks applied where FHA is bordered by bedrock; along these reaches only orange line is shown.

**See Appendices D-1 and D-2 for other generalized geologic units and disturbed areas along the floodplain respectively.

N



Lewis Springs

Nicksville

COCHISE COUNTY

Hereford

Bob Thompson Peak

Stark

0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

- Extent of Floodplain Holocene Alluvium (FHA) With Setbacks for Side Recharge*
- Reach where width of setback is greater than width of FHA
- Reach where FHA not mapped at 1:24,000 scale used by AZGS
- Extent of FHA**
- Other generalized geologic unit mapped within floodplain (includes islands of material and some larger fingers of tributary Holocene alluvium)
- Reach where setbacks overlap with other geologic units in floodplain
- San Pedro River Watershed

Base Map: USGS 1:24,000 Topo

Appendix D-3

Lateral Extent of Floodplain Holocene Alluvium and Setbacks for Side Recharge

Nicksville Quad (Map 23 of 33)

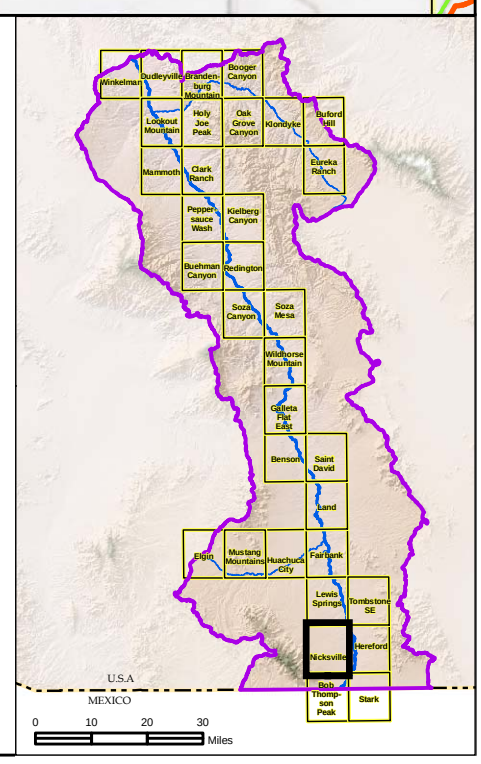
Subflow Zone Delineation Report for the San Pedro River Watershed

- USGS Topo Quad Boundary
- County
- International Boundary

*100-foot and 200-foot setbacks applied where FHA bordered by basin fill and tributary Holocene alluvium deposits, respectively. No setbacks applied where FHA is bordered by bedrock; along these reaches only orange line is shown.

**See Appendices D-1 and D-2 for other generalized geologic units and disturbed areas along the floodplain respectively.

N



Brandenburg Mountain
Booger Canyon
Holy Joe Peak
Oak Grove Canyon
Clark Ranch
Klondyke
PINAL COUNTY
GRAHAM COUNTY
Corrals
Corral
Table Mtn
Jackson Spring
Black Butte Spring
Garden Spring
Peach Spring
Bluebird Spring
Sixtysix Peak
Turquoise Peak
Fourmile Spring
Right Prong Fourmile Canyon
Mescal Peak
Blue Spring
Pipeline Canyon
Copper Prince Mine
Reliable Mine
Slory Hole Mine
Parsons Canyon
Wire Corral Draw
Oak Grove Canyon
Bleak Spring
Brown Jug Spring
Corral Spring
Corral Creek
Fourmile Canyon
NATIONAL

0 0.5 1 1.5 2 Kilometers
0 0.5 1 1.5 2 Miles

Legend

- Extent of Floodplain Holocene Alluvium (FHA) With Setbacks for Side Recharge*
- Reach where width of setback is greater than width of FHA
- Reach where FHA not mapped at 1:24,000 scale used by AZGS
- Extent of FHA**
- Other generalized geologic unit mapped within floodplain (includes islands of material and some larger fingers of tributary Holocene alluvium)
- Reach where setbacks overlap with other geologic units in floodplain
- San Pedro River Watershed

Base Map: USGS 1:24,000 Topo

Appendix D-3

Lateral Extent of Floodplain Holocene Alluvium and Setbacks for Side Recharge

Oak Grove Canyon Quad (Map 24 of 33)

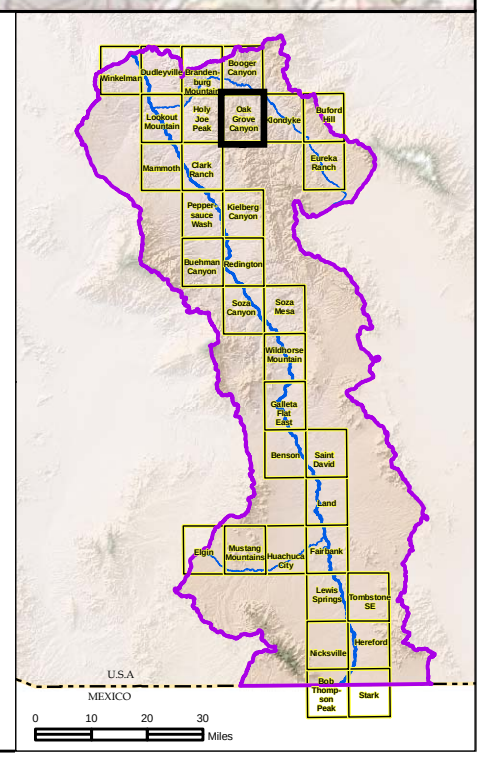
Subflow Zone Delineation Report for the San Pedro River Watershed

- USGS Topo Quad Boundary
- County
- International Boundary

*100-foot and 200-foot setbacks applied where FHA bordered by basin fill and tributary Holocene alluvium deposits, respectively. No setbacks applied where FHA is bordered by bedrock; along these reaches only orange line is shown.

**See Appendices D-1 and D-2 for other generalized geologic units and disturbed areas along the floodplain respectively.

N



Mammoth
Clark Ranch
Tailings Pond
Tailings Pond
Tailings Pond
Tailings Pond
Whitlock
Mill
San Manuel
950
1046
1
6
36
PINAL COUNTY
Landing Strip
Peppersauce Wash
Mine Dump
Black Hills Mine
Wash
Wash
Wash
Wash
Alder
Stratton
Geesaman
PIMA COUNTY
Buehman Canyon
Redington
1112
904
876
31

0 0.5 1 1.5 2 Kilometers
0 0.5 1 1.5 2 Miles

Legend

- Extent of Floodplain Holocene Alluvium (FHA) With Setbacks for Side Recharge*
- Reach where width of setback is greater than width of FHA
- Reach where FHA not mapped at 1:24,000 scale used by AZGS
- Extent of FHA**
- Other generalized geologic unit mapped within floodplain (includes islands of material and some larger fingers of tributary Holocene alluvium)
- Reach where setbacks overlap with other geologic units in floodplain
- San Pedro River Watershed

Base Map: USGS 1:24,000 Topo

Appendix D-3

Lateral Extent of Floodplain Holocene Alluvium and Setbacks for Side Recharge

Peppersauce Wash Quad (Map 25 of 33)

Subflow Zone Delineation Report for the San Pedro River Watershed

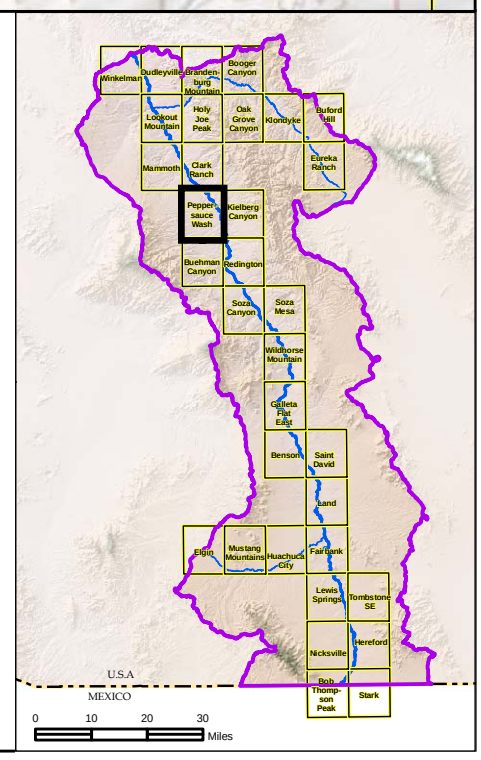
N

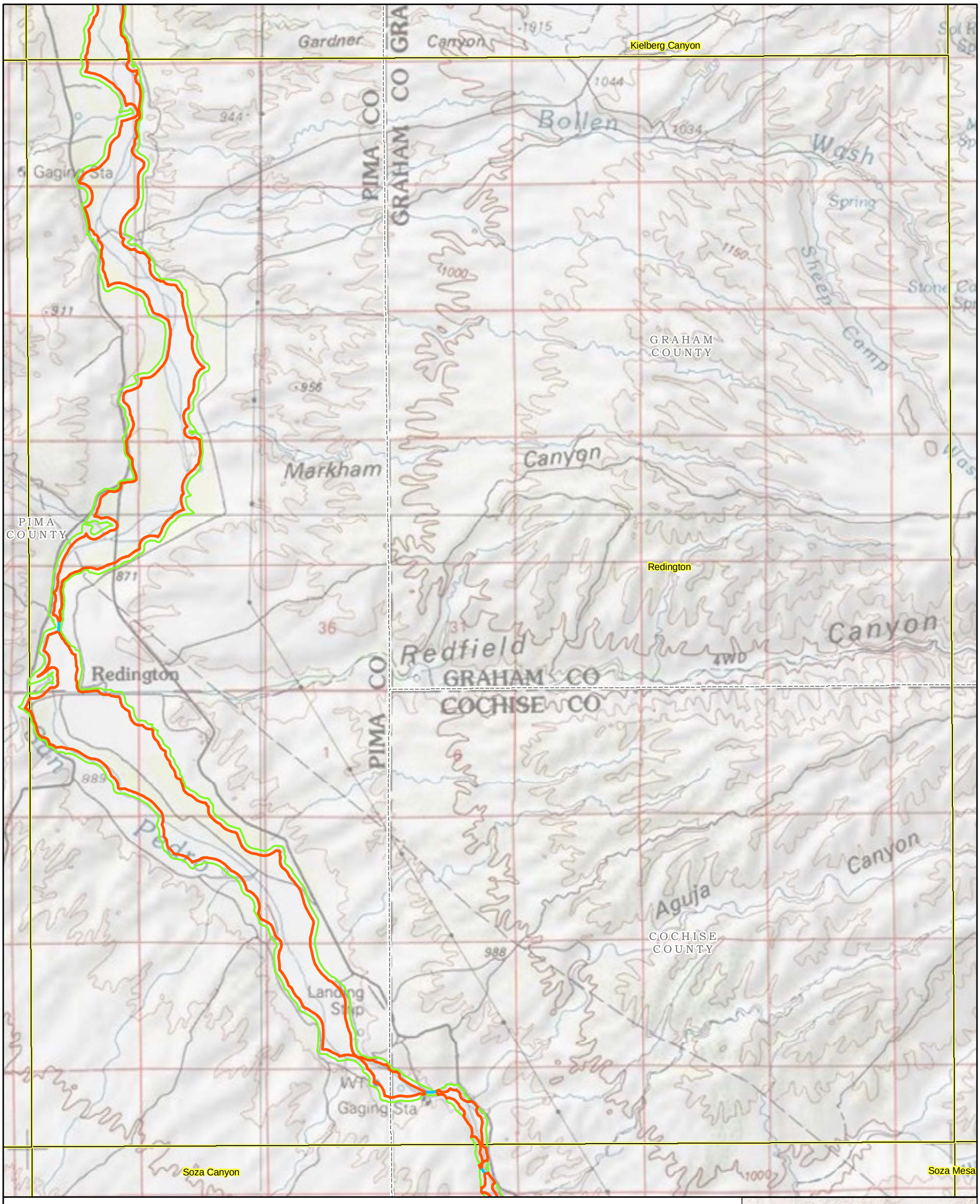
ARIZONA DEPARTMENT OF WATER RESOURCES

- USGS Topo Quad Boundary
- County
- International Boundary

*100-foot and 200-foot setbacks applied where FHA bordered by basin fill and tributary Holocene alluvium deposits, respectively. No setbacks applied where FHA is bordered by bedrock; along these reaches only orange line is shown.

**See Appendices D-1 and D-2 for other generalized geologic units and disturbed areas along the floodplain respectively.





0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

- Extent of Floodplain Holocene Alluvium (FHA) With Setbacks for Side Recharge*
- Reach where width of setback is greater than width of FHA
- Reach where FHA not mapped at 1:24,000 scale used by AZGS
- Extent of FHA**
- Other generalized geologic unit mapped within floodplain (includes islands of material and some larger fingers of tributary Holocene alluvium)
- Reach where setbacks overlap with other geologic units in floodplain
- San Pedro River Watershed

Base Map: USGS 1:24,000 Topo

Appendix D-3

Lateral Extent of Floodplain Holocene Alluvium and Setbacks for Side Recharge

Redington Quad (Map 26 of 33)

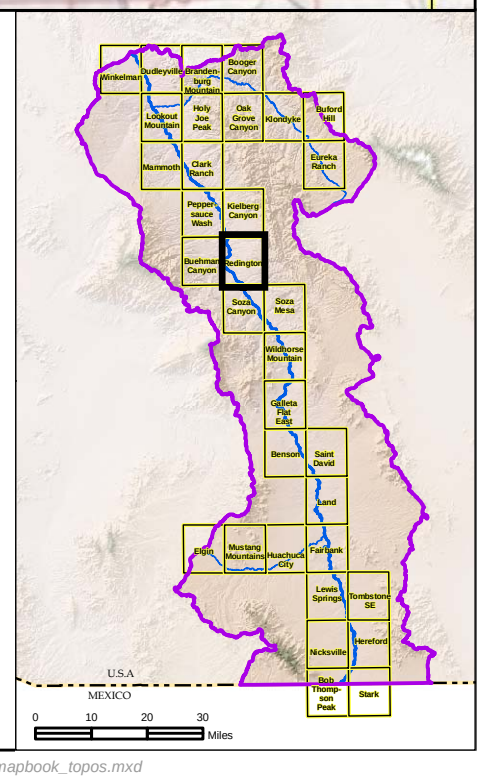
Subflow Zone Delineation Report for the San Pedro River Watershed

N

- USGS Topo Quad Boundary
- County
- International Boundary

*100-foot and 200-foot setbacks applied where FHA bordered by basin fill and tributary Holocene alluvium deposits, respectively. No setbacks applied where FHA is bordered by bedrock; along these reaches only orange line is shown.

**See Appendices D-1 and D-2 for other generalized geologic units and disturbed areas along the floodplain respectively.



Galleta Flat East

Substa

Sheep Wash

Fenner

Sibyl

Lonesome Valley

Saint David

COCHISE COUNTY

Benson

Curtiss

Land

Slavin

0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

- Extent of Floodplain Holocene Alluvium (FHA) With Setbacks for Side Recharge*
- Reach where width of setback is greater than width of FHA
- Reach where FHA not mapped at 1:24,000 scale used by AZGS
- Extent of FHA**
- Other generalized geologic unit mapped within floodplain (includes islands of material and some larger fingers of tributary Holocene alluvium)
- Reach where setbacks overlap with other geologic units in floodplain
- San Pedro River Watershed

Base Map: USGS 1:24,000 Topo

Appendix D-3

Lateral Extent of Floodplain Holocene Alluvium and Setbacks for Side Recharge

Saint David Quad (Map 27 of 33)

Subflow Zone Delineation Report for the San Pedro River Watershed

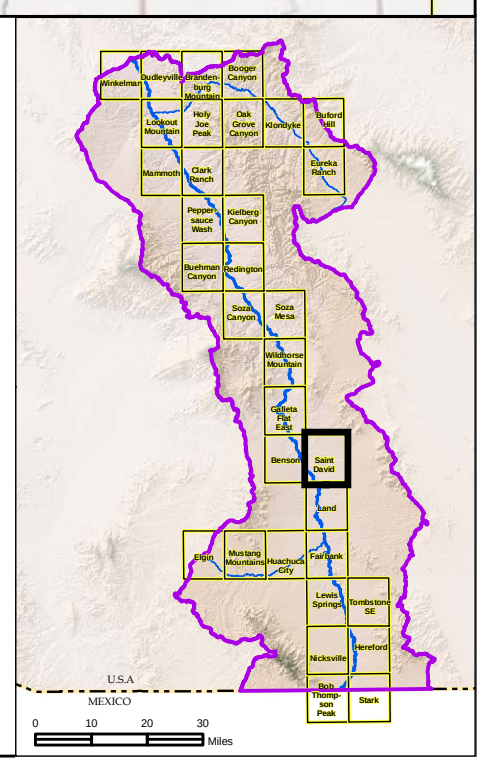
N

ARIZONA DEPARTMENT OF WATER RESOURCES

- USGS Topo Quad Boundary
- County
- International Boundary

*100-foot and 200-foot setbacks applied where FHA bordered by basin fill and tributary Holocene alluvium deposits, respectively. No setbacks applied where FHA is bordered by bedrock; along these reaches only orange line is shown.

**See Appendices D-1 and D-2 for other generalized geologic units and disturbed areas along the floodplain respectively.



Buehman Canyon
Redington
Gaging Sta
WT
WT
935
1000
Soza
Canyon
River
1089
Canyon
Mineta Ridge
4WD
Soza
Soza Canyon
PIMA
COUNTY
Cañada
Banco
Ridge
4WD
1100
1000
942
Soza Mesa
COCHISE
COUNTY
Atravesada
White
Ridge
Ridge
Banco
Canyon
Espiritu
Ridge
Roble
Roble Spring
1210
Canyon
Canyon
Canyon
Canyon
Wildhorse Mountain

0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

- Extent of Floodplain Holocene Alluvium (FHA) With Setbacks for Side Recharge*
- Reach where width of setback is greater than width of FHA
- Reach where FHA not mapped at 1:24,000 scale used by AZGS
- Extent of FHA**
- Other generalized geologic unit mapped within floodplain (includes islands of material and some larger fingers of tributary Holocene alluvium)
- Reach where setbacks overlap with other geologic units in floodplain
- San Pedro River Watershed

Base Map: USGS 1:24,000 Topo

Appendix D-3

Lateral Extent of Floodplain Holocene Alluvium and Setbacks for Side Recharge

Soza Canyon Quad (Map 28 of 33)

Subflow Zone Delineation Report for the San Pedro River Watershed

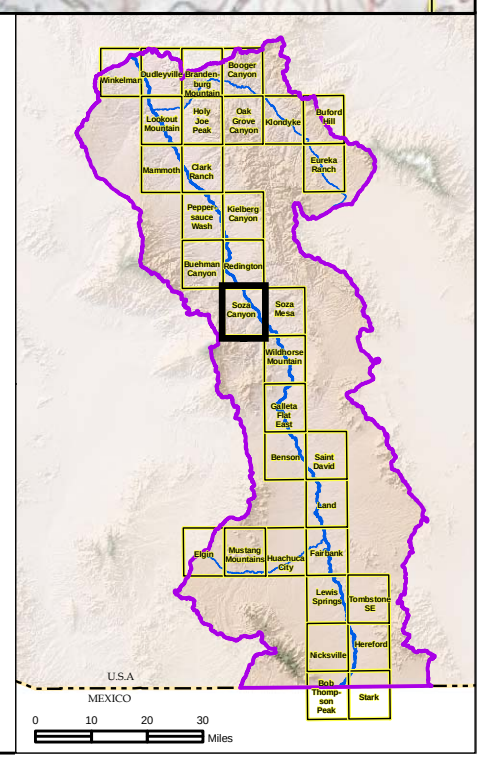
N

ARIZONA DEPARTMENT OF WATER RESOURCES

- USGS Topo Quad Boundary
- County
- International Boundary

*100-foot and 200-foot setbacks applied where FHA bordered by basin fill and tributary Holocene alluvium deposits, respectively. No setbacks applied where FHA is bordered by bedrock; along these reaches only orange line is shown.

**See Appendices D-1 and D-2 for other generalized geologic units and disturbed areas along the floodplain respectively.



Redington

Soza Canyon

Soza Mesa

Wildhorse Mountain

Eureka Spring

Wash

Poor Corral Canyon

Wildcat Peak 1499

Wildcat Canyon

Soza Mesa

Hot Springs

Hot Canyon

Hackberry Spring

Corral

4WD

Sierra Blanca 5328

COCHISE COUNTY

Sierra Blanca

Landing Strip

Pool

Spring

Teran

Wash

1114

Kelsey

1503

1250

1000

1161

0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

- Extent of Floodplain Holocene Alluvium (FHA) With Setbacks for Side Recharge*
- Reach where width of setback is greater than width of FHA
- Reach where FHA not mapped at 1:24,000 scale used by AZGS
- Extent of FHA**
- Other generalized geologic unit mapped within floodplain (includes islands of material and some larger fingers of tributary Holocene alluvium)
- Reach where setbacks overlap with other geologic units in floodplain
- San Pedro River Watershed

Base Map: USGS 1:24,000 Topo

Appendix D-3

Lateral Extent of Floodplain Holocene Alluvium and Setbacks for Side Recharge

Soza Mesa Quad (Map 29 of 33)

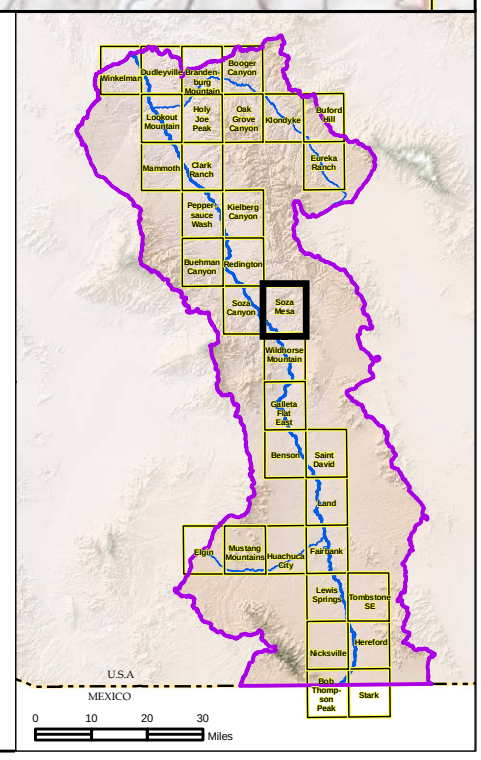
Subflow Zone Delineation Report for the San Pedro River Watershed

- USGS Topo Quad Boundary
- County
- International Boundary

*100-foot and 200-foot setbacks applied where FHA bordered by basin fill and tributary Holocene alluvium deposits, respectively. No setbacks applied where FHA is bordered by bedrock; along these reaches only orange line is shown.

**See Appendices D-1 and D-2 for other generalized geologic units and disturbed areas along the floodplain respectively.

N



Hereford

Stark

Draw

1331

1351

1350

1300

1395

COCHISE COUNTY

R 22 E

R 23 E

U.S.A

COCHISE CO

MEXICO

Stark

Bob Thompson Peak

0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

- Extent of Floodplain Holocene Alluvium (FHA) With Setbacks for Side Recharge*
- Reach where width of setback is greater than width of FHA
- Reach where FHA not mapped at 1:24,000 scale used by AZGS
- Extent of FHA**
- Other generalized geologic unit mapped within floodplain (includes islands of material and some larger fingers of tributary Holocene alluvium)
- Reach where setbacks overlap with other geologic units in floodplain
- San Pedro River Watershed

Base Map: USGS 1:24,000 Topo

Appendix D-3

Lateral Extent of Floodplain Holocene Alluvium and Setbacks for Side Recharge

Stark Quad (Map 30 of 33)

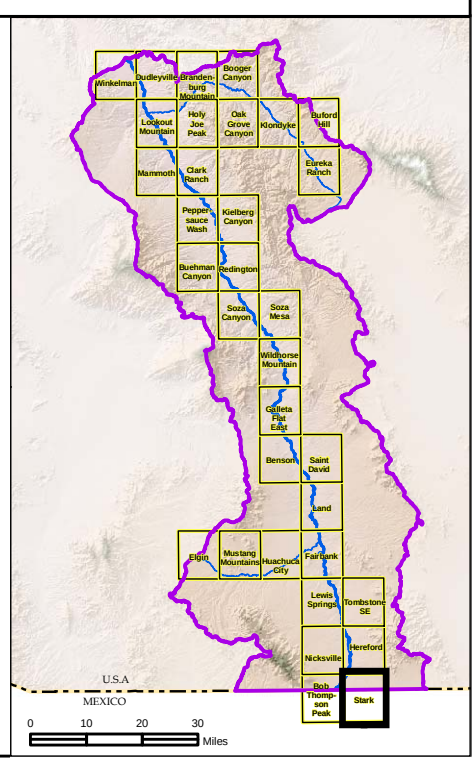
Subflow Zone Delineation Report for the San Pedro River Watershed

N

- USGS Topo Quad Boundary
- County
- International Boundary

*100-foot and 200-foot setbacks applied where FHA bordered by basin fill and tributary Holocene alluvium deposits, respectively. No setbacks applied where FHA is bordered by bedrock; along these reaches only orange line is shown.

**See Appendices D-1 and D-2 for other generalized geologic units and disturbed areas along the floodplain respectively.



Fairbank

Draw

Government

1295

1300

1340

1745

1500

1368

1350

COCHISE
COUNTY

Tombstone SE

Lewis Springs

1306

1369

1655

Mule Mts

Hereford

Nicksville

0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

- Extent of Floodplain Holocene Alluvium (FHA) With Setbacks for Side Recharge*
- Reach where width of setback is greater than width of FHA
- Reach where FHA not mapped at 1:24,000 scale used by AZGS
- Extent of FHA**
- Other generalized geologic unit mapped within floodplain (includes islands of material and some larger fingers of tributary Holocene alluvium)
- Reach where setbacks overlap with other geologic units in floodplain
- San Pedro River Watershed

Base Map: USGS 1:24,000 Topo

Appendix D-3

Lateral Extent of Floodplain Holocene Alluvium and Setbacks for Side Recharge

Tombstone SE Quad (Map 31 of 33)

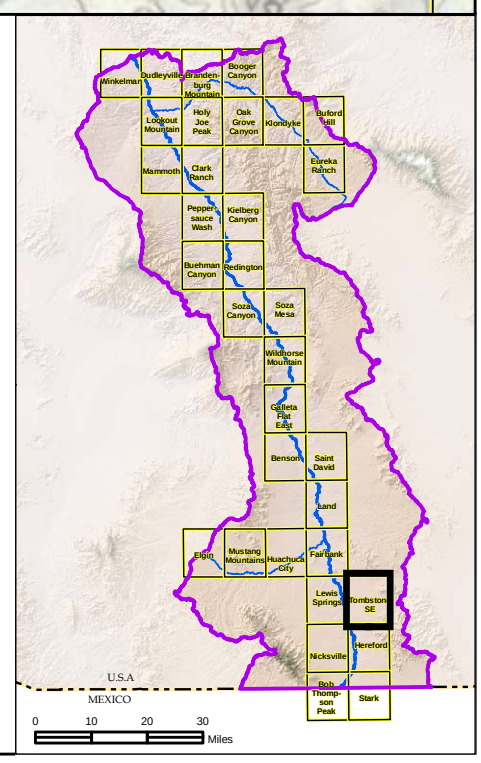
Subflow Zone Delineation Report for the San Pedro River Watershed

- USGS Topo Quad Boundary
- County
- International Boundary

*100-foot and 200-foot setbacks applied where FHA bordered by basin fill and tributary Holocene alluvium deposits, respectively. No setbacks applied where FHA is bordered by bedrock; along these reaches only orange line is shown.

**See Appendices D-1 and D-2 for other generalized geologic units and disturbed areas along the floodplain respectively.

N



Soza Canyon
Soza Mesa
Palomas
Wildhorse Mountain
COCHISE COUNTY
Diamond E Spring
Wildhorse Mtn
Well
Gaging Station
The Narrows
Galleta Flat East
Creek
Bedrock
SAN PEDRO

0 0.5 1 1.5 2 Kilometers
0 0.5 1 1.5 2 Miles

Legend

- Extent of Floodplain Holocene Alluvium (FHA) With Setbacks for Side Recharge*
- Reach where width of setback is greater than width of FHA
- Reach where FHA not mapped at 1:24,000 scale used by AZGS
- Extent of FHA**
- Other generalized geologic unit mapped within floodplain (includes islands of material and some larger fingers of tributary Holocene alluvium)
- Reach where setbacks overlap with other geologic units in floodplain
- San Pedro River Watershed

Base Map: USGS 1:24,000 Topo

Appendix D-3

Lateral Extent of Floodplain Holocene Alluvium and Setbacks for Side Recharge

Wildhorse Mountain Quad (Map 32 of 33)

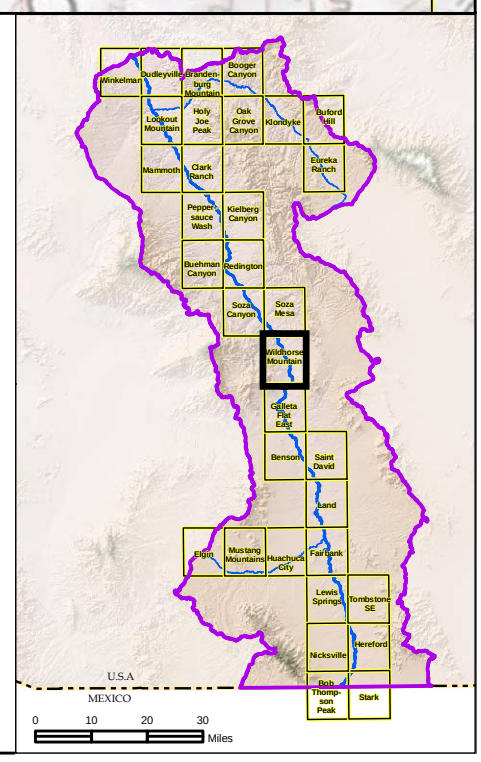
Subflow Zone Delineation Report for the San Pedro River Watershed

- USGS Topo Quad Boundary
- County
- International Boundary

*100-foot and 200-foot setbacks applied where FHA bordered by basin fill and tributary Holocene alluvium deposits, respectively. No setbacks applied where FHA is bordered by bedrock; along these reaches only orange line is shown.

**See Appendices D-1 and D-2 for other generalized geologic units and disturbed areas along the floodplain respectively.

N



GILA COUNTY

PINAL COUNTY

Winkelman

Dudleyville

Lookout Mountain

0 0.5 1 1.5 2 Kilometers

0 0.5 1 1.5 2 Miles

Legend

- Extent of Floodplain Holocene Alluvium (FHA) With Setbacks for Side Recharge*
- Reach where width of setback is greater than width of FHA
- Reach where FHA not mapped at 1:24,000 scale used by AZGS
- Extent of FHA**
- Other generalized geologic unit mapped within floodplain (includes islands of material and some larger fingers of tributary Holocene alluvium)
- Reach where setbacks overlap with other geologic units in floodplain
- San Pedro River Watershed

Base Map: USGS 1:24,000 Topo

Appendix D-3

Lateral Extent of Floodplain Holocene Alluvium and Setbacks for Side Recharge

Winkelman Quad (Map 33 of 33)

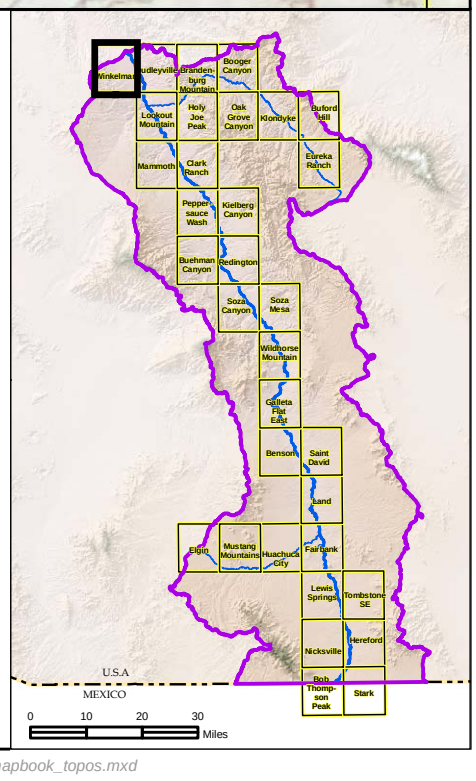
Subflow Zone Delineation Report for the San Pedro River Watershed

N

- USGS Topo Quad Boundary
- County
- International Boundary

*100-foot and 200-foot setbacks applied where FHA bordered by basin fill and tributary Holocene alluvium deposits, respectively. No setbacks applied where FHA is bordered by bedrock; along these reaches only orange line is shown.

**See Appendices D-1 and D-2 for other generalized geologic units and disturbed areas along the floodplain respectively.



D-4:
Holocene Tributary Alluvium Within and Bordering Floodplain

Text

APPENDIX D-4: TRIBUTARY HOLOCENE ALLUVIUM WITHIN AND BORDERING FLOODPLAIN

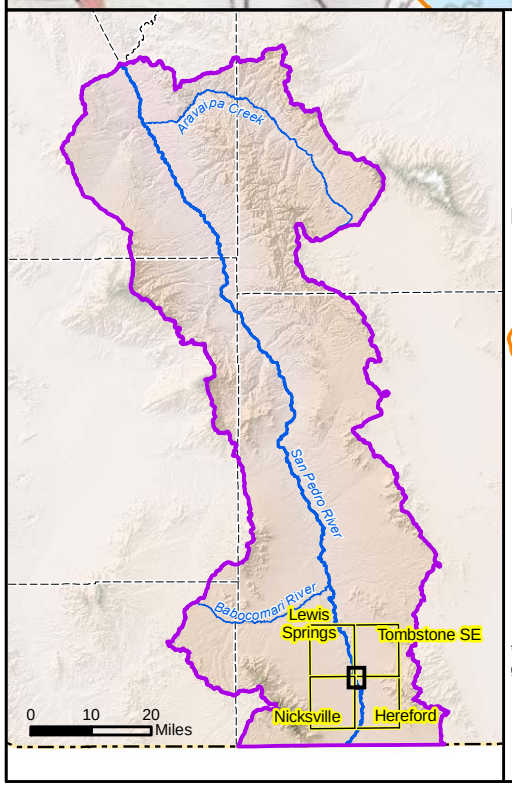
Review of the maps in **Appendix D-1** show that where tributary Holocene alluvium likely overlies floodplain Holocene alluvium, it borders the floodplain or forms fingers of material that extend out into the floodplain. To determine whether these features should be treated as floodplain Holocene alluvium, a ratio could be used of the perimeter of the feature (P) to its length at the edge of the floodplain (L).

Figures D-4a through **D-4c** illustrate how a P/L ratio of 2.5 could be applied to reaches of the San Pedro and Babocomari Rivers and Aravaipa Creek, respectively. Features of tributary Holocene alluvium with a P/L ratio of 2.5 or greater would be included within the floodplain, resulting in a more regular floodplain boundary. Features with a P/L ratio less than 2.5 would remain as mapped and be considered part of the tributary Holocene alluvium adjacent to the floodplain.

Note that **Figure D-4b** also shows an isolated deposit (island) of tributary Holocene alluvium within the floodplain of the Babocomari River. It is likely that the island was once connected to tributary deposits outside of the floodplain, but later cutoff by the river. These mapped deposits of tributary Holocene alluvium could also be included in the floodplain.

Maps

P/L = 10.4
P/L = 2.53
P/L = 21
P/L = 2.85
P/L = 2.56
P/L = 3.69
P/L = 9.38
P/L = 2.92
P/L = 3.33
P/L = 2.7
P/L = 80.4
Lewis Springs
Tombstone SE
Hereford
Nicksville
COCHISE COUNTY
San Pedro River
SAN PEDRO RIPARIAN NATIONAL CONSERVATION AREA



Legend

Tributary Holocene Alluvium (THA) potentially overlaying Floodplain Holocene Alluvium (FHA)

Inferred contact line (L)

P/L — Ratio of perimeter (P) of feature within floodplain to its length (L) at floodplain edge (*only features with P/L ≥ 2.5 are shown*)

Area Mapped by AZGS (2009)

Generalized Geologic Units*

- FHA
- THA
- Disturbed (unit not determined)
- Basin Fill
- Bedrock

*See Table 4-2 for AZGS map units used by ADWR to define generalized geologic units in the San Pedro River Watershed.

Contact Between FHA and Other Mapped Units

- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)
- Major Stream
- San Pedro River Watershed
- County
- International Boundary
- USGS Topo Quad Boundary

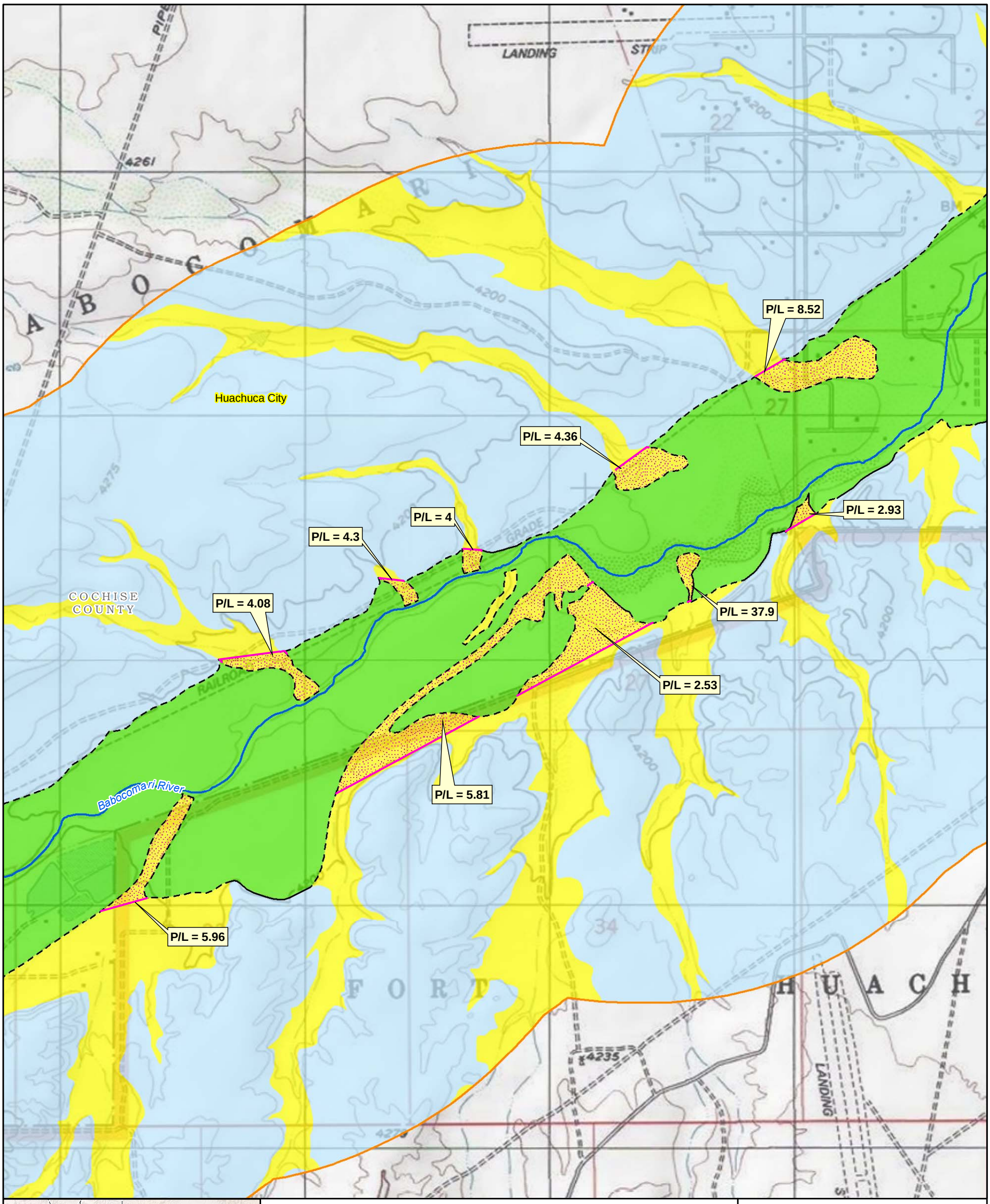
Base Map: USGS 1:24,000 Topo

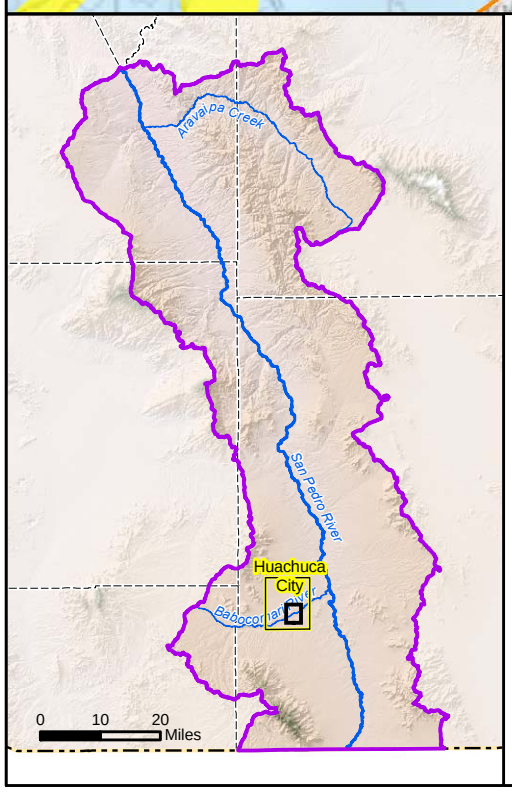
N

0 0.25 0.5 Miles

Figure D-4a
Application of ADWR Criteria to Address Tributary Holocene Alluvium Mapped Within the San Pedro River Floodplain

Subflow Zone Delineation Report for the San Pedro River Watershed





Legend

- Tributary Holocene Alluvium (THA) potentially overlaying Floodplain Holocene Alluvium (FHA)
- Inferred contact line (L)
- P/L — Ratio of perimeter (P) of feature within floodplain to its length (L) at floodplain edge (*only features with P/L ≥ 2.5 are shown*)
- Area Mapped by AZGS (2009)

Generalized Geologic Units*

- FHA
- THA
- Disturbed (unit not determined)
- Basin Fill
- Bedrock

*See Table 4-2 for AZGS map units used by ADWR to define generalized geologic units in the San Pedro River Watershed.

Contact Between FHA and Other Mapped Units

- Well Defined (± 25 feet accuracy)
- Subtle or Gradational (± 50 feet accuracy)
- Approximate (± 250 feet accuracy)
- Major Stream
- San Pedro River Watershed
- County
- International Boundary
- USGS Topo Quad Boundary

Base Map: USGS 1:24,000 Topo

N

0 0.25 0.5 Miles

Figure D-4b
Application of ADWR Criteria to Address Tributary Holocene Alluvium Mapped Within the Babocomari River Floodplain

Subflow Zone Delineation Report for the San Pedro River Watershed

P/L = 4.68

P/L = 3.02

P/L = 6.68

P/L = 5.17

P/L = 4.28

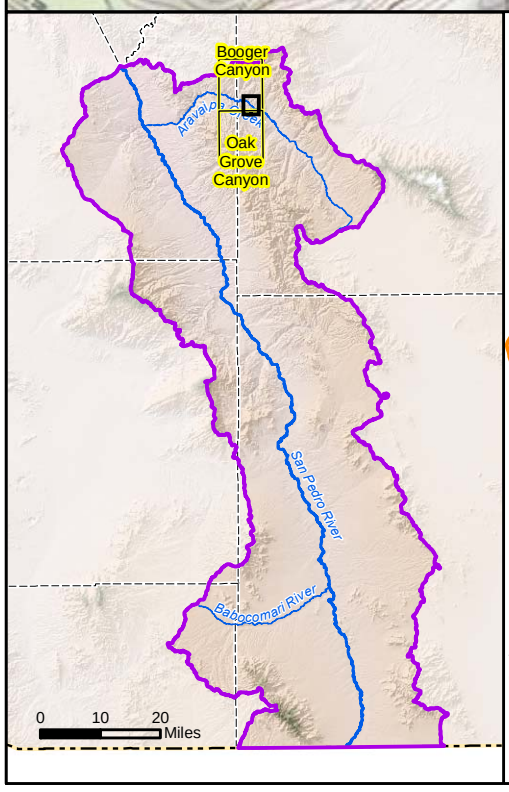
P/L = 2.86

Booger Canyon

Oak Grove Canyon

GRAHAM COUNTY

Aravaipa Creek



Legend

Tributary Holocene Alluvium (THA) potentially overlaying Floodplain Holocene Alluvium (FHA)

Inferred contact line (L)

P/L Ratio of perimeter (P) of feature within floodplain to its length (L) at floodplain edge (*only features with P/L ≥ 2.5 are shown*)

Area Mapped by AZGS (2009)

Generalized Geologic Units*

FHA

THA

Disturbed (unit not determined)

Basin Fill

Bedrock

*See Table 4-2 for AZGS map units used by ADWR to define generalized geologic units in the San Pedro River Watershed.

Contact Between FHA and Other Mapped Units

Well Defined (± 25 feet accuracy)

Subtle or Gradational (± 50 feet accuracy)

Approximate (± 250 feet accuracy)

Major Stream

San Pedro River Watershed

County

International Boundary

USGS Topo Quad Boundary

Base Map: USGS 1:24,000 Topo

N

ARIZONA DEPARTMENT OF WATER RESOURCES

0 0.25 0.5 Miles

Figure D-4c
Application of ADWR Criteria to Address Tributary Holocene Alluvium Mapped Within the Aravaipa Creek Floodplain

Subflow Zone Delineation Report for the San Pedro River Watershed