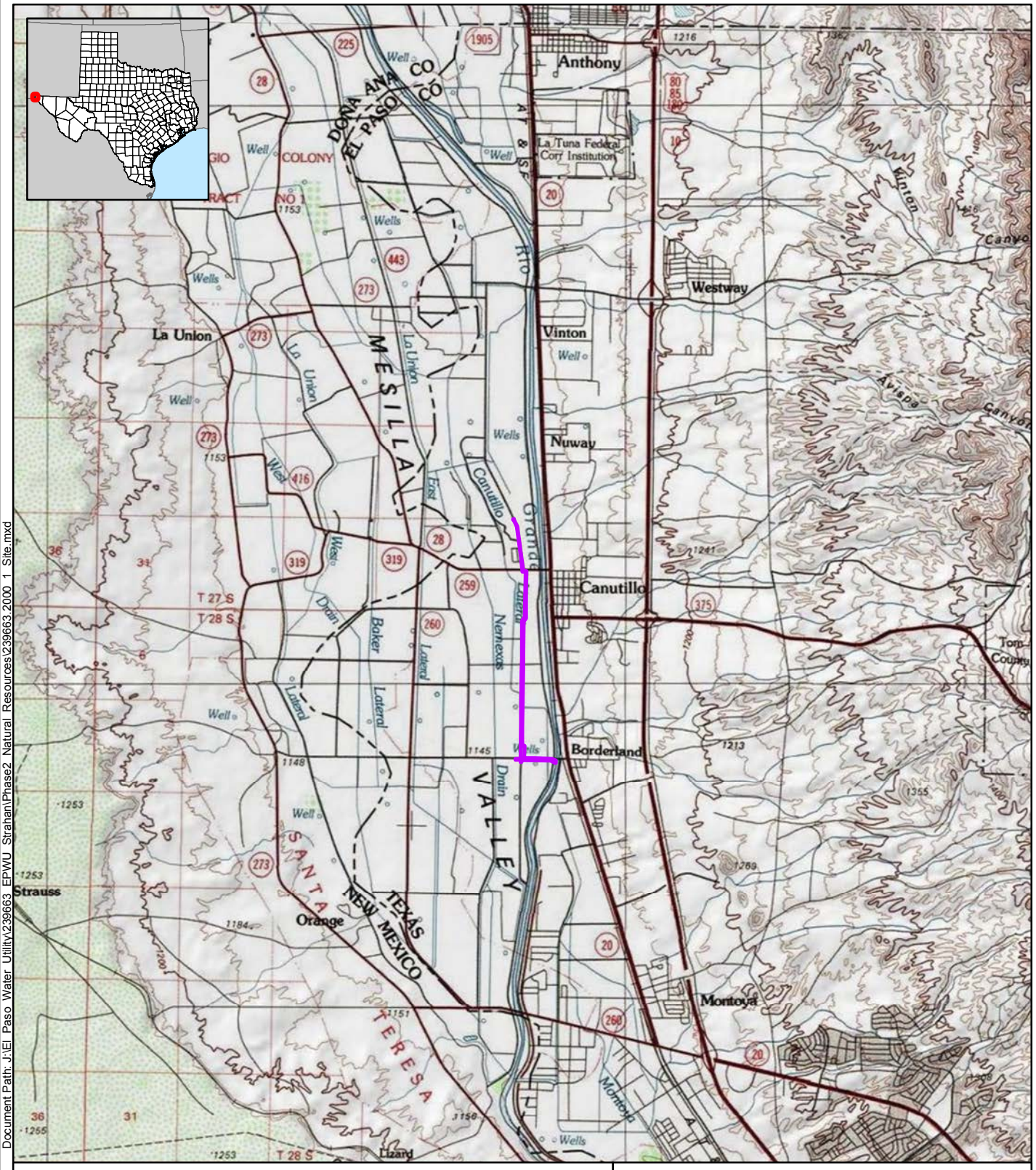
APPENDIX A

FIGURES



LEGEND

SURVEY AREA

N

0 0.75 1.5

Miles

1 in = 1.5 miles

SOURCE: USGS 100k Topographic Map - El Paso (1985)

PROJECT LOCATION

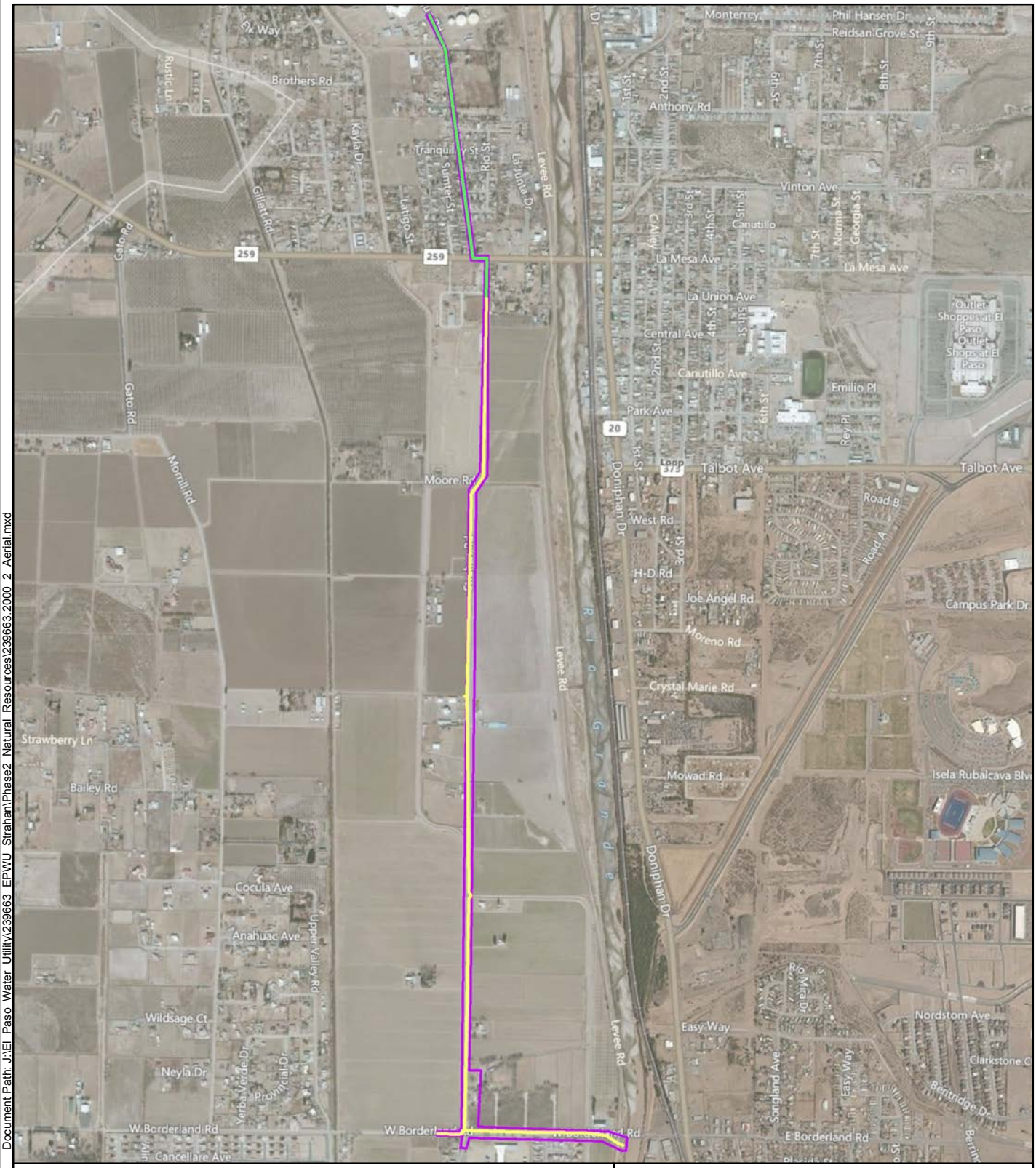
EL PASO WATER UTILITIES PUBLIC SERVICE BOARD
PHASE I & II UPPER VALLEY/STRAHAN ROAD 36" WATER TRANSMISSION MAIN INSTALLATION PROJECT

PROJECT NUMBER: 239663	FILE NAME: 239663.2000_1_Site
AUTHOR: MLOVELACE	DATE: 10/20/2015

TRC
505 E. HUNTLAND DR.
SUITE 250
AUSTIN, TX 78752
PH:512-329-6080

FIGURE 1

Document Path: J:\El Paso Water Utility\239663_EPWU_Strahan\Phase2_Natural_Resources\239663.2000_1_Site.mxd



Document Path: J:\El Paso Water Utility\239663 EPWU Strahan\Phase2 Natural Resources\239663.2000_2_Aerial.mxd

LEGEND

- PHASE I 36" WATER MAIN LINE
- PHASE II 36" WATER MAIN LINE
- SURVEY AREA

SOURCE: Microsoft and their data partners (2015)

N

0 850 1,700

Feet

1 in = 1,700 feet

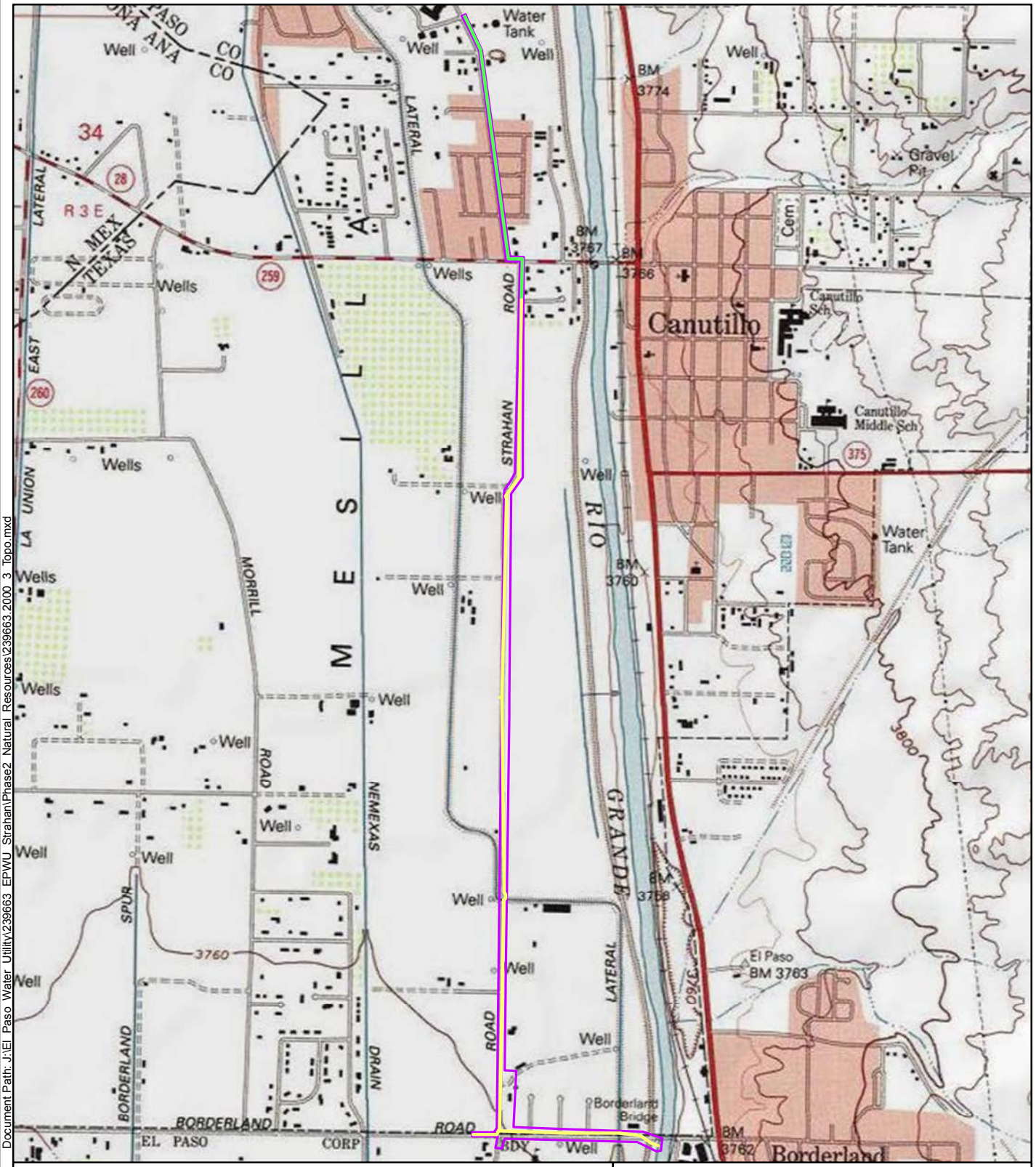
GENERAL LOCATION - AERIAL

EL PASO WATER UTILITIES PUBLIC SERVICE BOARD
PHASE I & II UPPER VALLEY/STRAHAN ROAD 36" WATER TRANSMISSION MAIN INSTALLATION PROJECT

PROJECT NUMBER: 239663	FILE NAME: 239663.2000_2_Aerial
AUTHOR: MLOVELACE	DATE: 10/20/2015

TRC
505 E. HUNTLAND DR.
SUITE 250
AUSTIN, TX 78752
PH:512-329-6080

FIGURE 2



Document Path: J:\El Paso Water Utility\239663 EPWU Strahan\Phase2 Natural Resources\239663.2000_3_Topo.mxd

LEGEND

- PHASE I 36" WATER MAIN LINE
- PHASE II 36" WATER MAIN LINE
- SURVEY AREA

N

0 850 1,700
Feet

1 in = 1,700 feet

SOURCE: USGS 24k Topographic Map: Canutillo (Published 1968, Photo Revised 1973)

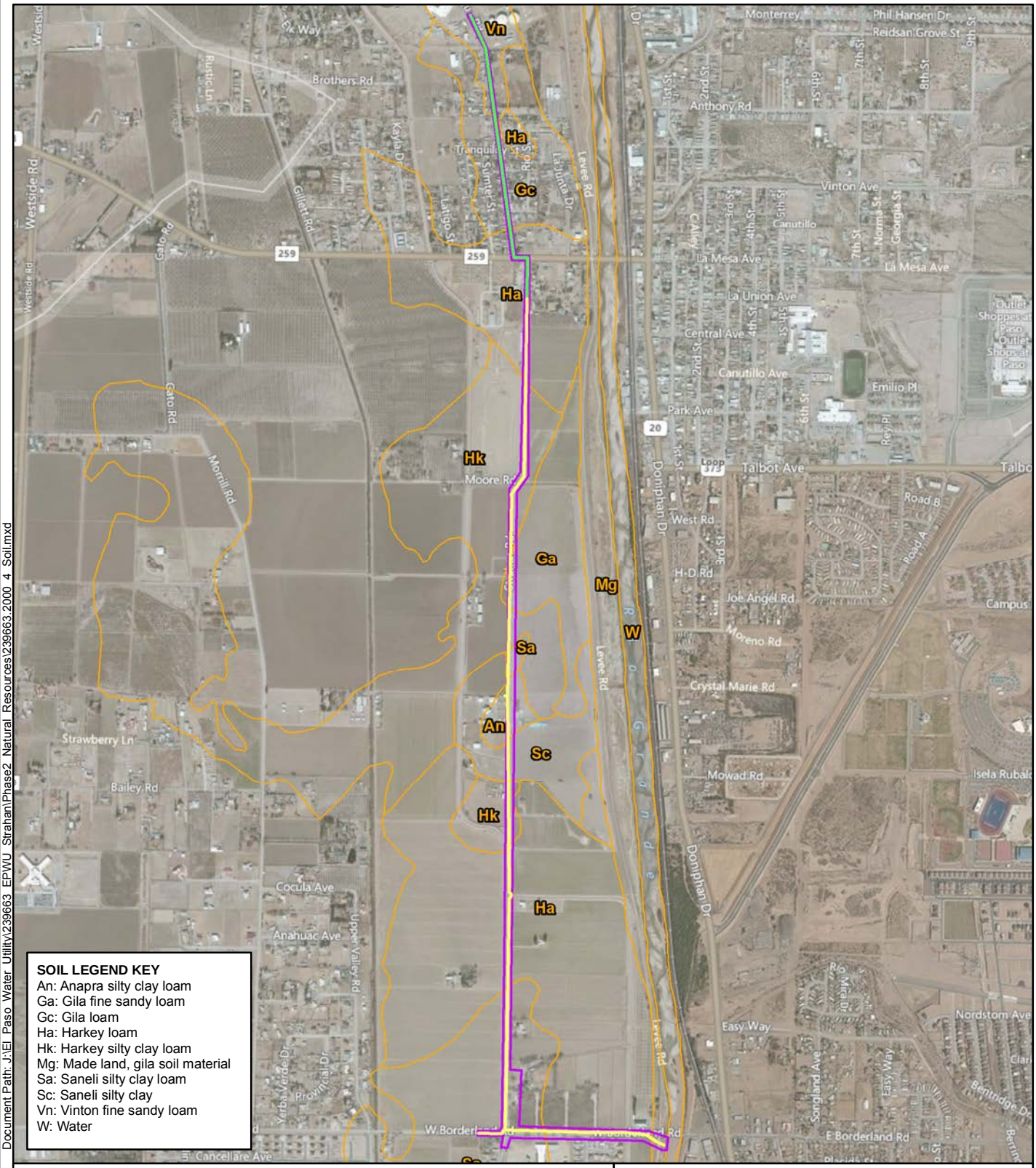
GENERAL LOCATION - TOPOGRAPHIC

EL PASO WATER UTILITIES PUBLIC SERVICE BOARD
PHASE I & II UPPER VALLEY/STRAHAN ROAD 36" WATER TRANSMISSION MAIN INSTALLATION PROJECT

PROJECT NUMBER: 239663	FILE NAME: 239663.2000_3_Topo
AUTHOR: MLOVELACE	DATE: 10/20/2015

TRC
505 E. HUNTLAND DR.
SUITE 250
AUSTIN, TX 78752
PH:512-329-6080

FIGURE 3



SOIL LEGEND KEY
An: Anapra silty clay loam
Ga: Gila fine sandy loam
Gc: Gila loam
Ha: Harkey loam
Hk: Harkey silty clay loam
Mg: Made land, gila soil material
Sa: Saneli silty clay loam
Sc: Saneli silty clay
Vn: Vinton fine sandy loam
W: Water

LEGEND

- PHASE I 36" WATER MAIN LINE
- PHASE II 36" WATER MAIN LINE
- SURVEY AREA
- SOILS

SOURCE: USDA SSURGO Soil Data - El Paso County (2012), Microsoft and their data partners (2015)

N

0 850 1,700
Feet

1 in = 1,700 feet

SOILS MAP

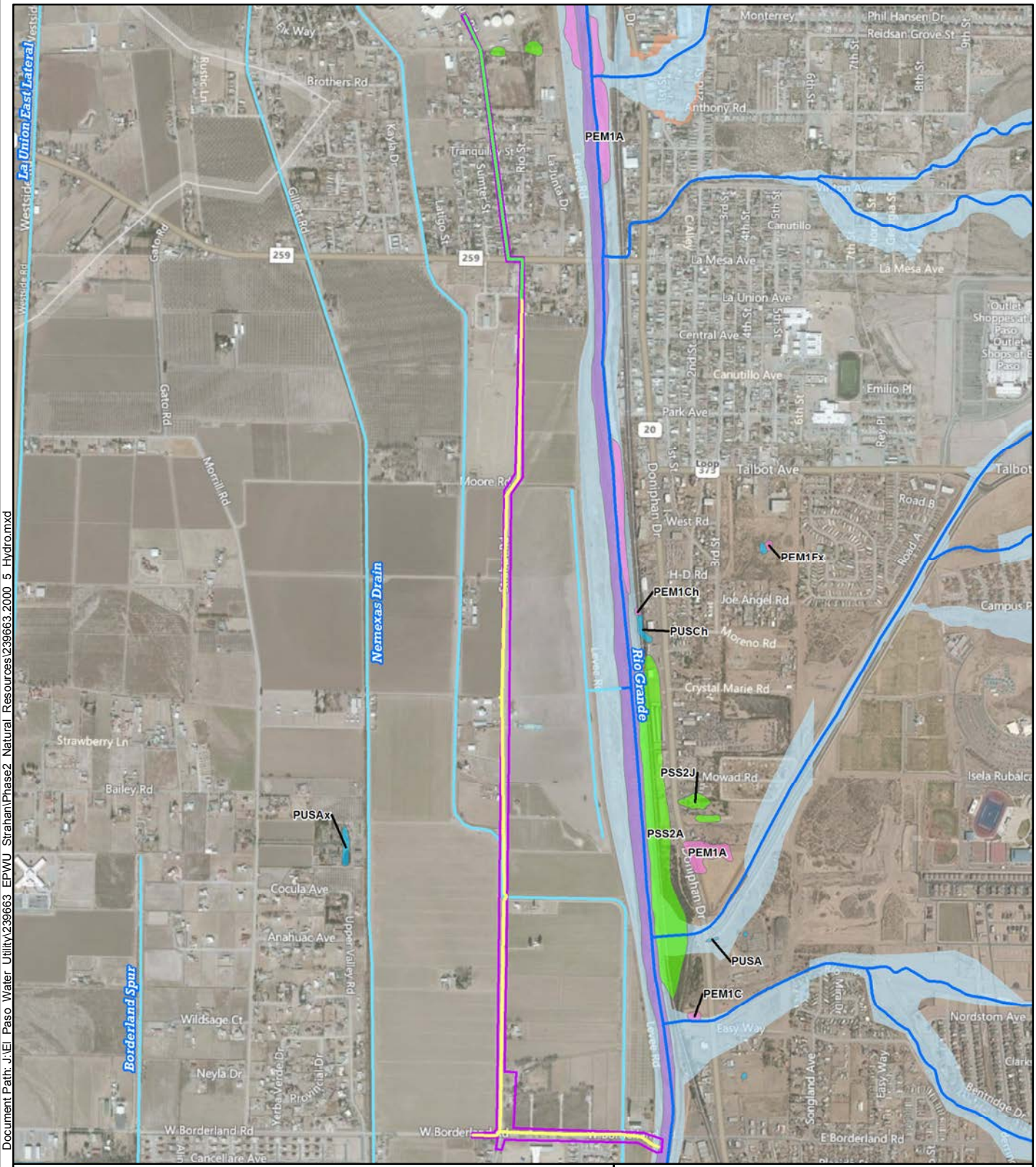
EL PASO WATER UTILITIES PUBLIC SERVICE BOARD
PHASE I & II UPPER VALLEY/STRAHAN ROAD 36" WATER TRANSMISSION MAIN INSTALLATION PROJECT

PROJECT NUMBER: 239663	FILE NAME: 239663.2000_4_Soil
AUTHOR: MLOVELACE	DATE: 10/20/2015

TRC
505 E. HUNTLAND DR.
SUITE 250
AUSTIN, TX 78752
PH:512-329-6080

FIGURE 4

Document Path: J:\El Paso Water Utility\239663 EPWU Strahan\Phase2 Natural Resources\239663.2000 4 Soil.mxd



Document Path: J:\EI Paso Water Utility\239663 EPWU Strahan\Phase2 Natural Resources\239663.2000_5_Hydro.mxd

LEGEND

- PHASE I 36" WATER MAIN LINE
- PHASE II 36" WATER MAIN LINE
- SURVEY AREA
- CANAL/DITCH
- STREAM/RIVER
- FRESHWATER EMERGENT WETLAND
- FRESHWATER FORESTED/SHRUB WETLAND
- FRESHWATER POND
- RIVERINE
- 500-YEAR FLOODPLAIN (ZONE X 0.2% ANNUAL CHANCE OF FLOODING)
- 100-YEAR FLOODPLAIN (ZONE A, 1% ANNUAL CHANCE OF FLOODING)

N

0 850 1,700
Feet

SOURCE: FEMA Floodplain Panel 4802120025B (1991), National Hydrology Dataset (2012), USFW Wetlands Inventory (2014), Microsoft and their data partners (2015)

1 in = 1,700 feet

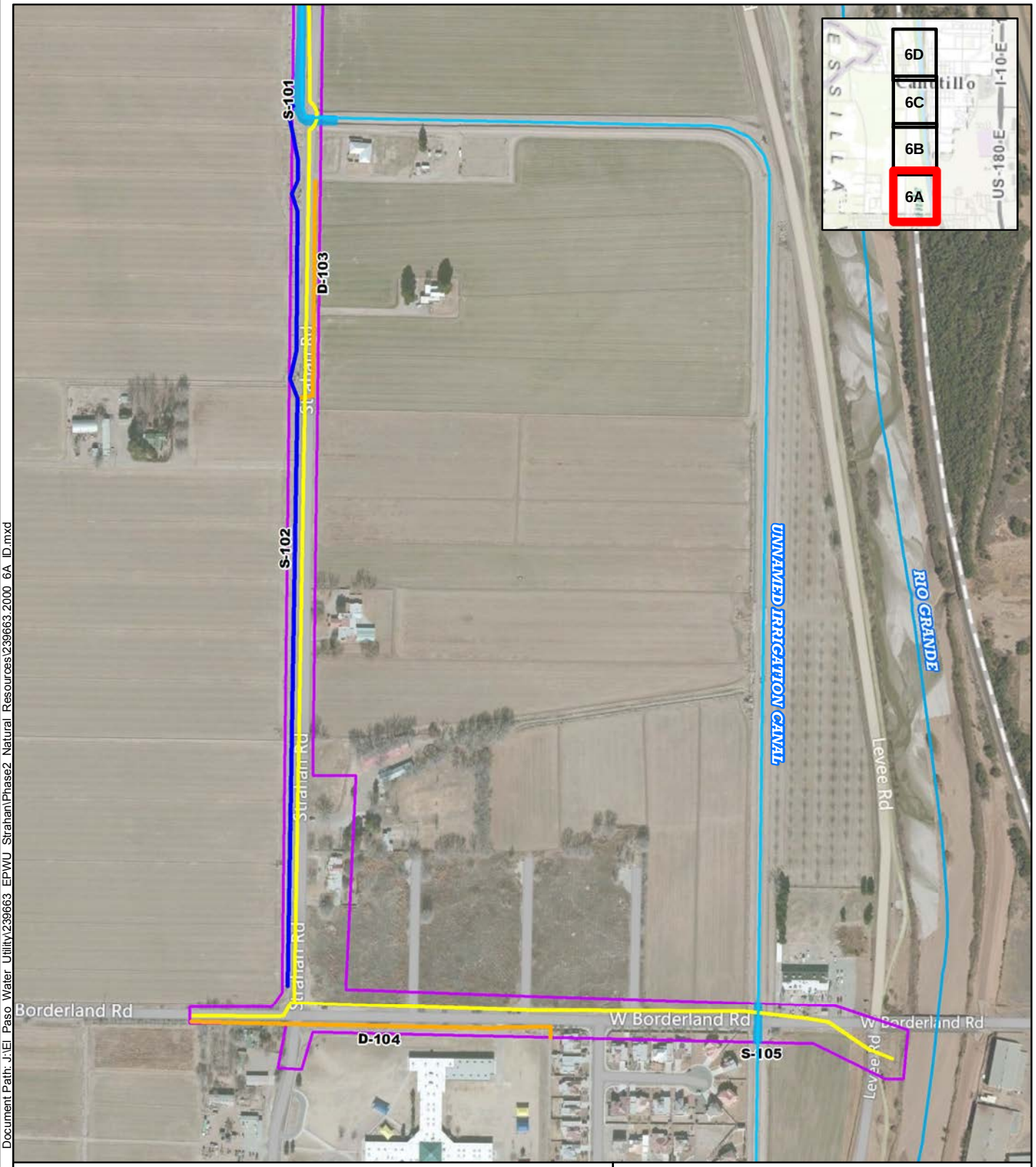
HYDROLOGY MAP

EL PASO WATER UTILITIES PUBLIC SERVICE BOARD
PHASE I & II UPPER VALLEY/STRAHAN ROAD 36" WATER TRANSMISSION MAIN INSTALLATION PROJECT

PROJECT NUMBER: 239663	FILE NAME: 239663.2000_5_Hydro
AUTHOR: MLOVELACE	DATE: 10/20/2015

TRC
505 E. HUNTLAND DR.
SUITE 250
AUSTIN, TX 78752
PH:512-329-6080

FIGURE 5



Document Path: J:\El Paso Water Utility\239663 EPWU Strahan\Phase2 Natural Resources\239663.2000 6A ID.mxd

LEGEND

- PHASE I 36" WATER MAIN LINE
- ROADSIDE DRAINAGE DITCH
- IRRIGATION STREAM
- IRRIGATION CANAL
- SURVEY AREA

SOURCE: Microsoft and their data partners (2015)

N

0 225 450
Feet

1 in = 450 feet

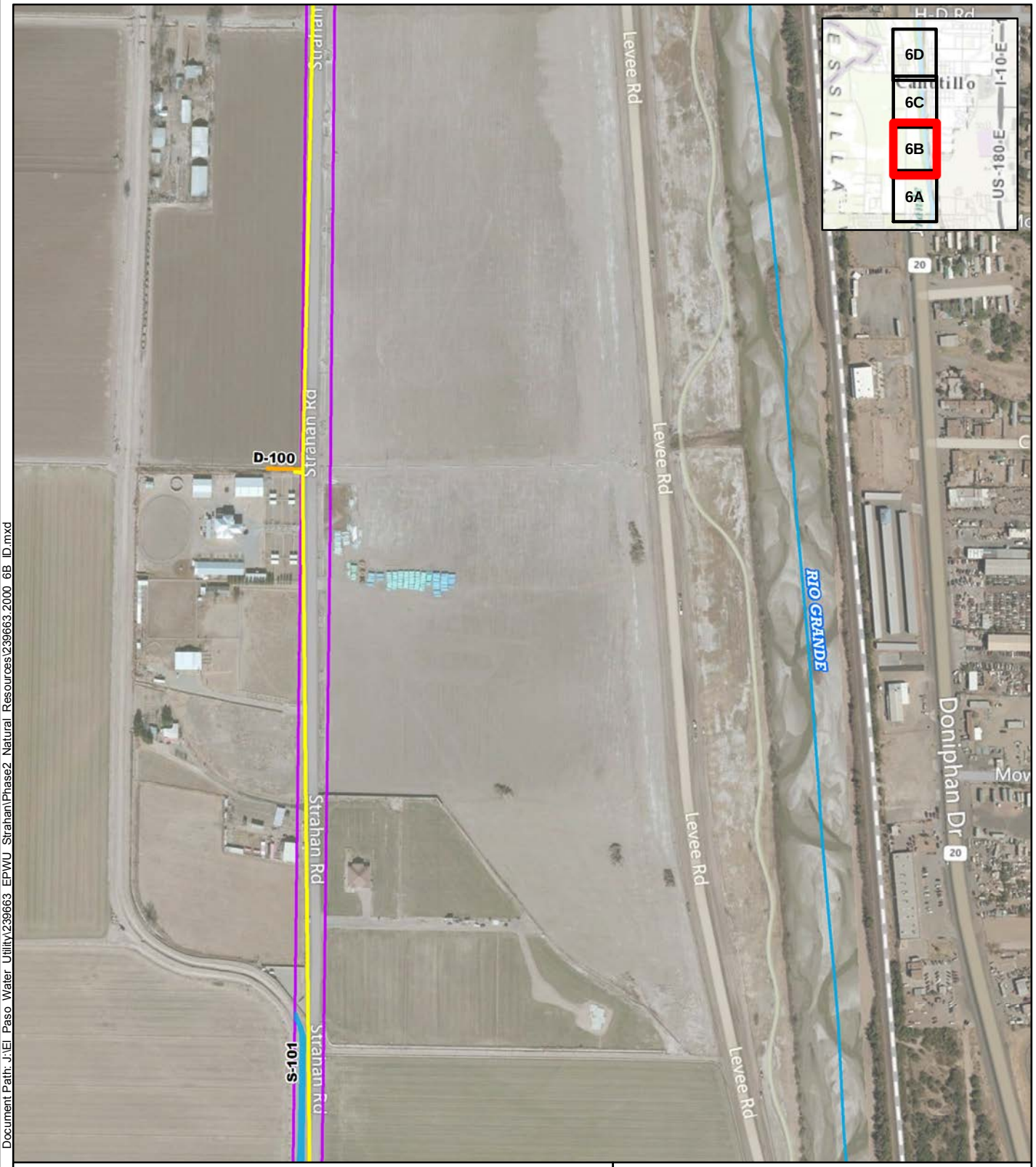
IDENTIFIED FEATURES MAP

EL PASO WATER UTILITIES PUBLIC SERVICE BOARD
PHASE I & II UPPER VALLEY/STRAHAN ROAD 36" WATER TRANSMISSION MAIN INSTALLATION PROJECT

PROJECT NUMBER: 239663	FILE NAME: 239663.2000_6A_ID
AUTHOR: MLOVELACE	DATE: 10/20/2015

TRC
505 E. HUNTLAND DR.
SUITE 250
AUSTIN, TX 78752
PH:512-329-6080

FIGURE
6A



Document Path: J:\El Paso Water Utility\239663 EPWU Strahan\Phase2 Natural Resources\239663.2000 6B ID.mxd

LEGEND

- PHASE I 36" WATER MAIN LINE
- ROADSIDE DRAINAGE DITCH
- IRRIGATION CANAL
- SURVEY AREA

SOURCE: Microsoft and their data partners (2015)

N

0 225 450

Feet

1 in = 450 feet

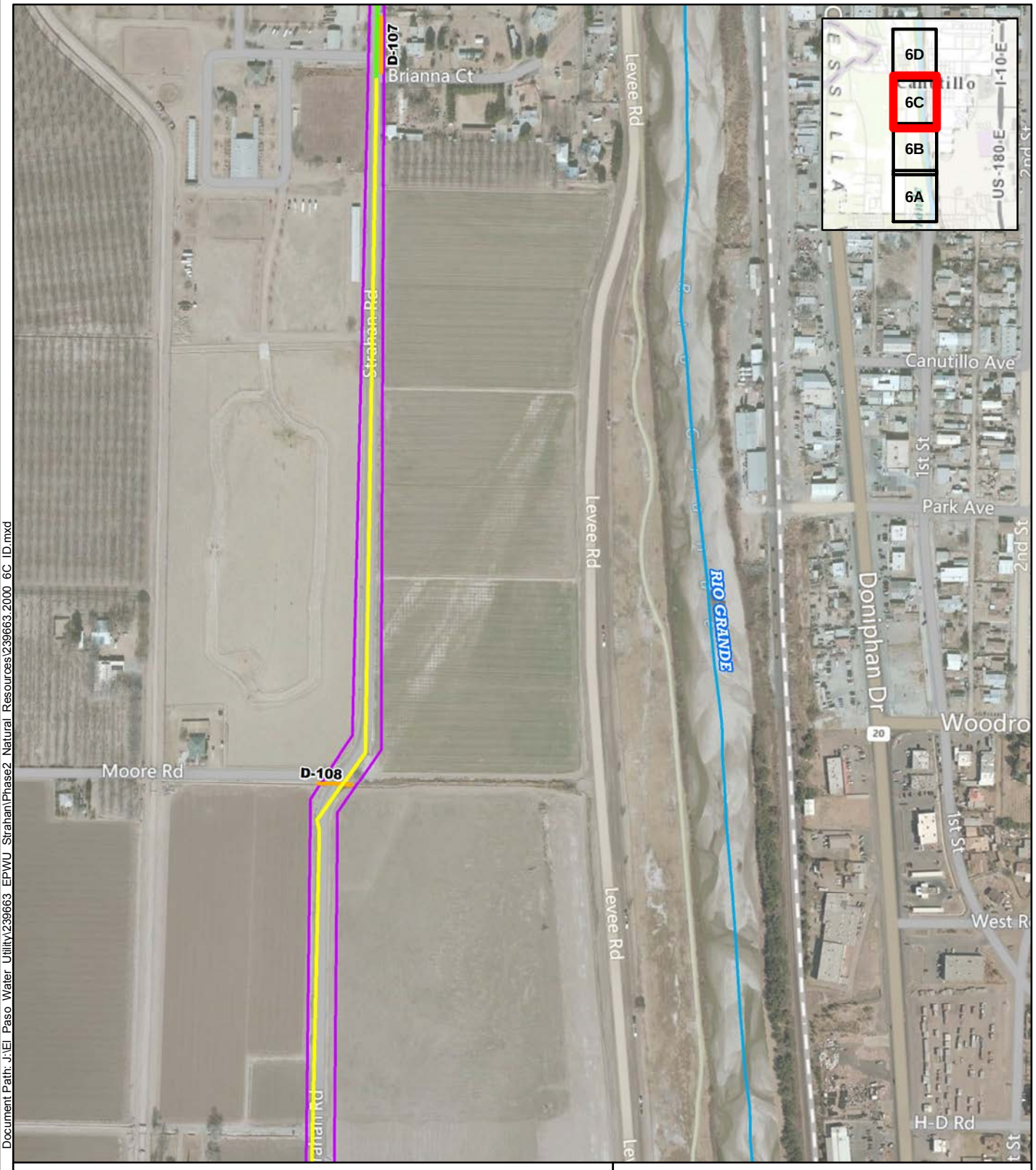
IDENTIFIED FEATURES MAP

EL PASO WATER UTILITIES PUBLIC SERVICE BOARD
PHASE I & II UPPER VALLEY/STRAHAN ROAD 36" WATER TRANSMISSION MAIN INSTALLATION PROJECT

PROJECT NUMBER: 239663	FILE NAME: 239663.2000_6B_ID
AUTHOR: MLOVELACE	DATE: 10/15/2015

TRC
505 E. HUNTLAND DR.
SUITE 250
AUSTIN, TX 78752
PH:512-329-6080

FIGURE 6B



Document Path: J:\El Paso Water Utility\239663 EPWU Strahan\Phase2 Natural Resources\239663.2000 6C ID.mxd

LEGEND

- PHASE I 36" WATER MAIN LINE
- PHASE II 36" WATER MAIN LINE
- ROADSIDE DRAINAGE DITCH
- SURVEY AREA

SOURCE: Microsoft and their data partners (2015)

N

0 225 450

Feet

1 in = 450 feet

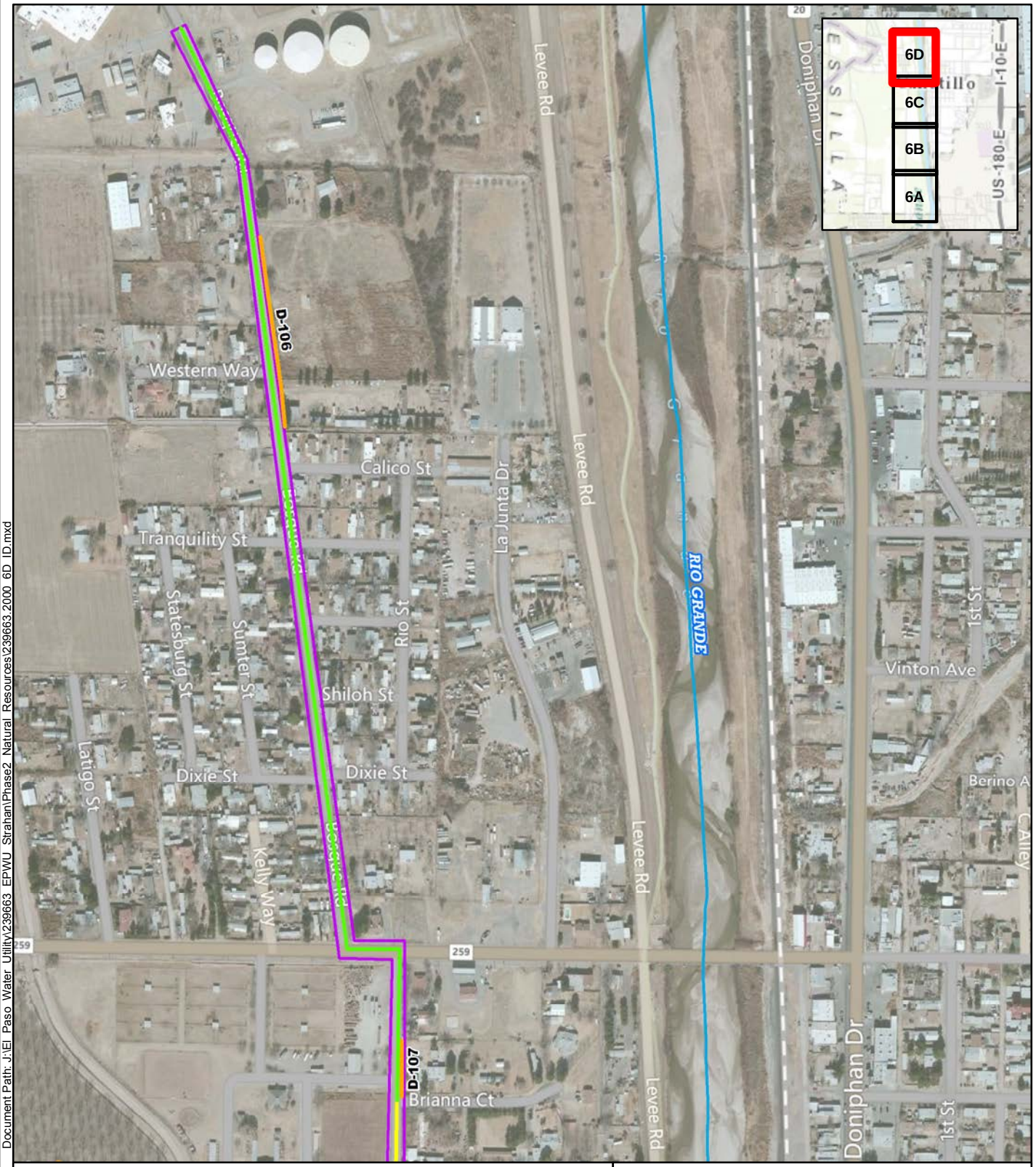
IDENTIFIED FEATURES MAP

EL PASO WATER UTILITIES PUBLIC SERVICE BOARD
PHASE I & II UPPER VALLEY/STRAHAN ROAD 36" WATER TRANSMISSION MAIN INSTALLATION PROJECT

PROJECT NUMBER: 239663	FILE NAME: 239663.2000_6C_ID
AUTHOR: MLOVELACE	DATE: 10/20/2015

TRC
505 E. HUNTLAND DR.
SUITE 250
AUSTIN, TX 78752
PH:512-329-6080

FIGURE 6C



Document Path: J:\El Paso Water Utility\239663 EPWU Strahan\Phase2 Natural Resources\239663.2000 6D ID.mxd

LEGEND

- PHASE I 36" WATER MAIN LINE
- PHASE II 36" WATER MAIN LINE
- ROADSIDE DRAINAGE DITCH
- SURVEY AREA

SOURCE: Microsoft and their data partners (2015)

N

0 225 450

Feet

1 in = 450 feet

IDENTIFIED FEATURES MAP

EL PASO WATER UTILITIES PUBLIC SERVICE BOARD
PHASE I & II UPPER VALLEY/STRAHAN ROAD 36" WATER TRANSMISSION MAIN INSTALLATION PROJECT

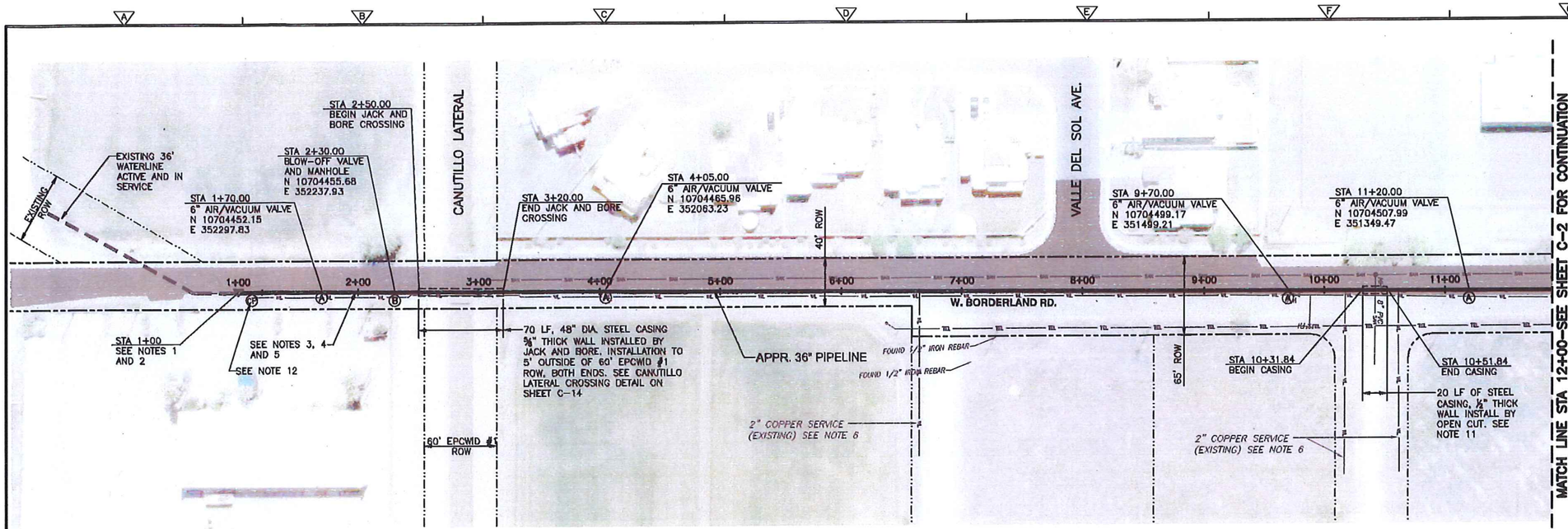
PROJECT NUMBER: 239663	FILE NAME: 239663.2000_6D_ID
AUTHOR: MLOVELACE	DATE: 10/20/2015

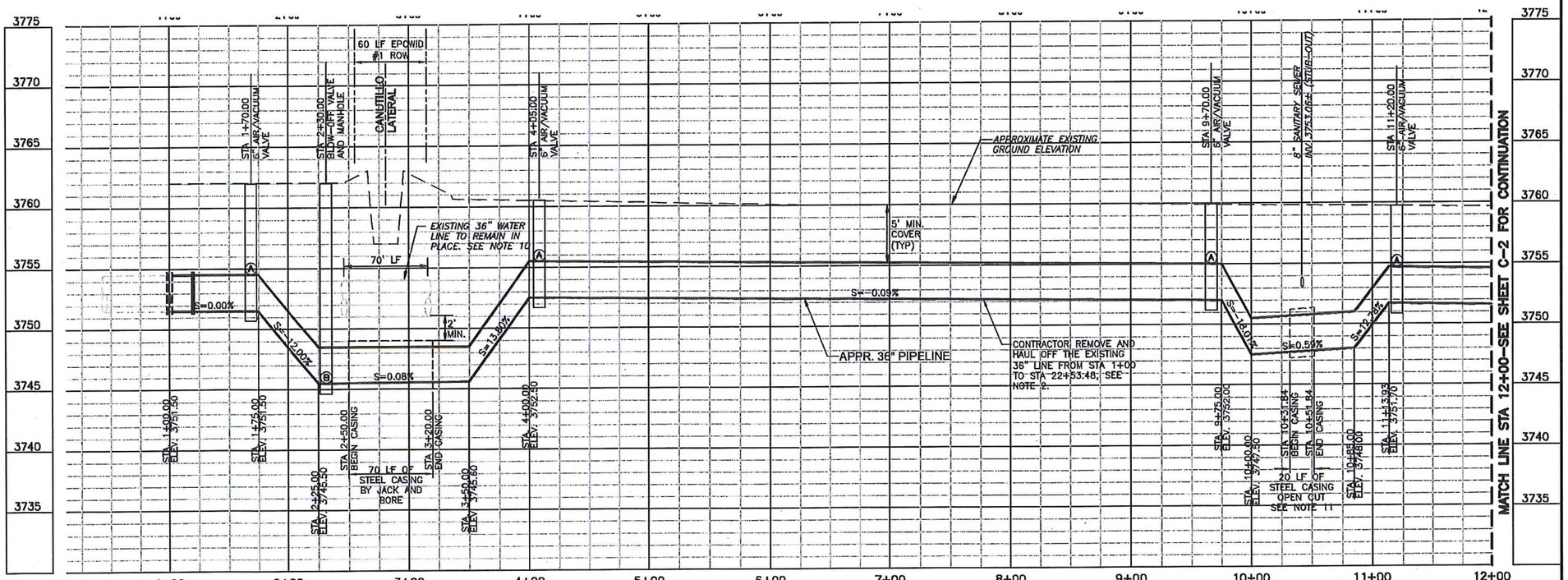
TRC
505 E. HUNTLAND DR.
SUITE 250
AUSTIN, TX 78752
PH:512-329-6080

FIGURE
6D

APPENDIX B

PROJECT DESIGN PLANS





CONSTRUCTION NOTES:

1. SEE 1+00 TIE-IN DETAIL. CONTRACTOR VERIFY DEPTH OF TIE-IN.

2. FROM STA. 1+00 TO END LOCATION SHOWN IN STRAHAN RD, STA. 22+53.48, CONTRACTOR INSTALL NEW 36" LINE IN THE TRENCH OF THE EXISTING ABANDONED 36" LINE. EXCAVATE, SEPARATE PIPE JOINTS AS NECESSARY, REMOVE EXISTING PIPE, FITTINGS AND OTHER APPURTENANCES AND HAUL AWAY FROM THE JOB SITE. SEE PIPE TRENCH DETAILS FOR INSTALLATION REQUIREMENTS OF THE NEW LINE. AFTER REMOVAL OF THE EXISTING PIPE AND FITTINGS, EXCAVATE THE TRENCH TO THE LINE AND GRADE INDICATED.

3. CONTRACTOR OBTAIN THE HAULING PERMIT FROM THE CITY OF EL PASO PRIOR TO HAULING AWAY EXISTING PIPE. THE PIPE IS TO BE HAULED OFF THE PROJECTED SITE.

4. FROM STA. 1+00 TO THE INTERSECTION OF BORDERLAND RD AND STRAHAN RD, CONTRACTOR PROVIDE TRAFFIC CONTROL THAT UTILIZES A FLAGMAN, DUE TO HEAVY TRAFFIC IN THE MORNING AND AFTERNOON DUE TO THE SCHOOL SCHEDULE.

5. SEE EXISTING/NEW PIPE TRENCH DETAIL FOR REQUIREMENTS IN CUTTING, REMOVING AND HAULING AWAY THE EXISTING 36" LINE, AS WELL AS PREPARING THE TRENCH BOTTOM FOR THE NEW 36" LINE.

6. CONTRACTOR CUT AND PLUG ALL 2" COPPER SERVICE LINES EXTENDING OFF THE EXISTING 36" LINE.

7. CONTRACTOR PROVIDE PROJECT-WIDE TRAFFIC CONTROL. VEHICLE ACCESS IS REQUIRED ALONG BORDERLAND ROAD AT ALL TIMES. PROVIDE FLAGMEN AS NECESSARY TO DIRECT TRAFFIC AROUND THE WORK AREA. SEE THE SPECIFICATIONS FOR LIMITS OF EXCAVATION AND ALLOWABLE OPEN TRENCH.

8. AT THE END OF EACH WORKING DAY AND ON WEEKENDS AND HOLIDAYS, CONTRACTOR ESTABLISH UNATTENDED VEHICLE ACCESS PAST THE WORK ZONE THROUGH THE USE OF TYPE III FLASHING BARRICADES, TRAFFIC BARRELS AND SIGNAGE TO PROVIDE SAFE ACCESS, PER IT'S TRAFFIC CONTROL PLAN.

9. ONLY ENOUGH PIPE MAY BE STRUNG ALONG THE ROAD ROW FOR ONE DAY'S INSTALLATION. ALL STRUNG PIPE MUST BE SAFELY LOCATED AWAY FROM VEHICLE TRAFFIC. NO PIPE OR EQUIPMENT IS TO BE LEFT WITHIN STREET ROW ANYWHERE ALONG THE PIPELINE CORRIDOR AFTER COMPLETION OF EACH DAY'S WORK.

10. CONTRACTOR CUT AND PLUG THE EXISTING 36" LINE ON EITHER SIDE OF THE CANUTILLO LATERAL CROSSING AND ABANDON THE PORTION OF EXISTING LINE UNDER THE LATERAL IN PLACE. TAKE CAUTION NOT TO DISTURBED THE EXISTING 8" POTABLE WATER LINE THAT EXTENDS THROUGH THE EXISTING CASING. DURING THE PLUGGING OF EACH END OF THE EXISTING PIPE, FILL THE EXISTING PIPE WITH 2-SACK CEMENT MATERIAL.

11. CONTRACTOR CENTER THE 48" DIA. CASING UNDER THE EXISTING 8" SEWER LINE SEE CASING DETAIL.

12. CONTRACTOR INSTALL CP TEST STATION AT STA 1+10.00.

N

1" = 50'
25 0 50
HORIZONTAL SCALE

1" = 5'
2.5 0 5
VERTICAL SCALE

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: S. AINSA
DRAWN BY: GAR
SHEET CHK'D BY: S. AINSA
CROSS CHK'D BY: R. FOWLIE
APPROVED BY: S. AINSA
DATE: MAY 2012

CDM Smith
4110 RIO BRAVO DRIVE, SUITE 201
EL PASO, TEXAS 79902
TEL: 915 544-2340 FAX: 915 544-1345

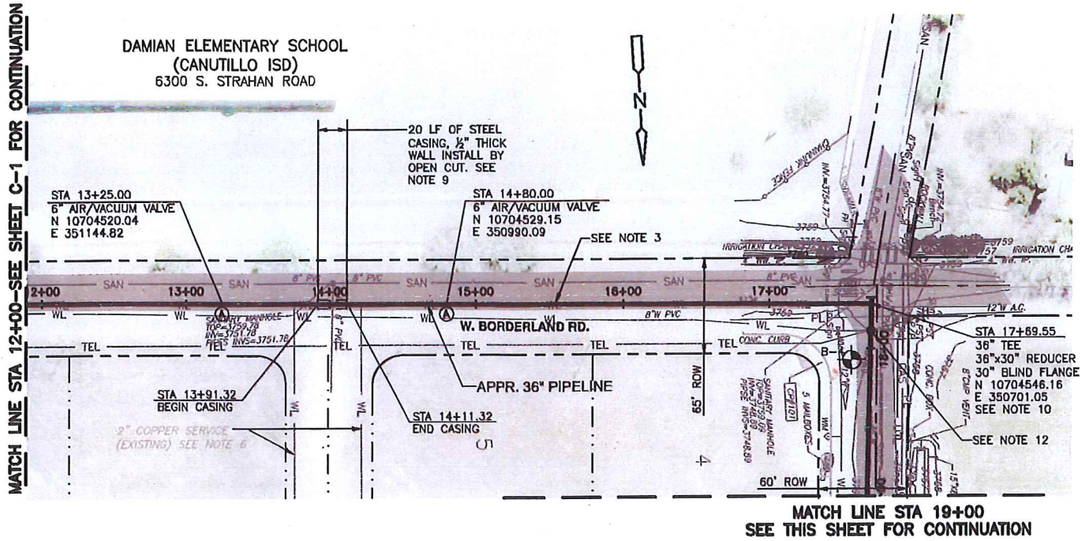
EL PASO WATER UTILITIES
PUBLIC SERVICE BOARD

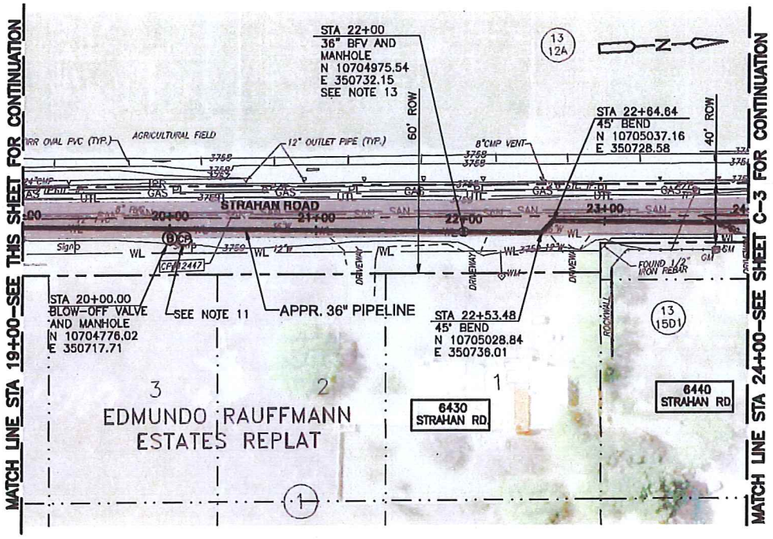
UPPER VALLEY STRAHAN ROAD WATER TRANSMISSION MAIN

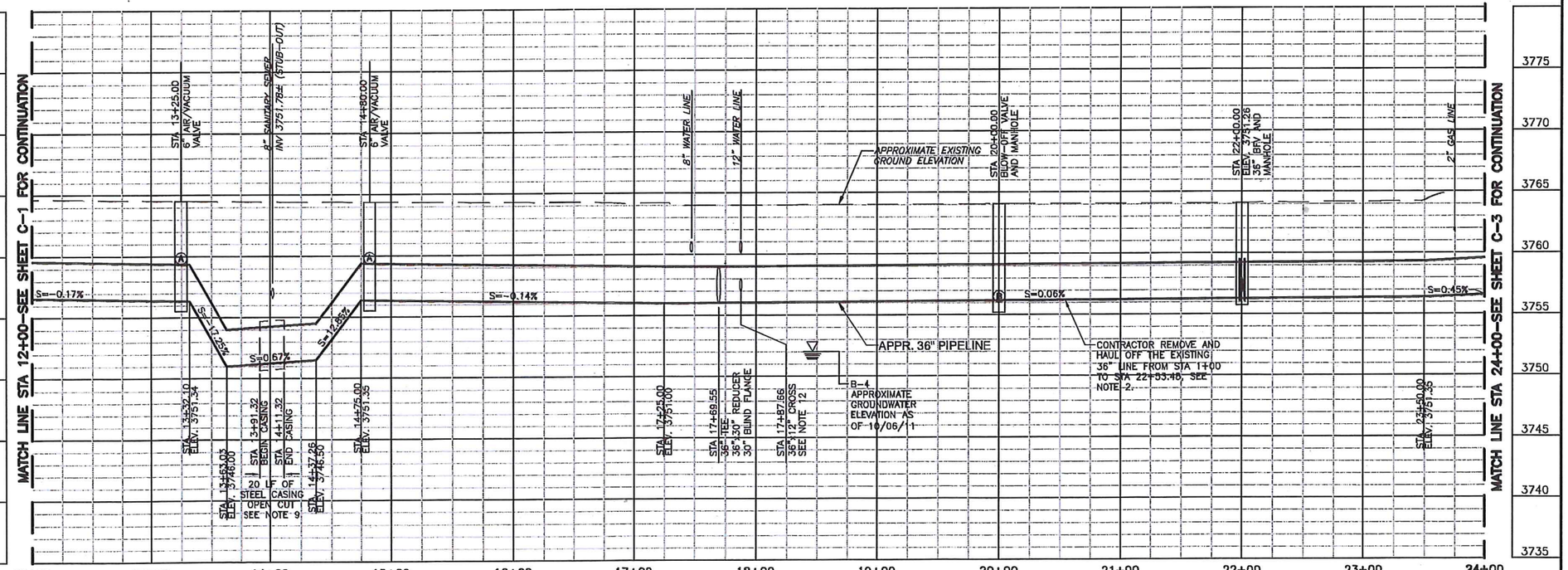
PLAN AND PROFILE
FROM STA 1+00 TO STA 12+00

PROJECT NO. 1046-84522
FILE NAME: C001PLPR
SHEET NO.
C-1

95% SUBMITTAL - NOT FOR CONSTRUCTION







CONSTRUCTION NOTES:

1. FROM STA. 1+00 TO STA. 22+53.48, CONTRACTOR INSTALL NEW 36" LINE IN THE TRENCH OF THE EXISTING ABANDONED 36" LINE. EXCAVATE, SEPARATE PIPE JOINTS AS NECESSARY, REMOVE EXISTING PIPE, FITTINGS AND OTHER APPURTENANCES AND HAUL AWAY FROM THE JOB SITE PLUG THE EXISTING 36" WATER LINE AT STA. 22+53.48, LEAVING ENOUGH ROOM TO INSTALL NEW FITTINGS AND PIPE. SEE PIPE TRENCH DETAILS FOR INSTALLATION REQUIREMENTS OF THE NEW LINE.

2. CONTRACTOR OBTAIN THE HAULING PERMIT FROM THE CITY OF EL PASO PRIOR TO HAULING AWAY EXISTING PIPE. THE PIPE IS TO BE HAULED OFF THE PROJECTED SITE.

3. FROM STA. 1+00 TO THE INTERSECTION OF BORDERLAND RD AND STRAHAN RD, CONTRACTOR PROVIDE TRAFFIC CONTROL THAT UTILIZES A FLAGMAN, DUE TO HEAVY TRAFFIC IN THE MORNING AND AFTERNOON DUE TO THE SCHOOL SCHEDULE.

4. SEE EXISTING/NEW PIPE TRENCH DETAIL FOR REQUIREMENTS IN CUTTING, REMOVING AND HAULING AWAY THE EXISTING 36" LINE, AS WELL AS PREPARING THE TRENCH BOTTOM FOR THE NEW 36" LINE.

5. CONTRACTOR CUT AND PLUG ALL 2" COPPER SERVICE LINES EXTENDING OFF THE EXISTING 36" LINE, TYPICAL.

6. CONTRACTOR PROVIDE PROJECT-WIDE TRAFFIC CONTROL. VEHICLE ACCESS IS REQUIRED ALONG BORDERLAND ROAD AT ALL TIMES INCLUDING DRIVEWAYS THAT INTERSECTS STRAHAN RD. PROVIDE FLAGMEN AS NECESSARY TO DIRECT TRAFFIC AROUND THE WORK AREA. SEE THE SPECIFICATIONS FOR LIMITS OF EXCAVATION AND ALLOWABLE OPEN TRENCH.

7. AT THE END OF EACH WORKING DAY AND ON WEEKENDS AND HOLIDAYS, CONTRACTOR ESTABLISH UNATTENDED VEHICLE ACCESS PAST THE WORK ZONE THROUGH THE USE OF TYPE III FLASHING BARRICADES, TRAFFIC BARRELS AND SIGNAGE TO PROVIDE SAFE ACCESS, PER IT'S TRAFFIC CONTROL PLAN.

8. ONLY ENOUGH PIPE MAY BE STRUNG ALONG THE ROAD ROW FOR ONE DAY'S INSTALLATION. ALL STRUNG PIPE MUST BE SAFELY LOCATED AWAY FROM VEHICLE TRAFFIC. NO PIPE OR EQUIPMENT IS TO BE LEFT WITHIN STREET ROW ANYWHERE ALONG THE PIPELINE CORRIDOR AFTER COMPLETION OF EACH DAY'S WORK.

9. CONTRACTOR CENTER THE 48" DIA. CASING UNDER THE EXISTING 8" SEWER LINE. SEE CASING DETAIL.

10. PROVIDE A 30" BLIND FLNAGE MECHANICALLY RESTRAINED FOR THRUST.

11. CONTRACTOR INSTALL CP TEST STATION AT 20+00.

12. STA 17+87.66, 36"x12" CROSS.
N 10704564.29
E 350702.38
COORDINATE WITH EPWU TO ISOLATE THE EXISTING 12" LINE. DISCONNECT THE EXISTING 12" LINE WHEN REMOVING THE EXISTING 36" LINE. RECONNECT THE EXISTING 12" LINE TO THE NEW 36" LINE.

13. AT THE 36" BUTTERFLY VALVE LOCATION, CONTRACTOR CUT AND REMOVE 20' OF EXISTING 36" WATER LINE, CENTERED AT THE NEW MANHOLE. PLUG BOTH ENDS OF EXISTING WATER LINE WITH BRICK AND MORTAR.

1" = 50'
25 0 50
HORIZONTAL SCALE

1" = 5'
2.5 0 5
VERTICAL SCALE

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: S. AINSA
DRAWN BY: GAR
SHEET CHK'D BY: S. AINSA
CROSS CHK'D BY: R. FOWLIE
APPROVED BY: S. AINSA
DATE: MAY 2012

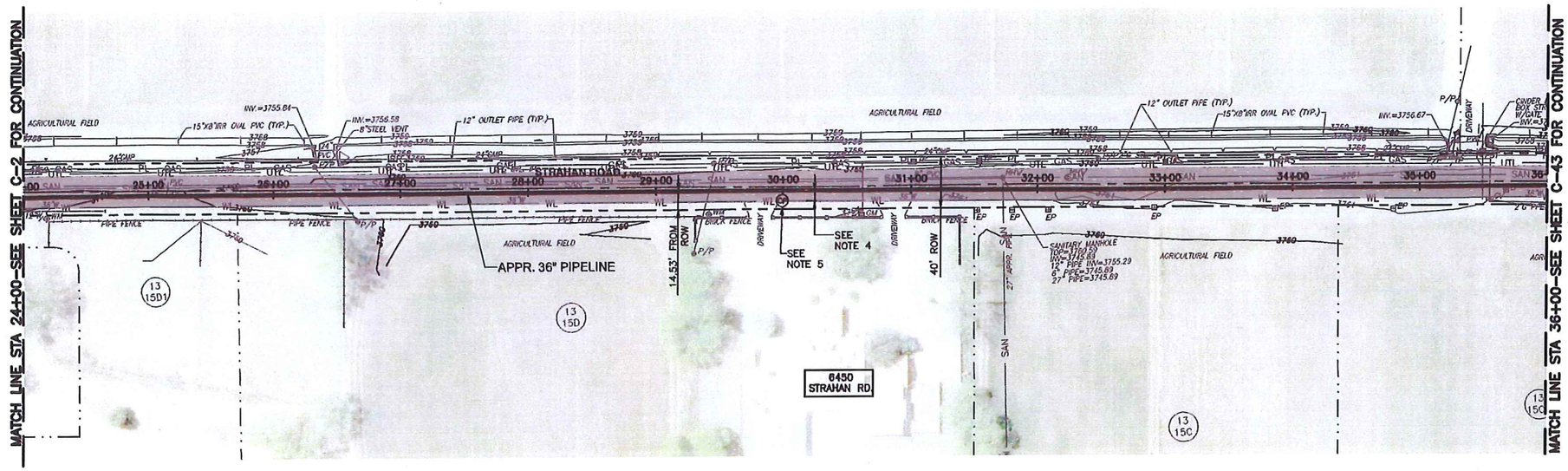
CDM Smith
4110 RIO BRAVO DRIVE, SUITE 201
EL PASO, TEXAS 79902
TEL: 915 544-2340 FAX: 915 544-1345

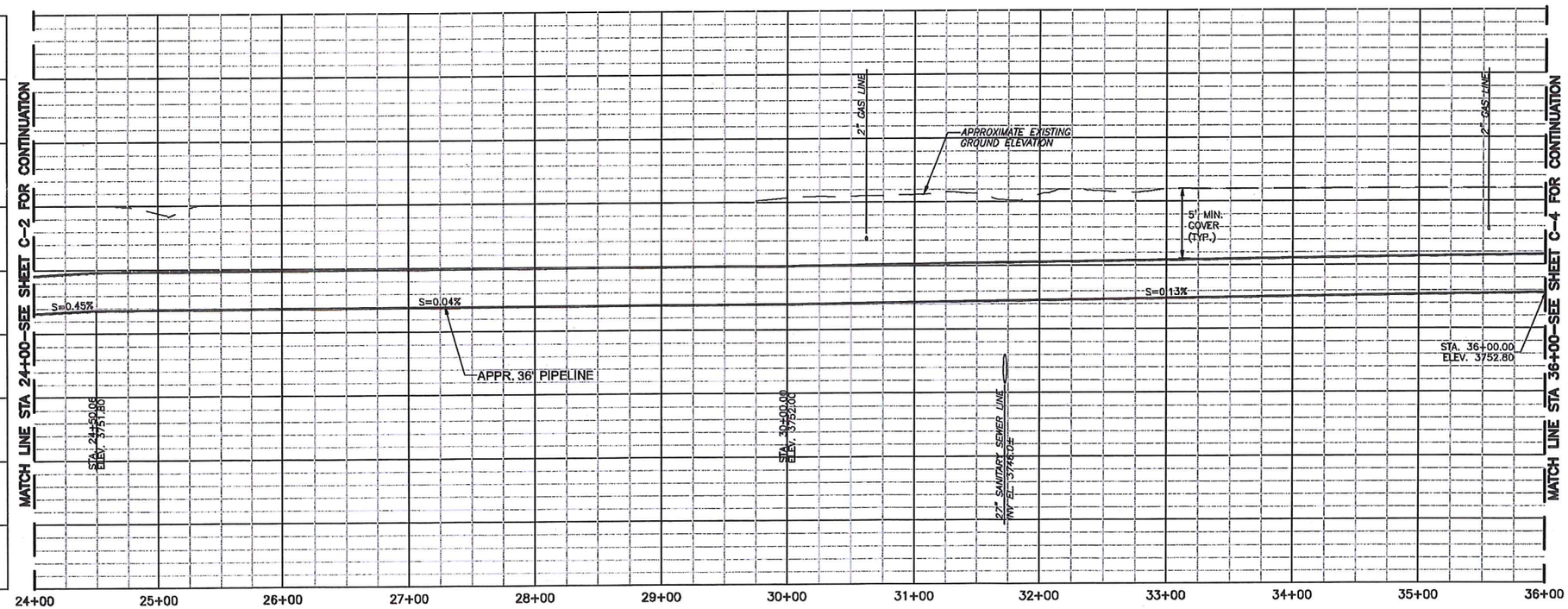
EL PASO WATER UTILITIES
PUBLIC SERVICE BOARD
UPPER VALLEY STRAHAN ROAD WATER TRANSMISSION MAIN

PLAN AND PROFILE
FROM STA 12+00 TO STA 24+00

PROJECT NO. 1046-84522
FILE NAME: C002PLPR
SHEET NO.
C-2

95% SUBMITTAL - NOT FOR CONSTRUCTION





CONSTRUCTION NOTES:

1. CONTRACTOR PROVIDE PROJECT–WIDE TRAFFIC CONTROL. VEHICLE ACCESS IS REQUIRED ALONG STRAHAN ROAD AT ALL TIMES INCLUDING DRIVEWAYS THAT INTERSECTS STRAHAN RD. PROVIDE FLAGMEN AS NECESSARY TO DIRECT TRAFFIC AROUND THE WORK AREA. SEE THE SPECIFICATIONS FOR LIMITS OF EXCAVATION AND ALLOWABLE OPEN TRENCH.

2. AT THE END OF EACH WORKING DAY AND ON WEEKENDS AND HOLIDAYS, CONTRACTOR ESTABLISH UNATTENDED VEHICLE ACCESS PAST THE WORK ZONE THROUGH THE USE OF TYPE III FLASHING BARRICADES, TRAFFIC BARRELS AND SIGNAGE TO PROVIDE SAFE ACCESS, PER IT'S TRAFFIC CONTROL PLAN.

3. ONLY ENOUGH PIPE MAY BE STRUNG ALONG THE ROAD ROW FOR ONE DAY'S INSTALLATION. ALL STRUNG PIPE MUST BE SAFELY LOCATED AWAY FROM VEHICLE TRAFFIC. NO PIPE OR EQUIPMENT IS TO BE LEFT WITHIN STREET ROW ANYWHERE ALONG THE PIPELINE CORRIDOR AFTER COMPLETION OF EACH DAY'S WORK.

4. THE DIMENSION FROM THE NEW 36" LINE TO THE ROAD ROW VARIES. CONTRACTOR MAINTAIN 8' CENTER TO CENTER FROM THE EXISTING 36" ABANDONED WATER LINE TO THE NEW LINE.

5. CONTRACTOR INSTALL CP TEST STATION AT 30+00.

1" = 50'
HORIZONTAL SCALE
1" = 5'
VERTICAL SCALE

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: S. AINSA
DRAWN BY: GAR
SHEET CHK'D BY: S. AINSA
CROSS CHK'D BY: R. FOWLIE
APPROVED BY: S. AINSA
DATE: MAY 2012

CDM Smith
4110 RIO BRAVO DRIVE, SUITE 201
EL PASO, TEXAS 79902
TEL: 915 544-2340 FAX: 915 544-1345

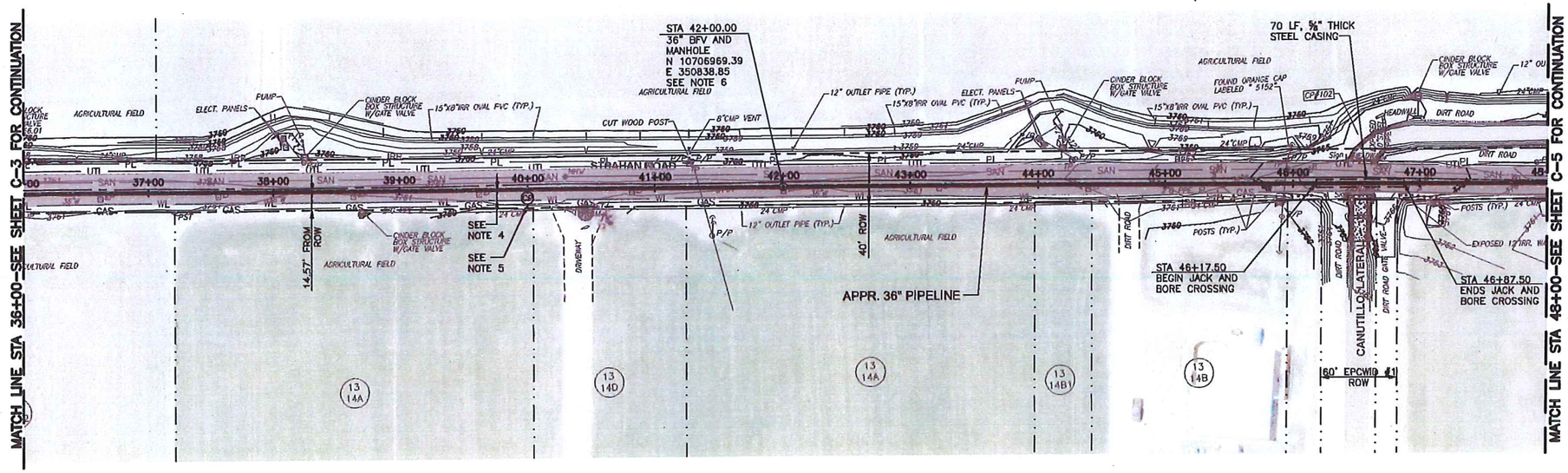
EL PASO WATER UTILITIES
PUBLIC SERVICE BOARD

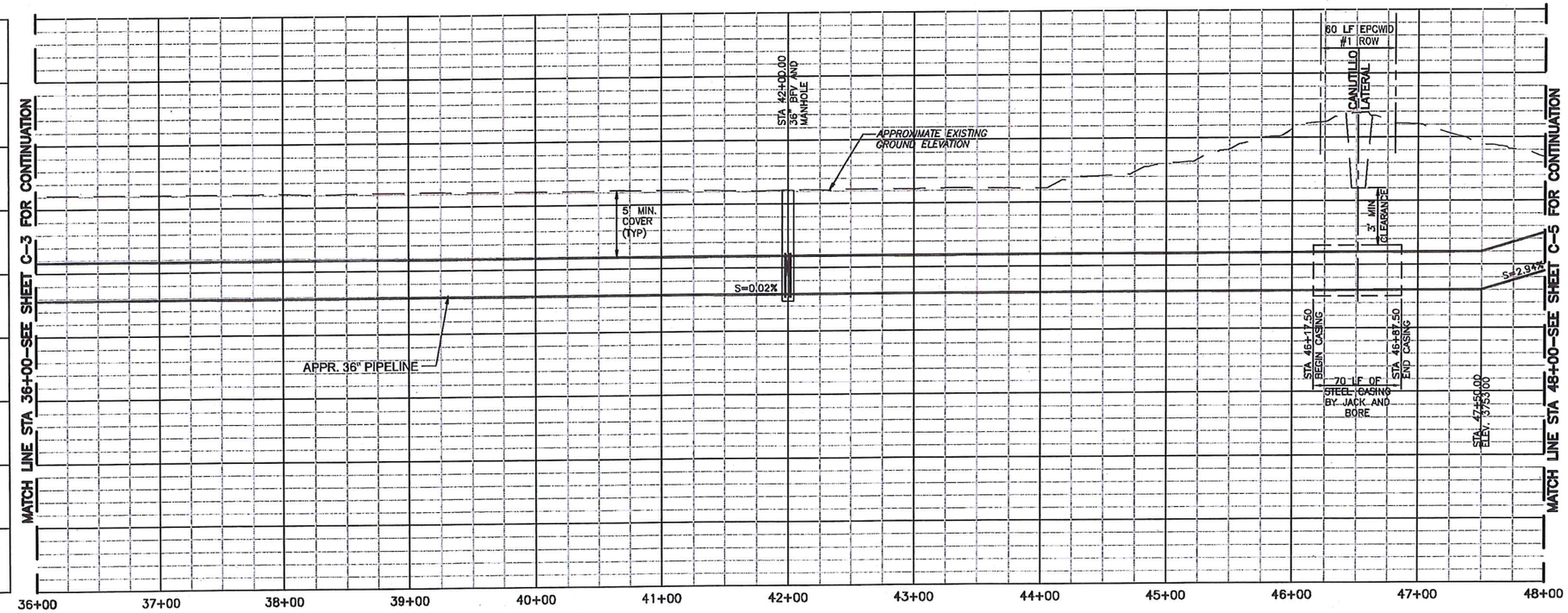
UPPER VALLEY STRAHAN ROAD WATER TRANSMISSION MAIN

PLAN AND PROFILE
FROM STA 24+00 TO STA 36+00

PROJECT NO. 1046-84522
FILE NAME: C003PLPR
SHEET NO.
C-3

95% SUBMITTAL - NOT FOR CONSTRUCTION





CONSTRUCTION NOTES:

1. CONTRACTOR PROVIDE PROJECT-WIDE TRAFFIC CONTROL. VEHICLE ACCESS IS REQUIRED ALONG STRAHAN ROAD AT ALL TIMES INCLUDING DRIVEWAYS THAT INTERSECT STRAHAN RD. PROVIDE FLAGMEN AS NECESSARY TO DIRECT TRAFFIC AROUND THE WORK AREA. SEE THE SPECIFICATIONS FOR LIMITS OF EXCAVATION AND ALLOWABLE OPEN TRENCH.

2. AT THE END OF EACH WORKING DAY AND ON WEEKENDS AND HOLIDAYS, CONTRACTOR ESTABLISH UNATTENDED VEHICLE ACCESS PAST THE WORK ZONE THROUGH THE USE OF TYPE III FLASHING BARRICADES, TRAFFIC BARRELS AND SIGNAGE TO PROVIDE SAFE ACCESS, PER IT'S TRAFFIC CONTROL PLAN.

3. ONLY ENOUGH PIPE MAY BE STRUNG ALONG THE ROAD ROW FOR ONE DAY'S INSTALLATION. ALL STRUNG PIPE MUST BE SAFELY LOCATED AWAY FROM VEHICLE TRAFFIC. NO PIPE OR EQUIPMENT IS TO BE LEFT WITHIN STREET ROW ANYWHERE ALONG THE PIPELINE CORRIDOR AFTER COMPLETION OF EACH DAY'S WORK.

4. THE DIMENSION FROM THE NEW 36" LINE TO THE ROAD ROW VARIES. CONTRACTOR MAINTAIN 8' CENTER TO CENTER FROM THE EXISTING 36" ABANDONED WATER LINE TO THE NEW LINE.

5. CONTRACTOR INSTALL CP TEST STATION AT STA 40+00.

6. AT THE 36" BUTTERFLY VALVE LOCATION, CONTRACTOR CUT AND REMOVE 20' OF EXISTING 36" WATER LINE, CENTERED AT THE NEW MANHOLE. PLUG BOTH ENDS OF EXISTING WATER LINE WITH BRICK AND MORTAR. SUPPORT AND PROTECT THE EXISTING NATURAL GAS LINE AND COORDINATE THIS EFFORT WITH TEXAS GAS SERVICE. TGS MAY ELECT TO RECOAT OR REHAB THE EXISTING EXPOSED GAS LINE, PROVIDED THE CONTRACTOR DOES NOT DAMAGE IT WHILE BEING EXPOSED. IF THE CONTRACTOR DAMAGES THE GAS LINE DURING THE EXPOSURE, THE DAMAGE WILL BE PAID BY THE CONTRACTOR AT NO COST TO THIS PROJECT.

1" = 50'
HORIZONTAL SCALE
1" = 5'
VERTICAL SCALE

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: S. AINSA
DRAWN BY: GAR
SHEET CHK'D BY: S. AINSA
CROSS CHK'D BY: R. FOWLIE
APPROVED BY: S. AINSA
DATE: MAY 2012

CDM Smith
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EL PASO, TEXAS 79902
TEL: 915 544-2340 FAX: 915 544-1345

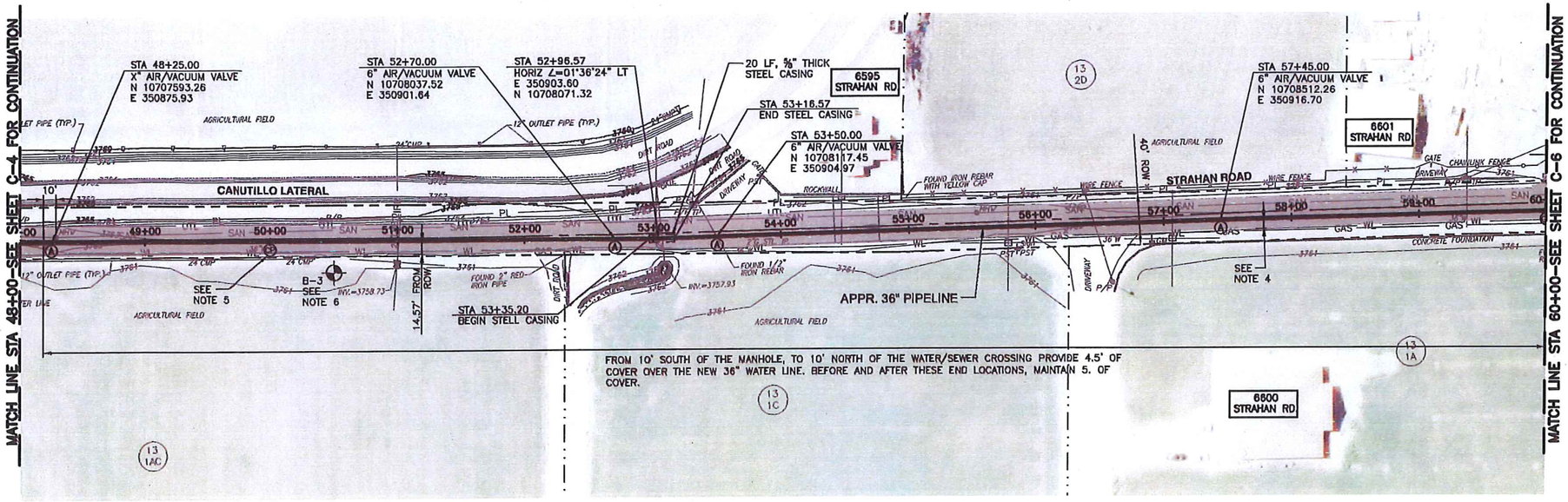
EL PASO WATER UTILITIES
PUBLIC SERVICE BOARD

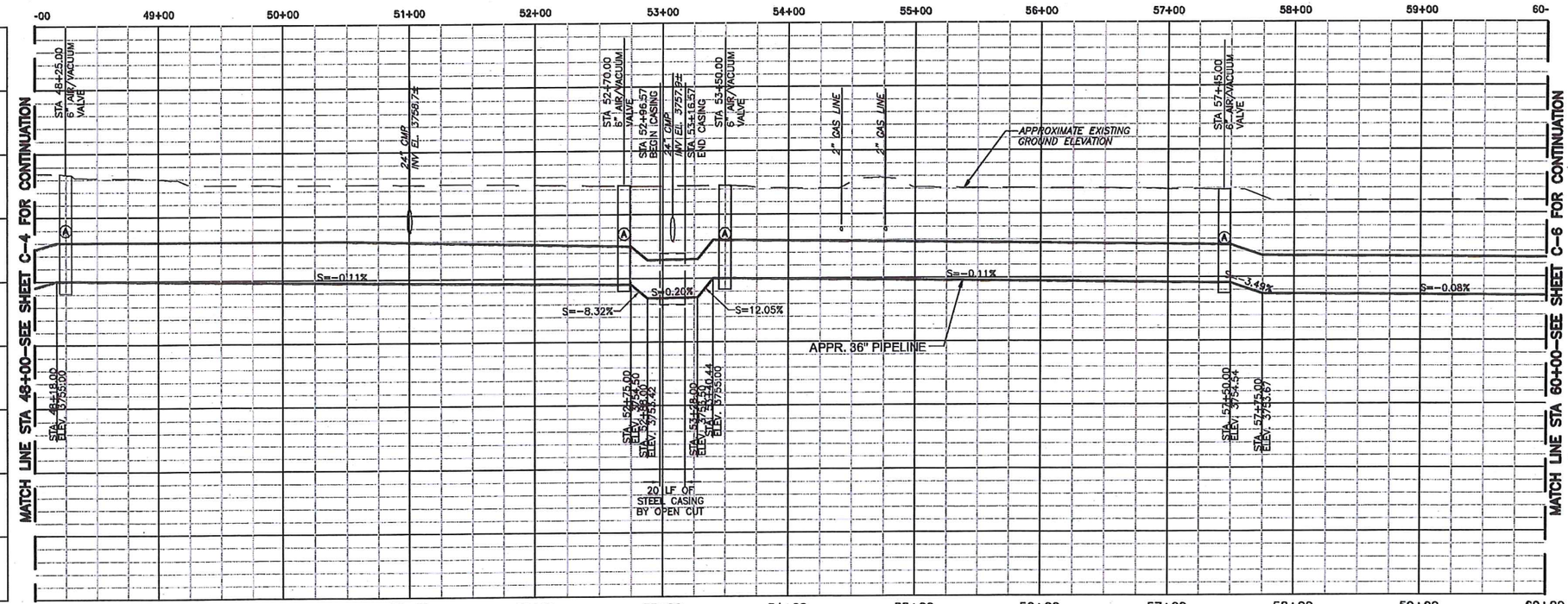
UPPER VALLEY STRAHAN ROAD WATER TRANSMISSION MAIN

PLAN AND PROFILE
FROM STA 36+00 TO STA 48+00

PROJECT NO. 1046-84522
FILE NAME: C004PLPR
SHEET NO. C-4

95% SUBMITTAL - NOT FOR CONSTRUCTION





CONSTRUCTION NOTES:

1. CONTRACTOR PROVIDE PROJECT-WIDE TRAFFIC CONTROL. VEHICLE ACCESS IS REQUIRED ALONG STRAHAN ROAD AT ALL TIMES INCLUDING DRIVEWAYS THAT INTERSECT STRAHAN RD. PROVIDE FLAGMEN AS NECESSARY TO DIRECT TRAFFIC AROUND THE WORK AREA. SEE THE SPECIFICATIONS FOR LIMITS OF EXCAVATION AND ALLOWABLE OPEN TRENCH.

2. AT THE END OF EACH WORKING DAY AND ON WEEKENDS AND HOLIDAYS, CONTRACTOR ESTABLISH UNATTENDED VEHICLE ACCESS PAST THE WORK ZONE THROUGH THE USE OF TYPE III FLASHING BARRICADES, TRAFFIC BARRELS AND SIGNAGE TO PROVIDE SAFE ACCESS, PER IT'S TRAFFIC CONTROL PLAN.

3. ONLY ENOUGH PIPE MAY BE STRUNG ALONG THE ROAD ROW FOR ONE DAY'S INSTALLATION. ALL STRUNG PIPE MUST BE SAFELY LOCATED AWAY FROM VEHICLE TRAFFIC. NO PIPE OR EQUIPMENT IS TO BE LEFT WITHIN STREET ROW ANYWHERE ALONG THE PIPELINE CORRIDOR AFTER COMPLETION OF EACH DAY'S WORK.

4. THE DIMENSION FROM THE NEW 36" LINE TO THE ROAD ROW VARIES. CONTRACTOR MAINTAIN 8' CENTER TO CENTER FROM THE EXISTING 36" ABANDONED WATER LINE TO THE NEW LINE.

5. CONTRACTOR INSTALL CP TEST STATION AT STA. 50+00.

6. NO GROUNDWATER ENCOUNTERED DURING SOIL BORING AS OF 10/6/2011.

1" = 50'
25 0 50
HORIZONTAL SCALE

1" = 5'
2.5 0 5
VERTICAL SCALE

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY:	S. AINSA
DRAWN BY:	CAR
SHEET CHK'D BY:	S. AINSA
CROSS CHK'D BY:	R. FOWLIE
APPROVED BY:	S. AINSA
DATE:	MAY 2012

CDM Smith
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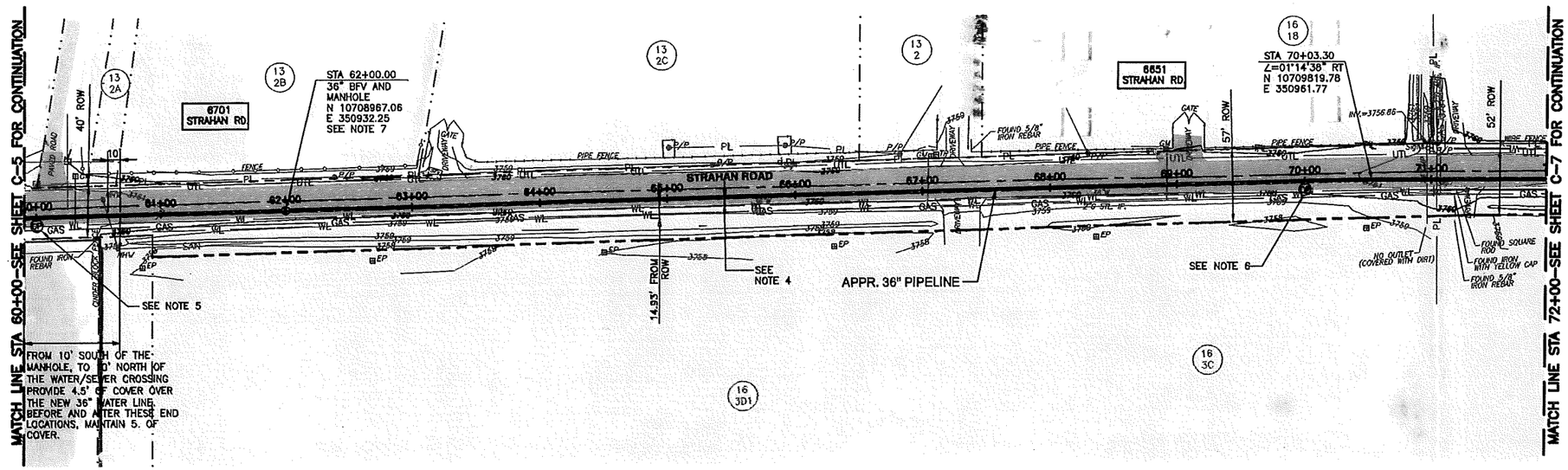
EL PASO WATER UTILITIES
PUBLIC SERVICE BOARD

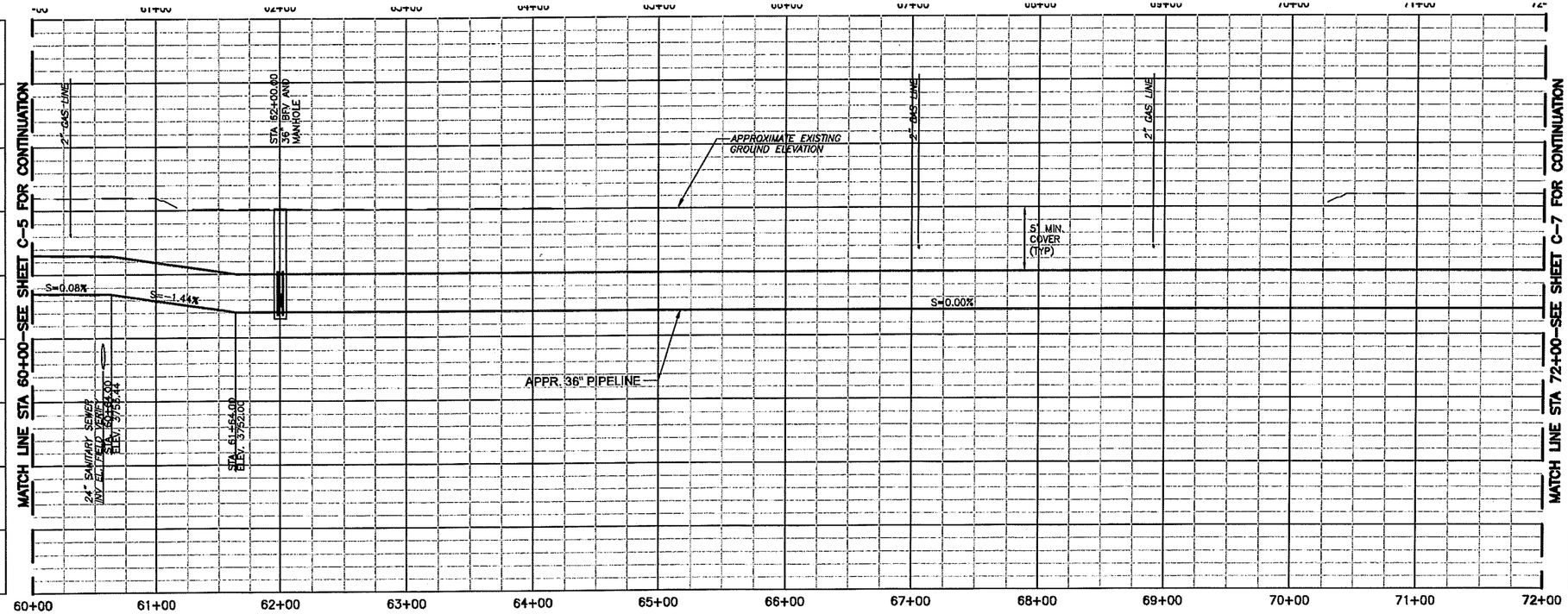
UPPER VALLEY STRAHAN ROAD WATER TRANSMISSION MAIN

PLAN AND PROFILE
FROM STA 48+00 TO STA 60+00

PROJECT NO. 1046-84522
FILE NAME: C005PLPR
SHEET NO. C-5

95% SUBMITTAL - NOT FOR CONSTRUCTION





CONSTRUCTION NOTES:

1. CONTRACTOR PROVIDE PROJECT–WIDE TRAFFIC CONTROL. VEHICLE ACCESS IS REQUIRED ALONG STRAHAN ROAD AT ALL TIMES INCLUDING DRIVEWAYS THAT INTERSECT STRAHAN RD. PROVIDE FLAGMEN AS NECESSARY TO DIRECT TRAFFIC AROUND THE WORK AREA. SEE THE SPECIFICATIONS FOR LIMITS OF EXCAVATION AND ALLOWABLE OPEN TRENCH.

2. AT THE END OF EACH WORKING DAY AND ON WEEKENDS AND HOLIDAYS, CONTRACTOR ESTABLISH UNATTENDED VEHICLE ACCESS PAST THE WORK ZONE THROUGH THE USE OF TYPE III FLASHING BARRICADES, TRAFFIC BARRELS AND SIGNAGE TO PROVIDE SAFE ACCESS, PER IT'S TRAFFIC CONTROL PLAN.

3. ONLY ENOUGH PIPE MAY BE STRUNG ALONG THE ROAD ROW FOR ONE DAY'S INSTALLATION. ALL STRUNG PIPE MUST BE SAFELY LOCATED AWAY FROM VEHICLE TRAFFIC. NO PIPE OR EQUIPMENT IS TO BE LEFT WITHIN STREET ROW ANYWHERE ALONG THE PIPELINE CORRIDOR AFTER COMPLETION OF EACH DAY'S WORK.

4. THE DIMENSION FROM THE NEW 36" LINE TO THE ROAD ROW VARIES. CONTRACTOR MAINTAIN 8' CENTER TO CENTER FROM THE EXISTING 36" ABANDONED WATER LINE TO THE NEW LINE.

5. CONTRACTOR INSTALL CP TEST STATION AT STA 60+00.

6. CONTRACTOR INSTALL CP TEST STATION AT STA 70+00.

7. AT THE 36" BUTTERFLY VALVE LOCATION, CONTRACTOR CUT AND REMOVE 20' OF EXISTING 36" WATER LINE, CENTERED AT THE NEW MANHOLE. PLUG BOTH ENDS OF EXISTING WATER LINE WITH BRICK AND MORTAR. SUPPORT AND PROTECT THE EXISTING NATURAL GAS LINE AND COORDINATE THIS EFFORT WITH TEXAS GAS SERVICE. TGS MAY ELECT TO RECOAT OR REHAB THE EXISTING EXPOSED GAS LINE, PROVIDED THE CONTRACTOR DOES NOT DAMAGE IT WHILE BEING EXPOSED. IF THE CONTRACTOR DAMAGES THE GAS LINE DURING THE EXPOSURE, THE DAMAGE WILL BE PAID BY THE CONTRACTOR AT NO COST TO THIS PROJECT.

1" = 50'
25 0 50
HORIZONTAL SCALE

1" = 5'
2.5 0 5
VERTICAL SCALE

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: S. AINSA
DRAWN BY: GAR
SHEET CHK'D BY: S. AINSA
CROSS CHK'D BY: R. FOWLIE
APPROVED BY: S. AINSA
DATE: MAY 2012

CDM Smith
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TEL: 915 544-2340 FAX: 915 544-1345

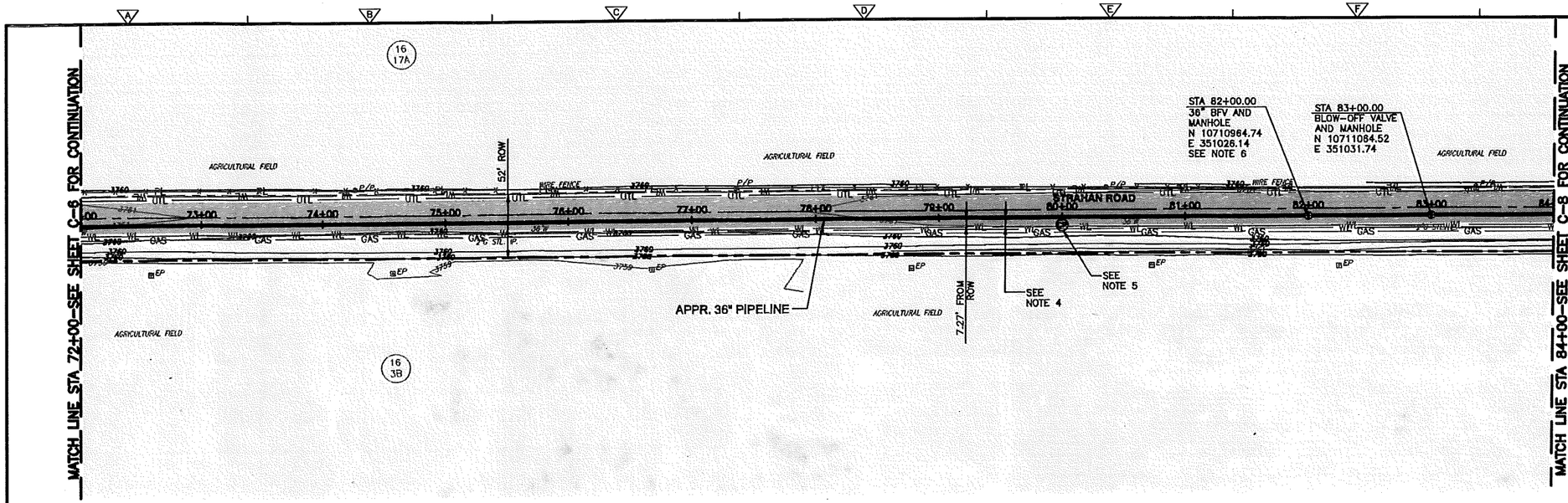
EL PASO WATER UTILITIES
PUBLIC SERVICE BOARD

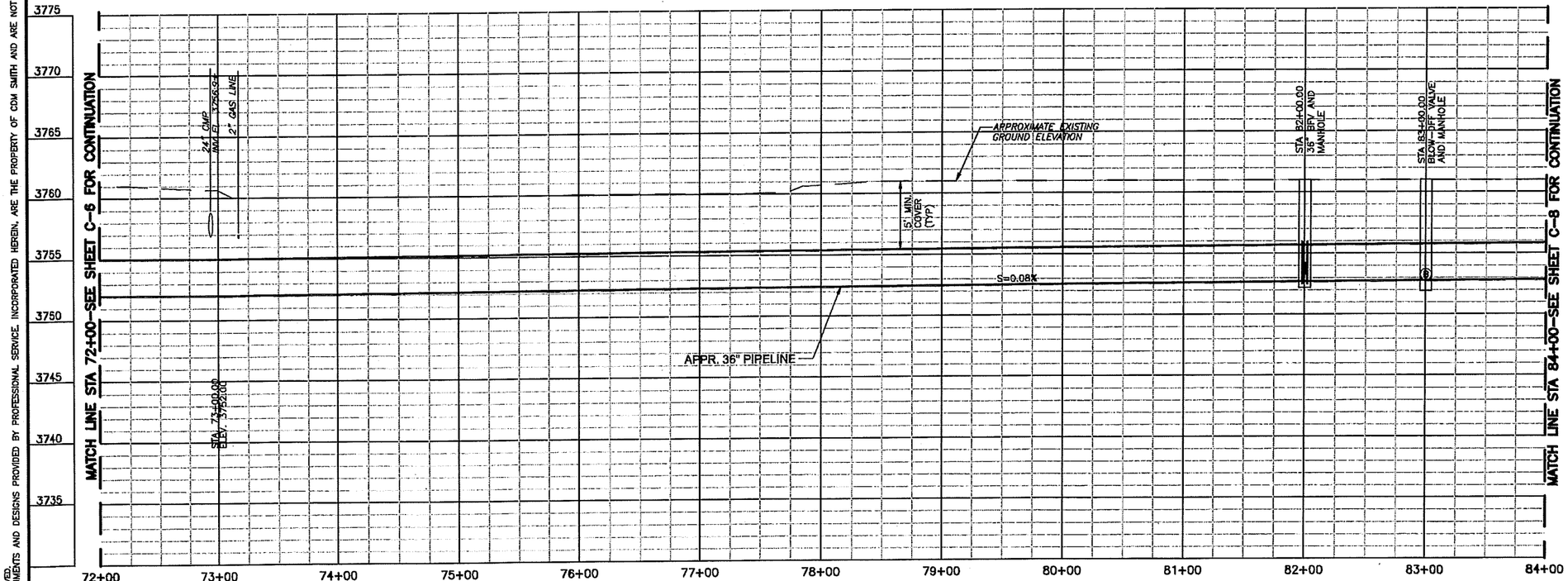
UPPER VALLEY STRAHAN ROAD WATER TRANSMISSION MAIN

PLAN AND PROFILE
FROM STA 60+00 TO STA 72+00

PROJECT NO. 1046–84522
FILE NAME: C006PLPR
SHEET NO.
C-6

95% SUBMITTAL - NOT FOR CONSTRUCTION





CONSTRUCTION NOTES:

1. CONTRACTOR PROVIDE PROJECT–WIDE TRAFFIC CONTROL. VEHICLE ACCESS IS REQUIRED ALONG STRAHAN ROAD AT ALL TIMES INCLUDING DRIVEWAYS THAT INTERSECT STRAHAN RD. PROVIDE FLAGMEN AS NECESSARY TO DIRECT TRAFFIC AROUND THE WORK AREA. SEE THE SPECIFICATIONS FOR LIMITS OF EXCAVATION AND ALLOWABLE OPEN TRENCH.

2. AT THE END OF EACH WORKING DAY AND ON WEEKENDS AND HOLIDAYS, CONTRACTOR ESTABLISH UNATTENDED VEHICLE ACCESS PAST THE WORK ZONE THROUGH THE USE OF TYPE III FLASHING BARRICADES, TRAFFIC BARRELS AND SIGNAGE TO PROVIDE SAFE ACCESS, PER IT'S TRAFFIC CONTROL PLAN.

3. ONLY ENOUGH PIPE MAY BE STRUNG ALONG THE ROAD ROW FOR ONE DAY'S INSTALLATION. ALL STRUNG PIPE MUST BE SAFELY LOCATED AWAY FROM VEHICLE TRAFFIC. NO PIPE OR EQUIPMENT IS TO BE LEFT WITHIN STREET ROW ANYWHERE ALONG THE PIPELINE CORRIDOR AFTER COMPLETION OF EACH DAY'S WORK.

4. THE DIMENSION FROM THE NEW 36" LINE TO THE ROAD ROW VARIES. CONTRACTOR MAINTAIN 8' CENTER TO CENTER FROM THE EXISTING 36" ABANDONED WATER LINE TO THE NEW LINE.

5. CONTRACTOR INSTALL CP TEST STATION AT STATION 80+00.

6. AT THE 36" BUTTERFLY VALVE LOCATION, CONTRACTOR CUT AND REMOVE 20' OF EXISTING 36" WATER LINE, CENTERED AT THE NEW MANHOLE. PLUG BOTH ENDS OF EXISTING WATER LINE WITH BRICK AND MORTAR. SUPPORT AND PROTECT THE EXISTING NATURAL GAS LINE AND COORDINATE THIS EFFORT WITH TEXAS GAS SERVICE. TGS MAY ELECT TO RECOAT OR REHAB THE EXISTING EXPOSED GAS LINE, PROVIDED THE CONTRACTOR DOES NOT DAMAGE IT WHILE BEING EXPOSED. IF THE CONTRACTOR DAMAGES THE GAS LINE DURING THE EXPOSURE, THE DAMAGE WILL BE PAID BY THE CONTRACTOR AT NO COST TO THIS PROJECT.

1" = 50'
25 0 50
HORIZONTAL SCALE

1" = 5'
2.5 0 5
VERTICAL SCALE

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: S. AINSA
DRAWN BY: GAR
SHEET CHK'D BY: S AINSA
CROSS CHK'D BY: R. FOWLIE
APPROVED BY: S. AINSA
DATE: MAY 2012

CDM Smith
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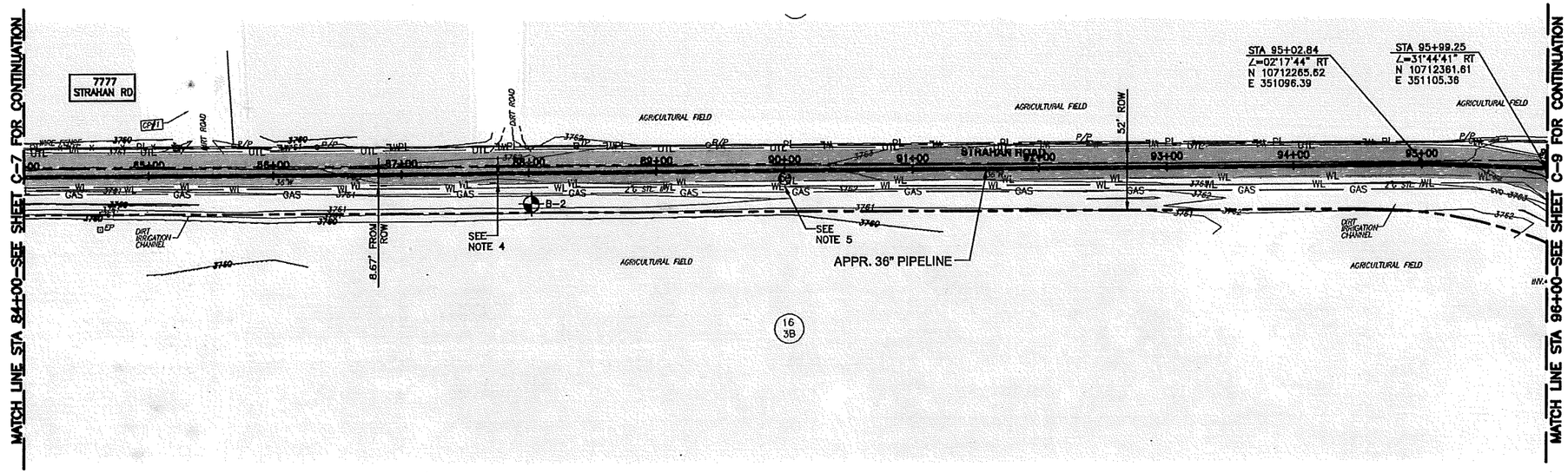
EL PASO WATER UTILITIES
PUBLIC SERVICE BOARD

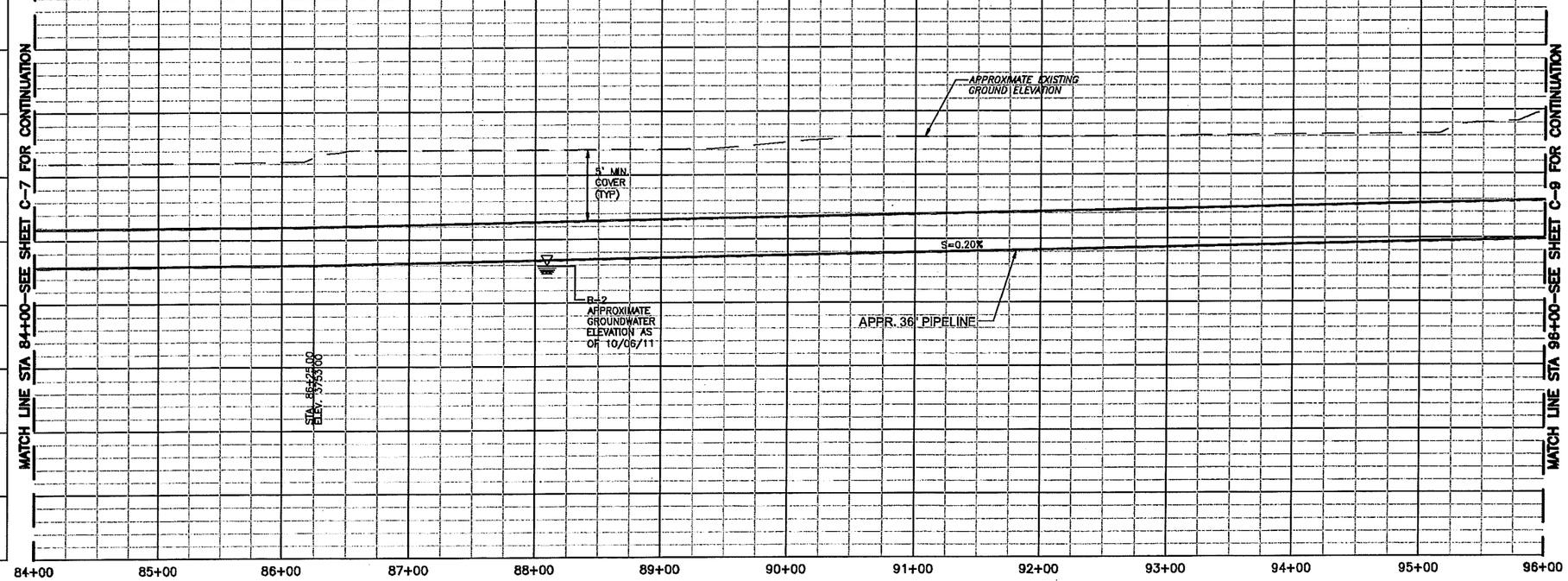
UPPER VALLEY STRAHAN ROAD WATER TRANSMISSION MAIN

PLAN AND PROFILE
FROM STA 72+00 TO STA 84+00

PROJECT NO. 1046-84522
FILE NAME: C007PLPR
SHEET NO.
C-7

95% SUBMITTAL - NOT FOR CONSTRUCTION





CONSTRUCTION NOTES:

1. CONTRACTOR PROVIDE PROJECT-WIDE TRAFFICE CONTROL. VEHICLE ACCESS IS REQUIRED ALONG STRAHAN ROAD AT ALL TIMES INCLUDING DRIVEWAYS THAT INTERSECT STRAHAN RD. PROVIDE FLAGMEN AS NECESSARY TO DIRECT TRAFFIC AROUND THE WORK AREA. SEE THE SPECIFICATIONS FOR LIMITS OF EXCAVATION AND ALLOWABLE OPEN TRENCH.

2. AT THE END OF EACH WORKING DAY AND ON WEEKENDS AND HOLIDAYS, CONTRACTOR ESTABLISH UNATTENDED VEHICLE ACCESS PAST THE WORK ZONE THROUGH THE USE OF TYPE III FLASHING BARRICADES, TRAFFIC BARRELS AND SIGNAGE TO PROVIDE SAFE ACCESS, PER IT'S TRAFFIC CONTROL PLAN.

3. ONLY ENOUGH PIPE MAY BE STRUNG ALONG THE ROAD ROW FOR ONE DAY'S INSTALLATION. ALL STRUNG PIPE MUST BE SAFELY LOCATED AWAY FROM VEHICLE TRAFFIC. NO PIPE OR EQUIPMENT IS TO BE LEFT WITHIN STREET ROW ANYWHERE ALONG THE PIPELINE CORRIDOR AFTER COMPLETION OF EACH DAY'S WORK.

4. THE DIMENSION FROM THE NEW 36" LINE TO THE ROAD ROW VARIES. CONTRACTOR MAINTAIN 8' CENTER TO CENTER FROM THE EXISTING 36" ABANDONED WATER LINE TO THE NEW LINE.

5. CONTRACTOR INSTALL CP TEST STATION AT STA. 90+00.

1" = 50'
25 0 50
HORIZONTAL SCALE

1" = 5'
2.5 0 5
VERTICAL SCALE

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: S. AINSA
DRAWN BY: GAR
SHEET CHK'D BY: S. AINSA
CROSS CHK'D BY: R. FOWLIE
APPROVED BY: S. AINSA
DATE: MAY 2012

CDM Smith
4110 RIO BRAVO DRIVE, SUITE 201
EL PASO, TEXAS 79902
TEL: 915 544-2340 FAX: 915 544-1345

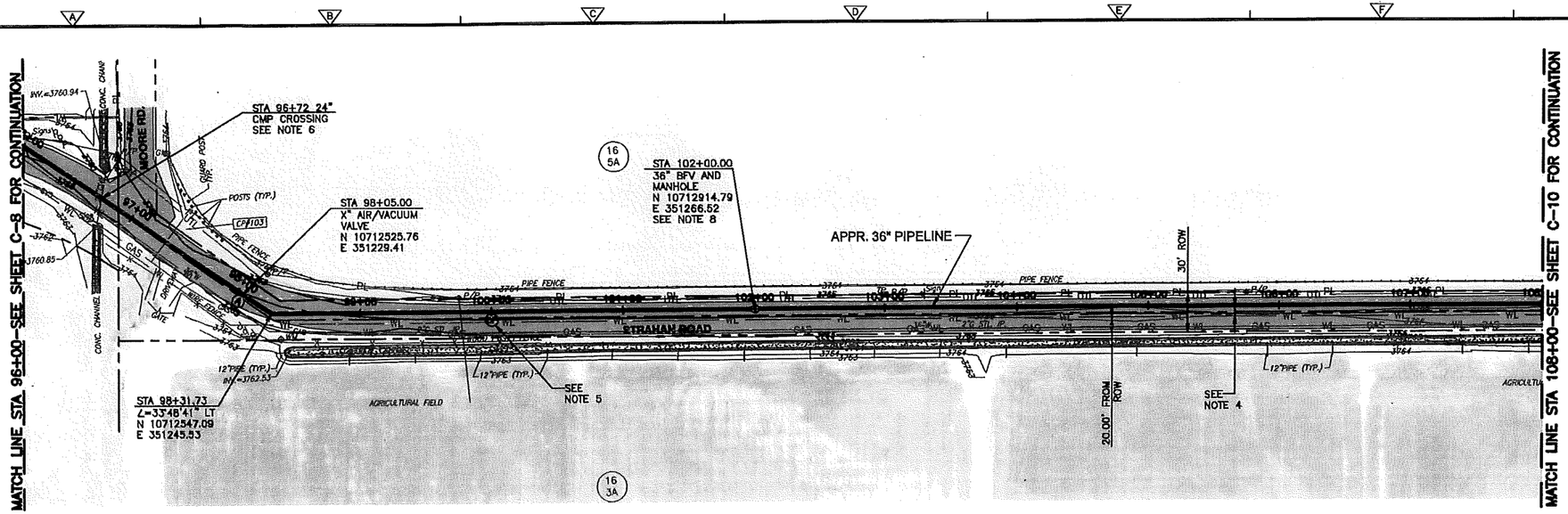
EL PASO WATER UTILITIES
PUBLIC SERVICE BOARD

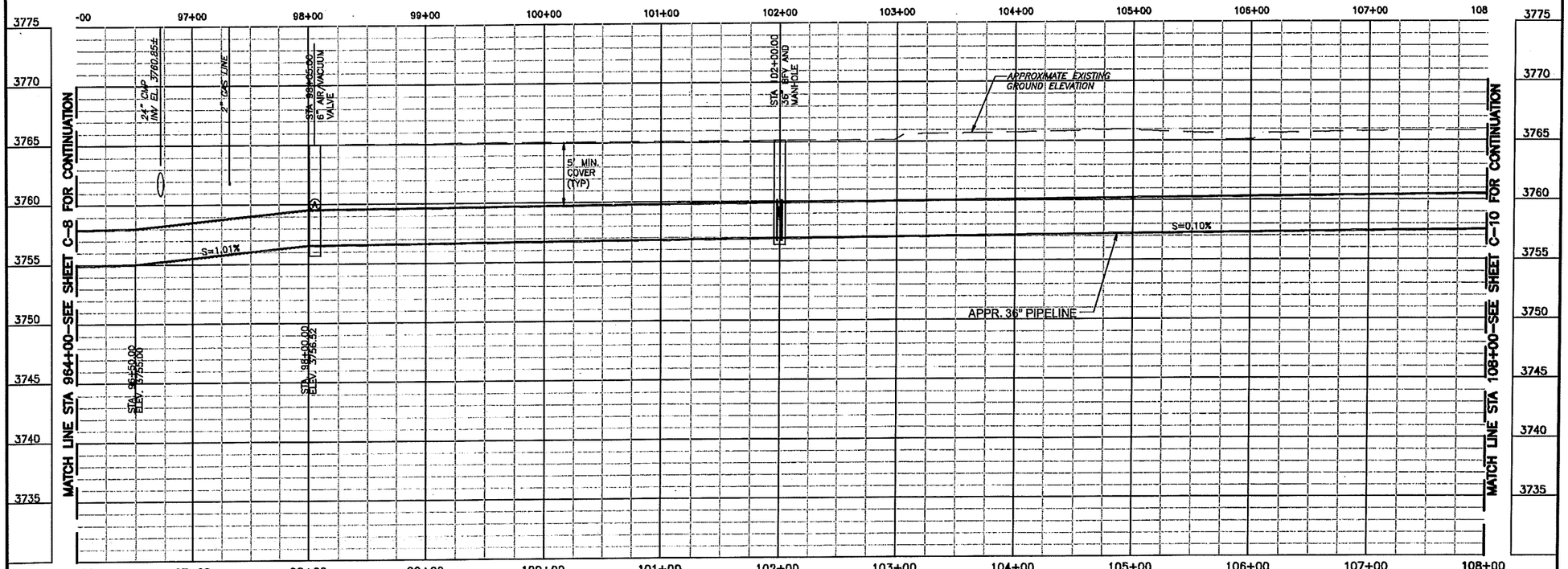
UPPER VALLEY STRAHAN ROAD WATER TRANSMISSION MAIN

PLAN AND PROFILE
FROM STA 84+00 TO STA 96+00

PROJECT NO. 1046-84522
FILE NAME: C008PLPR
SHEET NO. C-8

95% SUBMITTAL - NOT FOR CONSTRUCTION





CONSTRUCTION NOTES:

1. CONTRACTOR PROVIDE PROJECT–WIDE TRAFFIC CONTROL. VEHICLE ACCESS IS REQUIRED ALONG STRAHAN ROAD AT ALL TIMES INCLUDING DRIVEWAYS THAT INTERSECT STRAHAN RD. PROVIDE FLAGMEN AS NECESSARY TO DIRECT TRAFFIC AROUND THE WORK AREA. SEE THE SPECIFICATIONS FOR LIMITS OF EXCAVATION AND ALLOWABLE OPEN TRENCH.

2. AT THE END OF EACH WORKING DAY AND ON WEEKENDS AND HOLIDAYS, CONTRACTOR ESTABLISH UNATTENDED VEHICLE ACCESS PAST THE WORK ZONE THROUGH THE USE OF TYPE III FLASHING BARRICADES, TRAFFIC BARRELS AND SIGNAGE TO PROVIDE SAFE ACCESS, PER IT'S TRAFFIC CONTROL PLAN.

3. ONLY ENOUGH PIPE MAY BE STRUNG ALONG THE ROAD ROW FOR ONE DAY'S INSTALLATION. ALL STRUNG PIPE MUST BE SAFELY LOCATED AWAY FROM VEHICLE TRAFFIC. NO PIPE OR EQUIPMENT IS TO BE LEFT WITHIN STREET ROW ANYWHERE ALONG THE PIPELINE CORRIDOR AFTER COMPLETION OF EACH DAY'S WORK.

4. STARTING AT THE 98+30, CONTRACTOR TAKES MEASURES TO PROTECT THE EXISTING 16" WATER LINE LOCATED APPROXIMATELY 8' CENTER TO CENTER ON THE EAST SIDE OF THE NEW 36" LINE.

5. CONTRACTOR INSTALL CP TEST STATION AT STA. 100+00.

6. CONTRACTOR SUPPORT AND PROTECT THE EXISTING 24" CMP. IF IT' IN A DETERIORATED CONDITION, SPLICE IN A NEW PIECE ACROSS THE WIDTH OF OPEN TRENCH.

7. MOORE ROAD IS TO REMAIN OPEN AT ALL TIMES. CONTRACTOR PROVIDE ACCESS AND FLAGMEN AS NECESSARY DURING CONSTRUCTION.

8. AT THE 36" BUTTERFLY VALVE LOCATION, CONTRACTOR CUT AND REMOVE 20' OF EXISTING 36" WATER LINE, CENTERED AT THE NEW MANHOLE. PLUG BOTH ENDS OF EXISTING WATER LINE WITH BRICK AND MORTAR. SUPPORT AND PROTECT THE EXISTING NATURAL GAS LINE AND COORDINATE THIS EFFORT WITH TEXAS GAS SERVICE. TGS MAY ELECT TO RECOAT OR REHAB THE EXISTING EXPOSED GAS LINE, PROVIDED THE CONTRACTOR DOES NOT DAMAGE IT WHILE BEING EXPOSED. IF THE CONTRACTOR DAMAGES THE GAS LINE DURING THE EXPOSURE, THE DAMAGE WILL BE PAID BY THE CONTRACTOR AT NO COST TO THIS PROJECT.

1" = 50'
25 0 50
HORIZONTAL SCALE

1" = 5'
2.5 0 5
VERTICAL SCALE

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: S. AINSA
DRAWN BY: GAR
SHEET CHK'D BY: S. AINSA
CROSS CHK'D BY: R. FOWLIE
APPROVED BY: S. AINSA
DATE: MAY 2012

CDM Smith
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TEL: 915 544-2340 FAX: 915 544-1345

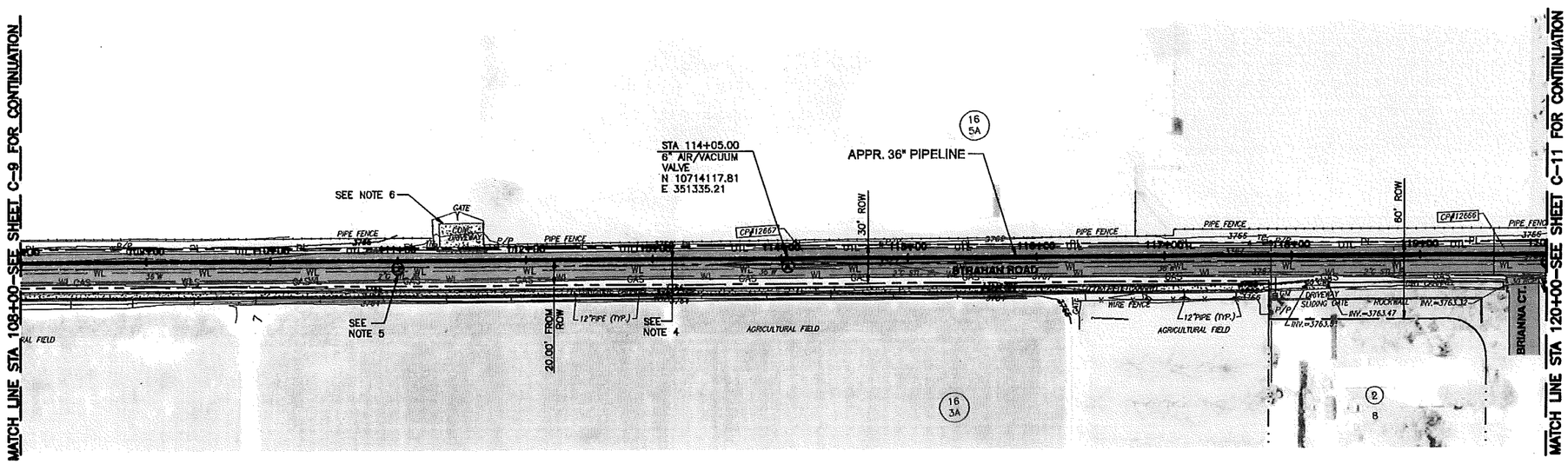
EL PASO WATER UTILITIES
PUBLIC SERVICE BOARD

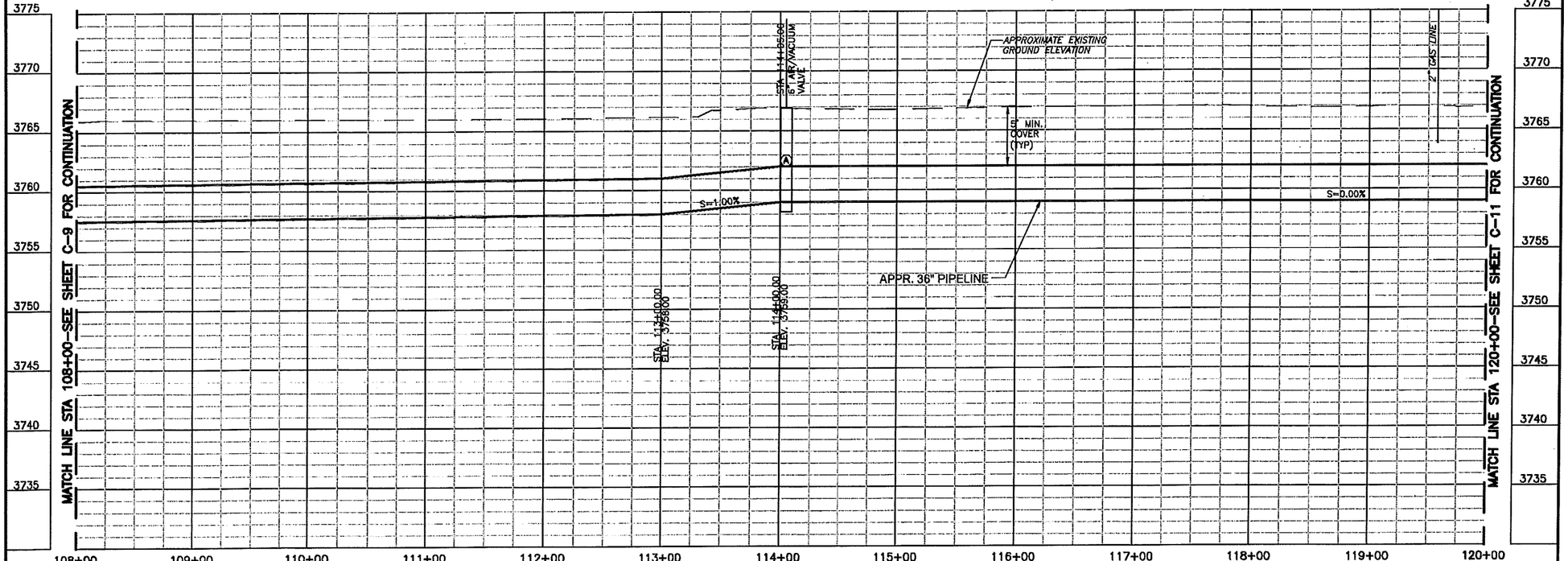
UPPER VALLEY STRAHAN ROAD WATER TRANSMISSION MAIN

PLAN AND PROFILE
FROM STA 96+00 TO STA 108+00

PROJECT NO. 1046-84522
FILE NAME: C009PLPR
SHEET NO. C-9

95% SUBMITTAL - NOT FOR CONSTRUCTION





CONSTRUCTION NOTES:

1. CONTRACTOR PROVIDE PROJECT-WIDE TRAFFIC CONTROL. VEHICLE ACCESS IS REQUIRED ALONG STRAHAN ROAD AT ALL TIMES INCLUDING DRIVEWAYS THAT INTERSECT STRAHAN RD. PROVIDE FLAGMEN AS NECESSARY TO DIRECT TRAFFIC AROUND THE WORK AREA. SEE THE SPECIFICATIONS FOR LIMITS OF EXCAVATION AND ALLOWABLE OPEN TRENCH.

2. AT THE END OF EACH WORKING DAY AND ON WEEKENDS AND HOLIDAYS, CONTRACTOR ESTABLISH UNATTENDED VEHICLE ACCESS PAST THE WORK ZONE THROUGH THE USE OF TYPE III FLASHING BARRICADES, TRAFFIC BARRELS AND SIGNAGE TO PROVIDE SAFE ACCESS, PER IT'S TRAFFIC CONTROL PLAN.

3. ONLY ENOUGH PIPE MAY BE STRUNG ALONG THE ROAD ROW FOR ONE DAY'S INSTALLATION. ALL STRUNG PIPE MUST BE SAFELY LOCATED AWAY FROM VEHICLE TRAFFIC. NO PIPE OR EQUIPMENT IS TO BE LEFT WITHIN STREET ROW ANYWHERE ALONG THE PIPELINE CORRIDOR AFTER COMPLETION OF EACH DAY'S WORK.

4. STARTING AT THE 98+30 CONTRACTOR TAKES MEASURES TO PROTECT THE EXISTING 16" WATER LINE LOCATED APPROXIMATELY 8' CENTER TO CENTER ON THE EAST SIDE OF THE NEW 36" LINE.

5. CONTRACTOR INSTALL CP TEST STATION AT STA. 110+00.

6. CONTRACTOR TAKE CAUTION NOT TO DAMAGE THE EXISTING DRIVEWAY.

7. BRIANNA CT. IS TO REMAIN OPEN AT ALL TIMES. CONTRACTOR PROVIDE ACCESS AND FLAGMEN AS NECESSARY DURING CONSTRUCTION.

1" = 50'
25 0 50
HORIZONTAL SCALE

1" = 5'
2.5 0 5
VERTICAL SCALE

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: S. AINSA
DRAWN BY: GAR
SHEET CHK'D BY: S. AINSA
CROSS CHK'D BY: R. FOWLIE
APPROVED BY: S. AINSA
DATE: MAY 2012

CDM Smith
4110 RIO BRAVO DRIVE, SUITE 201
EL PASO, TEXAS 79902
TEL: 915 544-2340 FAX: 915 544-1345

EL PASO WATER UTILITIES
PUBLIC SERVICE BOARD

UPPER VALLEY STRAHAN ROAD WATER TRANSMISSION MAIN

PLAN AND PROFILE
FROM STA 108+00 TO STA 120+00

PROJECT NO. 1046-84522
FILE NAME: C010PLPR
SHEET NO.
C-10

95% SUBMITTAL - NOT FOR CONSTRUCTION

APPENDIX C

PHOTOGRAPHIC LOG

Photograph Log

Rio Grande near Phase I survey area from West Borderland Road.
Photo Direction: south (downstream). Photo taken 8/18/2015.

Phase I survey area located west of Rio Grande along West Borderland Road.
Photo Direction: west. Photo taken 8/18/2015.

Phase I survey area irrigation canal (S-105) facing downstream adjacent to West Borderland Road. Photo Direction: south. Photo taken 8/18/2015.

Irrigation Canal (S-105) crossing West Borderland Road.
Photo Direction: North. Photo taken 8/18/2015.

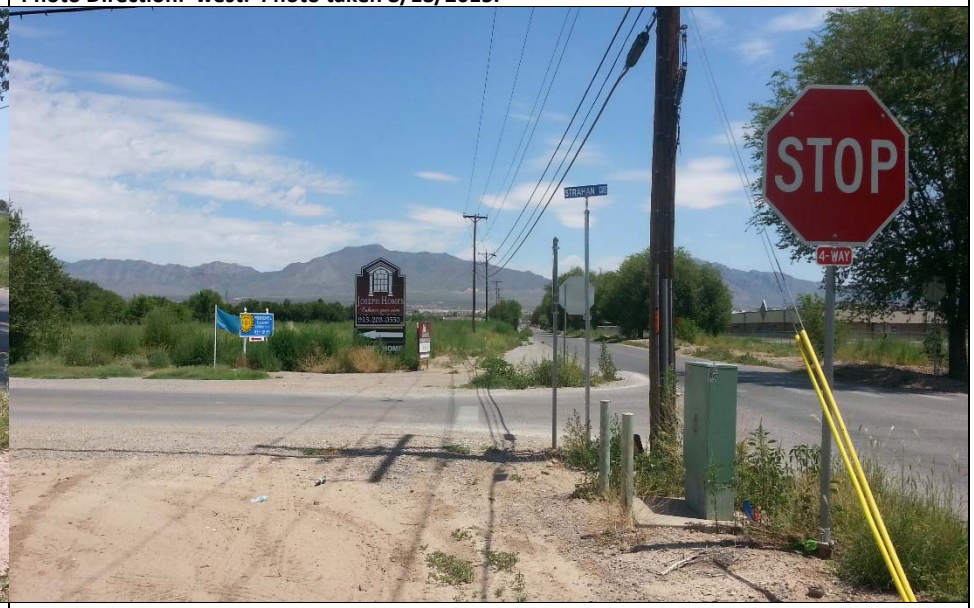
TRC Job No.	Photographs Taken By:	Page No.	Client:	Site Name:	
239663	Todd Schnakenberg	1 of 7	El Paso Water Utilities - Public Services Board	Phase I/II Upper Valley/Strahan Road 36" Water Transmission Main Installation Project	TRC

Photograph Log

Phase I survey area along West Borderland Road. Photo Direction: east. Photo taken 8/18/2015.

Representative vegetation photo located east of Strahan Road along West Borderland Road. Photo Direction: west. Photo taken 8/18/2015.

Roadside drainage ditch (D-104) located along West Borderland Road. Photo Direction: west. Photo taken 8/18/2015.



Phase I survey area at the intersection of West Borderland Road and Strahan Road. Photo Direction: east. Photo taken 8/18/2015.

TRC Job No.	Photographs Taken By:	Page No.	Client:	Site Name:	
239663	Todd Schnakenberg	2 of 7	El Paso Water Utilities - Public Services Board	Phase I/II Upper Valley/Strahan Road 36" Water Transmission Main Installation Project	TRC

Photograph Log

Phase I survey area along West Borderland Road and west Strahan Road. Photo Direction: west. Photo taken 8/18/2015.

End of irrigation stream (S-102) along Strahan Road. Photo Direction: west (upstream). Photo taken 8/18/2015.

Roadside drainage ditch (D-103) along Strahan Road. Photo Direction: south (downstream). Photo taken 8/18/2015.

Confluence of irrigation stream (S-102) and irrigation canal (S-101). Photo Direction: north (upstream). Photo taken 8/18/2015.

TRC Job No.	Photographs Taken By:	Page No.	Client:	Site Name:	
239663	Todd Schnakenberg	3 of 7	El Paso Water Utilities - Public Services Board	Phase I/II Upper Valley/Strahan Road 36" Water Transmission Main Installation Project	TRC

Photograph Log

Unnamed irrigation canal (S-101) crossing at Strahan Road. Photo Direction: south. Photo taken 8/18/2015.

Unnamed Irrigation Canal (S-101) along Strahan Road. Photo Direction: south (downstream Photo taken 8/18/2015.

Phase I survey area along Strahan Road and south of irrigation canal. Photo Direction: south. Photo taken 8/18/2015.

Phase I survey area north of irrigation canal (S-101) along Strahan Road. Photo Direction: north. Photo taken 8/18/2015.

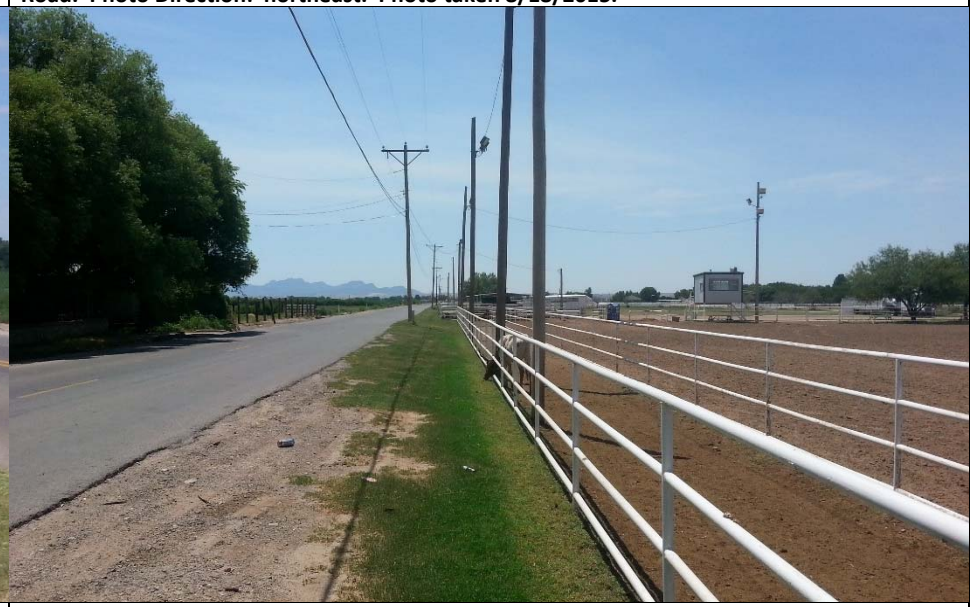
TRC Job No.	Photographs Taken By:	Page No.	Client:	Site Name:	
239663	Todd Schnakenberg	4 of 7	El Paso Water Utilities - Public Services Board	Phase I/II Upper Valley/Strahan Road 36" Water Transmission Main Installation Project	TRC

Photograph Log

Roadside Drainage Ditch (D-100) located 0.5 miles south of Moore Road (Phase I survey area). Photo Direction: west (downstream). Photo taken 8/18/2015.

Roadside Drainage Ditch (D-108) located south of the intersection of Moore Road and Strahan Road. Photo Direction: northeast. Photo taken 8/18/2015.

Phase I survey area along Strahan Road. Photo Direction: north. Photo taken 8/18/2015.



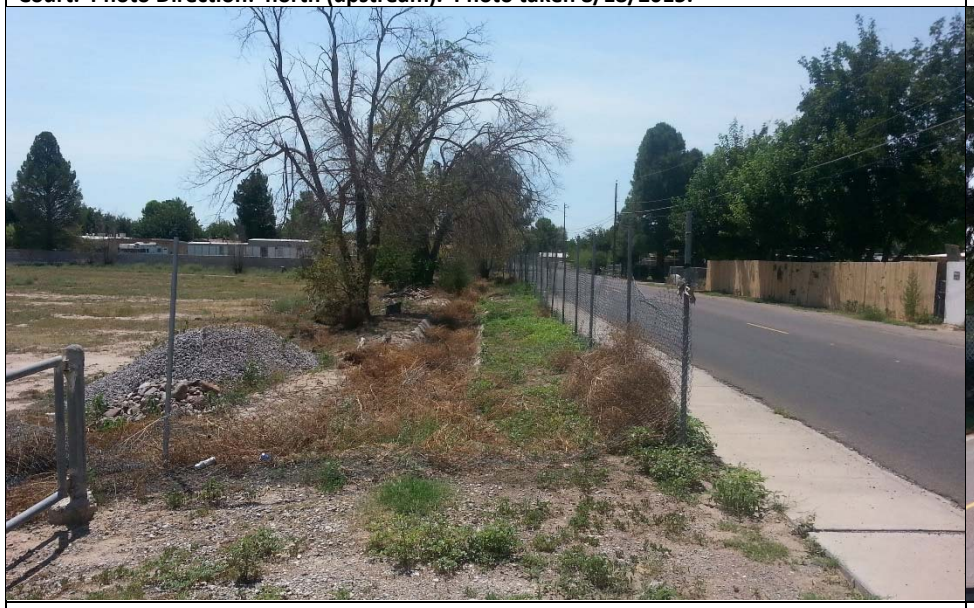
End of Phase I survey area located south of Brianna Court along Strahan Road. Photo Direction: south. Photo taken 8/18/2015.

TRC Job No.	Photographs Taken By:	Page No.	Client:	Site Name:	
239663	Todd Schnakenberg	5 of 7	El Paso Water Utilities - Public Services Board	Phase I/II Upper Valley/Strahan Road 36" Water Transmission Main Installation Project	TRC

Photograph Log

Beginning of Phase II survey area. Roadside drainage ditch (D-107) located north of Brianna Court. Photo Direction: north (upstream). Photo taken 8/18/2015.

Residential properties (Phase II survey area) located north of Canutillo La Union Avenue. Photo Direction: south.



Roadside drainage ditch (D-106) located along Bosque Road, south of Western Way (Phase II survey area). Photo Direction: south (downstream). Photo taken 8/18/2015.

Residential area located along Bosque Road, south of Shiloh Drive (Phase II survey area). Photo Direction: south. Photo taken 8/18/2015.

TRC Job No.	Photographs Taken By:	Page No.	Client:	Site Name:	
239663	Todd Schnakenberg	6 of 7	El Paso Water Utilities - Public Services Board	Phase I/II Upper Valley/Strahan Road 36" Water Transmission Main Installation Project	TRC

Photograph Log

Phase II survey area along Bosque Road located south of EPWU Canutillo Station. Photo Direction: south. Photo taken 8/18/2015.

Phase II survey area along Bosque Road near EPWU-Canutillo Station. Photo Direction: north. Photo taken 8/18/2015.

TRC Job No.	Photographs Taken By:	Page No.	Client:	Site Name:	
239663	Todd Schnakenberg	7 of 7	El Paso Water Utilities - Public Services Board	Phase I/II Upper Valley/Strahan Road 36" Water Transmission Main Installation Project	TRC

APPENDIX D

MEMORANDUMS OF COORDINATION AND TRIBAL CONSULTATION

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September 15, 2015

David Camarena Garcés
Texas Historical Commission
Archeology Division
1511 Colorado Street
Austin, Texas 78701

Re: Request for Consultation and Concurrence of No Effect to Archeological Resources
Upper Valley/Strahan Road Water Transmission Main Installation Project
City of El Paso, El Paso County, Texas

Dear Mr. Camarena Garcés:

With this letter, El Paso Water Utilities – Public Service Board (EPWU) is requesting consultation and concurrence of no effect to any archeological resources associated with the proposed installation of a 36-inch transmission main water utility line within the Upper Valley of El Paso, El Paso County, Texas. The project will be completed in two phases. Phase I will consist of the installation of approximately 12,086 linear feet of a 36-inch water main from the Rio Grande bridge at East Borderland Road to Strahan Road, and from Strahan Road north to Brianna Court. Phase II will consist of the installation of approximately 3,700 linear feet of a 36-inch water main along Strahan Road from Brianna Court to Canutillo/La Union Avenue, and from Canutillo/La Union Avenue along Bosque Road to Cayuse Drive (**Figure 1**).

The U.S. Army Corps of Engineers (USACE) has partnered with EPWU for construction of the proposed project, including funding assistance under the El Paso County, Texas – Environmental Infrastructure Program (Section 219 of the Water Resource Development Act [WRDA] 1992, PL 102-580, as amended). As such, EPWU must adhere to USACE's Protocol for Environmental Compliance for the proposed project, including adherence to the National Environmental Policy Act (NEPA) and associated Federal rules and regulations, including but not limited to, the Endangered Species Act, Migratory Bird Treaty Act, and National Historic Preservation Act (NHPA).

The proposed work will occur within roadways owned by the City of El Paso, Texas. As such, TRC is requesting consultation for archeological resources under Section 106 of the NHPA and the Antiquities Code of Texas. TRC does not recommend a pedestrian survey based on the location of the proposed project. A historical assessment of above-ground resources will follow this coordination letter.

The total length and Area of Potential Effect (APE) is approximately 3.0 miles, with a proposed construction corridor width of 30 feet; approximately 10.91 acres (**Figure 2**). The entire installation is

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September 15, 2015

David Camarena Garcés
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Re: Request for Consultation and Concurrence of No Effect to Archeological Resources
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City of El Paso, El Paso County, Texas

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The U.S. Army Corps of Engineers (USACE) has partnered with EPWU for construction of the proposed project, including funding assistance under the El Paso County, Texas – Environmental Infrastructure Program (Section 219 of the Water Resource Development Act [WRDA] 1992, PL 102-580, as amended). As such, EPWU must adhere to USACE's Protocol for Environmental Compliance for the proposed project, including adherence to the National Environmental Policy Act (NEPA) and associated Federal rules and regulations, including but not limited to, the Endangered Species Act, Migratory Bird Treaty Act, and National Historic Preservation Act (NHPA).

The proposed work will occur within roadways owned by the City of El Paso, Texas. As such, TRC is requesting consultation for archeological resources under Section 106 of the NHPA and the Antiquities Code of Texas. TRC does not recommend a pedestrian survey based on the location of the proposed project. A historical assessment of above-ground resources will follow this coordination letter.

The total length and Area of Potential Effect (APE) is approximately 3.0 miles, with a proposed construction corridor width of 30 feet; approximately 10.91 acres (**Figure 2**). The entire installation is

proposed to be placed under the existing paved road or within the existing right-of-way (**Figures 3** and **4**). The potential for intact and significant cultural properties is extremely low.

Analysis of soil data from the U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service: Web Soil Survey indicated a hydric soil unit located within the proposed project area (**Figure 5**). Delnorte-Canutio soils are characterized as well-drained with low to moderately high permeability. The soils are nearly level to steep deposits, shallow or very shallow over caliche or deep gravelly throughout; mainly occur on and near foot slopes of the Franklin Mountains (Jaco 1971: 7). The Canutio component is within arroyos and on alluvial flats between hills. These soils are deep, nearly level to sloping, calcareous and very gravelly sandy loams throughout (Jaco 1971: 8).

Minor soils include Bluepoint, Agustin, and Pajarito. The Bluepoint series consists of very pale brown sandy, moderately alkaline soils developed over outwash sediments. Some soils are altered by wind. The series is mainly well-drained with rapid internal drainage, slow surface runoff, and rapid permeability. Moisture capacity is considered low (Jaco 1971: 32-33). Agustin series consists of deep, pale brown, gravelly sands that lie at the base of limestone and igneous mountains and on alluvial fans (Jaco 1971: 29). The soils occur near gravelly arroyos and tend to be well-drained with medium internal drainage, and moderate permeability (Jaco 1971: 29). The soils contain moderate to low fertility and available moisture capacity (Jaco 1971: 29). The Pajarito series consists of deep, pinkish-gray loamy soils, calcareous, and moderately alkaline (Jaco 1971: 46). The soils occur on alluvial fans in intermountain basins in the northern and eastern parts of the county and on old terraces above the Rio Grande floodplain (Jaco 1971: 46). The soils are well-drained with moderate permeability in surface layers and subsoils. Fertility and available moisture capacity appears to be moderate (Jaco 1971: 46).

Vegetation in the area consists of decorative trees and shrubs with intrusive vegetation such as amaranth, nightshade, and Russian thistle along roadways and within the residential areas (**Figure 6**). The majority of the vegetation was agriculturally-based with small orchards, horse ranches, and commercial development along Strahan Road (**Figure 7**).

TRC archeologists conducted a preliminary cultural resources site-file search on July 30, 2015 and a detailed site-file search on August 17, 2015 by using the electronic Texas Archeological Sites Atlas (Atlas) maintained by the Texas Historical Commission (THC). This site-file search was conducted to determine if any cultural resources properties had been previously documented in the APE and within a 1.0-mile radius of the proposed project area. Based on the location of the proposed project, expectations for intact and significant cultural resources within the APE are extremely low (**Figure 8**). The entire project area is within the National Register of Historic Places (NRHP) listed Elephant Butte Irrigation District. No other previously recorded cultural properties are located within the APE. Within the district is the Canutillo Lateral, which does not have a state-assigned trinomial.

The Canutillo Lateral bisects the project area in two places and has existing damage (**Figure 9**); however, boring under the lateral (5 feet below the surface) will not further affect it. Cultural properties identified within the 1.0-mile radius of the proposed project area included approximately eight archeological sites and four archeological pedestrian survey projects. **Table 1** lists the cultural properties identified.

The five sites described as Undetermined were recorded between 1992 and 1996. All of the previously recorded sites have been impacted by existing construction of commercial and/or residential development (State Forms and aerial maps of current areas).

In 2002, TRC conducted a pedestrian survey, testing, and eligibility assessment on 41EP4439 (Condon et al. 2004). The investigations determined the site lacked significant subsurface deposits and was recommended not eligible for listing to the NRHP. The investigations were conducted under TAC# 2817.

In 2002, Geo Marine, Inc. conducted a cultural resources survey for an interceptor relief system (Burt 2002). The project was conducted under TAC# 2792. No cultural deposits were identified.

In 2007, Raba-Kistner Consultants, Inc. conducted a cultural resources survey for Section 404 permitting for a proposed sports complex (Held 2007). The investigations identified highly impacted areas by previous earth-moving activities. No cultural deposits were located. The investigations were conducted under TAC# 4437.

In 2009, William Self Associates, Inc. conducted an archeological survey for the US Section of the International Boundary and Water Commission (IBWC) (Stinchcomb et al. 2009). The Rio Grande corridor was surveyed for High Potential Areas of significant cultural resources. The survey corridor is located approximately 0.19 miles east of the proposed project area. The survey corridor will not be affected by the proposed water mainline installation.

Finally, Bailey Cemetery (EP-C007: Canutillo Catholic) is located approximately 0.66 miles east of the proposed project area. The cemetery is located on Vinton St. and 5th St., Canutillo, Texas. The earliest dates of 1880 are recorded within the cemetery, and is currently in use. The cemetery was surveyed in 2004. No additional information was provided on the Atlas.

According to the Atlas, no Recorded Texas Historic Landmarks (RTHL), Historic Markers, other NRHP-listed properties, nor State Antiquities Landmarks (SAL), are within the 1.0-mile radius of the proposed project area.

Proposed installation of the water utility line will have no effect to the identified sites within the 1.0-mile radius. The Canutillo Lateral will be avoided through boring by the proposed project (**Figure 10**). Boring will be conducted in both areas down to 5 feet below the ground surface in order to avoid impacts to the irrigation system. However, a historic resources assessment and report will be submitted for your review at a later time.

As the proposed work will occur within previously disturbed right-of-way, TRC recommends that no further archeological investigations are necessary. On behalf of EPWU, TRC requests your consultation and concurrence that the proposed project, as described above, will have no effect on the archeological resources and that no archeological survey is warranted. If you have questions or need additional information, please contact us at your earliest convenience.

Respectfully,

Elia Perez
TRC Project Manager
eperez@trcsolutions.com

Attachments

cc: Michael Martinez, USACE-Albuquerque District

References Cited:

Burt, C.
2002 *Cultural Resources Survey of the Proposed El Paso Water Utilities-Public Service Board Artcraft/Westport/El Paso West Interceptor Relief System in El Paso County, Texas for Parkhill, Smith and Cooper, Inc.* Geo Marine, Inc. TAC# 2792.

Condon, P. C., V. Vargas, G. Smith, E. Perez, G. W. Silliman, R. J. Hall
2004 *Archeological Testing at Site 41EP4439, El Paso County, Texas*. TRC Environmental Corp.-Austin, Texas. TAC# 2817.

Held, P.
2007 *Cultural Resources Survey for Section 404 Permitting Requirements New City of El Paso Sports Complex, El Paso, Texas*. Raba-Kistner Consultants, Inc., San Antonio, Texas. TAC# 4437.

Jaco, H. B.
1971 *Soil Survey: El Paso County, Texas*. United States Department of Agriculture, Soil Conservation Service, In Cooperation with Texas Agricultural Experiment Station.

Stinchcomb, E., J. Karbula, C. Leezer, D. Stone, C. Frederick, and S. O'Mack
2009 *Archeological Investigations of the USIBWC Rio Grande Canalization Project, El Paso County, Texas and Doña Ana County, New Mexico*. William Self Associates, Inc., Austin, Texas.

Texas Historical Commission Archeological Sites Atlas (Atlas)
2015 On-line at http://nueces.thc.state.tx.us/. Accessed August 17, 2015 and September 7, 2015.

Web Soil Survey
2015 Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at http://websoilsurvey.nrcs.usda.gov/. Accessed August 17, 2015.

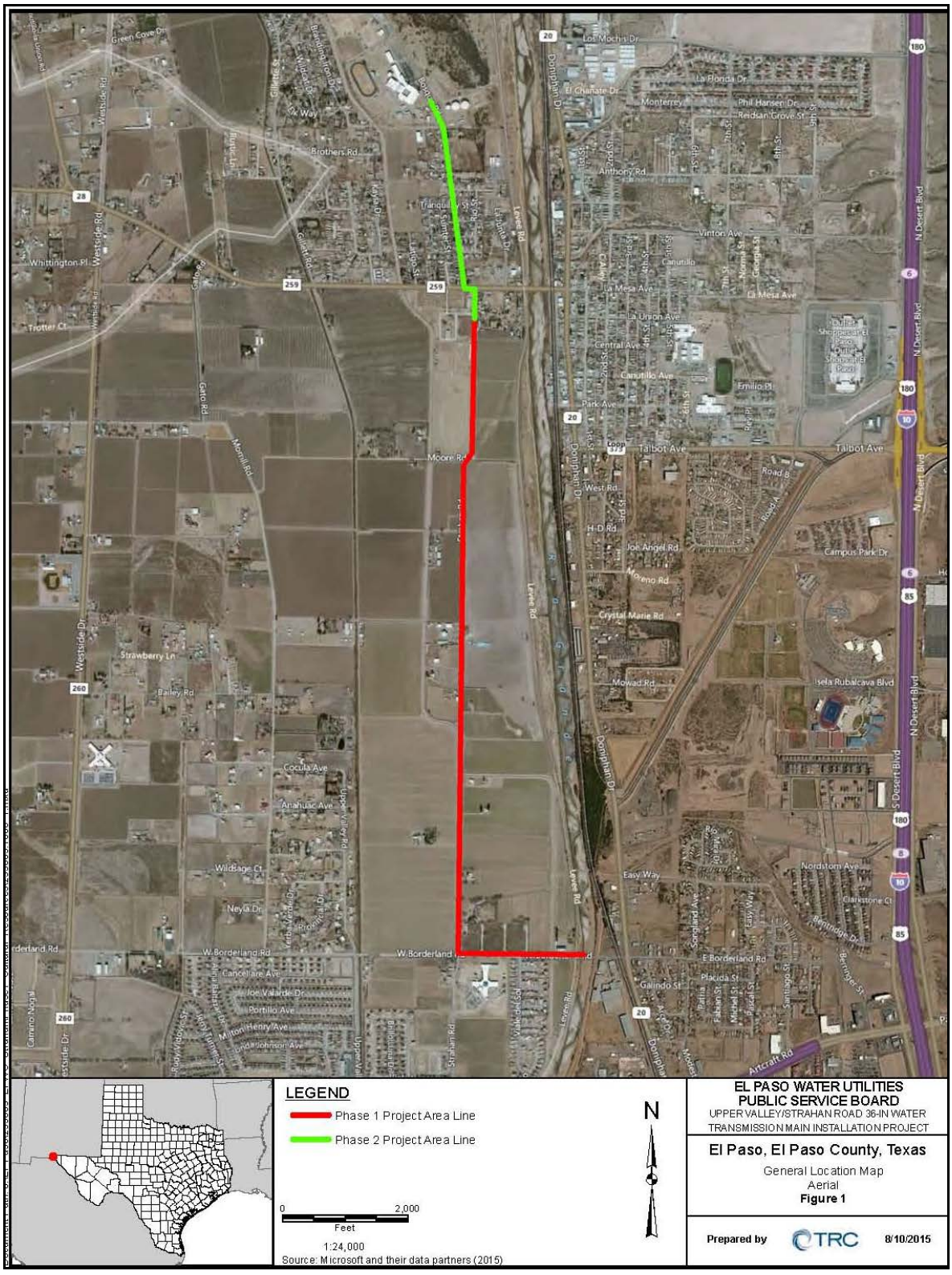

Figure 1. General location of project area, aerial view.

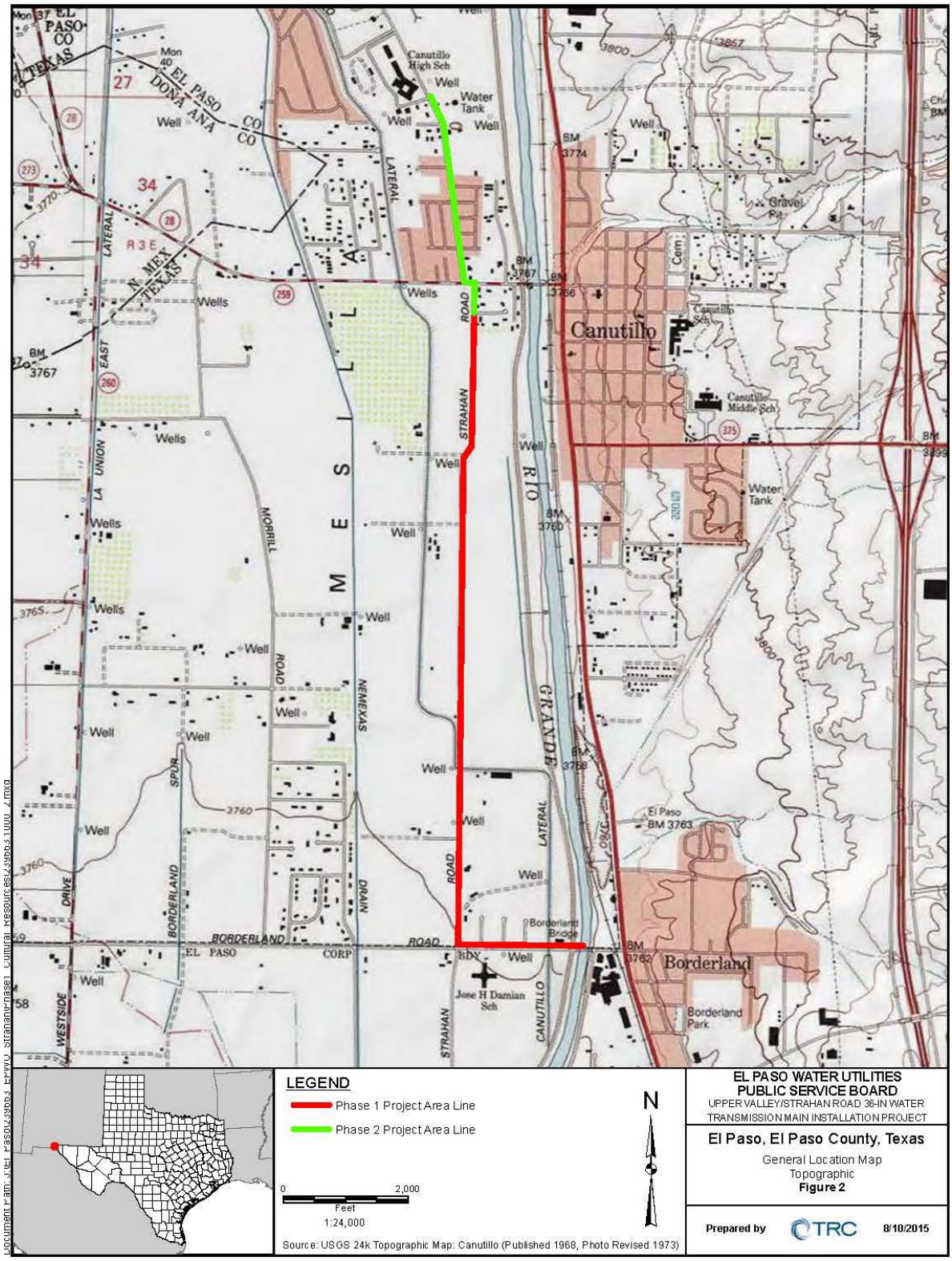

Figure 2. General location of project area, topographic view.

Figure 3. Beginning of Phase I on Rio Grande Bridge and East Borderland Road, facing west.

Figure 4. End of Phase II, EPWU-Canutillo Station, facing south.

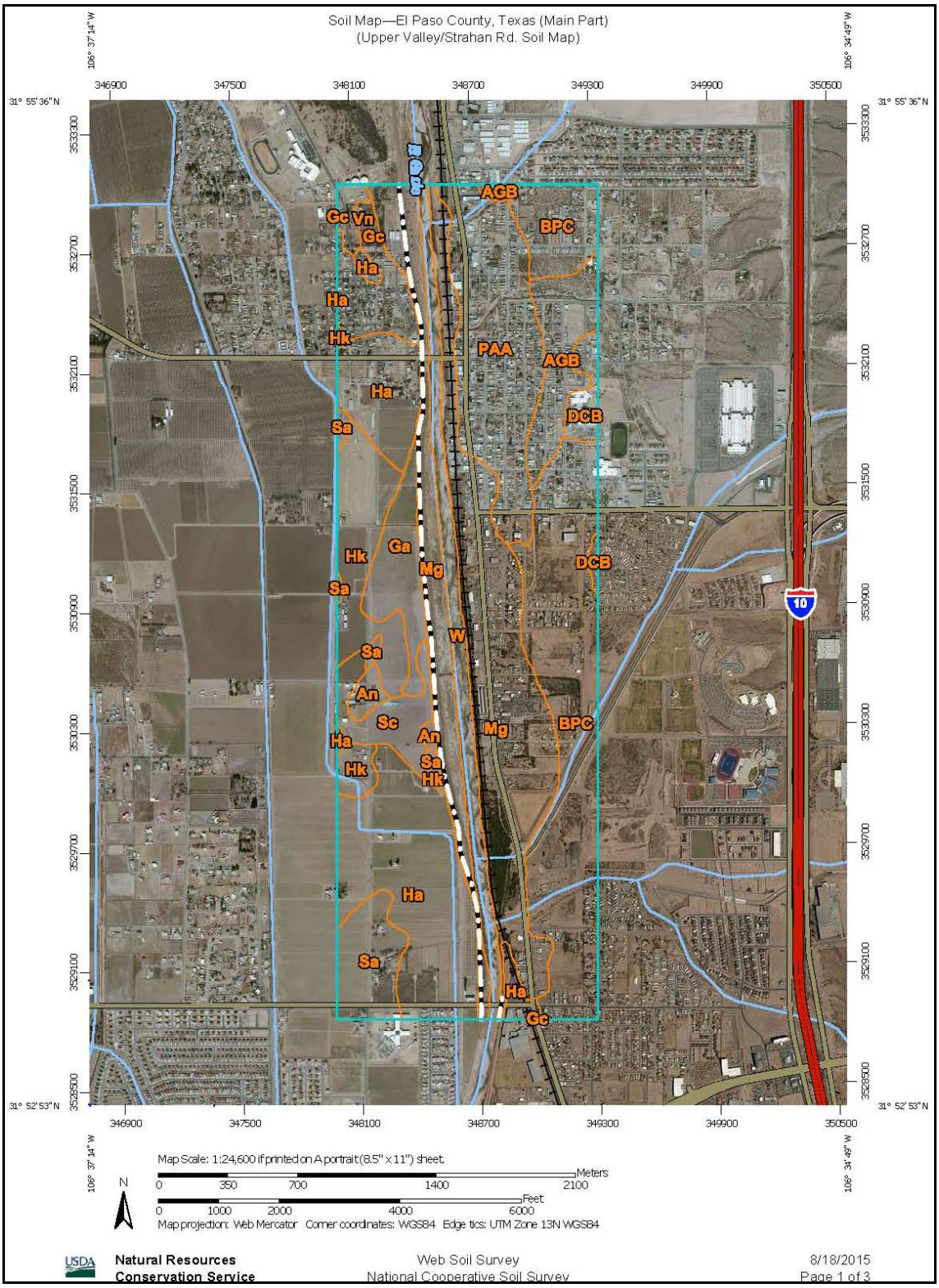

Figure 5. Soils within the project area.

Figure 6. Bosque Road, facing north.

Figure 7. Intersection of Borderland Road and Strahan Road, facing north.

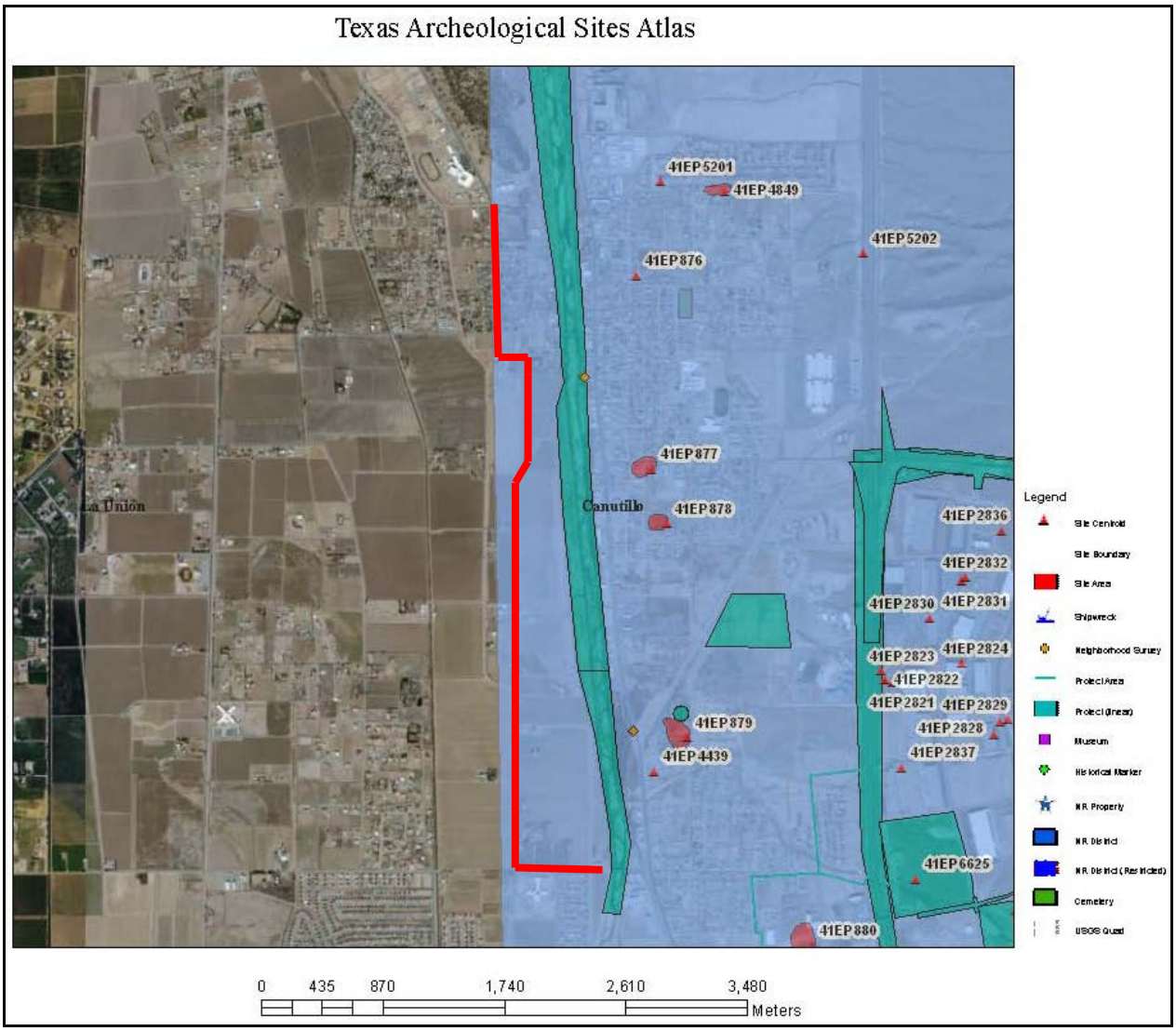

Figure 8. Results of the site-file search with archeological sites and pedestrian surveys within a 1.0-mile radius of the project line.

Table 1. Listing of Cultural Properties within 1.0-mile radius of Proposed Project Line

TARL #	Type	Distance (miles)	Period	Comments
41EP876	Feature	0.62 SE	Prehistoric	Undetermined
41EP877	Habitation	0.65 SE	Prehistoric	Not Eligible
41EP878	Habitation	0.84 SE	Prehistoric	Undetermined
41EP879	Unknown*	0.64 E	Prehistoric/Historic	Undetermined
41EP880	Structural	0.80 SE	Prehistoric	Undetermined
41EP4439	Campsite	0.55 Se	Prehistoric	Not Eligible
41EP4849	Feature/Scatter	0.88 E	Prehistoric	Not Eligible
41EP5201	Unknown*	0.64 E	Prehistoric	Undetermined

*No additional data provided.

Figure 9. Canutillo Lateral on Borderland Road, near the Rio Grande Bridge, facing north.

Figure 10. Canutillo Lateral on Strahan Road, facing west.

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November 9, 2015

Mark Wolfe
Texas Historical Commission
Archeology Division
1511 Colorado Street
Austin, Texas 78701

Re: Request for Consultation and Concurrence of No Effect to Historic Resources
Upper Valley/Strahan Road 36-inch Water Transmission Main Installation Project
El Paso Water Utilities-Public Service Board (EPWU)
El Paso, El Paso County, Texas

Dear Mr. Wolfe:

With this letter, El Paso Water Utilities-Public Service Board (EPWU) is requesting consultation and concurrence of no effect to historic resources associated with the proposed installation of a 36-inch transmission main water utility line within the Upper Valley of El Paso, El Paso County, Texas. TRC Environmental Corporation (TRC) has been contracted to perform environmental services in support of EPWU's proposed project. In a letter dated September 15, 2015, our office requested a concurrence of No Effect to archeological resources related to this project. The Texas Historical Commission (THC) concurred with this determination on September 18, 2015. This letter and the attached draft report, written by Elizabeth Valenzuela of Valenzuela Preservation Studio, LLC (VPS) and entitled *Historic Resources Survey Report Upper Valley Strahan Road*, are submitted to your office for review of historic resources in compliance with Section 106 of the National Historic Preservation Act.

The project will be completed in two phases. Phase I will consist of the installation of approximately 12,086 linear feet of a 36-inch water main from the Rio Grande bridge at East Borderland Road to Strahan Road, and from Strahan Road north to Brianna Court. Phase II will consist of the installation of approximately 3,700 linear feet of a 36-inch water main along Strahan Road from Brianna Court to Canutillo/La Union Avenue, and from Canutillo/La Union Avenue along Bosque Road to Cayuse Drive (Please see Figure 1 in the enclosed report).

The U.S. Army Corps of Engineers (USACE) has partnered with EPWU for construction of the proposed project, including funding assistance under the El Paso County, Texas – Environmental Infrastructure Program (Section 219 of the Water Resource Development Act [WRDA] 1992, PL 102-580, as amended). As such, EPWU must adhere to USACE's Protocol for Environmental

Compliance for the proposed project, including adherence to the National Environmental Policy Act (NEPA) and associated Federal rules and regulations, including but not limited to, the Endangered Species Act, Migratory Bird Treaty Act, and National Historic Preservation Act (NHPA).

The proposed work will occur within existing roadways owned by the City of El Paso, Texas. As such, TRC is requesting consultation for historic resources under Section 106 of the NHPA and the Antiquities Code of Texas. TRC did not recommend a pedestrian archeological survey based on the location of the proposed project and THC concurred on September 18, 2015. Enclosed is the draft report of the historical assessment conducted by Elizabeth Valenzuela of VPS.

The **Area of Potential Effect** (APE) for direct effects measures approximately 3.0 miles in length and 30 feet in width; approximately 10.91 acres. As the entire installation is proposed to be placed under the existing paved road or within the existing right-of-way, the APE for visual effects is the same as direct effects (Figures 1 through 6).

The historic resources survey identified 18 resources within the APE that were constructed before 1970. Of the 18 resources, all are located within the Elephant Butte Irrigation District, an NRHP-listed historic district. Of those, 13 historic-age resources are directly related to the irrigation district, but are considered minor localized features according to the 1997 National Register nomination. One resource within the APE is specifically listed as a contributing element to the Elephant Butte Irrigation District, Resource ID No. 1 – Canutillo Lateral. The remaining five resources do not convey their significance through strong historical associations necessary to be considered NRHP eligible.

The Canutillo Lateral bisects the project area in two places (Figures 5 and 6). The proposed project will avoid the Canutillo Lateral through boring. Boring will be conducted in both areas down to 5 feet below the ground surface in order to avoid impacts to the irrigation system. Therefore, the proposed project does not represent a direct impact to historic properties within the project APE.

TRC recommends that no further investigations are necessary. On behalf of EPWU, TRC requests your consultation and concurrence that the proposed project, as described above, will have no effect on historic properties. If you have questions or need additional information, please contact us at your earliest convenience.

Respectfully,

Marie Archambeault
TRC Staff Archeologist
marchambeault@trcsolutions.com

cc: USACE, Albuquerque

Figure 1. Beginning of Phase I on Rio Grande Bridge and East Borderland Road, facing west.

Figure 2. End of Phase II, EPWU-Canutillo Station, facing south.

Figure 3. Bosque Road, facing north.

Figure 4. Intersection of Borderland Road and Strahan Road, facing north.

Figure 5. Canutillo Lateral on Borderland Road, near the Rio Grande Bridge, facing north.

Figure 6. Canutillo Lateral on Strahan Road, facing west.

DRAFT

Historic Resources Survey Report

Upper Valley Strahan Road

Strahan Road from Borderland Road to Canutillo Booster Pumping Station
El Paso, El Paso County, Texas

S. Elizabeth Valenzuela, Valenzuela Preservation Studio, LLC
for TRC Environmental Corporation
and the El Paso Water Utilities Public Services Board

November 2015

Table of Contents

Historic Resources Survey Report

Upper Valley Strahan Road

1 INTRODUCTION

The following Historic Resources Survey Report, prepared in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA), provides a summary of field investigations and archival research to identify historic properties within the Area of Potential Effects (APE). The buildings and structures located within the study area of a proposed water transmission main installation project along Borderland and Strahan Roads in the Upper Valley near Canutillo, Texas include historic-age resources categorized as privately-owned residential, institutional and agricultural properties. In order to evaluate the effects of the proposed water main improvement project, a review of all historic-age properties within the project area was undertaken by professional staff meeting the Secretary of Interior Professional Qualifications Standards in Architectural History, Architecture, and Historic Architecture (36 CFR Part 61).

1.1 PROJECT IDENTIFICATION

TRC Environmental Corporation (TRC) has been contracted to perform environmental services in support of El Paso Water Utility's (EPWU) proposed 36-inch Water Transmission Main Installation Project (Phases I and II), located in the City of El Paso, El Paso County, Texas. The U.S. Army Corps of Engineers (USACE) has partnered with EPWU for construction of the proposed project, including funding assistance under the El Paso County, Texas – Environmental Infrastructure Program (Section 219 of the Water Resource Development Act (WRDA) 1992, PL 102-580, as amended). As such, EPWU must adhere to USACE's Protocol for Environmental Compliance for the proposed project, including adherence to the National Environmental Policy Act (NEPA) and associated Federal rules and regulations, including but not limited to, the Endangered Species Act, Migratory Bird Treaty Act, and National Historic Preservation Act (NHPA).

TRC contracted Valenzuela Preservation Studio, LLC (VPS) to conduct a historic resources survey for non-archeological resources within the APE. The survey was conducted in support of the preparation of an Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) for the proposed project. VPS professional staff conducted a field survey of the project area in early September 2015. The field survey documented all historic-age resources within the APE, as illustrated in Figure 1. Archival research was conducted concurrent to the field survey efforts.

1.2 PROJECT DESCRIPTION AND LOCATION

EPWU is proposing to install a 36-inch water transmission utility line in two phases. Phase I installation will consist of approximately 12,086 linear feet of a 36-inch water main from the Rio Grande bridge at East Borderland Road to Strahan Road, and from Strahan Road north to Brianna Court. Phase II will include the installation of approximately 3,700 linear feet of a 36-inch water main along Strahan Road

from Brianna Court to Canutillo La Union Avenue, and from Canutillo La Union Avenue along Bosque Road to Cayuse Drive. The total length of the proposed project (Phases I and II) is approximately 3.0 miles, with a proposed construction corridor width of 30 feet.

The recommended APE includes all parcels to be directly affected by new construction, construction stage and access areas, and project maintenance activities. The field survey documented all parcels adjoining the proposed project right-of-way (ROW) and those within 300' from the proposed ROW. Since the project area is largely agricultural, field survey included documentation of historic-age resources and cultural landscapes within the APE. Figure 1 illustrates the project area and its associated APE. Based on field survey efforts and a review of historic aerials, county highway maps, photographs, and the Elephant Butte Irrigation District National Register of Historic Places nomination,[1] it appears the project area remains largely intact and most resources date to a historic period from 1915-1965.

[1] Phillips, David A., Jr. "Elephant Butte Irrigation District NRHP Registration Form," U.S. Department of the Interior: National Park Service, Washington, D.C. June 12, 1997.

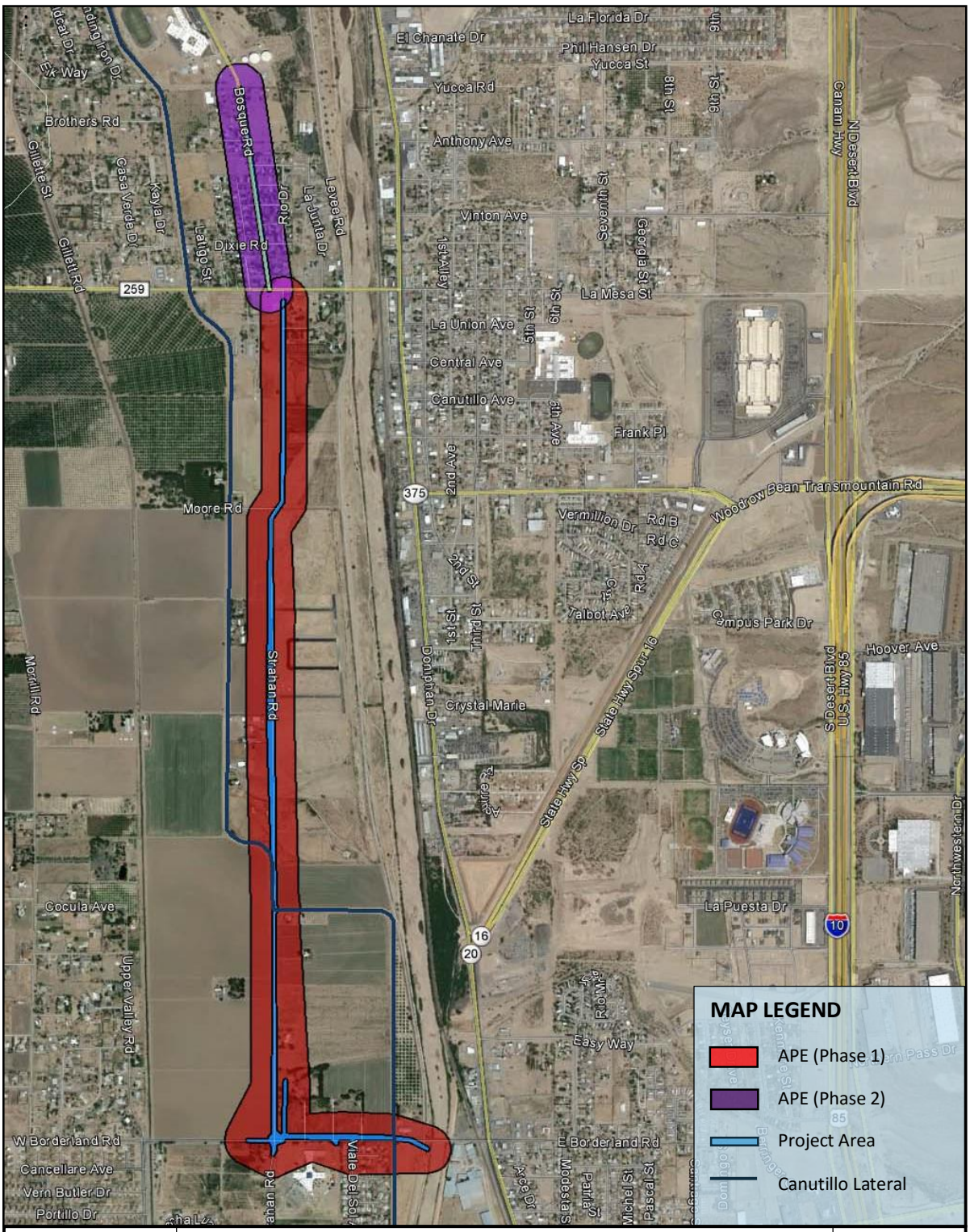


Figure 1.
Project Location Map

Upper Valley Strahan Road Historic Resources Survey
Canutillo vicinity, El Paso County, Texas

2 IDENTIFICATION OF HISTORIC PROPERTIES

Based on archival research and literature review, 18 historic-age resources were identified within the APE as part of the historic resources survey. Archival research using the Texas State Historic Preservation Office (SHPO) Sites Atlas and the NRHP database provided the framework for identifying previously designated historic properties.

2.1 PREVIOUSLY DESIGNATED RESOURCES

Of the 18 historic-age resources identified within the APE, all properties are located within the boundaries of the previously designated NRHP-listed Elephant Butte Irrigation District. Of those, 13 historic-age resources are directly related to the irrigation district, but are considered minor localized features according to the 1997 National Register nomination. One resource within the APE is specifically listed as a contributing element to the Elephant Butte Irrigation District, Resource ID No. 1 – Canutillo Lateral. Refer to Figures 2- for the delineation of the boundaries of the Elephant Butte Irrigation District, relative to the project area, and the location of the one NRHP-listed contributing element.

2.2 PUBLIC LANDS

According to the Antiquities Code of Texas (Texas Government Code – Chapter 442, codified as Title 9, Chapter 191 of the Texas Natural Resource Code), local government agencies considering development projects that occur on lands owned by a political subdivision of the state must notify the Texas Historical Commission prior to commencing work. Properties within the APE that are owned by the City of El Paso, City of Canutillo, El Paso County, or the State of Texas are delineated in Table 1.

Table 1. Inventory of all properties within APE owned by a political subdivision of the state (Source: El Paso Central Appraisal District GIS Map Viewer/Property Search database, field survey).

Property ID	Resource ID No.	Address		Property Owner	Property Name
345209	18		Bosque Road	City of El Paso	Canutillo Booster Pump Station
	-	6300	S. Strahan Road	Canutillo ISD	Damian Elementary School
326716	-	7311	Bosque Road	Canutillo ISD	Canutillo Middle School

One property within the project area is owned by the City of El Paso; two properties are owned by the Canutillo Independent School District. Both property owners are considered political subdivisions of the State of Texas. Construction activities will occur within the ROW and associated project area for the water main installation. The activities could represent a direct impact to each property and will involve under five acres of ground disturbance. No historic properties are located on the two properties owned by Canutillo ISD, and no known archeological sites exist at these locations. However, one historic-age resource (Resource ID No. 18) is located on the City of El Paso property and is associated with the operation of the Canutillo Booster Station.

2.3 HISTORIC-AGE RESOURCES

The following table (Table 2) provides an inventory of all historic-age resources within the APE of the proposed development project. Refer to Figures 2-5 for location of all surveyed historic-age resources. Refer to Appendix B for photographs and a summary description of each evaluated resource.

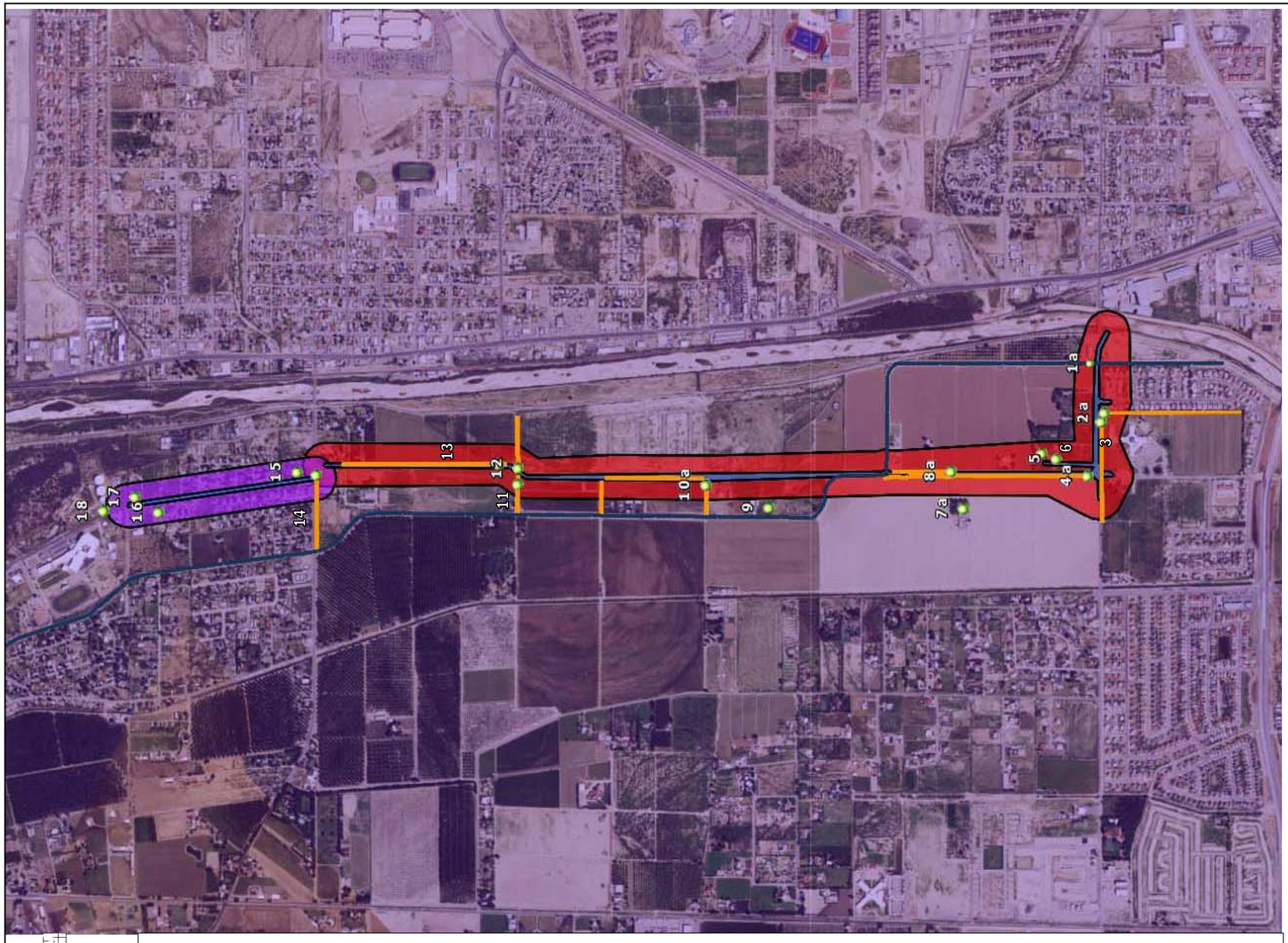
Table 2. Inventory of historic-age resources within the project APE.

Resource ID No.	Address		Date Built	PROPERTY TYPE|Subtype Style| Plan type
1a		Canutillo Lateral	1920-1921, 1925	IRRIGATION SYSTEM | conveyance feature
				Canal | lateral (unlined)
1b		Canutillo Lateral	1920-1921, 1925	IRRIGATION SYSTEM | conveyance feature
				Siphon
1c		Canutillo Lateral	1920-1921, 1925	IRRIGATION SYSTEM | distribution feature
				Gate | head gate
1d		Canutillo Lateral	1920-1921, 1925	IRRIGATION SYSTEM | conveyance feature
				Flume | pipe flume
1e		Canutillo Lateral	1920-1921, 1925	IRRIGATION SYSTEM | conveyance feature
				Siphon
1f		Canutillo Lateral	1920-1921, 1925	IRRIGATION SYSTEM | diversion feature
				Diversion stand
1g		Canutillo Lateral	1920-1921, 1925	IRRIGATION SYSTEM | distribution feature
				Gate | turn-out gate
2a		Borderland Road	-	IRRIGATION SYSTEM | infrastructure
				Drainage ditch (lined)
2b		Borderland Road	-	IRRIGATION SYSTEM | distribution feature
				Gate | turn-out gate
2c		Borderland Road	-	IRRIGATION SYSTEM | distribution feature
				Division box
3a		Borderland Road	-	IRRIGATION SYSTEM | infrastructure
				Drainage ditch (unlined)
3b		Borderland Road	-	IRRIGATION SYSTEM | distribution feature
				Gate | turn-out gate
3c		Borderland Road	-	IRRIGATION SYSTEM | conveyance feature
				Culvert | pipe
3d		Borderland Road	-	IRRIGATION SYSTEM | infrastructure
				Drainage ditch (unlined)

Resource ID No.	Address		Date Built	PROPERTY TYPE|Subtype Style| Plan type
3e		Borderland Road	-	IRRIGATION SYSTEM | conveyance feature
				Culvert | pipe
3f		Borderland Road	-	IRRIGATION SYSTEM | infrastructure
				Drainage ditch (unlined)
4a		Strahan Road	-	IRRIGATION SYSTEM | infrastructure
				Drainage ditch
4b		Strahan Road	-	IRRIGATION SYSTEM | distribution feature
				Standpipe
4c		Strahan Road	-	IRRIGATION SYSTEM | conveyance feature
				Culvert | pipe
4d		Strahan Road	-	IRRIGATION SYSTEM | conveyance feature
				Culvert | pipe
4e		Strahan Road	c. 1950	IRRIGATION SYSTEM | diversion feature
				Diversion stand
4f		Strahan Road	c. 1950	IRRIGATION SYSTEM | diversion feature
				Well; pump stand
4g		Strahan Road	c. 1950	IRRIGATION SYSTEM | diversion feature
				Well; pump stand
5	6450	Strahan Road	c. 1940	AGRICULTURE | farmstead: residence
6a	6450	Strahan Road	c. 1940	AGRICULTURE | farmstead: outbuilding
6b	6450	Strahan Road	c. 1940	AGRICULTURE | farmstead: outbuilding
6c	6450	Strahan Road	c. 1940	AGRICULTURE | farmstead: agricultural field (cotton)
7a	6487	Strahan Road	1947	AGRICULTURE | farmstead: residence
7b	6487	Strahan Road	1947	AGRICULTURE | farmstead: secondary residence
7c	6487	Strahan Road	c. 1950	AGRICULTURE | farmstead: outbuilding

Resource ID No.	Address		Date Built	PROPERTY TYPE|Subtype Style| Plan type
7d	6487	Strahan Road	c. 1950	AGRICULTURE | farmstead: outbuilding
7e	6487	Strahan Road	c. 1950	AGRICULTURE | farmstead: outbuilding
7f	6487	Strahan Road	c. 1950	AGRICULTURE | farmstead: outbuilding
				Quonset hut
7g	6487	Strahan Road	-	AGRICULTURE | farmstead: agricultural field (cotton)
8a		Strahan Road	-	IRRIGATION SYSTEM | infrastructure
				Drainage ditch (unlined)
8b		Strahan Road	-	IRRIGATION SYSTEM | diversion feature
				Diversion stand
8c		Strahan Road	-	IRRIGATION SYSTEM | conveyance feature
				Culvert | pipe
8d		Strahan Road	-	IRRIGATION SYSTEM | conveyance feature
				Culvert | pipe
9a	6631	Strahan Road	c. 1915	AGRICULTURE | farmstead: residence
9b	6631	Strahan Road	c. 1915	AGRICULTURE | farmstead: agricultural field (fallow)
10a		Strahan Road	-	IRRIGATION SYSTEM | infrastructure
				Drainage ditch (unlined)
10b		Strahan Road	-	IRRIGATION SYSTEM | infrastructure
				Drainage ditch (unlined)
10c		Strahan Road	-	IRRIGATION SYSTEM | infrastructure
				Drainage ditch (unlined)
10d		Strahan Road	-	IRRIGATION SYSTEM | conveyance feature
				Culvert | pipe
11a		Moore Road	c. 1950	IRRIGATION SYSTEM | infrastructure
				Drainage ditch (lined)
11b		Moore Road	c. 1950	IRRIGATION SYSTEM | distribution feature
				Gate | turn-out gate

Resource ID No.	Address		Date Built	PROPERTY TYPE|Subtype Style|Plan type
12		Strahan Road	c. 1950	IRRIGATION SYSTEM | infrastructure
				Drainage ditch (lined)
13a		Strahan Road	-	IRRIGATION SYSTEM | infrastructure
				Drainage ditch (lined)
13b		Strahan Road	-	IRRIGATION SYSTEM | distribution feature
				Gate | turn-out gate
13c		Strahan Road	-	IRRIGATION SYSTEM | infrastructure
				Drainage ditch (unlined)
13d		Strahan Road	-	IRRIGATION SYSTEM | conveyance feature
				Culvert | pipe
13e		Strahan Road	-	IRRIGATION SYSTEM | conveyance feature
				Culvert | pipe
14a		FM 259/Canutillo La Union Ave	-	IRRIGATION SYSTEM | infrastructure
				Drainage ditch (lined)
14b		FM 259/Canutillo La Union Ave	-	IRRIGATION SYSTEM | conveyance feature
				Culvert | pipe
15	7108	Bosque Road	c. 1970	DOMESTIC | single-family residence
16	7225	Bosque Road	c. 1970	DOMESTIC | single-family residence
17	7250	Bosque Road	1968	DOMESTIC | single-family residence
18		Bosque Road	c. 1955	INFRASTRUCTURE | water booster station
				Art Moderne | rectangular plan



MAP LEGEND

Category

- APE (Phase 1)
- APE (Phase 2)
- Project Area
- Canutillo Lateral
- Resource ID
- Irrigation feature – drainage ditch

Figure 2. Note: shaded background color of purple illustrates the extent of the Elephant Butte Irrigation District

Detailed Project Location Map

Upper Valley Strahan Road Historic Resources Survey
Canutillo vicinity, El Paso County, Texas

Table 3.

Property details for historic-age buildings within APE (Source: El Paso CAD property database)

Property ID	Resource ID No.	Address	
-	1	Canutillo Lateral	
-	2	Borderland Road	
-	3	Borderland Road	
-	4	Strahan Road	
296508	5	6450	Strahan Road
296508	6	6450	Strahan Road
265423	7	6487	Strahan Road
-	8		Strahan Road
394755	9	6631	Strahan Road
-	10		Strahan Road
-	11		Moore Road
-	12		Strahan Road
-	13		Strahan Road
-	14		FM 259/Canutillo La Union Avenue
108903	15	7108	Bosque Road
47368	16	7225	Bosque Road
380257	17	7250	Bosque Road
345209	18		Bosque Road

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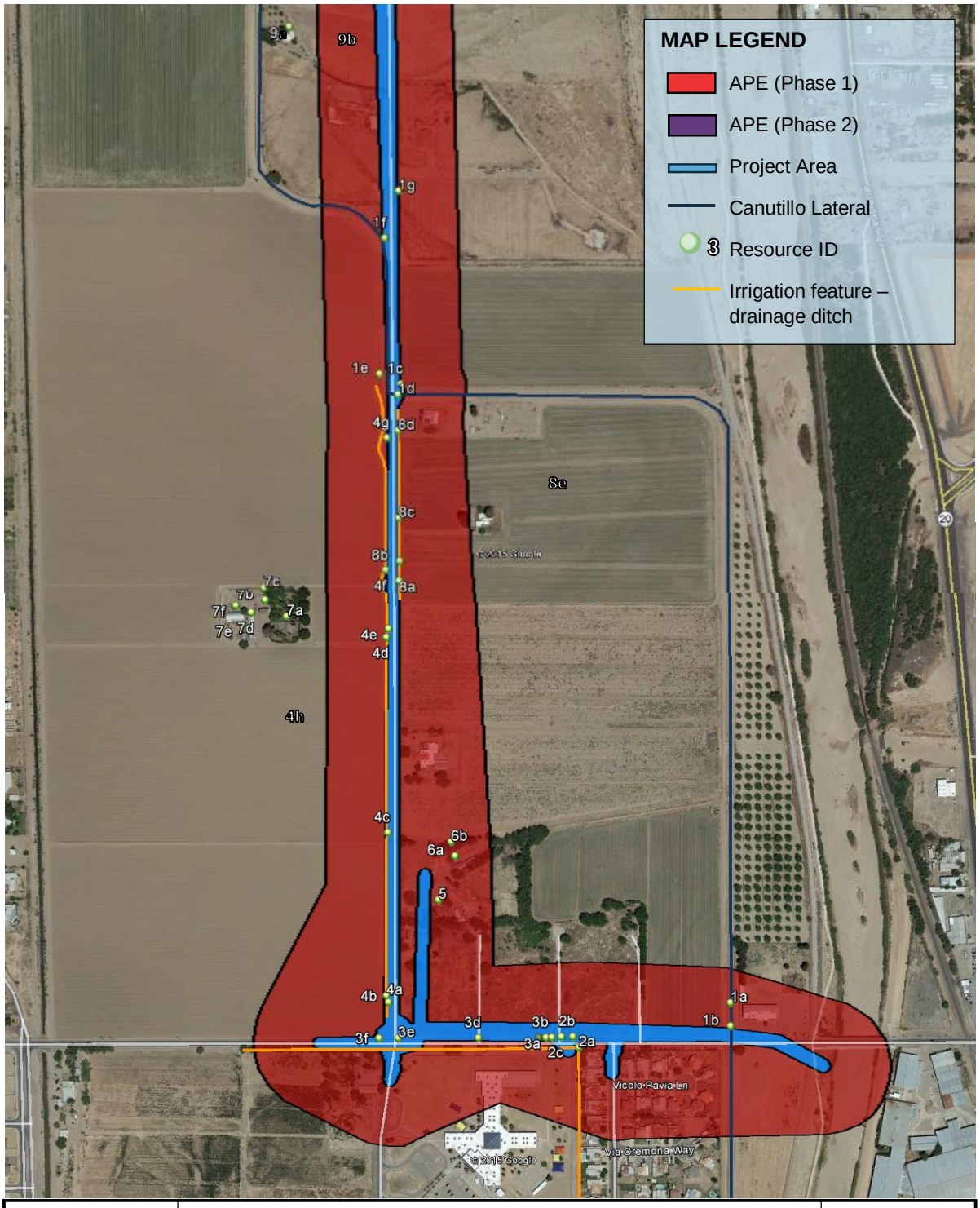

Figure 4. Map 1 of 3

Detailed Historic Resources Location Map

Upper Valley Strahan Road Historic Resources Survey
Canutillo vicinity, El Paso County, Texas

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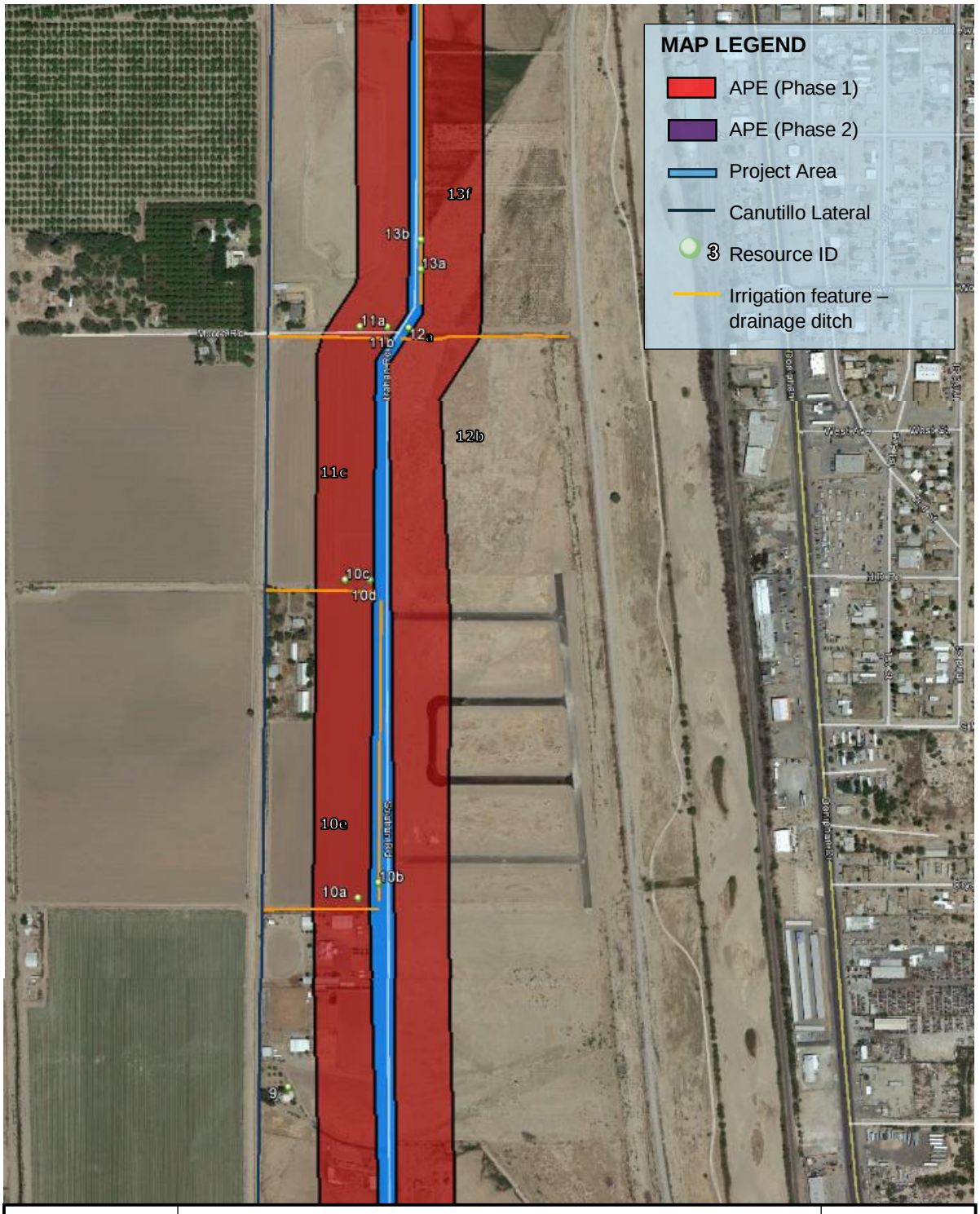

Figure 6. Map 2 of 3

Detailed Historic Resources Location Map

Upper Valley Strahan Road Historic Resources Survey
Canutillo vicinity, El Paso County, Texas

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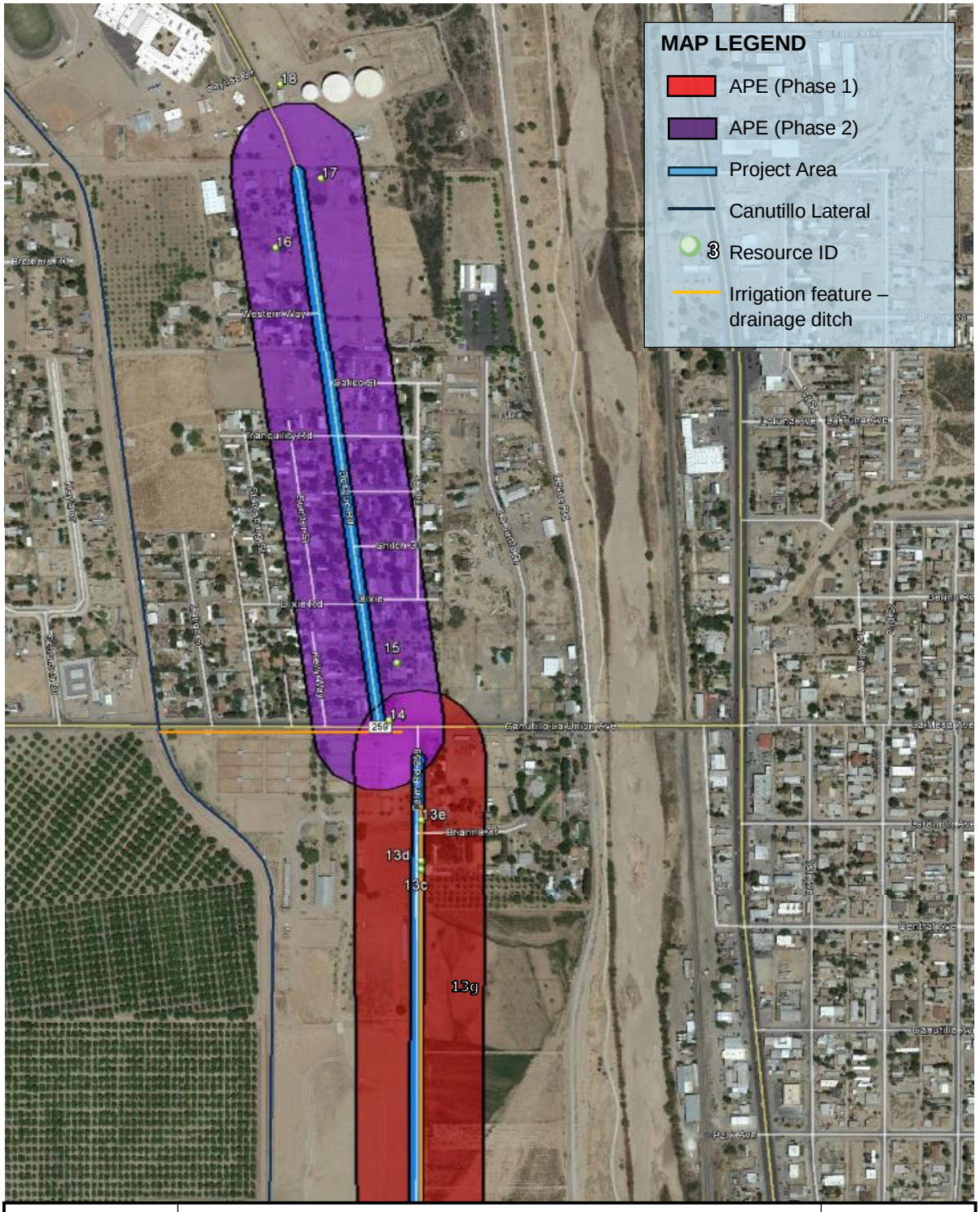

Figure 8. Map 3 of 3

Detailed Historic Resources Location Map

Upper Valley Strahan Road Historic Resources Survey
Canutillo vicinity, El Paso County, Texas

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2.4 HISTORIC OVERVIEW

Historic-age resources within the APE help to convey a distinct historic period of agricultural development in the Mesilla Valley, along the west bank of the Rio Grande, beginning with the construction of the Canutillo Lateral ca. 1920. The period of significance for surveyed resources within the APE encompass the years 1920 until the 45-year survey cut-off date, or 1970.

2.4.1 Early Settlement of the Canutillo area

Historically, the land within the APE was used for agricultural pursuits due to the rich alluvial deposits from the Rio Grande and fertile soils of the Mesilla Valley. The first formal irrigation system in the valley was constructed as part of the Guadalupe Mission in the 1650s. A systems of canals and drains were improved and expanded into the 19th century. The area was part of the original Canutillo land grant assigned in June 1823 to Juan Maria Ponce De León. The 200-acre grant was given by the Mexican government to encourage the development of the Northern Territories. Ponce de León developed the land by planting cottonwood trees along an acequia he constructed above a dam south of the river ford. He cultivated crops of corn and wheat and also a vineyard and orchard. The planted crops were affected by changing course of the Rio Grande, so Ponce de León relocated to higher ground, north of his initial settlement.[2]

The Treaty of Guadalupe Hidalgo in 1848 transferred the government of land from the Mexican state of New Mexico to the United States. Coupled with the periodic flooding of the Rio Grande and the threat of raiding Apaches, Ponce de León sold his land to Benjamin Franklin Coons in 1849.[3] The International Boundary Commission surveyed the area in 1852 and found a large network of main and lateral canals serving the area. Together with the extension of railroads into the area, increased settlement by Americans occurred. New settlers continued the use of irrigation canals to irrigate new ranches and farms.[4]

The land served as ranch for El Paso settler James Magoffin starting in the mid-1800s, until ownership was disputed by descendants of the original land grantees.[5] The question of ownership of land surrounding present-day Canutillo continued until September 1886 when the land grant was finalized based on a survey by John P. Randolph. The land grant, known as 'El Canutillo" was assigned to Jose

[2] Carrasco, Alonso, Jamie Carter, and Dr. George D. Torok, "Ponce de León Hacienda and Acequia Mills Building Site, El Paso, Texas," *Historical Markers Project* (http://epcc.libguides.com/content.php?pid=346448&sid=2835225), accessed October 21, 2015. Published by El Paso Community College Library.

[3] Martin Donell Kohout, "PONCE DE LEÓN, JUAN MARIA," *Handbook of Texas Online* (http://www.tshaonline.org/handbook/online/articles/fpo63), accessed October 21, 2015. Uploaded on June 15, 2010. Published by the Texas State Historical Association.

[4] Montes, Carlos and Dr. George D. Torok, "Early Water Works Site," *Historical Markers Project* (http://epcc.libguides.com/content.php?pid=346448&sid=3129995), accessed October 21, 2015. Published by El Paso Community College Library.

[5] Martin Donell Kohout, "CANUTILLO, TX," *Handbook of Texas Online* (http://www.tshaonline.org/handbook/online/articles/hjc04), accessed October 28, 2015. Uploaded on June 12, 2010. Published by the Texas State Historical Association.

Sanchez, Romelo Berela, Guadalupe Miranda, and others.[6] The area within El Canutillo Grant continued as ranchland into the late nineteenth century.[7]

With the arrival of the railroad in El Paso on May 12, 1881 (Southern Pacific), the area was opened to immigration and trade, and in turn, expanded agricultural pursuits. Additional rail lines would connect El Paso with national and international routes and included the Atchinson, Topeka and Santa Fe (June 11, 1881), the Texas & Pacific (early 1882), the Galveston, Harrisburg and San Antonio (January 12, 1883), and finally the Mexican Central Railroad (April 1884). The A T & S F extended a spur line to Canutillo in the early 20th century, connecting Mesilla Valley farmers with larger markets. [8]

El Canutillo Townsite and Land Company was chartered in 1909 and J.J. Mundy, a local businessman, purchased 180 acres within the townsite in 1910.[9] A rural post office established 2 years later.[10] The first school building, operated by El Paso County, was constructed in Canutillo in that same year and was known as the 'Lone Star School.' The school boundaries extended from White Spur (now in West El Paso) to La Tuna, Texas and from the New Mexico boundary line to the Franklin Mountains, approximately 13 miles long and six miles wide. [11]

2.4.2 Rio Grande Canalization Project

Historically, the irrigation of Mesilla Valley agricultural fields using existing irrigation canals, diversion dams, and ditches was complicated by the seasonal flooding of the Rio Grande. Beginning in 1906, the U.S. Reclamation Service worked to consolidate and upgrade existing irrigation systems of the Rincon and Mesilla Valleys. The Rio Grande Canalization Project was authorized in 1936 with the primary goal to regulate the flow of water from upstream reservoirs, such as the Elephant Butte Reservoir, to users along the lower Rio Grande valley. This was deemed necessary since the reduced flow downstream from the Elephant Butte Reservoir allowed an accumulation of sediment and increased vegetation within the natural channel of the lower Rio Grande. During times of flooding, the river then topped the banks and devastated the surrounding farmland. Between 1938 and 1943, the river channel was modified to accommodate the normal flow of the Rio Grande, with levees bordering each side of that channel that worked to prevent flooding during periods of high flow.[12]

The project helped to consolidate individual irrigation systems under one federally-managed program. The El Paso Water Improvement District #1 (EPCWID) and the Elephant Butte Irrigation District (EBID)

[6] "El Canutillo Land Grant," Land Grants for Bexar 1st, September 6, 1886, Patent No. 471, Volume 24 (Abstract No. 2439, File No. 002212). Archives and Records Program, Texas General Land Office, Austin.

[7] Sandoval, Alma, "Canutillo Developed from Land Grant," *Borderlands* 26 (2007-2008), accessed October 21, 2015.

[8] "Our History: Canutillo Independent School District" (http://www.canutillo-isd.org/AboutCISD/our_history), accessed October 21, 2015.

[9] "Deeds Filed," El Paso Herald, November 26, 1910. Viewed online via newspapers.com, accessed October 20, 2015.

[10] Martin Donell Kohout, "CANUTILLO, TX," *Handbook of Texas Online* (http://www.tshaonline.org/handbook/online/articles/hjc04), accessed October 20, 2015. Uploaded on June 12, 2010. Published by the Texas State Historical Association.

[11] ibid

[12] "Rio Grande Canalization," International Boundary and Water Commission, United States and Mexico, (http://www.ibwc.state.gov/EMD/RG_Canalization.html), accessed October 20, 2015.

were formed as water users' associations for land within Texas and New Mexico, respectively. [13] All irrigation systems in the Mesilla Valley were acquired and upgraded by the U.S. Reclamation Service by 1922. The project enabled an increase in the acreage of suitable agricultural land.[14] Prior to the project, farms grew small-scale fields of wheat, alfalfa, vegetables, cantaloupes, and fruit trees. After the project was completed, farmers switched to large-scale cultivation of cotton, which became the dominant crop for the next 60 years.[15]

In a case heard before the U.S. Supreme Court in 1927, the boundary between New Mexico and Texas, in the area west of Canutillo and within the project area, was disputed between the two states. The boundary line was originally set in 1850 as part of an act passed by the United States Congress and accepted by the state of Texas. As part of the act, the boundary between Texas and the then New Mexican Territory was delineated as the center point of the Rio Grande. Through a series of accretions of the waterway over the next seven decades, the river moved eastward to its 1927 location. The Supreme Court ruled that the boundary line between New Mexico and Texas followed the general course claimed by the state of Texas.[16] A 1946 United States Geological Survey (USGS) topographic map illustrates this correction and notes the boundary line was shown in geodetic position according to Supreme Court decision, March 23, 1939.[17]

2.4.3 Agricultural Pursuits in the Mesilla Valley

With an average growing season of 294 days and annual rainfall totals of less than eight inches, agricultural pursuits in the Mesilla Valley are dependent on irrigation using water from the Rio Grande.[18] After the railroad arrived at the end of the nineteenth century, the economic success of local farms grew significantly starting in 1890. The number of farms in El Paso County continued to increase into the beginning of the twentieth century – starting with 196 farms in 1890, numbers grew to 318 in 1900 and 699 in 1910. Cattle ranching also experienced an increase during the same period – starting with 1,631 head in 1890 and growing to almost 95,000 in 1910.[19]

At the turn of 20th century, sorghum was by far the most popular crop, second only to fruit trees. A slight downturn in farming occurred in the 1910s, but, due in large part to improvements in irrigation techniques initiated by the Rio Grande Canalization project, farmers switched to cotton as their primary crop by the 1920s. Pecans, alfalfa and other vegetables and fruits were grown in smaller amounts.[20] The

[13] Phillips, David A., Jr. "Elephant Butte Irrigation District NRHP Registration Form," U.S. Department of the Interior: National Park Service, Washington, D.C. June 12, 1997.
[14] ibid
[15] Bath, C. Richard and Angela Petit, "Who Owns the Water? A Case Study of El Paso del Norte," Working Paper, No. 23, North American Series. Land Tenure Center – University of Wisconsin-Madison. November 1998.
[16] United States Supreme Court, State of New Mexico v. State of Texas, No. 70. Decided December 5, 1927. (https://law.resource.org/pub/us/case/reporter/US/275/275.US.279.2.html), accessed October 21, 2015.
[17] United States. Army. Corps of Engineers. *Canutillo Quadrangle*, Map, 1946; (http://texashistory.unt.edu/ark:/67531/metapth458843/ : accessed October 21, 2015), University of North Texas Libraries, The Portal to Texas History, http://texashistory.unt.edu; crediting UNT Libraries Government Documents Department, Denton, Texas.
[18] Conrey Bryson, "EL PASO COUNTY," *Handbook of Texas Online* (http://www.tshaonline.org/handbook/online/articles/hce05), accessed October 22, 2015. Uploaded on June 12, 2010. Modified on January 30, 2014. Published by the Texas State Historical Association.
[19] ibid
[20] ibid

effect of the Rio Grande Canalization project is realized by the large increase in cotton acreage in El Paso County during the 1920s. Just over 1,000 farms grew 1,548 acres of cotton in the early 1920s, but by 1929, over 1,200 farms were responsible for 46,300 acres of cotton in 1929.[21] However, the success of area cotton farms would soon be impacted by the stock market crash of October 1929 and the resulting economic downturn. The effects of the Great Depression resulted in a drop of more than 30% in cotton production from 1929 to 1940. The number of farms decreased from a high of 1,263 farms in 1929 to just 1,075 in 1940.

Area farmers were able to rebound and beginning in the late 1930s, limited deed research indicates that most of the land from Canutillo La Union Road to the bend in the Canutillo Lateral was dedicated to general farming efforts by land owners such as William E. and C.S. Jackson and the Singh families.[22] Cotton reaches the peak of production in the 1940s. Cotton acreage increased two-fold, from 30,064 acres in 1939 to 60,369 acres in 1949 - 90,832 bales of cotton worth were worth $15 million. Production again fell in the 1950s and 1960s and by 1969, only 299 cotton farms producing on 35,619 acres were recorded in El Paso County.

By this time, farmers began to diversify crops and improved agricultural techniques were employed.[23] One example of innovative agricultural practices in the project area during the period of significance is provided by Nicolas Abraham and the Abraham Borderland Farm. In the 1950s, the U.S. Secretary of Agriculture initiated acreage allotments for cotton growers due to increased production nationwide. In 1954, acreage in Texas was reduced by 26% and alternative land uses were encouraged.[24] As a result, Nick Abraham, Jr. experimented with the planting of 20 acres of onions in 1959 to supplement his cotton crops. Onions were more resistant to salt, a major issue facing farmers using water from the Rio Grande to irrigate crops, but onion crops required two-thirds more water. Abraham utilized a new type of planter to increase the amount of onion plantings; before the advent of this mechanical equipment, onions were planted by hand. [25] Mr. Abraham tried a variety of vegetable crops to supplement his cotton crops, and included okra, lettuce, cabbage, carrots, cantaloupes, and asparagus. Mr. Abraham also owned and managed farms in Dell City, Pecos, and Van Horn. He worked to capture the large El Paso-Juarez market and its vegetable needs since local crops were traditionally transported to out-of-town areas.[26]

Another Upper Valley farmer made strides in experimental agricultural practices beginning in the 1930s. Chester Ezell purchased a 180-acre Canutillo farm along Strahan Road, north of Borderland Road in 1929. He utilized an alfalfa-cotton rotation program to yield two bales of cotton per acre with alfalfa borders over 125 feet wide between large sections of cotton. Systematic crop rotation techniques

[21] U.S. Department of Agriculture, Census of Agriculture Historical Archive, 1920-1929, (http://agcensus.mannlib.cornell.edu/AgCensus/homepage.do), accessed October 22, 2015.
[22] Deed research, 1930 and 1940 Federal Census
[23] U.S. Department of Agriculture, Census of Agriculture Historical Archive, 1940-1969, (http://agcensus.mannlib.cornell.edu/AgCensus/homepage.do), accessed October 22, 2015.
[24] Hedges, Trimble R. and C.O. McCorkle, Jr. "Cotton Quotas and Allotments: estimated acreage shifts from cotton to other crops in 1954 as a result of expected national allotments," *California Agriculture*, October 1953.
[25] "Bumper Upper Valley Onion Crop Pegged at 350 acres," El Paso Herald-Post, El Paso, Texas: June 6, 1959. (https://www.newspapers.com/image/68712172), accessed October 21, 2015.
[26] "Farmer Prepares to Harvest Okra, Unusual E.P. Area Crop," El Paso Herald-Post, El Paso, Texas: June 16, 1962 (https://www.newspapers.com/image/12309147) accessed October 21, 2015.

allowed the fields to maintain soil productivity and helped reduce pests that typically decreased cotton yields.

Ezell drilled his first irrigation well in 1950 at a depth of 146 feet and production capacity of 2,500 gallons per minute. The installation of underground pipeline to a portion of his agricultural fields began in 1951. Extending the underground pipeline in 1953 and 1954, Ezell was able to produce well water for all 178 acres of his agricultural fields. By converting from an open irrigation ditch to underground pipe, Ezell reclaimed six acres of land, eliminated most maintenance and pest issues, and significantly reduced labor demands. He drilled a second well in 1955, 150 yards from the first well, and utilized the additional water capacity to irrigate additional alfalfa fields.[27] Mr. Ezell received many awards in recognition of his innovative agricultural practices, and he credited his success to the use of mechanical equipment, an underground irrigation network, and crop rotation system.[28]

2.4.4 El Paso Water Utility and the Public Service Board

To serve the growing populations of the city of El Paso by providing for its water and sewage system needs, the Public Service Board (PSB) of the El Paso Water Utility (EPWU) was created in 1952.[29] Further channelization projects of the Rio Grande in the Canutillo area opened up the opportunity to capture and store water for El Paso customers. The construction of water storage facility and booster pump station occurred at the northern end of the project area between 1946 and 1955. Wells and a single structure first appear on the 1955 USGS topographic map. PSB drilled six wells at Canutillo to relieve water shortage issues for the city of El Paso in 1955. Water traveled 11 miles via pipeline to the Rio Grande and was used to fill water reservoirs within the city. It was estimated at the time that up to nine million gallons of water per day would be supplied by the Canutillo wells.[30]

3 RESEARCH AND FIELD SURVEY METHODS

To comply with the National Historic Preservation Act of 1966, as amended (16 USC 470-470w) and SHPO requirements for documenting historic properties within the APE of the proposed improvement project, field investigations will follow guidelines defined in National Register Bulletin 15 – *How to Apply the National Register Criteria for Evaluation* and National Register Bulletin 22 – *Guidelines for Evaluating and Nominating Properties that Have Achieved Significance Within the Past Fifty Years*. Field survey efforts and archival research were conducted at a reconnaissance level for historic-age resources within the project area. Using this level of effort allowed VPS professional staff to collect sufficient historical and architectural information to place affected resources within their appropriate historic context and determine their association with significant themes and patterns of development. Once the historical and architectural significance of each resource was evaluated, and the analysis of potential impacts by the Upper Valley Strahan Road project were assessed based on review of historical significance and

[27] Ezell, C.L. "Underground Pipe," *Proceedings of the 2nd Annual New Mexico Water Conference*, published by New Mexico Water Resources Research Institute, November 7-8, 1957.
[28] "Canutillo Farmer Wins High Award for Outstanding Cotton Production," El Paso Herald-Post, El Paso, Texas: December 31, 1960. (http://www.newspapers.com/image/68895593/). accessed October 20, 2015.
[29] Bath, C. Richard and Angela Petit, "Who Owns the Water? A Case Study of El Paso del Norte," Working Paper, No. 23, North American Series. Land Tenure Center – University of Wisconsin-Madison. November 1998.
[30] "City Gets Water from Upper Valley," El Paso Herald-Post, June 10, 1955.

architectural integrity of each resource. The archival research and field documentation required by a reconnaissance-level survey aided in the overall analysis of potential direct and indirect impacts to surrounding historic properties and larger Elephant Butte Irrigation District.

3.1 Research Methods

To aide in the identification and evaluation of historic-age resources, archival research was conducted from September to October 2015. The literature search included a review of Texas SHPO records of previous NRHP and State and Local Landmark nominations. Repositories visited included both online and on-site collections, and materials encompassed secondary sources such as previous survey reports and cultural resources studies and primary source information including city directories, U.S. Federal Census data, newspaper articles, historical photographs and maps. Refer to the References Cited section for a full listing of all sources consulted in the development of the report.

3.2 Field Investigations

Cultural resource specialists meeting the *Secretary of the Interior's Professional Qualification Standards* (36 CFR Part 61) in the field of Architecture, Historic Architecture, and Architectural History conducted field investigations for those properties within the APE. The existing condition of each resource was evaluated and documented using standard survey forms and digital photography. VPS professional staff maintained clear field notes, sketches and field maps used in the analysis of the fieldwork for the subject site(s), noting building/structure locations, distinctive landscape features, and other relevant non-archaeological resources. The following steps were undertaken to record the current condition of each historic-age resource.

1. Document condition of physical character-defining features and other associative qualities according to the *Seven Aspects of Integrity* defined in *National Register Bulletins 15, 18, 30,* and *38*, as applicable to each resource. Assess any physical changes that have occurred since the original construction of the resource. The following elements were documented in the field as part of the standard survey form.
    a. Survey identification number
    b. Project location including county and project name
    c. Longitude-latitude of the property and physical address
    d. Architectural style, plan type and building form
    e. Construction date
    f. Physical description noting physical changes and integrity issues
    g. Initial NRHP eligibility recommendation
    h. Investigative limitations when surveying
2. Perform detailed photographic documentation to record potential impacts on historic resources within the project study area. This work included digital photography according to National Park Service (NPS) standards as defined in *National Register Bulletin 23* and subsequent Photograph Policy Expansion in 2005 and Photograph Policy Update in 2008 and 2013. All files were saved in JPEG format and meet minimum NPS resolution standards. A photo log was maintained for each recorded resource noting direction camera is facing for each photograph.

a. A minimum of two photographs of each historic-age resource incorporating the primary and side façades.
b. For properties with more than one resource on the site, multiple photographs illustrate each buildings and structures and their overall relationship to each other.
c. Multiple views of NRHP-listed or –eligible properties of primary and side façades and significant architectural details. Document relationship of resource to the specific project area that will be subject to the proposed improvements.

4 EVALUATION OF HISTORIC PROPERTIES SURVEYED

The following section provides information regarding the identification of historic properties located within the project study area and evaluated as part of the Section 106 coordination efforts for the proposed public infrastructure improvement projects. Professional staff evaluated the buildings in the field during a September 2015 site visit to document the physical condition, associated integrity, and document potential impacts by the proposed project. Refer to *Appendix A – Project Schematics* and *Appendix B – Historic-Age Resources Photograph Log* for a complete inventory of historic-age resources evaluated as part of the Section 106 coordination efforts.

4.1 METHODS OF NRHP EVALUATION

As defined in National Register Bulletin 15, in order for a historic property to qualify for eligibility to the National Register it must meet one of the four National Register Criteria for Evaluation by being associated with an important historic context and being able to convey its significance by retaining the necessary integrity of its physical features. The methods used in evaluating the identified historic properties included both a physical survey of the buildings and archival research in order to evaluate and recommend each property's eligibility to the National Register. As outlined in National Register Bulletin 15, the following steps were undertaken to complete the survey of the subject resources.

1. **Categorize the property**. A property must be classified as a district, site, building, structure, or object for inclusion in the National Register.
2. **Determine which historic context(s) the property represents**. A property must possess significance in American history, architecture, archeology, engineering, or culture when evaluated within the historic context of a relevant geographic area.
3. **Determine whether the property is significant under the National Register Criteria**. This is done by identifying the links to important events or persons, design or construction features, or information potential that make the property important.
4. **Determine if the property represents a type usually excluded from the National Register**. If so, determine if it meets any of the Criteria Considerations.
5. **Determine whether the property retains integrity**. Evaluate the aspects of location, design, setting, workmanship, materials, feeling, and association that the property must retain to convey its historic significance.

4.2 RESULTS OF HISTORIC RESOURCES SURVEY

The field survey identified 18 resources within the APE that were constructed pre-1970. Of the 18 resources, all are located within the Elephant Butte Irrigation District, a NRHP-listed historic district. Of those, 13 historic-age resources are directly related to the irrigation district, but are considered minor localized features according to the 1997 National Register nomination. One resource within the APE is specifically listed as a contributing element to the Elephant Butte Irrigation District, Resource ID No. 1 – Canutillo Lateral. The remaining five resources do not convey their significance through strong historical associations necessary to be considered NRHP eligible. Refer to Table 4 for the results of the survey presented in an inventory table.

Table 5. Historic-age properties within the APE. Irrigation system features are documented as typical examples of each type – each feature of individual systems were not documented. Construction dates are not provided for all irrigation-related features – reconnaissance-level archival research did not yield conclusive dates built for all features.

Image	Resource ID No.	Address		Date Built	PROPERTY TYPE|Subtype Style|Plan Type	NRHP Eligibility Recommendation	Potential Impact
	1a		Canutillo Lateral	1920-1921, 1925	IRRIGATION SYSTEM | conveyance feature Canal | lateral (unlined)	NRHP listed, 1997 Contributing – Elephant Butte Irrigation District *(Structure/Criteria A & C)*	No direct impact No visual impact
	1b		Canutillo Lateral	1920-1921, 1925	IRRIGATION SYSTEM | conveyance feature Siphon	NRHP listed, 1997 Contributing (minor localized feature) – Elephant Butte Irrigation District *(Structure/Criteria A & C)*	No direct impact No visual impact
	1c		Canutillo Lateral	1920-1921, 1925	IRRIGATION SYSTEM | distribution feature Gate | head gate	NRHP listed, 1997 Contributing (minor localized feature) – Elephant Butte Irrigation District *(Structure/Criteria A & C)*	No direct impact No visual impact
	1d		Canutillo Lateral	1920-1921, 1925	IRRIGATION SYSTEM | conveyance feature Flume | pipe flume	NRHP listed, 1997 Contributing (minor localized feature) – Elephant Butte Irrigation District *(Structure/Criteria A & C)*	No direct impact No visual impact
	1e		Canutillo Lateral	1920-1921, 1925	IRRIGATION SYSTEM | conveyance feature Siphon	NRHP listed, 1997 Contributing (minor localized feature) – Elephant Butte Irrigation District *(Structure/Criteria A & C)*	No direct impact No visual impact
	1f		Canutillo Lateral	1920-1921, 1925	IRRIGATION SYSTEM | diversion feature Diversion stand	NRHP listed, 1997 Contributing (minor localized feature) – Elephant Butte Irrigation District *(Structure/Criteria A & C)*	No direct impact No visual impact

Image	Resource ID No.	Address		Date Built	PROPERTY TYPE|Subtype Style|Plan Type	NRHP Eligibility Recommendation	Potential Impact
	1g		Canutillo Lateral	1920-1921, 1925	IRRIGATION SYSTEM | distribution feature Gate | turn-out gate	NRHP listed, 1997 Contributing (minor localized feature) – Elephant Butte Irrigation District *(Structure/Criteria A & C)*	No direct impact No visual impact
	2a		Borderland Road	c. 2010	IRRIGATION SYSTEM | infrastructure Drainage ditch (lined)	Not NRHP Eligible	No direct impact No visual impact
	2b		Borderland Road	c. 2010	IRRIGATION SYSTEM | distribution feature Gate | turn-out gate	Not NRHP Eligible	No direct impact No visual impact
	2c		Borderland Road	-	IRRIGATION SYSTEM | distribution feature Division box	Not NRHP Eligible	No direct impact No visual impact
	3a		Borderland Road	-	IRRIGATION SYSTEM | infrastructure Drainage ditch (unlined)	Not NRHP Eligible	No direct impact No visual impact
	3b		Borderland Road	-	IRRIGATION SYSTEM | distribution feature Gate | turn-out gate	Not NRHP Eligible	No direct impact No visual impact

Image	Resource ID No.	Address		Date Built	PROPERTY TYPE|Subtype Style|Plan Type	NRHP Eligibility Recommendation	Potential Impact
	3c		Borderland Road	-	IRRIGATION SYSTEM | conveyance feature Culvert | pipe	Not NRHP Eligible	No direct impact No visual impact
	3d		Borderland Road	-	IRRIGATION SYSTEM | infrastructure Drainage ditch (unlined)	Not NRHP Eligible	No direct impact No visual impact
	3e		Borderland Road	-	IRRIGATION SYSTEM | conveyance feature Culvert | pipe	Not NRHP Eligible	No direct impact No visual impact
	3f		Borderland Road	-	IRRIGATION SYSTEM | infrastructure Drainage ditch (unlined)	Not NRHP Eligible	No direct impact No visual impact
	4a		Strahan Road	-	IRRIGATION SYSTEM | infrastructure Drainage ditch	NRHP eligible Contributing (minor localized feature), associated with Resource No. 7 *(Historic District/Criteria A & C)*	No direct impact No visual impact
	4b		Strahan Road	-	IRRIGATION SYSTEM | distribution feature Standpipe	NRHP eligible Contributing (minor localized feature), associated with Resource No. 7 *(Historic District/Criteria A & C)*	No direct impact No visual impact

Image	Resource ID No.	Address		Date Built	PROPERTY TYPE|Subtype Style|Plan Type	NRHP Eligibility Recommendation	Potential Impact
	4c			-	IRRIGATION SYSTEM | conveyance feature Culvert | pipe	NRHP eligible Contributing (minor localized feature), associated with Resource No. 7 *(Historic District/Criteria A & C)*	No direct impact No visual impact
	4d			-	IRRIGATION SYSTEM | conveyance feature Culvert | pipe	NRHP eligible Contributing (minor localized feature), associated with Resource No. 7 *(Historic District/Criteria A & C)*	No direct impact No visual impact
	4e			c. 1950	IRRIGATION SYSTEM | diversion feature Diversion stand	NRHP eligible Contributing (minor localized feature), associated with Resource No. 7 *(Historic District/Criteria A & C)*	No direct impact No visual impact
	4f			c. 1950	IRRIGATION SYSTEM | diversion feature Well; pump stand	NRHP eligible Contributing (minor localized feature), associated with Resource No. 7 *(Historic District/Criteria A & C)*	No direct impact No visual impact
	4g			c. 1950	IRRIGATION SYSTEM | diversion feature Well; pump stand	NRHP eligible Contributing (minor localized feature), associated with Resource No. 7 *(Historic District/Criteria A & C)*	No direct impact No visual impact

Image	Resource ID No.	Address		Date Built	PROPERTY TYPE|Subtype Style|Plan Type	NRHP Eligibility Recommendation	Potential Impact
	5	6450	Strahan Road	c. 1940	AGRICULTURE | farmstead: residence Craftsman | bungalow	NRHP eligible *(Historic District, Criterion A)*	No direct impact No visual impact
	6a	6450	Strahan Road	c. 1940	AGRICULTURE | farmstead: outbuilding	NRHP eligible *(Historic District, Criterion A)*	No direct impact No visual impact
	6b	6450	Strahan Road	c. 1940	AGRICULTURE | farmstead: outbuilding	NRHP eligible *(Historic District, Criterion A)*	No direct impact No visual impact
	6c	6450	Strahan Road	c. 1940	AGRICULTURE | farmstead: agricultural field (cotton)	NRHP eligible *(Historic District, Criterion A)*	No direct impact No visual impact
	7a	6487	Strahan Road	1947	AGRICULTURE | farmstead: residence Vernacular | L-plan	NRHP eligible *(Historic District, Criteria A and C)*	No direct impact No visual impact
	7b	6487	Strahan Road	1947	AGRICULTURE | farmstead: secondary residence Vernacular | rectangular plan	NRHP eligible *(Historic District, Criteria A and C)*	No direct impact No visual impact

Image	Resource ID No.	Address		Date Built	PROPERTY TYPE|Subtype Style|Plan Type	NRHP Eligibility Recommendation	Potential Impact
	7c	6487	Strahan Road	c. 1950	AGRICULTURE | farmstead: outbuilding	NRHP eligible *(Historic District, Criteria A and C)*	No direct impact No visual impact
	7d	6487	Strahan Road	c. 1950	AGRICULTURE | farmstead: outbuilding	NRHP eligible *(Historic District, Criteria A and C)*	No direct impact No visual impact
	7e	6487	Strahan Road	c. 1950	AGRICULTURE | farmstead: outbuilding	NRHP eligible *(Historic District, Criteria A and C)*	No direct impact No visual impact
	7f	6487	Strahan Road	c. 1950	AGRICULTURE | farmstead: outbuilding Quonset hut	NRHP eligible *(Historic District, Criteria A and C)*	No direct impact No visual impact
	7g	6487	Strahan Road	-	AGRICULTURE | farmstead: agricultural field (cotton)	NRHP eligible *(Historic District, Criteria A and C)*	No direct impact No visual impact
	8a		Strahan Road	-	IRRIGATION SYSTEM | infrastructure Drainage ditch (unlined)	Not NRHP eligible	No direct impact No visual impact

Image	Resource ID No.	Address		Date Built	PROPERTY TYPE|Subtype Style|Plan Type	NRHP Eligibility Recommendation	Potential Impact
	8b		Strahan Road	-	IRRIGATION SYSTEM | diversion feature Diversion stand	Not NRHP eligible	No direct impact No visual impact
	8c		Strahan Road	-	IRRIGATION SYSTEM | conveyance feature Culvert | pipe	Not NRHP eligible	No direct impact No visual impact
	8d		Strahan Road	-	IRRIGATION SYSTEM | conveyance feature Culvert | pipe	Not NRHP eligible	No direct impact No visual impact
	9a	6631	Strahan Road	c. 1915	AGRICULTURE | farmstead: residence Vernacular | rectangular plan	Not NRHP eligible	No direct impact No visual impact
	9b	6631	Strahan Road	c. 1915	AGRICULTURE | farmstead: agricultural field (fallow)	Not NRHP eligible	No direct impact No visual impact
	10a		Strahan Road	-	IRRIGATION SYSTEM | infrastructure Drainage ditch (unlined)	Not NRHP eligible	No direct impact No visual impact

Image	Resource ID No.	Address		Date Built	PROPERTY TYPE|Subtype Style|Plan Type	NRHP Eligibility Recommendation	Potential Impact
	10b		Strahan Road	-	IRRIGATION SYSTEM | infrastructure Drainage ditch (unlined)	Not NRHP eligible	No direct impact No visual impact
	10c		Strahan Road	-	IRRIGATION SYSTEM | infrastructure Drainage ditch (unlined)	Not NRHP eligible	No direct impact No visual impact
	10d		Strahan Road	-	IRRIGATION SYSTEM | conveyance feature Culvert | pipe	Not NRHP eligible	No direct impact No visual impact
	11a		Moore Road	c. 1950	IRRIGATION SYSTEM | infrastructure Drainage ditch (lined)	Not NRHP eligible	No direct impact No visual impact
	11b		Moore Road	c. 1950	IRRIGATION SYSTEM | distribution feature Gate | turn-out gate	Not NRHP eligible	No direct impact No visual impact
	12		Strahan Road	c. 1950	IRRIGATION SYSTEM | infrastructure Drainage ditch (lined)	Not NRHP eligible	No direct impact No visual impact

Image	Resource ID No.	Address		Date Built	PROPERTY TYPE|Subtype Style|Plan Type	NRHP Eligibility Recommendation	Potential Impact
	13a		Strahan Road	-	IRRIGATION SYSTEM | infrastructure Drainage ditch (lined)	Not NRHP eligible	No direct impact No visual impact
	13b		Strahan Road	-	IRRIGATION SYSTEM | distribution feature Gate | turn-out gate	Not NRHP eligible	No direct impact No visual impact
	13c		Strahan Road	-	IRRIGATION SYSTEM | infrastructure Drainage ditch (unlined)	Not NRHP eligible	No direct impact No visual impact
	13d		Strahan Road	-	IRRIGATION SYSTEM | conveyance feature Culvert | pipe	Not NRHP eligible	No direct impact No visual impact
	13e		Strahan Road	-	IRRIGATION SYSTEM | conveyance feature Culvert | pipe	Not NRHP eligible	No direct impact No visual impact
	14a		FM 259/Canutillo La Union Ave	-	IRRIGATION SYSTEM | infrastructure Drainage ditch (lined)	Not NRHP eligible	No direct impact No visual impact

Image	Resource ID No.	Address		Date Built	PROPERTY TYPE|Subtype Style|Plan Type	NRHP Eligibility Recommendation	Potential Impact
	14b		FM 259/Canutillo La Union Ave	-	IRRIGATION SYSTEM | conveyance feature Culvert | pipe	Not NRHP eligible	No direct impact No visual impact
	15	7108	Bosque Road	c. 1970	DOMESTIC | single-family residence Vernacular | rectangular plan	Not NRHP eligible	No direct impact No visual impact
	16	7225	Bosque Road	c. 1970	DOMESTIC | single-family residence Ranch | rectangular plan	Not NRHP eligible	No direct impact No visual impact
	17	7250	Bosque Road	1968	DOMESTIC | single-family residence Ranch | rectangular plan	Not NRHP eligible	No direct impact No visual impact
	18		Bosque Road	c. 1955	INFRASTRUCTURE | water booster station Art Moderne | rectangular plan	NRHP eligible *(Building, Criterion C)*	No direct impact No visual impact

Photographs and survey information collected for each identified resource are provided in *Appendix B - Historic-Age Resources Photograph Log.* Refer to Figures 2-5 for resource locations. The following historic property evaluations rely on observations taken in the field and information collected as part of archival research efforts.

4.2.1 Properties not eligible for the NRHP

The majority of resources surveyed within the APE are associated with historic-age agricultural properties and irrigation systems that developed after the Rio Grande Canalization project in the 1920s. Seven historic-age resources evaluated as part of the current survey effort are recommended not eligible for the NRHP. The following resources are either not directly related to significant historic themes explored in the historic overview, do not retain sufficient integrity to convey their historical significance, and/or do not retain sufficient architectural or engineering significance (evaluated on their own) to be considered eligible for the NRHP.

4.2.1.1 Resource ID Nos. 2, 3, 8, and 10-14 – Irrigation systems along Borderland Road and FM 259

The irrigation system surrounding Jose H. Damian Elementary School is currently utilized to irrigate school grounds. The elementary school was constructed in 1992 and while Resource ID No. 3 may pre-date the school, the agricultural fields it may have served are no longer extant. Resource ID No. 2 appears to be of recent construction and likely dates from the period of development of the suburban neighborhood adjacent to the irrigation ditch. The residential development, known as Alta Valle del Sol, first appears on aerials of the project area in 2004. Several irrigation ditches along and adjacent to Strahan Road may date to the historic period, but are no longer associated with historic farmsteads or serve active agricultural fields. Finally, the drainage ditch along FM 259, extending west from Strahan Road, may have historically served agricultural fields to the south but the property is now the Rio Grande Valley Ranch, a 20-acre boarding facility for horses and other livestock.

The seven resources, although examples of irrigation systems within the EPCWID, are no longer associated with their historic-age agricultural properties and therefore, do not convey their significance through strong historical associations relevant to historic themes within the project area. Therefore, the resources to not meet the threshold necessary to be considered NRHP eligible.

4.2.1.2 Resource ID No. 9 – 6631 Strahan Road

Limited deed research indicates that the property that includes Resource ID No. 9 – 6631 Strahan Road was once part of a larger agricultural property owned and operated by C.R. Richards. Early 20th century deed records indicate Richards owned a 20-acre farm south of FM 259 and east of the Canutillo Lateral and the residence at 6631 Strahan Road is the last remaining resource dating from this earlier period of agricultural development. The residence appears in a 1917 USGS topographic map and is located adjacent to a dirt road that connects Borderland Road with FM 259 (a precursor to the modern Strahan Road). This early dirt road followed the eastern bank of the Canutillo Lateral at this location. In additional to his agricultural pursuits, newspaper advertisements indicate Richards bred rabbits, pigs, pigeons and other livestock in the Canutillo area as early as 1918.

The one-story building is located a distance from the ROW and was not clearly visible during field survey efforts. It appears that the residence is likely constructed of adobe and pre-dates the beginning of the period of significance for the area. A simple, stuccoed façade with two small windows is visible from the

ROW. The site is surrounded by mature trees and an asphalt drive that turns to a dirt road and parking area leads from Strahan Road to the residence.

The current three-acre tract represents a small portion of the original 20-acre property. The original setting has been transformed with the conversion of agricultural land to a horse ranch (north) and land that is no longer farmed (south). The construction of Strahan Road relocated the entrance and approach to the property. Therefore, the property has lost integrity of setting, feeling, and association. Without the associated agricultural fields, it is difficult to place the resource within its appropriate historic context. Although the resource is one of the earliest remaining farmsteads in the area, the loss of overall integrity of the character-defining elements from which it derives its historical significance yields this property not eligible to the NRHP.

4.2.1.3 Resource ID Nos. 15, 16, and 17

Three resources are typical examples of c. 1970 single-family homes and do not possess outstanding architectural features or historical significance to be considered NRHP eligible.

4.2.1.3.1 Residence at 7108 Bosque Road

The residence is located on a large lot surrounded by mature trees and a chain-link and iron privacy fence. A gravel drive leads through an iron gate to a large gravel parking area at the front of the house. The two-story, hipped roof building features a buff-colored brick exterior and full-height, three-bay porch extending along the southern half of the front façade. Original windows appear to have been replaced and feature a brick sill.

4.2.1.3.2 Residence at 7225 Bosque Road

The residence is located on a large lot surrounded by a wooden privacy fence, enclosed by chain-link gates at both north and south entrances to the property. A few mature trees are located at the front and rear of the house. The main building is a typical 1970s Ranch-style house with a red brick exterior and a screened front porch. The side-gabled roof features large overhangs and a boxed eave at each gable end wall. A dirt road leads to the property through the gate and appears to extend through the property to a shed-roof outbuilding at the rear of the lot. A secondary building with attached carport is located just south of the main residence.

4.2.1.3.3 Residence at 7250 Bosque Road

The residence is located on a large lot surrounded by mature trees and a chain-link privacy fence. The hipped roof extends over the full-width front porch. The porch features a large wooden guardrail along its entire width. The brick residence features some architectural characteristics common to the Ranch style – low roof pitch, wide eaves, and an extended linear footprint. An asphalt drives extends from Bosque Road onto the property – a dirt road continues to a small parking area along the south side of the residence.

Table 6. Historic-age resources recommended not eligible for the NRHP.

Resource ID No.	Address		Date Built	PROPERTY TYPE|Subtype Style|Plan type
2a		Borderland Road	-	IRRIGATION SYSTEM | infrastructure
				Drainage ditch (lined)
2b		Borderland Road	-	IRRIGATION SYSTEM | distribution feature
				Gate | turn-out gate
2c		Borderland Road	-	IRRIGATION SYSTEM | distribution feature
				Division box
3a		Borderland Road	-	IRRIGATION SYSTEM | infrastructure
				Drainage ditch (unlined)
3b		Borderland Road	-	IRRIGATION SYSTEM | distribution feature
				Gate | turn-out gate
3c		Borderland Road	-	IRRIGATION SYSTEM | conveyance feature
				Culvert | pipe
3d		Borderland Road	-	IRRIGATION SYSTEM | infrastructure
				Drainage ditch (unlined)
3e		Borderland Road	-	IRRIGATION SYSTEM | conveyance feature
				Culvert | pipe
3f		Borderland Road	-	IRRIGATION SYSTEM | infrastructure
				Drainage ditch (unlined)
8a		Strahan Road	-	IRRIGATION SYSTEM | infrastructure
				Drainage ditch (unlined)
8b		Strahan Road	-	IRRIGATION SYSTEM | diversion feature
				Diversion stand
8c		Strahan Road	-	IRRIGATION SYSTEM | conveyance feature
				Culvert | pipe
8d		Strahan Road	-	IRRIGATION SYSTEM | conveyance feature
				Culvert | pipe
9a	6631	Strahan Road	c. 1915	AGRICULTURE | farmstead: residence
				Vernacular | rectangular
9b	6631	Strahan Road	c. 1915	AGRICULTURE | farmstead: agricultural field (fallow)
10a		Strahan Road	-	IRRIGATION SYSTEM | infrastructure
				Drainage ditch (unlined)
10b		Strahan Road	-	IRRIGATION SYSTEM | infrastructure
				Drainage ditch (unlined)
10c		Strahan Road	-	IRRIGATION SYSTEM | infrastructure
				Drainage ditch (unlined)
10d		Strahan Road	-	IRRIGATION SYSTEM | conveyance feature
				Culvert | pipe
11a		Moore Road	c. 1950	IRRIGATION SYSTEM | infrastructure
				Drainage ditch (lined)

Resource ID No.	Address		Date Built	PROPERTY TYPE|Subtype Style|Plan type
11b		Moore Road	c. 1950	IRRIGATION SYSTEM | distribution feature
				Gate | turn-out gate
12		Strahan Road	c. 1950	IRRIGATION SYSTEM | infrastructure
				Drainage ditch (lined)
13a		Strahan Road	-	IRRIGATION SYSTEM | infrastructure
				Drainage ditch (lined)
13b		Strahan Road	-	IRRIGATION SYSTEM | distribution feature
				Gate | turn-out gate
13c		Strahan Road	-	IRRIGATION SYSTEM | infrastructure
				Drainage ditch (unlined)
13d		Strahan Road	-	IRRIGATION SYSTEM | conveyance feature
				Culvert | pipe
14a		FM 259/Canutillo La Union Ave	-	IRRIGATION SYSTEM | infrastructure
				Drainage ditch (lined)
14b		FM 259/Canutillo La Union Ave	-	IRRIGATION SYSTEM | conveyance feature
				Culvert | pipe
15	7108	Bosque Road	c. 1970	DOMESTIC | single-family residence
				Vernacular | Two-story rectangular plan
16	7225	Bosque Road	c. 1970	DOMESTIC | single-family residence
				Ranch style | One-story rectangular plan
17	7250	Bosque Road	1968	DOMESTIC | single-family residence
				Ranch style | One-story rectangular plan

4.2.2 Properties already listed in the NRHP

The survey included evaluation of properties within an existing NRHP historic district. Contributing features of the historic district within the project APE were evaluated for continued NRHP eligibility to ensure they retained sufficient integrity to convey historical associations related to the themes of Agriculture and Engineering under NRHP Criteria A and C for a period of significance extending from 1906 until 1942.

4.2.2.1 Elephant Butte Irrigation District

The APE for the Upper Valley Strahan Road water improvement project extends into the Elephant Butte Irrigation District. The nomination, completed in 1997 by David A. Phillips, Jr., provides historical and physical characteristics information for the overall irrigation district. Also included within the nomination is a description of Canutillo Lateral, which bisects the project area. The irrigation district encompasses land in both New Mexico and Texas (16,200 acres in the Rincon Valley and 85,250 acres in the Mesilla Valley). The district contains both historic and modern irrigation features; historic features that are extant include diversion dams and systems and drainage ditches.

The Elephant Butte Irrigation District represents a large-scale effort by the US government to modernize engineering features and consolidate individual irrigation systems in order to create a dependable water

source for Rincon and Mesilla Valley farmers. Beginning in 1906, the U.S. Reclamation Service rebuilt existing irrigation and engineering features, constructed drains to lower the local water table, and oversaw the continued maintenance of the gravity-fed, manually-operated irrigation system. Although features have been replaced since their original construction, the overall historic character of the system is intact. The system is composed of three diversion dams, unlined gravity-fed irrigation canals, laterals, and drains, and hand-operated control features. [31]

The following table provides a list of all primary features related to the Elephant Butte Irrigation District that were evaluated within the APE.

Table 7. Primary features of the NRHP-listed Canutillo Lateral located within the APE.

Resource ID No.	Address		Date Built	PROPERTY TYPE|Subtype Style|Plan Type
1a		Canutillo Lateral	1920-1921, 1925	IRRIGATION SYSTEM | conveyance feature
				Canal | lateral (unlined)
1b		Canutillo Lateral	1920-1921, 1925	IRRIGATION SYSTEM | conveyance feature
				Siphon
1c		Canutillo Lateral	1920-1921, 1925	IRRIGATION SYSTEM | distribution feature
				Gate | head gate
1d		Canutillo Lateral	1920-1921, 1925	IRRIGATION SYSTEM | conveyance feature
				Flume | pipe flume
1e		Canutillo Lateral	1920-1921, 1925	IRRIGATION SYSTEM | conveyance feature
				Siphon
1f		Canutillo Lateral	1920-1921, 1925	IRRIGATION SYSTEM | diversion feature
				Diversion stand
1g		Canutillo Lateral	1920-1921, 1925	IRRIGATION SYSTEM | distribution feature
				Gate | turn-out gate

[31] Phillips, David A., Jr. "Elephant Butte Irrigation District NRHP Registration Form," U.S. Department of the Interior: National Park Service, Washington, D.C. June 12, 1997.

The following table provides a list of all secondary features related to the NRHP-listed Canutillo Lateral located within the APE.

Table 8. Secondary features related to the NRHP-listed Canutillo Lateral located within the APE.

Resource ID No.	Address		Date Built	PROPERTY TYPE|Subtype Style|Plan Type
4a		Strahan Road	-	IRRIGATION SYSTEM | infrastructure
				Drainage ditch
4b		Strahan Road	-	IRRIGATION SYSTEM | distribution feature
				Standpipe
4c		Strahan Road	-	IRRIGATION SYSTEM | conveyance feature
				Culvert | pipe
4d		Strahan Road	-	IRRIGATION SYSTEM | conveyance feature
				Culvert | pipe
4e		Strahan Road	c. 1950	IRRIGATION SYSTEM | diversion feature
				Diversion stand
4f		Strahan Road	c. 1950	IRRIGATION SYSTEM | diversion feature
				Well; pump stand
4g		Strahan Road	c. 1950	IRRIGATION SYSTEM | diversion feature
				Well; pump stand
4h		Strahan Road	-	AGRICULTURE | farmstead: agricultural field (cotton)
5	6450	Strahan Road	c. 1940	AGRICULTURE | farmstead: residence
				Craftsman | bungalow
6a	6450	Strahan Road	c. 1940	AGRICULTURE | farmstead: outbuilding
6b	6450	Strahan Road	c. 1940	AGRICULTURE | farmstead: outbuilding
6c	6450	Strahan Road	c. 1940	AGRICULTURE | farmstead: agricultural field (cotton)
7a	6487	Strahan Road	1947	AGRICULTURE | farmstead: residence
7b	6487	Strahan Road	1947	AGRICULTURE | farmstead: secondary residence
7c	6487	Strahan Road	c. 1950	AGRICULTURE | farmstead: outbuilding

Resource ID No.	Address		Date Built	PROPERTY TYPE|Subtype Style|Plan Type
7d	6487	Strahan Road	c. 1950	AGRICULTURE | farmstead: outbuilding
7e	6487	Strahan Road	c. 1950	AGRICULTURE | farmstead: outbuilding
7f	6487	Strahan Road	c. 1950	AGRICULTURE | farmstead: outbuilding
				Quonset hut
7g	6487	Strahan Road	-	AGRICULTURE | farmstead: agricultural field (cotton)
8a		Strahan Road	-	IRRIGATION SYSTEM | infrastructure
				Drainage ditch (unlined)
8b		Strahan Road	-	IRRIGATION SYSTEM | diversion feature
				Diversion stand
8c		Strahan Road	-	IRRIGATION SYSTEM | conveyance feature
				Culvert | pipe
8d		Strahan Road	-	IRRIGATION SYSTEM | conveyance feature
				Culvert | pipe
8e		Strahan Road		AGRICULTURE | farmstead: agricultural field (cotton)
10a		Strahan Road	-	IRRIGATION SYSTEM | infrastructure
				Drainage ditch (unlined)
10b		Strahan Road	-	IRRIGATION SYSTEM | infrastructure
				Drainage ditch (unlined)
10c		Strahan Road	-	IRRIGATION SYSTEM | infrastructure
				Drainage ditch (unlined)
10d		Strahan Road	-	IRRIGATION SYSTEM | conveyance feature
				Culvert | pipe
10e		Strahan Road		AGRICULTURE | farmstead: agricultural field (cotton)
11a		Moore Road	c. 1950	IRRIGATION SYSTEM | infrastructure
				Drainage ditch (lined)
11b		Moore Road	c. 1950	IRRIGATION SYSTEM | distribution feature
				Gate | turn-out gate
11c		Moore Road		AGRICULTURE | farmstead: agricultural field (cotton)
12a		Strahan Road	c. 1950	IRRIGATION SYSTEM | infrastructure
				Drainage ditch (lined)

Resource ID No.	Address		Date Built	PROPERTY TYPE|Subtype Style|Plan Type
12b		Strahan Road		AGRICULTURE | farmstead: agricultural field (cotton)
13a		Strahan Road	-	IRRIGATION SYSTEM | infrastructure
				Drainage ditch (lined)
13b		Strahan Road	-	IRRIGATION SYSTEM | distribution feature
				Gate | turn-out gate
13c		Strahan Road	-	IRRIGATION SYSTEM | infrastructure
				Drainage ditch (unlined)
13d		Strahan Road	-	IRRIGATION SYSTEM | conveyance feature
				Culvert | pipe
13e		Strahan Road	-	IRRIGATION SYSTEM | conveyance feature
				Culvert | pipe
13f		Strahan Road	-	AGRICULTURE | farmstead: agricultural field (fallow)
13g		Strahan Road	-	AGRICULTURE | farmstead: agricultural field (fallow)

4.2.3 Properties eligible for the NRHP

As illustrated in Figures 2-5, the field survey identified a large number of historic-age resources within the project study area. All historic-age resources are located within the Elephant Butte Irrigation District. The majority of the historic-age resources within the project APE retain their architectural integrity to a good degree.

4.2.3.1 Resource ID Nos. 5 and 6 – 6450 Strahan Road

Most historic-age resources located north Borderland Road, south of the Canutillo Lateral crossing and east of Strahan Road are associated with an 80-acre agricultural farm developed by Nicolas Abraham beginning in 1939. Now divided into two properties encompassing a total of 60 acres, Resource ID Nos. 5 and 6 represent a large-scale agricultural farm that utilized innovative practices to remain competitive and expand into larger markets during the historic period. The property is directly related to the Elephant Butte Irrigation District since the farm depended on irrigation waters from the adjacent Canutillo Lateral.

Three historic-age built structures remain on the property. Resource ID No. 5 is a small, c. 1940 Craftsman bungalow that features a rubble-pattern sandstone exterior under a twin-gabled roof at the front façade. The main roof is pyramidal and is set back from the two front gables. An integral side porch features an arched sandstone entrance. It appears the primary window on the front façade has been replaced, although other fenestration appears to be original. The house is set back from Strahan Road and a large gravel drive leads to a parking area north of the house. Mature trees surround the property and fallow agricultural fields are located to the north.

Resource ID No. 6 includes two agricultural storage buildings and the surrounding agricultural fields. The buildings are set back from Strahan Road and surrounded by mature trees. A fallow agricultural field is located west and south of the two buildings, while active cotton fields are located to the north. Vegetation prevented a close examination of the buildings, but Resource ID No. 6a appears to be a stone or concrete block building with a side-gabled metal roof. Resource ID No. 6b appears to be primarily sheathed in metal with a hipped metal roof.

Resource ID Nos. 5 and 6 represent a large-scale agricultural operation within the Upper Valley during a period from 1939 until 1972 (period of ownership by the Nicolas Abraham family). The extant built resources retain sufficient integrity of materials, design, and workmanship to convey a sense of their historical association with the Abraham Borderland Ranch. The majority of the agricultural fields are still farmed and irrigated using waters from the Canutillo Lateral and therefore, integrity of setting, feeling and association are retained. Resource ID Nos. 5 and 6 are recommended eligible to the NRHP under Criterion A under Agriculture at a local level of significance.

4.2.3.2 Resource ID Nos. 4 and 7 – 6487 Strahan Road

Most historic-age resources located north Borderland Road, south of the Canutillo Lateral crossing and west of Strahan Road are associated with a 134-acre agricultural farm developed by Chester L. Ezell beginning in 1929. The land and its built resources are still owned and managed by descendants of Chester L. and Ida M. Ezell. Mr. Ezell, a former vice president of the failed National Border Bank, purchased the farm from Joseph A. Chipps in 1929. Over the next 40 years, Ezell improved the land (which he noted was overgrown with Johnson grass at the time of his purchase) and implemented many innovative agricultural practices including crop rotation, mechanical equipment, and well-water irrigation systems. In contrast to the surrounding farms, the Ezell farm operated primarily on irrigation from underground pipelines instead of above ground irrigation ditches.

Resource ID No. 4 represents the irrigation-related resources of the Ezell farm. They include features such as above ground ditches, underground pipelines, standpipes, wells, and pump houses. Most resources date from the operation of the farm from 1929 until the time of Ezell's death in 1970. The resources are intact and still in use for modern farm operations. However, some of the underground pipes were exposed and exhibited signs of deterioration. Therefore, integrity of design, material, and workmanship is maintained to a good degree for all resources evaluated as part of Resource ID No. 4.

Resource ID No. 7 encompasses the Ezell farmstead and surrounding agricultural fields. The complex of built structures is located just outside the APE, but the property boundaries extend into the APE and therefore were evaluated as part of the current survey efforts. The main residence, Resource ID No. 7a is a two-story brick building with a green, clay tile roof. The side-gabled roof features two shed-roof dormers along the front façade. A one-story, screened porch extends across the front façade to the two-story front-gabled wing. The residence is set back from Strahan Road and surrounded by mature trees and agricultural fields. Observation of exterior architectural details was limited due to the distance of the building from the ROW. It does appear that the building retains its integrity of design, materials, and workmanship to a high degree. A smaller, one-story secondary residence (Resource ID No. 7b) is located northwest of the main house. The building is similar in design and construction to the main house. Additional outbuildings include a series of storage buildings and garages, including one Quonset hut at the rear of the site (Resource ID No. 7f).

Resource ID Nos. 4 and 7 represent a large-scale agricultural operation within the Upper Valley during a period from 1929 until 1970 (period of ownership by Chester L. Ezell). The extant built resources retain sufficient integrity of materials, design, and workmanship to convey a sense of their historical association with the Ezell farm. It appears that all of the original agricultural fields are still farmed and irrigated using waters from wells installed in the 1950s and therefore, integrity of setting, feeling and association are retained. Resource ID Nos. 4 and 7 are recommended eligible to the NRHP under Criterion A under Agriculture at a local level of significance. Resource ID No. 4 is also recommended NRHP-eligible under Criterion C under Engineering at a local level of significance.

4.2.3.3 Resource ID No. 18 – Canutillo Booster Pumping Station at Bosque Road

The remaining resource, while associated with a significant water storage and distribution program initiated for the city of El Paso in the 1950s, represents only a small portion of a much larger infrastructural system and therefore cannot be evaluated for NRHP eligibility in terms of historical significance within the limited scope of the current project. However, the building itself is noteworthy for its strong architectural elements commonly associated with the Art Moderne movement. The main, seven-bay central block features an emphasis on the horizontal with engaged pilasters, corbelled at the parapet roof and capped by a cast concrete coping. A continuous, cast concrete sill creates a strong horizontal line around the building, interrupted only by the engaged pilasters and doors. Screens cover all windows, but glass block is visible through the screens at some locations. The southwest corner of the building is rounded with a curved glass block window set within. Side wings echo the horizontal line of the cast concrete sill with alternating lines of protruding brick, set at every sixth course. A soldier course frames all window headers and continue the horizontal emphasis at the side wings. Both wings also feature a cast concrete coping at the parapet.

The building retains integrity of original design, materials, and workmanship to a high degree and represents a good and rare example of the Art Moderne style used for utilitarian facilities in the El Paso area. The Mesa Water Booster Station, near Fort Bliss, offers another example of the Art Moderne style used as part of an EPWU water facility building. Officially termed as "Pueblo Deco," the building was designed in 1938 by city water department superintendent, Ashley Green Classen. Although the design of the Mesa Water Booster Station building incorporates more stylized elements attributed to a combination of the Art Deco and Pueblo Revival styles, it serves as a good comparison of relative architectural significance for the Canutillo Booster Pumping Station building. The Mesa Booster Station was designated a Recorded Texas Historic Landmark in 2009, although the overall setting, feeling and association of this building was affected by the construction of the overhead lanes of SH Spur 601 – Liberty Expressway that same year.[32]

Resource No. 18 is located on its original site and is still operated as part of the Canutillo Booster Pumping Station, therefore it also retains its integrity of setting, feeling, and association to a good degree. Combined with its high degree of integrity of design, materials, and workmanship, the building is able to convey its architectural significance. Therefore, Resource ID No. 18 is recommended NRHP-eligible under NRHP Criterion C – Architecture at a local level of significance.

[32] Texas Historical Commission staff, "Mesa Water Boosting Station," Recorded Texas Historic Landmark marker application form, December 29, 2009.

4.3 DETERMINATIONS OF EFFECT

The proposed water main installation project will be constructed in two phases along Borderland, Strahan, and Bosque Roads near Canutillo. The first phase will involve the installation of over 12,000 linear feet of pipeline from the Rio Grande Bridge at East Borderland Road to Strahan Road, and from Strahan Road north to Brianna Court. Phase II will include the installation of approximately 3,700 linear feet of a 36-inch water main along Strahan Road from Brianna Court to Canutillo La Union Avenue, and from Canutillo La Union Avenue along Bosque Road to Cayuse Drive. The total length of the proposed project (Phases I and II) is approximately 3.0 miles, with a proposed construction corridor width of 30 feet. Refer to Appendix A for project schematic drawings.

The project extends through the Elephant Butte Irrigation District, although not all resources located within the project area are directly related to the NRHP-listed historic district. The project area includes primarily agricultural properties, a late 1970s-early 1980s trailer park, modern suburban residential development, elementary (1992) and middle school (1974) campuses, and a large city water utilities booster pumping station (ca. 1955).

Direct Impact: The proposed water main installation will be constructed within existing 65'-0" ROW on W. Borderland Road from the Rio Grande Bridge to Strahan Road and will replace an abandoned 36" line. The new pipeline will be installed 9'-0" below the bottom of the lateral at the point where the new water main crosses the NRHP-listed Canutillo Lateral (Project Schematics, Sheet C-1).

The proposed water main installation will be constructed within the existing 60'-0" ROW on Strahan Road from W. Borderland Road to XXX, approximately 5'-0" below the existing ground elevation, and will replace an existing 36" line (Project Schematics, Sheets C-2 to C-X). Where the water main crosses the Canutillo Lateral, a minimum 3'-0" clearance will be maintained from the bottom of the lateral to the top of the steel casing housing the pipeline (Project Schematics, Sheet C-4).

Since the proposed water main installation will involve ground disturbing activities, there is a potential to impact historic properties. However, at locations of the Canutillo Lateral, project schematics indicated the pipeline will be installed by jack and bore – a method of horizontal boring that will not disturb the surface between drilling points on either side of the lateral. The 36" pipeline replaces an abandoned pipeline of the same dimension below the existing roadways. Construction activities undertaken during the installation of the pipeline, will be conducted within existing ROW and therefore should minimize impact to features of the irrigation systems adjacent to Strahan Road. Therefore, the proposed project does not represent a direct impact to historic properties within the project APE.

Visual Impact: The proposed water main installation will be constructed underground along Borderland, Strahan, and Bosque Roads near Canutillo. No features of the water main will be located above ground, therefore, the project does not represent a visual impact to historic properties within the project APE.

4.4 CONSULTING PARTIES/PUBLIC NOTIFICATION

The proposed housing project (the "undertaking") has the potential to affect historic properties and as a result, must comply with the requirements of Section 106. As part of the Section 106 process, EPWU must provide the public with information regarding the project and provide an opportunity for the public to comment on the proposed undertaking. The following consulting parties include individuals and organizations with an interest in projects within the project study area.

El Paso County Historical Commission
Bernie Sargent, Chair
5326 Rockwood Rd.
El Paso, TX 79932
915-581-7920
countyhistory@sbcglobal.net

City of El Paso Historic Preservation Office
Provi Velazquez, Historic Preservation Officer
300 N. Campbell
El Paso, TX 79901
915-212-1567
velazquezpx@elpasotexas.gov

Canutillo Independent School District
7965 Artcraft
El Paso, TX 79932
915-877-7401
lleos@canutillo-isd.org

Once actions have been taken to notify the public of the proposed undertaking, a summary of any consultation and comments received will be incorporated into this report and provided as part of Section 106 consultation with SHPO.

5 REFERENCES CITED

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5.2 SECONDARY SOURCES

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APPENDIX E

TPWD TXNDD ELEMENTAL OCCURRENCE RECORDS

Element Occurrence Record

Scientific Name: Agave lechuguilla-dasylirion leiophyllum series
Occurrence #: 4 **Eo Id:** 764
Track Status: Track all extant and selected historical EOs
Common Name: Lechuguilla-sotol Series
TX Protection Status:
Global Rank: G4 **State Rank:** S4
Federal Status:

Location Information:

Directions:

LIMESTONE/SANDSTONE SLOPES, NORTHWEST END OF McKELLIGAN CANYON, SOUTH OF SOUTH FRANKLIN MOUNTAIN, EAST SIDE OF FRANKLIN MOUNTAINS SP

Survey Information:

First Observation: **Survey Date:** 1989-11-02 **Last Observation:** 1989-11-02
Eo Type: **Eo Rank:** B **Eo Rank Date:** 1989-11-02
Observed Area:

Comments:

General Description:

Comments:

Protection Comments:

Management Comments:

Data:

EO Data: DESCRIPTION AND PLANT LIST IN DLI REPORT, SITE 14

Reference:

Citation:

TEXAS PARKS & WILDLIFE DEPARTMENT. 1990. FRANKLIN MOUNTAINS STATE PARK. SUMMARY OF REPRESENTATIVE PLANT COMMUNITIES.

Specimen:

Element Occurrence Record

Scientific Name: Agave lechuguilla-dasylirion leiophyllum series
Occurrence #: 5 **Eo Id:** 6196
Track Status: Track all extant and selected historical EOs
Common Name: Lechuguilla-sotol Series
TX Protection Status:
Global Rank: G4 **State Rank:** S4
Federal Status:

Location Information:

Directions:

LIMESTONE SLOPES, MOSTLY SOUTH-FACING, MOSTLY ON NORTH SIDE OF VINTON CANYON, WEST SIDE OF FRANKLIN MOUNTAINS, FRANKLIN MOUNTAINS SP

Survey Information:

First Observation: **Survey Date:** 1989-11-02 **Last Observation:** 1989-11-02
Eo Type: **Eo Rank:** B **Eo Rank Date:** 1989-11-02
Observed Area:

Comments:

General Description:

Comments:

Protection Comments:

Management Comments:

Data:

EO Data: DESCRIPTION AND PLANT LIST IN DLI REPORT, SITE 3

Reference:

Citation:

TEXAS PARKS & WILDLIFE DEPARTMENT. 1990. FRANKLIN MOUNTAINS STATE PARK. SUMMARY OF REPRESENTATIVE PLANT COMMUNITIES.

Specimen:

Element Occurrence Record

Scientific Name: Agave lechuguilla-dasylirion leiophyllum series
Occurrence #: 6 **Eo Id:** 2585
Track Status: Track all extant and selected historical EOs
Common Name: Lechuguilla-sotol Series
TX Protection Status:
Global Rank: G4 **State Rank:** S4
Federal Status:

Location Information:

Directions:
LOWER LIMESTONE SLOPES, SOUTH SIDE OF HITT CANYON AREA, FRANKLIN MOUNTAINS SP

Survey Information:

First Observation: **Survey Date:** 1990-05-22 **Last Observation:** 1990
Eo Type: **Eo Rank:** B **Eo Rank Date:** 1990-05-22
Observed Area:

Comments:

General Description:

Comments:

Protection Comments:

Management Comments:

Data:

EO Data: DESCRIPTION AND PLANT LIST IN DLI REPORT, SITE 17

Reference:

Citation:

TEXAS PARKS & WILDLIFE DEPARTMENT. 1990. FRANKLIN MOUNTAINS STATE PARK. SUMMARY OF REPRESENTATIVE PLANT COMMUNITIES.

Specimen:

Element Occurrence Record

Scientific Name: Agave lechuguilla-dasylirion leiophyllum series
Occurrence #: 10 **Eo Id:** 3422
Common Name: Lechuguilla-sotol Series
Track Status: Track all extant and selected historical EOs
TX Protection Status:
Global Rank: G4 **State Rank:** S4
Federal Status:

Location Information:

Directions:
ROUNDED LIMESTONE HILLS, WEST SIDE OF OLD TOM MAYS PARK, NOW IN FRANKLIN MOUNTAINS SP

Survey Information:

First Observation: **Survey Date:** 1990-05-24 **Last Observation:** 1990
Eo Type: **Eo Rank:** B **Eo Rank Date:** 1990-05-24
Observed Area:

Comments:

General Description:

Comments:

Protection Comments:

Management Comments:

Data:

EO Data: DESCRIPTION AND PLANT LIST IN DLI REPORT, SITE 9

Reference:

Citation:

TEXAS PARKS & WILDLIFE DEPARTMENT. 1990. FRANKLIN MOUNTAINS STATE PARK. SUMMARY OF REPRESENTATIVE PLANT COMMUNITIES.

Specimen:

Element Occurrence Record

Scientific Name: Allolepis texana
Occurrence #: 3 **Eo Id:** 784
Track Status: Track all extant and selected historical EOs
Common Name: Texas false saltgrass
TX Protection Status:
Global Rank: G2 **State Rank:** S1
Federal Status:

Location Information:

Directions:
Along the Rio Grande about 4 miles above El Paso.

Survey Information:

First Observation: **Survey Date:** **Last Observation:** 1948-05-31
Eo Type: **Eo Rank:** H **Eo Rank Date:** 2006-12-07
Observed Area:

Comments:

General Description: IN ALKALINE SOIL

Comments:

Protection Comments:

Management Comments:

Data:

EO Data: "COMMON"

Reference:

Citation:

WARNOCK, B.H. (7804). 1948. SPECIMEN # ? LL, TEX.

Specimen:

UNIVERSITY OF TEXAS AT AUSTIN HERBARIUM. 1948. B.H. WARNOCK #7804, SPECIMEN # ? TEX-LL. 31 MAY 1948.

WARNOCK, B.H. (7804). 1948. SPECIMEN # ? LL, TEX. (S48WARTXTXUS)

Element Occurrence Record

Scientific Name: Bouteloua curtipendula-bouteloua eriopoda series

Occurrence #: 3 **Eo Id:** 4116

Common Name: Sideoats Grama-black Grama Series

Track Status: Track all extant and selected historical EOs

TX Protection Status:

Global Rank: G4 **State Rank:** S3

Federal Status:

Location Information:

Directions:

EAST SIDE OF FRANKLIN MOUNTAINS STATE PARK, 3 MILES DUE NORTHWEST OF EL PASO

Survey Information:

First Observation: **Survey Date:** **Last Observation:**

Eo Type: **Eo Rank:** B **Eo Rank Date:**

Observed Area: 4,500.00

Comments:

General Description: SUCCULENT DESERT (LECHUGUILLA, SOTOL, YUCCA) SPECIES INTERMIXED WITH GRAMA GRASSLAND; GOOD QUALITY

Comments:

Protection Comments:

Management Comments:

Data:

EO Data:

Reference:

Citation:

RISKIND, DAVID, PH.D. TEXAS PARKS AND WILDLIFE DEPARTMENT 4200 SMITH SCHOOL ROAD AUSTIN, TEXAS 78744 PH-512/479-4897 (WORK)

Specimen:

Element Occurrence Record

Scientific Name: Bouteloua curtipendula-bouteloua eriopoda series

Occurrence #: 17 **Eo Id:** 3645

Common Name: Sideoats Grama-black Grama Series

Track Status: Track all extant and selected historical EOs

TX Protection Status:

Global Rank: G4 **State Rank:** S3

Federal Status:

Location Information:

Directions:

IGNEOUS AND CALCAREOUS SEDIMENTARY LOWER SLOPES, BOTH SIDES OF UPPER FUSSELMAN CANYON, SOUTH OF LOOP 375, FRANKLIN MOUNTAINS SP

Survey Information:

First Observation: **Survey Date:** 1989-10-31 **Last Observation:** 1989-11-01

Eo Type: **Eo Rank:** B **Eo Rank Date:** 1989-10-31

Observed Area:

Comments:

General Description:

Comments:

Protection Comments:

Management Comments:

Data:

EO Data: DESCRIPTION AND PLANT LIST IN DLI REPORT, SITE 12

Reference:

Citation:

TEXAS PARKS & WILDLIFE DEPARTMENT. 1990. FRANKLIN MOUNTAINS STATE PARK. SUMMARY OF REPRESENTATIVE PLANT COMMUNITIES.

Specimen:

Element Occurrence Record

Scientific Name: Bouteloua curtipendula-bouteloua eriopoda series

Occurrence #: 18 **Eo Id:** 5131

Common Name: Sideoats Grama-black Grama Series

Track Status: Track all extant and selected historical EOs

TX Protection Status:

Global Rank: G4 **State Rank:** S3

Federal Status:

Location Information:

Directions:

GRAVELLY TO ROCKY IGNEOUS SLOPES, SOUTH SIDE OF MOUTH OF WEST COTTONWOOD SPRINGS CANYON IN TOM MAYS PARK AREA, FRANKLIN MOUNTAINS SP

Survey Information:

First Observation: **Survey Date:** 1989-11-01 **Last Observation:** 1989

Eo Type: **Eo Rank:** AB **Eo Rank Date:** 1989-11-01

Observed Area:

Comments:

General Description:

Comments:

Protection Comments:

Management Comments:

Data:

EO Data: DESCRIPTION AND PLANT LIST IN DLI REPORT, SITE 5

Reference:

Citation:

TEXAS PARKS & WILDLIFE DEPARTMENT. 1990. FRANKLIN MOUNTAINS STATE PARK. SUMMARY OF REPRESENTATIVE PLANT COMMUNITIES.

Specimen:

Element Occurrence Record

Scientific Name: Brickellia baccharidea
Occurrence #: 1 **Eo Id:** 7203
Common Name: resin-leaf brickellbush
Track Status: Track all extant and selected historical EOs
TX Protection Status:
Global Rank: G3 **State Rank:** S1
Federal Status:

Location Information:

Directions:

UPPER END OF MCKELLIGON CANYON, FRANKLIN MOUNTAINS; CA 1500 FEET NORTHWEST OF CIRCLE AT NORTHWEST END OF ROAD IN CANYON

Survey Information:

First Observation: 1931-10-28 **Survey Date:** **Last Observation:** 1989-11-02
Eo Type: **Eo Rank:** **Eo Rank Date:**
Observed Area:

Comments:

General Description: DRY LIMESTONE OUTCROPS AND TALUS; ALSO IN WASHES (PER WEEDIN 915)

Comments:

Protection Comments:

Management Comments:

Data:

EO Data: IN FLOWER AND FRUIT; 15 OCTOBER 1977 CONSIDERED COMMON BY WEEDIN, AND 2 NOVEMBER 1989 CONSIDERED FREQUENT BY CARR

Reference:

Citation:

WEEDIN, J. F. (915). 1977. SPECIMEN # NONE TX.

Specimen:

UNIVERSITY OF TEXAS AT AUSTIN, LUNDELL HERBARIUM. 1977. J.F. WEEDIN #915. SPECIMEN # NONE TEX-LL. 15 OCTOBER 1977.

UNIVERSITY OF TEXAS AT AUSTIN, LUNDELL HERBARIUM. 1989. W.R. CARR #10273 AND P. MCNEAL, SPECIMEN # NONE TEX-LL. 2 NOVEMBER 1989.

Southern Methodist University Herbarium. 1931. E. Whitehouse #10185, Specimen # none SMU. 28 October 1931.

Sul Ross State University Herbarium. 1977. J.F. Weedin #915, Specimen # none SR. 15 October 1977.

WEEDIN, J. F. (915). 1977. SPECIMEN # NONE TX. (S77WEETXTXUS)

[S31WHISMTXUS]

Element Occurrence Record

Scientific Name: Brickellia baccharidea
Occurrence #: 2 **Eo Id:** 1018
Track Status: Track all extant and selected historical EOs
Common Name: resin-leaf brickellbush
TX Protection Status:
Global Rank: G3 **State Rank:** S1
Federal Status:

Location Information:

Directions:

FRANKLIN MOUNTAINS, 1.1 MILE WEST OF THE JUNCTION OF GATEWAY SOUTH AND TRANS-MOUNTAIN ROAD, AND 1.2 MILE WEST OF THE JUNCTION OF WAR AND TRANS-MOUNTAIN ROAD

Survey Information:

First Observation: 1977-11-20 **Survey Date:** **Last Observation:** 1978-11-12
Eo Type: **Eo Rank:** **Eo Rank Date:**
Observed Area:

Comments:

General Description: SOUTH EXPOSURE AMONG RHYOLITE BOULDERS AND GRANITE ROCKS

Comments:

Protection Comments:

Management Comments:

Data:

EO Data: IN FLOWER AND FRUIT

Reference:

Citation:

WORTHINGTON, R.D. (3810). 1978. SPECIMEN # NONE SR.

Specimen:

Sul Ross State University Herbarium. 1978. R.D. Worthington #3810, Specimen # none SR. 12 November 1978.

Sul Ross State University Herbarium. 1977. R.D. Worthington (s.n.), Specimen # none SR. 20 November 1977.

Sul Ross State University Herbarium. 1978. R.D. Worthington #3731, 3732, Specimen # none SR. 14 October 1978.

WORTHINGTON, R. D. (3810). 1978. SPECIMEN # NONE SR. (S78WORSRTXUS)

[S77WORSRTXUS]

Element Occurrence Record

Scientific Name: Brickellia baccharidea
Occurrence #: 3 **Eo Id:** 7183
Track Status: Track all extant and selected historical EOs
Common Name: resin-leaf brickellbush
TX Protection Status:
Global Rank: G3 **State Rank:** S1
Federal Status:

Location Information:

Directions:
WEST SIDE OF FRANKLIN MOUNTAINS NEAR CORONADO GOLF COURSE

Survey Information:

First Observation: **Survey Date:** **Last Observation:** 198-
Eo Type: **Eo Rank:** **Eo Rank Date:**
Observed Area:

Comments:

General Description:

Comments: VISIT UTEP AND GET LABEL INFORMATION; LOCATION FROM DOT MAP SUPPLIED BY WORTHINGTON

Protection Comments:

Management Comments:

Data:

EO Data:

Reference:

Citation:

WORTHINGTON, R.D. 198?. PERSONAL COMMUNICATION TO JACKIE POOLE RE: SPECIMENS OF SPECIAL PLANTS IN UTEP HERBARIUM.

WORTHINGTON, R.D. 198-. PERSONAL COMMUNICATION TO JACKIE POOLE RE: SPECIAL PLANT SPECIMENS IN UTEP HERBARIUM.

Specimen:

Element Occurrence Record

Scientific Name: Brickellia baccharidea
Occurrence #: 4 **Eo Id:** 5835
Common Name: resin-leaf brickellbush
Track Status: Track all extant and selected historical EOs
TX Protection Status:
Global Rank: G3 **State Rank:** S1
Federal Status:

Location Information:

Directions:
WEST SIDE OF FRANKLIN MOUNTAINS NEAR CORONADO GOLF COURSE

Survey Information:

First Observation: **Survey Date:** **Last Observation:** 198-
Eo Type: **Eo Rank:** **Eo Rank Date:**
Observed Area:

Comments:

General Description:

Comments: VISIT UTEP AND GET LABEL INFORMATION; LOCATION FROM DOT MAP SUPPLIED BY WORTHINGTON

Protection Comments:

Management Comments:

Data:

EO Data:

Reference:

Citation:

WORTHINGTON, R.D. 198?. PERSONAL COMMUNICATION TO JACKIE POOLE RE: SPECIMENS OF SPECIAL PLANTS IN UTEP HERBARIUM.

WORTHINGTON, R.D. 198-. PERSONAL COMMUNICATION TO JACKIE POOLE RE: SPECIAL PLANT SPECIMENS IN UTEP HERBARIUM.

Specimen:

Element Occurrence Record

Scientific Name: Brickellia baccharidea
Occurrence #: 5 **Eo Id:** 2177
Common Name: resin-leaf brickellbush
Track Status: Track all extant and selected historical EOs
TX Protection Status:
Global Rank: G3 **State Rank:** S1
Federal Status:

Location Information:

Directions:
WEST SIDE OF FRANKLIN MOUNTAINS NEAR CRAZYCAT MOUNTAIN

Survey Information:

First Observation: **Survey Date:** **Last Observation:** 198?
Eo Type: **Eo Rank:** **Eo Rank Date:**
Observed Area:

Comments:

General Description:

Comments: VISIT UTEP AND GET LABEL INFORMATION; LOCATION FROM DOT MAP SUPPLIED BY WORTHINGTON

Protection Comments:

Management Comments:

Data:

EO Data:

Reference:

Citation:

WORTHINGTON, R.D. 198?. PERSONAL COMMUNICATION TO JACKIE POOLE RE: SPECIMENS OF SPECIAL PLANTS IN UTEP HERBARIUM.

WORTHINGTON, R.D. 198-. PERSONAL COMMUNICATION TO JACKIE POOLE RE: SPECIAL PLANT SPECIMENS IN UTEP HERBARIUM.

Specimen:

Element Occurrence Record

Scientific Name: Brickellia baccharidea
Occurrence #: 6 **Eo Id:** 4404
Common Name: resin-leaf brickellbush
Track Status: Track all extant and selected historical EOs
TX Protection Status:
Global Rank: G3 **State Rank:** S1
Federal Status:

Location Information:

Directions:
WEST SIDE OF FRANKLIN MOUNTAINS NEAR FLAG HILL

Survey Information:

First Observation: **Survey Date:** **Last Observation:** 198?
Eo Type: **Eo Rank:** **Eo Rank Date:**
Observed Area:

Comments:

General Description:

Comments: VISIT UTEP AND GET LABEL INFORMATION; LOCATION FROM DOT MAP SUPPLIED BY WORTHINGTON

Protection Comments:

Management Comments:

Data:

EO Data:

Reference:

Citation:

WORTHINGTON, R.D. 198?. PERSONAL COMMUNICATION TO JACKIE POOLE RE: SPECIMENS OF SPECIAL PLANTS IN UTEP HERBARIUM.

WORTHINGTON, R.D. 198-. PERSONAL COMMUNICATION TO JACKIE POOLE RE: SPECIAL PLANT SPECIMENS IN UTEP HERBARIUM.

Specimen:

Element Occurrence Record

Scientific Name: Brickellia baccharidea
Occurrence #: 7 **Eo Id:** 1474
Common Name: resin-leaf brickellbush
Track Status: Track all extant and selected historical EOs
TX Protection Status:
Global Rank: G3 **State Rank:** S1
Federal Status:

Location Information:

Directions:
EAST SIDE OF FRANKLIN MOUNTAINS NEAR RANGER PEAK

Survey Information:

First Observation: **Survey Date:** **Last Observation:** 198?
Eo Type: **Eo Rank:** **Eo Rank Date:**
Observed Area:

Comments:

General Description:

Comments: VISIT UTEP AND GET LABEL INFORMATION; LOCATION FROM DOT MAP SUPPLIED BY WORTHINGTON

Protection Comments:

Management Comments:

Data:

EO Data:

Reference:

Citation:

WORTHINGTON, R.D. 198?. PERSONAL COMMUNICATION TO JACKIE POOLE RE: SPECIMENS OF SPECIAL PLANTS IN UTEP HERBARIUM.

WORTHINGTON, R.D. 198-. PERSONAL COMMUNICATION TO JACKIE POOLE RE: SPECIAL PLANT SPECIMENS IN UTEP HERBARIUM.

Specimen:

Element Occurrence Record

Scientific Name: Brickellia baccharidea
Occurrence #: 8 **Eo Id:** 8140
Common Name: resin-leaf brickellbush
Track Status: Track all extant and selected historical EOs
TX Protection Status:
Global Rank: G3 **State Rank:** S1
Federal Status:

Location Information:

Directions:
EAST SIDE OF FRANKLIN MOUNTAINS NEAR MOUNTAIN DRIVE

Survey Information:

First Observation: **Survey Date:** **Last Observation:** 198?
Eo Type: **Eo Rank:** **Eo Rank Date:**
Observed Area:

Comments:

General Description:

Comments: VISIT UTEP AND GET LABEL INFORMATION; LOCATION FROM DOT MAP SUPPLIED BY WORTHINGTON

Protection Comments:

Management Comments:

Data:

EO Data:

Reference:

Citation:

WORTHINGTON, R.D. 198?. PERSONAL COMMUNICATION TO JACKIE POOLE RE: SPECIMENS OF SPECIAL PLANTS IN UTEP HERBARIUM.

WORTHINGTON, R.D. 198-. PERSONAL COMMUNICATION TO JACKIE POOLE RE: SPECIAL PLANT SPECIMENS IN UTEP HERBARIUM.

Specimen:

Element Occurrence Record

Scientific Name: Brickellia parvula
Occurrence #: 1 **Eo Id:** 10425
Track Status: Track all extant and selected historical EOs
Common Name: Mt. Davis brickellbush
TX Protection Status:
Global Rank: G3 **State Rank:** S1
Federal Status:

Location Information:

Directions:

On mountains above McKelligon Canyon, Franklin Mountains.

Survey Information:

First Observation: **Survey Date:** **Last Observation:** 1952-10-16
Eo Type: **Eo Rank:** U **Eo Rank Date:** 2006-12-12
Observed Area:

Comments:

General Description: Rock ledges.

Comments: Complete specimen citation: On mountains above McKelligon Canyon, Franklin Mts., rock ledges, 16 Oct. 1952, D.S. Correll 15082 (TEX-LL). NOTE: On 10 Aug. 2000, SRSC had tons of specimens from the Franklin Mountains of El Paso County, but time did not allow transcription.

Protection Comments:

Management Comments:

Data:

EO Data:

Reference:

Citation:

Correll, D.S. (15082). 1952. Specimen No. none. TEX-LL.

Specimen:

Correll, D.S. (15082). 1952. Specimen No. none. TEX-LL. (S52CORTXTXUS)

Element Occurrence Record

Scientific Name: Brickellia parvula
Occurrence #: 3 **Eo Id:** 10160
Track Status: Track all extant and selected historical EOs
Common Name: Mt. Davis brickellbush
TX Protection Status:
Global Rank: G3 **State Rank:** S1
Federal Status:

Location Information:

Directions:

Franklin Mountains, 0.3 airmiles NW of top of South Franklin Mountain.

Survey Information:

First Observation: **Survey Date:** **Last Observation:** 1983-10-16

Eo Type: **Eo Rank:** **Eo Rank Date:**

Observed Area:

Comments:

General Description: Rocky canyon.

Comments: complete specimen citation: Franklin Mountains, 0.3 airmiles NW of top of South Franklin Mountain, ca. 6000 ft. elev., rocky canyon, 16 Oct. 1983, R.D. worthington 11565 (BRIT/SMU).

Protection Comments:

Management Comments:

Data:

EO Data:

Reference:

Citation:

Worthington, R.D. (11565). 1983. Specimen No. none. BRIT/SMU.

Specimen:

Worthington, R.D. (11565). 1983. Specimen No. none. BRIT/SMU. (S83WORSMTXUS)

Element Occurrence Record

Scientific Name: Cryptantha paysonii
Occurrence #: 1 **Eo Id:** 7155
Track Status: Track all extant and selected historical EOs
Common Name: Payson's hiddenflower
TX Protection Status:
Global Rank: G3 **State Rank:** S1
Federal Status:

Location Information:

Directions:
FRANKLIN MOUNTAINS, 4900 FEET

Survey Information:

First Observation: **Survey Date:** **Last Observation:** 198?-03-22
Eo Type: **Eo Rank:** **Eo Rank Date:**
Observed Area:

Comments:

General Description:

Comments: LOCATION FROM DOT MAP SUPPLIED BY WORTHINGTON

Protection Comments:

Management Comments:

Data:

EO Data: IN FLOWER MARCH 22

Reference:

Citation:

WORTHINGTON, R.D. (2372). 198?. SPECIMEN #2372, UNIVERSITY OF TEXAS AT EL PASO.

Specimen:

University of Texas at El Paso Herbarium. 198?. R.D. Worthington #2372, Specimen # 3204 UTEP. 22 March 198?.

WORTHINGTON, R.D. (2372). 198?. SPECIMEN #2372, UNIVERSITY OF TEXAS AT EL PASO. (S8?WOREPTXUS)

Element Occurrence Record

Scientific Name: Escobaria dasyacantha var. dasyacantha
Occurrence #: 7 **Eo Id:** 4556
Track Status: Track all extant and selected historical EOs
Common Name: dense cory cactus
TX Protection Status:
Global Rank: G3T3 **State Rank:** S3
Federal Status:

Location Information:

Directions:
FRANKLIN MOUNTAINS

Survey Information:

First Observation: **Survey Date:** **Last Observation:** 1921-05-28
Eo Type: **Eo Rank:** H **Eo Rank Date:** 2006-12-07
Observed Area:

Comments:

General Description:

Comments: J.N. ROSE AND W.R. FITCH #17856; MRS. S.L. PATTISON S.N., 28 MAY 1921; CHARLES WRIGHT S.N. (SEVERAL COLLECTIONS)

Protection Comments:

Management Comments:

Data:

EO Data:

Reference:

Citation:

Benson, Lyman. 1969. Flora of Texas: Cactaceae. Volume 2, Part II, pp. 221-317, plates 1-14. C. L. Lundell and collaborators, editors. Texas Research Foundation, Renner, TX. 97 pp.

BENSON, L. 1969. CACTACEAE. IN LUNDELL, C. L. ET. AL. FLORA OF TEXAS, VOL. II. TEXAS RESEARCH FOUNDATION, RENNER.

Specimen:

Element Occurrence Record

Scientific Name: Escobaria sneedii var. sneedii
Occurrence #: 1 **Eo Id:** 7001
Track Status: Track all extant and selected historical EOs
Common Name: Sneed's pincushion cactus
TX Protection Status: E
Global Rank: G2G3QT2Q **State Rank:** S2
Federal Status: LE

Location Information:

Directions:
O'HARA CANYON, FRANKLIN MOUNTAINS

Survey Information:

First Observation: 1921 **Survey Date:** **Last Observation:** 1977
Eo Type: **Eo Rank:** **Eo Rank Date:**
Observed Area:

Comments:

General Description:

Comments:

Protection Comments: LISTED ENDANGERED BY THE USF& WS

Management Comments:

Data:

EO Data:

Reference:

Citation:

HEIL, K. D. 1984. USF& WS RECOVERY PLAN FOR CORYPHANTHA SNEEDII.

Specimen:

Sul Ross State University Herbarium, Alpine. 1977. C. Champie (s.n.), Specimen # none SRSC.

Element Occurrence Record

Scientific Name: Escobaria sneedii var. sneedii
Occurrence #: 2 **Eo Id:** 1775
Common Name: Sneed's pincushion cactus
Track Status: Track all extant and selected historical EOs
TX Protection Status: E
Global Rank: G2G3QT2Q **State Rank:** S2
Federal Status: LE

Location Information:

Directions:
ANTHONY'S NOSE, FRANKLIN MOUNTAINS

Survey Information:

First Observation: 1980-PRE **Survey Date:** **Last Observation:** 1980-PRE
Eo Type: **Eo Rank:** **Eo Rank Date:**
Observed Area:

Comments:

General Description:

Comments:

Protection Comments: LE

Management Comments:

Data:

EO Data:

Reference:

Citation:

WORTHINGTON, R. D. 1980. REPORT ON A SURVEY FOR SNEED PINCUSHION CACTUS, CORYPHANTHA SNEEDII VAR SNEEDII ON THE DONA ANA RANGE, DONA ANA COUNTY, NEW MEXICO.

Specimen:

Element Occurrence Record

Scientific Name: Escobaria sneedii var. sneedii
Occurrence #: 3 **Eo Id:** 6550

Common Name: Sneed's pincushion cactus
Track Status: Track all extant and selected historical EOs
TX Protection Status: E

Global Rank: G2G3QT2Q **State Rank:** S2
Federal Status: LE

Location Information:

Directions:
NORTH SLOPE, HEAD OF HITT CANYON, FRANKLIN MOUNTAINS

Survey Information:

First Observation: 1982-PRE **Survey Date:** **Last Observation:** 1982-PRE

Eo Type: **Eo Rank:** **Eo Rank Date:**

Observed Area:

Comments:

General Description:

Comments:

Protection Comments: LISTED ENDANGERED BY THE USF& WS

Management Comments:

Data:

EO Data:

Reference:

Citation:

WORTHINGTON, R. D. 1981. LETTER TO DR. R. KOLOGISKI CONCERNING CORYPHANTHA SNEEDII VAR SNEEDII.

Specimen:

Element Occurrence Record

Scientific Name: Escobaria sneedii var. sneedii
Occurrence #: 4 **Eo Id:** 6171

Common Name: Sneed's pincushion cactus
Track Status: Track all extant and selected historical EOs
TX Protection Status: E

Global Rank: G2G3QT2Q **State Rank:** S2
Federal Status: LE

Location Information:

Directions:
CANUTILLO, FRANKLIN MOUNTAINS

Survey Information:

First Observation: 1969-PRE **Survey Date:** **Last Observation:** 1969-PRE

Eo Type: **Eo Rank:** **Eo Rank Date:**

Observed Area:

Comments:

General Description:

Comments:

Protection Comments: LISTED ENDANGERED BY THE USF& WS

Management Comments:

Data:

EO Data:

Reference:

Citation:

Benson, Lyman. 1969. Flora of Texas: Cactaceae. Volume 2, Part II, pp. 221-317, plates 1-14. C. L. Lundell and collaborators, editors. Texas Research Foundation, Renner, TX. 97 pp.

Specimen:

Element Occurrence Record

Scientific Name: Escobaria sneedii var. sneedii
Occurrence #: 5 **Eo Id:** 2875
Track Status: Track all extant and selected historical EOs
Common Name: Sneed's pincushion cactus
TX Protection Status: E
Global Rank: G2G3QT2Q **State Rank:** S2
Federal Status: LE

Location Information:

Directions:

FROM 1800 FEET WEST-NORTHWEST TO 2400 FEET SOUTHWEST OF CENTER OF TRAFFIC CIRCLE AT NORTHWEST END OF McKELLIGAN CANYON ROAD, PRESUMABLY WITHIN FRANKLIN MOUNTAINS STATE PARK

Survey Information:

First Observation: ? **Survey Date:** 1989-11-02 **Last Observation:** 1989-11-02
Eo Type: **Eo Rank:** B **Eo Rank Date:** 1989-11-02
Observed Area:

Comments:

General Description: STEEP NORTH-FACING PORTIONS OF LIMESTONE SLOPES, ON DRY ROCK OUTCROPS

Comments:

Protection Comments: LISTED ENDANGERED BY THE USF& WS

Management Comments:

Data:

EO Data: 9 CLUMPS SEEN AT 5 DIFFERENT LOCATIONS, EACH CLUMP WITH 25-75 STEMS; THIS WAS NOT AN INTENSIVE SURVEY

Reference:

Citation:

TEXAS PARKS & WILDLIFE DEPARTMENT. 1990. FRANKLIN MOUNTAINS STATE PARK. SUMMARY OF REPRESENTATIVE PLANT COMMUNITIES.

WORTHINGTON, R. D. 1980. REPORT ON A SURVEY FOR SNEED PINCUSHION CACTUS, CORYPHANTHA SNEEDII VAR SNEEDII ON THE DONA ANA RANGE, DONA ANA COUNTY, NEW MEXICO.

Specimen:

Element Occurrence Record

Scientific Name: Escobaria sneedii var. sneedii
Occurrence #: 6 **Eo Id:** 6736
Common Name: Sneed's pincushion cactus
Track Status: Track all extant and selected historical EOs
TX Protection Status: E
Global Rank: G2G3QT2Q **State Rank:** S2
Federal Status: LE

Location Information:

Directions:
LOW POINT OF THE CREST OF THE FRANKLIN MOUNTAINS JUST SOUTH OF SOUTH FRANKLIN MOUNTAIN

Survey Information:

First Observation: 1981-PRE **Survey Date:** **Last Observation:** 1981-PRE
Eo Type: **Eo Rank:** **Eo Rank Date:**
Observed Area:

Comments:

General Description:

Comments:

Protection Comments: LISTED ENDANGERED BY THE USF& WS

Management Comments:

Data:

EO Data:

Reference:

Citation:

WORTHINGTON, R. D. 1980. REPORT ON A SURVEY FOR SNEED PINCUSHION CACTUS, CORYPHANTHA SNEEDII VAR SNEEDII ON THE DONA ANA RANGE, DONA ANA COUNTY, NEW MEXICO.

Specimen:

Element Occurrence Record

Scientific Name: Escobaria sneedii var. sneedii
Occurrence #: 7 **Eo Id:** 302
Track Status: Track all extant and selected historical EOs
Common Name: Sneed's pincushion cactus
TX Protection Status: E
Global Rank: G2G3QT2Q **State Rank:** S2
Federal Status: LE

Location Information:

Directions:

FRANKLIN MOUNTAINS, 0.3 MAP MILE SOUTHEAST OF THE CITY [SMELTERTOWN] WATERTANK AT EAST END OF CORONADO COUNTRY CLUB GOLF COURSE; MESA TO SUNLAND PARK TO SHADOW MOUNTAIN TO THUNDERBIRD TO TANK

Survey Information:

First Observation: 1978-05-22 **Survey Date:** 1986-06-14 **Last Observation:** 1986-06-14
Eo Type: **Eo Rank:** AB **Eo Rank Date:** 1986-06-14
Observed Area: 5.00

Comments:

General Description: DRY, WEST-FACING, STEEP, ROCKY, LIMESTONE, DESERT SLOPE; NEAR POWERLINE; IN FULL SUN OR SHADE OF ROCKS; WITH AGAVE LECHEGUILLA, DASYLIRION LEIOPHYLLUM, PARTHENIUM INCANUM

Comments: RESEMBLES DIMINUTIVE C. STROBILIFORMIS

Protection Comments: LISTED ENDANGERED BY THE USF& WS

Management Comments:

Data:

EO Data: DORMANT; 7 CLUMPS; OCCURS WITH C. STROBILIFORMIS, NO HYBRIDS OBSERVED, BUT RELATIONSHIP UNCLEAR

Reference:

Citation:

POOLE, J. M. 1986. FIELD SURVEY TO FRANKLIN MOUNTAINS OF JUNE 14, 1986.

Specimen:

University of Texas Herbarium, El Paso. 1982. R.D. Worthington #8164, Specimen #18676 EP. 25 April 1982.

University of Texas Herbarium, El Paso. 1978. R.D. Worthington #2852, Specimen #3252 EP. 22 May 1978.

[S82WOREPTXUS]

Element Occurrence Record

Scientific Name: Escobaria sneedii var. sneedii
Occurrence #: 8 **Eo Id:** 7646
Track Status: Track all extant and selected historical EOs
Common Name: Sneed's pincushion cactus
TX Protection Status: E
Global Rank: G2G3QT2Q **State Rank:** S2
Federal Status: LE

Location Information:

Directions:

EAST- TO NORTHEAST-FACING SLOPES CA. 1.2-1.3 AIR MILES NORTH-NORTHWEST OF 6927 FEET SUMMIT OF ANTHONY'S NOSE, SOUTH OF HITT CANYON, FRANKLIN MOUNTAINS SP

Survey Information:

First Observation:
Survey Date: 1990-05-22
Last Observation: 1990
Eo Type:
Eo Rank: A
Eo Rank Date: 1990-05-22
Observed Area:

Comments:

General Description: ON EXPOSURES OF EL PASO LIMESTONE (AND BLISS SANDSTONE?) ON STEEP SLOPES IN LECHUGUILLA-SOTOL AND SCRUB OAK COMMUNITIES

Comments:

Protection Comments:

Management Comments:

Data:

EO Data: 105 PLANTS (CLUMPS) COUNTED IN CASUAL SURVEY

Reference:

Citation:

TEXAS PARKS & WILDLIFE DEPARTMENT. 1990. FRANKLIN MOUNTAINS STATE PARK. SUMMARY OF REPRESENTATIVE PLANT COMMUNITIES.

Specimen:

Element Occurrence Record

Scientific Name: Escobaria sneedii var. sneedii
Occurrence #: 9 **Eo Id:** 8590
Common Name: Sneed's pincushion cactus
Track Status: Track all extant and selected historical EOs
TX Protection Status: E
Global Rank: G2G3QT2Q **State Rank:** S2
Federal Status: LE

Location Information:

Directions:
FRANKLIN MOUNTAINS STATE PARK

Survey Information:

First Observation: 199? **Survey Date:** **Last Observation:** 199?
Eo Type: **Eo Rank:** **Eo Rank Date:**
Observed Area:

Comments:

General Description:

Comments:

Protection Comments:

Management Comments:

Data:

EO Data:

Reference:

Citation:

Specimen:

Element Occurrence Record

Scientific Name: Escobaria sneedii var. sneedii
Occurrence #: 10 **Eo Id:** 8648

Common Name: Sneed's pincushion cactus
Track Status: Track all extant and selected historical EOs
TX Protection Status: E

Global Rank: G2G3QT2Q **State Rank:** S2
Federal Status: LE

Location Information:

Directions:

Survey Information:

First Observation: **Survey Date:** **Last Observation:**

Eo Type: **Eo Rank:** **Eo Rank Date:**

Observed Area:

Comments:

General Description:

Comments:

Protection Comments:

Management Comments:

Data:

EO Data:

Reference:

Citation:

Specimen:

Element Occurrence Record

Scientific Name: Escobaria sneedii var. sneedii
Occurrence #: 11 **Eo Id:** 8649

Common Name: Sneed's pincushion cactus
Track Status: Track all extant and selected historical EOs
TX Protection Status: E

Global Rank: G2G3QT2Q **State Rank:** S2
Federal Status: LE

Location Information:

Directions:

Survey Information:

First Observation: **Survey Date:** **Last Observation:**

Eo Type: **Eo Rank:** **Eo Rank Date:**

Observed Area:

Comments:

General Description:

Comments:

Protection Comments:

Management Comments:

Data:

EO Data:

Reference:

Citation:

Specimen:

Element Occurrence Record

Scientific Name: Fallugia paradoxa series
Occurrence #: 2 **Eo Id:** 1234
Track Status: Track all extant and selected historical EOs
Common Name: Apache-plume Series
TX Protection Status:
Global Rank: G4 **State Rank:** S4
Federal Status:

Location Information:

Directions:

BOTTOM OF ARROYO, UPPER FUSSELMAN CANYON, SOUTH SIDE OF LOOP 375, 0.3 MILE EAST OF SMUGGLERS GAP, NORTH OF SOUTH FRANKLIN MOUNTAIN, FRANKLIN MOUNTAINS SP

Survey Information:

First Observation: **Survey Date:** 1989-10-31 **Last Observation:** 1989-11-01
Eo Type: **Eo Rank:** BC **Eo Rank Date:** 1989-10-31
Observed Area:

Comments:

General Description:

Comments:

Protection Comments:

Management Comments:

Data:

EO Data: DESCRIPTION AND PLANT LIST IN DLI REPORT, SITE 11

Reference:

Citation:

TEXAS PARKS & WILDLIFE DEPARTMENT. 1990. FRANKLIN MOUNTAINS STATE PARK. SUMMARY OF REPRESENTATIVE PLANT COMMUNITIES.

Specimen:

Element Occurrence Record

Scientific Name: Fallugia paradoxa series **Occurrence #:** 3 **Eo Id:** 7399

Common Name: Apache-plume Series **Track Status:** Track all extant and selected historical EOs

TX Protection Status:

Global Rank: G4 **State Rank:** S4 **Federal Status:**

Location Information:

Directions:

ARROYO BOTTOM, WEST OF MUNDYS GAP, WEST TO TOM MAYS PARK, WEST SLOPE OF FRANKLIN MOUNTAINS, FRANKLIN MOUNTAINS SP

Survey Information:

First Observation: **Survey Date:** 1989-11-01 **Last Observation:** 1989-11-01

Eo Type: **Eo Rank:** B **Eo Rank Date:** 1989-11-01

Observed Area:

Comments:

General Description:

Comments:

Protection Comments:

Management Comments:

Data:

EO Data: DESCRIPTION AND PLANT LIST IN DLI REPORT, SITE 6

Reference:

Citation:

TEXAS PARKS & WILDLIFE DEPARTMENT. 1990. FRANKLIN MOUNTAINS STATE PARK. SUMMARY OF REPRESENTATIVE PLANT COMMUNITIES.

Specimen:

Element Occurrence Record

Scientific Name: Fallugia paradoxa series
Occurrence #: 4 **Eo Id:** 5203
Track Status: Track all extant and selected historical EOs
Common Name: Apache-plume Series
TX Protection Status:
Global Rank: G4 **State Rank:** S4
Federal Status:

Location Information:

Directions:

ARROYO BOTTOM, MOUTH OF VINTON CANYON WEST TO PARK BOUNDARY, NORTH OF ROAD FROM WESTWAY, FRANKLIN MOUNTAINS SP

Survey Information:

First Observation: **Survey Date:** 1989-11-02 **Last Observation:** 1989-11-02
Eo Type: **Eo Rank:** B **Eo Rank Date:** 1989-11-02
Observed Area:

Comments:

General Description:

Comments:

Protection Comments:

Management Comments:

Data:

EO Data: DESCRIPTION AND PLANT LIST IN DLI REPORT, SITE 2

Reference:

Citation:

TEXAS PARKS & WILDLIFE DEPARTMENT. 1990. FRANKLIN MOUNTAINS STATE PARK. SUMMARY OF REPRESENTATIVE PLANT COMMUNITIES.

Specimen:

Element Occurrence Record

Scientific Name: Fallugia paradoxa series
Occurrence #: 5 **Eo Id:** 953
Track Status: Track all extant and selected historical EOs
Common Name: Apache-plume Series
TX Protection Status:
Global Rank: G4 **State Rank:** S4
Federal Status:

Location Information:

Directions:
ARROYOS ON SOUTH SIDE OF HITT CANYON, FRANKLIN MOUNTAINS SP

Survey Information:

First Observation: **Survey Date:** 1990-05-22 **Last Observation:** 1990
Eo Type: **Eo Rank:** BC **Eo Rank Date:** 1990-05-22
Observed Area:

Comments:

General Description:

Comments:

Protection Comments:

Management Comments:

Data:

EO Data: DESCRIPTION AND PLANT LIST IN DLI REPORT, SITE 16

Reference:

Citation:

TEXAS PARKS & WILDLIFE DEPARTMENT. 1990. FRANKLIN MOUNTAINS STATE PARK. SUMMARY OF REPRESENTATIVE PLANT COMMUNITIES.

Specimen:

Element Occurrence Record

Scientific Name: Juniperus monosperma series
Occurrence #: 4 **Eo Id:** 6553
Common Name: Oneseed Juniper Series
Track Status: Track all extant and selected historical EOs
TX Protection Status:
Global Rank: GNR **State Rank:** S4
Federal Status:

Location Information:

Directions:

UPPER SLOPES, EAST SIDE OF FRANKLIN MOUNTAINS, NEAR ANTHONY'S NOSE (LAT-LONG PROVIDED BY AUTHOR)

Survey Information:

First Observation: 1973 **Survey Date:** **Last Observation:** 1974
Eo Type: **Eo Rank:** **Eo Rank Date:**
Observed Area:

Comments:

General Description: RELICT GRASSLAND/EVERGREEN SHRUBLAND

Comments: SEE ALSO CRAWFORD (1974) AN ECOLOGICAL ANALYSIS OF AN OAK-JUNIPER COMMUNITY IN THE FRANKLIN MOUNTAINS, EL PASO COUNTY, TEXAS, MS THESIS, UTEP, 90 PP.

Protection Comments:

Management Comments:

Data:

EO Data: PROVIDED IN THESIS, WHICH SEE; RUMORED TO BE DOMINATED BY FESTUCA LIGULATA, BUT NO EO FOR THIS REPORT WILL BE GENERATED UNTIL SPECIMEN (IF ANY) IS SEEN

Reference:

Citation:

Applehons, Dennis J. 1973. Grassland vegetation of a relict community in the Franklin Mountains, El Paso County, Texas. M.S. Thesis, University of Texas, El Paso. 59 pp.

CRAWFORD, R.C. 1974. AN ECOLOGICAL ANALYSIS OF AN OAK-JUNIPER COMMUNITY IN THE FRANKLIN MOUNTAINS, EL PASO COUNTY, TEXAS. M.S. THESIS, UT-EL PASO. 90 PP.

Specimen:

Element Occurrence Record

Scientific Name: Larrea tridentata-parthenium incanum series
Occurrence #: 10 **Eo Id:** 7582
Track Status: Track all extant and selected historical EOs
Common Name: Creosote-mariola Series
TX Protection Status:
Global Rank: G5 **State Rank:** S5
Federal Status:

Location Information:

Directions:

OUTWASH FAN, BOTH SIDES OF UNPAVED ROAD FROM WESTWAY EAST INTO VINTON CANYON, WEST SIDE FRANKLIN MOUNTAINS, FRANKLIN MOUNTAINS SP

Survey Information:

First Observation: **Survey Date:** 1989-11-02 **Last Observation:** 1989-11-02
Eo Type: **Eo Rank:** BC **Eo Rank Date:** 1989-11-02
Observed Area:

Comments:

General Description:

Comments:

Protection Comments:

Management Comments:

Data:

EO Data: DESCRIPTION AND PLANT LIST IN DLI REPORT, SITE 1

Reference:

Citation:

TEXAS PARKS & WILDLIFE DEPARTMENT. 1990. FRANKLIN MOUNTAINS STATE PARK. SUMMARY OF REPRESENTATIVE PLANT COMMUNITIES.

Specimen:

Element Occurrence Record

Scientific Name: Larrea tridentata-parthenium incanum series
Occurrence #: 11 **Eo Id:** 425
Track Status: Track all extant and selected historical EOs
Common Name: Creosote-mariola Series
TX Protection Status:
Global Rank: G5 **State Rank:** S5
Federal Status:

Location Information:

Directions:

GENTLE BAJADA SLOPES, SOUTH SIDE OF HITT CANYON WEST OF WATER TANK, FRANKLIN MOUNTAINS SP

Survey Information:

First Observation: **Survey Date:** 1990-05-23 **Last Observation:** 1990
Eo Type: **Eo Rank:** C **Eo Rank Date:** 1990-05-23
Observed Area:

Comments:

General Description: DISTURBANCE TYPE REPLACING SIDEOATS GRAMA-BLACK GRAMA SERIES GRASSLAND IN GRAZED AREA

Comments:

Protection Comments:

Management Comments:

Data:

EO Data: DESCRIPTION AND PLANT LIST IN DLI REPORT, SITE 15

Reference:

Citation:

TEXAS PARKS & WILDLIFE DEPARTMENT. 1990. FRANKLIN MOUNTAINS STATE PARK. SUMMARY OF REPRESENTATIVE PLANT COMMUNITIES.

Specimen:

Element Occurrence Record

Scientific Name: Ondatra zibethicus ripensis **Occurrence #:** 7 **Eo Id:** 1459

Common Name: Pecos River muskrat **Track Status:** Track all extant and selected historical EOs

TX Protection Status:

Global Rank: G5T3T4 **State Rank:** S2S3 **Federal Status:**

Location Information:

Directions:

IN THE IRRIGATION DITCHES ALONG THE RIO GRANDE AROUND EL PASO AREA FROM ANTHONY (NORTH OF EL PASO) TO CLINT (SOUTH OF EL PASO)

Survey Information:

First Observation: **Survey Date:** **Last Observation:** 1975-1976

Eo Type: **Eo Rank:** **Eo Rank Date:**

Observed Area:

Comments:

General Description: IRRIGATION DITCHES

Comments: 185 SPECIMENS COLLECTED 26 DECEMBER 1975-10 JANUARY 1976

Protection Comments:

Management Comments:

Data:

EO Data: 106 SPECIMENS WITH SEX NOT RECORDED, 46 FEMALE SPECIMENS, 33 MALE SPECIMENS

Reference:

Citation:

LUTZ, SCOTT. 1995. PERSONAL CORRESPONDENCE BY PHONE BETWEEN PEGGY HORNER AND SCOTT LUTZ (UNIVERSITY OF WISCONSIN-MADISON, PREVIOUSLY OF TEXAS TECH AND TEXAS A& M). CONVERSATION INCLUDED MORE INFORMATION CONCERNING THE PECOS RIVER MUSKRAT SPECIMENS COLLECTED AROUND EL PASO, TEXAS IN 1975-76. SPECIMENS HOUSED AT TEXAS A& M COOPERATIVE WILDLIFE COLLECTION.

Specimen:

TEXAS A & M UNIVERSITY, TEXAS COOPERATIVE WILDLIFE COLLECTION. 1975-1976. R.S. LUTZ AND D. HEFT, CATALOG # ? TCWC. 26 DECEMBER 1975-10 JANUARY 1976.

Element Occurrence Record

Scientific Name: Opuntia arenaria
Occurrence #: 1 **Eo Id:** 442
Track Status: Track all extant and selected historical EOs
Common Name: sand prickly-pear
TX Protection Status:
Global Rank: G2 **State Rank:** S2
Federal Status:

Location Information:

Directions:
ALONG I-10, 2.7 ROAD MILES NORTH OF JUNCTION WITH N. MESA AND 50 YARDS EAST OF FEEDER ROAD

Survey Information:

First Observation: 1978-10-28 **Survey Date:** **Last Observation:** 1982-03-28
Eo Type: **Eo Rank:** **Eo Rank Date:**
Observed Area:

Comments:

General Description: LOW DUNES OVER GRAVEL BAJADA, SCATTERED CREOSOTE BUSH, YUCCA ELATA AND OTHER SHRUBS

Comments:

Protection Comments:

Management Comments:

Data:

EO Data: IN FLOWER

Reference:

Citation:

WORTHINGTON, R.D. 1982. SPECIMEN # 18689 EP

Specimen:

University of Texas at El Paso Herbarium. 1982. R.D. Worthington #8060, Specimen # 18689 UTEP. 28 March 1982.

University of Texas at El Paso Herbarium. 1979. R.D. Worthington #4470, Specimen # 9455 UTEP. 11 May 1979.

University of Texas at El Paso Herbarium. 1978. R.D. Worthington #3789, Specimen # 6071 UTEP. 28 October 1978.

WORTHINGTON, R. D. 1982. SPECIMEN # 18689 EP (S82WOREPTXUS)

[S79WOREPTXUS]

[S78WOREPTXUS]

Element Occurrence Record

Scientific Name: Opuntia arenaria **Occurrence #:** 4 **Eo Id:** 6698

Common Name: sand prickly-pear **Track Status:** Track all extant and selected historical EOs

TX Protection Status:

Global Rank: G2 **State Rank:** S2 **Federal Status:**

Location Information:

Directions:

ANTHONY

Survey Information:

First Observation: 1982-PRE **Survey Date:** **Last Observation:** 1982-PRE

Eo Type: **Eo Rank:** **Eo Rank Date:**

Observed Area:

Comments:

General Description:

Comments:

Protection Comments:

Management Comments:

Data:

EO Data:

Reference:

Citation:

Benson, Lyman. 1982. The cacti of the United States and Canada. Stanford University Press, Stanford, CA. 1,044 pp.

Specimen:

Element Occurrence Record

Scientific Name: Opuntia arenaria **Occurrence #:** 5 **Eo Id:** 6088

Common Name: sand prickly-pear **Track Status:** Track all extant and selected historical EOs

TX Protection Status:

Global Rank: G2 **State Rank:** S2 **Federal Status:**

Location Information:

Directions:

CANUTILLO

Survey Information:

First Observation: 1930 **Survey Date:** **Last Observation:** 1930-08?

Eo Type: **Eo Rank:** H **Eo Rank Date:** 2006-12-07

Observed Area:

Comments:

General Description:

Comments:

Protection Comments:

Management Comments:

Data:

EO Data:

Reference:

Citation:

Benson, Lyman. 1982. The cacti of the United States and Canada. Stanford University Press, Stanford, CA. 1,044 pp.

Specimen:

Element Occurrence Record

Scientific Name: Opuntia arenaria
Occurrence #: 6 **Eo Id:** 1300
Track Status: Track all extant and selected historical EOs
Common Name: sand prickly-pear
TX Protection Status:
Global Rank: G2 **State Rank:** S2
Federal Status:

Location Information:

Directions:
FRONTERA (IN 1852-ON THE RIO GRANDE IN NEW MEXICO, NOW- IN NORTHWEST EL PASO)

Survey Information:

First Observation: 1852 **Survey Date:** **Last Observation:** 1852-05-15
Eo Type: **Eo Rank:** H **Eo Rank Date:** 2006-12-07
Observed Area:

Comments:

General Description: SANDY RIDGES

Comments: FRONTERA USED BY U.S. BOUNDARY COMMISSION AS AN ASTRONOMICAL OBSERVATORY FROM 1851-1853; DESTROYED IN 1854.

Protection Comments:

Management Comments:

Data:

EO Data:

Reference:

Citation:

Benson, Lyman. 1982. The cacti of the United States and Canada. Stanford University Press, Stanford, CA. 1,044 pp.

Webb, Walter P. 1952. The handbook of Texas, volume 1. The Texas State Historical Association, Austin. 977 pp.

Specimen:

Element Occurrence Record

Scientific Name: Opuntia arenaria
Occurrence #: 9 **Eo Id:** 7542
Track Status: Track all extant and selected historical EOs
Common Name: sand prickly-pear
TX Protection Status:
Global Rank: G2 **State Rank:** S2
Federal Status:

Location Information:

Directions:
ARTCRAFT ROAD (TEXAS 178) BETWEEN HIGHWAY 20 (DONIPHAN DRIVE) AND I-10, EL PASO

Survey Information:

First Observation: 199? **Survey Date:** **Last Observation:** 1998-04-20
Eo Type: **Eo Rank:** X **Eo Rank Date:** 1998-04-20
Observed Area:

Comments:

General Description:

Comments: 'LARGE QUANTITY' WAS TRANSPLANTED TO THE CHIHUAHUAN DESERT GARDEN AT THE CITY OF EL PASO'S WILDERNESS PARK MUSEUM; THE CACTI DID NOT SURVIVE AT THIS LOCATION; 'A FEW PLANTS' WERE TRANSPLANTED AT TXDOT DISTRICT HQ GROUNDS IN CENTRAL EL PASO; THIS OFFICE WAS RELOCATED IN DECEMBER 2000; IN APRIL 2001, THE CACTI WERE TRANSPLANTED TO THE NEW OFFICE LOCATION; THE PLANTS ARE GROWING (SEE EOR 010)

Protection Comments:

Management Comments:

Data:

EO Data: 20 APRIL 1998, 'LARGE QUANTITY' OF THE CACTI TRANSPLANTED TO OTHER LOCATIONS; BELIEVED EXTIRPATED DUE TO HIGHWAY UPGRADE AND EXPANSION

Reference:

Citation:

TELLES-GOINS, MARY. 2002. EL PASO DISTRICT STAFF MAKE ROOM FOR THORNY, BUT COLORFUL INDIVIDUALS. TXDOT NEWSLETTER. ENVISION, SUMMER/FALL 2002.

Specimen:

Element Occurrence Record

Scientific Name: Opuntia arenaria
Occurrence #: 11 **Eo Id:** 5201
Track Status: Track all extant and selected historical EOs
Common Name: sand prickly-pear
TX Protection Status:
Global Rank: G2 **State Rank:** S2
Federal Status:

Location Information:

Directions:

ONE ROAD MILE SOUTH OF JUNCTION OF DONIPHAN (HIGHWAY 20) WITH TRANS MOUNTAIN ROAD (HIGHWAY 375) IN CANUTILLO AT EAST SIDE OF TEXAS HIGHWAY DEPARTMENT YARD

Survey Information:

First Observation: 1991-05 **Survey Date:** **Last Observation:** 1991-05
Eo Type: **Eo Rank:** **Eo Rank Date:**
Observed Area:

Comments:

General Description: STABLE DUNE AREA

Comments:

Protection Comments:

Management Comments:

Data:

EO Data: SPECIMEN COLLECTED

Reference:

Citation:

WORTHINGTON, RICHARD D. 2004. E-MAIL TO JACKIE POOLE WITH INFORMATION ABOUT OPUNTIA ARENARIA POPULATION LOCATIONS. 23 JANUARY 2004.

Specimen:

Element Occurrence Record

Scientific Name: Peniocereus greggii var. greggii
Occurrence #: 12 **Eo Id:** 6446
Common Name: desert night-blooming cereus
Track Status: Track all extant and selected historical EOs
TX Protection Status:
Global Rank: G3G4T2 **State Rank:** S2
Federal Status:

Location Information:

Directions:
DESERT SURROUNDING FRANKLIN MOUNTAINS

Survey Information:

First Observation: **Survey Date:** **Last Observation:** 19??
Eo Type: **Eo Rank:** **Eo Rank Date:**
Observed Area:

Comments:

General Description:

Comments: SEE ALSO CHAMPIE, C. 1973. STRANGERS IN THE FRANKLINS, P.40.

Protection Comments:

Management Comments:

Data:

EO Data: RARE; FLOWERS IN APRIL

Reference:

Citation:

CHAMPIE, C. 19??. CACTI AND SUCCULENTS OF EL PASO. ABBEY GARDEN PRESS, SANTA BARBARA, CA. 100 PP.

CHAMPIE, C. 1973. STRANGERS IN THE FRANKLINS.

Specimen:

Element Occurrence Record

Scientific Name: Quercus pungens-cercocarpus montanus series
Occurrence #: 1 **Eo Id:** 6879
Common Name: Scrub Oak-mountain Mahogany Series
Track Status: Track all extant and selected historical EOs
TX Protection Status:
Global Rank: G4 **State Rank:** S4
Federal Status:

Location Information:

Directions:

NORTH- AND EAST-FACING IGNEOUS SLOPES, NEAR MUNDYS GAP, CA. 1 MILE NORTH OF NORTH FRANKLIN MOUNTAIN, FRANKLIN MOUNTAINS SP

Survey Information:

First Observation: **Survey Date:** 1989-11-01 **Last Observation:** 1989-11-01
Eo Type: **Eo Rank:** B **Eo Rank Date:** 1989-11-01
Observed Area:

Comments:

General Description:

Comments:

Protection Comments:

Management Comments:

Data:

EO Data: DESCRIPTION AND PLANT LIST IN DLI REPORT, SITE 7

Reference:

Citation:

TEXAS PARKS & WILDLIFE DEPARTMENT. 1990. FRANKLIN MOUNTAINS STATE PARK. SUMMARY OF REPRESENTATIVE PLANT COMMUNITIES.

Specimen:

Element Occurrence Record

Scientific Name: Quercus pungens-cercocarpus montanus series
Occurrence #: 2 **Eo Id:** 5966
Common Name: Scrub Oak-mountain Mahogany Series
Track Status: Track all extant and selected historical EOs
TX Protection Status:
Global Rank: G4 **State Rank:** S4
Federal Status:

Location Information:

Directions:

NORTH-FACING LIMESTONE SLOPES, SOUTH SIDE OF VINTON CANYON, WEST SIDE OF FRANKLIN MOUNTAINS, FRANKLIN MOUNTAINS SP

Survey Information:

First Observation: **Survey Date:** 1989-11-02 **Last Observation:** 1989-11-02
Eo Type: **Eo Rank:** AB **Eo Rank Date:** 1989-11-02
Observed Area:

Comments:

General Description:

Comments:

Protection Comments:

Management Comments:

Data:

EO Data: DESCRIPTION AND PLANT LIST IN DLI REPORT, SITE 4

Reference:

Citation:

TEXAS PARKS & WILDLIFE DEPARTMENT. 1990. FRANKLIN MOUNTAINS STATE PARK. SUMMARY OF REPRESENTATIVE PLANT COMMUNITIES.

Specimen:

Element Occurrence Record

Scientific Name: Quercus pungens-cercocarpus montanus series **Occurrence #:** 3 **Eo Id:** 2349

Common Name: Scrub Oak-mountain Mahogany Series **Track Status:** Track all extant and selected historical EOs

TX Protection Status:

Global Rank: G4 **State Rank:** S4 **Federal Status:**

Location Information:

Directions:

MOSTLY NORTH-FACING LIMESTONE SLOPES, NORTHWEST FLANK OF SOUTH FRANKLIN MOUNTAIN, FRANKLIN MOUNTAINS SP

Survey Information:

First Observation: **Survey Date:** 1989-11-01 **Last Observation:** 1989-11-01

Eo Type: **Eo Rank:** B **Eo Rank Date:** 1989-11-01

Observed Area:

Comments:

General Description:

Comments:

Protection Comments:

Management Comments:

Data:

EO Data: DESCRIPTION AND PLANT LIST IN DLI REPORT, SITE 13

Reference:

Citation:

TEXAS PARKS & WILDLIFE DEPARTMENT. 1990. FRANKLIN MOUNTAINS STATE PARK. SUMMARY OF REPRESENTATIVE PLANT COMMUNITIES.

Specimen:

Element Occurrence Record

Scientific Name: Quercus pungens-cercocarpus montanus series
Occurrence #: 4 **Eo Id:** 5213
Track Status: Track all extant and selected historical EOs
Common Name: Scrub Oak-mountain Mahogany Series
TX Protection Status:
Global Rank: G4 **State Rank:** S4
Federal Status:

Location Information:

Directions:

EAST-FACING LIMESTONE SLOPES, ON/NEAR SUMMITS IMMEDIATELY NORTH OF MUNDYS GAP NORTH OF NORTH FRANKLIN MOUNTAIN, FRANKLIN MOUNTAINS SP

Survey Information:

First Observation: **Survey Date:** 1989-11-01 **Last Observation:** 1989-11-01
Eo Type: **Eo Rank:** B **Eo Rank Date:** 1989-11-01
Observed Area:

Comments:

General Description:

Comments:

Protection Comments:

Management Comments:

Data:

EO Data: DESCRIPTION AND PLANT LIST IN DLI REPORT, SITE 8

Reference:

Citation:

TEXAS PARKS & WILDLIFE DEPARTMENT. 1990. FRANKLIN MOUNTAINS STATE PARK. SUMMARY OF REPRESENTATIVE PLANT COMMUNITIES.

Specimen:

Element Occurrence Record

Scientific Name: Quercus pungens-cercocarpus montanus series
Occurrence #: 5 **Eo Id:** 1629
Common Name: Scrub Oak-mountain Mahogany Series
Track Status: Track all extant and selected historical EOs
TX Protection Status:
Global Rank: G4 **State Rank:** S4
Federal Status:

Location Information:

Directions:
STEEP UPPER LIMESTONE SLOPES, SOUTH SIDE OF HITT CANYON AREA, FRANKLIN MOUNTAINS SP

Survey Information:

First Observation: 1990-05-22 **Survey Date:** 1990-05-22 **Last Observation:** 1990-05-22
Eo Type: **Eo Rank:** AB **Eo Rank Date:** 1990-05-22
Observed Area:

Comments:

General Description:

Comments:

Protection Comments:

Management Comments:

Data:

EO Data: DESCRIPTION AND PLANT LIST IN DLI REPORT, SITE 18

Reference:

Citation:

TEXAS PARKS & WILDLIFE DEPARTMENT. 1990. FRANKLIN MOUNTAINS STATE PARK. SUMMARY OF REPRESENTATIVE PLANT COMMUNITIES.

Specimen:

Element Occurrence Record

Scientific Name: Salvia summa
Occurrence #: 9 **Eo Id:** 2912
Track Status: Track all extant and selected historical EOs
Common Name: great sage
TX Protection Status:
Global Rank: G3? **State Rank:** S2
Federal Status:

Location Information:

Directions:

SANDSTONE OR LIMESTONE OUTCROPS EXPOSED AT 6400 FEET, CA. 300-500 FEET EAST OF 6502 PEAK ON WEST FLANK OF SOUTH FRANKLIN MOUNTAIN, FRANKLIN MOUNTAINS SP

Survey Information:

First Observation: 1981-05-30 **Survey Date:** 1989-10-31 **Last Observation:** 1989-10-31

Eo Type: **Eo Rank:** **Eo Rank Date:**

Observed Area:

Comments:

General Description: NORTH-FACING EXPOSURES AND ON VERY TOP OF RUBBLE SLOPE

Comments: EASY HIKE FROM TRANS-MOUNTAIN HIGHWAY (LOOP 375)

Protection Comments:

Management Comments:

Data:

EO Data: 25 PLANTS SEEN IN CASUAL SURVEY; DIDN'T CHECK ADJACENT AREAS AT THIS ELEVATION

Reference:

Citation:

TEXAS PARKS & WILDLIFE DEPARTMENT. 1990. FRANKLIN MOUNTAINS STATE PARK. SUMMARY OF REPRESENTATIVE PLANT COMMUNITIES.

Specimen:

Southern Methodist University Herbarium. 1981. R.D. Worthington #7135, Specimen # none SMU. 30 May 1981.

University of Texas at Austin Herbarium. 1981. R.D. Worthington #7136, Specimen # none TEX. 30 May 1981.

University of Texas at Austin Herbarium. 1989. W.R. Carr #10210 and P. McNeal, Specimen # ? TEX. 31 October 1989.

[S81WORSMTXUS]

Element Occurrence Record

Scientific Name: Salvia summa
Occurrence #: 12 **Eo Id:** 6058
Common Name: great sage
Track Status: Track all extant and selected historical EOs
TX Protection Status:
Global Rank: G3? **State Rank:** S2
Federal Status:

Location Information:

Directions:

AMONG BOULDERS IN ARROYO ON EAST-FACING LIMESTONE SLOPE, CA. 1.4 AIR MILES NORTH-NORTHWEST OF SUMMIT 6927 ON ANTHONY'S NOSE, FRANKLIN MOUNTAINS SP

Survey Information:

First Observation: **Survey Date:** 1990-05-22 **Last Observation:** 1990
Eo Type: **Eo Rank:** C **Eo Rank Date:** 1990-05-22
Observed Area:

Comments:

General Description: SHALLOW SOIL AND GRAVEL IN PARTIAL SHADE OR FULL SUN

Comments:

Protection Comments:

Management Comments:

Data:

EO Data: NONE

Reference:

Citation:

TEXAS PARKS & WILDLIFE DEPARTMENT. 1990. FRANKLIN MOUNTAINS STATE PARK. SUMMARY OF REPRESENTATIVE PLANT COMMUNITIES.

Specimen:

Element Occurrence Record

Scientific Name: Salvia summa
Occurrence #: 13 **Eo Id:** 143
Common Name: great sage
Track Status: Track all extant and selected historical EOs
TX Protection Status:
Global Rank: G3? **State Rank:** S2
Federal Status:

Location Information:

Directions:

CA. 2000 FEET WEST OF NORTH END OF TRAFFIC CIRCLE AT NORTH END OF OLD TOM MAYS COUNTY PARK, WEST SIDE OF FRANKLIN MOUNTAINS, FRANKLIN MOUNTAINS SP

Survey Information:

First Observation: **Survey Date:** 1990-05-24 **Last Observation:** 1990
Eo Type: **Eo Rank:** C **Eo Rank Date:** 1990-05-24
Observed Area:

Comments:

General Description: AMONG LIMESTONE BOULDERS IN BED OF ARROYO

Comments:

Protection Comments:

Management Comments:

Data:

EO Data: NUMBER OF PLANTS UNCERTAIN; MOST ARE DRIED UP AND LEAFLESS DURING DRY SEASON

Reference:

Citation:

TEXAS PARKS & WILDLIFE DEPARTMENT. 1990. FRANKLIN MOUNTAINS STATE PARK. SUMMARY OF REPRESENTATIVE PLANT COMMUNITIES.

Specimen:

Element Occurrence Record

Scientific Name: Silene plankii **Occurrence #:** 1 **Eo Id:** 827

Common Name: Plank's catchfly **Track Status:** Track all extant and selected historical EOs

TX Protection Status:

Global Rank: G2 **State Rank:** S1 **Federal Status:**

Location Information:

Directions:

0.6 AIR MILE NORTHEAST OF THE TOP OF NORTH FRANKLIN MOUNTAIN IN THE FRANKLIN MOUNTAINS

Survey Information:

First Observation: 1971-08-21 **Survey Date:** **Last Observation:** 1978-10-07

Eo Type: **Eo Rank:** **Eo Rank Date:**

Observed Area:

Comments:

General Description: NORTH FACING CLIFF, LANORIA FORMATION ROCKS

Comments: NEW MEXICO STATE UNIV. SPECIMEN (S71TODLC) NOT OBSERVED BY TXNHP

Protection Comments:

Management Comments:

Data:

EO Data: IN FLOWER

Reference:

Citation:

WORTHINGTON, R. D. 1981. USF& WS STATUS REPORT ON SILENE PLANKII.

Specimen:

SUL ROSS STATE UNIVERSITY HERBARIUM, ALPINE. 1978. R.D. WORTHINGTON #3699, SPECIMEN # NONE SRSC. 7 OCTOBER 1978.

NEW MEXICO STATE UNIVERSITY HERBARIUM, LAS CRUCES. 1971. DR. THOMAS K. TODSEN #?, SPECIMEN # ? NMC. 21 AUGUST 1971.

University of Texas at El Paso Herbarium. 1978. R.D. Worthington #3699, Specimen # 3652 UTEP. 7 October 1978.

[S78WORSRTXUS]

[S71TODLCTXUS]

Element Occurrence Record

Scientific Name: Silene plankii
Occurrence #: 2 **Eo Id:** 7378
Common Name: Plank's catchfly
Track Status: Track all extant and selected historical EOs
TX Protection Status:
Global Rank: G2 **State Rank:** S1
Federal Status:

Location Information:

Directions:

0.3 AIR MILE WEST-NORTHWEST OR NORTH-NORTHWEST TO NORTHWEST OF THE TOP OF NORTH FRANKLIN MOUNTAIN

Survey Information:

First Observation: 1978 **Survey Date:** **Last Observation:** 1978-09-10
Eo Type: **Eo Rank:** **Eo Rank Date:**
Observed Area:

Comments:

General Description: NORTH FACE OF RHYOLITE CLIFF

Comments:

Protection Comments:

Management Comments:

Data:

EO Data: IN FLOWER

Reference:

Citation:

WORTHINGTON, R. D. 1981. USF& WS STATUS REPORT ON SILENE PLANKII.

Specimen:

University of Texas at El Paso Herbarium. 1978. R.D. Worthington #3467, Specimen # 3607 UTEP. 10 September 1978.

University of Texas at Austin Herbarium. 1978. R.D. Worthington #3467, Specimen # none TEX. 10 September 1978.

Element Occurrence Record

Scientific Name: Silene plankii
Occurrence #: 3 **Eo Id:** 5585
Track Status: Track all extant and selected historical EOs
Common Name: Plank's catchfly
TX Protection Status:
Global Rank: G2 **State Rank:** S1
Federal Status:

Location Information:

Directions:
VICINITY OF COTTONWOOD SPRING, WEST SIDE OF FRANKLIN MTS., ABOVE CANUTILLA

Survey Information:

First Observation: 1952 **Survey Date:** **Last Observation:** 1952-10-15
Eo Type: **Eo Rank:** **Eo Rank Date:**
Observed Area:

Comments:

General Description: IN MATS OF SELAGINELLA ON ROCK FACE

Comments:

Protection Comments:

Management Comments:

Data:

EO Data: IN FLOWER AND FRUIT

Reference:

Citation:

CORRELL, D. S. (15033). N.D. SPECIMEN # NONE SM.

Specimen:

SOUTHERN METHODIST UNIVERSITY HERBARIUM. 1952. D.S. CORRELL #15033, SPECIMEN # NONE SMU. 15 OCTOBER 1952.

University of Texas at Austin, Lundell Herbarium. 1952. D.S. Correll #15033, Specimen # none TEX-LL. 15 October 1952.

CORRELL, D. S. (15033). N.D. SPECIMEN # NONE SM. (S??CORSMTXUS)

Element Occurrence Record

Scientific Name: Silene plankii **Occurrence #:** 4 **Eo Id:** 2353

Common Name: Plank's catchfly **Track Status:** Track all extant and selected historical EOs

TX Protection Status:

Global Rank: G2 **State Rank:** S1 **Federal Status:**

Location Information:

Directions:

0.2 MILE NORTH OF THE TOP OF NORTH FRANKLIN MOUNTAIN, FRANKLIN MOUNTAINS

Survey Information:

First Observation: 1981 **Survey Date:** **Last Observation:** 1981-03-15

Eo Type: **Eo Rank:** **Eo Rank Date:**

Observed Area:

Comments:

General Description: RHYOLITE ROCK FACE, NORTH EXPOSURE

Comments:

Protection Comments:

Management Comments:

Data:

EO Data:

Reference:

Citation:

WORTHINGTON, R. D. 1981. USF& WS STATUS REPORT ON SILENE PLANKII.

Specimen:

University of Texas at El Paso Herbarium. 1981. R.D. Worthington #6879, Specimen # 15358 UTEP. 15 March 1981.

Element Occurrence Record

Scientific Name: Silene plankii
Occurrence #: 5 **Eo Id:** 7835
Track Status: Track all extant and selected historical EOs
Common Name: Plank's catchfly
TX Protection Status:
Global Rank: G2 **State Rank:** S1
Federal Status:

Location Information:

Directions:
0.25 AIR MILES NORTH NORTHWEST TOP NORTH FRANKLIN MOUNTAINS

Survey Information:

First Observation: 1977 **Survey Date:** **Last Observation:** 1977-11-12
Eo Type: **Eo Rank:** **Eo Rank Date:**
Observed Area:

Comments:

General Description: NORTHWEST EXPOSURE ON RHYOLITE

Comments:

Protection Comments:

Management Comments:

Data:

EO Data:

Reference:

Citation:

WORTHINGTON, R. D. 1981. USF& WS STATUS REPORT ON SILENE PLANKII.

Specimen:

University of Texas at El Paso Herbarium. 1977. R.D. Worthington #43, Specimen # 1025 UTEP. 12 November 1977.

Element Occurrence Record

Scientific Name: Silene plankii
Occurrence #: 6 **Eo Id:** 550
Track Status: Track all extant and selected historical EOs
Common Name: Plank's catchfly
TX Protection Status:
Global Rank: G2 **State Rank:** S1
Federal Status:

Location Information:

Directions:
0.35 [AIR] MILE SOUTH OF NORTH FRANKLIN MOUNTAIN SUMMIT, JUST WEST OF FORT BLISS BOUNDARY

Survey Information:

First Observation: ? **Survey Date:** **Last Observation:**
Eo Type: **Eo Rank:** **Eo Rank Date:**
Observed Area:

Comments:

General Description:

Comments:

Protection Comments:

Management Comments:

Data:

EO Data:

Reference:

Citation:

WORTHINGTON, R. D. 1981. USF& WS STATUS REPORT ON SILENE PLANKII.

Specimen:

Element Occurrence Record

Scientific Name: Sonorella metcalfi
Occurrence #: 1 **Eo Id:** 1120
Common Name: Franklin Mountain Talus Snail
Track Status: Track all extant and selected historical EOs
TX Protection Status:
Global Rank: G2 **State Rank:** S1
Federal Status:

Location Information:

Directions:
NORTH FRANKLIN MOUNTAIN, IN A NORTHWEST ARM OF FUSSELMAN CANYON, ABOVE SPRING

Survey Information:

First Observation: 1972-05-11 **Survey Date:** **Last Observation:** 1972-05-11
Eo Type: **Eo Rank:** **Eo Rank Date:**
Observed Area:

Comments:

General Description:

Comments:

Protection Comments:

Management Comments:

Data:

EO Data: COLLECTOR ARTIE L. METCALF, 11 MAY 1972; HOLOTYPE 760816 U.S.N.M., PARATYPES 99172 DELAWARE MUSEUM OF NATURAL HISTORY, 338227 ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA, 4374 UTEP

Reference:

Citation:

MILLER, WALTER B. 1976. NEW SPECIES OF SONORELLA (PULMONATA:HELMINTHOGLYPTIDAE) FROM NEW MEXICO AND TEXAS. THE NAUTILUS, VOL. 90(2), APRIL 30, 1976.

Specimen:

U.S. National Museum of Natural History, Smithsonian, Washington, D.C. 1972. Artie L. Metcalf, Catalog # 760816 USNMNH. 11 May 1972. Holotype.

Delaware Museum of Natural History, Wilmington. 1972. Artie L. Metcalf, Catalog # 99172 DMNH. 11 May 1972. Paratypes.

Academy of Natural Sciences, Philadelphia, PA. 1972. Artie L. Metcalf, Catalog # 338227 PAC. 11 May 1972.

University of Texas at El Paso. 1972. Artie L. Metcalf, Catalog # 4374 UTEP. 11 May 1972.