



BOARD OF SUPERVISORS AGENDA ITEM REPORT
CONTRACTS / AWARDS / GRANTS

Requested Board Meeting Date: June 7, 2016

or Procurement Director Award ☐

Contractor/Vendor Name (DBA): KE&G Construction, Inc.

Project Title/Description:

Construction Manager At Risk Services Southeast Interceptor Augmentation Project No. 3SEI13.

Purpose:

Amendment of Award: Contract No. CT-WW-15-532, Amendment No. One (1). This amendment increases the award amount from \$520,000.00 to \$16,006,195.41 and incorporates Guaranteed Maximum Price No 1 (GMP-1).

GMP-1 provides for the purchase of long lead time equipment or materials, all construction services and coordination of community relations prior to the commencement of construction and during construction. The Contractor will meet a five percent (5%) Small Business Enterprise (SBE) goal for this GMP.

Administering Department: Regional Wastewater Reclamation.

Procurement Method:

Pursuant to Solicitation For Qualifications No. 160784, the Board of Supervisors awarded a contract for this project on July 7, 2015 in the amount of \$520,000.00 for preconstruction services for a contract term of July 7, 2015 to December 31, 2017. Total costs for this project were not to exceed \$520,000.00 for preconstruction services and not to exceed \$10,400,000.00 for construction services.

Attachments: Amendment No. One (1) with GMP-1 attached as "APPENDIX "C": Construction Manager at Risk (CMAR) Services for Southeast Interceptor Sewer Augmentation Project No. 3SEI13, GMP-1 Construction Proposal Dated April 20, 2016" and Memo to County Administrator.

Program Goals/Predicted Outcomes:

Construction of augmentation infrastructure to accommodate increased flow in the Southeast Interceptor. Specifically, the Pima County Wastewater Reclamation Department (RWRD) is experiencing capacity issues in the Southeast Interceptor (SEI) which conveys flows from Rita Ranch in southeast Tucson to the Agua Nueva Wastewater Reclamation Facility, a distance of approximately 10 miles. This SEI begins as a 27-inch pipe and gradually expands to a 60-inch pipe and, in 2010, the RWRD hydraulic model indicated flows in the SEI from Park Avenue and I-10 to Euclid Avenue and 18th Street at greater than 85% of the pipe's capacity. Subsequent hydraulic modeling indicated surcharging and potential sanitary overflows in the reach along Euclid during a 10-year, 24-hour storm event. RWRD Capital Planning also anticipates the addition of 6.1 million gallons per day in additional flow attributed to growth along the I-10 corridor.

Public Benefit:

The new interceptor will provide the additional capacity needed for the anticipated future growth and as is required to comply with the Department's Capacity Management, Operations and Maintenance (CMOM) Plan and the Arizona Administrative Code R18-9C305.2.05 General Permit Capacity, Management, Operation and Maintenance of a Sewage Collection System (E)(1)(d).

Metrics Available to Measure Performance:

Earned Value Analysis will be utilized to compare ongoing monthly costs with construction progress up to project completion.

Retroactive:

No

Procure Dept 05/23/16 PM04:23

To: CoB 5-24-16 (1)
Pgs. 90

Original Information

Document Type: _____ Department Code: _____ Contract Number (i.e., 15-123): _____

Effective Date: _____ Termination Date: _____ Prior Contract Number (Synergen/CMS): _____

☐ Expense Amount: \$ _____ ☐ Revenue Amount: \$ _____

Funding Source(s): _____

Cost to Pima County General Fund: _____

Contract is fully or partially funded with Federal Funds? ☐ Yes ☐ No ☐ Not Applicable to Grant AwardsWere insurance or indemnity clauses modified? ☐ Yes ☐ No ☐ Not Applicable to Grant AwardsVendor is using a Social Security Number? ☐ Yes ☐ No ☐ Not Applicable to Grant Awards

If Yes, attach the required form per Administrative Procedure 22-73.

Amendment InformationDocument Type: CT Department Code: WW Contract Number (i.e., 15-123): 15-532Amendment No.: One (1) AMS Version No.: Four (4)Effective Date: June 7, 2016 New Termination Date: _____☒ Expense ☐ Revenue ☐ Increase ☐ Decrease Amount This Amendment: \$15,486,195.41Funding Source(s): RWRD ObligationsCost to Pima County General Fund: \$0.00Contact: Keith E. Rogers Keith E. Rogers McHale 5/18/16Department: Procurement May 9, 2016 Telephone: 724-3542Department Director Signature/Date: [Signature] 5/20/16Deputy County Administrator Signature/Date: [Signature] 5/23/16County Administrator Signature/Date: [Signature] 5/23/16

(Required for Board Agenda/Addendum Items)



REGIONAL WASTEWATER RECLAMATION DEPARTMENT
201 NORTH STONE AVENUE
TUCSON, ARIZONA 85701-1207

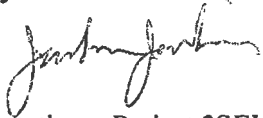
JACKSON JENKINS
DIRECTOR

PH: (520) 724-6500
FAX: (520) 724-9635

April 20, 2016

MEMO TO: C. H. Huckelberry, County Administrator

THRU: John M. Bernal, P.E., Deputy County Administrator – Public Works

FROM: Jackson Jenkins, Director – RWRD 

SUBJECT: South East Interceptor (SEI) Augmentation – Project 3SEI13
Guaranteed Maximum Price (GMP) #1

The Regional Wastewater Reclamation Department (RWRD) has completed negotiations with KE&G, Construction Manager at Risk (CMAR) for the SEI augmentation project. RWRD staff and the CMAR Contractor employed a number of cost saving measures that reduced the initial construction GMP from \$19.7M at the 60% stage of design to the current amount of \$15,486,195.41. Cost saving measures included substituting alternate materials, reducing the scope of work where feasible, requesting variances to RWRD standards to reduce the number of manhole and by evaluating all possible sewer alignment options. The construction is scheduled to begin June 2016 with the mobilization of the contractor on site and it is scheduled to be completed September 2017.

The GMP construction costs are \$5M higher than the original planning estimate of \$10.5M. Items identified during the design and CMAR pre-construction effort that were not accounted for during the planning stage include several high pressure gas line and large diameter water line crossings that will require jack and bore casing installations. Waterline relocations were also not identified during the planning estimate development. Other items that have been added to the project include the historical UPRR railroad which must not be disturbed, again requiring a jack and bore installation to cross this feature, site security, additional concrete junction structures, removal and replacement of asphalt pavement, additional traffic control and the on-site monitoring of construction within 25 ft. of Kinder-Morgan gas lines and in sensitive historic areas.


RWRD would like to request your concurrence to proceed with BOS approval of GMP#1 for the SEI Augmentation project in the amount of \$15,486,195.41.

CONCUR:


John M. Bernal, P.E., Deputy County Administrator

5/23/16
Date

APPROVED:


C. H. Huckelberry, Pima County Administrator

5/23/16
Date

cc: John Warner, RWRD Deputy Director – Conveyance 
Jaime Rivera, Program Manager – Conveyance CIP
Glen Peterson, Civil Engineer Manager – Conveyance CIP

**PIMA COUNTY REGIONAL WASTEWATER
RECLAMATION DEPARTMENT**

PROJECT: Construction Manager At Risk Services
for Southeast Interceptor Augmentation
Project No 3SEI13

CONTRACTOR: KE & G Construction, Inc.
5100 S. Alvernon Way
Tucson, AZ 85706

CONTRACT NO.: CT-WW-15-532

AMENDMENT NO.: One (1)

FUNDING: Regional Wastewater Reclamation Department
Obligations

CONTRACT	
NO.	<u>CT-WW-15-532</u>
AMENDMENT NO.	<u>01</u>
This number must appear on all invoices, correspondence and documents pertaining to this contract.	

CONTRACT TERM: 07/07/2015 - 12/31/2017	ORIGINAL CONTRACT AMOUNT:	\$	520,000.00
TERMINATION PRIOR AMENDMENT: NA	PRIOR AMENDMENT(S):	\$	-
TERMINATION THIS AMENDMENT: 12/31/2017	AMOUNT THIS AMENDMENT:	\$	15,486,195.41
	REVISED CONTRACT AMOUNT:	\$	16,006,195.41

CONSTRUCTION CONTRACT AMENDMENT

WHEREAS, COUNTY and CONTRACTOR have entered into the Contract for the project referenced above; and

WHEREAS, COUNTY and CONTRACTOR, pursuant to Article II, have agreed to incorporate Guaranteed Maximum Price-1 (GMP-1) into the contract for the purchase of long lead equipment, all construction activity and coordination of community relations prior to the commencement of construction and during construction; and,

WHEREAS, COUNTY's acceptance of GMP-1 is subject to the understanding of the Parties that all other elements of future GMPs, if any, are and remain negotiable; and,

WHEREAS, COUNTY and CONTRACTOR pursuant to Article III have agreed to increase the Contract amount as identified in GMP-1.

NOW, THEREFORE, it is agreed as follows:

CHANGE: ARTICLE III – PRECONSTRUCTION PHASE FEE AND GUARANTEED MAXIMUM PRICE

Insert after Paragraph B:

Guaranteed Maximum Price-1 (GMP-1) for the purchase of long lead equipment or materials, all construction activities and coordination of community relations prior to the commencement of construction and during construction as identified in APPENDIX "C" is Fifteen Million Four Hundred Eight-Six Thousand One Hundred Ninety-Five Dollars and Forty-One Cents (\$15,486,195.41). COUNTY reserves the right to negotiate the construction fee, overhead rate, and all other elements of future GMPs, if any.

ADD: AS APPENDIX "C"

APPENDIX "C": Construction Manager at Risk (CMAR) Services for Southeast Interceptor Sewer Augmentation Project No. 3SEI13 GMP-1 Construction Proposal Dated April 20, 2016, including Plan Set "SEI AUGMENTATION SEWER REPLACEMENT PROJECT G-2016-014 (3SEI13), pages 1 – 50, dated February 29, 2016 (76 total pages, attached).

This Amendment shall be effective on June 7, 2016.

All other provisions of the Contract, not specifically changed by this amendment, shall remain in effect and be binding upon the parties.

IN WITNESS WHEREOF, the parties have affixed their signatures to this Amendment on the dates written below.

APPROVED:

Chair, Board of Supervisors

Date

CONTRACTOR:

CW Albright
Signature

CHRISTOPHER W. ALBRIGHT, PRESIDENT
Name and Title (Please Print)

5/23/2016
Date

ATTEST:

Clerk of the Board

APPROVED AS TO FORM:

Charles Wesselhoft
Deputy County Attorney
CHARLES WESSELHOFT

Printed Name

MAY 23 2016
Date

APPENDIX "C":

Construction Manager at Risk (CMAR) Services for Southeast Interceptor Augmentation Project
No. SEI13, GMP-1 Construction Proposal Dated April 20, 2016



5100 S. ALVERNON WAY
TUCSON, ARIZONA 85706
(520) 748-0188
FAX (520) 748 8975

April 20, 2016

Glen Peterson
Pima County Regional Wastewater Reclamation Department
201 N Stone, 3rd Floor
Tucson, AZ 85701

Contract No.: CT-WW-1500000000000000532
Job Name: Construction Manager at Risk Services for Southeast Interceptor
Sewer Augmentation Project
Project No.: 3SEI13
KE&G Job No.: 150216
Subject: FINAL GMP Proposal

Dear Mr. Peterson,

KE&G Construction, Inc. is pleased to submit the Guaranteed Maximum Price Proposal (GMP) for the Southeast Interceptor Sewer Augmentation, project number 3SEI13. Attached you will find KE&G Construction's GMP Construction Price Proposal.

KE&G Construction, Inc. would like to thank Pima County RWRD for the opportunity to provide a GMP proposal on this CMAR. Should you require additional information feel free to call me at (520) 748-0188.

Regards,
KE&G Construction, Inc.

Chris Albright
President

Summary of the GMP
Construction Manager at Risk for Pima County RWRD
Southeast Interceptor Sewer Augmentation Project (3SEI13)

Cost of Construction	\$ 11,224,731.31
CMAR Contingency	\$ 280,618.28
Subtotal Direct Construction Costs	\$ 11,505,349.59
General Conditions	\$ 713,970.00
Overhead	\$ 1,099,738.76
Insurance	\$ 134,203.74
Payment and Performance Bonds	\$ 101,316.00
Subtotal Direct Construction Cost + Gen Cond, Overhead, Bonds, Insurance	\$ 13,554,578.09
Construction Fee (As a percentage of Subtotal above or to exclude any items above)	\$ 745,501.79
Subtotal Direct Construction Cost + Gen Cond, Overhead, Bonds, Insurance and Fee	\$ 14,300,079.88
Arizona Gross Receipts Tax	\$ 850,497.25
Subtotal Direct Construction Cost + Gen Cond, Overhead, Bonds, Insurance, Fee and Tax	\$ 15,150,577.13
OTHER PROJECT COSTS:	\$ -
Owner Contingency	\$ 335,618.28

Scope of Work
Construction Manager at Risk for Pima County RWRD
Southeast Interceptor Sewer Augmentation Project

Project Overview

The scope of the project includes the costs associated with the installation of a new sanitary sewer interceptor. The interceptor is to be installed from the existing sanitary sewer Southeast and Old Nogales interceptor located near 36th Street and Euclid Avenue and progressing westward to 7th Avenue, turning to the north to ultimately tie into the existing Santa Cruz interceptor near 17th Street and the northwest corner of the Tucson Water property.

GMP Scope of Work

The scope of the project includes the installation of approximately 490 lineal feet of 48 inch sanitary sewer pipe, 7,476 lineal feet of 42 inch sanitary sewer pipe, 4,395 lineal feet of 36 inch sanitary sewer pipe, 331 lineal feet of 30 inch sanitary sewer pipe, 165 lineal feet, 1,325 lineal feet of 8 inch sanitary sewer pipe, and 265 lineal feet of 4 inch sanitary sewer. To complete this project it is anticipated that there will be eleven installations of steel casing using jack and bore tunneling, ranging in size from 18 inches to 72 inches. This project will require the installation of four junction structures and one diversion structure. There will be 42 manholes installed on this project. Also included in this GMP is the installation of all necessary demolition and replacement of demolished/damaged asphaltic concrete pavement, curb, sidewalk, slope paving, trench drain, and other miscellaneous obstructions along the alignment. To facilitate the interceptor installation, several waterlines are also required to be relocated. Bypass pumping will be required to complete the interceptor tie-ins and also several locations of contributing lines throughout the project. To minimize the overall impact of the flow management setups, four construction phases will be utilized. Phase 1 will be located at the downstream tie in point, phase 2 from 18th street to 5th avenue, phase 3 from 5th avenue to Euclid avenue in addition to the Osborne sewer realignment, and phase 4 completing the existing SEI tie in at 18th avenue and Osborne.

Southeast Interceptor Sewer Augmentation Project No. 3SEI13
CMAR - Final GMP 04.20.16
KE&G Construction, Inc.

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	GMP VALUE
1.00	Mobilization	1	LS	\$33,400.00	\$33,400.00
1.10	SWPPP	17	MOS	\$4,773.50	\$81,149.50
1.20	Clear And Grub	5.5	ACRE	\$3,461.41	\$19,037.76
1.30	NPPO - Transplant On Site	2	EACH	\$2,250.00	\$4,500.00
2.00	Remove - Asphaltic Pavement	67,725	SF	\$1.48	\$100,233.00
2.10	Remove Concrete Curb	1,082	LF	\$5.26	\$5,691.32
2.20	Remove Sidewalk	2,465	SF	\$1.85	\$4,560.25
2.30	Remove Driveway	292	SF	\$2.39	\$697.88
2.40	Remove Slope Paving	13,330	SF	\$2.31	\$30,792.30
2.50	Remove/Abandon - Existing Sewer Line (8")	1,746	LF	\$9.67	\$16,883.82
2.51	Remove/Abandon - Existing Sewer Line (30")	110	LF	\$31.66	\$3,482.60
2.52	Remove/Abandon - Existing Sewer Line (36")	930	LF	\$34.48	\$32,066.40
2.53	Remove/Abandon - Existing Sewer Manholes	17	EACH	\$2,774.56	\$47,167.52
2.60	Remove - Fencing	550	LF	\$8.00	\$4,400.00
2.80	Remove - Stockpile From A&S Paving	5,700	CY	\$5.43	\$30,951.00
3.00	Purchase Pipe	12,724	LF	\$135.80	\$1,727,919.20
3.01	Purchase / Deliver Sewer Bedding Sand	24,883	TON	\$11.03	\$274,459.49
3.10	Install 30 Inch Sanitary Sewer Interceptor	321	LF	\$117.04	\$37,569.84
3.11	Install 36 Inch Sanitary Sewer Interceptor	4,395	LF	\$117.05	\$514,434.75
3.12	Install 42 Inch Sanitary Sewer Interceptor	7,476	LF	\$117.66	\$879,626.16
3.13	Install 48 Inch Sanitary Sewer Interceptor	491	LF	\$118.47	\$58,168.77
3.20	Repair Small Diameter Sewer Crossings	60	LF	\$216.90	\$13,014.00
3.30	Install 8 Inch Sanitary Sewer Main	1,360	LF	\$45.44	\$61,798.40
3.40	Install 4 Inch House Connection Services	3	EACH	\$2,448.50	\$7,345.50
3.50	Testing Sanitary Sewer Lines	14,043	LF	\$6.48	\$90,998.64
3.60	Furnish And Install CIPP Liner Into Existing 60-inch Diameter	572	LF	\$527.10	\$301,501.20
3.70	Furnish And Install CIPP Liner Into New 8" DIP	363	LF	\$49.82	\$18,084.66
4.10	Jack And Bore 18" Casing And Install Carrier Pipe	60	LF	\$783.47	\$47,008.20
4.20	Jack And Bore 42" Casing And Install Carrier Pipe	60	LF	\$1,228.38	\$73,702.80
4.30	Jack And Bore 54" Casing And Install Carrier Pipe	400	LF	\$1,453.40	\$581,360.00
4.40	Jack And Bore 60" Casing And Install Carrier Pipe	430	LF	\$1,381.30	\$593,959.00
4.50	Jack And Bore 72" Casing And Install Carrier Pipe	90	LF	\$2,401.78	\$216,160.20
4.60	32 LB Magnesium Anodes	66	EACH	\$363.12	\$23,965.92
4.70	Type 5 Corrosion Test Stations	10	EACH	\$4,129.00	\$41,290.00
4.80	Corrosion Testing / Report	1	LS	\$3,000.00	\$3,000.00
5.00	Utility Potholing	67	EACH	\$443.13	\$29,889.71
5.01	Junction Structures	4	EACH	\$77,162.40	\$308,649.60
5.02	Diversion Structure	1	EACH	\$83,569.47	\$83,569.47
5.10	48" Sanitary Sewer Manhole	8	EACH	\$6,348.65	\$50,789.20
5.20	60" Coated Sanitary Sewer Manhole	1	EACH	\$22,818.51	\$22,818.51
5.30	72" Coated Sanitary Sewer Manhole	3	EACH	\$27,876.31	\$83,828.93
5.40	72" Corrosion Resistant Manhole (LF Manufacturing)	8	EACH	\$25,798.70	\$206,389.60
5.50	72" Corrosion Resistant Manhole (Metering) (LF Manufacturing)	1	EACH	\$33,393.21	\$33,393.21
5.60	84" Corrosion Resistant Manhole (LF Manufacturing)	13	EACH	\$31,108.07	\$404,404.91
5.70	Manhole Connections	3	EACH	\$7,167.00	\$21,501.00
5.71	Concrete Manhole Collar (211)	27	EACH	\$500.00	\$13,500.00
5.72	Concrete Manhole Collar (212)	17	EACH	\$600.00	\$10,200.00
5.80	Sanitary Sewer Manhole Testing	44	EACH	\$1,054.32	\$46,390.08
5.90	Odor Control - Install Bio-filter	2	EACH	\$244,200.00	\$488,400.00
5.95	Purchase Metering Equipment	1	EACH	\$10,605.00	\$10,605.00
6.00	Existing SEI Gravity Bypass at 18th Street	90	LF	\$669.86	\$60,287.40
6.10	Contributing Line/Crossing Line Bypass Pumping	58	DY	\$3,758.85	\$218,013.30

6.20	ONI Tie-In Bypass Pumping	45	DY	\$6,543.47	\$284,456.15
6.30	SEI Tie-In Gravity Bypass	45	DY	\$524.12	\$23,585.40
6.40	18th St. Tie-in Bypass Pumping	45	DY	\$5,513.70	\$248,116.50
7.00	Mill / Plate Excavation	3,600	LF	\$17.27	\$62,172.00
7.10	Aggregate Base	2,305	TON	\$30.68	\$70,702.06
7.20	Pathway Paving 2" AC	5,000	SY	\$22.48	\$112,400.00
7.21	Asphalt Paving 3"	1,327	SY	\$14.50	\$19,241.50
7.22	Trench Paving	6,309	SY	\$28.60	\$180,437.40
7.23	Mill / Overlay	16,725	SY	\$11.00	\$183,975.00
7.29	Concrete Curb	1,082	LF	\$30.44	\$32,936.08
7.30	Concrete Sidewalk	2,465	SF	\$8.42	\$20,755.30
7.31	Concrete Driveway	292	SF	\$18.47	\$5,393.24
7.32	Concrete ADA Ramps	2	EACH	\$2,519.76	\$5,039.52
7.33	Concrete ADA Ramps (Multi Use Path)	8	EACH	\$2,261.04	\$18,088.32
7.34	Concrete Channel Lining	26,235	SF	\$9.09	\$238,476.15
7.35	2' Concrete Channel Toe Down	1,020	LF	\$26.07	\$26,591.40
7.36	4' Concrete Channel Cut-Off Wall	70.5	LF	\$49.46	\$3,486.93
7.37	6' Concrete Channel Cut-Off Wall	36	LF	\$64.65	\$2,327.40
7.38	Concrete Headwall	38	LF	\$308.86	\$11,774.68
7.39	Decorative Concrete Wall	40	LF	\$128.25	\$5,130.00
7.40	Concrete Trench Drain	100	LF	\$331.29	\$33,129.00
7.50	Dumped Rip Rap D50=6"	74	CY	\$263.57	\$19,504.18
7.51	Repair Geo-Cell Bank Protection at Airport Wash	800	SF	\$8.61	\$6,888.00
7.52	10th Street Drainage - 24" RCP	164	LF	\$61.12	\$10,023.68
7.53	10th Street Drainage - 24" End Sections	1	EACH	\$2,342.04	\$2,342.04
7.54	10th Street Drainage - Storm Drain Manholes	2	EACH	\$10,547.73	\$21,095.46
7.70	Electrical Signal / Light Pole Removal / Replacement	4	EACH	\$2,299.00	\$9,196.00
7.71	Electrical Signal Loop Replacement	8	EACH	\$906.00	\$7,248.00
7.72	Electrical Service Relocation	1	EACH	\$8,693.00	\$8,693.00
7.80	Striping	1	LS	\$17,516.50	\$17,516.50
7.90	Seeding (Mix #2)	12	ACRE	\$1,839.20	\$22,070.40
8.00	Surveying / As-Built	1	LS	\$71,125.00	\$71,125.00
8.01	Survey Monument	19	EACH	\$126.50	\$2,403.50
8.02	RWRD Abandonment / Location Mounument	7	EACH	\$306.81	\$2,147.67
8.10	Contractor QC	16	MO	\$10,595.66	\$169,530.40
8.30	Relocate 6" PVC Water at 29th St / 12th Ave	165	LF	\$110.90	\$18,298.50
8.40	Relocate 16" PVC at 36th St & 7th Ave	287	LF	\$393.00	\$112,791.00
8.60	Relocate 16" Reclaimed Waterline	830	LF	\$161.64	\$134,161.20
9.00	Existing Fence Replacement	550	LF	\$7.75	\$4,262.50
9.01	Existing Handrail Replacement	336	LF	\$13.65	\$4,586.40
9.02	New Handrail Installation	618	LF	\$19.86	\$12,273.48
9.03	New Post & Cable Barrier	414	LF	\$13.42	\$5,555.88
9.04	Manual Entry Gate Replacement	2	EACH	\$1,275.00	\$2,550.00
9.05	Electric Entry Gate Replacement	2	EACH	\$2,650.00	\$5,300.00
9.15	Remove & Replace Decomposed Granite	4,611	SY	\$5.00	\$23,055.55
9.20	Track Protection	2,930	LF	\$25.83	\$75,681.90
9.30	Traffic Control	400,000	ALLOWANCE	\$1.00	\$400,000.00
9.35	Uniformed Officers	200	HR	\$62.00	\$12,400.00
9.40	Public Relations	16	MO	\$10,034.69	\$160,555.04
9.50	Kinder Morgan Standby/Observation	600	HR	\$75.00	\$45,000.00
9.60	UPRR Railroad Flaggers	40	HR	\$300.00	\$12,000.00
9.70	Utilities - Electrical Pole Support	3	EACH	\$3,000.00	\$9,000.00
9.80	Site Security	7,800	HR	\$16.50	\$128,700.00
9.90	Root Barrier	2,400	LF	\$7.48	\$17,952.00
	CONSTRUCTION TOTAL	1	LS		\$11,224,731.31
10.00	Construction Contingency			2.50%	\$280,618.28

11.00	General Conditions	70	WKS	\$10,199.57	\$713,970.00
	PROJECT MANAGER	35	WK	\$3,370.00	\$117,950.00
	FIELD ENGINEER	70	WK	\$2,290.00	\$160,300.00
	SUPERINTENDENT	70	WK	\$2,560.00	\$179,200.00
	DRINKING WATER / ICE	70	WK	\$25.00	\$1,750.00
	SMALL TOOLS	70	WK	\$600.00	\$42,000.00
	SANITATION / RESTROOMS	140	WK	\$85.00	\$11,900.00
	CONSTRUCTION WATER	7,000	MGAL	\$9.86	\$69,020.00
	LAND RENTAL	32	MOS	\$2,500.00	\$80,000.00
	TEMPORARY FENCING	16	MOS	\$1,075.00	\$17,200.00
	PRINTING / OFFICE SUPPLIES	16	MOS	\$150.00	\$2,400.00
	DUMPSTERS / REFUSE HAULING	32	LDS	\$350.00	\$11,200.00
	CONSTRUCTION FIELD OFFICE	16	MOS	\$600.00	\$9,600.00
	PERMITS	1	LS	\$11,450.00	\$11,450.00
12.00	CMAR Overhead			9.00%	\$1,099,738.76
	Construction + General Conditions Total				\$13,319,058.35
13.00	Payment & Performance Bonds @ 0.8%	1	LS	\$101,316.00	\$101,316.00
	GMP + BOND SUBTOTAL				\$13,420,374.35
14.00	General Liability Insurance @ 1.00%	1	LS	\$134,203.74	\$134,203.74
	SUBTOTAL				\$13,554,578.09
15.00	CMAR Fee			5.50%	\$745,501.79
	SUBTOTAL				\$14,300,079.88
16.00	City of Tucson Sales Tax @ 5.265%	58	PERCENT	\$436,681.54	\$436,681.54
16.01	City of South Tucson Sales Tax @ 8.89%	42	PERCENT	\$413,815.71	\$413,815.71
	TOTAL CONSTRUCTION				\$15,150,577.13
17.00	Owner's Contingency	1	LS	\$335,618.28	\$335,618.28
	TOTAL CONTRACT				\$15,486,195.41

List of Plans & Specifications
Construction Manager at Risk for Pima County RWRD
Southeast Interceptor Sewer Augmentation Project

The GMP submittal is based upon the following plan set:

- Preliminary plans prepared by Westland Resources for Pima County Regional Wastewater Reclamation Department project number G-2016-014 3SEI13 (not sealed). The drawings include sheets numbering 1 through 50, with cover sheet dated February 29, 2016 and labeled: SEI Augmentation Sewer Replacement Project.

The GMP submittal is based up on the following specifications:

- PCRWRD Standard Specifications and Details for Construction 2012 Edition
- PAG Standard Specifications for Public Improvements 2015 Edition
- PC/COT Standard Specifications for Public Improvements 2003 Edition
- PC/COT Standard Details for Public Improvements 2003 Edition
- Tucson Water Standard Specifications and Details for Construction 2011 Edition
- Manual on Uniform Traffic Control Devices 2009 Edition
- Pima County Natural Resources, Parks and Recreation Department Standard Specifications and Details for Park Development 2016 Edition
- ADOT Standard B11.11
- ADOT As-Built Drainage Plans, i-98-010_164, i-98-010_165, i-98-010_166, i-98-010_167, I-2002-047_0076, I-2002-047_0413, I-2002-047_0437

Clarifications & Assumptions
Construction Manager at Risk for Pima County RWRD
Southeast Interceptor Sewer Augmentation Project

SEWER INSTALLATION

Item 1.00 – Mobilization

Equipment mobilization from KE&G Construction, Inc.'s facility location to the project site, and equipment transportation movement throughout the project.

Item 1.10 – SWPPP

Installation, maintenance, and inspection per the general permit to included rock track out pads in 5 locations, stockpile protection, catch basin protection, dirt berms along alignment, and other best management practices.

Item 1.20 – Clear And Grub

Removal, stockpiling, hauling, and disposing, at approved offsite disposal location, of trees and vegetation in conflict with the sewer installation. Does not include salvage relocation or protection in place of existing plants.

Item 1.30 – NPPO – Transplant On Site

Transplant two existing trees identified in the plant inventory to location on site. Includes 1 year warranty on transplanted trees. Does not include irrigation once planted.

Item 2.00 – Remove – Asphaltic Pavement

Removal, stockpiling, hauling, and disposing of asphalt debris generated from the project based upon varied asphalt thickness. Excludes any costs for the testing and removal of hazardous materials.

Item 2.10 – Remove Concrete Curb

Removal, stockpiling, hauling, and disposing of concrete curb generated due to the construction alignment crossing roadways. Excludes any costs for the testing and removal of hazardous materials.

Item 2.20 – Remove Sidewalk

Removal, stockpiling, hauling, and disposing of concrete sidewalk generated due to conflicts with construction alignment. Excludes any costs for the testing and removal of hazardous materials.

Item 2.30 – Remove Driveway

Removal, stockpiling, hauling, and disposing of concrete driveway generated due to the construction alignment crossing roadways. Excludes any costs for the testing and removal of hazardous materials.

Item 2.40 – Remove Slope Paving

Removal, stockpiling, hauling, and disposing of concrete slope paving generated at the ADOT drainage basin located at 29th street east of the frontage road due to the construction alignment. Excludes any costs for the testing and removal of hazardous materials.

Item 2.50 – Remove/Abandon – Existing Sewer Line (8")

Removal of approximately 1,321 LF existing VCP sewer mainline along the Osborne sewer alignment and within Tucson Water's property due to a conflict within the construction alignment. Removal of approximately 425 LF existing CPP sewer mainline along 36th Street in between 6th Avenue and 5th Avenue due to a conflict within the construction alignment. Excludes any costs for the testing and removal of hazardous materials (asbestos cement pipe).

Item 2.51 – Remove/Abandon – Existing Sewer Line (30")

Removal of approximately 110 LF of existing Old Nogales Highway Interceptor sewer mainline due to relocation or conflict with the new sewer mainline location. This item is a not to exceed price for the pipe size. Excludes any costs for the testing and removal of hazardous materials.

Item 2.52 – Remove/Abandon – Existing Sewer Line (36")

Removal of approximately 385 LF of existing sewer mainline due to conflict with new sewer mainline location. Abandon by concrete filling of approximately 545 LF of existing sewer mainline where the lines cross beneath utilities or drainage features. Price for removal and abandonment is a not to exceed amount based upon pipe size. Excludes any costs for the testing and removal of hazardous materials.

Item 2.53 – Remove/Abandon – Existing Sewer Manholes

Removal of 17 existing sewer manholes and structures due to conflict with new sewer mainline location. Nine of the manholes and structures are within the SEI alignment, five are within the Osborne Avenue alignment, and three are associated with flow management pumping. Excludes any costs for the testing and removal of hazardous materials.

Item 2.60 – Remove – Fencing

Removal and salvage for reuse approximately 550 LF of existing fencing at locations in conflict with the construction alignment. This item is a not to exceed amount for the removal of the fencing.

Item 2.80 – Remove – Stock Pile From A&S Paving

Removal, storage, and restoration of approximately 2,850 CY of aggregate stock pile located in A&S Paving's yard. This item is a not to exceed amount for the removal of the aggregate.

Item 3.00 – Purchase Pipe

Includes purchasing 30", 36", 42" and 48" HOBAS pipe, fittings, mitered bends, and freight to the jobsite. Also includes de-nesting and offloading by KE&G.

Item 3.01 – Purchase / Deliver Sewer Bedding Sand

Purchase and delivery of sewer bedding sand.

Item 3.10 – Install 30 Inch Sanitary Sewer Interceptor

Installation of approximately 321 lineal feet of 30" of HOBAS flush reline SN (130) Class PN (0) pipe through casing and SN (46) Class PN (25) in open excavations.

Item 3.11 – Install 36 Inch Sanitary Sewer Interceptor

Installation of approximately 4,395 lineal feet of 36" of HOBAS flush reline SN (90) Class PN (0) pipe through casing and SN (46) Class PN (25) in open excavations.

Item 3.12 – Install 42 Inch Sanitary Sewer Interceptor

Installation of approximately 7,476 lineal feet of 42" of HOBAS flush reline SN (82) Class PN (0) pipe through casing and SN (46) Class PN (25) in open excavations

Item 3.13 – Install 48 Inch Sanitary Sewer Interceptor

Installation of approximately 491 lineal feet of 48" of HOBAS flush reline SN (74) Class PN (0) pipe through casing and SN (46) Class PN (25) in open excavations

Item 3.20 – Repair Small Diameter Sewer Crossings

Repair of small diameter sewer line crossings removed during construction per RWRD Standard Detail 102.

Item 3.30 – Install 8 Inch Sanitary Sewer Main

Installation of approximately 957 lineal feet of 8" of SDR 35 PVC and 368 LF of 8" bare CL350 DIP.

Item 3.40 – Install 4 Inch House Connections Services

Reconnection of existing HCS lines to existing mainlines or the new interceptor. The 4 inch sewer services will be extended to the property line with a cleanout assembly installed at the property line. Existing services will tie into the new cleanout assembly. New services shall continue to a manhole with an internal drop.

Item 3.50 – Testing Sanitary Sewer Lines

Includes pressure testing and deflection testing of pipelines per ARS Title 18 guidelines. CCTV inspection of completed pipelines is to be provided by RWRD.

Item 3.60 – Furnish And Install CIPP Liner Into Existing 60-inch Diameter

Includes the cleaning and installation of approximately 572 LF of 60 inch diameter cured in place pipe liner downstream of project tie-in. Due to fiberglass bottom of new structure, epoxy will be utilized to provide 6" transition for flow channel up to pipe spring line on each end. This item is a not to exceed amount for the liner.

Item 3.70 – Furnish And Install CIPP Liner Into New 8" DIP

Includes the cleaning and installation of approximately 363 LF of 8 inch diameter, 6mm thickness, cured in place pipe liner from upstream MH #28 to downstream MH #7. This item is a not to exceed amount for the liner.

Item 4.10 – Jack And Bore 18" Casing And Install Carrier Pipe

This item is based on an approximate length of 60 LF of .5 inch wall steel casing pipe to be auger bored, unrestrained carrier pipe to be placed on casing spacers inside of the 18 inch casing, ends will be brink and mortared, annular space to be filled with pea gravel, and end seals to be installed.

Item 4.20 – Jack And Bore 42” Casing And Install Carrier Pipe

This item is based on an approximate length of 60 LF of .562 inch wall steel casing pipe to be auger bored, unrestrained carrier pipe to be placed on casing spacers inside of the 42 inch casing, ends will be brink and mortared, annular space to be filled with pea gravel, and end seals to be installed.

Item 4.30 – Jack And Bore 54” Casing And Install Carrier Pipe

This item is based on an approximate length of 400 LF of .75 inch wall steel casing pipe to be auger bored, unrestrained carrier pipe to be placed on casing spacers inside of the 54 inch casing, ends will be brink and mortared, annular space to be filled with pea gravel, and end seals to be installed.

Item 4.40 – Jack and Bore 60” Casing And Install Carrier Pipe

This item is based on an approximate length of 430 LF of .781 inch wall steel casing pipe to be auger bored, unrestrained carrier pipe to be placed on casing spacers inside of the 60 inch casing, ends will be brink and mortared, annular space to be filled with pea gravel, and end seals to be installed.

Item 4.50 – Jack and Bore 72” Casing And Install Carrier Pipe

This item is based on an approximate length of 90 LF of 1 inch wall steel casing to be auger bored, unrestrained carrier pipe to be placed on casing spacers inside of the 72 inch casing, ends will be brink and mortared, annular space to be filled with pea gravel, and end seals to be installed.

Item 4.60 – 32 LB Magnesium Anodes

Included purchase and installation at casing ends.

Item 4.70 – Type 5 Corrosion Test Stations

Includes purchase and installation above pipe with a maximum of 40 foot leads.

Item 4.80 – Corrosion Testing / Report

Reporting and testing performed by certified NACE technician.

Item 5.00 – Utility Potholing

Verification of utilities within the alignment through potholing.

Item 5.01 – Junction Structures

Junction structures shall be single piece fiberglass structure manufactured by LF Manufacturing. Junction structures will have downstream HOBAS pipe stubs cast with an ADOT pipe collar and lined with CIPP. Designer is to provide structural design for base slabs where applicable.

Item 5.02 – Diversion Structure

LF Manufacturing provided fiberglass structure with redwood stop logs. This item is based on the installation of a diversion structure that will allow for the connection of large diameter lines. Based upon the flow configuration, this structure will allow for future diversion of flows as needed. Designer is to provide structural design for base slab if applicable.

Item 5.10 – 48” Sanitary Sewer Manhole

Installation of 8 new concrete manholes per RWRD Std. Dtl. 205. Concrete collar installation is included in Items 5.71 and 5.72.

Item 5.20 – 60” Coated Sanitary Sewer Manhole

Installation of a new concrete manhole per RWRD Std. Dtl. 206. Includes Raven interior corrosion protection coating. Concrete collar installation is included in Item 5.71.

Item 5.30 – 72” Coated Sanitary Sewer Manhole

Installation of 3 new 72 inch cast-in-place concrete manholes. Includes Raven interior corrosion protection coating. Concrete collar installation is included in Items 5.71 and 5.72.

Item 5.40 – 72” Corrosion Resistant Manhole (LF Manufacturing)

Installation of 8 new 72 inch corrosion resistant manholes. Manholes to have eccentric cones and ladder based upon project drawings and shop approved shop drawings. If field conditions change ladder location, relocation shall be performed by owner. Concrete collar installation is included in Items 5.71 and 5.72.

Item 5.50 – 72” Corrosion Resistant Manhole (Metering) (LF Manufacturing)

Installation of a new 72 inch corrosion resistant metering manhole, MH#6. Manholes to have eccentric cones and ladder based upon project drawings and shop approved shop drawings. If field conditions change ladder location, relocation shall be performed by owner Concrete collar installation is included in Items 5.72. The purchase of metering equipment is included in Item 5.95.

Item 5.60 – 84” Corrosion Resistant Manhole (LF Manufacturing)

Installation of 13 new 84 inch corrosion resistant manholes. Manholes to have eccentric cones and ladder based upon project drawings and shop approved shop drawings. If field conditions change ladder location, relocation shall be performed by owner Concrete collar installation is included in Items 5.71 and 5.72.

Item 5.70 – Manholes Connections

Connection to existing manholes on small diameter connecting lines and existing SEI diversion structure, including modifications of base as necessary.

Item 5.71 – Concrete Manhole Collar (211)

Installation of 27 concrete collars per RWRD Std. Dtl. 211 as necessary on 24” diameter covers.

Item 5.72– Concrete Manhole Collar (212)

Installation of 17 concrete collars per RWRD Std. Dtl. 212 as necessary on 24” diameter covers.

Item 5.80 – Sanitary Sewer Manhole Testing

Vacuum testing of sanitary sewer manholes per Arizona Administrative Code Title 18, Ch.9 Section 3.e. Structure with hatch shall be water tested.

Item 5.90 – Odor Control – Install Biofilter

Includes the installation of two new biofilters. Not to exceed anticipated for all biofilter associated work, not limited to: concrete, electrical, purchase and installation of media, fans, excavation, suction/discharge piping, restoration, removals, etc.

Item 5.95 – Purchase Metering Equipment

Provided as an allowance including procurement of new metering equipment as specified by RWRD to be installed by RWRD in the new metering manhole, MH#6. Corresponding pole, electrical, foundation, and conduits to be provided and installed by Pima County.

Item 6.00 – Existing SEI Gravity Bypass at 18th Street

Installation of 2 new uncoated, precast risers over a CIP base manholes and approximately 90 LF of F679 PVC. This line is to be abandoned in Phase 4 of construction.

Item 6.10 – Contributing Line/Crossing Line Bypass Pumping

Bypass pumping of small diameter lines that will be tied into the new line or lines that will be crossing the excavation and will need to be bypassed to allow for installation of the new pipeline. Hydrostatic pressure testing of flow management main-line discharge lines to be tested at 30 PSI. Suction and discharge hoses connected directly to pumps are exempt from these pressure tests. HDPE discharge lines to be disinfected and cleaned prior to removal using 12.5% Hypochlorite solution, the use of Bauer or Victaulic type couplings are assumed to be allowed.

Item 6.20 – ONI Tie-In Bypass Pumping

Bypass pumping of large diameter lines at the tie-in locations to allow for installation of the new pipeline. Hydrostatic pressure testing of flow management main-line discharge lines to be tested at 1.5 times the operating pressure of the system or at 45 PSI, whichever is greater. Suction and discharge hoses connected directly to pumps are exempt from these pressure tests. HDPE discharge lines to be disinfected and cleaned prior to removal using 12.5% Hypochlorite solution. Only includes bypass pumping for the upstream tie-in, the downstream tie-in.

Item 6.30 – SEI Tie-In Gravity Bypass

A flow through disk plug and rigid pipe bypass shall be used upstream and inflatable bypass plug downstream. Air pressure inflation assumed to be monitored once daily.

Item 6.40 – 18th Street Tie-In Bypass Pumping

Bypass pumping of large diameter lines at the tie-in locations to allow for installation of the new pipeline. Hydrostatic pressure testing of flow management main-line discharge lines to be tested at 1.5 times the operating pressure of the system or at 45 PSI, whichever is greater. Suction and discharge hoses connected directly to pumps are exempt from these pressure tests. HDPE

discharge lines to be disinfected and cleaned prior to removal using 12.5% Hypochlorite solution. Only includes bypass pumping for the upstream tie-in, the downstream tie-in.

Item 7.00 – Mill / Plate Excavation

Trenches will be plated for protection of traffic while crews are not working. Per the City of Tucson Standard, the plates will be milled to a depth flush with existing asphalt and cold mix applied in place.

Item 7.10 – Aggregate Base

Delivery and installation of PAG specification aggregate base materials for permanent trench patching in addition to new ABC beneath the Greenway path from 25th street to 36th street.

Item 7.20 – Pathway Paving 2" AC

Installation of up to 2 inches of PAG specification mix no. 3 arterial. Pathway paving is bid to pave the Greenway path from 25th St. to 36th St. 12 feet wide with thickened edge . Included is the installation of pathway striping, concrete approaches, and post barricades.

Item 7.21 – Asphalt Paving 3"

Installation of up to 3 inches of PAG specification mix no. 2 arterial. Asphalt paving is bid to match the existing pavement areas along 12th Ave. and A&S Paving's yard that will need to be restored after construction. Excludes cost of any chip sealing, crack sealing, or fog coating.

Item 7.22 – Trench Patching

Installation of up to 5 inches of PAG specification mix no. 2 arterial. Trench patching or restoration is bid to match the existing for any pavement areas disrupted. Replacement per PC/COT Std. Dtl. 216 Type 2. Excludes cost of any chip sealing, crack sealing, or fog coating.

Item 7.23 – Mill / Overlay

Milling and installation of up to 2 inches of PAG specification mix no. 2 arterial. Mill and overlay will take place along 36th St. starting just east of 7th Ave. to Euclid Ave. Excludes cost of any chip sealing, crack sealing, or fog coating.

Item 7.29 – Concrete Curb

Replacement of approximately 1,082 LF of concrete curb per PC/COT Std. Dtl. 209 in various locations through the project alignment. This item is intended to be a not to exceed amount for the replacement of concrete curb.

Item 7.30 – Concrete Sidewalk

Replacement of approximately 2,465 SF of concrete sidewalk per PC/COT Std. Dtl. 200 in various locations through the project alignment. This item is intended to be a not to exceed amount for the replacement of concrete sidewalk.

Item 7.31 – Concrete Driveway

Replacement of approximately 292 SF of concrete driveway per PC/COT Std. Dtl 206 in various locations through the project alignment. This item is intended to be a not to exceed amount for the replacement of concrete driveway.

Item 7.32 – Concrete ADA Ramps

Replacement of approximately 2 concrete ADA ramps per PC/COT Std. Dtl. 207 in various locations through the project alignment. This item is intended to be a not to exceed amount for the replacement of concrete ADA ramps.

Item 7.33 – Concrete ADA Ramps (Multi Use Path)

Installation of 8 concrete ADA ramps per ADOT Dwg. No. C-05.30, modified sidewalk ramp type E.

Item 7.34 – Concrete Channel Lining

Installation of approximately 26,235 SF of concrete slope paving per project drawings. Approximately 12,250 square feet is located at the ADOT retention basin with the remaining at the outlet for 10th street drainage and greyhound wash improvements. This item is intended to be a not to exceed amount for the installation of concrete channel lining.

Item 7.35 – 2' Concrete Channel Toe Down

Installation of approximately 1,020 LF of concrete toe down per project drawings located at the top of slope along drainage improvements. This item is intended to be a not to exceed amount for the installation of concrete toe down.

Item 7.36 – 4' Concrete Channel Cut-Off Wall

Installation of approximately 70.5 LF of 4 foot concrete cut-off wall per project drawings located in greyhound wash. This item is intended to be a not to exceed amount for the installation of concrete channel cut-off wall.

Item 7.37 – 6' Concrete Channel Cut-Off Wall

Installation of approximately 36 LF of 6 foot concrete cut-off wall project drawings located in greyhound wash. This item is intended to be a not to exceed amount for the installation of concrete channel cut-off wall.

Item 7.38 – Concrete Headwall

Replacement of approximately 38 LF of concrete headwall per ADOT plan I-2002-047 located at the drainage outlet near 29th street into the ADOT retention basin. This item is intended to be a not to exceed amount for the installation of concrete headwall.

Item 7.39 – Decorative Concrete Wall

Replacement of approximately 40 LF of decorative wall where the future ONI augmentation sewer connects with the new SEI augmentation sewer. This item is intended to be a not to exceed amount for the replacement of decorative concrete wall.

Item 7.40 – Concrete Trench Drain

Replacement of approximately 100 LF of concrete trench drain crossing 36th St. Grating is to be salvaged and reused. This item is intended to be a not to exceed amount for the replacement of concrete trench drain.

Item 7.50 – Dumped Rip Rap D50=6”

Installation of approximately 75 CY of 6 inch rip rap located at greyhound wash and headwall outlet at the ADOT retention basin. This item is intended to be a not to exceed amount for the installation of rip rap.

Item 7.51 – Repair Geo-Cell Bank Protection at Airport Wash

Includes approximately 800 SF of Geo-Cell material to be wire back to the existing bank protection. This item is intended to be a not to exceed amount for the repair of geo-cell bank protection.

Item 7.52 – 10th Street Drainage 24” RCP

Installation of approximately 164 LF of 24 inch Class V RCP near 10th Street. This item is intended to be a not to exceed amount for the installation of 24” RCP.

Item 7.53 – 10th Street Drainage 24” End Section

Installation of a 24 inch RCP end section.

Item 7.54 – 10th Street Drainage – Storm Drain Manholes

Installation of 2 storm drain manholes per PC/DOT Std. Dtl. 302.

Item 7.70 – Electrical Signal / Light Pole Removal / Replacement

The removal and replacement of 4 signal / light poles that are required in conjunction with the sewer installation.

Item 7.71 – Electrical Signal Loop Replacement

Includes replacing advance loops and stop loops at the intersections that are damaged due to the pipeline installation.

Item 7.72 – Electrical Service Relocation

The relocation, up to 20 feet along the current electrical trench alignment, of the existing electrical service located within the new SEI alignment on 22nd St. Land's property.

Item 7.80 – Striping

Striping that is demolished or damaged by equipment and trench plates throughout the project. Temporary paint as well as thermoplastic replacement of stop bars, skip lines, reflective pavement markers, crosswalks, and legends are included.

Item 7.90 – Seeding (Mix #2)

Placement of standard PC/COT seed mix #2 in areas disturbed by construction activities. Includes approximately 22 LB of seed, 1,500 LB of mulch, and 100 LB of fertilizer per acre as accepted by PCDOT on past roadway projects. This item is intended to be a not to exceed amount for the placement of seeding.

Item 8.00 – Survey / As-Builts

Includes construction survey, control verification, utility potholing verification, and as-built survey for the work in place.

Item 8.01 – Survey Monument

Replacement of survey monuments that are disturbed in conjunction with the sewer installation.

Item 8.02 – RWRD Abandonment / Location Monument

Installation of abandonment and locations monuments that are required in conjunction with the sewer installation.

Item 8.10 – Contractor QC

Includes full time inspection to achieve testing every 2 vertical feet, beginning 4 feet above top of pipe of new sewer installation and compaction tests every 2 vertical feet of manhole backfill. It is anticipated that concrete to be tested except curb, sidewalk, ADA ramps, and concrete flatwork.

Item 8.30 – Relocate 6" PVC Water at 29th Street & 12th Ave.

Includes the removal / relocation of an existing 6" water line at the intersection of 12th Avenue and 29th Street in the city of South Tucson.

Item 8.40 – Relocate 16" PVC Water at 36th Street

Includes the relocation of an existing 16" reclaimed water line in the city of South Tucson.

Item 8.60 – Relocate 16" Reclaimed Water Line

Includes relocation of existing 16 inch reclaimed water main with 60" of cover along 36th St. between 6th Ave. and 4th Ave. to facilitate installation of the new SEI augmentation sewer.

Item 9.00 – Existing Fence Replacement

Replacement of approximately 550 LF of fencing that is disturbed in conjunction with the sewer installation. This item is intended to be a not to exceed amount for the replacement of existing fencing.

Item 9.01 – Existing Handrail Replacement

Replacement of approximately 336 LF handrail along sewer alignment that is disturbed in conjunction with the sewer installation. Includes salvaging, repainting, and installation of existing handrail. This item is intended to be a not to exceed amount for the replacement of existing handrail.

Item 9.02 – New Handrail Installation

Installation of approximately 618 LF of new handrail along the Greyhound Wash Drainage Improvements. Pima County 105 detail with mid rail. Mid rail is to be face welded to vertical posts. This item is intended to be a not to exceed amount for the installation of new handrail.

Item 9.03 – New Post & Cable Barrier

Installation of approximately 414 LF of new post and cable barrier per Pima County Natural Resources, Parks and Recreation Department Std. Dtls. 400, 401 & 403. This item is intended to be a not to exceed amount for the installation of new post & cable barrier.

Item 9.04 – Manual Entry Gate Replacement

Replacement of manual entry gates that are disturbed in conjunction with the sewer installation.

Item 9.05– Electric Entry Gate Replacement

Replacement of electrified entry gates that are disturbed in conjunction with the sewer installation.

Item 9.15 – Remove And Replace Decomposed Granite

Removal and replacement of decorative decomposed granite landscaping that is disturbed during the project.

Item 9.20 – Track Protection

Installation of high survivability filter fabric followed by a 2 inch layer of sand to protect existing abandoned railroad tracks from construction activities.

Item 9.30 – Traffic Control

Includes daily setup and takedown of traffic control devices as needed for the duration of the project.

Item 9.35 – Uniformed Officers

City of Tucson off duty officers utilized for point control while crossing the intersections as needed.

Item 9.40 – Public Relations

Need for public relations outreach to businesses, public meetings, website construction updates, and hotline phone monitoring for the anticipated project duration.

Item 9.50 – Kinder Morgan Standby/Observation

Due to the proximity of the new sewer main to the existing Kinder Morgan pipeline, an inspector from Kinder Morgan will need to be present for the crossing and also an area that parallels the Kinder Morgan line west of 10th Street.

Item 9.60 – UPRR Railroad Flaggers

To be used during jack and bore at 36th St. and the UPRR crossing. Pricing includes track monitoring based upon past jack and bore approved methods.

Item 9.70 – Utilities – Electrical Pole Support

It is anticipated that there will be 3 locations that will require the existing utility poles to be supported with A-frames to allow excavation in the vicinity.

Item 9.80 – Site Security

Security for the project area during off work hours.

Item 9.90 – Root Barrier

Installation of root barrier each pipe joint along the Greenway alignment between 17th St. and 22nd St.

General

1. Normal weather conditions are expected on this project, as such, KE&G expects average rainfall to equal 1 day per month. Weather related days can be claimed during rainfall events or after rainfall events on days no rain has occurred. The project is expected to last 16 months, so we can anticipate sixteen (16) rain days.
2. Clarifications and Assumptions included in this Exhibit or others take precedence over all Special Provisions or Contract Requirements on this project.
3. Excludes cost for existing utility relocation other than indicated above.
4. Excludes NPPO relocation/mitigation cost other than the two (2) trees provided.
5. Excludes temporary construction easement cost.
6. Excludes dewatering of ground water.
7. Excludes ADEQ review fees.
8. Soil conditions of native soil indicates expansive clay material. KE&G has made Designer and Owner aware of future trench consolidation once water is introduced along the Greenway. KE&G is not liable for future re=compaction necessary beyond 1 year warranty along the alignment, as inspections, compaction, and testing procedures will be completed to the best of Contractor's ability.
9. Removal and disposal or restoration of miscellaneous items such as bollards, signs, water meters, or miscellaneous landscaping plantings at locations in conflict with the construction alignment are to be completed on an as needed basis are anticipated to be covered utilizing the owner's contingency.

Subcontractor Selection / SBE
Construction Manager at Risk for Pima County RWRD
Southeast Interceptor Sewer Augmentation Project

Subcontractor Selection

KE&G performed subcontractor selection based upon the subcontractor selection plan as submitted under the project Statement of Qualifications. The following firms were selected based upon price and qualification for the associated scopes of work.

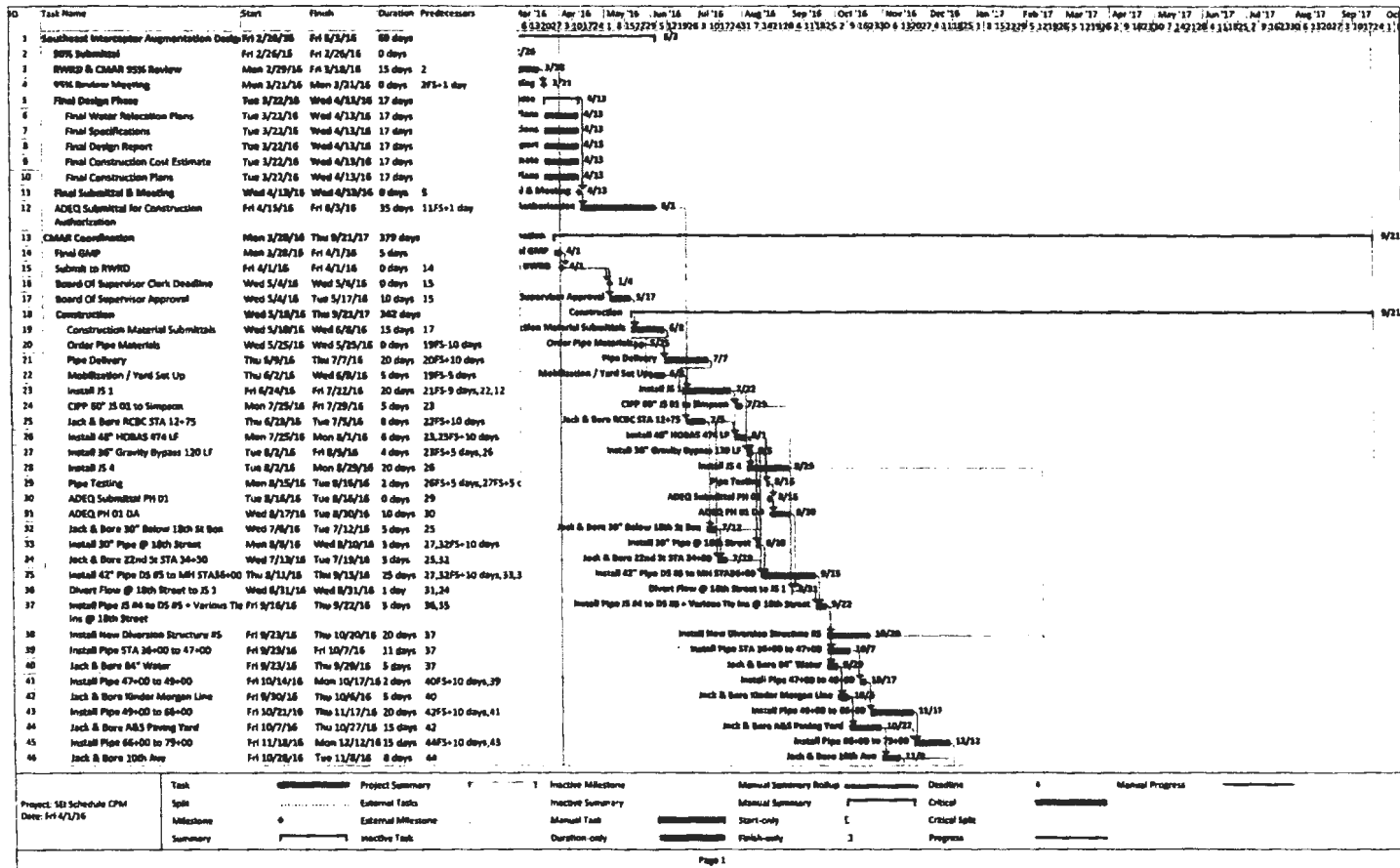
A&S Paving, Inc.	- Asphalt Patching / Aggregate Base Course
ATL, Inc.	- Quality Control
BBK Fencing, LLC.	- Fencing / Handrail
Custom Saw Cuts, Inc.	- Concrete – Asphalt / Sawcutting and Coring
Desert Trucking	- Hauling
Dowl	- Surveying
Harvey Trucking	- Hauling
Insituform Technologies, Inc.	- CIPP Pipe Lining
Jenco Construction, LLC	- Manhole Construction
Kaneen Advertising & PR	- Public Relations
Leyland Stevens Trucking	- Hauling
P.A.C.E. Construction, LLC	- Electrical / Traffic Signals
Peak Corrosion Control	- Corrosion Testing
Professional Pipe Services	- Pipe Cleaning / CCTV
RoadSafe Traffic Systems	- Traffic Control / Striping
Southwest Environmental	- Manhole Coatings
Specialized Services Company	- Jack & Bore
Sunrise Trucking	- Hauling
Revegetation Services	- Hydroseeding

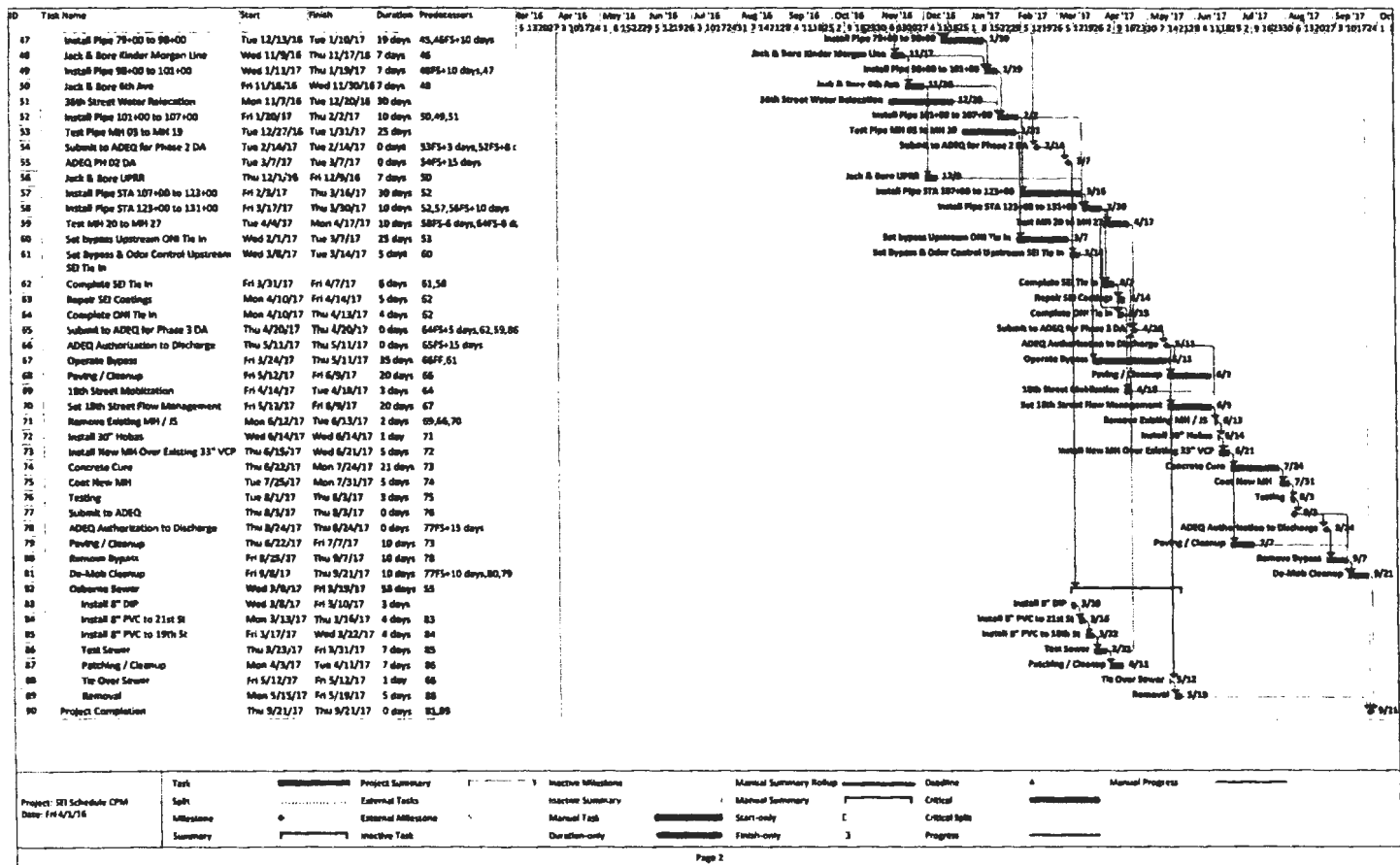
Vet-Sec Protection Agency - Security

SBE Utilization

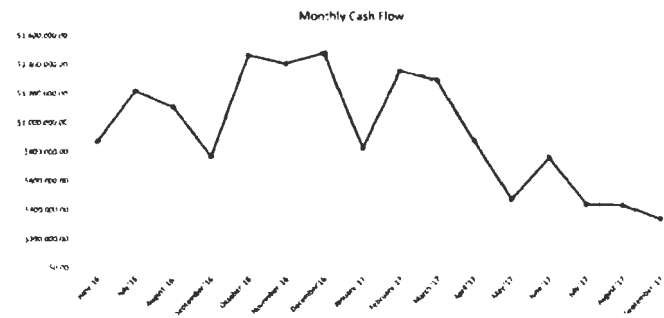
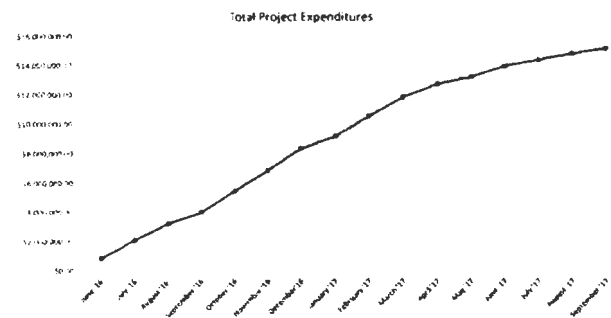
KE&G Construction is proposing to meet a 5% Small Business Utilization by way of the following contractors and associated value.

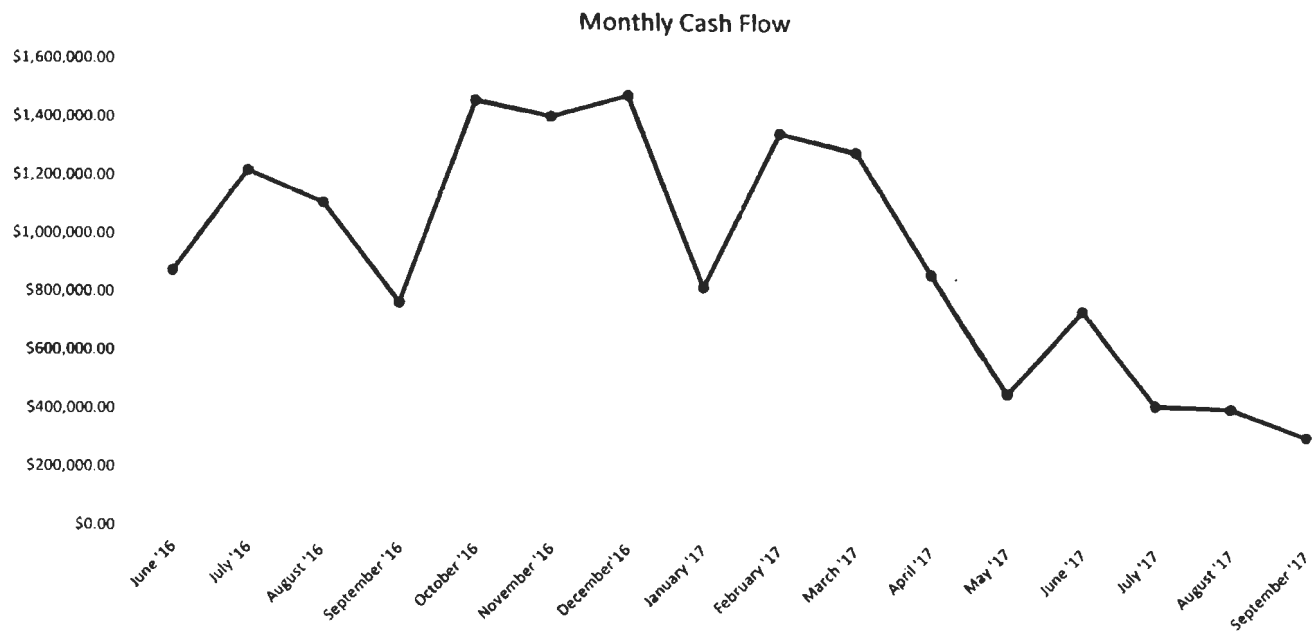
A&S Paving	- \$ 480,372.00
Kaneen Advertising & PR	- \$ 118,000.00
Desert Trucking	- \$ 136,025.35
Leyland Stevens Trucking	- \$ 23,131.51
TOTAL	- \$ 757,528.86

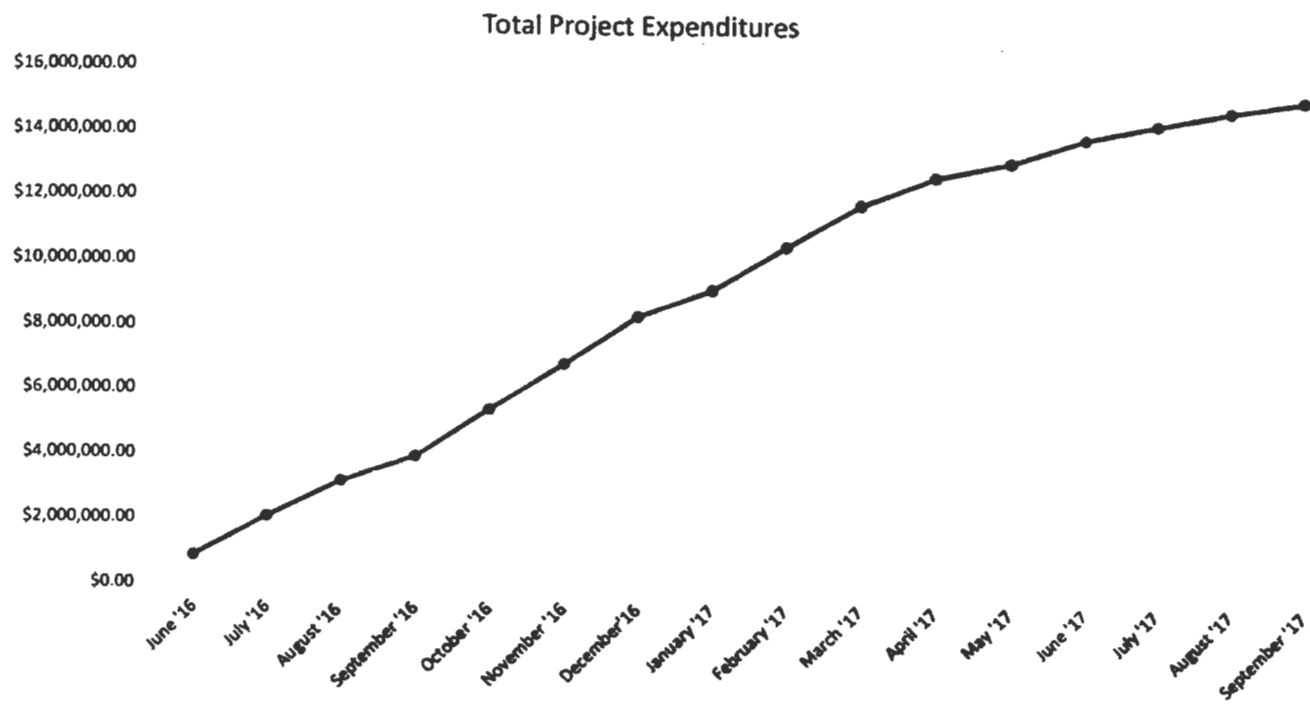




Month	June '16	July '16	August '16	September '16	October '16	November '16	December '16	January '17	February '17	March '17	April '17	May '17	June '17	July '17	August '17	September '17
Monthly Cash Flow	\$673,540.36	\$1,718,464.73	\$1,110,400.58	\$769,517.09	\$1,464,689.34	\$1,409,918.83	\$1,483,661.80	\$830,499.99	\$1,356,777.21	\$1,299,757.92	\$680,733.18	\$477,032.40	\$762,327.60	\$441,891.89	\$433,914.16	\$379,447.41
Total Project Expenditures	\$873,540.36	\$7,097,005.10	\$3,302,413.67	\$1,971,938.77	\$5,436,620.11	\$6,846,538.94	\$8,330,200.74	\$9,160,700.67	\$10,319,477.88	\$11,815,235.70	\$12,899,968.88	\$13,173,001.28	\$14,935,373.87	\$16,377,215.54	\$16,811,129.72	\$15,150,577.13







G-2016-014 (3SEI13)
FEBRUARY 29, 2016

LEADS MEMO COVER SHEET

GENERAL SEWER NOTES

1. THE DESIGN STANDARDS, MATERIALS AND WORKMANSHIP FOR PUBLIC SANITARY SEWERS SHALL BE IN ACCORDANCE WITH THE PIMA COUNTY REGIONAL WASTEWATER RECLAMATION DEPARTMENT (PWRD) ENGINEERING DESIGN STANDARDS 2012 (EDS 2012) AND THE STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION 2012 (SSC 2012) SAID DOCUMENTS ARE AVAILABLE THROUGH THE PWRD WEBSITE (www.pima.gov/wwr/enr/desig_stand.htm).
2. THE CONTRACTOR SHALL CONDUCT AN ARIZONA RPT (DIAL RPT NO. 1-900-793-1341) A MINIMUM OF TWO (2) BUSINESS DAYS PRIOR TO COMMENCING ANY EXCAVATION. THE CONTRACTOR SHALL KEEP ALL UNDERGROUND FACILITY LOCATION REQUESTS (UP-TO-DAT) AND COMPLY WITH APPLICABLE ARIZONA REVEAL STATUTES (A.R.S. TITLE 48, CHAPTER 1, ARTICLE 6.5, SECTION 40-360-202) CONCERNING THE ACCURACY BETWEEN THE UNDERGROUND FACILITY MARKINGS AND THE PROJECT PLANS SHALL BE REPORTED IMMEDIATELY TO THE DESIGN ENGINEER.
3. THE CONTRACTOR SHALL FIELD VERIFY EXISTING SEWER LINE ELEVATIONS AND ALIGNMENTS PRIOR TO CONSTRUCTION AND IMPLEMENTATION; VERIFICATION MAY REQUIRE POT-HOULING.
4. HOUSE OR BUSINESS CONNECTION SEWERS (HCS OR BCS) ARE NOT PART OF THE PUBLIC SANITARY SEWER CONVEYANCE SYSTEM. PRIVATE CONNECTION SEWERS CONSTRUCTED PRIOR TO JANUARY 2008 ARE NOT REQUIRED TO BE BELL STIFFED. ANY INCISED ENCOUNTERED DURING CONSTRUCTION SHALL BE PROTECTED, REPAIRED, OR REPLACED, AS THE SITUATION DICTATES PER PWRD SSC 2012, DETAIL RMD 400 AND AT NO EXPENSE TO THE PROPERTY OWNER OR PWRD.
5. ANY ACTIVITY THAT MIGHT AFFECT THE SANITARY SEWER SYSTEM (MATERIALS ENTERING THE SYSTEM, CLEANER AND TREATMENT) REQUIRES APPROVAL AND/OR PERMITS BY PWRD PRIOR TO ANY ACTIVITY.
6. SEWER CONSTRUCTION SHALL NOT COMMENCE UNTIL (A) ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY (ADEQ) HAS ISSUED A CERTIFICATE OF CONSTRUCTION AUTHORIZATION FOR THIS PROJECT AND (B) THE CONTRACTOR HAS OBTAINED A PUBLIC SEWER CONSTRUCTION PERMIT FROM PWRD (SSC 2012, DETAIL RMD 400). A PRE CONSTRUCTION MEETING WITH THE ASSIGNED PIMA COUNTY PROJECT FIELD INSPECTOR IS SCHEDULED AT 1:00 PM (THURSDAY) 1:00 PM WORKING DAYS PRIOR TO THE START OF SEWER CONSTRUCTION. FLOW MANAGEMENT PLANS SHALL BE SUBMITTED TO FIELD ENGINEERING 7-DAYS (30) DAYS PRIOR TO THE PRE-CONSTRUCTION MEETING.
7. IMMEDIATELY REPORT ANY OF THE FOLLOWING TO EITHER PWRD FIELD ENGINEERING (520) 740-2653 OR PWRD (520) 740-2653: (A) ANY UNUSUAL RELEASE OF SEWAGE, ANY DAMAGE TO THE PUBLIC SANITARY SEWER SYSTEM, OR THE DROPPING OF DEBRIS INTO THE PUBLIC SANITARY SEWER SYSTEM, OR WEEDS/GRASS, HOLES, OR BETWEEN 5:00 PM AND 7:00 AM, IMMEDIATELY CALL PWRD OPERATIONS CONTROL CENTER AT 520-774-ADAR AND REQUEST A PWRD REPRESENTATIVE TO BE DISPATCHED TO THE SITE. TAKE IMMEDIATE ACTION TO CONTAIN THE SANITARY SEWER OVERFLOW (SSO) FROM THE SEWER SYSTEM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS TO REPAIR THE SYSTEM FOR ALL EXPENSES TO MITIGATE THE RELEASE AND TO DEFLECT THE REPEAT OFFENSE AND FOR ANY REGULATORY PENALTIES IMPOSED ON PWRD (PLEASE SEE SSC 2012, DETAIL RMD 400). (B) ANY OTHER SEWER WATER DRAINAGE SYSTEM. (C) IF THE CONTRACTOR SUSTAINS ANY DAMAGE AS DIRECTED AND APPROVED BY PWRD.
8. THE INSPECTION OF THE CONTRACTOR'S WORK BY AN AGENCY AND/OR PWRD STAFF SHALL IN NO WAY RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY FOR COMPLIANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS, CONSTRUCTION PLANS AND/OR SPECIFICATIONS. IF THE ENGINEER OF RECORD OR PWRD STAFF FAIL TO POINT OUT A DEFECT, DEFICIENCY OR ERROR IN THE WORK FROM LACK OF DISCOVERY OR FOR ANY OTHER REASON, IT SHALL IN NO WAY PREVENT LATER REJECTION OR REJECT THE CONTRACTOR OF PERFORMANCE RESPONSIBILITIES TO THE UNSATISFACTORY WORK WHEN DISCOVERED. THE CONTRACTOR SHALL NOT FILE A CLAIM FOR LOSSES SUFFERED DUE TO ANY NECESSARY REMEDIAL OR REPAIRS RESULTING FROM THE UNSATISFACTORY WORK.
9. THE CONTRACTOR SHALL COMPLY WITH APPLICABLE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) REGULATIONS AT ALL TIMES AND PWRD MANHOLE ENTRY GUIDELINES.
10. ALL ROUGH GRADING, INCLUDING FILL, SHALL BE COMPLETED PRIOR TO THE INSTALLATION OF SUFFICIENT GRADES TO A MINIMUM OF 4 FEET ABOVE THE TOP OF THE SEWER PIPE AND COMPANION AS INDICATED ON THE PLANS OR AS OTHERWISE DIRECTED BY PWRD.
11. BEDDING, SHADING, AND TRENCH BACKFILL COMPACTION SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL REPORT BY CONSULTANT/JOE NO. 14-0424, SSC 2012 SECTION 3.1 AND SSC 2012 DETAIL RMD 400. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL UNSATISFACTORY SOIL CONDITIONS BE ENCOUNTERED, THE BEDDING SHALL BE WORKED BY THE ENGINEER OF RECORD AND APPROVED BY PWRD.
12. SANITARY SEWER CONSTRUCTION SHALL START AT THE LOWEST DOWNSTREAM POINT AND PROGRESS UPSTREAM, REGARDLESS OF THE STATIONING SHOWN ON THE PLANS. IF NOT THE CONTRACTOR SHALL PROVIDE AN OUT OF SEQUENCE LETTER FOR APPROVAL BY PWRD.
13. NEW PUBLIC SEWER FACILITIES MUST BE TESTED, INSPECTED AND AUTHORIZED FOR DISCHARGE BY ADO PRIOR TO DISCHARGING INTO THE EXISTING PUBLIC SANITARY SEWER.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RETAINING AN ARIZONA REGISTERED LAND SURVEYOR TO IDENTIFY THE EXACT FINAL LOCATION AND LAYOUT OF NEW SANITARY SEWERS AND PREPARE THE SEWER AS-BUILT PLANS. SEWER AS-BUILT PLANS SHALL CONFORM TO SUBSECTION 14.1 OF THE PWRD STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION 2012 AND ARE REQUIRED FOR FINAL ACCEPTANCE OF SEWER CONSTRUCTION BY PWRD. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A VERSION TO PWRD FIELD ENGINEERING (520) 740-2653) FOR REVIEW AT LEAST 30 DAYS PRIOR TO OBTAINING A DISCHARGE AUTHORIZATION FROM ADO.
15. ONLY PLANS ACCEPTED BY PWRD SHALL BE USED FOR THE INSTALLATION OF SANITARY SEWER FACILITIES. PLANS ACCEPTED BY PWRD INCLUDING REVISION SHALL BE RECOMMENDED FOR REVIEW AND RE-ACCEPTANCE BY PWRD PRIOR TO START OF THE REVISION WORK.
16. SEWER CONSTRUCTION WILL NOT BE ACCEPTED BY PWRD IF IT INCLUDES ADDITIONAL WORK NOT PROVIDED IN THE APPROVED SET OF PLANS. SEE PWRD SSC 2012, SUBSECTION 14.5 OF THE REGARDING THE APPROVAL OF FIELD CHANGES.
17. CONTRACTOR SHALL MAINTAIN ACCESS TO ALL SANITARY SEWER MANHOLE STRUCTURES AT ALL TIMES.
18. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CARE AND MAINTENANCE OF EXISTING IMPROVEMENTS IN THE WORK AREA WHICH HAVE BEEN REPAIRED OR DAMAGED DURING THE COURSE OF CONSTRUCTION. ALL REPAIR, REPLACEMENT, OR CLEANUP SHALL BE DONE TO THE SATISFACTION OF THE OWNER.
19. ALL STORM WATER DRAINAGE PREVENTION PLAN (SWPP) MEASURES SHALL BE INSTALLED PRIOR TO ANY EXCAVATION. CONSTRUCTION WATER, FUELS, OILS, CHEMICALS, OR LIQUIDS TO BE DUMPED INTO OR INTO ANY SANITARY SEWER FACILITIES. PROTECTION OF SANITARY SEWER FACILITIES SHALL BE A PART OF THE APPROVED CONSTRUCTION SWPP AND BEST MANAGEMENT PRACTICES. PROTECTION DEVICES SHALL BE INSTALLED AND MAINTAINED AROUND ALL POTENTIALLY AFFECTED SANITARY SEWER FACILITIES WITHIN THE PROJECT LIMITS. ADDITIONAL MEASURES SHALL INCLUDE, BUT NOT BE LIMITED, TO THE USE OF BURN STOPPERS AND MANNING TOWERS AS DETERMINED NECESSARY BY PWRD.
20. ALL PROJECT ACTIVITIES MUST BE KEPT WITHIN THE PROJECT AREA. A CAUTION MUST BE NOTED CONCERNING HUMAN REMAINS. ARCHAEOLOGICAL CLEARANCE RECOMMENDATIONS DO NOT EXEMPT THE DUE DILIGENCE FROM COMPLIANCE WITH STATE BURIAL PROTECTION LAWS. IN THE EVENT THAT HUMAN REMAINS, INCLUDING HUMAN SKELETAL REMAINS, CRURATIONS, AND/OR CEREMONIAL OBJECTS AND FUNERARY OBJECTS ARE FOUND DURING EXCAVATION OR CONSTRUCTION, GROUND DISTURBING ACTIVITIES MUST CEASE IN THE IMMEDIATE VICINITY OF THE DISCOVERY. STATE LAWS ARS 4-605 AND ARS 4-844 REQUIRE THAT THE ARIZONA STATE MUST BE NOTIFIED BY THE DISCOVERY AT 520-521-4795 SO THAT CULTURAL GROUPS WHO CLAIM CULTURAL OR RELIGIOUS AFFINITY TO THEM CAN MAKE APPROPRIATE ARRANGEMENTS FOR THE RECOVERY AND REBURIAL OF THE REMAINS. THE HUMAN REMAINS WILL BE REMOVED FROM THE SITE BY A PROFESSIONAL ARCHAEOLOGIST PENDING CONSULTATION AND REVIEW BY THE ARIZONA STATE MUSEUM AND THE CONCERNED CULTURAL GROUPS.
21. SURVEY OUT SHEETS SHALL BE DEVELOPED IN ACCORDANCE WITH SUBSECTION 3.2 (A)(1) OF THE PWRD SSC 2012. CERTIFIED OUT SHEETS SHALL BE SUBMITTED TO THE PWRD FIELD ENGINEER PRIOR TO COMMENCEMENT OF SEWER CONSTRUCTION. THE OUT SHEETS ARE FOR THE PROJECT FILE AND COMMENCEMENT OF SEWER CONSTRUCTION WILL NOT BE DELAYED DUE TO REVIEW OF THE DELIVERABLE. ANY ERRORS OR OMISSIONS RELATING TO AN IMPROPER SEWER CONSTRUCTION SHALL NOT BE THE RESPONSIBILITY OF PWRD REFER TO SUBSECTION 3.2 (A)(1) FOR ALIGNMENT VERIFICATION REQUIREMENTS INCLUDING THE SPACING REQUIREMENTS FOR GRADE STAKES.
22. SURVEY LAYOUT AND SURVEY CONTROL SHALL BE PERFORMED BY, OR UNDER THE DIRECT SUPERVISION OF, A REGISTERED LAND SURVEYOR (RLS) REGISTERED IN THE STATE OF ARIZONA PRIOR TO THE START OF CONSTRUCTION. THE RLS SHALL BE RESPONSIBLE FOR SURVEY LAYOUT AND CONTROL SHALL REGISTER THE PIMA COUNTY DEPARTMENT OF TRANSPORTATION, SURVEY SECTION, DANIEL THURMAN, RLS, SURVEY MANAGER, AT 520-740-2653 TO A SEWER TO NEW SURVEY CONTROL (HORIZONTAL AND VERTICAL), TO BE UTILIZED ON THE PROJECT.
23. IN ACCORDANCE WITH SSC 2012, SECTION 2.7.1, THIS PROJECT REQUIRES A FLOW MANAGEMENT PLAN (FMP). IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO: (A) IDENTIFY AND INCLUDE ALL FLOW MANAGEMENT RPT COSTS WITH THE PWRD SEWER CONSTRUCTION PERMIT APPLICATION. (B) PROVIDE A FLOW MANAGEMENT PLAN 30 DAYS PRIOR TO THE PRE-CONSTRUCTION MEETING WITH PWRD FIELD ENGINEERING FOR SEWER CONSTRUCTION. FIELD ENGINEERING WILL REVIEW THE FMP WITHIN 10 BUSINESS DAYS TO ACCOMMODATE REVIEW OF THE FMP. (C) IN ACCORDANCE WITH THE PWRD STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION 2012 (SSC 2012) FOR FMP QUESTIONS, PLEASE CONTACT PWRD FIELD ENGINEERING AT (520) 740-2653.
24. THE CONTRACTOR SHALL FURNISH, OPERATE AND MAINTAIN ALL EQUIPMENT AND LABOR NECESSARY TO PROVIDE CONTINUOUS 24 HOURS/DAY SANITARY SEWER SERVICE TO ALL PARTIES TRIBUTARY TO A LIVE SANITARY SEWER CONNECTION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN THE PWRD CONVEYANCE SECTION SHALL BE NOTIFIED AT (520-774-ADAR) A MINIMUM OF TWO (2) BUSINESS DAYS PRIOR TO COMMENCING ANY CONSTRUCTION ACTIVITIES THAT COULD EITHER ADVERSELY IMPACT THE FLOW WITHIN A LIVE SANITARY SEWER SYSTEM OR INVOLVE CONSTRUCTION TO ANY PUBLIC SANITARY SEWER. THE CONTRACTOR'S ATTENTION IS DIRECTED TO SECTION 7 OF THE PWRD SSC 2012.
25. WHERE CONNECTIONS TO EXISTING MANHOLES ARE TO BE MADE, THE CONTRACTOR SHALL CONSTRUCT NEW INVERTS IN THE EXISTING BASE TO SMOOTHLY DIRECT THE FLOW IN THE PROPER DIRECTION.
26. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ADJUST OR RECONSTRUCT ALL SANITARY SEWER MANHOLES TO FINISHED GRADE. ALL FRAME AND COVER ADJUSTMENTS SHALL BE IN ACCORDANCE WITH PWRD SSC 2012, STANDARD DETAIL RMD 300, DETAIL RMD 304 OR -305, AS APPLICABLE. THE CONTRACTOR SHALL PROTECT THE MANHOLE AND FLOW CHANNELS WITH A COVER PER RMD 300. WHILE ADJUSTING THE MANHOLE TO FINISHED GRADE, IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSURE THAT THE FRAME AND COVER ARE CLEANED OF ANY AND ALL ATTACHED MATERIALS (DEBRIS, CONCRETE, ETC.) AND THAT ALL HOLES AND ARE OPEN AND CLEAR OF OBSTRUCTIONS. AT THE DISCRETION OF THE PWRD FIELD ENGINEERING, EXISTING FRAMES AND COVERS THAT ARE DAMAGED OR CANNOT BE COMPLETELY CLEANED SHALL BE REPLACED WITH A NEW AND EQUIVALENT FRAME AND COVER PER STANDARD DETAILS RMD-215, -216, -217, -218, -219, -220, -221, -222, -223, -224, -225, -226, -227, -228, -229, -230, -231, -232, -233, -234, -235, -236, -237, -238, -239, -240, -241, -242, -243, -244, -245, -246, -247, -248, -249, -250, -251, -252, -253, -254, -255, -256, -257, -258, -259, -260, -261, -262, -263, -264, -265, -266, -267, -268, -269, -270, -271, -272, -273, -274, -275, -276, -277, -278, -279, -280, -281, -282, -283, -284, -285, -286, -287, -288, -289, -290, -291, -292, -293, -294, -295, -296, -297, -298, -299, -300, -301, -302, -303, -304, -305, -306, -307, -308, -309, -310, -311, -312, -313, -314, -315, -316, -317, -318, -319, -320, -321, -322, -323, -324, -325, -326, -327, -328, -329, -330, -331, -332, -333, -334, -335, -336, -337, -338, -339, -340, -341, -342, -343, -344, -345, -346, -347, -348, -349, -350, -351, -352, -353, -354, -355, -356, -357, -358, -359, -360, -361, -362, -363, -364, -365, -366, -367, -368, -369, -370, -371, -372, -373, -374, -375, -376, -377, -378, -379, -380, -381, -382, -383, -384, -385, -386, -387, -388, -389, -390, -391, -392, -393, -394, -395, -396, -397, -398, -399, -400, -401, -402, -403, -404, -405, -406, -407, -408, -409, -410, -411, -412, -413, -414, -415, -416, -417, -418, -419, -420, -421, -422, -423, -424, -425, -426, -427, -428, -429, -430, -431, -432, -433, -434, -435, -436, -437, -438, -439, -440, -441, -442, -443, -444, -445, -446, -447, -448, -449, -450, -451, -452, -453, -454, -455, -456, -457, -458, -459, -460, -461, -462, -463, -464, -465, -466, -467, -468, -469, -470, -471, -472, -473, -474, -475, -476, -477, -478, -479, -480, -481, -482, -483, -484, -485, -486, -487, -488, -489, -490, -491, -492, -493, -494, -495, -496, -497, -498, -499, -500, -501, -502, -503, -504, -505, -506, -507, -508, -509, -510, -511, -512, -513, -514, -515, -516, -517, -518, -519, -520, -521, -522, -523, -524, -525, -526, -527, -528, -529, -530, -531, -532, -533, -534, -535, -536, -537, -538, -539, -540, -541, -542, -543, -544, -545, -546, -547, -548, -549, -550, -551, -552, -553, -554, -555, -556, -557, -558, -559, -560, -561, -562, -563, -564, -565, -566, -567, -568, -569, -570, -571, -572, -573, -574, -575, -576, -577, -578, -579, -580, -581, -582, -583, -584, -585, -586, -587, -588, -589, -590, -591, -592, -593, -594, -595, -596, -597, -598, -599, -600, -601, -602, -603, -604, -605, -606, -607, -608, -609, -610, -611, -612, -613, -614, -615, -616, -617, -618, -619, -620, -621, -622, -623, -624, -625, -626, -627, -628, -629, -630, -631, -632, -633, -634, -635, -636, -637, -638, -639, -640, -641, -642, -643, -644, -645, -646, -647, -648, -649, -650, -651, -652, -653, -654, -655, -656, -657, -658, -659, -660, -661, -662, -663, -664, -665, -666, -667, -668, -669, -670, -671, -672, -673, -674, -675, -676, -677, -678, -679, -680, -681, -682, -683, -684, -685, -686, -687, -688, -689, -690, -691, -692, -693, -694, -695, -696, -697, -698, -699, -700, -701, -702, -703, -704, -705, -706, -707, -708, -709, -710, -711, -712, -713, -714, -715, -716, -717, -718, -719, -720, -721, -722, -723, -724, -725, -726, -727, -728, -729, -730, -731, -732, -733, -734, -735, -736, -737, -738, -739, -740, -741, -742, -743, -744, -745, -746, -747, -748, -749, -750, -751, -752, -753, -754, -755, -756, -757, -758, -759, -760, -761, -762, -763, -764, -765, -766, -767, -768, -769, -770, -771, -772, -773, -774, -775, -776, -777, -778, -779, -780, -781, -782, -783, -784, -785, -786, -787, -788, -789, -790, -791, -792, -793, -794, -795, -796, -797, -798, -799, -800, -801, -802, -803, -804, -805, -806, -807, -808, -809, -810, -811, -812, -813, -814, -815, -816, -817, -818, -819, -820, -821, -822, -823, -824, -825, -826, -827, -828, -829, -830, -831, -832, -833, -834, -835, -836, -837, -838, -839, -840, -841, -842, -843, -844, -845, -846, -847, -848, -849, -850, -851, -852, -853, -854, -855, -856, -857, -858, -859, -860, -861, -862, -863, -864, -865, -866, -867, -868, -869, -870, -871, -872, -873, -874, -875, -876, -877, -878, -879, -880, -881, -882, -883, -884, -885, -886, -887, -888, -889, -890, -891, -892, -893, -894, -895, -896, -897, -898, -899, -900, -901, -902, -903, -904, -905, -906, -907, -908, -909, -910, -911, -912, -913, -914, -915, -916, -917, -918, -919, -920, -921, -922, -923, -924, -925, -926, -927, -928, -929, -930, -931, -932, -933, -934, -935, -936, -937, -938, -939, -940, -941, -942, -943, -944, -945, -946, -947, -948, -949, -950, -951, -952, -953, -954, -955, -956, -957, -958, -959, -960, -961, -962, -963, -964, -965, -966, -967, -968, -969, -970, -971, -972, -973, -974, -975, -976, -977, -978, -979, -980, -981, -982, -983, -984, -985, -986, -987, -988, -989, -990, -991, -992, -993, -994, -995, -996, -997, -998, -999, -1000.
27. THIS PUBLIC SEWER IS DESIGNED AT MINIMUM ALLOWABLE PIPE SLOPE. SPECIAL CARE SHOULD BE TAKEN TO ASSURE DESIGN SLOPE IS MAINTAINED. SEWERS FOUND TO BE CONSTRUCTED AT INSUFFICIENT SLOPES WILL NOT BE ACCEPTED BY PWRD AND/or MAJOR CORRECTIVE ACTION INCLUDING RE-CONSTRUCTION OF THE SEWER(S) AT THE SOLE EXPENSE OF THE CONTRACTOR SHALL BE REQUIRED.
28. CONTRACTOR TO ABANDON EXISTING SEWER MAIN AND MANHOLES PER PWRD STANDARD SPECIFICATIONS. SEE TABLES SET 3, FOR EXISTING MANHOLE REMOVAL. CONTRACTOR SHALL REMOVE THE FRAME AND COVER. THE EXCAVATED FRAME AND COVER SHALL BE DELIVERED TO PWRD AT THE LOCATION SPECIFIED BY THE INSPECTOR. THE MANHOLES WILL BE COMPLETELY DEMOLISHED. THE EXCAVATION FILL WITH SELECT MATERIAL AND COMPACTION IN ACCORDANCE WITH THE STANDARDS SET BY THE AGENCY CONTROL. THE RIGHT OF WAY IN ALL CASES A MINIMUM OF 5 FEET OF THE STANDARD PROTECTIVE DISTANCE IN ACCORDANCE WITH THE PROVISIONS OF THE ARIZONA STATE DETAIL RMD 225. SHALL BE ACHIEVED. THE CONTRACTOR SHALL DISPOSE OF ALL MANHOLE DEWALUTION MATERIAL OFF-SITE AT A LANDFILL OR OTHER APPROVED LOCATION.
29. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FURNISH, HIRE, AND APPLY ALL WATER REQUIRED FOR CONSTRUCTION AND FOR THE CONTROL OF DUST FROM CONSTRUCTION ACTIVITY. THE COST THEREOF IS TO BE INCLUDED IN THE CONSTRUCTION PRICE.
30. ALL ORGANIC MATERIAL SHALL BE REMOVED WITHIN 48 HOURS FOR NECESSARY GRADING TO A DEPTH OF 6 INCHES AND IMMEDIATELY COVERED.
31. CONTRACTOR SHALL REMOVE ALL EXCESS EXCAVATED MATERIALS, CONSTRUCTION DEBRIS, AND GRUBBED VEGETATION FROM SITE AND LEGALLY DISPOSE OF THESE MATERIALS OFF-SITE.
32. THE CONTRACTOR SHALL GRADE ALL AREAS DESTROYED BY THE CONSTRUCTION TO MATCH SURROUNDING CONTOURS.
33. OMISSIONS OR CONFLICTS BETWEEN VARIOUS ELEMENTS OF THE DRAWINGS, NOTES AND DETAILS SHALL BE BROUGHT TO THE ATTENTION OF PWRD FIELD ENGINEERING (520-740-2653) AND RESOLVED BEFORE PROCEEDING WITH THE WORK.
34. ALL CONSTRUCTION AND TEST METHODS SHALL BE IN CONFORMANCE WITH PIMA COUNTY/CITY OF TUCSON STANDARD SPECIFICATIONS FOR PUBLIC IMPROVEMENTS (P/CIT SSP), LATEST EDITION.
35. ALL CONCRETE SHALL COMPLY WITH PWRD STD DETAIL RMD 200, CLASS S, 3,030 PSI COMPRESSIVE STRENGTH AT 28 DAYS, UNLESS OTHERWISE SPECIFIED.
36. CONTRACTOR SHALL OBTAIN ALL PERMITS REQUIRED FOR SEWER AND WATER CONSTRUCTION PRIOR TO COMMENCEMENT OF WORK.
37. ALL REVISIONS TO THESE PLANS MUST BE APPROVED BY PIMA COUNTY REGIONAL WASTEWATER RECLAMATION DEPARTMENT PRIOR TO CONSTRUCTION. (FIELD ENGINEER (520) 740-2653).
38. A COPY OF THIS PLAN SHALL BE KEPT IN AN EASILY ACCESSIBLE LOCATION ON THE SITE AT ALL TIMES DURING CONSTRUCTION.
39. IF UNANTICIPATED CONDITIONS ARE ENCOUNTERED DURING THE COURSE OF THE CONSTRUCTION AND ARE BEYOND THE SCOPE OF THE DESIGN, THE CONTRACTOR SHALL SUBMIT THE NECESSARY REVISIONS OR SUPPLEMENTAL IMPROVEMENT PLANS FOR REVIEW AND APPROVAL BY PWRD.
40. CONTRACTOR TO SUBMIT AND OBTAIN APPROVAL OF A TRAFFIC CONTROL PLAN FOR EACH JURISDICTION WORK IS TO TAKE PLACE. CONTRACTOR TO VERIFY ALL TRAFFIC HOURS OF CONSTRUCTION PRIOR TO SUBMITTING TRAFFIC CONTROL PLAN AND SHALL CONSIDER ANY COSTS (UPON COMMENCEMENT OF DUE TO TRAFFIC CONSTRAINTS/RESTRICTIONS IN THE CONTRACT PRICE. WORK TRAFFIC CONTROL DEVICES SHALL BE POSTED AND MAINTAINED BY THE CONTRACTOR UNTIL SUCH TIME AS THE WORK IS COMPLETED. ALL WARNING SIGNS/BARRICADES (TC) SHALL BE IN ACCORDANCE WITH THE MANUAL OF TRAFFIC CONTROL DEVICES (MUTCD) 4.10.1.1. PIMA COUNTY FIELD REP SHALL RECEIVE A COPY OF APPROVED TRAFFIC PLAN WITH ASSURANCE THAT POLICE AND FIRE DEPARTMENT HAVE BEEN NOTIFIED.
41. THE CONTRACTOR IS TO SUBMIT A SEPARATE TRAFFIC CONTROL PLAN FOR THE PAVEMENT REPLACEMENT CONTROL PLAN SHALL ADHERE TO PIMA ASSOCIATIONS OF GOVERNMENTS (PAO) STANDARD SPECIFICATIONS FOR PUBLIC IMPROVEMENTS.
42. ALL UTILITY COMPANIES WITH UNDERGROUND FACILITIES SHALL BE CONTACTED PRIOR TO CONSTRUCTION. UTILITY COMPANIES MAY REQUIRE AN ONSITE REPRESENTATIVE DURING CONSTRUCTION. DUE TO HIGH PRESSURE LINES, FIBER OPTICS AND OVERHEAD LINES IN THIS AREA THE CONTRACTOR MUST USE EXTREME CAUTION DURING CONSTRUCTION.
43. THE ENGINEER OF RECORD FOR THE CONSTRUCTION MANAGEMENT IS RESPONSIBLE TO CERTIFY ALL WORK FOR SEWER LINE INSTALLATION AND PAVEMENT INCLUDING ALL TESTING.
44. FIELD ENGINEER SHALL RECEIVE ALL REQUIRED PAPERWORK BEFORE PROCEED TO PROCEED WILL BE GIVEN INCLUDING BUT NOT LIMITED TO: PIPE CHARACTERISTICS, OUT SHEETS, SETTING, SAND SEWE ANALYSIS, COPY OF SURVEY, AND COPY OF THE APPROVED TRAFFIC PLAN.
45. CONTRACTOR SHALL MAINTAIN ACCESS TO ALL PROPERTIES DURING CONSTRUCTION.
46. THIS SURVEY IS A COMBINATION OF ON-THE-GROUND DATA COLLECTION AND PHOTO-GRAMMATIC PLANNERY.
47. THE CONTRACTOR SHALL HAVE A PROFESSIONAL LAND SURVEYOR REGISTERED IN THE STATE OF ARIZONA PRIOR TO CONSTRUCTION. SAID SURVEYOR SHALL VERIFY AND ESTABLISH CONTROL FOR THE EXISTING SURVEY MONUMENTS THAT WILL BE DISTURBED BY THE PROJECT. THE LOCATION AND ESTABLISHMENT OF CONTROL SHALL BE DONE PRIOR TO ANY CONSTRUCTION. UPON COMPLETION OF THE PROJECT, THE SURVEYOR SHALL ALSO RE-ESTABLISH ALL SURVEY MONUMENTS DISTURBED DURING THE PROJECT. THE SURVEYOR SHALL ALSO BE RESPONSIBLE TO FILE A RECORD OF SURVEY WITH THE COUNTY FOR PMA AND PRIOR CONDITIONS UPON COMPLETION OF THE PROJECT.
48. MANHOLE RINGS AND COVERS SHALL BE KEPT IN MATCHED ORDER AND STOCKPILED IN AN ORDERLY FASHION AS NOT TO CAUSE DAMAGE.
49. THE CONTRACTOR SHALL NOTIFY PWRD FIELD ENGINEERING (740-2653) OF ANY DAMAGED OR MISMAINTAINED MANHOLE OR CLEAN OUT FRAMES AND COVERS. NEW FRAMES AND COVERS SHALL BE INSTALLED EXISTING FRAMES AND COVERS THAT WILL BE RE-USE AS PART OF TWO PROJECT. PRIOR TO REINSTALLATION SHALL BE THOROUGHLY CLEANED OF ALL FRAMING MATERIAL (ASPHALT AND/OR CONCRETE). THIS INCLUDES OPENING ALL NAIL HOLES IF THE FRAME AND COVER CANNOT BE CLEANED OR THEY ARE DAMAGED. A NEW FRAME AND COVER MUST BE SUPPLIED AND INSTALLED.
50. THE CONTRACTOR SHALL PROVIDE UNINTERRUPTED SERVICE TO ALL PARTIES TRIBUTARY TO AN EXISTING ACTIVE SANITARY SEWER. WHENEVER FLOW IN AN EXISTING ACTIVE SANITARY SEWER MUST BE INTERRUPTED THE CONTRACTOR SHALL PROVIDE PWRD WITH A PLAN OUTLining HOW THIS WILL BE ACCOMPLISHED. IF THE PLAN INCLUDES FLOW MANAGEMENT PLANNING, THE PLAN SHALL INCLUDE MULTIPLE PUMPS WITH A COMBINED CAPACITY THAT EXCEEDS THE PROJECTED PEAK WEATHER FLOW. NO CONSTRUCTION THAT WILL CAUSE INTERRUPTION OF FLOW IN AN EXISTING SANITARY SEWER MAY PROCEED UNTIL PWRD FIELD ENGINEERING HAS REVIEWED AND APPROVED THE PLAN FOR PROVIDING UNINTERRUPTED SERVICE. CONTACT THE PWRD FIELD MONITORING SECTION SUPERVISOR AT 740-6625 TO REQUEST FLOW METERING REQUIRED TO PROPERLY SIZE FLOW MANAGEMENT PLANS. ALLOW AT LEAST 3 WEEKS FOR METERS TO BE SET, THE DATA TO BE COLLECTED AND PROCESSED, AND A REPORT PREPARED. PWRD CONVEYANCE DIVISION (724-3400) SHALL BE NOTIFIED AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF ANY DISRUPTION OF INTERSECTION OF SEWER FLOW.
51. CONSTRUCTION MATERIAL SHALL NOT BE PILED WITHIN 10' OF A SANITARY SEWER MANHOLE. PWRD CONVEYANCE DIVISION MANAGER (724-3400) SHALL BE NOTIFIED 48 HOURS IN ADVANCE OF ANY ACTIVITY THAT WILL BLOCK OR RESTRICT ACCESS TO AN ACTIVE PUBLIC SANITARY SEWER MANHOLE.
52. ALL WORK SHALL BE DONE BY A CONTRACTOR HAVING A VALID CONTRACTOR LICENSE ISSUED BY THE STATE OF ARIZONA REGISTRATION OF CONTRACTORS.
53. ALL NEW PRE-CAST OR CAST-IN-PLACE CONCRETE MANHOLES AND JUNCTION STRUCTURES WITHIN THIS PROJECT SHALL BE CAULKED, SEALED, AND COATED PER PWRD SPECIFICATIONS. IN PLACE OF CASTING CONCRETE JOINTS JOINTS CAN BE USED ON PRE-CAST MANHOLES IF PWRD APPROVAL. IF JOINT SEALING IS REQUIRED FOR ANY CAST-IN-PLACE STRUCTURES, THE JOINT SEALING ADDITIVE SHALL BE ADDED TO THE CONCRETE AT THE PLANT AND WILL REQUIRE A TEST TO BE COMPLETED TO VERIFY THE PROPER AMOUNT OF ADDITIVE. A PROPER QUALITY FOR THE MIXTURE. CONTRACTOR TO GET ALL REQUIREMENTS AND COSTS OF SAID TEST TO PWRD.
54. DRAINAGE INFORMATION: FLOOD PLAIN LIMITS, SCOUR DEPTHS, EROSION HAZARD STRIPS, ETC. ARE TAKEN FROM THE SEWER AS-BUILT REPORTS PREPARED BY PWRD PROJECT NO. 234134.
55. SHORING FOR JACK AND BORE PILES SHALL BE PROVIDED IN ACCOMPANY WITH THE GEOTECHNICAL REPORT BY CONSULTANT/JOE NO. 14-0424.
56. JACK AND BORE INSTALLATIONS OF SEWER PIPE SHALL COMPLY WITH PART 600 OF THE SPECIAL PROVISIONS.
57. MANHOLE MATERIALS INCLUDE PRE-CAST OR CAST-IN-PLACE CONCRETE PER SSC 2012, SECTION 3.3, PERMITS CONCRETE PER SPECIAL PROVISION PART 300, OR PRECAST PER SPECIAL PROVISION PART 350.
58. CURBS IN PLACE PIPE (CPP) INSTALLATION SHALL BE PER SPECIAL PROVISION PART 700.

59. THE SEWER ALIGNMENT PLANS INCLUDE LOCATIONS WHERE HORIZONTAL DIRECTIONAL ALIGNMENT CHANGES OF LESS THAN 90 DEGREES TO 90 DEGREES, AND MUST BE NOTED BY A MANHOLE. THE CONTRACTOR SHALL MAKE THE ALIGNMENT CHANGE BY INSTALLING A CUSTOM FITTING ON BY 1/2" LONG JOINT DEFLECTION WITH THE FOLLOWING PROVISIONS:

- A. WHERE THE CONTRACTOR CHOOSES TO DEFLECT THE PIPE TO MEET THE REQUIRED ALIGNMENT CHANGE (NOT TO EXCEED 90°) THE JOINT DEFLECTION WILL NOT EXCEED 5% OF THE MANUFACTURER SPECIFIED MAXIMUM DEFLECTION FOR THE PIPE SIZE.
- B. THE INSTALLATION OF THE JOINT DEFLECTORS WILL BE WITNESSED BY AN ARIZONA REGISTERED LAND SURVEYOR TO VERIFY LINE AND GRADE.
- C. ALL POINT OF CURVATURE (PTC), POINT OF TANGENCY (PT), AND POINT OF INTERSECTION (PI) SHALL BE AS-BUILT AS SHOWN AND THE LOCATION ALONG THE CURVE SHALL BE VISUALLY IDENTIFIED IN THE FIELD BY THE PLACEMENT OF A MANHOLE.

60. THE FOLLOWING SANITARY SEWER PIPE MAY BE USED ON THIS PROJECT IN ADDITION TO THE PWRD APPROVED LIST OF MATERIALS. PIPE MANUFACTURER TO REVIEW PLANS AND CRITICALITY REPORT BY CONSULTANT/JOE NO. 14-0424 TO DETERMINE PIPE STIFFNESS REQUIREMENTS. PIPE MANUFACTURER TO PROVIDE PIPE DETAIL SHEETS SHOWING STIFFNESS REQUIREMENTS ALONG THE ALIGNMENT.

- A. FIBERGLASS REINFORCED POLYMER MORTAR (FRPM) PIPE SHALL CONFORM TO THE FOLLOWING STANDARDS:
 1. ASTM D3262 - NON-PRESSURE SANITARY SEWERS
 2. TEST DESIGNATIONS: ASTM D638, D790, D1559, D2790, D4242, D2583, D2584, D2932, AND D3681

61. ANY PAVEMENT REPLACEMENT SHALL BE PLACED TO THE EXACT LINE, GRADE, AND LEVEL AS IT IS CURRENTLY LOCATED. THE CONTRACTOR SHALL LAND SURVEYOR SHALL AS-BUILT IT ON GRIDS INDICATING THE NEW ROADWAY WAS RECONSTRUCTED IN LINE WITH THE PLANS AND SPECIFICATIONS.

62. IF THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CARE AND MAINTENANCE OF EXISTING IMPROVEMENTS AND VEGETATION IN THE WORK AREA, PLANTING, CURBS AND ANY OTHER DISTURBANCES ARE TO BE REPLACED BY THE CONTRACTOR. ANY UNDERGROUND PIPES, DRAIN STRUCTURES OR OBSTRUCTIONS NOT SHOWN ON THESE PLANS SHALL BE MOVED, ALTERED OR REPAIRED BY THE CONTRACTOR WHEN ENCOUNTERED AS DIRECTED BY PWRD AFTER CONSULTATION WITH APPLICABLE UTILITY AND IS A PART OF THE CONTRACT.

63. A SUBMITTAL TO PWRD WILL BE REQUIRED TO OBTAIN APPROVAL FOR MANHOLE CONNECTIONS TO PIPE AND STRUCTURAL REQUIREMENTS.

64. PAVING CONTRACTOR SHALL ADJUST BOTH EXISTING AND NEW WATER VALVES, BOX COVERS, WATER METER BOXES, SANITARY SEWER MANHOLE AND CLEAN OUT, RING AND COVERS, TELEPHONE AND ELECTRIC MANHOLE RING AND COVERS TO THE NEW FINISHED GRADE. A FLOW MANAGEMENT PLAN IS REQUIRED FOR ALL GRADE ADJUSTMENTS PERFORMED ON THE SANITARY SEWER.

65. ANNUAL MONITORING IS REQUIRED FOR THIS PROJECT FROM STATION 4+48.47 TO STA 10+54. CONTRACTOR SHALL CONTACT PWRD 48 HOURS PRIOR TO CONSTRUCTION IN THIS AREA.

66. TWO BIO-FILTER FACILITIES ARE TO BE CONSTRUCTED BY CONTRACTOR AS PART OF THIS PROJECT. ONE IS LOCATED AT 16TH STREET, SEE SITE PLAN FOR BIO-FILTER AT 16TH STREET. PLANS INCLUDED IN THE CONTRACT DOCUMENTS. THE OTHER LOCATION IS AT 25TH STREET AND 12TH AVENUE. SEE 25TH STREET BIO-FILTER PLANS INCLUDED IN THE CONTRACT DOCUMENTS.



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KINDER MORGAN NOTES:

- CONTRACTORS SHALL BE ADVISED OF KINDER MORGAN'S (KM) REQUIREMENTS TO BE CONTRACTUALLY DELEGATED TO COMPLY.
- THE DEPTH OF COVER OVER THE KM PIPELINES SHALL NOT BE REDUCED NOR DRAINAGE ALTERED WITHOUT KM'S WRITTEN APPROVAL.
- PLANTING OF SHRUBS AND TREES IS NOT PERMITTED ON KM PIPE LINE EASEMENT.
- DOT APPROVED PIPELINE MARKERS SHALL BE INSTALLED SO AS TO INDICATE THE ROUTE OF THE PIPELINE ACROSS THE KM RIGHT OF WAY.
- THE COMBINED INTEGRITY OF KM PIPELINES AND THE SAFETY OF ALL INDIVIDUALS IN THE AREA OF PROPOSED WORK NEAR KM FACILITIES ARE OF THE UTMOST IMPORTANCE. THEREFORE, CONTRACTOR MUST MEET WITH KM REPRESENTATIVES PRIOR TO CONSTRUCTION TO PROVIDE AND RECEIVE NOTIFICATION LISTINGS FOR APPROPRIATE AREA OPERATIONS AND EMERGENCY PERSONNEL. KM'S ON-SITE REPRESENTATIVE WILL REQUIRE DISCONTINUATION OF ANY WORK THAT, IN HIS OPINION, ENDANGERS THE OPERATIONS OR SAFETY OF PERSONNEL, PIPELINES OR FACILITIES.
- THE CONTRACTOR MUST EXPOSE ALL KM PIPELINES PRIOR TO CROSSING TO DETERMINE THE EXACT ALIGNMENT AND DEPTH OF THE LINES. A KM REPRESENTATIVE MUST BE PRESENT IN THE EVENT OF PARALLEL LINES. ONLY ONE POINTING CAN BE TYPED AT A TIME.
- KM WILL NOT ALLOW PIPELINES TO REMAIN EXPOSED OVERNIGHT WITHOUT CONSENT OF KM DESIGNATED REPRESENTATIVE. CONTRACTOR MAY BE REQUIRED TO BACKFILL PIPELINES AT THE END OF EACH DAY.
- A KM REPRESENTATIVE SHALL DO ALL LINE IDENTIFICATION. A KM REPRESENTATIVE SHALL BE PRESENT FOR HYDRAULIC APPROVAL. THE USE OF PROTECTIVE ROADS FOR PIPELINE LOCATING SHALL BE PERFORMED BY KM REPRESENTATIVES ONLY, TO PREVENT UNNECESSARY DAMAGE TO THE PIPELINE COATING.
- NOTIFICATION SHALL BE GIVEN TO KM AT LEAST 72 HOURS BEFORE START OF CONSTRUCTION. A SCHEDULE OF ACTIVITIES FOR THE DURATION OF THE PROJECT MUST BE MADE AVAILABLE AT THAT TIME TO FACILITATE THE SCHEDULING OF KINDER MORGAN, INC.'S WORK. SITE REPRESENTATIVE. ANY CONTRACTOR SCHEDULE CHANGES SHALL BE PROVIDED TO KINDER MORGAN, INC. IMMEDIATELY.
- HEAVY EQUIPMENT WILL NOT BE ALLOWED TO OPERATE DIRECTLY OVER KM PIPELINES OR IN KM ROW AREAS. WRITTEN APPROVAL IS OBTAINED FROM KINDER MORGAN. HEAVY EQUIPMENT SHALL ONLY BE ALLOWED TO CROSS KM PIPELINES AT LOCATIONS DESIGNATED BY KINDER MORGAN, INC. CONTRACTOR SHALL COMPLY WITH ALL PRECAUTIONARY MEASURES REQUIRED BY KM TO PROTECT ITS PIPELINES WHEN INCIDENT WEATHER EXISTS. PROVISIONS MUST BE MADE TO COMPENSATE FOR SOIL DISPLACEMENT DUE TO SUBSIDIARY OF TIES EQUIPMENT EXCAVATING WITH TEN (10) FEET OF KM PIPELINES WILL HAVE A PLATE GUARD INSTALLED OVER THE TIE TO PROTECT THE PIPELINE.
- EXCAVATING OR GRADING WHICH MIGHT RESULT IN EROSION OR WHICH COULD RENDER THE KM ROW INACCESSIBLE SHALL NOT BE PERMITTED UNLESS THE CONTRACT/DEVELOPER/OWNER AGREES TO RESTORE THE AREA TO ITS ORIGINAL CONDITION AND PROVIDE PROTECTION TO KM'S FACILITY.
- A KM REPRESENTATIVE SHALL BE ON-SITE TO OBSERVE ANY CONSTRUCTION ACTIVITIES WITHIN TEN (10) FEET OF A KM PIPELINE OR ABOVEGROUND APPURTENANCE. THE CONTRACTOR SHALL NOT WORK WITHIN THIS DISTANCE WITHOUT A KM REPRESENTATIVE BEING ON-SITE. ONLY HAND EXCAVATION SHALL BE PERMITTED WITHIN TWO (2) FEET OF KM PIPELINES, VALVES AND FITTINGS. UNLESS STATE REQUIREMENTS ARE MORE STRINGENT. HOWEVER PROCEED WITH EXTREME CAUTION WHEN WITHIN (3) FEET OF THE PIPE.
- A KM REPRESENTATIVE WILL MONITOR CONSTRUCTION ACTIVITY WITHIN 25 FEET OF KM FACILITIES DURING AND AFTER THE ACTIVITIES TO VERIFY THE INTEGRITY OF THE PIPELINE AND TO ENSURE THE SCOPE AND CONDITIONS AGREED TO HAVE NOT CHANGED. MONITORING MEANS TO CONDUCT SITE INSPECTIONS ON A PRE-DETERMINED FREQUENCY BASED ON ITEMS SUCH AS: SCOPE OF WORK, DURATION OF EXPECTED EXCAVATION WORK, TYPE OF EQUIPMENT, POTENTIAL IMPACT ON PIPELINE, COMPLEXITY OF WORK AND/OR NUMBER OF EXCAVATORS INVOLVED.
- RIPPING IS ONLY ALLOWED WHEN THE POSITION OF THE PIPE IS KNOWN AND NOT WITHIN TEN (10) FEET OF KM FACILITY UNLESS COMPANY REPRESENTATIVE IS PRESENT.
- TEMPORARY SUPPORT OF ANY EXPOSED KM PIPELINE BY CONTRACTOR MAY BE NECESSARY IF REQUIRED BY KM'S ON-SITE REPRESENTATIVE. BACKFILL BELOW THE EXPOSED LINES AND 12' ABOVE THE LINES SHALL BE REPLACED WITH SAND OR OTHER SELECTED MATERIAL AS APPROVED BY KM'S ON-SITE REPRESENTATIVE AND THOROUGHLY COMPACTED IN 12" LIFTS TO 95% OF STANDARD PROCTOR DRY DENSITY MINIMUM OR AS APPROVED BY KM'S ON-SITE REPRESENTATIVE. THIS IS TO ADEQUATELY PROTECT AGAINST STRESSES THAT MAY BE CAUSED BY THE SETTLING OF THE PIPELINE.
- NO BLASTING SHALL BE ALLOWED WITHIN 1000 FEET OF KM'S FACILITIES UNLESS BLASTING NOTIFICATION IS GIVEN TO KM INCLUDING COMPLETE BLASTING PLAN DATA. A PRE-BLAST MEETING SHALL BE CONDUCTED BY THE ORGANIZATION RESPONSIBLE FOR BLASTING. KM SHALL BE IMMEDIATELY AND HELD HARMLESS FROM ANY LOSS, COST OR LIABILITY FOR PERSONAL INJURIES RECEIVED, DEATH CAUSED OR PROPERTY DAMAGE SUFFERED OR SUSTAINED BY ANY PERSON RESIDING WITHIN ANY BLASTING OPERATIONS UNDERWAY. WITHIN 500 FEET OF ITS FACILITIES THE ORGANIZATION RESPONSIBLE FOR BLASTING SHALL BE LIABLE FOR ANY AND ALL DAMAGES CAUSED TO KM'S FACILITIES AS A RESULT OF THEIR ACTIVITIES WHETHER OR NOT KM REPRESENTATIVES ARE PRESENT. KM SHALL HAVE A SIGNED AND EXECUTED BLASTING INDemnIFICATION AGREEMENT BEFORE ANY NOTIFIED PERMISSION TO BLAST CAN BE GIVEN.
- NO BLASTING SHALL BE ALLOWED WITHIN 500 FEET OF KM'S FACILITIES UNLESS BLASTING NOTIFICATION IS GIVEN TO KM A MINIMUM OF ONE WEEK BEFORE BLASTING. (NOTE: COVERED ABOVE) KM SHALL REVIEW AND ANALYZE THE BLASTING METHODS A WRITTEN BLASTING PLAN SHALL BE PROVIDED BY THE ORGANIZATION RESPONSIBLE FOR BLASTING AND AGREED TO BY WRITING BY KM IN ADDITION TO MEETING REQUIREMENTS FOR 500' AND 1000' BLIND WFT ABOVE. A WRITTEN EMERGENCY PLAN SHALL BE PROVIDED BY THE ORGANIZATION RESPONSIBLE FOR BLASTING. (NOTE: COVERED ABOVE).
- ANY CONTACT WITH ANY KM FACILITY, PIPELINE, VALVE, ETC. SHALL BE REPORTED IMMEDIATELY TO KM. KM WILL BE NOTIFIED IMMEDIATELY BY PHONE, FAX, MAIL AND INSPECTED BEFORE THE SECTION IS RE-COATED AND THE LINE IS BACK-FILLED.
- KM PERSONNEL SHALL INSTALL A 1" TEST TIE IN KM FACILITIES.
- PLANTING OF TREES, BUSHES, ETC. IS NOT PERMITTED WITHIN THE KM ROW.

KINDER MORGAN NOTES CONTD. INSURANCE REQUIREMENTS:

- ALL CONTRACTORS, AND THEIR SUBCONTRACTORS, WORKING ON COMPANY EASEMENTS SHALL MAINTAIN THE FOLLOWING TYPES OF INSURANCE POLICIES AND MINIMUM LIMITS OF COVERAGE. ALL INSURANCE CERTIFICATES CARRIED BY CONTRACTOR AND GRANTEE SHALL INCLUDE THE FOLLOWING STATEMENT: "KINDER MORGAN AND ITS AFFILIATED OR SUBSIDIARY COMPANIES ARE NAMED AS ADDITIONAL INSURED ON ALL ABOVE POLICIES (EXCEPT WORKMAN'S COMPENSATION) AND WAIVER OF SUBROGATION IN FAVOR OF KINDER MORGAN AND ITS AFFILIATED OR SUBSIDIARY COMPANIES. THE DIRECTOR OF INSURANCE, OFFICERS, AGENTS AND EMPLOYEES APPLICABLE AS REQUIRED BY WRITTEN CONTRACT." CONTRACTOR SHALL FURNISH CERTIFICATES OF INSURANCE (INCLUDING INSURANCE COVERAGE PRIOR TO COMMENCEMENT OF WORK AND SHALL PROVIDE THIRTY (30) DAYS NOTICE PRIOR TO THE TERMINATION OR CANCELLATION OF ANY POLICY.
- STATUTORY COVERAGE WORKER'S COMPENSATION INSURANCE IN ACCORDANCE WITH THE LAWS OF THE STATES WHERE THE WORK IS TO BE PERFORMED. IF CONTRACTOR PERFORMS WORK ON THE ADJACENT OR PARALLEL HIGHWAYS CONTRACTOR SHALL FURNISH A CERTIFICATE OF INSURANCE SHOWING COMPLIANCE WITH THE PROVISIONS OF THE FEDERAL LONGSHOREMAN'S AND HARBOR WORKERS' COMPENSATION LAW.
- EMPLOYEE'S LIABILITY INSURANCE, WITH LIMITS OF NOT LESS THAN \$1,000,000 PER OCCURRENCE AND \$1,000,000 DISEASE EACH EMPLOYEE.
- COMMERCIAL GENERAL LIABILITY INSURANCE WITH A COMBINED SINGLE LIMIT OF NOT LESS THAN \$2,000,000 PER OCCURRENCE AND IN THE AGGREGATE. ALL POLICIES SHALL INCLUDE COVERAGE FOR PLANT/PROPERTY LIABILITY ASSURED.
- IF NECESSARY, COMPREHENSIVE AIRCRAFT LIABILITY INSURANCE WITH COMBINED BODILY INJURY, INCLUDING PASSENGERS, AND PROPERTY DAMAGE LIABILITY LIMITS OF NOT LESS THAN \$5,000,000 EACH OCCURRENCE.
- CONTRACTOR'S POLLUTION LIABILITY INSURANCE THIS COVERAGE SHALL BE MAINTAINED IN FORCE FOR THE FULL PERIOD OF THIS AGREEMENT WITH AVAILABLE LIMITS OF NOT LESS THAN \$2,000,000 PER OCCURRENCE.
- POLLUTION (LEGAL) LIABILITY INSURANCE THE COVERAGE MUST BE MAINTAINED AT A MINIMUM AMOUNT OF \$5,000,000 PER OCCURRENCE.

UPRR GENERAL NOTES

- ALL EXCAVATIONS AND BACKFILLING IN RAILROAD RIGHT-OF-WAY MUST BE DONE USING WORKMANSHIP ACCEPTABLE TO THE RAILROAD. ALL BACKFILLING MUST BE PLACED IN A MINIMUM OF AT LEAST LAYERS AND CONTRACTOR TO NOTE OF MAXIMUM STANDARD DENSITY AS DETERMINED BY ASTM D 155 OR ASTM D 698.
- TRACK BORES MUST BE A MINIMUM OF 40 INCHES BELOW BASE OF RAIL. WET BORES ARE NOT PERMITTED ON UNION PACIFIC PROPERTY. THE ENDS OF STEEL CASING (SEE UNION PACIFIC COMMON STANDARD 1029) WILL HAVE TO BE A MINIMUM OF 30 FEET FROM CENTERLINE OF THE TRACK WHEN MEASURED AT RIGHT ANGLE TO THE TRACK. ALSO, BORE PITS MUST BE A MINIMUM OF 30 FEET FROM CENTERLINE OF TRACK WHEN MEASURED AT RIGHT ANGLE TO THE TRACK. IN ADDITION, NO BORE PITS CAN BE LOCATED IN THE SURF OF A CUT OR FILL SECTION OF THE ROADBED. THE BORE PIT SIZE MUST BE KEPT TO A MINIMUM.
- BEFORE WORK CAN BEGIN ON RAILROAD RIGHTS OF WAY, THE AGREEMENT BETWEEN UNION PACIFIC AND THE APPLICANT MUST BE FULLY EXECUTED. ALSO, EMPLOYEES OF THE APPLICANT AND ITS CONTRACTOR PERSONNEL THAT WILL BE ON AND ABOUT RAILROAD PROPERTY MUST HAVE A COPY OF MINIMUM SAFETY REQUIREMENTS FOR CONTRACTORS EXHIBIT B AND BE SAFETY-TRAINED BY A UNION PACIFIC PROJECT INSPECTOR.
- ADEQUATE BARRIER PROTECTION IS REQUIRED FOR ALL EXCAVATION ON RAILROAD RIGHT-OF-WAY TO PROTECT INDIVIDUALS FROM FALLING INTO HOLES.
- ALL GRADES DISTURBED THROUGHOUT THE CONSTRUCTION PROCESS SHALL BE RESTORED TO MATCH EXISTING CONDITIONS, AND SHALL BE GRADED TO DRAIN AWAY FROM RAILROAD TRACKS.
- ALL PROJECTS WILL REQUIRE A PROJECT INSPECTOR AND FLAG MAN WHEN REQUIRED FOR PROTECTION OF TRAIN OPERATIONS. IT WILL SHALL BE NOTED BY THE CONTRACTOR THAT IT WILL TAKE THREE WEEKS TO OBTAIN UPRR FLAG MEN FOR A PROJECT. THEREFORE, WORK SCHEDULES WILL HAVE TO BE PLANNED ACCORDINGLY.
- STEEL CASING FOR THE RAILROAD CROSSING JACK AND BORE SHALL BE 54" O.D. SMOOTH STEEL CASING PIPE WITH MINIMUM YIELD STRENGTH OF 35,000 PSI AND 0.75" MINIMUM WALL THICKNESS.

CITY OF TUCSON AND CITY OF SOUTH TUCSON NOTES:

- THE CITY SHALL NOT BE HELD LIABLE FOR ANY ERRORS AND/OR OMISSIONS ON THESE PLANS. ITEMS NOT MEETING CITY STANDARDS SHALL BE REPAIRED/REPLACED AT NO COST TO THE CITY.
- AN EXCAVATION PERMIT SHALL BE OBTAINED FROM THE CITY TRANSPORTATION DEPARTMENT PRIOR TO ANY WORK WITHIN THE PUBLIC RIGHT OF WAY.
- A PRE-CONSTRUCTION FIELD MEETING SHALL BE CONDUCTED WITH THE CITY TRANSPORTATION INSPECTOR PRIOR TO ANY WORK WITHIN THE PUBLIC RIGHT OF WAY.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL PAYMENT FOR ACQUIRING IN KIND, INCLUDING REPAIRS AND SURFACE TREATMENTS IN ACCORDANCE WITH PIMA ASSOCIATION OF GOVERNMENTS STANDARD SPECIFICATIONS FOR PUBLIC IMPROVEMENTS, LATEST EDITION.
- THE CONTRACTOR SHALL CONTACT AND/OR COORDINATE ANY WORK WITH THE CITY STREETS & TRAFFIC MAINTENANCE DIVISION WITHIN 10 DAYS AND MAINTENANCE SECTION PRIOR TO DISTURBING ANY LANDSCAPING OR IRRIGATION SYSTEMS. ADDITIONALLY, THE CONTRACTOR SHALL REPAIR OR REPLACE ANY DISTURBED LANDSCAPING OR IRRIGATION SYSTEMS, INCLUDING REPLACEMENT OF ANY DAMAGED PLANTS.
- CONTRACTOR TO PROVIDE A STORM WATER POLLUTION PREVENTATIVE PLAN (SWPPP) FOR ALL WORK ALONG THE SEWER MAIN ALIGNMENT WITHIN CITY RIGHT OF WAY PRIOR TO STARTING CONSTRUCTION.

ADOT NOTES:

- AN ADOT ENCROACHMENT PERMIT IS REQUIRED PRIOR TO ANY WORK IN ADOT RIGHT OF WAY.
- ANY EXCAVATION WITH ADOT RIGHT OF WAY WILL REQUIRE COMPLIANCE WITH THE ARIZONA STATE HISTORIC PRESERVATION ACT.

ADEQ REQUIRED NOTES:

- ALL SEWER LINES SHALL BE COVERED WITH AT LEAST 4 FEET OF BACK FILL PER ROW.
- ALL SEWER MAIN TRENCHING AND BACK FILL SHALL BE IN ACCORDANCE WITH A.C. R18-9-E301(D)(2)(X) AND PIMA COUNTY REGIONAL WASTEWATER RECLAMATION DEPARTMENT STANDARD DETAIL R.W.R.D. 104.
- THE FULL LENGTH OF SEWER MAIN SHALL BE DEFLECTION TESTED PER A.C. R18-9-E301(D)(2)(X).
- EACH SEGMENT OF THE SEWER MAIN SHALL BE LEAK TESTED IN ACCORDANCE WITH A.C. R18-9-E301(D)(2)(X).
- THE FULL LENGTH OF SEWER MAIN SHALL BE TESTED FOR UNIFORM STRENGTH PER A.C. R18-9-E301(D)(2)(X).
- THE HORIZONTAL AND VERTICAL SEPARATION BETWEEN PUBLIC WATER MAINS AND PUBLIC SEWER LINES SHALL BE IN ACCORDANCE WITH A.C. R18-9-502(G) AND SO R.W.D. 108.
- ALL MANHOLES SHALL BE IN ACCORDANCE WITH A.C. R18-9-E301(D)(2)(X).

Plan No.	Upstream IMS MH No.	Downstream IMS MH No.	Pipe Size	Abandon/Remove	Length of Abandonment/Removal
G-62-044	9910-20	9910-19	36	Remove	230
G-62-044	9910-20	9910-19	36	Abandon	240
G-62-044	3152-02	9910-20	36	Abandon	75
G-2010-017	3152-DIV01	3152-02	36	Remove	25
G-62-044	3152-DIV01	9910-21	33	Remove	12
G-62-044	9910-21	9917-04	33	Abandon	53
G-62-044	9917-04	9917-03	36	Abandon	160
G-62-044	9917-03	9917-02	36	Remove	70
G-217A	8817-39	5998-11	8	Remove	423
G-217A	8817-39	5998-11	8	Abandon	100
G-148	8911-15E	8180-01	8	Abandon	62
G-68-033	1779-01	9917-31	30	Abandon	80
G-62-044	9917-31	3153-01	30	Abandon	50
G-030	9864-06	9864-04	8	Remove	825
G-99-020	4359-17	4359-09	8	Remove	80
G-99-020	4359-07	9892-01	8	Abandon	36
G-99-020	9892-01	9864-05	8	Abandon	72
G-99-020	9892-01	9864-05	8	Remove	89
G-99-020	4359-04	4359-03	8	Remove	200
G-99-020	4359-01	4359-16	8	Abandon	25

ABBREVIATIONS LIST

AAC	ARIZONA ADMINISTRATIVE CODE	MON	MONUMENT
ACP	ARIZONA CEMENT PIPE	OCW	ON CENTER EACH WAY
ADOT	ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY	CAW	OPERATION AND MAINTENANCE
ADOT	ARIZONA DEPARTMENT OF TRANSPORTATION	OSHA	OLD NOGALES INTERCEPTOR
AHS	ARIZONA REVENUE STATUTES	OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
AWWA	AMERICAN WATER WORKS ASSOCIATION	OTV	OVERHEAD CABLE TV
BOS	BUSINESS COMMUNICATIONS CENTER	PAC	PIMA ASSOCIATION OF GOVERNMENTS
CIS	CITY OF TUCSON	PC/OUT	PIMA COUNTY/CITY OF TUCSON STANDARD SPECIFICATIONS FOR PUBLIC IMPROVEMENTS
CIP	CITY OF TUCSON	PC/IN	PIMA COUNTY REGIONAL WASTEWATER RECLAMATION DEPARTMENT
COT	CITY OF TUCSON	PSLO	PIMA COUNTY DEPARTMENT OF ENVIRONMENTAL QUALITY
DIA	DIRECTOR OF INSURANCE	PT	PROFESSIONAL ENGINEER
DIP	DIRECTOR OF INSURANCE	PT	PROFESSIONAL ENGINEER
EDS	ENGINEERING DESIGN STANDARDS	PVC	POLYVINYL CHLORIDE
FMP	FLOW MANAGEMENT PLAN	RCC	REINFORCED CONCRETE BOX CULVERT
FE	FEET	RCP	REINFORCED CONCRETE PIPE
HE	HORIZONTAL ELECTRICAL	PLS	REGIONAL WASTEWATER RECLAMATION DEPARTMENT
HDP	HIGH DENSITY POLYETHYLENE	PSO	SANTA CRUZ INTERCEPTOR
HCS	HOUSE CONNECTION SYSTEM	SEQ	SEQUENCE NUMBER
HCP	HORIZONTAL CONTROL POINT	ST	TO THE EAST INTERCEPTOR
IMS	INFRASTRUCTURE MANAGEMENT SYSTEM	SW	SURVEY MONUMENT
LF	LINEAL FOOT	SS	STAINLESS STEEL
MAX	MAXIMUM	ST	STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION
MD	MILLION GALLONS PER DAY	ST	STANDARD SPECIFICATIONS FOR PUBLIC IMPROVEMENTS
MH	MANHOLE	SWPPP	STORM WATER POLLUTION PREVENTION PLAN
MN	MINIMUM	TCE	TEMPORARY CONSTRUCTION EASEMENT

PRIVATE MANHOLE AS-BUILT INFORMATION			
MH NO.	STATE PLANE COORDINATES (ARIZONA CENTRAL) NAD 83 INTERNATIONAL FEET	NORTHING	EASTING

PUBLIC MANHOLE AS-BUILT INFORMATION			
MH NO.	STATE PLANE COORDINATES (ARIZONA CENTRAL) NAD 83 INTERNATIONAL FEET	NORTHING	EASTING

DATE	REVISION	BY	NO.



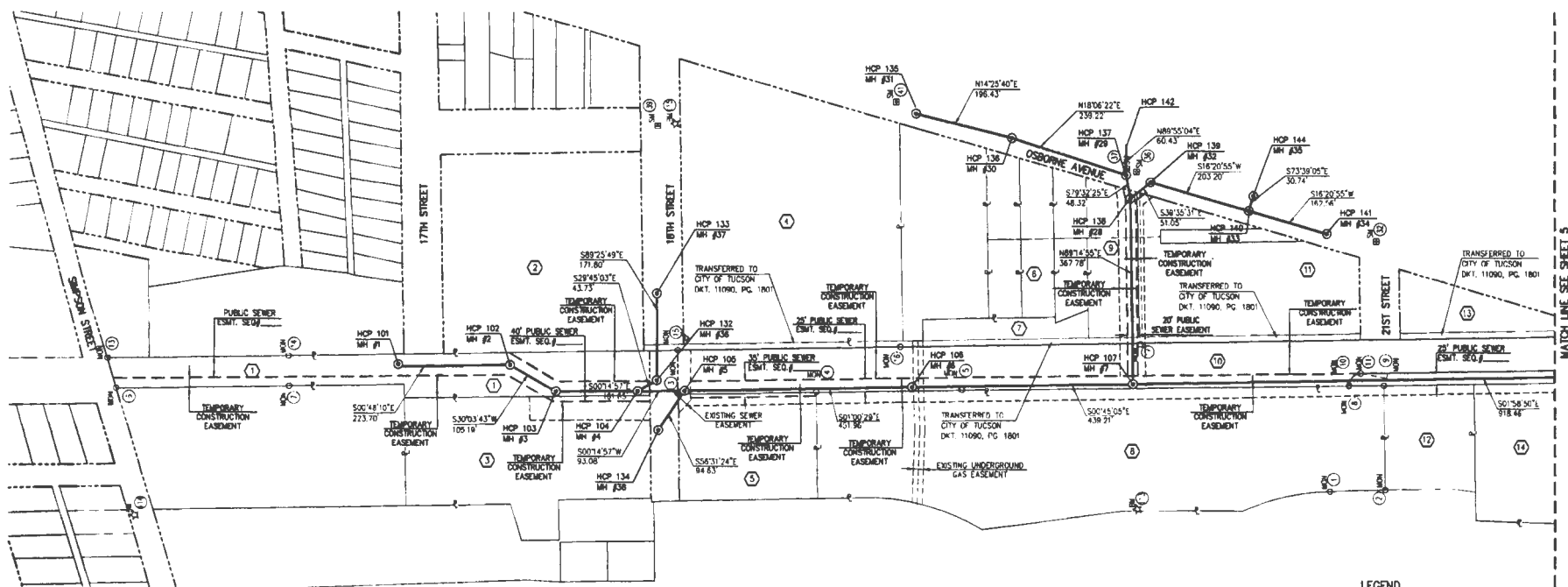
DESIGNED BY:
 DRAWN BY:
 CHECKED BY:
 DATE:
 SCALE:
 PROJECT NO.:










PIMA COUNTY REGIONAL WASTEWATER RECLAMATION DEPARTMENT
Tucson, Arizona 85701-1207 • Phone: (520) 740-6500
201 North Stone Avenue • PIMA COUNTY WASTEWATER RECLAMATION

SEE AUGMENTATION SEWER REPLACEMENT PROJECT (35876)
GENERAL NOTES
G-2016-014
DATE: FEBRUARY 29, 2016
SHEET NO.: 3 OF 50

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Tucson • Phoenix • Flagstaff
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Tucson, Arizona 85701
Tel: 520.298.1111 Fax: 520.298.1112
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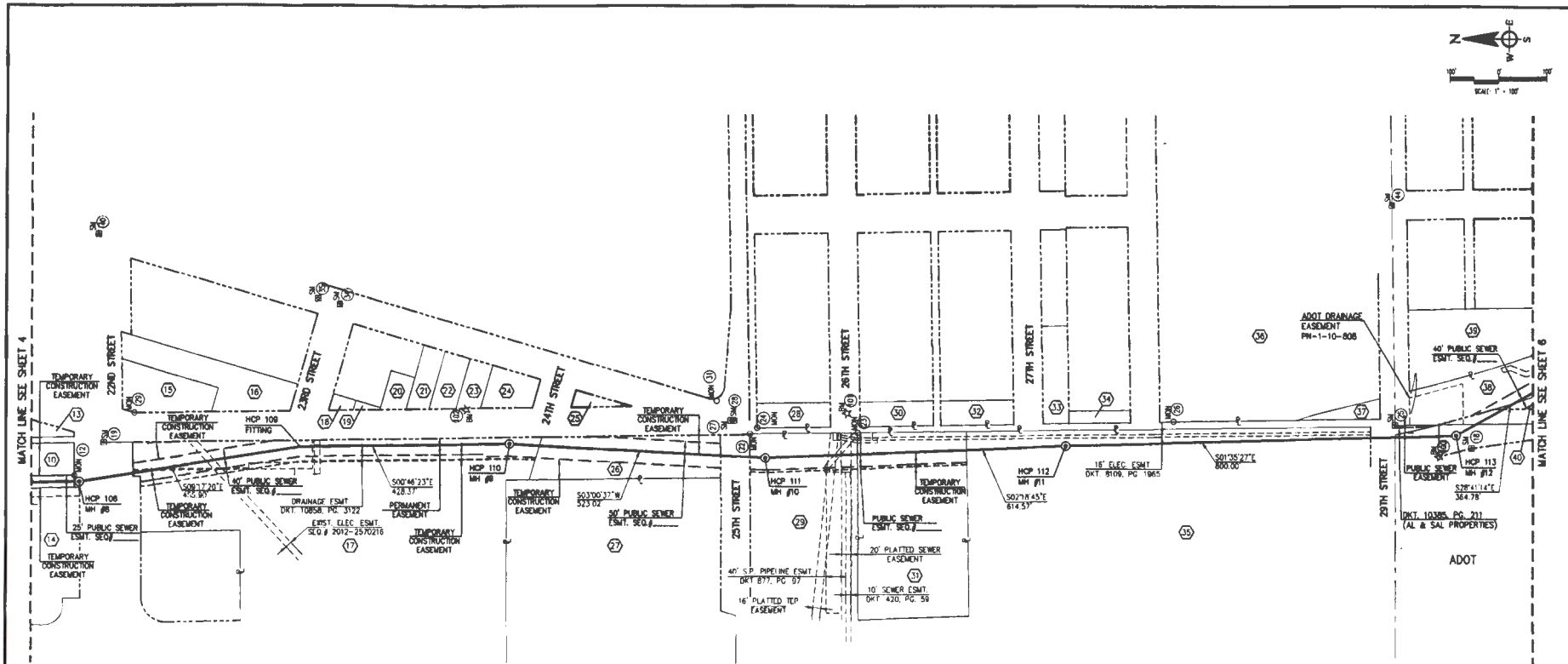
Each of these files shall be reviewed prior to beginning any design or construction.
ARIZONA
1001 N. 1st Avenue, Suite 200
Tucson, Arizona 85701
Tel: 520.298.1111 Fax: 520.298.1112
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LEGEND	
	BENCHMARK
	SURVEY PIN
	SURVEY MONUMENT
	SURVEY MONUMENT AND VERTICAL CONTROL POINT NUMBERS
	TEMPORARY CONSTRUCTION EASEMENT
	PERMANENT EASEMENT
	PROPERTY LINE
	RIGHT OF WAY
	EXISTING EASEMENT

PARCEL LINES SHOWN ARE A COMBINATION OF MONUMENTATION, DOCKETS OBTAINED FROM THE PIMA COUNTY G.L.S. WEBSITE (AS OF JANUARY 10, 2018), THE SECTIONAL AUTOCADING FILES AVAILABLE AS OF THAT SAME DATE, AND TITLE REPORTS AT SELECTED LOCATIONS. THIS DOES NOT CONSTITUTE A RIGHT-OF-WAY SURVEY, BUT INTENDS TO SHOW PARCEL INFORMATION FOR DESIGN PURPOSES. TITLE REPORTS WERE DONE ON A FEW SPECIFIC AREAS. THIS SURVEY WAS CONCERNED WITH OWNERSHIP ADJACENT TO THE PROPOSED ALIGNMENT AND OTHER PARCEL LINES ARE FOR INFORMATION PURPOSES ONLY.

* HORIZONTAL CONTROL POINTS ARE THE POINT OF INTERSECTION OF THE SEWER ALIGNMENT CENTERLINE AND THE MANHOLE CENTERLINE.



NO.	NORTH	EAST	DESCRIPTION
12	440279.42	990373.33	FOUND 1/2" REBAR TAGGED "RLS 37033"
18	437422.84	990433.67	FOUND ALUMINUM CAP STAMPED "ADOT ROW 2008 226 15+81.27, 1-10-4-BOWL LS18222"
22	436900.29	990451.73	FOUND 1/2" REBAR TAGGED "RLS 18241"
23	436850.56	990464.15	FOUND 1/2" REBAR TAGGED "RLS 13187"
24	436850.21	990473.77	FOUND 1/2" REBAR
25	437580.26	990480.79	FOUND BRASS CAP IN CONCRETE STAMPED "LS 36786"
26	438033.34	990488.99	FOUND 1/2" REBAR
27	438939.50	990489.07	FOUND ALUMINUM CAP STAMPED "TRUCK ENG CO RLS 17479"
28	438932.75	990489.22	FOUND ALUMINUM CAP
29	440515.45	990501.72	FOUND SCREW IN CONCRETE TAGGED "RLS 25086"
31	438968.47	990528.85	FOUND 1/2" REBAR TAGGED "TRC LS 17479"
34	438736.39	990723.70	FOUND ALUMINUM CAP STAMPED "CITY OF TUCSON 2075"
35	436783.55	990725.79	FOUND ALUMINUM CAP STAMPED "TRUCK ENG CO RLS 17479"
40	440231.73	990886.81	FOUND BRASS CAP IN CONCRETE STAMPED "COT RLS 29873"
44	437587.33	990929.80	FOUND BRASS CAP IN CONCRETE

NO.	NORTH	EAST	ELEVATION	DESCRIPTION
10	440220.05	990440.81	2371.07	FOUND BRASS CAP IN HANDWELL STAMPED "1997 1145 RISE 514 513 523 524 RLS23856" (N21)
190	437489.98	990416.98	2368.95	FOUND ALUMINUM CAP STAMPED "ADOT ROW 2008 144+83.25 (S 18222 1-10-4-NOW) "RM 1"
101	436702.18	990503.44	2360.58	"21 MAGNAB W/WASHER STAMPED "CONTROL POINT RLS 31010", "RM 1"
102	439480.00	990509.60	2379.50	SET 1/2" REBAR W/WASHER STAMPED "CONTROL POINT RLS 31030", "RM 0"

NO.	OWNER OF RECORD	PARCEL ID
10	CITY OF TUCSON	118-23-2120
13	EL CAMPO PROPERTIES LLC	117-09-082A
14	EL CAMPO PROPERTIES LLC	118-73-1540
15	18TH & EUCLID LLC	118-20-048A
16	18TH & EUCLID	118-20-048B
17	JENNY REAF (STATE OF TUCSON) LLC	118-89-0021
18	CITY OF TUCSON	118-20-0800
19	CITY OF TUCSON	118-20-0810
20	ERNESTO RODRIGUEZ	118-20-0860
21	CITY OF TUCSON	118-20-0870
22	CITY OF TUCSON	118-20-0880
23	MARIANNA FORDARD	118-20-0890
24	CITY OF TUCSON	118-20-0700
25	CITY OF TUCSON	118-20-0710
26	CITY OF TUCSON	118-08-001A

NO.	OWNER OF RECORD	PARCEL ID
27	ATKINSON LAND HOLDINGS	118-08-002B
28	R. & E. RANGLE	118-22-1330
29	I. DAWSON	118-08-138A
30	FLORENCE HOSPEL	118-22-1420
31	DIYING PIMA COUNTY LLC	118-08-156A
32	J. & T. TERAM	118-22-1570
33	M. & A. MIRANDA	118-22-3700
34	LA FRONTERA CENTER INC.	118-22-3720
35*	A.D.O.T.	NO DATA
36	LA FRONTERA CENTER INC.	118-22-412C
37	LA FRONTERA CENTER INC.	118-22-412B
38	AL & SAL PROPERTIES LLC	118-23-2678
39	AL & SAL PROPERTIES LLC	118-23-003A
40	AL & SAL PROPERTIES LLC	118-23-009A

NO.	NORTHING	EASTING
108	440269.48	990360.74
109	438819.57	990434.33
110	438391.38	990440.10
111	438868.84	990417.63
112	438254.87	990437.43
113	437456.17	990459.64

- LEGEND**
- BENCHMARK
 - SURVEY PIN
 - SURVEY MONUMENT
 - SURVEY MONUMENT AND VERTICAL CONTROL POINT NUMBERS
 - TEMPORARY CONSTRUCTION (ON EASEMENT)
 - PERMANENT EASEMENT
 - PROPERTY LINE
 - RIGHT OF WAY
 - EXISTING EASEMENT

BASIS OF BEARING
BASIS OF BEARINGS - IS THE ARIZONA STATE PLANE COORDINATE SYSTEM NAD83 (NAD83).

BASIS OF ELEVATION
BASIS OF ELEVATIONS: PCDOT-CDOT GEODETIC CONTROL POINT (E141342), RECOVERED AS DESCRIBED IN GPS OCCUPATION SHEET - 440.220.057H 990.440.81E

LOCATION OF PROJECT
A PORTION OF SECTION 18 T48, R14E, & SECTIONS 13, 14, 23, & 24 T48, R14E GASHA PIMA COUNTY, ARIZONA

PARCEL LINES SHOWN ARE A COMBINATION OF MONUMENTATION, DOCKETS OBTAINED FROM THE PIMA COUNTY GIS, WEBSITE (AS OF JANUARY 10, 2016), THE SECTIONAL AUTOCAD.DWG FILES AVAILABLE AS OF THAT SAME DATE, AND TITLE REPORTS AT SELECTED LOCATIONS. THIS DOES NOT CONSTITUTE A RIGHT-OF-WAY SURVEY, BUT INTENDS TO SHOW PARCEL INFORMATION FOR DESIGN PURPOSES. TITLE REPORTS WERE DONE ON A FEW SPECIFIC AREAS. THIS SURVEY WAS CONCERNED WITH OWNERSHIP ADJACENT TO THE PROPOSED ALIGNMENT AND OTHER PARCEL LINES ARE FOR INFORMATION PURPOSES ONLY.

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NO.	DATE	APPROVED	DATE

PIMA COUNTY REGIONAL WASTEWATER RECLAMATION DEPARTMENT

PIMA COUNTY WASTEWATER RECLAMATION

301 North Stone Avenue • Tucson, Arizona 85701-1207 • Phone: (520) 740-6500

SEI AUGMENTATION SEWER REPLACEMENT PROJECT (3SE13)

SURVEY CONTROL SHEET

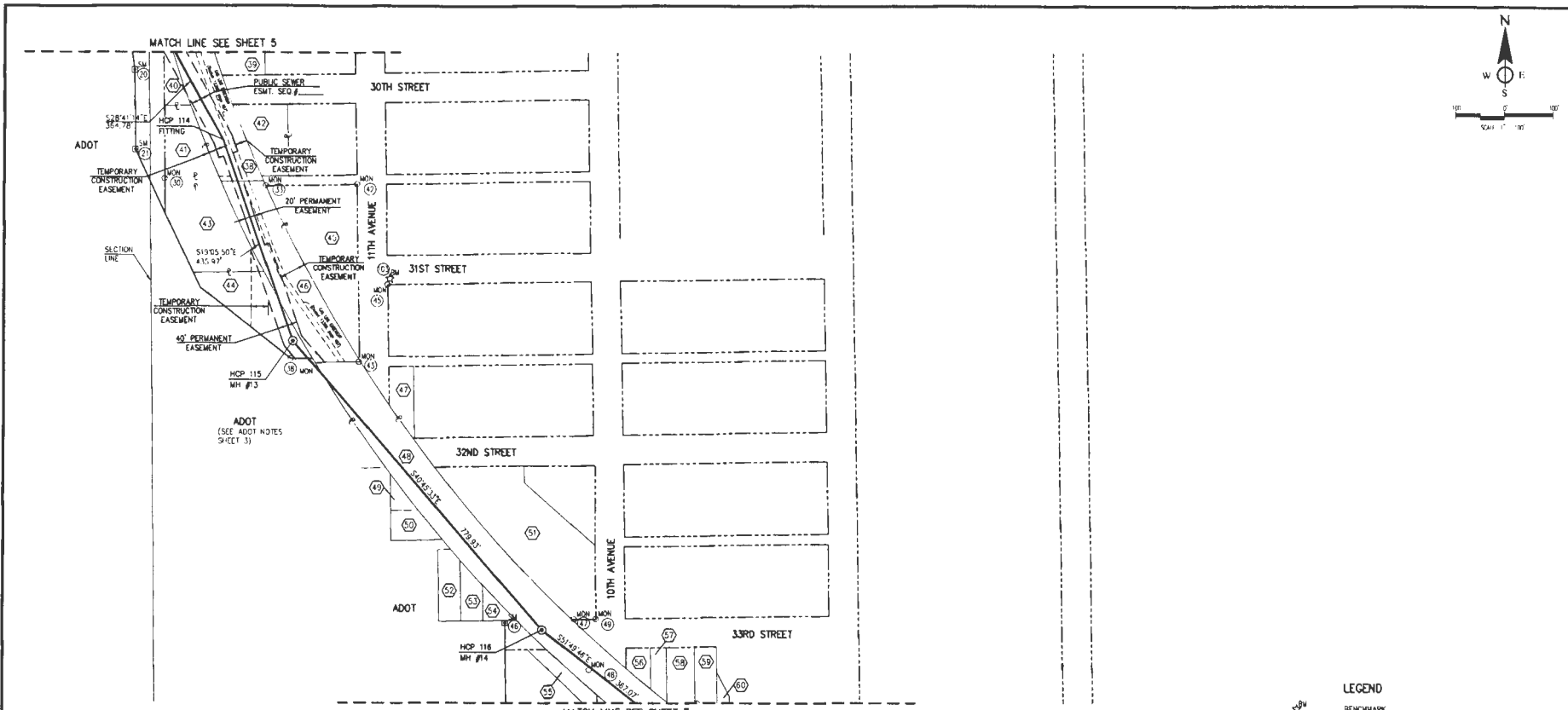
G-2018-014

FEBRUARY 29, 2018

SCALE: 1"=100'

REVISION:

SHEET NO.: 5 OF 50



SURVEY MONUMENT TABLE			
NO.	NORTH	EAST	DESCRIPTION
29	437278.47	990345.26	FOUND ALUMINUM CAP STAMPED "ADOT ROW 2008 2234-06 RB 1-10-4-ROR 151022"
29	437115.45	990455.91	FOUND ALUMINUM CAP, MARKINGS ILLEGIBLE
30	437056.75	990515.37	FOUND 1/2" REBAR
33	437041.95	990721.44	FOUND 5/8" REBAR
38	436847.53	990773.11	FOUND 1/2" REBAR TAGGED "RLS 26932"
42	437044.88	990908.35	FOUND 1/2" REBAR
43	436679.62	990912.37	FOUND 1/2" REBAR TAGGED "RLS 46278"
45	436837.97	990910.87	FOUND 1/2" x 1" OPEN PILE
46	436146.70	991211.70	FOUND BRASS CAP IN CONCRETE STAMPED "AND 19"
47	436153.90	991352.01	FOUND 1/2" REBAR
48	436049.37	991382.21	FOUND 1/2" REBAR, REIN.
49	436154.56	991396.25	FOUND 1/2" REBAR IN CONCRETE

VERTICAL CONTROL POINTS (ELEVATIONS SHOWN WERE DETERMINED BY DIFFERENTIAL LEVELS)			
NO.	NORTH	EAST	ELEVATION
103	436640.08	990976.29	7249.70
			"SET SW-EXIST" 1" ON TOP OF CURB, "NEW X"

PROPERTY OWNERSHIP		
NO.	OWNER OF RECORD	PARCEL ID
38	AL & SAL PROPERTIES LLC	118-23-2879
39	AL & SAL PROPERTIES LLC	118-23-009A
40	AL & SAL PROPERTIES LLC	118-23-009A
41	AL & SAL PROPERTIES LLC	118-23-1950
42	AL & SAL PROPERTIES LLC	118-23-1640
43	AL & SAL PROPERTIES LLC	118-23-1950
44	AL & SAL PROPERTIES LLC	118-23-1990
45	ROCKY THE FLAT FINDER LLC	118-23-199A
46	AL & SAL PROPERTIES LLC	118-23-2879
47	L. E. SANCHEZ	118-23-2090
48	SOUTHERN PACIFIC TRANSPORTATION CO.	118-23-2877
49	A.D.O.T.	118-24-0730

PROPERTY OWNERSHIP		
NO.	OWNER OF RECORD	PARCEL ID
50	A.D.O.T.	118-24-0740
51	GRANT MEDICAL TRANSPORTATION CO. LLC	118-24-0720
52	A.D.O.T.	118-24-0770
53	A.D.O.T.	118-24-0780
54	A.D.O.T.	118-24-0790
55	STATE OF ARIZONA	118-24-3600
56	STATE OF ARIZONA	118-24-1190
57	DEEP CANYON LLC	118-24-118A
58	C & C HOME RENTALS LLC	118-24-117A
59	ESTATE OF E. LOPEZ & DEEP CANYON LLC	118-24-118B
60	DEEP CANYON LLC	118-24-119C

HCP TABLE *		
NO.	NORTHING	EASTING
114	437134.66	990635.10
115	436723.19	990777.38
116	436132.43	991286.58

* HORIZONTAL CONTROL POINTS ARE THE POINT OF INTERSECTION OF THE SEWER ALIGNMENT CENTERLINE AND THE MANHOLE CENTERLINE.

LEGEND

- SW MON PM (25) SURVEY MONUMENT AND VERTICAL CONTROL POINT NUMBERS
- TEMPORARY CONSTRUCTION EASEMENT
- PERMANENT EASEMENT
- PROPERTY LINE
- RIGHT OF WAY
- EXISTING EASEMENT

BASIS OF BEARING
BASIS OF BEARINGS - IS THE ARIZONA STATE PLANE COORDINATE SYSTEM NAD83 (HARN92).
BASIS OF COORDINATES ARE PCDDOT-CDDOT - GEODETIC CONTROL POINT [E1413N21, RECOVERED AS DESCRIBED IN GPS OCCUPATION SHEET - 2371.07 (NA4088) - 440,220.057N 990,440.811E

BASIS OF ELEVATION
BASIS OF ELEVATIONS: PCDDOT-CDDOT GEODETIC CONTROL POINT [E1413N21, RECOVERED AS DESCRIBED IN GPS OCCUPATION SHEET - 2371.07 (NA4088)

LOCATION OF PROJECT
A PORTION OF SECTION 19 T14S, R14E, & SECTIONS 13, 14, 23, & 24 T14S, R13E GDSNW PIMA COUNTY, ARIZONA

PARCEL LINES SHOWN ARE A COMBINATION OF MONUMENTATION, DOCKETS OBTAINED FROM THE PIMA COUNTY G.I.S. WEBSITE (AS OF JANUARY 10, 2018). THE SECTIONAL AUTOCAD.DWG FILES AVAILABLE AS OF THAT SAME DATE, AND TITLE REPORTS AT SELECTED LOCATIONS. THIS DOES NOT CONSTITUTE A RIGHT-OF-WAY SURVEY, BUT INTENDS TO SHOW PARCEL INFORMATION FOR DESIGN PURPOSES. TITLE REPORTS WERE DONE ON A FEW SPECIFIC AREAS. THIS SURVEY WAS CONCERNED WITH OWNERSHIP ADJACENT TO THE PROPOSED ALIGNMENT AND OTHER PARCEL LINES ARE FOR INFORMATION PURPOSES ONLY.

Westland Resources, Inc.
Person + Phone + Flagstaff
408.111.1111
Person + Phone + Flagstaff
408.111.1111

Call or Email for more information, or visit our website at www.westlandresources.com

AMERICAN SURVEYING & MAPPING, INC.
1000 N. 1st Ave. Suite 100
Flagstaff, AZ 86001
Phone: 928-779-1111

PIMA COUNTY REGIONAL WASTEWATER RECLAMATION DEPARTMENT

201 North Stone Avenue • Tucson, Arizona 85701-1207 • Phone: (520) 740-6300

SEI AUGMENTATION SEWER REPLACEMENT PROJECT (35893) SURVEY CONTROL SHEET

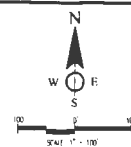
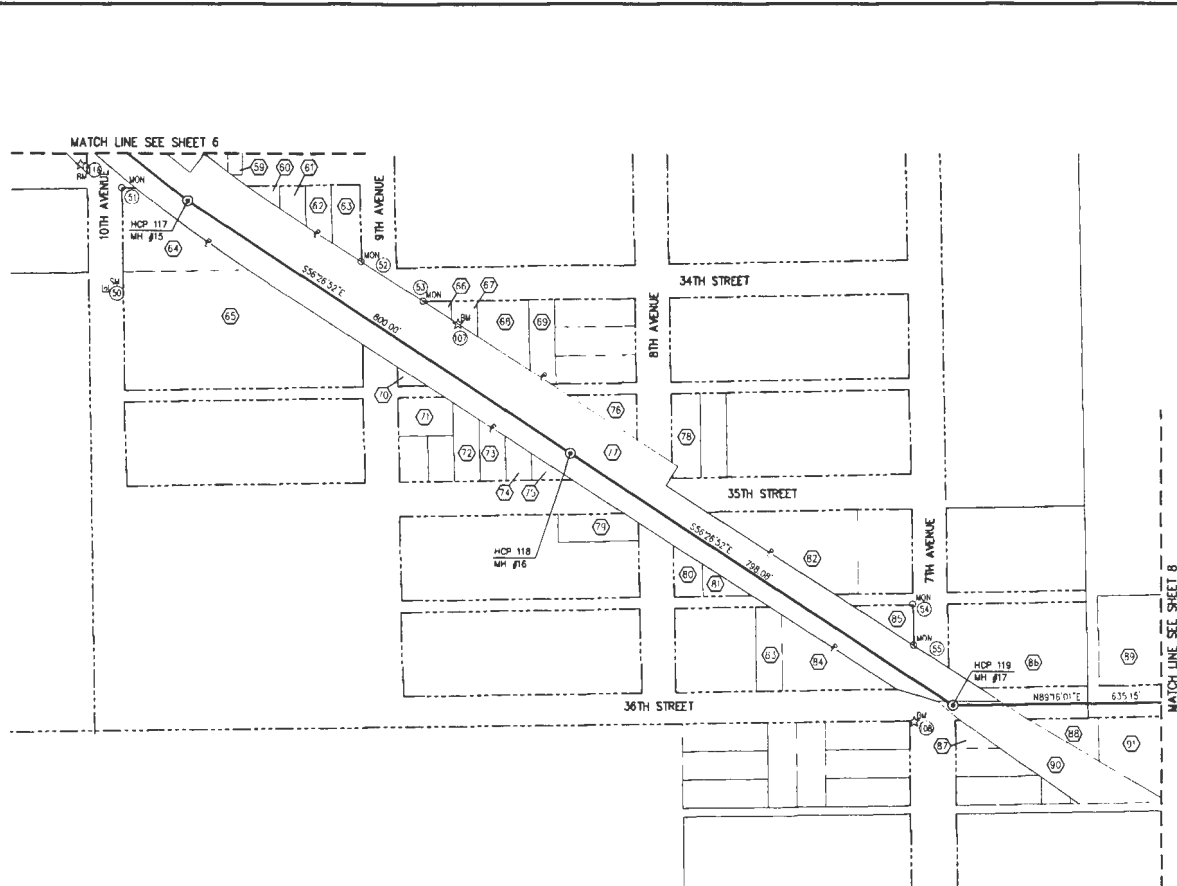
G-2018-014

DATE: FEBRUARY 28, 2018

HORIZ: 1"=100'

VERT: 1"=10'

SHEET NO. 6 of 50



LEGEND

- BENCHMARK
- SURVEY PIN
- SURVEY MONUMENT
- SURVEY MONUMENT AND VERTICAL CONTROL POINT NUMBERS
- TEMPORARY CONSTRUCTION EASEMENT
- PERMANENT EASEMENT
- PROPERTY LINE
- RIGHT OF WAY
- EXISTING EASEMENT

BASIS OF BEARING

BASIS OF BEARINGS - IS THE ARIZONA STATE PLANE COORDINATE SYSTEM NAD83 (HARN92).
BASIS OF COORDINATES ARE PCDDT-CDDT01 GEODETIC CONTROL POINT (E1413K21), RECOVERED AS DESCRIBED IN GPS OCCUPATION SHEET - 440.220.057N 890.440.811E

BASIS OF ELEVATION

BASIS OF ELEVATIONS: PCDDT-CDDT01 GEODETIC CONTROL POINT (E1413K21), RECOVERED AS DESCRIBED IN GPS OCCUPATION SHEET - 2371.07 (HANDRED)

LOCATION OF PROJECT

A PORTION OF SECTION 19 T14S, R14E, & SECTIONS 13, 14, 23, & 24 T14S, R13E GASPARI PIMA COUNTY, ARIZONA

PARCEL LINES SHOWN ARE A COMBINATION OF MONUMENTATION, DOCKETS OBTAINED FROM THE PIMA COUNTY G.I.S. WEBSITE (AS OF JANUARY 10, 2018). THE SECTIONAL AUTOCADING FILES AVAILABLE AS OF THAT SAME DATE, AND TITLE REPORTS AT SELECTED LOCATIONS. THIS DOES NOT CONSTITUTE A RIGHT-OF-WAY SURVEY, BUT INTENDS TO SHOW PARCEL INFORMATION FOR DESIGN PURPOSES. TITLE REPORTS WERE DONE ON A FEW SPECIFIC AREAS. THIS SURVEY WAS CONCERNED WITH OWNERSHIP ADJACENT TO THE PROPOSED ALIGNMENT AND OTHER PARCEL LINES ARE FOR INFORMATION PURPOSES ONLY.

SURVEY MONUMENT TABLE			
NO.	NORTH	EAST	DESCRIPTION
50	435750.23	991432.75	FOUND BRASS CAP IN CONCRETE STAMPED "RLS 21787"
51	435928.74	991430.88	FOUND 1/2" REBAR
52	435798.47	991677.04	FOUND 1/2" REBAR TAGGED "RLS 25403"
53	435728.80	991384.56	FOUND 1/2" REBAR TAGGED "RLS 22759"
54	435200.07	992831.03	FOUND 5/8" REBAR TAGGED "RLS 29271"
55	435128.61	992836.17	FOUND 5/8" REBAR TAGGED "RLS 29273"

HCP TABLE *	
NO.	EASTING
117	435905.58 991575.16
118	435463.42 992241.86
119	435022.32 992906.97

* HORIZONTAL CONTROL POINTS ARE THE POINT OF INTERSECTION OF THE SEWER ALIGNMENT CENTERLINE AND THE MARKER CENTERLINE.

VERTICAL CONTROL POINTS (ELEVATIONS SHOWN WERE DETERMINED BY DIFFERENTIAL LEVELS)			
NO.	NORTH	EAST	ELEVATION
107	435608.88	992045.68	2413.49
108	434993.73	992839.25	2427.00
116	435068.00	991388.93	2414.95

PROPERTY OWNERSHIP		
NO.	OWNER OF RECORD	PARCEL ID
59	DEEP CANYON LLC	118-24-115C
60	SONJA FLORES	118-24-121D
61	SONJA FLORES	118-24-122D
62	SONJA FLORES	118-24-123D
63	SONJA FLORES	118-24-124D
64	COLLY PROPERTIES LLC	118-24-120D
65	COLLY PROPERTIES LLC	118-24-228D
66	PRIMAVERA FOUNDATION INC	118-24-219D
67	PRIMAVERA FOUNDATION INC	118-24-218D
68	LOURDES VALENCIA	118-24-218A
69	PRIMAVERA FOUNDATION INC	118-24-215D
70	G. FLORES & R. BRACAMONTE	118-24-221F
71	G. FLORES & R. BRACAMONTE	118-24-221E
72	FRANK MORENO	118-24-223D
73	FRANK MORENO	118-24-224D
74	PHILIP BLANCHARD	118-24-225D
75	PHILIP BLANCHARD	118-24-226D

PROPERTY OWNERSHIP		
NO.	OWNER OF RECORD	PARCEL ID
76	JESUS VALENZUELA	118-24-227D
77	SOUTHERN PACIFIC TRANSPORTATION CO.	118-23-287C
78	RMA 10PT7	118-24-203D
79	MARIA SASPAR	118-24-309B
80	ELVIRA MARTINEZ	118-24-334D
81	CHEVRON USA INC	118-24-333D
82	CHEVRON USA INC	118-24-329D
83	G. FLORES & R. BRACAMONTE	118-24-340D
84	ALEX LOUHUA	118-24-340C
85	CHEVRON USA INC	118-24-323D
86	FIVE MAR VENTURES LLC	118-24-349D
87	ELFEONSO DIAZ	119-02-032D
88	R. & M. D. SUAREZ	119-02-028D
89	FIVE MAR VENTURES LLC	118-24-354A
90	SOUTHERN PACIFIC TRANSPORTATION CO.	119-02-027D
91	A. & A. DELGADO	119-02-028E

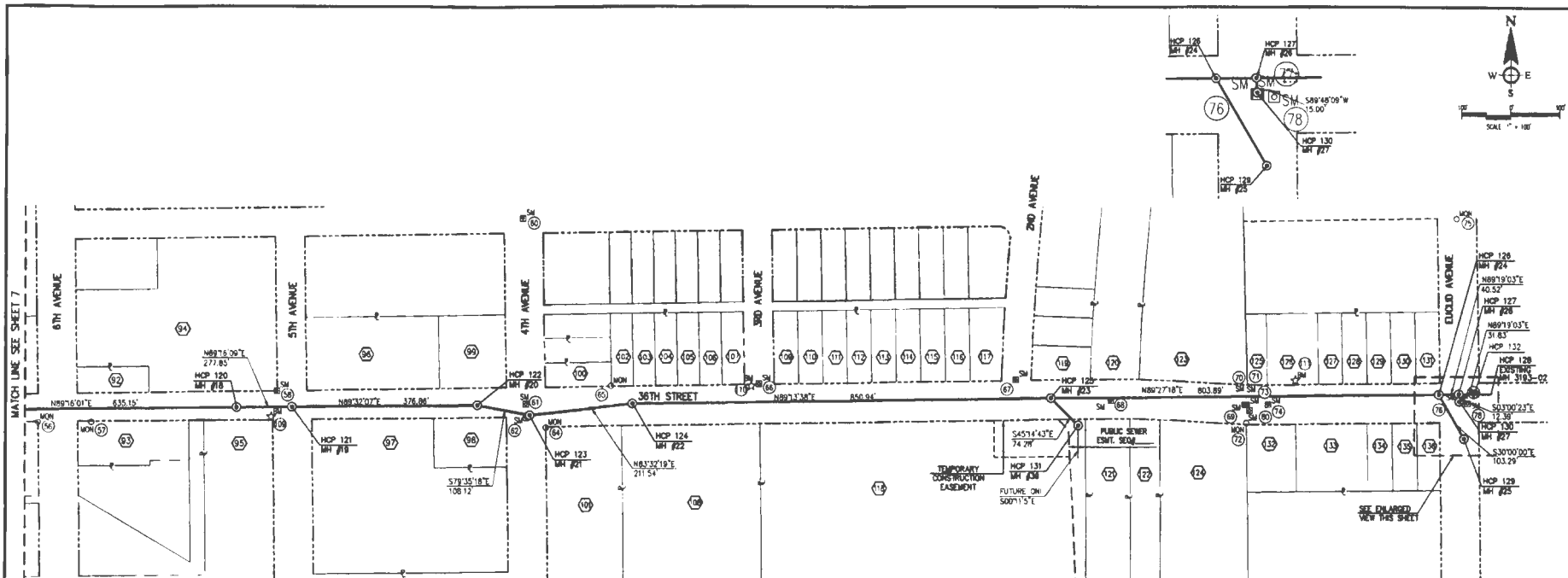
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PROJECT NO.	24726
DATE	1/1/2018
APPROVED	
REVISION	

PIMA COUNTY REGIONAL WASTEWATER RECLAMATION DEPARTMENT	
PIMA COUNTY WASTEWATER RECLAMATION	
751 North Stone Avenue • Tucson, Arizona 85701-1207 • Phone: (520) 740-6500	

SEI AUGMENTATION SEWER REPLACEMENT PROJECT (3587C)	
SURVEY CONTROL SHEET	
G-2016-014	
JAN FEBRUARY 28, 2018	
HORIZ. 1"=100'	
VERT. 1"=100'	
SHEET NO. 7 OF 50	



SURVEY MONUMENT TABLE			
NO.	NORTH	EAST	DESCRIPTION
54	435007.51	993305.08	FOUND BRASS TAGGED "RLS 22750"
55	435001.30	993413.46	FOUND 1/2" REBAR
56	435066.49	993789.54	FOUND ALUMINUM CAP STAMPED "7136111"
57	435419.24	994286.46	FOUND BRASS CAP IN CONCRETE STAMPED "QL R/R RLS 22750"
58	435020.84	994295.45	FOUND BRASS CAP IN CONCRETE STAMPED "QL CONT. 10 00.00 RLS 22750"
59	435012.28	994295.80	FOUND BRASS CAP IN CONCRETE STAMPED "RLS 22750"
60	434677.20	994301.07	FOUND BRASS CAP IN CONCRETE STAMPED "RLS 22750"
61	434992.86	994336.30	FOUND 1/2" REBAR TAGGED "RLS 13019"
62	435077.23	994469.46	FOUND 1/2" REBAR IN WALL FOOTER
63	435081.65	994789.71	FOUND BRASS CAP IN CONCRETE STAMPED "RLS 22750"
64	435081.09	995292.80	FOUND BRASS CAP IN CONCRETE STAMPED "RLS 22750"
65	435041.24	995486.45	FOUND BRASS CAP IN CONCRETE STAMPED "QL CONT. 10 00.00 RLS 22750"
66	435039.67	995759.37	FOUND BRASS CAP IN CONCRETE
67	435039.65	995781.80	FOUND BRASS CAP IN CONCRETE
68	435036.71	995782.53	FOUND BRASS CAP IN CONCRETE
69	435002.55	995782.62	FOUND LEAD CAP
70	435039.79	995783.25	FOUND BRASS CAP IN CONCRETE
71	435040.17	995806.34	FOUND BRASS CAP IN CONCRETE
72	435041.68	996183.29	FOUND ALUMINUM CAP STAMPED "DOT C.L."
73	435044.29	996198.06	FOUND BRASS CAP IN CONCRETE
74	435044.31	996199.45	FOUND BRASS CAP IN CONCRETE
75	435041.44	996215.71	FOUND BRASS CAP IN CONCRETE W/ ARROW POINTING NE, STAMPED "PCHW"
76	435042.11	995789.03	ABANDONED IN PLACE "DOTA SEWER"
77			FOUND BRASS CAP IN MAND. WELL

HOP TABLE *		
NO.	NORTHING	EASTING
120	435032.56	993708.80
121	435034.00	993819.94
122	435037.05	994198.74
123	435017.52	994303.07
124	435041.32	994513.28
125	435052.80	995384.14
126	435090.34	996158.80
127	435060.83	996187.77
128	435081.26	996263.52
129	434970.94	996208.51
130	435045.82	996196.56
131	434997.63	995419.79

* HORIZONTAL CONTROL POINTS ARE THE POINT OF INTERSECTION OF THE SEWER ALIGNMENT CENTERLINE AND THE MANHOLE CENTERLINE.

PROPERTY OWNERSHIP		
NO.	OWNER OF RECORD	PARCEL ID
92	R. & S. C. TORRES	118-25-288A
93	LOS PORTALES LLC	118-02-0260
94	YSI XX LP	118-25-285C
95	CENTRO CRISTIANO CARISMATICO	118-02-0258
96	WESTERN ALLIANCE BANK	118-25-2906
97	FIN CLIP PROPERTIES LLC	118-02-0130
98	D. & G. DONAZALEZ	118-02-0080
99	WESTERN ALLIANCE BANK	118-25-3320
100	R. & M. LOPEZ	118-25-3070
101	TUCSON GREYHOUND PARK INC.	118-02-0010
102	MARIA ANGELO	118-25-3090
103	CHRISTOPHER HYNES	118-25-3090
104	CHRISTOPHER HYNES	118-25-3100
105	R. & B. MCKENNA	118-25-3110
106	H. CHANG & D. TRUONG	118-25-3120
107	L. TRUONG & D. TRUONG	118-25-3130
108	TUCSON GREYHOUND PARK INC.	118-01-0080
109	NU TRUONG	118-24-2010
110	RAFAEL RESENDEZ	118-26-2020
111	JESUS HERNANDEZ	118-26-2030
112	R. & B. BRACAMONTE	118-26-2040
113	CONCELD LLORES	118-26-2050
114	A. & C. PERRINS	118-26-2060

PROPERTY OWNERSHIP		
NO.	OWNER OF RECORD	PARCEL ID
115	BERTHA LOPEZ ESCOBEDO	118-26-2078
116	MARTIN LOPEZ	118-26-2074
117	D. & S. RINCON	118-26-2098
118	TUCSON GREYHOUND PARK INC.	118-01-0070
119	R. & L. CORRALES	118-26-0530
120	UNION PACIFIC RAILROAD	118-26-2110
121	UNION PACIFIC RAILROAD	118-01-0080
122	KIPPUR CORP.	118-01-008A
123	KIPPUR CORP.	118-26-2110
124	KIPPUR CORP.	118-01-008A
125	CONTEMPORARY REFRIGERATION INC.	129-13-4520
126	CONTEMPORARY REFRIGERATION INC.	129-13-4530
127	J. ZAMARRON & M. DELGADO	129-13-4550
128	MELIE MORALES	129-13-4560
129	MARLEA MORALES	129-13-4570
130	J. LOPEZ & M. VASQUEZ	129-13-4580
131	J. ZAMARRON & M. DELGADO	129-13-4590
132	KIPPUR CORP.	129-14-0048
133	KIPPUR CORP.	129-14-004A
134	DIANELO DAMLA	129-14-0030
135	M. & N. BLANCO	129-14-0020
136	U. & E. HELLS	129-14-0010

BASIS OF BEARING

BASIS OF BEARINGS - IS THE ARIZONA STATE PLANE COORDINATE SYSTEM (NAD83) (HARNER).
BASIS OF COORDINATES ARE PCDOT-070707: GEODETIC CONTROL POINT E1413421, RECOVERED AS DESCRIBED IN GPS OCCUPATION SHEET - 440,220.057H 990,440.011E

BASIS OF ELEVATION

BASIS OF ELEVATION PCDOT-070707: GEODETIC CONTROL POINT E1413421, RECOVERED AS DESCRIBED IN GPS OCCUPATION SHEET - 237.07 (HARNER)

LOCATION OF PROJECT

A PORTION OF SECTION 18 T14S, R14E, & SECTIONS 12, 14, 33, & 24 T15S, R15E GASHIM PIMA COUNTY, ARIZONA

PARCEL LINES SHOWN ARE A COMBINATION OF MONUMENTATION, DOCKETS OBTAINED FROM THE PIMA COUNTY GIS WEBSITE (AS OF JANUARY 10, 2018), THE SECTIONAL AUTOCADING FILES AVAILABLE AS OF THAT SAME DATE, AND TITLE REPORTS AT SELECTED LOCATIONS. THIS DOES NOT CONSTITUTE A RIGHT-OF-WAY SURVEY, BUT INTENDS TO SHOW PARCEL INFORMATION FOR DESIGN PURPOSES. TITLE REPORTS WERE DONE ON A FEW SPECIFIC AREAS. THIS SURVEY WAS CONCERNED WITH OWNERSHIP ADJACENT TO THE PROPOSED ALIGNMENT AND OTHER PARCEL LINES ARE FOR INFORMATION PURPOSES ONLY.

NO.	ATTENTION	APPROVE	DATE

PIMA COUNTY REGIONAL WASTEWATER RECLAMATION DEPARTMENT

201 North Stone Avenue • Tucson, Arizona 85701-1287 • Phone: (520) 740-5500

SEWAGE TREATMENT PLANT REPLACEMENT PROJECT (35673) SURVEY CONTROL SHEET

0-2018-014

DATE: FEBRUARY 26, 2018

SCALE: 1"=100'

VER:

SHEET NO: 8 OF 50

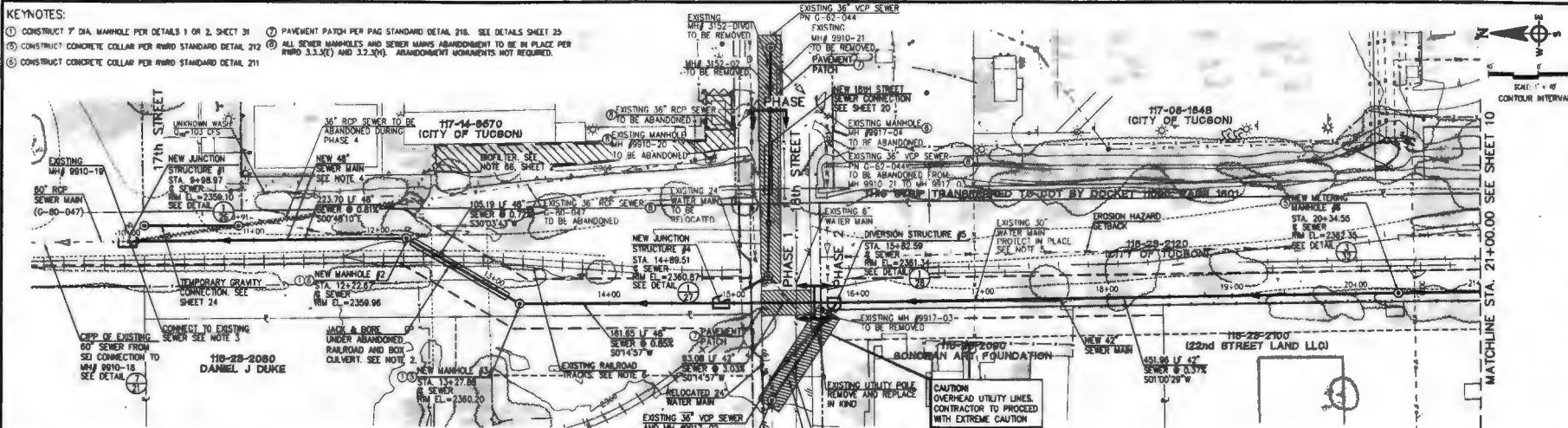
Westland Resources, Inc.
Tucson • Phoenix • Flagstaff
1111 E. Pinal Avenue, Suite 100
Tucson, Arizona 85717 • (520) 796-0000



FOR

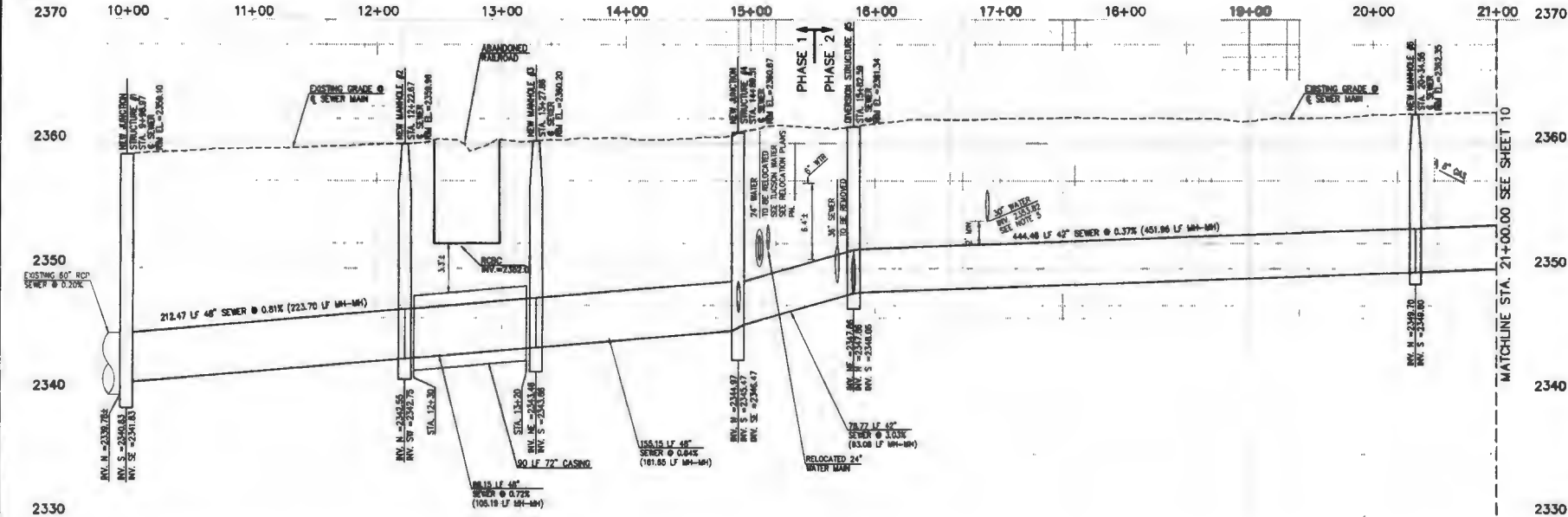
KEYNOTES:

- CONSTRUCT 7" DIA. MANHOLE PER DETAILS 1 OR 2, SHEET 31
- PAVEMENT PATCH PER PAG STANDARD DETAIL 216. SEE DETAILS SHEET 25
- CONSTRUCT CONCRETE COLLAR PER RWSD STANDARD DETAIL 212
- ALL SEWER MANHOLES AND SEWER MARKS ABANDONMENT TO BE IN PLACE PER RWSD 3.3.3(1) AND 3.3.3(4). ABANDONMENT MONUMENTS NOT REQUIRED.
- CONSTRUCT CONCRETE COLLAR PER RWSD STANDARD DETAIL 211



NOTES:

- ALL STATIONING IS ALONG CENTERLINE OF SEWER MAIN UNLESS OTHERWISE NOTED.
- JACK & BORE METHODS FOR EACH BORING TO BE PER SPECIAL PROVISION PART 800. BORING CONTRACTOR TO REVIEW PLANS AND GEOTECHNICAL REPORT TO DETERMINE THE BEST BORING METHODS TO REDUCE RISK TO EXISTING UTILITIES AND TO ACHIEVE LINE AND GRADE.
- CONTRACTOR SHALL FIELD VERIFY EXISTING INVERT ELEVATIONS PRIOR TO START OF PUBLIC SEWER CONSTRUCTION.
- ARCHAEOLOGICAL MONITORING IS REQUIRED FOR THIS PROJECT FROM STATION 9+48.87 TO 10+50.00. SEE NOTE 63, SHEET 2.
- 30\"/>



PIMA COUNTY REGIONAL
WASTEWATER RECLAMATION
DEPARTMENT

PIMA COUNTY
WASTEWATER RECLAMATION

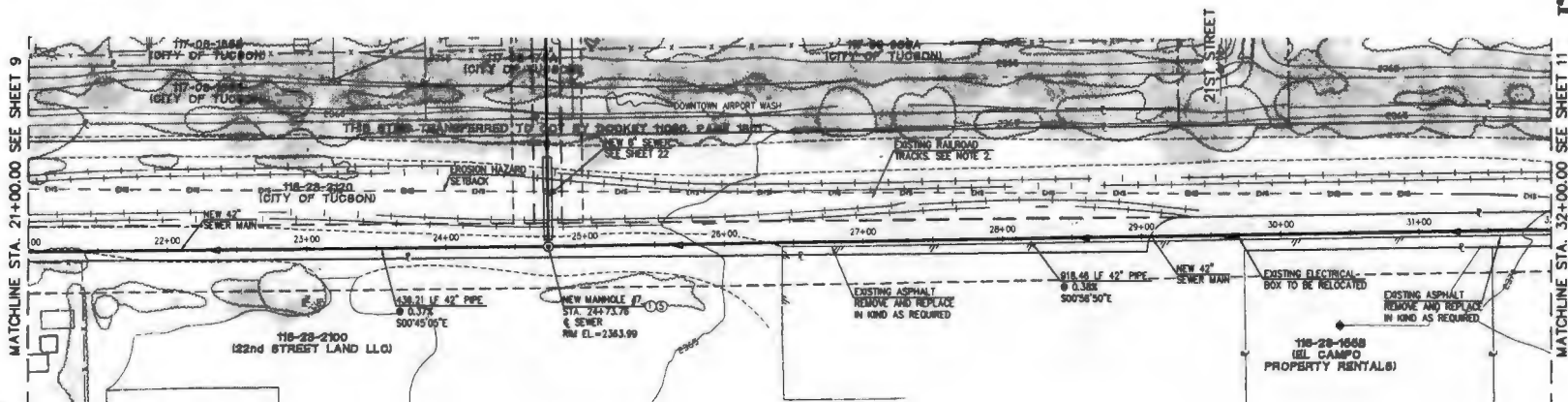
201 North Stone Avenue • Tucson, Arizona 85701-1207 • Phone: (520) 746-5500

SEWER AUGMENTATION SEWER
REPLACEMENT PROJECT
(3SE13)

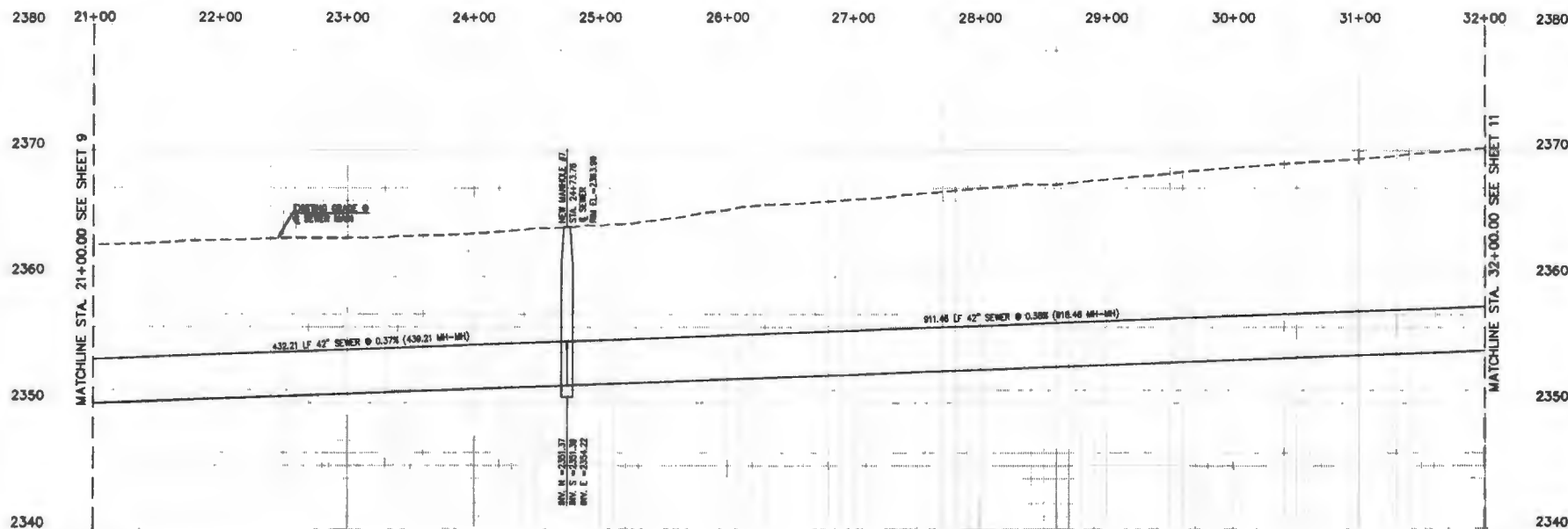
PLAN AND PROFILE SHEET

KEYNOTES:

- ① CONSTRUCT 7 DIA. MANHOLE PER DETAILS 1 OR 2, SHEET 31
- ② CONSTRUCT CONCRETE COLLAR PER PWD STANDARD DETAIL 272



- NOTES:
1. ALL STATIONING IS ALONG CENTERLINE OF SEWER MAIN UNLESS OTHERWISE NOTED.
 2. CONTRACTOR TO PROTECT EXISTING TRUCKS IN PLACE AT ALL TIMES DURING CONSTRUCTION.



WestLand Resources, Inc.

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2001 E. Pinal Avenue, Suite 100

Tucson, Arizona 85717 Phone: (520) 744-1111



DR

DATE	
APP'D	
REVISED	
NO	

PIMA COUNTY REGIONAL
WASTEWATER RECLAMATION
DEPARTMENT

PIMA COUNTY
WASTEWATER RECLAMATION

301 North Stone Avenue • Tucson, Arizona 85701-1287 • Phone: (520) 744-5500

SEWAGE AUGMENTATION SEWER
REPLACEMENT PROJECT
(388723)

PLAN AND PROFILE SHEET

0-2016-014

DATE: FEBRUARY 26, 2016

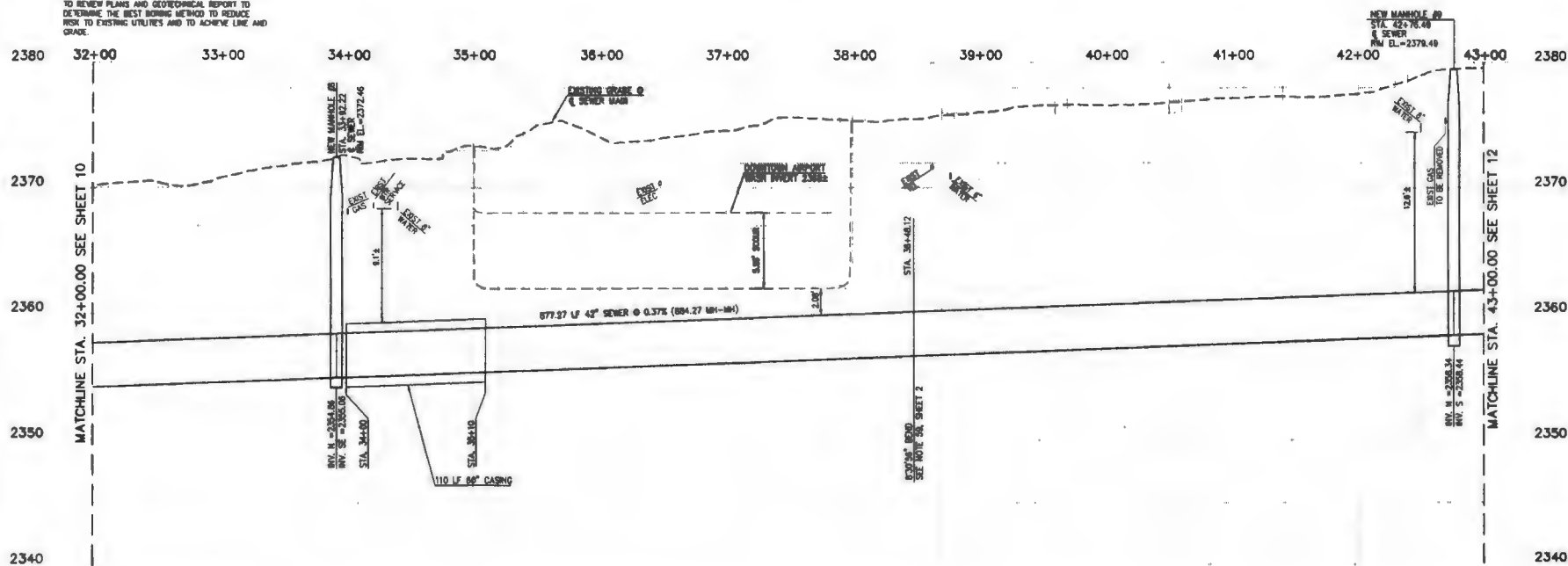
SCALE: HORIZ. 1"=40'
VERT. 1"=40'

SHEET NO. 10 OF 50

① CONSTRUCT 7" DIA. MANHOLE PER DETAILS 1 OR 2, SHEET 31
② CONSTRUCT CONCRETE COLLAR PER RWHD STANDARD DETAIL 211

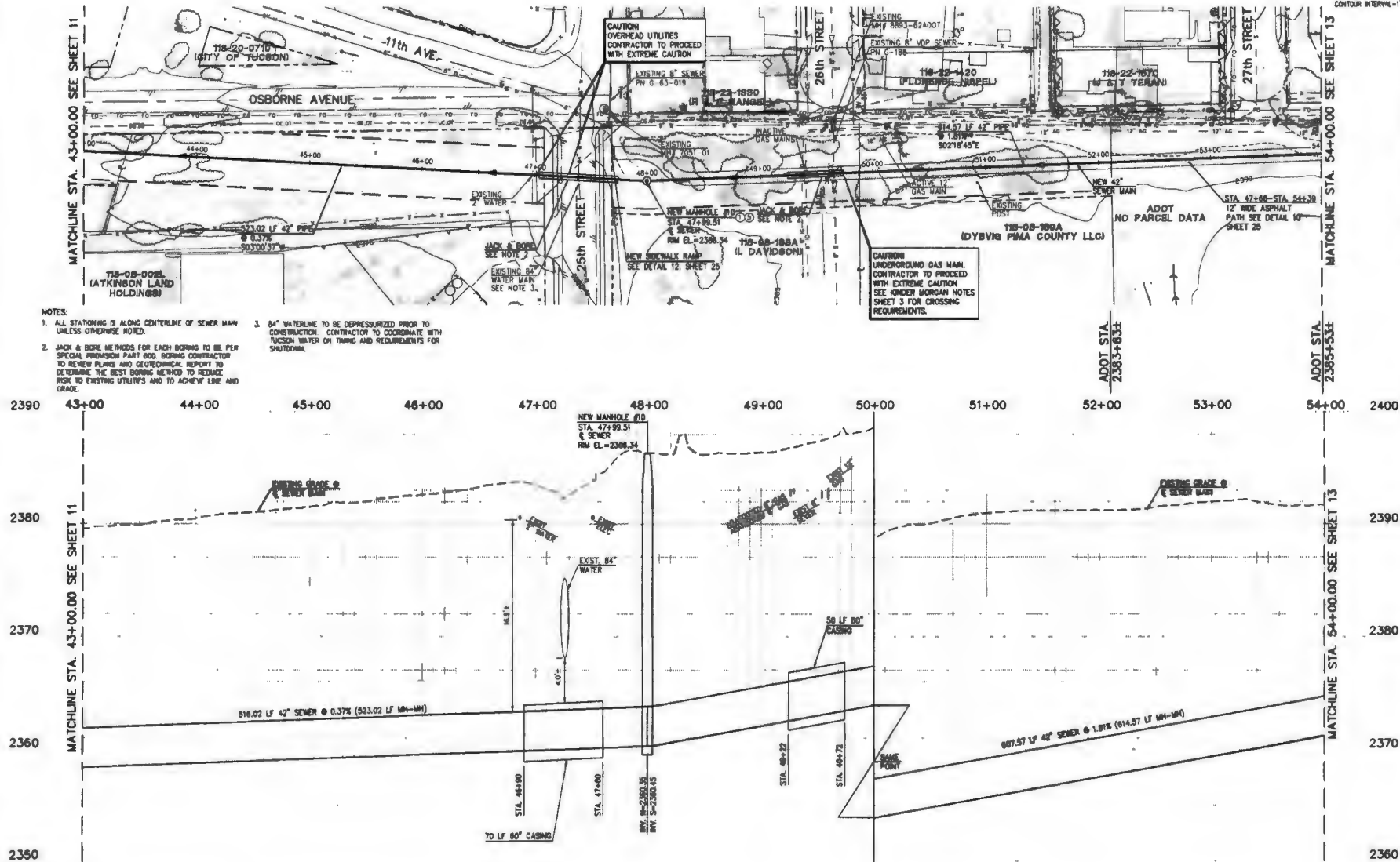


- NOTES:
- | | |
|---|---|
| <p>1. ALL STATING IS ALONG CENTERLINE OF SENIOR MAIN UNLESS OTHERWISE NOTED.</p> <p>2. JACK & BORE METHODS FOR EACH BOREING TO BE PER SPECIAL PROVISION PART 400. BOREING CONTRACTOR TO REVIEW PLANS AND GEOTECHNICAL REPORT TO DETERMINE THE BEST BOREING METHOD TO REDUCE RISK TO EXISTING UTILITIES AND TO ACHIEVE LINE AND GRADE.</p> | <p>3. CONTRACTOR TO PROTECT EXISTING RAILROAD TRACKS IN PLACE AT ALL TIMES DURING CONSTRUCTION.</p> |
|---|---|



KEYNOTES:

- ① CONSTRUCT 7" DIA. MANHOLE PER DETAILS 1 OR 2, SHEET 31
- ② CONSTRUCT CONCRETE COLLAR PER RWD STANDARD DETAIL 212



- NOTES:
1. ALL STATIONING IS ALONG CENTERLINE OF SEWER MAIN UNLESS OTHERWISE NOTED.
 2. JACK & BORE METHODS FOR EACH BORING TO BE PER SPECIAL PROVISION PART 800. BORING CONTRACTOR TO REVIEW PLANS AND GEOLOGICAL REPORT TO DETERMINE THE BEST BORING METHOD TO REDUCE RISK TO EXISTING UTILITIES AND TO ACHIEVE LINE AND GRADE.
 3. 84" WATERLINE TO BE DEPRESSURIZED PRIOR TO CONSTRUCTION. CONTRACTOR TO COORDINATE WITH TUCSON WATER ON TIMING AND REQUIREMENTS FOR SHUTDOWNS.

WestLand Resources, Inc.
Tucson • Phoenix • Flagstaff
4001 E. 20th Street, Suite 100
Tucson, Arizona 85711
520.552.1500

Call or email for all surveying work
Arizona 801
2025-1-1 or 1-800-474-4747 (TUCSON)
Tucson County, Arizona 85711

PR

DATE	APPROVED	DATE

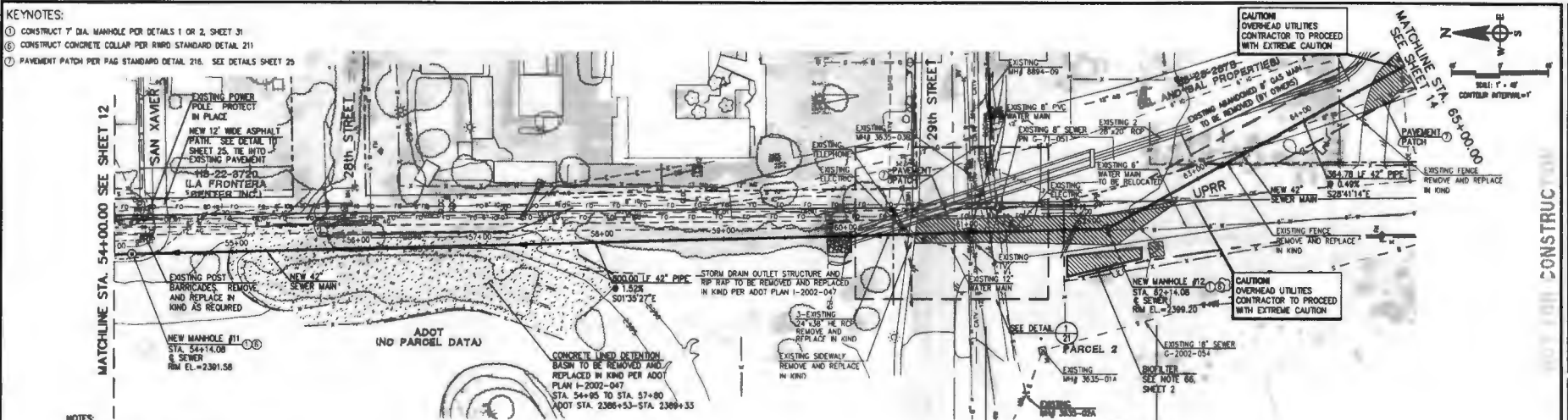


PIMA COUNTY REGIONAL
WASTEWATER RECLAMATION
DEPARTMENT
PIMA COUNTY
WASTEWATER RECLAMATION
201 North Stone Avenue • Tucson, Arizona 85701-1207 • Phone: (520) 740-1500

SEWER AUGMENTATION SEWER
REPLACEMENT PROJECT
(358523)
PLAN AND PROFILE SHEET
0-2016-014
DATE: FEBRUARY 26, 2016
SCALE: HORIZ. 1"=40'
VERT. 1"=5'
SHEET NO. 1
12 OF 50

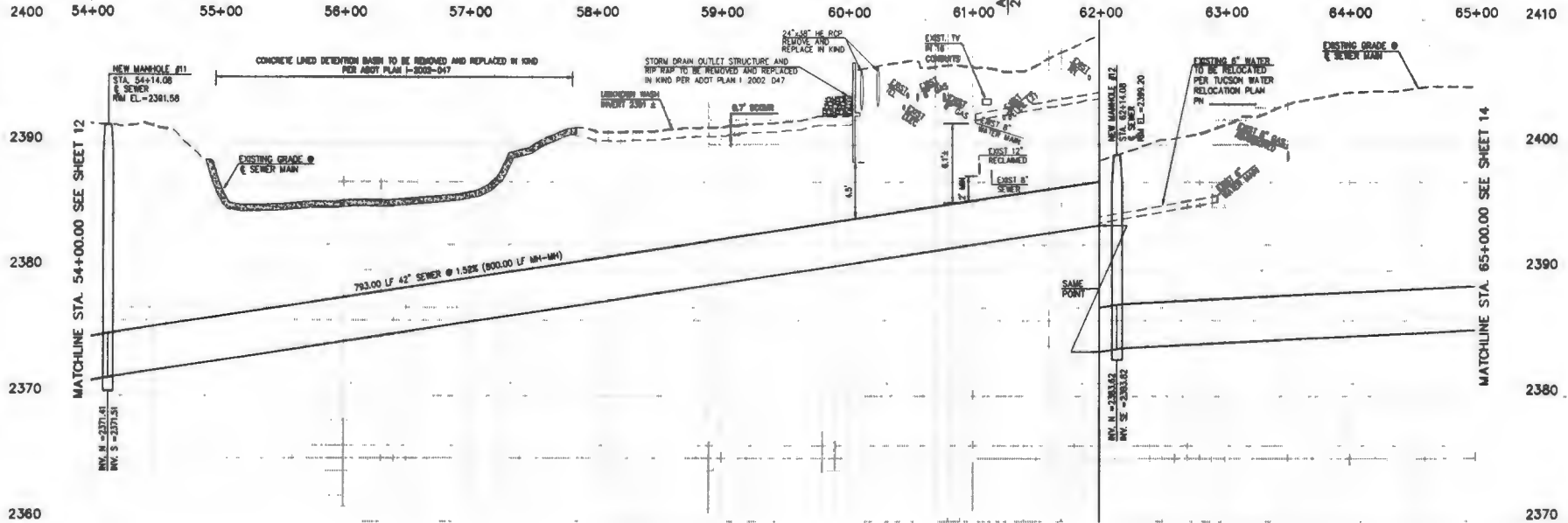
KEYNOTES:

- CONSTRUCT 7" DIA. MANHOLE PER DETAILS 1 OR 2, SHEET 31
- CONSTRUCT CONCRETE COLLAR PER RINO STANDARD DETAIL 211
- PAVEMENT PATCH PER P&G STANDARD DETAIL 216. SEE DETAILS SHEET 25



- NOTES:
- ALL STATIONING IS ALONG CENTERLINE OF SEWER MAIN UNLESS OTHERWISE NOTED
 - CONTRACTOR TO COORDINATE WITH AAS PAVING TO MAINTAIN ACCESS WITHIN THEIR PROPERTY AT ALL TIMES

ADOT STA.
2385+533



WestLand Resources, Inc.
Tucson • Phoenix • Flagstaff
4001 E. Broadway Blvd. Suite 200
Tucson, Arizona 85712 (520) 288-1100



DR

PIMA COUNTY REGIONAL
WASTEWATER RECLAMATION
DEPARTMENT
PIMA COUNTY
WASTEWATER RECLAMATION
201 North Shaw Avenue • Tucson, Arizona 85701-1207 • Phone (520) 740-6000

SEI AUGMENTATION SEWER
REPLACEMENT PROJECT
(352513)
PLAN AND PROFILE SHEET

0-2016-014

DATE: FEBRUARY 25, 2016

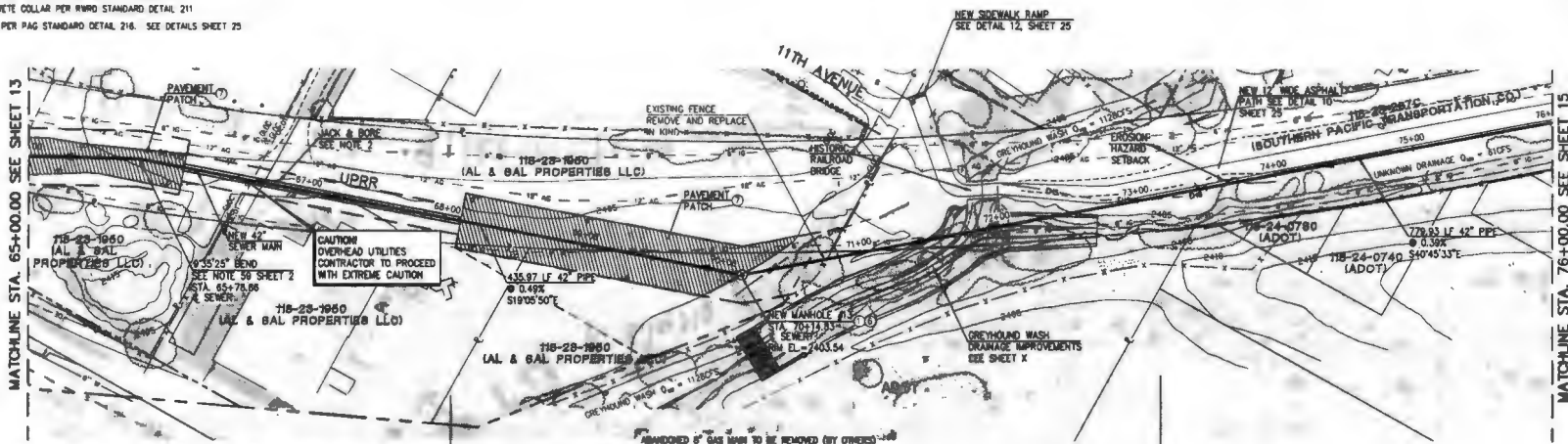
SCALE: 1"=40'

PLAN: 1"=40'

SHEET NO. 13 OF 50

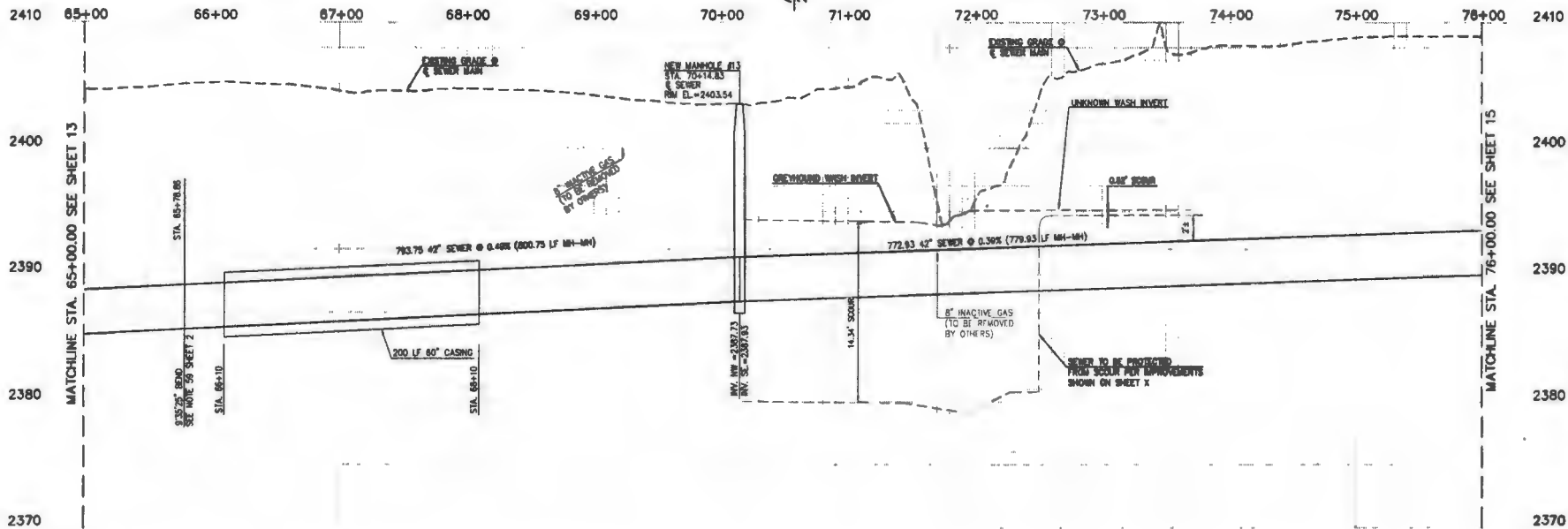
KEYNOTES:

1. CONSTRUCT 7" DIA. MANHOLE PER DETAILS 1 OR 2, SHEET 31
2. CONSTRUCT CONCRETE COLLAR PER RWSD STANDARD DETAIL 211
3. PAVEMENT PATCH PER PAG STANDARD DETAIL 216. SEE DETAILS SHEET 25



NOTES:

1. ALL STATIONING IS ALONG CENTERLINE OF SEWER MAIN UNLESS OTHERWISE NOTED.
2. JACK & BORE METHODS FOR EACH BORING TO BE PER SPECIAL PROVISION PART 502. BORING CONTRACTOR TO REVIEW PLANS AND GEOTECHNICAL REPORT TO DETERMINE THE BEST BORING METHOD TO REDUCE RISK TO EXISTING UTILITIES AND TO ACHIEVE LINE AND GRADE.
3. CONTRACTOR SHALL FIELD VERIFY EXISTING SPWRT ELEVATIONS PRIOR TO START OF PUBLIC SEWER CONSTRUCTION.
4. CONTRACTOR TO COORDINATE WITH A&S PLANNING TO MAINTAIN ACCESS WITHIN THEIR PROPERTY AT ALL TIMES.



Westland Resources, Inc.
Tucson • Phoenix • Flagstaff
1001 E. Pinaleno Blvd. Suite 100
Tucson, Arizona 85712

ARIZONA
REGISTERED PROFESSIONAL ENGINEER
No. 11111 • Exp. 12/31/2018
T. Westland, P.E.

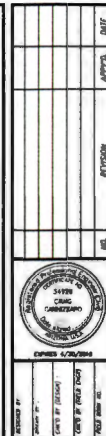
HDR

DATE	
APPROVED	
REVISION	
NO.	
PROJECT NO.	0-2016-014
DATE OF PLAN	FEBRUARY 28, 2016
DATE OF FIELD	
DATE OF REVIEW	

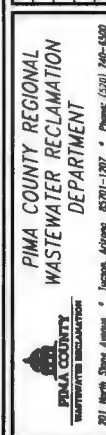
PIMA COUNTY REGIONAL
WASTEWATER RECLAMATION
DEPARTMENT
PIMA COUNTY
WASTEWATER RECLAMATION
201 North Stone Avenue • Tucson, Arizona 85701-1207 • Phone: (520) 746-1500

SEWER AUGMENTATION SEWER
REPLACEMENT PROJECT
(3SE13)
PLAN AND PROFILE SHEET
0-2016-014
DATE: FEBRUARY 28, 2016
HORIZ: 1"=40'
VERT: 1"=5'
SHEET NO.:
14 OF 50

- ① CONSTRUCT 7" DIA. MANHOLE PER DETAILS 1 OR 2, SHEET 31
- ② CONSTRUCT 6" DIA. MANHOLE PER DETAILS 1 OR 2, SHEET 32
- ⑤ CONSTRUCT CONCRETE COLLAR PER RWHD STANDARD DETAIL 212
- ⑥ CONSTRUCT CONCRETE COLLAR PER RWHD STANDARD DETAIL 211



- | | | | | | | | | | | | | | |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| 2420 | 76+00 | 77+00 | 78+00 | 79+00 | 80+00 | 81+00 | 82+00 | 83+00 | 84+00 | 85+00 | 86+00 | 87+00 | 2420 |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|



G-2018-D14

Date: FEBRUARY 29, 2018

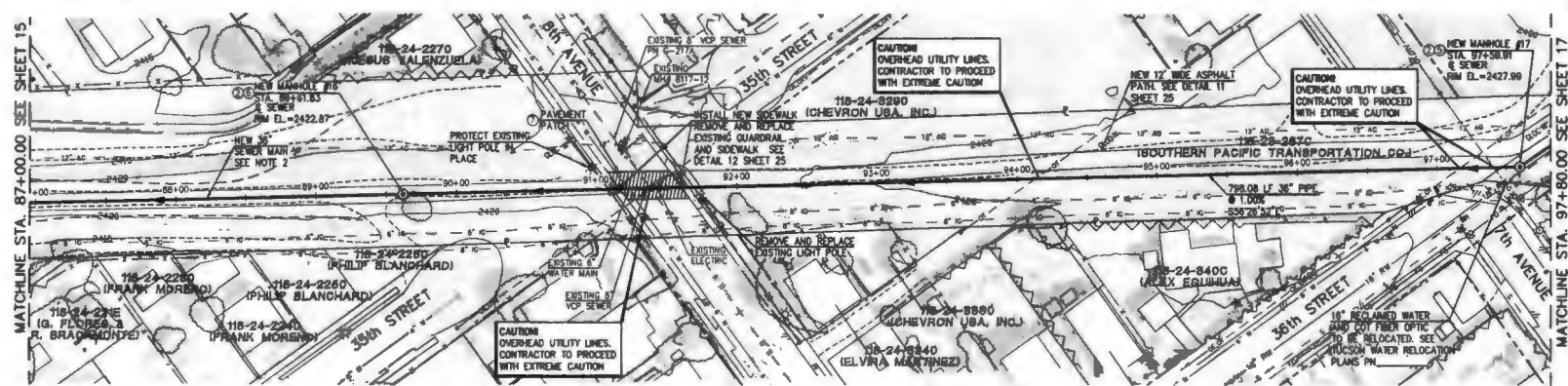
WORK: 1"=40'

MEET: 1"=4'

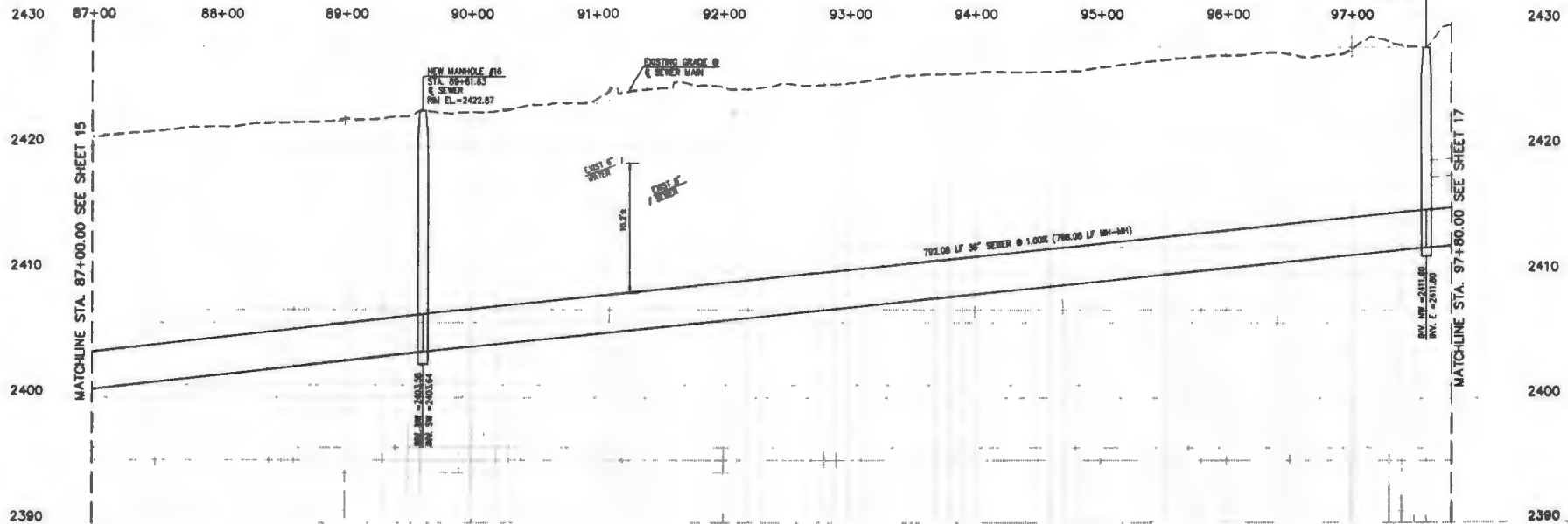
SHEET NO 15 of 50

KEYNOTES:

- ② CONSTRUCT 8" DIA. MANHOLE PER DETAILS 1 OR 2, SHEET 32
- ③ CONSTRUCT CONCRETE COLLAR PER RINO STANDARD DETAIL 212
- ④ CONSTRUCT CONCRETE COLLAR PER RINO STANDARD DETAIL 211
- ⑤ PAVEMENT PATCH PER PAG STANDARD DETAIL 216. SEE DETAILS SHEET 25



- NOTES:
1. ALL STATIONING IS ALONG CENTERLINE OF SEWER MAIN UNLESS OTHERWISE NOTED.
 2. EXISTING RAISED RAILROAD BED FROM SEWER STATION 88+00 TO 89+00 TO BE RE-CONSTRUCTED TO PRE-CONSTRUCTION GRADE. SURVEY REQUIRED BEFORE AND AFTER CONSTRUCTION.



WestLand Resources, Inc.
Tucson • Phoenix • Flagstaff
2025 E. Broadway, Suite 200
Tucson, Arizona 85717 Phone: (520) 225-4566

Seal of the State of Arizona
OFFICE OF THE ATTORNEY GENERAL
JANUARY 1, 2016
JANUARY 1, 2016

DR

NOT FOR CONSTRUCTION

DATE	APPROVED	REVISION



PIMA COUNTY REGIONAL
WASTEWATER RECLAMATION
DEPARTMENT
PIMA COUNTY
WASTEWATER RECLAMATION
201 North Stone Avenue • Tucson, Arizona 85701-1207 • Phone: (520) 740-0500

SEWER AUGMENTATION
REPLACEMENT PROJECT
(358512)
PLAN AND PROFILE SHEET

0-2016-014
DATE: FEBRUARY 28, 2016
SCALE: HORIZ. 1"=40'
VERT. 1"=5'
SHEET NO.: 16 OF 50

② CONSTRUCT 8' DIA. MANHOLE PER DETAILS 1 OR 2, SHEET 32
⑥ CONSTRUCT CONCRETE COLLAR PER RWD STANDARD DTAH 211

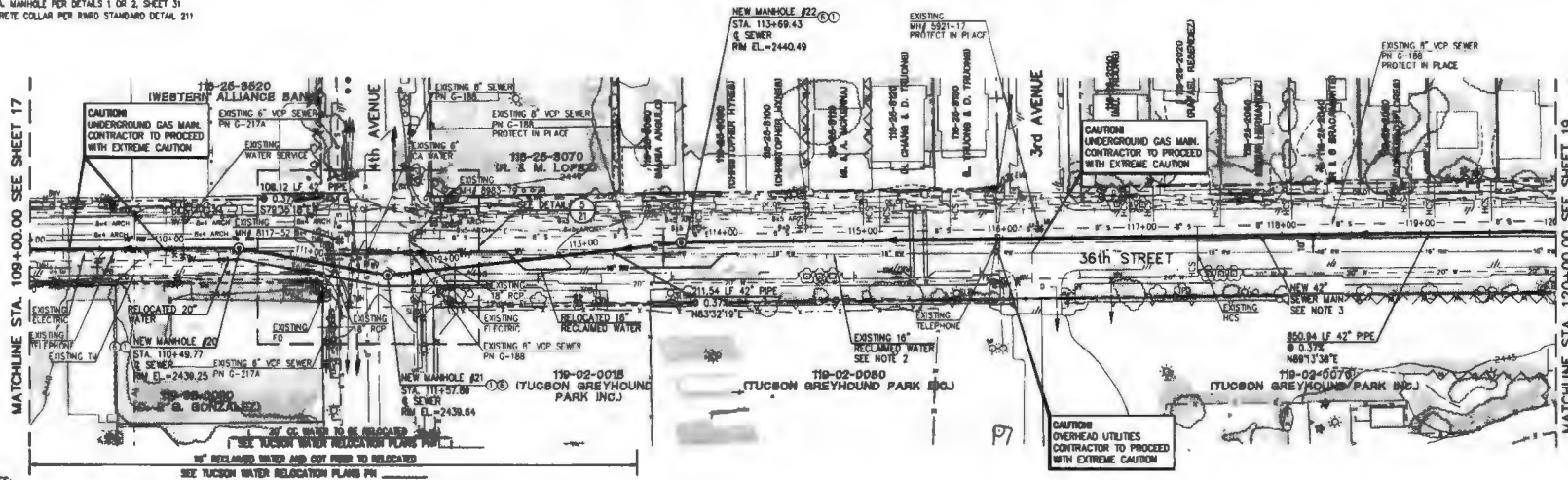


- NOTES:
1. ALL STATING IS ALONG CENTERLINE OF SENIER MAIN UNLESS OTHERWISE NOTED.
 2. JACK & BORE METHODS FOR EACH BORING TO BE PER SPECIAL PROVISION PART AND BORE. BORING CONTRACTOR TO REVIEW PLANS AND GEOLOGICAL REPORT TO DETERMINE THE BEST BORING METHOD TO REDUCE RISK TO EXISTING UTILITIES AND TO ACHIEVE LINE AND GRADE.
 3. CONTRACTOR SHALL FIELD VERIFY EXISTING BIVERT ELEVATIONS PRIOR TO START OF PUBLIC SENIER CONSTRUCTION.
 4. EXHIRE MOUTH OF 36TH STREET TO BE MILLED AND OVERLAPPED ALONG LENGTH OF SENIER ALIGNMENT. SEE DETAIL 13, SHEET 25
 5. CONTRACTOR TO COORDINATE WITH TUCSON WATER FOR PROTECTION OF EXISTING WATER MAIN DURING CONSTRUCTION.



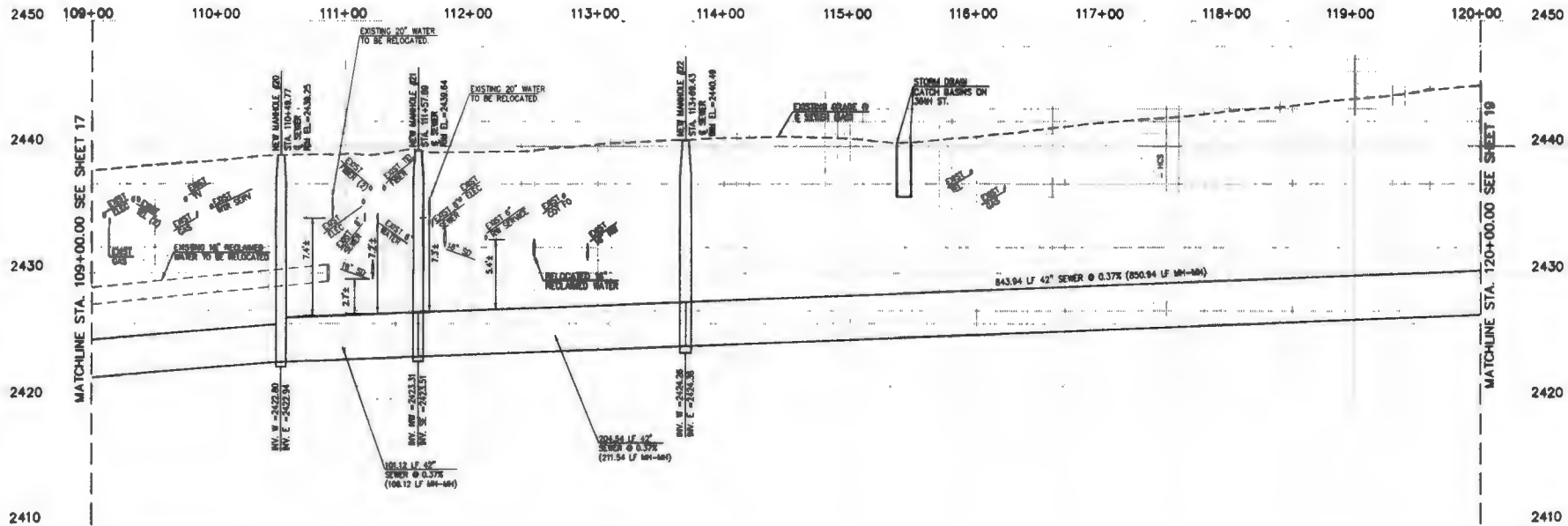
KEYNOTES:

- ① CONSTRUCT 7" DIA. MANHOLE PER DETAILS 1 OR 2, SHEET 31
- ② CONSTRUCT CONCRETE COLLAR PER R180 STANDARD DETAIL 211



NOTES:

1. ALL STATIONING IS ALONG CENTERLINE OF SEWER MAIN UNLESS OTHERWISE NOTED.
2. CONTRACTOR TO COORDINATE WITH TUCSON WATER FOR PROTECTION OF EXISTING WATER MAIN DURING CONSTRUCTION.
3. ENTIRE WIDTH OF 36TH STREET TO BE MILLED AND OVERLAYED ALONG LENGTH OF SEWER ALIGNMENT. SEE DETAIL 13, SHEET 25.



WestLand Resources, Inc.
Tucson • Phoenix • Flagstaff



100% AZ
DESIGNED BY
ENGINEER
REGISTERED
PROFESSIONAL
ENGINEER
NO. 1000-070007
TUCSON, ARIZONA
WESTLAND RESOURCES, INC.

DATE	REVISION	APP'D

DESIGNED BY: _____
CHECKED BY: _____
DATE OF DESIGN: _____
DATE OF FIELD CHECK: _____
TOTAL SHEET NO.: _____

**PIMA COUNTY REGIONAL
WASTEWATER RECLAMATION
DEPARTMENT**

**PIMA COUNTY
WASTEWATER RECLAMATION**

201 North Stone Avenue • Tucson, Arizona 85701-1207 • Phone: (520) 240-6500

**SEWER AUGMENTATION PROJECT
REPLACEMENT PROJECT
(355218)
PLAN AND PROFILE SHEET**

0-2018-014

DATE: FEBRUARY 28, 2018

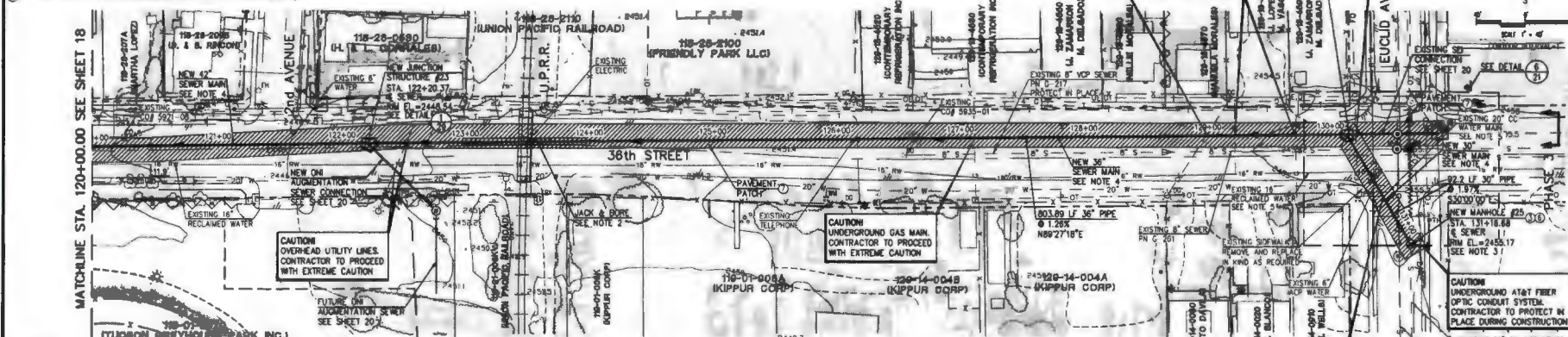
HORIZ. SCALE: 1"=40'

VERT. SCALE: 1"=4'

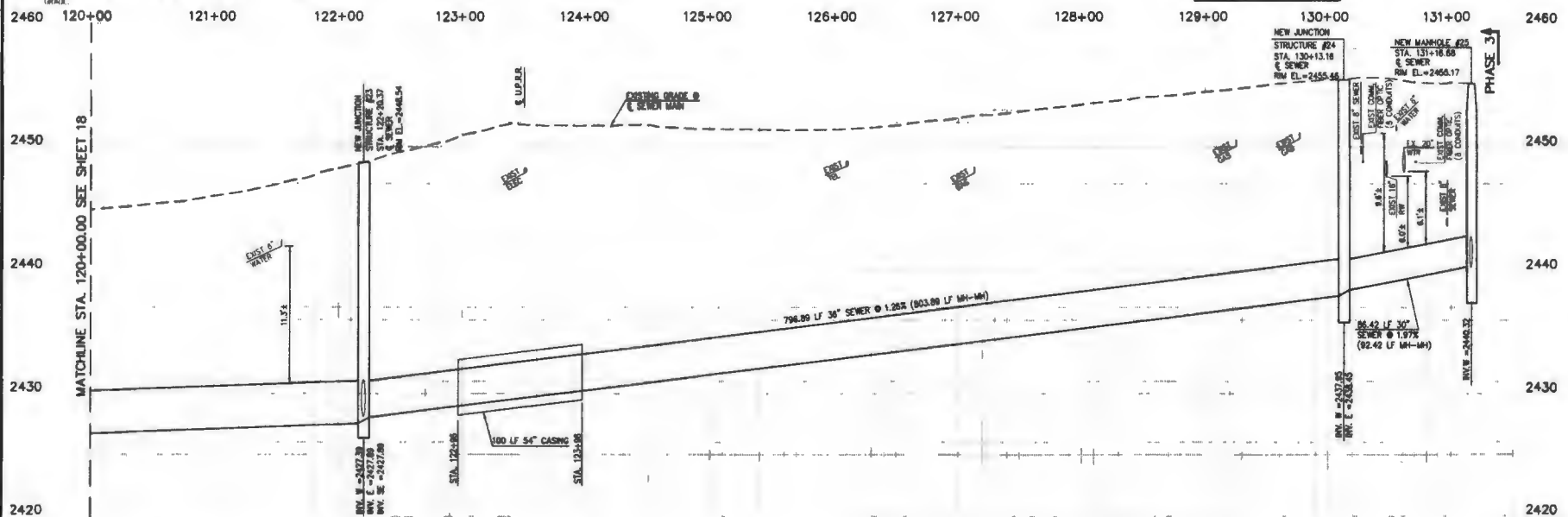
SHEET NO.: 18 OF 50

KEYNOTES:

- CONSTRUCT 6" DIA. MANHOLE OVER EXISTING SEWER WITH CAST IN PLACE BASE PER DETAIL "A", SHEET "A" AND RWD STANDARD DETAIL 303 MODIFIED FOR A 72" RISE.
- CONSTRUCT CONCRETE COLLAR PER RWD STANDARD DETAIL 211.
- PAVEMENT PATCH PER PWS STANDARD DETAIL 216. SEE DETAILS SHEET 25.



- NOTES:
- ALL STAKING IS ALONG CENTERLINE OF SEWER MAIN UNLESS OTHERWISE NOTED.
 - JACK & BORE METHODS FOR EACH BORING TO BE PER SPECIAL PROVISION PART 600. BORING CONTRACTOR TO REVIEW PLANS AND GEOTECHNICAL REPORT TO DETERMINE THE BEST BORING METHOD TO MINIMIZE RISK TO EXISTING UTILITIES AND TO ACHIEVE LINE AND GRADE.
 - CONTRACTOR SHALL FIELD VERIFY EXISTING RISE/EL ELEVATIONS PRIOR TO START OF PUBLIC SEWER CONSTRUCTION.
 - ENTIRE WIDTH OF 38TH STREET TO BE MAINTAINED AND OVERLAPPED ALONG LENGTH OF SEWER ALIGNMENT. SEE DETAIL 13, SHEET 26.
 - CONTRACTOR TO COORDINATE WITH TUCSON WATER FOR PROTECTION OF EXISTING WATER MAIN DURING CONSTRUCTION.



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4001 S. Mountain View Blvd.
Tucson, Arizona 85717 (520) 285-2851

Not to be used for full working drawings
without the proper engineering
seal and stamp.
Professional Engineer
No. 11111 License No. 11111
Arizona State Board of Engineering and Architecture

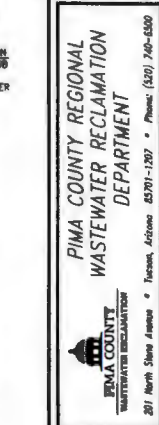
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NO.	DATE	BY	CHK	APPV	DATE
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PIMA COUNTY REGIONAL
WASTEWATER RECLAMATION
DEPARTMENT
201 North Stone Avenue • Tucson, Arizona 85701-1287 • Phone (520) 740-6300

SEWER AUGMENTATION PROJECT
REPLACEMENT PROJECT
(358513)
PLAN AND PROFILE SHEET
G-2016-014
DATE: FEBRUARY 28, 2016
SCALE: HORIZ. 1"=40'
VERT. 1"=4'
SHEET NO.:
19 of 50

<p>② CONSTRUCT 6" DIA. HAMMOLE PER DETAILS 1 OR 2, SHEET 32</p> <p>③ CONSTRUCT 6" DIA. HAMMOLE OVER EXISTING SENER WITH CAST IN PLACE BASE PER DETAIL "A", SHEET "C" AND RUMD STANDARD DETAIL 303 MODIFIED FOR A 72" RISER.</p> <p>④ CONSTRUCT CONCRETE COLLAR PER RUMD STANDARD DETAIL 212</p>	<p>⑤ CONSTRUCT CONCRETE COLLAR PER RUMD STANDARD DETAIL 211</p> <p>⑥ PAVEMENT PATCH PER PAG STANDARD DETAIL 216. SEE DETAILS SHEET 25</p> <p>⑦ ALL SENER HAMMOLES AND SENER MARKS ABANDONMENT TO BE IN PLACE PER RUMD 3.3.3(f) AND 3.2.2(h). ABANDONMENT MONUMENTS NOT REQUIRED.</p> <p>⑧ CONSTRUCT 6" DIA. HAMMOLE OVER EXISTING SENER PER RUMD STANDARD DETAIL 300.</p>
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20 or 50

