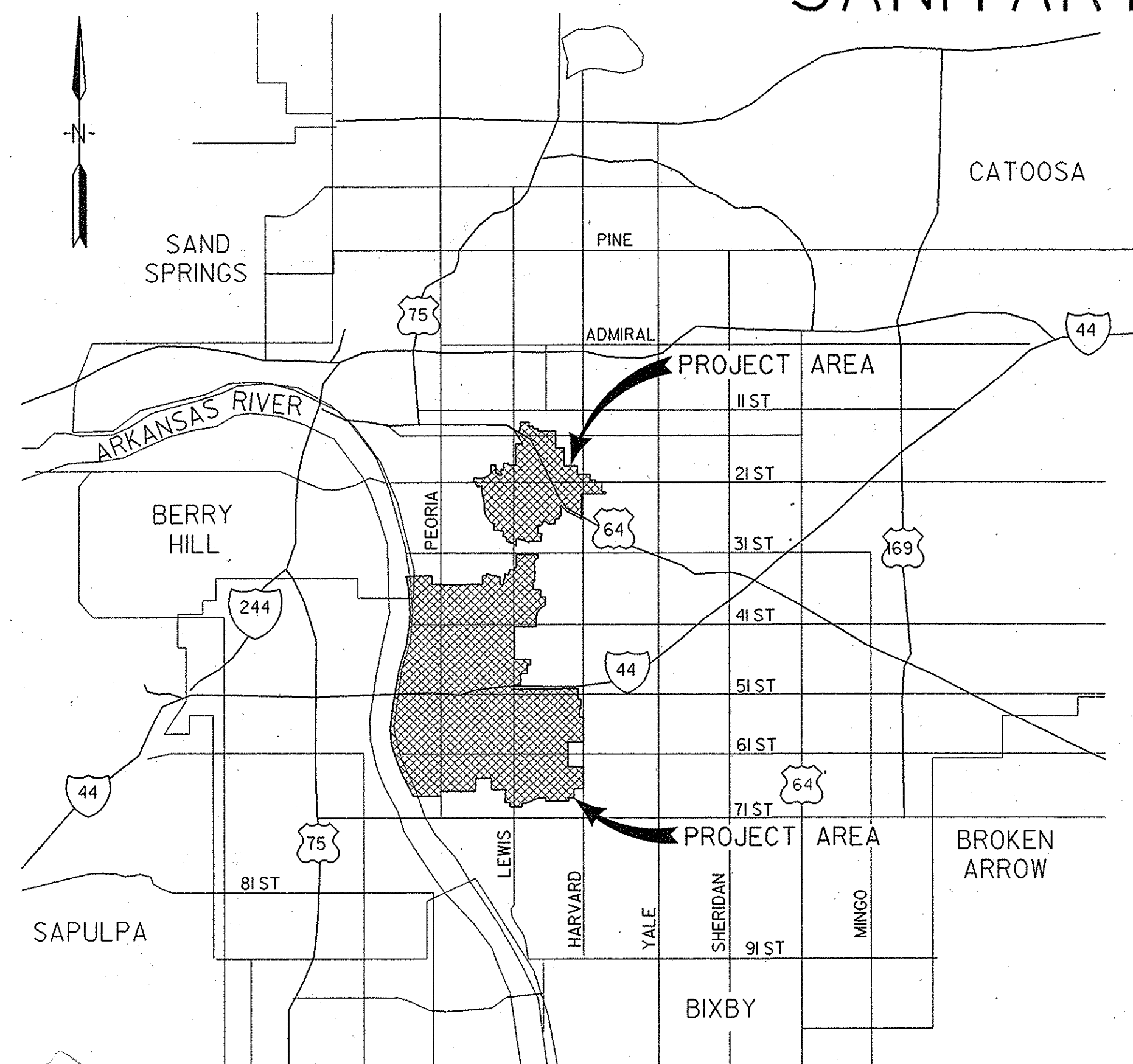


# CITY OF TULSA

SANITARY SEWER PROJECT NO. ES 96-07

SOUTHSIDE BASIN REHABILITATION  
ACCOUNT NO. 6311-5455603-040522960108

Contract No.4  
CURED IN PLACE PIPE LINING  
AND/OR SLIP LINING  
AND MANHOLE REHABILITATION



LOCATION MAP  
NOT TO SCALE

APPROVED BY:

*Charles Hardt*  
MR. CHARLES HARDT, P.E.  
DIRECTOR OF PUBLIC WORKS

12/20/99  
DATE

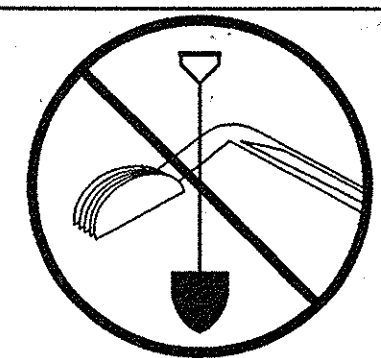


SHEET 1 OF 20 SHEETS

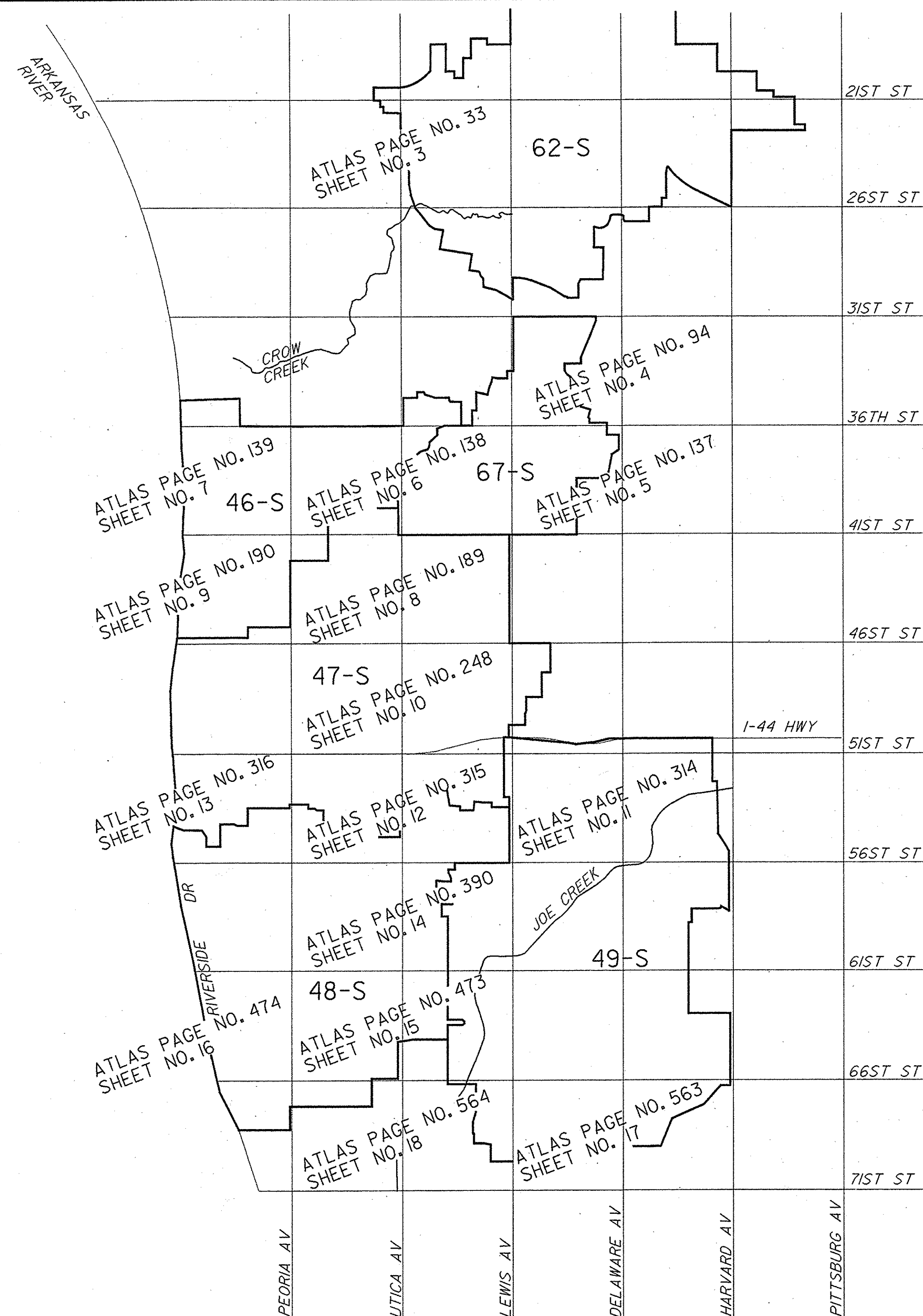
ENGINEERS  
ARCHITECTS  
CONSULTANTS

**Burns  
&  
McDonnell**

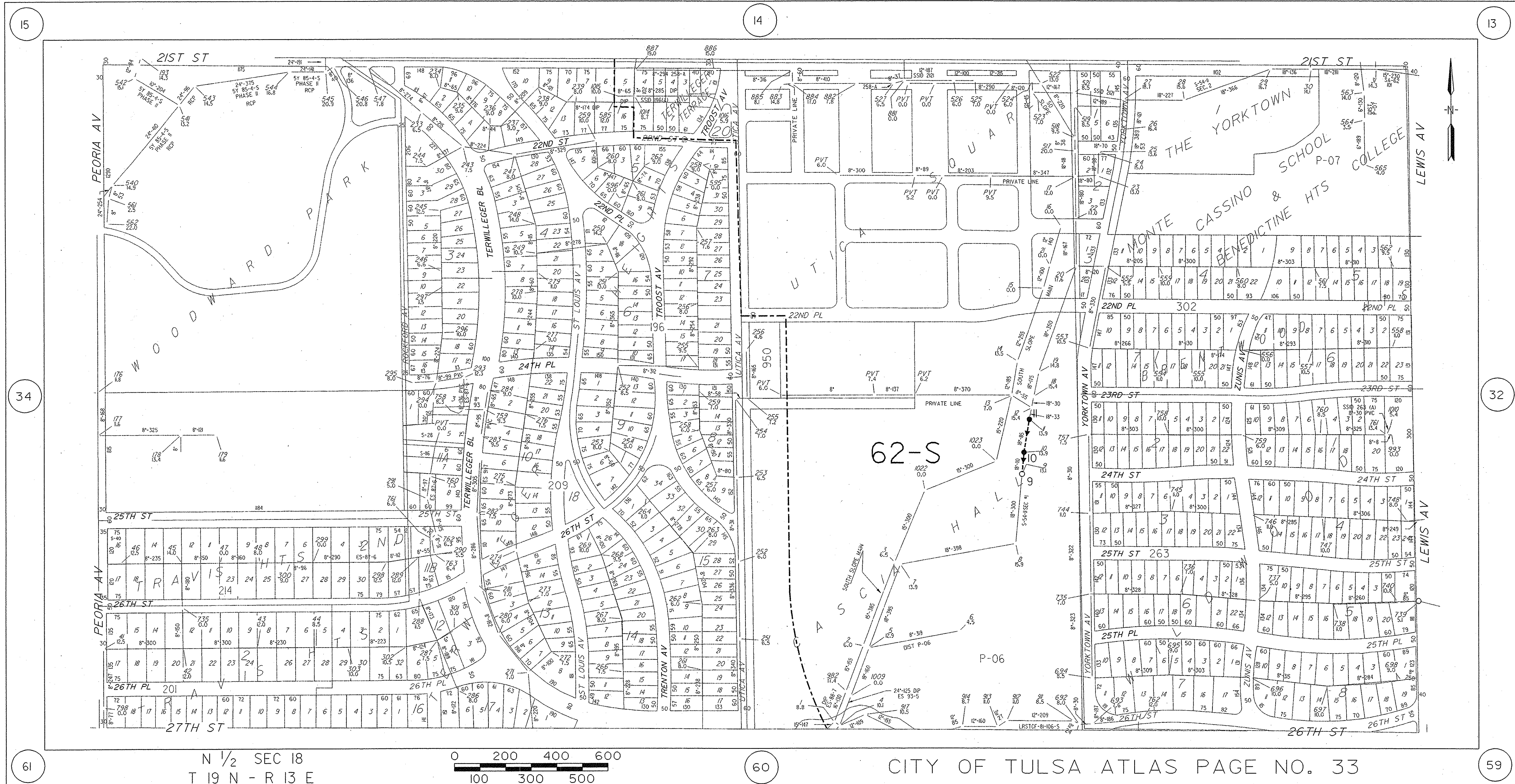
6450 SOUTH LEWIS AVENUE  
SUITE 220  
TULSA, OKLAHOMA 74136



BEFORE  
YOU DIG...  
1-800-522-6543  
CALL OKIE







**44-S**

**LEGEND**

- MAINTENANCE AREA
- MAINTENANCE AREA BOUNDARY
- EXISTING MANHOLE
- MANHOLE, REHABILITATE OR REPLACE - SEE SCHEDULE
- MANHOLE NUMBER
- DIRECTION OF FLOW
- CURED IN PLACE PIPE LINING - SEE SCHEDULE
- CURED IN PLACE PIPE LINING OR SLIP LINING - SEE SCHEDULE

**BEFORE YOU DIG...**

1-800-522-6543

**CALL OKIE**

Contract No. 4  
CURED IN PLACE PIPE LINING  
AND/OR SLIP LINING  
AND MANHOLE REHABILITATION

SOUTHSIDE BASIN REHABILITATION  
ACCOUNT NO. 6311-5455603-040522960108

**CITY OF TULSA**  
PROJECT NO. ES 96-07

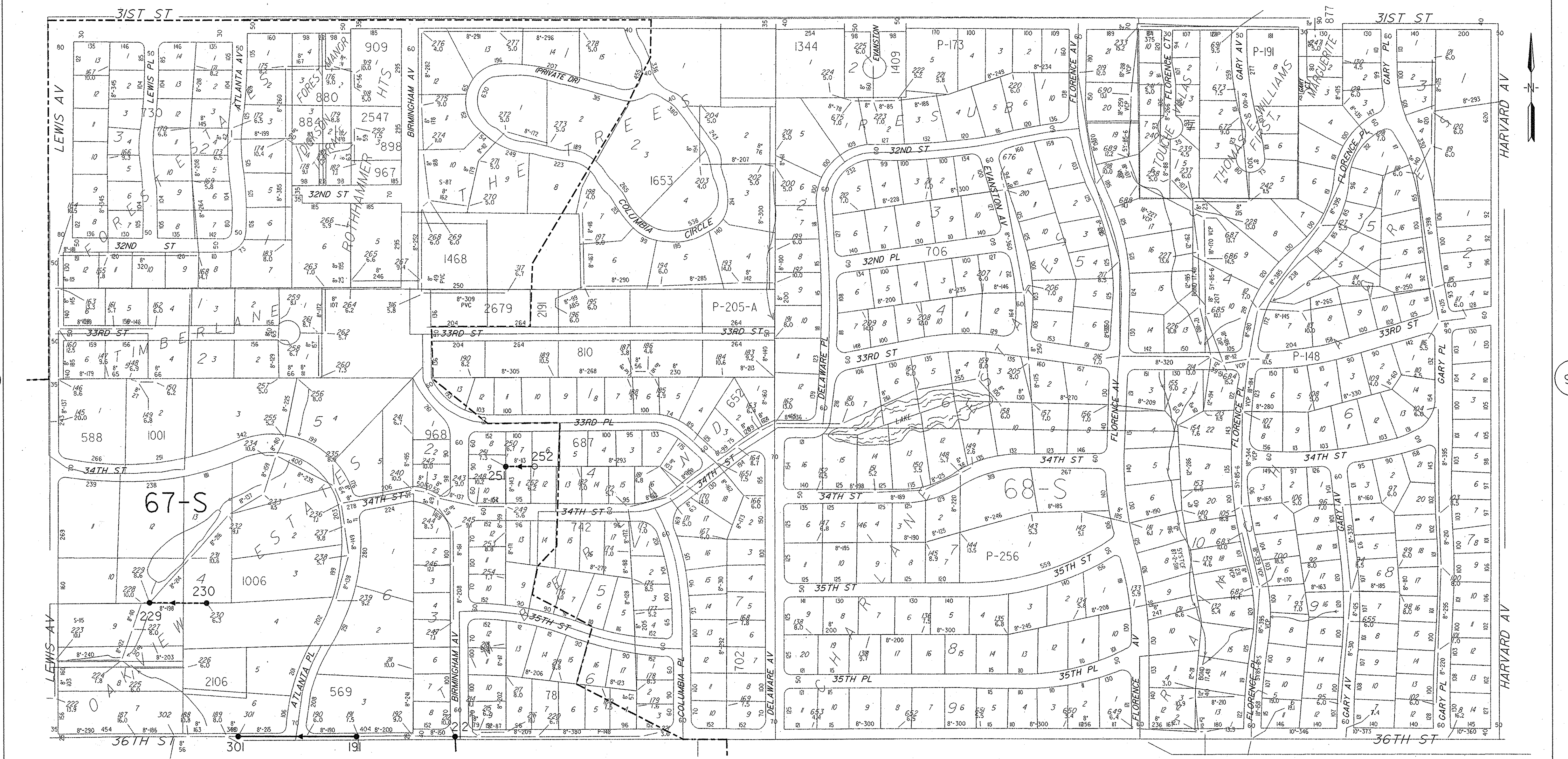
PLANS AND ESTIMATES PREPARED BY: **Burns & McDonnell**

REVISION	BY	DATE

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P =	PROJ. MNGR. <td>TPK</td> <td>12/199</td> <td> </td>	TPK	12/199	
	RECOMMENDED: <td> </td> <td> </td> <td> </td>			
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SHEET 3 OF 20 SHEETS





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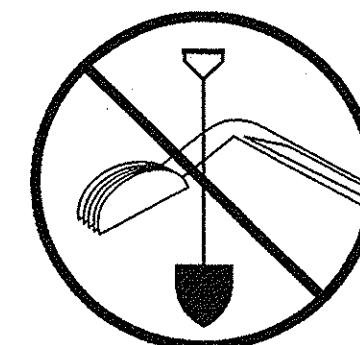
CITY OF TULSA ATLAS PAGE NO. 94

44-S

# LEGEND

- MAINTENANCE AREA
- MAINTENANCE AREA BOUNDARY
- EXISTING MANHOLE
- MANHOLE, REHABILITATE OR REPLACE - SEE SCHEDULE
- MANHOLE NUMBER
- DIRECTION OF FLOW
- CURED IN PLACE PIPE LINING - SEE SCHEDULE
- CURED IN PLACE PIPE LINING OR SLIP LINING - SEE SCHEDULE

432



BEFORE  
YOU DIG...  
1-800-522-6543  
CALL OKIE

Contract No. 4  
CURED IN PLACE PIPE LINING  
AND/OR SLIP LINING  
AND MANHOLE REHABILITATION

SOUTHSIDE BASIN REHABILITATION  
ACCOUNT NO. 6311-5455603-040522960108



CITY OF TULSA

PROJECT NO. ES 96-07

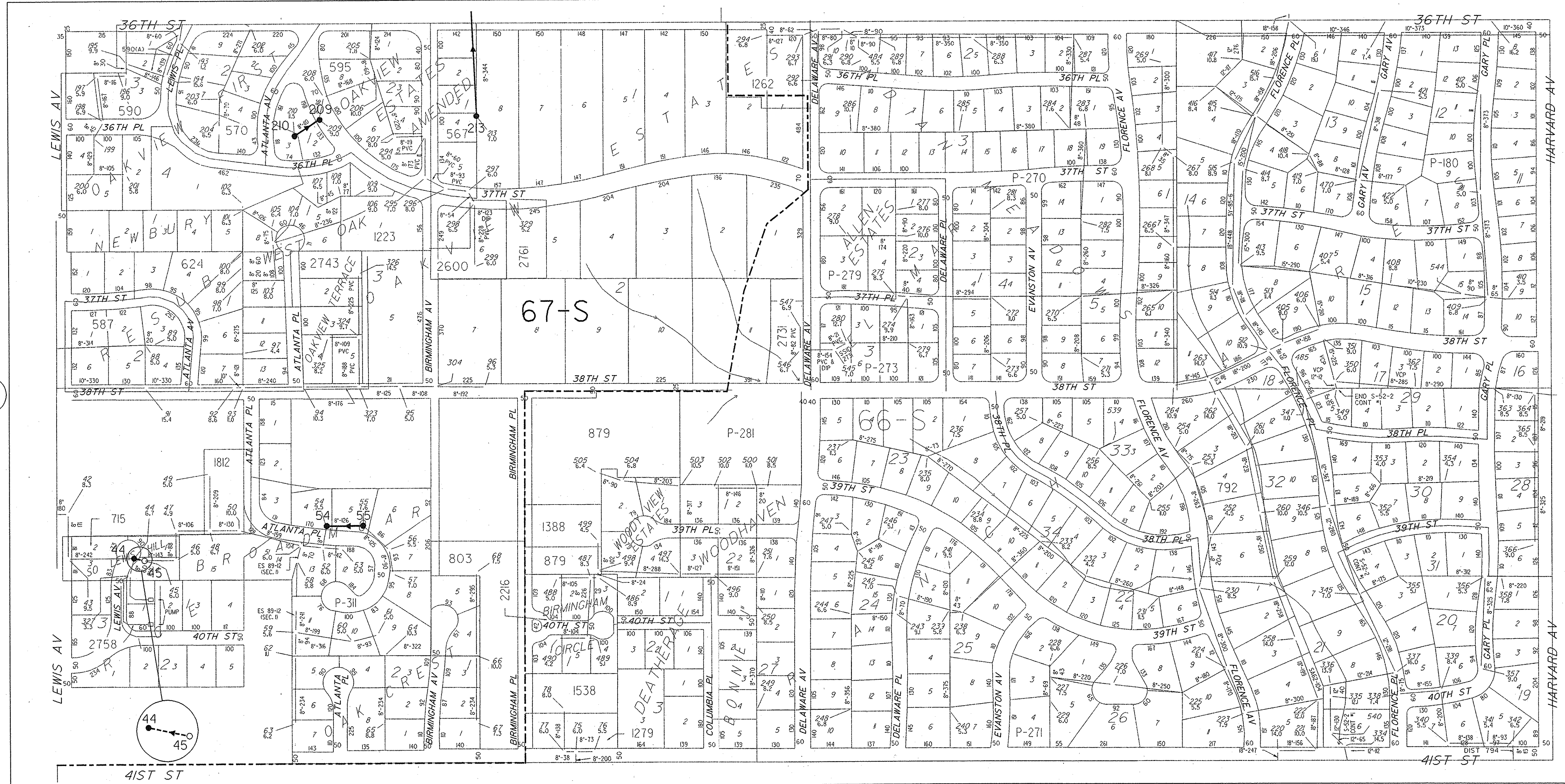
PLANS AND ESTIMATES PREPARED BY:

Burns  
&  
McDonnell

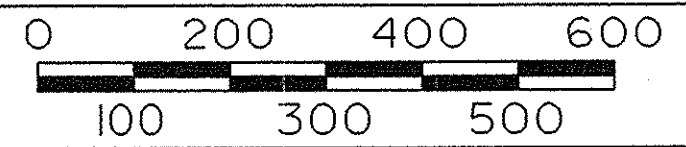
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			VERTICAL:	RECOMMENDED:			
			P =	DEPUTY DIRECTOR			
			FILE:	DRAWING:			
			ATLAS PAGE NO:	94			

PUBLIC WORKS DIRECTOR  
DATE 12/20/99  
SHEET 4 OF 20 SHEETS





S 1/2 SEC 20  
T 19 N - R 13 E

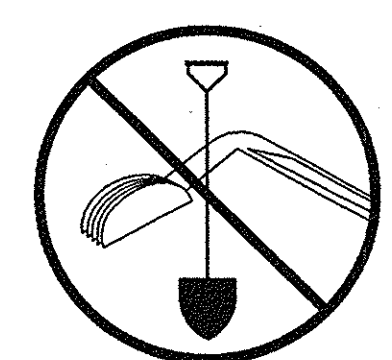


CITY OF TULSA ATLAS PAGE NO. 137

**44-S**

**LEGEND**

- MAINTENANCE AREA
- MAINTENANCE AREA BOUNDARY
- EXISTING MANHOLE
- MANHOLE, REHABILITATE OR REPLACE - SEE SCHEDULE
- MANHOLE NUMBER
- DIRECTION OF FLOW
- CURED IN PLACE PIPE LINING - SEE SCHEDULE
- CURED IN PLACE PIPE LINING OR SLIP LINING - SEE SCHEDULE



BEFORE  
YOU DIG...  
1-800-522-6543  
CALL OKIE

REVISION	BY	DATE

Contract No. 4  
CURED IN PLACE PIPE LINING  
AND/OR SLIP LINING  
AND MANHOLE REHABILITATION

SOUTHSIDE BASIN REHABILITATION  
ACCOUNT NO. 6311-5455603-040522960108

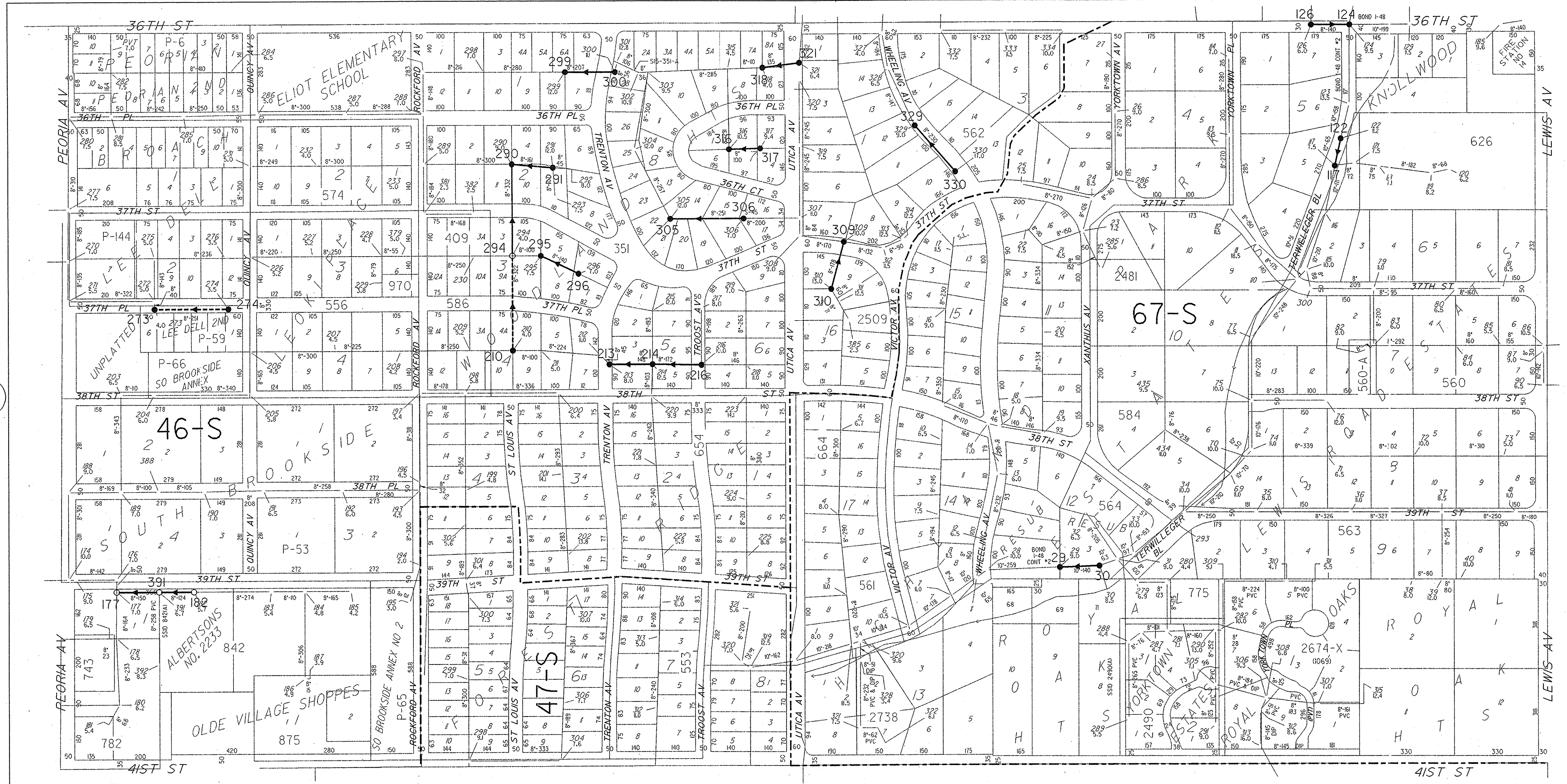
**CITY OF TULSA**  
PROJECT NO. ES 96-07

PLANS AND ESTIMATES PREPARED BY: Burns & McDonnell

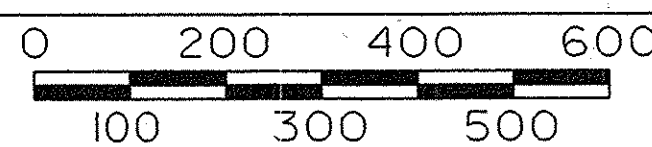
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	RECOMMENDED:	PK 12-99	
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ATLAS PAGE NO:	137		

DATE 12/20/99  
SHEET 5 OF 20 SHEETS





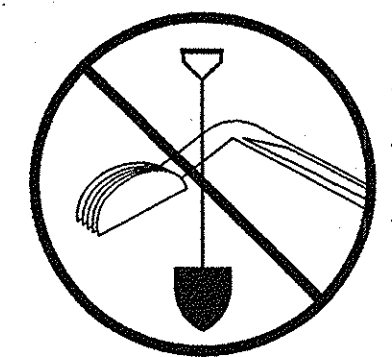
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**44-S**

**LEGEND**

- MAINTENANCE AREA
- MAINTENANCE AREA BOUNDARY
- EXISTING MANHOLE
- MANHOLE, REHABILITATE OR REPLACE - SEE SCHEDULE
- MANHOLE NUMBER
- DIRECTION OF FLOW
- CURED IN PLACE PIPE LINING - SEE SCHEDULE
- CURED IN PLACE PIPE LINING OR SLIP LINING - SEE SCHEDULE



BEFORE  
YOU DIG...  
1-800-522-6543  
CALL OKIE

Contract No. 4  
CURED IN PLACE PIPE LINING  
AND/OR SLIP LINING  
AND MANHOLE REHABILITATION  
SOUTHSIDE BASIN REHABILITATION  
ACCOUNT NO. 6311-5455603-040522960108

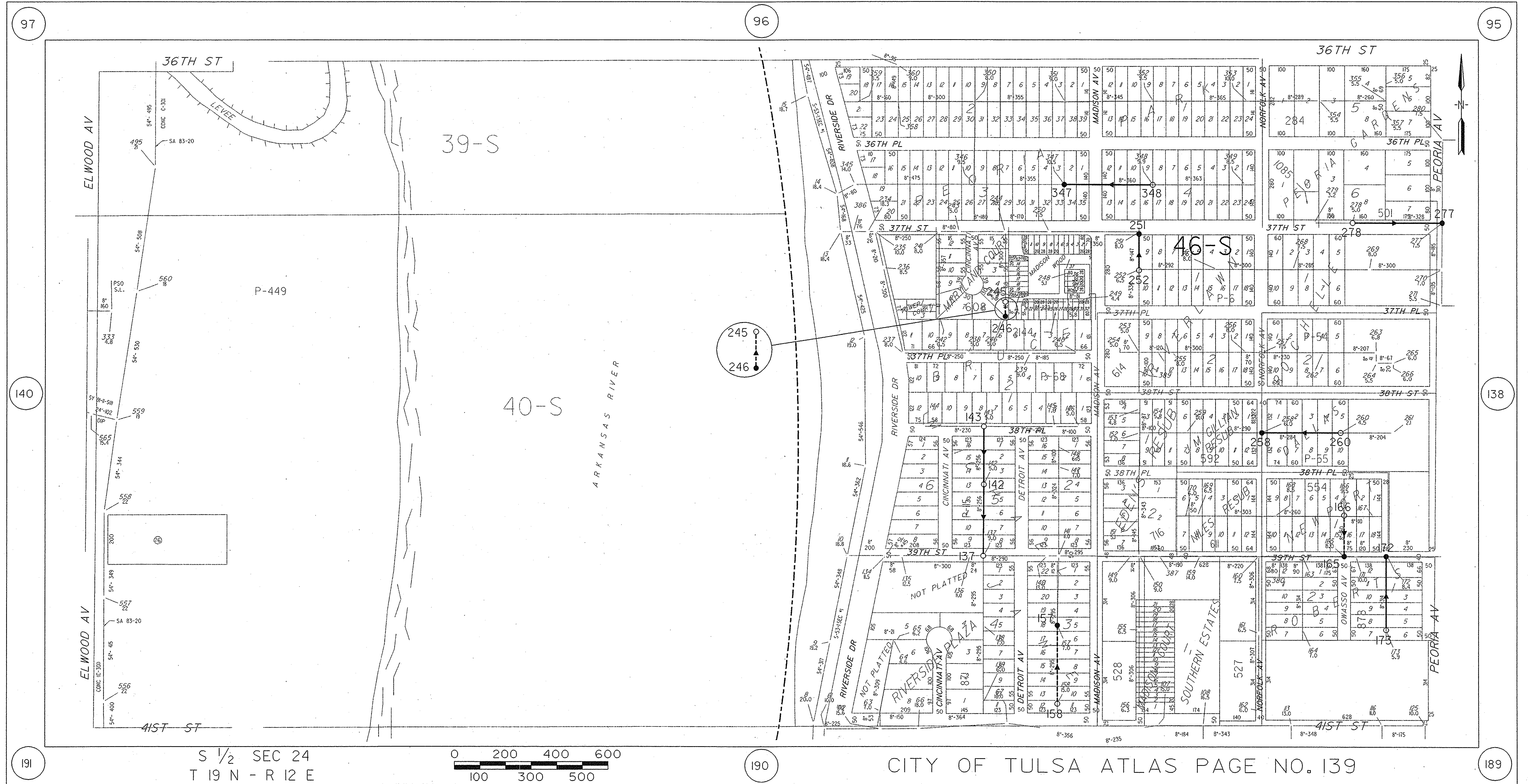
**CITY OF TULSA**  
PROJECT NO. ES 96-07  
PLANS AND ESTIMATES PREPARED BY: Burns & McDonnell

REVISION	BY	DATE

PLAN SCALE:	DRAWN	RAH	7/16/99	APPROVED:
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	SURVEY	JH	2/28/98	
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	PROJ. MNGR. <td> </td> <td> </td> <td> </td>			
VERTICAL <td> </td> <td> </td> <td> </td> <td> </td>				
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DATE 12/20/99  
SHEET 6 OF 20 SHEETS

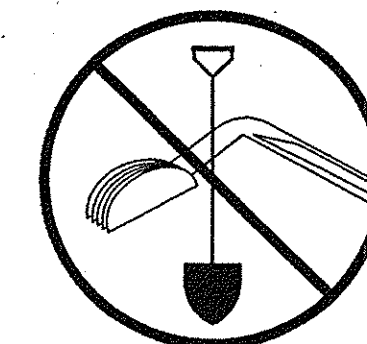




**44-S**

**LEGEND**

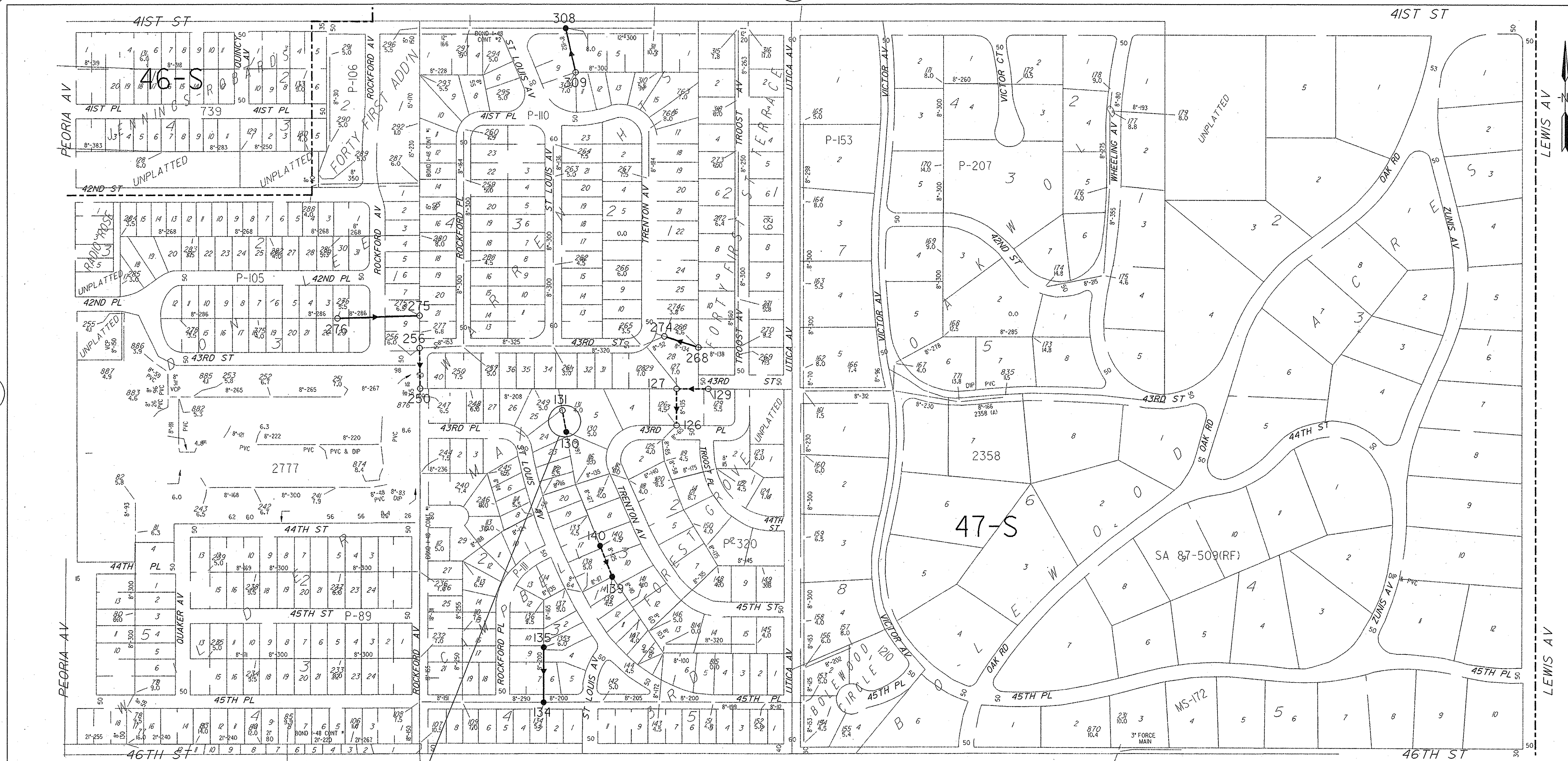
- MAINTENANCE AREA
- MAINTENANCE AREA BOUNDARY
- EXISTING MANHOLE
- MANHOLE, REHABILITATE OR REPLACE - SEE SCHEDULE
- MANHOLE NUMBER
- DIRECTION OF FLOW
- CURED IN PLACE PIPE LINING - SEE SCHEDULE
- CURED IN PLACE PIPE LINING OR SLIP LINING - SEE SCHEDULE



**BEFORE YOU DIG...**  
1-800-522-6543  
**CALL OKIE**

REVISION	BY	DATE	PLAN SCALE:	DRAWN	RAH	7/16/99	APPROVED:
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				PROJ. MNGR.	RB	12/99	
			VERTICAL:	RECOMMENDED:			
				DEPUTY DIRECTOR			
			FILE:	DRAWING:			
			ATLAS PAGE NO:	139			

Contract No. 4  
CURED IN PLACE PIPE LINING  
AND/OR SLIP LINING  
AND MANHOLE REHABILITATION  
SOUTHSIDE BASIN REHABILITATION  
ACCOUNT NO. 6311-5455603-040522960108  
CITY OF TULSA  
PROJECT NO. ES 96-07  
PLANS AND ESTIMATES PREPARED BY: Burns & McDonnell  
APPROVED: *cll* PUBLIC WORKS DIRECTOR  
DATE 12/20/99  
SHEET 7 OF 20 SHEETS



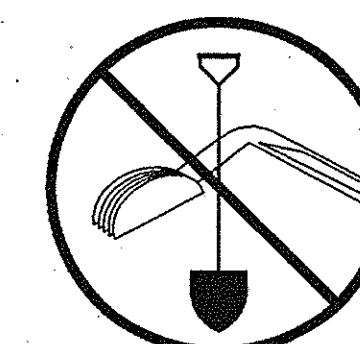
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CITY OF TULSA ATLAS PAGE NO. 189

### LEGEND

44-S

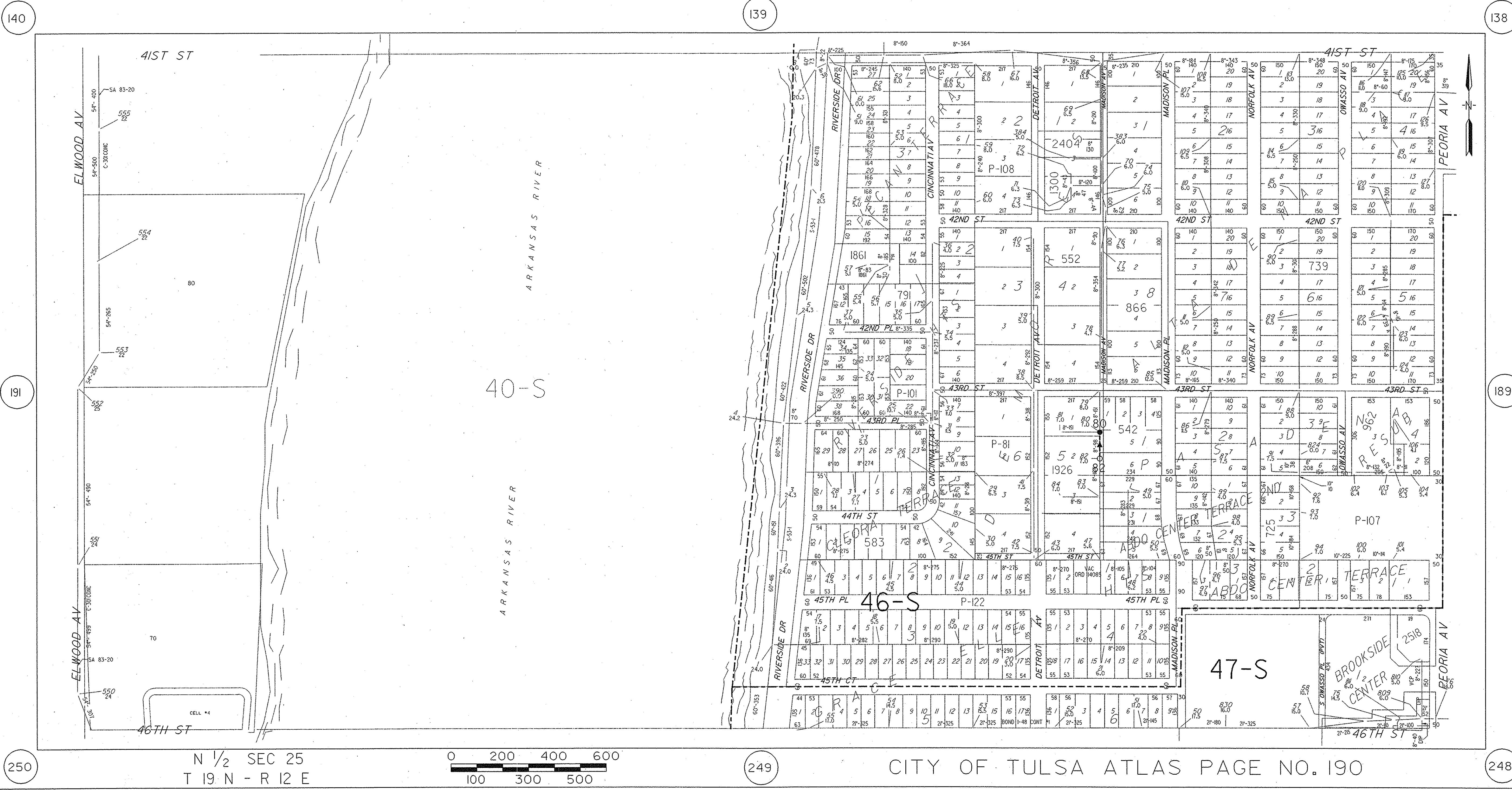
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MAINTENANCE AREA BOUNDARY  
EXISTING MANHOLE  
MANHOLE, REHABILITATE OR REPLACE - SEE SCHEDULE  
MANHOLE NUMBER  
DIRECTION OF FLOW  
CURED IN PLACE PIPE LINING - SEE SCHEDULE  
CURED IN PLACE PIPE LINING OR SLIP LINING - SEE SCHEDULE



**BEFORE  
YOU DIG...**  
1-800-522-654  
**CALL OKIE**

REVISION		BY	DATE	PLAN SCALE:	DRAWN	RAH	7/16/99	APPROVED:
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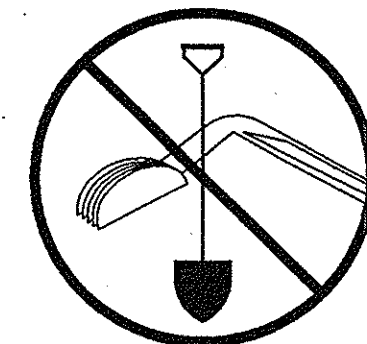




**44-S**

**LEGEND**

- MAINTENANCE AREA
- MAINTENANCE AREA BOUNDARY
- EXISTING MANHOLE
- MANHOLE, REHABILITATE OR REPLACE - SEE SCHEDULE
- MANHOLE NUMBER
- DIRECTION OF FLOW
- CURED IN PLACE PIPE LINING - SEE SCHEDULE
- CURED IN PLACE PIPE LINING OR SLIP LINING - SEE SCHEDULE



**BEFORE YOU DIG...**  
1-800-522-6543  
CALL OKIE

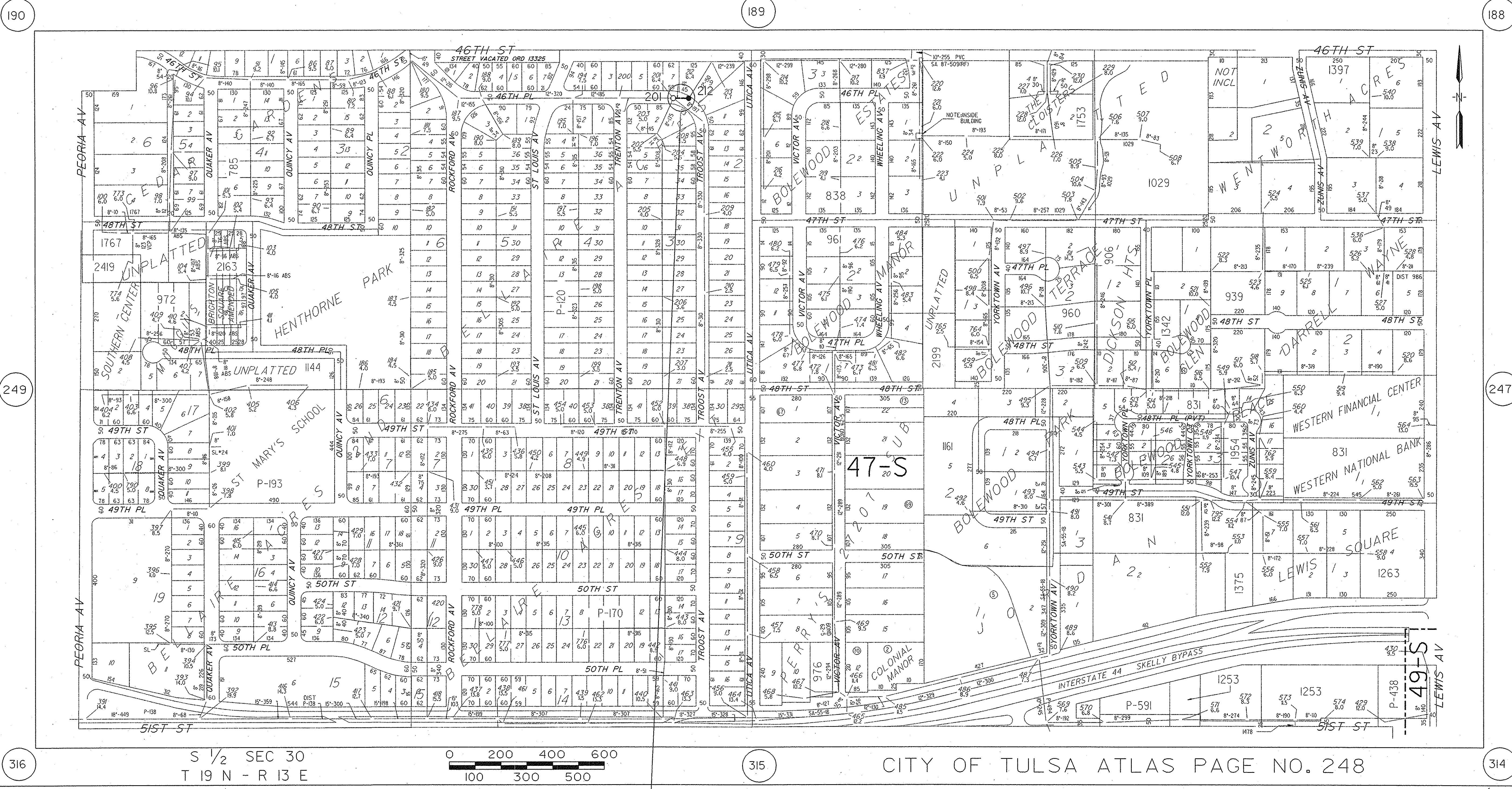
Contract No. 4  
CURED IN PLACE PIPE LINING  
AND/OR SLIP LINING  
AND MANHOLE REHABILITATION  
SOUTHSIDE BASIN REHABILITATION  
ACCOUNT NO. 6311-5455603-040522960108

**CITY OF TULSA**  
PROJECT NO. ES 96-07  
PLANS AND ESTIMATES PREPARED BY: Burns & McDonnell

REVISION	BY	DATE	PLAN SCALE:	DRAWN	RAH	7/16/99	APPROVED:
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DATE: 12/2/99  
SHEET 9 OF 20 SHEETS





**44-S**

**LEGEND**

- MAINTENANCE AREA
- MAINTENANCE AREA BOUNDARY
- EXISTING MANHOLE
- MANHOLE, REHABILITATE OR REPLACE - SEE SCHEDULE
- MANHOLE NUMBER
- DIRECTION OF FLOW
- CURED IN PLACE PIPE LINING - SEE SCHEDULE
- CURED IN PLACE PIPE LINING OR SLIP LINING - SEE SCHEDULE

**BEFORE YOU DIG...**

1-800-522-6543

**CALL OKIE**

Contract No. 4  
CURED IN PLACE PIPE LINING  
AND/OR SLIP LINING  
AND MANHOLE REHABILITATION

SOUTHSIDE BASIN REHABILITATION  
ACCOUNT NO. 6311-5455603-040522960108

**CITY OF TULSA**  
PROJECT NO. ES 96-07

PLANS AND ESTIMATES PREPARED BY: **Burns & McDonnell**

REVISION	BY	DATE

PLAN SCALE:	DRAWN	RAH	7/16/99	APPROVED:
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PROFILE SCALE: <td>SURVEY</td> <td>JH</td> <td>2/28/98</td> <td> </td>	SURVEY	JH	2/28/98	
HORIZONTAL: <td>FIELD MNGR.</td> <td> </td> <td> </td> <td> </td>	FIELD MNGR.			
	SECT. MNGR.			
	PROJ. MNGR.			
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DATE **12/20/99**  
SHEET 10 OF 20 SHEETS

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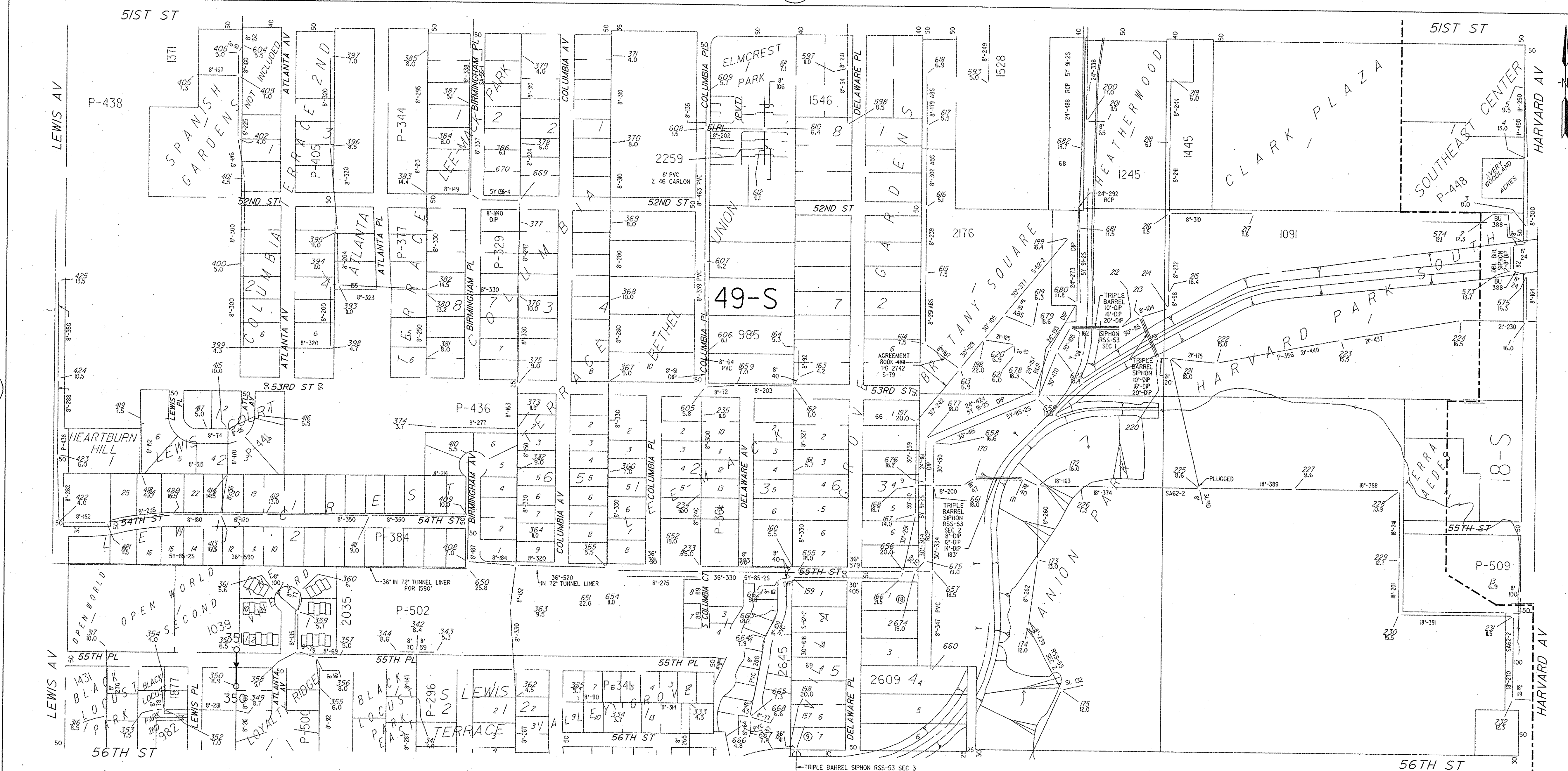
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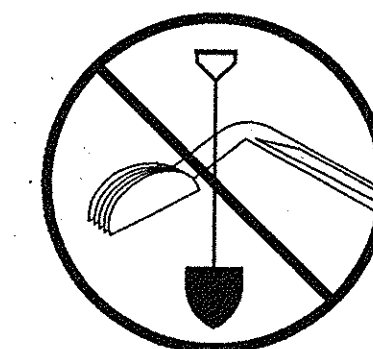


44-S

## LEGEND

- MAINTENANCE AREA
- MAINTENANCE AREA BOUNDARY
- EXISTING MANHOLE
- MANHOLE, REHABILITATE OR REPLACE - SEE SCHEDULE
- MANHOLE NUMBER
- DIRECTION OF FLOW
- CURED IN PLACE PIPE LINING - SEE SCHEDULE
- CURED IN PLACE PIPE LINING OR SLIP LINING - SEE SCHEDULE

432



BEFORE  
YOU DIG...  
1-800-522-6543  
CALL OKIE

REVISION	BY	DATE	PLAN SCALE:	DRAWN	RAH	7/16/99	APPROVED:
			1" = 200'	DESIGNED	CWD	7/9/99	
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Contract No. 4  
CURED IN PLACE PIPE LINING  
AND/OR SLIP LINING  
AND MANHOLE REHABILITATION  
SOUTHSIDE BASIN REHABILITATION  
ACCOUNT NO. 6311-5455603-040522960108



CITY OF TULSA  
PROJECT NO. ES 96-07

PLANS AND ESTIMATES PREPARED BY:

Burns  
&  
McDonnell

PUBLIC WORKS DIRECTOR

DATE 12/20/99

SHEET 11 OF 20 SHEETS







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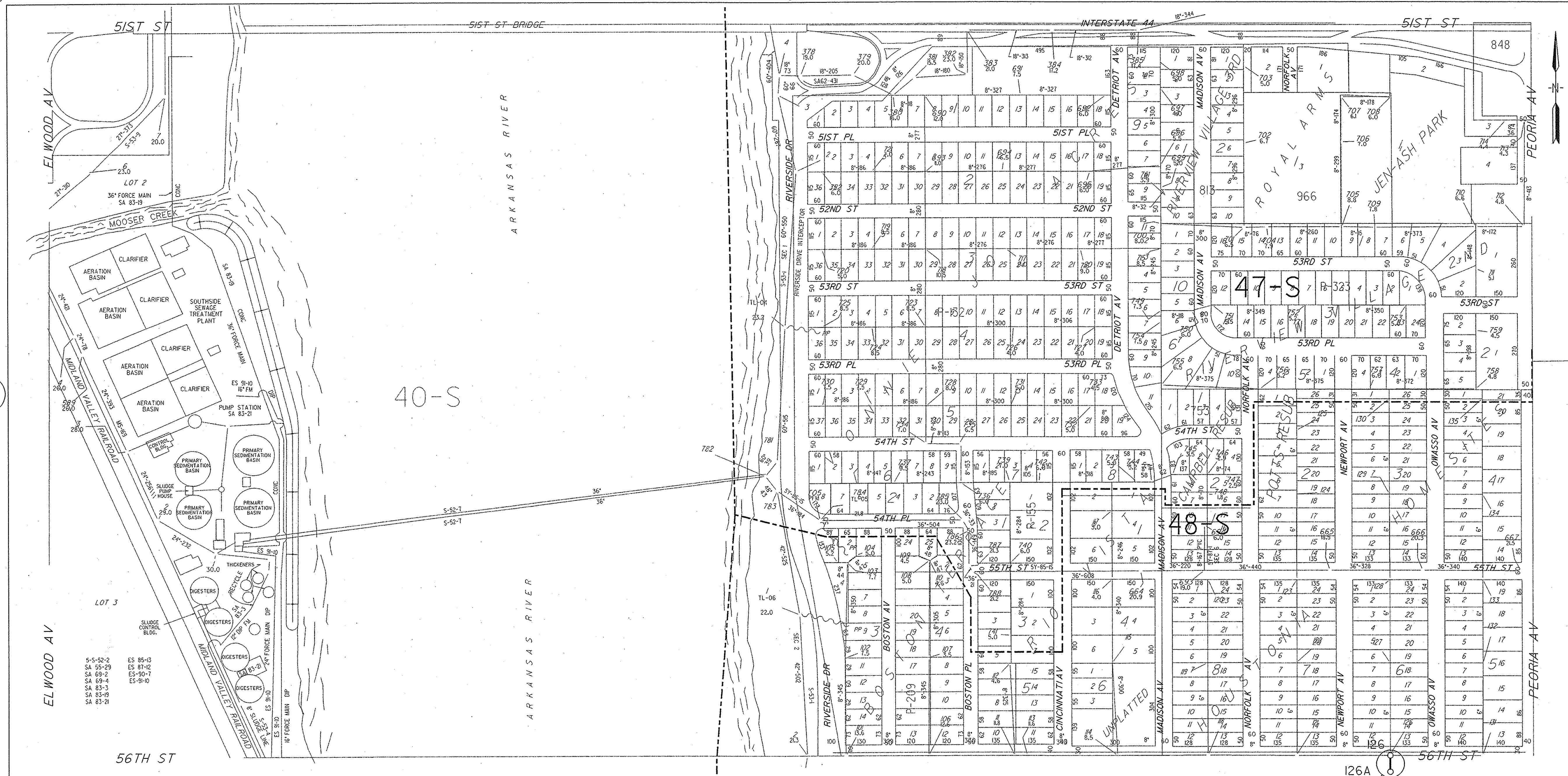
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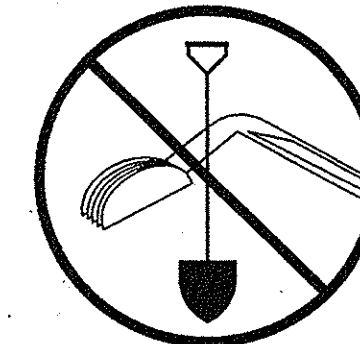
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CITY OF TULSA ATLAS PAGE NO. 316

44-S	
MAINTENANCE AREA	
MAINTENANCE AREA BOUNDARY	
EXISTING MANHOLE	○
MANHOLE, REHABILITATE OR REPLACE - SEE SCHEDULE	●
MANHOLE NUMBER	432
DIRECTION OF FLOW	▲
CURED IN PLACE PIPE LINING - SEE SCHEDULE	---
CURED IN PLACE PIPE LINING OR SLIP LINING - SEE SCHEDULE	---

## LEGEND

Contract No. 4 CURED IN PLACE PIPE LINING AND/OR SLIP LINING AND MANHOLE REHABILITATION SOUTHSIDE BASIN REHABILITATION ACCOUNT NO. 63H-5455603-040522960I08			
CITY OF TULSA PROJECT NO. ES 96-07			
PLANS AND ESTIMATES PREPARED BY: Burns & McDonnell			
REVISION	BY	DATE	APPROVED:
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97		12/20/99	
98		12/20/99	
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100		12/20/99	



BEFORE  
YOU DIG...  
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CALL OKIE

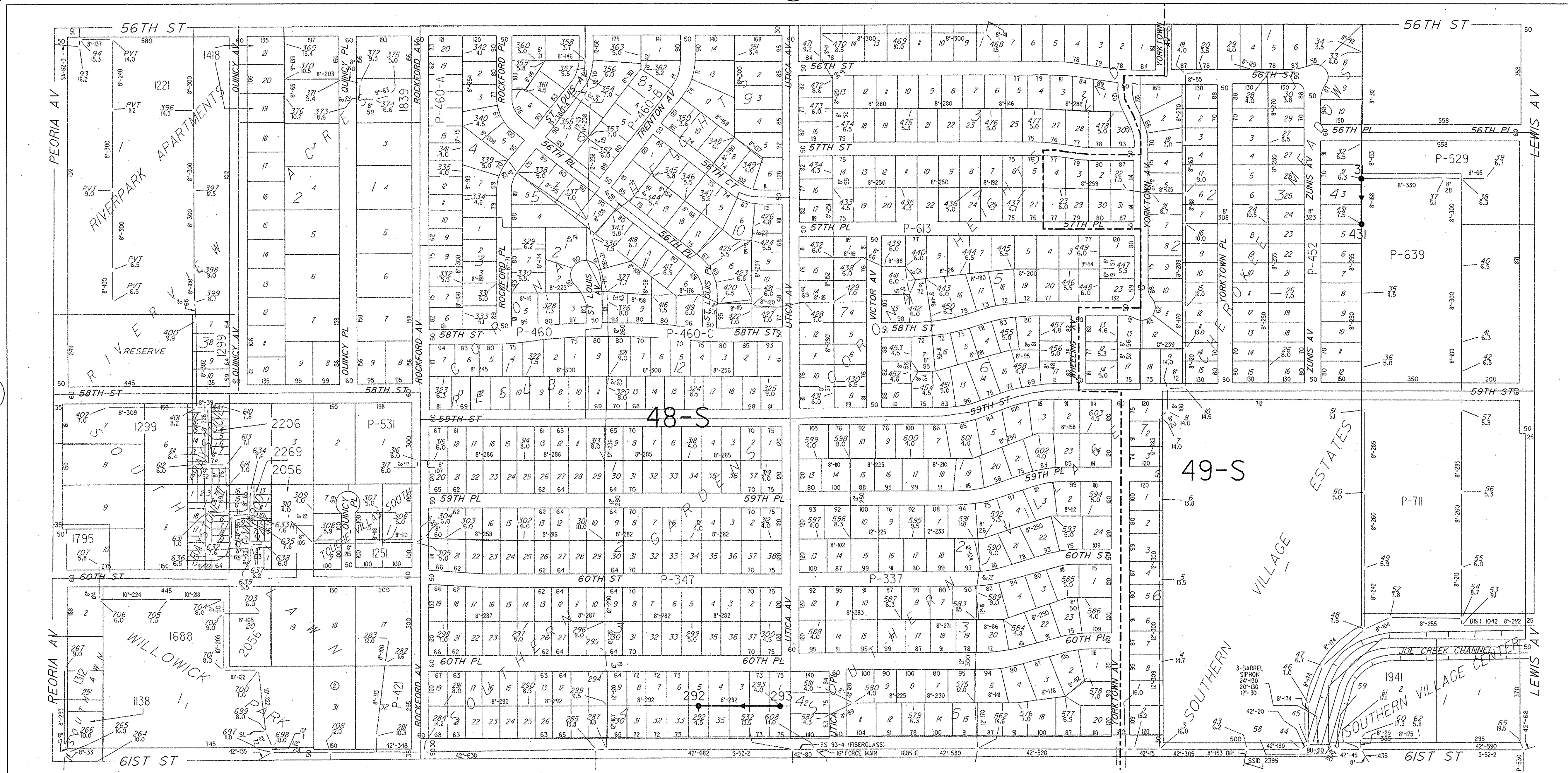


CITY OF TULSA  
PROJECT NO. ES 96-07

PLANS AND ESTIMATES PREPARED BY: Burns & McDonnell

PLAN SCALE:	DRAWN	RAH	7/16/99	APPROVED:
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PROFILE SCALE:	SURVEY	JH	2/28/98	
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VERTICAL	PROJ. MNGR.	TR	12/99	
I" =	RECOMMENDED			
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ATLAS PAGE NO:	316			
DATE	12/20/99			
SHEET	13	OF	20	SHEETS





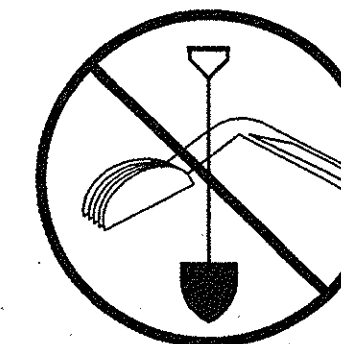
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CITY OF TULSA ATLAS PAGE NO. 390

44-S

## LEGEND

- MAINTENANCE AREA  
MAINTENANCE AREA BOUNDARY  
EXISTING MANHOLE  
MANHOLE, REHABILITATE OR REPLACE - SEE SCHEDULE  
MANHOLE NUMBER  
DIRECTION OF FLOW  
CURED IN PLACE PIPE LINING - SEE SCHEDULE  
CURED IN PLACE PIPE LINING OR SLIP LINING - SEE SCHEDULE



**BEFORE  
YOU DIG...**  
1-800-522-6543  
**CALL OKIE**

REVISION		BY	DATE	PLAN SCALE:		DRAWN	RAH	7/16/99	APPROVED:
				P = 200		DESIGNED	CWD	7/19/99	
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				VERTICAL		DEPUTY DIRECTOR	DR	12-22-99	DATE
				P =					PUBLIC WORKS DIRECTOR
FILE:				DRAWING:				DATE	12/20/99
ATLAS PAGE NO:				390				SHEET	14 OF 20 SHEETS

Contract No. 4  
CURED IN PLACE PIPE LINING  
AND/OR SLIP LINING  
AND MANHOLE REHABILITATION  
SOUTHSIDE BASIN REHABILITATION  
ACCOUNT NO. 631-5455603-040522960108

CITY OF TULSA  
PROJECT NO. ES 96-07

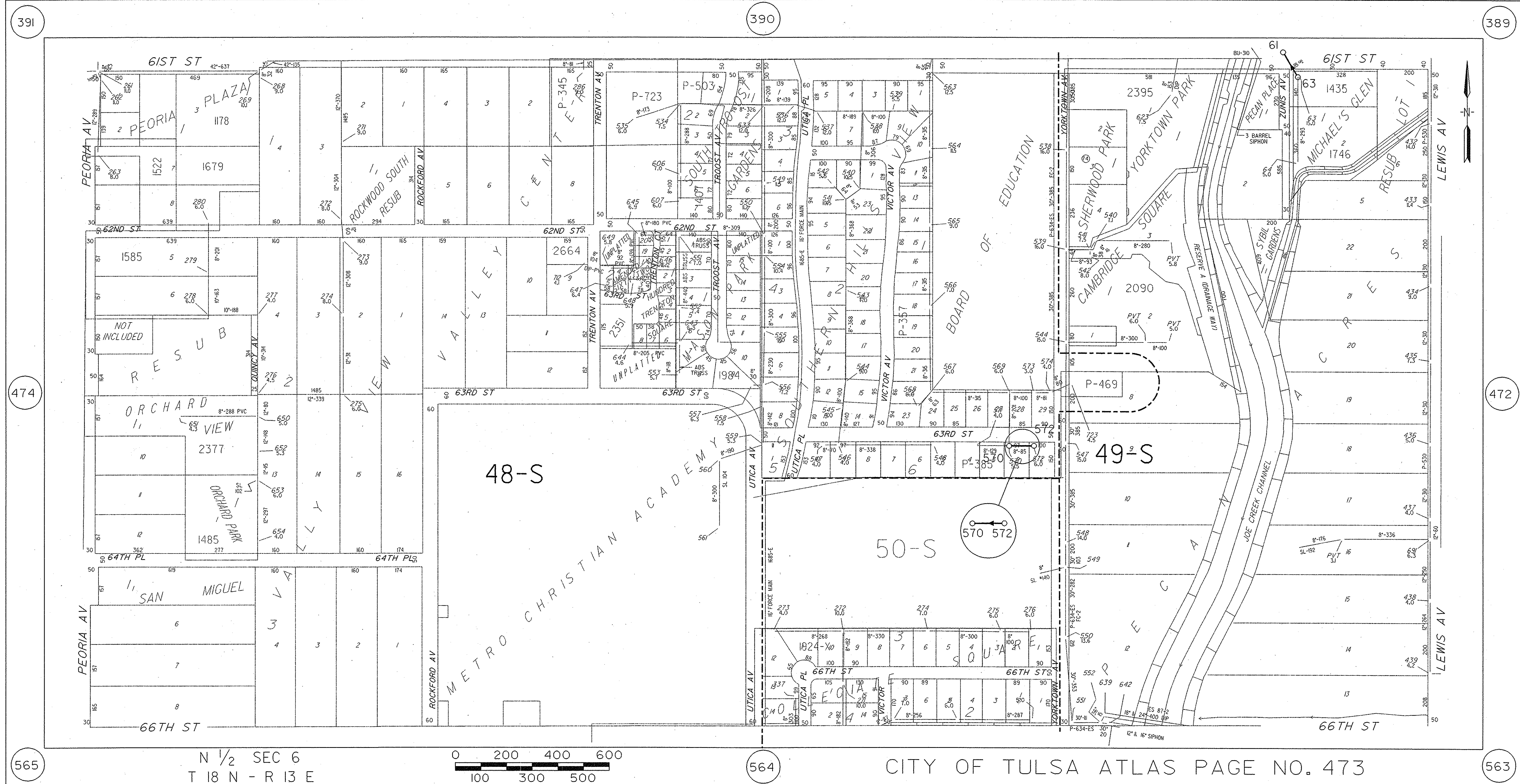
PLANS AND ESTIMATES PREPARED BY

**Burns  
&  
McDonnell**

PUBLIC WORKS DIRECTOR  
DATE 12/20/99  
SHEET 14 OF 20 SHEETS



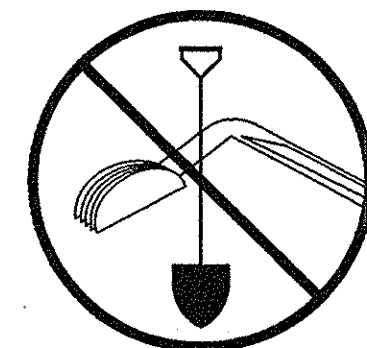
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**44-S**

**LEGEND**

- MAINTENANCE AREA
- MAINTENANCE AREA BOUNDARY
- EXISTING MANHOLE
- MANHOLE, REHABILITATE OR REPLACE - SEE SCHEDULE
- MANHOLE NUMBER
- DIRECTION OF FLOW
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BEFORE  
YOU DIG...  
1-800-522-6543  
CALL OKIE

REVISION	BY	DATE	PLAN SCALE:	DRAWN	RAH	7/16/99	APPROVED:
			P = 200	DESIGNED	CWD	7/9/99	
			SURVEY	JH	2/28/98		
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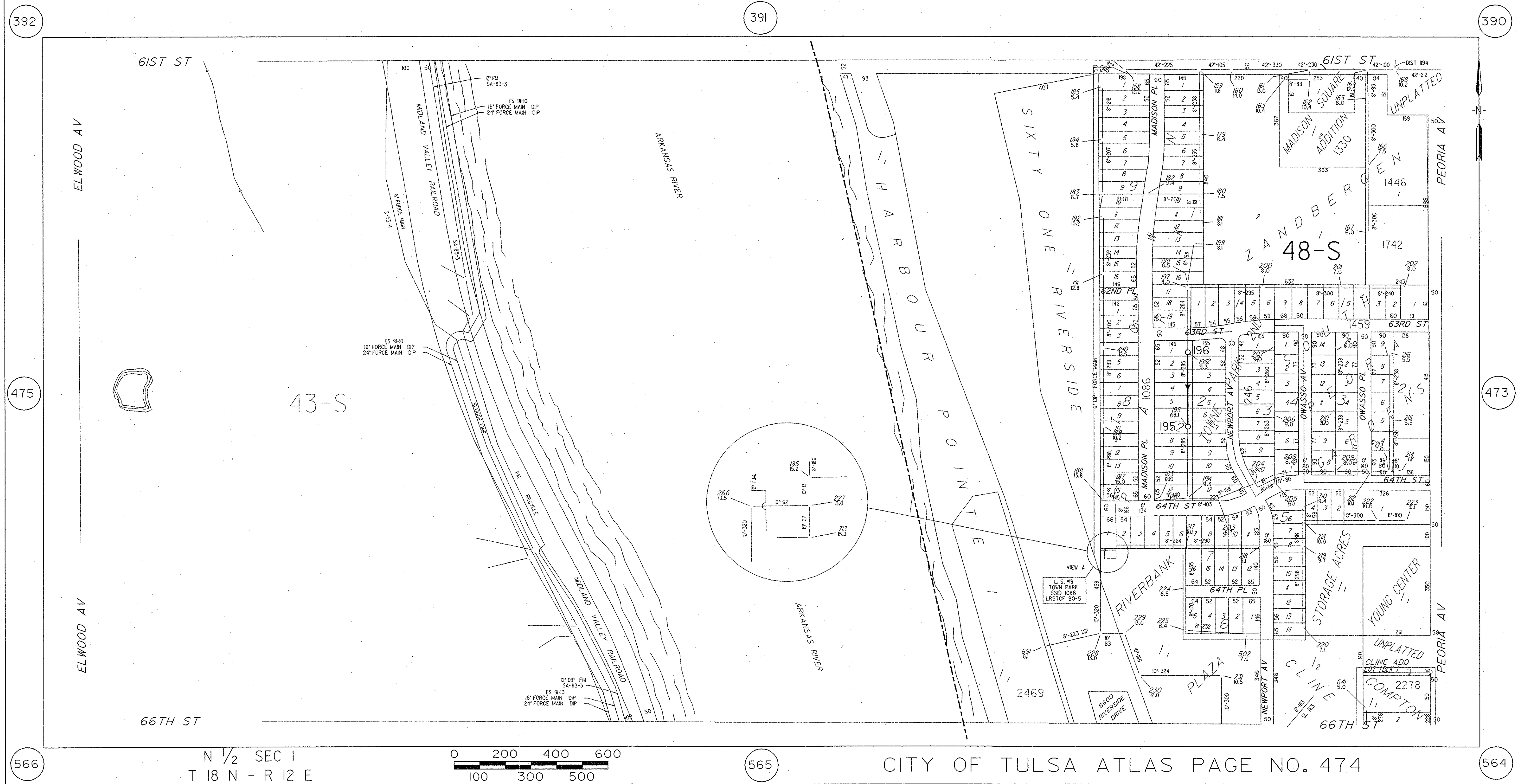
Contract No. 4  
CURED IN PLACE PIPE LINING  
AND/OR SLIP LINING  
AND MANHOLE REHABILITATION  
SOUTHSIDE BASIN REHABILITATION  
ACCOUNT NO. 63H-5455603-040522960108

**CITY OF TULSA**  
PROJECT NO. ES 96-07

PLANS AND ESTIMATES PREPARED BY: **Burns & McDonnell**

APPROVED: *clh*  
PUBLIC WORKS DIRECTOR  
DATE **12/20/99**  
SHEET 15 OF 20 SHEETS





**44-S**

**LEGEND**

- MAINTENANCE AREA
- MAINTENANCE AREA BOUNDARY
- EXISTING MANHOLE
- MANHOLE, REHABILITATE OR REPLACE - SEE SCHEDULE
- MANHOLE NUMBER
- DIRECTION OF FLOW
- CURED IN PLACE PIPE LINING - SEE SCHEDULE
- CURED IN PLACE PIPE LINING OR SLIP LINING - SEE SCHEDULE

**BEFORE YOU DIG...**

1-800-522-6543

**CALL OKIE**

Contract No. 4  
CURED IN PLACE PIPE LINING  
AND/OR SLIP LINING  
AND MANHOLE REHABILITATION  
SOUTHSIDE BASIN REHABILITATION  
ACCOUNT NO. 6311-5455603-040522960108

**CITY OF TULSA**  
PROJECT NO. ES 96-07

PLANS AND ESTIMATES PREPARED BY: Burns & McDonnell

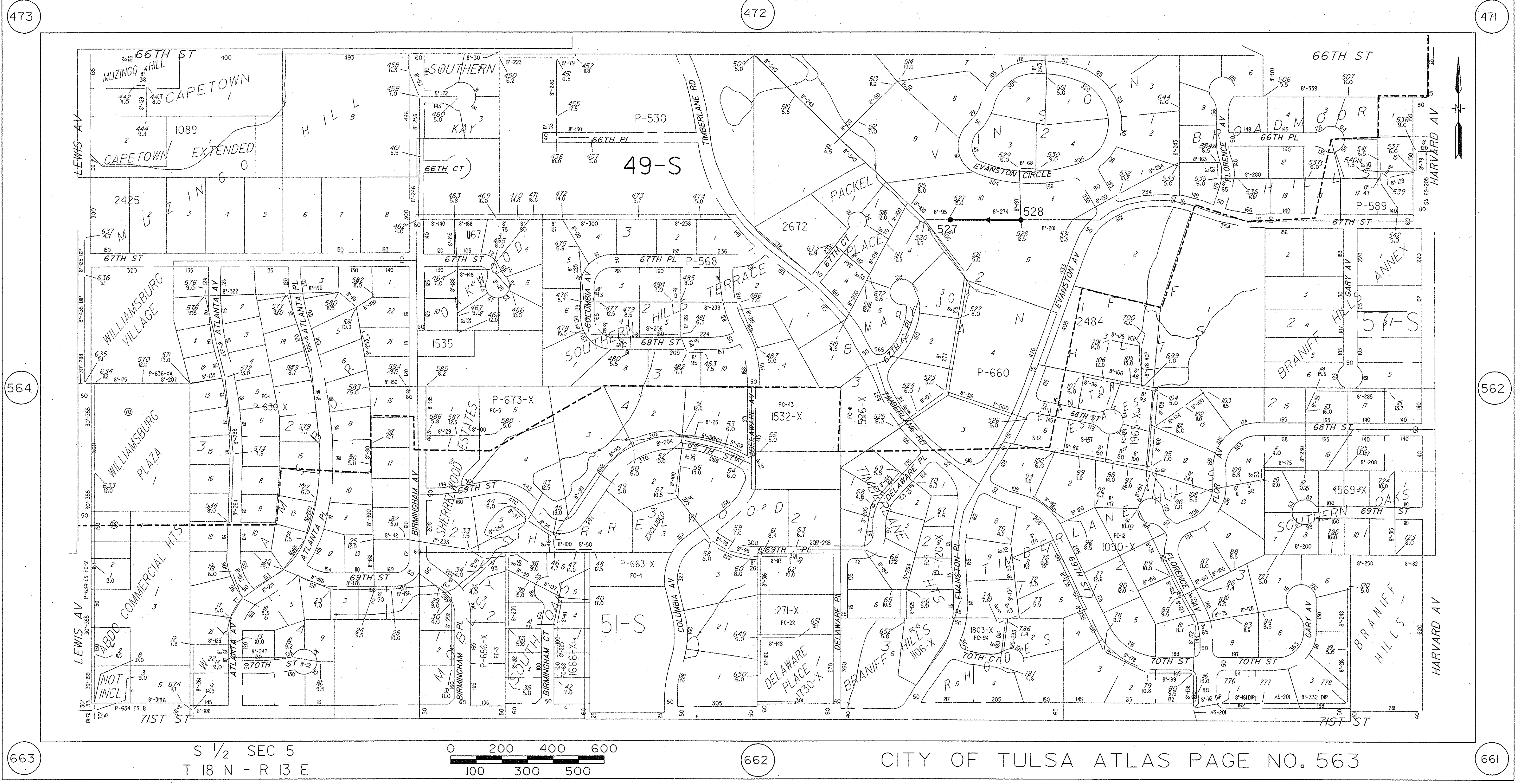
REVISION	BY	DATE

PLAN SCALE:	DRAWN	RAH	7/16/99	APPROVED:
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	SURVEY	JH	2/28/98	
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	PROJ. MNGR. <td>706</td> <td>12/99</td> <td> </td>	706	12/99	
VERTICAL: <td>RECOMMENDED:<td>706</td><td>12/22/99</td><td> </td></td>	RECOMMENDED: <td>706</td> <td>12/22/99</td> <td> </td>	706	12/22/99	
	DEPUTY DIRECTOR			
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ATLAS PAGE NO: <td>474</td> <td> </td> <td> </td> <td> </td>	474			

DATE 12/20/99  
SHEET 16 OF 20 SHEETS

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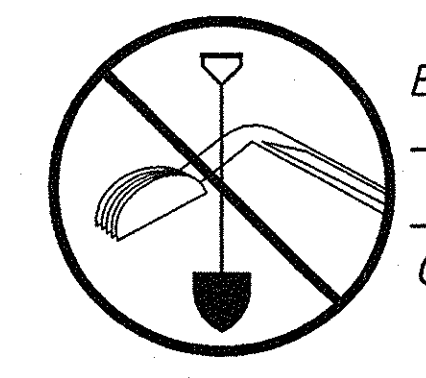




**44-S**

**LEGEND**

- MAINTENANCE AREA
- MAINTENANCE AREA BOUNDARY
- EXISTING MANHOLE
- MANHOLE, REHABILITATE OR REPLACE - SEE SCHEDULE
- MANHOLE NUMBER
- DIRECTION OF FLOW
- CURED IN PLACE PIPE LINING - SEE SCHEDULE
- CURED IN PLACE PIPE LINING OR SLIP LINING - SEE SCHEDULE



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CALL OKIE

REVISION	BY	DATE	PLAN SCALE: 1" = 200'	DRAWN: RAH 7/16/99	APPROVED:
			PROFILE SCALE:	DESIGNED: CWD 7/9/99	
			HORIZONTAL: 1" = 100'	SURVEY: JH 2/28/98	
			VERTICAL: 1" = 10'	SECT. MNGR. RDB R99	
				PROJ. MNGR. JH 12/19	
				RECOMMENDED: RDB 12/22/99	
				DEPUTY DIRECTOR	
			FILE:	DRAWING:	DATE 12/20/99
			ATLAS PAGE NO: 563		SHEET 17 OF 20 SHEETS

Contract No. 4  
CURED IN PLACE PIPE LINING  
AND/OR SLIP LINING  
AND MANHOLE REHABILITATION  
SOUTHSIDE BASIN REHABILITATION  
ACCOUNT NO. 631-5455603-040522960108

**CITY OF TULSA**  
PROJECT NO. ES 96-07  
PLANS AND ESTIMATES PREPARED BY: Burns & McDonnell

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Sheet No.	Atlas Sheet	BasinID	USMHID	DSMHID	DSMHLength	MHAddress	MHPreDir	MHStName	MHSfx	PipeSize	PipeDepth	Surface Material	Pipe Material	Remarks
3	033	62S	010	009	110	2520	S	YORKTOWN	AV	18	13.58	O	CO	CIPP ONLY
3	033	62S	011	010	87	2520	S	YORKTOWN	AV	18	15.14	S	CO	CIPP ONLY
4	094	67S	191	301	409	2515	E	36TH	ST	8	6.70	A	VC	
4	094	67S	230	229	198	3515	S	LEWIS	AV	8	4.84	S	VC	CIPP ONLY
4	094	67S	252	251	113	2616	E	33RD	PL	8	7.56	S	VC	CIPP ONLY
5	137	67S	045	044	33	3915	S	LEWIS	AV	8	7.32	S	VC	CIPP ONLY
5	137	67S	055	054	125	3859	S	ATLANTA	PL	8	8.90	S	VC	
5	137	67S	210	209	110	3624	S	ATLANTA	AV	8	11.22	S	VC	
5	137	67S	213	212	344	3631	S	BIRMINGHAM	AV	8	5.46	S	VC	
6	138	46S	214	213	148	3721	S	TRENTON	AV	8	13.30	S	VC	
6	138	46S	216	214	172	3721	S	TRENTON	AV	8	9.30	S	VC	
6	138	46S	306	305	251	1635	E	37TH	ST	8	9.60	S	VC	
6	138	46S	310	309	178	3717	S	UTICA	AV	8	5.90	S	VC	
6	138	67S	030	029	156	2020	E	38TH	ST	10	9.18	S	VC	
6	138	67S	122	117	45	3649	S	TERWILLIGER	BL	10	12.46	A	VC	
6	138	67S	126	124	134	3612	S	TERWILLIGER	BL	8	3.76	S	VC	
6	138	46S	182	391	124	3915	S	PEORIA	AV	8	7.48	S	VC	
6	138	46S	210	294	322	1524	E	37TH	PL	8	4.26	S	VC	CIPP ONLY
6	138	46S	274	273	251	1442	E	37TH	PL	8	3.46	A	VC	CIPP ONLY
6	138	46S	291	290	161	1538	E	36TH	PL	8	12.68	S	VC	
6	138	46S	294	290	332	1521	E	37TH	ST	8	9.32	S	VC	
6	138	46S	296	295	140	1545	E	37TH	PL	8	7.02	S	VC	
6	138	46S	300	299	175	3609	S	TRENTON	AV	8	11.96	S	VC	
6	138	46S	317	316	100	1629	E	36TH	CT	8	9.16	S	VC	
6	138	46S	321	318	135	3611	S	UTICA	AV	8	4.54	A	VC	
6	138	46S	330	329	217	3648	S	WHEELING	AV	8	8.50	S	VC	
6	138	46S	391	177	150	3915	S	PEORIA	AV	8	6.78	S	VC	
7	139	46S	142	137	256	3830	S	DETROIT	AV	8	8.97	S	VC	
7	139	46S	143	142	256	207	E	38TH	PL	8	6.12	S	VC	
7	139	46S	158	157	295	3919	S	DETROIT	AV	8	5.74	S	VC	CIPP ONLY
7	139	46S	166	165	150	1123	E	39TH	ST	8	9.44	C	VC	CIPP ONLY
7	139	46S	173	172	313	3921	S	OWASSO	AV	8	5.92	S	VC	
7	139	46S	246	245	57	3719	S	CINCINNATI	AV	8	5.02	S	VC	CIPP ONLY
7	139	46S	252	251	147	1017	E	37TH	ST	8	7.90	S	VC	
7	139	46S	260	258	284	1123	E	38TH	PL	8	6.14	A	VC	
7	139	46S	278	277	325	1129	E	37TH	ST	8	5.20	S	VC	
7	139	46S	348	347	360	1015	E	37TH	ST	8	7.88	S	VC	
8	189	47S	127	126	135	1615	E	43RD	PL	8	6.04	S	VC	CIPP ONLY
8	189	47S	129	127	125	1631	E	43RD	PL	8	5.98	S	VC	CIPP ONLY
8	189	47S	131	130	30	4319	S	ST LOUIS	AV	8	4.28	S	VC	CIPP ONLY
8	189	47S	135	134	200	4366	S	ST LOUIS	AV	8	6.00	S	VC	
8	189	47S	140	139	125	4347	S	ST LOUIS	AV	8	4.30	S	VC	CIPP ONLY
8	189	47S	256	250	175	1505	E	43RD	ST	15	6.64	C	VC	CIPP ONLY
8	189	47S	268	274	134	4192	S	TRENTON	AV	8	6.20	S	VC	
8	189	47S	276	275	286	1371	E	43RD	ST	8	5.26	D	VC	
8	189	47S	309	308	152	1559	E	41ST	PL	8	9.46	S	VC	
9	190	46S	082	080	98	4315	S	DETROIT	AV	8	8.26	S	VC	CIPP ONLY
10	248	47S	212	201	47	1619	E	46TH	PL	12	6.40	S	VC	
11	314	49S	351	350	135	5528	S	ATLANTA	AV	8	7.28	S	VC	
12	315	47S	596	595	37	2110	E	52ND	PL	10	3.30	S	VC	CIPP ONLY
12	315	47S	686	685	118	1634	E	53RD	ST	8	4.50	C	CI	
12	315	47S	594	593	62	5231	S	YORKTOWN	AV	10	3.20	A	VC	
12	315	47S	598	591	200	2107	E	52ND	PL	10	4.04	S	VC	CIPP ONLY
12	315	47S	674	673	99	5126	S	WHEELING	AV	8	8.10	A	VC	CIPP ONLY
13	316	48S	126A	126	60	1146	E	56TH	ST	8	5.72	A	CI	
14	390	49S	031	431	152	2212	E	56TH	PL	8	8.00	D	VC	
14	390	48S	293	292	292	1647	E	61ST	ST	8	5.24	S	VC	
15	473	48S	572	570	88	1852	E	63TH	ST	8	2.92	S	VC	
15	473	49S	063	061	111	2202	E	61TH	ST	8	14.96	A	VC	
16	474	48S	196	195	285	6305	S	MADISON	PL	8	9.28	S	VC	
17	563	49S	528	527	274	6603	S	EVANSTON	CL	8	13.60	S	VC	
18	564	49S	558	557	325	2207	E	67TH	ST	30	10.52	S	CO	CIPP ONLY

## Legend for Rehabilitation Methods

### Clean Line, Install Slip Liner or Cured- in - Place Pipe Liner and Reconnect Services

This Rehabilitation Method is specified for those lines with numerous defects in congested areas where it is not desired or appropriate to excavate and relay a sewer line. The cost basis for this rehabilitation method will be a price per foot and will vary depending upon the diameter of the existing line.

Pipe depth is the depth at upstream manhole (USMHID) location.

### Legend for Manhole Materials

**Surface** Type of material at Manhole Surface

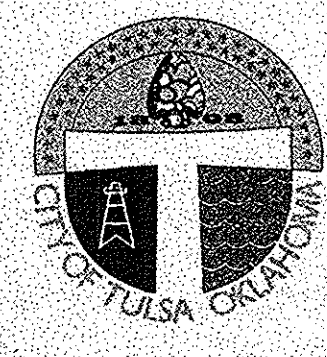

A - Asphalt  
C - Concrete  
D - Dirt  
O - Other  
S - Sod

### Legend for Pipe Materials

**Pipe Material** Type of material for pipe construction

VC - Vitrified Clay  
CO - Concrete  
PV - Polyvinylchloride  
OT - Other  
LI - Lined  
CI - Cast Iron

9952  
10/20/99

 <b>Burns &amp; McDonnell</b> 6450 South Lewis Avenue Suite 220 Tulsa, Oklahoma 74136 Tel: 918 744-7111 Fax: 918 712-9554		<b>CONTRACT NO. 4</b> <b>PIPELINE REHABILITATION SCHEDULE</b> <b>TULSA SOUTHSIDE PLANT INFLUENT CROW CREEK BASIN REHABILITATION</b> <b>SANITARY SEWERS IMPROVEMENTS</b> <b>CITY OF TULSA</b> <b>PROJECT NUMBER : ES 96-07</b>																																					
		<table border="1"> <tr> <td>DRAWN</td><td>SA</td><td>11/15/99</td><td>APPROVED:</td></tr> <tr> <td>DESIGNED</td><td>CWD</td><td>11/15/99</td><td></td></tr> <tr> <td>SURVEY</td><td></td><td></td><td></td></tr> <tr> <td>FIELD MNGR.</td><td></td><td></td><td></td></tr> <tr> <td>Plans and Estimates Prepared by Burns &amp; McDonnell</td><td>SECT. MNGR.</td><td>PROJ. MNGR.</td><td></td></tr> <tr> <td></td><td>NTS</td><td></td><td></td></tr> <tr> <td></td><td>RECOMMENDED:</td><td></td><td></td></tr> <tr> <td></td><td>DEPUTY DIRECTOR</td><td></td><td></td></tr> <tr> <td></td><td>FILE:</td><td>DRAWING:</td><td></td></tr> </table>				DRAWN	SA	11/15/99	APPROVED:	DESIGNED	CWD	11/15/99		SURVEY				FIELD MNGR.				Plans and Estimates Prepared by Burns & McDonnell	SECT. MNGR.	PROJ. MNGR.			NTS				RECOMMENDED:				DEPUTY DIRECTOR				FILE:
DRAWN	SA	11/15/99	APPROVED:																																				
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	DEPUTY DIRECTOR																																						
	FILE:	DRAWING:																																					
		 PUBLIC WORKS DIRECTOR DATE 12/10/99 SHEET 19 OF 20 SHEETS																																					



Sheet No.	ATLAS SHEET	BasinID	USMHID	MHAddress	MHPreDir	MHStName	MHSfx	MHDiameter	MHDepth	SurfaceMaterial	MHMtWall	1000	1020	1045	1050
3	033	62S	10	2520	S	YORKTOWN	AV	48	13.58	S	C		1		
3	033	62S	11	2520	S	YORKTOWN	AV	48	15.14	S	C			1	1
4	094	67S	191	2515	E	36TH	ST	48	6.62	A	B			1	
4	094	67S	212	3525	S	BIRMINGHAM	AV	48	8.20	A	B			1	
4	094	67S	229	3515	S	LEWIS	AV	48	8.92	S	B			1	
4	094	67S	230	3515	S	LEWIS	AV			S		1			
4	094	67S	251	2616	E	33RD	PL	48	7.60	S	B			1	
4	094	67S	301	2458	E	36TH	ST	48	8.30	A	B			1	
5	137	67S	44	3915	S	LEWIS	AV	48	6.70	S	B			1	
5	137	67S	54	3849	S	ATLANTA	PL	48	8.98	S	B			1	
5	137	67S	55	3859	S	ATLANTA	PL	48	8.50	S	B			1	1
5	137	67S	209	3624	S	ATLANTA	AV	48	9.96	S	B			1	
5	137	67S	210	3624	S	ATLANTA	AV	48	11.22	S	B			1	
5	137	67S	213	3631	S	BIRMINGHAM	AV	48	5.46	D	B			1	
6	138	46S	213	3731	S	TRENTON	AV	48	7.36	S	B			1	
6	138	67S	29	3833	S	WHEELING	AV	48	9.24	D	B			1	1
6	138	67S	30	2020	E	38TH	ST	48	8.50	S	B			1	
6	138	67S	117	3649	S	TERWILLIGER	BL	48	12.48	A	B			1	
6	138	67S	122	3649	S	TERWILLIGER	BL	48	12.66	A	B			1	
6	138	67S	124	3611	S	TERWILLIGER	BL	48	21.22	A	B			1	1
6	138	67S	126	3612	S	TERWILLIGER	BL	48	3.76	C	B			1	1
6	138	46S	210	1524	E	37TH	PL	48	4.02	S	B			1	
6	138	46S	214	3721	S	TRENTON	AV	48	13.30	S	B			1	
6	138	46S	216	3721	S	TROOST	AV	48	9.30	S	B			1	
6	138	46S	273	1327	E	37TH	PL	48	4.34	A	B			1	
6	138	46S	274	1442	E	37TH	PL	48	3.46	S	B			1	
6	138	46S	290	1521	E	37TH	ST	48	9.42	S	B			1	
6	138	46S	291	1538	E	36TH	PL	48	12.68	S	C			1	1
6	138	46S	295	1534	E	37TH	ST	48	7.66	S	C			1	
6	138	46S	296	1545	E	37TH	PL	48	7.02	S	B			1	1
6	138	46S	299	1540	E	36TH	ST	48	13.72	S	B			1	1
6	138	46S	300	3609	S	TRENTON	AV	48	11.36	S	B			1	
6	138	46S	305	1601	E	37TH	ST	48	14.06	S	B			1	
6	138	46S	306	1635	E	37TH	ST	48	9.56	S	B			1	1
6	138	46S	309	1721	E	37TH	ST	48	8.50	S	B			1	
6	138	46S	310	3717	S	UTICA	AV	48	5.88	S	B			1	
6	138	46S	316	1626	E	36TH	PL	48	10.76	S	B			1	
6	138	46S	317	1629	E	36TH	CT	48	9.16	S	B			1	
6	138	46S	318	1642	E	36TH	ST	48	5.74	S	B			1	
6	138	46S	321	3611	S	UTICA	AV	48	4.54	A	B			1	
6	138	46S	329	3630	S	WHEELING	AV	48	8.54	S	B			1	
6	138	46S	330	3648	S	WHEELING	AV	48	15.32	S	B			1	1
7	139	46S	157	3919	S	DETROIT	AV	48	6.94	S	B			1	1
7	139	46S	165	1123	E	39TH	ST	48	9.25	C	C		1	1	1
7	139	46S	172	1211	E	39TH	ST	48	8.42	C	B			1	1
7	139	46S	246	3719	S	CINCINNATI	AV	48	4.92	S	B			1	
7	139	46S	251	1017	E	37TH	ST	48	7.40	A	B			1	1
7	139	46S	258	1105	E	38TH	PL	48	6.20	A	B			1	1
7	139	46S	277	3702	S	PEORIA	AV	48	7.54	A	B			1	
7	139	46S	347	968	E	36TH	PL	48	7.92	S	B			1	1
8	189	47S	130	4319	S	ST LOUIS	AV	48	4.48	S	B			1	
8	189	47S	134	1534	E	45TH	PL	48	6.26	A	B			1	
8	189	47S	135	4366	S	ST LOUIS	AV	48	7.64	S	B			1	
8	189	47S	139	4355	S	ST LOUIS	AV	48	4.96	S	B			1	
8	189	47S	140	4347	S	ST LOUIS	AV	48	4.30	S	B			1	
8	189	47S	308	1552	E	41ST	ST	48	10.07	S	B			1	1
9	190	46S	80	4315	S	DETROIT	AV	48	8.68	S	C			1	1
10	248	47S	212	1619	E	46TH	PL	48	6.38	S	C			1	
12	315	47S	673	5153	S	UTICA	AV					1			
12	315	47S	591	2107	E	52ND	PL	48	4.07	S	B			1	
12	315	47S	674	5126	S	WHEELING	AV	48	8.10	A	B			1	1
12	315	47S	686	1634	E	53RD	ST	48	4.54	S	B			1	
14	390	49S	31	2212	E	56TH	PL	48	7.28	D	C			1	
14	390	48S	292	1631	E	61ST	ST	48	5.22	S	B			1	1
14	390	48S	293	1647	E	61ST	ST	48	4.50	S	B			1	1
14	390	49S	431	5637	S	ZUNIS	AV	48	8.06	S	C			1	
17	563	49S	527	6623	S	EVANSTON	CL	48	15.82	S	C			1	1
17	563	49S	528	6603	S	EVANSTON	CL	48	13.60	S	C			1	1
18	564	49S	558	2207	E	67TH	ST	48	10.34	S	B			1	1
TOTALS												2	2	66	24

Legend for Rehabilitation Methods

**1000. Locate and Expose Manhole** - This method requires finding or exposing the manhole for inspection by the ENGINEER. The approximate location, based upon the best available record data, is indicated on the drawings. The cost basis for this rehabilitation method will be a price per each.

**1020. Realign and Grout Casting** - The casting has been loosened from the chimney or cone. The casting shall be positioned properly over the chimney or cone and grouted back in place, sealing the connection to prevent leaks. The cost basis for rehabilitation method will be a price per each.

**1045. Clean Manhole, Repair Steps as Needed & Coat Area Around Steps** - This is required due to missing or broken step(s), and/or where they are embedded into the manhole wall. Rehabilitation will be similar to RM1050 below except that it applies only to the step(s) and the immediate area around the step(s). The cost basis for this rehabilitation method will be a price per manhole.

**1050. Stop I/I, Clean Manhole, Repair as Needed & Coat** - This is required when leaks are evident in the manhole; and, usually has missing mortar or brick, and/or may have severe deterioration of the manhole or a significant component of the manhole. Prior to repairs the manhole shall be cleaned using a high pressure washer or manually washed to remove grease or dirt that would prevent the repair materials from adhering to the interior surface of the manhole. Repairs may consist of replacing bricks, patching concrete with a patch mix or grout and stopping leaks by using packing materials, chemical grout or applying exterior waterproofing compounds. Any roots shall be removed and a root inhibitor applied before the other repairs are made. After repairs are made, the entire interior surface shall be coated with special purpose waterproofing materials that are resistant to chemical degradation common to sanitary sewers. The cost basis for this rehabilitation method will be a price per vertical foot.

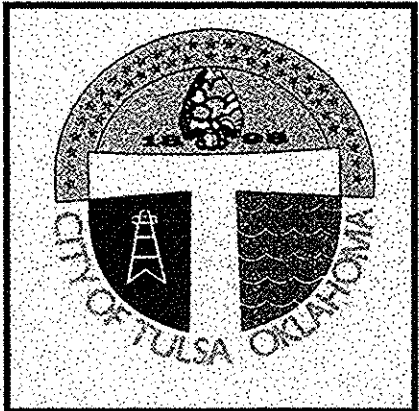
Legend for Manhole Materials

Surface Material - Type of surface material at manhole

A - Asphalt  
C - Concrete  
D - Dirt  
O - Other  
S - Sod

MHMtWall - Manhole wall material

B - Brick  
C - Concrete



Burns  
&  
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CONTRACT NO. 4  
MANHOLE REHABILITATION SCHEDULE

TULSA SOUTHSIDE PLANT INFLUENT CROW CREEK BASIN REHABILITATION  
SANITARY SEWERS IMPROVEMENTS  
CITY OF TULSA

PROJECT NUMBER : ES 96-07

DRAWN	SA	11/19/99	APPROVED:
DESIGNED	CWD	11/15/99	
SURVEY			
FIELD MNGR.			
SECT. MNGR.			
PROJ. MNGR.			
PLAN SCALE:			
NTS			
RECOMMENDED:			
DEPUTY DIRECTOR			
FILE: DRAWING:			
DATE			
SHEET 20 OF 20 SHEETS			