PLANS FOR REHABILITATION & RECONSTRUCTION OF
101ST STREET SOUTH
FROM HARVARD TO YALE

ENGINEERING SERVICES DEPARTMENT
CITY OF TULSA, OKLAHOMA
ACCOUNT NO: 6324-5453101-040522104006
PROJECT NO. 104006
TMUA-W 14-60
MS 630

SURVEY CONTROL DATA

1. A. HORIZONTAL DATUM IS THE O.D.O.T. PLANE COORDINATE SYSTEM, N.A.D. 83(1993) LAMBERT PROJECTION, NORTH ZONE ADJUSTED TO N.G.S. STATE PLANE COORDINATES, UTILIZING G.P.S. THE O.D.O.T. PLANE COORDINATES ARE DERIVED BY MULTIPLYING THE N.G.S. PLANE COORDINATES BY THE COMBINED ADJUSTMENT FACTOR OF 1.00010. THE O.D.O.T. PLANE IS 716.3 METERS ABOVE SEA LEVEL.
   B. ACCURACY – 3RD ORDER OR BETTER
2. BEARINGS:

   THE BEARINGS SHOWN HEREIN OR HEREON ARE GRID BEARINGS DERIVED FROM THE USC & GS OKLAHOMA PLANE COORDINATE SYSTEM AND ARE NOT ASTRONOMICAL. THE ANGLE OF VARIANCE BETWEEN GRID NORTH (GN) AND TRUE NORTH (TN) IS DEPICTED DIAGRAMMATICALLY.

3. VERTICAL CONTROLS:

   A. LEVEL DATUM IS MEAN SEA LEVEL (USC & GS).
   B. ACCURACY – 3RD ORDER OR BETTER.

TULSA BENCHMARK FROM CITY OF TULSA CONTROL DATA PREPARED BY AERIAL DATA SERVICE MONUMENTED JULY, 1992 STATION NO. 33 MON.
TYPE 5/8" I.P. 1 1/2" AL. CAP SET.
N: 377,010.593
E: 2,585,830.860
ELEV: 746.585
LAT: 36°01'02.86120"
LONG: 95°54'44.53045"

UTILITY COORDINATION

	NUMBER	CONTACT	NOTIFIED
COX COMMUNICATIONS	(918) 286-4716	BRANDON WADE	
PUBLIC SERVICE CO.	(918) 250-6257	ADAM FIELDS	
(ONEGAS) ONG	(918) 831-8259	RANDY STALCUP	
ONEOK	(918) 588-7782	ZACK THOMPSON	
ATT/SBC	(918) 576-2142	STEVE SPRADLIN	
OGE/ENOGEX	(918) 293-6448	DEAN GREEN	
MBO VIDEO	(918) 346-3639	CHARLIE PICKLE	
EASYTEL COMMUNICATIONS	(918) 523-8025	ROB COLLINS	
MCI	(972) 729-6016	DEAN BOYER	
EXPLORER	(918) 493-5100	CHASE GIPSON	
CITY OF TULSA	(918) 596-9649	STEVE HARDT	

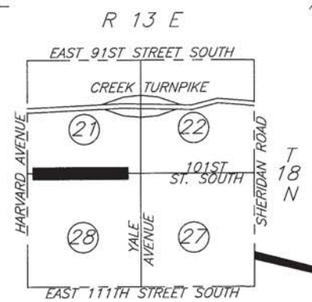
DESIGN DATA

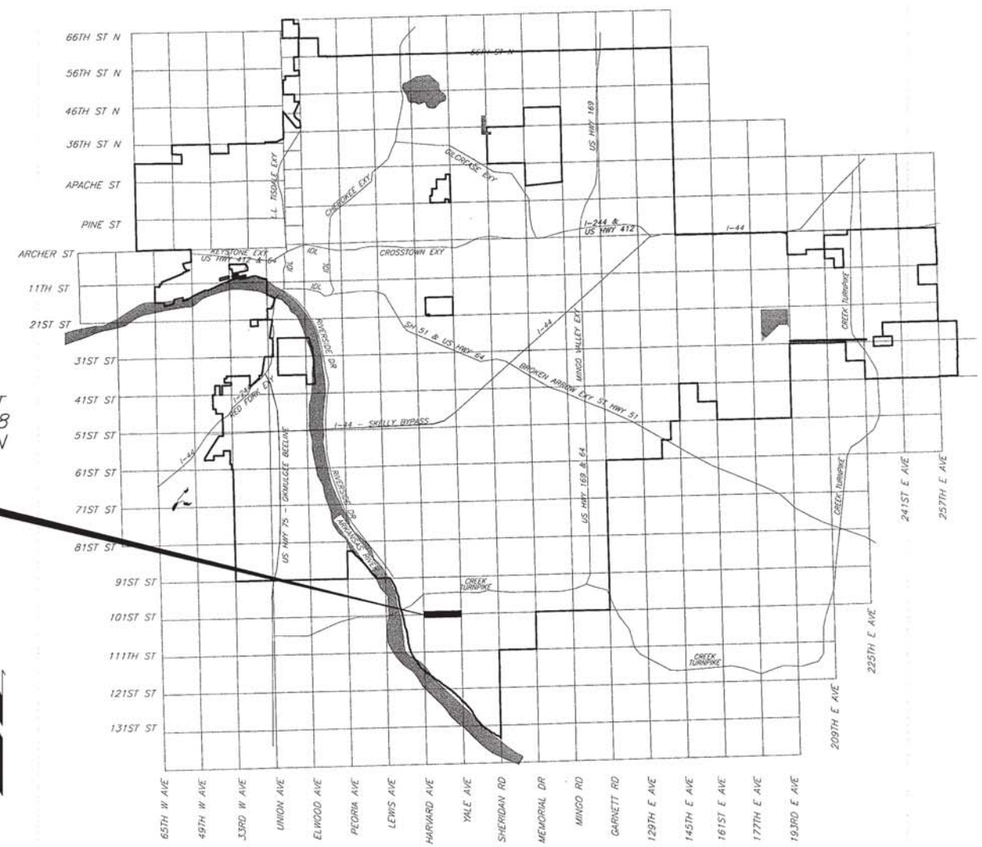
ADT 2013	17,400
ADT 2033	31,500
V	40 MPH
ESAL'S	7.0M
K SAG	64
K CREST	44

PROJECT CONSISTS OF 1.67 LANE MILES OF ROADWAY RECONSTRUCTION

LEGEND

- PROPOSED ROADS
- SECTION LINES
- QUARTER SECTION LINES
- X — FENCES (EXISTING)
- EXISTING GRADE (PROFILE)
- EXISTING ROADS
- 690 — EXISTING INDEX CONTOURS
- EXISTING INTERMEDIATE CONTOURS
- CONSTRUCTION REFERENCE LINE
- PROPOSED GRADE (PROFILE)
- TUG — COMMUNICATION LINES (EXISTING)
- OHE — POWER LINES (EXISTING)
- PUG — POWER LINES UNDERGROUND (EXISTING)
- G — GAS LINE (EXISTING)
- SS — SANITARY SEWER LINES (EXISTING)
- W — WATER LINES (EXISTING)
- SS — SANITARY SEWER LINES (PROPOSED)
- W — WATER LINES (PROPOSED)
- BUILDINGS (EXISTING)
- DRAINAGE STRUCTURES (EXISTING)
- DRAINAGE STRUCTURES (PROPOSED)
- RIGHT-OF-WAY LINES (EXISTING)
- RIGHT-OF-WAY LINES (PROPOSED)
- UTILITY EASEMENT (PROPOSED)
- TEMP. CONST. EASE.
- FLOWLINE (EXISTING)
- FLOWLINE (PROPOSED)
- TOE OF SLOPE (PROPOSED)
- GENERAL UTILTY EASEMENT (GUE)





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ROADWAY
2009 OKLAHOMA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION-ENGLISH, APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION, JANUARY 4, 2009, AND CURRENT CITY OF TULSA STANDARDS SHALL GOVERN.

WATER & SEWER
THIS PROJECT COMPLIES WITH ALL OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY (ODEQ) REQUIREMENTS. ENTIRE PROJECT IS WITHIN CORPORATE LIMITS OF CITY OF TULSA. CURRENT CITY OF TULSA ENGINEERING SERVICES DEPARTMENT STANDARD SPECIFICATIONS AND STANDARD DETAILS SHALL GOVERN.

BEFORE YOU DIG OKIE811 CALL OKIE

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CEC CORPORATION
4617 E. 91st Street S.
Tulsa, Oklahoma 74137
(918) 663-9401

C.A. #32 EXPIRES 06/30/16

REGISTERED PROFESSIONAL ENGINEER — JEREMY P. STAHLE 21725 — OKLAHOMA

APPROVED:

CITY ENGINEER — DATE 10/26/16

ADVERTISEMENT DATE:

11.04.16

ENGINEER'S CERTIFICATION:

Jeremy P. Stahle — 5/4/15

JEREMY P. STAHLE, P.E. NO. 21725 — DATE

PLOT DATE: May 4, 2015, DRAWING NAME: 1 TITLE.DWG

101ST STREET SOUTH FROM HARVARD TO YALE, CITY OF TULSA PROJECT NO. 104006, TMUA-W 14-60

PLOT DATE: May 4, 2015, DRAWING NAME: 2 PAY ITEMS & NOTES (ROADWAY).DWG

BASE BID - ROADWAY

ITEM NO.	SPEC. NO.	DESCRIPTION	PAY ITEM NOTES	UNIT	QUANTITY
1	201(A)	CLEARING AND GRUBBING	1,48,58	AC	3.4
2	202(A)	UNCLASSIFIED EXCAVATION	2,10,40	CY	23,520
3	205(A)	TYPE A-SALVAGED TOPSOIL		CY	1,858
4	221(C)	TEMPORARY SILT DIKE	12,59	LF	301
5	221(D)	TEMPORARY SEDIMENT FILTER	12,59	EA	27
6	SPECIAL	(SP) TURF REINFORCEMENT MAT	67	SY	2,200
7	230(A)	SOLID SLAB SODDING (LIKE KIND)	13,14,15	SY	14,578
8	303(A)	AGGREGATE BASE TYPE A	2,4	CY	5,917
9	310(B)	SUBGRADE, METHOD B	2	SY	18,311
10	325	SEPARATOR FABRIC	2,5	SY	22,216
11	409(A)	FABRIC REINFORCEMENT	8	SY	6,574
12	411(B)	SUPERPAVE, TYPE S3 (PG 70-28 OK)	16,17,18	TON	3,821
13	411(B)	SUPERPAVE, TYPE S3 (PG 64-22 OK)	16,17,18	TON	4,298
14	411(C)	SUPERPAVE, TYPE S4 (PG 70-28 OK)	16,17,18	TON	2,222
15	411(C)	SUPERPAVE, TYPE S5 (PG 64-22 OK)	16,17,18	TON	369
16	509(A)	CLASS AA CONCRETE	65	CY	44
17	509(D)	CLASS C CONCRETE	20,66	CY	185
18	510(A)	SEGMENTAL BLOCK RETAINING WALL	43	SY	473
19	511(A)	REINFORCING STEEL	65	LB	5,970
20	601(G)	TYPE III LAID UP RIP RAP		SY	59
21	609(B)	2'-2" COMB. CURB & GUTTER (8" BARRIER)	20,22,23,24	LF	1,000
22	610(A)	4" CONCRETE SIDEWALK	20,23,24,25	SY	3,306
23	610(A)	4" DECORATIVE CONCRETE SIDEWALK	20,23,25,52	SY	137
24	610(B)	6" CONCRETE DRIVEWAY	20,23,24,25	SY	52
25	610(B)	8" CONCRETE DRIVEWAY (H.E.S)	20,23,24,26	SY	326
26	610(I)	TACTILE WARNING DEVICE-NEW		SF	160
27	611(A)	MANHOLE (4' DIA.), COMPLETE IN PLACE	26,28,34,44	EA	1
28	611(A)	MANHOLE (6' DIA.), COMPLETE IN PLACE	26,28,34,44	EA	2
29	611(B)	ADDITIONAL DEPTH IN MANHOLE (4' DIA.)	44	VF	5
30	611(B)	ADDITIONAL DEPTH IN MANHOLE (6' DIA.)	44	VF	24
31	611(G)	STANDARD DROP INLET (DESIGN NO. 2) (COT 770), COMPLETE IN	22,26,31,32,33,34	EA	10
32	611(G)	STANDARD DROP INLET (DESIGN NO. 1) (COT 771), COMPLETE IN	22,26,31,32,33,34	EA	4
33	611(G)	STANDARD DROP INLET (DESIGN NO. 2) (COT 771), COMPLETE IN	22,26,31,32,33,34	EA	1
34	611(G)	CI DES. 2(D) INLET, COMPLETE IN PLACE	31,32,33,34,56	EA	1
35	611(G)	CI DES. 2(A+B) INLET, COMPLETE IN PLACE	31,32,33,34,56	EA	1
36	611(G)	CI DES. 2(D) INLET W/ ACCESS MANHOLE, COMPLETE IN PLACE	31,32,33,34,56	EA	1
37	611(H)	ADDITIONAL DEPTH IN INLET (COT DROP INLET) (COT 770)	61	VF	44
38	611(H)	ADDITIONAL DEPTH IN INLET (COT DROP INLET) (COT 771)	61	VF	17
39	611(H)	ADDITIONAL DEPTH IN INLET (CI INLET)	35	VF	20
40	611(J)	REPLACEMENT OF INLET FRAME	27	EA	3
41	611(K)	REPLACEMENT OF INLET GRATE	27	EA	3
42	612(A)	MANHOLES ADJUSTED TO GRADE	20,21,26,27,28	EA	2
43	612(E)	VALVE BOXES ADJUSTED TO GRADE	20,21,27,28	EA	8
44	612(F)	METER BOXES ADJUSTED TO GRADE	20,21,26,27,28	EA	2
45	613(A)	12" R.C. PIPE CLASS III, ROUND, COMPLETE IN PLACE	30,32,45,70	LF	8
46	613(A)	15" R.C. PIPE CLASS III, ROUND, COMPLETE IN PLACE	30,32,45,70	LF	544
47	613(A)	18" R.C. PIPE CLASS III, ROUND, COMPLETE IN PLACE	30,32,45,70	LF	302
48	613(A)	24" R.C. PIPE CLASS III, ROUND, COMPLETE IN PLACE	30,32,45,70	LF	224
49	613(A)	30" R.C. PIPE CLASS III, ROUND, COMPLETE IN PLACE	30,32,45,70	LF	450
50	613(A)	36" R.C. PIPE CLASS III, ROUND, COMPLETE IN PLACE	30,32,45,70	LF	37
51	613(A)	36" X 22" R.C. PIPE CLASS A-III, ARCHED, COMPLETE IN PLACE	30,32,45,70	LF	27
52	613(L)	15" PREFAB. CULVERT END SECTION, ROUND		EA	2
53	613(L)	18" PREFAB. CULVERT END SECTION, ROUND		EA	7
54	613(L)	24" PREFAB. CULVERT END SECTION, ROUND		EA	2
55	613(L)	36" X 22" PREFAB. CULVERT END SECTION, ARCHED		EA	2
56	619(A)	REMOVAL OF STRUCTURES & OBSTRUCTIONS	10,21,27,51,53,57	EA	1
57	619(B)	REMOVAL OF FENCE	10	LF	1,934
58	619(B)	REMOVAL OF ASPHALT PAVEMENT	10,21	SY	9,721
59	619(B)	REMOVAL OF CONCRETE PAVEMENT	10,21	SY	88
60	619(B)	REMOVAL OF CONCRETE DRIVEWAY	10,21	SY	57
61	619(B)	REMOVAL OF ASPHALT DRIVEWAY	10,21	SY	775
62	624(E)	5' CHAINLINK FENCE (TEMPORARY)	68	LF	900
63	624(SP)	6' WOODEN PRIVACY FENCE	62	LF	519
64	624(SP)	8' WOODEN PRIVACY FENCE	62	LF	106
65	624(SP)	6' WOODEN PRIVACY FENCE W/ BRICK COLUMNS	62	LF	164
66	624(SP)	8' WOODEN PRIVACY FENCE W/ BRICK COLUMNS	62	LF	415
67	624(SP)	4' SPLIT 3 RAIL FENCE	62	LF	565
68	629(E)	REMOVE AND RESET MAILBOX		EA	2
69	640(A)	FIELD OFFICE		EA	1
70	641	MOBILIZATION		EA	1
71	642(B)	CONSTRUCTION STAKING	7,47	EA	1
72	802(B)	4" PVC SCH. 40 PLASTIC CONDUIT TRENCHED	69	LF	115
73	802(B)	6" PVC SCH. 40 PLASTIC CONDUIT TRENCHED	69	LF	180
74	810(F)	(PL) WOOD POLE	63	EA	2
75	827	SOLID STATE FLASHER CONTROLLER (TYPE I)	64	EA	1
76	831	3WAY 1SEC. ADJ. SIG. HD. S-22		EA	2
77	855(A)	TRAFFIC STRIPE (PLASTIC) (4" WIDE)	36	LF	20,064
78	855(A)	TRAFFIC STRIPE (PLASTIC) (8" WIDE)		LF	229
79	855(A)	TRAFFIC STRIPE (PLASTIC) (24" WIDE)		LF	0
80	855(B)	TRAFFIC STRIPE (PLASTIC) (ARROW)		EA	7
81	857(A)	CONSTRUCTION TRAFF. STR. (PAINT)(4" WIDE)		LF	8,000
82	880(B)	CONSTRUCTION SIGNS 0 TO 6.25 SF	37,38,46	SD	3,500

BASE BID - ROADWAY (CONTINUED)

ITEM NO.	SPEC. NO.	DESCRIPTION	PAY ITEM NOTES	UNIT	QUANTITY
83	880(B)	CONSTRUCTION SIGNS 6.26 TO 15.99 SF	37,38,46	SD	9,000
84	880(B)	CONSTRUCTION SIGNS 16.00 TO 32.99 SF	37,38,46	SD	3,500
85	880(C)	BARRICADES (TYPE III)	37,38,46	SD	6,000
86	880(E)	WARNING LIGHTS (TYPE A)	38	SD	12,000
87	880(F)	DRUMS	37,38,46	SD	5,000
88	880(G)	TUBE CHANNELIZERS	37,46	SD	7,000
89	880(I)	FLAGGER	39	FD	120
90	882(B)	REMOTE CONTROLLED CHANGEABLE MESSAGE SIGN	46	SD	1,350
91	COT 608(A)	GROUND SIGN	37	SF	91
92	COT 608(C)	1 - 1/2" SIGN POST		LF	8
93	COT 608(C)	1 - 3/4" SIGN POST		LF	126
94	COT 608(E)	2" SIGN POST		LF	36
95	SPECIAL	TYPE I AC PATCH	9	CY	481
96	SPECIAL	OWNER ALLOWANCE		ALLOW	1
97	SPECIAL	URBAN RIGHT OF WAY RESTORATION	11,14,29,41,42	EA	1
98	SPECIAL	PROJECT SIGN (COT STD. 102)	46	EA	2
99	SPECIAL	QUICK SET FLOWABLE FILL	19,32,60	CY	50
100	SPECIAL	HANDICAP RAMP		EA	15
101	SPECIAL	REMOVE TREES 6" - 12"		EA	193
102	SPECIAL	REMOVE TREES 13" - 18"		EA	27
103	SPECIAL	REMOVE TREES 19" - 24"		EA	15
104	SPECIAL	REMOVE TREES 25" - 30"		EA	11
105	SPECIAL	REMOVE TREES 31" - 36"		EA	1
106	SPECIAL	REMOVE TREES MORE THAN 43"		EA	1

PAY ITEM NOTES (ROADWAY)

1. ALL COSTS FOR REMOVING TREES LESS THAN 6" DIAMETER, SHRUBS, STUMPS, POSTS, AND ALL OTHER DEBRIS AND/OR OBSTRUCTIONS NOT COVERED BY A SEPARATE PAY ITEM ARE INCLUDED IN THE PRICE BID.

2. THIS QUANTITY INCLUDES AN ADDITIONAL 5% ABOVE PLAN QUANTITY FOR UNDERCUTTING OF UNSUITABLE SUBGRADE MATERIAL OR ADDITIONAL PATCHING AS DIRECTED BY THE ENGINEER.

3. TYPE A AGGREGATE BASE WAS ESTIMATED TO BE USED AS THE BASE MATERIAL FOR 90% OF THE PATCHING. QUICK SET FLOWABLE FILL WAS ESTIMATED TO BE USED AS THE BASE MATERIAL FOR 10% OF THE PATCHING. ACTUAL QUANTITIES TO BE DETERMINED BY THE ENGINEER.

4. INCLUDES COMPACTION OF AGGREGATE TO 98% AASHTO T180 MODIFIED PROCTOR.

5. SEPARATOR FABRIC SHALL BE USED AT ALL PAVEMENT PATCHES AND RECONSTRUCTION SECTIONS. THE SEPARATOR FABRIC SHALL BE CUT AND OVERLAPPED A MINIMUM OF 2 FT AT ALL EDGES OF THE REPAIR.

6. THIS ITEM INCLUDES ALL COSTS ASSOCIATED WITH COLD MILLING AND TO PROVIDE BUTT JOINTS AS REQUIRED. NO ADDITIONAL PAYMENT SHALL BE MADE FOR COLD MILLING BEYOND THE AVERAGE DEPTH SHOWN ON THE TYPICAL SECTIONS.

7. CONSTRUCTION STAKING SHALL INCLUDE SURVEYING AND THE FURNISHING, PLACING, AND MAINTAINING OF THE CONSTRUCTION LAYOUT STAKES NECESSARY FOR THE PROPER COMPLETION AND INSPECTION OF THE ENTIRE PROJECT.

8. FABRIC REINFORCEMENT SHALL BE USED ON OVERLAY AREAS. THE COST OF BITUMINOUS BINDER FOR FABRIC REINFORCEMENT SHALL BE INCLUDED IN THE UNIT COST OF THIS PAY ITEM. THE BITUMINOUS BINDER SHALL MEET ODOT STANDARD SPECIFICATIONS AND THE RECOMMENDATIONS OF THE FABRIC REINFORCEMENT MANUFACTURER.

9. THIS PAY ITEM INCLUDES THE FOLLOWING:
   A. SAW CUTTING
   B. REMOVAL OF THE EXISTING CONCRETE AND/OR ASPHALTIC CONCRETE ROADWAY (CY)
   C. TYPE S3 ASPHALTIC CONCRETE OR PC CONCRETE COMPLETE AND IN PLACE PER DETAIL
   D. SEALING OF EDGES AND TACK COAT

   DOES NOT INCLUDE THE FOLLOWING:
   A. UNCLASSIFIED EXCAVATION
   B. SUBGRADE METHOD B (SY)
   C. SEPARATOR FABRIC (SY)
   D. AGGREGATE BASE (TYPE A)
   E. ASPHALT CONCRETE LEVELING OR SURFACE COURSE

10. WASTE MATERIAL TO BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE IN A MANNER APPROVED BY THE ENGINEER.

11. CONTRACTOR SHALL REPAIR ANY IRRIGATION SYSTEMS DAMAGED OR REQUIRING RELOCATION DURING THE CONSTRUCTION OF THIS PROJECT TO THE SATISFACTION OF THE PROPERTY OWNER AND CITY ARBORIST. COST SHALL BE INCLUDED IN THE PRICE BID.

12. EROSION PROTECTION SHALL BE PLACED AROUND DRAINAGE INLETS AS REQUIRED TO PREVENT ENTRANCE OF EROSION MATERIAL. EROSION PROTECTION SHALL BE PLACED AS NECESSARY TO PREVENT EROSION WASH TO ADJACENT PROPERTY. EROSION PROTECTION SHALL BE REMOVED AT THE END OF THE PROJECT AS DIRECTED BY THE ENGINEER, COST TO BE INCLUDED IN THE PRICE BID. THE PRICE INCLUDES THE COST OF SEDIMENT REMOVAL PER THE STORMWATER MANAGEMENT PLAN.

13. THE PAY ITEM FOR SOLID SLAB SODDING INCLUDES QUANTITIES FOR PLACEMENT AND COMPACTION OF SUITABLE BACKFILL AND SOD AT EXISTING GRASS AREAS WHICH MAY BE DAMAGED DURING CONSTRUCTION OF CURBS, SIDEWALKS, DRIVEWAYS, AND OTHER MISCELLANEOUS ITEMS. THE QUANTITIES ARE BASED ON UTILIZING A 3 FOOT WIDE STRIP IN THESE AREAS. THE SOD SHALL BE OF LIKE KIND TO THE EXISTING SOD. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE REPAIR OR REPLACEMENT OF DAMAGE TO EXISTING GRASS THAT EXCEEDS THESE LIMITS.

14. PAY ITEM INCLUDES ALL MOWING WITHIN THE RIGHT-OF-WAY AS DIRECTED DURING CONSTRUCTION.

15. COST OF WATERING AND FERTILIZING SHALL BE INCLUDED. FERTILIZERS SHALL BE 10-20-10 AND SHALL BE APPLIED AT THE RATE OF 1.5 LBS PER 10 SQ YDS. FERTILIZER SHALL BE APPLIED PER SECTION 230.04H OF ODOT STANDARD SPECIFICATIONS. WATERING SHALL BE APPLIED AS NECESSARY UNTIL VEGETATION IS ESTABLISHED OR UNTIL THE WORK IS ACCEPTED AS COMPLETE.

16. THE COST OF TACK COAT, EDGE JOINT SEAL MATERIAL AND SCREENINGS FOR BLOTTING, AND ALL LABOR ASSOCIATED WITH THESE ITEMS, SHALL BE INCLUDED IN ASPHALT CONCRETE.

17. ESTIMATED AT 112 LBS PER SQ YD PER 1 INCH THICK.

18. ODOT PAY FACTOR FOR AVERAGE LOT DENSITY SHALL NOT BE USED FOR THIS PROJECT. FAILURE TO REACH AVERAGE LOT DENSITY OF 92%-97% WILL RESULT IN REJECTION OF WORK.

19. LOCATIONS TO BE DETERMINED IN THE FIELD AND WORK TO BE PREFORMED AT THE DIRECTION OF THE FIELD ENGINEER. QUANTITY IS ESTIMATED AND MAY BE OMITTED IN ITS ENTIRETY.

20. THE USE OF FLY-ASH IN CONCRETE IS PROHIBITED.

21. ALL SAW CUTTING AND REMOVAL SHALL BE INCLUDED IN THE COST OF THE ITEM TO BE ADJUSTED, REMOVED, REPAIRED, OR REPLACED.

22. THIS ITEM SHALL BE MEASURED AS THE ACTUAL AMOUNT OF CURB AND GUTTER INSTALLED. NO PAYMENT WILL BE MADE FOR CURB AND GUTTER THROUGH DRIVEWAYS AND INLETS.

23. INCLUDES ALL COST OF SAWED JOINTS AND SEALING CONTROL JOINTS AND EXPANSION JOINTS.

24. CURB AND GUTTER AND/OR SIDEWALK ASSOCIATED WITH THE DRIVEWAY AND THROUGH THE DRIVEWAY IS INCLUDED IN THE COST OF THE DRIVEWAY.

25. ONE SIDEWALK PANEL ON EACH SIDE OF DRIVEWAYS SHALL BE A MINIMUM OF 6" THICK OR MATCH EXISTING DRIVEWAY THICKNESS, WHICHEVER IS GREATER. NO ADDITIONAL PAYMENT SHALL BE MADE FOR THE COST OF THE THICKENED SIDEWALK THROUGH THIS AREA.

26. THIS ITEM SHALL INCLUDE THE COST OF NEW MANHOLE FRAME AND COVER PER CITY OF TULSA STD NO. 752, NO. 753 AND STD NO. 754.

27. ALL SANITARY AND STORM SEWER MANHOLE CASTINGS AND LIDS THAT ARE LOCATED IN THE STREET AND ARE DISTURBED BY THE CONTRACTOR SHALL BE REPLACED WITH NEW LIDS AND CASTINGS AND THE OLD ONES SHALL BE SALVAGED AND DELIVERED TO THE METAL RECYCLE BINS IN THE STOCKROOM AREA AT SEWER OPERATIONS AND MAINTENANCE, 9319 E. 42ND STREET NORTH, BETWEEN THE HOURS OF 7:30 AN AND 3:00 PM MONDAY THROUGH FRIDAY.

28. THE TOTAL COST FOR RUBBERIZED ASPHALT AND/OR SILICONE AT MANHOLES, VALVE BOXES, INLETS, AND INLET APRONS, SHALL BE INCLUDED.

29. HOUSE NUMBERS SHALL BE REPLACED WHEN NECESSARY DUE TO CURB REPAIR AND DRIVEWAY RECONSTRUCTION. COST TO BE INCLUDED IN URBAN RIGHT OF WAY RESTORATION. CONTRACTOR SHALL REESTABLISH DRAINS, ROOF DRAINS AND OTHER DRAINAGE THROUGH THE CURBS IN ACCORDANCE WITH CITY OF TULSA STANDARD 758.

30. REINFORCED CONCRETE PIPE TO BE CLASS III. ALL REINFORCED CONCRETE PIPE AND MANHOLES TO BE SUPPLIED WITH AN OMNI-FLEX JOINT GASKET OR APPROVED EQUAL. MASTIC JOINT SEALANT SHALL NOT BE ALLOWED.

31. INCLUDES THE COST REQUIRED TO MAKE CONNECTION AND REMOVAL OF EXISTING INLETS. THE COST OF PC CONCRETE CURB AND GUTTER THROUGH THE INLET, 5' EACH SIDE OF THE INLET, AN THE PC CONCRETE INLET APRON SHALL BE INCLUDED. GRATE AND FLOWLINE ELEVATIONS SHALL MATCH EXISTING CONDITIONS UNLESS OTHERWISE NOTED IN THE PLANS.

32. QUICK SET FLOWABLE FILL TO BE USED TO BACKFILL AROUND STREET CURB INLETS AND PIPES AS DIRECTED BY THE ENGINEER.

33. ALL INLETS TO BE CAST IN PLACE CONCRETE OR PRECAST CONCRETE. NO BRICK INLETS SHALL BE ALLOWED. INLETS TO BE CONPLETE IN PLACE. ALL PIPE REPLACEMENT DUE TO REMOVAL OF INLET SHALL BE APPROVED BY ENGINEER. PIPE TO BE SIZE OF EXISTING PIPE OR LARGER AS SPECIFIED.

34. NO MASONRY STRUCTURES SHALL BE CONSTRUCTED WITHIN THE RIGHT OF WAY.

35. ADDITIONAL DEPTH IN INLET SHALL BE MEASURED AND PAID FOR ALL INLETS EXCEEDING 3.71 VERTICAL FT, CALCULATED FROM THE CENTER ELEVATION OF THE LOWEST CAST IRON CURB TO THE FLOWLINE OF THE OUTLET PIPE.

36. ALL PLASTIC PAVEMENT MARKINGS SHALL BE EXTRUDED-APPLIED THERMOPLASTIC. MECHANICALLY APPLIED PREFORMED PLASTIC TAPE ("COLD TAPE") WILL NOT BE ACCEPTED. THERMOPLASTIC PAVEMENT MARKINGS SHALL ONLY BE APPLIED WHEN THE AMBIENT TEMPERATURE EXCEEDS 49°F FOR ALL OF THE SIX HOURS PRIOR TO INSTALLATION AND MAXIMUM WIND GUSTS ARE BELOW 15 MPH AT THE TIME OF APPLICATION. PRICE BID TO INCLUDE FLEX TABS OR LIKE FOR POST CONSTRUCTION LANE MARKINGS/SEPARATION.

37. REFLECTORIZED SHEETING ON SIGNS AND BARRICADES SHALL OF A CUBIC PRISMATIC TYPE AND SHALL MEET THE SPECIFICATIONS ESTABLISHED FOR ASTM D 4956-01 TYPE IX RETROREFLECTIVE SHEETING. REFLECTORIZED SHEETING ON DRUMS AND TUBE CHANNELIZERS SHALL BE OF A HIGH-INTENSITY TYPE AND SHALL MEET THE SPECIFICATIONS ESTABLISHED FOR ASTM D 4956-01 TYPE III RETROREFLECTIVE SHEETING.

38. IF WARNING LIGHTS ARE TO BE USED ON TRAFFIC CONTROL DEVICES, TYPE "A" LIGHTS SHALL ONLY BE USED ON DEVICES WARNING OF UNEXPECTED HAZARDS, AND SHALL NOT BE USED FOR DELINEATION OF THE TRAVELED WAY. ONLY TYPE "C" WARNING LIGHTS SHALL BE USED FOR DELINEATION OF THE TRAVELED WAY, AND TYPE "C" LIGHTS SHALL NOT BE USED FOR ANY OTHER PURPOSE.

39. THE PAY ITEM FOR FLAGGER SHALL BE PAID FOR ON A FLAG DAY (F.D.) BASIS. ONE F.D. IS ONE COMPLETE WORKDAY AS PERFORMED BY THE CONTRACTOR SET FORTH IN THE CONTRACT DOCUMENTS AND SPECIFICATIONS

40. THE CONTRACTOR WILL BE PAID FOR UNCLASSIFIED EXCAVATION ON THE BASIS OF ACTUAL QUANTITY. ANY ADDITIONAL EXCAVATION REQUIRED OR OVERRUN OF PLAN QUANTITY WILL BE PAID FOR ON THE BASIS OF UNIT PRICE BID FOR THE ITEM. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE SURVEY TO VERIFY ANY ADDITIONAL QUANTITIES.

41. A CERTIFIED ARBORIST SHALL OVERSEE ALL PLANTINGS. CONTACT CITY ARBORIST TO ACCEPT FINAL PLANTINGS. CONTACT #: 918-591-4344

42. TREE GRATES ARE NOT ACCEPTABLE PER CITY ARBORIST. CONCRETE PAVERS ARE TO BE USED AS NECESSARY AROUND TREES.

43. UNIT PRICE SHALL INCLUDE COST OF ALL MATERIAL, LABOR, AND EQUIPMENT REQUIRED TO CONSTRUCT WALL PER MANUFACTURER'S RECOMMENDATIONS.

44. ADDITIONAL DEPTH IN A MANHOLE SHALL BE MEASURED FROM 6 FT AS MEASURED FROM THE TOP OF RIM TO THE LOWEST FLOWLINE.

45. SEE SHEET 3.

46. PRICE BID FOR THIS ITEM SHALL BE PAYMENT IN FULL FOR THE INSTALLATION, MAINTENANCE AND SUBSEQUENT REMOVAL OF ALL NECESSARY CONSTRUCTION TRAFFIC CONTROL REQUIRED FOR COMPLETION OF THE PROJECT.

47. THE COST TO REPLACE REMOVED OR DAMAGED SECTION CORNERS AND ALL OTHER PERMANENT RIGHT OF WAY MARKERS SHALL BE INCLUDED IN THE PRICE BID FOR THIS ITEM. NO ADDITIONAL PAYMENT WILL BE MADE.

48. ALL EXISTING DRAINAGE STRUCTURES SHALL BE CLEANED AND CLEARED OF ALL SEDIMENTATION AND DEBRIS TO THE RIGHT OF WAY. COST OF CLEARING SHALL BE INCLUDED IN THE PRICE BID.

49. NOT USED.

50. NOT USED.

51. PAY ITEM INCLUDES REMOVAL OF ALL STRUCTURES AND OBSTRUCTIONS WITHIN PROJECT LIMITS NOT SPECIFIED BY OTHER ITEMS OF WORK.

52. BOMANITE-BOMACRON, PATTERNED CONCRETE OR EQUAL, USE BRICK RUNNING BOND PATTERN, COLONIAL RED COLOR. PAINTING OF DECORATIVE CONCRETE IS PROHIBITED.

53. INCLUDES SAWING NOT INCLUDED IN OTHER ITEMS OF WORK.

54. NOT USED.

55. NOT USED.

56. FOR INLET DESIGN NUMBERS REFER TO CITY OF TULSA STANDARD NO. 755.

57. INCLUDES THE REMOVAL OF EXISTING SIGNS.

58. DO NOT REMOVE ANY TREES, UNLESS SPECIFIED IN PLANS, WITHOUT PRIOR APPROVAL OF FIELD ENGINEER.

FOR PAY ITEM NOTES 58-68, SEE SHEET 3

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA
5/4/15

REVISION	BY	DATE
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PAY ITEMS & NOTES (ROADWAY)

PROJECT NO. 104006

101ST STREET-HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC — CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

PLAN SCALE:				APPROVED:
N/A	DRAWN	J.R.C.	07/2014	
	DESIGNED	J.P.S.	07/2014	
	SURVEY	A.K.H.	08/2012	
PROFILE SCALES:	PROJ. MGR.	BDC	8/15	
HORIZONTAL: N/A	LEAD ENGR.	DT	1/16	
	FIELD MGR.	RBW	3/16	
VERTICAL N/A	RECOMMENDED: DESIGN MANAGER	HMS	6/16	CITY ENGINEER
DRAWING: 2 PAY ITEMS & NOTES (ROADWAY).DWG				DATE 11.04.16
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 2 OF 181

PAY ITEM NOTES (ROADWAY) (CONTINUED)

59. INCLUDES THE COST OF SEDIMENT REMOVAL PER THE STORMWATER MANAGEMENT PLAN.

60. ABANDONED STORM SEWER PIPES SHALL BE COMPLETELY FILLED WITH FLOWABLE FILL.

61. ADDITIONAL DEPTH IN COT STANDARD DROP INLET SHALL BE MEASURED AND PAID FOR ALL INLETS EXCEEDING THE STANDARD INLET DEPTH PER CITY OF TULSA STD 770, 771, AND 772.

62. FENCE SHALL BE REPLACED IN LIKE KIND, INCLUDING WOODEN SLAT WIDTH, BRICK STYLE & COLOR, COLUMN DIMENSIONS, ETC. WOODEN PRIVACY FENCE TO BE CONSTRUCTED WITH STEEL POSTS.

63. WOOD POLE TO MEET THE MATERIAL SPECIFICATIONS AND INSTALLED PER ODOT STD. SWD2-1-0.

64. INCLUDES ALL COSTS ASSOCIATED WITH INSTALLING SPAN WIRE FLASHING LIGHT SYSTEM. NO ADDITIONAL PAYMENT SHALL BE MADE.

65. COMPLY WITH THE REQUIREMENTS OF THE 2009 OKLAHOMA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EXCEPT AS MODIFIED BY THE PLANS AND SPECIAL PROVISIONS.

66. INCLUDES COST FOR ALL STEEL REINFORCING IN PAVED DITCHES AS REQUIRED IN THE PLANS.

67. TURF REINFORCEMENT MAT (TRM) SHALL BE LANDLOK 300, OR APPROVED EQUAL. INCLUDES ALL COSTS ASSOCIATED WITH INSTALLING TRM PER MANUFACTURER'S RECOMMENDATIONS AND AS DIRECTED IN THE PLANS. NO ADDITIONAL PAYMENT SHALL BE MADE.

68. TO BE USED AS DIRECTED BY THE ENGINEER FOR TEMPORARY FENCING AS NEEDED DURING CONSTRUCTION.

69. CONDUIT SHALL BE SCH. 40 GREY ELECTRICAL PVC. INCLUDES ALL COSTS ASSOCIATED WITH FURNISHING MATERIALS, TRENCHING, INSTALLING PVC CONDUIT, BACKFILLING AND COMPACTING, AND INSTALLING MARKER PIPES AT BOTH ENDS OF CONDUIT TO THE SATISFACTION OF PSO.

GENERAL CONSTRUCTION NOTES (ROADWAY)

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE 2009 OKLAHOMA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION AND THE CURRENT CITY OF TULSA ENGINEERING SERVICES DEPARTMENT'S STANDARD SPECIFICATIONS AND STANDARD DETAIL AND STANDARD DRAWINGS AND CITY OF TULSA SPECIAL PROVISIONS.

2. THE CONTRACTOR SHALL COMPLY WITH ALL FEDERAL, STATE AND LOCAL LAWS GOVERNING SAFETY, HEALTH AND SANITATION. THE CONTRACTOR SHALL PROVIDE ALL SAFEGUARDS, SAFETY DEVICES AND PROTECTIVE EQUIPMENT, AND TAKE ANY OTHER NEEDED ACTION ON AS HIS OWN RESPONSIBILITY OR AS THE ENGINEER MAY DETERMINE REASONABLY NECESSARY TO PROTECT PROPERTY IN CONNECTION WITH THE PERFORMANCE OF WORK COVERED BY THE CONTRACT.

3. PAY ITEMS SHALL BE AS SPECIFIED ON THE CITY OF TULSA OR ON THE ODOT STANDARD DRAWINGS EXCEPT AS MODIFIED BY THE CONTRACT.

4. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK IN EACH AREA. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT RESULT FROM HIS FAILURE TO LOCATE AND PRESERVE ANY AND ALL UTILITIES.

5. THE LOCATIONS OF THE UTILITIES ARE SHOWN ACCORDING TO ALL AVAILABLE INFORMATION. THE CONTRACTOR SHALL NOTIFY EACH UTILITY OWNER PRIOR TO COMMENCEMENT OF WORK, TO VERIFY BOTH HORIZONTAL AND VERTICAL LOCATIONS. THE FOLLOWING IS A LIST OF UTILITY OWNERS; AT&T, PUBLIC SERVICE COMPANY OF OKLAHOMA (AEP), OKLAHOMA NATURAL GAS (ONG), COX COMMUNICATIONS, MCI/VERIZON, EASYTEL COMMUNICATIONS, WELLSCO VALLOR TELECOM, CITY OF TULSA-WATER AND SEWER, CITY OF TULSA-TRAFFIC OPERATIONS. SEE TITLE SHEET FOR CONTACT INFORMATION.

6. THE CONTRACTOR SHALL GIVE THE NOTIFICATION CENTER OF OKLAHOMA ONE-CALL SYSTEM, INC. NOTICE OF ANY EXCAVATION NO SOONER THAN TEN DAYS NOR LATER THAN 48 HOURS , EXCLUDING SATURDAYS, SUNDAYS AND LEGAL HOLIDAYS, PRIOR TO THE COMMENCEMENT OF WORK. PHONE 1-800-522-6543.

7. THE CONTRACTOR SHALL TAKE REASONABLE PRECAUTIONS TO PREVENT EXCESS MOISTURE FROM INCLEMENT WEATHER OR OTHER SOURCES FROM ENTERING ANY STREET EXCAVATION. IF EXCESS MOISTURE DOES ENTER THE EXCAVATION THROUGH THE NEGLIGENCE OF THE CONTRACTOR AND THE ADJOINING PAVEMENT IS ADVERSELY EFFECTED BY THE EXCESS MOISTURE, THE CONTRACTOR SHALL REPLACE THE ADJOINING PAVEMENT AND SUBBASE AT HIS SOLE EXPENSE.

8. THE CONTRACTOR SHALL PRESERVE THE INTEGRITY OF THE SANITARY SEWER STRUCTURES AND ALL OTHER UTILITY STRUCTURES WITHIN THE PROJECT EXTENTS.

9. THE CONTRACTOR SHALL WORK IN COOPERATION WITH THE CITY OF TULSA TO ESTABLISH, INSTALL, MAINTAIN, AND OPERATE COMPLETE, ADEQUATE, AND SAFE TRAFFIC CONTROLS DURING THE ENTIRE CONSTRUCTION PERIOD. ALL FLAGMEN, BARRICADES, AND TRAFFIC CONTROL DEVICES SHALL BE APPROVED BY THE FIELD ENGINEERING REPRESENTATIVE.

10. CONSTRUCTION SIGNAGE WILL BE INSTALLED IN A MANNER APPROVED BY THE ENGINEER, IN ACCORDANCE WITH CHAPTER VI OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CURRENT ADDITION, AND APPLICABLE ODOT STANDARD DRAWINGS. THE CONTRACTOR SHALL PROVIDE A PROPOSED TRAFFIC CONTROL PLAN FOR APPROVAL BY THE ENGINEER PRIOR TO BEGINNING OF WORK. PRICE BID FOR THIS ITEM SHALL BE PAYMENT IN FULL FOR THE INSTALLATION, MAINTENANCE AND SUBSEQUENT REMOVAL OF ALL NECESSARY CONSTRUCTION TRAFFIC CONTROL REQUIRED FOR COMPLETION OF THE PROJECT.

11. THE CONTRACTOR SHALL NOTIFY THE CITY OF TULSA FIELD ENGINEERING, 918-596-9404, A MINIMUM OF 48 HOURS PRIOR TO COMMENCING WORK OR PRIOR TO REMOVING TRAFFIC SIGNS.

12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPLACEMENT OF ALL EXISTING TRAFFIC SIGNS AND MARKINGS REMOVED OR DAMAGED AS LISTED IN THE SIGNAGE SCHEDULE FOR THE PROJECT. ALL SIGNS AND POLES PROVIDED SHALL BE NEW AND UNDAMAGED AND SHALL MEET THE REQUIREMENT OF COT SPECIFICATION 608 TRAFFIC SIGNS. ALL TRAFFIC MATERIALS REMOVED SHALL BE HANDLED PER COT SPECIFICATION 625 REMOVAL OF TRAFFIC ITEMS.

13. CONTRACTOR WILL BE RESPONSIBLE FOR PREPARATION AND DISTRIBUTION OF A WRITTEN NOTICE TO RESIDENTS WITHIN 48 HOURS OF BEGINNING PAVEMENT REMOVAL AND MILLING AND OVERLAY OPERATIONS.

14. LOCAL AND THROUGH TRAFFIC SHALL BE MAINTAINED THROUGH THE PROJECT AT ALL TIMES.

15. ALL PUBLIC AND PRIVATE STREETS AND DRIVES SHALL BE ACCESSIBLE AT ALL TIMES.

16. ALL BROKEN CONCRETE, WASTE MATERIAL, AND OTHER DEBRIS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE LIMITS OF THE PROJECT AND DISPOSED OF IN A MANNER APPROVED BY THE ENGINEER. NO ADDITIONAL PAYMENT WILL BE MADE FOR THE DISPOSAL OF THIS MATERIAL.

17. ALL EXCAVATED MATERIAL NOT REQUIRED IN THE PROJECT SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF BY THE CONTRACTOR IN A MANNER ACCEPTABLE TO THE ENGINEER WITHOUT COST TO THE CITY. THE CONTRACTOR WILL BE REQUIRED TO OBTAIN AN EARTH CHANGE PERMIT IF ANY MATERIAL IS STORED ON THE PROJECT SITE AND/OR DISPOSED OF WITHIN THE CITY LIMITS.

18. ALL TREES, BRUSH AND OTHER DEBRIS THAT MIGHT INTERFERE WITH THE FLOW OF WATER IS TO BE CLEANED OUT TO THE RIGHT-OF-WAY LINE IN A MANNER APPROVED BY THE ENGINEER. ALL COST TO BE INCLUDED IN THE PRICE BID FOR OTHER ITEMS OF WORK. TREES OUTSIDE THE FILL SLOPES AND THE TOP OF CUT SLOPES SHALL NOT BE DISTURBED EXCEPT WITH THE WRITTEN APPROVAL OF THE ENGINEER.

19. WHERE MATERIALS ARE TRANSPORTED IN THE PROSECUTION OF WORK, VEHICLES SHALL NOT BE LOADED BEYOND THE CAPACITY RECOMMENDED BY THE VEHICLE MANUFACTURER OR AS PRESCRIBED BY ANY FEDERAL, STATE OR LOCAL LAW OR REGULATION.

20. ANY DAMAGE TO THE ROADWAY PAVEMENT, CURB, DRIVEWAYS OR SIDEWALK CAUSED BY THE CONTRACTOR'S OPERATION SHALL BE REPAIRED TO THE ENGINEER'S SATISFACTION AND SHALL BE ACCOMPLISHED AT THE CONTRACTOR'S SOLE EXPENSE.

21. IF CONTRACTOR ENCOUNTERS VOIDS WHEN PATCHING STREETS, THE CONTRACTOR SHALL CALL FIELD ENGINEERING AT 918-596-9404 FOR AN INSPECTION BEFORE PROCEEDING WITH WORK.

22. THE PROJECT SHALL BE CONSTRUCTED WITH CONTINUOUS FLOW OF MATERIAL SUPPLIED TO THE PROJECT SUCH THAT THE LAYDOWN MACHINE WILL REMAIN IN MOTION. ANY DELAY IN FORWARD PROGRESSION OF THE LAYDOWN MACHINE MAY REQUIRE A TRANSVERSE JOINT AS DIRECTED BY THE ENGINEER.

23. NO FLY ASH IS ALLOWED TO BE USED ON THIS PROJECT.

24. PHYSICAL TESTING FOR QUALITY ASSURANCE SHALL BE FURNISHED BY THE CITY.

25. CONTRACTOR IS RESPONSIBLE FOR ALL NECESSARY QUALITY CONTROL TESTING TO ENSURE THAT PROJECT REQUIREMENTS ARE MET.

26. MASONRY STRUCTURES SHALL NOT BE CONSTRUCTED WITHIN THE STREET RIGHT-OF-WAY.

27. ALL CONCRETE CURB AND GUTTERS SHALL BE MONOLITHIC POURS. DOWELED-ON CURBS WILL NOT BE ALLOWED.

28. NO LIFTING HOLES WILL BE ALLOWED ON ANY REINFORCED CONCRETE PIPES OR REINFORCED CONCRETE BOXES.

29. HANDICAP RAMP CONSTRUCTION SHALL COMPLY WITH THE CURRENT AMERICANS WITH DISABILITIES ACT STANDARDS.

30. REFLECTORIZED SHEETING ON SIGNS AND BARRICADES SHALL BE OF A CUBIC PRISMATIC TYPE AND SHALL MEET THE SPECIFICATIONS ESTABLISHED FOR ASTM 4956-01 TYPE IX RETROFLECTIVE SHEETING. REFLECTORIZED SHEETING ON DRUMS SHALL BE OF A HIGH-INTENSITY TYPE AND SHALL MEET THE SPECIFICATIONS ESTABLISHED FOR THE ASTM D 4956-01 TYPE III RETROFLECTIVE SHEETING.

31. ALL SANITARY AND STORM SEWER MANHOLE CASTINGS AND LIDS THAT ARE LOCATED IN THE STREET AND ARE DISTURBED BY THE CONTRACTOR SHALL BE REPLACED WITH NEW LIDS AND CASTINGS AND THE OLD ONES SHALL BE SALVAGED AND DELIVERED TO THE METAL RECYCLE BINS IN THE STOCKROOM AREA AT SEWER OPERATIONS AND MAINTENANCE, 9319 E. 42ND STREET NORTH, BETWEEN THE HOURS OF 7:30 AM AND 3:00 PM MONDAY THROUGH FRIDAY.

32. THE SIGN PLACEMENT STATIONING AND LOCATIONS SHOWN ON THE PLAN SHEETS AND SUMMARY SHEETS ARE APPROXIMATE. EXACT STATIONING AND LOCATIONS SHALL BE DETERMINED BY THE CONTRACTOR SO THAT THE SIGN IS INSTALLED IN ACCORDANCE WITH CITY OF TULSA STANDARDS, CURRENT AMERICANS WITH DISABILITIES ACT STANDARDS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES IN ORDER TO PROVIDE OPTIMUM VISIBILITY OR TO THE ONCOMING/APPROACHING MOTORIST. IF A PROPOSED LOCATION CONFLICTS WITH OTHER SIGNS, UTILITIES OR OTHER ROADWAY FEATURES, THE ENGINEER SHALL BE NOTIFIED.

33. POST LENGTHS SHOWN ON SIGN SUMMARY ARE APPROXIMATE. EXACT LENGTHS SHALL BE DETERMINED BY A FIELD SURVEY CONDUCTED BY THE CONTRACTOR.

34. ALL ASPHALT STREETS THAT ARE TO BE RECONSTRUCTED SHALL BE LEFT WITH A DRIVABLE SURFACE AT ALL TIMES. THE CONTRACTOR WILL NOT BE ALLOWED TO MILL OFF ALL THE ASPHALT BEFORE EXCAVATION BEGINS.

35. THE CONTRACTOR SHALL REPLACE ANY SECTION CORNERS OR OTHER PERMANENT RIGHT OF WAY MARKERS REMOVED OR DISTURBED AS A RESULT OF THE CONSTRUCTION OF THIS PROJECT. REPLACEMENT OF SECTION CORNERS OR ANY OTHER MONUMENTS SHALL BE PERFORMED BY A LICENSED LAND SURVEYOR AUTHORIZED TO PERFORM WORK IN THE STATE OF OKLAHOMA.

36. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTROL AND MAINTENANCE OF THE STORMWATER DRAINAGE. STORMWATER PONDING ON THE CONSTRUCTION SITE THAT IS THE RESULT OF THE CONSTRUCTION WILL NOT BE ALLOWED. ALL COST ASSOCIATED WITH THE CONTROL OF STORMWATER SHALL BE INCLUDED IN OTHER ITEMS.

37. STRAW OR HAY BALES AS STORMWATER BEST MANAGEMENT PRACTICES ARE NO LONGER ALLOWED ON CONSTRUCTION PROJECTS.

38. THE CONTRACTOR MUST CALL 1-800-458-4251 IMMEDIATELY IF A NATURAL GAS PIPELINE IS CUT, DAMAGED, OR OTHERWISE DISTURBED.

39. PRIOR TO FINAL ACCEPTANCE, ALL EXPOSED CURB SURFACES SHALL BE CLEANED OF ALL DISCOLORATION SUCH AS ASPHALT STAIN, TIRE MARKS, OR OTHER DISFIGUREMENT.

PAY ITEM NOTES (ROADWAY) (CONTINUED)

45. THIS PAY ITEM SHALL BE COMPLETE IN PLACE AND SHALL INCLUDE ALL PIPE, STANDARD BEDDING MATERIAL AND TRENCH EXCAVATION, JOINT GASKETS AND ALL OTHER INCIDENTALS. NO ADDITIONAL COST WILL BE MADE.

70. INCLUDES CADI-LOK EXTERNAL PIPE WRAP OR APPROVED EQUAL.

CITY OF TULSA STANDARDS

102. PROJECT SIGN
126. STANDARD STRAW BALE DIKE, SILT FENCE, AND CONSTRUCTION ENTRANCE
304. BEDDING DETAIL RIGID PIPE
309. STANDARD DETAIL FIRE HYDRANT
312. STANDARD DETAIL FRAME AND LID FOR WATER VAULTS
313. STANDARD DETAIL VALVE BOX
314. STANDARD DETAIL MANHOLE STEPS
315. STANDARD DETAIL THRUST BLOCKS AND TRENCH CONDITIONS
327. COMBINATION AIR VACUUM/RELIEF VALVE VAULT FOR 2" ARV LESS THAN 5 LBS IN WEIGHT
351. BEDDING DETAIL POLYVINYL CHLORIDE FLEXIBLE SANITARY SEWER PIPE
353. STANDARD DETAIL FRAME AND LID FOR 4' I.D. SANITARY MANHOLES
356. STANDARD DETAIL SANITARY SEWER MANHOLE WITH TAPER
358. STANDARD DETAIL PRE-CAST SANITARY SEWER MANHOLES
361. STANDARD DETAIL FOR IN-LINE TEES FOR SERVICE CONNECTION
362. RISER DETAIL
365. STANDARD DETAIL GO, NO-GO DEFLECTION TESTING MANDRELL
366. STANDARD DETAIL FOR MANHOLE STEP LOCATION AND INVERT DETAILS
401. MANHOLE GRADE ADJUSTMENT
405. RUBBER SEAL AT MANHOLE
408. EXCAVATION AND RESTORATION AT GRADE AND ABOVE GRADE CONSTRUCTION
501. STANDARD METER SETTINGS FOR 5/8" X 3/4" WATER SERVICE
505. METER CAN WITH RIM AND LID FOR 5/8" X 3/4" AND 1" WATER METER CAN INSTALLATION
608A. STREET NAME SIGNS
608B. TRAFFIC SIGNS
609. PAVEMENT MARKINGS
704. RESIDENTIAL ASPHALT DRIVEWAY ASPHALT STREET
707. COMMERCIAL DRIVEWAY
713. STANDARD DETAIL FOR PAVEMENT REMOVAL AND REPLACEMENT
714. STANDARD DETAIL FOR PAVEMENT CUTS
725. STANDARD PAVEMENT PATCH AND REPAIR
730. STANDARD ASPHALT PAVEMENT CUT AND REPAIR
751. STANDARD PIPE BEDDING DETAIL FOR STORM SEWER
753. STANDARD DETAIL FRAME AND LID FOR 4' AND 5' I.D. STORMWATER MANHOLE
754. STANDARD DETAIL FRAME AND LID FOR 6' AND 8' I.D. STORMWATER MANHOLE AND JUNCTION BOXES
755. CONFIGURATION OF CAST IRON CURB INLETS
762. PRECAST STANDARD INLETS AND GRATES W/ACCESS MANHOLE BACK OF CURB
764. STANDARD REINFORCED CONCRETE STORMWATER INLETS
765. STANDARD STORMWATER FRAMES
766. STANDARD STORMWATER GRATES
767. STANDARD CAST IRON CURB INLET
770. STANDARD DROP INLET 15", 18", 24"
771. STANDARD DROP INLET 30", 36", 42" WITH NO ACCESS MANHOLE
790. STANDARD SIDEWALK RAMP

ODOT STANDARDS

ROADWAY

SSS-1-1 SMD-3-1
TSC2-3-2 SBI-4-2
TSD-2-0 DC-3-2
PSE-1-0
PCES-4-1

TRAFFIC SIGNING

PM3-1-2
RSD1-1-0

TRAFFIC SIGNAL

SWD2-1-0
SA1-1-02

TRAFFIC CONTROL

TCS1-1-1 TCS8-1-0 TCS14-1-0
TCS4-1-1 TCS9-1-0 TCS21-1-2
TCS5-1-0 TCS10-1-0 TCS22-1-0
TCS6-1-2 TCS11-1-1
TCS7-1-2 TCS13-1-0

REGISTERED PROFESSIONAL ENGINEER JEREMY R. STAHLE 21725 OKLAHOMA 5/7/15

PAY ITEMS & NOTES CONT. (ROADWAY)

PROJECT NO. 104006

101ST STREET-HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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PLAN SCALE: N/A
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A

DRAWN	J.R.C.	09/2012
DESIGNED	D.C.G.	06/2012
SURVEY	A.K.H.	08/2012
PROJ. MGR.	BOC	5/15
LEAD ENGR.	DD	1/16
FIELD MGR.	TBM	3/16
RECOMMENDED:	HAS	6/16
DESIGN MANAGER		

APPROVED: CITY ENGINEER

DRAWING: 3 PAY ITEMS & NOTES CONT. (ROADWAY).DWG
ATLAS PAGE NO: 1276, 1277, 1422, 1423
DATE 11.04.16
SHEET 3 OF 181

PLOT DATE: May 4, 2015, DRAWING NAME: 3 PAY ITEMS & NOTES CONT. (ROADWAY).DWG

BASE BID - WATER					
ITEM NO.	SPEC. NO.	DESCRIPTION	PAY ITEM NOTES	UNIT	QUANTITY
107	COT 301	RIGHT-OF-WAY CLEARING AND RESTORING, COMPLETE IN PLACE	4,5,6,7,22	SY	2,991
108	COT 302	EXCAVATION AND BACKFILL, UNCLASSIFIED	14	CY	2,364
109	COT 304	CONSTRUCTION STAKING		EA	1
110	COT 307	12 INCH DIP, CL50 POLYETHYLENE WRAPPED (RJ)	1,2,3,8,9,11	LF	1,230
111	COT 307	12 INCH DIP, CL50 POLYETHYLENE WRAPPED	1,2,3,9,11	LF	1,608
112	COT 307	8 INCH DIP, CL51 POLYETHYLENE WRAPPED (RJ)	1,2,3,8,9,11	LF	60
113	COT 307	6 INCH DIP, CL51 POLYETHYLENE WRAPPED (RJ)	1,2,3,8,9,11	LF	75
114	COT 307	4 INCH DIP, CL51 POLYETHYLENE WRAPPED (RJ)	1,2,3,8,9,11	LF	3
115	COT 307	3 INCH DIP, CL51 POLYETHYLENE WRAPPED (RJ)	1,2,3,8,9,11	LF	15
116	COT 312	12 INCH X 12 INCH DUCTILE IRON TEE (RJ)	2,8	EA	2
117	COT 312	12 INCH X 8 INCH DUCTILE IRON TEE (RJ)	2,8	EA	1
118	COT 312	12 INCH X 6 INCH DUCTILE IRON TEE (RJ)	2,8	EA	8
119	COT 312	12 INCH X 4 INCH DUCTILE IRON TEE (RJ)	2,8	EA	1
120	COT 312	12 INCH DUCTILE IRON SLEEVE (RJ)	2,8,12	EA	6
121	COT 312	8 INCH DUCTILE IRON SLEEVE (RJ)	2,8,12	EA	1
122	COT 312	6 INCH DUCTILE IRON SLEEVE (RJ)	2,8,12	EA	1
123	COT 312	4 INCH DUCTILE IRON SLEEVE (RJ)	2,8,12	EA	1
124	COT 312	12 INCH DUCTILE IRON 45 DEGREE BEND (RJ)	2,8	EA	8
125	COT 312	12 INCH DUCTILE IRON 22-1/2 DEGREE BEND (RJ)	2,8	EA	14
126	COT 312	8 INCH DUCTILE IRON 45 DEGREE BEND (RJ)	2,8	EA	2
127	COT 312	6 INCH DUCTILE IRON 45 DEGREE BEND (RJ)	2,8	EA	2
128	COT 312	4 INCH DUCTILE IRON 45 DEGREE BEND (RJ)	2,8	EA	2
129	COT 312	4 INCH X 3 INCH DUCTILE IRON REDUCER (RJ)	2,8	EA	1
130	COT 315	PRIVATE SERVICE CONNECTION BY LICENSED BONDED PLUMBER	13,17	EA	3
131	COT 315	3/4 INCH WATER SERVICE CONNECTION (LONG)	15,16	EA	3
132	COT 315	3/4 INCH WATER SERVICE CONNECTION (SHORT)	15,16	EA	1
133	COT 315	3/4 INCH WATER METER CAN, LID & RIM		EA	4
134	COT 315	1-1/2 INCH WATER SERVICE CONNECTION (SHORT)	15,16	EA	1
135	COT 315	2 INCH WATER SERVICE CONNECTION (SHORT)	15,16	EA	2
136	COT 317	2 INCH AIR RELIEF VALVE		EA	1
137	COT 317	12 INCH GATE VALVE (RJ)	8	EA	14
138	COT 317	8 INCH GATE VALVE (RJ)	8	EA	1
139	COT 317	6 INCH GATE VALVE (RJ)	8	EA	8
140	COT 317	4 INCH GATE VALVE (RJ)	8	EA	1
141	COT 317	3-WAY FIRE HYDRANT, IN PLACE		EA	7
142	COT 317	6 INCH FIRE HYDRANT EXTENSION		EA	7
143	COT 318	VALVE BOX	21	EA	24
144	COT 318	VALVE BOX EXTENSION	21	EA	24
145	COT 329	PAVEMENT, REMOVAL AND REPLACEMENT		SY	9
146	COT 329	SAWCUT		LF	40
147	SPECIAL	OWNER ALLOWANCE	18	ALLOW	1
148	SPECIAL	CONSTRUCTION AS-BUILT	24,25	EA	1

WATER CONSTRUCTION NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH CURRENT SPECIFICATIONS AND STANDARD DRAWINGS FOR WATER AND WASTEWATER, CITY OF TULSA ENGINEERING SERVICES DEPARTMENT.
2. EXISTING SERVICE CONNECTIONS ARE TO BE KEPT IN SERVICE UNTIL CONNECTIONS TO NEW MAIN ARE MADE. ALL SERVICE LINE RECONNECTIONS SHALL BE MADE BY THE CONTRACTOR. SERVICE RECONNECTIONS SHALL BE INSTALLED AS PER CITY OF TULSA WATER AND WASTEWATER STANDARDS. METERS ON THE SAME SIDE OF THE STREET AS THE PROPOSED MAIN SHALL HAVE THE SERVICE LINE ENTIRELY REPLACED FROM THE PROPOSED MAIN TO THE METER. METERS SERVED ON THE OPPOSITE SIDE OF THE STREET FROM THE PROPOSED MAIN SHALL HAVE THEIR EXISTING SERVICE LINES ADJACENT TO THE PROPOSED MAIN CONNECTED TO A NEW SERVICE LINE FROM THE PROPOSED MAIN BY A FLARED-END 3-PART UNION.
3. MINIMUM COVER OVER WATER LINES SHALL BE AS SHOWN ON PLANS.
4. CONTRACTOR SHALL REPLACE EXISTING GRASS WITH SEED/SOD OF SAME TYPE AND VARIETY.
5. CONTRACTOR SHALL BORE EXISTING TREES UNDER DRIP LINE, UNLESS DIRECTED OTHERWISE BY ENGINEER.
6. CONTRACTOR SHALL BORE EXISTING DRIVEWAYS, UNLESS DIRECTED OTHERWISE BY ENGINEER.
7. CITY CREWS ONLY ARE TO OPERATE ALL VALVES. CONTRACTOR SHALL NOTIFY CITY THRU INSPECTOR.
8. CONTRACTOR SHALL GIVE THE NOTIFICATION CENTER OF THE OKLAHOMA ONE-CALL SYSTEM, INC, NOTICE OF ANY EXCAVATION NO LATER THAN 48 HOURS OR SOONER THAN 10 DAYS, EXCLUDING SATURDAYS, SUNDAYS, LEGAL HOLIDAYS PRIOR TO COMMENCEMENT OF WORK, PHONE 1-800-522-6543.
9. LOCAL AND THROUGH TRAFFIC SHALL BE MAINTAINED THROUGH PROJECT AT ALL TIMES. OPEN CUT STREET CROSSINGS REQUIRE AN APPROVED TRAFFIC CONTROL PLAN WITH TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH CURRENT MUTCD REQUIREMENTS.
10. ANY DAMAGE CAUSED BY CONTRACTOR TO ADJACENT TRAFFIC SIGNAL INFRASTRUCTURE SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE TRAFFIC ENGINEER.
11. PRIOR TO PAVEMENT SAWING AND EXCAVATION NEAR SIGNALIZED INTERSECTION, CONTRACTOR SHALL CONTACT PUBLIC WORKS, TRAFFIC OPERATIONS, 596-9766, FOR SITE SPECIFIC, UNDERGROUND TRAFFIC UTILITY LOCATES.
12. CONSTRUCTION FOR ALL PUBLIC WORKS FACILITIES SHALL BE IN COMPLIANCE WITH THE LATEST EDITION OF TITLE 252, DEPARTMENT OF ENVIRONMENTAL QUALITY, CHAPTER 626, PUBLIC WATER SUPPLY CONSTRUCTION STANDARDS, OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY (ODEQ).

PAY ITEM NOTES (WATER)

1. TESTING AND CHLORINATION OF WATER MAINS SHALL BE PERFORMED BY THE CITY OF TULSA. TESTING, CHLORINATION, AND FLUSHING SHALL BE DONE IN ACCORDANCE WITH SECTION 109.3 OF THE GENERAL SPECIFICATIONS.
   A. CONTRACTOR SHALL FURNISH AND INSTALL TEMPORARY PLUGS WITH ADEQUATE BLOCKING OR RESTRAINTS, PLUS CORPORATION STOPS, AS DIRECTED BY CITY TESTING PERSONNEL, THEN, ONCE TESTING, CHLORINATION AND FLUSHING BY CITY PERSONNEL IS COMPLETED, REMOVE TEMPORARY BLOCKING AND TIE INTO EXISTING SYSTEM, USING FITTINGS SWABBED INTERNALLY WITH 2% BLEACH SOLUTION.
   B. TESTING, CHLORINATION, AND FLUSHING OF NEW WATER MAIN SHALL BE PERFORMED BY CITY PERSONNEL ON MAINS WHICH ARE PHYSICALLY DISCONNECTED FROM THE EXISTING WATER SYSTEM. TESTING, CHLORINATION, AND FLUSHING OF NEW WATER MAINS SHALL NOT BE PERFORMED AGAINST VALVES WHICH ARE PHYSICALLY CONNECTED TO EXISTING SYSTEM.
   C. ALL COSTS FOR TEMPORARY PLUGS, BLOCKING, RESTRAINING, CORPORATION STOPS, TUBING, THREADED CONNECTIONS, BLEACH AND OTHER INCIDENTALS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PIPE.
2. BURIED BOLTS, HARNESS LUGS, AND COUPLINGS SHALL BE GIVEN TWO COATS OF KOPPER'S BITUMASTIC 300-M (DRY MIL THICKNESS OF 16 MILS) OR EQUAL. COST TO BE INCLUDED IN UNIT PRICE BID FOR PIPE AND FITTINGS.
3. CONTRACTOR TO EXCAVATE ALL UTILITY CROSSINGS AHEAD OF PIPE LAYING SO THAT THE GRADES CAN BE ADJUSTED ON THE PROPOSED WATER MAIN TO AVOID UTILITY CONFLICTS. FAILURE TO DO SO SHALL NOT ENTITLE THE CONTRACTOR TO CLAIM EXTRA COMPENSATION FOR ADJUSTMENTS TO THE PROPOSED WATER MAIN. COST FOR EXCAVATING UTILITY CROSSINGS SHALL BE INCLUDED IN UNIT PRICE BID FOR PIPE.
4. CONTRACTOR SHALL ENSURE ALL POLES WHICH ARE AFFECTED BY TRENCHING CONDITIONS ARE BRACED BY OWNERS. PAYMENT SHALL BE INCLUDED IN "RIGHT-OF-WAY CLEARING AND RESTORING". NO ADDITIONAL PAYMENT SHALL BE MADE.
5. ALL HYDRANTS, VALVES AND OTHER FITTINGS FROM ABANDONED WATER MAINS SHALL BE SALVAGED AND DELIVERED TO SOUTH YARD, 2317 S JACKSON. PAYMENT TO BE MADE UNDER RIGHT OF WAY CLEARING AND RESTORATION. NO ADDITIONAL PAYMENT SHALL BE MADE.
6. CONTRACTOR SHALL REPAIR ANY IRRIGATION SYSTEMS, ROOF DRAINS, AND FENCING DAMAGED IN THE ZONE OF CONSTRUCTION DURING THE COURSE OF CONSTRUCTION TO SATISFACTION OF THE PROPERTY OWNER. PAYMENT SHALL BE INCLUDED IN RIGHT-OF-WAY CLEARING AND RESTORING. NO ADDITIONAL PAYMENT SHALL BE MADE.
7. COST OF ANY TEMPORARY LIVESTOCK FENCING AND POLES SHALL BE INCLUDED IN COST OF RIGHT OF WAY CLEARING AND RESTORING. NO ADDITIONAL PAYMENT SHALL BE MADE.
8. ALL COSTS FOR COMPONENTS NECESSARY TO RESTRAIN JOINTS FOR PIPE AND FITTINGS DESIGNATED RESTRAINED JOINT ("RJ") SHALL BE INCLUDED IN UNIT PRICE BID FOR PIPE OR FITTINGS.
   A. DUCTILE IRON PIPE RESTRAINED JOINT SYSTEMS: US PIPE TRFLEX, GRIFFIN SNAPLOK, MCWANE THRUSTLOCK, AMERICAN FLEXRING, EBAA MEGALUG, SMITH-BLAIR CAMLOCK, CLOW TUFGRIP OR EQUAL SHALL BE USED ON THIS PROJECT. SHOULD RJ PIPE BE SPECIFIED THROUGH UNCASED BORES, ONLY USPIPE TRFLEX, GRIFFIN SNAPLOK, MCWANE THRUSTLOCK, OR AMERICAN FLEXRING IS TO BE USED. LOCKING GASKETS NOT PERMITTED.
   B. POLYVINYL CHLORIDE (PVC) RESTRAINED JOINT SYSTEMS: EBAA MEGALUG, STAR STARGRIP OR EQUAL SHALL BE USED ON THIS PROJECT. LOCKING GASKEYS NOT PERMITTED; SHOULD RJ PIPE BE SPECIFIED ON BORE CASING IS REQUIRED.
   C. HIGH DENSITY POLYETHYLENE (HDPE) RESTRAINED JOINT SYSTEMS: EBAA MEGALUG, STAR STARGRIP OR EQUAL SHALL BE USED ON THIS PROJECT.

   NO ADDITIONAL PAYMENT SHALL BE MADE.
9. ALL CUT ENDS AND WHERE SALVAGED FITTINGS HAVE BEEN REMOVED FROM ABANDONED WATER LINES LEFT IN PLACE, SHALL BE PLUGGED WITH 24-IN OF CONCRETE INSIDE THE PIPE. COST OF CONCRETE PLUGGING TO BE INCLUDED IN UNIT PRICE BID FOR PIPE. NO ADDITIONAL PAYMENT SHALL BE MADE.
10. NOT USED.
11. DETECTABLE MYLAR MARKING TAPE SHALL BE INSTALLED OVER DUCTILE IRON PIPE AS PER CONST SPEC 307.3 AND 307.4. COST WILL BE INCLUDED IN COST OF DUCTILE IRON PIPE.
12. ALL LABOR, MATERIALS, AND EQUIPMENT TO CONNECT PROPOSED WATER MAINS TO EXISTING WATER MAINS ARE INCLUDED IN COST OF SLEEVES/ADAPTORS. CONTRACTOR TO EXCAVATE ALL EXISTING WATER MAINS AHEAD OF PIPE LAYING SO THAT THE GRADES CAN BE ADJUSTED ACCORDINGLY. FAILURE TO DO SO SHALL NOT ENTITLE THE CONTRACTOR TO CLAIM EXTRA COMPENSATION FOR ADJUSTMENTS TO THE PROPOSED WATER MAIN. COST FOR EXCAVATING EXISTING WATER MAINS SHALL BE INCLUDED IN UNIT PRICE BID FOR SLEEVES. NO ADDITIONAL PAYMENT SHALL BE MADE.
13. **(OPTIONAL) AT THE DIRECTION OF THE ENGINEER, CONTRACTOR SHALL FURNISH A "LICENSED AND BONDED PLUMBER", WHICH SHALL INCLUDE ALL COSTS OF LABOR, TOOLS, PERMIT FEES, AND EQUIPMENT TO REROUTE THE EXISTING CUSTOMER SERVICE ON CUSTOMER PROPERTY** TO THE PROPOSED CUSTOMER METER CAN. COST SHALL NOT EXCEED AN ALLOWANCE OF $1000 PER OCCURRENCE. MATERIALS SHALL BE PAID UNDER SEPARATE BID ITEMS. NO ADDITIONAL PAYMENT SHALL BE MADE.
14. CONTRACTOR IS REMINDED TO BACKFILL ALL TRENCHES EXCAVATED ACROSS ANY EXISTING OR PROPOSED DRIVING OR PARKING SURFACE WITH 1 1/2-IN TYPE A AGGREGATE BASE, PLACED IN 8-INCH MAXIMUM LIFTS AND COMPACTED TO 98% MODIFIED PROCTOR DENSITY. COST TO BE INCLUDED IN COST OF EXCAVATION AND BACKFILL. NO ADDITIONAL PAYMENT SHALL BE MADE.
15. WATER SERVICE CONNECTIONS SHALL INCLUDE COST OF MATERIAL, LABOR AND EQUIPMENT TO REMOVE AND INSTALL SADDLES, SERVICE CLAMPS, CORPORATION STOPS, BENDS, 3-PART UNIONS, COUPLINGS, SETTERS AND ANY OTHER INCIDENTALS REQUIRED FOR A COMPLETE WATER SERVICE CONNECTION WITH EXCEPTION OF METER CANS, RIMS AND LIDS. NO ADDITIONAL PAYMENTS SHALL BE MADE. METER CANS, LIDS AND RIMS SHALL BE PAID AS A SEPARATE BID ITEM.
   A. SHORT SERVICE SHALL BE ANY SERVICE LINE THAT IS 25-FEET OR LESS IN LENGTH. SHORT SERVICES DO NOT INCLUDE PAVEMENT REPLACEMENT. I.E. 3/4-INCH WATER SERVICE CONNECTIONS (SHORT SERVICE)
   B. LONG SERVICE SHALL BE ANY SERVICE LINE THAT IS GREATER THAN 25-FEET UP TO 80-FEET IN LENGTH. LONG SERVICES INCLUDE PAVEMENT REPLACEMENT AND/OR COST TO BORE. EXAMPLE: 3/4-IN WATER SERVICE CONNECTIONS (LONG SERVICE)
   C, SHORT AND LONG SERVICE LINES EXCEEDING THE ABOVE PARAMETERS WILL BE COMPENSATED FOR LINEAR FOOTAGE ABOVE AND BEYOND. COMPENSATION SHALL BE PAID AS "SERVICE LINES, EXTENSION", PER LF
16. SERVICE LINES ON NON-ARTERIALS SHALL BE EITHER COPPER TUBING (TYPE K SOFT ANNEALED CONFORMING TO ASTM B 88) OR PEX TUBING (UPONOR AQUA PEX 5206 BLUE CONFORMING TO ASTM F876/F877/F2023). PEX TUBING IS NOT PERMITTED WITHIN ARTERIAL RIGHT OF WAY. WHEN CONTRACTOR ELECTS TO USE PEX TUBING.
   A. $\frac{3}{4}$ INCH WATER SERVICE CONNECTIONS SHALL USE 1-INCH PEX TUBING MINIMUM
   B. 1-INCH WATER SERVICE CONNECTION SHALL USE 1 1/4-INCH PEX TUBING MINIMUM

PAY ITEM NOTES CONT'D (WATER)

17. CONTRACTOR'S PLUMBER SHALL PROVIDE AN INFORMATIONAL BROCHURE TO THE PROPERTY OWNERS OUTLINING THE STEPS REQUIRED TO THOROUGHLY FLUSH THEIR WATERLINES AFTER CONNECTION TOT HE NEW WATER MAIN. AL COSTS TO PRODUCE AND DISTRIBUTE THE BROCHURE SHALL BE INCLUDED IN THE PRICE BID FOR THIS ITEM.
18. THE "OWNER ALLOWANCE" CAN BE SUED FOR VARIOUS WORK AND MISCELLANEOUS ITEMS NOT IDENTIFIED IN THE CONTRACT DOCUMENTS WITH THE FOLLOWING PROVISIONS: THE ALLOWANCE SHALL BE USED FOR COST OF MATERIALS, LABOR, INSTALLATIONS AND OVERHEAD AND PROFIT FOR ADDITIONAL WORK AND MISCELLANEOUS ITEMS THAT ARE NOT IDENTIFIED IN THE CONSTRUCTION DOCUMENTS AND PLANS, AND NOT INCLUDED IN THE BID ITEMS OF THE CONTRACT.
   A. THE ALLOWANCE SHALL BE USED ONLY AT THE DISCRETION OF THE CITY. ANY ALLOWANCE BALANCE REMAINING AT THE COMPLETION OF THE PROJECT WILL BE CREDITED BACK TO THE CITY ON THE FINAL APPLICATION FOR PAYMENT SUBMITTED BY THE CONTRACTOR.
   B. THE CONTRACTOR SHALL PROVIDE, TO THE CITY, A WRITTEN REQUEST FOR THE USE OF ANY ALLOWANCE, WITH A SCHEDULE OF VALUES, AND ALL ASSOCIATED BACKUP INFORMATION, INCLUDING ANY TIME EXTENSIONS REQUIRED TO PERFORM THE WORK.
   C. THE CONTRACTOR SHALL PROCEED WITH THE WORK INCLUDED IN THE ALLOWANCE ONLY AFTER RECEIVING A WRITTEN ORDER, FROM THE ENGINEER AND CITY AUTHORIZING SUCH WORK. PROCEEDING WITH WORK IN THE ALLOWANCE WITHOUT A WRITTEN ORDER FROM THE CITY WILL BE AT THE CONTRACTOR'S EXPENSE.
19. NOT USED.
20. NOT USED.
21. TOP OF VALVE BOX SHALL BE FLUSH WITH FINISHED GRADE.
22. THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS TO A CONDITION EQUAL TO OR BETTER THAN THE EXISTING IMPROVEMENTS. LIMITS OF DISTURBANCE SHALL NOT EXCEED 9-FEET CENTERED ON THE WATERLINE. ANY DISTURBANCE OUTSIDE OF THIS AREA SHALL BE RESTORED AT THE CONTRACTORS EXPENSE. STREETS, DRIVEWAYS AND ASSOCIATED ITEMS SHALL BE PAID FOR UNDER OTHER ITEMS OF WORK.
23. NOT USED.
24. SPOT ELEVATIONS ON THE MAIN WATER LINE RELATIVE TO FINISHED GRADE SHALL BE PROVIDED AT EACH 100-FT INTERVAL, COMPLETE WITH STATION AND OFFSET. IN ADDITION, ALL VALVES, FITTINGS, FIRE HYDRANTS (TOP OF NUT) AND OTHER MAJOR APPURTENANT ITEMS SHALL BE SHOWN WITH THE PROPER DESCRIPTION, STATION, OFFSET AND ELEVATION.
25. SPOT ELEVATIONS ON WATER METER CANS, VAULTS, SHALL BE SHOWN WITH THE PROPER DESCRIPTIONS (METER TYPE, METER SIZE, METER NUMBER, SERVICE MATERIAL, SERVICE SIZE), STATION, OFFSET, AND ELEVATION PER PLAN SURVEY CONTROL DATUM.
26. NOT USED.

REGISTERED PROFESSIONAL ENGINEER JEREMY P. STAHLE 21725 OKLAHOMA

TMUA-W 14-60

PAY ITEMS & NOTES (WATER)

PROJECT NO. 104006

101ST STREET-HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE	PLAN SCALE:	DRAWN	J.R.C.	07/2014	APPROVED:
·	·	·	N/A	DESIGNED	J.P.S.	07/2014	
·	·	·		SURVEY	A.K.H.	08/2012	
·	·	·	PROFILE SCALES:	PROJ. MGR.	SLJ	10/16	
·	·	·	HORIZONTAL:	LEAD ENGR.	[illegible]	10/16	
·	·	·	N/A	FIELD MGR.	RDV	10/16	
·	·	·	VERTICAL	RECOMMENDED:	HPS	10/16	
·	·	·	N/A	DESIGN MANAGER			CITY ENGINEER
·	·	·	DRAWING: 4 PAY ITEMS & NOTES (WATER).DWG				DATE 11.04.16
·	·	·	ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 4 OF 181

PLOT DATE: October 11, 2016, DRAWING NAME: 4 PAY ITEMS & NOTES (WATER).DWG

BASE BID - SEWER					
ITEM	SPEC.	DESCRIPTION	PAY ITEM	UNIT	QUANTITY
154	COT 301	RIGHT OF WAY CLEARING AND RESTORATION	1,2,3	SY	374
155	COT 302	EXCAVATION AND BACKFILL, UNCLASSIFIED	4,5,16	CY	91
156	COT 303	MOBILIZATION		EA	1
157	COT 304	CONSTRUCTION STAKING	7,14	EA	1
158	COT 307	12" DUCTILE IRON PIPE, CL 51	20	LF	23
159	COT 307	8" DUCTILE IRON PIPE, CL 50 (BORED)	10,20	LF	266
160	COT 313	8" PVC PIPE, SDR 35	21	LF	87
161	COT 314	4' I.D. MANHOLE, 6' DEPTH	8,19	EA	3
162	COT 314	4' I.D. MANHOLE, ADDITIONAL DEPTH	8,19	VF	19
163	COT 315	SERVICE CONNECTION, 8"X4" TEE & RISER	9	EA	2
164	COT 315	CONNECTION TO EXISTING MANHOLE	10	EA	2
165	COT 325	SOLID SLAB SODDING	11,18	SY	121
166	COT 328	8" DIRECTIONAL BORE (NO CONDUIT)	10	LF	266
167	COT 330	TEMPORARY SILT FENCE	12	LF	234
168	COT 404	REMOVAL OF MANHOLE		EA	1
169	SPECIAL	TEMPORARY 4' CONSTRUCTION FENCE	17	LF	300

PAY ITEM NOTES (SEWER)

1. ITEM INCLUDES COST OF REMOVING AND REPLACING EXISTING FENCES, IRRIGATION SYSTEMS, RETAINING WALLS, SOUND WALLS, LINED DITCHES AND DRAINAGE STRUCTURES AS NECESSARY TO CONSTRUCT THE PROJECT.
2. CONTRACTOR SHALL PROVIDE PHOTOGRAPHS OF EACH LOT BOTH PRIOR TO COMMENCING WORK AND AFTER RESTORATION.
3. NOTIFY HOMEOWNER 7 DAYS PRIOR TO REMOVING OR RELOCATING SHEDS OR OTHER STRUCTURES. CONTRACTOR SHALL NOT BE HELD RESPONSIBLE FOR DAMAGE TO STRUCTURES LOCATED IN UTILITY OR SANITARY SEWER EASEMENTS BUT SHOULD TAKE REASONABLE STEPS TO PREVENT DAMAGE WHILE RELOCATING THEM. NO ADDITIONAL PAYMENT SHALL BE MADE.
4. ITEM INCLUDES COST OF UTILITY RELOCATION, ADJUSTMENT, AND BRACING IF NECESSARY. EXCAVATIONS ABOVE OR BENEATH EXISTING UTILITIES SHALL BE HAND DUG.
5. ITEM INCLUDES COST OF BRACING & DEWATERING TRENCHES.
6. OMITTED
7. ITEM INCLUDES COST OF RE-ESTABLISHING CONTROL LOST OR DAMAGED DURING CONSTRUCTION.
8. ITEM INCLUDES COST OF VACUUM TESTING PER CITY OF TULSA STANDARDS AND SPECIFICATIONS.
9. ITEM INCLUDES COST FOR ALL FITTINGS. IN-LINE TEES, RISERS, AND PIPE REQUIRED TO EXTEND SERVICE CONNECTION IN ACCORDANCE WITH COT STANDARD 363.
10. ITEM INCLUDES COST FOR ALL BORE PITS AND INCIDENTALS TO INSTALL BORE.
11. CONTRACTOR SHALL REPLACE ALL SOD WITH LIKE KIND.
12. INCLUDES COST OF SILT REMOVAL. REMOVE SILT WHEN DEVICE IS HALF FULL OR AT THE DIRECTION OF FIELD ENGINEERING.
13. OMITTED
14. ALL STAKING AND SURVEYING NECESSARY TO COMPLETELY CONSTRUCT ALL OF THIS WATER AND SANITARY SEWERLINE PROJECT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE PERFORMED BY A REGISTERED LICENSED SURVEYOR IN THE STATE OF OKLAHOMA WITH FINISH GRADES TO BE APPROVED BY THE INSPECTOR. .
15. CONTRACTOR TO EXCAVATE ALL UTILITY CROSSINGS AHEAD OF PIPE LAYING SO THAT THE GRADES CAN BE ADJUSTED ON THE PROPOSED SEWER MAIN TO CLAIM EXTRA COMPENSATION FOR ADJUSTMENTS TO THE PROPOSED WATER MAIN. COST FOR EXCAVATING UTILITY CROSSINGS SHALL BE INCLUDED IN PIPE.
16. CONTRACTOR SHALL BRACE POLES AFFECTED BY TRENCHING CONDITIONS, PAYMENT SHALL BE INCLUDED IN THIS PAY ITEM. NO ADDITIONAL PAYMENT SHALL BE MADE.
17. CONTRACTOR SHALL FURNISH TEMPORARY FENCING WHERE REQUIRED. COST TO BE INCLUDED IN THIS PAY ITEMS. NO ADDITIONAL PAYMENT SHALL BE MADE.
18. THE COST FOR SLAB SODDING SHALL INCLUDE THE COST OF FERTILIZING AND WATERING. FERTILIZER SHALL BE 10-20-10 APPLIED AT THE RATE OF 1.5 POUNDS PER 10 SQUARE YARDS OF SOD. FERTILIZER SHALL BE APPLIED PER SECTION 325.3. WATERING SHALL BE APPLIED AS NECESSARY UNTIL VEGETATION IS ESTABLISHED OR UNTIL THE WORK IS ACCEPTED AS COMPLETE.
19. OMITTED
20. SHALL BE CONSTRUCTED PER SECTION 307, PIPE DUCTILE IRON, STANDARD SPECIFICATIONS AND STANDARD DETAILS.
21. SHALL BE CONSTRUCTED PER SECTION 313, POLYVINYL CHLORIDE (PVC) PIPE, SEWER SERVICE, STANDARD SPECIFICATIONS AND STANDARD DETAILS.

MANHOLE CONSTRUCTION NOTES

1. OPENINGS FOR INLET AND OUTLET PIPES ARE TO BE LOCATED AS REQUIRED PER PLANS WITH A-LOK GASKET OR EQUAL.
2. 12"X9" MANHOLE STEPS AT APPROXIMATELY 15" O.C.
   VERTICAL LOAD RESISTANCE = 400 LBS.
   PULL-OUT LOAD RESISTANCE = 1000 LBS.
3. FOR TOP MANHOLE AND FLOW LINE ELEVATION SEE PLAN AND PROFILE SHEETS.
4. CONTRACTOR WILL BE REQUIRED TO VACUUM TEST ALL MANHOLES ACCORDING TO CITY OF TULSA PUBLIC WORKS DEPARTMENT STANDARDS AND SPECIFICATIONS.

GENERAL CONSTRUCTION NOTES (SEWER)

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CURRENT SPECIFICATIONS FOR WATER AND WASTEWATER, CITY OF TULSA DEPARTMENT OF PUBLIC WORKS.
2. UTILITIES SHOWN HEREIN ARE INTENDED FOR INFORMATION PURPOSES ONLY AND ARE NOT TO BE CONSTRUED AS THE EXTENT OR EXACT LOCATION AND DEPTH OF UTILITIES THAT MAY BE ENCOUNTERED DURING THE COURSE OF CONSTRUCTION. THE CONTRACTOR SHALL FIELD VERIFY THE PRESENCE, TYPE, SIZE, LOCATION AND DEPTH OF ALL EXISTING UTILITIES IN THE PROJECT AREA PRIOR TO CONSTRUCTION.
3. CONTRACTOR SHALL GIVE THE NOTIFICATION CENTER OF THE OKLAHOMA ONE-CALL SYSTEM, INC. NOTICE OF ANY EXCAVATION NO EARLIER THAN TEN (10) DAYS, NOR LATER THAN 48 HOURS, EXCLUDING SATURDAYS, SUNDAYS, AND LEGAL HOLIDAYS, PRIOR TO COMMENCEMENT OF WORK. PHONE NUMBER IS 1-800-522-6543.
4. GEOTECHNICAL REPORT AVAILABLE FOR REVIEW AT THE OFFICE OF CEC INFRASTRUCTURE SOLUTIIONS NEITHER THE CITY OF TULSA OR CEC INFRASTRUCTURE SOLUTIIONS. GUARANTEES THE ACCURACY OF THE SOIL CONDITIONS.
5. ALL EXCAVATED MATERIALS NOT REQUIRED IN OTHER AREAS OF THE PROJECT, INCLUDING PAVEMENT DEBRIS MATERIAL SHALL BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF BY THE CONTRACTOR IN A MANNER ACCEPTABLE TO THE ENGINEER WITHOUT COST TO THE CITY OF TULSA. THE CONTRACTOR SHALL BE REQUIRES TO OBTAIN AN EARTH CHANGE PERMIT IF ANY EXCESS MATERIAL IS TO BE DISPOSED OF WITHIN THE CITY LIMITS OF THE CITY OF TULSA.
6. ANY DAMAGE TO THE ROADWAY PAVEMENT CAUSED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED TO THE ENGINEERS SATIFACTION AND SHALL BE ACCOMPLISHED AT THE CONTRACTOR'S SOLE EXPENSE.
7. FOR OPEN ROAD CUT, CONTRACTOR IS TO MAINTAIN ONE-WAY TRAFFIC. CONTRACTOR SHALL PRESENT A TRAFFIC CONTROL PLAN TO THE CITY OF TULSA ENGINEERING DIVISION. CONTACT KURT KRAFT AT (918) 596-9753.
8. CONSTRUCTION TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). THE CONTRACTOR SHALL WORK IN COOPERATION WITH THE CITY OF TULSA TO ESTABLISH, INSTALL, MAINTAIN, AND OPERATE COMPLETE, ADEQUATE AND SAFE TRAFFIC CONTROLS DURING THE ENTIRE CONSTRUCTION PERIOD. THE CONTRACTOR SHALL PLACE TRAFFIC CONTROL, FLAGMEN, BARRICADES AND SEVICES WITHIN THE VICINITY OF THE CONSTRUCTION AS REQUIRED. MAINTENANCE AND LIGHT CHECKS SHALL BE DONE WEEKLY AND INVOICE FURNISHED TO INSPECTOR AND SIGNED BY THE SUPERINTENDENT. ALL TRAFFIC CONTROL DEVICES SHALL BE APPROVED BY THE TRAFFIC ENGINEER OF THE CITY OF TULSA.
9. LOCAL AND THROUGH TRAFFIC SHALL BE MAINTAINED THROUGH THR PROJECT AT ALL TIMES. ALL PUBLIC STREETS SHALL BE ACCESSIBLE FOR TRAFFIC FROM ANY DETOUR DURING CONSTRUCTION OF THIS PROJECT.
10. CONTRACTOR SHALL VACUUM TEST ALL MANHOLES ACCORDING TO THE CITY OF TULSA, PUBLIC WORKS DEPARTMENT STANDARDS AND SPECIFICATIONS.
11. CONTRACTOR SHALL COMPACT BACKFILL TO 95% STANDARD PROCTOR DENSITY. BACKFILL UNDER PAVED SURFACES SHALL BE TYPE A CRUSHED AGGREGATE COMPACTED TO 95% STANDARD PROCTOR DENSITY IN ACCORDANCE WITH SPECIFICATION SECTION 302.6.
12. THE VERTICAL CONTROL IS BASED ON CITY OF TULSA'S BENCHMARK INFORMATION THAT IS CONSISTENT WITH THE U.S.G.S. PUBLISHED BENCH LOOP SYSTEM. LEVEL DATUM IS MEAN SEA LEVEL (USC&GS) ACCURACY IS 3RD ORDER OR BETTER.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE BRACING OF ALL UTILITY LINES, INCLUDING UTILITY POLES. ACTUAL WORK SHALL BE PERFORMED BY THE UTILITY COMPANIES AND SHALL BE PAID FOR BY THE CONTRACTOR. CONTRACTOR SHALL COORDINATE THIS WORK WITH THE UTILITY COMPANIES FOR PROPER TIMING WITH CONSTRUCTION SCHEDULE. COST FOR BRACING SHALL BE INCIDENTAL TO THE PROJECT.
14. THE CONTRACTOR SHALL REMOVE FROM THE WORK SITE ALL TRASH AND CONSTRUCTION DEBRIS AT THE END OF EACH DAY AND LEAVE THE AREA IN A NEAT, ORDERLY, AND SAFE CONDITION.
15. UPON COMPLETION OF CONSTRUCTION, ALL DISTURBED AREAS SHALL BE SODDED ACCORDING TO CITY OF TULSA, OKLAHOMA SPECIFICATIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR THESE SOD AREAS UNTIL GROWTH IS ESTABLISHED.
16. CONTRACTOR SHALL NOTIFY OWNER 7-DAYS PRIOR TO START OF ANY CONSTRUCTION ON OWNER'S LOT.
17. CONTRACTOR SHALL RESTORE CONSTRUCTION SITE TO PRE-EXISTING CONDITION OR BETTER, INCLUDING BUT NOT LIMITED TO FENCES, SPRINKLER SYSTEMS, DRAINAGE STRUCTURES, ELECTRICAL CONDUITS, WIRING, AND ANY PAVED SURFACES. CONTRACTOR SHALL TAKE REASONABLE STEPS TO MINIMIZE DAMAGE TO TREES. CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS TO ORIGINAL GRADE AND SOD.
18. THE LENGTH OF OPEN TRENCH ALLOWED AT THE END OF EACH DAY SHALL BE LIMITED TO ONE JOINT OF PIPE.
19. THE CONTRACTOR SHALL NOT STORE EQUIPMENT OR MATERIALS IN THE FLOODPLAIN.

PLOT DATE: May 4, 2015, DRAWING NAME: 5 PAY ITEMS & NOTES (SEWER).DWG

REGISTERED PROFESSIONAL ENGINEER — JEREMY P. WHITE — STATE OF OKLAHOMA — 21725 — 5/4/15

MS 630

PAY ITEMS & NOTES (SEWER)

PROJECT NO. 104006

101ST STREET-HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
CEC 4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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PLAN SCALE: N/A	DRAWN	J.R.C.	07/2014
	DESIGNED	J.P.S.	07/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A	PROJ. MGR.		
	LEAD ENGR.	ADS	10/16
	FIELD MGR.		3/16
	RECOMMENDED: DESIGN MANAGER	HAS	6/16

APPROVED: CITY ENGINEER

DRAWING: 5 PAY ITEMS & NOTES (SEWER).DWG — DATE 11.04.16.

ATLAS PAGE NO: 1276, 1277, 1422, 1423 — SHEET 5 OF 181

PAY ITEM NOTES (RETAINING WALL)

1. ITEM "ENGINEERED FALSEWORK" CONSISTS OF THE INSTALLATION AND REMOVAL OF TEMPORARY SHORING TO FACILITATE THE CONSTRUCTION OF RETAINING WALLS. INCLUDE ALL COSTS ASSOCIATED WITH THE INSTALLATION AND REMOVAL OF TEMPORARY SHORING, INCLUDING ALL MATERIAL, LABOR, EQUIPMENT, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK, IN THE CONTRACT UNIT PRICE OF "ENGINEERED FALSEWORK". ALL OTHER FALSEWORK WILL NOT BE MEASURED FOR PAYMENT AND SHALL BE INCLUDED IN OTHER ITEMS OF WORK. ALL REMOVED FALSEWORK SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

2. LOCATIONS OF POTENTIAL TEMPORARY RETAINING STRUCTURES TO FACILITATE THE PROPOSED SEQUENCE OF CONSTRUCTION SHOWN IN THE PLANS ARE FOR INFORMATIONAL PURPOSES ONLY AND HAVE NOT BEEN DESIGNED AND DETAILED. ACTUAL LIMITS OF TEMPORARY RETAINING STRUCTURES SHALL BE DETERMINED BY THE CONTRACTOR. TEMPORARY RETAINING STRUCTURES SHALL BE DESIGNED IN ACCORDANCE WITH SUBSECTION 502.04 OF THE ODOT STANDARD SPECIFICATIONS BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF OKLAHOMA. SUBMIT TEMPORARY RETAINING STRUCTURE DESIGN CALCULATIONS AND DRAWINGS TO THE ENGINEER FOR APPROVAL. DO NOT BEGIN INSTALLATION UNTIL APPROVAL OF THE DESIGN CALCULATIONS AND DRAWINGS BY THE ENGINEER IS RECEIVED.

3. COMPLY WITH THE REQUIREMENTS OF THE 2009 OKLAHOMA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EXCEPT AS MODIFIED BY THE PLANS AND SPECIAL PROVISIONS.

4. INCLUDE ALL COSTS FOR FILTER FABRIC, PERFORATED AND NON-PERFORATED PIPE, STONE BACKFILL, UNREINFORCED CONCRETE LEVELING PAD, EXCAVATION, BACKFILL, MATERIAL, LABOR, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK IN THE CONTRACT UNIT PRICE OF "RETAINING WALL (RECON)".

5. THE EXPOSED FACE OF THE PRECAST BLOCK FOR THE RETAINING WALL SHALL HAVE THE "WEATHERED EDGE" TEXTURE AND SHALL BE STAINED ACCORDING THE ATTACHED "SPECIFICATION FOR PRECAST MODULAR BLOCK WALLS". THE PRECAST MANUFACTURER SHALL BE RESPONSIBLE FOR STAINING THE PRECAST BLOCK.

6. FENCE SHALL BE AMERISTAR MONTAGE INDUSTRIAL CLASSIC 2 RAIL FENCE WITH BLACK COLOR, OR APPROVED EQUAL.

7. CONTRACTOR SHALL INCLUDE THE TRAFFIC BARRIER AND ASSOCIATED ITEMS (REBAR, CONCRETE, ETC.) IN THE BID FOR THE RECON WALL.

8. APPROVED EQUAL FOR RETAINING WALL MATERIAL REQUIRES SIGNED AND SEALED DESIGN PLANS BY A PROFESSIONAL ENGINEER.

9. SWING GATE SHALL BE AMERISTAR MONTAGE II CLASSIC 2 RAIL FENCE WITH BLACK COLOR, OR APPROVED EQUAL. PAY ITEM SHALL ALSO INCLUDE AN INDUSTRIAL-GRADE LOCK AND TWO KEYS FOR EACH GATE.

PAY QUANTITIES

ITEM NO.	SPEC. NO.	DESCRIPTION	NOTES	UNIT	QUANTITY
170	502(A)	ENGINEERED FALSEWORK	1,2,3	EA	1
171	510(A)	RETAINING WALL (RECON)	4,5,7,8	SY	3,445
172	624(SP)	6' STEEL ORNAMENTAL FENCE	6	LF	930
173	624(SP)	4' SWING GATE - 6' STEEL ORNAMENTAL FENCE	9	EA	2

RECON BLOCK KEY:

CAP	CAPSTONE	366	3HB	39" DEEP HALF BOTTOM	5
ECAP	END CAPSTONE	2	45M	45" DEEP FULL MIDDLE	447
HEC	HALF END CAPSTONE	80	4H	45" DEEP HALF MIDDLE	10
FB	FENCE BLOCK	253	45B	45" DEEP FULL BOTTOM	43
FEH	HALF FENCE END	4	60M	60" DEEP FULL MIDDLE	715
FE	FENCE END BLOCK	66	6H	60" DEEP HALF MIDDLE	17
V	BARRIER BLOCK (2 PIECES)	922	60B	60" DEEP FULL BOTTOM	122
HV	HALF BARRIER BLOCK (2 PIECES)	33	72M	72" DEEP FULL MIDDLE	142
VM	FULL MOMENT SLAB	183	7H	72" DEEP HALF MIDDLE	4
HM	HALF MOMENT SLAB	5	72B	72" DEEP FULL BOTTOM	74
24M	24" DEEP FULL MIDDLE	920	7HB	72" DEEP HALF BOTTOM	5
2H	24" DEEP HALF MIDDLE	8	84M	84" DEEP FULL MIDDLE	61
24B	24" DEEP FULL BOTTOM	16	8H	84" DEEP HALF MIDDLE	2
2HB	24" DEEP HALF BOTTOM	1	84B	84" DEEP FULL BOTTOM	34
39M	39" DEEP FULL MIDDLE	1407	8HB	84" DEEP HALF BOTTOM	3
3H	39" DEEP HALF MIDDLE	20	96M	96" DEEP FULL MIDDLE	5
39B	39" DEEP FULL BOTTOM	67	96B	96" DEEP FULL BOTTOM	17

WWW.RECONWALLS.COM

REGISTERED PROFESSIONAL ENGINEER
MICHAEL R JOHNSON 20093
OKLAHOMA

5/1/2015

BEFORE YOU DIG 811 1-800-522-OKIE CALL OKIE

REVISION	BY	DATE
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RETAINING WALL PAY ITEMS

PROJECT NO. 104006

101ST STREET – HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CDP CIVIL DESIGN PROFESSIONALS — CDP PROJECT NO: 15-0068

PLAN SCALE:	DRAWN	MRJ	05/2015
	DESIGNED	MRJ	05/2015
	SURVEY		
PROFILE SCALES:	PROJ. MGR.	BOC	8/16
HORIZONTAL:	LEAD ENGR.	DD	1/16
	FIELD MGR.	BOC	3/16
VERTICAL	RECOMMENDED	HAS	6/16
	DESIGN MANAGER		

APPROVED:

CITY ENGINEER

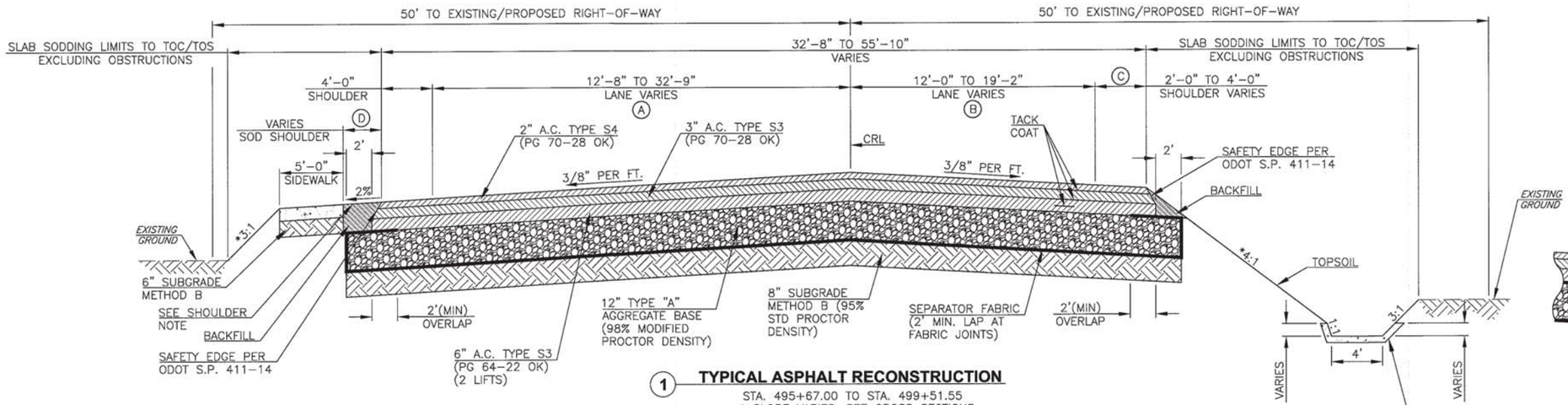
DRAWING:

DATE 11.04.16

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 6 OF 181

H:\DM 5\2015\COPYRIGHT (c) 2015 - 2015 BY CIVIL DESIGN PROFESSIONALS. THIS DRAWING IS BEING FURNISHED FOR THIS SPECIFIC PROJECT ONLY. COPY AND/OR REUSE WITHOUT THE CONSENT OF CIVIL DESIGN PROFESSIONALS IS PROHIBITED.



1 TYPICAL ASPHALT RECONSTRUCTION

STA. 495+67.00 TO STA. 499+51.55
* SLOPE VARIES, SEE CROSS SECTIONS

(A) 20'-9" TO 32'-9" FROM STA. 495+67.00 TO STA. 496+58.24
32'-9" TO 24'-0" FROM STA. 496+58.24 TO STA. 497+94.78
24'-0" FROM STA. 497+94.78 TO STA. 498+59.12
24'-0" TO 12'-8" FROM STA. 498+59.12 TO STA. 499+51.43

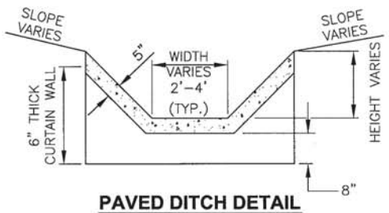
(B) 19'-2" TO 12'-0" FROM STA. 495+67.00 TO STA. 497+93.88
12'-0" FROM STA. 497+93.88 TO STA. 499+51.43

(C) 2'-0" TO 4'-0" FROM STA. 495+67.00 TO STA. 497+93.88
4'-0" FROM STA. 497+93.88 TO STA. 499+51.43

(D) 3'-11" TO 7'-0" FROM STA. 495+45.91 TO 499.51.55

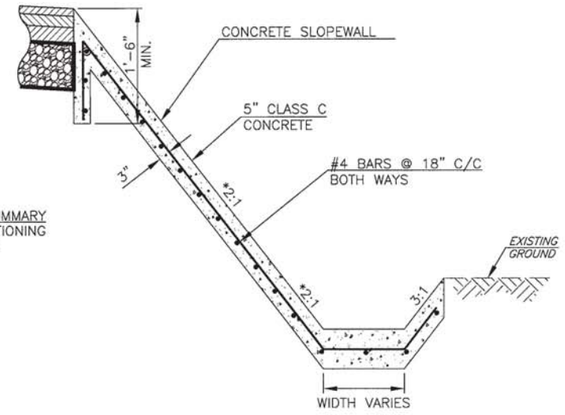
SHOULDER NOTE:

FINE GRADE SHOULDERS FOR 1½" DEPTH TO TOP OF SOD MAT IN ORDER TO PREVENT PONDING



PAVED DITCH DETAIL

1. INSTALL CURTAIN WALLS AT BEGINNING AND END OF DITCH AND AT SPACINGS OF 100' MAXIMUM.
2. CONCRETE SHALL BE CLASS C.
3. CONTRACTION JOINTS EVERY 15 FEET.
4. SEE PAVED DITCHED SUMMARY ON SHEET 14 FOR SIDE SLOPE DEPTHS.

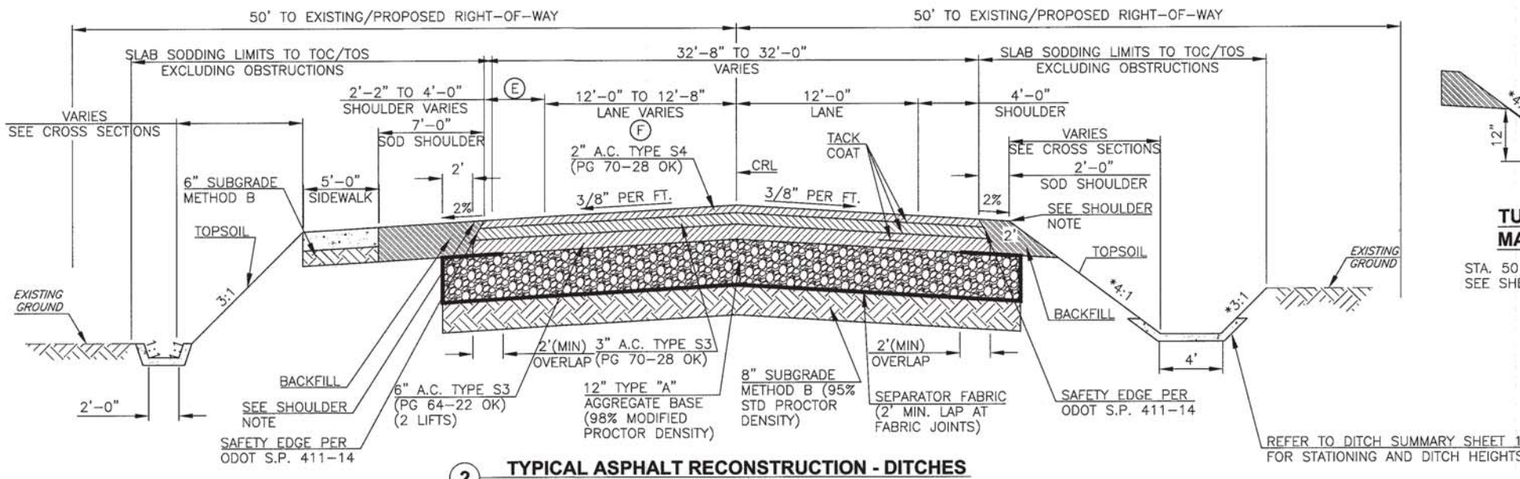


ALTERNATE END TREATMENT

CONCRETE SLOPE WALL

STA. 495+67.00 TO STA. 496+21.96
*SLOPE VARIES SEE CROSS SECTIONS

1. INSTALL CURTAIN WALLS AT BEGINNING AND END OF DITCH, SEE PAVED DITCH DETAIL ABOVE.
2. CONCRETE SHALL BE CLASS C.
3. CONTRACTION JOINTS EVERY 15 FEET.
4. STEEL REINFORCEMENT SHALL BE IN ACCORDANCE W/AASHTO M31, GRADE 60.



2 TYPICAL ASPHALT RECONSTRUCTION - DITCHES

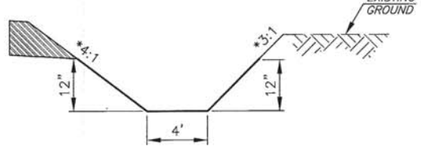
STA. 499+51.43 TO STA. 502+42.75
* SLOPE VARIES, SEE CROSS SECTIONS

(E) 4'-0" FROM STA. 499+51.43 TO STA. 501+83.19
4'-0" TO 2'-2" FROM STA. 501+83.19 TO STA. 502+42.75

(F) 12'-8" TO 12'-0" FROM STA. 499+51.43 TO STA. 499+57.18
12'-0" FROM STA. 499+57.18 TO STA. 502+42.75

SHOULDER NOTE:

FINE GRADE SHOULDERS FOR 1½" DEPTH TO TOP OF SOD MAT IN ORDER TO PREVENT PONDING



TURF REINFORCEMENT MAT (TRM) TREATMENT

STA. 501+49.86 TO STA. 502+42.75 RT.
SEE SHEET 11 DETAILS.

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA
5/4/15

TYPICAL 1	
PROJECT NO. 104006	
101ST STREET–HARVARD TO YALE	
CITY OF TULSA, OKLAHOMA ENGINEERING SERVICES DEPARTMENT	
CEC INFRASTRUCTURE SOLUTIONS 4617 E. 91st Street S. Tulsa, OK 74137 (918) 663-9401	

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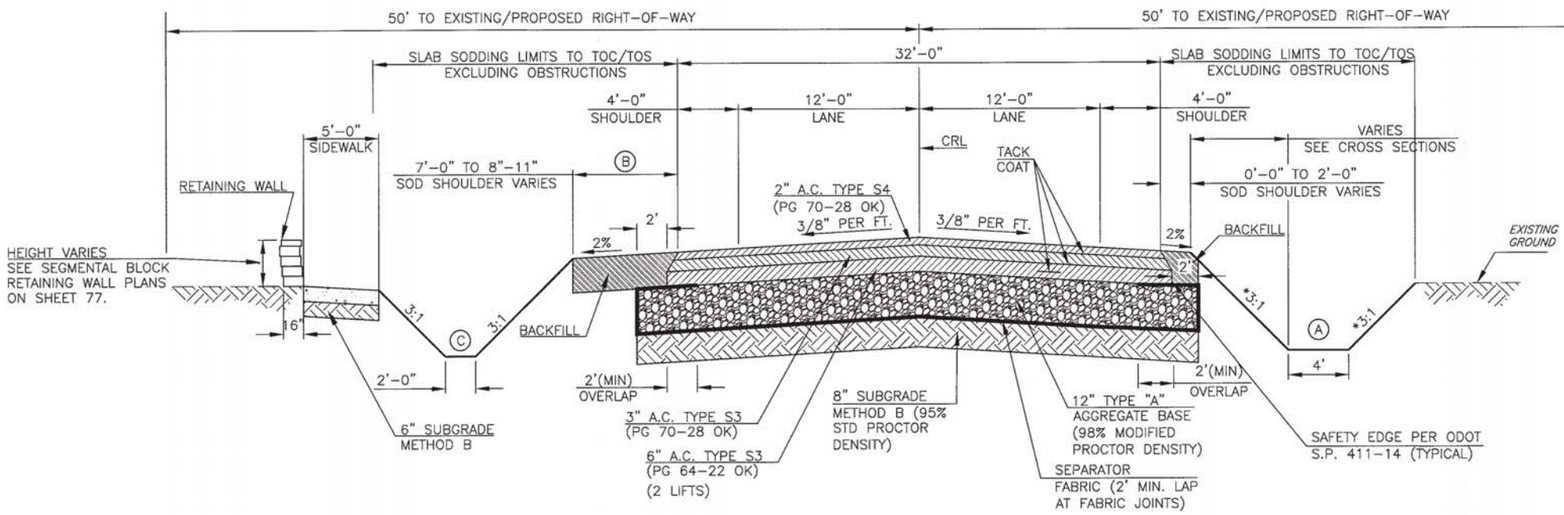
PLAN SCALE: N/A	DRAWN	J.T.S.	07/2014
	DESIGNED	J.P.S.	07/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.	BDC	5/15
HORIZONTAL: N/A	LEAD ENGR.	JPS	1/16
	FIELD MGR.	RGH	3/16
VERTICAL N/A	RECOMMENDED DESIGN MANAGER	HAS	6/16

APPROVED: CITY ENGINEER

DRAWING: 10 TYPICAL 5.DWG	DATE 11.04.14
ATLAS PAGE NO: 1276, 1277, 1422, 1423	SHEET 7 OF 181

PLOT DATE: April 22, 2015, DRAWING NAME: 10 TYPICAL 5.DWG



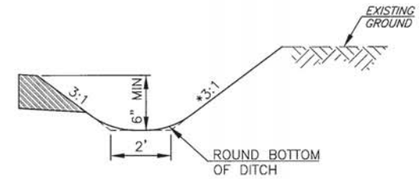
3 TYPICAL ASPHALT RECONSTRUCTION - DITCHES & RETAINING WALL

STA. 502+42.75 TO STA. 507+30.00
* SLOPE VARIES, SEE CROSS SECTIONS

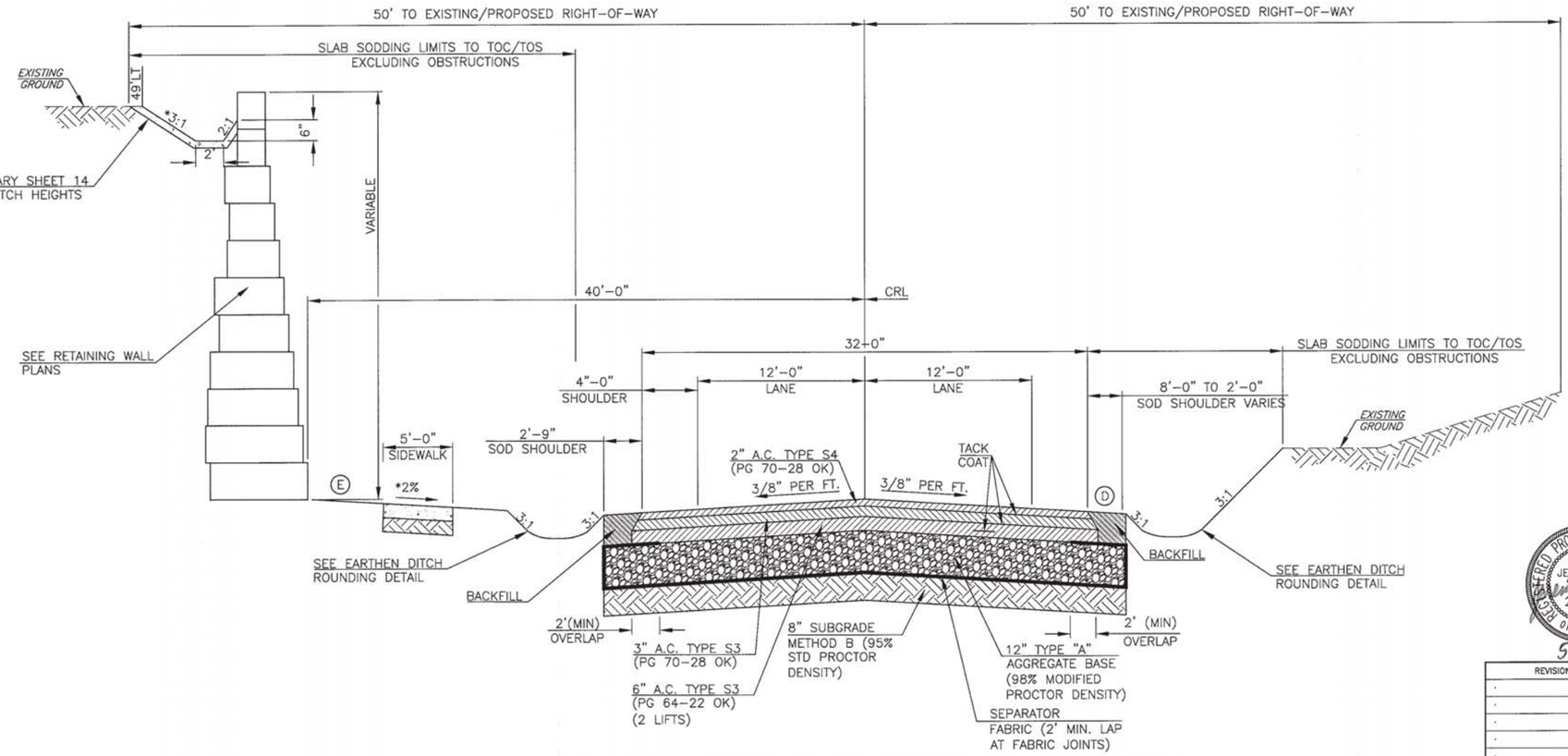
(A) TRM TREAMTMENT FROM STA. 502+42.75 TO 507+02.05, SEE SHEET 11 DETAILS.

(B) 7'-0" TO 8'-11" FROM STA. 502+42.75 TO STA. 507+30.00

(C) TRM TREATMENT FROM STA. 502+95.02 TO 506+43.00, SEE SHEET 11 DETAILS.



EARTHEN DITCH ROUNDING DETAIL



4 TYPICAL ASPHALT RECONSTRUCTION - RETAINING WALL (CUT SECTION LT.)

STA. 507+30.00 TO STA. 508+80.00
*SLOPE VARIES, SEE CROSS SECTIONS

(D) 8'-0" TO 2"-0" FROM STA. 507+79.87 TO 508+80.00
NO CONCRETE DITCH FROM STA. 507+30.00 TO 507+58.66, SEE CROSS SECTIONS.
NO EARTHEN DITCH FROM STA. 507+30.00 TO STA. 507+66.38, SEE CROSS SECTIONS.

(E) 16'-0" TO 2'-0" FROM STA. 507+30 TO 507+71.07
2'-0" FROM STA. 507+71.07 TO 508+80.

REGISTERED PROFESSIONAL ENGINEER — JEREMY D. STANLEY — 21725 — OKLAHOMA — 5/14/15

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TYPICAL 2

PROJECT NO. 104006

101ST STREET-HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
CEC 4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

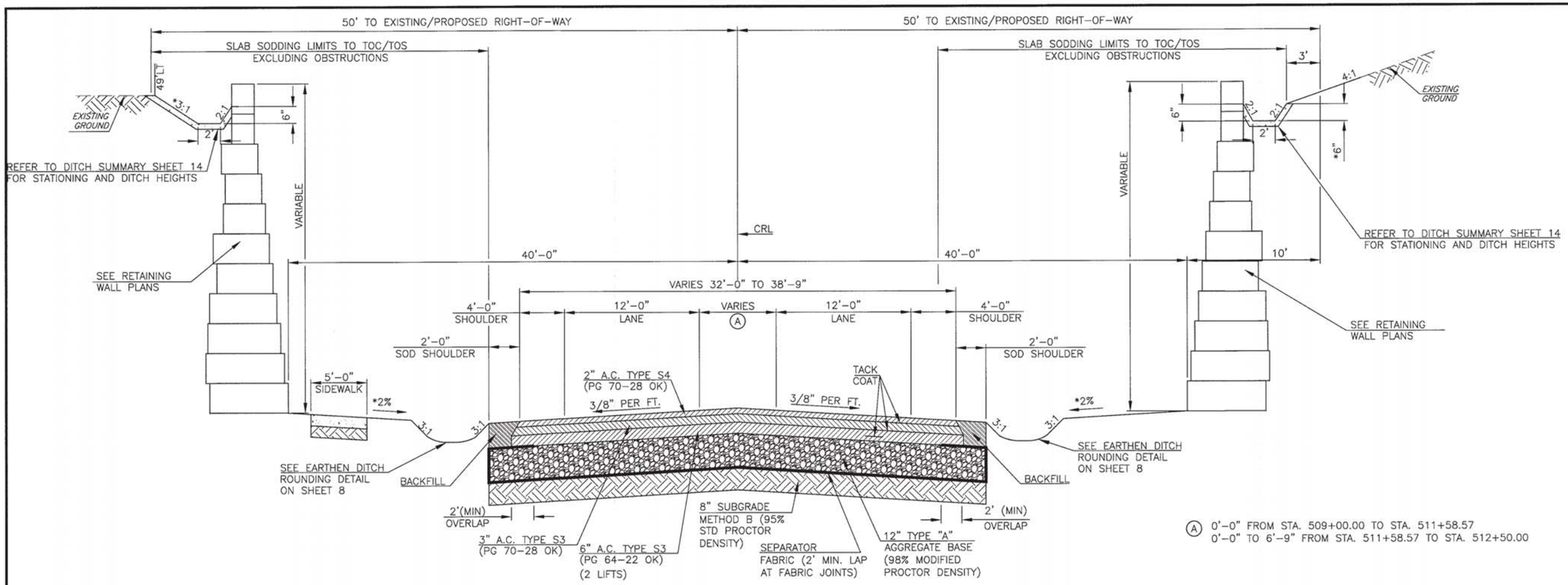
PLAN SCALE: N/A	DRAWN	J.T.S.	07/2014
	DESIGNED	J.P.S.	07/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.	BDC	8/15
HORIZONTAL: N/A	LEAD ENGR.	JD	1/16
	FIELD MGR.	PBV	3/16
VERTICAL N/A	RECOMMENDED: DESIGN MANAGER	HAS	6/16

APPROVED: CITY ENGINEER

DRAWING: 10 TYPICAL 5.DWG — DATE 11/04/16

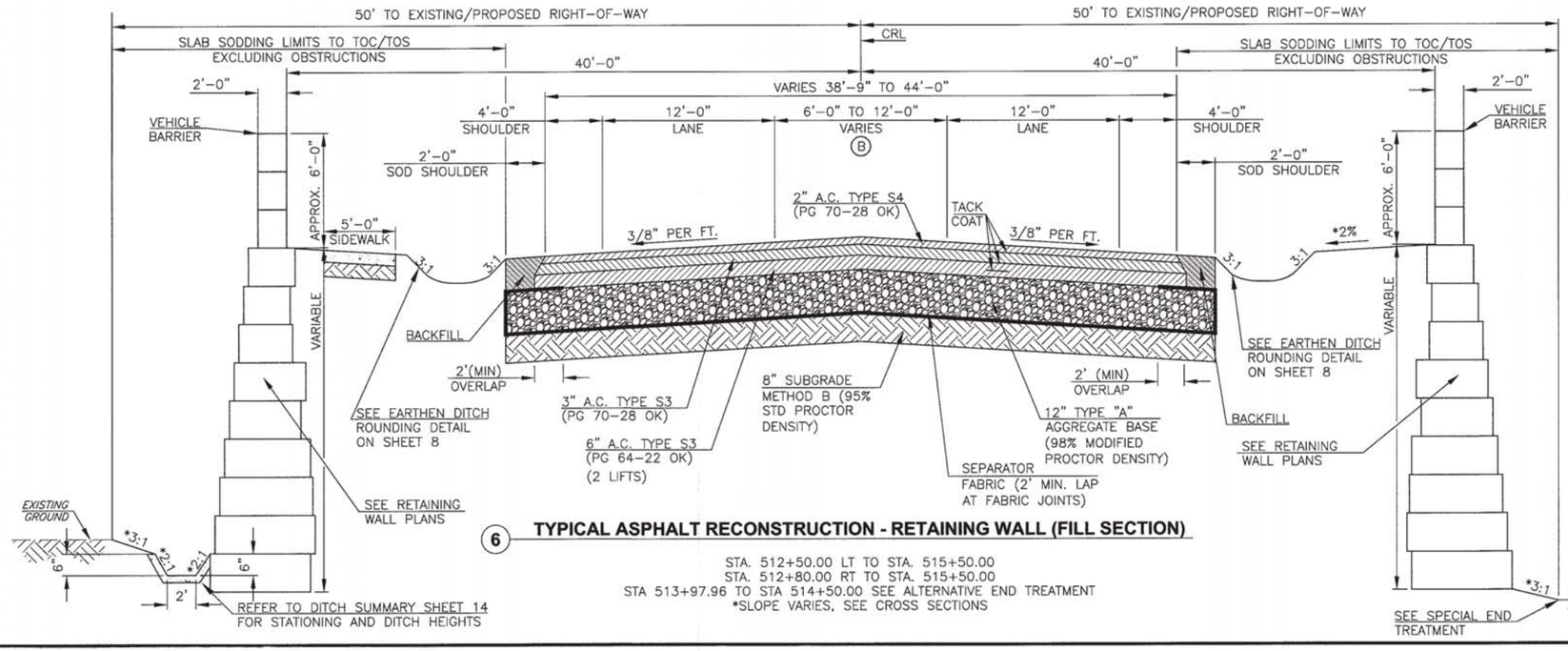
ATLAS PAGE NO: 1276, 1277, 1422, 1423 — SHEET 8 OF 181

PLOT DATE: April 22, 2015, DRAWING NAME: 10 TYPICAL 5.DWG



5 TYPICAL ASPHALT RECONSTRUCTION - RETAINING WALL (CUT SECTION)

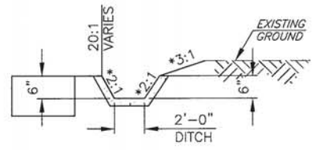
STA. 508+80.00 LT TO STA. 512+50.00
STA. 508+80.00 RT TO STA. 512+80.00
* SLOPE AND DITCH DEPTH VARIES, SEE CROSS SECTIONS



6 TYPICAL ASPHALT RECONSTRUCTION - RETAINING WALL (FILL SECTION)

STA. 512+50.00 LT TO STA. 515+50.00
STA. 512+80.00 RT TO STA. 515+50.00
STA 513+97.96 TO STA 514+50.00 SEE ALTERNATIVE END TREATMENT
*SLOPE VARIES, SEE CROSS SECTIONS

B 6'-9" TO 12'-0" FROM STA. 512+50.00 TO STA. 513+18.57
12'-0" FROM STA. 513+18.57 TO STA. 514+69.11
12'-0" TO 6'-0" FROM STA. 514+69.11 TO STA. 515+50.00



SPECIAL END TREATMENT

STA. 513+97.96 TO STA. 514+50.00
SEE PAVED DITCH DETAIL ON SHEET 7.

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA
5/4/16

TYPICAL 3

PROJECT NO. 104006

101ST STREET-HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
CEC 4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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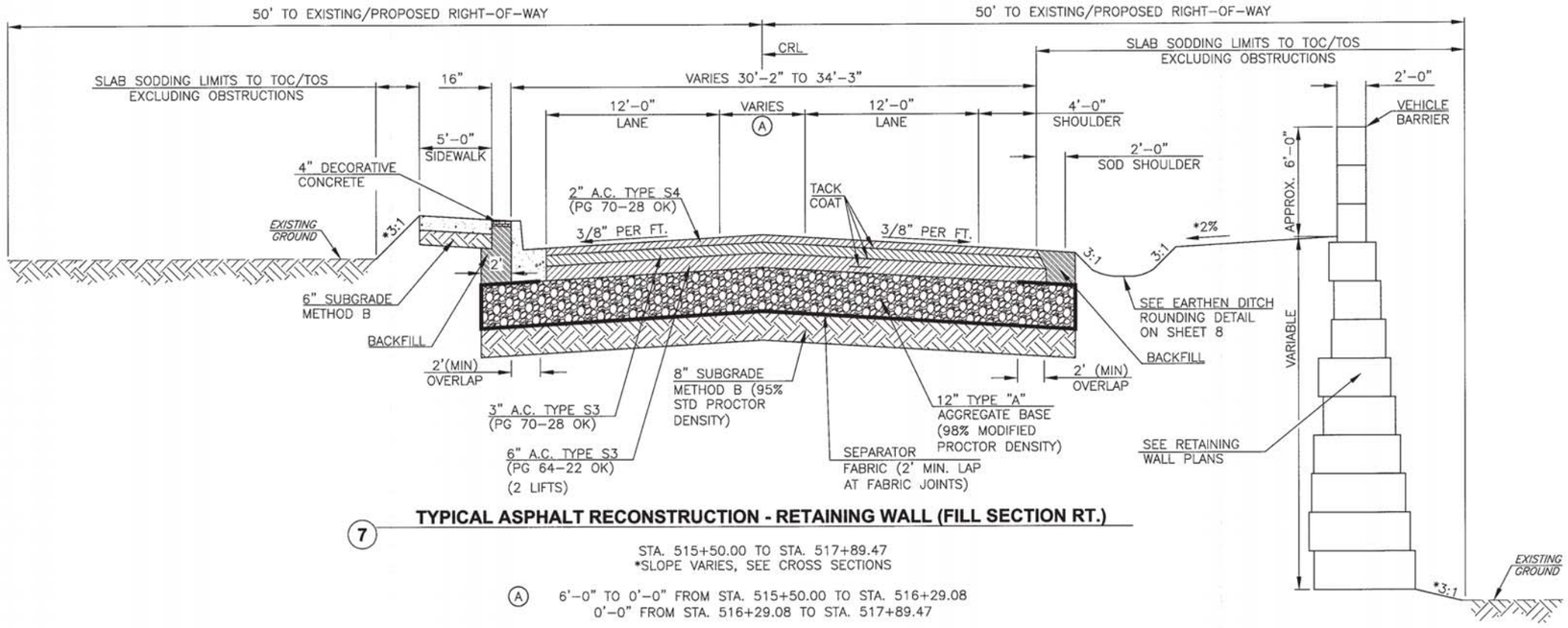
PLAN SCALE: N/A
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A

DRAWN	J.T.S.	07/2014
DESIGNED	J.P.S.	07/2014
SURVEY	A.K.H.	08/2012
PROJ. MGR.	BDC	5/15
LEAD ENGR.	DD	5/16
FIELD MGR.	ZDH	3/16
RECOMMENDED:	HAS	6/16
DESIGN MANAGER		

APPROVED:
CITY ENGINEER
DATE 11.04.16

DRAWING: 10 TYPICAL 5.DWG
ATLAS PAGE NO: 1276, 1277, 1422, 1423
SHEET 9 OF 181

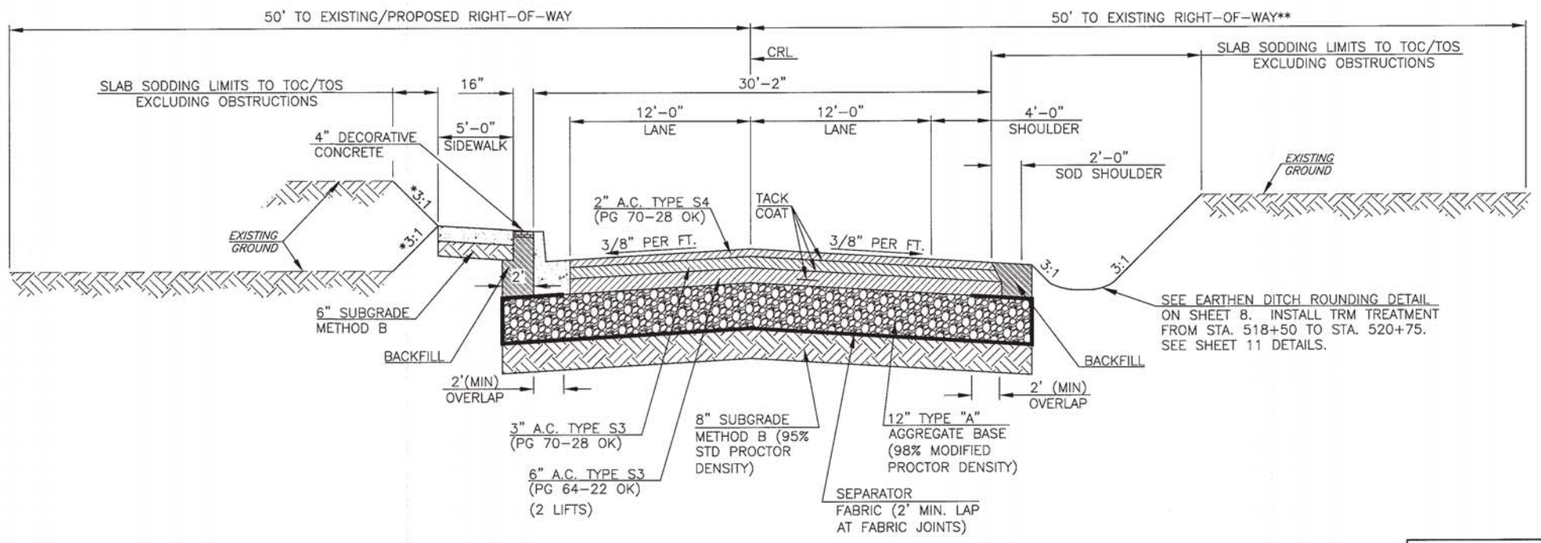
PLOT DATE: April 22, 2015, DRAWING NAME: 10 TYPICAL 5.DWG



(7) TYPICAL ASPHALT RECONSTRUCTION - RETAINING WALL (FILL SECTION RT.)

STA. 515+50.00 TO STA. 517+89.47
*SLOPE VARIES, SEE CROSS SECTIONS

(A) 6'-0" TO 0'-0" FROM STA. 515+50.00 TO STA. 516+29.08
0'-0" FROM STA. 516+29.08 TO STA. 517+89.47



** 40' TO EXISTING RIGHT-OF-WAY FROM STA. 519+81 TO STA. 525+42.

(8) TYPICAL ASPHALT RECONSTRUCTION - CURB LT. SHOULDER RT.

STA. 517+89.47 TO STA. 526+00.00
*SLOPE VARIES, SEE CROSS SECTIONS

REGISTERED PROFESSIONAL ENGINEER — JEREMY P. [illegible] — STATE OF OKLAHOMA — 21725 — 5/4/15

TYPICAL 4

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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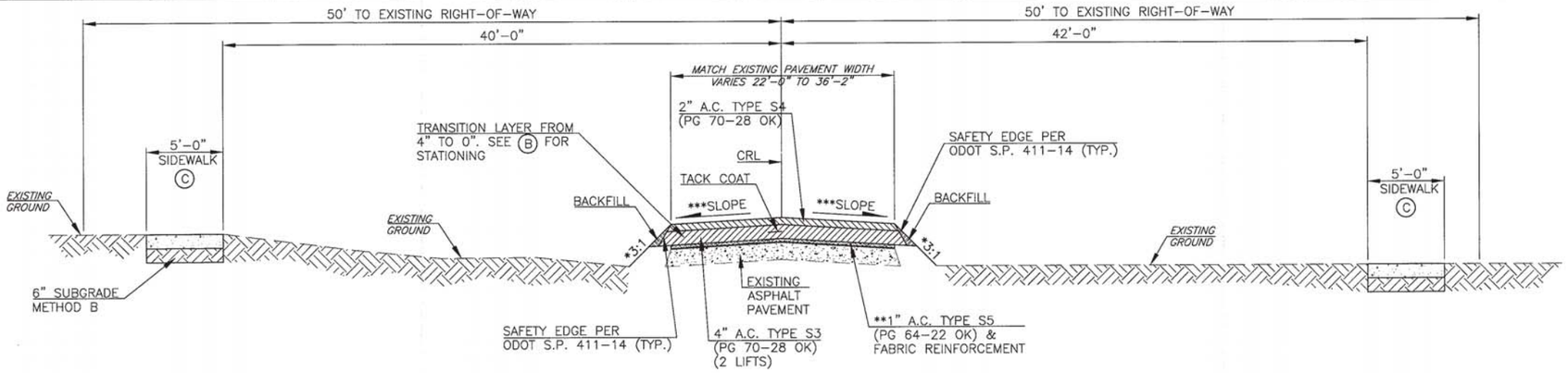
PLAN SCALE: N/A	DRAWN	J.T.S.	07/2014
	DESIGNED	J.P.S.	07/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.	BDC	8/15
HORIZONTAL: N/A	LEAD ENGR.	DD	1/16
	FIELD MGR.	RBV	3/16
VERTICAL N/A	RECOMMENDED: DESIGN MANAGER	HAS	6/16

APPROVED: CITY ENGINEER

DRAWING: 10 TYPICAL 5.DWG — DATE 11.04.16

ATLAS PAGE NO: 1276, 1277, 1422, 1423 — SHEET 10 OF 181

PLOT DATE: April 22, 2015, DRAWING NAME: 10 TYPICAL 5.DWG



(9) TYPICAL ASPHALT OVERLAY & WIDENING

STA 526+00.00 TO STA 549+78.32
*SLOPE VARIES, SEE CROSS SECTIONS

(B) 4" FROM STA. 526+00.00 TO STA. 535+50.00
4" TO 0" FROM STA. 535+50.00 TO STA. 536+50.00
0" FROM STA. 536+50.00 TO STA. 549+78.32

(C) LEFT SIDEWALK FROM STA. 526+00.00 TO STA. 545+18.72
RIGHT SIDEWALK FROM STA. 534+25.61 TO STA. 546+89.88

**1" A.C. TYPE S5 LEVELING COURSE SHALL BE USED AT THE DISCRETION OF THE FIELD ENGINEER PRIOR TO PLACING FABRIC REINFORCEMENT AND MAY BE OMITTED IN ITS ENTIRETY.

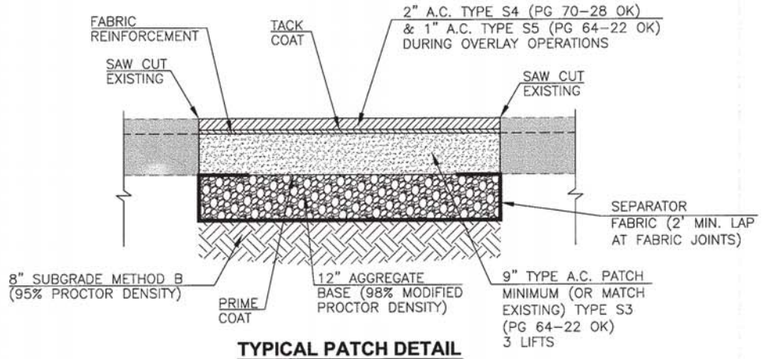
***⅜" PER FOOT MIN. OR MATCH EXISTING SLOPE

RIPRAP GRADATION

% SMALLER THAN GIVEN SIZE BY WEIGHT	INTERMEDIATE ROCK DIMENSION (INCHES)	Dso (INCHES)
70-100	21	
50-70	18	
35-50	12	12
2-10	4	

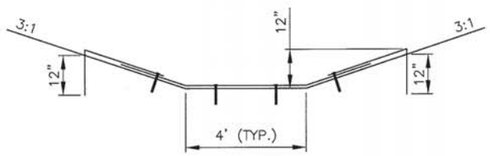
NOTES:
1. FILTER FABRIC SHALL BE INSTALLED UNDER RIPRAP, INCLUDING PERIMETER TOE-IN.
2. TOE-IN RIPRAP ALONG PERIMETER A MINIMUM DEPTH OF 42"
3. FILTER FABRIC SHALL BE INCLUDED IN THE COST PER SQUARE YARD OF INSTALLED TYPE III LAID UP RIPRAP.

RIPRAP INSTALLATION DETAILS



TYPICAL PATCH DETAIL

PERFORM PATCHING AFTER MILLING BUT PRIOR TO OVERLAY OPERATIONS.

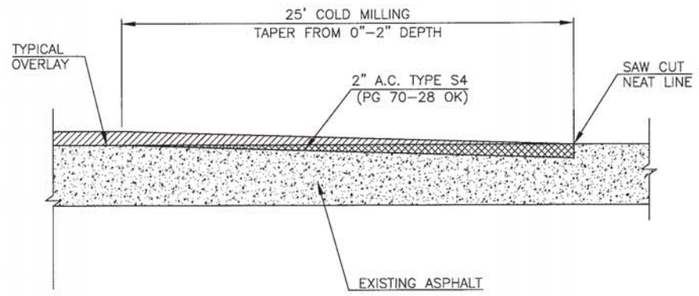


TURF REINFORCEMENT MAT (TRM) DETAIL

RIGHT: STA. 501+50.43 TO STA. 507+00.00
STA. 518+50.00 TO STA. 520+75.00

LEFT: STA. 502+94.00 TO STA. 506+25.00

SEE SHEET 13 FOR TRM INSTALLATION DETAILS.



BUTT JOINT DETAIL

STA 549+53.32 TO 549+78.32

JEREMY P. STAHLE 21725 REGISTERED PROFESSIONAL ENGINEER OKLAHOMA
5/14/15

TYPICAL 5

PROJECT NO. 104006

101ST STREET-HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
CEC 4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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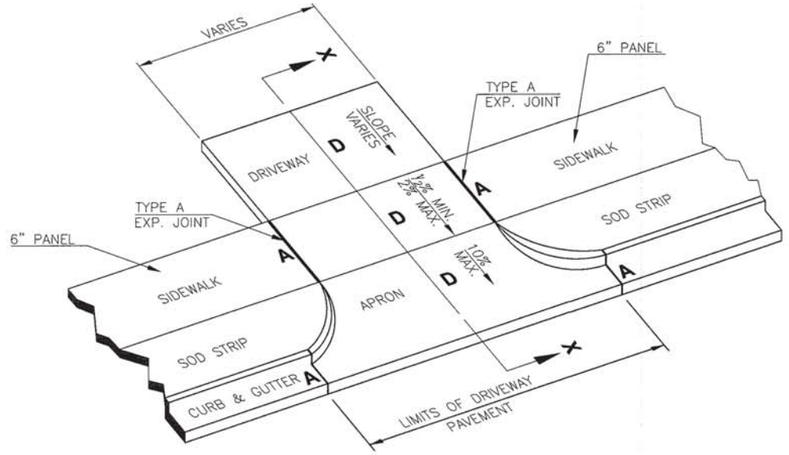
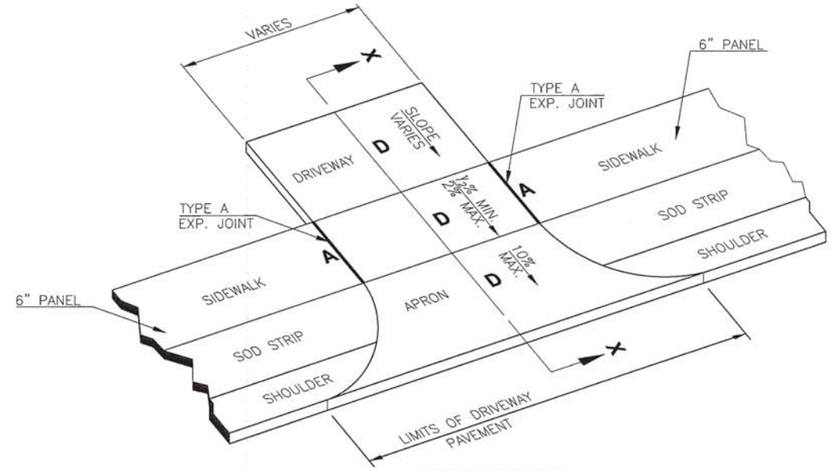
PLAN SCALE: N/A	DRAWN	J.T.S.	07/2014
	DESIGNED	J.P.S.	07/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.		3/16
HORIZONTAL: N/A	LEAD ENGR.		1/16
	FIELD MGR.		3/16
VERTICAL N/A	RECOMMENDED DESIGN MANAGER		6/16

APPROVED:
CITY ENGINEER
DATE 11.04.16
DRAWING: 10 TYPICAL 5.DWG
ATLAS PAGE NO: 1276, 1277, 1422, 1423
SHEET 11 OF 181

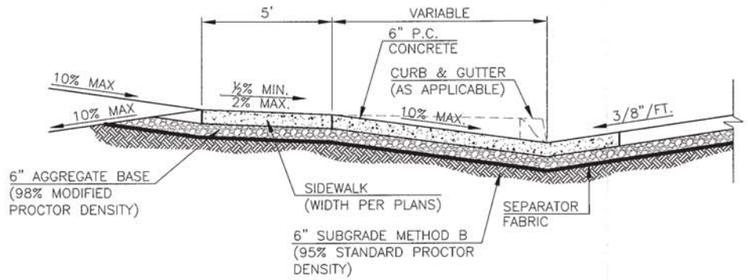
PLOT DATE: April 22, 2015, DRAWING NAME: 10 TYPICAL 5.DWG



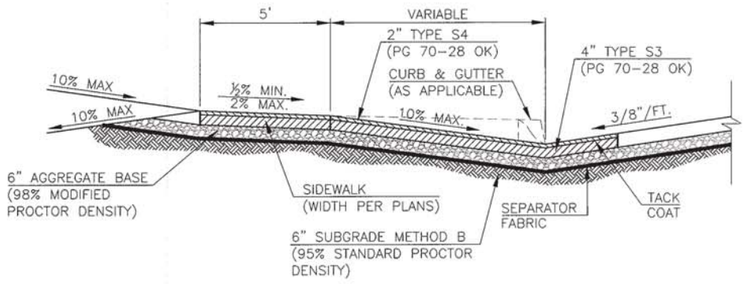
CURBED



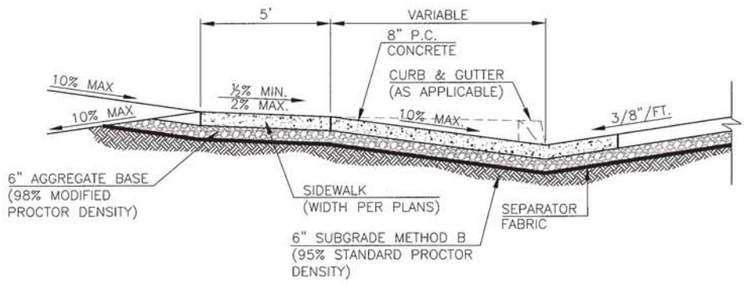
OPEN GRADED



6" P.C. CONCRETE SECTION X-X



ASPHALT SECTION X-X



8" P.C. CONCRETE SECTION X-X

DRIVEWAY DETAILS

N.T.S.

CITY STREET RETURNS SHALL BE REPLACED TO FULL DEPTH OF ARTERIAL TYPICAL SECTION.

TYPE D SAWED CONTRACTION JOINT REQUIRED THROUGH CENTER FOR P.C. CONCRETE DRIVES 15' WIDE & OVER. SAW CUT 2" DEEP AND FILL WITH BACKER ROD AND SILICONE SEALANT.

REGISTERED PROFESSIONAL ENGINEER — JEREMY P. LEWIS — STATE OF OKLAHOMA — 21725

5/4/15

TYPICAL 6

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
CEC 4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE

PLAN SCALE: N/A	DRAWN	T.L.S.	09/2012
	DESIGNED	D.C.G.	06/2012
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.	BDC	8/15
HORIZONTAL: N/A	LEAD ENGR.		1/16
	FIELD MGR.		3/16
VERTICAL N/A	RECOMMENDED: DESIGN MANAGER		6/16

APPROVED: CITY ENGINEER

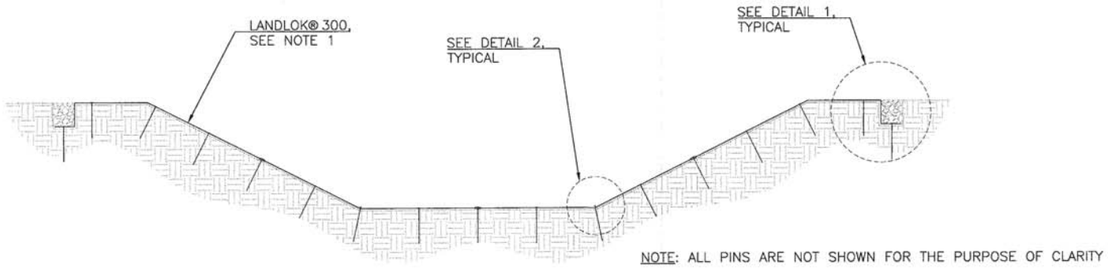
DRAWING: 12 TYPICAL 6.DWG

DATE 11.04.16

ATLAS PAGE NO: 1276, 1277, 1422, 1423

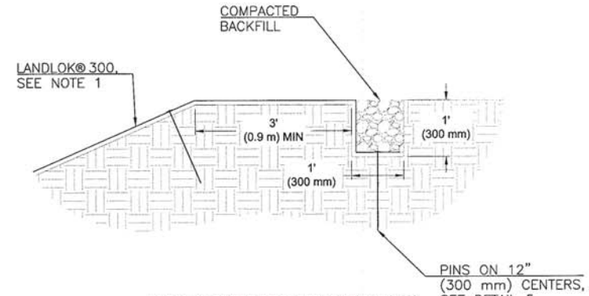
SHEET 12 OF 181

PLOT DATE: April 22, 2015, DRAWING NAME: 12 TYPICAL 6.DWG

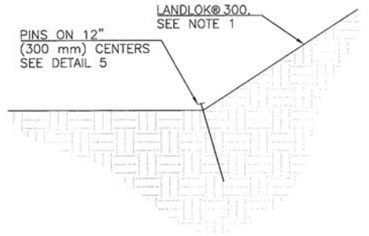


NOTE: ALL PINS ARE NOT SHOWN FOR THE PURPOSE OF CLARITY

ELEVATION 1: PARALLEL INSTALLATION OF LANDLOK® 300 TRM IN A CHANNEL

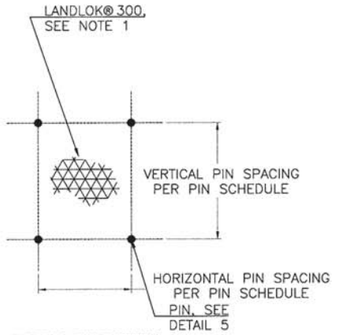


DETAIL 1: CREST OF SLOPE (COS) TRENCH

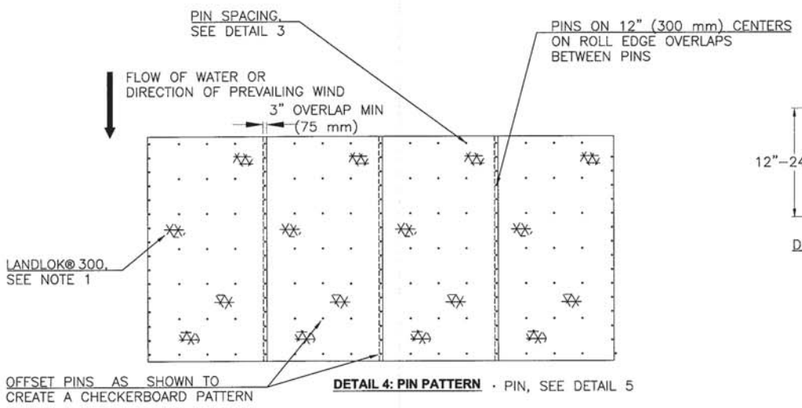


DETAIL 2: BREAK IN SLOPE INTERFACE

NOTE: DETAILS SHOWN HAVE BEEN PROVIDED BY THE MANUFACTURER FOR TYPICAL CHANNEL INSTALLATIONS. TURF REINFORCEMENT MAT SHALL BE INSTALLED IN THE PROPOSED DITCH AS SHOWN ON SHEET 11. MAT SHALL BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATION.

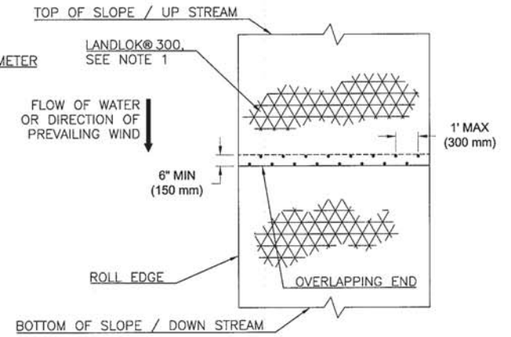


DETAIL 3: PIN PATTERN



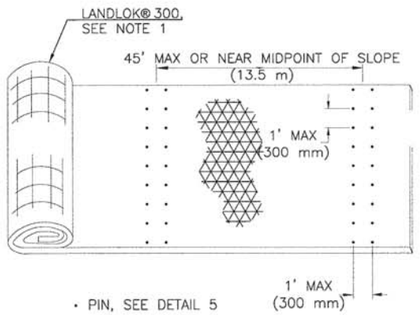
DETAIL 4: PIN PATTERN · PIN, SEE DETAIL 5

DETAIL 5: PIN



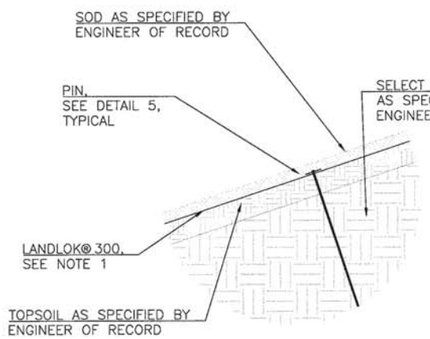
NOTE: MAT SHOULD BE SHINGLED IN THE DIRECTION OF THE DOWN SLOPE AND FLOW

DETAIL 6: OVERLAP AT ROLL END DETAIL

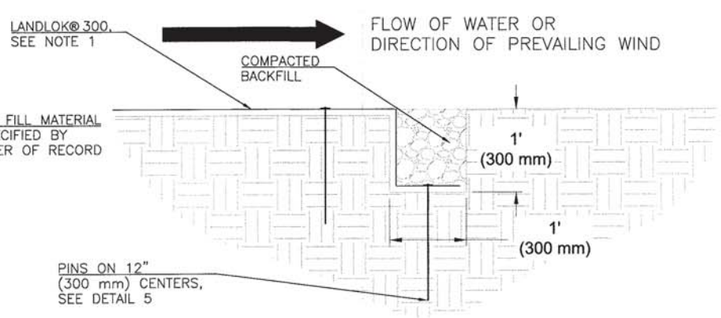


· PIN, SEE DETAIL 5

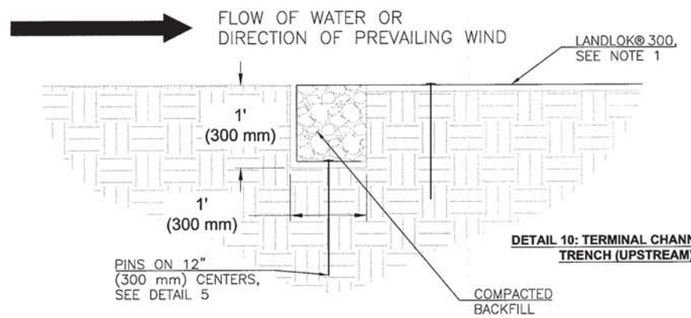
DETAIL 7: SIMULATED CHECK SLOT DETAIL



DETAIL 8: VEGETATION ESTABLISHED



9 INITIAL CHANNEL (IC) TRENCH (DOWNSTREAM)



DETAIL 10: TERMINAL CHANNEL (TC) TRENCH (UPSTREAM)

PIN SCHEDULE	
SECURING DEVICE	PIN
HORIZONTAL SPACING	2' (0.60 m)
VERTICAL SPACING	2.5' (0.75 m)
EMBEDMENT DEPTH	1' (0.30 m)

LANDLOK® 300 TRM IN A CHANNEL FOR EROSION CONTROL GENERAL INSTALLATION GUIDELINES

GENERAL NOTES

1. Landlok® 300 TRM is a three-dimensional, lofty, woven polypropylene geotextile that is available in green or tan which is specially designed for erosion control applications on steep slopes and vegetated waterways. The matrix is composed of polypropylene monofilament yarns featuring X3® technology woven into a uniform configuration of resilient pyramid-like projections. The material exhibits very high interlock and reinforcement capacity with both soil and root systems, demonstrates superior UV resistance, and enhances seedling emergence.
2. The 12", 18", and 24" Securing Pins are composed of a wire, mushroomed at the top. A washer is then placed on the wire and the wire is crimped or swedged about 3-1/2" below the top so the washer will not slide off. The end of the wire is cut at a 45 degree angle for easy penetration of the soil. These Pins with washers conform to industry standards for erosion control pins with washers.

BEFORE INSTALLATION BEGINS

1. Coordinate with a Propex Representative: A pre-construction meeting is suggested with the construction team and a representative from Propex. This meeting should be scheduled by the contractor with at least a two week notice.
2. Gather the Tools Needed: Tools that you will need to install Landlok 300 include a pair of industrial shears to cut Landlok 300 and tape measure.
3. Not Used
4. Please consult the Propex Website for the most up to date installation guidelines.

REGISTERED PROFESSIONAL ENGINEER
JEREMY R. STAPLE
21725
OKLAHOMA
5/14/15

TURF REINFORCEMENT MAT DETAILS

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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PLAN SCALE: N/A
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A

DRAWN	L.P.E	07/2014
DESIGNED	J.P.S.	07/2014
SURVEY	A.K.H.	08/2012
PROJ. MGR.	BDC	8/15
LEAD ENGR	JD	7/16
FIELD MGR.	KEW	3/16
RECOMMENDED DESIGN MANAGER	HAS	6/16

APPROVED: CITY ENGINEER

DRAWING: TURF REINFORCEMENT MAT DETAIL.DWG
DATE 11.04.16
ATLAS PAGE NO: 1276, 1277, 1422, 1423
SHEET 13 OF 181

PLOT DATE: April 22, 2015, DRAWING NAME: TURF REINFORCEMENT MAT DETAIL.DWG

SUMMARY OF SURFACING QUANTITIES

SHEET NUMBER	AGGREGATE BASE TYPE A 303(A)	SUBGRADE, METHOD B 310(B)	SEPARATOR FABRIC 325	FABRIC REINFORCEMENT 409(A)	SUPERPAVE, TYPE S3 (PG 64-22 OK) 411(B)	SUPERPAVE, TYPE S3 (PG 70-28 OK) 411(B)	SUPERPAVE, TYPE S4 (PG 70-28 OK) 411(C)	SUPERPAVE, TYPE S5 (PG 64-22 OK) 411(C)	6" CONCRETE DRIVEWAY (H.E.S.) 610(B)	8" CONCRETE DRIVEWAY (H.E.S.) 610(B)	2'-2" COMB. CURB & GUTTER (8" BARRIER) 609(B)
	CY	SY	SY	SY	TON	TON	TON	TON	SY	SY	LF
38	386	1,159	1,368		362	177	120				
39	698	2,095	2,595		636	314	205				
40	625	1,875	2,375		563	278	181				
41	625	1,875	2,375		563	278	181				
42	754	2,262	2,762		692	343	224				
43	600	1,801	2,301		500	248	163				400
44	588	1,763	2,263		496	246	162				450
45	196	588	754	765	169	264	142	43			150
46				1,121		265	127	63			
47				1,123		265	127	63			
47				1,102		260	125	62			
48				1,364		319	154	76			
49				1,099		254	124	62			
DRIVES	519	2,094	2,052		317	310	187		52	326	
TOTALS	4,991	15,512	18,845	6,574	4,298	3,821	2,222	369	52	326	1,000

SUMMARY OF PATCHING QUANTITIES

SHEET NUMBER	AGGREGATE BASE TYPE A 303(A)	SUBGRADE, METHOD B 310(B)	SEPARATOR FABRIC 325	TYPE I AC PATCH SPECIAL
	CY	SY	SY	CY
38				
39				
40				
41				
42				
43				
44				
45	59	176	211	44
46	223	669	803	167
47	127	380	456	95
48	165	493	592	123
49	70	209	251	52
50				
TOTALS	644	1,927	2,313	481

SUMMARY OF PAVED DITCH

STATION TO STATION	LT./RT.	FORESLOPE HEIGHT (FT)	BACKSLOPE HEIGHT (FT)	FORESLOPE GRADE	BACKSLOPE GRADE	BOTTOM WIDTH	CLASS C CONCRETE 509(D)
						LF	CY
495+67.00 TO 496+22.00	RT	4	0.5	VARIES 1:1 TO 3:1	3:1	4	10
496+22.00 TO 499+60.00	RT	VARIES 1.67 TO 0.67	0.67	1:1	3:1	4	32
499+60.00 TO 501+50.43	RT	1	0.67	3:1	3:1	4	23
499+52.71 TO 502+42.70	LT	VARIES 2 TO 2.67	0.50	1:1	1:1	2	30
507+30.00 TO 512+00.00	LT	0.5	VARIES 1 TO 2	2:1	VARIES 2:1 TO 5:1	2	47
508+80.00 TO 512+50.00	RT	0.5	VARIES 1 TO 1.5	2:1	2:1	2	28
512+00.00 TO 513+96.56	LT	0.5	0.5	2:1	2:1	2	11
513+00.00 TO 513+18.00	RT	1	1	2:1	2:1	2	3
513+64.93 TO 514+51.03	RT	0.5	0.5	2:1	2:1	2	5
514+44.78 TO 515+50.00	LT	0.5	0.5	2:1	2:1	2	6
						TOTALS	185

SCHEDULE OF EARTHWORK

SHEET NUMBER	UNCLASSIFIED EXCAVATION 202(A) ***	EMBANKMENT +15%	EXCESS EXCAVATION *	REQUIRED BORROW
	CY	CY	CY	CY
38	542	90	452	0
39	429	1,569	0	1140
40	1,194	322	872	0
41	11,853	19	11,834	0
42	5,398	2,066	3,332	0
43	1,029	1,798	0	769
44	1,694	137	1,557	0
45	809	124	685	0
46	51	200	0	0
47	97	411	0	0
48	185	31	154	0
49	155	12	143	0
50	84	7	77	0
TOTALS	23,520	6,786	19,106	1,909

* UNCLASSIFIED BORROW WILL NOT BE REQUIRED DUE TO EXCESS EXCAVATION.

*** 23,241 CY OF UNCLASSIFIED EXCAVATION HAVE BEEN ESTIMATED TO ACCOUNT FOR PAVEMENT REMOVAL. THESE VOLUMES HAVE BEEN INCLUDED ON THE CROSS SECTIONS.

SUMMARY OF REMOVALS

SHEET NUMBER	REMOVAL OF ASPHALT PAVEMENT 619(B)	REMOVAL OF ASPHALT PAVEMENT 619(B)	REMOVAL OF FENCE 619(B)	REMOVAL OF CONCRETE DRIVEWAY 619(B)	REMOVAL OF ASPHALT DRIVEWAY 619(B)
	SY	SY	LF	SY	SY
38	731				214
39	1,551				
40	1,265		1,153		
41	1,355				85
42	1,357		675		
43	1,573				229
44	1,143				197
45	378			57	
46	100		106		
47	142				
48					
49	126				
50		88			50
TOTALS	9,721	88	1,934	57	775

SUMMARY OF EROSION CONTROL

SHEET NUMBER	TEMPORARY SILT DIKE 221(C)	TEMPORARY SEDIMENT FILTER 221(D)	SOLID SLAB SODDING 230(A)	TYPE III LAID UP RIPRAP 601(G)	TURF REINFORCEMENT MAT 227	PAVED DITCH
	LF	EA	SY	SY	LF	LF
31	42	5	2541			790
32	42	5	4199		50	582
33	56	10	4445	6	798	645
34	28	2	2328		52	
35	56	4	426	16		
36	77	1	639	37		
TOTALS	301	27	14,578	59	900	2,017

REMOVAL OF STRUCTURES AND OBSTRUCTIONS SUMMARY

STATION	SHEET NO.	DESCRIPTION	QUANITITY	LENGTH
499+52.55, 34.8' LT	39	AREA INLET	1 EA	
507+38.41, 41.2' LT	41	AREA INLET	1 EA	
507+38.57, 19.9' RT	41	18" RCP W/ HDWLS EA. END	2 EA	36 LF
510+26.50, 26.5' LT	41	4' ID SS MANHOLE W/ 8" PVC	1 EA	357 LF
513+27.68, 26.2' LT	42	4' ID SS MANHOLE	1 EA	
514+89.00, 43.7' RT	42	4' ID SS MANHOLE W/ 8" PVC	1 EA	26 LF
513+32.41, 32.9' RT	42	AREA INLET/18" RCP	1 EA	49 LF
513+53.96, 53.3' RT	42	AREA INLET/18" RCP	1 EA	29 LF
513+78.27, 41.0' RT	42	24" RCP WITH HDWL	1 EA	33 LF
515+20.02, 39.1' LT	42	AREA INLET	1 EA	
515+80.32, 37.3' LT	43	12" RCP W/ HDWL	1 EA	111 LF
517+45.03, 23.1' LT	43	12" CGMP W/ 2 AREA INLETS	2 EA	67 LF
519+73.44, 27.0' LT	43	HDWL	1 EA	

* SEWER LINE TO BE ABANDONED OR REMOVED AS DETERMINED IN THE FIELD BY THE ENINGEER TO PREVENT CONFLICT WITH THE PROPOSED WATER LINE.

REGISTERED PROFESSIONAL ENGINEER JEREMY P. STALLINGS 21729 OKLAHOMA 5/14/15

REVISION	BY	DATE
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SUMMARY TABLE 1 (ROADWAY)

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

PLAN SCALE: N/A	DRAWN	J.R.C.	07/2014
	DESIGNED	J.P.S.	07/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A	FIELD MGR.	TBW	5/14
	LEAD MGR.	DW	5/16
	PROJ. MGR.	BDC	5/15
	RECOMMENDED: DEPUTY DIRECTOR	HMS	6/16

APPROVED: CITY ENGINEER

DRAWING: 14 – SUMMARY TABLE 1 (ROADWAY) DATE 11.04.16

ATLAS PAGE NO: 1276, 1277, 1422, 1423 SHEET 14 OF 181

PLOT DATE: April 22, 2015, DRAWING NAME: 13 SUMMARY TABLE 2 (ROADWAY).DWG

SUMMARY OF SIGNS

APPROXIMATE STATION	OFFSET	LT/RT	SIGN TYPE	SIGN DIMENSIONS	GROUND SIGN COT 608(A)	POST		
						1-1/2" SIGN POST COT 608(C)	1-3/4" SIGN POST COT 608(C)	2" SIGN POST COT 608(E)
					SF	LF	LF	LF
497+28.02	24.19'	RT	S5-3 "END SCHOOL SPEED ZONE"	24" X 30"	5.00		10.5	3
			OM3-R	12" X 36"				
498+59.12	31.68'	LT	R3-5(R) "RIGHT TURN ONLY"	30" X 36"	7.50		10.5	3
501+00.00	22.50'	RT	R2-1(40) "SPEED LIMIT"	24" X 30"	5.00		10.5	3
506+48.17	45.95'	LT	R1-1 "STOP"	30" X 30"	5.18		10.5	3
			COT-608 "S JAMESTOWN AVE"	36" X 6"	3.00	1.5		
			COT-608 "E 101ST ST"	18" X 6"	1.50			
513+49.88	40.50'	RT	R1-1 "STOP"	30" X 30"	5.18		10.5	3
			COT-608 "S LOUISVILLE AVE"	30" X 6"	2.50	1.5		
			COT-608 "E 101ST ST"	18" X 6"	1.50			
514+72.93	26.26'	LT	R3-7(L) "LEFT LANE MUST TURN LEFT"	30" X 30"	6.25		10.5	3
515+72.62	44.64'	LT	R1-1 "STOP"	30" X 30"	5.18		10.5	3
			COT-608 "S RICHMOND AVE"	30" X 6"	2.50	1.5		
			COT-608 "E 101ST ST"	18" X 6"	1.50			
518+27.30	48.30'	RT	R1-1 "STOP"	30" X 30"	5.18		10.5	3
			COT-608 "S MARION AVE"	24" X 6"	2.00	1.5		
			COT-608 "E 101ST ST"	18" X 6"	1.50			
524+50.00	22.50'	RT	R2-1(40) "SPEED LIMIT"	24" X 30"	5.00		10.5	3
524+50.00	22.50'	LT	R2-1(40) "SPEED LIMIT"	24" X 30"	5.00		10.5	3
546+47.06	23.50'	RT	R3-9B "CENTER LANE ONLY"	24" X 36"	6.00		10.5	3
546+47.06	23.50'	LT	R3-9B "CENTER LANE ONLY"	24" X 36"	6.00		10.5	3
			M4-6 "END"	24" X 12"	2.00	1.5		
549+78.32	23.50'	LT	R3-9B "CENTER LANE ONLY"	24" X 36"	6.00		10.5	3
				TOTALS	90.47	7.5	136.5	39

SUMMARY OF PAVEMENT MARKINGS

SHEET NUMBER	WHITE TRAFFIC STRIPE (PLASTIC) (4" WIDE) 855(A)	YELLOW TRAFFIC STRIPE (PLASTIC) (4" WIDE) 855(A)	YELLOW TRAFFIC STRIPE (PLASTIC) (8" WIDE) 855(A)	WHITE TRAFFIC STRIPE (PLASTIC) (24" WIDE) 855(A)	TRAFFIC STRIPE (PLASTIC) (ARROW) 855(B)
	LF	LF	LF	LF	EA
66	1476	1757	58		5
67	1654	1628		17	
68	1237	1722	95	37	
69	1165	1800			
70	1510	1356			
71	1519	2227	76		2
72	415	598			
TOTALS	8,976	11,088	229	54	7

SUMMARY OF TREE REMOVAL

SHEET NUMBER	REMOVAL OF TREES 6"-12"	REMOVAL OF TREES 13"-18"	REMOVAL OF TREES 19"-24"	REMOVAL OF TREES 25"-30"	REMOVAL OF TREES 31"-36"	REMOVAL OF TREES 43"-UP
	EA.	EA.	EA.	EA.	EA.	EA.
39	3	2				1
40	8	1	3			
41	43	7	2	5	1	
42	83	12	3	1		
43	20	3	6	3		
44	2	2	1	2		
45	34					
TOTALS	193	27	15	11	1	1

SUMMARY OF MISCELLANEOUS ITEMS

SHEET NUMBER	CLEARING AND GRUBBING 201(A)	TYPE A SALVAGED TOPSOIL 205(A)	MOWING 241	4" CONCRETE SIDEWALK 610(A)	4" DECORATIVE CONCRETE SIDEWALK 610(A)	TACTILE WARNING DEVICE - NEW 610(I)	HANDICAP RAMP SPECIAL
	AC	CY	AC	SY	SY	SF	EA
38	0.08	45	0.08	60		10	
39	0.48	257	0.48	250			
40	0.38	204	0.38	250		10	
41	0.66	355	0.66	230		10	2
42	0.79	425	0.79	250			
43	0.47	255	0.47	223	53	40	4
44	0.40	217	0.40	231	61	20	2
45	0.15	100	0.43	250	23		
46			0.41	230		20	2
47			0.09	461		10	1
48			0.07	500			
49			0.16	371		40	4
50			0.08				
TOTALS	3.41	1,858	4.50	3,306	137	160	15

SUMMARY OF DRIVES

DRIVE NUMBER	SR/DW	STATION	PAGE NUMBER	AREA	AGGREGATE BASE 303(A)	SUBGRADE, METHOD B 310(B)	SEPARATOR FABRIC 325	SUPERPAVE, TYPE S3 (PG 64-22 OK) 411(C)	SUPERPAVE, TYPE S3 (PG 70-28 OK) 411(C)	SUPERPAVE, TYPE S4 (PG 70-28 OK) 411(C)	6" CONCRETE DRIVEWAY (H.E.S.) 610(B)	8" CONCRETE DRIVEWAY (H.E.S.) 610(B)
				SY	CY	SY	SY		TON	TON	SY	SY
1	DW	496+21.96	38	111	18	111	133		25	12		
2	SR	506+71.88	41	185	61	185	220	54	27	18		
3	DW	507+39.53	41	76	13	75	90		15	7		
4	SR	513+30.57	42	105	35	105	125	29	15	10		
5	SR	515+91.00	43	203	67	202	242	57	29	19		
6	DW	517+50.00	43	235	39	235	281		52	26		
7	SR	518+06.75	43	171	57	171	204	53	26	18		
8	DW	520+91.75	44	49	8	49	59		11	5		
9	DW	522+47.15	44	43	7	43	52		10	5		
10A	DW	522+68.03	44	31	5	31	36		7	3		
10	DW	523+11.17	44	186	31	186	222					185
11	DW	523+30.49	44	142	24	142	169					141
12	DW	526+23.87	45	52	9	52	61				52	
13	SR	532+39.97	46	100	33	100	120	33	17	11		
14	SR	533+90.02	47	145	47	142	170	48	24	16		
15	SR	544+38.00	48	89	29	89	106	30	15	10		
16	SR	545+43.00	48	38	13	38	46	13	6	4		
17	DW	547+18.00	50	138	23	138	166		31	23		
			TOTALS	2,099	519	2,094	2,502	317	310	187	52	326

SUMMARY OF FENCE

STATION TO STATION	OFFSET	6' WOODEN PRIVACY FENCE 624(SP)	6' WOODEN PRIVACY FENCE WITH BRICK COLUMNS 624(SP)	8' WOODEN PRIVACY FENCE WITH BRICK COLUMNS 624(SP)	8' WOODEN PRIVACY FENCE 624(SP)	4' SPLIT 3 RAIL FENCE 624(SP)	6' STEEL ORNAMENTAL FENCE 624(SP)
		LF	LF	LF	LF	LF	LF
502+67.88 TO 505+75.61	LT	308					
503+18.38 TO 507+22.25	RT					409	
507+30.00 TO 512+50.00	LT						520
507+50.00 TO 509+15.00	LT	164	164				
507+55.67 TO 508+80.00	RT					133	
508+80.00 TO 512+80.00	RT						400
509+15.00 TO 513+05.00	LT			415			
512+80.07 TO 512+90.01	RT					23	
514+93.09 TO 514+93.31	RT	24					
517+25.00 TO 517+25.43	RT	23					
529+46.34 TO 530+11.57	LT				106		
	TOTALS	519	164	415	106	565	920

RIGHT OF ENTRY FOR RECONSTRUCTION

STATION	PAGE NUMBER	ADDRESS	DESCRIPTION
507+39.91, LT	41	3300 E 101ST STREET S	35' X 30' CENTERED ON DRIVE
517+50.00, LT	43	3707 E 101ST STREET S	70' X 25' CENTERED ON DRIVE
522+47.15, RT	44	4004 E 101ST STREET S	30' X 10' CENTERED ON DRIVE
523+11.17, LT	44	4001 E 101ST STREET S	45' X 30' CENTERED ON DRIVE
523+30.49, LT	44	4001 E 101ST STREET S	35' X 30' CENTERED ON DRIVE

REGISTERED PROFESSIONAL ENGINEER — JEREMY P. STAPLE — 21725 — STATE OF OKLAHOMA
5/4/15

SUMMARY TABLE 2 (ROADWAY)

PROJECT NO. 104006

101ST STREET-HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
CEC 4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE

PLAN SCALE: N/A
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A

DRAWN	-	-
DESIGNED	D.C.G.	06/2012
SURVEY	A.K.H.	08/2012
PROJ. MGR.	BDC	8/15
LEAD ENGR.	DJ	11/16
FIELD MGR.	BDV	3/16
RECOMMENDED: DESIGN MANAGER	BDV	6/16

APPROVED: CITY ENGINEER

DRAWING: 13 SUMMARY TABLE 2 (ROADWAY).DWG
DATE 11.04.16
ATLAS PAGE NO: 1276, 1277, 1422, 1423
SHEET 15 OF 181

PLOT DATE: April 22, 2015, DRAWING NAME: 13 SUMMARY TABLE 2 (ROADWAY).DWG

SUMMARY OF DRAINAGE STRUCTURES

STR. NO.	STATION	OFFSET	DESCRIPTION	ELEVATIONS: TOP OF GR/RIM	ELEVATIONS: FL IN	ELEVATIONS: FL OUT	MANHOLE 611(A): 4' DIA.	MANHOLE 611(A): 6' DIA.	ADDITIONAL DEPTH IN MANHOLE 611(B): 4' DIA.	ADDITIONAL DEPTH IN MANHOLE 611(B): 6' DIA.	COT STANDARD DROP INLET (DES. NO. 1) COT 771	COT STANDARD DROP INLET (DES. NO. 2) COT 770	COT STANDARD DROP INLET (DES. NO. 2) COT 771	CI DES. 2(D) INLET 611(G)	CI DES. 2(A+B) INLET 611(G)	CI DES. 2(D) INLET W/ ACCESS MH 611(G)	ADDITIONAL DEPTH IN INLET COT 770	ADDITIONAL DEPTH IN INLET COT 771	ADDITIONAL DEPTH IN INLET 611(H)	R.C. PIPE CLASS III, ROUND 613(A): 12"	15"	18"	24"	30"	36"	R.C. PIPE ARCHED, CLASS A–III 613(A): 36" X 22"	PCES 613(L): 15"	18"	24"	36" X 22"
							EA	EA	VF	VF	EA	EA	EA	EA	EA	EA	VF	VF	VF	LF	LF	LF	LF	LF	LF	LF	EA	EA	EA	EA
1	499+52.71	43.7' LT	COT DESIGN 1 DROP INLET WITH 5' WIDE THROAT OPENING	619.28	615.20	614.70					1														11.74					
2	507+77.76	26.5' RT	COT DES. 2 DROP INLET	677.61	NW=672.55 SW=672.55	672.55						1					2.78				77.81						1			
3	499+80.09	43.7' LT	COT DESIGN 1 DROP INLET WITH 5' WIDE THROAT OPENING	619.79		615.71					1													27.37						
4	509+02.31	45.5' RT	COT DESIGN 2 DROP INLET	687.66		675.00						1					10.41				123.86									
5	502+92.92	21.1' LT	COT DESIGN 2 DROP INLET	643.24		639.60						1					1.29					49.87						1		
6	512+53.01	45.1' RT	COT DESIGN 2 DROP INLET	680.56		667.10						1					11.21				44.35									
7	507+64.25	19.9' LT	COT DESIGN 2 DROP INLET	677.36	672.87	672.87						1					2.30				48.33									
8	512+96.65	29.5' RT	COT DESIGN 1 DROP INLET	671.57	SW=666.42 SE=663.35	662.60					1							5.95						54.67						
9	507+56.35	45.3' LT	COT DESIGN 2 DROP INLET	685.98		673.00						1					10.73				26.65									
10	513+56.11	36.9' RT	COT DESIGN 2 DROP INLET	670.94	668.00	664.05						1					4.67				59.93									
11	512+96.57	25.1' LT	COT DESIGN 1 DROP INLET	671.67	662.00	662.00					1							7.73						118.43						
12	518+50.00	30.0' RT	COT DESIGN 2 DROP INLET	692.63		690.30						1										46.00								
13	514+14.95	21.7' LT	6' DIA. STORM MANHOLE	673.27	W=662.00 E=663.10	651.50		1		15.77															25.33					
14	526+00.12	24.5' RT	COT DESIGN 2 DROP INLET	723.19		720.75						1									50.14						1			
15	516+42.30	18.2' LT	6' DIA. STORM MANHOLE	682.40	668.50	668.00		1		8.40														225.07						
16	539+36.63	36.3' RT	18" PCES		726.73																	10.23						1		
17	516+42.32	45.5' LT	COT DESIGN 2 DROP INLET	674.95	671.00	669.50							1					3.42						23.95						
18	539+36.96	26.1' RT	24" PCES			726.80						1											8.40						1	
19	517+35.66	42.7' LT	DESIGN 2(A+B) CICI	686.41	676.50	676.50									1				6.20				93.65							
21	518+50.00	13.5' LT	DESIGN 2(D) CICI WITH ACCESS MANHOLE	695.98	E=686.65 S=689.95	684.15										1			8.12				115.29							
23	519+73.44	27.0' LT	4' DIA. STORM MANHOLE	707.15	E=696.40 N=703.97	696.15	1		5.00													123.93								
25	520+54.16	13.5' LT	DESIGN 2(D) CICI	712.15		703.40								1					5.04	8	81.81									
27	529+60.27	43.9' LT	SIDE DRAIN		704.20	703.75																			26.96					2
29	539+35.35	23.1' LT	24" PCES		727.81																		6.00						1	
31	539+74.08	36.2' LT	18" PCES			729.69																12.29						1		
32	520+90.74	22.9' RT	SIDE DRAIN		713.91	711.12																31.96						2		
34	522+47.15	22.6' RT	SIDE DRAIN		722.30	721.20																27.53						2		
E5	513+46.61	70.1' RT	EXISTING STRUCTURE	671.50		668.38															30.76									
			SUBTOTAL:				1	2	5.00	24.17	4	10	1	1	1	1	43.39	17.10	19.36	8.00	543.64	301.81	223.34	449.49	37.07	26.96	2	7	2	2

NOTE: STRUCTURE 19 SHALL HAVE 8" BARRIER CURB HOODS

PLOT DATE: 4/22/2015, DRAWING FILE: N:\TULSA\PROJECTS\TPWD – 101ST – HARVARD TO YALE\PROJECT DRAWINGS\16 DRAINAGE STRUCTURE SUMMARY 1.DWG

DRAINAGE STRUCTURE SUMMARY 1

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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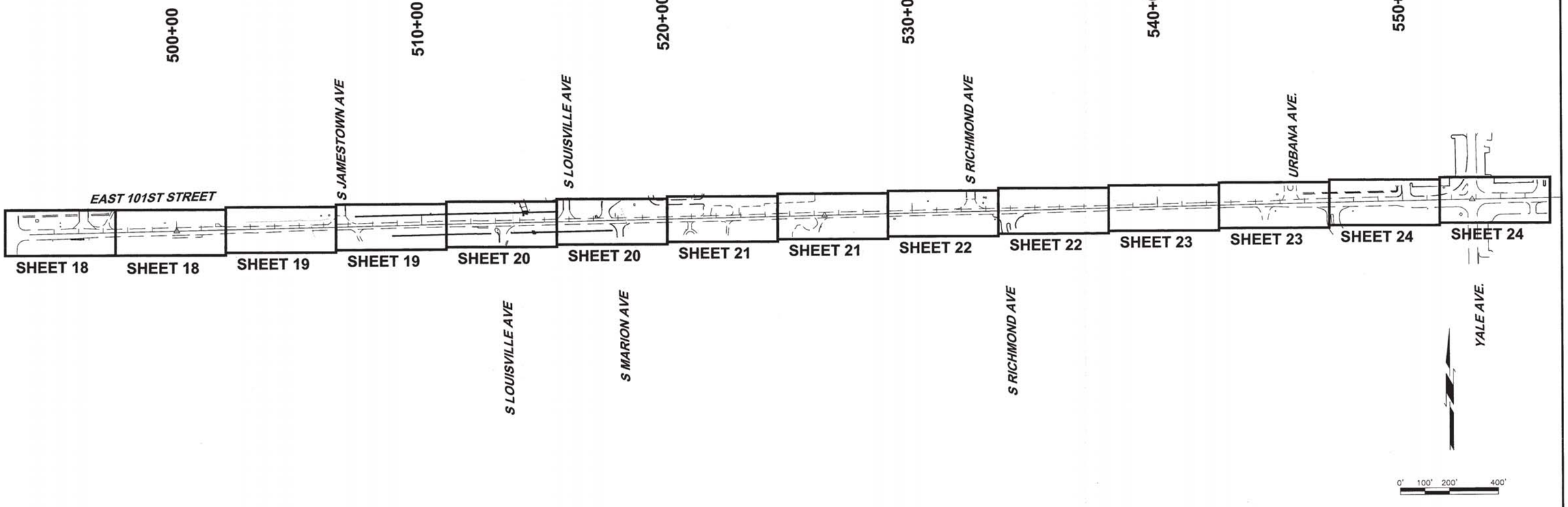
REGISTERED PROFESSIONAL ENGINEER — JEREMY P. [illegible] — 21725 — OKLAHOMA

PLAN SCALE: N/A	DRAWN	L.S.T.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A	PROJ. MGR.	TRD	3/1/16
	LEAD ENGR.	JPS	3/16
	FIELD MGR.	PEW	3/16
	RECOMMENDED:	HLS	6/16
	DESIGN MANAGER		

APPROVED: CITY ENGINEER

DRAWING: 16 DRAINAGE STRUCTURE SUMMARY 1.DWG — DATE 11.04.16

ATLAS PAGE NO: 1276, 1277, 1422, 1423 — SHEET 16 OF 181



PLOT DATE: April 14, 2015, DRAWING NAME: 19 SURVEY DATA KEY MAP.DWG

Darren M. Smith 4/15/15

SURVEY DATA KEY MAP

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

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4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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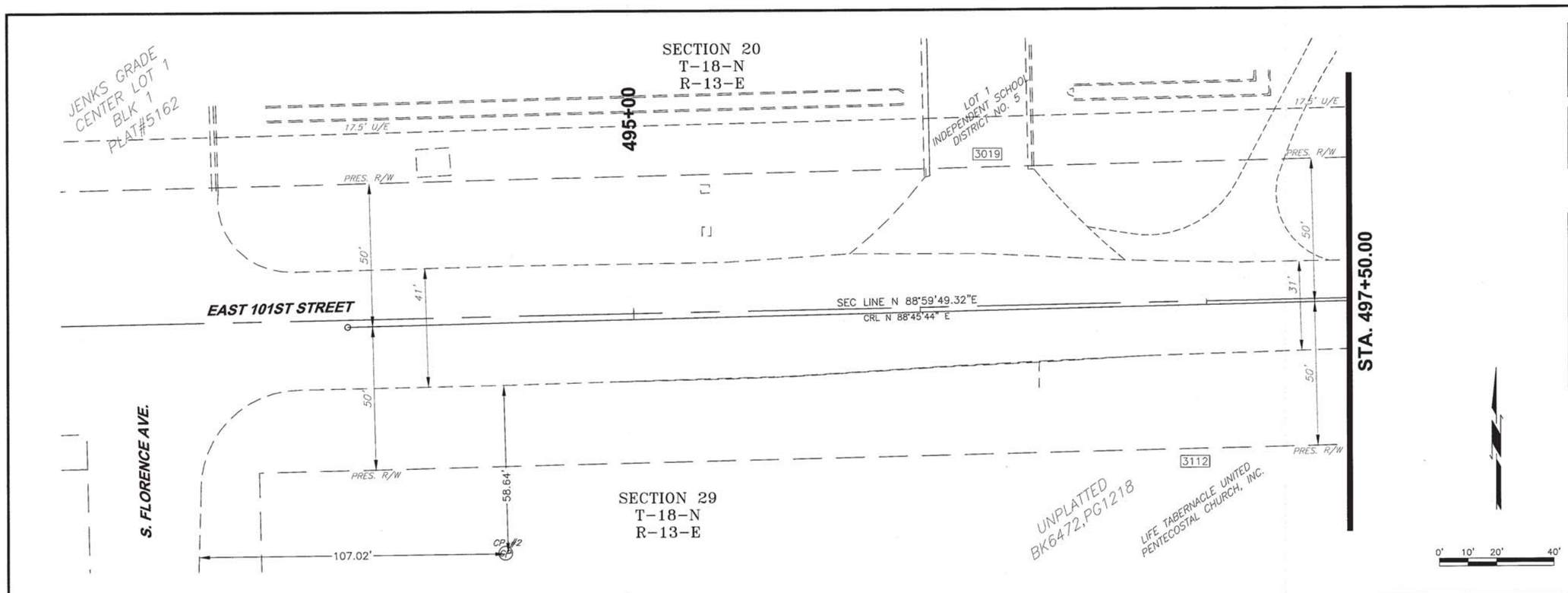
PLAN SCALE: N/A	DRAWN	J.R.C.	09/2012
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.	BDC	8/15
HORIZONTAL: N/A	LEAD ENGR.	DSV	1/16
	FIELD MGR.	DSV	3/16
VERTICAL N/A	RECOMMENDED	HAS	4/16
	DESIGN MANAGER		
DRAWING: 19 SURVEY DATA KEY MAP.DWG			
ATLAS PAGE NO: 1276, 1277, 1422, 1423			

APPROVED:

CITY ENGINEER

DATE 4.24.16

SHEET 17 OF 181

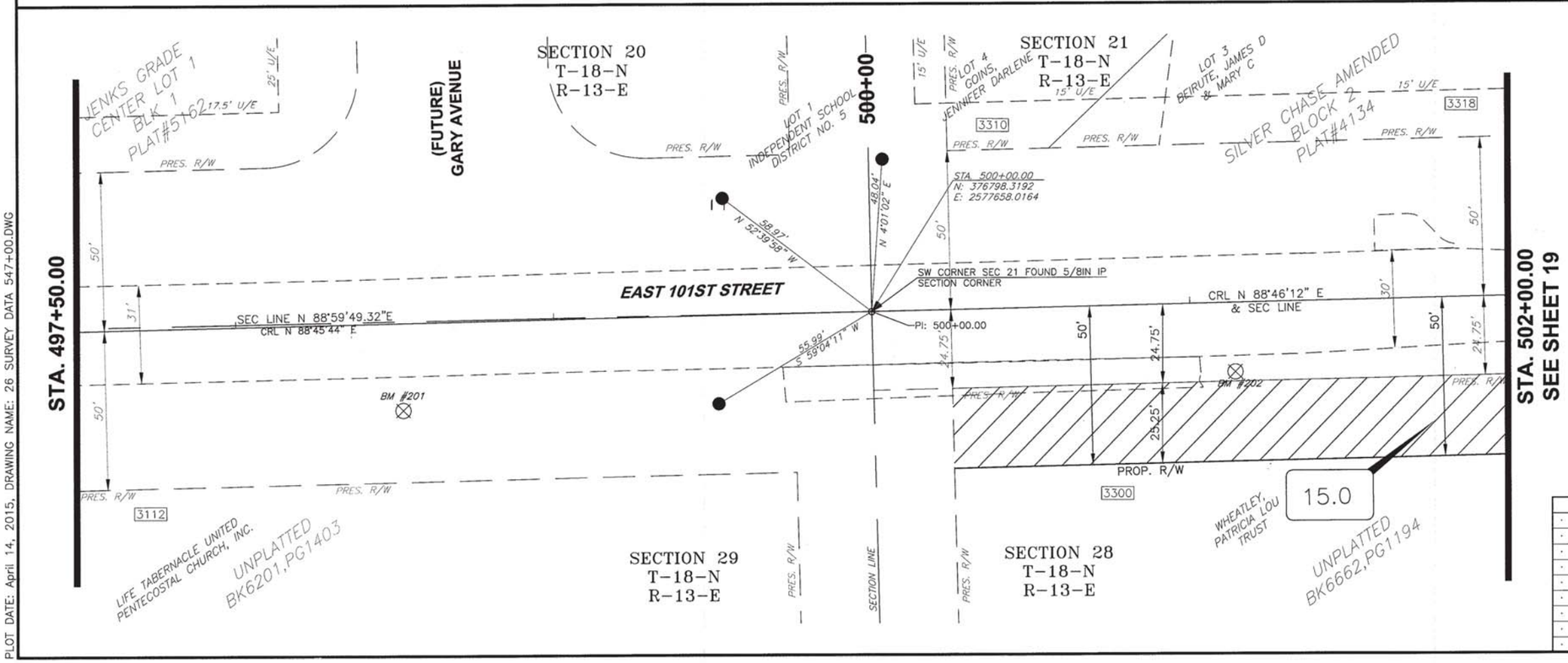


BENCHMARKS		
NO.	DESCRIPTION	ELEV.
201	498+52.09, 27.20' RT CUT X ON NW COR. OF HEADWALL	620.05
202	501+13.89, 21.80' RT CUT X ON NORTH EDGE OF FLUME	629.54

CONTROL POINTS		
NO.	DESCRIPTION	ELEV.
2	5/8" IP W/ALUM. CAP IN CONC. N: 376706.1993 E: 2577113.1299	619.80

LEGEND

	PROP. R/W =	PROPOSED RIGHT-OF-WAY
	TEMP R/W =	TEMPORARY CONSTRUCTION EASEMENT
	GUE =	GENERAL UTILITY EASEMENT
	SAN. SWR. = EASE.	SANITARY SEWER EASEMENT



PLOT DATE: April 14, 2015, DRAWING NAME: 26 SURVEY DATA 547+00.DWG

SURVEY DATA 493+00

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE

PLAN SCALE: 1" = 20'	DRAWN	L.P.E.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.	BBC	8/15
HORIZONTAL: N/A	LEAD ENGR.	DD	1/16
	FIELD MGR.	BBV	3/16
VERTICAL N/A	RECOMMENDED	HAS	6/16
	DESIGN MANAGER		

APPROVED:

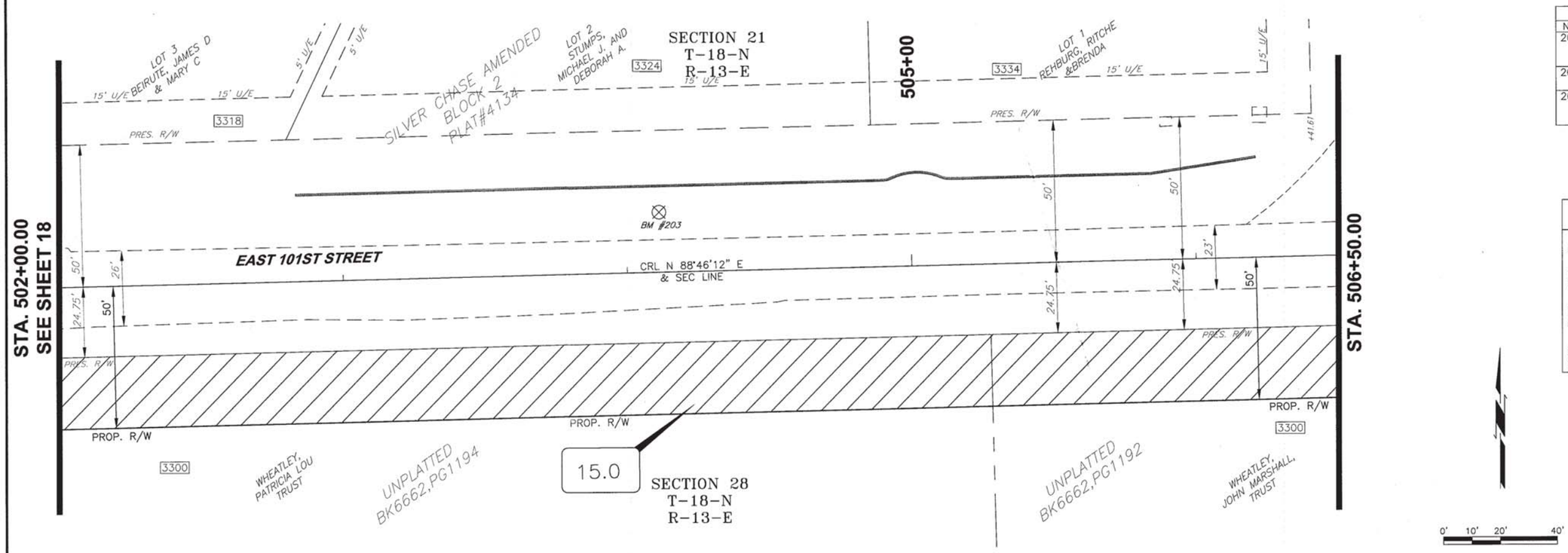
CITY ENGINEER

DATE 11.04.16

DRAWING: 26 SURVEY DATA 547+00.DWG

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 18 OF 181

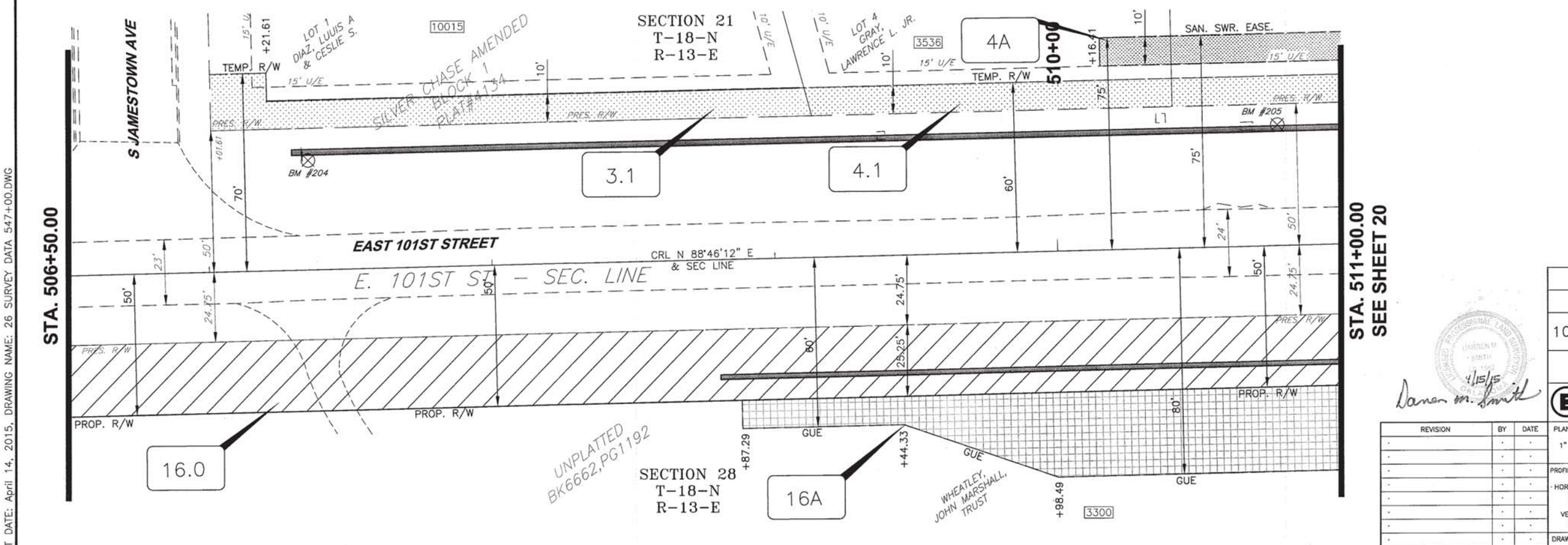


BENCHMARKS		
NO.	DESCRIPTION	ELEV.
203	504+11.55, 21.20' RT SET RAILROAD SPIKE IN SE FACE 18" TREE	656.16
204	507+35.75, 38.60' LT CUT X ON SE COR. OF E HEADWALL	682.40
205	510+78.60, 42.60' LT SET RAILROAD SPIKE S FACE OF POWER POLE	689.63

LEGEND

PROP. R/W =	PROPOSED RIGHT-OF-WAY
TEMP R/W =	TEMPORARY CONSTRUCTION EASEMENT
GUE =	GENERAL UTILITY EASEMENT
SAN. SWR. = EASE.	SANITARY SEWER EASEMENT

0' 10' 20' 40'



BEFORE YOU DIG OKLAHOMA CALL OKIE

SURVEY DATA 502+00

PROJECT NO. 104006

101ST STREET-HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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PLAN SCALE: 1" = 20'	DRAWN	L.P.E.	08/2014
	DESIGNED	J.P.S.	06/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.		8/15
HORIZONTAL: N/A	LEAD ENGR.		1/16
	FIELD MGR.		3/16
VERTICAL N/A	RECOMMENDED		6/16
	DESIGN MANAGER		

APPROVED:

CITY ENGINEER

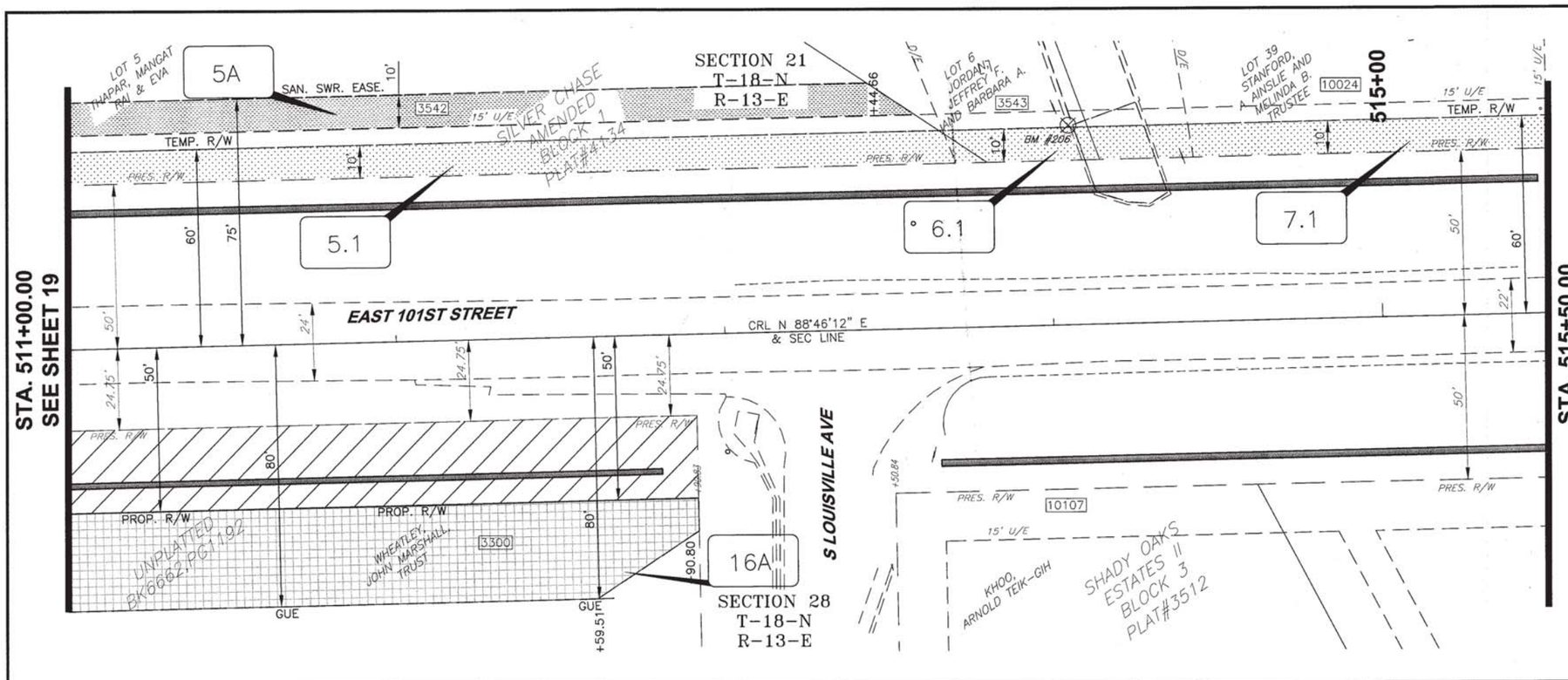
DATE 11.04.16

DRAWING: 26 SURVEY DATA 547+00.DWG

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 19 OF 181

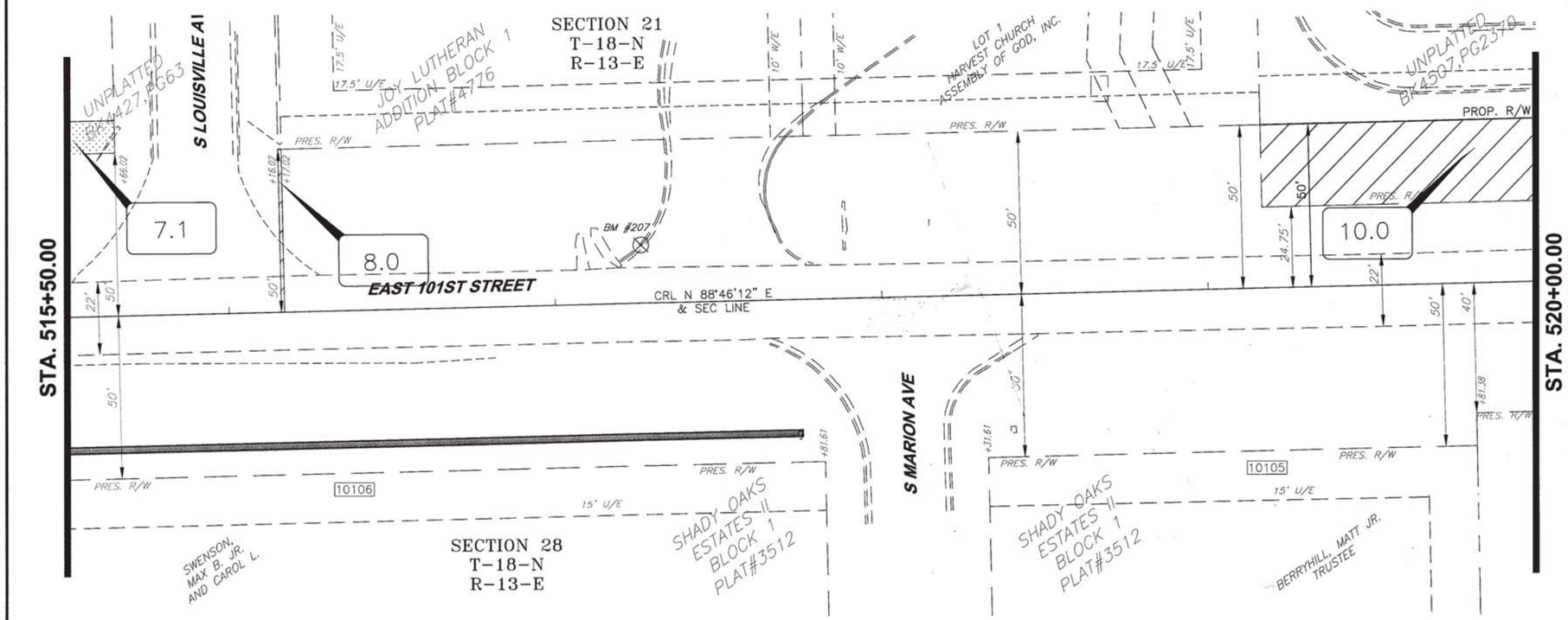
PLOT DATE: April 14, 2015, DRAWING NAME: 26 SURVEY DATA 547+00.DWG



BENCHMARKS		
NO.	DESCRIPTION	ELEV.
206	514+05.71, 60.60' LT CUT X ON W SIDE OF RET. WALL	655.30
207	517+26.56, 17.90' LT CUT X ON TOC ON W CURB	686.08

LEGEND

	PROP. R/W =	PROPOSED RIGHT-OF-WAY
	TEMP R/W =	TEMPORARY CONSTRUCTION EASEMENT
	GUE =	GENERAL UTILITY EASEMENT
	SAN. SWR. = EASE.	SANITARY SEWER EASEMENT



SURVEY DATA 511+00

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

4/15/15

REVISION	BY	DATE
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PLAN SCALE: 1" = 20'	DRAWN	L.P.E.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.	BRC	8/15
HORIZONTAL: N/A	LEAD ENGR.	DB	1/16
	FIELD MGR.	REW	3/16
VERTICAL N/A	RECOMMENDED: DESIGN MANAGER	HAS	6/16

APPROVED:

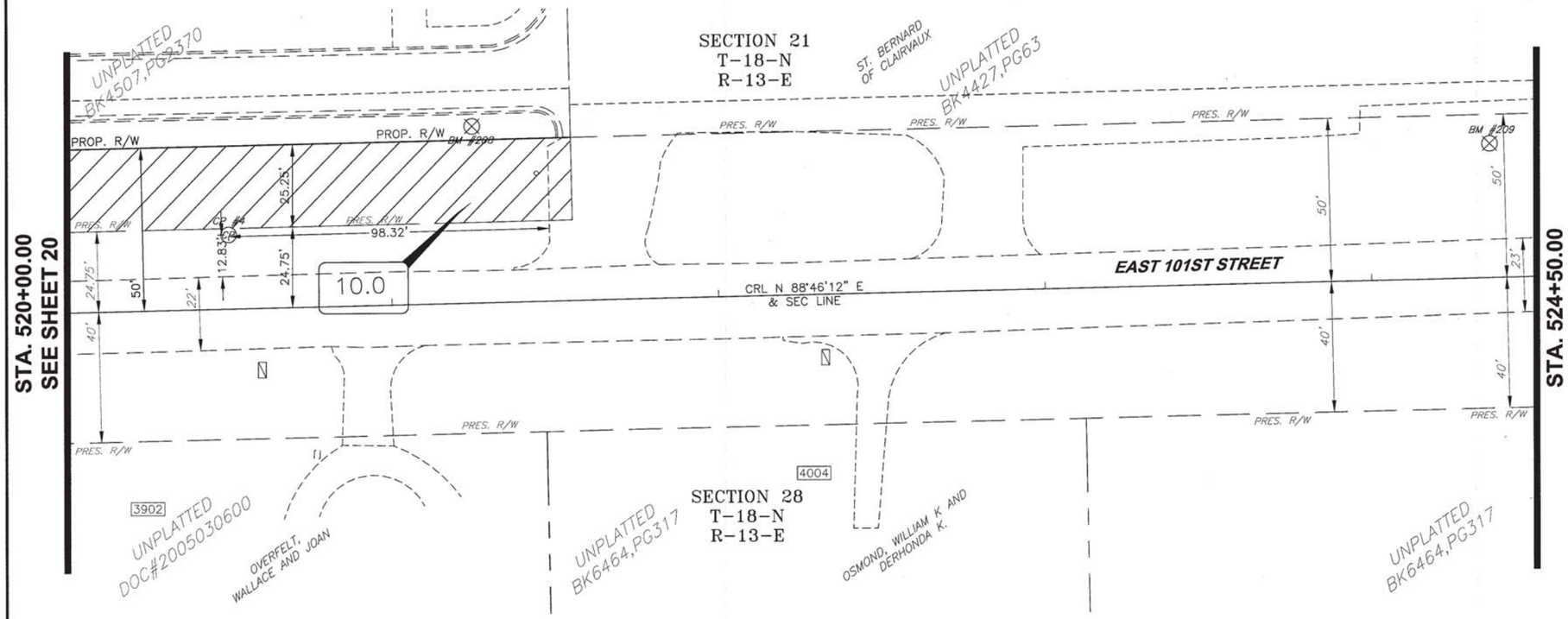
CITY ENGINEER

DATE 11.04.16

DRAWING: 26 SURVEY DATA 547+00.DWG

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 20 OF 181



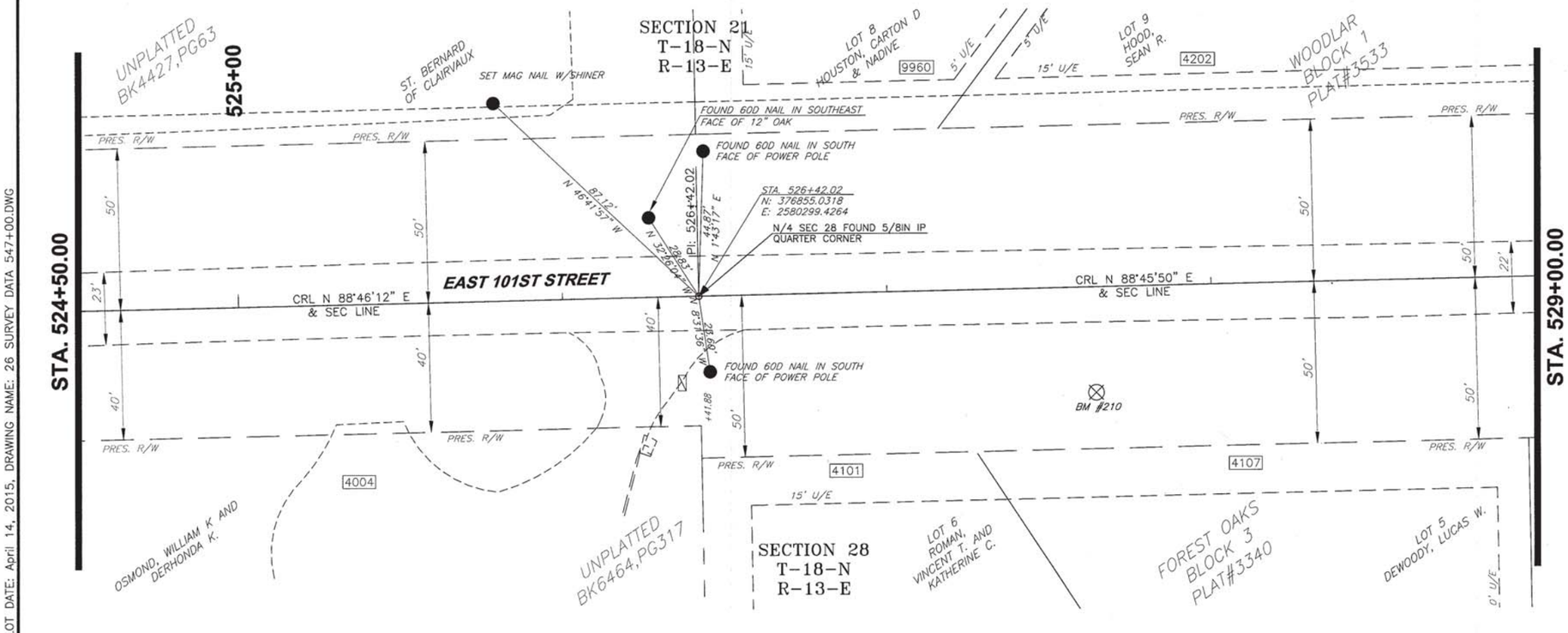
BENCHMARKS		
NO.	DESCRIPTION	ELEV.
208	521+25.64, 54.23' LT. CUT X ON S EDGE OF POLE BASE	726.70
209	524+36.97, 41.09' LT. CUT X ON SE COR. WATER METER	739.62
210	527+63.91, 32.60' RT SET RAILROAD SPIKE IN N FACE 24" TREE	718.90

CONTROL POINTS		
NO.	DESCRIPTION	ELEV.
4	5/8" IP W/ COBB CP CAP N: 376865.1363 E: 2579707.4337	710.84

LEGEND

PROP. R/W =	PROPOSED RIGHT-OF-WAY
TEMP R/W =	TEMPORARY CONSTRUCTION EASEMENT
GUE =	GENERAL UTILITY EASEMENT
SAN. SWR. EASE. =	SANITARY SEWER EASEMENT

0' 10' 20' 40'



PLOT DATE: April 14, 2015, DRAWING NAME: 26 SURVEY DATA 547+00.DWG

BEFORE YOU DIG CALL OKIE

4/5/15

SURVEY DATA 520+00	
PROJECT NO. 104006	
101ST STREET–HARVARD TO YALE	
CITY OF TULSA, OKLAHOMA ENGINEERING SERVICES DEPARTMENT	
CEC INFRASTRUCTURE SOLUTIONS CEC 4617 E. 91st Street S. Tulsa, OK 74137 (918) 663-9401	

REVISION	BY	DATE
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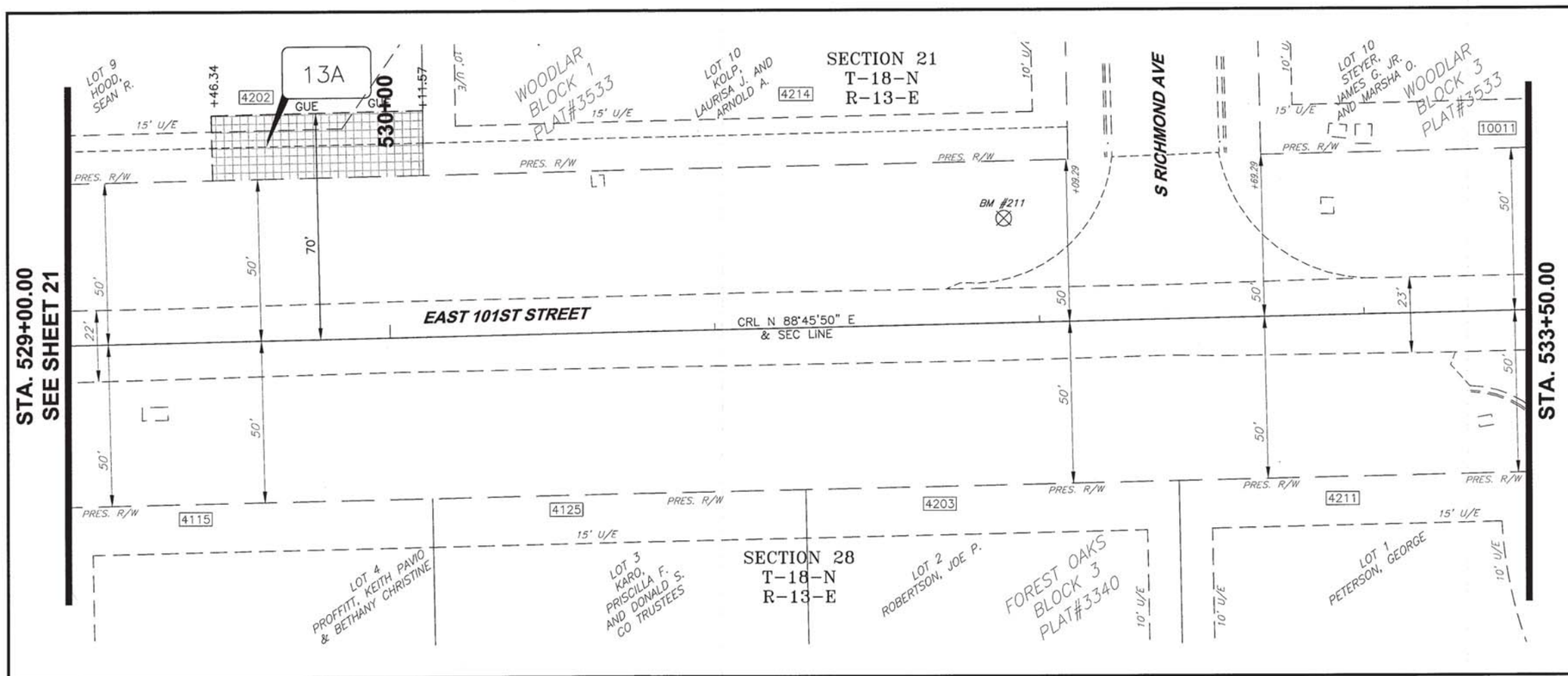
PLAN SCALE: 1" = 20'	DRAWN	L.P.E.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.	BDC	8/15
HORIZONTAL: N/A	LEAD ENGR.	DP	1/16
	FIELD MGR.	RBM	3/16
VERTICAL N/A	RECOMMENDED:	MH	6/16
	DESIGN MANAGER		
DRAWING: 26 SURVEY DATA 547+00.DWG			
ATLAS PAGE NO: 1276, 1277, 1422, 1423			

APPROVED:

CITY ENGINEER

DATE H.04.16

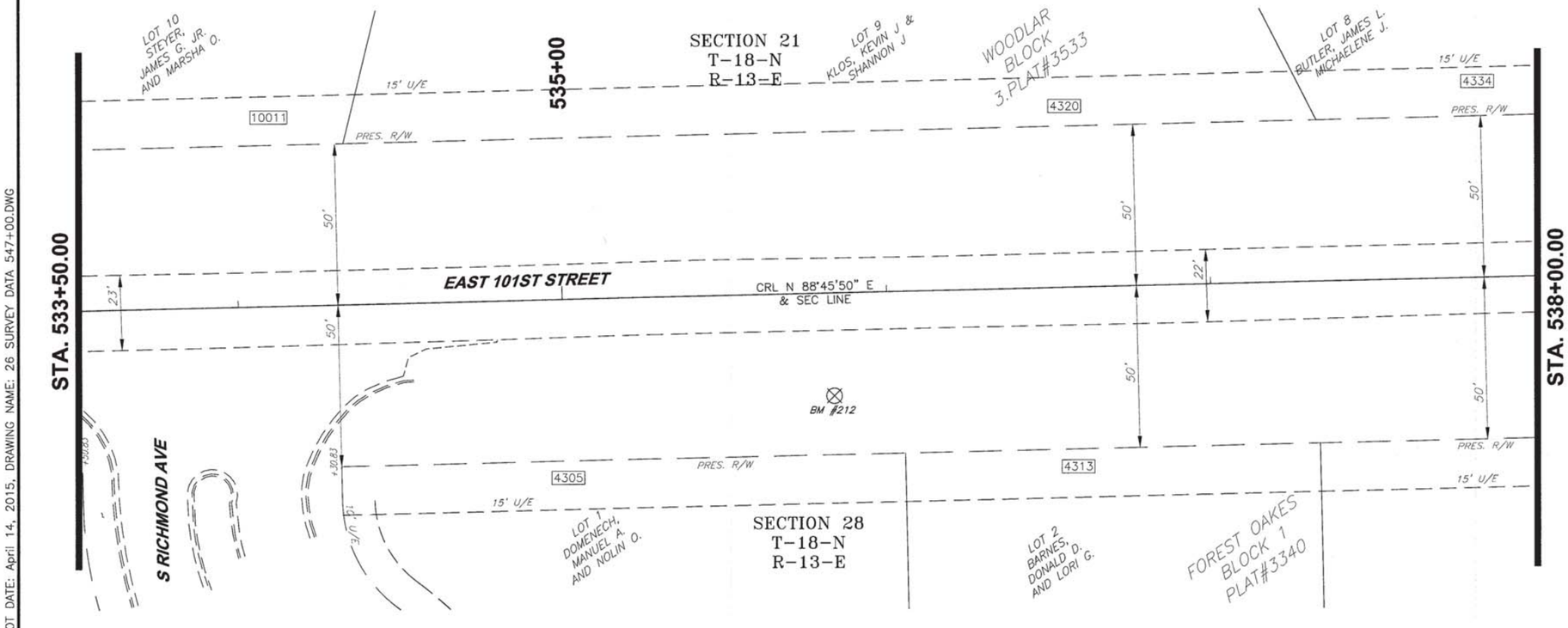
SHEET 21 OF 181



BENCHMARKS		
NO.	DESCRIPTION	ELEV.
211	531+89.71, 32.35' LT. CUT X ON S END W HEADWALL	720.08
212	535+83.26, 31.75' RT. SET RAILROAD SPIKE IN N FACE OF 48" TREE	725.24

LEGEND

	PROP. R/W =	PROPOSED RIGHT-OF-WAY
	TEMP R/W =	TEMPORARY CONSTRUCTION EASEMENT
	GUE =	GENERAL UTILITY EASEMENT
	SAN. SWR. = EASE.	SANITARY SEWER EASEMENT



SURVEY DATA 529+00

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE

PLAN SCALE: 1" = 20'	DRAWN	L.P.E.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.	BDC	8/16
HORIZONTAL: N/A	LEAD ENGR.		1/16
	FIELD MGR.	RBV	3/16
VERTICAL N/A	RECOMMENDED: DESIGN MANAGER	HAS	6/16

APPROVED:

CITY ENGINEER

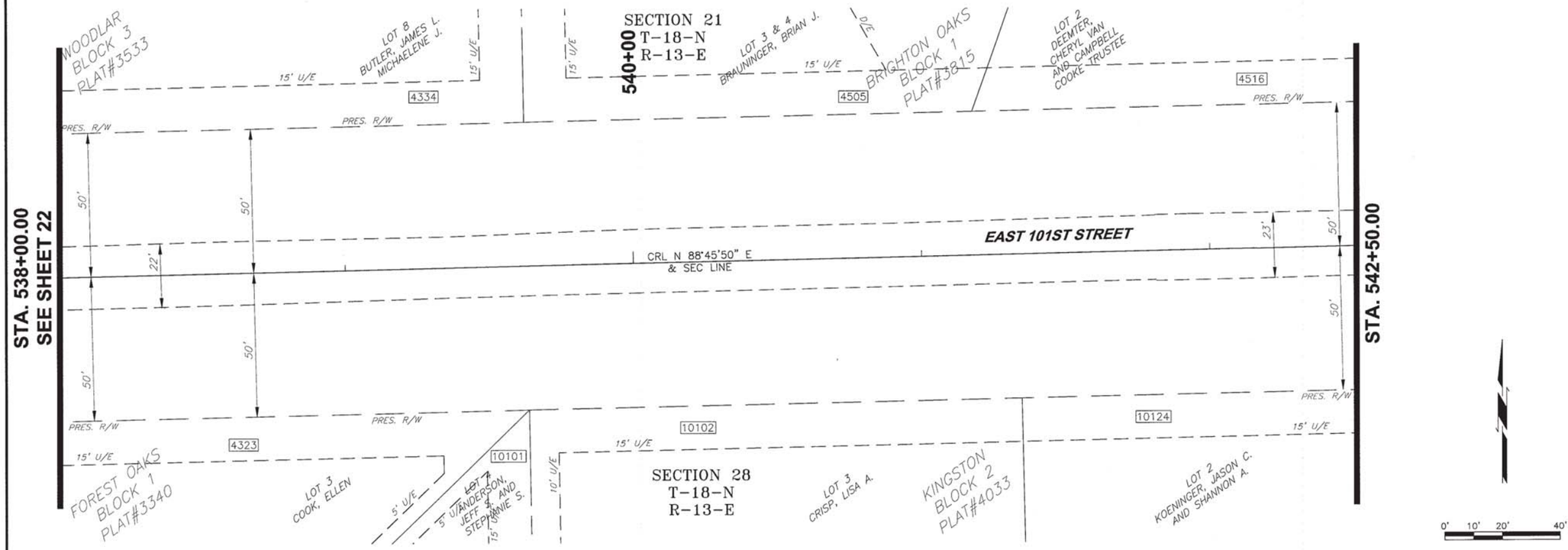
DATE 11.04.16

DRAWING: 26 SURVEY DATA 547+00.DWG

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 22 OF 181

PLOT DATE: April 14, 2015, DRAWING NAME: 26 SURVEY DATA 547+00.DWG

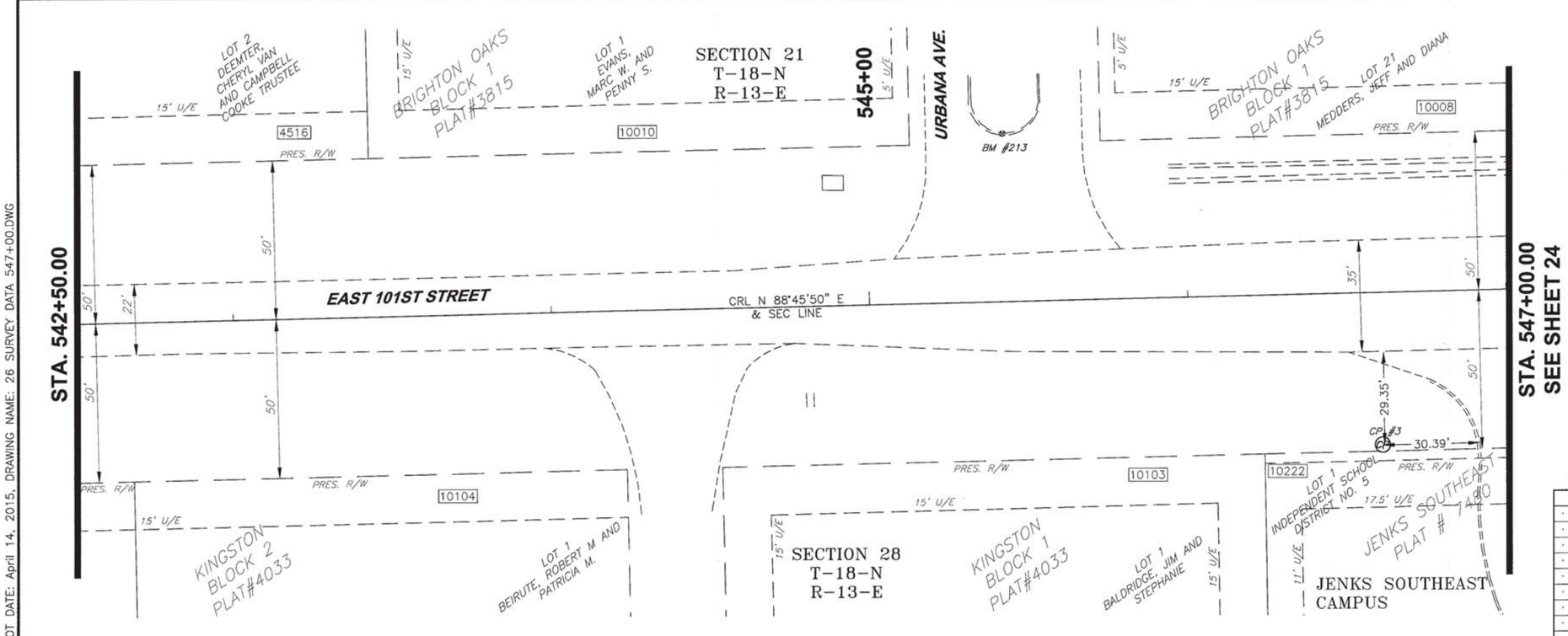


BENCHMARKS		
NO.	DESCRIPTION	ELEV.
213	545+42.97, 53.00' LT SQUARE CUT IN CONC. BM	741.47

CONTROL POINTS		
NO.	DESCRIPTION	ELEV.
3	5/8" IP W/ALUM. CAP IN CONC. N: 376850.6460 E: 2582318.2110	742.50

LEGEND

	PROP. R/W =	PROPOSED RIGHT-OF-WAY
	TEMP R/W =	TEMPORARY CONSTRUCTION EASEMENT
	GUE =	GENERAL UTILITY EASEMENT
	SAN. SWR. = EASE.	SANITARY SEWER EASEMENT



SURVEY DATA 538+00

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

Daner M. Smith 4/15/15

REVISION	BY	DATE

PLAN SCALE: 1" = 20'	DRAWN	L.P.E.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.	BOC	8/15
HORIZONTAL: N/A	LEAD ENGR.		1/16
	FIELD MGR.	RBW	3/16
VERTICAL N/A	RECOMMENDED: DESIGN MANAGER	HAS	6/16

APPROVED:

CITY ENGINEER

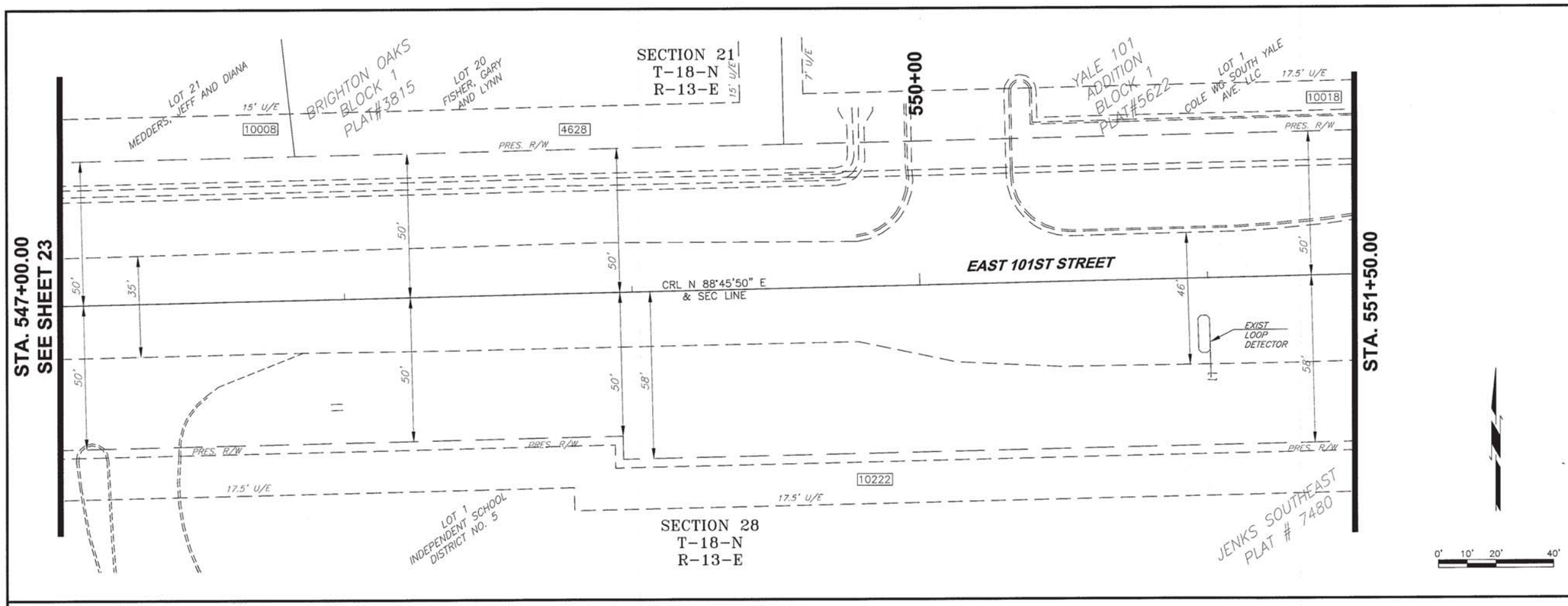
DATE 11.04.16

DRAWING: 26 SURVEY DATA 547+00.DWG

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 23 OF 181

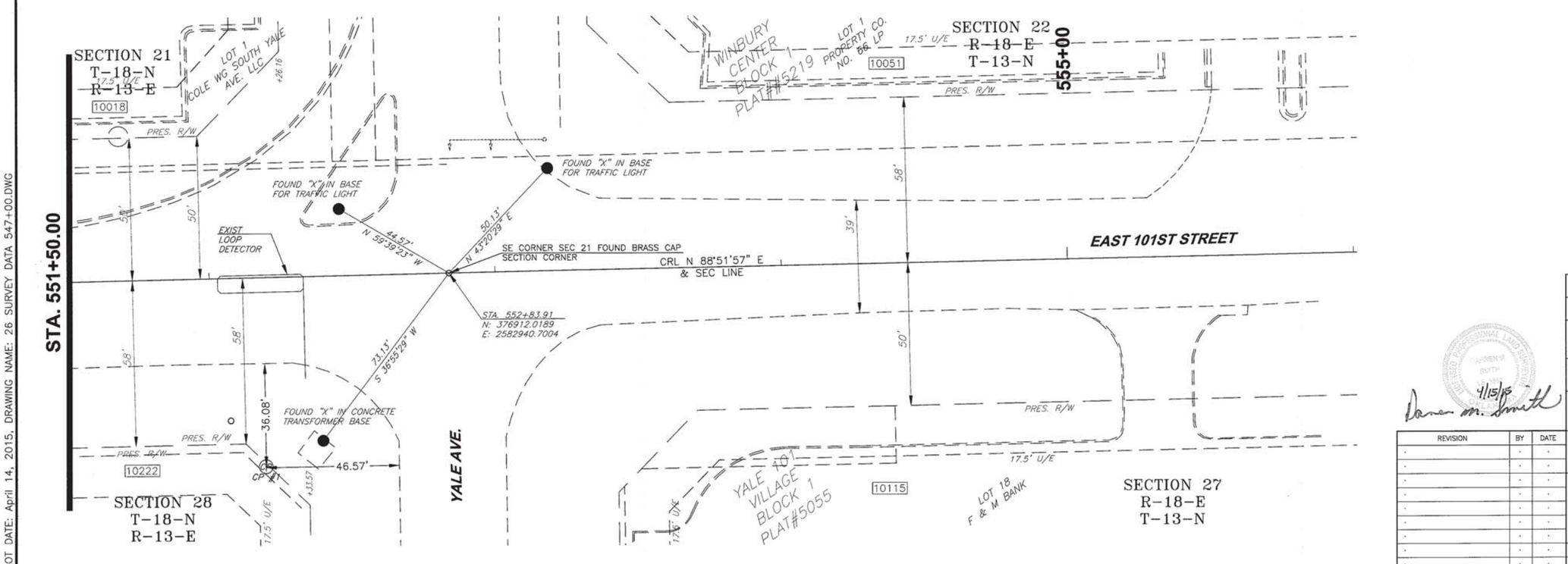
PLOT DATE: April 14, 2015, DRAWING NAME: 26 SURVEY DATA 547+00.DWG



CONTROL POINTS		
NO.	DESCRIPTION	ELEV.
1	3/8" IP IN SW QUAD 101ST AND YALE N: 376844.5090 E: 2582876.7630	743.91

LEGEND

	PROP. R/W =	PROPOSED RIGHT-OF-WAY
	TEMP R/W =	TEMPORARY CONSTRUCTION EASEMENT
	GUE =	GENERAL UTILITY EASEMENT
	SAN. SWR. = EASE.	SANITARY SEWER EASEMENT



SURVEY DATA 547+00

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

4/15/15

REVISION	BY	DATE

PLAN SCALE: 1" = 20'	DRAWN	L.P.E.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.	BOC	8/15
HORIZONTAL: N/A	LEAD ENGR.	DW	1/16
	FIELD MGR.	RBV	3/16
VERTICAL N/A	RECOMMENDED: DESIGN MANAGER	HAS	6/16

APPROVED:

CITY ENGINEER

DATE 11.04.16

DRAWING: 26 SURVEY DATA 547+00.DWG

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 24 OF 181

PLOT DATE: April 14, 2015, DRAWING NAME: 26 SURVEY DATA 547+00.DWG

STORMWATER MANAGEMENT PLAN

SITE DESCRIPTION

PROJECT LIMITS: 101ST STREET SOUTH FROM HARVARD AVE. TO YALE AVE. IN TULSA, OKLAHOMA

PROJECT DESCRIPTION: PAVEMENT REHABILITATION

SUGGESTED SEQUENCE OF CONSTRUCTION:

1. VEGETATIVE STRIPPING
2. UNDERCUT & STOCKPILE EXISTING TOPSOIL, PRESERVE AS MUCH NATIVE VEGETATION AS POSSIBLE
3. INSTALL SEDIMENT CONTROLS
4. REMOVE EXISTING PAVEMENT
5. PERFORM PATCHING AND FINISH STREET PAVING
6. SPREAD TOPSOIL
7. INSTALL SOLID SLAB SOD

SOIL TYPE: FINE SANDY LOAM

AREA TO BE DISTURBED: 12.31 AC.

OFFSITE AREA TO BE DISTURBED: (FOR CONTRACTOR USE) N/A

MAXIMUM ACRES TO BE DISTURBED AT ANY ONE TIME: (FOR CONTRACTORS USE) 12.31 AC.

LATITUDE & LONGITUDE OF CENTER OF PROJECT: 36°1'3" N, 95°55'45" W

NAME OF RECEIVING WATERS: UNNAMED CREEK TO ARKANSAS RIVER

SENSITIVE WATERS OR WATERSHEDS: YES ☒ NO ☐

303(d) IMPAIRED WATERS: YES ☐ NO ☒

NOTE:
THIS SHEET SHOULD BE USED IN CONJUNCTION WITH A DRAINAGE MAP THAT ILLUSTRATES THE DRAINAGE PATTERNS/PATHWAYS AND RECEIVING WATERS FOR THIS PROJECT. THIS SHEET SHOULD ALSO BE USED WITH THE EROSION CONTROL SUMMARIES, PAY ITEMS, & NOTES. SEE SHEETS XX, XX, AND XX.

EROSION AND SEDIMENT CONTROLS

SOIL STABILIZATION PRACTICES:

- ____ TEMPORARY SEEDING
- _X_ PERMANENT SODDING, SPRIGGING OR SEEDING
- ____ VEGETATIVE MULCHING
- ____ SOIL RETENTION BLANKET
- _X_ PRESERVATION OF EXISTING VEGETATION

NOTE: TEMPORARY EROSION CONTROL METHODS ARE TO BE USED ON ALL DISTURBED AREAS WHERE CONST. ACTIVITIES HAVE CEASED FOR OVER 21 DAYS. METHODS USED WILL BE AS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER.

STRUCTURAL PRACTICES:

- ____ TEMPORARY BRUSH SEDIMENT BARRIERS
- _X_ TEMPORARY SILT FENCE
- _X_ TEMPORARY SILT DIKES
- ____ DIVERSION, INTERCEPTOR OR PERIMETER DIKES
- ____ DIVERSION, INTERCEPTOR OR PERIMETER SWALES
- ____ SANDBAG BERMS
- ____ ROCK FILTER DAMS
- ____ TEMPORARY SLOPE DRAIN
- _X_ PAVED DITCH W/ DITCH LINER PROTECTION
- ____ TEMPORARY DIVERSION CHANNELS
- _X_ RIP RAP
- ____ TEMPORARY STREAM CROSSINGS
- ____ TEMPORARY SEDIMENT BASINS
- ____ TEMPORARY SEDIMENT TRAPS
- ____ TEMPORARY SEDIMENT FILTERS
- _X_ TEMPORARY SEDIMENT REMOVAL
- _X_ INLET SEDIMENT FILTER
- ____ STABILIZED CONSTRUCTION EXIT

OFFSITE VEHICLE TRACKING:

- ____ HAUL ROADS DAMPENED FOR DUST CONTROL
- _X_ LOADED HAUL TRUCKS TO BE COVERED WITH TARPAULIN
- _X_ EXCESS DIRT ON ROAD REMOVED DAILY

NOTES:

OTHER EROSION AND SEDIMENT CONTROLS

THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE FOLLOWING:

MAINTENANCE AND INSPECTION:
All erosion and sediment controls will be maintained in good working order from the beginning of construction until an acceptable vegetative cover is established. Inspection by the Contractor and any necessary repairs shall be performed once every 7 calendar days and within 24 hours after any storm event greater than 0.5 inches (as recorded by a non-freezing rain guage to be located on site). Potentially erodible areas, drainageways, material storage, structural devices, construction entrances and exits along with erosion and sediment control locations are examples of sites that need to be inspected.

WASTE MATERIALS:
Proper management and disposal of construction waste material is required by the Contractor. Materials include stockpiles, surplus, debris and all other by-products from the construction process. Practices include disposal, proper materials handling, spill prevention and cleanup measures. Controls and practices shall meet the requirements of all Federal, State and Local agencies.

HAZARDOUS MATERIALS:
Proper management and disposal of hazardous waste materials is required. The Contractor is responsible for following manufacturer's recommendations, State and Federal regulations to ensure correct handling, disposal, spill prevention and cleanup measures. Examples include but are not limited to: paints, acids, cleaning solvents, chemical additives, concrete curing compounds and contaminated soils.

GENERAL NOTES:
A Storm Water Pollution Prevention Plan (SW3P) is required to comply with the National Pollution Discharge Elimination System (OPDES) regulations. This plan is developed during the design phase, confirmed in the pre-work meetings and available on the job site along with copies of the Notice of Intent (NOI) forms that have been filed with Oklahoma Department of Environmental Quality (ODEQ). The basic goal of Storm Water Management is to improve water quality by reducing pollutants in storm water discharges. Runoff from construction sites has a potential for pollutioin due to exposed soils and the presence of hazardous materials used in the construction process. The prevention of soild erosion, containment of hazardous materials and/or the interception of these pollutants before leaving the construction site are the best practices for controlling storm water pollution.

THE FOLLOWING SECTIONS OF THE 2009 ODOT STANDARD SPECIFICATIONS SHOULD BE NOTED:

103.05	BONDING REQUIREMENTS
104.10	FINAL CLEANING UP
104.14	CONTRACTOR'S RESPONSIBILITY FOR WORK
106.08	STORAGE AND HANDLING MATERIALS
107.01	LAWS, RULES AND REGULATIONS TO BE OBSERVED
107.20	STORM WATER MANAGEMENT
220	MANAGEMENT OF EROSION, SEDIMENTATION AND STORM WATER POLUTION PREVENTION AND CONTROL
221	TEMPORARY SEDIMENT CONTROL

IN ADDITION:

"ODEQ GENERAL PERMIT (OKR10) FOR STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES WITHIN THE STATE OF OKLAHOMA." ODEQ, WATER QUALITY DIVISION, SEPTEMBER 13, 2012.

JEREMY P. STAMPS REGISTERED PROFESSIONAL ENGINEER 21725 OKLAHOMA 5/11/15

STORMWATER MANAGEMENT PLAN
PROJECT NO. 104006
101ST STREET–HARVARD TO YALE
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC CEC INFRASTRUCTURE SOLUTIONS 4617 E. 91st Street S. Tulsa, OK 74137 (918) 663-9401

REVISION	BY	DATE
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PLAN SCALE: 1" = 20'
PROFILE SCALES:
HORIZONTAL: N/A
VERTICAL N/A

DRAWN	L.P.E.	08/2014
DESIGNED	J.P.S.	08/2014
SURVEY	A.K.H.	08/2012
PROJ. MGR.	JRB	3/1/16
LEAD ENGR.	BDD	3/16
FIELD MGR.	RBH	3/16
RECOMMENDED	HAS	6/16
DESIGN MANAGER		

APPROVED: CITY ENGINEER

DRAWING: 22 STORMWATER MANAGEMENT PLAN.DWG
DATE 11.24.16
ATLAS PAGE NO: 1276, 1277, 1422, 1423
SHEET 25 OF 181

PLOT DATE: May 4, 2015, DRAWING NAME: 22 STORMWATER MANAGEMENT PLAN.DWG

DRAINAGE DESIGN RECORD (STREET INLETS)

DRAINAGE AREA BASIN	DRAINAGE AREA (ACRES)	"C" x 1.25	Tc (MINUTES)	I-100 (IN./HR.)	Q-100 (CFS)	FLOW FROM BYPASS (CFS)	Q-100 SUM (CFS)	PROPOSED OR EXISTING INLET	DRAINAGE STRUCTURE NUMBER	INLET DESIGN TYPE	STREET FLOW					INLET DATA																	
																CURB INLET(S) ON CONT. GRADE					GRATE INLET(S) ON CONT. GRADE					SUMP DEPTH (Ft)	CURB INLET(S) IN SUMP			GRATE INLET(S) IN SUMP			Q-100 INTERCEPT (cfs)	Q-100 BYPASS (cfs)	BYPASS TO DRAINAGE STRUC. NO.
											Slope (%)	X-Slope (%)	Depth (Ft.)	Spread (Ft.)	V (Ft/sec)	Lt (Ft.)	E (%)	CF	Qi (cfs)	Qb (cfs)	Eo (%)	Rs	CF	Qi (cfs)	Qb (cfs)		CF	Qi (cfs)	Qb (cfs)	CF	Qi (cfs)	Qb (cfs)			
J	1.77	0.63	5.0	10.9	15.19	0.48	15.67	PROPOSED	19	DES 2(A+B)	3.44	3.125	0.37	11.84	7.2	-	-	-	0	-	-	-	-	0	-	0.67	0.8	7.76	7.91	0.7	7.91	0.00	15.67	0.00	-
K	0.29	0.49	5.0	10.9	1.94	0.93	2.87	PROPOSED	21	DES 2(D)	7.93	3.125	0.17	5.44	6.2	43.42	35.00	1.0	1.00	1.87	65.7	0.25	1.0	1.39	0.48	0.00	-	0	-	-	0	-	2.39	0.48	19
L	0.55	0.55	5.0	10.9	4.12	0.00	4.12	PROPOSED	25	DES 2(D)	7.93	3.125	0.19	6.08	7.1	50.54	30.50	1.0	1.26	2.86	57.1	0.24	1.0	1.93	0.93	0.00	-	0	-	-	0	-	3.19	0.93	21
E7	0.17	0.69	5.0	10.9	1.60	0.00	1.60	EXISTING	E7	DES 2	0.51	2.000	0.19	9.50	1.8	19.49	0.00	1.0	0.00	1.60	36.4	0.65	1.0	1.24	0.36	0.00	-	0	-	-	0	-	1.24	0.36	E6
E8	0.79	0.40	5.5	10.7	4.23	0.00	4.23	EXISTING	E8	DES 1	0.51	2.000	0.27	13.50	2.3	29.32	0.00	1.0	0.00	4.23	26.6	0.19	1.0	1.72	2.51	0.00	-	0	-	-	0	-	1.72	2.51	E6

DRAINAGE DESIGN RECORD (DROP INLETS & CULVERTS)

DRAINAGE AREA BASIN	DRAINAGE AREA (ACRES)	"C" x 1.25	Tc (MINUTES)	I-100 (IN./HR.)	Q-100 (CFS)	OTHER CONTRIBUTING FLOW (CFS)	Q-100 SUM (CFS)	PROPOSED OR EXISTING INLET	DRAINAGE STRUCTURE NUMBER	INLET DESIGN TYPE	% SLOPE OF PAVED DITCH UPSTREAM OF INLET	PAVED DITCH CAPACITY UPSTREAM OF INLET (CFS)	Q-100 DEPTH AT INLET (FEET)	INLET CAPACITY (CFS)	INLET CLOGGING FACTOR	Q-100 BYPASS (CFS)	BYPASS TO DRAINAGE STRUC. NO.
E1	0.25	0.800	5.0	10.9	2.18	13.60	15.78	EXISTING	E1	COT DES 1	0.42	9.3	0.60	27.3	0.8	-	-
E2	7.22	0.588	24.6	6.3	26.72	3.45	30.17	EXISTING	E2	COT DES 1	2.86	24.0	0.61	27.3	0.8	13.6	E1
E3	0.16	0.888	5.0	10.9	1.55	0.00	1.55	EXISTING	E3	COT DES 2	9.52	19.5	0.29	11.0	0.8	-	-
E4	0.20	0.575	5.0	10.9	1.25	0.00	1.25	EXISTING	E4	COT DES 2	8.40	18.4	0.22	11.0	0.8	-	-
E5	0.33	0.500	5.0	10.9	1.80	0.00	1.80	EXISTING	E5	COT DES 2	N/A	N/A	0.32	11.1	-	-	-
E6	2.82	0.513	5.0	10.9	15.75	64.44	80.19	EXISTING	E6	4' x 2' RCB	N/A	N/A	4.80	100.0	-	-	-
E9	7.16	0.563	11.4	8.7	35.04	0.00	35.04	EXISTING	E9	30" RCP	N/A	N/A	3.38	28.0	-	7.04	E10
E10	0.28	0.500	5.0	10.9	1.53	7.04	8.57	EXISTING	E10	COT DES 2	N/A	N/A	0.91	9.9	0.8	-	-
E11	0.20	0.500	5.0	10.9	1.09	0.00	1.09	EXISTING	E11	COT DES 2	N/A	N/A	0.23	4.4	0.8	-	-
E12	0.32	0.625	5.0	10.9	2.18	0.00	2.18	EXISTING	E12	15" RCP	N/A	N/A	0.85	8.0	-	-	-
E13	0.38	0.525	5.0	10.9	2.17	0.00	2.17	EXISTING	E13	COT DES 2	N/A	N/A	0.37	9.0	0.8	-	-
E14	5.38	0.513	5.8	10.6	29.23	0.00	29.23	EXISTING	E14	24" CGMP	N/A	N/A	4.24	18.0	0.8	-	FLOWS OVER URBANA AVE. WEST TO DITCH
A	9.72	0.563	5.3	10.8	59.05	4.84	63.89	PROPOSED	1 & 3	COT DES 1 WITH 5' WIDE THROAT OPENING	3.33	N/A	1.24	81.6	0.8	-	-
B	0.79	0.563	5.0	10.9	4.84	0.00	4.84	PROPOSED	5	COT DES 2	N/A	N/A	0.50	5.5	0.8	-	-
C	0.12	0.575	5.0	10.9	0.75	0.00	0.75	PROPOSED	7	COT DES 2	N/A	N/A	0.18	4.4	0.8	-	-
D	0.15	0.713	5.0	10.9	1.16	0.00	1.16	PROPOSED	9	COT DES 2	9.55	19.6	0.24	4.4	0.8	-	-
E	0.74	0.650	5.0	10.9	5.24	0.00	5.24	PROPOSED	11	COT DES 1	9.55	19.6	0.41	7.0	0.8	-	-
F	0.19	0.563	5.0	10.9	1.16	0.00	1.16	PROPOSED	34	18" RCP	N/A	N/A	0.50	11.0	-	-	-
G	0.14	0.613	5.0	10.9	0.93	0.00	0.93	PROPOSED	18	COT DES 2	N/A	N/A	0.21	4.4	0.8	-	-
I	0.21	0.738	5.0	10.9	1.69	0.00	1.69	PROPOSED	17	COT DES 2	N/A	N/A	0.31	11.0	0.8	-	-
O	14.65	0.513	13.7	8.2	61.57	0.00	61.57	PROPOSED	27	36 1/4" x 22 1/2" RCPA	N/A	N/A	3.25	35.0	-	-	FLOWS OVER SIDEWALK TO E6
Q	1.10	0.625	5.0	10.9	7.49	25.22	32.71	EXISTING	16	24" RCP	N/A	N/A	2.94	13.0	-	19.71	OFFSITE
S	4.52	0.600	9.6	9.3	25.22	0.00	25.22	EXISTING	29	24" RCP	N/A	N/A	3.80	26.4	-	-	-
T	0.15	0.588	5.0	10.9	0.96	0.00	0.96	PROPOSED	2	COT DES 2	N/A	N/A	0.21	4.4	0.8	-	-
V	0.09	0.588	5.0	10.9	0.58	0.00	0.58	PROPOSED	4	COT DES 2	12.22	22.2	0.15	4.4	0.8	-	-
W	0.40	0.538	5.0	10.9	2.34	0.00	2.34	PROPOSED	6	COT DES 2	17.80	26.7	0.39	4.4	0.8	-	-
X	0.42	0.600	5.0	10.9	2.75	0.00	2.75	PROPOSED	10	COT DES 2	N/A	N/A	0.37	4.4	0.8	-	-
U	4.68	0.500	5.7	10.6	28.68	0.00	28.68	PROPOSED	8	COT DES 1	N/A	N/A	1.54	30.1	0.8	-	-
Y	0.31	0.563	5.0	10.9	1.90	2.20	4.10	PROPOSED	12	COT DES 2	N/A	N/A	0.34	4.4	0.8	-	-
Z	0.17	0.563	5.0	10.9	1.04	1.16	2.20	PROPOSED	32	18" RCP	N/A	N/A	0.75	9.5	-	-	-

PLOT DATE: 4/22/2015, DRAWING FILE: N:\TULSA\PROJECTS\TPWD - 101ST - HARVARD TO YALE\PROJECT DRAWINGS\28 DRAINAGE DESIGN RECORD.DWG

JEREMY P. STAMPS — REGISTERED PROFESSIONAL ENGINEER — OKLAHOMA — 21725 — 5/4/15

DRAINAGE DESIGN RECORD

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
CEC 4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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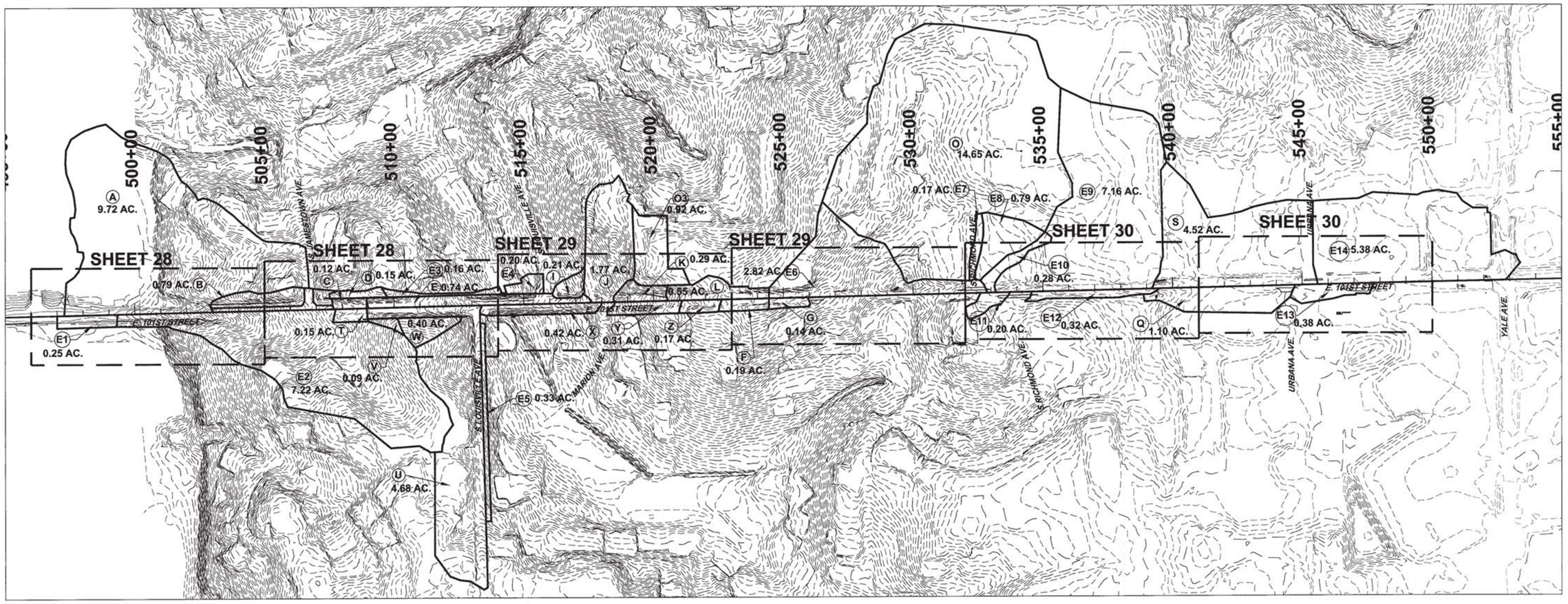
PLAN SCALE: N/A	DRAWN	J.R.C.	07/2014
	DESIGNED	J.P.S.	07/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A	PROJ. MGR.	TRD	3/16
	LEAD ENGR.	BDB	3/16
	FIELD ENGR.	BSH	3/16
	RECOMMENDED: DESIGN MANAGER	HAS	6/16

APPROVED: CITY ENGINEER — DATE 11.04.16

DRAWING: 28 DRAINAGE DESIGN RECORD.DWG

ATLAS PAGE NO: 1276, 1277, 1422, 1423



DRAINAGE AREA KEY MAP

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
CEC 4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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PLAN SCALE: 1" = 200'	DRAWN	L.S.T.	07/2014
	DESIGNED	J.P.S.	07/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A	PROJ. MGR.	TAB	3/16
	LEAD ENGR.	JPS	3/16
	FIELD MGR.	RDW	3/16
	RECOMMENDED: DESIGN MANAGER	HAS	6/16

APPROVED: CITY ENGINEER

DATE 11.04.16

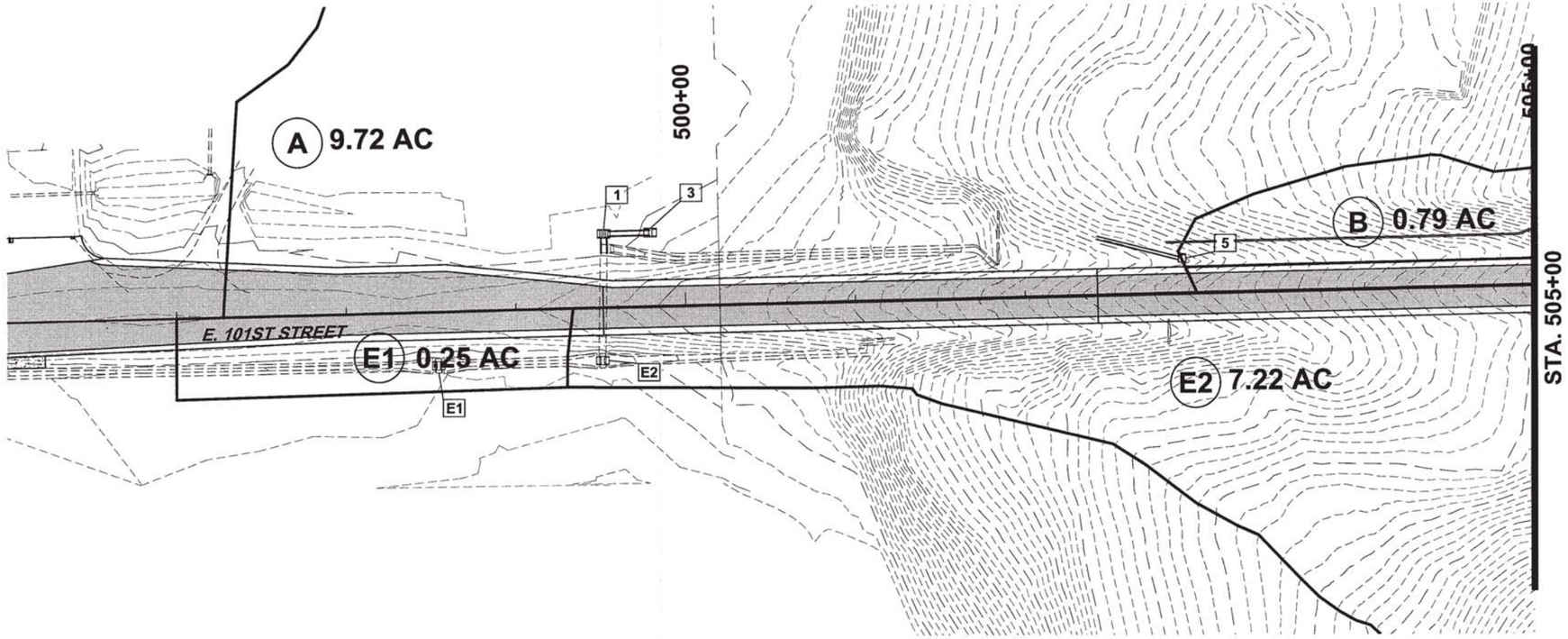
DRAWING: 27 – DRAINAGE AREA KEY MAP

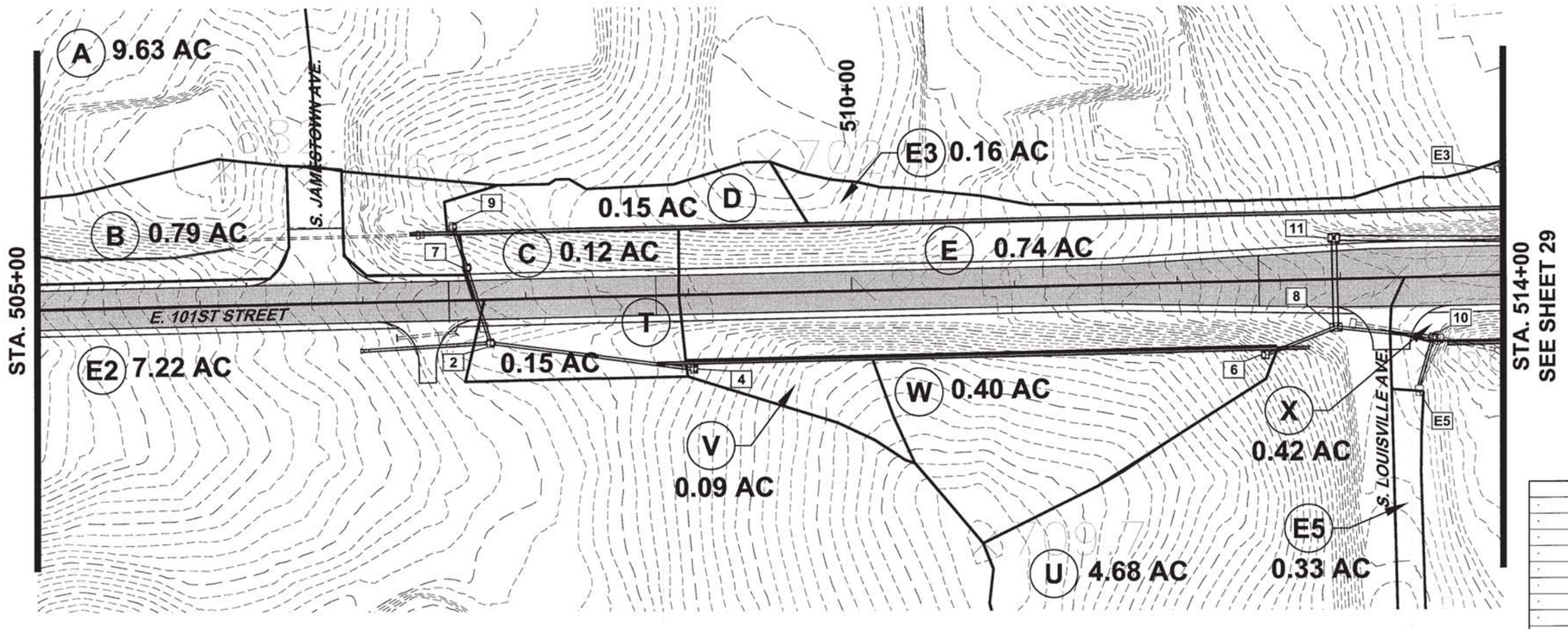
ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 27 OF 181

BEFORE YOU DIG 811 1-800-522-6543 CALL OKIE

REGISTERED PROFESSIONAL ENGINEER JEREMY P. STAPLE 24725 OKLAHOMA 5/4/15





0' 20' 40' 80'

REGISTERED PROFESSIONAL ENGINEER — JEREMY P. STAHLE — 21725 — STATE OF OKLAHOMA

BEFORE YOU DIG — 811 — CALL OKIE

DRAINAGE AREA MAP (1 OF 3)

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
CEC 4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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PLAN SCALE: 1" = 40'	DRAWN	L.S.T.	07/2014
	DESIGNED	J.P.S.	07/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.	TRB	3/16
HORIZONTAL: N/A	LEAD ENGR.	RBT	3/16
	FIELD MGR.	PBW	3/16
VERTICAL: N/A	RECOMMENDED: DESIGN MANAGER	HMS	6/16

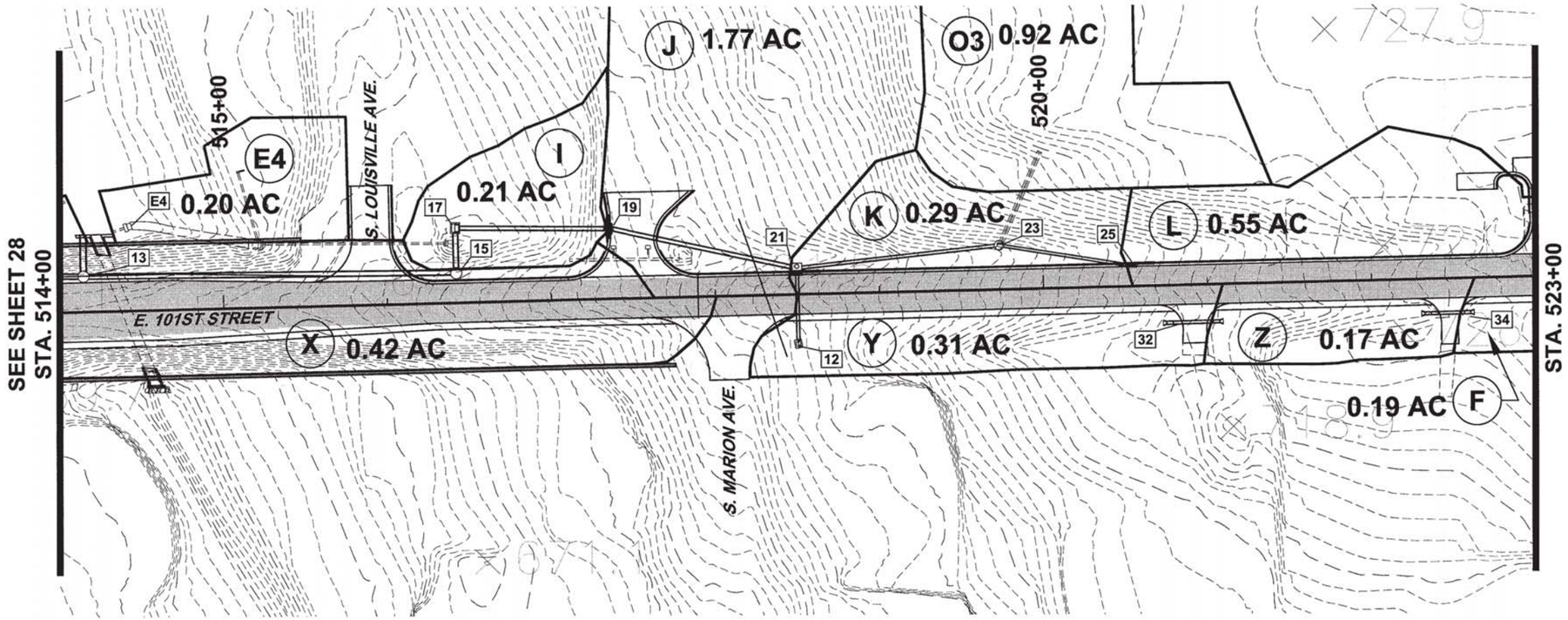
APPROVED: CITY ENGINEER

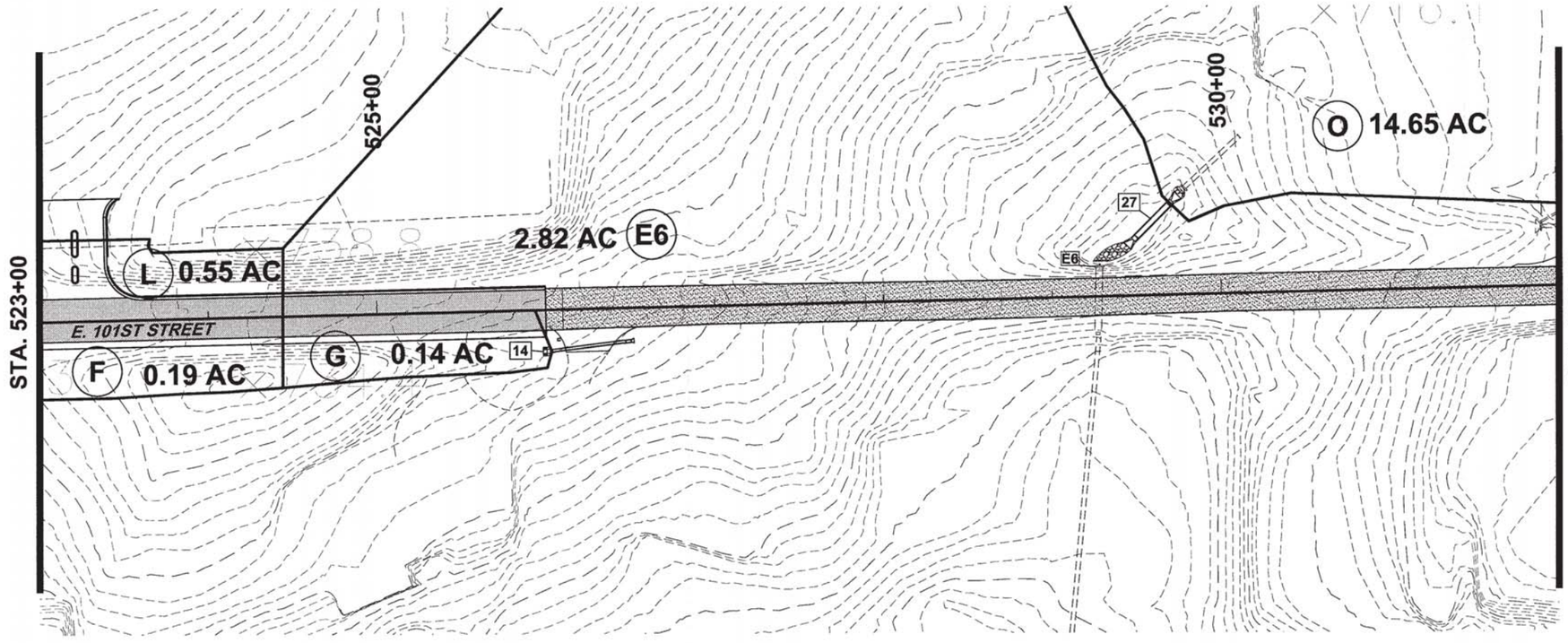
DRAWING: 30 DRAINAGE AREA MAPS.DWG

ATLAS PAGE NO: 1276, 1277, 1422, 1423

DATE 11.04.16

SHEET 28 OF 181





0' 20' 40' 80'

REGISTERED PROFESSIONAL ENGINEER — JEREMY P. STAMPS — 21725 — OKLAHOMA

BEFORE YOU DIG — 811 — OKIE ONE CALL — CALL OKIE

DRAINAGE AREA MAP (2 OF 3)

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
CEC 4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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PLAN SCALE: 1" = 40'	DRAWN	L.S.T.	07/2014
	DESIGNED	J.P.S.	07/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.	TED	3/16
HORIZONTAL: N/A	LEAD ENGR.	JPS	3/16
	FIELD MGR.	ZSW	3/16
VERTICAL N/A	RECOMMENDED DESIGN MANAGER	HAH	6/16

APPROVED:

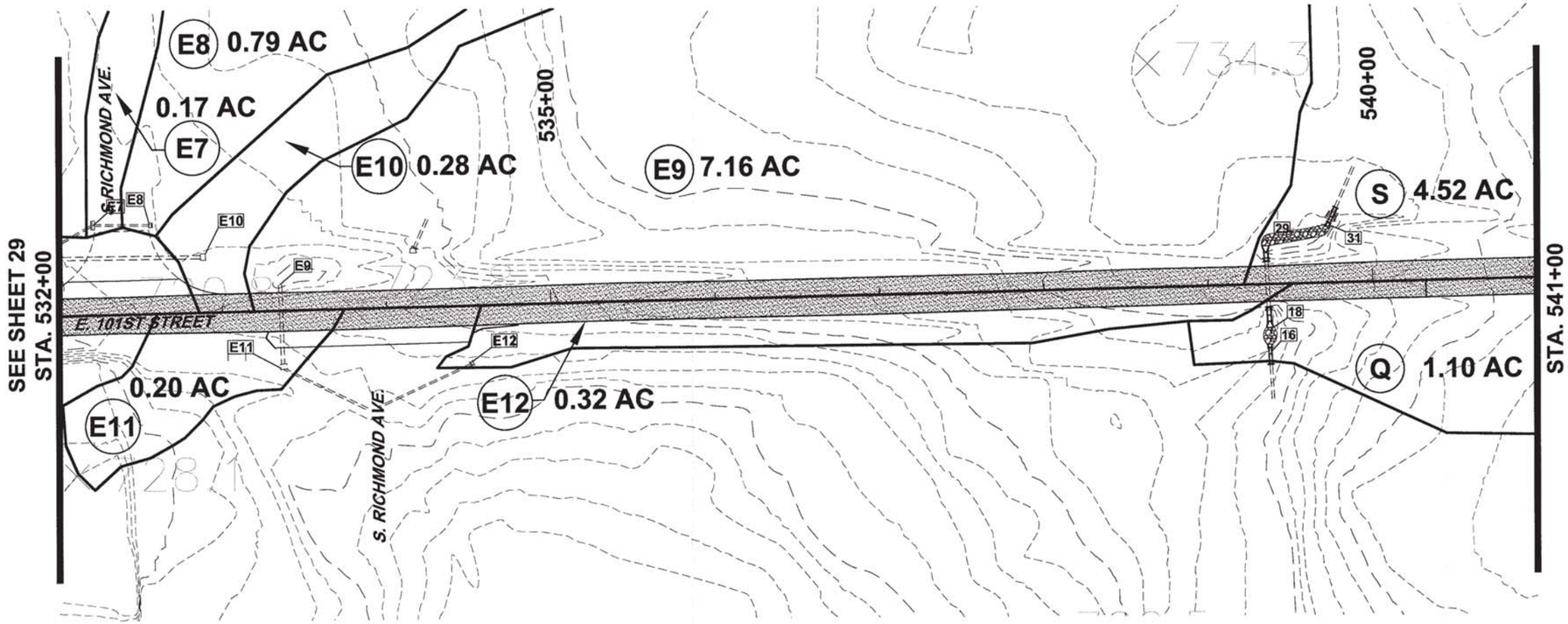
CITY ENGINEER

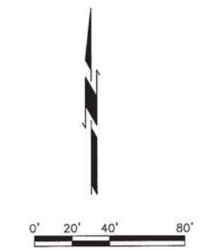
DATE 11.04.16

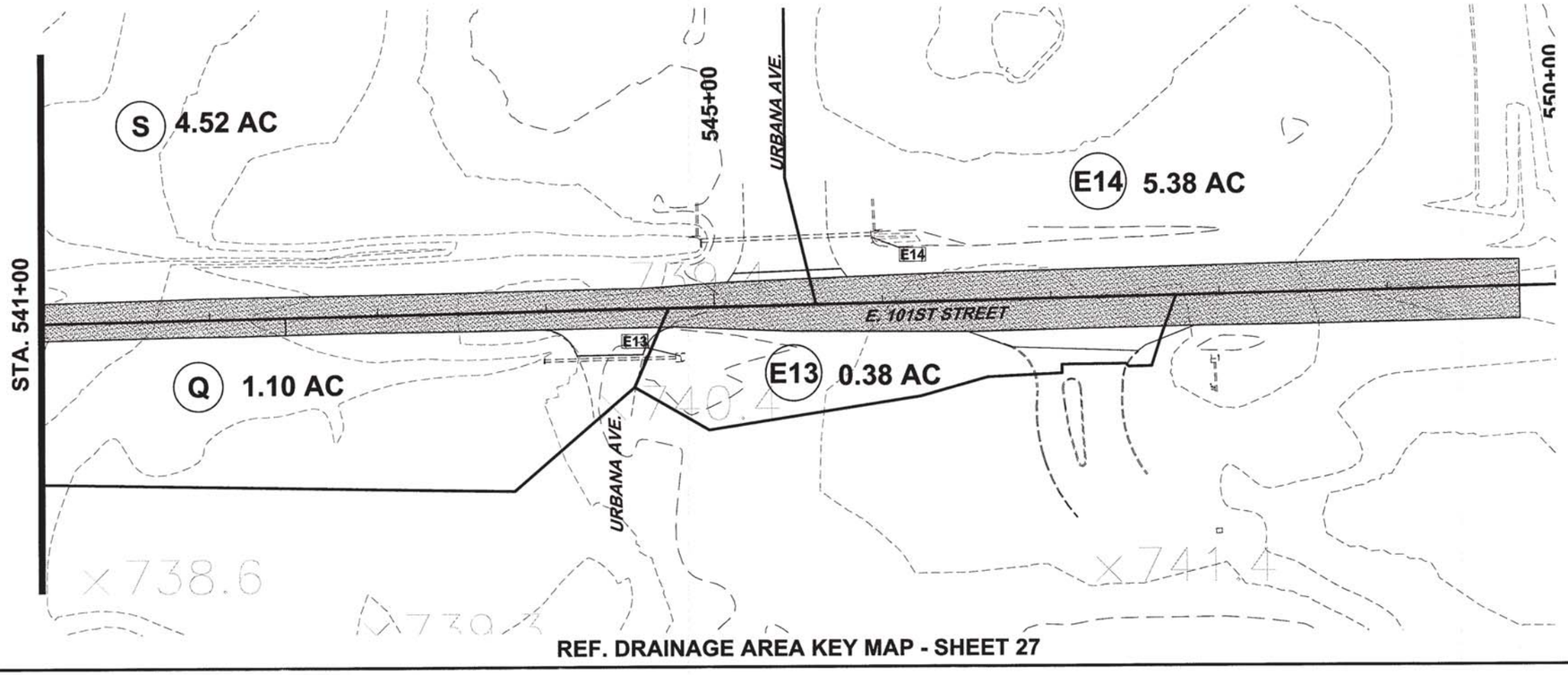
DRAWING: 30 DRAINAGE AREA MAPS.DWG

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 29 OF 181







REF. DRAINAGE AREA KEY MAP - SHEET 27

REGISTERED PROFESSIONAL ENGINEER — JEREMY P. STABLE — OKLAHOMA

BEFORE YOU DIG — 811 — CALL OKIE

DRAINAGE AREA MAP (3 OF 3)

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
CEC 4617 E. 91st Street S. Tulsa, OK 74137
(918) 663–9401

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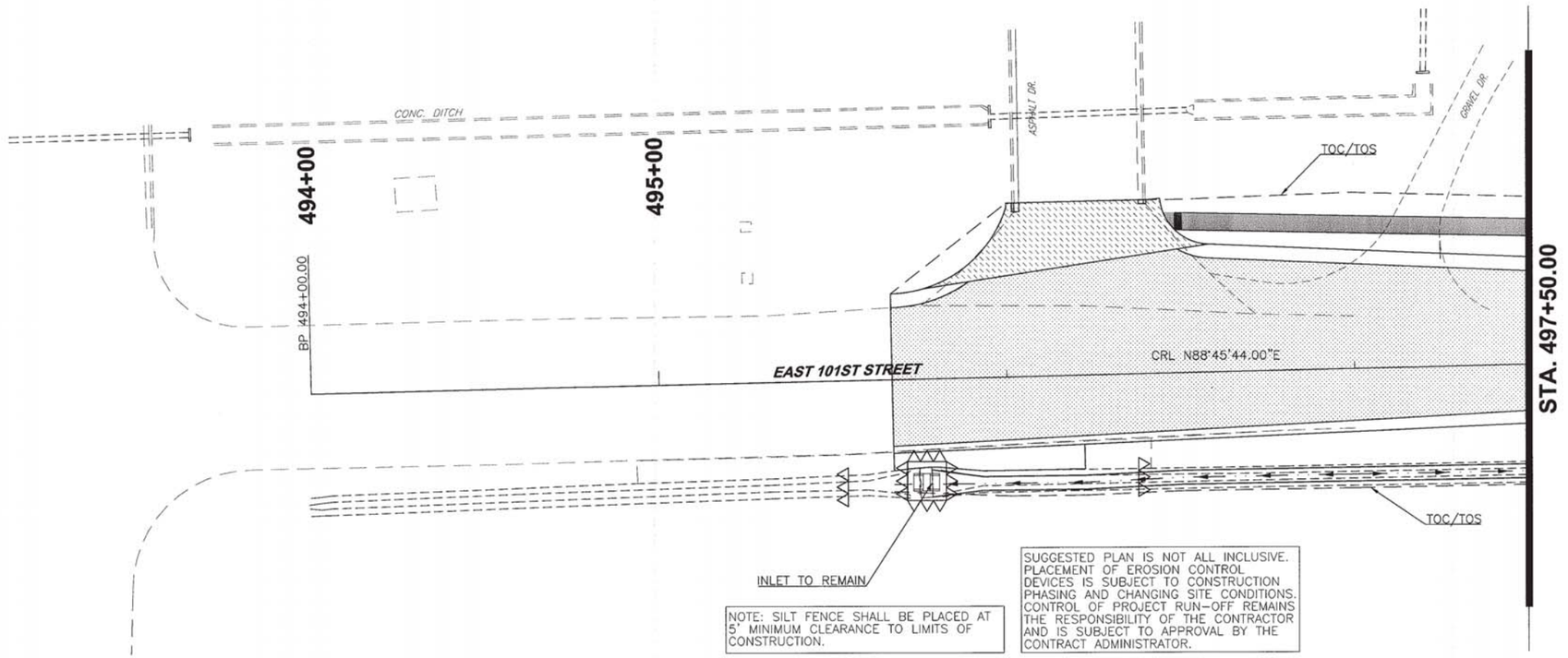
PLAN SCALE: 1" = 40'
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A

DRAWN	L.S.T.	07/2014
DESIGNED	J.P.S.	07/2014
SURVEY	A.K.H.	08/2012
PROJ. MGR.	TRD	3/16
LEAD ENGR.	BJS	3/16
FIELD MGR.	RSV	3/16
RECOMMENDED: DESIGN MANAGER	HAB	6/16

APPROVED: CITY ENGINEER

DRAWING: 30 DRAINAGE AREA MAPS.DWG — DATE 11.04.16

ATLAS PAGE NO: 1276, 1277, 1422, 1423 — SHEET 30 OF 181



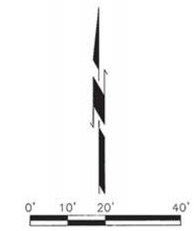
EROSION CONTROL AND CONSTRUCTION NOTES:

SOLID SLAB SODDING SHALL BE PLACED ON ALL DISTURBED AREAS.

AT THE BEGINNING OF SODDING OPERATIONS, ANY AREA INCLUDED IN THE PLANNED QUANTITIES THAT HAS GROWN A SATISFACTORY TURF OF PERENNIAL GRASS, AS DETERMINED BY THE CONTRACT ADMINISTRATOR, SHALL NOT BE SODDED, WATERED OR FERTILIZED.

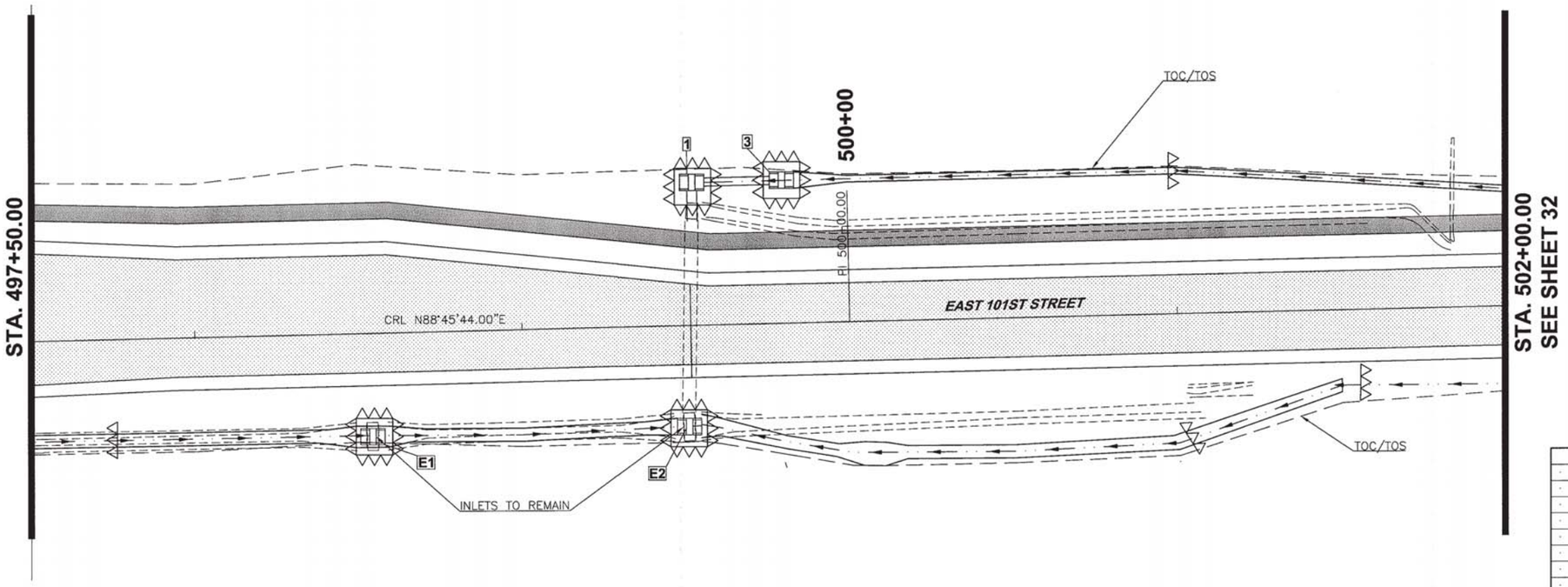
TEMPORARY EROSION CONTROL:
IF THE DIRT WORK IS COMPLETED AFTER THE APPROVED PLANTING SEASON FOR SODDING HAS ENDED, DISTURBED AREAS WILL BE PLANTED WITH A TEMPORARY COVER CROP CONSISTING OF WHEAT, RYE OR OTHER SMALL GRAIN AT THE RATE OF 20 POUNDS/ACRE IN ACCORDANCE WITH SECTION 232 OF THE STANDARD SPECIFICATIONS. COST OF TEMPORARY COVER CROP TO BE INCLUDED IN THE PRICE BID FOR SOLID SLAB SODDING.

TOPSOIL NOTE:
RESERVED TOPSOIL SHALL BE SPREAD APPROX. 5 INCHES THICK FIRST ON COMPLETED FORE SLOPES OF FILL SECTIONS AND THE REMAINDER ON COMPLETED CUT SLOPES OR OTHER PRIORITY AREAS LOCATED BY THE CONTRACT ADMINISTRATOR.



LEGEND

- TEMPORARY SILT FENCE
- TEMPORARY SILT DIKE
- SOLID SLAB SOD DITCH
- TEMPORARY INLET SEDIMENT FILTER
- RIP RAP
- PAVED DITCH
- ROCK FILTER DAM (RFD)



REGISTERED PROFESSIONAL ENGINEER — JEREMY R. STAHL — STATE OF OKLAHOMA

BEFORE YOU DIG — 811 — 1-800-522-6543 — CALL OKIE

EROSION CONTROL 493+00

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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PLAN SCALE: 1" = 20'	DRAWN	J.R.C.	07/2014
	DESIGNED	J.P.S.	07/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.	TRB	3/16
HORIZONTAL: N/A	LEAD ENGR.	TRB	3/16
	FIELD MGR.	FBV	3/16
VERTICAL N/A	RECOMMENDED DESIGN MANAGER	MAK	6/16

APPROVED: CITY ENGINEER

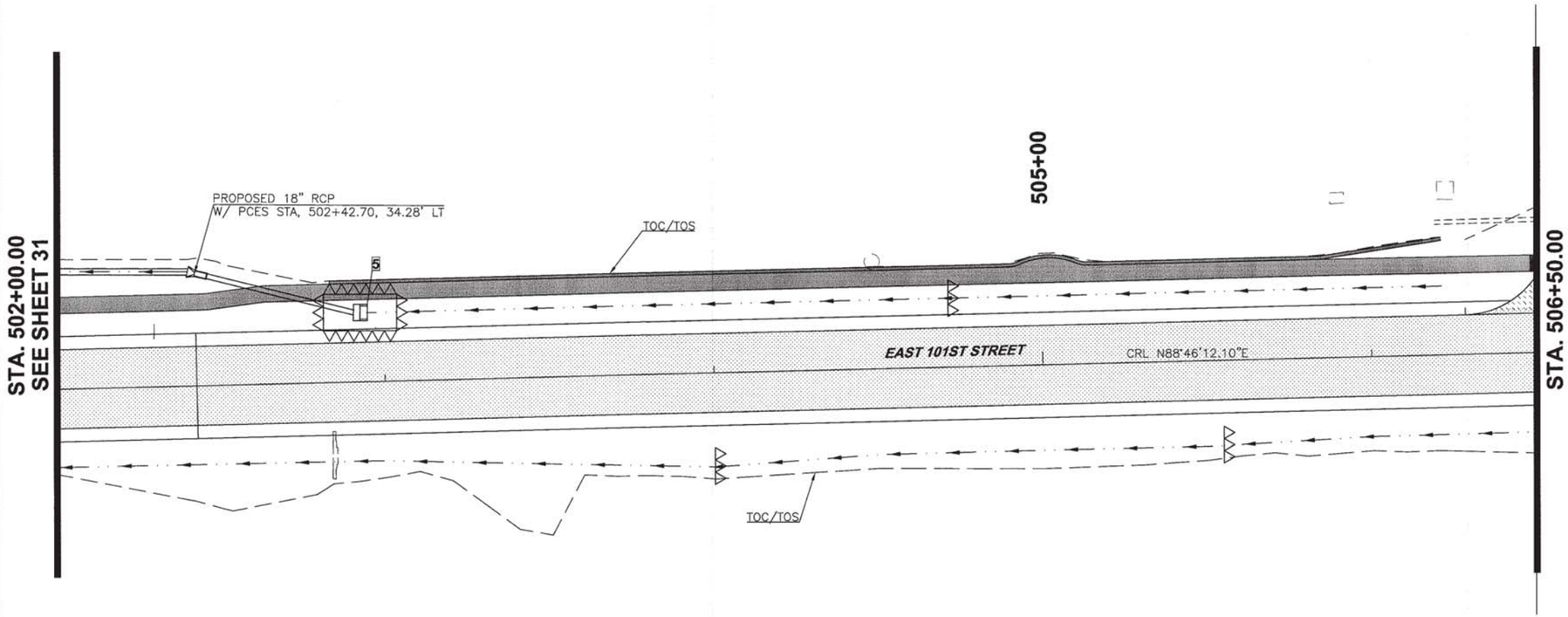
DRAWING: 33 EROSION CONTROL 547+50.DWG

ATLAS PAGE NO: 1276, 1277, 1422, 1423

DATE 11.07.16

SHEET 31 OF 181

PLOT DATE: April 22, 2015, DRAWING NAME: 33 EROSION CONTROL 547+50.DWG



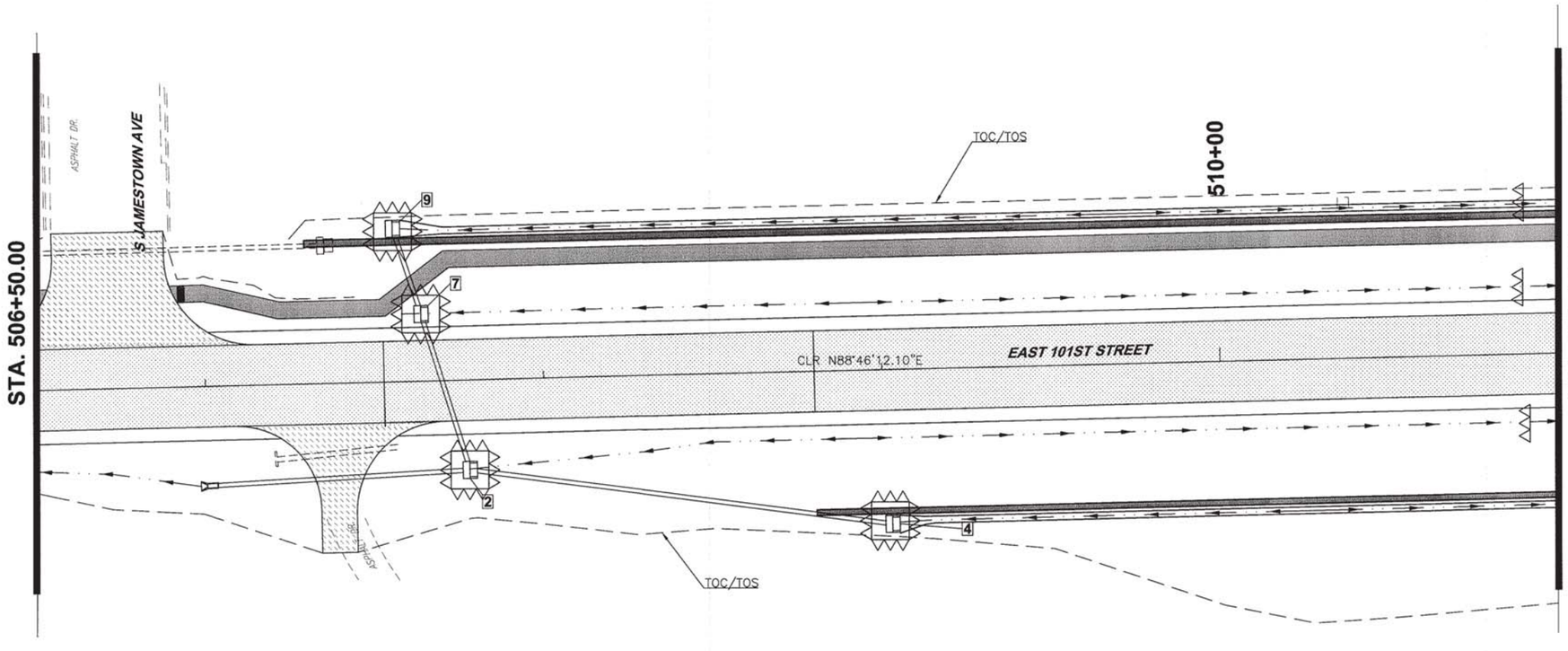
LEGEND

- TEMPORARY SILT FENCE
- TEMPORARY SILT DIKE
- SOLID SLAB SOD DITCH
- TEMPORARY INLET SEDIMENT FILTER
- RIP RAP
- PAVED DITCH
- ROCK FILTER DAM (RFD)

SUGGESTED PLAN IS NOT ALL INCLUSIVE. PLACEMENT OF EROSION CONTROL DEVICES IS SUBJECT TO CONSTRUCTION PHASING AND CHANGING SITE CONDITIONS. CONTROL OF PROJECT RUN-OFF REMAINS THE RESPONSIBILITY OF THE CONTRACTOR AND IS SUBJECT TO APPROVAL BY THE CONTRACT ADMINISTRATOR.

NOTE: SILT FENCE SHALL BE PLACED AT 5' MINIMUM CLEARANCE TO LIMITS OF CONSTRUCTION.

0' 10' 20' 40'



REGISTERED PROFESSIONAL ENGINEER JEREMY P. STAHLE OKLAHOMA 5/16

BEFORE YOU DIG CALL OKIE

EROSION CONTROL 502+00

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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PLAN SCALE: 1" = 20'	DRAWN	J.R.C.	07/2014
	DESIGNED	J.P.S.	07/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.	TRB	3/16
HORIZONTAL: N/A	LEAD ENGR.	BST	3/16
	FIELD MGR.	PBH	3/16
VERTICAL N/A	RECOMMENDED DESIGN MANAGER	JAG	6/16

APPROVED:

CITY ENGINEER

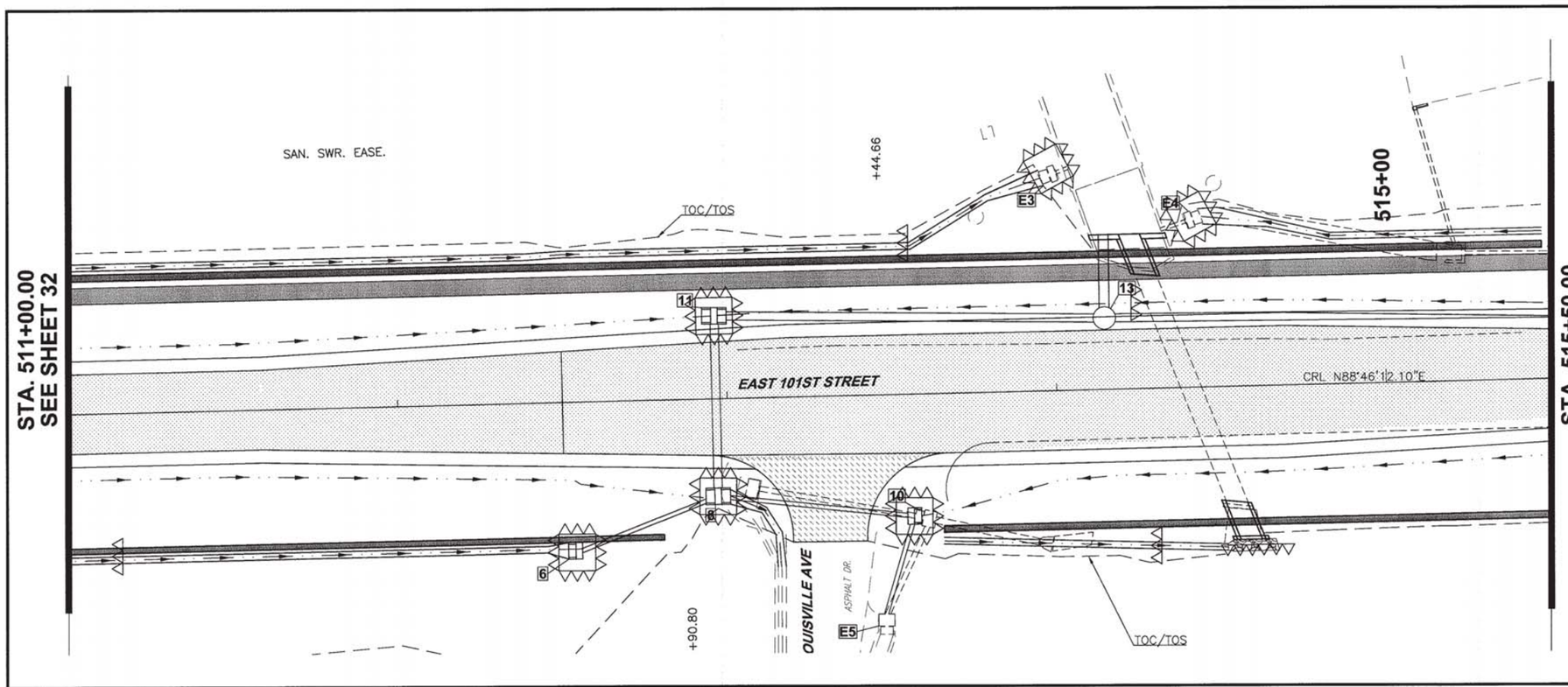
DATE 11.04.16

DRAWING: 33 EROSION CONTROL 547+50.DWG

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 32 OF 181

PLOT DATE: April 22, 2015, DRAWING NAME: 33 EROSION CONTROL 547+50.DWG



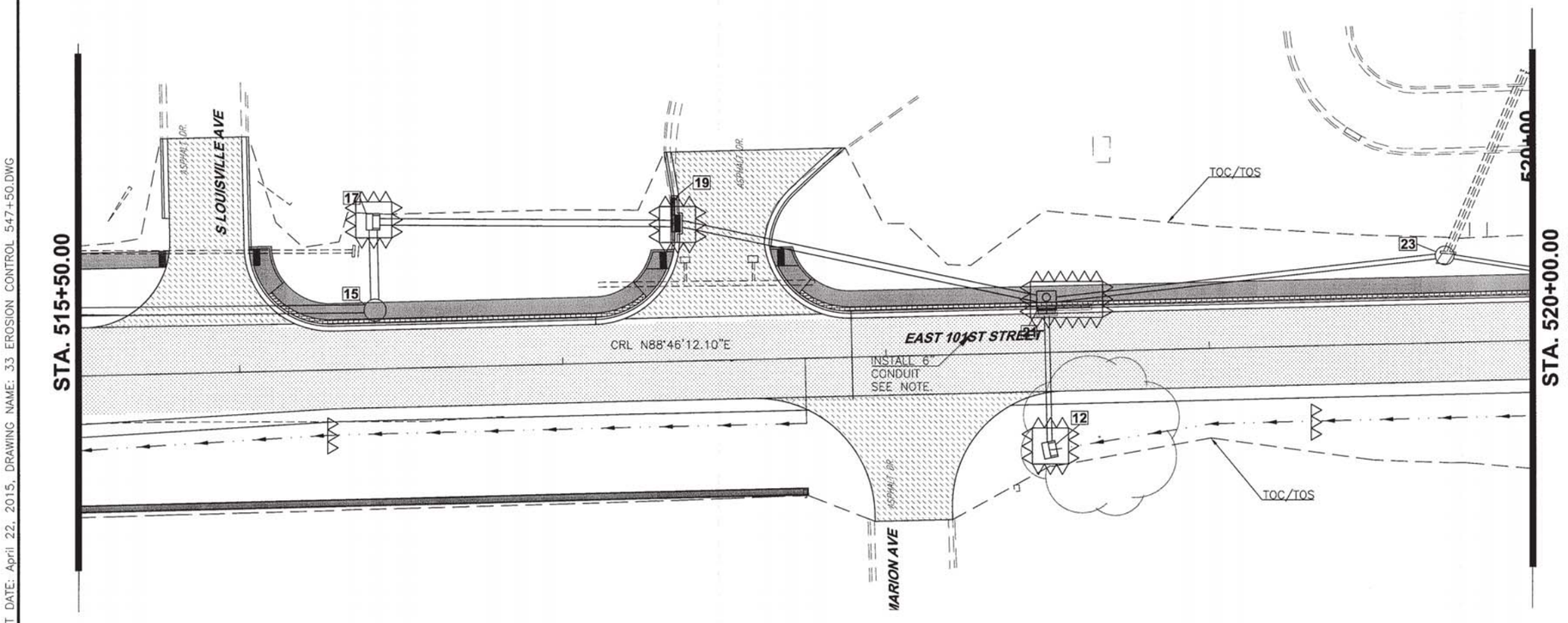
LEGEND

TEMPORARY SILT FENCE	XXXX
TEMPORARY SILT DIKE	△△△
SOLID SLAB SOD DITCH	
TEMPORARY INLET SEDIMENT FILTER	
RIP RAP	
PAVED DITCH	
ROCK FILTER DAM	RFD

SUGGESTED PLAN IS NOT ALL INCLUSIVE. PLACEMENT OF EROSION CONTROL DEVICES IS SUBJECT TO CONSTRUCTION PHASING AND CHANGING SITE CONDITIONS. CONTROL OF PROJECT RUN-OFF REMAINS THE RESPONSIBILITY OF THE CONTRACTOR AND IS SUBJECT TO APPROVAL BY THE CONTRACT ADMINISTRATOR.

NOTE: SILT FENCE SHALL BE PLACED AT 5' MINIMUM CLEARANCE TO LIMITS OF CONSTRUCTION.

0' 10' 20' 40'



REGISTERED PROFESSIONAL ENGINEER JEREMY P. STAPLE 21725 OKLAHOMA

BEFORE YOU DIG 811 CALL OKIE

EROSION CONTROL 511+00

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE

PLAN SCALE: 1" = 20'	DRAWN	J.R.C.	07/2014
	DESIGNED	J.P.S.	07/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.	TRB	3/16
HORIZONTAL: N/A	LEAD ENGR.	BJJ	3/16
	FIELD MGR.	RBV	3/16
VERTICAL N/A	RECOMMENDED: DESIGN MANAGER	HAS	6/16

APPROVED:

CITY ENGINEER

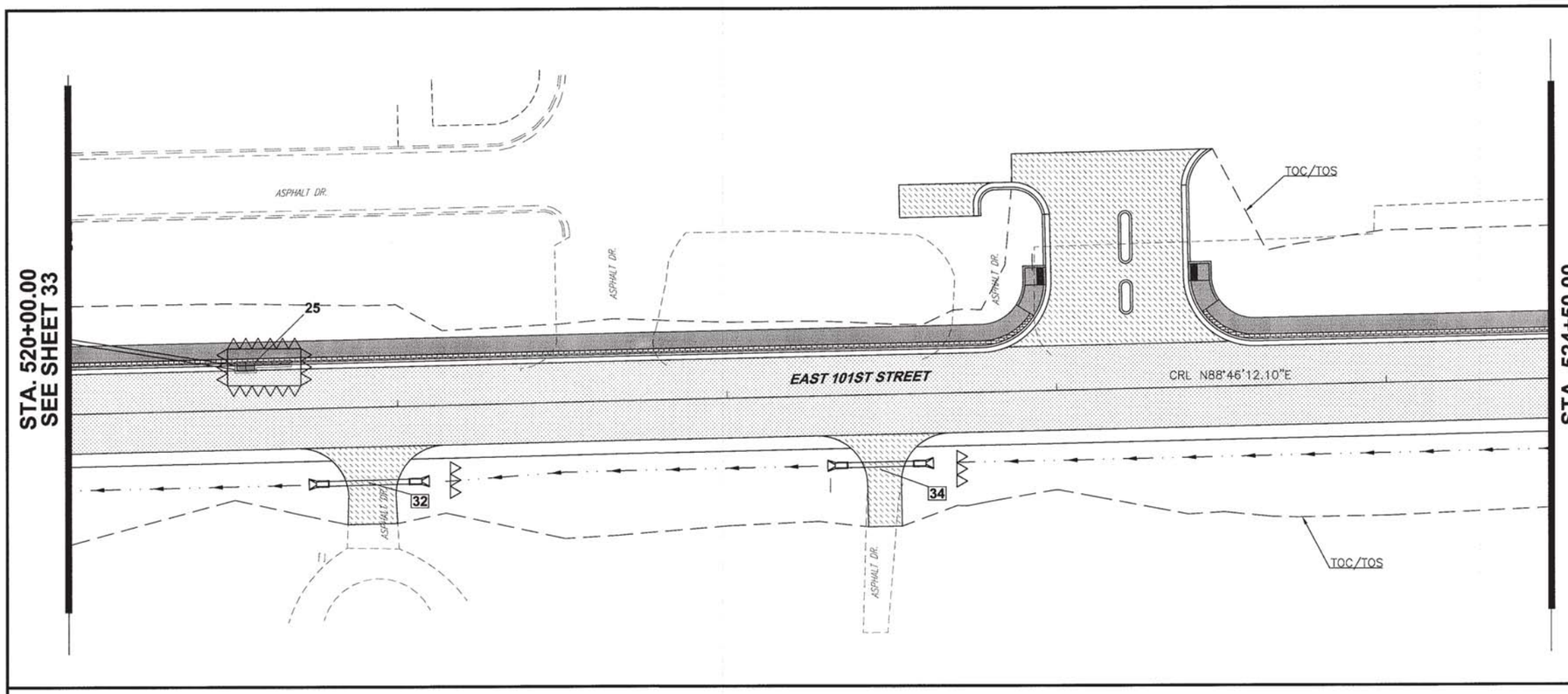
DATE 11.04.16

DRAWING: 33 EROSION CONTROL 547+50.DWG

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 33 OF 181

PLOT DATE: April 22, 2015, DRAWING NAME: 33 EROSION CONTROL 547+50.DWG



LEGEND

TEMPORARY SILT FENCE	XXXX
TEMPORARY SILT DIKE	△△△
SOLID SLAB SOD DITCH	
TEMPORARY INLET SEDIMENT FILTER	
RIP RAP	
PAVED DITCH	
ROCK FILTER DAM	RFD

SUGGESTED PLAN IS NOT ALL INCLUSIVE. PLACEMENT OF EROSION CONTROL DEVICES IS SUBJECT TO CONSTRUCTION PHASING AND CHANGING SITE CONDITIONS. CONTROL OF PROJECT RUN-OFF REMAINS THE RESPONSIBILITY OF THE CONTRACTOR AND IS SUBJECT TO APPROVAL BY THE CONTRACT ADMINISTRATOR.

NOTE: SILT FENCE SHALL BE PLACED AT 5' MINIMUM CLEARANCE TO LIMITS OF CONSTRUCTION.

0' 10' 20' 40'

REGISTERED PROFESSIONAL ENGINEER JEREMY P. STAHLE 21725 OKLAHOMA

BEFORE YOU DIG 811 CALL OKIE

EROSION CONTROL 520+00

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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PLAN SCALE: 1" = 20'	DRAWN	J.R.C.	07/2014
	DESIGNED	J.P.S.	07/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.	TRB	3/16
HORIZONTAL: N/A	LEAD ENGR.	BJS	3/16
	FIELD MGR.	RBV	3/16
VERTICAL N/A	RECOMMENDED: DESIGN MANAGER	HRS	6/16

APPROVED:

CITY ENGINEER

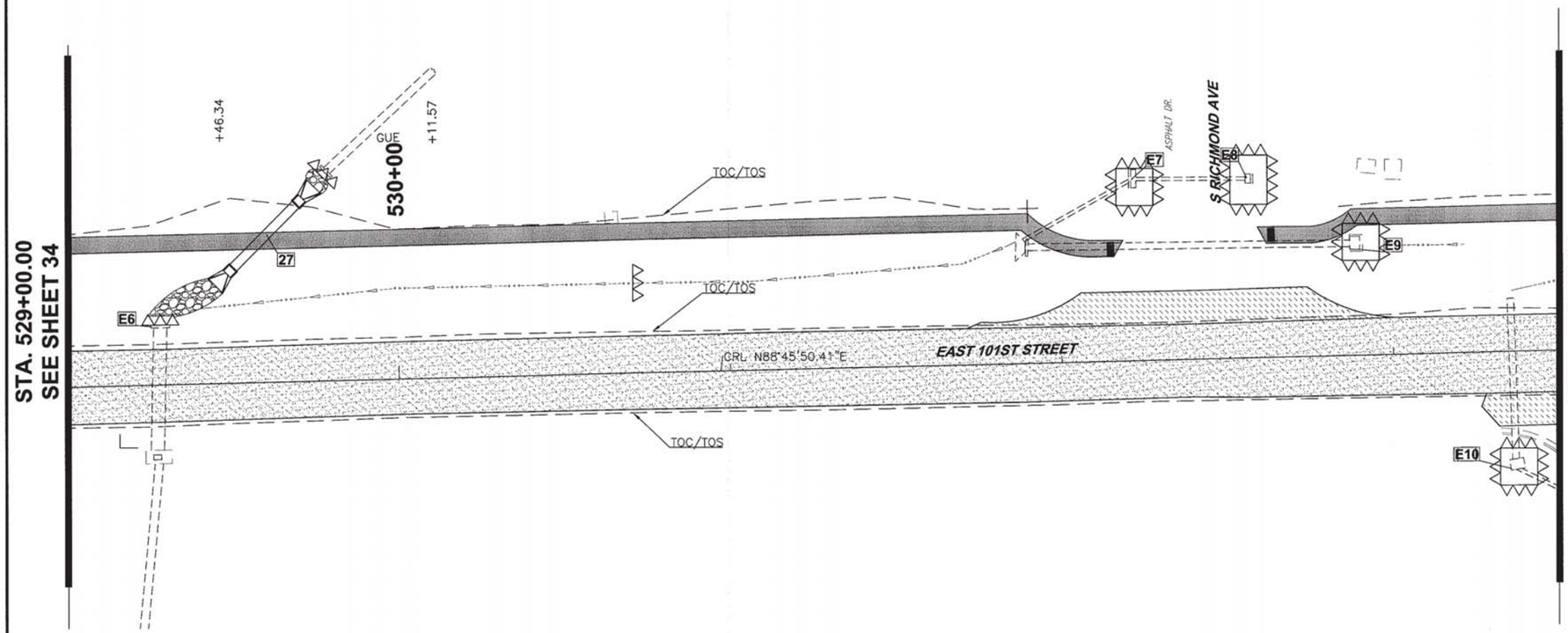
DRAWING: 33 EROSION CONTROL 547+50.DWG

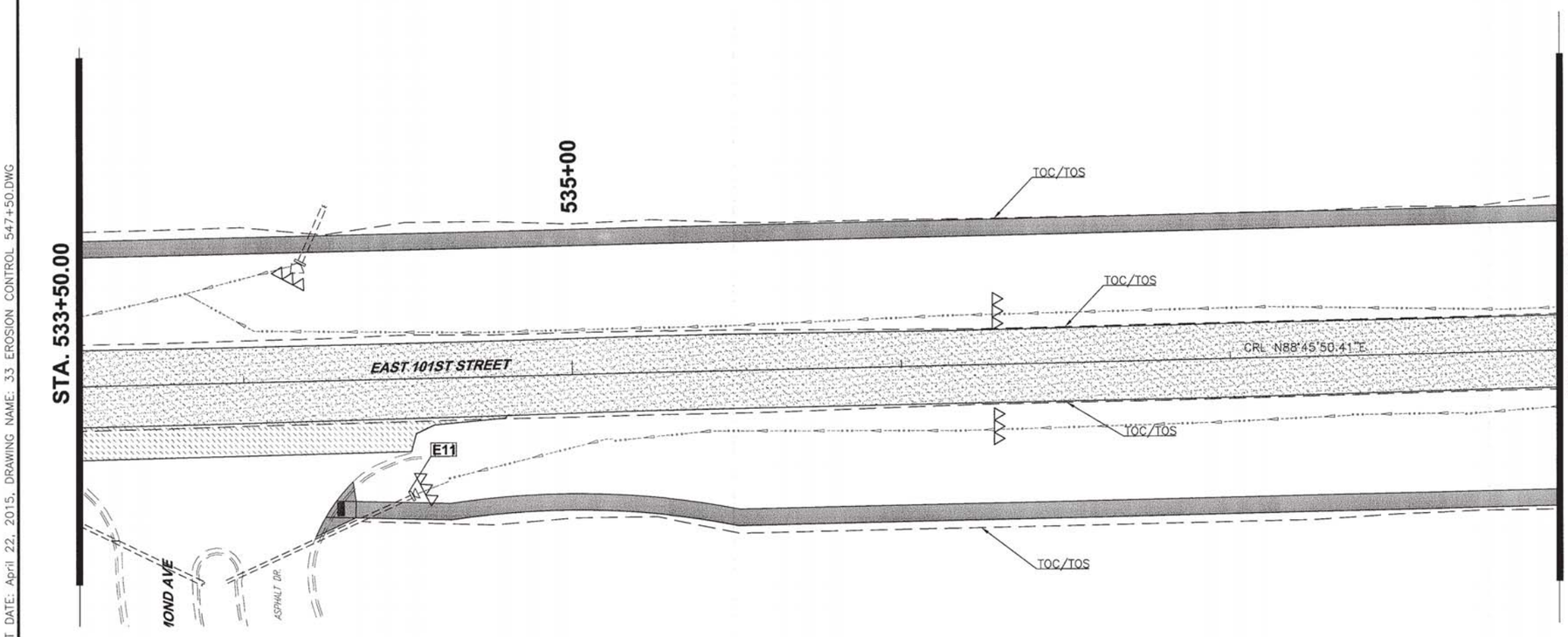
DATE 11.04.16

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 34 OF 181

PLOT DATE: April 22, 2015, DRAWING NAME: 33 EROSION CONTROL 547+50.DWG





LEGEND

- TEMPORARY SILT FENCE
- TEMPORARY SILT DIKE
- SOLID SLAB SOD DITCH
- TEMPORARY INLET SEDIMENT FILTER
- RIP RAP
- PAVED DITCH
- ROCK FILTER DAM (RFD)

SUGGESTED PLAN IS NOT ALL INCLUSIVE. PLACEMENT OF EROSION CONTROL DEVICES IS SUBJECT TO CONSTRUCTION PHASING AND CHANGING SITE CONDITIONS. CONTROL OF PROJECT RUN-OFF REMAINS THE RESPONSIBILITY OF THE CONTRACTOR AND IS SUBJECT TO APPROVAL BY THE CONTRACT ADMINISTRATOR.

NOTE: SILT FENCE SHALL BE PLACED AT 5' MINIMUM CLEARANCE TO LIMITS OF CONSTRUCTION.

0' 10' 20' 40'

REGISTERED PROFESSIONAL ENGINEER — JEREMY STANLEY — OKLAHOMA

BEFORE YOU DIG — 811 — CALL OKIE

EROSION CONTROL 529+00

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
CEC 4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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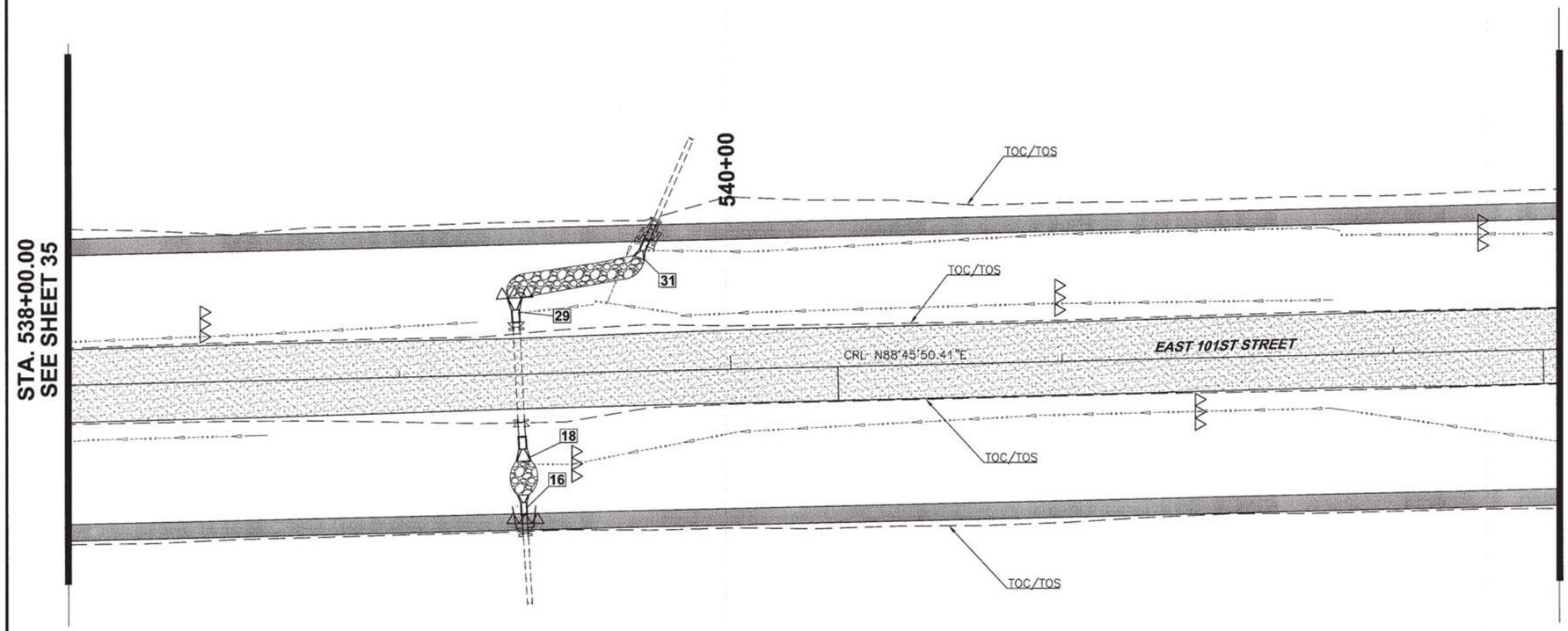
PLAN SCALE: 1" = 20'	DRAWN	J.R.C.	07/2014
	DESIGNED	J.P.S.	07/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.	JRS	3/16
HORIZONTAL: N/A	LEAD ENGR.	JPS	3/16
	FIELD MGR.	RDW	3/16
VERTICAL N/A	RECOMMENDED: DESIGN MANAGER	HAK	6/16

APPROVED: CITY ENGINEER

DRAWING: 33 EROSION CONTROL 547+50.DWG — DATE 11.04.16

ATLAS PAGE NO: 1276, 1277, 1422, 1423 — SHEET 35 OF 181

PLOT DATE: April 22, 2015, DRAWING NAME: 33 EROSION CONTROL 547+50.DWG



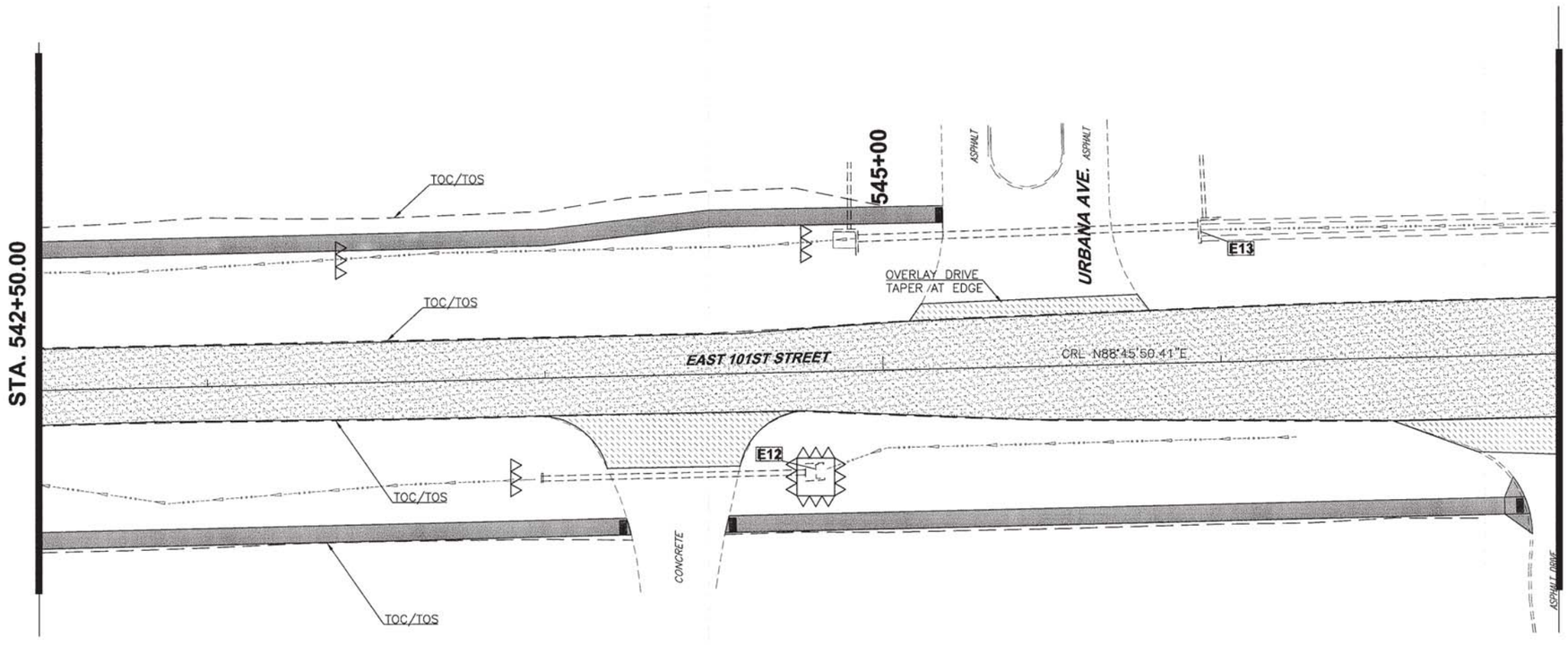
LEGEND

- TEMPORARY SILT FENCE
- TEMPORARY SILT DIKE
- SOLID SLAB SOD DITCH
- TEMPORARY INLET SEDIMENT FILTER
- RIP RAP
- PAVED DITCH
- ROCK FILTER DAM (RFD)

SUGGESTED PLAN IS NOT ALL INCLUSIVE. PLACEMENT OF EROSION CONTROL DEVICES IS SUBJECT TO CONSTRUCTION PHASING AND CHANGING SITE CONDITIONS. CONTROL OF PROJECT RUN–OFF REMAINS THE RESPONSIBILITY OF THE CONTRACTOR AND IS SUBJECT TO APPROVAL BY THE CONTRACT ADMINISTRATOR.

NOTE: SILT FENCE SHALL BE PLACED AT 5' MINIMUM CLEARANCE TO LIMITS OF CONSTRUCTION.

0' 10' 20' 40'



PLOT DATE: April 22, 2015, DRAWING NAME: 33 EROSION CONTROL 547+50.DWG

JEREMY P. STAMPLEY — REGISTERED PROFESSIONAL ENGINEER — STATE OF OKLAHOMA

811 BEFORE YOU DIG — CALL OKIE

EROSION CONTROL 538+00

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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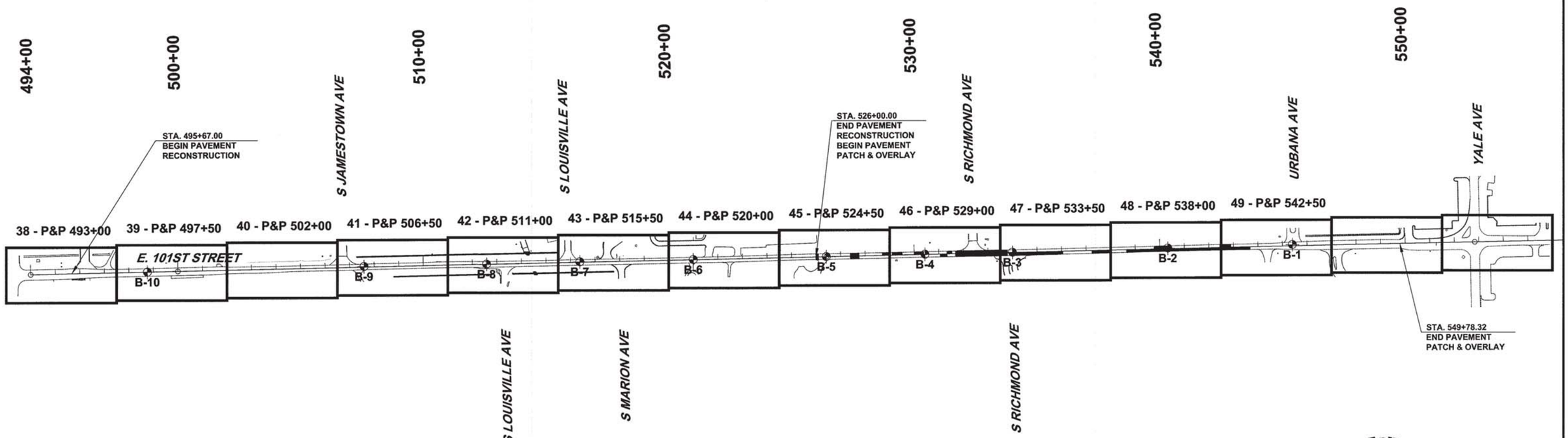
PLAN SCALE: 1" = 20'
PROFILE SCALES: HORIZONTAL: N/A VERTICAL: N/A

DRAWN	J.R.C.	07/2014
DESIGNED	J.P.S.	07/2014
SURVEY	A.K.H.	08/2012
PROJ. MGR.	TRB	3/16
LEAD ENGR.	BSD	3/16
FIELD MGR.	PGH	3/16
RECOMMENDED DESIGN MANAGER	HAS	6/16

APPROVED: CITY ENGINEER

DRAWING: 33 EROSION CONTROL 547+50.DWG
DATE 11.24.16
ATLAS PAGE NO: 1276, 1277, 1422, 1423
SHEET 36 OF 181



BORE HOLE LOCATION PER GEOTECHNICAL REPORT

0' 100' 200' 400'

BEFORE YOU DIG 811 1-800-522-OKIE CALL OKIE

REGISTERED PROFESSIONAL ENGINEER JEREMY P. STAHLE 21725 OKLAHOMA 5/4/15

KEY MAP & BORING LOCATION

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE

PLAN SCALE: 1"=200'	DRAWN	J.R.C.	09/2012
	DESIGNED	D.C.G.	06/2012
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.	BDC	8/15
HORIZONTAL: 1"=200'	LEAD ENGR.	DJ	1/16
	FIELD MGR.	ZBW	3/16
VERTICAL N/A	RECOMMENDED: DESIGN MANAGER	HAS	6/16

APPROVED:

CITY ENGINEER

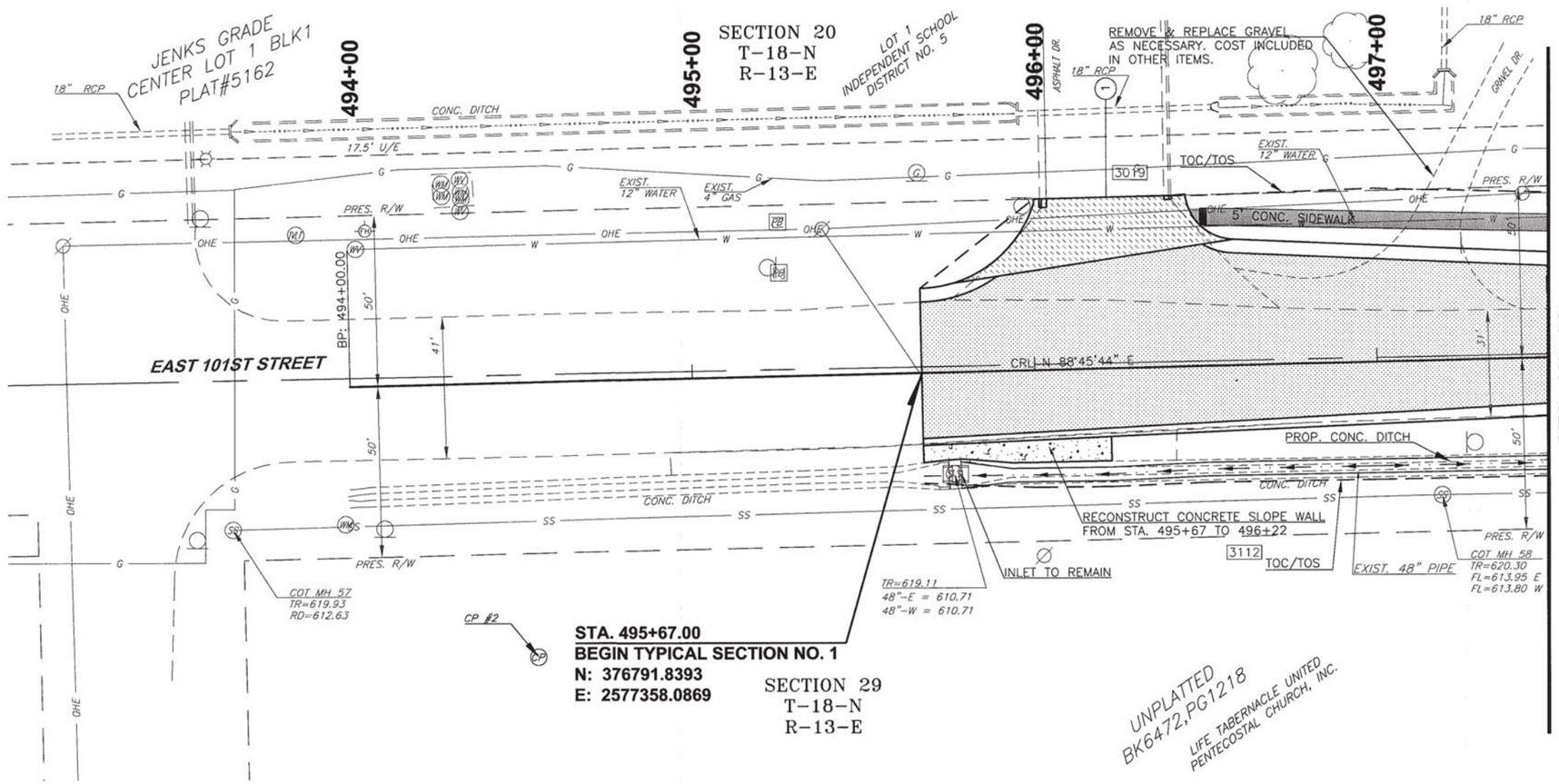
DATE 11.04.16

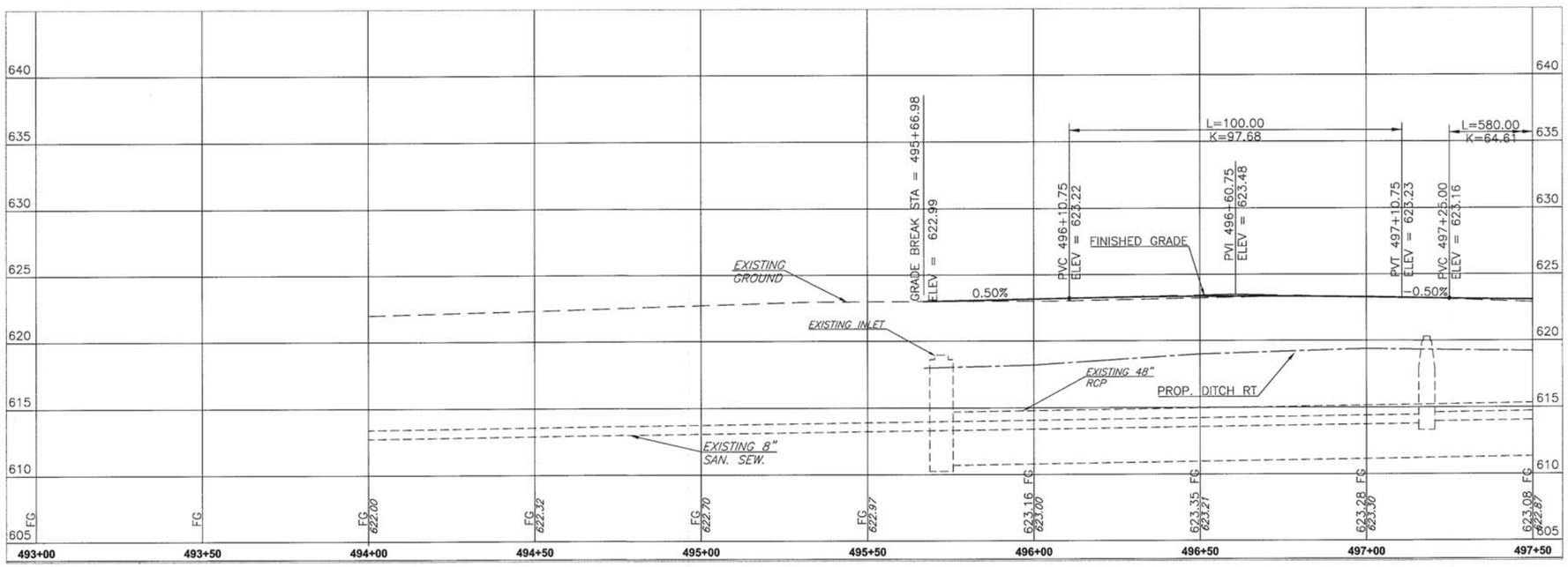
DRAWING: 37 – KEY MAP & BORING LOCATION

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 37 OF 181

PLOT DATE: May 4, 2015, DRAWING NAME: 41 KEY MAP & BORING LOCATION.DWG





STREET RETURN AND DRIVE SUMMARY TABLE							
DRIVE NO.	SR/DW	℄ STATION	TYPE	LT./RT.	WIDTH X LENGTH	RADII (FT)	AREA (SY)
1	DW	496+21.96	ASPHALT	LT.	19'x45'	35.3'W, 14.4'E	111

CONTROL POINT		
NO.	DESCRIPTION	ELEV.
2	5/8" IP W/ ALUM. CAP IN CONC. N: 376706.1993 E: 2577113.1299	619.80

LEGEND

- 1 — DRAINAGE STRUCTURE NUMBER
- (2) — DRIVE NUMBER
- 1111 — NEAREST ADDRESS
- PROPOSED RECONSTRUCTION
- PROPOSED OVERLAY
- PROPOSED AC PATCH
- PROPOSED DRIVE
- PROPOSED SIDEWALK
- EXISTING FLOWLINE
- PROPOSED FLOWLINE

NOTE:
SEE TYPICAL SECTIONS FOR PAVEMENT DEPTH AND OTHER DETAILS

EXISTING HORIZONTAL UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE AND MUST BE FIELD VERIFIED PRIOR TO CONSTRUCTION

SEE SHEETS 52 - 63 FOR PROPOSED WATER AND SEWER PLANS AND DETAILS

SEE SHEETS 73 - 76 FOR PROPOSED FENCING PLANS AND DETAILS

0' 10' 20' 40'

REGISTERED PROFESSIONAL ENGINEER — JEREMY P. STABLE — OKLAHOMA — 21125

BEFORE YOU DIG 811 — CALL OKIE

REVISION	BY	DATE
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P&P 493+00

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

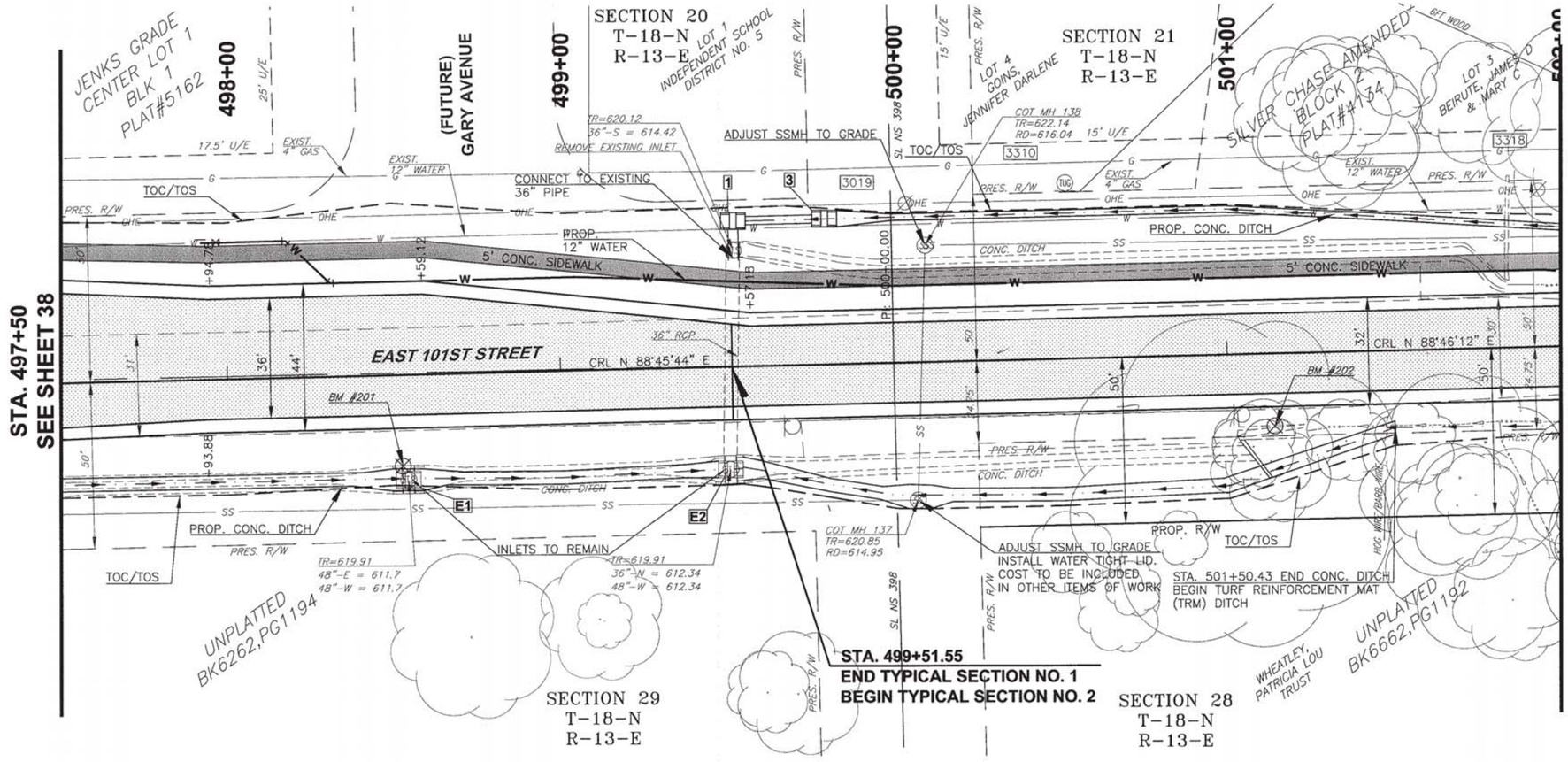
PLAN SCALE: 1" = 20'	DRAWN	L.P.E.	08/2014
	DESIGNED	J.P.S	08/2014
	SURVEY	A.K.H.	07/2012
PROFILE SCALES:	PROJ. MGR.	BDL	8/15
HORIZONTAL: 1" = 20'	LEAD ENGR.		1/16
	FIELD MGR.		3/16
VERTICAL 1" = 5'	RECOMMENDED DESIGN MANAGER		6/16

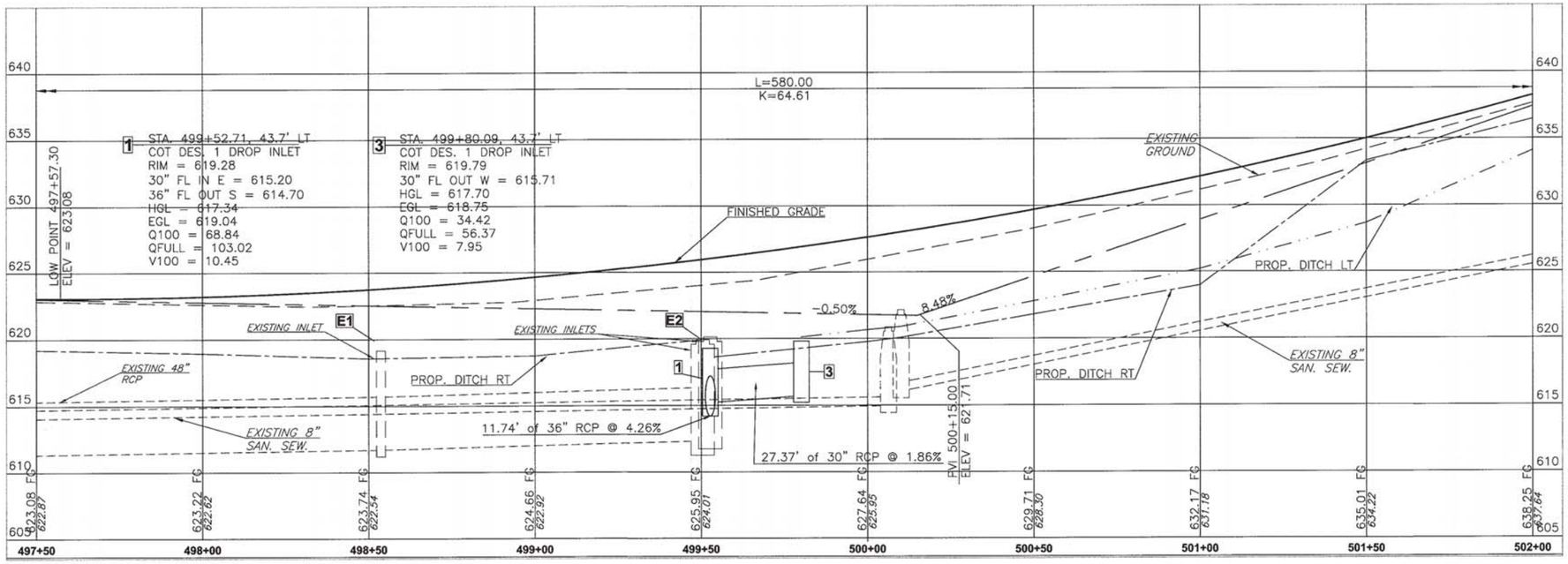
APPROVED: CITY ENGINEER

DRAWING: 55 P&P 551+50.DWG — DATE 11.04.16

ATLAS PAGE NO: 1276, 1277, 1422, 1423 — SHEET 38 OF 181

PLOT DATE: April 22, 2015, DRAWING NAME: 55 P&P 551+50.DWG





BENCHMARK		
NO.	DESCRIPTION	ELEV.
201	498+52.09, 27.20' RT CUT X ON NW COR. OF HEADWALL	620.05
202	501+13.89, 21.80' RT CUT X ON NORTH EDGE OF FLUME	629.54

LEGEND

- 1 — DRAINAGE STRUCTURE NUMBER
- (2) — DRIVE NUMBER
- 1111 — NEAREST ADDRESS
- PROPOSED RECONSTRUCTION
- PROPOSED OVERLAY
- PROPOSED AC PATCH
- PROPOSED DRIVE
- PROPOSED SIDEWALK
- EXISTING FLOWLINE
- PROPOSED FLOWLINE

NOTE: SEE TYPICAL SECTIONS FOR PAVEMENT DEPTH AND OTHER DETAILS

EXISTING HORIZONTAL UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE AND MUST BE FIELD VERIFIED PRIOR TO CONSTRUCTION

SEE SHEETS 52 - 63 FOR PROPOSED WATER AND SEWER PLANS AND DETAILS

SEE SHEETS 73 - 76 FOR PROPOSED FENCING PLANS AND DETAILS

PIPE TABLE

UPSTREAM STR.	DOWNSTREAM STR.	LENGTH (FT)	SIZE (IN)	SLOPE (%)
1	EXIST. PIPE	11.74	36	2.39

0' 10' 20' 40'

REVISION	BY	DATE
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P&P 497+50

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

PLAN SCALE: 1" = 20'	DRAWN	L.P.E	08/2014
	DESIGNED	J.P.S	08/2014
	SURVEY	A.K.H.	07/2012
PROFILE SCALES: HORIZONTAL: 1" = 20' VERTICAL 1" = 5'	PROJ. MGR.		3/15
	LEAD ENGR.		1/16
	FIELD MGR.		3/16
	RECOMMENDED DESIGN MANAGER		3/16

APPROVED:

CITY ENGINEER

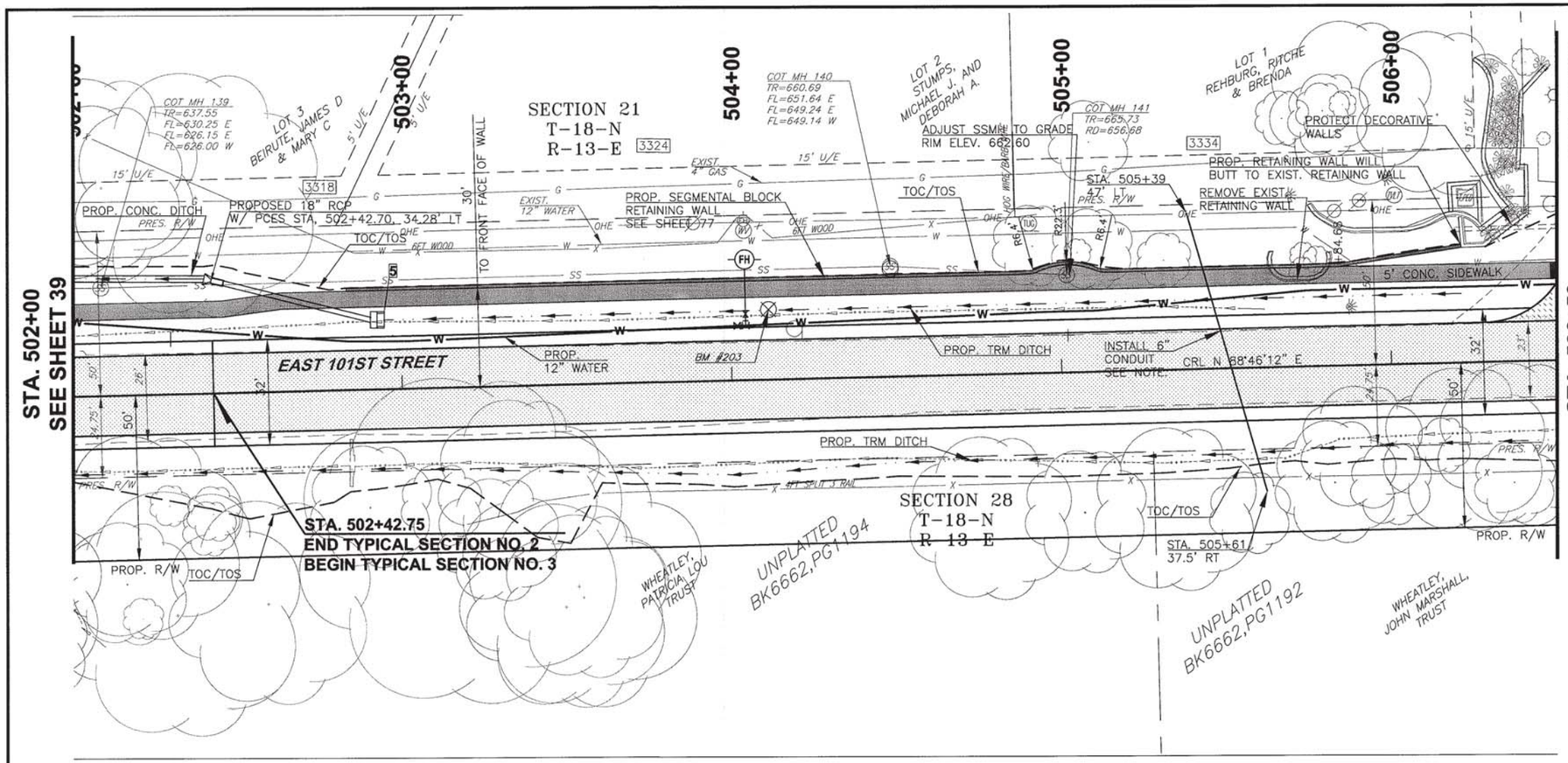
DATE

DRAWING: 55 P&P 551+50.DWG

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 39 OF 181

PLOT DATE: April 22, 2015, DRAWING NAME: 55 P&P 551+50.DWG



NOTE: CONDUIT SHALL BE SCH. 40 GREY ELECTRICAL PVC. MINIMUM BURIAL DEPTH SHALL BE 5'. MAINTAIN 12" CLEARANCE WITH ALL EXISTING AND PROPOSED UTILITIES AND BOTTOM OF RETAINING WALL FOOTING. INSTALL MARKER PIPES AT ENDS OF CONDUIT. COORDINATE WITH PSO PRIOR TO CONSTRUCTION.

BENCHMARK		
NO.	DESCRIPTION	ELEV.
203	504+11.55, 21.20' RT SET RAILROAD SPIKE IN SE FACE 18" TREE	656.16

LEGEND

- 1 — DRAINAGE STRUCTURE NUMBER
- (2) — DRIVE NUMBER
- 1111 — NEAREST ADDRESS
- PROPOSED RECONSTRUCTION
- PROPOSED OVERLAY
- PROPOSED AC PATCH
- PROPOSED DRIVE
- PROPOSED SIDEWALK
- EXISTING FLOWLINE
- PROPOSED FLOWLINE

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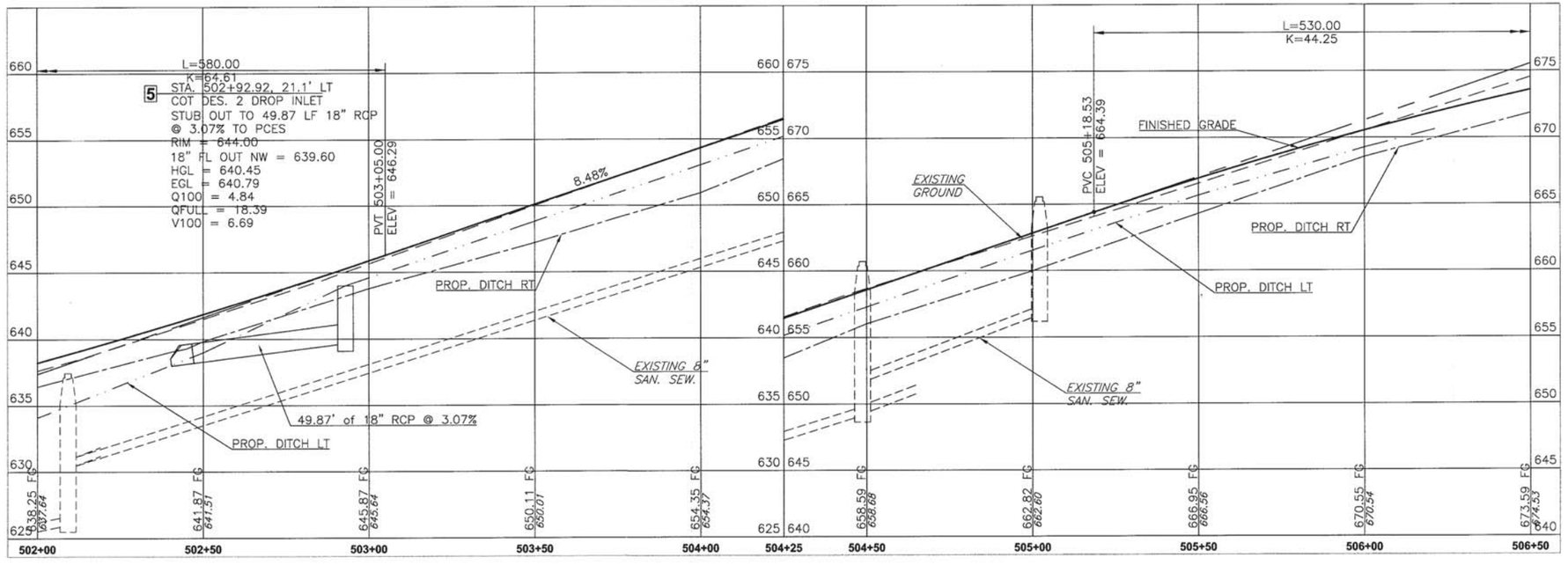

0' 10' 20' 40'

REVISION	BY	DATE
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JEREMY P. STABLE
14725
REGISTERED PROFESSIONAL ENGINEER
STATE OF OKLAHOMA

BEFORE YOU DIG 811 CALL OKIE

P&P 502+00

PROJECT NO. 104006

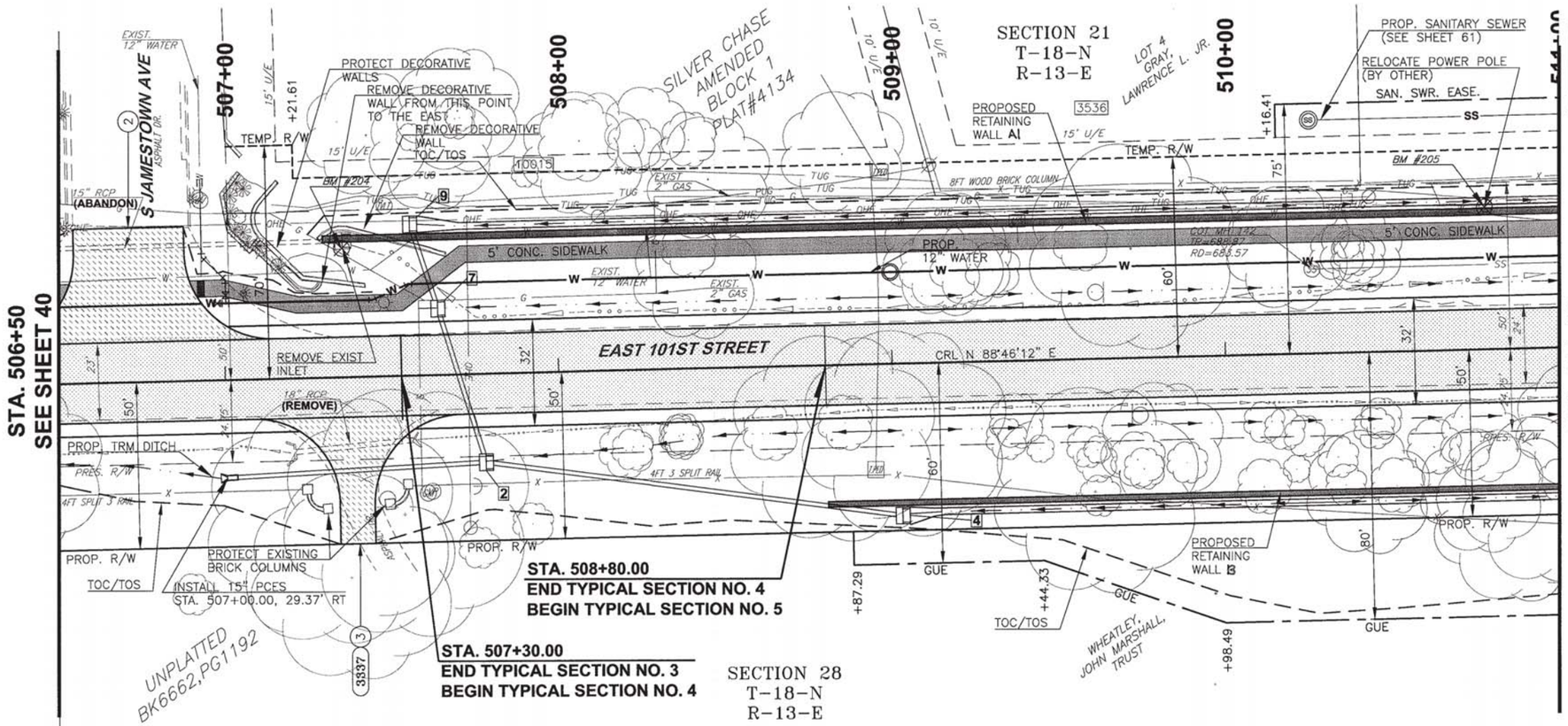
101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

PLAN SCALE:				APPROVED:
1" = 20'	DRAWN	L.P.E	08/2014	
	DESIGNED	J.P.S	08/2014	
	SURVEY	A.K.H.	07/2012	
PROFILE SCALES:	PROJ. MGR.	BOC	8/15	
HORIZONTAL:	LEAD ENGR.	DD	1/16	
1" = 20'	FIELD MGR.	BOC	3/16	
VERTICAL	RECOMMENDED		6/16	
1" = 5'	DESIGN MANAGER			CITY ENGINEER
DRAWING: 55 P&P 551+50.DWG				DATE 11.04.16
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 40 OF 181

PLOT DATE: April 22, 2015, DRAWING NAME: 55 P&P 551+50.DWG



STREET RETURN AN DRIVE SUMMARY TABLE							
DRIVE NO.	SR/DW	℄ STATION	TYPE	LT./RT.	WIDTH X LENGTH	RADII (FT)	AREA (SY)
2	SR	506+71.88	ASPHALT	LT.	35'X34'	26.5	160
3	DW	507+39.53	ASPHALT	RT.	39'X13'	25	76

BENCHMARK		
NO.	DESCRIPTION	ELEV.
204	507+35.75, 38.60' LT CUT X ON SE COR. OF E HEADWALL	689.40
205	510+78.60, 42.60' LT SET RAILROAD SPIKE S. FACE OF POWER POLE	689.63

LEGEND

- 1 — DRAINAGE STRUCTURE NUMBER
- (2) — DRIVE NUMBER
- 1111 — NEAREST ADDRESS
- PROPOSED RECONSTRUCTION
- PROPOSED OVERLAY
- PROPOSED AC PATCH
- PROPOSED DRIVE
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- EXISTING FLOWLINE
- PROPOSED FLOWLINE

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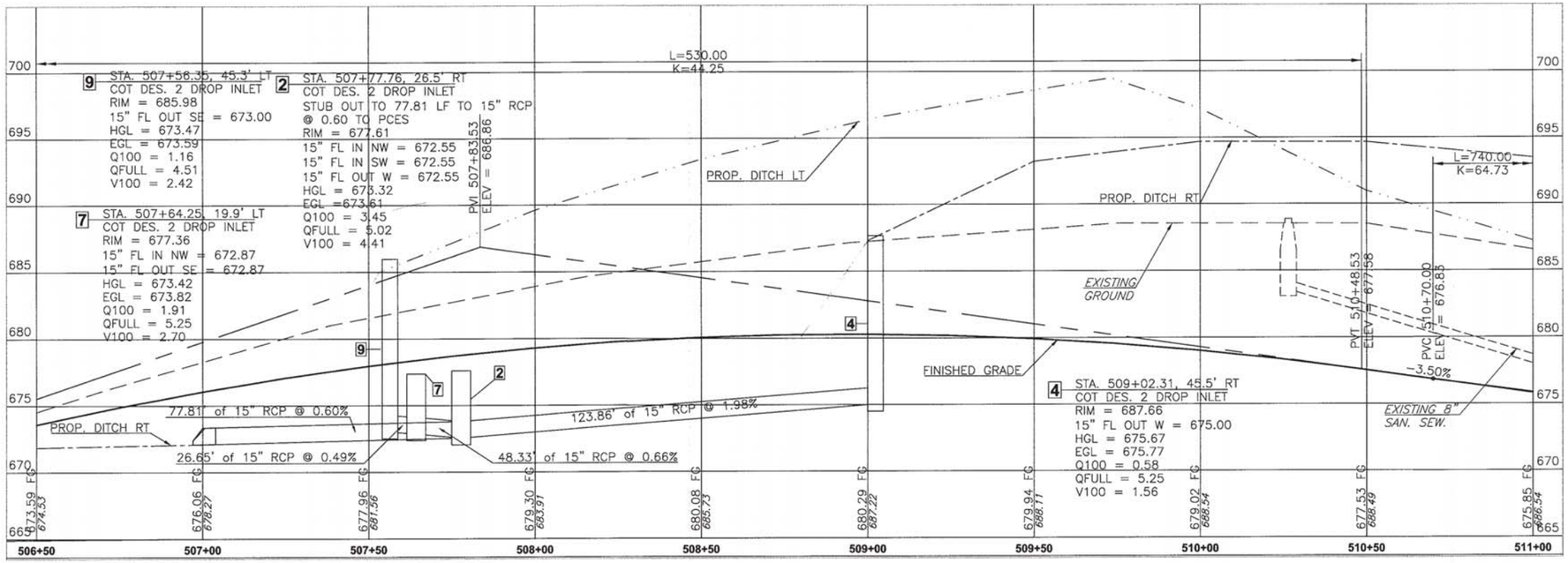


PIPE TABLE				
UPSTREAM STR.	DOWNSTREAM STR.	LENGTH (FT)	SIZE (IN)	SLOPE (%)
9	7	26.65	15	0.49
7	2	48.33	15	0.66

0' 10' 20' 40'

JEREMY R. STALUP 21475 REGISTERED PROFESSIONAL ENGINEER OKLAHOMA

BEFORE YOU DIG 811 CALL OKIE

P&P 506+50

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE

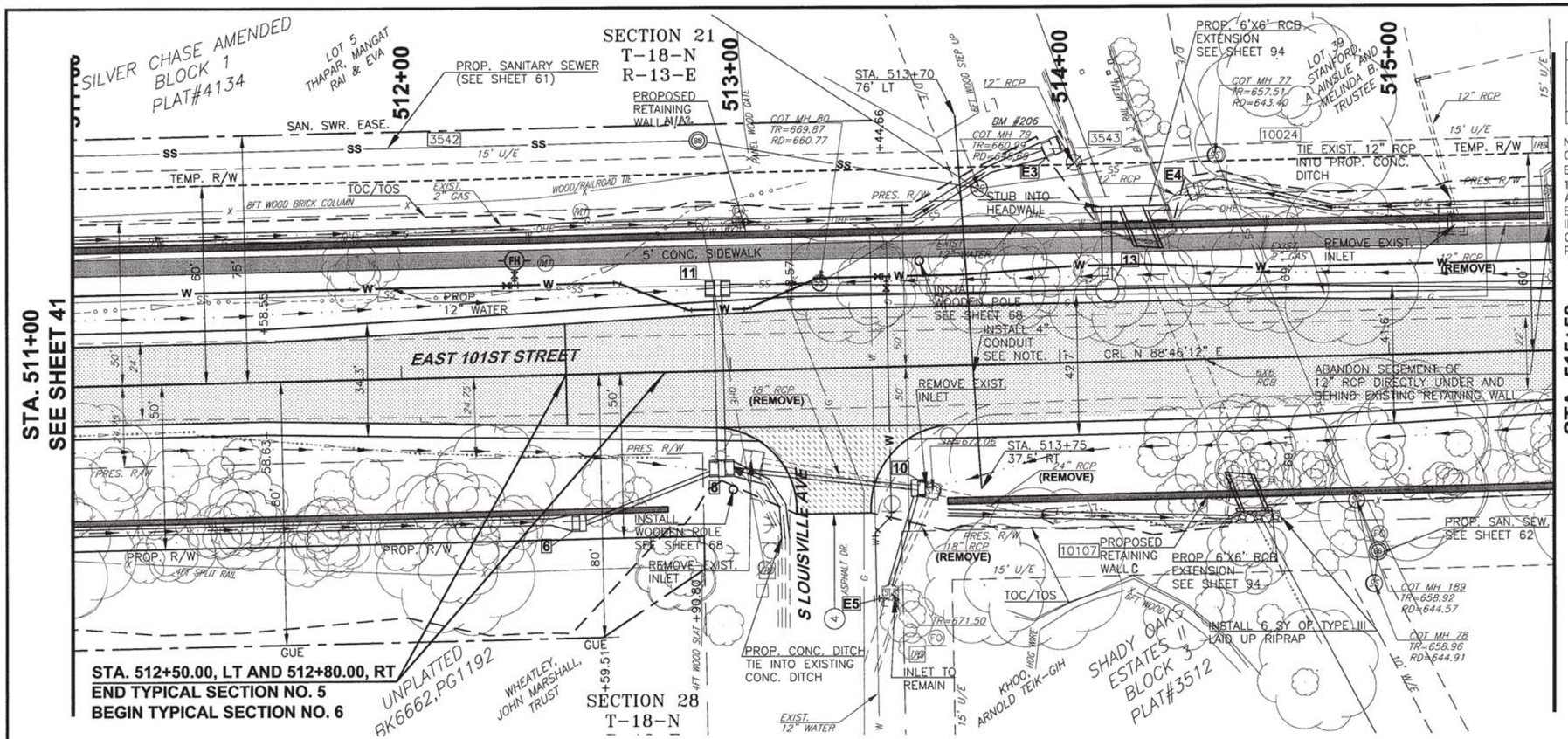
PLAN SCALE: 1" = 20'	DRAWN	L.P.E	08/2014
	DESIGNED	J.P.S	08/2014
	SURVEY	A.K.H.	07/2012
PROFILE SCALES: HORIZONTAL: 1" = 20' VERTICAL 1" = 5'	PROJ. MGR.	BSL	8/16
	LEAD ENGR.	DD	1/16
	FIELD MGR.	RBH	3/16
	RECOMMENDED: DESIGN MANAGER	MRS	6/16

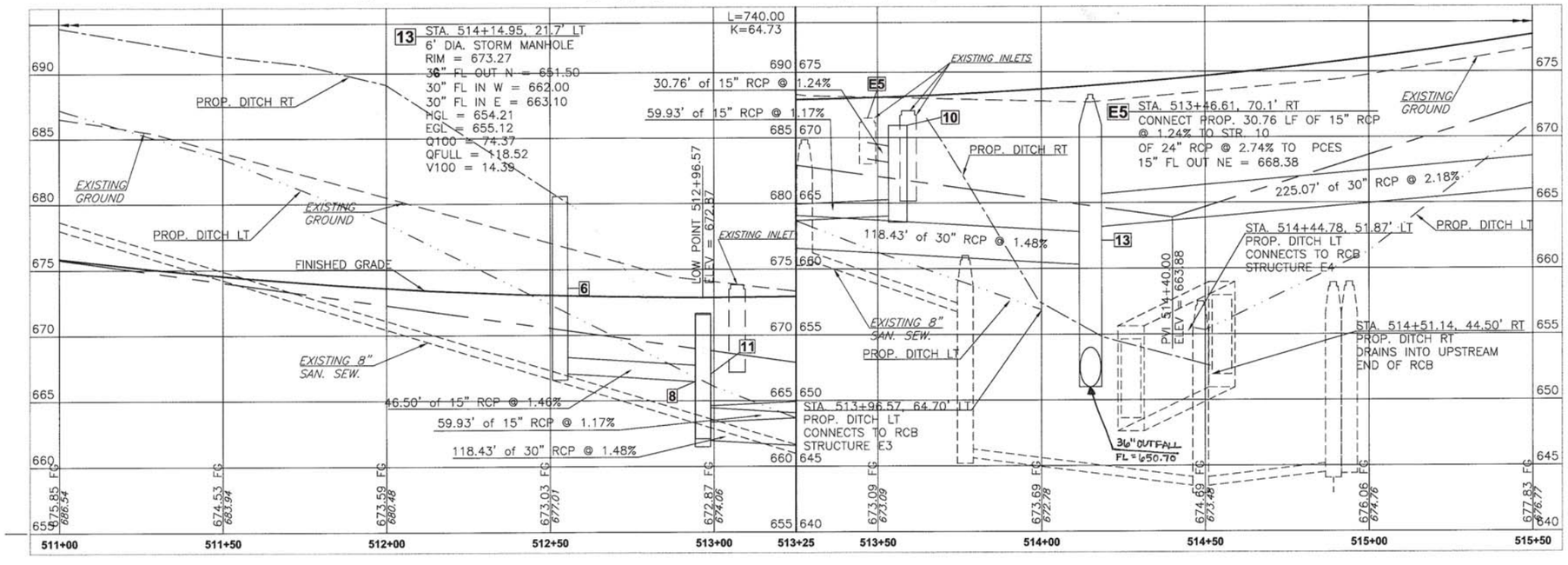
APPROVED: CITY ENGINEER

DRAWING: 55 P&P 551+50.DWG — DATE 11.04.16

ATLAS PAGE NO: 1276, 1277, 1422, 1423 — SHEET 41 OF 181

PLOT DATE: April 22, 2015, DRAWING NAME: 55 P&P 551+50.DWG





STREET RETURN AND DRIVE SUMMARY TABLE

DRIVE NO.	SR/DW	℄ STATION	TYPE	LT./RT.	WIDTH X LENGTH	RADII (FT)	AREA (SY)
4	SR	513+30.40	ASPHALT	RT.	27'X24'	25.3	97

NOTE: CONDUIT SHALL BE SCH. 40 GREY ELECTRICAL PVC, MINIMUM BURIAL DEPTH SHALL BE 5' MAINTAIN 12" CLEARANCE WITH ALL EXISTING AND PROPOSED UTILITIES AND BOTTOM OF RETAINING WALL FOOTING. INSTALL MARKER PIPES AT ENDS OF CONDUIT. COORDINATE WITH PSO PRIOR TO CONSTRUCTION.

BENCHMARK

NO.	DESCRIPTION	ELEV.
206	514+05.71, 60.60' LT CUT X ON W SIDE OF RET. WALL	653.30

LEGEND

- 1 — DRAINAGE STRUCTURE NUMBER
- (2) — DRIVE NUMBER
- 1111 — NEAREST ADDRESS
- PROPOSED RECONSTRUCTION
- PROPOSED OVERLAY
- PROPOSED PATCH
- PROPOSED DRIVE
- PROPOSED SIDEWALK
- EXISTING FLOWLINE
- PROPOSED FLOWLINE

NOTE: SEE TYPICAL SECTIONS FOR PAVEMENT DEPTH AND OTHER DETAILS

0' 10' 20' 40'

EXISTING HORIZONTAL UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE AND MUST BE FIELD VERIFIED PRIOR TO CONSTRUCTION

SEE SHEETS 52 - 63 FOR PROPOSED WATER AND SEWER PLANS AND DETAILS

SEE SHEETS 73 - 76 FOR PROPOSED FENCING PLANS AND DETAILS

6 STA. 512+53.01, 45.1' RT
COT DES. 2 DROP INLET
RIM = 680.56
15" FL OUT NE = 667.10
HGL = 667.71
EGL = 667.12
Q100 = 2.34
QFULL = 8.00
V100 = 4.79

8 STA. 512+96.65, 29.5' RT
COT DES 1. DROP INLET
RIM = 671.57
30" FL OUT N = 662.60
15" FL IN SW = 666.42
15" FL IN SE = 663.35
HGL = 664.53
EGL = 665.50
Q100 = 32.07
QFULL = 42.96
V100 = 7.88

10 STA. 513+56.11, 36.9' RT
COT DES. 2 DROP INLET
RIM = 670.94
15" FL OUT NW = 664.05
15" FL IN SW = 668.00
HGL = 664.95
EGL = 665.37
Q100 = 4.93
QFULL = 6.98
V100 = 4.66

11 STA. 512+96.57, 25.1' LT
COT DES 1. DROP INLET
RIM = 671.67
30" FL OUT E = 662.00
30" FL IN N = 662.00
HGL = 664.07
EGL = 665.22
Q100 = 37.31
QFULL = 49.94
V100 = 9.88

PIPE TABLE

UPSTREAM STR.	DOWNSTREAM STR.	LENGTH (FT)	SIZE (IN)	SLOPE (%)
E5	10	30.76	15	1.24
8	11	54.67	30	1.10
13	EXIST. RCB	25.33	36	3.16

REGISTERED PROFESSIONAL ENGINEER — JEREMY P. STAPLE — 21725 — STATE OF OKLAHOMA

BEFORE YOU DIG 811 CALL OKIE

REVISION	BY	DATE

P&P 511+00

PROJECT NO. 104006

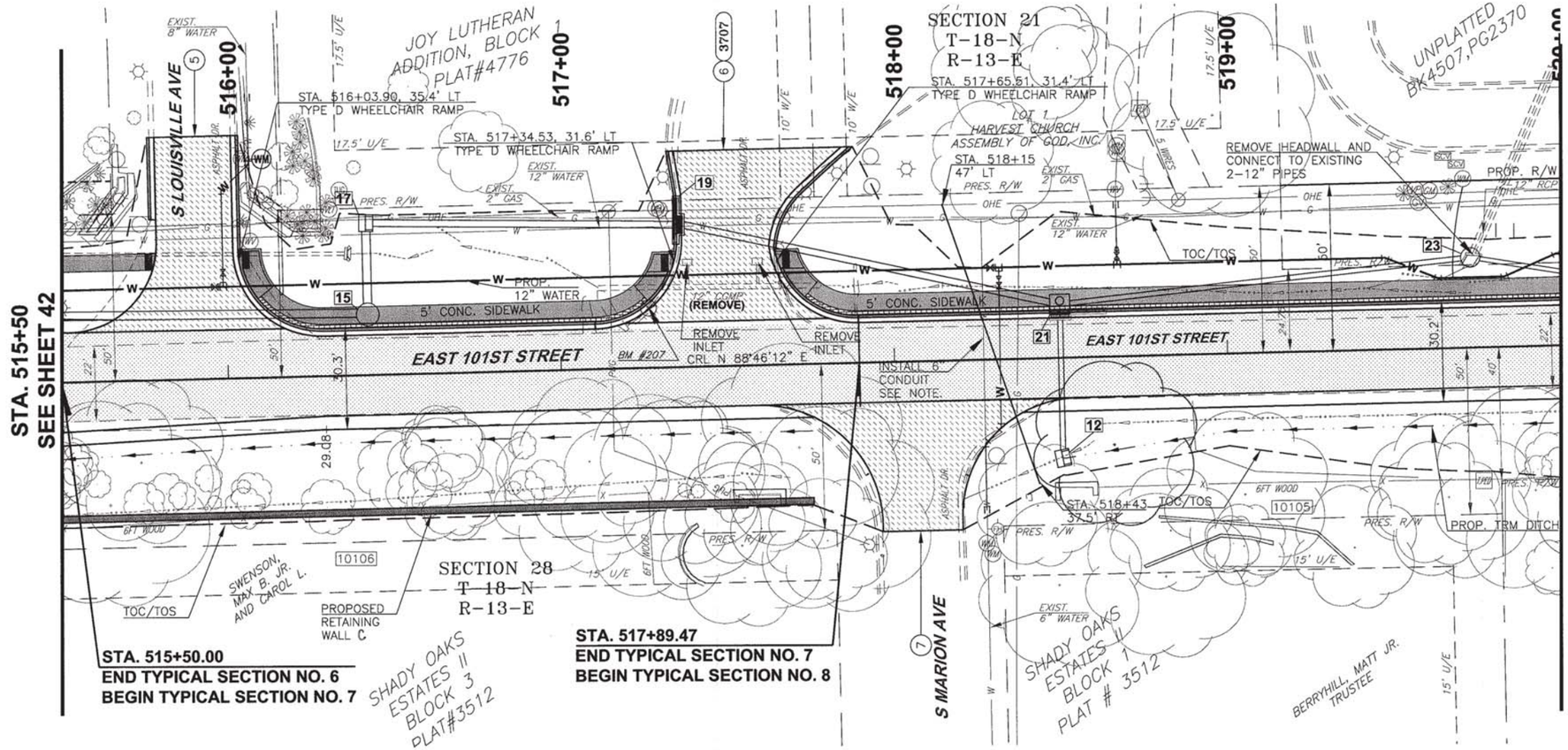
101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
CEC 4617 E. 91st Street S. Tulsa, OK 74137 (918) 663-9401

PLAN SCALE: 1" = 20'	DRAWN	L.P.E	08/2014	APPROVED:
	DESIGNED	J.P.S	08/2014	
	SURVEY	A.K.H.	07/2012	
PROFILE SCALES:	PROJ. MGR.		8/16	
HORIZONTAL: 1" =20'	LEAD ENGR.		11/16	
	FIELD MGR.		3/16	
VERTICAL 1" = 5'	RECOMMENDED DESIGN MANAGER		6/16	CITY ENGINEER
DRAWING: 55 P&P 551+50.DWG				DATE 11.04.16
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 42 OF 181

PLOT DATE: April 22, 2015, DRAWING NAME: 55 P&P 551+50.DWG



STREET RETURN AND DRIVE SUMMARY TABLE

DRIVE NO.	SR/DW	℄ STATION	TYPE	LT./RT.	WIDTH X LENGTH	RADII (FT)	AREA (SY)
5	SR	515+91.00	ASPHALT	LT.	57'X28'	26.5'W, 25.0'E	175
6	DW	517+50.00	ASPHALT	LT.	52'X57'	25.0'	235
7	SR	518+06.75	ASPHALT	RT.	38'x26'	36.5'W, 35'E	171

NOTE: DRIVE 5 SHALL HAVE AN 8" BARRIER CURB ON THE WEST THROUGH DRAINAGE STRUCTURE 19 AND THEN TRANSITION TO EXISTING CURB HEIGHT

BENCHMARK		
NO.	DESCRIPTION	ELEV.
207	517+26.56,17.90' LT CUT X ON TOC ON W CURB	686.08

NOTE: CONDUIT SHALL BE SCH. 40 GREY ELECTRICAL PVC. MINIMUM BURIAL DEPTH SHALL BE 5'. MAINTAIN 12" CLEARANCE WITH ALL EXISTING AND PROPOSED UTILITIES AND BOTTOM OF RETAINING WALL FOOTING. INSTALL MARKER PIPES AT ENDS OF CONDUIT. COORDINATE WITH PSO PRIOR TO CONSTRUCTION.

LEGEND

- 1 — DRAINAGE STRUCTURE NUMBER
- (2) — DRIVE NUMBER
- 1111 — NEAREST ADDRESS
- PROPOSED RECONSTRUCTION
- PROPOSED OVERLAY
- PROPOSED AC PATCH
- PROPOSED DRIVE
- PROPOSED SIDEWALK
- EXISTING FLOWLINE
- PROPOSED FLOWLINE

NOTE: SEE TYPICAL SECTIONS FOR PAVEMENT DEPTH AND OTHER DETAILS

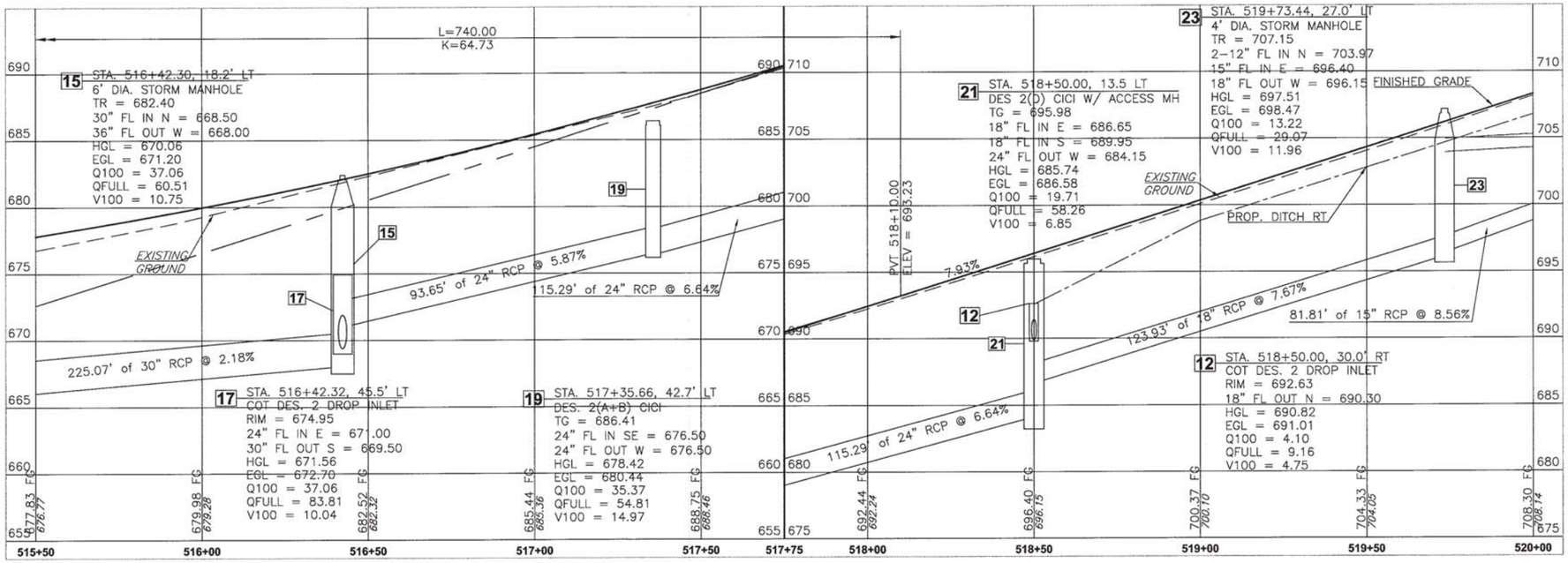
EXISTING HORIZONTAL UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE AND MUST BE FIELD VERIFIED PRIOR TO CONSTRUCTION

SEE SHEETS 52 - 63 FOR PROPOSED WATER AND SEWER PLANS AND DETAILS

SEE SHEETS 73 - 76 FOR PROPOSED FENCING PLANS AND DETAILS

PIPE TABLE

UPSTREAM STR.	DOWNSTREAM STR.	LENGTH (FT)	SIZE (IN)	SLOPE (%)
17	15	26.95	30	3.71
12	21	46.00	18	0.76



0' 10' 20' 40'

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JEREMY P. STAHLE 20725 REGISTERED PROFESSIONAL ENGINEER OKLAHOMA

BEFORE YOU DIG 811 CALL OKIE

P&P 515+50

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

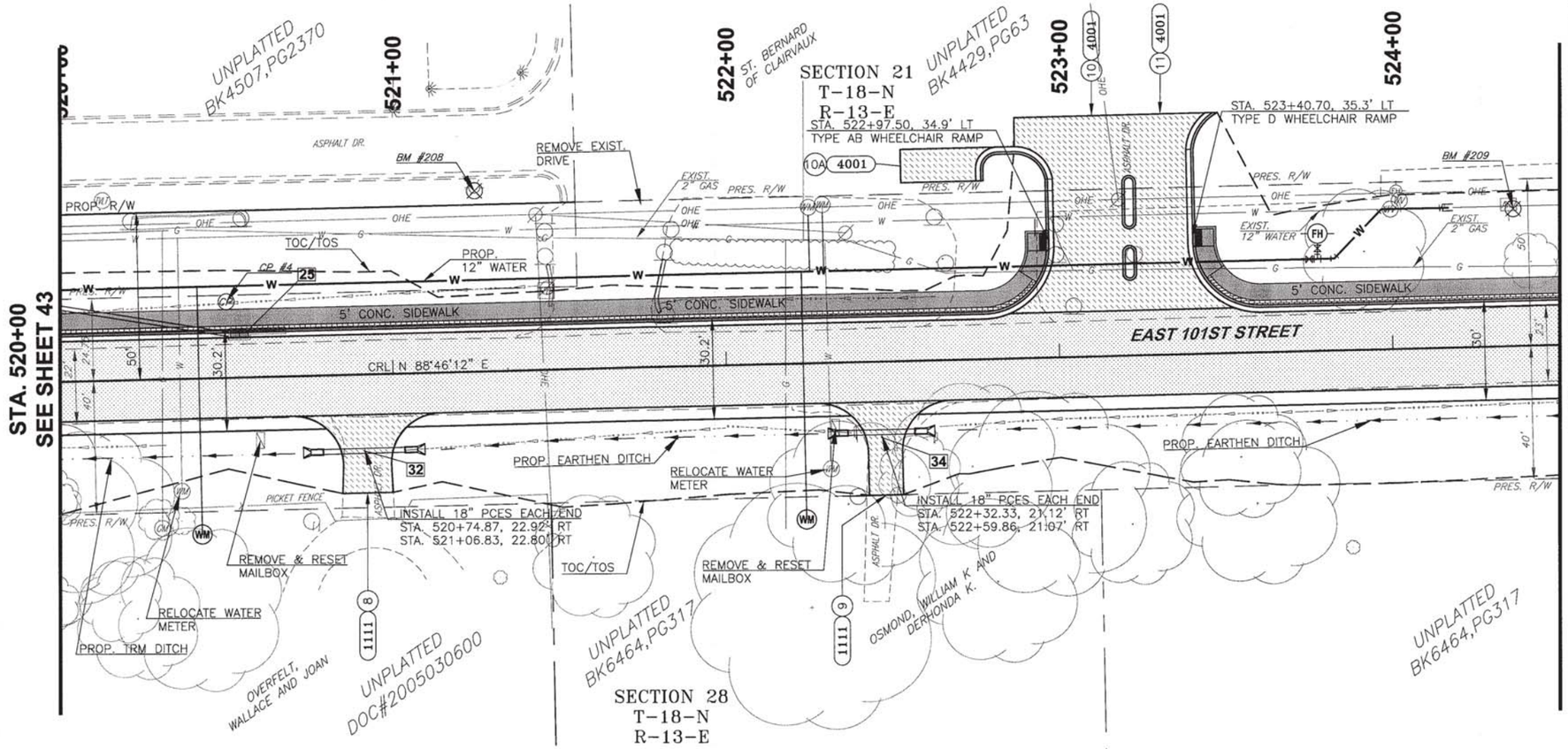
PLAN SCALE:			
1" = 20'	DRAWN	L.P.E	08/2014
	DESIGNED	J.P.S	08/2014
	SURVEY	A.K.H.	07/2012
PROFILE SCALES:	PROJ. MGR.		8/16
HORIZONTAL:	LEAD ENGR.		11/16
1" = 20'	FIELD MGR.		3/16
1" = 5'	RECOMMENDED:		6/16
N/A	DESIGN MANAGER		

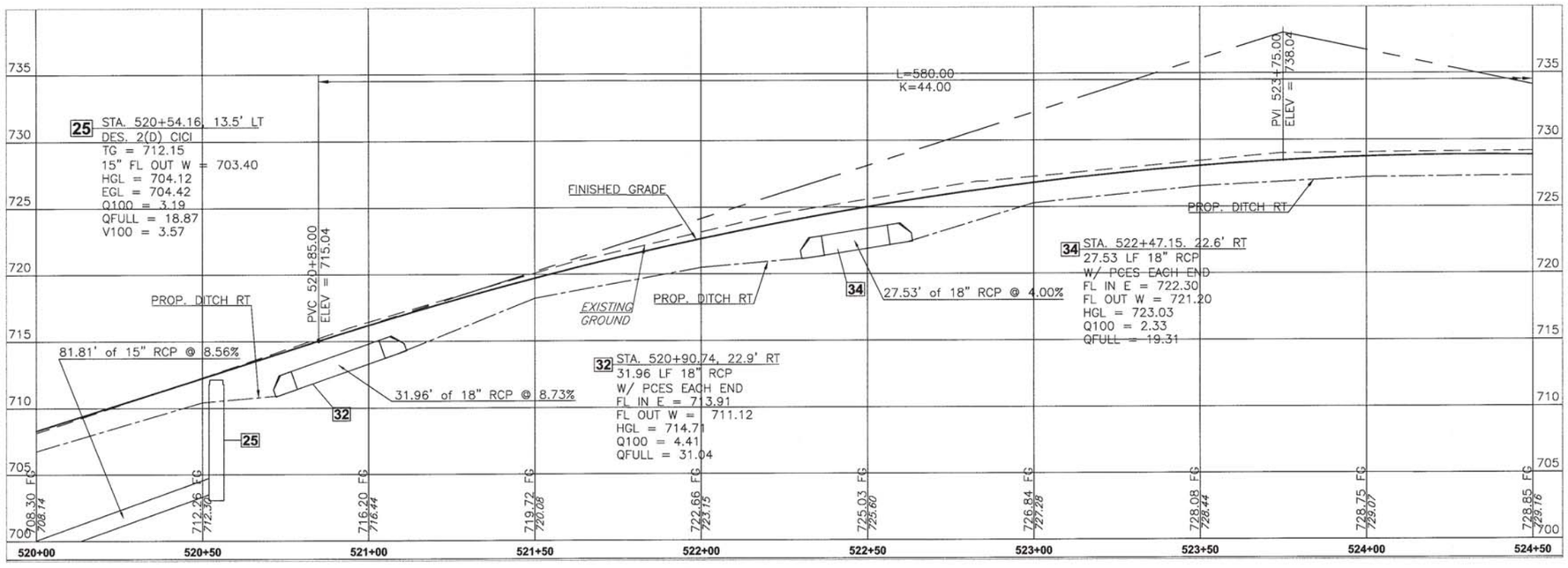
APPROVED: CITY ENGINEER

DRAWING: 55 P&P 551+50.DWG — DATE 11.04.16

ATLAS PAGE NO: 1276, 1277, 1422, 1423 — SHEET 43 OF 181

PLOT DATE: April 22, 2015, DRAWING NAME: 55 P&P 551+50.DWG





STREET RETURN AND DRIVE SUMMARY TABLE

DRIVE NO.	SR/DW	℄ STATION	TYPE	LT./RT.	WIDTH X LENGTH	RADII (FT)	AREA (SY)
8	DW	520+91.75	ASPHALT	RT.	24'x15'	15	49
9	DW	522+47.15	ASPHALT	RT.	28'x11'	15	43
10	DW	523+11.17	CONCRETE	LT.	58'x34'	20	186
10A	DW	522+68.03	CONCRETE	LT.	10'X30'	4.3'E	31
11	DW	523+30.49	CONCRETE	LT.	58'x27'	20	142

CONTROL POINT

NO.	DESCRIPTION	ELEV.
4	5/8" IP W/ COBB CP CAP N: 376865.1363 E: 2579707.4337	710.84

BENCHMARK

NO.	DESCRIPTION	ELEV.
208	521+25.65, 54.18' LT CUT X ON SOUTH EDGE OF CONCRETE LIGHTPOLE BASE	726.70
209	524+36.96, 41.09 LT CUT X ON SE CORNER OF CONCRETE WATER METER PAD	739.62

LEGEND

- 1 — DRAINAGE STRUCTURE NUMBER
- (2) — DRIVE NUMBER
- 1111 — NEAREST ADDRESS
- PROPOSED RECONSTRUCTION
- PROPOSED OVERLAY
- PROPOSED AC PATCH
- PROPOSED DRIVE
- PROPOSED SIDEWALK
- EXISTING FLOWLINE
- PROPOSED FLOWLINE

NOTE:
SEE TYPICAL SECTIONS FOR PAVEMENT DEPTH AND OTHER DETAILS

EXISTING HORIZONTAL UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE AND MUST BE FIELD VERIFIED PRIOR TO CONSTRUCTION

SEE SHEETS 52 - 63 FOR PROPOSED WATER AND SEWER PLANS AND DETAILS

SEE SHEETS 73 - 76 FOR PROPOSED FENCING PLANS AND DETAILS

0' 10' 20' 40'

REGISTERED PROFESSIONAL ENGINEER — JEREMY R. STAPLE — STATE OF OKLAHOMA

BEFORE YOU DIG 811 — CALL OKIE

REVISION	BY	DATE
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P&P 520+00

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

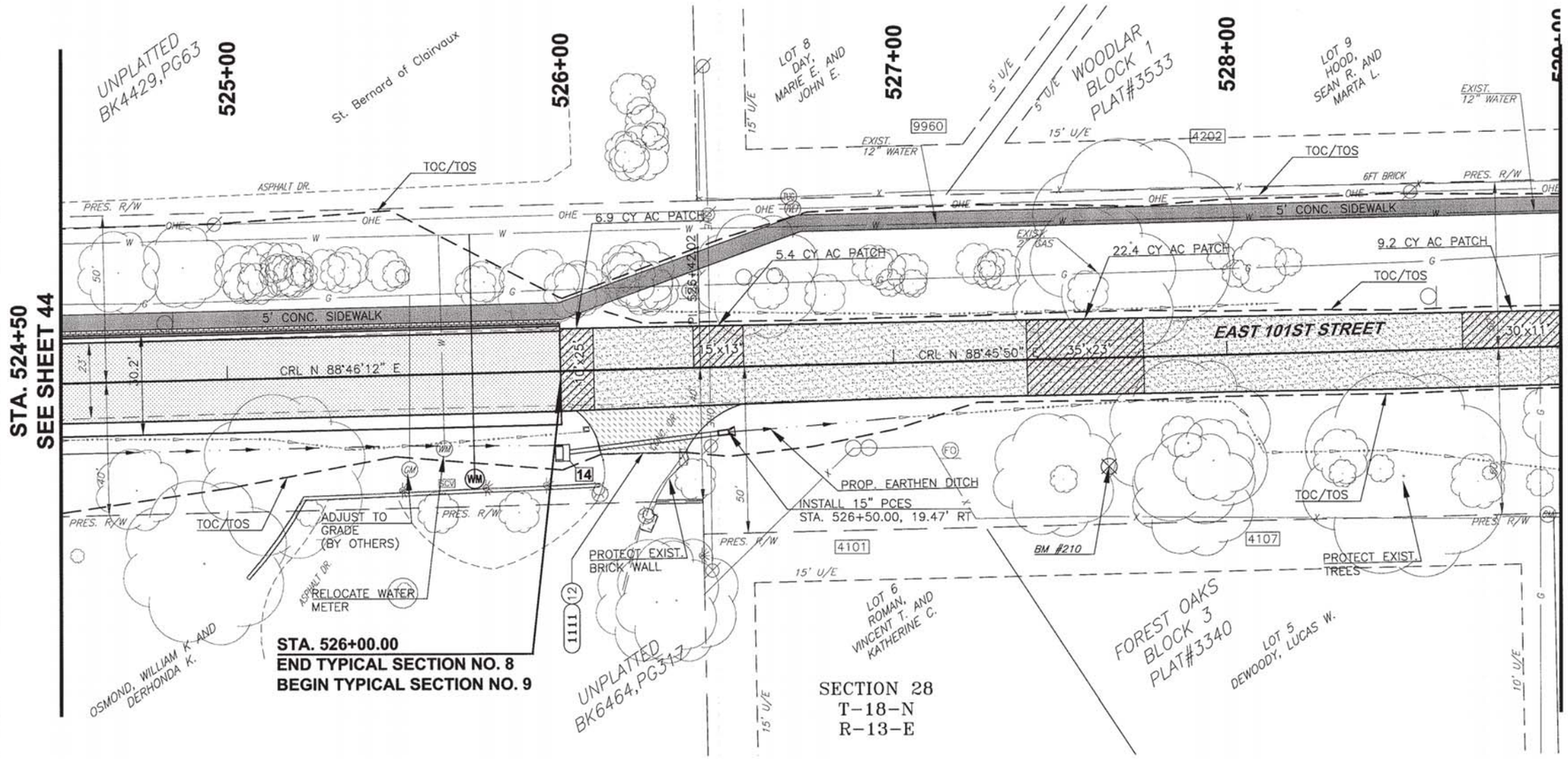
PLAN SCALE: 1" = 20'	DRAWN	L.P.E	08/2014
	DESIGNED	J.P.S	08/2014
	SURVEY	A.K.H.	07/2012
PROFILE SCALES: HORIZONTAL: 1" = 20' VERTICAL 1" = 5'	PROJ. MGR.	BDC	6/16
	LEAD ENGR.	DD	6/16
	FIELD MGR.	KBV	3/16
	RECOMMENDED: DESIGN MANAGER	AJ	6/16

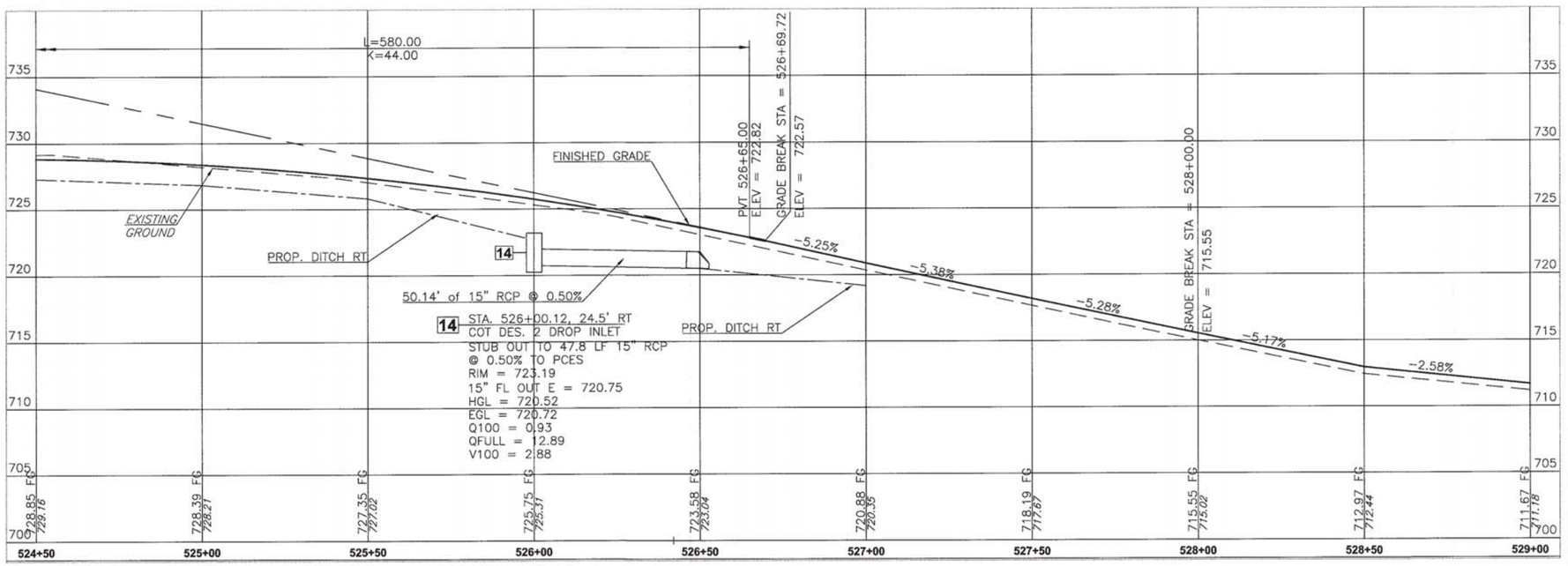
APPROVED: CITY ENGINEER

DRAWING: 55 P&P 551+50.DWG — DATE 11.04.16

ATLAS PAGE NO: 1276, 1277, 1422, 1423 — SHEET 44 OF 181

PLOT DATE: April 22, 2015, DRAWING NAME: 55 P&P 551+50.DWG





STREET RETURN AND DRIVE SUMMARY TABLE

DRIVE NO.	SR/DW	℄ STATION	TYPE	LT./RT.	WIDTH X LENGTH	RADII (FT)	AREA (SY)
12	DW	526+23.87	CONCRETE	RT.	14'X25'	20'W 28'E	52

BENCHMARK		
NO.	DESCRIPTION	ELEV.
210	527+63.91, 32.60' RT SET RAILROAD SPIKE IN N FACE 24" TREE	718.90

LEGEND

- 1 — DRAINAGE STRUCTURE NUMBER
- (2) — DRIVE NUMBER
- 1111 — NEAREST ADDRESS
- PROPOSED RECONSTRUCTION
- PROPOSED OVERLAY
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NOTE:
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SEE SHEETS 73 - 76 FOR PROPOSED FENCING PLANS AND DETAILS

0' 10' 20' 40'

REGISTERED PROFESSIONAL ENGINEER — JEREMY P. STAHL — OKLAHOMA — 21125 — 11-4-16

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P&P 524+50

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulso, OK 74137
(918) 663-9401

REVISION	BY	DATE
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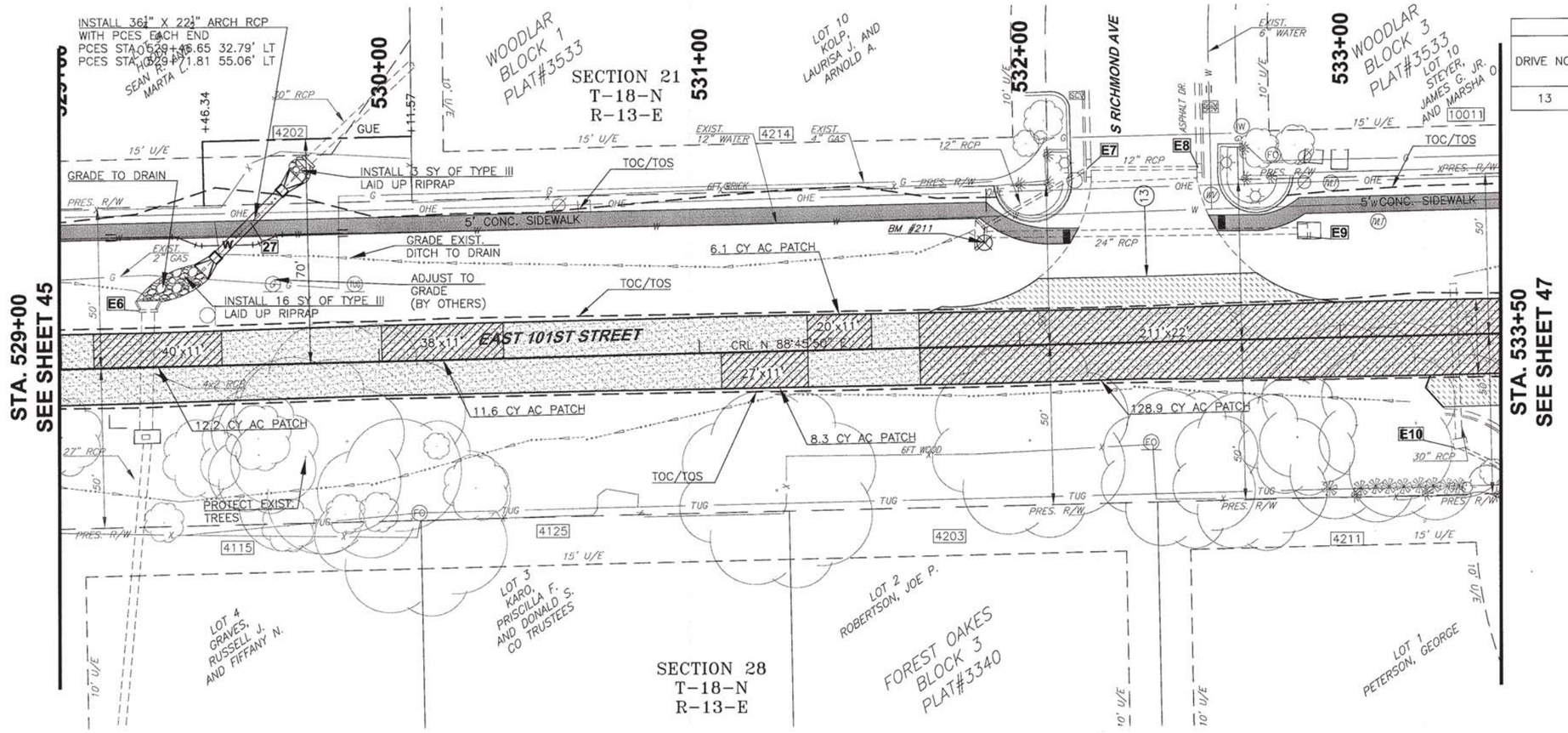
PLAN SCALE: 1" = 20'	DRAWN	L.P.E	08/2014
	DESIGNED	J.P.S	08/2014
	SURVEY	A.K.H.	07/2012
PROFILE SCALES: HORIZONTAL: 1" = 20' VERTICAL 1" = 5'	PROJ. MGR.	BDC	8/16
	LEAD ENGR.	JD	11/16
	FIELD MGR.	BSW	3/16
	RECOMMENDED: DESIGN MANAGER	HAS	6/16

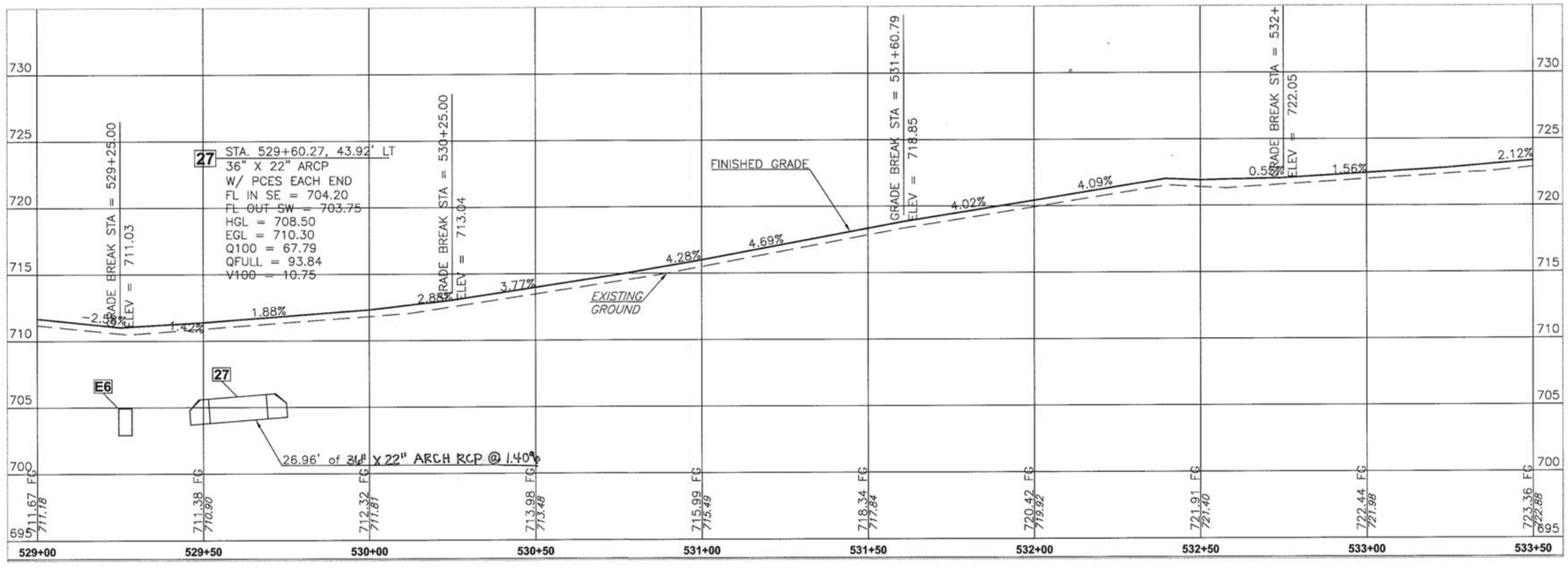
APPROVED: CITY ENGINEER

DRAWING: 55 P&P 551+50.DWG — DATE 11.04.16

ATLAS PAGE NO: 1276, 1277, 1422, 1423 — SHEET 45 OF 181

PLOT DATE: April 22, 2015, DRAWING NAME: 55 P&P 551+50.DWG





STREET RETURN AND DRIVE SUMMARY TABLE

DRIVE NO.	SR/DW	℄ STATION	TYPE	LT./RT.	WIDTH X LENGTH	RADII (FT)	AREA (SY)
13	SR	532+39.97	ASPHALT	LT.	10'X68'	45'W, 49'F	100

BENCHMARK		
NO.	DESCRIPTION	ELEV.
211	531+89.68 32.34' LT CUT X ON S END W HW	720.08

LEGEND

- 1 — DRAINAGE STRUCTURE NUMBER
- (2) — DRIVE NUMBER
- 1111 — NEAREST ADDRESS
- PROPOSED RECONSTRUCTION
- PROPOSED OVERLAY
- PROPOSED AC PATCH
- PROPOSED DRIVE
- PROPOSED SIDEWALK
- EXISTING FLOWLINE
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0' 10' 20' 40'

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P&P 529+00

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
CEC 4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

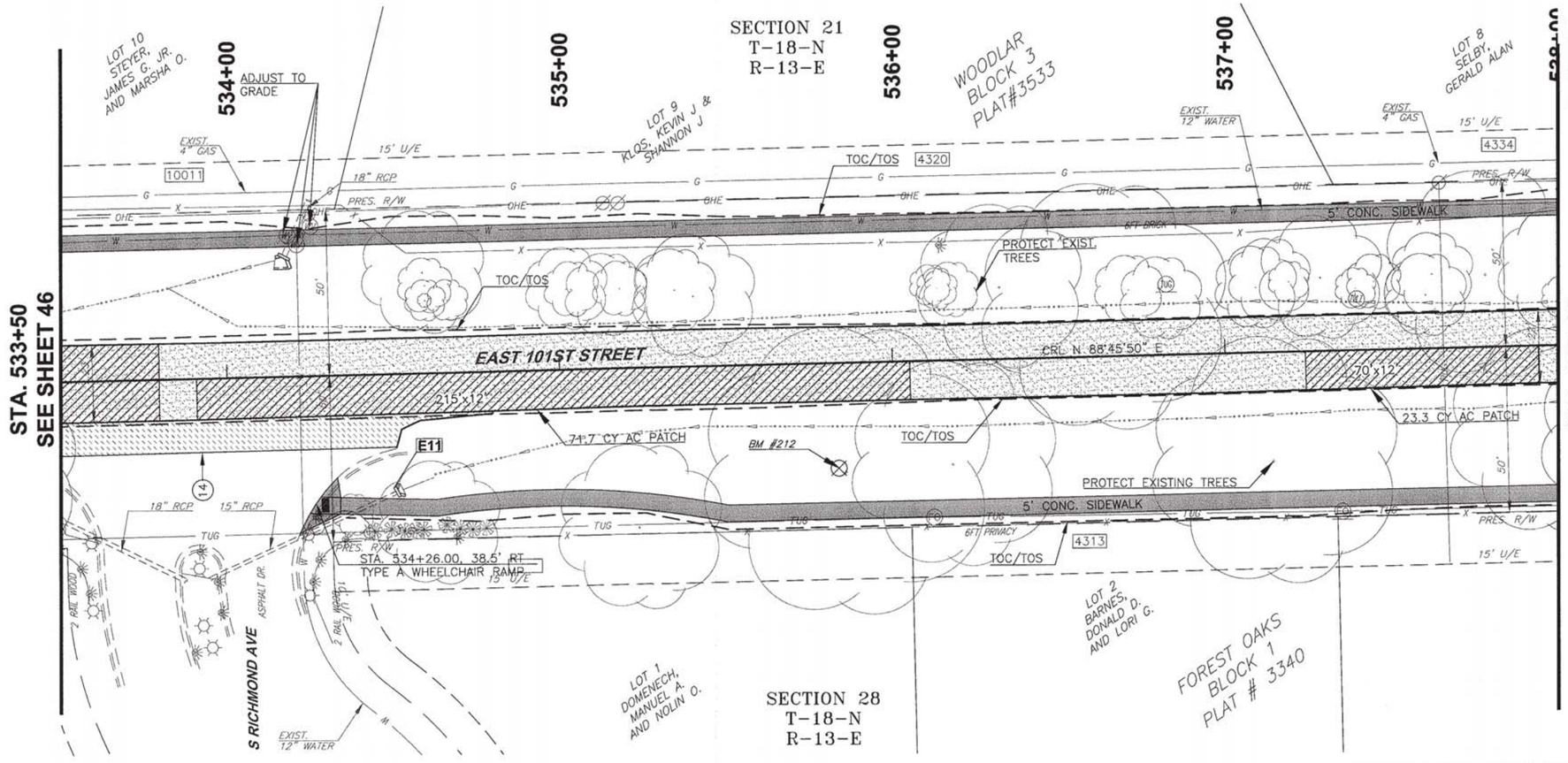
PLAN SCALE: 1" = 20'	DRAWN	L.P.E	08/2014
	DESIGNED	D.C.G.	08/2014
	SURVEY	A.K.H.	07/2012
PROFILE SCALES:	PROJ. MGR.	BSV	8/15
HORIZONTAL: 1" = 20'	LEAD ENGR.	DD	11/16
	FIELD MGR.	BSV	3/16
VERTICAL 1" = 5'	RECOMMENDED DESIGN MANAGER	HMS	6/16

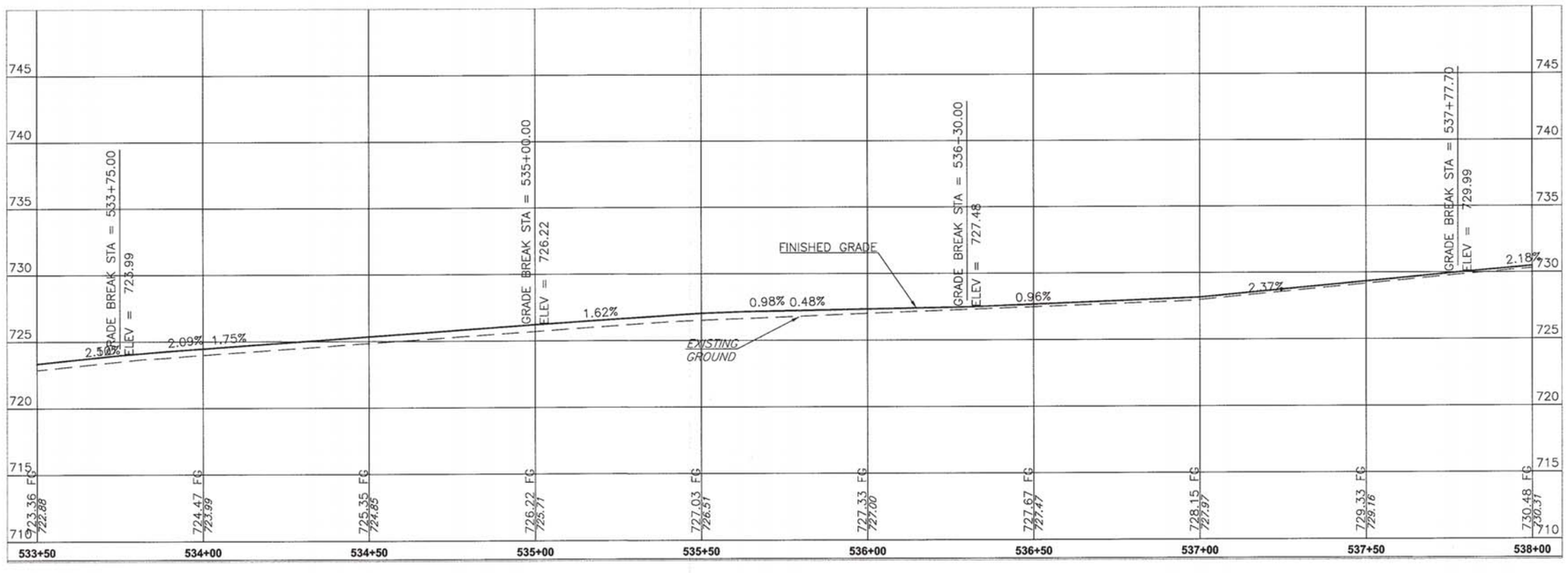
APPROVED: CITY ENGINEER

DRAWING: 55 P&P 551+50.DWG — DATE: 11.04.16

ATLAS PAGE NO: 1276, 1277, 1422, 1423 — SHEET 46 OF 181

PLOT DATE: April 22, 2015, DRAWING NAME: 55 P&P 551+50.DWG





STREET RETURN AND DRIVE SUMMARY TABLE

DRIVE NO.	SR/DW	℄ STATION	TYPE	LT./RT.	WIDTH X LENGTH	RADII (FT)	AREA (SY)
14	SR	533+90.02	ASPHALT	RT.	10'X119'	NONE	145

BENCHMARK		
NO.	DESCRIPTION	ELEV.
212	535+83.26, 31.74' RT SET RAILROAD SPIKE IN N FACE OF 48" TREE	725.24

LEGEND

- [1] DRAINAGE STRUCTURE NUMBER
- (2) DRIVE NUMBER
- [1111] NEAREST ADDRESS
- PROPOSED RECONSTRUCTION
- PROPOSED OVERLAY
- PROPOSED AC PATCH
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NOTE: SEE TYPICAL SECTIONS FOR PAVEMENT DEPTH AND OTHER DETAILS

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SEE SHEETS 52 - 63 FOR PROPOSED WATER AND SEWER PLANS AND DETAILS

SEE SHEETS 73 - 76 FOR PROPOSED FENCING PLANS AND DETAILS

0' 10' 20' 40'

REVISION	BY	DATE
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REGISTERED PROFESSIONAL ENGINEER JEREMY P. STABLE 21125 OKLAHOMA

BEFORE YOU DIG CALL OKIE 811

P&P 533+50

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

PLAN SCALE: 1" = 20'	DRAWN	L.P.E	08/2014
	DESIGNED	J.P.S	08/2014
	SURVEY	A.K.H.	07/2012
PROFILE SCALES: HORIZONTAL: 1" = 20' VERTICAL 1" = 5'	PROJ. MGR.	BOC	8/16
	LEAD ENGR.	DD	1/16
	FIELD MGR.	KBH	3/16
	RECOMMENDED:	HHS	6/16
	DESIGN MANAGER		

APPROVED:

CITY ENGINEER

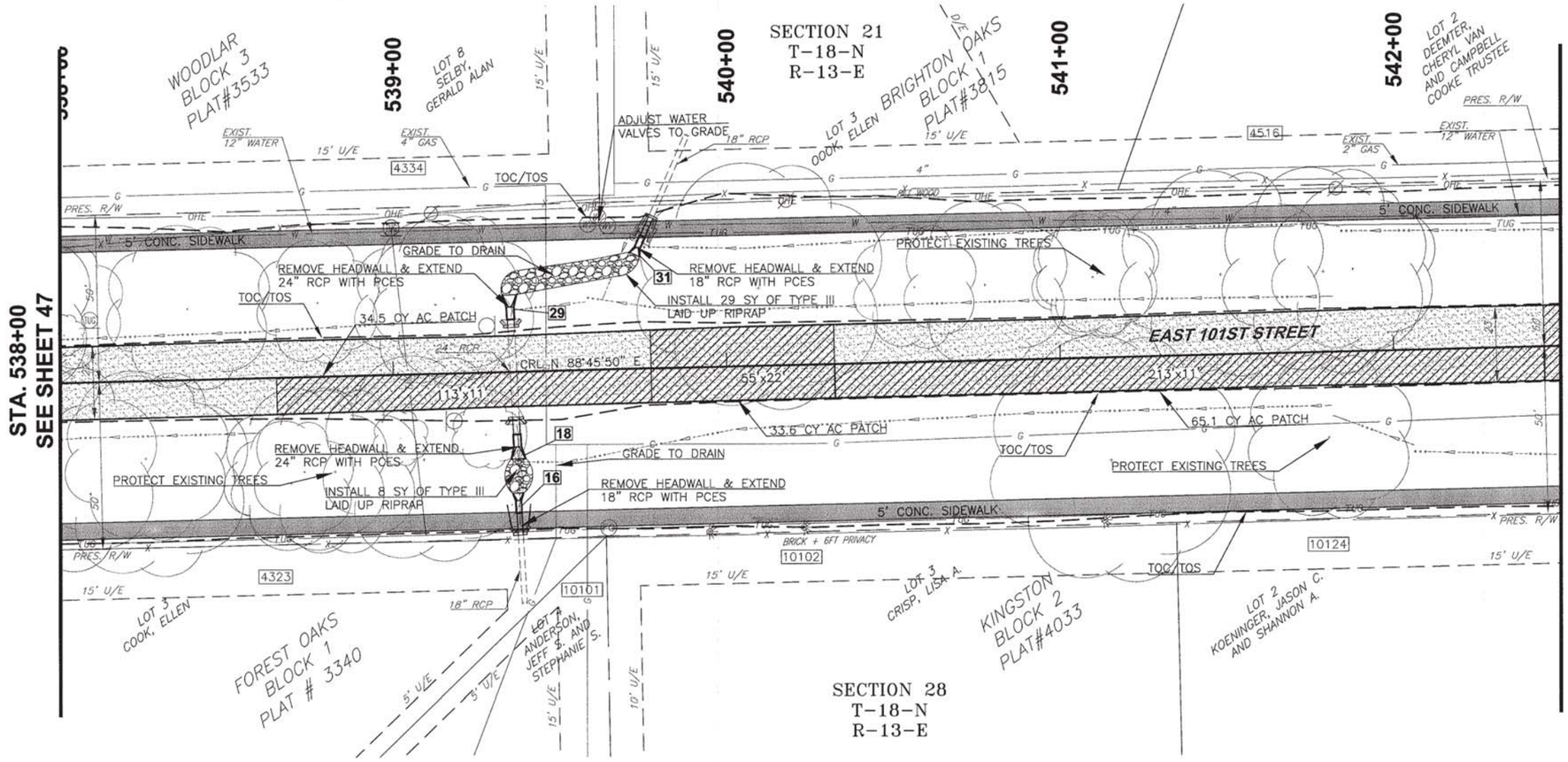
DATE 11.04.16

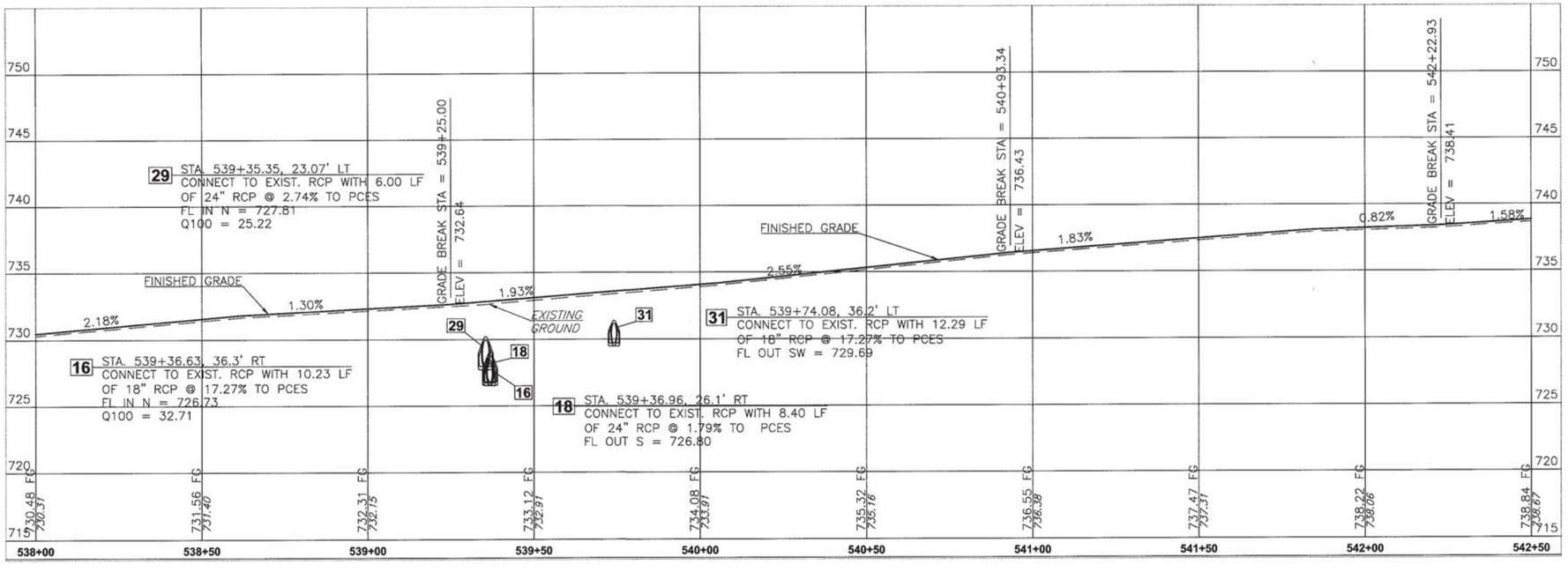
DRAWING: 55 P&P 551+50.DWG

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 47 OF 181

PLOT DATE: April 22, 2015, DRAWING NAME: 55 P&P 551+50.DWG





LEGEND

- 1 — DRAINAGE STRUCTURE NUMBER
- (2) — DRIVE NUMBER
- 1111 — NEAREST ADDRESS
- PROPOSED RECONSTRUCTION
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NOTE: SEE TYPICAL SECTIONS FOR PAVEMENT DEPTH AND OTHER DETAILS

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SEE SHEETS 73 - 76 FOR PROPOSED FENCING PLANS AND DETAILS

0' 10' 20' 40'

REGISTERED PROFESSIONAL ENGINEER — JEREMY P. STAHLE — 21725 — OKLAHOMA

BEFORE YOU DIG 811 1-800-522-6543 CALL OKIE

P&P 538+00

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
CEC 4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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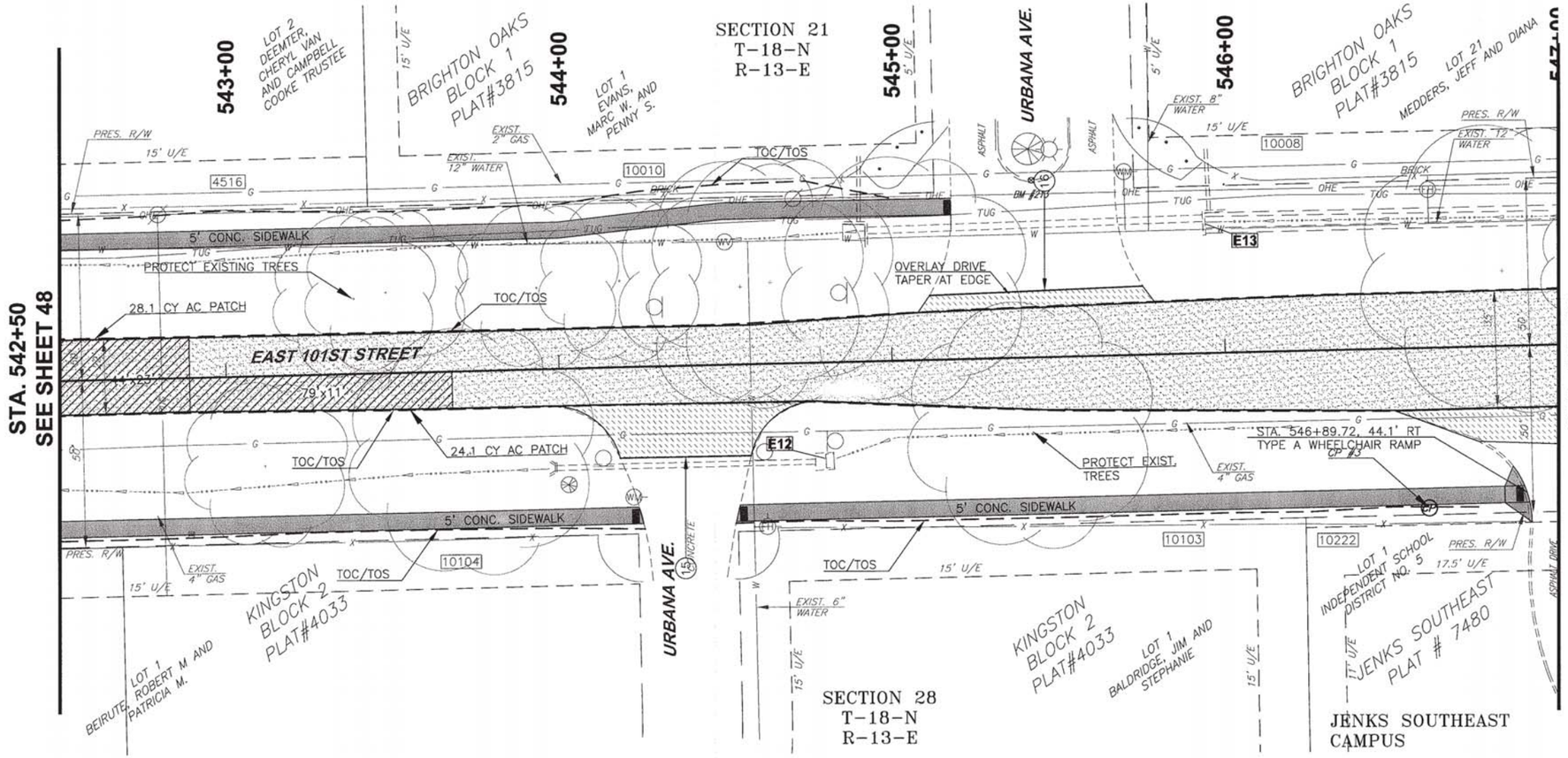
PLAN SCALE: 1" = 20'
PROFILE SCALES: HORIZONTAL: 1" = 20' VERTICAL 1" = 5'

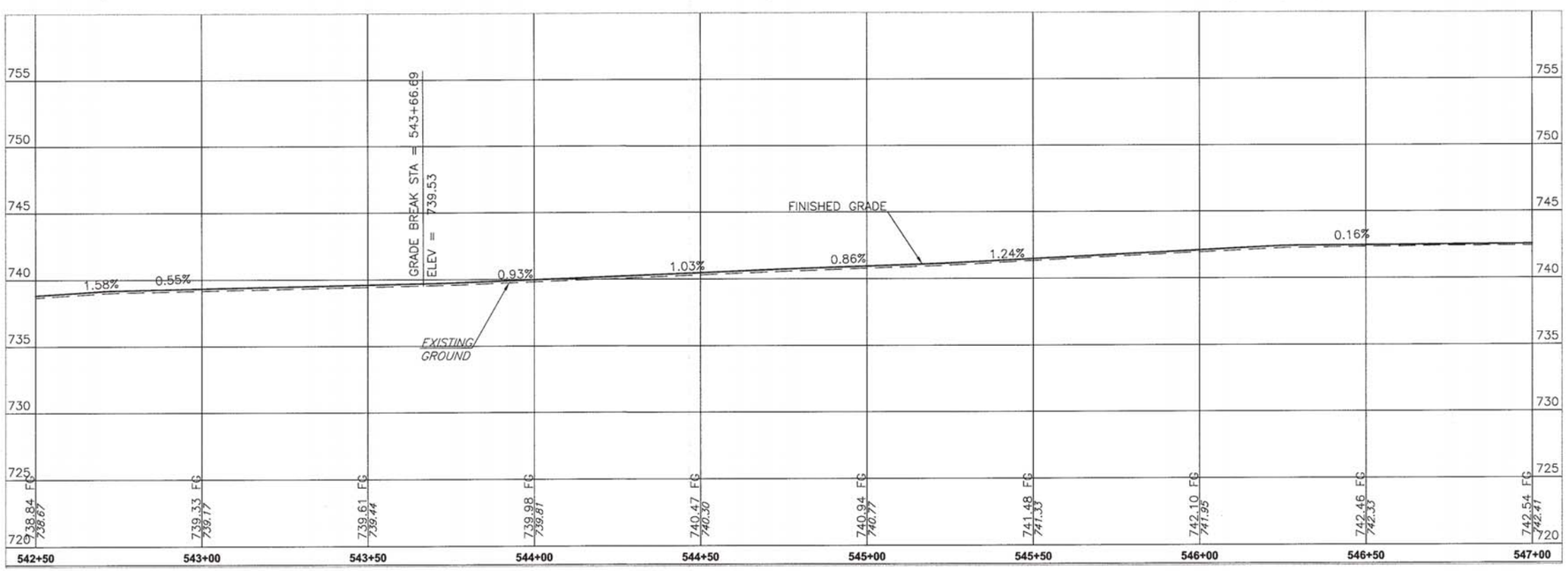
DRAWN	L.P.E	08/2014
DESIGNED	J.P.S	08/2014
SURVEY	A.K.H.	07/2012
PROJ. MGR.	BOC	8/15
LEAD ENGR.	JPS	1/16
FIELD MGR.	KEH	3/16
RECOMMENDED		6/16
DESIGN MANAGER		

APPROVED: CITY ENGINEER

DRAWING: 55 P&P 551+50.DWG
ATLAS PAGE NO: 1276, 1277, 1422, 1423
DATE 11.04.16
SHEET 48 OF 181

PLOT DATE: April 22, 2015, DRAWING NAME: 55 P&P 551+50.DWG





STREET RETURN AND DRIVE SUMMARY TABLE

DRIVE NO.	SR/DW	℄ STATION	TYPE	LT./RT.	WIDTH X LENGTH	RADII (FT)	AREA (SY)
15	SR	544+38.00	CONCRETE	RT.	16'X40'	21.2'W, 20.6'E	89
16	SR	545+43.00	ASPHALT	LT	5'X65'	NONE	38

CONTROL POINTS

NO.	DESCRIPTION	ELEV.
3	AVERAGE KEYED IN N: 376850.6460 E: 2582318.2110	742.50

BENCHMARK

NO.	DESCRIPTION	ELEV.
213	545+42.97, 53.00' LT SQUARE CUT IN CONC. BM	741.47

LEGEND

- 1 DRAINAGE STRUCTURE NUMBER
- 2 DRIVE NUMBER
- 1111 NEAREST ADDRESS
- PROPOSED RECONSTRUCTION
- PROPOSED OVERLAY
- PROPOSED AC PATCH
- PROPOSED DRIVE
- PROPOSED SIDEWALK
- EXISTING FLOWLINE
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REGISTERED PROFESSIONAL ENGINEER JEREMY P. STAHLE 21725 OKLAHOMA

BEFORE YOU DIG CALL OKIE 811

0' 10' 20' 40'

P&P 542+50

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE

PLAN SCALE: 1" = 20'	DRAWN	L.P.E	08/2014
	DESIGNED	J.P.S	08/2014
	SURVEY	A.K.H.	07/2012
PROFILE SCALES:	PROJ. MGR.	BDC	8/16
HORIZONTAL: 1" = 20'	LEAD ENGR.	DD	1/16
	FIELD MGR.	RBV	3/16
VERTICAL 1" = 5'	RECOMMENDED: DESIGN MANAGER	HAS	6/16

APPROVED:

CITY ENGINEER

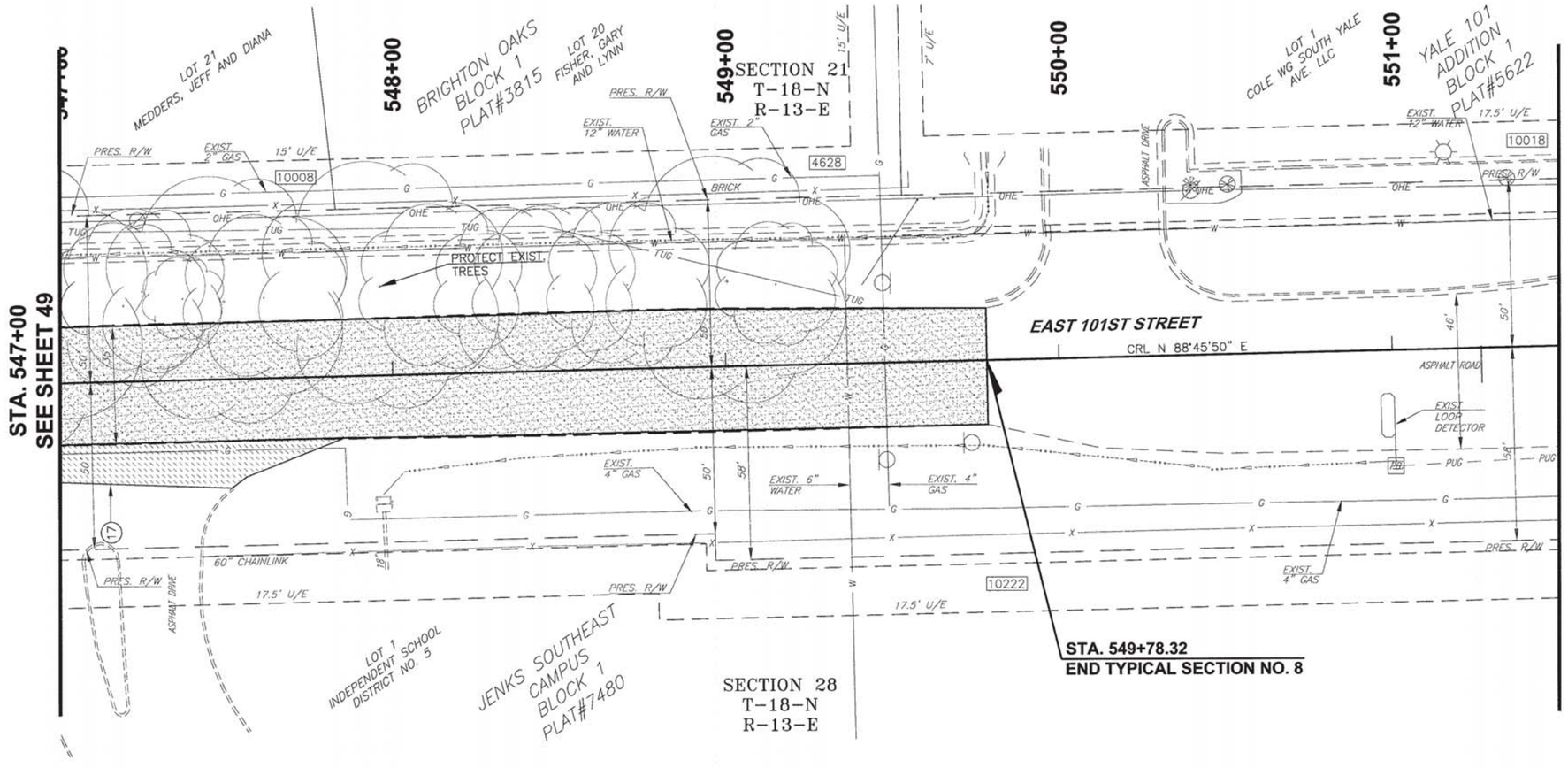
DRAWING: 55 P&P 551+50.DWG

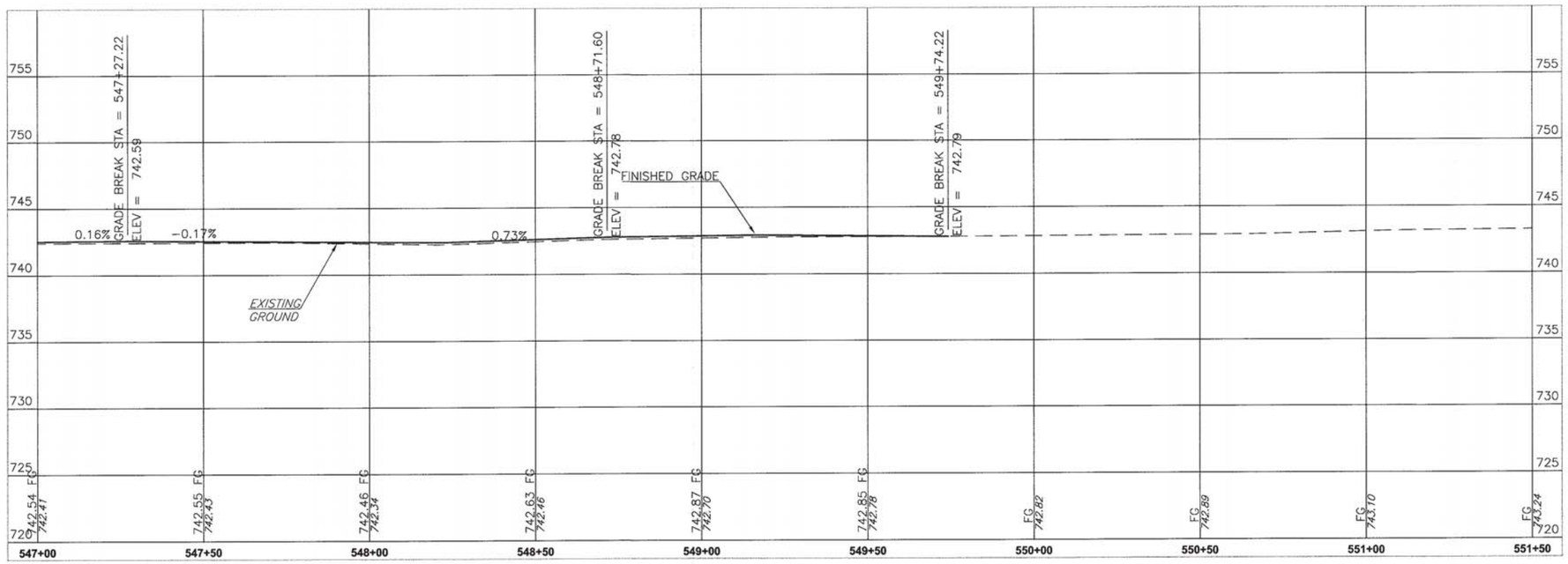
DATE 11.04.16

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 49 OF 181

PLOT DATE: April 22, 2015, DRAWING NAME: 55 P&P 551+50.DWG





STREET RETURN AND DRIVE SUMMARY TABLE

DRIVE NO.	SR/DW	℄ STATION	TYPE	LT./RT.	WIDTH X LENGTH	RADII (FT)	AREA (SY)
17	DW	547+18.00	ASPHALT	RT.	14'X134'	NONE	138

LEGEND

- 1 — DRAINAGE STRUCTURE NUMBER
- (2) — DRIVE NUMBER
- 1111 — NEAREST ADDRESS
- PROPOSED RECONSTRUCTION
- PROPOSED OVERLAY
- PROPOSED AC PATCH
- PROPOSED DRIVE
- PROPOSED SIDEWALK
- EXISTING FLOWLINE
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SEE SHEETS ## - 61 FOR PROPOSED WATER AND SEWER PLANS AND DETAILS

SEE SHEETS XX - XX FOR PROPOSED FENCING PLANS AND DETAILS

0' 10' 20' 40'

REVISION	BY	DATE
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REGISTERED PROFESSIONAL ENGINEER — JEREMY P. STAPLE — OKLAHOMA

BEFORE YOU DIG OKLAHOMA 811 CALL OKIE

P&P 547+00

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

PLAN SCALE: 1" = 20'	DRAWN	J.R.C.	09/2012
	DESIGNED	D.C.G.	09/2012
	SURVEY	A.K.H.	08/2012
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A	PROJ. MGR.		
	LEAD ENGR.		
	FIELD MGR.		
	RECOMMENDED DESIGN MANAGER		

APPROVED: CITY ENGINEER

DRAWING: 55 P&P 551+50.DWG — DATE: 11.04.16

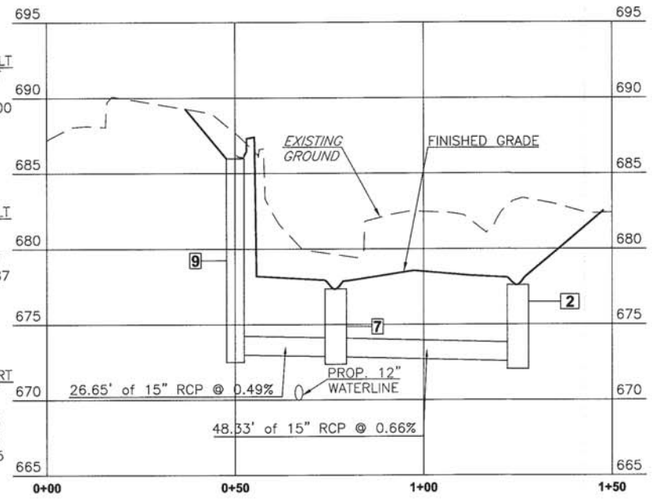
ATLAS PAGE NO: 1276, 1277, 1422, 1423 — SHEET 50 OF 181

PLOT DATE: April 22, 2015, DRAWING NAME: 55 P&P 551+50.DWG

9 STA. 507+56.35, 45.3' LT
COT DES. 2 DROP INLET
RIM = 685.98
15" FL OUT SE = 673.00
HGL = 673.47
EGL = 673.59
Q100 = 1.16
QFULL = 4.51
V100 = 2.42

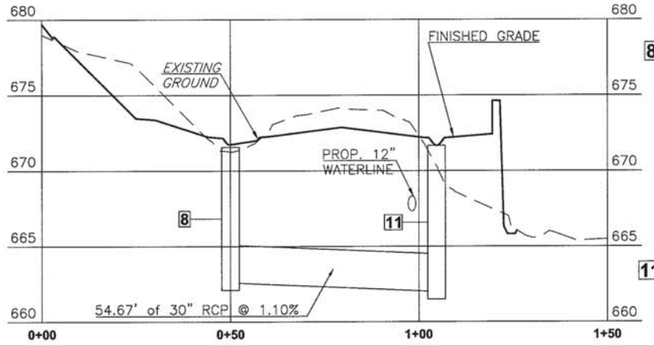
7 STA. 507+64.25, 19.9' LT
COT DES. 2 DROP INLET
RIM = 677.36
15" FL IN NW = 672.87
15" FL OUT SE = 672.87
HGL = 673.42
EGL = 673.82
Q100 = 1.91
QFULL = 5.25
V100 = 2.70

2 STA. 507+77.76, 26.5' RT
COT DES. 2 DROP INLET
RIM = 677.61
15" FL IN NW = 672.55
15" FL IN SW = 672.55
15" FL OUT W = 672.55
HGL = 673.32
EGL =673.61
Q100 = 3.45
QFULL = 5.02
V100 = 4.41

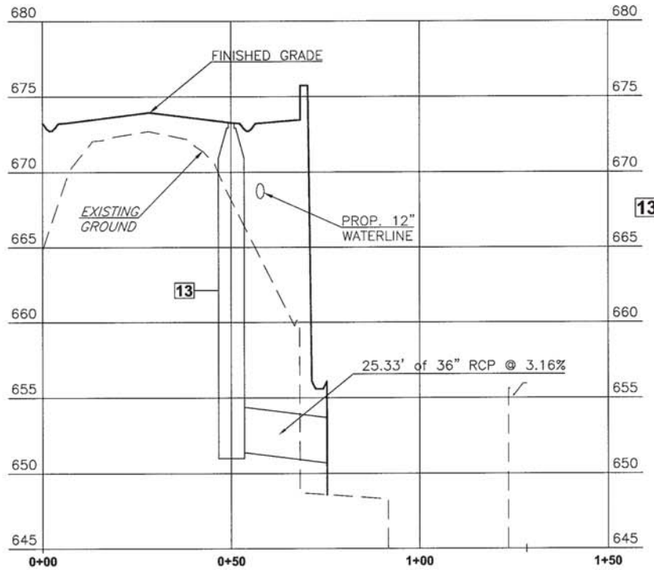


8 STA. 512+96.65, 29.5' RT
COT DES 1. DROP INLET
RIM = 671.57
30" FL OUT N = 662.60
15" FL IN SW = 666.42
15" FL IN SE = 663.35
HGL = 664.53
EGL = 665.50
Q100 = 32.07
QFULL = 42.96
V100 = 7.88

11 STA. 512+96.57, 25.1' LT
COT DES 1. DROP INLET
RIM = 671.67
30" FL OUT E = 662.00
30" FL IN N = 662.00
HGL = 663.94
EGL = 664.92
Q100 = 32.48
QFULL = 49.94
V100 = 9.88

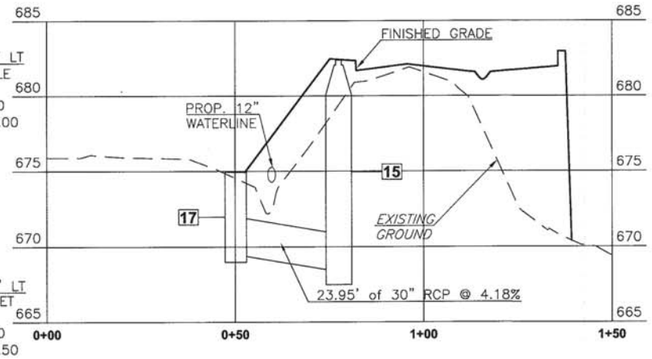


13 STA. 514+14.95, 21.7' LT
6' DIA. STORM MANHOLE
RIM = 673.27
30" FL OUT N = 651.50
30" FL IN W = 662.00
30" FL IN E = 663.10
HGL = 654.13
EGL = 655.79
Q100 = 67.34
QFULL = 118.52
V100 = 13.72



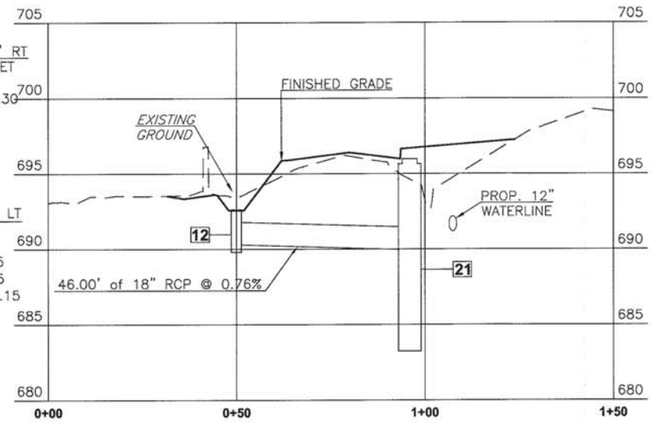
15 STA. 516+42.30, 18.2' LT
6' DIA. STORM MANHOLE
TR = 682.40
30" FL IN N = 668.50
36" FL OUT W = 668.00
HGL = 670.02
EGL = 671.10
Q100 = 34.86
QFULL = 60.51
V100 = 10.51

17 STA. 516+42.32, 45.5' LT
COT DES. 2 DROP INLET
RIM = 674.95
24" FL IN E = 671.00
30" FL OUT S = 669.50
HGL = 671.52
EGL = 672.60
Q100 = 34.86
QFULL = 83.81
V100 = 9.78

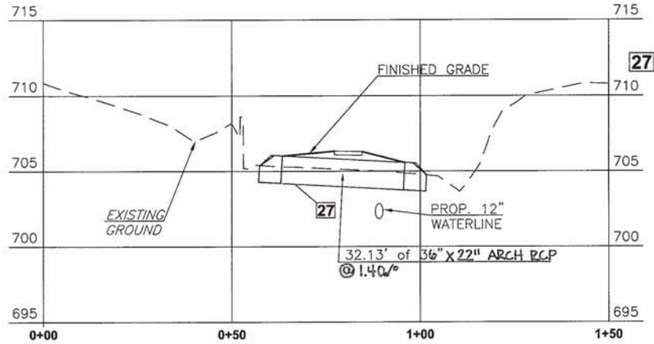


12 STA. 518+50.00, 30.0' RT
COT DES. 2 DROP INLET
RIM = 692.63
18" FL OUT N = 690.30
HGL = 690.82
EGL = 691.01
Q100 = 1.90
QFULL = 9.16
V100 = 3.79

21 STA. 518+50.00, 13.5 LT
DES 2(D) CICI
TG = 695.98
18" FL IN E = 686.65
18" FL IN S = 689.95
24" FL OUT W = 684.15
HGL = 685.66
EGL = 686.40
Q100 = 17.51
QFULL = 58.26
V100 = 6.29



27 STA. 529+60.27, 43.92' LT
36" X 22" ARCH RCP
W/ PCES EACH END
FL IN SE = 704.20
FL OUT SW = 703.75
HGL = 708.50
EGL = 710.30
Q100 = 67.79
QFULL = 93.84
V100 = 10.75



JEREMY P. STARK
21725
OKLAHOMA
REGISTERED PROFESSIONAL ENGINEER
11-04-16

BEFORE YOU DIG
811
OKLAHOMA
CALL OKIE

STORM SEWER PROFILES 1

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
CEC 4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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PLAN SCALE: 1" = 20'	DRAWN	J.R.C.	09/2012
	DESIGNED	D.C.G.	09/2012
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.	TRS	3/16
HORIZONTAL: N/A	LEAD ENGR.	BJS	3/16
	FIELD MGR.	EJB	3/16
VERTICAL N/A	RECOMMENDED	HAS	6/16
	DESIGN MANAGER		

APPROVED:

CITY ENGINEER

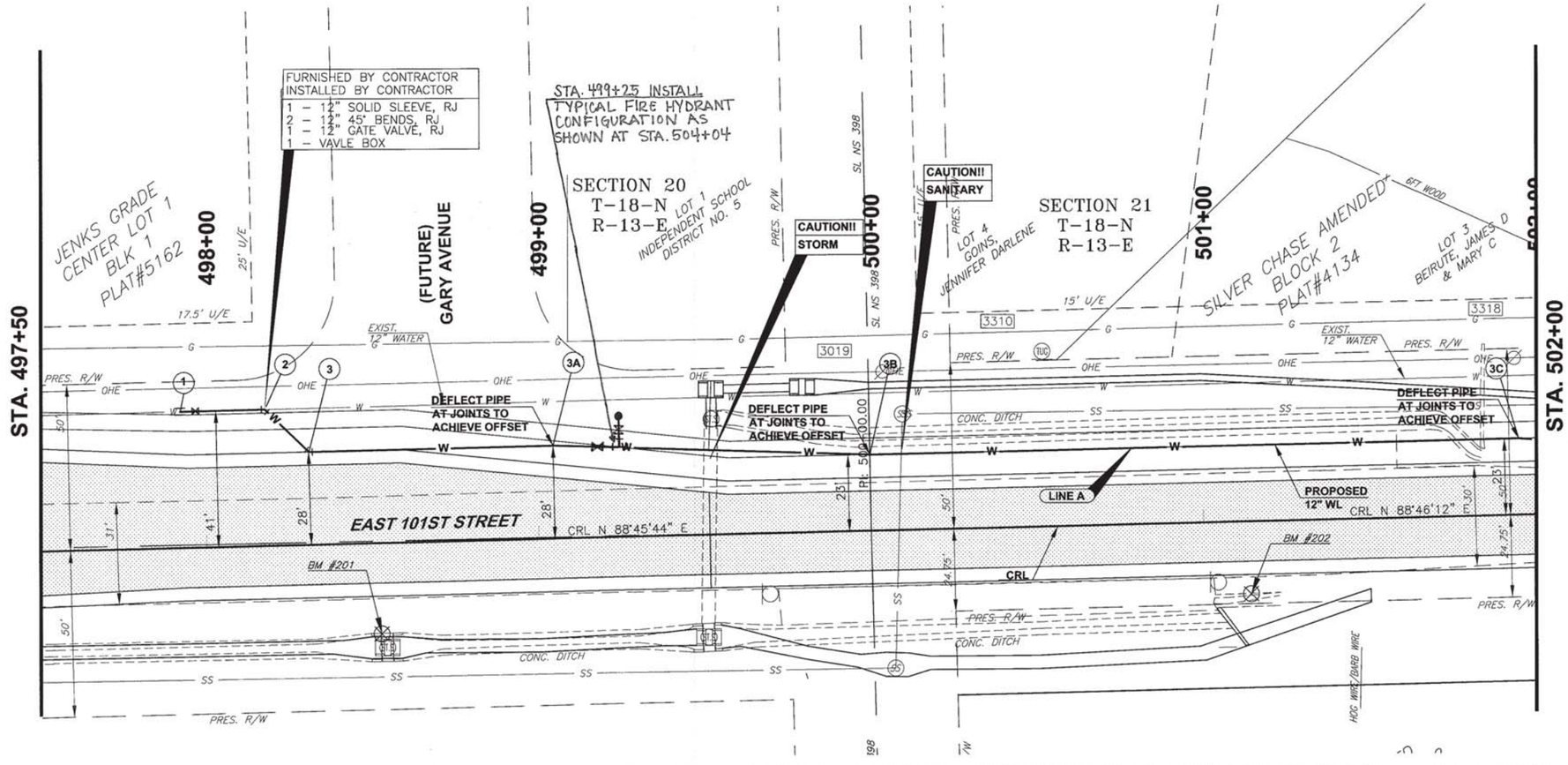
DATE 11.04.16

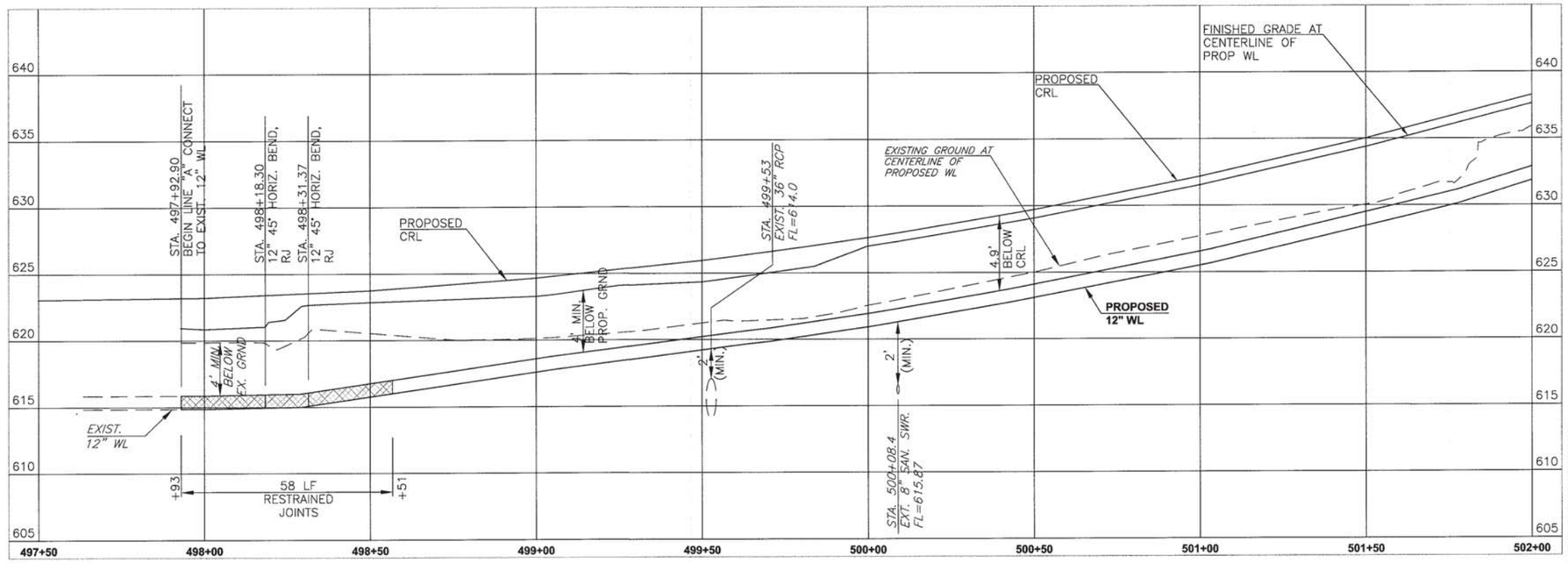
DRAWING: 55 P&P 551+50.DWG

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 51 OF 181

PLOT DATE: April 22, 2015, DRAWING NAME: 55 P&P 551+50.DWG





SERVICE CONNECTIONS

ZERO (0) LONG SERVICE CONNECTIONS
ZERO (0) SHORT SERVICE CONNECTIONS

BENCHMARKS		
NO.	DESCRIPTION	ELEV.
202	501+13.89, 21.80' RT CUT X ON NORTH EDGE OF FLUME	629.54
203	504+11.55, 21.20' RT SET RAILROAD SPIKE IN SE FACE 18" TREE	656.16

WATER LINE STATION, OFFSETS & COORDINATES				
PT. NO.	STA.	OFFSET	NORTHING:	EASTING:
1	497+92.90	41.02' LT	376,834.86	2,577,450.07
2	498+18.30	41.07' LT	376,835.46	2,577,475.48
3	498+31.37	28' LT.	376,822.68	2,577,488.82
3A	499+05.08	28' LT.	376,824.26	2,577,562.52
3B	500+00.04	23' LT.	376,821.30	2,577,657.57
3C	501+95.25	23' LT.	376,825.50	2,577,852.73

LEGEND - PLAN

PAVEMENT/CURB REPLACEMENT PER COT STDS (TYP.)

LEGEND - PROFILE

DIP

RESTRAINED JOINT DIP

NOTE: 1. MAXIMUM JOINT DEFLECTION SHALL BE 2°. THE TYPICAL 4° DEFLECTION SHALL BE OBTAINED ACROSS AT LEAST TWO JOINTS TO ACHIEVE DESIRED OFFSET.

2. ALL OFFSET DISTANCES TO PROPOSED WATER LINE ARE FROM THE CONSTRUCTION REFERENCE LINE.

0' 10' 20' 40'

REGISTERED PROFESSIONAL ENGINEER JEREMY P. STALL 21775 OKLAHOMA

BEFORE YOU DIG 811 CALL OKIE

TMUA-W 14-60

WATER P&P 1

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
CEC 4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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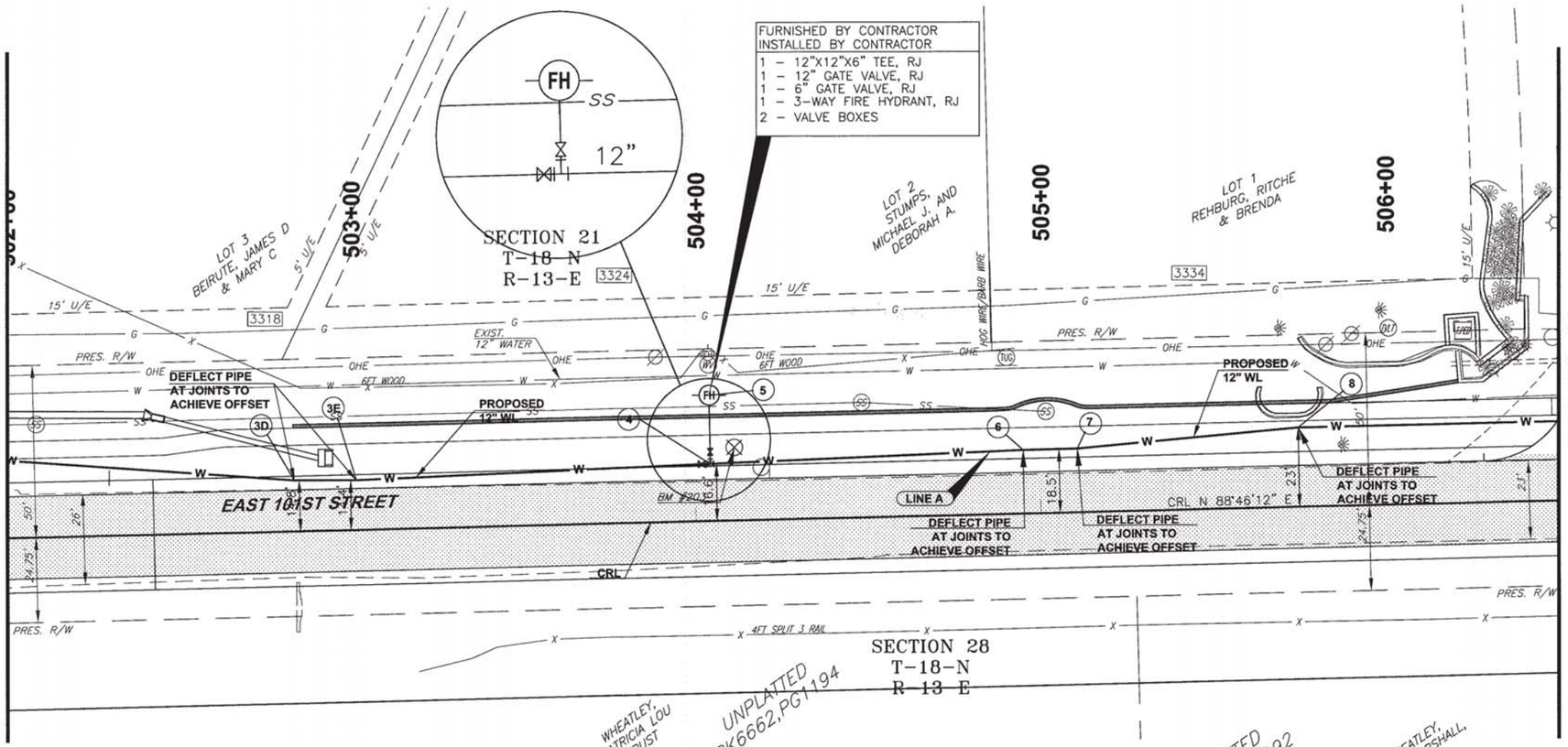
PLAN SCALE: 1" = 20'	DRAWN	J.T.S.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES: HORIZONTAL: 1" = 20' VERTICAL 1" = 5'	PROJ. MGR.	SCJ	2/16
	LEAD ENGR.	JPS	2/16
	FIELD MGR.	RBH	3/16
	RECOMMENDED DESIGN MANAGER	JHAS	6/16

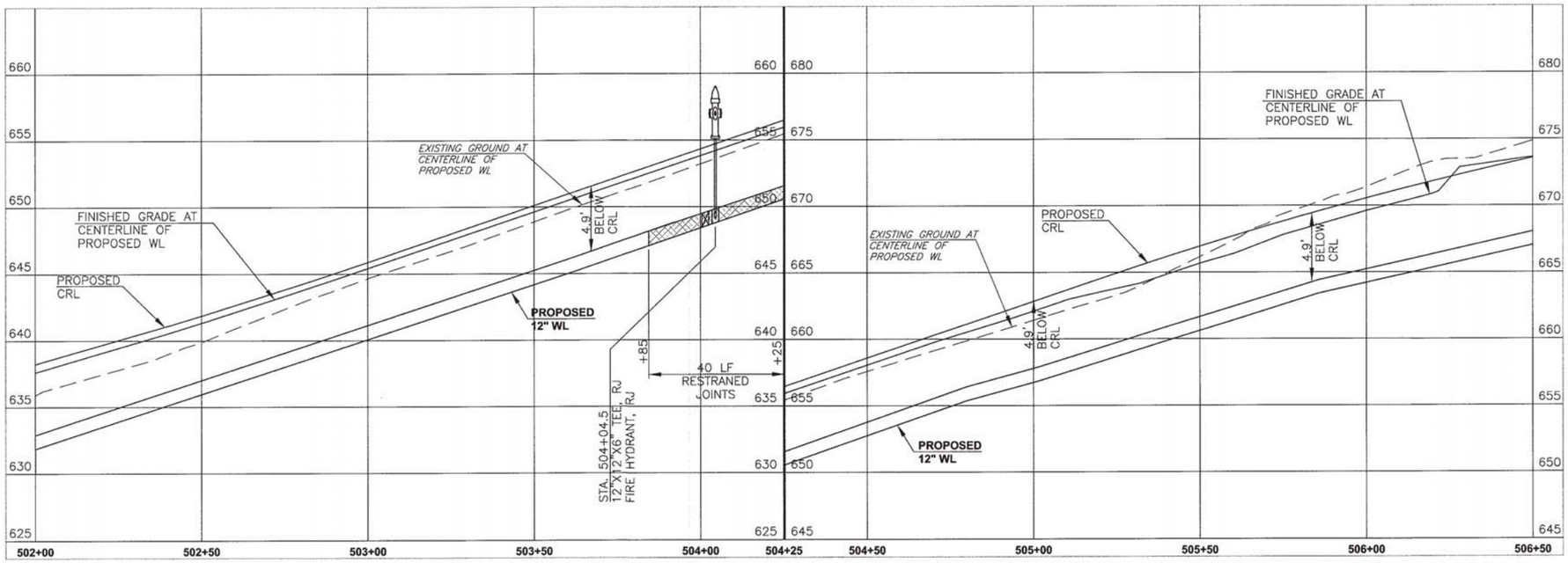
APPROVED: CITY ENGINEER

DRAWING: 60 WATER PROFILES & DETAILS.DWG DATE 11.08.16

ATLAS PAGE NO: 1276, 1277, 1422, 1423 SHEET 52 OF 181

PLOT DATE: April 22, 2015, DRAWING NAME: 60 WATER PROFILES & DETAILS.DWG





SERVICE CONNECTIONS

ZERO (0) LONG SERVICE CONNECTIONS
ZERO (0) SHORT SERVICE CONNECTIONS

BENCHMARKS		
NO.	DESCRIPTION	ELEV.
202	501+13.89, 21.80' RT CUT X ON NORTH EDGE OF FLUME	629.54
203	504+11.55, 21.20' RT SET RAILROAD SPIKE IN SE FACE 18" TREE	656.16

WATER LINE STATION, OFFSETS & COORDINATES				
PT. NO.	STA.	OFFSET	NORTHING:	EASTING:
3D	502+83.77	14.8' LT.	376819.21	2577061.95
3E	503+01.77	14.4' LT.	376819.19	2577072.81
4	504+04.52	16.6' LT.	376823.57	2577061.95
5	504+04.52	36.5' LT.	376843.49	2577072.81
6	504+95.26	18.5' LT.	376827.44	2577152.76
7	505+10.96	18.5' LT.	376827.80	2578168.47
8	505+75.12	23.0' LT.	376833.69	2578232.51

LEGEND - PLAN

PAVEMENT/CURB REPLACEMENT PER COT STDS (TYP.)

LEGEND - PROFILE

DIP

RESTRAINED JOINT DIP

NOTE: 1. MAXIMUM JOINT DEFLECTION SHALL BE 2°. THE TYPICAL 4° DEFLECTION SHALL BE OBTAINED ACROSS AT LEAST TWO JOINTS TO ACHIEVE DESIRED OFFSET.

2. ALL OFFSET DISTANCES TO PROPOSED WATER LINE ARE FROM THE CONSTRUCTION REFERENCE LINE.

0' 10' 20' 40'

REGISTERED PROFESSIONAL ENGINEER JEREMY P. STAHLE 21125 OKLAHOMA

BEFORE YOU DIG 811 CALL OKIE

TMUA-W 14-60

WATER P&P 2

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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PLAN SCALE: 1" = 20'	DRAWN	J.T.S.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES: HORIZONTAL: 1" = 20' VERTICAL 1" = 5'	PROJ. MGR.		2/16
	LEAD ENGR.		2/16
	FIELD MGR.		3/16
	RECOMMENDED: DESIGN MANAGER		6/16

APPROVED: CITY ENGINEER

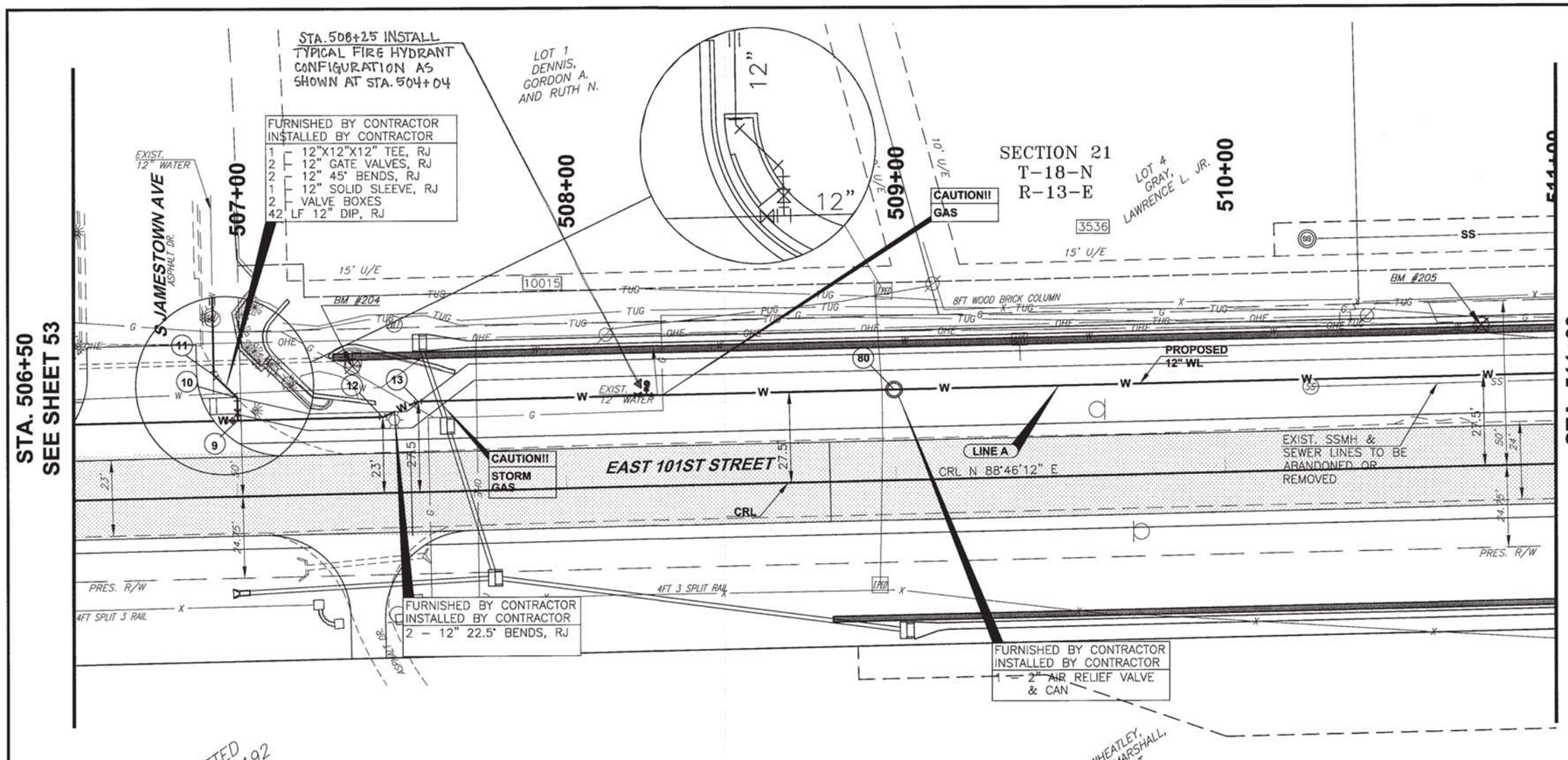
DRAWING: 60 WATER PROFILES & DETAILS.DWG

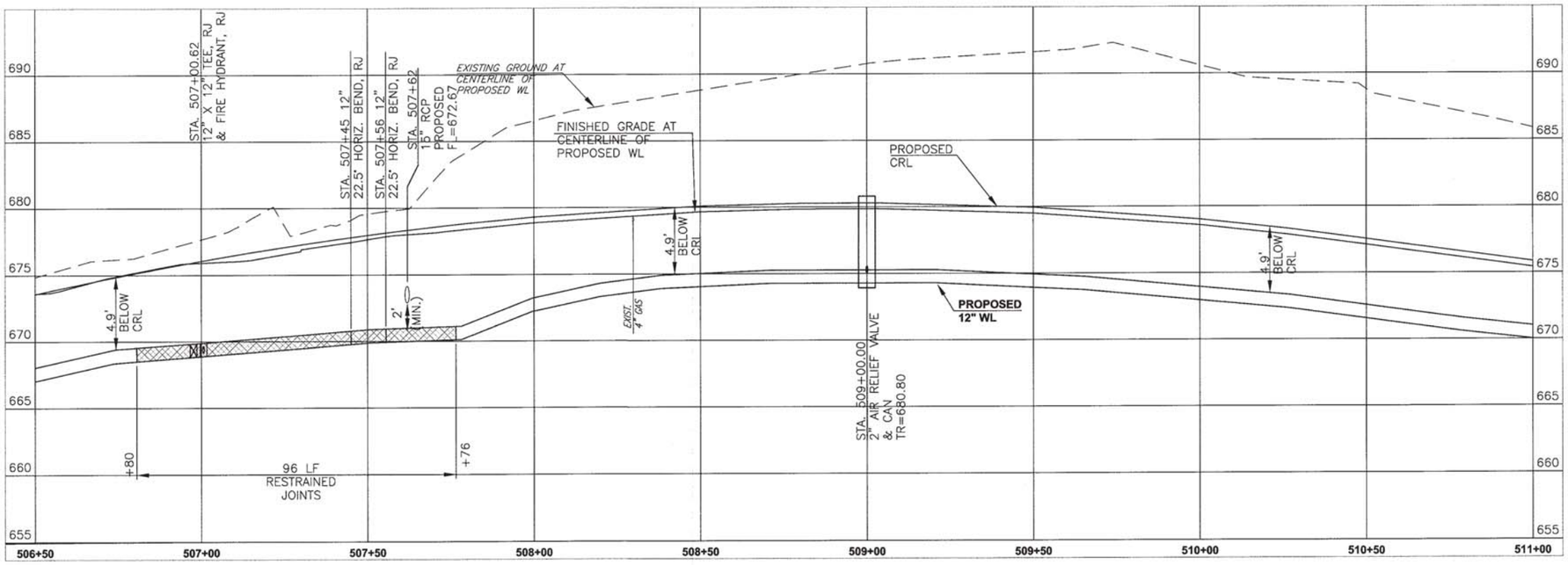
DATE 11.04.16

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 53 OF 181

PLOT DATE: April 22, 2015, DRAWING NAME: 60 WATER PROFILES & DETAILS.DWG





SERVICE CONNECTIONS

ZERO (0) LONG SERVICE CONNECTIONS
ZERO (0) SHORT SERVICE CONNECTIONS

BENCHMARKS		
NO.	DESCRIPTION	ELEV.
204	507+35.75, 38.60' LT CUT X ON SE COR. OF E HEADWALL	689.40

WATER LINE STATION, OFFSETS & COORDINATES				
PT. NO.	STA.	OFFSET	NORTHING:	EASTING:
9	507+00.62	23.0' LT.	376836.41	2577357.98
10	507+00.62	30.0' LT.	376843.37	257357.83
11	506+93.62	37.0' LT.	376850.21	257350.69
12	507+44.66	23.0' LT.	376837.31	2577402.01
13	507+55.51	27.5' LT.	376842.03	2577412.76
80	509+00.00	27.5' LT.	376845.13	2578557.22

LEGEND - PLAN

PAVEMENT/CURB REPLACEMENT PER COT STDS (TYP.)

LEGEND - PROFILE

DIP

RESTRAINED JOINT DIP

NOTE: 1. MAXIMUM JOINT DEFLECTION SHALL BE 2°. THE TYPICAL 4° DEFLECTION SHALL BE OBTAINED ACROSS AT LEAST TWO JOINTS TO ACHIEVE DESIRED OFFSET.

2. ALL OFFSET DISTANCES TO PROPOSED WATER LINE ARE FROM THE CONSTRUCTION REFERENCE LINE.

0' 10' 20' 40'

REGISTERED PROFESSIONAL ENGINEER JEREMY P. STAHLE 21125 OKLAHOMA

BEFORE YOU DIG 811 CALL OKIE

TMUA-W 14-60

WATER P&P 3

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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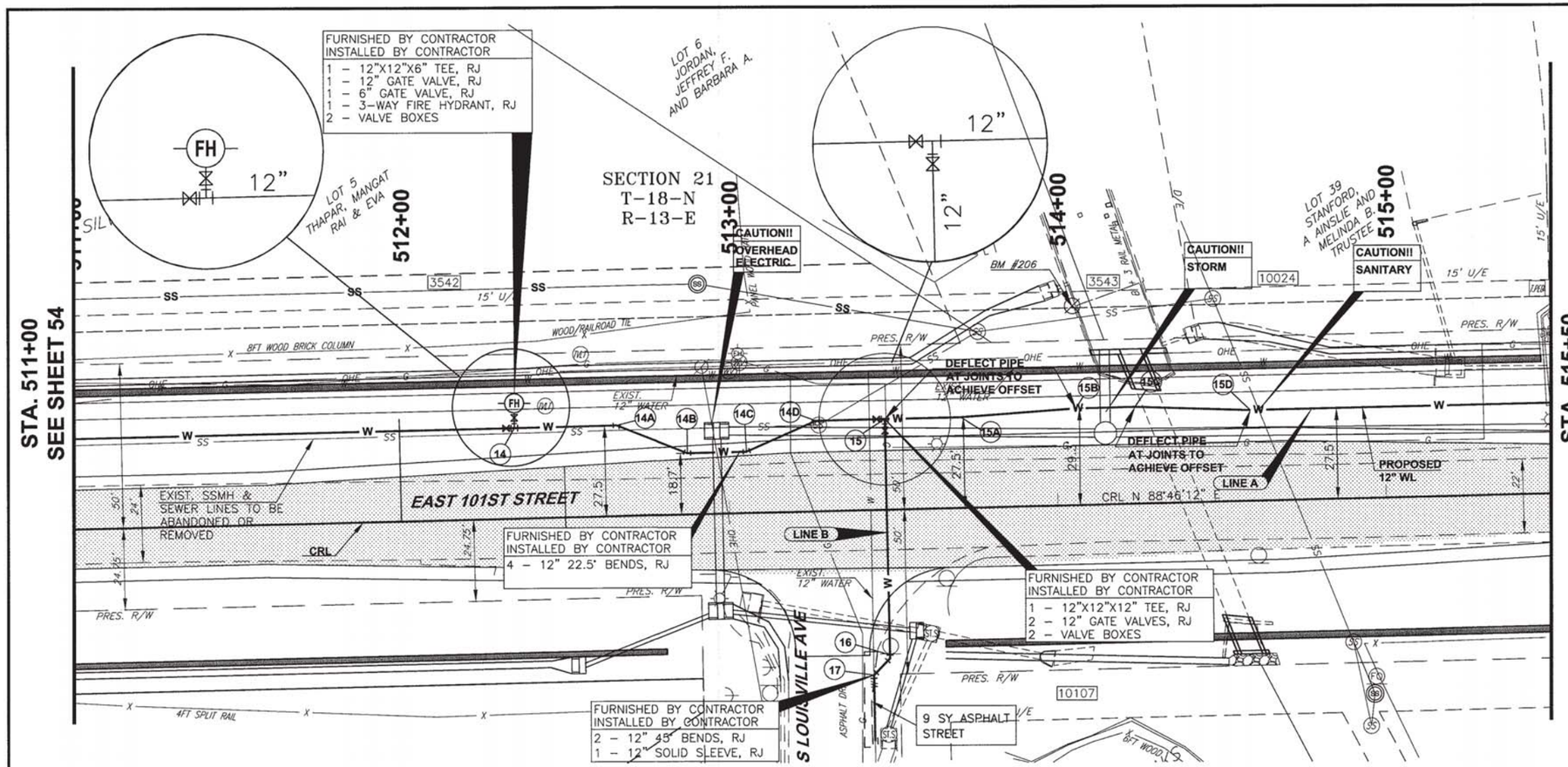
PLAN SCALE: 1" = 20'	DRAWN	J.T.S.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES: HORIZONTAL: 1" = 20' VERTICAL 1" = 5'	PROJ. MGR.	SLW	02/16
	LEAD ENGR.	JPS	10/16
	FIELD MGR.	CBM	3/16
	RECOMMENDED: DESIGN MANAGER	HAK	6/16

APPROVED: CITY ENGINEER

DRAWING: 60 WATER PROFILES & DETAILS.DWG
DATE 11.04.16
ATLAS PAGE NO: 1276, 1277, 1422, 1423
SHEET 54 OF 181

PLOT DATE: April 22, 2015, DRAWING NAME: 60 WATER PROFILES & DETAILS.DWG



SERVICE CONNECTIONS

ZERO (0) LONG SERVICE CONNECTIONS
ZERO (0) SHORT SERVICE CONNECTIONS

BENCHMARKS		
NO.	DESCRIPTION	ELEV.
205	510+78.60, 42.60' LT SET RAILROAD SPIKE S. FACE OF POWER POLE	689.63
206	514+05.71, 60.60' LT CUT X ON W SIDE OF RET. WALL	653.30

WATER LINE STATION, OFFSETS & COORDINATES					
PT. NO.	STA.	OFFSET		NORTHING:	EASTING:
14	512+35.00	27.5'	LT.	376852.23	2578892.14
14A	512+66.16	27.5'	LT.	376852.99	2578923.30
14B	512+87.53	18.7'	LT.	376844.60	2578944.85
14C	513+05.53	18.7'	LT.	376844.99	2578962.84
14D	513+26.89	27.5'	LT.	376854.30	2578984.01
15	513+47.81	27.5'	LT.	376854.75	2579004.93
15A	513+71.02	27.5'	LT.	376855.24	2579028.13
15B	514+06.11	29.3'	LT.	376857.83	2579063.17
15C	514+24.11	29.3'	LT.	376858.22	2579081.17
15D	514+59.20	27.5'	LT.	376857.14	2579116.29
16	513+47.81	45.2'	RT.	376782.09	2579006.49
17	513+42.83	50.2'	LT.	376777.01	2579001.62

LEGEND - PLAN

PAVEMENT/CURB REPLACEMENT PER COT STDS (TYP.)

LEGEND - PROFILE

DIP

RESTRAINED JOINT DIP

NOTE:
1. MAXIMUM JOINT DEFLECTION SHALL BE 2°. THE TYPICAL 4° DEFLECTION SHALL BE OBTAINED ACROSS AT LEAST TWO JOINTS TO ACHIEVE DESIRED OFFSET.
2. ALL OFFSET DISTANCES TO PROPOSED WATER LINE ARE FROM THE CONSTRUCTION REFERENCE LINE.

0' 10' 20' 40'

REGISTERED PROFESSIONAL ENGINEER JEREMY P. STAUFF 22511 OKLAHOMA

BEFORE YOU DIG CALL OKIE 811

TMUA-W 14-60

WATER P&P 4

PROJECT NO. 104006

101ST STREET-HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
CEC 4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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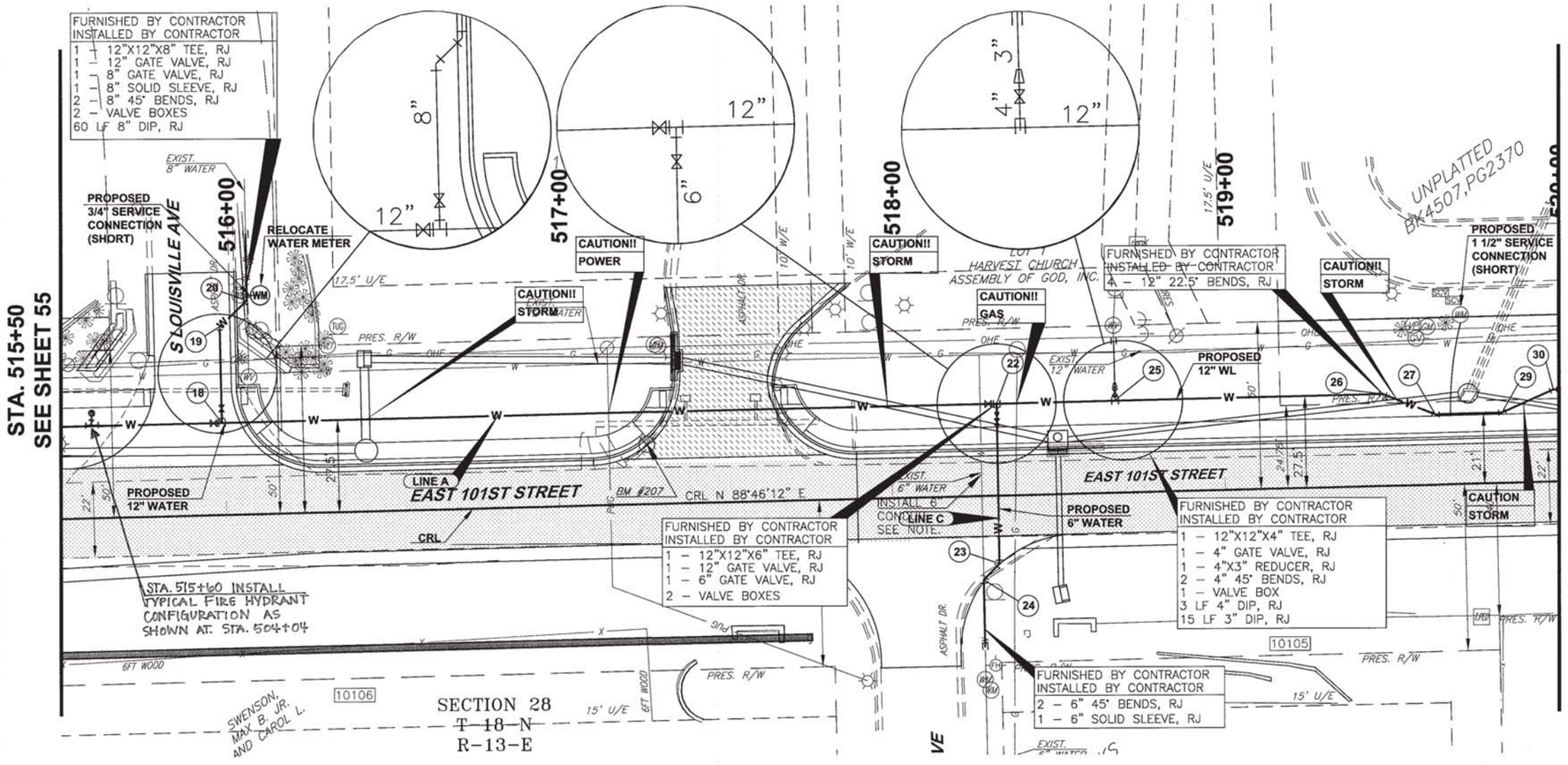
PLAN SCALE: 1" = 20'	DRAWN	J.T.S.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES: HORIZONTAL: 1" = 20' VERTICAL 1" = 5'	PROJ. MGR.		2/16
	LEAD ENGR.		2/16
	FIELD MGR.		3/16
	RECOMMENDED: DESIGN MANAGER		6/16

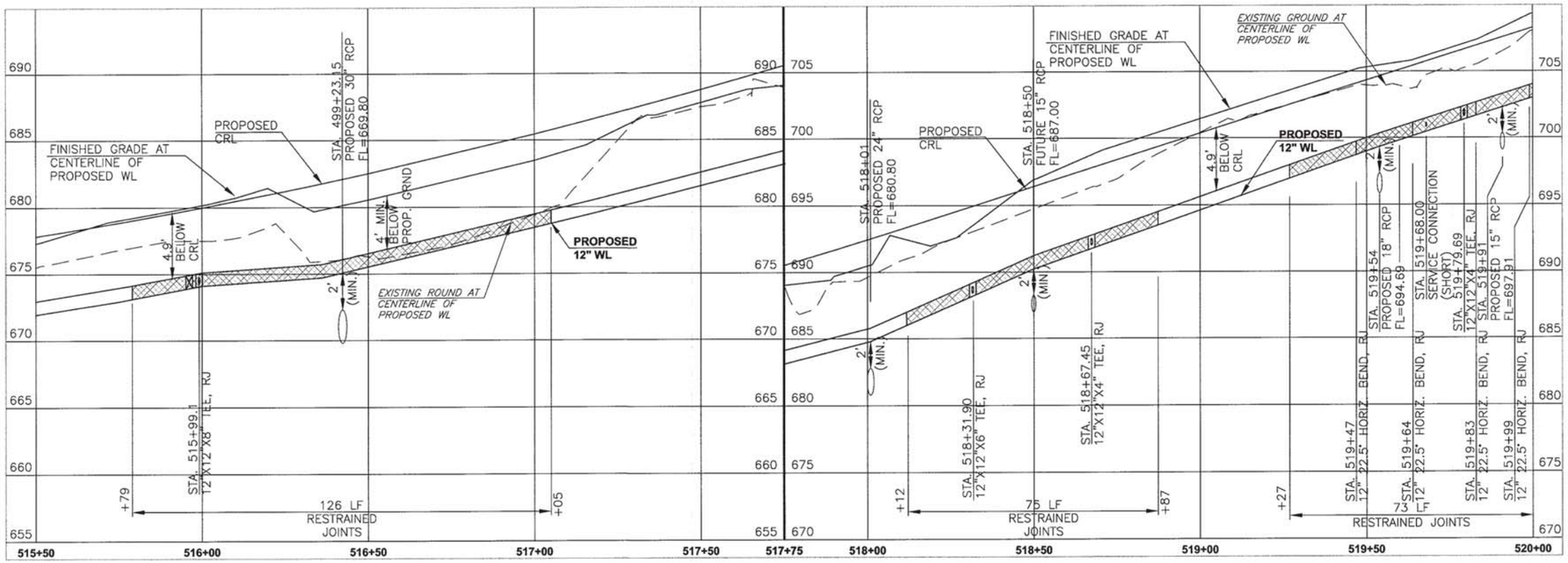
APPROVED:

DRAWING: 60 WATER PROFILES & DETAILS.DWG DATE 11.09.15

ATLAS PAGE NO: 1276, 1277, 1422, 1423 SHEET 55 OF 181

PLOT DATE: April 22, 2015, DRAWING NAME: 60 WATER PROFILES & DETAILS.DWG





SERVICE CONNECTIONS

ZERO (0) LONG SERVICE CONNECTIONS
TWO (2) SHORT SERVICE CONNECTIONS

BENCHMARKS		
NO.	DESCRIPTION	ELEV.
207	517+26.56,17.90' LT CUT X ON TOC ON W CURB	686.08

WATER LINE STATION, OFFSETS & COORDINATES					
PT. NO.	STA.	OFFSET		NORTHING:	EASTING:
18	515+99.10	27.5'	LT.	376,860.14	2,579,256.16
19	515+99.10	56.4'	LT.	376888.99	2579255.54
20	516+07.43	64.0'	LT.	376896.82	2579263.71
22	518+31.90	27.5'	LT.	376865.19	2579488.90
23	518+31.61	35.2'	RT.	376802.46	2579489.96
24	518+26.84	40.0'	RT.	376797.58	2579485.29
25	518+67.45	27.5'	LT.	376865.90	2579524.46
26	519+47.85	27.5'	LT.	376867.62	2579604.83
27	519+63.63	21.0'	LT.	376861.46	2579620.75
29	519+83.55	21.0'	LT.	376861.89	2579640.66
30	519+99.13	27.5'	LT.	376868.73	2579656.09

LEGEND - PLAN

PAVEMENT/CURB REPLACEMENT PER COT STDS (TYP.)

LEGEND - PROFILE

DIP

RESTRAINED JOINT DIP

NOTE: 1. MAXIMUM JOINT DEFLECTION SHALL BE 2°. THE TYPICAL 4° DEFLECTION SHALL BE OBTAINED ACROSS AT LEAST TWO JOINTS TO ACHIEVE DESIRED OFFSET.

2. ALL OFFSET DISTANCES TO PROPOSED WATER LINE ARE FROM THE CONSTRUCTION REFERENCE LINE.

0' 10' 20' 40'

REGISTERED PROFESSIONAL ENGINEER JEREMY P. STAUFF 21755 OKLAHOMA 11-14-16

BEFORE YOU DIG 811 CALL OKIE

TMUA–W 14–60

WATER P&P 5

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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PLAN SCALE: 1" = 20'	DRAWN	J.T.S.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.		2/16
HORIZONTAL: N/A	LEAD ENGR.		2/16
	FIELD MGR.		3/16
VERTICAL: N/A	RECOMMENDED:		6/16
	DESIGN MANAGER		

APPROVED: CITY ENGINEER

DRAWING: 60 WATER PROFILES & DETAILS.DWG DATE 11-14-16

ATLAS PAGE NO: 1276, 1277, 1422, 1423 SHEET 56 OF 181

PLOT DATE: April 22, 2015, DRAWING NAME: 60 WATER PROFILES & DETAILS.DWG

STA. 520+20 INSTALL TYPICAL FIRE HYDRANT CONFIGURATION AS SHOWN AT STA 520+20

STA. 520+00
SEE SHEET 56

STA. 524+50
SEE SHEET 46

FURNISHED BY CONTRACTOR INSTALLED BY CONTRACTOR
1 – 12"X12"X6" TEE, RJ
1 – 12" GATE VALVE, RJ
1 – 6" GATE VALVE, RJ
1 – 3-WAY FIRE HYDRANT. RJ
2 – VALVE BOXES
2 – 12" 45° BENDS, RJ
1 – 12" SOLID SLEEVE, RJ

SECTION 21
T-18-N
R-13-E

ST. BERNARD OF CLAIRVAUX

UNPLATTED BK4507,PG2370

UNPLATTED BK4429,PG63

520+00 521+00 522+00 523+00 524+00

CAUTION!! GAS

CAUTION!! OVERHEAD ELECTRIC

BM #208

BM #209

ASPHALT DR.

OHE

PRES. R/W

PROPOSED 12" WL

CP #4

PROPOSED 2" SERVICE CONNECTION (SHORT)

EXIST. SERVICE CONNECTION

EXIST. 12" WATER

LINE A

EAST 101ST STREET

CRL N 88°46'12" E

CRL

PROPOSED 3/4" SERVICE CONNECTION (LONG)

RELOCATE WATER METER

PICKET FENCE

FH 12"

36 36A 36B 37

WILLIAM K AND WANDA K.

SERVICE CONNECTIONS

TWO (2) LONG SERVICE CONNECTIONS
TWO (2) SHORT SERVICE CONNECTIONS

BENCHMARKS		
NO.	DESCRIPTION	ELEV.
208	498+52.09, 27.20' RT CUT X ON NW COR. OF HW	726.70

WATER LINE STATION, OFFSETS & COORDINATES				
PT. NO.	STA.	OFFSET	NORTHING:	EASTING:
36	523+78.00	27.5' LT.	376876.88	2580034.88
36A	523+83.00	27.5' LT.	376876.99	2580039.88
36B	523+97.41	41.9' LT.	376891.70	2580053.97
37	524+1741	41.9' LT.	376892.11	2580073.97

LEGEND - PLAN

PAVEMENT/CURB REPLACEMENT PER COT STDS (TYP.)

LEGEND - PROFILE

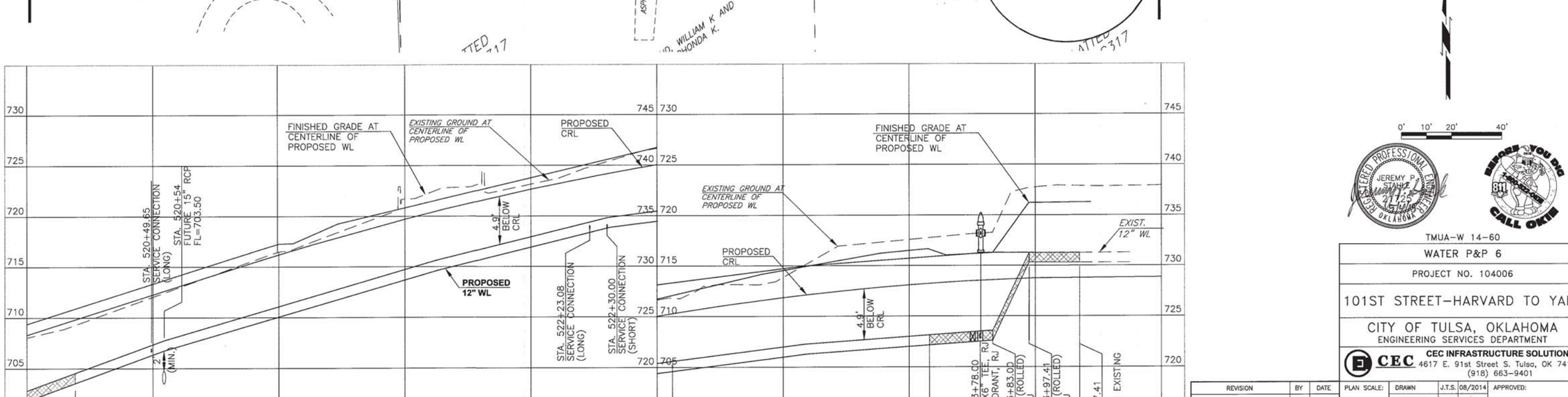
DIP

RESTRAINED JOINT DIP

NOTE: 1. MAXIMUM JOINT DEFLECTION SHALL BE 2°. THE TYPICAL 4° DEFLECTION SHALL BE OBTAINED ACROSS AT LEAST TWO JOINTS TO ACHIEVE DESIRED OFFSET.

2. ALL OFFSET DISTANCES TO PROPOSED WATER LINE ARE FROM THE CONSTRUCTION REFERENCE LINE.

0' 10' 20' 40'



JEREMY P. STANLEY 21725 REGISTERED PROFESSIONAL ENGINEER STATE OF OKLAHOMA

811 BEFORE YOU DIG CALL OKIE

TMUA-W 14-60

WATER P&P 6

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
CEC 4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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PLAN SCALE: 1" = 20'	DRAWN	J.T.S.	08/2014
	DESIGNED	D.C.G.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.		
HORIZONTAL: N/A	LEAD ENGR.		
	FIELD MGR.		
VERTICAL: N/A	RECOMMENDED		
	DESIGN MANAGER		

APPROVED:

CITY ENGINEER

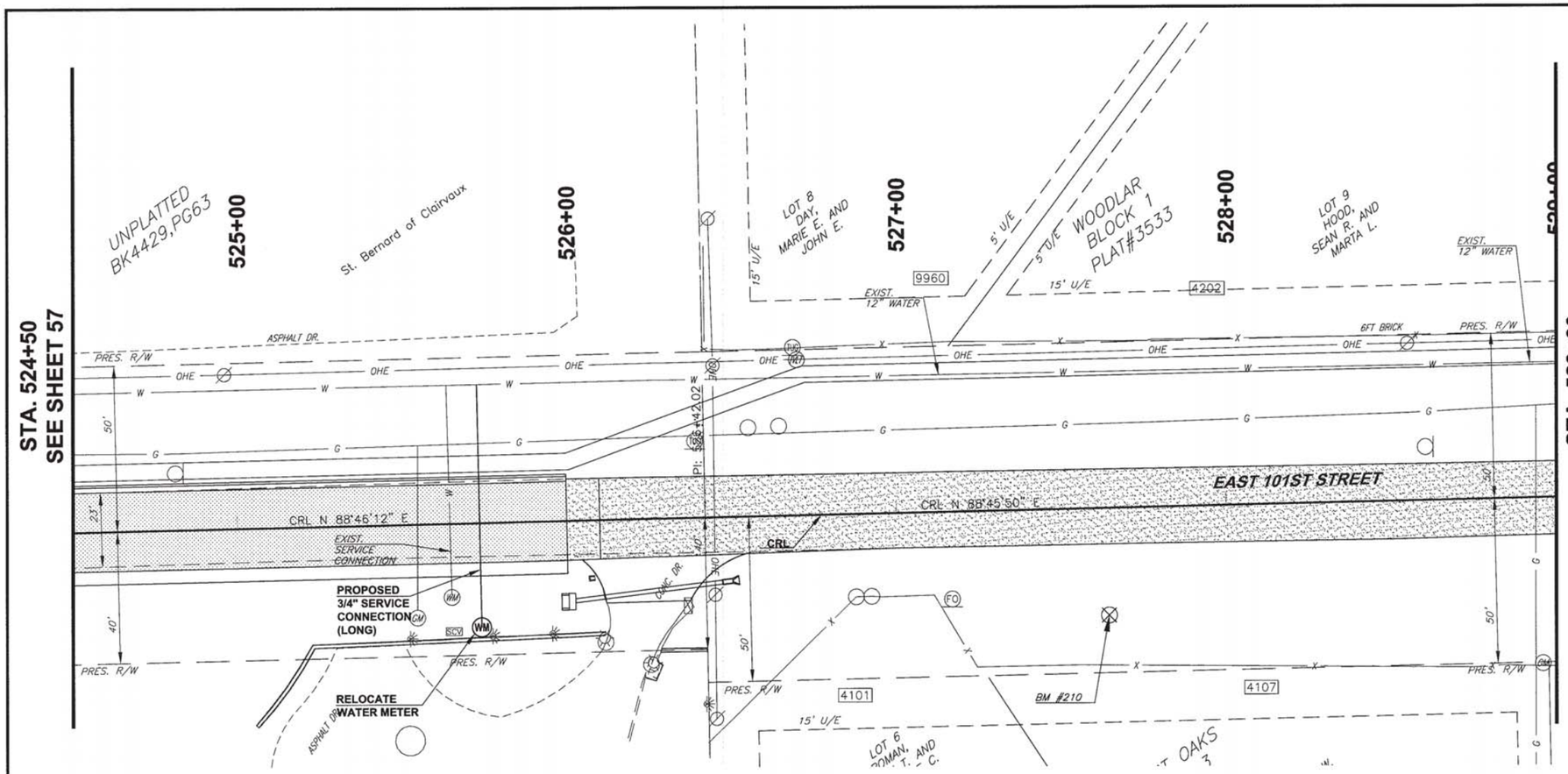
DRAWING: 60 WATER PROFILES & DETAILS.DWG

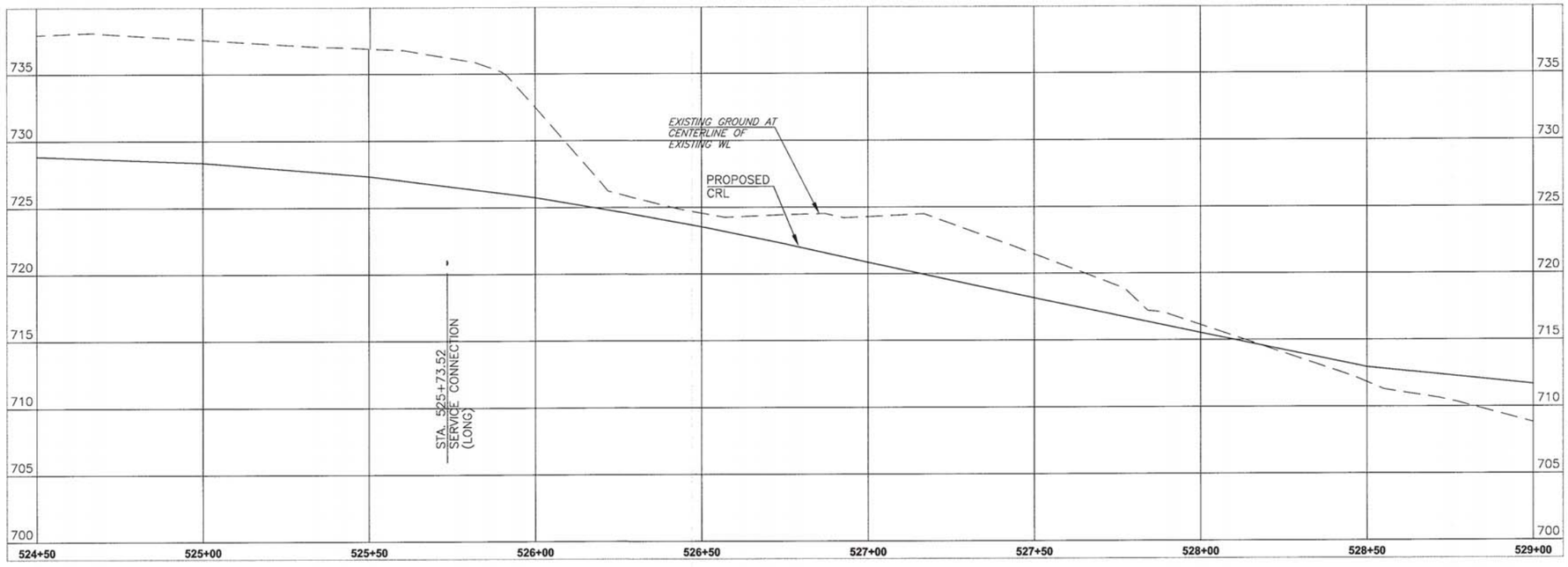
DATE 11.04.16

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 57 OF 181

PLOT DATE: April 22, 2015, DRAWING NAME: 60 WATER PROFILES & DETAILS.DWG





SERVICE CONNECTIONS

ONE (1) LONG SERVICE CONNECTION
ZERO (0) SHORT SERVICE CONNECTIONS

BENCHMARKS		
NO.	DESCRIPTION	ELEV.
209	501+13.89, 21.80' RT CUT X ON NORTH EDGE OF FLUME	
210	527+63.91, 32.60' RT SET RAILROAD SPIKE IN N FACE 24" TREE	718.90

WATER LINE STATION, OFFSETS & COORDINATES				
PT. NO.	STA.	OFFSET	NORTHING:	EASTING:

LEGEND - PLAN

PAVEMENT/CURB REPLACEMENT PER COT STDS (TYP.)

LEGEND - PROFILE

DIP

RESTRAINED JOINT DIP

NOTE: 1. MAXIMUM JOINT DEFLECTION SHALL BE 2°. THE TYPICAL 4° DEFLECTION SHALL BE OBTAINED ACROSS AT LEAST TWO JOINTS TO ACHIEVE DESIRED OFFSET.

2. ALL OFFSET DISTANCES TO PROPOSED WATER LINE ARE FROM THE CONSTRUCTION REFERENCE LINE.

0' 10' 20' 40'

REGISTERED PROFESSIONAL ENGINEER JEREMY P. STAHLE 21725 OKLAHOMA

BEFORE YOU DIG CALL OKIE 811

TMUA-W 14-60

WATER P&P 7

PROJECT NO. 104006

101ST STREET-HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE

PLAN SCALE: 1" = 20'	DRAWN	J.T.S.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.	SLJ	02/16
HORIZONTAL: N/A	LEAD ENGR.	ZEW	2/16
	FIELD MGR.	RBW	3/16
VERTICAL N/A	RECOMMENDED: DESIGN MANAGER	HAS	6/16

APPROVED:

CITY ENGINEER

DRAWING: 60 WATER PROFILES & DETAILS.DWG

DATE 11.04.16

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 58 OF 181

PLOT DATE: April 22, 2015, DRAWING NAME: 60 WATER PROFILES & DETAILS.DWG

SERVICE CONNECTIONS

ZERO (0) LONG SERVICE CONNECTIONS
ZERO (0) SHORT SERVICE CONNECTIONS

BENCHMARKS		
NO.	DESCRIPTION	ELEV.
211	498+52.09, 27.20' RT CUT X ON S END W HW	720.08

WATER LINE STATION, OFFSETS & COORDINATES				
PT. NO.	STA.	OFFSET	NORTHING:	EASTING:
38	529+17.13	40.5' LT.	376901.55	2580573.60
39	529+37.13	40.5' LT.	376901.90	2580593.60
40	529+44.36	35.5' LT.	376899.00	2580600.89
41	529+62.36	35.5' LT.	376899.39	2580618.89
42	529+69.62	40.5' LT.	376902.68	2580626.05
42A	529+89.62	40.5' LT.	376902.84	2580646.07
43	532+68.81	27.5' LT.	376896.01	2580925.48
44	532+75.10	27.5' LT.	376896.18	2580931.77
45	532+88.94	41.2' LT.	376910.31	2580945.30
46	533+07.98	41.2' LT.	376910.89	2580964.33
47	532+68.81	32.5' LT.	376901.36	2580925.37
47	532+60.80	40.5' LT.	376908.81	2580917.28

LEGEND - PLAN

PAVEMENT/CURB REPLACEMENT PER COT STDS (TYP.)

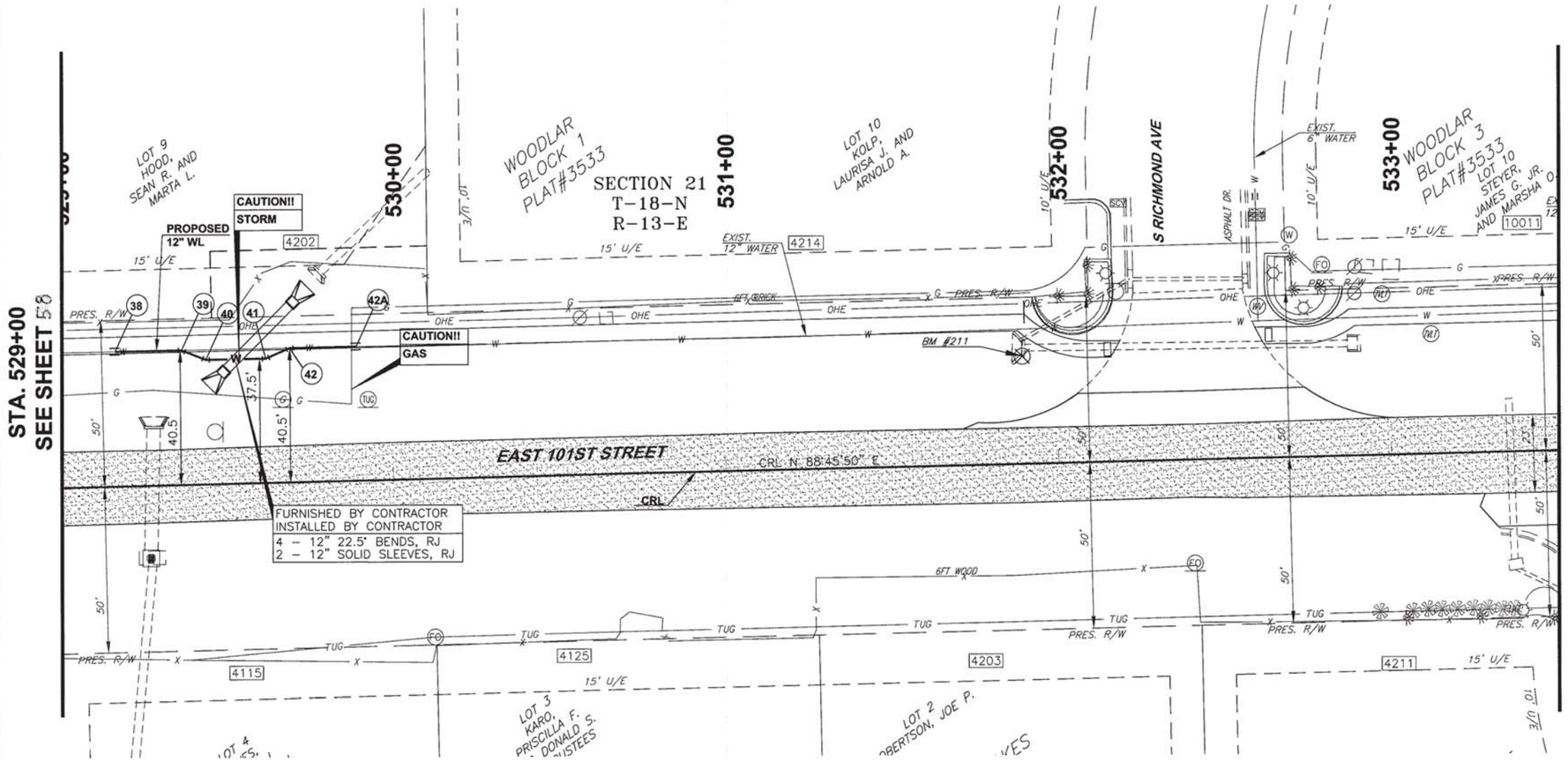
LEGEND - PROFILE

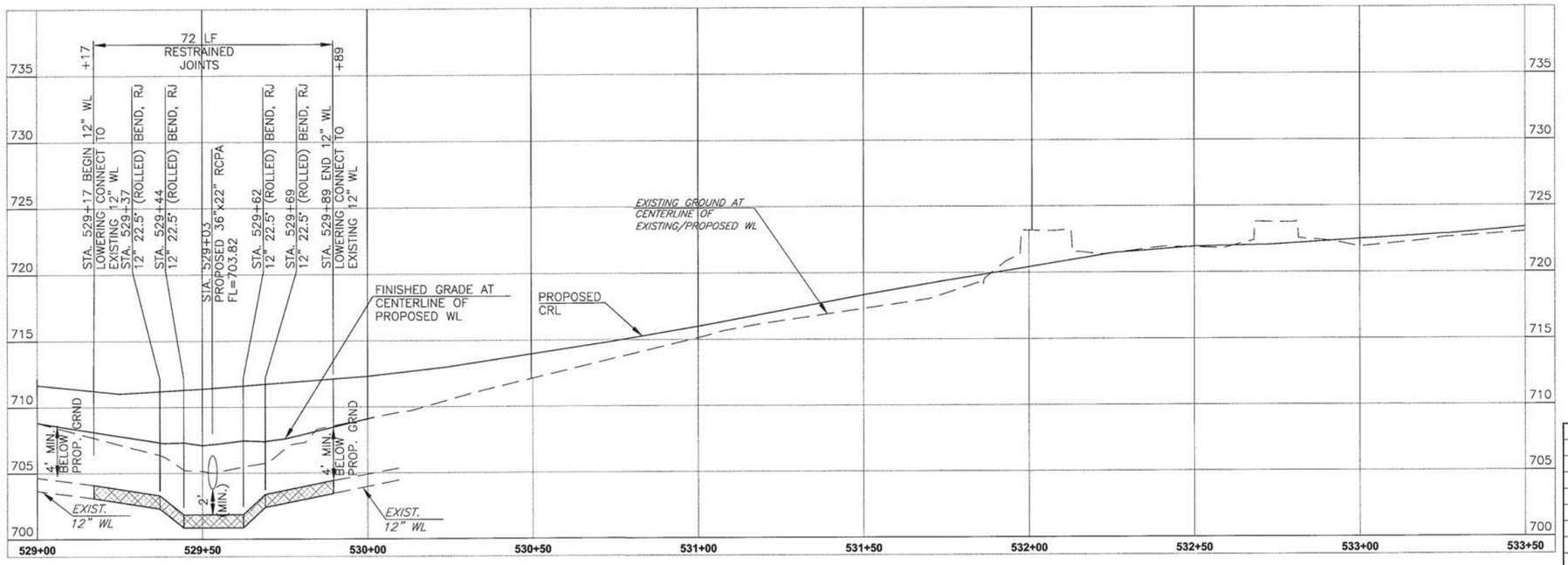
DIP

RESTRAINED JOINT DIP

NOTE: 1. MAXIMUM JOINT DEFLECTION SHALL BE 2°. THE TYPICAL 4° DEFLECTION SHALL BE OBTAINED ACROSS AT LEAST TWO JOINTS TO ACHIEVE DESIRED OFFSET.

2. ALL OFFSET DISTANCES TO PROPOSED WATER LINE ARE FROM THE CONSTRUCTION REFERENCE LINE.





0' 10' 20' 40'

REGISTERED PROFESSIONAL ENGINEER JEREMY P. STAPLE OKLAHOMA 17725

BEFORE YOU DIG 811 CALL OKIE

TMUA-W 14-60

WATER P&P 8

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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PLAN SCALE: 1" = 20'	DRAWN	J.T.S.	08/2014
	DESIGNED	D.C.G.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.	SLS	02/16
HORIZONTAL: N/A	LEAD ENGR.	BSW	2/16
	FIELD MGR.	RBW	3/16
VERTICAL: N/A	RECOMMENDED DESIGN MANAGER	HAS	6/16

APPROVED: CITY ENGINEER

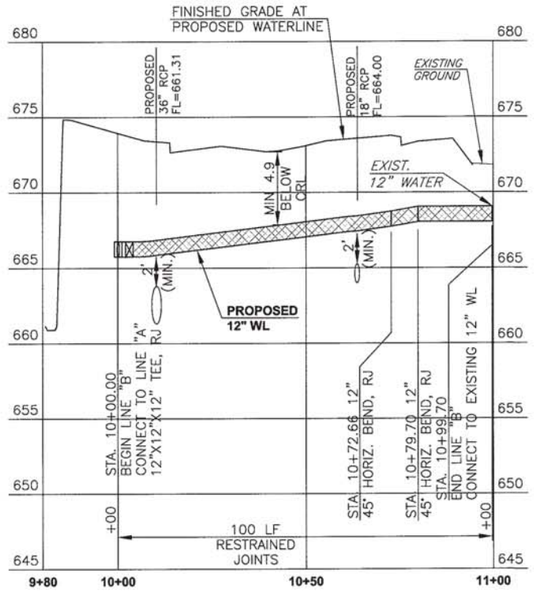
DRAWING: 60 WATER PROFILES & DETAILS.DWG

DATE 11.04.16

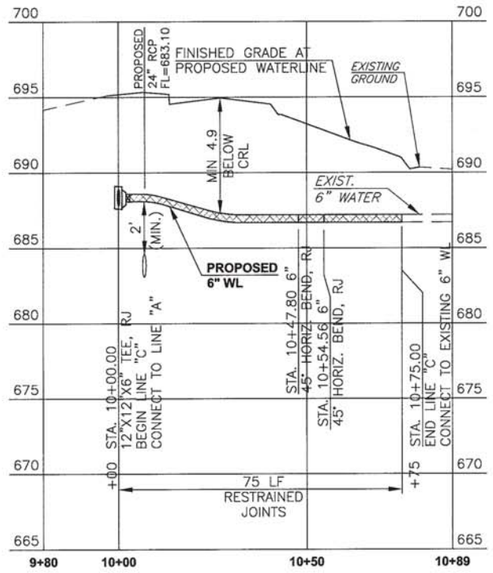
ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 59 OF 181

PLOT DATE: May 4, 2015, DRAWING NAME: 60 WATER PROFILES & DETAILS.DWG



LINE B PROFILE



LINE C PROFILE

LEGEND - PROFILE

DIP

RESTRAINED JOINT DIP

REGISTERED PROFESSIONAL ENGINEER — JEREMY P. STABLE — OKLAHOMA

BEFORE YOU DIG — 811 — OKIE — CALL OKIE

TMUA-W 14-60

WATER PROFILES

PROJECT NO. 104006

101ST STREET-HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
CEC 4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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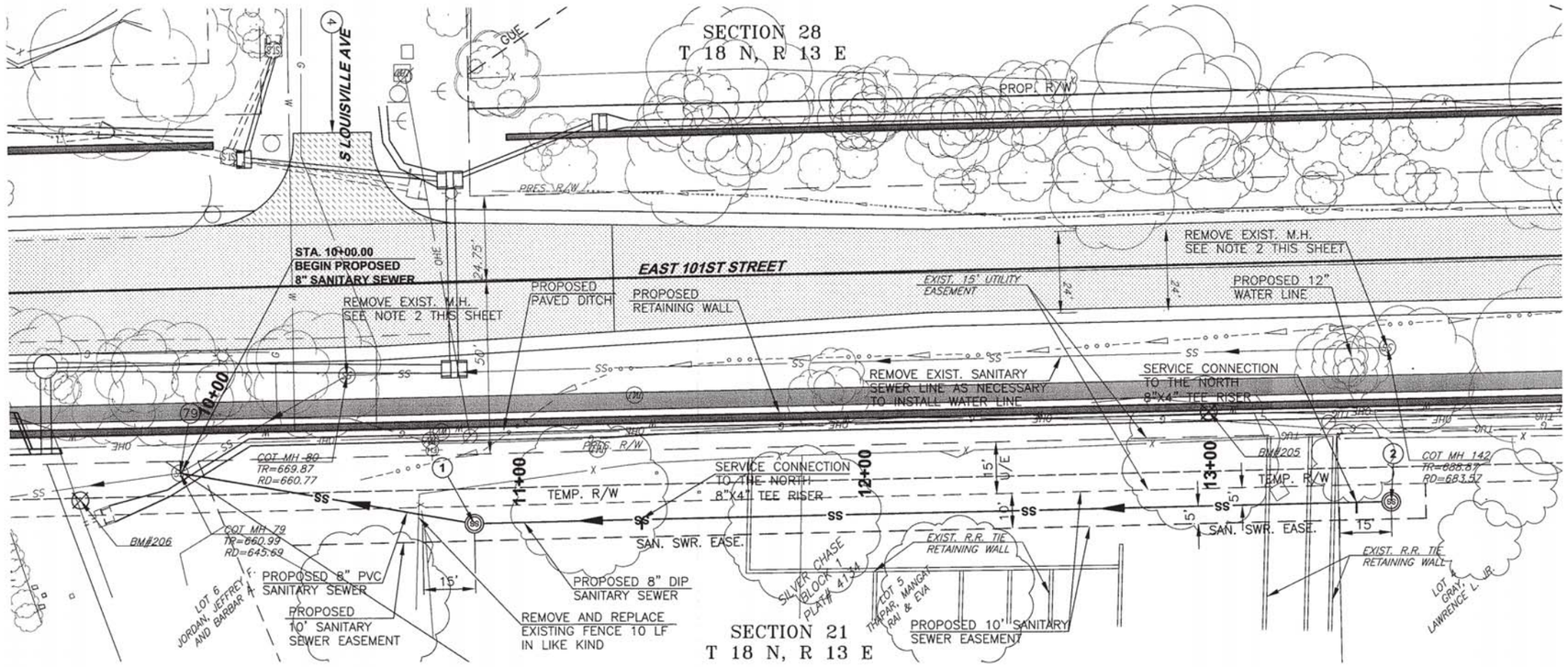
PLAN SCALE: N/A	DRAWN	J.T.S.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.	SLT	02/16
HORIZONTAL: 1" = 20'	LEAD ENGR.	[illegible]	2/16
	FIELD MGR.	[illegible]	3/16
VERTICAL 1" = 5'	RECOMMENDED DESIGN MANAGER	HAS	6/16

APPROVED: CITY ENGINEER

DRAWING: 60 WATER PROFILES & DETAILS.DWG — DATE 11.04.16

ATLAS PAGE NO: 1276, 1277, 1422, 1423 — SHEET 60 OF 181

PLOT DATE: April 22, 2015, DRAWING NAME: 60 WATER PROFILES & DETAILS.DWG



SERVICE CONNECTIONS

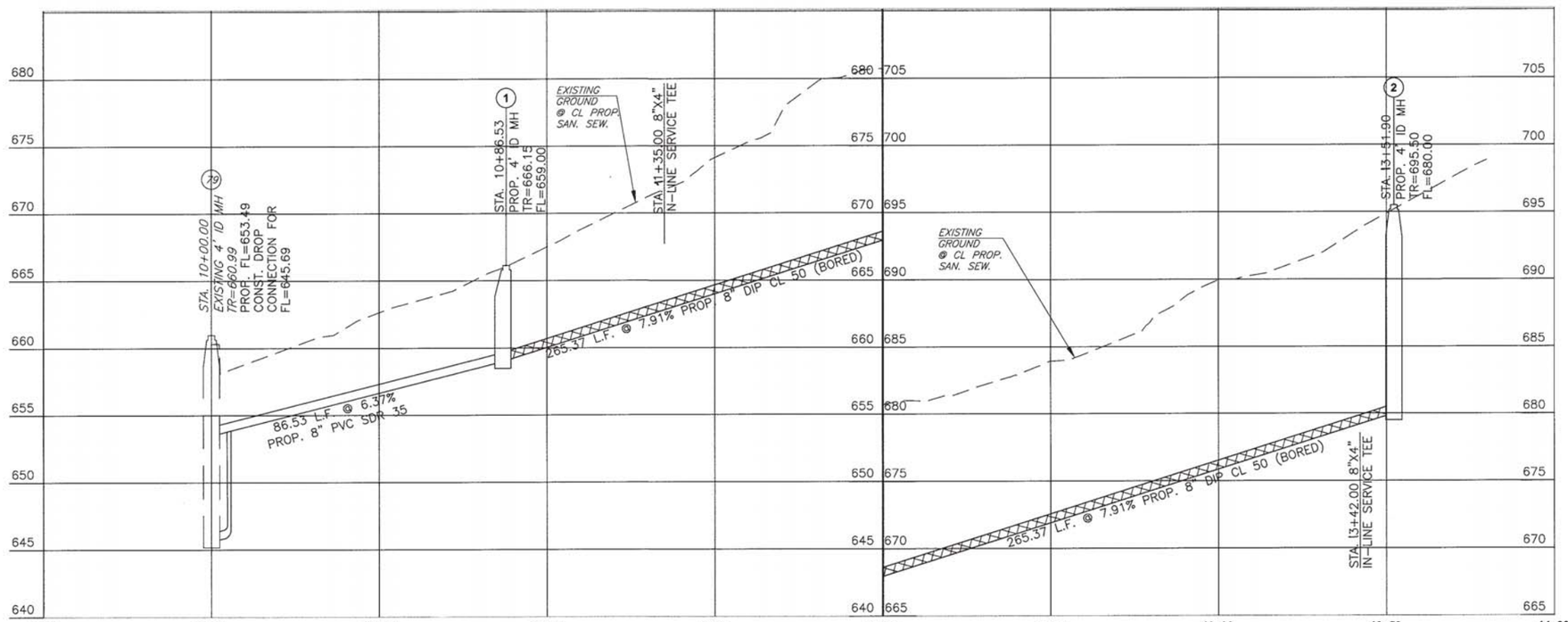
NONE THIS SHEET

BENCHMARKS		
NO.	DESCRIPTION	ELEV.
205	510+78.60, 42.60' LT SET RAILROAD SPIKE S. FACE OF POWER POLE	689.63
206	514+05.71, 60.60' LT CUT X ON W SIDE OF RET. WALL	653.30

MANHOLE LOCATIONS		
MH#	NORTHING:	EASTING:
79	376881.30	2579033.26
1	376896.86	2578948.00
2	376890.34	2578682.69

NOTES:

1. EXISTING SANITARY SEWER FROM M.H. #79 TO M.H. #142 SERVES LOTS 4 & 5 BLOCK 1 OF SILVER CHASE, CONTRACTOR WILL LOCATE AND VERIFY DEPTHS OF SERVICES TO INSURE THE NEW SERVICE TEES ARE PROPERLY LOCATED TO FACILITATE THE RECONNECTION OF EXISTING SERVICE.
2. MANHOLES TO BE REMOVED SHALL BE PAID FOR UNDER PAY ITEM 619(A) REMOVAL OF STRUCTURES & OBSTRUCTIONS.



PROPOSED SANITARY SEWER PROFILE

JEREMY P. STAPLES — REGISTERED PROFESSIONAL ENGINEER — OKLAHOMA

BEFORE YOU DIG 811 — CALL OKIE

MS 630

SANITARY SEWER P&P 1

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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PLAN SCALE: 1" = 20'	DRAWN	R.S.S.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.	BDC	10/16
HORIZONTAL: 1" = 20'	LEAD ENGR.	AJS	10/16
	FIELD MGR.	RSS	3/16
VERTICAL 1" = 5'	RECOMMENDED	HAS	6/16
	DESIGN MANAGER		CITY ENGINEER

APPROVED:

DRAWING: 63 SANITARY SEWER PLANS.DWG — DATE 11-04-16

ATLAS PAGE NO: 1276, 1277, 1422, 1423 — SHEET 61 OF 181

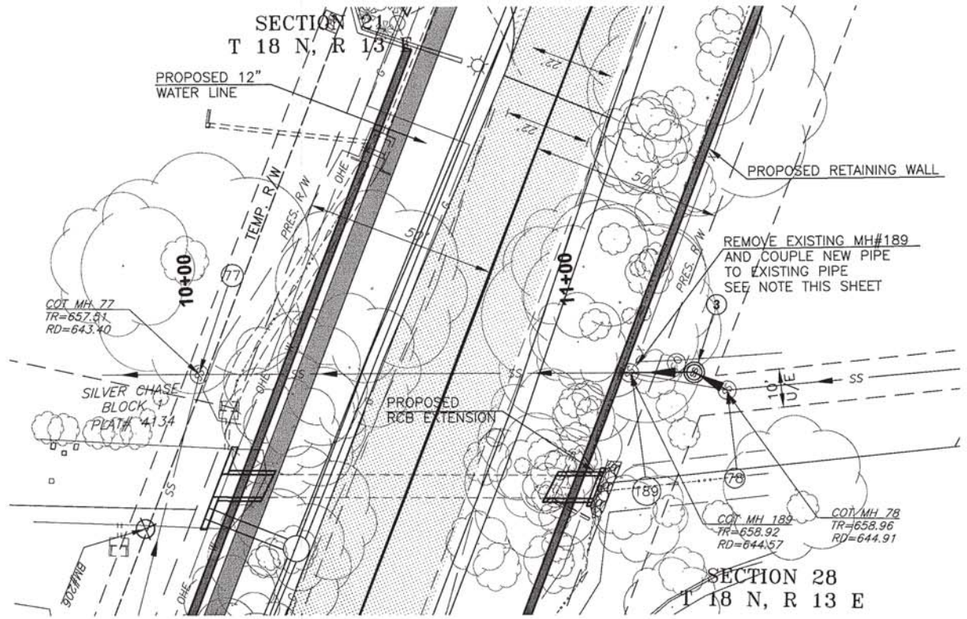
PLOT DATE: April 22, 2015, DRAWING NAME: 63 SANITARY SEWER PLANS.DWG

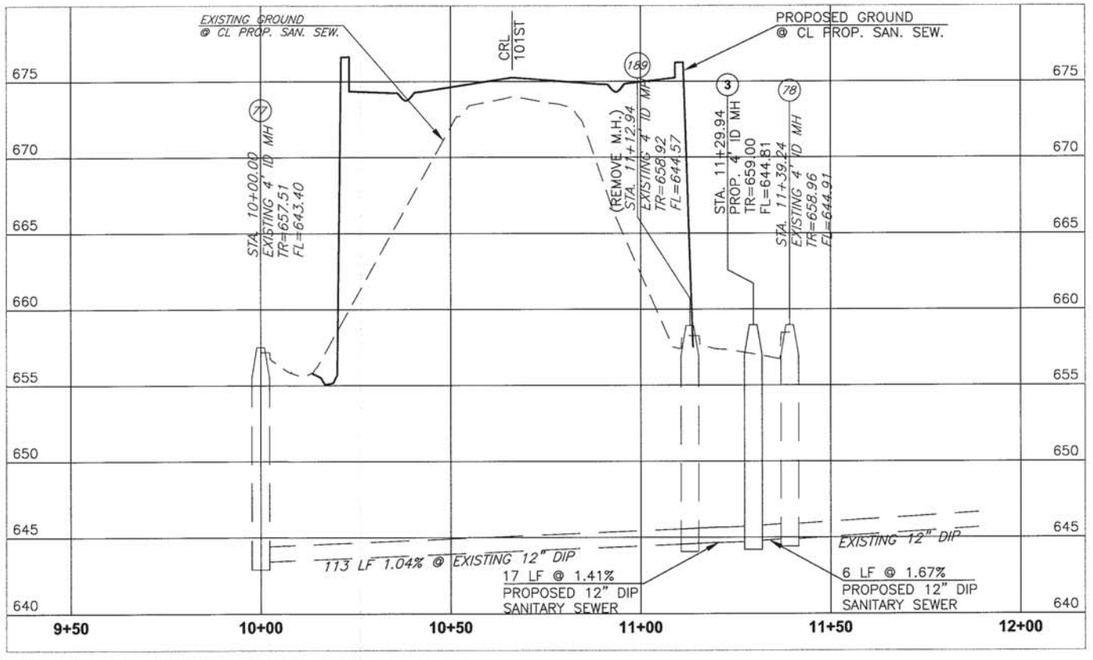
SERVICE CONNECTIONS

NONE THIS SHEET

BENCHMARKS		
NO.	DESCRIPTION	ELEV.
206	514+05.71, 60.60' LT CUT X ON W SIDE OF RET. WALL	653.30

MANHOLE LOCATIONS		
MH#	NORTHING:	EASTING:
77	376891.20	2579104.93
189	376786.68	2579147.71
3	376770.94	2579154.13
78	376761.21	2579153.13





PROPOSED SANITARY SEWER PROFILE

0' 10' 20' 40'

NOTE:
MANHOLE TO BE REMOVED SHALL BE PAID FOR UNDER PAY ITEM COT 404 REMOVAL OF MANHOLE.

REGISTERED PROFESSIONAL ENGINEER JEREMY P. STAPLES 21725 STATE OF OKLAHOMA

BEFORE YOU DIG 811 OKIE 1-800-522-6543 CALL OKIE

MS 630

SANITARY SEWER P&P 2

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
CEC 4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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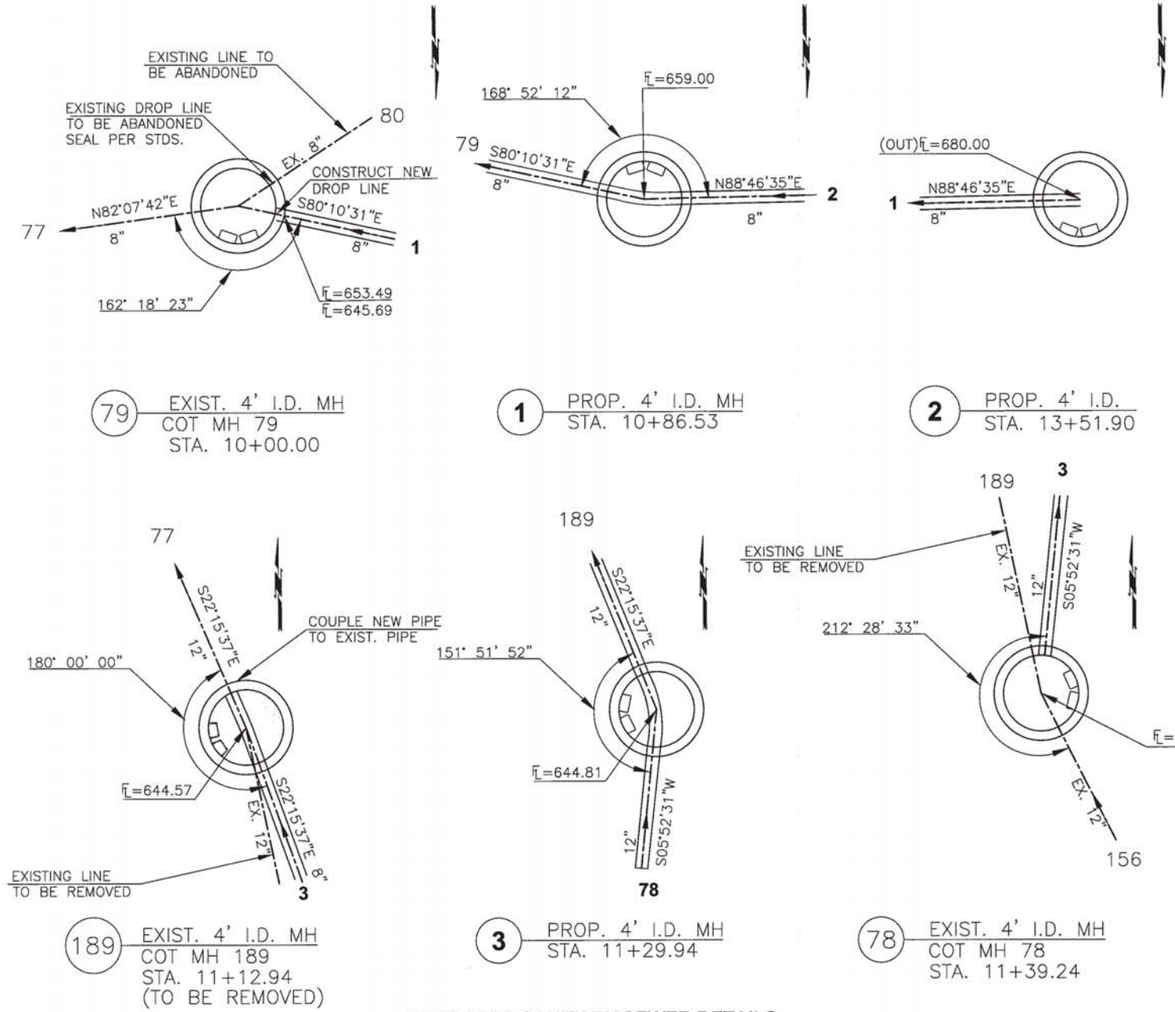
PLAN SCALE: 1" = 20'	DRAWN	R.S.S.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.	BDC	10/16
HORIZONTAL: 1" = 20'	LEAD ENGR.	ADS	3/16
	FIELD MGR.	RSH	3/16
VERTICAL 1" = 5'	RECOMMENDED DESIGN MANAGER	HAS	6/16

APPROVED: CITY ENGINEER

DRAWING: 63 SANITARY SEWER PLANS.DWG — DATE: 11.04.16

ATLAS PAGE NO: 1276, 1277, 1422, 1423 — SHEET 62 OF 181

PLOT DATE: April 22, 2015, DRAWING NAME: 63 SANITARY SEWER PLANS.DWG



79 EXIST. 4' I.D. MH
COT MH 79
STA. 10+00.00

1 PROP. 4' I.D. MH
STA. 10+86.53

2 PROP. 4' I.D.
STA. 13+51.90

189 EXIST. 4' I.D. MH
COT MH 189
STA. 11+12.94
(TO BE REMOVED)

3 PROP. 4' I.D. MH
STA. 11+29.94

78 EXIST. 4' I.D. MH
COT MH 78
STA. 11+39.24

PROPOSED SANITARY SEWER DETAILS

MANHOLE LOCATIONS		
MH#	NORTHING:	EASTING:
79	376881.30	2579033.26
1	376896.86	2578948.00
2	376890.34	2578682.69
189	376786.68	2579147.71
3	376770.94	2579154.13
78	376761.21	2579153.13

NOTES:

1. OPENINGS FOR INLET AND OUTLET PIPES ARE TO BE LOCATED AS REQUIRED PER PLANS WITH A-LOK GASKET OR EQUAL.

2. 12" X 9" MANHOLE STEPS AT APPROXIMATELY 15" O.C. VERTICAL LOAD RESISTANCE = 400 LBS. PULL-OUT LOAD RESISTANCE = 1000 LBS.

3. FOR TOP MANHOLE AND FLOW LINE ELEVATIONS, SEE PLAN AND PROFILE SHEETS.

4. CONTRACTOR WILL BE REQUIRED TO VACUUM TEST ALL MANHOLES ACCORDING TO CITY OF TULSA, PUBLIC WORKS DEPARTMENT STANDARDS AND SPECIFICATIONS.

REGISTERED PROFESSIONAL ENGINEER JEREMY P. STAHLE 21735 OKLAHOMA

BEFORE YOU DIG CALL OKIE 811

MS 630

MANHOLE INVERT DETAILS

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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PLAN SCALE: 1" = 4'	DRAWN	R.S.S.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.	BDC	10/16
HORIZONTAL: N/A	LEAD ENGR.	ADJ	3/16
	FIELD MGR.	RBW	3/16
VERTICAL N/A	RECOMMENDED: DESIGN MANAGER	HAS	6/16

APPROVED:

CITY ENGINEER

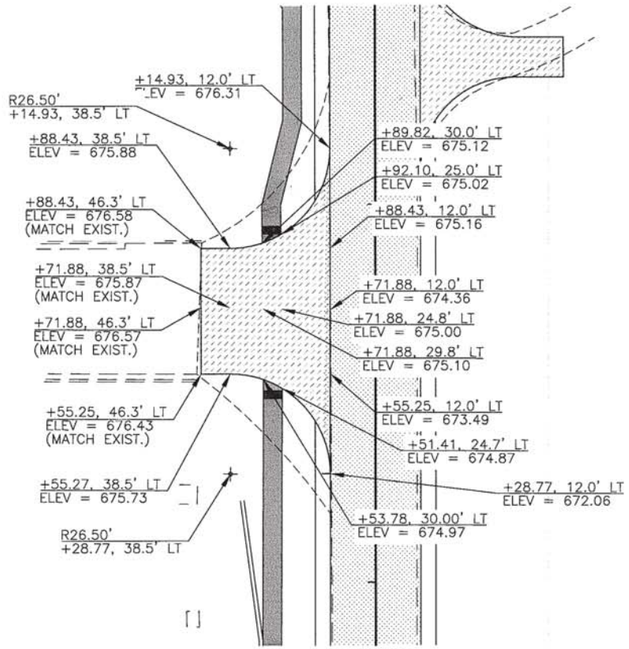
DATE 11.04.16

DRAWING: 63 SANITARY SEWER PLANS.DWG

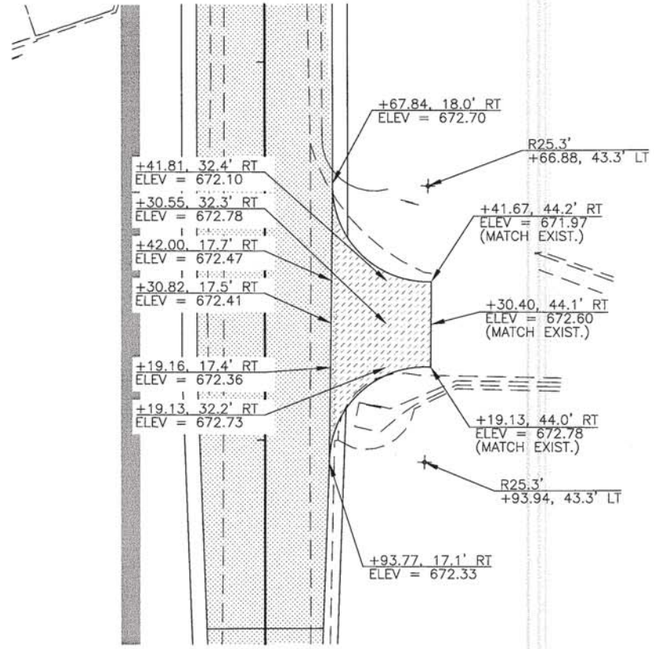
ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 63 OF 181

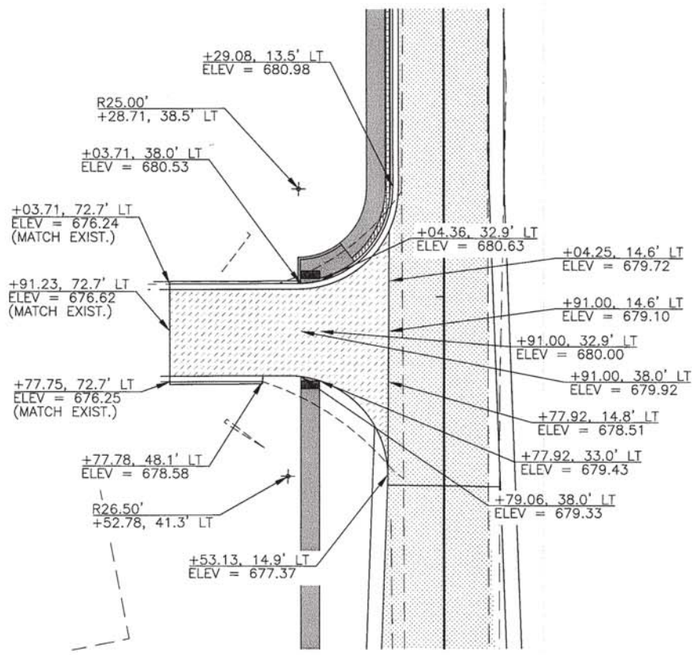
PLOT DATE: April 22, 2015, DRAWING NAME: 63 SANITARY SEWER PLANS.DWG



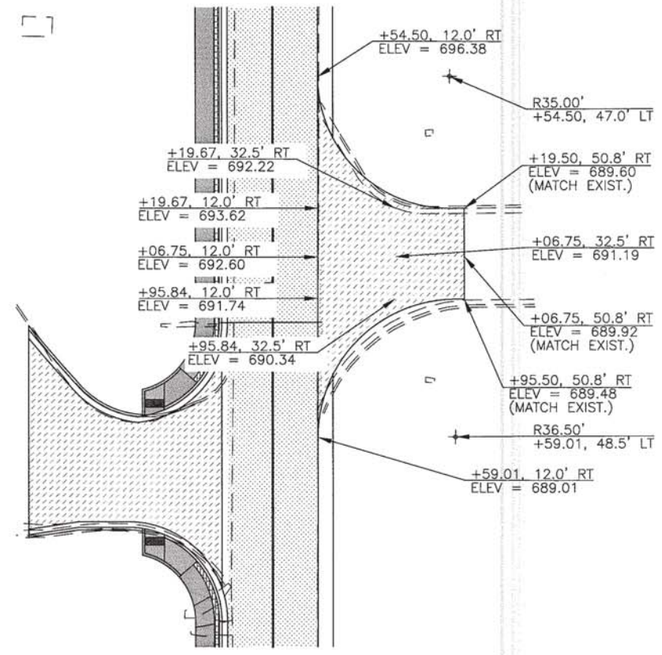
S. JAMESTOWN AVE.



S. LOUISVILLE AVE.



S. LOUISVILLE AVE.



S. MARION AVE.

NOTE: EACH RADIUS IS DIMENSIONED FROM THE THE FACE OF CURB

0 10' 20' 40'

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PLAN SCALE: 1" = 20'

PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A

DRAWN	A.L.B.	06/2013
DESIGNED	J.P.S.	06/2013
SURVEY	D.M.S.	08/2012
PROJ. MGR.		8/15
LEAD ENGR.		1/16
FIELD MGR.		3/16
RECOMMENDED:		6/16
DESIGN MANAGER		

APPROVED:

CITY ENGINEER

DATE 11.04.16

DRAWING: 64 – INTERSECTION DETAILS 1

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 64 OF 181

INTERSECTION DETAILS 1

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

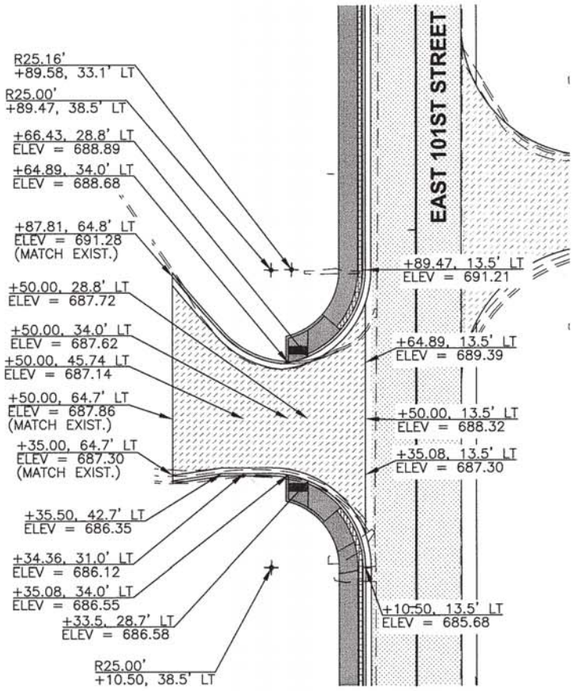
CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. SMITH
STATE OF OKLAHOMA
21735

BEFORE YOU DIG
811
CALL OKIE

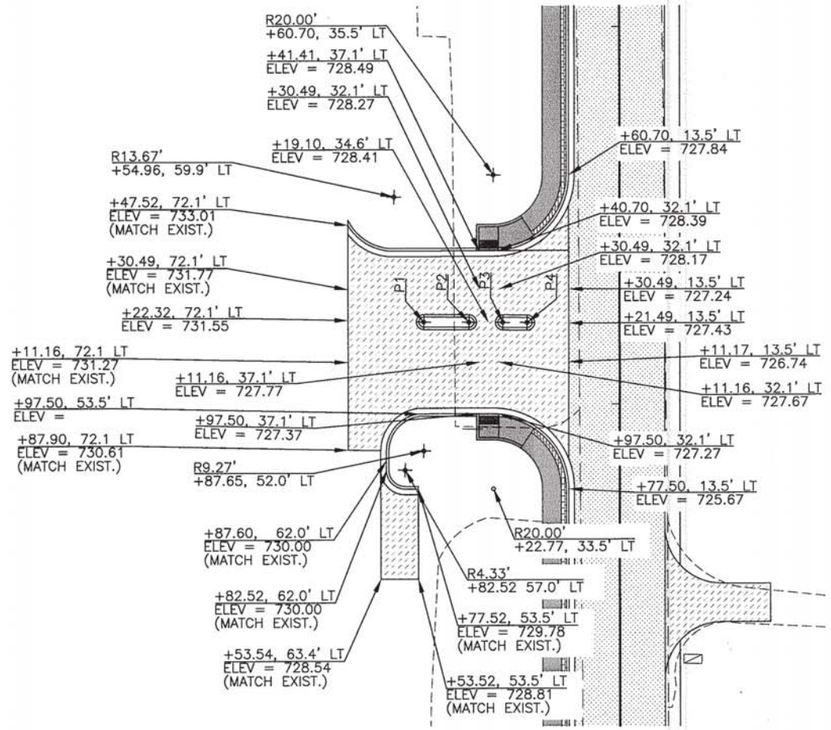
PLOT DATE: 4/22/2015, DRAWING FILE: N:\TULSA\PROJECTS\TPWD - 101ST - HARVARD TO YALE\PROJECT DRAWINGS\65 INTERSECTION DETAILS 2.DWG

DRIVE NO. 5



NOTE: WEST CURB SHALL BE 8" BARRIER THROUGH THE DRAINAGE STRUCTURE 19 AND THEN TRANSITION TO EXISTING CURB HEIGHT.

DRIVE NO. 10A, 10 AND 11



NOTE: EACH RADIUS IS DIMENSIONED FROM THE THE FACE OF CURB.

MEDIAN RADIUS COORDINATES

NO.	RADIUS (FT)	STA.	OFFSET (FT)	SIDE
P1	2	523+21.86	51.96	LT
P2	2	523+21.76	39.96	LT
P3	2	523+21.68	30.96	LT
P4	2	523+21.63	24.53	LT

0 10' 20' 40'

INTERSECTION DETAILS 2

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
CEC 4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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PLAN SCALE: 1" = 20'
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A

DRAWN	A.L.B.	06/2013
DESIGNED	J.P.S.	06/2013
SURVEY	D.M.S.	08/2012
PROJ. MGR.	BDC	8/15
LEAD ENGR.	JPS	1/16
FIELD MGR.	TSH	3/16
RECOMMENDED DESIGN MANAGER	HAS	6/16

APPROVED: CITY ENGINEER

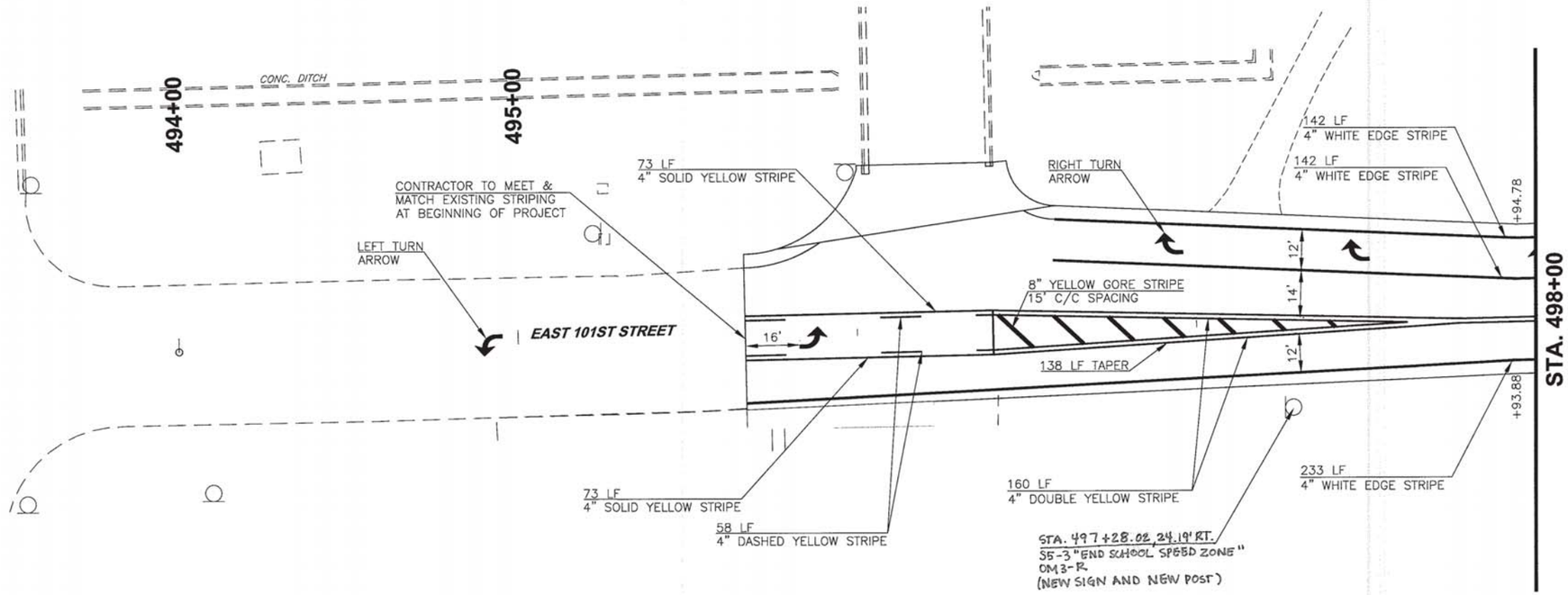
DRAWING: 65 – INTERSECTION DETAILS 2

DATE 11.04.16

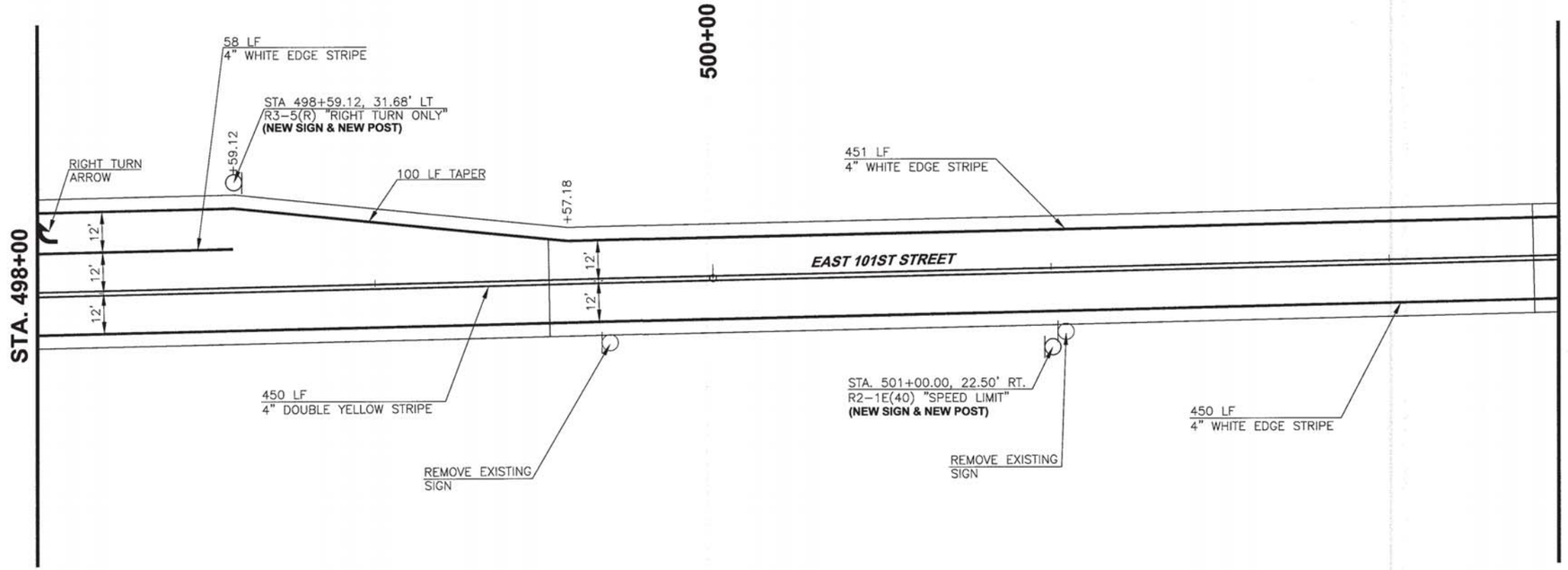
ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 65 OF 181

PLOT DATE: 4/22/2015, DRAWING FILE: N:\TULSA\PROJECTS\TPWD – 101ST – HARVARD TO YALE\PROJECT DRAWINGS\65 INTERSECTION DETAILS 2.DWG



0' 10' 20' 40'



REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHL
21125
OKLAHOMA

SIGNING & STRIPING 493+50

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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PLAN SCALE: 1" = 20'	DRAWN	J.R.C.	07/2014
	DESIGNED	J.P.S.	07/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.	BSC	8/15
HORIZONTAL: N/A	LEAD ENGR.	LMS	9/15
	FIELD MGR.	TCB	3/16
VERTICAL N/A	RECOMMENDED:	MAS	6/16
	DESIGN MANAGER		

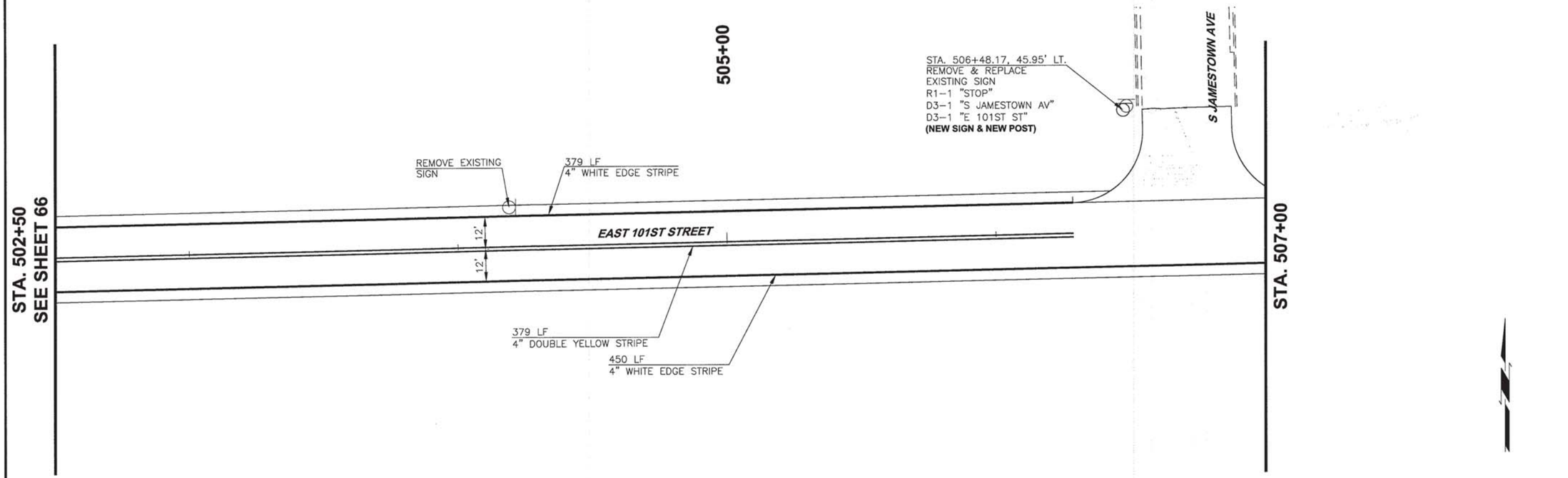
APPROVED:

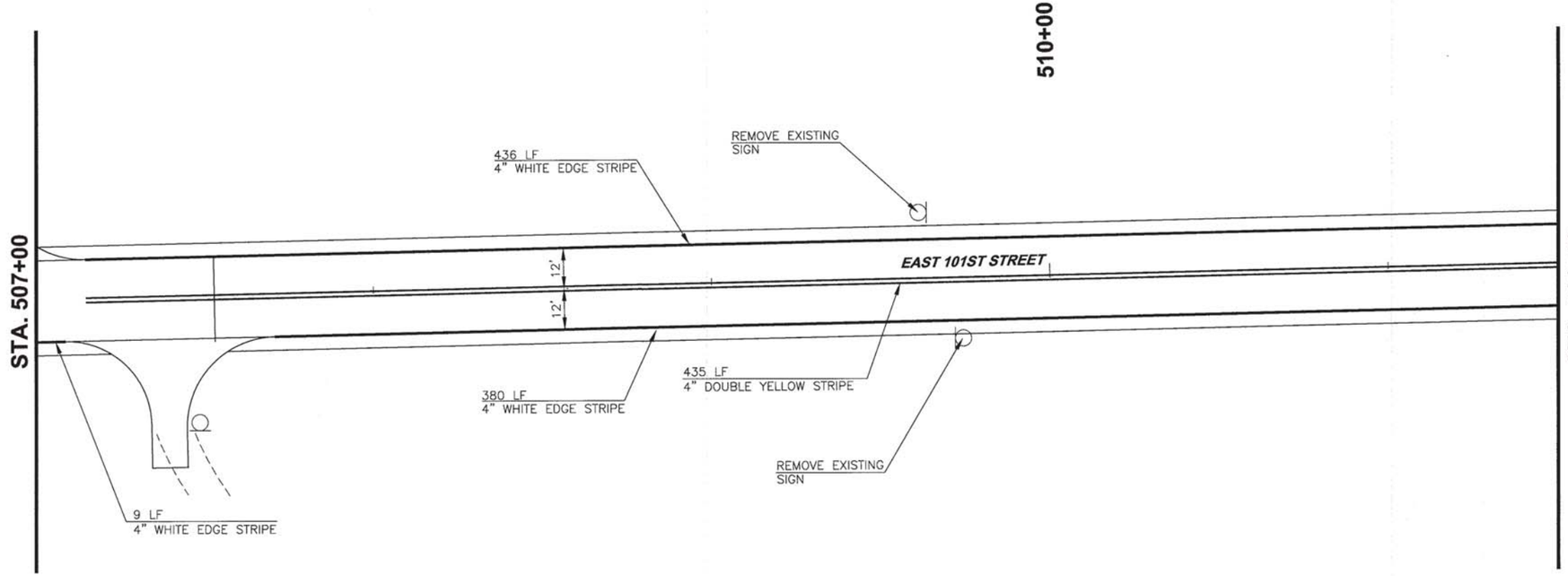
CITY ENGINEER

DRAWING: 72 SIGNING & STRIPING 547+50.DWG — DATE 11.04.16

ATLAS PAGE NO: 1276, 1277, 1422, 1423 — SHEET 66 OF 181

PLOT DATE: April 22, 2015, DRAWING NAME: 72 SIGNING & STRIPING 547+50.DWG





REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
OKLAHOMA

SIGNING & STRIPING 502+50

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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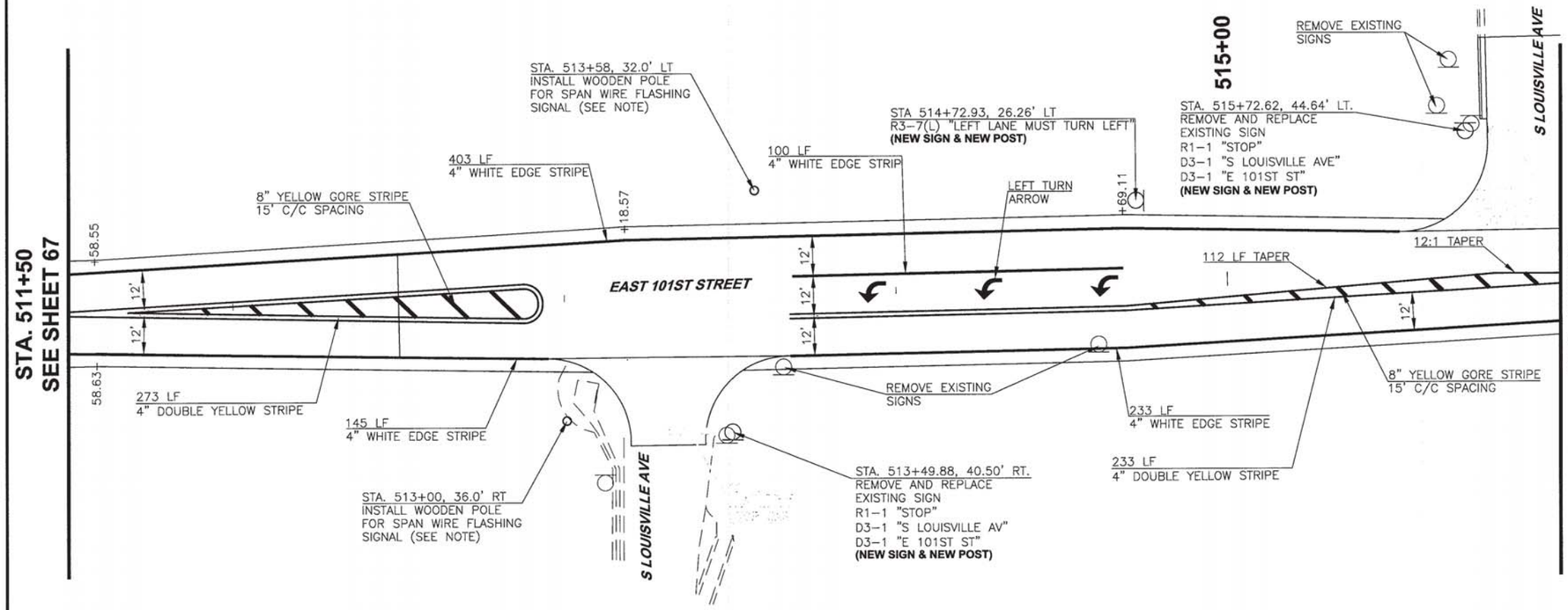
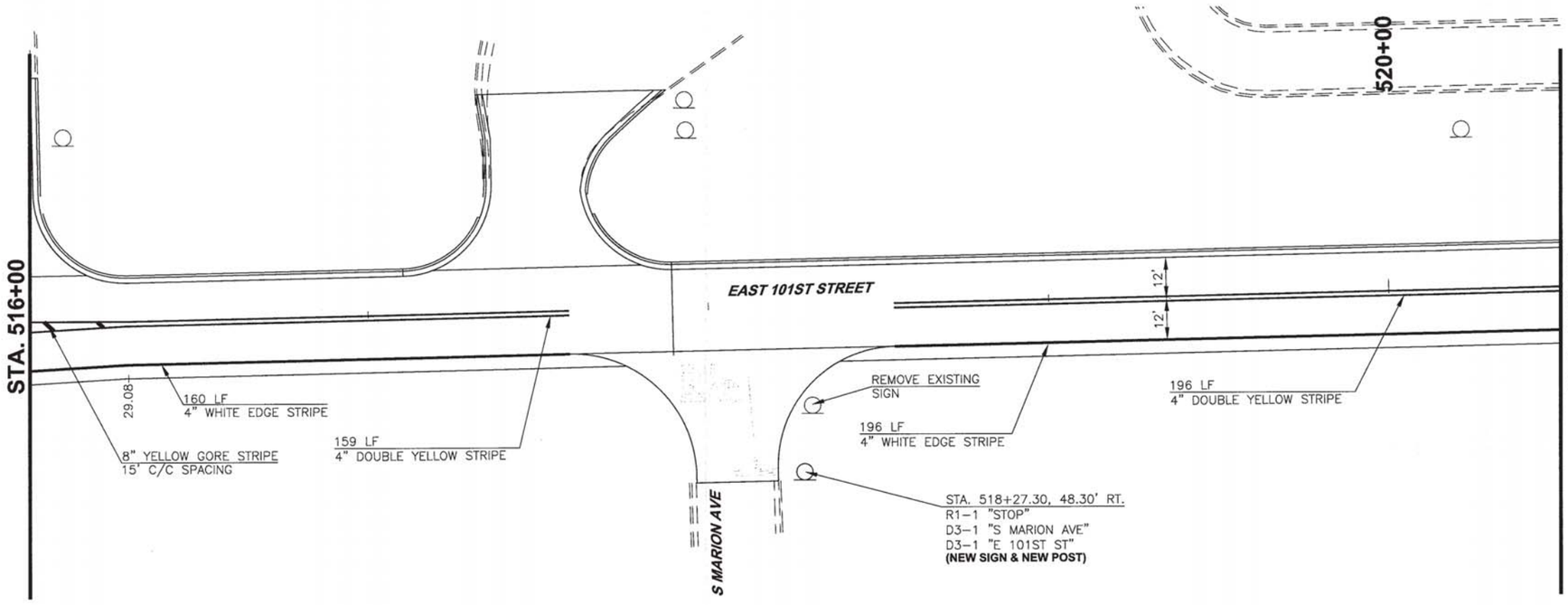
PLAN SCALE: 1" = 20'	DRAWN	J.R.C.	07/2014	APPROVED:
	DESIGNED	J.P.S.	07/2014	
	SURVEY	A.K.H.	08/2012	
PROFILE SCALES:	PROJ. MGR.	BDC	8/15	
HORIZONTAL: N/A	LEAD ENGR.	LWS	9/15	
	FIELD MGR.	BSV	3/16	
VERTICAL N/A	RECOMMENDED	HAS	6/16	
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 72 SIGNING & STRIPING 547+50.DWG				DATE 11.04.16
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 67 OF 181

PLOT DATE: April 22, 2015, DRAWING NAME: 72 SIGNING & STRIPING 547+50.DWG



NOTE: SPAN WIRE FLASHING SIGNAL SHALL BE INSTALLED PER ODOT STD. SWD2-1-0. POLES SHALL BE INSTALLED AS SHOWN IN THE PLANS. CONTROLLER SHALL BE MOUNTED ON THE SOUTHWEST POLE. POWER SHALL BE PROVIDED TO THE METER BY OTHERS. A RED FLASHING LIGHT SHALL BE VISIBLE FOR S. LOUISVILLE AVE. TRAFFIC AND YELLOW FLASHING LIGHTS SHALL BE VISIBLE FOR EAST AND WEST BOUND TRAFFIC ON E. 101ST ST.

0' 10' 20' 40'



REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
OKLAHOMA

SIGNING & STRIPING 511+50

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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PLAN SCALE: 1" = 20'
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A

DRAWN	J.R.C.	07/2014
DESIGNED	J.P.S.	07/2014
SURVEY	A.K.H.	08/2012
PROJ. MGR.	BMC	8/15
LEAD ENGR.	JPS	9/15
FIELD MGR.	RBH	3/16
RECOMMENDED	JPS	6/16
DESIGN MANAGER		

APPROVED:

CITY ENGINEER

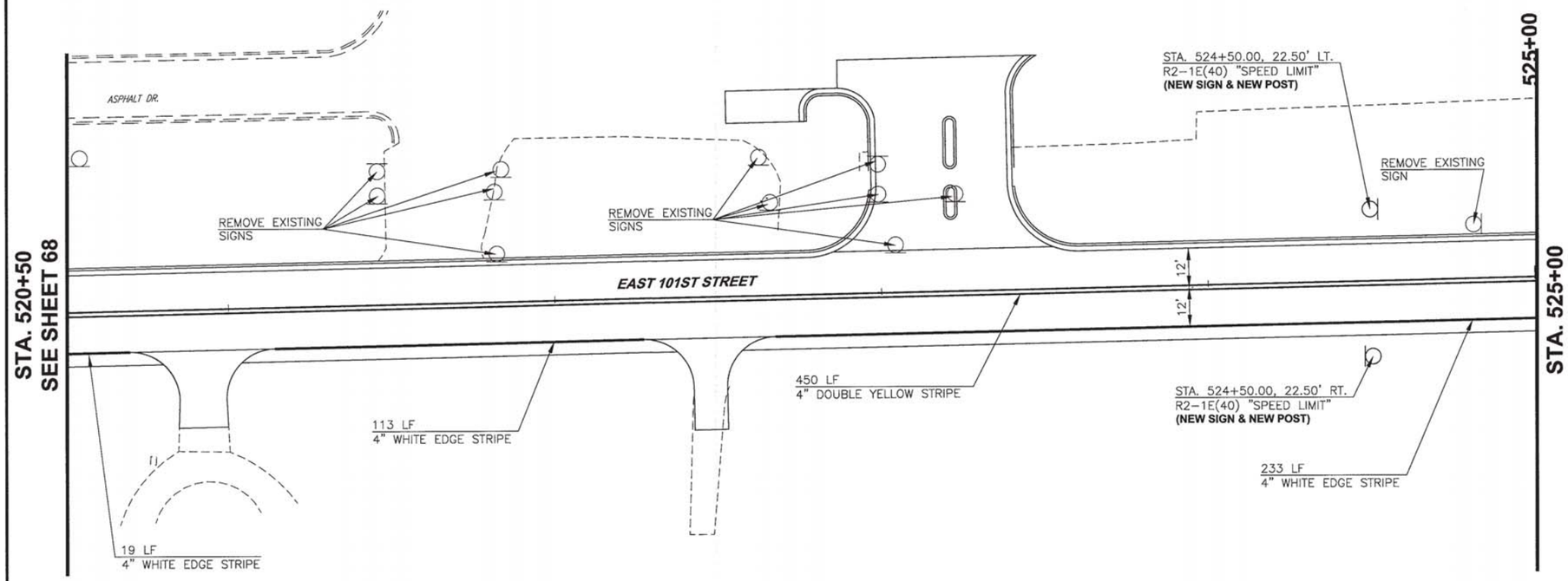
DRAWING: 72 SIGNING & STRIPING 547+50.DWG

DATE 11.04.16

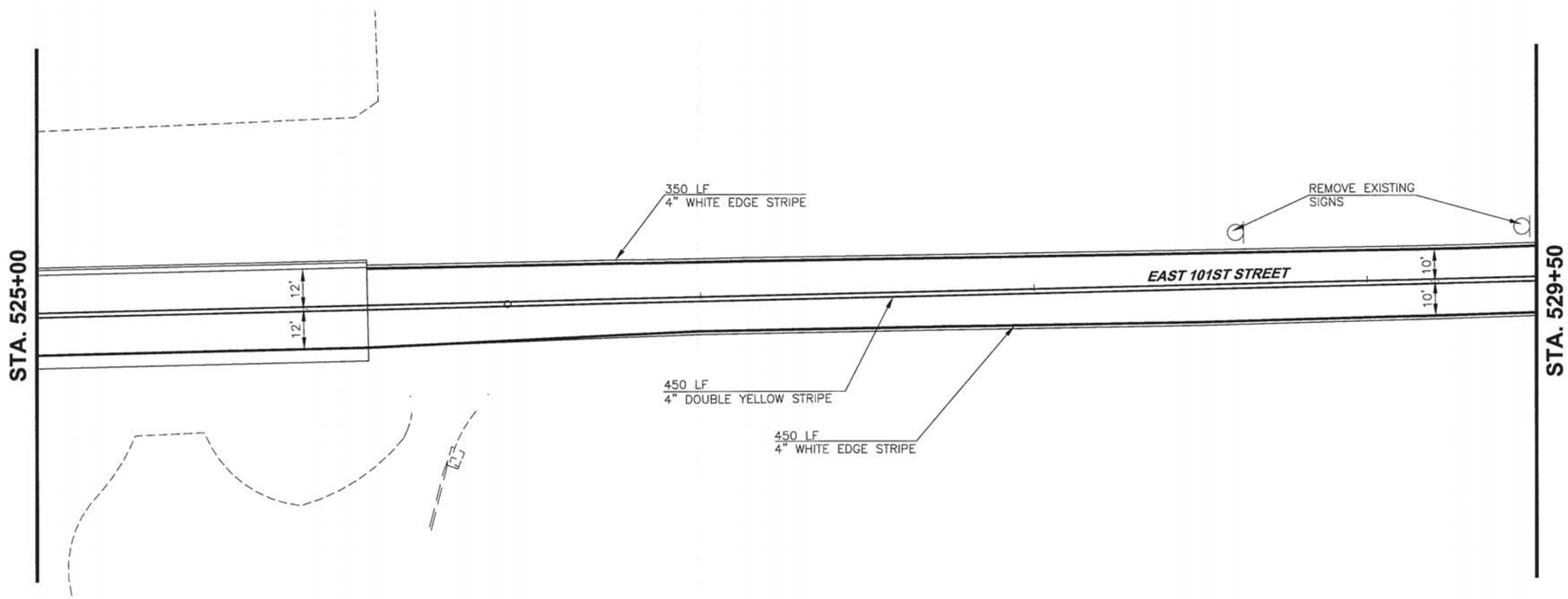
ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 68 OF 181

PLOT DATE: April 22, 2015, DRAWING NAME: 72 SIGNING & STRIPING 547+50.DWG



0' 10' 20' 40'



REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STABLE
21725
OKLAHOMA

SIGNING & STRIPING 520+50

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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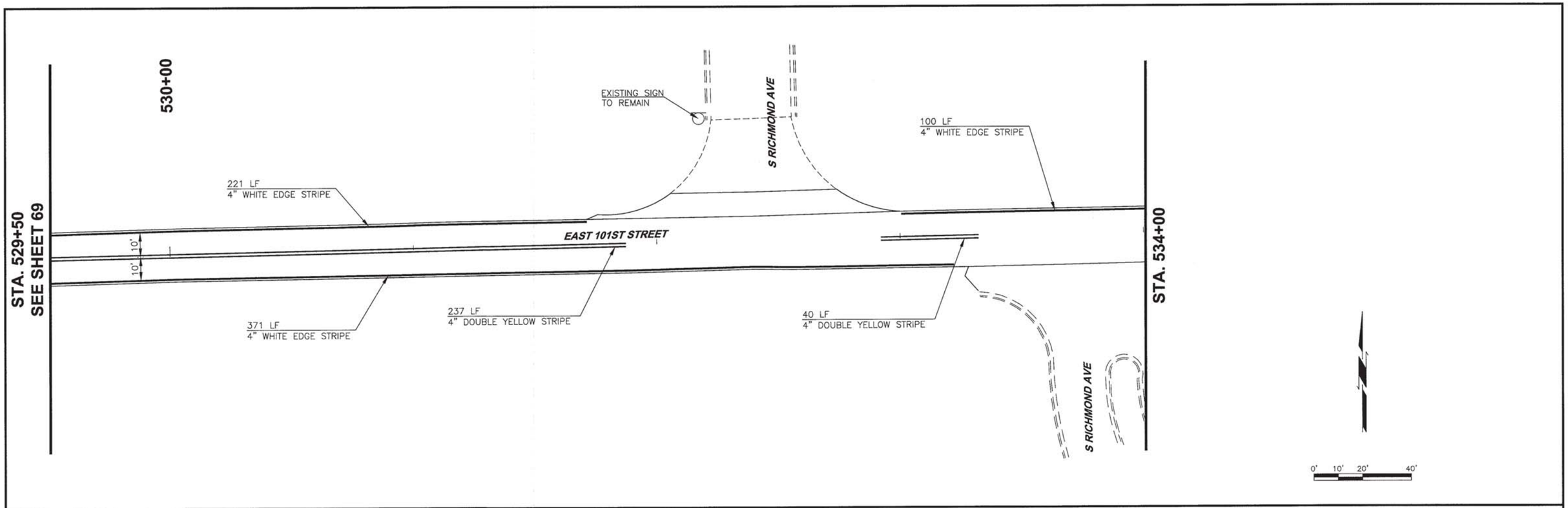
PLAN SCALE: 1" = 20'
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A

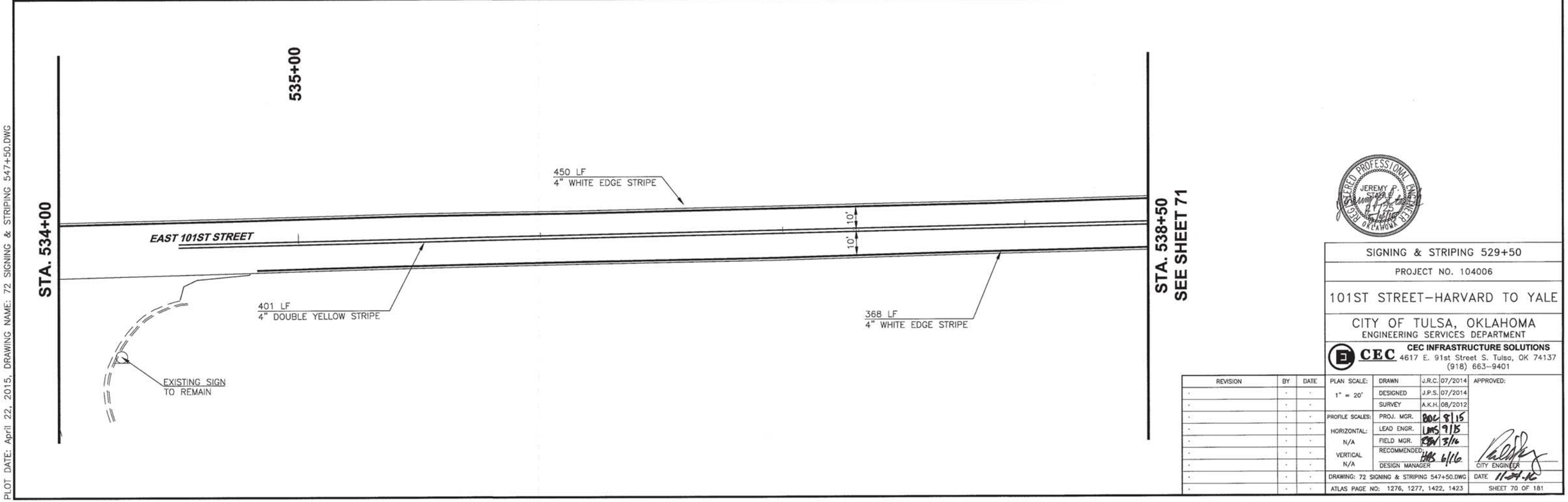
DRAWN	J.R.C.	07/2014
DESIGNED	J.P.S.	07/2014
SURVEY	A.K.H.	08/2012
PROJ. MGR.	BDC	8/15
LEAD ENGR.	LMS	9/15
FIELD MGR.	ZDW	3/16
RECOMMENDED DESIGN MANAGER	HAS	6/16

APPROVED: CITY ENGINEER

DRAWING: 72 SIGNING & STRIPING 547+50.DWG
DATE 11-24-16
ATLAS PAGE NO: 1276, 1277, 1422, 1423
SHEET 69 OF 181

PLOT DATE: April 22, 2015, DRAWING NAME: 72 SIGNING & STRIPING 547+50.DWG





REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

SIGNING & STRIPING 529+50

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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PLAN SCALE: 1" = 20'	DRAWN	J.R.C.	07/2014
	DESIGNED	J.P.S.	07/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.	BOC	8/15
HORIZONTAL: N/A	LEAD ENGR.	LMS	9/15
	FIELD MGR.	RBW	3/16
VERTICAL N/A	RECOMMENDED: DESIGN MANAGER	HAS	6/16

APPROVED:

CITY ENGINEER

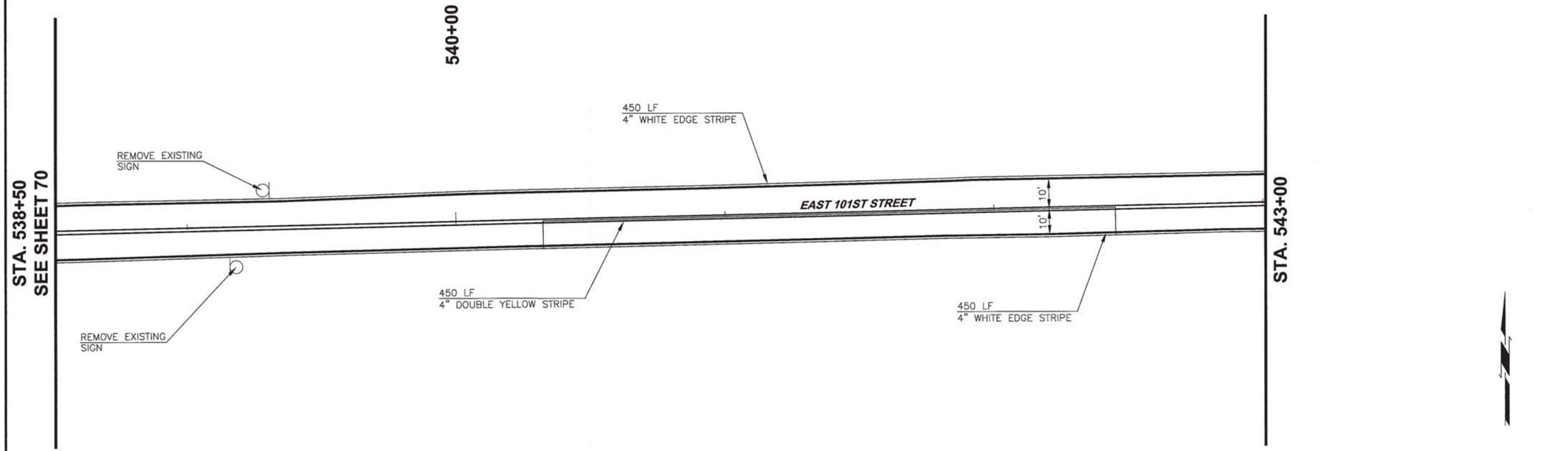
DATE 11-24-16

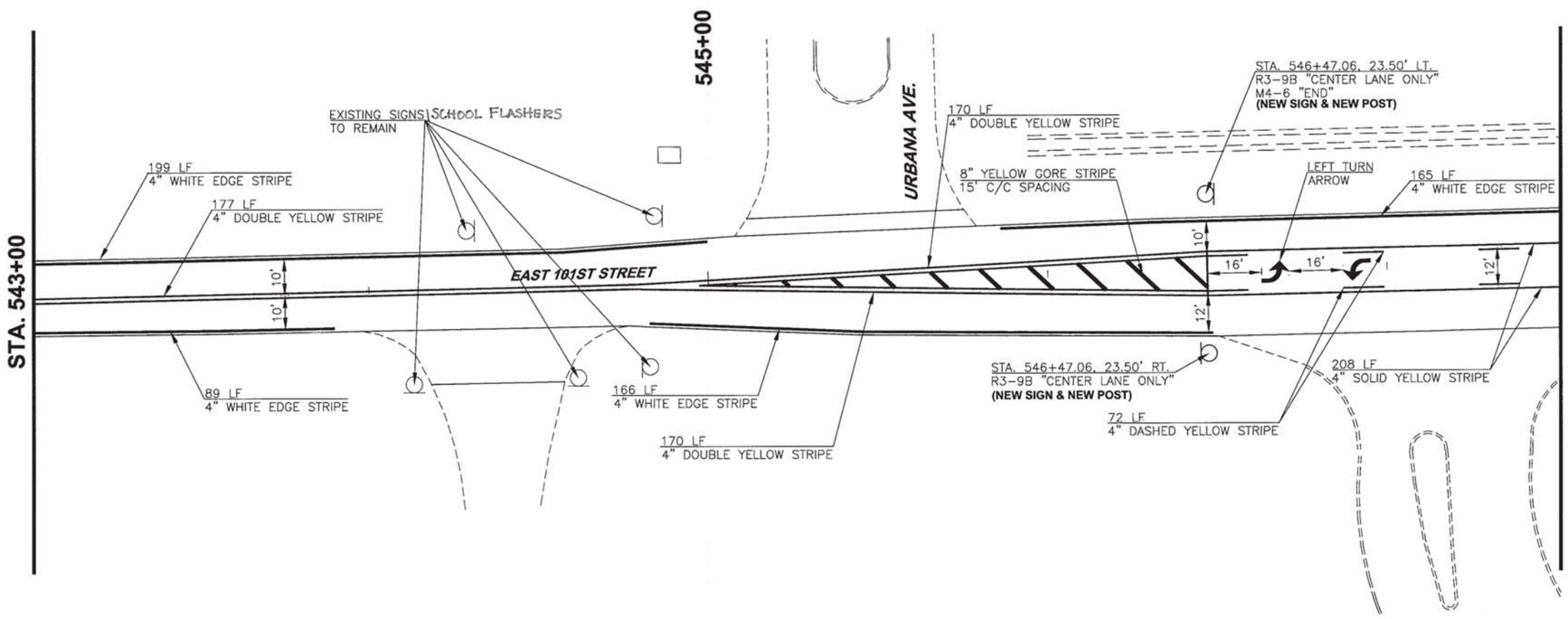
DRAWING: 72 SIGNING & STRIPING 547+50.DWG

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 70 OF 181

PLOT DATE: April 22, 2015, DRAWING NAME: 72 SIGNING & STRIPING 547+50.DWG





REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
14735
OKLAHOMA

SIGNING & STRIPING 538+50

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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PLAN SCALE: 1" = 20'	DRAWN	J.R.C.	07/2014
	DESIGNED	J.P.S.	07/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.	BGC	8/15
HORIZONTAL: N/A	LEAD ENGR.	JPS	9/15
	FIELD MGR.	RBV	7/16
VERTICAL: N/A	RECOMMENDED	JPS	6/16
	DESIGN MANAGER		

APPROVED:

CITY ENGINEER

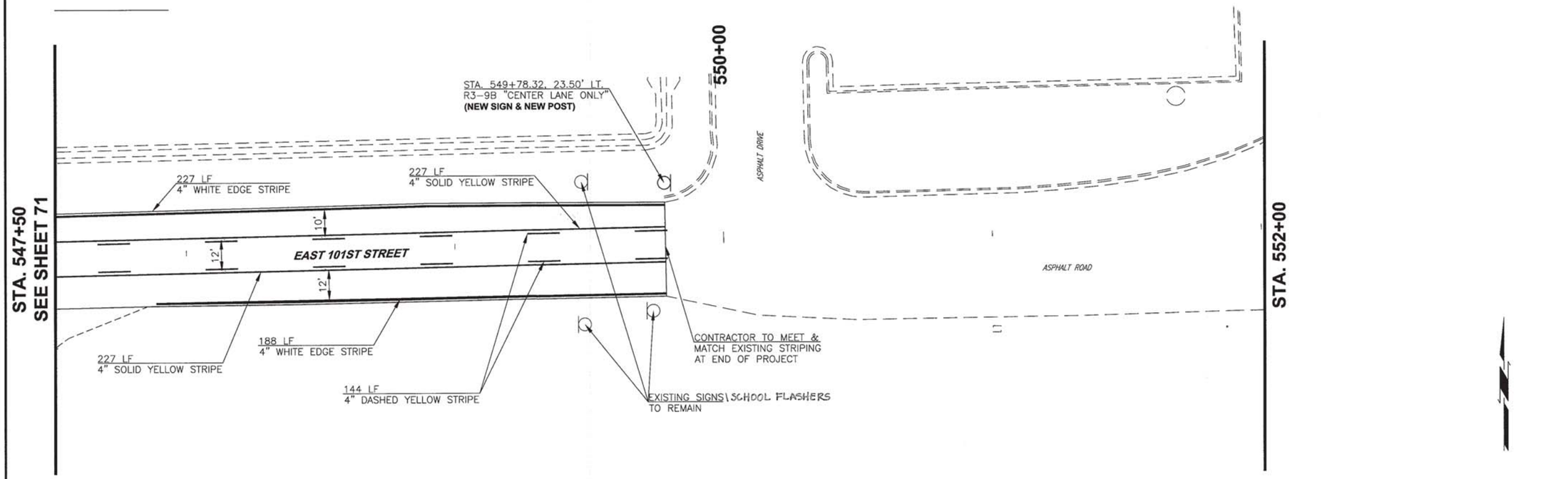
DRAWING: 72 SIGNING & STRIPING 547+50.DWG

DATE

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 71 OF 181

PLOT DATE: April 22, 2015, DRAWING NAME: 72 SIGNING & STRIPING 547+50.DWG



PLOT DATE: April 22, 2015, DRAWING NAME: 72 SIGNING & STRIPING 547+50.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAPLE
OKLAHOMA

SIGNING & STRIPING 547+50

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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PLAN SCALE: 1" = 20'
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A

DRAWN	J.R.C.	07/2014
DESIGNED	J.P.S.	07/2014
SURVEY	A.K.H.	08/2012
PROJ. MGR.	BDC	8/15
LEAD ENGR.	UMS	9/15
FIELD MGR.	FBV	3/16
RECOMMENDED DESIGN MANAGER	UMS	6/16

APPROVED:

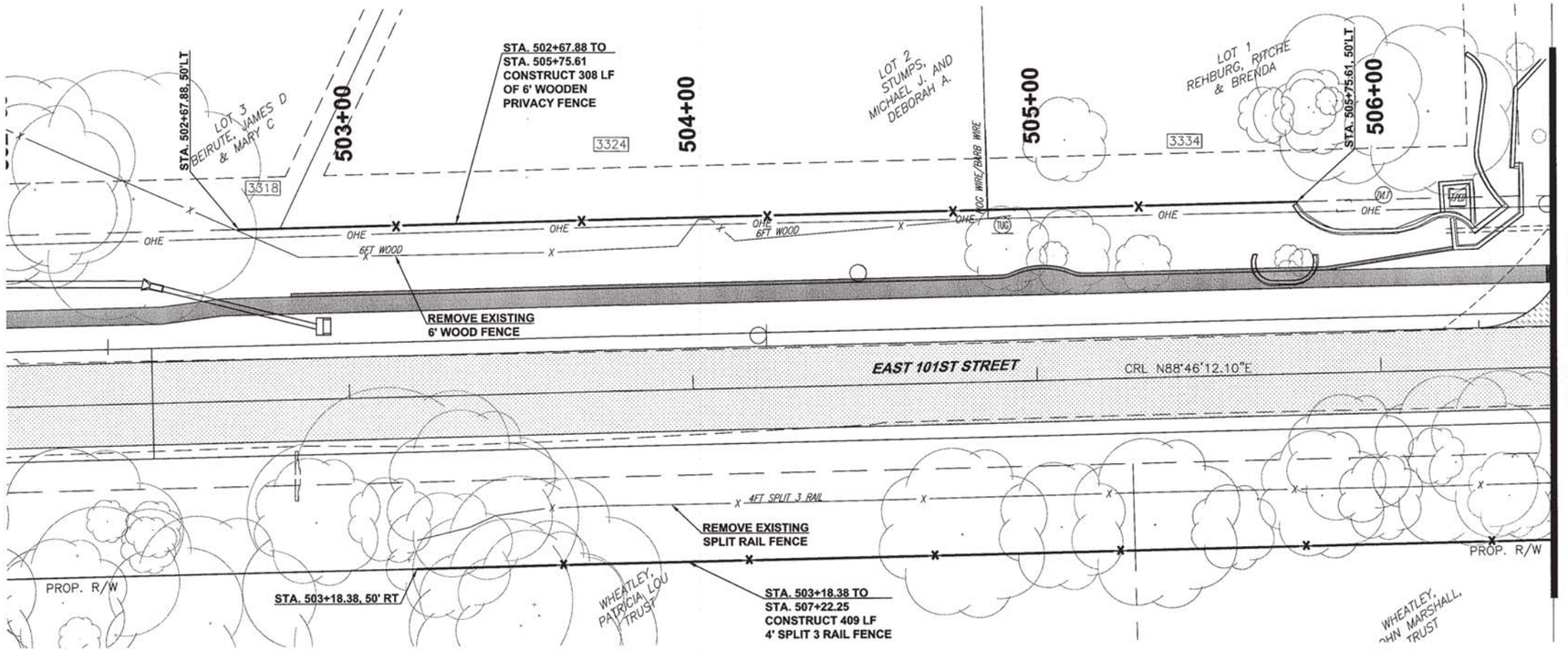
CITY ENGINEER

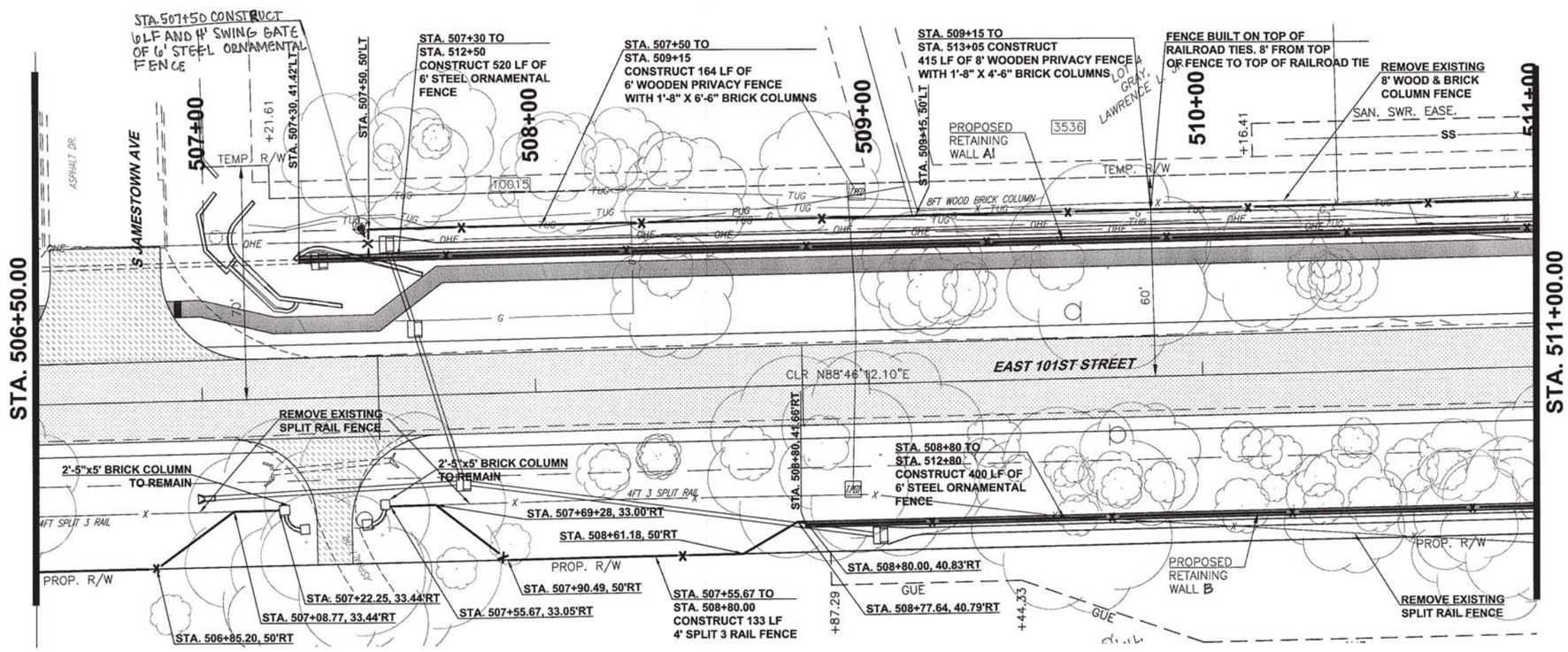
DATE 11.04.16

DRAWING: 72 SIGNING & STRIPING 547+50.DWG

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 72 OF 181





REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

FENCING PLAN – 502+00

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
CEC 4617 E. 91st Street S. Tulsa, OK 74137
(918) 663–9401

REVISION	BY	DATE
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PLAN SCALE: 1" = 20'	DRAWN	J.R.C.	07/2014
	DESIGNED	J.P.S.	07/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.	JPS	6/16
HORIZONTAL: N/A	LEAD ENGR.	JPS	6/16
	FIELD MGR.	RM	3/16
VERTICAL N/A	RECOMMENDED: DESIGN MANAGER	HAS	6/16
DRAWING: 73 – FENCING PLAN – 502+00			
ATLAS PAGE NO: 1276, 1277, 1422, 1423			

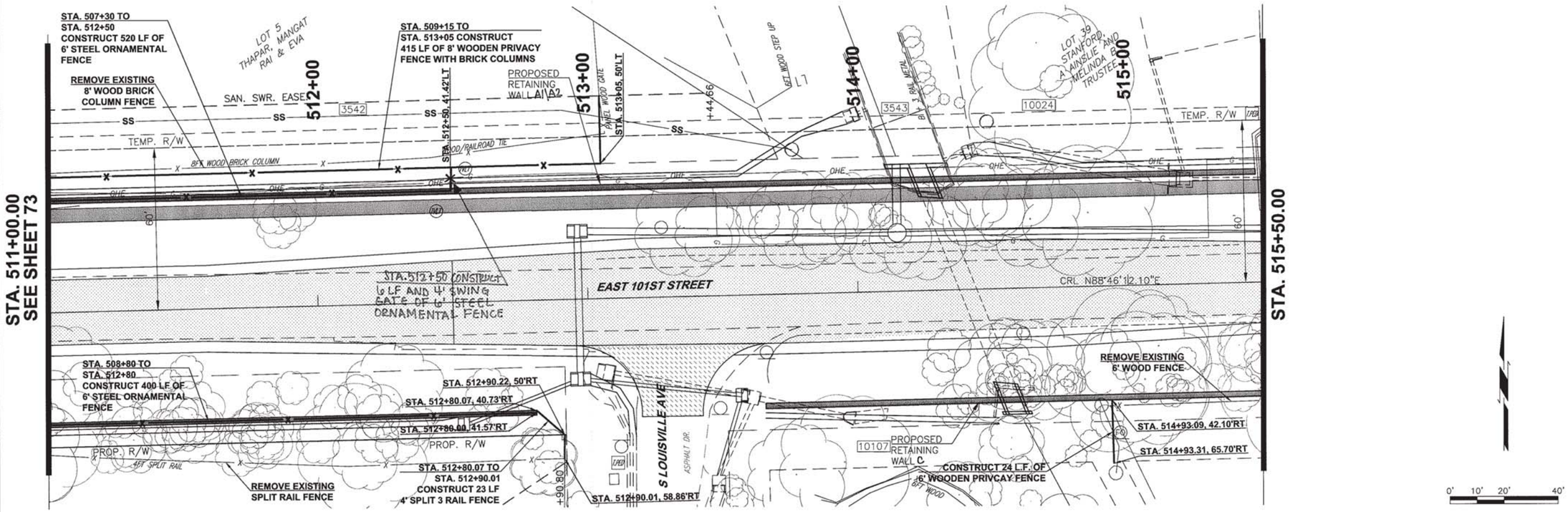
APPROVED:

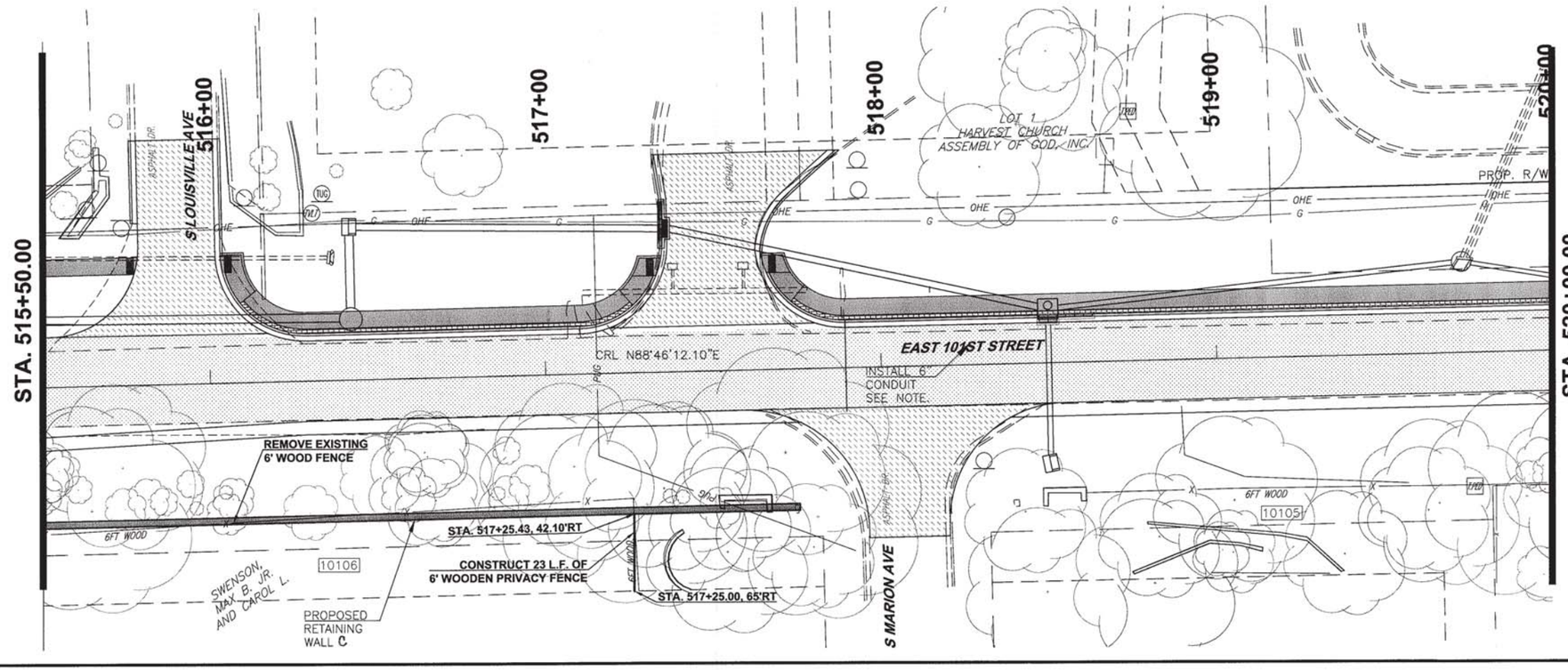
CITY ENGINEER

DATE 11.04.16

SHEET 73 OF 181

PLOT DATE: May 4, 2015, DRAWING NAME: 77 FENCING PLAN – 538+50.DWG





REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

FENCING PLAN – 511+00

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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PLAN SCALE: 1" = 20'	DRAWN	J.R.C.	07/2014
	DESIGNED	J.P.S.	07/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.	BDC	8/15
HORIZONTAL: N/A	LEAD ENGR.	JPS	11/6
	FIELD MGR.	ZDH	3/16
VERTICAL N/A	RECOMMENDED	HAS	6/16
	DESIGN MANAGER		
DRAWING: 77 FENCING PLAN – 538+50.DWG			
ATLAS PAGE NO: 1276, 1277, 1422, 1423			

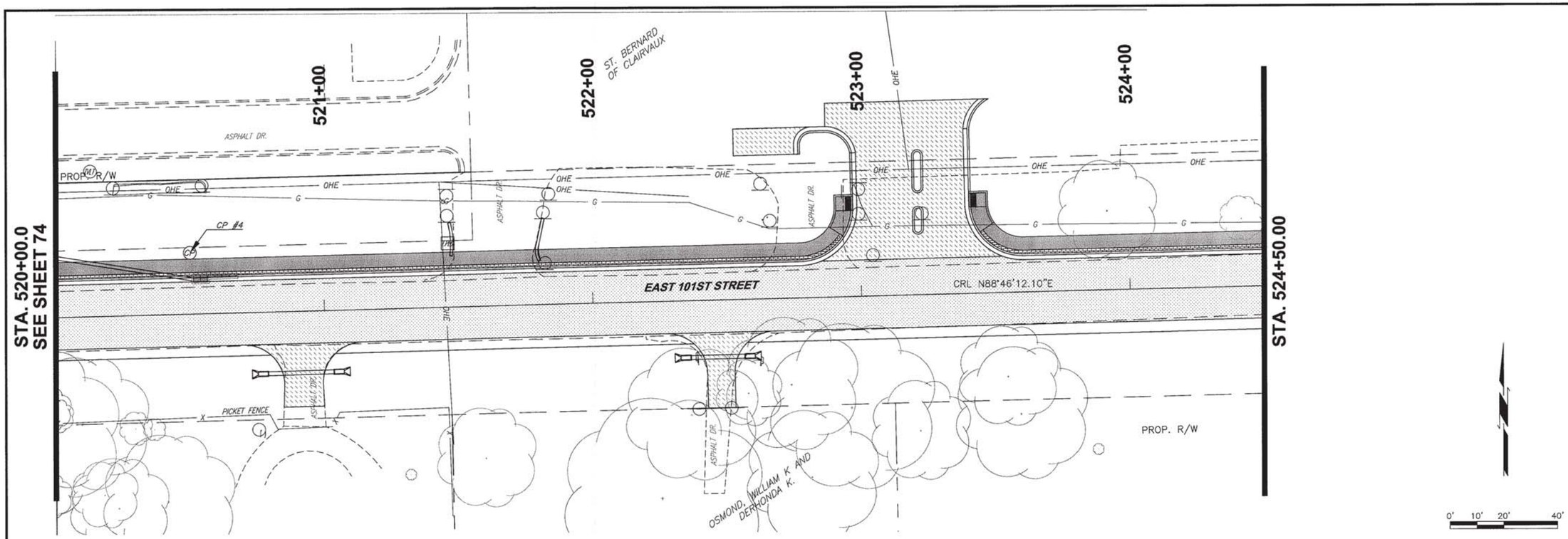
APPROVED:

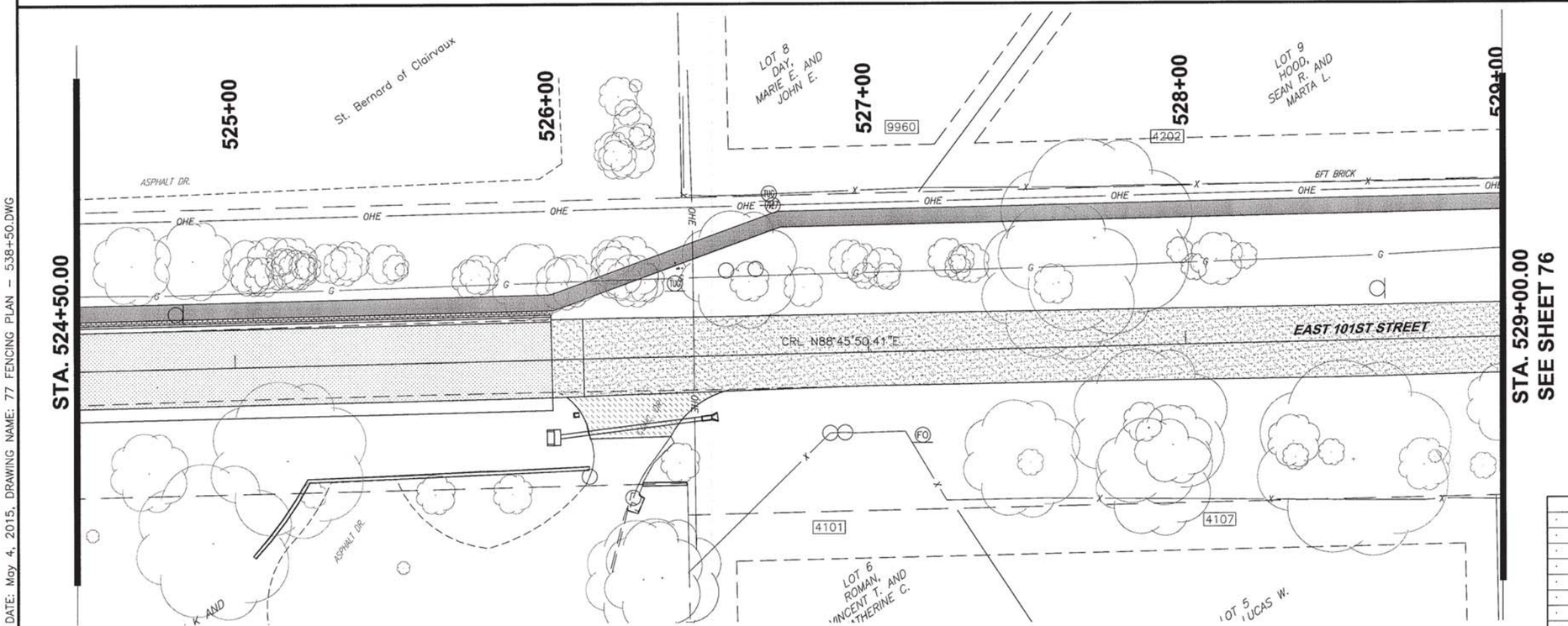
CITY ENGINEER

DATE 11.04.16

SHEET 74 OF 181

PLOT DATE: May 4, 2015, DRAWING NAME: 77 FENCING PLAN – 538+50.DWG





JEREMY P. STAHLE 21725 REGISTERED PROFESSIONAL ENGINEER OKLAHOMA

FENCING PLAN – 520+00

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
CEC 4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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PLAN SCALE:	DRAWN	J.R.C.	07/2014
1" = 20'	DESIGNED	J.P.S.	07/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.	BCV	8/15
HORIZONTAL:	LEAD ENGR.	JPS	11/16
N/A	FIELD MGR.	PDH	3/16
VERTICAL	RECOMMENDED	HMS	6/16
N/A	DESIGN MANAGER		

APPROVED:

CITY ENGINEER

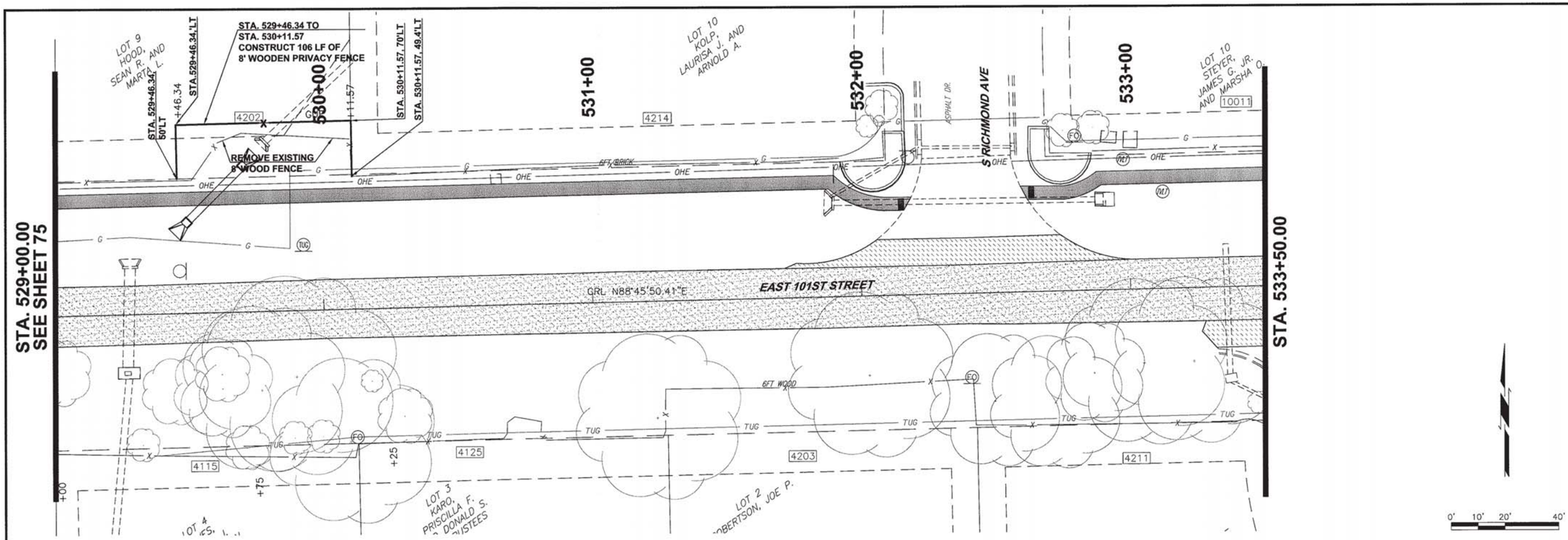
DRAWING: 77 FENCING PLAN – 538+50.DWG

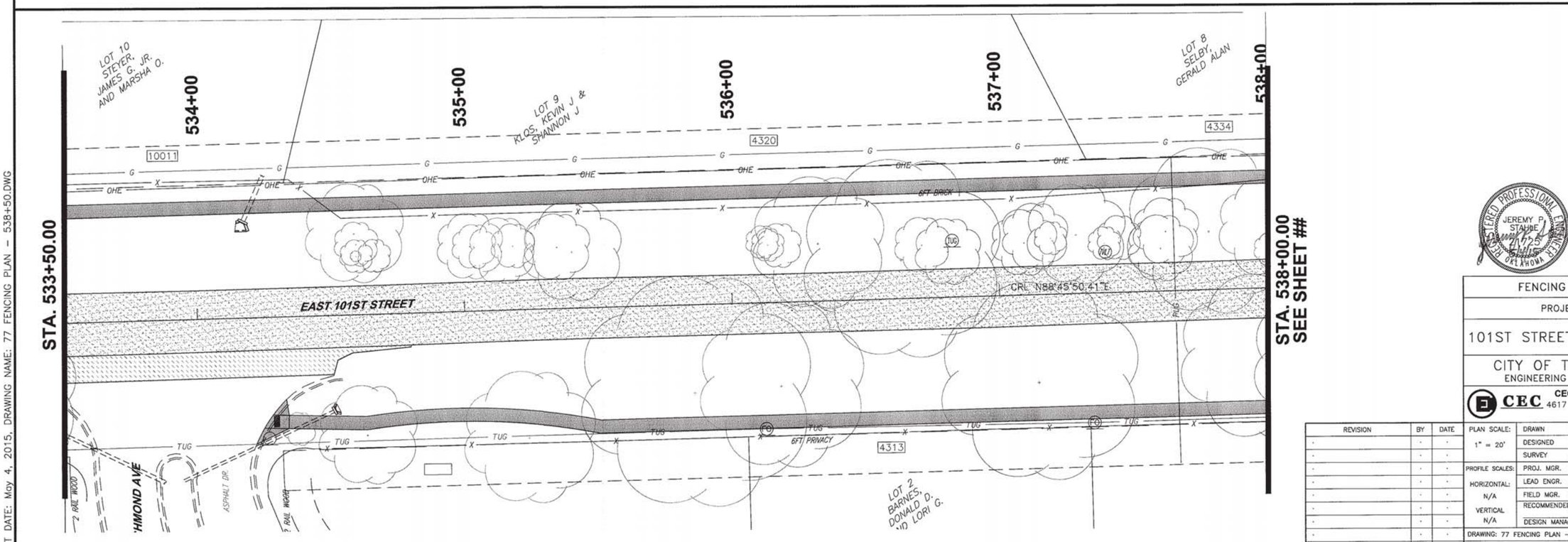
DATE 11.04.16

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 75 OF 181

PLOT DATE: May 4, 2015, DRAWING NAME: 77 FENCING PLAN – 538+50.DWG





0' 10' 20' 40'

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAUBE
21725
OKLAHOMA

FENCING PLAN – 533+50

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
CEC 4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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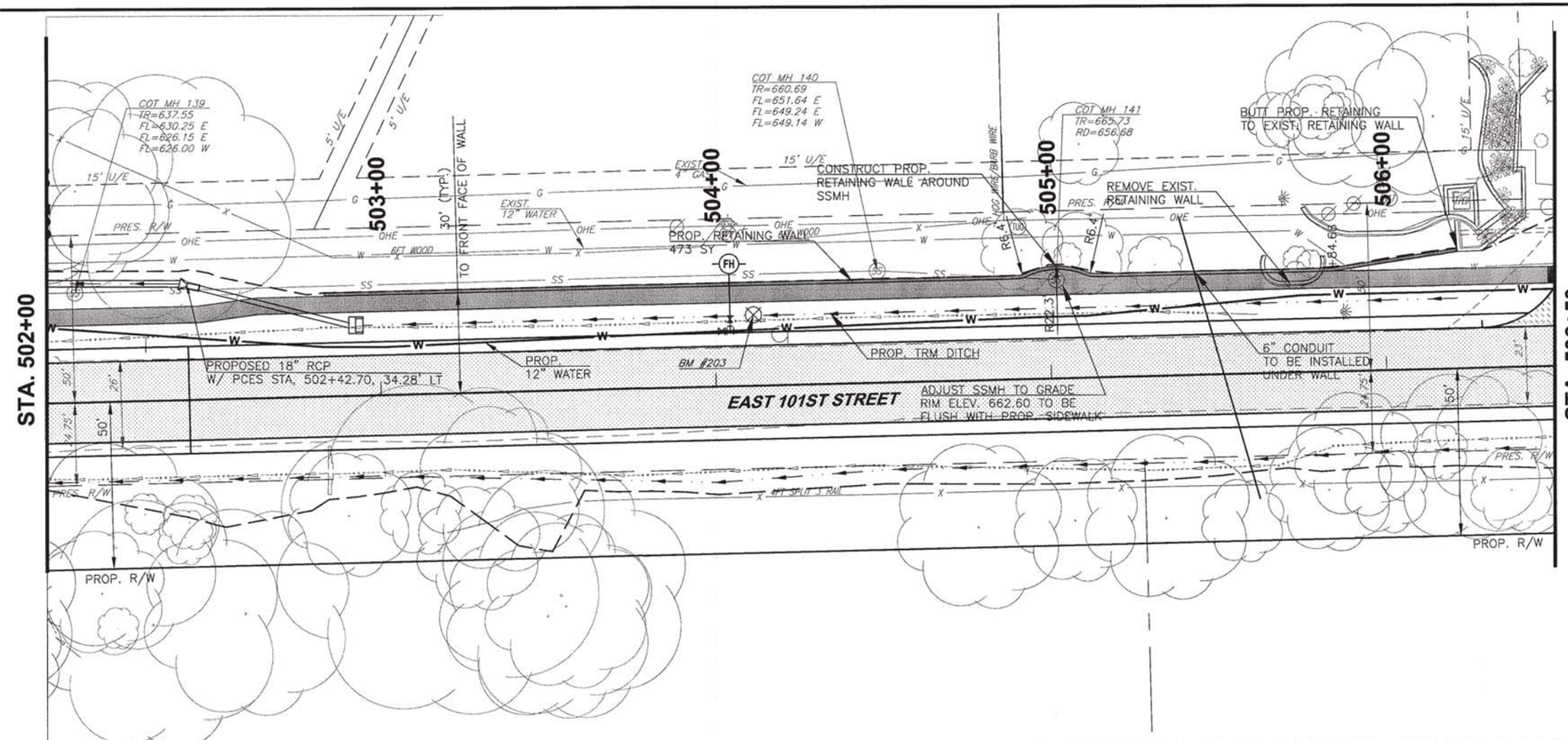
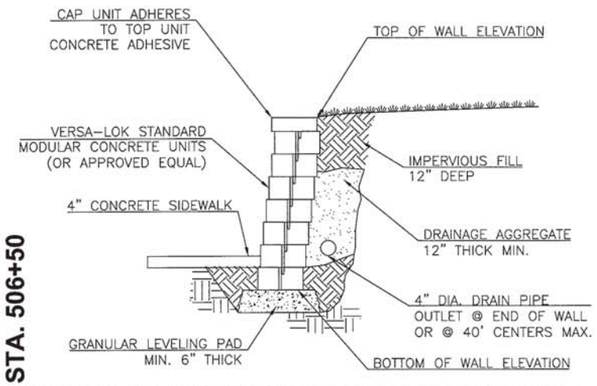
PLAN SCALE: 1" = 20'	DRAWN	J.R.C.	07/2014
	DESIGNED	J.P.S.	07/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.	BDC	8/15
HORIZONTAL: N/A	LEAD ENGR.		1/16
	FIELD MGR.		3/16
VERTICAL N/A	RECOMMENDED: DESIGN MANAGER	HAS	6/16

APPROVED:
CITY ENGINEER
DATE 11.09.16

DRAWING: 77 FENCING PLAN – 538+50.DWG
ATLAS PAGE NO: 1276, 1277, 1422, 1423
SHEET 76 OF 181

PLOT DATE: May 4, 2015, DRAWING NAME: 77 FENCING PLAN – 538+50.DWG

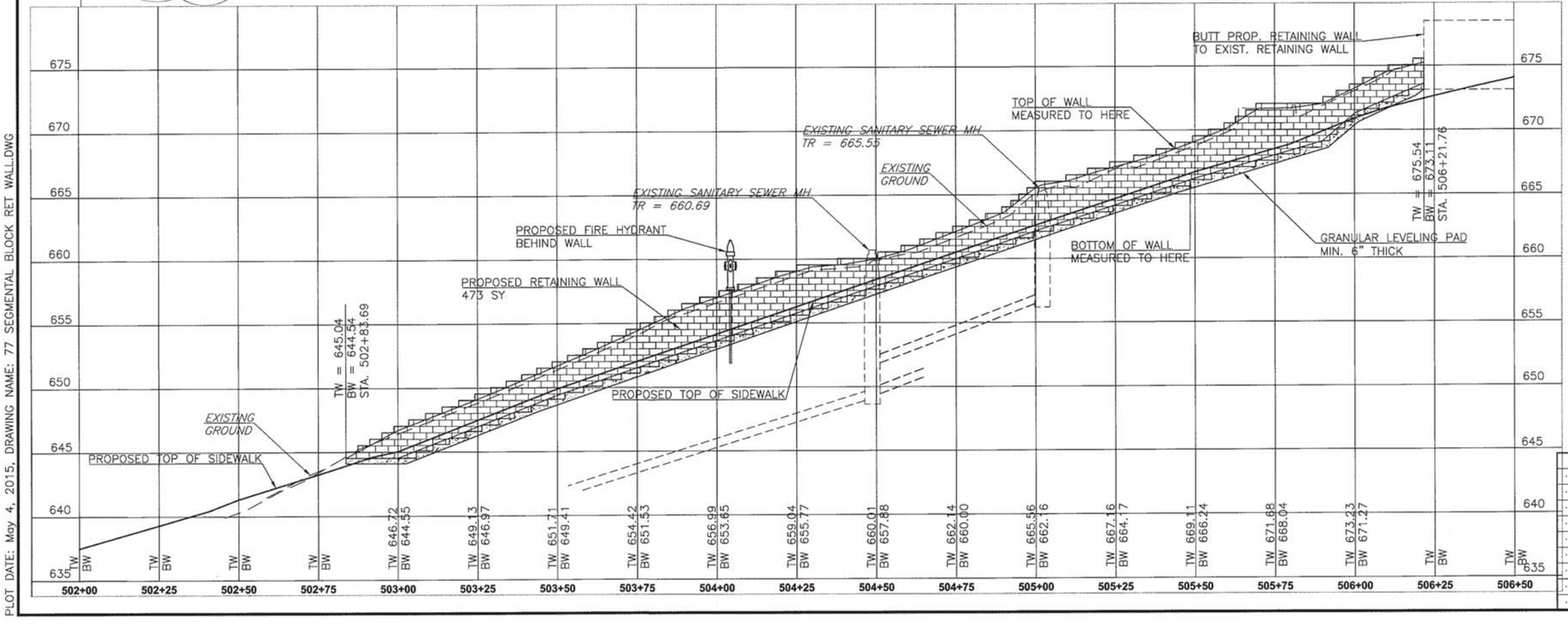




TYPICAL SECTION-UNREINFORCED RETAINING WALL

SCALE: NONE

NOTE: UNREINFORCED WALL HEIGHT NOT TO EXCEED 4'.



0' 10' 20' 40'

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PLAN SCALE: 1" = 20'

PROFILE SCALES: HORIZONTAL: 1" = 20' VERTICAL 1" = 5'

DRAWN	L.P.E	08/2014
DESIGNED	J.P.S	08/2014
SURVEY	A.K.H.	07/2012
PROJ. MGR.	BDC	8/15
LEAD ENGR.		1/16
FIELD MGR.		3/16
RECOMMENDED DESIGN MANAGER	HAS	6/16

APPROVED: CITY ENGINEER

DRAWING: 77 SEGMENTAL BLOCK RET WALL.DWG

ATLAS PAGE NO: 1276, 1277, 1422, 1423

DATE 11.04.16

SHEET 77 OF 181

REGISTERED PROFESSIONAL ENGINEER JEREMY P. STABLE 21775 OKLAHOMA

811 BEFORE YOU DIG CALL OKIE

SEGMENTAL BLOCK RETAINING WALL

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
CEC 4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

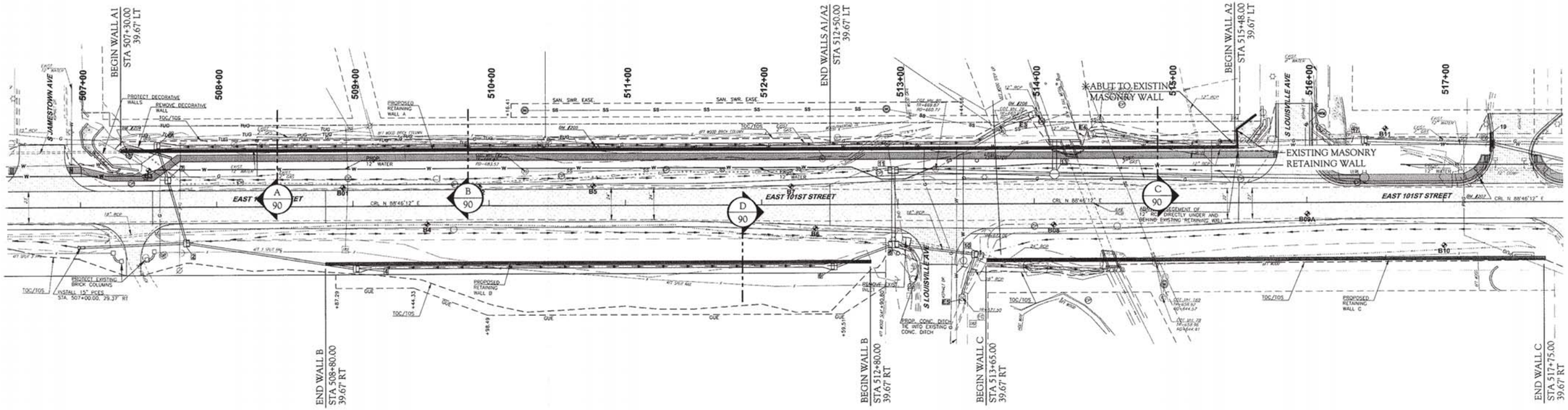
PLOT DATE: May 4, 2015, DRAWING NAME: 77 SEGMENTAL BLOCK RET WALL.DWG

NOTES:

1. THE SITE PLAN SHOWN IS FOR ILLUSTRATIVE PURPOSES ONLY. IT IS REPRODUCED FROM CEC INFRASTRUCTURE SOLUTIONS PLAN AND PROFILE SHEETS 41 - 43 OF CEC PROJECT#104006, DATED 04/2015.
2. THE BEGINNING AND END OF THE RETAINING WALLS ARE POSITIONED RELATIVE TO THE FRONT FACE ELEVATION OF THE WALL. THE LETTERS DENOTING THE RETAINING WALLS ARE POSITIONED IN FRONT OF ITS RESPECTIVE WALL.
- ✳ 3. A GEOTEXTILE FABRIC SHALL BE PLACED WHERE RETAINING WALLS ABUT TO EXISTING FOUNDATIONS. OVERLAP ALL ABUTMENT JOINTS 24" WITH A MINIMUM 48" WIDE FABRIC TO PREVENT THE COREFILL AND BACKFILL FROM MIGRATING THROUGH THE ABUTMENT JOINTS

NORTH

0 40 80 120
GRAPHIC SCALE IN FEET



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REGISTERED PROFESSIONAL ENGINEER
MICHAEL R JOHNSON
20093
OKLAHOMA
5/1/2015

BEFORE YOU DIG 811 2-BUSINESS DAYS CALL OKIE

RETAINING WALL SITE PLAN

PROJECT NO. 104006

101ST STREET – HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CIVIL DESIGN PROFESSIONALS
CDP PROJECT NO: 15-0068

REVISION	BY	DATE
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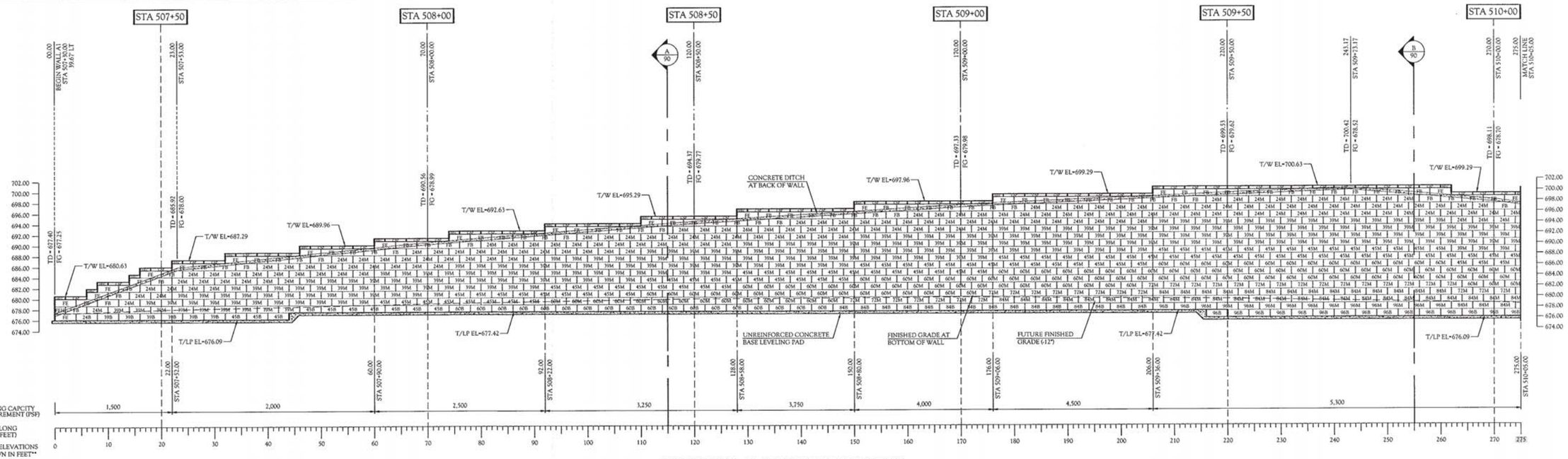
PLAN SCALE: 1"=40'	DRAWN	MRJ	05/2015
	DESIGNED	MRJ	05/2015
	SURVEY		
PROFILE SCALES:	PROJ. MGR.	BDC	8/15
HORIZONTAL:	LEAD ENGR.		6/16
	FIELD MGR.	RBM	3/16
VERTICAL	RECOMMENDED	HAS	6/16
	DESIGN MANAGER		
DRAWING:			
ATLAS PAGE NO: 1276, 1277, 1422, 1423			

APPROVED:

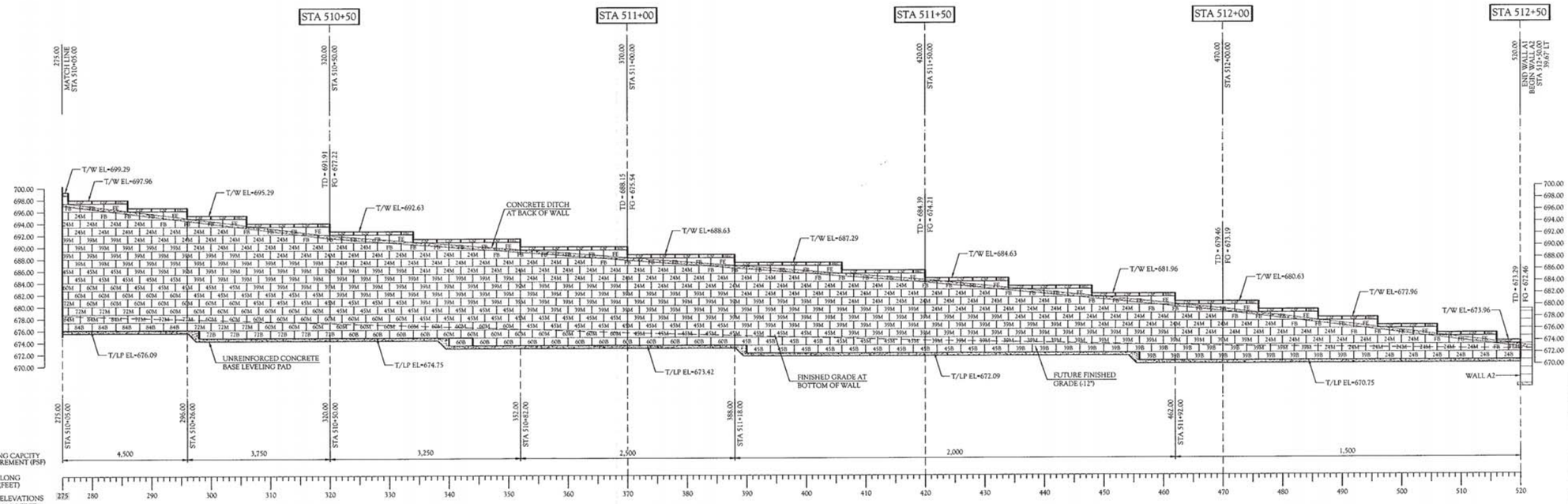
CITY ENGINEER

DATE 11.04.16

SHEET 78 OF 181



RECON WALL A1 - FRONT FACE ELEVATION



RECON WALL A1 - FRONT FACE ELEVATION

ELEVATION KEY

T/W EL	TOP OF WALL ELEVATION
T/B EL	TOP OF BARRIER ELEVATION
T/LP EL	TOP OF LEVELING PAD ELEVATION
B/LP EL	BOTTOM OF LEVELING PAD ELEVATION
PIP	POURED IN PLACE
TD	TOP OF PAVED DITCH ELEVATION AT BACK OF WALL
FG	FINISHED GRADE AT BASE OF WALL

RECON BLOCK KEY:

CAP	CAPSTONE	HM	HALF MOMENT SLAB	45M	45" DEEP FULL MIDDLE	7HB	72" DEEP HALF BOTTOM
ECAP	END CAPSTONE	24M	24" DEEP FULL MIDDLE	4H	45" DEEP HALF MIDDLE	84M	84" DEEP FULL MIDDLE
HEC	HALF END CAPSTONE	2H	24" DEEP HALF MIDDLE	45B	45" DEEP FULL BOTTOM	8H	84" DEEP HALF MIDDLE
FB	FENCE BLOCK	24B	24" DEEP FULL BOTTOM	60M	60" DEEP FULL MIDDLE	84B	84" DEEP FULL BOTTOM
FEH	HALF FENCE END	2HB	24" DEEP HALF BOTTOM	6H	60" DEEP HALF MIDDLE	8HB	84" DEEP HALF BOTTOM
FE	FENCE END BLOCK	39M	39" DEEP FULL MIDDLE	60B	60" DEEP FULL BOTTOM	96M	96" DEEP FULL MIDDLE
V	BARRIER BLOCK (2 PIECES)	3H	39" DEEP HALF MIDDLE	72M	72" DEEP FULL MIDDLE	9H	96" DEEP HALF MIDDLE
HV	HALF BARRIER BLOCK (2 PIECES)	39B	39" DEEP FULL BOTTOM	7H	72" DEEP HALF MIDDLE	96B	96" DEEP FULL BOTTOM
VM	FULL MOMENT SLAB	3HB	39" DEEP HALF BOTTOM	72B	72" DEEP FULL BOTTOM	9HB	96" DEEP HALF BOTTOM

REGISTERED PROFESSIONAL ENGINEER
MICHAEL R JOHNSON 20093
OKLAHOMA
5/1/2015

RETAINING WALL A1 ELEVATION

PROJECT NO. 104006

101ST STREET – HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CIVIL DESIGN PROFESSIONALS

CDP PROJECT NO: 15-0068

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PLAN SCALE: 1"=10'

PROFILE SCALES: HORIZONTAL: VERTICAL

DRAWN	MRJ	05/2015
DESIGNED	MRJ	05/2015
SURVEY		
PROJ. MGR.	BDC	8/16
LEAD ENGR.	JD	2/16
FIELD MGR.	RBM	3/16
RECOMMENDED: DESIGN MANAGER	HAS	6/16

APPROVED: CITY ENGINEER

DRAWING:

DATE 11-04-16

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 79 OF 181

BEFORE YOU DIG 811 1-800-522-OKIE CALL OKIE

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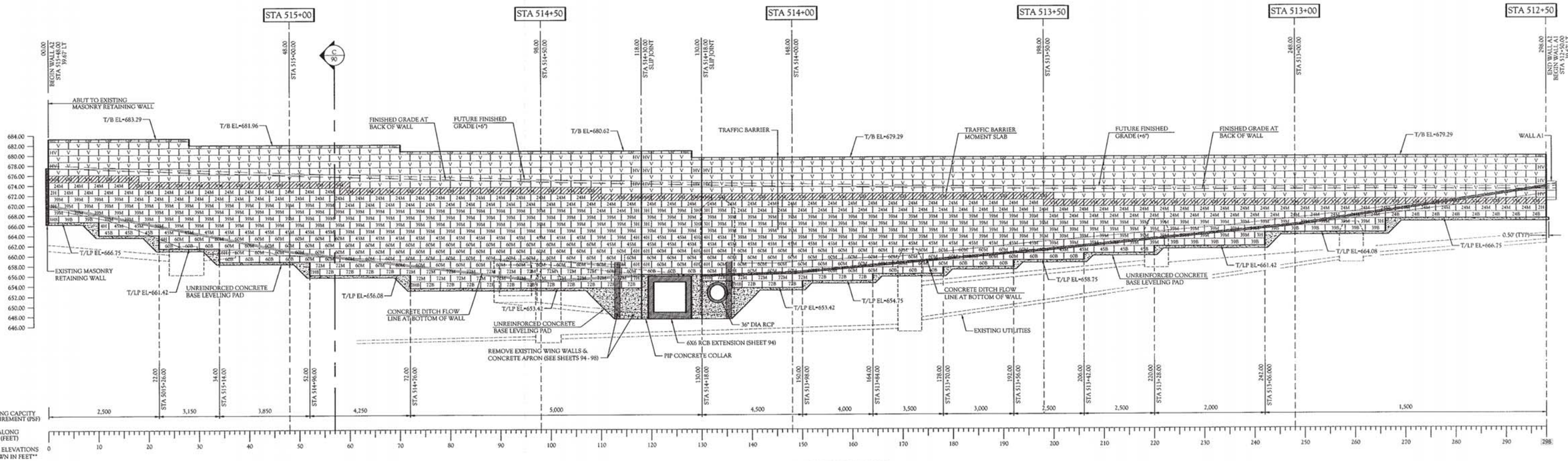

RECON WALL A2 - FRONT FACE ELEVATION

ELEVATION KEY	
T/W EL	TOP OF WALL ELEVATION
T/B EL	TOP OF BARRIER ELEVATION
T/LP EL	TOP OF LEVELING PAD ELEVATION
B/LP EL	BOTTOM OF LEVELING PAD ELEVATION
PIP	POURED IN PLACE
TD	TOP OF PAVED DITCH ELEVATION AT BACK OF WALL
FG	FINISHED GRADE AT BASE OF WALL

RECON BLOCK KEY:							
CAP	CAPSTONE	HM	HALF MOMENT SLAB	45M	45" DEEP FULL MIDDLE	7HB	72" DEEP HALF BOTTOM
ECAP	END CAPSTONE	24M	24" DEEP FULL MIDDLE	4H	45" DEEP HALF MIDDLE	84M	84" DEEP FULL MIDDLE
HEC	HALF END CAPSTONE	2H	24" DEEP HALF MIDDLE	45B	45" DEEP FULL BOTTOM	8H	84" DEEP HALF MIDDLE
FB	FENCE BLOCK	24B	24" DEEP FULL BOTTOM	60M	60" DEEP FULL MIDDLE	84B	84" DEEP FULL BOTTOM
FEH	HALF FENCE END	2HB	24" DEEP HALF BOTTOM	6H	60" DEEP HALF MIDDLE	8HB	84" DEEP HALF BOTTOM
FE	FENCE END BLOCK	39M	39" DEEP FULL MIDDLE	60B	60" DEEP FULL BOTTOM	96M	96" DEEP FULL MIDDLE
V	BARRIER BLOCK (2 PIECES)	3H	39" DEEP HALF MIDDLE	72M	72" DEEP FULL MIDDLE	9H	96" DEEP HALF MIDDLE
HV	HALF BARRIER BLOCK (2 PIECES)	39B	39" DEEP FULL BOTTOM	7H	72" DEEP HALF MIDDLE	96B	96" DEEP FULL BOTTOM
VM	FULL MOMENT SLAB	3HB	39" DEEP HALF BOTTOM	72B	72" DEEP FULL BOTTOM	9HB	96" DEEP HALF BOTTOM

REGISTERED PROFESSIONAL ENGINEER
MICHAEL R JOHNSON 20093
OKLAHOMA
5/1/2015

BEFORE YOU DIG 811 1-800-522-OKIE CALL OKIE

RETAINING WALL A2 ELEVATION

PROJECT NO. 104006

101ST STREET – HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CIVIL DESIGN PROFESSIONALS
CDP PROJECT NO: 15-0068

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PLAN SCALE:	DRAWN	MRJ	05/2015
	DESIGNED	MRJ	05/2015
	SURVEY		
PROFILE SCALES:	PROJ. MGR.	BRC	8/15
HORIZONTAL:	LEAD ENGR.	CDP	2/16
	FIELD MGR.	ZBH	3/16
VERTICAL	RECOMMENDED DESIGN MANAGER	MRS	6/16
	DRAWING:		
	ATLAS PAGE NO: 1276, 1277, 1422, 1423		

APPROVED:

CITY ENGINEER

DATE 11.04.16

SHEET 80 OF 181

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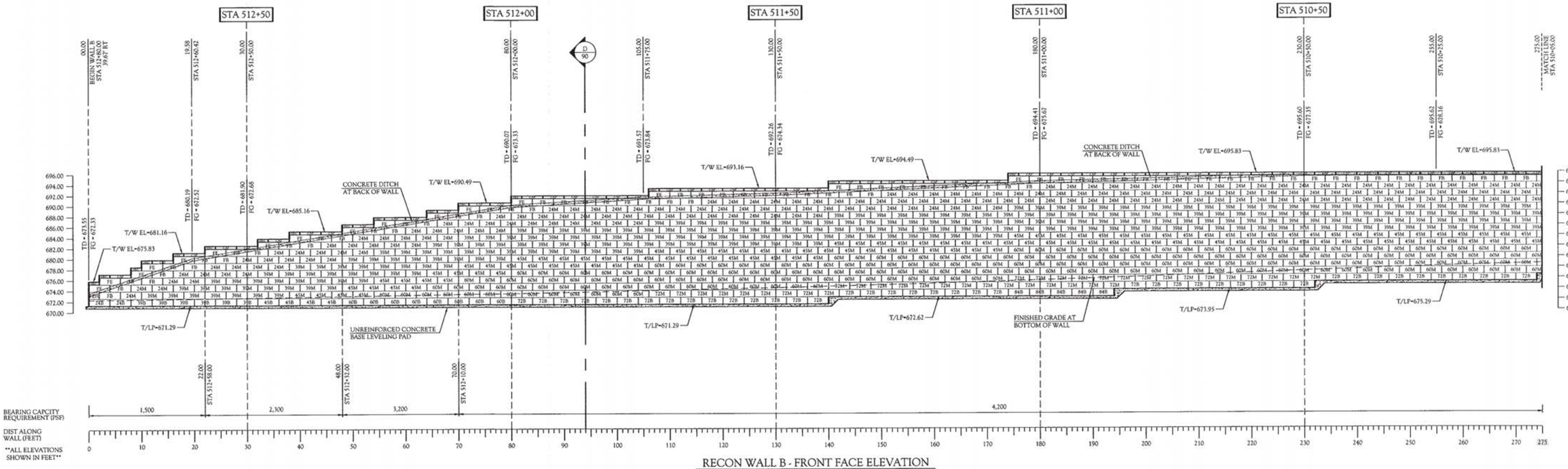
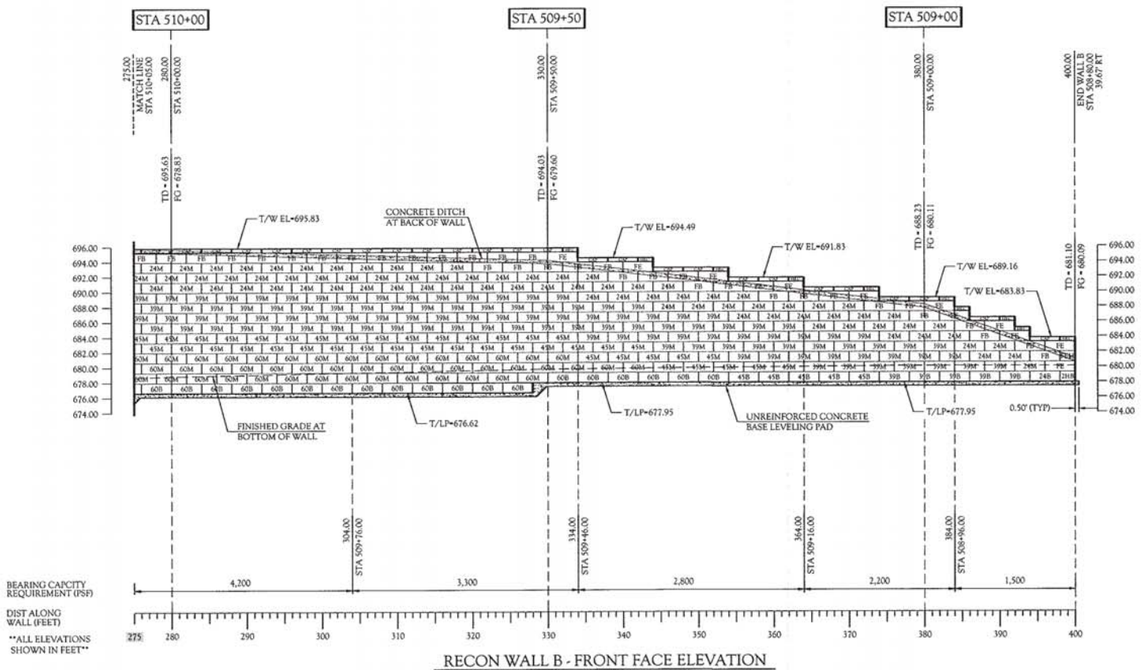


RECON WALL B - FRONT FACE ELEVATION



RECON WALL B - FRONT FACE ELEVATION

ELEVATION KEY	
T/W EL	TOP OF WALL ELEVATION
T/B EL	TOP OF BARRIER ELEVATION
T/LP EL	TOP OF LEVELING PAD ELEVATION
B/LP EL	BOTTOM OF LEVELING PAD ELEVATION
PIP	POURED IN PLACE
TD	TOP OF PAVED DITCH ELEVATION AT BACK OF WALL
FG	FINISHED GRADE AT BASE OF WALL

RECON BLOCK KEY:							
CAP	CAPSTONE	HM	HALF MOMENT SLAB	45M	45° DEEP FULL MIDDLE	7HB	72° DEEP HALF BOTTOM
ECAP	END CAPSTONE	24M	24° DEEP FULL MIDDLE	4H	45° DEEP HALF MIDDLE	84M	84° DEEP FULL MIDDLE
HEC	HALF END CAPSTONE	2H	24° DEEP HALF MIDDLE	45B	45° DEEP FULL BOTTOM	8H	84° DEEP HALF MIDDLE
FB	FENCE BLOCK	24B	24° DEEP FULL BOTTOM	60M	60° DEEP FULL MIDDLE	84B	84° DEEP FULL BOTTOM
FEH	HALF FENCE END	2HB	24° DEEP HALF BOTTOM	6H	60° DEEP HALF MIDDLE	8HB	84° DEEP HALF BOTTOM
FE	FENCE END BLOCK	39M	39° DEEP FULL MIDDLE	60B	60° DEEP FULL BOTTOM	96M	96° DEEP FULL MIDDLE
V	BARRIER BLOCK (2 PIECES)	3H	39° DEEP HALF MIDDLE	72M	72° DEEP FULL MIDDLE	9H	96° DEEP HALF MIDDLE
HV	HALF BARRIER BLOCK (2 PIECES)	39B	39° DEEP FULL BOTTOM	7H	72° DEEP HALF MIDDLE	96B	96° DEEP FULL BOTTOM
VM	FULL MOMENT SLAB	3HB	39° DEEP HALF BOTTOM	72B	72° DEEP FULL BOTTOM	9HB	96° DEEP HALF BOTTOM

REGISTERED PROFESSIONAL ENGINEER — MICHAEL R JOHNSON 20093 — OKLAHOMA

5/1/2015

RETAINING WALL B ELEVATION

PROJECT NO. 104006

101ST STREET – HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CDP — CIVIL DESIGN PROFESSIONALS — CDP PROJECT NO: 15-0068

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PLAN SCALE:	DRAWN	MRJ	05/2015
	DESIGNED	MRJ	05/2015
	SURVEY		
PROFILE SCALES:	PROJ. MGR.	BDC	8/15
HORIZONTAL:	LEAD ENGR.		2/16
	FIELD MGR.		3/16
VERTICAL	RECOMMENDED	HAS	6/16
	DESIGN MANAGER		

APPROVED: CITY ENGINEER

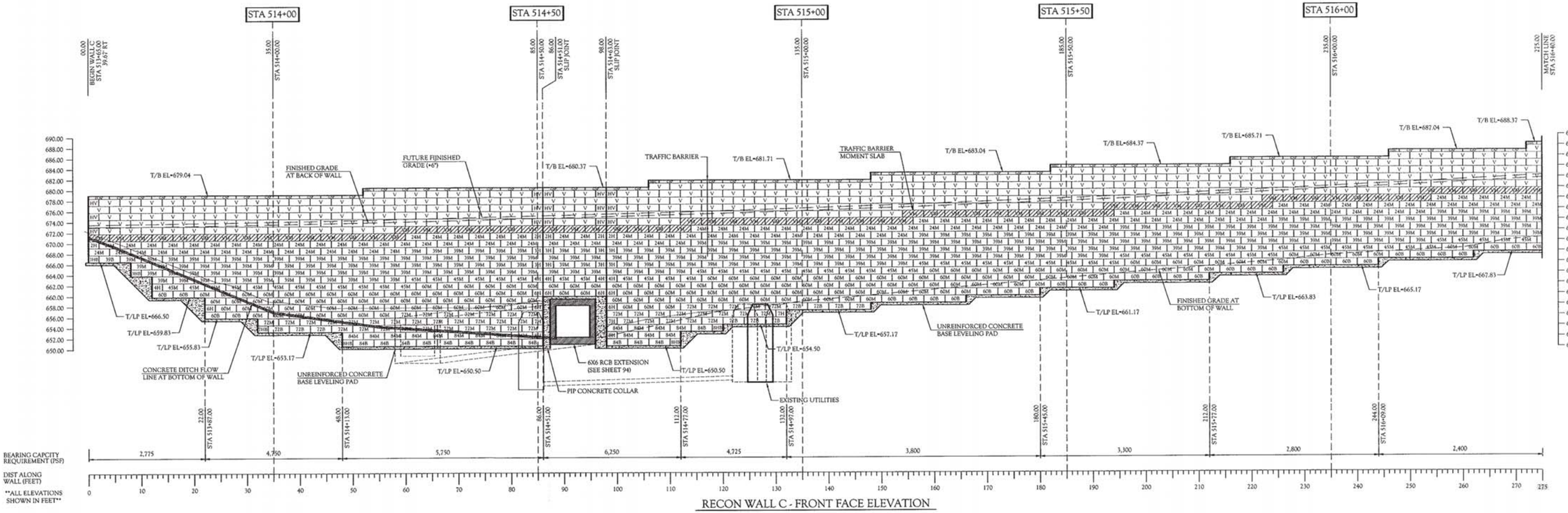
DRAWING:

DATE 11.04.16

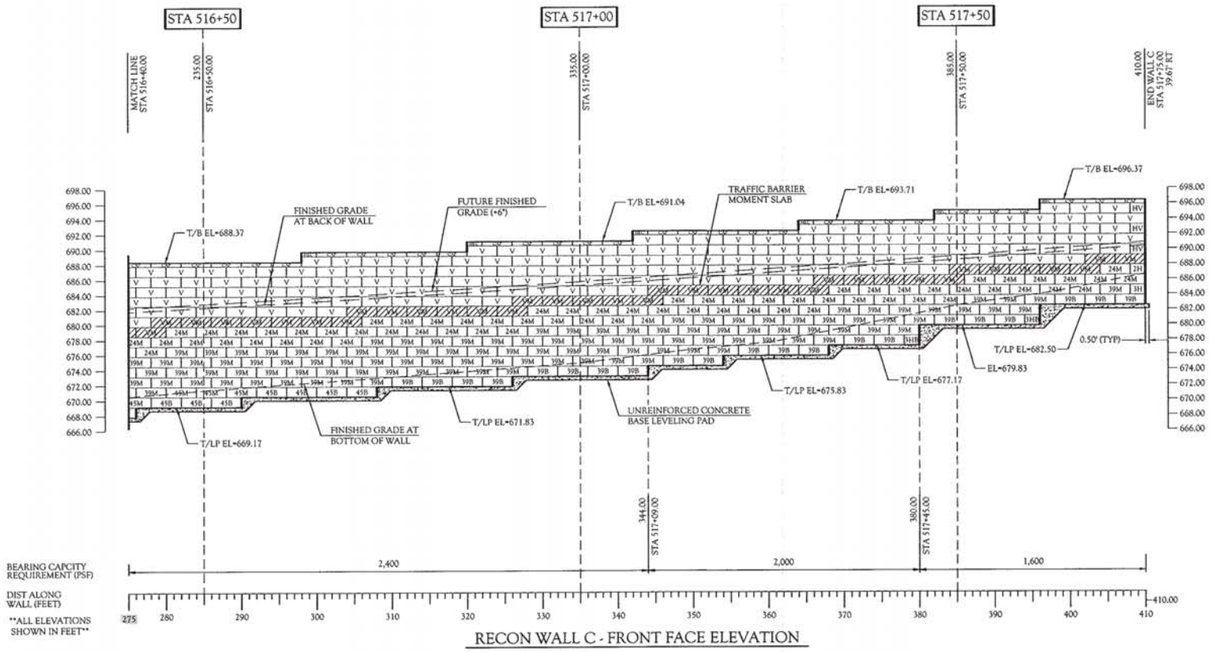
ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 81 OF 181

BEFORE YOU DIG 811 1-800-522-OKIE CALL OKIE



RECON WALL C - FRONT FACE ELEVATION



RECON WALL C - FRONT FACE ELEVATION

ELEVATION KEY	
T/W EL	TOP OF WALL ELEVATION
T/B EL	TOP OF BARRIER ELEVATION
T/LP EL	TOP OF LEVELING PAD ELEVATION
B/LP EL	BOTTOM OF LEVELING PAD ELEVATION
PIP	POURED IN PLACE
TD	TOP OF PAVED DITCH ELEVATION AT BACK OF WALL
FG	FINISHED GRADE AT BASE OF WALL

RECON BLOCK KEY:							
CAP	CAPSTONE	HM	HALF MOMENT SLAB	45M	45" DEEP FULL MIDDLE	7HB	72" DEEP HALF BOTTOM
ECAP	END CAPSTONE	24M	24" DEEP FULL MIDDLE	4H	45" DEEP HALF MIDDLE	84M	84" DEEP FULL MIDDLE
HEC	HALF END CAPSTONE	2H	24" DEEP HALF MIDDLE	45B	45" DEEP FULL BOTTOM	8H	84" DEEP HALF MIDDLE
FB	FENCE BLOCK	24B	24" DEEP FULL BOTTOM	60M	60" DEEP FULL MIDDLE	84B	84" DEEP FULL BOTTOM
FEH	HALF FENCE END	2HB	24" DEEP HALF BOTTOM	6H	60" DEEP HALF MIDDLE	8HB	84" DEEP HALF BOTTOM
FE	FENCE END BLOCK	39M	39" DEEP FULL MIDDLE	60B	60" DEEP FULL BOTTOM	96M	96" DEEP FULL MIDDLE
V	BARRIER BLOCK (2 PIECES)	3H	39" DEEP HALF MIDDLE	72M	72" DEEP FULL MIDDLE	9H	96" DEEP HALF MIDDLE
HV	HALF BARRIER BLOCK (2 PIECES)	39B	39" DEEP FULL BOTTOM	7H	72" DEEP HALF MIDDLE	96B	96" DEEP FULL BOTTOM
VM	FULL MOMENT SLAB	3HB	39" DEEP HALF BOTTOM	72B	72" DEEP FULL BOTTOM	9HB	96" DEEP HALF BOTTOM

REGISTERED PROFESSIONAL ENGINEER — MICHAEL R JOHNSON 20093 — OKLAHOMA

5/1/2015

BEFORE YOU DIG 811 1-800-522-6543 CALL OKIE

RETAINING WALL C ELEVATION

PROJECT NO. 104006

101ST STREET – HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CDP — CIVIL DESIGN PROFESSIONALS

CDP PROJECT NO: 15-0068

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PLAN SCALE:

DRAWN	MRJ	05/2015	APPROVED:
DESIGNED	MRJ	05/2015	
SURVEY			
PROJ. MGR.	BBC	8/15	
LEAD ENGR.	DD	4/16	
FIELD MGR.	RSH	3/16	
RECOMMENDED: DESIGN MANAGER	HAS	6/16	CITY ENGINEER

PROFILE SCALES: HORIZONTAL: VERTICAL

DRAWING:

DATE 11.04.16

ATLAS PAGE NO: 1276, 1277, 1422, 1423

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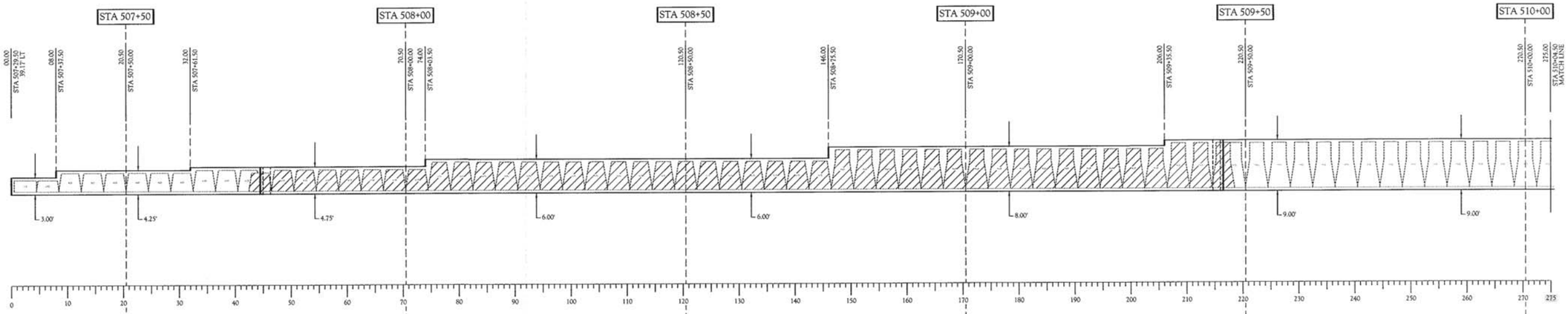
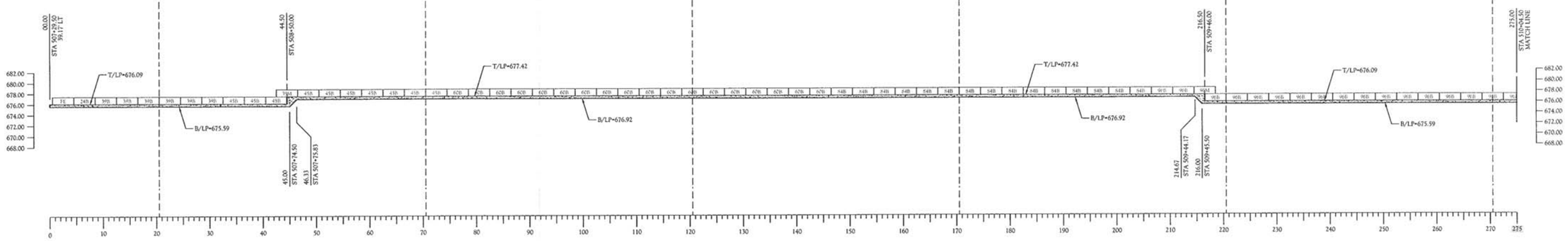


WALL A1 CONCRETE LEVELING PAD - PLAN VIEW



WALL A1 CONCRETE LEVELING PAD - ELEVATION VIEW

ELEVATION KEY	
T/W EL	TOP OF WALL ELEVATION
T/B EL	TOP OF BARRIER ELEVATION
T/LP EL	TOP OF LEVELING PAD ELEVATION
B/LP EL	BOTTOM OF LEVELING PAD ELEVATION
PIP	POURED IN PLACE
TD	TOP OF PAVED DITCH ELEVATION AT BACK OF WALL
FG	FINISHED GRADE AT BASE OF WALL

RECON BLOCK KEY:							
CAP	CAPSTONE	HM	HALF MOMENT SLAB	45M	45" DEEP FULL MIDDLE	7HB	72" DEEP HALF BOTTOM
ECAP	END CAPSTONE	24M	24" DEEP FULL MIDDLE	4H	45" DEEP HALF MIDDLE	84M	84" DEEP FULL MIDDLE
HEC	HALF END CAPSTONE	2H	24" DEEP HALF MIDDLE	45B	45" DEEP FULL BOTTOM	8H	84" DEEP HALF MIDDLE
FB	FENCE BLOCK	24B	24" DEEP FULL BOTTOM	60M	60" DEEP FULL MIDDLE	84B	84" DEEP FULL BOTTOM
FEH	HALF FENCE END	2HB	24" DEEP HALF BOTTOM	6H	60" DEEP HALF MIDDLE	8HB	84" DEEP HALF BOTTOM
FE	FENCE END BLOCK	39M	39" DEEP FULL MIDDLE	60B	60" DEEP FULL BOTTOM	96M	96" DEEP FULL MIDDLE
V	BARRIER BLOCK (2 PIECES)	3H	39" DEEP HALF MIDDLE	72M	72" DEEP FULL MIDDLE	9H	96" DEEP HALF MIDDLE
HV	HALF BARRIER BLOCK (2 PIECES)	39B	39" DEEP FULL BOTTOM	7H	72" DEEP HALF MIDDLE	96B	96" DEEP FULL BOTTOM
VM	FULL MOMENT SLAB	3HB	39" DEEP HALF BOTTOM	72B	72" DEEP FULL BOTTOM	9HB	96" DEEP HALF BOTTOM

REGISTERED PROFESSIONAL ENGINEER
MICHAEL R JOHNSON
20093
OKLAHOMA

5/1/2015

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RETAINING WALL A1 CONCRETE LEVELING PAD

PROJECT NO. 104006

101ST STREET – HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CDP — CIVIL DESIGN PROFESSIONALS

CDP PROJECT NO: 15-0068

REVISION	BY	DATE
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PLAN SCALE:	DRAWN	MRJ	05/2015
	DESIGNED	MRJ	05/2015
	SURVEY		
PROFILE SCALES:	PROJ. MGR.	BMC	8/16
HORIZONTAL:	LEAD ENGR.	DRJ	6/16
	FIELD MGR.	RBM	3/16
VERTICAL	RECOMMENDED	MAS	6/16
	DESIGN MANAGER		

APPROVED:

CITY ENGINEER

DRAWING:

DATE 11.04.16

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 83 OF 181

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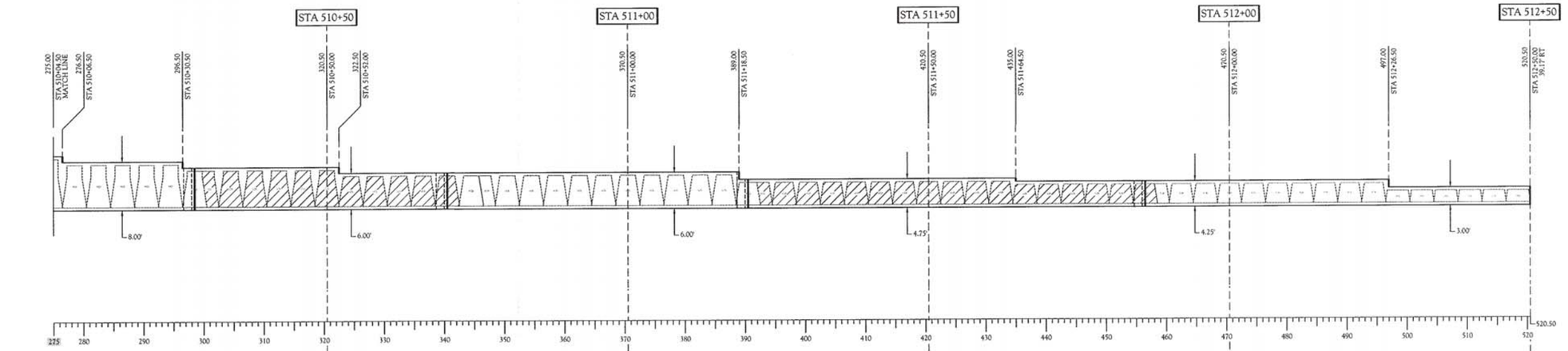
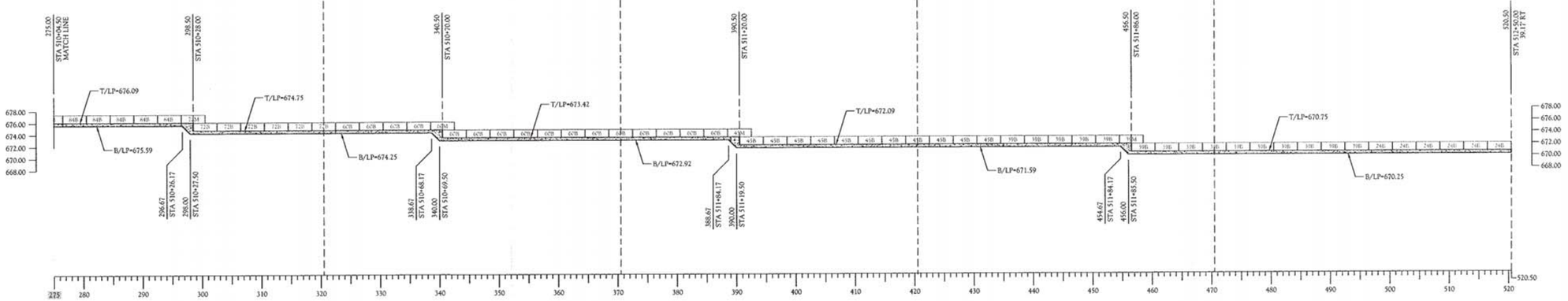


WALL A1 CONCRETE LEVELING PAD - PLAN VIEW



WALL A1 CONCRETE LEVELING PAD - ELEVATION VIEW

ELEVATION KEY	
T/W EL	TOP OF WALL ELEVATION
T/B EL	TOP OF BARRIER ELEVATION
T/LP EL	TOP OF LEVELING PAD ELEVATION
B/LP EL	BOTTOM OF LEVELING PAD ELEVATION
PIP	POURED IN PLACE
TD	TOP OF PAVED DITCH ELEVATION AT BACK OF WALL
FG	FINISHED GRADE AT BASE OF WALL

RECON BLOCK KEY:							
CAP	CAPSTONE	HM	HALF MOMENT SLAB	45M	45° DEEP FULL MIDDLE	7HB	72" DEEP HALF BOTTOM
ECAP	END CAPSTONE	24M	24" DEEP FULL MIDDLE	4H	45° DEEP HALF MIDDLE	84M	84" DEEP FULL MIDDLE
HEC	HALF END CAPSTONE	2H	24" DEEP HALF MIDDLE	45B	45° DEEP FULL BOTTOM	8H	84" DEEP HALF MIDDLE
FB	FENCE BLOCK	24B	24" DEEP FULL BOTTOM	60M	60" DEEP FULL MIDDLE	84B	84" DEEP FULL BOTTOM
FEH	HALF FENCE END	2HB	24" DEEP HALF BOTTOM	6H	60" DEEP HALF MIDDLE	8HB	84" DEEP HALF BOTTOM
FE	FENCE END BLOCK	39M	39" DEEP FULL MIDDLE	60B	60" DEEP FULL BOTTOM	96M	96" DEEP FULL MIDDLE
V	BARRIER BLOCK (2 PIECES)	3H	39" DEEP HALF MIDDLE	72M	72" DEEP FULL MIDDLE	9H	96" DEEP HALF MIDDLE
HV	HALF BARRIER BLOCK (2 PIECES)	39B	39" DEEP FULL BOTTOM	7H	72" DEEP HALF MIDDLE	96B	96" DEEP FULL BOTTOM
VM	FULL MOMENT SLAB	3HB	39" DEEP HALF BOTTOM	72B	72" DEEP FULL BOTTOM	9HB	96" DEEP HALF BOTTOM

REGISTERED PROFESSIONAL ENGINEER
MICHAEL R. JOHNSON
20093
OKLAHOMA

5/1/2015

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RETAINING WALL A1 CONCRETE LEVELING PAD

PROJECT NO. 104006

101ST STREET – HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CDP CIVIL DESIGN PROFESSIONALS
CDP PROJECT NO: 15-0068

PLAN SCALE:	DRAWN	MRJ	05/2015
	DESIGNED	MRJ	05/2015
	SURVEY		
PROFILE SCALES:	PROJ. MGR.	BSC	8/16
HORIZONTAL:	LEAD ENGR.	DJ	6/16
	FIELD MGR.	RBH	3/16
VERTICAL	RECOMMENDED:	MRJ	6/16
	DESIGN MANAGER		

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ATLAS PAGE NO: 1276, 1277, 1422, 1423

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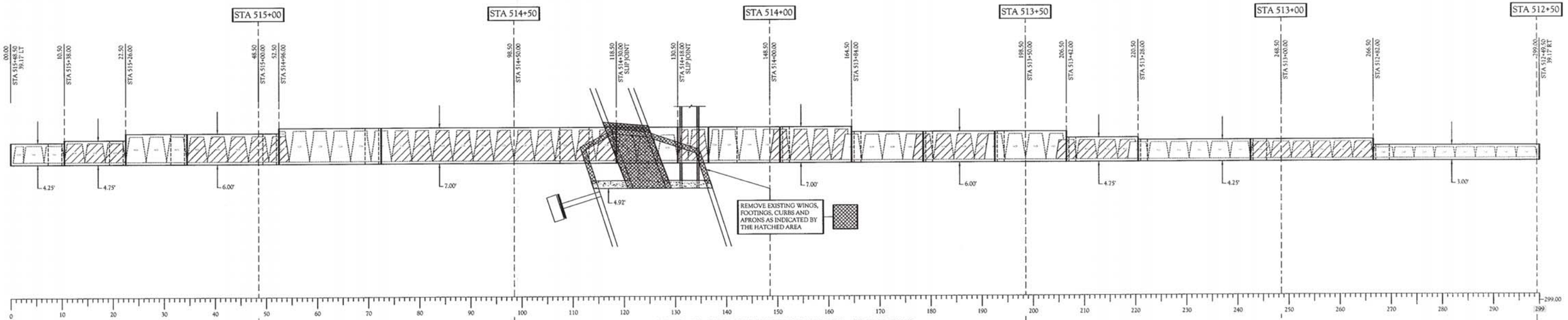
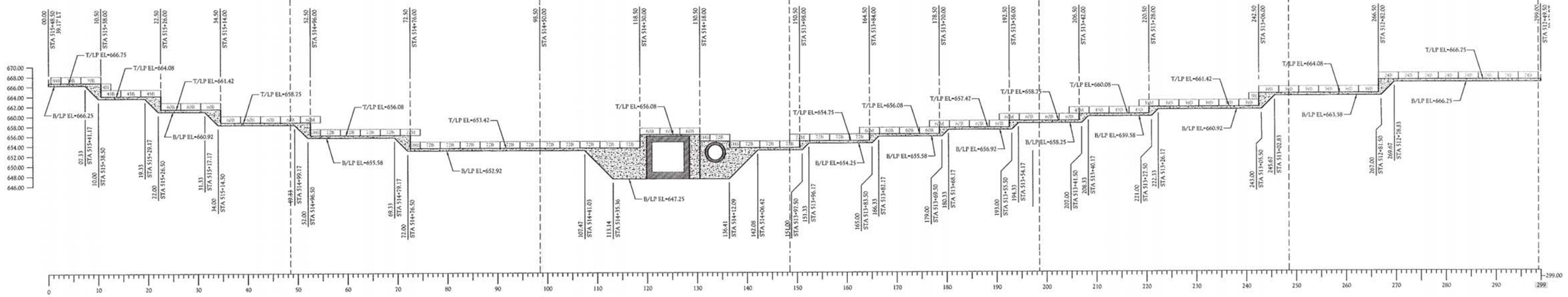


WALL A2 CONCRETE LEVELING PAD - PLAN VIEW



WALL A2 CONCRETE LEVELING PAD - ELEVATION VIEW

ELEVATION KEY	
T/W EL	TOP OF WALL ELEVATION
T/B EL	TOP OF BARRIER ELEVATION
T/LP EL	TOP OF LEVELING PAD ELEVATION
B/LP EL	BOTTOM OF LEVELING PAD ELEVATION
PIP	POURED IN PLACE
TD	TOP OF PAVED DITCH ELEVATION AT BACK OF WALL
FG	FINISHED GRADE AT BASE OF WALL

RECON BLOCK KEY:							
CAP	CAPSTONE	HM	HALF MOMENT SLAB	45M	45° DEEP FULL MIDDLE	7HB	72" DEEP HALF BOTTOM
ECAP	END CAPSTONE	24M	24" DEEP FULL MIDDLE	4H	45° DEEP HALF MIDDLE	84M	84" DEEP FULL MIDDLE
HEC	HALF END CAPSTONE	2H	24" DEEP HALF MIDDLE	45B	45° DEEP FULL BOTTOM	8H	84" DEEP HALF MIDDLE
FB	FENCE BLOCK	24B	24" DEEP FULL BOTTOM	60M	60" DEEP FULL MIDDLE	84B	84" DEEP FULL BOTTOM
FEH	HALF FENCE END	2HB	24" DEEP HALF BOTTOM	6H	60" DEEP HALF MIDDLE	8HB	84" DEEP HALF BOTTOM
FE	FENCE END BLOCK	39M	39" DEEP FULL MIDDLE	60B	60" DEEP FULL BOTTOM	96M	96" DEEP FULL MIDDLE
V	BARRIER BLOCK (2 PIECES)	3H	39" DEEP HALF MIDDLE	72M	72" DEEP FULL MIDDLE	9H	96" DEEP HALF MIDDLE
HV	HALF BARRIER BLOCK (2 PIECES)	39B	39" DEEP FULL BOTTOM	7H	72" DEEP HALF MIDDLE	96B	96" DEEP FULL BOTTOM
VM	FULL MOMENT SLAB	3HB	39" DEEP HALF BOTTOM	72B	72" DEEP FULL BOTTOM	9HB	96" DEEP HALF BOTTOM

REGISTERED PROFESSIONAL ENGINEER
MICHAEL R JOHNSON 20093
OKLAHOMA

5/1/2015

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RETAINING WALL A2 CONCRETELEVELING PAD

PROJECT NO. 104006

101ST STREET – HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CIVIL DESIGN PROFESSIONALS

CDP PROJECT NO: 15-0068

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PLAN SCALE:	DRAWN	MRJ	05/2015
	DESIGNED	MRJ	05/2015
	SURVEY		
PROFILE SCALES:	PROJ. MGR.	BDC	5/15
HORIZONTAL:	LEAD ENGR.		2/16
	FIELD MGR.	RBM	3/16
VERTICAL	RECOMMENDED:	DAS	4/16
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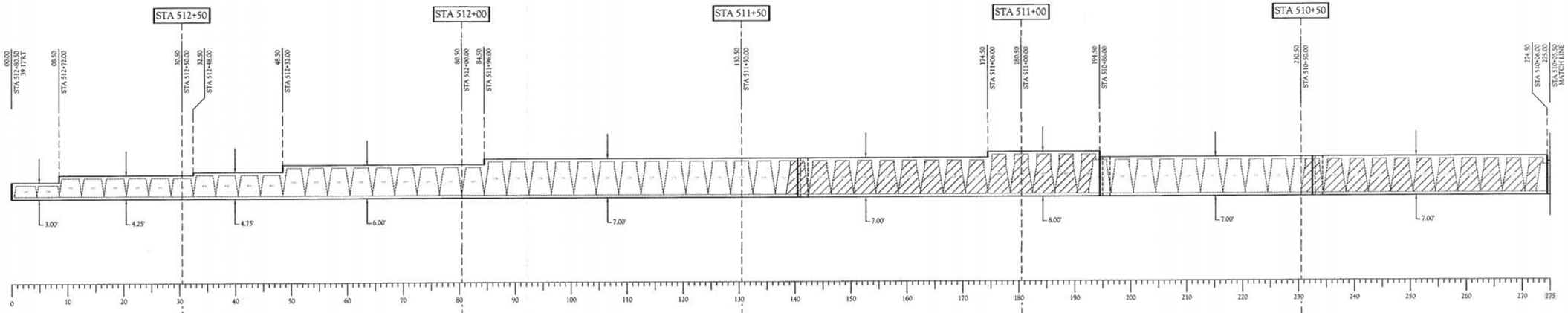
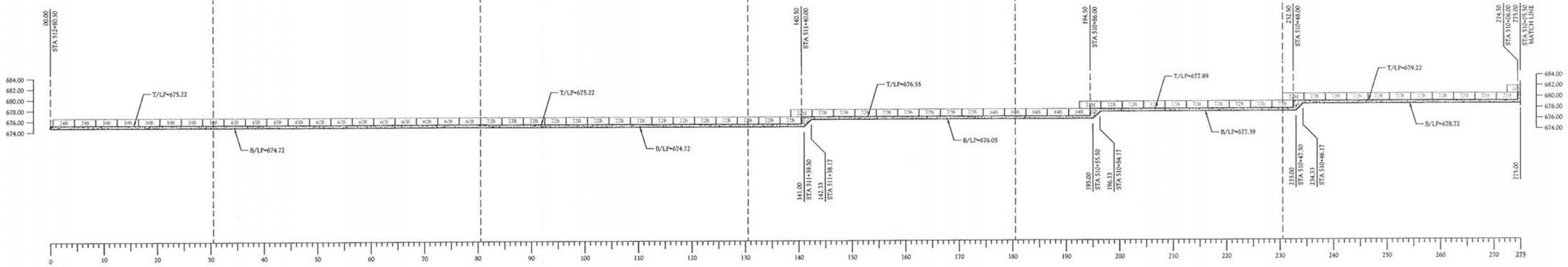


WALL B CONCRETE LEVELING PAD - PLAN VIEW



WALL B CONCRETE LEVELING PAD - ELEVATION VIEW

ELEVATION KEY	
T/W EL	TOP OF WALL ELEVATION
T/B EL	TOP OF BARRIER ELEVATION
T/LP EL	TOP OF LEVELING PAD ELEVATION
B/LP EL	BOTTOM OF LEVELING PAD ELEVATION
PIP	POURED IN PLACE
TD	TOP OF PAVED DITCH ELEVATION AT BACK OF WALL
FG	FINISHED GRADE AT BASE OF WALL

RECON BLOCK KEY:							
CAP	CAPSTONE	HM	HALF MOMENT SLAB	45M	45° DEEP FULL MIDDLE	7HB	72" DEEP HALF BOTTOM
ECAP	END CAPSTONE	24M	24" DEEP FULL MIDDLE	4H	45° DEEP HALF MIDDLE	84M	84" DEEP FULL MIDDLE
HEC	HALF END CAPSTONE	2H	24" DEEP HALF MIDDLE	45B	45° DEEP FULL BOTTOM	8H	84" DEEP HALF MIDDLE
FB	FENCE BLOCK	24B	24" DEEP FULL BOTTOM	60M	60" DEEP FULL MIDDLE	84B	84" DEEP FULL BOTTOM
FEH	HALF FENCE END	2HB	24" DEEP HALF BOTTOM	6H	60" DEEP HALF MIDDLE	8HB	84" DEEP HALF BOTTOM
FE	FENCE END BLOCK	39M	39" DEEP FULL MIDDLE	60B	60" DEEP FULL BOTTOM	96M	96" DEEP FULL MIDDLE
V	BARRIER BLOCK (2 PIECES)	3H	39" DEEP HALF MIDDLE	72M	72" DEEP FULL MIDDLE	9H	96" DEEP HALF MIDDLE
HV	HALF BARRIER BLOCK (2 PIECES)	39B	39" DEEP FULL BOTTOM	7H	72" DEEP HALF MIDDLE	96B	96" DEEP FULL BOTTOM
VM	FULL MOMENT SLAB	3HB	39" DEEP HALF BOTTOM	72B	72" DEEP FULL BOTTOM	9HB	96" DEEP HALF BOTTOM

REGISTERED PROFESSIONAL ENGINEER
MICHAEL R. JOHNSON
20093
OKLAHOMA

5/1/2015

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RETAINING WALL B CONCRETE LEVELING PAD

PROJECT NO. 104006

101ST STREET – HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CIVIL DESIGN PROFESSIONALS

CDP PROJECT NO: 15-0068

PLAN SCALE:	DRAWN	MRJ 05/2015	APPROVED:
	DESIGNED	MRJ 05/2015	
	SURVEY		
PROFILE SCALES:	PROJ. MGR.	BDC 8/15	
HORIZONTAL:	LEAD ENGR.	DD 8/16	
	FIELD MGR.	RGM 7/16	
VERTICAL	RECOMMENDED	MRJ 8/16	
	DESIGN MANAGER		CITY ENGINEER
DRAWING:			DATE 11-04-16
ATLAS PAGE NO: 1276, 1277, 1422, 1423			SHEET 86 OF 181

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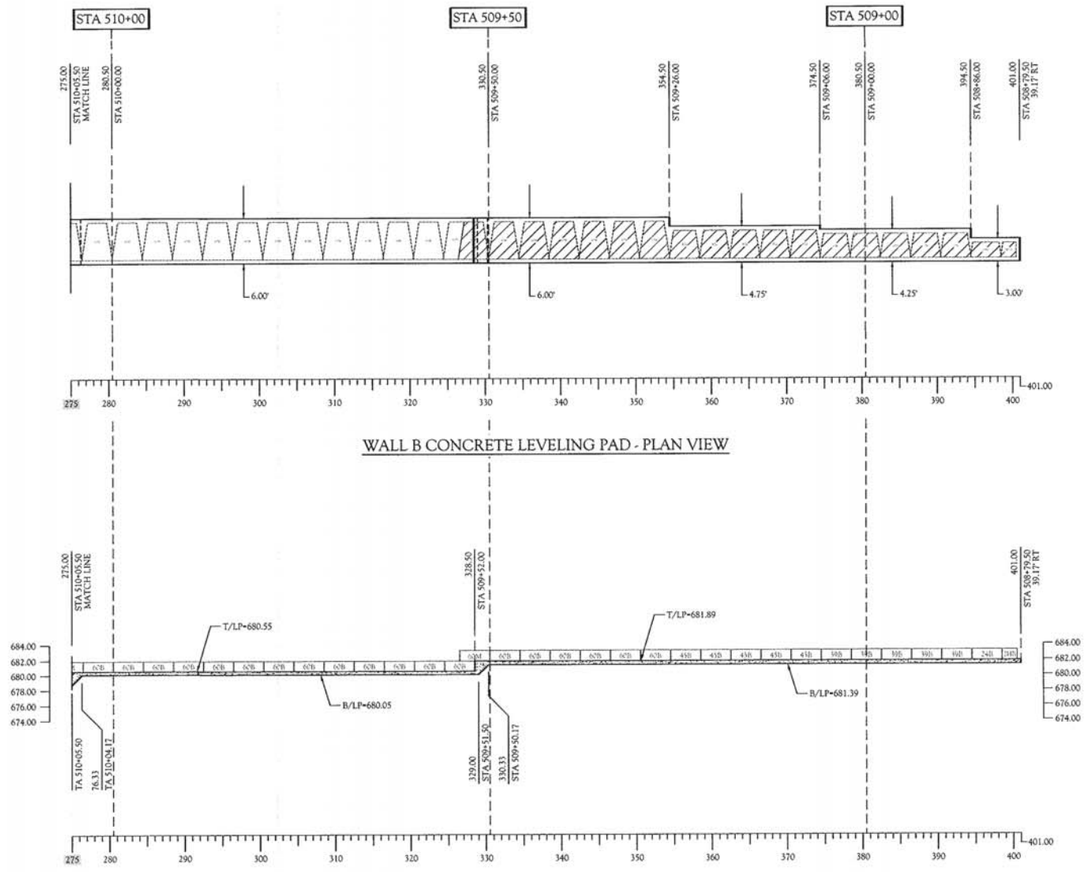

WALL B CONCRETE LEVELING PAD - PLAN VIEW

WALL B CONCRETE LEVELING PAD - ELEVATION VIEW

ELEVATION KEY	
T/W EL	TOP OF WALL ELEVATION
T/B EL	TOP OF BARRIER ELEVATION
T/LP EL	TOP OF LEVELING PAD ELEVATION
B/LP EL	BOTTOM OF LEVELING PAD ELEVATION
PIP	POURED IN PLACE
TD	TOP OF PAVED DITCH ELEVATION AT BACK OF WALL
FG	FINISHED GRADE AT BASE OF WALL

RECON BLOCK KEY:							
CAP	CAPSTONE	HM	HALF MOMENT SLAB	45M	45° DEEP FULL MIDDLE	7HB	72" DEEP HALF BOTTOM
ECAP	END CAPSTONE	24M	24" DEEP FULL MIDDLE	4H	45° DEEP HALF MIDDLE	84M	84" DEEP FULL MIDDLE
HEC	HALF END CAPSTONE	2H	24" DEEP HALF MIDDLE	45B	45° DEEP FULL BOTTOM	8H	84" DEEP HALF MIDDLE
FB	FENCE BLOCK	24B	24" DEEP FULL BOTTOM	60M	60" DEEP FULL MIDDLE	84B	84" DEEP FULL BOTTOM
FEH	HALF FENCE END	2HB	24" DEEP HALF BOTTOM	6H	60" DEEP HALF MIDDLE	8HB	84" DEEP HALF BOTTOM
FE	FENCE END BLOCK	39M	39" DEEP FULL MIDDLE	60B	60" DEEP FULL BOTTOM	96M	96" DEEP FULL MIDDLE
V	BARRIER BLOCK (2 PIECES)	3H	39" DEEP HALF MIDDLE	72M	72" DEEP FULL MIDDLE	9H	96" DEEP HALF MIDDLE
HV	HALF BARRIER BLOCK (2 PIECES)	39B	39" DEEP FULL BOTTOM	7H	72" DEEP HALF MIDDLE	96B	96" DEEP FULL BOTTOM
VM	FULL MOMENT SLAB	3HB	39" DEEP HALF BOTTOM	72B	72" DEEP FULL BOTTOM	9HB	96" DEEP HALF BOTTOM

REGISTERED PROFESSIONAL ENGINEER
MICHAEL R. JOHNSON
20093
OKLAHOMA

5/1/2015

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CALL OKIE

RETAINING WALL B CONCRETE LEVELING PAD

PROJECT NO. 104006

101ST STREET – HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CIVIL DESIGN PROFESSIONALS

CDP PROJECT NO: 15-0068

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PLAN SCALE:	DRAWN	MRJ	05/2015
	DESIGNED	MRJ	05/2015
	SURVEY		
PROFILE SCALES:	PROJ. MGR.	BDC	8/15
HORIZONTAL:	LEAD ENGR.	DJ	8/16
	FIELD MGR.	PBM	3/16
VERTICAL	RECOMMENDED	MRJ	6/16
	DESIGN MANAGER		
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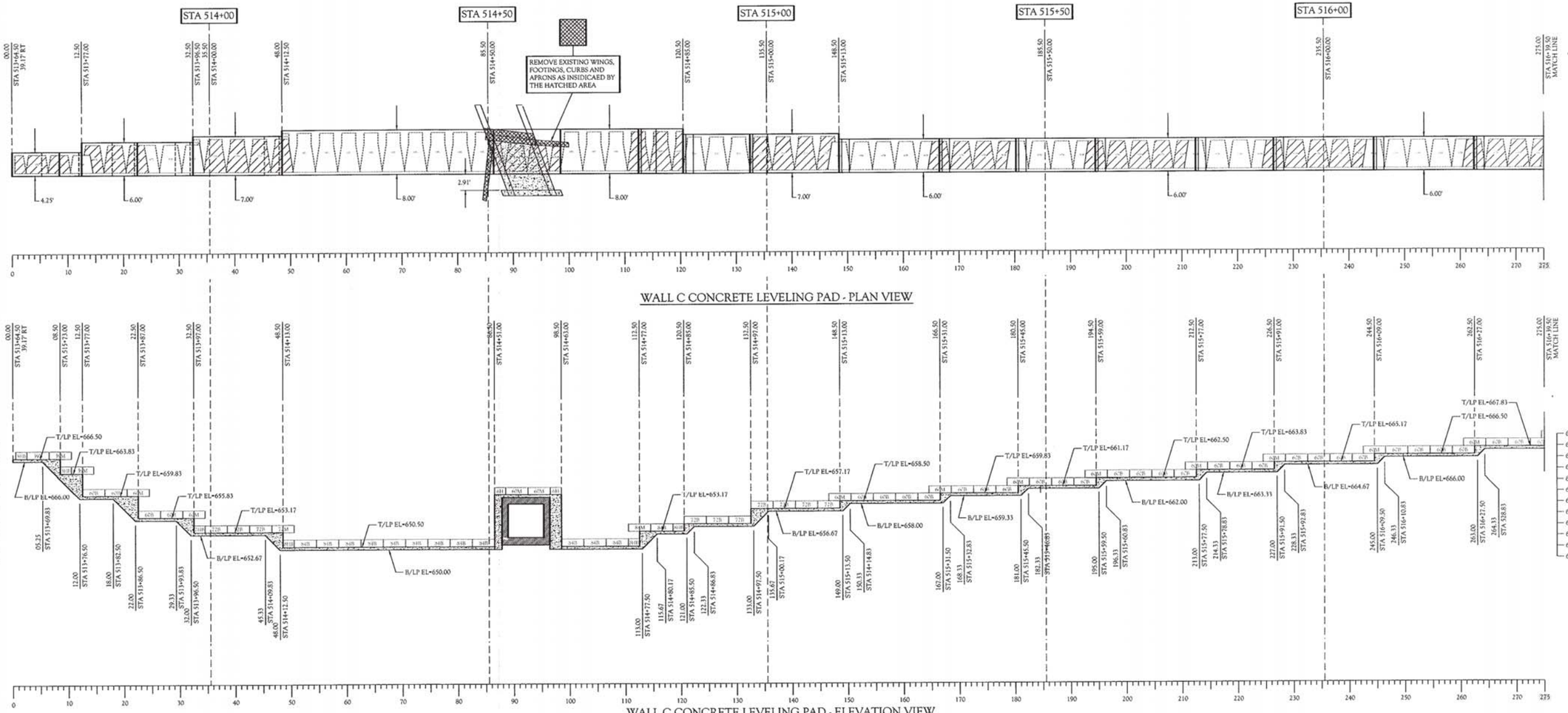

WALL C CONCRETE LEVELING PAD - PLAN VIEW

WALL C CONCRETE LEVELING PAD - ELEVATION VIEW

ELEVATION KEY	
T/W EL	TOP OF WALL ELEVATION
T/B EL	TOP OF BARRIER ELEVATION
T/LP EL	TOP OF LEVELING PAD ELEVATION
B/LP EL	BOTTOM OF LEVELING PAD ELEVATION
PIP	POURED IN PLACE
TD	TOP OF PAVED DITCH ELEVATION AT BACK OF WALL
FG	FINISHED GRADE AT BASE OF WALL

RECON BLOCK KEY:							
CAP	CAPSTONE	HM	HALF MOMENT SLAB	45M	45" DEEP FULL MIDDLE	7HB	72" DEEP HALF BOTTOM
ECAP	END CAPSTONE	24M	24" DEEP FULL MIDDLE	4H	45" DEEP HALF MIDDLE	84M	84" DEEP FULL MIDDLE
HEC	HALF END CAPSTONE	2H	24" DEEP HALF MIDDLE	45B	45" DEEP FULL BOTTOM	8H	84" DEEP HALF MIDDLE
FB	FENCE BLOCK	24B	24" DEEP FULL BOTTOM	60M	60" DEEP FULL MIDDLE	84B	84" DEEP FULL BOTTOM
FEH	HALF FENCE END	2HB	24" DEEP HALF BOTTOM	6H	60" DEEP HALF MIDDLE	8HB	84" DEEP HALF BOTTOM
FE	FENCE END BLOCK	39M	39" DEEP FULL MIDDLE	60B	60" DEEP FULL BOTTOM	96M	96" DEEP FULL MIDDLE
V	BARRIER BLOCK (2 PIECES)	3H	39" DEEP HALF MIDDLE	72M	72" DEEP FULL MIDDLE	9H	96" DEEP HALF MIDDLE
HV	HALF BARRIER BLOCK (2 PIECES)	39B	39" DEEP FULL BOTTOM	7H	72" DEEP HALF MIDDLE	96B	96" DEEP FULL BOTTOM
VM	FULL MOMENT SLAB	3HB	39" DEEP HALF BOTTOM	72B	72" DEEP FULL BOTTOM	91HB	96" DEEP HALF BOTTOM

REGISTERED PROFESSIONAL ENGINEER
MICHAEL R. JOHNSON
20093
OKLAHOMA

5/1/2015

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RETAINING WALL C CONCRETE LEVELING PAD

PROJECT NO. 104006

101ST STREET – HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CIVIL DESIGN PROFESSIONALS

CDP PROJECT NO: 15–0068

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PLAN SCALE:	DRAWN	MRJ	05/2015
	DESIGNED	MRJ	05/2015
	SURVEY		
PROFILE SCALES:	PROJ. MGR.	BDC	8/15
HORIZONTAL:	LEAD ENGR.	DW	8/16.
	FIELD MGR.	BDC	3/16
VERTICAL	RECOMMENDED DESIGN MANAGER	BMK	6/16

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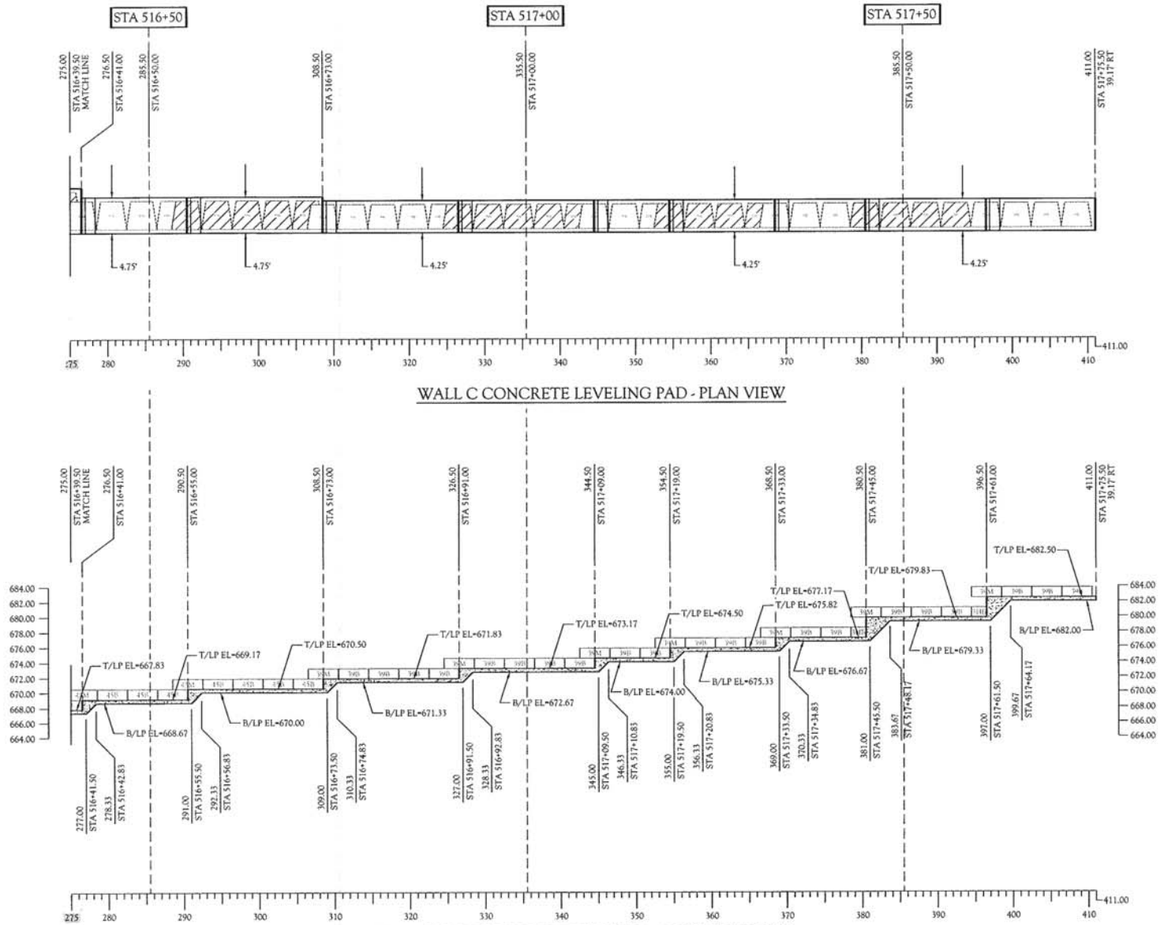

WALL C CONCRETE LEVELING PAD - PLAN VIEW

WALL C CONCRETE LEVELING PAD - ELEVATION VIEW

ELEVATION KEY	
T/W EL	TOP OF WALL ELEVATION
T/B EL	TOP OF BARRIER ELEVATION
T/LP EL	TOP OF LEVELING PAD ELEVATION
B/LP EL	BOTTOM OF LEVELING PAD ELEVATION
PIP	POURED IN PLACE
TD	TOP OF PAVED DITCH ELEVATION AT BACK OF WALL
FG	FINISHED GRADE AT BASE OF WALL

RECON BLOCK KEY:							
CAP	CAPSTONE	HM	HALF MOMENT SLAB	45M	45° DEEP FULL MIDDLE	7HB	72" DEEP HALF BOTTOM
ECAP	END CAPSTONE	24M	24" DEEP FULL MIDDLE	4H	45° DEEP HALF MIDDLE	84M	84" DEEP FULL MIDDLE
HEC	HALF END CAPSTONE	2H	24" DEEP HALF MIDDLE	45B	45° DEEP FULL BOTTOM	8H	84" DEEP HALF MIDDLE
FB	FENCE BLOCK	24B	24" DEEP FULL BOTTOM	60M	60" DEEP FULL MIDDLE	84B	84" DEEP FULL BOTTOM
FEH	HALF FENCE END	2HB	24" DEEP HALF BOTTOM	6H	60" DEEP HALF MIDDLE	8HB	84" DEEP HALF BOTTOM
FE	FENCE END BLOCK	39M	39" DEEP FULL MIDDLE	60B	60" DEEP FULL BOTTOM	96M	96" DEEP FULL MIDDLE
V	BARRIER BLOCK (2 PIECES)	3H	39" DEEP HALF MIDDLE	72M	72" DEEP FULL MIDDLE	9H	96" DEEP HALF MIDDLE
HV	HALF BARRIER BLOCK (2 PIECES)	39B	39" DEEP FULL BOTTOM	7H	72" DEEP HALF MIDDLE	96B	96" DEEP FULL BOTTOM
VM	FULL MOMENT SLAB	3HB	39" DEEP HALF BOTTOM	72B	72" DEEP FULL BOTTOM	9HB	96" DEEP HALF BOTTOM

REGISTERED PROFESSIONAL ENGINEER
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20093
OKLAHOMA
5/1/2015

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RETAINING WALL C CONCRETE LEVELING PAD

PROJECT NO. 104006

101ST STREET – HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CDP CIVIL DESIGN PROFESSIONALS

CDP PROJECT NO: 15-0068

REVISION	BY	DATE
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PLAN SCALE:
PROFILE SCALES:
HORIZONTAL:
VERTICAL

DRAWN	MRJ	05/2015
DESIGNED	MRJ	05/2015
SURVEY		
PROJ. MGR.	RBL	5/15
LEAD ENGR.		5/16
FIELD MGR.	RBM	3/16
RECOMMENDED DESIGN MANAGER	HAS	6/16

APPROVED:
CITY ENGINEER
DATE 11.04.16

DRAWING:
ATLAS PAGE NO: 1276, 1277, 1422, 1423
SHEET 89 OF 181

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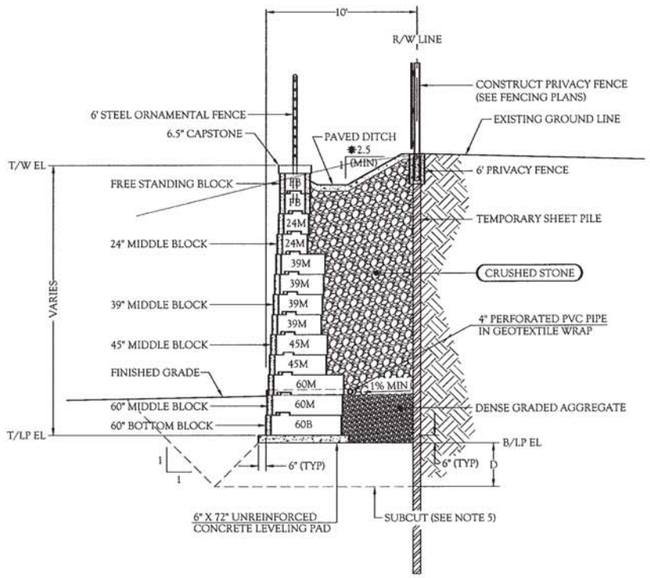
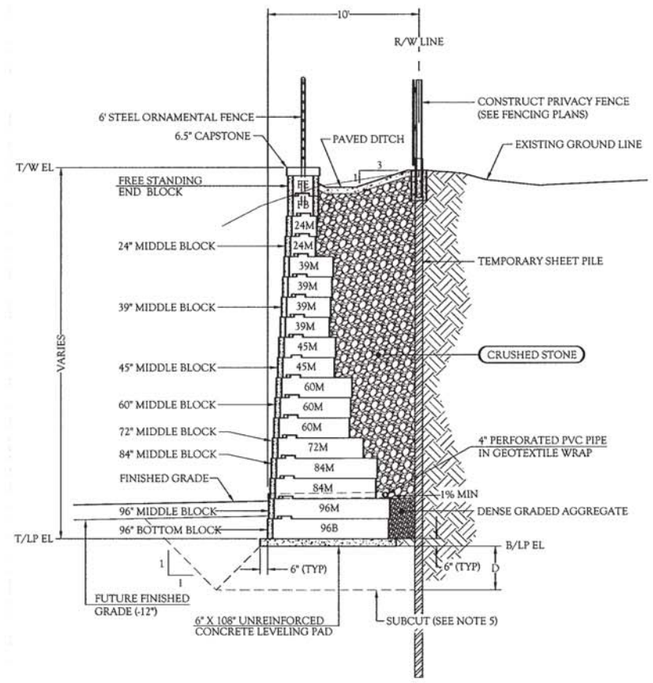


SECTION A

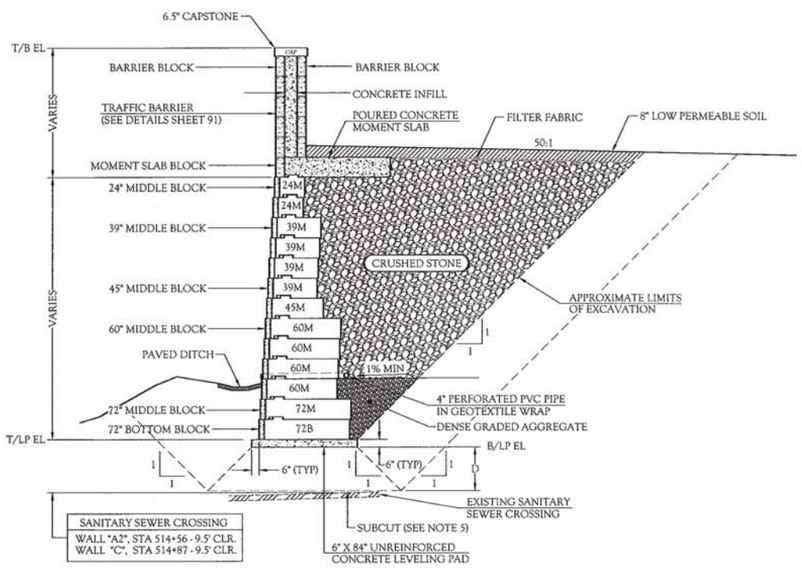
WALL "A1" - STA 507+30.00 TO 508+50.00
WALL "A1" - STA 510+50.00 TO 512+50.00

✱ SLOPE VARIES (SEE CROSS SECTIONS)



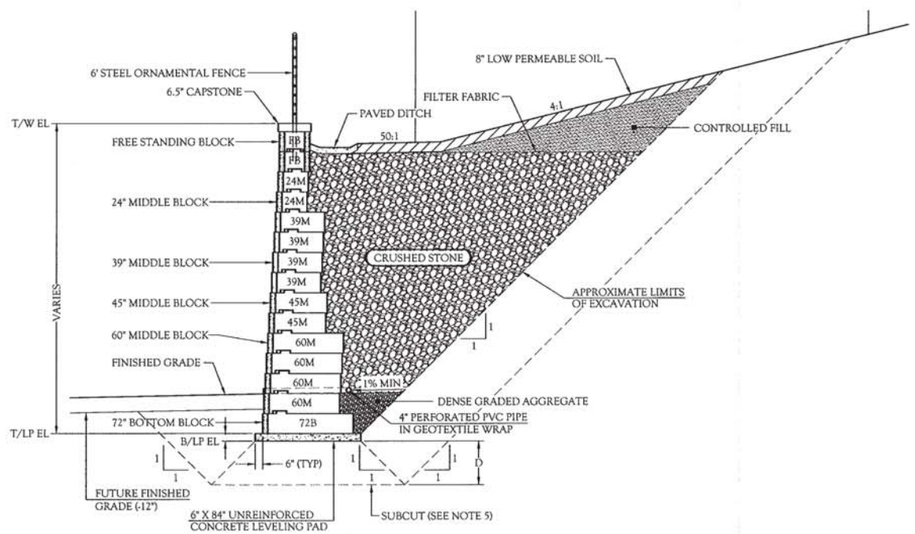
SECTION B

WALL "A1" - STA 508+50.00 TO 510+50.00



SECTION C

WALL "A2" - STA 512+50.00 TO 515+48.00
WALL "C" - STA 513+65.00 TO 517+75.00



SECTION D

WALL "B" - STA 508+80.00 TO 512+80.00

GENERAL NOTES:

1. ALL RETAINING WALLS SHALL BE CONSTRUCTED USING "RECON" RETAINING WALL UNITS WITH THE 3.6 STANDARD BATTER. THE RECON UNITS SHALL BE PLACED UPON A 6" (MINIMUM) CONCRETE LEVELING PAD (SEE CONCRETE LEVELING PAD SHEETS 83-89 FOR CONSTRUCTION DETAILS).
2. THE CONCRETE LEVELING PAD SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF Fc = 3,000 PSI.
3. THE FOUNDATION SOIL AT RETAINING WALL LOCATIONS SHALL BE CAPABLE OF MEETING THE MINIMUM BEARING CAPACITY REQUIREMENTS SPECIFIED ON RETAINING WALL ELEVATION SHEETS 79-82 (ABOVE THE DISTANCE BAR) TO SAFELY SUPPORT MINIMUM LOADING WITHOUT FAILURE OR EXCESSIVE SETTLEMENT.
4. THE LOCAL BEARING CAPACITY SHALL BE CONFIRMED BY THE SITE GEOTECHNICAL ENGINEER AFTER THE FOUNDATION EXCAVATION AND PRIOR TO WALL CONSTRUCTION.
5. UPON EXCAVATION, WHERE UNSUITABLE SOILS ARE FOUND, SUBCUT TO DEPTH "D" AS REQUIRED BY THE ONSITE GEOTECHNICAL ENGINEER AND REPLACE WITH SUITABLE COMPACTED STRUCTURAL FILL TO ACHIEVE THE REQUIRED BEARING CAPACITY. THE STRUCTURAL FILL SHALL BE COMPACTED TO A MINIMUM 95% STANDARD PROCTOR DENSITY.
6. PLACE 4" DIA PERFORATED PIPE AT FIRST BLOCK ABOVE FINISHED GRADE LOCATION AS SHOWN. OUTLET THRU FACE OF WALL AT 50' O.C. (MIN).
7. PLACE DENSE AGGREGATE MATERIAL UP TO 4" DIA PVC PIPE LOCATION AS SHOWN TO PREVENT GROUND WATER FROM LEACHING INTO SUBBASE OF RETAINING WALL.
8. CONTRACTOR SHALL USE TEMPORARY OR PERMANENT SHEET SHORING TO PLACE CRUSHED STONE TO RW LINE AT WALL A1. CONTRACTOR SHALL USE EXTREME CAUTION IF VIBRATORY REMOVAL OF SHEET PILE IS USED SO THE STRUCTURAL INTEGRITY OF RETAINING WALL STRUCTURE IS NOT COMPROMISED.
9. PLACE PRIVACY FENCE AT WALL A1 RW LINE AFTER REMOVAL OF TEMPORARY SHORING (IF REMOVED) (SEE FENCING PLANS)
10. ✳ A GEOTEXTILE FABRIC SHALL BE PLACED WHERE RETAINING WALLS ABUT TO EXISTING FOUNDATIONS AS SHOWN ON SITE PLAN (SHEET 78). OVERLAP ALL ABUTMENT JOINTS 24" WITH A MINIMUM 48" WIDE FABRIC TO PREVENT THE COREFILL AND BACKFILL FROM MIGRATING THROUGH THE ABUTMENT JOINTS.
11. SEE MANUFACTURER'S INFORMATION FOR ADDITIONAL CONSTRUCTION DETAILS FOR THE RECON RETAINING WALL SYSTEM. THE MANUFACTURER INFORMATION SHALL ACCOMPANY THE CONSTRUCTION PLANS.

REGISTERED PROFESSIONAL ENGINEER
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5/1/2015

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RETAINING WALL SECTIONS

PROJECT NO. 104006

101ST STREET – HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CIVIL DESIGN PROFESSIONALS

CDP PROJECT NO: 15-0068

REVISION	BY	DATE

PLAN SCALE:	DRAWN	MRJ 05/2015
	DESIGNED	MRJ 05/2015
	SURVEY	
PROFILE SCALES:	PROJ. MGR.	3/16
HORIZONTAL:	LEAD ENGR.	3/16
	FIELD MGR.	3/16
VERTICAL	RECOMMENDED:	6/16
	DESIGN MANAGER	
DRAWING:		
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APPROVED:

CITY ENGINEER

DATE 11.04.16

SHEET 90 OF 181

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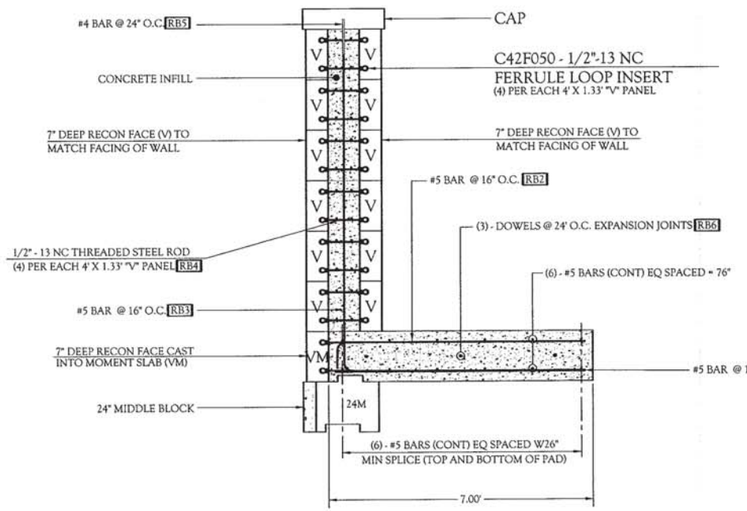
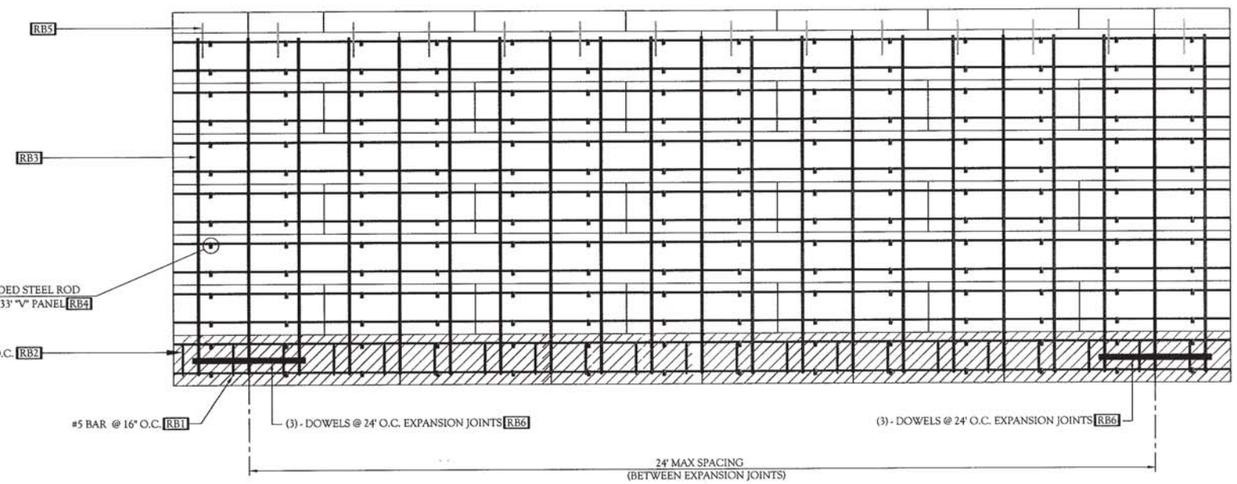
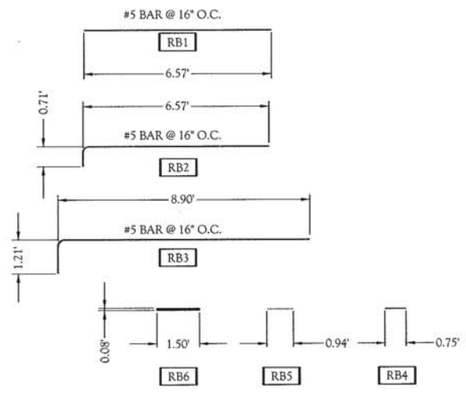


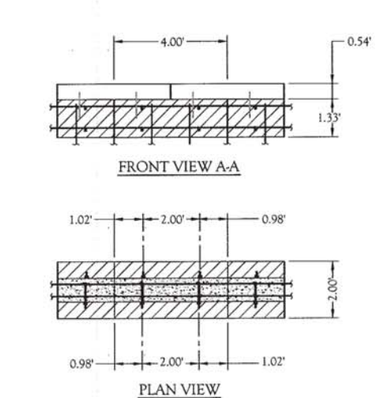
1/91 TRAFFIC BARRIER SECTION
SCALE: 1/2" = 1'



2/13 TRAFFIC BARRIER ELEVTION
SCALE: 1/2" = 1'



3/91 REBAR DETAILS
SCALE: 3/8" = 1'



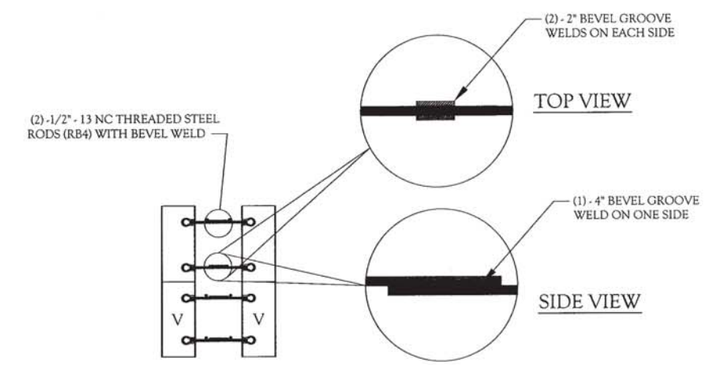
4/91 V BLOCK CONNECTION DETAIL
SCALE: 3/8" = 1'

GENERAL NOTES:

1. POURED AND PRECAST CONCRETE CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF f'c= 4,000 PSI (MIN).
2. ALL REINFORCING STEEL SHALL BE EPOXY COATED AND CONFORM TO ASTM DESIGNATION A615 GRADE 60.
3. THERE SHALL BE A 2" MINIMUM CLEAR COVERAGE ON ALL REBAR.
4. ALL DIMENSIONS RELATIVE TO REINFORCING STEEL ARE TO CENTERLINE OF BAR.
5. ALL CONTINUOUS BARS SHALL BE EQUALLY SPACED SHALL A HAVE A 26" (MIN) OVERLAP AT EACH SPLICE LOCATION.
6. WELD THE (2) -1/2" - 13 NC THREADED STEEL RODS (RB4), WHICH ALIGN SIDE BY SIDE FROM OPPOSITE SIDES OF "V" PANELS, TOGETHER WITH A 4" BEVEL WELD ONE ONE SIDE OF THE RODS OR WITH A 2" BEVEL ON EITHER SIDE OF RODS (SEE DETAIL 5). THE WELDED RODS WILL EXIST A 2' O.C.
7. PROVIDE EXPANSION JOINTS IN FOUNDATION @ 24'-0" (MAX).
8. PLACE (3) - 1"Ø x 18" LONG A36 HIGHWAY DOWELS (RB6) W/9" SLEEVE AT EACH EXPANSION JOINT.
9. SET RB5 (THE #4 BAR) INTO CONCRETE AT TOP OF BARRIER @ 24" O.C.. HAMMER DRILL RECESS INTO CAP UNIT AND GROUT IN PLACE.

NOTE:

1. WELD THE (2) -1/2" - 13 NC THREADED STEEL RODS (RB4), WHICH ALIGN SIDE BY SIDE FROM OPPOSITE SIDES OF "V" PANELS, TOGETHER WITH A 4" BEVEL WELD ON ONE SIDE OF THE RODS OR WITH TWO (2) 2" BEVEL WELDS ON EACH SIDE OF RODS (SEE DETAIL 5). THE WELDED RODS WILL EXIST A 2' O.C.



5/91 BEVEL GROOVE DETAIL
SCALE: 3/4" = 1'

REGISTERED PROFESSIONAL ENGINEER
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OKLAHOMA
5/1/2015

RETAINING WALL TRAFFIC BARRIER DETAILS

PROJECT NO. 104006

101ST STREET – HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

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CDP PROJECT NO: 15-0068

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PLAN SCALE:	DRAWN	MRJ	05/2015
	DESIGNED	MRJ	05/2015
	SURVEY		
PROFILE SCALES:	PROJ. MGR.	BDC	8/15
HORIZONTAL:	LEAD ENGR.	DV	6/16
	FIELD MGR.	RSV	3/16
VERTICAL	RECOMMENDED DESIGN MANAGER	HAS	6/16
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ATLAS PAGE NO: 1276, 1277, 1422, 1423			

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SHEET 91 OF 181

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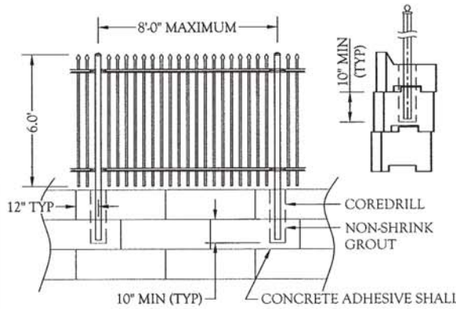
NOTES

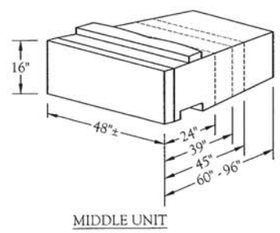
6' STEEL ORNAMENTAL FENCE SHALL BE AMERISTAR MONTAGE INDUSTRIAL CLASSIC 2 RAIL FENCE WITH BLACK COLOR, OR APPROVED EQUAL AND SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

CORE DRILL 5" DIAMETER HOLES FOR HANDRAIL POSTS INTO TOP BLOCK. HOLE SHALL BE DRILLED ALL THE WAY THROUGH THE TOP BLOCK. THE CENTER OF THE HOLE SHALL NOT BE LESS THAN 1'-0" FROM THE EDGE OF THE BLOCK IN ANY DIRECTION. GROUT FOR HANDRAIL POST SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI.

BASIS OF PAYMENT SHALL BE LINEAR FEET OF "6' STEEL ORNAMENTAL FENCE". THIS CONTRACT UNIT PRICE SHALL INCLUDE FENCE MATERIALS, GROUT, CORE DRILLING, TOOLS AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SHOWN AND SPECIFIED.



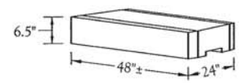
1/92 FENCE DETAIL
SCALE: N.T.S.



MIDDLE UNIT	
WIDTH:	48"
HEIGHT:	16"
DEPTH:	WEIGHT:
24"	±1,411 LBS
39"	±2,201 LBS
45"	±2,491 LBS
60"	±3,115 LBS
72"	±3,677 LBS
84"	±4,306 LBS
96"	±4,912 LBS

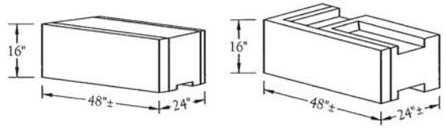
2/92 RECON UNITS
SCALE: N.T.S.

6.5" CAPSTONE	
WIDTH:	48"
DEPTH:	24"
HEIGHT:	6.5"
WEIGHT:	±750 LBS



FENCE BLOCK	
WIDTH:	48"
DEPTH:	24"
HEIGHT:	16"
WEIGHT:	±1,448 LBS

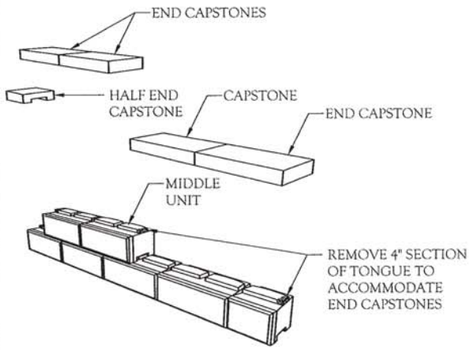
CORNER BLOCK	
WIDTH:	48"
DEPTH:	24"
HEIGHT:	16"
WEIGHT:	±1,401 LBS



3/92 FREESTANDING RECON UNITS
SCALE: N.T.S.

NOTES:

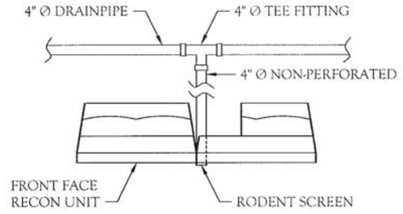
1. REGULAR CAPSTONES HAVE A GROOVE ALONG THE BOTTOM. THE GROOVE TERMINATES 4" FROM THE EDGE OF AN END CAPSTONE.
2. CLEAN AND APPLY ADHESIVE TO TOP COURSE OF RECON WALL UNITS PRIOR TO PLACING CAPSTONE.



4/92 WALL STEP WITH CAPSTONES
SCALE: N.T.S.

NOTES:

1. 4" DIAMETER CORRUGATED PERFORATED PLASTIC DRAINPIPE WRAPPED WITH A GEOTEXTILE FABRIC.
2. PROVIDE RODENT SCREEN AND 4" DIAMETER NON-PERFORATED PLASTIC PIPE OUTLET THROUGH WALL.
3. OUTLET INTO ONSITE DRAINAGE SYSTEM, THROUGH FACE OF WALL AT 50' O.C. MAXIMUM, AND/OR LOW POINTS ALONG WALL.



5/92 DRAINPIPE OUTLET
SCALE: N.T.S.

PROFILE VIEW (WALL C)

SECTION D - D VIEW

NOTES:
1. CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4,000 PSI.
2. BEVEL ALL EXPOSED EDGES WITH A 3/4" TRIANGULAR MOLDING OR FINISH WITH AN APPROVED EDGING TOOL. EXPOSED SURFACE SHALL BE GIVEN A LIMESTONE FACING / NO COLOR.
3. ALL REINFORCING STEEL SHALL BE EPOXY COATED AND CONFORM TO ASTM DESIGNATION A615 GRADE 60.
4. ALL DIMENSIONS RELATIVE TO REINFORCING STEEL ARE TO CENTERLINE OF BAR. ALL BARS SHALL BE EQUALLY SPACED.
5. END CLEARANCES FOR REINFORCING STEEL SHALL BE 3" EXCEPT AROUND RCB WHICH SHALL BE 2". REINFORCING STEEL SHALL BE BENT TO MAINTAIN MINIMUM CLEARANCE.

NOTE:

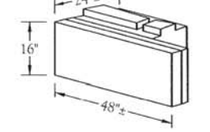
1. A GEOTEXTILE FABRIC SHALL BE PLACED WHERE THE RETAINING WALL A2 ABUTS THE EXISTING TIMBER WALL AS SHOWN ON THE SITE PLAN AND RETAINING WALL ELEVATION PLAN. OVERLAP ALL ABUTMENT JOINTS 24" WITH A MINIMUM 48" WIDE FABRIC.

6/92 ABUTMENT WRAP
SCALE: N.T.S.

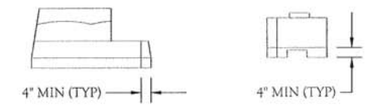
NOTES:

1. NOTCH BLOCK AT ANY ONE OF THE FOUR CORNERS TO ACCOMMODATE DRAINPIPE (4" Ø TYP).

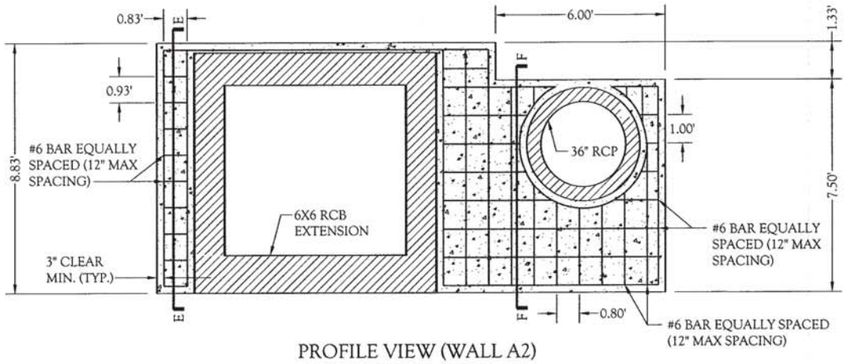
FITTING BLOCK	
WIDTH:	48"
DEPTH:	24"
HEIGHT:	16"
WEIGHT:	±1,215 LBS



RECON FITTING BLOCK



7/92 FITTING BLOCK
SCALE: N.T.S.



PROFILE VIEW (WALL A2)

SECTION E - E VIEW

SECTION F - F VIEW

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5/1/2015

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RETAINING WALL DETAILS

PROJECT NO. 104006

101ST STREET – HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CDP CIVIL DESIGN PROFESSIONALS
CDP PROJECT NO: 15-0068

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PLAN SCALE:
PROFILE SCALES: HORIZONTAL: VERTICAL

DRAWN	MRJ	05/2015
DESIGNED	MRJ	05/2015
SURVEY		
PROJ. MGR.	[illegible]	5/15
LEAD ENGR.	[illegible]	5/16
FIELD MGR.	[illegible]	3/16
RECOMMENDED:	[illegible]	6/16
DESIGN MANAGER		

APPROVED:
CITY ENGINEER
DATE 11.04.16

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ATLAS PAGE NO: 1276, 1277, 1422, 1423
SHEET 92 OF 181

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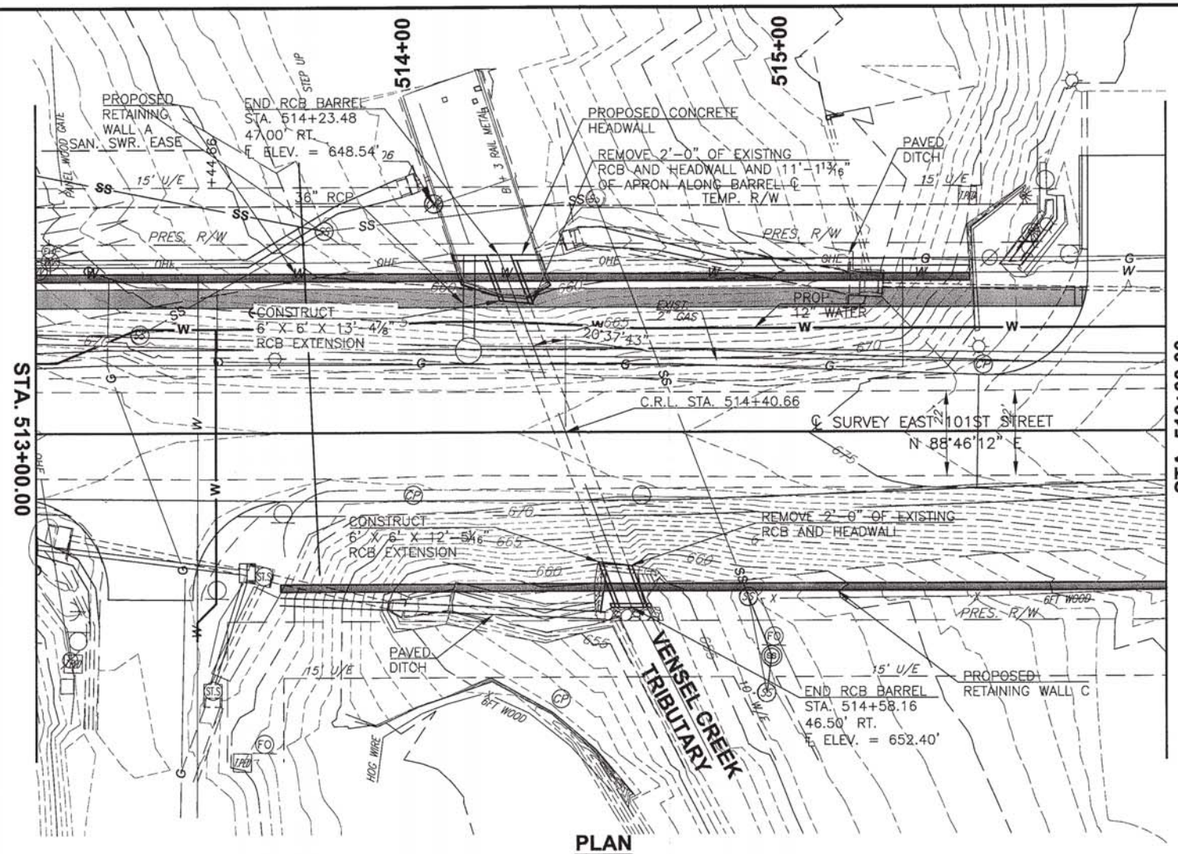
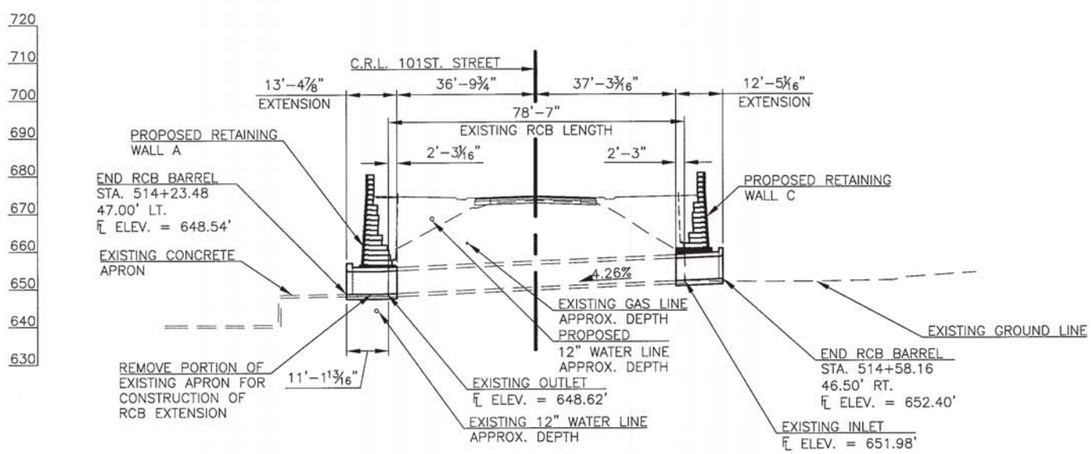


PLAN
1" = 20'



ELEVATION
1" = 20'

DESIGN DATA

CLASS AA CONCRETE f'c = 4 KSI
REINFORCING STEEL (GR. 60) Fy = 60 KSI

LOADING:
WEIGHT OF FILL ONLY, LIVE LOAD NEGLECTED DUE TO DEPTH OF FILL.

DESIGN:
2007 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FOURTH EDITION WITH 2008 INTERIMS.

ODOT STANDARDS

SBI-4-2

NOTE:
FOR CONCRETE HEADWALL DETAILS SEE SHEETS 95.

FOR DETAILS OF RCB EXTENSION SEE SHEET 98.

0' 10' 20' 40'

LICENSED PROFESSIONAL ENGINEER
TRAVIS A. COLLINS
22794
OKLAHOMA
CA32
6/30/16

RCB GENERAL PLAN & ELEVATION

PROJECT NO. 104006

101ST STREET-HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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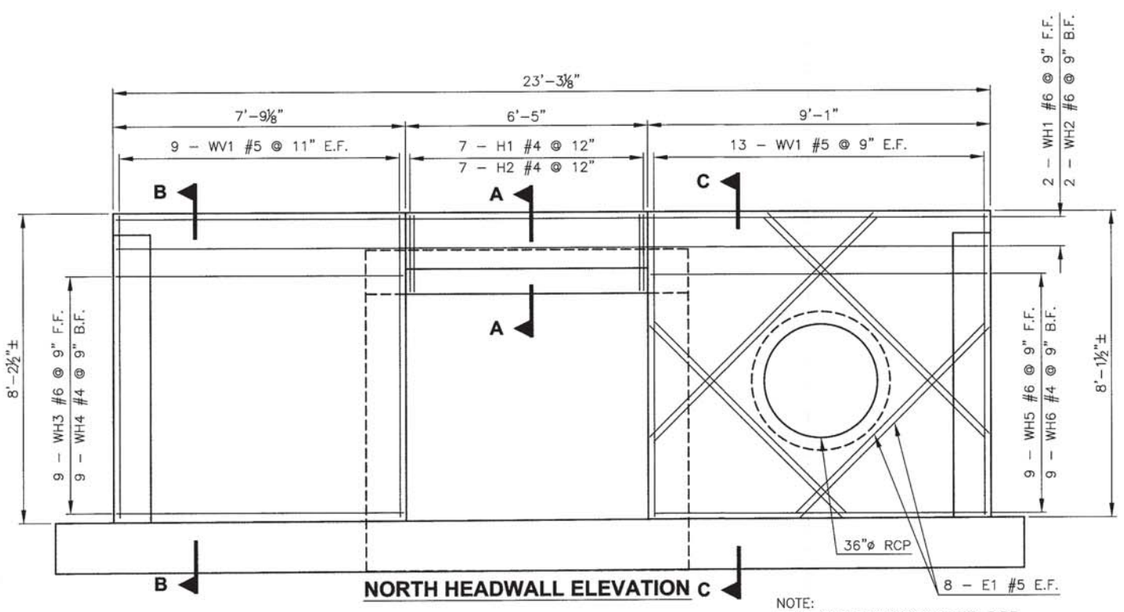
PLAN SCALE: 1" = 20'
PROFILE SCALES: HORIZONTAL: 1" = 20' VERTICAL 1" = 20'

DRAWN	J.T.S.	07/2014
DESIGNED	J.P.S.	07/2014
SURVEY	A.K.H.	08/2012
PROJ. MGR.	TAC	3/16
LEAD ENGR.	DJ	3/16
FIELD MGR.	RAH	3/16
RECOMMENDED DESIGN MANAGER	HAS	6/16

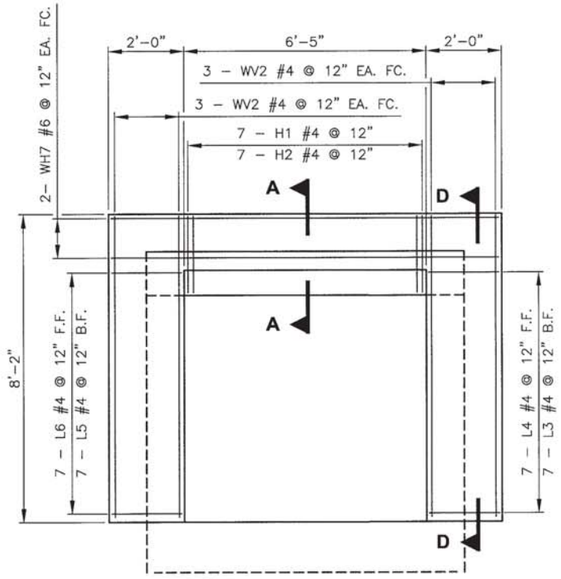
APPROVED: CITY ENGINEER

DRAWING: 94 RCB GENERAL PLAN & ELEVATION.DWG
DATE 11.04.16
ATLAS PAGE NO: 1276, 1277, 1422, 1423
SHEET 94 OF 181

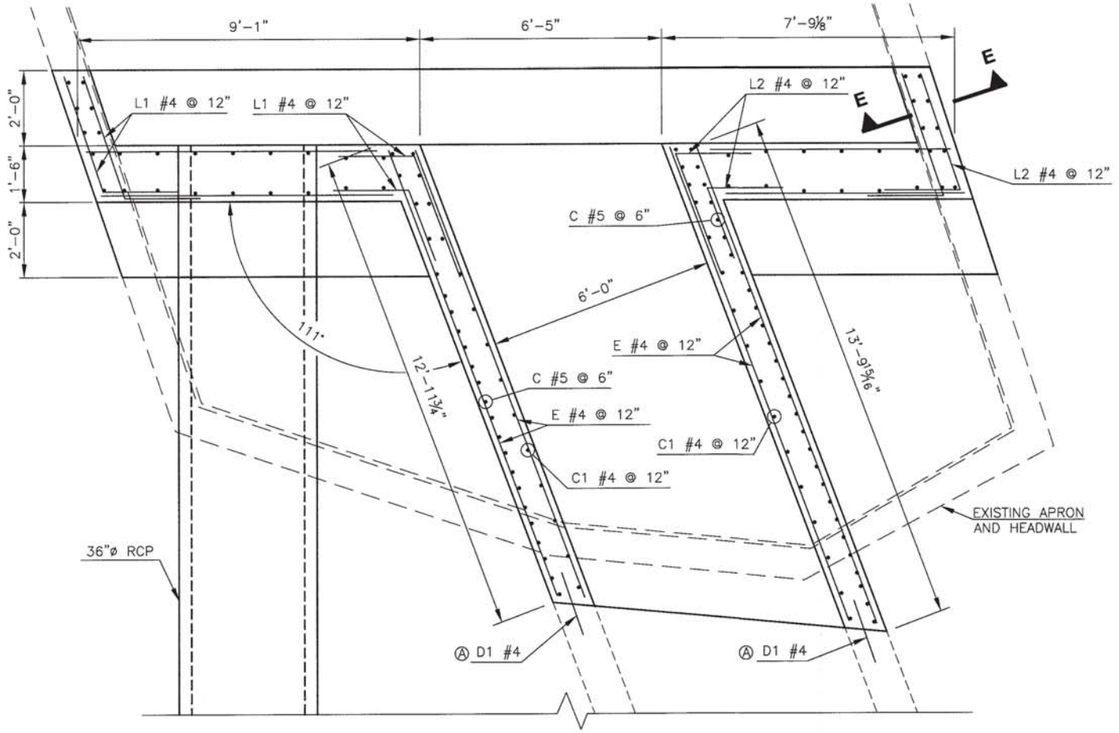


NORTH HEADWALL ELEVATION

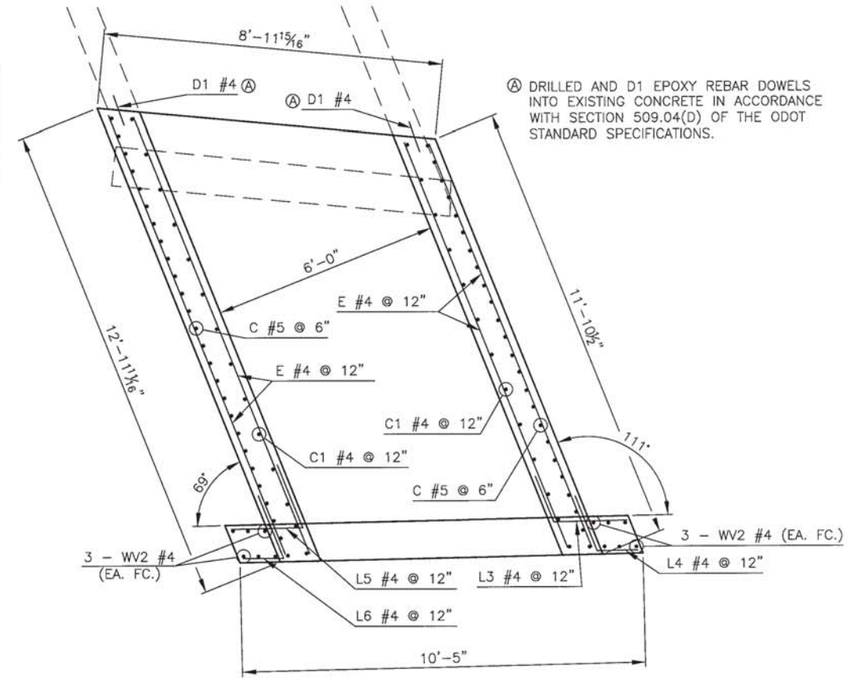
NOTE:
FIELD CUT REINFORCING FOR PIPE.
F.F. = FRONT FACE
B.F. = BACK FACE



SOUTH HEADWALL ELEVATION



NORTH PLAN



Ⓐ DRILLED AND D1 EPOXY REBAR DOWELS INTO EXISTING CONCRETE IN ACCORDANCE WITH SECTION 509.04(D) OF THE ODOT STANDARD SPECIFICATIONS.

SOUTH PLAN

RCB DETAILS SHEET 1 OF 4

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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PLAN SCALE:	DRAWN	J.T.S.	07/2014
N/A	DESIGNED	J.P.S.	07/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.	TRB	3/16
HORIZONTAL:	LEAD ENGR.	TRB	3/16
N/A	FIELD MGR.	RBH	3/16
VERTICAL	RECOMMENDED:	HAS	6/16
N/A	DESIGN MANAGER		

APPROVED:

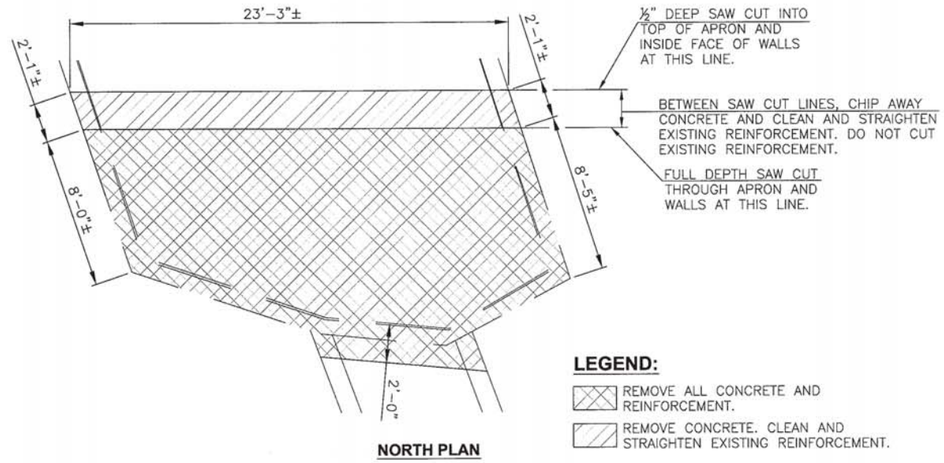
CITY ENGINEER

DATE 11-04-16

DRAWING: 95 RCB DETAILS SHEET 1 OF 4.DWG

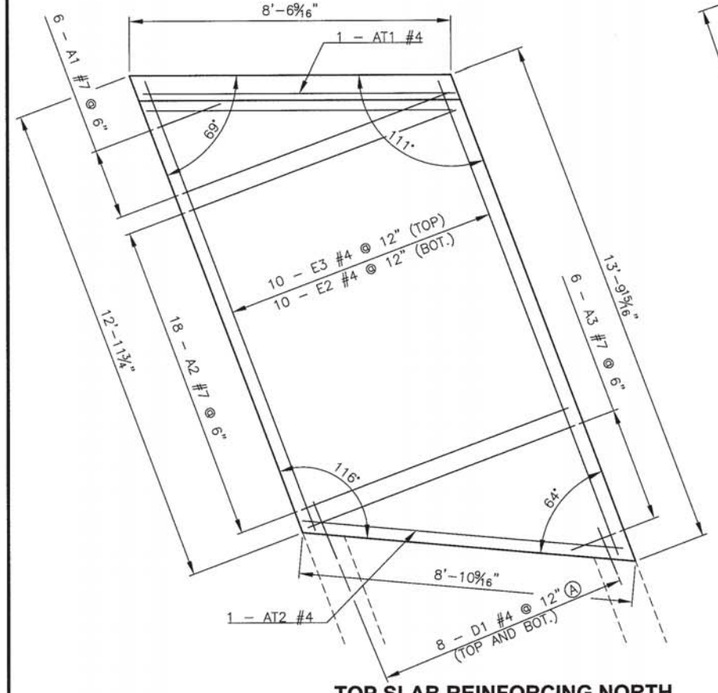
ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 95 OF 181

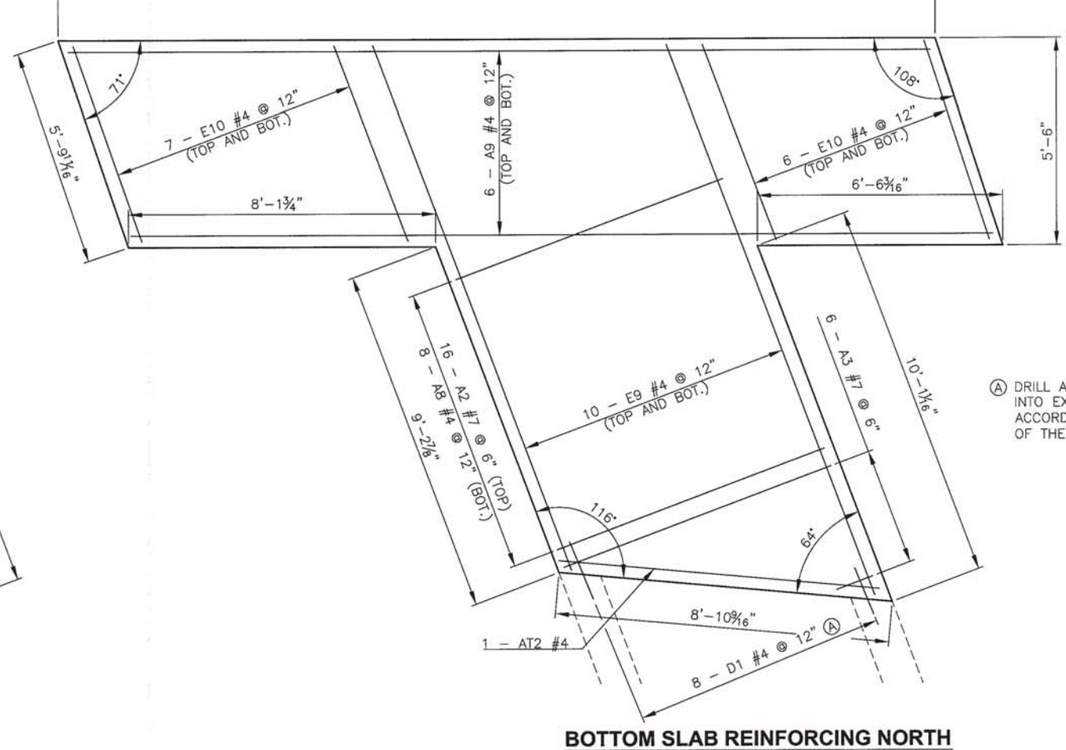


NORTH PLAN

HEADWALL REMOVAL DETAILS



TOP SLAB REINFORCING NORTH PLAN



BOTTOM SLAB REINFORCING NORTH PLAN

Ⓐ DRILL AND EPOXY REBAR DOWELS D1 INTO EXISTING CONCRETE IN ACCORDANCE WITH SECTION 509.04(D) OF THE ODOT STANDARD SPECIFICATIONS

LICENSED PROFESSIONAL ENGINEER
TRAVIS A. COLLINS
22794
OKLAHOMA
CA32
6/30/16

RCB DETAILS SHEET 2 OF 4

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
CEC 4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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-	-	-
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PLAN SCALE: N/A	DRAWN	J.T.S.	07/2014
	DESIGNED	J.P.S.	07/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.	TAB	3/16
HORIZONTAL: N/A	LEAD ENGR.		6/16
	FIELD MGR.		3/16
VERTICAL N/A	RECOMMENDED:		
	DESIGN MANAGER		6/16

APPROVED:

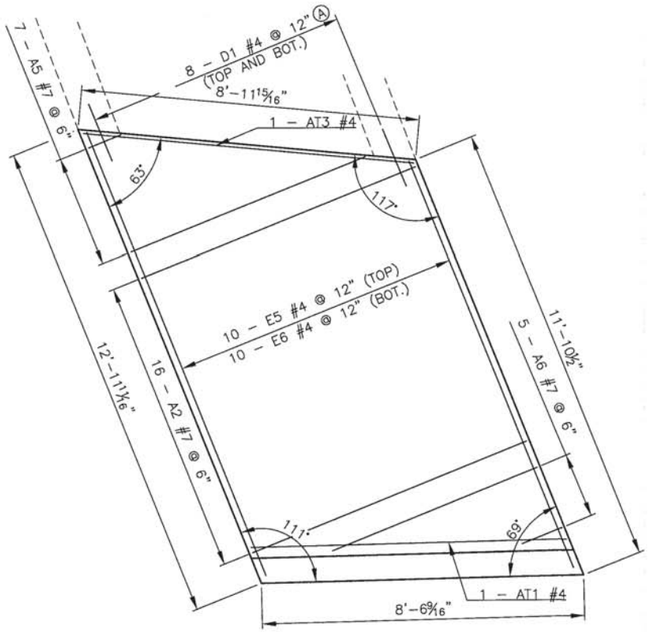
CITY ENGINEER

DRAWING: 97 RCB DETAILS SHEET 2 & 3 OF 4.DWG

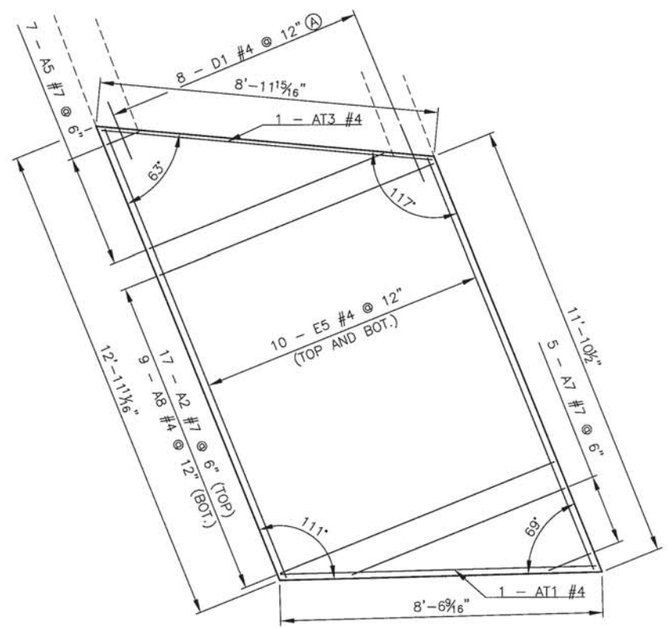
DATE 11.04.16

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 96 OF 181

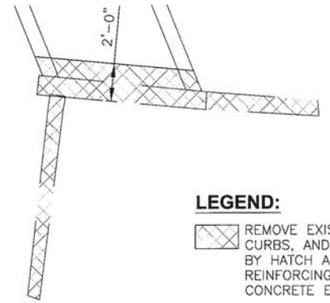


TOP SLAB REINFORCING SOUTH PLAN



BOTTOM SLAB REINFORCING SOUTH PLAN

Ⓐ DRILL AND EPOXY REBAR DOWELS D1 INTO EXISTING CONCRETE IN ACCORDANCE WITH SECTION 509.04(D) OF THE ODOT STANDARD SPECIFICATIONS



LEGEND:

REMOVE EXISTING WINGS, FOOTINGS, CURBS, AND APRONS AS INDICATED BY HATCH AREA. CUT EXISTING REINFORCING FLUSH WITH REMAINING CONCRETE EDGES.

SOUTH PLAN

HEADWALL REMOVAL DETAILS

RCB DETAILS SHEET 3 OF 4

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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PLAN SCALE: N/A
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A

DRAWN	J.T.S.	07/2014
DESIGNED	J.P.S.	07/2014
SURVEY	A.K.H.	08/2012
PROJ. MGR.	TAB	3/16
LEAD ENGR.	[illegible]	3/16
FIELD MGR.	[illegible]	3/16
RECOMMENDED	[illegible]	4/16
DESIGN MANAGER		

APPROVED:

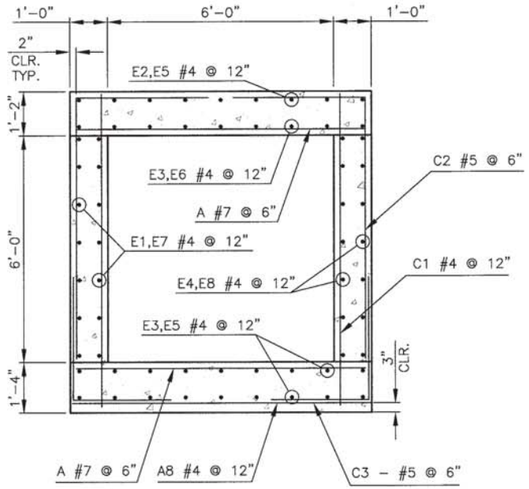
CITY ENGINEER

DRAWING: 97 RCB DETAILS SHEET 2 & 3 OF 4.DWG

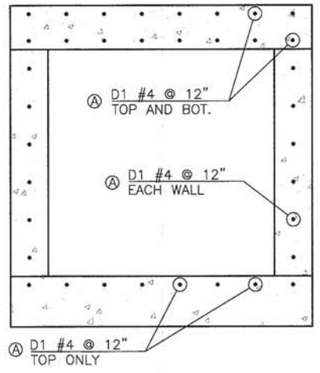
DATE 11-04-16

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 97 OF 181

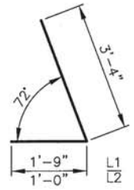


TYPICAL RCB SECTION

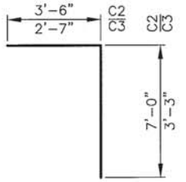


DOWEL DETAIL

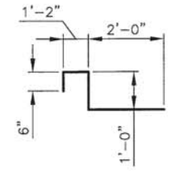
Ⓐ DRILLED AND EPOXY REBAR DOWELS D1 INTO EXISTING CONCRETE IN ACCORDANCE WITH SECTION 509.04(D) OF THE ODOT STANDARD SPECIFICATIONS.



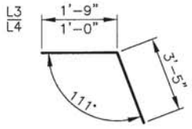
L1 #4 X 5'-1"
L2 #4 X 4'-4"



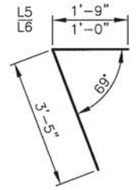
C2 #5 X 10'-6"
C3 #5 X 5'-10"



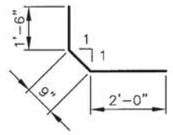
H1 #4 X 4'-8"



L3 #4 X 5'-2"
L4 #4 X 4'-5"



L5 #4 X 5'-2"
L6 #4 X 4'-5"



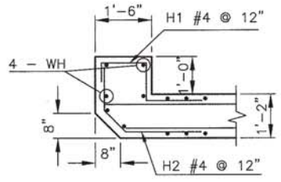
H2 #4 X 4'-3"

RCB BAR LIST

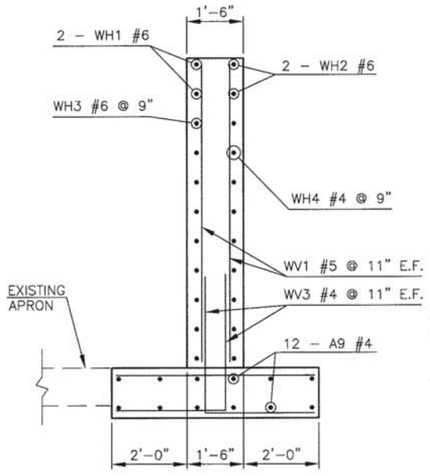
PLAIN REINFORCING

	MARK	SIZE	NO.	FORM	LENGTH	LENGTH VARIATION
	A1	#7	6	STR.	4'-3" AVG.	1'-0" TO 7'-6"
	A2	#7	60	STR.	7'-8"	
①	A3	#7	12	STR.	4'-2" AVG.	1'-6" TO 6'-10"
	A4	#7	5	STR.	4'-2" AVG.	1'-6" TO 6'-10"
②	A5	#7	14	STR.	4'-5" AVG.	1'-6" TO 7'-4"
	A6	#7	5	STR.	4'-0" AVG.	1'-4" TO 6'-8"
	A7	#7	5	STR.	4'-6" AVG.	1'-10" TO 7'-2"
	A8	#4	17	STR.	4'-6"	
	A9	#4	12	STR.	22'-11"	
	AT1	#4	2	STR.	8'-2"	
	AT2	#4	2	STR.	8'-6"	
	AT3	#4	2	STR.	8'-7"	
	C1	#4	52	STR.	8'-1"	
	C2	#5	100	BNT.	10'-6"	
	C3	#5	100	BNT.	5'-10"	
	D1	#4	56	STR.	2'-0"	
	E1	#4	16	STR.	12'-7"	
	E2	#4	10	STR.	12'-3" AVG.	11'-11" TO 12'-7"
	E3	#4	10	STR.	13'-0" AVG.	12'-7" TO 13'-5"
	E4	#4	14	STR.	13'-5"	
	E5	#4	20	STR.	12'-0" AVG.	11'-5" TO 12'-7"
	E6	#4	10	STR.	11'-4" AVG.	10'-10" 11'-10"
	E7	#4	14	STR.	11'-5"	
	E8	#4	14	STR.	12'-7"	
③	E9	#4	20	STR.	15'-2" AVG.	14'-9" TO 15'-7"
	E10	#4	26	STR.	5'-5"	
	H1	#4	14	BNT.	4'-8"	
	H2	#4	14	BNT.	4'-3"	
	L1	#4	30	BNT.	5'-4"	
	L2	#4	30	BNT.	4'-4"	
	L3	#4	7	BNT.	5'-2"	
	L4	#4	7	BNT.	4'-5"	
	L5	#4	7	BNT.	5'-2"	
	L6	#4	7	BNT.	4'-5"	
	WH1	#6	2	STR.	22'-11"	
	WH2	#6	2	STR.	22'-11"	
	WH3	#6	9	STR.	7'-5"	
	WH4	#4	9	STR.	7'-5"	
	WH5	#6	9	STR.	8'-9"	
	WH6	#4	9	STR.	8'-9"	
	WH7	#6	4	STR.	10'-1"	
	WV1	#5	44	STR.	7'-9"	
	WV2	#4	12	STR.	7'-10"	

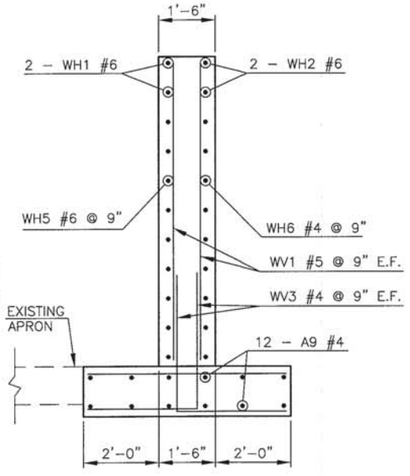
① TWO SETS OF 6 BARS.
② TWO SETS OF 7 BARS.
③ TWO SETS OF 10 BARS.



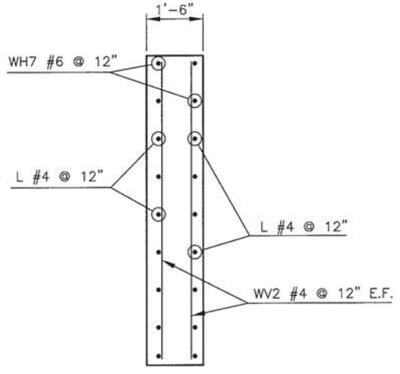
SECTION A-A



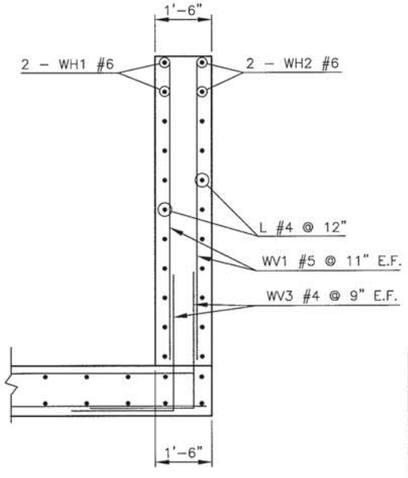
SECTION B-B



SECTION C-C



SECTION D-D



SECTION E-E

SUMMARY OF PAY QUANTITIES

ITEM	UNIT	TOTAL
CLASS AA CONCRETE	C.Y.	43.5
REINFORCING STEEL	LB.	5,970

RCB DETAILS OF SHEET 4 OF 4

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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PLAN SCALE: N/A
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A

DRAWN	J.T.S.	07/2014
DESIGNED	J.P.S.	07/2014
SURVEY	A.K.H.	08/2012
PROJ. MGR.	TAB	3/16
LEAD ENGR		6/16
FIELD MGR.		3/16
RECOMMENDED		6/16
DESIGN MANAGER		

APPROVED:

CITY ENGINEER

DRAWING: 98 RCB DETAILS SHEET 4 OF 4.DWG
DATE 11.04.16
ATLAS PAGE NO: 1276, 1277, 1422, 1423
SHEET 98 OF 181

PLACE AT 91ST AND RIVERSIDE INTERSECTION FOR EB DETOUR TRAFFIC

PLACE AT 91ST AND RIVERSIDE INTERSECTION FOR WB DETOUR TRAFFIC

PLACE AT 91ST AND YALE INTERSECTION FOR EB DETOUR TRAFFIC

PLACE AT 91ST AND YALE INTERSECTION FOR WB DETOUR TRAFFIC

PORTABLE CHANGABLE MESSAGE BOARD

PORTABLE CHANGABLE MESSAGE BOARD

PHASE 1 WORK AREA
BEGIN: STA. 495+67.00
END: STA. 515+50.00

PHASE 1 WORK AREA SHALL EXTEND ON SOUTH SIDE OF ROADWAY TO STA. 517+85 TO CONSTRUCT SOUTH RETAINING WALL

LEGEND

A — ROAD CLOSED TO THRU TRAFFIC — R11-4 W/ WING BARRICADE

B — ROAD CLOSED — R11-2 W/TYPE III BARRICADE W/TYPE A LIGHTS

C — DETOUR ← — M4-9(L)

D — DETOUR → — M4-9(R)

E — DETOUR ↑ — M4-9(V)

F — ROAD CLOSED 500 FT — W20-1(500 FT)

NOTES: 1) SOUTH RETAINING WALLS SHALL BE CONSTRUCTED PRIOR TO NORTH RETAINING WALL TO ALLOW FOR OVERHEAD POWER LINE RELOCATION BY PSO.

2) CONSTRUCTION FROM STA. 495+67 TO STA. 496+60 SHALL BE DONE DURING THE SUMMER WHEN SCHOOL IS OUT OF SESSION REGARDLESS OF WHEN PHASE I BEGINS CONSTRUCTION. THE EAST SCHOOL DRIVE SHALL REMAIN OPEN WHEN SCHOOL IS IN SESSION.

0' 150' 300' 600'

REVISION	BY	DATE

BEFORE YOU DIG 811 1-800-522-OKIE CALL OKIE

REGISTERED PROFESSIONAL ENGINEER JEREMY P. STALNAKER OKLAHOMA

CONSTRUCTION SEQUENCING PHASE 1

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC CEC INFRASTRUCTURE SOLUTIONS 4617 E. 91st Street S. Tulsa, OK 74137 (918) 663-9401

PLAN SCALE: 1"=200'	DRAWN	J.R.C.	09/2012
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.	BAC	8/15
HORIZONTAL: 1"=200'	LEAD ENGR.	DJ	7/16
	FIELD MGR.	RSH	3/16
VERTICAL N/A	RECOMMENDED DESIGN MANAGER	HAS	6/16

APPROVED: CITY ENGINEER

DRAWING: 99 CONSTRUCTION SEQUENCING PHASE 1.DWG — DATE 11.08.16

ATLAS PAGE NO: 1276, 1277, 1422, 1423 — SHEET 99 OF 181

PLOT DATE: May 4, 2015, DRAWING NAME: 99 CONSTRUCTION SEQUENCING PHASE 1.DWG

PLACE AT 91ST AND RIVERSIDE INTERSECTION FOR EB DETOUR TRAFFIC

PLACE AT 91ST AND RIVERSIDE INTERSECTION FOR WB DETOUR TRAFFIC

PLACE AT 91ST AND YALE INTERSECTION FOR EB DETOUR TRAFFIC

PLACE AT 91ST AND YALE INTERSECTION FOR WB DETOUR TRAFFIC

PORTABLE CHANGABLE MESSAGE BOARD

PORTABLE CHANGABLE MESSAGE BOARD

PHASE 2 WORK AREA
BEGIN: STA. 513+69.00
END: STA. 526+00.00

LEGEND

- A — ROAD CLOSED TO THRU TRAFFIC — R11-4 W/ WING BARRICADE
- B — ROAD CLOSED — R11-2 W/TYPE III BARRICADE W/TYPE A LIGHTS
- C — DETOUR — M4-9(L)
- D — DETOUR — M4-9(R)
- E — DETOUR — M4-9(V)
- F — ROAD CLOSED 500 FT — W20-1(500 FT)

0' 150' 300' 600'

BEFORE YOU DIG 811 1-800-522-OKIE CALL OKIE

REGISTERED PROFESSIONAL ENGINEER JEREMY P. STABLER 21795 OKLAHOMA

CONSTRUCTION SEQUENCING PHASE 2

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE

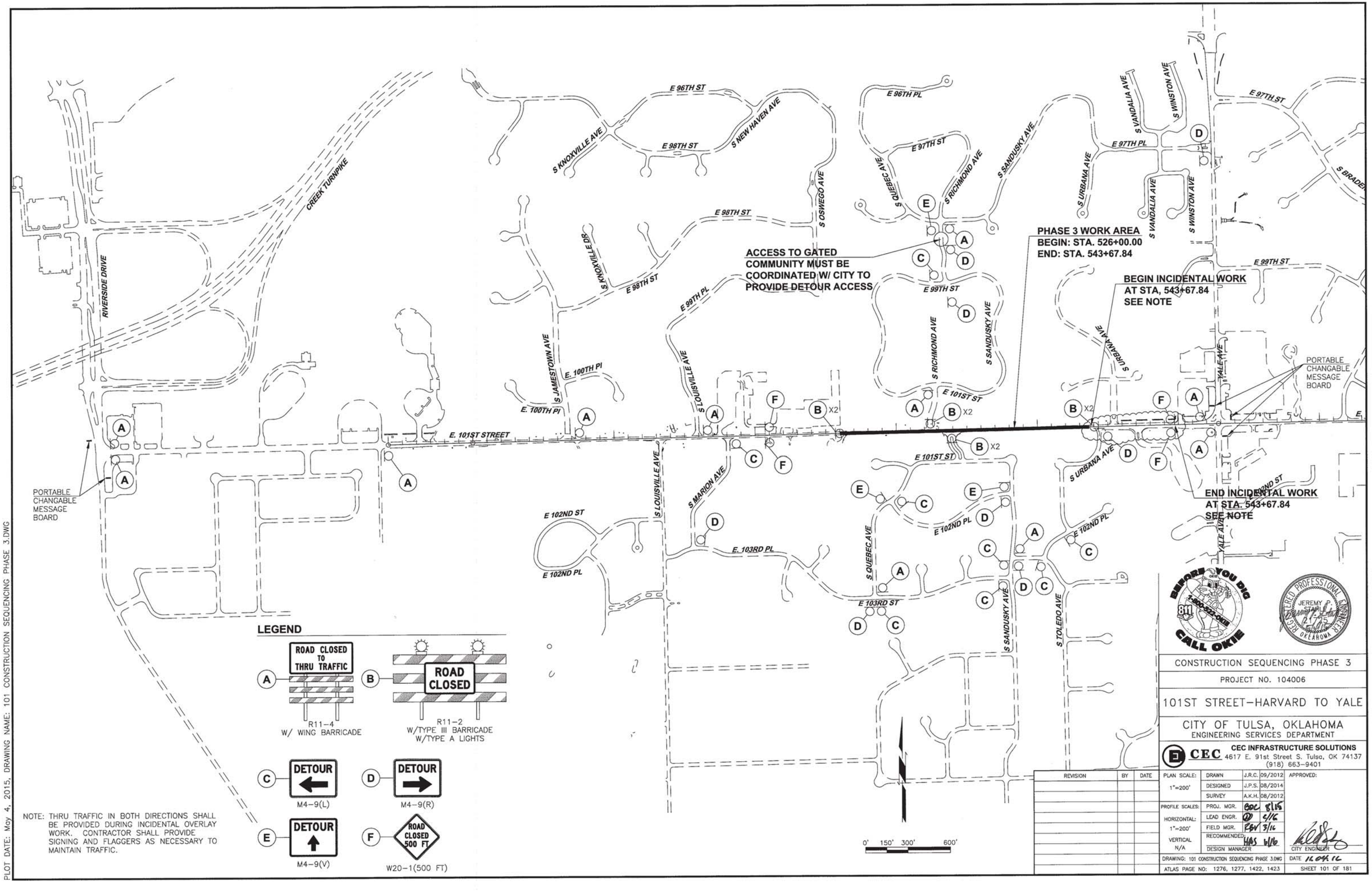
PLAN SCALE: 1"=200'	DRAWN	J.R.C.	09/2012
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES: HORIZONTAL: 1"=200' VERTICAL N/A	PROJ. MGR.	BSC	8.15
	LEAD ENGR.	JPS	6/16
	FIELD MGR.	CBW	3/16
	RECOMMENDED DESIGN MANAGER	MAS	6/16

APPROVED: CITY ENGINEER

DRAWING: 100 CONSTRUCTION SEQUENCING PHASE 2.DWG — DATE 11.04.15

ATLAS PAGE NO: 1276, 1277, 1422, 1423 — SHEET 100 OF 181

PLOT DATE: May 4, 2015, DRAWING NAME: 100 CONSTRUCTION SEQUENCING PHASE 2.DWG



NOTE: THRU TRAFFIC IN BOTH DIRECTIONS SHALL BE PROVIDED DURING INCIDENTAL OVERLAY WORK. CONTRACTOR SHALL PROVIDE SIGNING AND FLAGGERS AS NECESSARY TO MAINTAIN TRAFFIC.

PLOT DATE: May 4, 2015, DRAWING NAME: 101 CONSTRUCTION SEQUENCING PHASE 3.DWG

BEFORE YOU DIG CALL OKIE 811 1-800-522-OKIE

REGISTERED PROFESSIONAL ENGINEER JEREMY P. STAPLE 21725 OKLAHOMA

CONSTRUCTION SEQUENCING PHASE 3

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

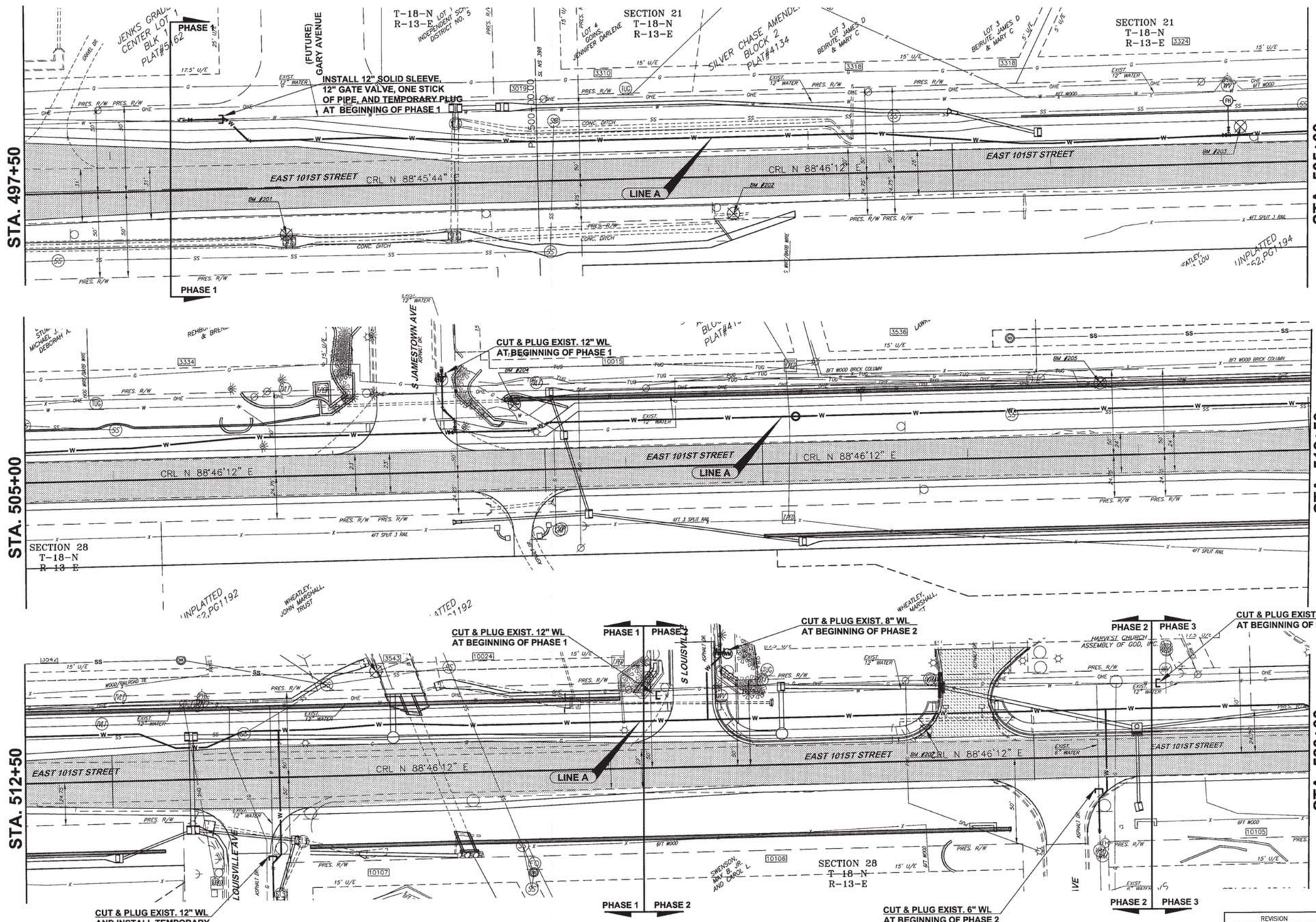
CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE

PLAN SCALE: 1"=200'	DRAWN	J.R.C.	09/2012
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.	BOC	8/15
HORIZONTAL: 1"=200'	LEAD ENGR.	DD	2/16
	FIELD MGR.	RBV	3/16
VERTICAL N/A	RECOMMENDED: DESIGN MANAGER	HAS	6/16

APPROVED:
CITY ENGINEER

DRAWING: 101 CONSTRUCTION SEQUENCING PHASE 3.DWG
DATE 16.04.16
ATLAS PAGE NO: 1276, 1277, 1422, 1423
SHEET 101 OF 181



PHASE 1

INSTALL A 12" SOLID SLEEVE, 12" GATE VALVE, ONE STICK OF PIPE, AND A TEMPORARY PLUG AT STA. 498+00. CUT AND PLUG THE EXISTING WATER LINES AND INSTALL A TEMPORARY BLOWOFF HYDRANT AS SHOWN ON THE PLANS PRIOR TO SHUTTING DOWN THE EXISTING 12" WATER LINE. ROUGH GRADING OPERATIONS SHALL BE COMPLETED PRIOR TO INSTALLING THE PROPOSED 12" WATER LINE AND MAKING ALL CONNECTIONS.

PHASE 2

CUT AND PLUG THE EXISTING WATER LINES AS SHOWN ON THE PLANS PRIOR TO SHUTTING DOWN THE EXISTING 12" WATER LINE. ROUGH GRADING OPERATIONS SHALL BE COMPLETED PRIOR TO INSTALLING THE PROPOSED 12" WATER LINE AND MAKING ALL CONNECTIONS.

PHASE 3

THE EXISTING 12" WATER LINE SHALL REMAIN IN SERVICE DURING ROUGH GRADING OPERATIONS. INSTALL THE PROPOSED 12" WATER LINE AFTER ROUGH GRADING OPERATIONS AND THEN MAKE ALL CONNECTIONS AND TRANSFER SERVICES.

NOTE: COSTS FOR ALL WATER LINE CONSTRUCTION PHASING WORK, INCLUDING CUTTING AND PLUGGING EXISTING WATER LINES, INSTALLING TEMPORARY BLOWOFF HYDRANTS, INSTALLING TEMPORARY PLUGS ON PROPOSED WATER LINES AND ALL OTHER RELATED WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PIPE.

0' 15' 30' 60'

JEREMY R. STAHLE — REGISTERED PROFESSIONAL ENGINEER — OKLAHOMA

BEFORE YOU DIG — CALL OKIE

TMUA-W 14-60

WATER LINE CONSTRUCTION SEQUENCING 1 OF 2

PROJECT NO. 104006

101ST STREET-HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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PLAN SCALE: 1" = 30'	DRAWN	J.T.S.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES: HORIZONTAL: 1" = N/A VERTICAL 1" = N/A	PROJ. MGR.	SWJ	02/16
	LEAD ENGR.	JRM	10/16
	FIELD MGR.	RBW	3/16
	RECOMMENDED: DESIGN MANAGER	HHS	6/16

APPROVED: CITY ENGINEER

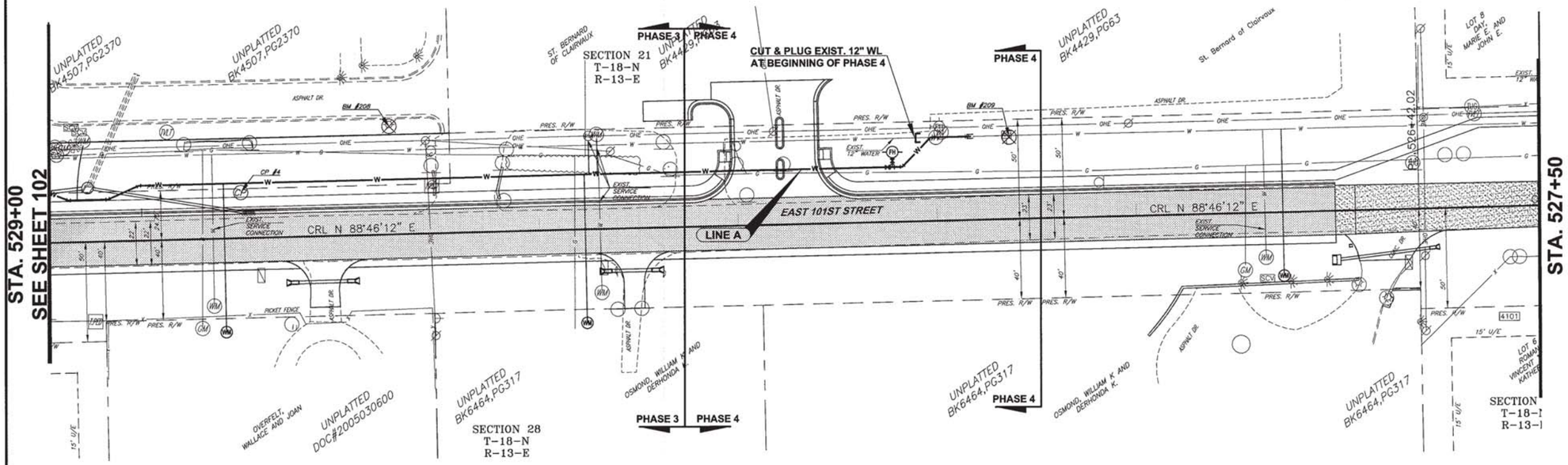
DRAWING: 60 WATER PROFILES & DETAILS.DWG

DATE 11/9/16

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 102 OF 181

PLOT DATE: May 4, 2015, DRAWING NAME: 60 WATER PROFILES & DETAILS.DWG



PHASE 3

THE EXISTING 12" WATER LINE SHALL REMAIN IN SERVICE DURING ROUGH GRADING OPERATIONS. INSTALL THE PROPOSED 12" WATER LINE AFTER ROUGH GRADING OPERATIONS AND THEN MAKE ALL CONNECTIONS AND TRANSFER SERVICES.

PHASE 4

CUT AND PLUG THE EXISTING 12" WATER LINE. ROUGH GRADING OPERATIONS SHALL BE COMPLETED PRIOR TO INSTALLING THE PROPOSED 12" WATER LINE.

NOTE: COSTS FOR ALL WATER LINE CONSTRUCTION PHASING WORK, INCLUDING CUTTING AND PLUGGING EXISTING WATER LINES, INSTALLING TEMPORARY BLOWOFF HYDRANTS, INSTALLING TEMPORARY PLUGS ON PROPOSED WATER LINES AND ALL OTHER RELATED WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PIPE.

0' 20' 40' 80'

REGISTERED PROFESSIONAL ENGINEER JEREMY P. STAHLE 21725 OKLAHOMA

BEFORE YOU DIG 811 CALL OKIE

TMUA-W 14-60

WATER LINE CONSTRUCTION SEQUENCING 2 OF 2

PROJECT NO. 104006

101ST STREET-HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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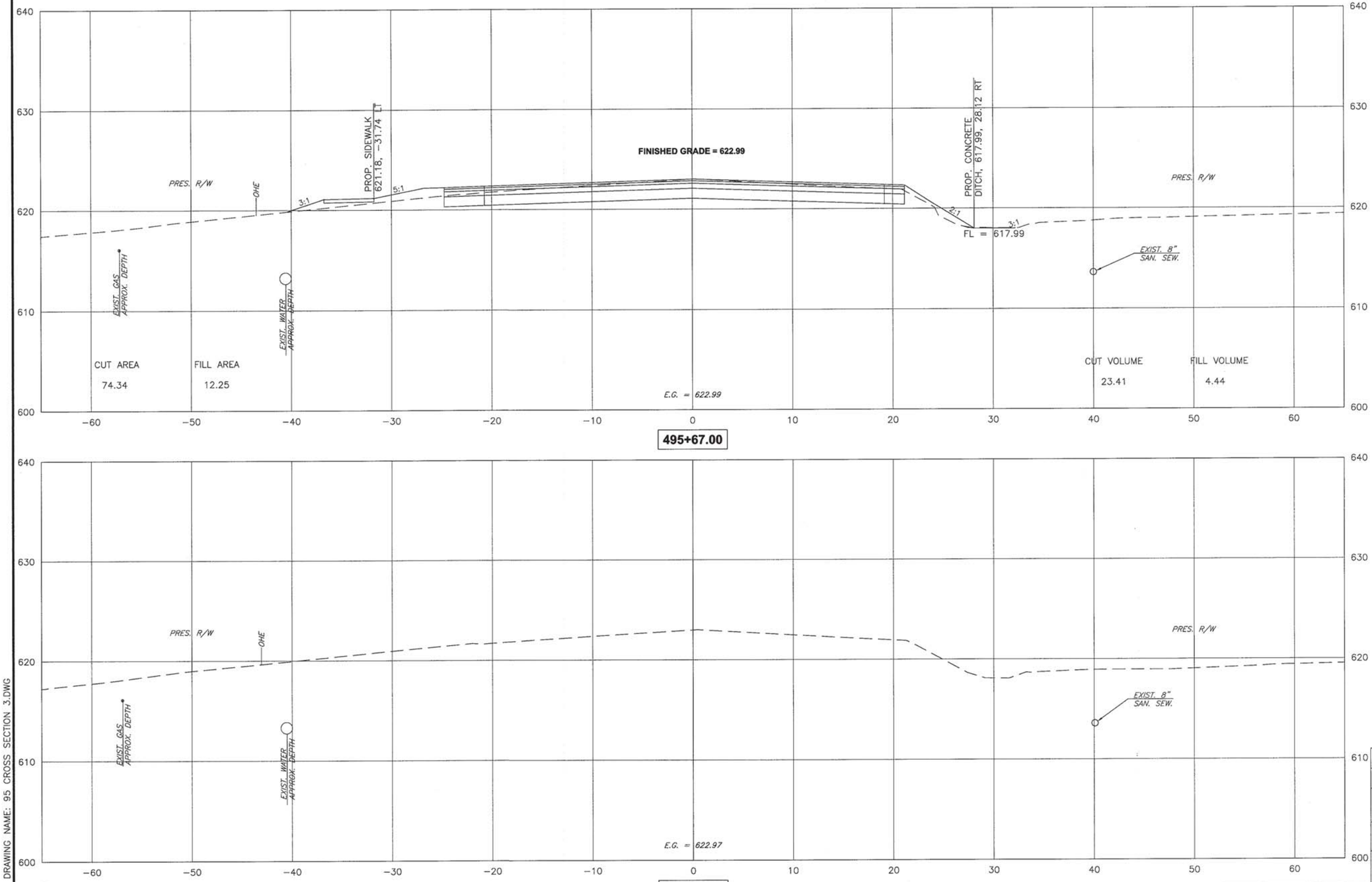
PLAN SCALE: 1" = 30'	DRAWN	J.T.S.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES: HORIZONTAL: 1" = N/A VERTICAL 1" = N/A	PROJ. MGR.	[illegible]	02/16
	LEAD ENGR.	[illegible]	10/16
	FIELD MGR.	[illegible]	3/16
	RECOMMENDED: DESIGN MANAGER	HAS	6/16

APPROVED: CITY ENGINEER

DRAWING: 60 WATER PROFILES & DETAILS.DWG DATE 11/9/16

ATLAS PAGE NO: 1276, 1277, 1422, 1423 SHEET 103 OF 181

PLOT DATE: May 4, 2015, DRAWING NAME: 60 WATER PROFILES & DETAILS.DWG



PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 1

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663–9401

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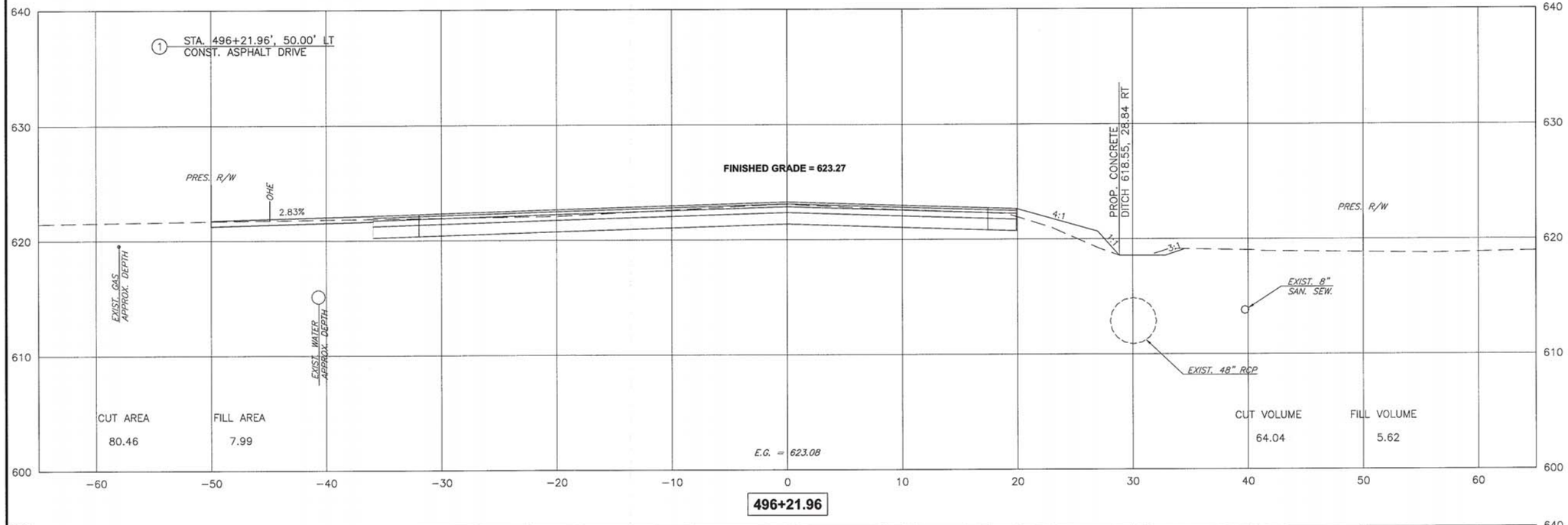
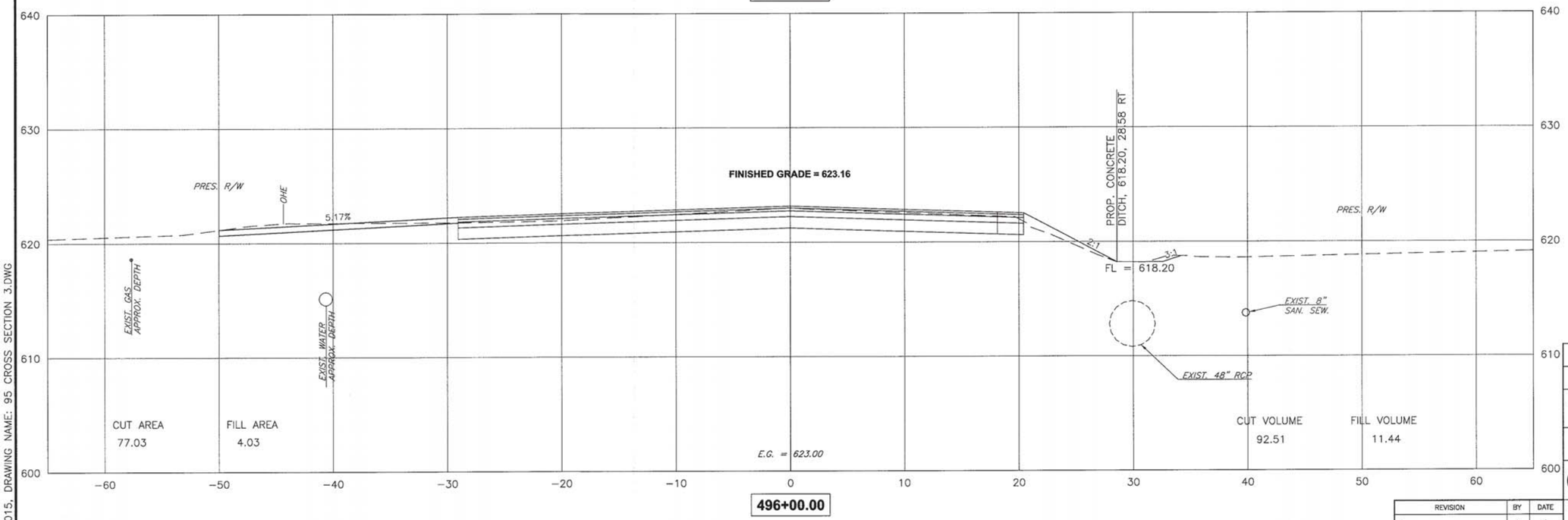
PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.		
HORIZONTAL: N/A	LEAD ENGR.		
	FIELD MGR.		
VERTICAL N/A	RECOMMENDED:		
	DESIGN MANAGER		CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG			DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423			SHEET 104 OF 181

APPROVED:





PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 2

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
CEC 4617 E. 91st Street S. Tulsa, OK 74137
(918) 663–9401

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PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014	APPROVED:
	DESIGNED	J.P.S.	08/2014	
	SURVEY	A.K.H.	08/2012	
PROFILE SCALES:	PROJ. MGR.			
HORIZONTAL: N/A	LEAD ENGR.			
	FIELD MGR.			
VERTICAL N/A	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG				DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 105 OF 181

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496+50.00

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PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

JEREMY P. STAHLE 21725 REGISTERED PROFESSIONAL ENGINEER OKLAHOMA

CROSS SECTION 3

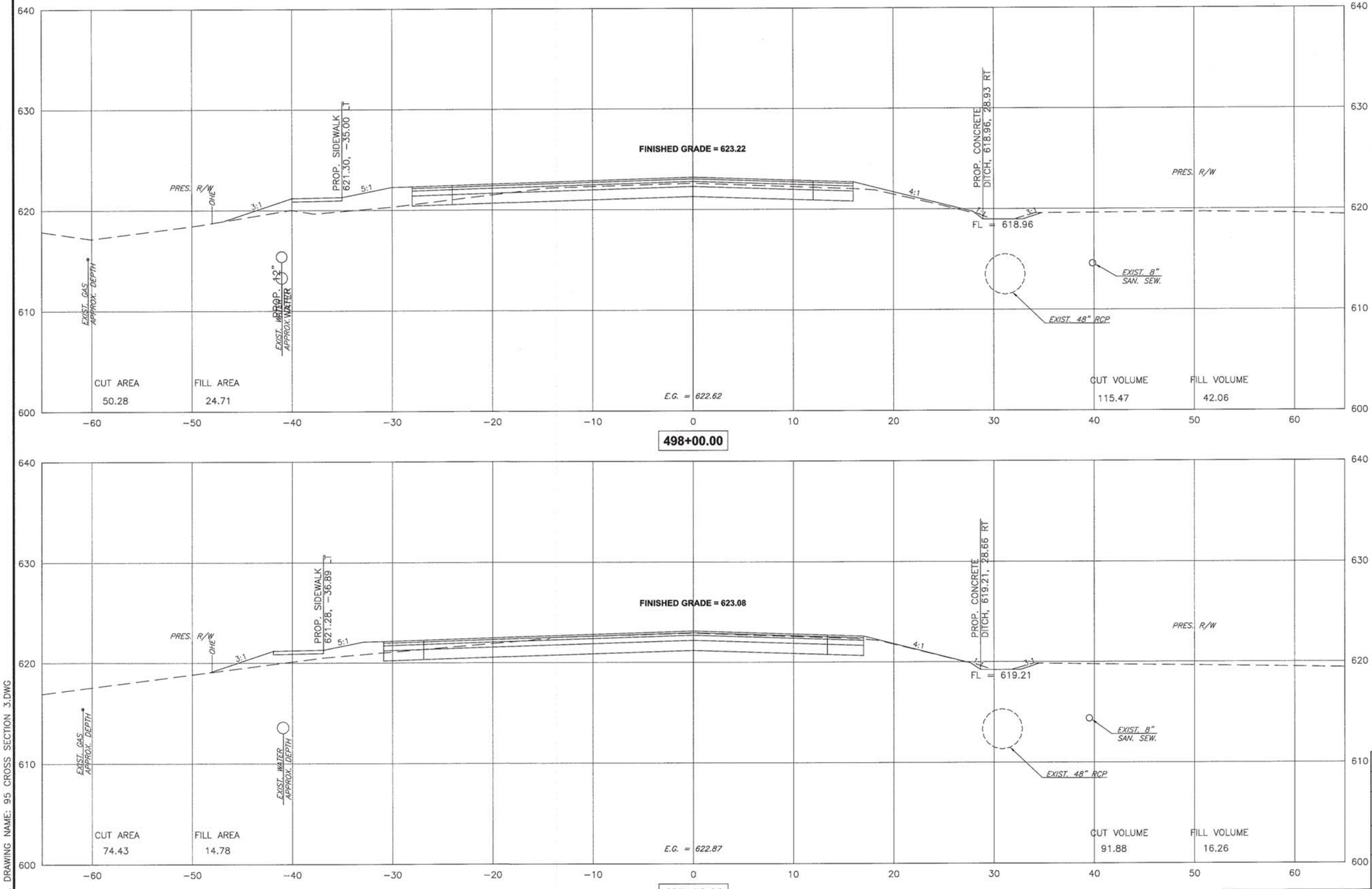
PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
CEC 4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014	APPROVED:
	DESIGNED	J.P.S.	08/2014	
	SURVEY	A.K.H.	08/2012	
PROFILE SCALES:	PROJ. MGR.			
HORIZONTAL: N/A	LEAD ENGR.			
	FIELD MGR.			
VERTICAL N/A	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG				DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 106 OF 181



PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 4

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.		
HORIZONTAL: N/A	LEAD ENGR.		
	FIELD MGR.		
VERTICAL N/A	RECOMMENDED:		
	DESIGN MANAGER		

APPROVED:

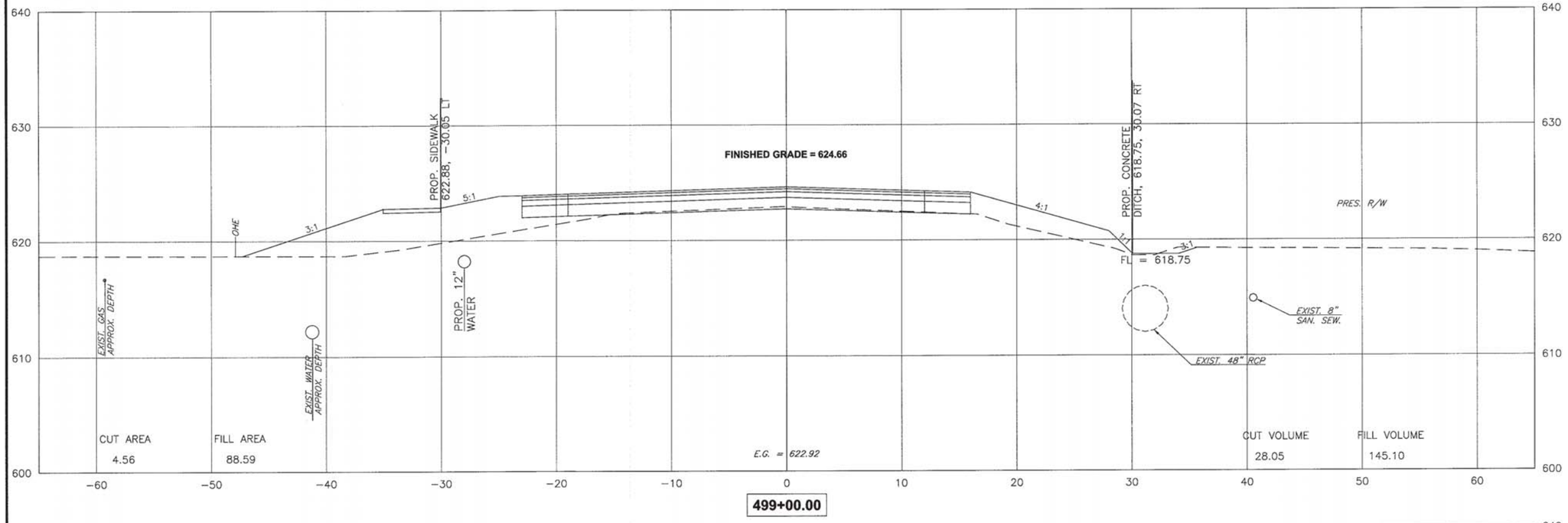
CITY ENGINEER

DRAWING: 95 CROSS SECTION 3.DWG

DATE

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 107 OF 181



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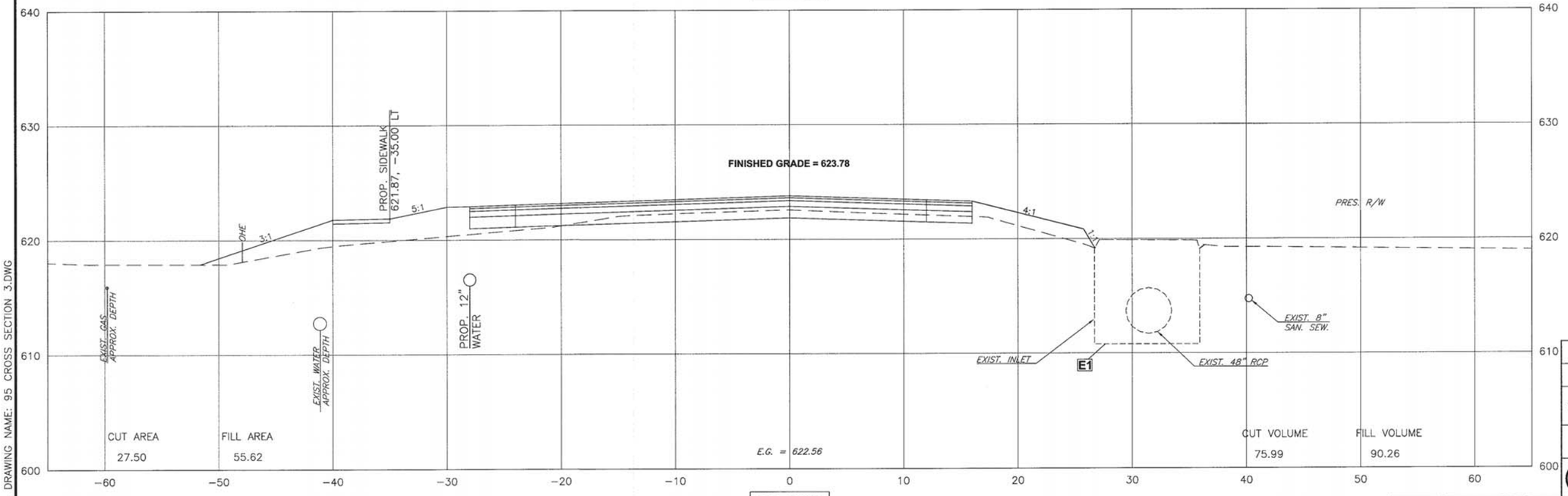

498+52.76

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 5

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
CEC 4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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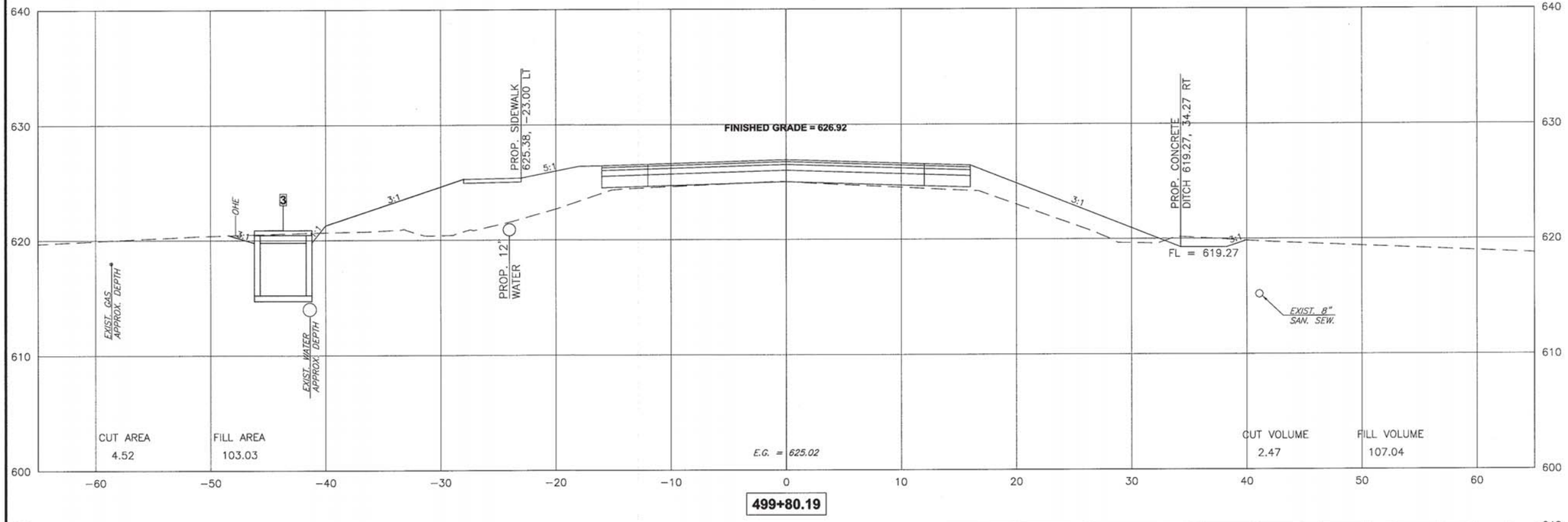
PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014	APPROVED:
	DESIGNED	J.P.S.	08/2014	
	SURVEY	A.K.H.	08/2012	
PROFILE SCALES:	PROJ. MGR.			
HORIZONTAL: N/A	LEAD ENGR.			
	FIELD MGR.			
VERTICAL N/A	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG				DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 108 OF 181



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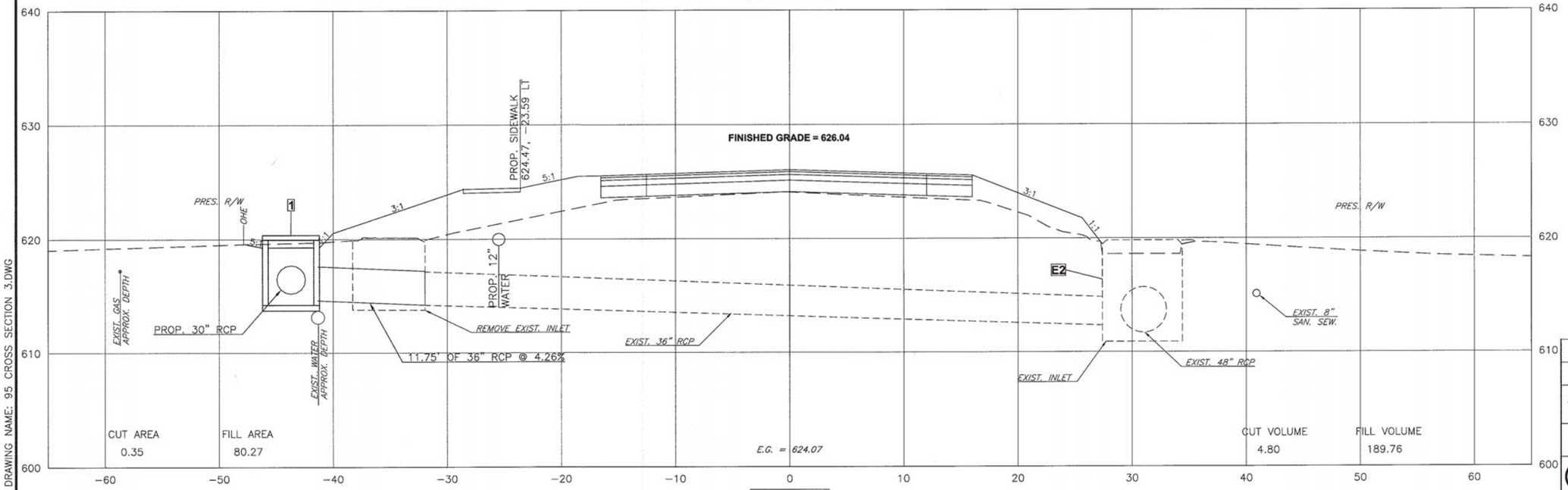

499+52.77

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REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 6

PROJECT NO. 104006

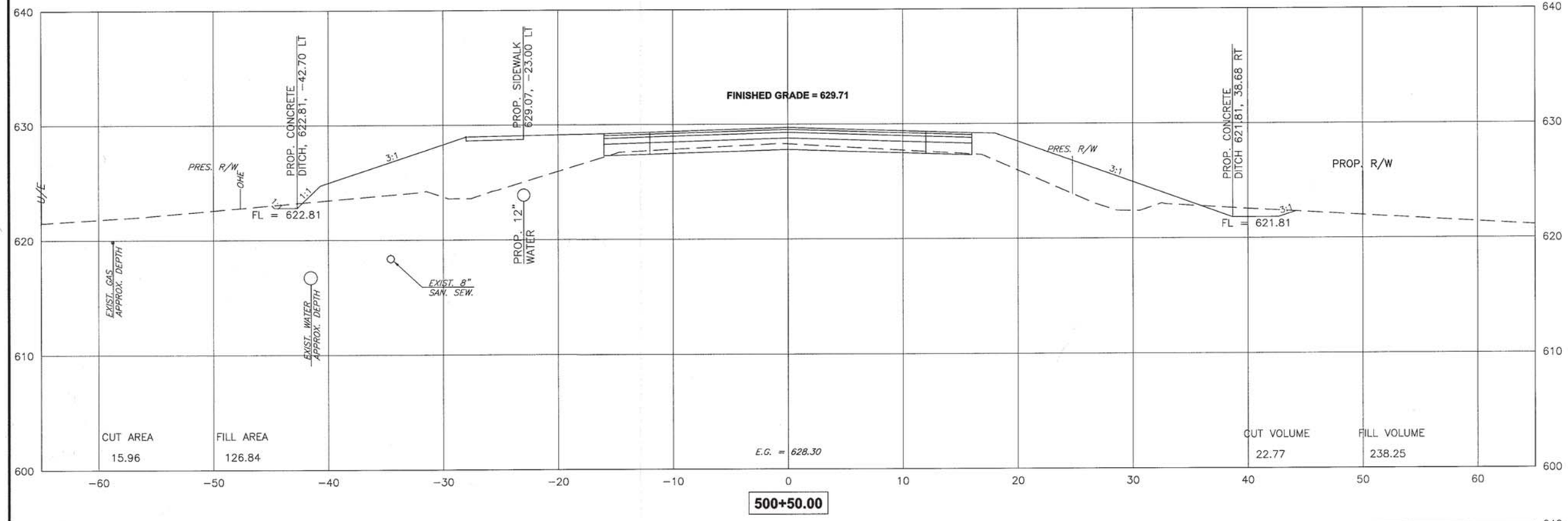
101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014	APPROVED:
	DESIGNED	J.P.S.	08/2014	
	SURVEY	A.K.H.	08/2012	
PROFILE SCALES:	PROJ. MGR.			
HORIZONTAL: N/A	LEAD ENGR.			
	FIELD MGR.			
VERTICAL N/A	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG				DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 109 OF 181

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG



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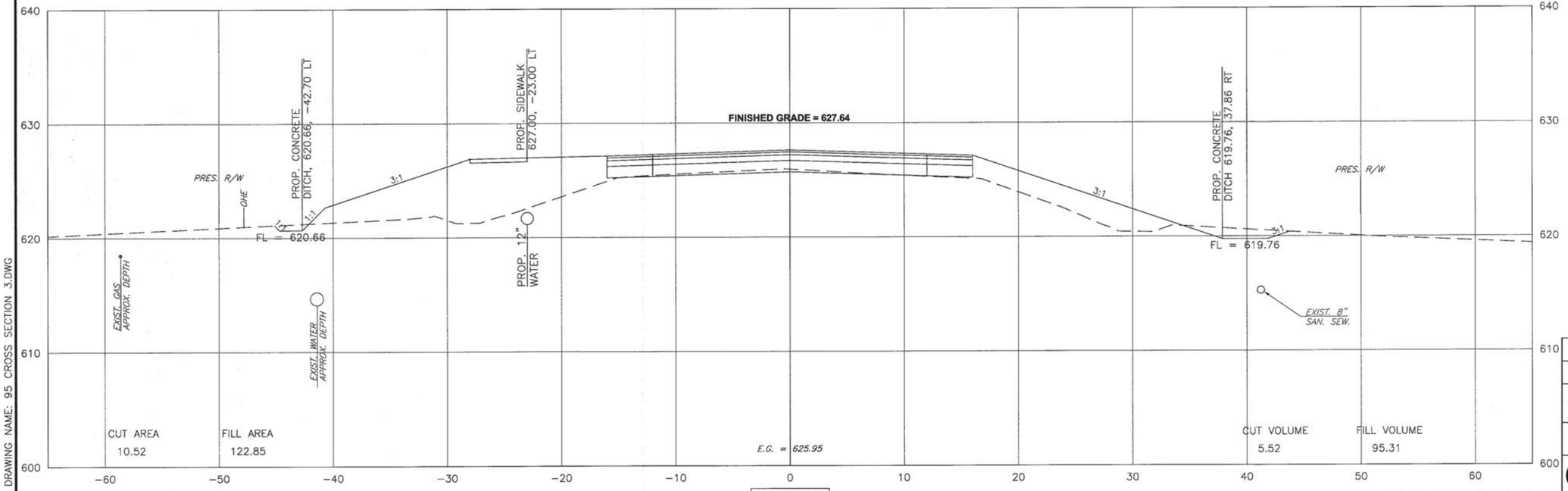

500+00.00

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 7

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.		
HORIZONTAL: N/A	LEAD ENGR.		
	FIELD MGR.		
VERTICAL N/A	RECOMMENDED:		
	DESIGN MANAGER		

APPROVED:

CITY ENGINEER

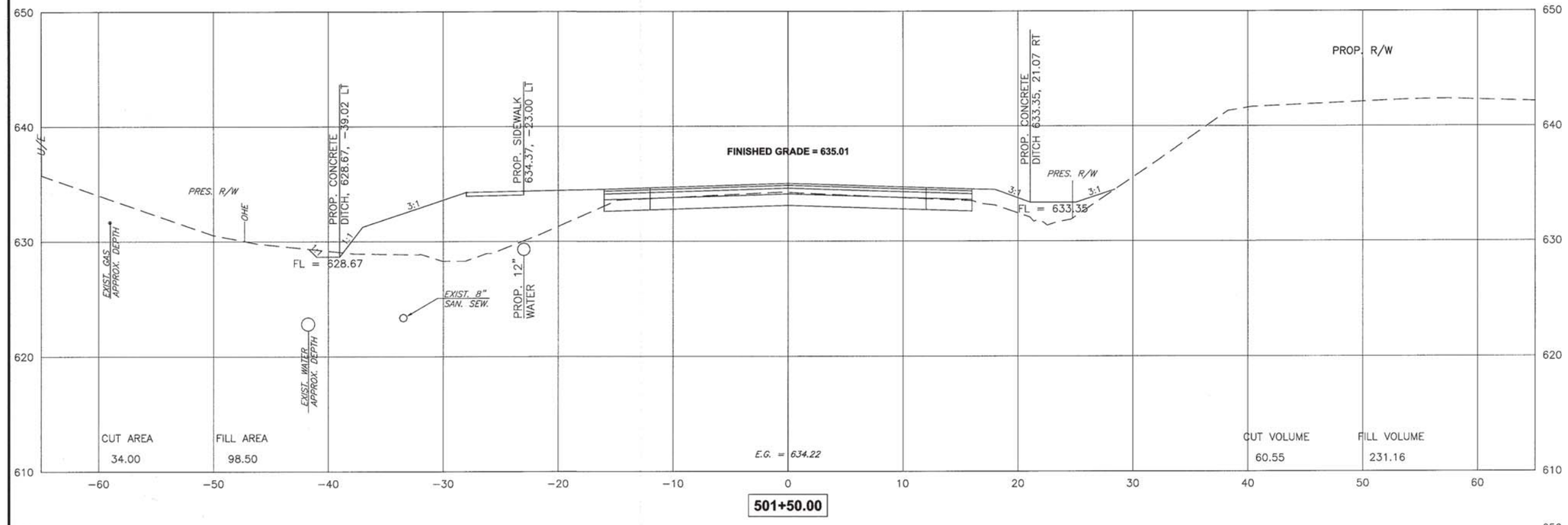
DRAWING: 95 CROSS SECTION 3.DWG

DATE

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 110 OF 181

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG



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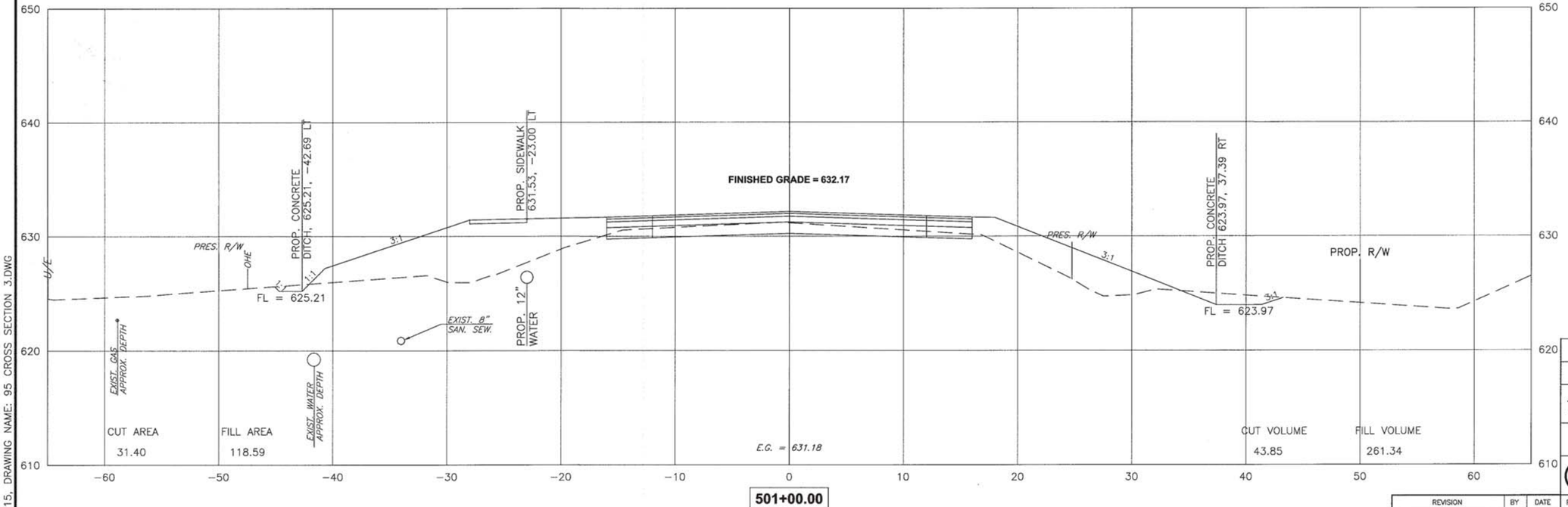

501+00.00

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 8

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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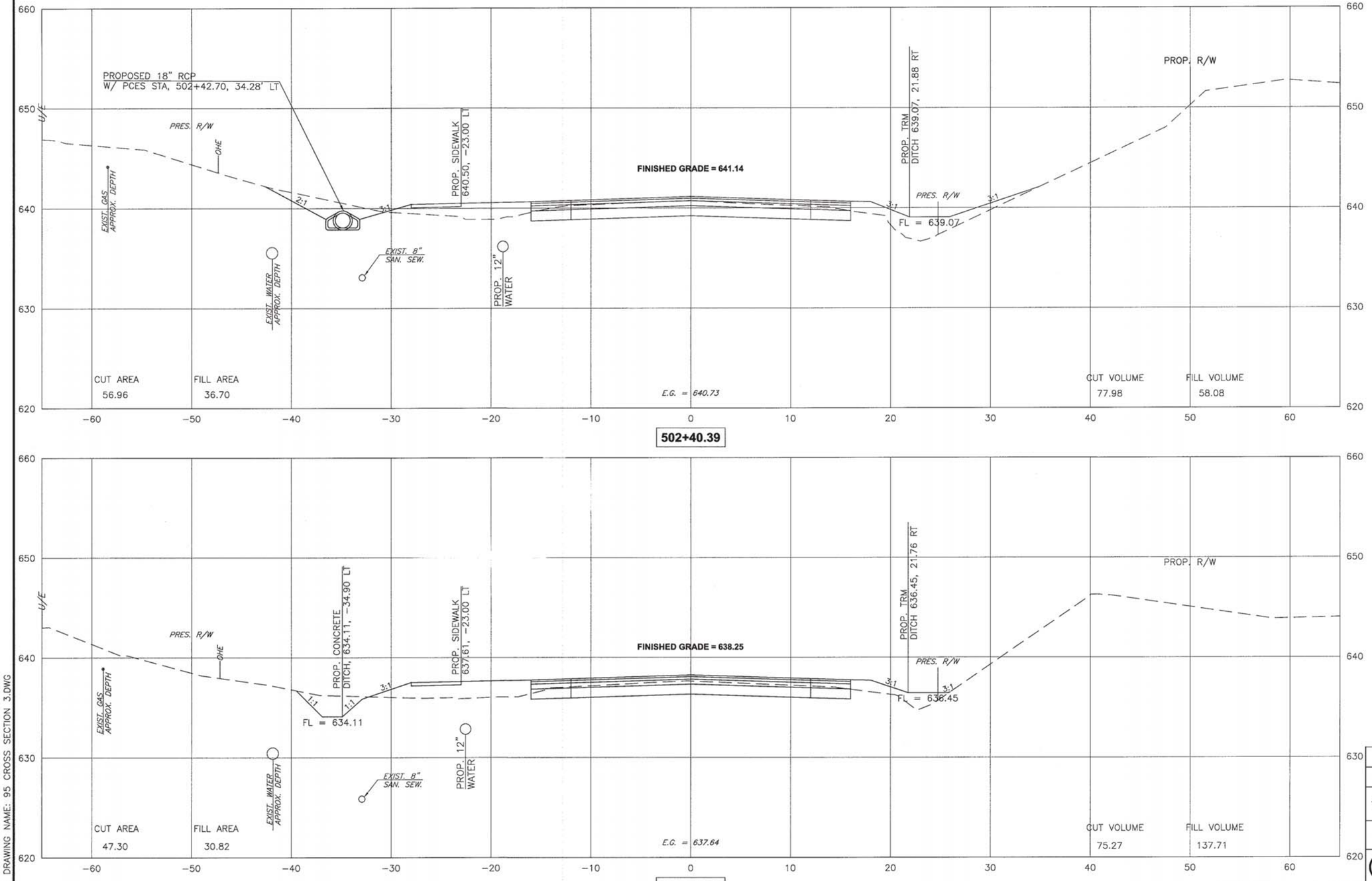
PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A	PROJ. MGR.		
	LEAD ENGR.		
	FIELD MGR.		
	RECOMMENDED: DESIGN MANAGER		

APPROVED: CITY ENGINEER

DRAWING: 95 CROSS SECTION 3.DWG — DATE

ATLAS PAGE NO: 1276, 1277, 1422, 1423 — SHEET 111 OF 181



REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 9

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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PLAN SCALE: 1" = 5'
PROFILE SCALES:
HORIZONTAL: N/A
VERTICAL N/A

DRAWN	L.P.E.	08/2014
DESIGNED	J.P.S.	08/2014
SURVEY	A.K.H.	08/2012
PROJ. MGR.		
LEAD ENGR.		
FIELD MGR.		

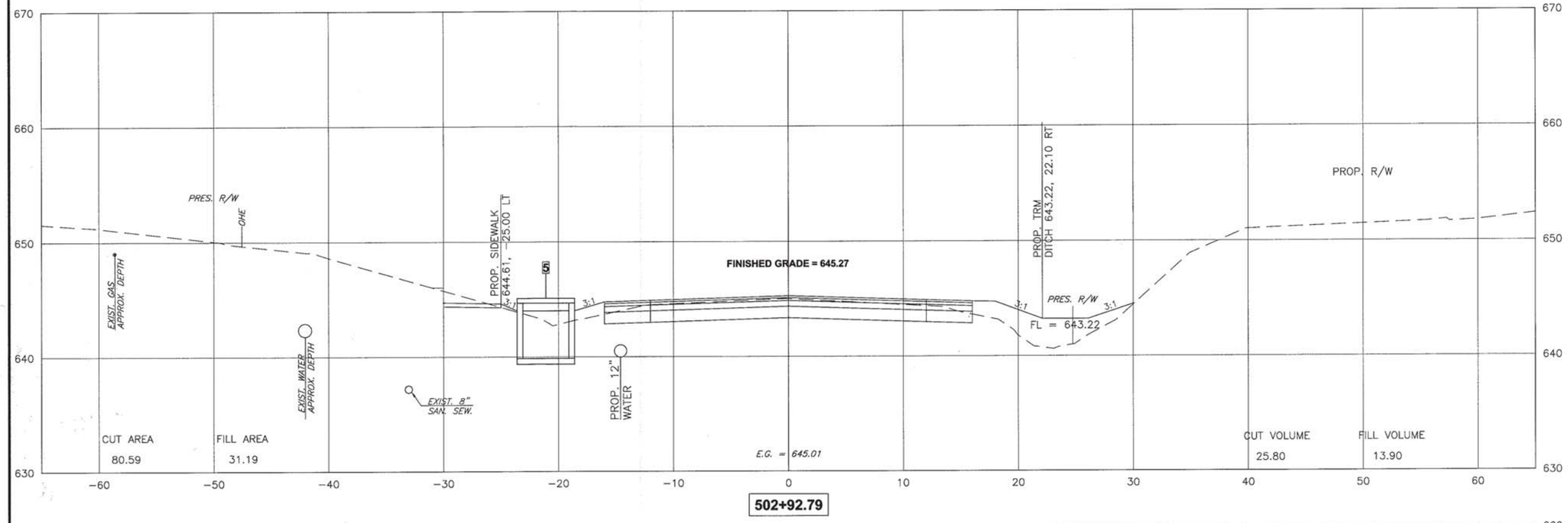
RECOMMENDED:
DESIGN MANAGER

APPROVED:
CITY ENGINEER

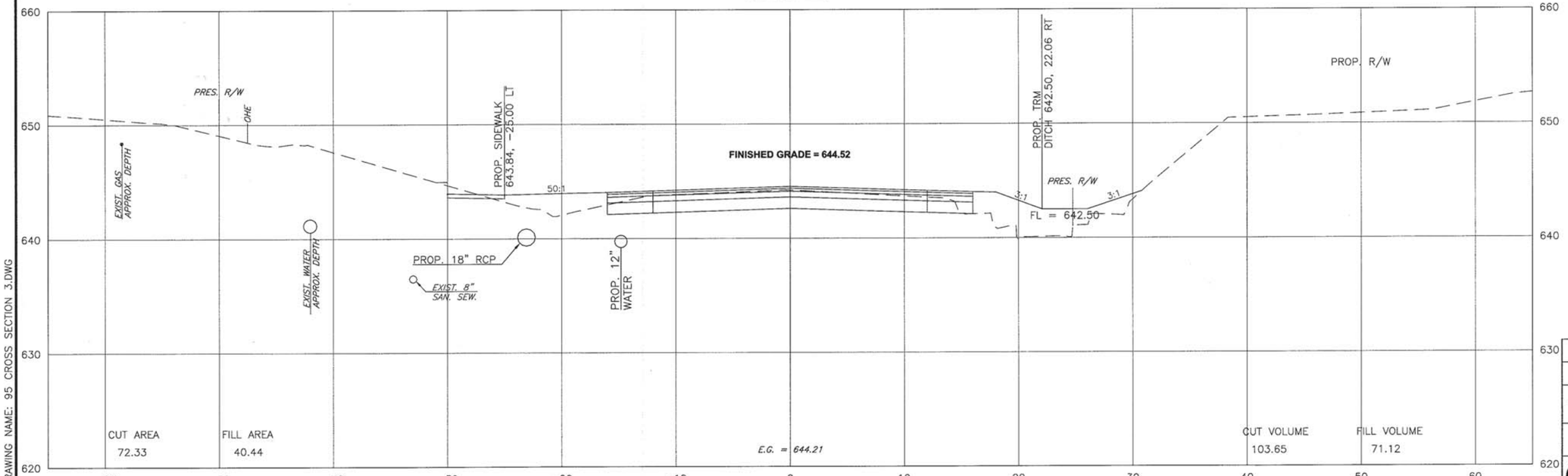
DRAWING: 95 CROSS SECTION 3.DWG
ATLAS PAGE NO: 1276, 1277, 1422, 1423

DATE
SHEET 112 OF 181

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG



502+92.79



502+83.68

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

REVISION	BY	DATE
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CROSS SECTION 10

PROJECT NO. 104006

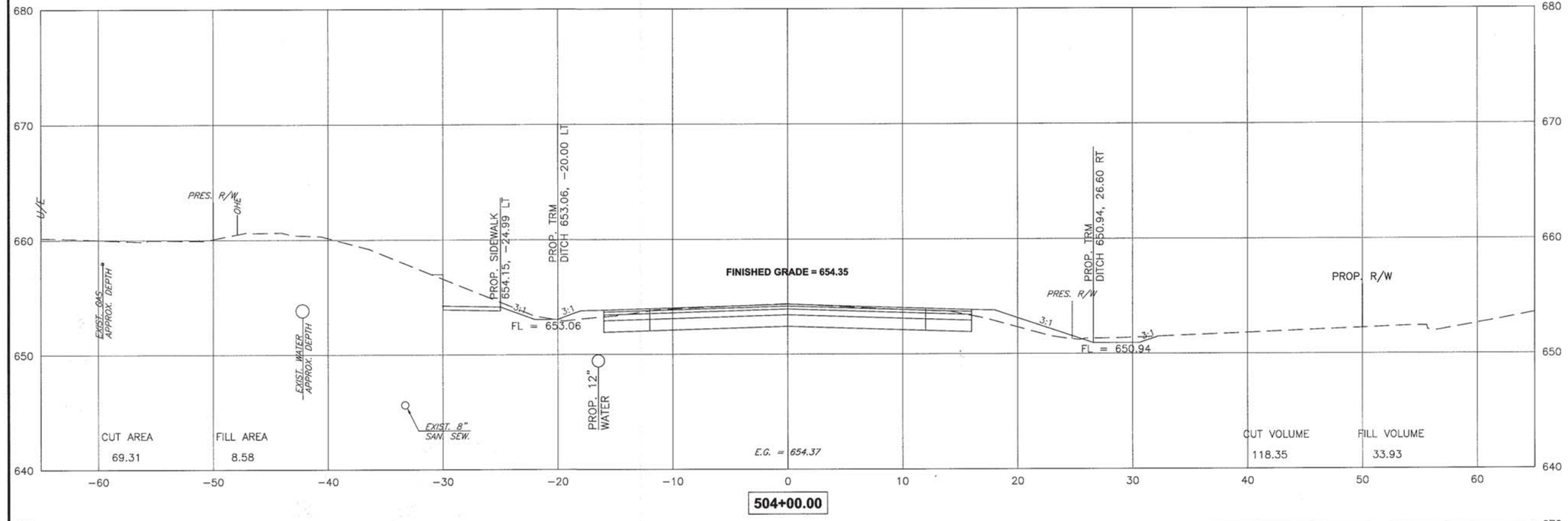
101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
CEC 4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014	APPROVED:
	DESIGNED	J.P.S.	08/2014	
	SURVEY	A.K.H.	08/2012	
PROFILE SCALES:	PROJ. MGR.			
HORIZONTAL: N/A	LEAD ENGR.			
	FIELD MGR.			
VERTICAL N/A	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG				DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 113 OF 181

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG



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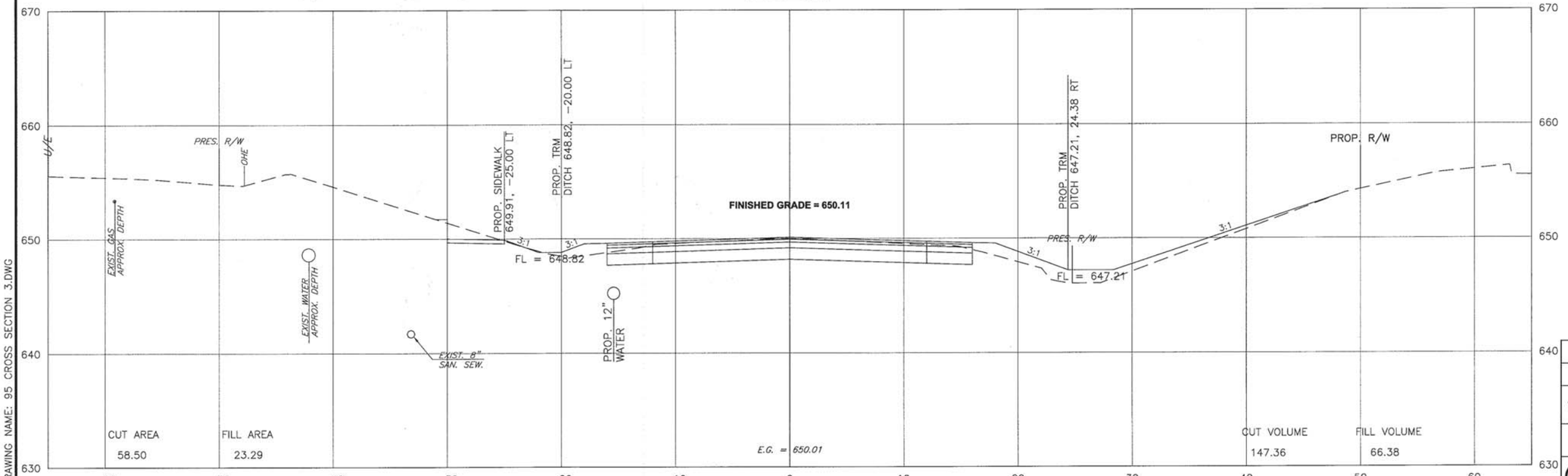

503+50.00

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 11

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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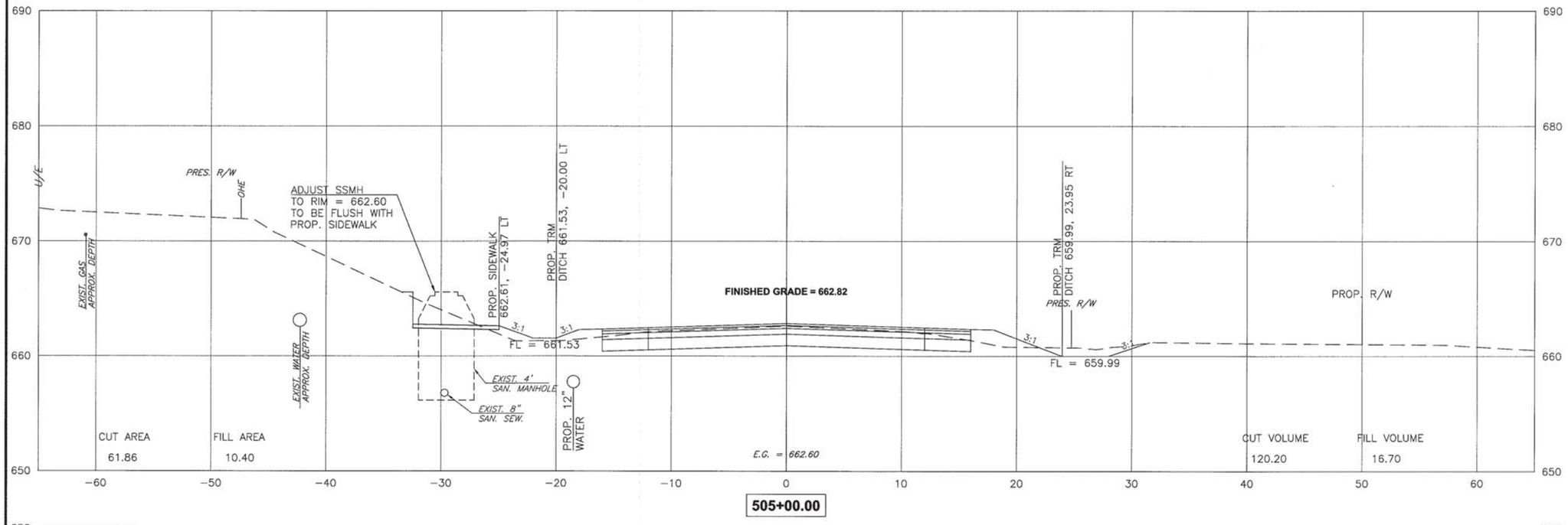
PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.		
HORIZONTAL: N/A	LEAD ENGR.		
	FIELD MGR.		
VERTICAL N/A	RECOMMENDED:		
	DESIGN MANAGER		
DRAWING: 95 CROSS SECTION 3.DWG			
ATLAS PAGE NO: 1276, 1277, 1422, 1423			

APPROVED:

CITY ENGINEER

DATE

SHEET 114 OF 181



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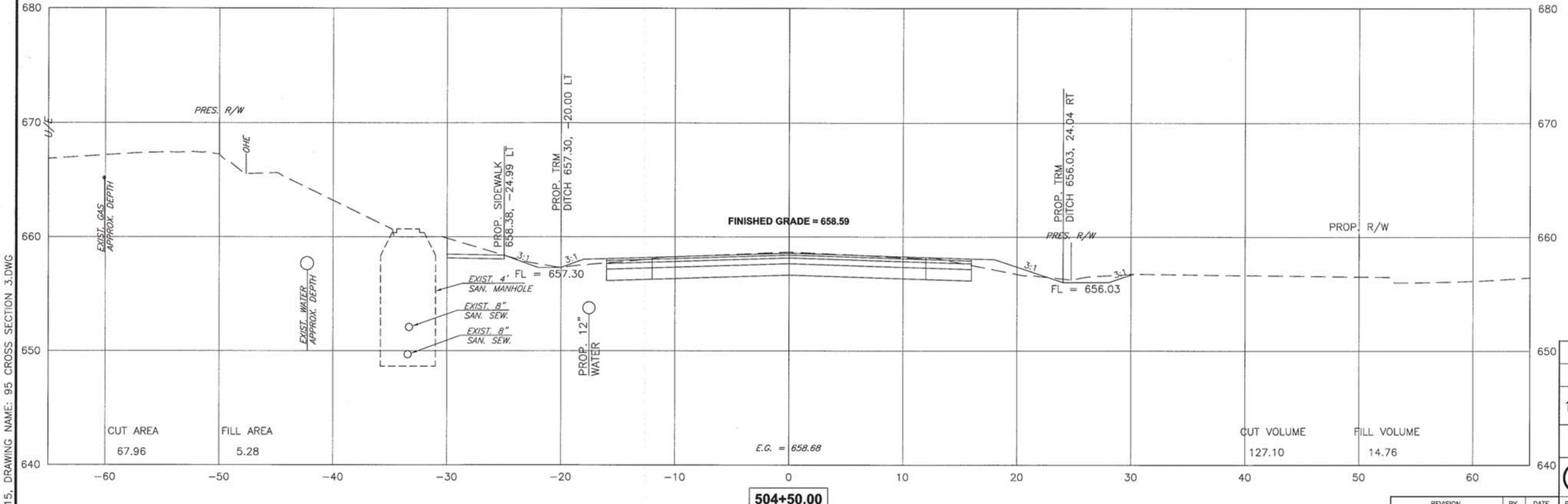

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PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

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REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 12

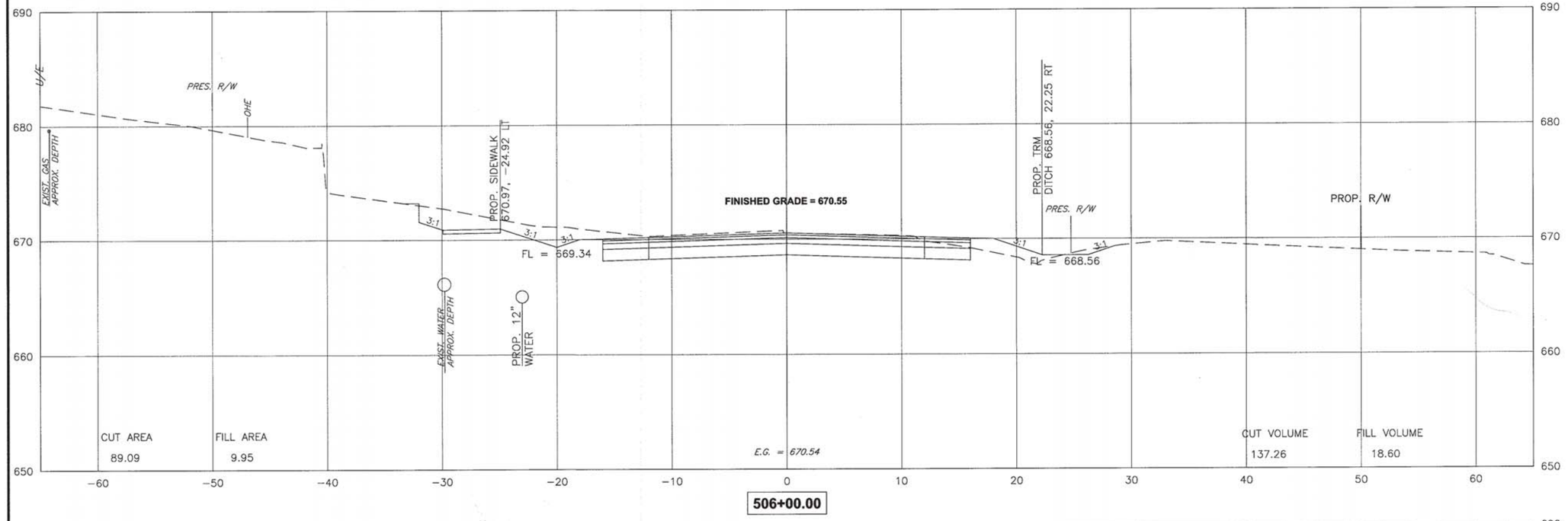
PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014	APPROVED:	
	DESIGNED	J.P.S.	08/2014		
	SURVEY	A.K.H.	08/2012		
PROFILE SCALES:	PROJ. MGR.				
HORIZONTAL: N/A	LEAD ENGR.				
	FIELD MGR.				
VERTICAL N/A	RECOMMENDED:				
	DESIGN MANAGER			CITY ENGINEER	
DRAWING: 95 CROSS SECTION 3.DWG				DATE	
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 115 OF 181	



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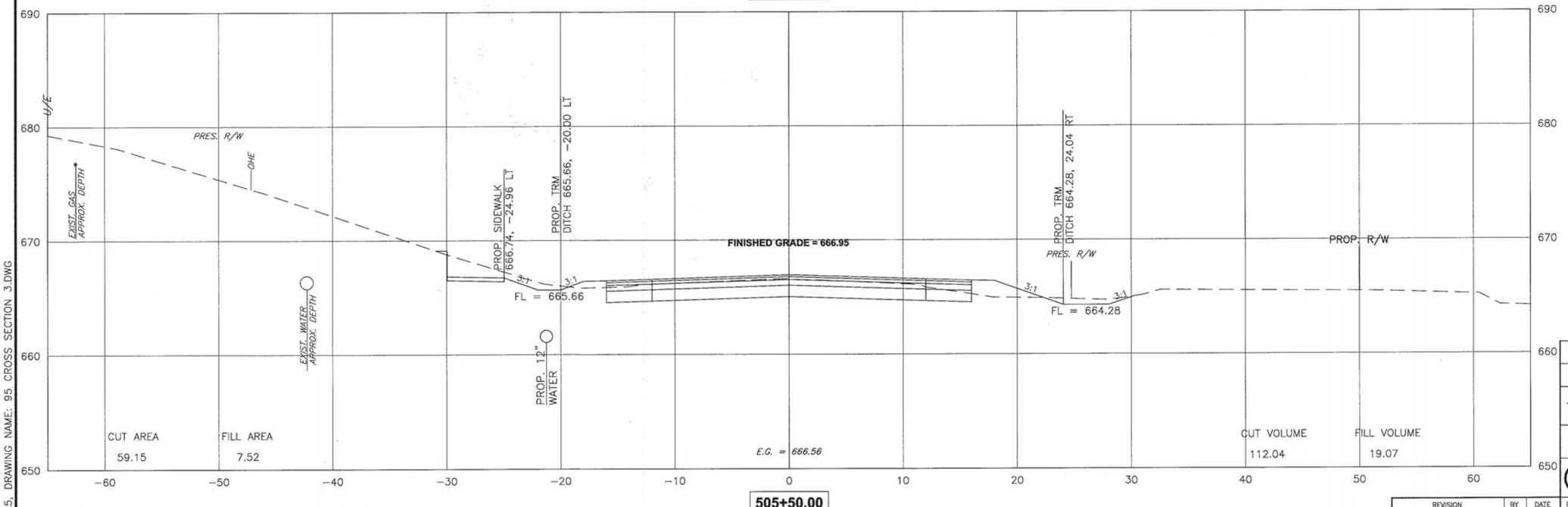

505+50.00

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PLAN SCALE: 1" = 5'

PROFILE SCALES: HORIZONTAL: N/A VERTICAL: N/A

DRAWN	L.P.E.	08/2014
DESIGNED	J.P.S.	08/2014
SURVEY	A.K.H.	08/2012
PROJ. MGR.		
LEAD ENGR.		
FIELD MGR.		

RECOMMENDED:

DESIGN MANAGER

APPROVED:

CITY ENGINEER

DRAWING: 95 CROSS SECTION 3.DWG

DATE

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 116 OF 181

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 13

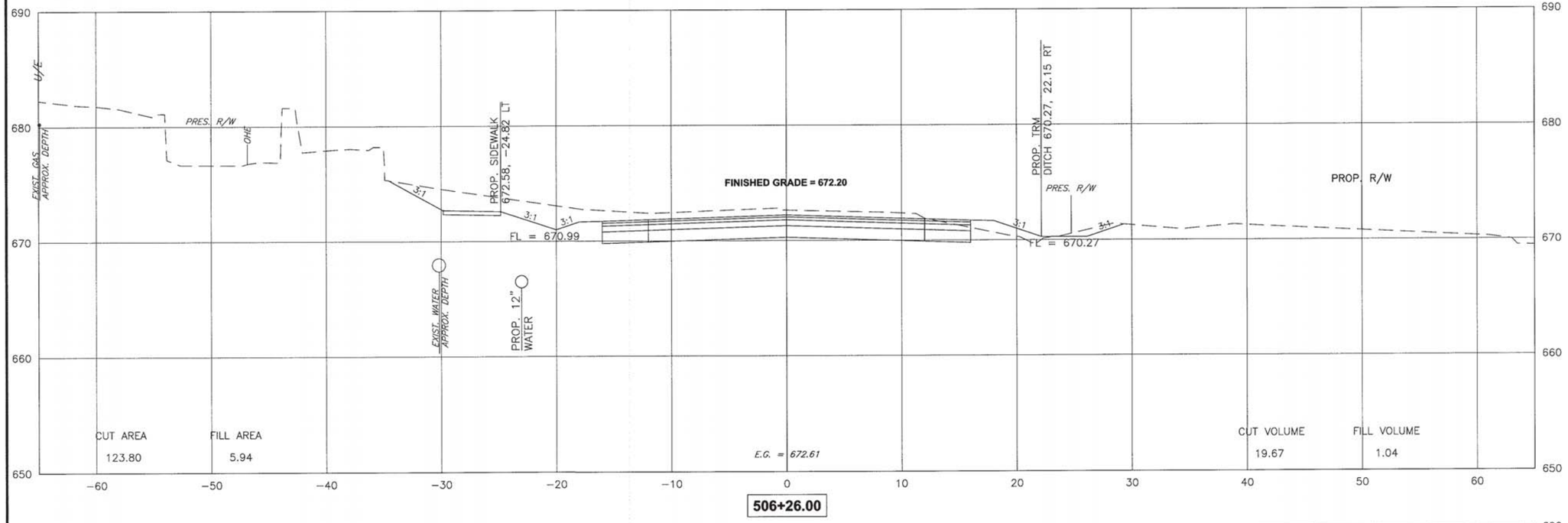
PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG



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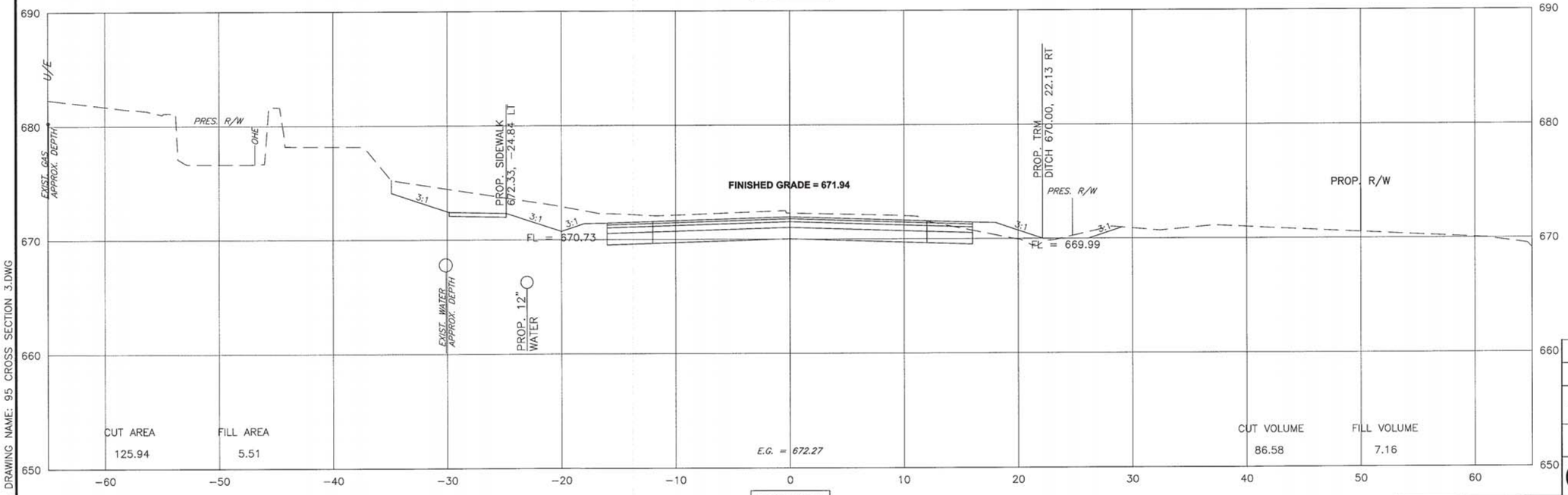

506+21.74

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 14

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
CEC 4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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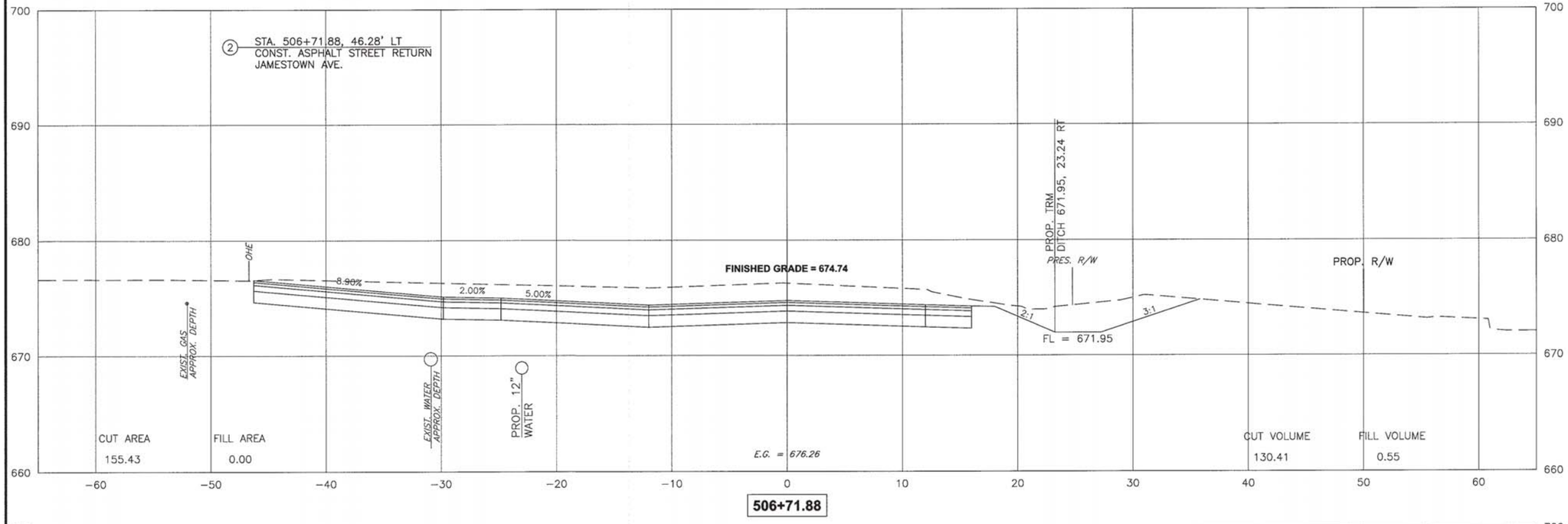
PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014	APPROVED:
	DESIGNED	J.P.S.	08/2014	
	SURVEY	A.K.H.	08/2012	
PROFILE SCALES:	PROJ. MGR.			
HORIZONTAL: N/A	LEAD ENGR.			
	FIELD MGR.			
VERTICAL N/A	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG				DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 117 OF 181



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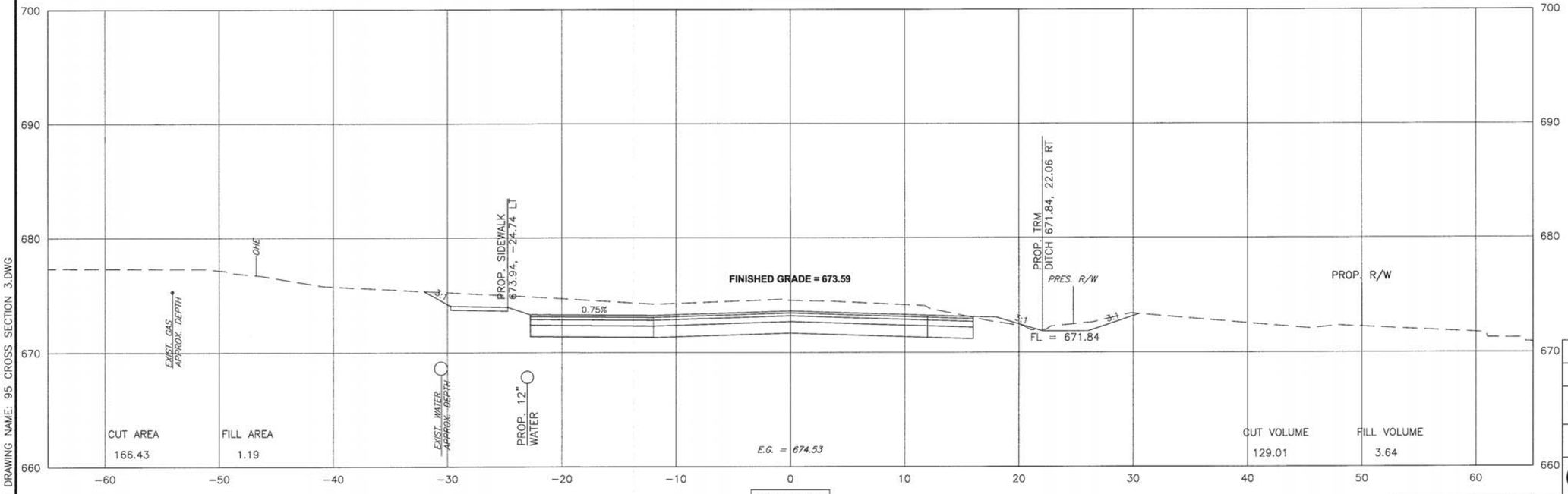

506+50.00

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 15

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
CEC 4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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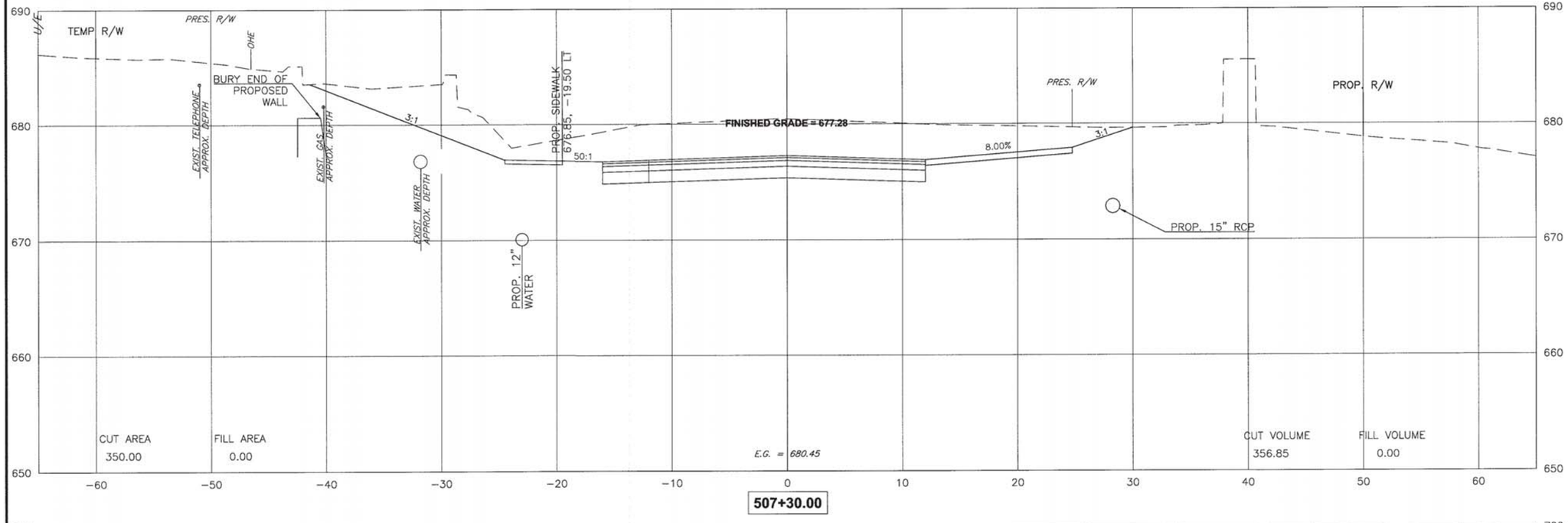
PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014	APPROVED:
	DESIGNED	J.P.S.	08/2014	
	SURVEY	A.K.H.	08/2012	
PROFILE SCALES:	PROJ. MGR.			
HORIZONTAL: N/A	LEAD ENGR.			
	FIELD MGR.			
VERTICAL N/A	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG				DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 118 OF 181



PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 16

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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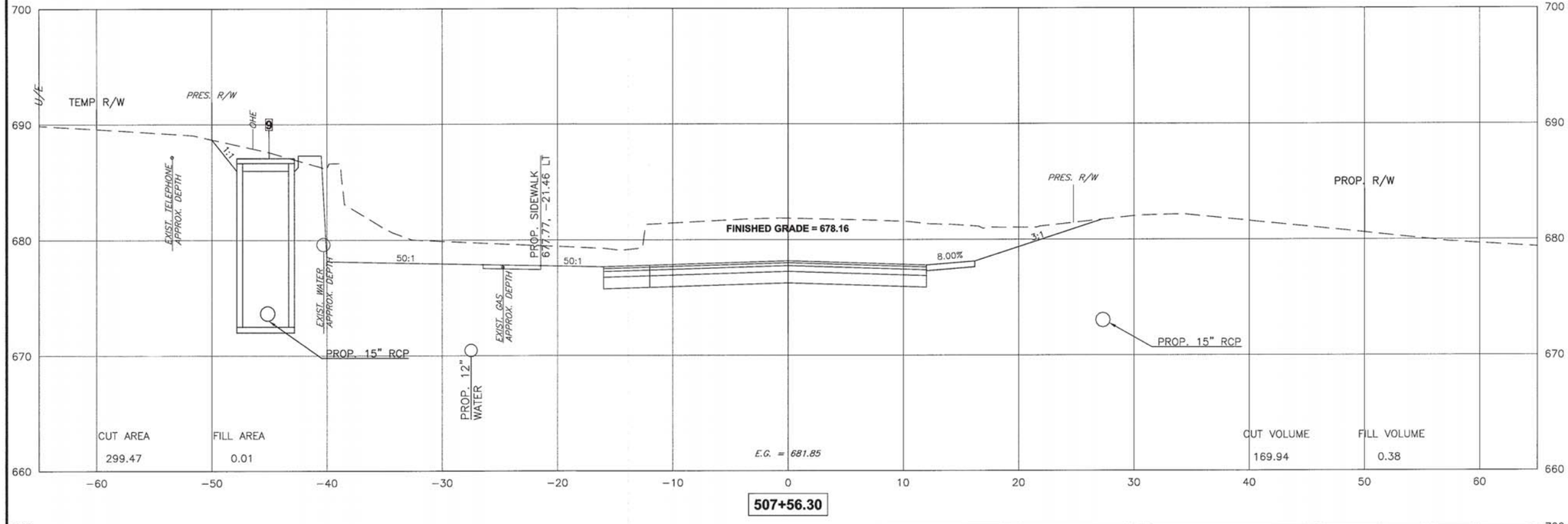
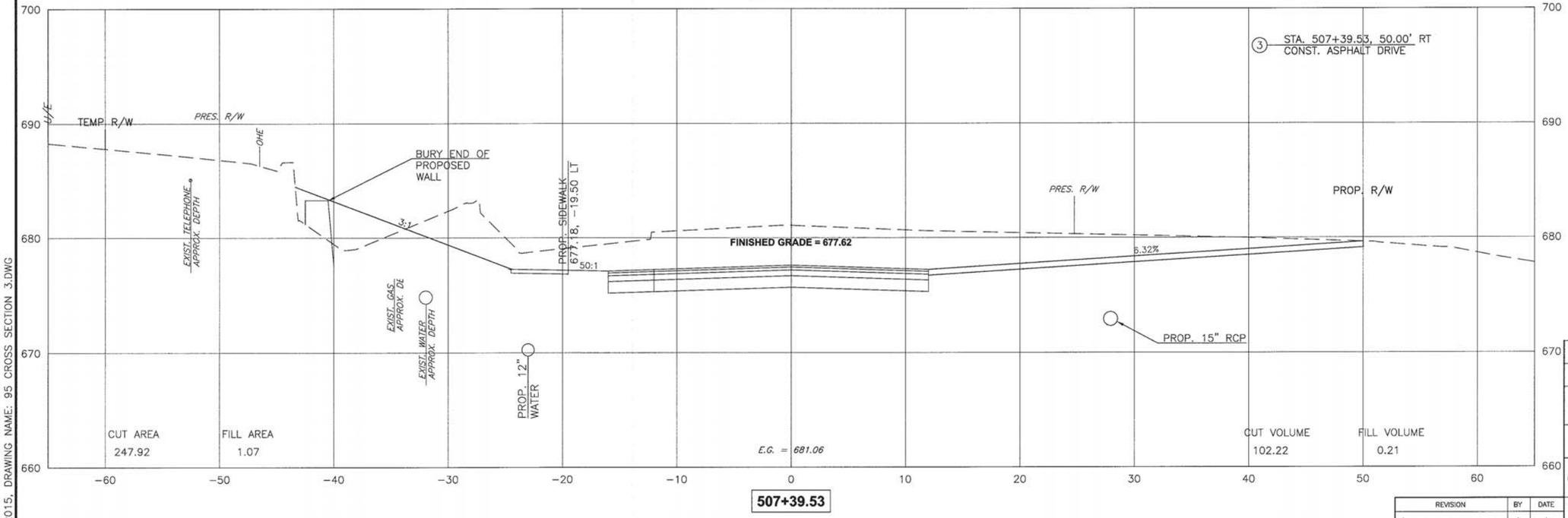
PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014	APPROVED:
	DESIGNED	J.P.S.	08/2014	
	SURVEY	A.K.H.	08/2012	
PROFILE SCALES:	PROJ. MGR.			
HORIZONTAL: N/A	LEAD ENGR.			
	FIELD MGR.			
VERTICAL N/A	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG				DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 119 OF 181





PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 17

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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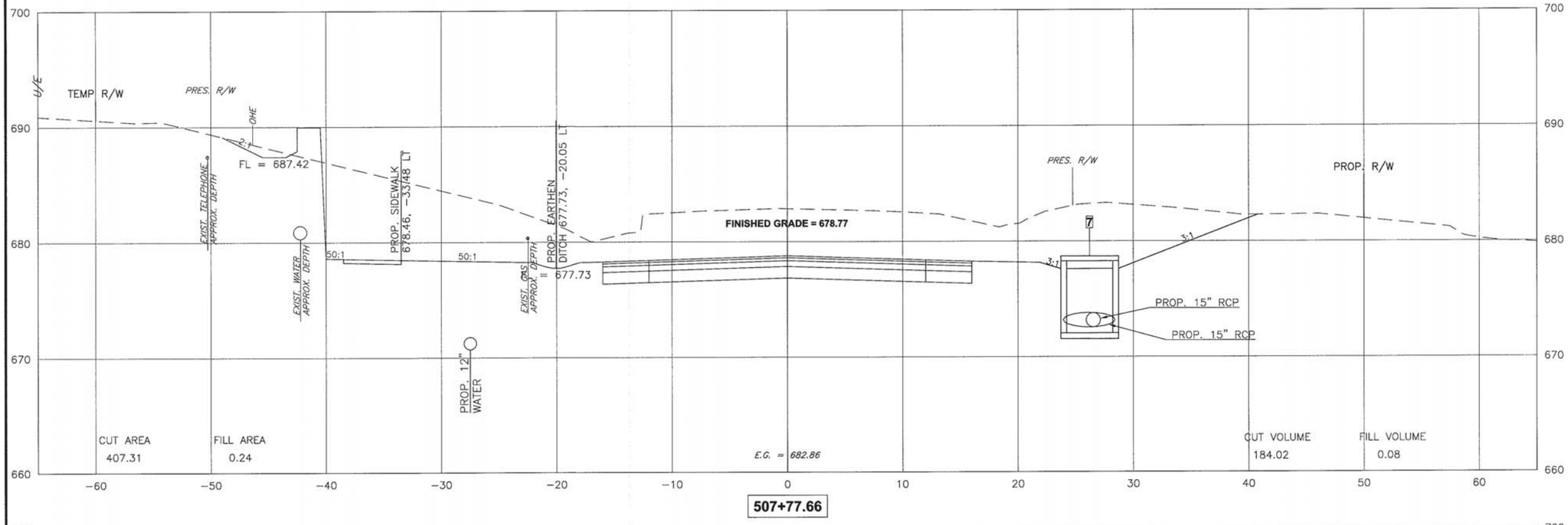
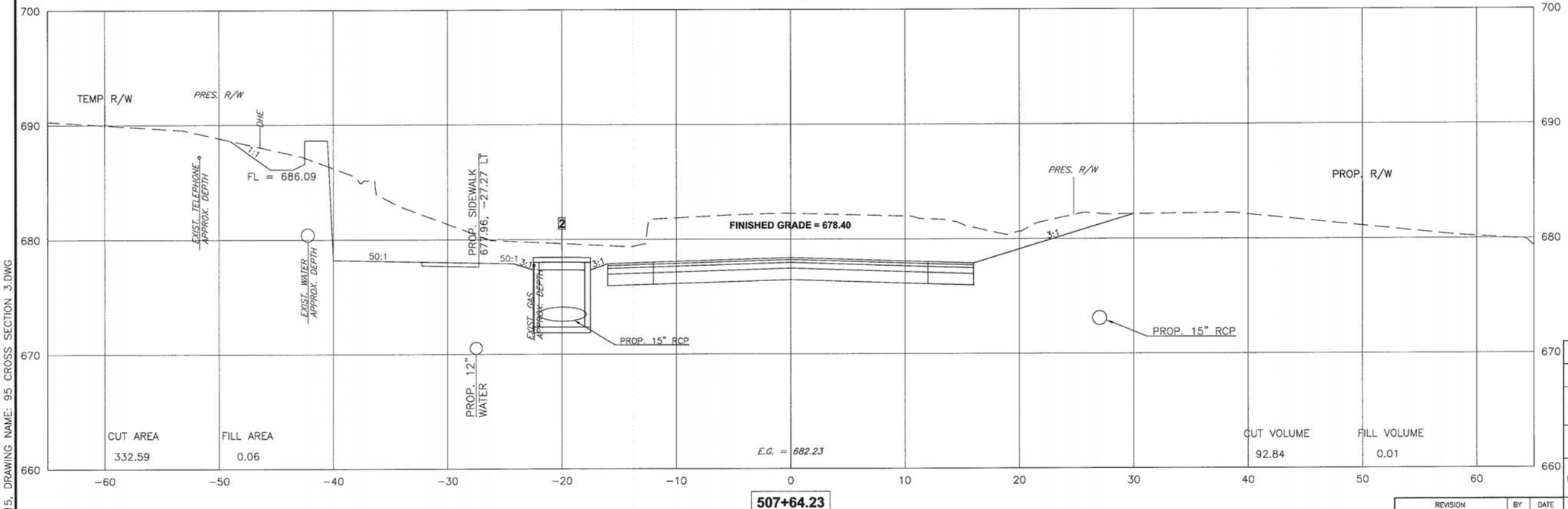
PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014	APPROVED:
	DESIGNED	J.P.S.	08/2014	
	SURVEY	A.K.H.	08/2012	
PROFILE SCALES:	PROJ. MGR.			
HORIZONTAL: N/A	LEAD ENGR.			
	FIELD MGR.			
VERTICAL N/A	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG				DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 120 OF 181





REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 18

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.		
HORIZONTAL: N/A	LEAD ENGR.		
	FIELD MGR.		
VERTICAL N/A	RECOMMENDED:		
	DESIGN MANAGER		CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG			DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423			SHEET 121 OF 181

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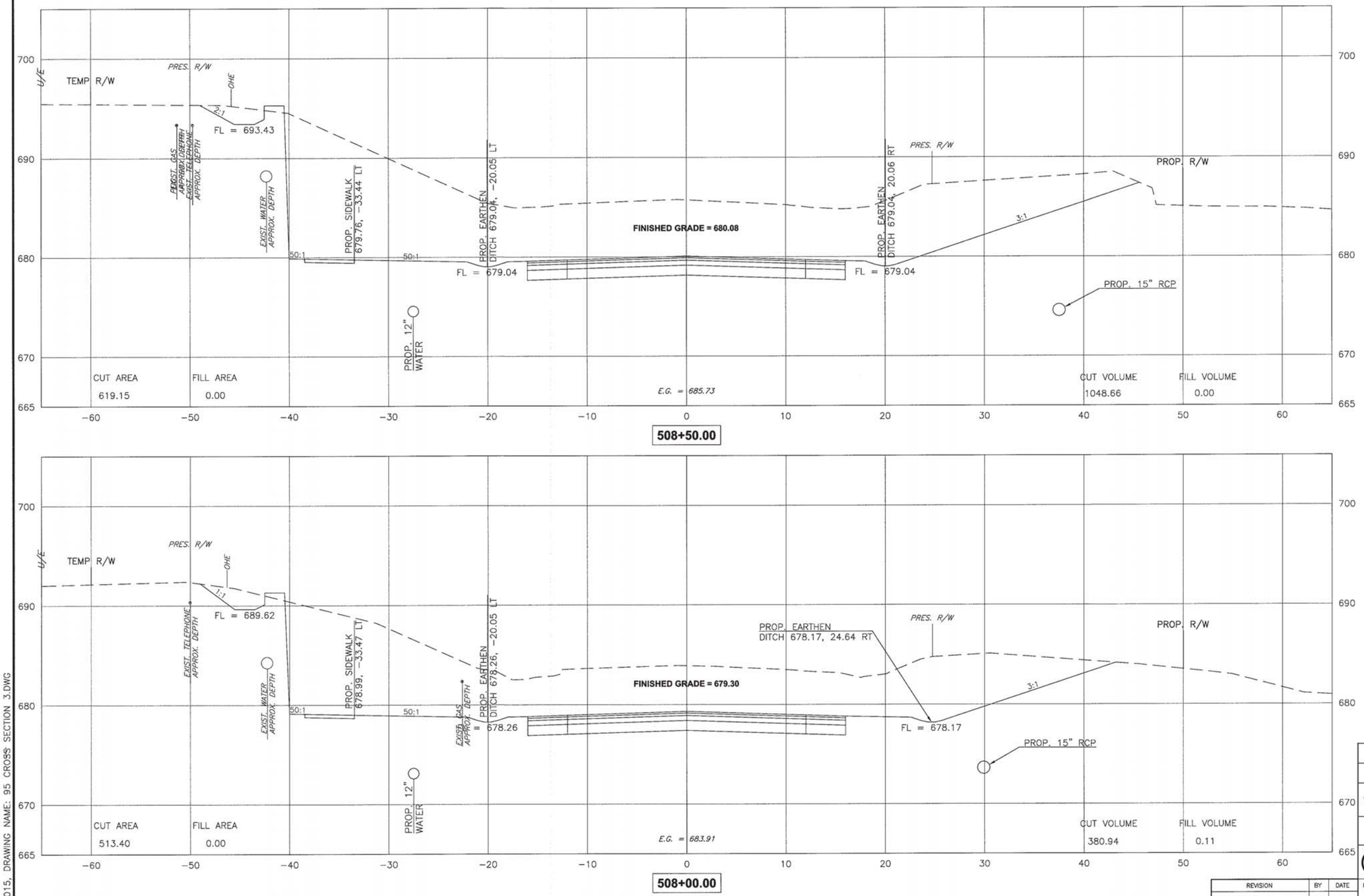
PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG



PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 19

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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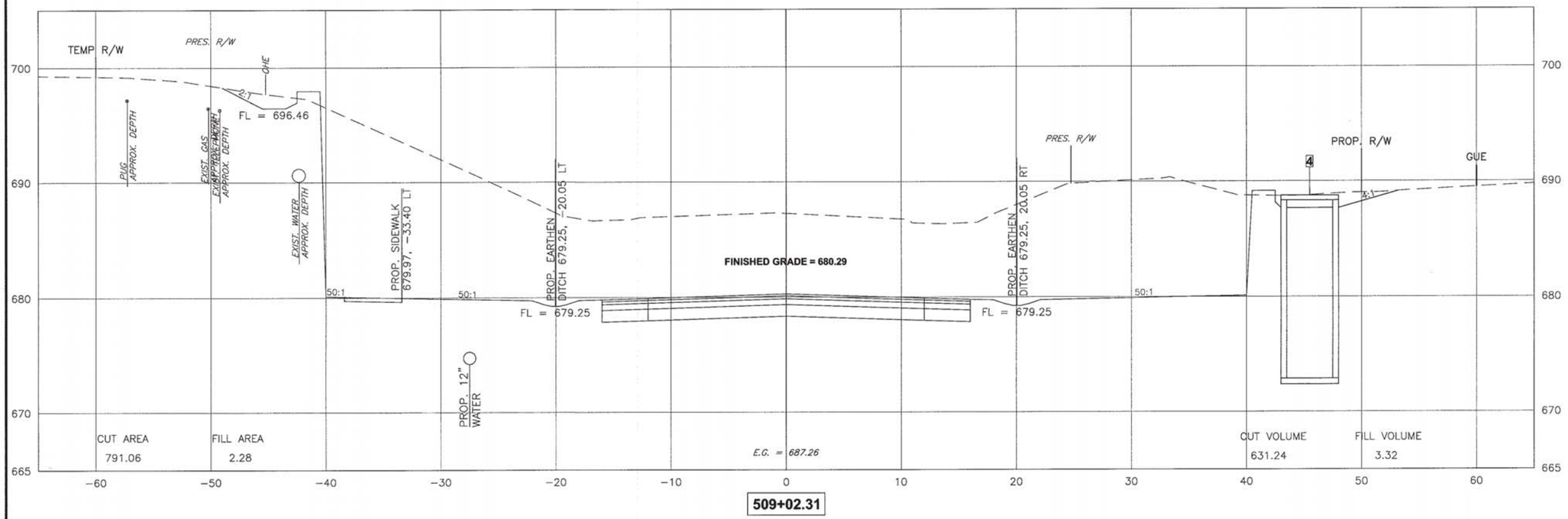
PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014	APPROVED:
	DESIGNED	J.P.S.	08/2014	
	SURVEY	A.K.H.	08/2012	
PROFILE SCALES:	PROJ. MGR.			
HORIZONTAL: N/A	LEAD ENGR.			
	FIELD MGR.			
VERTICAL N/A	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG				DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 122 OF 181



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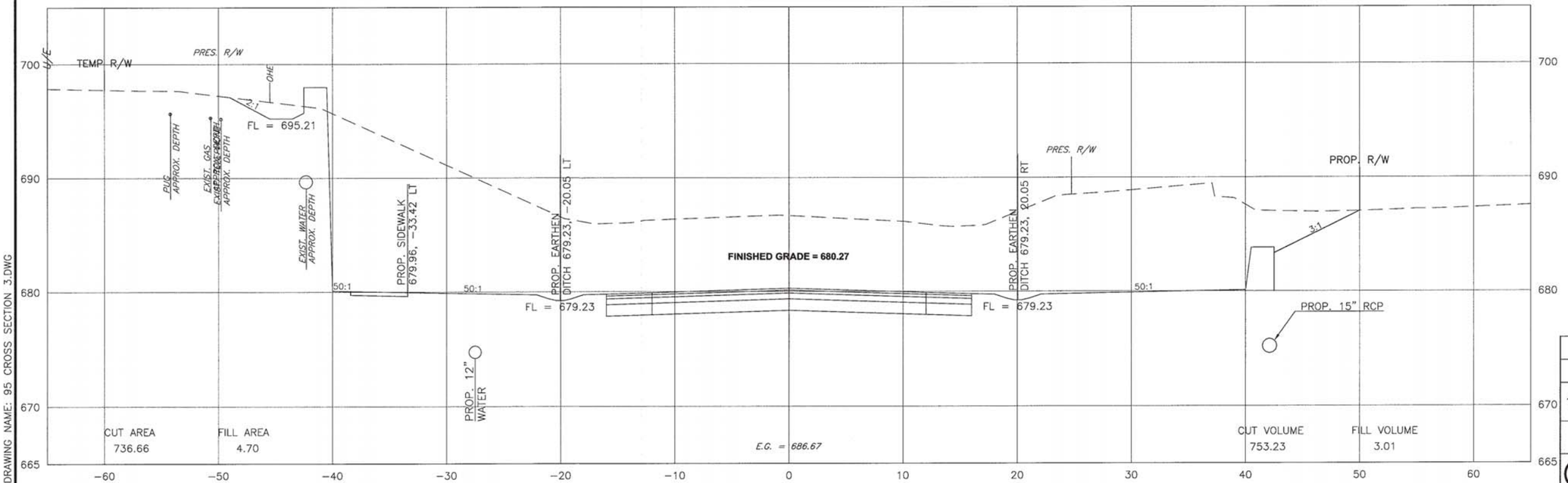

508+80.00

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 20

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
CEC 4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A	PROJ. MGR.		
	LEAD ENGR.		
	FIELD MGR.		
	RECOMMENDED: DESIGN MANAGER		

APPROVED:

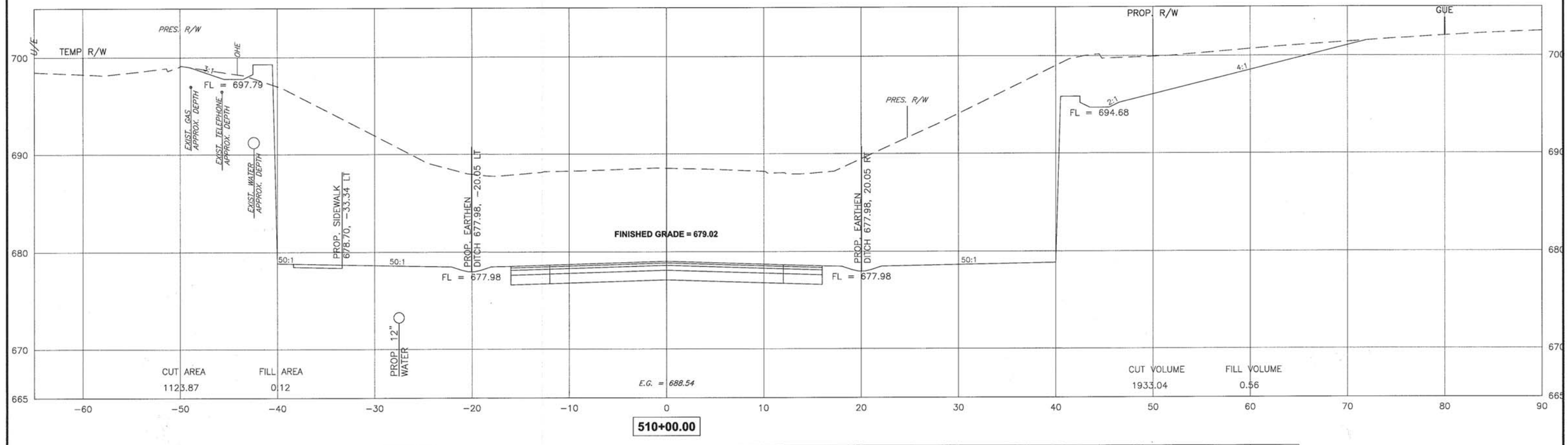
CITY ENGINEER

DRAWING: 95 CROSS SECTION 3.DWG

DATE

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 123 OF 181



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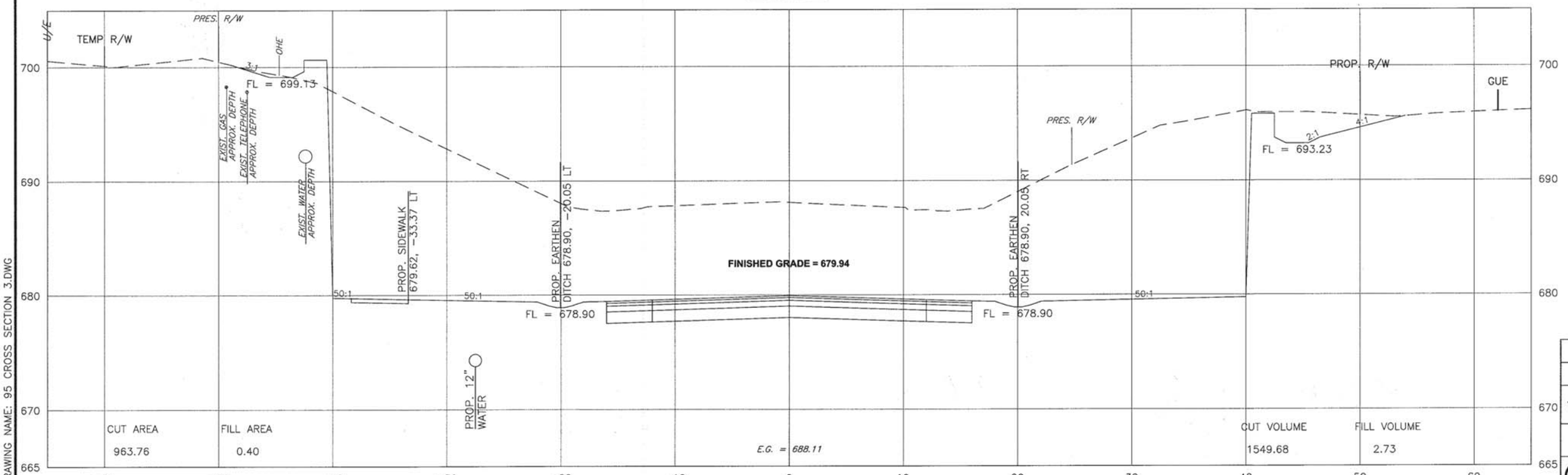

509+50.00

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

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CROSS SECTION 21

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.		
HORIZONTAL: N/A	LEAD ENGR.		
	FIELD MGR.		
VERTICAL N/A	RECOMMENDED:		
	DESIGN MANAGER		

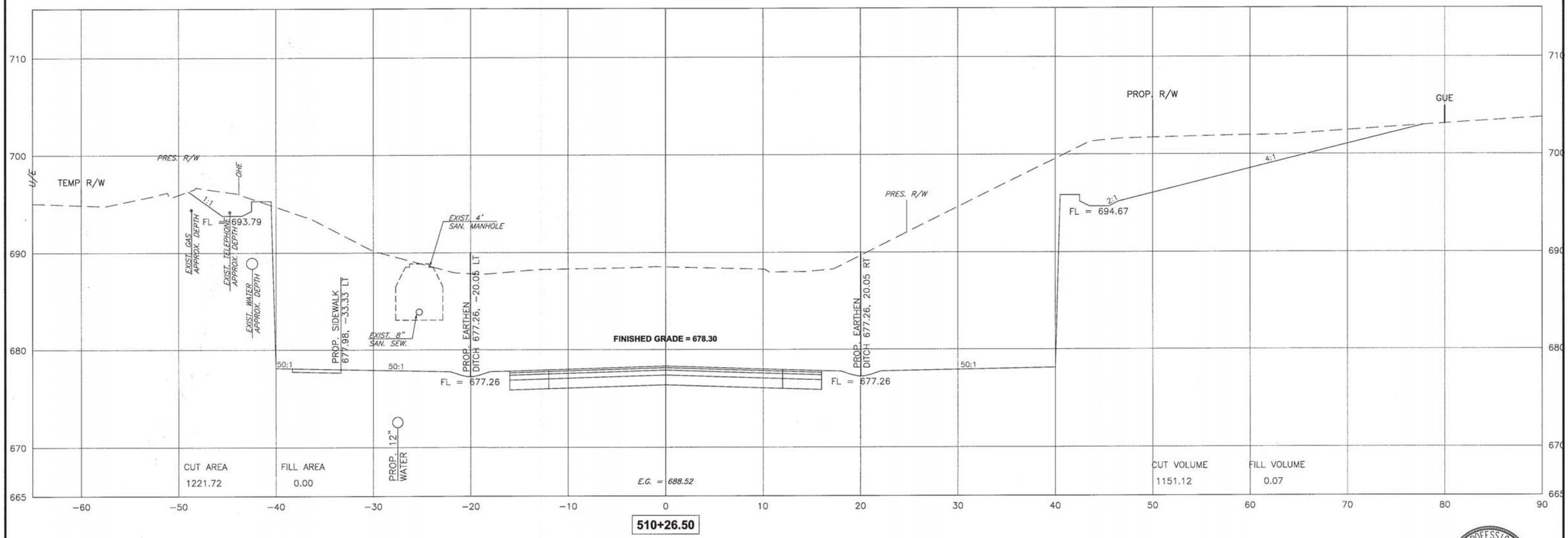
APPROVED:

CITY ENGINEER

DRAWING: 95 CROSS SECTION 3.DWG

DATE

ATLAS PAGE NO: 1276, 1277, 1422, 1423



510+26.50

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 22

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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PLAN SCALE: 1" = 5'

DRAWN	L.P.E.	08/2014	APPROVED:
DESIGNED	J.P.S.	08/2014	
SURVEY	A.K.H.	08/2012	
PROJ. MGR.			
LEAD ENGR.			
FIELD MGR.			

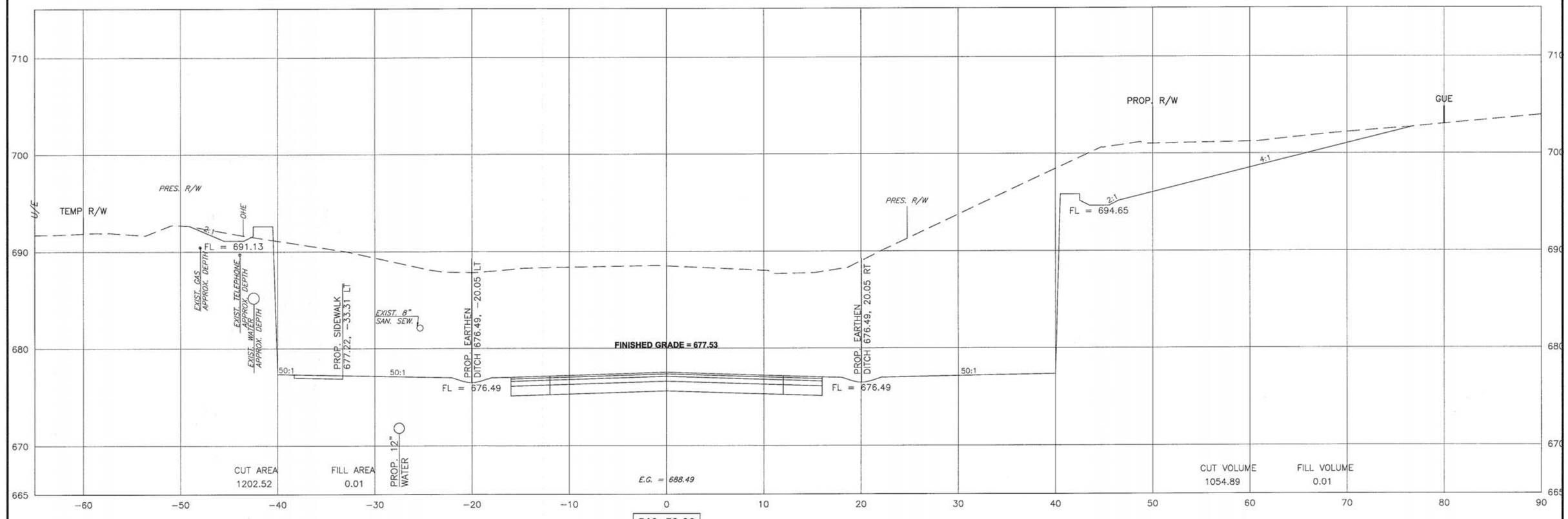
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A

RECOMMENDED:
DESIGN MANAGER — CITY ENGINEER

DRAWING: 95 CROSS SECTION 3.DWG — DATE

ATLAS PAGE NO: 1276, 1277, 1422, 1423 — SHEET 125 OF 181

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG



PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

JEREMY P. STAHLE
21725
REGISTERED PROFESSIONAL ENGINEER
OKLAHOMA

CROSS SECTION 23

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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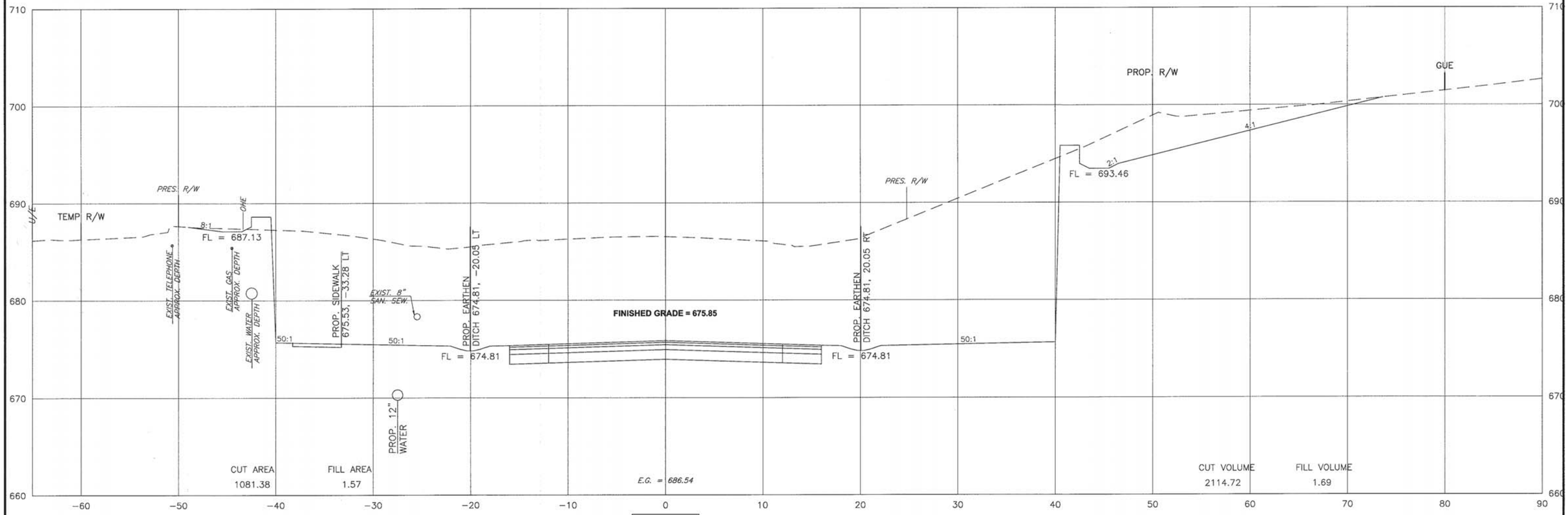
PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014	APPROVED:
	DESIGNED	J.P.S.	08/2014	
	SURVEY	A.K.H.	08/2012	
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A	PROJ. MGR.			
	LEAD ENGR.			
	FIELD MGR.			
	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG				DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 126 OF 181



511+00.00

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 24

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.		
HORIZONTAL: N/A	LEAD ENGR.		
	FIELD MGR.		
VERTICAL N/A	RECOMMENDED: DESIGN MANAGER		

APPROVED: CITY ENGINEER

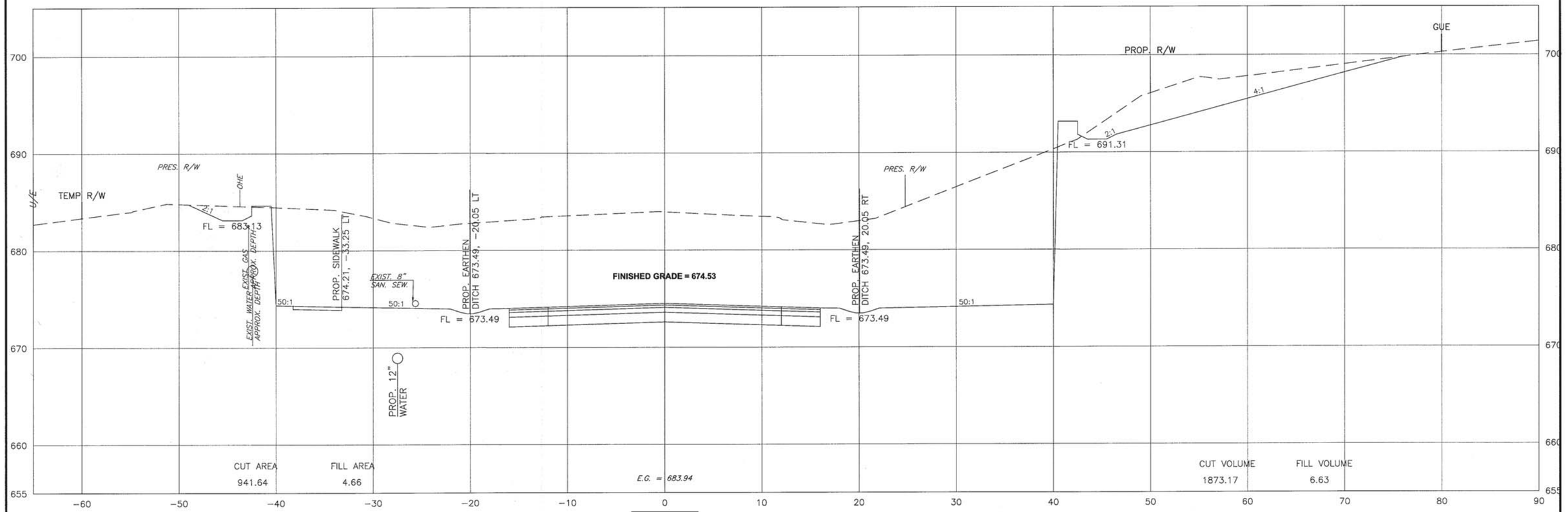
DRAWING: 95 CROSS SECTION 3.DWG

DATE

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 127 OF 181

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG



511+50.00

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 25

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A	PROJ. MGR.		
	LEAD ENGR.		
	FIELD MGR.		
	RECOMMENDED:		
	DESIGN MANAGER		

APPROVED:

CITY ENGINEER

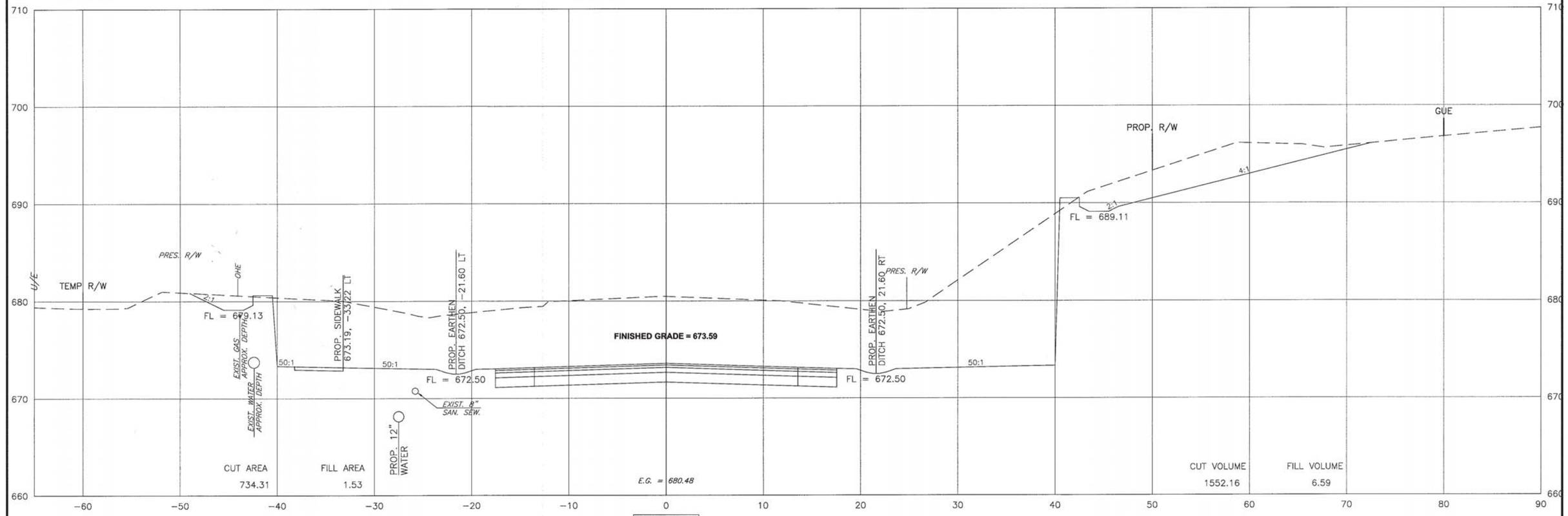
DATE

DRAWING: 95 CROSS SECTION 3.DWG

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 128 OF 181

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG



REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 26

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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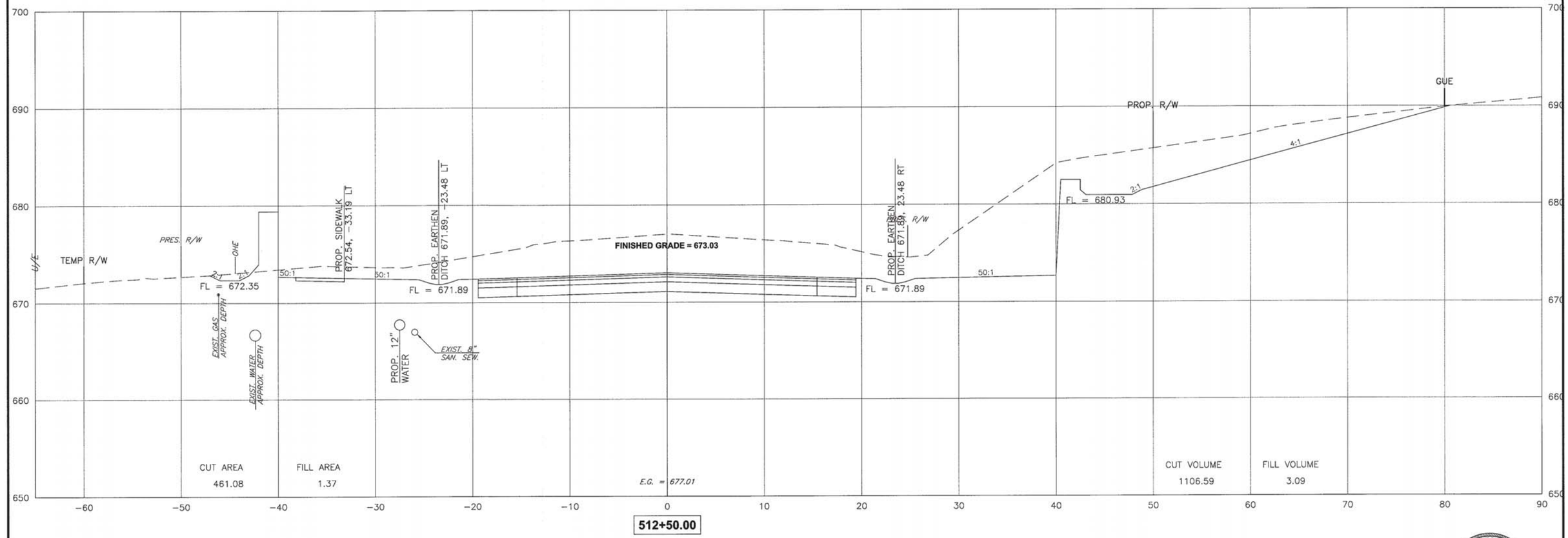
PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.		
HORIZONTAL: N/A	LEAD ENGR.		
	FIELD MGR.		
VERTICAL N/A	RECOMMENDED:		
	DESIGN MANAGER		CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG			DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423			SHEET 129 OF 181

APPROVED:

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG



512+50.00

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 27

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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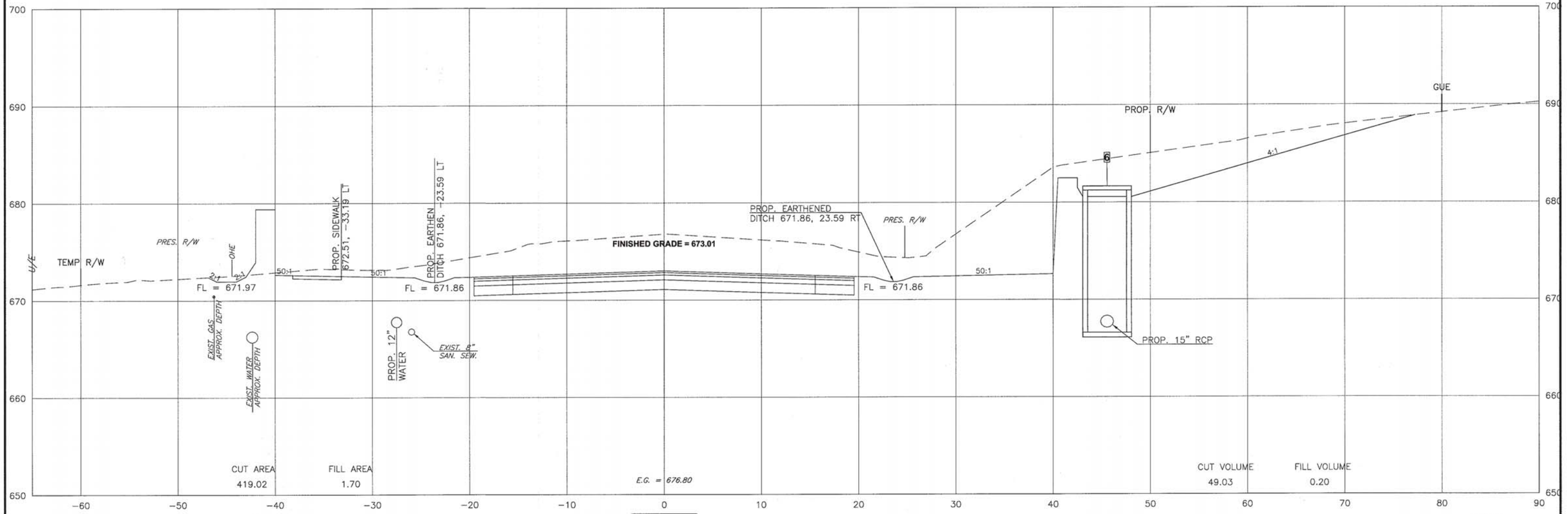
PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014	APPROVED:
	DESIGNED	J.P.S.	08/2014	
	SURVEY	A.K.H.	08/2012	
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A	PROJ. MGR.			
	LEAD ENGR.			
	FIELD MGR.			
	RECOMMENDED: DESIGN MANAGER			CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG				DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 130 OF 181



512+53.01

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 28

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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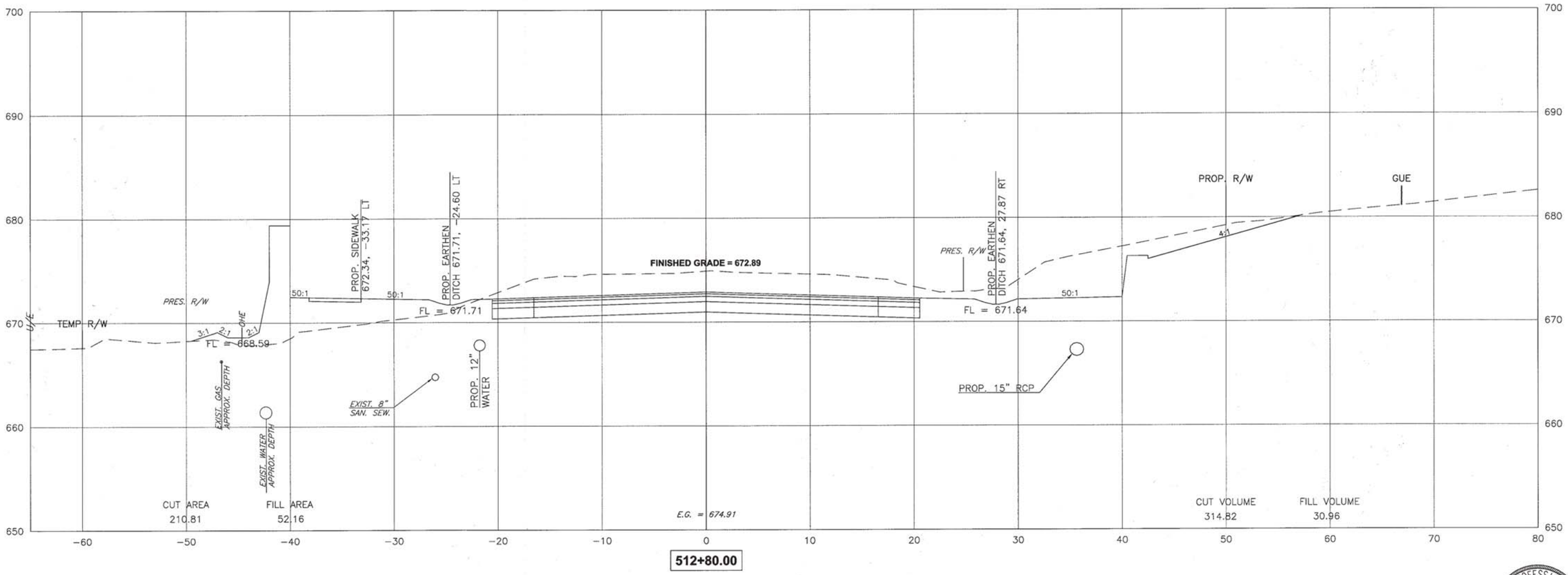
PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.		
HORIZONTAL: N/A	LEAD ENGR.		
	FIELD MGR.		
VERTICAL N/A	RECOMMENDED:		
	DESIGN MANAGER		
DRAWING: 95 CROSS SECTION 3.DWG			
ATLAS PAGE NO: 1276, 1277, 1422, 1423			

APPROVED:

CITY ENGINEER

DATE

SHEET 131 OF 181



REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 29

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
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PROFILE SCALES:	PROJ. MGR.		
HORIZONTAL: N/A	LEAD ENGR.		
	FIELD MGR.		
VERTICAL N/A	RECOMMENDED:		
	DESIGN MANAGER		
DRAWING: 95 CROSS SECTION 3.DWG			
ATLAS PAGE NO: 1276, 1277, 1422, 1423			

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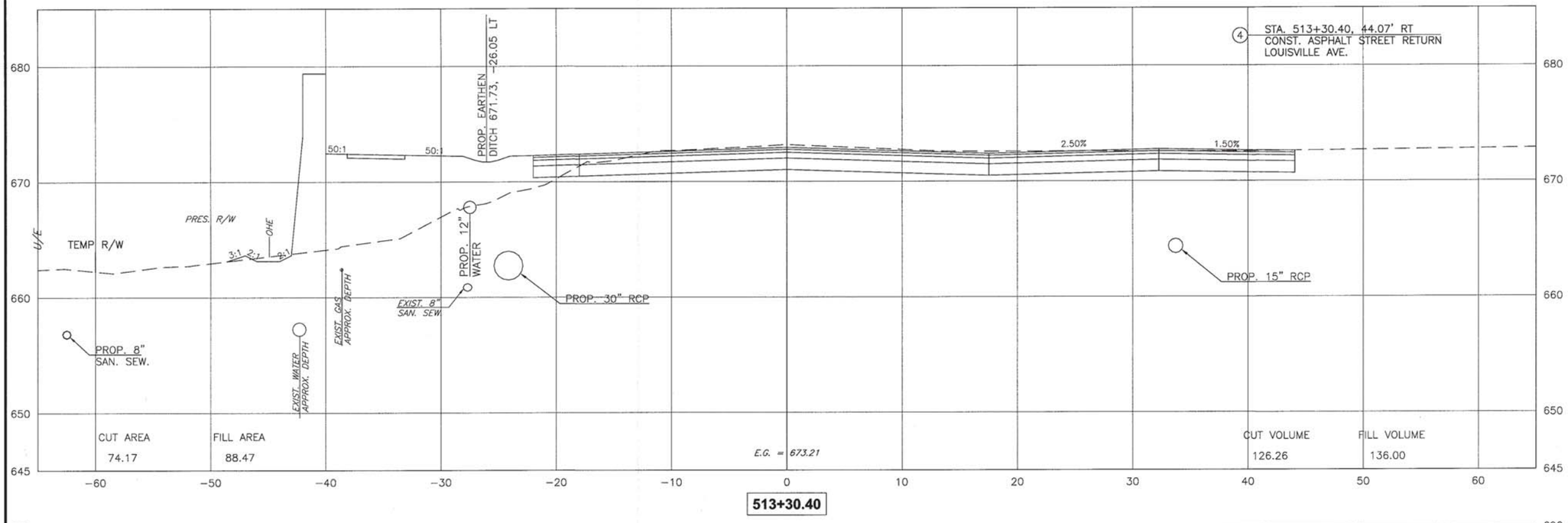
CITY ENGINEER

DATE

SHEET 132 OF 181

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG



PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 30

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.		
HORIZONTAL: N/A	LEAD ENGR.		
	FIELD MGR.		
VERTICAL N/A	RECOMMENDED:		
	DESIGN MANAGER		CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG			DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423			SHEET 133 OF 181

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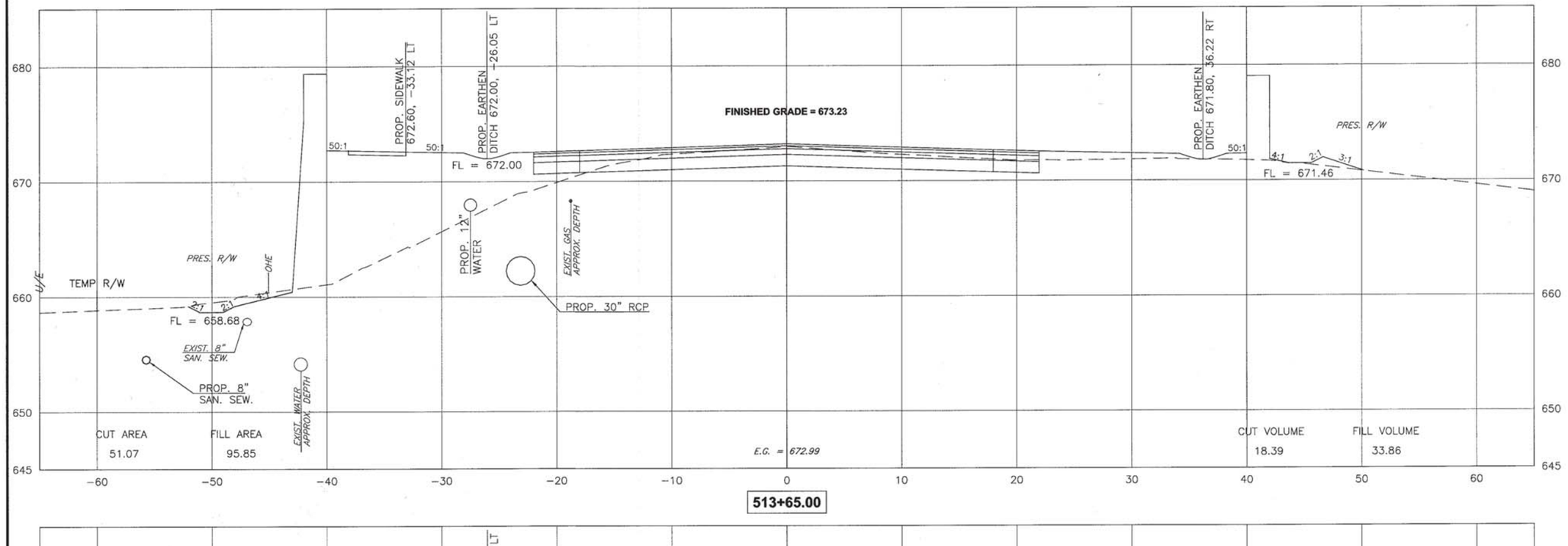
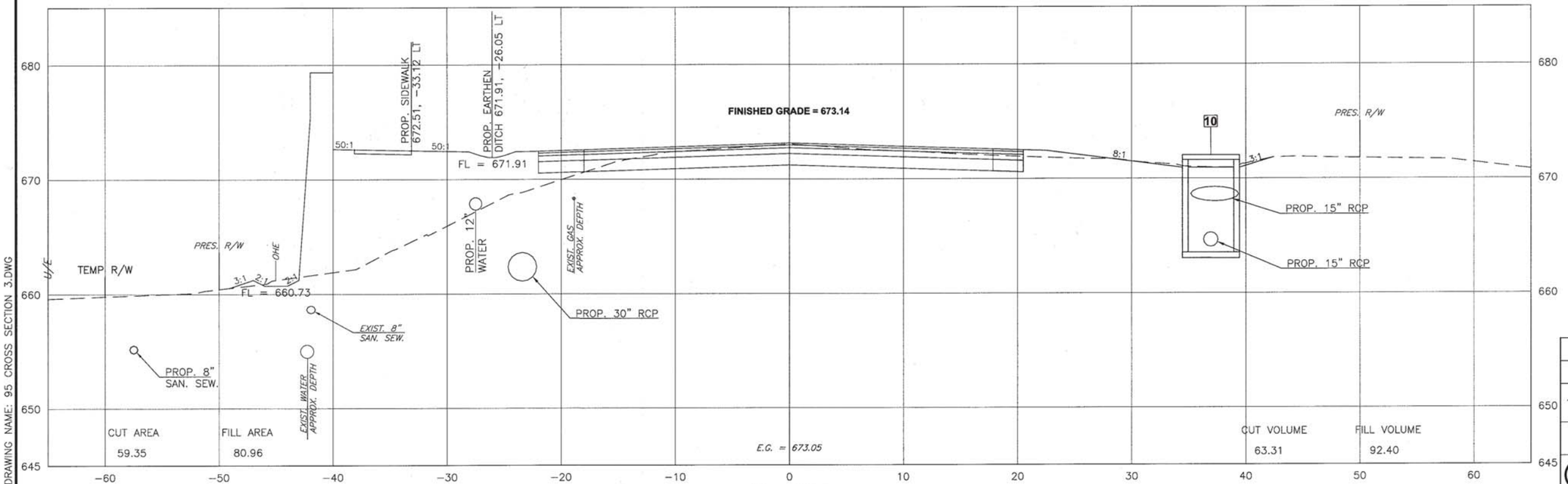


513+65.00



513+56.01

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 31

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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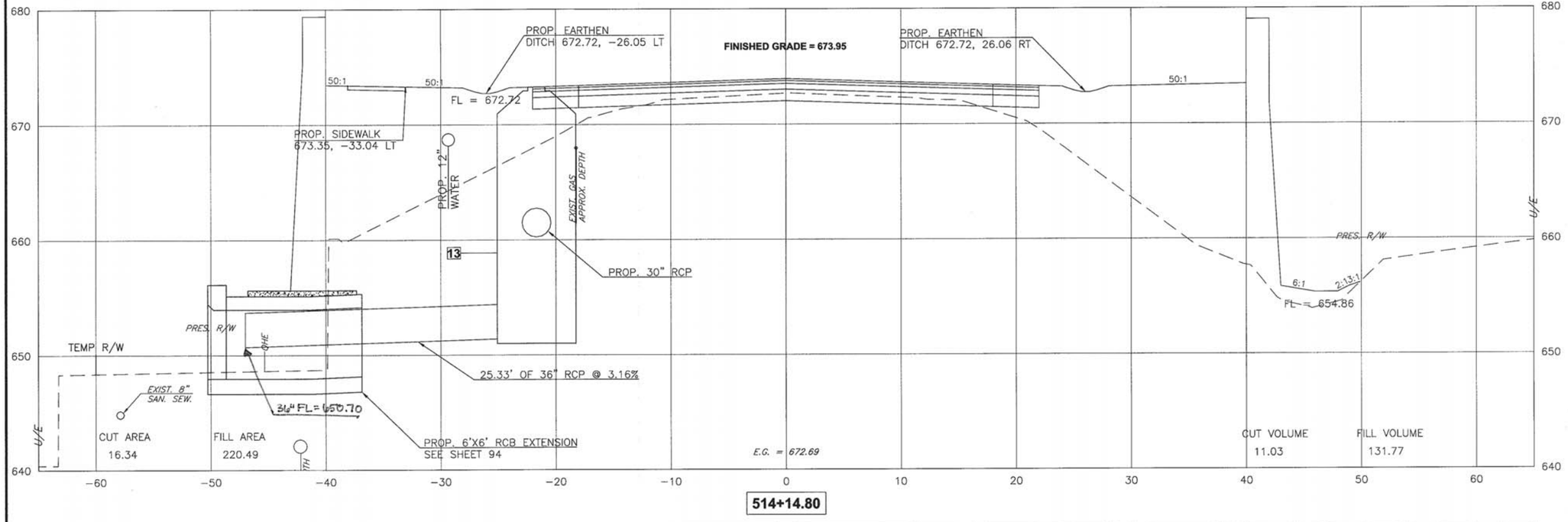
PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014	APPROVED:
	DESIGNED	J.P.S.	08/2014	
	SURVEY	A.K.H.	08/2012	
PROFILE SCALES:	PROJ. MGR.			
HORIZONTAL: N/A	LEAD ENGR.			
	FIELD MGR.			
VERTICAL N/A	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG				DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 134 OF 181



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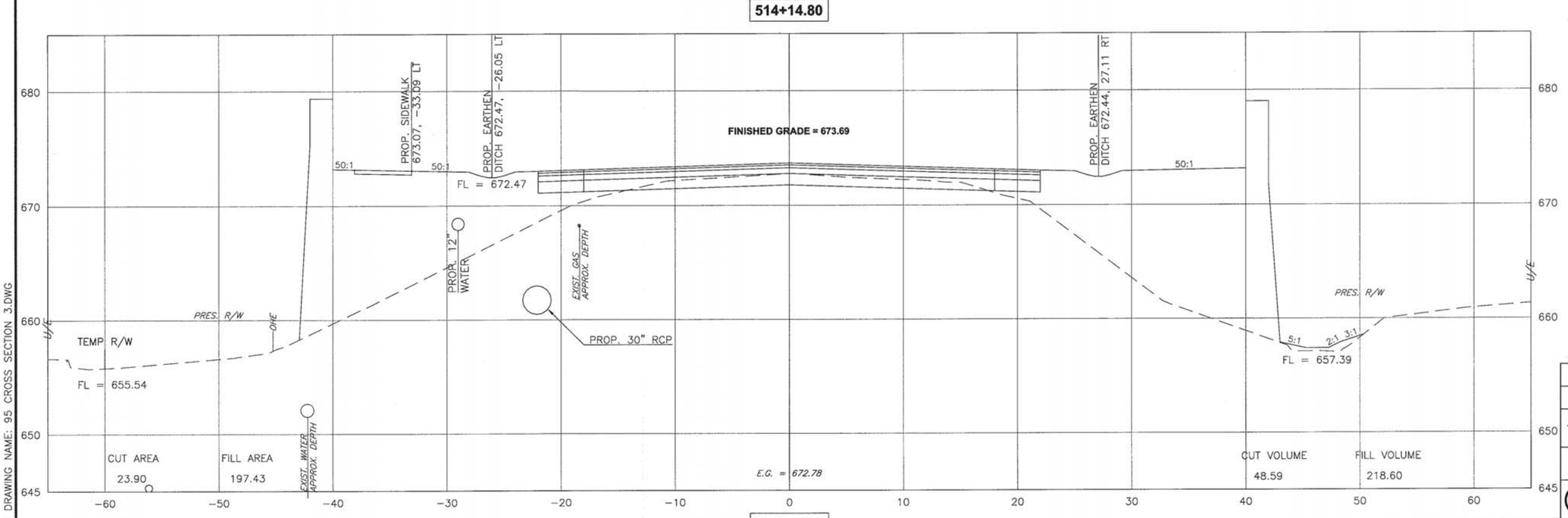

514+00.00

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 32

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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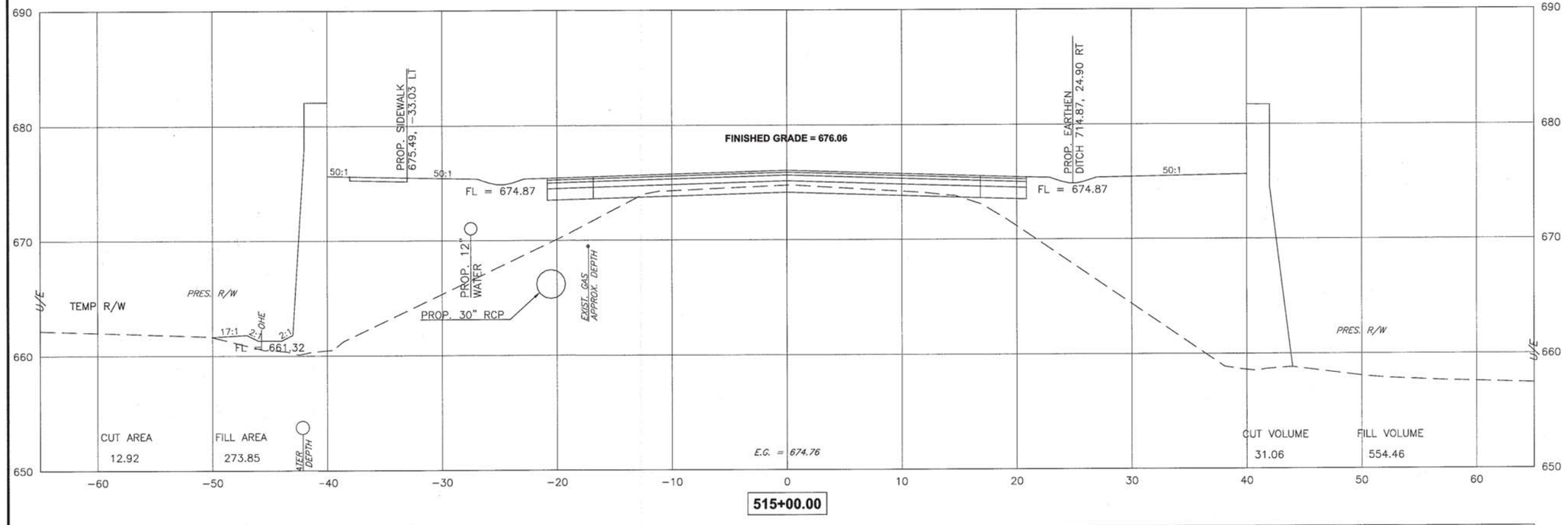
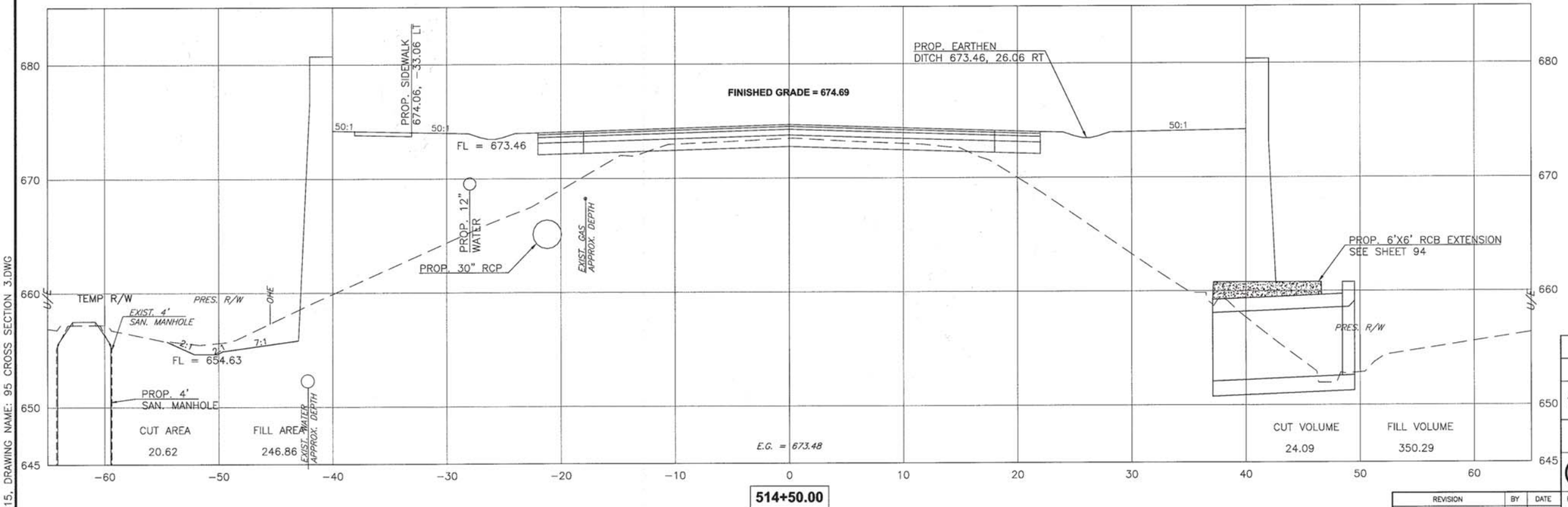
PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014	APPROVED:
	DESIGNED	J.P.S.	08/2014	
	SURVEY	A.K.H.	08/2012	
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A	PROJ. MGR.			
	LEAD ENGR.			
	FIELD MGR.			
	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG				DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 135 OF 181

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG





REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

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CROSS SECTION 33

PROJECT NO. 104006

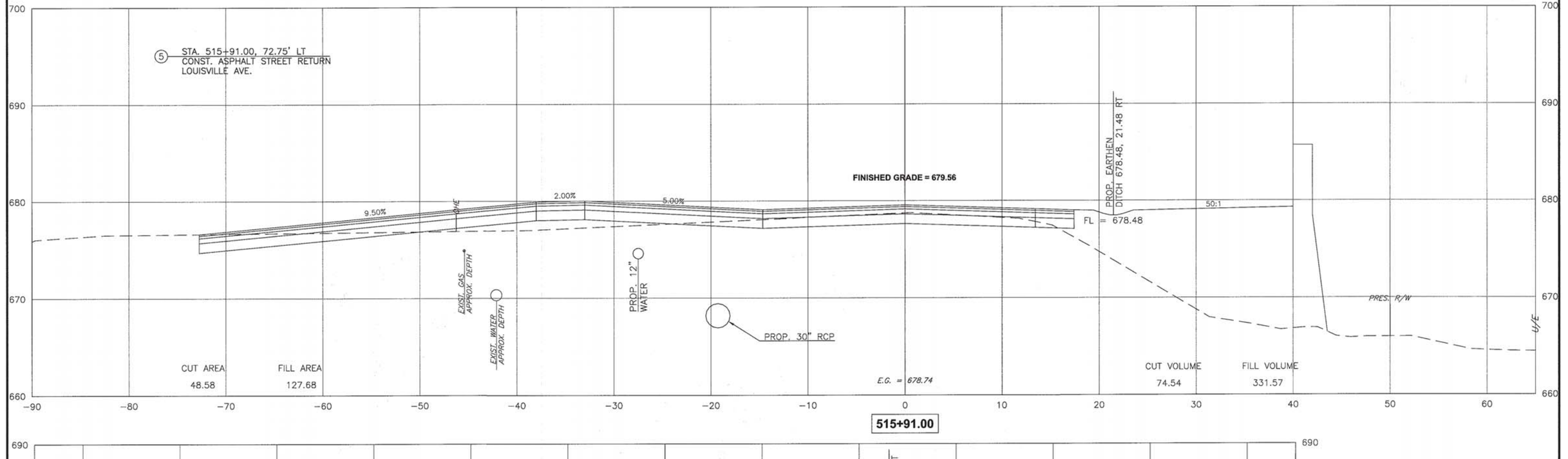
101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014	APPROVED:
	DESIGNED	J.P.S.	08/2014	
	SURVEY	A.K.H.	08/2012	
PROFILE SCALES:	PROJ. MGR.			
HORIZONTAL: N/A	LEAD ENGR.			
	FIELD MGR.			
VERTICAL N/A	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG				DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 136 OF 181

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG



PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

JEREMY P. STAHLE 21725 REGISTERED PROFESSIONAL ENGINEER OKLAHOMA

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CROSS SECTION 34

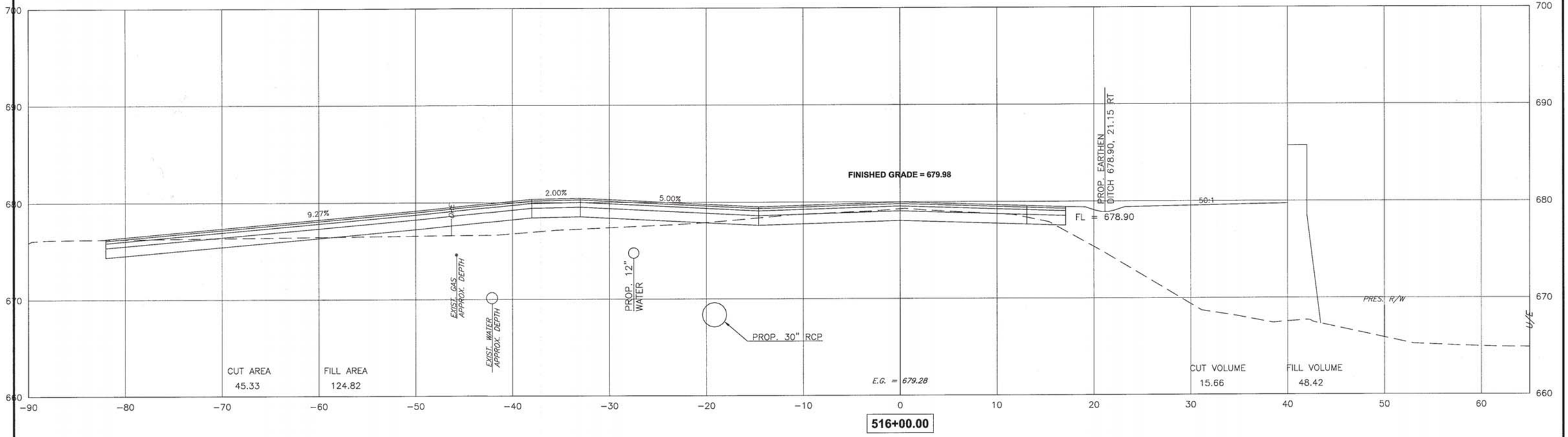
PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014	APPROVED:
	DESIGNED	J.P.S.	08/2014	
	SURVEY	A.K.H.	08/2012	
PROFILE SCALES:	PROJ. MGR.			
HORIZONTAL: N/A	LEAD ENGR.			
	FIELD MGR.			
VERTICAL N/A	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG				DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 137 OF 181



PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

JEREMY P. STAHLE 21725 REGISTERED PROFESSIONAL ENGINEER OKLAHOMA

CROSS SECTION 35

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.		
HORIZONTAL:	LEAD ENGR.		
N/A	FIELD MGR.		
VERTICAL	RECOMMENDED:		
N/A	DESIGN MANAGER		CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG			DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423			SHEET 138 OF 181

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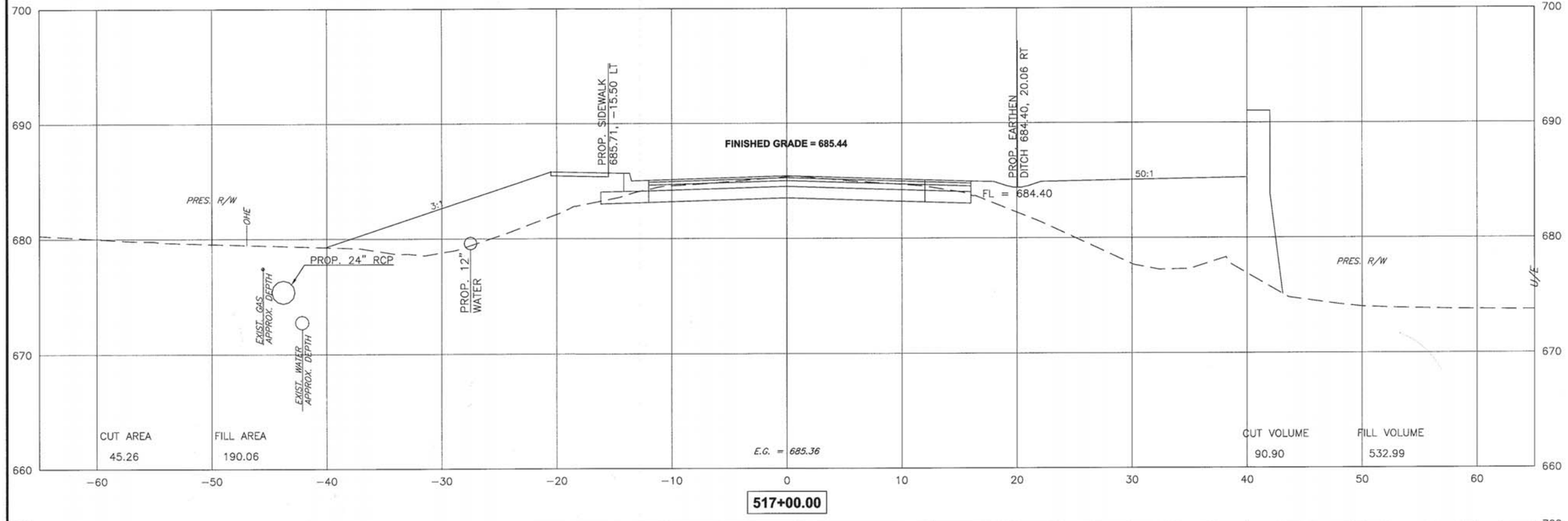

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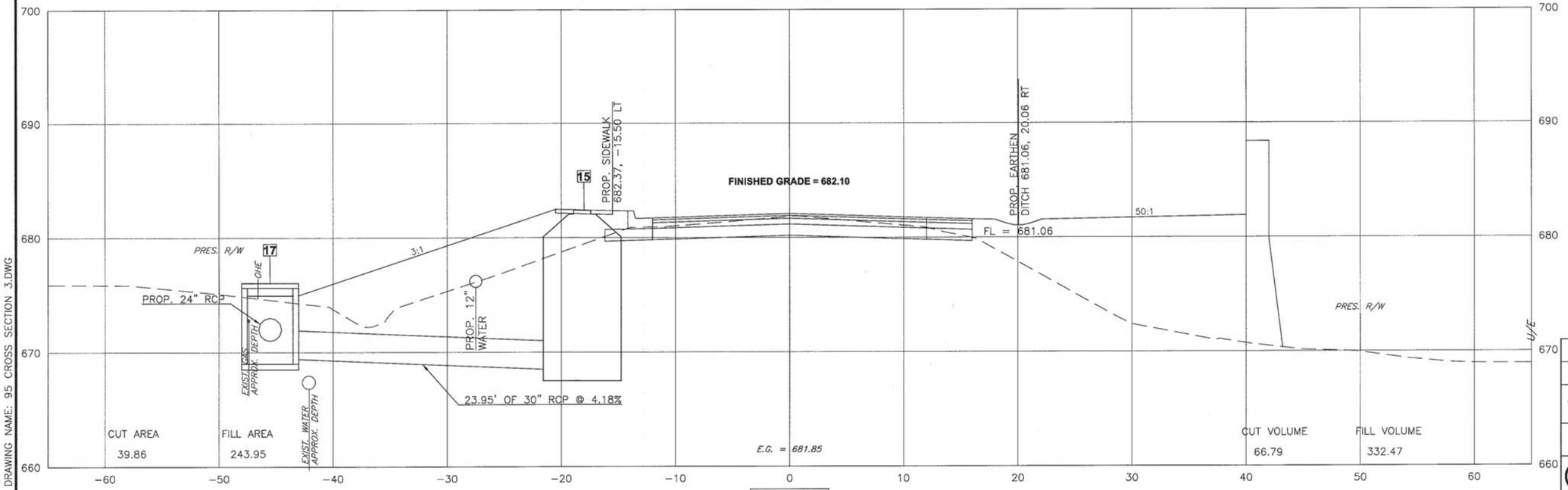

516+42.33

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 36

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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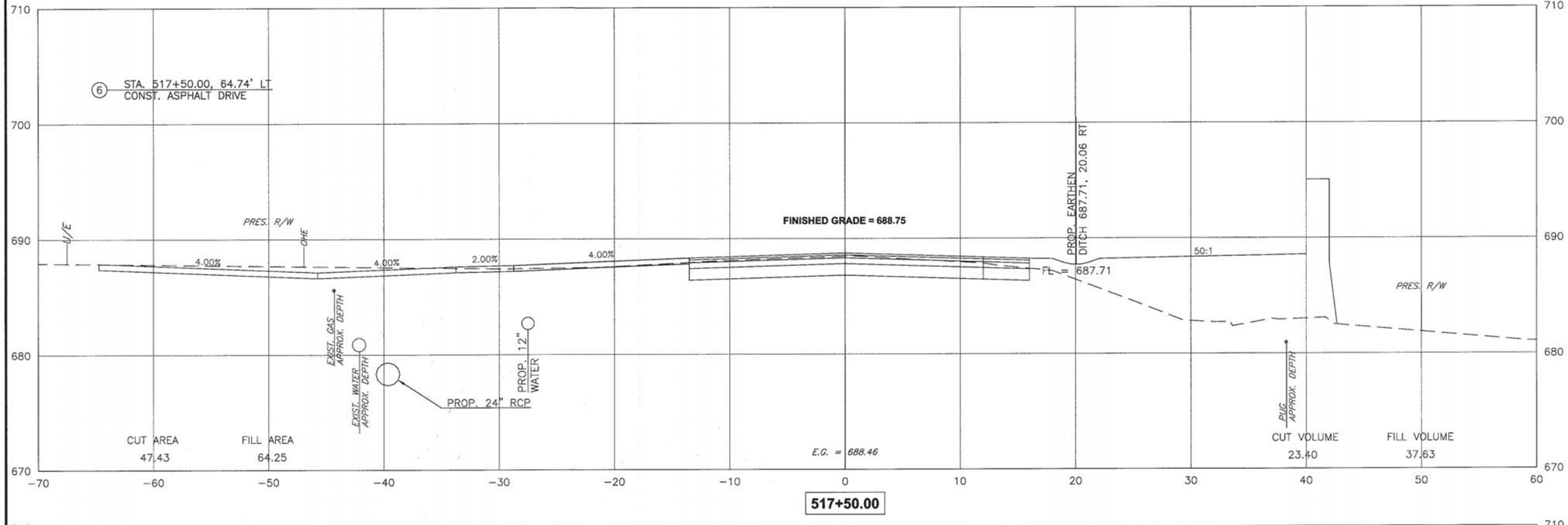
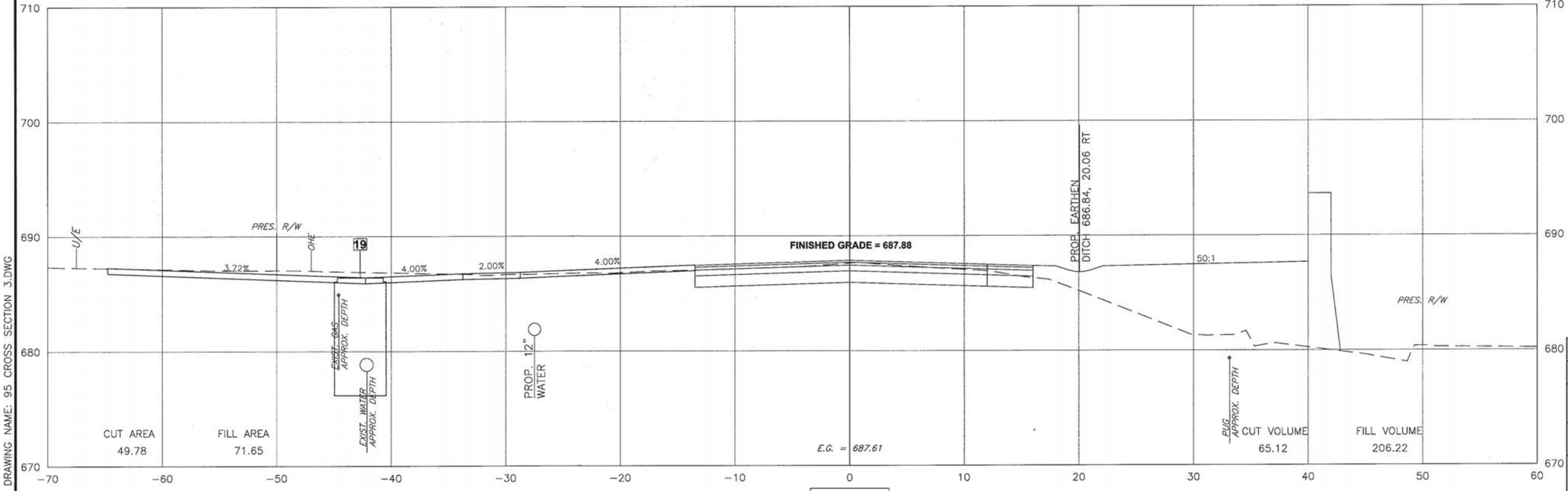
PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014	APPROVED:
	DESIGNED	J.P.S.	08/2014	
	SURVEY	A.K.H.	08/2012	
PROFILE SCALES:	PROJ. MGR.			
HORIZONTAL: N/A	LEAD ENGR.			
	FIELD MGR.			
VERTICAL N/A	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG				DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 139 OF 181



517+50.00



517+37.00

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 37

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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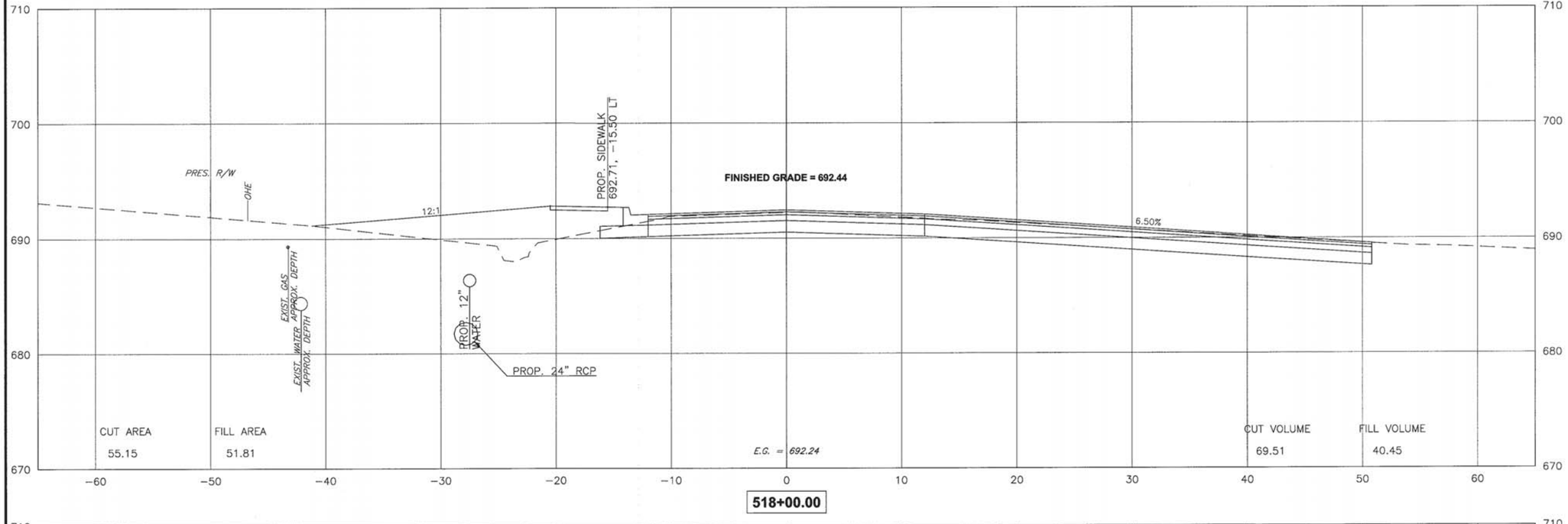
PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.		
HORIZONTAL: N/A	LEAD ENGR.		
	FIELD MGR.		
VERTICAL N/A	RECOMMENDED:		
	DESIGN MANAGER		
DRAWING: 95 CROSS SECTION 3.DWG			
ATLAS PAGE NO: 1276, 1277, 1422, 1423			

APPROVED:

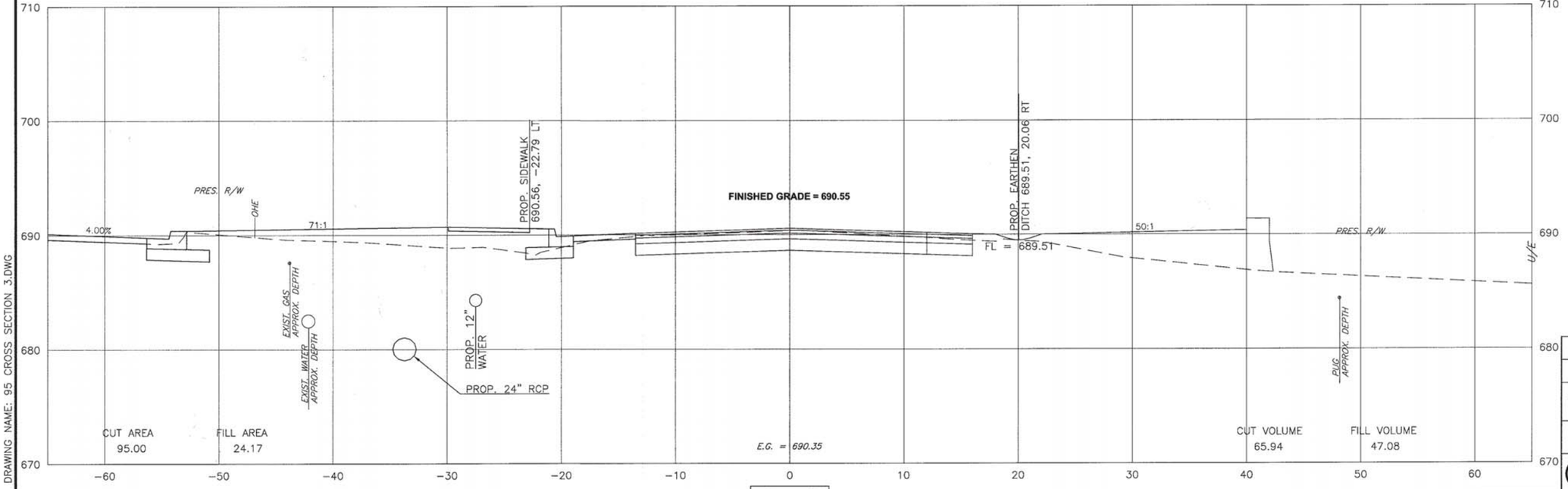
CITY ENGINEER

DATE

SHEET 140 OF 181



518+00.00



517+75.00

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

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CROSS SECTION 38

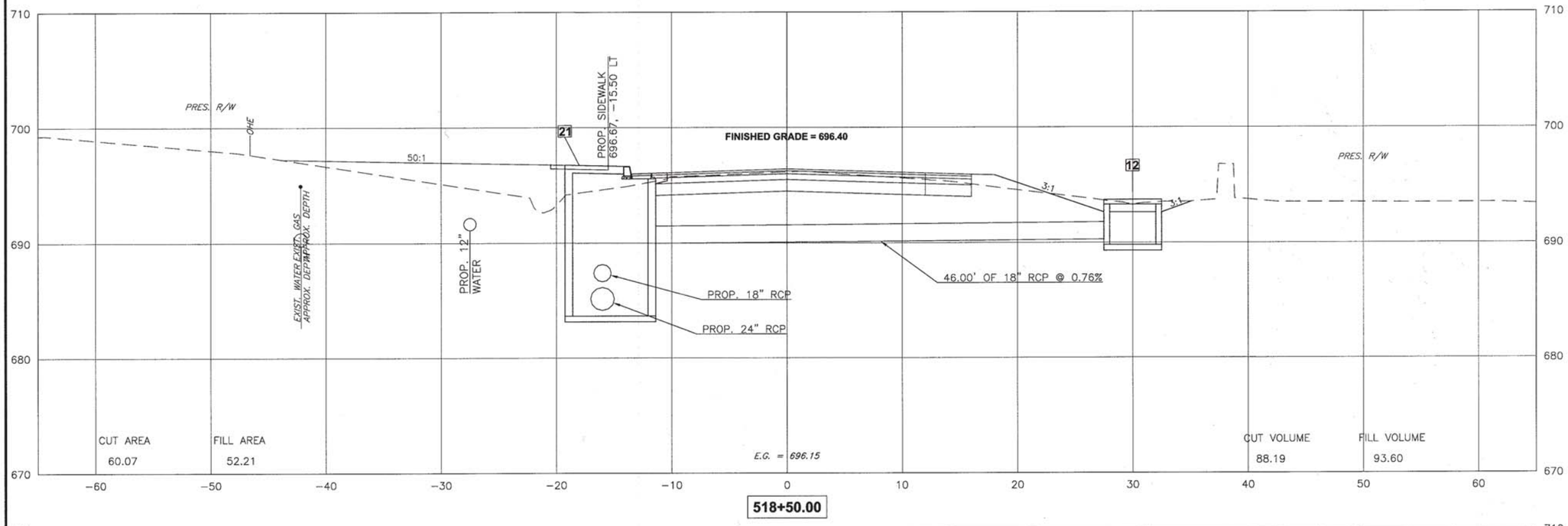
PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

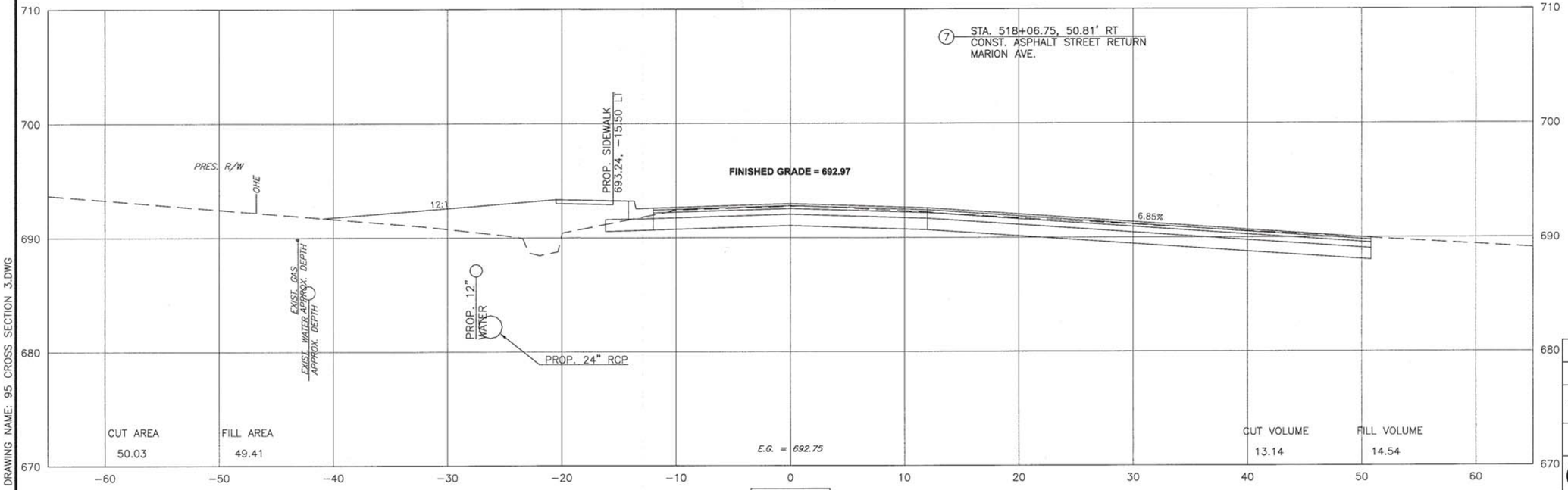
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014	APPROVED:
	DESIGNED	J.P.S.	08/2014	
	SURVEY	A.K.H.	08/2012	
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A	PROJ. MGR.			
	LEAD ENGR.			
	FIELD MGR.			
	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG				DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 141 OF 181



518+50.00



518+06.75

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 39

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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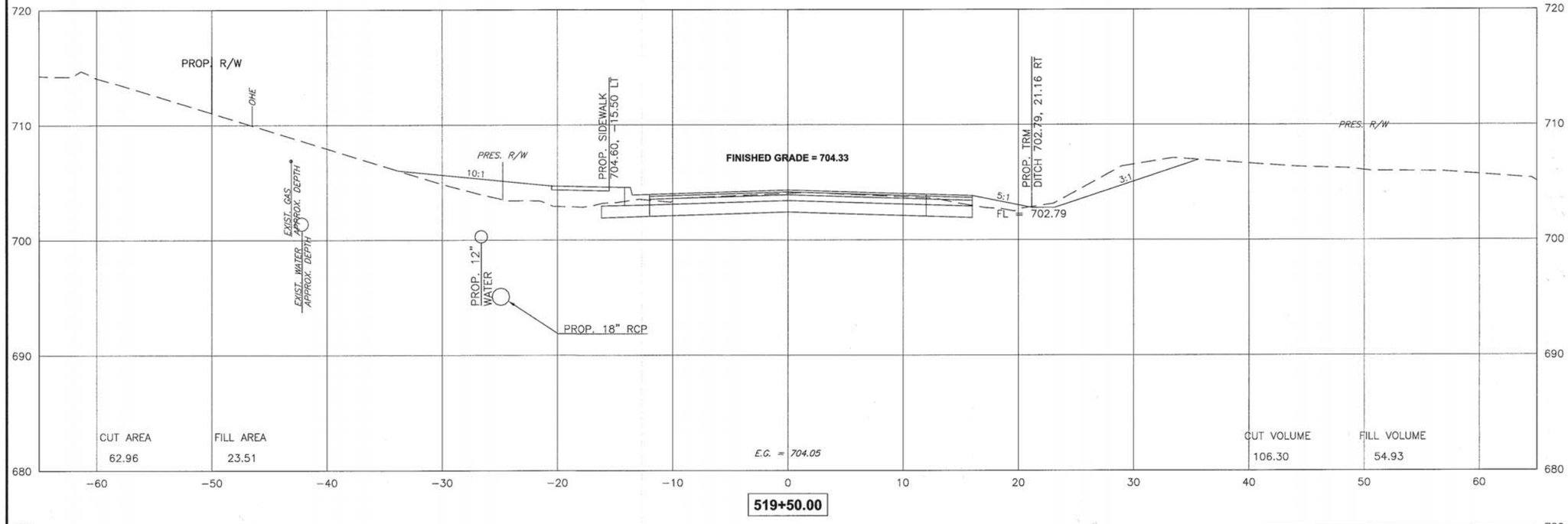
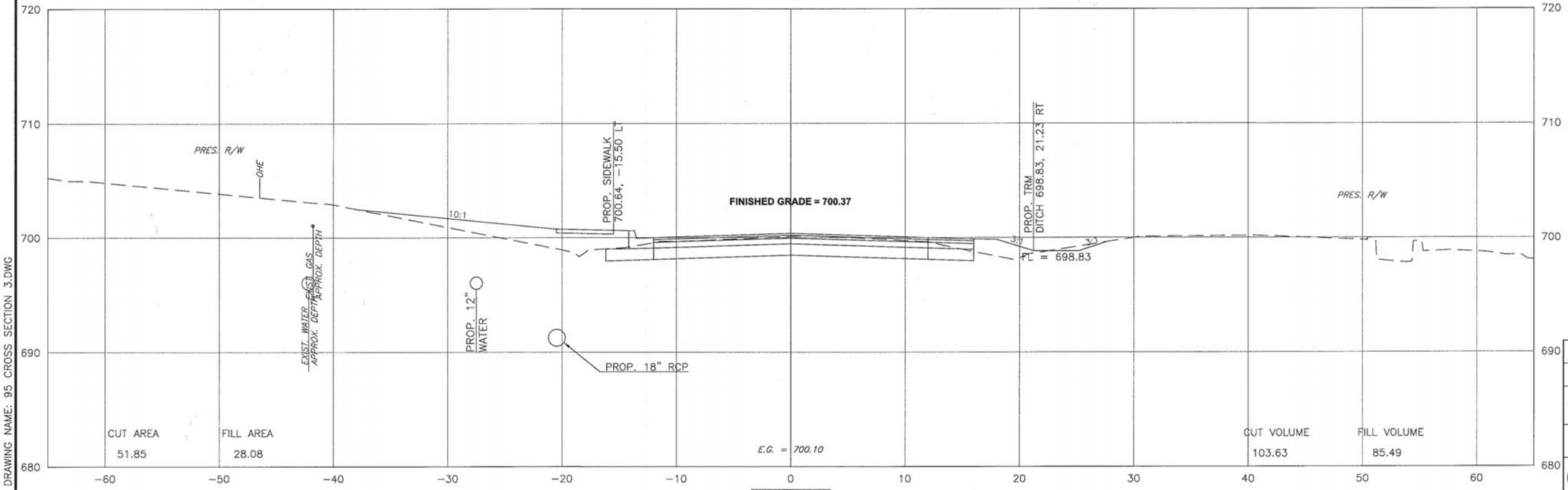
PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014	APPROVED:
	DESIGNED	J.P.S.	08/2014	
	SURVEY	A.K.H.	08/2012	
PROFILE SCALES:	PROJ. MGR.			
HORIZONTAL: N/A	LEAD ENGR.			
	FIELD MGR.			
VERTICAL N/A	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG				DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 142 OF 181



519+50.00



519+00.00

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REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 40

PROJECT NO. 104006

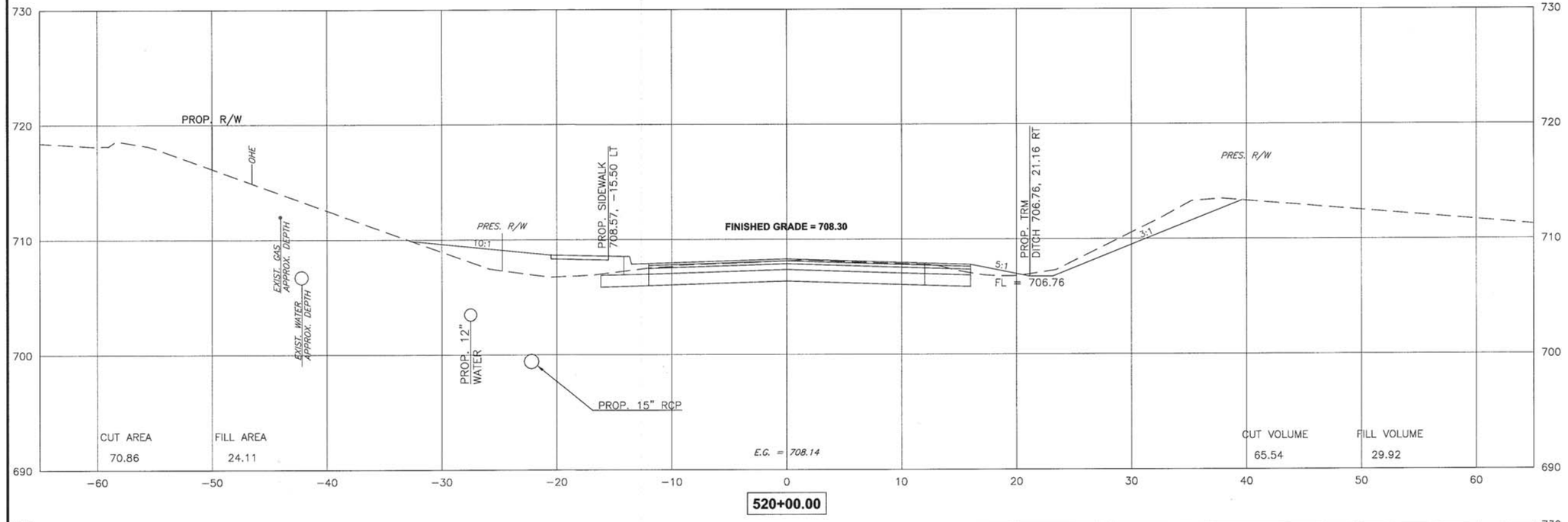
101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

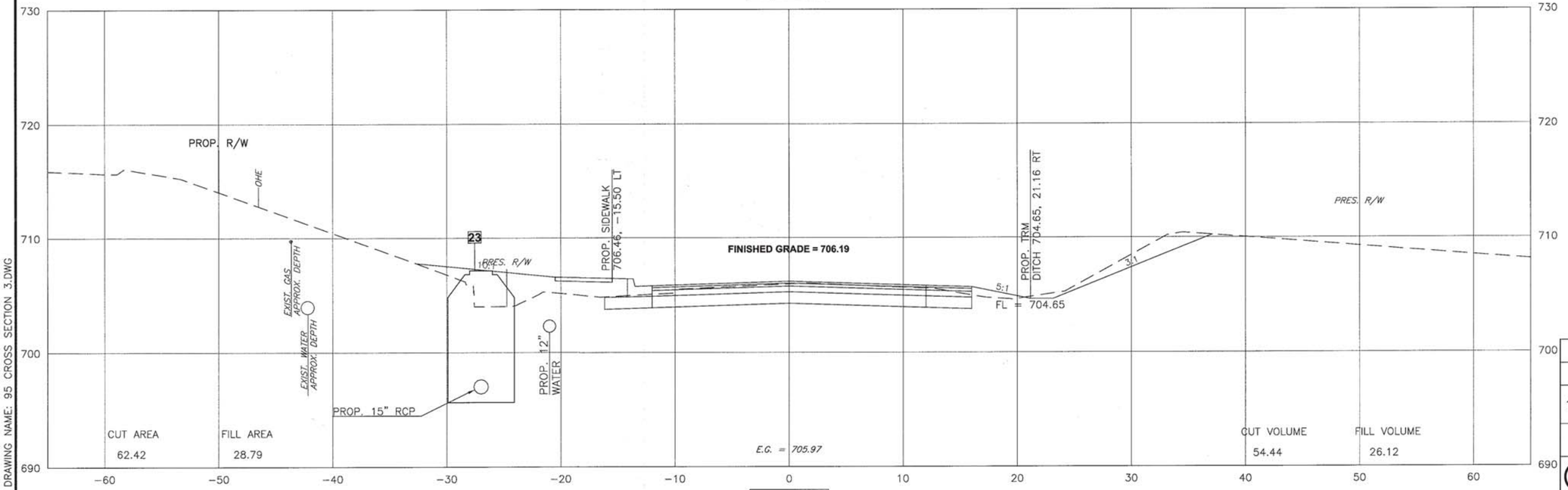
CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014	APPROVED:
	DESIGNED	J.P.S.	08/2014	
	SURVEY	A.K.H.	08/2012	
PROFILE SCALES:	PROJ. MGR.			
HORIZONTAL: N/A	LEAD ENGR.			
	FIELD MGR.			
VERTICAL N/A	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG				DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 143 OF 181

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG



520+00.00



519+73.45

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 41

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.		
HORIZONTAL: N/A	LEAD ENGR.		
	FIELD MGR.		
VERTICAL N/A	RECOMMENDED:		
	DESIGN MANAGER		

APPROVED:

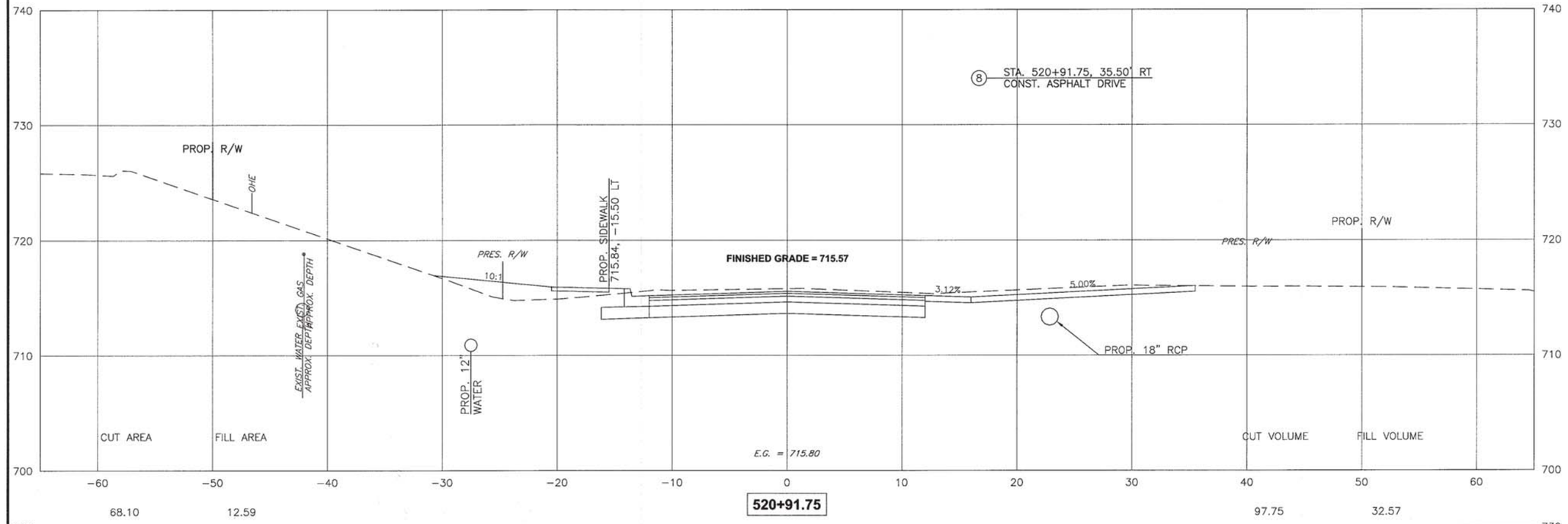
CITY ENGINEER

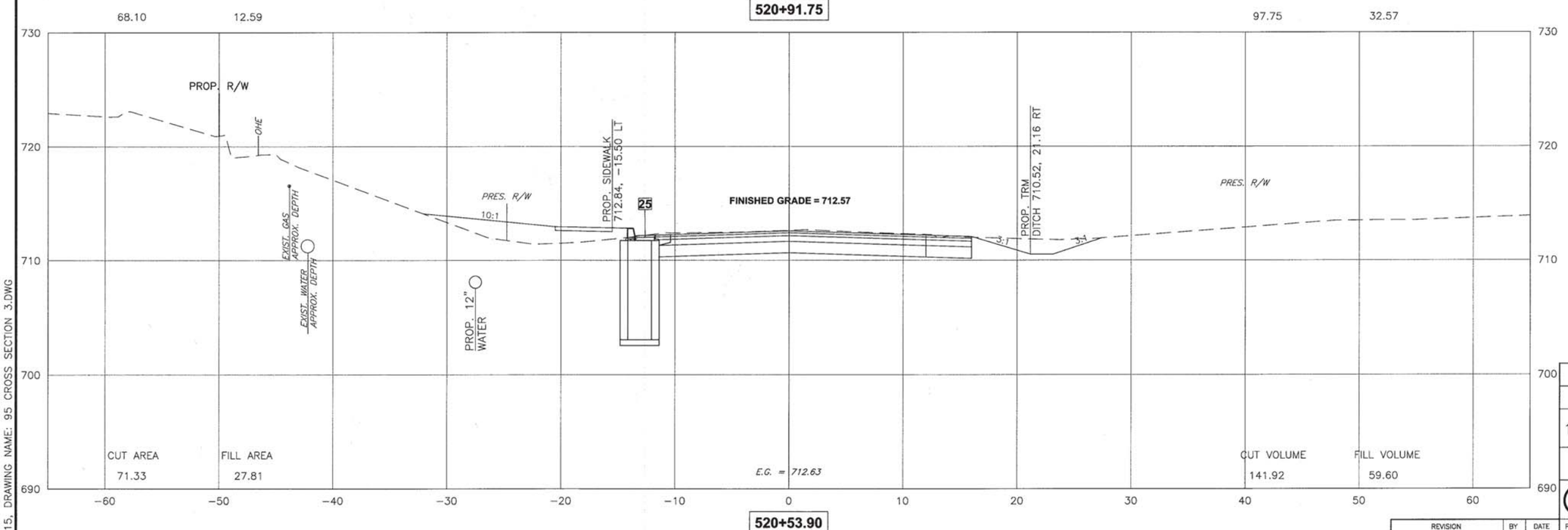
DRAWING: 95 CROSS SECTION 3.DWG

DATE

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 144 OF 181





PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 42

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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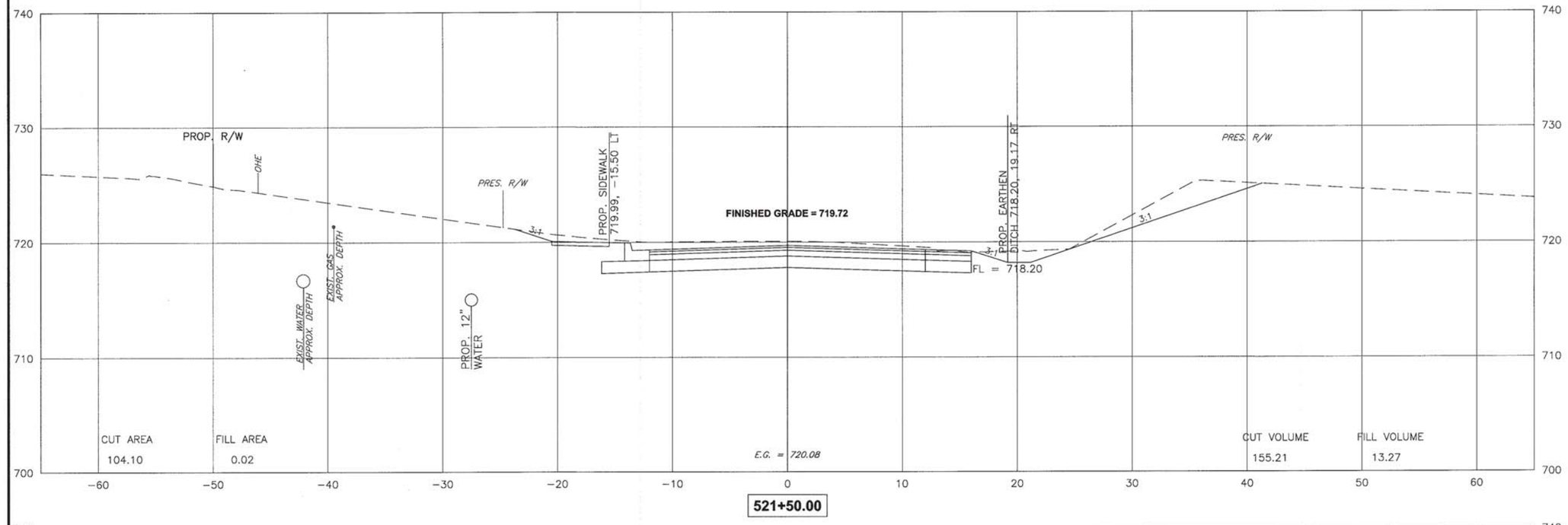
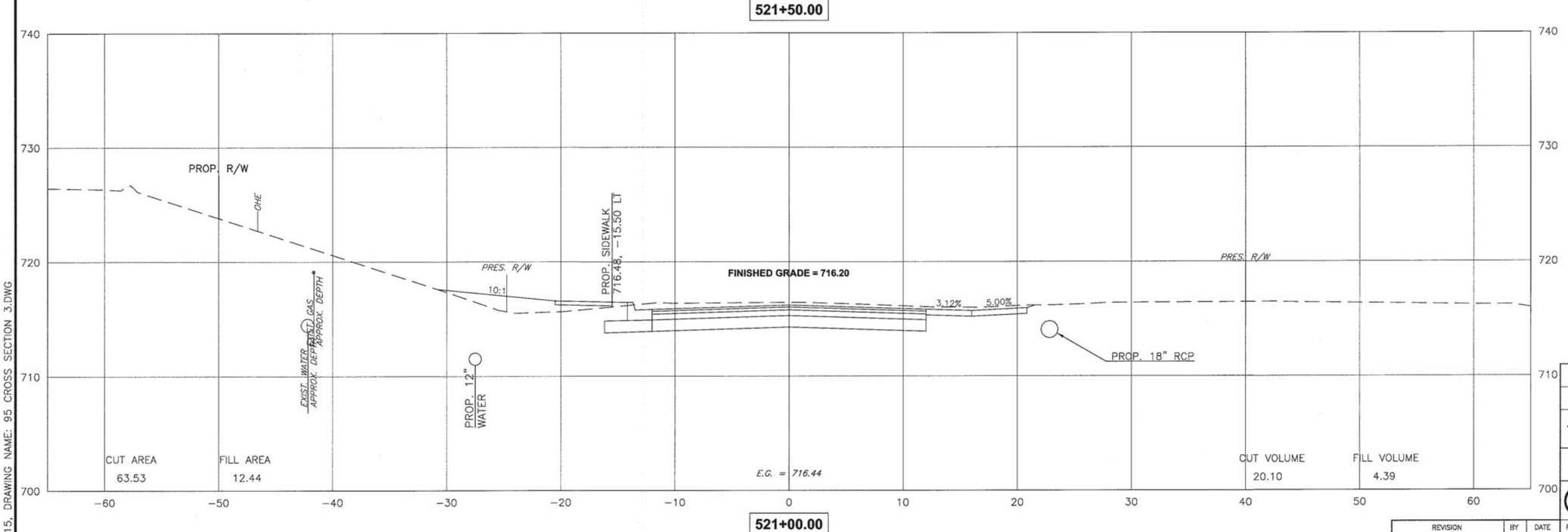
PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014	APPROVED:
	DESIGNED	J.P.S.	08/2014	
	SURVEY	A.K.H.	08/2012	
PROFILE SCALES:	PROJ. MGR.			
HORIZONTAL: N/A	LEAD ENGR.			
	FIELD MGR.			
VERTICAL N/A	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG				DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 145 OF 181





REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

REVISION	BY	DATE
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CROSS SECTION 43

PROJECT NO. 104006

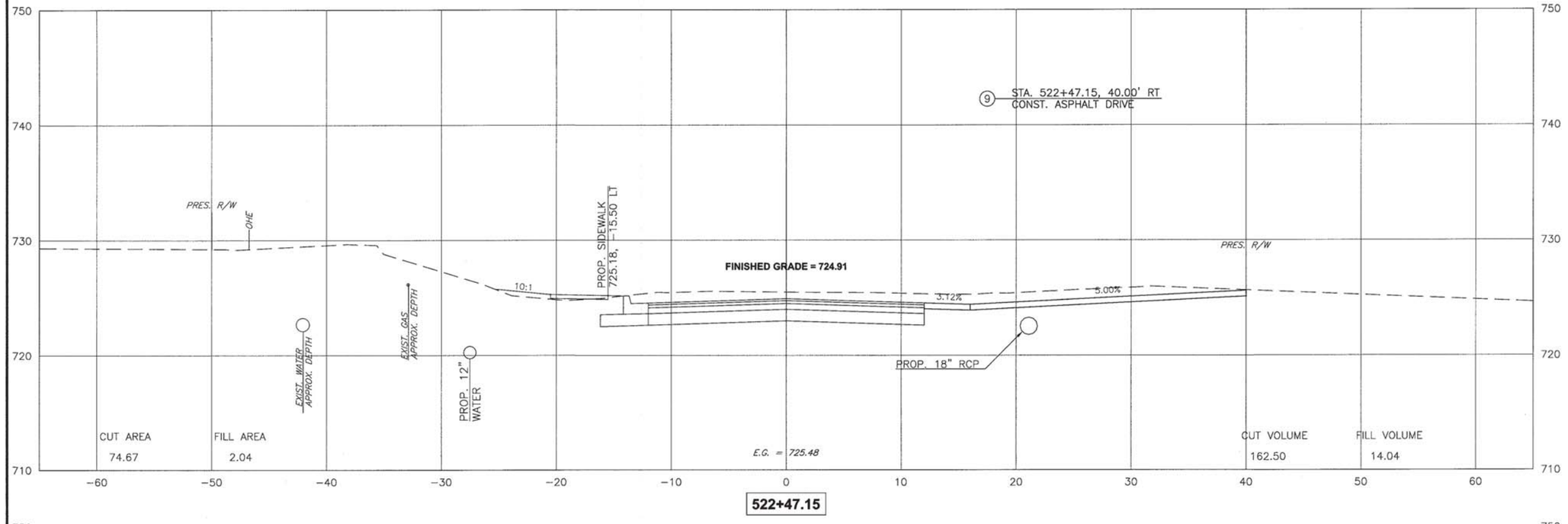
101ST STREET–HARVARD TO YALE

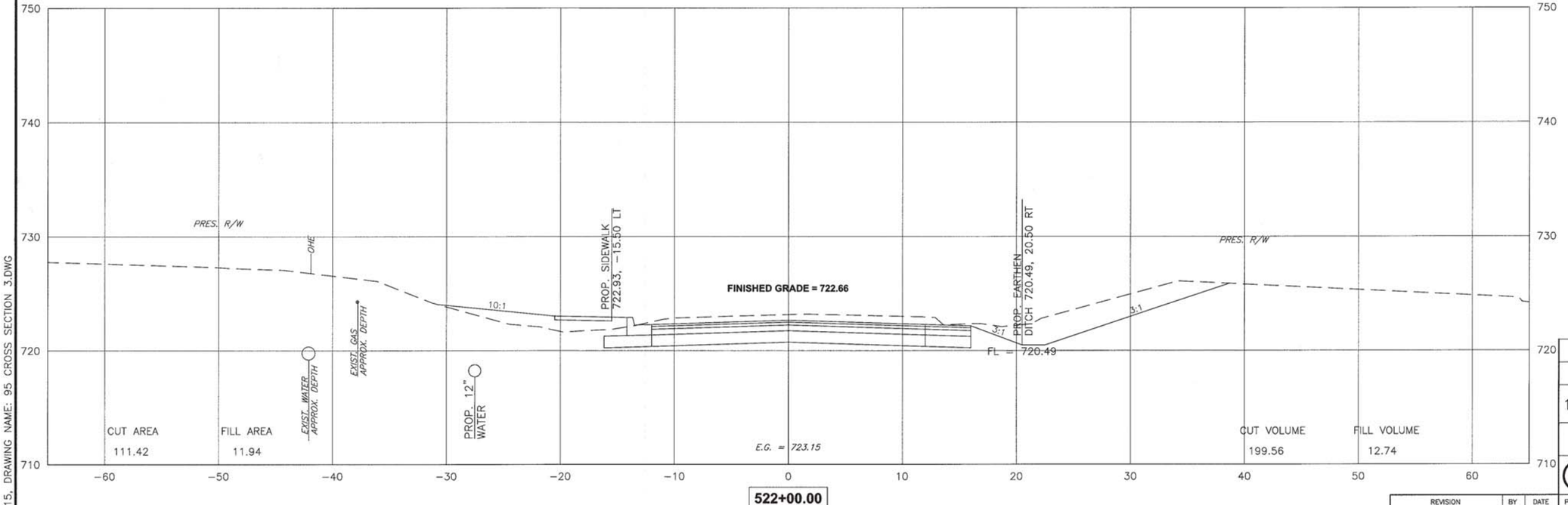
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014	APPROVED:
	DESIGNED	J.P.S.	08/2014	
	SURVEY	A.K.H.	08/2012	
PROFILE SCALES:	PROJ. MGR.			
HORIZONTAL: N/A	LEAD ENGR.			
	FIELD MGR.			
VERTICAL N/A	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG				DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 146 OF 181

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG





REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 44

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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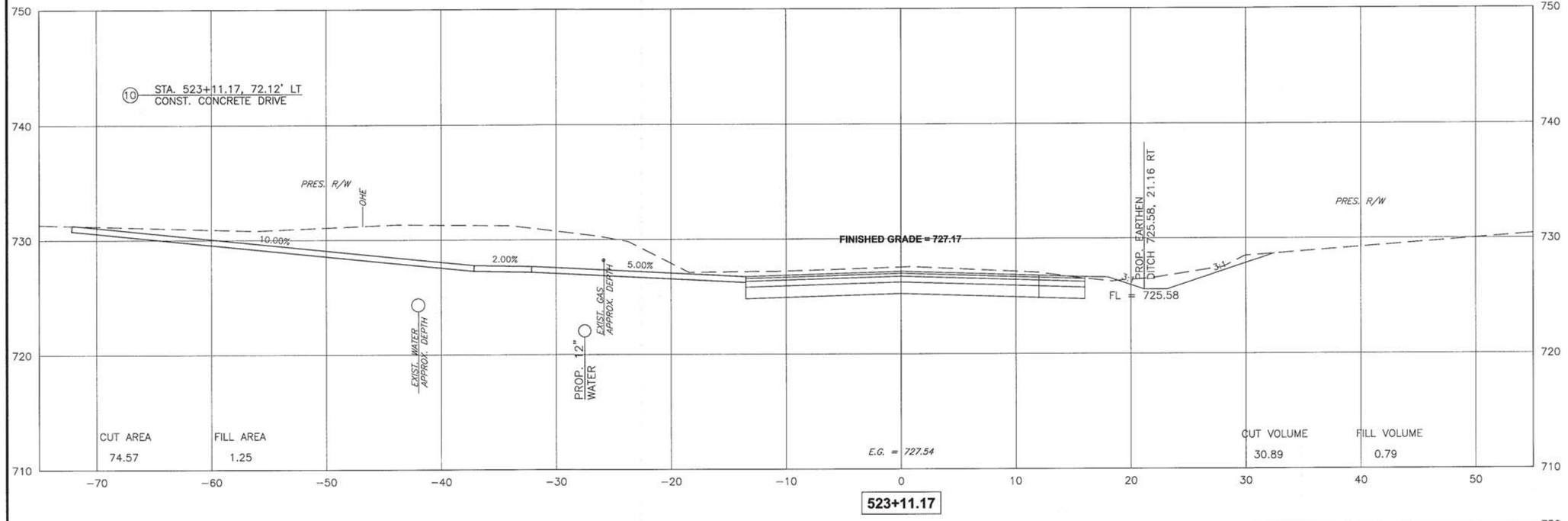
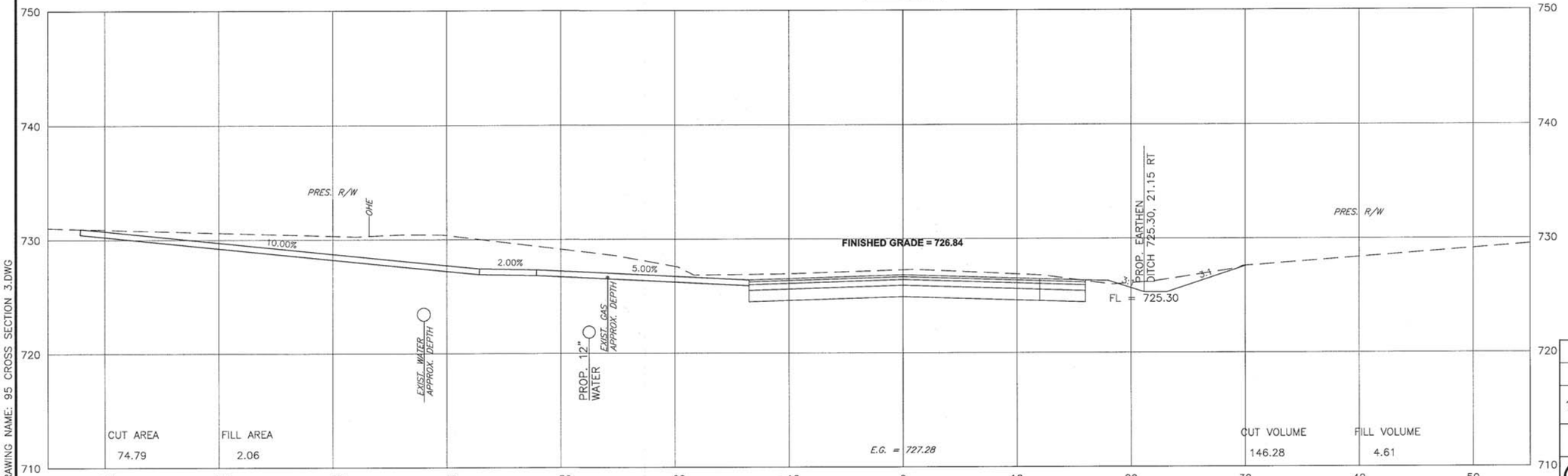
PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014	APPROVED:
	DESIGNED	J.P.S.	08/2014	
	SURVEY	A.K.H.	08/2012	
PROFILE SCALES:	PROJ. MGR.			
HORIZONTAL: N/A	LEAD ENGR.			
	FIELD MGR.			
VERTICAL N/A	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG				DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 147 OF 181

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG



523+11.17



523+00.00

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 45

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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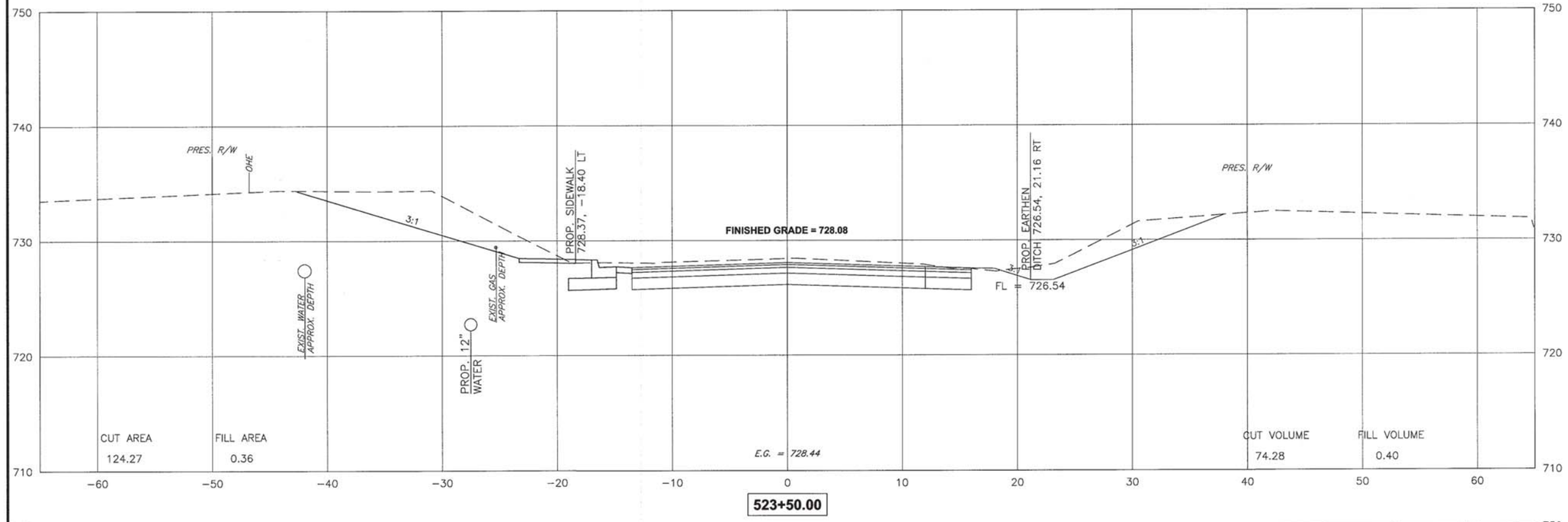
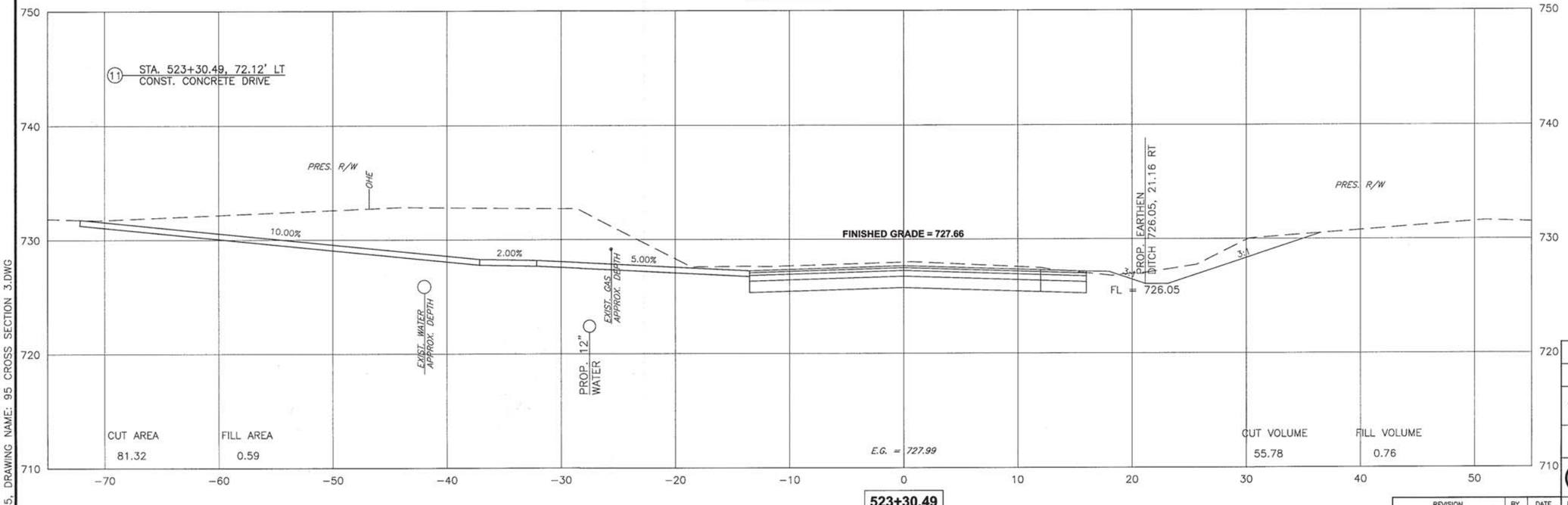
PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014	APPROVED:
	DESIGNED	J.P.S.	08/2014	
	SURVEY	A.K.H.	08/2012	
PROFILE SCALES:	PROJ. MGR.			
HORIZONTAL: N/A	LEAD ENGR.			
	FIELD MGR.			
VERTICAL N/A	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG				DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 148 OF 181



523+50.00



523+30.49

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 46

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.		
HORIZONTAL: N/A	LEAD ENGR.		
	FIELD MGR.		
VERTICAL N/A	RECOMMENDED:		
	DESIGN MANAGER		

APPROVED:

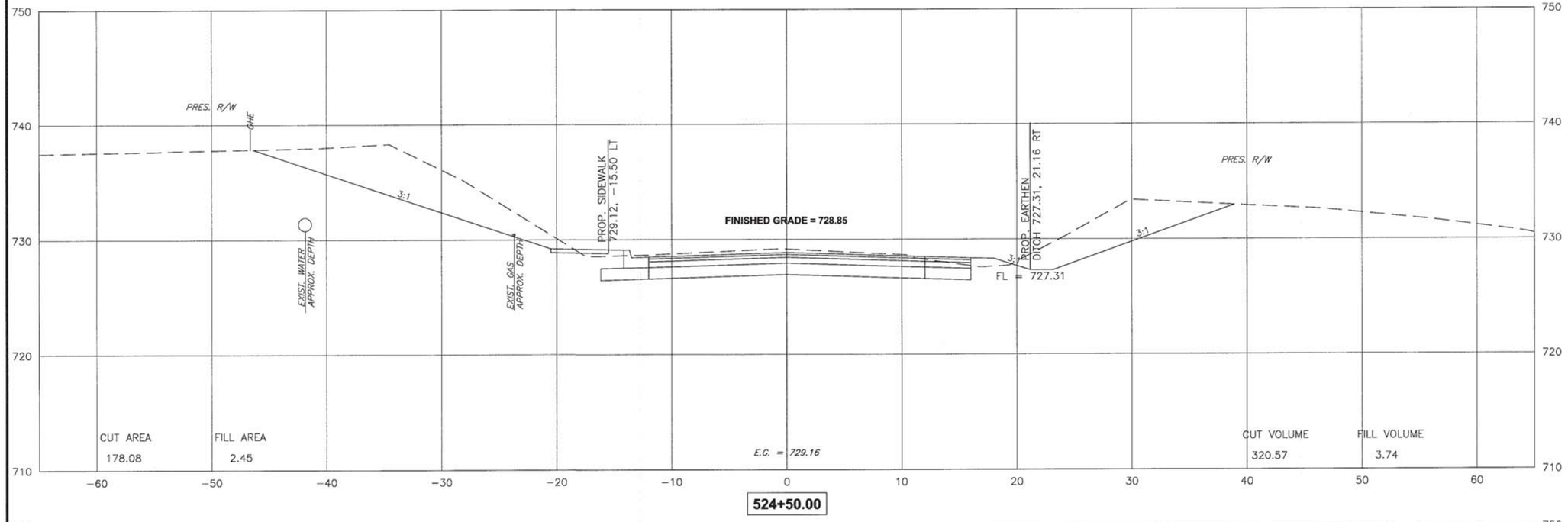
CITY ENGINEER

DRAWING: 95 CROSS SECTION 3.DWG

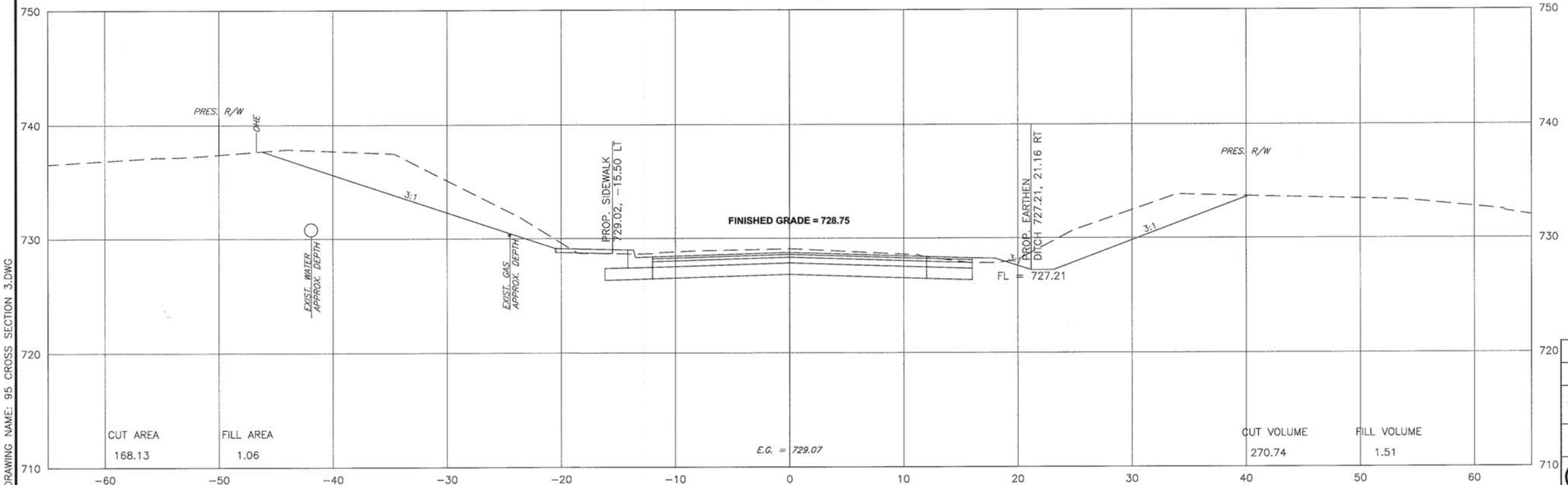
DATE

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 149 OF 181



524+50.00



524+00.00

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 47

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.		
HORIZONTAL: N/A	LEAD ENGR.		
	FIELD MGR.		
VERTICAL N/A	RECOMMENDED:		
	DESIGN MANAGER		

APPROVED:

CITY ENGINEER

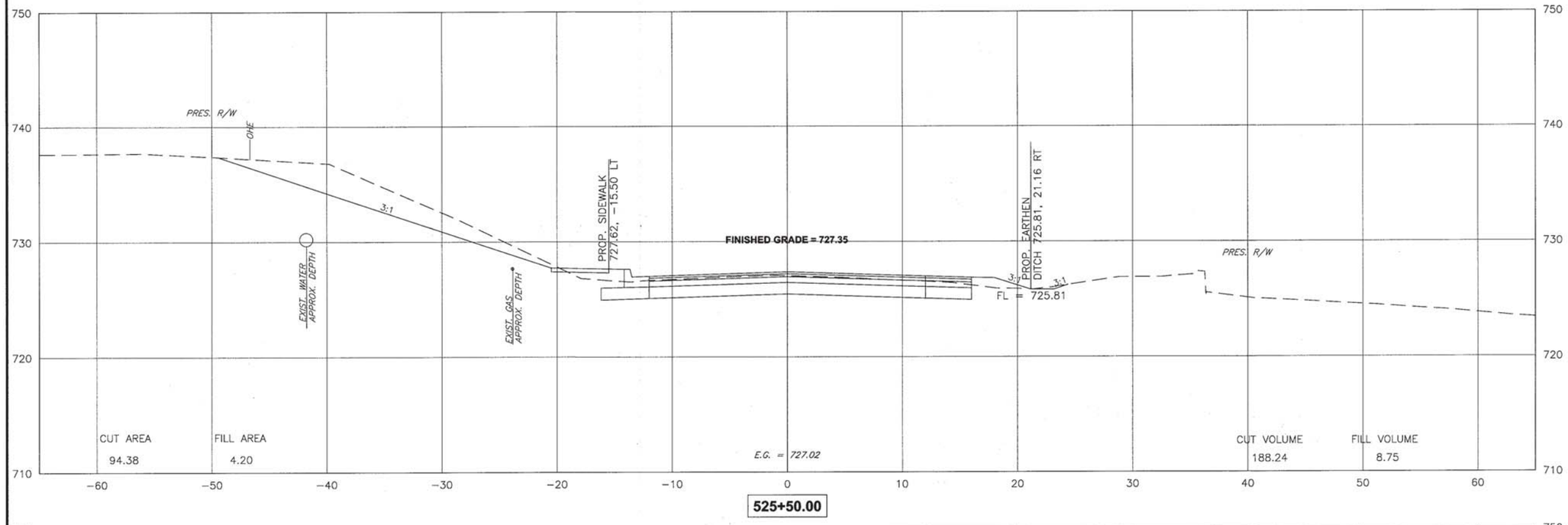
DRAWING: 95 CROSS SECTION 3.DWG

DATE

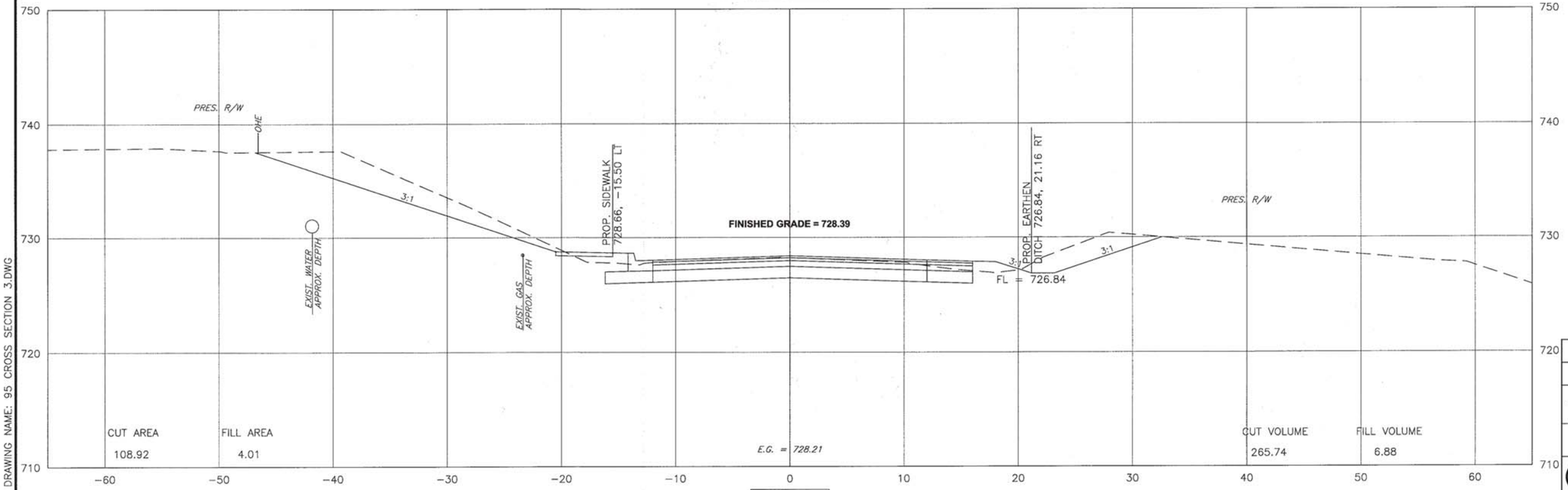
ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 150 OF 181

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG



525+50.00



525+00.00

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 48

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.		
HORIZONTAL: N/A	LEAD ENGR.		
	FIELD MGR.		
VERTICAL N/A	RECOMMENDED:		
	DESIGN MANAGER		

APPROVED:

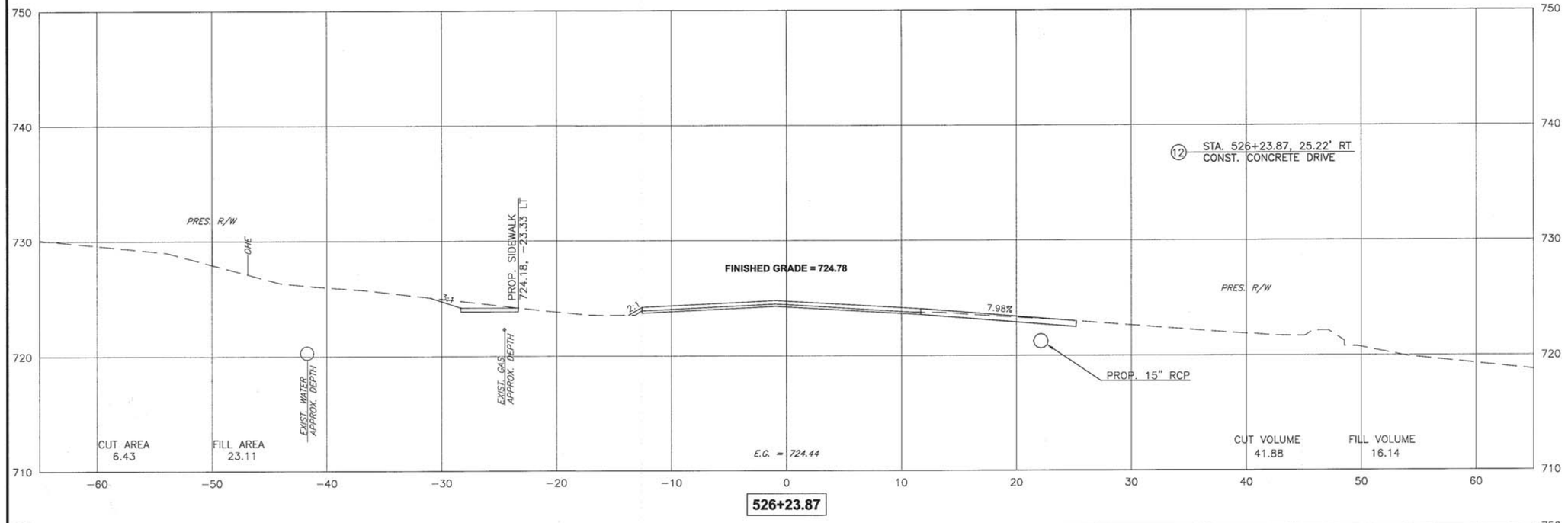
CITY ENGINEER

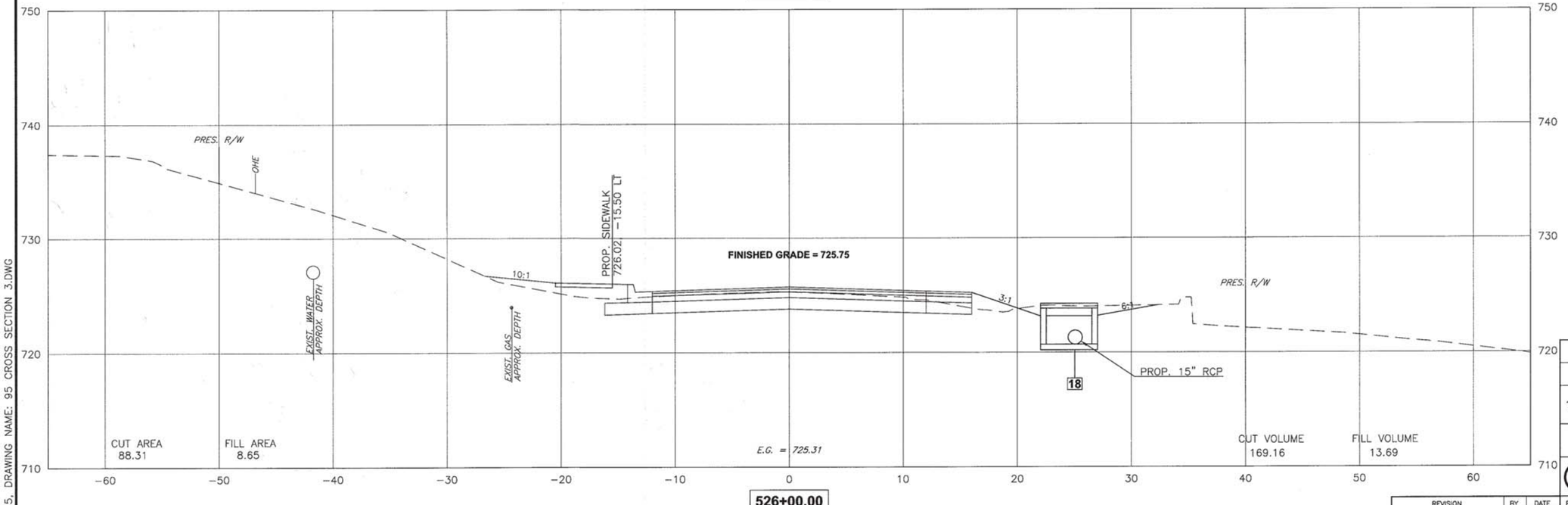
DRAWING: 95 CROSS SECTION 3.DWG

DATE

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 151 OF 181





REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

REVISION	BY	DATE
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CROSS SECTION 49

PROJECT NO. 104006

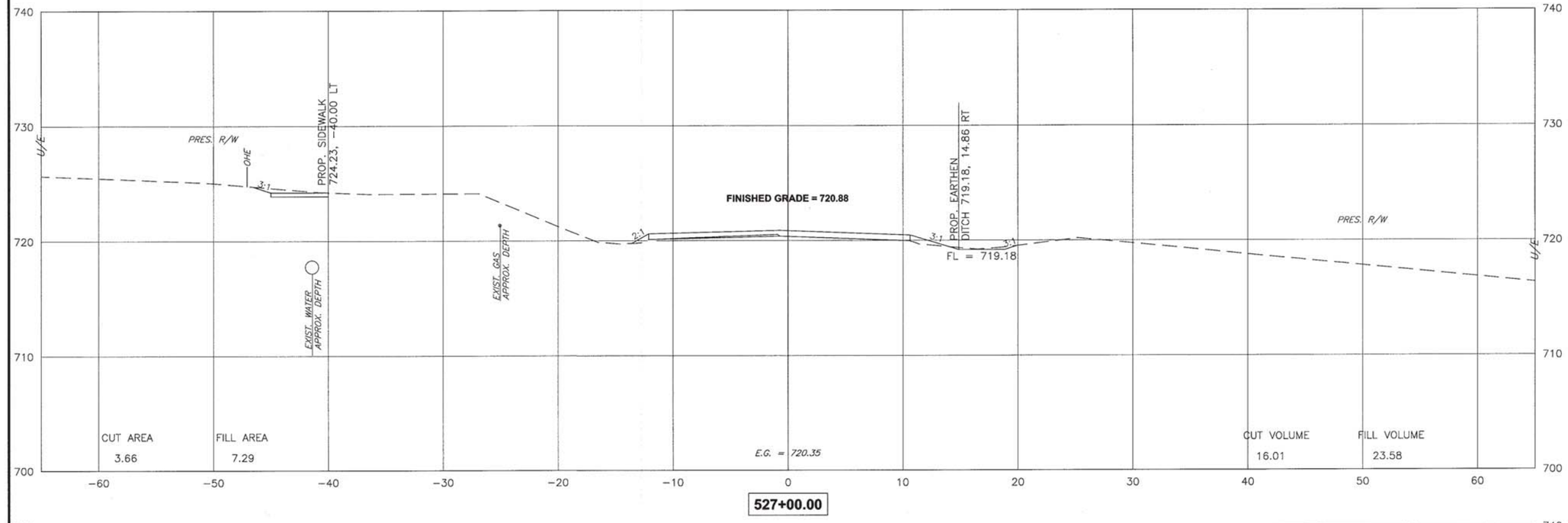
101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014	APPROVED:
	DESIGNED	J.P.S.	08/2014	
	SURVEY	A.K.H.	08/2012	
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A	PROJ. MGR.			
	LEAD ENGR.			
	FIELD MGR.			
	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG				DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 152 OF 181

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG



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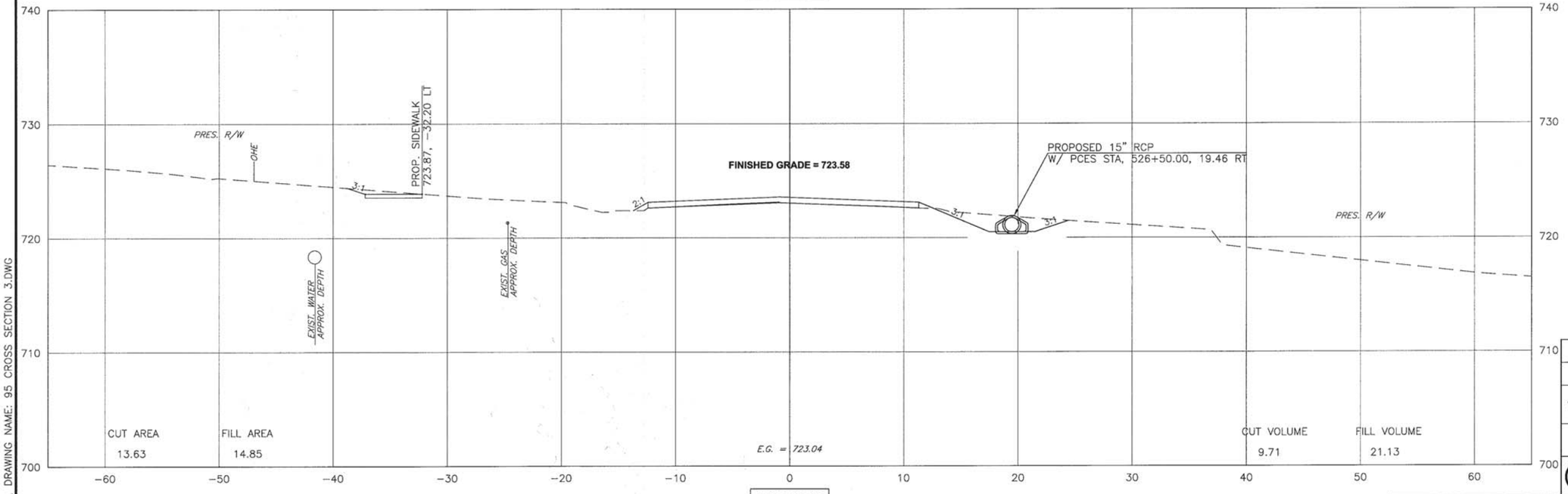

526+50.00

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

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CROSS SECTION 50

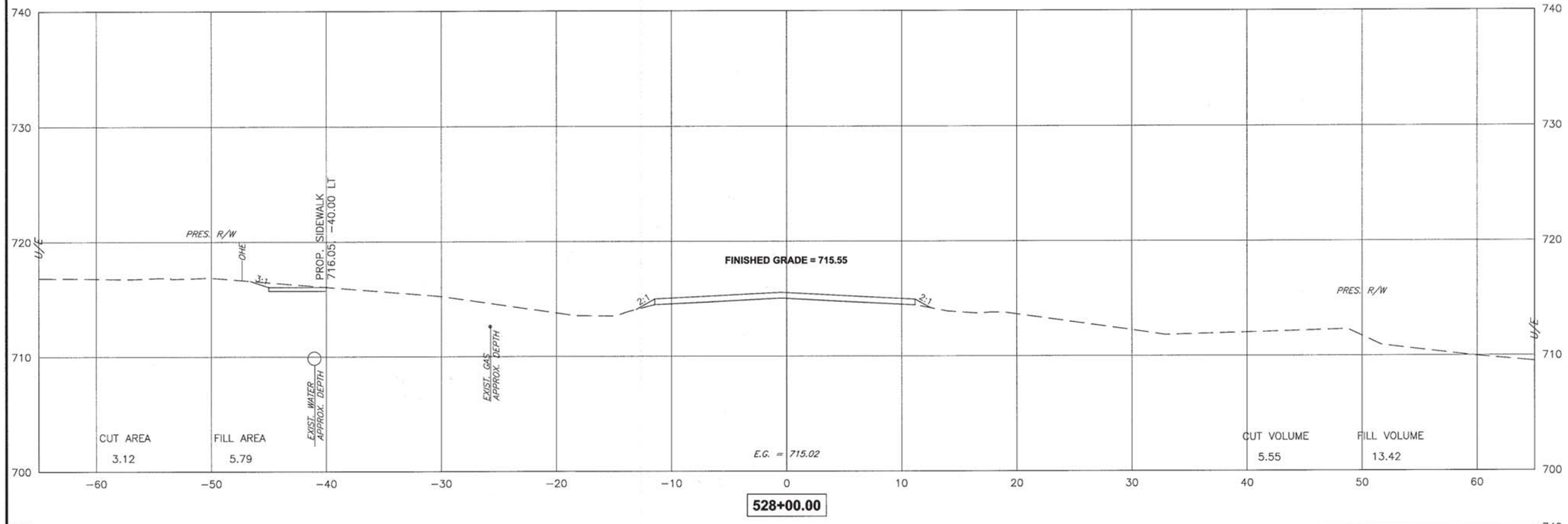
PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014	APPROVED:
	DESIGNED	J.P.S.	08/2014	
	SURVEY	A.K.H.	08/2012	
PROFILE SCALES:	PROJ. MGR.			
HORIZONTAL: N/A	LEAD ENGR.			
	FIELD MGR.			
VERTICAL N/A	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG				DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 153 OF 181



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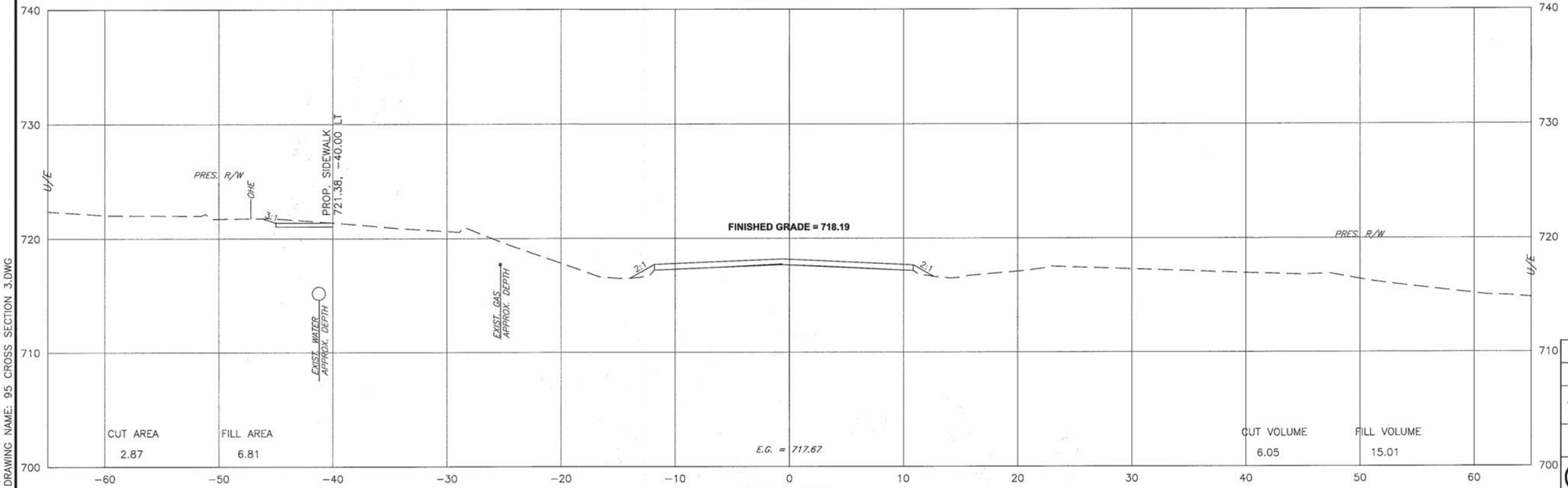

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PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 51

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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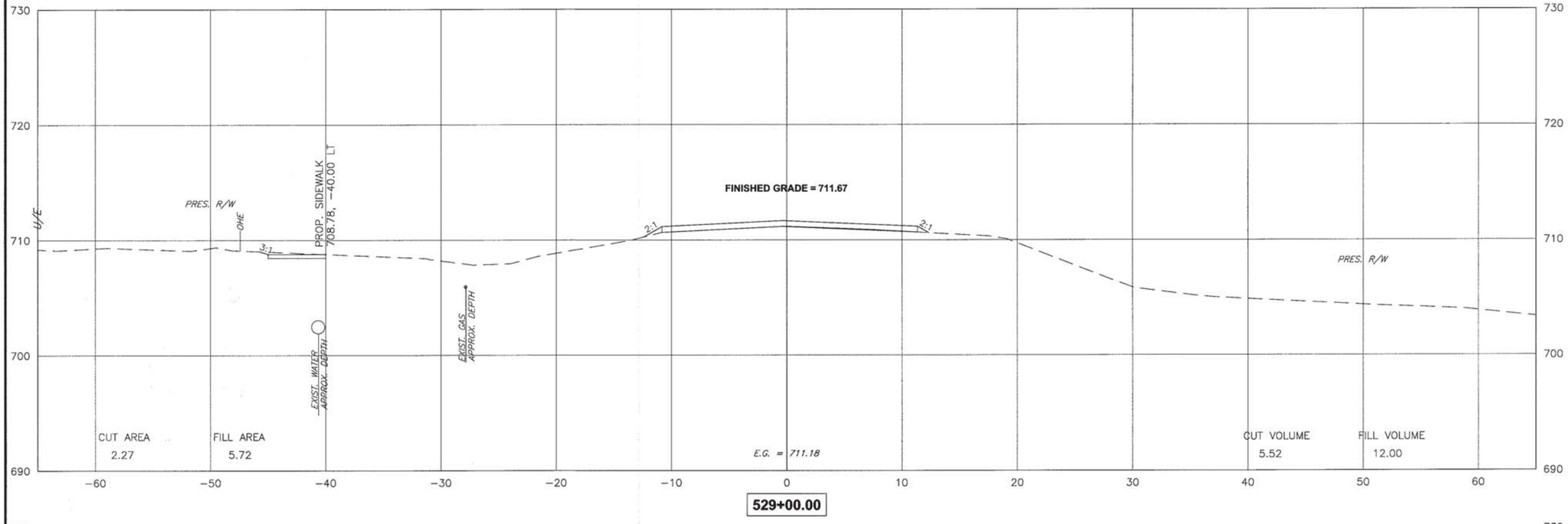
PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014	APPROVED:
	DESIGNED	J.P.S.	08/2014	
	SURVEY	A.K.H.	08/2012	
PROFILE SCALES:	PROJ. MGR.			
HORIZONTAL: N/A	LEAD ENGR.			
	FIELD MGR.			
VERTICAL N/A	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG				DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 154 OF 181



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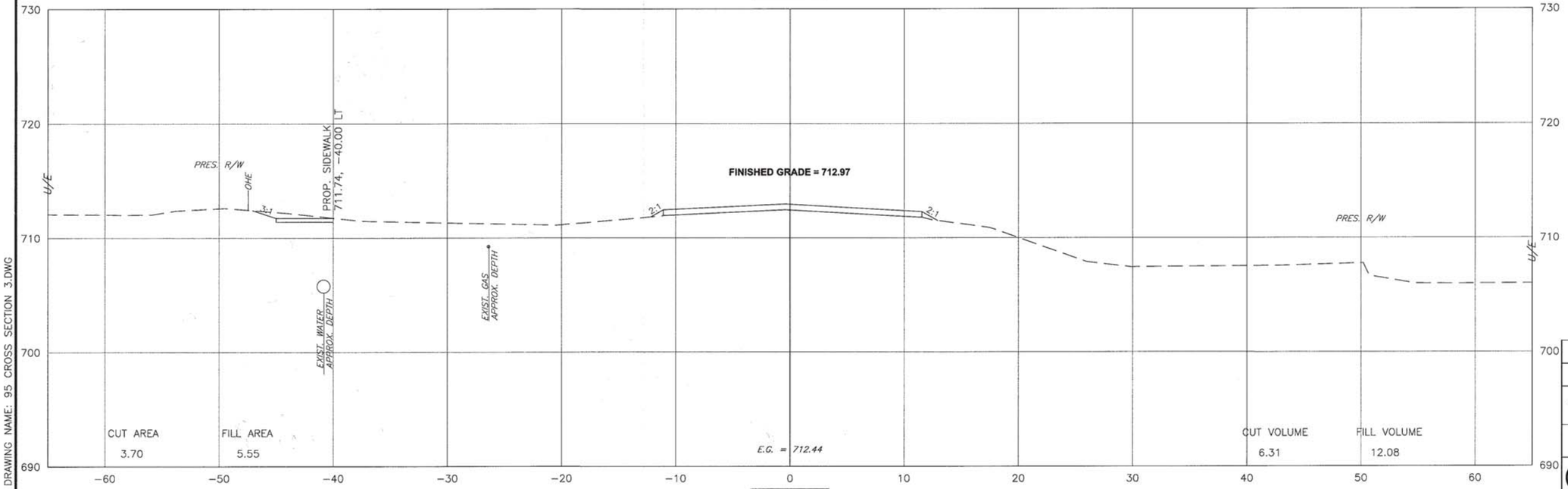

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REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 52

PROJECT NO. 104006

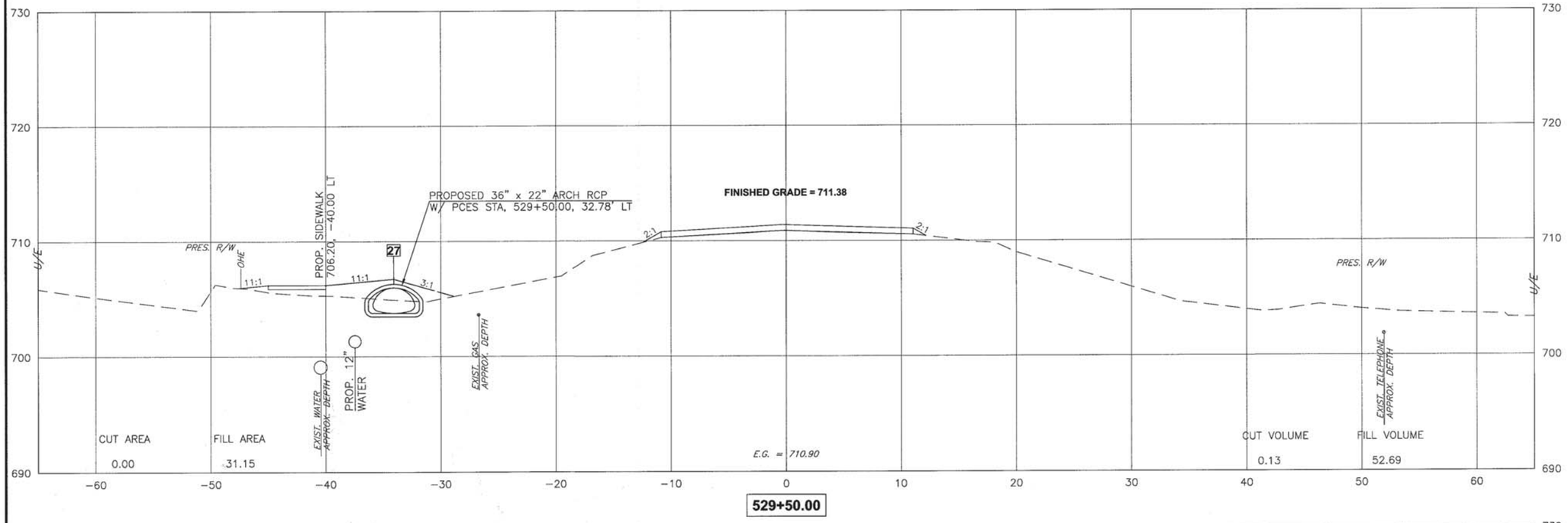
101ST STREET–HARVARD TO YALE

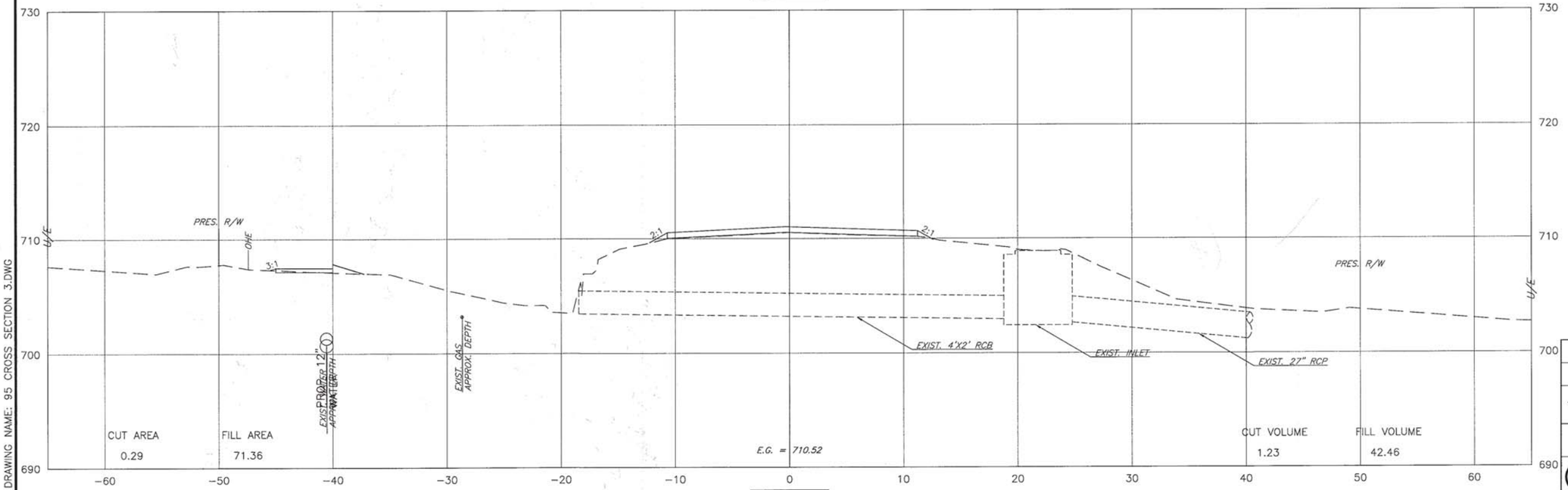
CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014	APPROVED:
	DESIGNED	J.P.S.	08/2014	
	SURVEY	A.K.H.	08/2012	
PROFILE SCALES:	PROJ. MGR.			
HORIZONTAL: N/A	LEAD ENGR.			
	FIELD MGR.			
VERTICAL N/A	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG				DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 155 OF 181

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG





PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 53

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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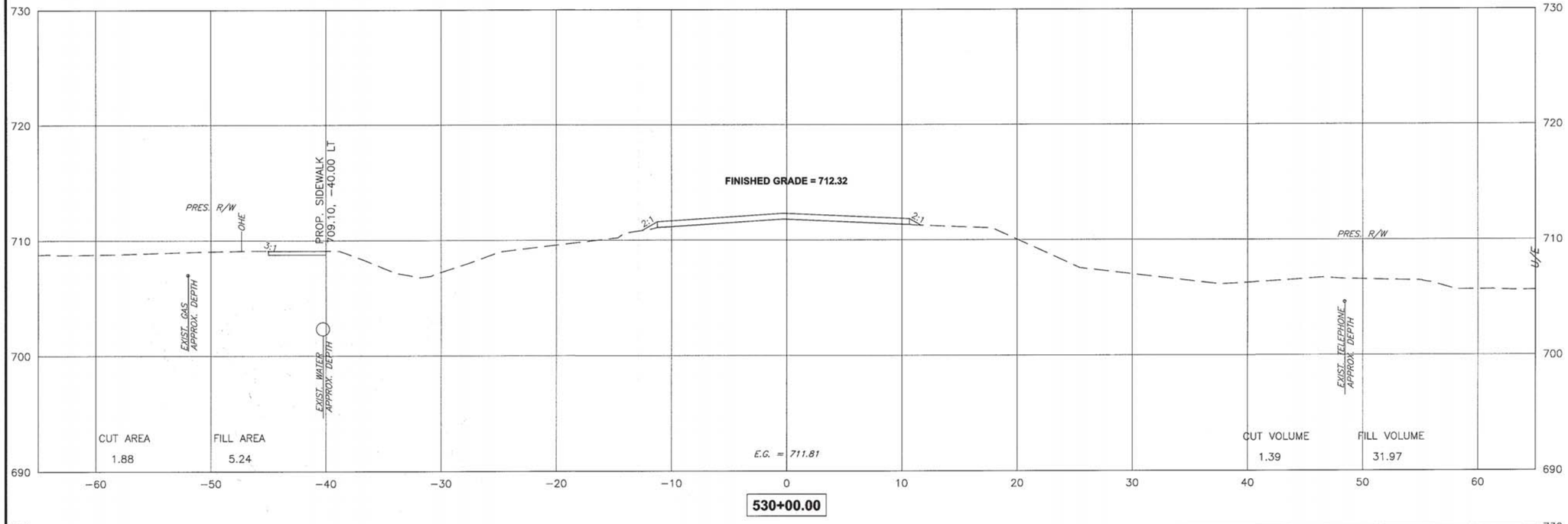
PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A	PROJ. MGR.		
	LEAD ENGR.		
	FIELD MGR.		
	RECOMMENDED: DESIGN MANAGER		

APPROVED: CITY ENGINEER

DRAWING: 95 CROSS SECTION 3.DWG — DATE

ATLAS PAGE NO: 1276, 1277, 1422, 1423 — SHEET 156 OF 181



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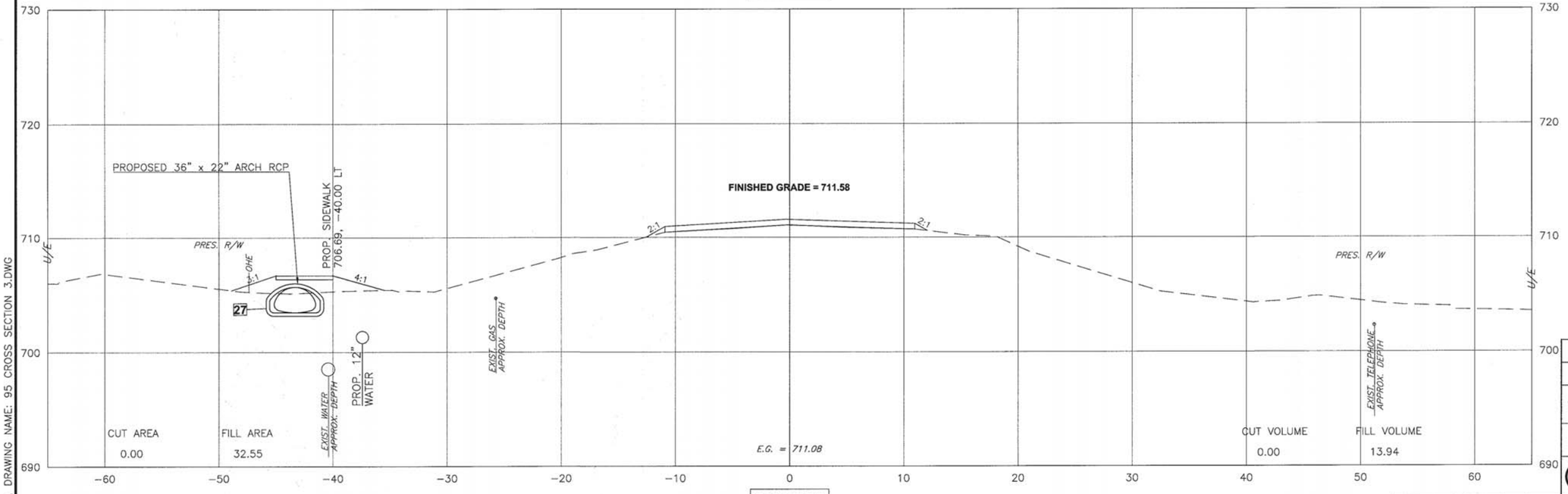

529+60.27

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 54

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.		
HORIZONTAL: N/A	LEAD ENGR.		
	FIELD MGR.		
VERTICAL N/A	RECOMMENDED:		
	DESIGN MANAGER		

APPROVED:

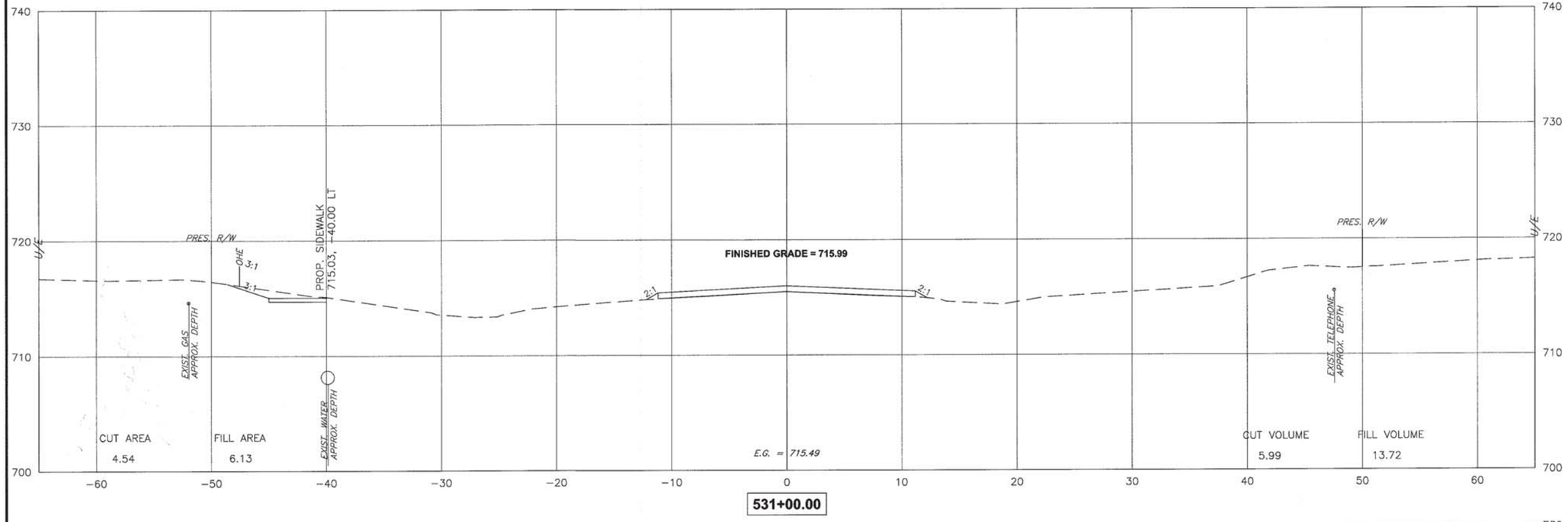
CITY ENGINEER

DRAWING: 95 CROSS SECTION 3.DWG

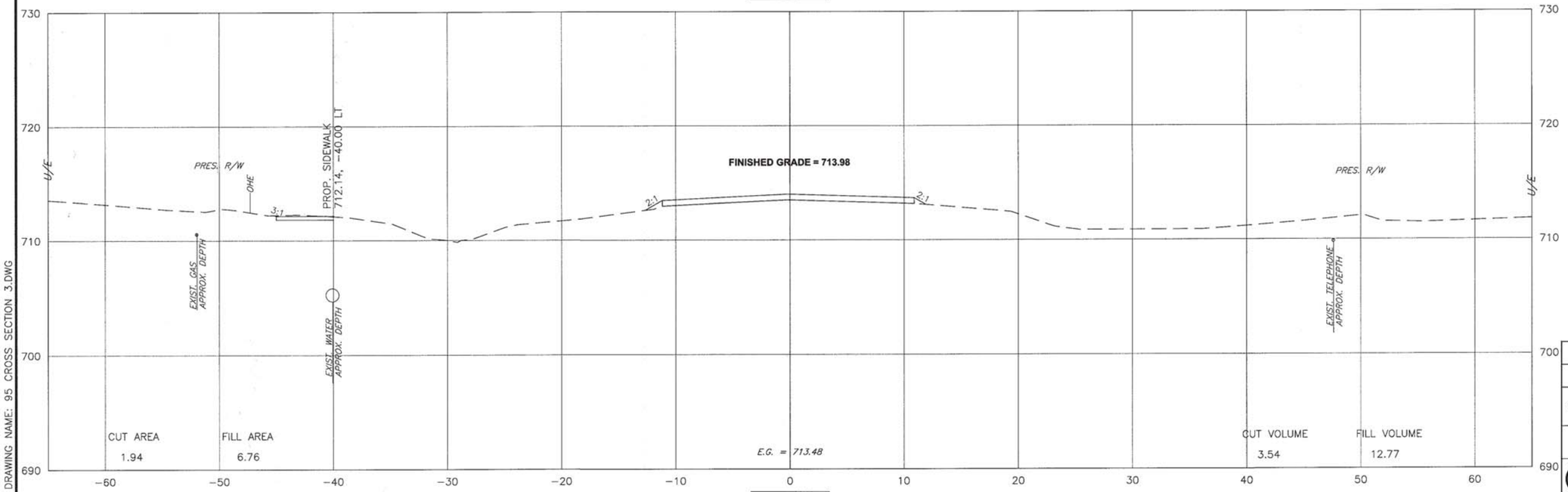
DATE

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 157 OF 181



531+00.00



530+50.00

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

REVISION	BY	DATE
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CROSS SECTION 55

PROJECT NO. 104006

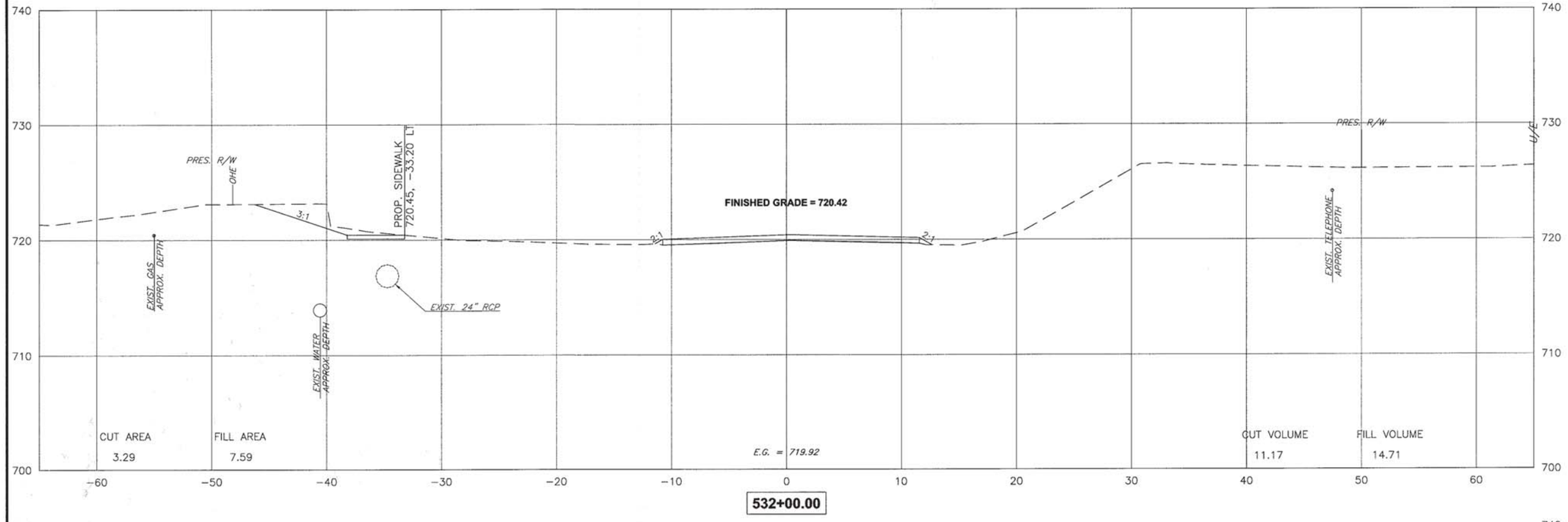
101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014	APPROVED:
	DESIGNED	J.P.S.	08/2014	
	SURVEY	A.K.H.	08/2012	
PROFILE SCALES:	PROJ. MGR.			
HORIZONTAL: N/A	LEAD ENGR.			
	FIELD MGR.			
VERTICAL N/A	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG				DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 158 OF 181

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG



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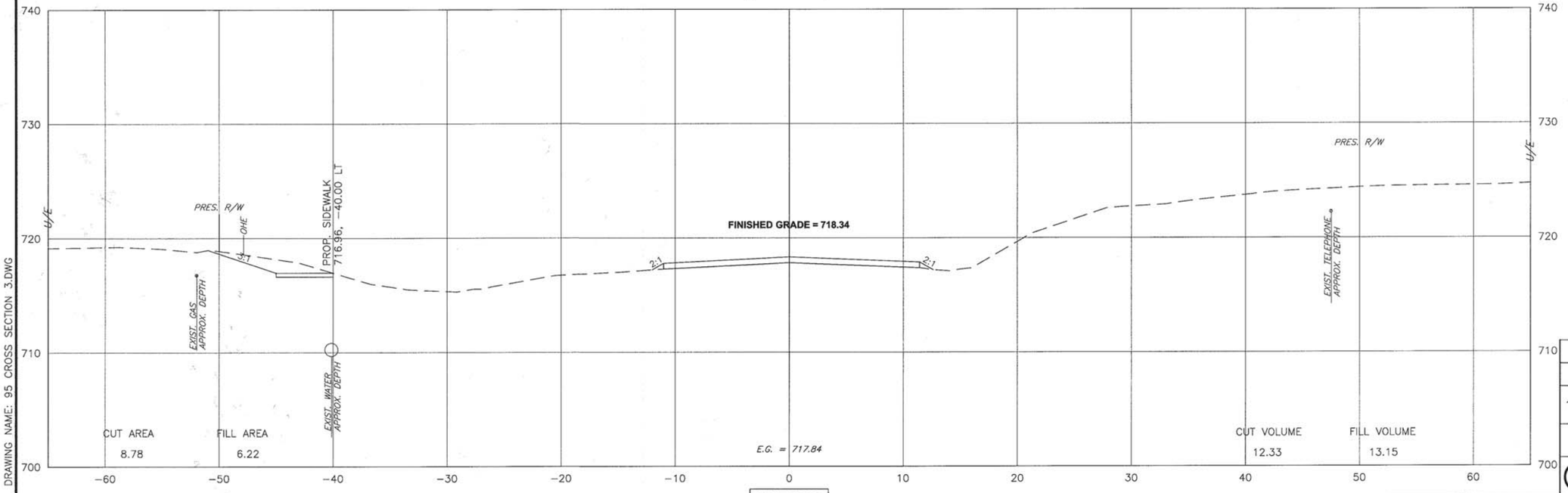

531+50.00

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

REVISION	BY	DATE
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CROSS SECTION 56

PROJECT NO. 104006

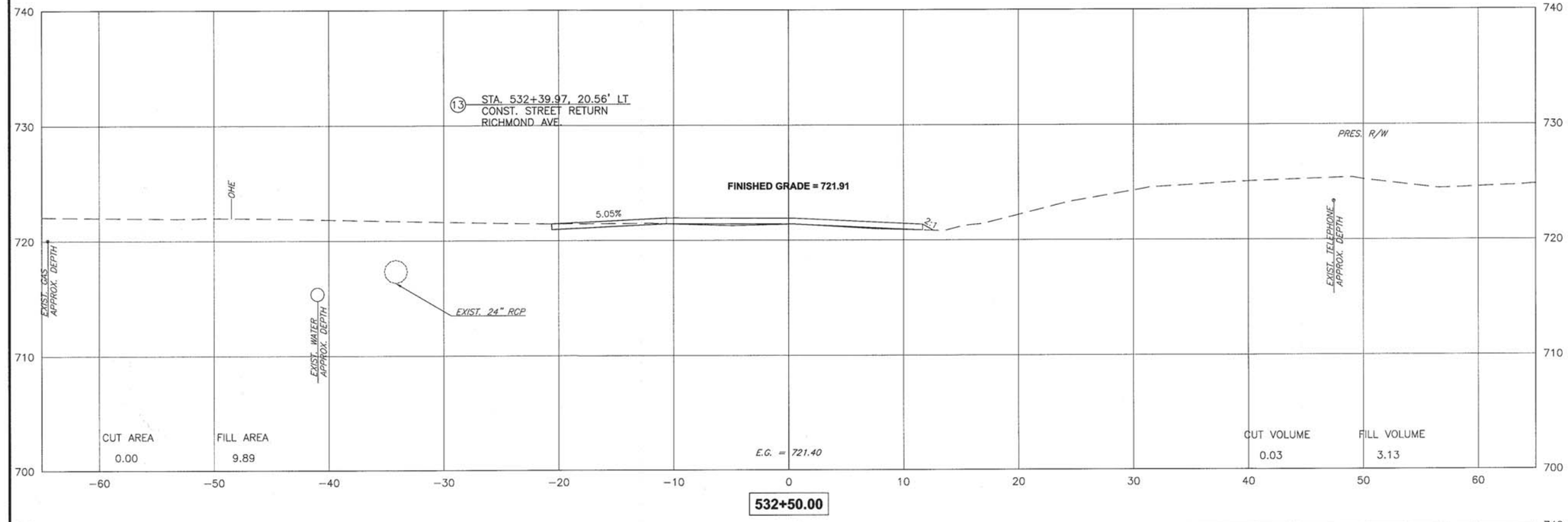
101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014	APPROVED:
	DESIGNED	J.P.S.	08/2014	
	SURVEY	A.K.H.	08/2012	
PROFILE SCALES:	PROJ. MGR.			
HORIZONTAL: N/A	LEAD ENGR.			
	FIELD MGR.			
VERTICAL N/A	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG				DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 159 OF 181

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG



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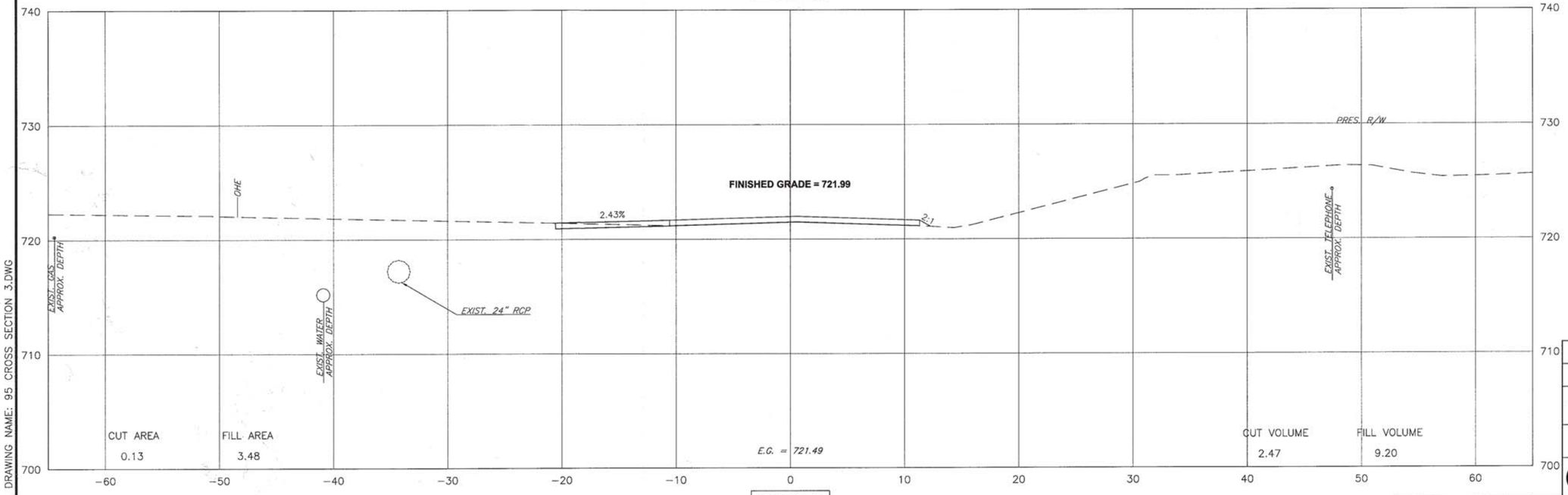

532+39.00

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 57

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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PLAN SCALE: 1" = 5'
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A

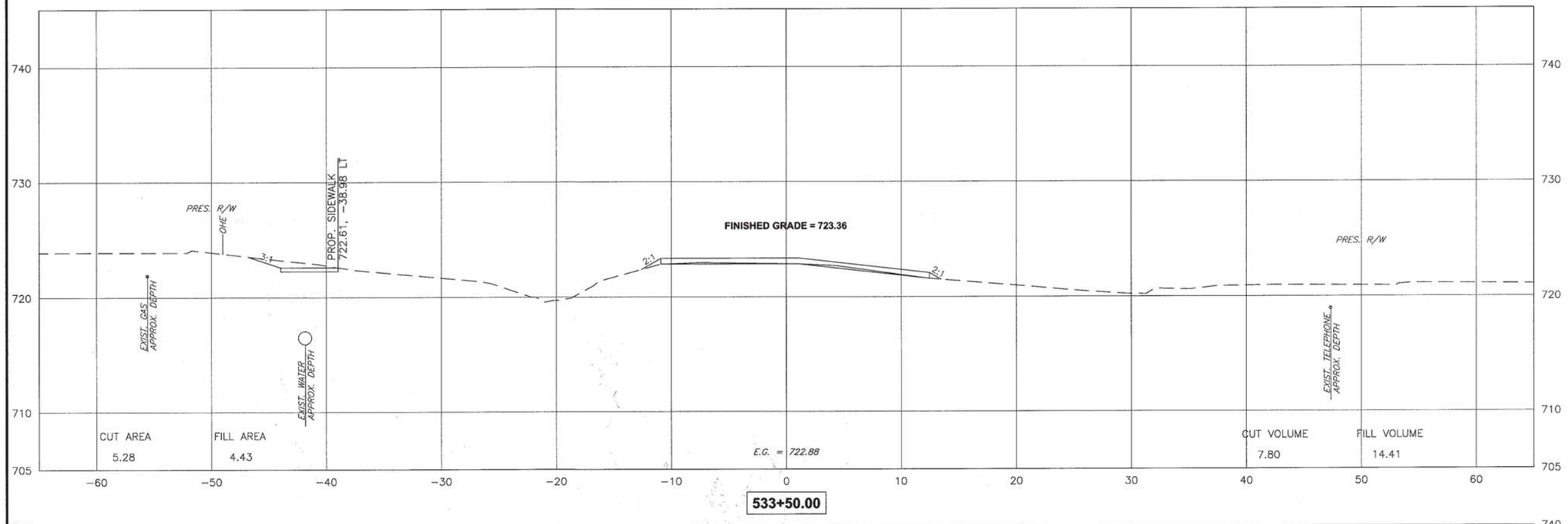
DRAWN	L.P.E.	08/2014
DESIGNED	J.P.S.	08/2014
SURVEY	A.K.H.	08/2012
PROJ. MGR.		
LEAD ENGR.		
FIELD MGR.		

RECOMMENDED:
DESIGN MANAGER

APPROVED:
CITY ENGINEER

DRAWING: 95 CROSS SECTION 3.DWG
DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423
SHEET 160 OF 181

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG



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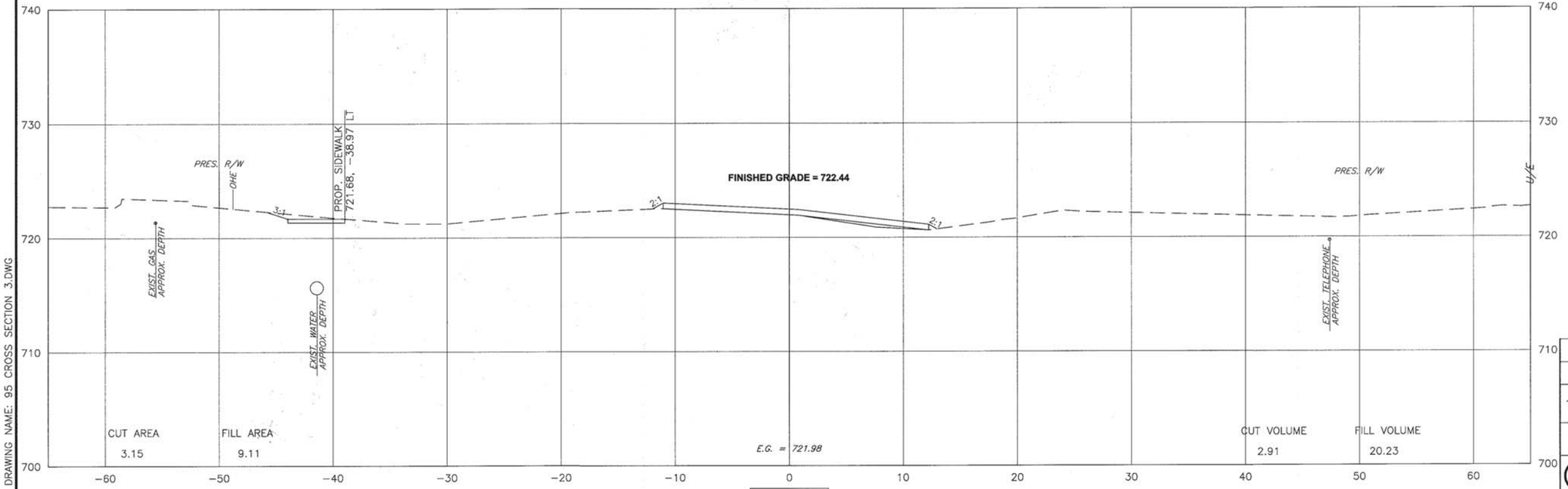

533+00.00

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 58

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A	PROJ. MGR.		
	LEAD ENGR.		
	FIELD MGR.		
	RECOMMENDED:		
	DESIGN MANAGER		

APPROVED:

CITY ENGINEER

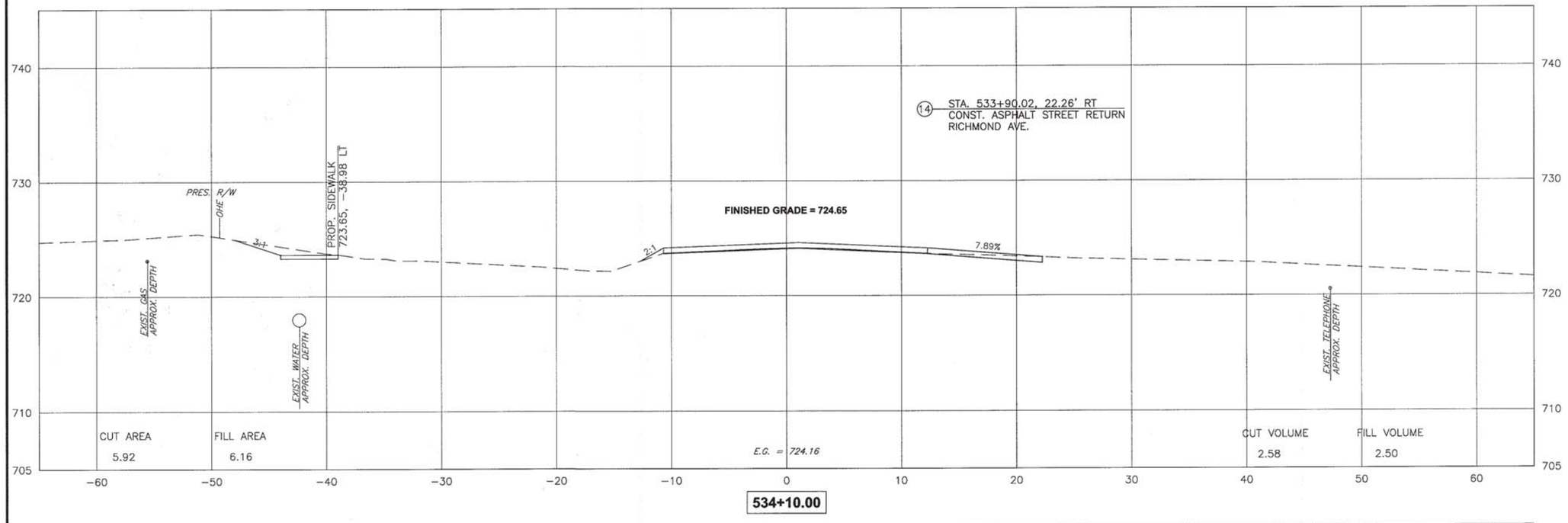
DRAWING: 95 CROSS SECTION 3.DWG

DATE

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 161 OF 181

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG



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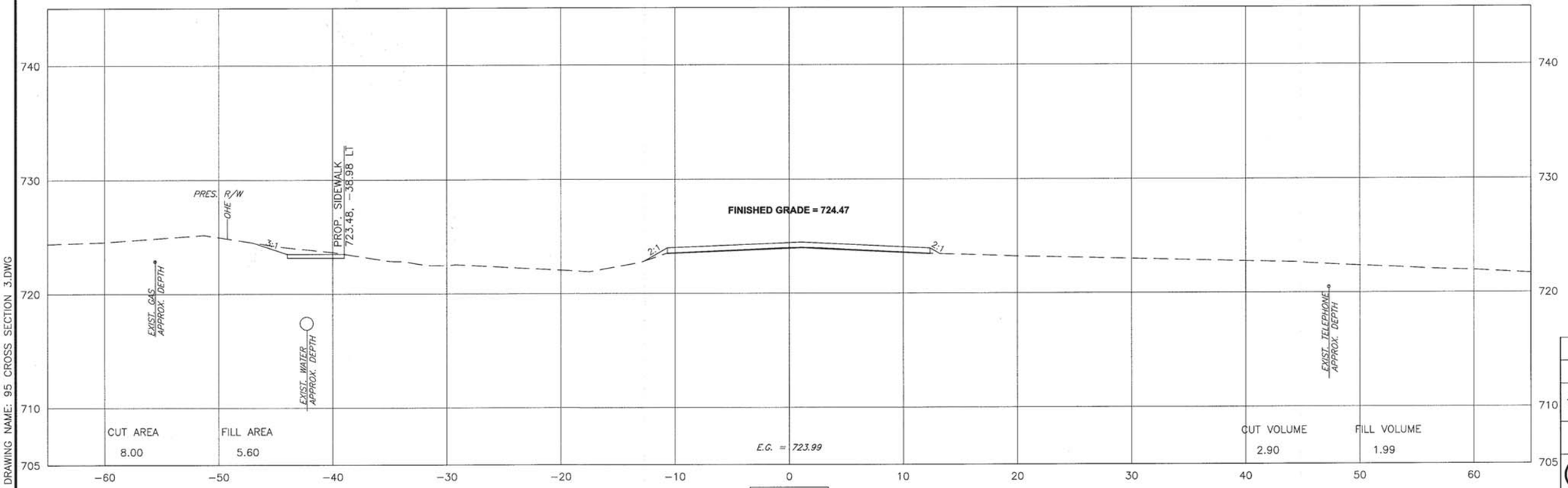

534+00.00

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 59

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES: HORIZONTAL: N/A VERTICAL: N/A	PROJ. MGR.		
	LEAD ENGR.		
	FIELD MGR.		
	RECOMMENDED: DESIGN MANAGER		

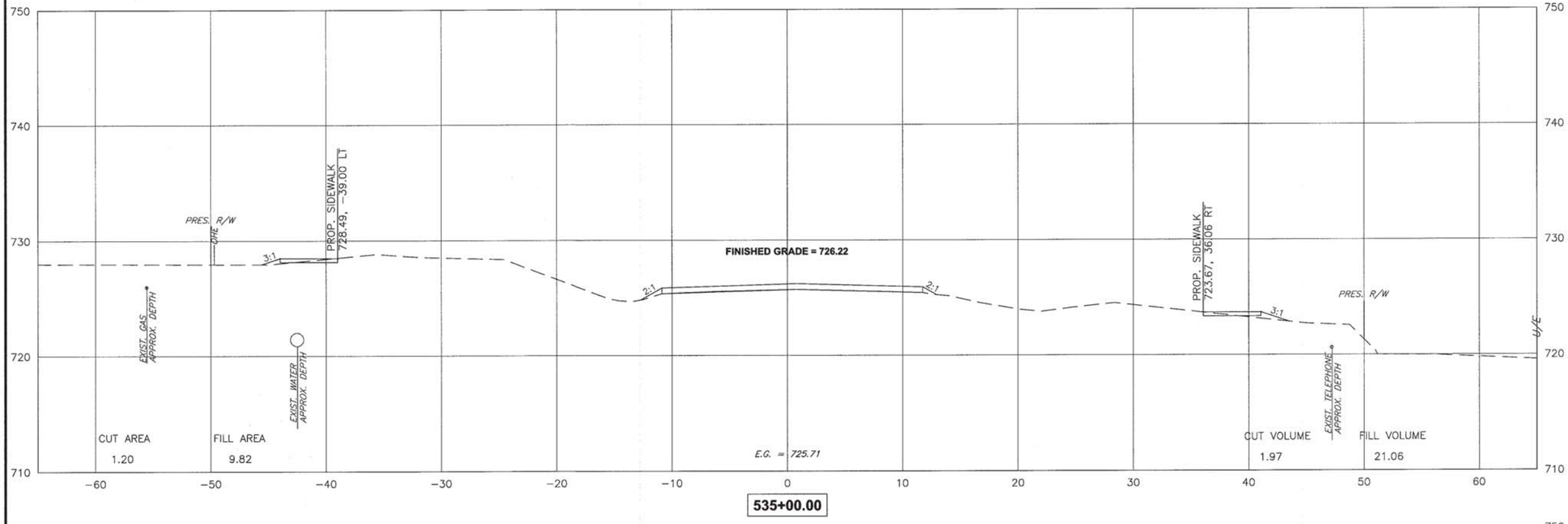
APPROVED: CITY ENGINEER

DRAWING: 95 CROSS SECTION 3.DWG

DATE

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 162 OF 181



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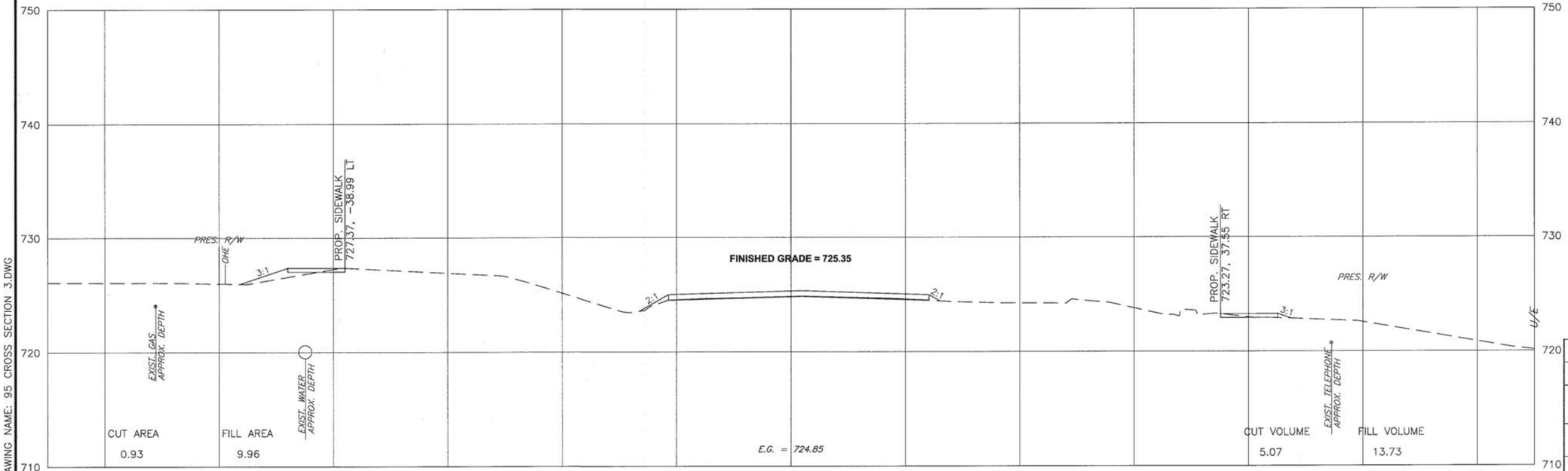

534+50.00

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 60

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663–9401

REVISION	BY	DATE
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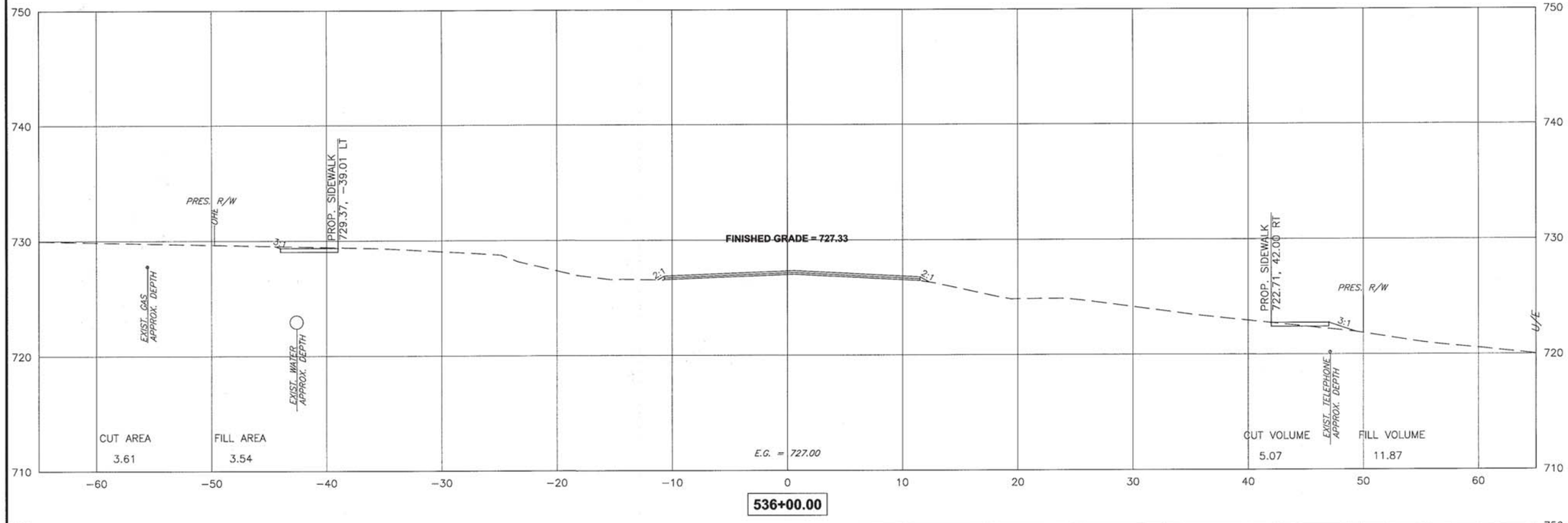
PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.		
HORIZONTAL: N/A	LEAD ENGR.		
	FIELD MGR.		
VERTICAL N/A	RECOMMENDED:		
	DESIGN MANAGER		CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG			DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423			SHEET 163 OF 181

APPROVED:



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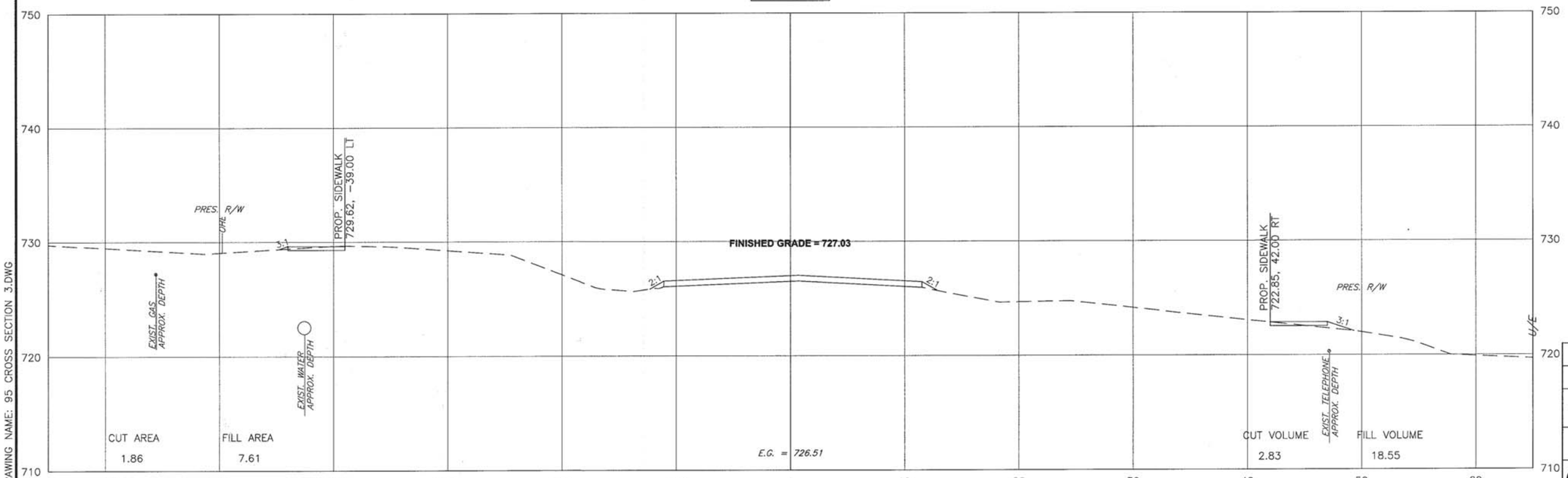

535+50.00

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 61

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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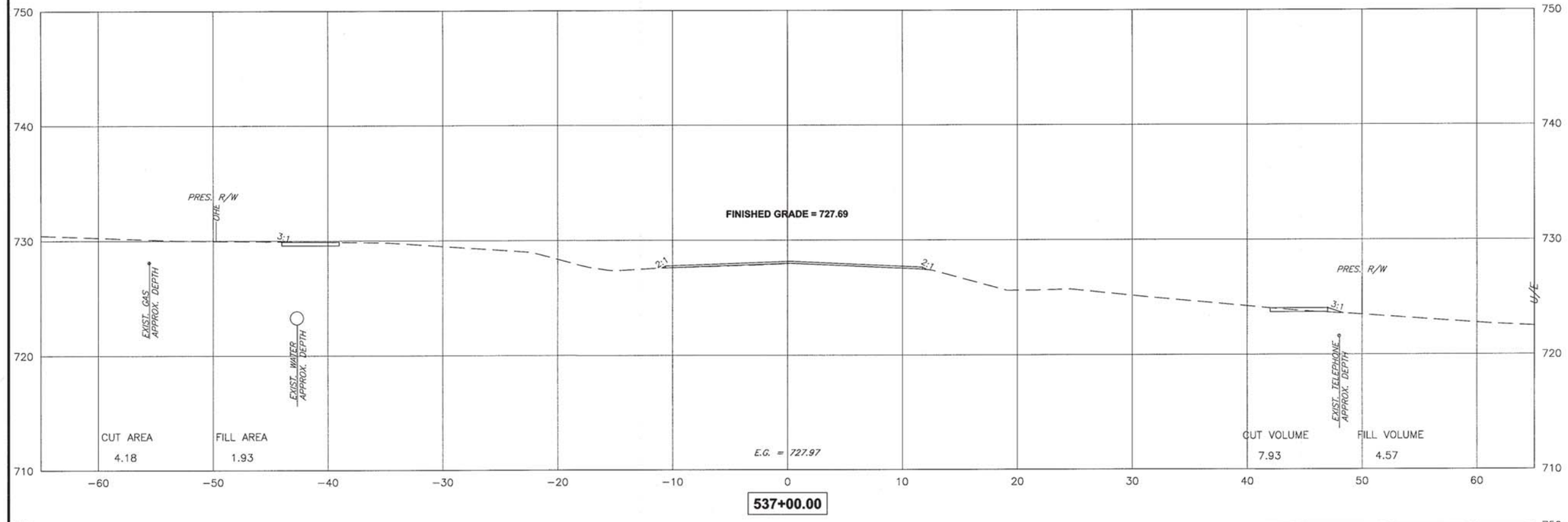
PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.		
HORIZONTAL: N/A	LEAD ENGR.		
	FIELD MGR.		
VERTICAL N/A	RECOMMENDED:		
	DESIGN MANAGER		CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG			DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423			SHEET 164 OF 181

APPROVED:



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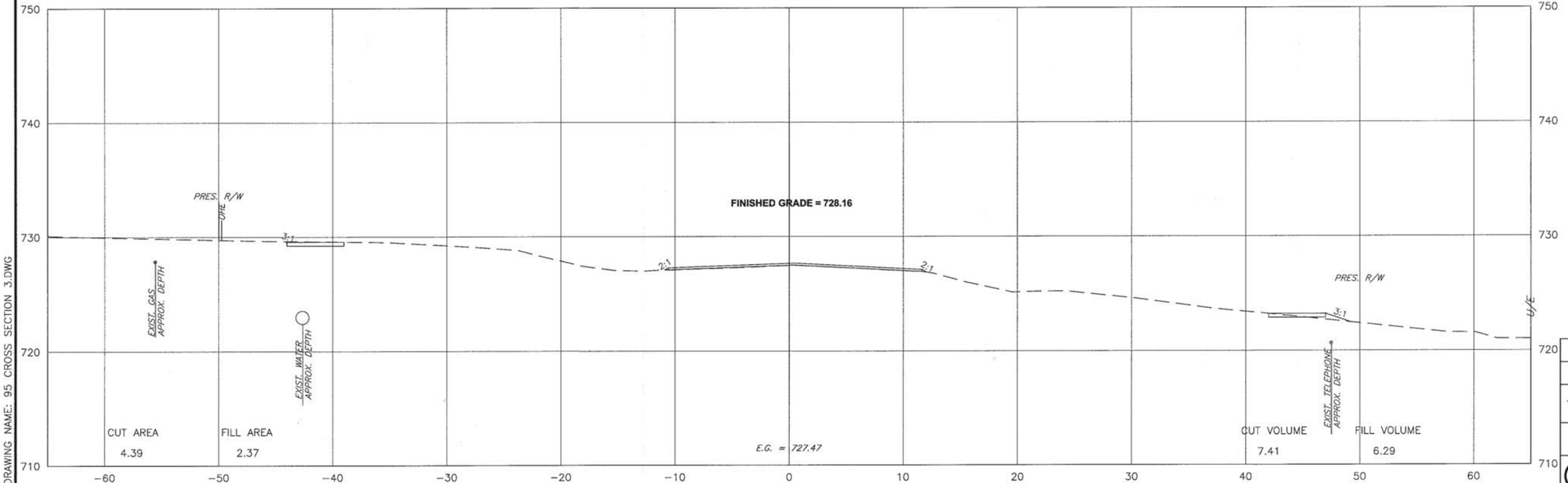

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PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

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REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 62

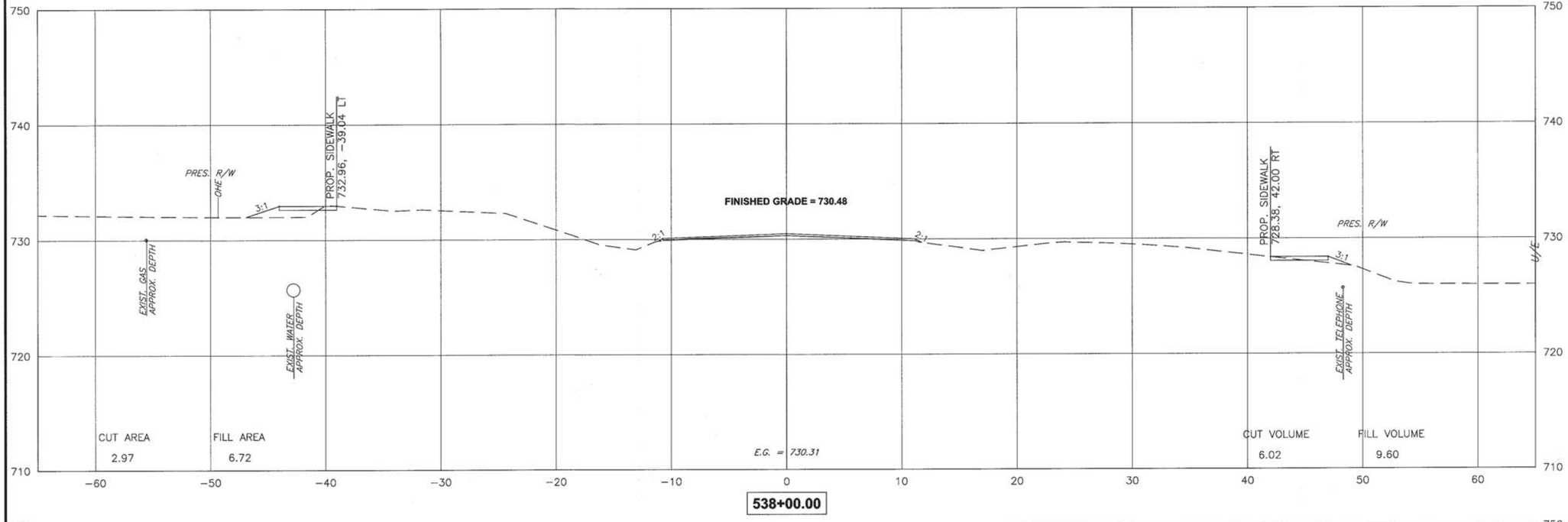
PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014	APPROVED:
	DESIGNED	J.P.S.	08/2014	
	SURVEY	A.K.H.	08/2012	
PROFILE SCALES:	PROJ. MGR.			
HORIZONTAL: N/A	LEAD ENGR.			
	FIELD MGR.			
VERTICAL N/A	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG				DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 165 OF 181



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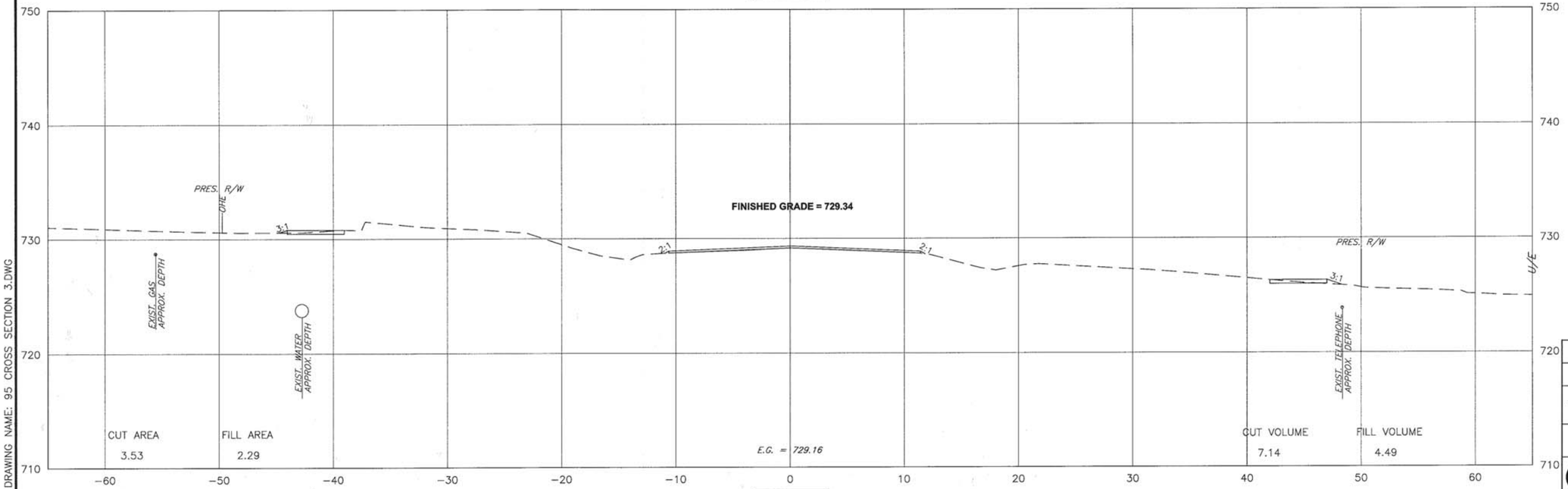

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PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

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REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 63

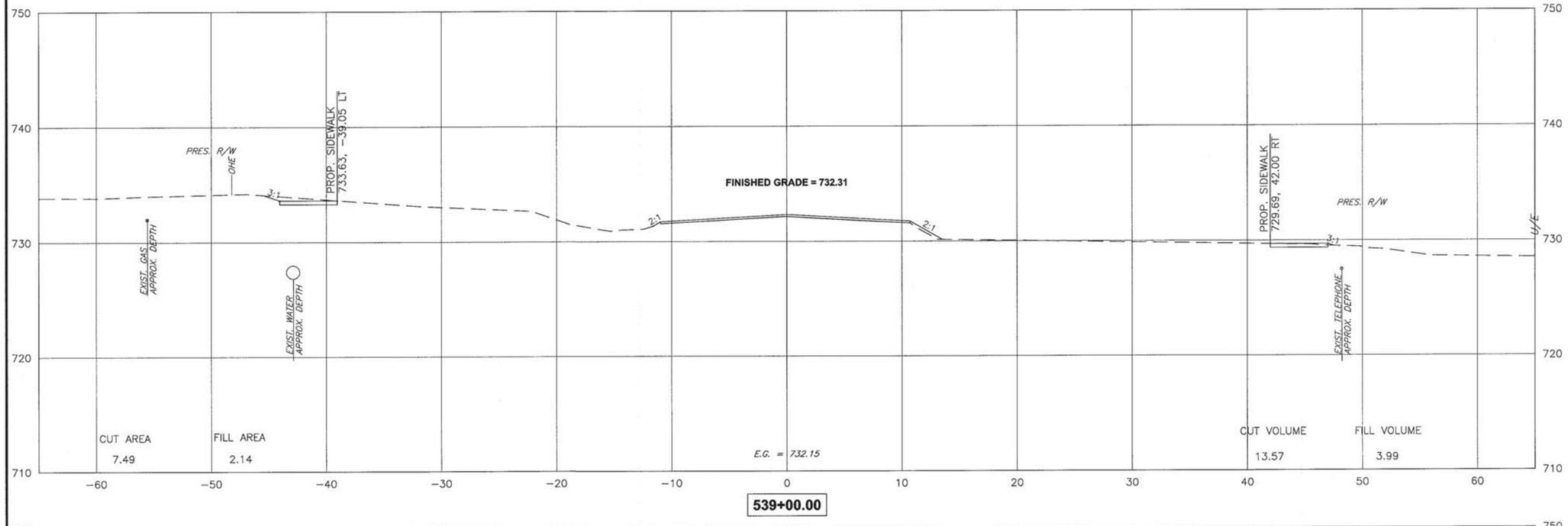
PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
CEC 4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014	APPROVED:
	DESIGNED	J.P.S.	08/2014	
	SURVEY	A.K.H.	08/2012	
PROFILE SCALES:	PROJ. MGR.			
HORIZONTAL: N/A	LEAD ENGR.			
	FIELD MGR.			
VERTICAL N/A	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG				DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 166 OF 181



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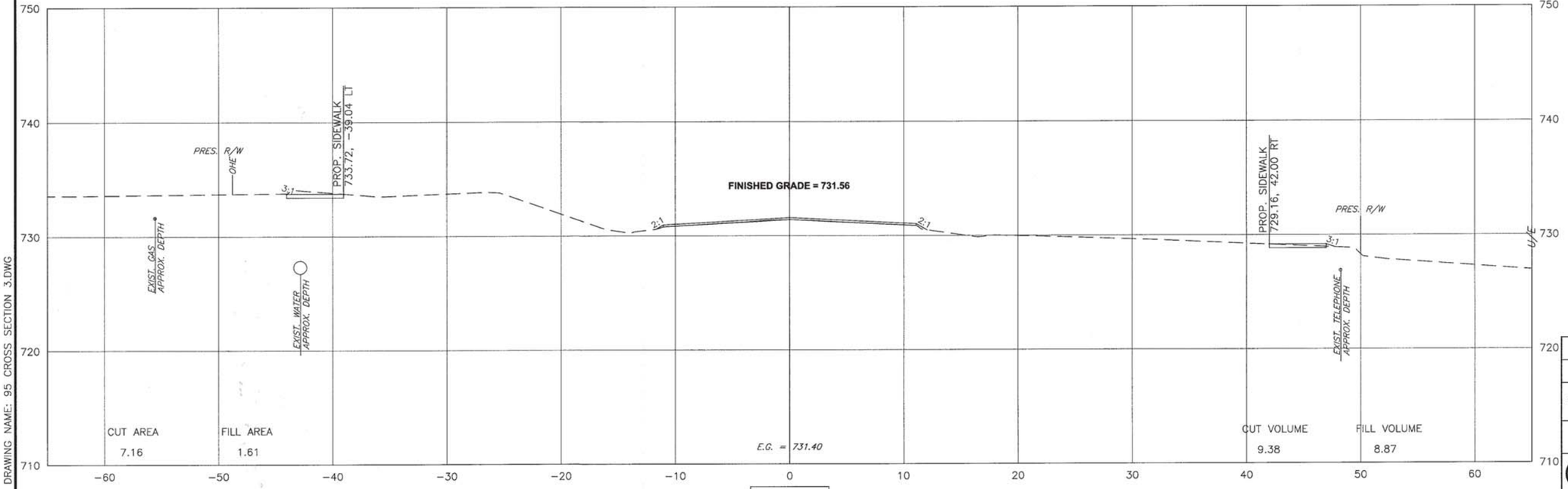

538+50.00

JEREMY P. STAHLE 21725 REGISTERED PROFESSIONAL ENGINEER OKLAHOMA

CROSS SECTION 64

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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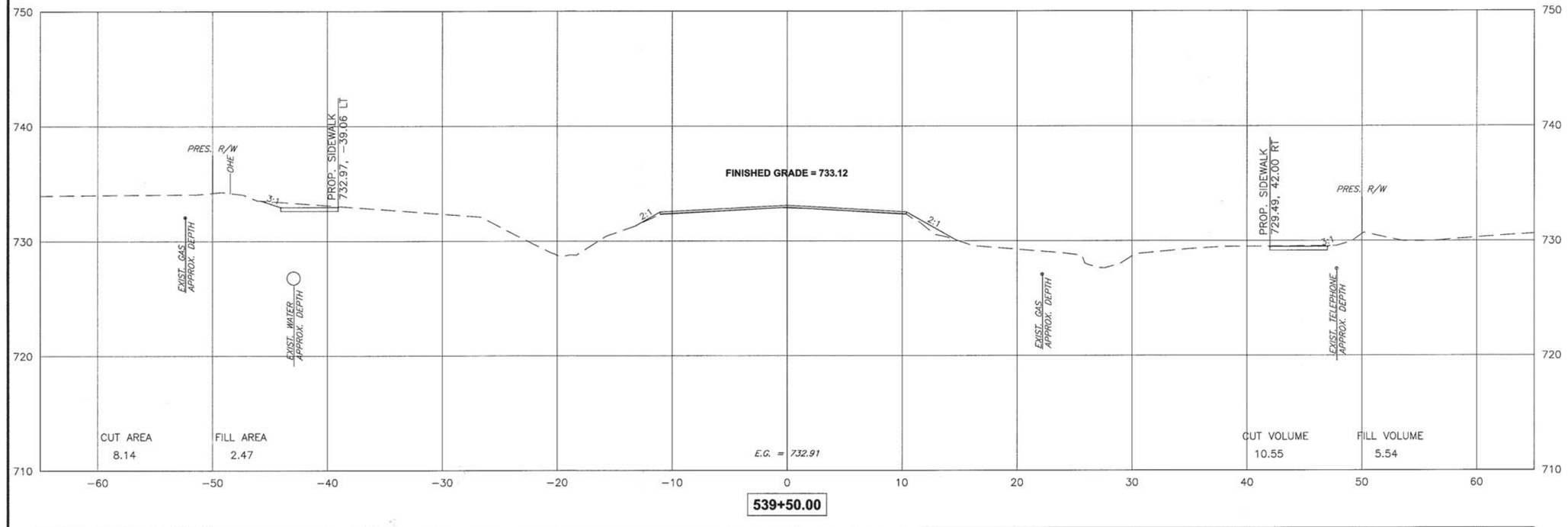
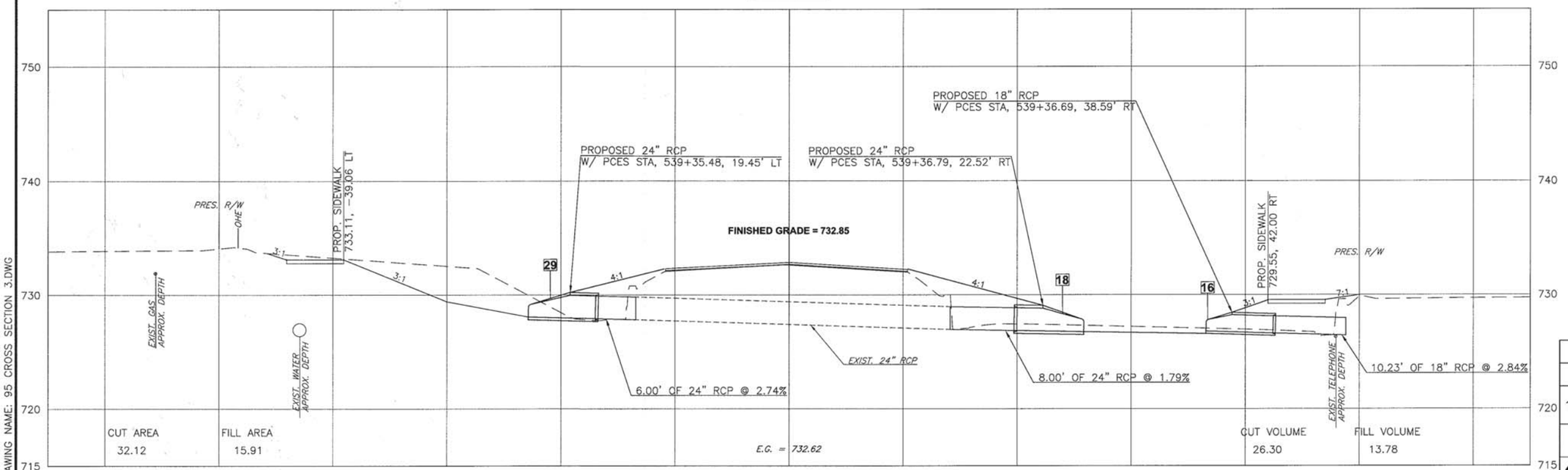
PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014	APPROVED:
	DESIGNED	J.P.S.	08/2014	
	SURVEY	A.K.H.	08/2012	
PROFILE SCALES:	PROJ. MGR.			
HORIZONTAL: N/A	LEAD ENGR.			
	FIELD MGR.			
VERTICAL N/A	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG				DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 167 OF 181

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG



539+50.00



539+35.85

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 65

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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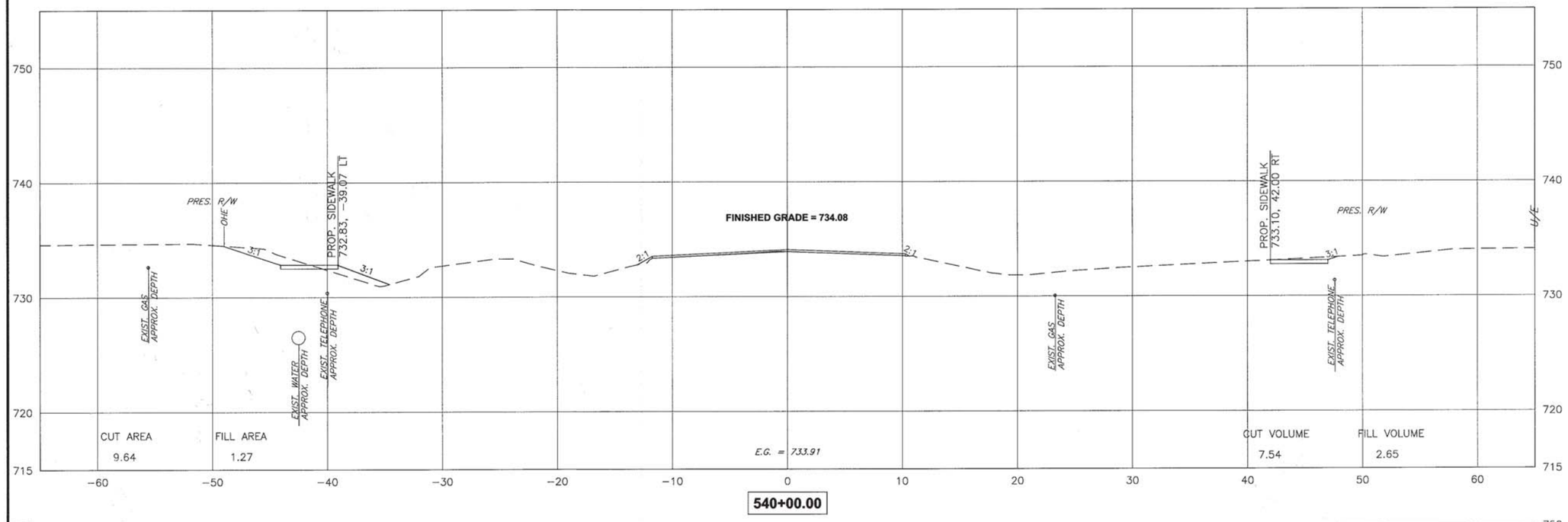
PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014	APPROVED:
	DESIGNED	J.P.S.	08/2014	
	SURVEY	A.K.H.	08/2012	
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A	PROJ. MGR.			
	LEAD ENGR.			
	FIELD MGR.			
	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG				DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 168 OF 181



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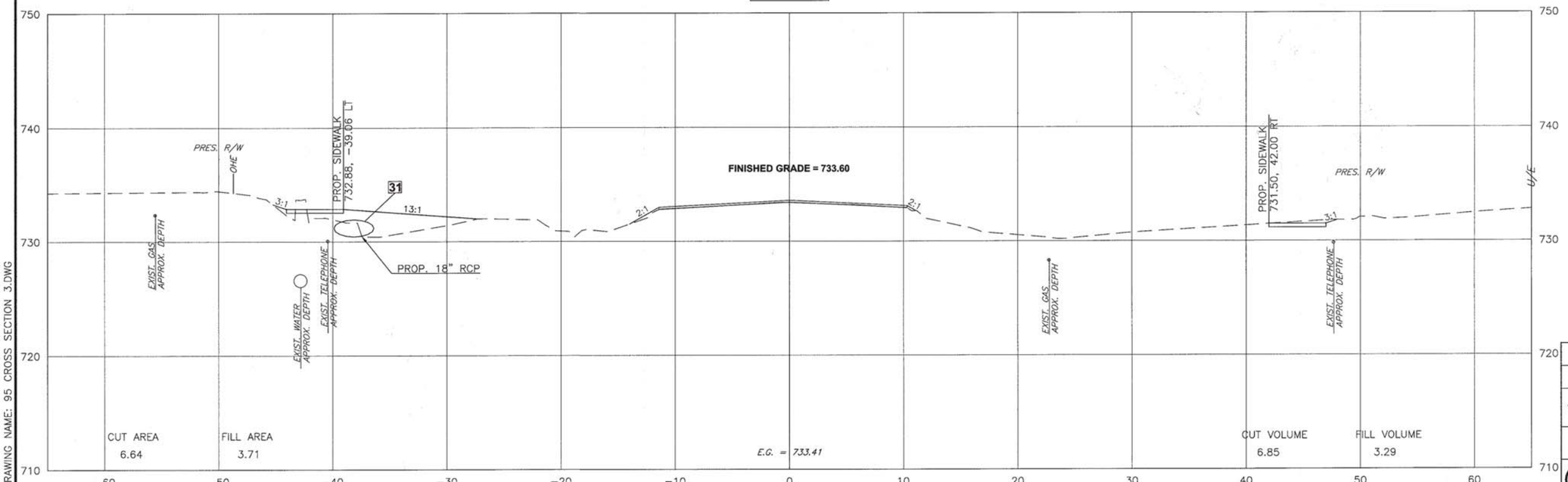

539+75.00

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

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CROSS SECTION 66

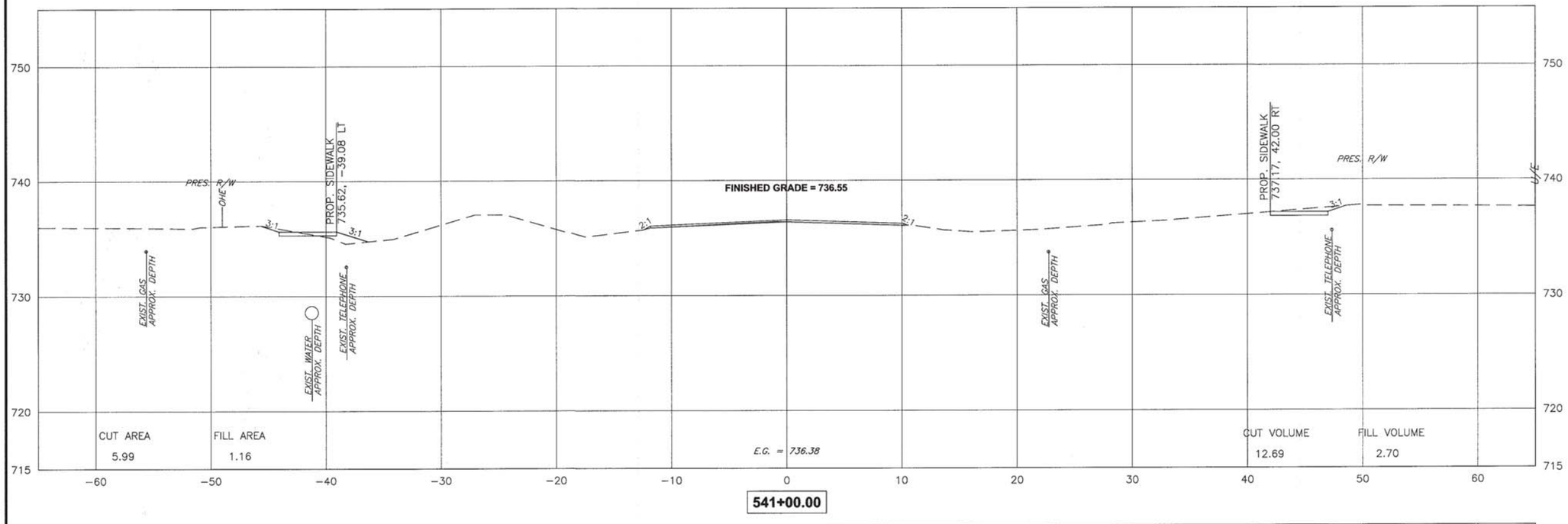
PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014	APPROVED:
	DESIGNED	J.P.S.	08/2014	
	SURVEY	A.K.H.	08/2012	
PROFILE SCALES:	PROJ. MGR.			
HORIZONTAL: N/A	LEAD ENGR.			
	FIELD MGR.			
VERTICAL N/A	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG				DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 169 OF 181



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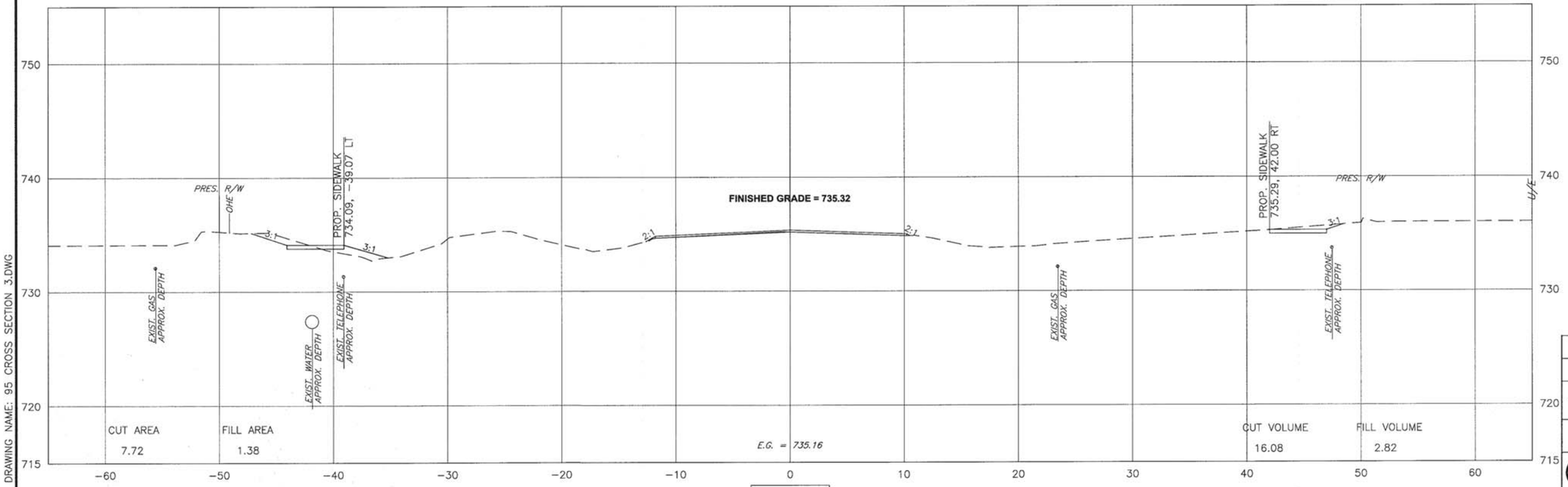

540+50.00

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

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CROSS SECTION 67

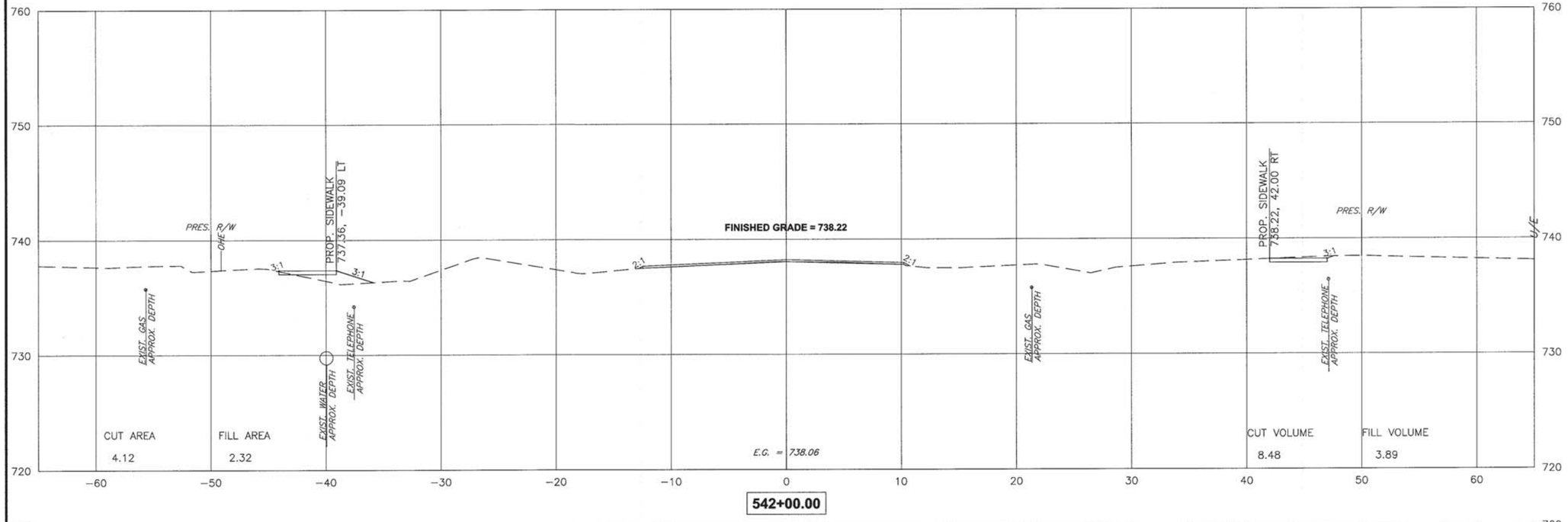
PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014	APPROVED:
	DESIGNED	J.P.S.	08/2014	
	SURVEY	A.K.H.	08/2012	
PROFILE SCALES:	PROJ. MGR.			
HORIZONTAL: N/A	LEAD ENGR.			
	FIELD MGR.			
VERTICAL N/A	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG				DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 170 OF 181



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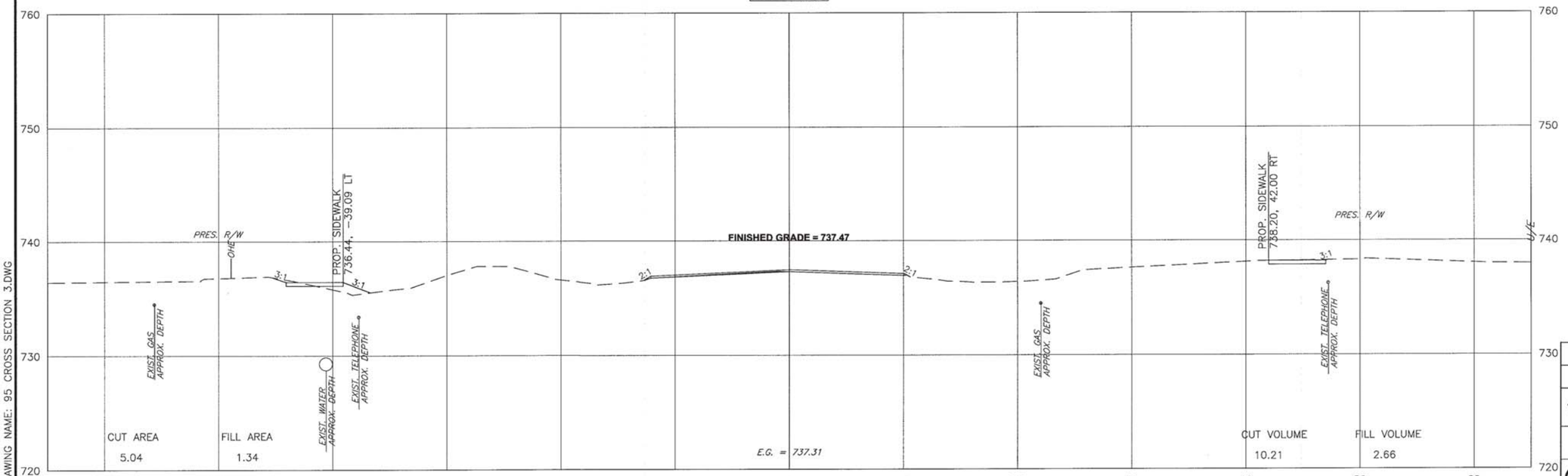

541+50.00

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 68

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.		
HORIZONTAL: N/A	LEAD ENGR.		
	FIELD MGR.		
VERTICAL N/A	RECOMMENDED:		
	DESIGN MANAGER		

APPROVED:

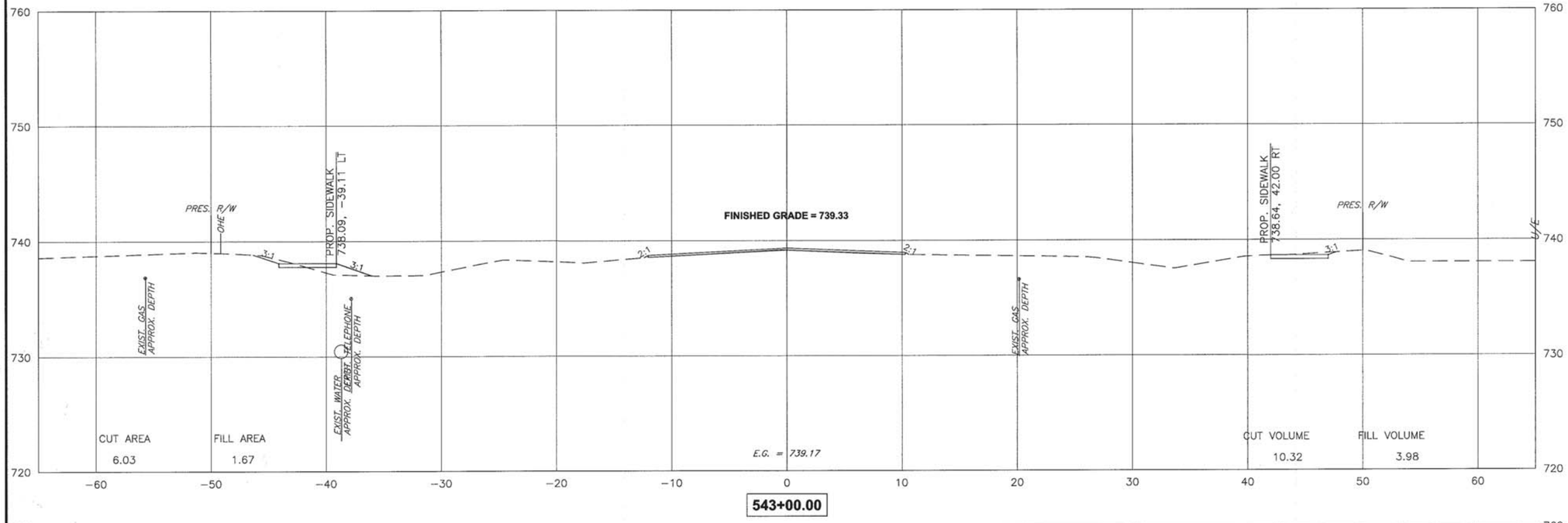
CITY ENGINEER

DRAWING: 95 CROSS SECTION 3.DWG

DATE

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 171 OF 181



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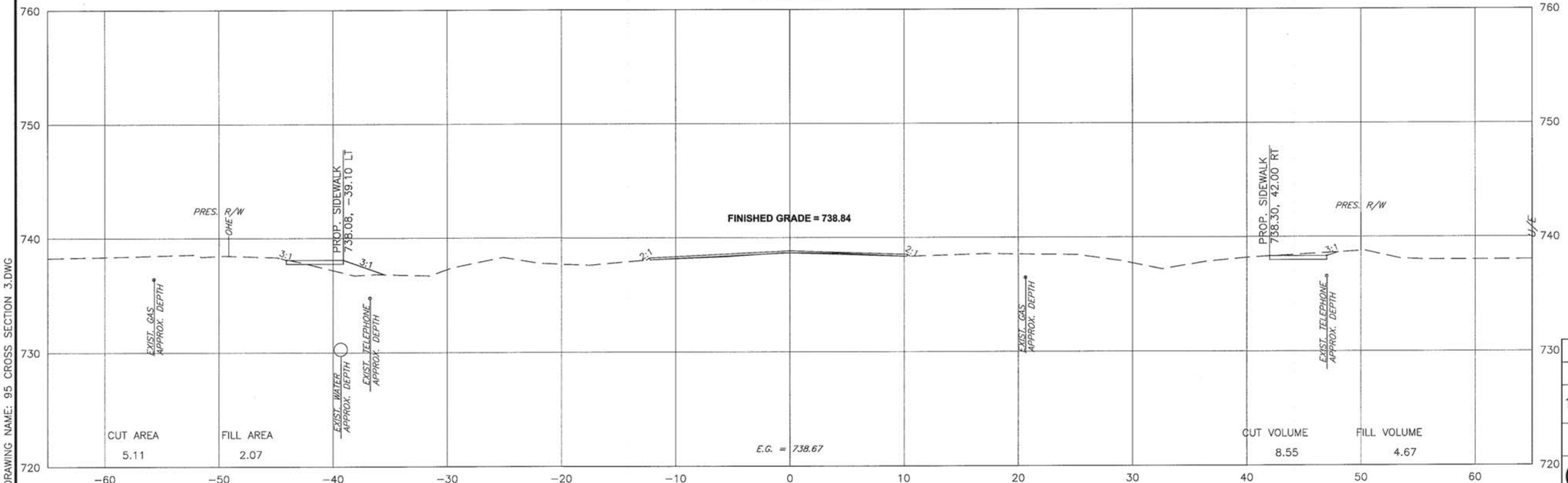

542+50.00

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 69

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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PLAN SCALE: 1" = 5'

PROFILE SCALES:
HORIZONTAL: N/A
VERTICAL N/A

DRAWN	L.P.E.	08/2014
DESIGNED	J.P.S.	08/2014
SURVEY	A.K.H.	08/2012
PROJ. MGR.		
LEAD ENGR.		
FIELD MGR.		

RECOMMENDED:
DESIGN MANAGER

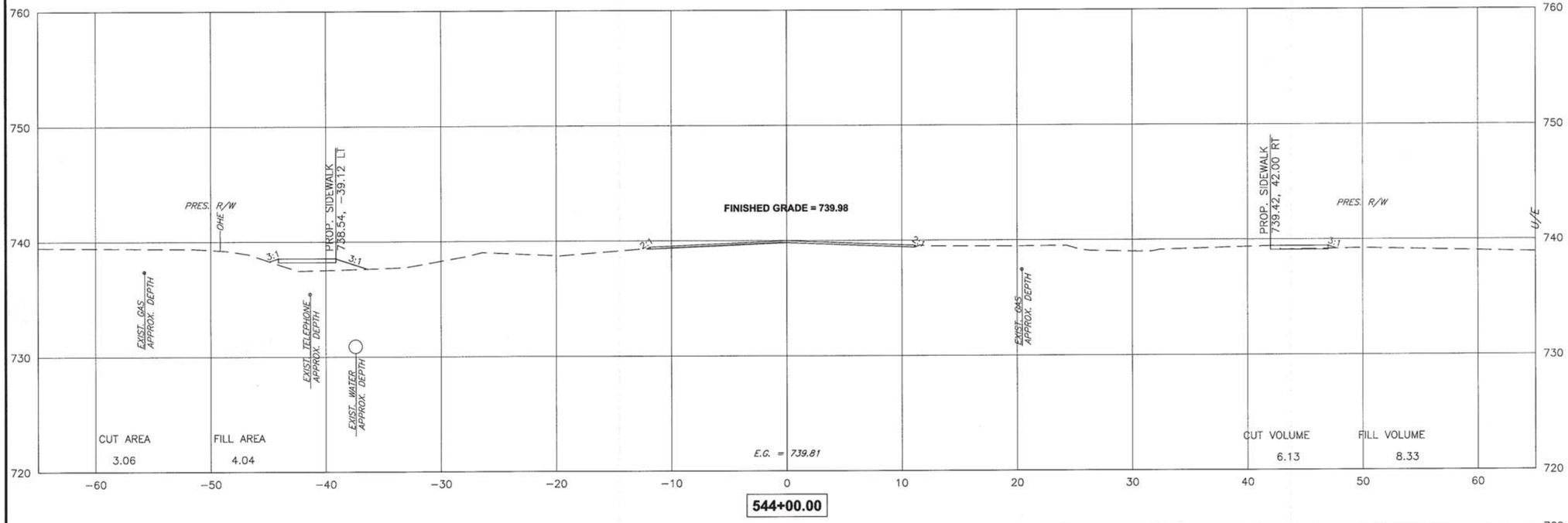
APPROVED:
CITY ENGINEER

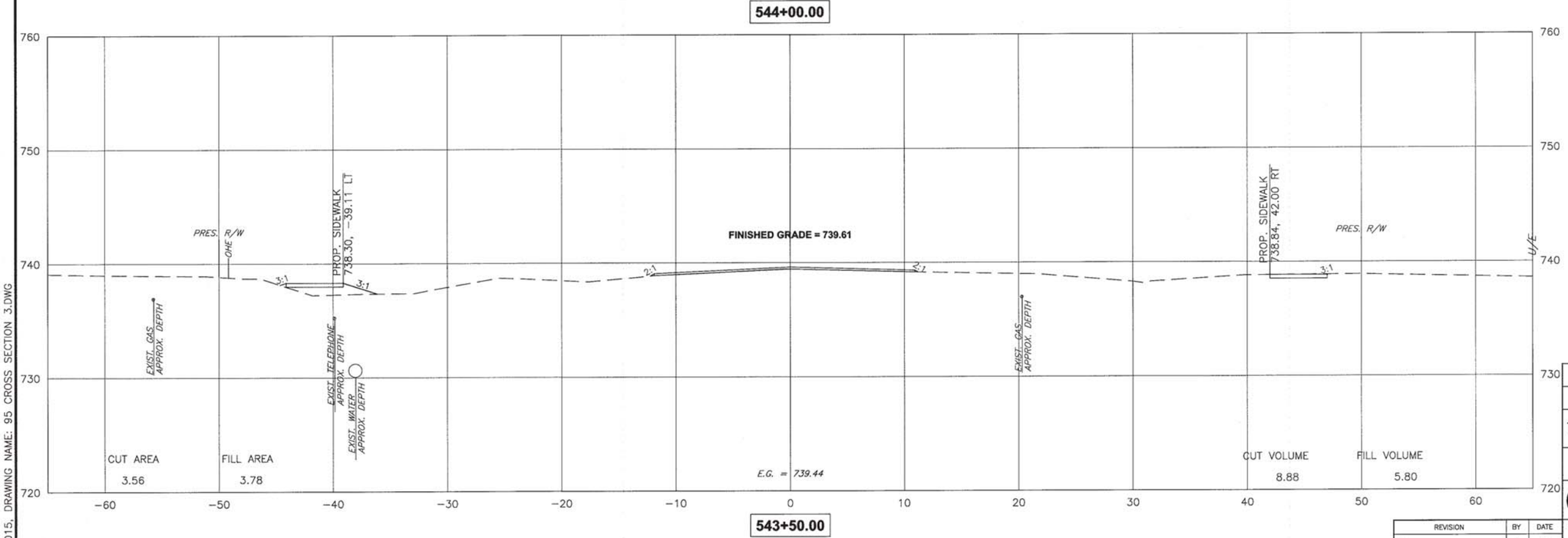
DRAWING: 95 CROSS SECTION 3.DWG

DATE

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 172 OF 181





REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 70

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663–9401

REVISION	BY	DATE
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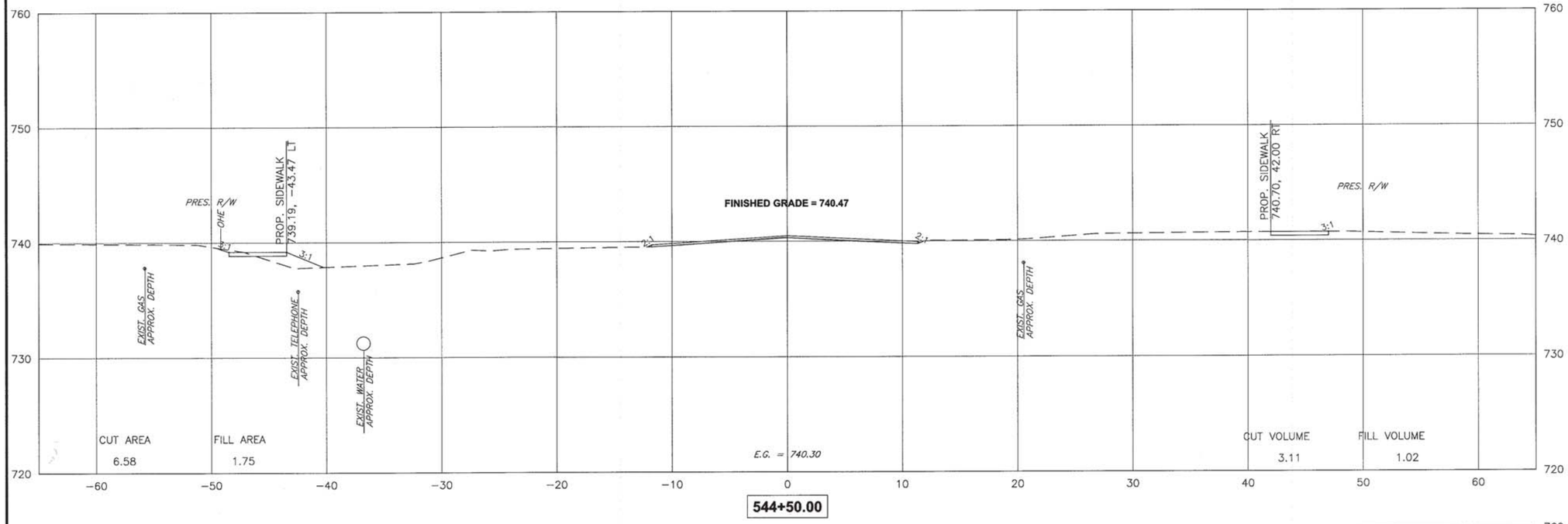
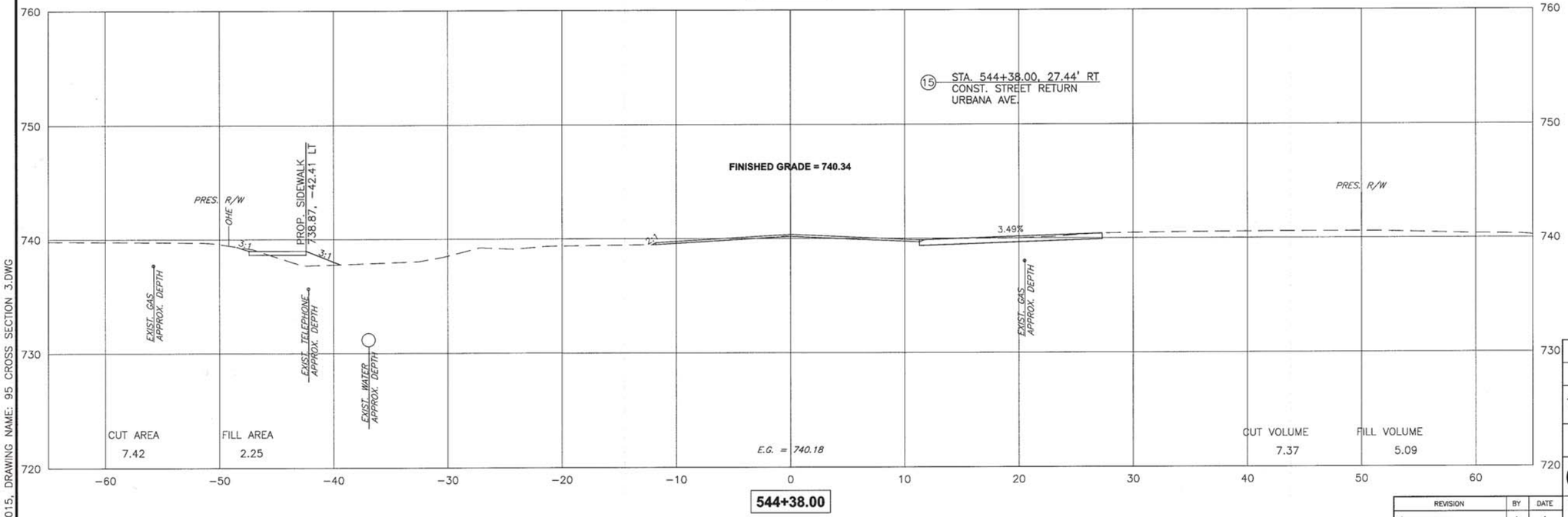
PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014	APPROVED:
	DESIGNED	J.P.S.	08/2014	
	SURVEY	A.K.H.	08/2012	
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A	PROJ. MGR.			
	LEAD ENGR.			
	FIELD MGR.			
	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG				DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 173 OF 181

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG





REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 71

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.		
HORIZONTAL: N/A	LEAD ENGR.		
	FIELD MGR.		
VERTICAL N/A	RECOMMENDED:		
	DESIGN MANAGER		

APPROVED:

CITY ENGINEER

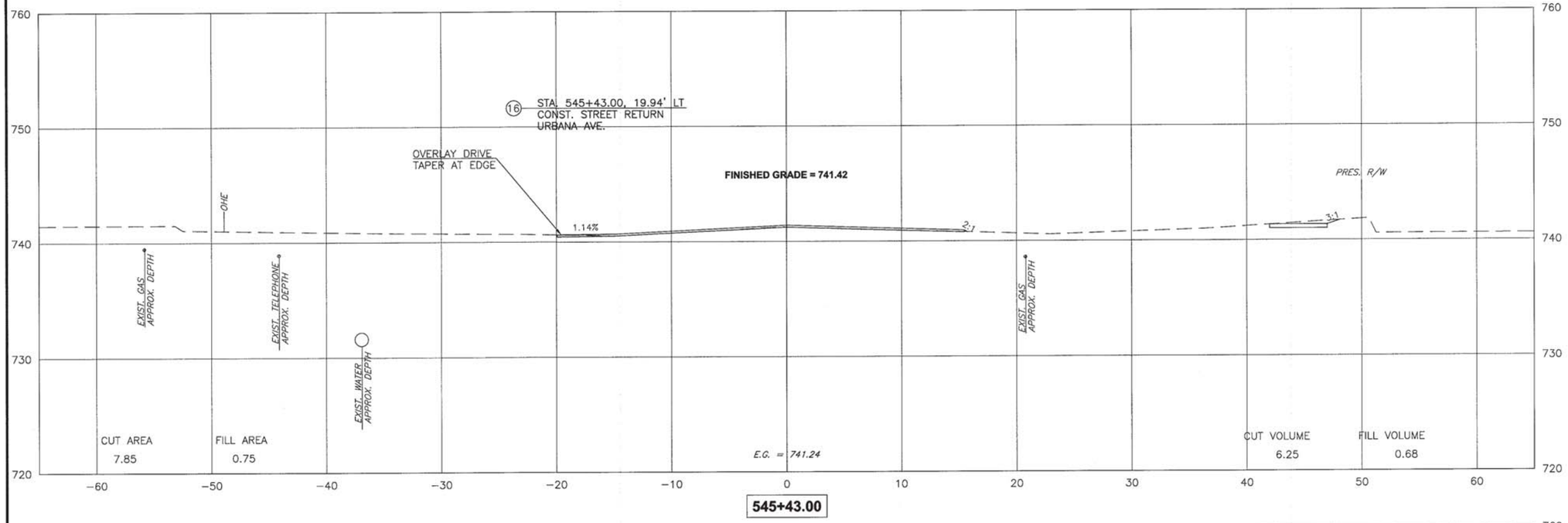
DRAWING: 95 CROSS SECTION 3.DWG

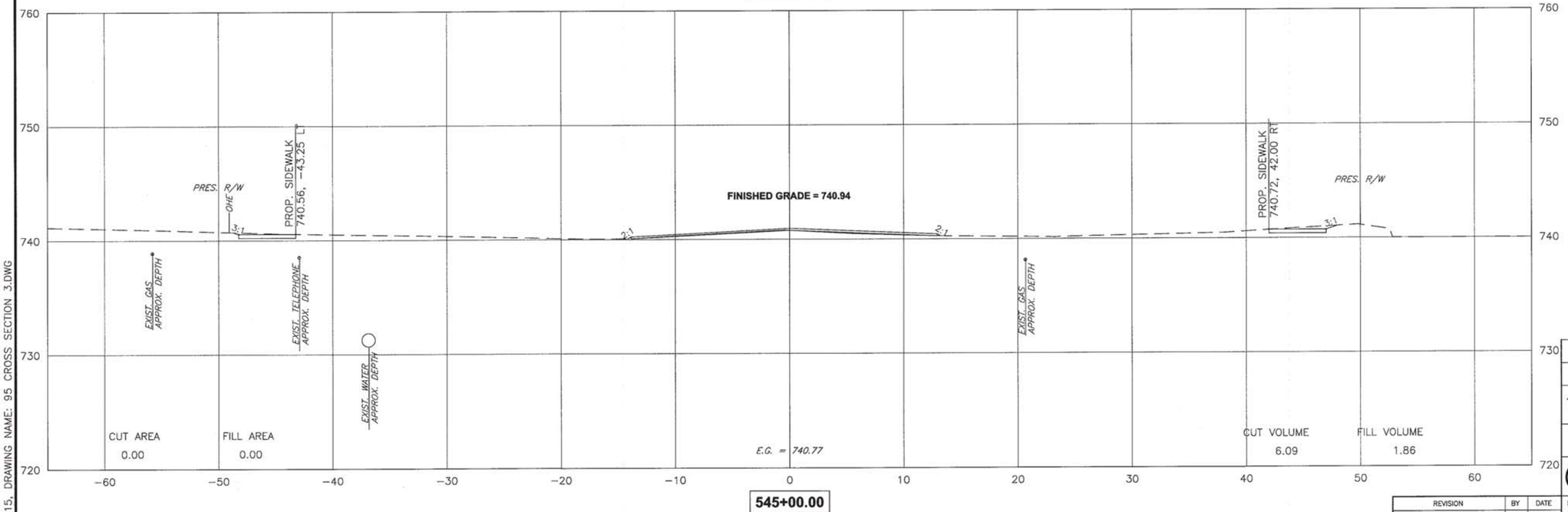
DATE

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 174 OF 181

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG





PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

JEREMY P. STAHLE 21725 REGISTERED PROFESSIONAL ENGINEER OKLAHOMA

CROSS SECTION 72

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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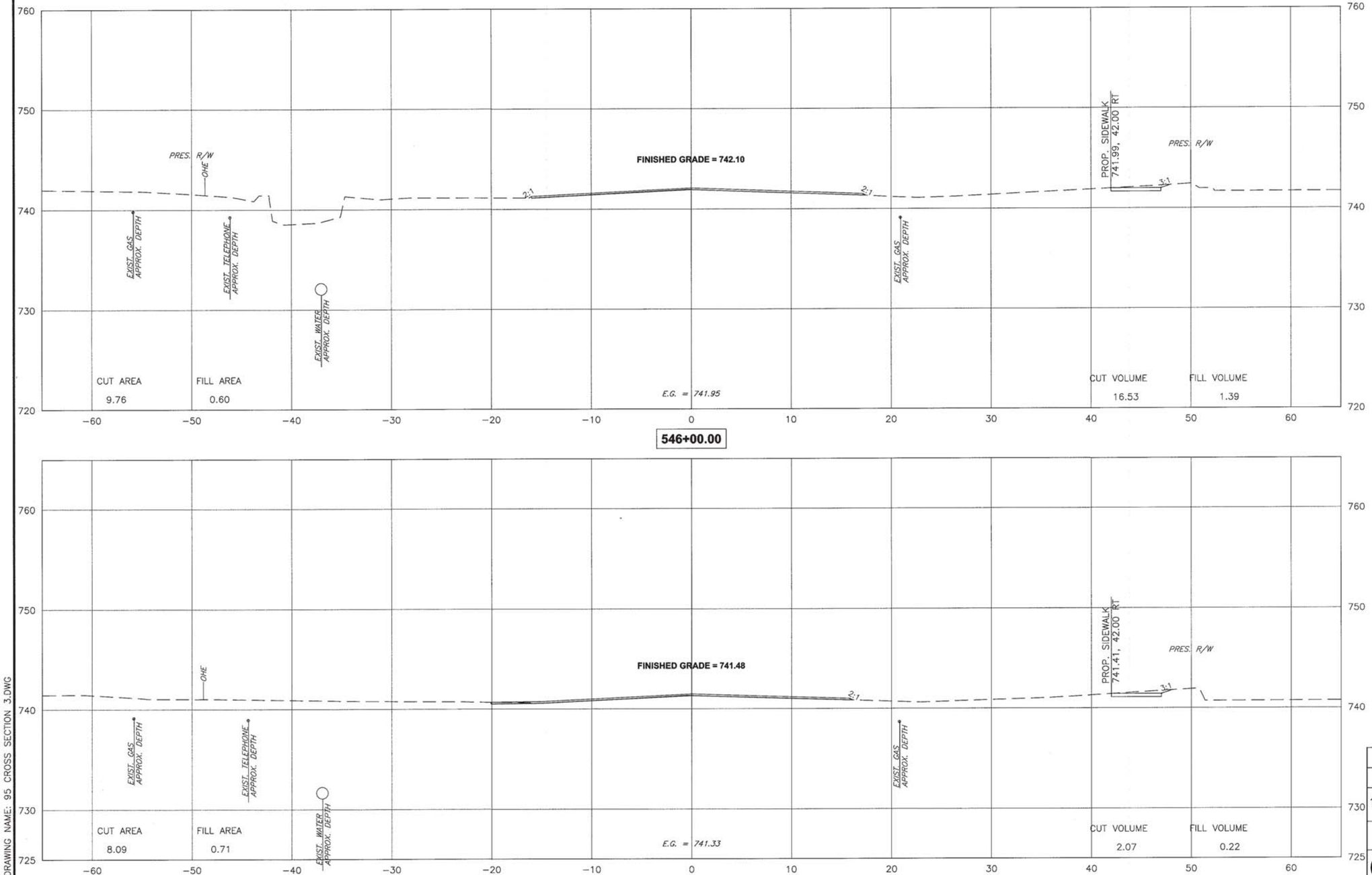
PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A	PROJ. MGR.		
	LEAD ENGR.		
	FIELD MGR.		
	RECOMMENDED: DESIGN MANAGER		

APPROVED: CITY ENGINEER

DRAWING: 95 CROSS SECTION 3.DWG

DATE

ATLAS PAGE NO: 1276, 1277, 1422, 1423



PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 73

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

REVISION	BY	DATE
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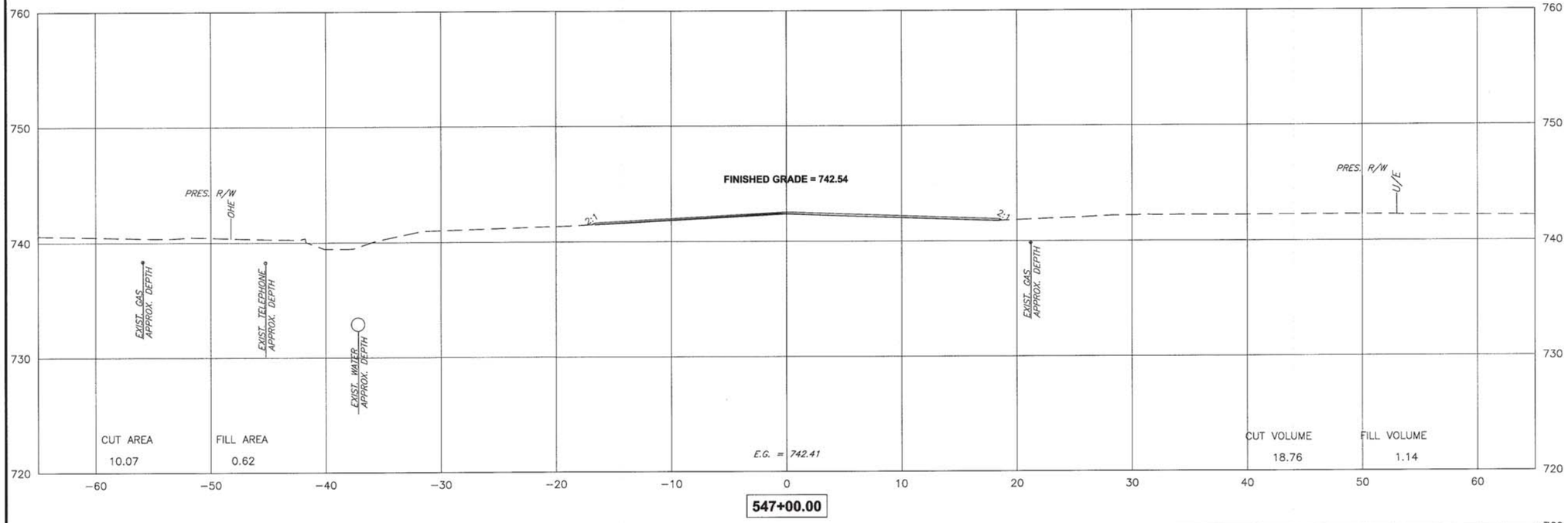
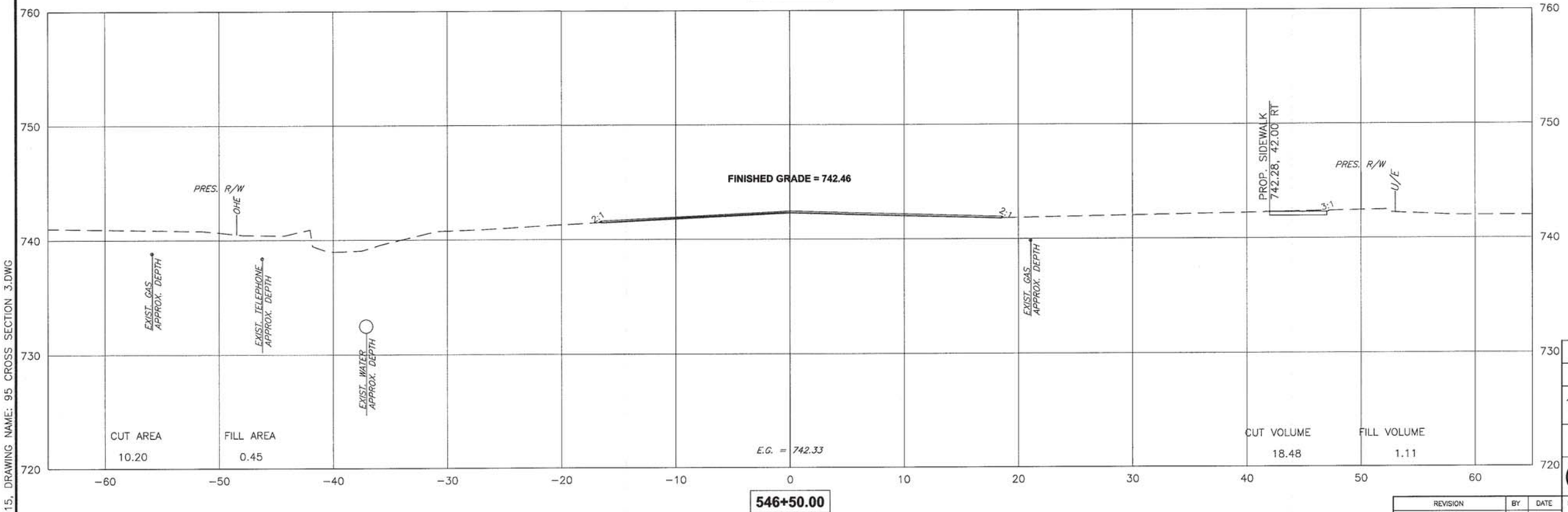
PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.		
HORIZONTAL: N/A	LEAD ENGR.		
	FIELD MGR.		
VERTICAL N/A	RECOMMENDED: DESIGN MANAGER		

APPROVED: CITY ENGINEER

DRAWING: 95 CROSS SECTION 3.DWG — DATE

ATLAS PAGE NO: 1276, 1277, 1422, 1423 — SHEET 176 OF 181





PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 74

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663–9401

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PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.		
HORIZONTAL: N/A	LEAD ENGR.		
	FIELD MGR.		
VERTICAL N/A	RECOMMENDED:		
	DESIGN MANAGER		

APPROVED:

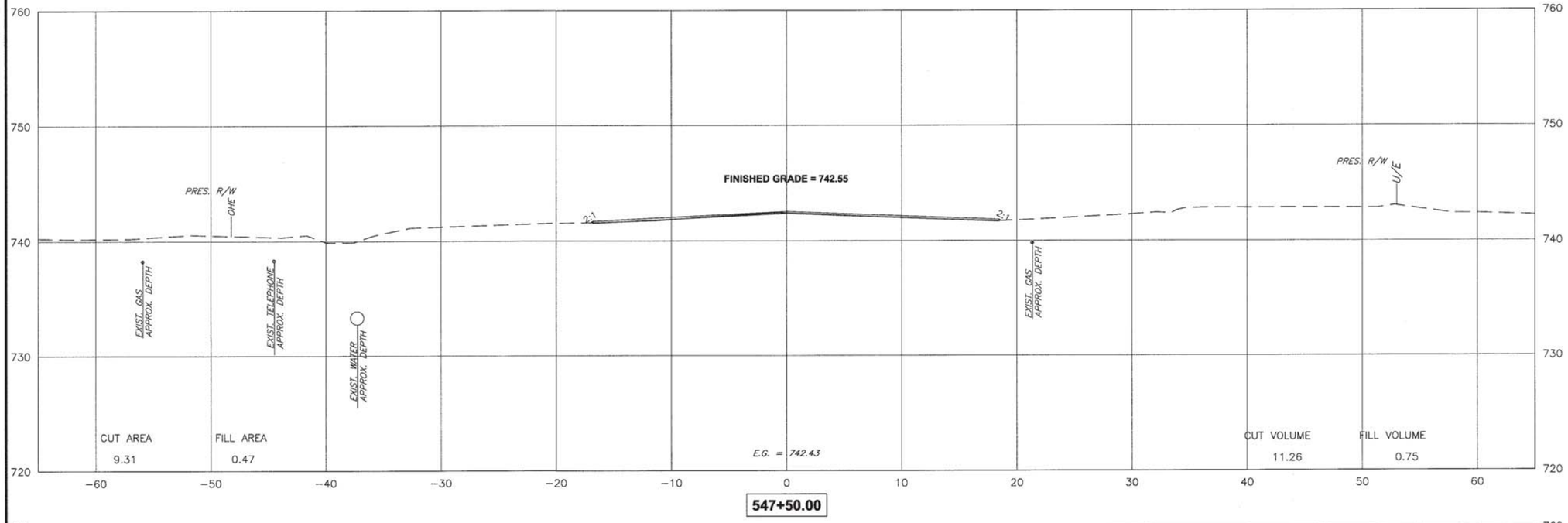
CITY ENGINEER

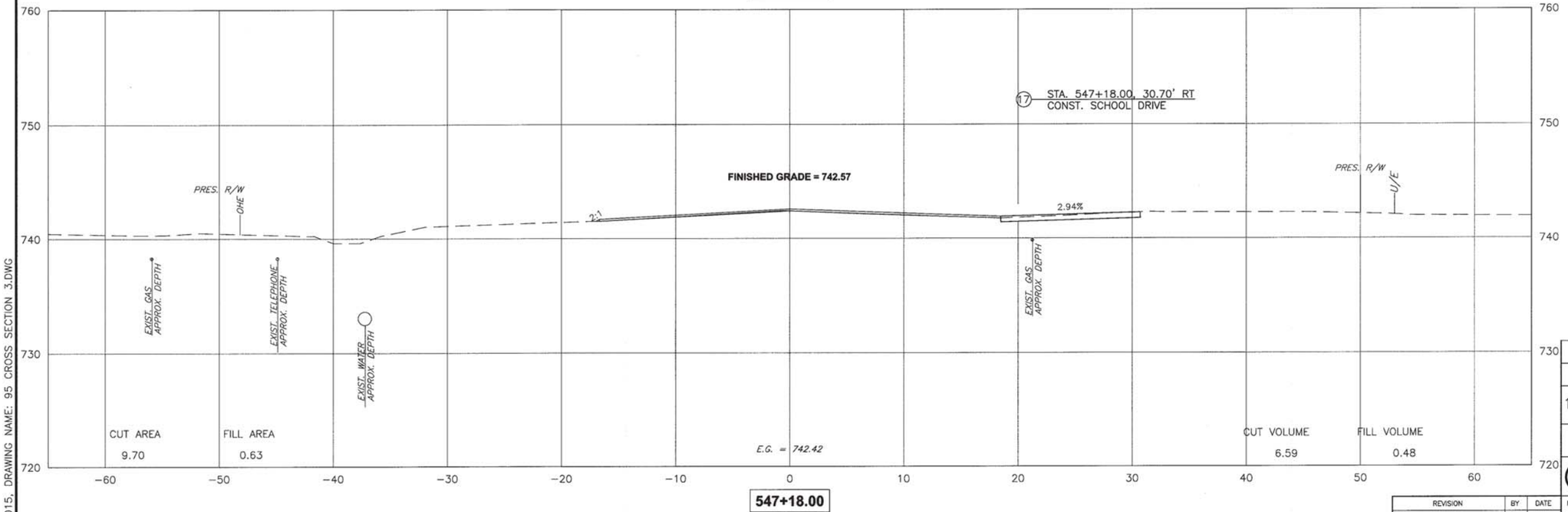
DRAWING: 95 CROSS SECTION 3.DWG

DATE

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 177 OF 181





REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 75

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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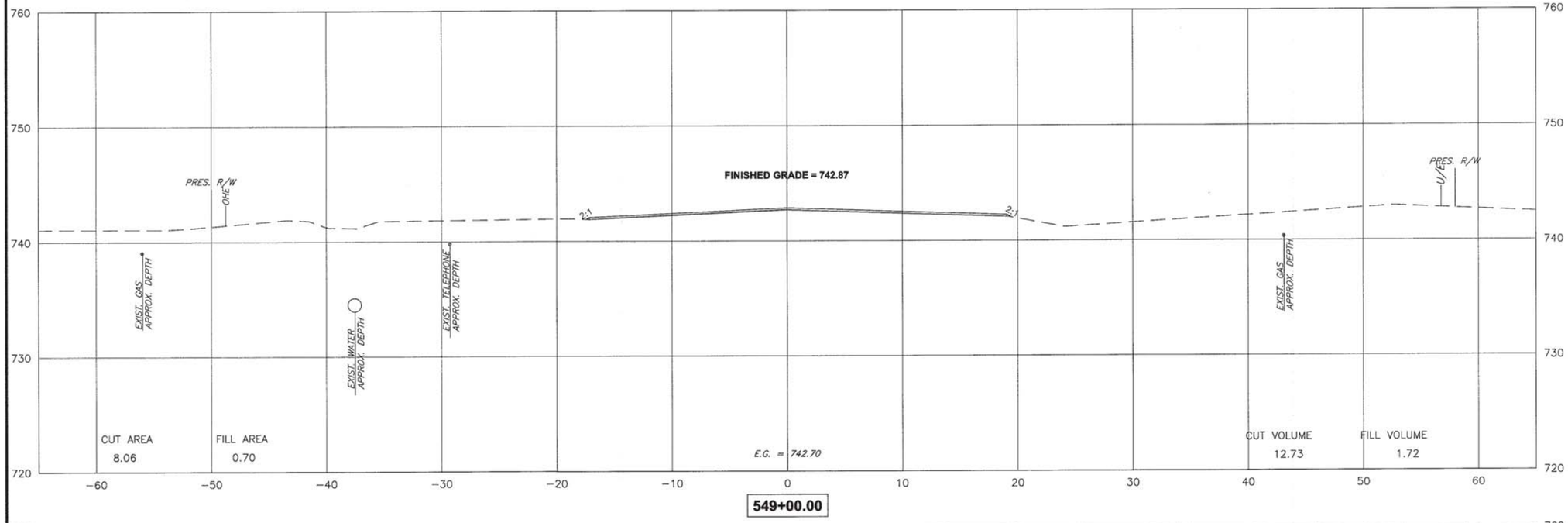
PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014	APPROVED:
	DESIGNED	J.P.S.	08/2014	
	SURVEY	A.K.H.	08/2012	
PROFILE SCALES:	PROJ. MGR.			
HORIZONTAL: N/A	LEAD ENGR.			
	FIELD MGR.			
VERTICAL N/A	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 95 CROSS SECTION 3.DWG				DATE
ATLAS PAGE NO: 1276, 1277, 1422, 1423				SHEET 178 OF 181

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG



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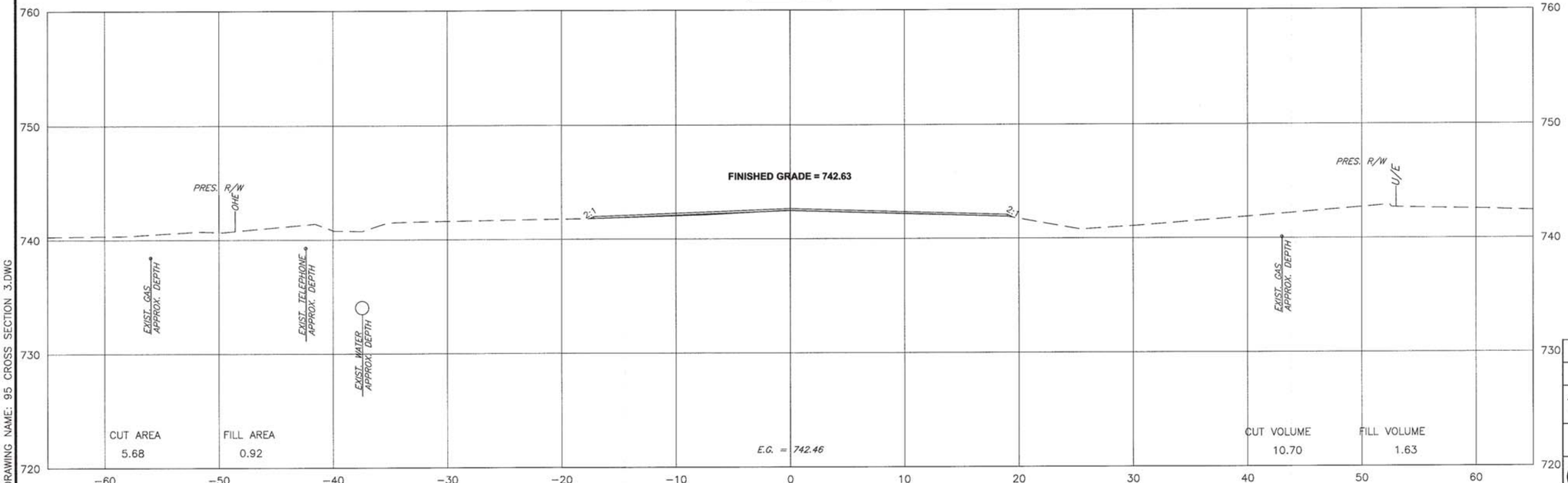

548+50.00

PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 76

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
4617 E. 91st Street S. Tulsa, OK 74137
(918) 663-9401

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PLAN SCALE: 1" = 5'	DRAWN	L.P.E.	08/2014
	DESIGNED	J.P.S.	08/2014
	SURVEY	A.K.H.	08/2012
PROFILE SCALES:	PROJ. MGR.		
HORIZONTAL: N/A	LEAD ENGR.		
	FIELD MGR.		
VERTICAL N/A	RECOMMENDED:		
	DESIGN MANAGER		

APPROVED:

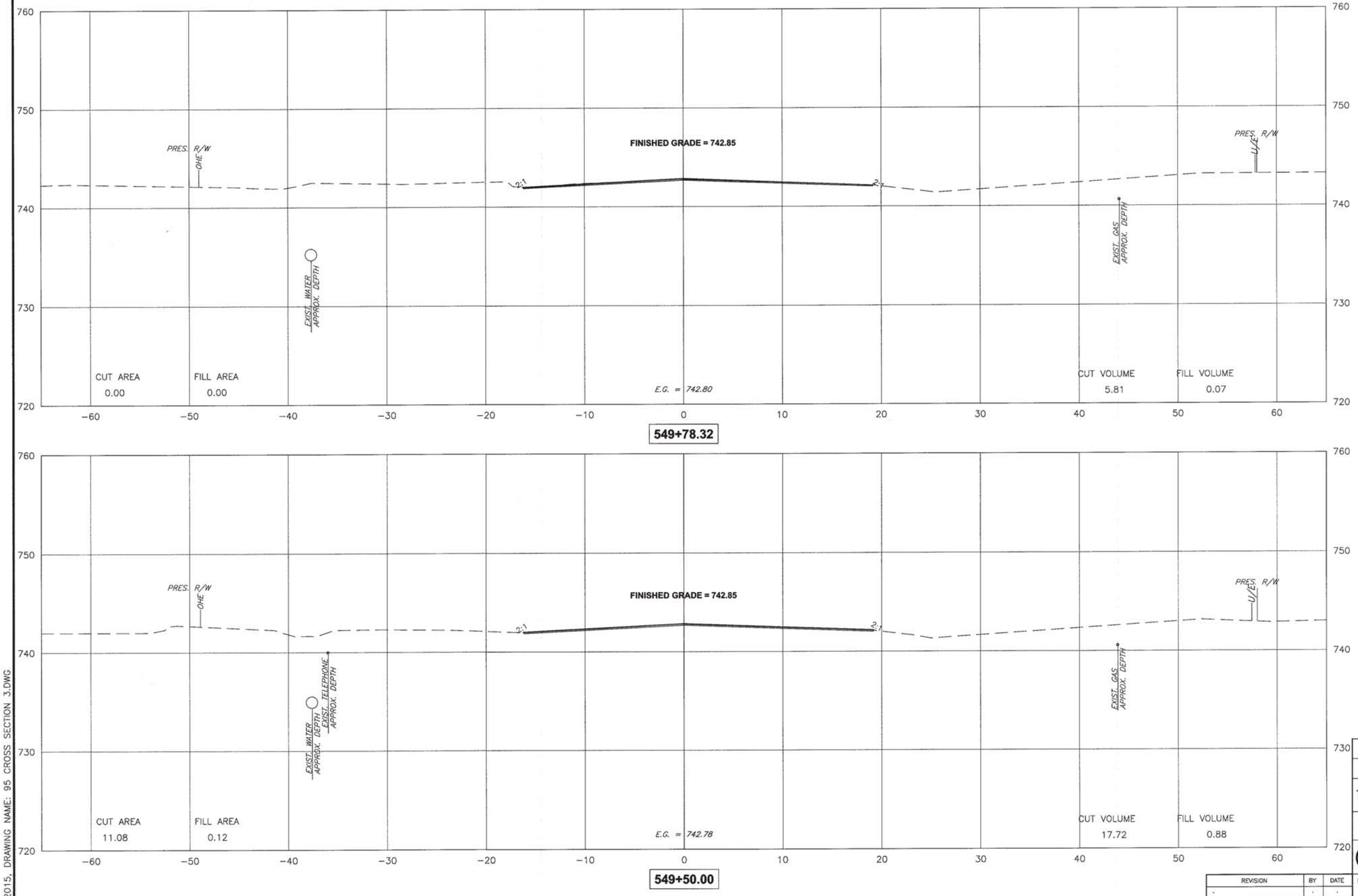
CITY ENGINEER

DRAWING: 95 CROSS SECTION 3.DWG

DATE

ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 179 OF 181



PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

REGISTERED PROFESSIONAL ENGINEER
JEREMY P. STAHLE
21725
OKLAHOMA

CROSS SECTION 77

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

CITY OF TULSA, OKLAHOMA
ENGINEERING SERVICES DEPARTMENT

CEC INFRASTRUCTURE SOLUTIONS
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	FIELD MGR.		
VERTICAL N/A	RECOMMENDED:		
	DESIGN MANAGER		

APPROVED:

CITY ENGINEER

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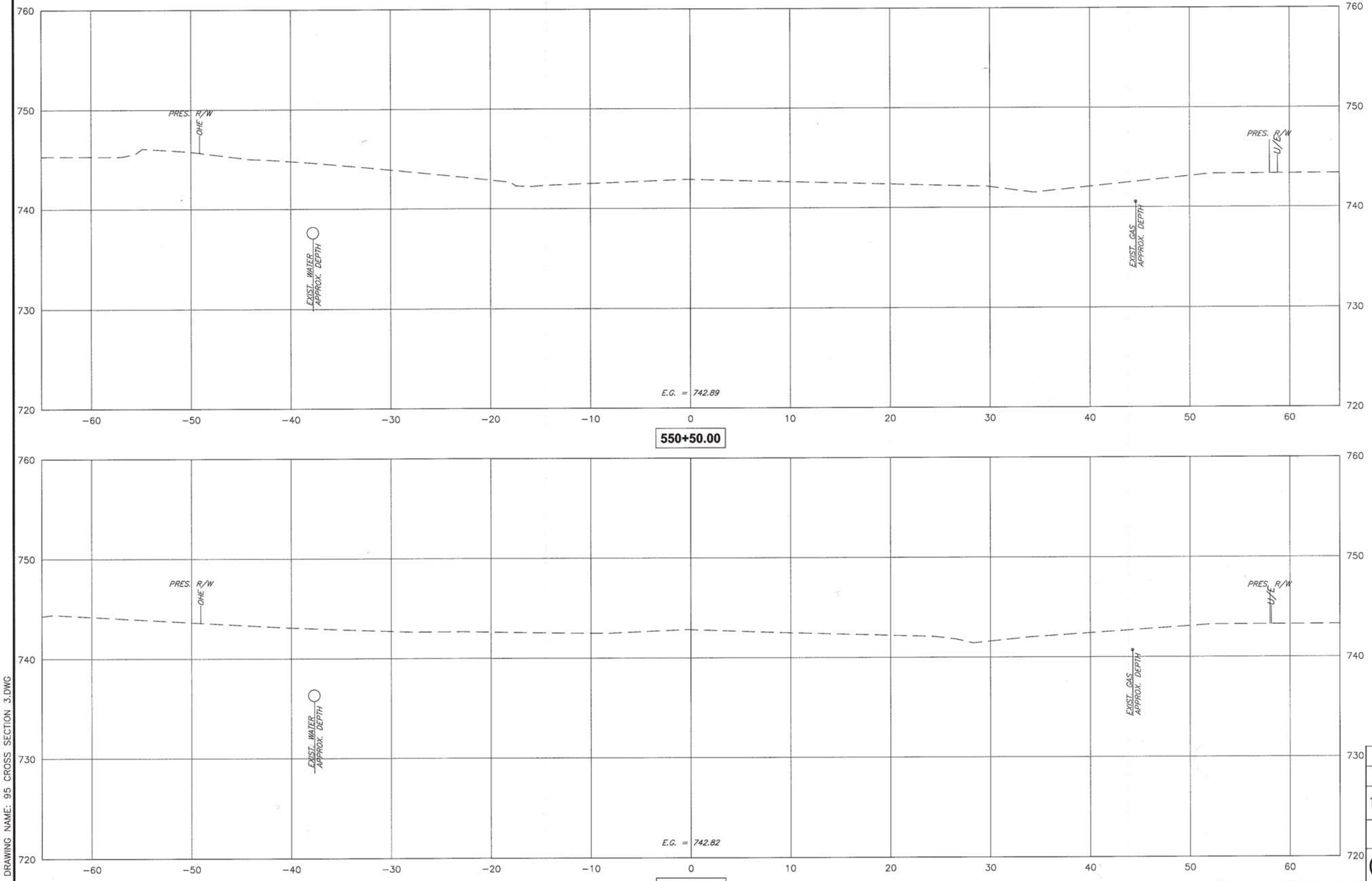
ATLAS PAGE NO: 1276, 1277, 1422, 1423

SHEET 180 OF 181



PLOT DATE: April 21, 2015, DRAWING NAME: 95 CROSS SECTION 3.DWG

JEREMY P. STAHLE 21725 REGISTERED PROFESSIONAL ENGINEER OKLAHOMA

CROSS SECTION 78

PROJECT NO. 104006

101ST STREET–HARVARD TO YALE

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PLAN SCALE: 1" = 5'
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A

DRAWN	L.P.E.	08/2014
DESIGNED	J.P.S.	08/2014
SURVEY	A.K.H.	08/2012
PROJ. MGR.		
LEAD ENGR.		
FIELD MGR.		

RECOMMENDED:
DESIGN MANAGER

APPROVED:
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