SURVEY CONTROL DATA

1. HORIZONTAL DATUM IS TIED TO CITY OF TULSA SURVEY CONTROL MONUMENT # 52 WHICH IS ADJUSTED TO THE OKLAHOMA STATE PLANE NAD 83 (1993) COORDINATE SYSTEM, NORTH ZONE, PER MONUMENT #52 DATA SHEET.
2. BEARINGS:

   THE BEARINGS SHOWN HEREIN OR HEREON ARE GRID BEARINGS DERIVED FROM THE USC & GS OKLAHOMA PLANE COORDINATE SYSTEM AND ARE NOT ASTRONOMICAL.
3. VERTICAL CONTROLS:

   A. LEVEL DATUM IS NGS, NAVD 88, PER CITY OF TULSA SURVEY CONTROL MONUMENT # 52 AND ADJUSTED FROM PRIMARY CONTROL UTILIZING DIFFERENTIAL LEVELING TECHNIQUES.

   B. ACCURACY - 3RD ORDER OR BETTER

TULSA BENCHMARK FROM CITY OF TULSA CONTROL DATA PREPARED BY AERIAL DATA SERVICE.

STATION NO. 52, JULY 2008
TYPE: 5/8" REBAR-1 1/2" ALUMINUM CAP-SET IN CONCRETE
N: 376701.599
E: 2569545.716
ELEV: 622.963'
LAT: 36°01'03.22319" N
LONG: 95°58'02.80803" W

DESIGN DATA	
ADT 2024	23,400
ADT 2044	62,100
V	40 MPH
ESAL'S	4M
SPEED	40 MPH
K SAG	64
K CREST	44

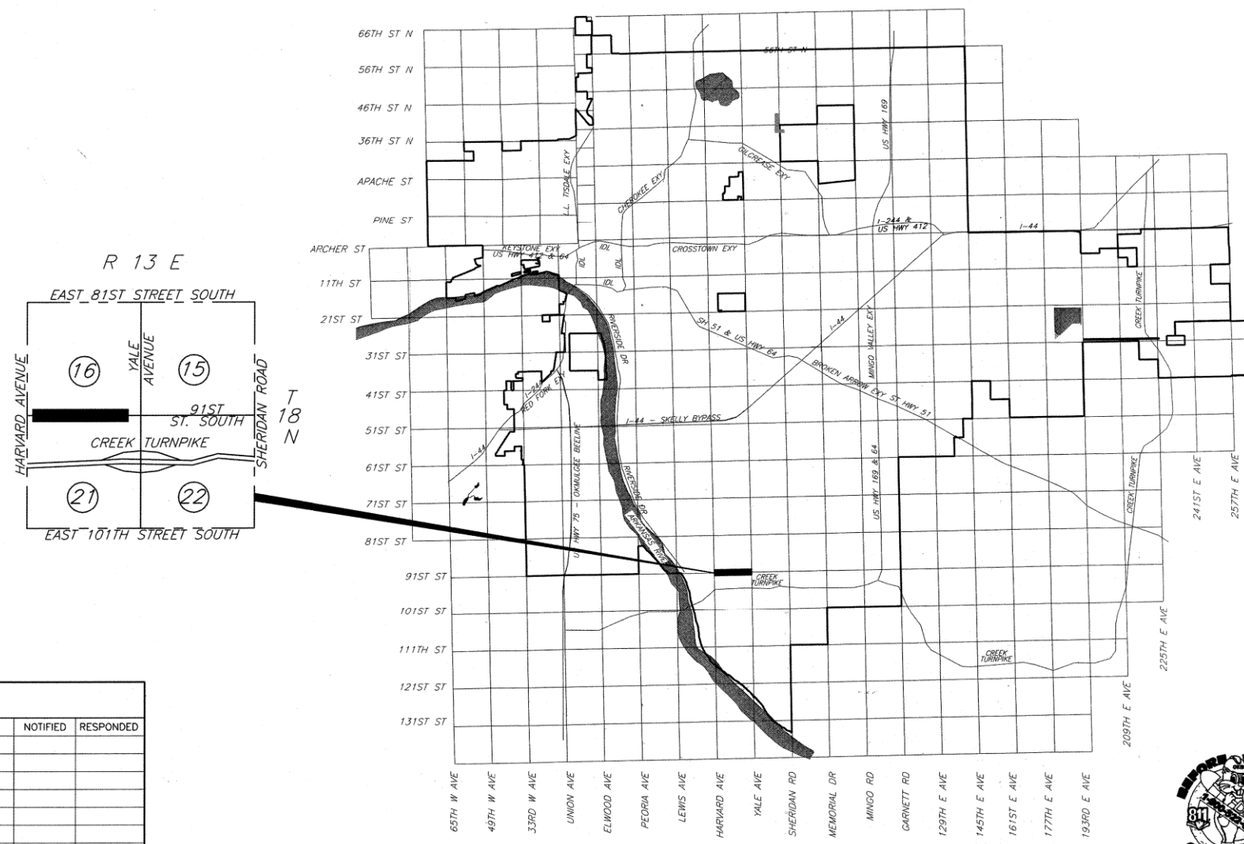
LEGEND

- PROPOSED ROADS
- SECTION LINES
- QUARTER SECTION LINES
- FENCES (EXISTING)
- EXISTING GRADE
- EXISTING ROADS
- EXISTING INDEX CONTOURS
- EXISTING INTERMEDIATE CONTOURS
- BASE LINE
- PROPOSED GRADE
- TUG — COMMUNICATION LINES (EXISTING)
- OHE — POWER LINES (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)
- RIGHT-OF-WAY FENCE
- FLOWLINE (EXISTING)
- FLOWLINE (PROPOSED)
- TOE OF SLOPE (EXISTING)
- TOE OF SLOPE (PROPOSED)

PLANS FOR REHABILITATION & RECONSTRUCTION OF 91ST STREET SOUTH FROM HARVARD TO YALE

PUBLIC WORKS DEPARTMENT
CITY OF TULSA, OKLAHOMA
ACCOUNT NO: 5451101.6331.42733122-541106
PROJECT NO. 144213
TMUA-W 22-90

MYLAR



LOCATION MAP
RECONSTRUCTION: 0.44 LANE MILES
REHABILITATION: .17 LANE MILES
N.T.S.

UTILITY COORDINATION				
	NUMBER	CONTACT	NOTIFIED	RESPONDED
COX COMMUNICATIONS	(918) 830-7238	JASON HOLT		
AEP/PSO	(918) 250-6211	LONNY HICKS		
OKLAHOMA NATURAL GAS CO.	(918) 352-5745	CODY YOST		
AT&T	(539) 444-1069	AL NICHOLS		
CITY OF TULSA	(918) 596-9245	TONY GLYNN		
METROLINE	(918) 830-0024	ERIC SMITH		

ROADWAY
CURRENT CITY OF TULSA STANDARD SPECIFICATIONS AND STANDARD DETAILS GOVERN. ALL OTHER CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE ODOT 2019 OKLAHOMA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION. AS ADOPTED BY COT.

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.

INDEX OF SHEETS

SHT NO.	DESCRIPTION
1.	TITLE
2.-3.	PAY ITEMS & NOTES
4.	PAY ITEMS & NOTES (WATERLINE)
5.	GENERAL CONSTRUCTION NOTES
6-8	SUMMARY TABLES
9.-12.	TYPICAL SECTIONS
13.-19.	SURVEY DATA
20.-25.	GEOMETRIC & ROW DATA
26.-27.	DRAINAGE AREA MAPS
28.	HYDROLOGIC DATA
29.	INLET AND PIPE DESIGN
30.	STORMWATER MANAGEMENT PLAN
31.-36.	EROSION CONTROL
37.	ROADWAY LOCATION KEY MAP
38.	PAVING SCHEDULE MAP
39.-49.	PLAN & PROFILE
50.-53.	WATERLINE RELOCATIONS
54.	INTERSECTION DETAIL
55.	VENSEL CREEK BRIDGE - GENERAL PLAN AND ELEVATION
56.-57.	RCB DETAILS
58.-59.	VENSEL CREEK CONCRETE PARAPET DETAILS
60.-62.	RCB PARAPET DETAILS
63.	PIPE RAIL DETAILS
64.-66	RCB RETAINING WALL DETAILS
67.	RCB PIPE DETAILS
68.	RCB GRADING PLAN
69.-74.	SIGNING STRIPING & SIDEWALK
75.	CONSTRUCTION SEQUENCING
76.-89.	TRAFFIC CONTROL PHASING
XS 1.-XS 36.	CROSS SECTIONS

SEE SHEET 5 FOR CITY OF TULSA AND ODOT STANDARDS

IN ACCORDANCE WITH ODOT SECTION 105.14, THE COT IS ANTICIPATING THAT THE SUCCESSFUL CONTRACTOR WILL UTILIZE THE APPROPRIATE MEANS AND METHODS TO ACCOMPLISH THE WORK DESCRIBED IN THE PLANS WITHOUT CAUSING COLLATERAL DAMAGE TO THE EXISTING INFRASTRUCTURE. ~~THE PLANS ARE SET UP WITH THE EXPECTATIONS OF PERFORMING PATCHING AND CONCRETE WORK PRIOR TO MILLING OPERATION TO MINIMIZE CONSTRUCTION TRAFFIC LOADINGS TO REDUCED CAPACITY STREET SECTIONS. FURTHER~~, THE ANTICIPATED CONSTRUCTION PHASING WILL MINIMIZE TIME BETWEEN MILLING AND NEW ASPHALT PLACEMENT. LEAVING OPEN MILLED SECTIONS WILL BE AT THE CONTRACTOR'S RISK IN THE EVENT THAT LOCAL OR CONSTRUCTION TRAFFIC CAUSES DAMAGE TO PREVIOUSLY UNDAMAGED AREA. CURRENT ODOT CONSTRUCTION BUDGETS DO NOT ALLOW FOR GROWTH OF THIS PROJECT.

CITY ENGINEER — DATE 6/13/2025

DIRECTOR OF WATER & SEWER — DATE 6/13/2025

ADVERTISEMENT DATE:

ENGINEER'S CERTIFICATION:

SHANNON N. HANKS, P.E. NO. 21141 — DATE 6/5/25

CEC CORPORATION
1300 S. Main St.
Tulsa, Oklahoma 74119
(918) 663-9401

C.A. #32 EXPIRES 06/30/26

REGISTERED PROFESSIONAL ENGINEER — SHANNON N. HANKS 21141 — OKLAHOMA

BEFORE YOU DIG 811 CALL OKIE

PLOT DATE: January 13, 2025, DRAWING NAME: TITLE.DWG

PWD - 91ST - HARVARD TO YALE PROJECT NO. 144213 TMUA-W 22-90

BASE BID-ROADWAY

ITEM NO.	SPEC. NO.	DESCRIPTION	PAY ITEM NOTES	UNIT	QUANTITY
1	201(A)	CLEARING AND GRUBBING	E-1, 2	AC	2
2	202(A)	UNCLASSIFIED EXCAVATION	E-3, 4, R-1	CY	4,888
3	221	TEMPORARY EROSION CONTROL	E-6, 7, 8, 9	LS	1
4	227	TURF REINFORCEMENT MAT	S-102	SY	273
5	230(A)	SOLID SLAB SODDING	E-10,11	SY	2,266
6	303(A)	AGGREGATE BASE TYPE A	S-1, 2	CY	2,863
7	310(B)	SUBGRADE METHOD B		SY	9,021
8	325	SEPARATOR FABRIC	S-3	SY	11,391
9	409	FABRIC REINFORCEMENT	S-4, 100	SY	15,188
10	411(B)	SUPERPAVE, TYPE S3 (PG 64-22 OK)	S-5, 6, 7, 8	TON	2,680
11	411(C)	SUPERPAVE, TYPE S4 (PG 70-28 OK)	S-5, 6, 7, 8	TON	2,364
12	411(D)	SUPERPAVE, TYPE S6 (PG 70-28 OK)	S-5, 6, 7, 8, G-1	TON	850
13	412	COLD MILL PAVEMENT	S-9, 22, 23	SY	15,188
14	601(A)	TYPE I PLAIN RIPRAP		TON	1,250
15	601(I)	FILTER FABRIC (RIPRAP)		SY	1,335
16	609(B)	COMBINED CURB AND GUTTER (8" BARRIER)	S-12, 13, 15, 16	LF	450
17	609(C)	HEADER CURB AND SIDEWALK (LESS THAN 18")	S-12, 13, 101	LF	51
18	609(C)	HEADER CURB AND SIDEWALK (18" TO 28")	S-12, 13, 101	LF	53
19	610(A)	4" CONCRETE SIDEWALK	S-12, 13, 16, 17	SY	1,680
20	610(A)	6" CONCRETE SIDEWALK	S-12, 13, 16, 17	SY	134
21	610(A)	4" STAMPED CONCRETE SIDEWALK	S-12, 13, 17, 18	SY	34
22	610(B)	CONCRETE DRIVEWAY (6" H.E.S.)	S-12, 13, 16, 17	SY	627
23	610(I)	TACTILE WARNING DEVICE		SF	90
24	611(A)	MANHOLE (4' DIA.)	D-1, 2, 3, 4, 5	EA	3
25	611(G)	INLET CICI DES. 4 (D), COMPLETE IN PLACE	D-2, 3, 7, 8, 9, 10, 11	EA	1
26	611(G)	SMD INLET W/ TYPE 1 GRATE	D-2, 3, 7, 8, 9, 10	EA	1
27	612(A)	MANHOLE ADJUSTED TO GRADE (PUBLIC)	S-12, R-2, D-1, 2, 6	EA	5
28	619(A)	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	R-1, 2, 3, 4, 5	LSUM	1
29	619(B)	REMOVAL OF ASPHALT PAVEMENT	R-1, 2, 5, 6	SY	5,632
30	619(B)	REMOVAL OF DRIVEWAY	R-1, 2, 5, 6	SY	543
31	619(B)	REMOVAL OF SIDEWALK	R-1, 2, 5, 6	SY	127
32	619(B)	REMOVAL OF CURB AND GUTTER	R-1, 2, 5, 6	LF	104
33	619(B)	REMOVAL OF HEADWALL	R-1, 2, 5, 6	EA	2
34	619(B)	REMOVAL OF GUARDRAIL	R-1, 2, 5, 6	LF	451
35	619(B)	REMOVAL OF PAVEMENT MARKINGS (STRIPING)		LF	20,080
36	619(B)	REMOVAL OF PAVEMENT MARKINGS (SYMBOLS)		LF	17
37	623(A)	BEAM GUARD RAIL W-BEAM SINGLE		LF	451
38	623(G)	GUARD RAIL END TREATMENT (SKT-SP-MGS)		EA	4
39	641	MOBILIZATION	G-2	EA	1
40	642	CONSTRUCTION STAKING (LEVEL II)	G-3, 4	EA	1
41	805(A)	(PL)REMOVAL OF EXISTING SIGNS		EA	27
42	805(D)	(PL)REMOVE & RESET EXISTING SIGNS		EA	6
43	855(A)	TRAFFIC STRIPE (PLASTIC) (4" WIDE)	T-3	LF	17,043
44	855(A)	TRAFFIC STRIPE (PLASTIC) (8" WIDE)	T-3	LF	786
45	855(B)	TRAFFIC STRIPE (PLASTIC) (ARROWS)	T-3	EA	31
46	COT 202	QUICK SET FLOWABLE FILL	D-8,G-1	CY	79
47	COT 334	CONSTRUCTION AS BUILTS		LS	1
48	COT 335	CONTRACTOR QUALITY CONTROL		LS	1
49	COT 608	GROUND SIGN		SF	116
50	COT 608	1 - 1/2" SIGN POST		LF	5
51	COT 608	1 - 3/4" SIGN POST		LF	191
52	COT 608	1 - 2" SIGN POST		LF	57
53	SPECIAL	CURB RAMP		EA	9
54	SPECIAL	TYPE 1 PCC PATCH	S-21, G-1	CY	393
55	SPECIAL	FLEX STORM INLET SEDIMENT FILTER	E-100	EA	4
56	SPECIAL	PROJECT SIGNS	T-7	EA	2
57	SPECIAL	URBAN RIGHT OF WAY RESTORATION	G-5, 6, 7, 9, 10	EA	1
58	SPECIAL	OWNER ALLOWANCE		ALLOW	25,000

TRAFFIC CONTROL

ITEM	SPEC.	DESCRIPTION	PAY ITEM	UNIT	QUANTITY
59	857(C)	REMOVABLE PAVEMENT MARKING TAPE		LF	10,000
60	877(B)	PORTABLE LONGITUDINAL BARRIER	T-8	LF	196
61	880	TRAFFIC CONTROL	T-2, 5, 6, 7, 100	LS	1
62	882(A)	PORTABLE CHANGEABLE MESSAGE SIGN	T-4, 7	SD	1,500

STORMWATER PIPE OPTION 1

ITEM NO.	SPEC. NO.	DESCRIPTION	PAY ITEM NOTES	UNIT	QUANTITY
63	613(A)	18" RCP, CLASS III	D-8, 12, 13	LF	64
64	613(A)	24" RCP, CLASS III	D-8, 12, 13	LF	712

STORMWATER PIPE OPTION 2

ITEM NO.	SPEC. NO.	DESCRIPTION	PAY ITEM NOTES	UNIT	QUANTITY
65	613(EE)	18" CORRUGATED POLYPROPYLENE PIPE (CPP)	D-13, 14, 15	LF	64
66	613(EE)	24" CORRUGATED POLYPROPYLENE PIPE (CPP)	D-13, 14, 15	LF	712

GENERAL NOTE

ITEMS LISTED OR SHOWN ON DRAWINGS AND/ OR DESCRIBED IN THE SPECIFICATIONS THAT ARE NOT INCLUDED AS A SEPARATE PAY ITEM QUANTITY SHALL BE CONSIDERED INCIDENTAL AND THE COST SHALL BE INCLUDED IN THE PRICE BID FOR OTHER ITEMS. THE PRICE BID FOR ALL WORK SHALL INCLUDE ALL MATERIALS, EQUIPMENT, LABOR, INCIDENTALS, AND ALL OTHER REQUIRED ITEMS TO COMPLETE THE WORK AS SHOWN ON PLANS AND SPECIFICATIONS.

PAY ITEM NOTES (ROADWAY) (11-14-18)

EARTHWORK/EROSION CONTROL/SITE PREPARATION

E-1: ALL COSTS FOR REMOVING TREES, SHRUBS, STUMPS, POSTS AND ALL OTHER DEBRIS AND/OR OBSTRUCTIONS NOT COVERED BY A SEPARATE PAY ITEM ARE INCLUDED IN THE PRICE BID.

E-2: 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.

PAY ITEM NOTES (ROADWAY) (CONT'D)

EARTHWORK/EROSION CONTROL/SITE PREPARATION CONT.

E-3: THE CONTRACTOR SHALL BE PAID FOR UNCLASSIFIED EXCAVATION ON THE BASIS OF PLAN 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.

E-4: UNCLASSIFIED EXCAVATION INCLUDES REMOVAL OF AGGREGATE BASE AND MODIFIED SUBGRADE UNDER EXISTING PAVEMENT TO BE REPAIRED.

E-5: NOT USED

E-6: THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTROL AND MAINTENANCE OF THE STORM WATER DRAINAGE FROM THE CONSTRUCTION SITE. STORM WATER PONDING ON THE CONSTRUCTION SITE THAT IS THE RESULT OF CONSTRUCTION WILL NOT BE ALLOWED. ALL COST ASSOCIATED WITH STORM WATER MANAGEMENT, AS WELL AS REMOVAL OF ALL SILT AND DEBRIS FROM ALL DRAINAGE STRUCTURES, STORM SEWER PIPES AND APPURTENANCES WITHIN THE PROJECT LIMITS AT END OF PROJECT, SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THIS ITEM.

E-7: EROSION PROTECTION SHALL BE PLACED AS FOLLOWS:

A) AROUND INLETS TO PREVENT INFLOW OF ERODED MATERIAL INTO STORM SEWER SYSTEM;

B) IN LOCATIONS THROUGHOUT PROJECT SITE, AS DETERMINED BY THE ENGINEER, TO PREVENT WASH OF ERODED MATERIAL ONTO ADJACENT PROPERTY;

C) FOR ENTIRE DURATION OF PROJECT, WITH MAINTENANCE AND REPLACEMENTS, AS DIRECTED BY THE ENGINEER;

D) WITH PERIODIC REMOVAL OF SEDIMENT IN ACCORDANCE WITH STORMWATER MANAGEMENT PLAN. ALL COST FOR ITEMS A-D ABOVE SHALL BE INCLUDED IN UNIT PRICE BID FOR THIS ITEM.

E-8: PRICE BID SHALL INCLUDE MAINTENANCE, SEDIMENT REMOVAL, DISPOSAL, AND REMOVAL OF FILTERS AT PROJECT COMPLETION.

E-9: INCLUDES 16 TYPE TEMPORARY SEDIMENT FILTERS.

E-10: ESTIMATED QUANTITY IS BASED ON SODDING OF ALL DISTURBED AREAS OUTSIDE THE FINAL PAVING LIMITS AND WITHIN THE FINAL GRADING LIMITS AS INDICATED BY THE TOP-OF-CUT/TOE-OF-SLOPE LINE ON THE PLANS (EXCLUDING SURFACES OF STRUCTURES, FIXTURES AND APPURTENANCES). SOD SHALL BE OF LIKE-KIND TO EXISTING SOD. PRICE BID INCLUDES PLACEMENT AND COMPACTION OF SUITABLE BACKFILL. ANY EXISTING GRASSED AREAS BEYOND THE ABOVE STATED LIMITS THAT ARE DAMAGED AS A RESULT OF CONSTRUCTION OPERATIONS SHALL BE RESODDED TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S SOLE EXPENSE.

E-11: 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.

E-100: SPECIAL INLET SEDIMENT FILTER SHALL BE FLEX STORM CATCH-IT OR APPROVED EQUAL.

SURFACING/STRUCTURES

S-1: 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.

S-2: INCLUDES COMPACTION OF AGGREGATE TO 98% AASHTO T180 MODIFIED PROCTOR.

S-3: 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.

S-4: 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.

S-5: 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.

S-6: ESTIMATED AT 112 LBS PER SQ YD PER 1 INCH THICK.

S-7: 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.

BASE BID - STRUCTURAL VENSEL CREEK

ITEM NO.	SPEC. NO.	DESCRIPTION	PAY ITEM NOTES	UNIT	QUANTITY
67	202(A)	UNCLASSIFIED EXCAVATION	R-1, 1	CY	990
68	501(E)	SELECT BACKFILL	2	CY	260
69	502	TEMPORARY EARTH RETAINAGE	2	LSUM	1
70	504(E)	CONCRETE PARAPET	3,6	LF	36
71	504(F)	HANDRAILING	4,6	LF	87
72	509(A)	CLASS AA CONCRETE	S-12	CY	71
73	510(A)	RETAINING WALL	2,6	SY	77
74	511(A)	REINFORCING STEEL	6	LB	18260
75	511(B)	EPOXY COATED REINFORCING STEEL	6	LB	970
76	514(A)	PILES, FURNISHED (HP 10X42)		LF	640
77	514(B)	PILES, DRIVEN (HP 10X42)		LF	640
78	619(B)	REMOVAL OF BRIDGE ITEMS	5	LSUM	1
79	SPECIAL	CLASS 57 STONE	1,6,8	CY	34

BASE BID - STRUCTURAL 12'X12' PRECAST RCB

ITEM NO.	SPEC. NO.	DESCRIPTION	PAY ITEM NOTES	UNIT	QUANTITY
80	202(A)	UNCLASSIFIED EXCAVATION	R-1, 2	CY	1470
81	501(A)	STRUCTURAL EXCAVATION		CY	231
82	501(E)	SELECT BACKFILL	2	CY	960
83	504(F)	HANDRAILING	4,6	LF	73
84	508	PRECAST REINFORCED CONCRETE BOX (12'X12')	9	LF	64
85	509(A)	CLASS AA CONCRETE	S-12	CY	103
86	510(A)	RETAINING WALL	2,6	SY	100
87	511(A)	REINFORCING STEEL		LB	14380
88	514(A)	PILES, FURNISHED (HP 10X42)		LF	856
89	514(B)	PILES, DRIVEN (HP 10X42)		LF	856
90	514(K)	(PL)PILOT HOLES	7	LF	270
91	514(L)	PILE SPLICE, H-PILE (NON-BIDDABLE)		EA	1
92	SPECIAL	CLASS 57 STONE	1,6,8	CY	494

PAY ITEM NOTES (ROADWAY) (CONT'D)

SURFACING/STRUCTURES CONT.

S-8: A HIGHER GRADE OF ASPHALT BINDER THAN IS INDICATED ON THE PLANS MAY BE USED, BUT AT NO ADDITIONAL COST TO THE CITY.

S-8 (TABLE)

NOTE S5 (50) TABLE

BINDER[2] GRADE	MESALs	ADT[1]	NOTES
PG 64-22 OK	<3	<5,000	USE WHEN MORE THAN 4-6 INCHES BELOW THE SURFACE. ALSO USE FOR SHOULDERS, DRIVEWAYS, BELOW PCC, AND TEMPORARY CONSTRUCTION.
PG 70-28 OK	<10	<10,000	USE ONLY IN THE TOP 4-6 INCHES FOR DRIVING LANES.
PG 76-28 OK	>=10	>=10,000	USE ONLY IN THE TOP 4-6 INCHES FOR DRIVING LANES.
PG 76-28 E	-	-	CONTACT ODOT MATERIALS DIVISION FOR RECOMMENDED USE.

[1]USE ADT ONLY WHEN ESAL COMPUTATIONAL DATA IS NOT AVAILABLE. CALCULATE THE DESIGN ESALs BASED ON 20 YEARS.

[2]PG 70-28 OK OR PG 76-28 OK MAY BE DESIRABLE IN HIGH VOLUME AREAS WHERE SLOW, STANDING, OR TURNING TRAFFIC OCCURS, SUCH AS URBAN INTERSECTIONS OR OFF-RAMPS. OFF RAMPS SHOULD AT LEAST USE THE SAME BINDER AS THE MAINLINE.

S-9: 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.

S-10: NOT USED

S-11: NOT USED

S-12: THE USE OF FLY-ASH IN CONCRETE IS PROHIBITED.

S-13: INCLUDES ALL COST OF SAWED JOINTS AND SEALING OF ALL JOINTS INCLUDING LONGITUDINAL JOINTS.

S-14: NOT USED.

S-15: THIS ITEM SHALL BE MEASURED AT THE ACTUAL AMOUNT OF CURB AND/OR GUTTER INSTALLED. NO PAYMENT WILL BE MADE FOR CURB AND/OR GUTTER THROUGH DRIVEWAYS AND INLETS.

S-16: CURB, GUTTER, AND/OR SIDEWALK ASSOCIATED WITH THE DRIVEWAY AND THROUGH THE DRIVEWAY IS INCLUDED IN THE COST OF THE DRIVEWAY.

S-17: 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 AREAS.

S-18: STAMPED CONCRETE SIDEWALK SHALL BE INSTALLED WITH RUNNING BOND BRICK PATTERN. COLOR SHALL BE INTEGRAL AND MATCH HUE WITH FEDERAL STANDARD AMS-595 # 21105 (RED), OR APPROVED EQUAL. PAINTING OF STAMPED CONCRETE IS PROHIBITED AND WILL RESULT IN REJECTION OF WORK PRODUCT.

S-19: NOT USED

S-20: NOT USED

S-21: 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

S-22 REMOVE AC PAVEMENT ON CONCRETE DRIVEWAYS, APRONS, AND GUTTERS DURING EDGE MILLING AND COLD MILLING OPERATIONS.

S-23 REPLACE AC PAVEMENT IN DRIVEWAY GUTTER AS NEEDED FOR POSITIVE STORMWATER DRAINAGE AND SMOOTH DRIVEWAY TRANSITIONS.

S-100: FABRIC REINFORCEMENT SHALL BE GLASPAVE 50 MAT, OR APPROVED EQUAL.

S-101: PAY ITEM TO INCLUDE COST OF ALL CONCRETE, STEEL, AND ADJACENT SIDEWALK.

S-102: TURF REINFORCEMENT MAT SHALL BE LANDLOK 450 OR APPROVED EQUAL AND SHALL BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS.

REGISTERED PROFESSIONAL ENGINEER SHANNON N. HANKS 21141 OKLAHOMA 6/13/25

Shannon Hanks

BEFORE YOU DIG OKIE 811 CALL OKIE

REVISION	BY	DATE

PAY ITEMS & NOTES (1 OF 2)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

PLAN SCALE: N/A	DRAWN	T.C.B.	01/2025	APPROVED:
	DESIGNED	S.N.H.	01/2025	
	SURVEY	B.B.	10/2017	
PROFILE SCALES:	PROJ. MGR.		6/25	
HORIZONTAL:	LEAD ENGR.		6/25	
N/A	FIELD MGR.			
VERTICAL: N/A	RECOMMENDED: DESIGN MANAGER	HAS	6.25	CITY ENGINEER
DRAWING: PAY ITEMS AND NOTES.DWG			DATE	6/13/2025
ATLAS PAGE NO: 1006,1137			SHEET	2 OF 89

PLOT DATE: May 29, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\PAY ITEMS AND NOTES.DWG

PAY ITEM NOTES (ROADWAY) (CONT'D)

REMOVAL/ADJUSTMENT

R-1: WASTE MATERIAL TO BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE IN A MANNER APPROVED BY THE ENGINEER.

R-2: ALL SAW CUTTING AND REMOVAL SHALL BE INCLUDED IN THE COST OF THE ITEM TO BE ADJUSTED, REMOVED, REPAIRED, OR REPLACED.

R-3: PAY ITEM INCLUDES REMOVAL OF ALL STRUCTURES AND OBSTRUCTIONS WITHIN PROJECT LIMITS NOT SPECIFIED BY OTHER ITEMS OF WORK.

R-4: INCLUDES SAWING NOT INCLUDED IN OTHER ITEMS OF WORK.

R-5: ITEMS TO BE REMOVED MAY OR MAY NOT BE PRESENT IN ANY SPECIFIED CONDITION.

R-6: SHALL INCLUDE ALL COSTS ASSOCIATED WITH PLUGGING/PATCHING HOLES IN EXISTING STRUCTURES TO REMAIN.

GENERAL

G-1: LOCATIONS TO BE DETERMINED IN THE FIELD AND WORK TO BE PERFORMED AT THE DIRECTION OF THE FIELD ENGINEER. QUANTITY IS ESTIMATED AND MAY BE OMITTED IN ITS ENTIRETY.

G-2: MAXIMUM OVERALL DOLLAR AMOUNT AND SCHEDULE OF PAYMENTS SHALL BE IN ACCORDANCE SECTION 641 OF THE OKLAHOMA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, CURRENT EDITION. EXCLUDES MOBILIZATION FOR WATERLINE WORK.

G-3: 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.

G-4: 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.

G-5: 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.

G-6: ALL HOUSE NUMBERS SHALL BE REPLACED/REESTABLISHED THROUGHOUT PROJECT LIMITS. 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. NO NEW CURB OUTLETS SHALL BE CONSTRUCTED WITHOUT APPROVAL OF THE ENGINEER.

G-7: AN INTERNATIONAL SOCIETY OF ARBORICULTURE (ISA) CERTIFIED ARBORIST SHALL OVERSEE ALL PLANTINGS AND/OR REMOVAL OF TREES. CONTACT CITY ARBORIST TO ACCEPT FINAL PLANTINGS. CONTACT # 918-596-2548

G-8: NOT USED.

G-9: CONTRACTOR SHALL COORDINATE WITH HOMEOWNERS TO RESET ALL PAVERS, LANDSCAPE STONE, PRIVATE SIDEWALKS AND FENCES THAT ARE DISTURBED DURING CONSTRUCTION OPERATIONS. ALL MATERIALS, LABOR, AND EQUIPMENT REQUIRED FOR RESETTING OF SUCH ITEMS IS TO BE INCLUDED IN PRICE BID FOR URBAN RIGHT OF WAY RESTORATION.

G-10: PAY ITEM INCLUDES ALL MOWING WITHIN THE RIGHT-OF-WAY AS DIRECTED DURING CONSTRUCTION.

DRAINAGE:

D-1: THIS ITEM SHALL INCLUDE THE COST OF NEW MANHOLE FRAME AND COVER PER CITY OF TULSA STD NOS. 752, 753, 754, 761, 762, 769A, 769B AND 775.

D-2: THE TOTAL COST FOR RUBBERIZED ASPHALT AND/OR SILICONE AT MANHOLES, VALVE BOXES, INLETS, AND INLET APRONS, SHALL BE INCLUDED.

D-3: NO MASONRY STRUCTURES SHALL BE CONSTRUCTED WITHIN THE RIGHT OF WAY.

D-4: ADDITIONAL DEPTH IN A MANHOLE SHALL BE MEASURED FROM 6FT AS MEASURED FROM THE TOP OF RIM TO THE LOWEST FLOWLINE.

D-5: ALL MANHOLES SHALL BE COMPLETE IN PLACE. THIS PAY ITEM INCLUDES FRAME, COVER, CONCRETE AND ALL OTHER INCIDENTALS REQUIRED FOR PLACEMENT.

D-6: 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.

D-7: 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, AND THE PC CONCRETE INLET APRON SHALL BE INCLUDED. GRATE AND FLOWLINE ELEVATIONS SHALL MATCH EXISTING CONDITIONS UNLESS OTHERWISE NOTED IN THE PLANS.

D-8: QUICKSET FLOWABLE FILL SHALL BE USED TO BACKFILL AROUND STREET CURB INLETS AND REINFORCED CONCRETE PIPE, AS NEEDED, AT THE DIRECTION OF THE ENGINEER.

D-9: ALL INLETS, COMPLETE IN PLACE, SHALL BE CAST IN PLACE CONCRETE OR PRECAST CONCRETE. THIS PAY ITEM INCLUDES ANY INLET FRAME(S), GRATE(S), HOOD(S) AND CONCRETE REQUIRED FOR COMPLETE INSTALLATION OF STRUCTURE PER THE CONSTRUCTION DOCUMENTS.

D-10: ADDITIONAL DEPTH QUANTITIES SHALL BE MEASURED AND PAID FOR ALL INLETS EXCEEDING STANDARD DEPTH. STANDARD DEPTHS ARE AS FOLLOWS:

A) CAST IRON CURB INLET: 3.71 VF, MEASURED FROM CENTER ELEVATION OF LOWEST CAST IRON CURB TO FLOWLINE OF OUTLET PIPE.

B) RECESSED CURB INLET: 3.00 VF, MEASURED FROM TOP OF SLAB TO FLOWLINE OF OUTLET PIPE.

C) STANDARD DROP INLET: SEE STANDARD DETAILS 770, 771, 772 AND 773 – VARIES BASED ON PIPE SIZE, MEASURED FROM LOWEST ELEVATION OF INFLOW APRON TO FLOWLINE OF OUTLET PIPE.

PAY ITEM NOTES (ROADWAY) (CONT'D)

DRAINAGE CONT.

D-11: CAST IRON CURB INLET CONFIGURATION NAMING CONVENTION PROVIDED IN COT STANDARD NO. 755. SEPARATE DETAILS SHALL BE REFERENCED OR PROVIDED IN THE PLANS FOR NON-CITY-STANDARD INLETS.

STANDARD NAMING: CICI DES G(T) [W/AMH]

G: NUMBER OF GRATES.

T: LETTER(S) CORRESPONDING TO ARRANGEMENT OF CAST IRON HOODS TO BE INSTALLED UPSTREAM OF GRATES. W/AMH: IF SHOWN, INLET TO BE CONSTRUCTED WITH ATTACHED ACCESS MANHOLE.

D-12: 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.

D-13: 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. PRIOR TO ACCEPTANCE, INTERIOR OF PIPE SHALL BE INSPECTED FOR DEFECTS USING SELF-PROPELLED MOBILE CLOSED-CIRCUIT CAMERA SYSTEM.

D-14: WHERE CORRUGATED POLYPROPYLENE PIPE CONNECTS TO REINFORCED CONCRETE STRUCTURES, CONTRACTOR SHALL ENSURE CONNECTIONS ARE WATER-TIGHT AND FULLY SEALED AGAINST SOIL INFILTRATION.

D-15: WHERE QUICKSET FLOWABLE FILL IS USED TO BACKFILL AROUND CORRUGATED POLYPROPYLENE PIPE, THE CONTRACTOR SHALL UTILIZE AN ANCHORING SYSTEM APPROVED BY THE ENGINEER PRIOR TO INSTALLATION. ALL COSTS FOR LABOR, EQUIPMENT AND MATERIALS REQUIRED TO IMPLEMENT APPROVED ANCHORING SYSTEM INCLUDED IN PRICE BID FOR CORRUGATED POLYPROPYLENE PIPE.

TRAFFIC

T-1: NOT USED.

T-2: REFLECTORIZED SHEETING ON SIGNS AND BARRICADES SHALL BE 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.

T-3: ALL PLASTIC PAVEMENT MARKINGS SHALL BE EITHER:

EXTRUDED-APPLIED THERMOPLASTIC (USE ON ASPHALT PAVEMENT). THERMOPLASTIC PAVEMENT MARKINGS SHALL ONLY BE APPLIED WHEN THE SURFACE TEMPERATURE EXCEEDS 55°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 KIND FOR POST CONSTRUCTION LANE MARKING/SEPARATION. MECHANICALLY APPLIED PREFORMED PLASTIC TAPE ("COLD TAPE") WILL NOT BE ACCEPTED.

T-4: PAYMENT SHALL BE MADE ON A SIGN-DAY BASIS ONLY FOR TRAFFIC CONTROL DEVICES THAT ARE PROPERLY INSTALLED AND IN GOOD WORKING ORDER. COSTS FOR DELIVERY, INSTALLATION, RELOCATION, MAINTENANCE REMOVAL AND REPLACEMENT, AS NEEDED AT THE DISCRETION OF THE ENGINEER, INCLUDED IN UNIT PRICE BID.

T-5: 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.

T-6: THE PAY ITEM FOR FLAGGER SHALL BE PAID FOR ON A FLAG DAY (F.D.) BASIS. ONE F.D. IS ONE COMPLETE WORKDAY PERFORMED BY THE CONTRACTOR AS SET FORTH IN THE CONTRACT DOCUMENTS AND SPECIFICATIONS.

T-7: PRICE BID FOR THIS ITEM INCLUDES INSTALLATION, MAINTENANCE AND SUBSEQUENT REMOVAL OF PROJECT SIGN.

T-8: PRICE BID TO INCLUDE DELIVERY, REMOVAL, AND ALL NECESSARY RELOCATIONS.

T-100: CONTRACTOR IS RESPONSIBLE FOR LAYOUT COMPLIANCE WITH MUTCD, MAINTENANCE, AND REMOVAL.

PAY ITEM NOTES (STRUCTURAL)

1: SEE RCB GENERAL NOTES ON "RCB DETAILS (SHEET 1 OF 2)" AND RETAINING WALL GENERAL NOTES ON "RETAINING WALL DETAILS (SHEET 1 OF 3)".

2: SEE RETAINING WALL GENERAL NOTES ON "RETAINING WALL DETAILS (SHEET 1 OF 3)".

3: SEE CONCRETE PARAPET GENERAL NOTES ON "CONCRETE PARAPET DETAILS (SHEET 1 OF 2)".

4: SEE PIPE RAIL GENERAL NOTES ON "PIPE RAIL DETAILS" SHEET.

5: SEE RCB GENERAL NOTES ON "RCB DETAILS (SHEET 1 OF 2)".

6: PAYMENT FOR THIS ITEM WILL BE BASED ON THE PLAN QUANTITIES ONLY. SEE SECTION 109.01.B OF THE 2019 ODOT STANDARD SPECIFICATIONS.

7: PAYMENT FOR THIS ITEM WILL BE BASED ON INSTALLED QUANTITIES. SEE "DETAIL OF PILOT HOLES" ON SHEET 67.

8: PAY ITEM TO INCLUDE THE COST FOR SEPARATION TEXTILE.

PAY ITEM NOTES (STRUCTURAL) (CONT'D)

9: PROVIDE AND INSTALL PRECAST REINFORCED CONCRETE BOX (RCB) IN ACCORDANCE WITH SECTION 508 OF THE 2019 OKLAHOMA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION. PROVIDE PRECAST SINGLE CELL RCB WITH A MINIMUM SPAN OF 12 FEET AND A MAXIMUM HEIGHT OF 12 FEET (MAINTAIN 144.0 S.F. HYDRAULIC OPENING). SELECT A PRECAST RCB SUPPLIER APPROVED BY THE BRIDGE ENGINEER. PROVIDE ALL CONTACT AND COORDINATION WITH THE SELECTED SUPPLIER ON THE CITY'S BEHALF.

FURNISH RCB DESIGN IN ACCORDANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 8TH EDITION PREPARED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF OKLAHOMA. SUBMIT DESIGN CALCULATIONS AND WORKING DRAWINGS TO THE BRIDGE ENGINEER FOR APPROVAL. DO NOT BEGIN FABRICATION UNTIL APPROVAL BY THE ENGINEER IS RECEIVED. SUPPLIER SHALL PROVIDE AN HL-93 OPERATING RATING FACTOR OF THE SELECTED RCB GREATER THAN 1.00 AND SHOW IT ON THE WORKING DRAWINGS.

ENSURE THE CURTAIN WALL, APRON, AND HEADWALLS DETAILED IN THE PLANS CONFORMS AND CONNECTS TO THE SELECTED RCB, INCLUDING ANY FIELD VERIFICATION AND/OR SURVEYING/STAKING. ADJUST RETAINING WALL AND PILE FOUNDATION LOCATION TO MAINTAIN 1 1/2" CLEARANCE BETWEEN SELECTED RCB AND RETAINING WALLS. PROVIDE WRITTEN SUMMARY TO THE ENGINEER OF ALL PROPOSED ADJUSTMENTS NECESSARY TO PROVIDE PROPER FIT. DO NOT BEGIN RETAINING WALL, CURTAIN WALL, HEADWALL AND APRON CONSTRUCTION UNTIL APPROVAL BY THE ENGINEER IS RECEIVED. PERFORM ALL MODIFICATIONS TO THE RCB, RETAINING WALL, CURTAIN WALL, HEADWALL AND APRON AT NO ADDITIONAL COST TO THE CITY. PRECAST END SECTION ELEMENTS, INCLUDING CURTAIN WALLS, HEADWALLS, WINGWALLS, AND APRON, MAY BE SUBSTITUTED FOR THE CAST-IN-PLACE SECTIONS DETAILED IN THE PLANS.

INCLUDE ALL COST OF FABRICATION, DELIVERY, ERECTION, ENGINEERING SERVICES AND DESIGN, MATERIALS, EQUIPMENT, AND ANY OTHER INCIDENTALS REQUIRED TO COMPLETE THE WORK IN THE CONTRACT UNIT PRICE OF "PRECAST REINFORCED CONCRETE BOX (12'X12')".

REGISTERED PROFESSIONAL ENGINEER SHANNON N. HANKS 21141 OKLAHOMA — 5-29-25

BEFORE YOU DIG 811 CALL OKIE

PAY ITEMS & NOTES (2 OF 2)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

REVISION	BY	DATE

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

DRAWN	T.C.B.	01/2025
DESIGNED	S.N.H.	01/2025
SURVEY	B.B.	10/2017
PROJ. MGR.		6/25
LEAD ENGR.		5/25
FIELD MGR.		
RECOMMENDED: DESIGN MANAGER	HAS 6-25	

APPROVED: CITY ENGINEER

DRAWING: PAY ITEMS AND NOTES.DWG
ATLAS PAGE NO: 1006,1137

DATE 6/13/2025
SHEET 3 OF 89

PLOT DATE: May 29, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\PAY ITEMS AND NOTES.DWG

PLOT DATE: February 13, 2025. DRAWING FILE: N:\TULSA\TULSA PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\PAY ITEMS & NOTES (WATERLINE) (2 OF 2).DWG

BASE BID - WATERLINE

ITEM NO.	SPEC. NO.	DESCRIPTION	PAY ITEM NOTES	UNIT	QUANTITY
100	301	RIGHT-OF-WAY CLEARING AND RESTORING, COMPLETE IN PLACE	4,5,6,7,22	SY	458
101	302	EXCAVATION AND BACKFILL, UNCLASSIFIED	14	CY	1,209
102	303	MOBILIZATION	-	EA	1
103	304	CONSTRUCTION STAKING	-	EA	1
104	307	8 INCH DIP, CL50 POLYETHYLENE WRAPPED (RJ)	1,2,3,8,9,11	LF	83
105	307	12 INCH DIP, CL50 POLYETHYLENE WRAPPED (RJ)	1,2,3,8,9,11,27	LF	450
106	307	36 INCH DIP, CL51 POLYETHYLENE WRAPPED (RJ)	1,2,3,8,9,11,27	LF	471
107	312	8 INCH X 8 INCH DUCTILE IRON TEE (RJ)	-	EA	1
108	312	12 INCH X 8 INCH DUCTILE IRON TEE (RJ)	-	EA	1
109	312	36 INCH X 12 INCH DUCTILE IRON TEE (RJ)	-	EA	1
110	312	12 INCH DUCTILE IRON SLEEVE (RJ)	2,8,12	EA	4
111	312	36 INCH DUCTILE IRON SLEEVE (RJ)	2,8,12	EA	6
112	312	8 INCH DUCTILE IRON 45 DEGREE BEND (RJ)	2,7	EA	4
113	312	12 INCH DUCTILE IRON 90 DEGREE BEND (RJ)	2,7	EA	1
114	312	12 INCH DUCTILE IRON 45 DEGREE BEND (RJ)	2,8	EA	4
115	312	12 INCH DUCTILE IRON 22.5 DEGREE BEND (RJ)	2,9	EA	6
116	312	36 INCH DUCTILE IRON 22.5 DEGREE BEND (RJ)	2,8	EA	9
117	317	8" GATE VALVE (RJ)	8	EA	2
118	317	12" GATE VALVE (RJ)	8	EA	1
119	317	12" GATE VALVE (RJ) W/ VAULT A (STA. 17+75)	7	EA	1
120	317	36" GATE VALVE (RJ) W/ VAULT B (STA. 18+11)	8	EA	1
121	317	36" GATE VALVE (RJ) W/ VAULT C (STA. 32+00)	8	EA	1
122	318	VALVE BOX	21	EA	3
123	318	VALVE BOX EXTENSION	21	EA	3
124	325	SODDING AND SEEDING	23	SY	458
125	326	STREET WASH DOWN	-	LF	180
126	327	TRAFFIC CONTROL DEVICES (TYPE II BARRICADE)	-	SD	600
127	327	TRAFFIC CONTROL DEVICES (TYPE III BARRICADE)	-	SD	3,000
128	327	TRAFFIC CONTROL DEVICES (DRUMS)	-	SD	2,000
129	327	TRAFFIC CONTROL DEVICES (SIGNS 0.00 TO 6.25 SF)	-	SD	1,000
130	327	TRAFFIC CONTROL DEVICES (SIGNS 6.26 TO 15.99 SF)	-	SD	1,000
131	327	TRAFFIC CONTROL DEVICES (SIGNS 16.00 SF AND UP)	-	SD	1,000
132	327	TRAFFIC CONTROL DEVICES (TYPE "A" WARNING LIGHT)	-	SD	3,800
133	327	TRAFFIC CONTROL DEVICES (TYPE "C" WARNING LIGHT)	-	SD	3,000
134	327	TRAFFIC CONTROL DEVICES (SAFETY FENCE)	-	LF	1,000
135	327	TRAFFIC CONTROL DEVICES (FLAGGER)	-	MD	90
136	332	CONDUIT OPEN CUT 24 INCH	-	LF	106
137	332	CONDUIT OPEN CUT 54 INCH	-	LF	104
138	SPECIAL	OWNER ALLOWANCE	18	ALLOW	1
139	SPECIAL	CONSTRUCTION AS-BUILT	24,25,27	EA	1

GENERAL NOTE

ITEMS LISTED OR SHOWN ON DRAWINGS AND/ OR DESCRIBED IN THE SPECIFICATIONS THAT ARE NOT INCLUDED AS A SEPARATE PAY ITEM QUANTITY SHALL BE CONSIDERED INCIDENTAL AND THE COST SHALL BE INCLUDED IN THE PRICE BID FOR OTHER ITEMS. THE PRICE BID FOR ALL WORK SHALL INCLUDE ALL MATERIALS, EQUIPMENT, LABOR, INCIDENTALS, AND ALL OTHER REQUIRED ITEMS TO COMPLETE THE WORK AS SHOWN ON PLANS AND SPECIFICATIONS

PAY ITEM NOTES (WATERLINE) (VERSION 4-21-23)

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 INSURE 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 RESTORING. 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, STAR STARGRIP, 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 GASKETS 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.

PAY ITEM NOTES (WATERLINE) (CONT'D.)

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 PIPE. 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. NOT USED.
14. CONTRACTOR IS REMINDED TO BACKFILL ALL TRENCHES EXCAVATED ACROSS ANY EXISTING OR PROPOSED DRIVING OR PARKING SURFACE WITH 1½ -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. NOT USED.
16. NOT USED.
17. NOT USED.
18. THE "OWNER ALLOWANCE" CAN BE USED 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, INSTALLATION 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.C256
    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.C256
    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. NOT USED.
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. THE CONTRACTOR SHALL RESTORE ALL DISTURBED GRASS AREAS TO A CONDITION EQUAL TO OR BETTER THAN THE EXISTING CONDITION. THE CONTRACTOR SHALL REPLACE THE SOD TO MATCH IN-KIND AND QUALITY. 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. PAY ITEM INCLUDES ALL MOWING WITHIN THE RIGHT-OF-WAY AS DIRECTED DURING CONSTRUCTION.
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 (NORTHING, EASTING) AND ELEVATION PER PLAN SURVEY CONTROL DATUM.
25. SPOT ELEVATIONS ON WATER METER CANS, VAULTS, SHALL BE SHOWN WITH THE PROPER DESCRIPTION (METER TYPE, METER SIZE, METER NUMBER, SERVICE MATERIAL, SERVICE SIZE), STATION, OFFSET (NORTHING, EASTING) AND ELEVATION PER PLAN SURVEY CONTROL DATUM. UPON DISCOVERY OF A LEAD SERVICE, NOTIFICATION SHALL BE MADE TO WATER DISTRIBUTION AND WORK SHALL CEASE UNTIL RELEASED AT WHICH TIME ANY AND ALL SERVICE LINES LOCATED THAT ARE LEAD OR GALVANIZED ARE TO BE REPLACED WITH APPROVED MATERIALS.
26. NOT USED.
27. PRESSURE TESTING AND CHLORINATION OF WATER MAINS SHALL NOT BE PERFORMED UNTIL THE CITY INSPECTOR HAS RECEIVED REQUIRED CONSTRUCTION AS-BUILT RECORDS.
28. NOT USED.
29. NOT USED.
30. AGG BASE AND SUBGRADE, PER CITY STANDARD SPECIFICATIONS AND STANDARD DETAILS 701 - 702, SHALL BE PAID UNDER EXCAVATION AND BACKFILL.
31. AGG BASE AND SUBGRADE, PER CITY STANDARD SPECIFICATIONS AND STANDARD DETAILS 703 - 704, SHALL BE PAID UNDER EXCAVATION AND BACKFILL.

WATER CONSTRUCTION NOTES (VERSION 4-21-23)

1. THE CITY OF TULSA FIELD ENGINEERING DEPARTMENT SHALL INSPECT ALL TRENCHING, BEDDING, PIPE INSTALLATION, BACKFILL AND COMPACTION.
2. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH CURRENT STANDARD SPECIFICATIONS AND STANDARD DETAILS, CITY OF TULSA ENGINEERING SERVICES DEPARTMENT.
3. 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 STANDARD SPECIFICATIONS AND STANDARD DETAILS.
4. MINIMUM COVER OVER WATER LINES SHALL BE AS NOTED ON PLANS.
5. CONTRACTOR SHALL REPLACE EXISTING GRASS WITH SEED/SOD OF SAME TYPE AND VARIETY OR AS NOTED ON PLANS.

WATER CONSTRUCTION NOTES (VERSION 1-30-19)

6. CONTRACTOR SHALL BORE EXISTING TREES UNDER DRIP LINE, UNLESS DIRECTED OTHERWISE BY ENGINEER.
7. CONTRACTOR SHALL BORE EXISTING DRIVEWAYS, UNLESS DIRECTED OTHERWISE BY ENGINEER.
8. WATER OPERATIONS SHALL OPERATE ALL VALVES ON TRANSMISSION MAINS (16" AND LARGER). CONTRACTOR SHALL OPERATE ALL VALVES ON DISTRIBUTION MAINS (SMALLER THAN 16") WITH THE COORDINATION OF FIELD ENGINEERING AND WATER OPERATIONS AND IN THE PRESENCE OF A FIELD ENGINEERING INSPECTOR.
   a. ATTEMPTS WILL BE MADE WITH ASSISTANCE FROM THE CONTRACTOR TO NOTIFY ALL AFFECTED CUSTOMERS 48-HOURS IN ADVANCE, PARTICULARLY IF COMMERCIAL OR INDUSTRIAL CUSTOMERS ARE INVOLVED. PRIOR TO SHUTDOWN, FIELD ENGINEERING WILL NOTIFY WATER OPERATIONS, AT 918-596-9488, GIVING AN ESTIMATED DOWNTIME. WATER OPERATIONS WILL NOTIFY THE FIRE DEPARTMENT OF ALL FIRE HYDRANTS OUT OF SERVICE AND WHEN THEY ARE BACK IN SERVICE, BY STREET ADDRESS OR INTERSECTION.
   b. WHERE COMMERCIAL, INDUSTRIAL, OR CRITICAL CUSTOMERS ARE AFFECTED, AND FOR ALL LINES 16-INCH AND LARGER IN SIZE, FIELD ENGINEERING WILL REQUEST WATER OPERATIONS TO SHUT DOWN THE MAIN. THERE WILL BE A MINIMUM OF 48-HOUR NOTICE TO WATER OPERATIONS.
9. CONTRACTOR SHALL PROVIDE AT LEAST 48 HOUR NOTICE TO ALL RESIDENTS OR BUSINESSES AFFECTED BEFORE TURNING OFF ANY WATER. CONTRACTOR SHALL BE RESPONSIBLE FOR PLACING DOOR HANGERS ON AFFECTED HOMES AND BUSINESSES.
10. CONTRACTOR SHALL GIVE THE NOTIFICATION CENTER OF THE OKLAHOMA ONE-CALL SYSTEM, INC. NOTICE OF ANY EXCAVATION NO SOONER THAN 48 HOURS OR LATER THAN 10 DAYS, EXCLUDING SATURDAYS, SUNDAYS, LEGAL HOLIDAYS PRIOR TO COMMENCEMENT OF WORK, PHONE 1-800-522-6543.
11. 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.
12. ANY DAMAGE CAUSED BY CONTRACTOR TO ADJACENT TRAFFIC SIGNAL INFRASTRUCTURE SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE TRAFFIC ENGINEER.
13. PRIOR TO PAVEMENT SAWING AND EXCAVATION NEAR SIGNALIZED INTERSECTION, CONTRACTOR SHALL CONTACT ENGINEERING SERVICES, TRAFFIC OPERATIONS, 918-596-9766, FOR SITE SPECIFIC, UNDERGROUND TRAFFIC UTILITY LOCATES.
14. CONSTRUCTION FOR ALL ENGINEERING SERVICES 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).
15. ALL EXCAVATED MATERIAL NOT REQUIRED IN OTHER AREAS OF 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 SHALL BE REQUIRED TO OBTAIN AN EARTH CHANGE PERMIT IF ANY EXCESS MATERIAL IS TO BE DISPOSED OF WITHIN THE CITY LIMITS OF TULSA.
16. ANY CHANGES FROM APPROVED PLANS SHALL BE SUBMITTED TO THE CITY OF TULSA FOR WRITTEN APPROVAL PRIOR TO INSTALLATION.
17. SEPARATION OF WATER MAINS FROM CONTAMINATION SOURCES SHALL BE OUTLINED IN OAC 252:626-19-2(H) FOR ALL KNOWN AND UNKNOWN UTILITIES ENCOUNTERED DURING CONSTRUCTION.

SUMMARY OF FITTINGS AND OTHER APPURTENANCES

SHEET	DESCRIPTION	STATION	OFFSET	INVERT
50	36" SOLID SLEEVE	17+27.19	25.92' LT	640.45
	36" 22 1/2° BEND	17+83.05	25.23' LT	640.97
	36" 22 1/2° BEND	18+04.86	34.16' LT	634.51
	36" GATE VALVE	18+11.33	36.94' LT	634.51
	36" 22 1/2° BEND	18+20.34	40.68' LT	634.51
	36" 22 1/2° BEND	19+26.00	40.50' LT	634.51
	36" 22 1/2° BEND	19+61.94	25.61' LT	645.17
	36" SOLID SLEEVE	20+11.94	25.78' LT	647.27
51	12" SOLID SLEEVE	17+43.91	39.40' LT	644.66
	12" 22 1/2° BEND	17+66.73	39.23' LT	641.74
	12" GATE VALVE	17+75.82	39.28' LT	641.74
	12" 22 1/2° BEND	17+94.60	39.22' LT	641.74
	12" 22 1/2° BEND	18+07.79	44.68' LT	639.01
	12" 22 1/2° BEND	18+20.97	44.66' LT	636.50
	12" 22 1/2° BEND	19+38.55	44.50' LT	636.50
	12" 22 1/2° BEND	19+57.40	39.00' LT	642.92
	12" SOLID SLEEVE	19+82.17	39.23' LT	645.18
52	36" SOLID SLEEVE	27+31.32	28.51' LT	660.12
	36"X12" TEE	27+41.33	28.55'LT	659.04
	36" 22 1/2° BEND	27+48.81	28.58' LT	658.18
	36" 22 1/2° BEND	27+83.24	18.86' LT	643.07
	36" 22 1/2° BEND	28+58.16	18.86' LT	643.07
	36" 22 1/2° BEND	28+81.36	28.07' LT	652.27
	36" SOLID SLEEVE	28+96.65	27.65' LT	652.93
	12" SOLID SLEEVE	27+56.40	41.12' LT	661.73
	12" 45 BEND	27+68.40	41.11' LT	660.12
	12" 45 BEND	27+82.62	45.00' LT	645.30
	12" 45 BEND	28+62.62	45.00' LT	645.30
	12" 45 BEND	28+74.12	41.00' LT	657.35
	12" GATE VALVE	28+80.43	41.00' LT	658.15
	12" SOLID SLEEVE	28+86.54	41.00' LT	659.02

SUMMARY OF FITTINGS AND OTHER APPURTENANCES

SHEET	DESCRIPTION	STATION	OFFSET	INVERT
53	8"X12" TEE	30+20.10	41.20' LT	665.35
	8" GATE VALVE	30+20.11	41.20' LT	666.35
	8" 45° BEND	30+20.11	32.16' LT	665.39
	8" 45° BEND	30+20.12	27.83' LT	661.15
	8" 45° BEND	30+20.13	23.82' RT	661.15
	8" 45° BEND	30+20.14	29.10' RT	666.36
	8" GATE VALVE	30+20.14	41.67' RT	665.52
	8"X8" TEE	30+20.15	41.67' RT	666.52
	36" SOLID SLEEVE	31+89.75	21.09' LT	670.78
	36" GATE VALVE	32+00.00	20.88' LT	670.78
	36" SOLID SLEEVE	32+09.75	20.66' LT	670.78

REGISTERED PROFESSIONAL ENGINEER
JASON A. COLTRANE
27695
2.13.25
OKLAHOMA

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

PAY ITEMS & NOTES (WATERLINE)

PROJECT NO. 144213

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

REVISION	BY	DATE
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PLAN SCALE: N/A	DRAWN	T.C.B.	05/2021
	DESIGNED	S.N.H.	05/2021
	SURVEY	B.B.	10/2017
PROFILE SCALES:	PROJ. MGR.	[signature]	2/25
HORIZONTAL: N/A	LEAD ENGR.	[signature]	2/25
	FIELD MGR.		
VERTICAL N/A	RECOMMENDED: [signature] DESIGN MANAGER		

APPROVED: [signature] CITY ENGINEER

DRAWING: PAY ITEMS & NOTES (WATERLINE) (2 OF 2)

DATE 6/13/2025

ATLAS PAGE NO: 1006,1137

SHEET 4 OF 89

PROJECT NO. 144213, TMUA-W 22-90

GENERAL CONSTRUCTION NOTES (VERSION 9-12-16)

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE 2019 OKLAHOMA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION AND THE CURRENT CITY OF TULSA ENGINEERING SERVICES DEPARTMENT'S STANDARD SPECIFICATIONS AND STANDARD DETAILS 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 WORK.

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 REQUIREMENTS OF COT SPECIFICATION 608 TRAFFIC SIGNS. ALL TRAFFIC MATERIALS REMOVED SHALL BE HANDLED PER COT SPECIFICATION 625 REMOVAL OF TRAFFIC ITEMS.

13. THE CONTRACTOR WILL BE RESPONSIBLE FOR PREPARATION AND DISTRIBUTION OF A WRITTEN NOTICE TO RESIDENTS 48 HOURS PRIOR TO 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. ALL DISTURBED ITEMS SHALL BE REPAIRED TO MATCH EXISTING MATERIALS AND PATTERNING.

21. IF THE CONTRACTOR ENCOUNTERS VOIDS WHEN PATCHING STREETS, THE CONTRACTOR SHALL CALL FIELD ENGINEERING AT 918–596–7814 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. CURB 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 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.

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 VERIFIED 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 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 CONSTRUCTION WILL NOT BE ALLOWED.

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 DICOLORATION SUCH AS ASPHALT STAIN, TIRE MARKS, OR OTHER DISFIGUREMENT.

40. ALL FEATURES OF THIS PROJECT INCLUDING, BUT NOT LIMITED TO, SIDEWALKS, CURB RAMPS, AND CROSSWALKS SHALL COMPLY WITH THE AMERICANS WITH DISABILITIES ACT, ACCESSIBILITY GUIDELINES, AND THE PROPOSED ACCESSIBILITY GUIDELINES FOR PEDESTRIAN FACILITIES IN THE PUBLIC RIGHT–OF–WAY, AND Following the Current Version BY THE U.S. ACCESS BOARD. WHERE SPATIAL LIMITATIONS OR EXISTING FEATURES WITHIN THE LIMITS OF THE PROJECT PREVENT FULL COMPLIANCE WITH THIS ACT, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER UPON DISCOVERY OF SUCH FEATURES. THE CONTACTOR SHALL NOT PROCEED WITH ANY ASPECT OF THE WORK, WHICH IS NOT IN FULL COMPLIANCE WITH THE ADA WITHOUR PRIOR WRITTEN APPROVAL FROM THE ENGINEER. ANY WORK WHICH IS NOT PERFORMED WITHIN THE GUIDELINES OF THE ADA, FOR WHICH THE CONTRACTOR DOES NOT HAVE WRITTEN APPROVAL, SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.

41. ALL TRENCH WIDTHS & BEDDING MATERIAL SHALL BE AS SHOWN ON COT STANDARD PIPE BEDDING DETAIL, STANDARD NO. 751. SPECIFIED TRENCH WIDTHS SHALL BE MAINTAINED FULL DEPTH FROM THE FLOWLINE TO THE GRADING TEMPLATE. THE CONTRACTOR SHALL KEEP THE OPEN TRENCH DRAINED.

42. THE CONTRACTOR SHALL NOTIFY THE METROPOLITAN TULSA TRANSIT AUTHORITY (MTTA), ERIC SMITH 918–830–0024, A MINIMUM OF 48 HOURS PRIOR TO COMMENCING WORK, LANE CLOSURES OR PRIOR TO DETOURING TRAFFIC.

43. CONTRACTOR SHALL NOT STORE EQUIPMENT OR MATERIALS IN THE FLOODPLAIN.

COT STANDARD DRAWINGS:

102. PROJECT SIGN
126. STANDARD SILT FENCE AND CONSTRUCTION ENTRANCE
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
322. LOCATOR BALL PLACEMENT
329. STANDARD 12" BLOWOFF ASSEMBLY
361. STANDARD DETAIL FOR IN–LINE TEES FOR SERVICE CONNECTION
362. RISER DETAIL
401. MANHOLE GRADE ADJUSTMENT
405. RUBBER SEAL AT MANHOLE
408. EXCAVATION AND RESTORATION AT GRADE AND ABOVE GRADE CONSTRUCTION
409. CONCRETE MANHOLE COLLAR
141. MANHOLE ADJUSTING RING
501. STANDARD METER SETTINGS FOR 5/8" X 3/4" WATER SERVICE
501A. STANDARD METER SETTINGS FOR 5/8" X 3/4" WATER SERVICE, AQUA PEX BLUE
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
701. RESIDENTIAL CONCRETE DRIVEWAY CONCRETE STREET
706. COMMERCIAL DRIVEWAY
707. COMMERCIAL DRIVEWAY
713. STANDARD DETAIL FOR PAVEMENT REMOVAL AND REPLACEMENT
714. STANDARD DETAIL FOR PAVEMENT CUTS
730. STANDARD ASPHALT PAVEMENT CUT AND REPAIR
751. STANDARD PIPE BEDDING DETAIL FOR STORM SEWER
752. STANDARD DETAIL FRAME AND LID FOR 1' I.D. STORMWATER MANHOLE
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
758. RESIDENTIAL STORM WATER CURB OPENING
764. STANDARD REINFORCED CONCRETE STORMWATER INLETS
765. STANDARD STORMWATER FRAMES
766. STANDARD STORMWATER GRATES
775. STANDARD PRECAST STORMWATER MANHOLE
790. STANDARD SIDEWALK RAMP

ODOT STANDARD DRAWINGS:

ROADWAY	TRAFFIC	BRIDGE
TRFD–0	TCS1–1–01	RCB–C2–12(2–12)–01E
LECS–5–2	TCS2–1–00	RCB–E1–H12–0–1–01E
SMD–4–2	TCS3–1–01	RCB–E1–H12–0–2–01E
PSE–2–1	TCS4–1–01	
	TCS5–1–00	
	TCS6–1–02	
	TCS7–1–02	
	TCS24–1–02	

REGISTERED PROFESSIONAL ENGINEER — SHANNON N. HANKS — 21141 — OKLAHOMA — 5-7-25

BEFORE YOU DIG OKLAHOMA — 811 — CALL OKIE

GENERAL CONSTRUCTION NOTES

PROJECT NO. 144213
TMUA–W 22–90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
1300 S. Main Street Tulsa, OK 74119
(918) 663–9401

REVISION	BY	DATE

PLAN SCALE: N/A	DRAWN	T.C.B.	01/2025
	DESIGNED	S.N.H.	01/2025
	SURVEY	T.B.	10/2017
PROFILE SCALES:	PROJ. MGR.		6/25
HORIZONTAL: N/A	LEAD ENGR.		5/25
	FIELD MGR.		
VERTICAL N/A	RECOMMENDED: DESIGN MANAGER	HAS 6-25	

APPROVED: CITY ENGINEER

DRAWING: PAY ITEMS AND NOTES.DWG — DATE 4/13/2025
ATLAS PAGE NO: 1006,1137 — SHEET 5 OF 89

PLOT DATE: May 28, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD – 91ST – HARVARD TO YALE\PROJECT DRAWINGS\PAY ITEMS AND NOTES.DWG

SUMMARY OF CONSTRUCTION QUANTITIES					ROADWAY PLAN SHEET NUMBER										
					91st St.										
ITEM NO.	ODOT SPEC NO.	DESCRIPTION	UNIT	TOTAL	1	2	3	4	5	6	7	8	9	10	11
1	201(A)	CLEARING AND GRUBBING	AC	2											
2	202(A)	UNCLASSIFIED EXCAVATION	CY	4888	78	193	53	33	2275	1154	88	80	258	571	105
3	221	TEMPORARY EROSION CONTROL	LS	1											
4	227	TURF REINFORCEMENT MAT	SY	273				40	233						
5	230(A)	SOLID SLAB SODDING	SY	2266	67	230	254	525	464	254	0	130	32	255	55
6	303(A)	AGGREGATE BASE TYPE A	CY	2863	37	50	73	670	903	699	88	59	75	182	27
7	310(B)	SUBGRADE METHOD B	SY	9021	111	151	226	2146	2981	2112	264	178	224	546	82
8	325	SEPARATOR FABRIC	SY	11391	166	341	267	2519	3396	2539	465	238	354	935	171
9	409	FABRIC REINFORCEMENT	SY	15188	781	1675	1430			829	2049	2422	2578	3023	401
10	411(B)	SUPERPAVE, TYPE S3 (PG 64-22 OK)	TON	2680			88	781	1042	769	0	0	0		
11	411(C)	SUPERPAVE, TYPE S4 (PG 70-28 OK)	TON	2364	87	188	182	192	258	284	229	271	289	339	45
12	411(D)	SUPERPAVE, TYPE S6 (PG 70-28 OK)	TON	850	44	94	80			46	115	136	144	169	22
13	412	COLD MILL PAVEMENT	SY	15188	781	1675	1430			829	2049	2422	2578	3023	401
14	601(A)	TYPE I PLAIN RIPRAP	TON	1250		166		1084							
15	601(I)	FILTER FABRIC (RIPRAP)	SY	1335		215		1120							
16	609(B)	COMBINED CURB AND GUTTER (8" BARRIER)	LF	450					24	263	0	0	0	109	54
17	609(C)	HEADER CURB AND SIDEWALK (LESS THAN 18")	LF	51						51					
18	609(C)	HEADER CURB AND SIDEWALK (18" TO 28")	LF	53						53					
19	610(A)	4" CONCRETE SIDEWALK	SY	1680	130	302	168	300	239	172		107	43	188	31
20	610(A)	6" CONCRETE SIDEWALK	SY	134			134								
21	610(A)	4" STAMPED CONCRETE SIDEWALK	SY	34					4	30					
22	610(B)	CONCRETE DRIVEWAY (6" H.E.S.)	SY	627				185	442						
23	610(I)	TACTILE WARNING DEVICE	SF	90					20	10		10	30	20	
24	611(A)	MANHOLE (4' DIA.)	EA	3				1	2						
25	611(G)	INLET CICI DES. 4 (D), COMPLETE IN PLACE	EA	1					1						
26	611(G)	SMD INLET W/ TYPE 1 GRATE	EA	1					1						
27	612(A)	MANHOLE ADJUSTED TO GRADE (PUBLIC)	EA	5									3	2	
28	619(A)	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	LSUM	1											
29	619(B)	REMOVAL OF ASPHALT PAVEMENT	SY	5632			198	1668	2256	1510					
30	619(B)	REMOVAL OF DRIVEWAY	SY	543				150	393						
31	619(B)	REMOVAL OF SIDEWALK	SY	127					11	112			4		
32	619(B)	REMOVAL OF CURB AND GUTTER	LF	104						82					22
33	619(B)	REMOVAL OF HEADWALL	EA	2				2							
34	619(B)	REMOVAL OF GUARDRAIL	LF	451	218	233									
35	619(B)	REMOVAL OF PAVEMENT MARKINGS (STRIPING)	LF	20080	1044	1800	1800	2161	1979	2075	2250	1969	2479	2248	275
36	619(B)	REMOVAL OF PAVEMENT MARKINGS (SYMBOLS)	LF	17						4	4	2	2	3	2
37	623(A)	BEAM GUARD RAIL W-BEAM SINGLE	LF	451	218	233									
38	623(G)	GUARD RAIL END TREATMENT (SKT-SP-MGS)	EA	4	2	2									
39	641	MOBILIZATION	EA	1											
40	642	CONSTRUCTION STAKING (LEVEL II)	EA	1											
41	805(A)	(PL)REMOVAL OF EXISTING SIGNS	EA	27											
42	805(D)	(PL)REMOVE & RESET EXISTING SIGNS	EA	6											
43	855(A)	TRAFFIC STRIPE (PLASTIC) (4" WIDE)	LF	17043	756	1800	1800	1946	1937	1762	1739	1657	1753	1713	180
44	855(A)	TRAFFIC STRIPE (PLASTIC) (8" WIDE)	LF	786	451	88		30	93	53	68	3			
45	855(B)	TRAFFIC STRIPE (PLASTIC) (ARROWS)	EA	31					5	7	4	5	4	6	
46	COT 202	QUICK SET FLOWABLE FILL	CY	79											
47	COT 334	CONSTRUCTION AS BUILTS	LS	1											
48	COT 335	CONTRACTOR QUALITY CONTROL	LS	1											
49	COT 608	GROUND SIGN	SF	116											
50	COT 608	1 - 1/2" SIGN POST	LF	5											
51	COT 608	1 - 3/4" SIGN POST	LF	191											
52	COT 608	1 - 2" SIGN POST	LF	57											
53	SPECIAL	CURB RAMP	EA	9					2	1		1	3	2	
54	SPECIAL	TYPE 1 PCC PATCH	CY	393	25	34				55	59	40	50	116	16
55	SPECIAL	FLEX STORM INLET SEDIMENT FILTER	EA	4											4
56	SPECIAL	PROJECT SIGNS	EA	2											
57	SPECIAL	URBAN RIGHT OF WAY RESTORATION	EA	1											
58	SPECIAL	OWNER ALLOWANCE	ALLOW	25000											

TRAFFIC CONTROL					ROADWAY PLAN SHEET NUMBER										
					91st St.										
ITEM NO.	ODOT SPEC NO.	DESCRIPTION	UNIT	TOTAL	1	2	3	4	5	6	7	8	9	10	11
59	857(C)	REMOVABLE PAVEMENT MARKING TAPE	LF	10000											
60	877(B)	PORTABLE LONGITUDINAL BARRIER	LF	196		196									
61	880	TRAFFIC CONTROL	LS	1											
62	882(A)	PORTABLE CHANGEABLE MESSAGE SIGN	SD	1500											

STORMWATER PIPE OPTION 1					ROADWAY PLAN SHEET NUMBER										
					91st St.										
ITEM NO.	ODOT SPEC NO.	DESCRIPTION	UNIT	TOTAL	1	2	3	4	5	6	7	8	9	10	11
63	613(A)	18" RCP, CLASS III	LF	64					64						
64	613(A)	24" RCP, CLASS III	LF	712				317	395						

STORMWATER PIPE OPTION 2					ROADWAY PLAN SHEET NUMBER										
					91st St.										
ITEM NO.	ODOT SPEC NO.	DESCRIPTION	UNIT	TOTAL	1	2	3	4	5	6	7	8	9	10	11
65	613(EE)	18" CORRUGATED POLYPROPYLENE PIPE (CPP)	LF	64					64			0			
66	613(EE)	24" CORRUGATED POLYPROPYLENE PIPE (CPP)	LF	712				317	395						

PLOT DATE: May 28, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\SUMMARY TABLE (3 OF 3).DWG

REGISTERED PROFESSIONAL ENGINEER
SHANNON N. HANKS
21141
5-28-25
STATE OF OKLAHOMA

811 BEFORE YOU DIG CALL OKIE

SUMMARY TABLE (1 OF 3)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC
CEC Corporation
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

REVISION	BY	DATE
-	-	-
-	-	-
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-	-	-
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-	-	-
-	-	-
-	-	-
-	-	-

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

DRAWN	T.C.B.	01/2025
DESIGNED	S.N.H.	01/2025
SURVEY	T.B.	10/2017
PROJ. MGR.		6/25
LEAD ENGR.		5/28/25
FIELD MGR.		
RECOMMENDED: DESIGN MANAGER		6.25

APPROVED: CITY ENGINEER

DRAWING: SUMMARY TABLE (3 OF 3).DWG
DATE 6/13/2025
ATLAS PAGE NO: 1006,1137
SHEET 6 OF 89

FULL RECONSTRUCTION

PLAN & PROFILE SHEET NUMBER	BEGINNING STATION	ENDING STATION	RECONSTRUCTION AREA	AGGREGATE BASE AREA	310(B) SUBGRADE METHOD B	S4 (PG 70-28) AC DEPTH	S3 (PG 64-22) AC DEPTH	AGGREGATE DEPTH	SUBGRADE DEPTH	411(C) SUPERPAVE TYPE S4 (PG 70-28 OK)	411(B) SUPERPAVE TYPE S3 (PG 64-22 OK)	303(A) TYPE "A" AGGREGATE	325 SEPARATOR FABRIC	609(A) 2'-2" COMB. CURB & GUTTER (8" BARRIER)	619(B) REMOVAL OF ASPHALT PAVEMENT	619(B) REMOVAL OF CURB & GUTTER
			SY	SY	SY	IN	IN	IN	IN	TON	TON	CY	SY	LF	SY	LF
3	22+50.00	27+00.00	193	220	226	2	8	12	8	22	88	73	267	0	198	0
4	27+00.00	31+50.00	1704	1910	1949	2	8	12	8	192	781	637	2253	0	1668	0
5	31+50.00	36+00.00	2295	2476	2515	2	8	12	8	258	1042	825	2784	24	2256	0
6	36+00.00	40+50.00	1500	1628	1643	2	8	12	8	168	678	543	1803	173	1510	0
7	40+50.00	45+00.00	0	0	0	2	8	12	8	0	0	0	0	0	0	0
8	45+00.00	49+50.00	0	0	0	2	8	12	8	0	0	0	0	0	0	0
9	49+50.00	54+00.00	0	0	0	2	8	12	8	0	0	0	0	0	0	0
10	54+00.00	58+50.00	0	24	24	2	8	12	8	0	0	8	102	109	0	0
11	58+50.00	62+91.00	0	12	12	2	8	12	8	0	0	4	53	54	0	22
		TOTAL =			6369					640	2589	2090	7262	360	5632	22

SUMMARY OF STREET RETURNS

STREET NAME	CL STATION		STREET RETURN AREA	AGGREGATE BASE AREA	310(B) SUBGRADE METHOD B	202(A) UNCLASSIFIED EXCAVATION	S4 (PG 70-28) ASPHALTIC CONCRETE DEPTH	S3 (PG 64-22) ASPHALTIC CONCRETE DEPTH	AGGREGATE BASE DEPTH	SUBBASE DEPTH	411(C) SUPERPAVE TYPE S4 (PG 70-28 OK)	411(C) SUPERPAVE TYPE S3 (PG 64-22 OK)	303(A) TYPE "A" AGGREGATE	325 SEPARATOR FABRIC	609(A) 2'-2" COMB. CURB & GUTTER (8" BARRIER)	619(B) REMOVAL OF CURB & GUTTER
			SY	SY	SY	CY	IN	IN	IN	IN	TON	TON	CY	SY	LF	LF
P&P 6																
QUEBEC AVE.		38+20.92	203	222	222	79	2	8	12	8	23	91	74	307	90	82
	P&P 6 SUBTOTAL =				222	79					23	91	74	307	90	82

PAVEMENT REHABILITATION

PLAN & PROFILE SHEET NUMBER	BEGINNING STATION	ENDING STATION	202(A) UNCLASSIFIED EXCAVATION	PCC PATCH DEPTH	AC PATCH DEPTH	AGGREGATE DEPTH	SUBGRADE DEPTH	PCC PATCH	303(A) TYPE "A" AGGREGATE	310(B) SUBGRADE METHOD B	325 SEPARATOR FABRIC	412 COLD MILLING	OVERLAY AREA	411(D) SUPERPAVE TYPE S6 (PG 70-28 OK)	411(C) SUPERPAVE TYPE S4 (PG 70-28 OK)	409 FABRIC REINFORCEMENT
			CY	IN	IN	IN	IN	CY	CY	SY	SY	SY	SY	TON	TON	SY
1	13+50.00	18+00.00	37	8	9	12	8	25	37	111	166	781	781	44	87	781
2	18+00.00	22+50.00	50	8	9	12	8	34	50	151	341	1675	1675	94	188	1675
3	22+50.00	27+00.00	0	8	9	12	8	0	0	0	0	1430	1430	80	160	1430
6	36+00.00	40+50.00	82	8	9	12	8	55	82	247	429	829	829	46	93	829
7	40+50.00	45+00.00	88	8	9	12	8	59	88	264	465	2049	2049	115	229	2049
8	45+00.00	49+50.00	59	8	9	12	8	40	59	178	238	2422	2422	136	271	2422
9	49+50.00	54+00.00	75	8	9	12	8	50	75	224	354	2578	2578	144	289	2578
10	54+00.00	58+50.00	174	8	9	12	8	116	174	522	833	3023	3023	169	339	3023
11	58+50.00	62+91.00	23	8	9	12	8	16	23	70	118	401	401	22	45	401
		TOTAL =	588					393	588	1767	2944	15188	15188	850	1701	15188

SUMMARY OF EARTHWORK

PLAN & PROFILE SHEET NUMBER	BEGINNING STATION	ENDING STATION	202(A) UNCLASSIFIED EXCAVATION	202(A) UNCLASSIFIED EXCAVATION (EXCLUDING PAVEMENT REMOVAL)	EMBANKMENT +15%	EXCESS EXCAVATION
			CY	CY	CY	CY
1	13+50.00	18+00.00	41	41	1	40
2	18+00.00	22+50.00	143	143	110	
3	22+50.00	27+00.00	102	53	12	41
4	27+00.00	31+50.00	279		2,398	
5	31+50.00	36+00.00	2,761	2,197	-	2,197
6	36+00.00	40+50.00	1,371	993	-	993
7	40+50.00	45+00.00				
8	45+00.00	49+50.00	21	21		21
9	49+50.00	54+00.00	183	183		183
10	54+00.00	58+50.00	397	397	-	397
11	58+50.00	62+91.00	82	82	-	82
		TOTAL =	5,380	4,110	2,521	3,954

SUMMARY OF SIDEWALK

PLAN & PROFILE SHEET NUMBER	BEGINNING STATION	ENDING STATION	610(A) 4" CONCRETE SIDEWALK	610(A) 6" CONCRETE SIDEWALK	610(A) 4" STAMPED CONCRETE	619(B) REMOVAL OF SIDEWALK
			SY	SY	SY	SY
1	13+50.00	18+00.00	130	0	0	0
2	18+00.00	22+50.00	302	0	0	0
3	22+50.00	27+00.00	168	134	0	0
4	27+00.00	31+50.00	300	0	0	0
5	31+50.00	36+00.00	239	0	4	11
6	36+00.00	40+50.00	172	0	30	112
7	40+50.00	45+00.00	0	0	0	0
8	45+00.00	49+50.00	107	0	0	0
9	49+50.00	54+00.00	43	0	0	4
10	54+00.00	58+50.00	188	0	0	0
11	58+50.00	62+91.00	31	0	0	0
		BASE BID TOTAL =	1680	134	34	127

SUMMARY OF SIGNS

APPROX STATION	OFF SET	TYPE OF SIGN	SIGN DIMENSION			GROUND SIGN	1-1/2" SIGN POST	1-3/4" SIGN POST	2" SIGN POST	REMOVE AND RESET	REMOVE EXISTING SIGN	NEW SIGN	PROTECT IN PLACE
						SF	LF	LF	LF	EA	EA		
		91st ST.											
17+42.29	LT	S5-1	24	x	48								X
17+42.29	RT	S5-2	24	x	30	5		10.33	3		1	X	
18+64.85	RT	OM3-R	12	x	36	3		10.83	3		1	X	
19+79.23	LT	VENSEL CREEK	24	x	30					1			
	LT	OM3-R	12	x	36	3			3		1	X	
25+76.44	RT	WHEN FLOODED TURN AROUND DON'T DROWN	36	x	36					1			
26+77.75	RT	GUARDRAIL DAMAGE AHEAD	36	x	36						1		
28+09.63	RT	OM3-R	12	x	36	3		10.83	3		1	X	
28+10.68	LT	OM3-L	12	x	36	3		10.83	3		1	X	
28+38.44	RT	OM3-L	12	x	36	3		10.83	3		1	X	
28+42.55	LT	OM3-R	12	x	36	3		10.83	3		1	X	
28+98.35	LT	WHEN FLOODED TURN AROUND DON'T DROWN	36	x	36					1			
31+72.00	LT	WHEN FLOODED TURN AROUND DON'T DROWN	36	x	36					1			
32+20.90	LT	S5-2	24	x	30	5		10.33	3		1	X	
32+20.90	RT	S5-1	24	x	48								X
35+86.01	LT	R3-7R	30	x	36	7.5		10.83	3		1	X	
37+50.00	LT	R3-7R	30	x	36	7.5		10.83	3		1	X	
37+94.96	LT	R1-1	30	x	30	5.18		10.33	3		1	X	
	LT	COT 608 (S QUEBEC AVE 9100)	30	x	9	3.76	1.5				1	X	
	LT	COT 608 (E 91ST ST 4100)	24	x	9	3					1	X	
	LT	ALERT NEIGHBORHOOD	12	x	6					1			
38+69.38	LT	R10-7	24	x	30	5		10.33	3		1	X	
40+15.49	LT	S5-1	24	x	48								X
40+15.49	RT	S5-2	24	x	30	5		10.33	3		1	X	
41+96.35	LT	S1-1	36	x	36	3.18		10.83	3		1	X	
	LT	W16-9P	24	x	12	4.18					1	X	
47+44.49	LT	R1-1	30	x	30	5.18		10.33	3		1	X	
	LT	COT 608 (S TOLEDO AVE 9100)	30	x	9	3.76	1.5				1	X	
	LT	COT 608 (E 91ST ST 4100)	24	x	9	3					1	X	
	LT	ALERT NEIGHBORHOOD	12	x	6					1			
47+86.08	RT	R1-1	30	x	30	5.18		10.33	3		1	X	
	RT	COT 608 (S TOLEDO AVE 9100)	30	x	9	3.76	1.5				1	X	
	RT	COT 608 (E 91ST ST 4100)	24	x	9	3					1	X	
48+03.05	LT	R10-7	24	x	30	5		10.33	3		1	X	
55+11.69	LT	R2-1(40)	24	x	30	5		10.33	3		1	X	
59+02.00	LT	W4-2R	36	x	36	9		10.83	3		1	X	
					TOTALS =	116	5	191	57	6	27		

DRIVEWAY SUMMARY TABLE

DRIVEWAY NUMBER	CL STATION	AREA	303(A) TYPE "A" AGGREGATE	202(A) UNCLASSIFIED EXCAVATION	310(B) SUBGRADE METHOD B	325 SEPARATOR FABRIC	610(B) 6" CONCRETE DRIVEWAY (HES)
		SY	CY	CY	SY	SY	IN
P&P 4							
DW-1	30+73.15	185	33	33	197	266	185
	P&P 1 SUBTOTAL =	185	33	33	197	266	185
P&P 5							
DW-2	35+03.08	128	23	23	137	189	128
DW-3	35+12.40	314	55	55	329	423	314
	P&P 2 SUBTOTAL =	442	78	78	466	612	442
	TOTALS =	627	111	111	663	878	627

SUMMARY OF EROSION CONTROL

PLAN SHEET NUMBER	BEGINNING STATION	ENDING STATION	221(C) TEMPORARY SILT FENCE	221(C) TEMPORARY SEDIMENT FILTER	601(A) TYPE III PLAIN RIPRAP	221(C) TEMPORARY SILT DIKE	227 TURF REINFORCEMENT MAT	221(G) TEMPORARY ROCK FILTER DAM
			LF	EA	SY	LF	SY	SY
1	13+50.00	18+00.00	127	2				
2	18+00.00	22+50.00	381	1	164			75
3	22+50.00	27+00.00	455					
4	27+00.00	31+50.00	602	1	1071	7	40	64
5	31+50.00	36+00.00	195	2		35	233	
6	36+00.00	40+50.00		1		14		
7	40+50.00	45+00.00		1		42		
8	45+00.00	49+50.00	102	2		7		
9	49+50.00	54+00.00	35	3				
10	54+00.00	58+50.00		1		7		
11	58+50.00	62+91.00		1				
	TOTAL =		1897	15	1235	112	273	139

PLOT DATE: January 13, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\SUMMARY TABLE (3 OF 3).DWG

REGISTERED PROFESSIONAL ENGINEER SHANNON N. HANKS 21141 OKLAHOMA 1-13-25

BEFORE YOU DIG OKLAHOMA CALL OKIE

SUMMARY TABLE (2 OF 3)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)
CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

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

DRAWN	T.C.B.	01/2025
DESIGNED	S.N.H.	01/2025
SURVEY	B.B.	10/2017
PROJ. MGR.		1/25
LEAD ENG.		2/25
FIELD MGR.		2/25
RECOMMENDED: DESIGN MANAGER		2-25

APPROVED: CITY ENGINEER

DRAWING: SUMMARY TABLE (3 OF 3).DWG
ATLAS PAGE NO: 1006,1137
DATE 6/13/2025
SHEET 7 OF 89

SUMMARY OF DRAINAGE STRUCTURES

STRUCTURE NUMBER	ALIGNMENT	EXISTING/ PROPOSED	STATION	OFFSET	NORTHING	EASTING	DESCRIPTION	DESIGN	INLET TOP OF GRATE / MH TOP OF RIM	INVERT ELEVATION	INVERT ELEVATION DOWNSTREAM	INNER STR. HEIGHT	4' MANHOLE	611(G) CICI DES 4D	611(G) SMD W/ TYPE 1 GRATE	613(A) 18" RCP CLASS III	613(A) 24" RCP CLASS III
									(FT)	(FT)	(FT)	(FT)	(EA)	(EA)	(EA)	(LF)	
STR-1	91ST	PROPOSED	35+49.64	21.7' RT	382112.267	2580103.063	CONSTRUCT INLET, STUB 17.94 LF OF 18" PIPE INTO MH-6	SMD W/TYPE 1 GRATE	683.38	679.78	679.27	3.60			1	18	
STR-2	91ST	PROPOSED	35+82.07	37.4' LT	382171.914	2580131.730	CONSTRUCT INLET, STUB 45.88 LF OF 24" PIPE INTO MH-2	CICI DES 4D	683.98	680.12	679.27	3.86		1		46	
MH-1	91ST	PROPOSED	30+42.00	0.0' LT	382124.504	2579595.113	CONSTRUCT 4' MH, STUB 211.39 LF OF 24" PIPE INTO RCB	MANHOLE	674.25	669.12	664.56	5.13	1				212
MH-2	91ST	PROPOSED	32+96.00	0.0' LT	382129.231	2579849.069	CONSTRUCT 4' MH, STUB 250.00 LF OF 24" PIPE INTO MH-1	MANHOLE	681.66	676.87	669.12	4.79	1				250
MH-4	91ST	PROPOSED	35+50.04	0.0' LT	382133.959	2580103.060	CONSTRUCT 4' MH, STUB 250.00 LF OF 24" PIPE INTO MH-2	MANHOLE	684.27	678.73	676.87	5.54	1				250
												TOTALS	3	1	1	64	712

PLOT DATE: January 13, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\SUMMARY TABLE (3 OF 3).DWG

REGISTERED PROFESSIONAL ENGINEER
SHANNON N. HANKS
21141
OKLAHOMA
1-13-25

BEFORE YOU DIG CALL OKIE

REVISION	BY	DATE
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SUMMARY TABLE (3 OF 3)

PROJECT NO. 144213
TMUA-W 22-90

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CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

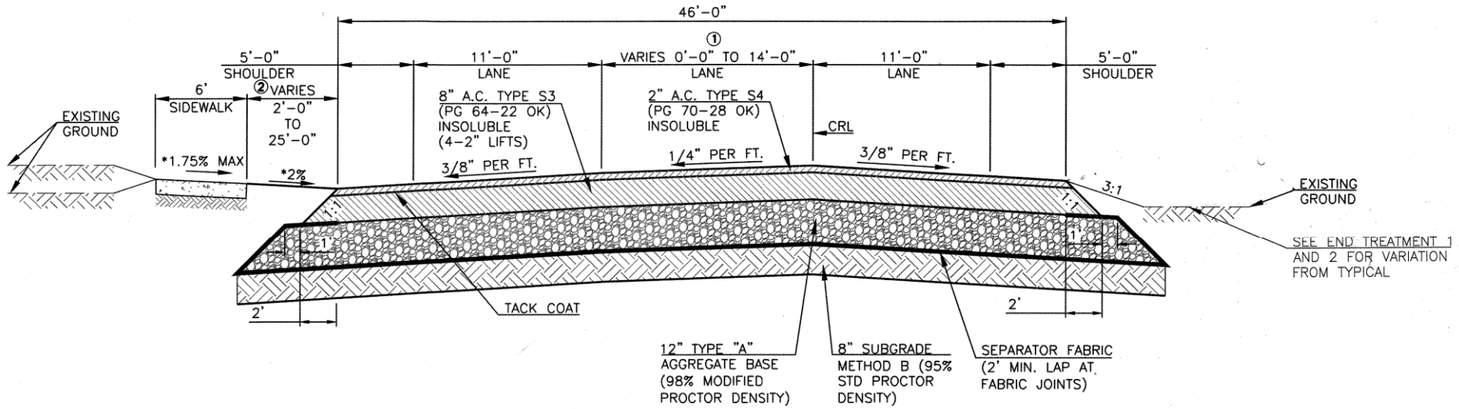
CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

PLAN SCALE: N/A	DRAWN	T.C.B.	01/2025
	DESIGNED	S.N.H.	01/2025
	SURVEY	B.B.	10/2017
PROFILE SCALES:	PROJ. MGR.		1/25
HORIZONTAL: N/A	LEAD ENGR.		1/25
	FIELD MGR.		1/25
VERTICAL N/A	RECOMMENDED: DESIGN MANAGER		1-25

APPROVED: CITY ENGINEER

DRAWING: SUMMARY TABLE (3 OF 3).DWG — DATE 6/13/2025

ATLAS PAGE NO: 1006,1137 — SHEET 8 OF 89



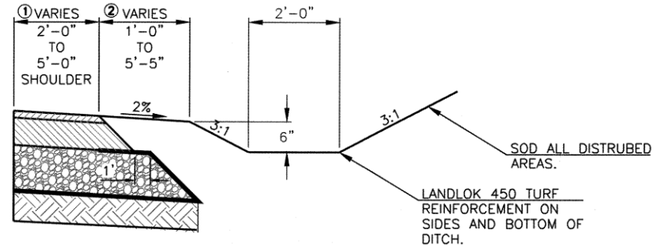
① TYPICAL ASPHALT RECONSTRUCTION

STA. 26+45.88 TO STA. 34+49.30

① STA. 26+45.88 TO STA. 29+80.60 0'-0"
STA. 29+80.60 TO STA. 31+10.03 TRANSITION 0'-0" TO 10'-0"
STA. 31+10.03 TO STA. 31+67.09 TRANSITION 10'-0" TO 14'-0"
STA 31+67.09 TO STA. 34+49.30 14'-0"

② STA. 26+45.88 TO STA. 25+51.08 25'-0"
STA. 25+51.08 TO STA. 26+99.02 TRANSITION 25'-0" TO 6'-8"
STA. 26+99.02 TO STA. 29+80.56 6'-8"
STA. 29+80.56 TO STA. 31+67.03 TRANSITION 6'-8" TO 2'-0"
STA. 31+67.03 TO STA. 34+54.43 TRANSITION 2'-0" TO 11'-5"

* SLOPE VARIES SEE CROSS SECTIONS

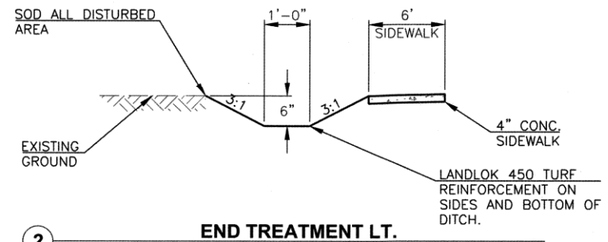


① END TREATMENT RT.

STA. 31+30.00 TO STA. 34+81.72
STA. 35+31.91 TO STA. 36+00.00

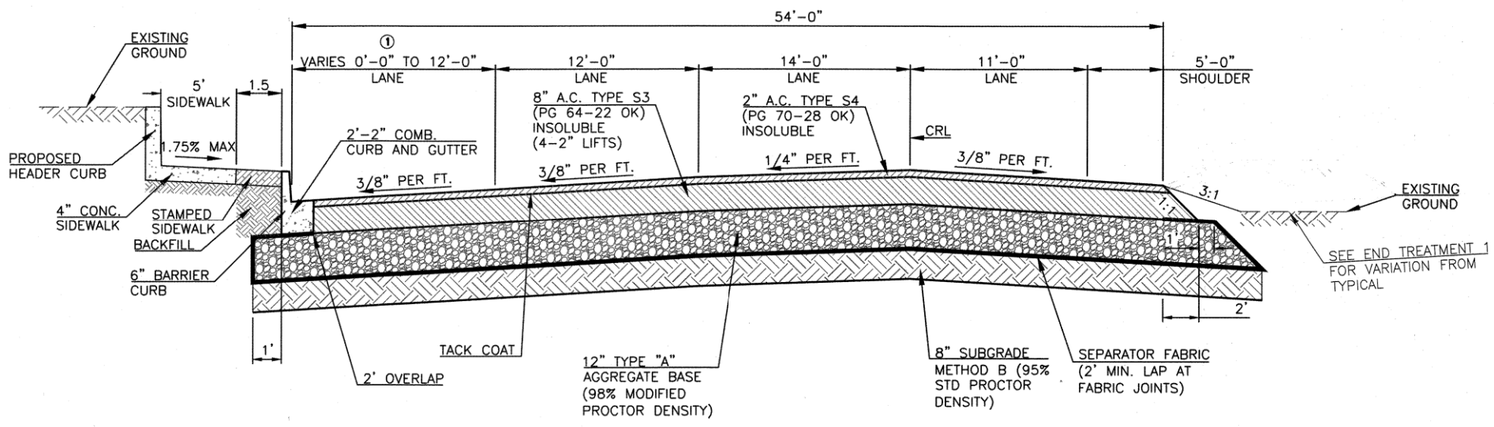
① STA. 31+30.00 TO STA. 31+50.00 TRANSITION 5'-0" TO 3'-0"
STA. 31+50.00 TO STA. 33+50.00 3'-0"
STA. 33+50.00 TO STA. 33+70.00 TRANSITION 3'-0" TO 5'-0"
STA. 33+70.00 TO STA. 34+81.72 5'-0"
STA. 35+31.91 TO STA. 36+00.00 5'-0"

② STA. 31+30.00 TO 31+50.00 TRANSITION 4'-4" TO 1'-6"
STA. 31+50.00 TO STA. 33+26.79 1'-6"
STA. 33+26.79 TO STA. 34+81.72 TRANSITION 1'-6" TO 5'-5"
STA 35+31.91 TO STA. 36+00.00 TRANSITION 4'-0" TO 1'-0"



② END TREATMENT LT.

STA. 30+80.00 TO STA. 32+85.00



② TYPICAL ASPHALT RECONSTRUCTION

STA. 34+49.30 TO STA. 38+68.51

① STA. 34+49.30 TO STA. 35+76.17 TRANSITION 0'-0" TO 12'-0"
STA. 35+76.17 TO STA. 37+73.11 12'-0"
STA 37+73.11 TO STA. 38+68.51 TRANSITION 12'-0" TO 0'-0"

REGISTERED PROFESSIONAL ENGINEER SHANNON N. HANKS 21141 OKLAHOMA 1-13-25

BEFORE YOU DIG CALL OKIE

TYPICAL SECTIONS (1 OF 4)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

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

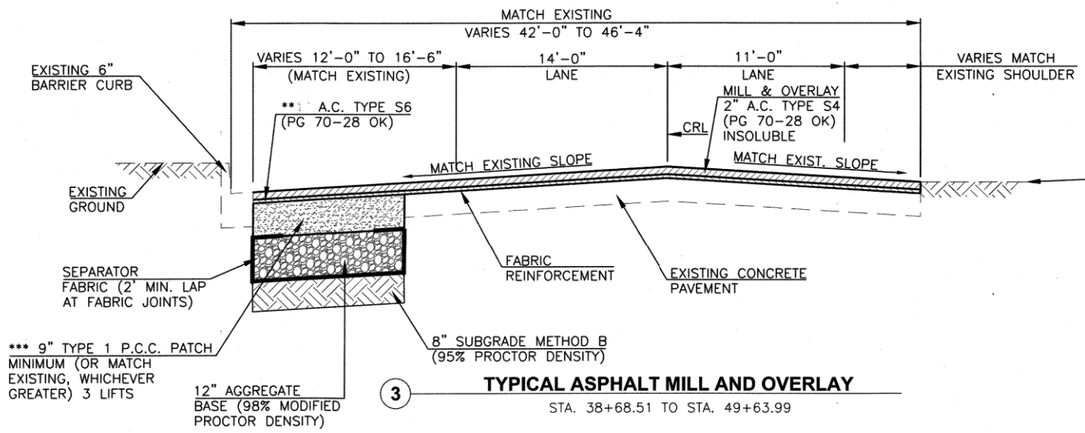
DRAWN	T.C.B.	01/2025
DESIGNED	S.N.H.	01/2025
SURVEY	B.B.	10/2017
PROJ. MGR.		1/25
LEAD ENGR.		2/25
FIELD MGR.		2/25
RECOMMENDED DESIGN MANAGER		2-25

APPROVED: CITY ENGINEER

DRAWING: 2 TYPICAL SECTIONS.DWG
ATLAS PAGE NO: 1006,1137

DATE 6/13/2025
SHEET 9 OF 87

PLOT DATE: January 13, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\2 TYPICAL SECTIONS.DWG

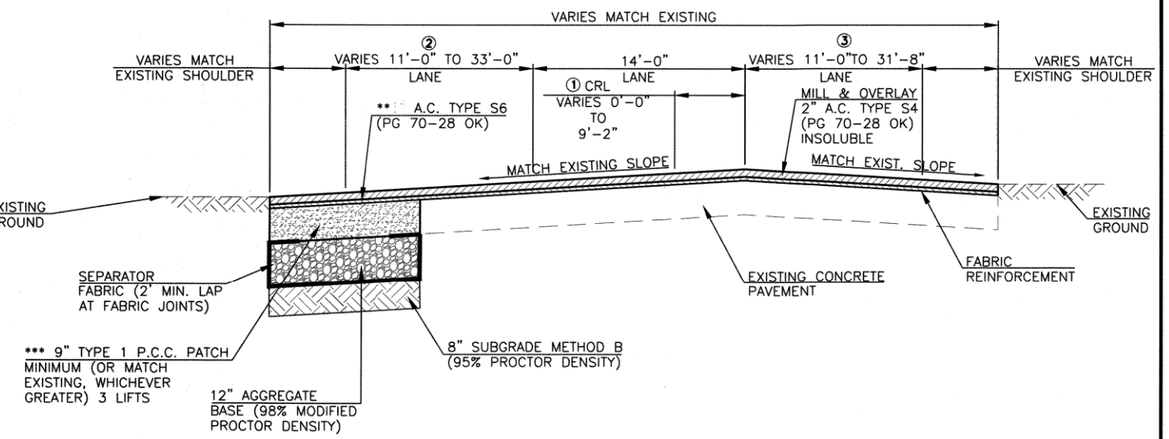


3 TYPICAL ASPHALT MILL AND OVERLAY

STA. 38+68.51 TO STA. 49+63.99

** SUPERPAVE TYPE S6 LEVELING COURSE SHALL BE USED AT THE DISCRETION OF THE FIELD ENGINEER PRIOR TO PLACING THE FABRIC REINFORCEMENT AND MAY BE OMITTED IN ITS ENTIRETY.

*** SEE PLAN SHEETS FOR PATCHING LOCATIONS, PATCHING LOCATIONS SHALL BE EVALUATED IMMEDIATELY AFTER MILLING OPERATIONS.



5 TYPICAL MILL & OVERLAY SECTION W/ TYPE 1 PCC PATCHING

STA. 16+71.59 TO STA. 26+45.88
STA. 51+67.33 TO STA. 57+32.47

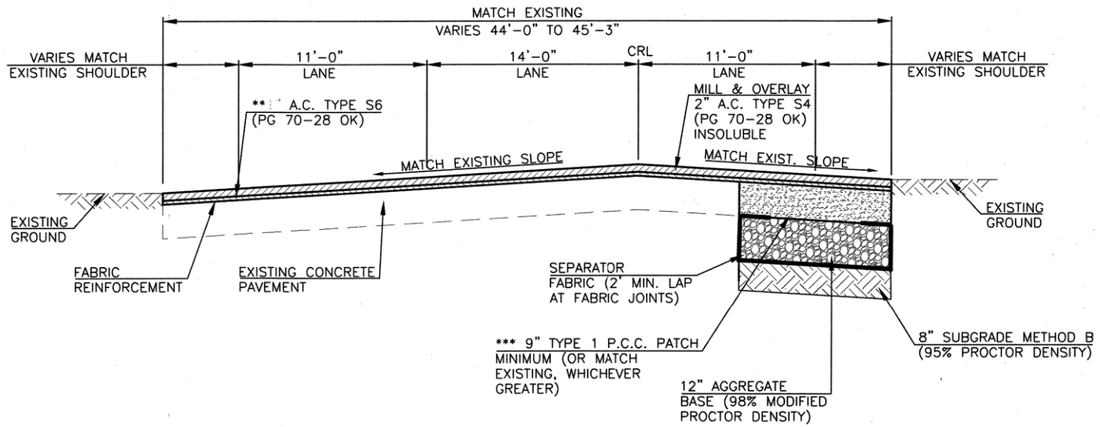
① STA. 51+67.33 TO STA. 53+27.66 0'-0"
STA. 53+27.66 TO STA. 57+32.47 TRANSITION FROM 0'-0" TO 8'-2"

② STA. 51+67.33 TO STA. 51+88.32 TRANSITION FROM 11'-0" TO 13'-2"
STA. 51+88.32 TO STA. 57+32.47 TRANSITION FROM 13'-2" TO 22'-2"

③ STA. 51+67.33 TO STA. 53+27.66 TRANSITION FROM 11'-0" TO 18'-0"
STA. 53+27.66 TO STA. 57+32.47 TRANSITION FROM 18'-0" TO 25'-7"

** SUPERPAVE TYPE S6 LEVELING COURSE SHALL BE USED AT THE DISCRETION OF THE FIELD ENGINEER PRIOR TO PLACING THE FABRIC REINFORCEMENT AND MAY BE OMITTED IN ITS ENTIRETY.

*** SEE PLAN SHEETS FOR PATCHING LOCATIONS, PATCHING LOCATIONS SHALL BE EVALUATED IMMEDIATELY AFTER MILLING OPERATIONS.



4 TYPICAL MILL & OVERLAY SECTION W/ TYPE 1 PCC PATCHING

STA. 49+63.99 TO STA. 51+67.33

** SUPERPAVE TYPE S6 LEVELING COURSE SHALL BE USED AT THE DISCRETION OF THE FIELD ENGINEER PRIOR TO PLACING THE FABRIC REINFORCEMENT AND MAY BE OMITTED IN ITS ENTIRETY.

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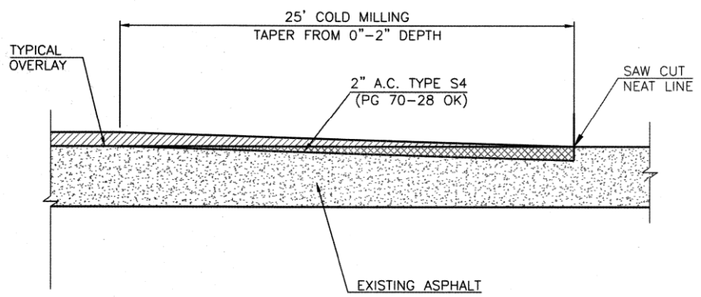

BUTT JOINT DETAIL

STA 49+63.99 TO 49+88.99

REGISTERED PROFESSIONAL ENGINEER SHANNON N. HANKS 21141 OKLAHOMA

Shannon Hanks

BEFORE YOU DIG CALL OKIE

TYPICAL SECTIONS (2 OF 4)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
1300 S. Main Street Tulsa, OK 74119
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REVISION	BY	DATE
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PLAN SCALE: N/A	DRAWN	T.C.B.	01/2025
	DESIGNED	S.N.H.	01/2025
	SURVEY	B.B.	10/2017
PROFILE SCALES:	PROJ. MGR.		1/25
HORIZONTAL: N/A	LEAD ENGR.		1/25
	FIELD MGR.		1/25
VERTICAL N/A	RECOMMENDED		1-25
	DESIGN MANAGER		

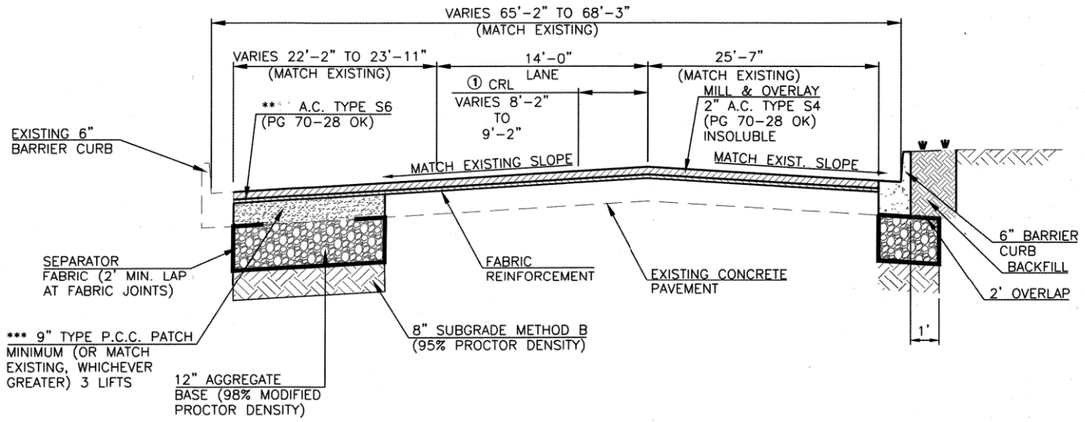
APPROVED:

CITY ENGINEER

DRAWING: 2 TYPICAL SECTIONS.DWG — DATE 1/13/2025

ATLAS PAGE NO: 1006,1137 — SHEET 10 OF 89

PLOT DATE: January 13, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\2 TYPICAL SECTIONS.DWG



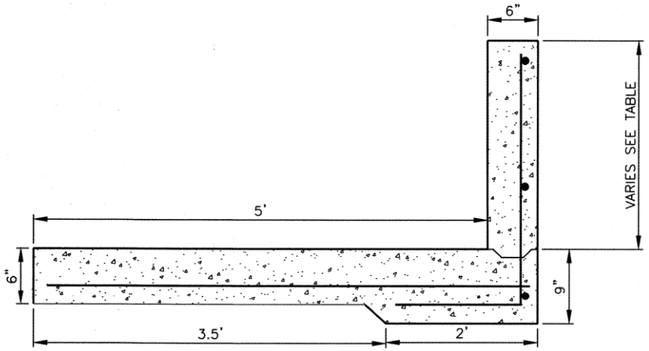
⑥ TYPICAL MILL & OVERLAY SECTION W/ TYPE 1 PCC PATCHING AND CURB AND GUTTER

STA. 57+32.47 TO STA. 59+04.39

① STA. 57+32.47 TO STA. 59+04.39 TRANSITION FROM 8'-2" TO 9'-2"

** SUPERPAVE TYPE S6 LEVELING COURSE SHALL BE USED AT THE DISCRETION OF THE FIELD ENGINEER PRIOR TO PLACING THE FABRIC REINFORCEMENT AND MAY BE OMITTED IN ITS ENTIRETY.

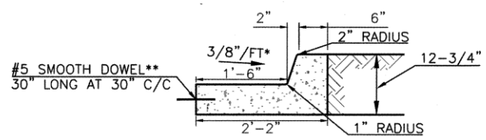
*** SEE PLAN SHEETS FOR PATCHING LOCATIONS, PATCHING LOCATIONS SHALL BE EVALUATED IMMEDIATELY AFTER MILLING OPERATIONS.



SIDEWALK WITH HEADER CURB

N.T.S.

HEADER CURB SUMMARY			
START STATION	OFFSET (FRONT OF WALL)	HEADER CURB HEIGHT	HEADER CURB ELEVATIONS
36+75.00	47.2' LT	10"	688.29
37+20.00	47.2' LT	2'-0"	690.57
37+70.00	47.2' LT	2'-0"	692.03
37+91.85	47.2' LT	6"	691.64



CURB AND GUTTER DETAIL

6" BARRIER CURB

*SLOPE VARIES SEE PLANS AND CROSS SECTIONS

**DOWEL BARS ONLY REQUIRED IN APC MILL AND OVERLAY SECTIONS

REGISTERED PROFESSIONAL ENGINEER — SHANNON N. HANKS — 21141 — STATE OF OKLAHOMA

BEFORE YOU DIG — CALL OKIE

TYPICAL SECTIONS (3 OF 4)

PROJECT NO. 144213
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ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

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PUBLIC WORKS DEPARTMENT

CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

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

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DESIGNED	S.N.H.	01/2025
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RECOMMENDED DESIGN MANAGER		2-25

APPROVED: CITY ENGINEER

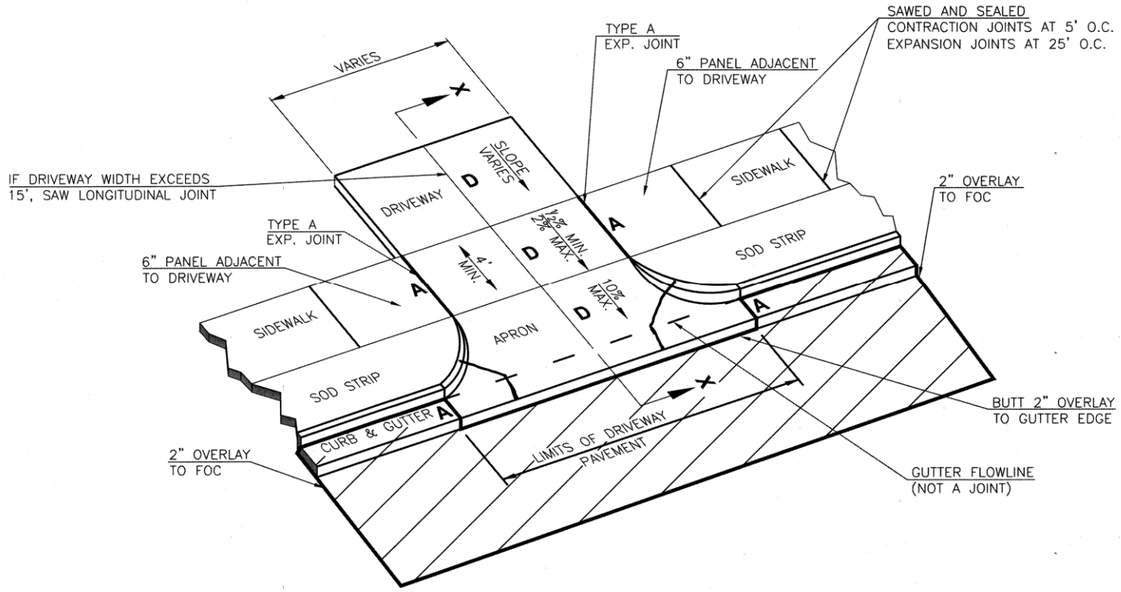
DRAWING: 2 TYPICAL SECTIONS.DWG

DATE 6/13/2025

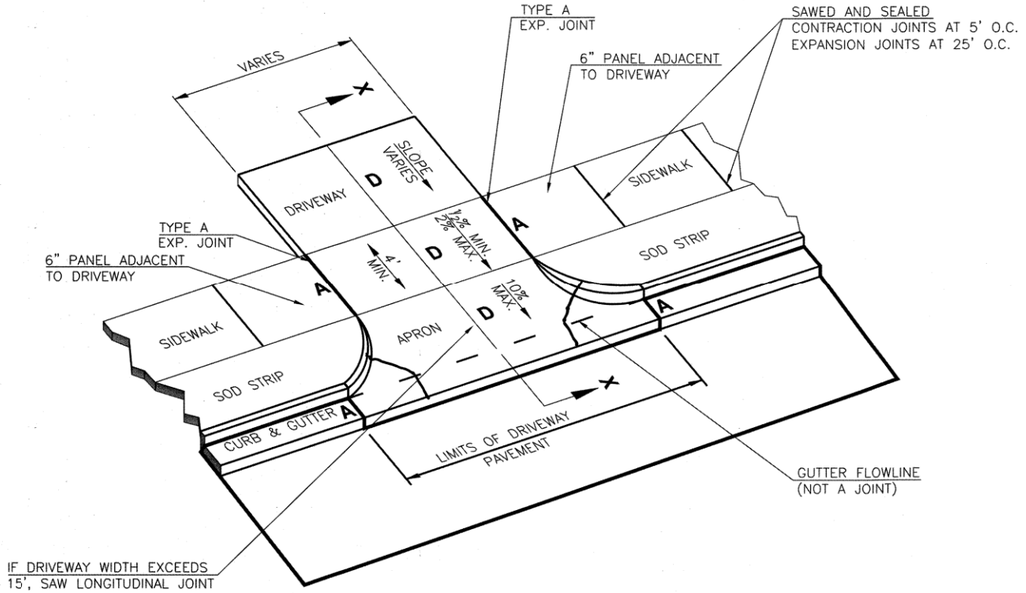
ATLAS PAGE NO: 1006,1137

SHEET 11 OF 89

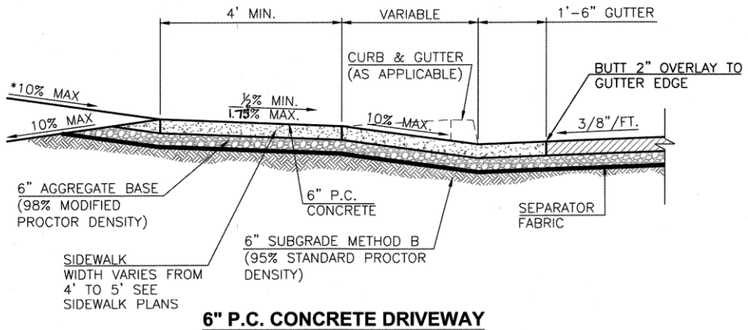
PLOT DATE: January 13, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\2 TYPICAL SECTIONS.DWG



MILL AND OVERLAY ONLY



CURBED FULL RECONSTRUCT ONLY



6" P.C. CONCRETE DRIVEWAY

* DRIVEWAY AT STA. 56+91.94 WILL EXCEED 10%.

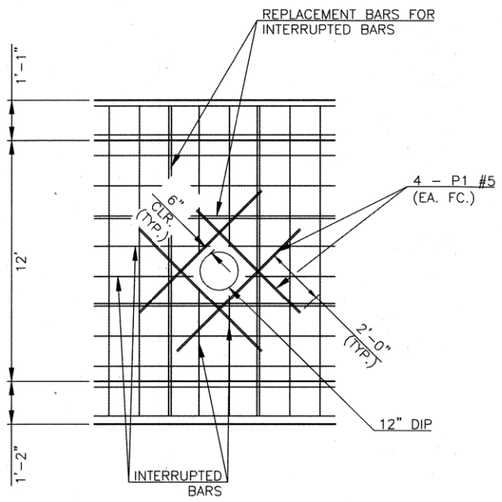
DRIVEWAY DETAILS

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.

MINIMUM RISE IN DRIVEWAY TO MATCH ADJACENT TOP OF CURB ELEVATIONS.



BARREL OPENING REINFORCING DETAIL

(NORTHWEST WALL)

NOTE:
REPLACE ALL VERTICAL AND HORIZONTAL BARS INTERRUPTED BY THE OPENING WITH AN EQUAL NUMBER AND SIZE BARS EVENLY DIVIDED ON EACH SIDE OF THE OPENING, UNLESS NOTED OTHERWISE.

REGISTERED PROFESSIONAL ENGINEER
SHANNON N. HANKS
21141
OKLAHOMA
6-13-25

BEFORE YOU DIG
811
CALL OKIE

TYPICAL SECTIONS (4 OF 4)

PROJECT NO. 144213
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91ST STREET (HARVARD TO YALE)

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PLAN SCALE: N/A	DRAWN	T.C.B.	01/2025
	DESIGNED	S.N.H.	01/2025
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PROFILE SCALES:	PROJ. MGR.		1/25
HORIZONTAL: N/A	LEAD ENGR.		6/25
	FIELD MGR.		2/25
VERTICAL N/A	RECOMMENDED: DESIGN MANAGER		

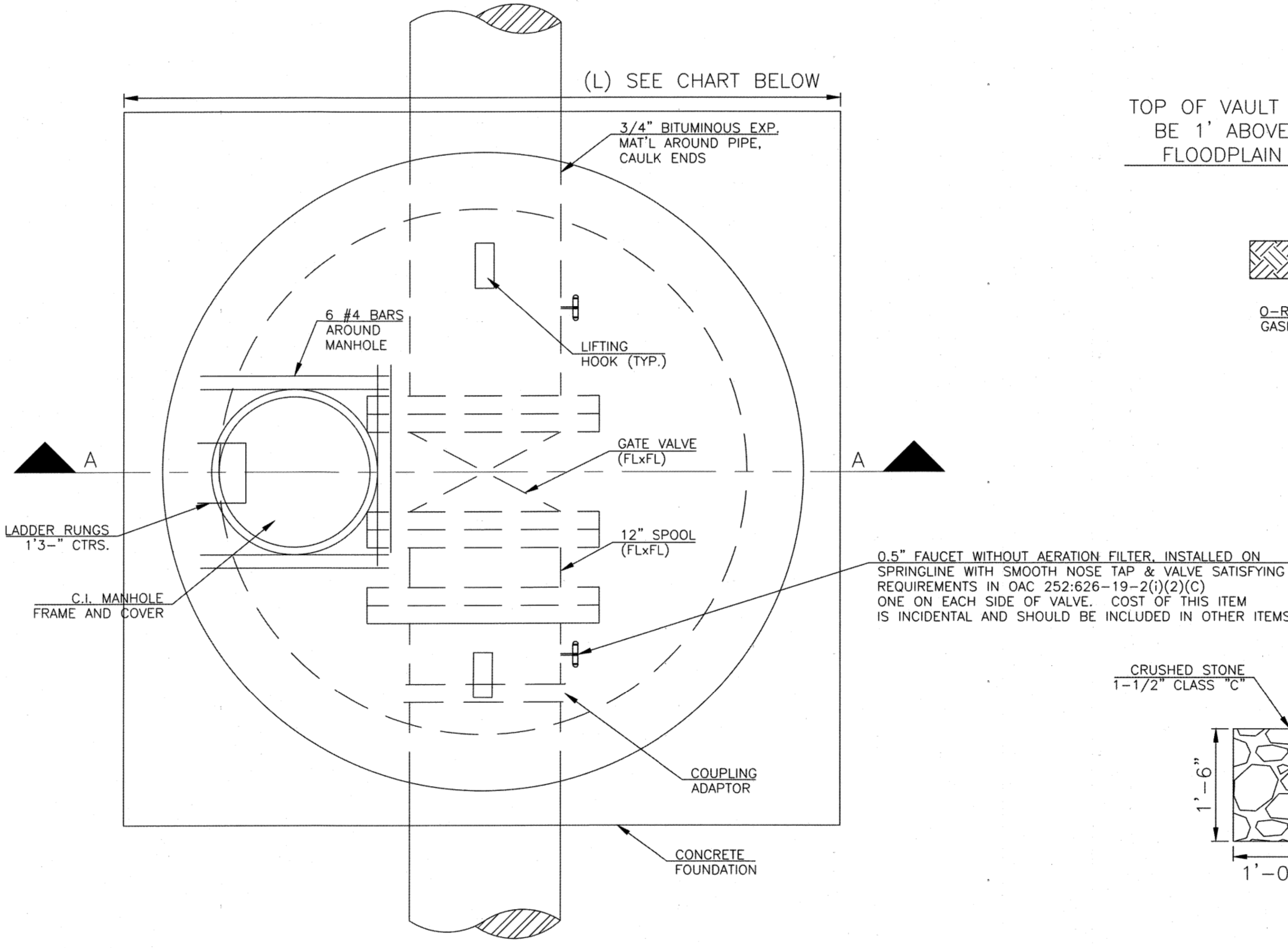
APPROVED:

CITY ENGINEER

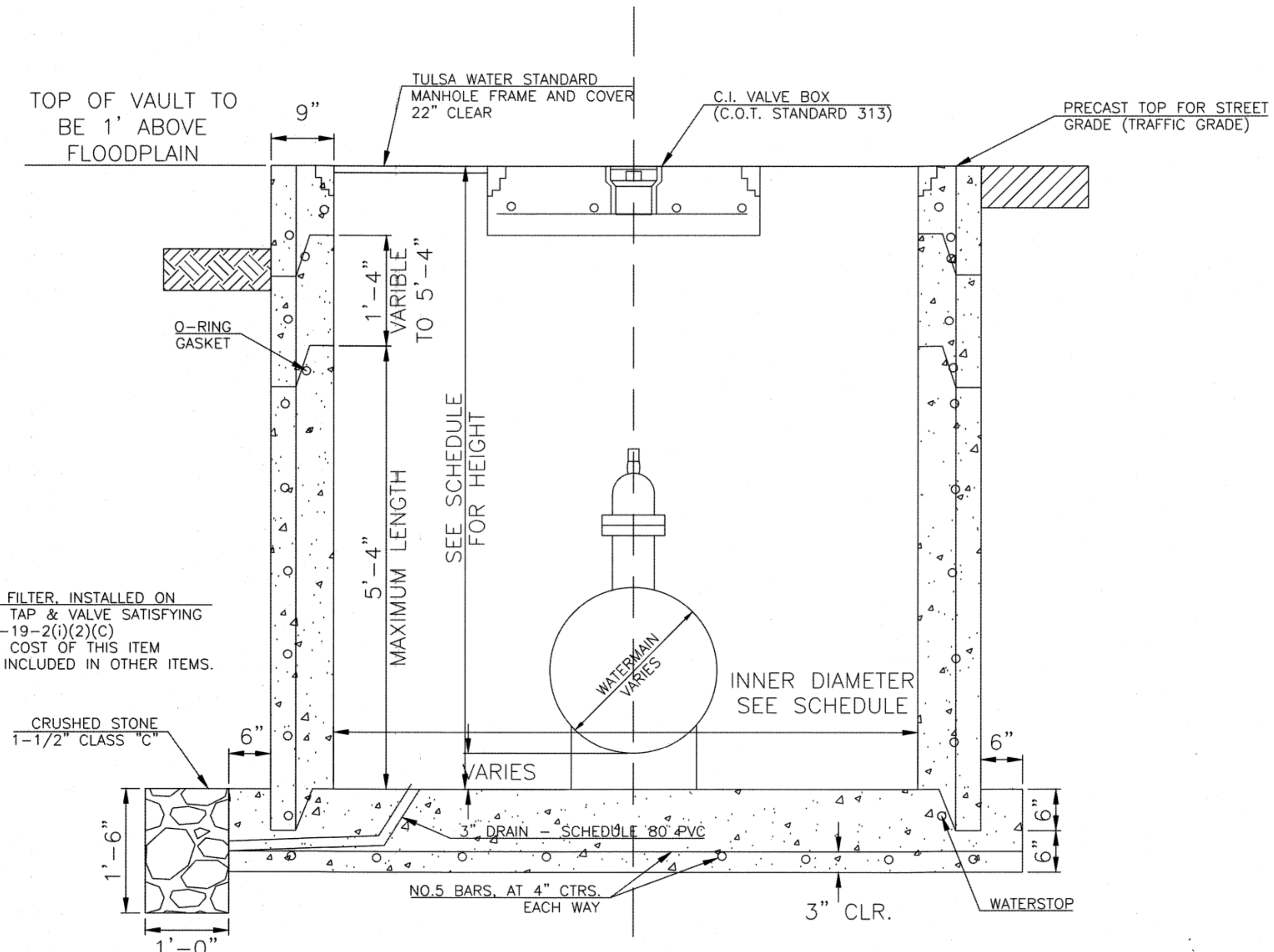
DRAWING: 2 TYPICAL SECTIONS.DWG — DATE 6/13/2025

ATLAS PAGE NO: 1006,1137 — SHEET 12 OF 89

PLOT DATE: January 13, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\2 TYPICAL SECTIONS.DWG

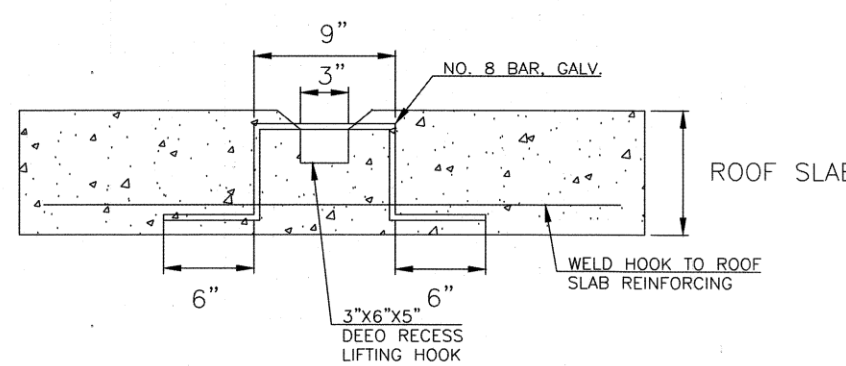


PLAN VIEW



TRAFFIC RATED PRECAST VALVE VAULT

VALVE VAULT	STATION	HEIGHT (H)	INNER DIAMETER	BASE LENGTH (L)	100-YR FLOODPLAIN ELEV.	TOP OF VAULT	BOTTOM OF VAULT
A (12")	17+75.82	11.26'	5'	7.5'	652	653	635.50
B (36")	18+11.33	17.74'	7'	9.5'	652	653	633.51
C (36")	32+00.00	8.15'	7'	9.5'	653	678.93	669.78



LIFTING HOOK DETAIL

REGISTERED PROFESSIONAL ENGINEER JASON ... 27695 OKLAHOMA

WATERLINE VALVE VAULT DETAIL

PROJECT NO. 144213

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
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PLAN SCALE: N/A	DRAWN	T.C.B.	05/2021
	DESIGNED	S.N.H.	05/2021
	SURVEY	B.B.	10/2017
PROFILE SCALES:	PROJ. MGR.	JH	2/25
HORIZONTAL: N/A	LEAD ENGR.		
	FIELD MGR.		
VERTICAL N/A	RECOMMENDED: DESIGN MANAGER		

APPROVED: CITY ENGINEER

DRAWING: PAY ITEMS & NOTES (WATERLINE) (2 OF 2)

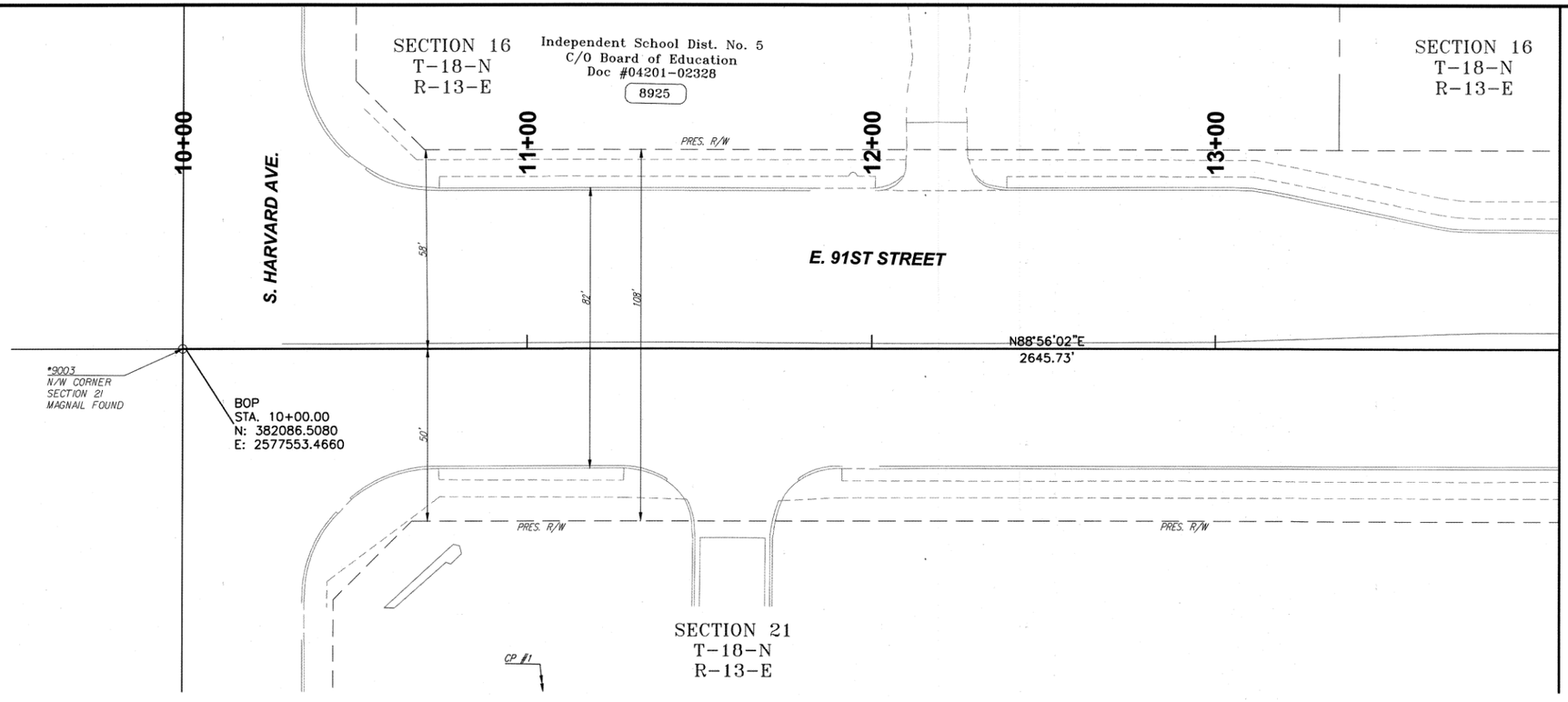
DATE 6/13/2025

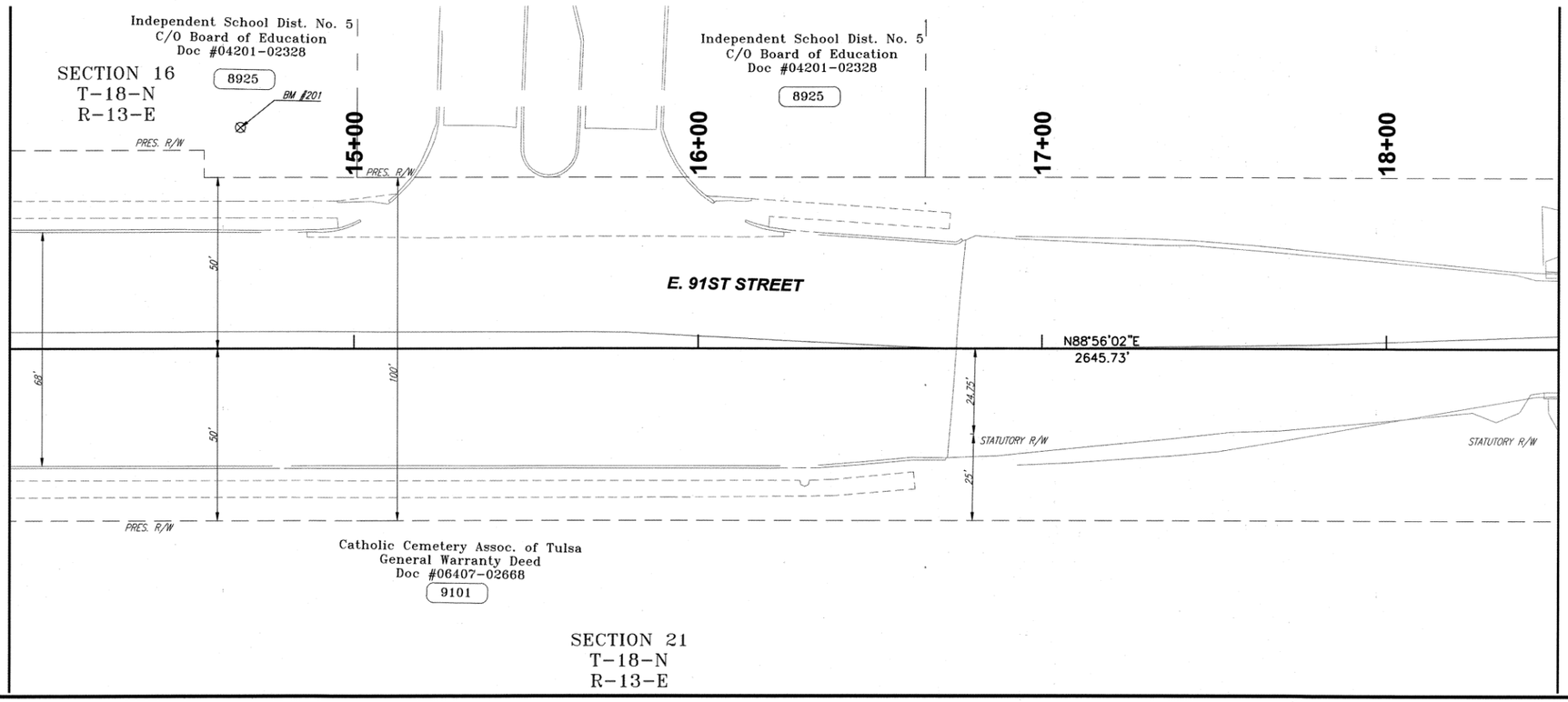
ATLAS PAGE NO: 1006,1137

SHEET 12 OF 89

PLOT DATE: February 13, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\PAY ITEMS & NOTES (WATERLINE) (2 OF 2).DWG

PROJECT NO. 144213, TMUA-W 22-90





STA 14+00

LEGEND

- NEAREST ADDRESS
- BORE HOLE LOCATION
- BENCHMARK LOCATION

BENCHMARK				
NO.	NORTHING	EASTING	ELEV.	DESCRIPTION
201	382,159.7	2,578,019.1	654.892	14+66.95, 64.56' LT SET 5/8" IRON PIN AT FENCE
CONTROL POINTS				
NO.	NORTHING	EASTING	ELEV.	DESCRIPTION
1	381,951.4395	2,577,664.7243	653.302	11+08.73, 137.12' RT SET 5/8" IRON PIN WITH CEC CP

PREPARED BY:
CEC CORPORATION
4555 W. MEMORIAL ROAD
OKLAHOMA CITY, OK 73142-2013
(405) 753-4200

RESPONSIBLE FOR SURVEY CONTROL

1/15/25 Darren W. Smith
DATE DARREN SMITH, P.L.S.
OKLAHOMA REG. NO. 1552

LICENSED PROFESSIONAL LAND SURVEYOR — DARREN SMITH 1552 — OKLAHOMA

SURVEYOR'S CERTIFICATION:
I HEREBY CERTIFY THAT THE HORIZONTAL AND VERTICAL CONTROL FOR THIS PROJECT WERE BASED UPON THE TULSA COUNTY ADS CONTROL NETWORK AND THAT THE VALUES SHOWN MEET SECOND ORDER CLASS II HORIZONTAL (1:20,000) AND THIRD ORDER VERTICAL (1:5,000) STANDARDS. AT A MINIMUM.

SURVEY CONTROL DATA

1. HORIZONTAL DATUM IS TIED TO CITY OF TULSA SURVEY CONTROL MONUMENT # 52 WHICH IS ADJUSTED TO THE OKLAHOMA STATE PLANE NAD 83 (1993) COORDINATE SYSTEM, NORTH ZONE, PER MONUMENT #52 DATA SHEET.
2. BEARINGS:

   THE BEARINGS SHOWN HEREIN OR HEREON ARE GRID BEARINGS DERIVED FROM THE USC & GS OKLAHOMA PLANE COORDINATE SYSTEM AND ARE NOT ASTRONOMICAL.
3. VERTICAL CONTROLS:

   A. LEVEL DATUM IS NGS, NAVD 88, PER CITY OF TULSA SURVEY CONTROL MONUMENT # 52 AND ADJUSTED FROM PRIMARY CONTROL UTILIZING DIFFERENTIAL LEVELING TECHNIQUES.

   B. ACCURACY - 3RD ORDER OR BETTER

STA 18+50
SEE SHEET 14

0 10' 20' 40'

BEFORE YOU DIG — 811 — OKLAHOMA — CALL OKIE

SURVEY DATA (1 OF 7)
PROJECT NO. 144213
TMUA-W 22-90
ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)
CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

REVISION	BY	DATE

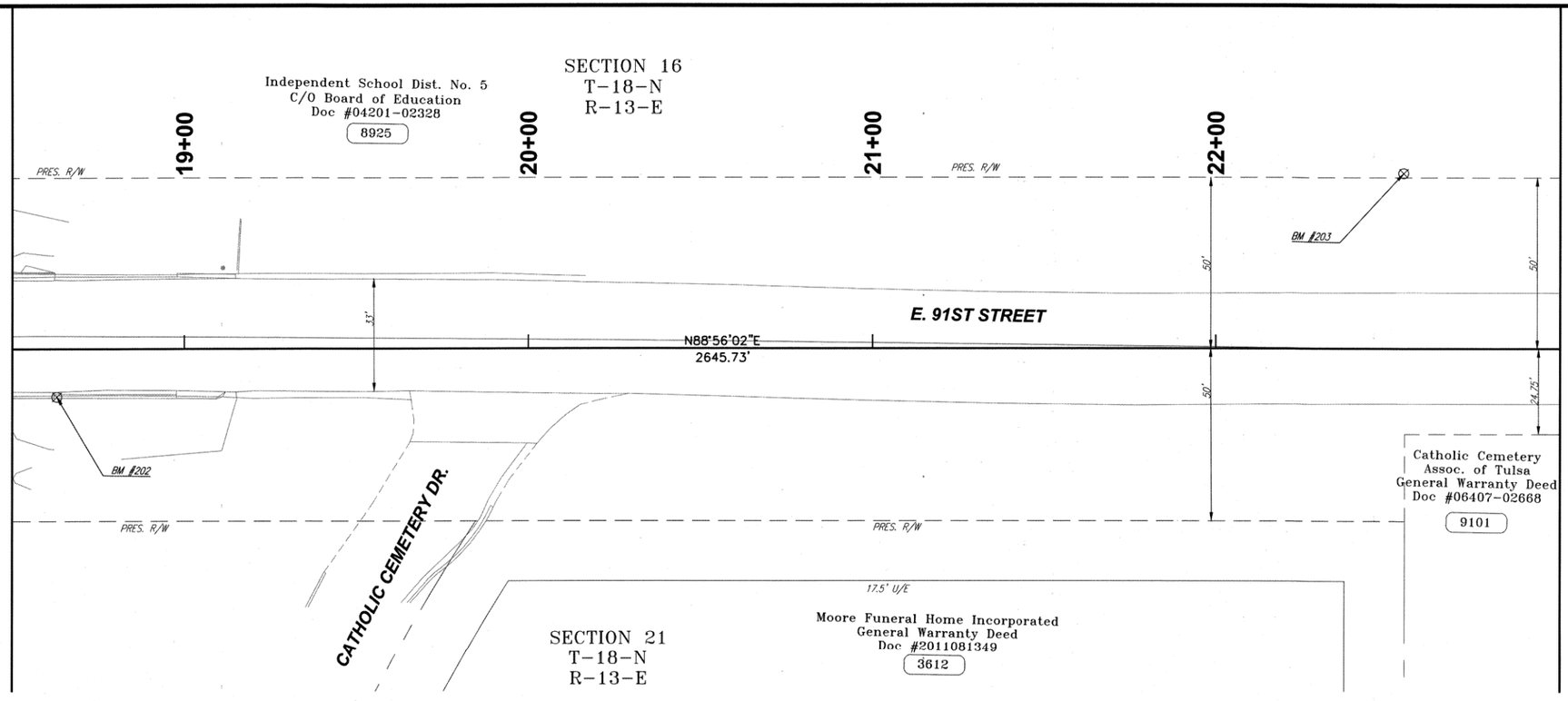
PLAN SCALE: 1" = 20'
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A

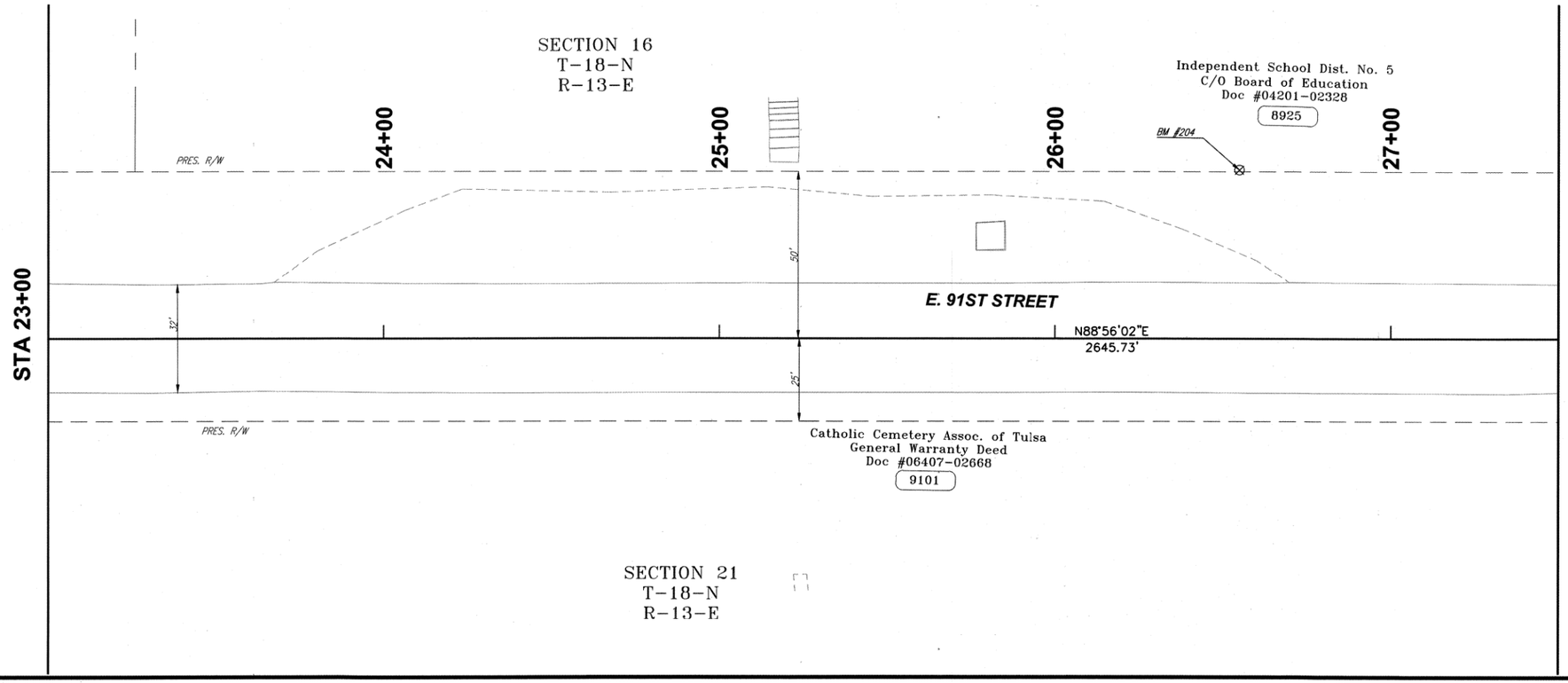
DRAWN	T.C.B.	01/2025
DESIGNED	S.N.H.	01/2025
SURVEY	B.B.	10/2017
PROJ. MGR.		1/15
LEAD ENGR.		2/25
FIELD MGR.		2/25
RECOMMENDED DESIGN MANAGER		2-25

APPROVED: CITY ENGINEER

DRAWING: 2 SURVEY DATA (2 OF 2).DWG
ATLAS PAGE NO: 1006,1137
DATE 6/13/2025
SHEET 13 OF 87

PLOT DATE: January 13, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\2 SURVEY DATA (2 OF 2).DWG





STA 23+00

LEGEND

- NEAREST ADDRESS
- BORE HOLE LOCATION
- BENCHMARK LOCATION

BENCHMARK

NO.	NORTHING	EASTING	ELEV.	DESCRIPTION
202	382,088.6340	2,578,416.5286	655.992	18+62.95, 13.93' RT "X" CUT ON SW. COR. HEADWALL
203	382,161.0772	2,578,806.8625	666.217	22+54.60, 51.26' LT SET 5/8" IRON PIN AT FENCE
204	382,167.7571	2,579,207.2194	678.747	26+54.98, 50.46' LT SET 5/8" IRON PIN AT FENCE

PREPARED BY:
CEC CORPORATION
4555 W. MEMORIAL ROAD
OKLAHOMA CITY, OK 73142-2013
(405) 753-4200

RESPONSIBLE FOR SURVEY CONTROL

1/15/25 DATE

DARRIN SMITH, P.L.S.
OKLAHOMA REG. NO. 1552

LICENSED PROFESSIONAL LAND SURVEYOR — DARRIN SMITH 1552 — OKLAHOMA

SURVEYOR'S CERTIFICATION:
I HEREBY CERTIFY THAT THE HORIZONTAL AND VERTICAL CONTROL FOR THIS PROJECT WERE BASED UPON THE TULSA COUNTY ADS CONTROL NETWORK AND THAT THE VALUES SHOWN MEET SECOND ORDER CLASS II HORIZONTAL (1:20,000) AND THIRD ORDER VERTICAL (1:5,000) STANDARDS. AT A MINIMUM.

SURVEY CONTROL DATA

1. HORIZONTAL DATUM IS TIED TO CITY OF TULSA SURVEY CONTROL MONUMENT # 52 WHICH IS ADJUSTED TO THE OKLAHOMA STATE PLANE NAD 83 (1993) COORDINATE SYSTEM, NORTH ZONE, PER MONUMENT #52 DATA SHEET.
2. BEARINGS:

   THE BEARINGS SHOWN HEREIN OR HEREON ARE GRID BEARINGS DERIVED FROM THE USC & GS OKLAHOMA PLANE COORDINATE SYSTEM AND ARE NOT ASTRONOMICAL.
3. VERTICAL CONTROLS:

   A. LEVEL DATUM IS NGS, NAVD 88, PER CITY OF TULSA SURVEY CONTROL MONUMENT # 52 AND ADJUSTED FROM PRIMARY CONTROL UTILIZING DIFFERENTIAL LEVELING TECHNIQUES.

   B. ACCURACY - 3RD ORDER OR BETTER

BEFORE YOU DIG — 811 — CALL OKIE

STA 27+50
SEE SHEET 15

0 10' 20' 40'

SURVEY DATA (2 OF 7)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)
CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

REVISION	BY	DATE
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PLAN SCALE: 1" = 20'

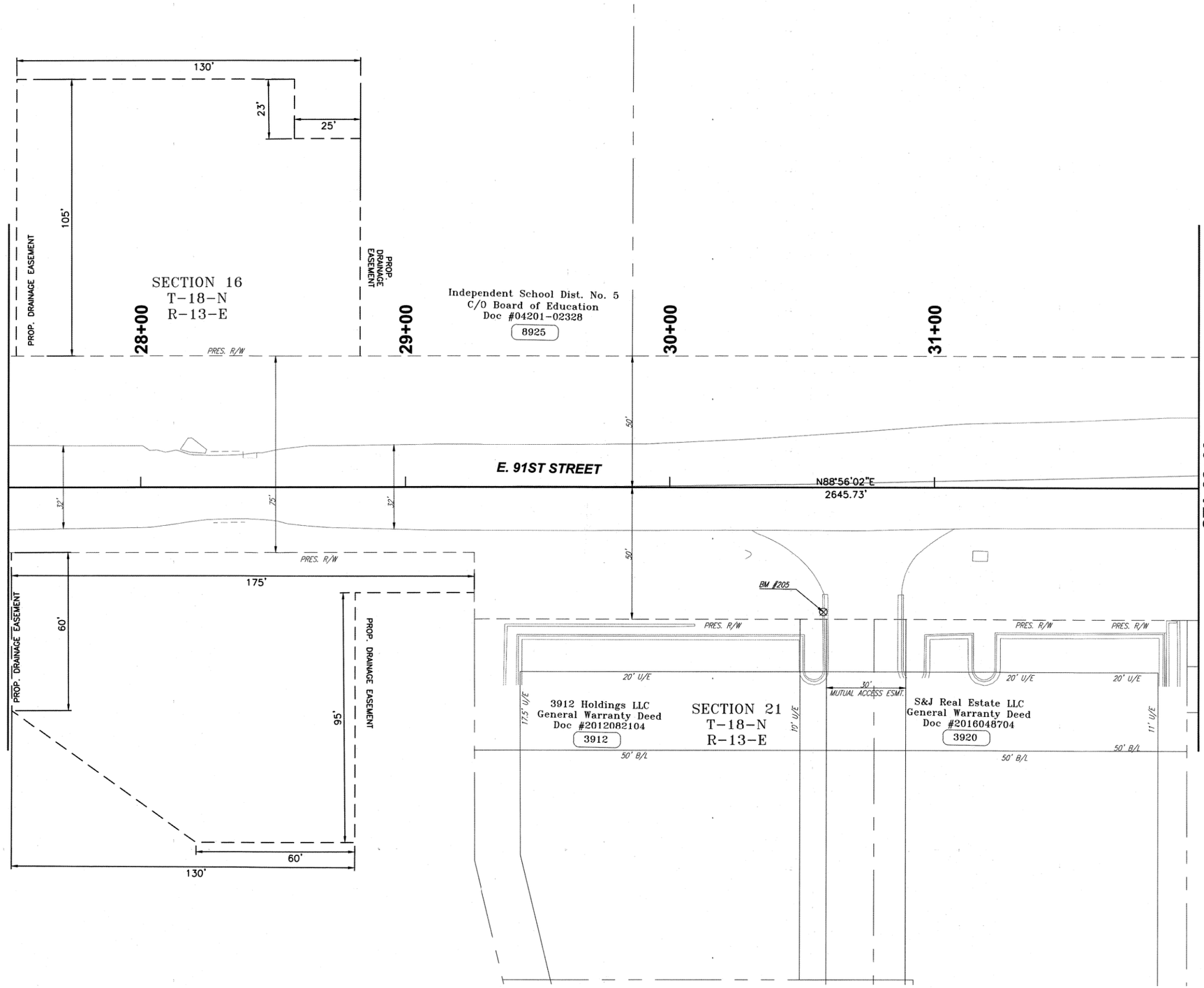
PROFILE SCALES:
HORIZONTAL: N/A
VERTICAL N/A

DRAWN	T.C.B.	01/2025
DESIGNED	S.N.H.	01/2025
SURVEY	B.B.	10/2017
PROJ. MGR.		1/25
LEAD ENGR.		2/25
FIELD MGR.		2/25
RECOMMENDED: DESIGN MANAGER		2-25

APPROVED: CITY ENGINEER

DRAWING: 2 SURVEY DATA (2 OF 2).DWG
DATE 6/13/2025
ATLAS PAGE NO: 1006,1137
SHEET 14 OF 89

PLOT DATE: January 13, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\2 SURVEY DATA (2 OF 2).DWG



STA 27+50
SEE SHEET 14

STA 32+00

LEGEND

- NEAREST ADDRESS
- BORE HOLE LOCATION
- BENCHMARK LOCATION

BENCHMARK				
NO.	NORTHING	EASTING	ELEV.	DESCRIPTION
205	382,077.5	2,579,612.1	675.582	30+58.14, 47.27' RT "X" CUT ON TOP OF CURB

PREPARED BY:
CEC CORPORATION
4555 W. MEMORIAL ROAD
OKLAHOMA CITY, OK 73142-2013
(405) 753-4200

RESPONSIBLE FOR SURVEY CONTROL

1/15/25 Darrin M. Smith
DATE DARRIN SMITH, P.L.S.
OKLAHOMA REG. NO. 1552

LICENSED PROFESSIONAL LAND SURVEYOR — DARRIN SMITH 1552 — OKLAHOMA

SURVEYOR'S CERTIFICATION:
I HEREBY CERTIFY THAT THE HORIZONTAL AND VERTICAL CONTROL FOR THIS PROJECT WERE BASED UPON THE TULSA COUNTY ADS CONTROL NETWORK AND THAT THE VALUES SHOWN MEET SECOND ORDER CLASS II HORIZONTAL (1:20,000) AND THIRD ORDER VERTICAL (1:5,000) STANDARDS. AT A MINIMUM.

SURVEY CONTROL DATA

1. HORIZONTAL DATUM IS TIED TO CITY OF TULSA SURVEY CONTROL MONUMENT # 52 WHICH IS ADJUSTED TO THE OKLAHOMA STATE PLANE NAD 83 (1993) COORDINATE SYSTEM, NORTH ZONE, PER MONUMENT #52 DATA SHEET.
2. BEARINGS:

   THE BEARINGS SHOWN HEREIN OR HEREON ARE GRID BEARINGS DERIVED FROM THE USC & GS OKLAHOMA PLANE COORDINATE SYSTEM AND ARE NOT ASTRONOMICAL.
3. VERTICAL CONTROLS:

   A. LEVEL DATUM IS NGS, NAVD 88, PER CITY OF TULSA SURVEY CONTROL MONUMENT # 52 AND ADJUSTED FROM PRIMARY CONTROL UTILIZING DIFFERENTIAL LEVELING TECHNIQUES.

   B. ACCURACY - 3RD ORDER OR BETTER

BEFORE YOU DIG OKLAHOMA 811 CALL OKIE

0 10' 20' 40'

SURVEY DATA (3 OF 7)
PROJECT NO. 144213
TMUA-W 22-90
ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)
CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

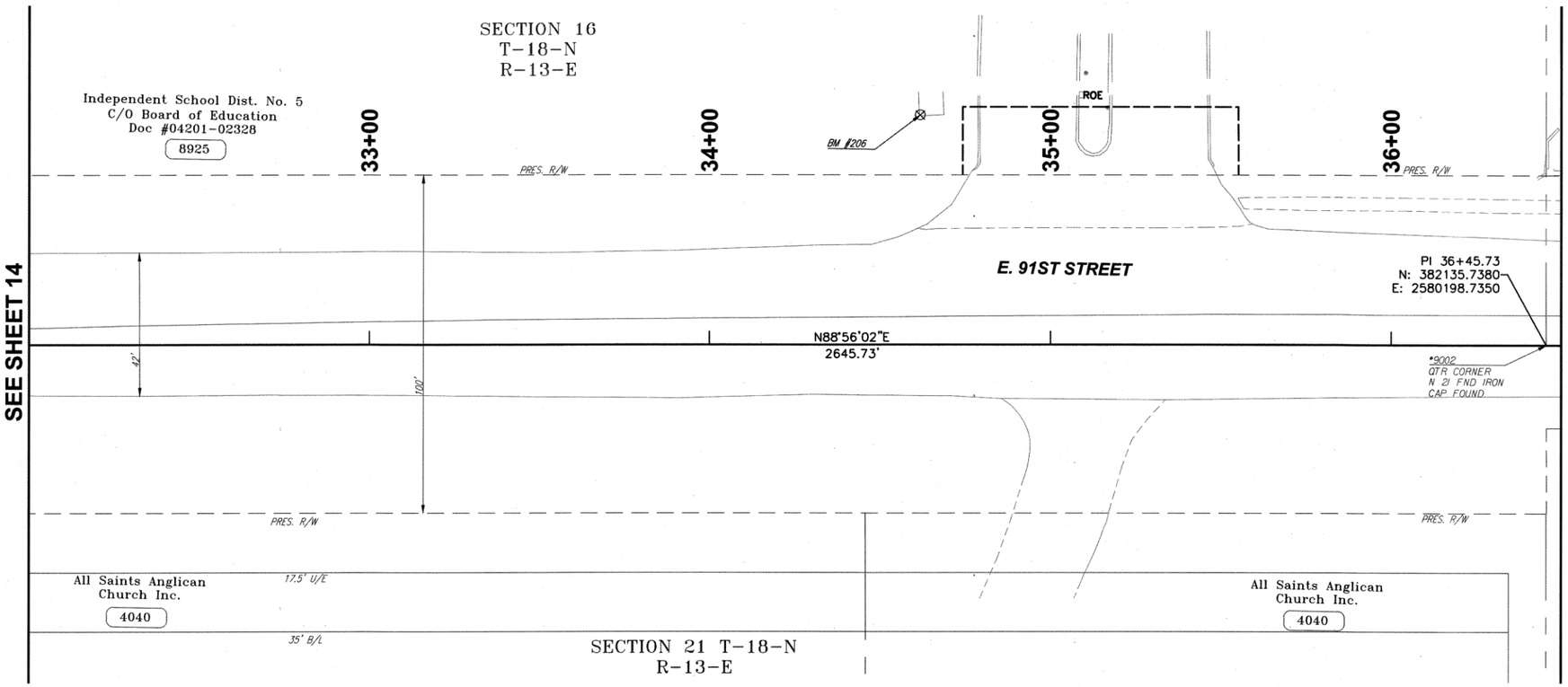
REVISION	BY	DATE

PLAN SCALE: 1" = 20'	DRAWN	T.C.B.	01/2025
	DESIGNED	S.N.H.	01/2025
	SURVEY	B.B.	10/2017
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A	PROJ. MGR.	JH	1/25
	LEAD ENGR.		1/25
	FIELD MGR.		1/25
	RECOMMENDED: DESIGN MANAGER		1/25

APPROVED: CITY ENGINEER

DRAWING: 2 SURVEY DATA (2 OF 2).DWG
ATLAS PAGE NO: 1006,1137
DATE 6/13/2025
SHEET 15 OF 89

PLOT DATE: January 13, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\2 SURVEY DATA (2 OF 2).DWG



STA 27+50
SEE SHEET 14

STA 36+50
SEE SHEET 17

LEGEND

- NEAREST ADDRESS
- BORE HOLE LOCATION
- BENCHMARK LOCATION

BENCHMARK				
NO.	NORTHING	EASTING	ELEV.	DESCRIPTION
206	382,199.9	2,580,013.6	682.697	34+61.77, 67.55' LT "X" CUT ON N. SW. COR. METER

PREPARED BY:
CEC CORPORATION
4555 W. MEMORIAL ROAD
OKLAHOMA CITY, OK 73142-2013
(405) 753-4200

RESPONSIBLE FOR SURVEY CONTROL

1/15/25 — DARRIN SMITH, P.L.S.
DATE — OKLAHOMA REG. NO. 1552

LICENSED PROFESSIONAL LAND SURVEYOR — DARRIN SMITH 1552 — OKLAHOMA

SURVEYOR'S CERTIFICATION:
I HEREBY CERTIFY THAT THE HORIZONTAL AND VERTICAL CONTROL FOR THIS PROJECT WERE BASED UPON THE TULSA COUNTY ADS CONTROL NETWORK AND THAT THE VALUES SHOWN MEET SECOND ORDER CLASS II HORIZONTAL (1:20,000) AND THIRD ORDER VERTICAL (1:5,000) STANDARDS. AT A MINIMUM.

SURVEY CONTROL DATA

1. HORIZONTAL DATUM IS TIED TO CITY OF TULSA SURVEY CONTROL MONUMENT # 52 WHICH IS ADJUSTED TO THE OKLAHOMA STATE PLANE NAD 83 (1993) COORDINATE SYSTEM, NORTH ZONE, PER MONUMENT #52 DATA SHEET.
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3. VERTICAL CONTROLS:

   A. LEVEL DATUM IS NGS, NAVD 88, PER CITY OF TULSA SURVEY CONTROL MONUMENT # 52 AND ADJUSTED FROM PRIMARY CONTROL UTILIZING DIFFERENTIAL LEVELING TECHNIQUES.

   B. ACCURACY - 3RD ORDER OR BETTER

BEFORE YOU DIG — 811 — CALL OKIE

0 10' 20' 40'

REVISION	BY	DATE

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

DRAWN	T.C.B.	01/2025
DESIGNED	S.N.H.	01/2025
SURVEY	B.B.	10/2017
PROJ. MGR.	JH	1/25
LEAD ENGR.	DJ	2/25
FIELD MGR.	DSM	2/25
RECOMMENDED: DESIGN MANAGER	MAS	2.25

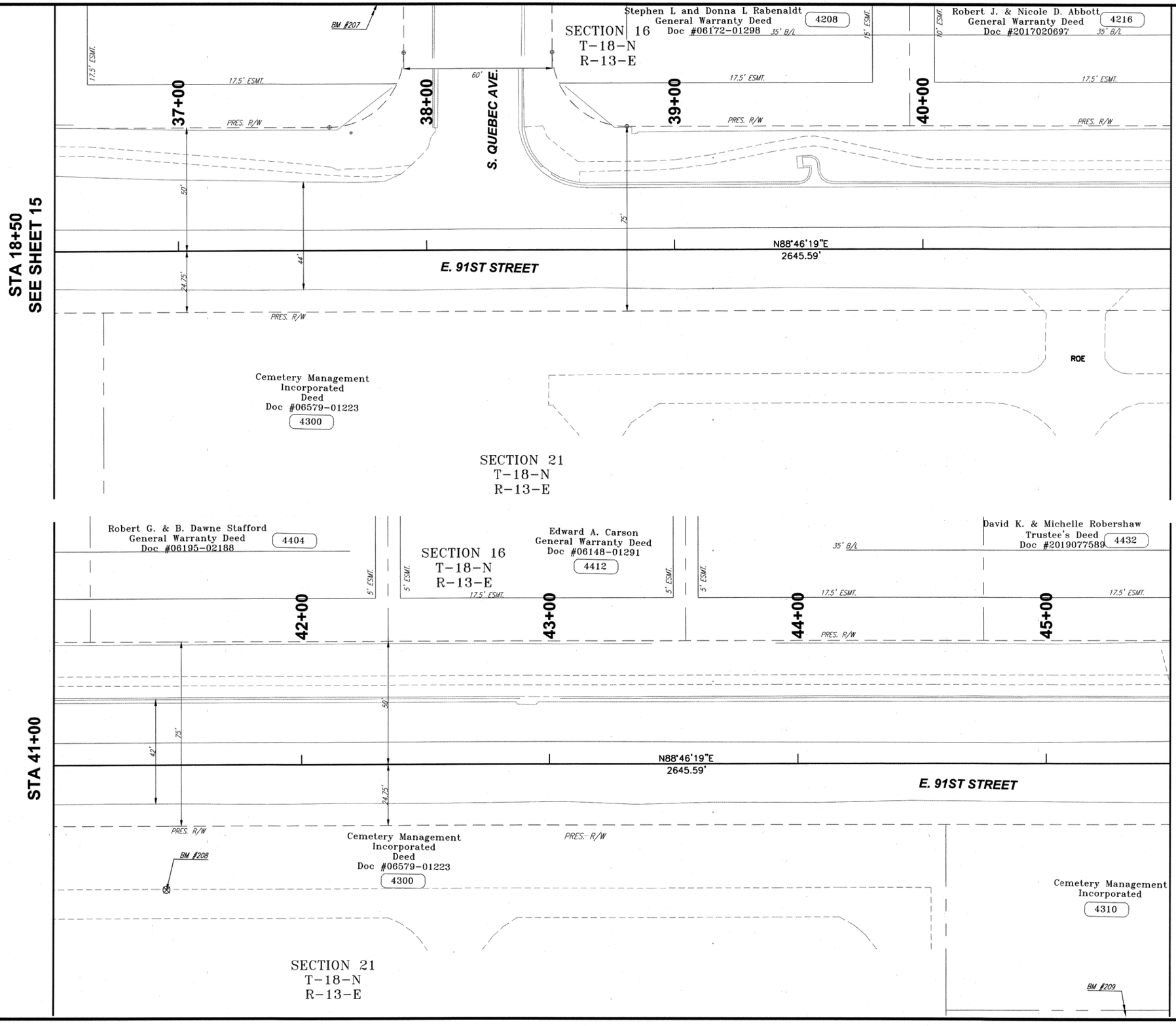
APPROVED: CITY ENGINEER

DRAWING: 2 SURVEY DATA (2 OF 2).DWG
ATLAS PAGE NO: 1006,1137
DATE 6/13/2025
SHEET 16 OF 89

SURVEY DATA (4 OF 7)
PROJECT NO. 144213
TMUA-W 22-90
ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)
CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

PLOT DATE: January 13, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\2 SURVEY DATA (2 OF 2).DWG



LEGEND

- NEAREST ADDRESS
- BORE HOLE LOCATION
- BENCHMARK LOCATION

BENCHMARK

NO.	NORTHING	EASTING	ELEV.	DESCRIPTION
207	382,291.4	2,580,352.6	689.857	38+02.87, 152.33' LT "X" CUT ON TOP OF CURB
208	382,096.0	2,580,699.5	701.067	41+45.51, 50.48' RT "X" CUT ON N. CONC. DRIVE
209	382,023.0	2,581,092.5	718.732	45+36.85, 131.91' RT "X" CUT ON TOP OF CURB

PREPARED BY:
CEC CORPORATION
4555 W. MEMORIAL ROAD
OKLAHOMA CITY, OK 73142-2013
(405) 753-4200

RESPONSIBLE FOR SURVEY CONTROL
6/13/25 Darren on. Smith
DATE DARREN SMITH, P.L.S.
OKLAHOMA REG. NO. 1552

LICENSED PROFESSIONAL LAND SURVEYOR DARREN SMITH 1552 OKLAHOMA

SURVEYOR'S CERTIFICATION:
I HEREBY CERTIFY THAT THE HORIZONTAL AND VERTICAL CONTROL FOR THIS PROJECT WERE BASED UPON THE TULSA COUNTY ADS CONTROL NETWORK AND THAT THE VALUES SHOWN MEET SECOND ORDER CLASS II HORIZONTAL (1:20,000) AND THIRD ORDER VERTICAL (1:5,000) STANDARDS. AT A MINIMUM.

SURVEY CONTROL DATA

1. HORIZONTAL DATUM IS TIED TO CITY OF TULSA SURVEY CONTROL MONUMENT # 52 WHICH IS ADJUSTED TO THE OKLAHOMA STATE PLANE NAD 83 (1993) COORDINATE SYSTEM, NORTH ZONE, PER MONUMENT #52 DATA SHEET.
2. BEARINGS:

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3. VERTICAL CONTROLS:

   A. LEVEL DATUM IS NGS, NAVD 88, PER CITY OF TULSA SURVEY CONTROL MONUMENT # 52 AND ADJUSTED FROM PRIMARY CONTROL UTILIZING DIFFERENTIAL LEVELING TECHNIQUES.

   B. ACCURACY - 3RD ORDER OR BETTER

BEFORE YOU DIG CALL OKIE 811

0 10' 20' 40'

SURVEY DATA (5 OF 7)
PROJECT NO. 144213
TMUA-W 22-90
ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)
CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC
CEC Corporation
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

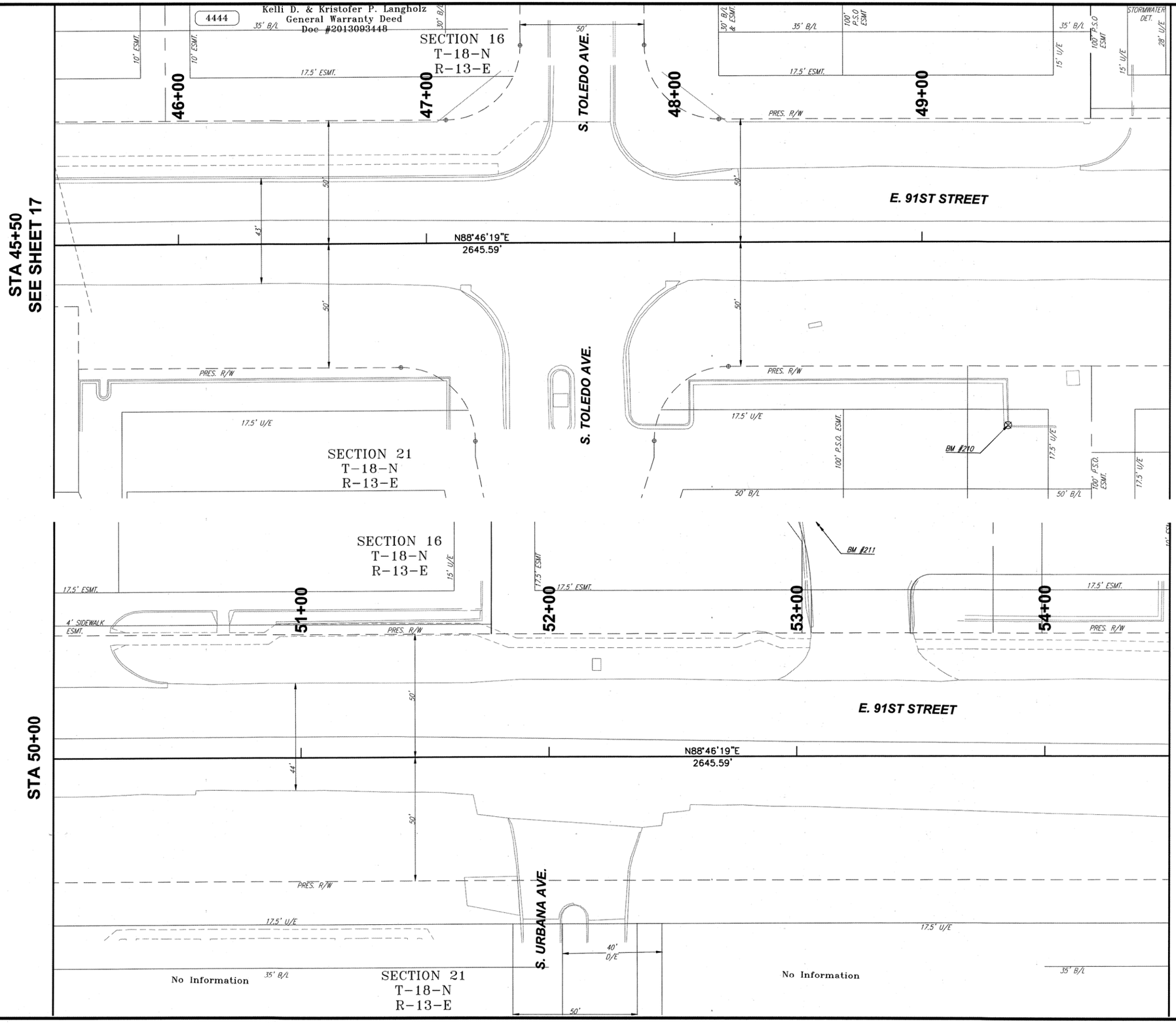
REVISION	BY	DATE

PLAN SCALE: 1" = 20'	DRAWN	T.C.B.	01/2025
	DESIGNED	S.N.H.	01/2025
	SURVEY	B.B.	10/2017
PROFILE SCALES:	PROJ. MGR.		1/25
HORIZONTAL: N/A	LEAD ENGR.		6/25
	FIELD MGR.		2/25
VERTICAL N/A	RECOMMENDED DESIGN MANAGER		6-25

APPROVED: CITY ENGINEER

DRAWING: 2 SURVEY DATA (2 OF 2).DWG
DATE 6/13/2025
ATLAS PAGE NO: 1006,1137
SHEET 17 OF 89

PLOT DATE: January 13, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\2 SURVEY DATA (2 OF 2).DWG



LEGEND

- NEAREST ADDRESS
- BORE HOLE LOCATION
- BENCHMARK LOCATION

BENCHMARK				
NO.	NORTHING	EASTING	ELEV.	DESCRIPTION
210	382,089.5	2,581,488.9	725.197	49+34.59, 73.92' RT "X" CUT ON TOP OF CURB
211	382,304.4	2,581,827.2	735.097	52+77.42, 133.68' LT "X" CUT ON TOP OF CURB

PREPARED BY:
CEC CORPORATION
4555 W. MEMORIAL ROAD
OKLAHOMA CITY, OK 73142-2013
(405) 753-4200

RESPONSIBLE FOR SURVEY CONTROL
1/15/25 Darren Smith
DATE DARREN SMITH, P.L.S.
OKLAHOMA REG. NO. 1552

LICENSED PROFESSIONAL LAND SURVEYOR — DARREN SMITH 1552 — OKLAHOMA

SURVEYOR'S CERTIFICATION:
I HEREBY CERTIFY THAT THE HORIZONTAL AND VERTICAL CONTROL FOR THIS PROJECT WERE BASED UPON THE TULSA COUNTY ADS CONTROL NETWORK AND THAT THE VALUES SHOWN MEET SECOND ORDER CLASS II HORIZONTAL (1:20,000) AND THIRD ORDER VERTICAL (1:5,000) STANDARDS. AT A MINIMUM.

SURVEY CONTROL DATA

1. HORIZONTAL DATUM IS TIED TO CITY OF TULSA SURVEY CONTROL MONUMENT # 52 WHICH IS ADJUSTED TO THE OKLAHOMA STATE PLANE NAD 83 (1993) COORDINATE SYSTEM, NORTH ZONE, PER MONUMENT #52 DATA SHEET.
2. BEARINGS:

   THE BEARINGS SHOWN HEREIN OR HEREON ARE GRID BEARINGS DERIVED FROM THE USC & GS OKLAHOMA PLANE COORDINATE SYSTEM AND ARE NOT ASTRONOMICAL.
3. VERTICAL CONTROLS:

   A. LEVEL DATUM IS NGS, NAVD 88, PER CITY OF TULSA SURVEY CONTROL MONUMENT # 52 AND ADJUSTED FROM PRIMARY CONTROL UTILIZING DIFFERENTIAL LEVELING TECHNIQUES.

   B. ACCURACY - 3RD ORDER OR BETTER

BEFORE YOU DIG OKLAHOMA 811 CALL OKIE

0 10' 20' 40'

REVISION	BY	DATE
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SURVEY DATA (6 OF 7)

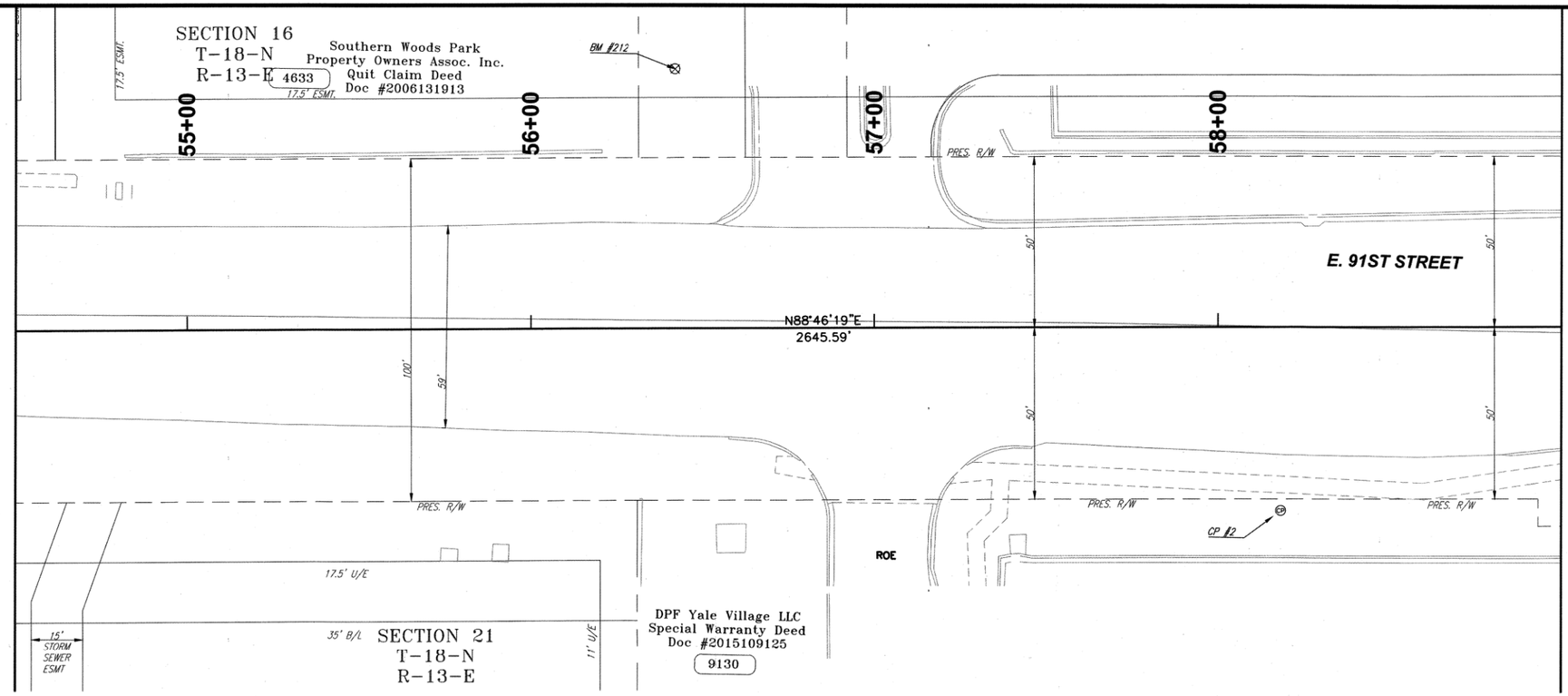
PROJECT NO. 144213
TMUA-W 22-90

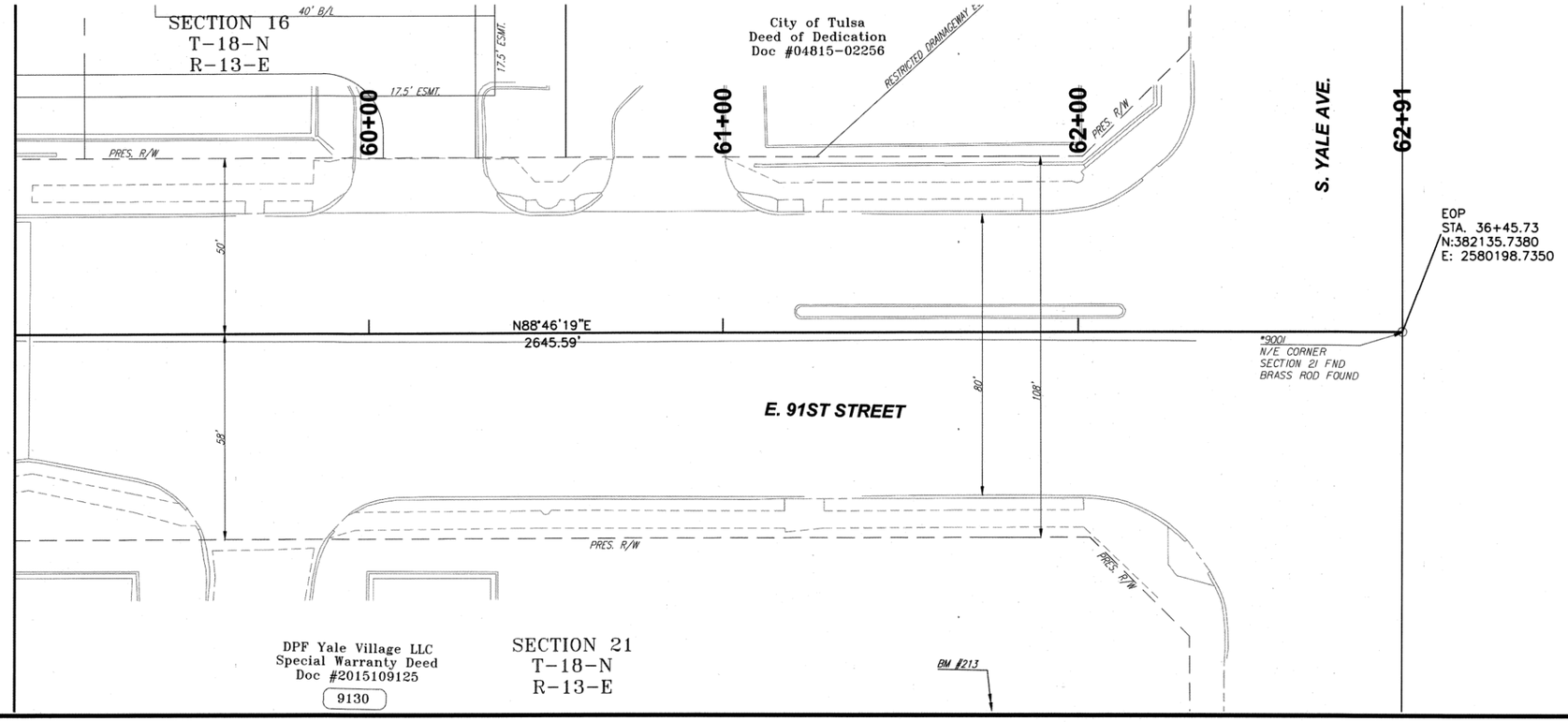
ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)
CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

PLAN SCALE: 1" = 20'	DRAWN	T.C.B.	01/2025	APPROVED:
	DESIGNED	S.N.H.	01/2025	
	SURVEY	B.B.	10/2017	
PROFILE SCALES:	PROJ. MGR.		1/25	
HORIZONTAL: N/A	LEAD ENGR.		1/25	
	FIELD MGR.		1/25	
VERTICAL N/A	RECOMMENDED DESIGN MANAGER		1-25	CITY ENGINEER
DRAWING: 2 SURVEY DATA (2 OF 2).DWG				DATE 6/13/2025
ATLAS PAGE NO: 1006,1137				SHEET 18 OF 87

PLOT DATE: January 13, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\2 SURVEY DATA (2 OF 2).DWG





LEGEND

- NEAREST ADDRESS
- BORE HOLE LOCATION
- BENCHMARK LOCATION

BENCHMARK				
NO.	NORTHING	EASTING	ELEV.	DESCRIPTION
212	382,254.3	2,582,193.2	736.067	56+42.32, 75.74' LT "X" CUT ON W. SIDE SIDEWALK
213	381,959.9	2,582,729.6	733.487	61+72.23, 230.00' RT "X" CUT ON TOP OF CURB
CONTROL POINT				
NO.	NORTHING	EASTING	ELEV.	DESCRIPTION
2	382,128.8741	2,582,371.7799	729.037	58+18.13, 53.43' RT SET 5/8" IRON PIN WITH CEC CP

STA 59+00

PREPARED BY:
CEC CORPORATION
4555 W. MEMORIAL ROAD
OKLAHOMA CITY, OK 73142-2013
(405) 753-4200

RESPONSIBLE FOR SURVEY CONTROL

4/15/25 DATE — DARRIN SMITH, P.L.S.
OKLAHOMA REG. NO. 1552

LICENSED PROFESSIONAL LAND SURVEYOR — DARRIN SMITH 1552 — OKLAHOMA

SURVEYOR'S CERTIFICATION:
I HEREBY CERTIFY THAT THE HORIZONTAL AND VERTICAL CONTROL FOR THIS PROJECT WERE BASED UPON THE TULSA COUNTY ADS CONTROL NETWORK AND THAT THE VALUES SHOWN MEET SECOND ORDER CLASS II HORIZONTAL (1:20,000) AND THIRD ORDER VERTICAL (1:5,000) STANDARDS. AT A MINIMUM.

SURVEY CONTROL DATA

1. HORIZONTAL DATUM IS TIED TO CITY OF TULSA SURVEY CONTROL MONUMENT # 52 WHICH IS ADJUSTED TO THE OKLAHOMA STATE PLANE NAD 83 (1993) COORDINATE SYSTEM, NORTH ZONE, PER MONUMENT #52 DATA SHEET.
2. BEARINGS:

   THE BEARINGS SHOWN HEREIN OR HEREON ARE GRID BEARINGS DERIVED FROM THE USC & GS OKLAHOMA PLANE COORDINATE SYSTEM AND ARE NOT ASTRONOMICAL.
3. VERTICAL CONTROLS:

   A. LEVEL DATUM IS NGS, NAVD 88, PER CITY OF TULSA SURVEY CONTROL MONUMENT # 52 AND ADJUSTED FROM PRIMARY CONTROL UTILIZING DIFFERENTIAL LEVELING TECHNIQUES.

   B. ACCURACY - 3RD ORDER C

BEFORE YOU DIG 811 OKIE — CALL OKIE

0 10' 20' 40'

REVISION	BY	DATE

SURVEY DATA (7 OF 7)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)
CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

PLAN SCALE: 1" = 20'	DRAWN	T.C.B.	01/2025	APPROVED:
	DESIGNED	S.N.H.	01/2025	
	SURVEY	B.B.	10/2017	
PROFILE SCALES: HORIZONTAL: N/A VERTICAL: N/A	PROJ. MGR.		1/25	
	LEAD ENGR.		4/15/25	
	FIELD MGR.		4/15/25	
	RECOMMENDED: DESIGN MANAGER		4/15/25	CITY ENGINEER
DRAWING: 2 SURVEY DATA (2 OF 2).DWG				DATE 4/13/2025
ATLAS PAGE NO: 1006,1137				SHEET 19 OF 89

PLOT DATE: January 13, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\2 SURVEY DATA (2 OF 2).DWG

SECTION 16
T-18-N
R-13-E

Independent School Dist. No. 5
C/O Board of Education
Doc #04201-02328
8925

10+00
11+00
12+00
13+00

PRES. R/W

BOP 10+00.00
N: 382086.5080
E: 2577553.4660

S. HARVARD AVE.

58'
82'

E. 91ST STREET

N88°56'01.73"E
2645.727

STA. 13+50

*9003
N/W CORNER
SECTION 21
MAGNAIL FOUND

50'

PRES. R/W
PRES. R/W

Catholic Cemetery Assoc. of Tulsa
General Warranty Deed
Doc #06407-02668
9101

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

STA. 13+50

Independent School Dist. No. 5
C/O Board of Education
Doc #04201-02328
8925

BM #201

Independent School Dist. No. 5
C/O Board of Education
Doc #04201-02328
8925

SECTION 16
T-18-N
R-13-E

14+00
15+00
16+00
17+00

PRES. R/W
PRES. R/W
PRES. R/W

50'

E. 91ST STREET

N88°56'01.73"E
2645.727

68'
50'

24.25'
25'
STATUTORY R/W

PRES. R/W

Catholic Cemetery Assoc. of Tulsa
General Warranty Deed
Doc #06407-02668
9101

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

STA. 18+00
SEE SHEET 21

0 10' 20' 40'

REGISTERED PROFESSIONAL ENGINEER
SHANNON N. HANKS
21141
OKLAHOMA
1-31-25

BEFORE YOU DIG
811
CALL OKIE

GEOMETRIC & ROW DATA (1 OF 6)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

REVISION	BY	DATE
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-	-	-

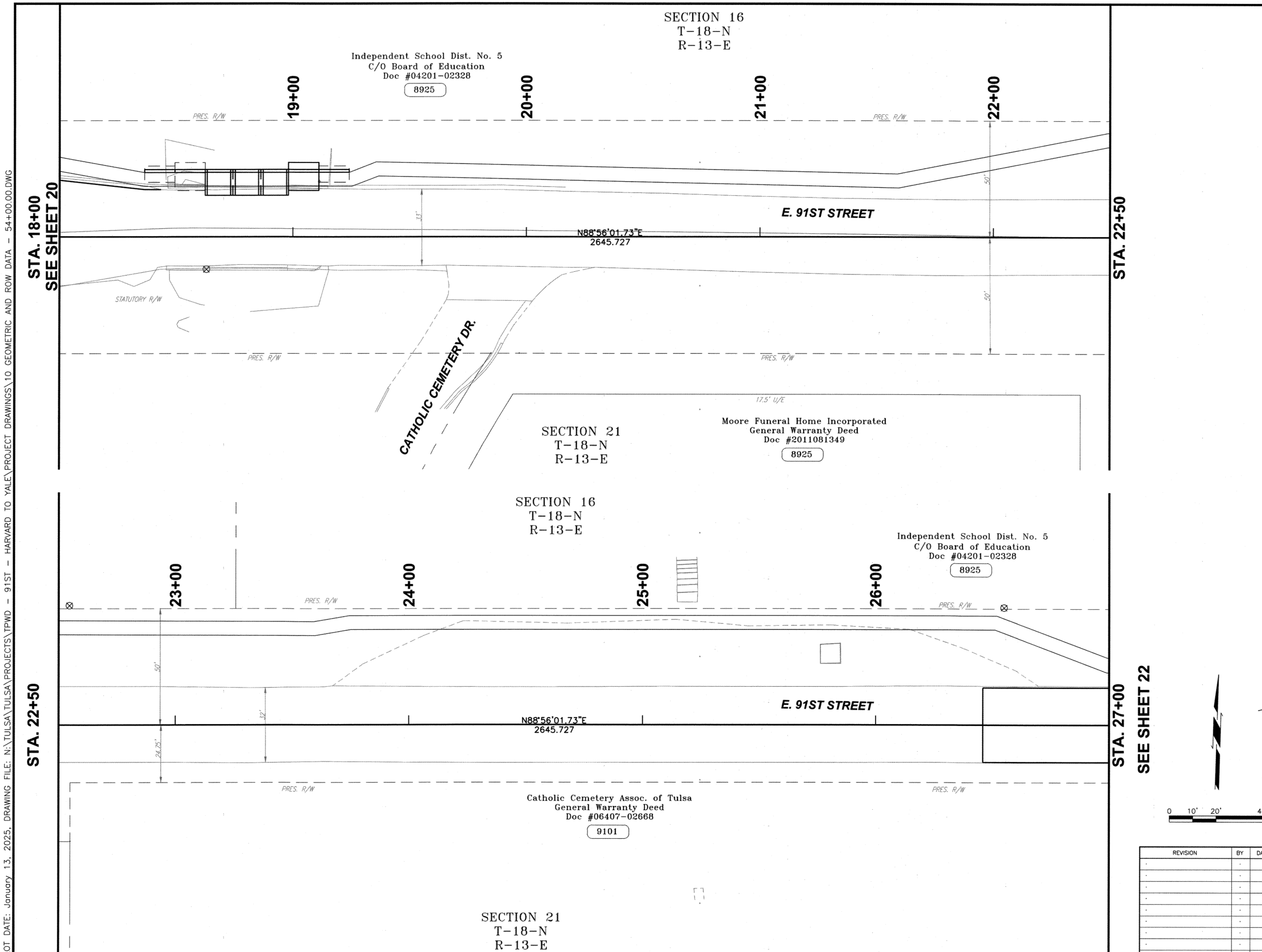
PLAN SCALE: 1" = 20'
PROFILE SCALES:
HORIZONTAL: N/A
VERTICAL N/A

DRAWN	T.C.B.	01/2025
DESIGNED	S.N.H.	01/2025
SURVEY	B.B.	10/2017
PROJ. MGR.		1/25
LEAD ENGR.		1/25
FIELD MGR.		1/24/25
RECOMMENDED: DESIGN MANAGER		1-31-25

APPROVED: CITY ENGINEER

DRAWING: 10 GEOMETRIC AND ROW DATA - 54+00.00.DWG
DATE 1/13/2025
ATLAS PAGE NO: 1006,1137
SHEET 20 OF 89

PLOT DATE: January 13, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\10 GEOMETRIC AND ROW DATA - 54+00.00.DWG



SHANNON N. HANKS 21141 REGISTERED PROFESSIONAL ENGINEER OKLAHOMA

CALL OKIE 811

GEOMETRIC & ROW DATA (2 OF 6)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

REVISION	BY	DATE
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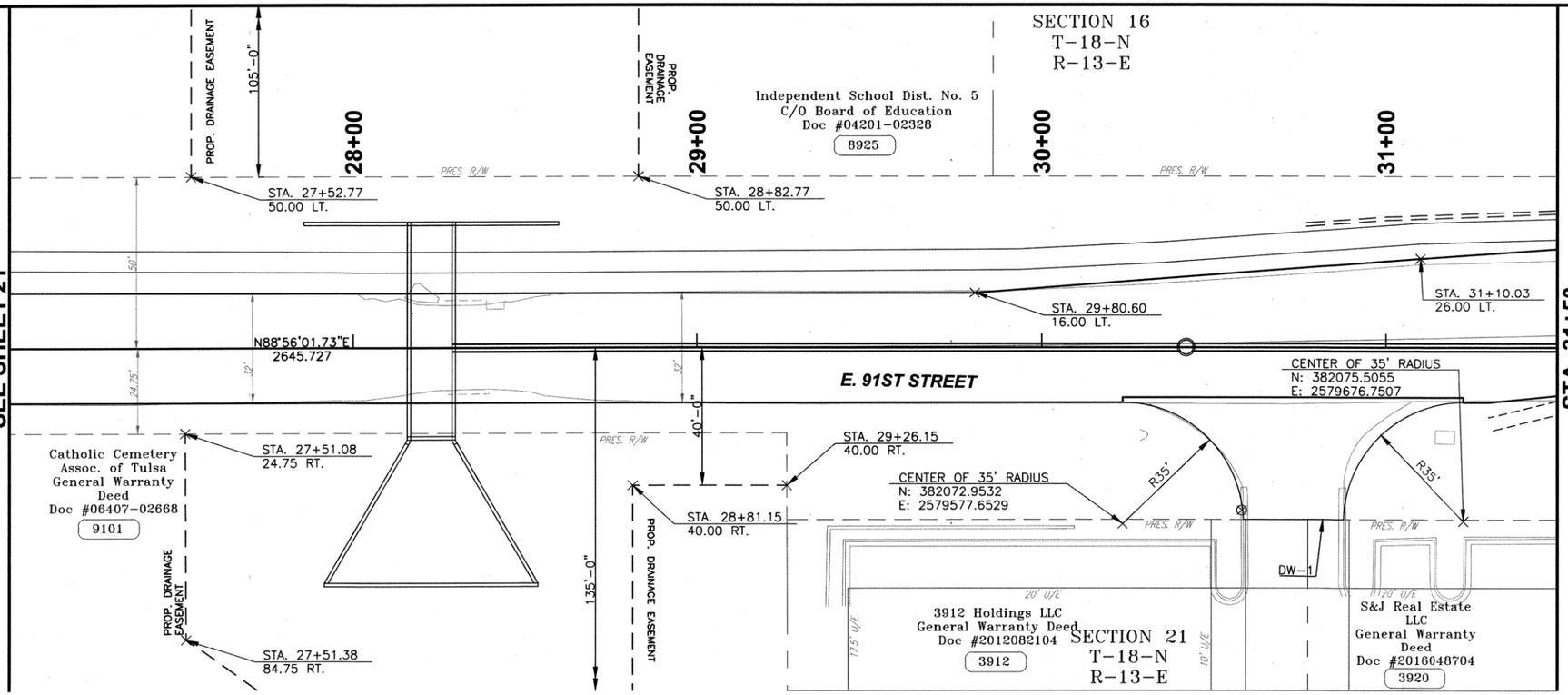
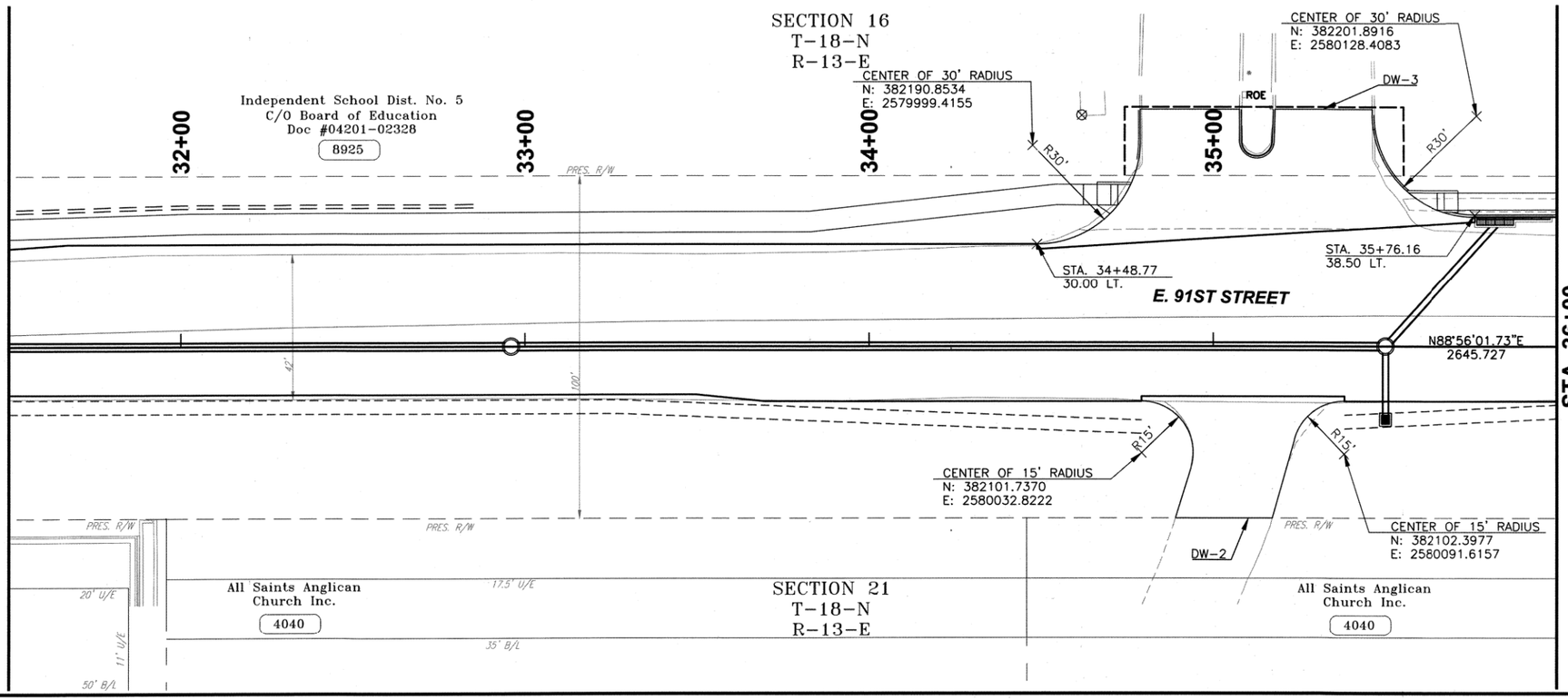
PLAN SCALE: 1" = 20'	DRAWN	T.C.B.	01/2025	APPROVED:
	DESIGNED	S.N.H.	01/2025	
	SURVEY	B.B.	10/2017	
PROFILE SCALES:	PROJ. MGR.	JH	1/25	
HORIZONTAL: N/A	LEAD ENGR.	DD	2/25	
	FIELD MGR.		2/25	
VERTICAL N/A	RECOMMENDED: HAS 2-25 DESIGN MANAGER			CITY ENGINEER
DRAWING: 10 GEOMETRIC AND ROW DATA – 54+00.00.DWG				DATE 6/13/2025
ATLAS PAGE NO: 1006,1137				SHEET 21 OF 89

PLOT DATE: January 13, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD – 91ST – HARVARD TO YALE\PROJECT DRAWINGS\10 GEOMETRIC AND ROW DATA – 54+00.00.DWG



RIGHT OF WAY			
PARCEL NUMBER	STREET ADDRESS	PROPERTY OWNER	AREA (SF)
1.A	8925 S. HARVARD AVE.	INDEPENDENT SCHOOL DIST NO. 5	1,275
1.B	9101 S HARVARD AVE.	CATHOLIC CEMETERY ASSOC OF TULSA	1,294



TEMPORARY RIGHT OF ENTRY			
STREET ADDRESS	WIDTH X DEPTH (FT)	AREA (SF)	ASSOCIATED DRIVEWAY
8925 S. HARVARD AVE.	81 X 20	180	3

0 10' 20' 40'

REGISTERED PROFESSIONAL ENGINEER
SHANNON N. HANKS
21141
OKLAHOMA
7-25-25

BEFORE YOU DIG
CALL OKIE

GEOMETRIC & ROW DATA (3 OF 6)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

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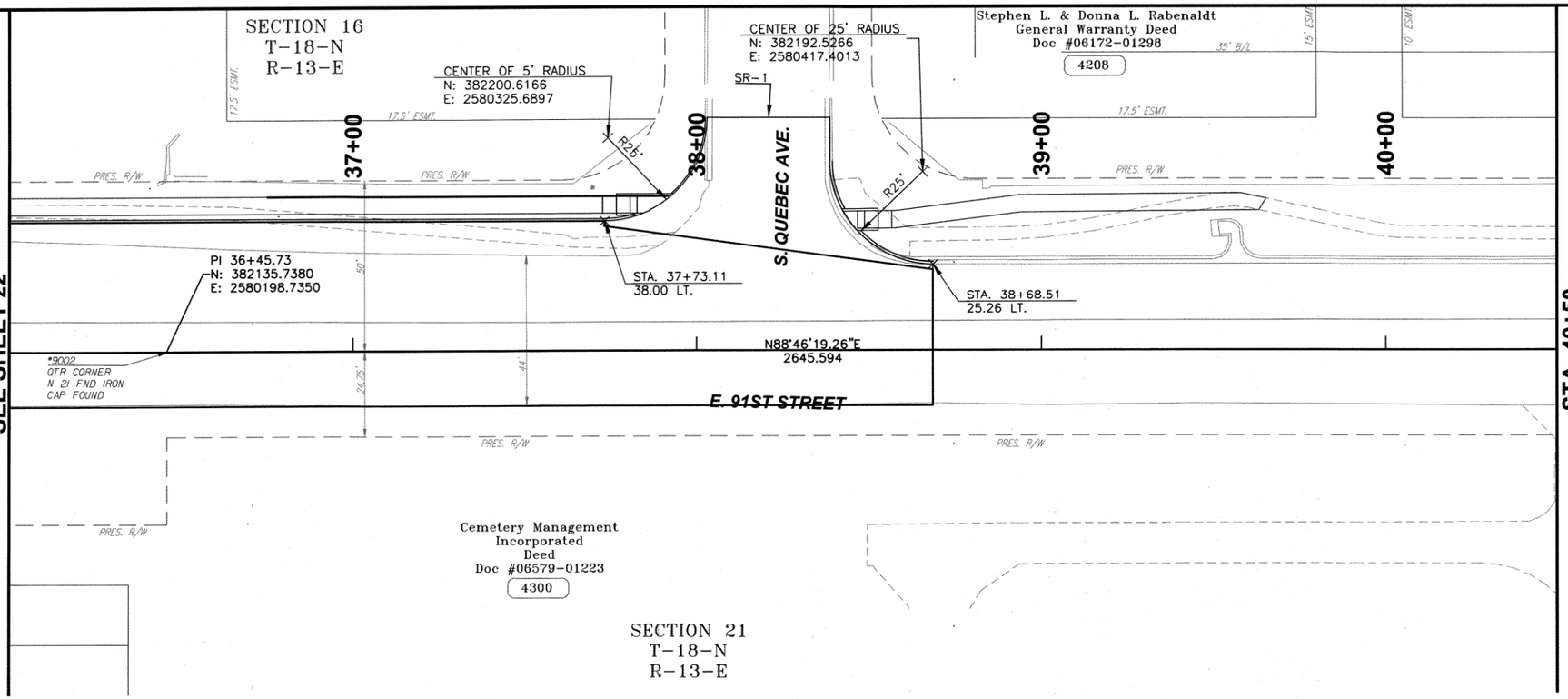
PLAN SCALE: 1" = 20'
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A

DRAWN	T.C.B.	01/2025
DESIGNED	S.N.H.	01/2025
SURVEY	B.B.	10/2017
PROJ. MGR.		1/25
LEAD ENGR.		7/25
FIELD MGR.		7/2/25
RECOMMENDED: DESIGN MANAGER		7/25

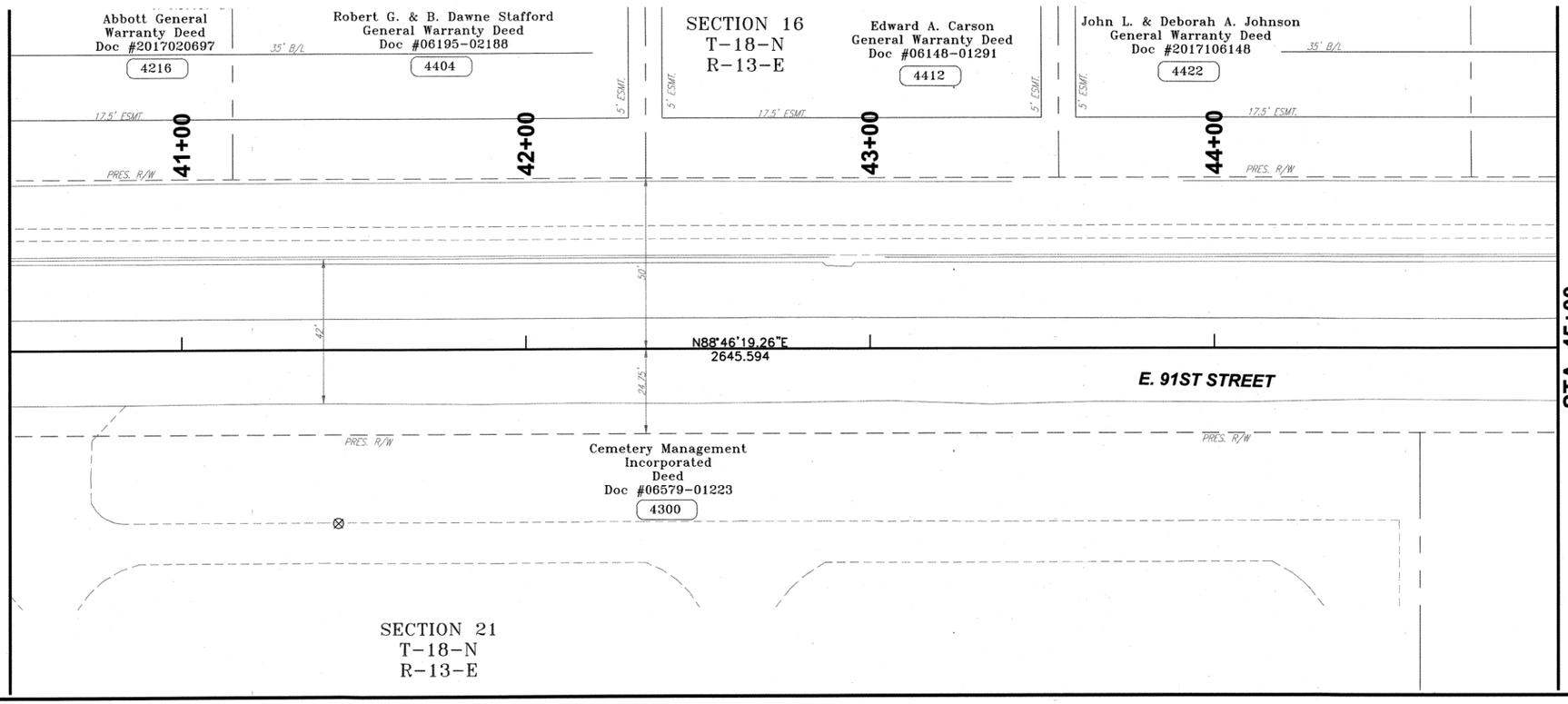
APPROVED: CITY ENGINEER

DRAWING: 10 GEOMETRIC AND ROW DATA - 54+00.00.DWG
DATE 6/13/2025
ATLAS PAGE NO: 1006,1137
SHEET 22 OF 89

PLOT DATE: January 13, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\10 GEOMETRIC AND ROW DATA - 54+00.00.DWG



TEMPORARY RIGHT OF ENTRY			
STREET ADDRESS	WIDTH X DEPTH (FT)	AREA (SF)	ASSOCIATED DRIVEWAY
4300 E. 91ST ST.	37 X 17	70	4



0 10' 20' 40'

REGISTERED PROFESSIONAL ENGINEER
SHANNON N. HANKS
21141
OKLAHOMA
12-31-25

BEFORE YOU DIG
811
CALL OKIE

GEOMETRIC & ROW DATA (4 OF 6)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

REVISION	BY	DATE

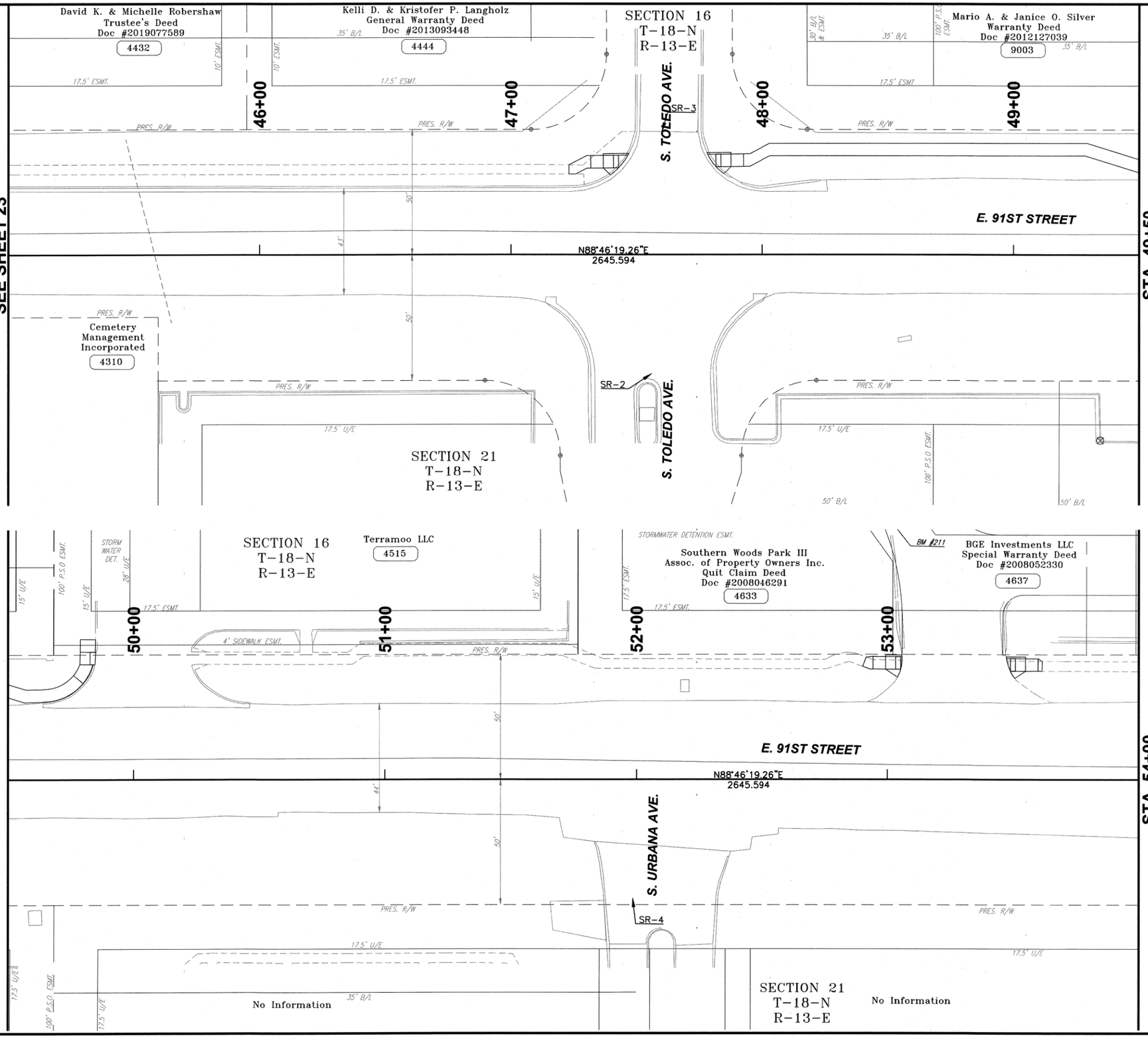
PLAN SCALE: 1" = 20'
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A

DRAWN	T.C.B.	01/2025
DESIGNED	S.N.H.	01/2025
SURVEY	B.B.	10/2017
PROJ. MGR.	JH	1/25
LEAD ENGR.		1/25
FIELD MGR.		2/25
RECOMMENDED: DESIGN MANAGER		2-25

APPROVED: CITY ENGINEER

DRAWING: 10 GEOMETRIC AND ROW DATA - 54+00.00.DWG
DATE 6/13/2025
ATLAS PAGE NO: 1006,1137
SHEET 23 OF 89

PLOT DATE: January 13, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\10 GEOMETRIC AND ROW DATA - 54+00.00.DWG



PLOT DATE: January 13, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\10 GEOMETRIC AND ROW DATA - 54+00.00.DWG

0 10' 20' 40'

REGISTERED PROFESSIONAL ENGINEER
SHANNON N. HANKS
21141
OKLAHOMA
1-13-25

BEFORE YOU DIG
811
CALL OKIE

GEOMETRIC & ROW DATA (5 OF 6)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

REVISION	BY	DATE
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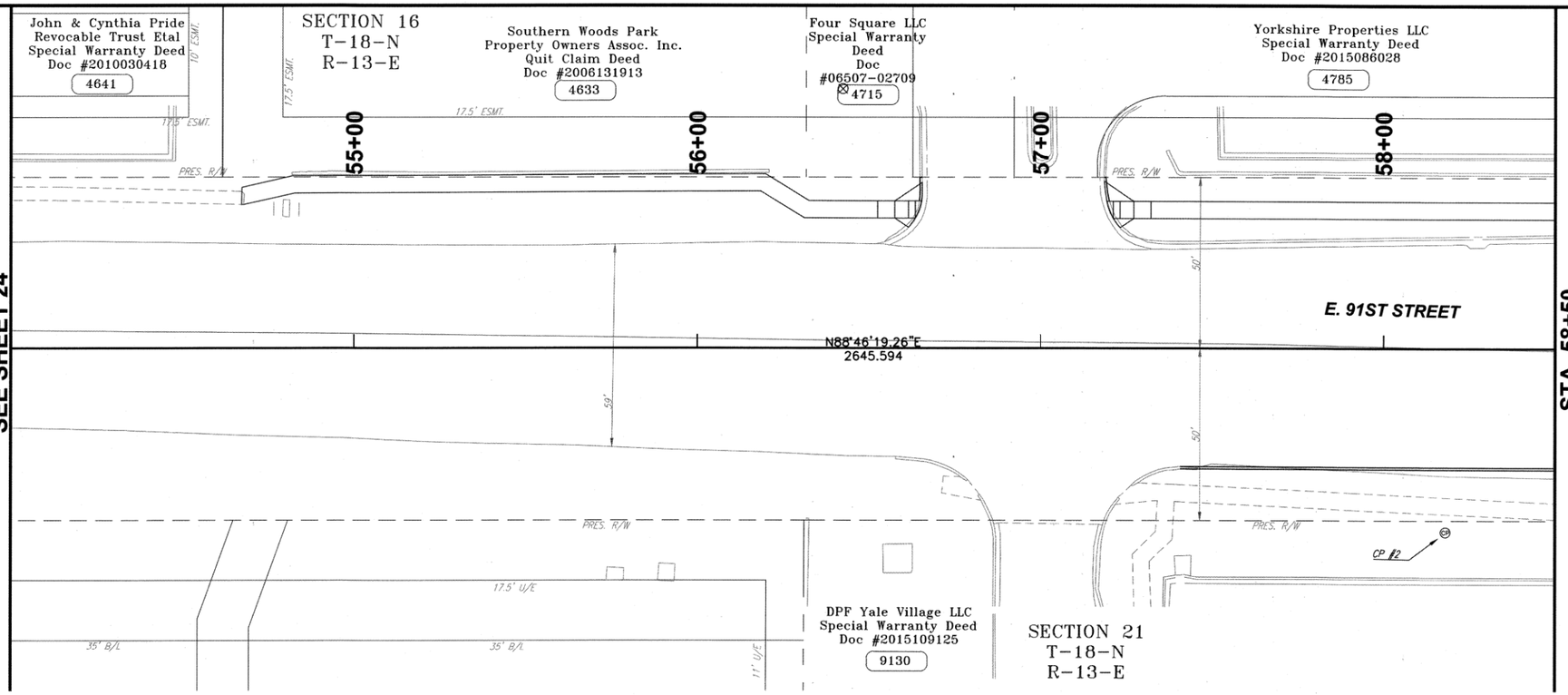
PLAN SCALE: 1" = 20'

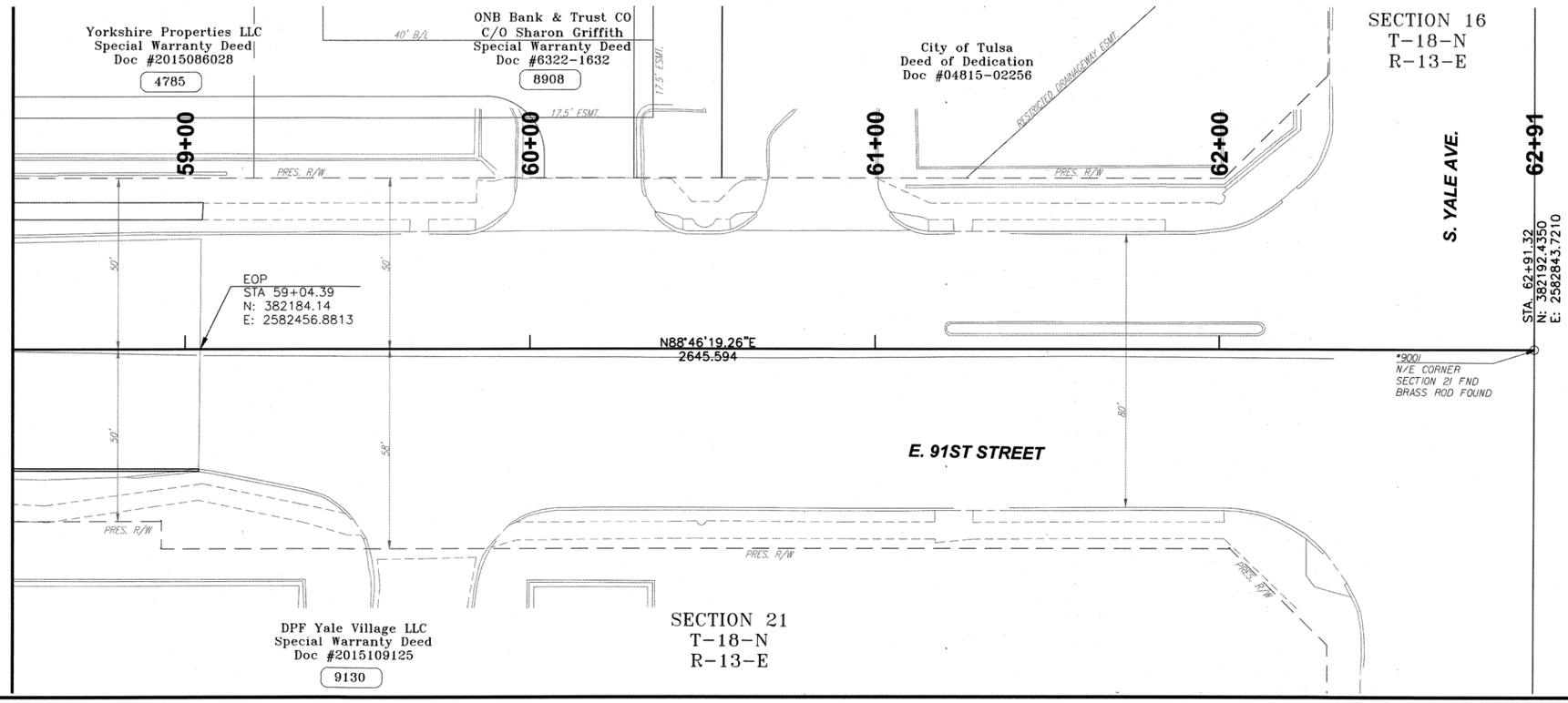
PROFILE SCALES:
HORIZONTAL: N/A
VERTICAL N/A

DRAWN	T.C.B.	01/2025
DESIGNED	S.N.H.	01/2025
SURVEY	B.B.	10/2017
PROJ. MGR.		1/25
LEAD ENGR.		1/25
FIELD MGR.		1/25
RECOMMENDED: DESIGN MANAGER		1-25

APPROVED: CITY ENGINEER

DRAWING: 10 GEOMETRIC AND ROW DATA - 54+00.00.DWG
DATE 6/13/2025
ATLAS PAGE NO: 1006,1137
SHEET 24 OF 89





TEMPORARY RIGHT OF ENTRY			
STREET ADDRESS	WIDTH X DEPTH (FT)	AREA (SF)	ASSOCIATED DRIVEWAY
9130 S. YALE AVE.	43 X 14	66	7

REGISTERED PROFESSIONAL ENGINEER
SHANNON N. HANKS
21141
OKLAHOMA
Shannon Hanks

BEFORE YOU DIG
811
CALL OKIE

0 10' 20' 40'

GEOMETRIC & ROW DATA (6 OF 6)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

REVISION	BY	DATE

PLAN SCALE: 1" = 20'

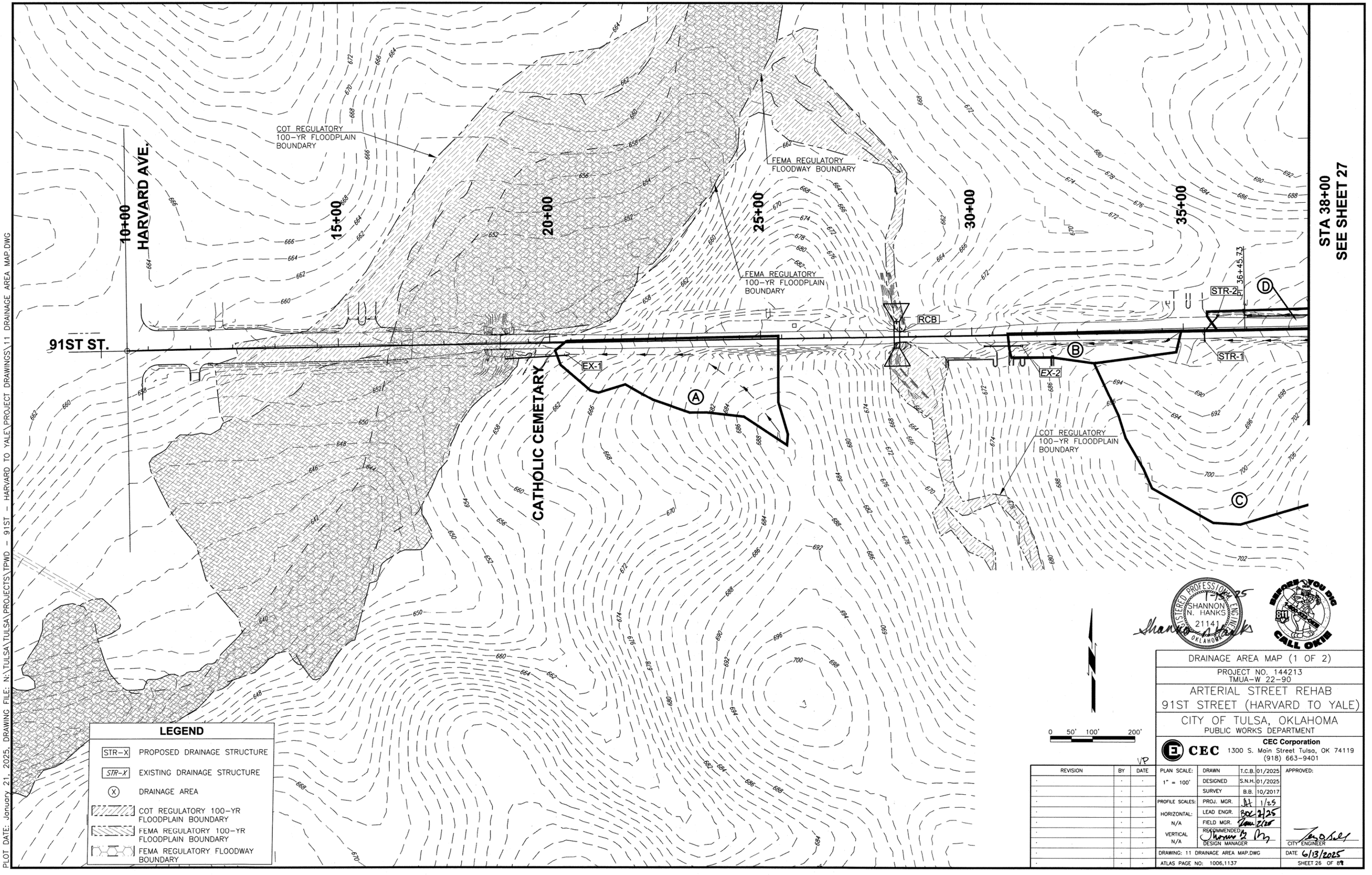
PROFILE SCALES:
HORIZONTAL: N/A
VERTICAL N/A

DRAWN	T.C.B.	01/2025
DESIGNED	S.N.H.	01/2025
SURVEY	B.B.	10/2017
PROJ. MGR.	JH	1/25
LEAD ENGR.		2/25
FIELD MGR.		2/25
RECOMMENDED: DESIGN MANAGER	HHS	2-25

APPROVED: CITY ENGINEER

DRAWING: 10 GEOMETRIC AND ROW DATA - 54+00.00.DWG
DATE 6/13/2025
ATLAS PAGE NO: 1006,1137
SHEET 25 OF 89

PLOT DATE: January 13, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\10 GEOMETRIC AND ROW DATA - 54+00.00.DWG



PLOT DATE: January 21, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\11 DRAINAGE AREA MAP.DWG

REGISTERED PROFESSIONAL ENGINEER
SHANNON N. HANKS
21141
OKLAHOMA
1-31-25

BEFORE YOU DIG CALL OKIE

DRAINAGE AREA MAP (1 OF 2)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

REVISION	BY	DATE
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VP

PLAN SCALE: 1" = 100'
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A

DRAWN	T.C.B.	01/2025
DESIGNED	S.N.H.	01/2025
SURVEY	B.B.	10/2017
PROJ. MGR.		1/25
LEAD ENGR.		1/25
FIELD MGR.		1/25
RECOMMENDED: DESIGN MANAGER		

APPROVED: CITY ENGINEER

DRAWING: 11 DRAINAGE AREA MAP.DWG
ATLAS PAGE NO: 1006,1137

DATE 6/13/2025
SHEET 26 OF 81

PLOT DATE: January 21, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\11 DRAINAGE AREA MAP.DWG

STA 38+00
SEE SHEET 26

QUEBEC AVE.

40+00

45+00

TOLEDO AVE.

50+00

55+00

60+00

62+91

YALE AVE.

91ST ST

URBANA AVE.

TOLEDO AVE.

EX-3 EX-30 EX-31 EX-4 EX-5 EX-7 EX-8 EX-10 EX-13 EX-9 EX-11 EX-12 EX-14 EX-6 EX-32

EXIST. WATERLINE

COT REGULATORY
100-YR FLOODPLAIN
BOUNDARY

C-A

NOTE: STRUCTURES EX-9 THROUGH EX-13 ARE OUTSIDE PROJECT LIMITS

LEGEND

- STR-X — PROPOSED DRAINAGE STRUCTURE
- STR-X — EXISTING DRAINAGE STRUCTURE
- (X) — DRAINAGE AREA
- COT REGULATORY 100-YR FLOODPLAIN BOUNDARY
- FEMA REGULATORY 100-YR FLOODPLAIN BOUNDARY
- FEMA REGULATORY FLOODWAY BOUNDARY

0 50' 100' 200'

VP

REVISION	BY	DATE

REGISTERED PROFESSIONAL ENGINEER
SHANNON N. HANKS
21141
OKLAHOMA
1/13/25

BEFORE YOU DIG CALL OKIE

DRAINAGE AREA MAP (2 OF 2)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

PLAN SCALE: 1" = 100'	DRAWN	T.C.B.	01/2025
	DESIGNED	S.N.H.	01/2025
	SURVEY	B.B.	10/2017
PROFILE SCALES:	PROJ. MGR.	JH	1/25
HORIZONTAL: N/A	LEAD ENGR.	BOC	2/25
	FIELD MGR.	[illegible]	2/25
VERTICAL N/A	RECOMMENDED DESIGN MANAGER		

APPROVED: CITY ENGINEER

DRAWING: 11 DRAINAGE AREA MAP.DWG

DATE 6/13/2025

ATLAS PAGE NO: 1006,1137

SHEET 27 OF 87

SUMMARY OF HYDROLOGIC DATA AND RUNOFF CALCULATIONS

D.A. NO.	AREA	INTENSITY	RUNOFF COEFF.	DESIGN YEAR RUNOFF	COLLECTING STR NO.	OVERLAND FLOW					SHALLOW CHANNELIZED FLOW (UNPAVED)					SHALLOW CHANNELIZED FLOW					TOTAL TIME OF CONCENTRATION
	A	I_{100}	C	Q_{100}		OVERLAND CLASS	FLOWPATH LENGTH (MAX = 100 LF)	AVG SLOPE	VELOCITY	T_i	CHANNEL CLASS	FLOWPATH LENGTH	AVG SLOPE	VELOCITY	T_t	CHANNEL CLASS	FLOWPATH LENGTH	AVG SLOPE	VELOCITY	T_t	$T_c = T_i + T_t$
	ACRES	IN/HR		CFS			LF	%	FPS	MIN		LF	%	FPS	MIN		LF	%	FPS	MIN	MIN
A	1.8	12.2	0.5	10.7	EX-1	G	100.0	4.0	3.2	0.5	G	478.0	6.4	4.1	1.9	-	-	-	-	0	2.4
B	0.57	12.20	0.6	3.82	EX-2	G	100.0	1.5	2.0	0.8	G	278.0	2.7	2.7	1.7	-	-	-	-	0	2.5
C	9.93	10.30	0.5	50.11	STR-1	G	100.0	4.0	3.2	0.5	G	1078.0	3.5	3.0	6.0	-	-	-	-	0	6.5
C-A	3.58	11.80	0.5	20.70	CUL-1	G	100.0	4.0	3.2	0.5	G	537.8	4.5	3.4	2.6	-	-	-	-	0	3.1
D	0.42	12.70	0.9	4.59	STR-2	P	100.0	5.5	4.8	0.3	-	-	-	-	0	P	279.0	3.1	3.6	1.3	1.6
E	0.39	12.90	0.7	3.57	EX-3	P	100.0	6.3	5.1	0.3	-	-	-	-	0	P	242.0	3.7	3.9	1.0	1.3
F	0.61	12.30	0.7	5.56	EX-30	P	100.0	2.0	2.9	0.6	-	-	-	-	0	P	399.2	4.1	4.1	1.6	2.2
G	0.48	12.30	0.6	3.32	EX-31	G	100.0	1.0	1.6	1.0	G	219.0	3.4	3.0	1.2	-	-	-	-	0	2.2
H	0.30	13.20	0.8	2.97	EX-32	P	100.0	4.8	4.4	0.4	G	54.0	2.8	2.7	0.3	P	45.0	11.7	6.9	0.1	0.8
I	0.65	12.40	0.9	6.93	EX-4	P	100.0	1.8	2.7	0.6	-	-	-	-	0	P	314.0	3.2	3.6	1.5	2.1
J	0.94	13.10	0.7	8.37	EX-5	P	100.0	2.5	3.2	0.5	-	-	-	-	0	P	87.3	2.3	3.1	0.5	1.0
J-A	0.09	13.50	0.7	0.90	CUL-2	P	39.0	3.8	4.0	0.2	G	38.0	5.3	3.7	0.2	-	-	-	-	0	0.4
M	0.34	13.00	0.6	2.83	EX-7	G	100.0	4.0	3.2	0.5	G	76.0	1.6	2.1	0.6	-	-	-	-	0	1.1
N	0.66	12.70	0.6	5.03	EX-6	G	100.0	4.0	3.2	0.5	G	139.0	2.0	2.3	1.0	-	-	-	-	0	1.5
O	0.92	12.50	0.9	10.24	EX-9	P	100.0	2.0	2.9	0.6	-	-	-	-	0	P	215.6	1.9	2.8	1.3	1.9
P	0.66	12.20	0.8	6.68	EX-8	P	100.0	17.8	8.6	0.2	-	-	-	-	0	P	486.0	3.2	3.7	2.2	2.4
Q	0.38	13.00	0.8	4.00	EX-10	P	100.0	1.8	2.7	0.6	-	-	-	-	0	P	54.0	0.9	2.0	0.5	1.1
R	0.19	13.20	0.7	1.73	EX-11	P	89.0	0.8	1.9	0.8	-	-	-	-	0	-	-	-	-	0	0.8
S	0.36	13.10	0.8	3.54	EX-12	P	100.0	0.8	1.8	0.9	-	-	-	-	0	P	6.0	4.2	4.1	0.0	0.9
T	0.54	12.30	0.7	4.78	EX-13	P	100.0	2.0	2.9	0.6	-	-	-	-	0	P	128.8	0.4	1.3	1.7	2.3
U	0.33	13.20	0.9	3.92	EX-14	P	100.0	1.0	2.0	0.8	-	-	-	-	0	-	-	-	-	0	0.8

NOTE: DRAINAGE AREAS "C" AND "J" INCLUDE SUB-AREAS "C-A" AND "J-A"
STRUCTURES EX-9 THROUGH EX-13 ARE OUTSIDE PROJECT LIMITS.

REGISTERED PROFESSIONAL ENGINEER
SHANNON N. HANKS
21141
OKLAHOMA
1-7-25
Shannon Hanks

BEFORE YOU DIG OKIE CALL OKIE

HYDROLOGIC DATA

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

REVISION	BY	DATE

PLAN SCALE:	DRAWN	T.C.B.	01/2025
	DESIGNED	S.N.H.	01/2025
	SURVEY	B.B.	10/2017
PROFILE SCALES:	PROJ. MGR.	JH	1/25
HORIZONTAL:	LEAD ENGR.	SNH	1/25
	FIELD MGR.	BB	1/25
VERTICAL	RECOMMENDED DESIGN MANAGER		

APPROVED:

CITY ENGINEER

DRAWING: HYDROLOGIC DATA.DWG — DATE 6/13/2025

ATLAS PAGE NO: 1006,1137 — SHEET 28 OF 89

SUMMARY OF CURB INLET DESIGN

STR NO.	DESIGN	NUMBER OF GRATES	NUMBER OF HOODS	TOP OF GRATE	FLOWLINE	INNER STR. DEPTH	LONGITUDINAL SLOPE AT INLET	CROSS SLOPE AT INLET	CLOGGING FACTOR	Q_{100}	$Q_{CARRY\ OVER}$	SUM Q AT INLET	SPREAD AT INLET	DEPTH AT INLET	$Q_{INTERCEPT}$	Q_{BYPASS}	BYPASS TARGET STR NO.	INLET EFFICIENCY
				FT	FT	VF	%	%		CFS	CFS	CFS	FT	FT	CFS	CFS		%
STR-2	CICI DES. 4D	4	8	683.98	680.12	3.86	2.54	3.10	1.0	4.59	0.00	4.59	8.06	0.25	4.25	0.34	OFFSITE	93%

DRAINAGE DESIGN RECORD (DROP INLETS & AREA INLETS)

DRAINAGE STRUCTURE NUMBER	DRAINAGE AREA BASIN	INLET DESIGN	Q-100 (CFS)	FLOW FROM BYPASS (CFS)	Q-100 SUM (CFS)	PROPOSED OR EXISTING INLET	DRAINAGE STRUCTURE NUMBER	% SLOPE OF DITCH UPSTREAM OF INLET	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.
EX-1	*A*	*SMD W/TYPE 1 GRATE*	*10.72*	-	*10.72*	*EXISTING*	*EX-1*	*3.34*	*1.50*	*0.62*	*29.81*	*0.60*	-	-
EX-2	*B*	*SMD W/TYPE 1 GRATE*	*3.82*	*35.71*	*39.53*	*EXISTING*	*EX-2*	*2.25*	*1.5*	*1.47*	*16.9*	*0.60*	*22.67*	*VENSEL CREEK*
STR-1	C	SMD W/TYPE 1 GRATE	50.11	-	50.11	PROPOSED	STR-1	2.98	1.5	1.72	14.4	0.60	35.71	EX-2
EX-5	*J*	*COT 771 (TYPE 2)*	*8.37*	*1.07*	*9.44*	*EXISTING*	*EX-5*	*0.21*	*4.0*	*0.97*	*11.9*	*0.80*	-	-
EX-7	*M*	*COT 770 (TYPE 2)*	*2.83*	-	*2.83*	*EXISTING*	*EX-7*	*0.22*	*1.8*	*0.43*	*9.9*	*0.80*	-	-
EX-6	*N*	*SMD W/TYPE 1 GRATE*	*5.03*	-	*5.03*	*EXISTING*	*EX-6*	*1.97*	*1.8*	*0.30*	*23.4*	*0.60*	-	-

SUMMARY OF PIPE DESIGN

START NODE STR NO.	END NODE STR NO.	TYPE	DIA.	LENGTH	SLOPE	INV UP	INV DN	T/G UP	T/G DN	HGL UP	HGL DN	EGL UP	EGL DN	Q_{100}	$Q_{CAPACITY}$	VELOCITY
			INCH	LF	%	FT	FT	FT	FT	FT	FT	FT	FT	CFS	CFS	FPS
STR-1	MH-4	Storm	18" ROUND	17.9	2.83	679.78	679.27	683.38	684.27	682.45	682.12	683.48	683.15	24.00	17.70	9.99
STR-2	MH-4	Storm	18" ROUND	45.9	1.86	680.12	679.27	683.98	684.27	682.46	682.12	682.88	682.53	28.25	14.35	8.11
**CUL-1*	*STR-1*	*Culvert*	*12" ROUND*	*25.0*	*4.70*	*698.14*	*696.97*	*699.08*	*683.38*	-	-	-	*685.46*	*20.70*	*2.40*	*9.83*
**CUL-2*	*EX-5*	*Culvert*	*14"x23" ELLIP.*	*72.5*	*0.41*	*728.21*	*727.91*	*730.00*	*728.86*	-	-	-	-	*4.59*	*4.25*	*3.82*
MH-1	RCB	Storm	24" ROUND	211.4	2.16	669.12	664.56	674.25	-	670.85	666.57	671.89	667.44	28.25	33.20	10.57
MH-2	MH-1	Storm	24" ROUND	250.0	3.10	676.87	669.12	681.66	674.25	678.59	671.66	679.63	672.53	28.25	39.81	12.68
MH-4	MH-2	Storm	24" ROUND	250.0	0.74	678.73	676.87	684.27	681.66	682.12	679.41	682.99	680.28	28.25	19.50	6.21

** INDICATES EXISTING PIPE*

REGISTERED PROFESSIONAL ENGINEER
SHANNON N. HANKS
21141
OKLAHOMA
7-1-25
Shannon Hanks

BEFORE YOU DIG 811 OKIE ONE CALL CALL OKIE

INLET AND PIPE DESIGN

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

REVISION	BY	DATE

PLAN SCALE:	DRAWN	T.C.B.	01/2025
	DESIGNED	S.N.H.	01/2025
	SURVEY	B.B.	10/2017
PROFILE SCALES:	PROJ. MGR.		1/25
HORIZONTAL:	LEAD ENGR.	BDC	2/25
	FIELD MGR.	ZDM	2/25
VERTICAL	RECOMMENDED: DESIGN MANAGER		

APPROVED: CITY ENGINEER

DRAWING: INLET AND PIPE DESIGN.DWG — DATE 6/13/2025
ATLAS PAGE NO: 1006,1137 — SHEET 29 OF 89

STORMWATER MANAGEMENT PLAN

SITE DESCRIPTION

PROJECT LIMITS: 91ST ST. FROM HARVARD AVE. TO YALE AVE.
TULSA, OKLAHOMA

PROJECT DESCRIPTION: ROADWAY RECONSTRUCTION AND REHABILITATION, SIDEWALK CONSTRUCTION, AND DRAINAGE IMPROVEMENTS

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

RUNOFF COEFFICIENT .69 PRE .70 POST

SOIL TYPE: LOAMY FINE SAND, SANDY LOAM

AREA TO BE DISTURBED: 6.61 ACRES

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

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

LATITUDE & LONGITUDE OF CENTER OF PROJECT: 36°1'54.85" N, 95°55'51.97" W

NAME OF RECEIVING WATERS: VENSEL CREEK

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 2-3, 6-8, AND 31-36.

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
- _X_ ROCK FILTER DAMS
- ____ TEMPORARY SLOPE DRAIN
- ____ PAVED DITCH W/ DITCH LINER PROTECTION
- ____ TEMPORARY DIVERSION CHANNELS
- _X_ RIP RAP
- ____ TEMPORARY STREAM CROSSINGS
- ____ TEMPORARY SEDIMENT BASINS
- ____ TEMPORARY SEDIMENT TRAPS
- _X_ 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 gauge 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 Oklahoma Pollution Discharge Elimination System (OPDES) regulations. This plan is initiated 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) form and permit certificate that have been filed with Oklahoma Department of Environmental Quality (ODEQ). The plan must be kept current with up-to-date amendments during the progression of the project. All Contractor off-site operations associated with the project must be documented in the SW3P, i.e., borrow pits, work roads, disposal sites, asphalt/concrete plants, etc. 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 pollution due to exposed soils and the presence of hazardous materials used in the construction process. The prevention of soil 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 2019 ODOT STANDARD SPECIFICATIONS SHOULD BE NOTED:

103.05	BONDING REQUIREMENTS
104.10	FINAL CLEANING UP
104.12	CONTRACTOR'S RESPONSIBILITY FOR WORK
104.13	ENVIRONMENTAL PROTECTION
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 POLLUTION 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, NOVEMBER 1, 2023.

REGISTERED PROFESSIONAL ENGINEER SHANNON N. HANKS 21141 OKLAHOMA

Shannon Hanks

BEFORE YOU DIG OKIE 811 CALL OKIE

STORMWATER MANAGEMENT PLAN
PROJECT NO. 144213
TMUA-W 22-90
ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)
CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

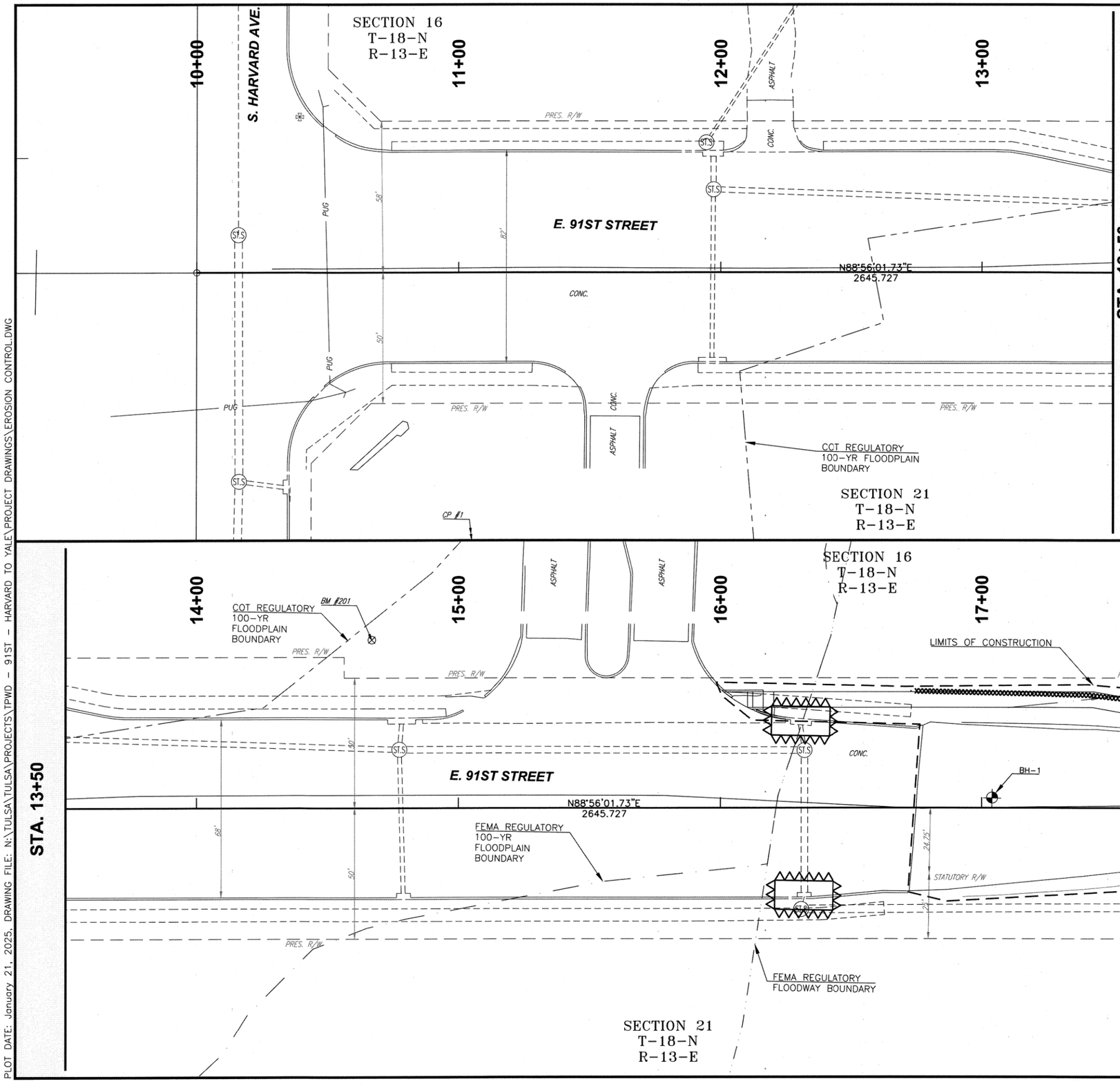
REVISION	BY	DATE

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

DRAWN	T.C.B.	01/2025
DESIGNED	S.N.H.	01/2025
SURVEY	B.B.	10/2017
PROJ. MGR.		1/25
LEAD ENGR.		1/25
FIELD MGR.		1/25

RECOMMENDED: DESIGN MANAGER
APPROVED: CITY ENGINEER
DRAWING: STORMWATER MANAGEMENT PLAN.DWG
DATE 6/13/2025
ATLAS PAGE NO: 1006,1137
SHEET 30 OF 89

PLOT DATE: January 13, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\STORMWATER MANAGEMENT PLAN.DWG



LEGEND

- PROPOSED SILT FENCE
- PROPOSED SILT DIKE
- PROPOSED SEDIMENT FILTER
- PROPOSED ROCK FILTER DAM
- COT REGULATORY 100-YR FLOODPLAIN BOUNDARY
- FEMA REGULATORY100-YR FLOODPLAIN BOUNDARY
- FEMA REGULATORY FLOODWAY BOUNDARY

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.

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 6' MINIMUM CLEARANCE TO LIMITS OF CONSTRUCTION.

REGISTERED PROFESSIONAL ENGINEER SHANNON N. HANKS 21141 OKLAHOMA 1-15-25

BEFORE YOU DIG CALL OKIE 811

0 10' 20' 40'

EROSION CONTROL (1 OF 6)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

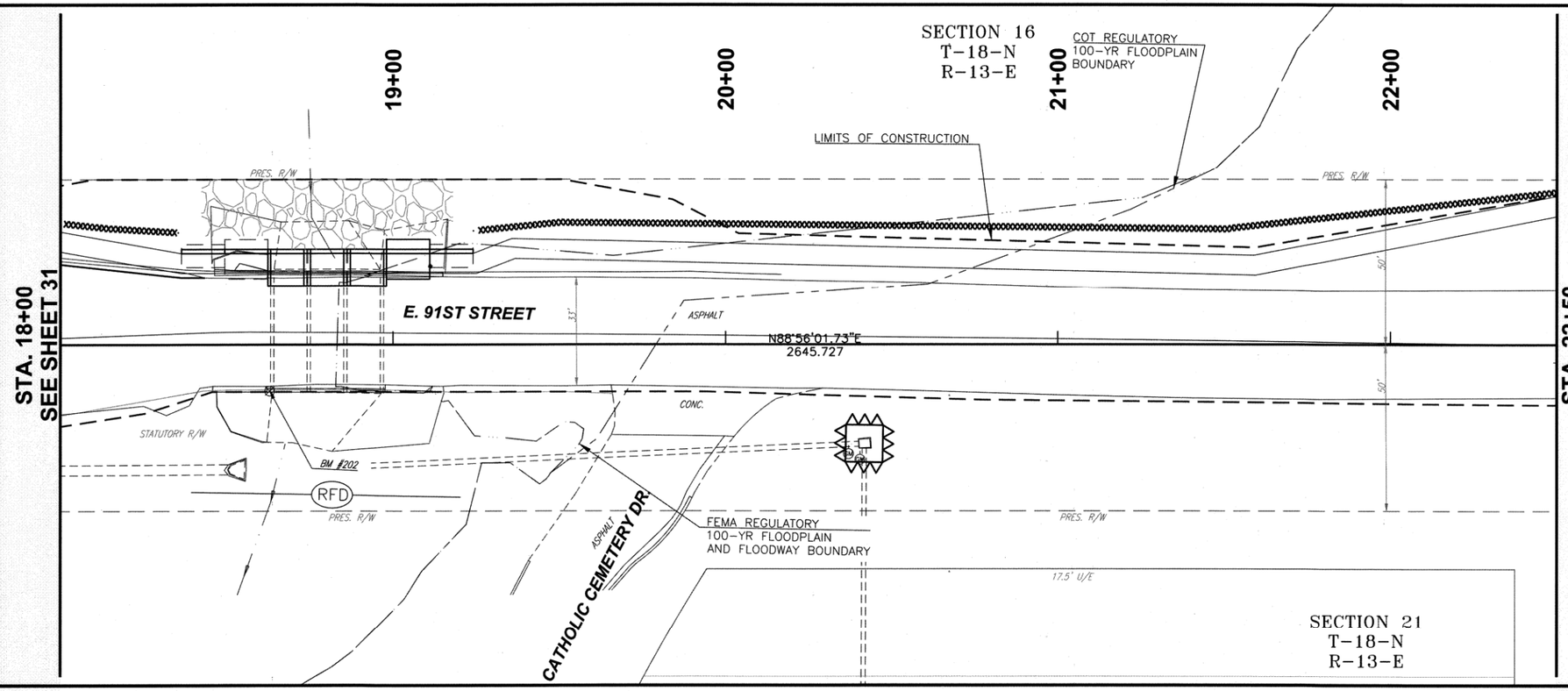
REVISION	BY	DATE

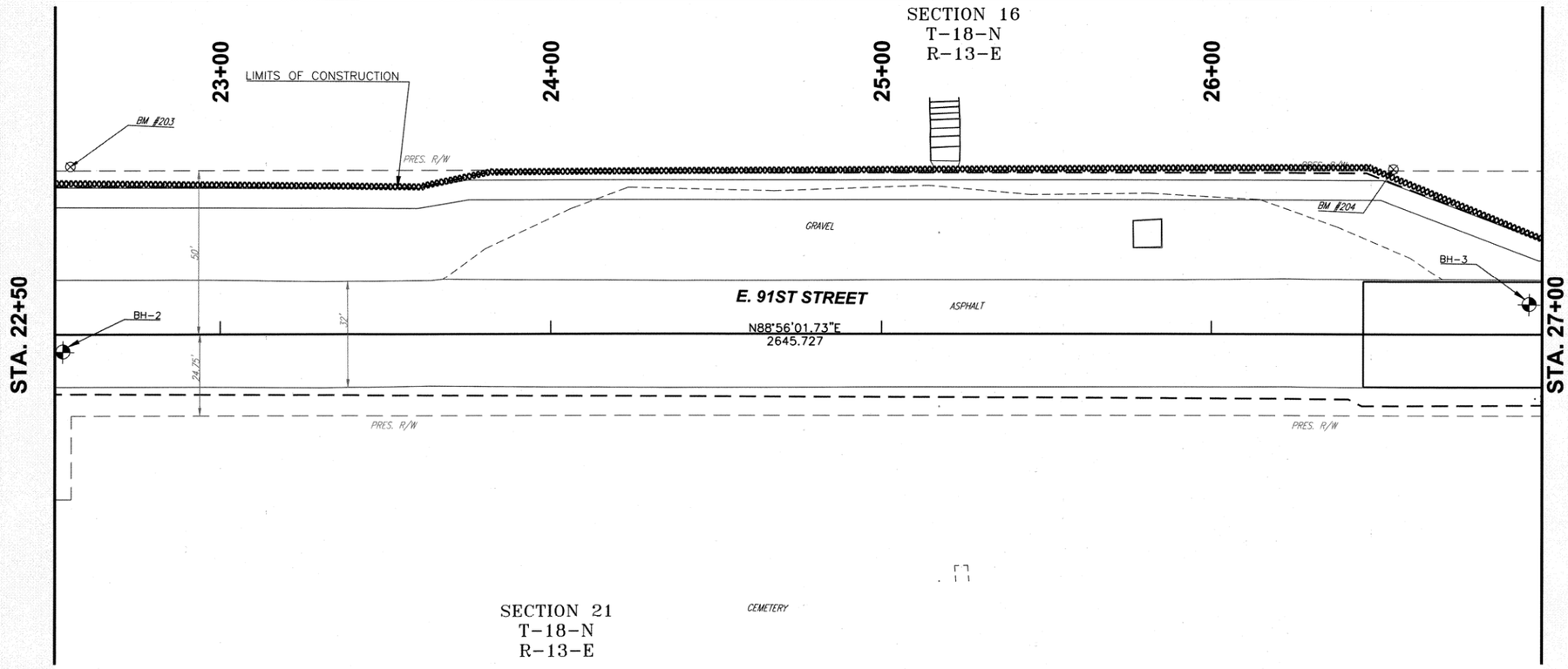
PLAN SCALE: 1" = 20'	DRAWN	T.C.B.	01/2025
	DESIGNED	S.N.H.	01/2025
	SURVEY	B.B.	10/2017
PROFILE SCALES: HORIZONTAL: 1"=20' VERTICAL N/A	PROJ. MGR.		1/29
	LEAD ENGR.		1/29/25
	FIELD MGR.		1/29/25
	RECOMMENDED: DESIGN MANAGER		

APPROVED: CITY ENGINEER

DRAWING: EROSION CONTROL.DWG — DATE 6/13/2025
ATLAS PAGE NO: 1006,1137 — SHEET 31 OF 87

PLOT DATE: January 21, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\EROSION CONTROL.DWG





LEGEND

- PROPOSED SILT FENCE
- PROPOSED SILT DIKE
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- COT REGULATORY 100-YR FLOODPLAIN BOUNDARY
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EROSION CONTROL AND CONSTRUCTION NOTES:

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REGISTERED PROFESSIONAL ENGINEER
SHANNON N. HANKS
21141
OKLAHOMA
1-15-25

BEFORE YOU DIG 811 CALL OKIE

0 10' 20' 40'

EROSION CONTROL (2 OF 6)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

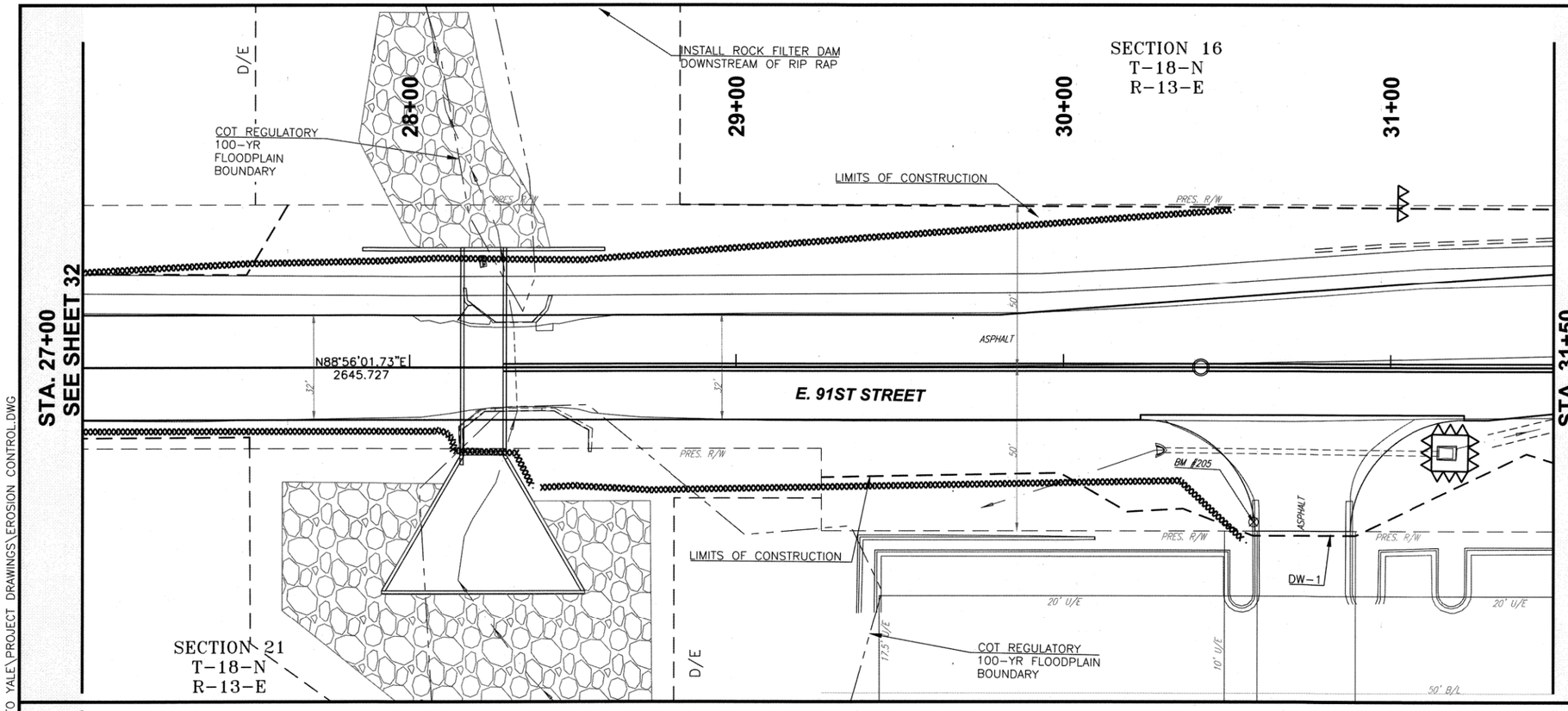
REVISION	BY	DATE

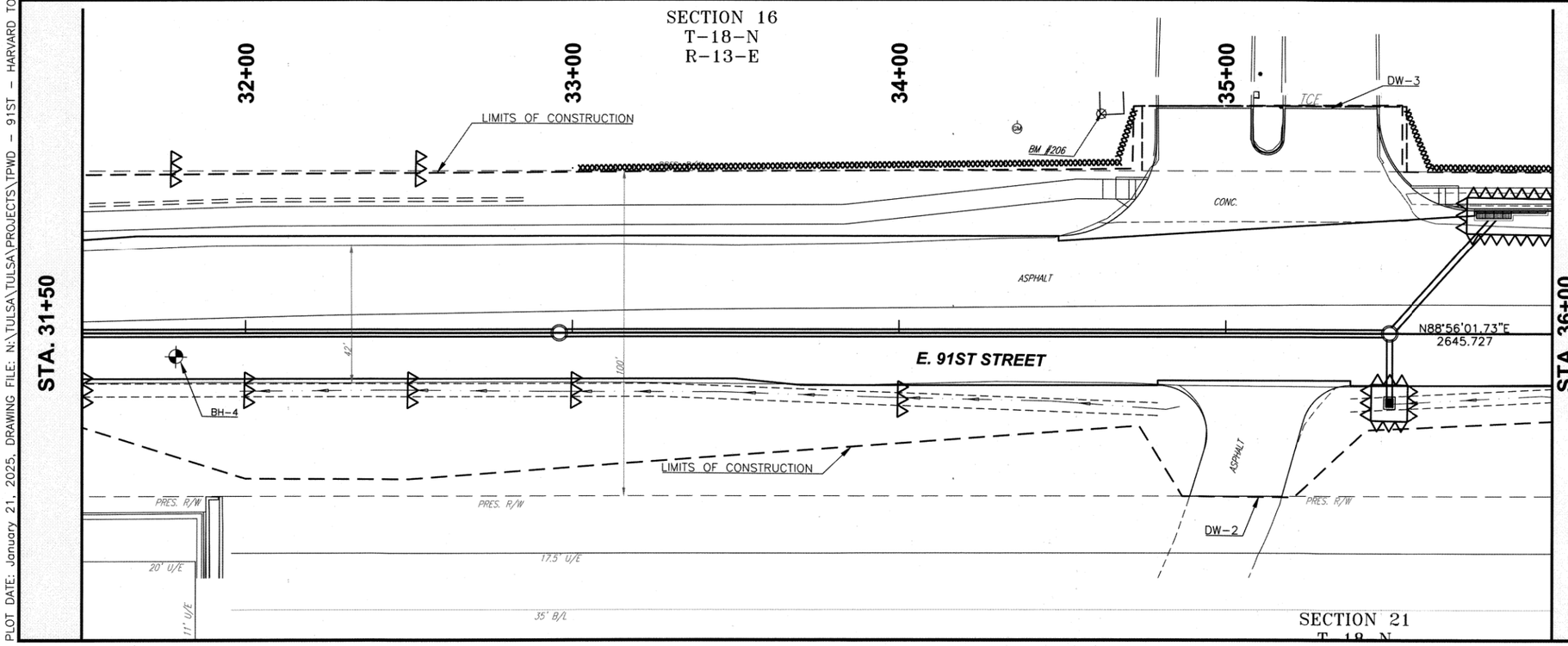
PLAN SCALE: 1" = 20'	DRAWN	T.C.B.	01/2025
	DESIGNED	S.N.H.	01/2025
	SURVEY	B.B.	10/2017
PROFILE SCALES:	PROJ. MGR.		1/25
HORIZONTAL: 1"=20'	LEAD ENGR.	BDK	2/25
VERTICAL N/A	FIELD MGR.		2/25
	RECOMMENDED: DESIGN MANAGER		

APPROVED: CITY ENGINEER

DRAWING: EROSION CONTROL.DWG
ATLAS PAGE NO: 1006,1137
DATE 6/13/2025
SHEET 32 OF 89

PLOT DATE: January 21, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\EROSION CONTROL.DWG





LEGEND

- PROPOSED SILT FENCE
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- COT REGULATORY 100-YR FLOODPLAIN BOUNDARY
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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.

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 6' MINIMUM CLEARANCE TO LIMITS OF CONSTRUCTION.

REGISTERED PROFESSIONAL ENGINEER
SHANNON N. HANKS
21141
OKLAHOMA
1-15-25

BEFORE YOU DIG CALL OKIE

0 10' 20' 40'

EROSION CONTROL (3 OF 6)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)
CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

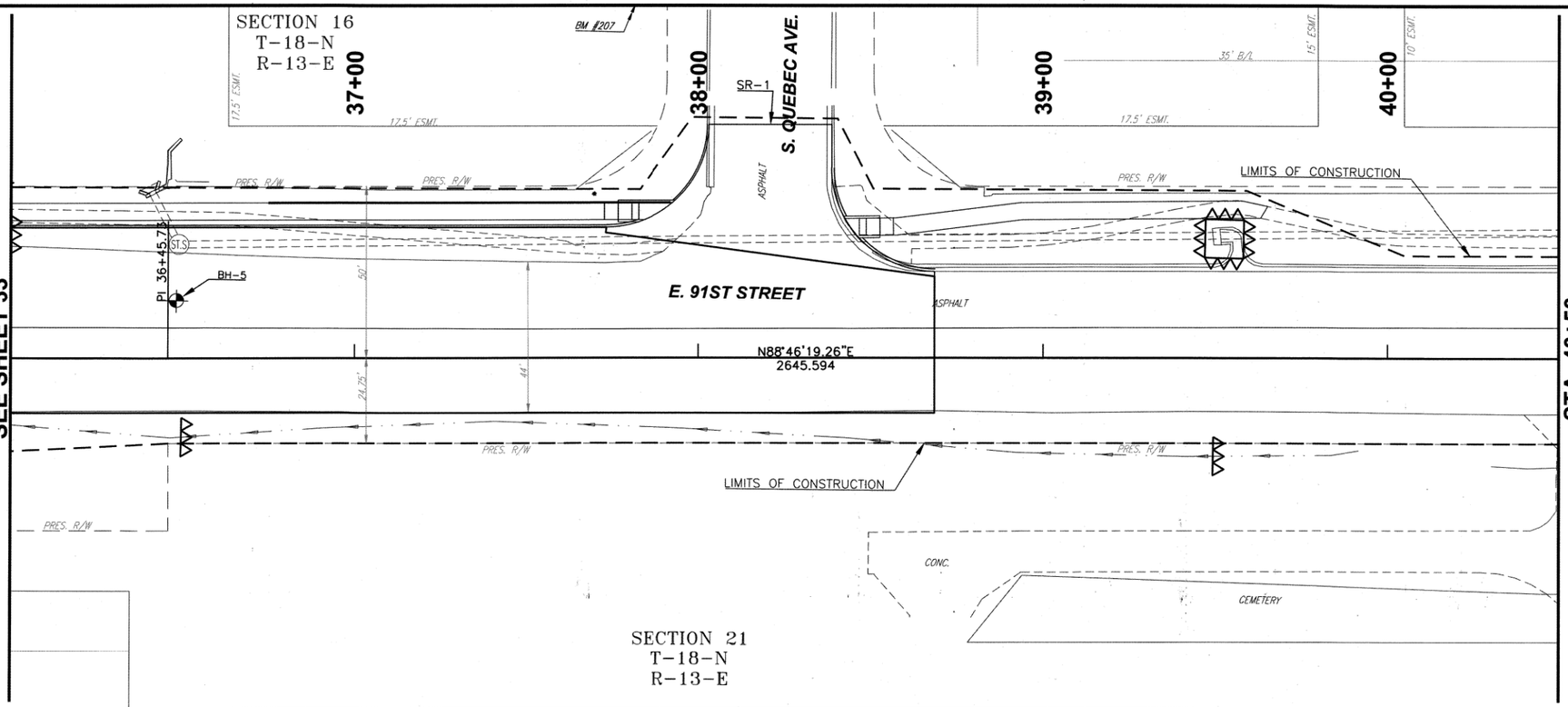
CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

REVISION	BY	DATE

PLAN SCALE: 1" = 20'	DRAWN	T.C.B.	01/2025
	DESIGNED	S.N.H.	01/2025
	SURVEY	B.B.	10/2017
PROFILE SCALES: HORIZONTAL: 1"=20' VERTICAL N/A	PROJ. MGR.	JH	1/25
	LEAD ENGR.		1/25
	FIELD MGR.		1/25
	RECOMMENDED DESIGN MANAGER		

APPROVED: CITY ENGINEER

DRAWING: EROSION CONTROL.DWG
DATE 6/13/2025
ATLAS PAGE NO: 1006,1137
SHEET 33 OF 89



LEGEND

- PROPOSED SILT FENCE
- PROPOSED SILT DIKE
- PROPOSED SEDIMENT FILTER
- PROPOSED ROCK FILTER DAM

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:
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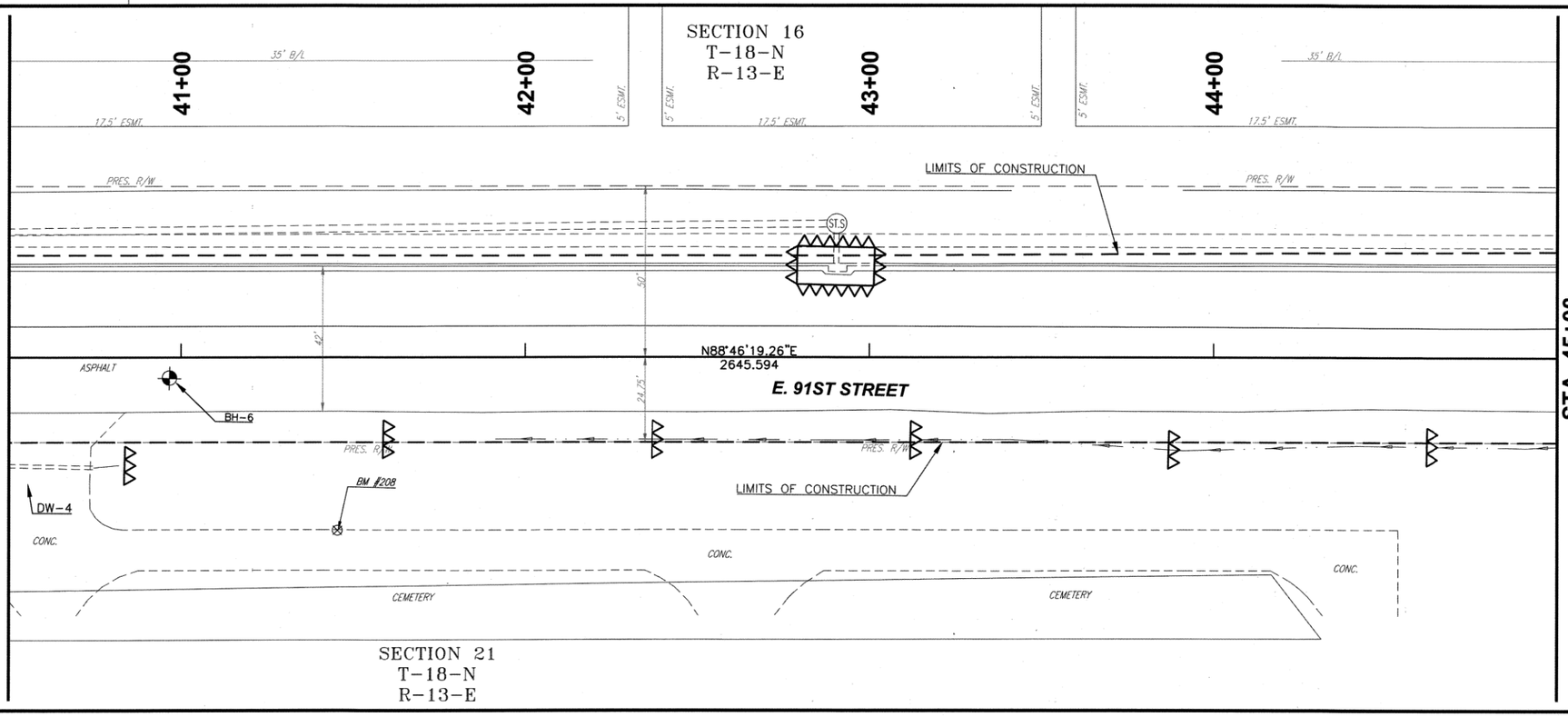

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NOTE: SILT FENCE SHALL BE PLACED AT 6' MINIMUM CLEARANCE TO LIMITS OF CONSTRUCTION.

REGISTERED PROFESSIONAL ENGINEER
SHANNON N. HANKS
21141
OKLAHOMA
6-13-2025

BEFORE YOU DIG
811
CALL OKIE

0 10' 20' 40'

REVISION	BY	DATE

EROSION CONTROL (4 OF 6)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)
CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

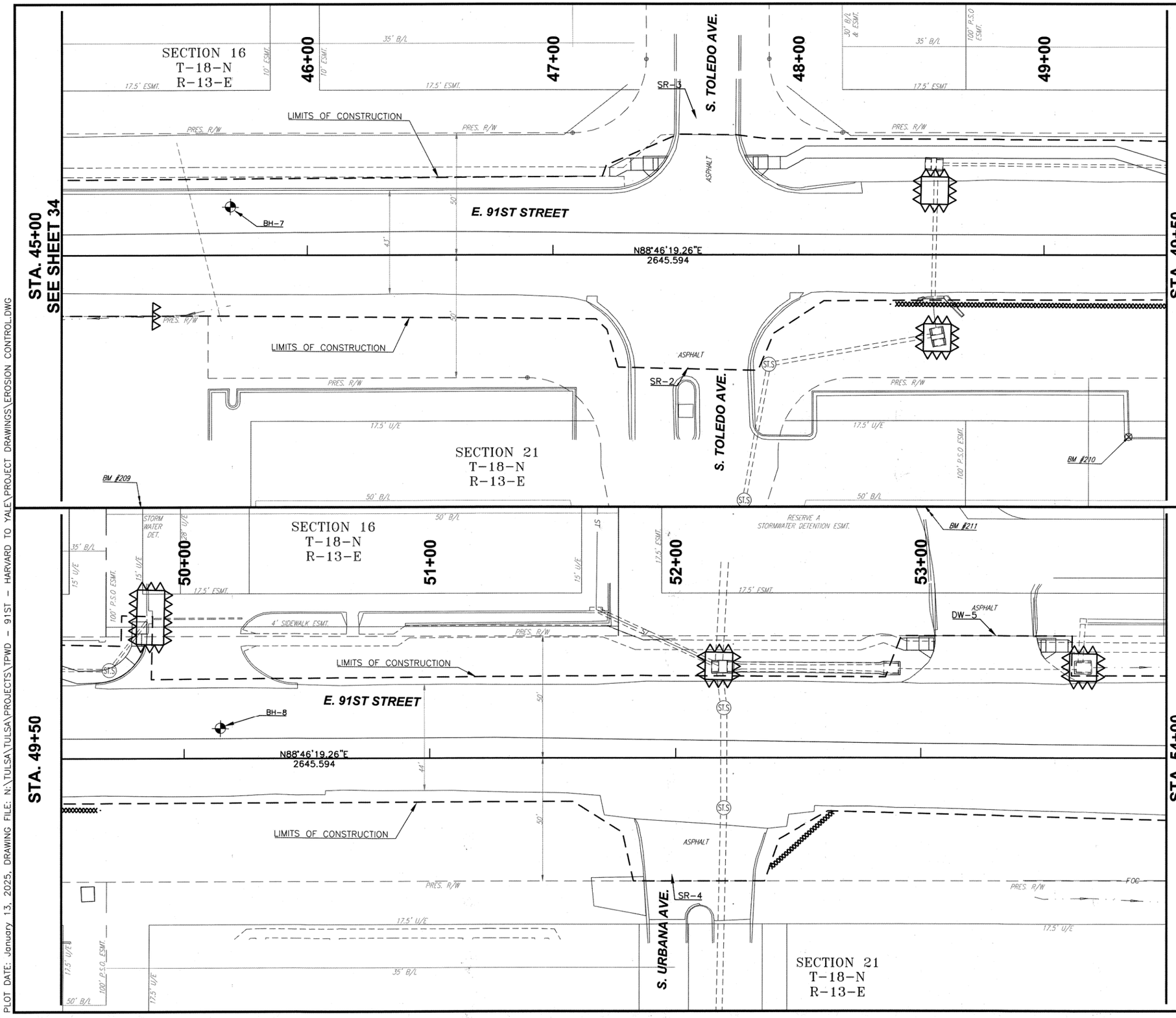
CEC Corporation
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

PLAN SCALE: 1" = 20'	DRAWN	T.C.B.	01/2025
	DESIGNED	S.N.H.	01/2025
	SURVEY	B.B.	10/2017
PROFILE SCALES:	PROJ. MGR.	JH	1/25
HORIZONTAL: 1"=20'	LEAD ENGR.	BDL	2/25
	FIELD MGR.		2/25
VERTICAL N/A	RECOMMENDED: DESIGN MANAGER		

APPROVED: CITY ENGINEER

DRAWING: EROSION CONTROL.DWG
DATE 6/13/2025
ATLAS PAGE NO: 1006,1137
SHEET 34 OF 89

PLOT DATE: January 13, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\EROSION CONTROL.DWG



LEGEND

- PROPOSED SILT FENCE
- PROPOSED SILT DIKE
- PROPOSED SEDIMENT FILTER
- PROPOSED ROCK FILTER DAM

EROSION CONTROL AND CONSTRUCTION NOTES:

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NOTE: SILT FENCE SHALL BE PLACED AT 6' MINIMUM CLEARANCE TO LIMITS OF CONSTRUCTION.

REGISTERED PROFESSIONAL ENGINEER
SHANNON N. HANKS
21141
OKLAHOMA
12-31-25

Shannon N. Hanks

BEFORE YOU DIG 811 CALL OKIE

0 10' 20' 40'

REVISION	BY	DATE
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EROSION CONTROL (5 OF 6)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)
CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

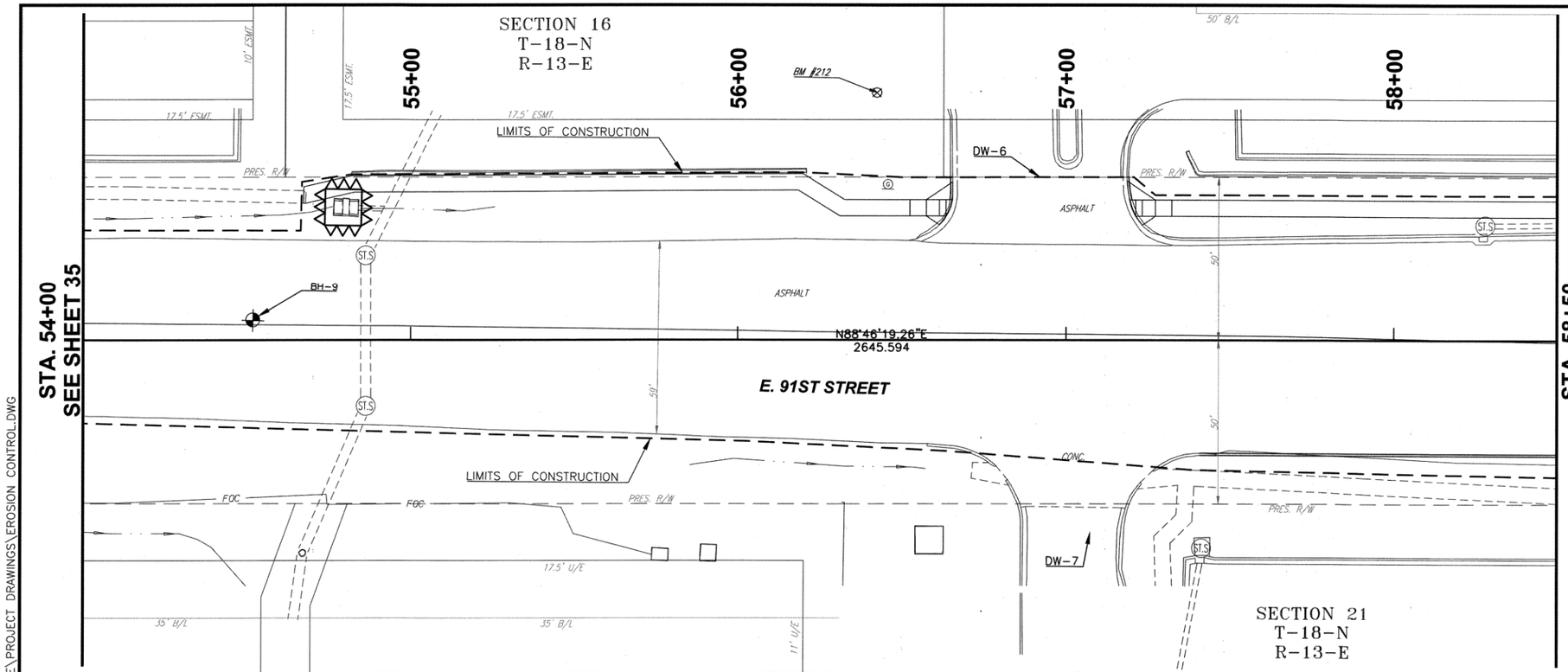
PLAN SCALE: 1" = 20'	DRAWN	T.C.B.	01/2025
	DESIGNED	S.N.H.	01/2025
	SURVEY	B.B.	10/2017
PROFILE SCALES:	PROJ. MGR.		1/25
HORIZONTAL: 1"=20'	LEAD ENGR.	BDL	2/25
	FIELD MGR.		2/25
VERTICAL N/A	RECOMMENDED: DESIGN MANAGER		

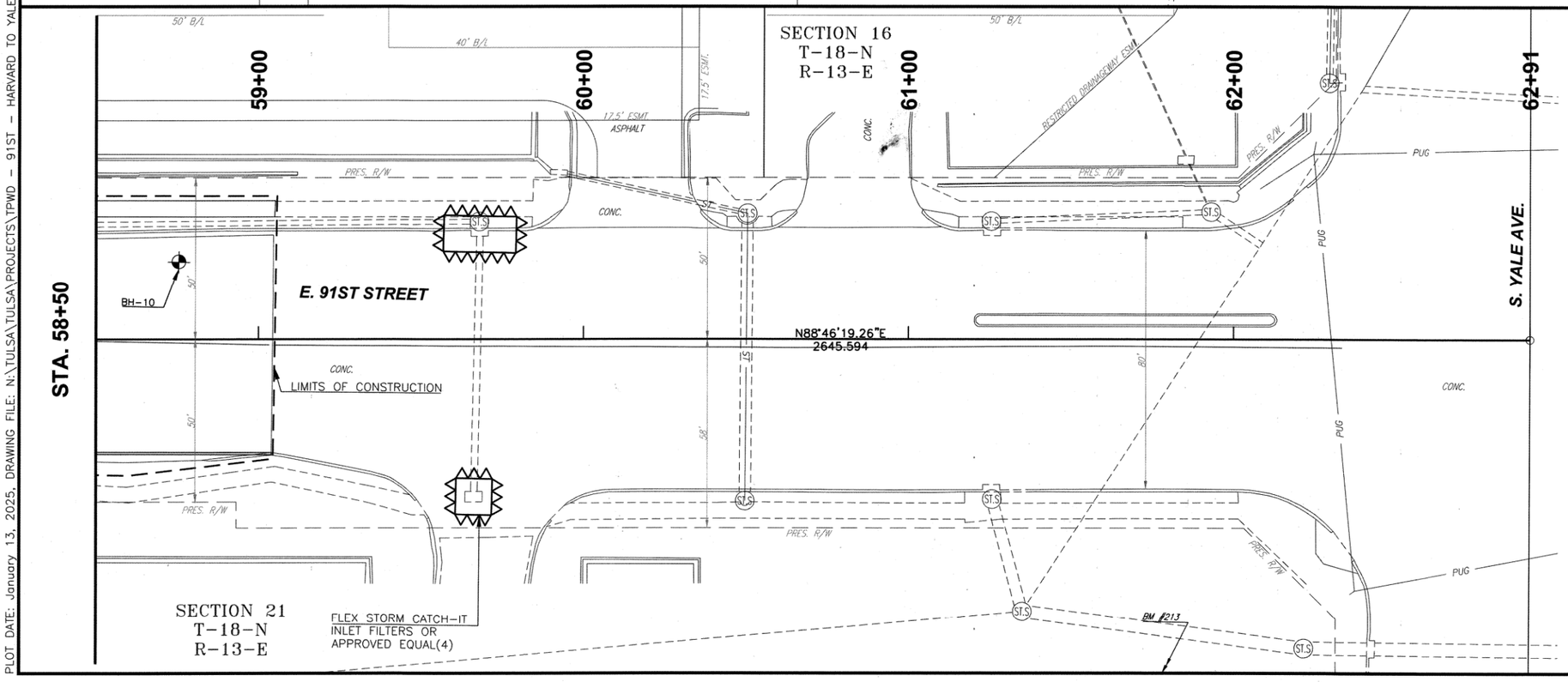
APPROVED:

CITY ENGINEER

DRAWING: EROSION CONTROL.DWG
DATE 6/13/2025
ATLAS PAGE NO: 1006,1137
SHEET 35 OF 89

PLOT DATE: January 13, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\EROSION CONTROL.DWG





LEGEND

- PROPOSED SILT FENCE
- PROPOSED SILT DIKE
- PROPOSED SEDIMENT FILTER
- PROPOSED ROCK FILTER DAM

EROSION CONTROL AND CONSTRUCTION NOTES:

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REGISTERED PROFESSIONAL ENGINEER
SHANNON N. HANKS
21141
OKLAHOMA
1-31-25
Shannon Hanks

BEFORE YOU DIG
811
CALL OKIE

0 10' 20' 40'

EROSION CONTROL (6 OF 6)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

REVISION	BY	DATE

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	DESIGNED	S.N.H.	01/2025
	SURVEY	B.B.	10/2017
PROFILE SCALES:	PROJ. MGR.		1/25
HORIZONTAL: 1"=20'	LEAD ENGR.	BDL	2/25
VERTICAL N/A	FIELD MGR.		2/25
	RECOMMENDED DESIGN MANAGER		

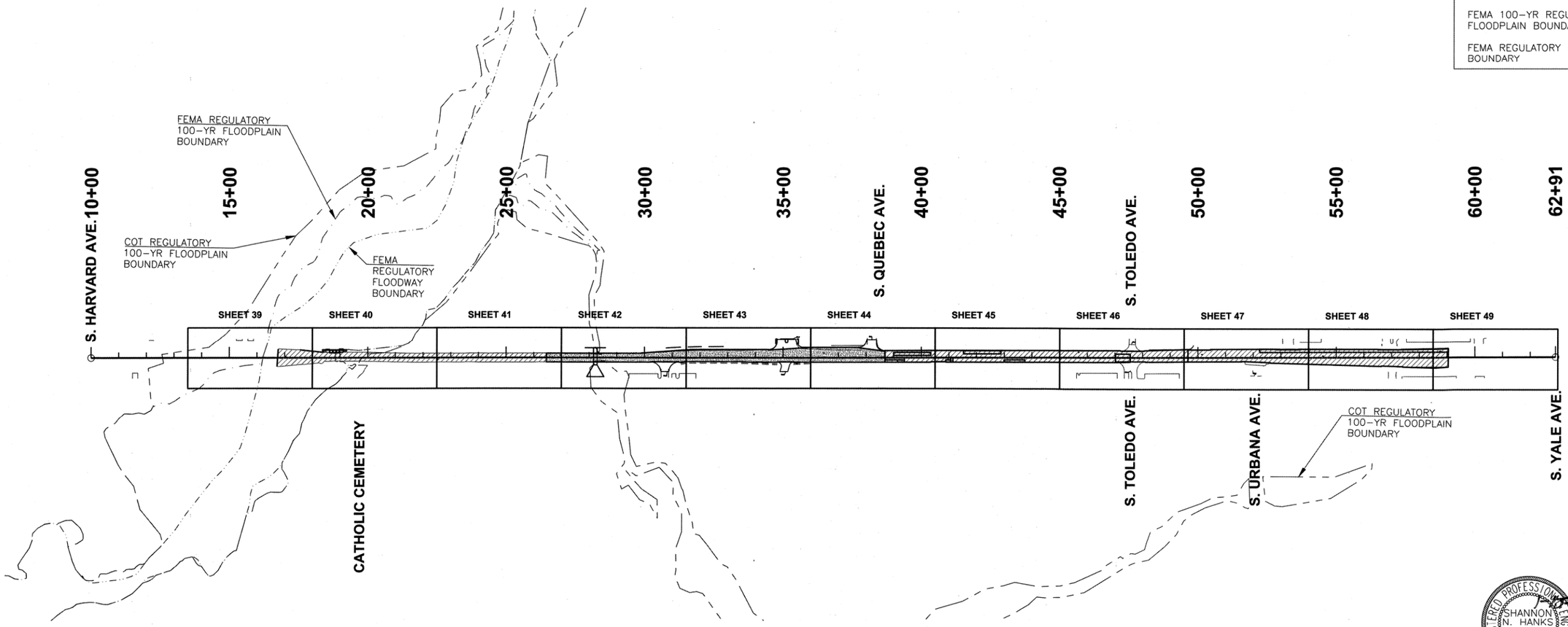
APPROVED:
CITY ENGINEER

DRAWING: EROSION CONTROL.DWG
DATE 6/13/2025
ATLAS PAGE NO: 1006,1137
SHEET 36 OF 89

PLOT DATE: January 13, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\EROSION CONTROL.DWG

LEGEND

- RECONSTRUCT ROADWAY
- MILL, PATCH AND OVERLAY
- COT 100-YR REGULATORY FLOODPLAIN BOUNDARY
- FEMA 100-YR REGULATORY FLOODPLAIN BOUNDARY
- FEMA REGULATORY FLOODWAY BOUNDARY



REGISTERED PROFESSIONAL ENGINEER SHANNON N. HANKS 21141 OKLAHOMA — 6-13-25

Shannon N. Hanks

BEFORE YOU DIG CALL OKIE 811

0 100' 200' 400'

YP

REVISION	BY	DATE
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ROADWAY LOCATION KEY MAP

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

PLAN SCALE: 1" = 200'	DRAWN	T.C.B.	01/2025
	DESIGNED	S.N.H.	01/2025
	SURVEY	B.B.	10/2017
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A	PROJ. MGR.	JH	1/25
	LEAD ENGR.	[illegible]	2/25
	FIELD MGR.	[illegible]	2/25
	RECOMMENDED: DESIGN MANAGER	[illegible]	2-25

APPROVED: CITY ENGINEER

DRAWING: PAVING SCHEDULE MAP.DWG

ATLAS PAGE NO: 1006,1137

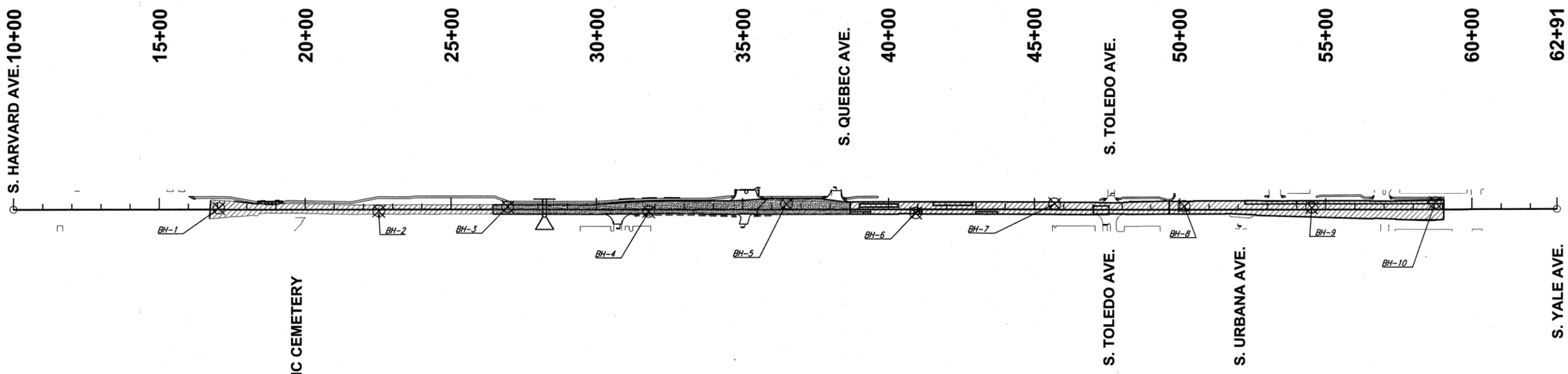
DATE 6/13/2025

SHEET 37 OF 87

PLOT DATE: January 21, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\PAVING SCHEDULE MAP.DWG

LEGEND

- RECONSTRUCT ROADWAY
- MILL, PATCH AND OVERLAY
- BORE HOLE LOCATION



0 100' 200' 400'

REGISTERED PROFESSIONAL ENGINEER
SHANNON N. HANKS
21141
OKLAHOMA
1-13-25

BEFORE YOU DIG CALL OKIE

PAVING SCHEDULE MAP

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

REVISION	BY	DATE

PLAN SCALE: 1" = 200'

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

DRAWN	T.C.B.	01/2025
DESIGNED	S.N.H.	01/2025
SURVEY	B.B.	10/2017
PROJ. MGR.	JH	1/25
LEAD ENGR.		1/25
FIELD MGR.		1-25
RECOMMENDED:		
DESIGN MANAGER		

APPROVED:

CITY ENGINEER

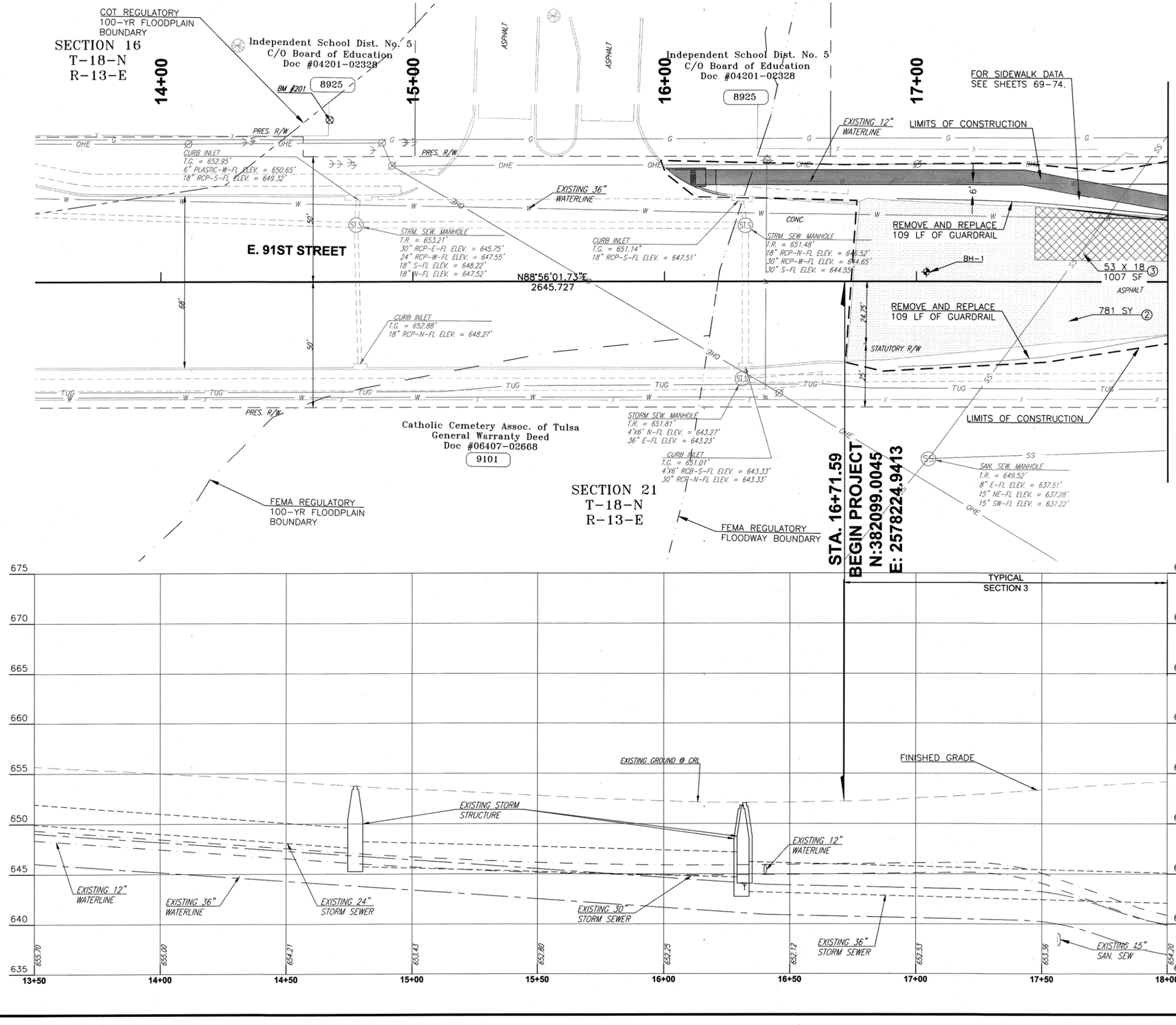
DRAWING: PAVING SCHEDULE MAP.DWG

DATE 6/13/2025

ATLAS PAGE NO: 1006,1137

SHEET 38 OF 89

PLOT DATE: January 13, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\PAVING SCHEDULE MAP.DWG



BENCHMARK				
NO.	NORTHING	EASTING	ELEV.	DESCRIPTION
201	382,159.7	2,578,019.1	654.892	14+66.95, 64.56' LT SET 5/8" IRON PIN AT FENCE

LEGEND

- ① PROPOSED RECONSTRUCTION
- ② PROPOSED MILL AND OVERLAY
- ③ TYPE 1 PCC PATCH
- ④ REMOVE AND REPLACE CURB
- ⑤ PROPOSED DRIVE
- ⑥ PROPOSED STREET RETURN
- PROPOSED SIDEWALK
- RIP RAP
- BORE HOLE LOCATION
- MH-1 PROPOSED DRAINAGE STRUCTURE
- PROPOSED DITCH
- FEMA REGULATORY 100-YR FLOODPLAIN BOUNDARY
- FEMA REGULATORY FLOODWAY BOUNDARY
- COT REGULATORY 100-YR FLOODPLAIN BOUNDARY

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

CONTRACTOR SHALL NOT STORE EQUIPMENT OR MATERIALS IN THE FLOODPLAIN

REGISTERED PROFESSIONAL ENGINEER
SHANNON N. HANKS
21141
OKLAHOMA
6-13-25

BEFORE YOU DIG
811
CALL OKIE

0 10' 20' 40'

REVISION	BY	DATE

PLAN & PROFILE (1 OF 11)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)
CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

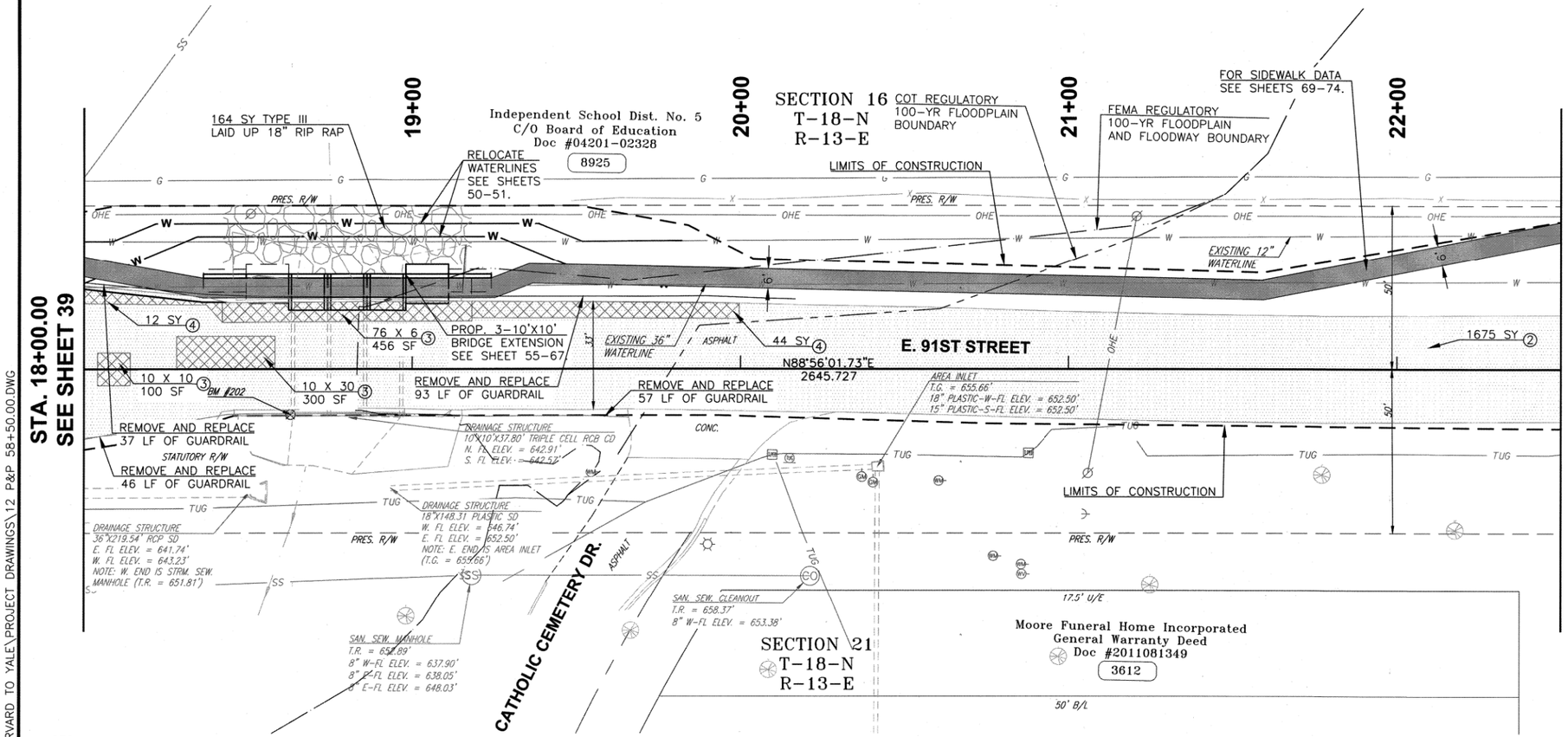
CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

PLAN SCALE: 1" = 20'	DRAWN	T.C.B.	01/2025
	DESIGNED	S.N.H.	01/2025
	SURVEY	B.B.	10/2017
PROFILE SCALES:	PROJ. MGR.	JH	6/13/25
HORIZONTAL: 1"=20'	LEAD ENGR.		
	FIELD MGR.		
VERTICAL 1"=5'	RECOMMENDED: DESIGN MANAGER		

APPROVED:
CITY ENGINEER

DRAWING: 12 P&P 58+50.00.DWG
DATE 6/13/2025
ATLAS PAGE NO: 1006,1137
SHEET 39 OF 89

PLOT DATE: January 21, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\12 P&P 58+50.00.DWG



BENCHMARK				
NO.	NORTHING	EASTING	ELEV.	DESCRIPTION
202	382,088.6	2,578,416.5	655.992	18+62.95, 13.93' RT "X" CUT ON SW. COR. HEADWALL

LEGEND

- ① PROPOSED RECONSTRUCTION
- ② PROPOSED MILL AND OVERLAY
- ③ TYPE 1 PCC PATCH
- ④ REMOVE AND REPLACE CURB
- ⑤ PROPOSED DRIVE
- ⑥ PROPOSED STREET RETURN
- PROPOSED SIDEWALK
- RIP RAP
- BORE HOLE LOCATION
- MH-1 PROPOSED DRAINAGE STRUCTURE
- PROPOSED DITCH
- FEMA REGULATORY 100-YR FLOODPLAIN BOUNDARY
- FEMA REGULATORY FLOODWAY BOUNDARY
- COT REGULATORY 100-YR FLOODPLAIN BOUNDARY

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

36" WATER MAIN CAN ONLY BE OUT OF SERVICE BETWEEN 10/1 - 5/1. CONSTRUCT DURING PHASE 1 AND COORDINATE WITH OPERATIONS FOR APPROVAL.

FOR PROPOSED WATERLINE PLANS AND DETAILS SEE SHEETS 50-53 .

CONTRACTOR SHALL NOT STORE EQUIPMENT OR MATERIALS IN THE FLOODPLAIN

REGISTERED PROFESSIONAL ENGINEER
SHANNON N. HANKS
21141
OKLAHOMA
12-31-25

BEFORE YOU DIG
811
CALL OKIE

0 10' 20' 40'

REVISION	BY	DATE
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PLAN & PROFILE (2 OF 11)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

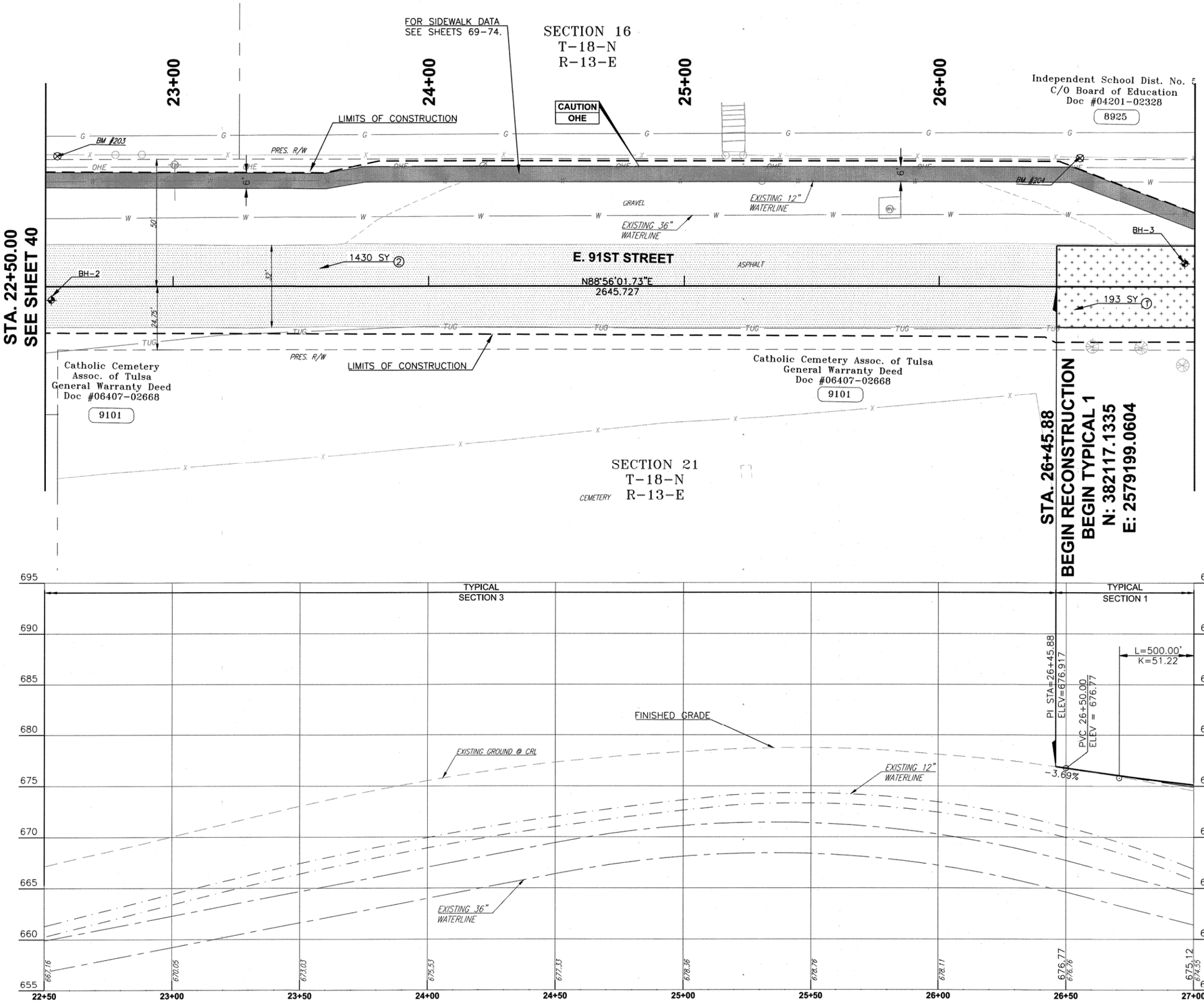
CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

PLAN SCALE: 1" = 20'	DRAWN	T.C.B.	01/2025
	DESIGNED	S.N.H.	01/2025
	SURVEY	B.B.	10/2017
PROFILE SCALES: HORIZONTAL: 1"=20' VERTICAL 1"=5'	PROJ. MGR.		1/25
	LEAD ENGR.		1/25
	FIELD MGR.		1/25
	RECOMMENDED: DESIGN MANAGER		1-25

APPROVED: CITY ENGINEER

DRAWING: 12 P&P 58+50.00.DWG
DATE 6/13/2025
ATLAS PAGE NO: 1006,1137
SHEET 40 OF 89

PLOT DATE: January 21, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\12 P&P 58+50.00.DWG



BENCHMARK				
NO.	NORTHING	EASTING	ELEV.	DESCRIPTION
203	382,161.1	2,578,806.9	666.217	22+54.60, 51.26' LT SET 5/8" IRON PIN AT FENCE
204	382,167.8	2,579,207.2	678.747	26+54.98, 50.46' LT SET 5/8" IRON PIN AT FENCE

LEGEND

- ① PROPOSED RECONSTRUCTION
- ② PROPOSED MILL AND OVERLAY
- ③ TYPE 1 PCC PATCH
- ④ REMOVE AND REPLACE CURB
- ⑤ PROPOSED DRIVE
- ⑥ PROPOSED STREET RETURN
- PROPOSED SIDEWALK
- RIP RAP
- BORE HOLE LOCATION
- MH-1 PROPOSED DRAINAGE STRUCTURE
- PROPOSED DITCH
- FEMA 100-YR FLOOD BOUNDARY
- COT 100-YR FLOOD BOUNDARY

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REGISTERED PROFESSIONAL ENGINEER
SHANNON N. HANKS
21141
OKLAHOMA
1-7-25

BEFORE YOU DIG 811 CALL OKIE

0 10' 20' 40'

REVISION	BY	DATE

PLAN & PROFILE (3 OF 11)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

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PUBLIC WORKS DEPARTMENT

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1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

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PROFILE SCALES: HORIZONTAL: 1"=20' VERTICAL 1"=5'	PROJ. MGR.		1/25
	LEAD ENGR.		1/25
	FIELD MGR.		1/25
	RECOMMENDED: DESIGN MANAGER		

APPROVED:

CITY ENGINEER

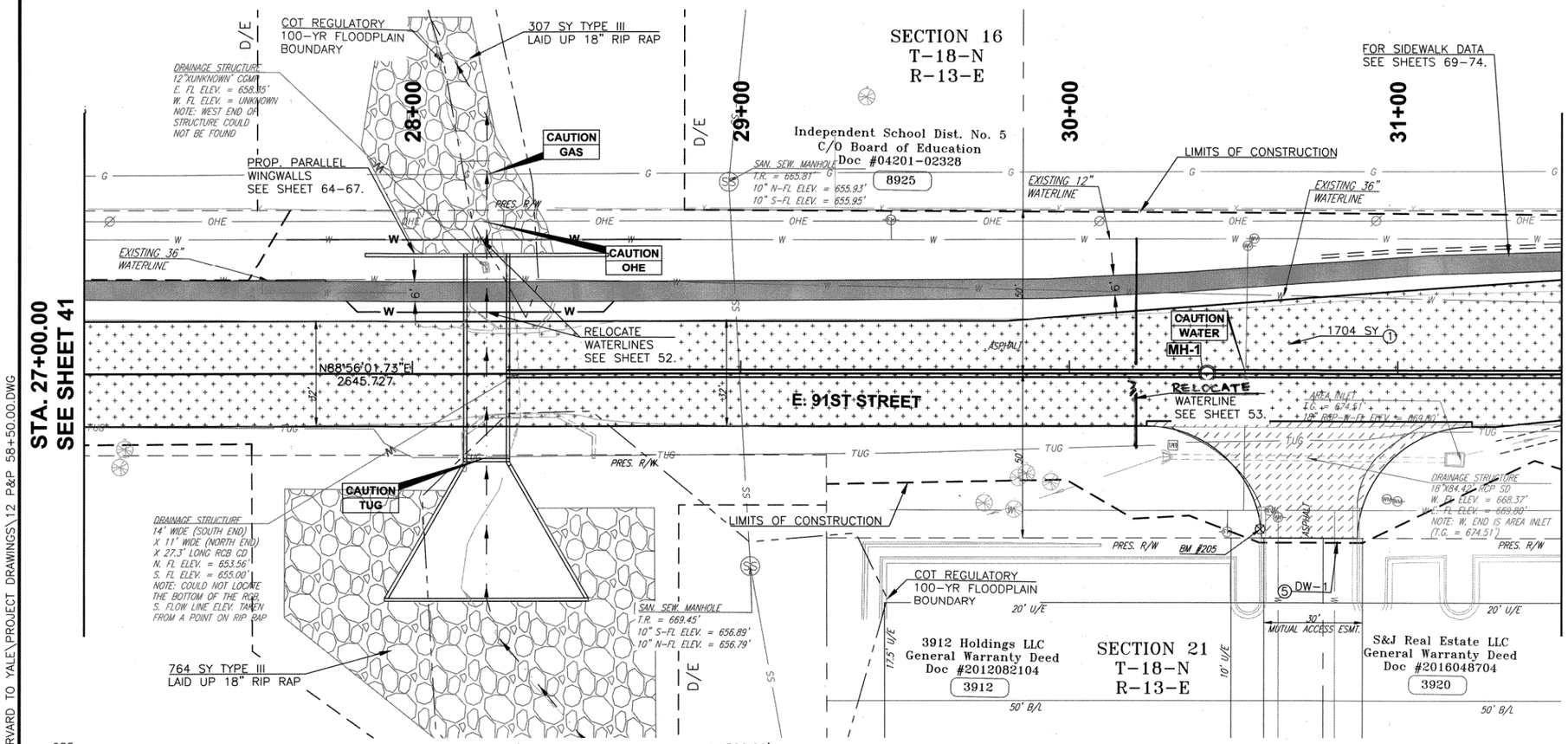
DRAWING: 12 P&P 58+50.00.DWG

DATE 6/13/2025

ATLAS PAGE NO: 1006,1137

SHEET 41 OF 89

PLOT DATE: January 13, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\12 P&P 58+50.00.DWG



STREET RETURN AND DRIVE SUMMARY TABLE								
DRIVE NO.	CENTERLINE STATION	TYPE	LT./RT.	WIDTH X LENGTH	RADII (FT)	AREA (SY)	EX. SLOPE (%)	PROP. SLOPE (%)
DW-1	30+73.15	CONCRETE	RT	29X35	35	185	7.58	3.16

BENCHMARK				
NO.	NORTHING	EASTING	ELEV.	DESCRIPTION
205	382,077.5	2,579,612.1	675.582	30+58.14, 47.27' RT "X" CUT ON TOP OF CURB

LEGEND

- ① PROPOSED RECONSTRUCTION
- ② PROPOSED MILL AND OVERLAY
- ③ TYPE 1 PCC PATCH
- ④ REMOVE AND REPLACE CURB
- ⑤ PROPOSED DRIVE
- ⑥ PROPOSED STREET RETURN
- PROPOSED SIDEWALK
- RIP RAP
- BORE HOLE LOCATION
- MH-1 PROPOSED DRAINAGE STRUCTURE
- PROPOSED DITCH
- FEMA REGULATORY 100-YR FLOODPLAIN BOUNDARY
- FEMA REGULATORY FLOODWAY BOUNDARY
- COT REGULATORY 100-YR FLOODPLAIN BOUNDARY

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

36" WATER MAIN CAN ONLY BE OUT OF SERVICE BETWEEN 10/1 - 5/1. CONSTRUCT DURING PHASE 1 AND COORDINATE WITH OPERATIONS FOR APPROVAL.

FOR PROPOSED WATERLINE PLANS AND DETAILS SEE SHEETS 50-53 .

CONTRACTOR SHALL NOT STORE EQUIPMENT OR MATERIALS IN THE FLOODPLAIN

REGISTERED PROFESSIONAL ENGINEER
SHANNON N. HANKS
21141
OKLAHOMA
1-31-25

BEFORE YOU DIG OKLAHOMA 811 CALL OKIE

0 10' 20' 40'

REVISION	BY	DATE

PLAN & PROFILE (4 OF 11)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)
CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

PLAN SCALE: 1" = 20'	DRAWN	T.C.B.	01/2025
	DESIGNED	S.N.H.	01/2025
	SURVEY	B.B.	10/2017
PROFILE SCALES: HORIZONTAL: 1"=20' VERTICAL 1"=5'	PROJ. MGR.		1/25
	LEAD ENGR.		1/25
	FIELD MGR.		1/25
	RECOMMENDED: DESIGN MANAGER	HAL	2-25

APPROVED: CITY ENGINEER

DRAWING: 12 P&P 58+50.00.DWG
DATE 6/13/2025
ATLAS PAGE NO: 1006,1137
SHEET 42 OF 89

PLOT DATE: January 21, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\12 P&P 58+50.00.DWG

SECTION 16
T-18-N
R-13-E

STA. 31+50.00
SEE SHEET 42

STA. 36+00.00
SEE SHEET 44

32+00 | 33+00 | 34+00 | 35+00

Independent School Dist. No. 5
C/O Board of Education
Doc #04201-02328

LIMITS OF CONSTRUCTION 8925

FOR SIDEWALK DATA
SEE SHEETS 69-74.

EXISTING 12" WATERLINE
EXISTING 36" WATERLINE
PRES. R/W
BM #206
ROE
⑤ CONSTRUCT 23 LF CURB AND GUTTER
DW-3 ⑤
EXISTING 12" WATERLINE
CAUTION WATER
STR-2
MH-2
MH-4
N88°56'01.73"E
2645.727
E. 91ST STREET
BH-4
CAUTION TUG
① 2300 SY
STR-1
CAUTION TUG
LIMITS OF CONSTRUCTION
⑤ DW-2
PRES. R/W
All Saints Anglican Church Inc.
4040
20' U/E
17.5' U/E
11' U/E
35' B/L
50' B/L
All Saints Anglican Church Inc.
4040

SECTION 2
T-18-N
R-13-E

STA. 34+49.30
END TYPICAL 1
BEGIN TYPICAL 2
N:382132.0830
E: 2580002.3422

TYPICAL SECTION 1

TYPICAL SECTION 2

MH-2 STA:32+96.00, 0.0'
4' MANHOLE
TG = 681.66
Q100 = 33.15
QFULL = 40.13
24" FL OUT W = 676.87
24" FL IN E = 676.87

STR-1 STA:35+49.64, 21.7' RT.
SMD W/ TYPE 1 GRATE
TG = 683.38
QIN = 14.40
Q100 = 24.00
QFULL = 12.30
18" FL OUT N = 679.78

STR-2 STA:35+82.07, 37.4' LT.
CICI DES. #D
TG = 683.98
Q IN = 9.15
Q100 = 33.15
QFULL = 19.58
18" FL OUT SW = 680.12

MH-4 STA:35+50.04, 0.0' LT.
4' MANHOLE
TG = 684.27
Q100 = 31.92
QFULL = 19.50
24" FL OUT W = 678.73
18" FL IN S = 679.27
18" FL IN NE = 679.27

L=150.00'
K=45.03

L=150.00'
K=65.46

PVC 31+60.00
ELEV = 678.16

PVI 32+35.00
ELEV = 681.22

PVI 33+10.00
ELEV = 681.79

PVC 34+55.00
ELEV = 682.87

PVI 35+30.00
ELEV = 683.44

4.08%

0.75%

1.86%

45.88' of 18" RCP @

250.00' of 24" RCP @ 3.10%

250.00' of 24" RCP @ 0.74%

EXISTING 12" WATERLINE

FINISHED GRADE

EXISTING GROUND @ CRL

EXISTING 36" WATERLINE

	31+50	32+00	32+50	33+00	33+50	34+00	34+50	35+00	35+50	36+00
705										
700										
695										
690										
685										
680										
675										
670										
665										
	677.75 (677.82)	679.62 (680.23)	680.94 (682.05)	681.70 (683.15)	682.09 (683.62)	682.46 (683.49)	682.84 (683.40)	683.37 (683.48)	684.28 (684.10)	685.57 (683.46)

STREET RETURN AND DRIVE SUMMARY TABLE

DRIVE NO.	CENTERLINE STATION	TYPE	LT./RT.	WIDTH X LENGTH	RADII (FT)	AREA (SY)	EX. SLOPE (%)	PROP. SLOPE (%)
DW-2	35+03.08	CONCRETE	RT	28X36	15	128	3.96	5.25
DW-3	35+12.40	CONCRETE	LT	67X37	30	314	0.13	1.34

BENCHMARK

NO.	NORTHING	EASTING	ELEV.	DESCRIPTION
206	382,199.9	2,580,013.6	682.697	34+61.77, 67.55' LT "X" CUT ON N. SW. COR. METER PAD

LEGEND

① PROPOSED RECONSTRUCTION
② PROPOSED MILL AND OVERLAY
③ TYPE 1 PCC PATCH
④ REMOVE AND REPLACE CURB
⑤ PROPOSED DRIVE
⑥ PROPOSED STREET RETURN
PROPOSED SIDEWALK
RIP RAP
BORE HOLE LOCATION
MH-1 PROPOSED DRAINAGE STRUCTURE
PROPOSED DITCH
FEMA 100-YR FLOOD BOUNDARY
COT 100-YR FLOOD BOUNDARY

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

REGISTERED PROFESSIONAL ENGINEER
SHANNON N. HANKS
21141
STATE OF OKLAHOMA
Shannon Hanks

BEFORE YOU DIG CALL OKIE 811

0 10' 20' 40'

PLAN & PROFILE (5 OF 11)
PROJECT NO. 144213
TMUA-W 22-90
ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)
CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

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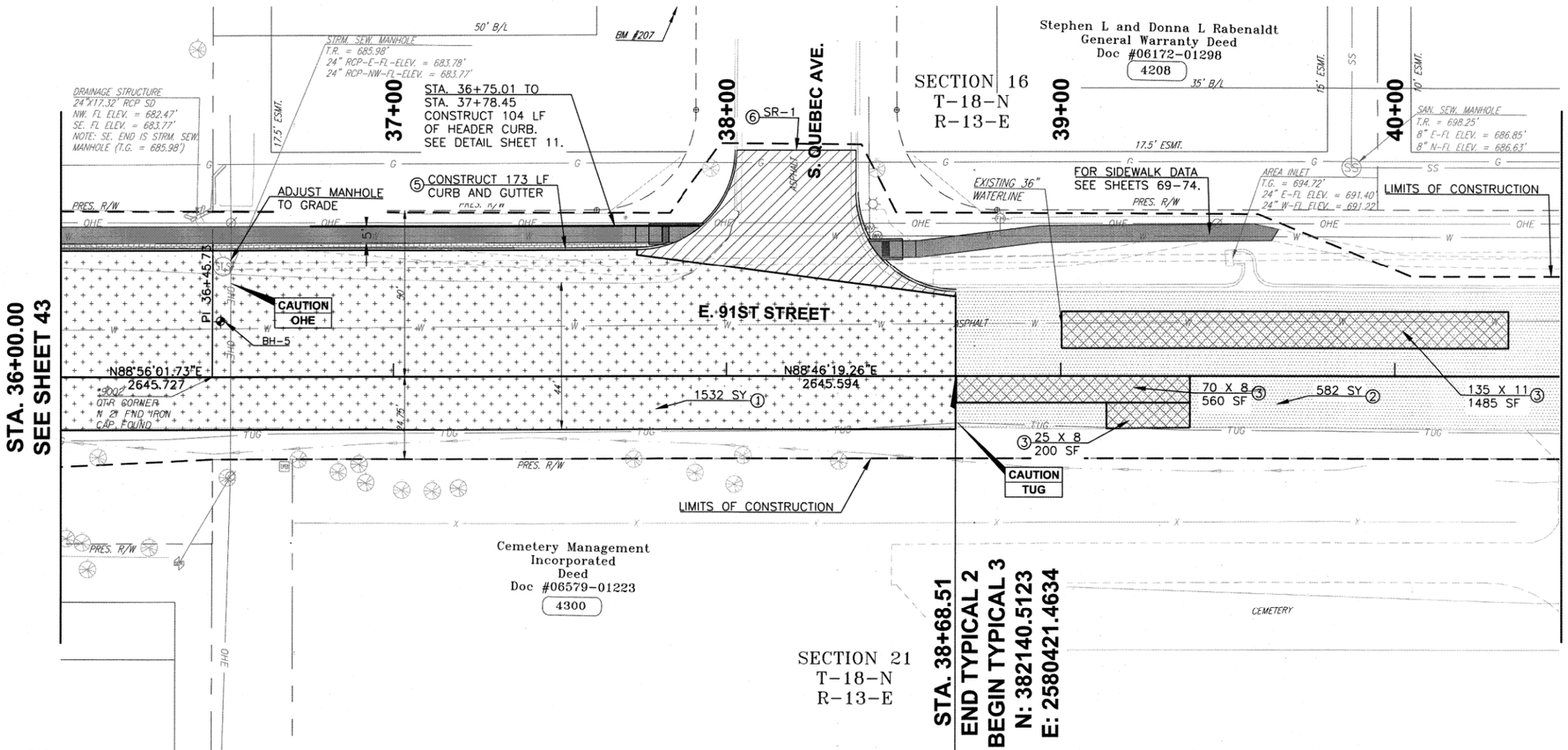
PLAN SCALE: 1" = 20'
PROFILE SCALES: HORIZONTAL: 1"=20' VERTICAL 1"=5'

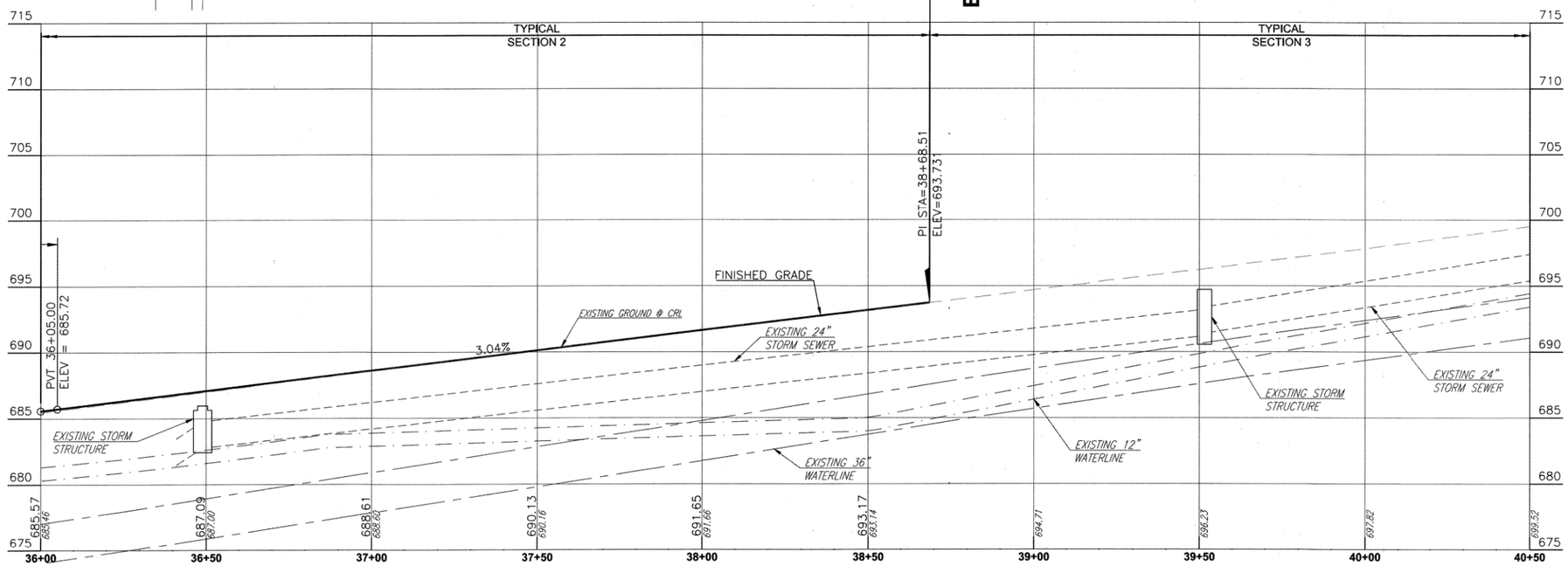
DRAWN	T.C.B.	01/2025
DESIGNED	S.N.H.	01/2025
SURVEY	B.B.	10/2017
PROJ. MGR.	JH	1/26
LEAD ENGR.	SH	2/25
FIELD MGR.	TMH	2/25
RECOMMENDED DESIGN MANAGER	HAS	2-25

APPROVED: CITY ENGINEER

DRAWING: 12 P&P 58+50.00.DWG
DATE 6/13/2025
ATLAS PAGE NO: 1006,1137
SHEET 43 OF 89

PLOT DATE: January 13, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\12 P&P 58+50.00.DWG





STREET RETURN AND DRIVE SUMMARY TABLE

DRIVE NO.	CENTERLINE STATION	TYPE	LT./RT.	WIDTH X LENGTH	RADII (FT)	AREA (SY)	EX. SLOPE (%)	PROP. SLOPE (%)
SR-1	38+20.92	ASPHALT	LT	36x37	30	201	1.47	2.64

BENCHMARK

NO.	NORTHING	EASTING	ELEV.	DESCRIPTION
207	382,291.4	2,580,352.6	689.857	38+02.87, 152.33' LT "X" CUT ON TOP OF CURB

LEGEND

- (1) PROPOSED RECONSTRUCTION
- (2) PROPOSED MILL AND OVERLAY
- (3) TYPE 1 PCC PATCH
- (4) REMOVE AND REPLACE CURB
- (5) PROPOSED DRIVE
- (6) PROPOSED STREET RETURN
- PROPOSED SIDEWALK
- RIP RAP
- BORE HOLE LOCATION
- MH-1 PROPOSED DRAINAGE STRUCTURE
- PROPOSED DITCH
- FEMA 100-YR FLOOD BOUNDARY
- COT 100-YR FLOOD BOUNDARY

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

REGISTERED PROFESSIONAL ENGINEER
SHANNON N. HANKS
21141
OKLAHOMA
7-1-25
Shannon Hanks

BEFORE YOU DIG
811
CALL OKIE

0 10' 20' 40'

REVISION	BY	DATE

PLAN & PROFILE (6 OF 11)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)
CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

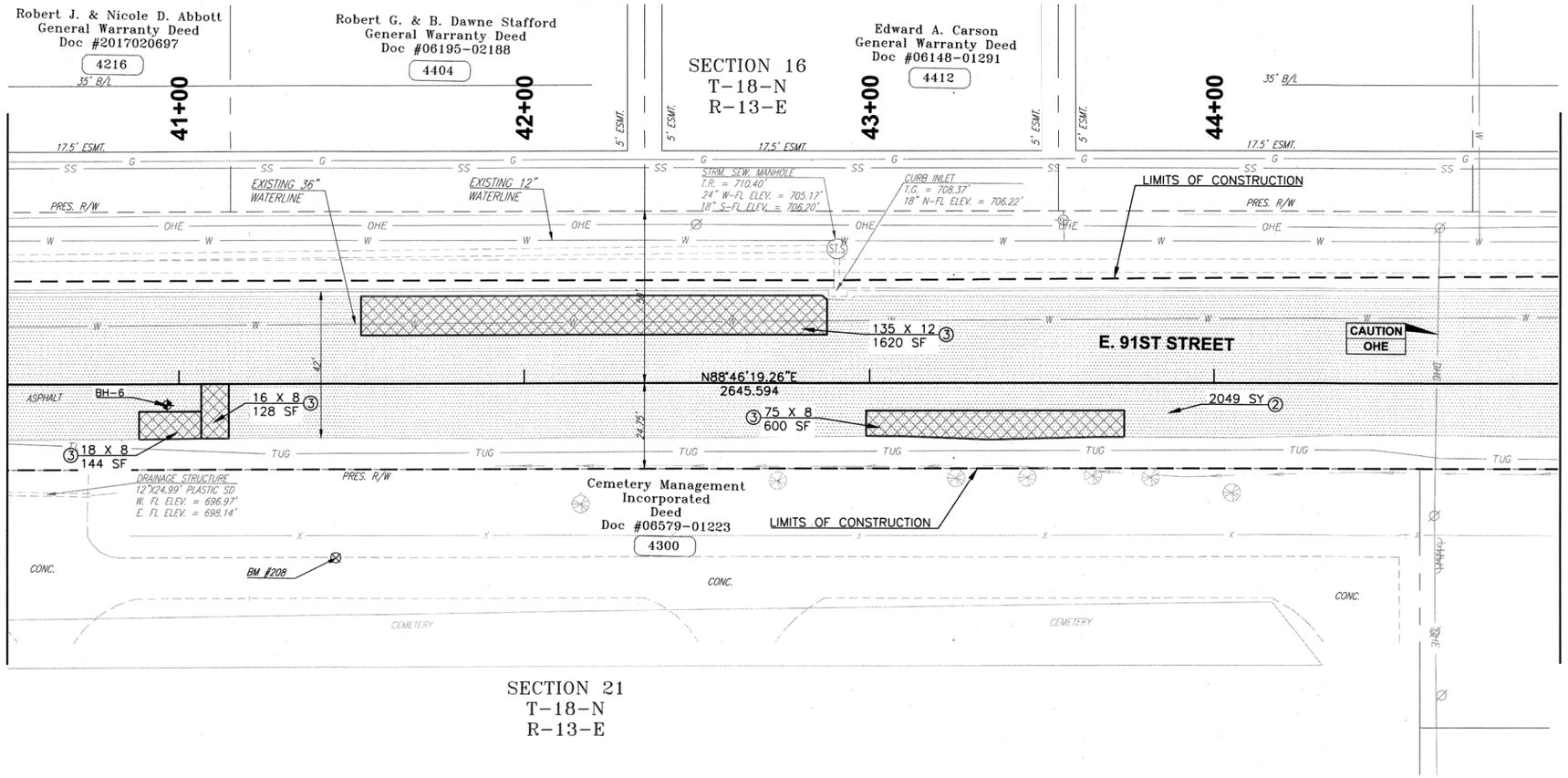
PLAN SCALE: 1" = 20'	DRAWN	T.C.B. 01/2025
	DESIGNED	S.N.H. 01/2025
	SURVEY	B.B. 10/2017
PROFILE SCALES: HORIZONTAL: 1"=20' VERTICAL 1"=5'	PROJ. MGR.	1/25
	LEAD ENGR.	2/25
	FIELD MGR.	2/25
	RECOMMENDED DESIGN MANAGER	2-25

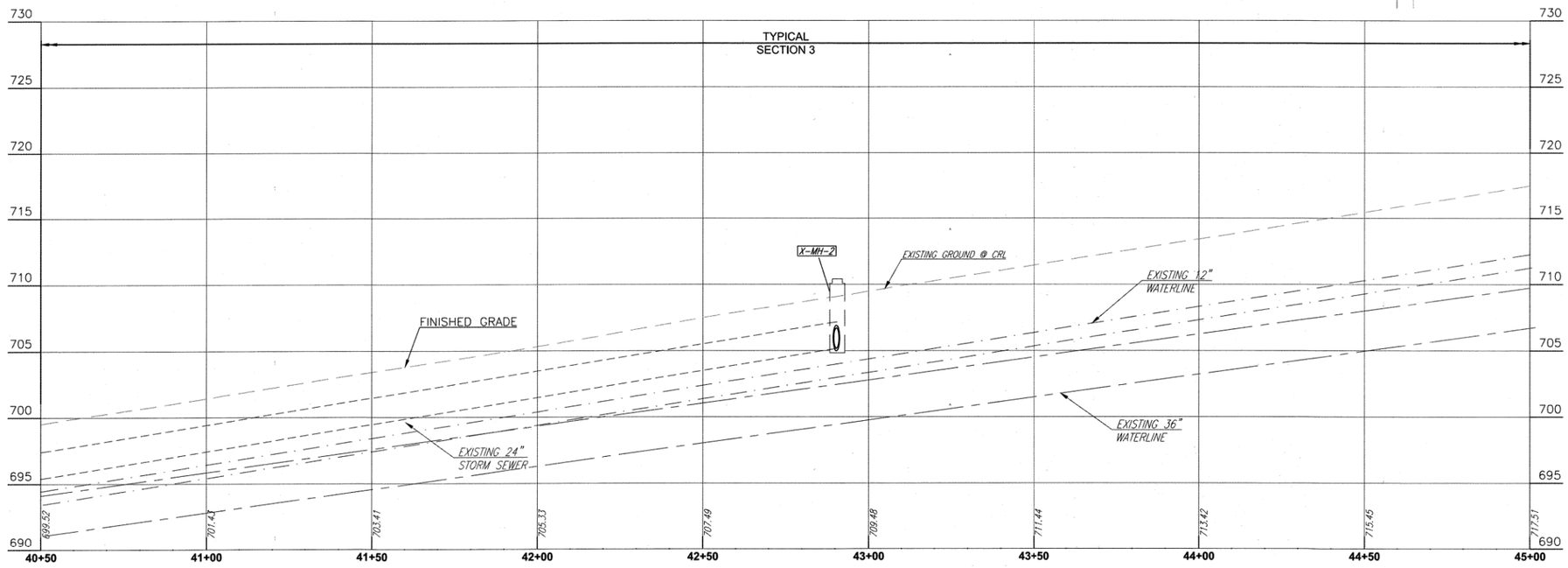
APPROVED: CITY ENGINEER

DRAWING: 12 P&P 58+50.00.DWG
ATLAS PAGE NO: 1006,1137

DATE 6/13/2025
SHEET 44 OF 89

PLOT DATE: January 13, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\12 P&P 58+50.00.DWG





BENCHMARK				
NO.	NORTHING	EASTING	ELEV.	DESCRIPTION
208	382,096.0	2,580,699.5	701.067	41+45.51, 50.48' RT "X" CUT ON N. CONC. DRIVE

LEGEND

- ① PROPOSED RECONSTRUCTION
- ② PROPOSED MILL AND OVERLAY
- ③ TYPE 1 PCC PATCH
- ④ REMOVE AND REPLACE CURB
- ⑤ PROPOSED DRIVE
- ⑥ PROPOSED STREET RETURN
- PROPOSED SIDEWALK
- RIP RAP
- BORE HOLE LOCATION
- MH-1 PROPOSED DRAINAGE STRUCTURE
- PROPOSED DITCH
- FEMA 100-YR FLOOD BOUNDARY
- COT 100-YR FLOOD BOUNDARY

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

REGISTERED PROFESSIONAL ENGINEER
SHANNON N. HANKS
21141
OKLAHOMA
1-13-25

BEFORE YOU DIG CALL OKIE

0 10' 20' 40'

REVISION	BY	DATE
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PLAN & PROFILE (7 OF 11)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)
CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

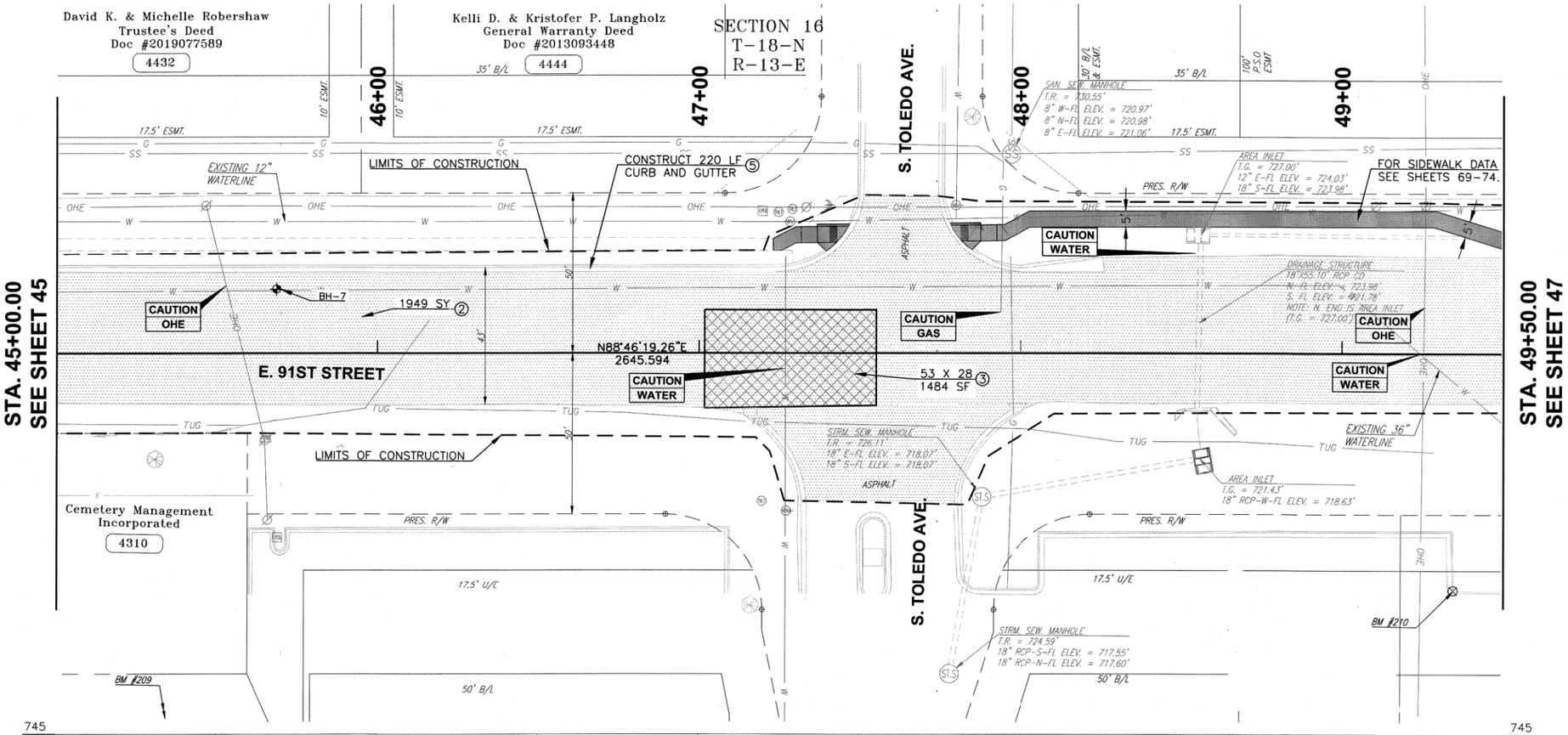
CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

PLAN SCALE: 1" = 20'	DRAWN	T.C.B.	01/2025
	DESIGNED	S.N.H.	01/2025
	SURVEY	B.B.	10/2017
PROFILE SCALES: HORIZONTAL: 1"=20' VERTICAL 1"=5'	PROJ. MGR.	JM	1/25
	LEAD ENGR.	SNH	1/25
	FIELD MGR.		1/25
	RECOMMENDED DESIGN MANAGER	HAB	1/25

APPROVED: CITY ENGINEER

DRAWING: 12 P&P 58+50.00.DWG
ATLAS PAGE NO: 1006,1137
DATE 1/13/2025
SHEET 45 OF 89

PLOT DATE: January 13, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\12 P&P 58+50.00.DWG



BENCHMARK				
NO.	NORTHING	EASTING	ELEV.	DESCRIPTION
209	382,023.0	2,581,092.5	718.732	45+36.85, 131.91' RT "X" CUT ON TOP OF CURB
210	382,089.5	2,581,488.9	725.197	49+34.59, 73.92' RT "X" CUT ON TOP OF CURB

LEGEND

- ① PROPOSED RECONSTRUCTION
- ② PROPOSED MILL AND OVERLAY
- ③ TYPE 1 PCC PATCH
- ④ REMOVE AND REPLACE CURB
- ⑤ PROPOSED DRIVE
- ⑥ PROPOSED STREET RETURN
- PROPOSED SIDEWALK
- RIP RAP
- BORE HOLE LOCATION
- MH-1 PROPOSED DRAINAGE STRUCTURE
- PROPOSED DITCH
- FEMA 100-YR FLOOD BOUNDARY
- COT 100-YR FLOOD BOUNDARY

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

REGISTERED PROFESSIONAL ENGINEER SHANNON N. HANKS 21141 OKLAHOMA 1-13-25

Shannon N. Hanks

BEFORE YOU DIG 811 CALL OKIE

0 10' 20' 40'

REVISION	BY	DATE
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PLAN & PROFILE (8 OF 11)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

PLAN SCALE: 1" = 20'	DRAWN	T.C.B.	01/2025
	DESIGNED	S.N.H.	01/2025
	SURVEY	B.B.	10/2017
PROFILE SCALES: HORIZONTAL: 1"=20' VERTICAL 1"=5'	PROJ. MGR.		1/25
	LEAD ENGR.		6/25
	FIELD MGR.		6/25
	RECOMMENDED: DESIGN MANAGER		

APPROVED: CITY ENGINEER

DRAWING: 12 P&P 58+50.00.DWG — DATE 6/13/2025

ATLAS PAGE NO: 1006,1137 — SHEET 46 OF 80

PLOT DATE: January 13, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\12 P&P 58+50.00.DWG

STA. 49+50.00
SEE SHEET 46

STA. 54+00.00
SEE SHEET 48

SECTION 16
T-18-N
R-13-E

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

E. 91ST STREET

S. URBANA AVE.

LIMITS OF CONSTRUCTION

ADJUST MANHOLE TO GRADE

ADJUST MANHOLE TO GRADE

ADJUST MANHOLE TO GRADE

FOR SIDEWALK DATA
SEE SHEETS 69-74.

BH-8

N88°46'19.26"E
2645.594

CAUTION OHE

CAUTION TUG

CAUTION WATER

CATCH BASIN GRATE INLET (6'X36')
W. T.G. = 731.63'
E. T.G. = 732.54'
6" PVC-W-FL ELEV. = 730.69'

SAN. SEW. MANHOLE
T.R. = 733.10'
8" N-FL ELEV. = 727.17'
8" W-FL ELEV. = 727.16'

CURB INLET
T.G. = 734.26'
24" S-FL ELEV. = 725.96'
18" N-FL ELEV. = 726.04'

CURB INLET
T.G. = 731.55'
12" RCP-SW-FL ELEV. = 727.21'
6" PVC-E-FL ELEV. = 730.43'

STRM. SEW. MANHOLE
T.R. = 730.22'
12" RCP-W-FL ELEV. = 725.83'
12" RCP-NE-FL ELEV. = 725.88'

STRM. SEW. MANHOLE
T.R. = 729.40'
30" RCP-S-FL ELEV. = 724.20'
30" RCP-NE-FL ELEV. = 724.34'
30" RCP-N-FL ELEV. = 724.20'
NOTE: NE END APPEARS TO BE FILLED IN

AREA INLET
T.G. = 733.55'
36"X24" RCP-S-FL ELEV. = 725.47'
6" STEEL-N-FL ELEV. = 727.52'

AREA INLET
T.G. = 728.86'
30" RCP-S-FL ELEV. = 724.22'
36"X24" RCP-N-FL ELEV. = 725.15'
24" RCP-NW-FL ELEV. = 724.58'

DRAINAGE STRUCTURE
23"X14"X16.32' RCP SD
N. FL ELEV. = 728.38'
S. FL ELEV. = 728.21'
NOTE: N. END IS AREA INLET
(T.G. = 731.79')

DRAINAGE STRUCTURE
22"X14"X72.48' RCP SD
E. FL-ELEV. = 726.21'
W. FL-ELEV. = 727.91'

STRM. SEW. MANHOLE
T.R. = 729.37'
30" N-FL ELEV. = 723.79'
30" S-FL ELEV. = 723.00'

SAN. SEW. CLEAN OUT
T.R. = 733.30'
8" E-FL ELEV. = 728.67'

BM #211

RESERVE A
STORMWATER DETENTION ESMT.

STORMWATER DET.

ASPHALT

ASPHALT

177 X 12
2124 SF ③

2151SY ②

SR-4 ⑦

EXISTING 36" WATERLINE

EXISTING 12" WATERLINE

No Information

No Information

STA. 49+63.99
END RECONSTRUCTION
TYPICAL 3
BEGIN MILL AND OVERLAY
TYPICAL 4
N:382163.9874
E: 2581516.6055

STA. 51+67.33
END TYPICAL 4
BEGIN TYPICAL 5
N: 382168.3470
E: 2581719.9866

BENCHMARK				
NO.	NORTHING	EASTING	ELEV.	DESCRIPTION
211	382,304.4	2,581,827.2	735.097	52+77.42, 133.68' LT "X" CUT ON TOP OF CURB

LEGEND

① PROPOSED RECONSTRUCTION
② PROPOSED MILL AND OVERLAY
③ TYPE 1 PCC PATCH
④ REMOVE AND REPLACE CURB
⑤ PROPOSED DRIVE
⑥ PROPOSED STREET RETURN
PROPOSED SIDEWALK
RIP RAP
BORE HOLE LOCATION
MH-1 PROPOSED DRAINAGE STRUCTURE
PROPOSED DITCH
FEMA 100-YR FLOOD BOUNDARY
COT 100-YR FLOOD BOUNDARY

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

TYPICAL SECTION 3

TYPICAL SECTION 4

TYPICAL SECTION 5

EXISTING STORM STRUCTURE

EXISTING 12" WATERLINE

EXISTING STORM SEWER

EXISTING 36" WATERLINE

EXISTING GROUND @ CRL

EXISTING STORM STRUCTURE

EXISTING 12" WATERLINE

750 745 740 735 730 725 720 715 710

729.43 730.53 731.14 730.93 730.34 729.90 729.44 729.81 730.57 731.20

49+50 50+00 50+50 51+00 51+50 52+00 52+50 53+00 53+50 54+00

REGISTERED PROFESSIONAL ENGINEER
SHANNON N. HANKS
21141
OKLAHOMA
6-13-25

BEFORE YOU DIG
811
CALL OKIE

0 10' 20' 40'

PLAN & PROFILE (9 OF 11)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)
CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

REVISION	BY	DATE

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

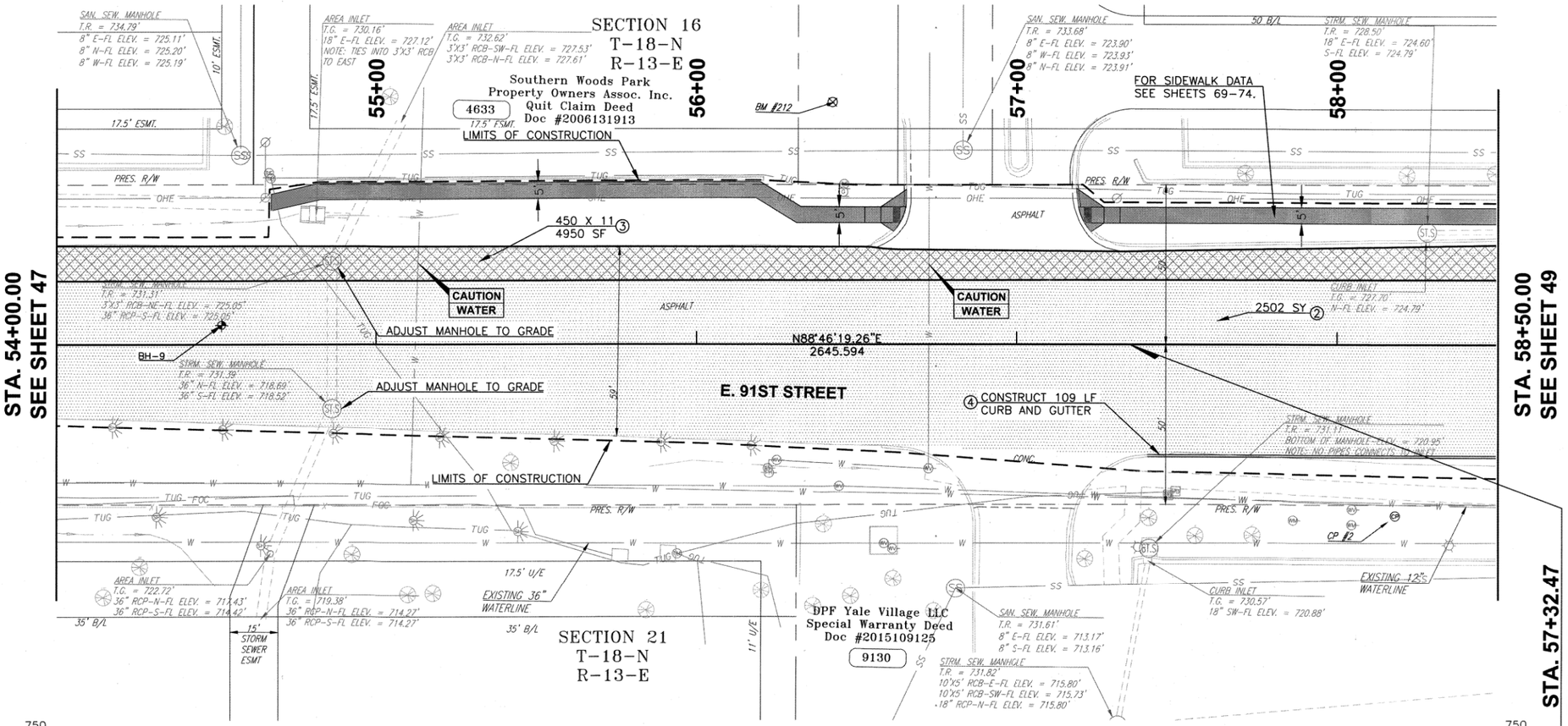
DRAWN	T.C.B.	01/2025
DESIGNED	S.N.H.	01/2025
SURVEY	B.B.	10/2017
PROJ. MGR.		1/25
LEAD ENGR.		2/25
FIELD MGR.		2/25
RECOMMENDED: DESIGN MANAGER		2/25

APPROVED: CITY ENGINEER

DRAWING: 12 P&P 58+50.00.DWG
ATLAS PAGE NO: 1006,1137

DATE 6/13/2025
SHEET 47 OF 87

PLOT DATE: January 13, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\12 P&P 58+50.00.DWG



STA. 57+32.47
END TYPICAL 5
BEGIN TYPICAL 6
N: 382180.5179
E: 2582287.7750

BENCHMARK				
NO.	NORTHING	EASTING	ELEV.	DESCRIPTION
212	382,254.3	2,582,193.2	736.067	56+42.32, 75.74' LT "X" CUT ON W. SIDE SIDEWALK

CONTROL POINT				
NO.	NORTHING	EASTING	ELEV.	DESCRIPTION
2	382,128.9	2,582,371.8	729.037	58+18.13, 53.43' RT SET 5/8" IRON PIN WITH CEC CP CAP

LEGEND

- ① PROPOSED RECONSTRUCTION
- ② PROPOSED MILL AND OVERLAY
- ③ TYPE 1 PCC PATCH
- ④ REMOVE AND REPLACE CURB
- ⑤ PROPOSED DRIVE
- ⑥ PROPOSED STREET RETURN
- PROPOSED SIDEWALK
- RIP RAP
- BORE HOLE LOCATION
- MH-1 PROPOSED DRAINAGE STRUCTURE
- PROPOSED DITCH
- FEMA 100-YR FLOOD BOUNDARY
- COT 100-YR FLOOD BOUNDARY

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

REGISTERED PROFESSIONAL ENGINEER
SHANNON N. HANKS
21141
OKLAHOMA
Shannon Hanks

811 BEFORE YOU DIG
CALL OKIE

0 10' 20' 40'

PLAN & PROFILE (10 OF 11)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

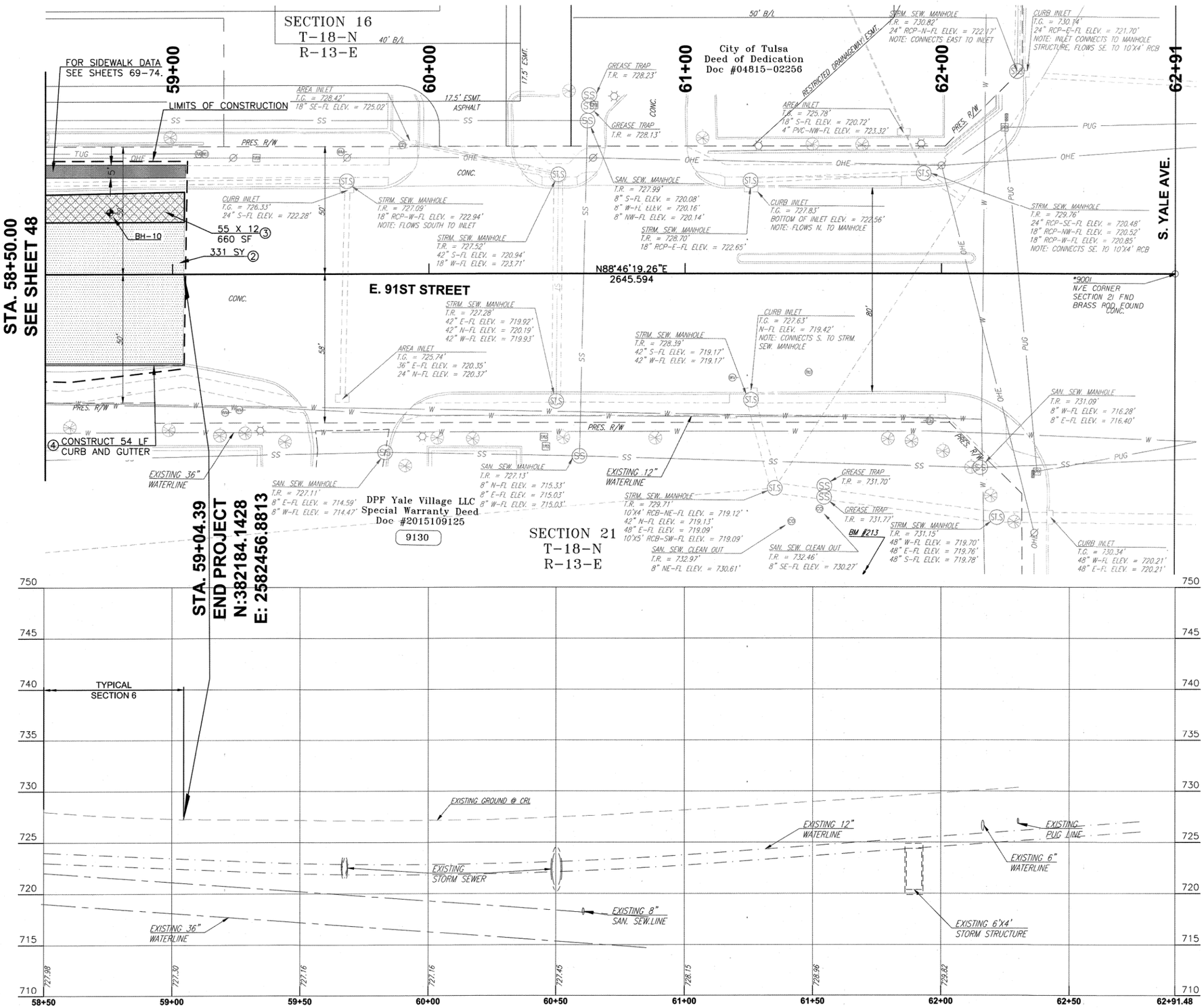
REVISION	BY	DATE

PLAN SCALE: 1" = 20'	DRAWN	T.C.B.	01/2025
	DESIGNED	S.N.H.	01/2025
	SURVEY	B.B.	10/2017
PROFILE SCALES: HORIZONTAL: 1"=20' VERTICAL 1"=5'	PROJ. MGR.		1/25
	LEAD ENGR.		2/25
	FIELD MGR.		2/25
	RECOMMENDED DESIGN MANAGER		2-25

APPROVED: CITY ENGINEER

DRAWING: 12 P&P 58+50.00.DWG
ATLAS PAGE NO: 1006,1137
DATE 6/13/2025
SHEET 48 OF 89

PLOT DATE: January 13, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\12 P&P 58+50.00.DWG



BENCHMARK				
NO.	NORTHING	EASTING	ELEV.	DESCRIPTION
213	381,959.9	2,582,729.6	733.487	61+72.23, 230.00' RT "X" CUT ON TOP OF CURB

LEGEND

- ① PROPOSED RECONSTRUCTION
- ② PROPOSED MILL AND OVERLAY
- ③ TYPE 1 PCC PATCH
- ④ REMOVE AND REPLACE CURB
- ⑤ PROPOSED DRIVE
- ⑥ PROPOSED STREET RETURN
- PROPOSED SIDEWALK
- RIP RAP
- BORE HOLE LOCATION
- MH-1 PROPOSED DRAINAGE STRUCTURE
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- FEMA 100-YR FLOOD BOUNDARY
- COT 100-YR FLOOD BOUNDARY

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

REGISTERED PROFESSIONAL ENGINEER
SHANNON N. HANKS
21141
OKLAHOMA
1-14-25

BEFORE YOU DIG OKLAHOMA
811
CALL OKIE

0 10' 20' 40'

REVISION	BY	DATE

PLAN & PROFILE (11 OF 11)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)
CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

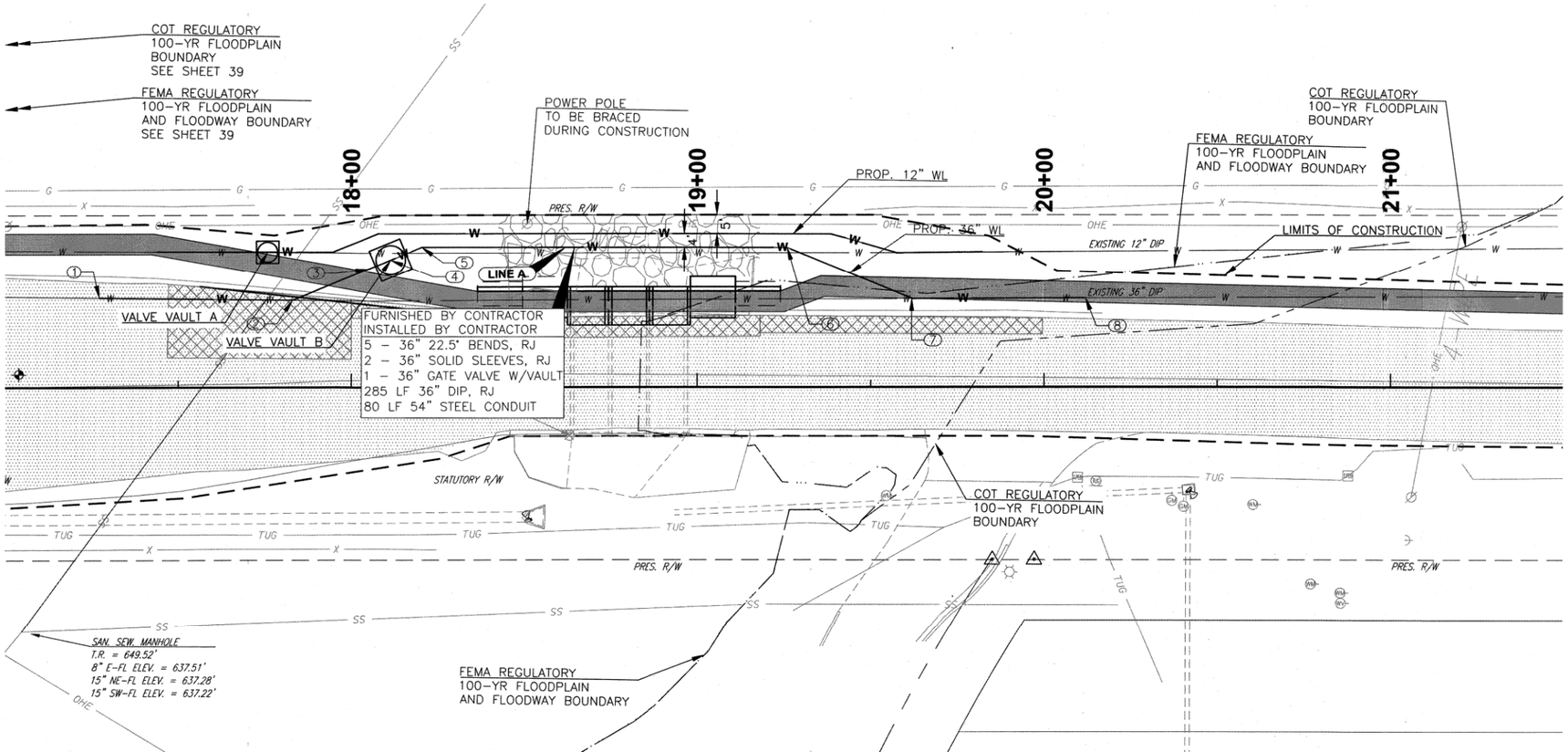
PLAN SCALE: 1" = 20'	DRAWN	T.C.B.	01/2025
	DESIGNED	S.N.H.	01/2025
	SURVEY	B.B.	10/2017
PROFILE SCALES: HORIZONTAL: 1"=20' VERTICAL 1"=5'	PROJ. MGR.		1/25
	LEAD ENGR.		1/25
	FIELD MGR.		1/25
	RECOMMENDED DESIGN MANAGER		1-25

APPROVED: CITY ENGINEER

DRAWING: 12 P&P 58+50.00.DWG
ATLAS PAGE NO: 1006,1137

DATE 6/13/2025
SHEET 49 OF 89

PLOT DATE: January 13, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\12 P&P 58+50.00.DWG



WATERLINE A - 36" DIP

LEGEND - PLAN

- WATERLINE PIPE
- PAVEMENT RECONSTRUCTION (ROADWAY BID)
- SIDEWALK REPLACEMENT (ROADWAY BID)
- DRIVEWAY REPLACEMENT (ROADWAY BID)
- FEMA REGULATORY 100-YR FLOODPLAIN BOUNDARY
- FEMA REGULATORY FLOODWAY BOUNDARY
- COT REGULATORY 100-YR FLOODPLAIN BOUNDARY

LEGEND - PROFILE

- DIP

COORDINATE TABLE

POINT NO.	NORTHING	EASTING
1	382125.9584	2578280.0477
2	382126.3029	2578335.9067
3	382135.7424	2578357.5476
4	382138.5426	2578363.9673
5	382142.4407	2578372.9042
6	382144.2314	2578478.5521
7	382130.0558	2578514.6612
8	382131.1112	2578564.7548

36" WATER MAIN CAN ONLY BE OUT OF SERVICE BETWEEN 10/1 - 5/1. CONSTRUCT DURING PHASE 1 AND COORDINATE WITH OPERATIONS FOR APPROVAL.

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

CONTRACTOR SHALL NOT STORE EQUIPMENT OR MATERIALS IN THE FLOODPLAIN

REGISTERED PROFESSIONAL ENGINEER — JASON J. COLTRANE — 27695 — OKLAHOMA

BEFORE YOU DIG — 811 — CALL OKIE

0 10' 20' 40'

REVISION	BY	DATE

WATER RELOCATION (1 OF 4)

PROJECT NO. 144213

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

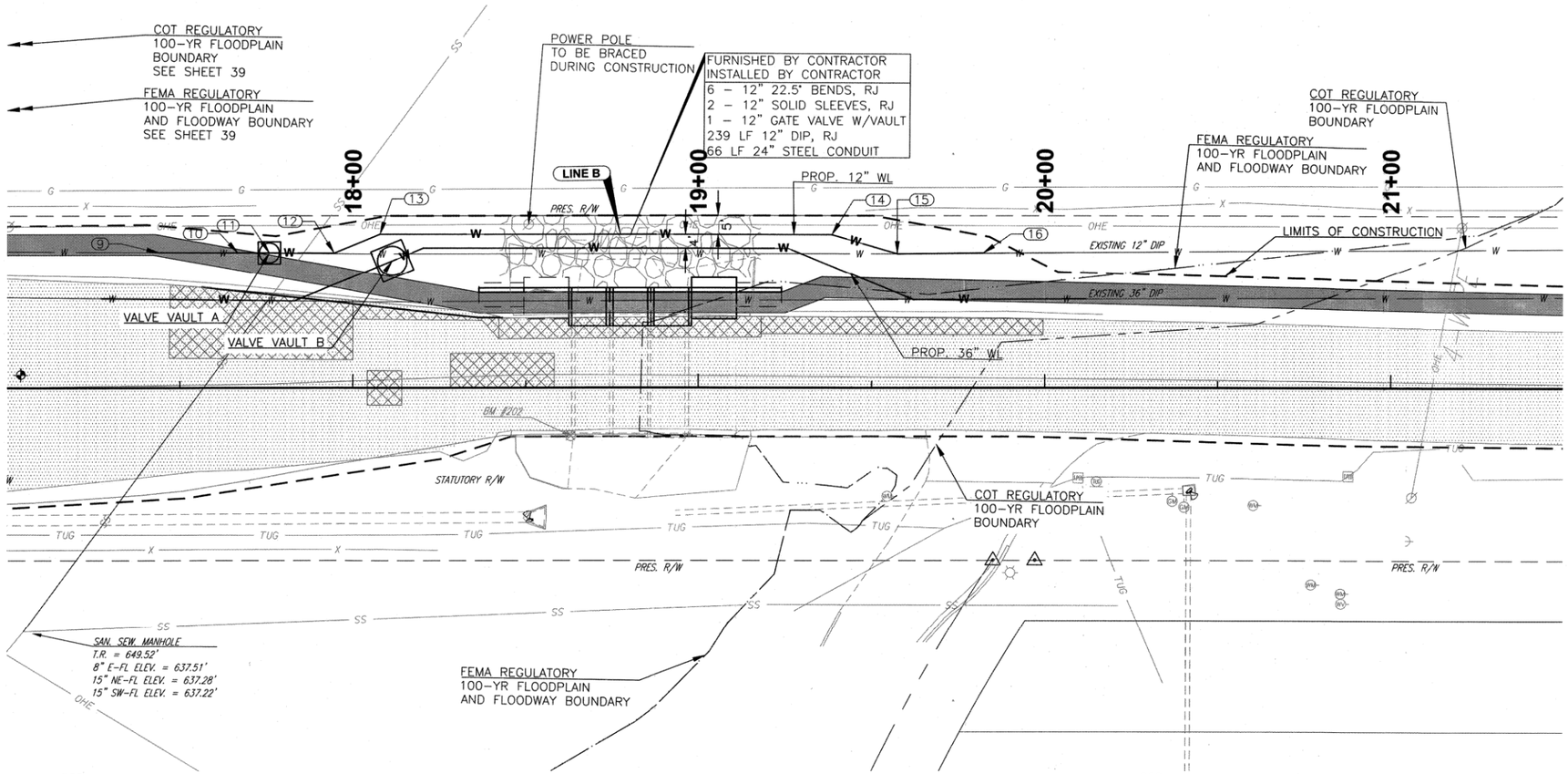
CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

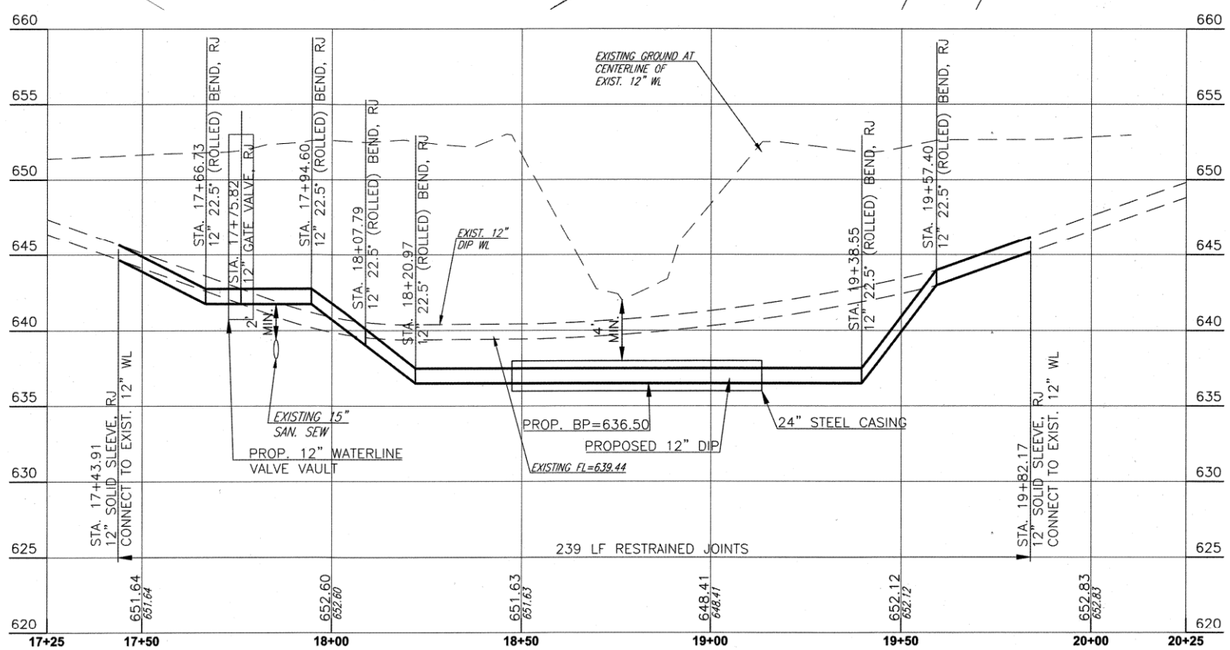
CEC Corporation
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

PLAN SCALE: 1" = 20'	DRAWN	T.C.B.	05/2021	APPROVED:
	DESIGNED	S.N.H.	05/2021	
	SURVEY	B.B.	10/2017	
PROFILE SCALES: HORIZONTAL: 1"=20' VERTICAL 1"=5'	PROJ. MGR.	JH	7/25	
	LEAD ENGR.	DBW	7/25	
	FIELD MGR.			
	RECOMMENDED: DESIGN MANAGER			CITY ENGINEER
DRAWING: WATER RELOCATION (4 OF 4).DWG				DATE 6/13/2025
ATLAS PAGE NO: 1006,1137				SHEET 50 OF 89

PLOT DATE: February 13, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\WATER RELOCATION (4 OF 4).DWG

PROJECT NO. 144213, TMUA-W 22-90





WATERLINE B - 12" DIP

LEGEND - PLAN

- W — WATERLINE PIPE
- PAVEMENT RECONSTRUCTION (ROADWAY BID)
- SIDEWALK REPLACEMENT (ROADWAY BID)
- DRIVEWAY REPLACEMENT (ROADWAY BID)
- FEMA REGULATORY 100-YR FLOODPLAIN BOUNDARY
- FEMA REGULATORY FLOODWAY BOUNDARY
- COT REGULATORY 100-YR FLOODPLAIN BOUNDARY

LEGEND - PROFILE

- DIP

COORDINATE TABLE

POINT NO.	NORTHING	EASTING
9	382139.7429	2578296.5117
10	382140.0846	2578319.3292
11	382140.2207	2578328.4205
12	382140.5019	2578347.1990
13	382146.2089	2578360.2828
14	382148.4664	2578491.0249
15	382143.3159	2578509.9701

36" WATER MAIN CAN ONLY BE OUT OF SERVICE BETWEEN 10/1 - 5/1. CONSTRUCT DURING PHASE 1 AND COORDINATE WITH OPERATIONS FOR APPROVAL.

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

CONTRACTOR SHALL NOT STORE EQUIPMENT OR MATERIALS IN THE FLOODPLAIN

REGISTERED PROFESSIONAL ENGINEER — JASON [illegible] 27695 — 2.13.25 — OKLAHOMA

BEFORE YOU DIG — CALL OKIE

0 10' 20' 40'

WATER RELOCATION (2 OF 4)

PROJECT NO. 144213

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

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

DRAWN	T.C.B.	05/2021
DESIGNED	S.N.H.	05/2021
SURVEY	B.B.	10/2017
PROJ. MGR.		2/25
LEAD ENGR.		2/25
FIELD MGR.		
RECOMMENDED DESIGN MANAGER		

APPROVED:

CITY ENGINEER

DRAWING: WATER RELOCATION (4 OF 4).DWG

ATLAS PAGE NO: 1006,1137

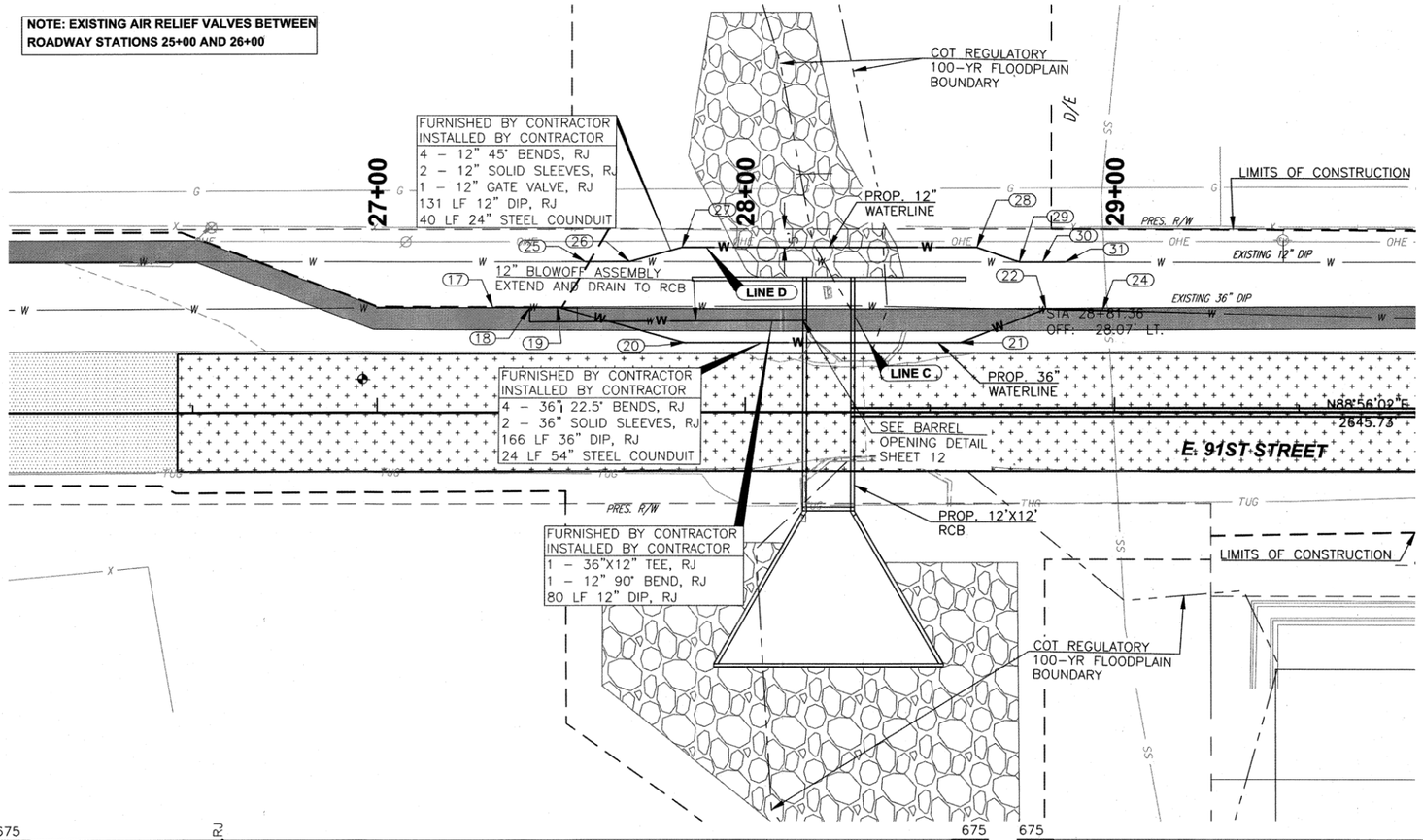
DATE 6/13/2025

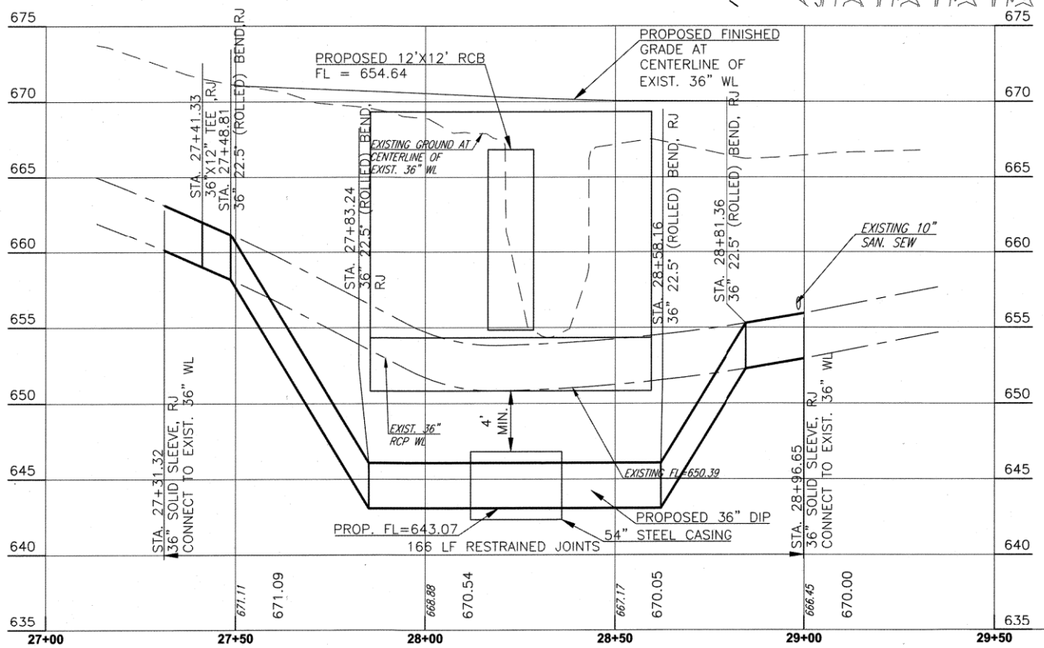
SHEET 51 OF 89

PLOT DATE: February 13, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\WATER RELOCATION (4 OF 4).DWG

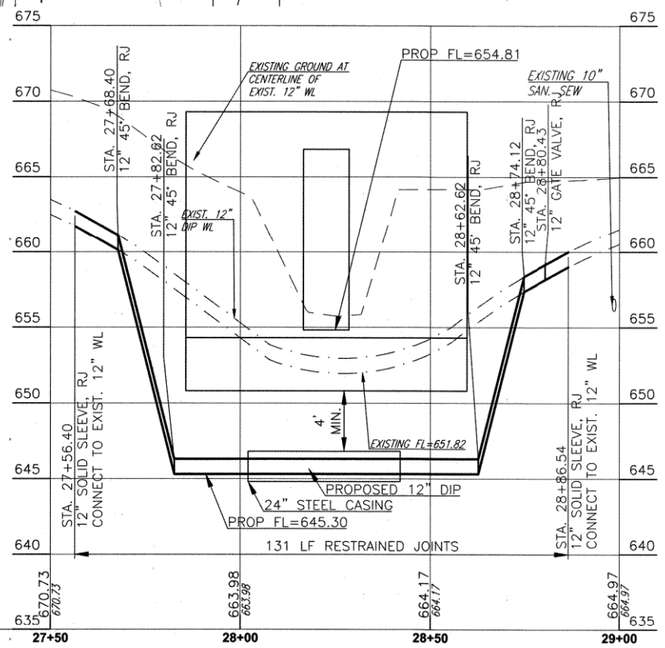
PROJECT NO. 144213, TMUA-W 22-90

NOTE: EXISTING AIR RELIEF VALVES BETWEEN ROADWAY STATIONS 25+00 AND 26+00





WATERLINE C - 36" DIP



WATERLINE D - 12" DIP

COORDINATE TABLE

POINT NO.	NORTHING	EASTING
17	382147.2297	2579283.9559
18	382147.2869	2579293.9621
19	382147.6218	2579301.4415
20	382138.5458	2579336.0433
21	382139.9399	2579410.9558
22	382149.5812	2579433.9777
24	382149.4499	2579449.2771
25	382160.3134	2579308.7966
26	382160.5233	2579320.7947
27	382164.6712	2579334.9443
28	382166.1597	2579414.9305
29	382162.3727	2579426.4986
30	382162.4831	2579432.8076
31	382162.5900	2579438.9167

LEGEND - PLAN

- W — WATERLINE PIPE
- PAVEMENT RECONSTRUCTION (ROADWAY BID)
- SIDEWALK REPLACEMENT (ROADWAY BID)
- DRIVEWAY REPLACEMENT (ROADWAY BID)
- FEMA REGULATORY 100-YR FLOODPLAIN BOUNDARY
- FEMA REGULATORY FLOODWAY BOUNDARY
- COT REGULATORY 100-YR FLOODPLAIN BOUNDARY

LEGEND - PROFILE

- DIP

36" WATER MAIN CAN ONLY BE OUT OF SERVICE BETWEEN 10/1 - 5/1. CONSTRUCT DURING PHASE 1 AND COORDINATE WITH OPERATIONS FOR APPROVAL.

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

CONTRACTOR SHALL NOT STORE EQUIPMENT OR MATERIALS IN THE FLOODPLAIN

REGISTERED PROFESSIONAL ENGINEER — JASON L. OLTROGGE — 27695 — OKLAHOMA

BEFORE YOU DIG OKIE 811 CALL OKIE

0 10' 20' 40'

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

DRAWN	T.C.B.	05/2021
DESIGNED	S.N.H.	05/2021
SURVEY	B.B.	10/2017
PROJ. MGR.	JH	2/25
LEAD ENGR.		
FIELD MGR.		

RECOMMENDED: DESIGN MANAGER

APPROVED: CITY ENGINEER

DRAWING: WATER RELOCATION (4 OF 4).DWG
ATLAS PAGE NO: 1006,1137
DATE 6/13/2025
SHEET 52 OF 89

WATER RELOCATION (3 OF 4)

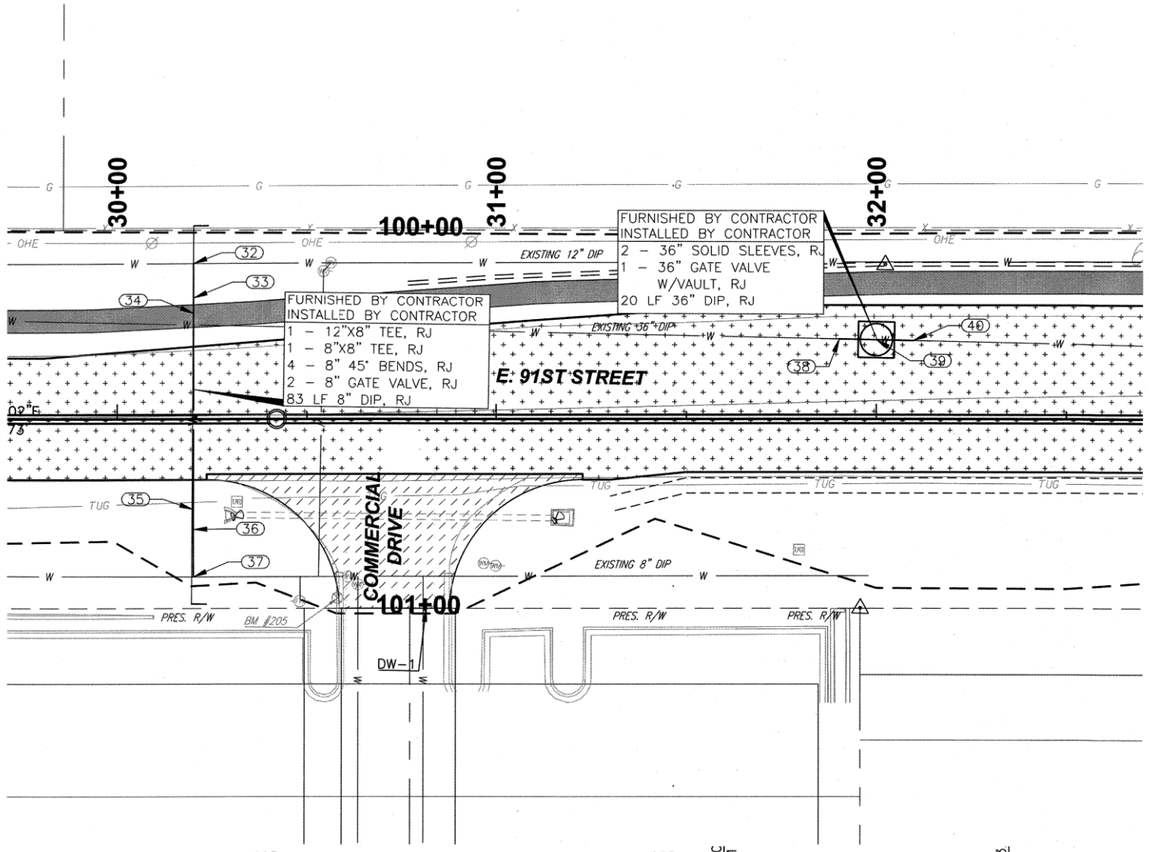
PROJECT NO. 144213

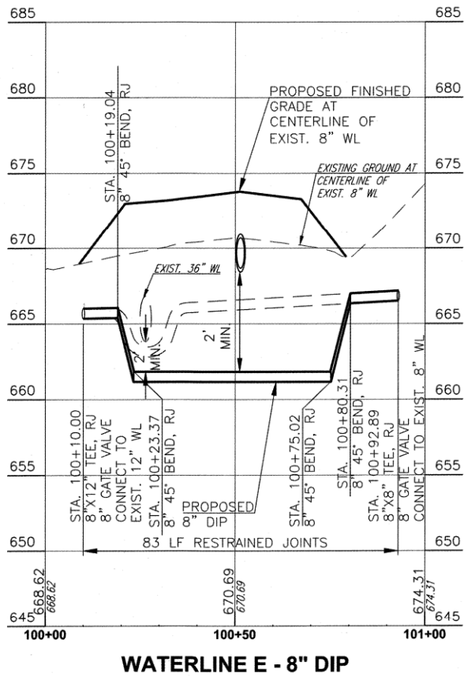
ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)
CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

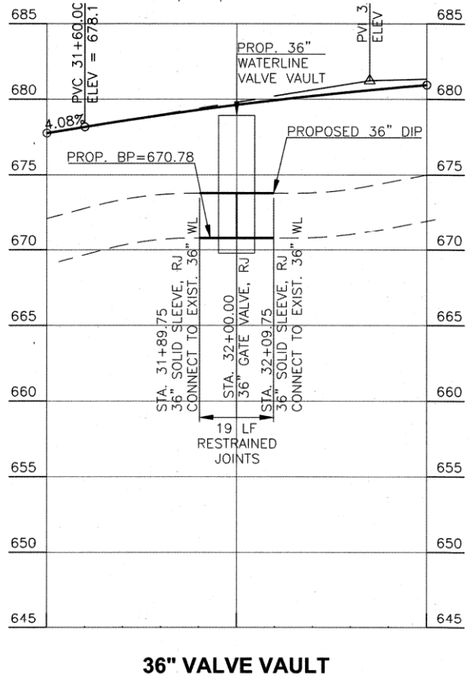
PROJECT NO. 144213, TMUA-W 22-90

PLOT DATE: February 13, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\WATER RELOCATION (4 OF 4).DWG





WATERLINE E - 8" DIP



36" VALVE VAULT

NOTE: CONTRACTOR TO VERIFY DEPTH OF EXISTING WATERLINE PRIOR TO CONSTRUCTION. IF CLEARANCE FROM PROPOSED STORM IS ADEQUATE, NO RELOCATION IS NECESSARY

LEGEND - PLAN

- W — WATERLINE PIPE
- PAVEMENT RECONSTRUCTION (ROADWAY BID)
- SIDEWALK REPLACEMENT (ROADWAY BID)
- DRIVEWAY REPLACEMENT (ROADWAY BID)
- FEMA REGULATORY 100–YR FLOODPLAIN BOUNDARY
- FEMA REGULATORY FLOODWAY BOUNDARY
- COT REGULATORY 100–YR FLOODPLAIN BOUNDARY

LEGEND - PROFILE

- DIP

COORDINATE TABLE

POINT NO.	NORTHING	EASTING
32	382165.2883	2579572.4430
33	382156.2504	2579572.6468
34	382151.9211	2579572.7231
35	382100.2784	2579573.5891
36	382094.9972	2579573.7550
37	382082.4289	2579573.9889
38	382148.3314	2579742.9467
39	382148.3165	2579752.6967
40	382148.3016	2579762.4466

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REGISTERED PROFESSIONAL ENGINEER — JASON M. COLTRAIN — 27695 — OKLAHOMA

BEFORE YOU DIG — 811 — CALL OKIE

0 10' 20' 40'

REVISION	BY	DATE
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WATER RELOCATION (4 OF 4)

PROJECT NO. 144213

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

PLAN SCALE: 1" = 20'	DRAWN	T.C.B.	05/2021
	DESIGNED	S.N.H.	05/2021
	SURVEY	B.B.	10/2017
PROFILE SCALES: HORIZONTAL: 1"=20' VERTICAL 1"=5'	PROJ. MGR.	JH	7/25
	LEAD ENGR.	KCW	7/25
	FIELD MGR.		
	RECOMMENDED: DESIGN MANAGER		

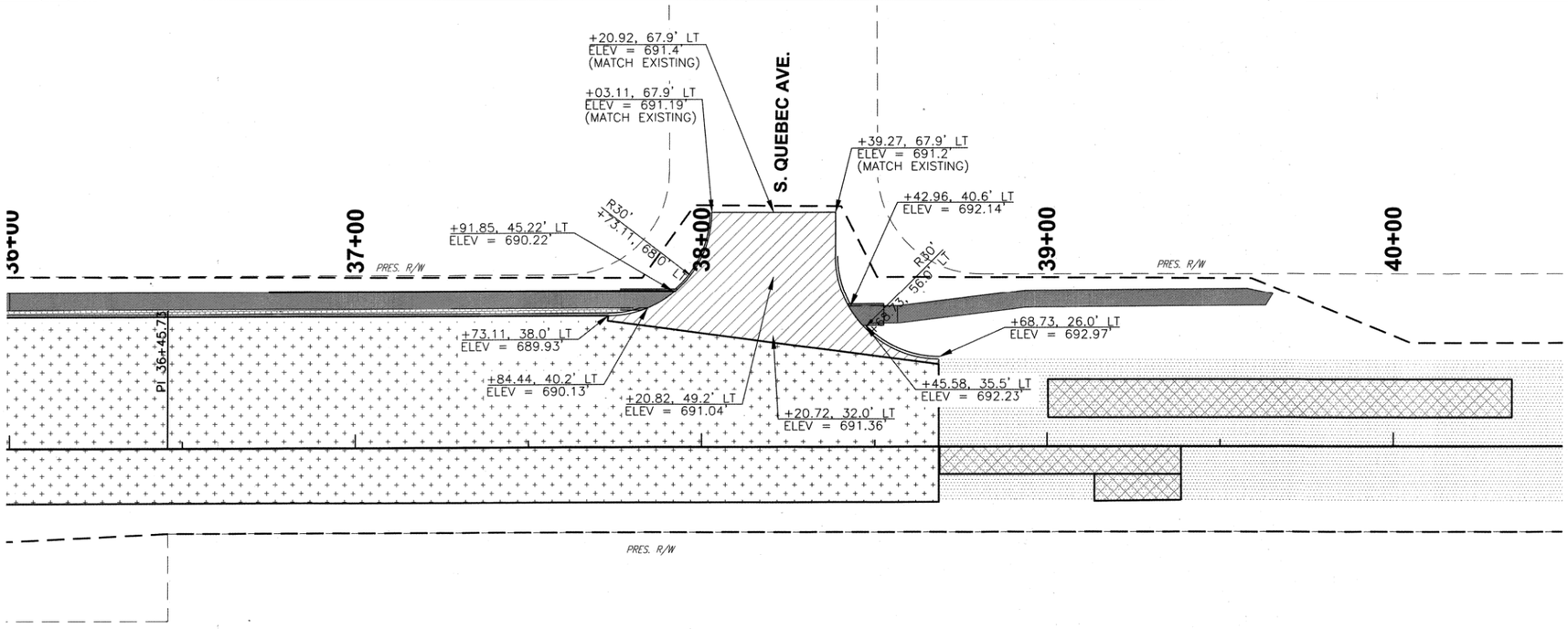
APPROVED: CITY ENGINEER

DRAWING: WATER RELOCATION (4 OF 4).DWG — DATE 6/13/2025

ATLAS PAGE NO: 1006,1137 — SHEET 53 OF 89

PLOT DATE: February 13, 2025, DRAWING FILE: N:\TULSA\TULSA PROJECTS\TPWD – 91ST – HARVARD TO YALE\PROJECT DRAWINGS\WATER RELOCATION (4 OF 4).DWG

PROJECT NO. 144213, TMUA-W 22-90



REGISTERED PROFESSIONAL ENGINEER
SHANNON N. HANKS
21141
OKLAHOMA
6-13-25

BEFORE YOU DIG
811
CALL OKIE

INTERSECTION DETAIL

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

REVISION	BY	DATE
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PLAN SCALE: 1" = 20'

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

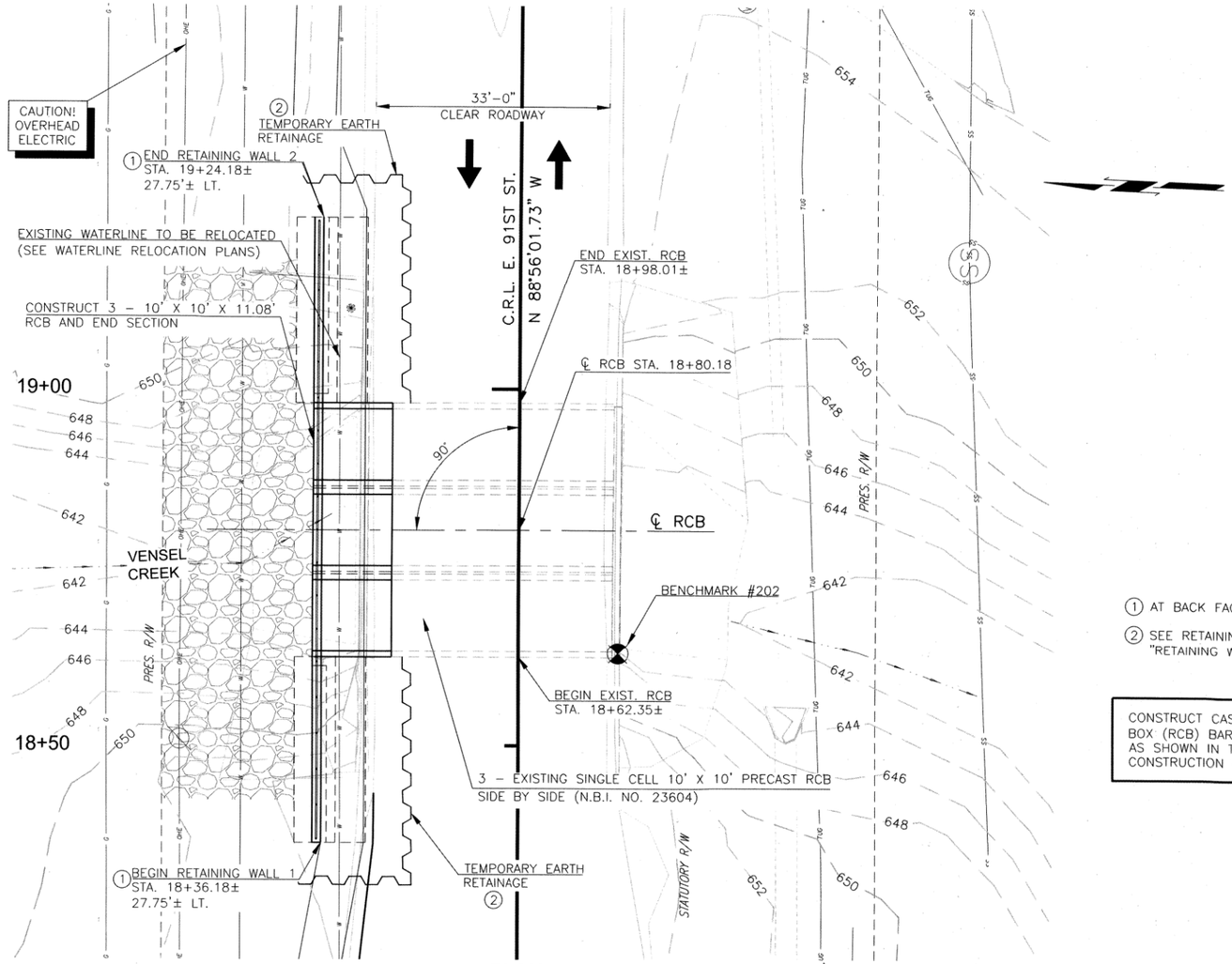
DRAWN	T.C.B.	01/2025
DESIGNED	S.N.H.	01/2025
SURVEY	B.B.	10/2017
PROJ. MGR.		1/25
LEAD ENGR.		2/25
FIELD MGR.		2/25
RECOMMENDED: DESIGN MANAGER	HAS	2-25

APPROVED:
CITY ENGINEER

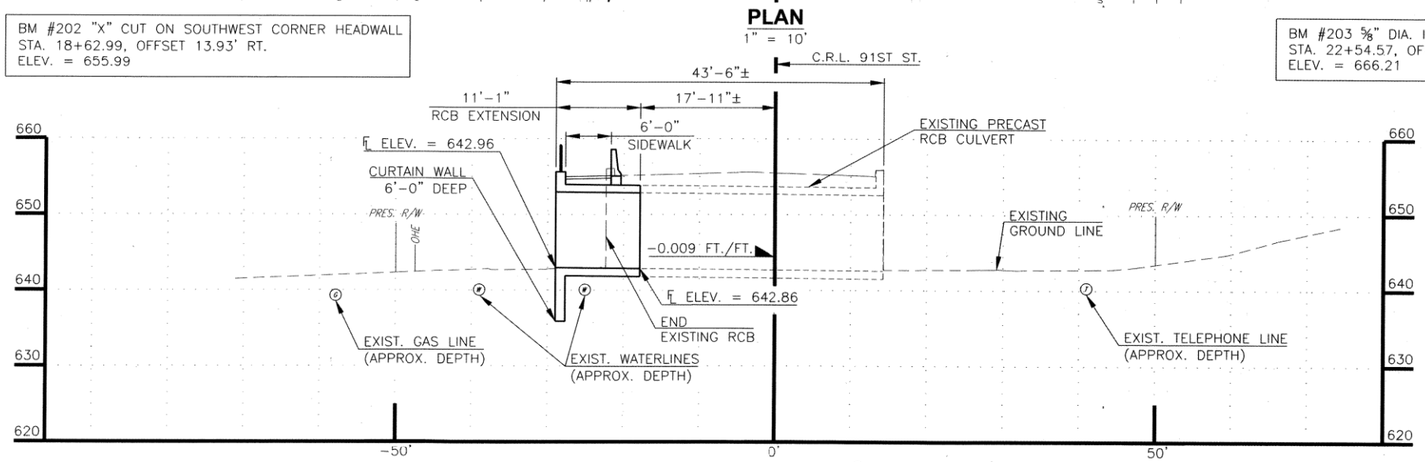
DRAWING: INTERSECTION DETAIL (2 OF 2)
ATLAS PAGE NO: 1006,1137

DATE 6/13/2025
SHEET 54 OF 89

PLOT DATE: January 13, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\INTERSECTION DETAIL (2 OF 2).DWG



PLAN
1" = 10'



ELEVATION ALONG ℄ RCB
1" = 10'

BM #202 "X" CUT ON SOUTHWEST CORNER HEADWALL
STA. 18+62.99, OFFSET 13.93' RT.
ELEV. = 655.99

BM #203 ⅝" DIA. IRON PIN SET AT FENCE
STA. 22+54.57, OFFSET 51.23' LT.
ELEV. = 666.21

(1) AT BACK FACE OF TOP OF RETAINING WALL STEM.

(2) SEE RETAINING WALL GENERAL NOTE 11 ON "RETAINING WALL DETAILS (SHEET 1 OF 3)".

CONSTRUCT CAST-IN-PLACE REINFORCED CONCRETE BOX (RCB) BARREL SECTION AND RETAINING WALLS AS SHOWN IN THE PLANS. THE USE OF PRECAST CONSTRUCTION WILL NOT BE ALLOWED.

LOAD AND RESISTANCE FACTOR DESIGN DATA
(NEW CONSTRUCTION ONLY)

CLASS AA CONCRETE F'C = 4 KSI
REINFORCING STEEL (GR. 60) FY = 60 KSI

LOADING:
HL-93

DESIGN:
AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 8TH EDITION

INDEX OF SHEETS

55 VENSEL CREEK BRIDGE - GENERAL PLAN AND ELEVATION
56 RCB DETAILS (SHEET 1 OF 2)
57 RCB DETAILS (SHEET 2 OF 2)
58 CONCRETE PARAPET DETAILS (SHEET 1 OF 2)
59 CONCRETE PARAPET DETAILS (SHEET 2 OF 2)
60 RETAINING WALL DETAILS (SHEET 1 OF 3)
61 RETAINING WALL DETAILS (SHEET 2 OF 3)
62 RETAINING WALL DETAILS (SHEET 3 OF 3)
63 PIPE RAIL DETAILS

FOUNDATION DATA

RETAINING WALL (HP10X42 PILING)
REQUIRED AXIAL LOAD RESISTANCE = 81.2 TONS/PILE

STEEL PILING:
ALL PILING SHALL BE DRIVEN THRU COMPACTED FILL. PILING SHALL BE DRIVEN TO A POINT BEARING ON SOLID FOUNDATION MATERIAL AT THE APPROXIMATE ELEVATION SHOWN ON THE PLANS. IF THE REQUIRED AXIAL LOAD RESISTANCE IS NOT OBTAINED AT THIS ELEVATION, DRIVING SHALL CONTINUE UNTIL THE REQUIRED AXIAL LOAD RESISTANCE IS OBTAINED. THE LENGTH OF STEEL PILING SHOWN ON THE PLANS IS FOR ESTIMATING PURPOSES ONLY.

SUMMARY OF QUANTITIES

ITEM	UNIT	TOTAL
UNCLASSIFIED EXCAVATION	C.Y.	990
SELECT BACKFILL	C.Y.	260
CLASS 57 STONE	C.Y.	34
TEMPORARY EARTH RETAINAGE	L.SUM	1.0
CONCRETE PARAPET	L.F.	36
HANDRAILING	L.F.	87
CLASS AA CONCRETE	C.Y.	71
RETAINING WALL	S.Y.	77.0
REINFORCING STEEL	LB.	18,260
EPOXY COATED REINFORCING STEEL	LB.	970
PILES, FURNISHED (HP 10X42)	L.F.	640
PILES, DRIVEN (HP 10X42)	L.F.	640
REMOVAL OF BRIDGE ITEMS	L.SUM	1.0

LICENSED PROFESSIONAL ENGINEER — JOHN W. HAWKINS — 5/22/26 — OKLAHOMA — CA 32 6-30-26

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0 5' 10' 20'

REVISION	BY	DATE

VENSEL CREEK BRIDGE - GENERAL PLAN AND ELEVATION

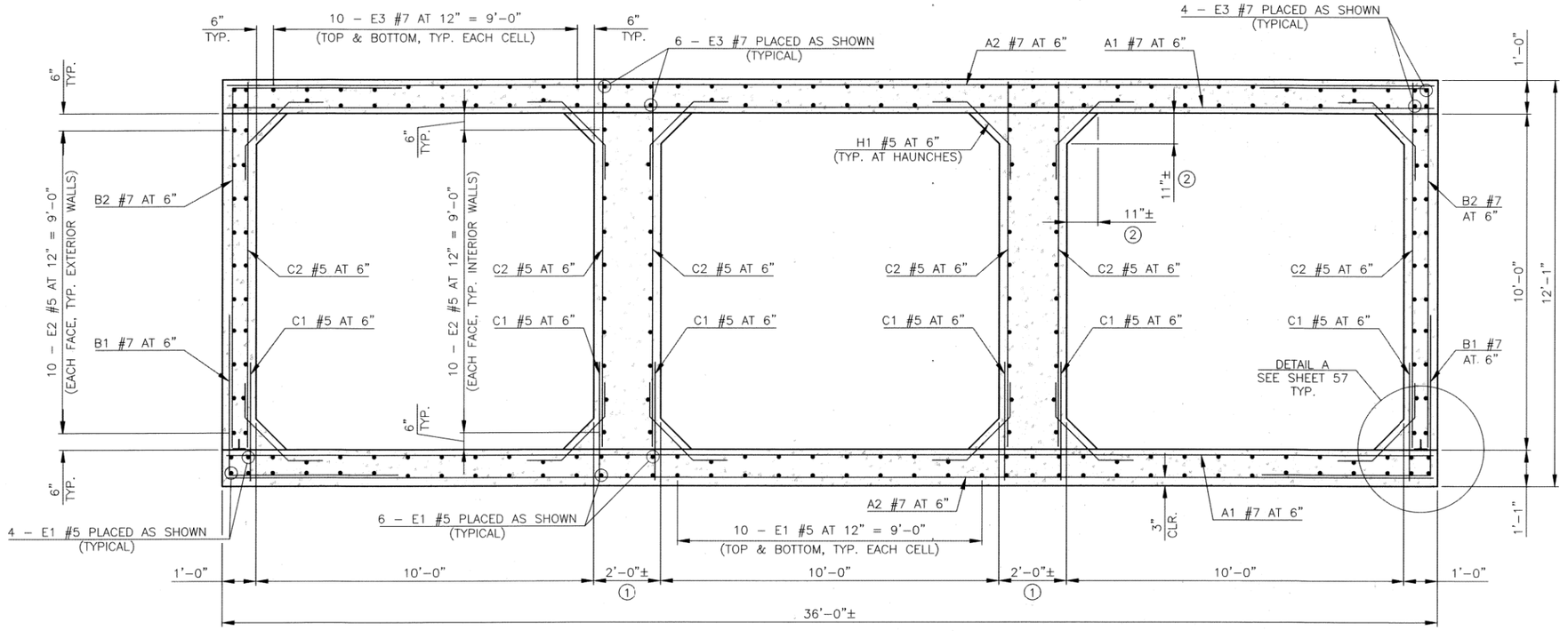
PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC CORPORATION
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

PLAN SCALE: 1"=10'	DRAWN	J.F.R.	4/22	APPROVED:
	DESIGNED	J.W.H.	4/22	
	SURVEY	B.B.	10/17	
PROFILE SCALES:	PROJ. MGR.		6/25	
HORIZONTAL: 1"=10'	LEAD ENGR.		5/25	
	FIELD MGR.			
VERTICAL 1"=10'	RECOMMENDED: DESIGN MANAGER			CITY ENGINEER
DRAWING: 55 VENSEL CREEK BRIDGE - GENERAL PLAN AND ELEVATION.dwg				DATE 6/13/2025
ATLAS PAGE NO: 1006,1137				SHEET 55 OF 89



RCB GENERAL NOTES:

1. ALL CONSTRUCTION AND MATERIAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE 2019 OKLAHOMA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
2. ALL CONCRETE EDGES SHALL HAVE A 1½" CHAMFER UNLESS OTHERWISE SHOWN OR NOTED. ALL CHAMFER STRIPS SHALL BE SIZED LUMBER.
3. ALL REINFORCING STEEL SHALL HAVE A MINIMUM OF 2" CLEAR COVER, UNLESS OTHERWISE NOTED.
4. EPOXY–DOWELING OF DW BARS INTO THE EXISTING PRECAST RCB UNITS SHALL BE DONE IN ACCORDANCE WITH SECTION 509.04.D(3) OF THE ODOT STANDARD SPECIFICATIONS. ALL COSTS FOR EPOXY–DOWELING INCLUDING MATERIALS, LABOR, EQUIPMENT AND INCIDENTALS TO COMPLETE THE WORK SHALL BE INCLUDED IN THE UNIT PRICE PER LB. OF "REINFORCING STEEL."
5. ROTATE HOOKS ON E3 AND DW BARS TO MAINTAIN MINIMUM CLEARANCE.
6. DEMOLITION: AT THE NORTH END OF THE EXISTING RCB, THE FOLLOWING EXISTING COMPONENTS SHALL BE DEMOLISHED AND REMOVED: CONCRETE APRON, BOTH EXISTING GABION WINGS, AND THE NORTHERN–MOST PRECAST RCB UNIT FOR EACH CELL INCLUDING GROUTED JOINTS AND HEADWALL. ALL DEMOLISHED ITEMS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND/OR DISPOSED OF IN A MANNER APPROVED BY THE CITY. ALL COSTS FOR DEMOLITION AND DISPOSAL OF ITEMS AS NOTED INCLUDING MATERIALS, LABOR, EQUIPMENT AND INCIDENTALS SHALL BE INCLUDED IN THE PRICE PER LUMP SUM OF "REMOVAL OF BRIDGE ITEMS."
7. CLASS 57 STONE: THE AGGREGATE BACKFILL PLACED UNDER THE PROPOSED RCB BARREL AS SHOWN IN THE PLANS SHALL BE ODOT TYPE B AGGREGATE BASE OR NO. 57 AGGREGATE. NO. 57 AGGREGATE SHOULD BE PLACED IN LIFTS NO GREATER THAN 2 FEET IN THICKNESS AND COMPACTED WITH A BACKHOE BUCKET OR SIMILAR METHOD. THE AGGREGATE BACKFILL SHALL EXTEND A MINIMUM OF 2'–0" BEYOND THE RCB EXTENSION FOOTPRINT IN ALL DIRECTIONS, AND SHALL BE WRAPPED IN A SEPARATION GEOTEXTILE (MIRAFI 140N OR APPROVED EQUAL). ALL COSTS FOR COMPACTING SUBGRADE BELOW AGGREGATE BACKFILL, PLACING AGGREGATE BACKFILL, SEPARATION GEOTEXTILE, INCLUDING MATERIALS, LABOR, EQUIPMENT AND INCIDENTALS SHALL BE INCLUDED IN THE UNIT PRICE BID PER CUBIC YARD OF "CLASS 57 STONE."
8. UNCLASSIFIED EXCAVATION: ALL COSTS FOR EXCAVATING UNCLASSIFIED MATERIALS AS SHOWN IN THE PLANS AND PLACING AND COMPACTING SUITABLE BACKFILL IN FRONT OF THE RCB EXTENSION AS SHOWN IN THE PLANS INCLUDING MATERIALS, LABOR, EQUIPMENT AND INCIDENTALS SHALL BE INCLUDED IN THE UNIT PRICE PER CUBIC YARD OF "UNCLASSIFIED EXCAVATION." THE ENGINEER WILL NOT MEASURE ADDITIONAL VOLUMES OF EXCAVATION FOR SHORING OR CONTRACTOR CONVENIENCE BEYOND THE THEORETICAL DIMENSIONS SHOWN IN THE PLANS. IF THE CONTRACTOR ENCOUNTERS AND REMOVES SOFT AND YIELDING MATERIAL AT THE BOTTOM OF THE RCB EXTENSION AND REPLACES IT WITH SUITABLE BEDDING MATERIAL AT THE DIRECTION OF THE ENGINEER, THE ENGINEER WILL MEASURE THE VOLUME OF UNSUITABLE MATERIAL REMOVED. THE CITY WILL PAY FOR THE VOLUME OF SOFT AND YIELDING MATERIAL REMOVED AND A LIKE VOLUME FOR REPLACEMENT MATERIAL IN ACCORDANCE WITH THE UNIT PRICE BID PER CUBIC YARD OF "UNCLASSIFIED EXCAVATION". THE QUANTITY FOR PAYMENT SHALL BE THE EXCAVATION QUANTITY. THE SECOND HANDLING (BACKFILL) SHALL NOT BE MEASURED FOR PAYMENT.

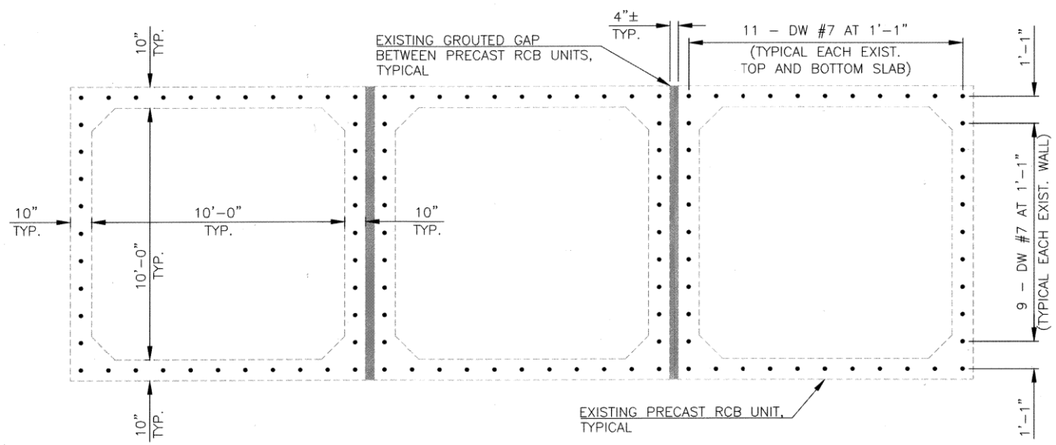
RCB BARREL, HEADWALL AND CURTAIN WALL QUANTITIES

ITEM	UNIT	TOTAL
UNCLASSIFIED EXCAVATION	C.Y.	120
CLASS 57 STONE	C.Y.	34
CLASS AA CONCRETE	C.Y.	71
REINFORCING STEEL	LB.	18,260
EPOXY COATED REINFORCING STEEL	LB.	970
(5) REMOVAL OF BRIDGE ITEMS	EA.	1.0

BARREL DETAILS

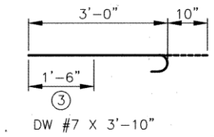
(1) MATCH WIDTH BETWEEN INSIDE FACES OF EXISTING R.C.B. CELLS.

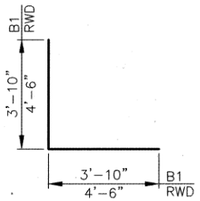
(2) MATCH SIZE OF EXISTING HAUNCHES, TYPICAL.



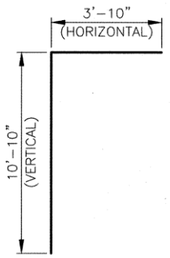
DOWEL LOCATIONS FOR EXISTING PRECAST RCB UNITS

(AFTER REMOVAL OF THE NORTHERN–MOST PRECAST RCB UNIT FOR EACH CELL, DOWELS SHALL BE EPOXY–ANCHORED INTO THE ENDS OF THE NEWLY EXPOSED PRECAST RCB UNITS AS SHOWN ABOVE IN ACCORDANCE WITH SECTION 509.04.D(03) OF THE 2009 ODOT SPECIFICATIONS. DOWELS SHALL BE PLACED AT MID–THICKNESS OF WALLS AND SLABS OF EXISTING PRECAST RCB UNITS AND CAST INTO THE FRESH CONCRETE OF THE NEW RCB BARREL EXTENSION. ROTATE DOWELS TO MAINTAIN CONCRETE CLEARANCES.)

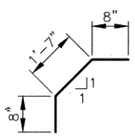




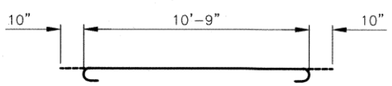
B1 #7 X 7'–8"
RWD #9 X 9'–0"



B2 #7 X 14'–8"



H1 #5 X 2'–11"



E3 #7 X 12'–5"

RCB BARREL BAR LIST

MARK	SIZE	NO.	FORM	LENGTH
PLAIN REINFORCING				
A1	#7	46	STR.	35'–8"
A2	#7	46	STR.	35'–8"
B1	#7	46	BNT.	7'–8"
B2	#7	46	BNT.	14'–8"
C1	#5	138	STR.	2'–10"
C2	#5	138	STR.	10'–10"
DW	#7	120	BNT.	3'–10"
E1	#5	80	STR.	10'–9"
E2	#5	80	STR.	10'–9"
E3	#7	80	BNT.	12'–5"
H1	#5	276	BNT.	2'–11"
EPOXY COATED REINFORCING				
(4) FH3	#5	3	STR.	35'–8"
(4) FS2	#5	65	BNT.	10'–8"
(4) FS4	#5	12	BNT.	10'–8"

(3) DRILL AND EPOXY–DOWEL DW BARS 1'–6" INTO EXISTING PRECAST RCB UNITS.
(4) BARS FOR ANCHORAGE OF CONCRETE PARAPET. SEE "CONCRETE PARAPET DETAILS" SHEETS FOR BAR BENDS AND LOCATIONS.
(5) SEE RCB GENERAL NOTE 6, THIS SHEET.

LICENSED PROFESSIONAL ENGINEER JOHN W. HOWARD 28524 5/09/25 OKLAHOMA CA 32 6-30-26

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RCB DETAILS (SHEET 1 OF 2)

PROJECT NO. 144213
TMUA–W 22–90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

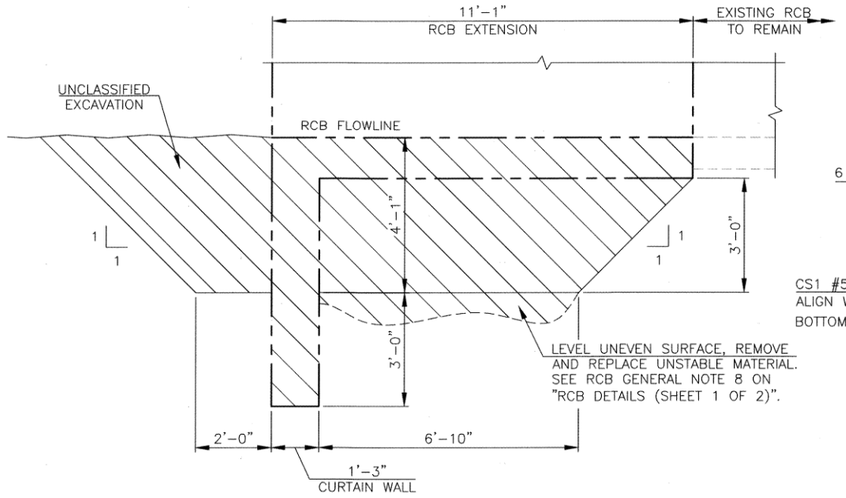
CEC CORPORATION
1300 S. Main Street Tulsa, OK 74119
(918) 663–9401

REVISION	BY	DATE

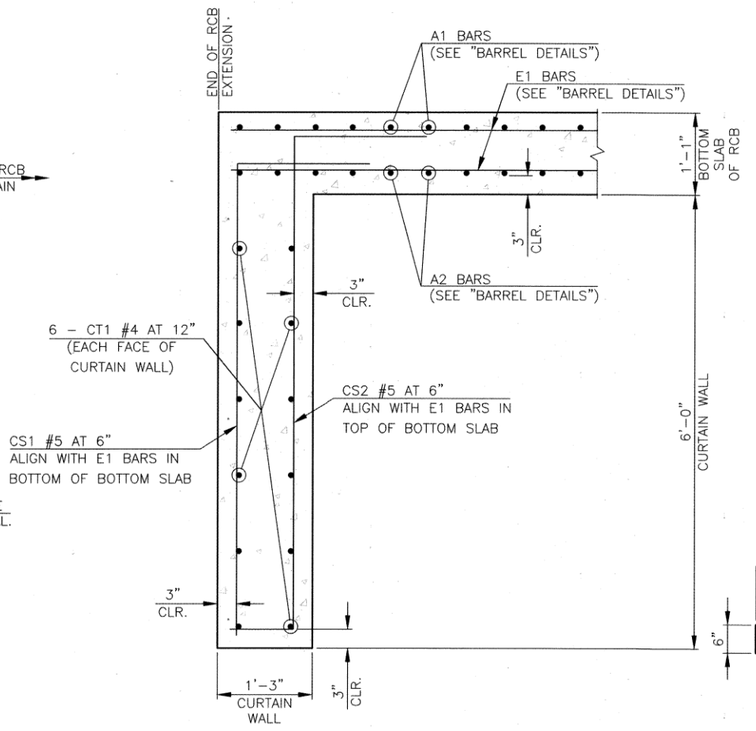
PLAN SCALE: N/A
PROFILE SCALES:
HORIZONTAL: N/A
VERTICAL N/A

DRAWN	J.F.R.	4/22	APPROVED:
DESIGNED	J.W.H.	4/22	
SURVEY	B.B.	10/17	
PROJ. MGR.		6/25	
LEAD ENGR.		5/25	
FIELD MGR.			
RECOMMENDED DESIGN MANAGER			CITY ENGINEER

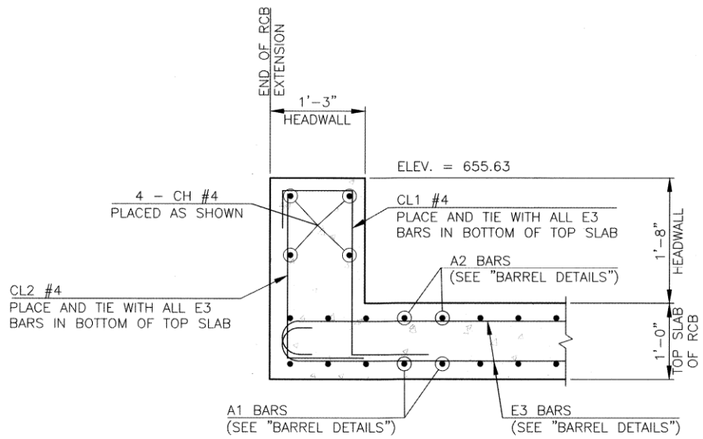
DRAWING: 56 RCB DETAILS (SHEET 1 OF 2).dwg
DATE 6/13/2025
ATLAS PAGE NO: 1006,1137
SHEET 56 OF 89



EXCAVATION DETAIL AT RCB EXTENSION

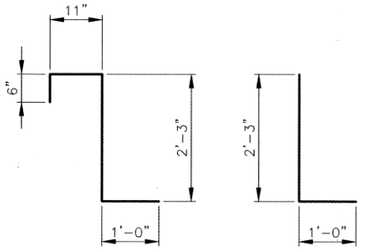


CURTAIN WALL DETAIL



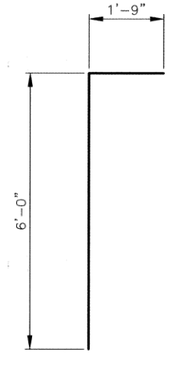
HEADWALL DETAIL

NOTE:
SEE "RCB DETAILS (SHEET 1 OF 2)" FOR DESIGN DATA AND GENERAL NOTES.

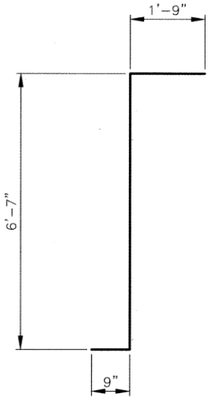


CL1 #4 X 4'-8"

CL2 #4 X 3'-3"



CS1 #5 X 7'-9"



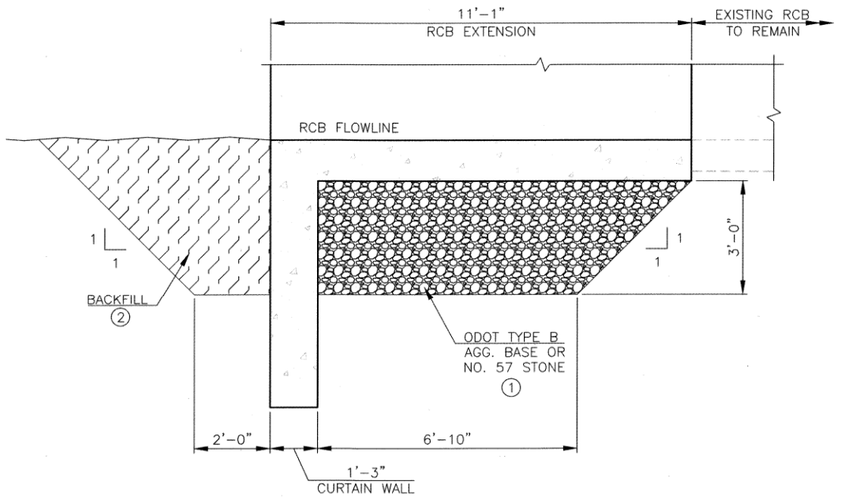
CS2 #5 X 9'-1"

RCB HEADWALL BAR LIST

PLAIN REINFORCING				
MARK	SIZE	NO.	FORM	LENGTH
CH	#4	4	STR.	35'-8"
CL1	#4	40	BNT.	4'-8"
CL2	#4	40	BNT.	3'-3"

RCB CURTAIN WALL BAR LIST

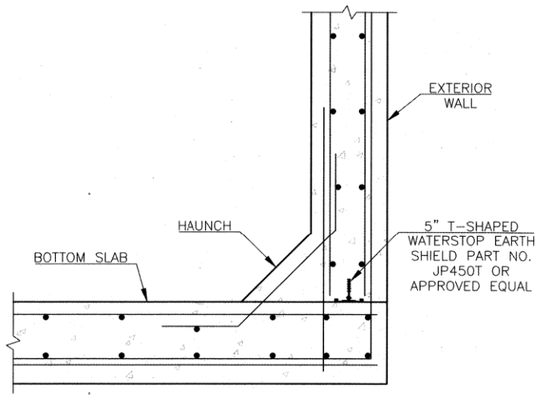
PLAIN REINFORCING				
MARK	SIZE	NO.	FORM	LENGTH
CS1	#5	73	BNT.	7'-9"
CS2	#5	73	BNT.	9'-1"
CT1	#4	12	STR.	35'-8"



BACKFILL DETAIL AT RCB EXTENSION

(1) WRAP AGGREGATE BASE IN SEPARATION GEOTEXTILE. SEE NOTE 7 ON "RCB DETAILS (SHEET 1 OF 2)."

(2) SUITABLE NATIVE SOILS FROM UNCLASSIFIED EXCAVATION MAY BE USED AS BACKFILL IN FRONT OF THE CURTAIN WALL AS SHOWN IN THE PLANS IN ACCORDANCE WITH SECTION 501.04.B OF THE 2009 ODOT SPECIFICATIONS. SEE NOTE 10 ON "RETAINING WALL DETAILS (SHEET 1 OF 3)".



BARREL JOINT DETAIL

NOTE:
WATERSTOP TO BE PLACED THE FULL LENGTH OF PROPOSED BARREL SECTION AT BOTTOM OF EXTERIOR WALLS ONLY. COST TO BE INCLUDED IN OTHER ITEMS OF WORK.

LICENSED PROFESSIONAL ENGINEER
JOSEPH HAWKINS
6/25/25
OKLAHOMA
CA 32
6-30-26

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811
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RCB DETAILS (SHEET 2 OF 2)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC CORPORATION
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

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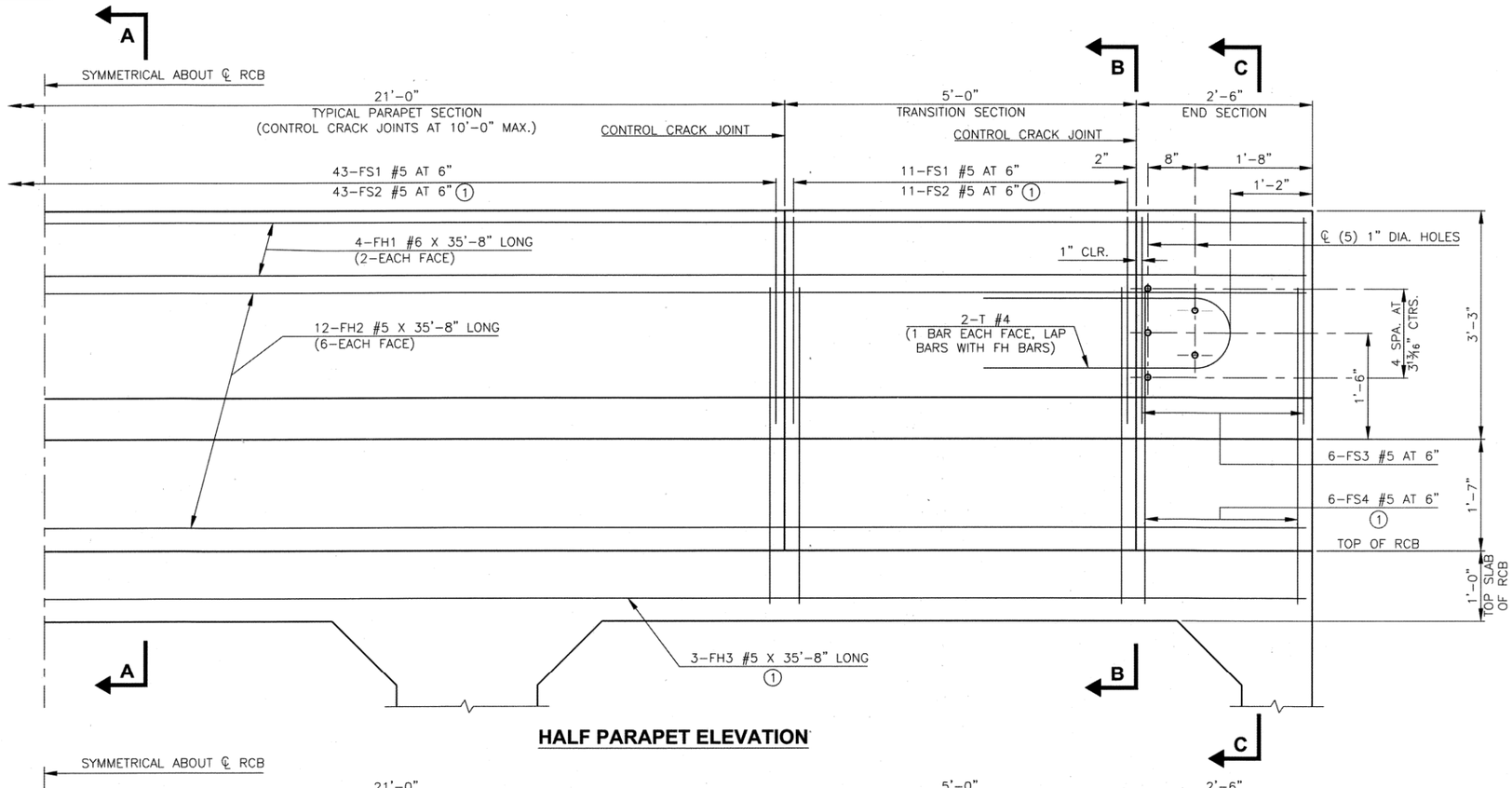
PLAN SCALE: N/A
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A

DRAWN	J.F.R.	4/22
DESIGNED	J.W.H.	4/22
SURVEY	B.B.	10/17
PROJ. MGR.		6/25
LEAD ENGR.		6/25
FIELD MGR.		
RECOMMENDED: DESIGN MANAGER		

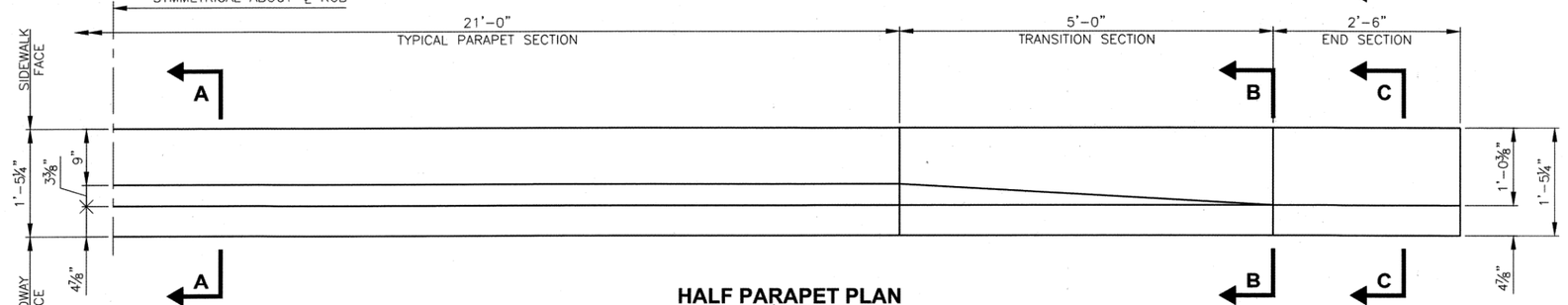
APPROVED: CITY ENGINEER

DRAWING: 57 RCB DETAILS (SHEET 2 OF 2).dwg
ATLAS PAGE NO: 1006,1137

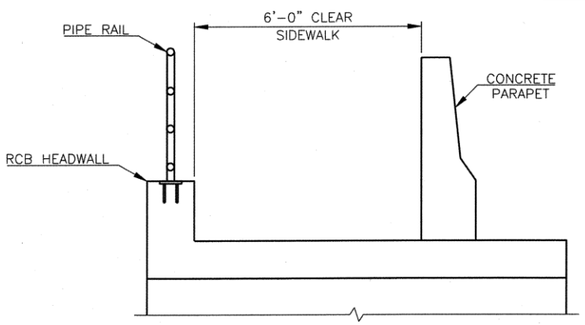
DATE 6/13/2025
SHEET 57 OF 89



HALF PARAPET ELEVATION



HALF PARAPET PLAN



LOCATION OF CONCRETE PARAPET

(FINISH GRADE OF SIDEWALK AND ROADWAY NOT SHOWN FOR CLARITY)

NOTE:
FOR SECTION VIEWS A-A, B-B AND C-C, SEE "CONCRETE PARAPET DETAILS (SHEET 2 OF 2)."

(1) ALL FS2, FS4 AND FH3 BARS CAST INTO RCB TOP SLAB ARE INCLUDED IN RCB BARREL BAR LIST ON "RCB DETAILS (SHEET 1 OF 2)."

PARAPET QUANTITIES		
ITEM	UNIT	TOTAL
(2) CONCRETE PARAPET	L.F.	36

(2) INCLUDES APPROXIMATELY 7.3 C.Y. OF CLASS AA CONCRETE AND 1,200 LB. OF EPOXY COATED REINFORCING STEEL.

CONCRETE PARAPET GENERAL NOTES:

1. CONSTRUCT THE CONCRETE PARAPET TO MEET THE REQUIREMENTS OF THE 2019 ODOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, AS WELL AS THE FOLLOWING REQUIREMENTS.
2. CLASS AA CONCRETE: CLASS AA CONCRETE SHALL BE USED IN THE CONCRETE PARAPET. ALL COSTS OF CONCRETE TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF "CONCRETE PARAPET".
3. REINFORCING STEEL: ALL REINFORCING STEEL USED IN THE CONCRETE PARAPET SHALL BE EPOXY COATED. PLACE AND TIE ALL FS2, FS4 AND FH3 BARS BEFORE CONCRETE IS PLACED IN THE TOP SLAB OF RCB EXTENSION. THE WEIGHT OF ALL FS2, FS4 AND FH3 BARS ARE INCLUDED IN THE RCB BARREL BAR LIST ON "RCB DETAILS (SHEET 1 OF 2)" AND ARE MEASURED AND PAID FOR AS "EPOXY COATED REINFORCING STEEL" INCLUDED IN THE RCB BARREL, HEADWALL AND CURTAIN WALL QUANTITIES ON "RCB DETAILS (SHEET 1 OF 2)". ALL OTHER REINFORCING STEEL IN THE CONCRETE PARAPET SHALL BE INCLUDED IN THE UNIT PRICE BID PER LINEAR FOOT OF "CONCRETE PARAPET".
4. CONTROL CRACK JOINTS: PROVIDE DOUBLE ¾" CHAMFERS OF ¾" DEEP SAWCUT IN ACCORDANCE WITH THE DETAILS SHOWN. PLACE THE CONTROL CRACK JOINTS AT 10'-0" MAXIMUM SPACING. PLACE CONTROL CRACK JOINTS AT OTHER LOCATIONS AS SHOWN IN THE PLANS OR AS DIRECTED BY THE ENGINEER.
5. GUARDRAIL CONNECTIONS: FORM OR DRILL HOLES, AS SHOWN, FOR THE CONNECTION OF THE THRIE-BEAM GUARDRAIL TERMINAL CONNECTION (END SHOE) AT LOCATIONS SHOWN IN THE PLANS. IT IS THE RESPONSIBILITY OF THE BRIDGE CONTRACTOR TO PROVIDE THE HOLES. THE CONTRACTOR THAT INSTALLS THE GUARDRAIL WILL BE RESPONSIBLE FOR INSTALLING THE THRIE-BEAM GUARDRAIL TERMINAL CONNECTION.

LICENSED PROFESSIONAL ENGINEER
JOHN W. HAWKINS
28524
OKLAHOMA
CA 32
6-30-26

BEFORE YOU DIG CALL OKIE

CONCRETE PARAPET DETAILS (SHEET 1 OF 2)
PROJECT NO. 144213
TMUA-W 22-90
ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)
CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC CORPORATION
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

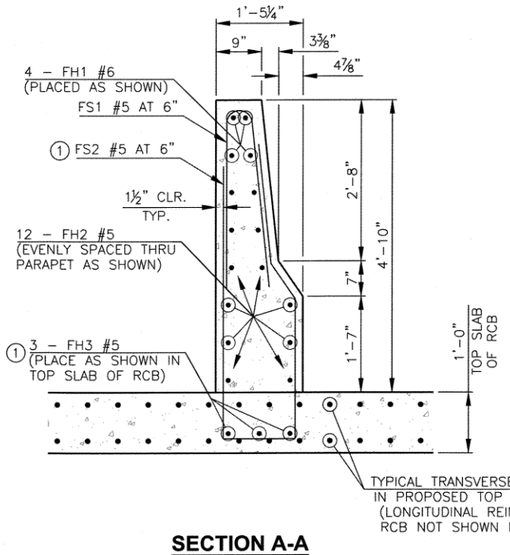
REVISION	BY	DATE

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

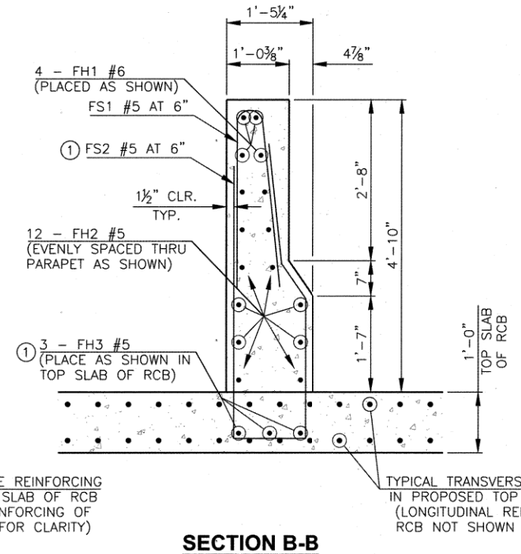
DRAWN	J.F.R.	4/22
DESIGNED	J.W.H.	4/22
SURVEY	B.B.	10/17
PROJ. MGR.		1/25
LEAD ENGR.		2/25
FIELD MGR.		2/25
RECOMMENDED: DESIGN MANAGER	HAS	2-25

APPROVED: CITY ENGINEER
DATE 6/13/2025

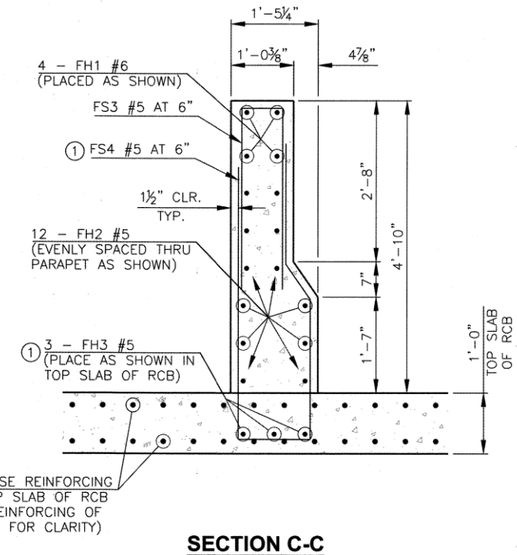
DRAWING: 58 CONCRETE PARAPET DETAILS (SHEET 1 OF 2).dwg
ATLAS PAGE NO: 1006,1137
SHEET 58 OF 89



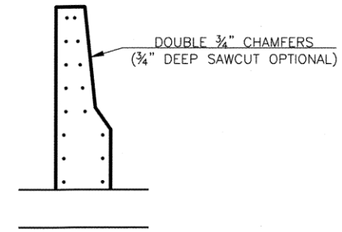
SECTION A-A
(TYPICAL PARAPET SECTION)



SECTION B-B
(AT END OF TRANSITION SECTION)



SECTION C-C
(TYPICAL SECTION THRU END SECTION)



CONTROL CRACK JOINT

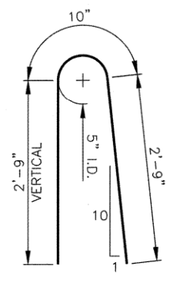
NOTE:
ALL FH1 AND FH2 BARS SHALL BE CONTINUOUS THRU CONTROL CRACK JOINT.

② **CONCRETE PARAPET BAR LIST**

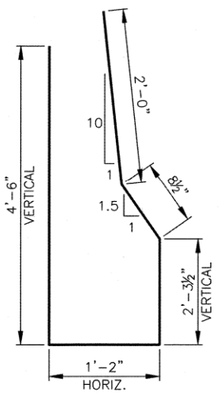
EPOXY COATED REINFORCING				
MARK	SIZE	NO.	FORM	LENGTH
FH1	#6	4	STR.	35'-8"
FH2	#5	12	STR.	35'-8"
FS1	#5	65	BNT.	6'-4"
FS3	#5	12	BNT.	6'-9"
T	#4	4	BNT.	7'-8"

② COSTS INCLUDED IN PRICE BID PER LINEAR FOOT OF "CONCRETE PARAPET."

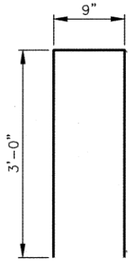
① BARS TO BE PLACED AND TIED BEFORE CONCRETE IS PLACED IN THE TOP SLAB OF THE RCB EXTENSION. INCLUDED IN BAR LIST AND QUANTITIES FOR RCB BARREL. SEE "RCB DETAILS" SHEETS.



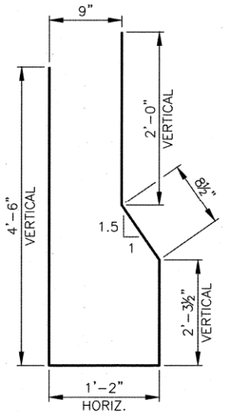
FS1 #5 X 6'-4"



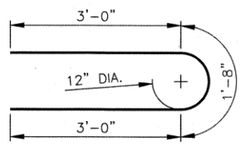
① FS2 #5 X 10'-8"



FS3 #5 X 6'-9"



① FS4 #5 X 10'-8"



T #4 X 7'-8"

CONCRETE PARAPET DETAILS (SHEET 2 OF 2)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC CORPORATION
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

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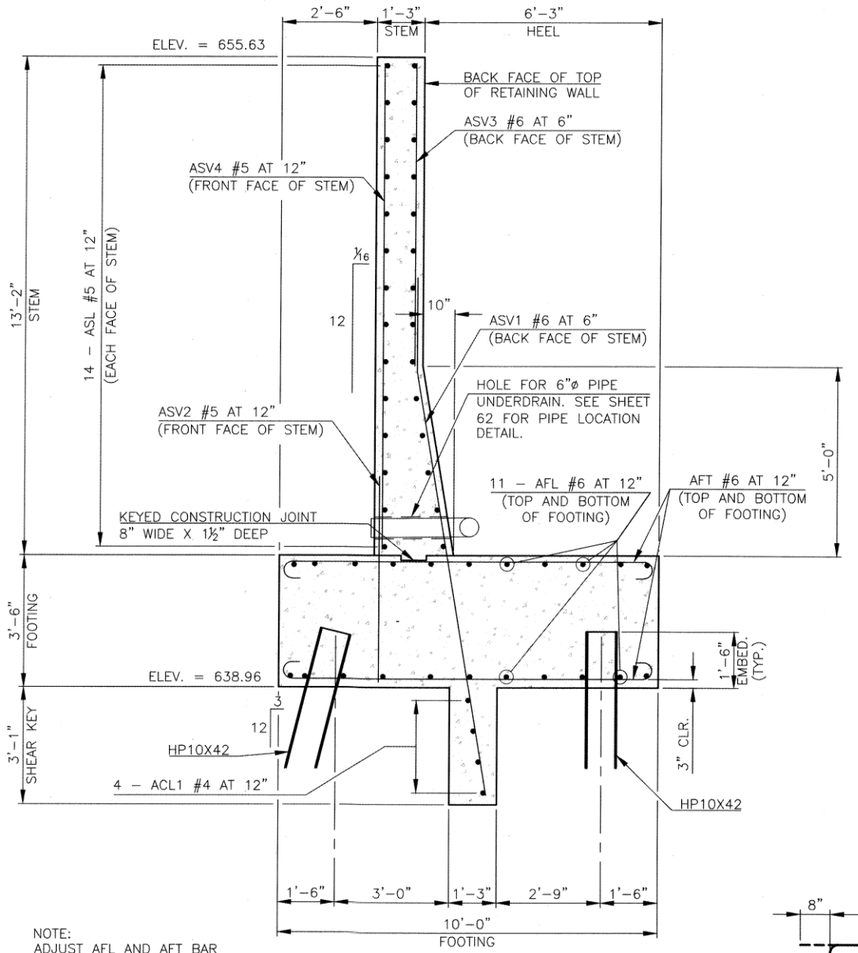
PLAN SCALE: N/A
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A

DRAWN	J.F.R.	4/22
DESIGNED	J.W.H.	4/22
SURVEY	B.B.	10/17
PROJ. MGR.	JH	6/13/25
LEAD ENGR.	JH	6/13/25
FIELD MGR.	BM	6/13/25
RECOMMENDED: DESIGN MANAGER	HAS	6-13-25

APPROVED: CITY ENGINEER

DRAWING: 59 CONCRETE PARAPET DETAILS (SHEET 2 OF 2).dwg
ATLAS PAGE NO: 1006,1137

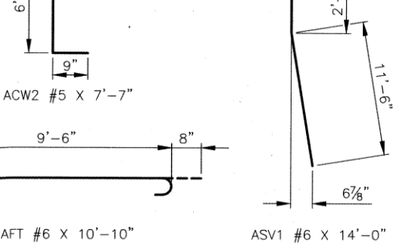
DATE 6/13/2025
SHEET 59 OF 89



NOTE:
ADJUST AFL AND AFT BAR SPACINGS TO CLEAR PILES.

SECTION A-A

(TYPICAL SECTION THRU RETAINING WALL)



① RETAINING WALL BAR LIST

(ONE SHOWN, TWO REQUIRED)

PLAIN REINFORCING

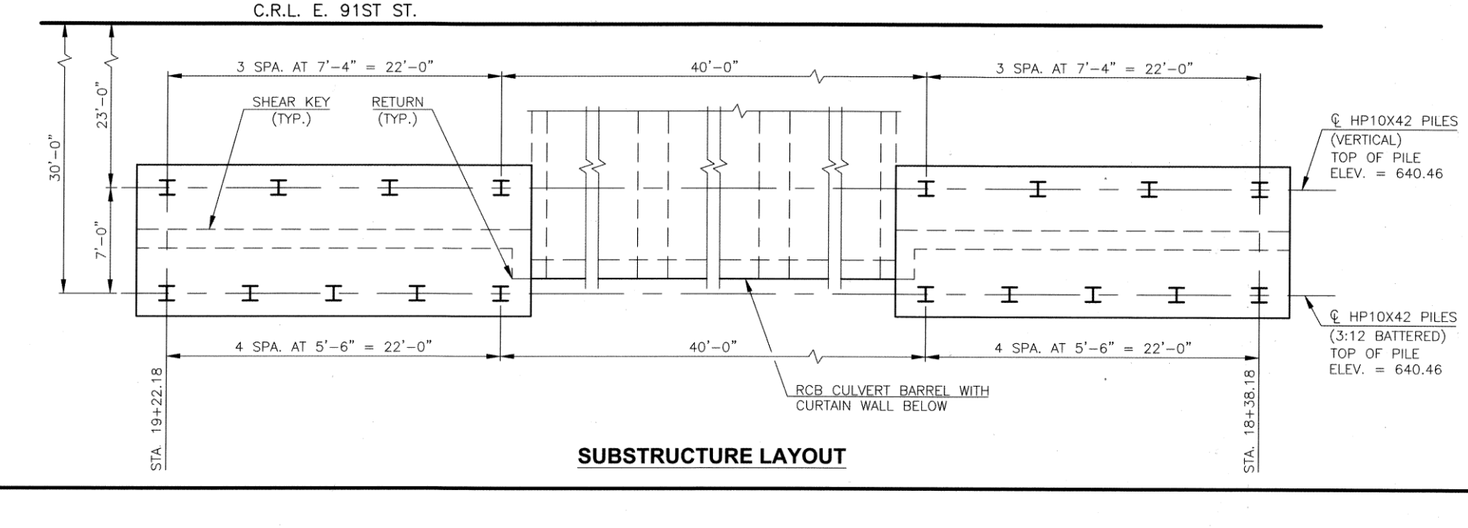
MARK	SIZE	NO.	FORM	LENGTH
ACL1	#4	4	STR.	25'-6"
ACL2	#4	8	STR.	2'-9"
ACW1	#5	5	STR.	6'-2"
ACW2	#5	5	BNT.	7'-7"
AFL	#6	22	STR.	25'-8"
AFT	#6	54	BNT.	10'-10"
ASL	#5	28	STR.	25'-8"
ASV1	#6	53	BNT.	14'-0"
ASV2	#5	27	STR.	5'-3"
ASV3	#6	53	STR.	8'-0"
ASV4	#5	27	STR.	13'-0"

① INCLUDED IN PRICE PER SQUARE YARD OF "RETAINING WALL."

RETAINING WALL QUANTITIES

	ITEM	UNIT	TOTAL
	UNCLASSIFIED EXCAVATION	C.Y.	990
	SELECT BACKFILL	C.Y.	260
	TEMPORARY EARTH RETAINAGE	LSUM	1.0
②	RETAINING WALL	S.Y.	77.0
	PILES, FURNISHED (HP10X42)	L.F.	640
	PILES, DRIVEN (HP10X42)	L.F.	640

② EACH RETAINING WALL INCLUDES APPROXIMATELY 55.7 C.Y. OF CLASS AA CONCRETE, 4,900 LB. OF REINFORCING STEEL, 1.5 C.Y. OF COARSE PIPE UNDERDRAIN COVER MATERIAL, 23.4 C.Y. OF FILTER SAND PIPE UNDERDRAIN COVER MATERIAL, 25 L.F. OF 6" PERFORATED PIPE UNDERDRAIN, 3 L.F. OF 6" NON-PERF. PIPE UNDERDRAIN, AND 8.8 S.Y. OF WATERPROOFING MEMBRANE.



SUBSTRUCTURE LAYOUT

RETAINING WALL GENERAL NOTES:

1. ALL CONSTRUCTION AND MATERIAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE 2019 OKLAHOMA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
2. ALL CONCRETE EDGES SHALL HAVE A 1½" CHAMFER UNLESS OTHERWISE SHOWN OR NOTED. ALL CHAMFER STRIPS SHALL BE SIZED LUMBER. ALL CONCRETE SHALL BE PLACED IN THE DRY.
3. ALL REINFORCING STEEL SHALL HAVE A MINIMUM OF 2" CLEAR COVER, UNLESS OTHERWISE NOTED.
4. RETAINING WALL: THE PAY AREA IN SQUARE YARDS FOR THE ITEM "RETAINING WALL" HAS BEEN CALCULATED AS THE SUM FOR ALL OF THE WALLS OF THE TOTAL HEIGHT OF EACH RETAINING WALL MULTIPLIED BY THE LENGTH OF EACH RETAINING WALL. FOR THE RETAINING WALL, THE TOTAL HEIGHT IS THE HEIGHT OF THE STEM. ALL COSTS FOR CONSTRUCTING THE RETAINING WALLS INCLUDING CLASS AA CONCRETE, REINFORCING STEEL, WEEP HOLES, COARSE PIPE UNDERDRAIN COVER MATERIAL, FILTER SAND PIPE UNDERDRAIN COVER MATERIAL, WATERPROOFING MEMBRANE, 6" PERFORATED PIPE UNDERDRAIN, 6" NON-PERF. PIPE UNDERDRAIN, AND FILTER FABRIC FOR PIPE UNDERDRAIN COVER MATERIAL, INCLUDING MATERIALS, LABOR, EQUIPMENT AND INCIDENTALS SHALL BE INCLUDED IN THE UNIT PRICE PER SQUARE YARD OF "RETAINING WALL."
5. AFTER EXCAVATION, THE SUBGRADE BELOW WHERE THE RETAINING WALL FOOTING WILL BE PLACED SHALL BE COMPACTED TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY AND WITHIN ±2% OF THE OPTIMUM MOISTURE CONTENT AS DETERMINED BY A STANDARD PROCTOR (ASTM D698). ALL COSTS OF COMPACTION OF SUBGRADE AS NOTED SHALL BE INCLUDED IN THE UNIT PRICE BID PER SQUARE YARD OF "RETAINING WALL."
6. WATERPROOFING MEMBRANE: THE WATERPROOFING SURFACE TREATMENT SHALL BE APPLIED IN A MANNER CONSISTENT WITH THE DETAILS SHOWN IN THE PLANS. THE WATERPROOFING MEMBRANE MAY BE ONE OF THE FOLLOWING, OR APPROVED EQUAL, USED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND AS APPROVED BY THE ENGINEER:
   A. BUTYL RUBBER MEMBRANE APPLIED TO A SURFACE WITH A PROPER ADHESIVE WITHOUT PROTECTIVE PLANKING. PROVIDE A MINIMUM THICKNESS OF 1/16 IN. UNLESS OTHERWISE SHOWN IN THE PLANS.
   B. SELF-ADHERING POLYETHYLENE WITH A RUBBERIZED ASPHALT MASTIC MATERIAL.
   C. SINGLE-COMPONENT, COAT-TAR MODIFIED URETHANE COATING.
   D. SELF-ADHERING BUILT-UP MEMBRANE OF RUBBERIZED ASPHALT FORMED ON A PREFORMED BOARD WITH COLD-APPLIED ASPHALTIC PRIMER.

   THE EQUIPMENT AND METHODS OF APPLYING THE WATERPROOF MEMBRANE SHALL BE IN ACCORDANCE WITH THE PRODUCT COATING PROFILE AND INSTRUCTION GUIDES FOR APPLICATION TO CONCRETE. PRECAUTIONARY MEASURES SHALL BE IN ACCORDANCE WITH THE MATERIAL SAFETY DATA SHEETS AS PROVIDED BY THE MANUFACTURER. THE WATERPROOFING MEMBRANE SHALL TURN UP THE VERTICAL SURFACES OF THE STEM AS TO PROVIDE A WATER TIGHT SEAL. SURFACE PREPARATIONS, STORAGE AND PRODUCT MIXING SHALL BE PER THE MANUFACTURER'S RECOMMENDATIONS. ALL CONCRETE WORK SHALL BE COMPLETED PRIOR TO THE APPLICATION OF THE CONCRETE FINISH AND ALL CONCRETE SHALL HAVE A MINIMUM STRENGTH OF 3,000 PSI AT THE TIME OF APPLICATION. PRIMER SHALL BE APPLIED TO THE CONCRETE SURFACES PRIOR TO APPLYING THE WATERPROOFING MEMBRANE.
7. SELECT BACKFILL: SELECT BACKFILL SHALL CONSIST OF APPROVED MATERIALS THAT ARE FREE OF ORGANIC MATTER AND DEBRIS, EXHIBIT A MAXIMUM PLASTICITY INDEX (PI) OF 18, MAXIMUM LIQUID LIMIT (LL) OF 40, AND A MAXIMUM ROCK SIZE OF 3.0 INCHES. NATIVE SOILS MAY BE USED IF THEY MEET THE REQUIREMENTS FOR SELECT BACKFILL AS NOTED. SAMPLES OF FILL MATERIAL SHALL BE EVALUATED BY A GEOTECHNICAL ENGINEER TO DETERMINE IF THEY MEET THE CRITERIA FOR SELECT BACKFILL BEFORE BEING USED ON THE PROJECT. ALL COSTS FOR SELECT BACKFILL INCLUDING EVALUATION BY A GEOTECHNICAL ENGINEER, MATERIALS, LABOR, EQUIPMENT AND INCIDENTALS SHALL BE INCLUDED IN THE UNIT PRICE BID PER CUBIC YARD OF "SELECT BACKFILL."
8. ALL FILL MATERIALS SHALL BE COMPACTED AND TESTED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT PREPARED BY AIMRIGHT TESTING AND ENGINEERING FOR THIS PROJECT (AIM RIGHT PROJECT NO. 7550520, OCTOBER 15, 2020).
9. UNCLASSIFIED EXCAVATION: ALL COSTS FOR EXCAVATING UNCLASSIFIED MATERIALS AS SHOWN IN THE PLANS AND PLACING AND COMPACTING SUITABLE BACKFILL IN FRONT OF THE RETAINING WALLS AS SHOWN IN THE PLANS INCLUDING MATERIALS, LABOR, EQUIPMENT AND INCIDENTALS SHALL BE INCLUDED IN THE UNIT PRICE PER CUBIC YARD OF "UNCLASSIFIED EXCAVATION." THE ENGINEER WILL NOT MEASURE ADDITIONAL VOLUMES OF EXCAVATION FOR SHORING OR CONTRACTOR CONVENIENCE BEYOND THE THEORETICAL DIMENSIONS SHOWN IN THE PLANS. IF THE CONTRACTOR ENCOUNTERS AND REMOVES SOFT AND YIELDING MATERIAL AT THE BOTTOM OF THE FOOTING AND REPLACES IT WITH SUITABLE BEDDING MATERIAL AT THE DIRECTION OF THE ENGINEER, THE ENGINEER WILL MEASURE THE VOLUME OF UNSUITABLE MATERIAL REMOVED. THE CITY WILL PAY FOR THE VOLUME OF SOFT AND YIELDING MATERIAL REMOVED AND A LIKE VOLUME FOR REPLACEMENT MATERIAL IN ACCORDANCE WITH THE UNIT PRICE BID PER CUBIC YARD OF "UNCLASSIFIED EXCAVATION". THE QUANTITY FOR PAYMENT SHALL BE EXCAVATION QUANTITY. THE SECOND HANDLING (BACKFILL) SHALL NOT BE MEASURED FOR PAYMENT.
10. PILE DRIVING AND CAPACITY: THE FACTORED PILE REACTION FOR EACH HP10X42 PILE AT EACH RETAINING WALL FOOTING IS 81.2 TONS. THE GATES EQUATION, AS GIVEN IN SECTION 514.04.E(2) OF THE SPECIFICATIONS, SHALL BE USED TO DETERMINE THE AXIAL LOAD RESISTANCE OF THE DRIVEN FOUNDATION PILES. THE CONTRACTOR SHALL USE A PILE DRIVING HAMMER OF THE SIZE AND TYPE CAPABLE OF CONSISTENTLY DELIVERING THE EFFECTIVE DYNAMIC ENERGY SUFFICIENT TO DRIVE THE PILES TO THE REQUIRED TIP ELEVATION AND TO ACHIEVE THE FACTORED PILE CAPACITY WITHOUT EXCEEDING THE LIMITATIONS SET ON THE ALLOWABLE DRIVING STRESSES IN ACCORDANCE WITH SECTION 514.03.A OF THE SPECIFICATIONS.
11. TEMPORARY EARTH RETAINAGE: LOCATIONS AND EXTENTS OF TEMPORARY EARTH RETAINAGE SHOWN IN THE PLANS TO FACILITATE CONSTRUCTION OF THE RCB EXTENSION AND RETAINING WALLS IS FOR INFORMATIONAL PURPOSES ONLY, AND HAVE NOT BEEN DESIGNED AND DETAILED. ACTUAL LOCATIONS AND LIMITS OF TEMPORARY EARTH RETAINAGE SHALL BE DETERMINED BY THE CONTRACTOR WITH APPROVAL OF THE ENGINEER. TEMPORARY EARTH RETAINAGE SHALL BE DESIGNED IN ACCORDANCE WITH SUBSECTION 502.04 OF THE 2019 ODOT SPECIFICATIONS BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF OKLAHOMA. THE CONTRACTOR SHALL SUBMIT TEMPORARY EARTH RETAINAGE DESIGN CALCULATIONS AND DRAWINGS TO THE ENGINEER FOR APPROVAL. THE CONTRACTOR SHALL NOT BEGIN INSTALLATION OF TEMPORARY EARTH RETAINAGE UNTIL APPROVAL BY THE ENGINEER IS RECEIVED. ALL COSTS FOR TEMPORARY EARTH RETAINAGE INCLUDING ENGINEERING DESIGN, INSTALLATION, REMOVAL, MATERIALS, LABOR, EQUIPMENT AND INCIDENTALS SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID PER LUMP SUM OF "TEMPORARY EARTH RETAINAGE."

NOTE:
VERTICAL PILE LENGTH IS ESTIMATED TO BE 35 FEET. BATTERED PILE LENGTH IS ESTIMATED TO BE 36 FEET.

RETAINING WALL DETAILS (SHEET 1 OF 3)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC CORPORATION
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

REVISION	BY	DATE
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PLAN SCALE: N/A	DRAWN	J.F.R.	4/22
	DESIGNED	E.B.R.	4/22
	SURVEY	B.B.	10/17
PROFILE SCALES:	PROJ. MGR.	JWH	6/25
HORIZONTAL: N/A	LEAD ENGR.	JWH	6/25
	FIELD MGR.		
VERTICAL N/A	RECOMMENDED	HAS	6-25
	DESIGN MANAGER		

APPROVED:

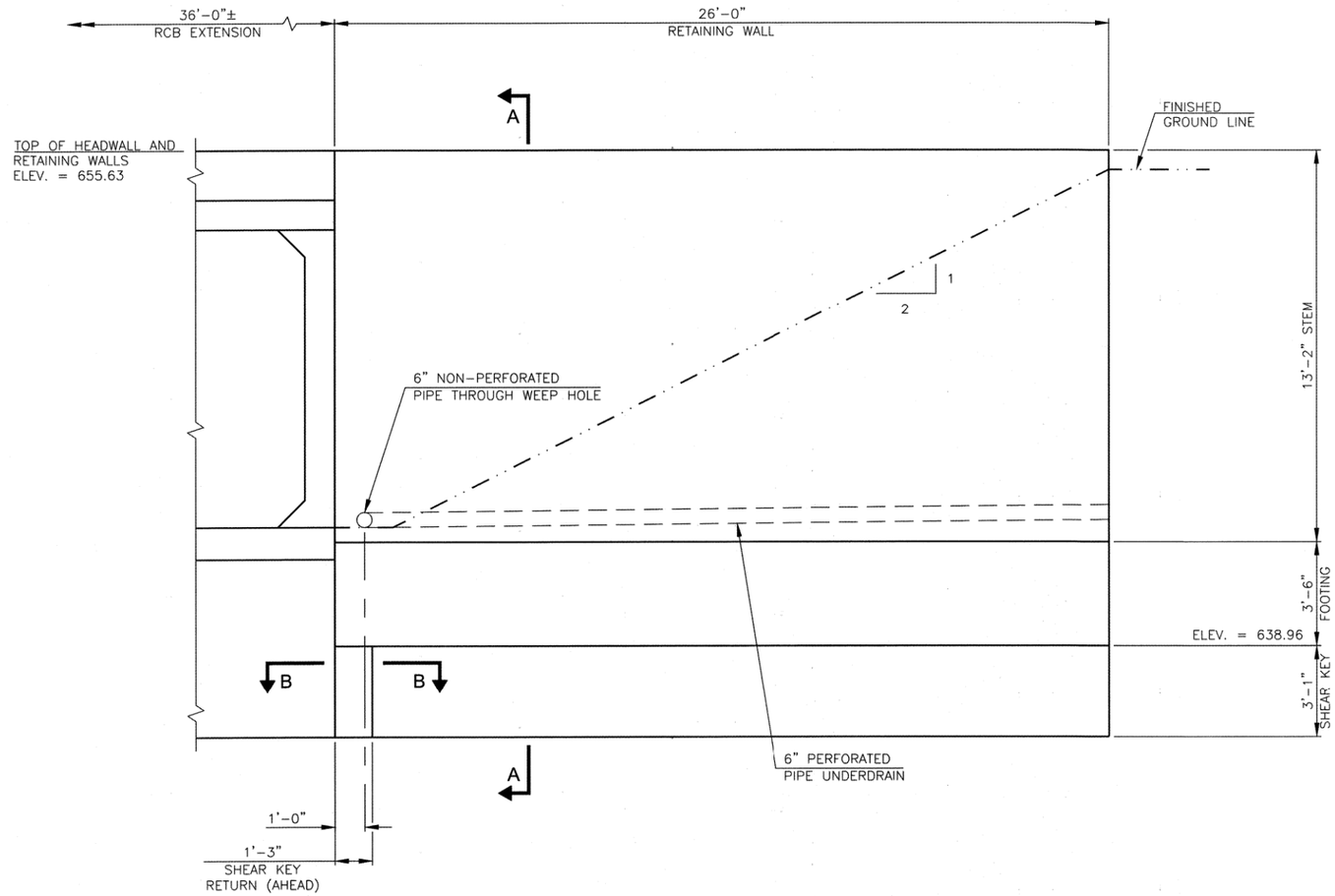
CITY ENGINEER

DRAWING: 60 RETAINING WALL DETAILS (SHEET 1 OF 3).dwg

DATE 6/13/2025

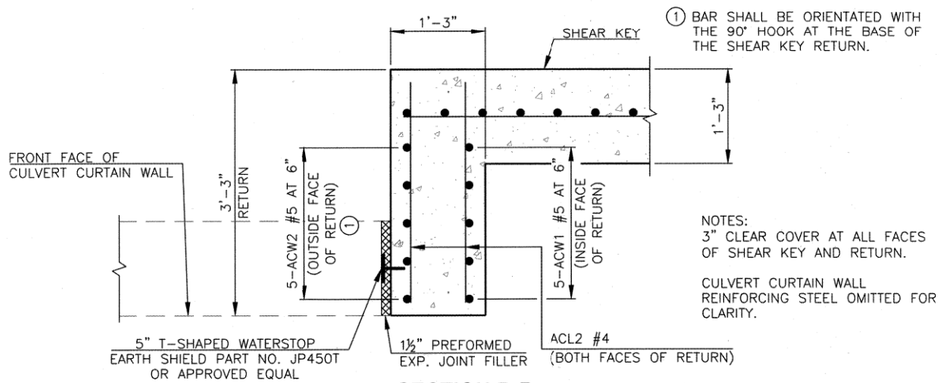
ATLAS PAGE NO: 1006,1137

SHEET 60 OF 89



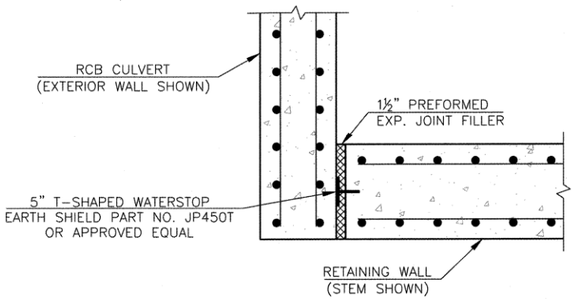
RETAINING WALL ELEVATION

(TYPICAL EACH SIDE OF RCB EXTENSION. TYPICAL RETAINING WALL REINFORCING NOT SHOWN FOR CLARITY. SEE "RETAINING WALL DETAILS (SHEET 1 OF 3)" FOR TYPICAL RETAINING WALL REINFORCING.)



SECTION B-B

(PLAN VIEW)



RETAINING WALL JOINT DETAIL

(PLAN VIEW)

NOTE:
WATERSTOP AND EXP. JOINT FILLER WILL BE PLACED THE FULL HEIGHT OF WALL, FOOTING, AND SHEAR KEY RETURN. COST TO BE INCLUDED IN OTHER ITEMS OF WORK.

NOTES:
ADJUST WALL REINFORCEMENT SPACING TO MAINTAIN MINIMUM CLEARANCE AROUND 6"ø PIPE UNDERDRAIN.

FOR SECTION A-A, SEE "RETAINING WALL DETAILS (SHEET 1 OF 3)".

LICENSED PROFESSIONAL ENGINEER
JOHN W. HAWKINS
28524
1/6/25
OKLAHOMA
CA 32
6-30-26

BEFORE YOU DIG
811
CALL OKIE

RETAINING WALL DETAILS (SHEET 2 OF 3)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC CORPORATION
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

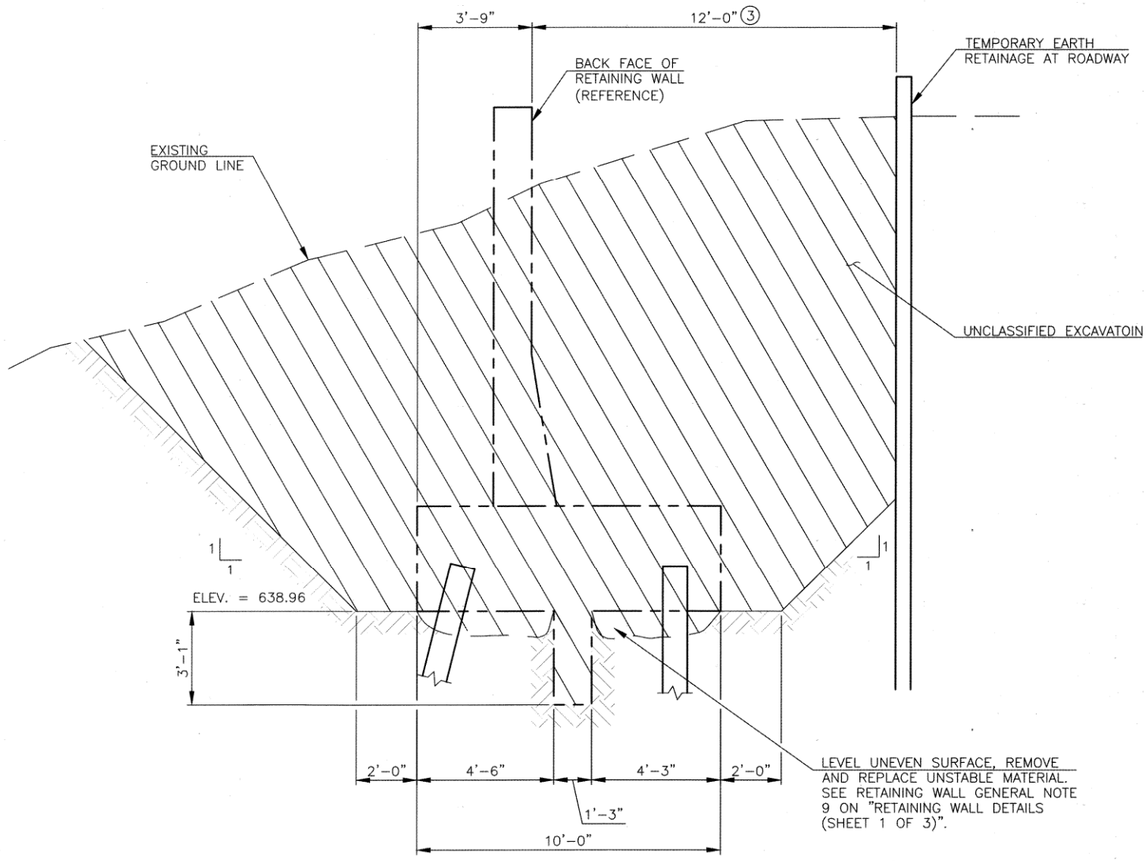
REVISION	BY	DATE

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

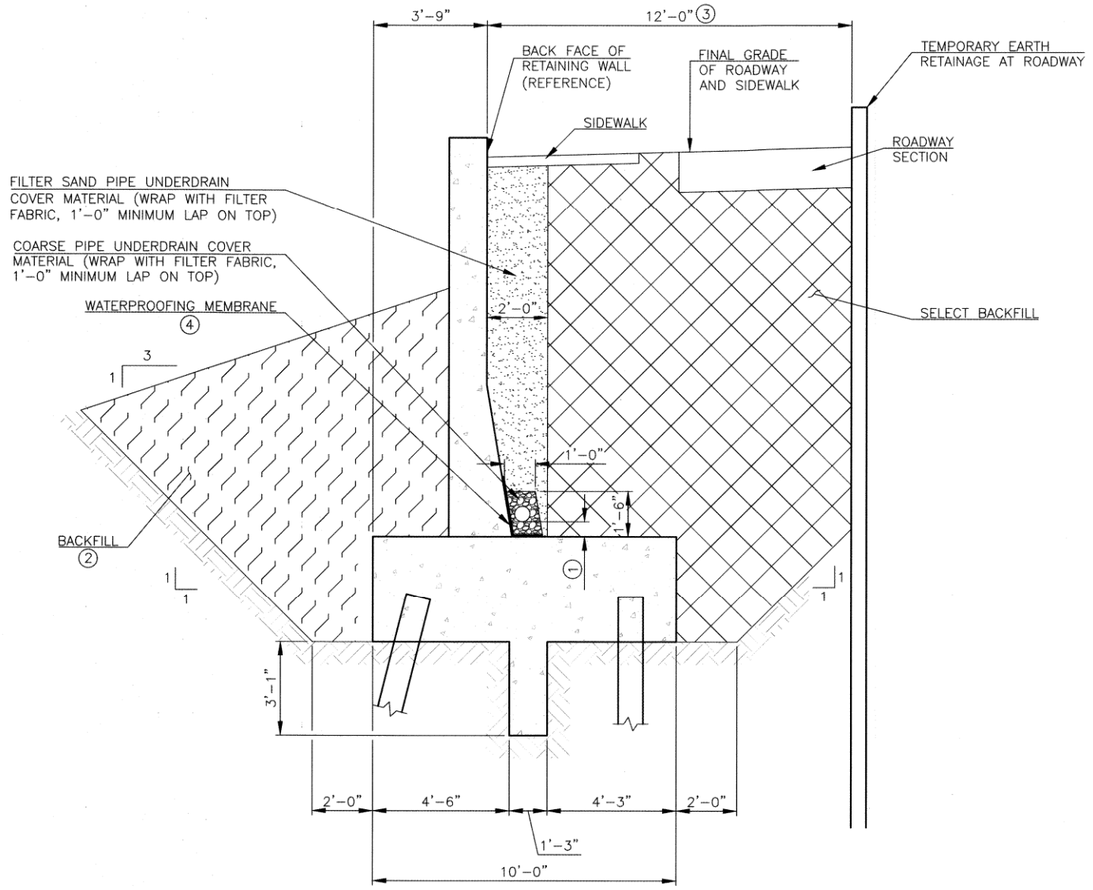
DRAWN	J.F.R.	4/22
DESIGNED	E.B.R.	4/22
SURVEY	B.B.	10/17
PROJ. MGR.		1/25
LEAD ENGR.		2/25
FIELD MGR.		2/25
RECOMMENDED: DESIGN MANAGER		2.25

APPROVED:
CITY ENGINEER
DATE 6/13/2025

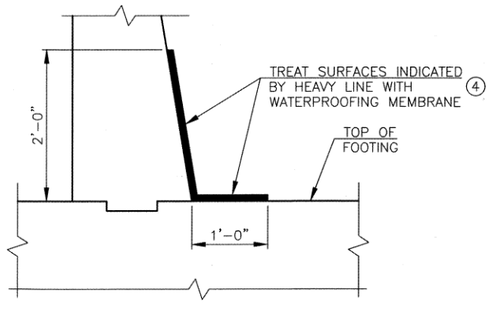
DRAWING: 61 RETAINING WALL DETAILS (SHEET 2 OF 3).dwg
ATLAS PAGE NO: 1006,1137
SHEET 61 OF 89



RETAINING WALL EXCAVATION DETAIL



RETAINING WALL BACKFILL DETAIL



WATERPROOFING MEMBRANE SURFACE TREATMENT DETAIL

① SET BOTTOM OF PIPE 6" ABOVE THE TOP OF FOOTING AT THE LOW END.

② SUITABLE NATIVE SOILS FROM UNCLASSIFIED EXCAVATION MAY BE USED AS BACKFILL IN FRONT OF THE RETAINING WALLS AS SHOWN IN THE PLANS IN ACCORDANCE WITH SECTION 501.04.B OF THE 2019 ODOT SPECIFICATIONS.

③ 12'-0" DISTANCE IS ASSUMED FOR THE PURPOSES OF ESTIMATING QUANTITIES OF UNCLASSIFIED EXCAVATION AND SELECT BACKFILL. ACTUAL DISTANCE FROM BACK FACE OF RETAINING WALL TO FRONT FACE OF TEMPORARY EARTH RETAINAGE SHALL BE THE MINIMUM REQUIRED FOR EASE OF CONSTRUCTION OF THE RCB EXTENSION AND RETAINING WALLS AS DETERMINED BY THE CONTRACTOR WITH APPROVAL OF THE ENGINEER. TWO LANES OF TRAFFIC ON 91ST STREET SHALL REMAIN OPEN AT ALL TIMES.

④ WATERPROOFING MEMBRANE SHALL BE APPLIED TO THE FOLLOWING CONCRETE SURFACES.

1. FOOTING: 1'-0" FROM THE BACK FACE OF THE STEM ON TOP OF THE FOOTING ALONG THE LENGTH OF THE RETAINING WALL.
2. STEM: 2'-0" UP THE BACK FACE OF THE STEM FROM THE TOP OF THE FOOTING ALONG THE LENGTH OF THE RETAINING WALL.

CONTRACTOR SHALL ENSURE THAT THE WATERPROOFING MEMBRANE DOES NOT IMPEDE THE FLOW OF WATER THROUGH THE WEEP HOLE. FOR ADDITIONAL INFORMATION, SEE GENERAL NOTE "WATERPROOFING MEMBRANE" ON SHEET 60.

LICENSED PROFESSIONAL ENGINEER — ANDREW HAWKINS — OKLAHOMA — CA 32 — 6-30-26

BEFORE YOU DIG OKLAHOMA 811 CALL OKIE

RETAINING WALL DETAILS (SHEET 3 OF 3)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC CORPORATION
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

REVISION	BY	DATE

PLAN SCALE: N/A	DRAWN	J.F.R.	4/22
	DESIGNED	E.B.R.	4/22
	SURVEY	B.B.	10/17
PROFILE SCALES:	PROJ. MGR.		6/25
HORIZONTAL: N/A	LEAD ENGR.		5/25
	FIELD MGR.		
VERTICAL N/A	RECOMMENDED: DESIGN MANAGER	MAS 6.25	

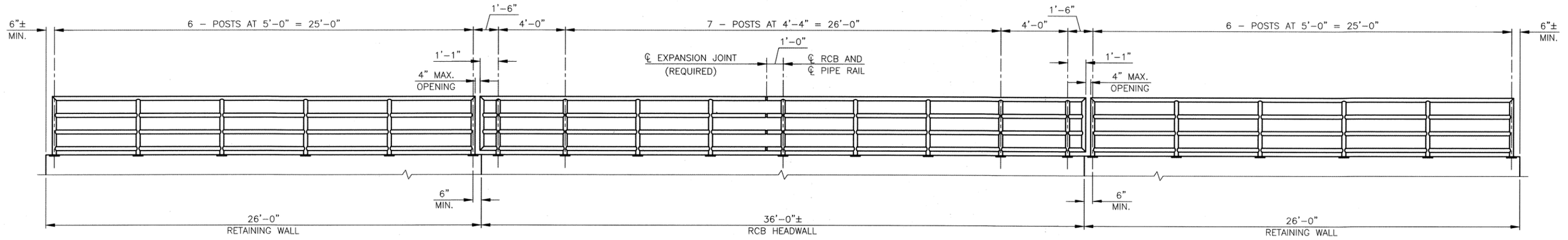
APPROVED: CITY ENGINEER

DRAWING: 62 RETAINING WALL DETAILS (SHEET 3 OF 3).dwg

ATLAS PAGE NO: 1006,1137

DATE 6/13/2025

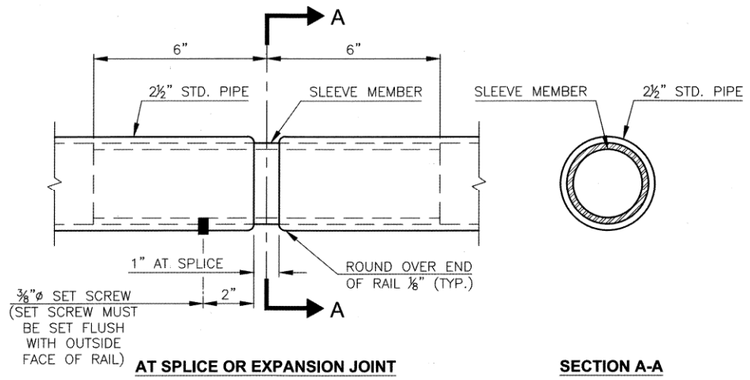
SHEET 62 OF 89



DETAIL OF PIPE RAIL LAYOUT

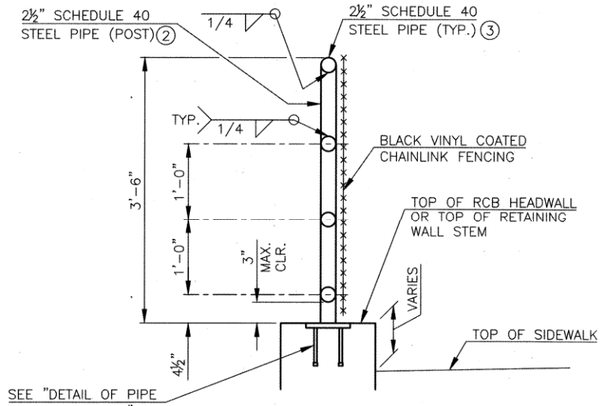
(ELEVATION)

(BLACK VINYL COATED CHAINLINK FENCING NOT SHOWN FOR CLARITY)

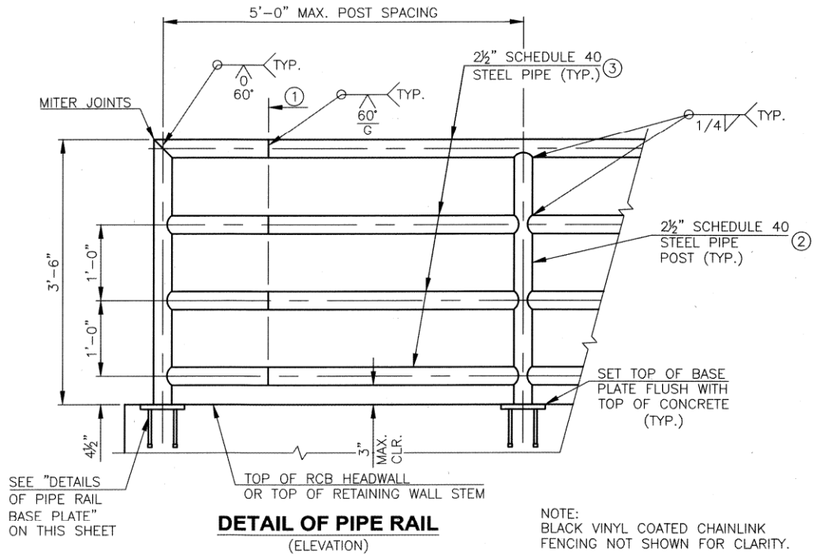


AT SPLICE OR EXPANSION JOINT SECTION A-A

PEDESTRIAN HANDRAIL SPLICE DETAILS



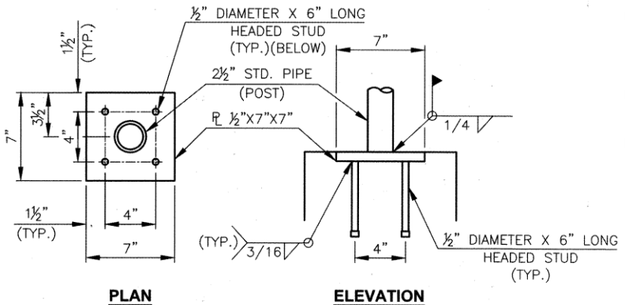
TYPICAL SECTION THRU PIPE RAIL



DETAIL OF PIPE RAIL

(ELEVATION)

NOTE:
BLACK VINYL COATED CHAINLINK FENCING NOT SHOWN FOR CLARITY.



PLAN ELEVATION

DETAILS OF PIPE RAIL BASE PLATE

PIPE RAIL GENERAL NOTES:

1. FABRICATE ALL ELEMENTS IN ACCORDANCE WITH ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE AND SUBSECTION 724.03 OF THE STANDARD SPECIFICATIONS. WELD METAL USED FOR SHOP AND FIELD WELDS SHALL HAVE A MINIMUM TENSILE STRENGTH OF 70 K.S.I.
2. PIPE FOR PIPE RAIL SHALL CONFORM TO ASTM A53 GRADE B.
3. STEEL PLATES SHALL CONFORM TO ASTM A572, GRADE 50.
4. HEADED STUDS SHALL CONFORM TO ASTM A108, GRADE 1015, 1018 OR 1020.
5. STEEL PIPE RAIL AND BASE PLATES TO BE POWDER COATED. THE POWDER COATING PROCESS TO BE A TWO COAT SYSTEM APPLIED USING ELECTROSTATIC SPRAY. THE BASE COAT TO BE THERMOSETTING EPOXY POWDER WITH A MINIMUM THICKNESS OF 2–4 MILS. THE TOP COAT TO BE A POLYESTER POWDER COAT WITH A MINIMUM THICKNESS OF 2–4 MILS. THE POWDER COATING PROCESS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. THE COLOR TO MATCH FEDERAL STANDARD 595 COLOR FS17038 (BLACK) WITH A GLOSS FINISH.
6. CHAINLINK FENCING AND ATTACHMENTS TO BE BLACK VINYL COATED.
7. ALL WELDED CONNECTIONS SHALL BE THOROUGHLY CLEANED OF ALL LOOSE SCALE AND GROUND SMOOTH.
8. EXPOSED EDGES OF PIPE RAIL AND PIPE RAIL POSTS SHALL BE ROUNDED OR CHAMFERED TO APPROXIMATELY 1/16" BY GRINDING.
9. CONTRACTOR MAY INCLUDE ADDITIONAL SPLICES IN THE PIPE RAIL IN ACCORDANCE WITH THE DETAILS ON THIS SHEET. EACH CONTINUOUS SEGMENT OF PIPE RAIL SHALL HAVE A MINIMUM OF THREE POSTS.
10. AFTER FIELD FABRICATION, REPAIR SURFACE DEFECTS AND WELDED CONNECTIONS OF THE STEEL PIPE RAILING IN ACCORDANCE WITH THE POWDER COATING MANUFACTURER'S RECOMMENDATIONS. APPLY PRIMER AND LIQUID PAINT FORMULATED TO MATCH POWDER COATING COLOR, SHEEN, AND TEXTURE.
11. SHOP DETAILS FOR ALL PIPE RAIL SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO FABRICATION.
12. ALL COSTS FOR PIPE RAIL INCLUDING PIPE RAIL, BASE PLATES, EXPANSION JOINTS, HEADED STUDS, WELDING, CHAINLINK FENCING AND ATTACHMENTS, CLEANING, PAINTING, MATERIALS, LABOR, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK SHALL BE INCLUDED IN THE PRICE PER LINEAR FOOT OF "HANDRAILING."

PIPE RAIL QUANTITIES		
ITEM	UNIT	TOTAL
HANDRAILING	L.F.	87

① ONE SHOP SPLICE IS PERMITTED WITH MINIMUM 85 PERCENT PENETRATION. THE WELD MAY BE SQUARE GROOVE OR SINGLE V–GROOVE. GRIND SMOOTH.

② 2½" DIA. STANDARD PIPE (2.88" O.D., 0.203" WALL THICKNESS). PLUMB ALL POSTS.

③ 2½" DIA. STANDARD PIPE (2.88" O.D., 0.203" WALL THICKNESS). PARALLEL TO HEADWALL AND TOP OF RETAINING WALL STEM.

LICENSED PROFESSIONAL ENGINEER JOHN W. HAWKINS OKLAHOMA 5/15/25 CA 32 6-30-26

BEFORE YOU DIG 811 CALL OKIE

PIPE RAIL DETAILS

PROJECT NO. 144213
TMUA–W 22–90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC CORPORATION
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

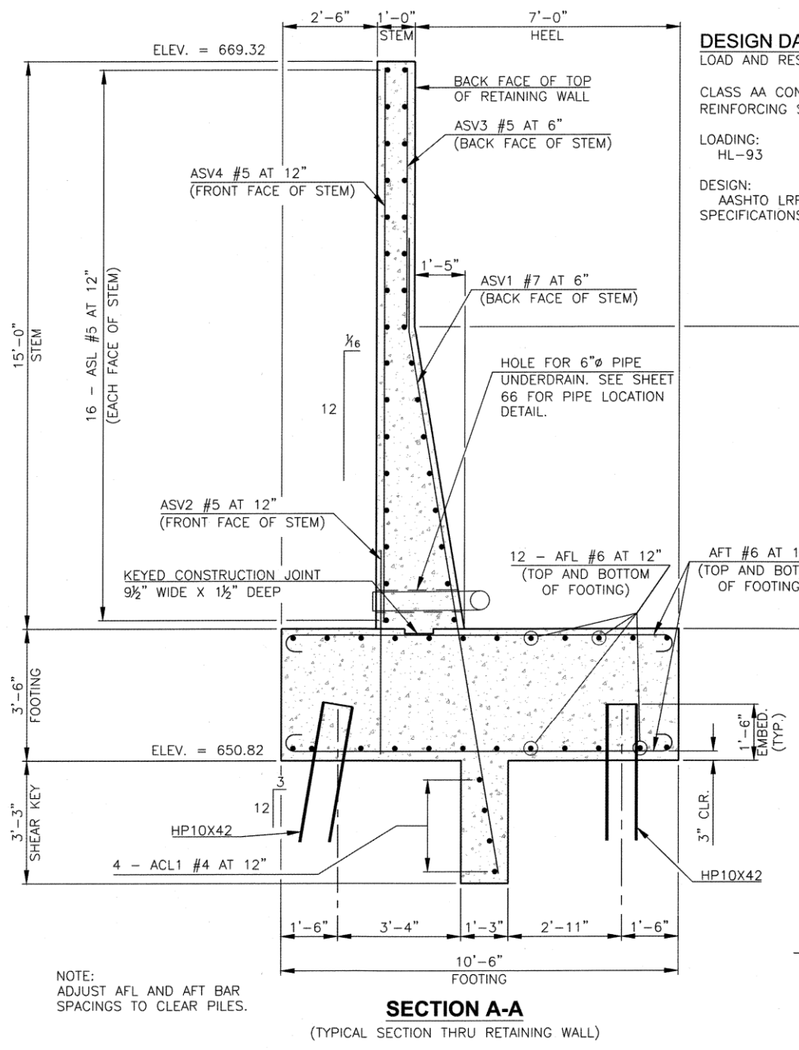
REVISION	BY	DATE

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

DRAWN	J.F.R.	4/22	APPROVED:
DESIGNED	J.W.H.	4/22	
SURVEY	B.B.	10/17	
PROJ. MGR.	BC	6/25	
LEAD ENGR.	JWH	5/15/25	
FIELD MGR.			
RECOMMENDED: DESIGN MANAGER	MAS	6-25	CITY ENGINEER

DRAWING: 63 PIPE RAIL DETAILS.dwg DATE 6/13/2025

ATLAS PAGE NO: 1006,1137 SHEET 63 OF 89



NOTE:
ADJUST AFL AND AFT BAR SPACINGS TO CLEAR PILES.

SECTION A-A

(TYPICAL SECTION THRU RETAINING WALL)

DESIGN DATA

LOAD AND RESISTANCE FACTOR DESIGN

CLASS AA CONCRETE F'C = 4 KSI
REINFORCING STEEL (GR. 60) FY = 60 KSI

LOADING:
HL-93

DESIGN:
AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 8TH EDITION

① RETAINING WALL BAR LIST

(ONE SHOWN, TWO REQUIRED)

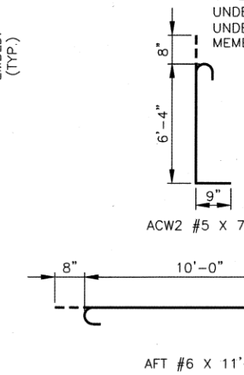
PLAIN REINFORCING				
MARK	SIZE	NO.	FORM	LENGTH
ACL1	#4	4	STR.	29'-6"
ACL2	#4	8	STR.	3'-1"
ACW1	#5	5	STR.	6'-4"
ACW2	#5	5	BNT.	7'-9"
AFL	#6	24	STR.	29'-8"
AFT	#6	62	BNT.	11'-4"
ASL	#5	32	STR.	29'-8"
ASV1	#7	61	BNT.	17'-4"
ASV2	#5	31	STR.	5'-3"
ASV3	#5	61	STR.	6'-5"
ASV4	#5	31	STR.	14'-10"

① INCLUDED IN PRICE PER SQUARE YARD OF "RETAINING WALL."

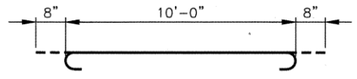
RETAINING WALL QUANTITIES

	ITEM	UNIT	TOTAL
	UNCLASSIFIED EXCAVATION	C.Y.	1,470
	SELECT BACKFILL	C.Y.	960
	HANDRAILING	L.F.	73
②	RETAINING WALL	S.Y.	100.0
	PILES, FURNISHED (HP10X42)	L.F.	856
	PILES, DRIVEN (HP10X42)	L.F.	856
	(PL) PILOT HOLES	L.F.	270
	PILE SPLICE, H-PILE (NON-BIDDABLE)	EA.	1.0

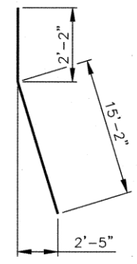
② EACH RETAINING WALL INCLUDES APPROXIMATELY 69.4 C.Y. OF CLASS AA CONCRETE, 6,510 LB. OF REINFORCING STEEL, 3.1 C.Y. OF COARSE PIPE UNDERDRAIN COVER MATERIAL, 25.8 C.Y. OF FILTER SAND PIPE UNDERDRAIN COVER MATERIAL, 29 L.F. OF 6" PERFORATED PIPE UNDERDRAIN, 4 L.F. OF 6" NON-PERF. PIPE UNDERDRAIN, AND 10.0 S.Y. OF WATERPROOFING MEMBRANE.



ACW2 #5 X 7'-9"



AFT #6 X 11'-4"

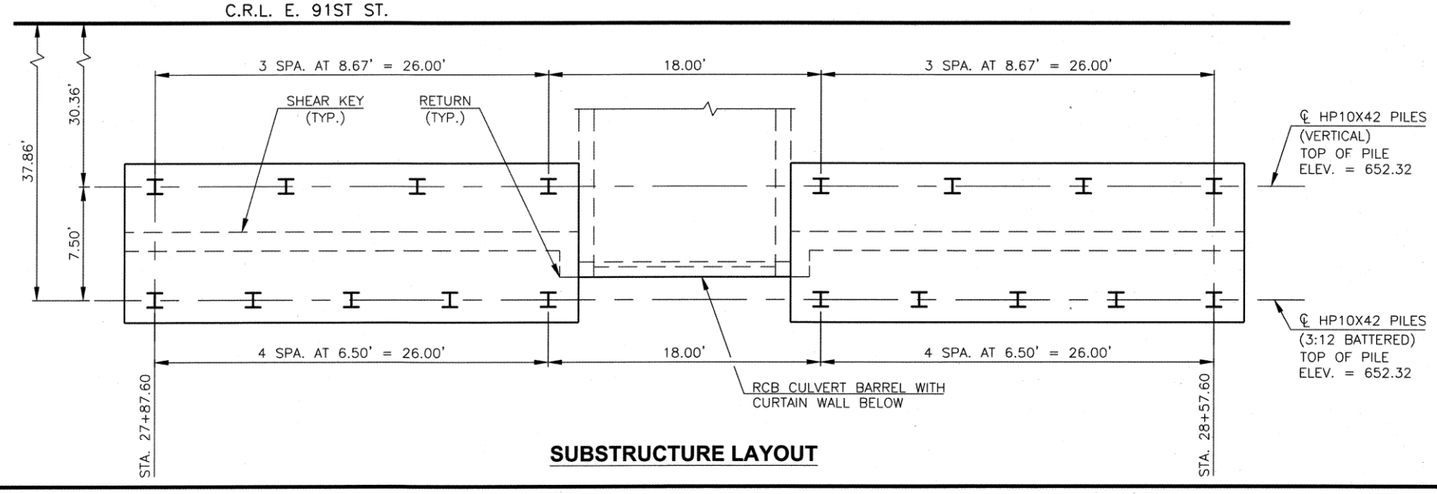


ASV1 #7 X 17'-4"

RETAINING WALL GENERAL NOTES:

1. ALL CONSTRUCTION AND MATERIAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE 2019 OKLAHOMA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
2. ALL CONCRETE EDGES SHALL HAVE A 1½" CHAMFER UNLESS OTHERWISE SHOWN OR NOTED. ALL CHAMFER STRIPS SHALL BE SIZED LUMBER. ALL CONCRETE SHALL BE PLACED IN THE DRY.
3. ALL REINFORCING STEEL SHALL HAVE A MINIMUM OF 2" CLEAR COVER, UNLESS OTHERWISE NOTED.
4. RETAINING WALL: THE PAY AREA IN SQUARE YARDS FOR THE ITEM "RETAINING WALL" HAS BEEN CALCULATED AS THE SUM FOR ALL OF THE WALLS OF THE TOTAL HEIGHT OF EACH RETAINING WALL MULTIPLIED BY THE LENGTH OF EACH RETAINING WALL. FOR THE RETAINING WALL, THE TOTAL HEIGHT IS THE HEIGHT OF THE STEM. ALL COSTS FOR CONSTRUCTING THE RETAINING WALLS INCLUDING CLASS AA CONCRETE, REINFORCING STEEL, WEEP HOLES, COARSE PIPE UNDERDRAIN COVER MATERIAL, FILTER SAND PIPE UNDERDRAIN COVER MATERIAL, WATERPROOFING MEMBRANE, 6" PERFORATED PIPE UNDERDRAIN, 6" NON-PERF. PIPE UNDERDRAIN, AND FILTER FABRIC FOR PIPE UNDERDRAIN COVER MATERIAL, INCLUDING MATERIALS, LABOR, EQUIPMENT AND INCIDENTALS SHALL BE INCLUDED IN THE UNIT PRICE PER SQUARE YARD OF "RETAINING WALL."
5. AFTER EXCAVATION, THE SUBGRADE BELOW WHERE THE RETAINING WALL FOOTING WILL BE PLACED SHALL BE COMPACTED TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY AND WITHIN ±2% OF THE OPTIMUM MOISTURE CONTENT AS DETERMINED BY A STANDARD PROCTOR (ASTM D698). ALL COSTS OF COMPACTION OF SUBGRADE AS NOTED SHALL BE INCLUDED IN THE UNIT PRICE BID PER SQUARE YARD OF "RETAINING WALL."
6. WATERPROOFING MEMBRANE: THE WATERPROOFING SURFACE TREATMENT SHALL BE APPLIED IN A MANNER CONSISTENT WITH THE DETAILS SHOWN IN THE PLANS. THE WATERPROOFING MEMBRANE MAY BE ONE OF THE FOLLOWING, OR APPROVED EQUAL, USED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND AS APPROVED BY THE ENGINEER:
   A. BUTYL RUBBER MEMBRANE APPLIED TO A SURFACE WITH A PROPER ADHESIVE WITHOUT PROTECTIVE PLANKING. PROVIDE A MINIMUM THICKNESS OF 1/16 IN. UNLESS OTHERWISE SHOWN IN THE PLANS.
   B. SELF-ADHERING POLYETHYLENE WITH A RUBBERIZED ASPHALT MASTIC MATERIAL.
   C. SINGLE-COMPONENT, COAT-TAR MODIFIED URETHANE COATING.
   D. SELF-ADHERING BUILT-UP MEMBRANE OF RUBBERIZED ASPHALT FORMED ON A PREFORMED BOARD WITH COLD-APPLIED ASPHALTIC PRIMER.

   THE EQUIPMENT AND METHODS OF APPLYING THE WATERPROOF MEMBRANE SHALL BE IN ACCORDANCE WITH THE PRODUCT COATING PROFILE AND INSTRUCTION GUIDES FOR APPLICATION TO CONCRETE. PRECAUTIONARY MEASURES SHALL BE IN ACCORDANCE WITH THE MATERIAL SAFETY DATA SHEETS AS PROVIDED BY THE MANUFACTURER. THE WATERPROOFING MEMBRANE SHALL TURN UP THE VERTICAL SURFACES OF THE STEM AS TO PROVIDE A WATER TIGHT SEAL. SURFACE PREPARATIONS, STORAGE AND PRODUCT MIXING SHALL BE PER THE MANUFACTURER'S RECOMMENDATIONS. ALL CONCRETE WORK SHALL BE COMPLETED PRIOR TO THE APPLICATION OF THE CONCRETE FINISH AND ALL CONCRETE SHALL HAVE A MINIMUM STRENGTH OF 3,000 PSI AT THE TIME OF APPLICATION. PRIMER SHALL BE APPLIED TO THE CONCRETE SURFACES PRIOR TO APPLYING THE WATERPROOFING MEMBRANE.
7. SELECT BACKFILL: SELECT BACKFILL SHALL CONSIST OF APPROVED MATERIALS THAT ARE FREE OF ORGANIC MATTER AND DEBRIS, EXHIBIT A MAXIMUM PLASTICITY INDEX (PI) OF 18, MAXIMUM LIQUID LIMIT (LL) OF 40, AND A MAXIMUM ROCK SIZE OF 3.0 INCHES. NATIVE SOILS MAY BE USED IF THEY MEET THE REQUIREMENTS FOR SELECT BACKFILL AS NOTED. SAMPLES OF FILL MATERIAL SHALL BE EVALUATED BY A GEOTECHNICAL ENGINEER TO DETERMINE IF THEY MEET THE CRITERIA FOR SELECT BACKFILL BEFORE BEING USED ON THE PROJECT. ALL COSTS FOR SELECT BACKFILL INCLUDING EVALUATION BY A GEOTECHNICAL ENGINEER, MATERIALS, LABOR, EQUIPMENT AND INCIDENTALS SHALL BE INCLUDED IN THE UNIT PRICE BID PER CUBIC YARD OF "SELECT BACKFILL."
8. ALL FILL MATERIALS SHALL BE COMPACTED AND TESTED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT PREPARED BY AIMRIGHT TESTING AND ENGINEERING FOR THIS PROJECT (AIM RIGHT PROJECT NO. 7550520, OCTOBER 15, 2020).
9. UNCLASSIFIED EXCAVATION: ALL COSTS FOR EXCAVATING UNCLASSIFIED MATERIALS AS SHOWN IN THE PLANS AND PLACING AND COMPACTING SUITABLE BACKFILL IN FRONT OF THE RETAINING WALLS AS SHOWN IN THE PLANS INCLUDING MATERIALS, LABOR, EQUIPMENT AND INCIDENTALS SHALL BE INCLUDED IN THE UNIT PRICE PER CUBIC YARD OF "UNCLASSIFIED EXCAVATION." THE ENGINEER WILL NOT MEASURE ADDITIONAL VOLUMES OF EXCAVATION FOR SHORING OR CONTRACTOR CONVENIENCE BEYOND THE THEORETICAL DIMENSIONS SHOWN IN THE PLANS. IF THE CONTRACTOR ENCOUNTERS AND REMOVES SOFT AND YIELDING MATERIAL AT THE BOTTOM OF THE FOOTING AND REPLACES IT WITH SUITABLE BEDDING MATERIAL AT THE DIRECTION OF THE ENGINEER, THE ENGINEER WILL MEASURE THE VOLUME OF UNSUITABLE MATERIAL REMOVED. THE CITY WILL PAY FOR THE VOLUME OF SOFT AND YIELDING MATERIAL REMOVED AND A LIKE VOLUME FOR REPLACEMENT MATERIAL IN ACCORDANCE WITH THE UNIT PRICE BID PER CUBIC YARD OF "UNCLASSIFIED EXCAVATION". THE QUANTITY FOR PAYMENT SHALL BE EXCAVATION QUANTITY. THE SECOND HANDLING (BACKFILL) SHALL NOT BE MEASURED FOR PAYMENT.
10. PILE DRIVING AND CAPACITY: THE FACTORED PILE REACTION FOR EACH HP10X42 PILE AT EACH RETAINING WALL FOOTING IS 81.2 TONS. THE GATES EQUATION, AS GIVEN IN SECTION 514.04.E(2) OF THE SPECIFICATIONS, SHALL BE USED TO DETERMINE THE AXIAL LOAD RESISTANCE OF THE DRIVEN FOUNDATION PILES. THE CONTRACTOR SHALL USE A PILE DRIVING HAMMER OF THE SIZE AND TYPE CAPABLE OF CONSISTENTLY DELIVERING THE EFFECTIVE DYNAMIC ENERGY SUFFICIENT TO DRIVE THE PILES TO THE REQUIRED TIP ELEVATION AND TO ACHIEVE THE FACTORED PILE CAPACITY WITHOUT EXCEEDING THE LIMITATIONS SET ON THE ALLOWABLE DRIVING STRESSES IN ACCORDANCE WITH SECTION 514.03.A OF THE SPECIFICATIONS.
11. STEEL PILING: ALL PILING SHALL BE DRIVEN THRU COMPACTED FILL. PILING SHALL BE DRIVEN TO A POINT BEARING ON SOLID FOUNDATION MATERIAL AT THE APPROXIMATE ELEVATION SHOWN ON THE PLANS. IF THE REQUIRED AXIAL LOAD RESISTANCE IS NOT OBTAINED AT THIS ELEVATION, DRIVING SHALL CONTINUE UNTIL THE REQUIRED AXIAL LOAD RESISTANCE IS OBTAINED. THE LENGTH OF STEEL PILING SHOWN ON THE PLANS IS FOR ESTIMATING PURPOSES ONLY.
12. UTILITY COORDINATION: OVERHEAD UTILITY LINES ARE WITHIN THE VICINITY OF PROPOSED PILE LOCATIONS FOR RETAINING WALL FOOTINGS. CONTRACTOR TO COORDINATE WITH CITY UTILITY COORDINATION AT LEAST 2 WEEKS PRIOR TO DRIVING PILES.



SUBSTRUCTURE LAYOUT

NOTE:
VERTICAL PILE LENGTH IS ESTIMATED TO BE 47 FEET. BATTERED PILE LENGTH IS ESTIMATED TO BE 48 FEET.

LICENSED PROFESSIONAL ENGINEER — ERIK REYES — 33498 — OKLAHOMA — CA 32 6-30-26

BEFORE YOU DIG — 811 — CALL OKIE

RETAINING WALL DETAILS 1 OF 3

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC CORPORATION
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

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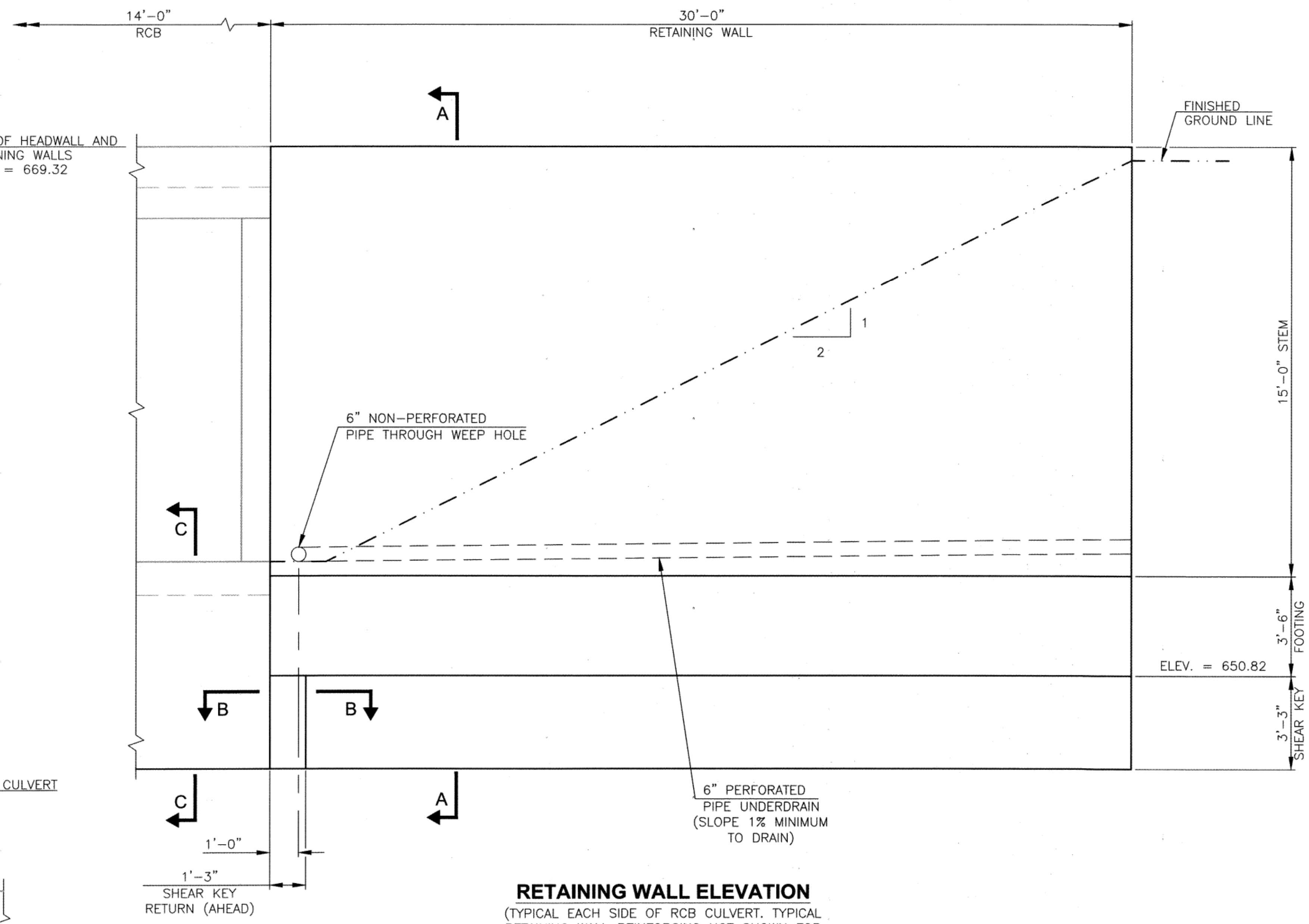
PLAN SCALE: N/A
PROFILE SCALES: HORIZONTAL: N/A VERTICAL: N/A

DRAWN	J.F.R.	12/24
DESIGNED	E.B.R.	12/24
SURVEY	B.B.	10/17
PROJ. MGR.		1/25
LEAD ENGR.		
FIELD MGR.		2/26
RECOMMENDED: DESIGN MANAGER		2/25

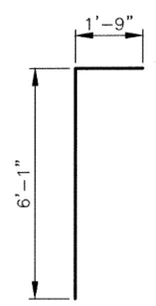
APPROVED: CITY ENGINEER

DRAWING: 64 RETAINING WALL DETAILS (SHEET 1 OF 3).dwg
ATLAS PAGE NO: 1006.1137
DATE 6/13/2025
SHEET 64 OF 89

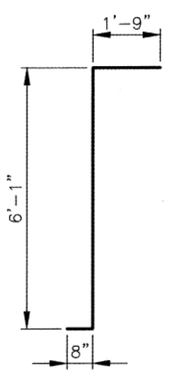


RETAINING WALL ELEVATION

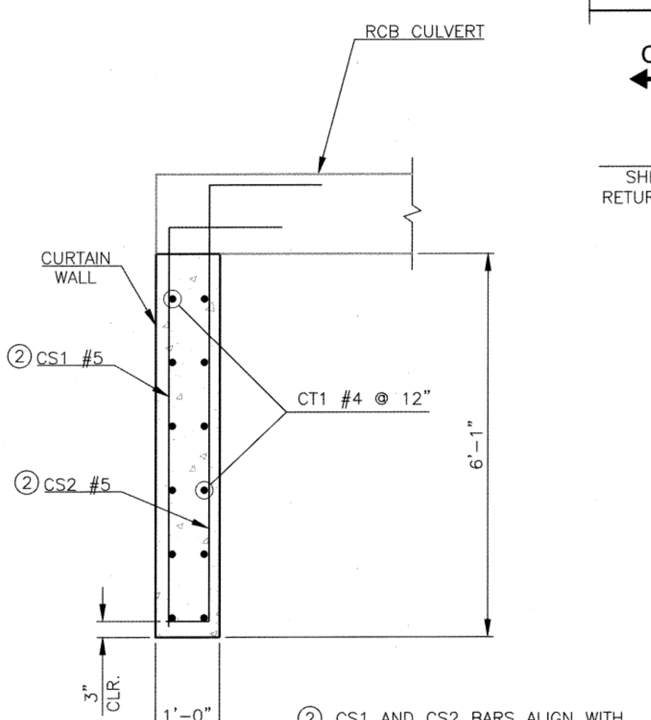
(TYPICAL EACH SIDE OF RCB CULVERT. TYPICAL RETAINING WALL REINFORCING NOT SHOWN FOR CLARITY. SEE "RETAINING WALL DETAILS (SHEET 1 OF 3)" FOR TYPICAL RETAINING WALL REINFORCING.)



CS1 #5 X 7'-10"

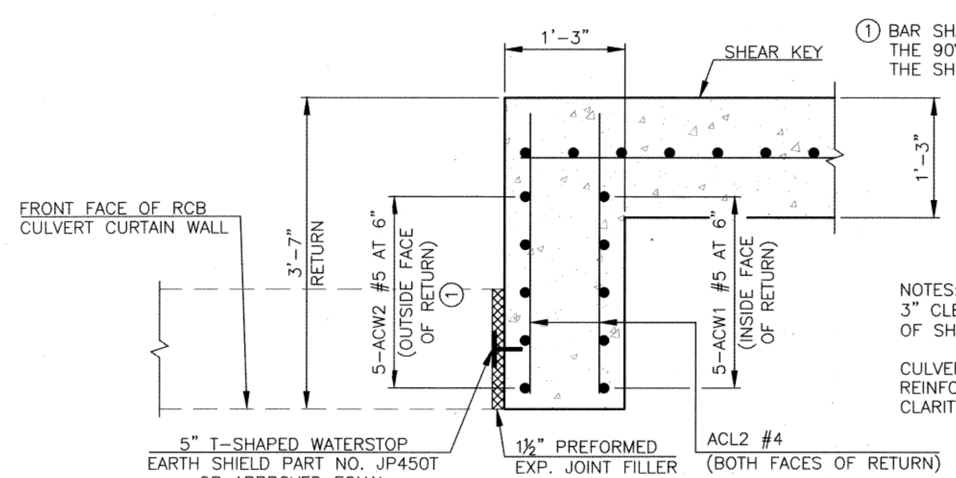


CS2 #5 X 9'-4"



② CS1 AND CS2 BARS ALIGN WITH LONGITUDINAL STEEL IN RCB CULVERT.

SECTION C-C



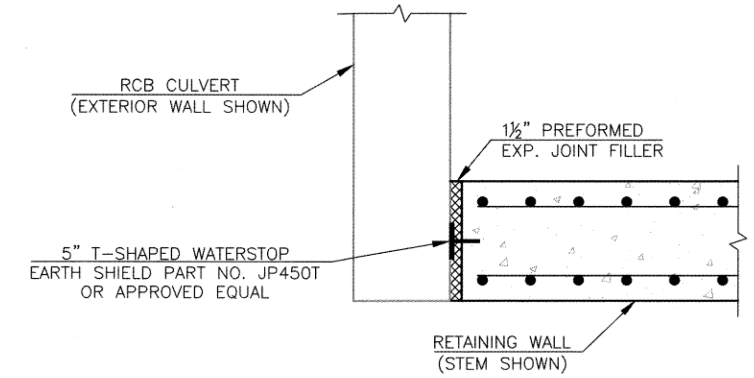
① BAR SHALL BE ORIENTATED WITH THE 90° HOOK AT THE BASE OF THE SHEAR KEY RETURN.

NOTES:
3" CLEAR COVER AT ALL FACES OF SHEAR KEY AND RETURN.

CULVERT CURTAIN WALL REINFORCING STEEL OMITTED FOR CLARITY.

SECTION B-B

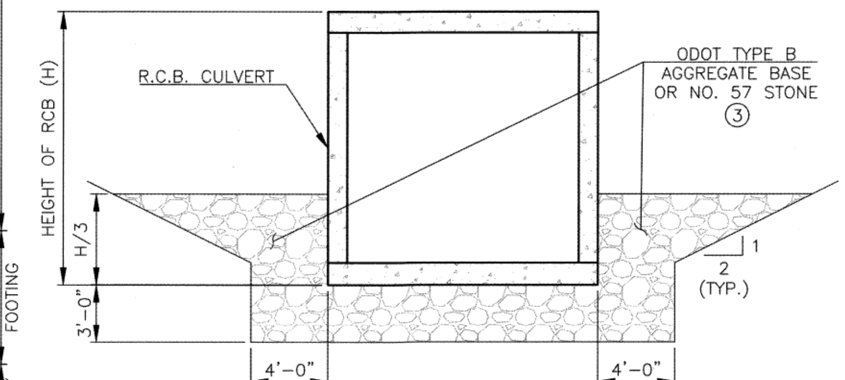
(PLAN VIEW)



RETAINING WALL JOINT DETAIL

(PLAN VIEW)

NOTE:
WATERSTOP AND EXP. JOINT FILLER WILL BE PLACED THE FULL HEIGHT OF WALL, FOOTING, AND SHEAR KEY RETURN. COST TO BE INCLUDED IN OTHER ITEMS OF WORK.



PLACEMENT OF CLASS 57 STONE

DO NOT BEGIN RCB CULVERT CONSTRUCTION UNTIL THE ENGINEER APPROVES THE AGGREGATE BASE MATERIAL CONDITION.

③ WRAP AGGREGATE BASE IN SEPARATION TEXTILE. SEE NOTE 7 ON "RCB DETAILS (SHEET 1 OF 2)".

NOTES:
ADJUST WALL REINFORCEMENT SPACING TO MAINTAIN MINIMUM CLEARANCE AROUND 6"ø PIPE UNDERDRAIN.

FOR DETAILS OF HEADWALL, SEE ODOT BRIDGE STANDARDS RCB-E1-H12-0-1 AND RCB-E1-H12-0-2.

FOR SECTION A-A, SEE "RETAINING WALL DETAILS (SHEET 1 OF 3)".

CURTAIN WALL BAR LIST

PLAIN REINFORCING				
MARK	SIZE	NO.	FORM	LENGTH
CS1	#5	16	BNT.	7'-10"
CS2	#5	16	BNT.	9'-4"
CT1	#4	12	STR.	13'-8"

CURTAIN WALL QUANTITIES

ITEM	UNIT	TOTAL
CLASS AA CONCRETE	C.Y.	3.2
REINFORCING STEEL	LB.	400

CA 32
6-30-26

RETAINING WALL DETAILS 2 OF 3

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

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1300 S. Main Street Tulsa, OK 74119
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REVISION	BY	DATE
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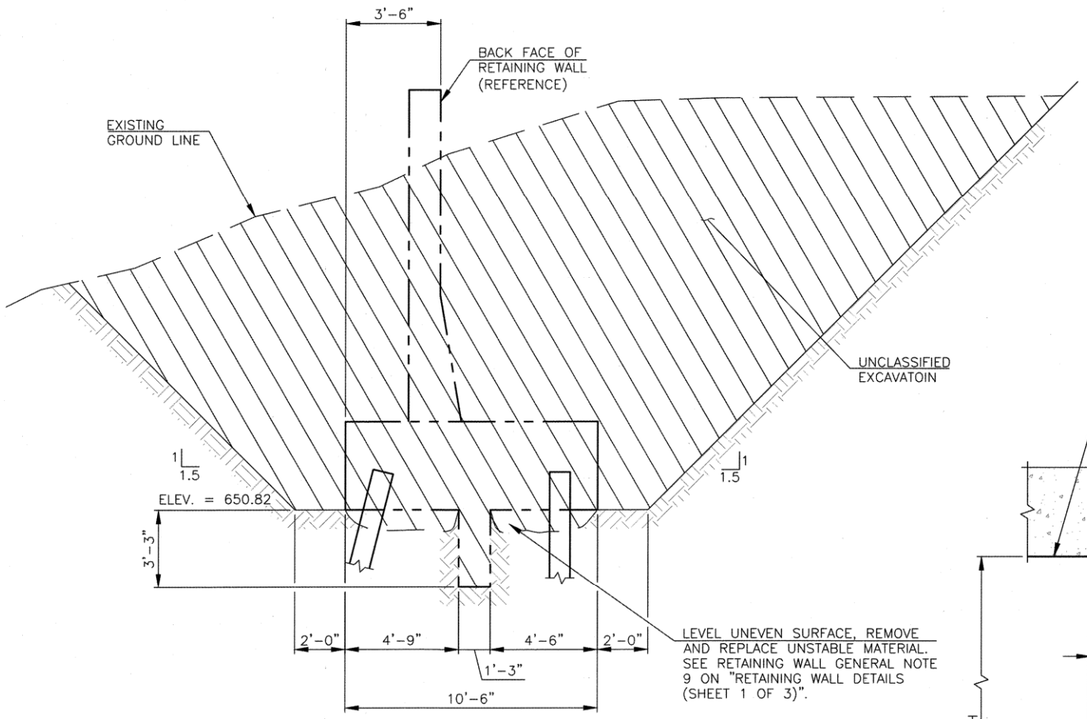
PLAN SCALE: N/A
PROFILE SCALES: HORIZONTAL: N/A VERTICAL: N/A

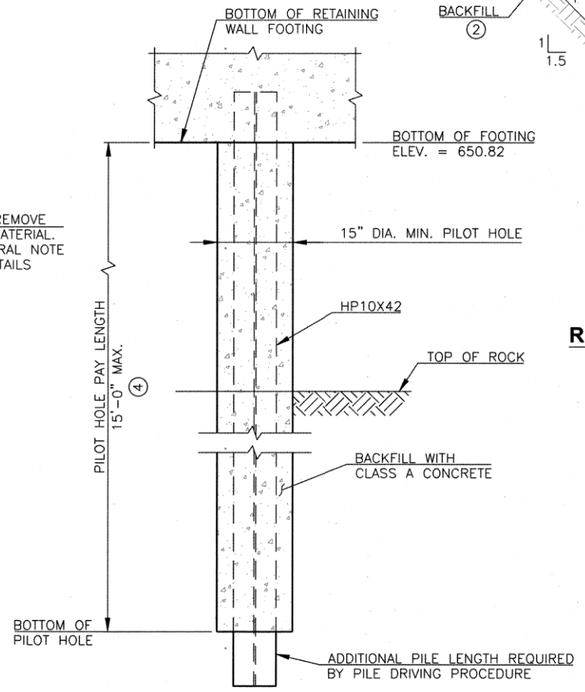
DRAWN	J.F.R.	12/24
DESIGNED	E.B.R.	12/24
SURVEY	B.B.	10/17
PROJ. MGR.		6/25
LEAD ENGR.		6/25
FIELD MGR.		
RECOMMENDED: DESIGN MANAGER	HMS	6-25

APPROVED:
CITY ENGINEER
DATE 6/13/2025

DRAWING: 65 RETAINING WALL DETAILS (SHEET 2 OF 3).dwg
ATLAS PAGE NO: 1006,1137
SHEET 65 OF 89



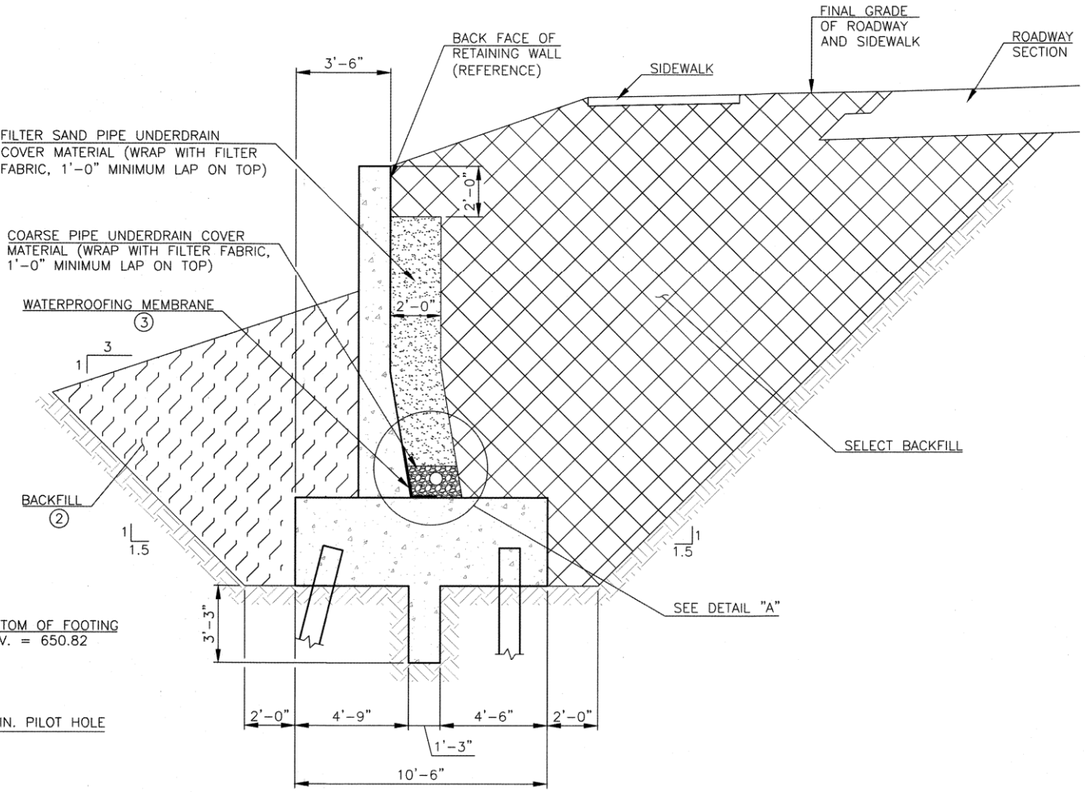
RETAINING WALL EXCAVATION DETAIL



DETAIL OF PILOT HOLES

(AT ALL RETAINING WALL FOOTING PILES)
(VERTICAL PILE SHOWN, BATTERED PILES SIMILAR)

(4) IN THE EVENT TOP OF ROCK IS ENCOUNTERED WITHIN 15' OF BOTTOM OF FOOTING ELEVATION, DRILL A PILOT HOLE UNTIL A PILE LENGTH OF 15' IS PROVIDED ABOVE THE BOTTOM OF PILOT HOLE. AFTER PILOT HOLES ARE DRILLED, PILES SHALL BE LOWERED INTO THE PILOT HOLES. DRIVE PILES UNTIL THE REQUIRED CAPACITY IS REACHED. BACKFILL PILOT HOLES WITH CLASS A CONCRETE. ALL COSTS OF BACKFILLING THE PILOT HOLES INCLUDING CLASS A CONCRETE AND CASING, IF NECESSARY, SHALL BE INCLUDED IN THE UNIT BID PRICE PER LINEAR FOOT OF "(PL)PILOT HOLES". PAYMENT WILL BE BASED ON INSTALLED QUANTITY.



RETAINING WALL BACKFILL DETAIL

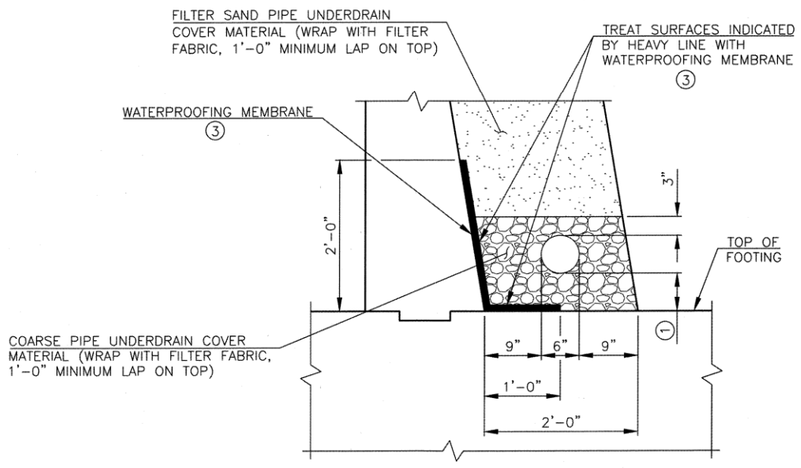
(1) SET BOTTOM OF PIPE 6" ABOVE THE TOP OF FOOTING AT THE LOW END.

(2) SUITABLE NATIVE SOILS FROM UNCLASSIFIED EXCAVATION MAY BE USED AS BACKFILL IN FRONT OF THE RETAINING WALLS AS SHOWN IN THE PLANS IN ACCORDANCE WITH SECTION 501.04.B OF THE 2019 ODOT SPECIFICATIONS.

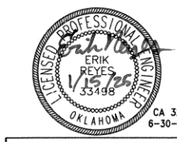
(3) WATERPROOFING MEMBRANE SHALL BE APPLIED TO THE FOLLOWING CONCRETE SURFACES.

1. FOOTING: 1'-0" FROM THE BACK FACE OF THE STEM ON TOP OF THE FOOTING ALONG THE LENGTH OF THE RETAINING WALL.
2. STEM: 2'-0" UP THE BACK FACE OF THE STEM FROM THE TOP OF THE FOOTING ALONG THE LENGTH OF THE RETAINING WALL.

CONTRACTOR SHALL ENSURE THAT THE WATERPROOFING MEMBRANE DOES NOT IMPEDE THE FLOW OF WATER THROUGH THE WEEP HOLE.



DETAIL "A"



RETAINING WALL DETAILS 3 OF 3

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC CORPORATION
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

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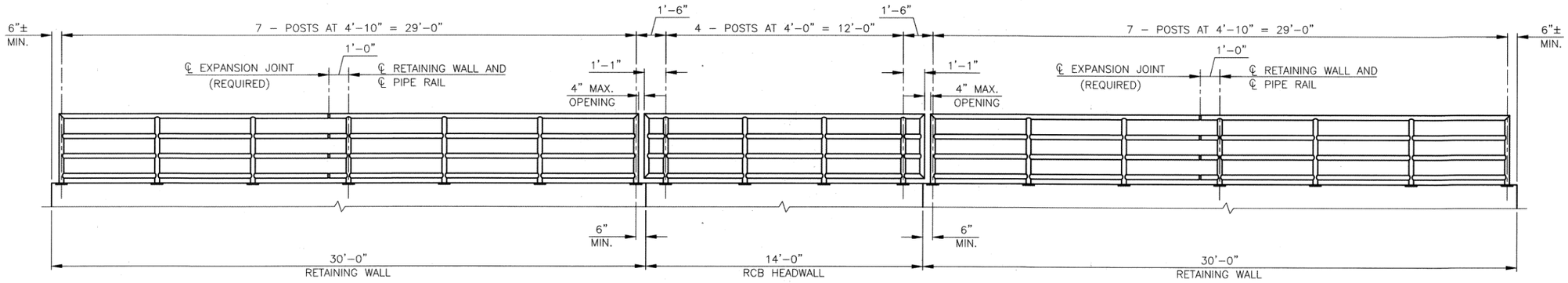
PLAN SCALE: N/A
PROFILE SCALES:
HORIZONTAL: N/A
VERTICAL N/A

DRAWN	J.F.R.	12/24
DESIGNED	E.B.R.	12/24
SURVEY	B.B.	10/17
PROJ. MGR.		1/25
LEAD ENGR.		1/25
FIELD MGR.		2/25
RECOMMENDED DESIGN MANAGER		2-25

APPROVED:
CITY ENGINEER
DATE 6/13/2025

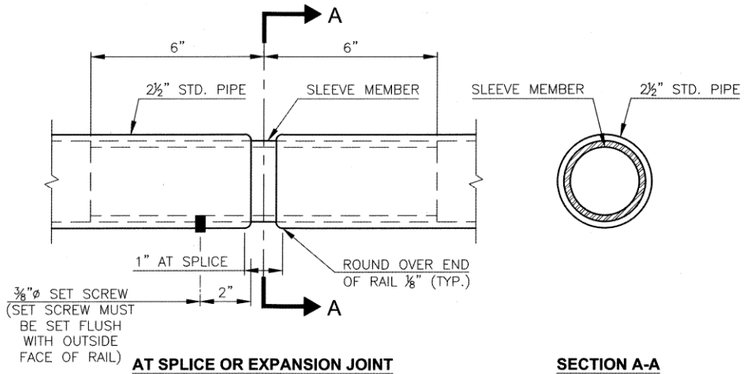
DRAWING: 66 RETAINING WALL DETAILS (SHEET 3 OF 3).dwg
ATLAS PAGE NO: 1006,1137
SHEET 66 OF 89



DETAIL OF PIPE RAIL LAYOUT

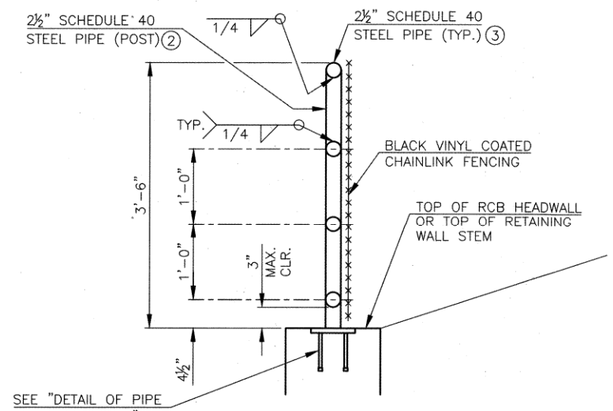
(ELEVATION)

(BLACK VINYL COATED CHAINLINK FENCING NOT SHOWN FOR CLARITY)

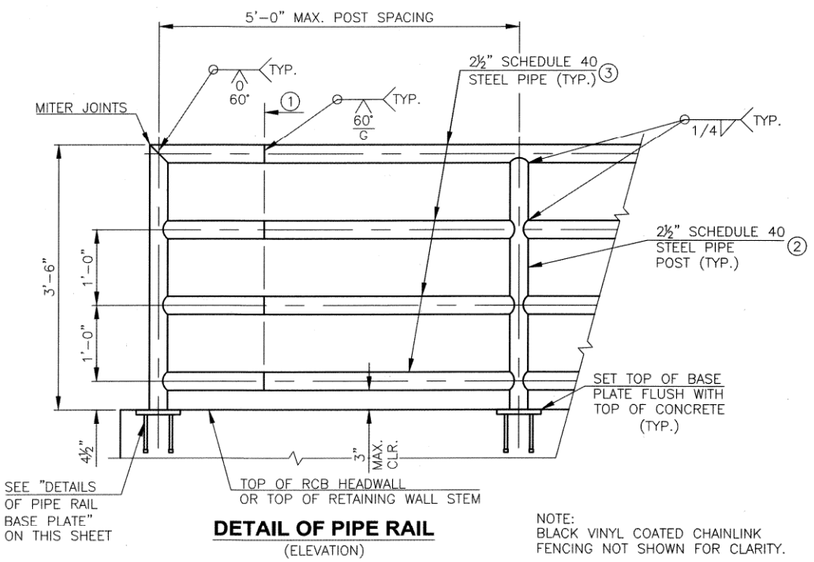


AT SPLICE OR EXPANSION JOINT **SECTION A-A**

PEDESTRIAN HANDRAIL SPLICE DETAILS



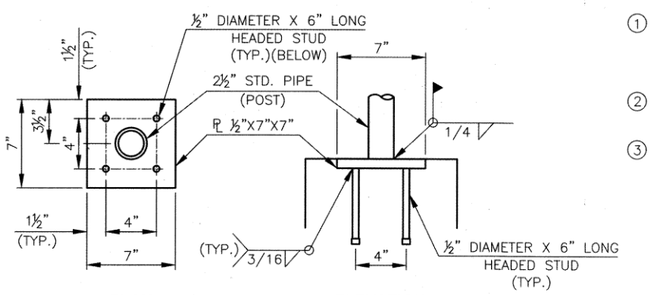
TYPICAL SECTION THRU PIPE RAIL



DETAIL OF PIPE RAIL

(ELEVATION)

NOTE:
BLACK VINYL COATED CHAINLINK FENCING NOT SHOWN FOR CLARITY.



PLAN **ELEVATION**

DETAILS OF PIPE RAIL BASE PLATE

PIPE RAIL GENERAL NOTES:

1. FABRICATE ALL ELEMENTS IN ACCORDANCE WITH ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE AND SUBSECTION 724.03 OF THE STANDARD SPECIFICATIONS. WELD METAL USED FOR SHOP AND FIELD WELDS SHALL HAVE A MINIMUM TENSILE STRENGTH OF 70 K.S.I.
2. PIPE FOR PIPE RAIL SHALL CONFORM TO ASTM A53 GRADE B.
3. STEEL PLATES SHALL CONFORM TO ASTM A572, GRADE 50.
4. HEADED STUDS SHALL CONFORM TO ASTM A108, GRADE 1015, 1018 OR 1020.
5. STEEL PIPE RAIL AND BASE PLATES TO BE POWDER COATED. THE POWDER COATING PROCESS TO BE A TWO COAT SYSTEM APPLIED USING ELECTROSTATIC SPRAY. THE BASE COAT TO BE THERMOSETTING EPOXY POWDER WITH A MINIMUM THICKNESS OF 2–4 MILS. THE TOP COAT TO BE A POLYESTER POWDER COAT WITH A MINIMUM THICKNESS OF 2–4 MILS. THE POWDER COATING PROCESS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. THE COLOR TO MATCH FEDERAL STANDARD 595 COLOR FS17038 (BLACK) WITH A GLOSS FINISH.
6. CHAINLINK FENCING AND ATTACHMENTS TO BE BLACK VINYL COATED.
7. ALL WELDED CONNECTIONS SHALL BE THOROUGHLY CLEANED OF ALL LOOSE SCALE AND GROUND SMOOTH.
8. EXPOSED EDGES OF PIPE RAIL AND PIPE RAIL POSTS SHALL BE ROUNDED OR CHAMFERED TO APPROXIMATELY 1/16" BY GRINDING.
9. CONTRACTOR MAY INCLUDE ADDITIONAL SPLICES IN THE PIPE RAIL IN ACCORDANCE WITH THE DETAILS ON THIS SHEET. EACH CONTINUOUS SEGMENT OF PIPE RAIL SHALL HAVE A MINIMUM OF THREE POSTS.
10. AFTER FIELD FABRICATION, REPAIR SURFACE DEFECTS AND WELDED CONNECTIONS OF THE STEEL PIPE RAILING IN ACCORDANCE WITH THE POWDER COATING MANUFACTURER'S RECOMMENDATIONS. APPLY PRIMER AND LIQUID PAINT FORMULATED TO MATCH POWDER COATING COLOR, SHEEN, AND TEXTURE.
11. SHOP DETAILS FOR ALL PIPE RAIL SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO FABRICATION.
12. ALL COSTS FOR PIPE RAIL INCLUDING PIPE RAIL, BASE PLATES, EXPANSION JOINTS, HEADED STUDS, WELDING, CHAINLINK FENCING AND ATTACHMENTS, CLEANING, PAINTING, MATERIALS, LABOR, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK SHALL BE INCLUDED IN THE PRICE PER LINEAR FOOT OF "HANDRAILING."

① ONE SHOP SPLICE IS PERMITTED WITH MINIMUM 85 PERCENT PENETRATION. THE WELD MAY BE SQUARE GROOVE OR SINGLE V–GROOVE. GRIND SMOOTH.

② 2½" DIA. STANDARD PIPE (2.88" O.D., 0.203" WALL THICKNESS). PLUMB ALL POSTS.

③ 2½" DIA. STANDARD PIPE (2.88" O.D., 0.203" WALL THICKNESS). PARALLEL TO HEADWALL AND TOP OF RETAINING WALL STEM.

PIPE RAIL DETAILS

PROJECT NO. 144213
TMUA–W 22–90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC CORPORATION
1300 S. Main Street Tulsa, OK 74119
(918) 663–9401

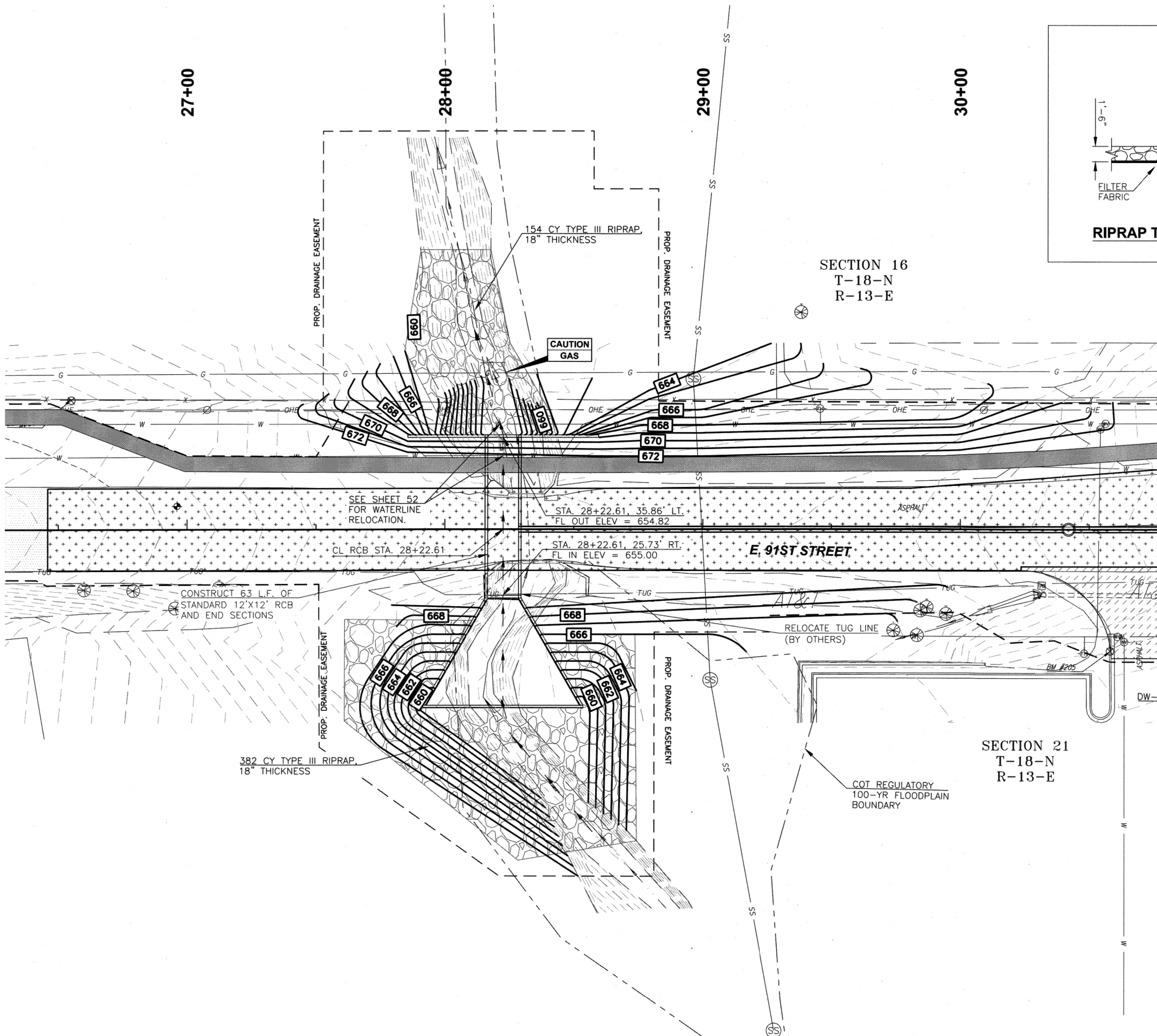
REVISION	BY	DATE

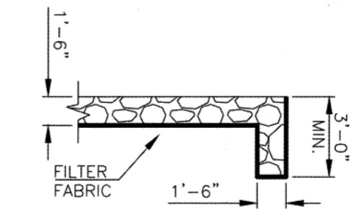
PLAN SCALE: N/A
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A

DRAWN	J.F.R.	12/24
DESIGNED	J.W.H.	12/24
SURVEY	B.B.	10/17
PROJ. MGR.		6/25
LEAD ENGR.		6/25
FIELD MGR.		
RECOMMENDED: DESIGN MANAGER		6-25

APPROVED: CITY ENGINEER

DRAWING: 67 PIPE RAIL DETAILS.dwg
DATE 6/13/2025
ATLAS PAGE NO: 1006,1137
SHEET 67 OF 89





RIPRAP TOE DETAIL

RIPRAP GRADATION

% SMALLER THAN GIVEN SIZE BY WEIGHT	INTERMEDIATE ROCK DIMENSION (INCHES)	D_{50} (INCHES)
70–100	15	
50–70	12	
35–50	9	
2–10	3	9

NOTES:
1. FILTER FABRIC SHALL BE INSTALLED UNDER RIPRAP, INCLUDING PERIMETER TOE-IN.
2. TOE-IN RIPRAP ALONG PERIMETER A MINIMUM DEPTH OF 36".

REGISTERED PROFESSIONAL ENGINEER SHANNON N. HANKS 21141 OKLAHOMA

BEFORE YOU DIG 811 CALL OKIE

0 10' 20' 40'

RCB GRADING PLAN

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

REVISION	BY	DATE
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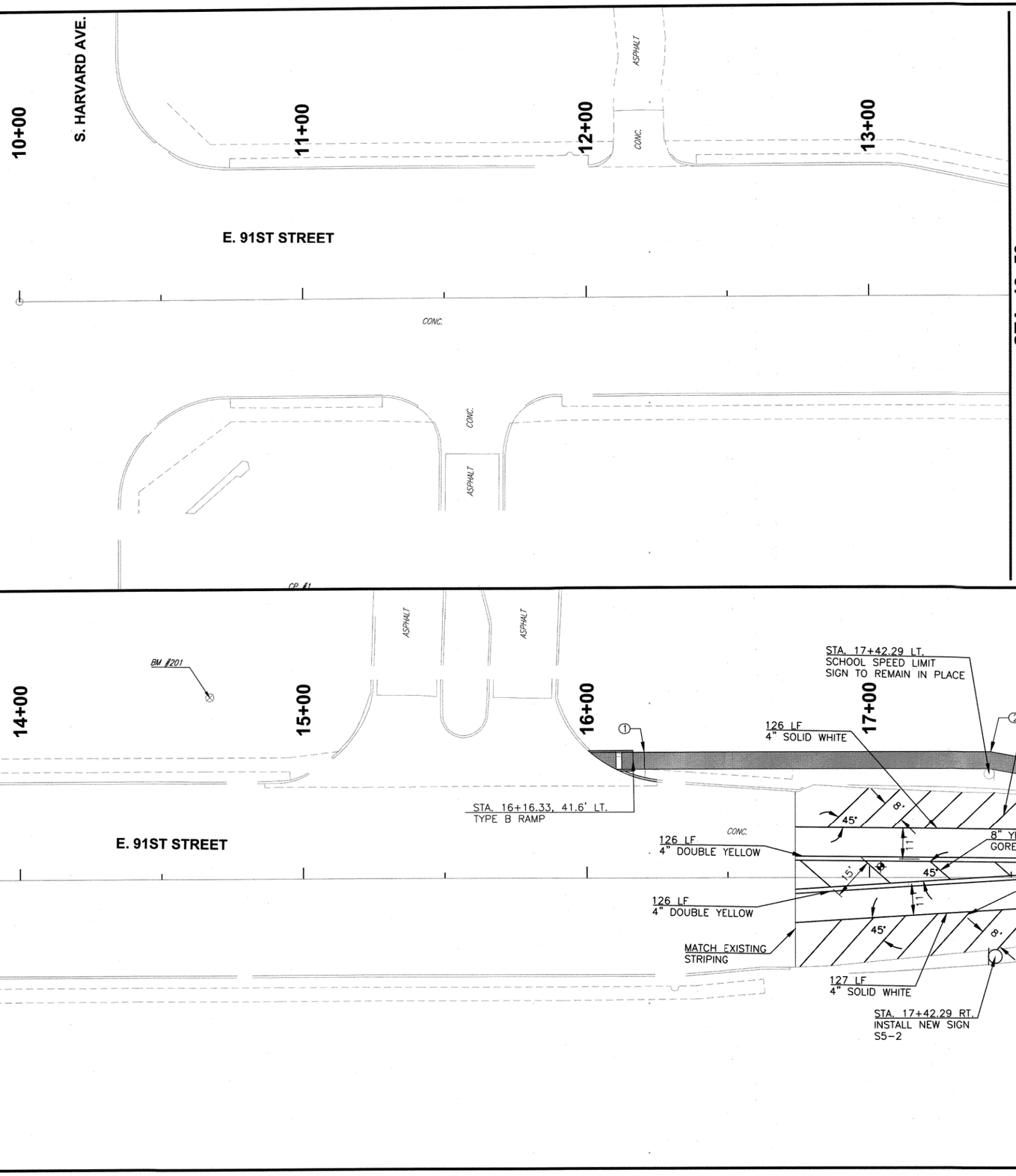
PLAN SCALE:	DRAWN	T.C.B.	01/2025
1" = 20'	DESIGNED	S.N.H.	01/2025
	SURVEY	B.B.	10/2017
PROFILE SCALES:	PROJ. MGR.	JH	1/25
HORIZONTAL: N\A	LEAD ENGR.	BDC	2/25
	FIELD MGR.		2/25
VERTICAL N\A	RECOMMENDED: DESIGN MANAGER		

APPROVED:
CITY ENGINEER
DATE 6/13/2025

DRAWING: GRADING PLAN RCB.DWG
ATLAS PAGE NO: 1006,1137

SHEET 68 OF 89



COORDINATE TABLE		
POINT NO.	NORTHING	EASTING
1	382142.6558	2578172.8538
2	382144.9798	2578295.3648

0 10' 20' 40'

SHANNON N. HANKS 21141 REGISTERED PROFESSIONAL ENGINEER STATE OF OKLAHOMA 1-31-25

BEFORE YOU DIG OKLAHOMA CALL OKIE

SIGNING, STRIPING, & SIDEWALK (1 OF 6)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

REVISION	BY	DATE
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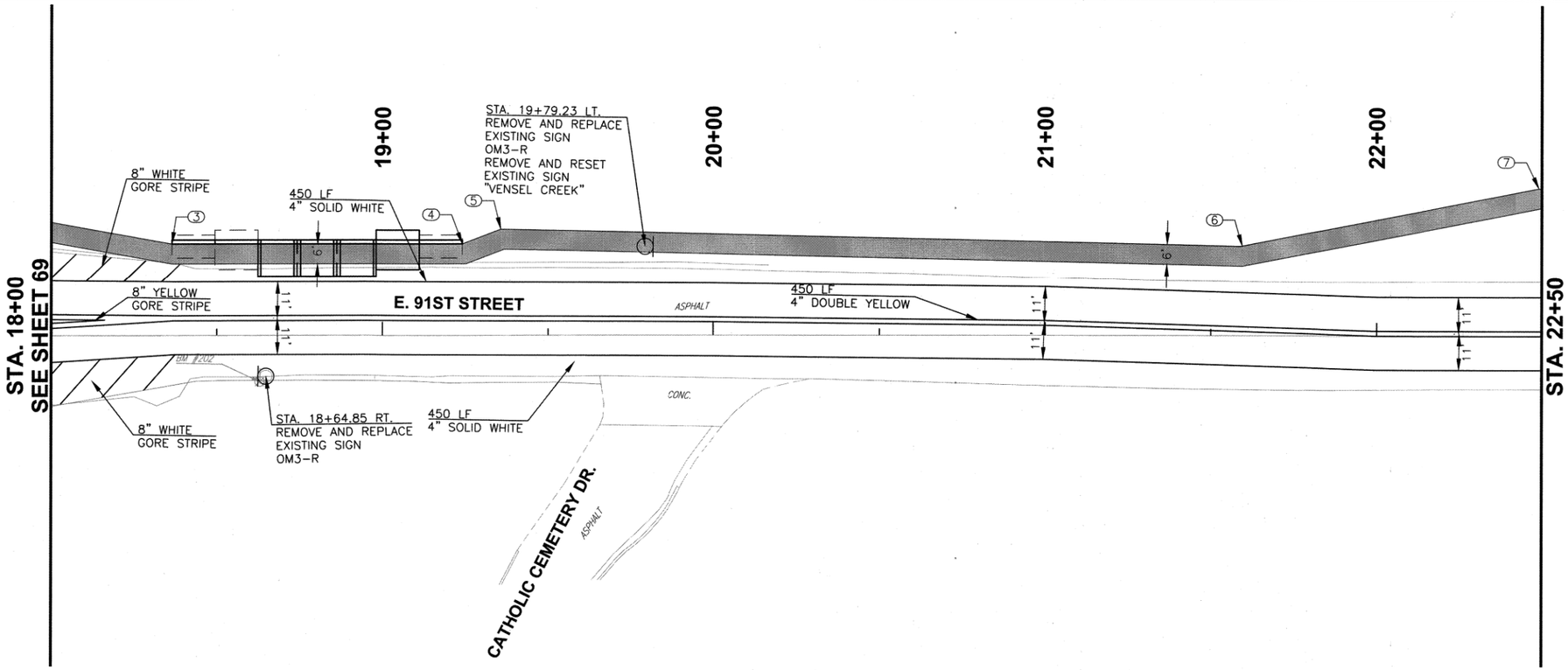
PLAN SCALE: 1" = 20'	DRAWN	T.C.B.	01/2025
	DESIGNED	S.N.H.	01/2025
	SURVEY	B.B.	10/2017
PROFILE SCALES:	PROJ. MGR.	JH	1/25
HORIZONTAL: N/A	LEAD ENGR.	MHS	2/25
	FIELD MGR.	Jean	2/25
VERTICAL N/A	RECOMMENDED: DESIGN MANAGER	HBS	2-25
DRAWING: SIGNING, STRIPING, & SIDEWALK (6 OF 6)			
ATLAS PAGE NO: 1006,1137			

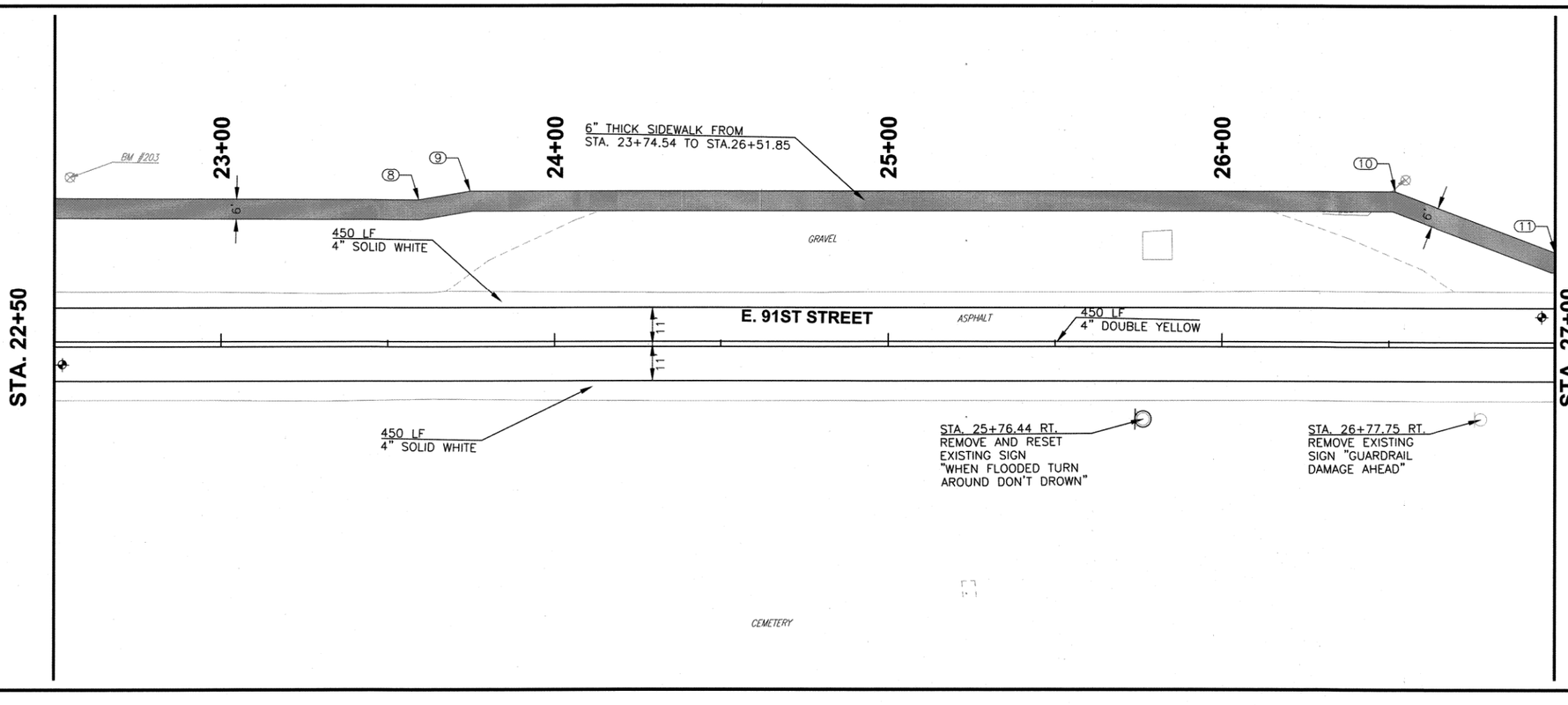
APPROVED:

CITY ENGINEER

DATE 6/13/2025

SHEET 69 OF 89





COORDINATE TABLE		
POINT NO.	NORTHING	EASTING
3	382129.7985	2578389.1922
4	382131.4297	2578476.8437
5	382136.1198	2578488.3480
6	382135.2265	2578712.2255
7	382154.5916	2578801.5902
8	382156.1938	2578911.5674
9	382159.0788	2578926.8966
10	382164.2384	2579204.1568
11	382146.7685	2579252.7808

0 10' 20' 40'

REGISTERED PROFESSIONAL ENGINEER SHANNON N. HANKS 21141 OKLAHOMA 1-13-25

BEFORE YOU DIG CALL OKIE 811

SIGNING, STRIPING, & SIDEWALK (2 OF 6)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

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PLAN SCALE: 1" = 20'

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

DRAWN	T.C.B.	01/2025
DESIGNED	S.N.H.	01/2025
SURVEY	B.B.	10/2017
PROJ. MGR.	JH	1/25
LEAD ENGR.	MVS	2/25
FIELD MGR.	JH	2/25
RECOMMENDED DESIGN MANAGER	HAS	2-25

APPROVED:

CITY ENGINEER

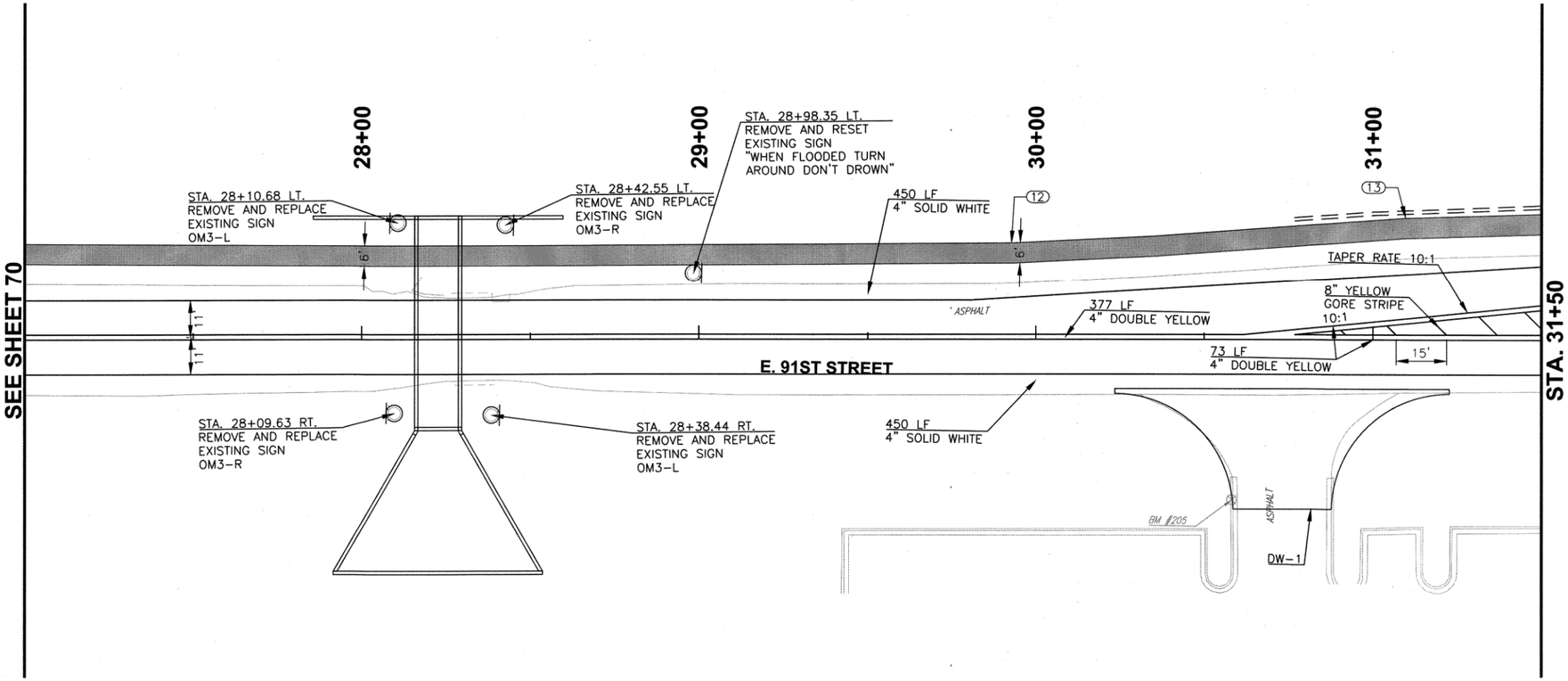
DRAWING: SIGNING, STRIPING, & SIDEWALK (6 OF 6)

DATE 6/13/2025

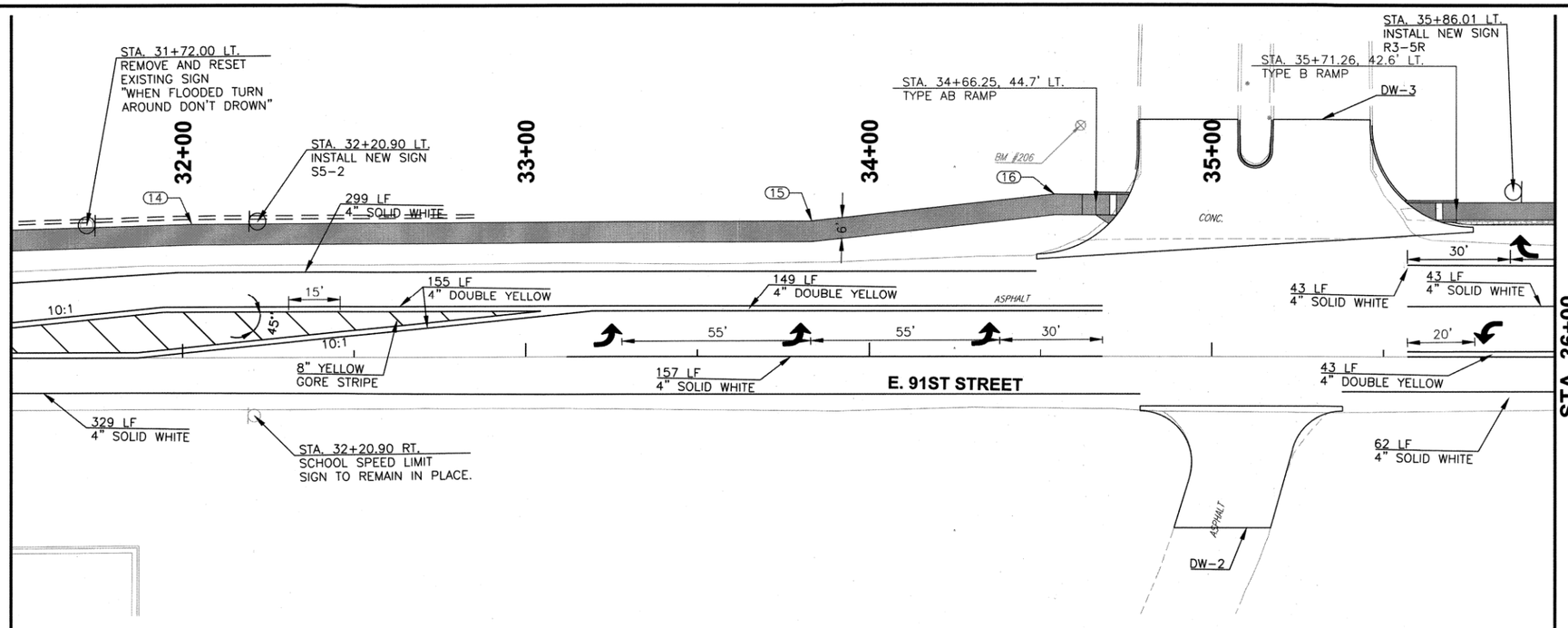
ATLAS PAGE NO: 1006,1137

SHEET 70 OF 89

PLOT DATE: January 13, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\SIGNING, STRIPING, & SIDEWALK (6 OF 6).DWG



COORDINATE TABLE		
POINT NO.	NORTHING	EASTING
12	382152.3886	2579545.2360
13	382162.1067	2579662.1330
14	382166.5223	2579755.0021
15	382170.4537	2579935.6224
16	382179.6131	2580006.2833



0 10' 20' 40'

REGISTERED PROFESSIONAL ENGINEER
SHANNON N. HANKS
21141
OKLAHOMA
1-24-25

BEFORE YOU DIG
811
CALL OKIE

SIGNING, STRIPING, & SIDEWALK (3 OF 6)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

REVISION	BY	DATE
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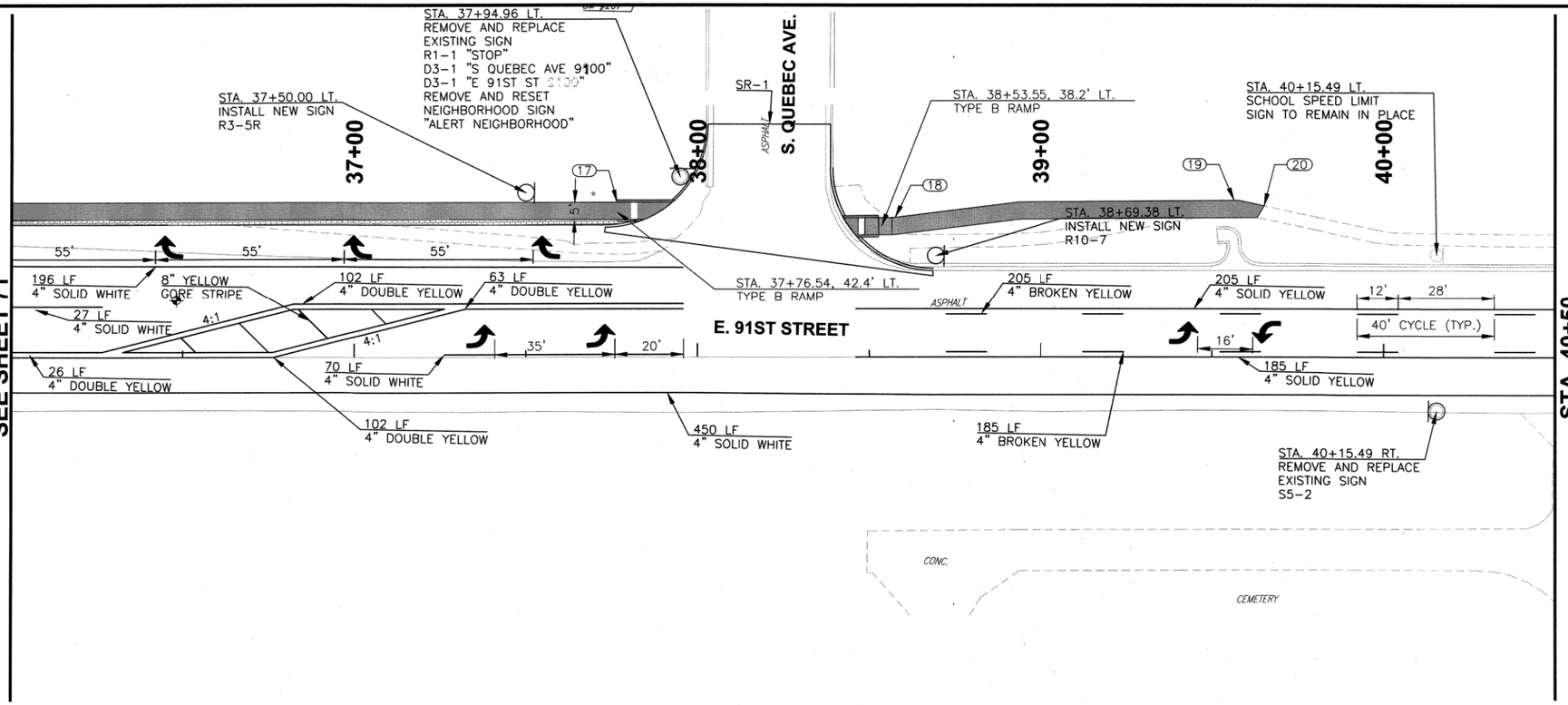
PLAN SCALE: 1" = 20'	DRAWN	T.C.B.	01/2025
	DESIGNED	S.N.H.	01/2025
	SURVEY	B.B.	10/2017
PROFILE SCALES:	PROJ. MGR.	JH	1/25
HORIZONTAL: N/A	LEAD ENGR.	MKB	2/25
	FIELD MGR.	BB	2/25
VERTICAL N/A	RECOMMENDED: DESIGN MANAGER	HAS	2-25

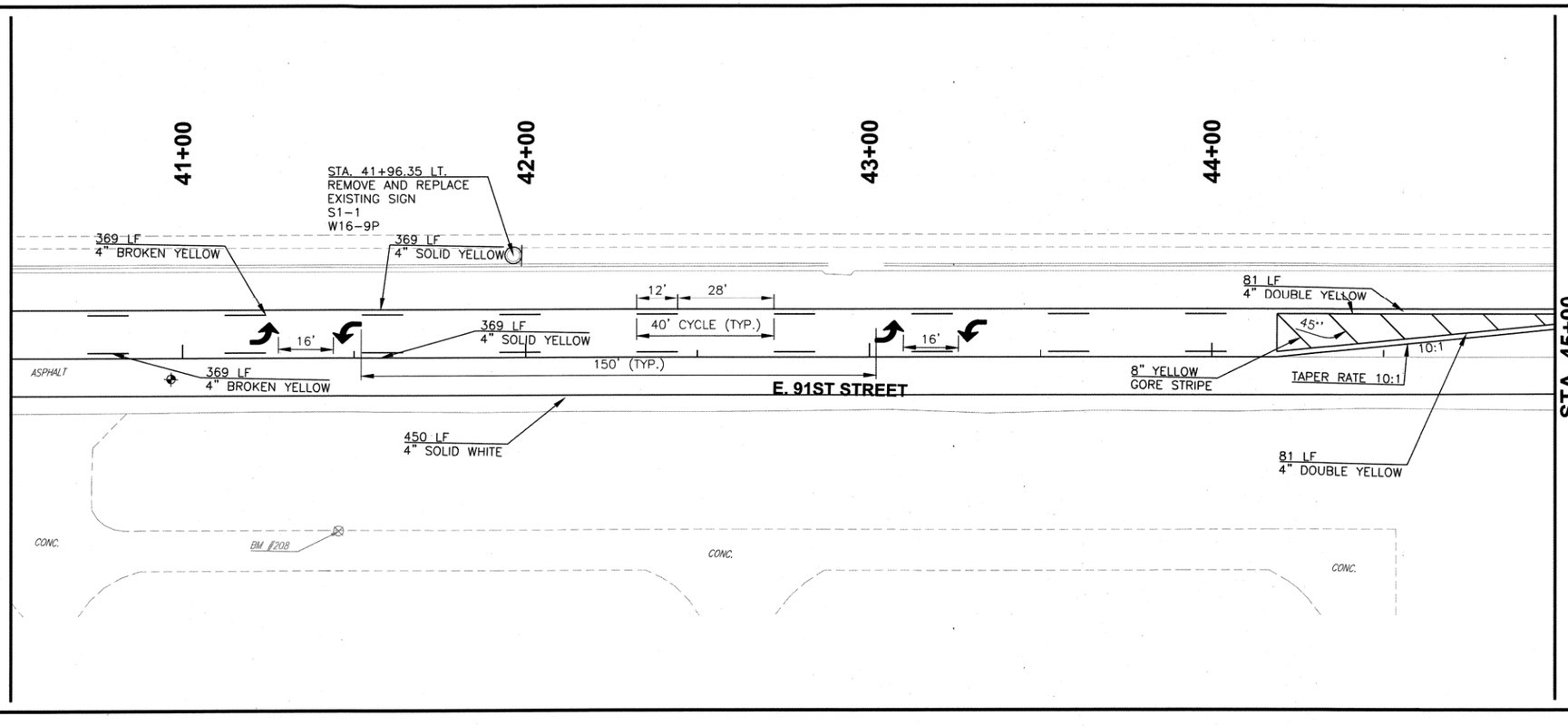
APPROVED:
CITY ENGINEER
DATE 6/13/2025

DRAWING: SIGNING, STRIPING, & SIDEWALK (6 OF 6)
ATLAS PAGE NO: 1006,1137
SHEET 71 OF 89

PLOT DATE: January 13, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\SIGNING, STRIPING, & SIDEWALK (6 OF 6).DWG



COORDINATE TABLE		
POINT NO.	NORTHING	EASTING
17	382183.7546	2580328.5445
18	382181.0537	2580409.6053
19	382188.2685	2580508.3687
20	382186.7726	2580517.2106



0 10' 20' 40'

REGISTERED PROFESSIONAL ENGINEER
SHANNON N. HANKS
21141
OKLAHOMA
6/13/25
shannon hanks

BEFORE YOU DIG
811
CALL OKIE

SIGNING, STRIPING, & SIDEWALK (4 OF 6)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

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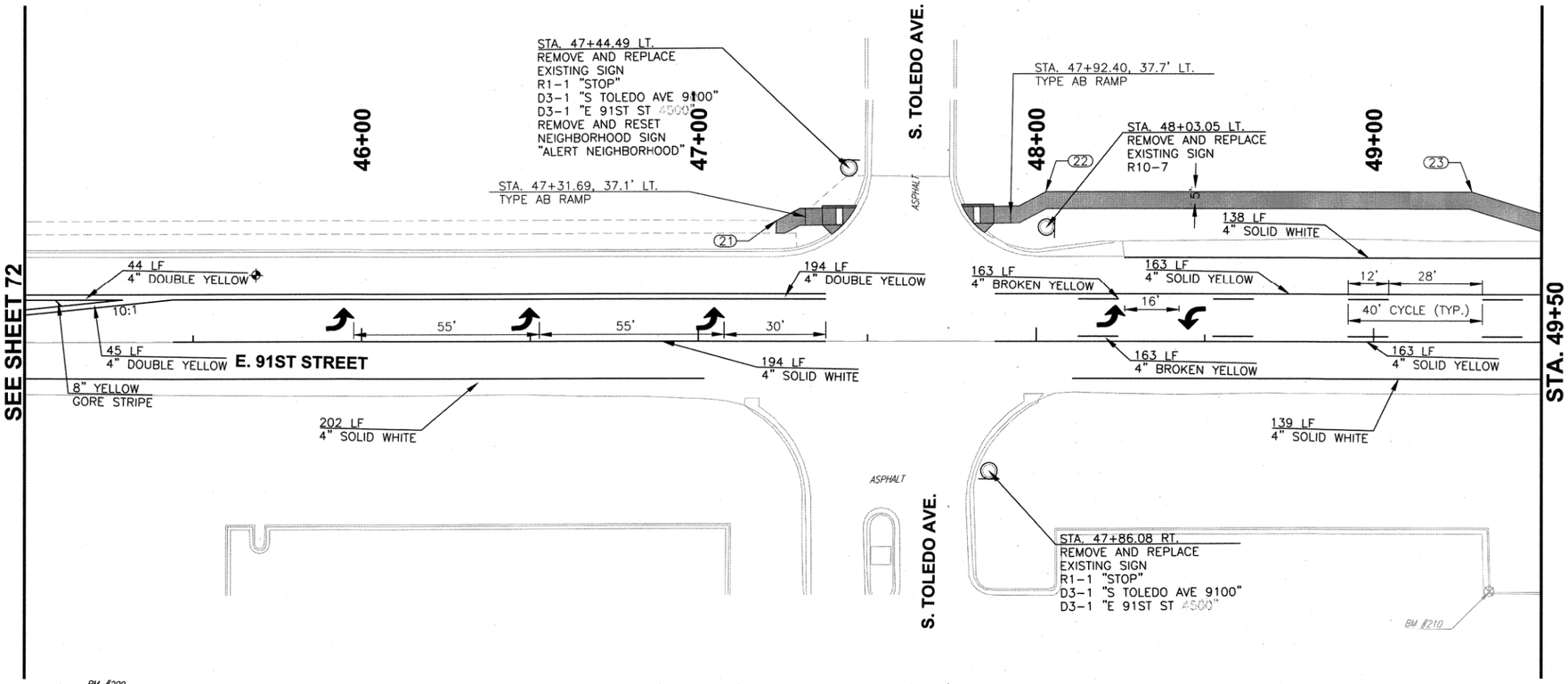
PLAN SCALE: 1" = 20'	DRAWN	T.C.B.	01/2025
	DESIGNED	S.N.H.	01/2025
	SURVEY	B.B.	10/2017
PROFILE SCALES:	PROJ. MGR.	JH	1/25
HORIZONTAL: N/A	LEAD ENGR.	MAS	2/25
	FIELD MGR.	TCB	2/25
VERTICAL N/A	RECOMMENDED DESIGN MANAGER	HAS	2-25

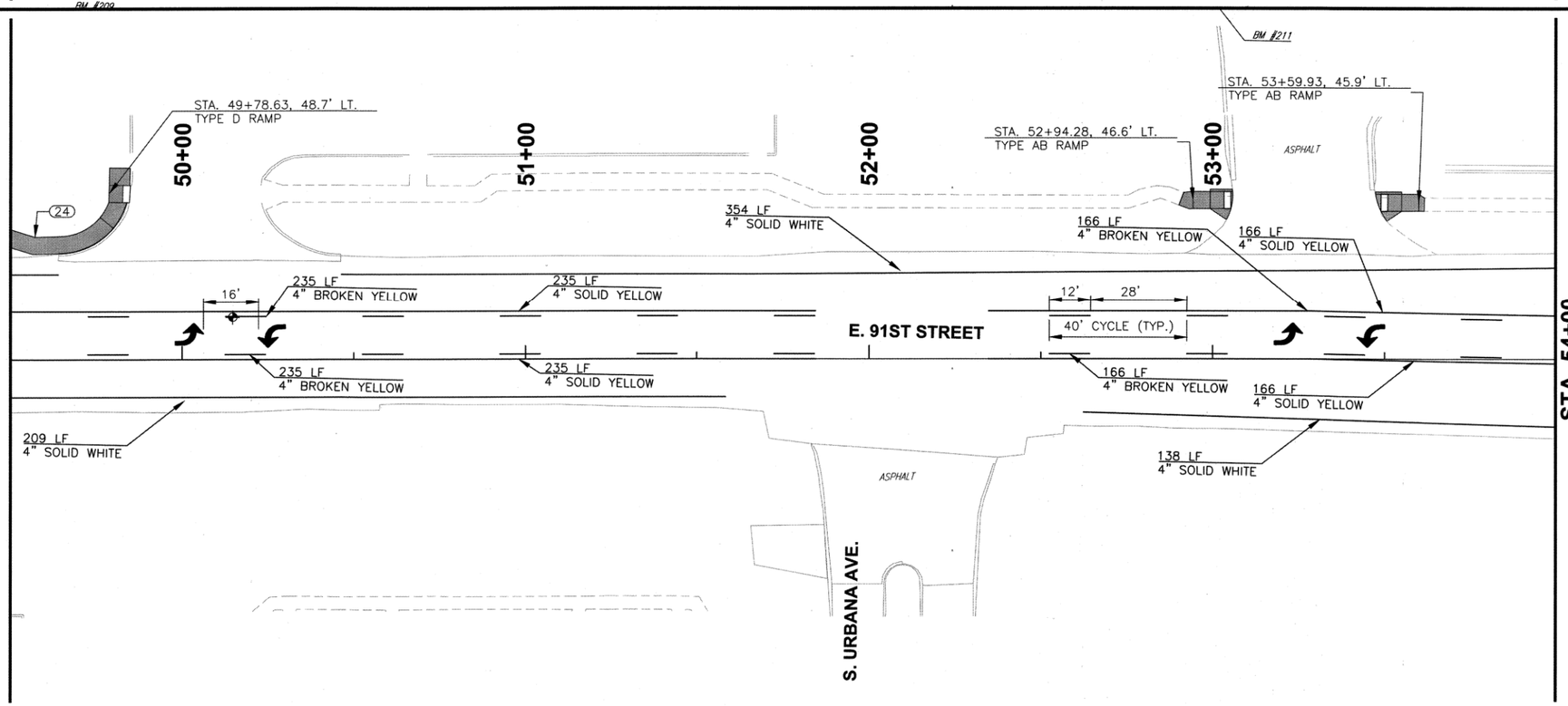
APPROVED:
CITY ENGINEER

DRAWING: SIGNING, STRIPING, & SIDEWALK (6 OF 6)
DATE 6/13/2025
ATLAS PAGE NO: 1006,1137
SHEET 72 OF 89

PLOT DATE: January 13, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\SIGNING, STRIPING, & SIDEWALK (6 OF 6).DWG



COORDINATE TABLE		
POINT NO.	NORTHING	EASTING
21	382194.6905	2581275.0095
22	382204.9806	2581354.6046
23	382207.8449	2581481.1079
24	382199.8618	2581509.0449



0 10' 20' 40'

REGISTERED PROFESSIONAL ENGINEER
SHANNON N. HANKS
21141
OKLAHOMA
1-6-25

BEFORE YOU DIG
811
CALL OKIE

SIGNING, STRIPING, & SIDEWALK (5 OF 6)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)
CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC 1300 S. Main Street Tulsa, OK 74119 (918) 663-9401
CEC Corporation

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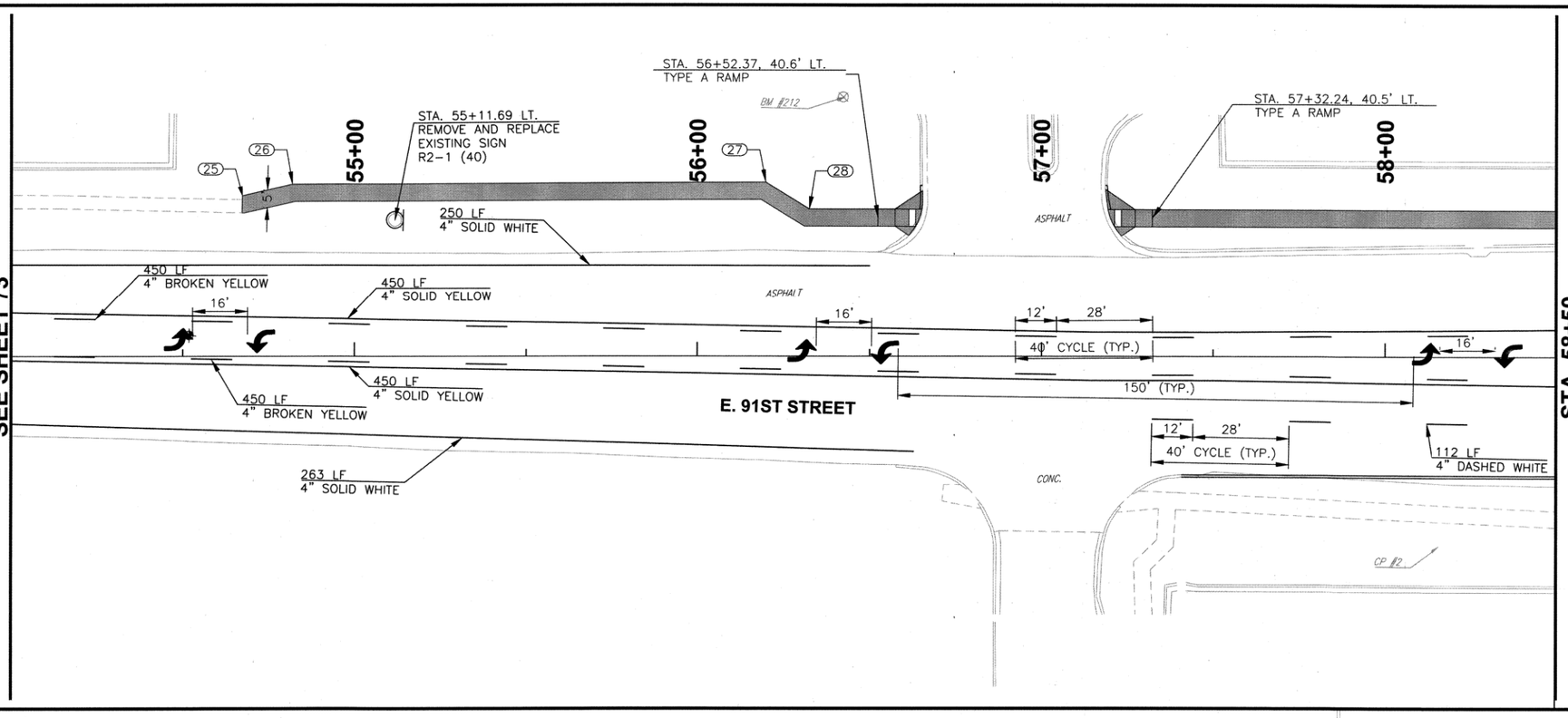
PLAN SCALE: 1" = 20'
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A

DRAWN	T.C.B.	01/2025
DESIGNED	S.N.H.	01/2025
SURVEY	B.B.	10/2017
PROJ. MGR.	JH	1/25
LEAD ENGR.	MHS	2/25
FIELD MGR.	Dan	2/25
RECOMMENDED DESIGN MANAGER	HM	2.25

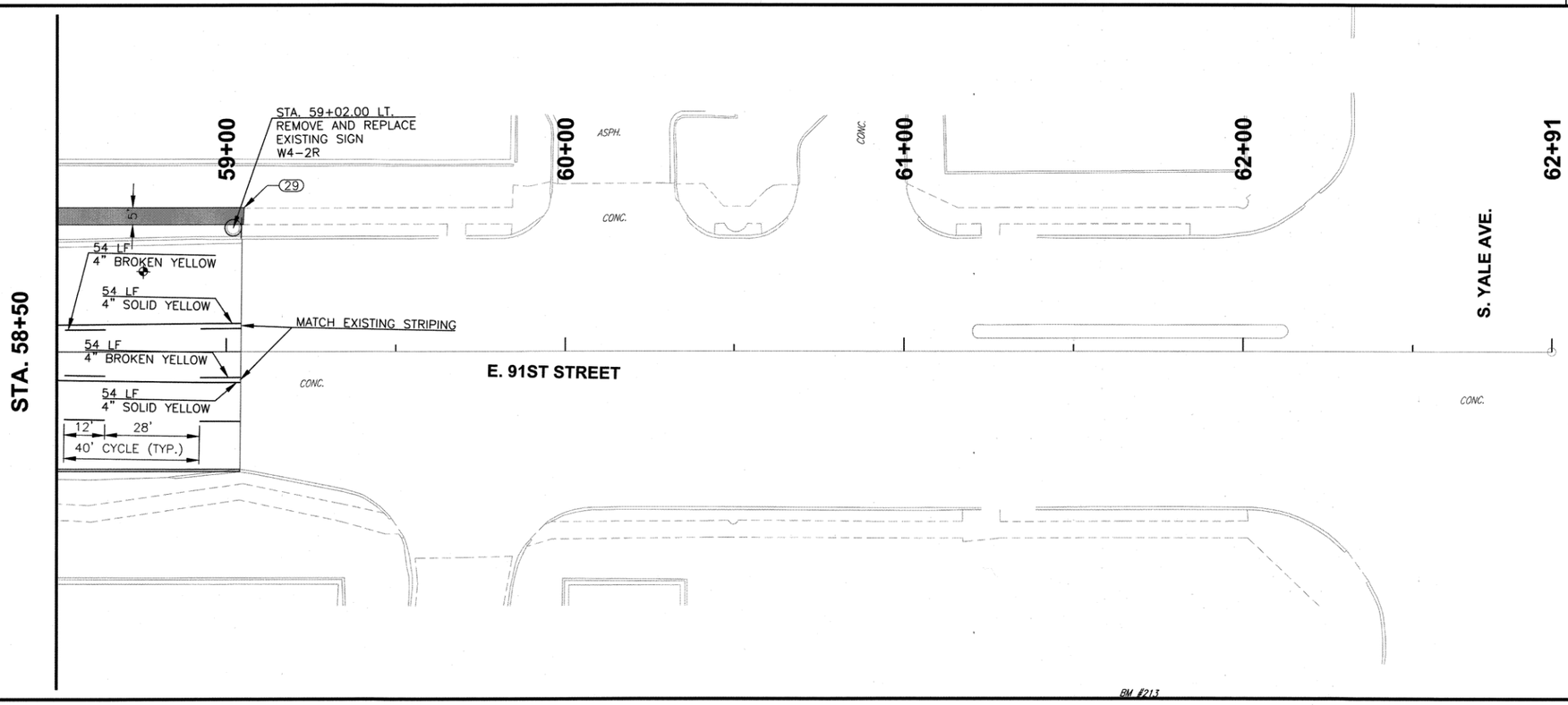
APPROVED: CITY ENGINEER

DRAWING: SIGNING, STRIPING, & SIDEWALK (6 OF 6)
DATE 6/13/2025
ATLAS PAGE NO: 1006,1137
SHEET 73 OF 89

PLOT DATE: January 13, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\SIGNING, STRIPING, & SIDEWALK (6 OF 6).DWG



COORDINATE TABLE		
POINT NO.	NORTHING	EASTING
21	382194.6905	2581275.0095
22	382204.9806	2581354.6046
23	382207.8449	2581481.1079
24	382199.8618	2581509.0449
25	382221.8019	2582018.8761



0 10' 20' 40'

REGISTERED PROFESSIONAL ENGINEER
SHANNON N. HANKS
21141
OKLAHOMA
1/25

BEFORE YOU DIG
811
CALL OKIE

SIGNING, STRIPING, & SIDEWALK (6 OF 6)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

REVISION	BY	DATE
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PLAN SCALE: 1" = 20'	DRAWN	T.C.B.	01/2025
	DESIGNED	S.N.H.	01/2025
	SURVEY	B.B.	10/2017
PROFILE SCALES:	PROJ. MGR.	JH	1/25
HORIZONTAL: N/A	LEAD ENGR.	SNH	2/25
	FIELD MGR.	TCB	2/25
VERTICAL N/A	RECOMMENDED: DESIGN MANAGER	SNH	2-25

APPROVED: CITY ENGINEER

DRAWING: SIGNING, STRIPING, & SIDEWALK (6 OF 6) DATE

ATLAS PAGE NO: 1006,1137 SHEET 74 OF 89

PLOT DATE: January 13, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\SIGNING, STRIPING, & SIDEWALK (6 OF 6).DWG

10+00 15+00 20+00 25+00 30+00 35+00 40+00 45+00 50+00 55+00 60+00 62+91

PI 36+45.73

S. HARVARD AVE. | CATHOLIC CEMETARY | S. QUEBEC AVE. | S. TOLEDO AVE. | S. URBANA AVE. | S. YALE AVE.

PHASE 1B | PHASE 1 | PHASE 4 | PHASE 1B

PHASE 3 | PHASE 2 | PHASE 3

PHASE 1A – RELOCATE WATERLINES AND CONSTRUCT VENSEL CREEK RCB EXTENSION. SHIFT 2–WAY TRAFFIC TO THE SOUTH SIDE OF THE EXISTING PAVEMENT. 36" WATERLINE RELOCATION MUST BE PERFORMED BETWEEN 10/1 AND 5/1 .

PHASE 1B – STA. 16+71.59 TO STA. 26+45.88 AND STA. 31+75 TO STA. 59+04.39 SHIFT 2–WAY TRAFFIC TO SOUTH SIDE OF EXISTING PAVEMENT. CONSTRUCT NORTH PORTION OF ROADWAY.

PHASE 2 – STA 16+71.59 TO STA. 26+45.88 SHIFT WESTOUND TRAFFIC TO NEWLY REHABILITATED LANE. MAINTAIN EAST BOUND TRAFFIC ON SOUTH LANE OF THE ROADWAY. CONSTRUCT MILL, PATCH, AND OVERLAY ON CENTER OF ROADWAY.

PHASE 3 – STA. 16+71.59 TO STA. 26+45.88 AND STA. 31+75 TO STA. 59+04.39 SHIFT 2–WAY TRAFFIC TO NORTH SIDE OF NEWLY CONSTRUCTED PAVEMENT. CONSTRUCT SOUTH PORTION OF ROADWAY.

PHASE 4 – CLOSE ROADWAY BETWEEN STA. 26+45.88 TO STA. 31+75.00 FOR REMOVAL OF BRIDGE STRUCTURE, CONSTRUCTION OF RCB AND TO RAISE PROFILE GRADE. LOCAL ACCESS TO BUSINESS PARK TO BE PROVIDED AT ALL TIMES. ROADWAY CLOSURE MUST BE PREFORMED DURING THE SUMMER BREAK FOR JENKS EAST ELEMENTARY AND JENKS EAST INTERMEDIATE SCHOOLS.

0 100' 200' 400'

REGISTERED PROFESSIONAL ENGINEER SHANNON N. HANKS 21141 OKLAHOMA 5-30-25

BEFORE YOU DIG OKLAHOMA 811 CALL OKIE

CONSTRUCTION SEQUENCING

PROJECT NO. 144213
TMUA–W 22–90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
(918) 663–9401

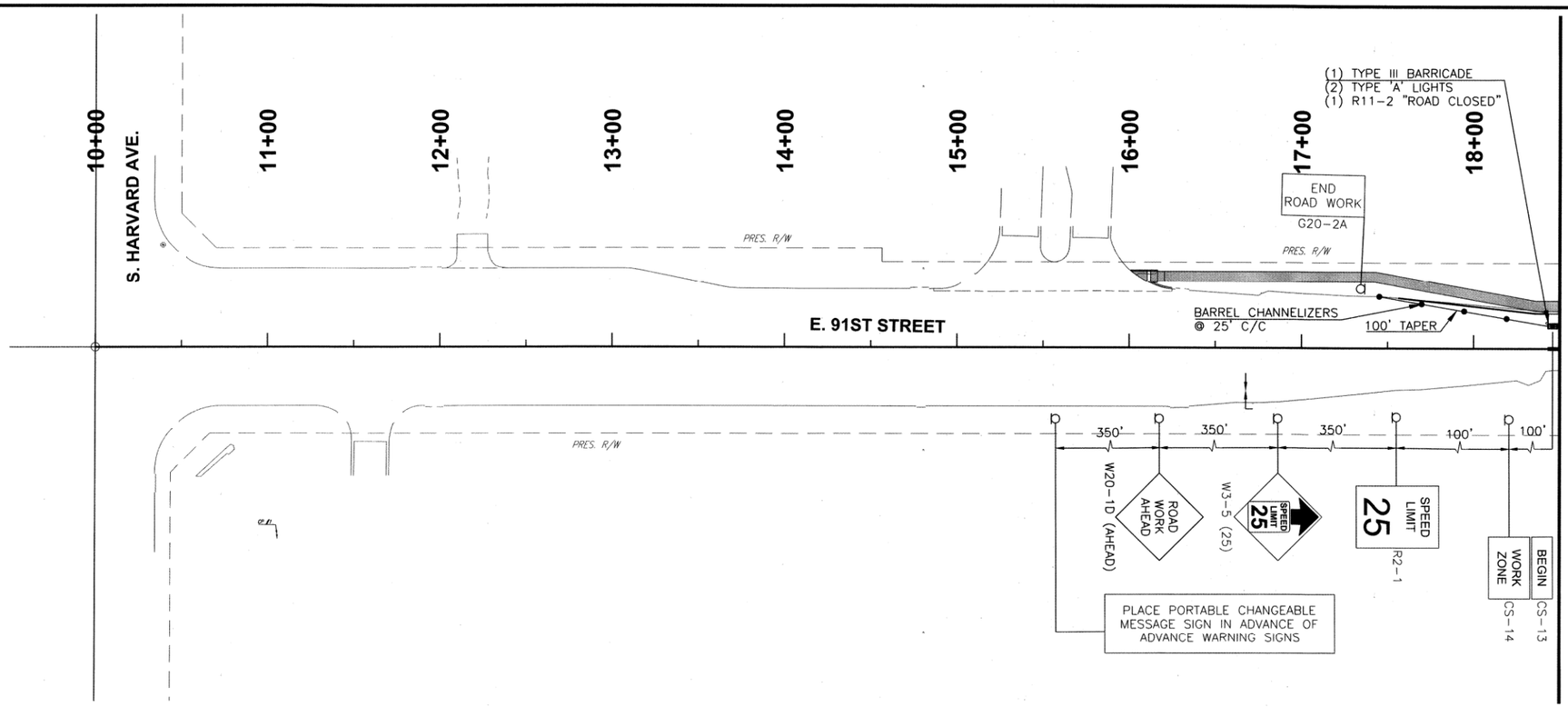
REVISION	BY	DATE

PLAN SCALE: 1" = 200'
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A

DRAWN	T.C.B.	01/2025
DESIGNED	S.N.H.	01/2025
SURVEY	B.B.	10/2017
PROJ. MGR.		6/25
LEAD ENGR.		6/25
FIELD MGR.		
RECOMMENDED: DESIGN MANAGER		6-25

APPROVED: CITY ENGINEER

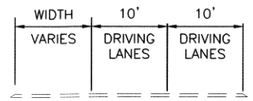
DRAWING: CONSTRUCTION SEQUENCING.DWG
DATE 6/13/2025
ATLAS PAGE NO: 1006,1137
SHEET 75 OF 89



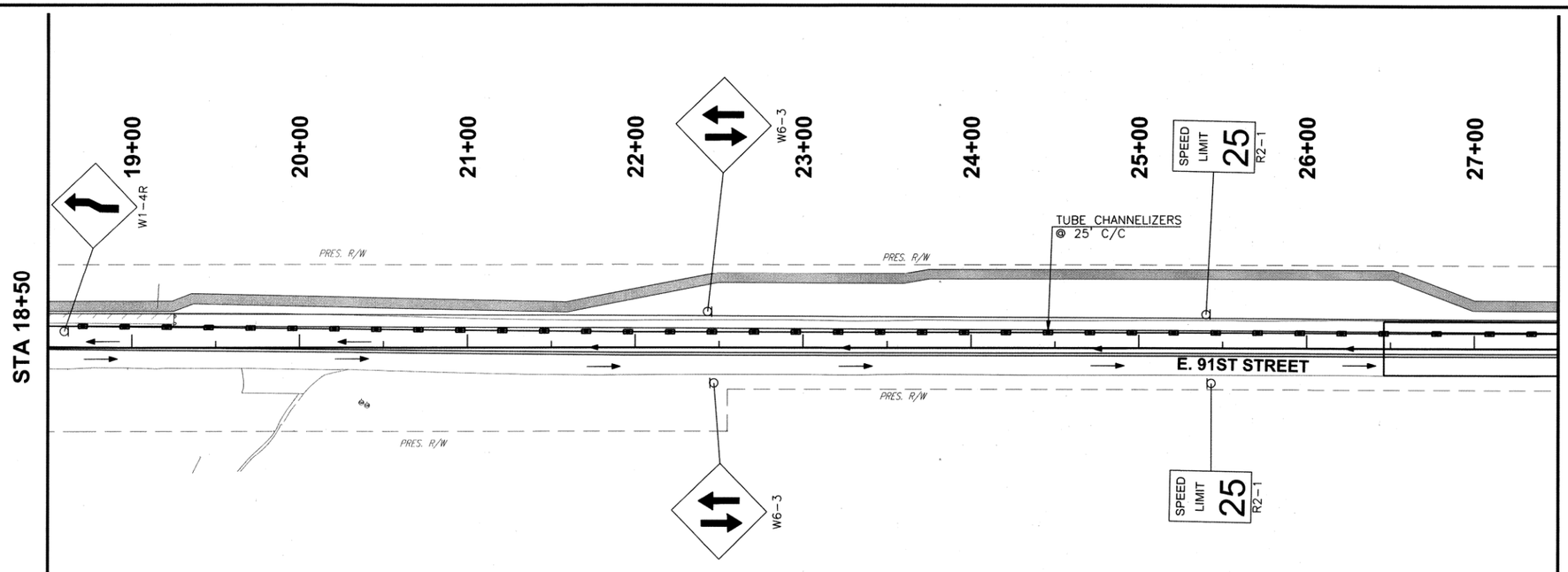
LEGEND

PHASE 1A CONSTRUCTION

36" WATERLINE RELOCATION MUST BE PERFORMED BETWEEN 10/1 AND 5/1.



PHASE 1A



STA 27+50
SEE SHEET 77

0 20' 40' 80'

REGISTERED PROFESSIONAL ENGINEER
SHANNON N. HANKS
21141
OKLAHOMA
6-13-25

BEFORE YOU DIG CALL OKIE

TRAFFIC CONTROL PHASE 1A (1 OF 2)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

REVISION	BY	DATE

PLAN SCALE: 1" = 40'

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

DRAWN	T.C.B.	01/2025
DESIGNED	S.N.H.	01/2025
SURVEY	B.B.	10/2017
PROJ. MGR.	HE	6/25
LEAD ENGR.	SNH	6/25
FIELD MGR.		
RECOMMENDED: DESIGN MANAGER	HAS	6-25

APPROVED: CITY ENGINEER

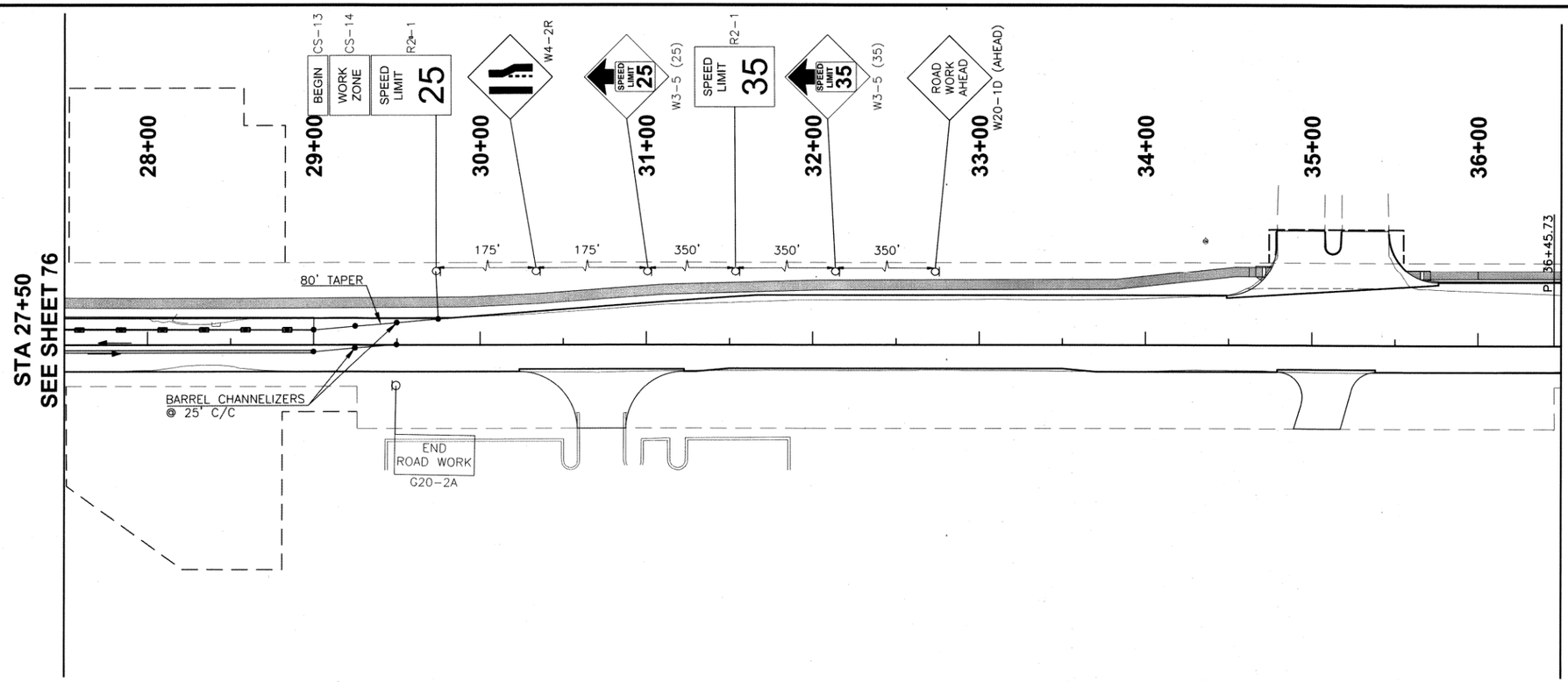
DRAWING: TRAFFIC CONTROL PHASE 1 (2 OF 2)

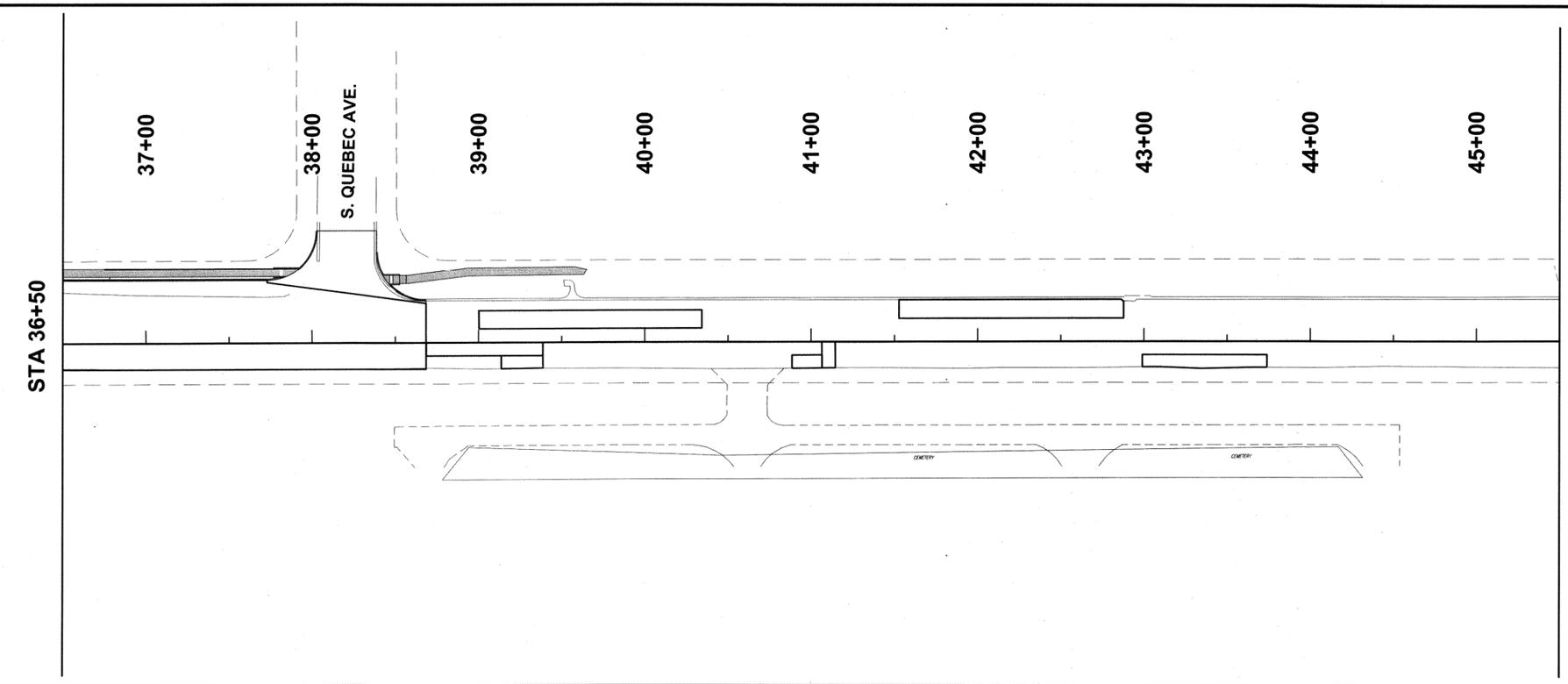
DATE 6/13/2025

ATLAS PAGE NO: 1006,1137

SHEET 76 OF 89

PLOT DATE: May 28, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\TRAFFIC CONTROL PHASE 1 (2 OF 2).DWG

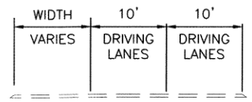




LEGEND

PHASE 1A CONSTRUCTION

36" WATERLINE RELOCATION MUST BE PERFORMED BETWEEN 10/1 AND 5/1.



PHASE 1A

0 20 40 80'

REGISTERED PROFESSIONAL ENGINEER SHANNON N. HANKS 21141 OKLAHOMA 6-25

BEFORE YOU DIG CALL OKIE 811

TRAFFIC CONTROL PHASE 1A (2 OF 2)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

REVISION	BY	DATE

PLAN SCALE: 1" = 40'

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

DRAWN	T.C.B.	01/2025
DESIGNED	S.N.H.	01/2025
SURVEY	B.B.	10/2017
PROJ. MGR.		6/25
LEAD ENGR.		6/25
FIELD MGR.		
RECOMMENDED: DESIGN MANAGER	HAS 6-25	

APPROVED: CITY ENGINEER

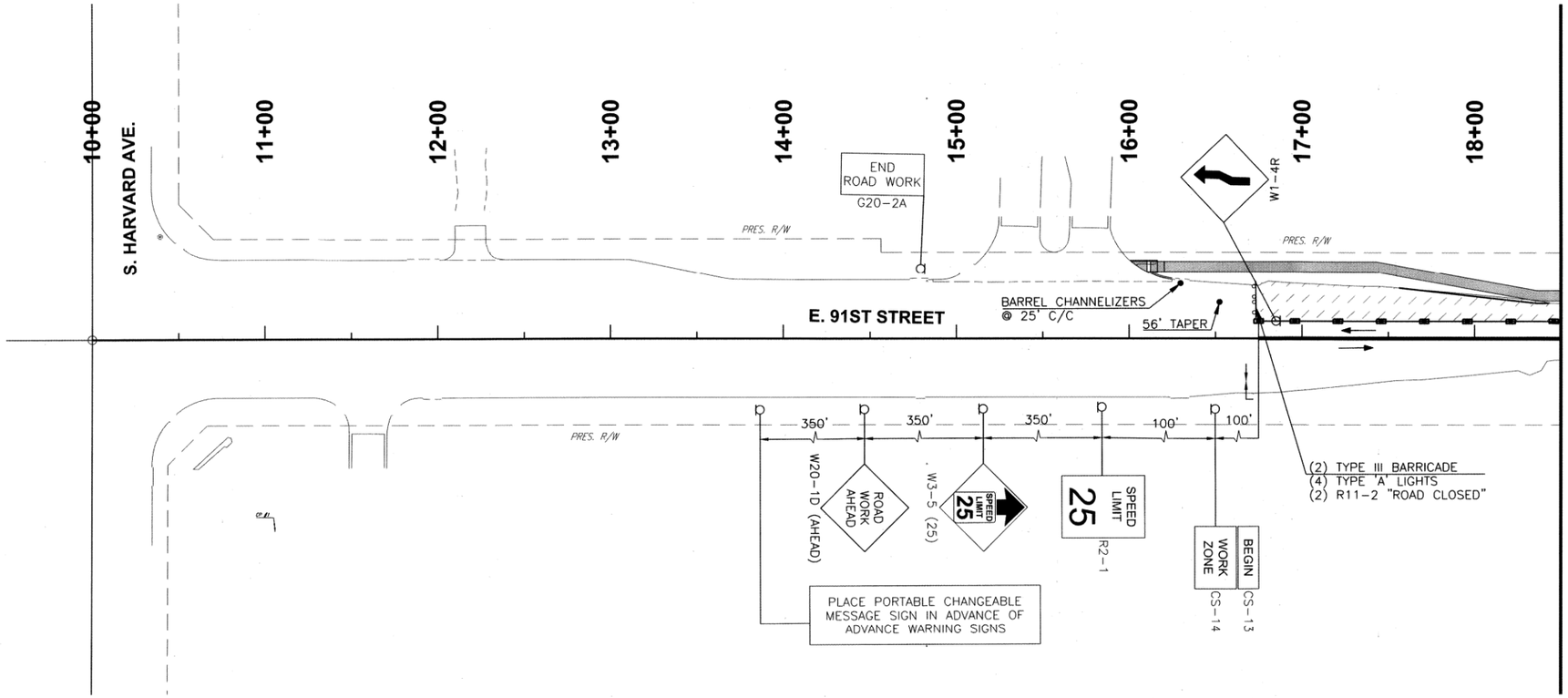
DRAWING: TRAFFIC CONTROL PHASE 1 (2 OF 2)

DATE 6/13/2025

ATLAS PAGE NO: 1006,1137

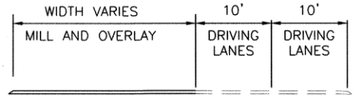
SHEET 77 OF 89

PLOT DATE: May 28, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\TRAFFIC CONTROL PHASE 1 (2 OF 2).DWG

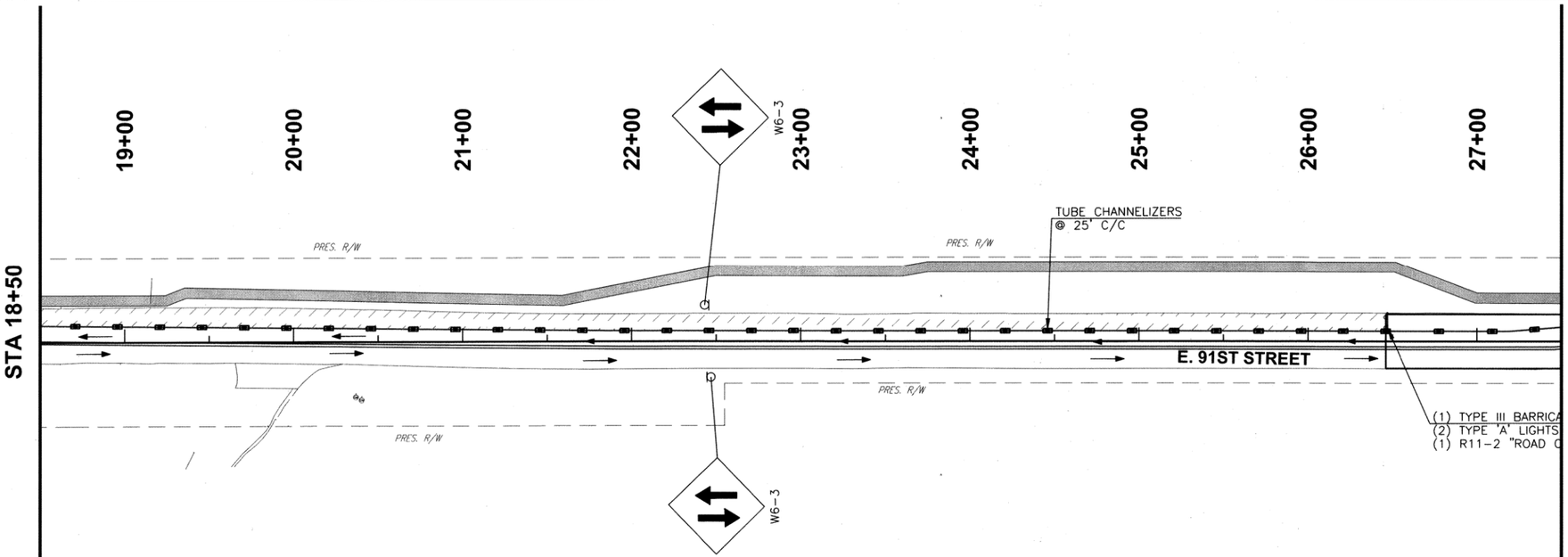


LEGEND

PHASE 1B CONSTRUCTION



PHASE 1B



STA 27+50
SEE SHEET 79

0 20' 40' 80'

REGISTERED PROFESSIONAL ENGINEER
SHANNON N. HANKS
21141
OKLAHOMA

BEFORE YOU DIG
811
CALL OKIE

TRAFFIC CONTROL PHASE 1B (1 OF 3)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

REVISION	BY	DATE

PLAN SCALE: 1" = 40'

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

DRAWN	T.C.B.	01/2025
DESIGNED	S.N.H.	01/2025
SURVEY	B.B.	10/2017
PROJ. MGR.		6/25
LEAD ENGR.		6/25
FIELD MGR.		
RECOMMENDED: DESIGN MANAGER	HAS	6-25

APPROVED:

CITY ENGINEER

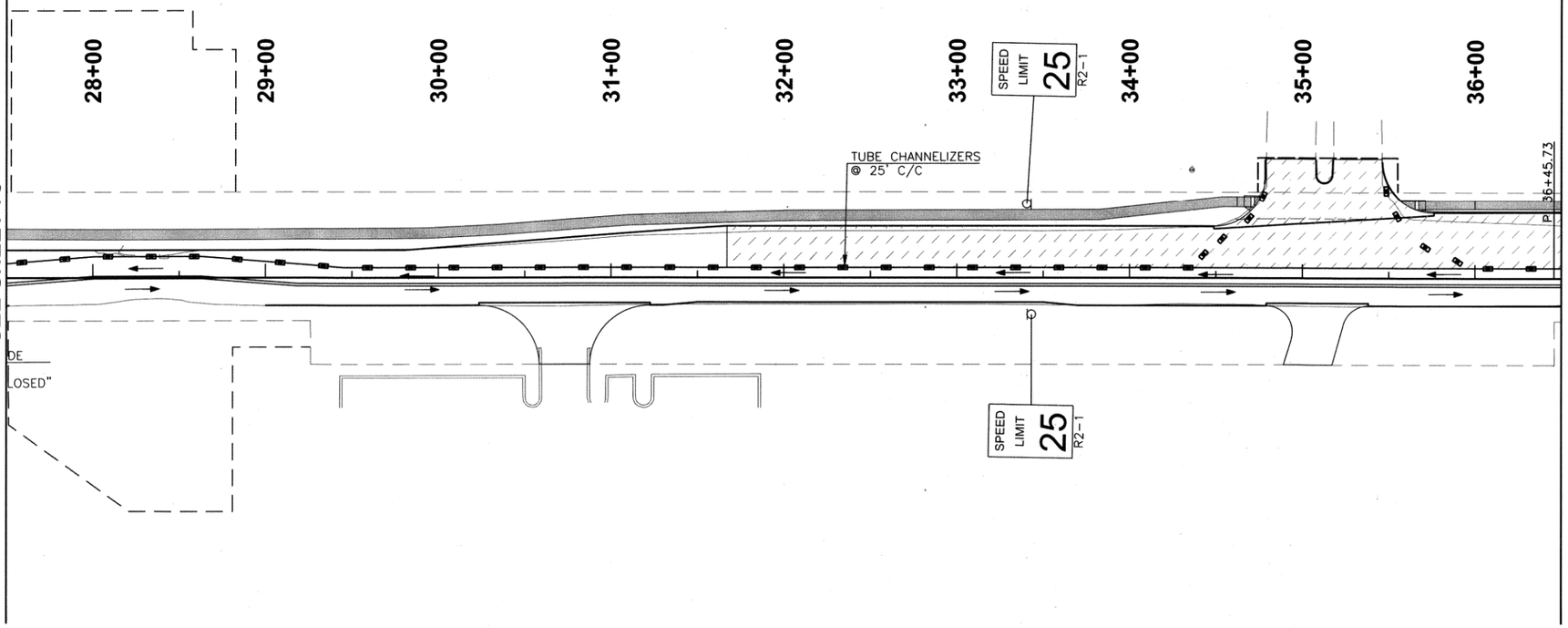
DRAWING: TRAFFIC CONTROL PHASE 1B (3 OF 3)

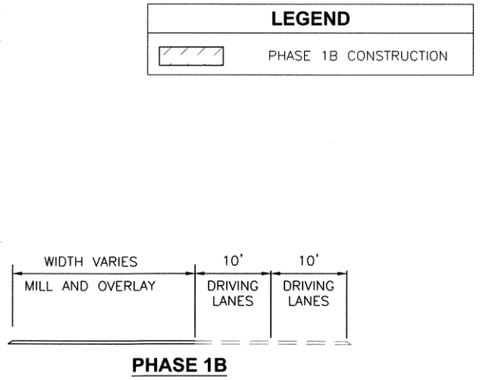
DATE 6/13/2025

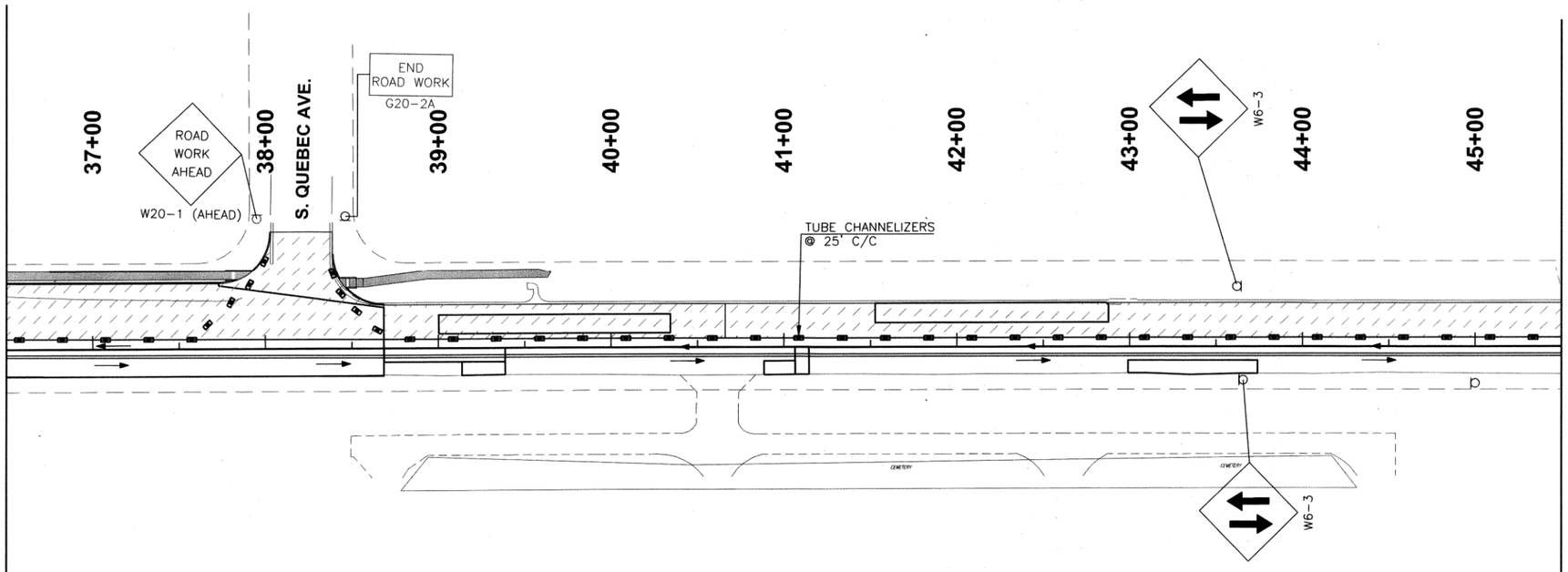
ATLAS PAGE NO: 1006,1137

SHEET 78 OF 89

PLOT DATE: May 28, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\TRAFFIC CONTROL PHASE 1B (3 OF 3).DWG







0 20 40 80'

REGISTERED PROFESSIONAL ENGINEER
SHANNON N. HANKS
21141
OKLAHOMA

BEFORE YOU DIG CALL OKIE

TRAFFIC CONTROL PHASE 1B (2 OF 3)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

REVISION	BY	DATE

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

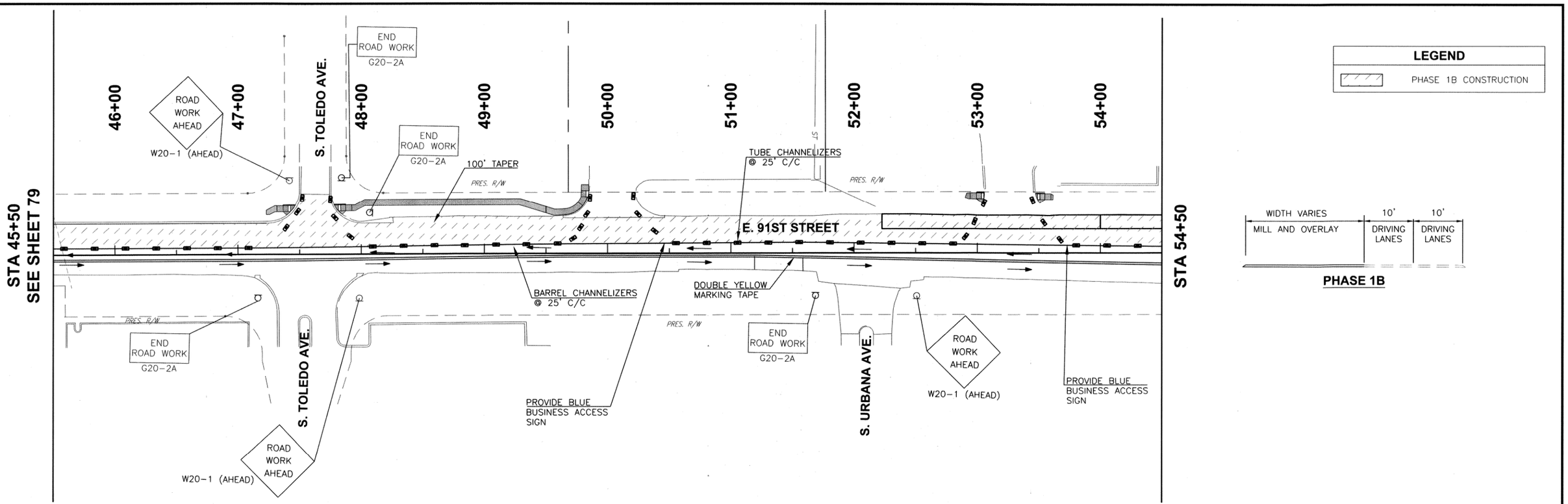
DRAWN	T.C.B.	01/2025
DESIGNED	S.N.H.	01/2025
SURVEY	B.B.	10/2017
PROJ. MGR.		6/25
LEAD ENGR.		6/25
FIELD MGR.		
RECOMMENDED: DESIGN MANAGER	HAS 6-25	

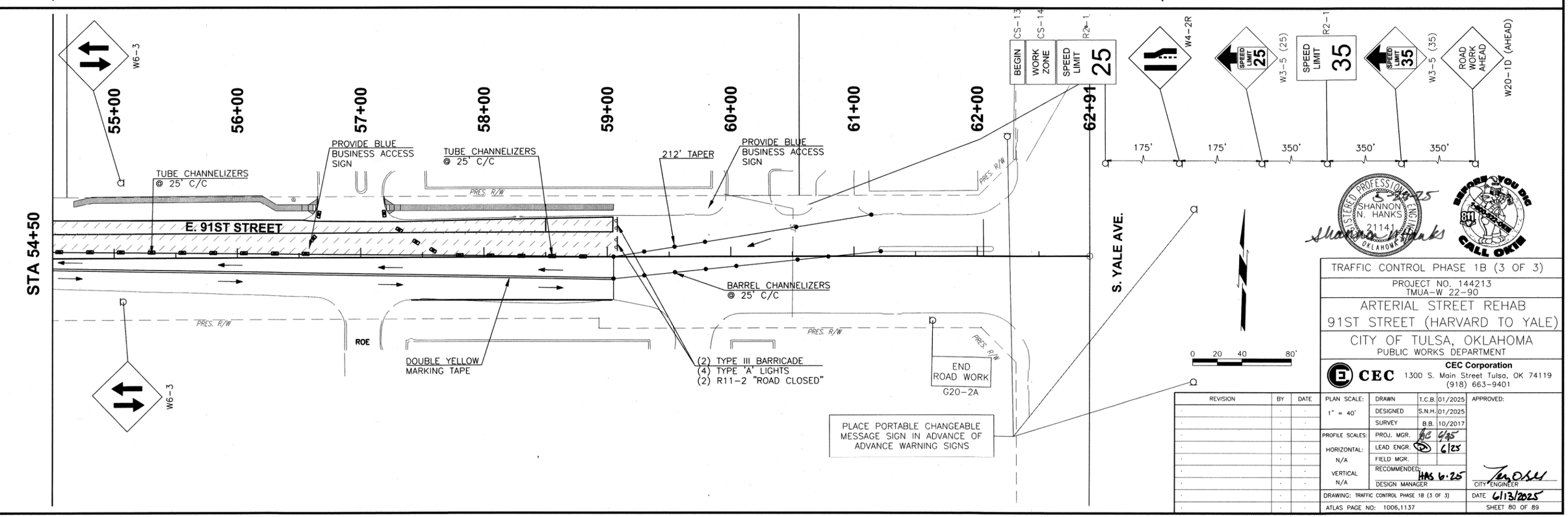
APPROVED: CITY ENGINEER

DRAWING: TRAFFIC CONTROL PHASE 1B (3 OF 3)
ATLAS PAGE NO: 1006,1137

DATE 6/13/2025
SHEET 79 OF 89

PLOT DATE: May 28, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\TRAFFIC CONTROL PHASE 1B (3 OF 3).DWG





PLOT DATE: May 28, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\TRAFFIC CONTROL PHASE 1B (3 OF 3).DWG

REGISTERED PROFESSIONAL ENGINEER SHANNON N. HANKS 21141 OKLAHOMA 6/25

BEFORE YOU DIG OKIE 811 CALL OKIE

TRAFFIC CONTROL PHASE 1B (3 OF 3)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

REVISION	BY	DATE

PLAN SCALE: 1" = 40'

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

DRAWN	T.C.B.	01/2025
DESIGNED	S.N.H.	01/2025
SURVEY	B.B.	10/2017
PROJ. MGR.	BC	6/25
LEAD ENGR.		6/25
FIELD MGR.		
RECOMMENDED: DESIGN MANAGER	HAS	6.25

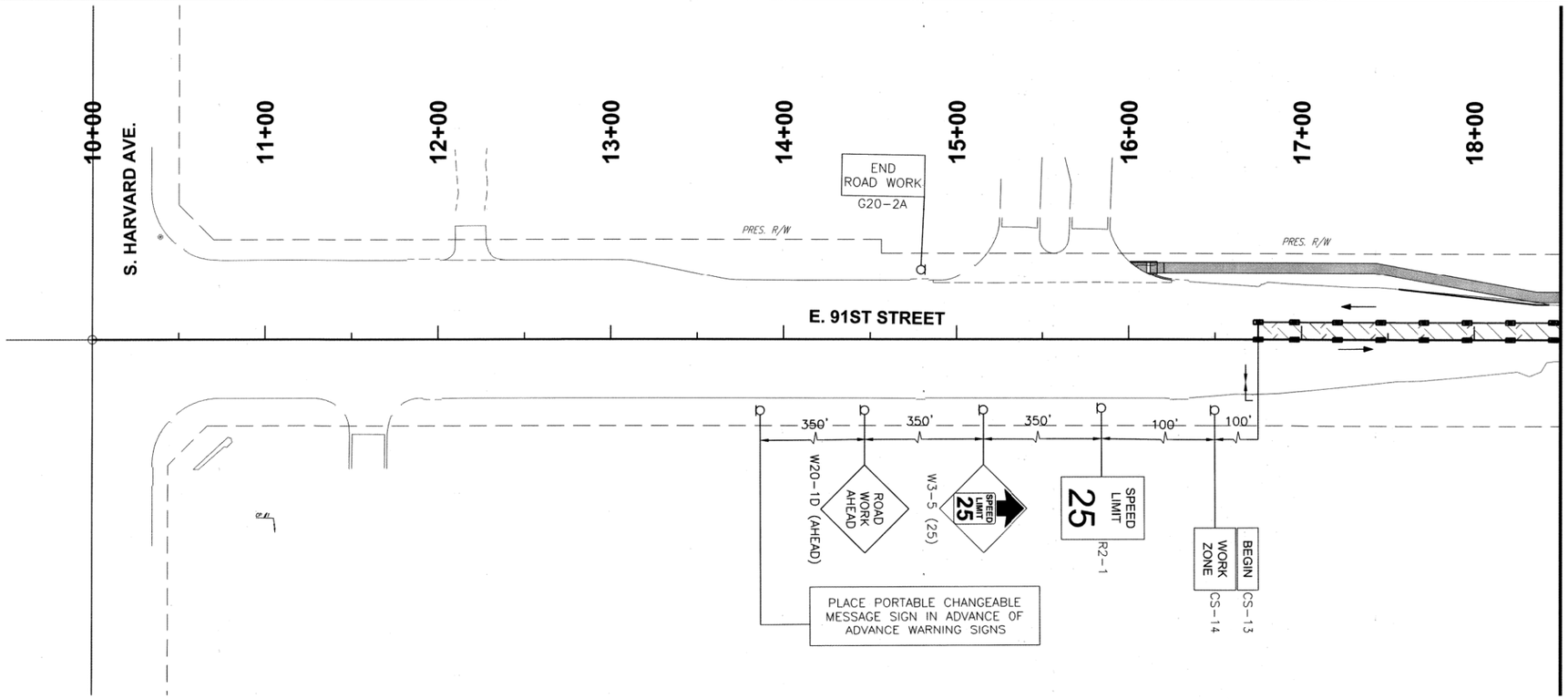
APPROVED: CITY ENGINEER

DRAWING: TRAFFIC CONTROL PHASE 1B (3 OF 3)

DATE 6/13/2025

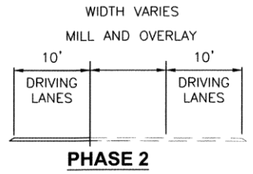
ATLAS PAGE NO: 1006,1137

SHEET 80 OF 89



LEGEND

PHASE 2 CONSTRUCTION



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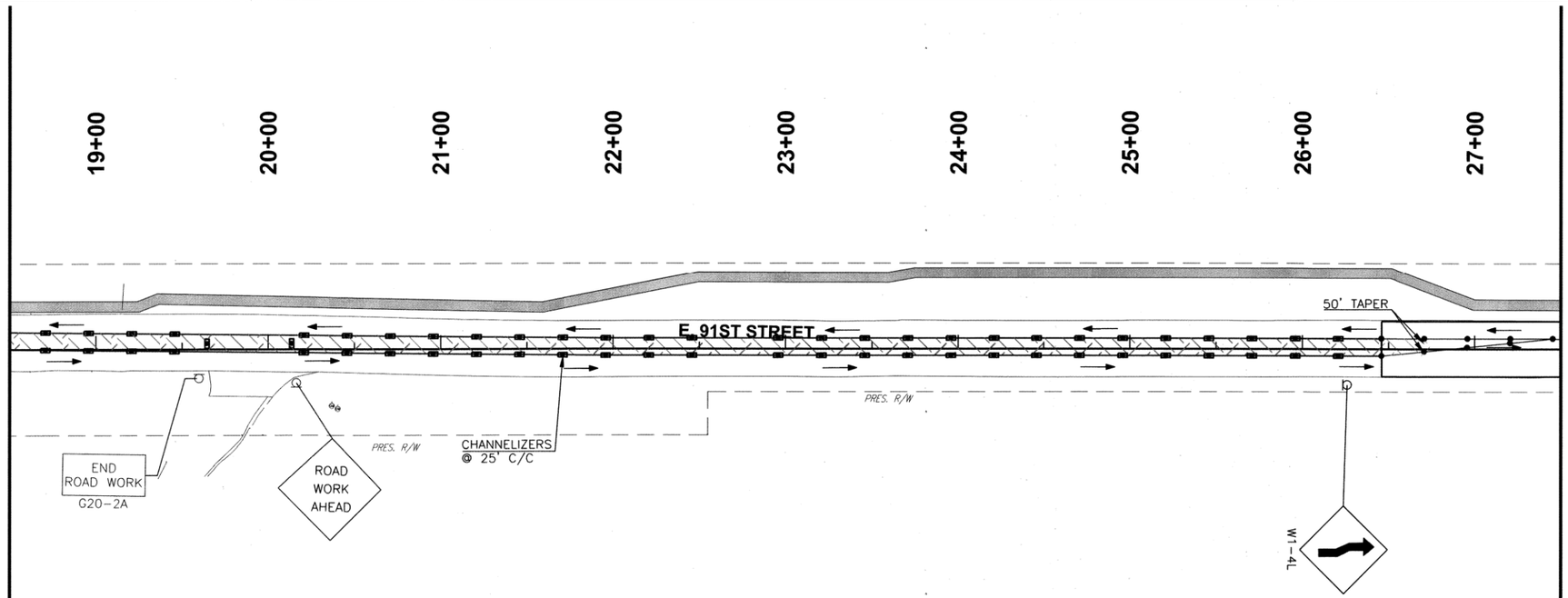


STA 27+50
SEE SHEET 82

0 20' 40' 80'

REGISTERED PROFESSIONAL ENGINEER
SHANNON N. HANKS
21141
OKLAHOMA

BEFORE YOU DIG
811
CALL OKIE

TRAFFIC CONTROL PHASE 2 (1 OF 3)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

REVISION	BY	DATE

PLAN SCALE: 1" = 40'

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

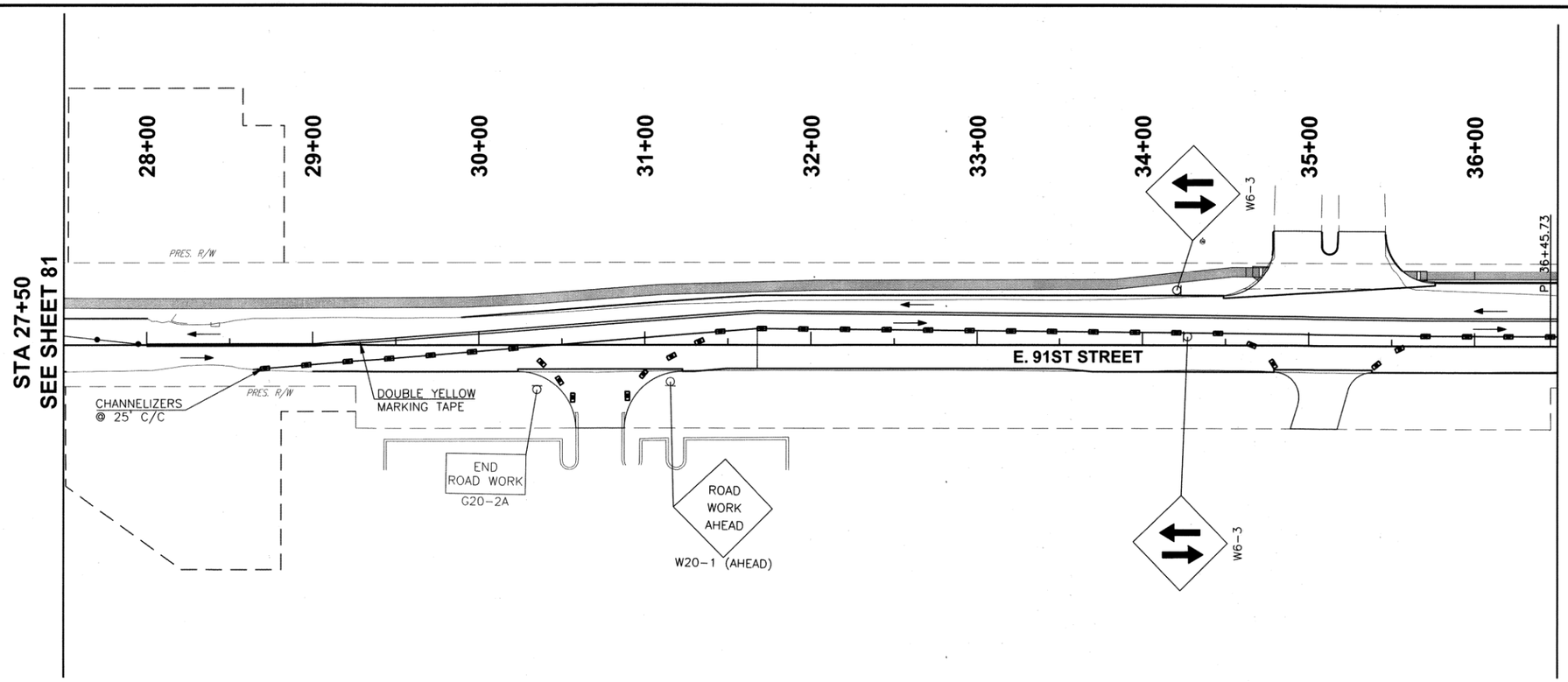
DRAWN	T.C.B.	01/2025
DESIGNED	S.N.H.	01/2025
SURVEY	B.B.	10/2017
PROJ. MGR.		6/25
LEAD ENGR.		6/25
FIELD MGR.		
RECOMMENDED: DESIGN MANAGER		6-25

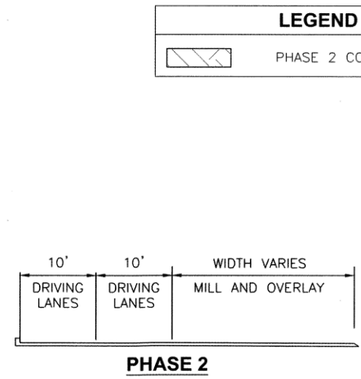
APPROVED:
CITY ENGINEER

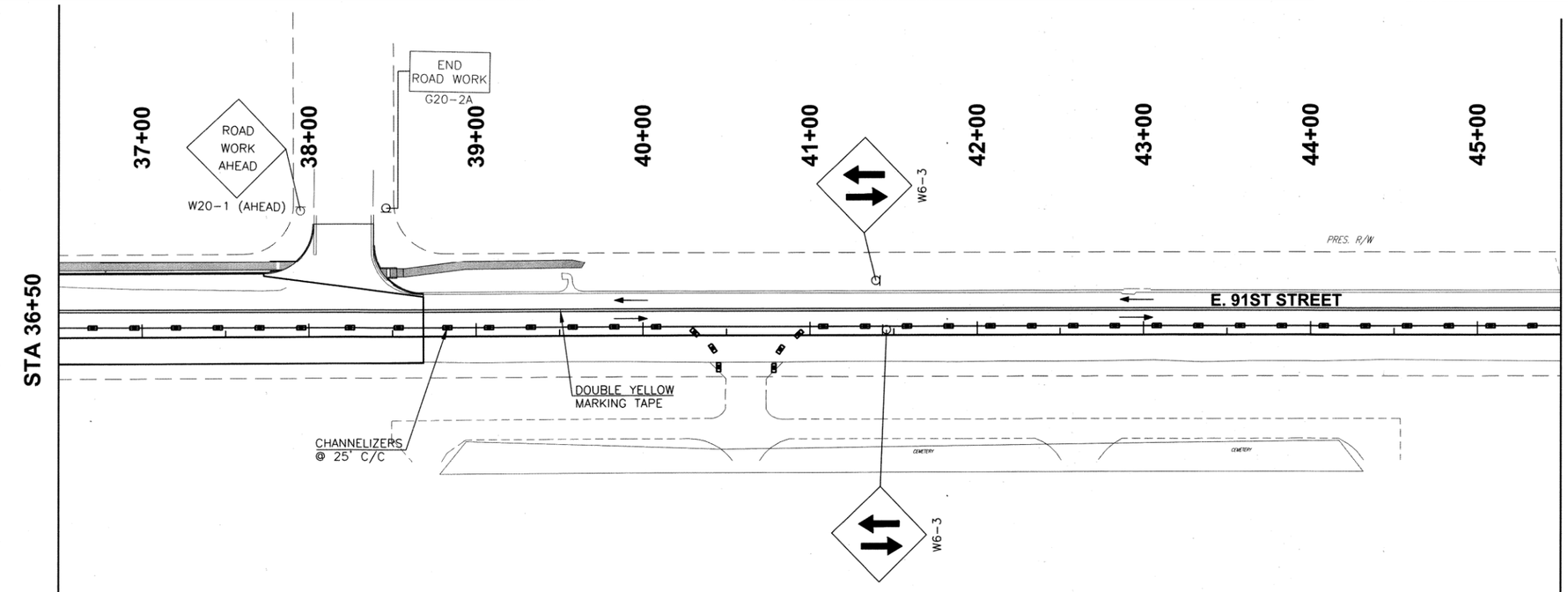
DRAWING: TRAFFIC CONTROL PHASE 2 (3 OF 3)
DATE 6/13/2025

ATLAS PAGE NO: 1006,1137
SHEET 81 OF 89

PLOT DATE: May 28, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\TRAFFIC CONTROL PHASE 2 (3 OF 3).DWG







0 20 40 80'

REGISTERED PROFESSIONAL ENGINEER
SHANNON N. HANKS
21141
OKLAHOMA
5-30-25

BEFORE YOU DIG
811
CALL OKIE

TRAFFIC CONTROL PHASE 2 (2 OF 3)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

REVISION	BY	DATE

PLAN SCALE: 1" = 40'

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

DRAWN	T.C.B.	01/2025
DESIGNED	S.N.H.	01/2025
SURVEY	B.B.	10/2017
PROJ. MGR.	BE	6/25
LEAD ENGR.	DN	6/25
FIELD MGR.		
RECOMMENDED: DESIGN MANAGER	HAS	6.25

APPROVED: CITY ENGINEER

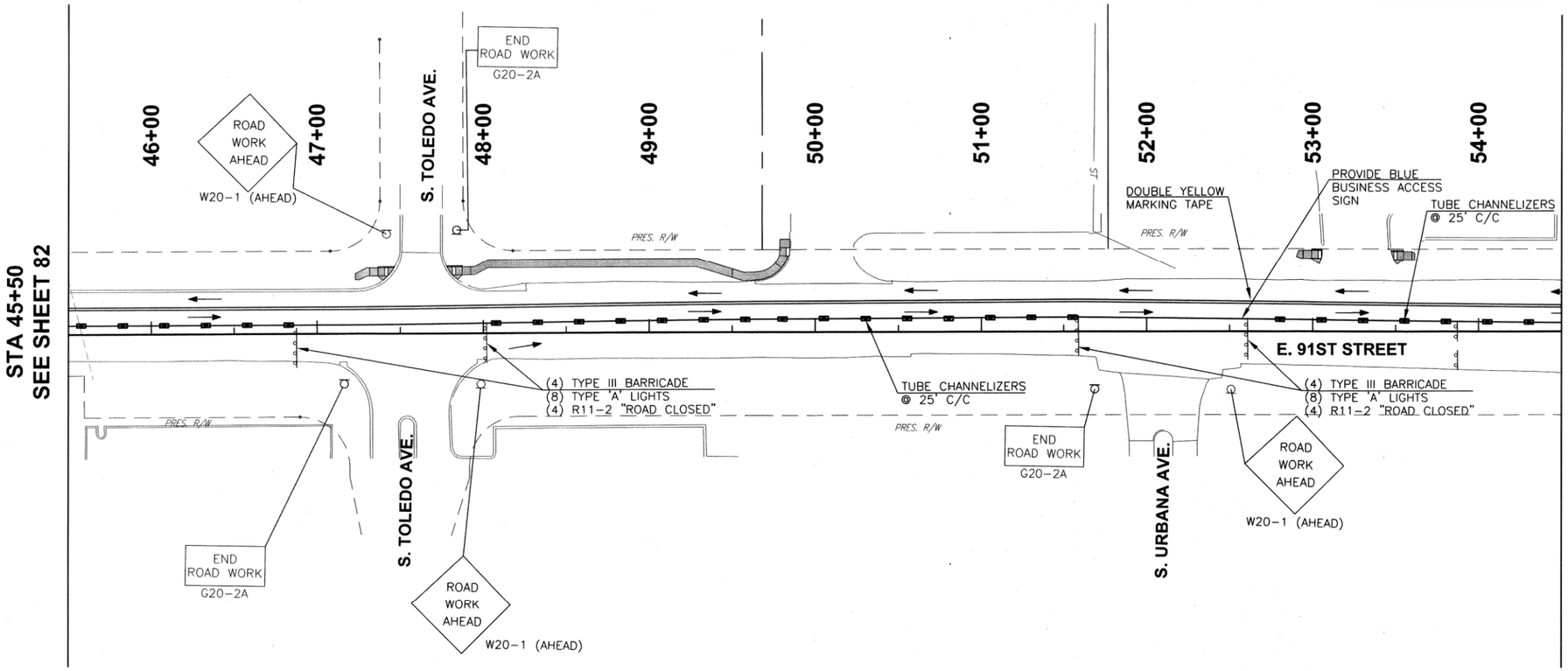
DRAWING: TRAFFIC CONTROL PHASE 2 (3 OF 3)

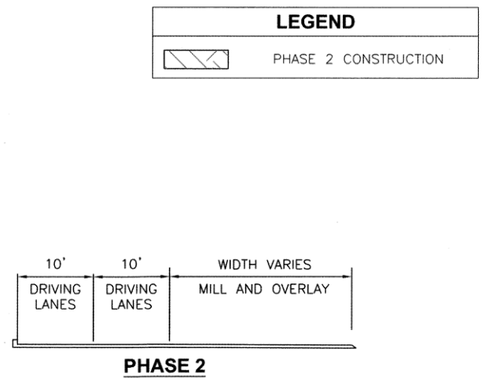
DATE 6/13/2025

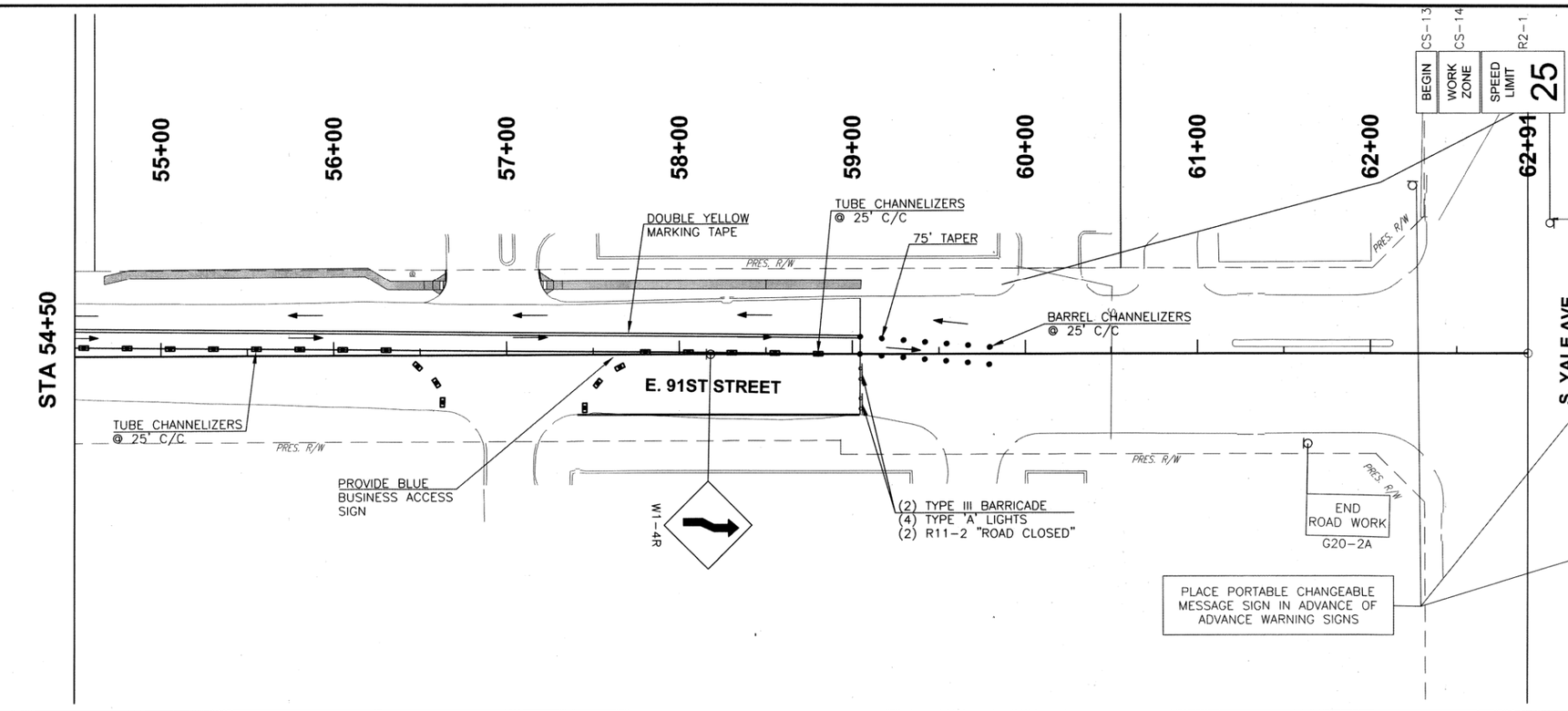
ATLAS PAGE NO: 1006,1137

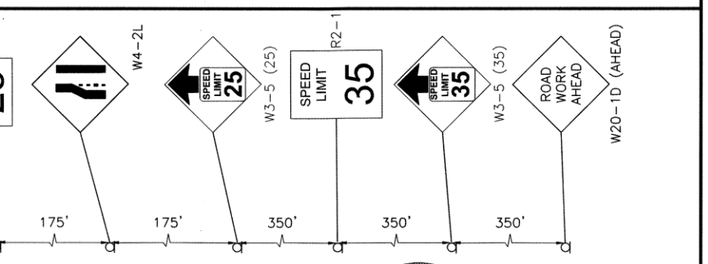
SHEET 82 OF 89

PLOT DATE: May 28, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\TRAFFIC CONTROL PHASE 2 (3 OF 3).DWG









0 20 40 80'

TRAFFIC CONTROL PHASE 2 (3 OF 3)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

REVISION	BY	DATE
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PLAN SCALE: 1" = 40'

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

DRAWN	T.C.B.	01/2025
DESIGNED	S.N.H.	01/2025
SURVEY	B.B.	10/2017
PROJ. MGR.		6/25
LEAD ENGR.		6/25
FIELD MGR.		
RECOMMENDED: DESIGN MANAGER	HAS	6-25

APPROVED: CITY ENGINEER

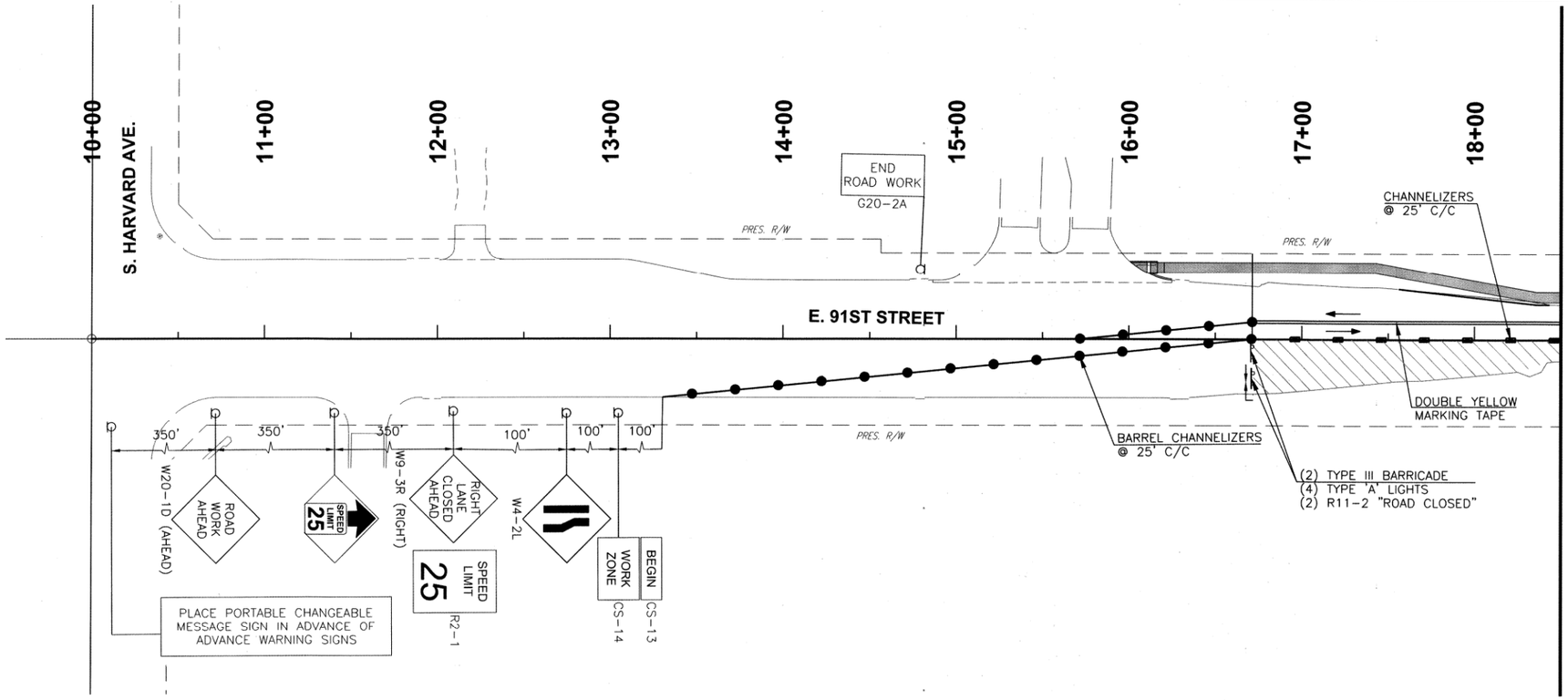
DRAWING: TRAFFIC CONTROL PHASE 2 (3 OF 3)

DATE 6/13/2025

ATLAS PAGE NO: 1006,1137

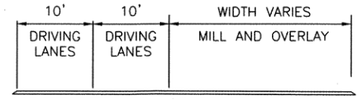
SHEET 83 OF 89

PLOT DATE: May 29, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\TRAFFIC CONTROL PHASE 2 (3 OF 3).DWG

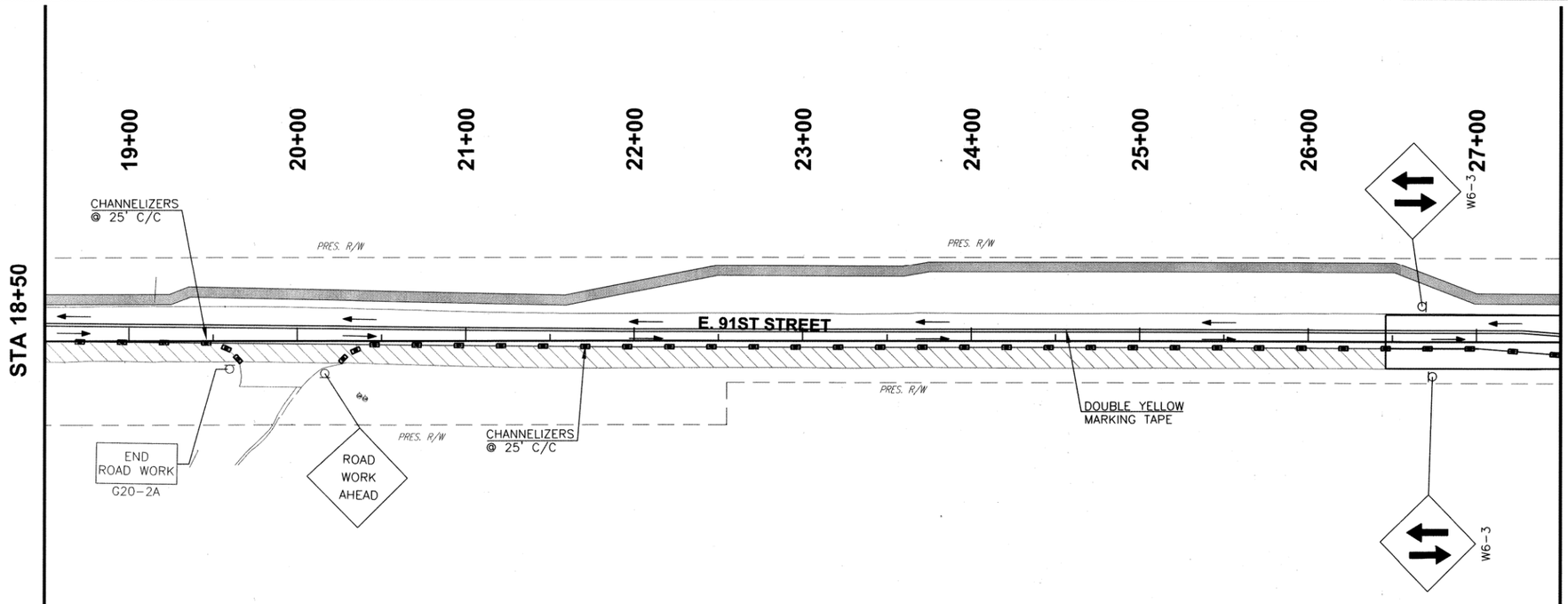


LEGEND

PHASE 3 CONSTRUCTION



PHASE 3



0 20' 40' 80'

REGISTERED PROFESSIONAL ENGINEER SHANNON N. HANKS 21141 OKLAHOMA 5-27-25

BEFORE YOU DIG CALL OKIE 811

TRAFFIC CONTROL PHASE 3 (1 OF 3)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

REVISION	BY	DATE

PLAN SCALE: 1" = 40'	DRAWN	T.C.B.	01/2025
	DESIGNED	S.N.H.	01/2025
	SURVEY	B.B.	10/2017
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A	PROJ. MGR.	AE	6/25
	LEAD ENGR.	SH	6/25
	FIELD MGR.		
	RECOMMENDED: DESIGN MANAGER	HAS	6.25

APPROVED: CITY ENGINEER

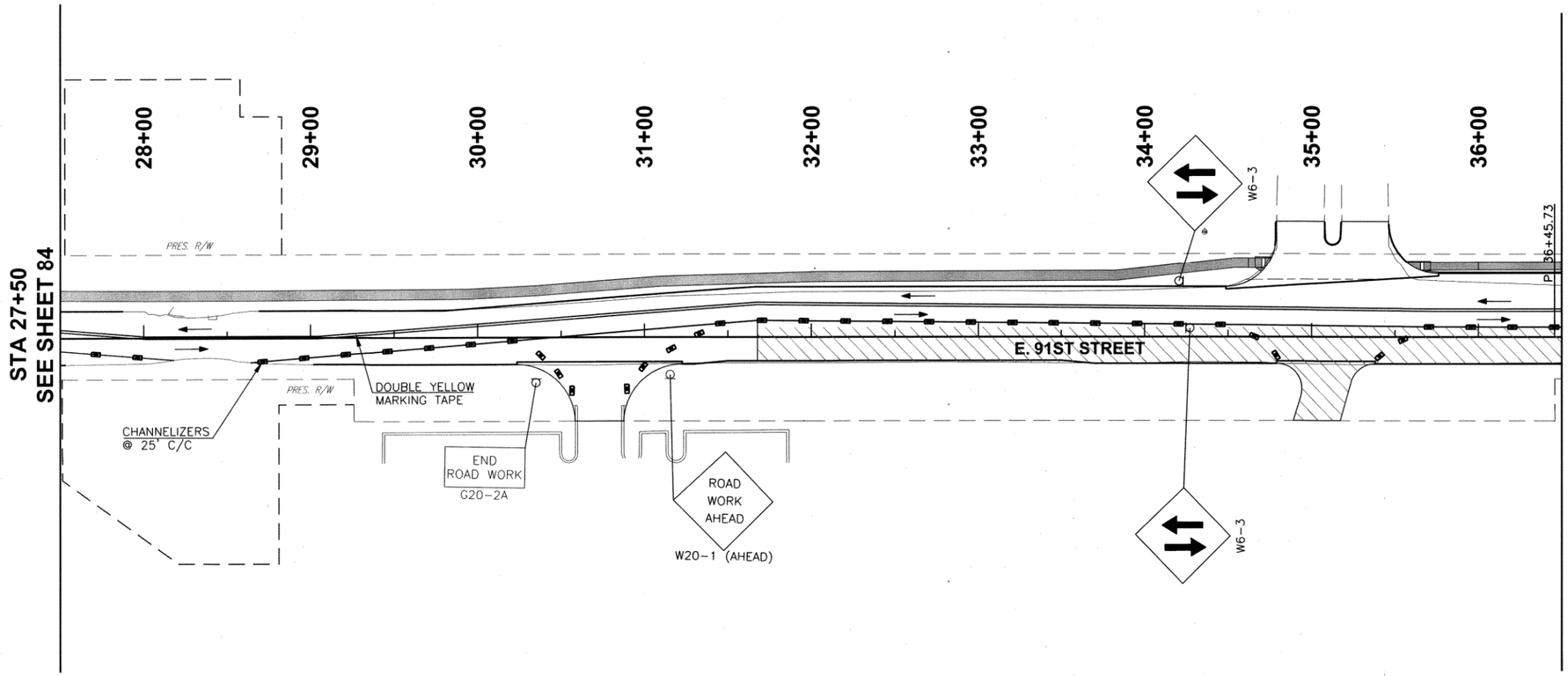
DRAWING: TRAFFIC CONTROL PHASE 3 (3 OF 3)

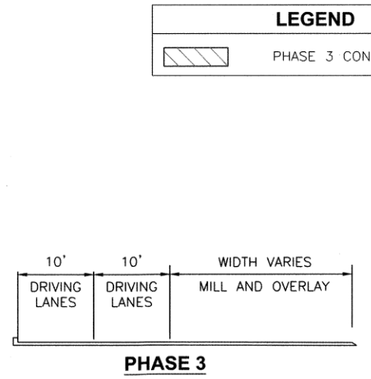
DATE 6/13/2025

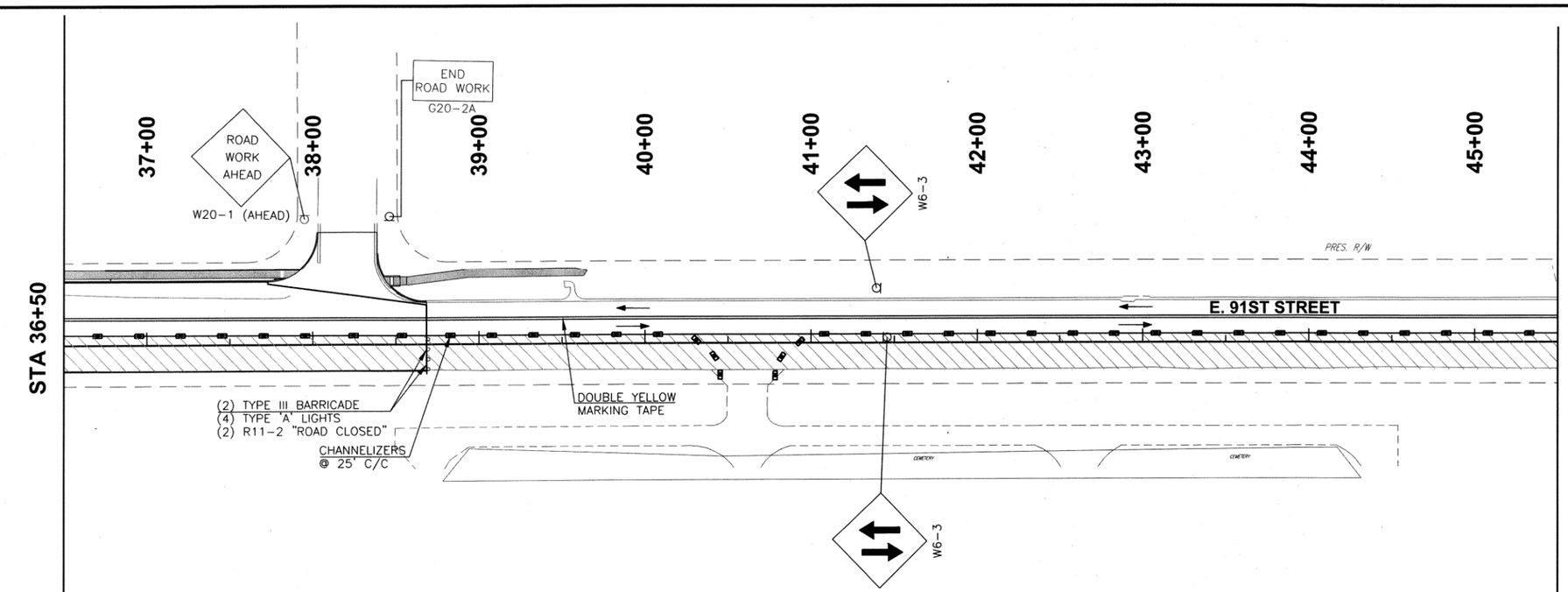
ATLAS PAGE NO: 1006,1137

SHEET 84 OF 89

PLOT DATE: May 28, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\TRAFFIC CONTROL PHASE 3 (3 OF 3).DWG







0 20 40 80'

REGISTERED PROFESSIONAL ENGINEER
SHANNON N. HANKS
21141
OKLAHOMA

BEFORE YOU DIG
811
CALL OKIE

TRAFFIC CONTROL PHASE 3 (2 OF 3)			
PROJECT NO. 144213 TMUA-W 22-90			
ARTERIAL STREET REHAB 91ST STREET (HARVARD TO YALE)			
CITY OF TULSA, OKLAHOMA PUBLIC WORKS DEPARTMENT			
CEC Corporation 1300 S. Main Street Tulsa, OK 74119 (918) 663-9401			

REVISION	BY	DATE

PLAN SCALE: 1" = 40'	DRAWN	T.C.B.	01/2025
	DESIGNED	S.N.H.	01/2025
	SURVEY	B.B.	10/2017
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A	PROJ. MGR.		6/25
	LEAD ENGR.		6/25
	FIELD MGR.		
	RECOMMENDED: DESIGN MANAGER		6/25

APPROVED: CITY ENGINEER

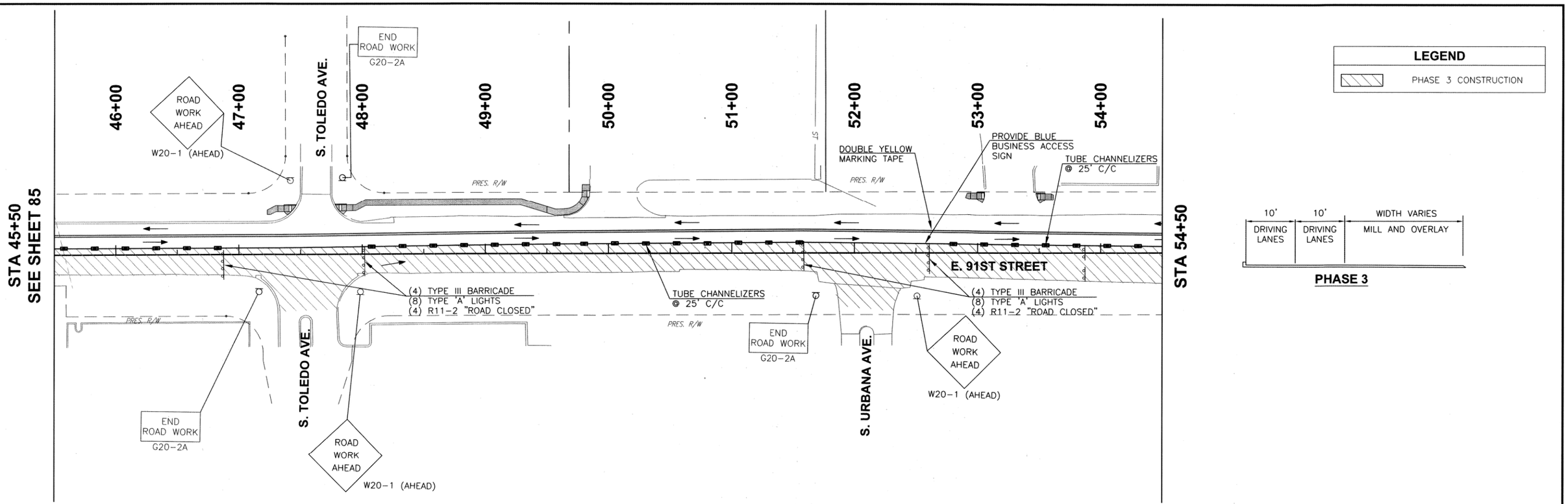
DRAWING: TRAFFIC CONTROL PHASE 3 (3 OF 3)

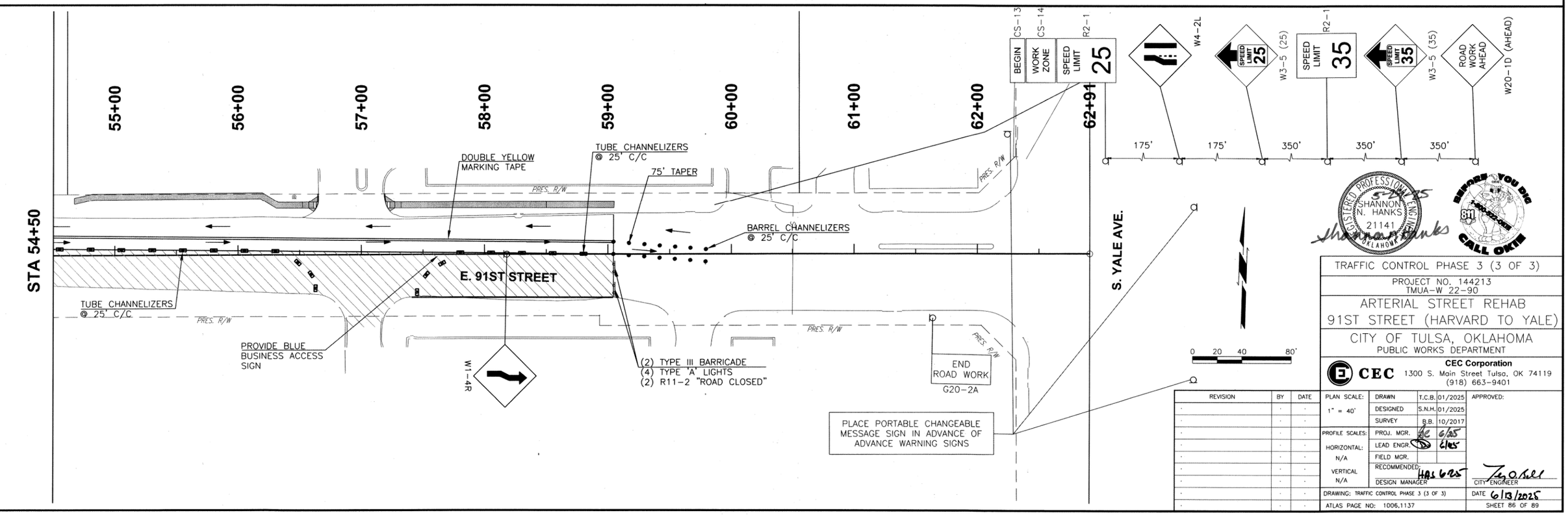
DATE 6/13/2025

ATLAS PAGE NO: 1006,1137

SHEET 85 OF 89

PLOT DATE: May 28, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\TRAFFIC CONTROL PHASE 3 (3 OF 3).DWG





REGISTERED PROFESSIONAL ENGINEER SHANNON N. HANKS 21141 OKLAHOMA

BEFORE YOU DIG 811 CALL OKIE

TRAFFIC CONTROL PHASE 3 (3 OF 3)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

REVISION	BY	DATE

PLAN SCALE: 1" = 40'

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

DRAWN	T.C.B.	01/2025
DESIGNED	S.N.H.	01/2025
SURVEY	B.B.	10/2017
PROJ. MGR.		6/25
LEAD ENGR.		6/25
FIELD MGR.		
RECOMMENDED: DESIGN MANAGER		6/25

APPROVED: CITY ENGINEER

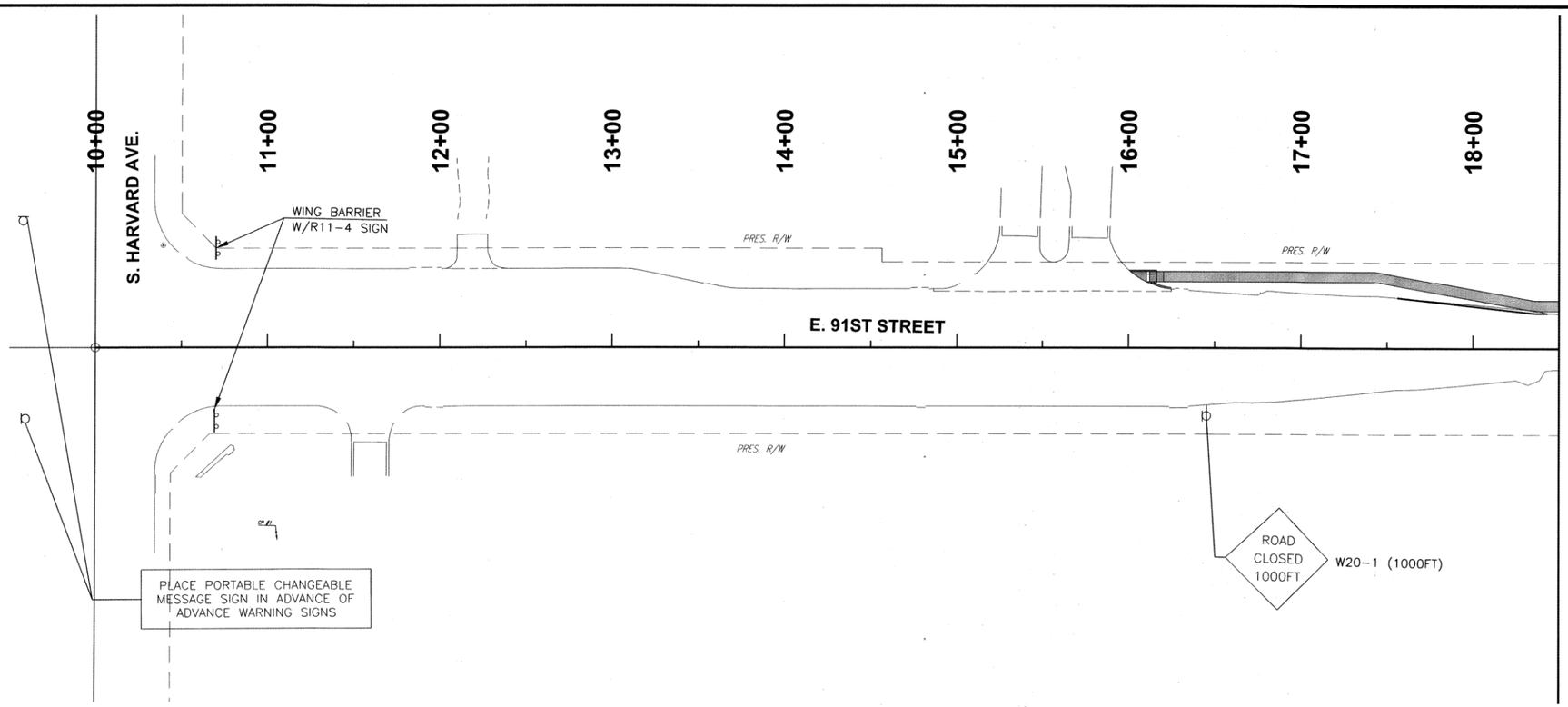
DRAWING: TRAFFIC CONTROL PHASE 3 (3 OF 3)

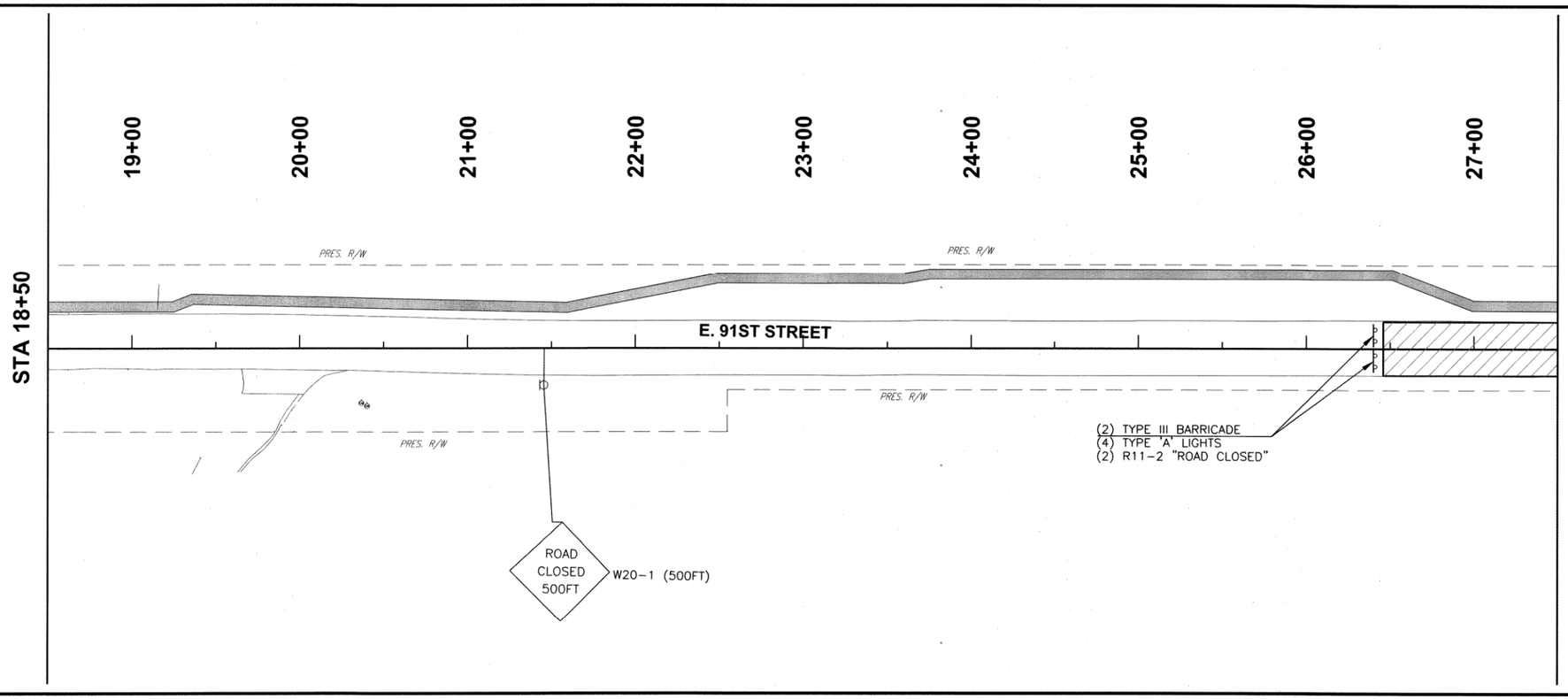
ATLAS PAGE NO: 1006,1137

DATE 6/13/2025

SHEET 86 OF 89

PLOT DATE: May 29, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\TRAFFIC CONTROL PHASE 3 (3 OF 3).DWG





LEGEND

PHASE 4 CONSTRUCTION

ROAD CLOSURE MUST COINCIDE WITH JENKS EAST INTERMEDIATE AND JENKS EAST ELEMENTARY SCHOOLS SUMMER BREAK.

0 20' 40' 80'

REGISTERED PROFESSIONAL ENGINEER SHANNON N. HANKS 21141 OKLAHOMA 6-13-25

BEFORE YOU DIG OKLAHOMA CALL OKIE

TRAFFIC CONTROL PHASE 4 (1 OF 3)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

REVISION	BY	DATE

PLAN SCALE: 1" = 40'

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

DRAWN	T.C.B.	01/2025
DESIGNED	S.N.H.	01/2025
SURVEY	B.B.	10/2017
PROJ. MGR.		6/25
LEAD ENGR.		6/25
FIELD MGR.		
RECOMMENDED: DESIGN MANAGER	HAS 6-25	

APPROVED: CITY ENGINEER

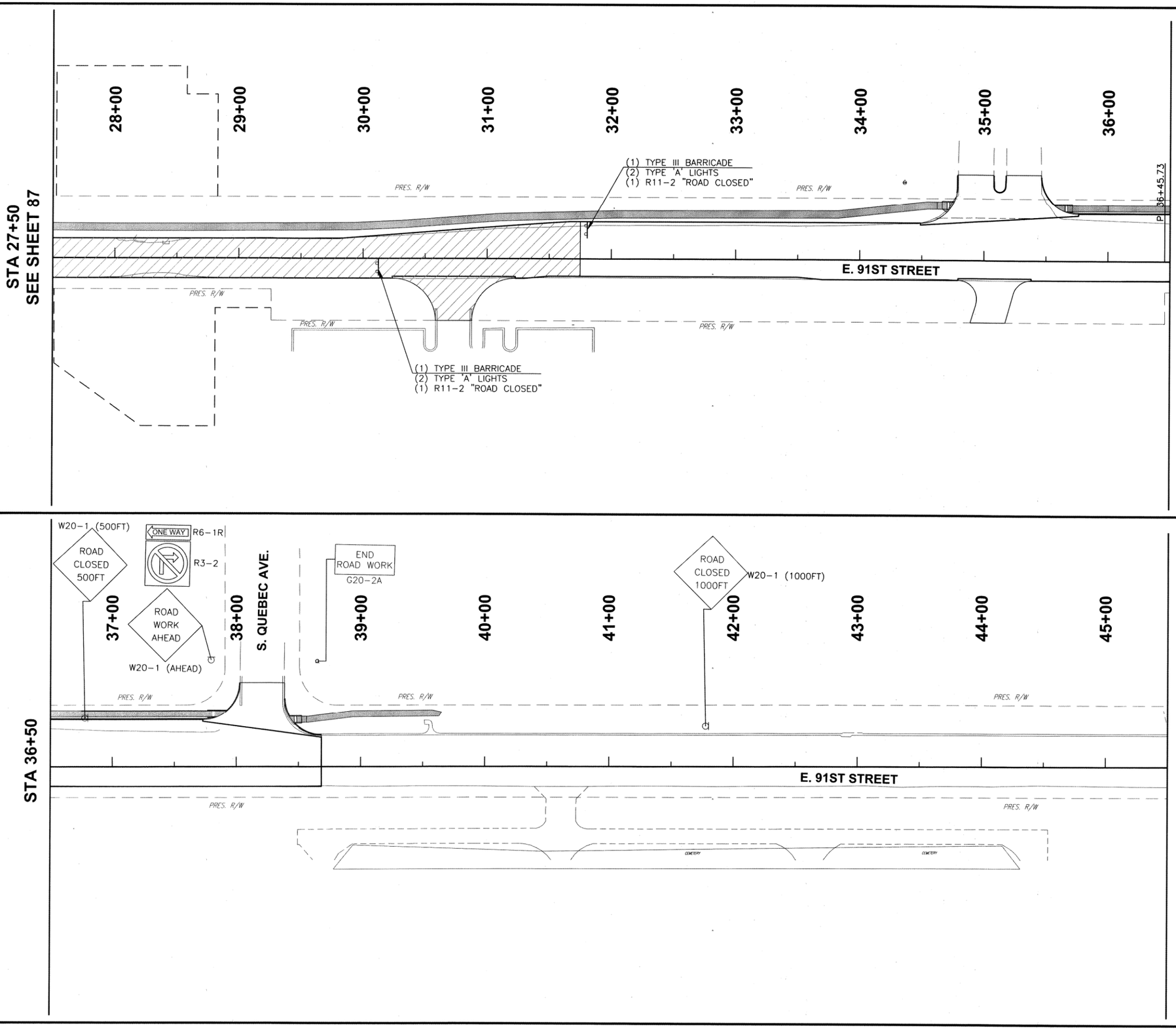
DRAWING: TRAFFIC CONTROL PHASE 4 (3 OF 3)

DATE 6/13/2025

ATLAS PAGE NO: 1006,1137

SHEET 87 OF 89

PLOT DATE: May 28, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\TRAFFIC CONTROL PHASE 4 (3 OF 3).DWG



LEGEND

PHASE 4 CONSTRUCTION

ROAD CLOSURE MUST COINCIDE WITH JENKS EAST INTERMEDIATE AND JENKS EAST ELEMENTARY SCHOOLS SUMMER BREAK.

0 20 40 80'

REGISTERED PROFESSIONAL ENGINEER
SHANNON N. HANKS
21141
OKLAHOMA

BEFORE YOU DIG 811 CALL OKIE

TRAFFIC CONTROL PHASE 4 (2 OF 3)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
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REVISION	BY	DATE
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PLAN SCALE: 1" = 40'	DRAWN	T.C.B.	01/2025
	DESIGNED	S.N.H.	01/2025
	SURVEY	B.B.	10/2017
PROFILE SCALES:	PROJ. MGR.		6/25
HORIZONTAL: N/A	LEAD ENGR.		6/25
	FIELD MGR.		
VERTICAL N/A	RECOMMENDED: DESIGN MANAGER		HAS 6-25

APPROVED: CITY ENGINEER

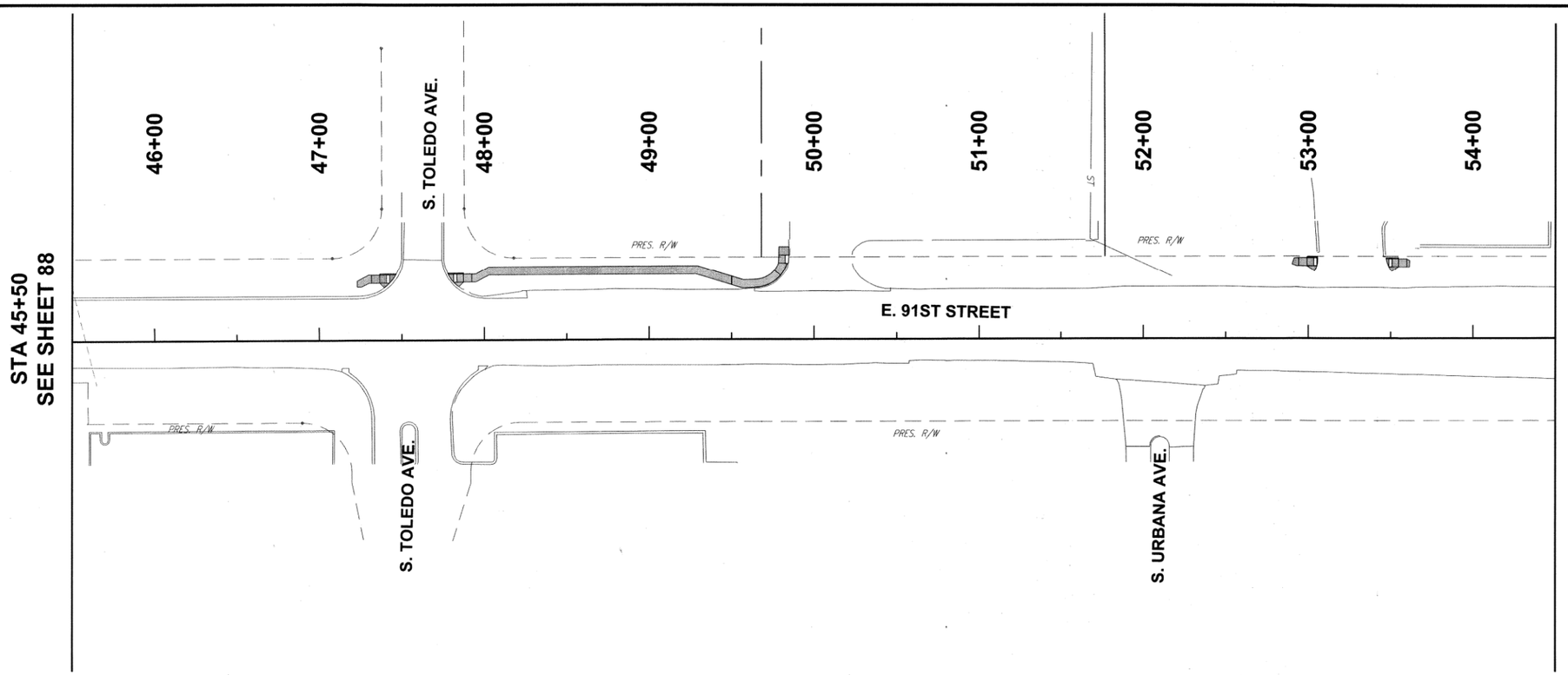
DRAWING: TRAFFIC CONTROL PHASE 4 (3 OF 3)

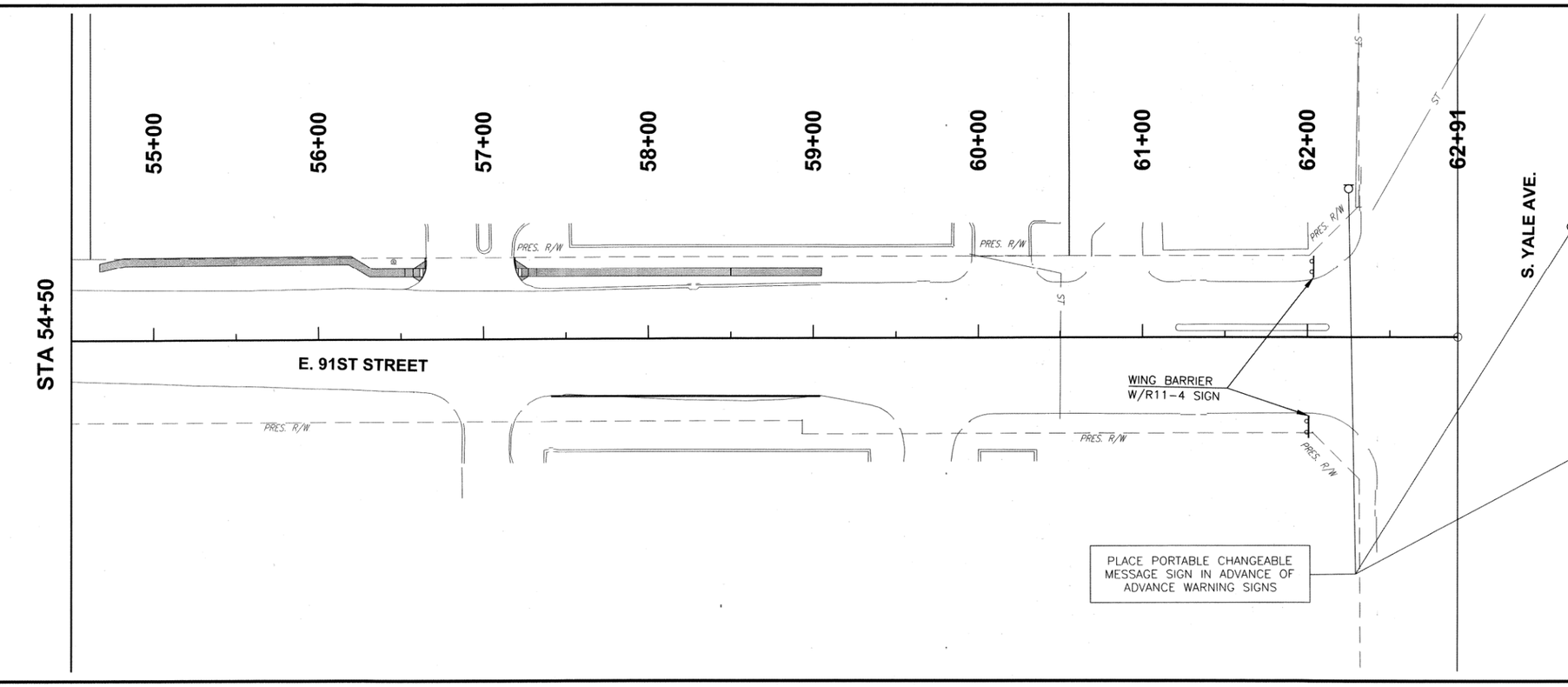
DATE 6/13/2025

ATLAS PAGE NO: 1006,1137

SHEET 88 OF 89

PLOT DATE: May 28, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\TRAFFIC CONTROL PHASE 4 (3 OF 3).DWG





LEGEND

PHASE 4 CONSTRUCTION

ROAD CLOSURE MUST COINCIDE WITH JENKS EAST INTERMEDIATE AND JENKS EAST ELEMENTARY SCHOOLS SUMMER BREAK.

0 20 40 80'

REGISTERED PROFESSIONAL ENGINEER
SHANNON N. HANKS
21141
OKLAHOMA
6-25-25

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TRAFFIC CONTROL PHASE 4 (3 OF 3)

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

REVISION	BY	DATE

PLAN SCALE: 1" = 40'	DRAWN	T.C.B.	01/2025
	DESIGNED	S.N.H.	01/2025
	SURVEY	B.B.	10/2017
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A	PROJ. MGR.	SNH	6/25
	LEAD ENGR.	TCB	6/25
	FIELD MGR.		
	RECOMMENDED: DESIGN MANAGER	HAS	6-25

APPROVED: CITY ENGINEER

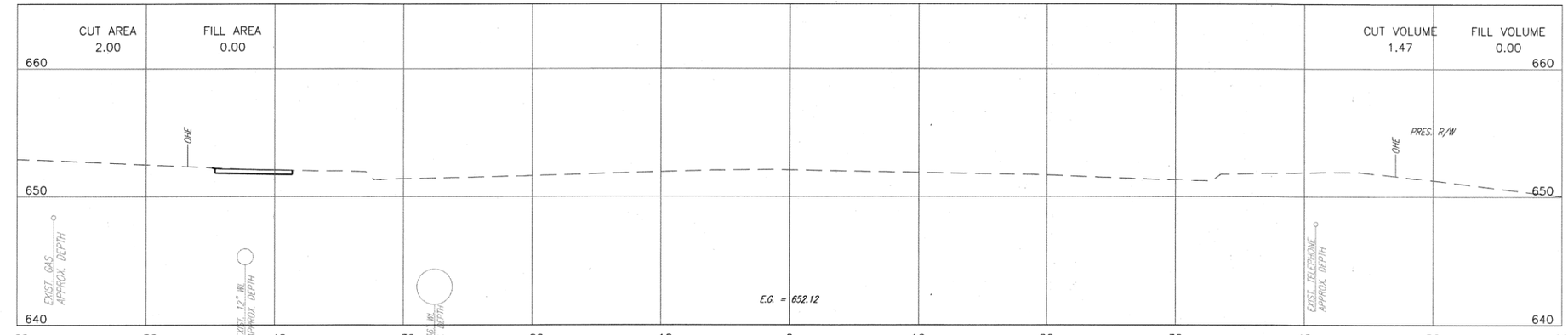
DRAWING: TRAFFIC CONTROL PHASE 4 (3 OF 3)

DATE 6/13/2025

ATLAS PAGE NO: 1006,1137

SHEET 89 OF 89

PLOT DATE: May 28, 2025, DRAWING FILE: N:\TULSA\TULSA\PROJECTS\TPWD - 91ST - HARVARD TO YALE\PROJECT DRAWINGS\TRAFFIC CONTROL PHASE 4 (3 OF 3).DWG



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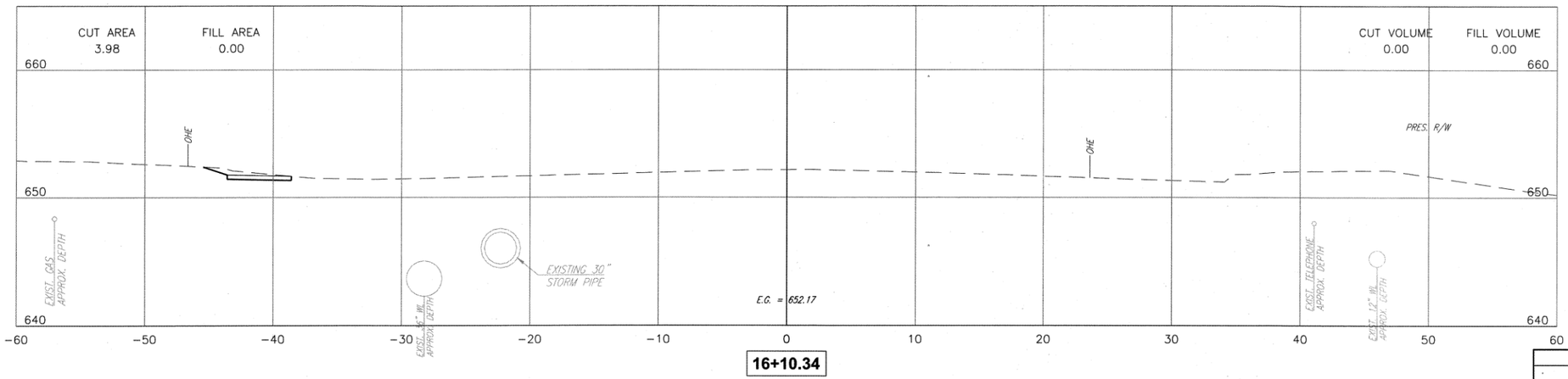

16+10.34

REVISION	BY	DATE
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XS 1

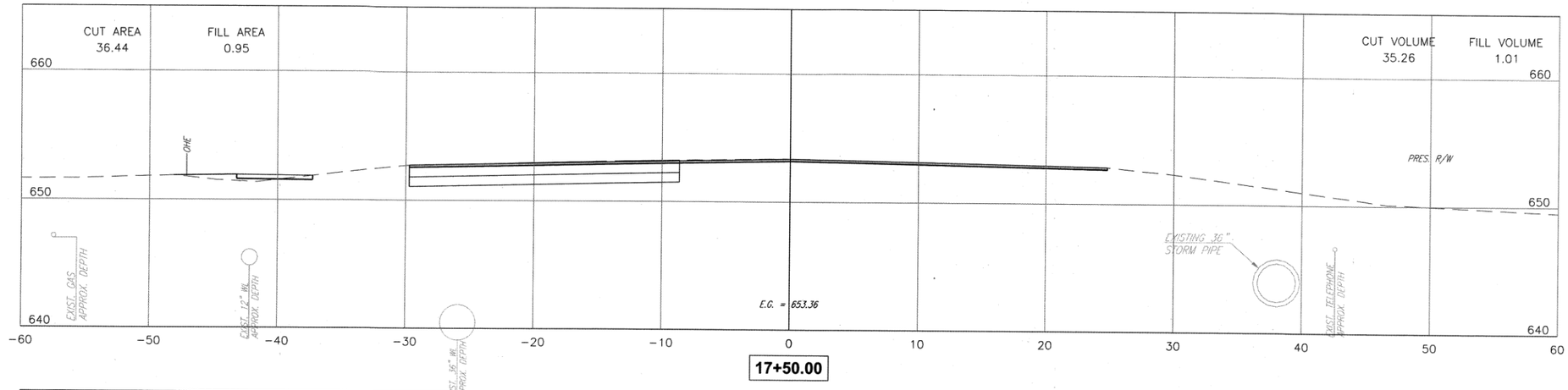
PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

PLAN SCALE: 1:5	DRAWN	T.C.B.	01/2025	APPROVED:
	DESIGNED	S.N.H.	01/2025	
	SURVEY	B.B.	10/2017	
PROFILE SCALES:	PROJ. MGR.	BC	6/25	
HORIZONTAL: N/A	LEAD ENGR.			
	FIELD MGR.			
VERTICAL N/A	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 144213_CROSS SECTIONS.DWG				DATE
ATLAS PAGE NO: 1006,1137				SHEET XS 1 OF XS 36



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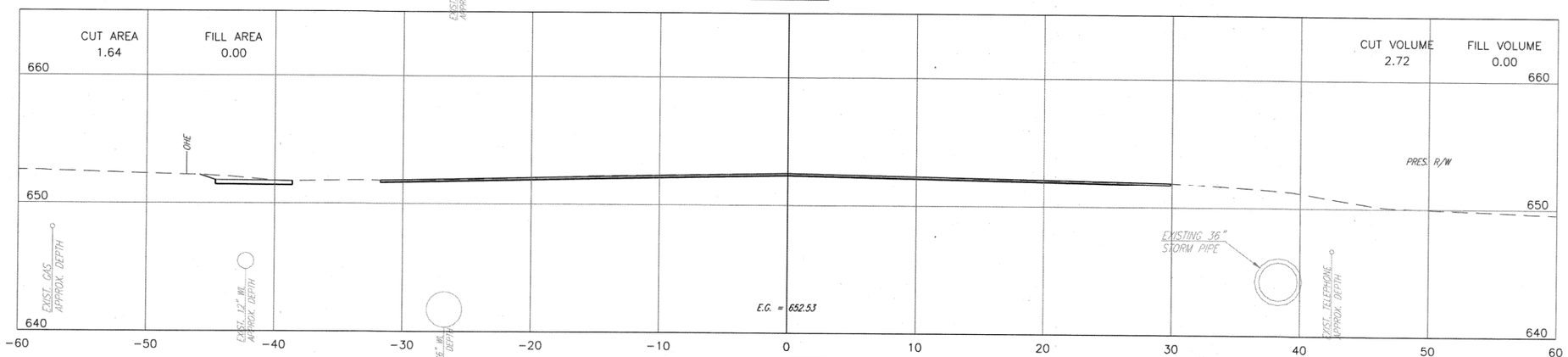

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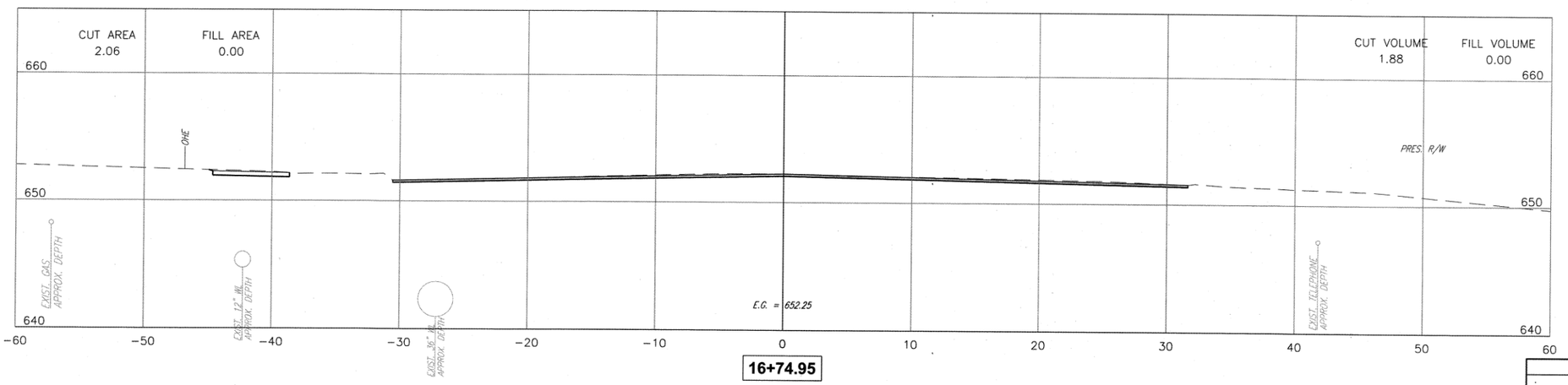

16+74.95

BEFORE YOU DIG 811 OKIE CALL OKIE

XS 2

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

REVISION	BY	DATE
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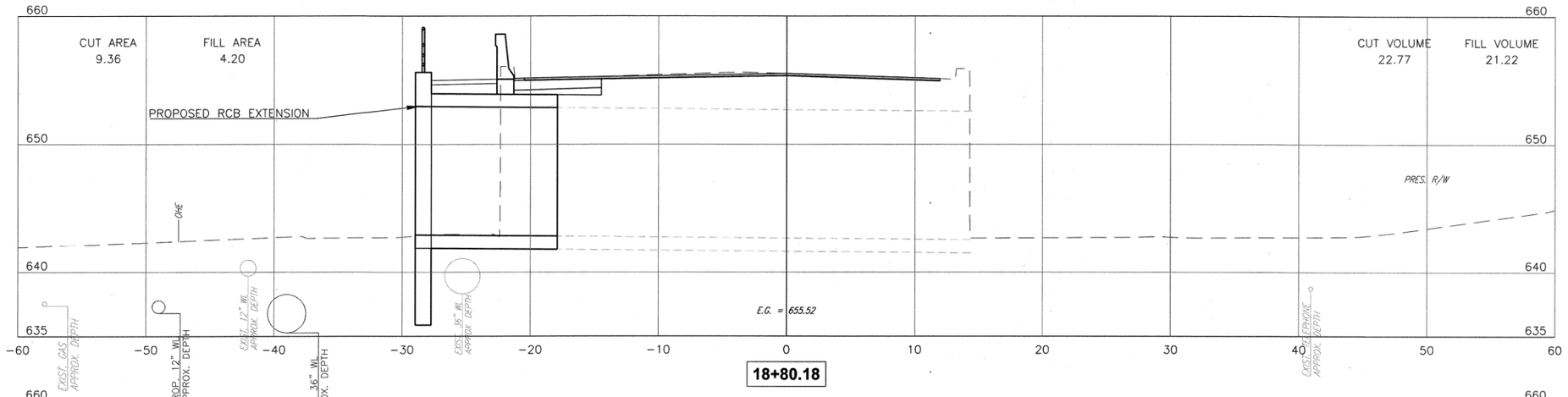
PLAN SCALE: 1:5	DRAWN	T.C.B.	01/2025	APPROVED:
	DESIGNED	S.N.H.	01/2025	
	SURVEY	B.B.	10/2017	
PROFILE SCALES:	PROJ. MGR.	BE	6/25	
HORIZONTAL: N/A	LEAD ENGR.			
VERTICAL N/A	FIELD MGR.			
	RECOMMENDED: DESIGN MANAGER			CITY ENGINEER
DRAWING: 144213_CROSS SECTIONS.DWG				DATE
ATLAS PAGE NO: 1006,1137				SHEET XS 2 OF XS 36



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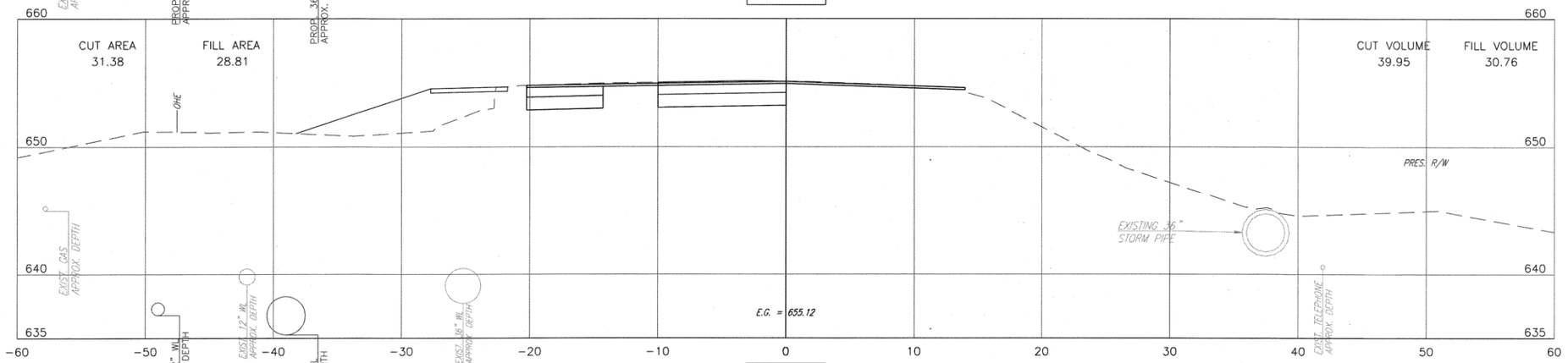

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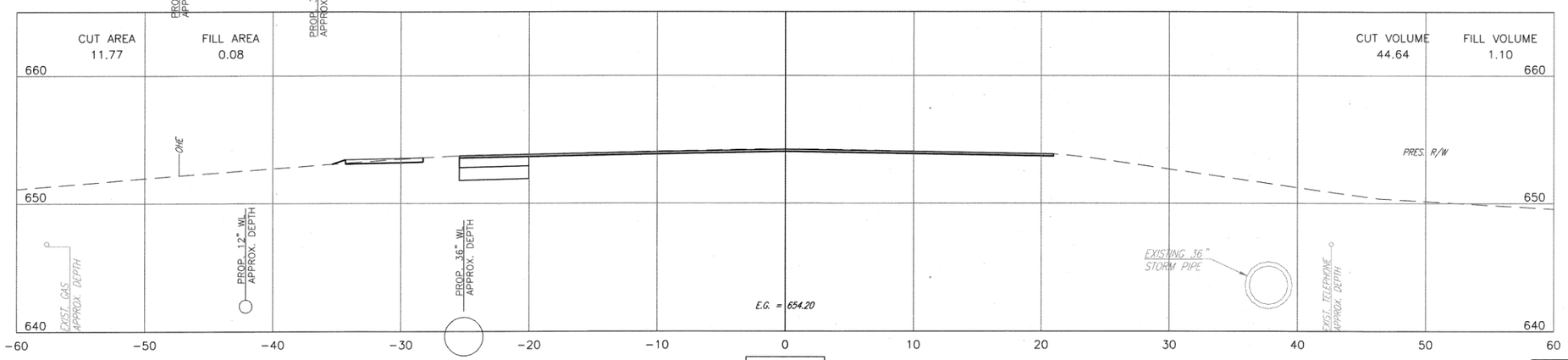

18+00.00

REGISTERED PROFESSIONAL ENGINEER
SHANNON N. HANKS
21141
OKLAHOMA

BEFORE YOU DIG
811
CALL OKIE

XS 3

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

REVISION	BY	DATE
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PLAN SCALE: 1:5	DRAWN	T.C.B.	01/2025
	DESIGNED	S.N.H.	01/2025
	SURVEY	B.B.	10/2017
PROFILE SCALES:	PROJ. MGR.		6/25
HORIZONTAL: N/A	LEAD ENGR.		
	FIELD MGR.		
VERTICAL N/A	RECOMMENDED:		
	DESIGN MANAGER		

APPROVED:

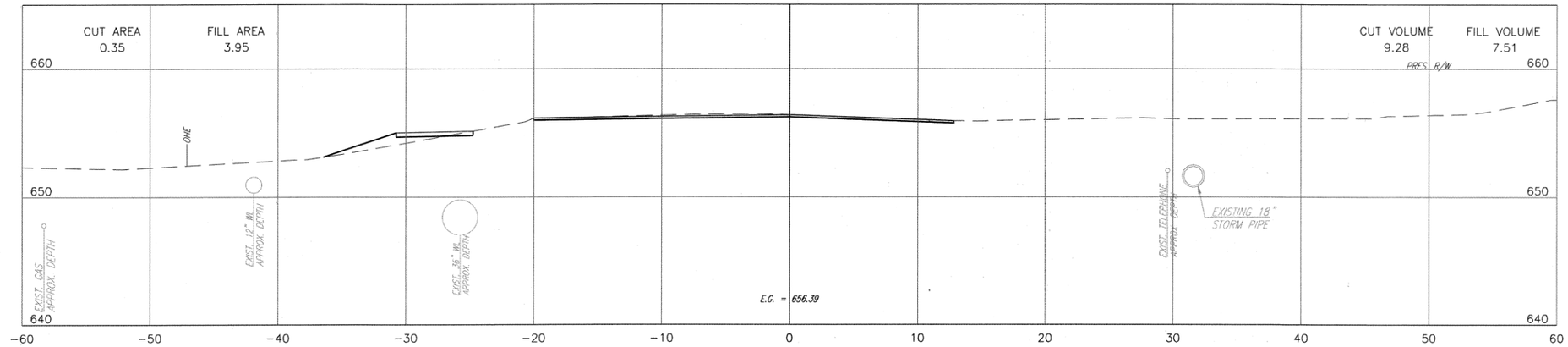
CITY ENGINEER

DRAWING: 144213_CROSS SECTIONS.DWG

DATE

ATLAS PAGE NO: 1006,1137

SHEET XS 3 OF XS 36



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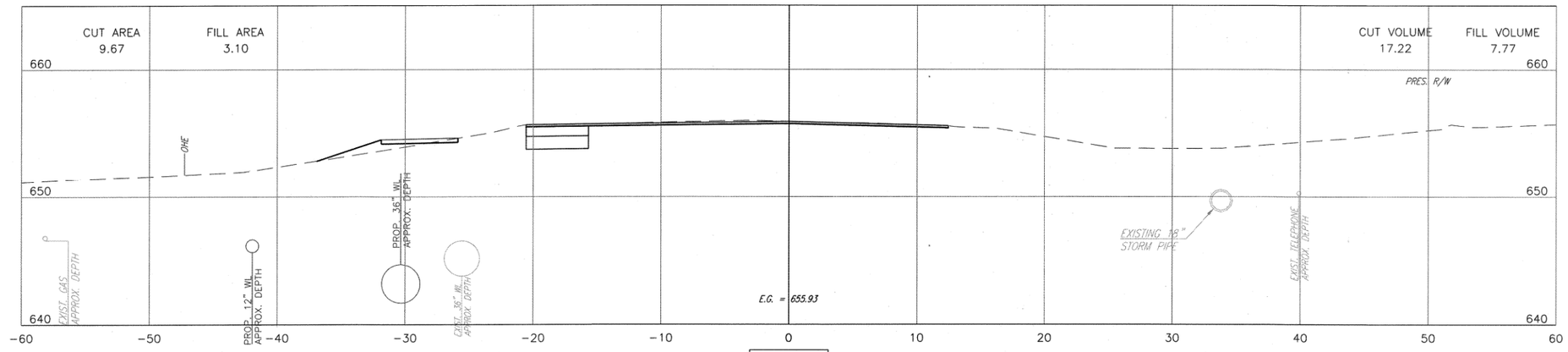

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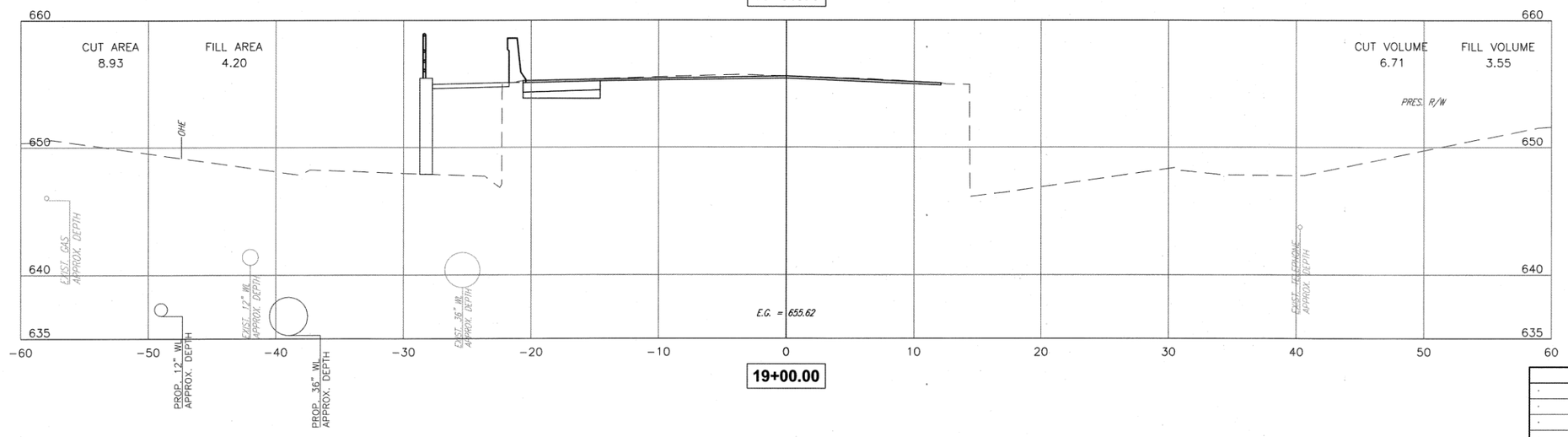

19+00.00

BEFORE YOU DIG
811
CALL OKIE

XS 4

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

REVISION	BY	DATE
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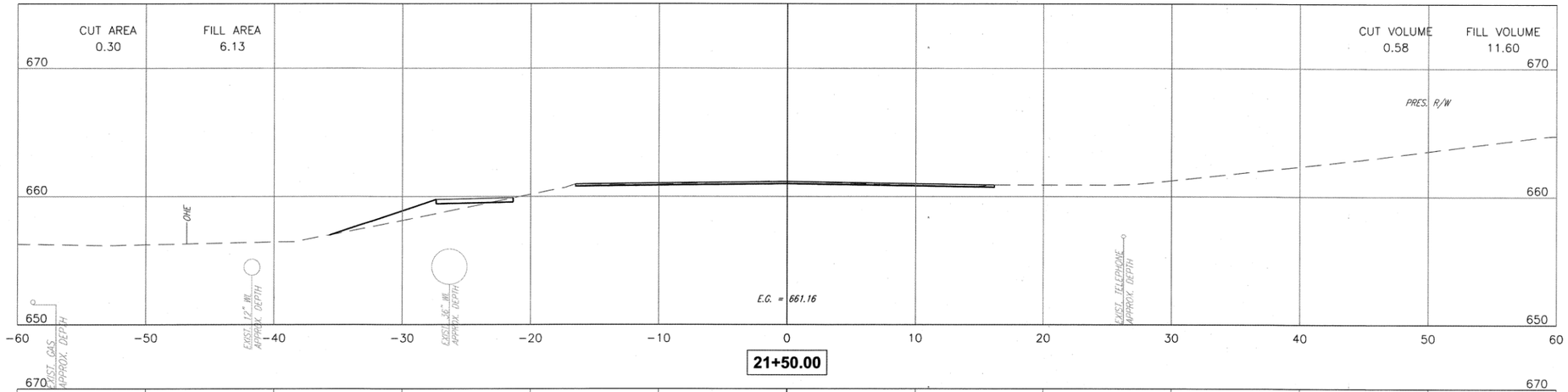
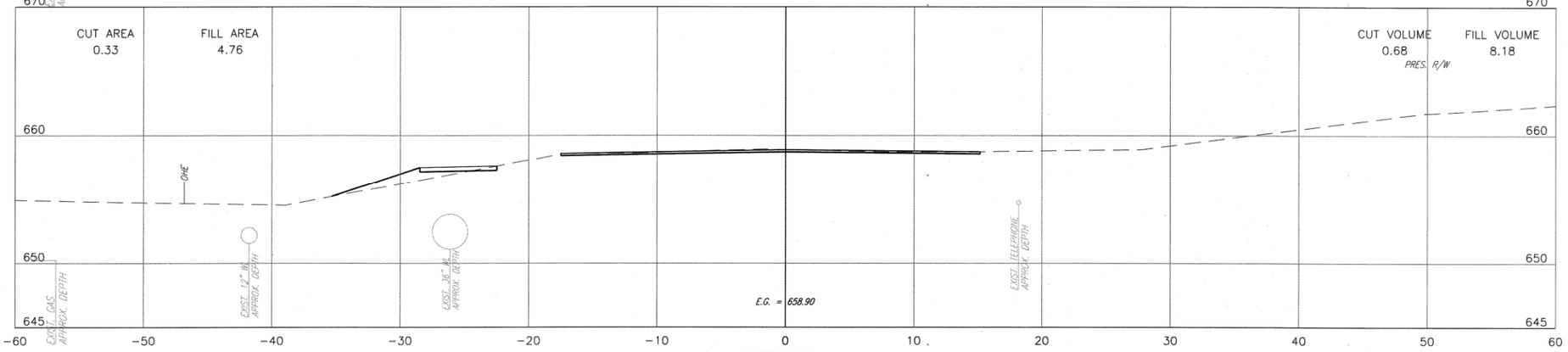
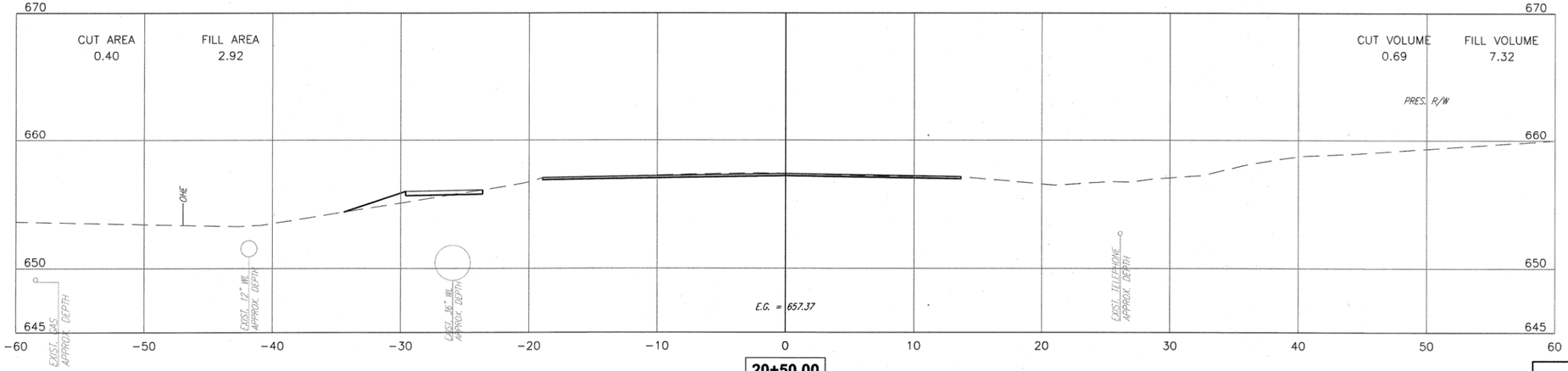
PLAN SCALE: 1:5	DRAWN	T.C.B.	01/2025	APPROVED:
	DESIGNED	S.N.H.	01/2025	
	SURVEY	B.B.	10/2017	
PROFILE SCALES:	PROJ. MGR.		6/25	
HORIZONTAL: N/A	LEAD ENGR.			
	FIELD MGR.			
VERTICAL N/A	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 144213_CROSS SECTIONS.DWG				DATE
ATLAS PAGE NO: 1006,1137				SHEET XS 4 OF XS 36



21+50.00



21+00.00



20+50.00

BEFORE YOU DIG 811 CALL OKIE

XS 5

PROJECT NO. 144213
TMUA-W 22-90

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91ST STREET (HARVARD TO YALE)

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REVISION	BY	DATE
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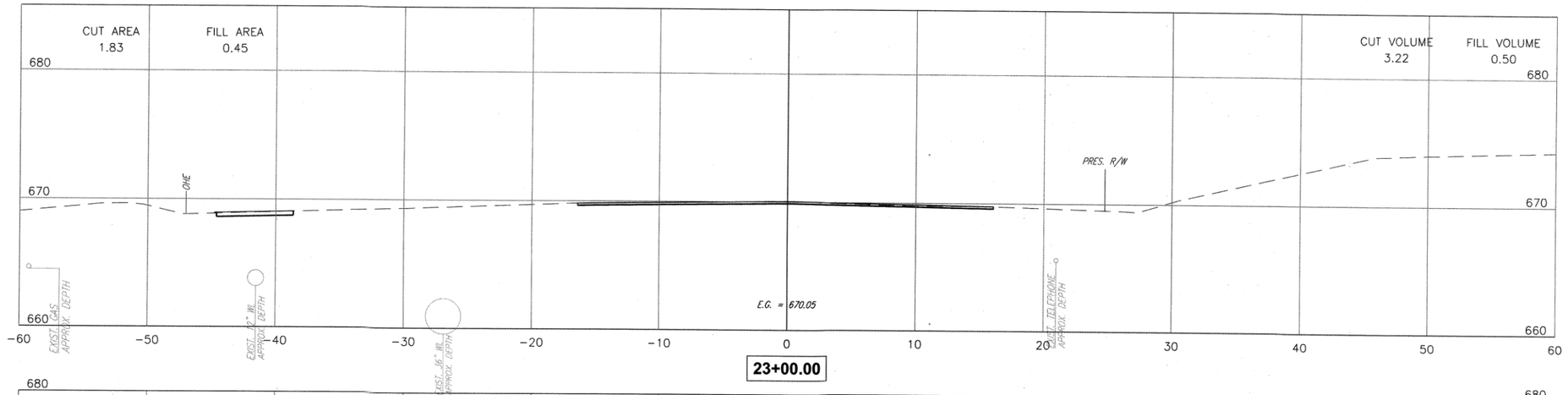
PLAN SCALE: 1:5	DRAWN	T.C.B.	01/2025	APPROVED:
	DESIGNED	S.N.H.	01/2025	
	SURVEY	B.B.	10/2017	
PROFILE SCALES:	PROJ. MGR.			
HORIZONTAL: N/A	LEAD ENGR.			
	FIELD MGR.			
VERTICAL N/A	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 144213_CROSS SECTIONS.DWG				DATE
ATLAS PAGE NO: 1006,1137				SHEET XS 5 OF XS 36



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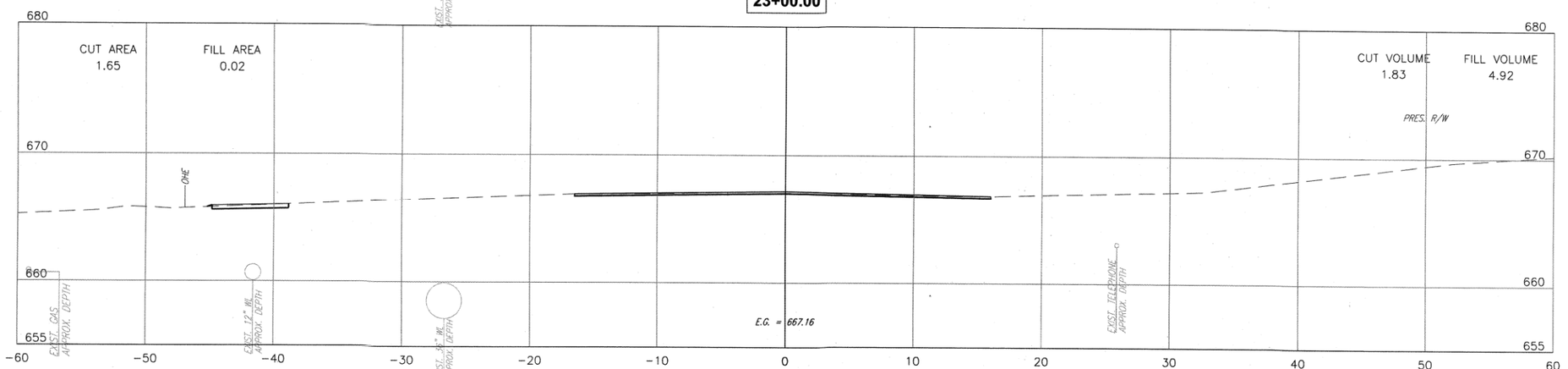

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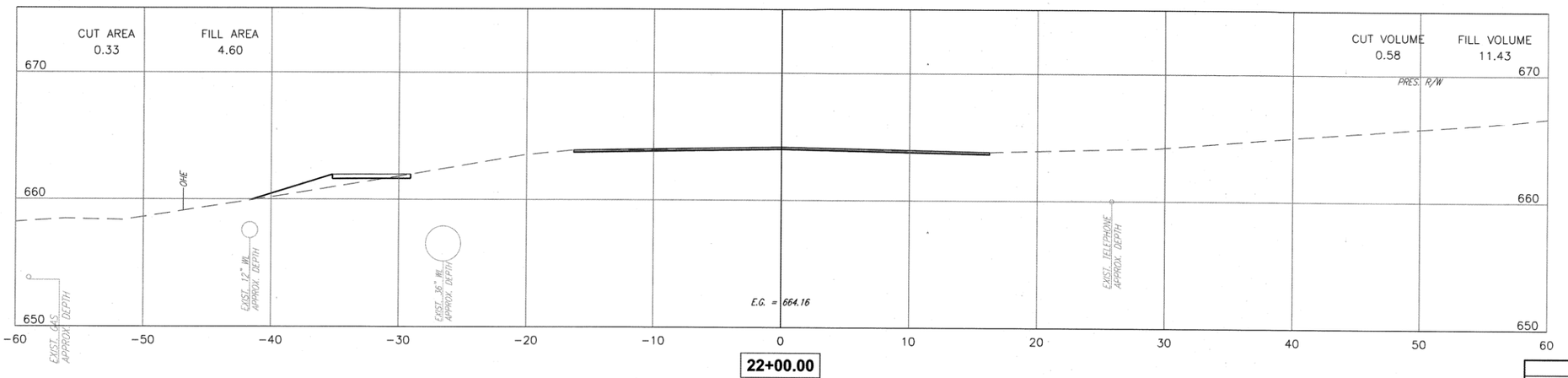

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XS 6

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC
CEC Corporation
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

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PLAN SCALE: 1:5	DRAWN	T.C.B.	01/2025
	DESIGNED	S.N.H.	01/2025
	SURVEY	B.B.	10/2017
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A	PROJ. MGR.		
	LEAD ENGR.		
	FIELD MGR.		
	RECOMMENDED: DESIGN MANAGER		

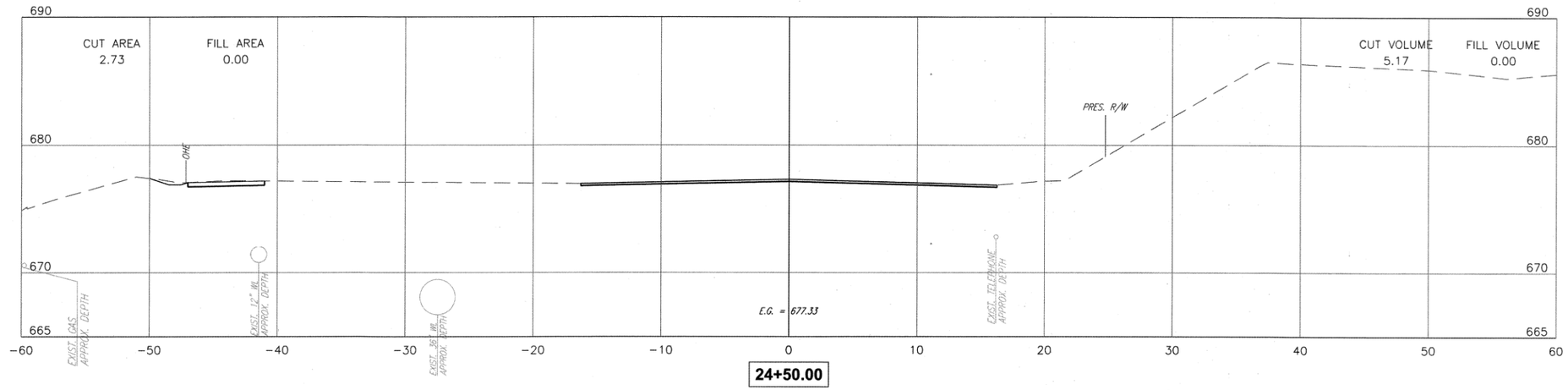
APPROVED: CITY ENGINEER

DRAWING: 144213_CROSS SECTIONS.DWG

DATE

ATLAS PAGE NO: 1006,1137

SHEET XS 6 OF XS 36



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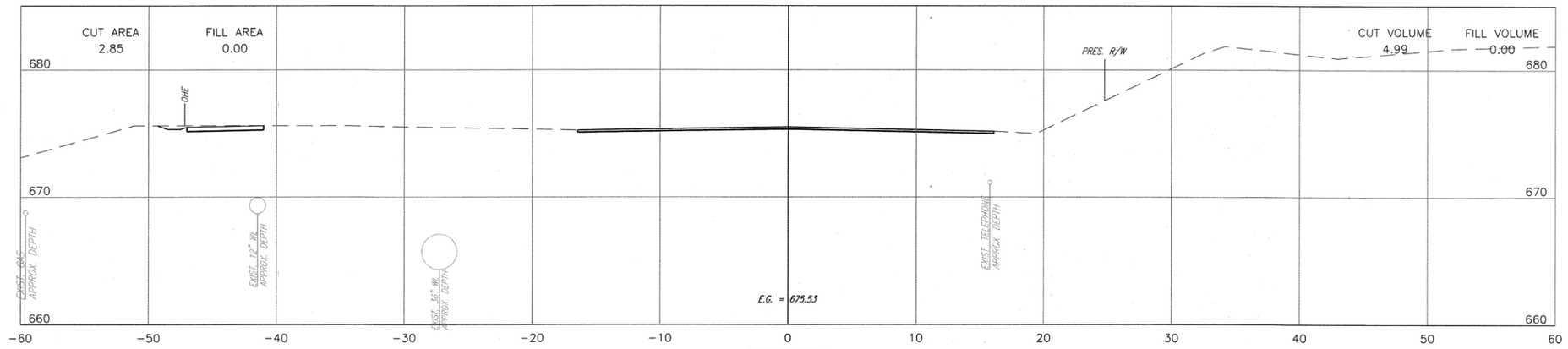

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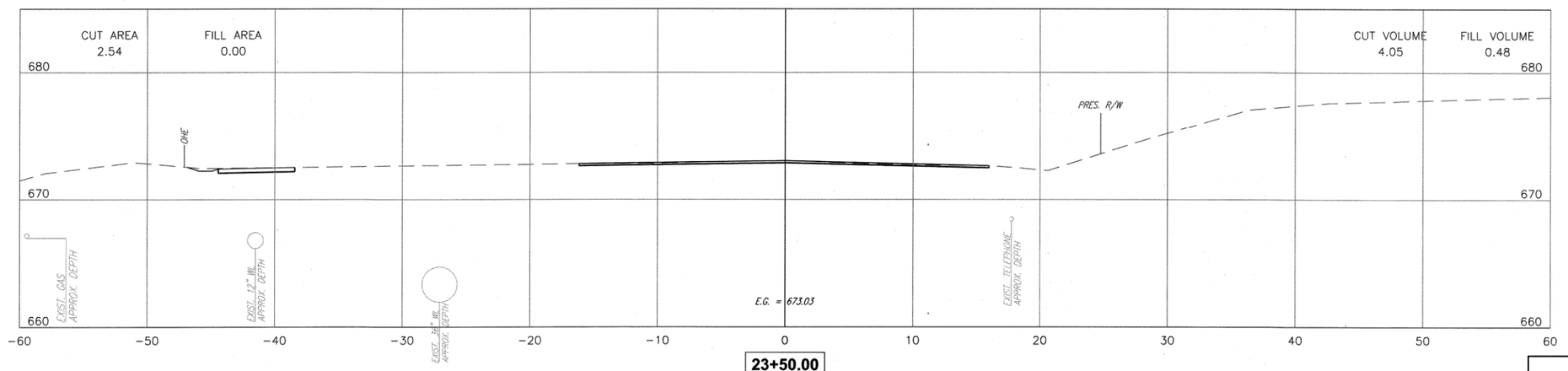

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XS 7

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TMUA-W 22-90

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PLAN SCALE: 1:5	DRAWN	T.C.B.	01/2025	APPROVED:
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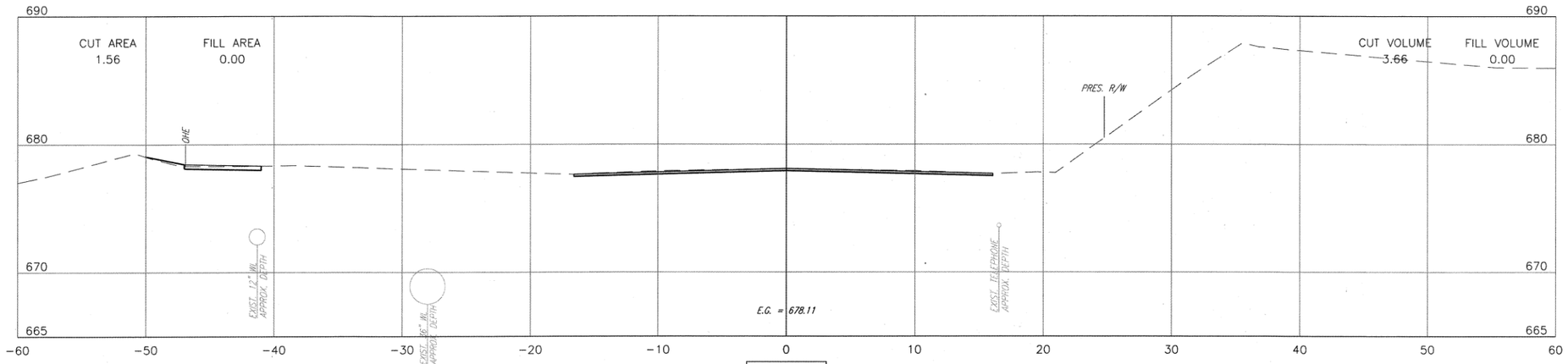
	SURVEY	B.B.	10/2017	
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A	PROJ. MGR.			
	LEAD ENGR.			
	FIELD MGR.			
	RECOMMENDED: DESIGN MANAGER			CITY ENGINEER
DRAWING: 144213_CROSS SECTIONS.DWG				DATE
ATLAS PAGE NO: 1006,1137				SHEET XS 7 OF XS 36



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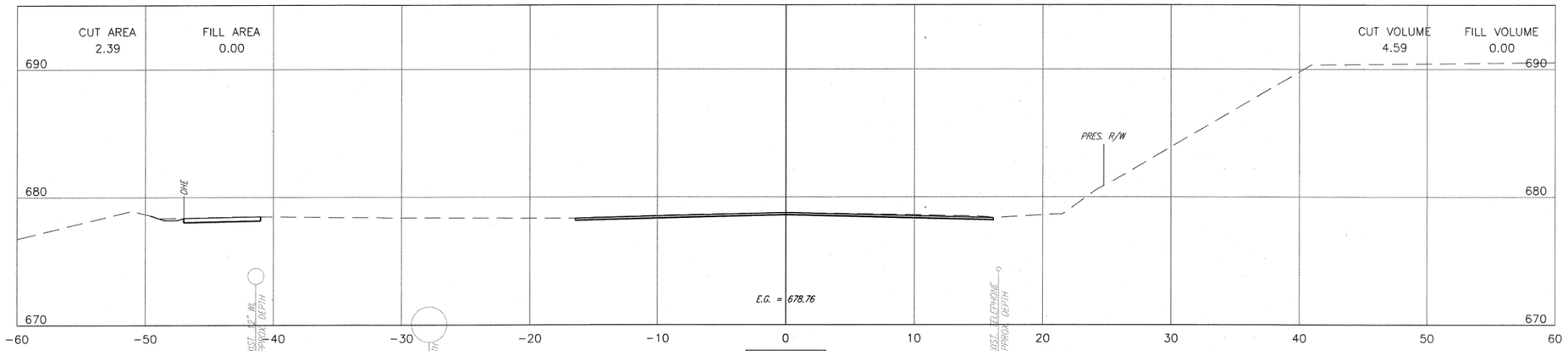

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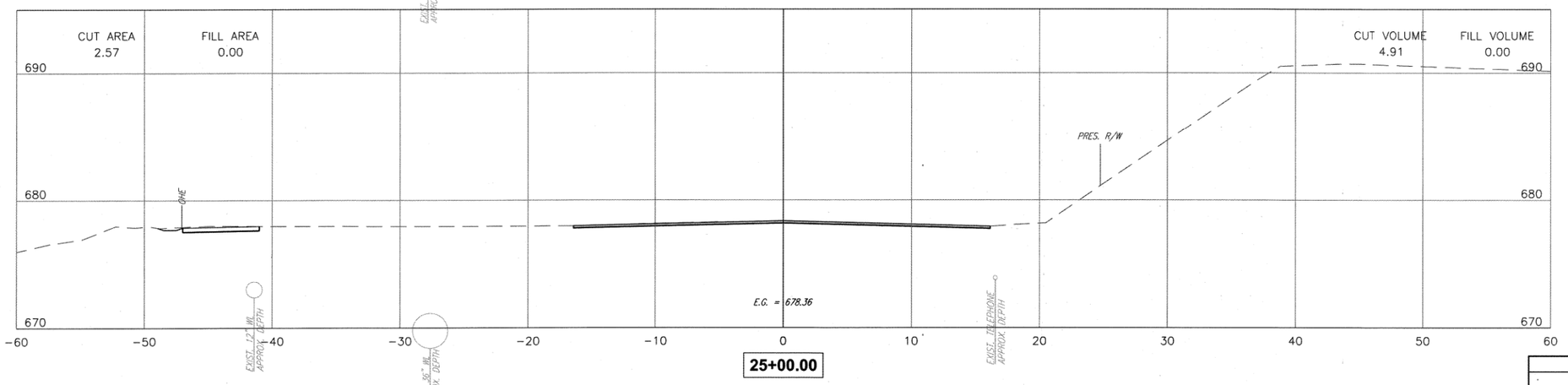

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XS 8

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TMUA-W 22-90

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	SURVEY	B.B.	10/2017
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	LEAD ENGR.		
	FIELD MGR.		
	RECOMMENDED: DESIGN MANAGER		

APPROVED:

CITY ENGINEER

DRAWING: 144213_CROSS SECTIONS.DWG

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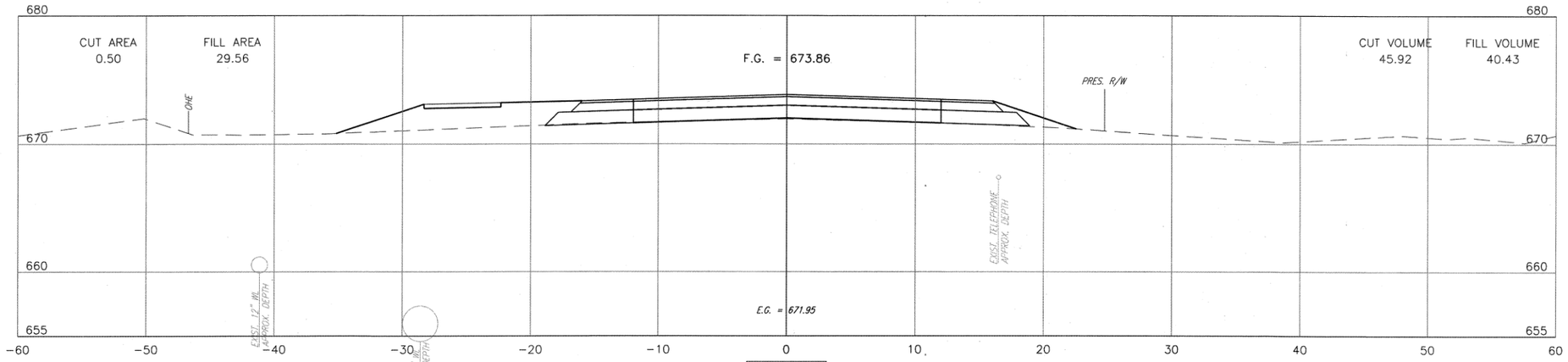
ATLAS PAGE NO: 1006,1137

SHEET XS 8 OF XS 36



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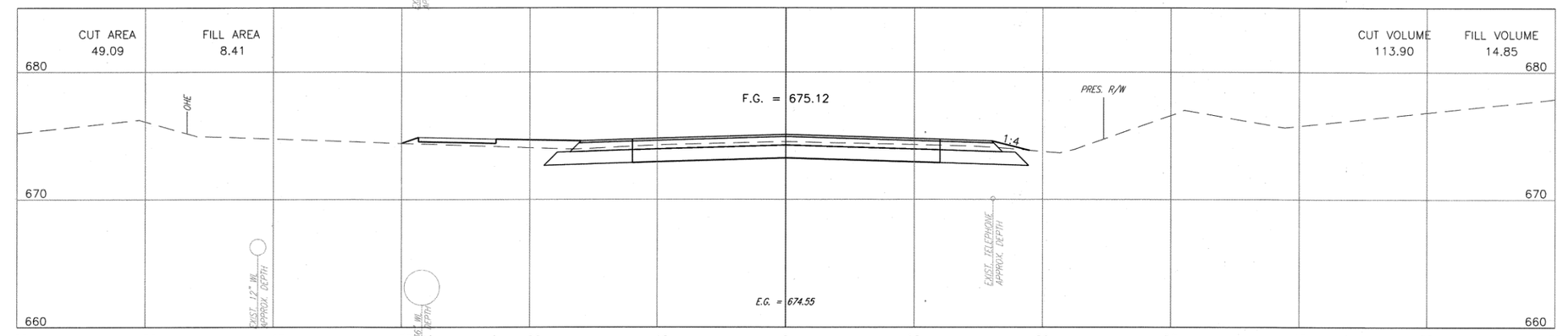

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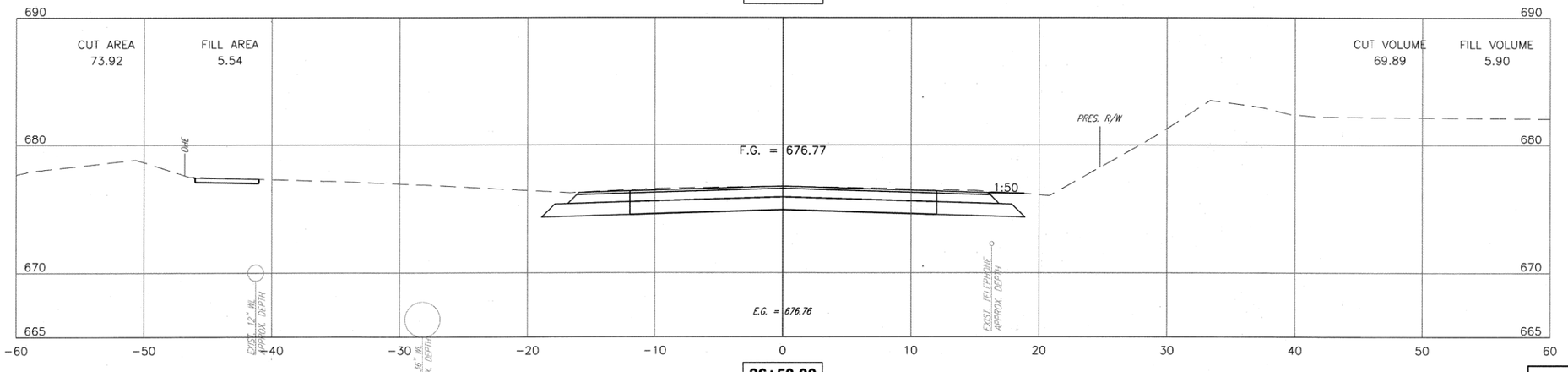

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XS 9

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TMUA-W 22-90

ARTERIAL STREET REHAB
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HORIZONTAL: N/A	LEAD ENGR.		
	FIELD MGR.		
VERTICAL N/A	RECOMMENDED: DESIGN MANAGER		

APPROVED: CITY ENGINEER

DRAWING: 144213_CROSS SECTIONS.DWG

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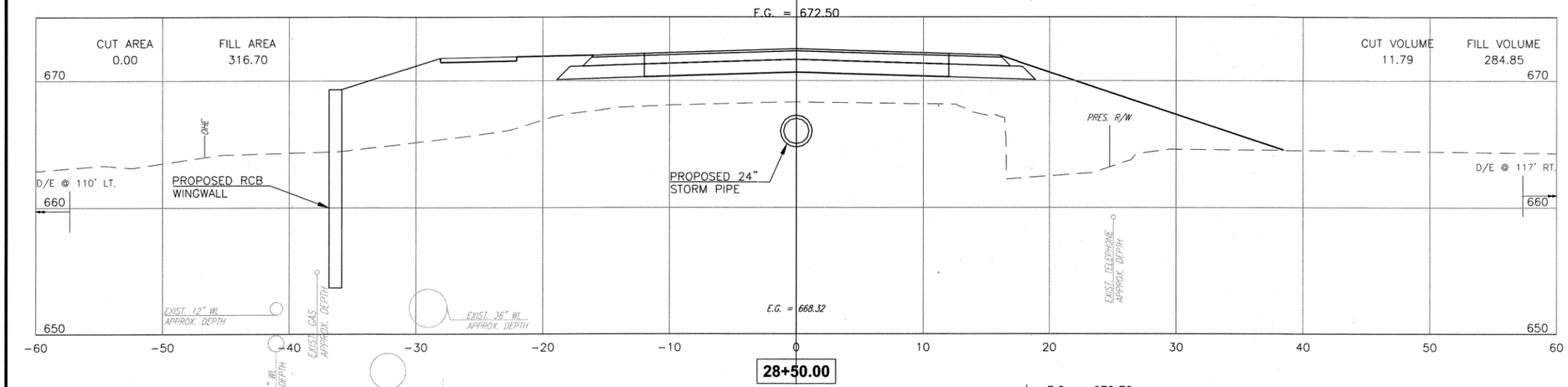
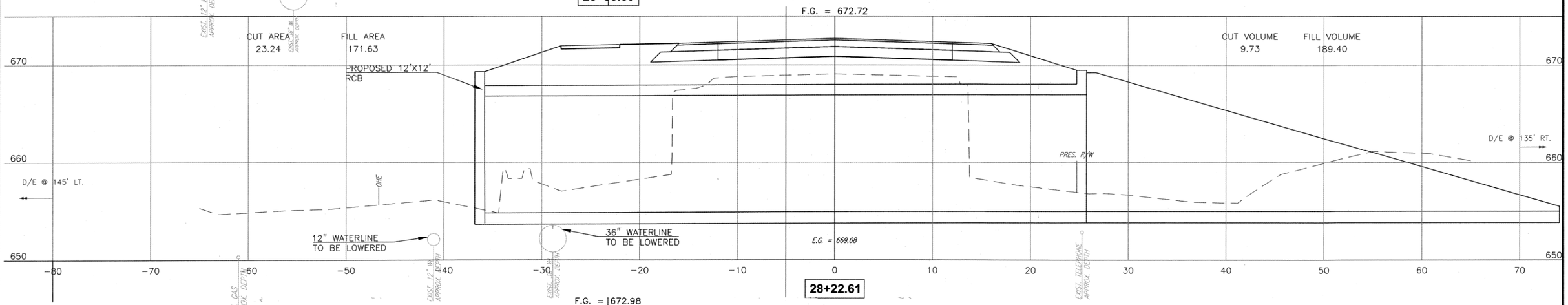
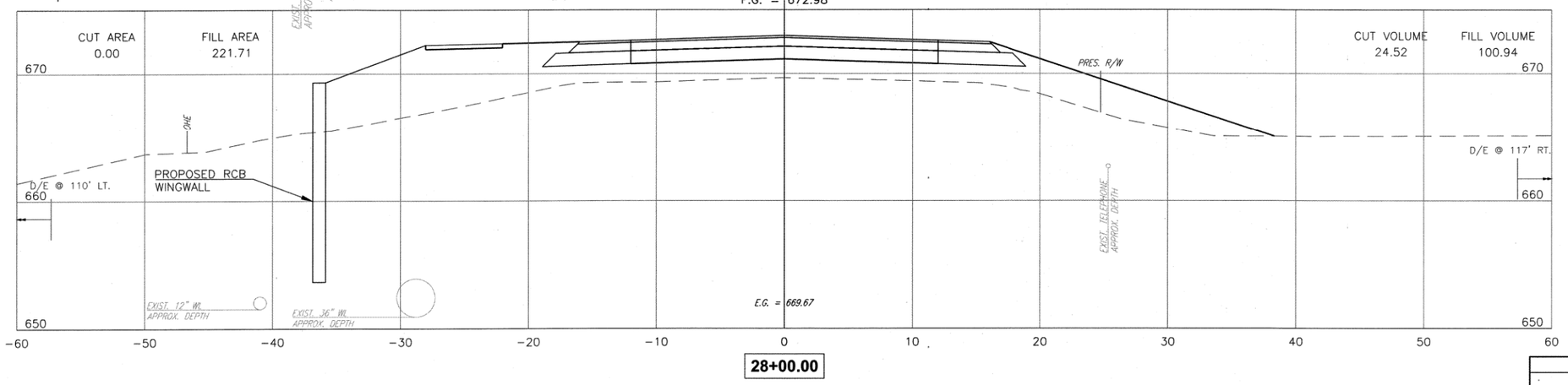
ATLAS PAGE NO: 1006,1137

SHEET XS 9 OF XS 36







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ARTERIAL STREET REHAB
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HORIZONTAL: N/A	LEAD ENGR.		
	FIELD MGR.		
VERTICAL N/A	RECOMMENDED:		
	DESIGN MANAGER		

APPROVED:

CITY ENGINEER

DATE

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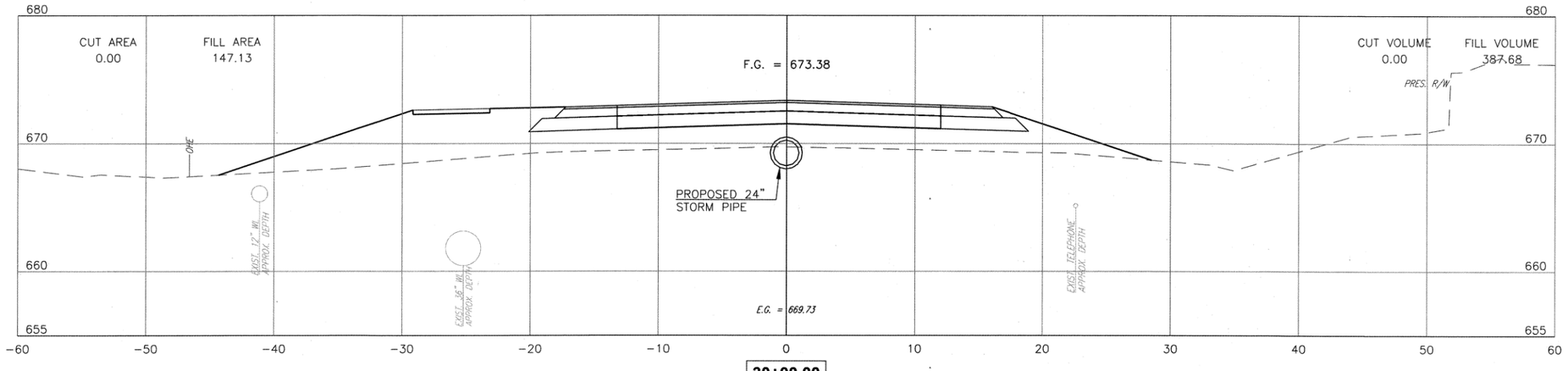
ATLAS PAGE NO: 1006,1137

SHEET XS 10 OF XS 36



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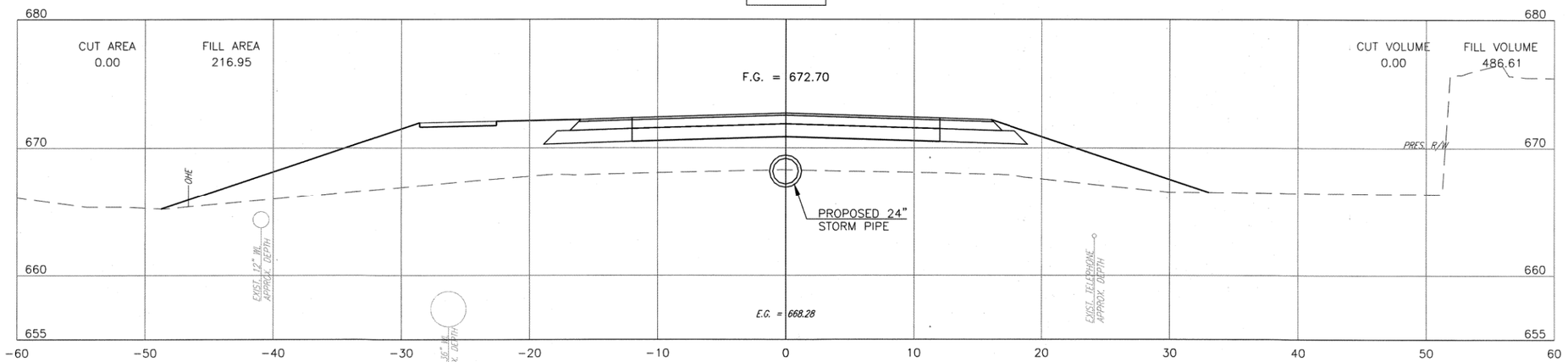

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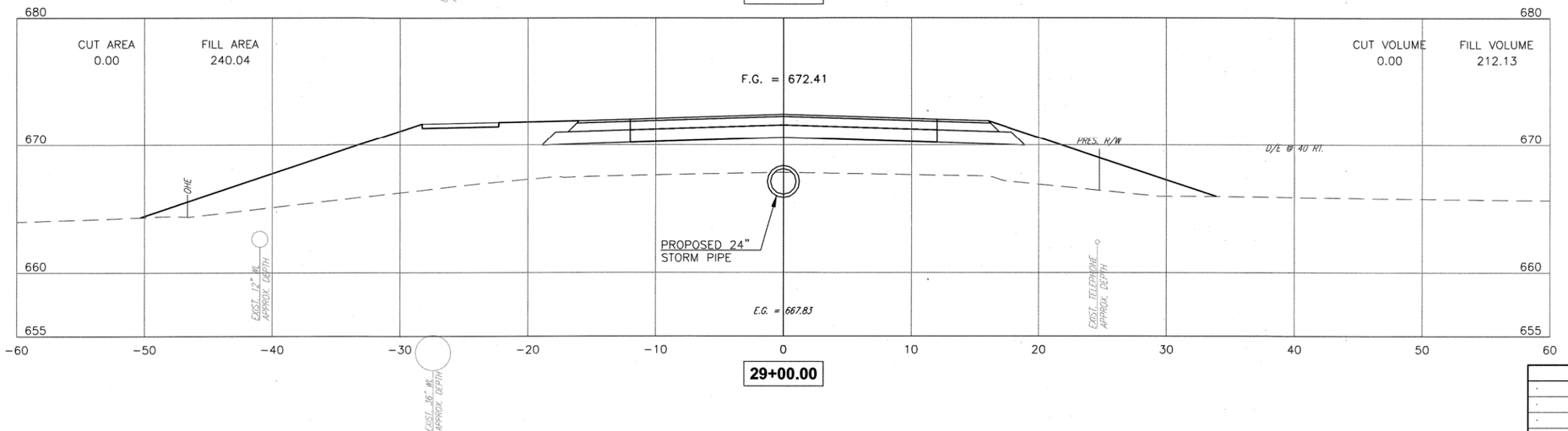

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XS 11

PROJECT NO. 144213
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ARTERIAL STREET REHAB
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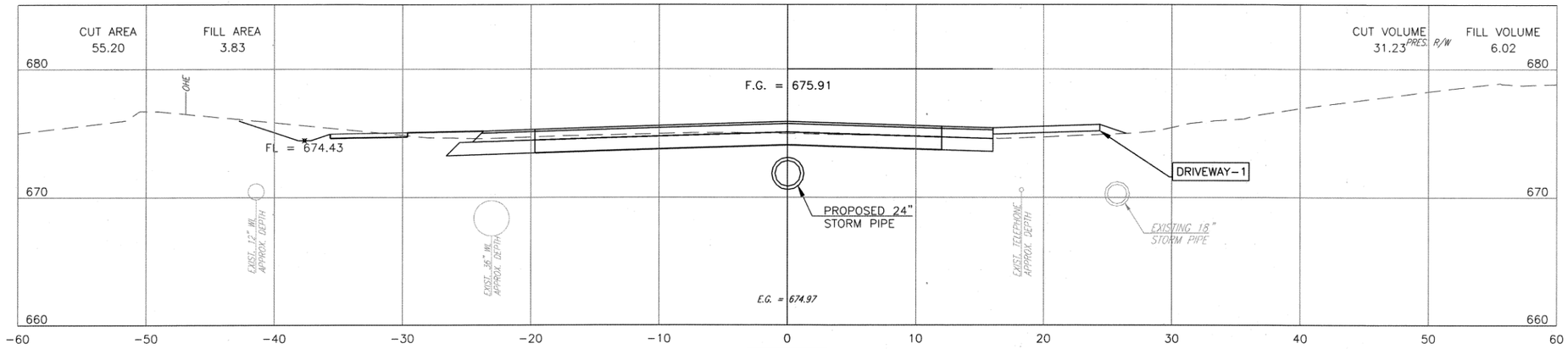
PLAN SCALE: 1:5	DRAWN	T.C.B.	01/2025	APPROVED:
	DESIGNED	S.N.H.	01/2025	
	SURVEY	B.B.	10/2017	
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A	PROJ. MGR.			
	LEAD ENGR.			
	FIELD MGR.			
	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 144213_CROSS SECTIONS.DWG				DATE
ATLAS PAGE NO: 1006,1137				SHEET XS 11 OF XS 36



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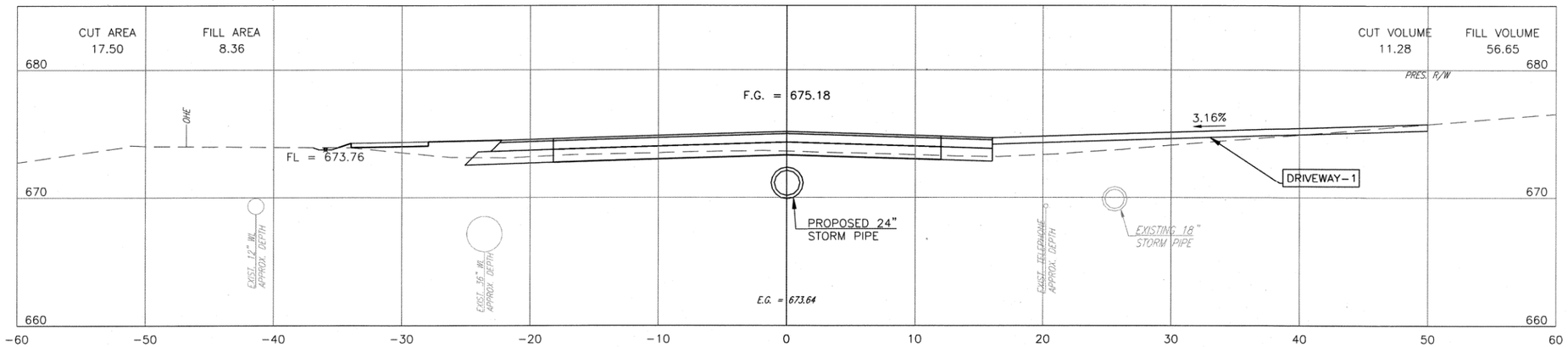

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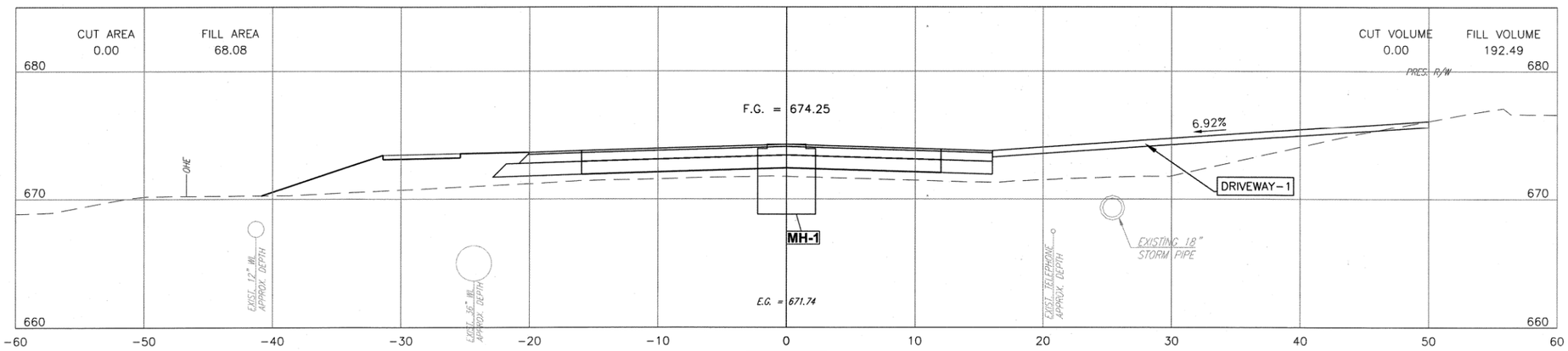

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XS 12

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

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PLAN SCALE: 1:5	DRAWN	T.C.B.	01/2025	APPROVED:
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	SURVEY	B.B.	10/2017	
PROFILE SCALES:	PROJ. MGR.			
HORIZONTAL: N/A	LEAD ENGR.			
	FIELD MGR.			
VERTICAL N/A	RECOMMENDED:			
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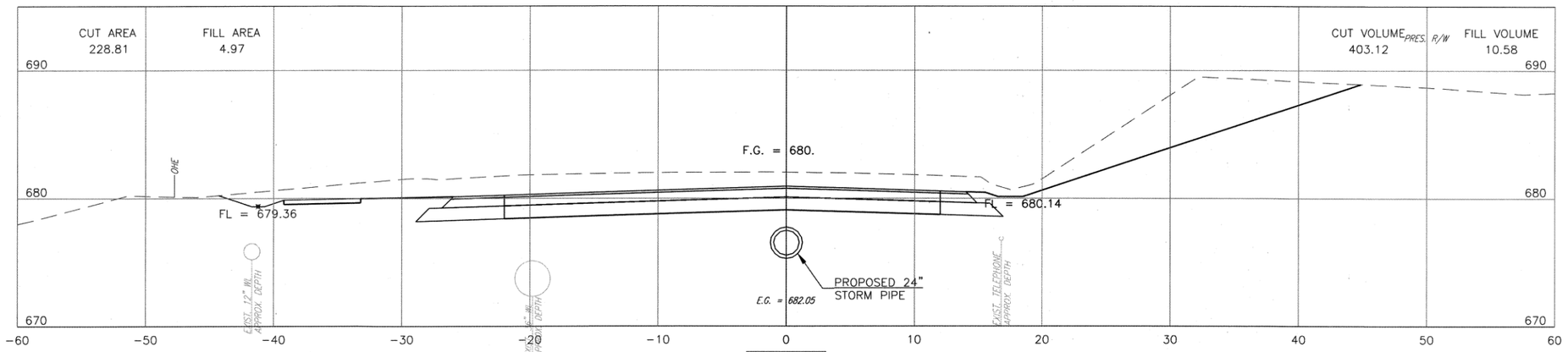
DRAWING: 144213_CROSS SECTIONS.DWG				DATE
ATLAS PAGE NO: 1006,1137				SHEET XS 12 OF XS 36



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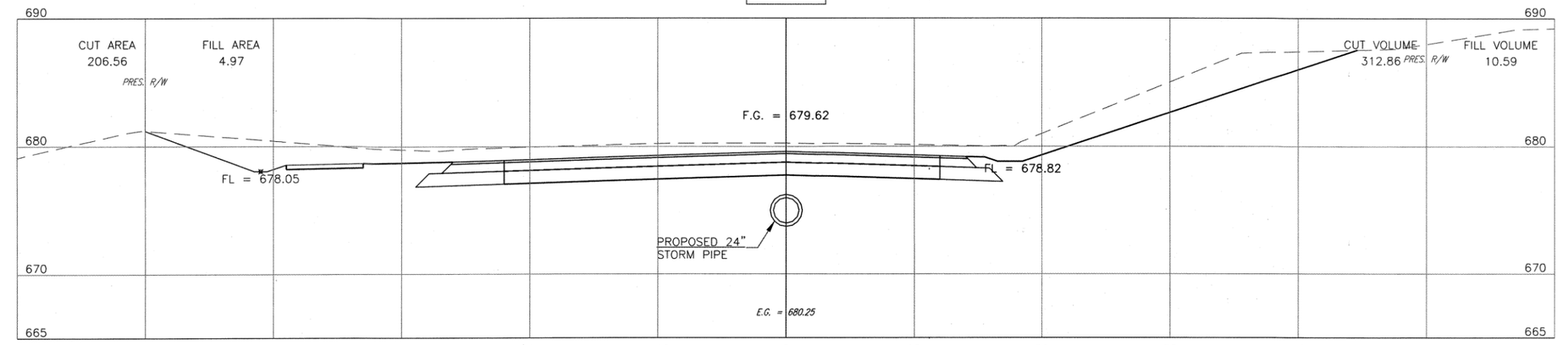

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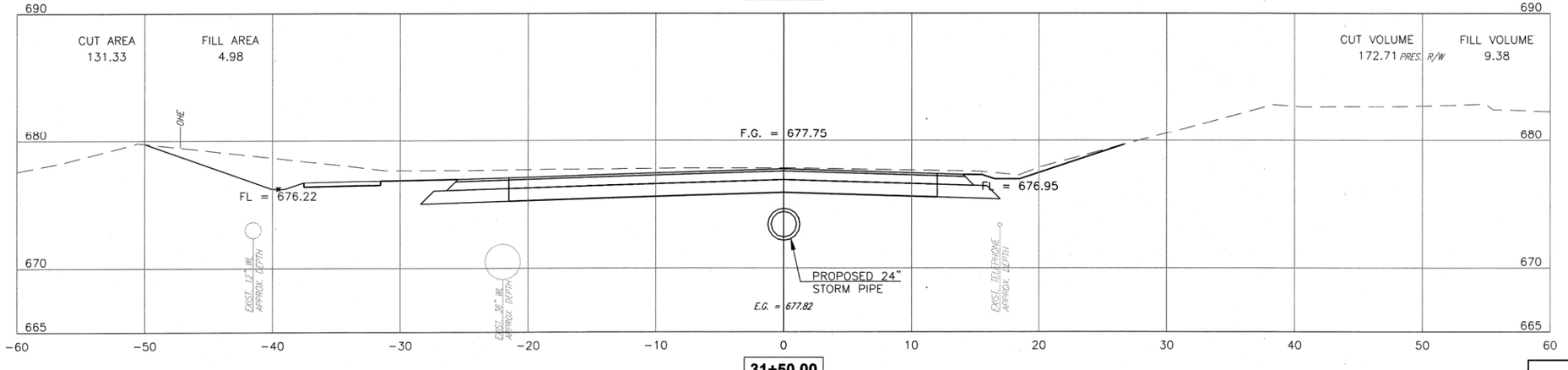

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XS 13

PROJECT NO. 144213
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91ST STREET (HARVARD TO YALE)

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PLAN SCALE: 1:5	DRAWN	T.C.B.	01/2025	APPROVED:
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HORIZONTAL: N/A	LEAD ENGR.			
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VERTICAL N/A	RECOMMENDED:			
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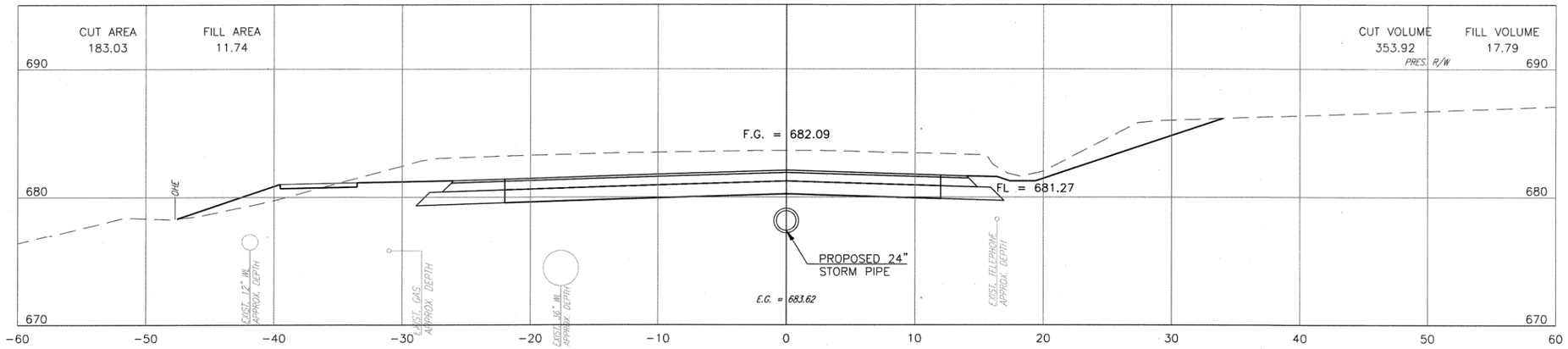
ATLAS PAGE NO: 1006,1137				SHEET XS 13 OF XS 36



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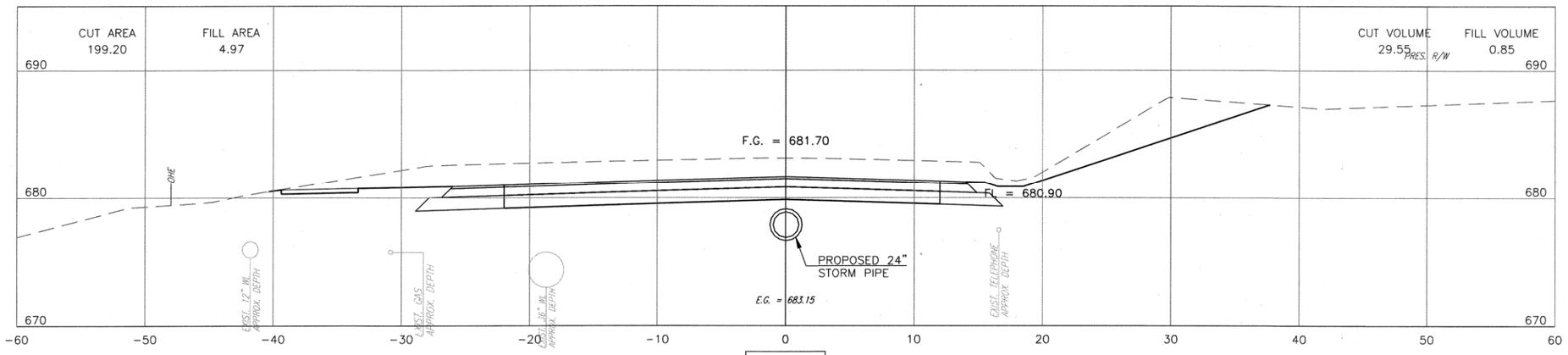

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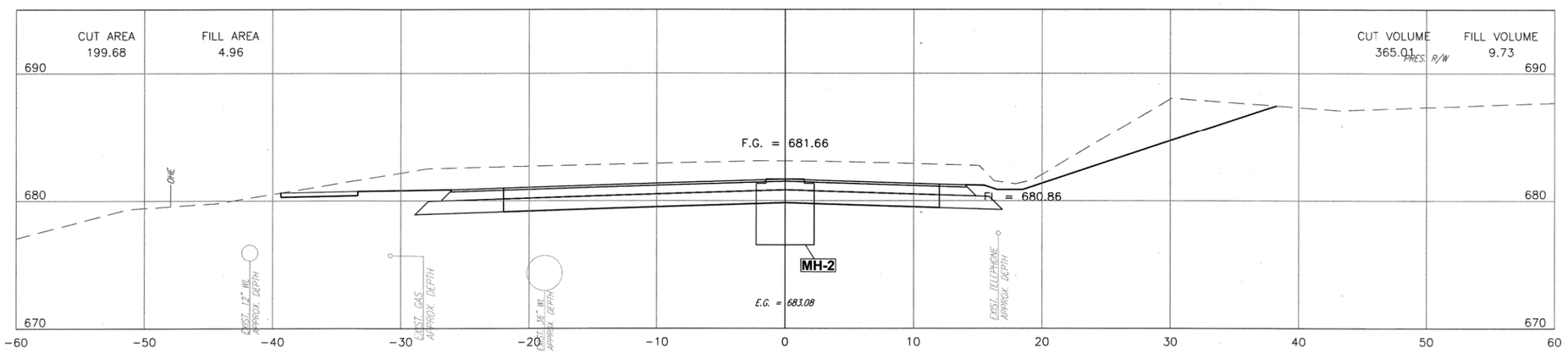

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XS 14

PROJECT NO. 144213
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PLAN SCALE: 1:5	DRAWN	T.C.B.	01/2025
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	FIELD MGR.		
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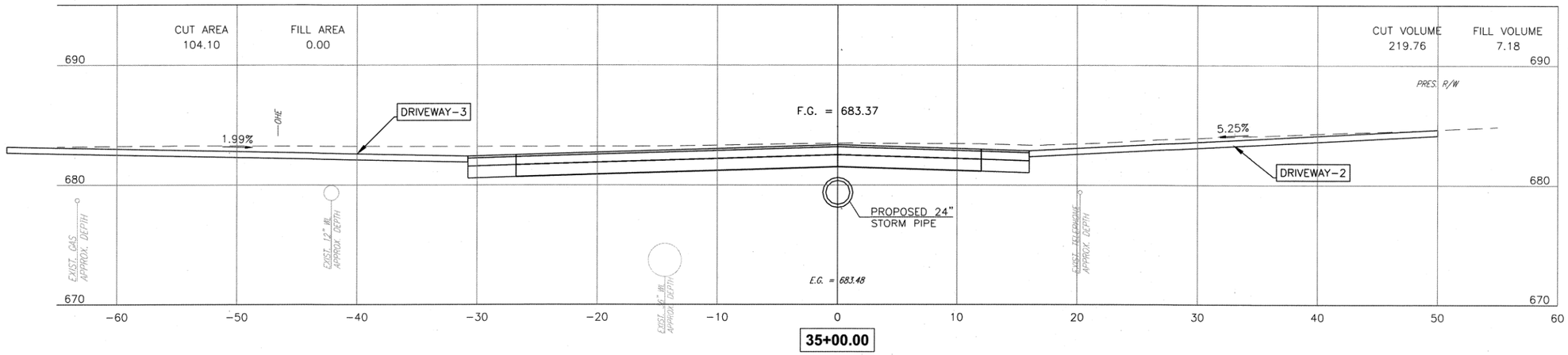
ATLAS PAGE NO: 1006,1137			

APPROVED:

CITY ENGINEER

DATE

SHEET XS 14 OF XS 36



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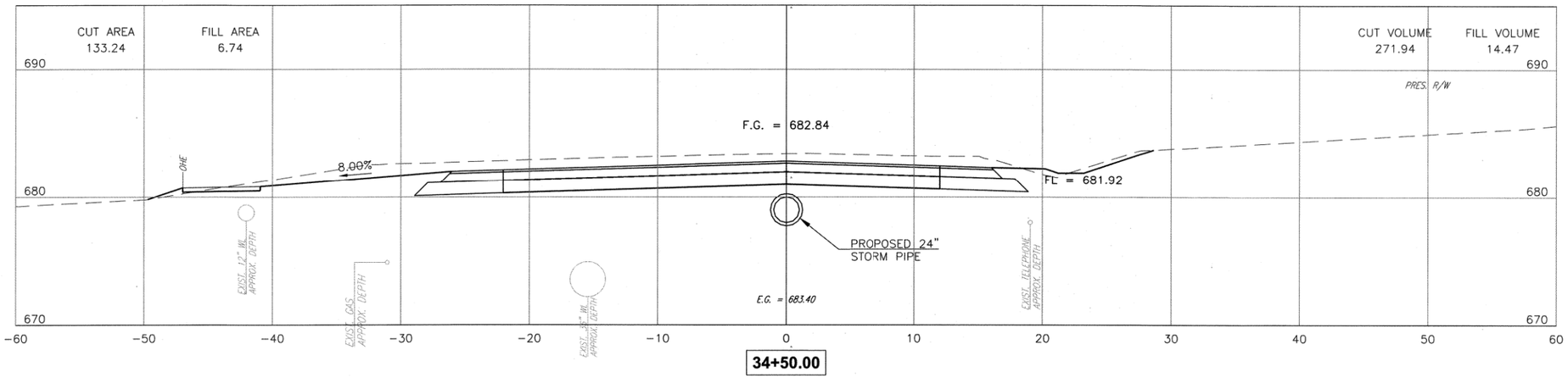

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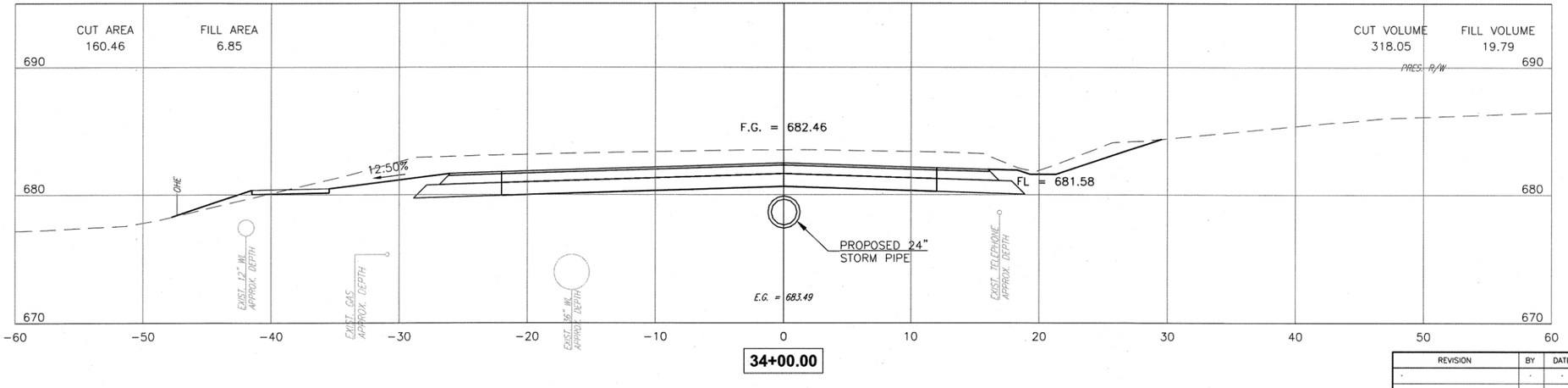

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PROJECT NO. 144213
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VERTICAL N/A	RECOMMENDED:			
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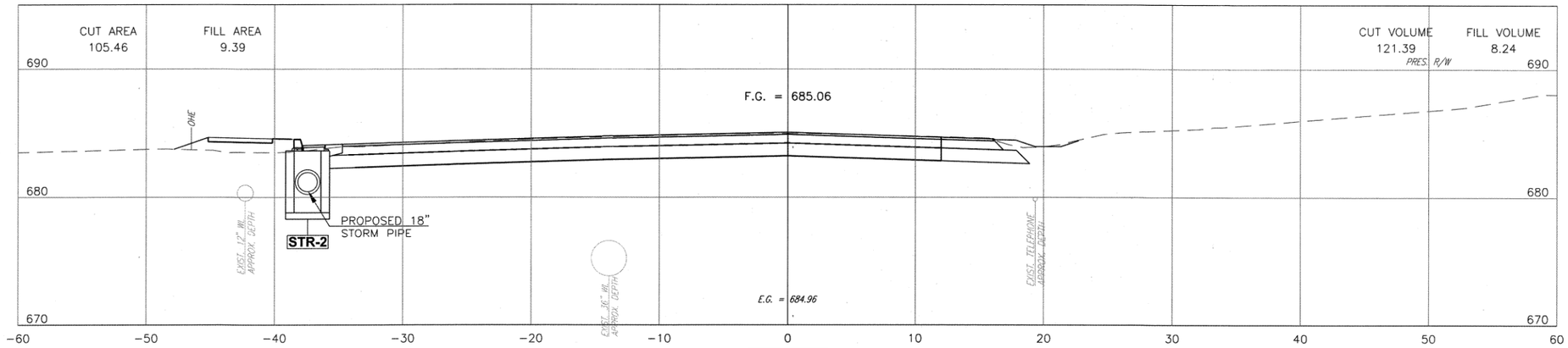
ATLAS PAGE NO: 1006,1137				SHEET XS 15 OF XS 36



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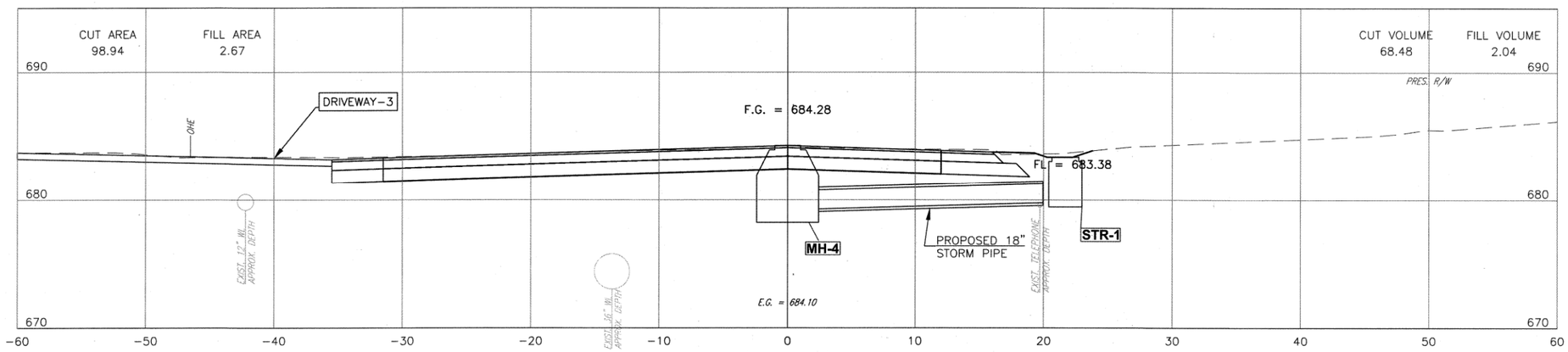

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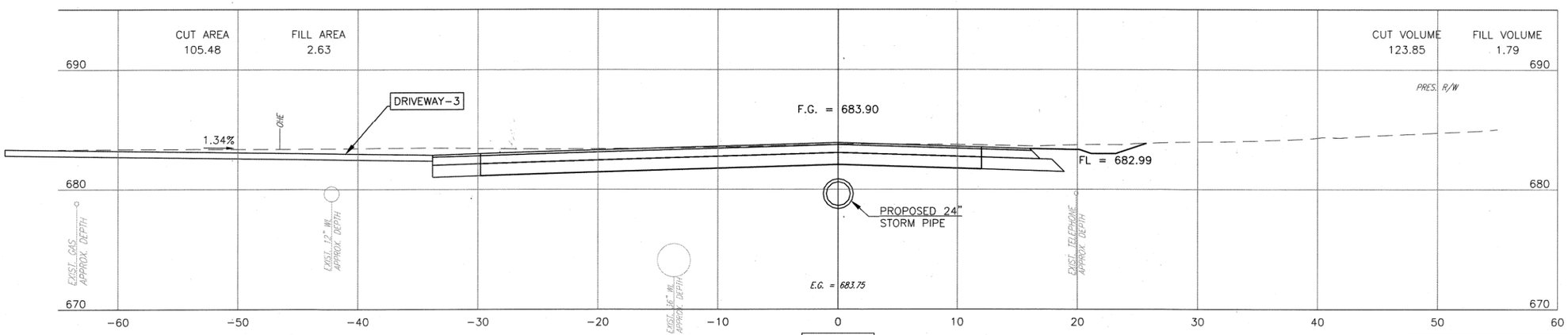

35+31.91

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XS 16

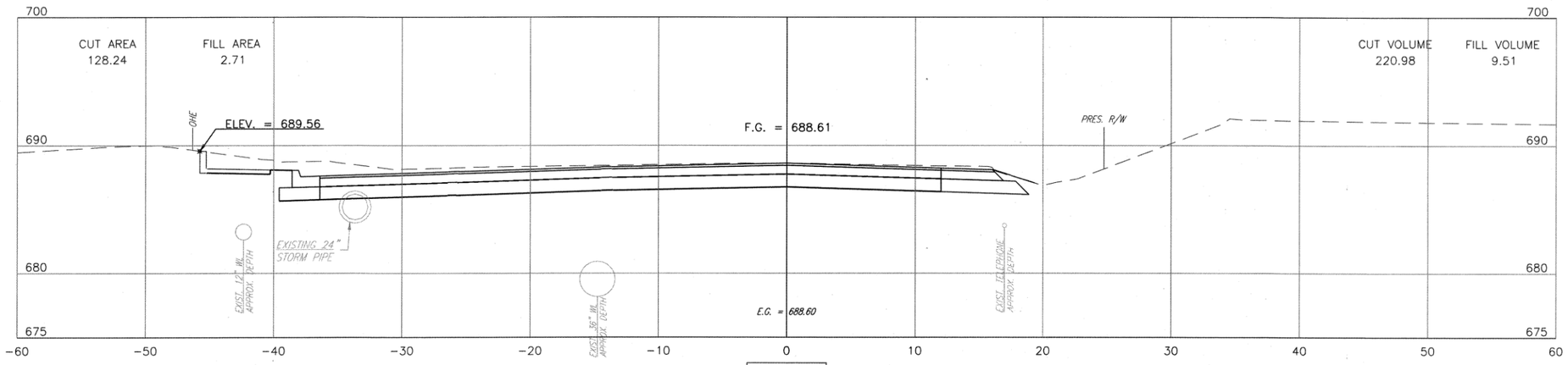
PROJECT NO. 144213
TMUA−W 22−90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
(918) 663−9401

PLAN SCALE: 1:5	DRAWN	T.C.B.	01/2025	APPROVED:
	DESIGNED	S.N.H.	01/2025	
	SURVEY	B.B.	10/2017	
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A	PROJ. MGR.			
	LEAD ENGR.			
	FIELD MGR.			
	RECOMMENDED: DESIGN MANAGER			CITY ENGINEER
DRAWING: 144213_CROSS SECTIONS.DWG				DATE
ATLAS PAGE NO: 1006,1137				SHEET XS 16 OF XS 36



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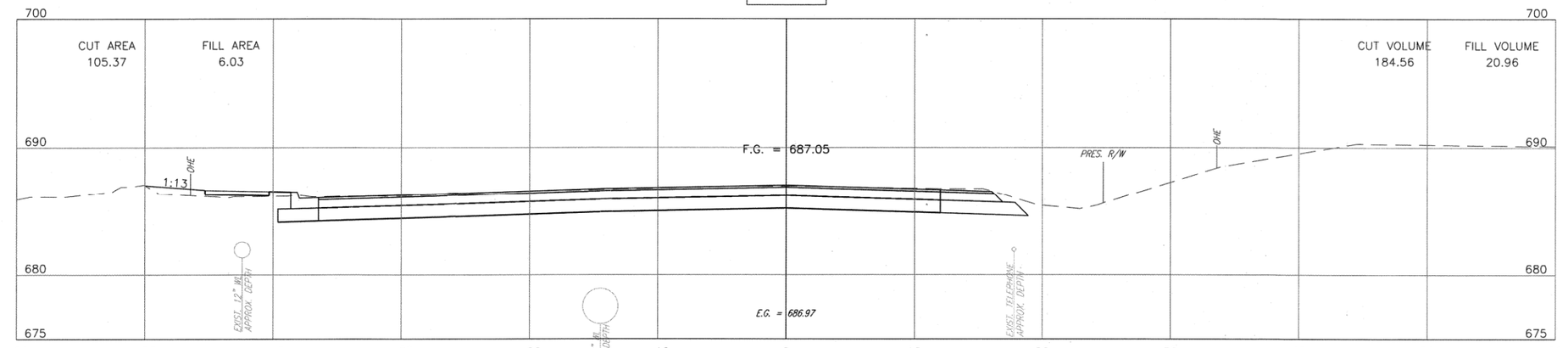

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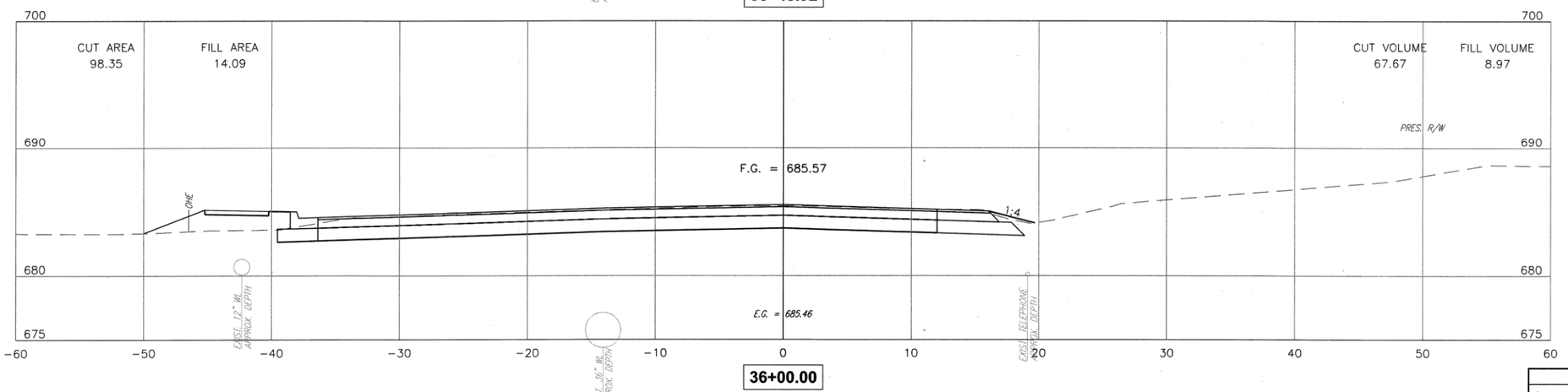

36+00.00

BEFORE YOU DIG 811 OKIE CALL OKIE

XS 17

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

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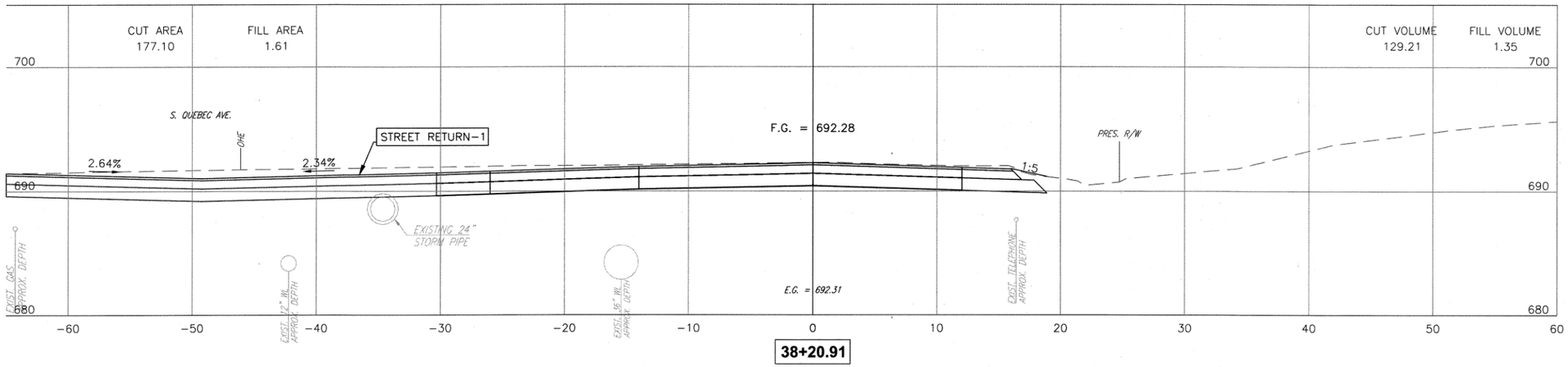
PLAN SCALE: 1:5	DRAWN	T.C.B.	01/2025
	DESIGNED	S.N.H.	01/2025
	SURVEY	B.B.	10/2017
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A	PROJ. MGR.		
	LEAD ENGR.		
	FIELD MGR.		
	RECOMMENDED: DESIGN MANAGER		

APPROVED: CITY ENGINEER

DRAWING: 144213_CROSS SECTIONS.DWG

DATE

ATLAS PAGE NO: 1006,1137



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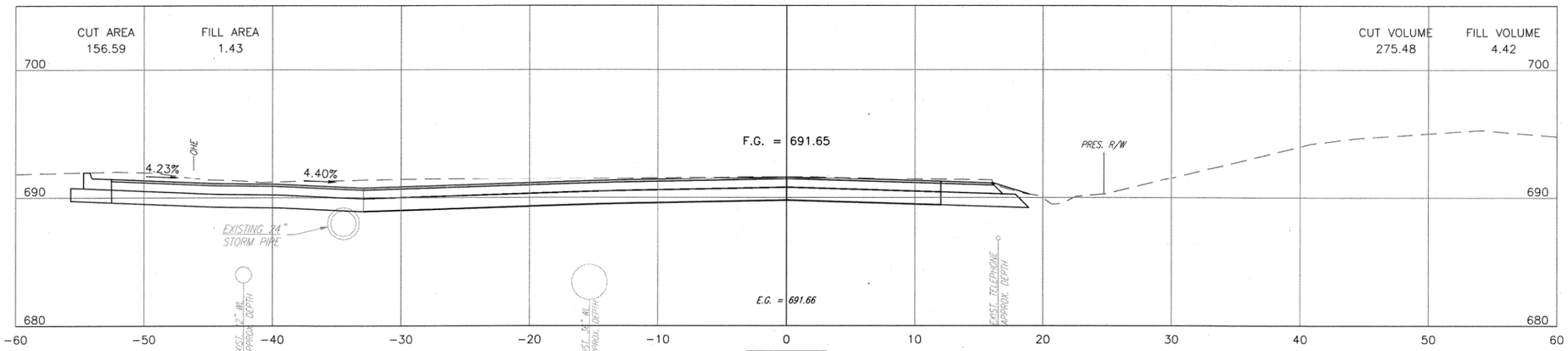

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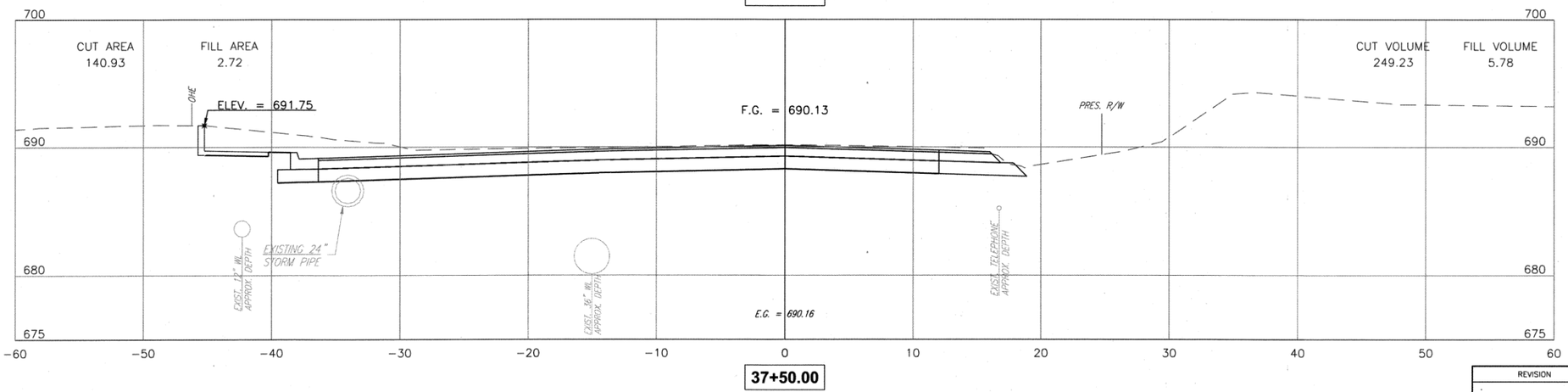

37+50.00

BEFORE YOU DIG 811 CALL OKIE

XS 18

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
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REVISION	BY	DATE
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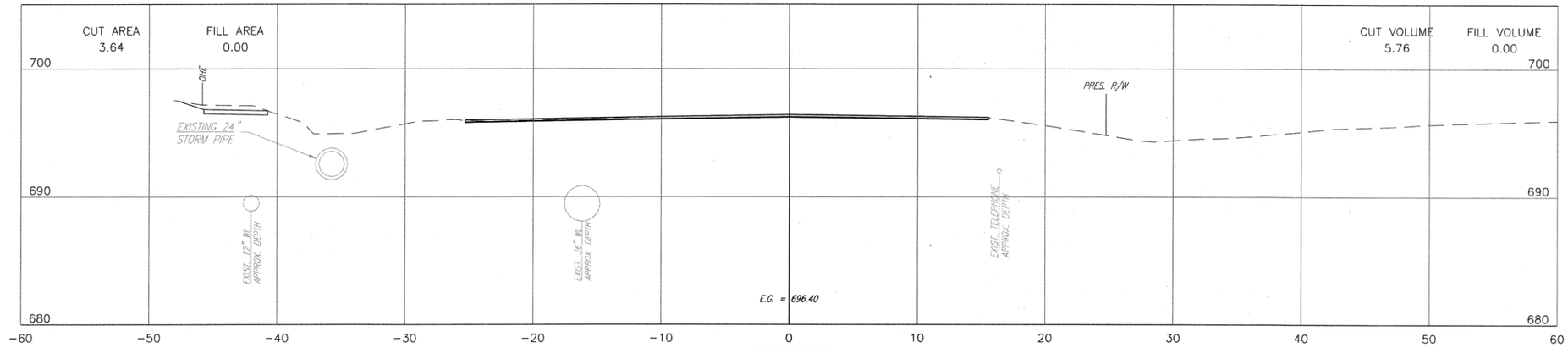
PLAN SCALE: 1:5	DRAWN	T.C.B.	01/2025	APPROVED:
	DESIGNED	S.N.H.	01/2025	
	SURVEY	B.B.	10/2017	
PROFILE SCALES:	PROJ. MGR.			
HORIZONTAL: N/A	LEAD ENGR.			
	FIELD MGR.			
VERTICAL N/A	RECOMMENDED: DESIGN MANAGER			CITY ENGINEER
DRAWING: 144213_CROSS SECTIONS.DWG				DATE
ATLAS PAGE NO: 1006,1137				SHEET XS 18 OF XS 36



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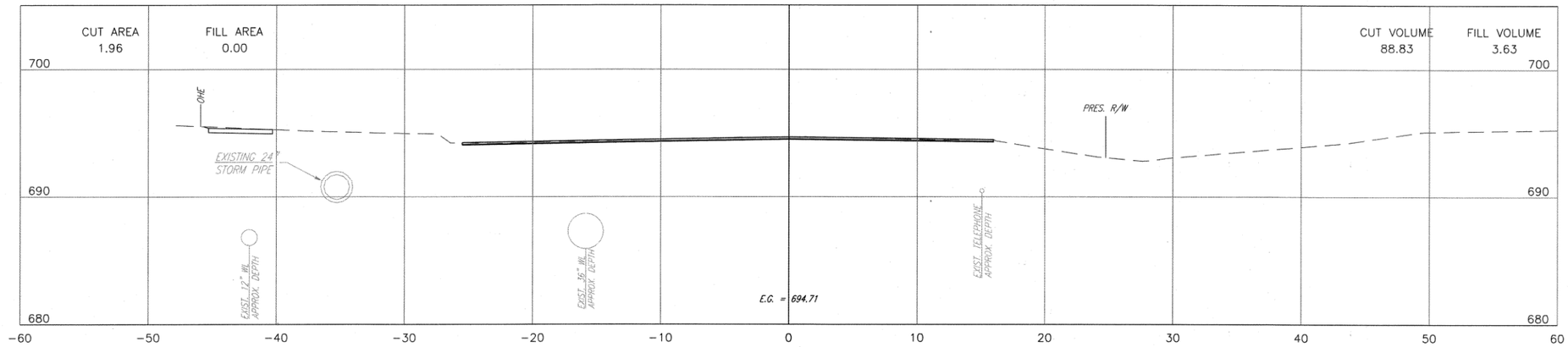

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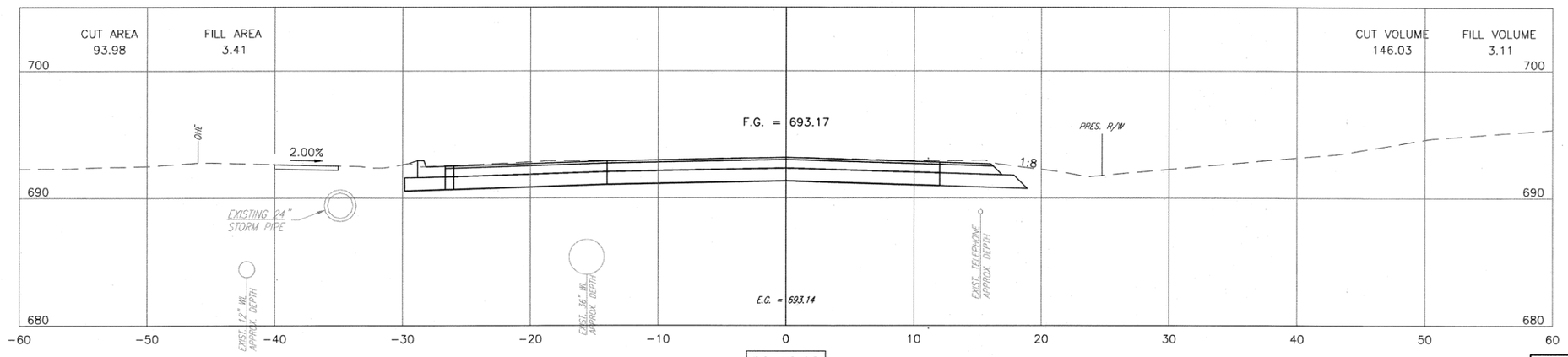

38+50.00

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XS 19

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
CEC 1300 S. Main Street Tulsa, OK 74119
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REVISION	BY	DATE
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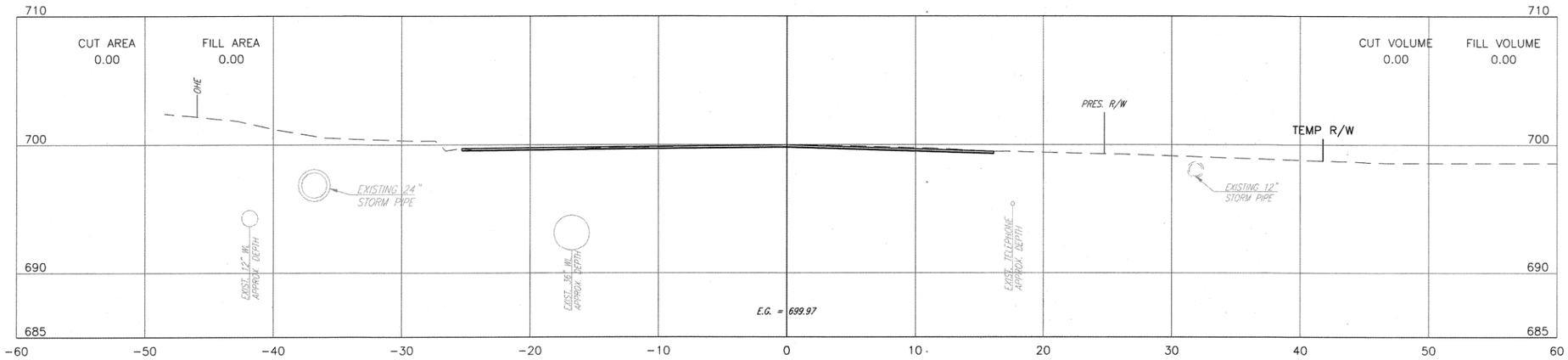
PLAN SCALE: 1:5	DRAWN	T.C.B.	01/2025	APPROVED:
	DESIGNED	S.N.H.	01/2025	
	SURVEY	B.B.	10/2017	
PROFILE SCALES:	PROJ. MGR.			
HORIZONTAL: N/A	LEAD ENGR.			
	FIELD MGR.			
VERTICAL N/A	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 144213_CROSS SECTIONS.DWG				DATE
ATLAS PAGE NO: 1006,1137				SHEET XS 19 OF XS 36



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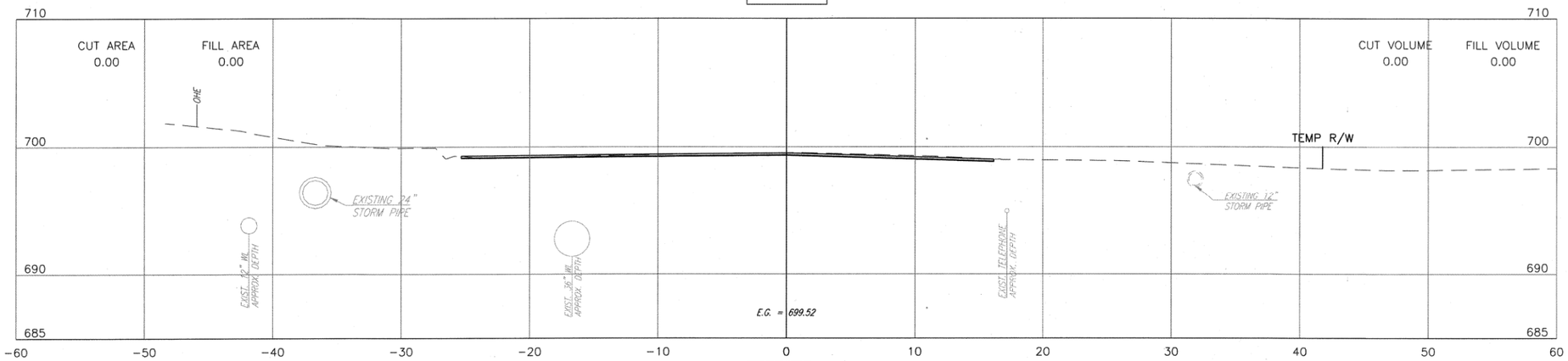

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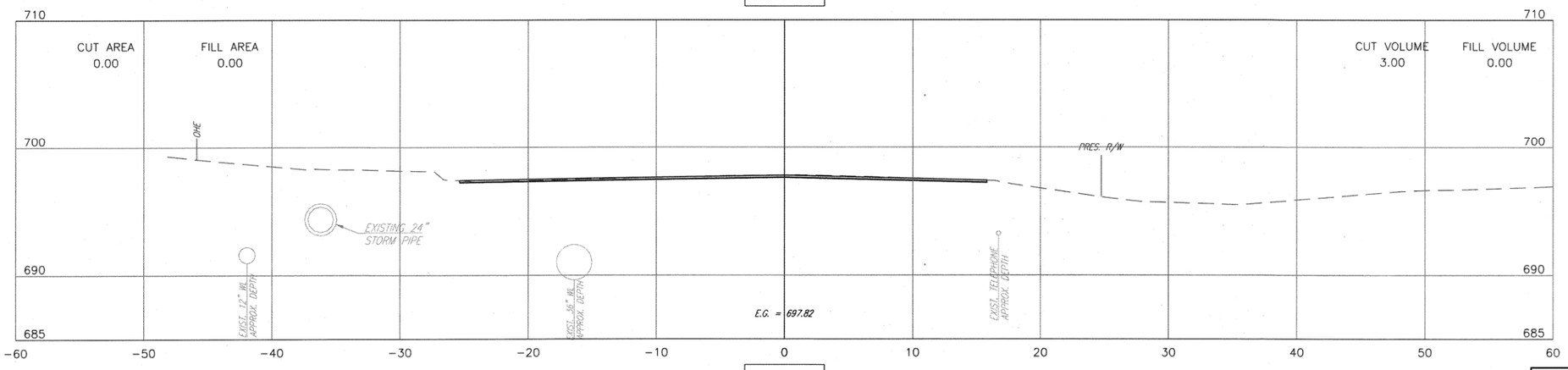

40+00.00

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XS 20

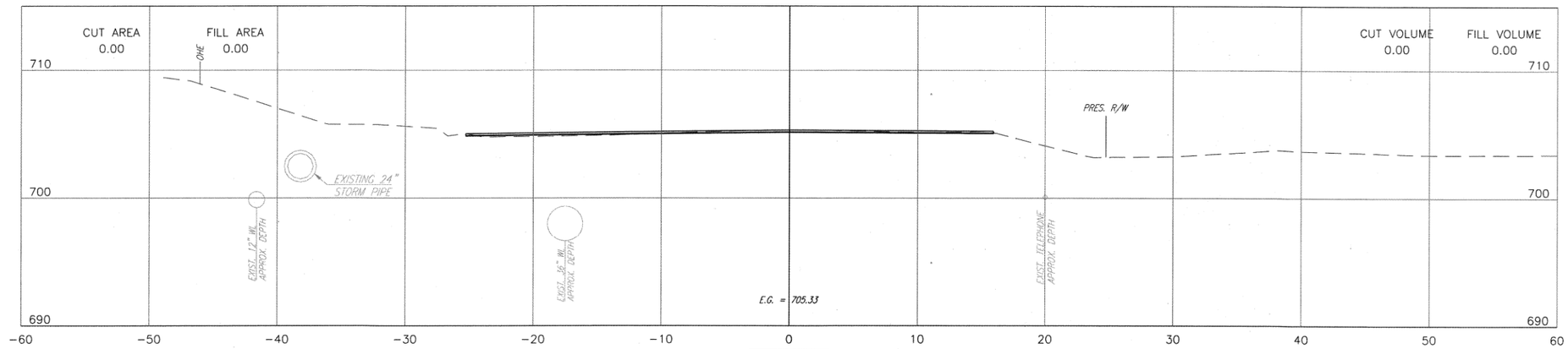
PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC Corporation
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

PLAN SCALE: 1:5	DRAWN	T.C.B.	01/2025	APPROVED:
	DESIGNED	S.N.H.	01/2025	
	SURVEY	B.B.	10/2017	
PROFILE SCALES:	PROJ. MGR.			
HORIZONTAL: N/A	LEAD ENGR.			
	FIELD MGR.			
VERTICAL N/A	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 144213_CROSS SECTIONS.DWG				DATE
ATLAS PAGE NO: 1006,1137				SHEET XS 20 OF XS 36



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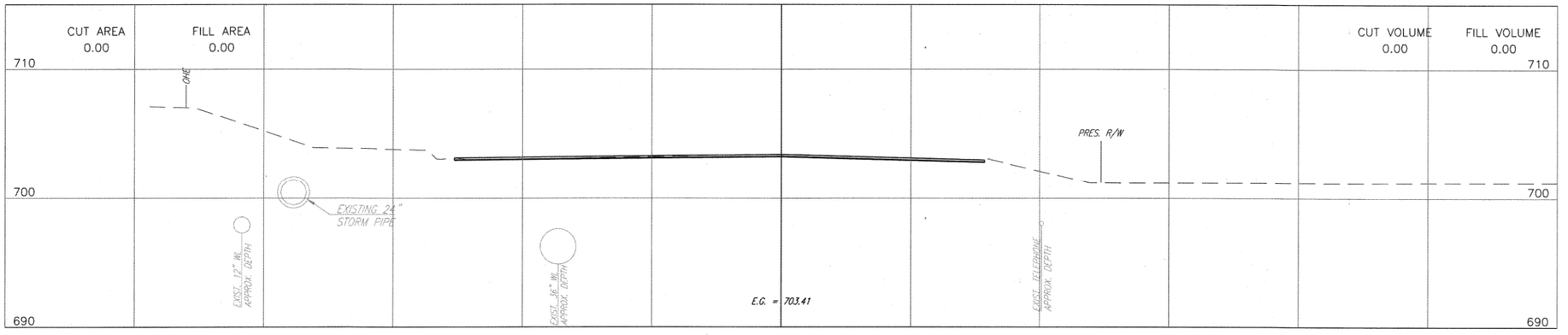

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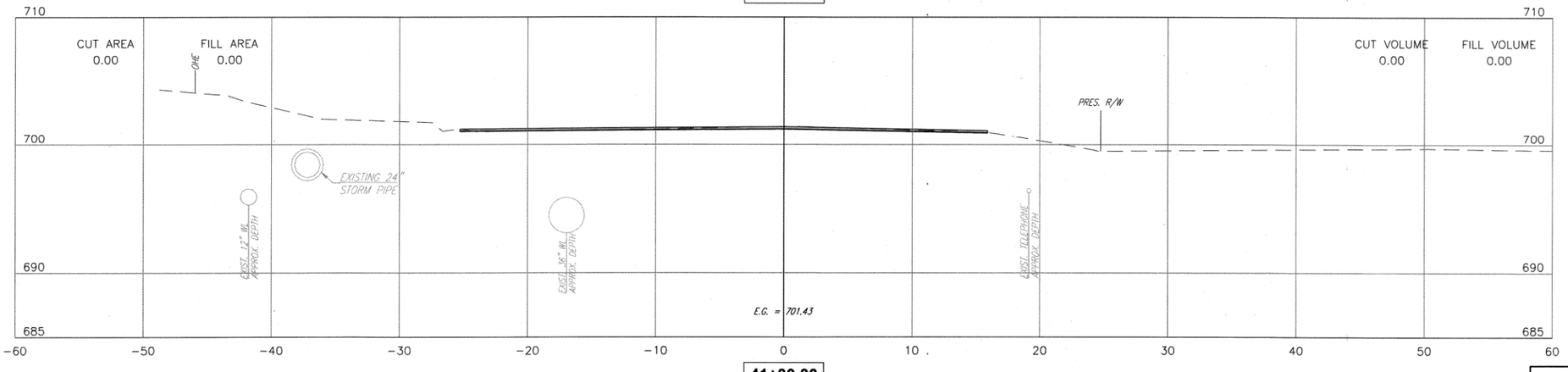

41+00.00

REVISION	BY	DATE

XS 21

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

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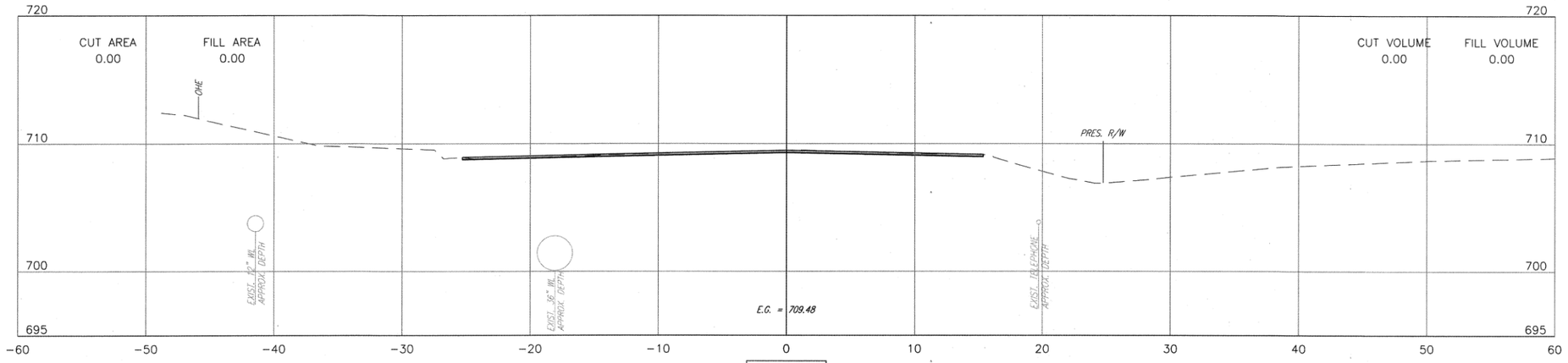
PLAN SCALE: 1:5	DRAWN	T.C.B.	01/2025	APPROVED:
	DESIGNED	S.N.H.	01/2025	
	SURVEY	B.B.	10/2017	
PROFILE SCALES: HORIZONTAL: N/A VERTICAL N/A	PROJ. MGR.			
	LEAD ENGR.			
	FIELD MGR.			
	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 144213_CROSS SECTIONS.DWG				DATE
ATLAS PAGE NO: 1006,1137				SHEET XS 21 OF XS 36



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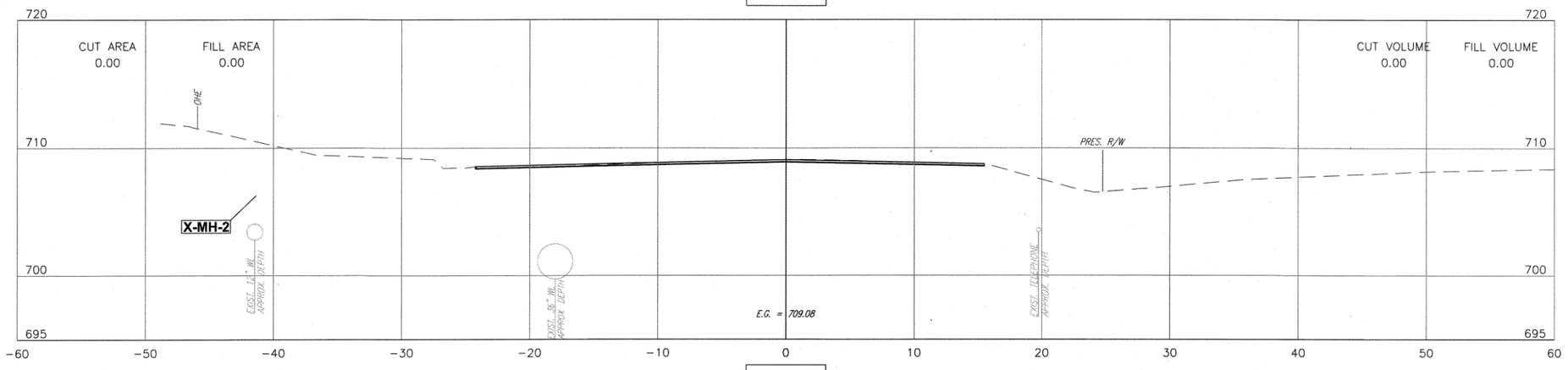

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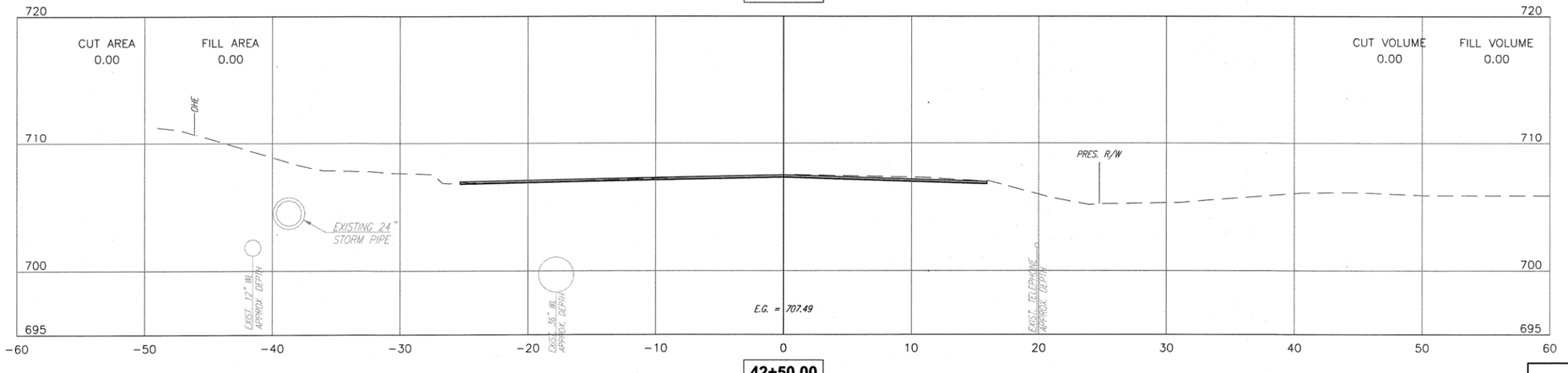

42+50.00

BEFORE YOU DIG
811
CALL OKIE

XS 22

PROJECT NO. 144213
TMUA-W 22-90

ARTERIAL STREET REHAB
91ST STREET (HARVARD TO YALE)

CITY OF TULSA, OKLAHOMA
PUBLIC WORKS DEPARTMENT

CEC
CEC Corporation
1300 S. Main Street Tulsa, OK 74119
(918) 663-9401

REVISION	BY	DATE
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PLAN SCALE: 1:5	DRAWN	T.C.B.	01/2025	APPROVED:
	DESIGNED	S.N.H.	01/2025	
	SURVEY	B.B.	10/2017	
PROFILE SCALES:	PROJ. MGR.			
HORIZONTAL: N/A	LEAD ENGR.			
	FIELD MGR.			
VERTICAL N/A	RECOMMENDED:			
	DESIGN MANAGER			CITY ENGINEER
DRAWING: 144213_CROSS SECTIONS.DWG				DATE
ATLAS PAGE NO: 1006,1137				SHEET XS 22 OF XS 36