



The City of  
**OKLAHOMA CITY**

## PRELIMINARY ENGINEERING REPORT FOR

**PC-0917**

### **OFF-ROAD TRAIL**

**EASTERN AVENUE FROM GRAND TRAIL TO SE 59<sup>TH</sup> STREET**

Prepared for:



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Submitted By:



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THE CITY OF OKLAHOMA CITY

PC-0917

Off-Road Trail

Eastern Avenue from Grand Trail to SE 59<sup>th</sup> Street

Prepared by:  
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Received by:

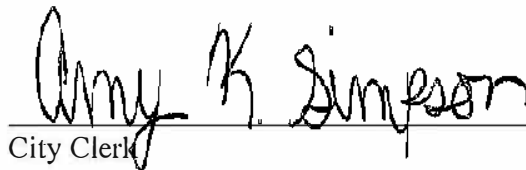


Debbie Miller, P.E., Director  
Public Works / City Engineer

RECEIVED by the Council of the City of Oklahoma City this 27TH day of AUGUST, 2024.

ATTEST:

THE CITY OF OKLAHOMA CITY

  
City Clerk

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## Overview

It is the overall intention of City of Oklahoma City (OKC) partnered with the Oklahoma Department of Transportation (ODOT) to provide a multi-modal trail along Eastern Avenue from S.E. 59<sup>th</sup> Street to Grand Boulevard. The City of Oklahoma City has been awarded ARPA (America Rescue Plan Act) funding and an ACOG grant (Association of Central Oklahoma Governments) for construction, which will be administrated by ODOT with funding split 80% ACOG/ODOT and 20% ARPA/OKC. This cooperative effort to improve pedestrian facilities is classified as Project PC-0917 by the City and Job Piece Number 38096(04) by the State. This project will help advance pedestrian connectivity from South Grand Trail further south, helping to eventually bridge the accessibility gap between the existing South Grand and Tinker-Draper Trails and completing what would be a continuous pedestrian network spanning from Lake Hefner to Lake Stanley Draper.

Design aspects to be considered and presented in this report include trail construction, signalization upgrades, bus stop and trail connectivity, pavement markings and signage, and other amenities which could include landscaping and drainage. Incidental technical elements such as storm sewer system alterations, public and private utility relocations, appropriate traffic control measures and devices, and identification of Right-of-Way acquisition needs to achieve the conceptual design will also be established and discussed.

The primary objectives for these enhancements are to improve accessibility, foster community growth, and increase safety for both vehicular and pedestrian users. This project intends to avoid roadway reconstruction and retrofit existing conditions as much as feasible to minimize costs, mitigate traffic disruptions, and alleviate hardship for nearby property owners.

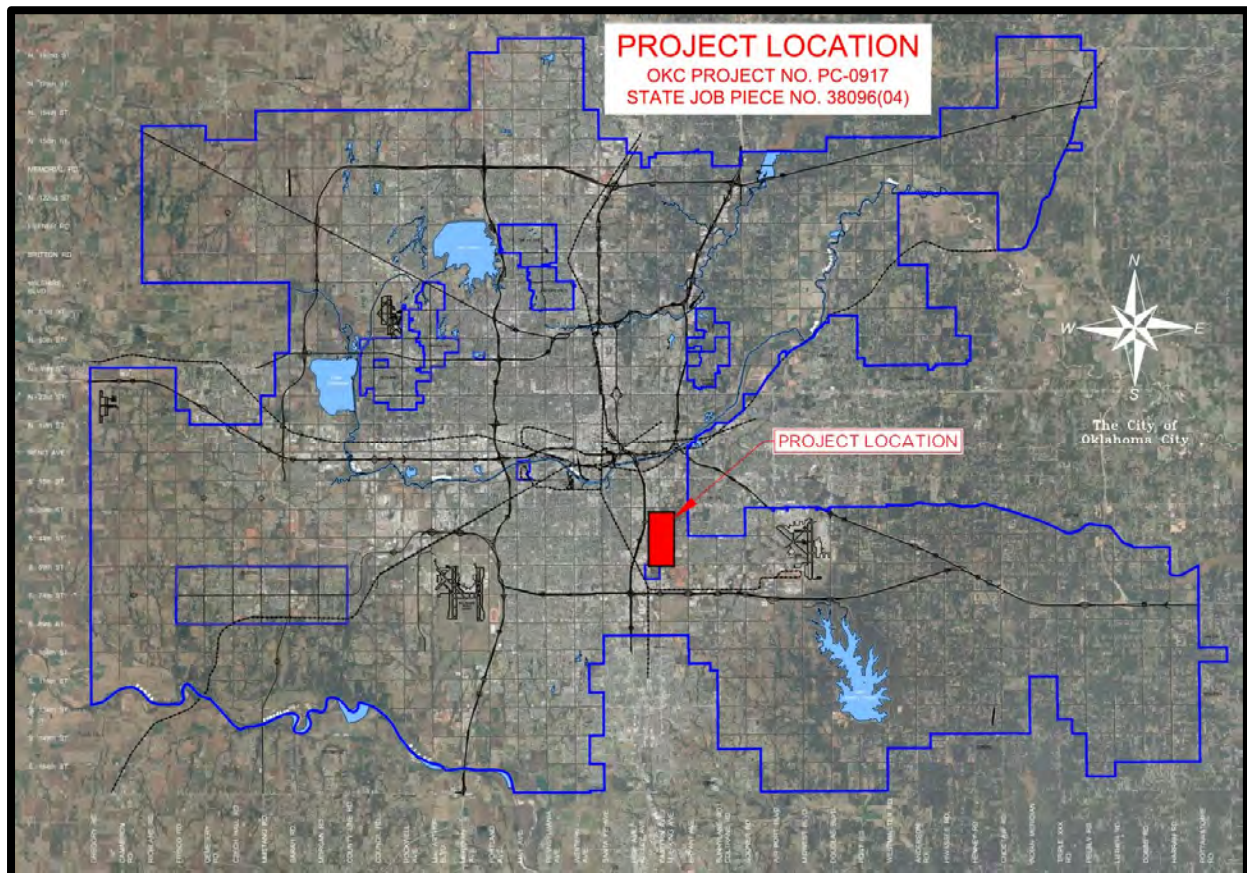


Figure 1: Project Location Map





## Project Budget

- PC-0917 Construction Budget \$2,041,980
- Engineer's Opinion of Probable Construction Costs
  - 10-foot Wide, 6-inch thick Trail \$2,039,000
  - 12-foot Wide, 6-inch thick Trail \$2,252,000

## Project Schedule

The following project schedule has been developed to document the timeline of the project to date and the expected timeline for completion of the various milestones.

Task No.	Task Name	Duration (Calendar Days)	Start	Finish	2024												2025											
					M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	J	J	J	J	J	J	J
0	PC-0917 Off-Road Trail	340	3/25/2024	7/12/2025																								
1	Notice to Proceed	0	3/25/2024	3/25/2024																								
2	30% Plans & Preliminary Engineering Report	90	3/25/2024	6/25/2024																								
3	30% & PER Approval	52	6/25/2024	8/16/2024																								
3	60% Plans and Review	40	8/16/2024	9/25/2024																								
4	95% Plans and Review	40	9/25/2024	11/4/2024																								
5	Final Engineering Drawings and Specifications (100%)	40	11/4/2024	12/14/2024																								
6	Bidding	30	12/14/2024	1/13/2025																								
7	Project Construction	180	1/13/2025	7/12/2025																								

Figure 2: Project Schedule

## Recommendation

SRB recommends proceeding with the design of the PC-0917 Off-Road Trail project.

PC-0917 Off-Road Trail	
Advantages	Disadvantages
✓ 10-foot trail option within construction budget	✓ 12-foot trail option exceed budget
✓ Expands City's trail system	✓ Possible utility coordination and relocation
✓ Modernizes four existing bus stop stations	✓ Possible right-of-way acquisitions
✓ Improves or constructs over 8,000-feet of accessible pedestrian routes	
<b>\$2,039,000</b>	<b>\$2,252,000</b>

Figure 3: Decision Matrix

## Project Location

The project location for PC-0917 is along Eastern Avenue from S.E. 59<sup>th</sup> Street to Grand Boulevard located in the lower central part of Oklahoma City. This project will connect to the existing South Grand Trail which runs along the northern side of Grand Boulevard.

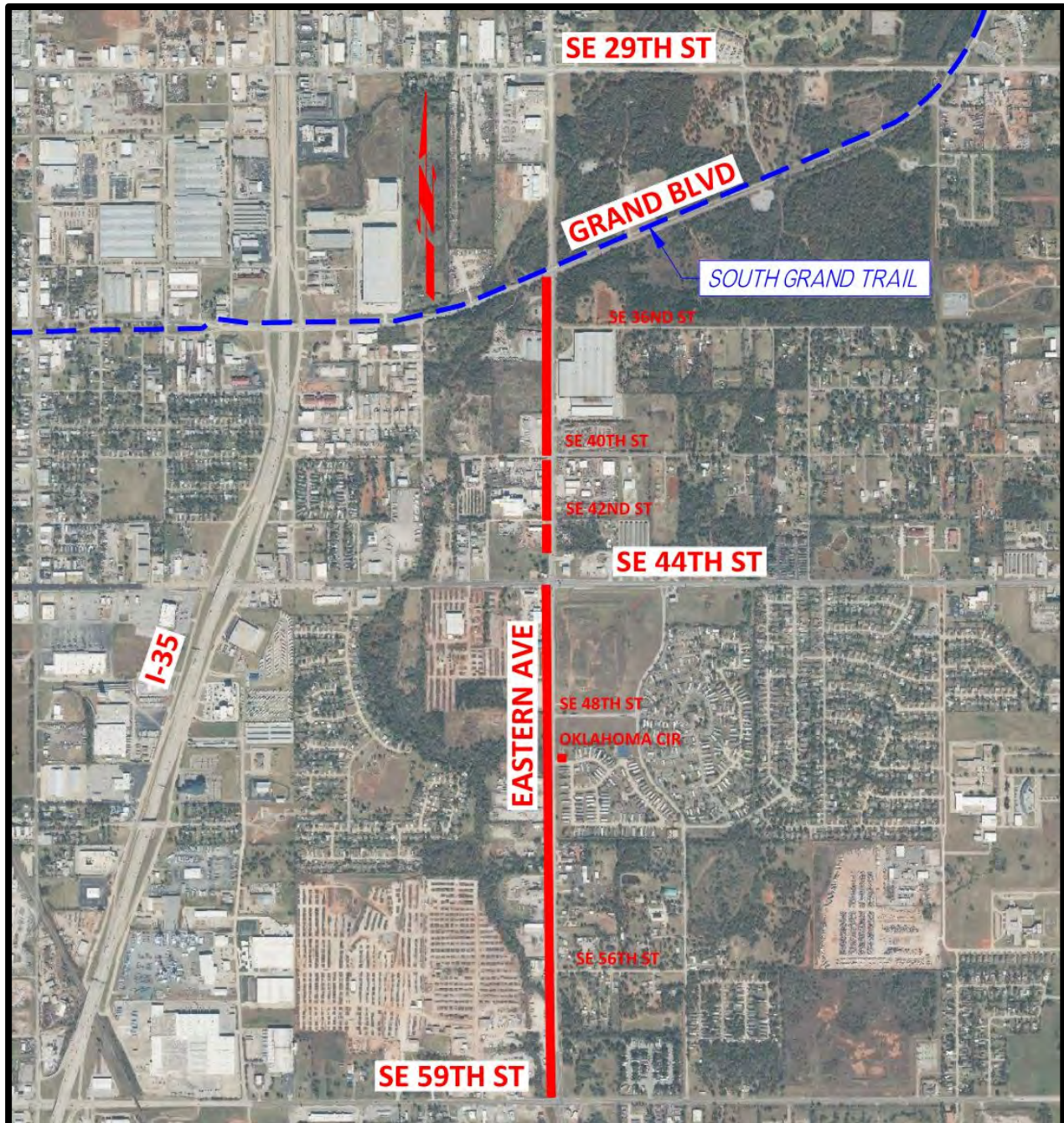


Figure 4: Project Scope





## *Scope of Work*

Smith Roberts Baldischwiler (SRB) was contracted to develop construction plans for pedestrian improvements from project conception through construction completion under PC-0917. This project's understanding is for the intended improvements of sidewalk, accessible routes, pedestrian signal crossings, pavement markings and crossings, signs, and other amenities which could include wayfinding, landscaping, or drainage. The following tasks were formally contracted with Oklahoma City's Public Works Department for PC-0917:

### **TASK 1: Preliminary Report Services**

SRB shall prepare a preliminary design report and construction plans encompassing the extents of the project. In this endeavor, the Engineer shall coordinate with the City and other departments, review existing conditions, evaluate right-of-way, and provide a preliminary construction cost estimate. The Engineer must participate in any conference with the City and its representatives, City Council, and any other group as requested by the Program Manager.

### **TASK 2: Final Plan Services**

SRB will produce final plans, specifications, construction cost estimates, and all forms and other documentation necessary for advertisement for letting and bidding. This task shall include topographical surveys, drainage reports, preparation of right-of-way documents, assistance in right-of-way acquisitions, and execution of utility coordination meetings. In addition, the Engineer will hold all necessary coordination and meetings with the City and its representatives, City Council, all known utilities companies and entities with facilities affected by the proposed project, and all other interested parties.

### **TASK 3: Bidding Services**

SRB will assist in the facilitation of the bidding and advertisement process, including but not limited to the attendance of any pre-bid meetings, active response to any requested coordination or meeting with the City and its representatives, tabulate and review all bids received, and review and make recommendations of reward of construction contract.

### **TASK 4: Construction Administration Services**

SRB will provide administration of the construction contract and represent the City in monitoring the construction project until final payment is made to the Contractor. In this endeavor, the Engineer will assist in any requested meeting or question by the City or the Contractor, help in the coordination of pre-work conferences, review and comment on all requests for information, furnish any plan changes as agreed by the City and/or Contractor, stay familiar with the progress and quality of work, audit pay claims, review change orders and amendments, maintain its own record and conduct period site reviews, take action on the approval or rejection of work that does not conform Bidding Documents, and compile a log of all created or received documents.

### **TASK 5: As-Built Plans**

Upon project termination or completion, SRB will correct the original drawings and show all as-built changes based on information from Contractor red line plans, any relevant field changes and/or plan adaptations during construction, and conditions gleaned from site visitations, if necessary. SRB will submit electronic AutoCAD drawing files and GPS permanent benchmarks with the as-built drawings.



## Trail Design

### Off-Road Trail

The proposed trail will be designed for pedestrians and bicyclists by providing users with a safe route to travel outside of the vehicular roadway. This report will consider two trail widths of 10-feet or 12-feet consisting of a 6-inch thick concrete on a 4-inch bed of aggregate. The 10-foot wide is more cost effective and conflicts less with existing conditions overall while the 12-foot wide option is more consistent with other recently constructed trail projects by the City. All options are designed to comfortably handle multiple users traveling simultaneously in opposing directions.

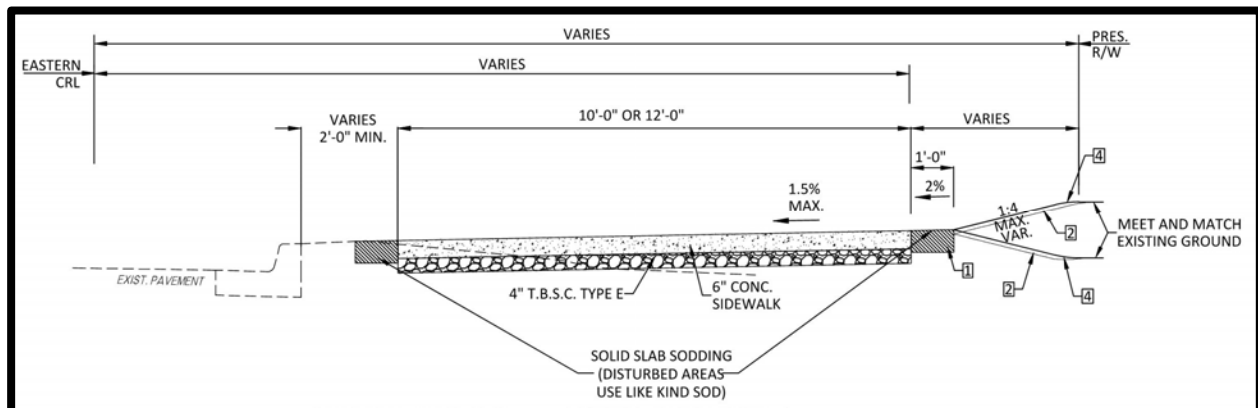


Figure 5: Trail Detail

### Driveways

The trail's clear width and accessible cross slopes will be consistent throughout driveways. Some driveways may need to be reconstructed up to the right-of-way limits to properly regrade the driveways after accounting for the wide trail near the curb. A combination of fixed and removable bollards will be installed where the trail connects on each side of the driveway to protect the new pedestrian hardscapes from vehicles or other unauthorized access.

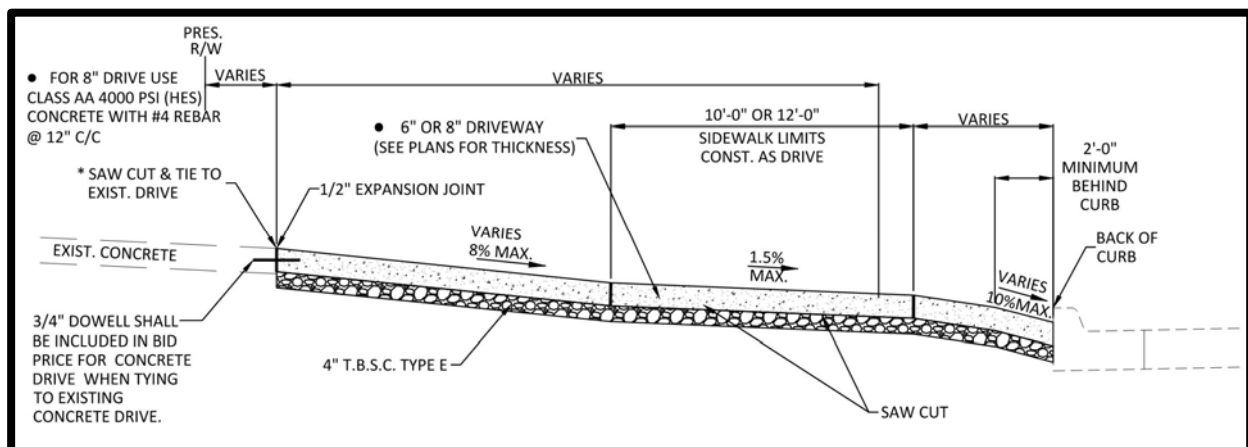


Figure 6: Driveway Detail

## Retaining Walls

Existing steep and hilly topography will need to be flattened to construct a comfortable and accessible pathway for pedestrians. This project will attempt to use variable height integral curbing and incidental regrading whenever feasible to minimize costs and construction impacts, however there will be cases where resultant elevation differences will need a reinforced retaining wall to properly regrade the proposed trail's corridor.

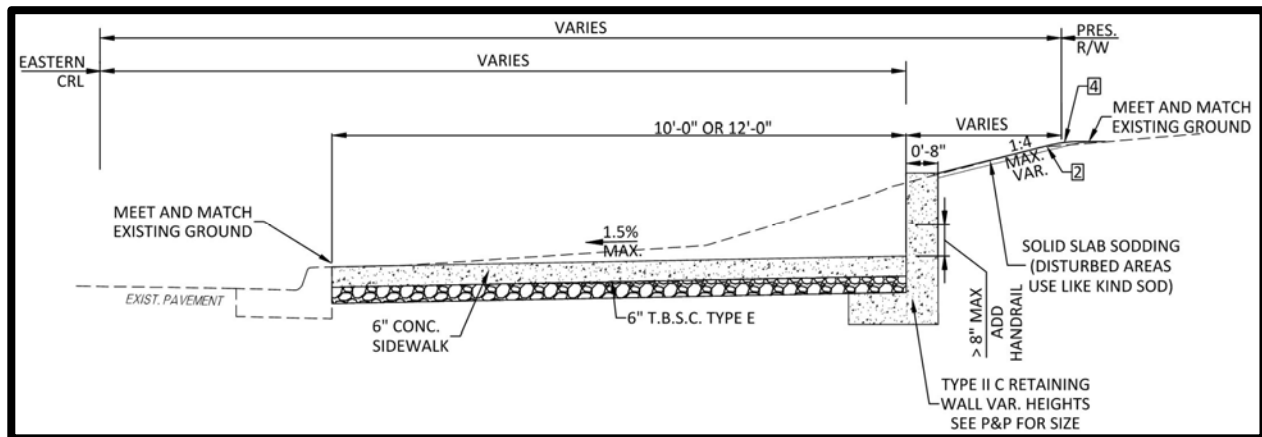


Figure 7: Retaining Wall Detail

## Drainage Headwall Extension

There may be instances where an existing stormwater concrete box and headwall will need to be relocated to accommodate the new trail behind the curb. The existing cross drain outfalls will need to be demolished, reinforced concrete box extended, and headwall reconstructed outside of the trail's footprint. However, we encourage the City to consider incidentally narrowing the trail at these areas and avoid costly storm structure alternations.

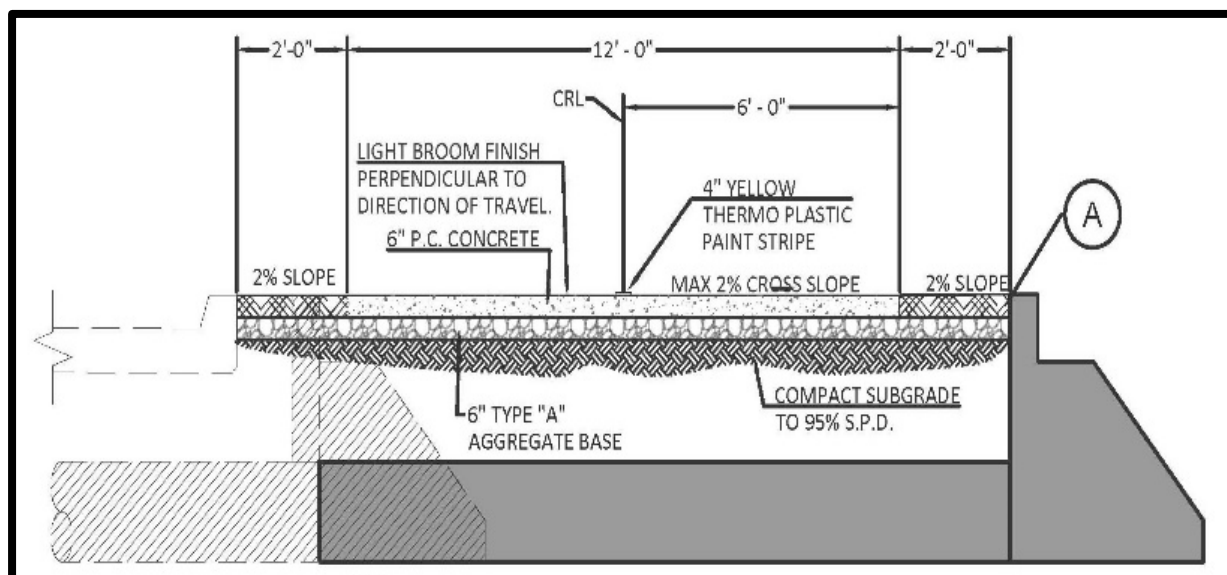


Figure 8: Headwall Extension Detail



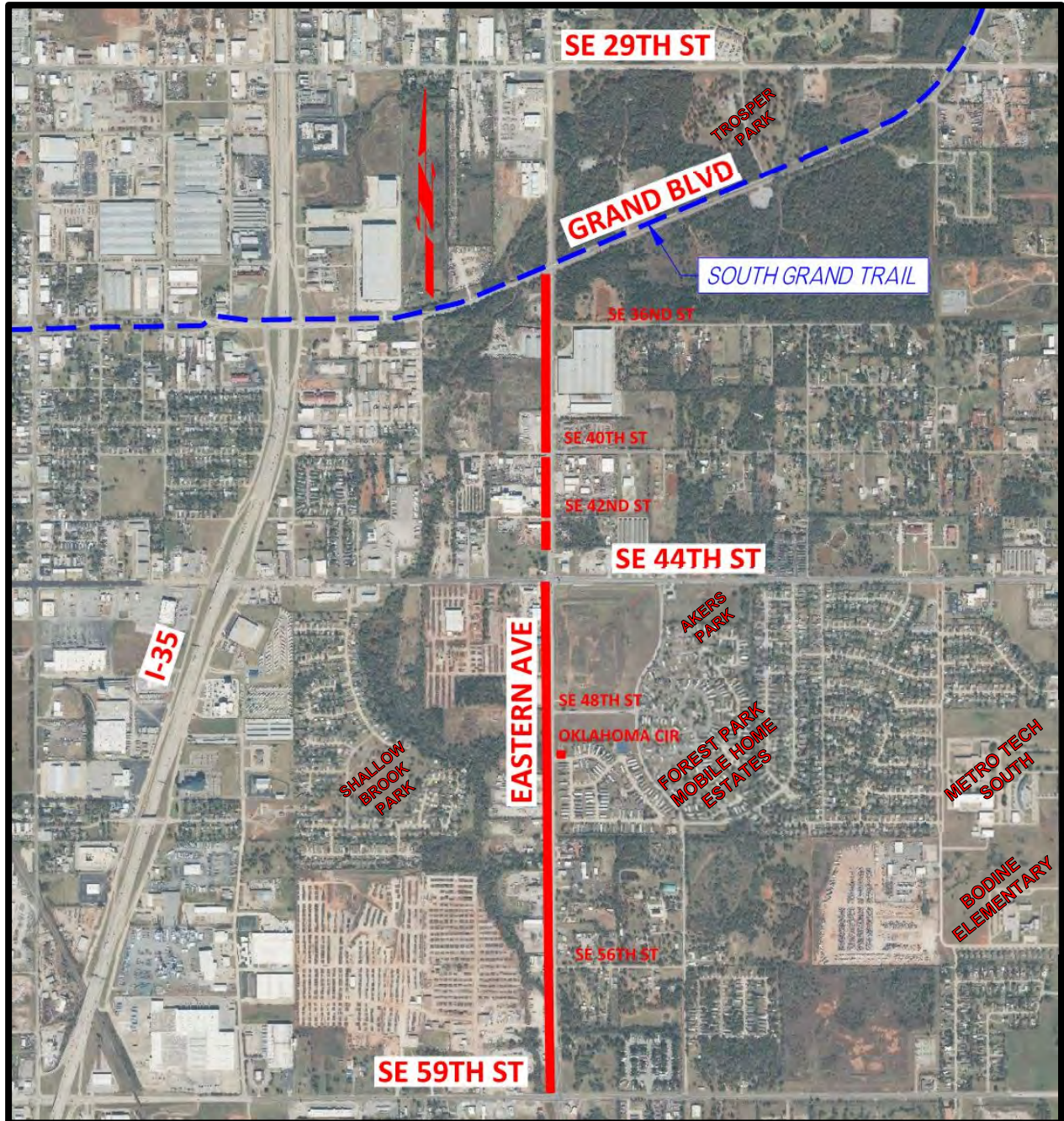


Figure 9: Aerial Scope

## Existing Conditions

Eastern Avenue, the primary alignment, is a significant vehicular corridor with four-driving lanes and a posted speed limit of 50-mph. The primary alignment crosses or connects to three other significant roadways of S.E. 59<sup>th</sup> Street, S.E. 44<sup>th</sup> Street, and Grand Boulevard. Eastern Avenue, S.E. 59<sup>th</sup> Street, and S.E. 44<sup>th</sup> Street are major arterial roadways located along section lines, and Grand Boulevard is the lesser exception with a connector typology and city platted alignment. Some pedestrian hardscapes already exist in the form of sidewalks and



crossings along Eastern Avenue at the intersection of S.E. 44<sup>th</sup> Street and continuing further south along the western side of the roadway almost to S.E. 59<sup>th</sup> Street. Generally, this stretch of Eastern Avenue directly services several residential areas, commercial businesses, and industrial enterprises. Looking nearby, there are several parks, schools, and access to Interstate 35 all within one mile from this project area.

The east side of Eastern Avenue contains a multitude of challenges in the form of storm sewers, driveway and street intersection interruptions, steep geography, existing retaining walls, private utilities such as gas and overhead poles, and public utilities such as waterlines. However, one advantage along this side would be more direct connectivity to some residential areas, such as Forest Park Mobile Home Estates.

In contrast, the west side of Eastern Avenue is more advantageous by comparison due to generally flatter topography and possessing less utilities, driveways, and street crossings to contend with. A few steep hills are still an issue which can be rectified with incidental regrading or strategic placements of variable height curbing or retaining walls. In addition, some utility relocations will still be necessary to make room for the multi-use trail. The biggest downside of an alignment on the west side would be no direct connectivity to street-adjacent residences and the largest neighborhood along this alignment, Forest Park Mobile Home Estates. However, connectivity to Forest Park Estates can still be achieved via crosswalk striping or more significant signalization around where Oklahoma Circle intersects with Eastern Avenue.

There is a warranted need for pedestrian improvements along Eastern Avenue, and SRB suggests this project's trail be placed along the western side of the roadway due to the advantages of less conflicts, interruptions, and correlated costs involved. Although some sidewalks and pedestrian crossings already exist, they are neither continuous nor designed to act as multi-modal paths able to serve both bicyclists and pedestrians. Connectivity enhancements are necessary to extend trail-rated pathways further south from the existing South Grand Trail closer to the existing Tinker-Draper Trail.



Figure 10: East Side (Looking North)



Figure 11: East Side (Looking South)



Figure 12: West Side (Looking South)

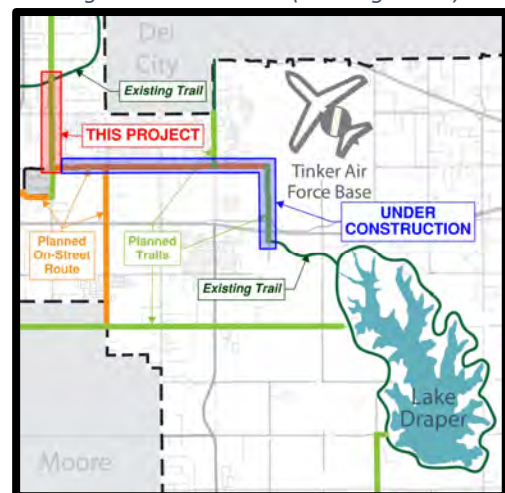


Figure 13: Trails Master Plan (BikeWalkOKC)





Figure 14: Existing Conditions along Eastern Ave.

## Utilities

There is a host of utility facilities currently along Eastern Avenue. For public utilities, there exists a 12-inch waterline, a 30-inch sanitary sewer, and storm drainage in the form of inlets, cross drains and ditches. For private utilities, there are numerous facilities related to electric, telecommunications, and natural gas. In addition, there is a corridor of utility poles primarily along the east side of the road, however a few tertiary poles branch off along the west side as well. SRB will design to mitigate utility conflicts and coordinate with facility owners in the case of necessary relocations. In gist, the following facility owners have been identified during our preliminary investigations:

- Water & Sewer
  - City of Oklahoma City
  - Town of Valley Brook
  - Sooner Utilities Water
- Natural Gas
  - ONG
  - Stephens & Johnson Operations
  - White Operations/NEOKC
- Telecommunications
  - AT&T
  - Cox
  - CenturyLink
  - OG&E Fiber
  - Windstream
- Electric
  - OG&E



Figure 15: Right-of-Way along Eastern Ave.

## Right-of-Way

Preliminary investigations reveal Eastern Avenue with varied right-of-way widths. Eastern Avenue started initially as a section line roadway with statutory 33-feet right-of-way widths, however, there has since been a plethora of widening acquisitions along the west side resulting in most of the project area having a range of 50-feet to 60-feet right-of-way widths from the centerline of plat. Generally, for most of the project length, there will be ample space behind the existing curb to design and construct within existing right-of-way barring two exceptions.

First, there is insufficient width behind the curb on the southern leg of the Eastern Avenue and S.E. 44<sup>th</sup> Street intersection to accommodate a modernized station pad for an existing bus stop. To conservatively design similar to recently constructed trails, the bus stop pad needs about at least 12-feet of width in addition to a proposed trail clear width of 12-feet resulting in a total width of 24-feet, however, less than 23-feet of width behind the curb currently exists. Therefore, we propose that the City consider utilizing the narrower 10-foot wide trail width at this area to avoid acquisitions. Alternatively, the City may opt to acquiring a concise easement at this location.

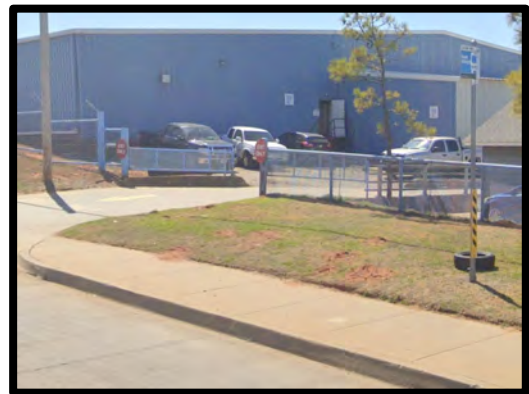


Figure 16: Existing Bus Stop

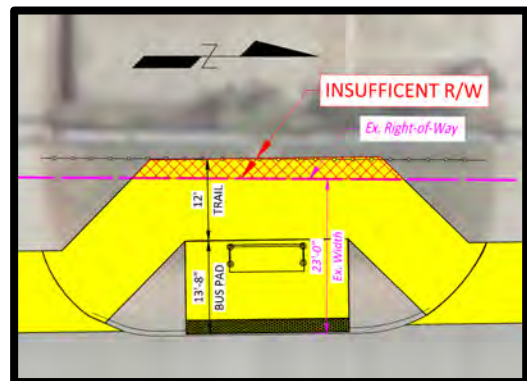


Figure 17: Proposed Bus Stop & Trail



Second, there is a constrained situation on the north-western corner of the Eastern Avenue and S.E. 44<sup>th</sup> Street intersection due to an existing building and entrance threshold which makes upgrading the proposed 12-foot trail difficult at the radius. Moreover, the property owner was required to modernize approximately 600-feet of public sidewalks at this lot in order to erect a new commercial building and driveway within the last year. Due to the very recent investment by the owner, brand new pedestrian hardscapes, potential cost savings for the City, and constrained nature of this property, SRB suggests omitting this corner property entirely and instead pick up where the newly installed sidewalk improvements ended about 300-feet north of the intersection.

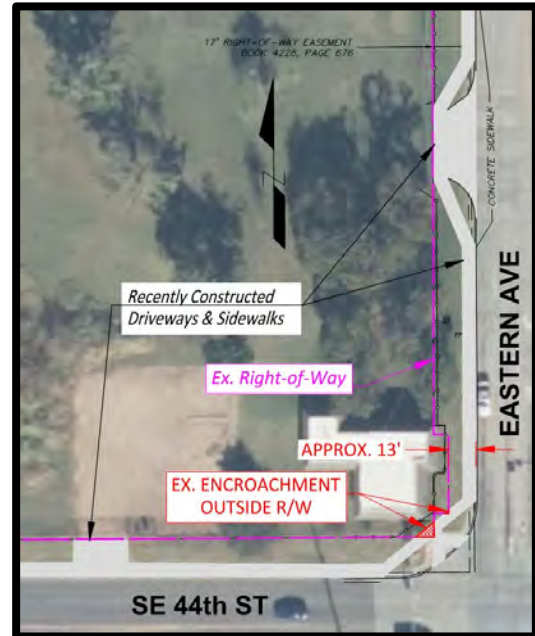


Figure 18: NW Corner of Eastern & SE 44<sup>th</sup>, Aerial



Figure 19: NW Corner of Eastern & SE 44<sup>th</sup>, Street-View

## Signalized Intersections

There are three existing signalized intersections along this scope:

1. Eastern Avenue & Grand Boulevard
2. Eastern Avenue & S.E. 44<sup>th</sup> Street
3. Eastern Avenue & S.E. 59<sup>th</sup> Street

The intersections at Grand Boulevard and S.E. 44<sup>th</sup> Street are currently ADA-compliant with accessible ramps, landings, and pedestrian crossing equipment. The southernmost intersection at S.E. 59<sup>th</sup> Street is outdated and not ADA-compliant on all four quadrants, however, this intersection is going to be improved by another concurrent pedestrian-focused ODOT project, JP#34932(04), which will be completed by the time this project, PC-0917, starts construction. SRB proposes to simply connect to the compliant landings at all three intersections and avoid unnecessary reconstructions and costs.

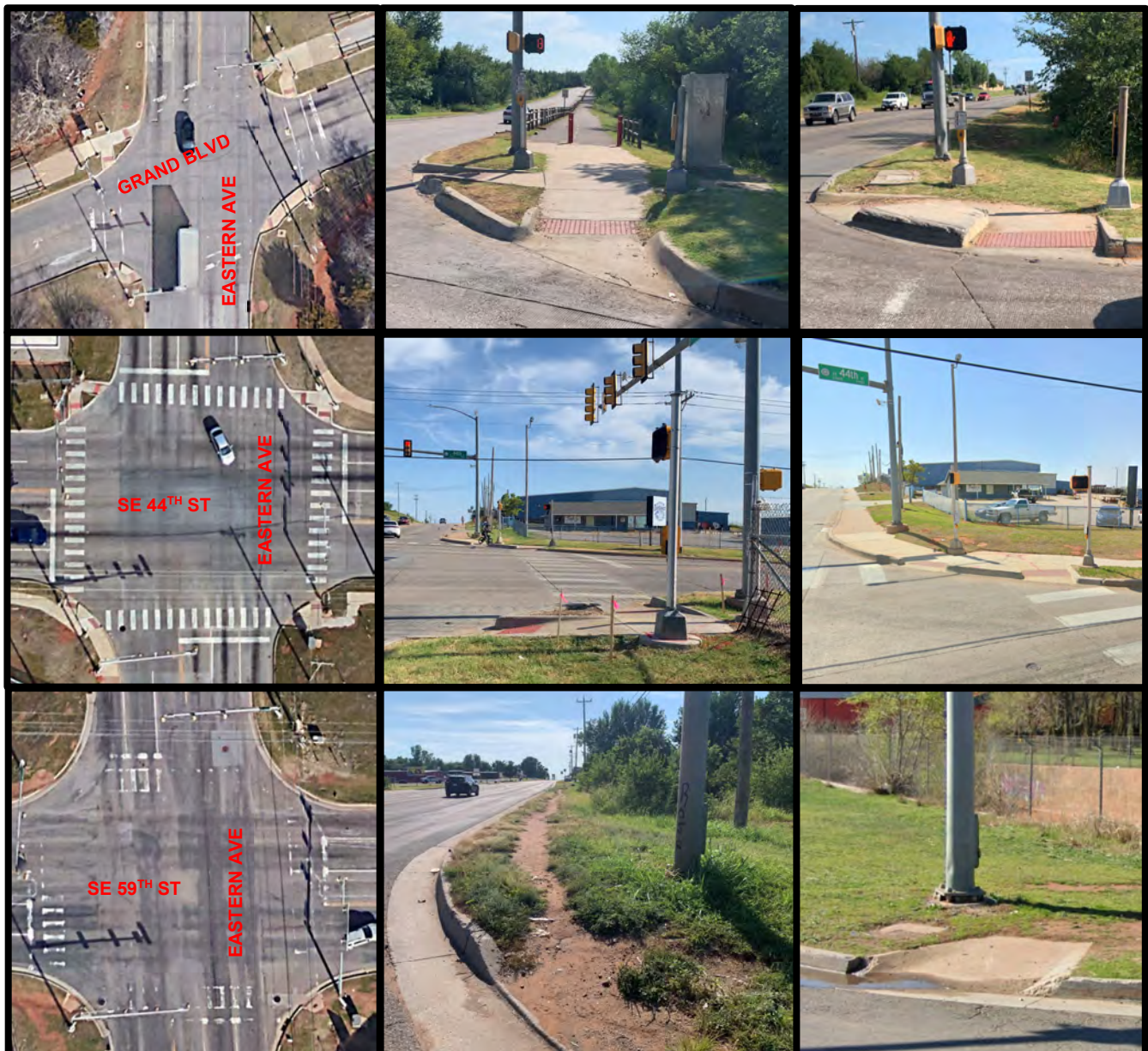


Figure 20: Signalized Intersections



## Key Challenges

Modernization along the west side of Eastern Avenue be generally straight-forward and concern free except for several challenging areas. These challenges come in the form of drainage structure alterations, steep topography, hydrant conflicts, and coordination with other concurrent projects. Other specific design nuances related to right-of-way concerns and signalization were discussed previously in this section.

Regarding drainage structures, we identified three instances where this the proposed trail alignment crosses an existing headwall or outfall pipe. First, a double pipe headwall occurs a quarter mile north of the S.E. 59<sup>th</sup> Street intersection that will be near the new trail's edge, and SRB proposes to leave this headwall as-is and simply build up a vertical wall or guardrail to delineate the trail's edge as it crosses. Second, a reinforced box headwall just north of Oklahoma Circle conflicts with the proposed alignment, and SRB proposes to simply narrow the trail at this crossing. Lastly, there is an 8-foot wide concrete channel about a quarter mile north of the S.E. 44<sup>th</sup> Street intersection which we recommend avoiding entirely by narrowing the trail and providing edge protection.

Regarding steep topography, the steepest situation identified would be just south of the S.E. 44<sup>th</sup> Street intersection. The slopes coming off the right-of-way boundary is about a 1:5, or 20%. SRB proposes retaining walls in this case to avoid incidental regrading and disturbances to property owners and utility facilities.

Regarding hydrants, we have identified two cases where relocation will be necessary due to the wide trail typical and lack of right-of-way behind the curb. SRB proposes to simply coordinate with the Utility Department and relocate these hydrants.

Regarding project coordination, there is a concurrent ODOT project, JP#34932(04), finalized in Fall 2023 along S.E. 59<sup>th</sup> Street planning to install street bike-lanes and segments of pedestrian trails behind the northern curbline. Particularly, JP#34932(04) will improve the northern quadrants of the S.E. 59<sup>th</sup> Street & Eastern Avenue intersection with compliant pedestrian crossings and is scheduled to be completed before this project gets ready for construction. SRB aims to simply connect to these new hardscapes and avoid unnecessary waste.



Figure 21: Headwall north of SE 59<sup>th</sup> St.



Figure 22: Headwall north of Oklahoma Cir.



Figure 23: Channel north of SE 44<sup>th</sup> St.



Figure 24: Topography south of SE 44<sup>th</sup> St.

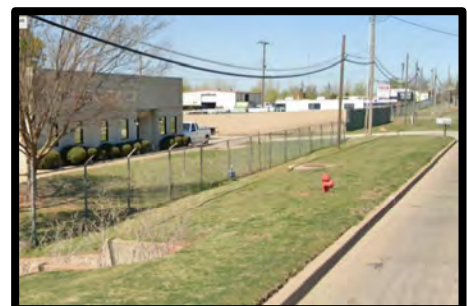


Figure 25: Fire Hydrant Conflict

## Identification of Right-of-Way Conflicts

SRB anticipates a singular possible case of insufficient right-of-way located near the Quick Service Steel Company at 1948 S.E. 44<sup>th</sup> Street, which is just south of the Eastern Avenue and S.E. 44<sup>th</sup> Street intersection. This area lacks sufficient behind the curb width to allow for the wider 12-foot pedestrian trail option in addition to modernized bus stop pad inclusions, explained in more detail within the *Project Background* section of this report. SRB proposes to utilize the narrower 10-foot trail width option in tandem with a 12-foot wide bus pad to avoid encroachment onto private property and the need for additional right-of-way, however, the available width may still be tight, and some encroachment may occur due to temporary construction activities or field changes.

Alternatively, the City may pursue a concise public easement acquisition that will impact only a single parcel and property lot. We anticipate this acquisition to be straight-forward process with little objections from the property owner due to being constrained to an unused area between two existing driveways where an existing bus stop already exists. The proposed easement will be limited in size to mitigate unnecessary impacts to the property owner and costs by the City to purchase. Acquiring an easement would allow the City the advantage of having full control of new improvements now and looking forward to future development and maintenance. Other than this single scenario, there are no other known right-of-way conflicts along the project's scope.

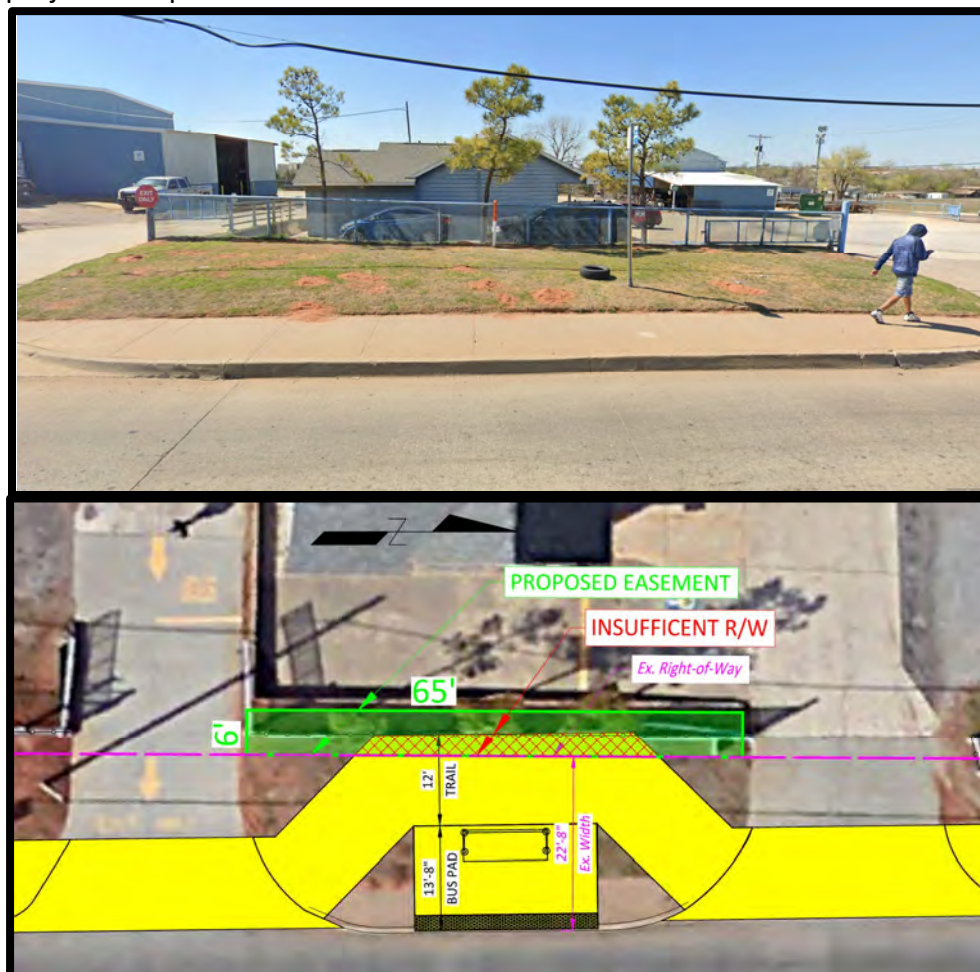


Figure 26: Potential Right-of-Way Conflict at 1948 SE 44th Street

## *Conclusion and Recommendations*

This Preliminary Engineering Report for off-road, multi-use trail enhancements along Eastern Avenue between S.E. 59th Street and Grand Boulevard sought to incorporate all available information from plat research, geospatial and geographical information, preliminary surveys, and City design standards and preferences. The goal of this report is to provide conceptual design, anticipate required utility relocations, determine special challenges or considerations, identify Right-of-Way verification and acquisition needs, and introduce preliminary solutions for the improvements related to this project. The recommendations in this report are based on best engineering practices and align with the needs of and the desires for these areas.

Regarding trail design, the recommended trail typical is 6-inch concrete on top a 4-inch aggregate base spanning a width of 10-feet or 12-feet, depending on construction budget and direction from the City. SRB suggests utilizing the cost effective 10-foot wide concrete trail typical and locating the proposed trail alignment behind the western curblin of Eastern Avenue due to the advantages of being flatter, possessing less utility conflicts, having fewer driveways and side streets to contend with, and holding a fewer amount of drainage structures and ditches to accommodate as compared to the eastern curblin in order to stay within the project's construction budget. The proposed trail could utilize the larger width dimensions; however, this design will likely exceed the current construction budget.

Regarding key challenges and considerations, installing the proposed trail along the west side of Eastern Avenue will be generally problem-free except for several aspects. First, there are about three drainage structures near the trail alignment, two of which directly conflict with the proposed clear width. The first structure conflict is a 6-foot wide by 3-foot deep reinforced concrete box and the second structure is an 8-foot wide by 8-foot deep concrete channel, and these two structures can be made safe to travel over for an estimated additional cost of \$33,000 and \$67,000, respectively. SRB recommends incidentally narrowing the trail width down to about 7-feet wide to evade these two existing structures entirely and avoid costly reconstruction. Second, there is at least one instance of steep, hilly terrain that will require shorter integral curbing or taller retaining wall inclusions to allow for the new accessible pathway. Third, at least two fire hydrants will need to be relocated outside of the proposed trail's alignment. Lastly, this project anticipates coordinating with nearby concurrent pedestrian projects, such as JP#34932(04) along S.E. 59<sup>th</sup> Street, to minimize unnecessary reconstruction and costs.

Regarding right-of-way, this project is anticipated to be conflict free barring one exception just south of the Eastern Avenue and S.E. 44th Street intersection where insufficient behind-the-curb width exists to compliantly construct the wider proposed trail typical and bus stop station. SRB proposes to incidentally narrow the trail down to a width of 10-feet at this area to avoid any encroachment or acquisition process. Alternatively, the City may consider acquiring a constrained public easement at this location in order to provide the wider 12-foot trail design and have the permanent advantage of having full control of new improvements now and looking forward to future development and maintenance at this area.





## CONCLUSION AND RECOMMENDATIONS

### Engineer's Opinion of Probable Cost

With respect to the recommendations listed above, cost estimates for the proposed improvements are shown in the figure below. The estimated costs are:

- 10-foot Wide, 6-inch thick Trail \$2,039,000
- 12-foot Wide, 6-inch thick Trail \$2,252,000

PC-0917 OFF-ROAD TRAIL - 10', 6" TRAIL OPTION					ENGINEER'S ESTIMATE	
S EASTERN AVE TRAIL FROM SE 59TH ST. TO SE GRAND BLVD.						
ITEM NO.	SPEC NO.	ITEM	ESTIMATED QUANTITY	UNIT	UNIT BID	AMOUNT
CATEGORY:		ROADWAY				
1	201(A)1200	CLEARING AND GRUBBING	1.00	LSUM	\$20,000.00	\$20,000.00
2	202(A)2200	UNCLASSIFIED EXCAVATION	2700.00	CY	\$10.00	\$27,000.00
3	205(A)6200	TYPE-A SALVAGED TOPSOIL	1.00	LSUM	\$5,000.00	\$5,000.00
4	221(B)2300	TEMPORARY SILT FENCE	7500.00	LF	\$3.00	\$22,500.00
5	221(E)2600	TEMPORARY SILT DIKE	100.00	LF	\$15.00	\$1,500.00
6	230(A)7200	SOLID SLAB SODDING	8500.00	SY	\$4.50	\$38,250.00
7	402(E)2600	TRAFFIC BOUND SURFACE COURSE TYPE E	2476.12	TON	\$38.00	\$94,092.65
8	504(F)5600	HANDRAILING	100.00	LF	\$180.00	\$18,000.00
9	510(A)1200	RETAINING WALL	70.00	SY	\$1,300.00	\$91,000.00
10	609(A)4230	CONC.CURB(6" BARRIER-INTEGRAL)	100.00	LF	\$20.00	\$2,000.00
11	609(B)4360	2'-8" COMB.CRB.&GUT.(6" BARRIER)	50.00	LF	\$45.00	\$2,250.00
12	610(A)5200	6" CONCRETE SIDEWALK	8153.00	SY	\$90.00	\$733,770.00
13	610(B)5300	6" CONCRETE DRIVEWAY (H.E.S)	2405.00	SY	\$100.00	\$240,500.00
14	610(I)6000	TACTILE WARNING DEVICE-NEW	236.00	SF	\$45.00	\$10,620.00
15	612(A)3200	MANHOLES ADJUST TO GRADE	2.00	EA	\$1,800.00	\$3,600.00
16	612(E)3600	VALVE BOXES ADJUST TO GRADE	3.00	EA	\$1,000.00	\$3,000.00
17	612(F)3700	METER BOXES ADJUST TO GRADE	3.00	EA	\$1,000.00	\$3,000.00
18	612(G)3810	FIRE HYDRANT RELOCATION	2.00	EA	\$8,000.00	\$16,000.00
19	619(A)6200	REMOVAL OF STRUCTURES & OBSTRUCTIONS	1.00	LSUM	\$15,000.00	\$15,000.00
20	619(B)6356	REMOVAL OF CURB AND GUTTER	50.00	LF	\$12.00	\$600.00
21	619(B)6364	REMOVAL OF ASPHALT PAVEMENT	100.00	SY	\$15.00	\$1,500.00
22	619(B)6380	REMOVAL OF CONCRETE DRIVEWAY	2405.00	SY	\$15.00	\$36,075.00
23	619(B)6404	REMOVAL OF SIDEWALK	2500.00	SY	\$15.00	\$37,500.00
24	619(C)6600	SAWING PAVEMENT	2500.00	LF	\$4.00	\$10,000.00
25	629(D)7500	REMOVE AND RESET MAILBOX	14.00	EA	\$450.00	\$6,300.00
26	631(A)9200	(SP)STATIONARY BOLLARD	118.00	EA	\$900.00	\$106,200.00
27	631(A)9210	(SP)REMOVABLE BOLLARD	59.00	EA	\$1,100.00	\$64,900.00
28	804(A)2200	STRUCTURAL CONCRETE	20.00	CY	\$1,150.00	\$23,000.00
29	805(B)3300	(PL)RESET OF PULLBOX	5.00	EA	\$1,400.00	\$7,000.00
ROADWAY SUBTOTAL						\$1,640,157.65
CATEGORY:		TRAFFIC				
30	805(D)3528	(PL)REMOVE & RESET EXISTING SIGNS	7.00	EA	\$500.00	\$3,500.00
31	850(G)	SHEET ALUMINUM SIGNS	50.00	SF	\$40.00	\$2,000.00
32	851(C)	2" SQUARE TUBE POST	60.00	LF	\$25.00	\$1,500.00
33	855(A)	TRAFFIC STRIPE (PLASTIC)(4" WIDE)	7500.00	LF	\$1.00	\$7,500.00
34	855(A)	TRAFFIC STRIPE (PLASTIC)(24" WIDE)	250.00	LF	\$15.00	\$3,750.00
TRAFFIC SUBTOTAL						\$18,250.00
CATEGORY:		TRAFFIC CONTROL				
35	880(I)	CONSTRUCTION TRAFFIC CONTROL	1.00	LSUM	\$25,000.00	\$25,000.00
CATEGORY:		STAKING				
36	642(B)	CONSTRUCTION STAKING LEVEL II	1.00	LSUM	\$30,000.00	\$30,000.00
CATEGORY:		CONSTRUCTION				
37	220	SWPPP DOCUMENTATION AND MANAGEMENT	1.00	LSUM	\$7,500.00	\$7,500.00
38	641	MOBILIZATION	1.00	LSUM	\$111,000.00	\$111,000.00
CONSTRUCTION SUBTOTAL						\$118,500.00
SUBTOTAL						\$1,831,907.56
CONTINGENCY (5%)						\$91,595.38
ODOT CM & Insp. (6%)						\$115,410.18
TOTAL						\$2,038,913.11

Figure 27: Cost Estimate, 10-Foot Wide & 6-Inch Thick Trail





# CONCLUSION AND RECOMMENDATIONS

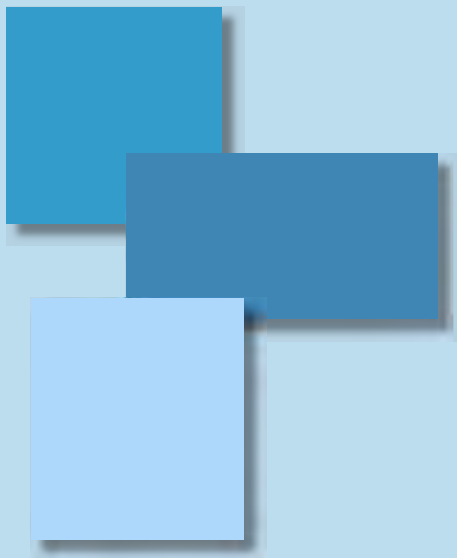
PC-0917 OFF-ROAD TRAIL - 12', 6" TRAIL OPTION					ENGINEER'S ESTIMATE	
S EASTERN AVE TRAIL FROM SE 59TH ST. TO SE GRAND BLVD.						
ITEM NO.	SPEC NO.	ITEM	ESTIMATED QUANTITY	UNIT	UNIT BID	AMOUNT
<b>CATEGORY:</b>		<b>ROADWAY</b>				
1	201(A)1200	CLEARING AND GRUBBING	1.00	LSUM	\$20,000.00	\$20,000.00
2	202(A)2200	UNCLASSIFIED EXCAVATION	3000.00	CY	\$10.00	\$30,000.00
3	205(A)6200	TYPE-A SALVAGED TOPSOIL	1.00	LSUM	\$5,000.00	\$5,000.00
4	221(B)2300	TEMPORARY SILT FENCE	7500.00	LF	\$3.00	\$22,500.00
5	221(E)2600	TEMPORARY SILT DIKE	100.00	LF	\$15.00	\$1,500.00
6	230(A)7200	SOLID SLAB SODDING	8500.00	SY	\$4.50	\$38,250.00
7	402(E)2600	TRAFFIC BOUND SURFACE COURSE TYPE E	2810.44	TON	\$38.00	\$106,796.81
8	504(F)5600	HANDRAILING	100.00	LF	\$180.00	\$18,000.00
9	510(A)1200	RETAINING WALL	70.00	SY	\$1,300.00	\$91,000.00
10	609(A)4230	CONC.CURB(6" BARRIER-INTEGRAL)	100.00	LF	\$20.00	\$2,000.00
11	609(B)4360	2'-8" COMB.CRB.&GUT.(6" BARRIER)	50.00	LF	\$45.00	\$2,250.00
12	610(A)5200	6" CONCRETE SIDEWALK	9745.00	SY	\$90.00	\$877,050.00
13	610(B)5300	6" CONCRETE DRIVEWAY (H.E.S)	2405.00	SY	\$100.00	\$240,500.00
14	610(I)6000	TACTILE WARNING DEVICE-NEW	236.00	SF	\$45.00	\$10,620.00
15	612(A)3200	MANHOLES ADJUST TO GRADE	2.00	EA	\$1,800.00	\$3,600.00
16	612(E)3600	VALVE BOXES ADJUST TO GRADE	3.00	EA	\$1,000.00	\$3,000.00
17	612(F)3700	METER BOXES ADJUST TO GRADE	3.00	EA	\$1,000.00	\$3,000.00
18	612(G)3810	FIRE HYDRANT RELOCATION	2.00	EA	\$8,000.00	\$16,000.00
19	619(A)6200	REMOVAL OF STRUCTURES & OBSTRUCTIONS	1.00	LSUM	\$15,000.00	\$15,000.00
20	619(B)6356	REMOVAL OF CURB AND GUTTER	50.00	LF	\$12.00	\$600.00
21	619(B)6364	REMOVAL OF ASPHALT PAVEMENT	100.00	SY	\$15.00	\$1,500.00
22	619(B)6380	REMOVAL OF CONCRETE DRIVEWAY	2405.00	SY	\$15.00	\$36,075.00
23	619(B)6404	REMOVAL OF SIDEWALK	2500.00	SY	\$15.00	\$37,500.00
24	619(C)6600	SAWING PAVEMENT	2500.00	LF	\$4.00	\$10,000.00
25	629(D)7500	REMOVE AND RESET MAILBOX	14.00	EA	\$450.00	\$6,300.00
26	631(A)9200	(SP)STATIONARY BOLLARD	118.00	EA	\$900.00	\$106,200.00
27	631(A)9210	(SP)REMOVABLE BOLLARD	59.00	EA	\$1,100.00	\$64,900.00
28	804(A)2200	STRUCTURAL CONCRETE	40.00	CY	\$1,150.00	\$46,000.00
29	805(B)3300	(PL)RESET OF PULLBOX	5.00	EA	\$1,400.00	\$7,000.00
ROADWAY SUBTOTAL						\$1,822,141.81
<b>CATEGORY:</b>		<b>TRAFFIC</b>				
30	805(D)3528	(PL)REMOVE & RESET EXISTING SIGNS	7.00	EA	\$500.00	\$3,500.00
31	850(G)	SHEET ALUMINUM SIGNS	50.00	SF	\$40.00	\$2,000.00
32	851(C)	2" SQUARE TUBE POST	60.00	LF	\$25.00	\$1,500.00
33	855(A)	TRAFFIC STRIPE (PLASTIC)(4" WIDE)	7500.00	LF	\$1.00	\$7,500.00
34	855(A)	TRAFFIC STRIPE (PLASTIC)(24" WIDE)	250.00	LF	\$15.00	\$3,750.00
TRAFFIC SUBTOTAL						\$18,250.00
<b>CATEGORY:</b>		<b>TRAFFIC CONTROL</b>				
35	880(J)	CONSTRUCTION TRAFFIC CONTROL	1.00	LSUM	\$25,000.00	\$25,000.00
<b>CATEGORY:</b>		<b>STAKING</b>				
36	642(B)	CONSTRUCTION STAKING LEVEL II	1.00	LSUM	\$30,000.00	\$30,000.00
<b>CATEGORY:</b>		<b>CONSTRUCTION</b>				
37	220	SWPPP DOCUMENTATION AND MANAGEMENT	1.00	LSUM	\$7,500.00	\$7,500.00
38	641	MOBILIZATION	1.00	LSUM	\$120,100.00	\$120,100.00
CONSTRUCTION SUBTOTAL						\$127,600.00
SUBTOTAL						\$2,022,991.72
CONTINGENCY (5%)						\$101,149.59
ODOT CM & Insp. (6%)						\$127,448.48
<b>TOTAL</b>						<b>\$2,251,589.78</b>

Figure 28: Cost Estimate, 12-Foot Wide & 6-Inch Thick Trail



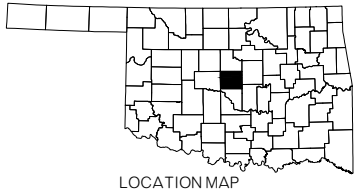
APPENDIX A

CONCEPTUAL ENGINEERING PLANS



STATE OF OKLAHOMA  
DEPARTMENT OF TRANSPORTATION

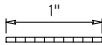
PLAN OF PROPOSED  
CITY STREETS  
PROJECT NO. PC-0917  
PEDESTRIAN IMPROVEMENT PLANS  
CITY OF OKLAHOMA CITY  
OKLAHOMA COUNTY  
STATE JOB NO. 38096(04)



DISTRICT 4

APPROX. CENTER OF PROJECT  
LATITUDE: 35° 25' 02" N  
LONGITUDE: 97° 28' 37" W

SCALES



PLAN: 1" = 50'  
LAYOUT MAP: 1" = 2640'

LEVEL DATA IS MEAN SEA LEVEL (USC&GS)  
BEARINGS ARE FROM OBSERVATION OF  
POLARIS.

CONVENTIONAL SYMBOLS

- PROPOSED ROAD
- RAILROADS
- RANGE & TOWNSHIP
- SECTION LINES
- QUARTER SECTION LINES
- FENCES
- GROUND LINE
- EXISTING ROADS
- BASE LINE
- GRADE LINES
- TELEPHONE & TELEGRAPH
- POWER LINES
- BUILDINGS
- DRAINAGE STRUCTURES - IN PLACE
- DRAINAGE STRUCTURES - NEW
- RIGHT-OF-WAY LINES - EXISTING
- RIGHT-OF-WAY LINES - NEW
- RIGHT-OF-WAY MARKERS - IN PLACE
- RIGHT-OF-WAY MARKERS - REMOVE & REPLACE
- RIGHT-OF-WAY MARKERS - NEW
- CONTROLLED ACCESS
- RIGHT-OF-WAY FENCE

2009 OKLAHOMA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION GOVERN  
APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION, JANUARY 4, 2010.

INDEX OF SHEETS

0001	TITLE
0002-0003	TYPICAL SECTIONS
0004	PIPE RAILING DETAIL
AR01	GENERAL NOTES
AR02	SUMMARY OF PAY QUANTITIES & NOTES (ROADWAY)
AR03	SUMMARIES
AT01	SUMMARY OF PAY QUANTITIES & NOTES (TRAFFIC)
R001	STORMWATER MANAGEMENT PLAN
R002-R008	EROSION CONTROL
R009-R015	REMOVAL
R016-R028	PLAN & PROFILE
S001-S007	SURVEY DATA
X001-X047	CROSS SECTIONS

2019 STANDARD ODOT DRAWINGS

TESCA-0	SSS-2-1	SSIF-5-1
IPD-0	ASCD-6-1	CIG-4-1
RSF-0	CSCD-6-2	FPI-4-2
TSD-0	LECS-5-2	MI-4-2
TFL-0	WCR-4-2	
TRFD-0	TWD-2-2	
TSB-0	PCI-1-1	
CWA-0	SSCD-4-1	

2009 STANDARD ODOT DRAWINGS

SIGNING	CONTROL
PM1-1-03	TCS 1-1-01
RSD1-1-00	TCS 2-1-00
SZSD1-1-00	TCS 3-1-01
SBS1-1-00	TCS 4-1-01
SBS2-1-00	TCS 5-1-00
GMS1-1-00	TCS 6-1-02
SSP1-1-02	TCS 7-1-02
SSA1-1-00	TCS10-1-00
	TCS11-1-01
	TCS13-1-00
	TCS14-1-00

30% PLANS  
NOT FOR CONSTRUCTION



ENGINEERING  
SURVEYING  
PLANNING

OKLAHOMA CITY  
100 N.E. 5th Street  
Suite 100  
Oklahoma City, OK 73104  
T: 405.840.7094  
F: 405.840.9116  
www.srbok.com  
srb@srbok.com

NORMAN  
2500 McGee Drive,  
Suite 100  
Norman, OK 73072  
T: 405.418.2288  
F: 405.418.2289  
srb@srbok.com

CERTIFICATE OF AUTHORIZATION NO. 3949 EXPIRES JUNE 30, 2025

SUBMITTED FOR APPROVAL BY:

ACCEPTED BY:

GRADY WADE  
REGISTERED PROFESSIONAL ENGINEER NO. 22131



CITY MANAGER

DATE

OKLAHOMA  
DEPARTMENT OF TRANSPORTATION

DATE APPROVED

BY

CHIEF ENGINEER

SWO N/A  
COUNTY OKLAHOMA ROADWAY EASTERN AVENUE

DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION

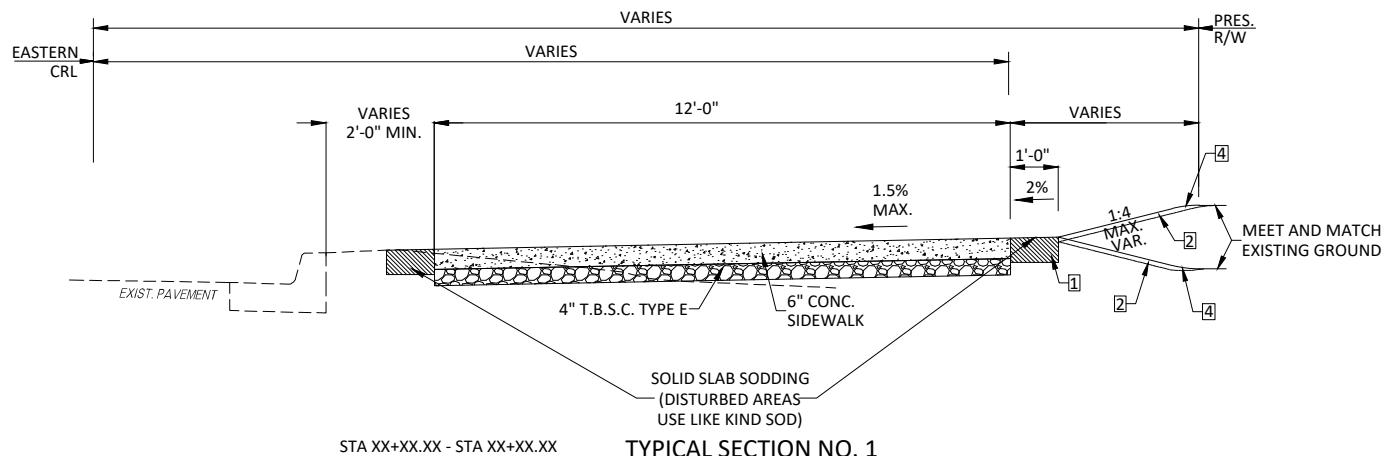
DATE APPROVED

BY

DIVISION ADMINISTRATOR

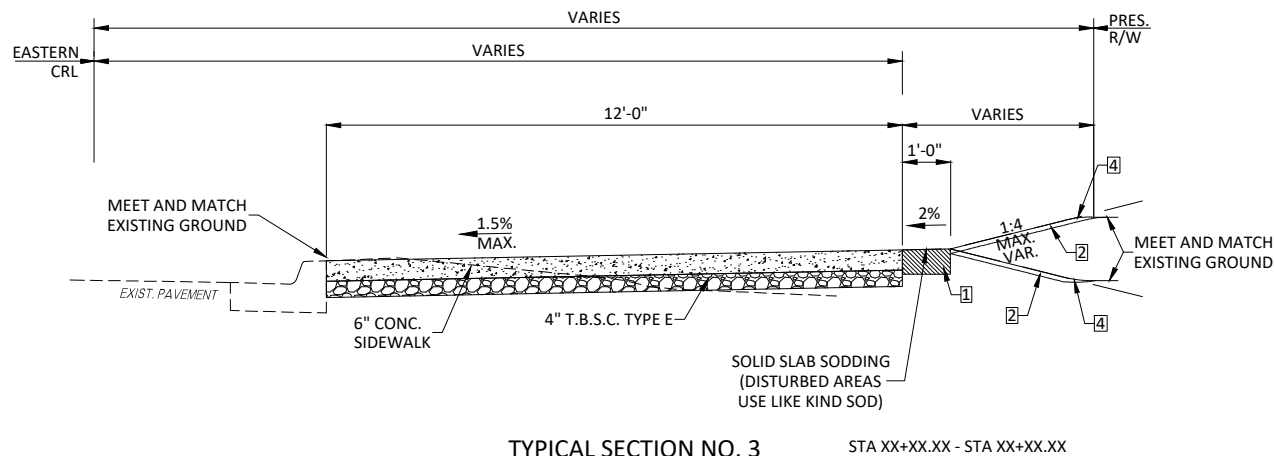
PROJECT NO. PC-0917  
SHEET NO. 0001

6/25/2024 4:16 PM DERRICK BERGFELD Z:\117230 EASTERN OFF ROAD TRAIL DRAWINGS\117230-TD1L.DWG



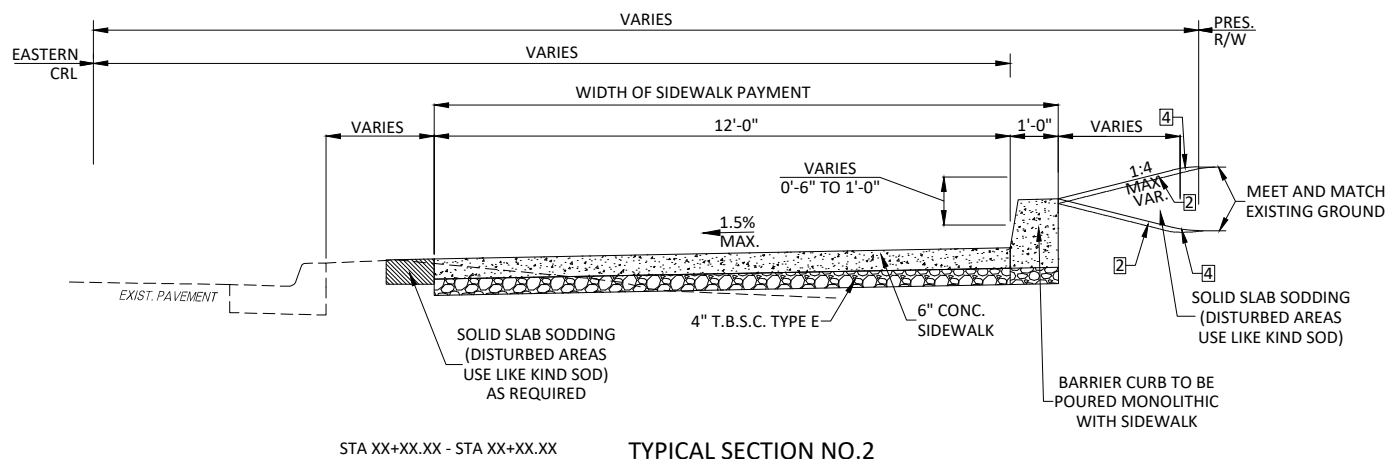
TYPICAL SECTION NO. 1

DETAIL OF SIDEWALKS AWAY FROM CURB  
RT. OR OPPOSITE HAND FOR LT.



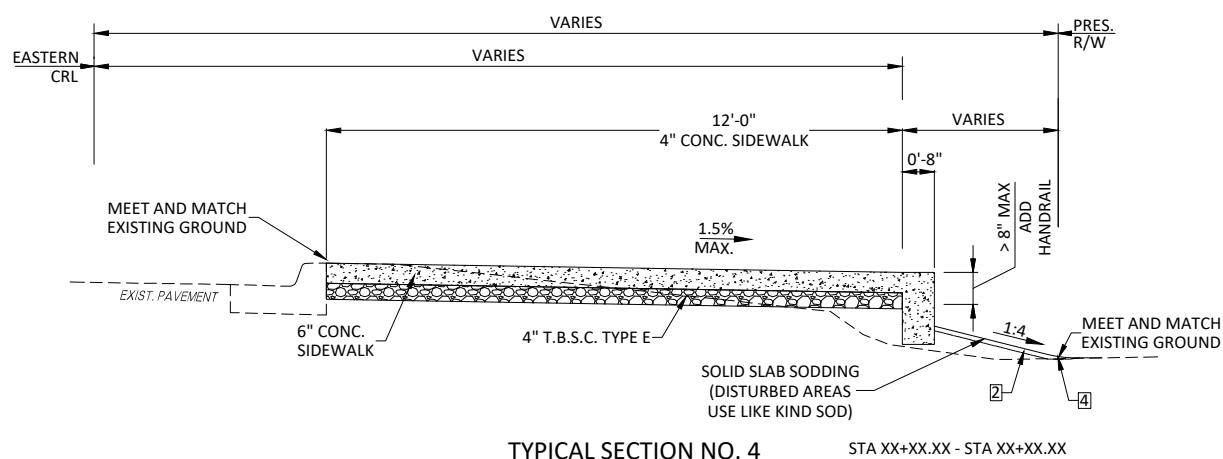
TYPICAL SECTION NO. 3

DETAIL OF SIDEWALKS AT BACK OF CURB  
RT. OR OPPOSITE HAND FOR LT.



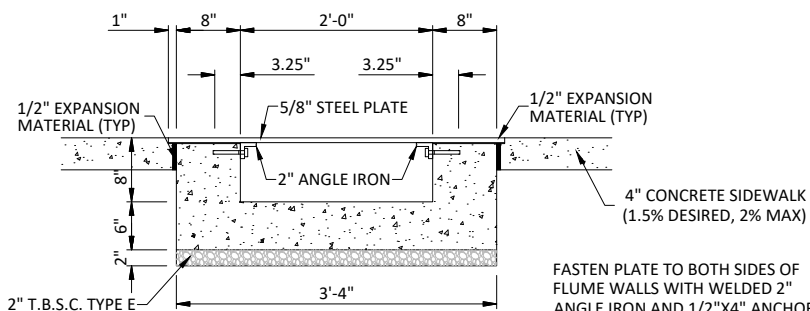
TYPICAL SECTION NO. 2

DETAIL OF SIDEWALKS WITH CURB  
RT. OR OPPOSITE HAND FOR LT.



TYPICAL SECTION NO. 4

DETAIL OF SIDEWALKS AT BACK OF CURB  
RT. OR OPPOSITE HAND FOR LT.



FLUME DETAIL

N.T.S.

FASTEN PLATE TO BOTH SIDES OF  
FLUME WALLS WITH WELDED 2"  
ANGLE IRON AND 1/2"x4" ANCHOR  
BOLTS 6" IN FROM EACH END AND A  
MAXIMUM SPACING OF 1'-0" ALONG  
THE LENGTH OF THE COVERPLATE.

(1) BACKFILL NOTE:  
TO BE BACKFILLED AND COMPACTED AS PART OF THE FINISHING OPERATIONS.  
QUANTITY IS MEASURED IN UNCLASSIFIED BORROW.

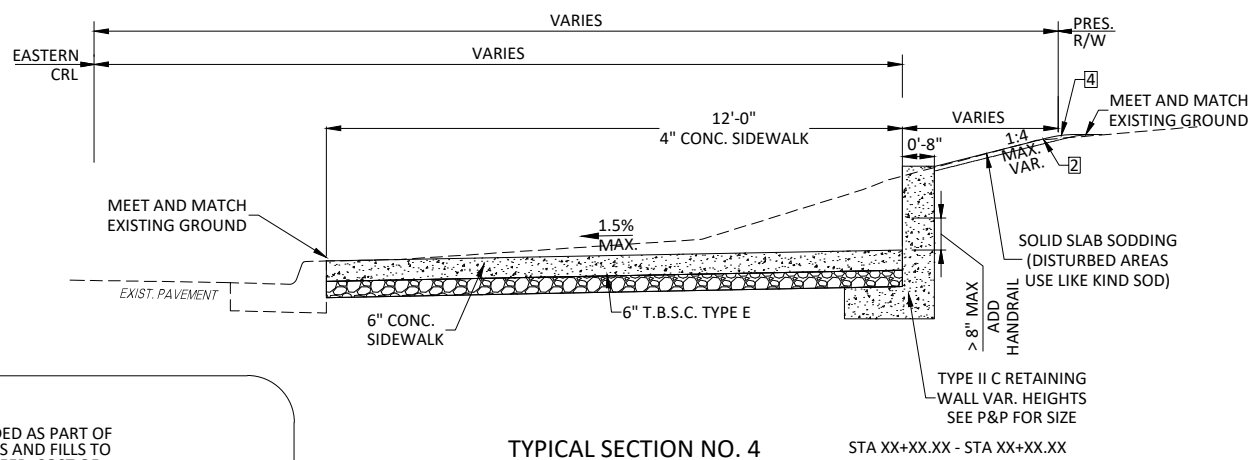
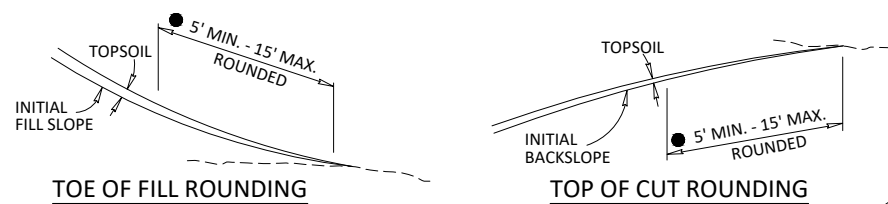
(2) TOPSOIL NOTE:  
THE CONTRACTOR SHALL STRIP ALL OF THE AVAILABLE TOPSOIL, STOCKPILE IT,  
AND PLACE IT BACK ON THE SECTION IN ACCORDANCE WITH SECTION 205 OF THE  
STANDARD SPECIFICATIONS. RESERVED TOPSOIL SHALL BE SPREAD FIRST ON THE  
COMPLETED SLOPES OF THE CUT SECTIONS AND THE REMAINDER ON COMPLETED  
FILL SLOPES OR OTHER PRIORITY AREAS LOCATED BY THE ENGINEER. ALL  
ADDITIONAL COSTS ASSOCIATED WITH OPERATIONS SHALL BE INCLUDED IN THE  
PAY ITEM FOR SALVAGED TOPSOIL, LUMP SUM.

THE GRADING LINE AS SHOWN ON THE TYPICAL AND CROSS SECTIONS IS TO  
THE TOP OF THE TOPSOIL. EARTHWORK QUANTITIES WERE NOT ADJUSTED FOR  
SALVAGE AND THE TOPSOIL QUANTITY IS INCLUDED IN THE MASS LINE BALANCE.

(4) FOR ROUNDING DETAIL SEE THIS SHEET.

ROUNDING DETAIL

● INTERSECTION OF CUT AND/OR FILL SLOPES WITH GROUND LINE TO BE ROUNDED AS PART OF  
FINISHING OPERATIONS. ROUNDED SHALL BE 5' MINIMUM FOR SMALLER CUTS AND FILLS TO  
15' MAXIMUM FOR LARGER CUTS AND FILLS OR AS DESIGNATED BY THE ENGINEER. COST OF  
ROUNDING TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS OF WORK.

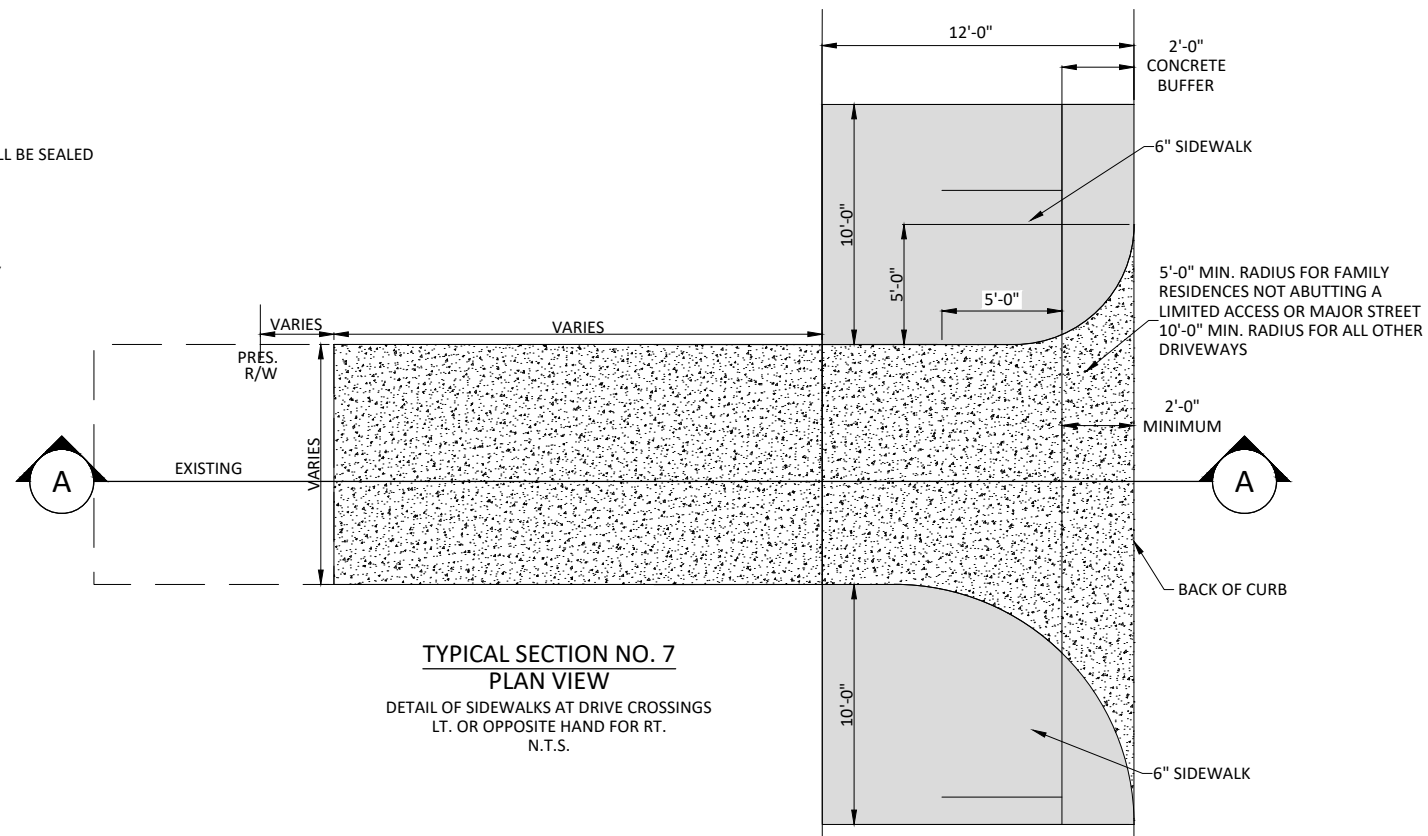
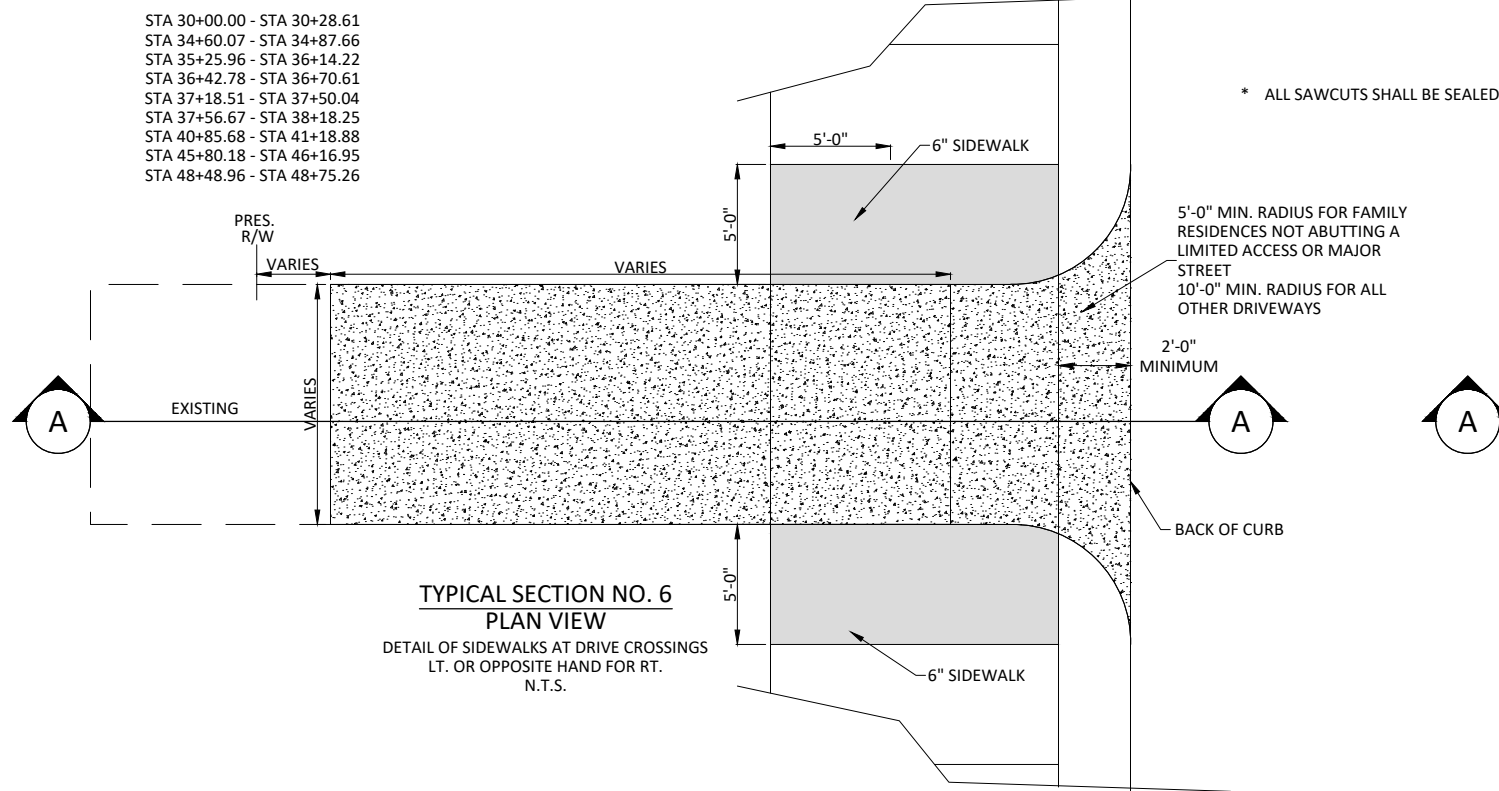
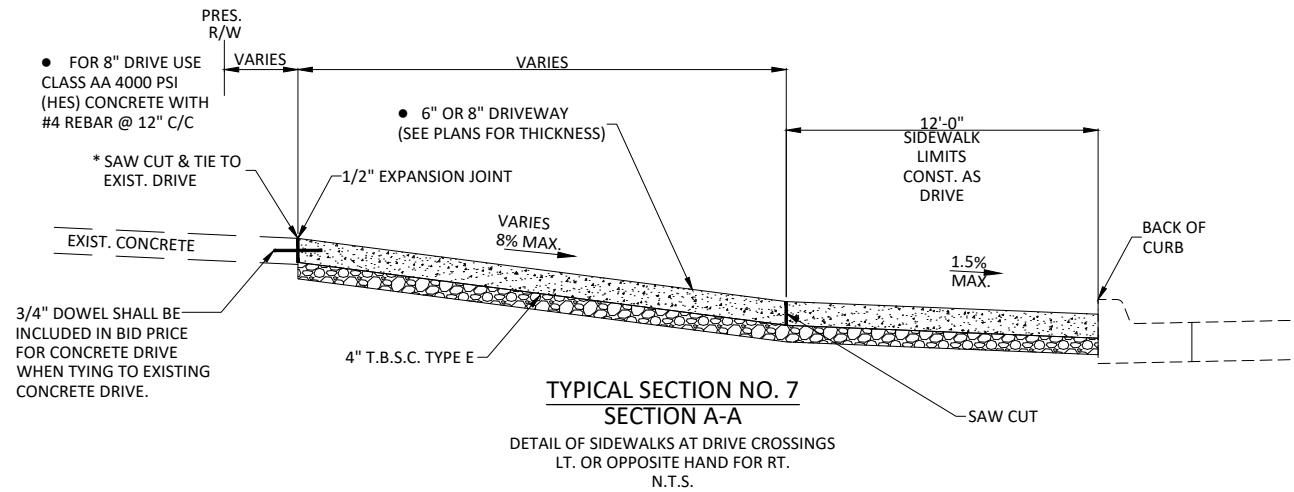
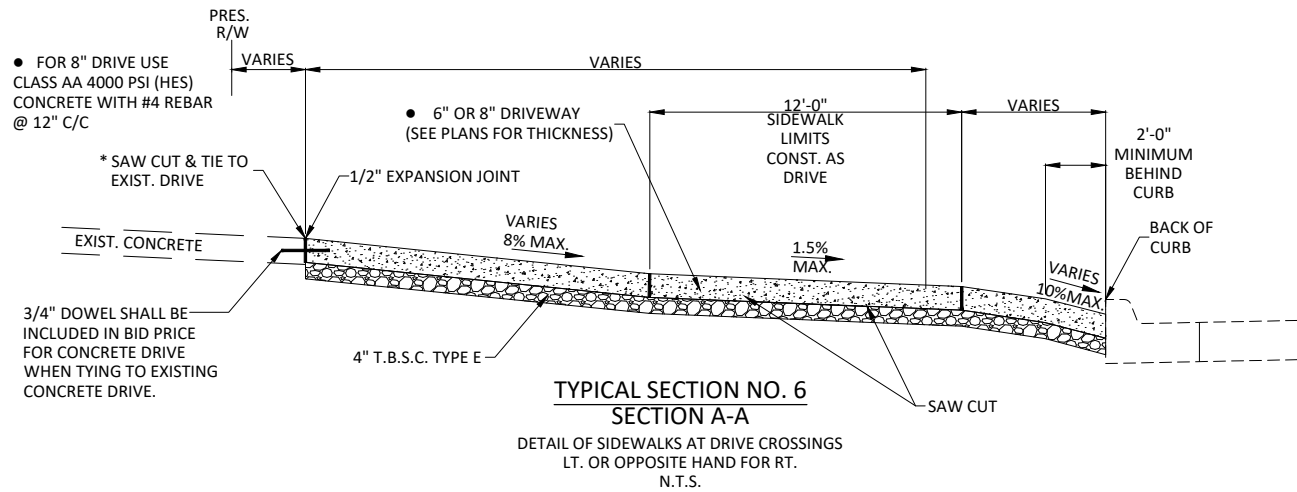


TYPICAL SECTION NO. 4

DETAIL OF SIDEWALKS WITH RETAINING WALL  
RT. OR OPPOSITE HAND FOR LT.

DESIGN		OKLAHOMA DEPARTMENT OF TRANSPORTATION	
DRAWN			
CHECKED			
APPROVED	SRB	TYPICAL SIDEWALK	
SQUAD			
COUNTY		OKLAHOMA	HIGHWAY EASTERN AVE STATE JOB NO. 38096(04) SHEET NO. 0002





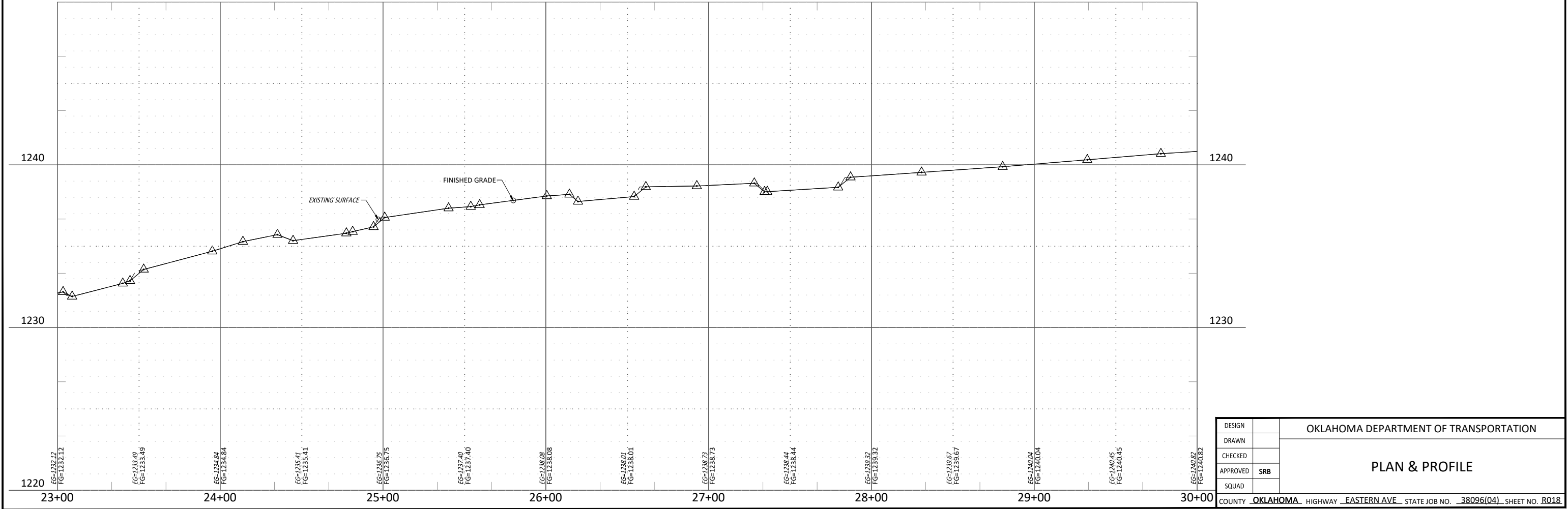
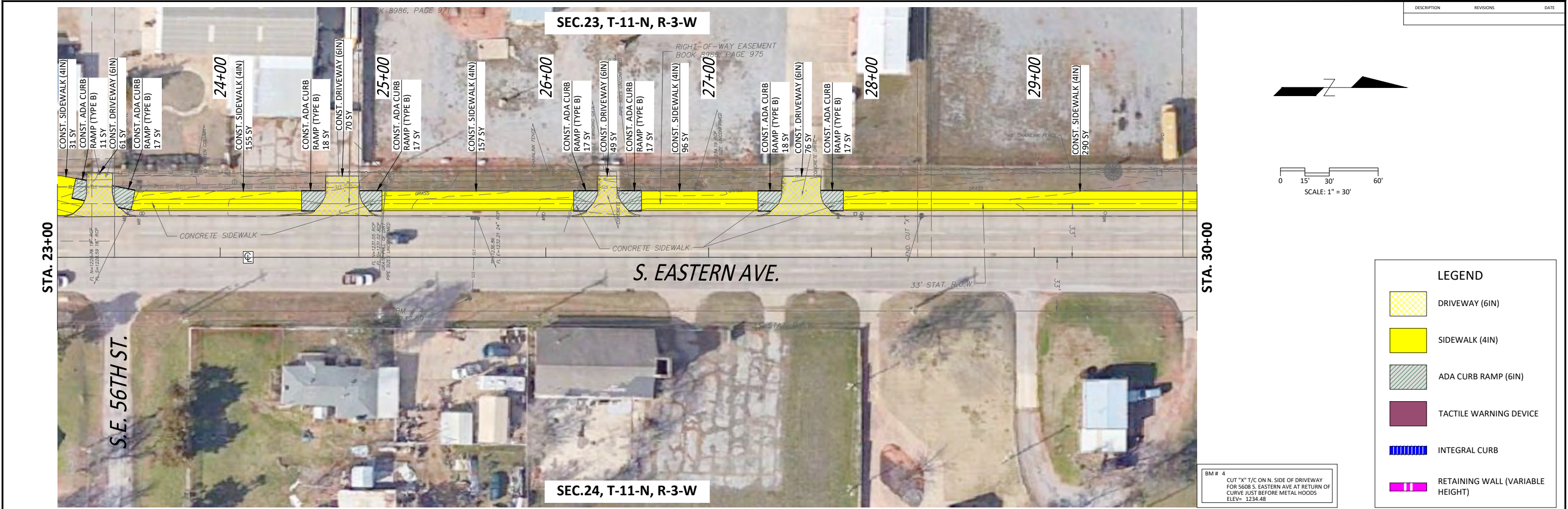
DESIGN		OKLAHOMA DEPARTMENT OF TRANSPORTATION	
DRAWN			
CHECKED		TYPICAL DRIVEWAY	
APPROVED	SRB		
SQUAD			
COUNTY		OKLAHOMA	HIGHWAY EASTERN AVE STATE JOB NO. 38096(04) SHEET NO. 0003













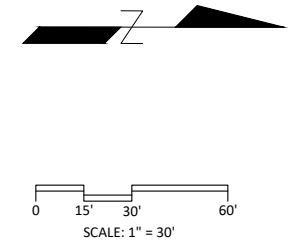
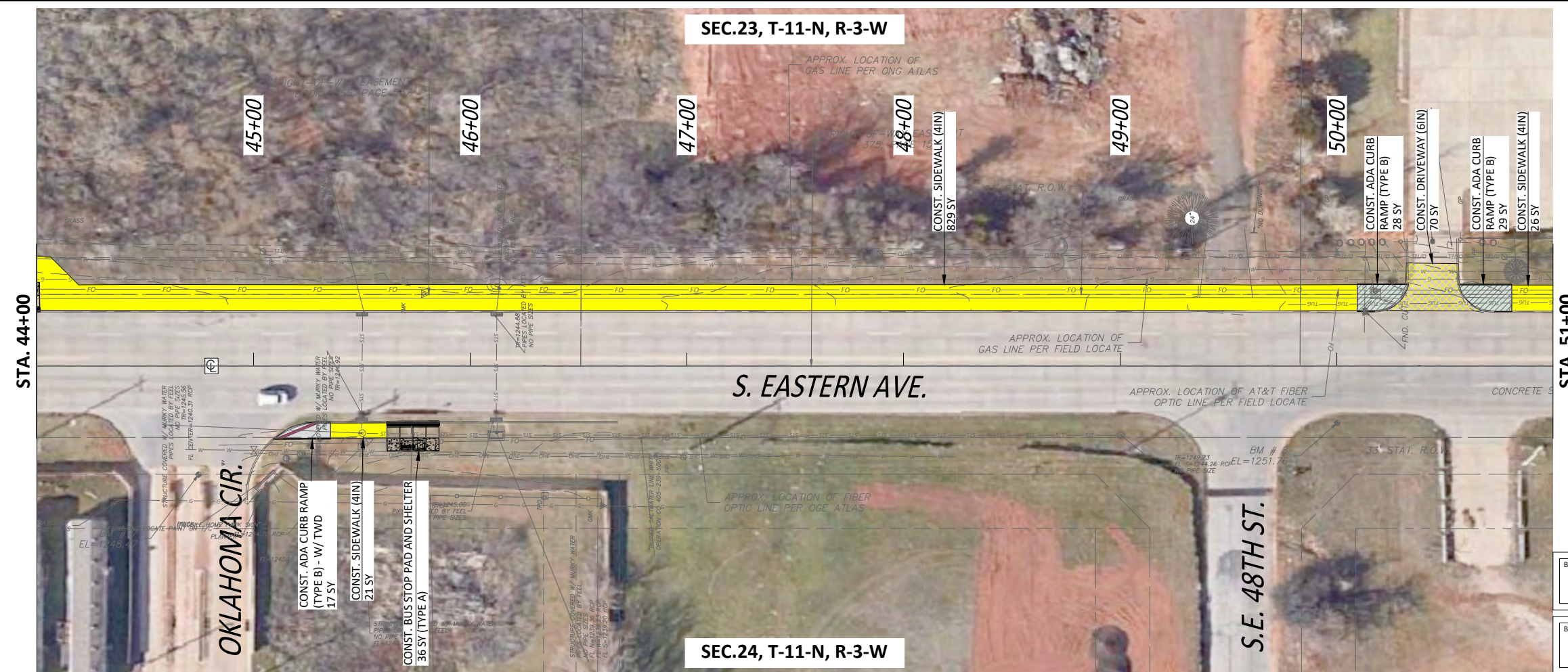










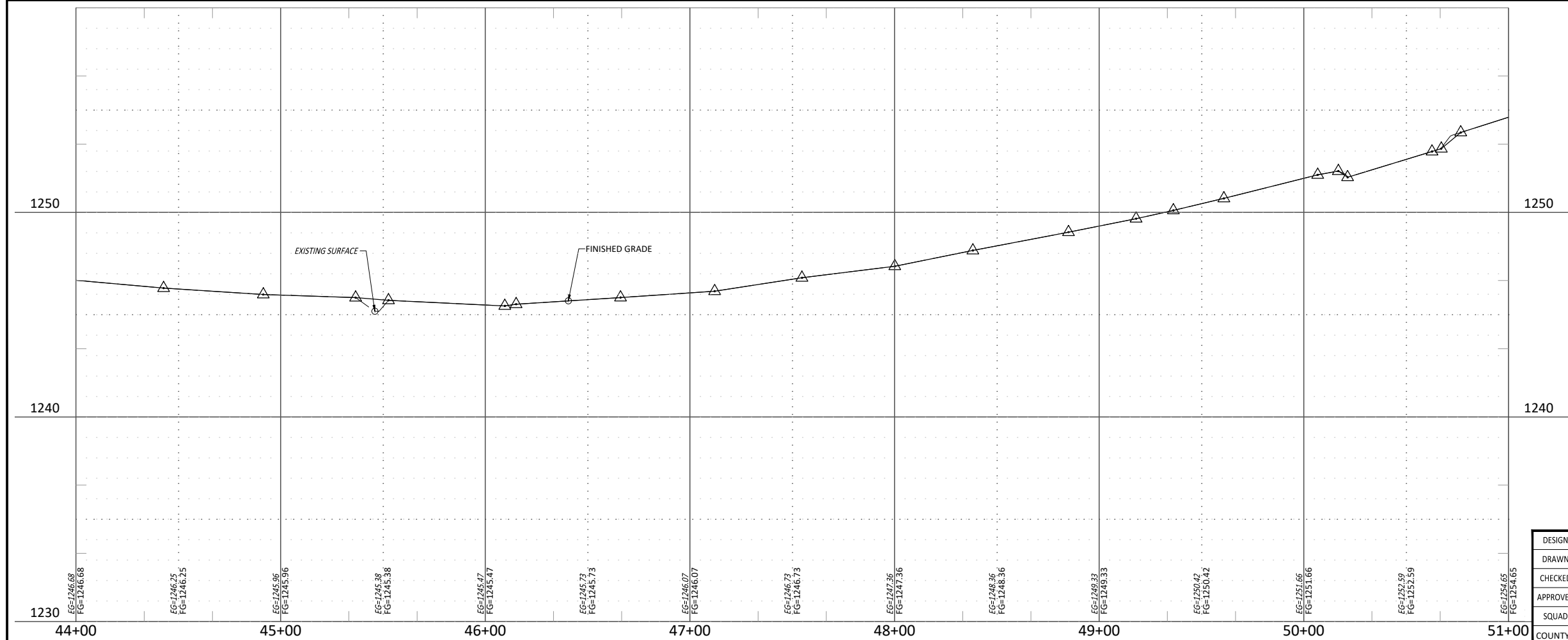




DESCRIPTION	REVISIONS	DATE



<b>LEGEND</b>	
	DRIVEWAY (6IN)
	SIDEWALK (4IN)
	ADA CURB RAMP (6IN)
	TACTILE WARNING DEVICE
	INTEGRAL CURB
	RETAINING WALL (VARIABLE HEIGHT)



DESIGN		OKLAHOMA DEPARTMENT OF TRANSPORTATION						
DRAWN								
CHECKED								
APPROVED	SRB							
SQUAD								
		PLAN & PROFILE						
0	COUNTY	OKLAHOMA	HIGHWAY	EASTERN AVE	STATE JOB NO.	38096(04)	SHEET NO.	R021



