

PRELIMINARY DESIGN REPORT



FOR

CITY OF OKLAHOMA CITY
OKLAHOMA CITY, OK

BC-0232 BRIDGE REPLACEMENT
N.W. 63RD STREET, EAST OF NORTH WESTERN AVENUE

OKLAHOMA CITY, OK

October 9, 2024



THE CITY OF OKLAHOMA CITY

Preliminary Report

Project No. BC-0232

Bridge Replacement

NW 63rd Street, east of North Western Avenue

Prepared by:

CEC Corporation
4555 W. Memorial Road
Oklahoma City, OK 73142
405-753-4200

Kyle Morse

Kyle Morse, P.E.



Received By:

Debbie Miller

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

RECEIVED by the City of Oklahoma City this 5TH day of NOVEMBER,
2024

ATTEST:

Amy K. Simpson
City Clerk



[Signature]
Vice Mayor

October 9, 2024
PRELIMINARY ENGINEERING REPORT

BC-0232 BRIDGE REPLACEMENT
N.W. 63RD STREET OVER BNSF RAILROAD (NBI NO: 16970)

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EXECUTIVE SUMMARY

Scope

BC-0232 (Bridge Replacement) on NW 63rd Street over the BNSF Railroad is a listed 2017 GO Bond project. This project will be funded by ODOT/ACOG and OKC with 80% of funds coming from ACOG (Association of Central Oklahoma Governments) which has been awarded to OKC and will be administered by ODOT and 20% OKC matching that will be covered by 2017 GO Bond funds. CEC Corporation was selected by the City of Oklahoma City Public Works Department for the design of BC-0232 bridge and approach replacement of existing bridge carrying NW 63rd Street over BNSF Railroad (NBI No. 16970). This project runs from N. Western Avenue to Santa Fe Avenue on NW 63rd Street. Improvements may include but are not limited to regrading of NW 63rd Street within the project extents, replacing the bridge over BNSF Railroad, and replacement of existing drainage structures, and installation of a multi-purpose trail within the project extents. CEC has worked with the Public Works Department to develop this preliminary report, which outlines the improvement and will serve as the basis for the development of construction documents for this project.



Figure 1 – Project Extents

Summary

The intention of this project is to replace the bridge on N.W. 63rd Street over BNSF Railroad and replace the roadway to transition to the increased height of the bridge and install a trail between Western and Santa Fe. The proposed bridge presented in this report is a 350-foot long bridge comprised of rolled steel beam and plate girder spans and a trail or sidewalk on either side. A grade raise of approximately 8 foot-10 inches is anticipated at the bridge location to facilitate the proposed structure depth necessary to span the railroad right-of-way and to improve the bridge vertical clearance over the railroad tracks to meet BNSF requirements. 1,200 feet of roadway will need to be reconstructed in order to tie back in between the raised bridge and existing grades on either side. The roadway will be closed to traffic to facilitate construction and local traffic control and detour plans are provided in this report. A drainage

analysis has been performed for the existing storm system and for the proposed drainage system improvements. CEC will provide coordination with the BNSF railroad.

Budget

Preliminary Base Bid Cost Estimate	\$11,069,657
Fixed Limit of Construction Budget	\$11,327,957
Total Under Construction Budget	\$ 258,300

City funds will be used for construction. City of Oklahoma City standards and specifications will be used for the proposed design.

Preliminary Base Bid includes:

- Demolition of existing bridge
- Demolition of approximately 2880 LF of roadway
- Demolition of sidewalk inside the extents of construction
- Regrading of roadway to bridge
- Construction of trail from Western Avenue to Santa Fe Avenue
- New 350 ft bridge accommodating a sidewalk & trail
- Removal/Replacement and extensions of storm sewer and structures
- Either Option 1 or Option 2 regarding whether RCB replacement or Trenchless methods will be employed

Project Schedule

	Oct-23	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Jun-25	Jul-25	Aug-25	Sep-25
Notice to Proceed												
Preliminary Eng. Report Submit												
60% Plan Submittal												
City Review												
90% Plan Submittal												
City Review												
Final Plan Submittal												

Estimated Construction Duration: 12 months

DECISION MATRIX

BC-0232: Option 1- 5'x4' Box Replacement & Trenched SS	
Advantages	Disadvantages
Replacement is a common approach	Approximately 90 days additional time to excavate trench, remove box, form new box, cure, fill, and allow consolidation of soils. Construction will impact work on bridge.
Would utilize equipment & materials familiar to a bridge or roadway contractor	Shoring method selected by Contractor will have significant impact on construction time requirements
	Increased impact to local businesses
	Anticipated to be significantly more costly at a construction cost of \$1,300,450

BC-0232: Option 2- Trenchless Storm & Trenchless SS	
Advantages	Disadvantages
Anticipated to provide significant savings to the City	Unique approach
Shorter construction time, trenchless operations can be performed concurrently with bridge and earthwork.	Large diameter jacking/bore will require a utility subcontractor specialized in large diameter work
As a trenchless solution, it avoids potential for settlement that you would have with a deep cut.	Method & materials proposed could lead to increased cost if no alternative solution included in bid for competition
Construction cost lower than Option 1 at \$967,330	

Recommendation

The purpose of this report is to provide a solution to replace the bridge on N.W. 63rd Street over BNSF Railroad. Given the existing conditions and the overall safety of the corridor, CEC makes the following recommendations:

- Replacing the existing bridge with a 350 ft span bridge
- Upsizing inlets 1 and 2 from Des. 2-2 to Des. 2-4 and adding a 24" prefab. end section at station 26+55.71
- Upsizing 53 LF of pipe from 15" to 18"
- Relocate sanitary sewer line currently inside the 5'x4' RCB
- Excavate and replace the 5'x4' RCB -or- create capacity with trenchless methods.
- CEC recommends that *both* Option 1 and Option 2 be bid against each other.

CEC believes that while Option 2 (trenchless storm) will provide cost savings to the City, it is important that Option 1 also be bid to provide competition. The City could, however, choose to forgo Option 2 (trenchless storm) altogether and only bid Option 1 (trenched box replacement). There are many construction companies that could perform this work and therefore provide competition on pricing for the trenched replacement. The inverse of this is not true, if only Option 2 (trenchless storm) were included in the bid, there would be limited competition and because of the unique method and material being required this could lead to higher bids despite the installation being a bulk of the cost compared to material prices.

These new additions are feasible and will improve the pavement, bridge lifespan, and the safety of pedestrians along N.W. 63rd Street. The total cost for these improvements is estimated at \$11,069,657 which is \$258,300 the overall fixed limit of construction budgeted for this project. Total cost breakdown can be found in Appendix B. The preliminary drainage analysis report is provided with this report under a separate cover.

INTRODUCTION

This report summarizes the preliminary design considerations for the City of Oklahoma City Project No. BC-0232 bridge and approach replacement of existing bridge carrying NW 63rd Street over BNSF Railroad (NBI No. 16970). The report describes the existing conditions of the roadway and bridge, the proposed grade of the roadway approaches to the bridge, and drainage improvements throughout the corridor. The project location is shown in Figure 1.



Figure 1-Project Location

A project kick-off meeting was held on July 25th between the City of Oklahoma City and CEC staff. The City of Oklahoma City Public Works department requested improvements for this project along NW 63rd Street. These improvements are discussed in further detail in the following sections. The fixed limit of construction of the roadway and bridge is \$7,342,249.

EXISTING CONDITIONS

Roadway Facilities

The existing roadway for N.W. 63rd Street consists of a four-lane (two lanes each way) open section with curb and gutter on each side. The existing roadway approaches are asphalt pavement with an unknown pavement thickness. The approach roadway diving surface appears to be in poor condition. There seems to be some settlement on both sides of the approach. See Figure 2 for the general pavement condition near the bridge.



Figure 2-Typical Condition Pavement West of Bridge



Figure 3 - Typical Condition of Pavement East of Bridge

Guardrails on the approach are located on the east and west side of the roadway, but the lengths vary. The traffic rail on the southwest side of the bridge extends for approximately 350 feet. The north and south traffic rails on the east side of the bridge extend for approximately 500 feet. The traffic rail on the northwest side of the bridge extends for approximately 70 feet. The traffic rail on the bridge is generally showing signs of deterioration. See

Figure 4 through Figure 6.



Figure 4-Traffic Rail on Bridge



Figure 5- Guardrail Condition

d



Figure 6-Guardrail on West Side of Bridge

The existing alignment and geometrics of N.W. 63rd Street at the approach is a straight pathway. The posted speed limit is 40 mph. The average daily traffic over the bridge is 18,200 vehicles per day based on Association of Central Oklahoma Governments (ACOG) data from 2020 which indicates that a four-lane configuration is appropriate.

Pedestrian Access

There are sidewalks on both sides of the bridge and along the east approach leading to N. Harvey Place. On the west side of the bridge, there are areas where sidewalk is not currently present or is older and needs to be repaired and replaced. The sidewalk on the bridge is 3 ft wide which does not meet the ADA requirement and is closed due to it's failed condition that is a clear safety hazzard for pedestrians (see Figure 7 and Figure 8). The Ada ramps at the N. Harvey Place intersection do not meet ADA requirements and will need to be reconstructed to provide a safe crossing for pedestrians.



Figure 7- Sidewalk on South Side of Bridge



Figure 8- Opening in Sidewalk and Exposed Rebar

Right-of-Way

Based on survey research, the existing right-of-way is complex, variable, and constantly changing throughout the project corridor. The BNSF Railroad has 100 feet of right-of-way on each side of existing track. If the City desired to obtain 100 feet of right-of-way throughout the project, approximately 5 parcels of land totaling 0.33 acres would need to be acquired (shown in yellow hatching in the figure below). Additionally, there is the potential need for a permanent right-of-way purchase along the southeast embankment (shown in red hatching) due to the presence or multiple proposed structures and significant embankment that otherwise make the land less useful for commercial purposes. This would increase total right-of-way acquisition to 0.85 acres. There are also 5 parcels of temporary right-of-way totaling 1.5 acres (shown in green hatching) that should be acquired to provide the Contractor with enough room to construct embankments and reconstruct driveways. Each of these parcel types is shown in Figure 9 and Figure 10 below.



Figure 9- Proposed ROW Acquisitions West

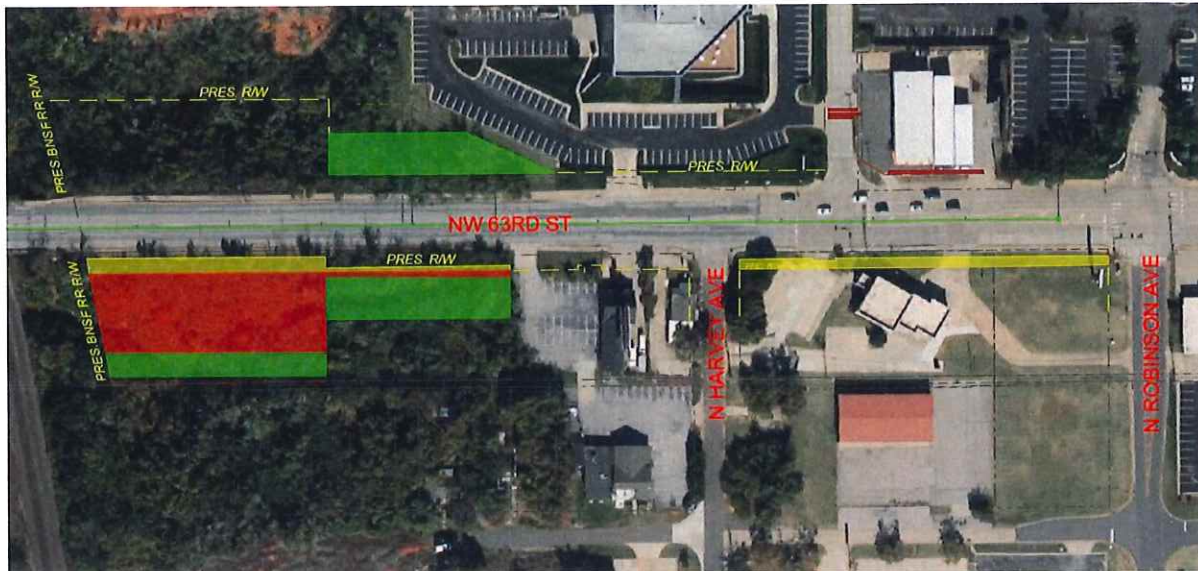


Figure 10- Proposed ROW Acquisitions East

Drainage

The existing drainage on the roadway drains east and west from the highpoint of the roadway and into storm inlets. The highpoint is located approximately 300 ft west of the center of the existing bridge. The roadway north of the center line west of the highpoint drains into a Design 2-0 curb inlet located on the northeast corner of the N. Classen Boulevard and N.W. 63rd Street intersection. The area south of the centerline and west of the highpoint drains west into a Design 2-0 curb inlet on the southeast corner of the N. Classen Boulevard and N.W. 63rd Street intersection. The area on the north side of the centerline and east of the highpoint drains into a Design 2-2 curb inlet located directly west of the driveway approach to 301 N.W. 63rd Street. The area south of the center line on the east side of the highpoint drains east into a Design 2-2 curb inlet directly across the street from the previous curb inlet. The drainage from the sidewalk on the west side of the bridge drains away from the roadway and then east down to the railroad tracks. The sidewalk drainage on the east side of the bridge drains to the Design 2-1 inlets mentioned above. There is an existing 5ft X 4ft reinforced concrete box (RCB) culvert located approximately 170 ft from the east end of the bridge. The RCB culvert channel is considered to be a blue line stream on the USGS Topographic Map and modifications to it may require a 404 permit and hydraulic study.

Existing Utilities

Gas lines are mainly located along the south side of NW 63rd Street, with two crossings at the east end of the project. Telephone lines are located throughout the project location. The existing sanitary sewer line runs along the north and south side of the roadway on the east side of the project. There is

a crossing under NW 63rd Street on the east side of the bridge. This crossing happens to be inside the existing 5' by 4' RCB culvert mentioned previously in this report.

The existing waterline runs mainly along the north side of NW 63rd Street and has 3 crossings throughout the project extents. On the west end of the project, the waterline runs along the south side of NW 63rd Street. Some of these have the possibility of being in conflict for the bridge replacement and ADA sidewalk improvements. Pothole data will need to be acquired to determine utility depth. Utility atlas maps can be found in Appendix A. The image below in Figure 11 shows the existing utilities on this project; waterlines are blue, gas lines are yellow, sanitary sewer is green, orange depicts telecommunication lines, and red is for electric.

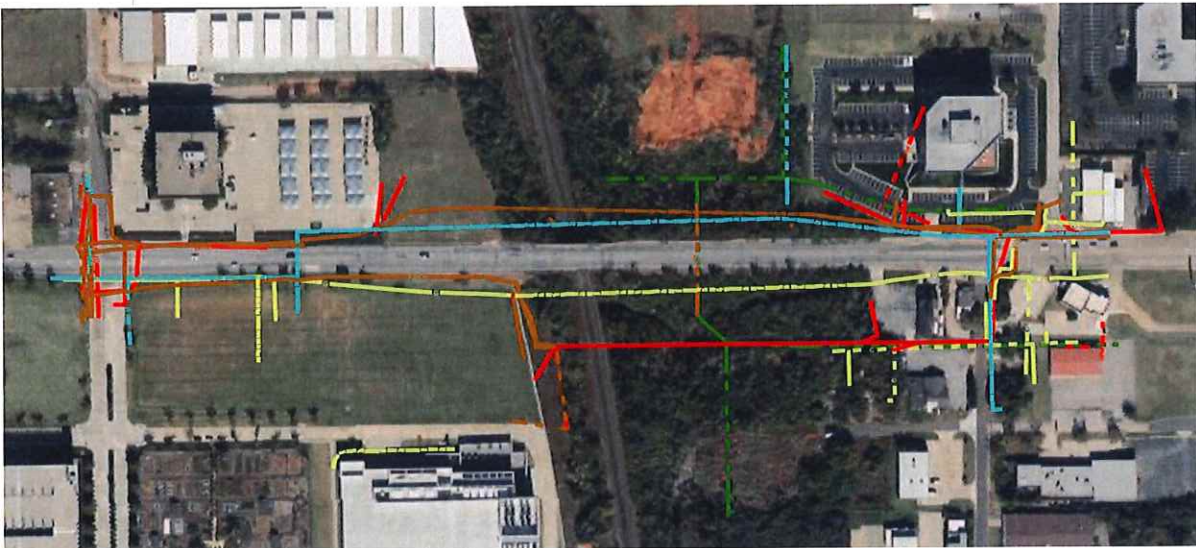


Figure 11- Existing Utilities

Existing Bridge Conditions

The existing bridge was built in 1967 and consists of 3-50 ft steel I-beam spans with 48 ft clear roadway. The current vertical clearance is 21'-8" which is below the 23'-6" minimum requirement by BNSF Railroad. According to the 2022 Bridge Inspection Report performed by others, the bridge is at risk of becoming structurally deficient due to the current superstructure and substructure condition. The report also indicates that the bridge is functionally obsolete due to the deck geometry and was given a substandard appraisal rating for the bridge and approach rail. Figure 12 through Figure 16 illustrate the damage on the deck, superstructure, and substructure.



Figure 12 - Bridge Deck



Figure 13 - Under Bridge Deck and Superstructure



Figure 14 - Bridge Deck



Figure 15 - Bridge Pier Damage



Figure 16 - Bridge Substructure Damage

PROPOSED IMPROVEMENTS

Proposed Bridge

The proposed bridge will consist of a 350 ft (69 ft – 212 ft – 69 ft) rolled steel beam and plate girder span bridge with a 52 ft clear roadway and 7 ft sidewalks on each side of the bridge. A traffic barrier will be constructed on each side of the bridge with anti-throwing fence through the railroad right-of-way extents. The proposed 52 ft clear roadway is the minimum clear roadway width to be wide enough to exceed the requirements for the Functionally Obsolete bridge designation in accordance with the National Bridge Inventory (NBI) requirements for appraisal documentation and AASHTO policy on geometric design. Figure 17 illustrates the proposed bridge section.

The BNSF Railroad has published joint guidelines with the Union Pacific Railroad for grade separation projects. These guidelines require the railroad right-of-way to be free of permanent obstructions such as bridge substructure components, earth fill, and drainage facilities which do not support railroad infrastructure. The railroad right-of-way boundary through the extents of the project is located 100 ft on each side of the existing railroad mainline track. The proposed bridge will clear span the railroad right-of-way.

The BNSF Railroad requires a minimum permanent vertical clearance of 23'-6" measured from the top of the highest existing and future rail to the lowest obstruction under the bridge structure. The proposed profile grade will allow for the construction of one future railroad track on each side of the existing mainline track. An offset of 25 ft from the centerline of the existing track was used to determine the potential future track locations for vertical clearance calculations as shown in the Preliminary Construction Plans. It is understood that the Regional Transit Authority has designated this site as part of the preferred alignment for future commuter rail through the City. The 25 ft offset meets the BNSF requirements for future commuter tracks.

The substructure will consist of reinforced concrete piers and shallow conventional abutments supported by drilled shaft and driven pile foundations, respectively. The substructure will be constructed parallel to the railroad tracks to minimize the bridge length required.

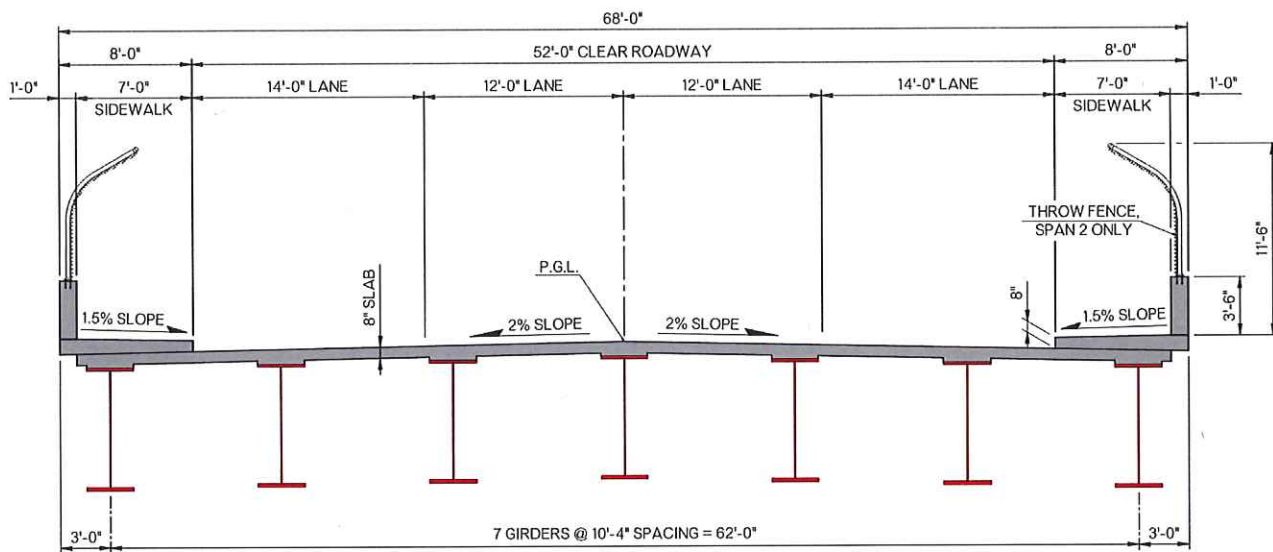


Figure 17 - Proposed Bridge Section

ROADWAY AND TRAFFIC IMPROVEMENTS

The proposed roadway width ranges from 48 feet to 60 feet with 12 to 14 feet wide lanes. The roadway will have two lanes in each direction and a left turn lane west of the intersection of N.W 63rd and N. Harvey Place. Figure 18 illustrates the roadway and lane width at different stations. There will be 6 feet wide sidewalks on each side of the roadway and side slopes that ranges from 3:1 to 2:1 which is also shown on Figure 18. The estimated typical section of the roadway includes asphalt roadway surfacing over ODOT Type A aggregate base on separator fabric which is on compacted subgrade and concrete barrier curbs on each side. In this instance it is expected that compacted

Embankment

The existing profile of the roadway over the BNSF is already elevated and will be raised further with the proposed improvements in BC-0232. The profile elevation of NW 63rd street is already highly elevated above the tie-in elevation on the east side of the railroad. The difference in elevation between roadway and grade below varies but gets to be significant as it approaches the BNSF railroad, reaching heights in excess of 44 feet. Because of previously discussed requirements to clear span the BNSF right of way and provide increased vertical clearance over the railway, raises the grade 8 feet near the bridge. The existing side slopes of NW 63rd street are approximately at a 2:1 slope.

Due to the proposed grade raise, the new toes of slope will fall outside of the existing toes of slope. Holding to a 3:1 side slope would only further push out the toes and expand the limits of embankment as side slopes chase the existing 2:1 grade.

The project site is an urban environment and is not favorable to large earthwork operations. Large volumes of imported borrow will extend the duration of the project, and increase its cost. This would also extend the boundaries of the project outward or require the use of retaining walls. Large earthwork operations, and efforts to haul in borrow, will also impact local business. With these considerations in mind, we are making the recommendation to raise the grade at 2:1 slopes. Installation of 3:1 slopes are more common; which is largely the result of maximum mow-able slopes and technical requirements of inherent friction angles in clay soils common in the area. 2:1 slopes will require geotechnical stabilization recommendations to be implemented with embankment operations. Presently, the significant drop in elevation requires guard rails on both sides of NW 63rd street, and land that is not visible from the street is not actively maintained by the City. We intend a similar setup for the proposed configuration. Given the challenging site conditions and physical constraints of the location, we believe this will not only reduce construction cost, but also reduce needs for right-of way and provide a meaningful reduction in the impact of the project. 2:1 slopes will tie in sooner which will effectively reduce the length of storm sewer installations or box replacement beneath the road near Sta. 25+00. 2:1 slopes will also result in shortened bridge abutments when compared to a 3:1 slope. Our geotechnical subconsultant, Kleinfelder, will assist in these recommendations to stabilize fill after the extents of the bridge have been finalized.

PEDESTRIAN FACILITIES

ADA compliant paths will be constructed along both sides of the N.W. 63rd Street within the project limits. The ADA path will be a minimum of 5 ft wide and 6 ft wide at the bridge or otherwise at the back of curb. ADA Ramps at the N.W. 63rd Street and Harvey Place intersection will be replaced to meet ADA requirements.

5'X4' BOX REPLACEMENT CONSIDERATIONS

The existing 5'x4' box at Station 24+70 is currently undersized for the 50-year storm and therefore needs to be upsized. Replacing this box will be a significant challenge due to the extreme depth of approximately 46 feet from the existing profile of road to the flowline. Based on our analysis, a 6'x5' box would be sufficient to meet drainage requirements. A 10-inch sanitary sewer was sliplined through this RCB under SC-0433 and thereby reduced the storm capacity. This sanitary sewer line will need to be relocated with this project.



Figure 20 - Existing 5'x4' RCB



Figure 21 - Anchored 10" SS in box

Structural analysis of this 5'x4' box structure indicates that its design is not strong enough for soil pressures exerted by the existing height of fill above. In addition to this, the proposed roadway profile will be raised about 7 feet in this location, exacerbating the conditions and giving a second reason why this existing box structure cannot remain in service.

It is expected that it will take a substantial amount of shoring and effort to excavate 46 feet down to this box and replace it with a larger and more robust structure. The actual method of shoring would be up to the contractor to determine. Options could include a slide rail system to dig straight down or a terraced excavation with shoring at each level. The figure for Option 1 below gives a conceptual idea of how this relates to the existing grade and proposed roadway profile.

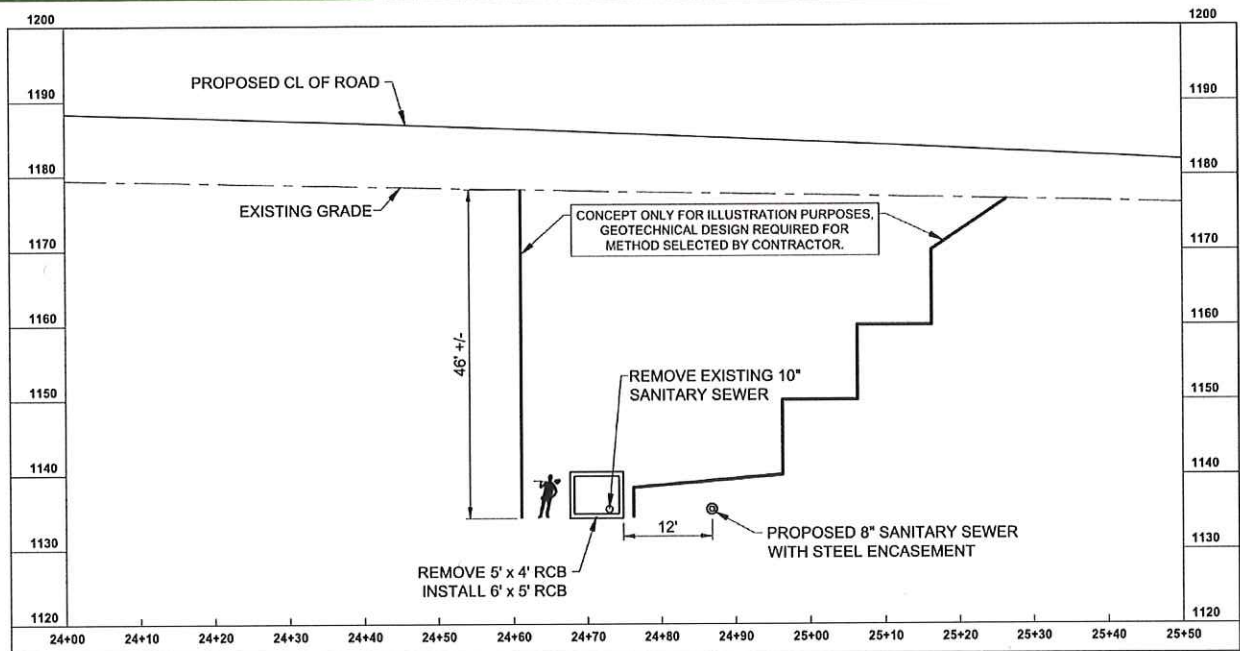


Figure 22 - Option 1, Box Replacement

Even the shoring methods with a smaller footprint will still require a significant amount of excavation and compaction of new soil after the new RCB is installed. In addition to the cost of these efforts, it is also expected to add significant time to the construction schedule. This is due to a geotechnical requirement stating that deep sections of fill be allowed time to settle into place before pavement operations can begin.

Given the challenging access to this site, we explored different concepts that would be less impactful to roadway closure times and lower the cost of the project. Our recommendation is that we slipline the existing box with a 44" fiberglass reinforced polymer mortar (FRPM) pipe, grout the annular space, and pair it with a second 69" FRPM pipe that is direct-jacked offset east of the existing box. Please see Option 2 below. In this option, the 8" SS will be removed from the box and be bored at Sta. 25+00 with a slope in excess of 1.8% which will aid in the bores constructability.

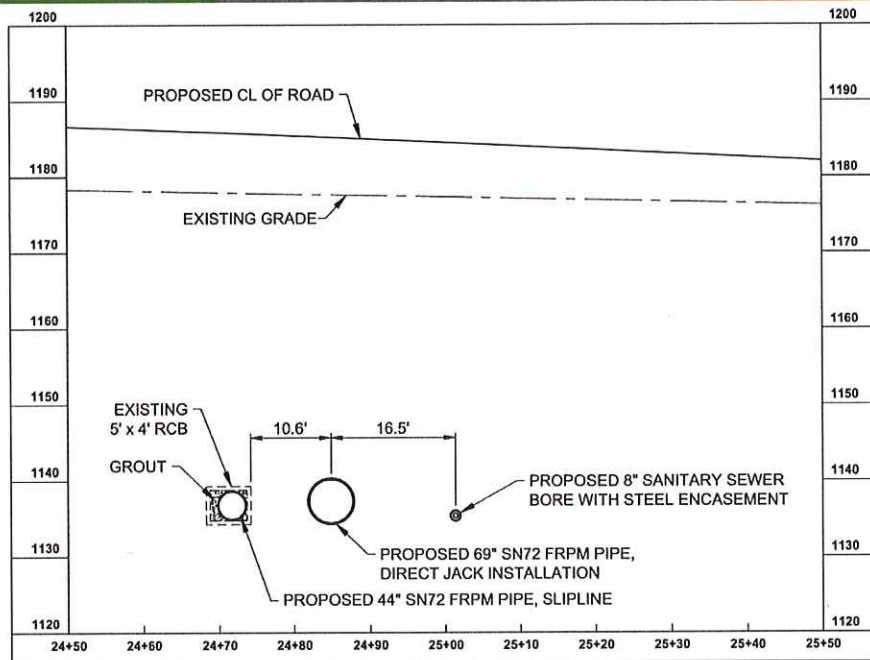


Figure 23 - Option 2, Trenchless Storm Sewer

FRPM pipes are made of fiberglass fibers and resin and provide a number of advantages that are uniquely useful to conditions on this project. FRPM pipe has leakproof rubber gaskets and is suitable for sliplining operations. It can also be manufactured with flush joints so that it can be direct-jacked with a bore machine as opposed to being placed inside of steel casing pipe. FRPM pipe is also resilient and suitable for up to 50 feet of cover, so while we propose sliplining the existing box, we will not rely on the existing box's strength. In addition to these traits, the glass and resin construction are inert and will not corrode over time. This solution will meet the drainage requirements for the 50-year storm in lieu of replacing the box structure.

Either of the discussed options will be costly, but it is expected that the trenchless methods will lower the project cost and reduce the duration of construction. CEC proposes to keep both options in the design with Option 1 listed as an alternate to bid against Option 2. This will ensure competitive pricing between the two approaches.

DRAINAGE IMPROVEMENTS

The existing drainage along NW 63rd Street over the BNSF railroad consists of a closed drainage system for stormwater runoff. The inlets to the west of the project are not within project extents. The existing inlets and pipes have been analyzed to determine how they are currently functioning and if improvements are needed based on the drainage criteria that is called for in the *Oklahoma City Drainage Ordinance*. The current inlets do not meet the drainage criteria due to allowable spread and capacity requirements for a sump. However with the roadway improvements and upsizing to a Des. 2-4, the spread and capacity issues will be fixed. One pipe is a 15" RCP which is below the minimum diameter and will be upsized to 18". The current outlet to the creek nearby is simply a pipe extending from the manhole. This outflow will be replaced with a 24" prefabricated end section and riprap to protect against erosion resulting from high velocities due from the change in elevation. All inlets, pipes and end sections will still need to be replaced due to the elevation change of the roadway. Table 1 and Table 2 below show the proposed drainage improvements along the corridor:

Table 1 - Summary of Drainage Structure Replacements

NW 63 rd Bridge Drainage Structures – Existing and Proposed				
Structure	Alignment	Station	Existing Size	Proposed Size
1	NW 63 rd Street	29+03.87	Des. 2-2	Des. 2-4
2	NW 63 rd Street	29+03.23	Des. 2-2	Des. 2-4
3	NW 63 rd Street	26+55.71		24" Prefab. End Section
MH-1	NW 63 rd Street	26+57.39	4' Manhole	4' Manhole

Table 2 - Summary of Drainage Pipe Replacements

NW 63 rd Bridge Drainage Structures – Existing and Proposed				
Pipe	Alignment	Length (LF)	Existing Size	Proposed Size
STR-1 TO STR-2	NW 63 rd Street	53	15"	18"
STR-2 TO MH-1	NW 63 rd Street	246	24"	24"
MH-1 TO STR-3	NW 63 rd Street	32	24"	24"

PRELIMINARY COST ESTIMATES

Table 3 - Preliminary Project Descriptions and Estimates

PROJECT ESTIMATE	
Base Bid – (BC-0232) <ul style="list-style-type: none"> • Replacement of existing bridge • Roadway improvements for revised profile • Upgraded storm sewer 	\$8,902,327
Option 1 – 5'x4' Box Replacement & Trenched SS <ul style="list-style-type: none"> • Replacement of existing box with 6'x5' RCB • Deep shoring to reach RCB • Trenched installation of relocated 8" SS • 90 day extension to construction time 	\$1,300,450
Option 2 – Trenchless Storm & Trenchless SS <ul style="list-style-type: none"> • Slipline existing RCB with 44" pipe • Direct jack parallel 69" pipe • Trenchless installation of relocated 8" SS 	\$967,330
CITY OF OKLAHOMA CITY BUDGET	\$7,342,249

Total Fixed Limit of Construction Budgeted for BC-0232:	\$7,342,249
Total Proposed Construction Cost for BC-0232:	<u>\$9,869,657</u>
Total Over Construction Budget:	<u>\$2,527,408</u>

These costs are based on the most recent bid tabs available. Detailed preliminary cost estimates can be found in Appendix B.

RECOMMENDATIONS

The purpose of this report is to provide a solution to replace the bridge on N.W. 63rd Street over BNSF Railroad. Given the existing conditions and the overall safety of the corridor, CEC makes the following recommendations:

- Replacing the existing bridge with a 350 ft rolled steel beam and plate girder span bridge with a 52 ft clear roadway and 7 ft sidewalks on each side of the bridge
- Upsizing inlets 1 and 2 from Des. 2-2 to Des. 2-4 and adding a 24" prefab. end section at station 26+55.71
- Upsizing 53 LF of pipe from 15" to 18"
- Sequencing of the project's construction will be installing storm and SS improvements while the old bridge is removed, constructing the new bridge while importing borrow to raise the grade, installing new storm sewer, then paving, driveways, sod, and striping
- Relocate sanitary sewer line currently inside the 5'x4' RCB
- Excavate and replace the 5'x4' RCB -or- create capacity with trenchless methods

CEC believes that while Option 2 (trenchless storm) will provide cost savings to the City, it is important that Option 1 also be bid to provide competition. The City could, however, choose to forgo Option 2 (trenchless storm) altogether and only bid Option 1 (trenched box replacement). There are many construction companies that could perform this work and therefore provide competition on pricing for the trenched replacement. The inverse of this is not true, if only Option 2 (trenchless storm) were included in the bid, there would be limited competition and because of the unique method and material being required this could lead to higher bids despite the installation being a bulk of the cost compared to material prices.

These new additions are feasible and will improve the pavement, bridge lifespan, and the safety of pedestrians along N.W. 63rd Street. The total cost for these improvements is estimated at \$9,869,657 which is \$2,527,408 over the overall fixed limit of construction budgeted for this project. Total cost breakdown can be found in Appendix B. The preliminary drainage analysis report is provided with this report under a separate cover.

APPENDIX A

Utility Atlas Maps

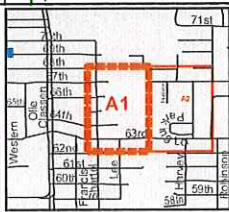
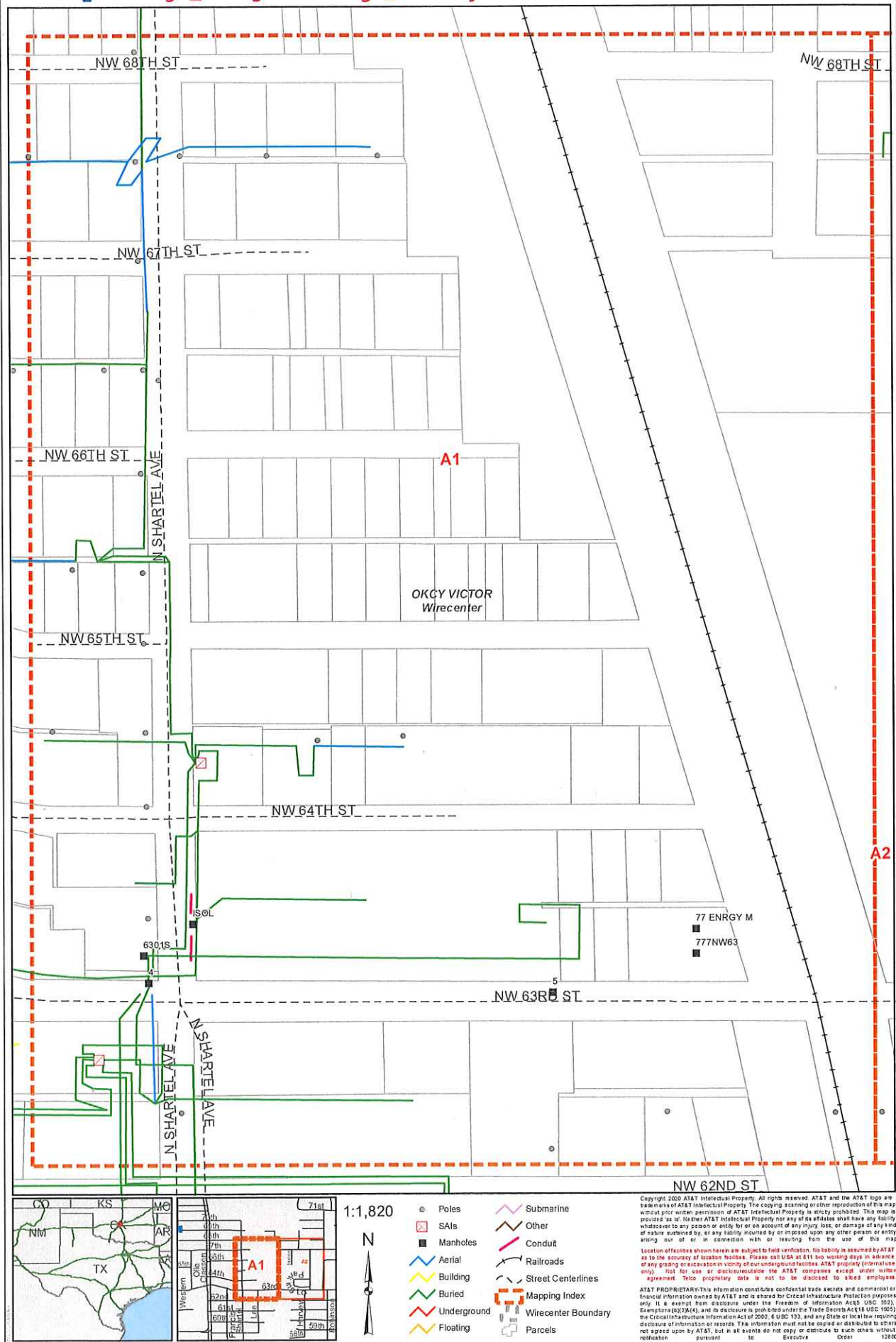


External Map Request for Cec

Tm129T_Nw 63Rd Rr Bridge_Cec Project

Date: 9/25/2023

Page Name: A1



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- Poles
- S&Is
- Manholes
- Aerial
- Building
- Buried
- Underground
- Floating
- Submarine
- Other
- Conduit
- Railroads
- Street Centerlines
- Mapping Index
- Wirecenter Boundary
- Parcels

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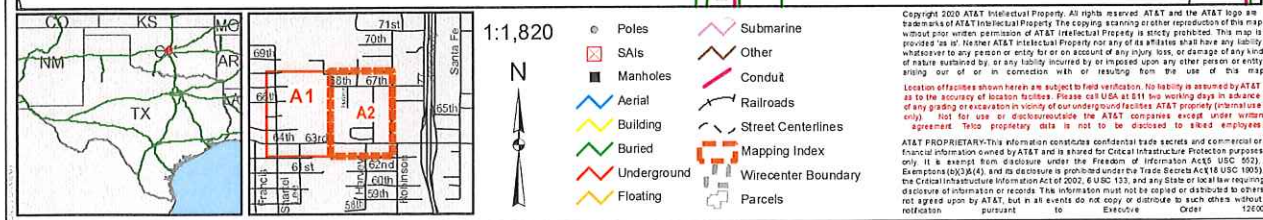
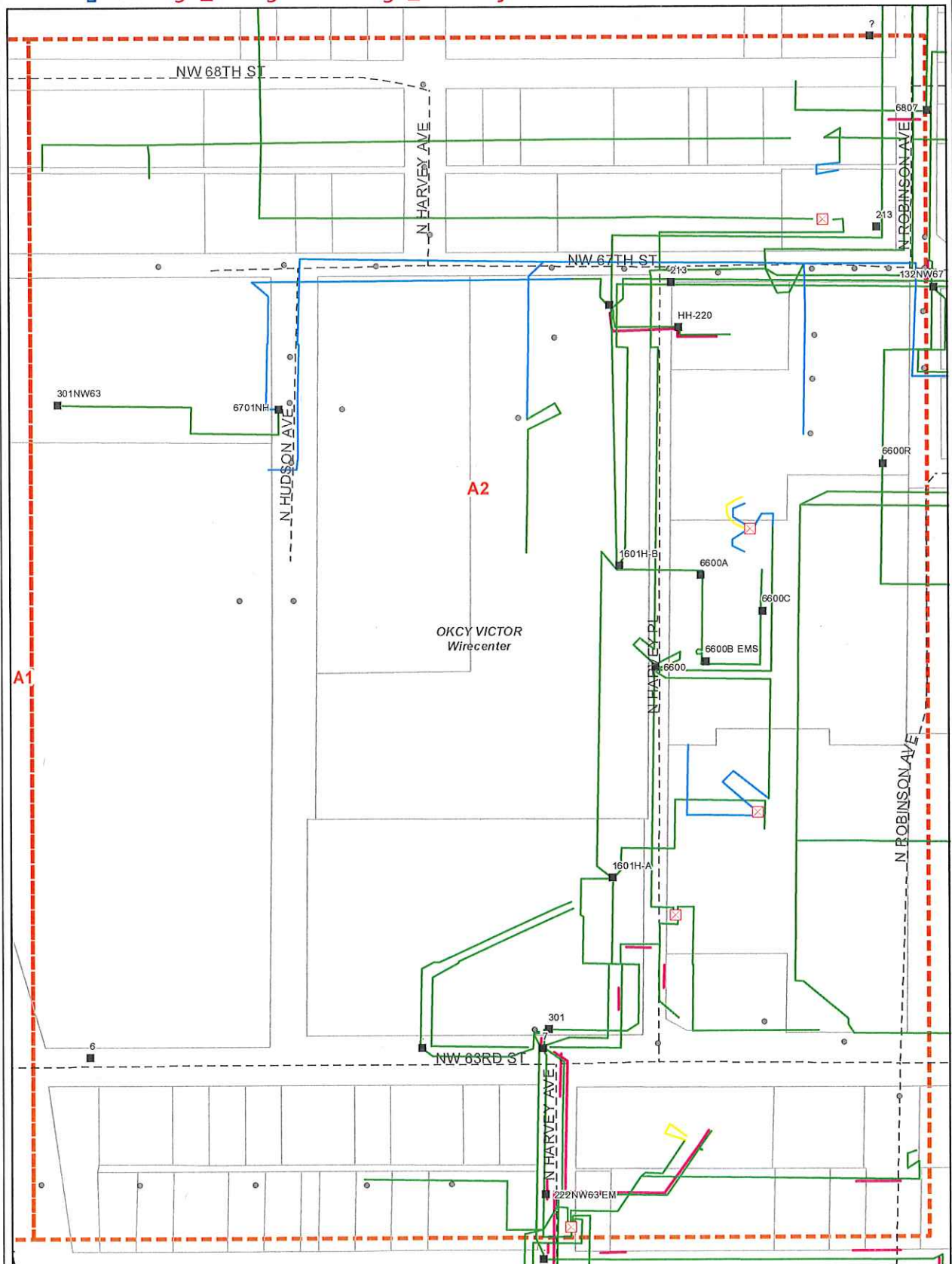


External Map Request for Cec

Tm129T_Nw 63Rd Rr Bridge_Cec Project

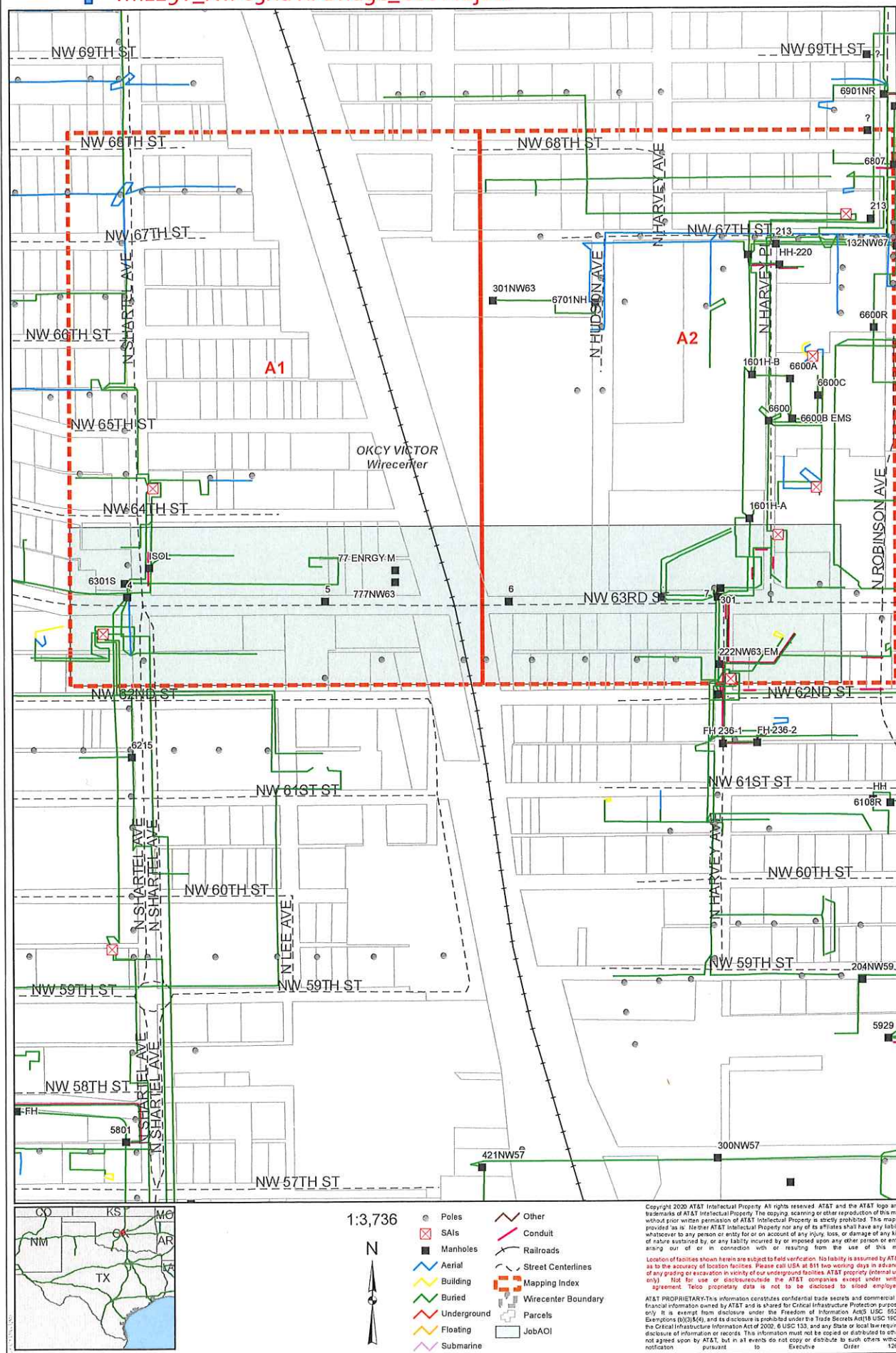
Date: 9/25/2023

Page Name: A2





Index Map

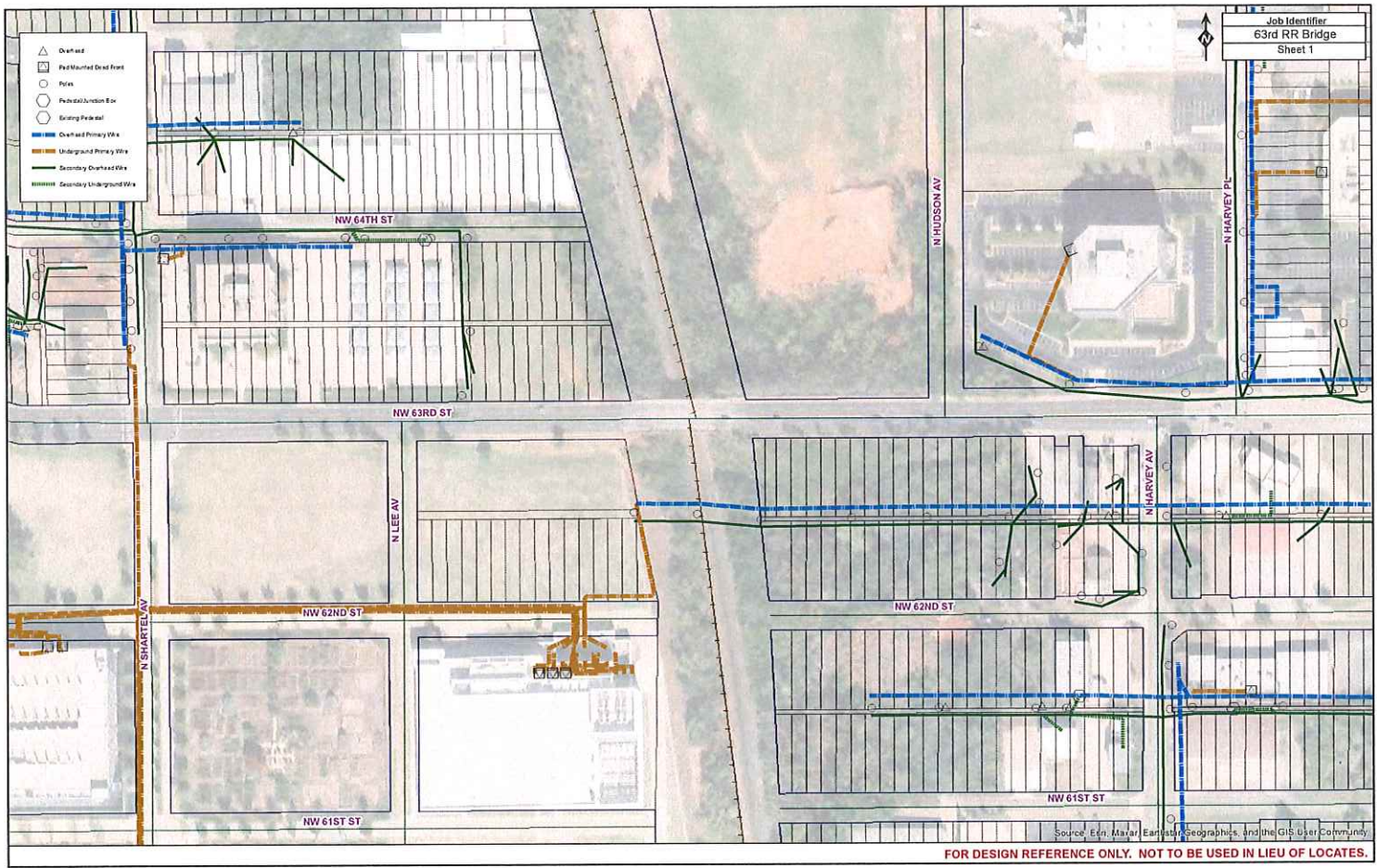




Map Legend:

Pedestal		Underground Structure	
Vault		Overhead Structure	
Riser			
Pole			

COX

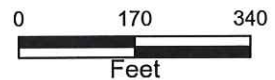




Oklahoma City
Water
Utilities Trust

ATLAS

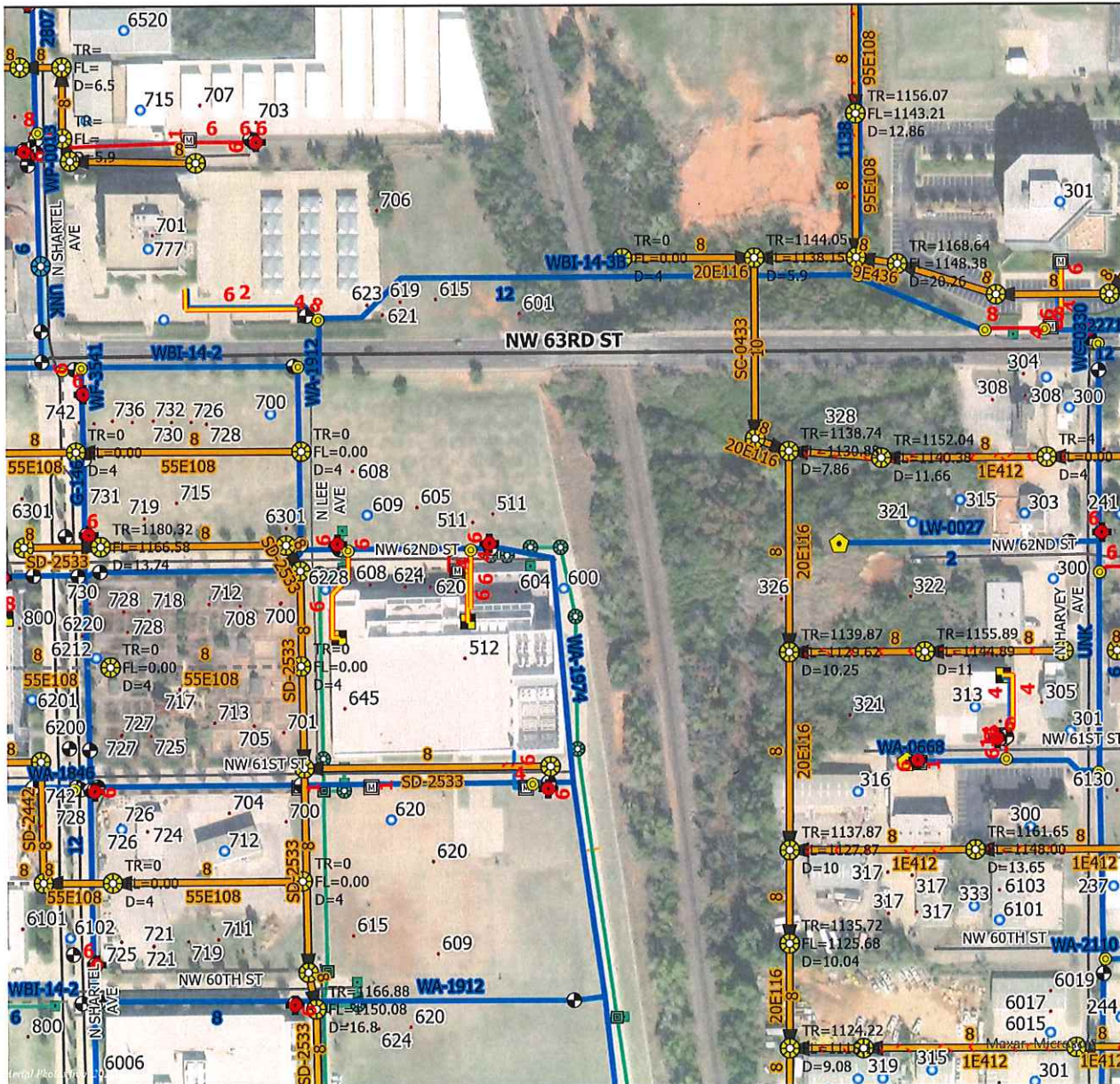
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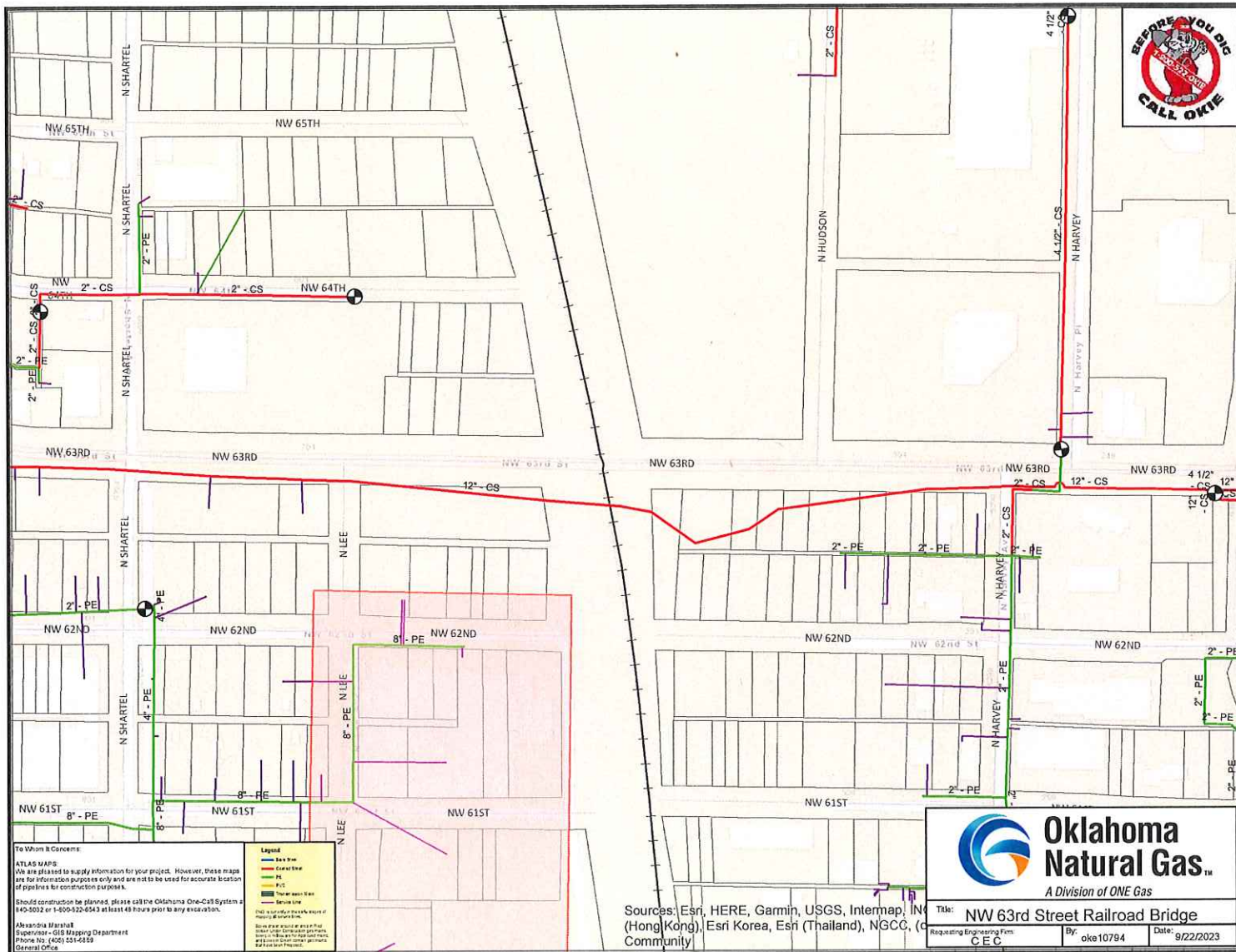


Legend

- Abandoned/Remove
- Wastewater Main
- Fire Hydrant
- Nichol Hills Main
- Abandoned
- Water Main

Created By: Christopher M Dillard
Date: 9/22/2023





Sources: Esri, HERE, Garmin, USGS, Intermap, IN (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (d
Task: NW 63rd Street Railroad Bridge
Requesting Engineering Firm: C E C
By: oke10794
Date: 9/22/2023

"For use only by authorized ONE Gas personnel and contractor/consultants doing work for ONE Gas requiring use of the information in these documents."

APPENDIX B

Detailed Estimate



30% Estimate
August 6th, 2024



BC-0232
63rd Street over BNSF
Raised Bridge Replacement

BASE BID - ROADWAY IMPROVEMENTS TOTAL						
SECTION	ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
	1	REMOVE EXIST BRIDGE, CONST. 69'-212'-69' ROLLED STEEL BEAM & PLATE GIRDER SPANS, 12.5 DEG. SKEW, 52' CLR. RDWY. WITH 2-7' SDWLK	LS	1	\$7,296,024.00	\$7,296,024.00
200-00	2	UNCLASSIFIED EXCAVATION	CY	785	\$10.00	\$7,850.00
200-01	3	UNCLASSIFIED BORROW	CY	7,000	\$16.00	\$112,000.00
200	4	SELECT BORROW	CY	4,325	\$67.00	\$289,775.00
222-07	5	8" STABILIZED SUBGRADE	SY	6,737	\$5.00	\$33,685.56
225-00	6	8" TYPE A AGGREGATE BASE	CY	1,510	\$68.00	\$102,680.00
301-00	7	SUPERPAVE, TYPE S3 (PG 58-28 OK)	TON	3,396	\$125.00	\$424,456.95
301-08	8	SUPERPAVE, TYPE S5 (PG 70-28 OK)	TON	755	\$142.00	\$107,151.80
305-03	9	2'-8" COMB. CRB. & GUT. (8" BARRIER)	LF	2,358	\$33.00	\$77,814.00
313-00	10	TACK COAT	GAL	1,213	\$4.00	\$4,850.72
451-00	11	24" PREFAB END SECTION	EA	1	\$1,133.00	\$1,133.00
453-00	12	REINFORCED CONCRETE PIPE (18")	LF	54	\$98.00	\$5,292.00
453-00	13	REINFORCED CONCRETE PIPE (24")	LF	278	\$114.00	\$31,692.00
454-00	14	MANHOLE (4')	EA	3	\$4,094.00	\$12,282.00
454-05	15	DES. 2-4 INLET	EA	2	\$7,800.00	\$15,600.00
456-00	16	REMOVE MANHOLE	EA	1	\$1,002.00	\$1,002.00
610-02	17	8" POLYVINYL CHLORIDE (PVC) PIPE	LF	362	\$108.00	\$39,096.00
735-00	18	TRAFFIC STRIPE 8"	LF	216	\$2.00	\$432.00
735-05	19	TRAFFIC STRIPE 4"	LF	4,803	\$1.00	\$4,803.00
811-00	20	REPLACE GUARDRAIL	LF	1,342	\$40.00	\$53,680.00
811-00	21	RELOCATE PULL BOX	EA	1	\$1,315.00	\$1,315.00
811-02	22	REMOVE EXIST. END SECTION	EA	1	\$3,800.00	\$3,800.00
811-04	23	REMOVE STORM SEWER (RCP)	LF	332	\$10.00	\$3,320.00
811-05	24	STRUCTURAL REMOVAL (INLET)	EA	2	\$787.00	\$1,574.00
812-01	25	REMOVAL OF SIDEWALK (4')	SY	1,244	\$10.00	\$12,439.21
812-02	26	REMOVAL OF CURB AND GUTTER	LF	2,358	\$6.00	\$14,148.00
812-04	27	REMOVAL OF ASPHALT PAVEMENT	SY	6,737	\$7.00	\$47,159.78
813-00	28	REMOVAL OF CONCRETE DRIVEWAY	SY	590	\$18.00	\$10,620.00
823-00	29	4" CONCRETE SIDEWALK	SY	1,244	\$80.00	\$99,513.69
823-01	30	6" CONCRETE DRIVEWAY (H.E.S.)	SY	590	\$95.00	\$56,050.00
825-00	31	(TYPE 1) PLAIN RIPRAP	CY	18	\$146.00	\$2,628.00
830-01	32	TACTILE WARNING DEVICE	SF	20	\$42.00	\$840.00
840-02	33	SOLID SLAB SODDING	SY	9,206	\$3.00	\$27,619.09
BASE BID TOTAL						\$8,902,327

OPTION 1 - 5'X4' BOX REPLACEMENT, TRENCHED SS						
SECTION	ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
	34	REMOVE 5'X4' RCB	LF	215	\$230.00	\$49,450.00
	35	6'X5'X275' REINFORCED CONCRETE BOX CULVERT	LS	1	\$467,760.00	\$467,760.00
	36	EXCAVATION AND SHORING FOR RCB REMOVAL	LS	1	\$700,000.00	\$700,000.00
633	37	POLYVINYL CHLORIDE (PVC)(8-INCH)(SDR 35)	LF	330	\$130.00	\$42,900.00
616	38	(4') SANITARY SEWER MANHOLE (0'-6')	EA	2	\$4,000.00	\$8,000.00
635	39	STEEL CASING PIPE (8" PVC)	LF	242	\$120.00	\$29,040.00
212	40	TRENCH EXCAVATION AND BACKFILL (0'-10')	LF	330	\$10.00	\$3,300.00
OPTION 1 TOTAL						\$1,300,450

OPTION 2 - TRENCHLESS STORM & SS						
SECTION	ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
606	41	SLIPLINING (FRPM)(44")	LF	250	\$600.00	\$150,000.00
251	42	JACKING (FRPM)(69")	LF	250	\$2,600.00	\$650,000.00
606	43	GROUTING	CY	155	\$250.00	\$38,750.00
635	44	BORE & STEEL ENCASEMENT (8" PVC)	LF	242	\$300.00	\$72,600.00
633	45	POLYVINYL CHLORIDE (PVC)(8-INCH)(SDR 35)	LF	360	\$130.00	\$46,800.00
212	46	TRENCH EXCAVATION AND BACKFILL (0'-10')	LF	118	\$10.00	\$1,180.00
616	47	(4') SANITARY SEWER MANHOLE (0'-6')	EA	2	\$4,000.00	\$8,000.00
OPTION 2 TOTAL						\$967,330

BASE + OPTION 1	\$10,202,777
BASE + OPTION 2	\$9,869,657