CITY OF NORMAN, OK
FLOODPLAIN PERMIT COMMITTEE MEETING
Development Center, Room B, 225 N. Webster Ave., Norman, OK 73069
Monday, July 15, 2024 at 3:30 PM

AGENDA

It is the policy of the City of Norman that no person or groups of persons shall on the grounds of race, color, religion, ancestry, national origin, age, place of birth, sex, sexual orientation, gender identity or expression, familial status, marital status, including marriage to a person of the same sex, disability, relation, or genetic information, be excluded from participation in, be denied the benefits of, or otherwise subjected to discrimination in employment activities or in all programs, services, or activities administered by the City, its recipients, sub-recipients, and contractors. In the event of any comments, complaints, modifications, accommodations, alternative formats, and auxiliary aids and services regarding accessibility or inclusion, please contact the ADA Technician at 405-366-5424, Relay Service: 711. To better serve you, five (5) business days' advance notice is preferred.

ROLL CALL

MINUTES

1. Approval of minutes from the June 3, 2024 meeting.

ACTION ITEMS

2. **Floodplain Permit Application No. 693 -** This permit application is for the proposed installation of a fence along property line of 1020 W. Boyd St. in the Imhoff Creek Floodplain.

3. **Floodplain Permit Application No. 694 -** This permit application is for the proposed installation of a swimming pool, privacy fence and earthen berm in the Imhoff Creek Floodplain.

4. **Floodplain Permit Application No. 695 -** This permit application is for the proposed development of a sports complex and residential structure on southeast corner of the intersection of 60th Ave. NW and Indian Hills.

5. **Floodplain Permit Application No. 696 -** This permit application is for the replacement of a bridge over Rock Creek on 60th Ave. NE between Tecumseh and Rock Creek roads.

MISCELLANEOUS COMMENTS

ADJOURNMENT

CITY OF NORMAN, OK
FLOODPLAIN PERMIT COMMITTEE MEETING

Municipal Building, Executive Conference Room, 201 W Gray, Norman, OK 73069
Monday, June 03, 2024 at 3:30 PM

MINUTES

ROLL CALL

The meeting was called to order by Mr. Sturtz at 3:30 p.m. Roll was called and all members were present. Others in attendance included, Jason Murphy, Stormwater Program Manager; Kim Freeman, Staff; Joshua Barker, Norman Police Department; Reza Khakpour, LMRK Engineering.

MINUTES

1. Approval of minutes from the May 6, 2024 meeting

Mr. Sturtz asked for any comments, questions or a motion from the committee to approve the minutes from the meeting of May 6, 2024. The motion was made by Ms. Hudson and seconded by Ms. Hoggatt. The minutes were approved 7-0.

ACTION ITEMS

2. Floodplain Permit No. 690

Mr. Sturtz said the Application for Permit 690 is for proposed construction of a stormwater nature park located at the northeast corner of E. Alameda St. and S. Carter Ave. in the Tributary B of Bishop Creek floodplain. Mr. Sturtz said the Applicant is the City of Norman and the Engineer is Reza Khakpour, P.E., LMRK Engineering. Mr. Sturtz asked Mr. Murphy to present the staff report. Mr. Murphy said this project will provide a nature park in the heart of the City of Norman. The park features will include a playground, walking trails, lookout station, a raingarden and a parking lot. The park will provide educational information to visitors as well as creating some storage in the floodplain to help with localized flooding. All of the proposed development will be utilizing some low impact development (LID) features such as strips of pervious pavement in the proposed parking area. As well as the proposed raingarden will provide water quality amendments for the water shed.

Mr. Murphy reviewed plans and aerial maps of the project location provided to members in their packets.

Mr. Murphy confirmed all ordinance requirements have been met and said staff recommends Floodplain Permit Application No. 690 be approved.

Mr. Sturtz asked for comments from Reza Khakpour, LMRK Engineering. Mr. Khakpour said the only place that they are putting fill is in the parking lot. The water from the parking lot goes into a raingarden and gets filtered for water quality before it goes into the creek. So, it does add some value for water quality since it is the Lake Thunderbird watershed and it is sensitive. Where the observation place is, they are digging out some of the floodplain area to get storage

that will help with flooding as well. There is educational value because this is going to be a wetland. Mr. Scanlon asked if Mr. Khakpour knows what the schedule for the project is. Mr. Khakpour said he did not know. Mr. Murphy said the last he heard they were getting pretty close to going out for bidding, but the Parks department would be the best people to ask. Mr. Scanlon said this is a project from a stormwater prospective that he has been curious about for months and it's neat that it's coming to fruition. Mr. Scanlon said I think this is Bishop Creek watershed as opposed to Thunderbird. Mr. Khakpour said yes, it is Bishop Creek. Mr. Sturtz asked for comments or questions from the committee. Mr. Danner asked if this would take a map revision. Mr. Murphy said he didn't think there was enough of a change to the creek itself. They are removing some storage in the floodplain but I don't think the flow line of the creek itself is changing. Mr. Khakpour said the flow line of the stream isn't moving and the water self-subsidization isn't changing. The limits of the floodplain isn't changing, unless you guys want to get it lower. Mr. Danner said we would probably do that if we had studied Bishop Creek through. Mr. Sturtz asked for any other questions or comments. Ms. Hudson said the west side of the parking lot is across the street from single family, and doesn't have anything necessarily to do with today, but the landscaping requirements for that parking lot will still have to be met. You'll have to put a berm or some sort of screening across that for the single family across the street. Mr. Murphy asked if Parks had talked with Ms. Hudson about that. Ms. Hudson said no and she's just getting it on the record. Single family across the street might not be happy there's light shining into their house at night.

Mr. Sturtz asked for questions, comments or a motion. Mr. Scanlon made a motion to approve Permit 690. Ms. Hoggatt seconded the motion. The committee voted to approve the application 7-0.

3. Floodplain Permit No. 691

Mr. Sturtz said the Application for Permit 691 is for proposed installation of an outdoor rifle marksmanship shooting lane at 3800 Jenkins Ave. at the existing City of Norman police gun range in the Canadian River floodplain. Mr. Sturtz said the Applicant is the City of Norman and the Engineer is the City of Norman, Brandon Brooks, P.E. Mr. Sturtz asked Mr. Murphy to present the staff report. Mr. Murphy said this project involves the excavation, grading, and construction of an outdoor rifle marksmanship shooting lane. The construction entails the installation of 6, 10' X 30' X 4" concrete pads located at 0, 25, 50, 75, 100, 200, and 300 yards from a berm. The berm is located outside of the floodplain. Each pad site will be installed flush with the existing grade. The police department is also intending to construct a drivable surface at existing grade utilizing road millings compacted to a thickness of 4" and located 30' away from a drainage channel. The surface is not intended for use by passenger vehicles, but is intended for use by small, light-service utility vehicles, golf cart or side-by-side. Compacted asphalt road millings are considered a permeable surface. Additionally, a low water crossing will be constructed to cross the existing channel at the current flow line. The channel flow line and banks of the drainage channel will not be altered for this project with the exception of the low water crossing which will be installed at the existing channel grade and stabilized with flexamat. All exposed ground will be stabilized during and after construction. There will not be any increase in the Base Flood Elevation at any of this location.

Mr. Murphy reviewed plans and aerial maps of the project location provided to members in their packets.

Mr. Murphy confirmed all ordinance requirements have been met and said staff recommends Floodplain Permit Application No. 691 be approved.

Mr. Sturtz asked for questions from the committee. Mr. Scanlon asked what we gain in building this. Joshua Barker, Norman Police Department, said we gain opportunity for our officers to train with their rifles, you can even shot pistols, to better their ability to do the job. Mr. Scanlon asked as opposed to the current range which is very short. Mr. Barker confirmed. Mr. Scanlon asked if we could go somewhere to do this training. Mr. Barker said we have just done without. Mr. Scanlon said he thinks that's interesting to know. Mr. Scanlon said when we get to it, I move to approve this. Mr. Sturtz asked for a second to approve Permit 691. Ms. Stansel seconded the motion. Mr. Sturtz asked for any other questions or comments. The committee voted to approve the application 7-0.

MISCELLANEOUS COMMENTS

Mr. Murphy said there are no applications for the next meeting on June 17, 2024 and will be cancelled.

ADJOURNMENT

Mr. Sturtz called for a motion to adjourn. Mr. Scanlon motioned to adjourn and was seconded by Ms. Hoggatt. The meeting adjourned at 3:48 p.m.

Passed and approved this _____ day of _____, 2024

_____
City of Norman Floodplain Administrator, Scott Sturtz

STAFF REPORT 07/15/2024 **PERMIT NO. 693**

ITEM: Floodplain Permit application for proposed installation of a fence along property line of 1020 W. Boyd St. in the Imhoff Creek Floodplain

BACKGROUND:
APPLICANT: Robert Tyler Grimmett
ENGINEER: Joel Howell P.E.

This project involves the installation of a wooden fence along the southern property line of 1020 W. Boyd St. The owner states that a pedestrian walking trail is adjacent to their southern property line and pedestrians are regularly cutting across his property. Additionally, while his pets are kept in the yard with a buried electrical fence, unleashed pets with the pedestrians sometimes enter onto his property and create a hazard.

STAFF ANALYSIS:
Site located in Little River Basin or Tributaries? yes__ no✓

According to the latest DFIRM, portions of this project are located within the Imhoff Creek floodplain (Zone AE).

Applicable Ordinance Sections:		Subject Area:
36-533	(e)(2)(a)..……..……..	Fill restrictions in the floodplain
	(e)(2)(e)..…….	Compensatory storage
	(e)(3)(j)..…….	Fencing in the floodplain
	(f)(3)(8) ……...	No rise considerations

(e)(2)(a) and (e)(2)(e) Fill Restrictions in the Floodplain and Compensatory Storage – The use of fill is restricted in the floodplain unless compensatory storage is provided.

> The project engineer has indicated that the volume occupied by fence panels below the BFE is 4.58 CF. Twelve fence posts will be installed in the floodplain with a total volume of 4.56 CF, for a total of 9.14 CF. The applicant has indicated that they will remove this volume, approximately 1.5 wheelbarrows worth, of soil from the south end of the property and dispose of it outside the floodplain.

(e)(3)(j) Fencing in the Floodplain – All new fences or replacement of existing fences in the SFHA require a floodplain permit. Approved fences shall be designed and installed to be breakaway or in some other manner so that flows will not be impeded.

> The applicant has indicated the fence type to be installed is a horizontally slatted wooden fence. The bottom slat will be 9.5” above grade and there will be 5.5” of space between each slat thereafter. The fence will only extend along the southern boundary, allowing water to flow both underneath and around the fence. This will allow water to flow unimpeded through the floodplain and meet this ordinance requirement.

(f)(3)(8) No Rise Considerations – For proposed development within any flood hazard area (except for those designated as regulatory floodways), certification that a rise of no more than 0.05 ft. will occur in the BFE on any adjacent property as a result of the proposed work is required.

> The project engineer has indicated that the proposed project provides compensatory storage and will allow unimpeded flow through and around the fence therefore, no rise in

the BFE on any adjacent property will occur.

RECOMMENDATION: Staff recommends Floodplain Permit Application #693 be approved.

ACTION TAKEN: _____

City of Norman

Floodplain Permit Application

Floodplain Permit No. 693

Building Permit No. _____

Date 7/15/2024

FLOODPLAIN PERMIT APPLICATION
($100.00 Application Fee Required)

SECTION 1: GENERAL PROVISIONS (APPLICANT to read and sign):

1. No work may start until a permit is issued.
2. The permit may be revoked if any false statements are made herein.
3. If revoked, all work must cease until permit is re-issued.
4. Development shall not be used or occupied until a Certificate of Occupancy is issued.
5. The permit will expire if no work is commenced within 2 years of issuance.
6. Applicant is hereby informed that other permits may be required to fulfill local, state and federal regulatory requirements and must be included with this floodplain permit application.
7. Applicant hereby gives consent to the City of Norman or his/her representative to access the property to make reasonable inspections required to verify compliance.
8. The following floodplain modifications require approval by the City Council:
   (a) A modification of the floodplain that results in a change of ten percent (10%) or more in the width of the floodplain.
   (b) The construction of a pond with a water surface area of 5 acres or more.
   (c) Any modifications of the stream banks or flow line within the area that would be regulatory floodway whether or not that channel has a regulatory floodplain, unless the work is being done by the City of Norman staff as part of a routine maintenance activity.
9. All supporting documentation required by this application is required along with the permit fee by the submittal deadline. Late or incomplete applications will not be accepted.
10. I, THE APPLICANT, CERTIFY THAT ALL STATEMENTS HEREIN AND IN ATTACHMENTS TO THIS APPLICATION ARE, TO THE BEST OF MY KNOWLEDGE, TRUE AND ACCURATE.

SECTION 2: PROPOSED DEVELOPMENT (To be completed by APPLICANT.)

APPLICANT: Robert Tyler Grimmett ADDRESS: 1020 W. Boyd St., Norman, OK 73069

TELEPHONE: 405-207-1008 SIGNATURE: R. Tyler Grimmett

BUILDER: _____ ADDRESS: _____

TELEPHONE: _____ SIGNATURE: _____

ENGINEER: Joe Howell ADDRESS: 211 E. St. NW, Ardmore, OK 73401

TELEPHONE: 580-221-3531 SIGNATURE: _____

PROJECT LOCATION

To avoid delay in processing the application, please provide enough information to easily identify the project location. Provide the street address, subdivision addition, lot number or legal description (attach) and, outside urban areas, the distance to the nearest intersecting road or well known landmark. A sketch attached to this application showing the project location would be helpful.

South end of property adjacent to the drainage canal bridge (Cruce Street)

DESCRIPTION OF WORK (Check all applicable boxes):

A. STRUCTURAL DEVELOPMENT

ACTIVITY	STRUCTURE TYPE
☑ New Structure	☐ Residential (1-4 Family)
☐ Addition	☐ Residential (More than 4 Family)
☐ Alteration	☐ Non-Residential (Flood proofing? ☐ Yes)
☐ Relocation	☐ Combined Use (Residential & Commercial)
☐ Demolition	☐ Manufactured (Mobile) Home
☐ Replacement	☐ In Manufactured Home Park? ☐ Yes

ESTIMATED COST OF PROJECT $ 3000.00 Work that involves substantial damage/substantial improvement requires detailed cost estimates and an appraisal of the structure that is being improved.

B. OTHER DEVELOPMENT ACTIVITIES:

☐ Fill ☐ Mining ☐ Drilling ☐ Grading

☐ Excavation (Beyond the minimum for Structural Development)

☐ Watercourse Alteration (Including Dredging and Channel Modifications)

☐ Drainage Improvements (Including Culvert Work) ☐ Road, Street or Bridge Construction

☐ Subdivision (New or Expansion) ☐ Individual Water or Sewer System

In addition to items A. and B. provide a complete and detailed description of proposed work (failure to provide this item will be cause for the application to be rejected by staff). Attach additional sheets if necessary.

We are building a cedar, post and rail fence with at the south end of our property along the sidewalk adjacent to the canal bridge (Cruce Steet).

The fence will be 4 ft. tall and will contain 4 horizontal pickets allowing for water flow through the gaps in case of a flood. There will also be a small gate at the very center.

C. ATTACHMENTS WHICH ARE REQUIRED WITH EVERY APPLICATION:

The applicant must submit the documents listed below before the application can be processed. If the requested document is not relevant to the project scope, please check the Not Applicable box and provide explanation.

A. Plans drawn to scale showing the nature, location, dimensions, and elevation of the lot, existing or proposed structures, fill, storage of materials, flood proofing measures, and the relationship of the above to the location of the channel, floodway, and the regulatory flood-protection elevation.

B. A typical valley cross-section showing the channel of the stream, elevation of land areas adjoining each side of the channel, cross-sectional areas to be occupied by the proposed development, and high-water information.

☐ Not Applicable:

_____

_____

C. Subdivision or other development plans (If the subdivision or other developments exceeds 50 lots or 5 acres, whichever is the lesser, the applicant **must** provide 100-year flood elevations if they are not otherwise available).

☑ Not Applicable:

_____

_____

D. Plans (surface view) showing elevations or contours of the ground; pertinent structure, fill, or storage elevations; size, location, and spatial arrangement of all proposed and existing structures on the site; location and elevations of streets, water supply, sanitary facilities; photographs showing existing land uses and vegetation upstream and downstream, soil types and other pertinent information.

☐ Not Applicable:

_____

_____

E. A profile showing the slope of the bottom of the channel or flow line of the stream.

☐ Not Applicable:

_____

_____

F. Elevation (in relation to mean sea level) of the lowest floor (including basement) of all new and substantially improved structures.

☑ Not Applicable:

_____

_____

G. Description of the extent to which any watercourse or natural drainage will be altered or relocated as a result of proposed development.

☐ Not Applicable:

_____

H. For proposed development within any flood hazard area (except for those areas designated as regulatory floodways), certification that a rise of no more than five hundredths of a foot (0.05') will occur on any adjacent property in the base flood elevation as a result of the proposed work. For proposed development within a designated regulatory floodway, certification of no increase in flood levels within the community during the occurrence of the base flood discharge as a result of the proposed work. All certifications shall be signed and sealed by a Registered Professional Engineer licensed to practice in the State of Oklahoma.

I. A certified list of names and addresses of all record property owners within a three hundred fifty (350) foot radius of the exterior boundary of the subject property not to exceed 100 feet laterally from the Special Flood Hazard Area. The radius to be extended by increments of one hundred (100) linear feet until the list of property owners includes not less than fifteen (15) individual property owners of separate parcels or until a maximum radius of one thousand (1,000) feet has been reached.

J. A copy of all other applicable local, state, and federal permits (i.e. U.S. Army Corps of Engineers 404 permit, etc).

After completing SECTION 2, APPLICANT should submit form to Permit Staff for review.

SECTION 3: FLOODPLAIN DETERMINATION (To be completed by Permit Staff.)

The proposed development is located on FIRM Panel No.: 0280J, Dated: 1/15/2021

The Proposed Development:

☐ Is NOT located in a Special Flood Hazard Area
(Notify the applicant that the application review is complete and NO FLOODPLAIN PERMIT IS REQUIRED).

☒ Is located in a Special Flood Hazard Area.

☐ The proposed development is located in a floodway.

☒ 100-Year flood elevation at the site is 1146.0 Ft. NGVD (MSL) ☐ Unavailable

See Section 4 for additional instructions.

SIGNED: _____ **DATE:** 7/8/2024

SECTION 4: ADDITIONAL INFORMATION REQUIRED (To be completed by Permit Staff.)

The applicant must also submit the documents checked below before the application can be processed.

☐ Flood proofing protection level (non-residential only) _____ Ft. NGVD (MSL). For flood proofed structures applicant must attach certification from registered engineer.

☐ Certification from a registered engineer that the proposed activity in a regulatory floodway will not result in any increase in the height of the 100-year flood (Base Flood Elevation). A copy of all data and calculations supporting this finding must also be submitted.

☐ Certification from a registered engineer that the proposed activity in a regulatory flood plain will result in an increase of no more than 0.05 feet in the height of the 100-year flood (Base Flood Elevation). A copy of all data and calculations supporting this finding must also be submitted.

☐ All other applicable federal, state, and local permits have been obtained.

Other: _____

_____

_____

SECTION 5: PERMIT DETERMINATION (To be completed by Floodplain Chairman.)

The proposed activity: **(A)** ☐ **Is**; **(B)** ☐ **Is Not** in conformance with provisions of Norman's City Code Chapter 22, Section 429.1. The permit is issued subject to the conditions attached to and made part of this permit.

SIGNED: _____ DATE: _____

If **BOX A** is checked, the Floodplain committee chairman may issue a Floodplain Permit.

If **BOX B** is checked, the Floodplain committee chairman will provide a written summary of deficiencies. Applicant may revise and resubmit an application to the Floodplain committee or may request a hearing from the Board of Adjustment.

APPEALS: Appealed to Board of Adjustment: ☐ Yes ☐ No

Hearing date: _____

Board of Adjustment Decision - Approved: ☐ Yes ☐ No

Conditions:

_____

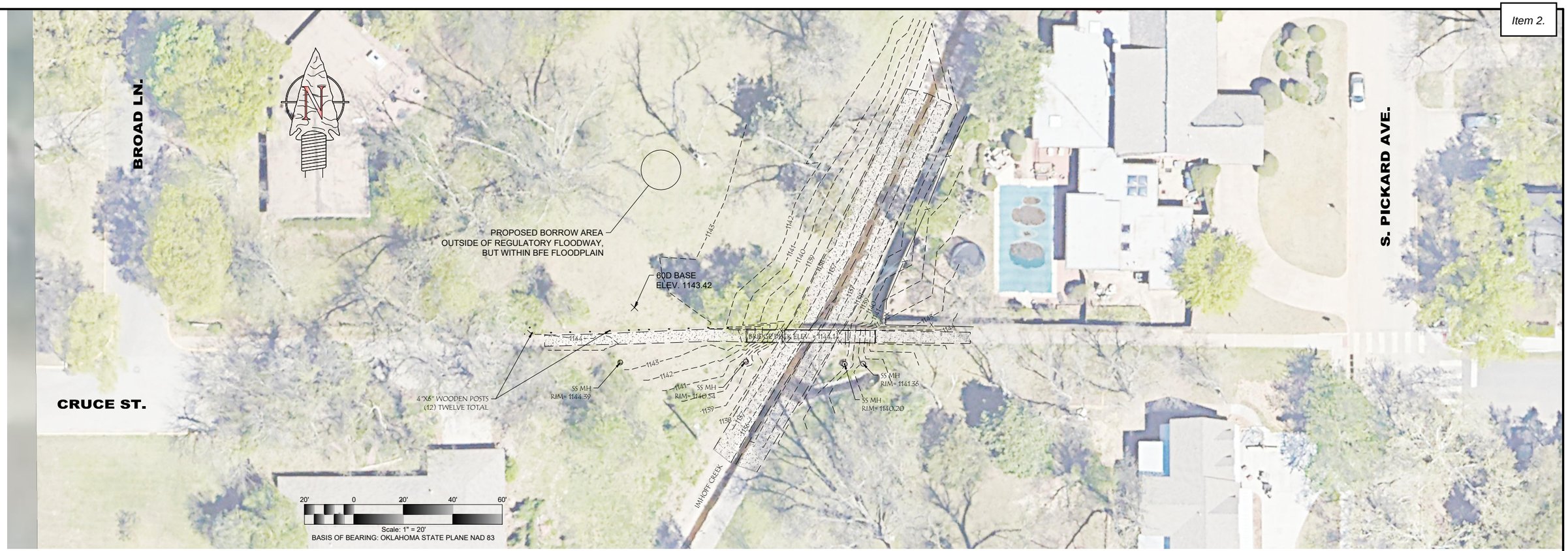
_____

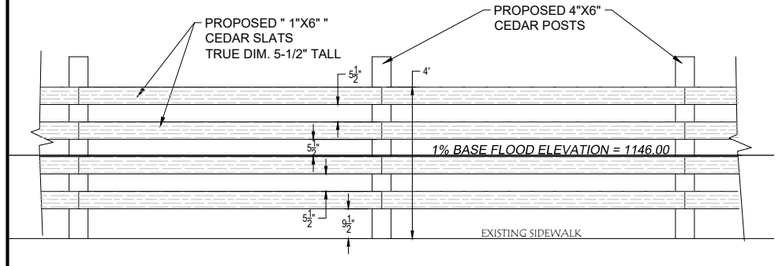
_____

SECTION 6: AS-BUILT ELEVATIONS (To be submitted by APPLICANT before Certificate of Occupancy is issued.)

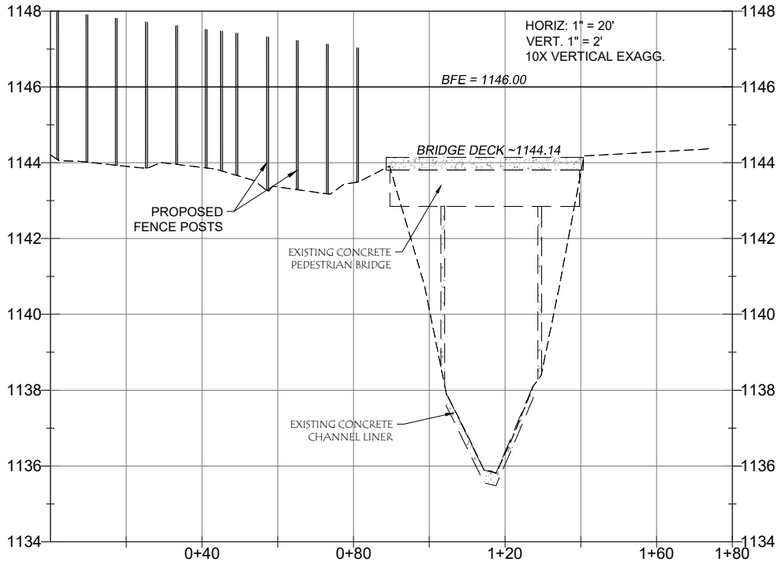
1. FEMA Elevation Certificate
   and/or
2. FEMA Floodproofing Certificate

NOTE: The completed certificate will be reviewed by staff for completeness and accuracy. If any deficiencies are found it will be returned to the applicant for revision. A Certificate of Occupancy for the structure will not be issued until an Elevation and /or Floodproofing Certificate has been accepted by the City.



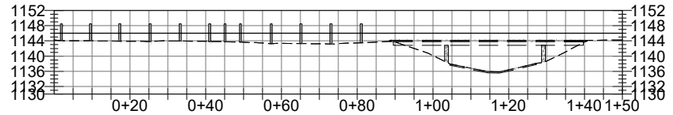


PROPOSED FENCING ELEVATION (TYPICAL)



EXAGGERATED PROFILE ALONG FENCE/BRIDGE

NOTE: AREA IS COVERED BY FEMA FLOOD MAP NO. 400046 PANEL 0280 SUFFIX J. THE BASE FLOOD ELEVATION IMMEDIATELY UPSTREAM OF THE PEDESTRIAN BRIDGE IS 1146.00.



TRUE SCALE PROFILE ALONG FENCE/BRIDGE

JOE HOWELL
28107
June 19, 2024
OKLAHOMA
PROFESSIONAL ENGINEER

FOX ENGINEERING INC
CIVIL ENGINEERS
ARDMORE - OKLAHOMA
CERTIFICATE OF AUTHORIZATION NO. 5133
CERTIFICATE OF AUTHORIZATION EXPIRES 6-30-2024

Fox Engineering, Inc.
211 E Street N.W., PO Box 666
Ardmore, Oklahoma 73401
Phone: 580.223.2319
E-mail: foxengineering@sbcglobal.net
Web: foxengineeringok.com

PLAN AND PROFILE
GRIMMETT PROPOSED FENCE
NEAR IMHOFF CREEK
NORMAN, OK
2024

DATE:	
Rev #	Revision Date/Description
PROJ. PHASE:	
PROJ. NO:	

13

6/19/2024 2:09 PM

z:\24038 grimmett flood plain application\24038 grimmett civil base.dwg


FEMA
Estimated Base Flood Elevation (estBFE) Viewer
Report
Legend 5
Map Layers 3
2 Map View
FEMA Region 6
FEMA Region 6
Comments: FEMA Region 6 includes Arkansas, Louisiana, New Mexico, Oklahoma, and Texas. More info
Click here to select a different area.
Flood Depth (1%)
≤ 1 foot
> 1 to 2 feet
> 2 to 3 feet
> 3 to 4 feet
> 4 to 5 feet
> 5 feet
Comments: Depicts estimated water depths above land surface during a 1% annual chance storm event (a storm that has a 1/100 chance of occurring in any calendar year). Glossary of terms...
Quick Start
Change Area
Glossary
About
Notifications
Hover tips
Dark mode
Scale 2,257 Lat 35.2113 Lon -97.4572
50 m
300 ft

FOX ENGINEERING, INC., Civil Engineers
211 E STREET NW P.O. BOX 666
ARDMORE, OKLAHOMA 73402
PHONE 580-223-2319 FAX 580-223-2492
Email: foxengineering@sbcglobal.net

June 19, 2024

Jason Murphy, CFM
Stormwater Program Manager
City of Norman
225 N. Webster
Norman, OK 73069

Re: No Rise Certification for Grimmett Property fence – near Imhoff Creek South of Boyd St.

Mr. Murphy,

The Grimmett family owns the lot at 1020 W. Boyd. Imhoff Creek runs through their property and there is a pedestrian walking trail adjacent to their south property line. The lot is approximately 3.4 ac MOL and Mr. Grimmett would like to build a wooden fence along a portion of his south boundary to prevent pedestrians from cutting through his property. The fence would also serve as an obstacle for dogs. The Grimmett's have an "invisible" (buried) electric fence for their dogs, but dogs not leashed on the pedestrian path often stray out onto their property.

The construction of the proposed fence lies within Zone AE of the FEMA flood map and the Base Flood Elevation (BFE) at the upstream side of the pedestrian bridge, and extending to the proposed fence, is 1146.00 MSL. I performed topography mapping of the area and got an OPUS solution for my base point to correlate the elevations.

The proposed fence style uses horizontal slats and the bottom slat will be placed at least 9.5" above the existing ground/sidewalk. Then the slats will alternate with gaps of 5-1/2" (refer to attached plan and profile sheet). The "fill" that will exist in the floodplain is the volume of the wooden posts and 2 slats between the ground and elevation 1146.00. I calculate that the (12) 4"x6" posts will occupy 4.56 CF, and the slats will be 4.58 CF of volume in the floodplain. A typical wheelbarrow is about 6 CF. Mr. Grimmett will need to excavate the 9.14 CF of soil from the floodplain on the south end of his property and move it out of the floodplain to offset the fence volume.

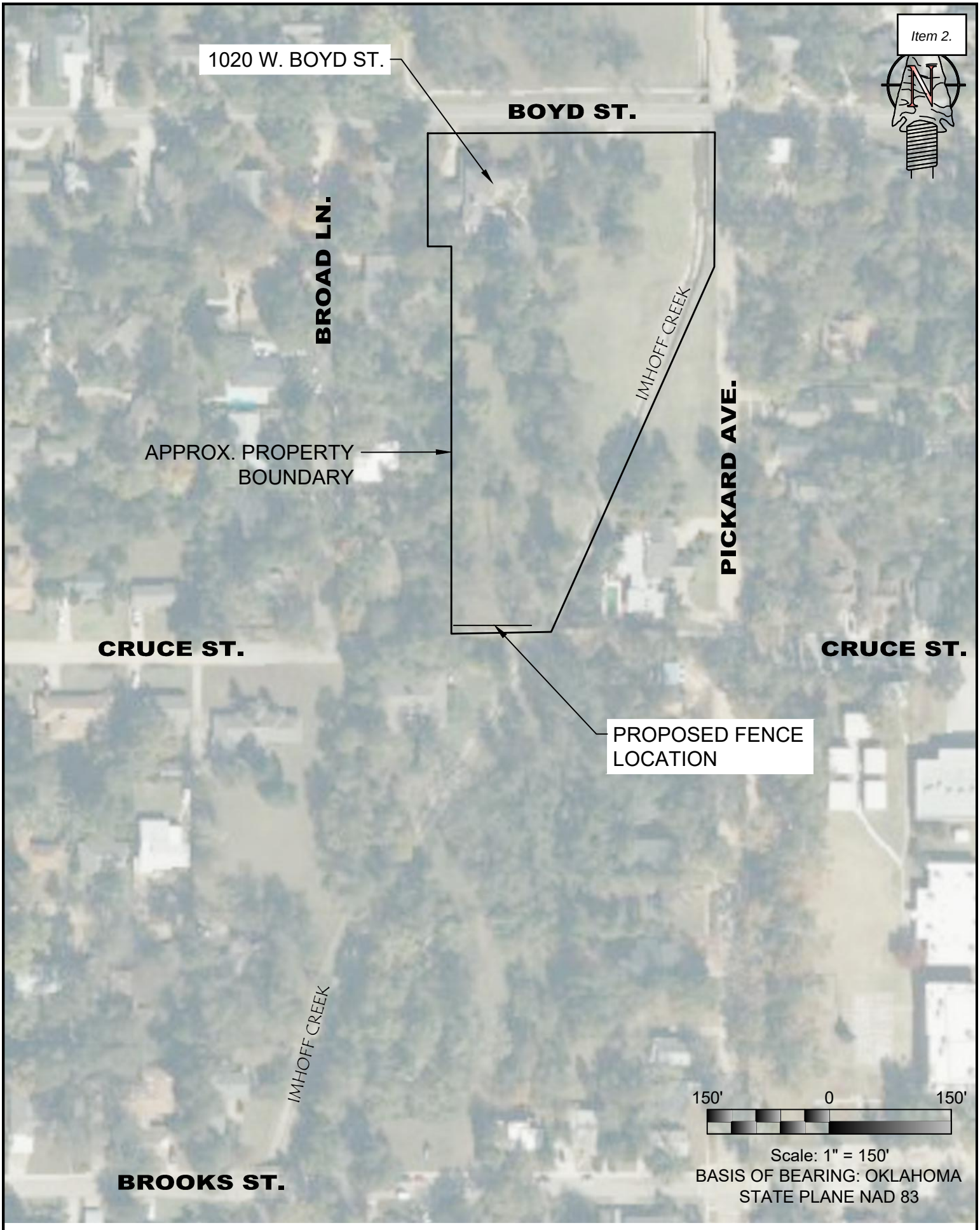
Construction of the fence according to the outline above, and have shown on attached plan and profile, will result in negligible rise of the BFE on this property and any adjacent properties. The gaps in the slats will allow water to pass, and the total length of the fence is only a small fraction of the total floodplain width so water would still pass around each end, as before the fence.

Sincerely,

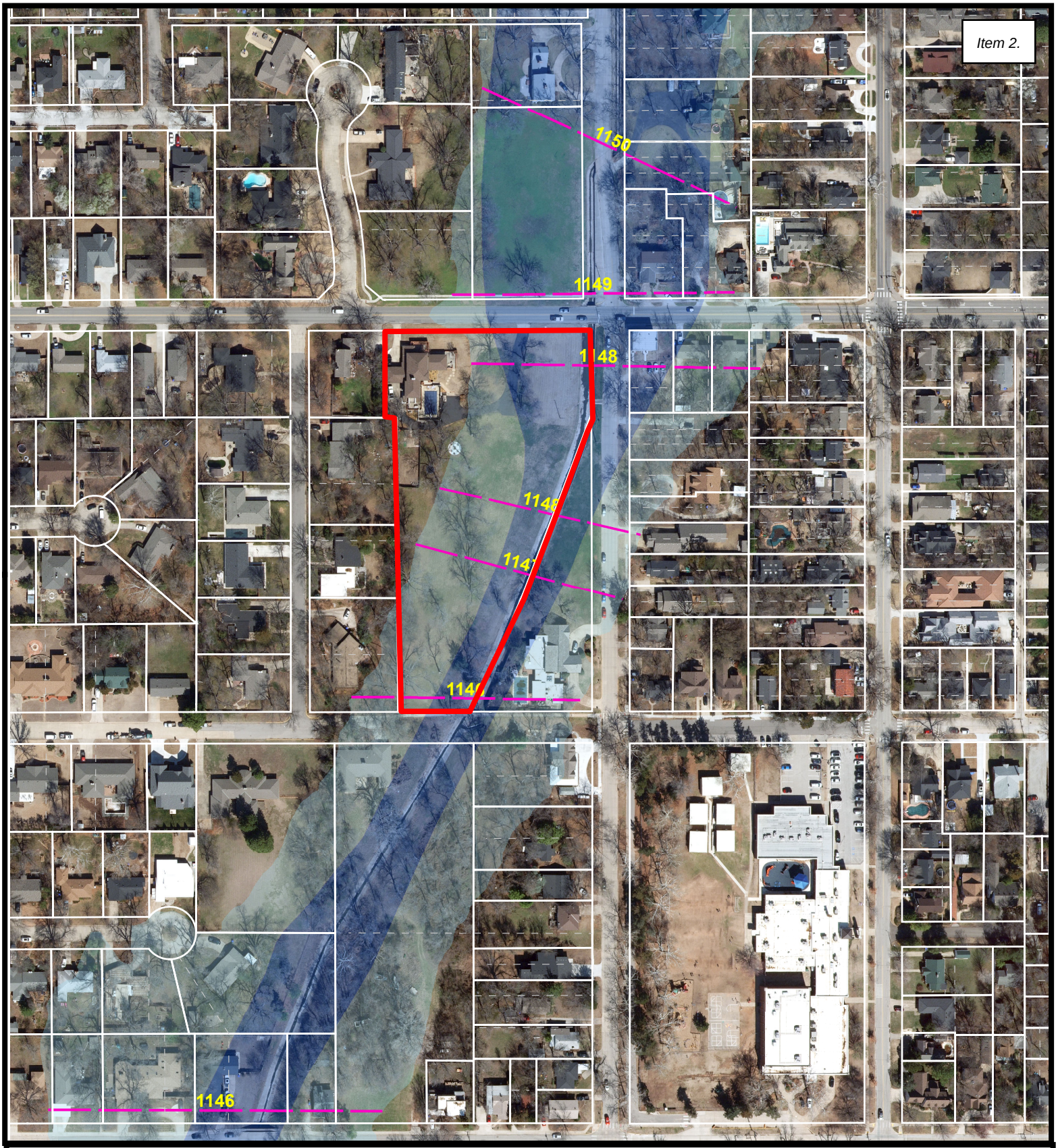
LICENSED PROFESSIONAL ENGINEER
JOE HOWELL
28107
OKLAHOMA

Joe Howell, PE
Fox Engineering, Inc.

Z:\24038 GRIMMETT FLOOD PLAIN APPLICATION\No Rise Letter.docx



PROJECT LOCATION MAP



1020 W. Boyd

0 0.01 0.02 0.04 Miles

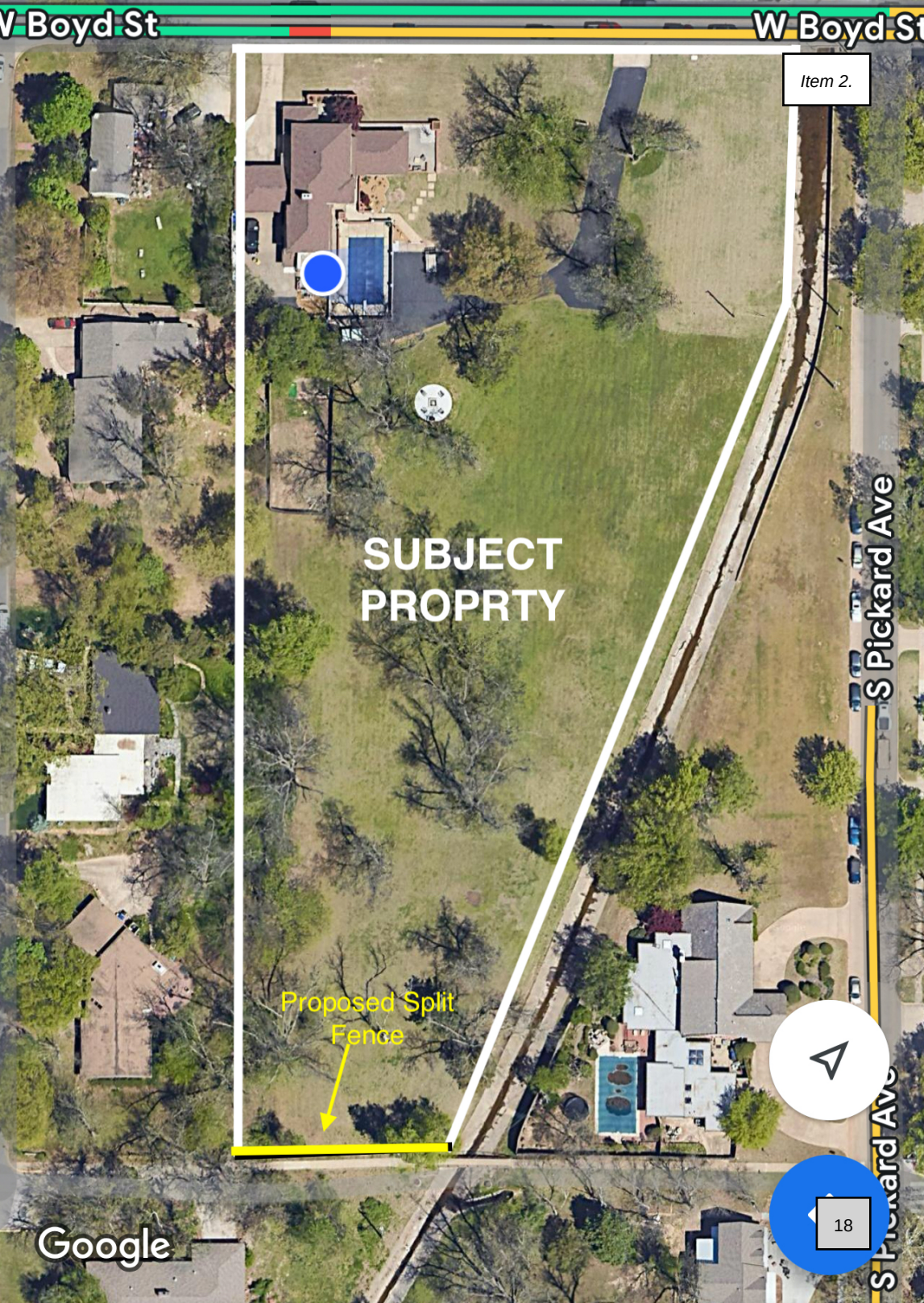
Legend

- Lot Line
- Parcel
- BFE 2021
- 1% Chance Flood
- Floodway

N W E S

1 inch = 206 feet

The City of Norman assumes no responsibility for errors or omissions in the information presented.


W Boyd St
W Boyd St
SUBJECT
PROPRTY
S Pickard Ave
Proposed Split
Fence
Google

STAFF REPORT 07/15/2024 **PERMIT NO. 694**

ITEM: Floodplain Permit application for proposed installation of a swimming pool, privacy fence and earthen berm in the Imhoff Creek floodplain.

BACKGROUND:
APPLICANT: Joe Vaughn
ENGINEER: Gary Keen, P.E.

This project includes the installation of a swimming pool, and retroactively receiving a permit for a privacy fence and an earthen berm at 1024 Cruce St. in the Imhoff Creek Floodplain. The earthen berm and fence have already been constructed without a permit since the applicant was unaware of the requirement for building in the floodplain. The applicant has worked with the engineer to account for these structures and will make modifications as outlined below to bring them into compliance with the flood hazard ordinance.

STAFF ANALYSIS:
Site located in Little River Basin or Tributaries? yes__ no✓

According to the latest DFIRM, portions of this project are located within the Imhoff Creek floodplain (Zone AE).

Applicable Ordinance Sections:		Subject Area:
36-533	(e)(2)(a)..…..……..……..	Fill restrictions in the floodplain
	(e)(2)(e)...…….	Compensatory storage
	(e)(3)(j)...…….	Fencing in the floodplain
	(f)(3)(8) ……...	No rise considerations

(e)(2)(a) and (e)(2)(e) Fill Restrictions in the Floodplain and Compensatory Storage – The use of fill is restricted in the floodplain unless compensatory storage is provided.

> The project engineer has indicated that a total volume of 23 CY of fill will be occupied by the structures in the floodplain and compensatory storage for this volume will be removed from the southeast portion of the yard in the same floodplain. This volume will be removed, graded to facilitate drainage towards the creek and have grass replanted.

(e)(3)(j) Fencing in the Floodplain – All new fences or replacement of existing fences in the SFHA require a floodplain permit. Approved fences shall be designed and installed to be breakaway or in some other manner so that flows will not be impeded.

> The project engineer has indicated that the existing fence will be modified as outlined in his report to convert it to a break-a-way style fence that will open to the downstream side of the stream thus allowing water to freely flow, during a flood event, through the floodplain.

(f)(3)(8) No Rise Considerations – For proposed development within any flood hazard area (except for those designated as regulatory floodways), certification that a rise of no more than 0.05 ft. will occur in the BFE on any adjacent property as a result of the proposed work is required.

> The project engineer has indicated the structures that have been or will be constructed in the floodplain will be constructed or modified in such as manner to allow for the flow of floodwaters to continue unimpeded and that compensatory will be provided and

therefore, no rise in the BFE on any adjacent property should occur.

RECOMMENDATION: Staff recommends Floodplain Permit Application #694 be approved.

ACTION TAKEN: _____

City of Norman

Floodplain Permit Application

Floodplain Permit No. 694

Building Permit No. _____

Date 7/15/2024

FLOODPLAIN PERMIT APPLICATION
($100.00 Application Fee Required)

SECTION 1: GENERAL PROVISIONS (APPLICANT to read and sign):

1. No work may start until a permit is issued.
2. The permit may be revoked if any false statements are made herein.
3. If revoked, all work must cease until permit is re-issued.
4. Development shall not be used or occupied until a Certificate of Occupancy is issued.
5. The permit will expire if no work is commenced within 2 years of issuance.
6. Applicant is hereby informed that other permits may be required to fulfill local, state and federal regulatory requirements and must be included with this floodplain permit application.
7. Applicant hereby gives consent to the City of Norman or his/her representative to access the property to make reasonable inspections required to verify compliance.
8. The following floodplain modifications require approval by the City Council:
   (a) A modification of the floodplain that results in a change of ten percent (10%) or more in the width of the floodplain.
   (b) The construction of a pond with a water surface area of 5 acres or more.
   (c) Any modifications of the stream banks or flow line within the area that would be regulatory floodway whether or not that channel has a regulatory floodplain, unless the work is being done by the City of Norman staff as part of a routine maintenance activity.
9. All supporting documentation required by this application is required along with the permit fee by the submittal deadline. Late or incomplete applications will not be accepted.
10. I, THE APPLICANT, CERTIFY THAT ALL STATEMENTS HEREIN AND IN ATTACHMENTS TO THIS APPLICATION ARE, TO THE BEST OF MY KNOWLEDGE, TRUE AND ACCURATE.

SECTION 2: PROPOSED DEVELOPMENT (To be completed by APPLICANT.)

APPLICANT: Joe Vaughn ADDRESS: 1024 Cruce St, Norman, OK 73069

TELEPHONE: (405) 659-5042 SIGNATURE: Joe Vaughn

BUILDER: Spartan Pool and Patio ADDRESS: 1400 24th Ave SW, Norman, OK 73072

TELEPHONE: (405) 364-1912 SIGNATURE: [signature]

ENGINEER: Earl Harry Keel ADDRESS: P.O. Box 891200, OKC, OK 73189

TELEPHONE: 405-823-8248 SIGNATURE: Earl Harry Keel

Thanks,

PROJECT LOCATION

To avoid delay in processing the application, please provide enough information to easily identify the project location. Provide the street address, subdivision addition, lot number or legal description (attach) and, outside urban areas, the distance to the nearest intersecting road or well known landmark. A sketch attached to this application showing the project location would be helpful.

PROJECT ADDRESS 1024 CRUCE ST, NORMAN, OK. LEGAL DESCRIPTION PICKARD ACRES, LOT 4 BLOCK 5

DIRECTIONS TO SITE BEGIN AT INTERSECTION OF BERRY ROAD AND LINDSEY, GO NORTH ON BERRY RD TO

CRUCE AND GO EAST ON CRUCE TO ADDRESS.

DESCRIPTION OF WORK (Check all applicable boxes):

A. STRUCTURAL DEVELOPMENT

ACTIVITY	STRUCTURE TYPE
☑ New Structure	☑ Residential (1-4 Family)
☐ Addition	☐ Residential (More than 4 Family)
☐ Alteration	☐ Non-Residential (Flood proofing? ☐ Yes)
☐ Relocation	☐ Combined Use (Residential & Commercial)
☐ Demolition	☐ Manufactured (Mobile) Home
☐ Replacement	☐ In Manufactured Home Park? ☐ Yes

THE NEW STRUCTURE IS A POOL.

ESTIMATED COST OF PROJECT $ 67,500. Work that involves substantial damage/substantial improvement requires detailed cost estimates and an appraisal of the structure that is being improved.

B. OTHER DEVELOPMENT ACTIVITIES:

☐ Fill ☐ Mining ☐ Drilling ☑ Grading

WILL EXCAVATE FOR POOL. WILL REMOVE SOIL FROM SITE. WILL ALSO REMOVE SOIL FOR COMPENSATORY STORAGE. WILL MODIFY EXISTING WOOD FENCE.

☑ Excavation (Beyond the minimum for Structural Development)

☐ Watercourse Alteration (Including Dredging and Channel Modifications)

☐ Drainage Improvements (Including Culvert Work) ☐ Road, Street or Bridge Construction

☐ Subdivision (New or Expansion) ☐ Individual Water or Sewer System

In addition to items A. and B. provide a complete and detailed description of proposed work (failure to provide this item will be cause for the application to be rejected by staff). Attach additional sheets if necessary.

WILL CONSTRUCT NEW POOL THAT IS NOT ATTACHED TO HOUSE. POOL IS LOCATED IN FLOODPLAIN BUT NOT IN THE FLOODWAY. A WOODEN FENCE LOCATED IN FLOODPLAIN WILL BE MODIFIED TO ALLOW FOR FREE FLOW OF FLOOD WATER. COMPENSATORY STORAGE IS REQUIRED AND WILL BE PROVIDED. THE AREA WHERE THE SOIL IS REMOVED FOR COMPENSATORY STORAGE WILL BE GRADED TO DRAIN TO PREVENT PONDING OF WATER AND RELATED PROBLEMS. GRASS WILL BE RE-ESTABLISHED ON THE DISTURBED AREA.

NOTE: A PORTION OF THE EXISTING WOOD FENCE IS LOCATED IN THE FLOODPLAIN BUT NOT IN THE FLOODWAY. THE EAST END OF THE FENCE THE EXISTING GROUND IS LOCATED 2.5 FEET BELOW THE BFE AND THE WEST END OF THE FENCE IS HIGHER THAN THE BFE. IT IS RECOMMENDED TO EITHER REMOVE THE FENCE BOARDS LOCATED LOWER THAN THE BFE OR CONSTRUCT "SWING AWAY" PANELS ON THE DOWN STEAM SITE OF THE FENCE. A COMBINATION OF THESE TWO OPTIONS IS BEST. BFE= 1146.2' AT CRICE ST. BFE= 1145.8' AT SPITH LOT LINE.

C. ATTACHMENTS WHICH ARE REQUIRED WITH EVERY APPLICATION:

The applicant must submit the documents listed below before the application can be processed. If the requested document is not relevant to the project scope, please check the Not Applicable box and provide explanation.

A. Plans drawn to scale showing the nature, location, dimensions, and elevation of the lot, existing or proposed structures, fill, storage of materials, flood proofing measures, and the relationship of the above to the location of the channel, floodway, and the regulatory flood-protection elevation.

PLANS ARE PROVIDED.

B. A typical valley cross-section showing the channel of the stream, elevation of land areas adjoining each side of the channel, cross-sectional areas to be occupied by the proposed development, and high-water information.

☐ Not Applicable:
A VALLEY CROSS-SECTION IS PROVIDED, BASED ON CONTOURS FOUND IN NORMAN GIS.

C. Subdivision or other development plans (If the subdivision or other developments exceeds 50 lots or 5 acres, whichever is the lesser, the applicant **must** provide 100-year flood elevations if they are not otherwise available).

☑ Not Applicable:
NOT A SUBDIVISION DEVELOPMENT

D. Plans (surface view) showing elevations or contours of the ground; pertinent structure, fill, or storage elevations; size, location, and spatial arrangement of all proposed and existing structures on the site; location and elevations of streets, water supply, sanitary facilities; photographs showing existing land uses and vegetation upstream and downstream, soil types and other pertinent information.

☐ Not Applicable:
PLANS ARE PROVIDED

E. A profile showing the slope of the bottom of the channel or flow line of the stream.

☐ Not Applicable:
A STREAM PROFILE FOR IMHOFF CREEK IS PROVIDED. PROFILE IS FROM FEMA FIS.

F. Elevation (in relation to mean sea level) of the lowest floor (including basement) of all new and substantially improved structures.

☑ Not Applicable:

G. Description of the extent to which any watercourse or natural drainage will be altered or relocated as a result of proposed development.

☐ Not Applicable:
NATURAL DRAINAGE WILL NOT BE ALTERED AS BFE WILL NOT INCREASE. POOL IS LOCATED IN FLOODPLAIN FRINGE AREA AND COMPENSATOR STORAGE WILL BE PROVIDED BY REMOVING SOIL FROM THE FLOODPLAIN ON THE SUBJECT LOT. THE FLOODWAY WILL NOT BE DISTURBED.

H. For proposed development within any flood hazard area (except for those areas designated as regulatory floodways), certification that a rise of no more than five hundredths of a foot (0.05') will occur on any adjacent property in the base flood elevation as a result of the proposed work. For proposed development within a designated regulatory floodway, certification of no increase in flood levels within the community during the occurrence of the base flood discharge as a result of the proposed work. All certifications shall be signed and sealed by a Registered Professional Engineer licensed to practice in the State of Oklahoma.
A STATEMENT CERTIFIED BY AN ENGINEER IS PROVIDED.

I. A certified list of names and addresses of all record property owners within a three hundred fifty (350) foot radius of the exterior boundary of the subject property not to exceed 100 feet laterally from the Special Flood Hazard Area. The radius to be extended by increments of one hundred (100) linear feet until the list of property owners includes not less than fifteen (15) individual property owners of separate parcels or until a maximum radius of one thousand (1,000) feet has been reached.
THE REQUIRED PROPERTY OWNERS' INFORMATION IS PROVIDED.

J. A copy of all other applicable local, state, and federal permits (i.e. U.S. Army Corps of Engineers 404 permit, etc).
BUILDING PERMITS ARE THE ONLY OTHER PERMITS REQUIRED FOR THIS WORK.

After completing SECTION 2, APPLICANT should submit form to Permit Staff for review.

SECTION 3: FLOODPLAIN DETERMINATION (To be completed by Permit Staff.)

The proposed development is located on FIRM Panel No.: 0280 J, Dated: 1/15/2021

The Proposed Development:

☐ Is NOT located in a Special Flood Hazard Area
(Notify the applicant that the application review is complete and NO FLOODPLAIN PERMIT IS REQUIRED).

☐ Is located in a Special Flood Hazard Area.

☐ The proposed development is located in a floodway.

☑ 100-Year flood elevation at the site is 1196 Ft. NGVD (MSL) ☐ Unavailable

See Section 4 for additional instructions.

SIGNED: _____ **DATE:** 7/10/24

SECTION 4: ADDITIONAL INFORMATION REQUIRED (To be completed by Permit Staff.)

The applicant must also submit the documents checked below before the application can be processed.

☐ Flood proofing protection level (non-residential only) _____ Ft. NGVD (MSL). For flood proofed structures applicant must attach certification from registered engineer.

☐ Certification from a registered engineer that the proposed activity in a regulatory floodway will not result in any increase in the height of the 100-year flood (Base Flood Elevation). A copy of all data and calculations supporting this finding must also be submitted.

☐ Certification from a registered engineer that the proposed activity in a regulatory flood plain will result in an increase of no more than 0.05 feet in the height of the 100-year flood (Base Flood Elevation). A copy of all data and calculations supporting this finding must also be submitted.

☐ All other applicable federal, state, and local permits have been obtained.

Other: _____

_____

_____

SECTION 5: PERMIT DETERMINATION (To be completed by Floodplain Chairman.)

The proposed activity: (A) ☐ **Is**; (B) ☐ **Is Not** in conformance with provisions of Norman's City Code Chapter 22, Section 429.1. The permit is issued subject to the conditions attached to and made part of this permit.

SIGNED: _____ DATE: _____

If **BOX A** is checked, the Floodplain committee chairman may issue a Floodplain Permit.

If **BOX B** is checked, the Floodplain committee chairman will provide a written summary of deficiencies. Applicant may revise and resubmit an application to the Floodplain committee or may request a hearing from the Board of Adjustment.

APPEALS: Appealed to Board of Adjustment: ☐ Yes ☐ No

Hearing date: _____

Board of Adjustment Decision - Approved: ☐ Yes ☐ No

Conditions:

_____

_____

_____

SECTION 6: AS-BUILT ELEVATIONS (To be submitted by APPLICANT before Certificate of Occupancy is issued.)

1. FEMA Elevation Certificate
   and/or
2. FEMA Floodproofing Certificate

NOTE: The completed certificate will be reviewed by staff for completeness and accuracy. If any deficiencies are found it will be returned to the applicant for revision. A Certificate of Occupancy for the structure will not be issued until an Elevation and /or Floodproofing Certificate has been accepted by the City.

EARL GARY KEEN, PE
PO BOX 891200, OKLAHOMA CITY, OK 73189
(405) 823-8240

ENGINEERING REPORT
1024 CRUCE ST., NORMAN, OK
RE. FLOOD PLAIN PERMIT APPLICATION

Introduction

The subject property is a residential lot located at 1024 Cruce St., Norman, OK. Joe Vaughn, the owner has applied for a floodplain permit to construct a swimming pool in the back yard of this property. During processing of the permit application, it was discovered that two other improvements have been made to this property that are required to have a floodplain permit. Consequently, an earth berm and a wood fence are included in this application. The existing chain-link fence is believed to have been constructed prior to the effective date of the current ordinance; therefore, it is not address herein.

Pool

The swimming pool details are shown in an exhibit provided by Spartan Pool and Patio. The pool will be surrounded by a concrete deck. The total area covered by the pool and deck is approximately 25 feet by 40 feet for a total area of 1000 square feet. This improvement is located in the finge area of the floodplain but not in the floodway. The impacting stream is Imhof Creek, which flows southward, and is partially contained in a concrete lined channel at this location. The construction of the pool will occupy some of the volume currently available for floodwater storage; therefore compensatory storage will be required. The average depth of the loss in floodplain storage is 0.6 feet; therefore, the volume of compensatory storage is 600 cubic feet or 22 cubic yards. As discussed below, one cubic yard of compensatory storage is required for an earthen berm that is located partially in the fringe area of the floodplain; therefore, the quantity of soil to be removed for compensatory storage is 23 cubic yards. This soil is intended to be removed from the south-east corner of the portion of the yard enclosed by the chain-link fence. This area is withing the floodplain but outside the floodway. The soil will be removed as shallow in depth and covering a larger area, and this area will be graded to drain to prevent ponding of water. The disturbed area will be planted in grass to avoid erosion problems.

Earthen berm

The owner stated that he constructed an earthen berm that existing is the front side yard on the east side of his lot as part of a landscaping project. He did not know that regulations pertain to any work performed in a floodplain and he did not know the precise location of the floodplain. Actually, nearly all of this berm is located just outside the floodplain, but the extreme south end of this berm is barely within the floodplain. Removing one cubic yard of soil from the floodplain in a different area of this property will be more than enough to compensate for the flood storage that was lost due to the construction of this berm. Removing additional compensatory soil is recommended as discussed above.

Wood Fence

The owner has constructed a wood fence running east-west along the southern part of his lot. Again, the owner was not aware of the need for a floodplain permit for this improvement; therefore, this item is being included in this permit. Most of the length of this fence is located within the floodplain, but a

little of the west end is out of the floodplain. At the east end, the existing ground is about 2.5 feet below the BFE elevation of 1145.8 feet. Incidentally the BFE at Cruce Street is 1146.1 feet NGVD according to the stream profile contained in the FEMA FIS.

Although this fence is not located in the floodway; there is a floodway present nearby. The floodplain regulations do not allow any increase in the elevation of the floodway and only 0.05 feet (about ½ inch) in a floodplain. Any increase in a floodplain adjacent to a floodway is certainly going to increase the elevation of the floodway also. Therefore, it is concluded that this fence should be modifed so that it does not cause a measurable increase in the floodwater elevation (BFE).

This fence is constructed of wood posts set into the ground and horizontal planks placed between the posts. This fence appears to be rather new and in excellent condition. At the site, a person who seems to be familiar with the property stated that the purpose of this fence is to provide privacy screening for the area of the swimming pool. The fence appears in photographs that are submitted with this elevation.

A reasonable solution for the situation with this fence seems to be to remove one or two lower boards along part of the fence and to create hinged swing-out panels on the downstream side of the posts for the portions of the fence where the existing ground is farther below the BFE. A practical approach to this problem is to mark the existing post at the east end of the fence at a point located 2.5 feet higher than the existing ground level. Then run a level line westward along this fence until the level line intersects the ground. The portion of the horizontal fence boards located completely or partially below the level line would be removed or replaced with hinged swing-out panels. Swing-out panels would be supported by two or more hinges located at the top of the panel and the bottom of the panel would not be secured so that the flow of floodwaters would cause these panels to swing outward (toward the down stream side) to allow the floodwaters to flow onward. The wooded posts would remain.

Hopefully, the Committee can approve this arrangement and thus allow the owner to keep the wooden fence. Thus far, the owner has been very agreeable about complying with floodplain regulations.

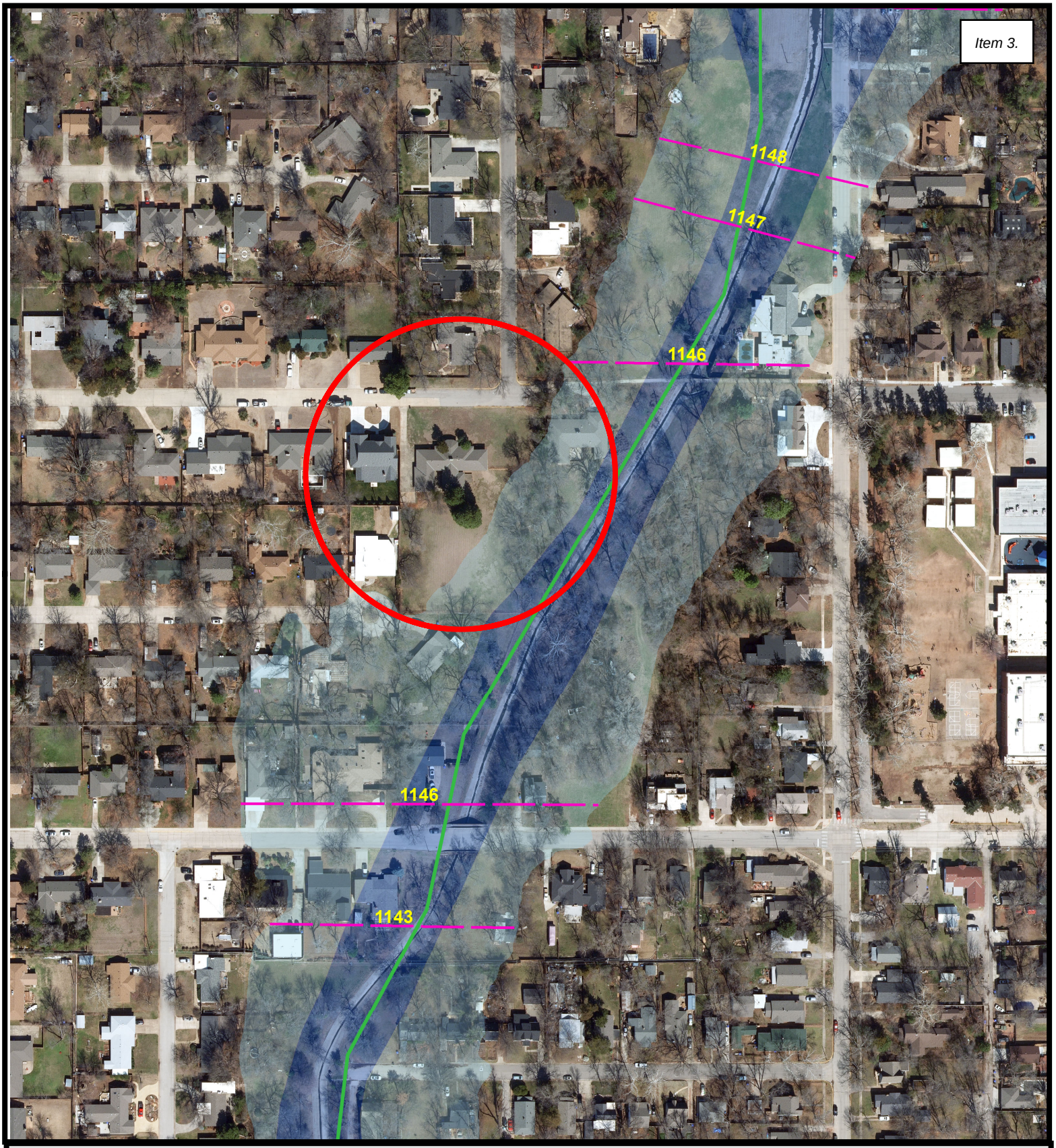
CONSTRUCTION METHODS AND CLEANUP

Spartan Pool and Patio is the contractor for the pool construction, but possibly not for any other part of the work to be performed. The owner will be the main contractor for any part of this work not delegated to Spartan. Any sub-contractors employed must be informed regarding the protection of the stream and floodway, particularly in regard to the discard of materials, including any soil removed.

All soils removed from the site, such excavation for the pool cannot be placed in a floodplain. Not on this site or in any other floodplain in the City of Norman. It is recommended that a contractor contact the City's staff to get approval of any disposal site being considered for soil in the City of Norman. Other construction materials must be delivered to an approved disposal facility.

Any questions regarding the protection of this floodplain or compliance with the approved floodplain permit may be directed to the City's Floodplain Manager or this engineer.

A building permit will be required for the swimming pool prior to beginning construction.



1024 Cruce St.

0 0.0125 0.025 0.05 Miles

N
W E
S

1 inch = 192 feet

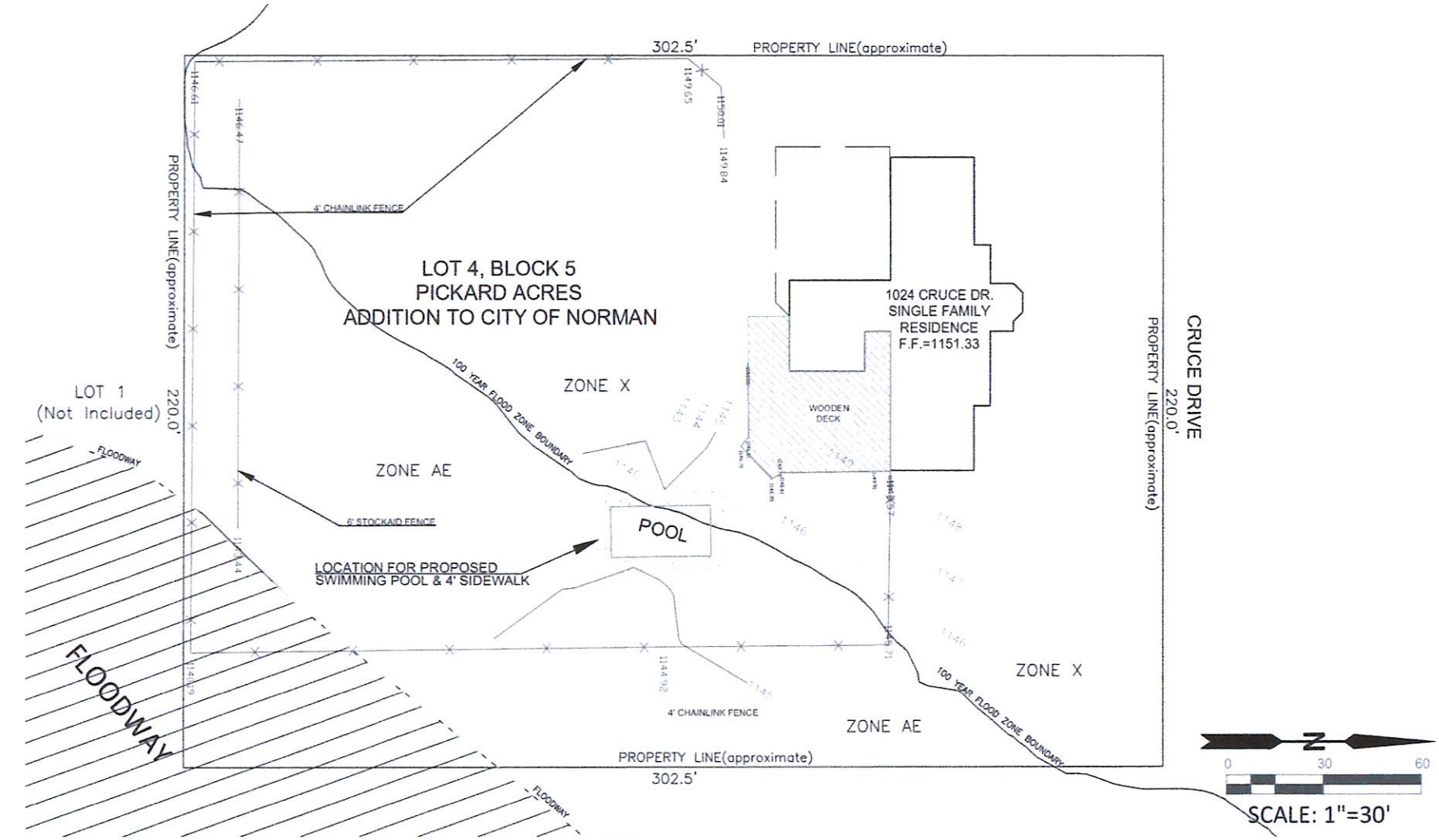
Legend

- BFE 2021
- 1% Chance Floodplain
- Floodway

Interactive Map

City of Norman, Oklaho

S Pickard Ave
S Pickard Ave
1024 CRUCE ST
1024 Cruce St
Cruce St



LEGEND

SUBJECT BOUNDARY(approx.)

Existing Fence

NOTE:
SHADED AREA represents Flood Zone AE as shown here-in and from FEMA Flood Panel 40027C0170J, eff. 01/15/2021.

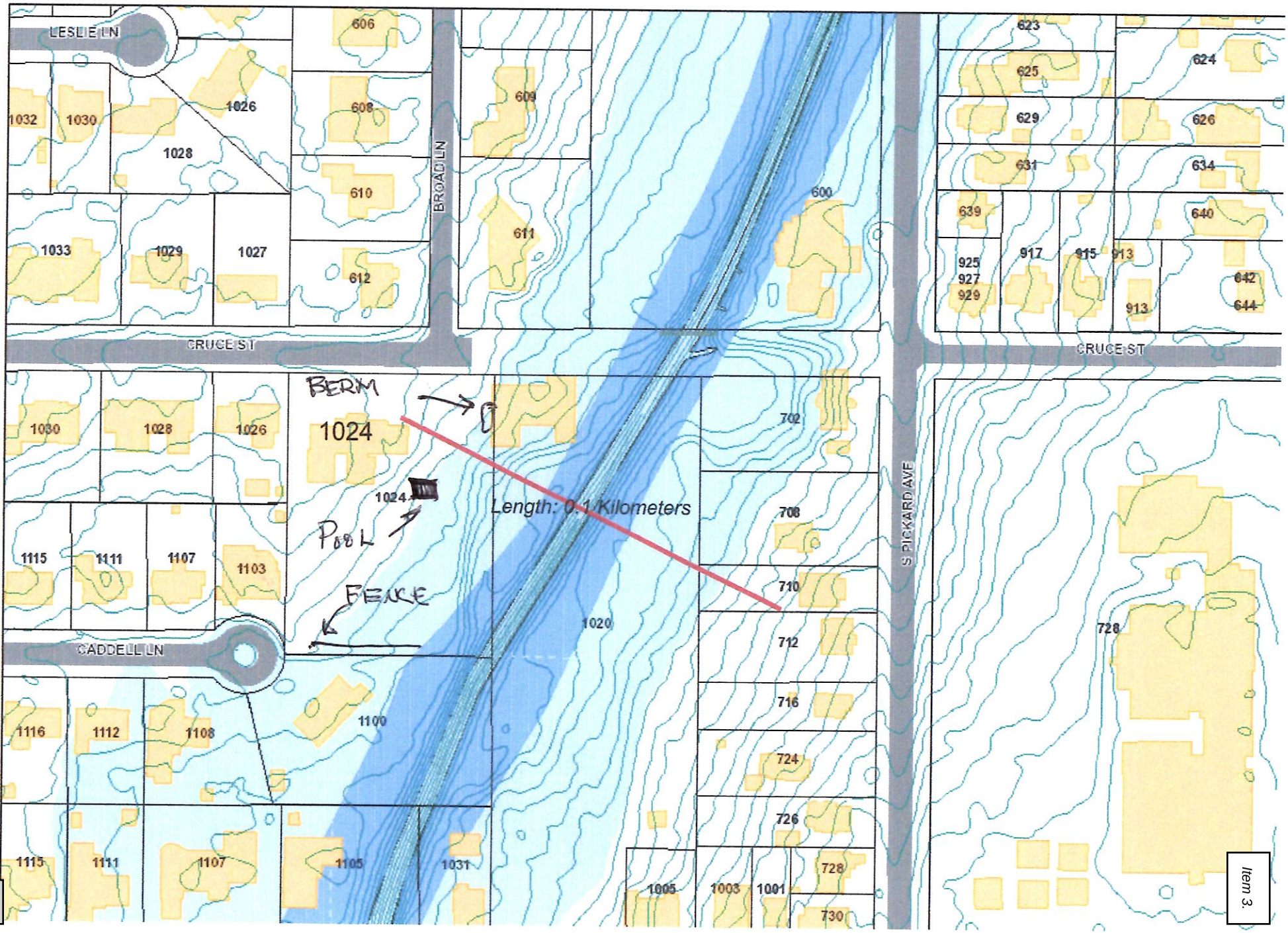
KEEN ENGINEERING
P.O. BOX 892100
OKLAHOMA CITY, OK 73189
(405) 823-8240
CA 4367, EXP. 06-30-2025

1024 CRUCE DRIVE
SITE PLAN

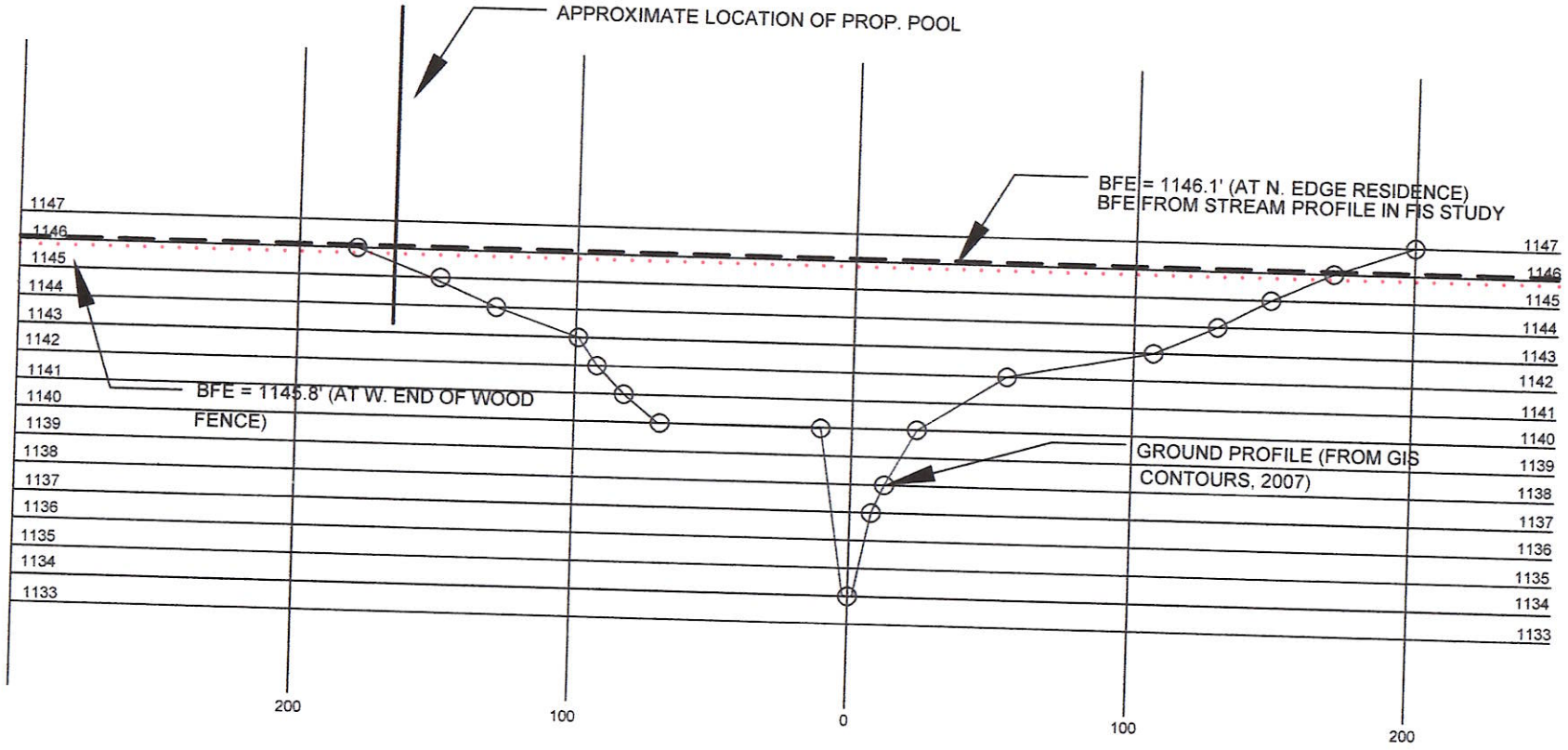
Preliminary, for City Review Only
OWNER: XXXXX 06/16/2024

SHEET 1 OF 3

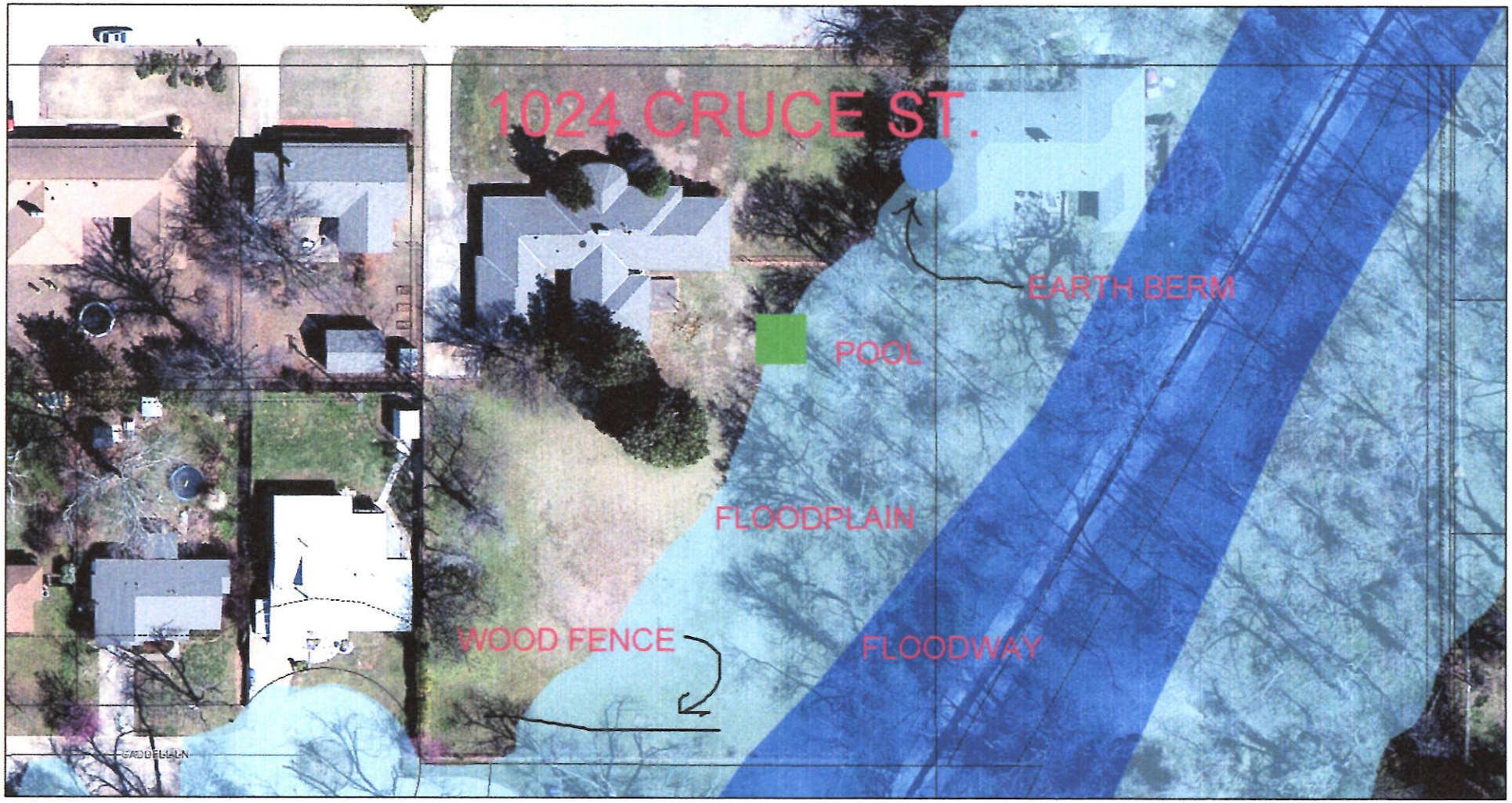
City of Norman WebMap



PROFILE OF IMHOFF CREEK AT LOCATION OF 1024 CRUCE STREET AT NORTH EDGE OF EXISTING RESIDENCE LOOKING UPSTREAM.



City of Norman WebMap



4/24/2024, 10:29:38 AM

1:491

0 0.01 0.01 0.02 mi

0 0.01 0.01 0.03 km

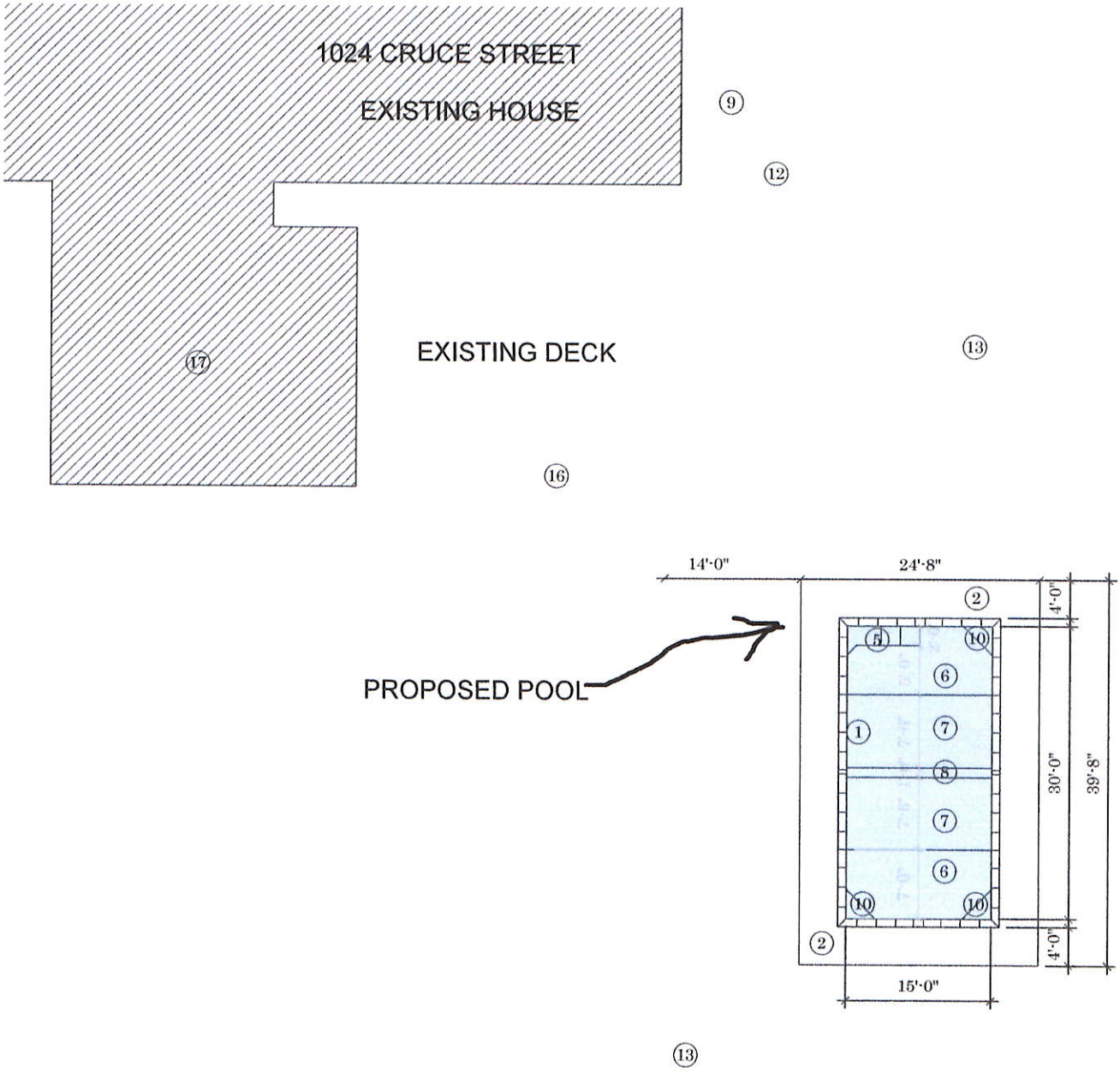
City of Norman, GIS Services Division

- Easement
- Conservation Easements
- Parcel
- Flood Hazard Zone
  - 100
- floodway
- OU
- Park
- Lake Thunderbird
- Railroad
- Streets
- Centerline Labels (10,000+)
- AerialPhoto2021
  - Red: Band_1
  - Green: Band_2
  - Blue: Band_3

Vaughn Family Pool - Keynotes 4.29.24

1. 90 Linear Feet Pool Rectangle 15'x30' (450 sqft)
2. 450 sqft Concrete Decking
3. Sun Ledge N/A
4. Spa N/A
5. Pool Steps
6. 3'-0" Shallow
7. Pool Slope
8. 6'-0" Deep
9. Equipment Pad
10. Pool Bench
11. Property Line
12. Fence Line
13. 100 yr Flood Plain
15. Landscaping N/A
16. Existing Patio
17. 1024 Cruce St. Norman, OK 73069

SPARTAN POOL & PATIO
1400 24th Ave. SW Norman, OK
405.364.1912
www.spartanpoolandpatio.com

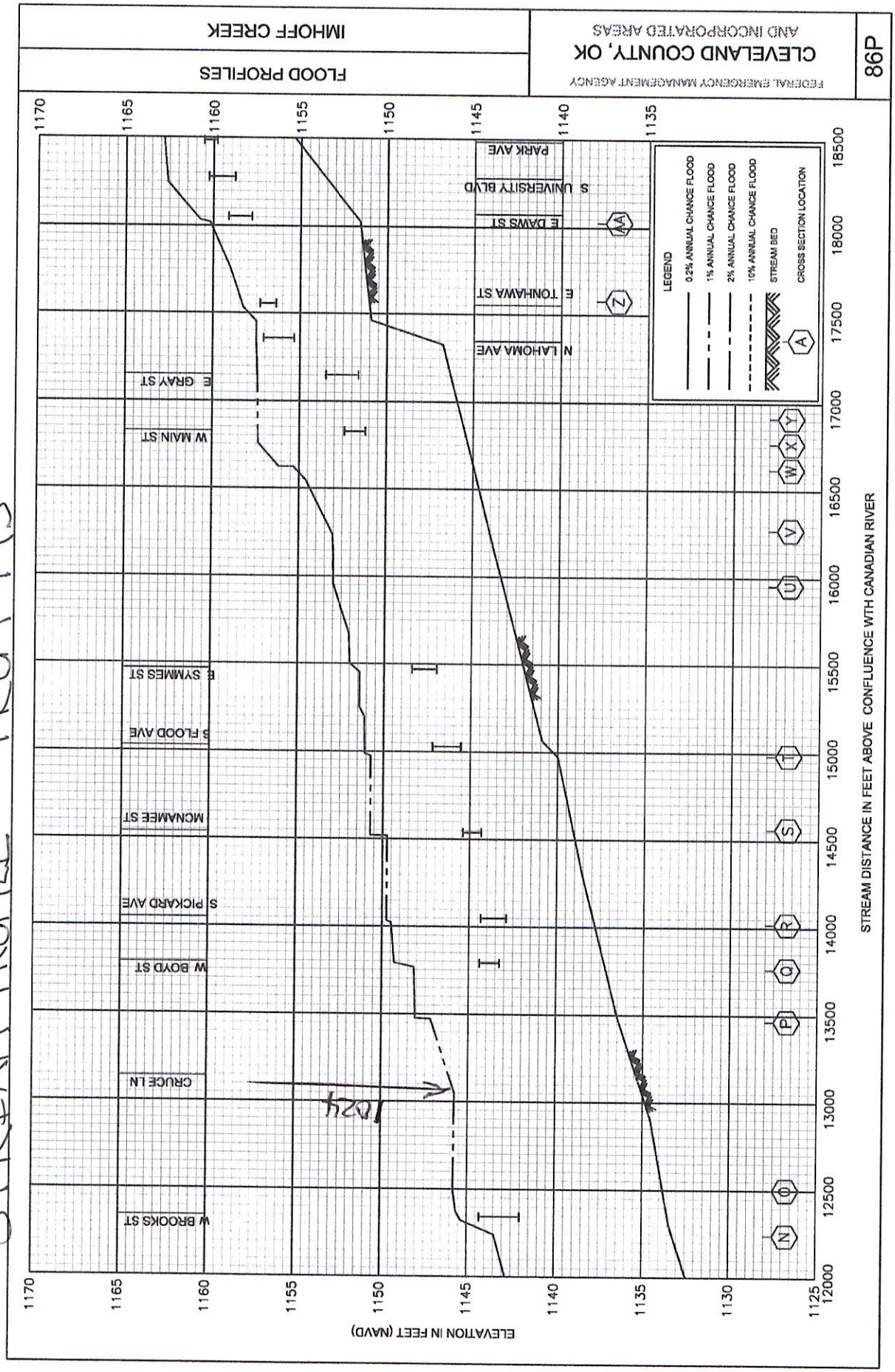


NOTE: PLEASE REFER TO STIE PLAN FOR LOCATION OF FLOODPLAIN AND FLOODWAY.

1.0 Conceptual Design Plan

Scale: 1" = 16'-0"

STREAM PROFILE – FROM FIS



EARL GARY KEEN, PE
PO BOX 891200, OKLAHOMA CITY, OK 73189
(405) 823-8240

CERTIFICATION STATEMENT

I, Earl Gary Keen, a professional engineer licensed in the State of Oklahoma, hereby state that I am familiar with the floodplain permit application being made by Joe Vaughn for property located at 1024 Cruce St, Norman, OK. Further, it is my professional opinion that when this construction work is completed in full compliance with the details contained in said application, said construction work will not result in any increase in the base floodwater elevations of Imhoff Creek or any other point in the community.

Earl Gary Keen 06-18-2024

Signature Date Seal

STAFF REPORT 07/15/2024 **PERMIT NO. 695**

ITEM: Floodplain Permit application for proposed development of a sports complex, barn and residential structure on the east side of 60th Ave. NW, south of Indian Hills Rd.

BACKGROUND:
APPLICANT: Willy DeLeon
ENGINEER: Gary Keen, P.E.

This project is located on a 40 acre tract that the owner, upon approval of necessary permits, is wanting to subdivide into two 20 acre lots. The eastern most lot is for a proposed sports complex consisting of four standard soccer fields and one minor league field, a club house, parking lot, maintenance barn and fire protection water storage tank. The western lot would include the residential structure and shop building. In addition, drainage improvements, driveways, parking lots and other accessory structures are being proposed. The full engineer's report is attached to this application detailing the specific design and calculations for the proposed project. If this application is approved by the committee, the applicant will be required to go through the Norman Rural Certificate of Survey process to subdivide the property.

STAFF ANALYSIS:
Site located in Little River Basin or Tributaries? yes__ no✓

According to the latest DFIRM, portions of this project are located within the Ten Mile Flat Creek floodplain (Zone AE).

Applicable Ordinance Sections:		Subject Area:
36-533	(e)(2)(a)..……..……..	Fill restrictions in the floodplain
	(e)(2)(e)..…….	Compensatory storage
	(e)(3)(a)(1)..…….……...	Residential freeboard
	(e)(3)(c)..…….…….....	Nonresidential freeboard
	(f)(3)(8) ……...	No rise considerations

(e)(2)(a) and (e)(2)(e) Fill Restrictions in the Floodplain and Compensatory Storage – The use of fill is restricted in the floodplain unless compensatory storage is provided.

> The project engineer has indicated in the Engineer's Report, that all fill volumes will be taken from borrow areas within the adjacent areas of the floodplain as indicated in the attached plans. As indicated in the calculations, there will be significantly more borrow than fill in the floodplain, so a net increase in storage capacity will be achieved.

(e)(3)(a)(1) Residential Freeboard – Residential structures, including both site-built and manufactured homes, shall be constructed on fill so that the lowest floor including basement, ductwork, mechanical and electrical equipment including furnaces, water heaters, and air conditioners, etc. is at least two (2) feet above the base flood elevation.· The fill shall be at a level no lower than one (1) foot above the base flood elevation for the particular area and shall extend at such elevation at least fifteen feet (15') beyond the limits of any structure or building erected including any attendant utility and sanitary facilities.

> The project engineer and the plans indicate that all structures will be built at an elevation that is two feet above the BFE at each location.

(e)(3)(c) Nonresidential Freeboard - Nonresidential construction. New construction and substantial improvement of any commercial, industrial or other nonresidential structures shall be

constructed on fill as in subsection (e)(3)a of this section, including any attendant utility and sanitary facilities, shall be designed so that the lowest floor including basement, ductwork, mechanical and electrical equipment including furnaces, water heaters, and air conditioners ect. is elevated at least two feet above base flood elevation and the fill shall be at a level no lower than one foot above the base flood elevation for the particular area and shall extend at such elevation at least 15 feet beyond the limits of any structure or building erected thereon. A registered professional engineer shall submit a certification to the Director of Public Works that the standards of this chapter, as proposed in subsection (e)(1) and (2) of this section, are satisfied.

The project engineer and the plans indicate that all structures will be built at an elevation that is two feet above the BFE at each location.

(f)(3)(8) No Rise Considerations – For proposed development within any flood hazard area (except for those designated as regulatory floodways), certification that a rise of no more than 0.05 ft. will occur in the BFE on any adjacent property as a result of the proposed work is required.

The project engineer has indicated that a rise of no more than 0.05' on any adjacent property is expected as a result of this project and submitted a signed and seal No-Rise Certification Letter.

RECOMMENDATION: Staff recommends Floodplain Permit Application #695 be approved with the following conditions:

1. Elevation Certificates provided for all structures prior to final acceptance. Additionally, elevation of concrete pads for structures should be submitted to and confirmed by City Staff prior to vertical construction.
2. As-built surveys should be completed on compensatory storage areas prior to final acceptance.

ACTION TAKEN: _____

City of Norman

Floodplain Permit Application

Floodplain Permit No. 695

Building Permit No. _____

Date 7/15/2024

FLOODPLAIN PERMIT APPLICATION
($100.00 Application Fee Required)

SECTION 1: GENERAL PROVISIONS (APPLICANT to read and sign):

1. No work may start until a permit is issued.
2. The permit may be revoked if any false statements are made herein.
3. If revoked, all work must cease until permit is re-issued.
4. Development shall not be used or occupied until a Certificate of Occupancy is issued.
5. The permit will expire if no work is commenced within 2 years of issuance.
6. Applicant is hereby informed that other permits may be required to fulfill local, state and federal regulatory requirements and must be included with this floodplain permit application.
7. Applicant hereby gives consent to the City of Norman or his/her representative to access the property to make reasonable inspections required to verify compliance.
8. The following floodplain modifications require approval by the City Council:
   (a) A modification of the floodplain that results in a change of ten percent (10%) or more in the width of the floodplain.
   (b) The construction of a pond with a water surface area of 5 acres or more.
   (c) Any modifications of the stream banks or flow line within the area that would be regulatory floodway whether or not that channel has a regulatory floodplain, unless the work is being done by the City of Norman staff as part of a routine maintenance activity.
9. All supporting documentation required by this application is required along with the permit fee by the submittal deadline. Late or incomplete applications will not be accepted.
10. I, THE APPLICANT, CERTIFY THAT ALL STATEMENTS HEREIN AND IN ATTACHMENTS TO THIS APPLICATION ARE, TO THE BEST OF MY KNOWLEDGE, TRUE AND ACCURATE.

SECTION 2: PROPOSED DEVELOPMENT (To be completed by APPLICANT.)

X APPLICANT: Willy DeLeon ADDRESS: 1253 N Ann Arbor 73127
TELEPHONE: (405) 625-1520 SIGNATURE: Willy DeLeon

X BUILDER: Willy DeLeon ADDRESS: 1253 N Ann Arbor 73127
TELEPHONE: (405) 625-1520 SIGNATURE: Willy DeLeon

ENGINEER: EARL GARY KEEN ADDRESS: P.O. BOX 891200, OKC, OK 73189
TELEPHONE: 405-823-8240 SIGNATURE: Earl Gary Keen

PROJECT LOCATION

To avoid delay in processing the application, please provide enough information to easily identify the project location. Provide the street address, subdivision addition, lot number or legal description (attach) and, outside urban areas, the distance to the nearest intersecting road or well known landmark. A sketch attached to this application showing the project location would be helpful.

NO ADDRESS ASSIGNED YET. CLEVELAND COUNTY DOCUMENTS SHOWING LEGAL DESCRIPTION ARE ATTACHED. PROPERTY IS LOCATED AT THE CORNER OF 60TH AVE. NW AND INDIAN HILLS ROAD. PROPERTY IS 40 ACRES; L-SHAPED TO FRONT ON BOTH INDIAN HILLS AND 60TH NW. NE CORNER OF PROPERTY IS APPROX 800 FEET SOUTH OF THE INTERSECTION OF INDIAN HILLS AND 60TH AVE. NW.

DESCRIPTION OF WORK (Check all applicable boxes):

A. STRUCTURAL DEVELOPMENT

ACTIVITY	STRUCTURE TYPE
☑ New Structure	☑ Residential (1-4 Family)
☐ Addition	☐ Residential (More than 4 Family)
☐ Alteration	☐ Non-Residential (Flood proofing? ☐ Yes)
☐ Relocation	☑ Combined Use (Residential & Commercial)
☐ Demolition	☐ Manufactured (Mobile) Home
☐ Replacement	☐ In Manufactured Home Park? ☐ Yes

CONSTRUCTING CLUB HOUSE, MAINT. BARN ON TRACT 1. ALSO, 5 SOCCER FIELDS, PARKING LOT, MISC ON TRACT 1. CONSTRUCTING A RESIDENCE AND SHOP BUILDING ON TRACT 2. BOTH TRACTS REQUIRE WATER WELLS AND INDIVIDUAL WASTE WATER DISPOSAL SYSTEMS.

ESTIMATED COST OF PROJECT $ 2,000,000.00 Work that involves substantial damage/substantial improvement requires detailed cost estimates and an appraisal of the structure that is being improved.

B. OTHER DEVELOPMENT ACTIVITIES:

☑ Fill ☐ Mining ☐ Drilling ☐ Grading

☐ Excavation (Beyond the minimum for Structural Development)

☐ Watercourse Alteration (Including Dredging and Channel Modifications)

☑ Drainage Improvements (Including Culvert Work) ☑ Road, Street or Bridge Construction

☐ Subdivision (New or Expansion) ☑ Individual Water or Sewer System

In addition to items A. and B. provide a complete and detailed description of proposed work (failure to provide this item will be cause for the application to be rejected by staff). Attach additional sheets if necessary.

PROPOSED TO CONSTRUCT SOCCER FIELD COMPLEX ON 20 ACRES OF HE 40 ACRES; THIS MARKED AS TRACT 1. PLAN TO CONSTRUCT RESIDENCE AND SHOP BUILDING ON TRACT 2 AND CONTINUE AGRICULTURAL USE OF THIS 20 ACRES.

ON TRACT 1, CONST. CLUBHOUSE, 5 SOCCER FIELDS, MAINT. BUILDING AND ACCESSORIES.

C. ATTACHMENTS WHICH ARE REQUIRED WITH EVERY APPLICATION:

The applicant must submit the documents listed below before the application can be processed. If the requested document is not relevant to the project scope, please check the Not Applicable box and provide explanation.

A. Plans drawn to scale showing the nature, location, dimensions, and elevation of the lot, existing or proposed structures, fill, storage of materials, flood proofing measures, and the relationship of the above to the location of the channel, floodway, and the regulatory flood-protection elevation.
SITE PLANS SHOWING LOCATION, PROPOSED IMPROVEMENTS, ELEVATIONS, ETC. ARE PROVIDED IN THE ATTACHMENTS.

B. A typical valley cross-section showing the channel of the stream, elevation of land areas adjoining each side of the channel, cross-sectional areas to be occupied by the proposed development, and high-water information.

☑ Not Applicable:
DUE TO THE EXTREMELY WIDE FLOODPLAIN, A STREAM PROFILE HAS NOT BEEN REQUIRED IN THE 10-MILE FLAT AREA.

C. Subdivision or other development plans (If the subdivision or other developments exceeds 50 lots or 5 acres, whichever is the lesser, the applicant **must** provide 100-year flood elevations if they are not otherwise available).

☐ Not Applicable:
FLOOD ELEVATIONS ARE AVAILABLE FROM FEMA. BFE INFO IS SHOWN AND USED IN DESIGN. LESS THAN 50 ACRES.

D. Plans (surface view) showing elevations or contours of the ground; pertinent structure, fill, or storage elevations; size, location, and spatial arrangement of all proposed and existing structures on the site; location and elevations of streets, water supply, sanitary facilities; photographs showing existing land uses and vegetation upstream and downstream, soil types and other pertinent information.

☐ Not Applicable:
APPLICABLE DETAILED PLANS ARE INCLUDED.

E. A profile showing the slope of the bottom of the channel or flow line of the stream.

☐ Not Applicable:
A STREAM PROFILE FOR 10-MILE FLAT CREEK, THE IMPACTING STREAM IS AVAILABLE IN THE FEMA FIS AND A COPY OF THIS DOCUMENT IS INCLUDED IN THE EXHIBITS.

F. Elevation (in relation to mean sea level) of the lowest floor (including basement) of all new and substantially improved structures.

☐ Not Applicable:
THE PROPOSED MINIMUM FINISHED FLOOR IS SHOWN FOR ALL BUILDING PROPOSED FOR THIS PROPERTY. THE FINISHED FLOORS ARE PROPOSED TO BE A MINIMUM OF 2.0 FEET HIGHER THAN THE BFE, AS SHOWN BY FEMA.

G. Description of the extent to which any watercourse or natural drainage will be altered or relocated as a result of proposed development.

☐ Not Applicable:
THE ACTUAL WATERCOURSE WILL NOT BE ALTERED IN ANY WAY. THE FLOODPLAIN WILL BE IMPACTED BY PROPOSED CONSTRUCTION OF BUILDING PADS, CULVERTS, DRIVEWAYS, DRAINAGE DITCHES, ETC. HOWEVER, THE IMPACT ON THE FLOODPLAIN BFE WILL BE NEGLIGBLE.

H. For proposed development within any flood hazard area (except for those areas designated as regulatory floodways), certification that a rise of no more than five hundredths of a foot (0.05') will occur on any adjacent property in the base flood elevation as a result of the proposed work. For proposed development within a designated regulatory floodway, certification of no increase in flood levels within the community during the occurrence of the base flood discharge as a result of the proposed work. All certifications shall be signed and sealed by a Registered Professional Engineer licensed to practice in the State of Oklahoma.
AN ENGINEER'S CERTIFICATION IS ATTACHED IN THE EXHIBITS, AS REQUIRED.

I. A certified list of names and addresses of all record property owners within a three hundred fifty (350) foot radius of the exterior boundary of the subject property not to exceed 100 feet laterally from the Special Flood Hazard Area. The radius to be extended by increments of one hundred (100) linear feet until the list of property owners includes not less than fifteen (15) individual property owners of separate parcels or until a maximum radius of one thousand (1,000) feet has been reached. A RADIUS MAP OF PROPETY OWNERS AND A LIST OF PROPERTY OWNERS WITH MAILING ADDRESSES IS PROVIDED.

J. A copy of all other applicable local, state, and federal permits (i.e. U.S. Army Corps of Engineers 404 permit, etc). STATE PERMITS WILL BE REQUIRED FOR WATER WELL AND INDIVIDUAL WASTE WATER SYSTEM AT A LATER DATE. CONSTRUCTION STORMWATER DISCHARGE PERMITS WILL BE REQ'D LATER. US ARMY COE PERMITS ARE NOT REQUIRED FOR THIS WORK

After completing SECTION 2, APPLICANT should submit form to Permit Staff for review.

SECTION 3: FLOODPLAIN DETERMINATION (To be completed by Permit Staff.)

The proposed development is located on FIRM Panel No.: 0170 J, Dated: 1/15/2021

The Proposed Development:

☐ Is NOT located in a Special Flood Hazard Area
(Notify the applicant that the application review is complete and NO FLOODPLAIN PERMIT IS REQUIRED).

☐ Is located in a Special Flood Hazard Area.

☐ The proposed development is located in a floodway.

☒ 100-Year flood elevation at the site is ~1145 Ft. NGVD (MSL) ☐ Unavailable

See Section 4 for additional instructions.

SIGNED: _____ **DATE:** 7/10/24

SECTION 4: ADDITIONAL INFORMATION REQUIRED (To be completed by Permit Staff.)

The applicant must also submit the documents checked below before the application can be processed.

☐ Flood proofing protection level (non-residential only) _____ Ft. NGVD (MSL). For flood proofed structures applicant must attach certification from registered engineer.

☐ Certification from a registered engineer that the proposed activity in a regulatory floodway will not result in any increase in the height of the 100-year flood (Base Flood Elevation). A copy of all data and calculations supporting this finding must also be submitted.

☐ Certification from a registered engineer that the proposed activity in a regulatory flood plain will result in an increase of no more than 0.05 feet in the height of the 100-year flood (Base Flood Elevation). A copy of all data and calculations supporting this finding must also be submitted.

☐ All other applicable federal, state, and local permits have been obtained.

Other: _____

_____

_____

SECTION 5: PERMIT DETERMINATION (To be completed by Floodplain Chairman.)

The proposed activity: **(A)** ☐ **Is**; **(B)** ☐ **Is Not** in conformance with provisions of Norman's City Code Chapter 22, Section 429.1. The permit is issued subject to the conditions attached to and made part of this permit.

SIGNED: _____ DATE: _____

If **BOX A** is checked, the Floodplain committee chairman may issue a Floodplain Permit.

If **BOX B** is checked, the Floodplain committee chairman will provide a written summary of deficiencies. Applicant may revise and resubmit an application to the Floodplain committee or may request a hearing from the Board of Adjustment.

APPEALS: Appealed to Board of Adjustment: ☐ Yes ☐ No

Hearing date: _____

Board of Adjustment Decision - Approved: ☐ Yes ☐ No

Conditions:

_____

_____

_____

EARL GARY KEEN, PE
PO BOX 891200, OKLAHOMA CITY, OK 73189
(405) 823-8240

ENGINEERING REPORT (Revision 1)
40 ACRE TRACT LOCATED VIC. 60TH NW AND INDIAN HILLS ROAD
OWNER: WILLY DELONG
RE. FLOOD PLAIN PERMIT APPLICATION

Introduction

This report is in regard to the proposed development of a sports complex (soccer field) on the east 20 acres of the subject tract and the construction a residence and barn on the west (or north-west) tract. The east potion of the tract fronts on 60th Avenue NW and a driveway is proposed to be constructed to provide access to the proposed soccer field, club house, etc.

The west 20 acres of the tract fronts on Indian Hills Road and the owner intends to construct a driveway on Indian Hills Road to serve the residence, barn and the farming operation, which will be continued.

As shown by the attached plans, the total tract is 40 acres at present. The owner plans to seek approval to divide the property into two 20 acre tracts at a future time. He has been advised by City staff members that it would be appropriate to seek approval of the necessary floodplain permits prior to commencing the property division process.

The 40 acre tract is currently zoned agricultural and it is located in the area known as the 10-mile flat area. The majority of the area of this tract is located in the designated floodplain but not in any designated floodway. A part of the tract located immediately west of 60th NW Avenue is slightly above the BFE, and adjacent area where a club house building is proposed is in the fringe area of the floodplain, where the BFE is slightly higher than the existing ground. A barn is proposed on the west end of this 20 acre area, where the flood water depth will be greater. All building structures will be constructed on elevated areas. It will be necessary to place fill to construct a pad in order to place the finished floor at an elevation a minimum of two feet above the BFE. Elevation requirements and volume of filled pad areas are summarized in a later section of this report.

The soccer field development will include four standard playing fields and one minor league field. These fields are located in an area where the BFE ranges from zero to 2.4 feet above the existing ground level in the field areas. The proposal is specifically made with the condition that no fill dirt will be placed in the area of the playing fields (nor in any other area, except as set out herein for building pads, etc.). Instead, approval is requested to perform grading to smooth the playing field. Soil will not be moved from one playing field to another and a playing field will not be leveled. The intent is to level the fields by using a tool such as a tractor and box blade to cut the high spots (bumps and mole hills) and to fill the adjacent low spots. Unless this area is smoothed, the playing field will be difficult to run on and may contribute to accidents involving falls with the possibility of injuries.

Drainage Improvements

Leveling the fields will also contribute to drainage and drying of the field after periods of rainfall. In addition, certain drainage improvements are proposed. An earthen drainage ditch is proposed along the north line of the property to facilitate drainage to Ten Mile Flat Creek, which exists near the west edge

of the DeLeon property. Also, an earthen drainage ditch is proposed along the south edge of this property to also promote drainage to the Creek. Shallow swale, not deeper than 0.5 feet are proposed between the soccer fields to promote drainage to the ditches. Soil excavated during the construction of the swales and ditches will either be used as fill material for building pads or removed from the site. This soil will not be placed in the floodplain on this property. Material transported off this property for disposal must be taken to a disposal site acceptable to the City[s Floodplain Manager.

Utilities

Commercial utilities such as electrical service and natural gas will be required. These will be provided by the utility companies and will be either overhead or underground as is standard proactice. Any utilities provided by the owner or his contractors must be placed to comply with floodplain requirements, which requires all electrical items and the heat and air systems be located above the BFE.

Fire Protection Water

The owner is aware that City codes might require fire protection systems for the proposed club house. Accordingly, a water storage tank or approximately 10,000 gallons and one connected fire hydrant is included in this application. The owner does not intent to provide this item unless it is required by codes. Due to the high expense of this item, the owner is hopeful that this item is not required, but it is included, just in case.

Lighting and lawn irrigation systems

The proposal includes constructing lighting on and around the playing fields to permit activities during the night time. These lighting facilities will be either overhead or underground, except for the poles. These items will have a negligible impact on the floodplain. Sprinkler systems will be placed underground and will be installed by trenching and back-filling existing ground, and this impact will be negligible also.

Driveways

Driveways will be constructed to provide vehicular connections to both 60th NW Avenue and Indian Hills Road. These driveways will be constructed according to the City's specifications and pursuant to appropriate permits. Any fill material needed to be placed in the floodplain for this work will be obtained from one of the designated borrow areas. Any material removed from the floodplain during this work will be either used as fill for building pads or removed from the site.

Parking Lots

Parking lots appropriate to provide the required parking for the club house, etc.will be provided. The parking lots will be constructed by removing soil before placing the concrete paving so that the top of the concrete paving will be no higher than the original ground. Constructed in this way will prevent the paving from having a significant impact on the floodplain. Soil removed during parking lot construction will be transported from the site for disposal.

Club house—fill and elevation requirements

Existing ground elevation: 1145.0'
BFE: 1144.8' (existing ground is 0.2' above BFE)
Minimum FF: 1146.8'
Fill depth: 1.8'
Fill depth within the floodplain: 0.0'
Area of club house: 40' x 75' = 3000 sf
Area of pad: 90 x 125 = 11,250 sf
Volume of pad: 750 cubic yards
Source of fill material: From borrow area

Maintenance barn—fill and elevation requirements

Existing ground elevation: 1143.5'
BFE: 1144.8' (existing ground is 1.3' below BFE)
Minimum FF: 1146.8'
Fill depth: 3.3'
Fill depth within the floodplain: 1.3'
Area of barn: 50' x 80' = 4000 sf
Area of pad: 100 x 130 = 13,000 sf
Volume of pad: 1589 cubic yards (volume of total pad)
Volume of pad below BFE = 626 cubic yards (volume placed in floodplain below BFE)
Source of fill material: From borrow area

Residence on west tract —fill and elevation requirements

Existing ground elevation: 1144.5'
BFE: 1145.5'
Minimum FF: 1147.5'
Total fill depth: 3.0'
Fill depth within the floodplain: 1.0'
Area of house: 50' x 80' = 4000 sf
Area of pad: 100 x 130 = 13,000 sf
Volume of pad: 1445 cubic yards
Source of fill material: From borrow area

Shop building on west tract —fill and elevation requirements

Existing ground elevation: 1144.5'
BFE: 1145.5'
Minimum FF: 1147.5'
Fill depth: 3.0'
Fill depth within the floodplain: 1.0'
Area of building: 50' x 80' = 4000 sf
Area of pad: 100 x 130 = 13,000 sf
Volume of pad: 1445 cubic yards
Source of fill material: From borrow area

Fire protection water storage tank —fill and elevation requirements

Existing ground elevation: 1145.0'
BFE: 1144.8' (existing ground is 0.20' above BFE)
Minimum FF (pad elevation): 1146.8'
Total fill depth: 1.8'
Fill depth below BFE: none
Area of pad for water tank: 40' x 40' = 1,600 sf
Volume of pad: 60 cubic yards
Source of fill material: From borrow area

As shown by comparing the total fill depth to the fill depths within the floodplain for the building pads, only a fraction of the fill being placed is actually in the floodplain.

A number of exhibits are attached herein to show additional details regarding this application, as is the engineer's certification statement.

Many thanks to the Staff and Committee Members for taking the time to review this complex application.

Earl Gary Keen, PE July 09, 2024

07/09/2024

REGISTERED PROFESSIONAL ENGINEER
EARL GARY KEEN
11438
OKLAHOMA

EARL GARY KEEN, PE
PO BOX 891200, OKLAHOMA CITY, OK 73189
(405) 823-8240

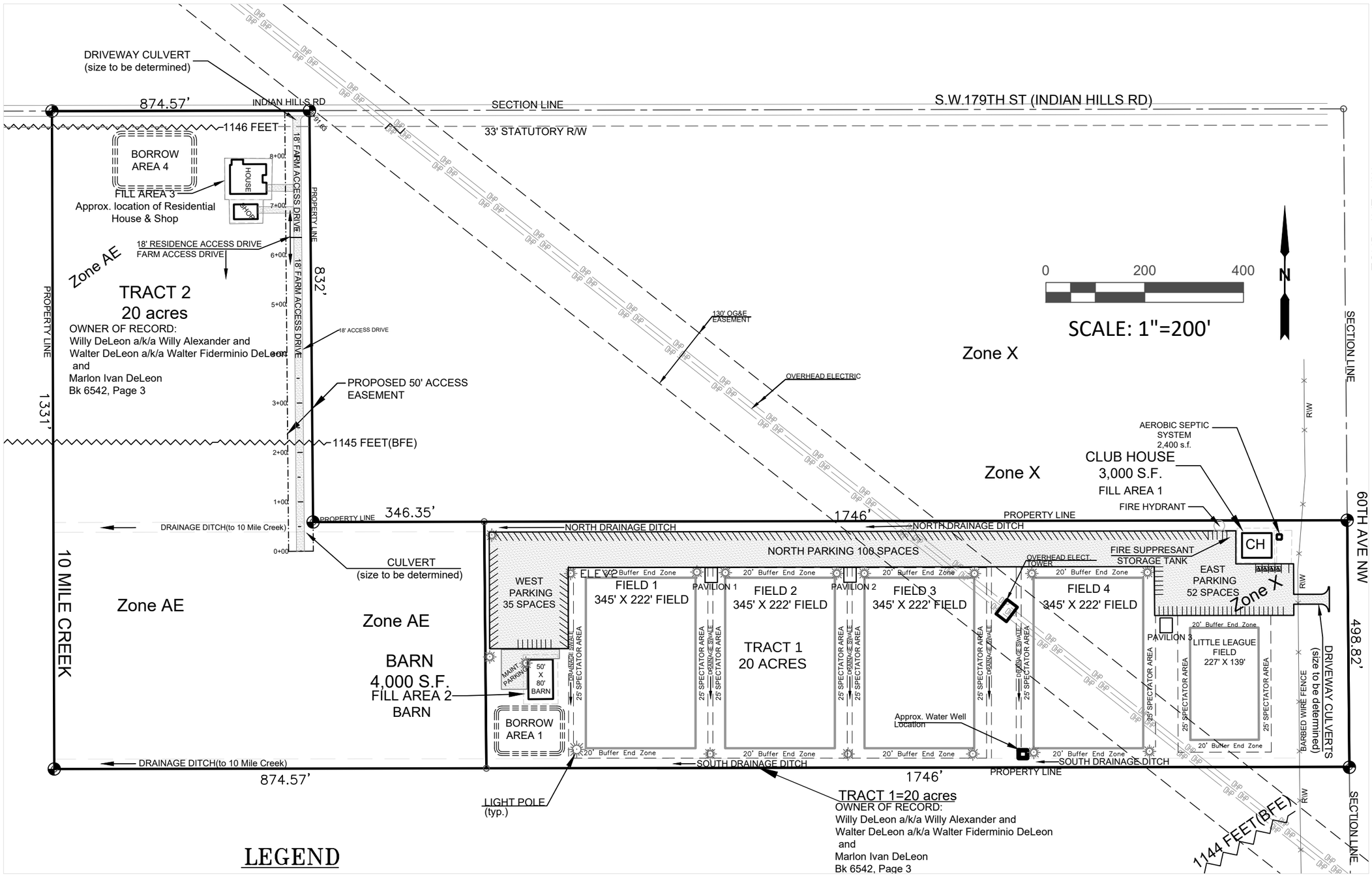
CERTIFICATION STATEMENT

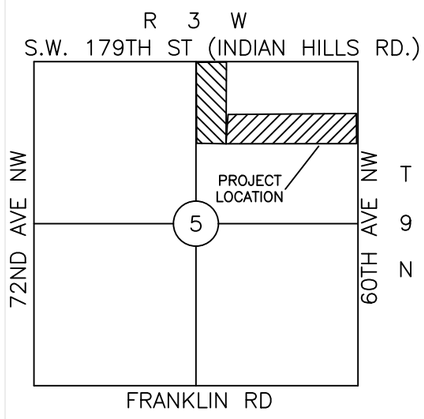
I, Earl Gary Keen, a professional engineer licensed in the State of Oklahoma, hereby state that I am familiar with the floodplain permit application being made by Willy DeLeon for property located at 60th Ave. NW and Indian Hills Road, Norman, OK. Further, it is my professional opinion that when this construction work is completed in full compliance with the details contained in said application, said construction work will not result in any increase in the base floodwater elevations greater than 0.05 feet at any other point in the community

Earl Gary Keen 6-18-24

Signature Date Seal

OK-PE 11438





LOCATION MAP
SCALE: N.T.S.

DEVELOPMENT NOTES

1.Soccer fields, including Spectator areas shall be leveled in place with a balance cut\fill and a zero net gain in elevation.

2.Paved Parking areas shall be excavated and finished areas shall provide a zero net gain in elevation.

LEGEND

- SUBJECT BOUNDARY
- Existing Fence
- ROW – RIGHT–OF–WAY
- SECTION LINE
- OHP — OHP — OHP — OVERHEAD ELECTRIC(OHP)

KEEN ENGINEERING
P.O. BOX 892100
OKLAHOMA CITY, OK 73189
(405) 823–8240
CA 4367, EXP. 06–30–2025

INDIAN HILL SPORTS COMPLEX
SITE PLAN

Preliminary, for City Review Only

DEVELOPER: Willy DeLeon 06/14/2024

SHEET 1 OF 4

FILL AREAS

FILL AREA 1, 2,500 S.F.CLUB HOUSE
=5,600 S.F., avg. depth=0.4'
83 c.y., or 2,240 c.f.

FILL AREA 2, 4,000 S.F. BARN
=7,000 S.F., avg. depth=1.3'
337 c.y. or 21,700 c.f.

FILL AREA 3, 3,500 S.F. HOUSE & SHOP
=11,300 S.F., avg. depth=3.5'
1,465 c.y. or 39,500 c.f.

BORROW AREAS

BORROW AREA 1=12,203 S.F., avg. depth=1.5'
678 c.y. or 18,304 c.f.

BORROW AREA 2, SOUTH DRAINAGE DITCH
=16,000 s.f., avg. depth=0.7
=***414 c.y.*** or 11,200 c.f.

BORROW AREA 3, NORTH DRAINAGE DITCH
=15,300 s.f., avg. depth=0.7
=***566 c.y.*** or 15,300 c.f.

BORROW AREA 4, 3,500 S.F. HOUSE & SHOP=17,200 s.f., avg. depth=2.4'
=***1,528 c.y.*** or 41,280 c.f.

NOTE: Fill/Borrow volumes are approx. until ground water elevations can be deterimined.

0 200 400
SCALE: 1"=200'

LEGEND

- SUBJECT BOUNDARY
- Existing Fence
- ROW – RIGHT-OF-WAY
- SECTION LINE
- OHP OHP OHP OVERHEAD ELECTRIC(OHP)

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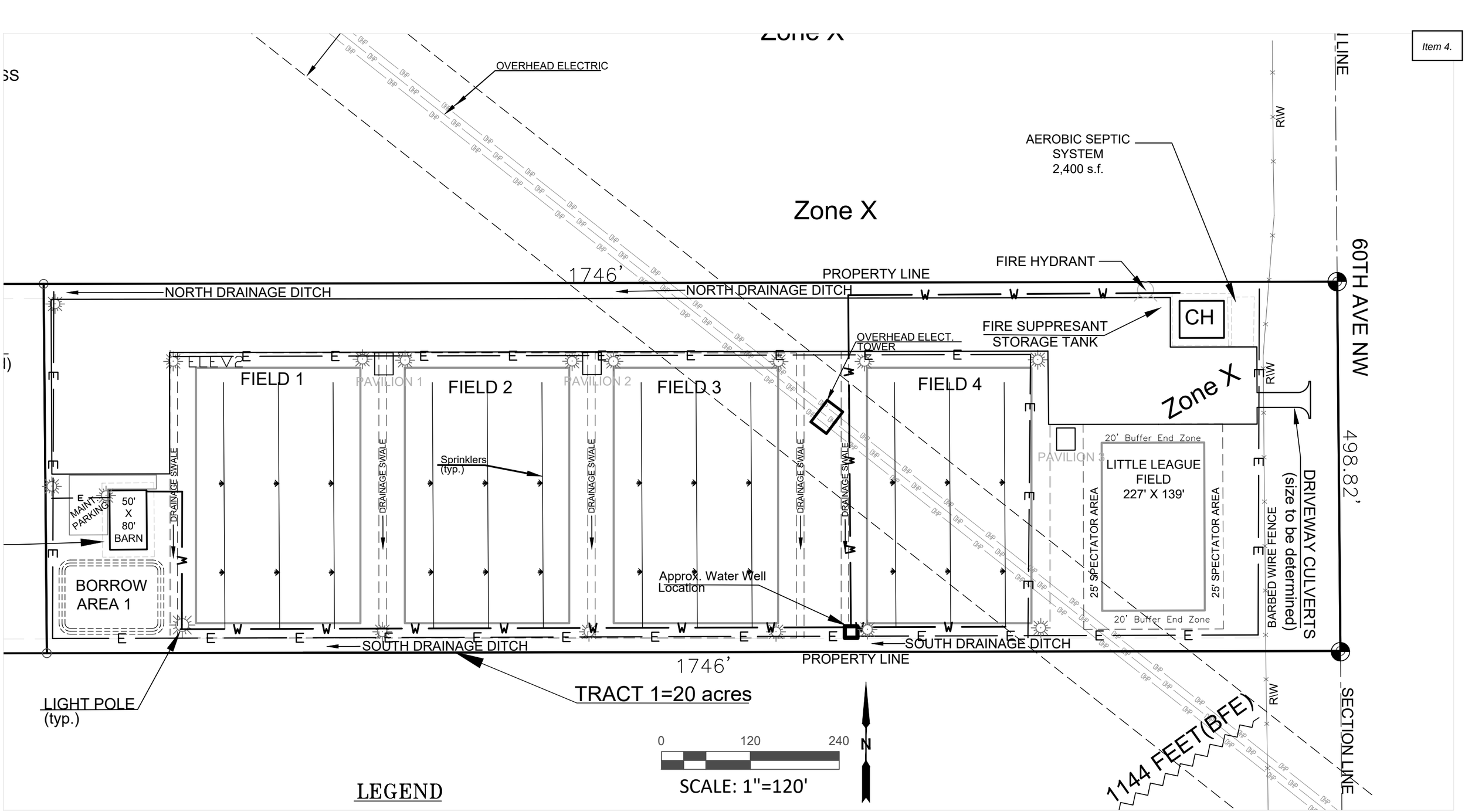
OKLAHOMA CITY, OK 73189
(405) 823-8240
CA 4367, EXP. 06-30-2025

EXISTING TOPOGRAPHY

Preliminary, for City Review Only
OWNER: Willy DeLeon 06/15/2024



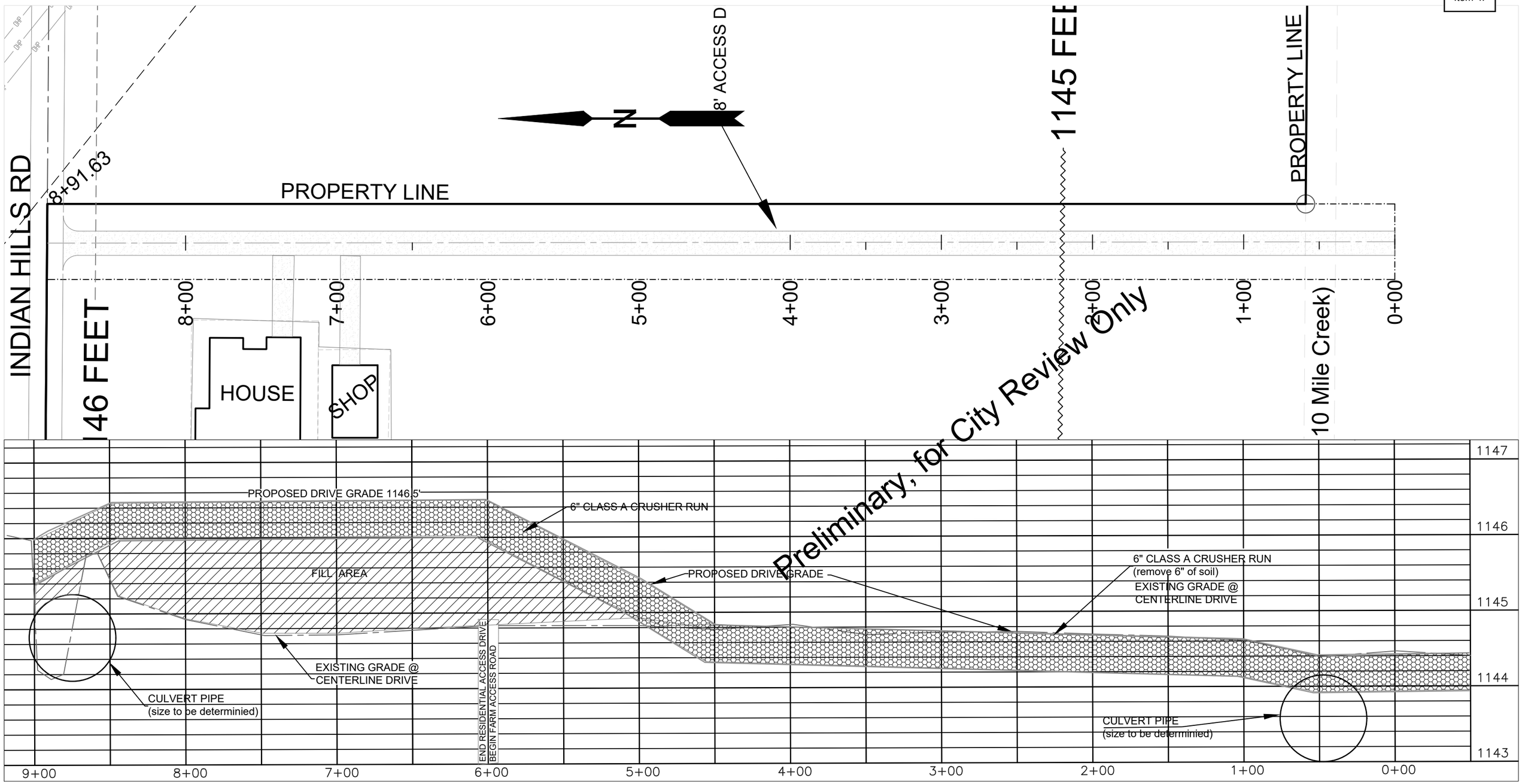
LEGEND

- SUBJECT BOUNDARY
- Existing Fence
- ROW – RIGHT–OF–WAY
- SECTION LINE
- OVERHEAD ELECTRIC(OHP)
- WATERLINE(proposed)
- UGE(Underground Electric)
- SPRINKLER SYSTEM

KEEN ENGINEERING
P.O. BOX 892100
OKLAHOMA CITY, OK 73189
(405) 823–8240
CA 4367, EXP. 06–30–2025

UTILITIES

Preliminary, for City Review Only
(Not a signed and sealed document)
OWNER: Willy DeLeon 05/22/2024



HORZ. SCALE: 1"=60'
VERT. SCALE: N.T.S.

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P.O. BOX 892100
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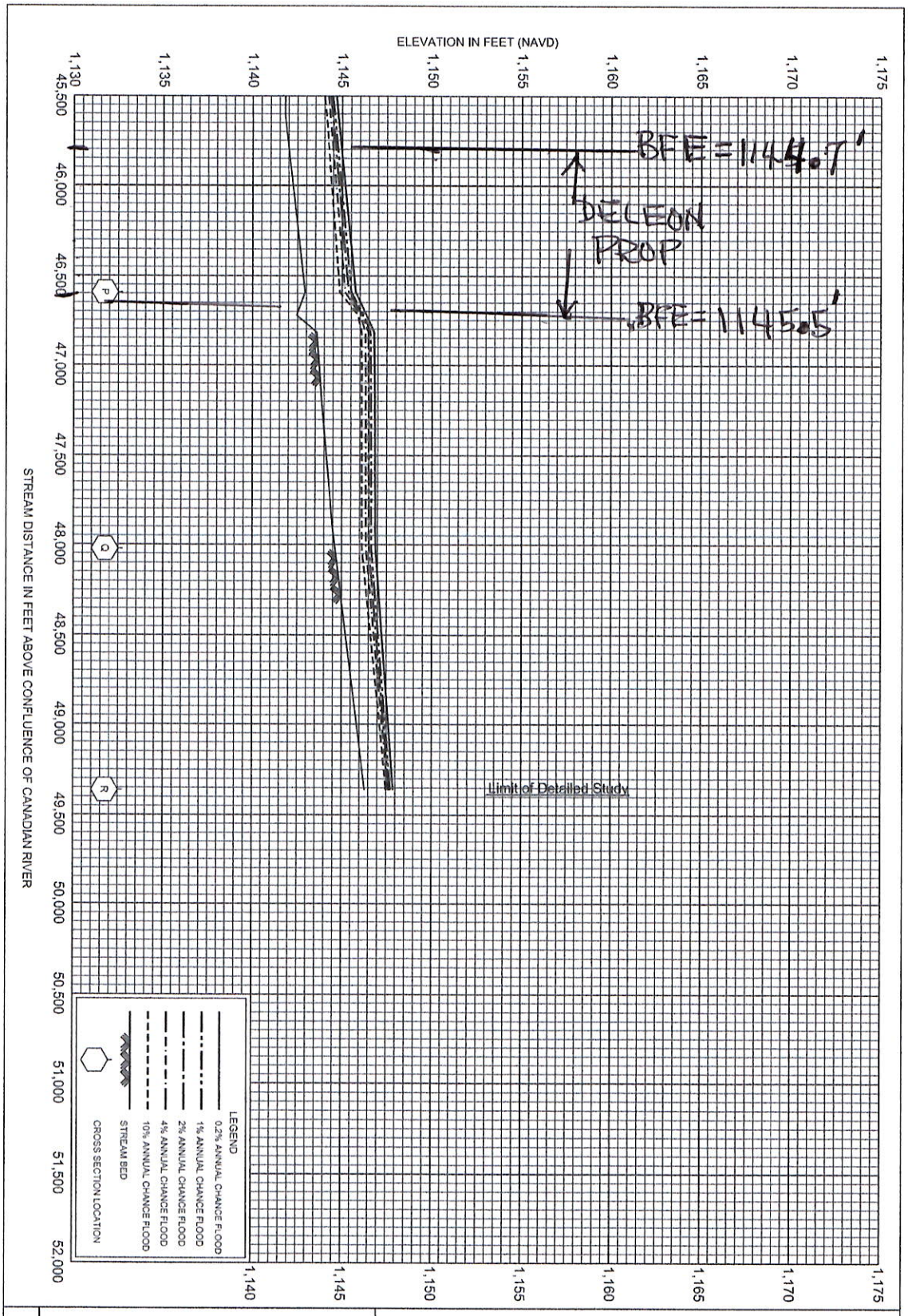
(405) 823-8240
CA 4367, EXP. 06-30-2025

INDIAN HILL SPORTS COMPLEX SITE PLAN

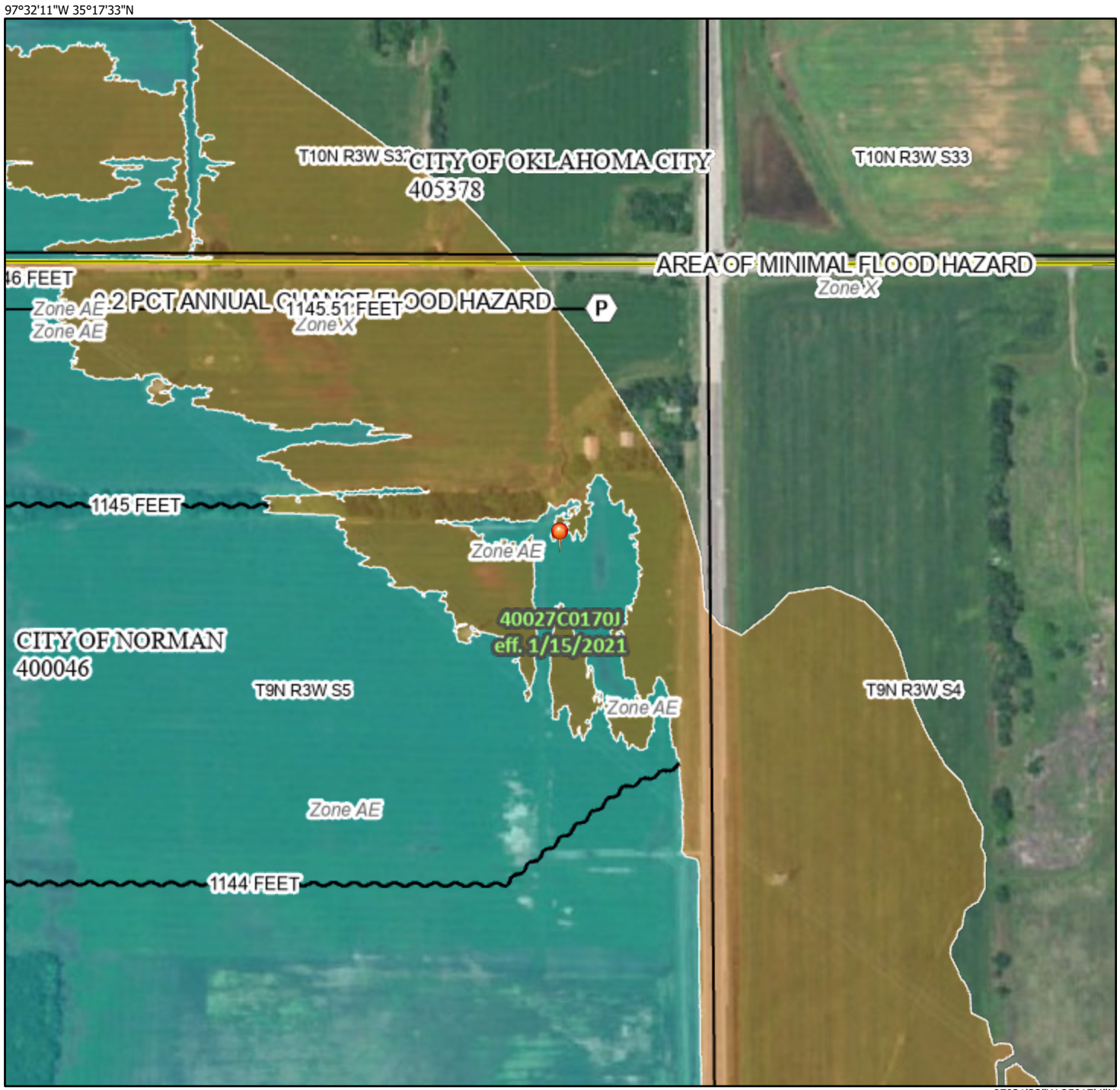
ACCESS DRIVE PROFILE

DEVELOPER: Willy DeLeon 06/14/2024



129P	FEDERAL EMERGENCY MANAGEMENT AGENCY CLEVELAND COUNTY, OK AND INCORPORATED AREAS	FLOOD PROFILES TEN MILE FLAT CREEK

National Flood Hazard Layer FIRMette



Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR F UT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

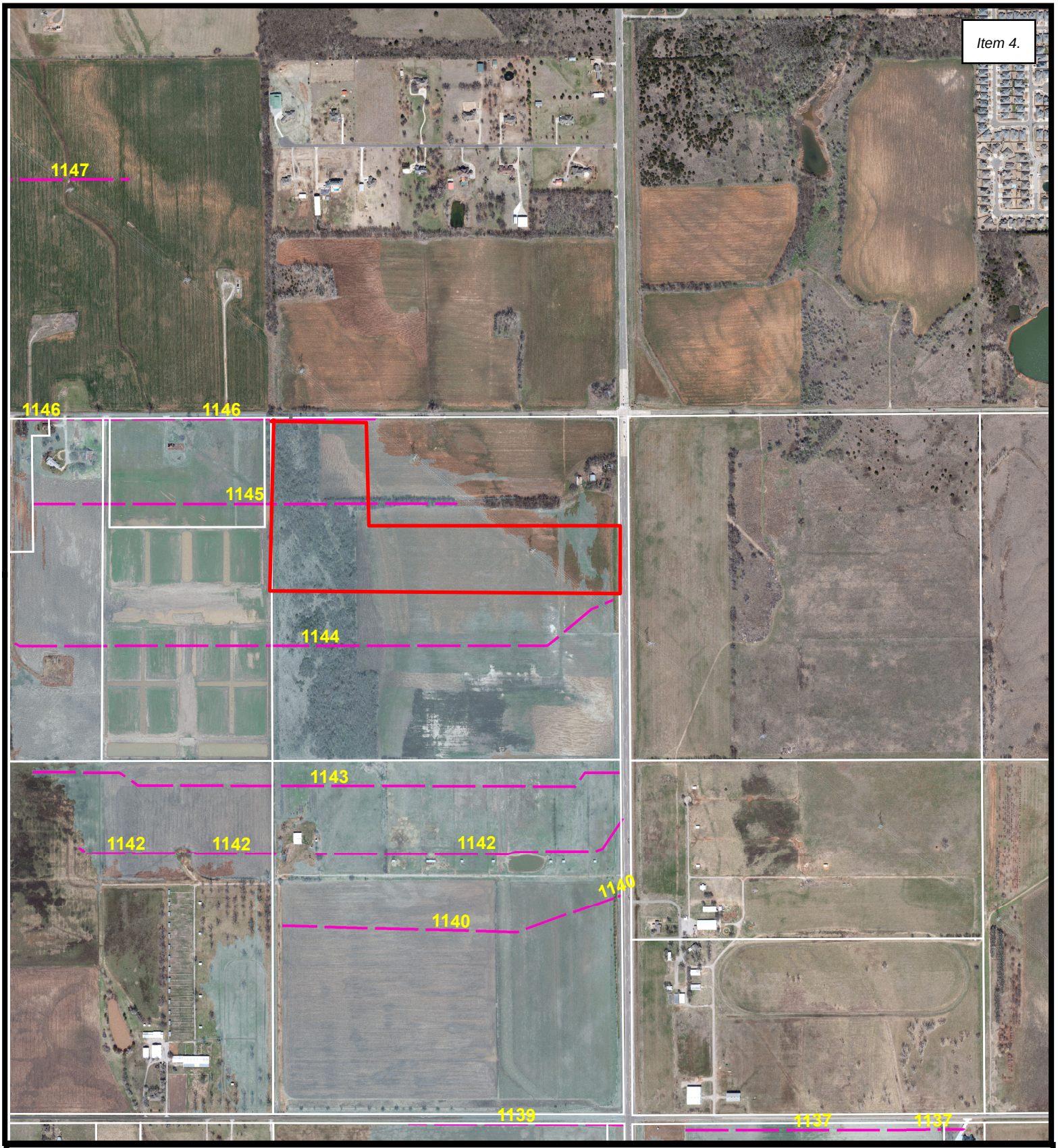
N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 7/8/2024 at 4:21 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community ide FIRM panel number, and FIRM effective date. Map in unmapped and unmodernized areas cannot be used regulatory purposes.



DeLeon Property

0 0.05 0.1 0.2 Miles

Legend

- Parcel
- BFE 2021
- 1% Chance Floodplain
- Floodway

N
W E
S

1 inch = 961 feet

The City of Norman assumes no responsibility for errors or omissions in the information presented.

STAFF REPORT 07/15/2024 **PERMIT NO. 696**

ITEM: This Floodplain Permit Application is for the replacement of a bridge over Rock Creek on 60th Ave. NE between Tecumseh and Rock Creek roads.

BACKGROUND:
APPLICANT: City of Norman, Streets and Engineering Divisions
BUILDER: K&R Builders Inc.
ENGINEER: Garver

The applicant is requesting a floodplain permit to replace the existing, failed bridge over Rock Creek on 60th Ave. NE between Tecumseh and Rock Creek Roads. The existing bridge was constructed in 1940. On December 1, 2022, this bridge was closed following receipt of an October 2022 Inspection Report listing the bridge as structurally deficient due to a condition rating of "Poor (4)" given to the superstructure and substructure of the bridge. Additional information related to this rating and subsequent road closure can be found in the Preliminary Engineering Report submitted with this application. According to the applicant, construction activities include the demolition of the existing bridge and construction of a new single span prestressed concrete bridge and relocation of an existing City of Norman waterline. The channel flowlines and banks will not be altered at the site beyond what is required to excavate and construct the new bridge abutments and placement of riprap on the slopes in front of the bridge. These construction activities do not fall below the ordinary high water mark that was determined during final design of the project. According to the hydraulic summary in the engineering report for Prestressed Concrete Beam bridge, the existing 100 year water surface elevation (WSEL) is 1071.55. Proposed conditions would lower the 100 year WSEL to 1070.34. No Individual Permit from the US Army Corps of Engineers is required for this project.

STAFF ANALYSIS:
Site located in Little River Basin or its Tributaries? Yes ✓ no__

According to the latest FIRM, the site of the proposed work is located in the Rock Creek floodplain (Zone A). At the proposed site, the BFE is approximately 1171.55. Proposed work would lower the BFE to approximately 1170.34 according to the hydraulic analysis provided by the engineer.

Applicable Ordinance Sections:		Subject Area:
36-533	(e)2(a)……	Fill restrictions
	(e)2(e)…..……	Compensatory storage
	(e)2(j)…..……	Utilities constructed to minimize flood damage
	(e)2(k)…..……	In/exfiltration of flood waters in utility systems
	(f)3(a)(8)…..……...	No rise considerations

(e)2(a) and (e)2(e) Fill Restrictions in the Floodplain and Compensatory Storage – Fill is restricted because storage capacity is removed from floodplains, natural drainage patterns are adversely altered, and erosion problems can develop. Compensatory storage must be provided within the general location of any storage that is displaced by fill or other development activity and must serve the equivalent hydrologic function as the portion which is displaced with respect to the area and elevation of the floodplain.

> According to plans submitted by the engineer, cut quantities exceed fill quantities in all areas below the 100 year WSEL, meeting this ordinance requirement. Cumulative cut = 86.39 CY and Cumulative Fill = 83.24 CY creating a net increase of 3.15 CY of storage in the floodplain.

(e)2(j) and (e)2(j) Utilites Constructed to Minimize Flood Damage and In/exfiltration of Flood Waters in Utility Systems - All new construction or substantial improvements shall be constructed with electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating

within the components during conditions of flooding. All public utilities and facilities shall be constructed to minimize flood damage. Additionally, all new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system.

The waterline pipe joints have gaskets making the system watertight, and the entire system is leak tested prior to going into service.

(f)3(a)(8) No Rise Considerations – For proposed development within any flood hazard area (except forthose designated as regulatory floodways), certification that a rise of no more than 0.05 ft. will occur in the BFE on any adjacent property as a result of the proposed work is required. For proposed development within a designated regulatory floodway, certification that no increase in the BFE on any adjacent property as a result of the proposed work is required.

The project engineer has certified that there will be no increase in the 100-year water surface elevation as a result of the improvements in the floodplain satisfying this requirement.

RECOMMENDATION: Staff recommends Floodplain Permit Application #696 be approved.

ACTION TAKEN: _____

City of Norman

Floodplain Permit Application

Floodplain Permit No. 696

Building Permit No. _____

Date 7/15/2024

FLOODPLAIN PERMIT APPLICATION
($100.00 Application Fee Required)

SECTION 1: GENERAL PROVISIONS (APPLICANT to read and sign):

1. No work may start until a permit is issued.
2. The permit may be revoked if any false statements are made herein.
3. If revoked, all work must cease until permit is re-issued.
4. Development shall not be used or occupied until a Certificate of Occupancy is issued.
5. The permit will expire if no work is commenced within 2 years of issuance.
6. Applicant is hereby informed that other permits may be required to fulfill local, state and federal regulatory requirements and must be included with this floodplain permit application.
7. Applicant hereby gives consent to the City of Norman or his/her representative to access the property to make reasonable inspections required to verify compliance.
8. The following floodplain modifications require approval by the City Council:
   (a) A modification of the floodplain that results in a change of ten percent (10%) or more in the width of the floodplain.
   (b) The construction of a pond with a water surface area of 5 acres or more.
   (c) Any modifications of the stream banks or flow line within the area that would be regulatory floodway whether or not that channel has a regulatory floodplain, unless the work is being done by the City of Norman staff as part of a routine maintenance activity.
9. All supporting documentation required by this application is required along with the permit fee by the submittal deadline. Late or incomplete applications will not be accepted.
10. I, THE APPLICANT, CERTIFY THAT ALL STATEMENTS HEREIN AND IN ATTACHMENTS TO THIS APPLICATION ARE, TO THE BEST OF MY KNOWLEDGE, TRUE AND ACCURATE.

SECTION 2: PROPOSED DEVELOPMENT (To be completed by APPLICANT.)

APPLICANT: City of Norman ADDRESS: 225 N. Webster Ave, Norman, OK 73069

TELEPHONE: 405-366-5459 SIGNATURE: Brandon Brooks

BUILDER: K&R Builders INC ADDRESS: 8020 SW 74th, Oklahoma City, OK 73169

TELEPHONE: 405-745-7036 SIGNATURE: _____

ENGINEER: Garver ADDRESS: 226 W Gray St, Suite 103, Norman, OK 73069

TELEPHONE: 405-329-2555 SIGNATURE: _____

PROJECT LOCATION

To avoid delay in processing the application, please provide enough information to easily identify the project location. Provide the street address, subdivision addition, lot number or legal description (attach) and, outside urban areas, the distance to the nearest intersecting road or well known landmark. A sketch attached to this application showing the project location would be helpful.

This application is for the replacement of the 60th Ave NE Bridge located over Rock Creek. Construction activities include demolition of the existing bridge and construction of a new single span prestressed concrete bridge and relocation of an existing City of Norman waterline. The channel flowlines and banks will not be altered at the site beyond what is required to excavate and construct the new bridge abutments and placement of riprap on the slopes in front of the bridge. These construction activities do not fall below the ordinary high water mark that was determined during final design of the project.

DESCRIPTION OF WORK (Check all applicable boxes):

A. STRUCTURAL DEVELOPMENT

ACTIVITY	STRUCTURE TYPE
☐ New Structure	☐ Residential (1-4 Family)
☐ Addition	☐ Residential (More than 4 Family)
☐ Alteration	☐ Non-Residential (Flood proofing? ☐ Yes)
☐ Relocation	☐ Combined Use (Residential & Commercial)
☑ Demolition	☐ Manufactured (Mobile) Home
☑ Replacement	☐ In Manufactured Home Park? ☐ Yes

ESTIMATED COST OF PROJECT $ 2,915,109.71 Work that involves substantial damage/substantial improvement requires detailed cost estimates and an appraisal of the structure that is being improved.

B. OTHER DEVELOPMENT ACTIVITIES:

☑ Fill ☐ Mining ☑ Drilling ☑ Grading

☐ Excavation (Beyond the minimum for Structural Development)

☐ Watercourse Alteration (Including Dredging and Channel Modifications)

☑ Drainage Improvements (Including Culvert Work) ☑ Road, Street or Bridge Construction

☐ Subdivision (New or Expansion) ☐ Individual Water or Sewer System

In addition to items A. and B. provide a complete and detailed description of proposed work (failure to provide this item will be cause for the application to be rejected by staff). Attach additional sheets if necessary.

Plans and Specifications detailing the work involved are attached.

No rise certification attached.

C. ATTACHMENTS WHICH ARE REQUIRED WITH EVERY APPLICATION:

The applicant must submit the documents listed below before the application can be processed. If the requested document is not relevant to the project scope, please check the Not Applicable box and provide explanation.

A. Plans drawn to scale showing the nature, location, dimensions, and elevation of the lot, existing or proposed structures, fill, storage of materials, flood proofing measures, and the relationship of the above to the location of the channel, floodway, and the regulatory flood-protection elevation.

B. A typical valley cross-section showing the channel of the stream, elevation of land areas adjoining each side of the channel, cross-sectional areas to be occupied by the proposed development, and high-water information.

☑ Not Applicable:

_____

_____

C. Subdivision or other development plans (If the subdivision or other developments exceeds 50 lots or 5 acres, whichever is the lesser, the applicant **must** provide 100-year flood elevations if they are not otherwise available).

☑ Not Applicable:

_____

_____

D. Plans (surface view) showing elevations or contours of the ground; pertinent structure, fill, or storage elevations; size, location, and spatial arrangement of all proposed and existing structures on the site; location and elevations of streets, water supply, sanitary facilities; photographs showing existing land uses and vegetation upstream and downstream, soil types and other pertinent information.

☐ Not Applicable:

_____

_____

E. A profile showing the slope of the bottom of the channel or flow line of the stream.

☑ Not Applicable:

_____

_____

F. Elevation (in relation to mean sea level) of the lowest floor (including basement) of all new and substantially improved structures.

☐ Not Applicable:

_____

_____

G. Description of the extent to which any watercourse or natural drainage will be altered or relocated as a result of proposed development.

☑ Not Applicable:

_____

H. For proposed development within any flood hazard area (except for those areas designated as regulatory floodways), certification that a rise of no more than five hundredths of a foot (0.05') will occur on any adjacent property in the base flood elevation as a result of the proposed work. For proposed development within a designated regulatory floodway, certification of no increase in flood levels within the community during the occurrence of the base flood discharge as a result of the proposed work. All certifications shall be signed and sealed by a Registered Professional Engineer licensed to practice in the State of Oklahoma.

I. A certified list of names and addresses of all record property owners within a three hundred fifty (350) foot radius of the exterior boundary of the subject property not to exceed 100 feet laterally from the Special Flood Hazard Area. The radius to be extended by increments of one hundred (100) linear feet until the list of property owners includes not less than fifteen (15) individual property owners of separate parcels or until a maximum radius of one thousand (1,000) feet has been reached.

J. A copy of all other applicable local, state, and federal permits (i.e. U.S. Army Corps of Engineers 404 permit, etc).

After completing SECTION 2, APPLICANT should submit form to Permit Staff for review.

SECTION 3: FLOODPLAIN DETERMINATION (To be completed by Permit Staff.)

The proposed development is located on FIRM Panel No.: 0215 H, Dated: 9/26/2008

The Proposed Development:

☐ Is NOT located in a Special Flood Hazard Area
(Notify the applicant that the application review is complete and NO FLOODPLAIN PERMIT IS REQUIRED).

☐ Is located in a Special Flood Hazard Area.

☐ The proposed development is located in a floodway.

☐ 100-Year flood elevation at the site is 1071.55 Ft. NGVD (MSL) ☐ Unavailable

See Section 4 for additional instructions.

SIGNED: _____ **DATE:** 7/10/24

SECTION 4: ADDITIONAL INFORMATION REQUIRED (To be completed by Permit Staff.)

The applicant must also submit the documents checked below before the application can be processed.

☐ Flood proofing protection level (non-residential only) _____ Ft. NGVD (MSL). For flood proofed structures applicant must attach certification from registered engineer.

☐ Certification from a registered engineer that the proposed activity in a regulatory floodway will not result in any increase in the height of the 100-year flood (Base Flood Elevation). A copy of all data and calculations supporting this finding must also be submitted.

☐ Certification from a registered engineer that the proposed activity in a regulatory flood plain will result in an increase of no more than 0.05 feet in the height of the 100-year flood (Base Flood Elevation). A copy of all data and calculations supporting this finding must also be submitted.

☐ All other applicable federal, state, and local permits have been obtained.

Other: _____

_____

_____

SECTION 5: PERMIT DETERMINATION (To be completed by Floodplain Chairman.)

The proposed activity: **(A)** ☐ **Is**; **(B)** ☐ **Is Not** in conformance with provisions of Norman's City Code Chapter 36, Section 533. The permit is issued subject to the conditions attached to and made part of this permit.

SIGNED: _____ DATE: _____

If **BOX A** is checked, the Floodplain committee chairman may issue a Floodplain Permit.

If **BOX B** is checked, the Floodplain committee chairman will provide a written summary of deficiencies. Applicant may revise and resubmit an application to the Floodplain committee or may request a hearing from the Board of Adjustment.

APPEALS: Appealed to Board of Adjustment: ☐ Yes ☐ No

Hearing date: _____

Board of Adjustment Decision - Approved: ☐ Yes ☐ No

Conditions:

_____

_____

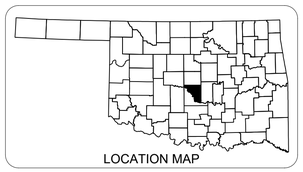
_____

SECTION 6: AS-BUILT ELEVATIONS (To be submitted by APPLICANT before Certificate of Occupancy is issued.)

1. FEMA Elevation Certificate
   and/or
2. FEMA Floodproofing Certificate

NOTE: The completed certificate will be reviewed by staff for completeness and accuracy. If any deficiencies are found it will be returned to the applicant for revision. A Certificate of Occupancy for the structure will not be issued until an Elevation and /or Floodproofing Certificate has been accepted by the City.

FOR SURVEY CONTROL DATA,
SEE SURVEY DATA SHEET



LOCATION MAP

CITY OF NORMAN

PLAN OF PROPOSED

60TH AVENUE NE BRIDGE REPLACEMENT

BRIDGE & APPROACHES

CLEVELAND COUNTY

BRIDGE LOCATION NO. 14N3170E1210005 (NBI NO. 09189) (NEW NBI NO. 33246)

UTILITY OWNERS	
AT&T	(405) 291.5545
CITY OF NORMAN	(405) 366.5320
COX COMMUNICATIONS	(405) 417.4060
OEC	(405) 306.9380
OG&E	(405) 553.5785
ONG	(405) 556.6411

DESIGN DATA		
AADT 2023	=	1740
AADT 2045	=	2166
K	=	12%
D	=	50%
T (% DHV)	=	1%
T (% AADT)	=	2%
T3 (% AADT)	=	1%
V	=	50 MPH
20 YR. FLEX. ESALS	=	2.52 M

SCALES 1"

PLAN 1" = 50'

PROFILE HOR. 1" = 50'

VER. 1" = 5'

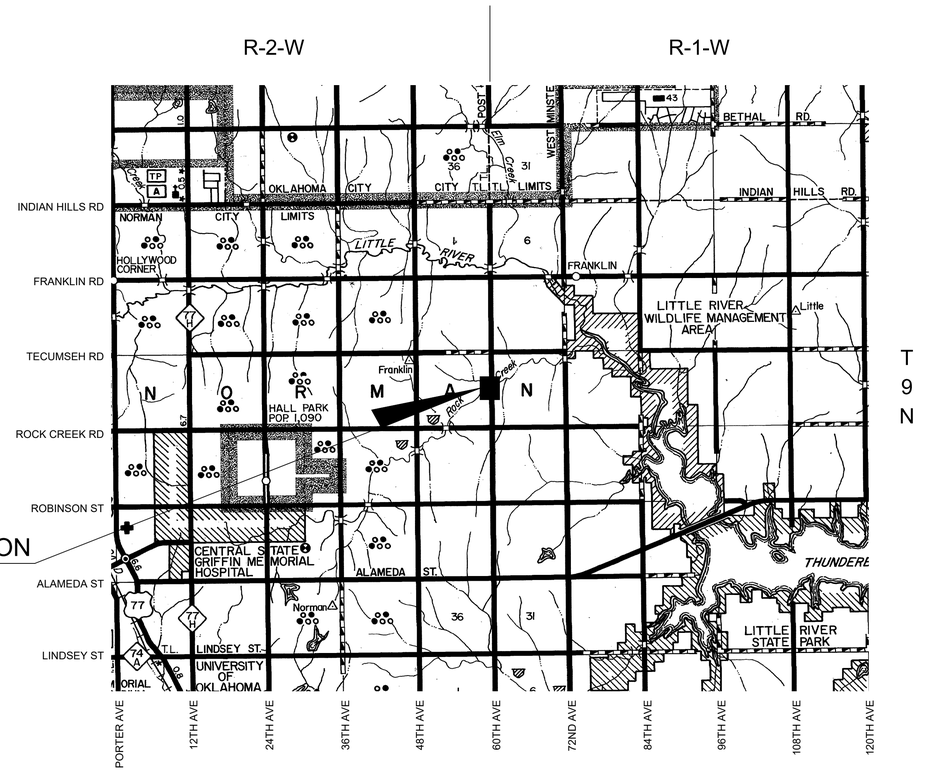
LAYOUT MAP 1" = 5280'

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 (+2% -2%)
- TELEPHONE & TELEGRAPH
- POWER LINES
- BUILDINGS
- DRAINAGE STRUCTURES - IN PLACE
- DRAINAGE STRUCTURES - NEW
- RIGHT-OF-WAY LINES - EXISTING (PRES. R/W)
- RIGHT-OF-WAY LINES - NEW (R/W)
- RIGHT-OF-WAY MARKERS - IN PLACE
- RIGHT-OF-WAY MARKERS - REMOVE & REPLACE
- RIGHT-OF-WAY MARKERS - NEW
- CONTROLLED ACCESS
- RIGHT-OF-WAY FENCE

PROJ. BEGIN STA. 10+79.70
BRIDGE BEGIN STA. 15+00.75
BRIDGE LENGTH = 100.92'
BRIDGE END STA. 16+01.67
PROJ. END STA. 22+31.13



INDEX OF SHEETS	
0001	TITLE SHEET
0002	TYPICAL SECTIONS
AB01-AB02	SUMMARY OF PAY QUANTITIES AND NOTES (BRIDGE)
AR01	SUMMARY OF PAY QUANTITIES AND NOTES (ROADWAY)
AR02	SUMMARIES (ROADWAY)
AW01	SUMMARY OF PAY QUANTITIES AND NOTES (WATERLINE)
B001-B002	GENERAL PLAN AND ELEVATION
B003	SUBSURFACE PROFILE
B004	STAKING DIAGRAM
B005-B007	ABUTMENT DETAILS
B008	ABUTMENT EXCAVATION AND UNDERDRAIN DETAILS
B009	TYPICAL SECTION
B010	LONGITUDINAL SECTION
B011	DECK LAYOUT
B012	DECK TURNDOWN DETAILS
B013	PARAPET DETAILS
B014	DIAPHRAGM DETAILS
B015	FRAMING PLAN
B016-B017	BEAM DETAILS
B018	BEARING DETAILS
B019-B020	APPROACH SLAB DETAILS
B021	DRAIN DETAILS
EC01	EROSION CONTROL
R001	STORM WATER MANAGEMENT PLAN
R002	PLAN AND PROFILE
R003	WATERLINE PLAN
R004	REMOVALS
S001	SURVEY DATA SHEET
T001	SIGNING AND STRIPING
X001-X013	CROSS SECTIONS

THE FOLLOWING ODOT STANDARDS SHALL BE REQUIRED ON THIS PROJECT:

ROADWAY		TRAFFIC SIGNING	TRAFFIC SAFETY	BRIDGE
BMPR-0	PSMD-2-2	PM1-1-03	SKT-1-00	TR3-2-01E
TESCA-0	SMD-4-2	SBS2-1-00	GHW1-1-00	HP1-2-01E
ECTRM1-0	CET4S-4-2	GMS1-1-00	GHW2-1-00	EJ-SQ-04E
ECTRM2-0	SPI-5-2	SSP1-1-02	DBF2-1-00	EJ-DTL-02E
IPD-0	PBB-1-2	SSA1-1-00		CB26..32-C..I-SKO..30-GRAU-BC-00E
RSF-0	FHTCP-4-1			
TSD-0	MI-4-2			
TFL-0	RDI-4-1			
TRFD-0	DC-4-1			
SCE-0	RWF1-3-1			
SSS-2-1	RWF2-3-1			
ASCD-6-1				

THE FOLLOWING CITY OF NORMAN STANDARDS SHALL BE REQUIRED ON THIS PROJECT:

GC 01	W 09A	ST 25
W 01	W 09B	ST 29
W 03	W 19	SD 01
W 04	ST 17	
W 08	ST 24	

2019 OKLAHOMA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION - ENGLISH GOVERN
APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION, DECEMBER 19, 2019.

CITY ENGINEERING DESIGN CRITERIA AND STANDARD SPECIFICATIONS AND CONSTRUCTION DRAWINGS
FOR STREET, STORMWATER, WATER LINES, AND SANITARY SEWERS AS APPROVED BY COUNCIL OF THE CITY OF NORMAN ON FEBRUARY 28, 2023.

ROADWAY LENGTH _____ 1051.51 FT. _____ 0.199 MI.
BRIDGE LENGTH _____ 100.92 FT. _____ 0.019 MI.
PROJECT LENGTH _____ 0.218 MI.

EQUATIONS: NONE

EXCEPTIONS: NONE

GARVER
750 SW 24th ST SUITE 200
MOORE, OK 73160
(405) 329-2555
OK COA #4193
EXPIRES 06/30/2024

LICENSED PROFESSIONAL ENGINEER
Jeffrey Rundle
27271
OKLAHOMA

Digitally signed by Jeffrey Rundle
Date: 2024.03.14 17:17:16-05'00'

JEFFREY RUNDLE, P.E.
OK. REG. NO. 27271
RESPONSIBLE FOR SHEETS:
AB01-AB02 & B001-B021

LICENSED PROFESSIONAL ENGINEER
Brett Moran
27739
OKLAHOMA

Digital Signature
2024.03.14 17:24:57-05'00'

BRETT MORAN, P.E.
OK. REG. NO. 27739
RESONSIBLE FOR SHEETS:
0001-0002, AR01-AR02,
AW01, EC01, R001-R004,
T001, & X001-X013

(1) THIS AREA TO BE BACKFILLED AND SODDED. THE BACKFILL SHALL BE INCLUDED IN OTHER ITEMS.

(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 ODOT STANDARD SPECIFICATIONS OR CITY OF NORMAN STANDARDS & SPECIFICATIONS SECTION 2104. 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 OPERATION 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 TOP SOIL. EARTHWORK QUANTITIES WERE NOT ADJUSTED FOR SALVAGE AND THE TOPSOIL QUANTITY IS INCLUDED IN THE MASS LINE BALANCE.

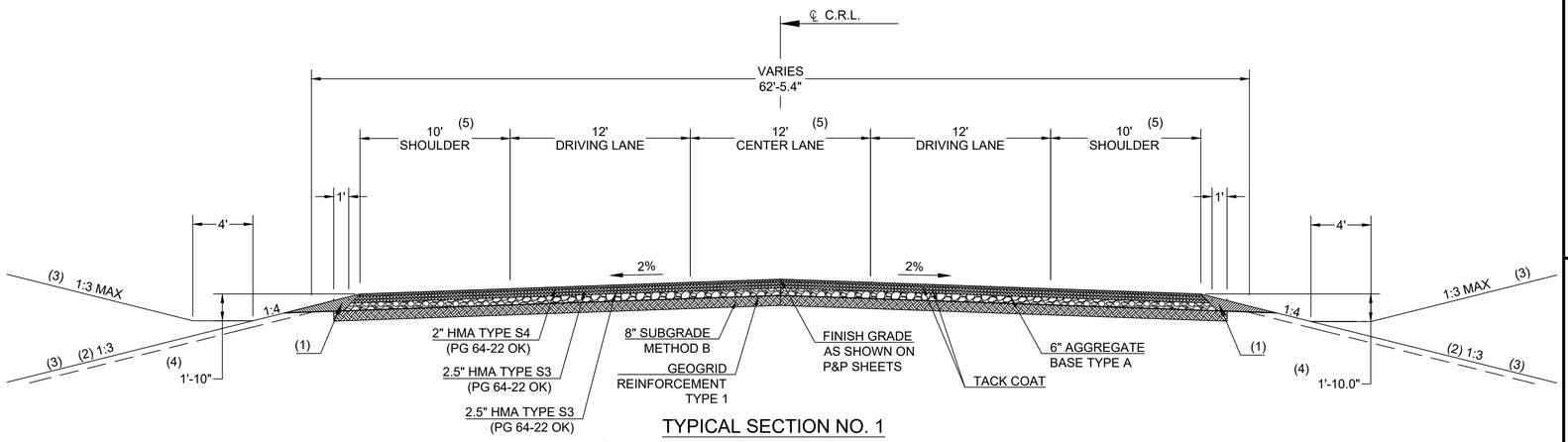
(3) SEE ROUNDING DETAIL THIS SHEET.

(4) DISTANCES ARE MEASURED VERTICALLY FROM THE EDGE OF THE FINISHED SHOULDER.

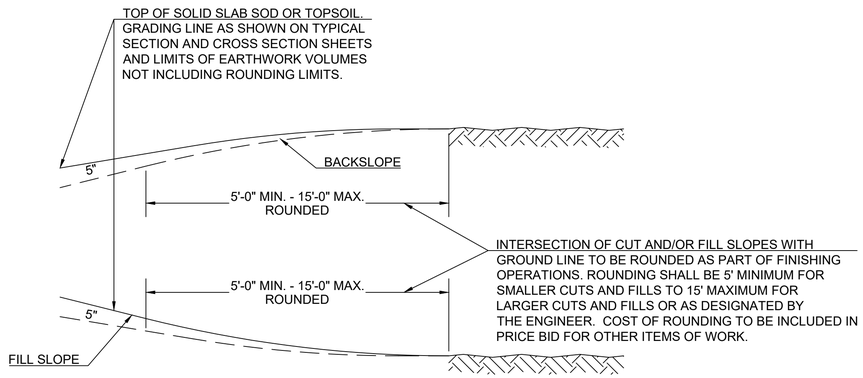
(5) FROM STA. 10+79.70 TO STA. 14+50.00 AND STA. 16+50.00 TO STA. 22+31.13, THE SHOULDERS' WIDTH VARIES FROM 0' TO 10' AND THE MIDDLE LANE'S WIDTH VARIES FROM 0' TO 12'

GENERAL NOTES:

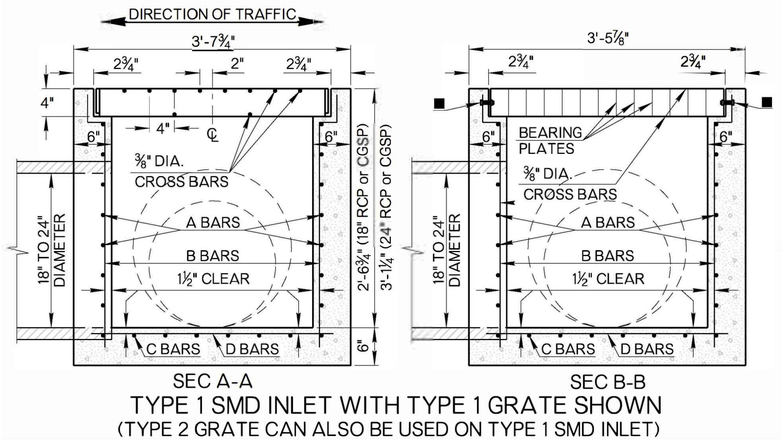
SEE CROSS SECTIONS FOR SLOPE VARIATIONS.



TYPICAL SECTION NO. 1
C.R.L. STA. 10+79.70 TO STA. 14+70.75
C.R.L. STA. 16+31.67 TO STA. 22+31.13



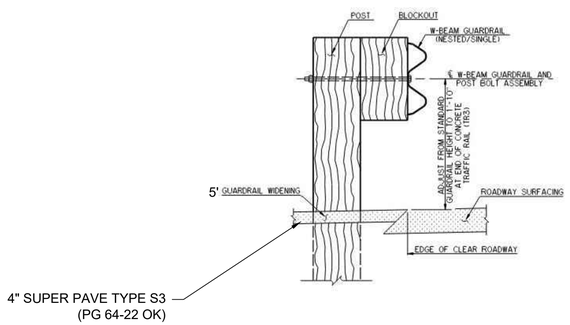
ROUNDING DETAIL



TYPE 1 SMD INLET WITH TYPE 1 GRATE SHOWN
(TYPE 2 GRATE CAN ALSO BE USED ON TYPE 1 SMD INLET)

NOTE:

FOR ADDITIONAL INFORMATION ON THE SMD'S, SEE ODOT STD SMD-4-2



GUARDRAIL WIDENING

NOTE:

FOR ADDITIONAL INFORMATION ON THE SMD'S, SEE ODOT STD CB26..32-C..I-SKO..30-GRAU-BC-00E.

100% PS&E SUBMITTAL

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE BRIDGE REPLACEMENT OVER ROCK CREEK

Typical Sections

JOB NO.: 22T28060
DATE: MAR 2024
DESIGNED BY: BDM
DRAWN BY: JHS

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

SHEET NUMBER 0002

GENERAL NOTES FOR BRIDGE

SPECIFICATIONS:
COMPLY WITH THE REQUIREMENTS OF THE 2019 OKLAHOMA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EXCEPT AS MODIFIED BY THE PLANS AND SPECIAL PROVISIONS.

REMOVAL OF EXISTING BRIDGE "A" STRUCTURE:
ITEM "REMOVAL OF EXISTING BRIDGE STRUCTURE" CONSISTS OF REMOVAL AND DISPOSAL OF A 15'-36'-15' I-BEAM STRUCTURE X 26'-0" CLEAR ROADWAY.

THE REMOVAL OF THE EXISTING STRUCTURE SHALL BE IN ACCORDANCE WITH SECTION 619.04.B.2 OF THE STANDARD SPECIFICATIONS AND IN A MANNER APPROVED BY THE ENGINEER.

THE EXISTING STRUCTURE SHALL BE REMOVED TO:

(A) 1'-0" BELOW THE SURROUNDING GROUND ELEVATION
(B) AS NEEDED TO FACILITATE CONSTRUCTION OF THE PROPOSED BRIDGE
(C) AS SHOWN ON THE PLANS

THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ANY MATERIALS, DEBRIS, OR REFUSE WHICH HAS FALLEN INTO ANY STREAM OR RIVER CHANNELS RESULTING FROM THE EXECUTION OF THE PROJECT AS SOON AS POSSIBLE. THE CONTRACTOR SHALL SUBMIT A BRIDGE DEMOLITION PLAN FOR APPROVAL BY THE CITY PRIOR TO PERFORMING ANY DEMOLITION ACTIVITIES. THE BRIDGE DEMOLITION PLAN SHALL INCLUDE A DETAILED DESCRIPTION OF THE ACTIVITIES TO BE PERFORMED AND THE METHODS USED TO ACHIEVE THEM.

THE STRUCTURE AND MATERIALS REMOVED DURING THIS PROJECT SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

ALL COSTS ASSOCIATED WITH THE REMOVAL OF THE EXISTING BRIDGE AS DESCRIBED ABOVE AND AS DIRECTED BY THE ENGINEER, INCLUDING LABOR, EQUIPMENT, AND INCIDENTALS SHALL BE INCLUDED IN THE PRICE BID PER LUMP SUM OF "REMOVAL OF EXISTING BRIDGE STRUCTURE".

STEEL PILE DRIVING EQUIPMENT:
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 REQUIRED ULTIMATE PILE CAPACITY WITHOUT EXCEEDING THE LIMITATIONS SET ON THE ALLOWABLE DRIVING STRESSES IN ACCORDANCE WITH SECTION 514.03 OF THE STANDARD SPECIFICATIONS.

STEEL PILING:
PROVIDE STRUCTURAL STEEL CONFORMING TO AASHTO M270 (GRADE 50) FOR STEEL PILING.

STEEL PILE CAPACITY:
THE FOLLOWING FORMULA (GATES EQUATION) SHALL BE USED TO DETERMINE THE AXIAL LOAD RESISTANCE OF THE DRIVEN FOUNDATION PILES:

$$\text{AXIAL LOAD RESISTANCE} = \Phi[(0.875\sqrt{E}\ \text{LOG}_{10}(10N))-50]\ \text{(TONS)}$$

WHERE:
- Φ = RESISTANCE FACTOR OF 0.4.
- E = ENERGY PRODUCED BY THE HAMMER PER BLOW IN FOOT-POUNDS. FOR GRAVITY AND SINGLE ACTING DIESEL HAMMERS, THE VALUE IS BASED ON THE ACTUAL RAM STROKE OBSERVED IN THE FIELD AND MEASURED IN FEET MULTIPLIED BY THE RAM WEIGHT IN POUNDS.
- N = AVERAGE NUMBER OF HAMMER BLOWS PER INCH OF PILE PENETRATION FOR THE LAST 10 TO 20 BLOWS DELIVERED TO THE PILE HEAD.

THE ABOVE FORMULA IS ONLY APPLICABLE WHEN:

1. THE PILE DRIVING HAMMER HAS A FREE FALL (GRAVITY AND SINGLE ACTING HAMMERS ONLY).
2. THE HEAD OF THE PILE IS NOT BROOMED, CRUSHED OR OTHERWISE DAMAGED.
3. THE PENETRATION IS QUICK AND UNIFORM.
4. THERE IS NO APPRECIABLE REBOUND OF THE HAMMER, AND
5. A FOLLOWER IS NOT USED.

THE NUMBER OF BLOWS PER INCH OF PILE PENETRATION MAY BE MEASURED EITHER DURING INITIAL DRIVING OR BY RE-DRIVING WITH A WARM HAMMER OPERATED AT FULL ENERGY AFTER A PILE SET PERIOD, AS DETERMINED BY THE ENGINEER.

IF WATER JETS ARE USED IN CONNECTION WITH THE DRIVING, DETERMINE THE AXIAL LOAD RESISTANCE BY THE FORMULA SHOWN ABOVE ONLY AFTER THE JETS HAVE BEEN WITHDRAWN.

SEE GENERAL PLAN AND ELEVATION SHEETS FOR FACTORED REACTION FOR EACH PILE.

CONCRETE INTERMEDIATE DIAPHRAGMS:
ONCE THE CONCRETE HAS BEEN PLACED FOR THE CONCRETE INTERMEDIATE DIAPHRAGMS, WAIT A MINIMUM OF 24 HOURS BEFORE REMOVING THE SIDE FORMS. DO NOT REMOVE THE BOTTOM FORM FOR A MINIMUM OF 3 DAYS, OR AT THE DISCRETION OF THE ENGINEER. THIS TIME CAN BE SHORTENED IF THE CONCRETE HAS ATTAINED 80% OF THE SPECIFIED COMPRESSIVE STRENGTH. DO NOT PLACE THE CONCRETE FOR THE DECK SLAB OR APPLY OTHER MASSIVE LOADS TO THE BEAMS OR DIAPHRAGMS UNTIL THE CONCRETE IN THE DIAPHRAGMS HAS BEEN IN PLACE FOR A MINIMUM OF 10 DAYS, OR AT THE DISCRETION OF THE ENGINEER. THIS TIME MAY BE SHORTENED IF THE CONCRETE HAS ATTAINED 80% OF THE SPECIFIED COMPRESSIVE STRENGTH.

CONCRETE:
ALL CONCRETE SHALL BE PLACED IN THE DRY. ALL EXPOSED EDGES SHALL HAVE A ¾" CHAMFER UNLESS NOTED OR SHOWN ON PLANS. ALL CHAMFER STRIPS SHALL BE SIZED LUMBER. ALL CLASS "A" AND CLASS "AA" CONCRETE SHALL BE AIR-ENTRAINED.

ALL CONCRETE IN THE SUPERSTRUCTURE, APPROACH SLABS & CONCRETE RAIL (TR3) SHALL BE CLASS "AA" CONCRETE, f'c = 4,000 P.S.I. MINIMUM STRENGTH AT 28 DAYS. ALL CONCRETE IN THE SUBSTRUCTURE SHALL BE CLASS "A" CONCRETE, f'c = 3,000 P.S.I. MINIMUM STRENGTH AT 28 DAYS.

CONCRETE SURFACES UNDER ALL BEAM SUPPORTS (BEARING ASSEMBLIES) SHALL BE GROUND WITH A CARBORUNDUM BRICK BEFORE PLACEMENT OF BEARING ASSEMBLY TO SECURE FULL BEARING OF ASSEMBLY ON CONCRETE. BEFORE BEARING ASSEMBLIES ARE SET, THE CONTRACTOR WILL CHECK BEARING SURFACES WITH REGARD TO LEVELNESS. THE MAXIMUM PERMISSIBLE SLOPE SHALL BE 0.5 %, WHICH SHOULD BE CHECKED ALONG AN AXIS PERPENDICULAR AND PARALLEL TO THE BEAM LINE. SLOPES EXCEEDING 0.5 % SHALL BE CORRECTED IN A MANNER APPROVED BY THE ENGINEER.

WHEN VIBRATING CONCRETE CONTAINING EPOXY COATED REINFORCING STEEL, THE VIBRATOR SHALL BE EQUIPPED WITH A PLASTIC TIP DESIGNED TO PREVENT DAMAGE TO THE EPOXY COATING.

REINFORCING:
ALL REINFORCING STEEL SHALL HAVE 2" CLEARANCE UNLESS SHOWN OR NOTED OTHERWISE. ALL REINFORCING STEEL SHALL BE DEFORMED BARS, COLD BENT WITH NO WELDS. BAR BEND DIMENSIONS ARE OUT TO OUT, UNLESS NOTED OTHERWISE. UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS, ALL REINFORCING STEEL SHALL CONFORM TO AASHTO M31 (ASTM A615), GRADE 60.

FIELD WELDING OF CROSSING REINFORCING BARS SHALL NOT BE PERMITTED. TACK WELDING OF REINFORCING BARS SHALL BE PROHIBITED IN ALL CASES.

ALL LONGITUDINAL TOP REINFORCING IN THE BRIDGE SLAB SHALL BE SUPPORTED ON APPROVED CONTINUOUS METAL HIGH CHAIRS SPACED AT 4'-0" MAXIMUM ON CENTERS AND THE BOTTOM LAYER OF REINFORCING STEEL SHALL BE SUPPORTED ON APPROVED METAL SLAB BOLSTERS SPACED AT 4'-0" MAXIMUM ON CENTERS.

STAY-IN-PLACE FORMS:
THE CONTRACTOR MAY USE STAY-IN-PLACE STEEL DECK FORMS IF THE MINIMUM DECK SLAB THICKNESS OF 8" IS OBTAINED BY MEASURING FROM THE TOP OF THE DECK SLAB TO THE TOP PORTION OF THE STEEL CORRUGATION. PREFORMED CORRUGATION FILLER, COMPOSED OF POLYSTYRENE OR OTHER MATERIAL, MAY BE USED IF BONDED TO THE DECK FORMS. NO ADDITIONAL CONCRETE WEIGHT OF THE DECK SLAB IS PERMITTED. THE TOTAL ADDITIONAL WEIGHT OF THE DECK FORM AND FILLER SHALL NOT EXCEED 5 P.S.F. ALL COSTS OF STAY-IN-PLACE STEEL DECK FORMS TO BE INCLUDED IN THE CONTRACT UNIT PRICE OF "CLASS AA CONCRETE".

DECK HAUNCHES:
SEE THE TYPICAL SECTION SHEET FOR THE PLAN QUANTITY FOR CLASS "AA" CONCRETE INCLUDED FOR THE HAUNCHES OVER THE BEAMS AND DIAPHRAGMS. THE HAUNCH HEIGHTS WILL BE CALCULATED BY THE CONTRACTOR FOR APPROVAL BY THE ENGINEER TO PROVIDE FOR DEAD LOAD DEFLECTION AND BEAM CAMBER.

STAINLESS STEEL FIXED BEARING ASSEMBLIES:
PROVIDE AND INSTALL FIXED BEARING ASSEMBLIES OF THE SIZE, SHAPE AND LOCATION AS SPECIFIED OR AS SHOWN IN THE PLANS. SEE THE BEARING DETAIL SHEETS FOR THE ESTIMATED AMOUNT OF STRUCTURAL STEEL REQUIRED FOR EACH FIXED BEARING ASSEMBLY.

ALL COST OF PROVIDING AND INSTALLING THE FIXED BEARING ASSEMBLIES AS SPECIFIED OR AS SHOWN IN THE PLANS INCLUDING THE COST OF STEEL REINFORCED ELASTOMERIC BEARING PADS, ANCHOR PLATES, CONTACT PLATES, ANCHOR BOLTS, NUTS, WASHERS, MATERIALS, LABOR, EQUIPMENT AND INCIDENTALS SHALL BE INCLUDED IN THE PRICE BID PER EACH OF "STAINLESS STEEL FIXED BEARING ASSEMBLY".

STAINLESS STEEL EXPANSION BEARING ASSEMBLIES:
PROVIDE AND INSTALL EXPANSION BEARING ASSEMBLIES OF THE SIZE, SHAPE AND LOCATION AS SPECIFIED OR AS SHOWN IN THE PLANS. SEE THE BEARING DETAIL SHEETS FOR THE ESTIMATED AMOUNT OF STRUCTURAL STEEL REQUIRED FOR EACH EXPANSION BEARING ASSEMBLY.

ALL COST OF PROVIDING AND INSTALLING THE EXPANSION BEARING ASSEMBLIES AS SPECIFIED OR AS SHOWN IN THE PLANS INCLUDING THE COST OF STEEL REINFORCED ELASTOMERIC BEARING PADS, ANCHOR PLATES, CONTACT PLATES, ANCHOR BOLTS, NUTS, WASHERS, MATERIALS, LABOR, EQUIPMENT AND INCIDENTALS SHALL BE INCLUDED IN THE PRICE BID PER EACH OF "STAINLESS STEEL EXP. BEARING ASSEMBLY".

SEALED EXPANSION JOINT:
THE SEALED EXPANSION JOINT SHALL BE CONSTRUCTED AS SHOWN IN THE PLANS AND IN ACCORDANCE WITH STANDARDS EJ-SQ-04E AND EJ-DTL-02E, UNLESS SHOWN OTHERWISE IN THE PLANS, AND IN A MANNER APPROVED BY THE ENGINEER.

ALL COSTS INCLUDING THE COST OF MATERIALS, LABOR, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR SHOWN IN THE PLANS SHALL BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF "SEALED EXPANSION JOINTS".

CONCRETE DECK FINISHING:
THE BRIDGE DECK FOR THIS PROJECT IS TO BE FINISHED WITH A MECHANICAL TYPE FINISHING MACHINE. OVERHANGING SLAB FORMS WILL BE REQUIRED TO BE OF SUFFICIENT STRENGTH TO SUPPORT THE WEIGHT OF THE CONCRETE, FORMS, FINISHING MACHINE AND OTHER CONSTRUCTION LOADS. PRIOR TO FINISHING OPERATIONS, A PROPOSAL STIPULATING THE TYPE OF FINISHING MACHINE AND THE FINISHING PROCEDURE WILL BE SUBMITTED TO THE ENGINEER. THIS PROPOSAL SHALL SET FORTH ANY AREAS IN WHICH A MECHANICAL FINISHER CANNOT BE USED AND THE METHODS FOR FINISHING THESE AREAS. CONCRETE SHALL NOT BE PLACED UNTIL THIS PROPOSAL IS APPROVED BY THE ENGINEER.

SAWED AND SEALED JOINTS:
THE SAWED & SEALED CONSTRUCTION JOINTS SHOWN IN THE PLANS SHALL BE SEALED WITH RAPID CURE JOINT SEALANT IN ACCORDANCE WITH SUBSECTION 701.08.G AND AS SHOWN IN THE PLANS.

APPROACH SLAB:
CLASS "AA" CONCRETE SHALL BE USED IN THE APPROACH SLABS WITH EPOXY COATED REINFORCING. THE QUANTITY GIVEN IS BASED ON THE ACTUAL SQUARE YARDS OF THE APPROACH SLABS. ALL COSTS OF CONCRETE, REINFORCING STEEL, LONGITUDINAL CONSTRUCTION JOINT SEALANT, SAWED AND SEALED CONSTRUCTION JOINT BETWEEN NEW DECK AND APPROACH SLAB, SAWING OF JOINTS, EXCAVATION, LABOR, EQUIPMENT, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SPECIFIED SHALL BE INCLUDED IN THE PRICE BID PER SQUARE YARD OF "APPROACH SLAB".

PENETRATING WATER REPELLENT SURFACE TREATMENT:
A PENETRATING WATER REPELLENT SURFACE TREATMENT SHALL BE APPLIED TO THE FOLLOWING CONCRETE SURFACES OF THE BRIDGE (SEE SHEET NO. B009):

1. EDGES AND UNDERSIDE CANTILEVER PORTION OF THE BRIDGE DECK.
2. ROADWAY, OUTER, INSIDE OF POST OPENINGS, AND TOP FACES OF THE TR3 CONCRETE RAIL.
3. FRONT, SIDES, AND EXPOSED AREAS OF ABUTMENT BACKWALL AND ABUTMENT SEAT NOT COVERED WITH ELASTOMERIC COATING.
4. OUTER FACE AND BOTTOM OF EXTERIOR BEAMS.

ALL COSTS ASSOCIATED WITH THE USE OF PENETRATING WATER REPELLENT SURFACE TREATMENT INCLUDING THE COST OF MATERIALS, LABOR, EQUIPMENT AND INCIDENTALS SHALL BE INCLUDED IN THE PRICE BID PER SQUARE YARD OF "WATER REPELLANT (VISUALLY INSPECTED)".

ELASTOMERIC COATING:
THE ELASTOMERIC COATING SHALL BE A LIQUID APPLIED URETHANE COATING SUCH AS CIM 1000 AS MANUFACTURED BY CIM INDUSTRIES, INC. PRODUCT INFORMATION FOR CIM-1000 CAN BE OBTAINED FROM LASTOR CASTOR CORP. OF TULSA, OKLAHOMA, PHONE NUMBER 918-234-7777.

THE ELASTOMERIC COATING SHALL BE APPLIED TO THE FOLLOWING CONCRETE SURFACES AS SHOWN IN THE PLANS:

1. FRONT, SIDES AND EXPOSED AREAS OF THE ABUTMENT SEATS AND BACKWALLS.

DO NOT PLACE THE ELASTOMERIC COATING UNDER BEARING PADS.

THE EQUIPMENT, METHODS, AND THICKNESS OF APPLYING THE URETHANE COATING 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 COATING SHALL BE 60 MILS DRY THICKNESS AND 68 MILS WET THICKNESS. IN ADDITION TO APPLYING THE COATING TO THE CONCRETE SUBSTRUCTURE UNITS AS SHOWN IN THE PLANS. THE COATING SHALL RETURN UP THE VERTICAL SURFACES OF THE ABUTMENT BEARING PADS TO PROVIDE A WATER TIGHT SEAL WITH THE CONCRETE PEDESTALS. SURFACE PREPARATIONS AND PRODUCT MIXING SHALL BE PER THE MANUFACTURER'S RECOMMENDATIONS AND ALL NEW CONCRETE SHALL HAVE A MINIMUM STRENGTH OF 3000 PSI AT THE TIME OF APPLICATION. PRIMER SHALL BE APPLIED TO THE CONCRETE SURFACES PRIOR TO APPLYING THE COATING. ALL CONCRETE WORK SHALL BE COMPLETED PRIOR TO THE APPLICATION OF THE COATING.

WATER REPELLENT WILL NOT BE REQUIRED ON SURFACES THAT ARE COATED WITH ELASTOMERIC COATING.

PAYMENT WILL BE MADE AT THE CONTRACT UNIT PRICE BID PER SQUARE FOOT OF "ELASTOMERIC COATING", WHICH PRICE SHALL BE FULL COMPENSATION FOR ALL MATERIALS, LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SPECIFIED.

DRAINS AT END OF BRIDGE:
ALL COSTS OF THE CONCRETE CURBS INCLUDING MATERIAL, LABOR, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SHOWN IN THE PLANS SHALL BE INCLUDED IN THE PRICE BID PER CUBIC YARD OF "CLASS C CONCRETE".

PERFORATED PIPE UNDERDRAIN:
THE ITEM "6" PERFORATED PIPE UNDERDRAIN ROUND" INCLUDES 60.00 FEET OF PERFORATED PIPE AND 9.00 CUBIC YARDS OF PIPE UNDERDRAIN COVER MATERIAL FOR EACH ABUTMENT. THE INSTALLATION OF PERFORATED PIPE AND PIPE UNDERDRAIN COVER MATERIAL SHALL BE AS SHOWN ON SHEET NO. B008.

ALL COSTS OF THE PERFORATED PIPE UNDERDRAIN INSTALLATION INCLUDING MATERIAL, LABOR, EQUIPMENT, AND INCIDENTALS SHALL BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF "6" PERFORATED PIPE UNDERDRAIN ROUND".

NON-PERFORATED PIPE UNDERDRAIN:
THE ITEM "6" NON-PERF.PIPE UNDERDRAIN RND." INCLUDES 22.00 FEET OF NON-PERFORATED PIPE AND 8.00 CUBIC YARDS OF PIPE UNDERDRAIN COVER MATERIAL FOR ABUTMENT NO. 1 AND 33.00 FEET OF NON-PERFORATED PIE AND 11.00 CUBIC YARDS OF PIPE UNDERDRAIN COVER MATERIAL FOR ABUTMENT NO. 2. THE INSTALLATION OF NON-PERFORATED PIPE AND PIPE UNDERDRAIN COVER MATERIAL SHALL BE AS SHOWN ON SHEET NO. B008.

ALL COSTS OF THE NON-PERFORATED PIPE UNDERDRAIN INSTALLATION INCLUDING MATERIAL, LABOR, EQUIPMENT, AND INCIDENTALS SHALL BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF "6" NON-PERF. PIPE UNDERDRAIN RND.".

RIPRAP:
A 2'-0" THICK LAYER OF TYPE I-A PLAIN RIPRAP WITH A 6" THICK LAYER OF TYPE I-A FILTER BLANKET SHALL BE PLACED AS SHOWN IN THE PLANS. THE FILTER BLANKET SHALL BE PLACED IN ONE LAYER.

ALL COSTS OF THE PLACEMENT OF FILTER BLANKET INCLUDING MATERIAL, LABOR, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SHOWN IN THE PLANS SHALL BE INCLUDED IN THE PRICE BID PER TON OF "TYPE I-A FILTER BLANKET".

ALL COSTS OF THE PLACEMENT OF RIPRAP INCLUDING MATERIAL, EXCAVATION, LABOR, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SHOWN IN THE PLANS SHALL BE INCLUDED IN THE PRICE BID PER TON OF "TYPE I-A PLAIN RIPRAP".

OTHER ITEMS OF WORK:
ANY ITEMS OF WORK NOT COVERED BY A PAY ITEM NEEDED TO COMPLETE THE WORK AS SPECIFIED OR SHOWN IN THE PLANS SHALL BE CONSIDERED INCIDENTAL TO OTHER ITEMS OF WORK.

GARVER

CA #4193 EXPIRES JUNE 30, 2024

100% PS&E SUBMITTAL

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE BRIDGE REPLACEMENT OVER ROCK CREEK

SUMMARY OF PAY QUANTITIES AND NOTES (BRIDGE) (SHEET 1 OF 2)

JOB NO.: 22T28060
DATE: MARCH 2023
DESIGNED BY: JTR
DRAWN BY: NBK

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER

SHEET NUMBER AB01

PAY QUANTITIES

BRIDGE "A" - NBI 33246 - 100' P.C. BEAM SPAN

	DESCRIPTION		UNIT	QUANTITY
501(B) 1300	SUBSTRUCTURE EXCAVATION COMMON	(BR-1)	CY	245.000
501(G) 1800	CLSM BACKFILL	(BR-1)	CY	305.800
503(A) 4240	PRESTRESSED CONCRETE BEAMS (TYPE IV)	(BR-1)	LF	598.000
504(A) 5200	APPROACH SLAB	(BR-1)	SY	387.800
504(B) 5300	SAW-CUT GROOVING	(BR-1)	SY	1,001.000
504(D) 5410	CONCRETE RAIL (TR3)	(BR-1)	LF	321.500
506(A) 7200	STRUCTURAL STEEL	(BR-1)	LB	660.000
507(A) 8200	STAINLESS STEEL FIXED BEARING ASSEMBLY	(BR-1)	EA	6.000
507(B) 8300	STAINLESS STEEL EXP. BEARING ASSEMBLY	(BR-1)	EA	6.000
509(A) 0210	CLASS AA CONCRETE	(BR-1)	CY	160.300
509(B) 0320	CLASS A CONCRETE	(BR-1)	CY	130.000
509(D) 0510	CLASS C CONCRETE	(BR-1)	CY	1.000
511(B) 2310	EPOXY COATED REINFORCING STEEL	(BR-1)	LB	64,120.000
514(A) 5210	PILES, FURNISHED (HP 10X42)		LF	248.000
514(A) 5220	PILES, FURNISHED (HP 12X53)		LF	1,298.000
514(B) 5310	PILES, DRIVEN (HP 10X42)		LF	248.000
514(B) 5320	PILES, DRIVEN (HP 12X53)		LF	1,298.000
514(L) 6300	PILE SPLICE, H-PILE (NON-BIDDABLE)		EA	1.000
515(A) 7200	WATER REPELLENT (VISUALLY INSPECTED)	(BR-1)	SY	473.000
517 9110	ELASTOMERIC COATING	(BR-1)	SF	634.000
518(B) 0300	SEALED EXPANSION JOINTS	(BR-1)	LF	57.800
601(B) 1230	TYPE I-A PLAIN RIPRAP		TON	880.000
601(C) 1310	TYPE I-A FILTER BLANKET		TON	180.000
613(H) 6205	6" PERFORATED PIPE UNDERDRAIN ROUND	(BR-1)	LF	120.000
613(I) 6310	6" NON-PERF.PIPE UNDERDRAIN RND.		LF	55.000
619(D) 6700	REMOVAL OF EXISTING BRIDGE STRUCTURE		LSUM	1.000

BR-1:
PAYMENT FOR THIS ITEM WILL BE BASED ON THE PLAN QUANTITIES ONLY. SEE SECTION 109.01.B OF THE 2019 STANDARD SPECIFICATIONS.

GARVER

CA #4193 EXPIRES JUNE 30, 2024

100% PS&E SUBMITTAL

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE BRIDGE REPLACEMENT OVER ROCK CREEK

SUMMARY OF PAY QUANTITIES AND NOTES (BRIDGE) (SHEET 2 OF 2)

JOB NO.: 22T28060
DATE: MARCH 2023
DESIGNED BY: JTR
DRAWN BY: JTR

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER

SHEET NUMBER AB02

ROADWAY GENERAL CONSTRUCTION NOTES

IN ACCORDANCE WITH THE OKLAHOMA UNDERGROUND FACILITIES DAMAGE PREVENTION ACT THE CONTRACTOR SHALL NOTIFY THE OKLAHOMA ONE-CALL SYSTEM, INC. 48 HOURS PRIOR TO BEGINNING EXCAVATION. OKLAHOMA ONE-CALL SYSTEM, INC. "CALL OKIE" 1-800-522-6543 OR 811.

FOR PROJECTS THAT INCLUDE WIDENING AND/OR RESURFACING, THE CONTRACTOR SHALL SCHEDULE OPERATIONS TO MINIMIZE POTENTIAL DROP-OFF HAZARDS AND SHALL SUBMIT A SEQUENCE OF CONSTRUCTION OPERATIONS TO THE ENGINEER FOR APPROVAL BEFORE OPERATIONS BEGIN. ANY PORTION OF THE CONSTRUCTION OPERATIONS, SUCH AS SUPERPAVE LAYING OPERATIONS, EXCAVATION FOR PAVEMENT WIDENING, OR EXTENSION OF ROADWAY STRUCTURES, SHALL BE LIMITED TO ONE SIDE AT A TIME, AND THE PROCEDURES OUTLINED IN THE PAVEMENT DROP-OFF TREATMENT STANDARD PDT-2 (LATEST REVISION) SHALL BE IMPLEMENTED. ONLY THAT AMOUNT OF OPEN TRENCH WILL BE ALLOWED THAT CAN BE SURFACED IN 1(ONE) DAY'S TIME WITHOUT APPROVAL BYTHE ENGINEER. LIGHTS, SIGNS AND BARRICADES SHALL BE MOVED AS WORK PROGRESSES.

ALL TREES, BRUSH, AND OTHER DEBRIS THAT MIGHT INTERFERE WITH THE FLOW OF WATER SHALL BE CLEANED OUT TO THE RIGHT-OF-WAY LINE, AT EACH STRUCTURE AND BRIDGE, IN A MANNER APPROVED BY THE ENGINEER. ALL COST TO BE INCLUDED IN OTHER ITEMS OF WORK.

THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY RIGHT-OF-WAY FENCE AS REQUIRED. WHEN THE PORTION OF THE PROJECT THAT REQUIRED THIS FENCE IS COMPLETED, THE TEMPORARY FENCE SHALL BE REMOVED, AND PERMANENT RIGHT- OF-WAY FENCING SHALL BE RESTORED OR INSTALLED IN A MANNER APPROVED BY THE ENGINEER. ALL COST OF TEMPORARY FENCING SHALL BE INCLUDED IN OTHER ITEMS OF WORK.

ALL FLOWLINES THAT ARE TO BE FILLED SHALL BE THOROUGHLY TAMPED BEFORE CONSTRUCTION OR EXTENSION OF DRAINAGE STRUCTURES. ALL COST TO BE INCLUDED IN OTHER ITEMS OF WORK.

IN ORDER TO ALLEVIATE DUST CONDITIONS DURING GRADING OPERATIONS AND BEFORE PAVEMENT WORK IS COMPLETED, THE CONTRACTOR SHALL SPRINKLE GRADING AT INTERVALS APPROVED BY THE ENGINEER. ALL COST TO BE INCLUDED IN OTHER ITEMS OF WORK.

THE CONTRACTOR SHALL NOT WASTE ANY EXCESS EXCAVATION UNTIL ALL PLANNED EMBANKMENTS AND BACKFILLS ARE COMPLETED. EXCESS UNCLASSIFIED EXCAVATION MATERIAL DETERMINED BY THE ENGINEER TO BE SUITABLE FOR BACKFILL SHALL BE USED TO REDUCE ANY UNCLASSIFIED BORROW COST OF SECOND HANDLING SHALL BE INCLUDED IN OTHER ITEMS OF ANY REMAINING EXCESS EXCAVATION SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND BE DISPOSED OF IN A MANNER APPROVED BY THE ENGINEER.

THE CONTRACTOR SHALL KEEP THE OPEN TRENCH DRAINED. COST TO BE INCLUDED IN OTHER ITEMS OF WORK.

AT THE BEGINNING OF TURFING OPERATIONS, ANY AREAS INCLUDED IN PLANNED QUANTITIES THAT HAVE GROWN A SATISFACTORY VOLUNTEER TURF OF PERENNIAL GRASS, AS DETERMINED BY THE ENGINEER, AND WATERED AS CALLED FOR ON THE PLANS, BUT SHALL NOT BE SEEDED, SODDED, OR SPRIGGED.

THE CONTRACTOR SHALL REMOVE AND RESET MAILBOXES AS NECESSARY. MAILBOXES ARE TO BE MAINTAINED IN AN UPRIGHT POSITION AND ACCESSIBLE TO MAIL CARRIER'S CAR DURING CONSTRUCTION. ANY DAMAGE TO BOXES OR SUPPORTS SHALL BE REPAIRED BY THE CONTRACTOR. ALL COST TO BE INCLUDED IN OTHER ITEMS OF WORK.

UNLESS OTHERWISE NOTED, SAWCUT IS TO BE INCLUDED IN ANY RELEVANT PAY ITEM AND WILL NOT BE PAID FOR SEPARATELY.

TRAFFIC GENERAL CONSTRUCTION NOTES

ANY SIGNS AND/OR DELINEATORS WHICH ARE TO BE REMOVED DURING THIS PROJECT WILL BE STORED IN A PROTECTED AREA DESIGNATED BY THE ENGINEER, UNTIL SUCH A TIME THAT THEY ARE TO BE RESET BY THE CONTRACTOR. COST OF THIS WORK TO BE INCLUDED IN OTHER ITEMS OF WORK.

REMOVED MATERIAL TO BECOME PROPERTY OF CONTRACTOR AND IT SHALL BE DISPOSED OF IN A MANNER APPROVED BY THE ENGINEER.

ANY DAMAGE CAUSED BY THE CONTRACTOR TO ANY STRUCTURES, ROADWAY SURFACES, STRIPING, RAISED PAVEMENT MARKERS, GUARDRAIL, SLOPES, AND SIGNS SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE ENGINEER.

ALL REGULATORY SIGNS SHALL HAVE HIGH INTENSITY SHEETING. THE HIGH INTENSITY SHEETING SHALL MEET THE REQUIREMENTS OF ASTM D4956-(LATEST REVISION) FOR TYPE III SHEETING.

ALL WARNING SIGNS SHALL HAVE FLUORESCENT YELLOW SHEETING. THE FLUORESCENT YELLOW SHEETING SHALL MEET THE REQUIREMENTS OF ASTM D4956-(LATEST REVISION) REQUIREMENTS FOR TYPE VIII SHEETING.

THE MANUFACTURER SHALL FURNISH A TYPE 'A' CERTIFICATION IN ACCORDANCE WITH ODOT STANDARD SPECIFICATIONS, LATEST EDITION, AND SUBSECTION 106.04. THE CERTIFICATION SHALL INCLUDE TEST RESULTS ON THE MATERIAL SUBMITTED FOR APPROVAL.

THE STATIONS AND LOCATIONS OF THE SIGN PLACEMENT, AS SHOWN ON THE PLAN SHEETS, ARE APPROXIMATE. EXACT STATIONS AND LOCATIONS SHALL BE DETERMINED BY THE CONTRACTOR SO THAT THE SIGN IS INSTALLED IN ACCORDANCE WITH DEPARTMENT STANDARDS AND THE MUTCD 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.

POST LENGTHS SHOWN ON SIGN SUMMARY ARE APPROXIMATE, EXACT LENGTH SHALL BE DETERMINED BY FIELD SURVEY BY THE CONTRACTOR.

ROADWAY PAY QUANTITY NOTES

(R-4) AN ESTIMATED QUANTITY OF 1,520 C.Y. TOPSOIL TO BE RESERVED FOR REPLACEMENT OF APPROXIMATELY 5" ON COMPLETED FORESLOPES, DITCHES, AND BACKSLOPES. THIS QUANTITY IS INCLUDED IN THE EARTHWORK BALANCE. ANY ADDITIONAL EXCAVATION REQUIRED IN CUT SECTIONS TO ALLOW FOR PLACEMENT OF TOPSOIL TO FINAL GRADE, SHALL BE INCLUDED IN THE PRICE BID.

(R-7) FOR SOLID SLAB SODDING, PRICE BID TO INCLUDE COST OF WATERING, ESTIMATED AT 40 GALLONS PER S.Y.

(R-8) PRICE BID TO INCLUDE COST OF ALL NECESSARY MAINTENANCE, MAINTAINING DEVICE IN PROPER UPRIGHT POSITION, REMOVAL OF DEVICE, AND REMOVAL OF SEDIMENT WHEN IT REACHES HALF THE HEIGHT OF THE DEVICE.

(R-11) THE QUANTITIES ESTIMATED FOR TEMPORARY EROSION AND SEDIMENT CONTROL IS 2.29 ACRES.

(R-15) QUANTITY BASED ON TWO APPLICATIONS.

(R-25) ESTIMATED AT 0.075 GALLONS PER SQUARE YARD OF ORIGINAL EMULSION OF TACK COAT (BEFORE DILUTION FOR APPLICATION) IN ACCORDANCE WITH SECTION 407 OF THE STANDARD SPECIFICATIONS.

(R-26) ESTIMATED AT 112 LBS. PER SQ. YD. PER 1" THICK.

(R-33) QUANTITY INCLUDES 8 C.Y. TO BE USED AS DIRECTED BY THE ENGINEER.

(R-35) THE PRECAST CONCRETE OPTION MAY BE USED INSTEAD, PER DIRECTION OF THE ENGINEER.

(R-39) INCLUDES REMOVAL OF ALL EXISTING ROADWAY DRAINAGE STRUCTURES, HEADWALLS (UNLESS OTHERWISE SPECIFIED), INLETS, FENCES, AND OTHER STRUCTURES WITHIN THE RIGHT OF WAY.

(R-40) TO BECOME THE PROPERTY OF AND BE DISPOSED OF BY THE CONTRACTOR IN A MANNER APPROVED BY THE ENGINEER.

(R-43) INCLUDES 2% FOR GROUND MEASUREMENT.

(R-44) ALL GATES AND GATE END POSTS FOR STRANDED WIRE FENCE (SWF) SHALL BE CONSTRUCTED AT THE SAME WIDTH AS THE EXISTING, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

TRAFFIC CONSTRUCTION PAY QUANTITY NOTES

(TC-25) ALL CONSTRUCTION TRAFFIC CONTROL WILL BE IMPLEMENTED ACCORDING TO CONSTRUCTION PLANS, AND INSTALLED IN A MANNER APPROVED BY THE ENGINEER, IN ACCORDANCE WITH CHAPTER VI OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, (CURRENT EDITION), AND COMPLIANT WITH APPLICABLE O.D.O.T. STANDARD DRAWINGS. PRICE BID FOR THIS ITEM SHALL BE PAYMENT IN FULL FOR THE INSTALLATION, MAINTENANCE AND SUBSEQUENT REMOVAL OF ALL NECESSARY CONSTRUCTION TRAFFIC CONTROL DEVICES AND PAVEMENT MARKINGS REQUIRED FOR COMPLETION OF THE PROJECT.

ALL SIGNS AND BARRICADES, WHICH ARE SHOWN WITH TYPE 'A' LIGHTS IN THE STANDARD DRAWINGS SHALL HAVE THE CORRESPONDING LIGHT ATTACHED DURING NON-DAYLIGHT HOURS.

TRAFFIC SIGNING PAY QUANTITY NOTES

(TS-19) QUANTITY SHOWN INCLUDES 0 L.F. TRAFFIC STRIPE (PLASTIC)(WHITE) AND 4500 L.F. TRAFFIC STRIPE(PLASTIC)(YELLOW) AND WILL BE MEASURED BY THE LINEAR FOOT OF FOUR INCH (4") WIDE TRAFFIC STRIPE.

(TS-20) QUANTITY SHOWN INCLUDES 2319 L.F. TRAFFIC STRIPE (PLASTIC)(WHITE) AND WILL BE MEASURED BY THE LINEAR FOOT OF SIX INCH (6") WIDE TRAFFIC STRIPE.

(TS-22) QUANTITY SHOWN INCLUDES 0 L.F. TRAFFIC STRIPE (PLASTIC)(WHITE) AND 526 L.F. TRAFFIC STRIPE(PLASTIC)(YELLOW) WILL BE MEASURED BY THE LINEAR FOOT OF TWELVE INCH (12") WIDE TRAFFIC STRIPE.

(TS-24) QUANTITY SHOWN INCLUDES 0 L.F. TRAFFIC STRIPE (MULTI-POLYMER)(WHITE) AND 404 L.F. TRAFFIC STRIPE(MULTI-POLYMER)(YELLOW) AND WILL BE MEASURED BY THE LINEAR FOOT OF FOUR INCH (4") WIDE TRAFFIC STRIPE.

(TS-25) QUANTITY SHOWN INCLUDES 202 L.F. TRAFFIC STRIPE (MULTI-POLYMER)(WHITE) AND 0 L.F. TRAFFIC STRIPE(MULTI-POLYMER)(BLACK) AND WILL BE MEASURED BY THE LINEAR FOOT OF SIX INCH (6") WIDE TRAFFIC STRIPE.

(TS-27) QUANTITY SHOWN INCLUDES 0 L.F. TRAFFIC STRIPE (MULTI-POLYMER)(WHITE) AND 51 L.F. TRAFFIC STRIPE(MULTI-POLYMER)(YELLOW) AND WILL BE MEASURED BY THE LINEAR FOOT OF TWELVE INCH (12") WIDE TRAFFIC STRIPE.

(TS-34) INCLUDED IN THIS PAY ITEM IS THE REMOVAL OF ANY EXISTING SIGNS TO BE REPLACED BY NEW ASSEMBLIES AND THE REMOVAL OF ANY EXISTING SIGNS THAT WILL BE IN CONFLICT WITH THE NEW ROADWAY OR NEW SIGNAGE.

PAY QUANTITY NOTES

(1) ALL REMOVED ITEMS RELATED TO CLEARING AND GRUBBING SHALL NOT BE DISPOSED IN ROCK CREEK. REMOVED ITEMS SHALL BE DISPOSED OFF SITE.

GENERAL CONSTRUCTION NOTES

ANY ITEMS OF WORK NOT COVERED BY A PAY ITEM SHALL BE CONSIDERED INCIDENTAL TO OTHER PAY ITEMS.

PAY QUANTITIES - ROADWAY

ITEM NO.	CODE NO.	DESCRIPTION		UNIT	QUANTITY
201(A)	1200	CLEARING AND GRUBBING	(1)	LSUM	1.00
202(A)	2200	UNCLASSIFIED EXCAVATION		CY	1,824.00
202(D)	2500	UNCLASSIFIED BORROW		CY	2,665.00
205(A)	6200	TYPE A-SALVAGED TOPSOIL	(R-4)	LSUM	1.00
221(B)	2300	TEMPORARY SILT FENCE	(R-8)	LF	2,546.00
221(C)	2400	TEMPORARY SEDIMENT FILTER	(R-8)	EA	4.00
221(E)	2600	TEMPORARY SILT DIKE	(R-8)	LF	144.00
221(F)	2720	TEMPORARY ROCK FILTER DAM TYPE 3	(R-8)	CY	186.00
221(G)	2800	TEMPORARY FIBER LOG	(R-8)	LF	570.00
228	5115	EROSION CONTROL MAT TYPE 3		SY	3,649.00
229	6100	DITCH LINER PROTECTION		LF	596.00
230(A)	7200	SOLID SLAB SODDING	(R-7)	SY	10,929.00
232(B)	9300	SEEDING METHOD B	(R-11)	AC	4.60
233(A)	0200	VEGETATIVE MULCHING	(R-11)	AC	4.60
241	3100	MOWING	(R-15)	AC	4.60
303(A)	1200	AGGREGATE BASE TYPE A		CY	786.00
310(B)	5300	SUBGRADE METHOD B		SY	4,928.00
326(B)	1300	GEOGRID REINFORCEMENT		SY	4,928.00
407(B)	7300	TACK COAT	(R-25)	GAL	690.00
411(B)	1330	SUPERPAVE, TYPE S3(PG 64-22 OK)	(R-26)	TON	1,307.00
411(C)	1430	SUPERPAVE, TYPE S4(PG 64-22 OK)	(R-26)	TON	505.00
509(D)	0500	CLASS C CONCRETE	(R-33)	CY	86.00
610(B)	5300	6" CONCRETE DRIVEWAY (H.E.S.)		SY	358.00
611(G)	0350	INLET (SMD-TYPE 1)	(R-35)	EA	4.00
613(A)	5208	18" R.C. PIPE CLASS III		LF	661.00
613(M)	6960	TYPE A4 CULVERT END TREATMENT		EA	6.00
619(A)	6200	REMOVAL OF STRUCTURES & OBSTRUCTIONS	(R-39,40)	LSUM	1.00
619(B)	6352	REMOVAL OF FENCE	(R-40)	LF	1,961.00
619(B)	6360	REMOVAL OF CONCRETE PAVEMENT	(R-40)	SY	167.00
619(B)	6364	REMOVAL OF ASPHALT PAVEMENT	(R-40)	SY	2,753.00
623(A)	1200	BEAM GUARDRAIL W-BEAM SINGLE		LF	50.00
623(F)	1724	GUARDRAIL ANCHOR UNIT (TYPE D-BF)		EA	4.00
623(G)	1800	GUARDRAIL END TREATMENT (GET)		EA	4.00
624(A)	3200	FENCE-STYLE WWF	(R-43)	LF	167.00
624(C)	3405	FENCE-STYLE SWF (5 BARBED WIRE)	(R-43,44)	LF	2,030.00
624(D)	3500	GATE, GALVANIZED STEEL		EA	1.00
624(D)	SPECIAL	REMOVE & RESET GATE		EA	1.00
629(D)	7500	REMOVE AND RESET MAILBOX		EA	2.00
SPEC.	SPECIAL	FLEXAMAT, COMPLETE IN PLACE		SY	502.00

PAY QUANTITIES - SURVEY

642(B)	3300	CONSTRUCTION STAKING LEVEL II	LSUM	1.00

PAY QUANTITIES - CONSTRUCTION

220	1100	SWPPP DOCUMENTATION AND MANAGEMENT	LSUM	1.00
242	4101	STABILIZED CONSTRUCTION EXIT	EA	2.00
641	2110	MOBILIZATION	LSUM	1.00

PAY QUANTITIES - TRAFFIC

805(A)	3252	(PL)REMOVAL OF EXISTING SIGNS	(TS-34)	EA	4.00
850(A)	1200	SHEET ALUMINUM SIGNS		SF	6.25
851(B)	2310	2 1/2"@5.79 GALV.STL.PIPE POST		LF	21.00
853	5115	DELINEATORS(TYPE 2, CODE 1)		EA	8.00
855(A)	7200	TRAFFIC STRIPE(PLASTIC)(4" WIDE)	(TS-19)	LF	4,500.00
855(A)	7204	TRAFFIC STRIPE(PLASTIC)(6" WIDE)	(TS-20)	LF	2,319.00
855(A)	7212	TRAFFIC STRIPE(PLASTIC)(12" WIDE)	(TS-22)	LF	526.00
856(A)	8200	TRAFFIC STRIPE(MULTI-POLY.)(4" WIDE)	(TS-24)	LF	404.00
856(A)	8204	TRAFFIC STRIPE(MULTI-POLY.)(6" WIDE)	(TS-25)	LF	202.00
856(A)	8212	TRAFFIC STRIPE(MULTI-POLY)(12" WIDE)	(TS-27)	LF	51.00
880(J)	7110	CONSTRUCTION TRAFFIC CONTROL	(TC-25)	LSUM	1.00

GARVER

CA #4193 EXPIRES JUNE 30, 2024

100% PS&E SUBMITTAL

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE BRIDGE REPLACEMENT OVER ROCK CREEK

Summary of Pay Quantities and Notes (Roadway)

JOB NO.: 22T28060
DATE: MAR 2024
DESIGNED BY: BDM
DRAWN BY: JHS

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

SHEET NUMBER AR01

File: L:\2022\22T28060 - Norman Bridge Reconstruction 60th-Porter\Drawings\60th Avenue NE\22T28060 - Notes PQ & Summaries.dwg Last Save: 2/2/2024 4:34 PM Last saved by: JHSmith
Last plotted by: Moran, Brett D Plot Style: ASBUILTS.1.ctb Plot Scale: 1.0.4255 Plot Date: 3/14/2024 1:01 PM Plotter used: DWG To PDF.pc3

SIGN SUMMARY

SIGN NO.	ALIGNMENT	Station				SIGN TYPE	SIGN THICKNESS 0.063"	SIGN THICKNESS 0.080"	SIGN THICKNESS 0.100"	POSTS 14 GA.	POSTS 14 GA.	POSTS 12 GA.	POSTS 12 GA.	GUARDRAIL DELINEATORS (TYPE2, CODE1)	REMARKS
							SHEET ALUMINUM SIGNS			2-1/4" SQUARE TUBE POST		2-1/2" SQUARE TUBE POST			
							850(A)			851(C)				853	
						(STD.)	(S.F.)	(S.F.)	(S.F.)	POST A (L.F.)	POST B (L.F.)	POST A (L.F.)	POST B (L.F.)	(EA.)	
1	60th CRL	14+50			Rt	I-3	-	3.125	-	-	-	10.5	-		INSTALL NEW SIGN (Rock Creek)
2		16+60			Lt	I-3	-	3.125	-	-	-	10.5	-		INSTALL NEW SIGN (Rock Creek)
		14+30	TO	14+70	Lt	Type 2, Code 1	-	-	-	-	-	-	-	2	INSTALL GUARDRAIL DELINEATOR UNITS
		14+33	TO	14+70	Rt	Type 2, Code 1	-	-	-	-	-	-	-	2	INSTALL GUARDRAIL DELINEATOR UNITS
		16+31	TO	16+70	Lt	Type 2, Code 1	-	-	-	-	-	-	-	2	INSTALL GUARDRAIL DELINEATOR UNITS
		16+31	TO	16+71	Rt	Type 2, Code 1	-	-	-	-	-	-	-	2	INSTALL GUARDRAIL DELINEATOR UNITS
						SUB TOTALS:	0	6.25	0	0	0	21	0	8	
						TOTALS:	6.25			0.00		21.00		8	

SUMMARY OF DRIVEWAYS

LOCATION				TYPE	WIDTH	LENGTH	RADII		6" CONCRETE DRIVEWAY 610(B)	REMARKS
ALIGNMENT	STATION	LT	RT		FT	FT	LT	RT	SY	
60th CRL	12+33.14		x	Drive	22	51.34	20	20	145.00	
	14+03.90		x	Drive	14	55.91	15	15	103.00	
	14+10.36	x		Drive	14	63.43	15	15	110.00	
								TOTALS:	358.00	

SUMMARY OF FENCE

SHEET NO.	STATION	TO	STATION	FENCE STYLE WWF 624(A)	FENCE STYLE SWF (3BW) 624(C)	GATE, GALVANIZED STEEL 624(D)	REMOVE & RESET GATE 624(D)
				LF	LF	EA	EA
R002	10+50.91	TO	11+96.00	163.00	-	-	-
R002	12+58.69	TO	14+79.16	-	264.00	1.00	-
R002	12+60.45	TO	14+79.13	-	287.00	-	1.00
R002	16+23.91	TO	22+32.71	-	697.00	-	-
R002	16+24.14	TO	22+99.69	-	742.00	-	-
			TOTALS:	163.00	1,990.00	1.00	1.00

SUMMARY OF MAILBOXES

STATION AND LOCATION				REMOVE & RESET MAILBOXES 629(E)
				EA
11+61.72	11'	Lt		1.00
14+16.11	5'	Lt		1.00
			TOTALS:	2.00

SUMMARY OF REMOVALS

STATION	TO	STATION	REMOVAL OF FENCE 619(B)	REMOVAL OF CONCRETE PAVEMENT 619(B)	REMOVAL OF ASPHALT PAVEMENT 619(B)
			LF	SY	SY
10+79.70	TO	15+15.59			1,167.45
15+83.99	TO	22+31.13			1,585.05
12+30.58	TO			166.09	
10+50.91	TO	11+95.97	148.86		
12+57.38	TO	15+02.02	284.07		
12+58.99	TO	14+24.19	191.02		
15+73.67	TO	22+31.13	658.65		
15+85.32	TO	22+31.13	648.94		
16+17.77	TO	16+17.77	29.20		
		TOTALS:	1,960.74	166.09	2,752.50

SUMMARY OF DRAINAGE STRUCTURES

STRUCTURE NO.	ALIGNMENT	STATION	DESCRIPTION	DESIGN STANDARD	EROSION CONTROL: TYPE 1-A PLAIN RIPRAP 601(B) TON	EROSION CONTROL: TYPE 1-A FILTER BLANKET 601(C) TON	EROSION CONTROL: FILTER FABRIC (RIPRAP) 601(I) SY	INLETS: INLET (SMD-TYPE 2) 611(G) EA	PIPES: 18" R.C. PIPE CLASS III 613(A) LF	CET: A4 613(M) EA	SUBSIDIARY: * STANDARD BEDDING MATERIAL, CLASS B CY	SUBSIDIARY: * TRENCH EXCAVATION CY	STRUCTURE NO.	REMARKS
1	60th CRL	13+50.00	SIDE DRAIN CONST. 1 - 18" x 158.6 L.F. RCP W/ 1 CET & 1 SMD I	PSMD-2-2, SMD-4-2, CET4S-4-2, SPI-5-2, PBB-1-2, FHTCP-4-1				1.00	158.62	1.00	44.00	112.00	1	
2	60th CRL	13+80.04	SIDE DRAIN CONST. 1 - 18" x 134.1 L.F. RCP W/ 1 CET & 1 SMD I	PSMD-2-2, SMD-4-2, CET4S-4-2, SPI-5-2, PBB-1-2, FHTCP-4-1				1.00	134.12	1.00	37.00	94.00	2	
3	60th CRL	17+50.00	SIDE DRAIN CONST. 1 - 18" x 169.5 L.F. RCP W/ 1 CET & 1 SMD I	PSMD-2-2, SMD-4-2, CET4S-4-2, SPI-5-2, PBB-1-2, FHTCP-4-1				1.00	169.52	1.00	47.00	119.00	3	
4	60th CRL	17+50.00	SIDE DRAIN CONST. 1 - 18" x 158.4 L.F. RCP W/ 1 CET & 1 SMD I	PSMD-2-2, SMD-4-2, CET4S-4-2, SPI-5-2, PBB-1-2, FHTCP-4-1				1.00	158.38	1.00	-	-	4	
5	60th CRL	12+29.97	SIDE DRAIN CONST. 1 - 18" x 40.3 L.F. RCP W/ 2 CET	PSMD-2-2, SMD-4-2, CET4S-4-2, SPI-5-2, PBB-1-2, FHTCP-4-1					40.30	2.00	12.00	28.00	5	
				TOTAL:	-	-	-	4.00	660.94	6.00	140.00	353.00		

* FOR CONTRACTOR'S INFORMATION ONLY. COST INCLUDED IN PRICE BID FOR PIPE.

Striping Summary

Information			Yellow Thermoplastic (Asphalt)			Yellow Multipolymer			White Thermoplastic (Asphalt)					White Multipolymer (Concrete)					Pavement Markings		
Sheet	Sta	- Sta	12" Solid	4" Dbl Solid	4" Solid	12" Solid	4" Dbl Solid	4" Solid	24" Solid	12" Solid	6" Solid	# of 10' Dashes	6" Dashes	24" Solid	12" Solid	6" Solid	# of 10' Dashes	6" Dashes	Arrows	Symbols	Words
1 Top	10+00.00	- 15+50.00	210.53	1,843.60	-	50.46	403.68	-	-	-	921.80	-	-	-	-	-	-	-	-	-	-
1 Bottom	15+50.00	- 23+00.00	314.73	2,655.58	-	-	-	-	-	-	1,396.66	-	-	-	-	201.84	-	-	-	-	-
		Totals:	**525.26**	**4,499.18**	**-**	**50.46**	**403.68**	**-**	**-**	**-**	**2,318.46**	**-**	**-**	**-**	**-**	**201.84**	**-**	**-**	**-**	**-**	**-**

SUMMARY OF EARTHWORK QUANTITIES

CONSTRUCTION EXTENTS	UNCLASSIFIED EXCAVATION 202(A) CY	EMBANKMENT C.Y.	* EMBANKMENT 15% CY	EXCESS UNCLASSIFIED EXCAVATION CY	UNCLASSIFIED BORROW 202(D) CY	** WASTE CY	REMARKS
BOP to EOP	1,824	3,903	4,488	-	2,664		
TOTALS:	**1,824**	**3,903**	**4,488**	**-**	**2,664**	**-**	

SUMMARY OF DITCH TREATMENT

P&P SHEET NO.	STATION AND LOCATION			LENGTH	CONCRETE LINER: BOTTOM WIDTH	CONCRETE LINER: CURTAIN WALLS	CONCRETE LINER: DITCH LINER PROTECTION 229	CONCRETE LINER: CLASS C CONCRETE 509(D)	DES. NO.
				LF	LF	EA	LF	CY	
R002	10+79.70	TO 13+55.00	Lt	275	4	4	275	35.8	2A
R002	10+79.70	TO 14+00.00	Rt	320	4	5	320	41.8	2A
			TOTALS:		9		**596**	**77.6**	

REMOVAL OF STRUCTURES & OBSTRUCTIONS

SURVEY C. L. STATION	DESCRIPTION
11+62.65	Drop Inlet 23.42' Rt
11+81.28	37.29' 15" RCP
12+31.66	37.26' 12" CMP
12+58.58	3" Steel Post 29.04' Rt
14+10.87	40.80' 12" CMP

SUMMARY OF SURFACING QUANTITIES

STATION AND LOCATION				AGGREGATE BASE TYPE A 303(A)	SUBGRADE, METHOD B 310(B)	GEOGRID REINFORCEMENT TYPE 1 326(B)	TACK COAT 407(B)	SUPERPAVE, TYPE S3(PG 64-22 OK) 411(B)	SUPERPAVE, TYPE S4(PG 64-22 OK) 411(C)
				CY	SY	SY	GAL	TON	TON
MAINLINE									
10+79.70	TO	14+70.75		312.00	1,955.00	1,955.00	274.00	252.78	200.19
16+31.67	TO	22+31.13		474.00	2,973.00	2,973.00	416.00	384.28	304.31
10+79.70	TO	14+70.75		-	-	-	-	255.31	-
16+31.67	TO	22+31.13		-	-	-	-	388.16	-
			TOTALS:	**786.00**	**4,928.00**	**4,928.00**	**690.00**	**1,280.53**	**504.50**

SUMMARY OF GUARD RAIL

STATION AND LOCATION				SUPERPAVE, TYPE S3 (PG 64-22 OK) 411(B)	BEAM GUARDRAIL W-BEAM SINGLE 623(A)	GUARDRAIL ANCHOR UNIT (TYPE D-BF) 623(F)	GUARDRAIL END TREATMENT (GET) 623(G)
				TON	LF	EA	EA
14+29.92	TO	14+70.75	Lt	6.70	12.50	1.00	1.00
14+32.52	TO	14+70.75	Rt	7.20	12.50	1.00	1.00
16+31.67	TO	16+69.89	Lt	6.20	12.50	1.00	1.00
16+31.67	TO	16+71.43	Rt	6.10	12.50	1.00	1.00
			TOTALS:	**26.20**	**50.00**	**4.00**	**4.00**

SUMMARY OF FLEXAMAT

SHEET NO.		STATION	TO	STATION	FLEXAMAT SY
R002		14+16.75	TO	14+79.15	140.14
R002		14+12.09	TO	14+79.15	121.24
R002		16+24.09	TO	16+78.57	90.27
R002		16+23.92	TO	16+78.45	149.66
				TOTALS:	**502.00**

SUMMARY OF SEDIMENT & EROSION CONTROL

			TEMPORARY: SILT FENCE 221(C)	SILT DIKE 221(F)	FIBER LOG 221(G)	TEMPORARY ROCK FILTER DAM TYPE 3 221(F)	EROSION CONTROL MAT TYPE 3 228	SEEDING METHOD B 232(B)	VEGETATIVE MULCHING 233(A)	PERMANENT: SOLID SLAB SODDING 230(A)	* WATERING	* TYPE-A SALVAGED TOPSOIL
STATION	TO	STATION	LF	LF	LF	CY	SY	AC	AC	SY	K GAL	CY
10+50.32	TO	14+04.05						0.59	0.59	1,426.00	57.10	198.00
14+18.05	TO	15+48.65						0.43	0.43	1,019.00	40.80	142.00
15+87.38	TO	23+00.00						1.17	1.17	2,823.00	113.00	392.00
10+50.67	TO	11+74.70						0.30	0.30	717.00	28.70	100.00
11+88.69	TO	12+19.63						0.07	0.07	156.00	6.30	22.00
12+41.63	TO	14+19.06						0.37	0.37	875.00	35.00	122.00
13+72.81	TO	14+35.95						0.04	0.04	80.00	3.20	11.00
14+54.02	TO	15+23.50						0.30	0.30	704.00	28.20	98.00
15+95.57	TO	23+00.00						1.30	1.30	3,129.00	125.20	435.00
BOP	TO	EOP	2,545.40			185.85	3,648.78					
13+57.89	TO	14+94.33			150.00							
13+79.75	TO	14+98.41			120.00							
16+06.65	TO	17+42.68			150.00							
16+09.45	TO	17+46.62			150.00							
10+79.70	TO	13+60.00		-								
10+79.70	TO	13+90.00		-								
17+50.00	TO	22+31.13		72.00								
17+50.00	TO	22+31.13		72.00								
		TOTALS:	**2,545.40**	**144.00**	**570.00**	**185.85**	**3,648.78**	**4.57**	**4.57**	**10,929.00**	437.50	1,520.00

* FOR CONTRACTOR'S INFORMATION ONLY, COST TO BE INCLUDED IN THE PRICE BID FOR OTHER WORK.

GARVER

CA #4193 EXPIRES JUNE 30, 2024

100% PS&E SUBMITTAL

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE BRIDGE REPLACEMENT OVER ROCK CREEK

Summaries (Roadway)

JOB NO.: 22T28060
DATE: MAR 2024
DESIGNED BY: BDM
DRAWN BY: JHS

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

SHEET NUMBER AR02

File: L:\2022\22T28060 - Norman Bridge Reconstruction 60th-Porter\Drawings\60th Avenue NE\22T28060 - Notes PQ & Summaries.dwg Last Saved: 2/2/2024 4:34 PM Last saved by: JHSmith
Last plotted by: Moran, Brett D Plot Style: ASBUILTS.1.ctb Plot Scale: 1:0.4255 Plot Date: 3/14/2024 1:01 PM Plotter used: DWG To PDF.pc3

GENERAL CONSTRUCTION NOTES:

1. ALL WATER LINE CONSTRUCTION INCLUDING MEANS, METHODS, AND MATERIALS SHALL FOLLOW THE CITY OF NORMAN STANDARD SPECIFICATIONS AND CONSTRUCTION DRAWINGS (LATEST EDITION).

2. ONLY NORMAN UTILITIES AUTHORITY PERSONNEL MAY OPERATE EXISTING WATER LINE VALVES, INCLUDING FOR FLUSHING OPERATIONS. FOR THE PURPOSES OF FLUSHING NEWLY INSTALLED WATER LINES, NORMAN UTILITIES AUTHORITY CAN TYPICALLY ASSIST WITH OPERATING VALVES WITH A MINIMUM OF 24 HOURS NOTICE.

3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL UTILITY LINES AND STRUCTURES REGARDLESS WHETHER OR NOT THEY ARE SHOWN ON THESE PLANS. DURING CONSTRUCTION AND WORK ASSOCIATED WITH THESE PLANS, THE CONTRACTOR SHALL CARRY OUT OPERATIONS IN SUCH A MANNER AS TO PRECLUDE DAMAGE TO ANY EXISTING UTILITIES OR STRUCTURES. ANY SUCH DAMAGE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

4. CONTRACTOR SHALL VERIFY EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UTILITIES, SPECIFICALLY AT CRITICAL POINTS, PRIOR TO INITIATION OF THE WORK OF THE APPROVED PLANS. VERIFICATION OF SIZE AND CONSTRUCTION MATERIAL (I.E. PVC, DIP, RCP, ETC.) SHALL ALSO BE PERFORMED DURING THESE ACTIVITIES.

5. ALL WASTE MATERIAL RECOVERED FROM CONSTRUCTION ACTIVITIES SHALL BECOME THE CONTRACTOR'S PROPERTY AND SHALL BE DISPOSED OF IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS. ON A DAILY BASIS THE CONTRACTOR SHALL CLEAN UP AND DISPOSE OF ANY AND ALL SPILLS OF WASTEWATER AND/OR FLUSHING MATERIALS IMMEDIATELY UPON OCCURRENCE. ALL HANDLING AND DISPOSAL SHALL BE ACCOMPLISHED IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS.

6. CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY UPON ENCOUNTERING ANY CIRCUMSTANCE THAT MAY RESULT IN A VARIANCE FROM THE APPROVED PLANS. VARIANCE FROM THE PLANS WITHOUT APPROVAL FROM THE OWNER AND ENGINEER SHALL BE AT THE RISK OF THE CONTRACTOR.

7. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK SHOWN IN THE PLAN SET, REGARDLESS OF ITS PRESENCE OR ABSENCE IN THE SUMMARY OF QUANTITIES.

8. ALL WORK REQUIRING TEMPORARY SHUTDOWN OF WATER SERVICE(S) SHALL BE COMPLETED AT LOW DEMAND TIMES. THE CONTRACTOR SHALL PROVIDE A MINIMUM OF SEVEN (7) DAYS NOTICE FOLLOWED BY THREE (3) DAYS NOTICE TO THE CITY AND THE AFFECTED PROPERTY OWNERS PRIOR TO TAKING ANY WATER LINE OUT OF SERVICE, OR TEMPORARY DISRUPTION OF SERVICE. UPON RECEIPT OF 7-DAY NOTICE, NORMAN UTILITY AUTHORITY RESERVES THE RIGHT TO REQUIRE THAT CONTRACTOR CONVENE A COORDINATION MEETING WITH NORMAN UTILITY AUTHORITY PERSONNEL BEFORE SHUTDOWN IS APPROVED.

9. CONTRACTOR SHALL COORDINATE ALL WORK WITH PROPERTY OWNERS ADJACENT TO, OR IMPACTED BY, THE WORK OF THE PROJECT.

10. THE CONTRACTOR SHALL ATTEND ALL MEETINGS SCHEDULED BY THE ENGINEER AND/OR OWNER. MEETINGS SHALL BE ATTENDED BY THE CONTRACTOR'S SUPERINTENDENT OR QUALIFIED REPRESENTATIVE WHO IS AUTHORIZED TO DISCUSS AND MAKE DECISIONS REGARDING THE PROJECT.

11. CONTRACTOR SHALL REMOVE FROM THE PROJECT SITE AND DISPOSE OF ALL CONSTRUCTION DEBRIS DISTURBED DURING CLEARING AND EXCAVATION ON A DAILY BASIS.

12. CONTRACTOR SHALL COMPLY WITH ALL CITY OF NORMAN ORDINANCES WHEN STOCKPILING AND STORING MATERIALS AND EQUIPMENT.

13. CONTRACTOR IS RESPONSIBLE FOR ACQUIRING ANY ADDITIONAL TEMPORARY CONSTRUCTION EASEMENTS NECESSARY TO PERFORM HIS WORK. ALL COST OF SAID TEMPORARY EASEMENTS SHALL BE INCLUDED IN OTHER ITEMS. ALL SURFACE RESTORATION TO SAID TEMPORARY EASEMENTS SHALL BE TO THE SATISFACTION OF THE PROPERTY OWNER AND ALL COST OF RESTORATION SHALL BE INCLUDED IN OTHER ITEMS.

14. THE CONTRACTOR, AT THEIR EXPENSE, SHALL PROVIDE AN ELECTRICAL OR MECHANICAL DEVICE OR USE SUCH OTHER MEANS HE MAY SELECT TO LOCATE ANY HIDDEN UTILITY LINE, OIL OR GAS PIPELINE, WATER PIPELINE, SEWER PIPELINE, COMMUNICATION AND TELEPHONE LINE, AND LOCATE SUCH LINES OR STRUCTURES SHOWN ON THE PLANS AND ANY UNCHARTED LINE OR STRUCTURE WHETHER SHOWN ON THE PLANS OR NOT, AND PROTECT, ADJUST TO GRADE, DISCONNECT AND REPLACE, RELOCATE AND REPLACE, REMOVE, PROVIDE SUPPORTS DURING THE CONSTRUCTION AND SETTLEMENT OF BACKFILL AND PROTECT AGAINST FREEZING OR UNNECESSARY DAMAGE BY THE ELEMENTS OF EXISTING UTILITY LINES, OIL OR GAS PIPELINES, WATER PIPELINES, SEWER PIPELINES, COMMUNICATION AND TELEPHONE LINES, RAILROAD RIGHT-OF-WAY LINES AND OTHER STRUCTURES AND SHALL PAY ALL FEES TO COUNTY, CITY, STATE, OR FEDERAL AGENCIES WHICH MAY BE REQUIRED IN THE PERFORMANCE OF THIS WORK. THE CONTRACTOR SHALL MAKE SATISFACTORY ARRANGEMENTS WITH THE OWNERS OF SUCH STRUCTURES FOR PERFORMING THE WORK. THE CONTRACTOR SHALL NOT BE ENTITLED TO ANY ADDITIONAL PAYMENT FOR SUCH WORK.

15. FOR ANY TREES THAT REQUIRE PRUNING OR LIMBING FOR CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL COORDINATE WITH THE CITY OF NORMAN SEVEN (7) DAYS PRIOR TO THE SCHEDULED DATE OF WORK.

16. CONTRACTOR SHALL PROTECT AND MAINTAIN TRAFFIC SIGNAL POLES, WIRES, APPURTENANCES AND STRUCTURES.

17. CONTRACTOR SHALL NOTIFY ENGINEER OF DAMAGE TO UTILITIES AND/OR APPURTENANCES DURING CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR AND/OR REPLACE ANY AFFECTED ITEMS.

18. PROVIDE VALVES AT BOT ENDS OF WATER CROSSINGS SO THAT THE SECTION CAN BE ISOLATED FOR TESTING OR REPAIR. THE VALVES MUST BE EASILY ACCESSIBLE AND NOT SUBJECT TO FLOODING. THE VALVE CLOSEST TO THE SUPPLY SOURCE MUST BE IN A MANHOLE, AND MAKE PERMANENT TAPS ON EACH SIDE OF THE VALVE WITHIN THE MANHOLE TO ALLOW INSERTION OF A SMALL METER FOR TESTING TO DETERMINE LEAKAGE AND FOR SAMPLING PURPOSES.

PAY ITEM NOTES

W1. TRENCHING, BEDDING, SELECT BACKFILL MATERIAL, TRACER WIRE, HYDROSTATIC PRESSURE TESTING, AND DISINFECTION SHALL BE INCLUDED IN THE COST OF THE PIPE. HYDROSTATIC PRESSURE TESTING AND DISINFECTION SHALL BE PERFORMED TO ODEQ STANDARDS.

W2. TREE REMOVAL, IF NECESSARY, SHALL BE INCLUDED IN THE COST OF MOBILIZATION/DEMOLITION.

W3. COST SHALL INCLUDE ALL FITTINGS (E.G. SOLID SLEEVE), MATERIALS, LABOR, AND EQUIPMENT NECESSARY TO MAKE THE CONNECTION TO THE EXISTING WATER MAIN.

W4. COST FOR BACKFILL ROCK UNDER ALL PAVEMENT TO BE INCLUDED IN THIS PAY ITEM AND WILL NOT BE PAID FOR SEPARATELY.

ITEM NO.	DESCRIPTION		UNIT	TOTAL QUANTITY
1	(12-INCH) POLYVINYL CHLORIDE PIPE (DR-18) BY OPEN TRENCH	(W1),(W-4)	LF	886.00
2	BORING WITH STEEL CASING PIPE (W/ 12" CARRIER PIPE)		LF	70.00
3	REMOVE AND RELOCATE FIRE HYDRANT		EA	2.00
4	12" SOLID SLEEVE		EA	2.00
5	12" X 6" TEE (MJ)		EA	2.00
6	6" GATE VALVE (MJ)		EA	2.00
7	12" GATE VALVE (MJ)		EA	4.00
8	WET CONNECTION (12")	(W3)	EA	2.00
9	12" X 45° BEND (MJ)		EA	8.00
10	12" x 11 1/4° BEND (MJ)		EA	2.00
11	PRE-/POST-CONSTRUCTION AUDIO/VIDEO RECORDING		LS	1.00
12	SEDIMENT AND EROSION CONTROL		LS	1.00
13	MOBILIZATION/DEMOBILIZATION	(W-2)	LS	1.00
14	SOLID SLAB SODDING		SY	985.00
15	LEAK DETECTION BY-PASS METER ASSEMBLY (COMPLETE)		EA	1.00

LEAK DETECTION BY-PASS METER ASSEMBLY FOR UNDERWATER CROSSINGS

100% PS&E SUBMITTAL

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE BRIDGE REPLACEMENT OVER ROCK CREEK

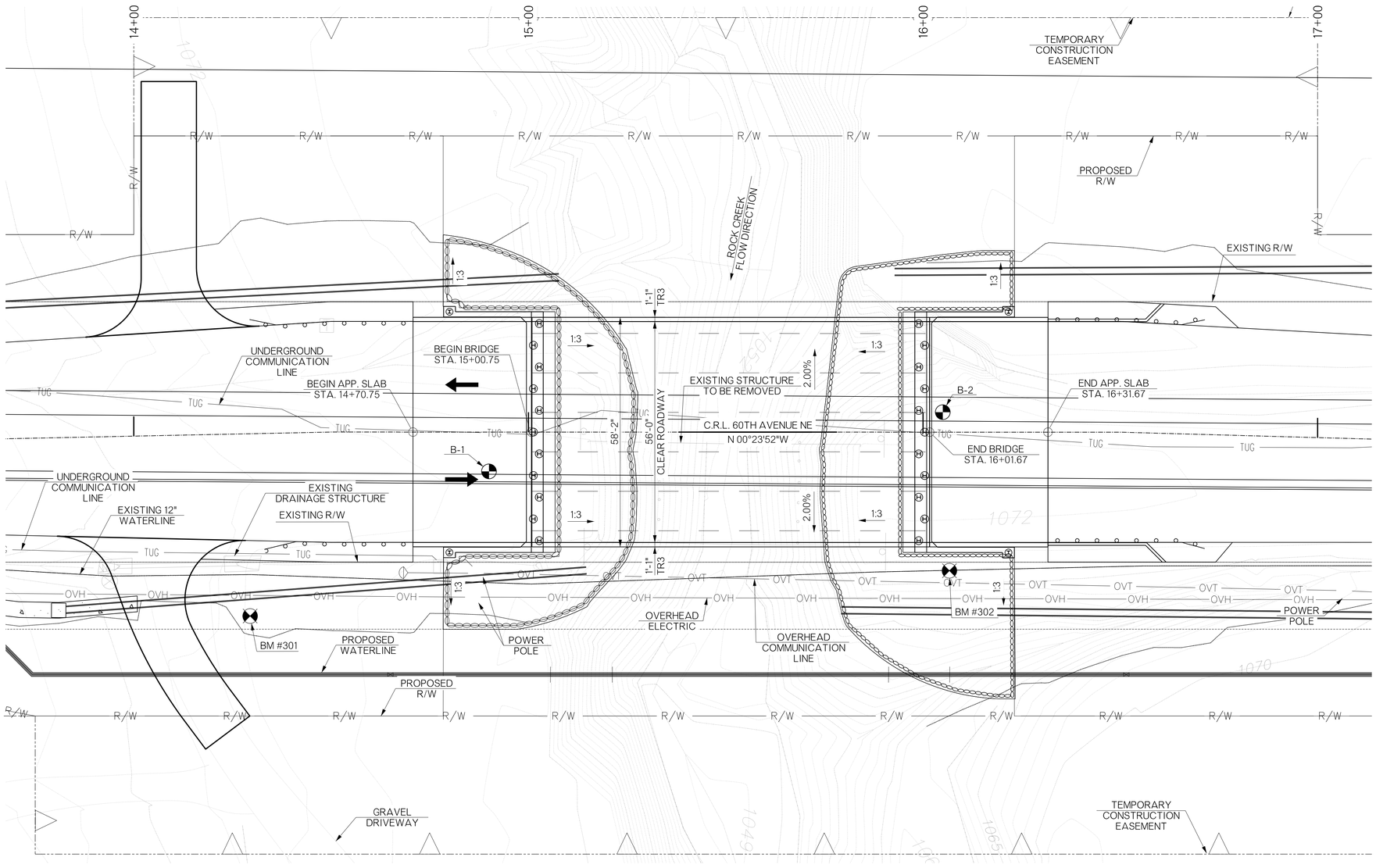
Summary of Pay Quantities and Notes (Waterline)

JOB NO.: 22T28060
DATE: MAR 2024
DESIGNED BY: BDM
DRAWN BY: JHS

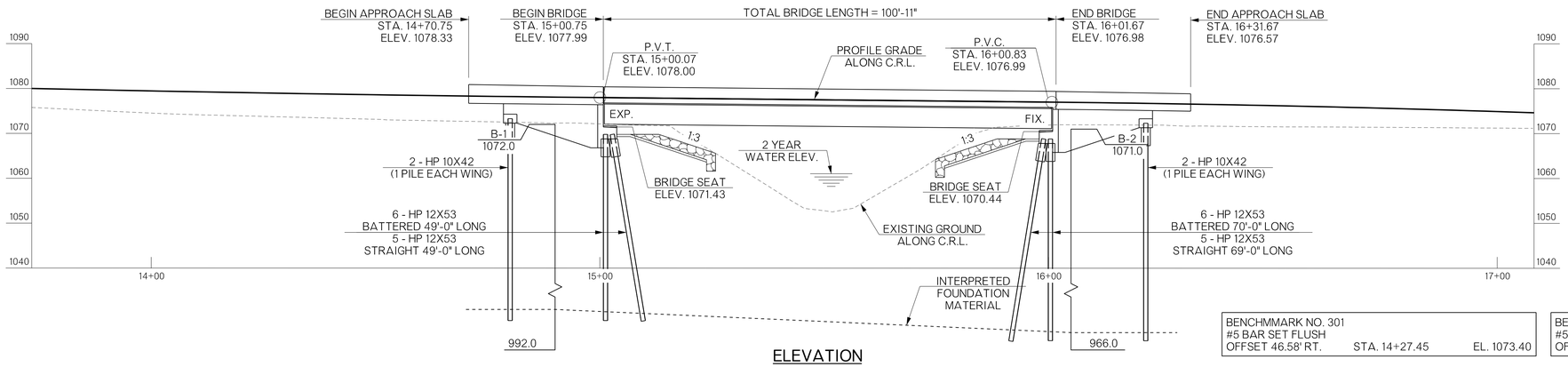
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

SHEET NUMBER AW01

File: L:\2022\22T28060 - Norman Bridge Reconstruction 60th-Porter\Drawings\60th Avenue NE\22T28060 - Waterline Notes & Pay Quantities.dwg Last Save: 10/13/2023 2:28 PM Last saved by: JHSmith
Last plotted by: Moran, Brett D. Plot Style: ASBUILTS.1.ctb Plot Scale: 1:0.4255 Plot Date: 3/14/2024 1:01 PM Plotter used: DWG To PDF.pc3



PLAN



ELEVATION

FOR SUBSURFACE PROFILE, SEE SHEET NO. B003.

BENCHMMARK NO. 301		
#5 BAR SET FLUSH		
OFFSET 46.58' RT.	STA. 14+27.45	EL. 1073.40

BENCHMMARK NO. 302		
#5 BAR SET FLUSH		
OFFSET 35.13' RT.	STA. 16+07.49	EL. 1070.58

0 15 30 45
SCALE 1" = 15'

N

GARVER

CA #4193 EXPIRES JUNE 30, 2024

100% PS&E SUBMITTAL

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE BRIDGE REPLACEMENT OVER ROCK CREEK

GENERAL PLAN & ELEVATION (SHEET 1 OF 2)

CONSTRUCT NEW 100' P.C. BEAM SPAN W/ CONCRETE RAIL (TR3) W/ 56'-0" CLEAR ROADWAY AT ℄ STRUCTURE STA. 15+51.21

JOB NO.: 22T28060
DATE: AUGUST 2023
DESIGNED BY: JTR
DRAWN BY: JTR

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER

SHEET NUMBER B001

INDEX OF SHEETS

STANDARDS

TR3-2-01E
HP1-2-01E
EJ-SQ-04E
EJ-DTL-02E
CB26..32-C..I-SKO..30-GRAU-BC-00E

DESIGN DATA
(LOAD AND RESISTANCE FACTOR DESIGN)

CLASS AA CONCRETE	F'C = 4,000 P.S.I.
CLASS A CONCRETE	F'C = 3,000 P.S.I.
REINFORCING STEEL (GRADE 60)	FY = 60,000 P.S.I.
STRUCTURAL STEEL (M270, GR. 50W)	FY = 50,000 P.S.I.
STRUCTURAL STEEL (PILING) (M270, GR. 50)	FY = 50,000 P.S.I.
STAINLESS STEEL A240 (TYPE 316)	FY = 30,000 P.S.I.

LOADING: HL93 AND 20 P.S.F. FUTURE WEARING SURFACE OR OKLAHOMA OVERLOAD TRUCK, 20 P.S.F. FUTURE WEARING SURFACE, AND 5 P.S.F. STAY-IN-PLACE FORMS.

DESIGN: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION WITH CURRENT INTERIMS.

ANSI/AASHTO/AWS: D1.5 BRIDGE WELDING CODE
ANSI/AASHTO/AWS: D1.6 STRUCTURAL WELDING CODE - STAINLESS STEEL

LFD OPERATING RATING: HS 65.2

FOUNDATION DATA
ABUTMENT CAPS (HP 12X53 PILING) (1)

	ABUTMENT NO. 1	ABUTMENT NO. 2
FACTORED PILE REACTION (TONS/PILE)	= 87.8	= 87.8
PILE LENGTH (FEET)	= 49.0	= 69.0

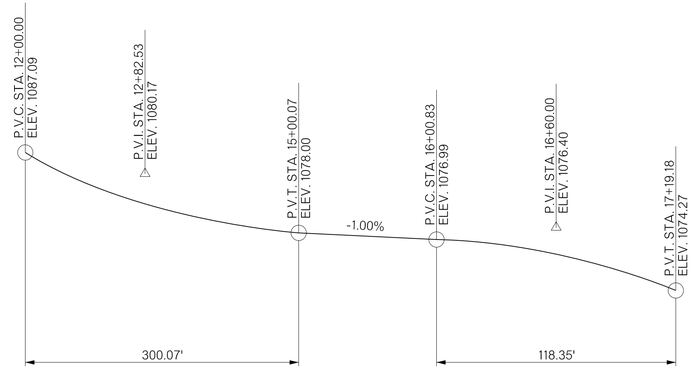
(1) ALL ABUTMENT PILING SHALL BE DRIVEN THROUGH COMPACTED FILL. PILING SHALL BE DRIVEN TO POINT BEARING ON SOLID FOUNDATION MATERIAL AT THE APPROXIMATE ELEVATION SHOWN ON THE PLANS. IF THE AXIAL LOAD RESISTANCE IS NOT OBTAINED AT THIS ELEVATION, DRIVING SHALL CONTINUE UNTIL THE AXIAL LOAD RESISTANCE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

HYDRAULIC SUMMARY

FREQ.	Q (CFS)	CHW (FT)	V (FPS)
2	1,073	1060.91	7.37
5	2,002	1063.59	8.67
10	2,801	1065.36	9.39
25	3,984	1067.54	9.96
50	5,218	1069.49	10.14
100	6,319	1070.82	10.13

SUMMARY OF QUANTITIES

ITEM	UNIT	ABUTMENTS	SUPER-STRUCTURE	APPROACH SLABS	TOTAL
SUBSTRUCTURE EXCAVATION COMMON	CY	245.00	-	-	245.00
CLSM BACKFILL	CY	305.80	-	-	305.80
PRESTRESSED CONCRETE BEAMS (TYPE IV)	LF	-	598.00	-	598.00
APPROACH SLAB	SY	-	-	387.80	387.80
SAW-CUT GROOVING	SY	-	627.00	374.00	1,001.00
CONCRETE RAIL (TR3)	LF	-	201.50	120.00	321.50
STRUCTURAL STEEL	LB	-	660.00	-	660.00
STAINLESS STEEL FIXED BEARING ASSEMBLY	EA	-	6.00	-	6.00
STAINLESS STEEL EXP. BEARING ASSEMBLY	EA	-	6.00	-	6.00
CLASS AA CONCRETE	CY	-	160.30	-	160.30
CLASS A CONCRETE	CY	130.00	-	-	130.00
CLASS C CONCRETE	CY	1.00	-	-	1.00
EPOXY COATED REINFORCING STEEL	LB	20,040.00	44,080.00	-	64,120.00
PILES, FURNISHED (HP 10X42)	LF	248.00	-	-	248.00
PILES, FURNISHED (HP 12X53)	LF	1,298.00	-	-	1,298.00
PILES, DRIVEN (HP 10X42)	LF	248.00	-	-	248.00
PILES, DRIVEN (HP 12X53)	LF	1,298.00	-	-	1,298.00
PILE SPLICE, H-PILE (NON-BIDDABLE)	EA	-	-	-	1.00
WATER REPELLENT (VISUALLY INSPECTED)	SY	82.00	341.00	50.00	473.00
ELASTOMERIC COATING	SF	634.00	-	-	634.00
SEALED EXPANSION JOINTS	LF	-	57.80	-	57.80
TYPE I-A PLAIN RIPRAP	TON	880.00	-	-	880.00
TYPE I-A FILTER BLANKET	TON	180.00	-	-	180.00
6" PERFORATED PIPE UNDERDRAIN ROUND	LF	120.00	-	-	120.00
6" NON-PERF.PIPE UNDERDRAIN RND.	LF	55.00	-	-	55.00
REMOVAL OF EXISTING BRIDGE STRUCTURE	LSUM	-	-	-	1.00



VERTICAL CURVE PROFILE DATA

CA #4193 EXPIRES JUNE 30, 2024

100% PS&E SUBMITTAL

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE BRIDGE REPLACEMENT OVER ROCK CREEK

GENERAL PLAN & ELEVATION (SHEET 2 OF 2)

CONSTRUCT NEW 100' P.C. BEAM SPAN W/ CONCRETE RAIL (TR3) W/ 56'-0" CLEAR ROADWAY AT ℄ STRUCTURE STA. 15+51.21

JOB NO.: 22T28060
DATE: MARCH 2023
DESIGNED BY: JTR
DRAWN BY: NBK

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER

SHEET NUMBER B002

BORING NO. B-1

STA. 14+90.00, 10.00' RT.
TOTAL DEPTH = 80.0 FT.

1075.0
1070.0
1065.0
1060.0
1055.0
1050.0
1045.0
1040.0
1035.0
1030.0
1025.0
1020.0
1015.0
840.0
1005.0
1000.0
995.0
990.0
985.0
980.0
975.0
970.0
965.0
960.0

1072.0 — SPT-1; R=18; N=19; WC=9.0%; PF=25.0% --- 1071.0

SPT-2; R=18; N=8; WC=13.2% --- 1068.5

REDDISH DARK BROWN, LOOSE BELOW 6'

SPT-3; R=18; N=4; WC=12.6%; PF=44.0% --- 1066.0

RED, VERY LOOSE BELOW 8.5'

SPT-4; R=18; N=3; WC=11.1% --- 1063.5

SILTY SAND (SM)
BROWNISH RED, MEDIUM DENSE

MEDIUM DENSE BELOW 13.5'

SPT-5; R=18; N=12; WC=12.6%; LL=17; PL=14; PI=3; PF=35.0% --- 1058.5

WATER LEVEL AFTER DRILLING --- 1057.0

1053.5 — SPT-6; R=6; N=3; WC=16.3% --- 1053.5

CLAYEY SAND
DARK BROWNISH RED, VERY LOOSE

1048.5 — SPT-7; R=14; N=5; WC=18.6%; PF=24.0% --- 1048.5

WATER LEVEL WHILE DRILLING --- 1048.5

SPT-8; R=18; N=2; WC=19.9% --- 1043.5

VERY LOOSE BELOW 28.5'

SILTY SAND (SM)
RED, LOOSE

1038.5 — SPT-9; R=18; N=3; WC=22.1%; LL=20; PL=12; PI=8; PF=47.0% --- 1038.5

CLAYEY SAND (SC)
REDDISH BROWN, VERY LOOSE

1033.5 — SPT-10; R=13; N=2; WC=24.3% --- 1033.5

SILTY SAND (SM)
REDDISH BROWN, VERY LOOSE

SPT-11; R=18; N=10; WC=21.5%; LL=18; PL=15; PI=3; PF=40.0% --- 1028.5

TRACE SANDSTONE FRAGMENTS,
MEDIUM DENSE BELOW 43.5'

1023.5 — SPT-12; N=50/4"; WC=12.9% --- 1023.5

TOP OF ROCK --- 1023.5

TCP-13; N=50/1.00", 50/0.50" --- 1022.0

TCP-14; N=50/1.88", 50/0.38" --- 1017.0

WEATHERED SILTSTONE
LIGHT RED, MODERATELY HARD TO HARD

TCP-15; N=50/0.63", 50/0.38" --- 1012.0

TCP-16; N=50/0.31", 50/0.06" --- 1007.0

TCP-17; N=50/0.63", 50/0.44" --- 1002.0

TCP-18; N=50/0.38", 50/0.06" --- 997.0

992.0 — TCP-19; N=50/0.00", 50/0.00" --- 992.0

BORING NO. B-2

STA. 16+05.00, 5.00' LT.
TOTAL DEPTH = 105.0 FT.

1071.0 — SPT-1; R=18; N=19; WC=10.4%; --- 1070.0

CLAYEY SAND (SC)
BROWNISH RED, MEDIUM DENSE

1067.5 — SPT-2; R=18; N=6; WC=13.7%; LL=25; PL=14; PI=11; PF=83.0% --- 1067.5

LEAN CLAY WITH SAND (CL)
BROWNISH RED, MEDIUM STIFF

SPT-3; R=14; N=6; WC=10.2%; --- 1065.0

DARK BROWN BELOW 6'

1062.5 — SPT-4; R=15; N=14; WC=14.4%; LL=36; PL=16; PI=20; PF=92.0% --- 1062.5

LEAN CLAY (CL)
DARK BROWN, STIFF

SPT-5; R=16; N=11; WC=12.2%; --- 1057.5

1052.5 — SPT-6; R=6; N=5; WC=20.3%; LL=20; PL=12; PI=8; PF=53.0% --- 1052.5

WATER LEVEL WHILE DRILLING --- 1051.0

DARK BROWN BELOW 23.5'

SANDY LEAN CLAY (CL)
BROWNISH RED, SOFT

SPT-7; R=12; N=6; WC=17.7%; --- 1047.5

1042.5 — SPT-8; R=18; N=5; WC=23.8%; LL=28; PL=12; PI=16; PF=72.0% --- 1042.5

DARK BROWN, STIFF BELOW 33.5'

LEAN CLAY WITH SAND (CL)
REDDISH DARK BROWN, SOFT
SOFT BELOW 38.5'

SPT-9; R=18; N=9; WC=25.6%; --- 1037.5

SPT-10; R=16; N=4; WC=23.9%; LL=25; PL=12; PI=13; PF=73.0% --- 1032.5

1027.5 — SPT-11; R=17; N=3; WC=18.7%; --- 1027.5

SPT-12; R=18; N=2; WC=20.6%; LL=20; PL=15; PI=5; PF=37.0% --- 1022.5

BROWNISH RED BELOW 48.5'

SILTY CLAYEY SAND (SC-SM)
DARK BROWN, VERY LOOSE

SPT-13; R=18; N=2; WC=22.6%; --- 1017.5

1014.5 — SPT-14; R=18; N=10; WC=19.2%; LL=21; PL=15; PI=6; PF=57.0% --- 1012.5

SANDY SILTY CLAY (CL-ML)
BROWNISH RED, STIFF

SPT-15; R=18; N=10; WC=19.2%; --- 1007.5

1002.5 — SPT-16; R=18; N=64; WC=12.4%; LL=25; PL=13; PI=12; PF=65.0% --- 1002.5

TOP OF ROCK --- 1002.5

SPT-17; N=42-50/1.00"; WC=11.9% --- 997.5

TCP-18; N=50/1.06", 50/0.25" --- 996.0

TCP-19; N=50/1.50", 50/1.00" --- 991.0

TCP-20; N=50/0.38", 50/0.19" --- 986.0

WEATHERED SILTSTONE
BROWNISH RED, SOFT TO HARD

TCP-21; N=50/0.50", 50/0.19" --- 981.0

TCP-22; N=50/0.88", 50/0.38" --- 976.0

TCP-23; N=50/0.44", 50/0.25" --- 971.0

966.0 — TCP-24; N=50/0.88", 50/0.19" --- 966.0

LEGEND

SPT	= STANDARD PENETRATION TEST, ASTM D1586
N	= NUMBER OF BLOWS PER 12 INCHES
WC	= WATER CONTENT
LL	= LIQUID LIMIT
PI	= PLASTICITY INDEX
PF	= PERCENT FINES
TCP	= TEXAS CONE PENETROMETER

= WATER LEVEL WHILE DRILLING OR SAMPLING

= WATER LEVEL AFTER DRILLING

= TOP OF ROCK

NOTES:
WATER LEVEL ELEVATIONS SHOWN WERE OBTAINED AT THE TIME THE BORINGS WERE DRILLED AND MAY FLUCTUATE THROUGHOUT THE YEAR.

TOP OF ROCK LINE SHOWN FOR ESTIMATING PURPOSES ONLY.

ROCK CLASSIFICATION IS BASED ON DRILLING CHARACTERISTICS AND VISUAL OBSERVATION OF ROCK CORE SAMPLES. PETROGRAPHIC ANALYSIS OF THIN SECTIONS OF THE ROCK CORE SAMPLES MAY REVEAL OTHER TYPES.

GEOTECHNICAL REPORT

ALL GEOTECHNICAL INFORMATION CONTAINED ON THIS SHEET IS COVERED BY THE ENGINEERING SEAL AFFIXED TO AN ORIGINAL GEOTECHNICAL ENGINEERING REPORT THAT HAS BEEN STAMPED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN OKLAHOMA. TO OBTAIN A COPY OF THE COMPLETE REPORT, CONTACT THE CITY OF NORMAN PUBLIC WORKS DEPARTMENT AT (405) 366-5452. THE CONTRACTOR SHOULD BE FULLY AWARE OF THE SITE CONDITIONS PRIOR TO BEGINNING WORK. ANY ADDITIONAL GEOTECNICAL INFORMATION WHICH MAY BE DESIRED IS THE RESPONSIBILITY OF THE CONTRACTOR.

GARVER

CA #4193 EXPIRES JUNE 30, 2024

100% PS&E SUBMITTAL

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE BRIDGE REPLACEMENT OVER ROCK CREEK

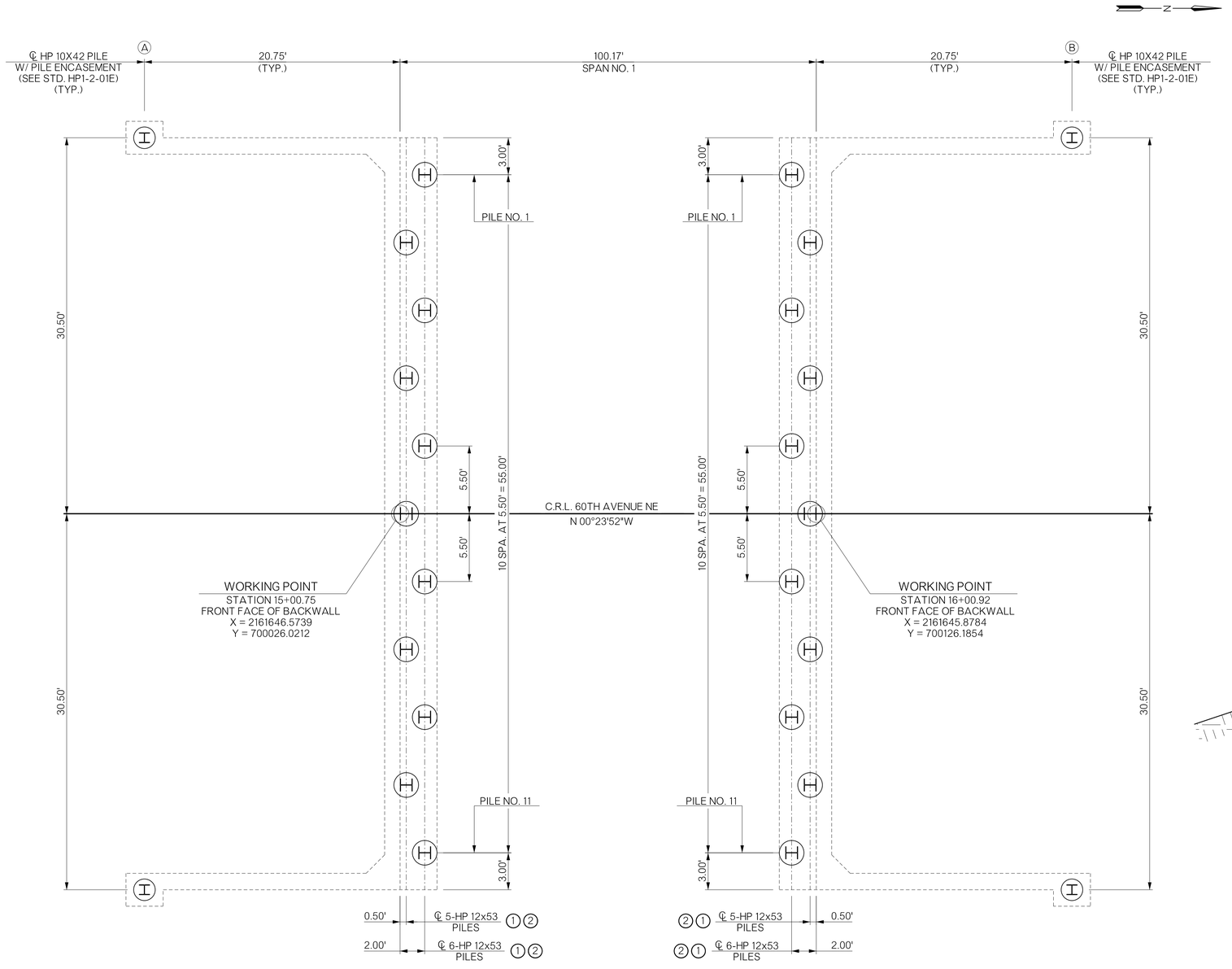
SUBSURFACE PROFILE

JOB NO.: 22T28060
DATE: SEPT. 2023
DESIGNED BY: WDW
DRAWN BY: WDW

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

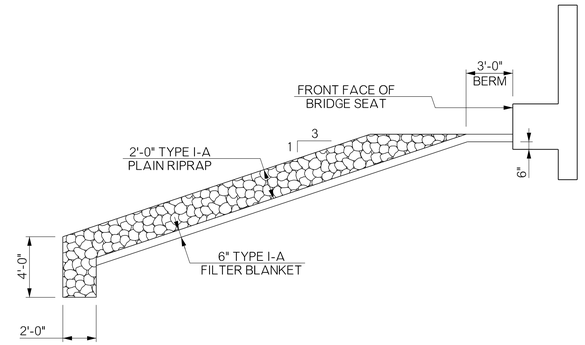
DRAWING NUMBER

SHEET NUMBER B003



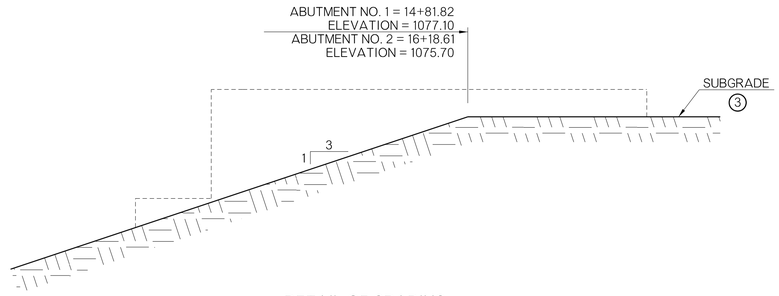
ABUTMENT NO. 1 ABUTMENT NO. 2

SUBSTRUCTURE STAKING DIAGRAM



TYPICAL SECTION THRU RIPRAP AT BRIDGE SEAT

(DIMENSIONS ARE NORMAL TO BRIDGE SEAT)



DETAIL OF GRADING

(SLOPE SHOWN TO BE SHAPED BY THE GRADING CONTRACTOR)

TOP OF PILE SCHEDULE AT ABUTMENT NO. 1	
PILE	ELEVATION
A	1073.27
CAP	1069.76

1. WITH PILE ENCASEMENT. FOR DETAILS SEE STD. HP1-2-01E.TYPICAL AT ALL PILE LOCATIONS.
2. FACE OF PILE WEB SHALL BE PERPENDICULAR TO FACE OF BRIDGE SEAT.
3. SUBGRADE LINE ASSUMED TO BE LOCATED 1'-1" BELOW FINISH GRADE LINE FOR COMPUTING SUBGRADE QUANTITY SHOWN IN THE PLANS. THE CITY WILL PAY FOR SUBGRADE IN ACCORDANCE WITH THE PLAN QUANTITY AND NO ADJUSTMENT WILL BE MADE FOR ACTUAL LOCATION OF SUBGRADE LINE.

TOP OF PILE SCHEDULE AT ABUTMENT NO. 2	
PILE	ELEVATION
B	1072.28
CAP	1068.77

100% PS&E SUBMITTAL

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE BRIDGE REPLACEMENT OVER ROCK CREEK

STAKING DIAGRAM

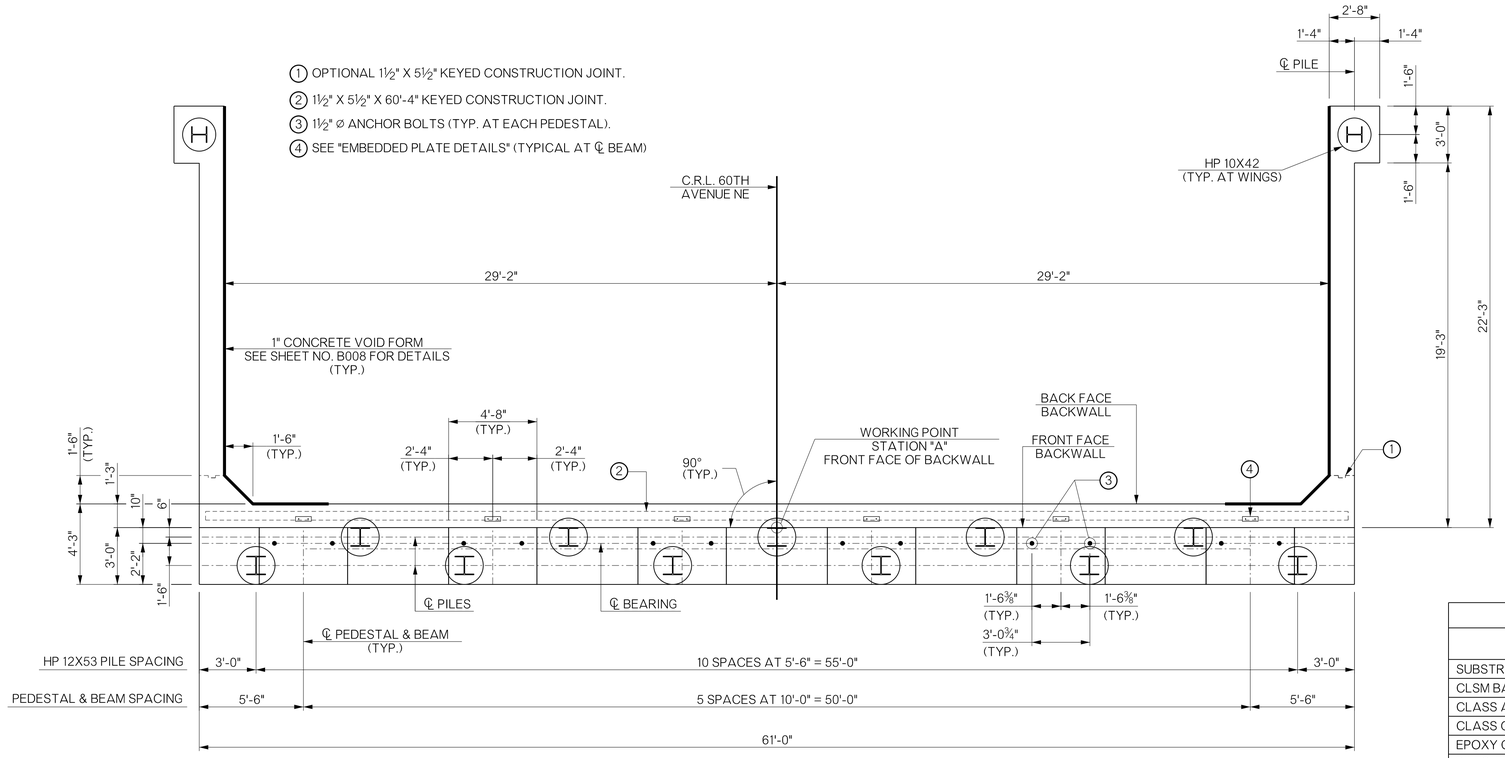
JOB NO.: 22T28060
DATE: SEPT. 2023
DESIGNED BY: JTR
DRAWN BY: SJL

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

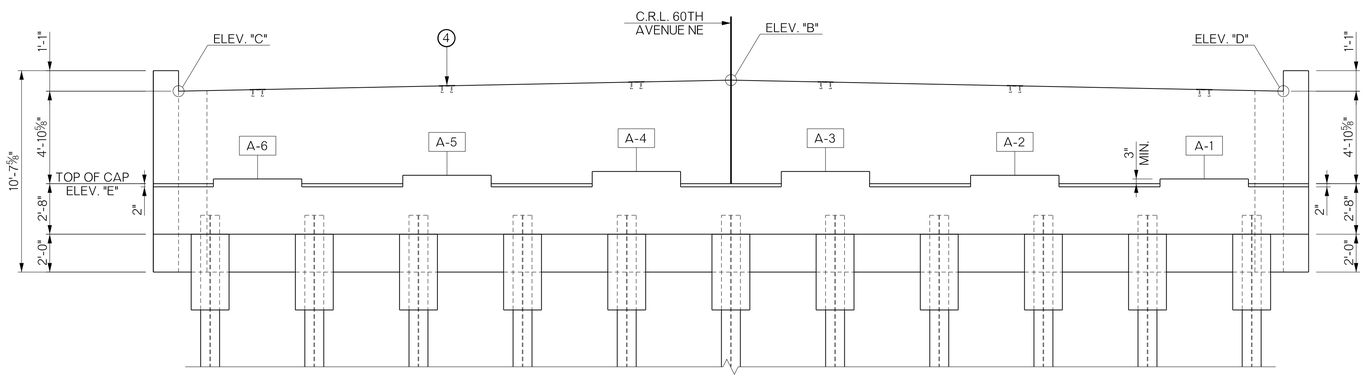
DRAWING NUMBER

SHEET NUMBER B004

1. OPTIONAL 1½" X 5½" KEYED CONSTRUCTION JOINT.
2. 1½" X 5½" X 60'-4" KEYED CONSTRUCTION JOINT.
3. 1½" ⌀ ANCHOR BOLTS (TYP. AT EACH PEDESTAL).
4. SEE "EMBEDDED PLATE DETAILS" (TYPICAL AT ℄ BEAM)

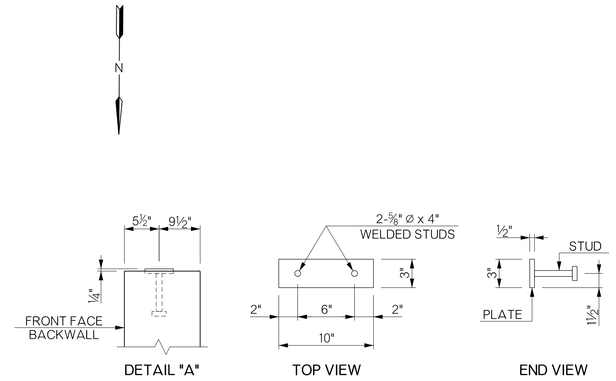


PLAN



ELEVATION

(ABUTMENT NO. 1 LOOKING BACK STATION SHOWN,
ABUTMENT NO. 2 LOOKING FORWARD STATION SIMILAR BUT OPPOSITE HAND)



EMBEDDED PLATE DETAILS

(ABUTMENT NO. 1 ONLY)

SUMMARY OF QUANTITIES - ABUTMENTS				
ITEM	UNIT	ABUT. NO. 1	ABUT. NO. 2	TOTAL
SUBSTRUCTURE EXCAVATION COMMON	CY	125.00	120.00	245.00
CLSM BACKFILL	CY	155.80	150.00	305.80
CLASS A CONCRETE	CY	65.30	64.70	130.00
CLASS C CONCRETE	CY	0.50	0.50	1.00
EPOXY COATED REINFORCING STEEL	LB	10,120.00	9,920.00	20,040.00
PILES, FURNISHED (HP 10X42)	LF	104.00	144.00	248.00
PILES, FURNISHED (HP 12X53)	LF	539.00	759.00	1,298.00
PILES, DRIVEN (HP 10X42)	LF	104.00	144.00	248.00
PILES, DRIVEN (HP 12X53)	LF	539.00	759.00	1,298.00
WATER REPELLENT (VISUALLY INSPECTED)	SY	41.00	41.00	82.00
ELASTOMERIC COATING	SF	317.00	317.00	634.00
TYPE I-A PLAIN RIPRAP	TON	380.00	500.00	880.00
TYPE I-A FILTER BLANKET	TON	80.00	100.00	180.00
6" PERFORATED PIPE UNDERDRAIN ROUND	LF	60.00	60.00	120.00
6" NON-PERF.PIPE UNDERDRAIN RND.	LF	22.00	33.00	55.00

BEAM SEAT ELEVATIONS						
ABUT. NO.	A-1	A-2	A-3	A-4	A-5	A-6
1	1071.68	1071.88	1072.08	1072.08	1071.88	1071.68
2	1070.69	1070.89	1071.09	1071.09	1070.89	1070.69

TABLE OF VARIABLES					
ABUT. NO.	STA. "A"	ELEV. "B"	ELEV. "C"	ELEV. "D"	ELEV. "E"
1	15+00.75	1076.90	1076.32	1076.32	1071.43
2	16+00.92	1075.91	1075.32	1075.32	1070.44

GARVER

CA #4193 EXPIRES JUNE 30, 2024

100% PS&E SUBMITTAL

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE
BRIDGE REPLACEMENT
OVER ROCK CREEK

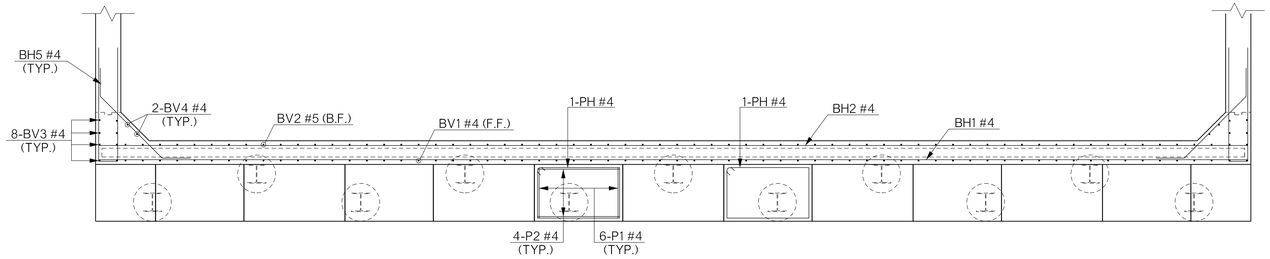
ABUTMENT DETAILS (SHEET 1 OF 3)

JOB NO.: 22T28060
DATE: SEPT. 2023
DESIGNED BY: JTR
DRAWN BY: WDW

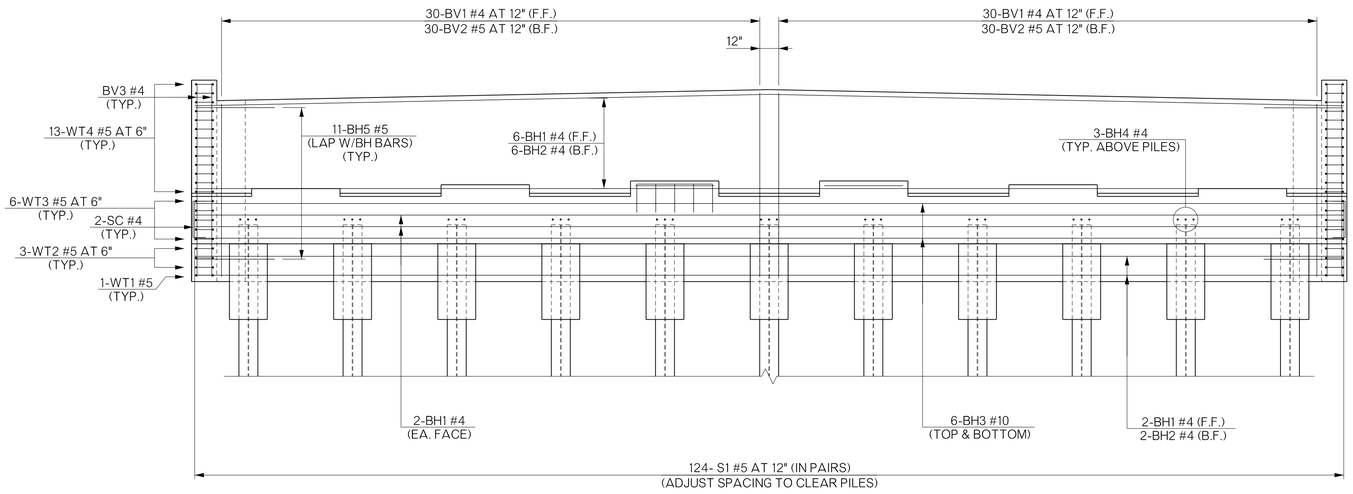
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER

SHEET NUMBER B005

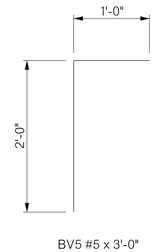


LAYOUT OF ABUTMENT REINFORCING STEEL

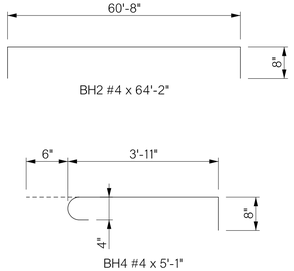


ELEVATION VIEW OF REINFORCING STEEL

(ABUTMENT NO. 1 LOOKING BACK STATION SHOWN; ABUTMENT NO. 2 LOOKING FORWARD STATION SIMILAR BUT OPPOSITE HAND)

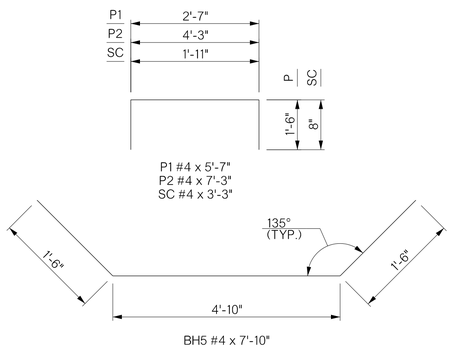


BV5 #5 x 3'-0"



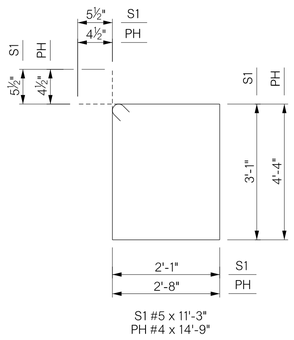
BH2 #4 x 64'-2"

BH4 #4 x 5'-1"

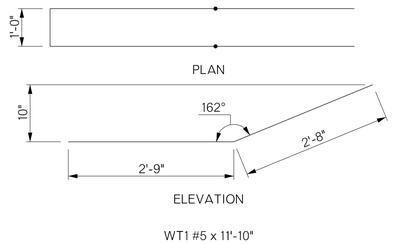


P1 #4 x 5'-7"
P2 #4 x 7'-3"
SC #4 x 3'-3"

BH5 #4 x 7'-10"

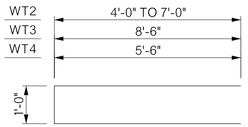


S1 #5 x 11'-3"
PH #4 x 14'-9"



ELEVATION

WT1 #5 x 11'-10"



WT2 #5 x 12'-0" AVG.
WT3 #5 x 18'-0"
WT4 #5 x 12'-0"

BAR LIST - ABUTMENT NO. 1

	MARK	SIZE	NO.	FORM	LENGTH	LENGTH VARIATION
	EPOXY COATED REINFORCING STEEL					
(1)	BH1	#4	12	STR.	62'-10"	-
(1)	BH2	#4	8	BENT	64'-2"	-
(2)	BH3	#10	12	STR.	69'-0"	-
	BH4	#4	33	BENT	5'-1"	-
	BH5	#5	22	BENT	7'-10"	-
(3)	BV1	#4	60	STR.	9'-4½" AVG.	9'-1" TO 9'-8"
(3)	BV2	#5	60	STR.	9'-4½" AVG.	9'-1" TO 9'-8"
	BV3	#4	16	STR.	10'-2"	-
	BV4	#4	4	STR.	9'-1"	-
	BV5	#5	60	BENT	3'-0"	-
	P1	#4	36	BENT	5'-7"	-
	P2	#4	24	BENT	7'-3"	-
	PH	#4	2	BENT	14'-9"	-
	S1	#5	124	BENT	11'-3"	-
	SC	#4	4	BENT	3'-3"	-
(4)	WT1	#5	2	BENT	11'-10"	-
	WT2	#5	6	BENT	12'-0" AVG.	9'-0" TO 15'-0"
	WT3	#5	12	BENT	18'-0"	-
	WT4	#5	26	BENT	12'-0"	-

BAR LIST - ABUTMENT NO. 2

	MARK	SIZE	NO.	FORM	LENGTH	LENGTH VARIATION
	EPOXY COATED REINFORCING STEEL					
(1)	BH1	#4	12	STR.	62'-10"	-
(1)	BH2	#4	8	BENT	64'-2"	-
(2)	BH3	#10	12	STR.	69'-0"	-
	BH4	#4	33	BENT	5'-1"	-
	BH5	#5	22	BENT	7'-10"	-
(3)	BV1	#4	60	STR.	9'-4½" AVG.	9'-1" TO 9'-8"
(3)	BV2	#5	60	STR.	9'-4½" AVG.	9'-1" TO 9'-8"
	BV3	#4	16	STR.	10'-2"	-
	BV4	#4	4	STR.	9'-1"	-
	P1	#4	36	BENT	5'-7"	-
	P2	#4	24	BENT	7'-3"	-
	PH	#4	2	BENT	14'-9"	-
	S1	#5	124	BENT	11'-3"	-
	SC	#4	4	BENT	3'-3"	-
	WT1	#5	2	BENT	11'-10"	-
(4)	WT2	#5	6	BENT	12'-0" AVG.	9'-0" TO 15'-0"
	WT3	#5	12	BENT	18'-0"	-
	WT4	#5	26	BENT	12'-0"	-

(1) INCLUDES ONE 2'-2" LAP LENGTH
(2) INCLUDES ONE 8'-4" LAP LENGTH
(3) 2 SETS OF 30
(4) 2 SETS OF 3

CA #4193 EXPIRES JUNE 30, 2024

100% PS&E SUBMITTAL

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE
BRIDGE REPLACEMENT
OVER ROCK CREEK

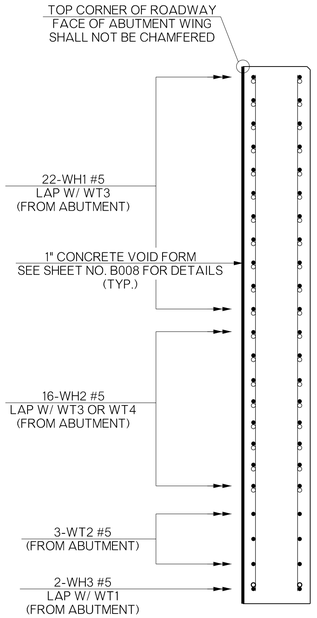
ABUTMENT DETAILS (SHEET 2 OF 3)

JOB NO.: 22T28060
DATE: SEPT. 2023
DESIGNED BY: JTR
DRAWN BY: WDW

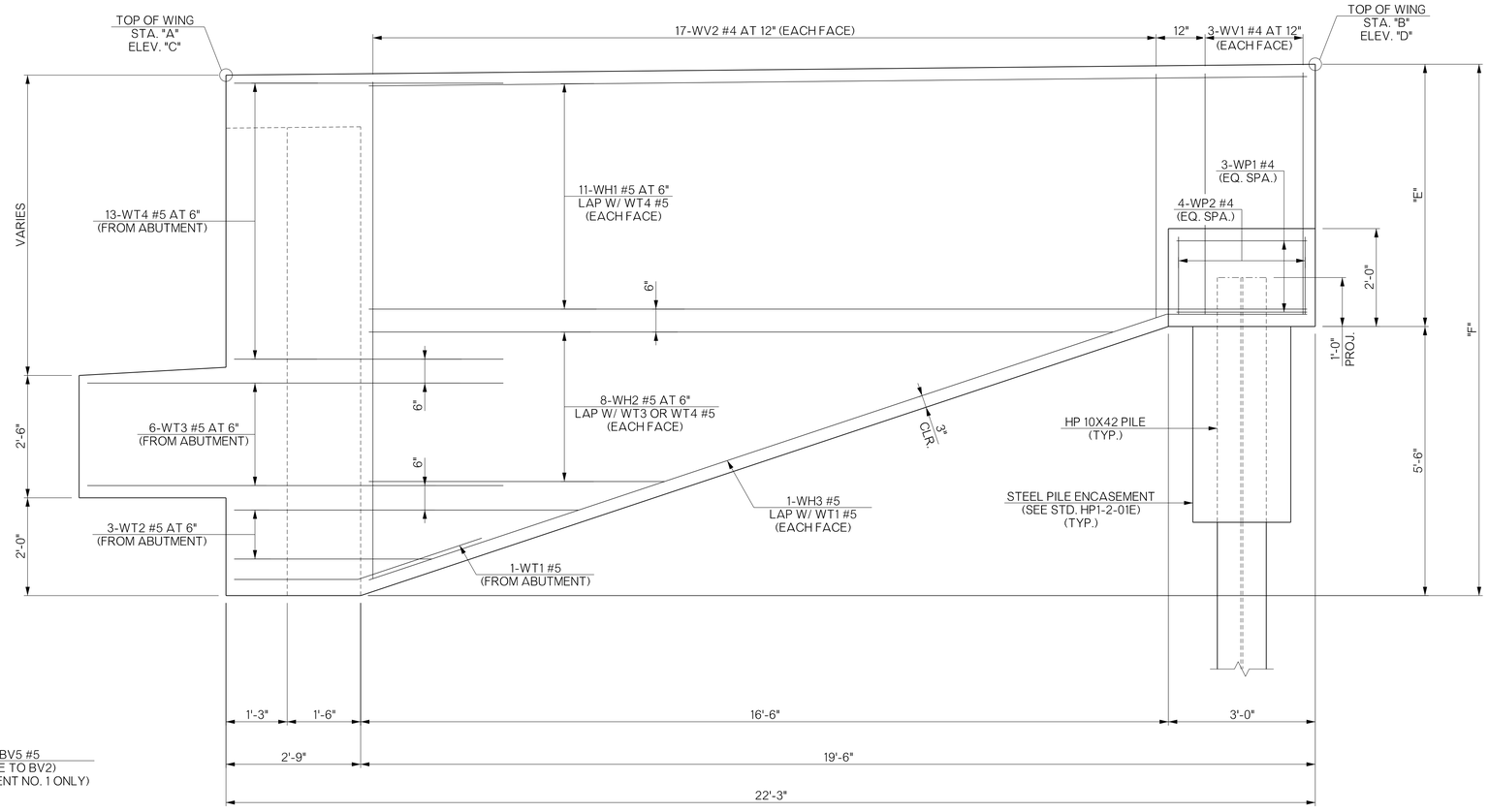
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER

SHEET NUMBER B006



SECTION THRU WING AT BACK FACE OF BACKWALL



ABUTMENT WING ELEVATION

WINGWALL - TABLE OF VARIABLES						
LOCATION	STA. "A"	STA. "B"	ELEV. "C"	ELEV. "D"	LENGTH "E"	LENGTH "F"
ABUTMENT NO. 1	15+00.75	14+78.50	1077.40	1077.66	5'-4⅝"	10'-10⅝"
ABUTMENT NO. 2	16+00.92	16+23.17	1076.41	1076.13	4'-10¼"	10'-4¼"

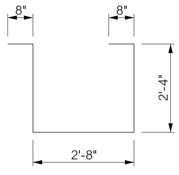
BAR LIST - ABUTMENT NO. 1 WING ①					
MARK	SIZE	NO.	FORM	LENGTH	LENGTH VARIATION
EPOXY COATED REINFORCING STEEL					
WH1	#5	22	STR.	19'-2"	-
② WH2	#5	16	STR.	10'-7" AVG.	6'-0" TO 15'-2"
WH3	#5	2	BENT	20'-0"	-
WP1	#4	3	BENT	8'-8"	-
WP2	#4	4	STR.	1'-7"	-
WV1	#4	6	STR.	4'-11"	-
③ WV2	#4	34	STR.	7'-6" AVG.	4'-11" TO 10'-1"

① ONE SHOWN, TWO REQUIRED

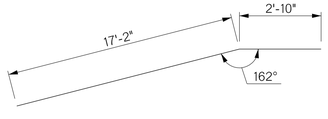
② 2 SETS OF 8

③ 2 SETS OF 17

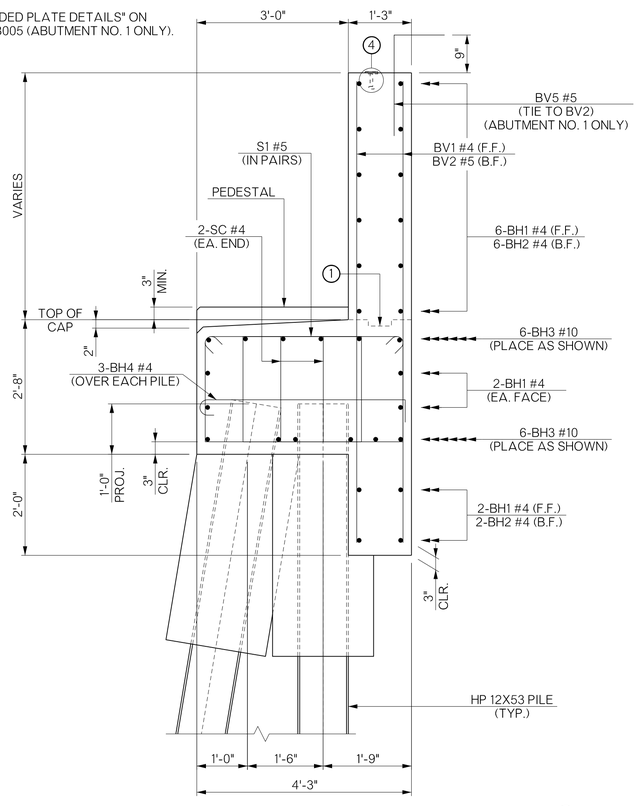
BAR LIST - ABUTMENT NO. 2 WING ①					
MARK	SIZE	NO.	FORM	LENGTH	LENGTH VARIATION
EPOXY COATED REINFORCING STEEL					
WH1	#5	22	STR.	19'-2"	-
② WH2	#5	16	STR.	10'-7" AVG.	6'-0" TO 15'-2"
WH3	#5	2	BENT	20'-0"	-
WP1	#4	3	BENT	8'-8"	-
WP2	#4	4	STR.	1'-7"	-
WV1	#4	6	STR.	4'-5"	-
③ WV2	#4	34	STR.	7'-3½" AVG.	4'-6" TO 10'-1"



WP1 #4 x 8'-8"



WH3 #5 x 20'-0"



TYPICAL SECTION THRU ABUTMENT

① KEYED CONSTRUCTION JOINT.

CA #4193 EXPIRES JUNE 30, 2024

100% PS&E SUBMITTAL

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE
BRIDGE REPLACEMENT
OVER ROCK CREEK

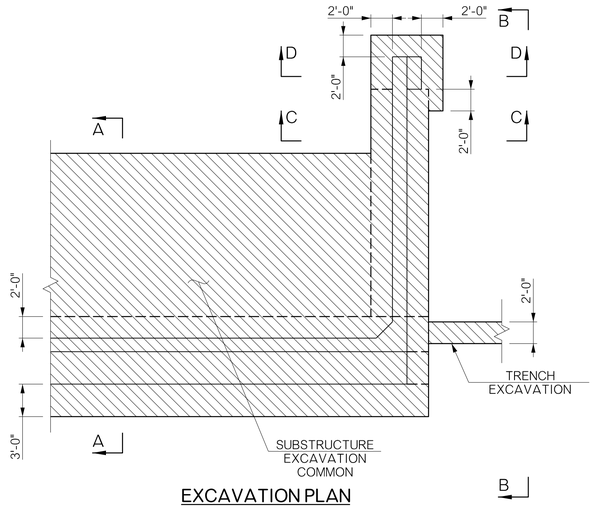
ABUTMENT DETAILS (SHEET 3 OF 3)

JOB NO.: 22T28060
DATE: SEPT. 2023
DESIGNED BY: WDW
DRAWN BY: WDW

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

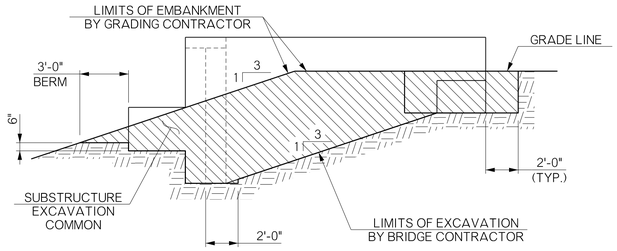
DRAWING NUMBER

SHEET NUMBER B007

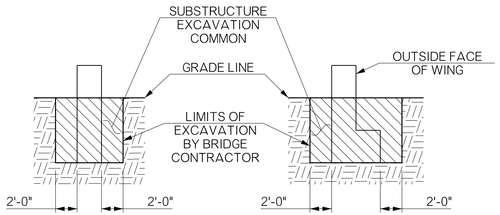


EXCAVATION PLAN

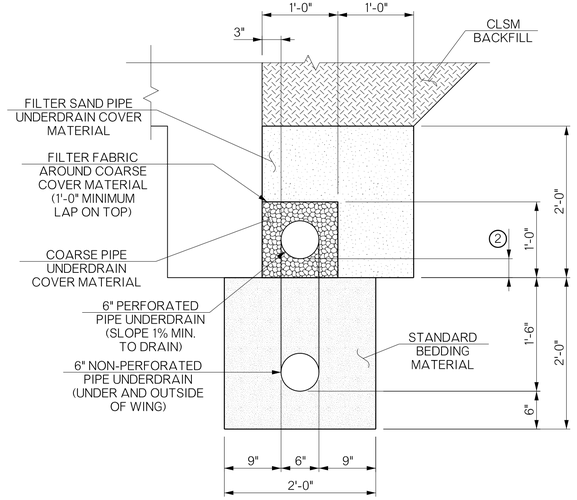
NOTE:
THE CONTRACTOR MAY PLACE CONCRETE AGAINST THE LIMITS OF EXCAVATION IF THE MATERIAL IS EXCAVATED TO THE NEAT LINES OF THE ABUTMENT AND APPROVED BY THE ENGINEER. IF NECESSARY, USE FORMS ON THE BACK VERTICAL FACE OF THE ABUTMENT AND REMOVE FORMS AFTER CONCRETE HARDENS. IF THE CONTRACTOR CHOOSES TO PLACE CONCRETE AGAINST THE SOIL, THE CITY WILL PAY FOR "SUBSTRUCTURE EXCAVATION COMMON" IN ACCORDANCE WITH THE DIAGRAM SHOWN ON THE PLANS.



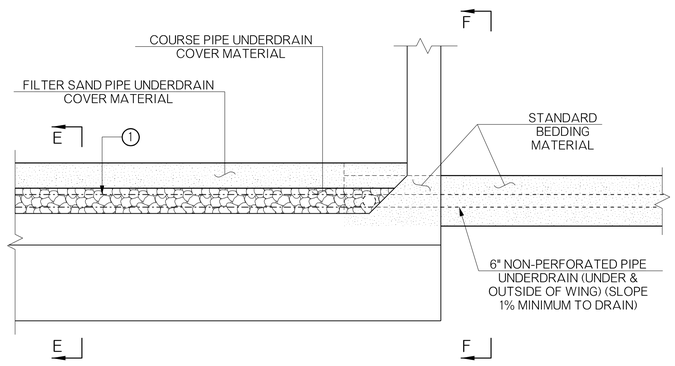
SECTION B-B



SECTION C-C SECTION D-D

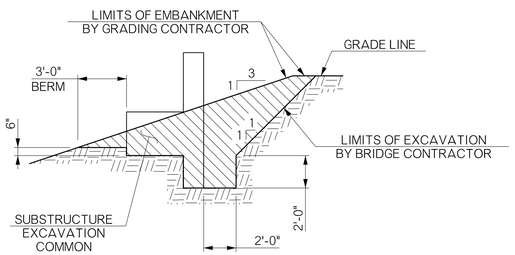


DETAIL "A"

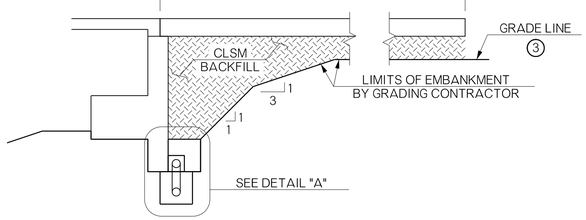


PIPE UNDERDRAIN PLAN

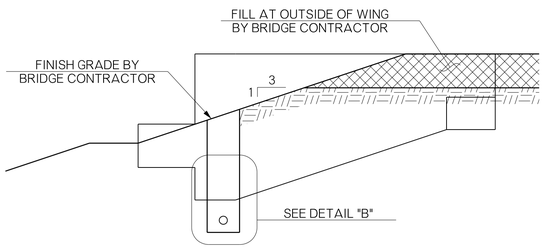
NOTE:
THE ENGINEER MAY ADJUST THE EXTENT, LOCATION AND DEPTH OF 6" NON-PERFORATED PIPE UNDERDRAIN DURING CONSTRUCTION. INCLUDE THE COST OF PIPE UNDERDRAIN COVER MATERIAL (BOTH FINE SAND AND COARSE), FILTER FABRIC, TRENCH EXCAVATION, STANDARD BEDDING MATERIAL, AND EQUIPMENT AND LABOR FOR THEIR INSTALLATION IN THE CONTRACT UNIT PRICE OF "6" PERFORATED PIPE UNDERDRAIN ROUND" AND "6" NON-PERF.PIPE UNDERDRAIN RND.". INSTALL AS SHOWN ON THE PLANS AND ON STD. PUD-4.



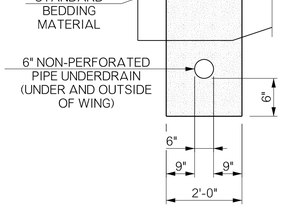
SECTION A-A



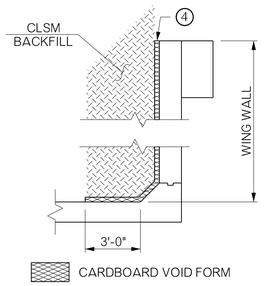
SECTION E-E



SECTION F-F



DETAIL "B"



VOID FORM DETAILS

1. 6" PERFORATED PIPE UNDERDRAIN. SLOPE 1% MINIMUM TO DRAIN.
2. SET BOTTOM OF PIPE 3" ABOVE THE BOTTOM OF THE ABUTMENT AT THE LOW END.
3. GRADE LINE ASSUMED TO BE LOCATED 1'-1" BELOW BOTTOM OF APPROACH SLAB FOR COMPUTING CLSM BACKFILL QUANTITY SHOWN ON THE PLANS. THE CITY WILL PAY FOR CLSM BACKFILL IN ACCORDANCE WITH THE PLAN QUANTITY AND NO ADJUSTMENT WILL BE MADE FOR ACTUAL LOCATION OF GRADE LINE.

DO NOT PLACE CLSM BACKFILL UNTIL SUPERSTRUCTURE IS IN PLACE AND THE ABUTMENT WING CONCRETE HAS ATTAINED A STRENGTH OF 3,000 PSI.

4. 1" CARDBOARD VOID FORM. THE VOID FORM SHALL BE ABLE TO WITHSTAND CRUSHING DUE TO POURING AND CURING OF CLSM BACKFILL AND MAINTAIN 1" VOID. COST TO BE INCLUDED IN OTHER ITEMS OF WORK.

   THE CARDBOARD VOID FORM SHALL PROVIDE A TEMPORARY SUPPORT DURING PLACEMENT OF THE CLSM. AFTER THE CLSM CAN SUPPORT FOOT TRAFFIC THE VOID FORM SHALL LOSE STRENGTH AND CREATE A 1" SPACE IN PLACE OF THE VOID FORM SUCH AS SEPARATOR VOID AS MANUFACTURED BY SUREVOID PRODUCTS OR AN APPROVED EQUAL. PRODUCT INFORMATION FOR SEPARATOR VOID CAN BE OBTAINED FROM SUREVOID PRODUCTS OF ENGLEWOOD, COLORADO, PHONE NUMBER 800-458-5444.

   THE VOID FORM SHALL BE PLACED THE ENTIRE LENGTH OF THE WING WALL, FROM THE BOTTOM OF EXCAVATION TO THE TOP OF THE CLSM POUR. THE FORM SHALL EXTEND A MINIMUM OF 3'-0" ALONG THE BACKWALL, AND A MINIMUM OF 1'-0" BEYOND ANY BACKWALL BREAKLINES.

GARVER

CA #4193 EXPIRES JUNE 30, 2024

100% PS&E SUBMITTAL

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE BRIDGE REPLACEMENT OVER ROCK CREEK

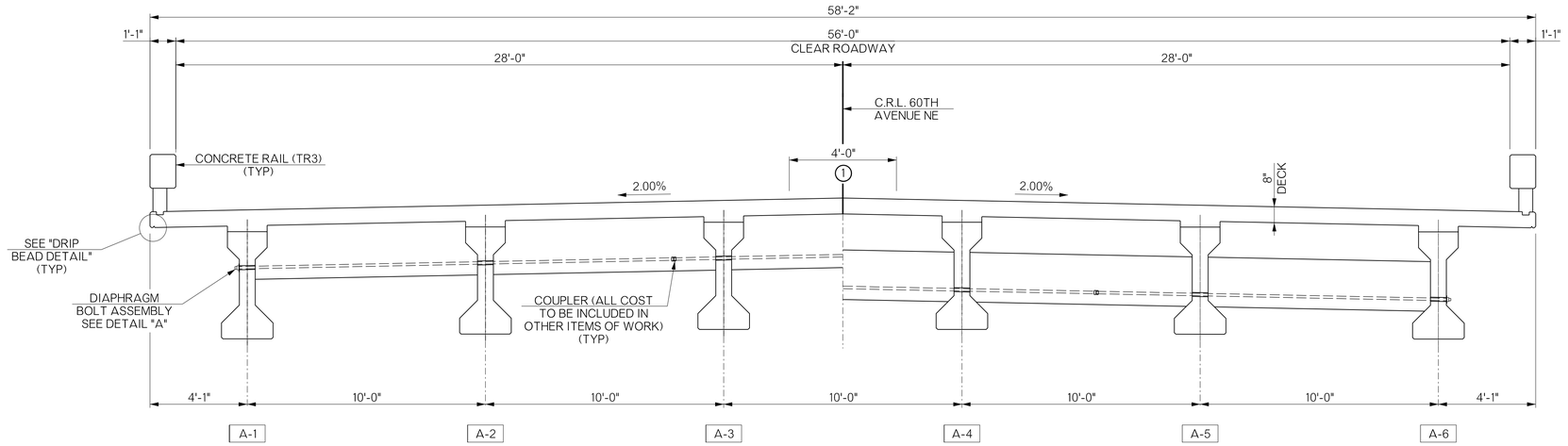
ABUTMENT EXCAVATION AND UNDERDRAIN DETAILS

JOB NO.: 22T28060
DATE: SEPT. 2023
DESIGNED BY: WDW
DRAWN BY: WDW

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER

SHEET NUMBER B008

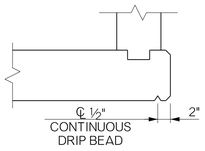


SECTION AT END DIAPHRAGM

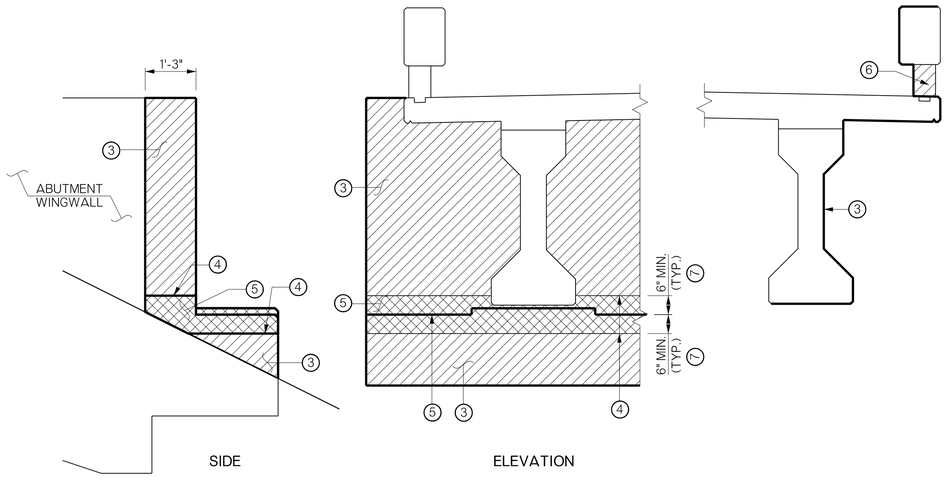
SECTION AT INTERMEDIATE DIAPHRAGM

1 ROUND 2'-0" EACH SIDE OF ℄ TO AVOID SHARP EDGES.

TYPICAL SECTION
(LOOKING FORWARD STATION)



DRIP BEAD DETAIL

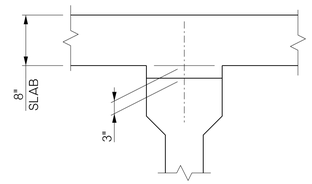


SIDE ELEVATION

ABUTMENT

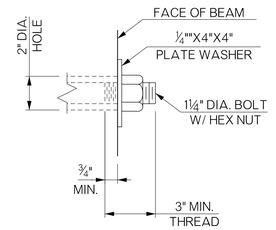
CONCRETE RAIL (TR3), SLAB, AND BEAM

CONCRETE TREATMENT DETAILS



BEAM HAUNCH DETAIL

NOTE:
PLAN QUANTITIES FOR CLASS AA CONCRETE INCLUDE BEAM HAUNCHES. THE HAUNCH HEIGHT SHOWN IS THE THEORETICAL HAUNCH HEIGHT AT THE CENTERLINE BEARING ONLY, MEASURED FROM BOTTOM OF DECK SLAB TO TOP OF BEAM, AND VARIES ACROSS THE SPAN. DETERMINE THE ACTUAL HAUNCH HEIGHT (ACCOUNTING FOR BEAM CAMBER, DEAD LOAD DEFLECTION AND ROADWAY GRADE) AFTER ERECTION OF THE BEAMS AND SUBMIT TO THE ENGINEER FOR APPROVAL. THE ENGINEER WILL NOT MEASURE DIFFERENCES BETWEEN THE THEORETICAL AND THE ACTUAL HAUNCH HEIGHTS FOR PAYMENT



DETAIL "A"

LEGEND

PROPOSED STRUCTURE

ELASTOMERIC COATING
(CROSSHATCHING AND HEAVY LINE)

WATER REPELLENT
(HATCHING AND HEAVY LINE)

3 WATER REPELLENT ON THE CONCRETE RAIL (TR3), BEAM & CANTILEVER TO BE PAID FOR IN SUPERSTRUCTURE QUANTITIES. WATER REPELLENT ON THE ABUTMENT FACES TO BE PAID FOR IN ABUTMENT QUANTITES.

4 MASK SIDES AND ENDS OF ABUTMENT CAP ALONG THIS LINE TO PROVIDE A CLEAN STRAIGHT FINISH AT TOP AND BOTTOM OF ELASTOMERIC COATING APPLICATION. SEE "GENERAL NOTE" ON SHEET NO. AB01 FOR ELASTOMERIC COATING SPECIFICATIONS.

5 APPLY CIM-100 (ELASTOMERIC COATING), OR APPROVED EQUAL, TO THE SURFACES INDICATED BY CROSSHATCH AND HEAVY LINES, INCLUDING PEDESTALS, CAP STEPS, BACKWALL, & ENDS OF CAP. INCLUDED IN ABUTMENT QUANTITIES.

6 APPLY WATER REPELLENT TO INSIDE FACE OF POSTS ON CONCRETE RAIL (TR3) WITH OPENINGS.

7 ELASTOMERIC COATING PLACED ON ABUTMENT BACKWALLS SHALL BE 6" HIGH OR 4" HIGHER THAN THE TALLEST PEDESTAL AND SHALL BE PARALLEL TO THE TOP OF THE ABUTMENT.

DIAPHRAGM BOLT NOTES:
PROVIDE STRUCTURAL STEEL FOR DIAPHRAGM BOLTS AND PLATE WASHERS IN ACCORDANCE WITH AASHTO M270 (ASTM A709), GRADE 50W (WEATHERING STEEL, CHARPY V-NOTCH TESTING NOT REQUIRED). THE CONTRACTOR MAY SUBSTITUTE A #10 REINFORCING BAR IN ACCORDANCE WITH AASHTO M31, GRADE 60, AND THREADED AT THE ENDS AS SHOWN FOR THE DIAPHRAGM BOLT AT NO ADDITIONAL COST TO THE CITY. PROVIDE HEX NUTS IN ACCORDANCE WITH AASHTO M291 (ASTM A563).

PAINT EXPOSED DIAPHRAGM BOLT, PLATE WASHER AND HEX NUT WITH TWO (2) COATS OF ZINC-RICH PAINT (6 MIL. MINIMUM THICKNESS) AFTER ASSEMBLY. INCLUDE ALL COST OF DIAPHRAGM BOLT, PLATE WASHER AND HEX NUT IN THE CONTRACT UNIT PRICE FOR "STRUCTURAL STEEL".

SUMMARY OF QUANTITIES - SUPERSTRUCTURE

ITEM	UNIT	TOTAL
PRESTRESSED CONCRETE BEAMS (TYPE IV)	LF	598.00
SAW-CUT GROOVING	SY	627.00
CONCRETE RAIL (TR3)	LF	201.50
STRUCTURAL STEEL	LB	660.00
STAINLESS STEEL FIXED BEARING ASSEMBLY	EA	6.00
STAINLESS STEEL EXP. BEARING ASSEMBLY	EA	6.00
(2) CLASS AA CONCRETE	CY	160.30
EPOXY COATED REINFORCING STEEL	LB	44,080.00
WATER REPELLENT (VISUALLY INSPECTED)	SY	341.00
SEALED EXPANSION JOINTS	LF	57.80

2 INCLUDES A CALCULATED 4.70 C.Y. OF CLASS AA CONCRETE IN THE HAUNCHES.

100% PS&E SUBMITTAL

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE
BRIDGE REPLACEMENT
OVER ROCK CREEK

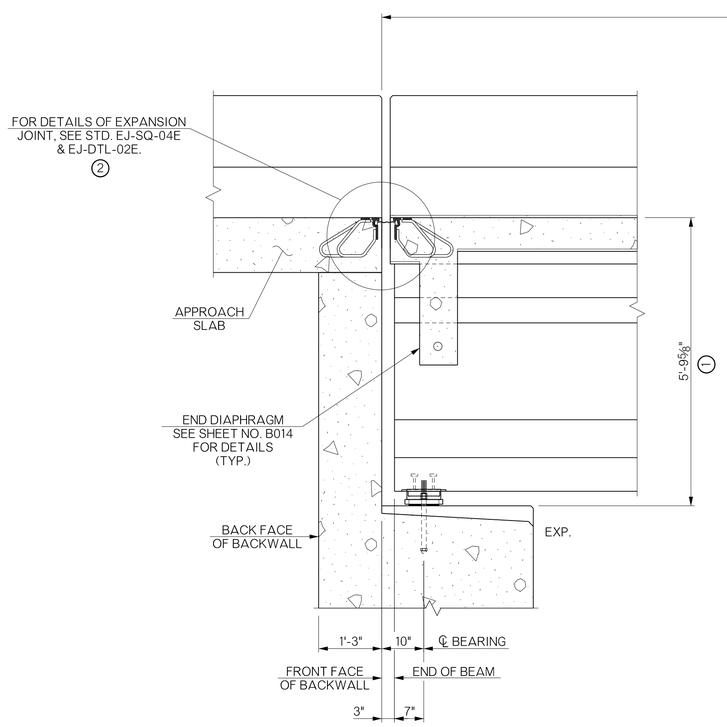
TYPICAL SECTION

JOB NO.: 22T28060
DATE: MARCH 2023
DESIGNED BY: JTR
DRAWN BY: NBK

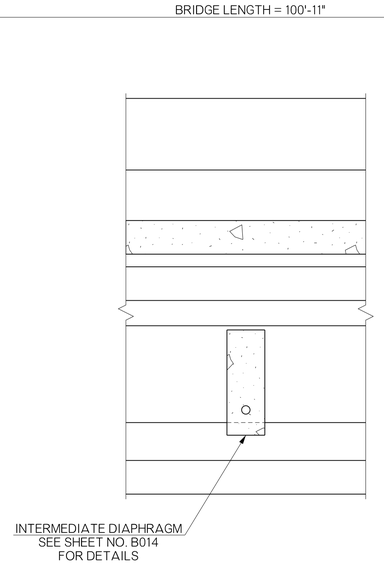
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER

SHEET NUMBER B009

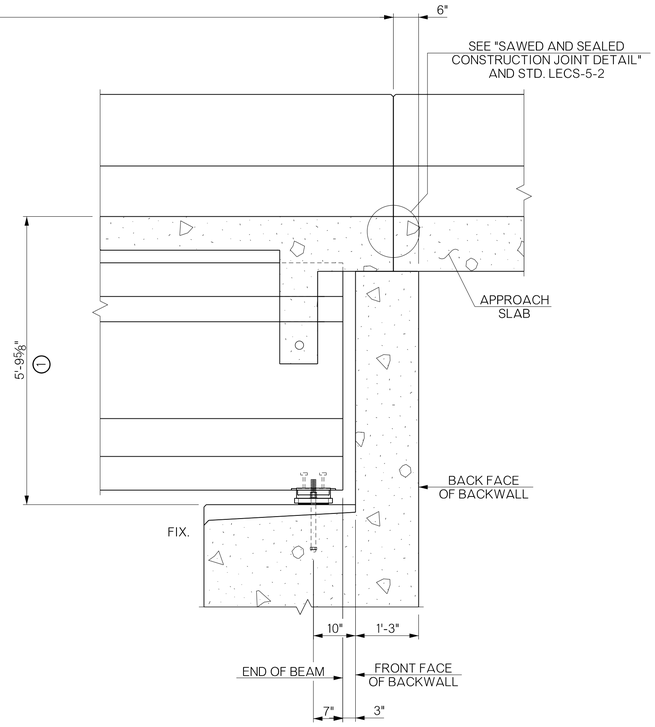


ABUTMENT NO. 1



LONGITUDINAL SECTION

(ALL DIMENSIONS SHOWN ARE ALONG ℄ BEAM)
(DO NOT GROOVE WITHIN 6" OF ANY CONSTRUCTION JOINTS)



ABUTMENT NO. 2

STAY-IN-PLACE DECK FORM NOTES:

THE CONTRACTOR MAY USE STAY-IN-PLACE STEEL DECK FORMS IF THE MINIMUM DECK SLAB THICKNESS OF 8" IS OBTAINED BY MEASURING FROM THE TOP OF THE DECK SLAB TO THE TOP PORTION OF THE STEEL CORRUGATION. PREFORMED CORRUGATION FILLER, COMPOSED OF POLYSTYRENE OR OTHER MATERIAL, MAY BE USED IF BONDED TO THE DECK FORMS. NO ADDITIONAL CONCRETE WEIGHT OF THE DECK SLAB IS PERMITTED. THE TOTAL ADDITIONAL WEIGHT OF THE DECK FORM AND FILLER SHALL NOT EXCEED 5 P.S.F. THE CITY CONSIDERS ALL COSTS OF STAY-IN-PLACE STEEL DECK FORMS TO BE INCLUDED IN THE CONTRACT UNIT PRICE OF "CLASS AA CONCRETE". THE CONTRACTOR MAY SUBSTITUTE STAY-IN-PLACE PRESTRESSED CONCRETE DECK FORMS, AT NO ADDITIONAL COST TO THE CITY, IF THE FOLLOWING CONDITIONS ARE MET:

(1) THE BRIDGE ENGINEER APPROVES SHOP DRAWINGS AND STRUCTURAL CALCULATIONS FOR THE FORMS SUBMITTED BY THE CONTRACTOR.
(2) THE BRIDGE ENGINEER APPROVES NEW STRUCTURAL DESIGN, STRUCTURAL CALCULATIONS, AND A NEW REINFORCING SCHEDULE FOR THE DECK SLAB SUBMITTED BY THE CONTRACTOR.
(3) SHOP DRAWINGS, NEW DECK SLAB REINFORCING SCHEDULE, STRUCTURAL DESIGNS, AND CALCULATIONS ARE PREPARED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF OKLAHOMA.

DECK SLAB NOTES:

EPOXY-COAT OR GALVANIZE STEEL ITEMS USED TO FACILITATE CONSTRUCTION, SUCH AS DECK FORM HANGERS, TY-BAR CLIPS, INSERT WELD ANCHORS, OR OTHER APPURTENANCES THAT WILL REMAIN IN PLACE IN THE DECK SLAB. EPOXY-COAT IN ACCORDANCE WITH AASHTO M284 OR GALVANIZE IN ACCORDANCE WITH AASHTO M111.

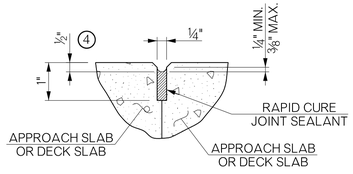
IN THE EVENT OF AN EMERGENCY, HALT THE PLACEMENT OF CONCRETE BY FORMING A CONSTRUCTION JOINT MADE PERPENDICULAR TO THE DIRECTION OF TRAFFIC OR AS DIRECTED BY THE ENGINEER. DO NOT PLACE ANY HEAVY EQUIPMENT ON THE FINISHED DECK SLAB WITHIN 5' OF ANY CONSTRUCTION JOINT UNTIL CONCRETE IS IN PLACE ON BOTH SIDES OF THE RESPECTIVE JOINT AND AT LEAST 48 HOURS HAS ELAPSED SINCE CONCRETE PLACEMENT.

SEAL ALL DECK SLAB CONSTRUCTION JOINTS WITH HIGH MOLECULAR WEIGHT METHACRYLATE IN ACCORDANCE WITH SECTION 523 OF THE SPECIFICATIONS. INCLUDE ALL COST OF EQUIPMENT AND LABOR FOR THE INSTALLATION OF THE HIGH MOLECULAR WEIGHT METHACRYLATE SEALER IN THE CONTRACT UNIT PRICE OF "SEALER CRACK PREPARATION". INCLUDE ALL COST OF THE HIGH MOLECULAR WEIGHT METHACRYLATE SEALER IN THE CONTRACT UNIT PRICE OF "SEALER RESIN". THE CITY WILL NOT MEASURE THE PREPARATION AND SEALER OF EMERGENCY CONSTRUCTION JOINTS FOR PAYMENT.

NOTE:
DO NOT PLACE THE CONCRETE FOR THE DECK SLAB OR APPLY OTHER MASSIVE LOADS TO THE BEAMS OR DIAPHRAGMS UNTIL THE CONCRETE IN THE DIAPHRAGMS HAS BEEN IN PLACE A MINIMUM OF 10 DAYS OR AT THE DISCRETION OF THE ENGINEER. THE ENGINEER MAY APPROVE SHORTENED TIME IF THE BEAM AND DIAPHRAGM CONCRETE HAS ATTAINED 80% OF THE SPECIFIED COMPRESSIVE STRENGTH.

(1) DIMENSION IS FROM TOP OF DECK SLAB TO BOTTOM OF BEARING ASSEMBLY AT ℄ BEARING.

(2) SEE EXPANSION JOINT OPENING EQUATION ON SHEET NO. B012.



SAWED AND SEALED JOINT DETAIL

SEE "GENERAL NOTE" ON SHEET NO. AB01 FOR SAWED AND SEALED JOINT SPECIFICATIONS.

(4) THIS DIMENSION SHALL TAPER FROM ½" AT EDGE OF DRIVING LANE/SHOULDER TO ⅛" AT RAIL FOR TRANSVERSE JOINTS ONLY.

GARVER

CA #4193 EXPIRES JUNE 30, 2024

100% PS&E SUBMITTAL

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE BRIDGE REPLACEMENT OVER ROCK CREEK

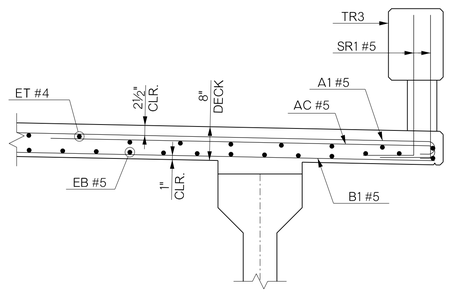
LONGITUDINAL SECTION

JOB NO.: 22T8060
DATE: SEPT. 2023
DESIGNED BY: WDW
DRAWN BY: WDW

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER

SHEET NUMBER B010



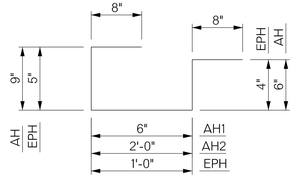
SECTION A-A

DECK LAYOUT

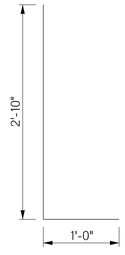
(SHOWING TOP AND BOTTOM MAT OF REINFORCING)

BAR LIST - SUPERSTRUCTURE				
MARK	SIZE	NO.	FORM	LENGTH
EPOXY COATED REINFORCING STEEL				
A1	#5	202	BENT	59'-0"
AC	#5	404	BENT	10'-7"
AH1	#4	14	BENT	3'-1"
AH2	#4	45	BENT	4'-7"
AS	#4	59	BENT	5'-0"
AT1	#4	2	STR.	57'-10"
B1	#5	202	STR.	57'-10"
① EB1	#5	71	STR.	103'-5"
EPH	#4	59	BENT	3'-1"
② ET1	#4	59	STR.	102'-5"
EPT	#4	1	STR.	57'-10"
SR1	#5	404	BENT	3'-10"

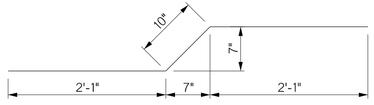
① INCLUDES ONE 3'-0" LAP LENGTH.
② INCLUDES ONE 2'-0" LAP LENGTH.



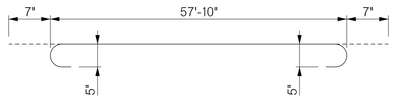
AH1 #4 x 3'-1"
AH2 #4 x 4'-7"
EPH #4 x 3'-1"



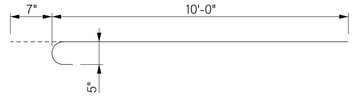
SR1 #5 X 3'-10"



AS #4 x 5'-0"



A1 #5 x 59'-0"



AC #5 x 10'-7"

CA #4193 EXPIRES JUNE 30, 2024

100% PS&E SUBMITTAL

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE BRIDGE REPLACEMENT OVER ROCK CREEK

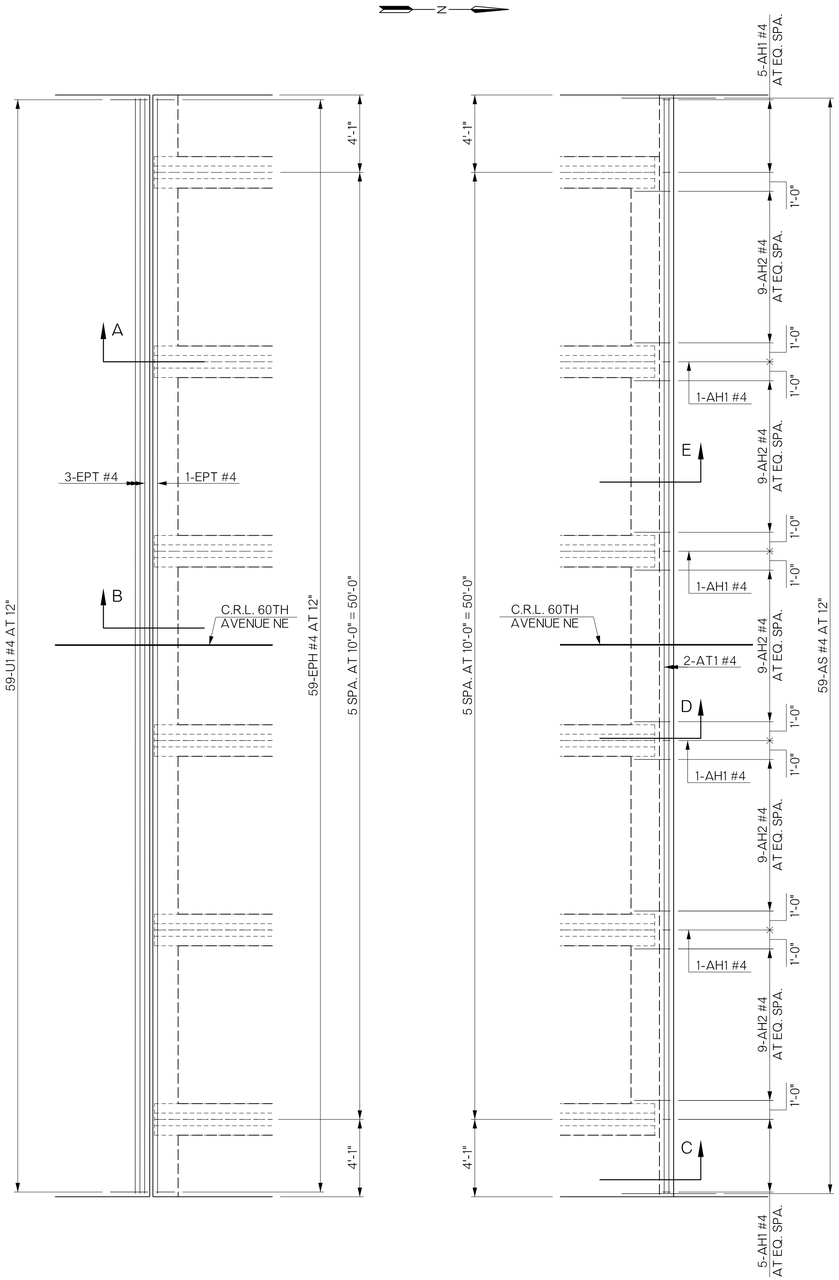
DECK LAYOUT

JOB NO.: 22T28060
DATE: SEPT. 2023
DESIGNED BY: WDW
DRAWN BY: SJL

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER

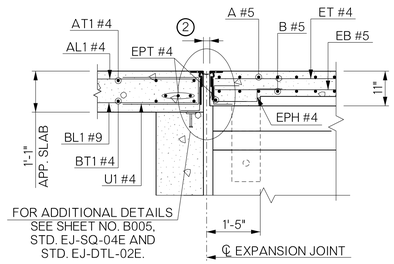
SHEET NUMBER B011



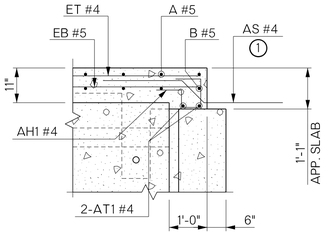
ABUTMENT NO. 1

ABUTMENT NO. 2

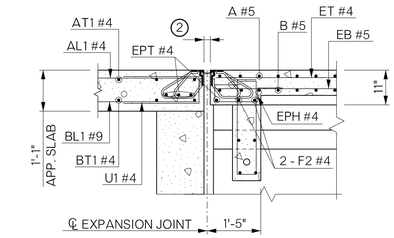
ADDITIONAL SLAB REINFORCING AT DIAPHRAGM PLANS



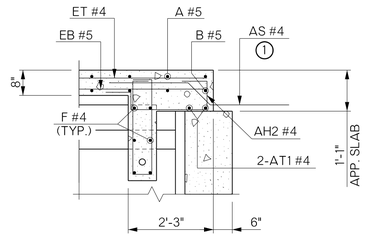
SECTION A



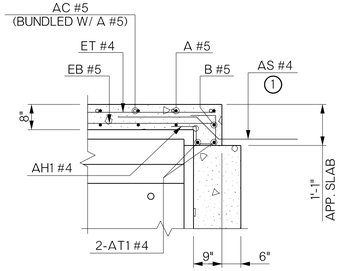
SECTION D



SECTION B



SECTION E



SECTION C

① TIE TO TOP REINFORCING OF DECK SLAB AND EXTEND MID-DEPTH OF APPROACH SLAB (PLACE BOTTOM LEG OF AS #4 THROUGH JOINT).

② THE EXPANSION JOINT OPENING SHALL BE SET AT THE TIME THE DECK SLAB CONCRETE IS POURED. THE WIDTH OF THE OPENING, CALCULATED IN INCHES, SHALL BE AS FOLLOWS:

AT ABUTMENT NO. 1 = 2.3124 - (0.00727 x T)

WHERE "T" EQUALS THE AMBIENT AIR TEMPERATURE IN DEGREES FAHRENHEIT AT THE TIME THE DECK SLAB CONCRETE IS POURED. SEE SECTION 509.04.B.01 OF THE STANDARD SPECIFICATIONS FOR TEMPERATURE LIMITATIONS.

THE EXPANSION JOINT OPENING SHALL BE MEASURED PERPEDICULAR TO THE JOINT.

EXPANSION JOINT OPENING TABLE	
TEMP (°F)	ABUT. NO. 1
10°	2.239"
43°	2.000"
80°	1.731"

Item 5.

GARVER

CA #4193 EXPIRES JUNE 30, 2024

100% PS&E SUBMITTAL

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE BRIDGE REPLACEMENT OVER ROCK CREEK

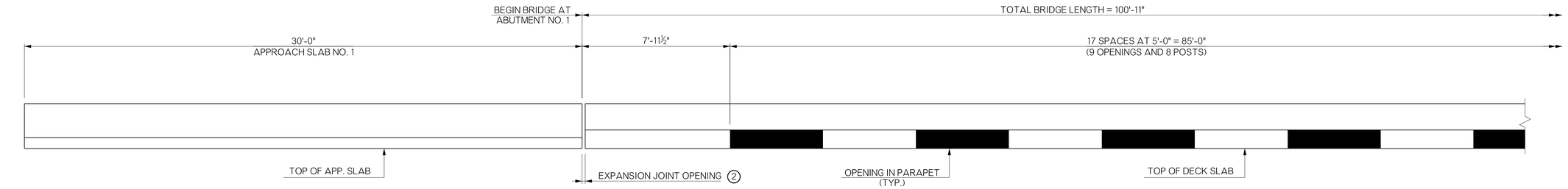
DECK TURNDOWN DETAILS

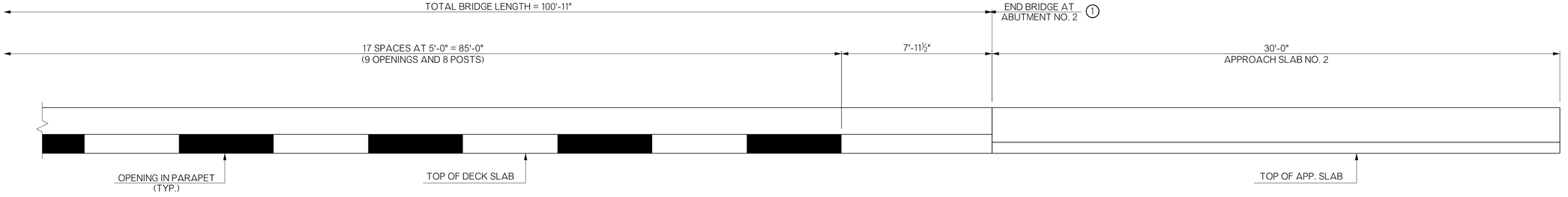
JOB NO.: 22T28060
DATE: SEPT. 2023
DESIGNED BY: WDW
DRAWN BY: SJL

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER

SHEET NUMBER B012





CONCRETE RAIL (TR3) - LAYOUT

(LOOKING AT INSIDE FACE OF WEST PARAPET;
EAST PARAPET SIMILAR BY ROTATION)

NOTES:

FOR DETAILS SHOWING THE REINFORCEMENT LAYOUT AND BAR BEND DETAILS, SEE STD. TR3-2-01E.

ALL DIMENSIONS SHOWN ARE MEASURED ALONG THE INSIDE FACE OF TRAFFIC RAIL.

1. CONSTRUCTION JOINT. HORIZONTAL REINFORCING SHALL END 2" EITEHR SIDE OF THIS JOINT.
2. EXPANSION JOINT OPENING TO MATCH DECK OPENING.

GARVER

CA #4193 EXPIRES JUNE 30, 2024

100% PS&E SUBMITTAL

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE BRIDGE REPLACEMENT OVER ROCK CREEK

PARAPET DETAILS

JOB NO.: 22T28060
DATE: SEPT. 2023
DESIGNED BY: WDW
DRAWN BY: WDW

BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"
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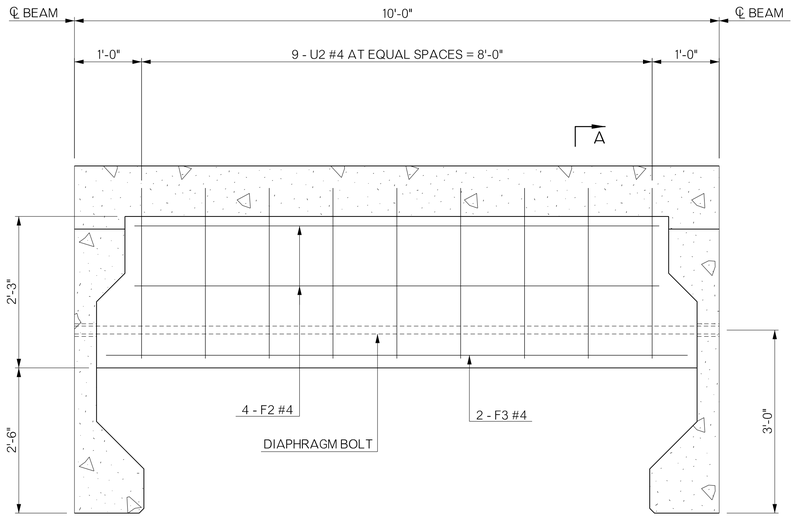
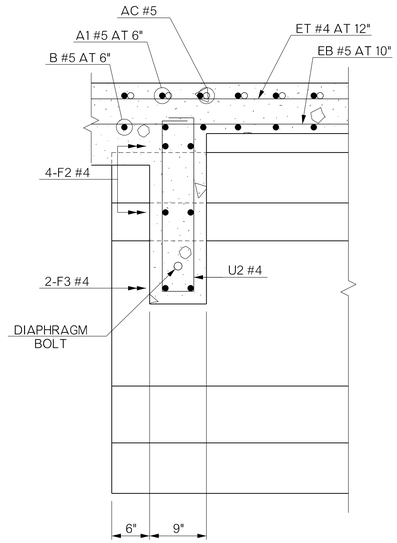
DRAWING NUMBER

SHEET NUMBER B013

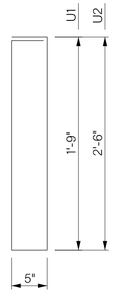


END DIAPHRAGM

A

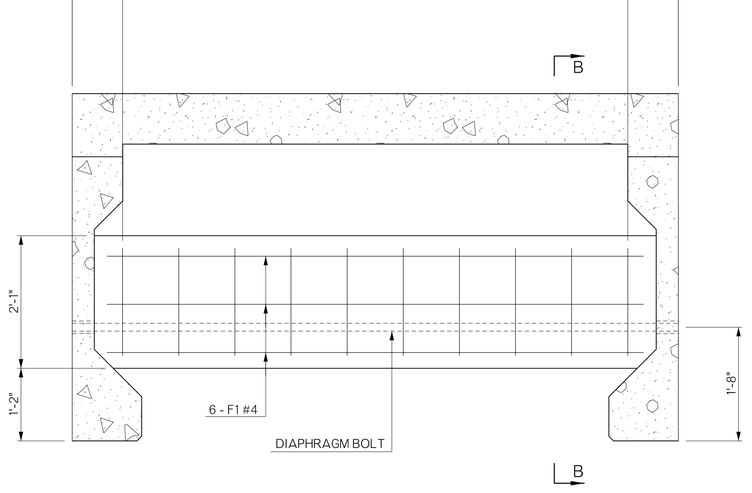


SECTION A-A



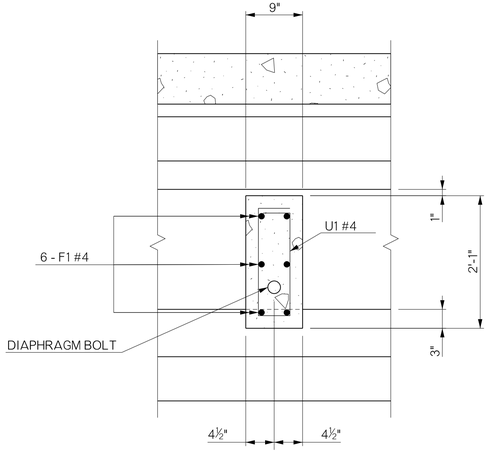
U1 #4 x 4'-9"
U2 #4 x 6'-3"

INTERMEDIATE & END DIAPHRAGM BAR LIST				
MARK	SIZE	NO.	FORM	LENGTH
EPOXY COATED REINFORCING STEEL				
F1	#4	30	STR.	9'-0"
F2	#4	40	STR.	8'-0"
F3	#4	20	STR.	9'-0"
U1	#4	50	BENT	4'-9"
U2	#4	90	BENT	6'-3"



INTERMEDIATE DIAPHRAGM

B



SECTION B-B

100% PS&E SUBMITTAL

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE BRIDGE REPLACEMENT OVER ROCK CREEK

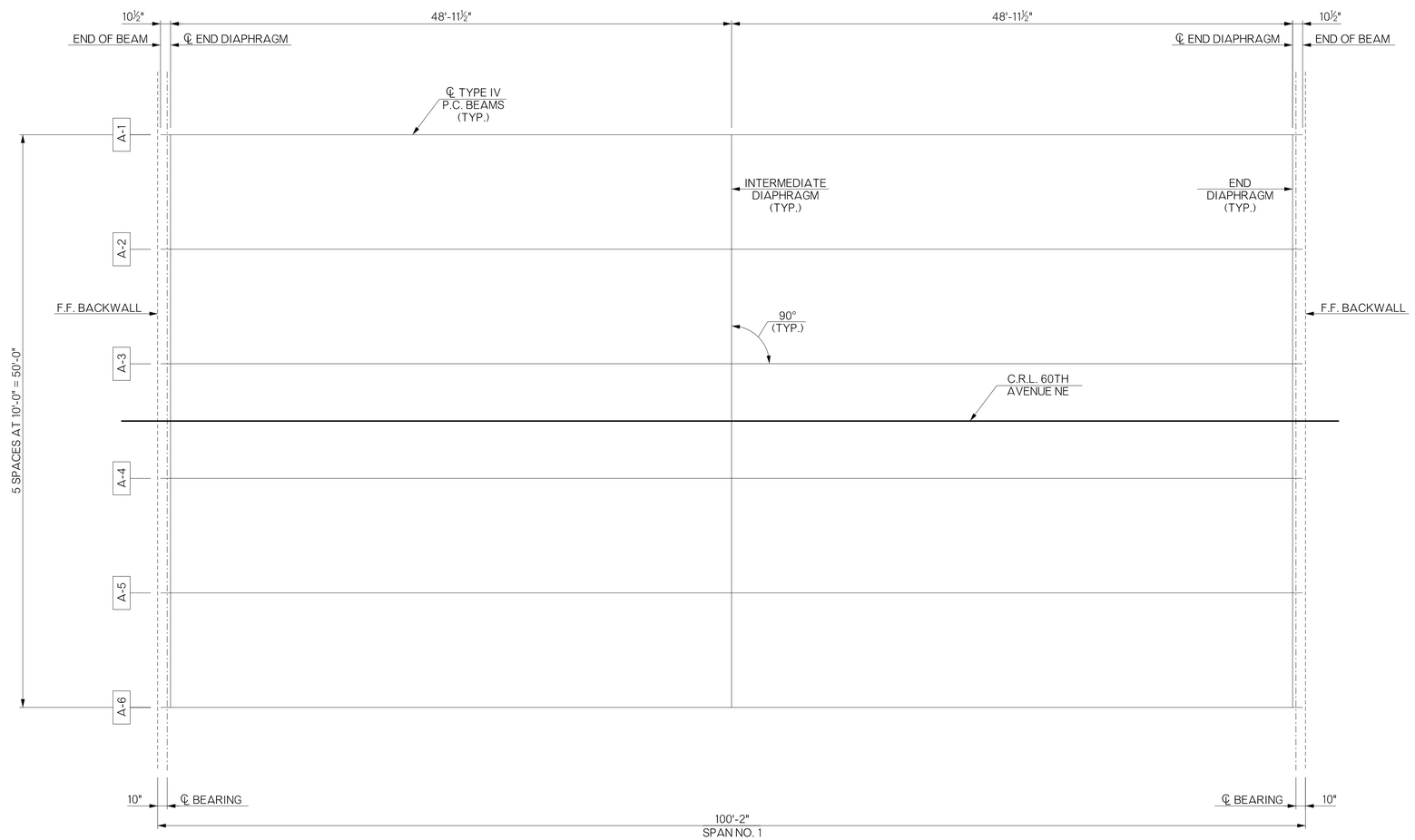
DIAPHRAGM DETAILS

JOB NO.: 22T28060
DATE: SEPT. 2023
DESIGNED BY: WDW
DRAWN BY: WDW

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER

SHEET NUMBER B014



FRAMING PLAN

CA #4193 EXPIRES JUNE 30, 2024

100% PS&E SUBMITTAL

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE BRIDGE REPLACEMENT OVER ROCK CREEK

FRAMING PLAN

JOB NO.: 22T28060
DATE: SEPT. 2023
DESIGNED BY: WDW
DRAWN BY: SJL

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0 1"
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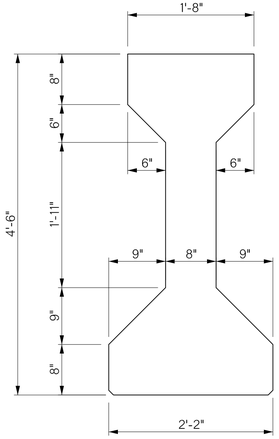
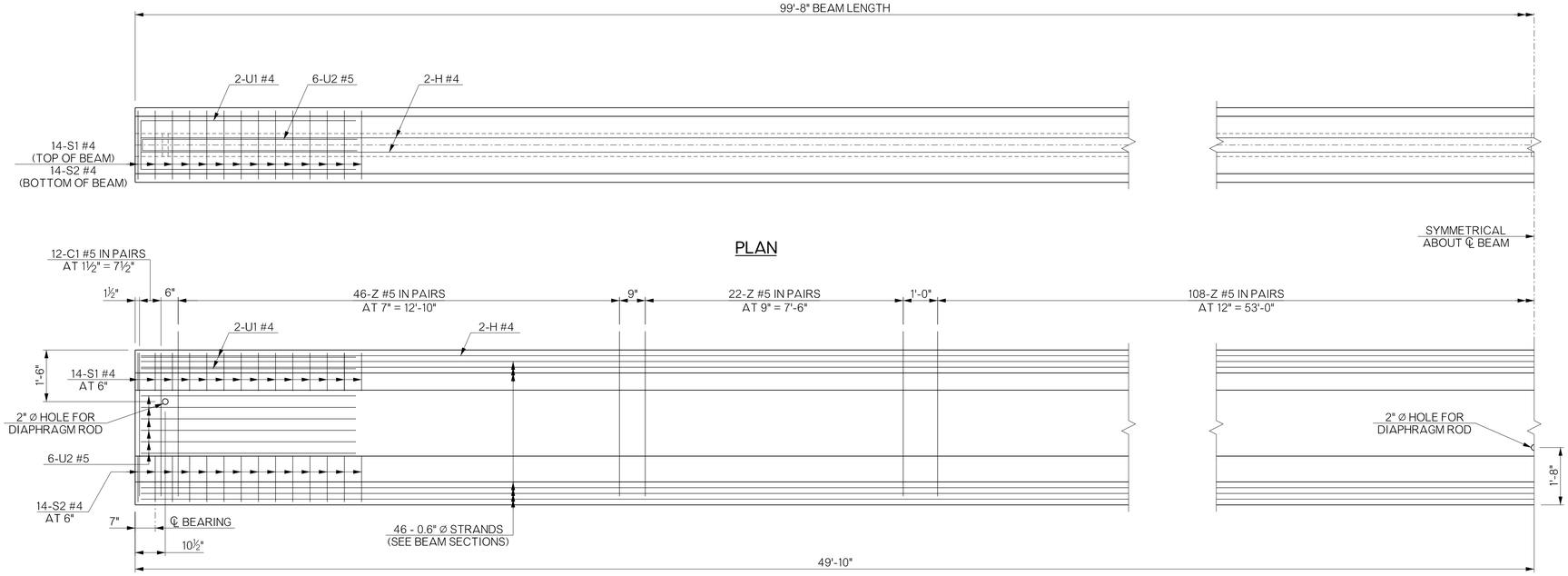
DRAWING NUMBER

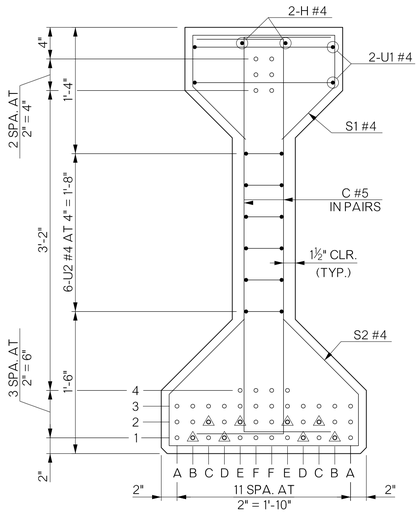
SHEET NUMBER B015



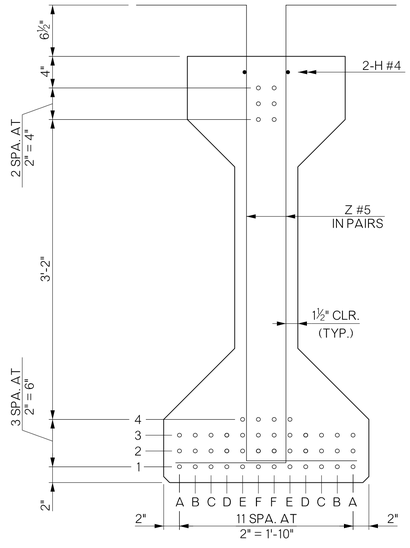
END VIEW



ELEVATION



END SECTION



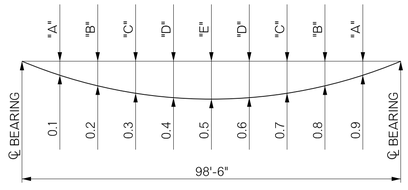
℄ SECTION

BEAM SECTIONS
(46- 0.6" Ø STRANDS)

LEGEND

△ DEBONDED STRAND

DEBOND SCHEDULE	
DEBOND PAIR	DEBOND LENGTH FROM END OF BEAM
B1	16'-0"
D1	8'-0"
C2 & E2	4'-0"



DEAD LOAD DEFLECTION DIAGRAM

NOTE:
THE DEAD LOAD DEFLECTION SHOWN ABOVE AT THE TENTH POINTS ARE THE INITIAL DEFLECTIONS DUE TO DECK SLAB + DIAPHRAGMS + HAUNCH + S.I.P. DECK FORMS + CONCRETE TRAFFIC RAIL (TR3). IT DOES NOT INCLUDE THE BEAM WEIGHT OR FUTURE WEARING SURFACE.

DEAD LOAD DEFLECTION VALUES					
GIRDER	"A"	"B"	"C"	"D"	"E"
EXT.	0.44"	0.87"	1.20"	1.41"	1.48"
INT.	0.50"	0.97"	1.34"	1.58"	1.66"

PRESTRESSED CONCRETE BEAM NOTES:
COMPRESSIVE STRENGTH
THE REQUIRED COMPRESSIVE STRENGTH OF THE CONCRETE IS 7,000 P.S.I. AT TRANSFER OF PRESTRESS AND 10,000 P.S.I. AT 28 DAYS.
STRAND TYPE
THE REQUIRED STRAND TYPE IS LOW-RELAXATION. USE STRANDS HAVING A NOMINAL DIAMETER OF 0.6" WITH ULTIMATE TENSILE STRENGTH OF 270 K.S.I.
LFD OPERATING RATING - HS 65.2
LRFD OPERATING RATING - 2.14 (HL-93)
THE OPERATING RATING SHOWN IS BASED ON A NOMINAL STRENGTH AND INCLUDES PARTIALLY BONDED STRANDS IN STRENGTH COMPUTATIONS.

GARVER

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BEAM DETAILS (SHEET 1 OF 2)

JOB NO.: 22T28060
DATE: SEPT. 2023
DESIGNED BY: WDW
DRAWN BY: WDW

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
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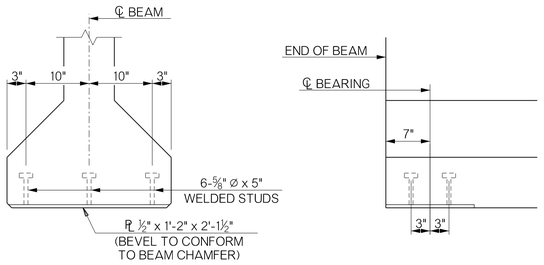
DRAWING NUMBER

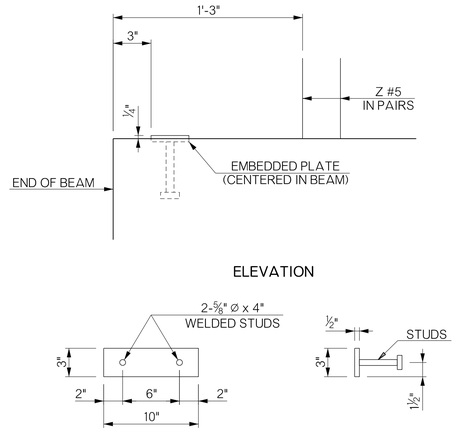
SHEET NUMBER B016



END VIEW ELEVATION

EMBEDDED SOLE PLATE DETAILS

NOTE:
EMBEDDED SOLE PLATE LOCATED AT EACH END OF BEAM.

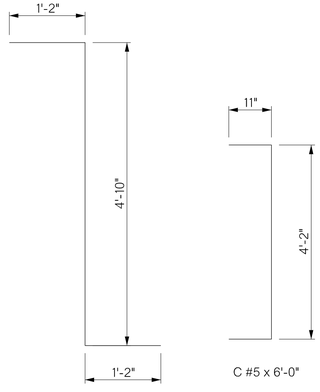


ELEVATION

TOP VIEW END VIEW

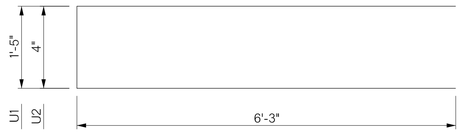
EMBEDDED BEAM PLATE DETAILS

NOTE:
EMBEDDED BEAM PLATE LOCATED AT EXPANSION END ONLY.

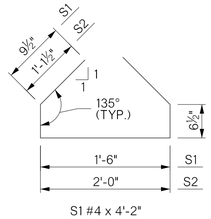


Z #5 x 7'-2"
(EPOXY COATED)

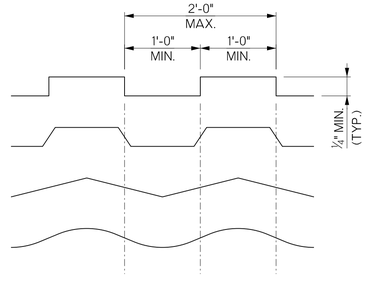
C #5 x 6'-0"



U1 #4 x 13'-11"
U2 #5 x 12'-10"



S1 #4 x 4'-2"
S2 #4 x 5'-4"



INTENTIONALLY ROUGHENED SURFACE EXAMPLES

NOTE:
TOP SURFACE OF P.C. BEAMS SHALL BE INTENTIONALLY ROUGHENED TO A MINIMUM HEIGHT OF ¼" OVER A MAXIMUM PITCH OF 2" MEASURED LONGITUDINALLY ALONG THE LENGTH OF THE BEAM. THE CREST AND TROUGH ASSOCIATED WITH THE HEIGHT SHALL NOT BE LESS THAN ½" AND SHALL EXTEND THE FULL WIDTH OF THE TOP FLANGE. ROUGHENED SURFACE MAY BE OBTAINED BY A SPECIAL TROWEL AS SHOWN IN THE EXAMPLES, BY CLEANING THE CONCRETE SURFACE WITH A STIFF WIRE BRUSH (OR BLASTING) TO THE EXTENT THAT AGGREGATE IS EXPOSED TO A HEIGHT OF ¼", OR BY ANOTHER APPROVED METHOD. THE METHOD USED SHALL BE SUBMITTED FOR APPROVAL BY THE ENGINEER. REPAIR ANY DAMAGE TO REINFORCEMENT EPOXY COATING BEFORE PLACEMENT OF DECK CONCRETE.

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60TH AVENUE NE BRIDGE REPLACEMENT OVER ROCK CREEK

BEAM DETAILS (SHEET 2 OF 2)

JOB NO.: 22T28060
DATE: SEPT. 2023
DESIGNED BY: WDW
DRAWN BY: WDW

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0 1"
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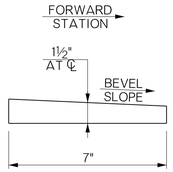
DRAWING NUMBER

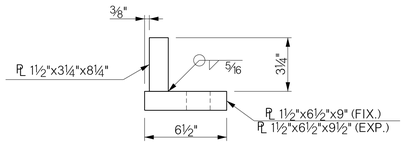
SHEET NUMBER B017

BEVEL SLOPE TABLE	
LOCATION	SLOPE
ABUTMENT NO. 1	0.00%
ABUTMENT NO. 2	1.50%

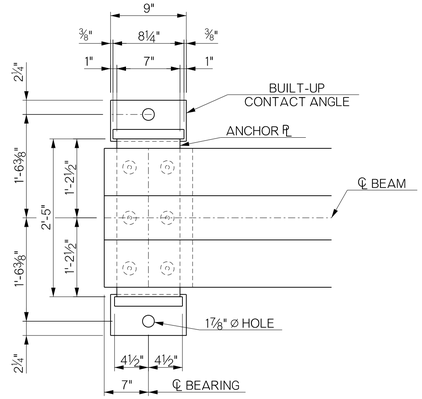


BEVELED ANCHOR PLATE DETAIL

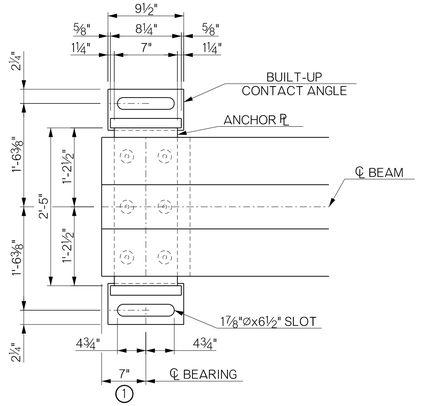
NOTE:
PAINT THICK EDGE RED.



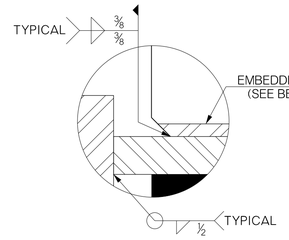
BUILT UP CONTACT ANGLE DETAIL



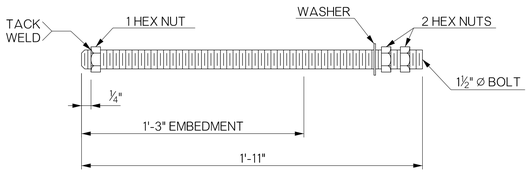
FIXED BEARING PLAN



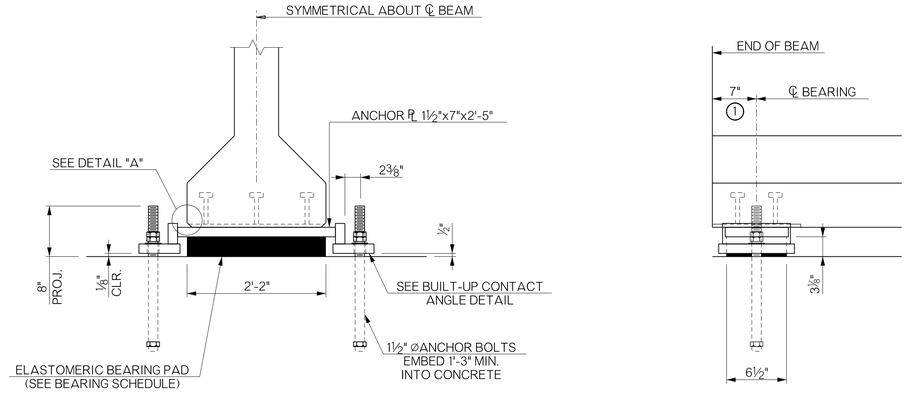
EXPANSION BEARING PLAN



DETAIL "A"



ANCHOR BOLT DETAIL



END VIEW

SIDE VIEW

BEARING DETAILS

BEARING ASSEMBLY NOTES:
PROVIDE STRUCTURAL STEEL FOR ANCHOR PLATES AND BUILT-UP CONTACT ANGLES IN ACCORDANCE WITH ASTM A240 (AUSTENITIC STAINLESS STEEL, TYPE 316, CHARPY V-NOTCH TESTING NOT REQUIRED).

FOR ANCHOR BOLTS, PROVIDE CONTINUOUSLY THREADED BARS IN ACCORDANCE WITH ASTM A320, CLASS 2, GRADE B8M (AUSTENITIC STAINLESS STEEL, TYPE 316, CHARPY V-NOTCH TESTING NOT REQUIRED). USE AUSTENITIC STAINLESS STEEL NUTS AND WASHERS CONFORMING TO ASTM A194, GRADE 8M AND ASTM A320, RESPECTIVELY. PERFORM ALL WELDING CONSISTENT WITH PROCEDURES FOR STAINLESS STEEL.

BEARING PAD SCHEDULE ③					
LOCATION	60 DUROMETER ELASTOMERIC BEARING PAD				
	SIZE (T x L x W)	COVER LAYER	INNER LAYER	LAMINATE LAYER	WEIGHT ②
ABUTMENT NO. 1	3⅛" x 6½" x 2'-2"	2 - ¼"	5 - ⅜"	6 - ⅛"	190.60
ABUTMENT NO. 2	3⅛" x 6½" x 2'-2"	2 - ¼"	5 - ⅜"	6 - ⅛"	193.40

② AVERAGE ESTIMATED WEIGHT OF STRUCTURAL STEEL PER BEARING.

③ BONDING TO ANCHOR PLATE IS NOT REQUIRED

① ANCHOR BOLTS SHALL BE CENTERED IN SLOTS DURING SETTING OF BEAMS. DIMENSION MAY VARY DEPENDING ON TEMPERATURE AT THE TIME OF BEAM SETTING.

GARVER

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60TH AVENUE NE
BRIDGE REPLACEMENT
OVER ROCK CREEK

BEARING DETAILS

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DESIGNED BY: WDW
DRAWN BY: WDW

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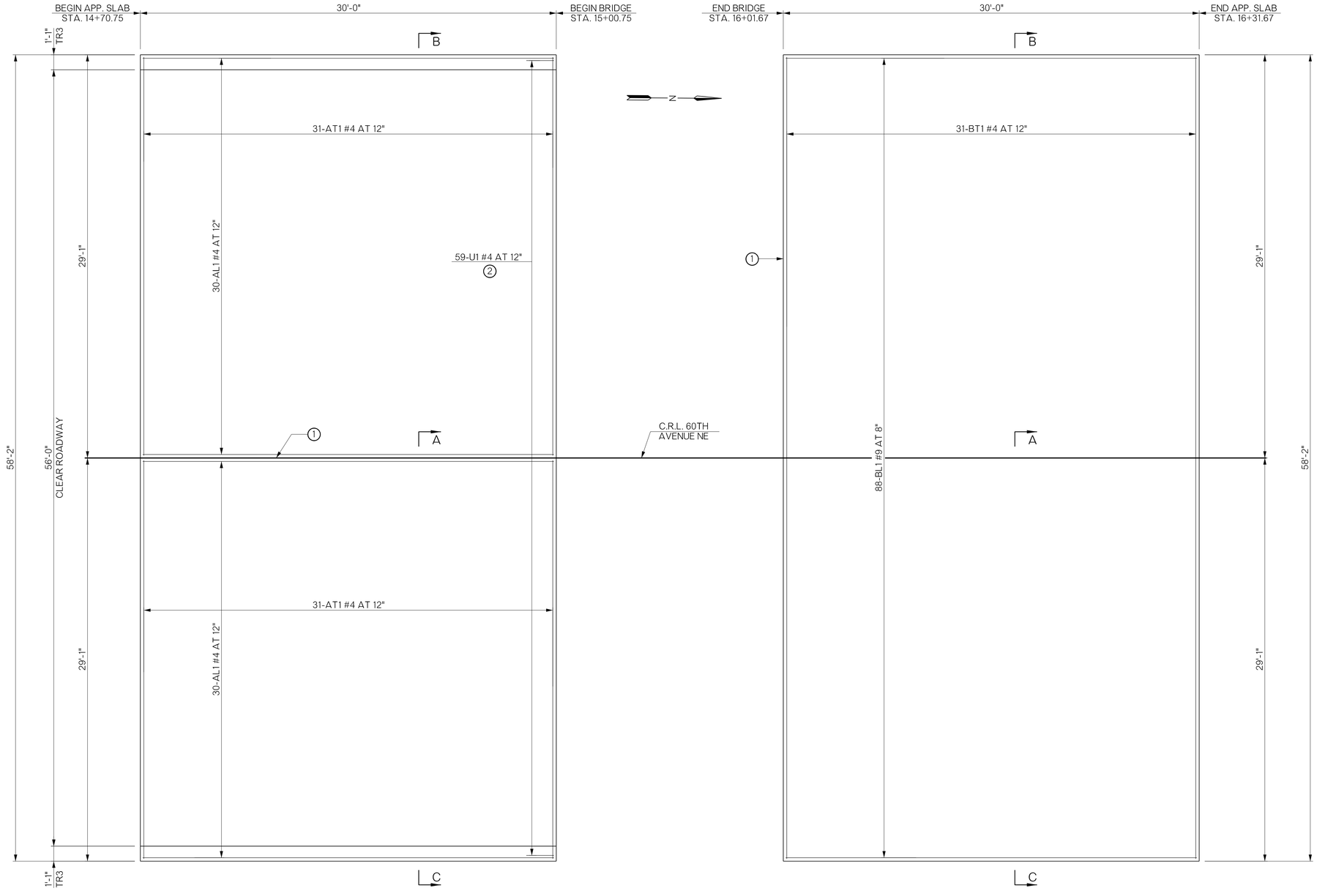
DRAWING NUMBER

SHEET NUMBER B018



APPROACH SLAB AT ABUTMENT NO. 1
(SHOWING TOP MAT OF REINFORCING STEEL)

APPROACH SLAB AT ABUTMENT NO. 2
(SHOWING BOTTOM MAT OF REINFORCING STEEL)

(1) SAWED AND SEALED CONSTRUCTION JOINT IN THE TOP OF APPROACH SLAB. SEE DETAIL "A" ON SHEET NO. B010.

(2) U1 BARS LOCATED AT BEGIN APPROACH SLAB NO. 1 ONLY.

NOTES:
DO NOT GROOVE WITHIN 6" OF ANY JOINT.

PARAPET REINFORCEMENT OMITTED FOR CLARITY, SEE STD. TR3-2-01E AND SHEET NO. B013 FOR ADDITIONAL DETAILS.

FOR SUMMARY OF QUANTITIES AND SECTIONS A, B, AND C, SEE SHEET NO. B020.

GARVER

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APPROACH SLAB DETAILS (SHEET 1 OF 2)

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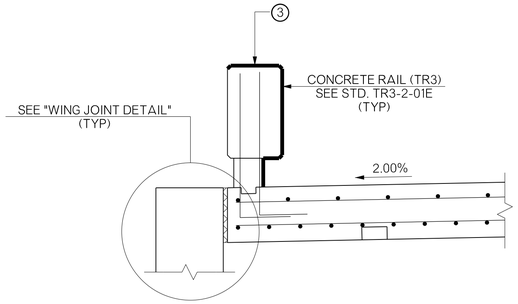
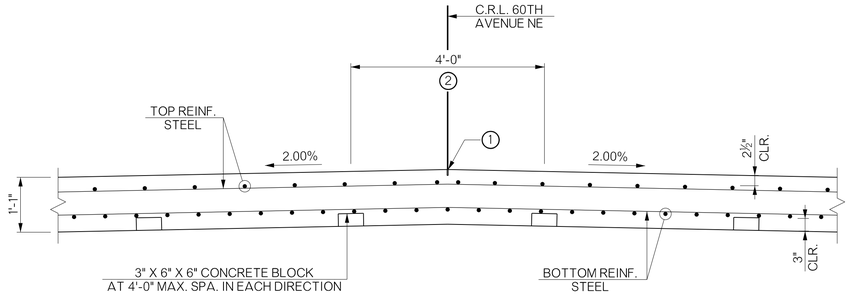
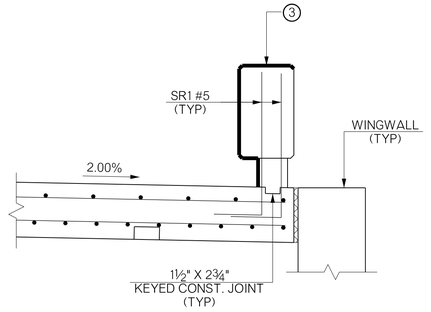


SECTION B



SECTION A THRU APPROACH SLAB



SECTION C

(1) ¼" SAWED AND SEALED CONSTRUCTION JOINT IN THE TOP OF EACH APPROACH SLAB. SEE "SAWED AND SEALED JOINT DETAIL" ON SHEET NO. B010.

(2) ROUND 2'-0" EACH SIDE OF C.R.L. TO AVOID SHARP EDGES.

(3) APPLY WATER REPELLENT TO THE SURFACES INDICATED BY HEAVY LINE.

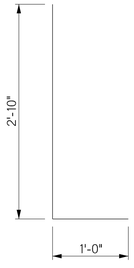
SUMMARY OF QUANTITIES - APPROACH SLABS				
ITEM	UNIT	APPROACH SLAB NO. 1	APPROACH SLAB NO. 2	TOTAL
(4) (5) APPROACH SLAB	SY	193.90	193.90	387.80
SAW-CUT GROOVING	SY	187.00	187.00	374.00
CONCRETE RAIL (TR3)	LF	60.00	60.00	120.00
WATER REPELLENT (VISUALLY INSPECTED)	SY	25.00	25.00	50.00

(4) THE CONTRACT UNIT PRICE FOR "APPROACH SLAB" SHALL BE FULL COMPENSATION FOR CONCRETE, EPOXY COATED REINFORCING STEEL (INCLUDING SR1 BARS), BACKER ROD, RAPID CURE JOINT SEALANT, POLYSTYRENE, LABOR, EQUIPMENT, AND OTHER INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SPECIFIED IN THE PLANS.

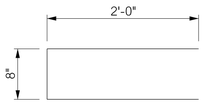
(5) THERE IS AN ESTIMATED 70.10 C.Y. OF CLASS AA CONCRETE AND 13,560.00 LB. OF EPOXY COATED REINFORCING STEEL IN APPROACH SLAB NO. 1. THERE IS AN ESTIMATED 70.10 C.Y. OF CLASS AA CONCRETE AND 13,260.00 LB. OF EPOXY COATED REINFORCING STEEL IN APPROACH SLAB NO. 2.

BAR LIST - APPROACH SLAB NO. 1				
MARK	SIZE	NO.	FORM	LENGTH
EPOXY COATED REINFORCING STEEL				
AL1	#4	60	STR.	29'-8"
AT1	#4	62	STR.	28'-9"
BL1	#9	88	STR.	29'-8"
BT1	#4	31	STR.	57'-10"
EPT	#4	3	STR.	57'-10"
SR1	#5	200	BENT	3'-10"
U1	#4	59	BENT	4'-8"

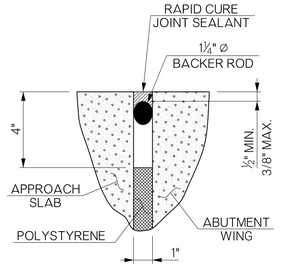
BAR LIST - APPROACH SLAB NO. 2				
MARK	SIZE	NO.	FORM	LENGTH
EPOXY COATED REINFORCING STEEL				
AL1	#4	60	STR.	29'-8"
AT1	#4	62	STR.	28'-9"
BL1	#9	88	STR.	29'-8"
BT1	#4	31	STR.	57'-10"
SR1	#5	200	BENT	3'-10"



SR1 #5 x 3'-10"



U1 #4 x 4'-8"



WING JOINT DETAIL

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APPROACH SLAB DETAILS (SHEET 2 OF 2)

JOB NO.: 22T28060
DATE: SEPT. 2023
DESIGNED BY: WDW
DRAWN BY: WDW

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0 1"
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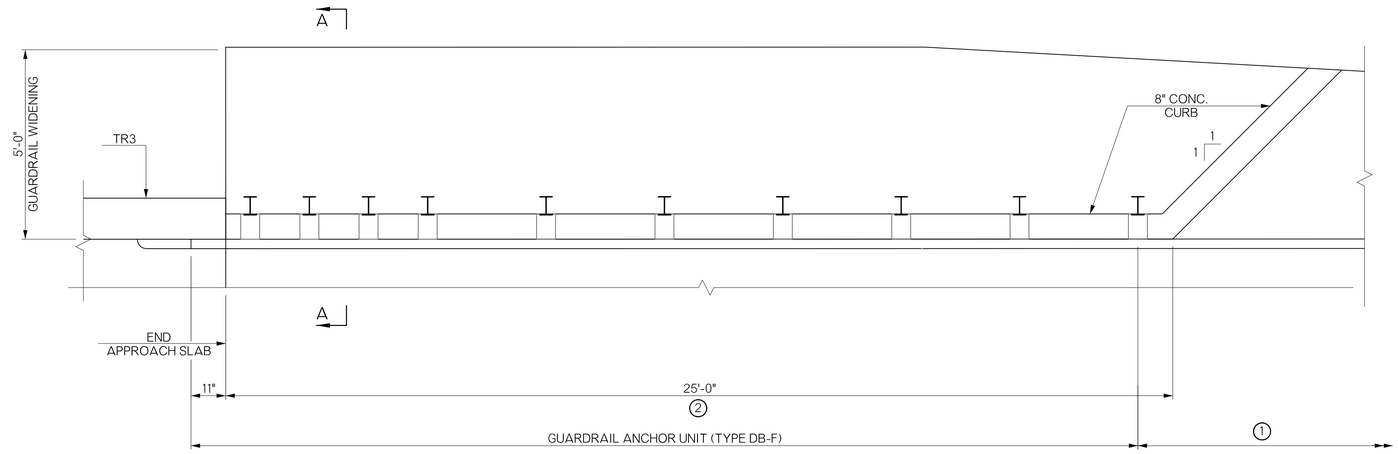
DRAWING NUMBER

SHEET NUMBER B020



SLOPE DRAIN PLAN

(INSTALL SLOPE DRAINS ON NORTH END OF BRIDGE ONLY)
(INSTALL GUARDRAIL AT ALL CORNERS OF BRIDGE)
(NW CORNER SHOWN; NE CORNER SIMILAR BUT OPPOSITE HAND)

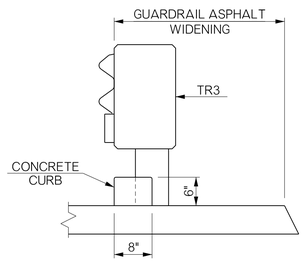
(1) BEAM TYPE GUARDRAIL. FOR GUARDRAIL LENGTHS, SEE "PLAN AND PROFILE" SHEETS.

(2) 8" CONCRETE CURB TO BE INCLUDED IN BRIDGE QUANTITIES.

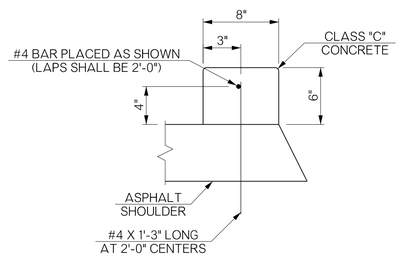
NOTES:

GUARDRAIL ASPHALT WIDENING AND GUARDRAIL SYSTEM SHALL BE IN ACCORDANCE WITH STANDARDS DBF-1-00, SKT-1-00, GHW1-1-00 & GHW2-1-00, EXCEPT AS SHOWN ON THIS SHEET. ALL COSTS OF GUARDRAIL ASPHALT WIDENING AND GUARDRAIL SYSTEM SHALL BE INCLUDED IN ROADWAY PAY ITEMS.

ALL CONCRETE CURBS SHALL BE CONSTRUCTED USING CLASS C CONCRETE AS SHOWN ON THIS SHEET. ALL COSTS OF THE 8" CONCRETE CURB INCLUDING CONCRETE AND REINFORCING STEEL SHALL BE INCLUDED IN THE PAY ITEM PER CUBIC YARD OF "CLASS C CONCRETE".



SECTION A-A



DETAIL OF CONCRETE CURB

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DRAIN DETAILS

JOB NO.: 22T28060
DATE: SEPT. 2023
DESIGNED BY: JTR
DRAWN BY: SJL

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0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER

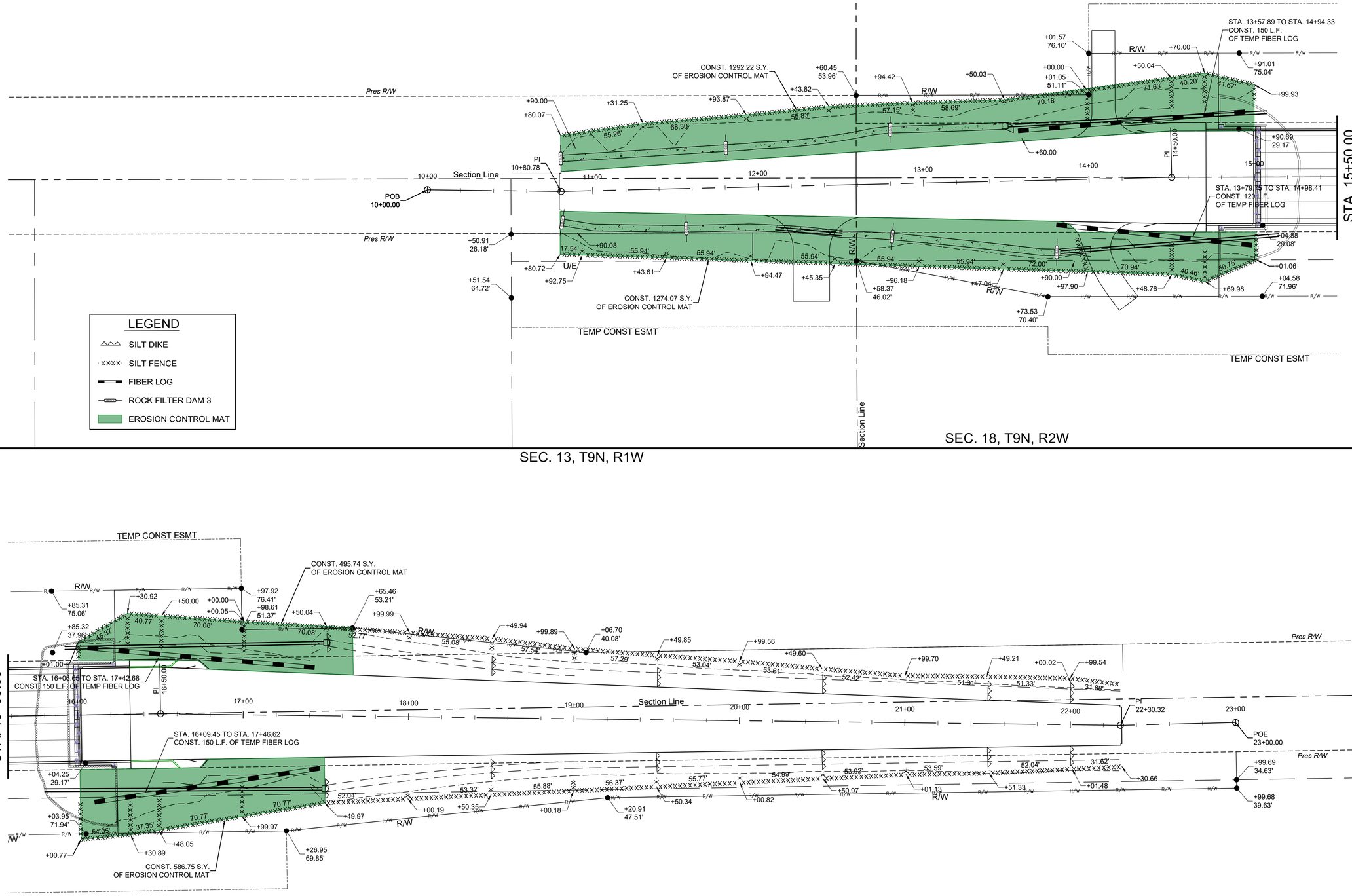
SHEET NUMBER B021

SEC. 13, T9N, R1W

SEC. 18, T9N, R2W

SEC. 13, T9N, R1W

SEC. 18, T9N, R2W



CA #4193 EXPIRES JUNE 30, 2024

100% PS&E SUBMITTAL

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE
BRIDGE REPLACEMENT
OVER ROCK CREEK

Erosion Control

JOB NO.: 22T28060
DATE: MAR 2024
DESIGNED BY: BDM
DRAWN BY: JHS

BAR IS ONE INCH ON ORIGINAL DRAWING

0 1"

IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

SHEET NUMBER EC01

STORM WATER MANAGEMENT PLAN

SITE DESCRIPTION

PROJECT LIMITS: BRIDGE AND APPROACHES OVER ROCK CREEK, APPROXIMATELY 2,900 FEET NORTH OF THE INTERSECTION OF ROCK CREEK ROAD AND 60TH AVENUE IN NORMAN, OKLAHOMA.

PROJECT DESCRIPTION: NEW BRIDGE CONSTRUCTION TO REPLACE LOAD POSTED BRIDGE

SUGGESTED SEQUENCE OF EROSION CONTROL ACTIVITIES: PRIOR TO INITIATING SOIL DISTURBING ACTIVITIES, THE CONTRACTOR WILL INSTALL ALL PERIMETER TEMPORARY SEDIMENT CONTROLS SPECIFIED AS NEEDED. STRIP, STOCKPILE, AND STABILIZE TOPSOIL. INSTALLED TEMPORARY SEDIMENT CONTROL DEVICES WILL BE MAINTAINED AND RELOCATED AS NECESSARY TO FACILITATE CONSTRUCTION. REPLACE SALVAGED TOPSOIL AS CONSTRUCTION PERMITS AND PLACE SOD. AS SITE CONDITIONS WARRANT, THE CONTRACTOR MAY CHOOSE TO MODIFY THE TYPE OR ARRANGEMENT OF TEMPORARY SEDIMENT CONTROL PRACTICES TO IMPROVE EFFECTIVENESS AS APPROVED BY THE ENGINEER. THE CONTRACTOR WILL MAINTAIN A LOG OF THE DATES OF MAJOR SOIL DISTURBING ACTIVITIES AND INSTALLATION OF EROSION CONTROL MEASURES.

SOIL TYPE: LOMILL SILTY CLAY, HARRAH FINE SANDY FOAM, STEPHENVILLE-DARNELL-NEWALLA COMPLEX, ASHPORT SILT LOAM

TOTAL AREA OF THE CONSTRUCTION SITE: 3.89 ACRES

ESTIMATED AREA TO BE DISTURBED: 0.49 ACRES

OFFSITE AREA TO BE DISTURBED: (FOR CONTRACTOR USE)

TOTAL IMPERVIOUS AREA PRE-CONSTRUCTION: 0.58 ACRES

TOTAL IMPERVIOUS AREA POST-CONSTRUCTION: 0.92 ACRES

POST-CONSTRUCTION RUNOFF COEFFICIENT OF THE SITE: 0.44

LATITUDE & LONGITUDE OF CENTER OF PROJECT: 35.25513°, -97.35308°

PROJECT WILL DISCHARGE TO:

NAME OF RECEIVING WATERS: ROCK CREEK

SENSITIVE WATERS OR WATERSHEDS: YES [ ] NO [X]

303(d) IMPAIRED WATERS: YES [X] NO [ ]

IF YES, LIST IMPAIRMENT: ENTEROCOCCI, E. COLI

LOCATED IN A TMDL: YES [ ] NO [X]

LAKE THUNDERBIRD TMDL: YES [X] NO [ ]

MS4 ENTITY YES [X] NO [ ]

IF YES, LOCATION: CITY OF NORMAN

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.

EROSION AND SEDIMENT CONTROLS

SOIL STABILIZATION PRACTICES:

- [X] TEMPORARY SEEDING
- [X] PERMANENT SODDING, SPRIGGING OR SEEDING
- [X] VEGETATIVE MULCHING
- [ ] SOIL RETENTION BLANKET
- [ ] PRESERVATION OF EXISTING VEGETATION
- [ ] HYDROMULCH / HYDROSEED

NOTE: TEMPORARY EROSION CONTROL METHODS MUST BE USED ON ALL DISTURBED AREAS WHERE CONSTRUCTION ACTIVITIES HAVE CEASED FOR OVER 14 DAYS. METHODS USED WILL BE AS SHOWN ON PLANS, OR AS DIRECTED BY THE ENGINEER.

STRUCTURAL PRACTICES:

- [X] STABILIZED CONSTRUCTION EXIT
- [X] TEMPORARY SILT FENCE
- [X] TEMPORARY SILT DIKES
- [X] TEMPORARY FIBER LOG
- [ ] DIVERSION, INTERCEPTOR OR PERIMETER DIKES
- [ ] DIVERSION, INTERCEPTOR OR PERIMETER SWALES
- [X] ROCK FILTER DAMS
- [ ] TEMPORARY SLOPE DRAIN
- [X] PAVED DITCH W/ DITCH LINER PROTECTION
- [ ] TEMPORARY DIVERSION CHANNELS
- [ ] TEMPORARY SEDIMENT BASINS
- [ ] TEMPORARY SEDIMENT TRAPS
- [X] TEMPORARY SEDIMENT FILTERS
- [X] TEMPORARY SEDIMENT REMOVAL
- [X] RIP RAP
- [ ] INLET PROTECTION
- [ ] TEMPORARY BRUSH SEDIMENT BARRIERS
- [ ] SANDBAG BERMS
- [ ] TEMPORARY STREAM CROSSINGS
- [ ] FLEXAMAT / ARTICULATED CONCRETE BLOCK
- [ ] COMPOST FILTER SOCKS
- [X] EROSION CONTROL MATS AND BLANKETS

OFFSITE VEHICLE TRACKING:

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

NOTES:

LOCATED IN LAKE THUNDERBIRD WATERSHED.

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 INCH 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 (SWPPP) 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 THE 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 SWPPP, 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 OF MATERIAL
107.01	LAWS, RULES AND REGULATIONS TO BE OBSERVED
107.20	STORM WATER MANAGEMENT
220	MANAGEMENT OF EROSION, SEDIMENTATION AND STORM WATER POLLUTION PREVENTION
221	AND CONTROL 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, OCTOBER 18, 2022.

ADDITIONAL PERMITS REQUIRED FROM OKLAHOMA WATER RESOURCES BOARD AND/OR MUNICIPALITY FOR USE OF SURFACE, GROUND OR CITY WATER SOURCES FOR ACTIVITIES SUCH AS WATERING.

100% PS&E SUBMITTAL

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE BRIDGE REPLACEMENT OVER ROCK CREEK

Storm Water Management Plan

JOB NO.: 22T28060
DATE: MAR 2024
DESIGNED BY: BDM
DRAWN BY: JHS

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

SHEET NUMBER R001

File: L:\2022\22T28060 - Norman Bridge Reconstruction 60th-Porter\Drawings\60th Avenue NE\22T28060 - Storm Water Management Plan.dwg Last Save: 12/14/2023 11:19 AM Last saved by: MCConrick
Last plotted by: Moran, Brett D. Plot Style: ASBUILTS.1.ctb Plot Scale: 1:0.4255 Plot Date: 3/14/2024 1:02 PM Plotter used: DWG To PDF.pc3

REVISED 8-1-2022

SEC. 13, T9N, R1W

SEC. 18, T9N, R2W

SE/4 Section 13, T-9-N, R-2-W, I.M

NE/4 Section 13, T-9-N, R-2-W, I.M

SW/4 Section 18, T-9-N, R-1-W, I.M

NW/4 Section 18, T-9-N, R-1-W, I.M

1/4 Section Line

POB 10+00.00

POE 23+00.00

PI 10+80.78

PI 14+50.00

PI 16+50.00

PI 22+30.32

N0° 24' 40.86"E 80.78'

N0°23'52"W 200.00'

N0°23'52"W ~ 2623.24'

N0°24'27"W ~ 2623.53'

N1°35'31"W 369.22'

N1°09'56"E 580.32'

N 699605.11 E 2161657.18

N 700756.28 E 2161657.33

N0° 55' 27.50"W 69.68'

SECTION LINE

CRL

50'

33'

STA. 10+79.70 BEGIN PROJECT

STA. 14+70.75 BEGIN BRIDGE APPROACH SLAB

STA. 15+00.75 BEGIN BRIDGE

STA. 16+01.67 END BRIDGE

STA. 16+31.67 END BRIDGE APPROACH SLAB

STA. 22+31.13 END PROJECT

STA. 10+50.91 to STA. 11+96.00
CONST. 163' WWF W/ STL COR & H-BRACES

STA. 12+60.45 to STA. 14+79.13
CONST. 287' 5BW FENCE W/ STL COR & H-BRACES. & RESET GATE @ STA. 14+28.69

STA. 12+58.69 to STA. 14+79.16
CONST. 264' 5BW FENCE W/ STL COR & H-BRACES

STA. 14+01.57 to STA. 16+97.92
CONST. 360' Temp 4BW FENCE w/T-Posts 6' C/C

STA. 12+58.37 to STA. 17+26.95
CONST. 558' Temp 4BW w/T-Posts 6' OC

STA. 16+23.91 to STA. 22+32.71
CONST. 697' 5BW FENCE W/ STL COR & H-BRACES

STA. 16+24.14 to STA. 22+99.69
CONST. 742' 5BW FENCE W/ STL COR & H-BRACES

DO NOT DISTURB 4 TREES IN TCE

TEMP CONST ESMT

TOC/TOS

BERM

BM 301
STA. 14+27.45, 46.58' RT.
SET #5 BAR
N: 699954.03
E: 2161694.12

BM 302
STA. 16+07.49, 35.13' RT.
SET #5 BAR
N: 700133.01
E: 2161680.96

BM 303
STA. 18+55.91, 18.59' LT.
SET #5 BAR
N: 700381.52
E: 2161631.15

FLEXAMAT SUMMARY	
NAME	AREA (SY)
A	140.14
B	121.24
C	90.27
D	149.66

HYDRAULIC SUMMARY			
FREQ.	Q(CFS)	CHW(FT)	V(FPS)
2	1073	1060.91	7.37
5	2002	1063.59	8.67
10	2801	1065.36	9.39
25	3984	1067.54	9.96
50	5218	1069.49	10.14
100	6319	1070.82	10.13

HATCH LEGEND
- PROPOSED ROAD / DRIVES
- PAVED DITCHES
- UNPAVED DITCH

STR. 5 ~ STA. 12+29.97
CONST. 18" X 40.3' RCP SIDE DRAIN
27.61 RT. @ 8.18% W/ TYPE A4 CET
℄ IN=1084.50
℄ OUT=1081.20

STR 1 ~ STA 13+50.00
CONST SMD Type 1, 33.48' LT
TG = 1078.12
℄ N = 1075.13 ~ 18"x158.62' RCP @ 2.79% w/A4 CET

STR 2 ~ STA 13+80.04
CONST SMD Type 1, 43.74' RT
TG = 1075.18
℄ N = 1072.18 ~ 18"x134.12' RCP @ 1.10% w/A4 CET

STR 3 ~ STA 17+50.00
CONST SMD Type 1, 44.09' RT
TG = 1068.52
℄ S = 1065.52 ~ 18"x169.52' RCP @ 0.86% w/A4 CET

STR 4 ~ STA 17+50.00
CONST SMD Type 1, 44.15' LT
TG = 1068.52
℄ S = 1065.52 ~ 18"x158.38' RCP @ 0.85% w/A4 CET

PVI 10+00.00 ELEV. 1107.31
PVI 10+79.70 ELEV. 1098.77
PVI 10+80.96 ELEV. 1097.21
PVI 10+79.70 ELEV. 1097.05
PVI 11+00.00 ELEV. 1094.67
PVI 11+50.00 ELEV. 1089.79
PVI 11+94.58 ELEV. 1087.55
PVI 12+00.00 ELEV. 1085.30
PVI 12+10.00 ELEV. 1084.50
PVI 12+50.00 ELEV. 1081.20
PVI 12+75.00 ELEV. 1079.62
PVI 13+50.00 ELEV. 1078.12
PVI 13+60.00 ELEV. 1079.12
PVI 14+03.20 ELEV. 1075.29
PVI 13+75.00 ELEV. 1075.15
PVI 17+40.00 ELEV. 1070.19
PVI 17+50.00 ELEV. 1068.52
PVI 22+31.13 ELEV. 1071.98
PVI 22+30.37 ELEV. 1070.91

PVI STA: 12+82.53
PVI EL: 1080.17
K: 40.64
300.07' V.C.

PVI STA: 16+60.00
PVI EL: 1076.40
K: 45.52
118.35' V.C.

PVI STA: 18+25.00
PVI EL: 1070.46
K: 53.26
211.65' V.C.

LOW PT. STA: 19+10.90
LOW PT EL: 1070.82

PVC: 12+00.00 ELEV: 1087.09
PVT: 15+00.07 ELEV: 1078.00
PVC: 16+00.83 ELEV: 1076.99
PVC: 17+19.18 ELEV: 1074.27
PVT: 19+30.82 ELEV: 1070.86

-10.27% -10.33% -9.77% -9.27% -9.27% -9.77% -9.95% -9.99% -8.45% -7.85% -2.00% -2.00% -10.00% -1.00% -3.60% 0.37% 0.50% -8.67%

PROPOSED WEST DITCH

PROPOSED EAST DITCH

PROP. EAST & WEST DITCH

PROFILE LINESTYLE LEGEND
- EXISTING ROAD
- PROPOSED ROAD
- EAST DITCH
- WEST DITCH

E.G.	FL
1107.31	1107.31
1101.95	1101.94
1096.78	1096.82
1091.90	1091.87
1087.09	1087.09
1083.71	1082.98
1081.87	1079.63
1080.55	1076.89
1079.47	1074.53
1078.62	1073.16
1078.00	1072.13
1077.50	1052.79
1077.00	1071.89
1076.23	1071.51
1074.92	1071.23
1073.25	1070.96
1071.97	1070.95
1071.17	1071.17
1070.83	1071.33
1070.93	1071.64
1071.11	1071.58
1071.30	1071.35
1071.49	1071.31
1071.68	1071.63
1071.86	1071.90
E.G.	1072.02
E.G.	FL

10+00 10+50 11+00 11+50 12+00 12+50 13+00 13+50 14+00 14+50 15+00 15+50 16+00 16+50 17+00 17+50 18+00 18+50 19+00 19+50 20+00 20+50 21+00 21+50 22+00 22+50 23+00

1110 1105 1100 1095 1090 1085 1080 1075 1070 1065 1060 1055 1050

SCALE IN FEET: 50 0 50 100

CA #4193 EXPIRES JUNE 30, 2024

100% PS&E SUBMITTAL

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE BRIDGE REPLACEMENT OVER ROCK CREEK

Plan and Profile

JOB NO.: 22T28060
DATE: MAR 2024
DESIGNED BY: BDM
DRAWN BY: JHS

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

SHEET NUMBER R002

File: L:\2022\22T28060 - Norman Bridge Reconstruction 60th-Porter\Drawings\60th Avenue NE\22T28060 - Plan and Profile - PSC.dwg Last Save: 3/14/2024 12:39 PM Last plotted by: Moran, Brett D. Plot Style: ASBUILTS.1.ctb Plot Scale: 1:0.4255 Plot Date: 3/14/2024 1:02 PM Plotter used: DWG To PDF.pc3

SEC. 13, T9N, R1W

SEC. 18, T9N, R2W

SE/4 Section 13, T-9-N, R-2-W, I.M

NE/4 Section 13, T-9-N, R-2-W, I.M

SW/4 Section 18, T-9-N, R-1-W, I.M

NW/4 Section 18, T-9-N, R-1-W, I.M

+61.72 10.84' LT. MB (REMOVE & RESET)

+16.11 4.95' LT. MB (REMOVE & RESET)

+49.43 27.09' LT. TB (REMOVE & RESET)

+14.01 0.21' LT. SIGN (REMOVE)

+32.05 4.72' LT. TB (REMOVE & RESET)

ELMER BRUEHL

JAMES C. LIGON AND REBECCA I. LIGON WARRANTY DEED BOOK 4321, PAGE 1203

STONEWALL HOMES, LLC WARRANTY DEED BOOK 6081, PAGE 821

HAROLD HANSMEYER TRUSTEE'S QUIT CLAIM DEED BOOK 5152, PAGE 290

W/4 Corner Section 18, T-9-N, R-1-W, I.M. Found #4 Bar

1/4 Section Line

E ROCK CREEK RD

E TECUMSEH RD

60TH AVENUE NE

Section Line

N00°03'52"W 2623.34'

N00°03'52"W 2623.53'

Pres R/W

Statutory R/W

U/E

TEMP CONST ESMT

STA. 12+79, 31' RT
(1) 12" x 6" TEE
(1) 6" GATE VALVE
(1) RELOCATE FH ASSEMBLY

STA. 12+75.00, 27' RT
(1) 12" GATE VALVE
(1) 12" SOLID SLEEVE
(1) WET CONNECTION

STA. 13+46.51
(1) 45° BEND

STA. 13+73.02
(1) 45° BEND

STA. 14+65
(1) 12" GV

STA. 15+05.58
(1) 45° BEND (VERT).

STA. 15+21.28
(1) 45° BEND (VERT.)

STA. 15+91.72
(1) 45° BEND (VERT).

BORE 70.01' LF 12" PVC

STA. 16+07.23
(1) 45° BEND (VERT).

STA. 16+53
(1) 12" GV

STA. 17+64.81
(1) 11 1/4° BEND (VERT).

STA. 18+31.10
(1) 11 1/4° BEND (VERT).

STA. 18+50, 47' RT
(1) LEAK DETECTION BY-PASS METER ASSEMBLY (SEE DETAIL SHEET AW01)

STA. 21+83, 37' RT
(1) RELOCATE F.H ASSEMBLY
(1) 12" x 6" TEE
(1) 6" GATE VALVE

PROPOSED 12" WATERLINE

STA. 22+01.05
(1) 12" SOLID SLEEVE
(1) 12" GATE VALVE
(1) WET CONNECTION
(1) 45° BEND

STA. 21+86.21
(1) 45° BEND

12' Public Utility Easement Book 4337, Page 102

STA. 12+34.87' RT. PP
STA. 12+65.17' RT. TB
STA. 12+28.33' RT. GW

STA. 13+37.41' RT. PP

STA. 13+36.61' RT. WV
STA. 13+39.03' RT. FH (REMOVE & RELOCATE)

STA. 14+35.64' RT. GW
STA. 14+34.11' RT. TB
STA. 14+41.84' RT. PP
STA. 14+35.77' RT. SIGN
STA. 14+31.10' RT. SIGN (REMOVE)

STA. 15+32.28' RT. SIGN (REMOVE)

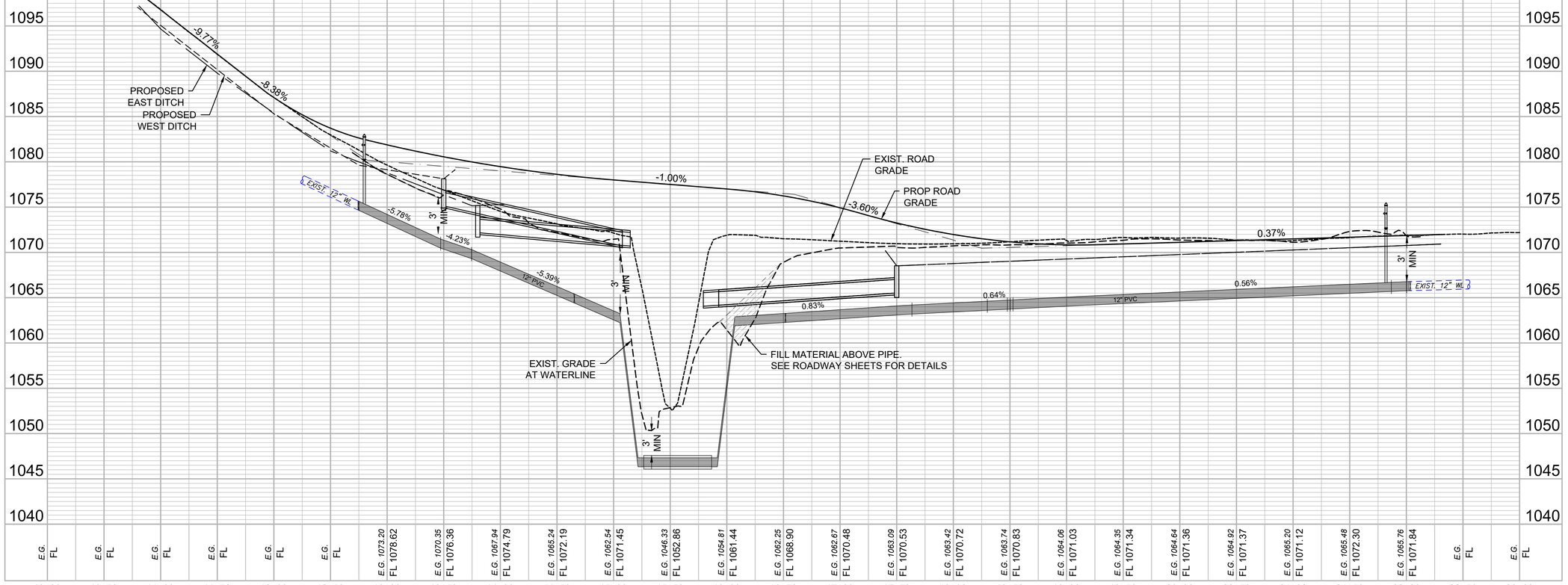
STA. 16+31.38.59' RT. PP

STA. 16+30.38.87' RT. GW

STA. 16+28.40.14' RT. PP

STA. 16+29.35.50' RT. FH (REMOVE & RELOCATE)

SCALE IN FEET
50 0 50 100



CA #4193 EXPIRES JUNE 30, 2024

100% PS&E SUBMITTAL

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE BRIDGE REPLACEMENT OVER ROCK CREEK

Waterline Plan

JOB NO.: 22T28060
DATE: MAR 2024
DESIGNED BY: BDM
DRAWN BY: JHS

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

SHEET NUMBER R003

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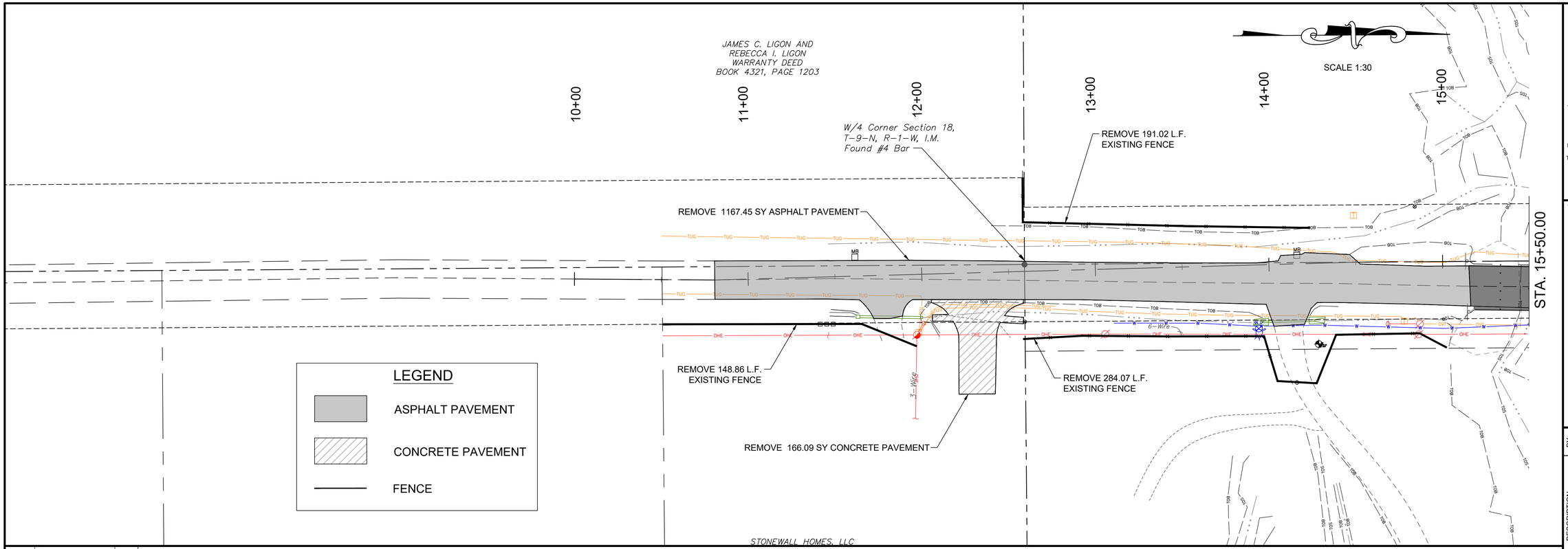
Last plotted by: Moran, Brett D. Plot Style: ASBUILTS 1.ctb Plot Scale: 1:0.4255 Plot Date: 3/14/2024 1:02 PM Plotter used: DWG To PDF.pc3



100% PS&E SUBMITTAL

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE
BRIDGE REPLACEMENT
OVER ROCK CREEK

Removals

JOB NO.: 22T28060
DATE: MAR 2024
DESIGNED BY: BDM
DRAWN BY: JHS

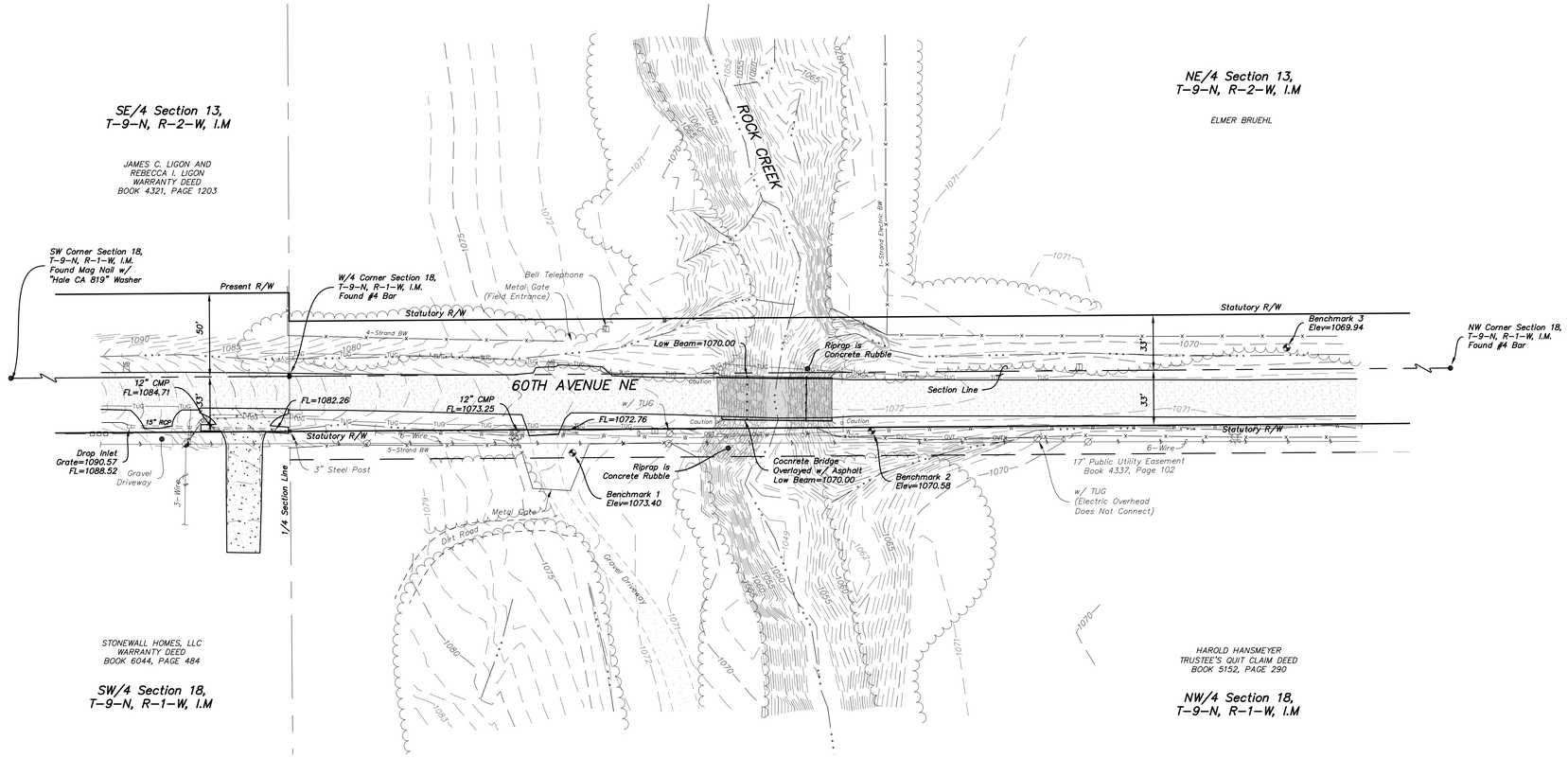
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

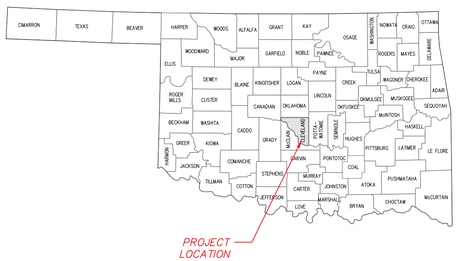
SHEET NUMBER R004

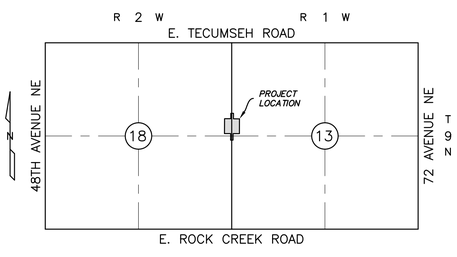
File: L:\2022\22T28060 - Norman Bridge Reconstruction 60th-Porter\Drawings\60th Avenue NE\22T28060 - Removals.dwg Last Save: 2/1/2024 1:40 PM Last saved by: JHSmith
Last plotted by: Moran, Brett D Plot Style: ASBUILTS 1.ctb Plot Scale: 1:0.4255 Plot Date: 3/14/2024 1:02 PM Plotter used: DWG To PDF.pc3

TOPOGRAPHIC SURVEY FOR

60th AVENUE BRIDGE OVER ROCK CREEK
NORMAN, CLEVELAND COUNTY, OKLAHOMA







UTILITY WARNING:
The underground utilities shown have been located from record documents or field locations by the operator. The surveyor makes no guarantee that the underground utilities shown comprise all such utilities in the area either in service or abandoned. The surveyor further does not warrant that the underground utilities shown are in the exact location indicated although the surveyor does certify that they are located as accurately as possible from the information available. The surveyor has not physically located the underground utilities.

Utility elevations and sizes may have been measured under adverse field conditions. Upon exposing the utility, elevations and line sizes should be verified by the contractor prior to construction. Contractor should verify critical elevations using the benchmark provided by the surveyor or engineer. Any discrepancies should be immediately brought to the engineer's and surveyor's attention.

Call OKIE Ticket No. 22120711582204.

SURVEY CONTROL

ON-SITE HORIZONTAL AND VERTICAL CONTROL - CITY OF NORMAN CONTROL				
384	702751.240	2166845.710	1054.81	BRASS CAP
358	702368.630	2161313.220	1122.22	BRASS CAP
ON-SITE HORIZONTAL AND VERTICAL CONTROL				
LLS 100	699231.876	2161681.950	1130.82	#4 BAR W/ "LEMKE" CAP
LLS 101	700809.325	2161680.233	1072.72	#4 BAR W/ "LEMKE" CAP
ON-SITE VERTICAL CONTROL - BENCHMARKS				
BENCHMARK 1	699954.025	2161694.117	1073.40	SET # 5 BAR FLUSH
BENCHMARK 2	700133.007	2161680.959	1070.58	SET # 5 BAR FLUSH
BENCHMARK 3	700381.516	2161631.145	1069.94	SET # 5 BAR FLUSH
HORIZONTAL DATUM: OKLAHOMA STATE PLANE, NAD83(CORS96), SOUTH ZONE				
VERTICAL DATUM: NAVD88				

CONTROL SURVEY CERTIFICATE

I, KELLY J. HENDERSON, certify that this horizontal/vertical control survey was completed under my direct and responsible charge from an actual survey made under my supervision and meets the Oklahoma Minimum Standards for the Practice of Land Surveying as adopted by the Oklahoma State Board of Licensure for Professional Engineers and Land Surveyors.

Control Notes:

1. *All horizontal coordinate values shown are U.S. Survey feet and all vertical elevation values are shown in feet.*
2. *All control points were established from City of Norman GPS control points 384 and 385. Control points LLS 100–101 were used as a basis for horizontal and vertical control, and as a basis of bearing for this survey. Benchmarks 1–3 were set and used as a basis for vertical control.*
2. *All bearings and distances are derived from the Oklahoma State Plane Coordinate System, NAD 83(CORS96), South Zone, as determined by RTK Observations in U.S. Survey feet. All field measurements and angles applied to control points were made with a Topcon Hyper HR.*
3. *All elevations of control points are based on initial elevation of LLS 100, the datum is NAVD88. All elevations are determined by Level to .01' accuracy.*
4. *All on–site control points were observed on November 30, 2022, and were observed several times throughout the duration of the survey.*

TOPOGRAPHIC LEGEND

TRANSFORMER POLE	BARBED WIRE FENCE
POWER POLE	OVERHEAD ELECTRIC LINE
DOWN GUY	STORM DRAIN LINE
TELEPHONE RISER	UNDERGROUND TELEPHONE LINE
FIRE HYDRANT	WATER LINE
WATER VALVE BOX	GROUND SURFACE CONTOUR
GUARD POST	SURFACE DRAINAGE FLOWLINE
MAILBOX	TREE DRIP LINE
SIGN	ASPHALT
	GRAVEL

TOPOGRAPHIC SURVEY CERTIFICATE

I, KELLY J. HENDERSON, certify that:

1. *This project was completed under my direct and responsible charge from an actual survey made under my supervision.*
2. *This ground survey was performed at the 95 percent confidence level to meet Federal Geographic Data Committee Standards.*
3. *This survey was performed to meet the Specifications for Topographic and Planimetric Mapping contained in the Oklahoma Minimum Standards for the Practice of Land Surveying as adopted by the Oklahoma State Board of Licensure for Professional Engineers and Land Surveyors. The original data was obtained on November 30–December 08, 2022.*
4. *The survey was completed on Devcember 14, 2022, and all coordinates are derived from the Oklahoma State Plane, NAD83(CORS96), South Zone and all elevations are based on NAVD88.*

If surveyor's signature is not notarized, the plan is a copy and should be assumed to contain unauthorized alterations. The information contained on this sheet shall not apply to any

KELLY J. HENDERSON, P.L.S. NO. 1395 DATED: 12/8/23

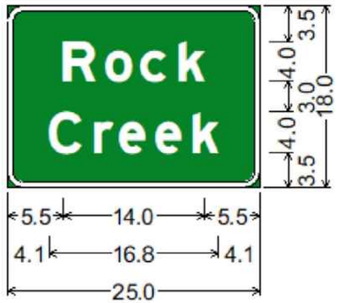
LEMKE LAND SURVEYING
LEMKE LAND SURVEYING
3208 EAST CORNER DRIVE,
NORMAN, OK 73071
PH.(405)366-8541 , FAX(405)366-8540
CA # 6975 http://www.lemke-ls.com

Mark	Description	Date	Appr.

Surveyed By:	DB/TM
Drawn By:	TG
Checked By:	KJH
Approved By:	
Date:	12/22/2022
Scale:	1" = 40'
Project No:	01254422

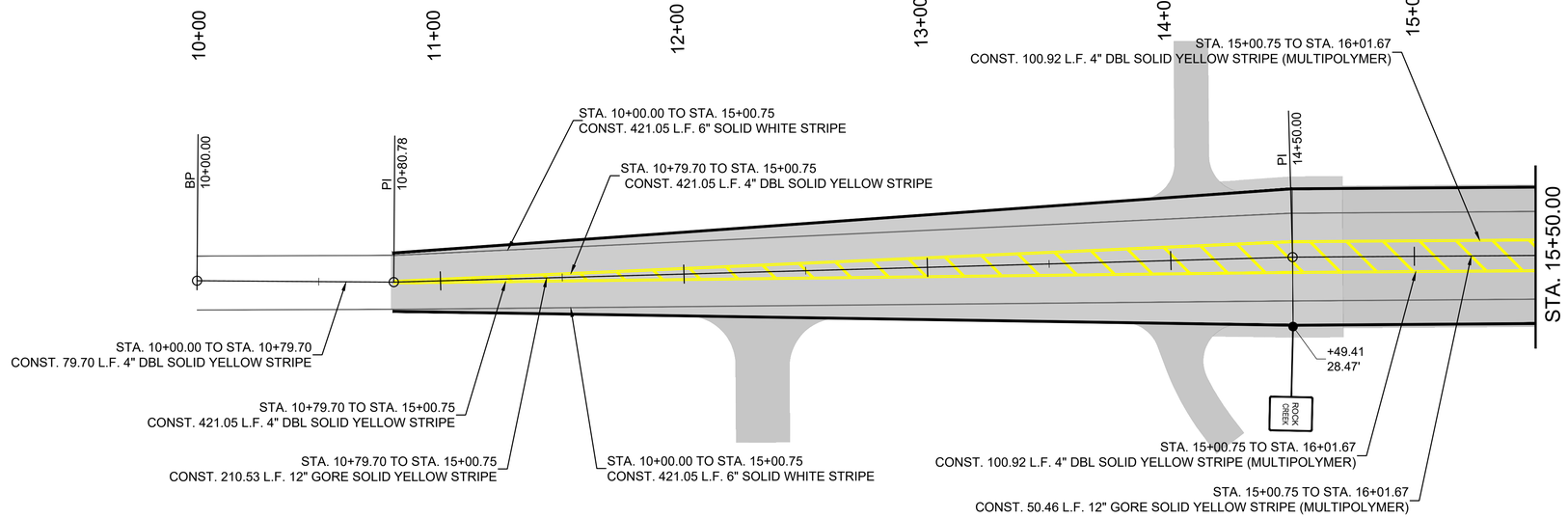
Project: PROPOSED BRIDGE REPLACEMENT – 60TH AVENUE BRIDGE OVER ROCK CREEK
TOPOGRAPHIC DESIGN SURVEY FOR
PT. OF THE E/2 SECTION 13–9N–2W AND PT. OF THE W/2 SECTION 18–9N–1W, I.M.
NORMAN, CLEVELAND COUNTY, OKLAHOMA
Owner: GARVER ENGINEERING
1016 24TH AVENUE NW, NORMAN, OK 73069

Sheet Number
SDS
Sheet S001



SEC. 13, T9N, R1W

SCALE 1:30



SEC. 18, T9N, R2W

SEC. 13, T9N, R1W

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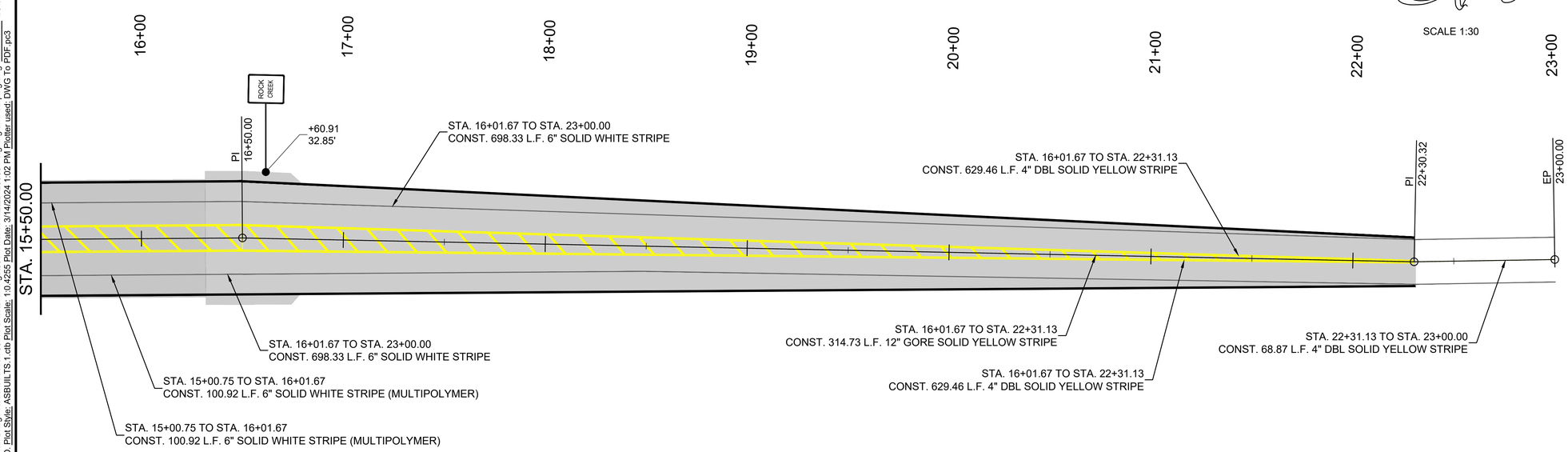

SEC. 18, T9N, R2W

CA #4193 EXPIRES JUNE 30, 2024

100% PS&E SUBMITTAL

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE BRIDGE REPLACEMENT OVER ROCK CREEK

Signing and Striping

JOB NO.: 22T28060
DATE: MAR 2024
DESIGNED BY: BDM
DRAWN BY: JHS

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

SHEET NUMBER T001

File: L:\2022\22T28060 - Norman Bridge Reconstruction 60th-Porter\Drawings\60th Avenue NE\22T28060 - Signing and Striping.dwg Last Save: 1/31/2024 9:29 AM Last saved by: BDMoran
Last plotted by: Moran, Brett D. Plot Style: ASBUILTS.1.ctb Plot Scale: 1:0.4255 Plot Date: 3/14/2024 1:02 PM Plotter used: DWG To PDF.pc3

Total Volume Table

Station	Cut Area	Fill Area	Cut Volume	Fill Volume	Cumulative Cut Vol	Cumulative Fill Vol
10+75.00	0.00	0.00	0.00	0.00	0.00	0.00
10+79.70	25.26	0.00	2.20	0.00	2.20	0.00
11+00.00	60.04	7.11	32.52	2.55	34.72	2.55
11+25.00	63.71	0.84	57.29	3.68	92.01	6.23
11+50.00	66.04	1.77	60.07	1.21	152.08	7.43
11+75.00	85.87	1.70	70.32	1.60	222.41	9.04
11+82.14	96.79	1.67	24.15	0.44	246.56	9.48
12+00.00	115.11	1.10	70.08	0.91	316.64	10.40
12+30.90	87.73	3.21	116.07	2.47	432.71	12.86
12+33.14	88.67	3.53	7.32	0.28	440.03	13.14
12+50.00	93.46	5.96	56.87	2.96	496.90	16.11
12+75.00	58.86	18.59	70.52	11.37	567.41	27.48
13+00.00	23.99	63.13	38.36	37.83	605.77	65.31
13+25.00	6.59	109.93	14.16	80.12	619.92	145.43
13+50.00	3.92	182.49	4.86	135.38	624.79	280.81
13+75.00	3.05	220.34	3.23	186.50	628.02	467.31
13+80.00	2.04	233.12	0.47	41.99	628.49	509.30
14+00.00	0.00	277.58	0.75	189.15	629.24	698.44
14+10.32	0.00	297.78	0.00	109.98	629.24	808.42
14+25.00	0.00	361.51	0.00	179.20	629.24	987.63
14+50.00	0.00	428.18	0.00	365.59	629.24	1353.22
14+75.00	0.00	399.94	0.00	384.80	629.24	1738.02
15+00.75	0.00	505.17	0.00	431.61	629.24	2169.62
16+01.67	0.01	581.12	0.00	0.00	629.24	2169.62
16+25.00	0.00	400.16	0.01	423.95	629.25	2593.57
16+49.99	0.00	383.07	0.00	362.46	629.25	2956.03
16+75.00	0.00	334.25	0.00	329.35	629.25	3285.38
17+00.00	0.00	216.01	0.00	254.75	629.25	3540.13
17+25.00	0.00	132.76	0.00	161.47	629.25	3701.60
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17+75.00	46.46	40.35	46.30	55.80	700.33	3855.97
18+00.00	52.29	17.49	45.71	26.78	746.05	3882.75
18+25.00	69.61	8.34	56.43	11.96	802.48	3894.71
18+50.00	77.51	3.45	68.11	5.46	870.59	3900.17
18+75.00	86.16	0.91	75.77	2.02	946.36	3902.19
19+00.00	84.29	0.00	78.91	0.42	1025.27	3902.61
19+25.00	91.10	0.00	81.20	0.00	1106.47	3902.61
19+50.00	90.73	0.00	84.18	0.00	1190.65	3902.61
19+75.00	82.67	0.00	80.28	0.00	1270.93	3902.61
20+00.00	72.83	0.00	71.99	0.00	1342.93	3902.61
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20+75.00	48.10	0.00	46.79	0.00	1510.33	3902.62
21+00.00	45.94	0.00	43.54	0.00	1553.87	3902.62
21+25.00	54.37	0.00	46.44	0.00	1600.31	3902.62
21+50.00	58.87	0.00	52.43	0.00	1652.73	3902.62
21+75.00	56.98	0.00	53.63	0.00	1706.37	3902.62
22+00.00	53.16	0.00	50.99	0.00	1757.36	3902.62
22+25.00	51.45	0.00	48.43	0.00	1805.79	3902.62
22+31.13	25.80	0.00	8.93	0.00	1814.72	3902.62
22+50.00	0.00	0.00	9.02	0.00	1823.74	3902.62

GARVER

CA #4193 EXPIRES JUNE 30, 2024

100% PS&E SUBMITTAL

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE BRIDGE REPLACEMENT OVER ROCK CREEK

Cross Sections
Earthwork Table

JOB NO.: 22T28060
DATE: MAR 2024
DESIGNED BY: BDM
DRAWN BY: JHS

BAR IS ONE INCH ON ORIGINAL DRAWING

0 1"

IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

SHEET NUMBER X001

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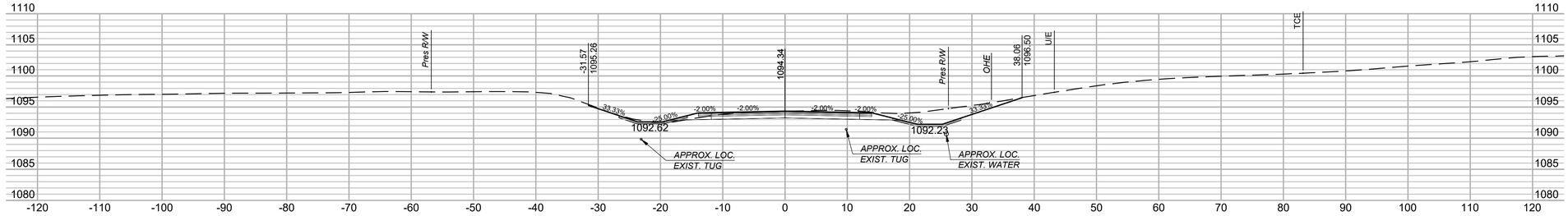
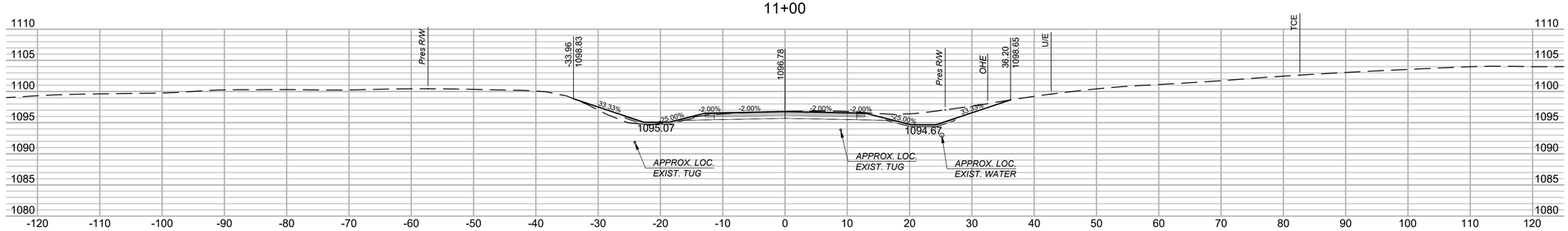
Last plotted by: Moran, Brett D. Plot Style: ASBUILTS 1.ctb Plot Scale: 1:0.4255 Plot Date: 3/14/2024 1:02 PM Plotter used: DWG To PDF.pc3

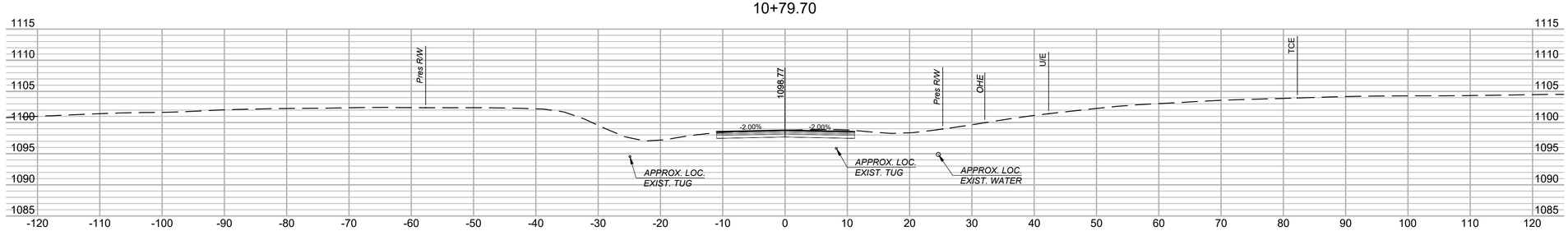
11+25



11+00

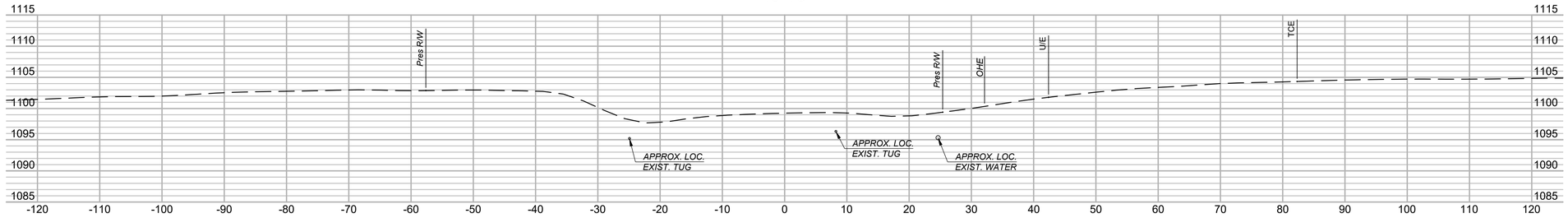


10+79.70



STA. 10+79.70 BEGIN CONSTRUCTION

10+75



GARVER

CA #4193 EXPIRES JUNE 30, 2024

100% PS&E SUBMITTAL

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE BRIDGE REPLACEMENT OVER ROCK CREEK

Cross Sections 10+75

JOB NO.: 22T28060
DATE: MAR 2024
DESIGNED BY: BDM
DRAWN BY: JHS

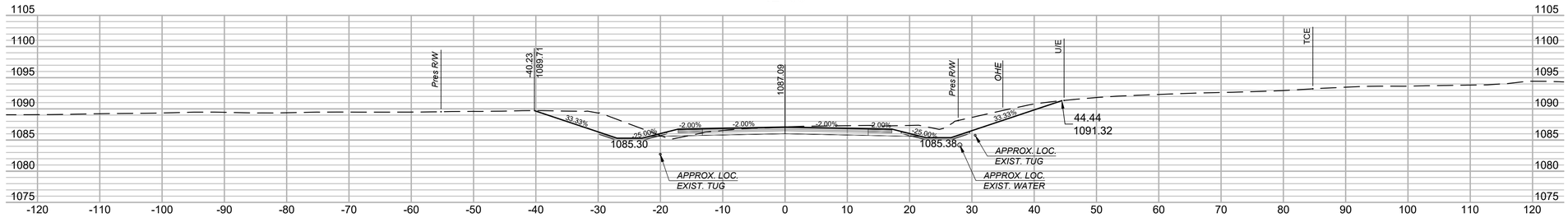
BAR IS ONE INCH ON ORIGINAL DRAWING

0 1"

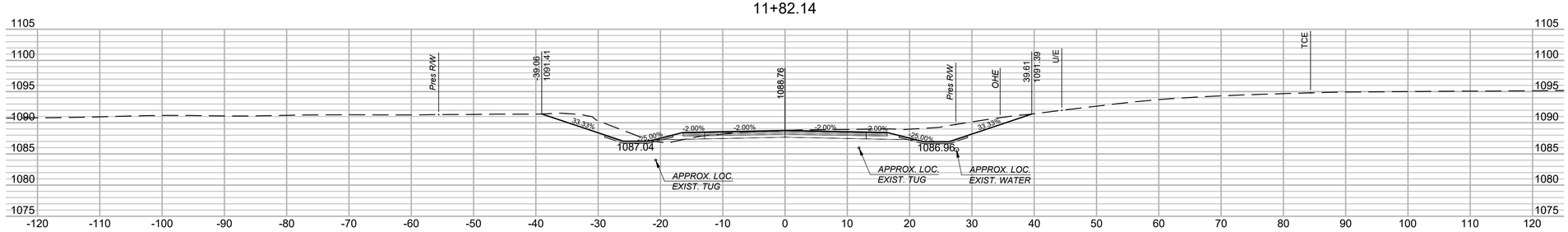
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

SHEET NUMBER X002

12+00



11+82.14



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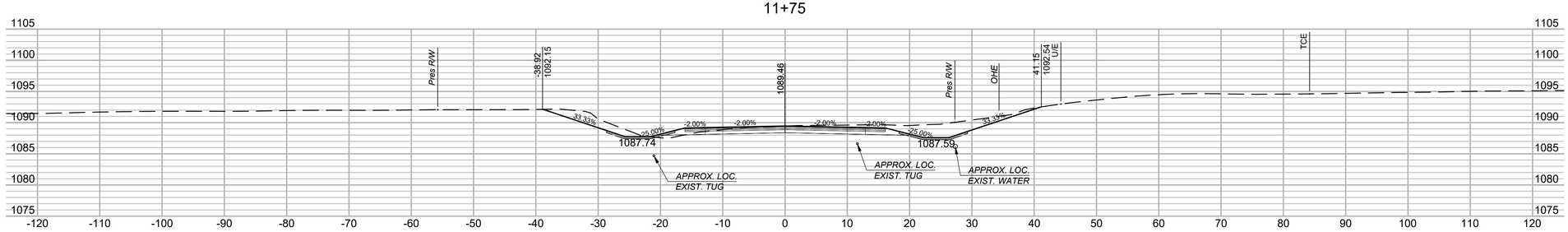

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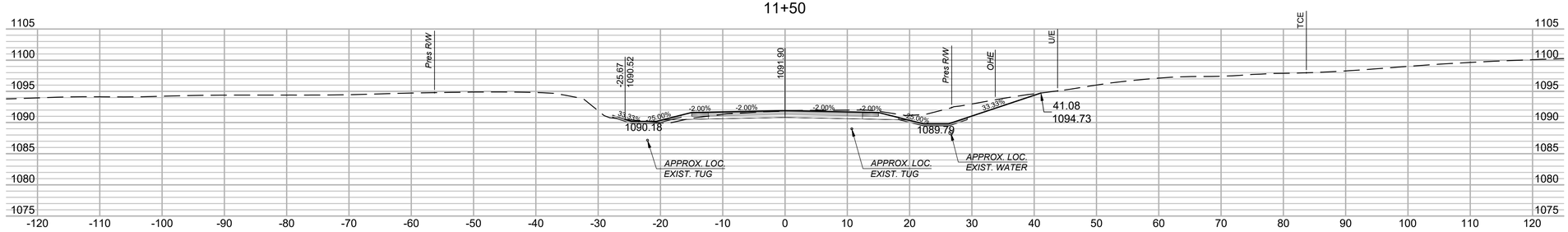

GARVER

CA #4193 EXPIRES JUNE 30, 2024

100% PS&E SUBMITTAL

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE BRIDGE REPLACEMENT OVER ROCK CREEK

Cross Sections 11+50

JOB NO.: 22T28060
DATE: MAR 2024
DESIGNED BY: BDM
DRAWN BY: JHS

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0 1"
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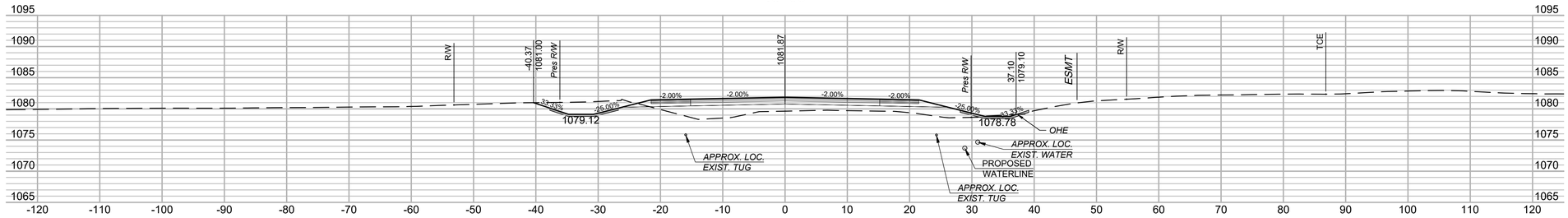
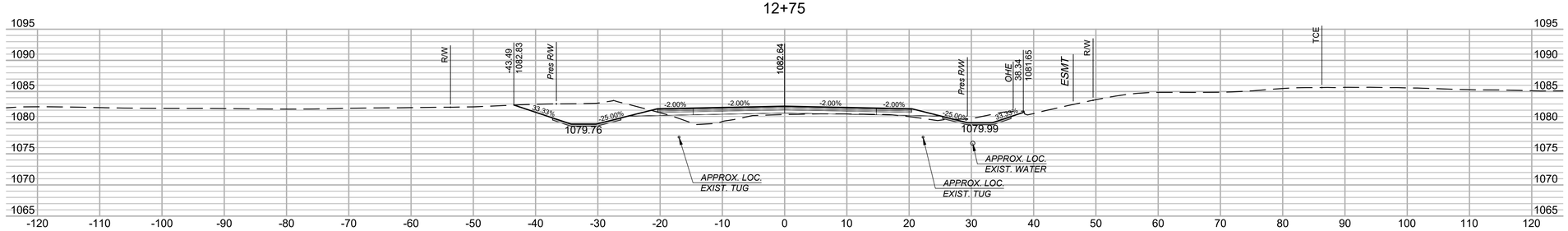
SHEET NUMBER X003

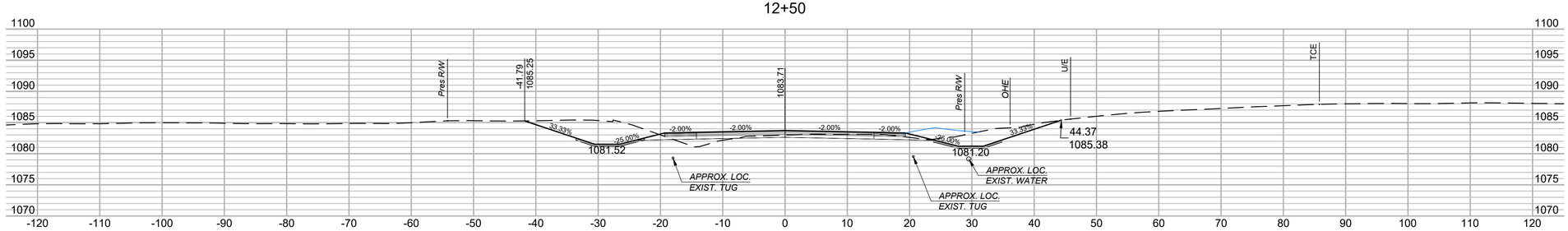
13+00



12+75



12+50



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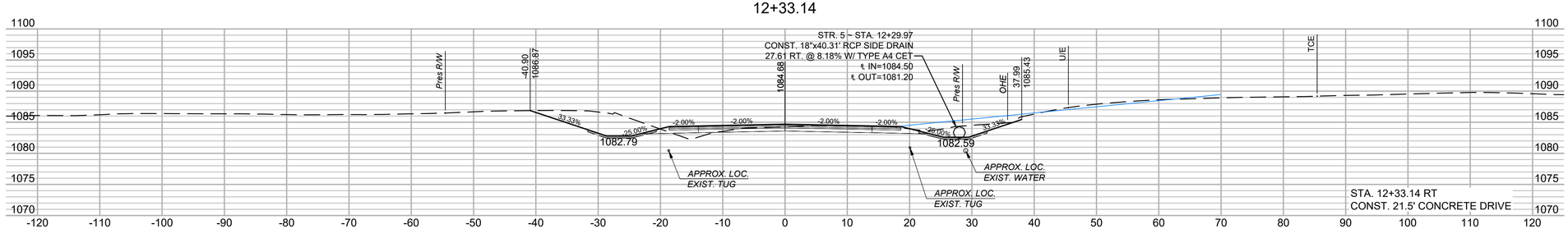

GARVER

CA #4193 EXPIRES JUNE 30, 2024

100% PS&E SUBMITTAL

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE
BRIDGE REPLACEMENT
OVER ROCK CREEK

Cross Sections
12+33.14

JOB NO.: 22T28060
DATE: MAR 2024
DESIGNED BY: BDM
DRAWN BY: JHS

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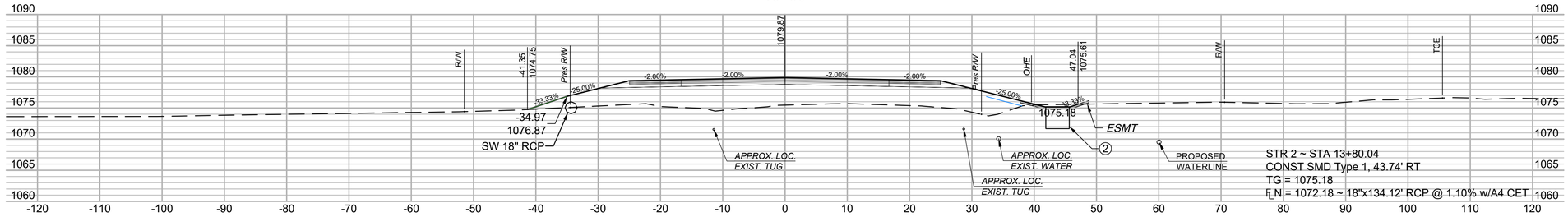
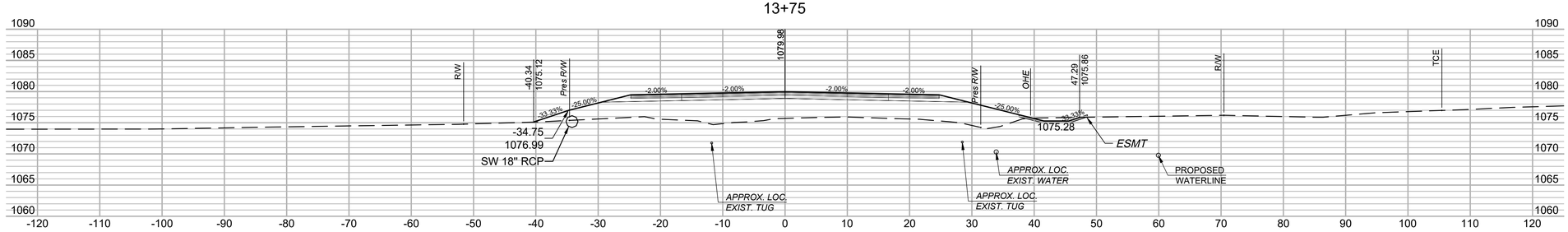
SHEET NUMBER X004

13+80



13+75



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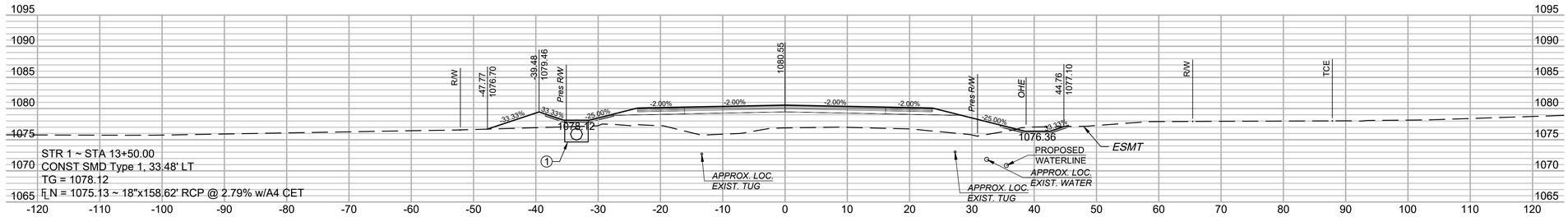
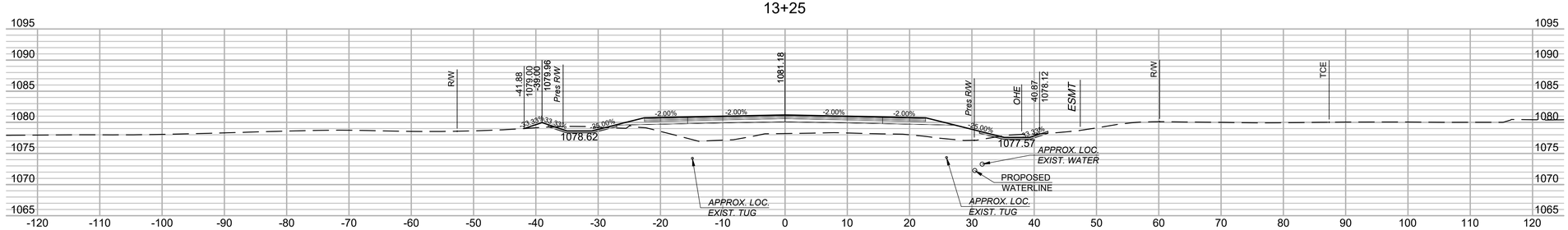


13+25



100% PS&E SUBMITTAL

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE
BRIDGE REPLACEMENT
OVER ROCK CREEK

Cross Sections 13+25

JOB NO.: 22T28060
DATE: MAR 2024
DESIGNED BY: BDM
DRAWN BY: JHS

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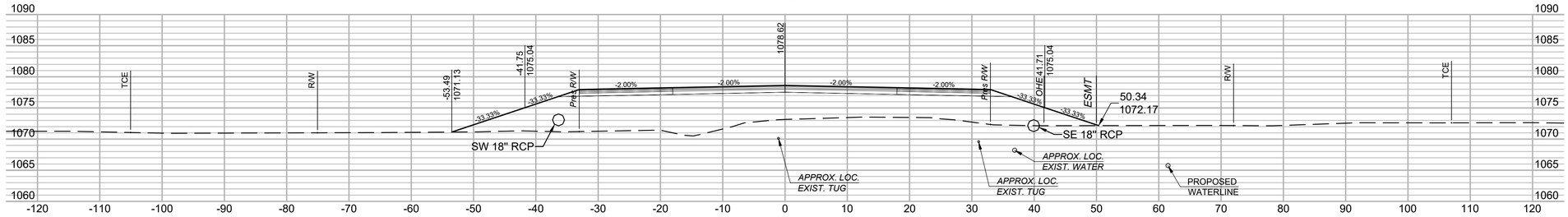
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

SHEET NUMBER X005

14+50



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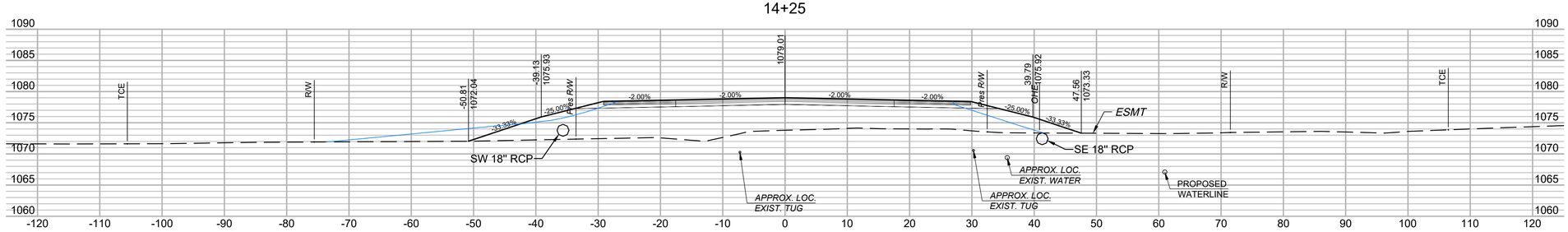

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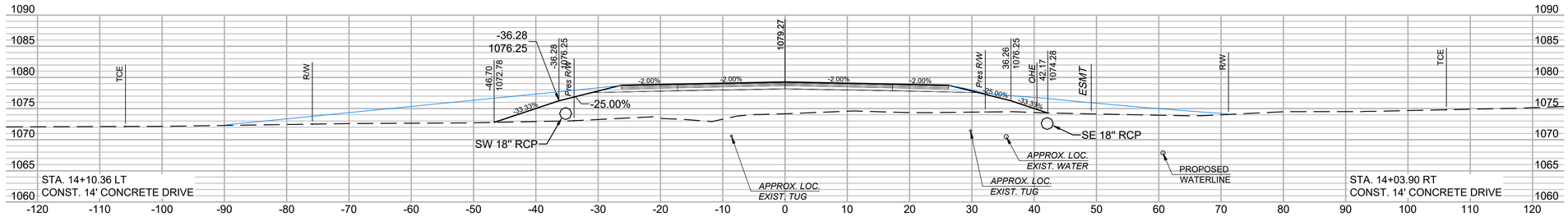

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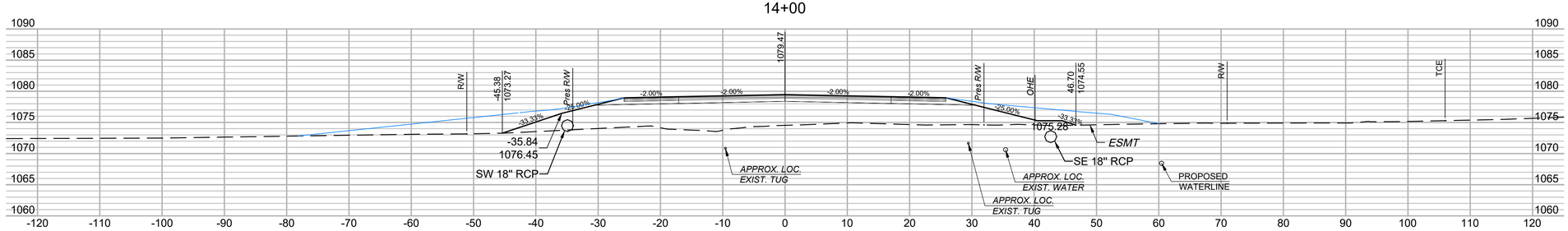

CA #4193 EXPIRES JUNE 30, 2024

100% PS&E SUBMITTAL

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE
BRIDGE REPLACEMENT
OVER ROCK CREEK

Cross Sections 14+00

JOB NO.: 22T28060
DATE: MAR 2024
DESIGNED BY: BDM
DRAWN BY: JHS

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
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SHEET NUMBER X006

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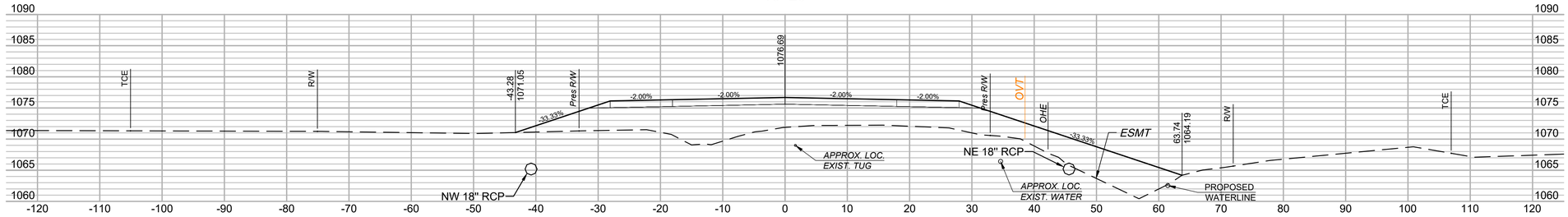

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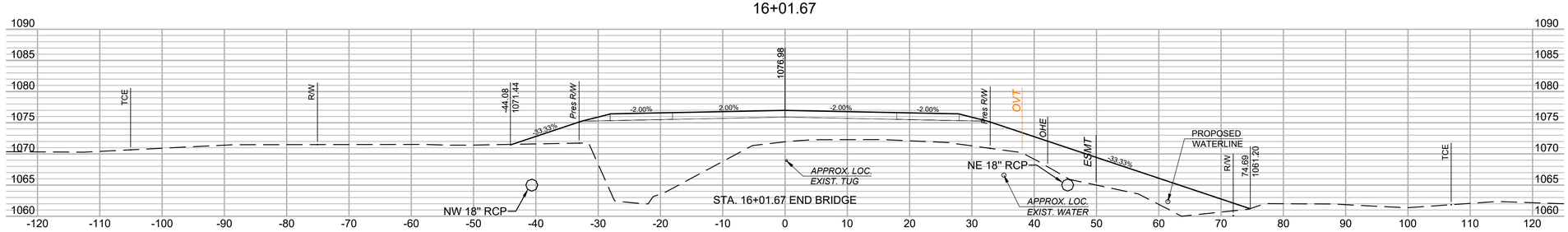

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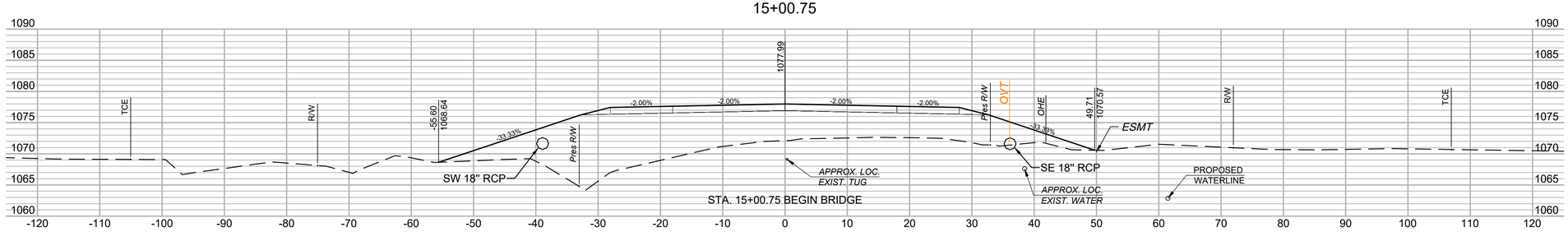

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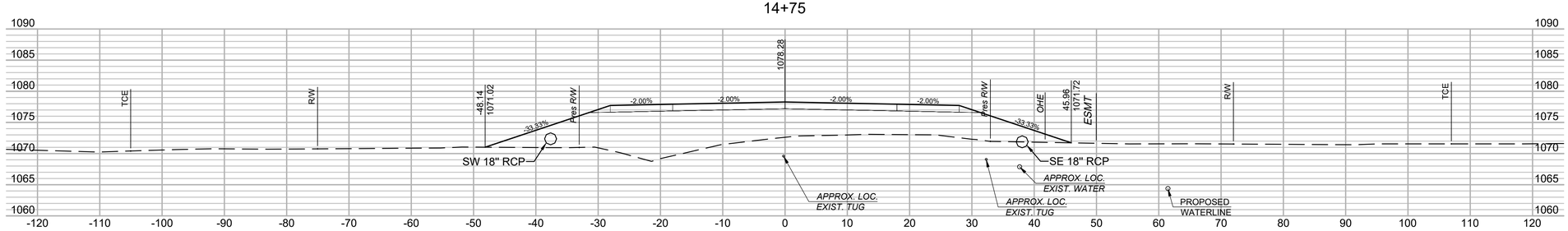

CA #4193 EXPIRES JUNE 30, 2024

100% PS&E SUBMITTAL

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE
BRIDGE REPLACEMENT
OVER ROCK CREEK

Cross Sections 14+75

JOB NO.: 22T28060
DATE: MAR 2024
DESIGNED BY: BDM
DRAWN BY: JHS

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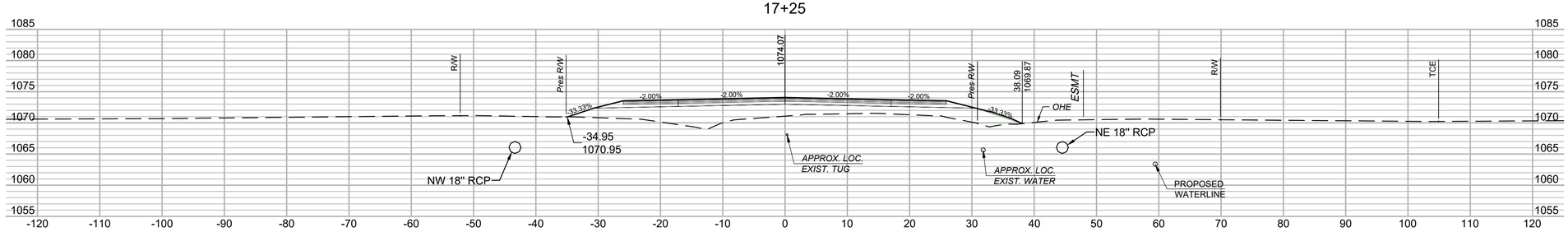

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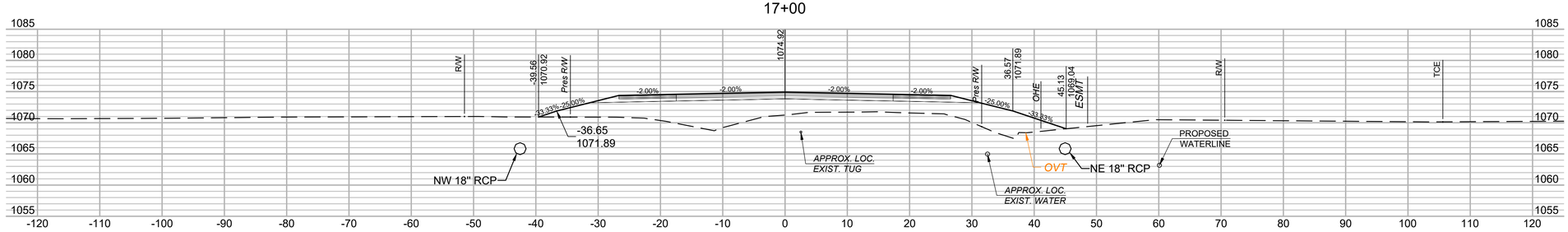

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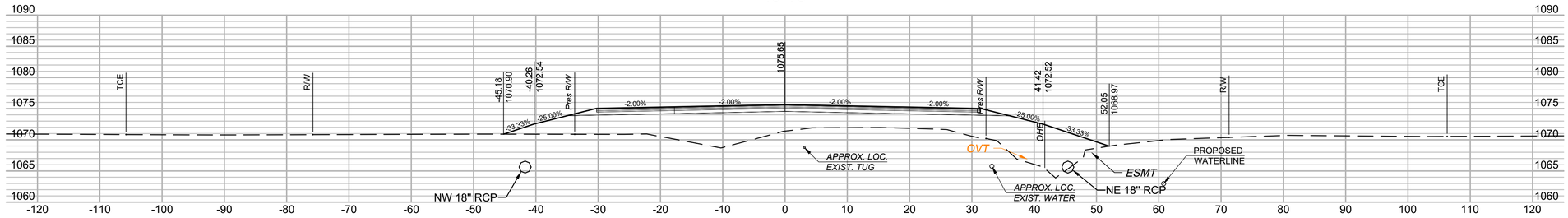

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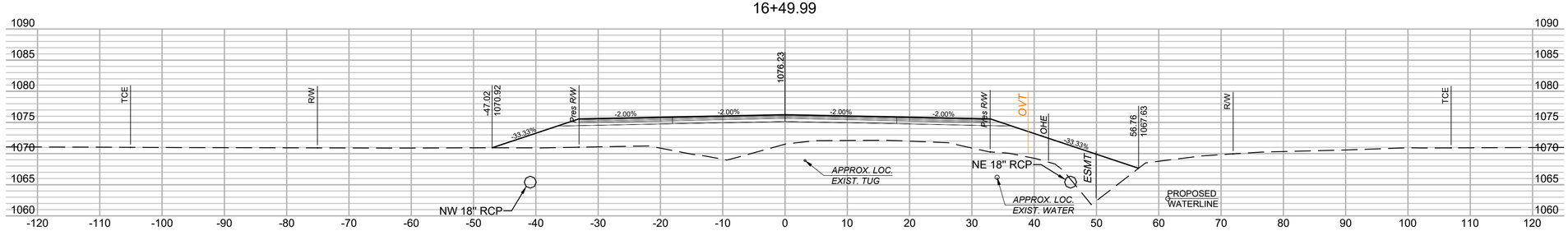

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REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE
BRIDGE REPLACEMENT
OVER ROCK CREEK

Cross Sections 16+50

JOB NO.: 22T28060
DATE: MAR 2024
DESIGNED BY: BDM
DRAWN BY: JHS

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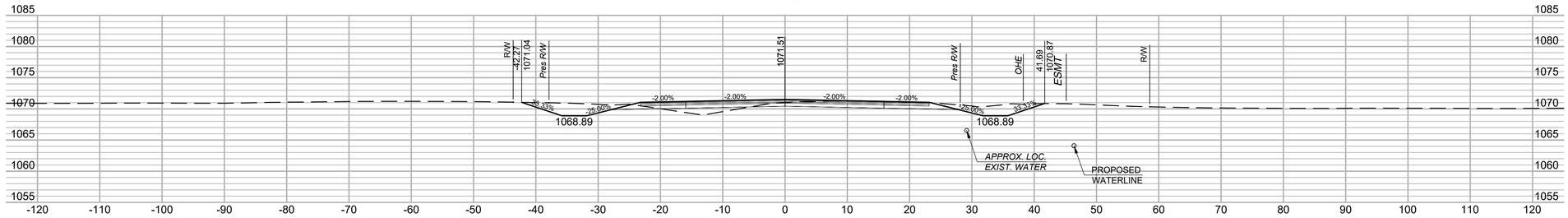

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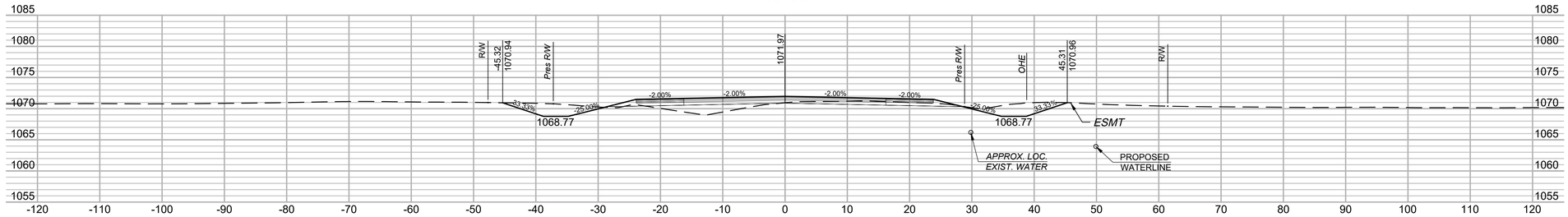

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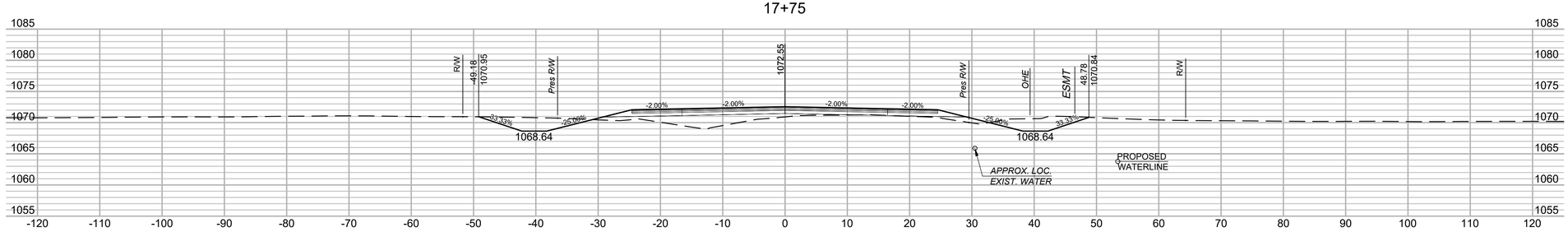

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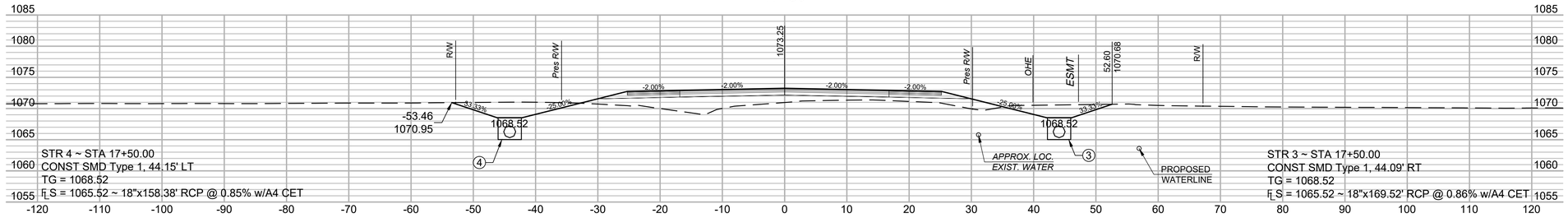

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REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE BRIDGE REPLACEMENT OVER ROCK CREEK

Cross Sections 17+50

JOB NO.: 22T28060
DATE: MAR 2024
DESIGNED BY: BDM
DRAWN BY: JHS

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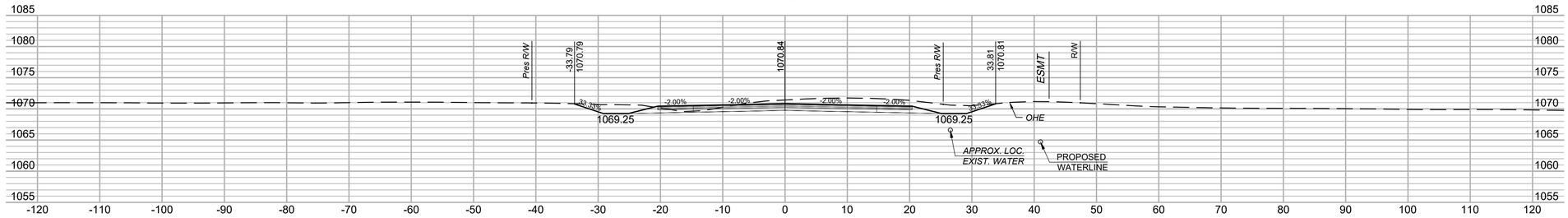

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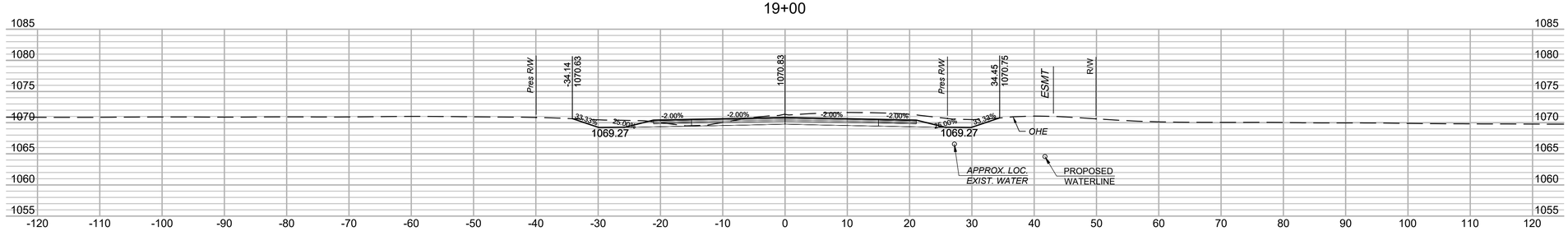

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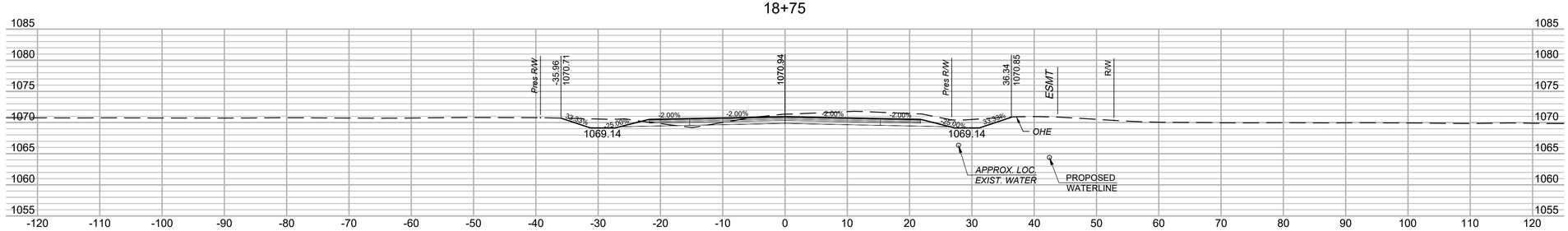

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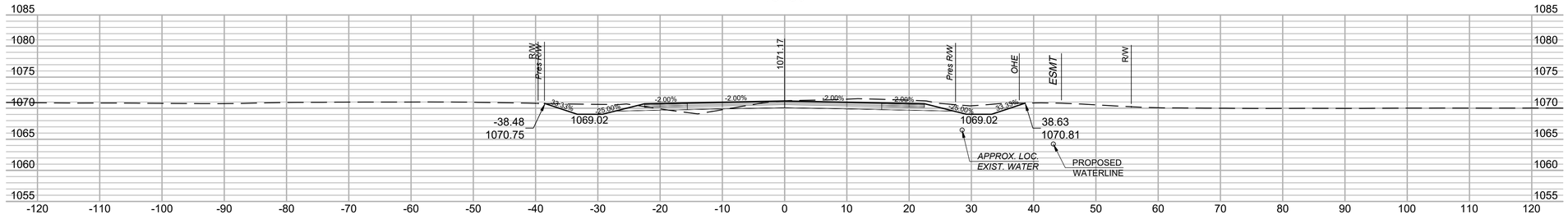

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CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE BRIDGE REPLACEMENT OVER ROCK CREEK

Cross Sections 18+50

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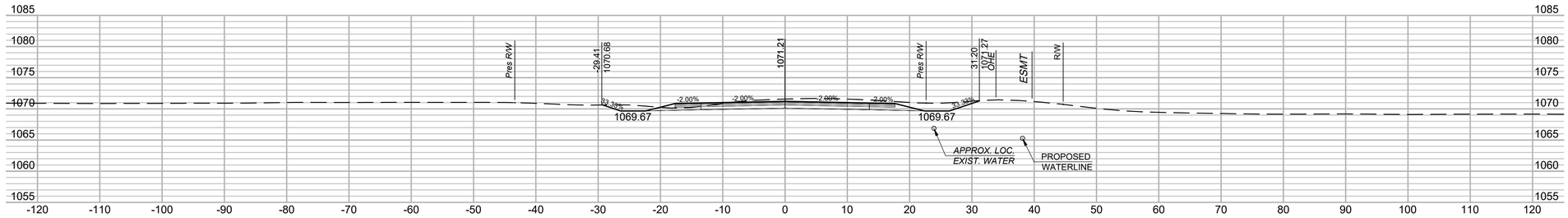

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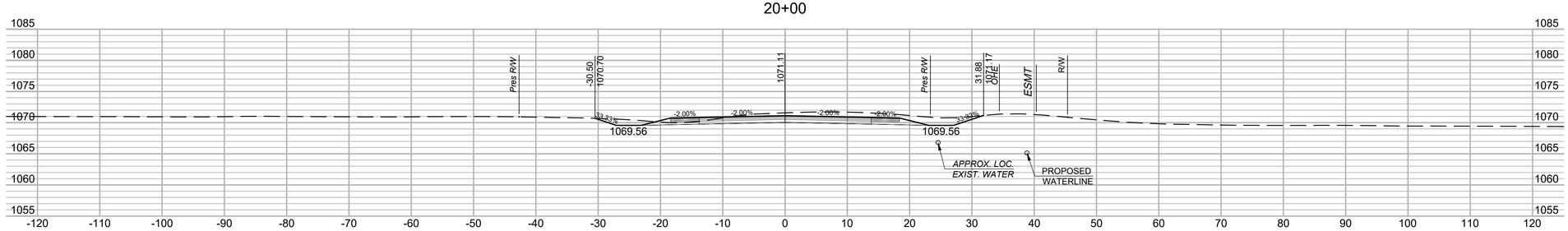

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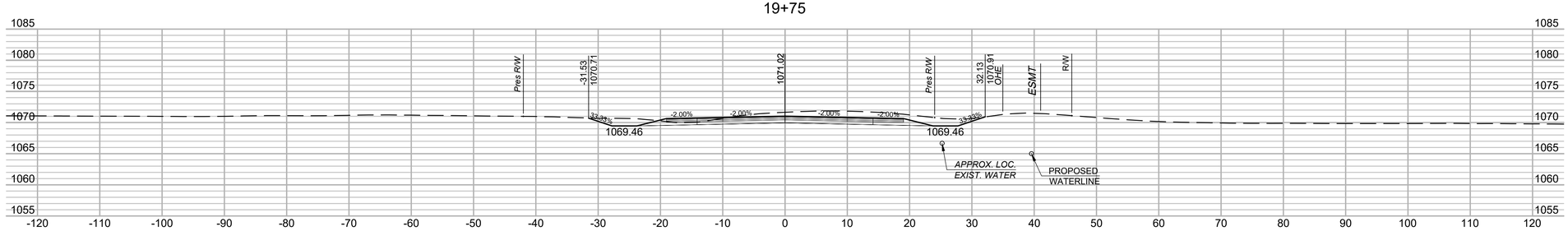

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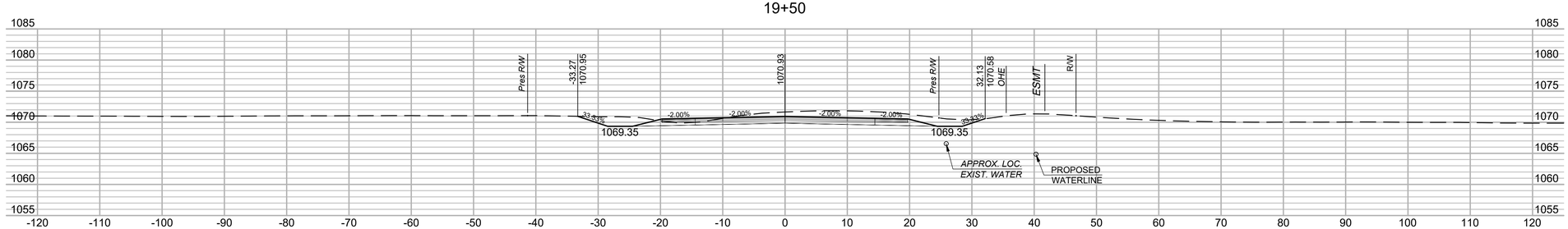

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REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE BRIDGE REPLACEMENT OVER ROCK CREEK

Cross Sections 19+50

JOB NO.: 22T28060
DATE: MAR 2024
DESIGNED BY: BDM
DRAWN BY: JHS

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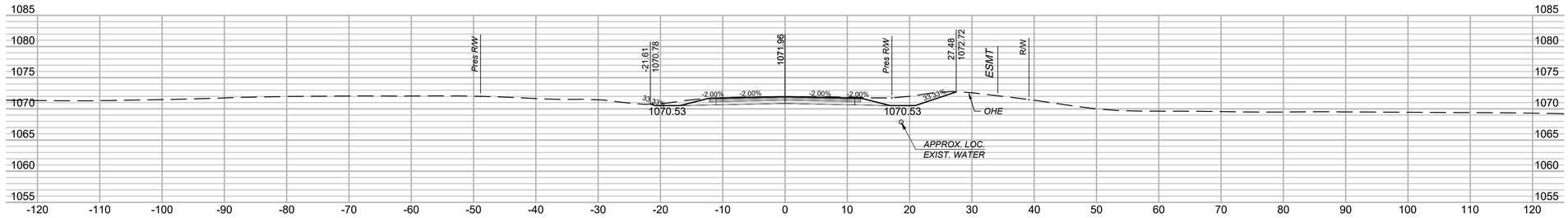

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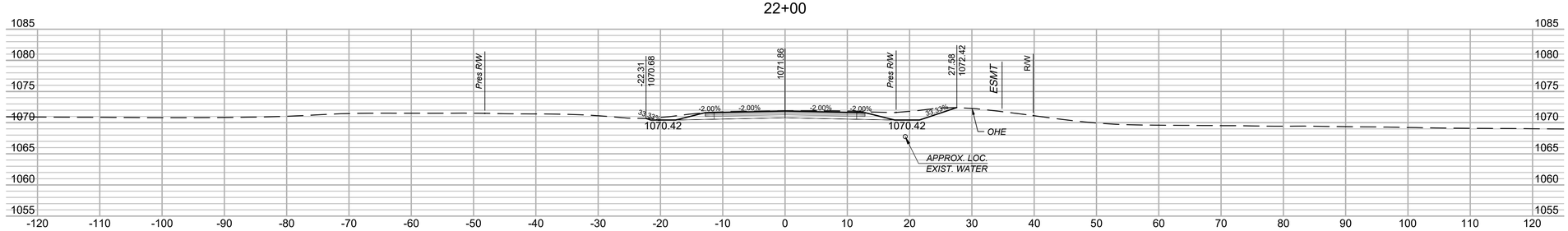

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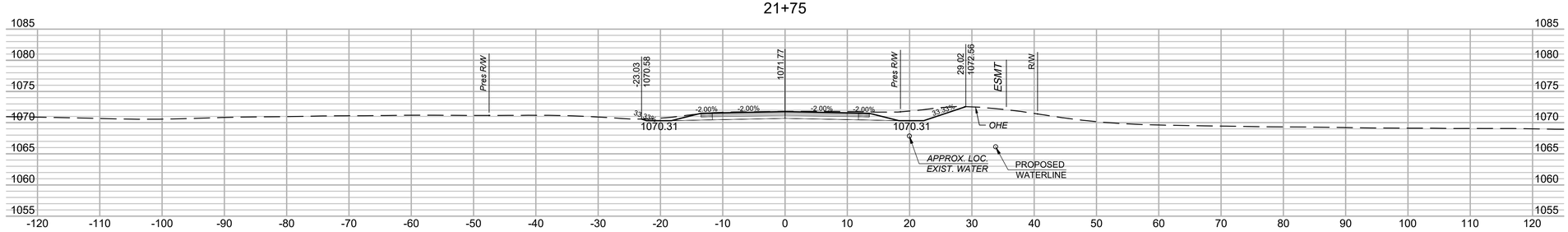

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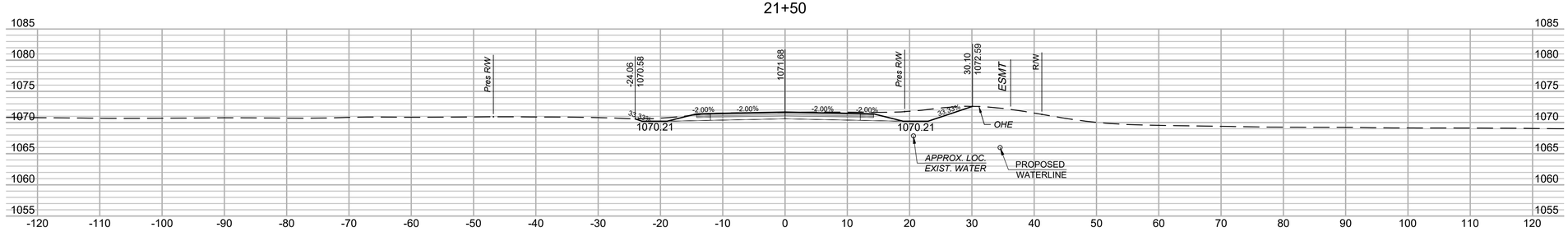

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100% PS&E SUBMITTAL

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE BRIDGE REPLACEMENT OVER ROCK CREEK

Cross Sections 21+50

JOB NO.: 22T28060
DATE: MAR 2024
DESIGNED BY: BDM
DRAWN BY: JHS

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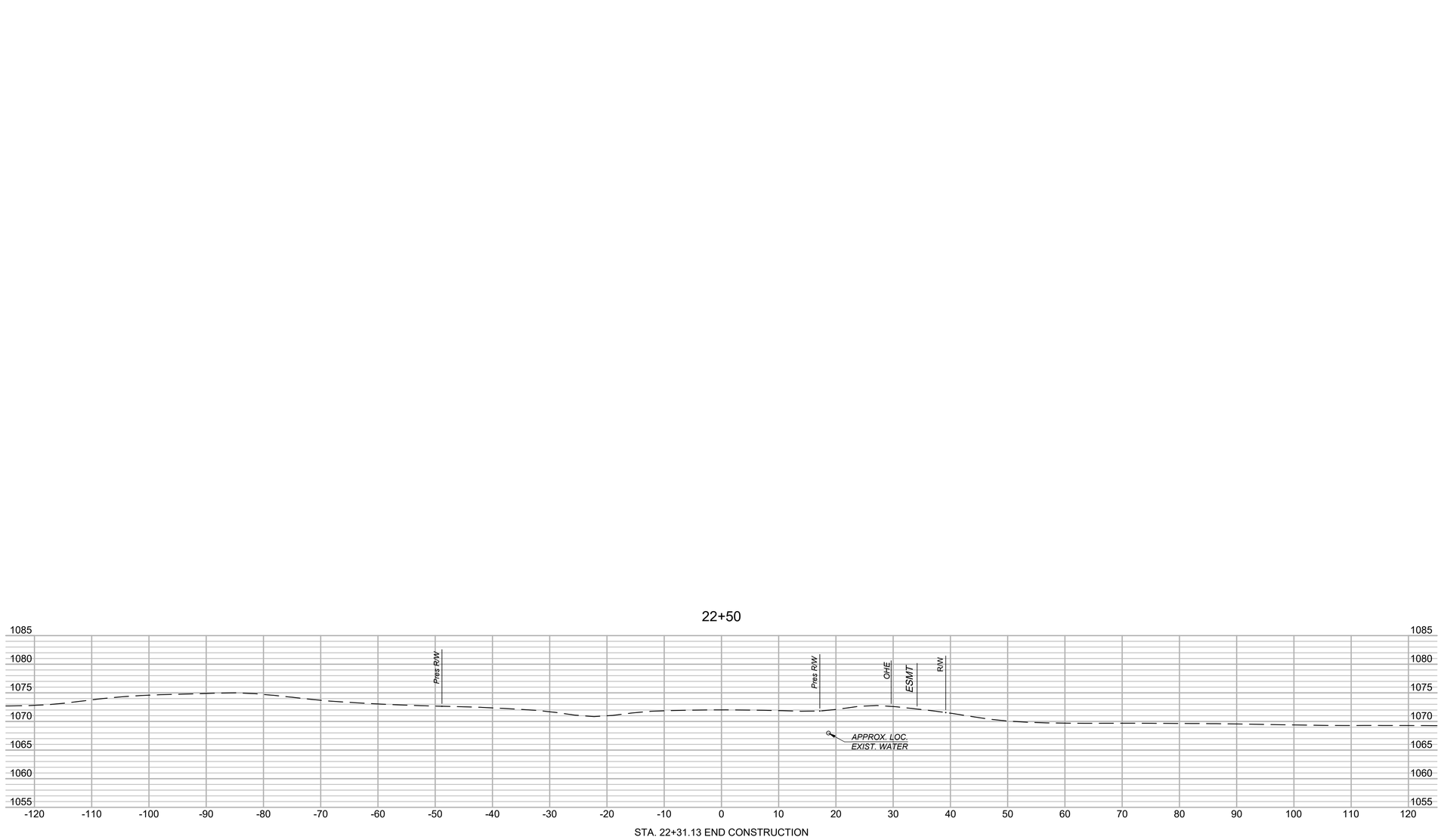

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REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE
BRIDGE REPLACEMENT
OVER ROCK CREEK

Cross Sections
22+31.13

JOB NO.: 22T28060
DATE: MAR 2024
DESIGNED BY: BDM
DRAWN BY: JHS

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SHEET NUMBER X013

Preliminary Engineering Report – 60th Avenue NE over Rock Creek

Contract No.: K-2223-55

Prepared For:

City of Norman

February 2023

GARVER

GarverUSA.com

Engineer's Certification

I hereby certify that this Report for the 60th Avenue NE over Rock Creek project was prepared by Garver under my direct supervision for the City of Norman.

Jeff Rundle, P.E.
State of Oklahoma PE License 27271

Garver, LLC
Certificate of Authorization No. 4193 P.E., L.S.
Renewal Date 06-30-2024

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1.0 Introduction/Purpose and Need

The City of Norman selected Garver to provide design services for the replacement of the 60th Avenue NE bridge over Rock Creek. The City of Norman has requested Garver to perform a preliminary engineering study to evaluate three replacement alternatives for the bridge, including both prestressed concrete and steel span bridges as well as a reinforced concrete box (RCB) structure.

The studied alternatives have been evaluated with respect to right-of-way impacts, utility relocations, hydraulic impacts, areas of cultural and environmental concern or significance, constructability and overall cost. Following the submittal of this report, a review meeting with the City of Norman to decide upon the preferred alternative is anticipated. After the preferred alternative is selected, Garver will move forward with the development of final construction plans.

2.0 Existing Conditions

2.1 Location

The bridge is in northeast Norman on 60th Avenue NE approximately one-half mile north of E. Rock Creek Road, shown in **Figure 1**. The bridge is located in the SW ¼ of the NW ¼ of Section 13, Township 9 North, Range 1 West.

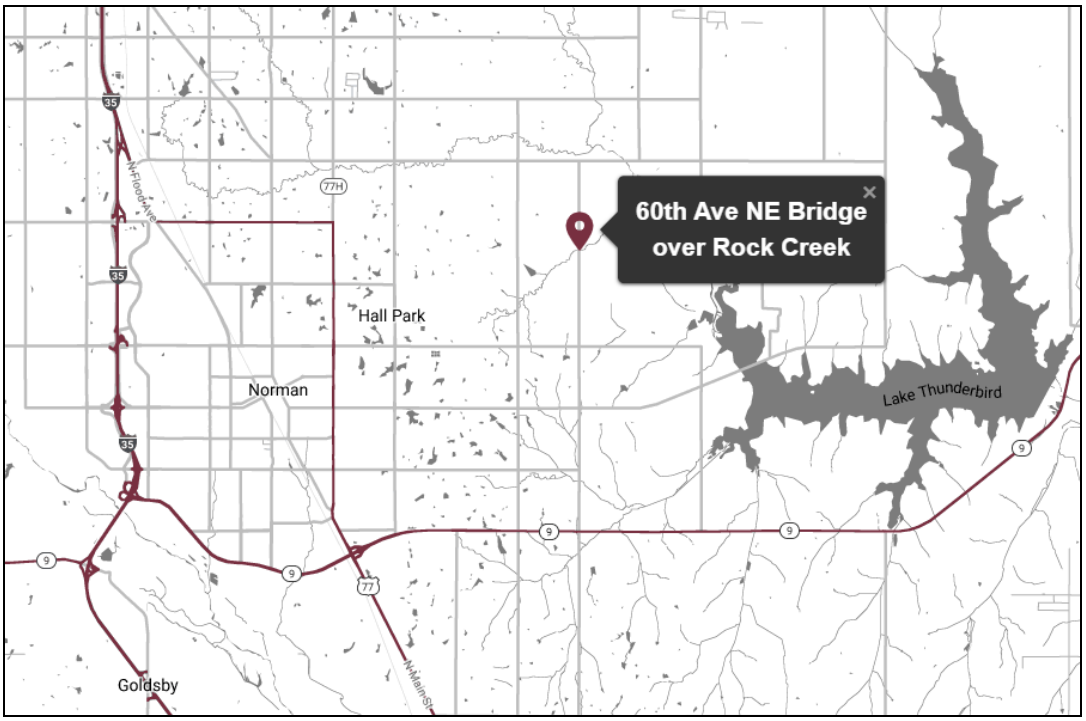


Figure 1 – Location of the 60th Ave NE Bridge

2.2 Site Conditions

The topography in the area north of the project area is mostly flat, while to the south can be characterized as rolling terrain. Rock Creek flows from the west to the east at the project site and feeds into Lake Thunderbird to the northeast. The creek at the project area shows signs of significant erosion with steep channel banks and a large scour hole downstream (**Figure 2**). There is evidence of previous attempts to repair the channel banks with concrete rubble around the existing bridge area. The vegetation surrounding Rock Creek is dense with trees and tall brush. NRCS soil survey maps indicate silty loam soils in the project area.

Figure 2 - Downstream Scour

The project site is located within a Federal Emergency Management Agency (FEMA) Zone A Special Flood Hazard Area (SFHA). The design criteria and hydrology and hydraulic methodology are further discussed in **Section 2.6**. Additionally, the project is located in the Lake Thunderbird Water Quality Protection Zone (WQPZ), however the ordinance does not pertain to public infrastructure and should not have an impact on the project.

2.3 Roadway

The existing roadway is an asphalt, two-lane rural arterial roadway consisting of two eleven-foot driving lanes without shoulders. The posted speed limit within the project corridor is 50 miles per hour (mph). The roadway surface over the existing bridge deck is made of concrete pavement that has been overlaid with asphalt and is in generally good condition. The average daily traffic is between 1,500 and 1,600 vehicles per day.

The terrain north of the bridge is mostly flat, ultimately reaching a local low point about 300 feet north of the bridge. To the south of the bridge, the terrain becomes rolling hills, beginning with an incline of over 8.5 percent grade. There are two nearby driveways, gravel and newly constructed concrete, that will be impacted by this project. The existing sag vertical curve south of the bridge has an approximate "K value" of 41, well under the 96 recommended for sag vertical curves at a 50-mph design speed; therefore, a design exception will be necessary to accommodate any increase in roadway grade.

2.4 Right of Way and Utilities

The existing right-of-way (ROW) is sixty-six feet. The existing 60th Ave NE roadway centerline is nearly sixteen feet east of the north-south section line at the bridge but is centered up at each section corner. Existing utilities include fiber optics, pole-mounted and underground telecom, overhead electric, a four-inch polyethylene gas line, and a City of Norman water line. Most of the existing utilities are located in a 17-ft. public utility easement adjacent to the existing statutory right-of-way east of the bridge.

2.5 Bridge

The existing bridge structure on 60th Avenue NE over Rock Creek is a three-span, steel beam structure that is now permanently closed due to concerns raised about the structural adequacy of primary load carrying members during its most recent routine inspection. The bridge was closed on December 1, 2022 and must be replaced.

There are no as-built plans for this bridge. According to the current Bridge Inspection Report, the existing bridge was built in 1940 and provides a 26'-0" clear roadway width allowing for two lanes of vehicular traffic with no shoulders or pedestrian accommodations. The bridge is composed of 15ft. – 36ft. – 15ft. steel beam spans. See **Figure 3** for existing bridge elevation view or **Appendix A** for the most current Bridge Inspection Report.

Figure 3 – Existing Bridge Elevation View

2.5.1 Existing Condition

The condition of the existing bridge is documented in the October 2022 Bridge Inspection Report (**Appendix A**). In summary, the existing bridge is considered structurally deficient due to the condition rating of "Poor (4)" given to the superstructure and substructure. Federal Highway Administration and ODOT guidelines specify that any bridge with a condition rating of four (4) or less be classified as structurally deficient.

According to the bridge inspection report, the deck slab is covered with an asphalt overlay and showing heavy cracks over the piers. The stay in place forms covering the soffit have minor section loss with rust. The steel girders are showing signs of deterioration along the bottom flanges including rust and deep pitting (see **Figure 4**). The deterioration is most severe at the beam ends over the piers.

Figure 4 – Rust and Pitting in the Steel Girders and Stay-In-Place Forms

The substructure consists of steel abutments and piers supported on steel columns. The abutments are mostly covered with rock and gravel. Very small areas of the abutment caps have heavy rust and pitting. The steel pier caps have severe rust and deep pitting in the bottom flange (see **Figure 5**). The steel columns show signs of minor section loss at the ground, primarily at the exterior columns.

Figure 5 – Rust and Pitting in the Bottom Flange of Pier Cap

2.5.2 Functionality

Functionality is defined as the ability to provide the user with a product at its fully designed purpose, and it is related to the geometric components of the bridge system. Functionality is typically related to items such as lane widths, shoulder access, sight distances and clearances. According to the current Bridge Inspection Report, the existing bridge is considered Functionally Obsolete.

The bridge railing system for this structure is composed of metal railing connected directly to the steel superstructure members and is considered substandard. This classification is due to the current system not meeting the minimum load and crash-testing requirements of the AASHTO design specifications for traffic rail systems.

2.5.3 Structural

The existing bridge carrying 60th Avenue NE is currently designated as structurally deficient. According to the current Bridge Inspection Report, the existing bridge is load posted for 4 tons (see **Figure 6**). This load posting significantly reduces the types of vehicles that can use the crossing and must consequently find another route.

Figure 6 – Load Posting Sign Prior to Bridge Closing

Due to concerns about the condition of the existing substructure found in the October 2022 routine inspection, the City of Norman requested Garver perform a visual inspection of the bridge to confirm the findings. Garver's inspection generally agreed with the routine inspection findings and concerns with the

structural adequacy of the bridge to remain in service. As a result, the bridge was closed to all traffic on December 1, 2022 with no plans to re-open until the bridge is replaced.

2.6 Hydrology and Hydraulics

60th Avenue NE over Rock Creek is located in a FEMA Zone A SFHA. The National Flood Insurance Program (NFIP) and the City of Norman Engineering Design Criteria (EDC) require that proposed improvements will not increase the water surface elevation of the base flood (100-year storm event) more than one foot within the community. Furthermore, the Norman EDC requires a minimum freeboard of one foot above the lowest structural member for the 100-year water surface elevation (WSEL) and a maximum channel velocity of 15 feet per second (fps).

Hydrologic analysis was conducted using the United States Geological Survey's (USGS) Scientific Investigation Report 2010-5137 "Methods for Estimating the Magnitude and Frequency of Peak Streamflows for Unregulated Streams in Oklahoma". The USGS regression equations were chosen since the site is within the applicable range of the method according to the Norman EDC. A summary of the calculations appears in **Table 1** below.

Table 1 - Design Flow Rates

Recurrence Interval	Peak Flow Rate (cfs)
2 Year	1073
5 Year	2002
10 Year	2801
25 Year	3984
50 Year	5218
100 Year	6139
500 Year	9779

The hydraulic model was performed in accordance with the Norman EDC. The hydraulic analysis for these sites uses the U.S. Army Corps of Engineers water surface profile program HEC-RAS version 6.2. Five models have been developed for the site: Natural, Existing, and Proposed Alternatives 1A, 1B, and 2. The topographical data used in the model was derived from on-ground survey by Lemke Land Surveying and lidar survey collected specifically for this project. The Manning's 'N' values were developed using aerial and site reconnaissance photos of the area. The modeling uses the sub-critical flow regime and average downstream channel slope as the downstream boundary conditions. The downstream normal depth slope used as the boundary condition of the model is 0.0027 ft/ft. This normal depth slope was estimated from the slope of the Energy Grade Line (EGL) in FEMA's Base Level Engineering (BLE) model for the project site.

The existing structure is a 15'-36'-15' Steel Beam bridge. The existing bridge has a low beam elevation of 1069.92 and an existing roadway overtopping elevation of 1070.95 approximately 300 feet north of the bridge. The existing roadway overtops at a storm frequency of 39 years.

2.7 Environmental

Environmental constraints present within the 60th Avenue NE over Rock Creek study area include Rock Creek and potential habitat for threatened and endangered species. There are no potentially hazardous waste sites within the study area; however, two sites are within the vicinity. No tribal land, federal properties, easements, or wildlife and waterfowl refuges are present within the study area. Additionally, there are no airports, railroads, cemeteries, or parks identified within the study area. Environmental constraint information was obtained from a reconnaissance data collection effort performed by Garver in December 2022 and served as the basis for the assessment of environmental impacts.

A search performed by Stantec on known historic properties and archeological sites in the area did not reveal any known resources. The existing bridge (NBI 09189, Structure No. 14N3170E1210005) is a 26-foot-wide wide flange beam bridge built in 1940 (**Figure 7**). The bridge is a Category 2 structure and has been recommended not eligible for inclusion in the National Register of Historic Places.

Figure 7 - NBI 09189

Rock Creek is a potentially jurisdictional (blue line) intermittent stream (**Figure 8**). Rock Creek is not considered a critical resource water, Section 10 water, scenic river, or sensitive water or watershed. However, Rock Creek is listed in Oklahoma's 2022 303(d) list of impaired waters for Enterococcus bacteria and Escherichia coli. The Total Maximum Daily Load value for Enterococcus bacteria and Escherichia coli have not been established for this section of Rock Creek.

Figure 8 - Rock Creek Facing Downstream (East)

According to the 1989 Franklin, Okla. National Wetlands Inventory (NWI) map and the U.S. Fish and Wildlife Services NWI Wetlands Mapper, Rock Creek is mapped as a palustrine forested wetland. No wetlands were identified during the field reconnaissance and no wetlands have been formally delineated.

According to the list generated using the USFWS Information for Planning and Consultation tool, there are multiple species that could be impacted by the proposed project. These include the Tricolored Bat (*Perimyotis sublfavus*), Piping Plover (*Charadrius melodus*), Red Knot (*Calidris canutus rufa*), Whooping Crane (*Grus americana*), Arkansas River Shiner (*Notropis girardi*), Peppered Chub (*Macrhybopsis tetranema*), and the Monarch Butterfly (*Danaus plexippus*). It is highly likely that habitat for the Tricolored Bat and Monarch Butterfly occurs within the 60th Avenue NE over Rock Creek study area.

According to a search of federal and state environmental databases, there are three hazardous waste sites adjacent to the study area (ERIS 2023). The AIRS Facility (ERIS Map ID 1), a wireless telecommunication tower, was observed during the field reconnaissance. There are no gas or oil well sites located within or adjacent to the study area, as identified in the Oklahoma Corporation Commission's (OCC) Oil and Gas Well database. According to the OCC's petroleum storage tank database, there are no storage tank sites within or adjacent to the study area. No additional hazardous waste sites were identified during the field reconnaissance.

3.0 Proposed Alternatives

3.1 Span Bridge Alternative (Alternatives 1A & 1B)

For the proposed alternatives, the typical section consists of three 12-foot driving lanes with 10-foot outside shoulders. The typical section was determined by the City of Norman's Comprehensive Transportation Plan (CTP) and collaboration with City staff. The typical section was assumed to consist of nine (9") inches of asphalt pavement on eight (8") inches of aggregate base.

Two bridge superstructure options, rolled steel beams (Alternative 1A) and prestressed concrete beams (Alternative 1B), were investigated.

3.1.1 Roadway

The proposed roadway alignment for this project will be centered on the section line. Remaining on the roadway's existing alignment, about sixteen (16') feet east of the section line, was considered; however, the concentration of existing utilities in the 17-foot public utility easement east of the existing right-of-way ensures much more utility relocation work would be required, including additional power poles and relocation of a water line which may otherwise be avoided. Although remaining on the existing alignment potentially reduces the roadway replacement costs by removing much of the horizontal taper distance, the roadway replacement limits in this case are governed by the vertical geometry, and cost savings for roadway reconstruction would be limited as a result.

Therefore, the proposed roadway alignment for this project will be centered on the section line. Although the number of impacted utilities may be lower, some utility relocations will still be required due to the increased roadway width. To accommodate the widened roadway, expanding to a 100-ft right-of-way is needed.

The existing vertical curve south of the bridge is not sufficient for the posted speed of the roadway. A design exception for the new roadway's vertical curvature as it ties back into the existing roadway south of the proposed bridge will be required.

3.1.2 Bridge

The proposed bridge will be designed to accommodate the typical section described in Section 3.1. The bridge will be a square, single span, simply supported structure with a span length of approximately 100-feet. The proposed bridge layout avoids potential conflicts with the existing bridge substructure elements.

The bridge typical section is 58'-2" wide and will have an 8" deck supported by six beams spaced at 10'-0". ODOT TR3 concrete railings will be provided at the edges of the bridge. The proposed bridge substructure will be composed of pile-supported abutments. The approach slabs will be 30'-0" long and match the width of the bridge. For detailed conceptual General Plan and Elevation and Typical Section, see **Appendix B**.

Rolled steel beams and prestressed concrete beams were investigated for the study. Rolled beams were included because they provide a smaller structural depth compared to prestressed concrete beams and have the potential to reduce the limits of roadway reconstruction needed. Option 1A investigated the use of W40x324 rolled steel beams, while Option 1B investigated the use of AASHTO Type IV prestressed concrete beams. Each option utilized the same beam length, number and spacing.

For both Alternatives 1A and 1B, the bridge is assumed to be a conventional ODOT style bridge with a construction joint at one abutment and an expansion joint at the second abutment. During final design, an integral style bridge can be investigated. An integral bridge eliminates expansion joints on the bridge and the maintenance issues that go along with them. It is anticipated that an integral bridge would have relatively the same construction cost as a conventional bridge.

3.1.3 Hydraulics

3.1.3.1 Rolled Steel Beams (Alternative 1A)

The proposed alternative 1A is a 100' Steel Beam bridge with a low chord of 1071.00 and a roadway overtopping elevation of 1071.35 approximately 300 feet north of the bridge. The proposed bridge has a roadway overtopping frequency of 116 years. The hydraulics characteristics of the natural channel, existing, and proposed structure are shown in **Table 2**.

Table 2 – Alternative 1A Hydraulic Summary

HYDRAULIC SUMMARY - ALTERNATIVE 1A - ROLLED STEEL BEAMS									
Frequency (Years)	Q_{Total} (cfs)	Natural Conditions WSEL (ft)	Existing Conditions		Proposed Conditions		Velocity (fps)		
			Elevation (ft)	Backwater (ft)	Elevation (ft)	Backwater (ft)	Natural	Existing	Proposed
2	1073	1060.00	1062.25	2.25	1060.18	0.18	2.65	5.18	5.18
5	2002	1062.50	1064.74	2.24	1062.80	0.30	3.60	6.71	6.55
10	2801	1064.16	1066.40	2.24	1064.56	0.40	4.19	7.58	7.30
25	3984	1066.25	1068.50	2.25	1066.84	0.59	4.85	8.44	8.11
50	5218	1068.15	1071.24	3.09	1068.89	0.74	5.40	7.62	8.71
100	6139	1069.44	1071.55	2.11	1070.22	0.78	5.70	8.17	8.97

3.1.3.2 Prestressed Concrete Beams (Alternative 1B)

The proposed alternative 1B is a 100' Prestressed Concrete Beam bridge with a low chord of 1071.00 and a roadway overtopping elevation of 1071.36 approximately 300 feet north of the bridge. The proposed bridge has a roadway overtopping frequency of 111 years. The hydraulics characteristics of the natural channel, existing, and proposed structure are shown in **Table 3**.

Table 3 – Alternative 1B Hydraulic Summary

HYDRAULIC SUMMARY - ALTERNATIVE 1B - PRESTRESSED CONCRETE BEAMS									
Frequency (Years)	Q_{Total} (cfs)	Natural Conditions WSEL (ft)	Existing Conditions		Proposed Conditions		Velocity (fps)		
			Elevation (ft)	Backwater (ft)	Elevation (ft)	Backwater (ft)	Natural	Existing	Proposed
2	1073	1060.00	1062.25	2.25	1060.29	0.29	2.65	5.18	5.56
5	2002	1062.50	1064.74	2.24	1062.95	0.45	3.60	6.71	6.99
10	2801	1064.16	1066.40	2.24	1064.74	0.58	4.19	7.58	7.76
25	3984	1066.25	1068.50	2.25	1067.02	0.77	4.85	8.44	8.50
50	5218	1068.15	1071.24	3.09	1069.01	0.86	5.40	7.62	8.92
100	6139	1069.44	1071.55	2.11	1070.34	0.90	5.70	8.17	9.12

3.1.4 Environmental

The Span Bridge Alternative would remove and replace the existing bridge over Rock Creek with a new 58-foot-2 inch wide by 100-foot-long span bridge. Replacement of the bridge would involve additional right-of-way (ROW). Best Management Practices will be implemented to limit the quantity of sediment entering the stream during construction. This alternative will likely not require a Section 404 permit from the U.S. Army Corps of Engineers (USACE).

Environmental impacts of the Span Bridge Alternative could include impacts to potential habitat for the Tricolored Bat and Monarch Butterfly. Removal of trees and shrubs should be restricted to areas within the actual limits of construction to avoid and minimize adverse impacts to bats. All aspects of the project may be modified to avoid tree removal. The Nationwide Monarch Butterfly CCAAs conservation measures will be followed to minimize threats to the Monarch Butterfly. Migratory birds are protected by the federal Migratory Bird Treaty Act. Many birds commonly use bridges and culverts for nesting. The nesting season for most bird species extends from March 1 to August 31. No migratory bird use on the existing bridge was observed during the field reconnaissance; however, if an official survey for migratory bird use is conducted, the results are valid until the start of the 2023 nesting season (beginning March 1). The new span bridge will provide suitable habitat for migratory birds.

3.1.5 Construction Sequencing

The existing bridge has been closed to all traffic and a detour has been put in place. The detour of 60th Avenue NE shall remain during construction of the proposed bridge.

3.1.6 Cost Estimate

An estimated opinion of probably cost has been developed for Alternatives 1A and 1B and are presented in **Tables 4** and **5**. The opinion of probable cost accounts for the roadway improvements to 60th Avenue NE, bridge, traffic (temporary and permanent), right-of-way and utility relocations. An itemized cost estimate is provided in **Appendix C**.

Table 4 - Alternative 1A Cost Estimate

ENGINEER'S OPINION OF PROBABLE COST		
ALTERNATIVE 1A - STEEL BEAMS		
ITEM DESCRIPTION	COST	
ROADWAY & TRAFFIC	$	648,204.00
BRIDGE	$	1,126,170.00
REMOVAL OF EXISTING BRIDGE STRUCTURE	$	30,000.00
RIGHT-OF-WAY & UTILITY RELOCATIONS	$	350,000.00
STAKING	$	50,000.00
MOBILIZATION	$	148,000.00
ENVIRONMENTAL MITIGATION	$	-
CONTINGENCY (25%)	$	588,092.00
TOTAL =	**$**	**2,940,457.00**

Table 5 - Alternative 1B Cost Estimate

ENGINEER'S OPINION OF PROBABLE COST		
ALTERNATIVE 1B- PRESTRESSED CONCRETE BEAMS		
ITEM DESCRIPTION	COST	
ROADWAY & TRAFFIC	$	680,036.00
BRIDGE	$	801,890.00
REMOVAL OF EXISTING BRIDGE STRUCTURE	$	30,000.00
RIGHT-OF-WAY & UTILITY RELOCATIONS	$	350,000.00
STAKING	$	50,000.00
MOBILIZATION	$	134,000.00
ENVIRONMENTAL MITIGATION	$	-
CONTINGENCY (25%)	$	511,481.00
TOTAL =	**$**	**2,557,403.00**

3.2 Reinforced Concrete Box Alternative (Alternative 2)

3.2.1 Roadway

For the proposed alternative, the typical section will have the same characteristics as described in **Section 3.1.1**.

3.2.2 Bridge

The results of the hydraulic analysis indicated that a triple cell 20-foot wide by 21-foot tall, reinforced concrete box (RCB) would be required to meet the City of Norman's hydraulic design requirements. The proposed RCB for this alternative will be a non-skewed, approximately 78-foot long triple cell structure with non-standard end sections that includes an apron, wing walls, and curtain walls.

To minimize the impact of the raised profile grade for this alternative, the RCB will have no fill over it and is considered "at-grade". Therefore, the top slab of the RCB is used at the driving surface. At-grade RCB's tend to have more long-term maintenance concerns than RCB's under fill because they are in direct contact with the elements and de-icing chemicals used to treat roadways. Additionally, ODOT standard concrete traffic rails (TR3) will be placed at the edges of the RCB to protect traffic and to connect to the guardrail that will be placed at all four corners of the approach roadway. For detailed conceptual General Plan and Elevation, See **Appendix B**.

There are several challenges associated with the proposed layout of the RCB. The first challenge is that the height of the cells exceeds the ODOT standards by more than six feet and would require a custom end section design. The custom design is anticipated to require that the end section wing walls be supported by steel piling. The steel piling will require additional construction activities within the Rock Creek channel.

A second challenge with the proposed RCB is the large end section that would be required. As seen in **Figure 9**, the traditional end section design on the west side of the structure creates a conflict with the existing residential driveway on the southeast corner of the project side. This layout would also require extensive work within the Rock Creek channel to construct the end section and then re-grade the channel.

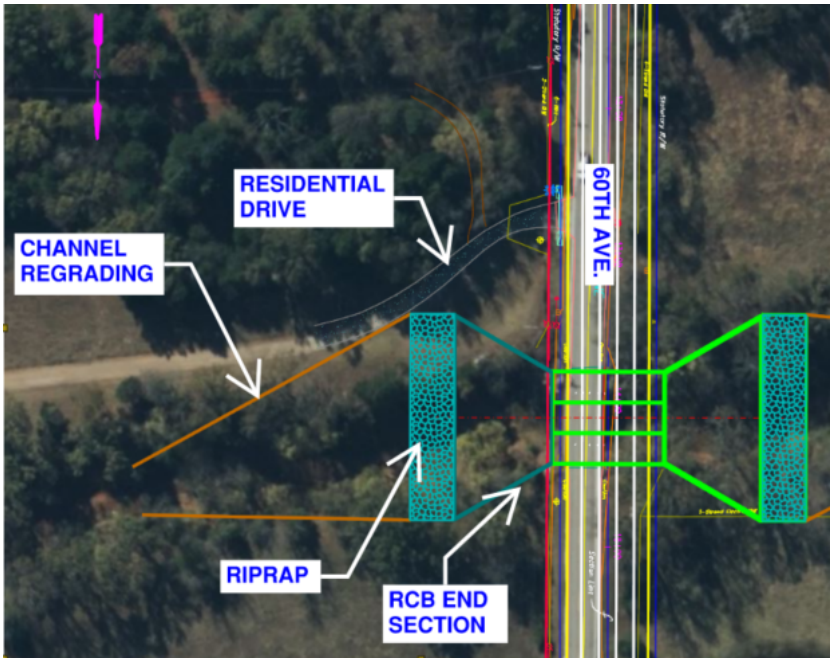


Figure 9 - RCB Traditional End Section

An alternative end section with straight wingwalls would lessen the impacts to the existing residential driveway and Rock Creek (see **Figure 10**), however they would not be eliminated.

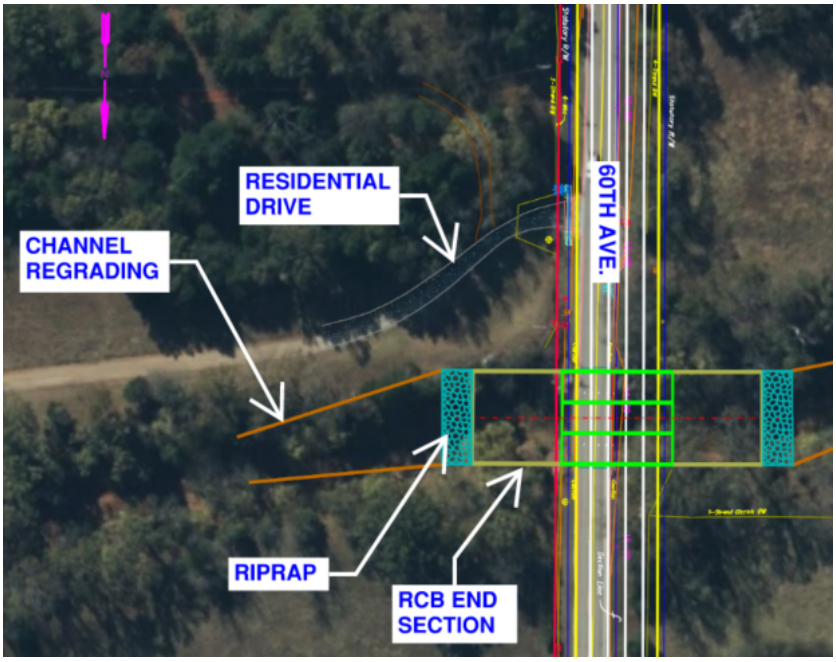


Figure 10 - Alternative RCB End Section

3.2.3 Hydraulics

The proposed Alternative 2 is a 3-20'x21' RCB with an inlet elevation of 1050.30 and a roadway overtopping elevation of 1071.31 approximately 300 feet north of the bridge. The proposed structure has a roadway overtopping frequency of 160 years. The hydraulics characteristics of the natural channel, existing, and proposed structure are shown in **Table 6**.

Table 6 - Alternative 2 Hydraulic Summary

HYDRAULIC SUMMARY - ALTERNATIVE 2 - REINFORCED CONCRETE BOX									
Frequency (Years)	Q_{Total} (cfs)	Natural Conditions WSEL (ft)	Existing Conditions		Proposed Conditions		Velocity (fps)		
			Elevation (ft)	Backwater (ft)	Elevation (ft)	Backwater (ft)	Natural	Existing	Proposed
2	1073	1060.00	1062.25	2.25	1059.88	-0.12	2.65	5.18	1.78
5	2002	1062.50	1064.74	2.24	1062.34	-0.16	3.60	6.71	2.64
10	2801	1064.16	1066.40	2.24	1063.99	-0.17	4.19	7.58	3.25
25	3984	1066.25	1068.50	2.25	1066.10	-0.15	4.85	8.44	4.01
50	5218	1068.15	1071.24	3.09	1068.03	-0.12	5.40	7.62	4.71
100	6139	1069.44	1071.55	2.11	1069.37	-0.07	5.70	8.17	5.18

3.2.4 Environmental

The Reinforced Concrete Box Alternative will remove and replace the existing bridge over Rock Creek with a new 20-foot wide by 21-foot tall RCB. Impacts from replacing the existing bridge with an RCB would be somewhat greater than the Span Bridge Alternative due to the need for additional ROW and channel work. Placement of the RCB, riprap, and channel regrading will require work below Rock Creek which will necessitate a Section 404 permit from the USACE. It is anticipated the project would fall under Nationwide Permit 14.

The 2022 revised Nationwide Permits issued by the USACE set a 0.03-acre threshold for the amount of stream-bed loss that triggers required compensatory mitigation. No streams have been formally delineated; however, an estimation of stream acreage that would be impacted can be calculated using the proposed ROW. The Tulsa District requires all new projects to use the Oklahoma Stream Mitigation Method to calculate stream credits. Mitigation of stream impacts would be accomplished through purchase of credits at an approved mitigation bank. For the Reinforced Concrete Box Alternative, an estimated cost of $185,606.40 may be required to mitigate impacts to Rock Creek (**Table 7**).

Table 7 - Estimated Stream Mitigation for Alternative 2

Type of Impact:	RCB Placement, Riprap, Channel Work
Required Credits[1]:	707.072
Amount per Credit[2]:	$175
Estimated Cost[3]:	$185,606.40

[1] Estimated using the OSMM Tool

[2] Intermittent stream credit amount in the secondary service area of Deep Fork Mitigation Bank. Cost sent from Jason Hoffman.

[3] Includes a 1.5 multiplier

Environmental impacts of the Alternative 2 could also include impacts to potential habitat for the Tricolored Bat and Monarch Butterfly. Removal of trees and shrubs should be restricted to areas within the actual limits of construction to avoid and minimize adverse impacts to bats. All aspects of the project may be modified to avoid tree removal. The Nationwide Monarch Butterfly CCAAs conservation measures will be followed to minimize threats to the Monarch Butterfly. Migratory birds are protected by the federal Migratory Bird Treaty Act. Many birds commonly use bridges and culverts for nesting. The nesting season for most bird species extends from March 1 to August 31. No migratory bird use on the existing bridge was observed during the field reconnaissance; however, if an official survey for migratory bird use is conducted, the results are valid until the start of the 2023 nesting season (beginning March 1). The new RCB will provide suitable habitat for migratory birds.

3.2.5 Construction Sequencing

The construction sequencing for the RCB alternative would be similar to the Span Bridge Alternatives described in **Section 3.1.5**.

3.2.6 Cost Estimate

An estimated opinion of probable cost has been developed for Alternative 2 and is presented in **Table 8**. The opinion of probable cost accounts for the roadway improvements to 60th Avenue NE, bridge, traffic (temporary and permanent), right-of-way and utility relocations. An itemized cost estimate is provided in **Appendix C**.

Table 8 - Alternative 2 Cost Estimate

ENGINEER'S OPINION OF PROBABLE COST		
ALTERNATIVE 2 - REINFORCED CONCRETE BOX		
ITEM DESCRIPTION	COST	
ROADWAY & TRAFFIC	$	615,180.00
BRIDGE	$	1,844,570.00
REMOVAL OF EXISTING BRIDGE STRUCTURE	$	30,000.00
RIGHT-OF-WAY & UTILITY RELOCATIONS	$	500,000.00
STAKING	$	50,000.00
MOBILIZATION	$	193,000.00
ENVIRONMENTAL MITIGATION	$	185,606.40
CONTINGENCY (25%)	$	854,588.00
TOTAL =	**$**	**4,272,937.00**

4.0 Conclusion

This Engineering Report compiles the existing condition of the study area, outlines the design approach and provides an overview of the bridge replacement alternatives considered. A project impact matrix has been included in **Table 9**.

Table 9 - Project Impact Matrix

60TH AVENUE NE OVER ROCK CREEK PROJECT MATRIX									
Alternative	Description	Total Cost	Construction Duration (days)	Right-of-Way (acre)	Utility Impacts	Permitting	Mitigation Costs	Cultural Resources	Long-Term Maintenance
1A	100' Steel Beam Span	$2.9M	180	0.68	Medium	N/A	$0	None	High
1B	100' Prestressed Beam Span	$2.6M	180	0.68	Medium	N/A	$0	None	Medium
2	3-20'x21' RCB	$4.4M	210	1.2	High	Section 404 NWP 24	$185,600	None	Low

Each of the alternatives proposed meet the primary objectives of replacing the existing 60th Avenue NE bridge over Rock Creek. For alternative plan sheets see **Appendix B**. For detailed costs estimate see **Appendix C**.

Appendix A

NBI Bridge Inspection Report

GARVER

GarverUSA.c

Oklahoma Dept. of Transportation - Bridge Inspection Report

NBI No.:	Structure No.:	Local ID:	Suff. Rating:	
09189	14N3170E1210005	022A	27.20	SD

IDENTIFICATION

Bridge Description: 15ft. - 36ft. - 15ft. WF BEAM

1. State: Oklahoma
2. Division: Division 3
3. County: CLEVELAND
4. City: NORMAN
Admin Area: Unknown
5a. On/Under: Route On Structure
5b. Kind of Hwy: City Street
5c. Lvl of Srvc: Mainline
5d. Route No.: N3170
5e. Dir. Sufx: N/A (NBI)

7. Facility Carried : 60TH AVE NE
6. Feat. Intersect: ROCK CREEK
9. Location: 0.5 N ROCK CREEK RD
11. Mile Post: 4.542 mi
13. LRS Inv. / Sub Rte: -1 / -1
16. Latitude: 35° 15' 19.30"
17. Longitude: 097° 21' 11.09"
98. Border Brdg: Unknown (P)
% Responsible: 0.00
99. Border Brdg #: Unknown

INSPECTION

Type	Insp. Req.	Insp. Done	Freq.	Insp. Date	Next Insp.
NBI:		1	12 months	10/10/2022	10/10/2023
FC:	N	0		NA	NA
UW:	N	0		NA	NA
OS:	N	0		NA	NA

CLASSIFICATION

12.Base Hwy Net.: Not on Base Network
20. Toll Facility: On free road
21. Custodian: City
22. Owner: City
26. Function Class: 09 Rural Local
37. Historical Sig.: Not eligible for NRHP
100. Def. Hwy: Not a STRAHNET hwy
101. Parallel Str.: No || bridge exists
102. Traffic Dir.: 2-way traffic
103. Temp. Str.: Not Applicable (P)
104. Hwy System: Not on NHS
105. Fed Land Hwy: IRR-Indian Res Rd
110. Defense Hwy: Not a STRAHNET hwy
112. NBIS Length: Long Enough

STRUCTURE TYPE AND MATERIALS

43a/b. Main Span: Steel / Stringer/Girder
44a/b. Appr. Span: N/A / Not Applicable (P)
45. # of Main Spans: 3
46. # of Appr. Spans: 0
107. Deck Type: Concrete-Cast-in-Place
108a. Wearing Surface: Bituminous
108b. Membrane: None
108c. Deck protection: None

CONDITION

58.Deck: 6 Satisfactory
59.Sup.: 4 Poor
60.Sub: 4 Poor
62.Culvert: N/A (NBI)
61.Chan./Chan. Prot.: 5 Bank Prot Eroded

Flowline Notes

2022- FL= 19.4 ft to E TOD
2021, FL=19.1ft to ETOD 2019, FL = 19.2ft measured 35ft from NE corner.

AGE AND SERVICE

19. Detour Length: 0.6 mi
27. Year Built: 1940
28a/b. Lanes on/und: 2 / 0
29. ADT: 1,669
30. Year of ADT: 2020
42a/b. Type of Svc on/und: Highway / Waterway

106. Year Reconst.:
109. Truck ADT: 10%

LOAD RATING AND POSTING

31. Design Load: M 9 (H 10)
41. Post. Status: P Posted for load
70. Posting: 0 >39.9% below
Date Rated: 12/03/2019
63.Op / 65.Inv. Rating Meth.: 1 LF Load Factor / 1 LF Load Factor

	H	HS	3-3	EV3	SHV
64. Operating Rating (tons):	5.60	6.60	15.50	4.30	5.60
66. Inventory Rating (tons):	3.40	4.00	9.30	2.60	

GEOMETRIC DATA

10. Vert. Clearance: 99.99 ft
32. Appr Rwy Width: 24.00 ft
33. Median: No median
34. Skew: 0.00°
35. Struct. Flared: No flare
47Horizontal Clr: 26.00 ft
48. Length Max Span: 36.09 ft
49. Struct. Length: 65.95 ft

50a. Curb/Sdwlk Width L: 0.00 ft
50b. Curb/Sdwlk Width R: 0.00 ft
51. Width Curb to Curb: 26.00 ft
52. Width Out to Out: 26.00 ft
Deck Area: 1,711.46 sq. ft
53. Min.Vert.Cl.Ovr Brg: 99.99 ft
54a.Min.Vt.Undclr.Ref.: N Feature not hwy c
54b. Min. Vert. Undclr.: 0.00 ft
55a. Min.Lat.Undclr.Ref: N Feature not hwy
55. Min.Lat.Underclr. R: 0.00 ft
56. Min.Lat.Underclr. L: 0.00 ft

APPRAISAL

36a. Brdg Rail: 0 Substandard
36b. Transition: 0 Substandard
36c. Appr. Rail: 0 Substandard
36d. Appr.Rail Ends: 0 Substandard
67. Str Evaluation: 2 Intolerable - Repl

68. Deck Geom.: 4 Tolerable
69. Vert./Horiz. Undclr: Not applicable (NB
71. Waterway Adeq: 7 Above Minimum
72. Appr. Alignment: 8 Equal Desirable Crit
113. Scour Critical: 8 Stable Above Footir

PROPOSED IMPROVEMENTS

94. Bridge Cost: $255,000
95. Roadway Cost: $140,000
96. Total Cost: $406,000
97. Yr.of Cost Est.: 2015

75. Type of Work: 31 Repl-Load Capacity
76. Lngth of Improvement: 163.9 ft
114. Future ADT: 2,336
115. Yr.of Future ADT: 2040

NAVIGATION DATA

38. Nav. Control: Permit Not Required
39. Vert. Clearance: 0.0 ft
40. Horiz. Clearance: 0.0 ft

111. Pier Protect.: Not Applicable (P)
116. Lift Bridge Vert. Clr.: 0.0 ft

OKLAHOMA ITEMS

200c. Temperature: 68
200d. Weather: Cloudy
201. Struc.Stl. ASTM Desig.: -1 / -1
202. Waterprf.Membrane: -1
Date Installed: 01/01/1901
203. Type Exp. Device: Pourable
204. Type of Railing: Metal Railing (other)
205. Material Quantity: -1.00
208a. Type of Abutment: Other
b. Type of Found.: Bears on Natural Found.
209. Type of Pier/Found.: B / No
Steel Piling
210. Foundation Elev.: -1.00 -1.00 -1.00 -1.00 -1.00
211. Wear.Surf.Prot.Sys: None
Date Installed: 01/01/1901
211c. Silane Reapplied
211d. Date :
213. Utilities Attached:

214a. Posted Weight Limit: 040404
b. Posted Speed Limit: 50
c. Narrow/1way Brdg Sign: No
d. Vertical Clr. Sign: No
Adv. Warning Sign: No
e. Navigation Lights?: No
Working/Not Working: No
215. Overpass: ACOG
218. Functionally Obsolete : FO
220. Bridge Redecked
221. Substr.Cond.(U/W):
222. Fill Over RCB:
223. Appr.Slab/Rwy Cond.: 2
225. Paint Type/Ovrct: Red Lead 3 Coat System
226. Date Painted: 1940
227. Paint Color: Silver
233. Deck Forming: Perm.Metal Deck Forr
238. School Bus Rte.: Current bus route
240. Appr. Rwy Type.: Asphalt/Bituminous
243. Grdr Spacing/No.: 3.40 / VA

244. Span Lengths: 15 36 15
245. Girder Depth: 1.25
246a. Type of Ovelay: AC Overlay
b. Overlay Thickness: 6.00
c. Overlay Date: 01/01/1991
d. Ovly Depth Changed >1": N
247. Protective Systems:
248. # Field Splices w/ Corrosion:
249. Scour Crit. POA Exists?: No
250. Headwall:
258. Plans w/Found.in ODOT File:
259. Scour Eval. in ODOT File:
263. Interchange at Intersection:
264. Interstate Milepoint:

Oklahoma Dept. of Transportation - Bridge Inspection Report

NBI No.:	Structure No.:	Local ID:	Suff. Rating:	
09189	14N3170E1210005	022A	27.20	SD

Inspection Date: 10/10/22 Troy Travis

Invoice No.: HWL141022 Inspected With: Colby Warden

Troy Travis

Digitally signed by Troy Travis
DN: C=US, E=ttravis@hwlochner.com, O=HW Lochner, OU=Oklahoma, CN=Troy Travis
Location: Oklahoma City, OK
Reason: I am the author of this document
Contact Info: ttravis@hwlochner.com
Date: 2022.11.28 13:32:59-06'00'

BRIDGE NOTES:

INSPECTION NOTES: 10/10/22

Banks have rubble & slurry concrete mix poured near the piles. Bank erosion may be occuring at the south interior bent piles. The NW & SE banks are vertical. Active bank erosion occuring on the SE bank.

ELEMENT CONDITION STATE DATA

Elem. / Env	Description	Unit	Total Qty	% 1	Qty. 1	% 2	Qty. 2	% 3	Qty. 3	% 4	Qty. 4
12 / 4	Re Concrete Deck	sq.ft	1,711.00	0%	0.00	100%	1,711.00	0%	0.00	0%	0.00
	Cracking & scaling at edges. Covered with asphalt.										
510 / 4	Wearing Surfaces	sq.ft	1,711.00	100%	1,711.00	0%	0.00	0%	0.00	0%	0.00
	Heavy cracks in asphalt and over piers.										
107 / 4	Steel Opn Girder/Beam	ft	604.00	0%	0.00	0%	0.00	100%	604.00	0%	0.00
	FX - Bottom flanges have rust & deep pitting.										
515 / 4	Steel Protective Coating	sq.ft	4,202.00	0%	0.00	0%	0.00	100%	4,202.00	0%	0.00
	Paint system has failed.										
202 / 4	Steel Column	each	12.00	0%	0.00	67%	8.00	33%	4.00	0%	0.00
	FX - All exterior piles have minor section loss at the ground line.										
219 / 4	Stl Abutment	ft	52.00	0%	0.00	0%	0.00	100%	52.00	0%	0.00
	Mostly covered by rock & gravel. Very small areas have heavy rust & pitting.										
231 / 4	Steel Pier Cap	ft	52.00	0%	0.00	90%	47.00	10%	5.00	0%	0.00
	PX - Bottom flanges have severe rust & deep pitting. Web of caps losing section, supplementary caps have advanced corrosion.										
918 / 4	St.(substr)Prot.Coat	(EA)	436.00	0%	0.00	0%	0.00	0%	0.00	100%	436.00
	Paint system has failed.										
301 / 4	Pourable Joint Seal	ft	52.00	0%	0.00	100%	52.00	0%	0.00	0%	0.00
	Joints are covered by asphalt overlay.										
330 / 4	Metal Bridge Railing	ft	131.00	0%	0.00	0%	0.00	100%	131.00	0%	0.00
	Rust is prevalent with minor pitting.Rail is too low.										
919 / 4	St.(Rail) Prot. Coat	(SF)	286.00	0%	0.00	0%	0.00	0%	0.00	100%	286.00
	Paint system has failed.										
865 / 4	St.Open Gird End(5Ft	(LF)	160.00	0%	0.00	0%	0.00	100%	160.00	0%	0.00
	PX- Westernmost beam end has significant section loss.										
	FX - Bottom flanges have severe rust & deep pitting. Section loss on beam ends at both piers are approximately 5%.										
875 / 1	Masonry Wingwall	(EA)	4.00	0%	0.00	0%	0.00	75%	3.00	25%	1.00
	PX - Erosion at southeast corner of structure is encroaching onto the roadway, as well as northwest ditch.										
890 / 4	Steel SIP Form	(LF)	1.00	0%	0.00	0%	0.00	100%	1.00	0%	0.00
	Forms are rusty & have significant section loss.										
958 / 4	Concrete Cracking SF	(EA)	1.00	0%	0.00	100%	1.00	0%	0.00	0%	0.00
	Cracks are moderate in size & density.										
963 / 4	Steel Section Loss SF	(EA)	1.00	0%	0.00	100%	1.00	0%	0.00	0%	0.00
	Minor to moderate section loss & deep pitting found in beams, beam ends, abutments, supplementary caps & railing.										
968 / 4	Erosion SF	(EA)	1.00	0%	0.00	100%	1.00	0%	0.00	0%	0.00
	PX - Erosion at southeast corner of structure is encroaching onto the roadway, as well as northwest ditch.										

Appendix B

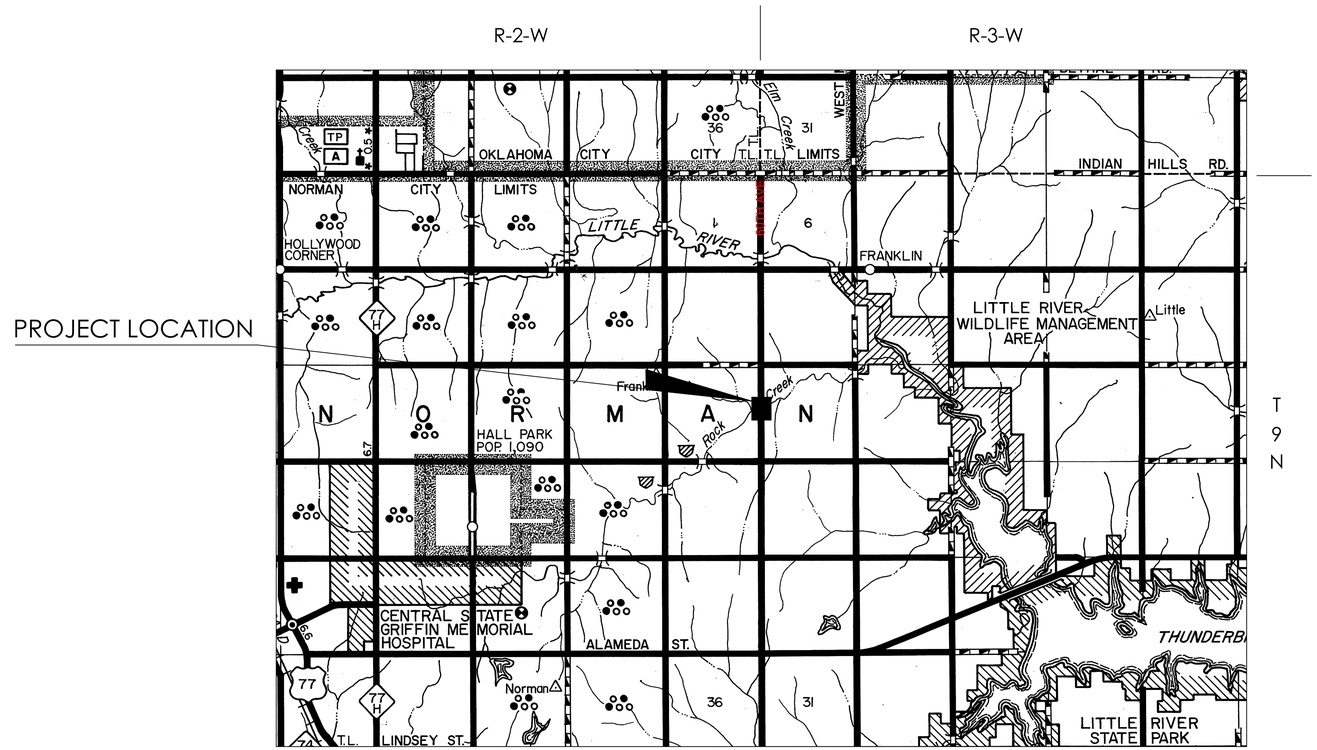
Alternative Plan Sheets

GARVER

GarverUSA.c

PLAN OF
60TH AVENUE NE BRIDGE REPLACEMENT OVER ROCK CREEK

CITY OF NORMAN PROJECT NO. GEN
GRADING, DRAINAGE, SURFACING, ...



SCALE: 1"=250'

LEGEND

1196	EXISTING CONTOUR
1196	PROPOSED CONTOUR
X	FENCE
OHE	OVERHEAD ELECTRIC
	POWER POLE
	LIGHT POLE
W	WATER LINE
	FIRE HYDRANT
	GATE VALVE
	WATER METER
FIB	FIBER OPTIC UNDERGROUND
TUG	TELEPHONE UNDERGROUND
UGE	POWER UNDERGROUND
	CABLE TV UNDERGROUND
GAS	GAS LINE
	GAS METER
	GAS VALVE
	SANITARY SEWER
	STORM SEWER
	GUARD POSTS
	ROAD SIGNS
	ROCK BAGS
XXXXXXXXXXXXX	SILTATION FENCE
	EXISTING BUILDING
	PROPOSED ASPHALT PAVING
	PROPOSED P.C. CONCRETE
	REMOVALS

UTILITY OWNERS

ONG	(405) 556.6411
OG&E	(405) 553.5785
CHICKASAW TELEPHONE CO.	(580) 622.3837
ONENET	(405) 225.9453
CITY OF NORMAN	(405) 217.7778
CITY OF NORMAN WATER	(405) 291.5545
CITY OF NORMAN SEWER	(405) 329.0703
AT&T	(405) 291.5545

BEFORE YOU DIG 811 CALL OKIE

ONE CALL UTILITY LOCATION NUMBER
(405) 840-5032
(800) 522-6543

THIS NUMBER IS TO BE USED FOR INFORMATION ON THE LOCATION OF ALL UNDERGROUND UTILITIES. CONTACT THIS NUMBER AND OTHER SPECIFIED NUMBERS IN THE PLANS PRIOR TO ANY EXCAVATION.

The City of
Norman

LARRY HEIKKILA
Mayor

BRANDI STUDLEY
Council Member

LAUREN SCHUELER
Council Member

KELLY LYNN
Council Member

HELEN GRANT
Council Member

DARREL PYLE
City Manager

KATHRYN WALKER
City Attorney

RARCHAR TORTORELLO
Council Member

ELIZABETH FOREMAN
Council Member

STEPHEN HOLMAN
Council Member

MATTHEW PEACOCK
Council Member

SHEET INDEX

THE FOLLOWING STANDARDS SHALL BE REQUIRED ON THIS PROJECT:

CITY OF NORMAN CONSTRUCTION STANDARDS

GC 02	W 05	W 09b	ST 14	ST 18	ST 32
W 02	W 07	W 11	ST 14a	ST 21	ST 33
W 03	W 08	W 13	ST 15	ST 23	ST 36
W 04	W 09a	ST 11	ST 16	ST 29	SD 01

ODOT CONSTRUCTION STANDARDS

SSS-2-0	TCS2-4-0	SSCD-4-0	CI-2-0
TR-3-2-01E	EJ-SQ-04E	EJ-DTL-02E	HP1-2-01E

PREPARED BY:

J. BRET CABBINESS, P.E.
REGISTERED PROFESSIONAL ENGINEER NO. 18093

L:\2022\22728060 - Norman Bridge Reconstruction 60th-Porter\Drawings\22728060 - Title Sheet.dwg TITLE SHEET PE REPORT - TS JHDebaets 2/10/2023 1:50 PM

(1) THIS AREA TO BE BACKFILLED WITH TRAFFIC BOUND SURFACE COURSE TYPE E AND SHALL BE PAID FOR AS SUCH.

(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 OPERATION SHALL BE INCLUDED IN THE PAY ITEM FOR SALVAGED TOPSOIL, LUMP SUM.

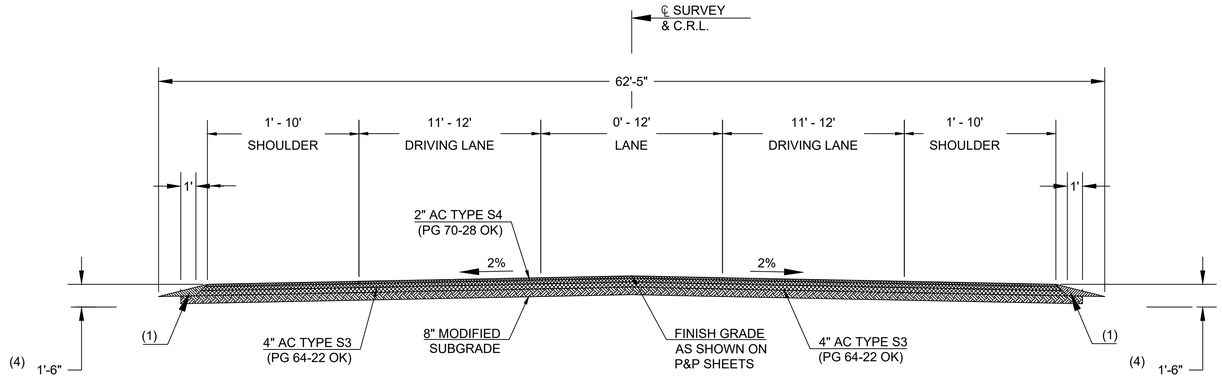
THE GRADING LINE AS SHOWN ON THE TYPICAL AND CROSS SECTIONS IS TO THE TOP OF THE TOP SOIL. EARTHWORK QUANTITIES WERE NOT ADJUSTED FOR SALVAGE AND THE TOPSOIL QUANTITY IS INCLUDED IN THE MASS LINE BALANCE.

(3) SEE ROUNDING DETAIL THIS SHEET.

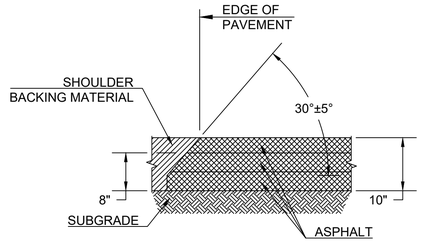
(4) DISTANCES ARE MEASURED VERTICALLY FROM THE EDGE OF THE FINISHED SHOULDER.

(5) ALL SOILS WITHIN THE TOP TWO FEET OF THE GRADING SECTION AND ANY EMBANKMENT SLOPES TO BE NON-DISPERSIVE AS DETERMINED ACCORDING TO THE EMERSON CRUMB TEST AND EITHER THE PINHOLE TEST, ASTM D4645, OR THE DOUBLE HYDROMETER TEST, ASTM D4221.

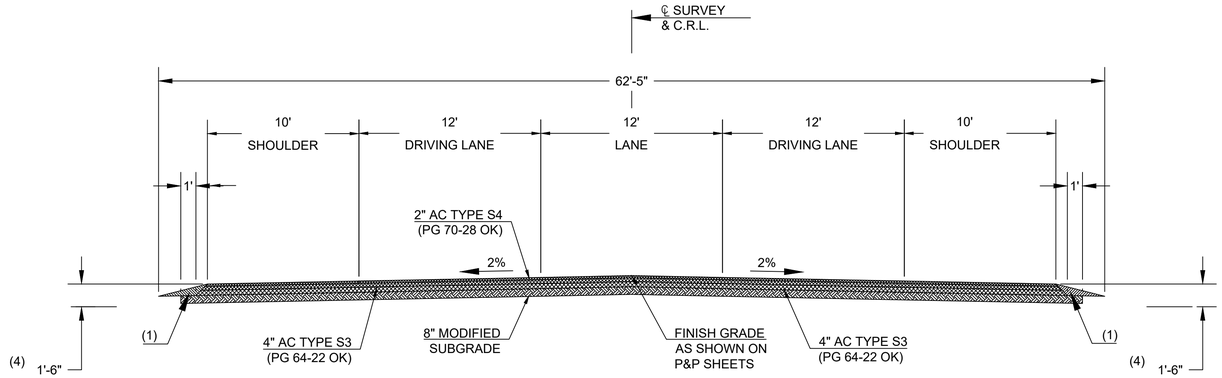
(6) SEE CROSS SECTIONS FOR SLOPE VARIATIONS.



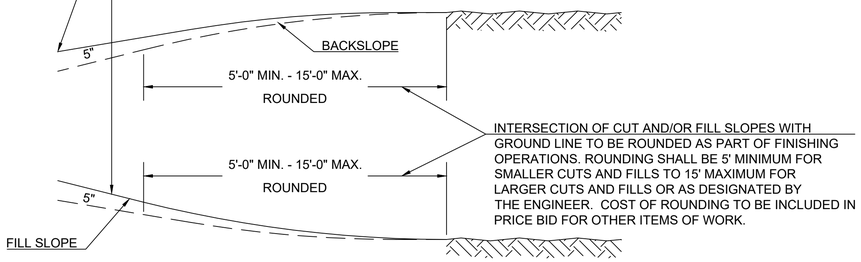
TYPICAL SECTION NO. 1
C.R.L. STA. 10+80.00 TO STA. 14+50.00 60TH AVE
C.R.L. STA. 16+50.00 TO STA. 22+29.00 60TH AVE



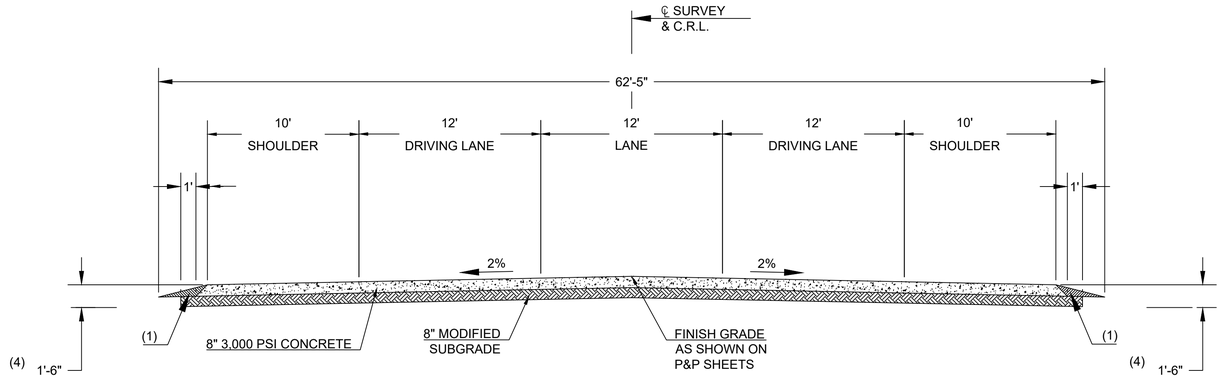
SAFETY EDGE DETAIL



TYPICAL SECTION NO. 2
C.R.L. STA. 14+50.00 TO STA. 14+69.00 60TH AVE
C.R.L. STA. 16+30.00 TO STA. 16+50.00 60TH AVE



ROUNDING DETAIL



TYPICAL SECTION NO. 3
C.R.L. STA. 14+69.00 TO STA. 15+00.00 60TH AVE
C.R.L. STA. 16+00.00 TO STA. 16+30.00 60TH AVE

CA #4193 EXPIRES JUNE 30, 2024

PE REPORT
NOT FOR CONSTRUCTION

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE
BRIDGE REPLACEMENT
OVER ROCK CREEK

TYPICAL SECTIONS

JOB NO.: 22T28060
DATE: MARCH 2023
DESIGNED BY: SCP
DRAWN BY: JHD

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
####

SHEET NUMBER 2 OF 10

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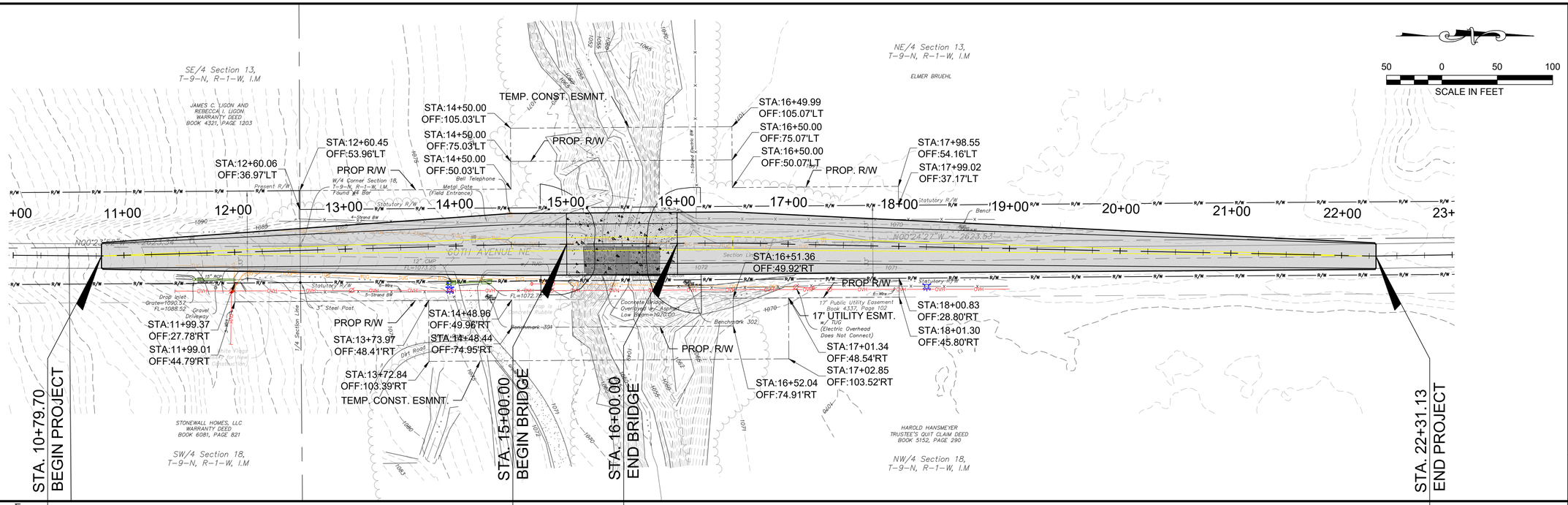

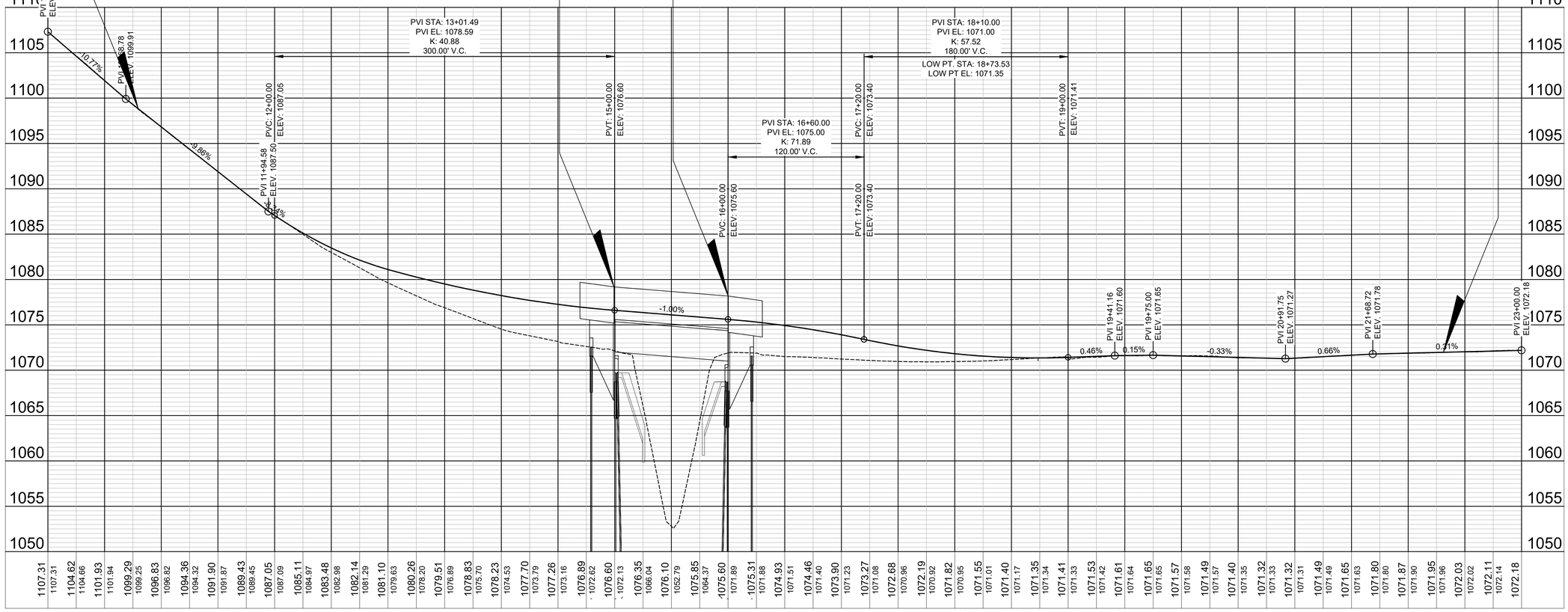

10+00	10+50	11+00	11+50	12+00	12+50	13+00	13+50	14+00	14+50	15+00	15+50	16+00	16+50	17+00	17+50	18+00	18+50	19+00	19+50	20+00	20+50	21+00	21+50	22+00	22+50	23+00
1107.31	1104.62	1101.93	1099.29	1096.83	1094.36	1091.90	1089.43	1087.05	1085.11	1083.48	1082.14	1081.10	1080.26	1079.51	1078.83	1078.23	1077.70	1077.26	1076.89	1076.60	1076.35	1076.10	1075.85	1075.60	1075.31	1074.93	1074.46	1073.90	1073.27	1072.68	1072.19	1071.82	1071.55	1071.40	1071.35	1071.41	1071.53	1071.61	1071.65	1071.57	1071.49	1071.40	1071.32	1071.49	1071.65	1071.80	1071.87	1071.95	1072.03	1072.11	1072.18
1107.31	1104.66	1101.94	1099.25	1096.82	1094.32	1091.87	1089.45	1087.09	1085.11	1084.97	1082.98	1081.29	1079.63	1078.20	1076.89	1075.70	1074.53	1073.79	1073.16	1072.62	1072.13	1066.04	1062.79	1064.37	1071.88	1071.51	1071.40	1071.23	1071.08	1070.96	1070.92	1070.95	1071.01	1071.17	1071.34	1071.33	1071.42	1071.64	1071.65	1071.58	1071.57	1071.49	1071.33	1071.31	1071.49	1071.63	1071.80	1071.90	1071.96	1072.02	1072.14	

CA #4193 EXPIRES JUNE 30, 2024

PE REPORT
NOT FOR CONSTRUCTION

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE BRIDGE REPLACEMENT OVER ROCK CREEK

ALTERNATIVE 1A P&P

JOB NO.: 22T28060
DATE: MARCH 2023
DESIGNED BY: SCP
DRAWN BY: JHD

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

DRAWING NUMBER
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SHEET NUMBER 3 OF 10

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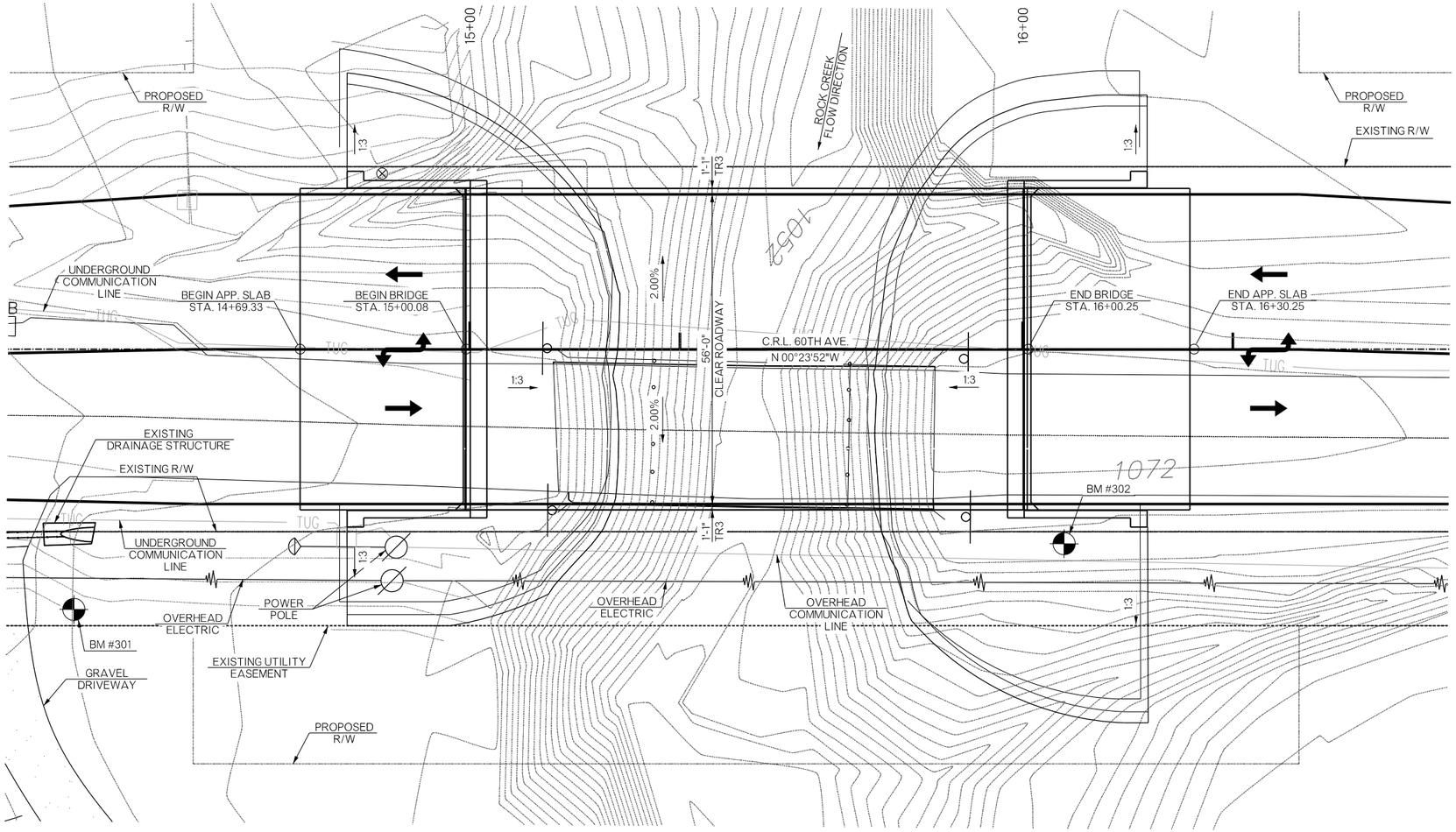
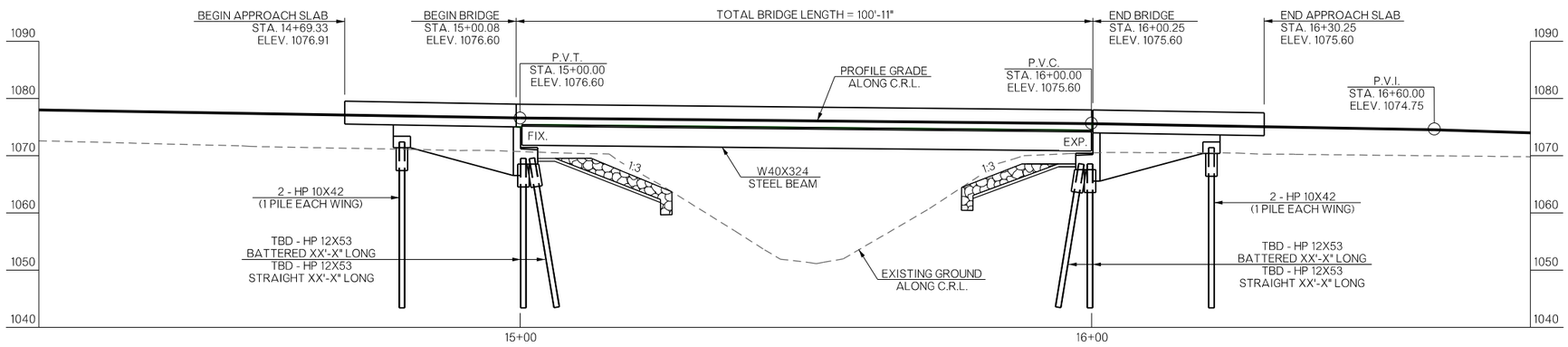
Last plotted by: Debaets, Jaylynn H Plot Style: ---- Plot Scale: 1:2.5849 Plot Date: 2/13/2023 1:34 PM Plotter used: None



PLAN



ELEVATION

0 12 24 36

SCALE 1" = 12'

DESIGN DATA
(LOAD AND RESISTANCE FACTOR DESIGN)

CLASS AA CONCRETE	F'C = 4,000 P.S.I.
CLASS A CONCRETE	F'C = 3,000 P.S.I.
REINFORCING STEEL (GRADE 60)	FY = 60,000 P.S.I.
STRUCTURAL STEEL (M270, GR. 50W)	FY = 50,000 P.S.I.
STRUCTURAL STEEL (PILING) (M270, GR. 50)	FY = 50,000 P.S.I.
STAINLESS STEEL A240 (TYPE 316)	FY = 30,000 P.S.I.

LOADING: HL93 AND 20 P.S.F. FUTURE WEARING SURFACE OR OKLAHOMA OVERLOAD TRUCK, 20 P.S.F. FUTURE WEARING SURFACE, AND 5 P.S.F. STAY-IN-PLACE FORMS.

DESIGN: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION WITH CURRENT INTERIMS.

ANSI/AASHTO/AWS: D1.5 BRIDGE WELDING CODE
ANSI/AASHTO/AWS: D1.6 STRUCTURAL WELDING CODE - STAINLESS STEEL

LFD OPERATING RATING: HS XX.X

HYDRAULIC SUMMARY

FREQ.	Q (CFS)	CHW (FT)	V (FPS)
2	1,073	1060.18	5.18
5	2,002	1062.80	6.55
10	2,801	1064.56	7.30
25	3,984	1066.84	8.11
50	5,218	1068.89	7.11
100	6,319	1070.22	8.97

Item 5.

GARVER

CA #4193 EXPIRES JUNE 30, 2024

FOR INFORMATION ONLY

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE BRIDGE REPLACEMENT OVER ROCK CREEK

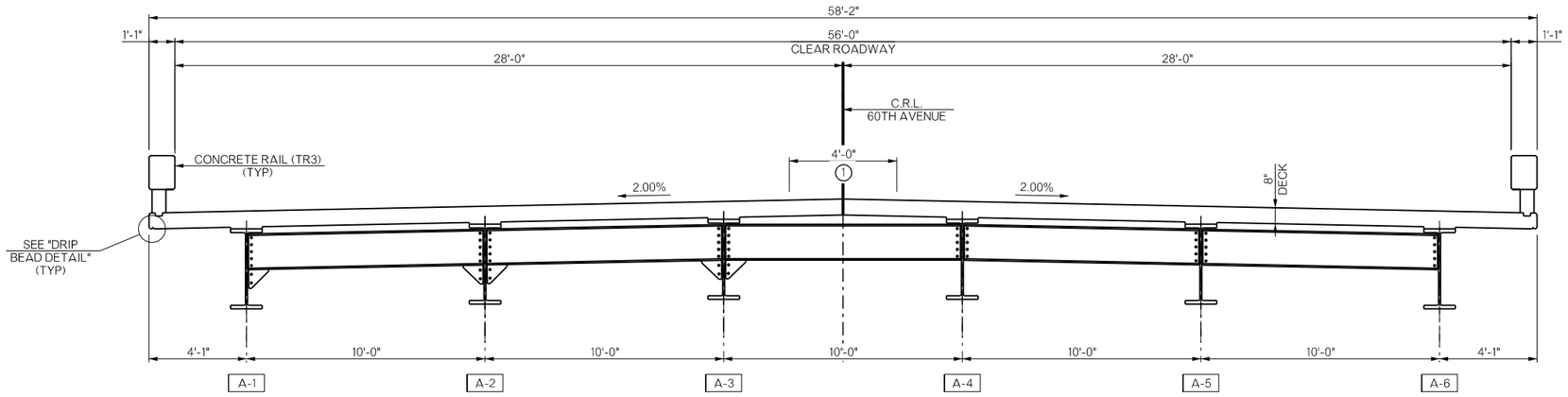
ALTERNATIVE 1A GENERAL PLAN & ELEVATION

JOB NO.:
DATE:
DESIGNED BY: JTR
DRAWN BY: NBK

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

DRAWING NUMBER

SHEET NUMBER 144

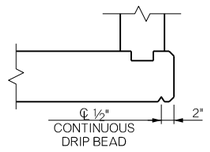


SECTION AT END DIAPHRAGM

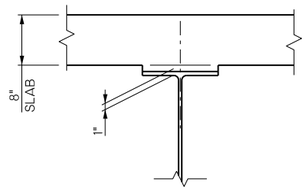
SECTION AT INTERMEDIATE DIAPHRAGM

1 ROUND 2'-0" EACH SIDE OF ℄ TO AVOID SHARP EDGES.

TYPICAL SECTION
(LOOKING FORWARD STATION)



DRIP BEAD DETAIL



BEAM HAUNCH DETAIL

NOTE:
PLAN QUANTITIES FOR CLASS AA CONCRETE INCLUDE BEAM HAUNCHES. THE HAUNCH HEIGHT SHOWN IS THE THEORETICAL HAUNCH HEIGHT AT THE CENTERLINE BEARING ONLY, MEASURED FROM BOTTOM OF DECK SLAB TO TOP OF TOP FLANGE, AND VARIES ACROSS THE SPAN. DETERMINE THE ACTUAL HAUNCH HEIGHT (ACCOUNTING FOR BEAM CAMBER, DEAD LOAD DEFLECTION AND ROADWAY GRADE) AFTER ERECTION OF THE BEAMS AND SUBMIT TO THE ENGINEER FOR APPROVAL. THE ENGINEER WILL NOT MEASURE DIFFERENCES BETWEEN THE THEORETICAL AND THE ACTUAL HAUNCH HEIGHTS FOR PAYMENT.

GARVER

CA #4193 EXPIRES JUNE 30, 2024

FOR INFORMATION ONLY

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE BRIDGE REPLACEMENT OVER ROCK CREEK

ALTERNATIVE 1A TYPICAL SECTION

JOB NO.:
DATE:
DESIGNED BY: JTR
DRAWN BY: NBK

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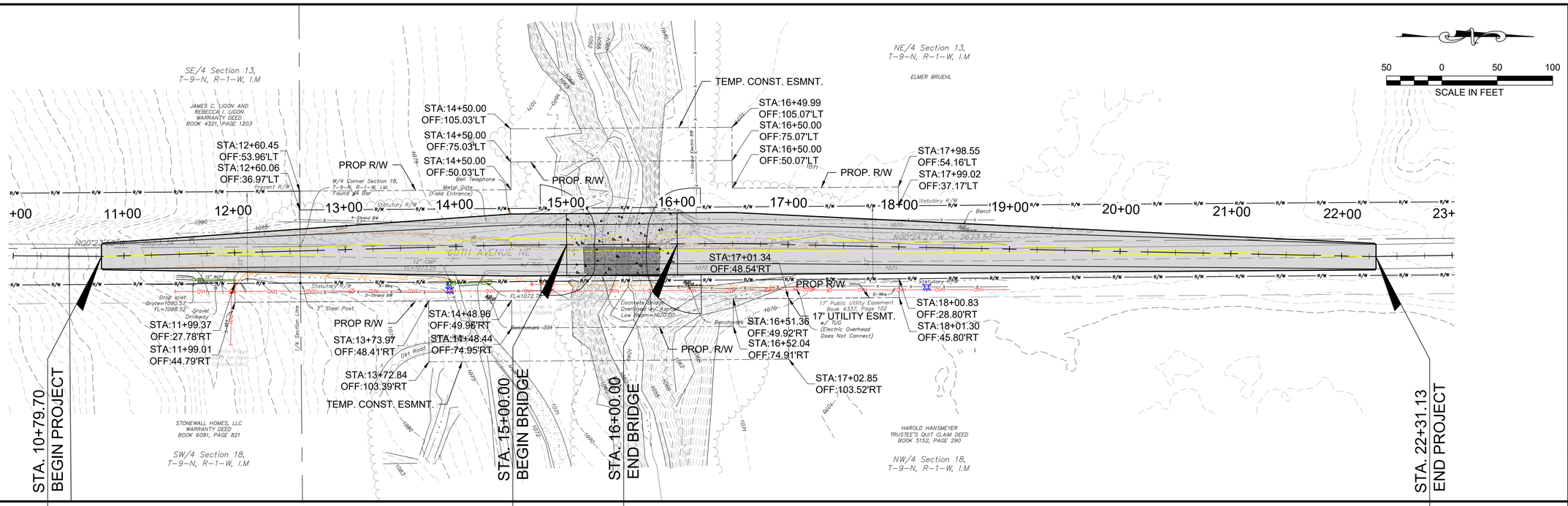
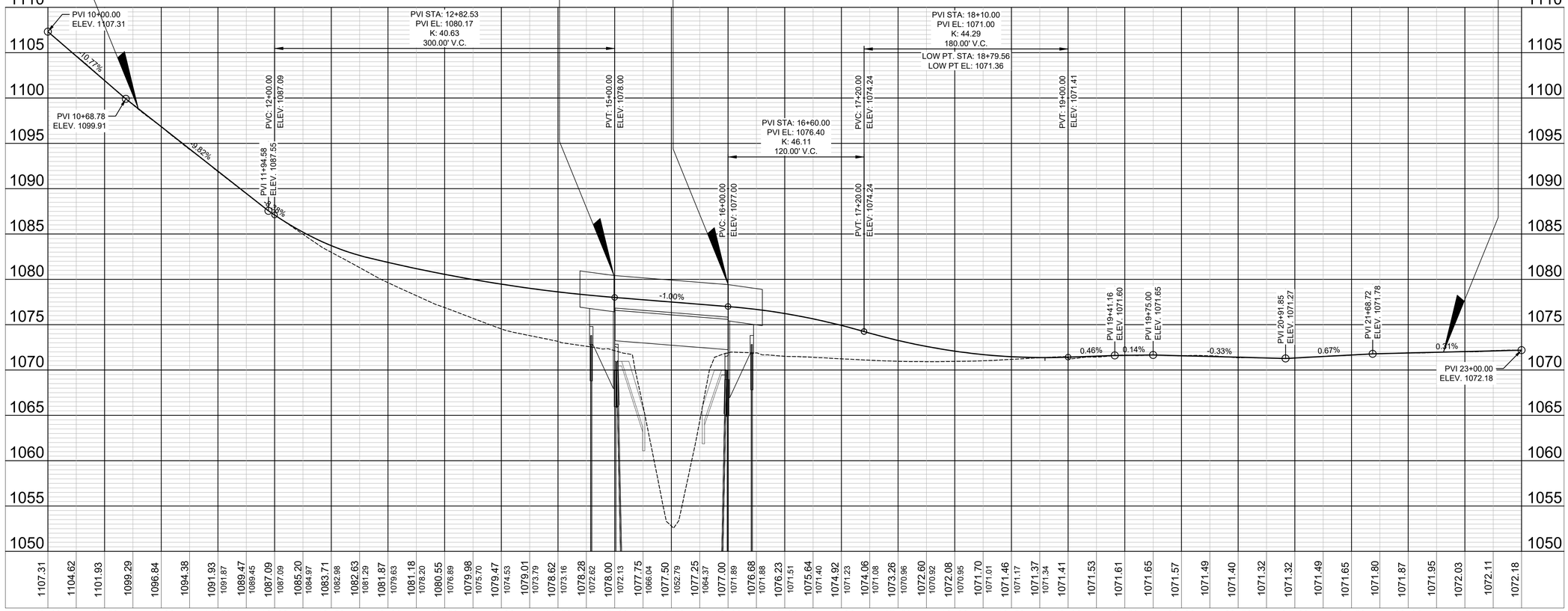
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER

SHEET NUMBER 145





PE REPORT
NOT FOR CONSTRUCTION

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE BRIDGE REPLACEMENT OVER ROCK CREEK

ALTERNATIVE 1B P&P

JOB NO.: 22T28060
DATE: MARCH 2023
DESIGNED BY: SCP
DRAWN BY: JHD

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
####

SHEET NUMBER 6 OF 10

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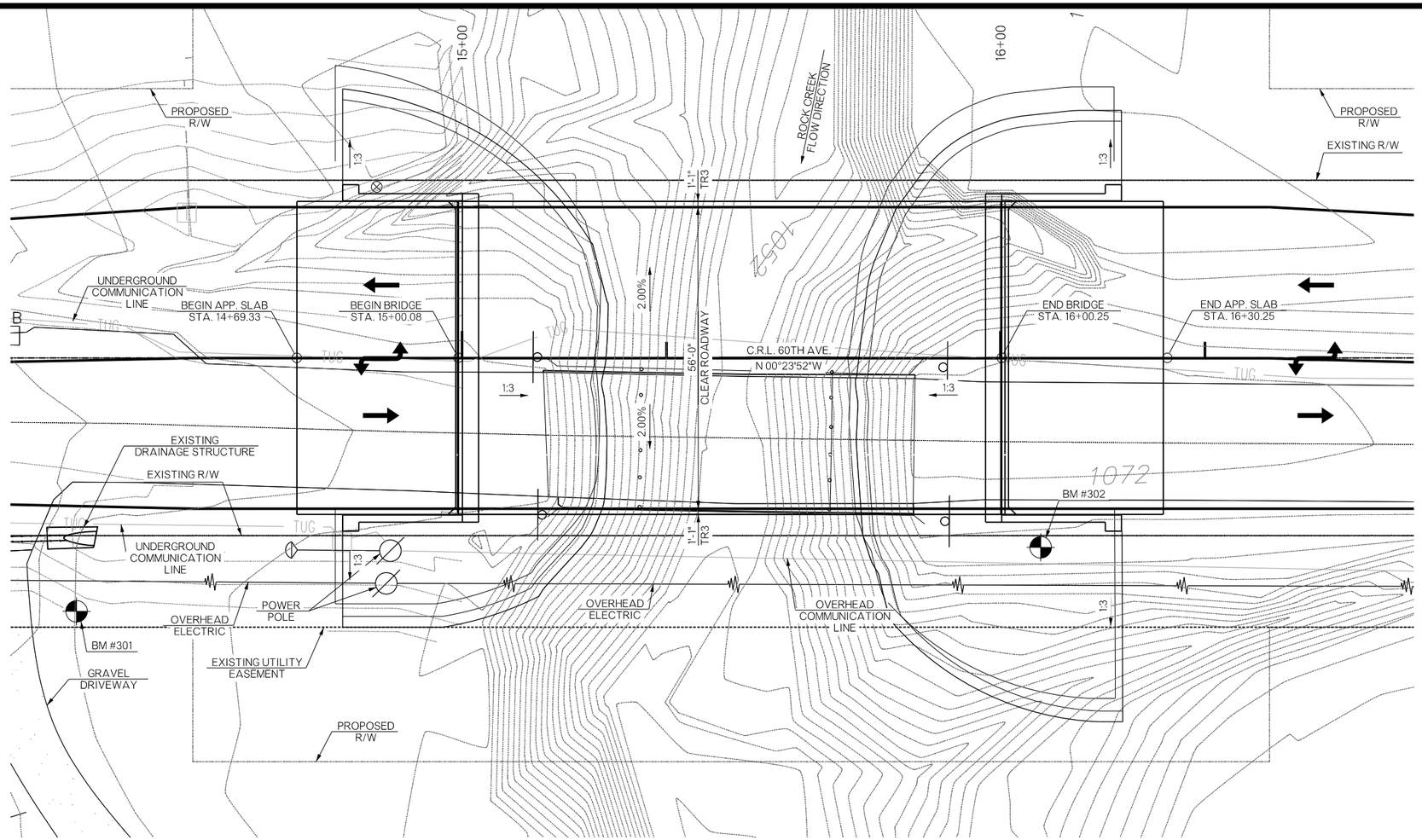
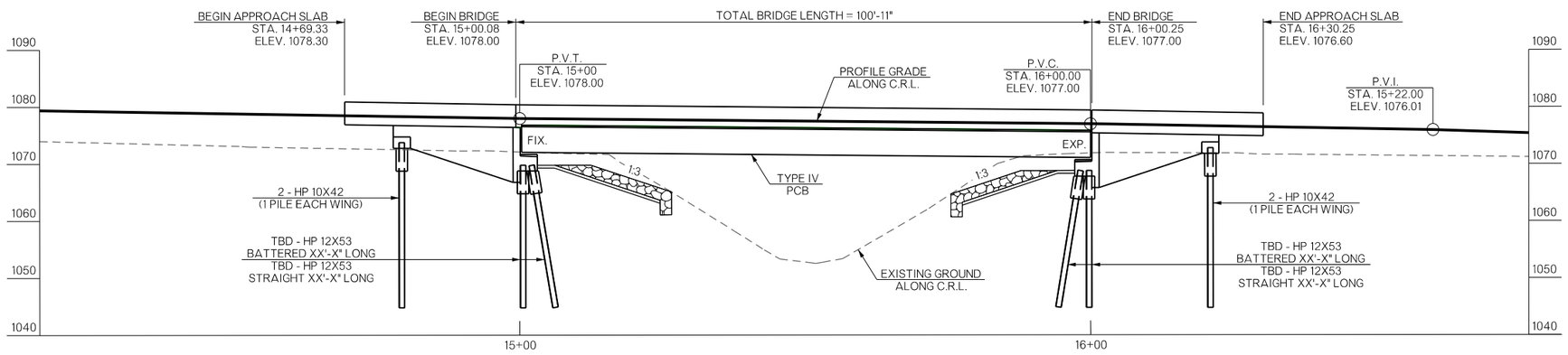
Last plotted by: Debaets, Jaylynn H. Plot Style: ---- Plot Scale: 1:2.5849 Plot Date: 2/13/2023 1:34 PM Plotter used: None



PLAN



ELEVATION

0 12 24 36
SCALE 1" = 12'

DESIGN DATA
(LOAD AND RESISTANCE FACTOR DESIGN)

CLASS AA CONCRETE	F'C = 4,000 P.S.I.
CLASS A CONCRETE	F'C = 3,000 P.S.I.
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STRUCTURAL STEEL (M270, GR. 50W)	FY = 50,000 P.S.I.
STRUCTURAL STEEL (PILING) (M270, GR. 50)	FY = 50,000 P.S.I.
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LOADING: HL93 AND 20 P.S.F. FUTURE WEARING SURFACE OR OKLAHOMA OVERLOAD TRUCK, 20 P.S.F. FUTURE WEARING SURFACE, AND 5 P.S.F. STAY-IN-PLACE FORMS.

DESIGN: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION WITH CURRENT INTERIMS.

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ANSI/AASHTO/AWS: D1.6 STRUCTURAL WELDING CODE - STAINLESS STEEL

LFD OPERATING RATING: HS XX.X

HYDRAULIC SUMMARY

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2	1,073	1060.29	5.56
5	2,002	1062.95	6.99
10	2,801	1064.74	7.76
25	3,984	1067.02	8.50
50	5,218	1069.01	8.92
100	6,319	1070.34	9.12

GARVER

CA #4193 EXPIRES JUNE 30, 2024

FOR INFORMATION ONLY

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE BRIDGE REPLACEMENT OVER ROCK CREEK

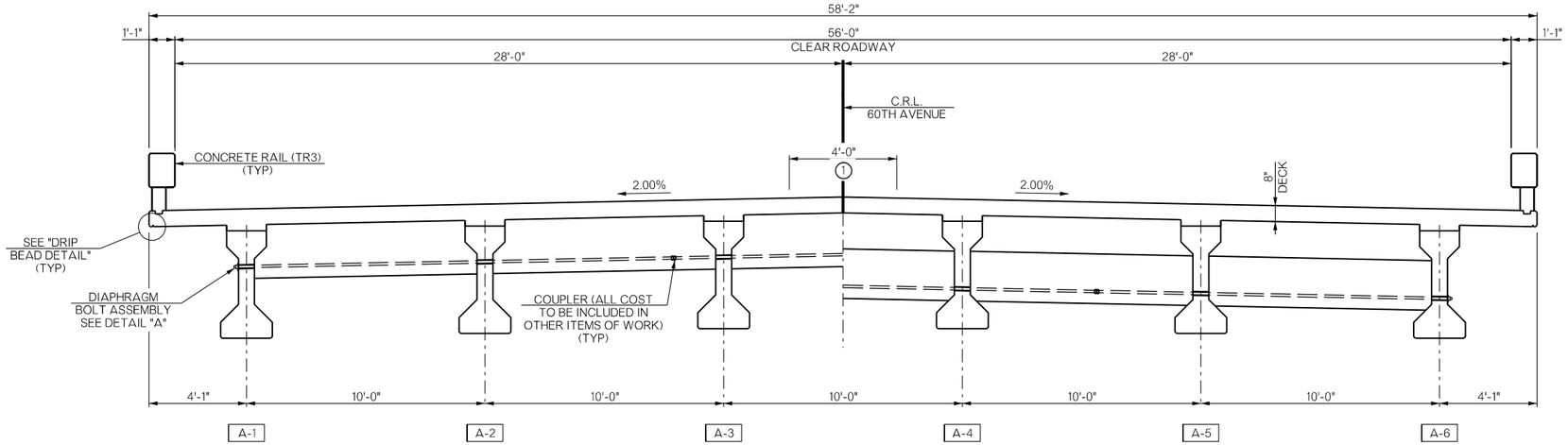
ALTERNATIVE 1B GENERAL PLAN & ELEVATION

JOB NO.:
DATE:
DESIGNED BY: JTR
DRAWN BY: NBK

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER

SHEET NUMBER 147

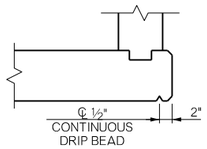


SECTION AT END DIAPHRAGM

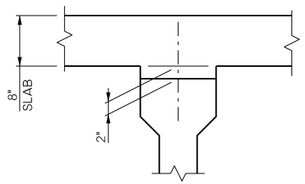
SECTION AT INTERMEDIATE DIAPHRAGM

1 ROUND 2'-0" EACH SIDE OF ℄ TO AVOID SHARP EDGES.

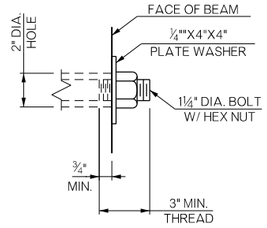
TYPICAL SECTION
(LOOKING FORWARD STATION)



DRIP BEAD DETAIL



BEAM HAUNCH DETAIL



DETAIL "A"

NOTE:
PLAN QUANTITIES FOR CLASS AA CONCRETE INCLUDE BEAM HAUNCHES. THE HAUNCH HEIGHT SHOWN IS THE THEORETICAL HAUNCH HEIGHT AT THE CENTERLINE BEARING ONLY, MEASURED FROM BOTTOM OF DECK SLAB TO TOP OF BEAM, AND VARIES ACROSS THE SPAN. DETERMINE THE ACTUAL HAUNCH HEIGHT (ACCOUNTING FOR BEAM CAMBER, DEAD LOAD DEFLECTION AND ROADWAY GRADE) AFTER ERECTION OF THE BEAMS AND SUBMIT TO THE ENGINEER FOR APPROVAL. THE ENGINEER WILL NOT MEASURE DIFFERENCES BETWEEN THE THEORETICAL AND THE ACTUAL HAUNCH HEIGHTS FOR PAYMENT.

DIAPHRAGM BOLT NOTES:
PROVIDE STRUCTURAL STEEL FOR DIAPHRAGM BOLTS AND PLATE WASHERS IN ACCORDANCE WITH AASHTO M270 (ASTM A709), GRADE 50W (WEATHERING STEEL, CHARPY V-NOTCH TESTING NOT REQUIRED). THE CONTRACTOR MAY SUBSTITUTE A #10 REINFORCING BAR IN ACCORDANCE WITH AASHTO M31, GRADE 60, AND THREADED AT THE ENDS AS SHOWN FOR THE DIAPHRAGM BOLT AT NO ADDITIONAL COST TO THE DEPARTMENT. PROVIDE HEX NUTS IN ACCORDANCE WITH AASHTO M291 (ASTM A563).

PAINT EXPOSED DIAPHRAGM BOLT, PLATE WASHER AND HEX NUT WITH TWO (2) COATS OF ZINC-RICH PAINT (6 MIL. MINIMUM THICKNESS) AFTER ASSEMBLY. INCLUDE ALL COST OF DIAPHRAGM BOLT, PLATE WASHER AND HEX NUT IN THE CONTRACT UNIT PRICE FOR "STRUCTURAL STEEL".

GARVER

CA #4193 EXPIRES JUNE 30, 2024

FOR INFORMATION ONLY

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE BRIDGE REPLACEMENT OVER ROCK CREEK

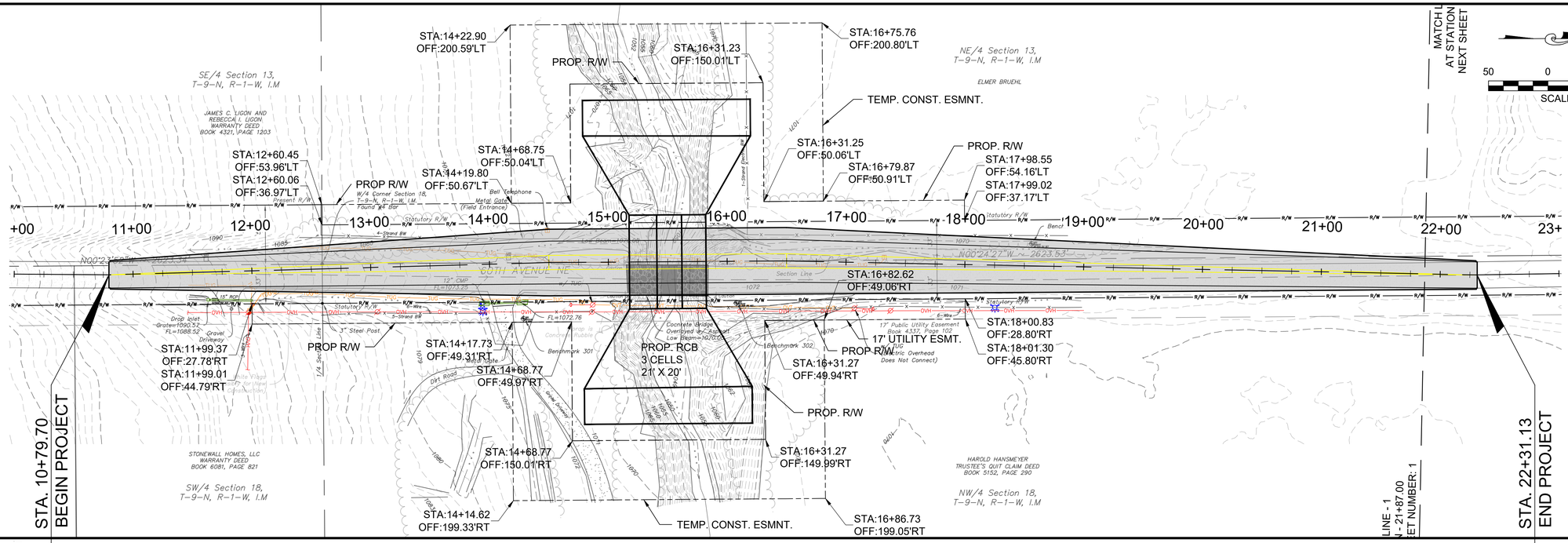
ALTERNATIVE 1B TYPICAL SECTION

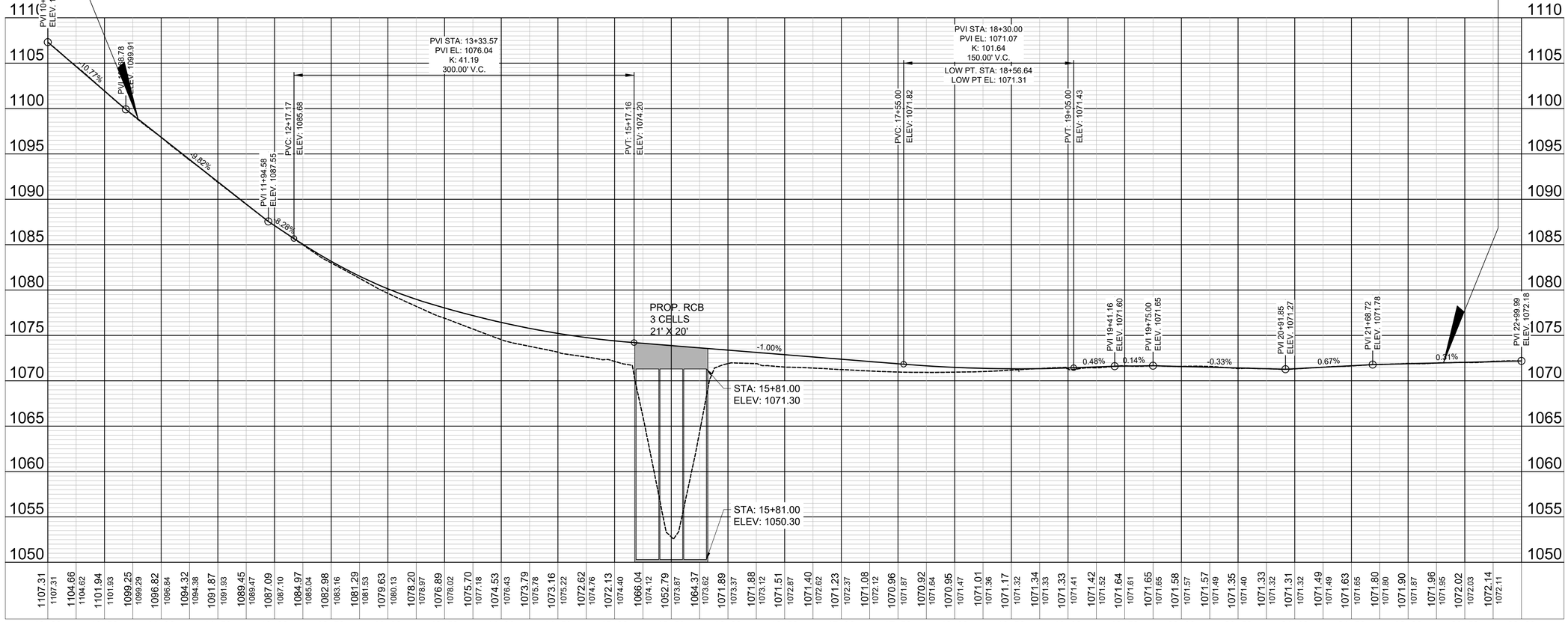
JOB NO.:
DATE:
DESIGNED BY: JTR
DRAWN BY: NBK

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

DRAWING NUMBER

SHEET NUMBER 148





PE REPORT
NOT FOR CONSTRUCTION

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE BRIDGE REPLACEMENT OVER ROCK CREEK

ALTERNATIVE 2 P&P

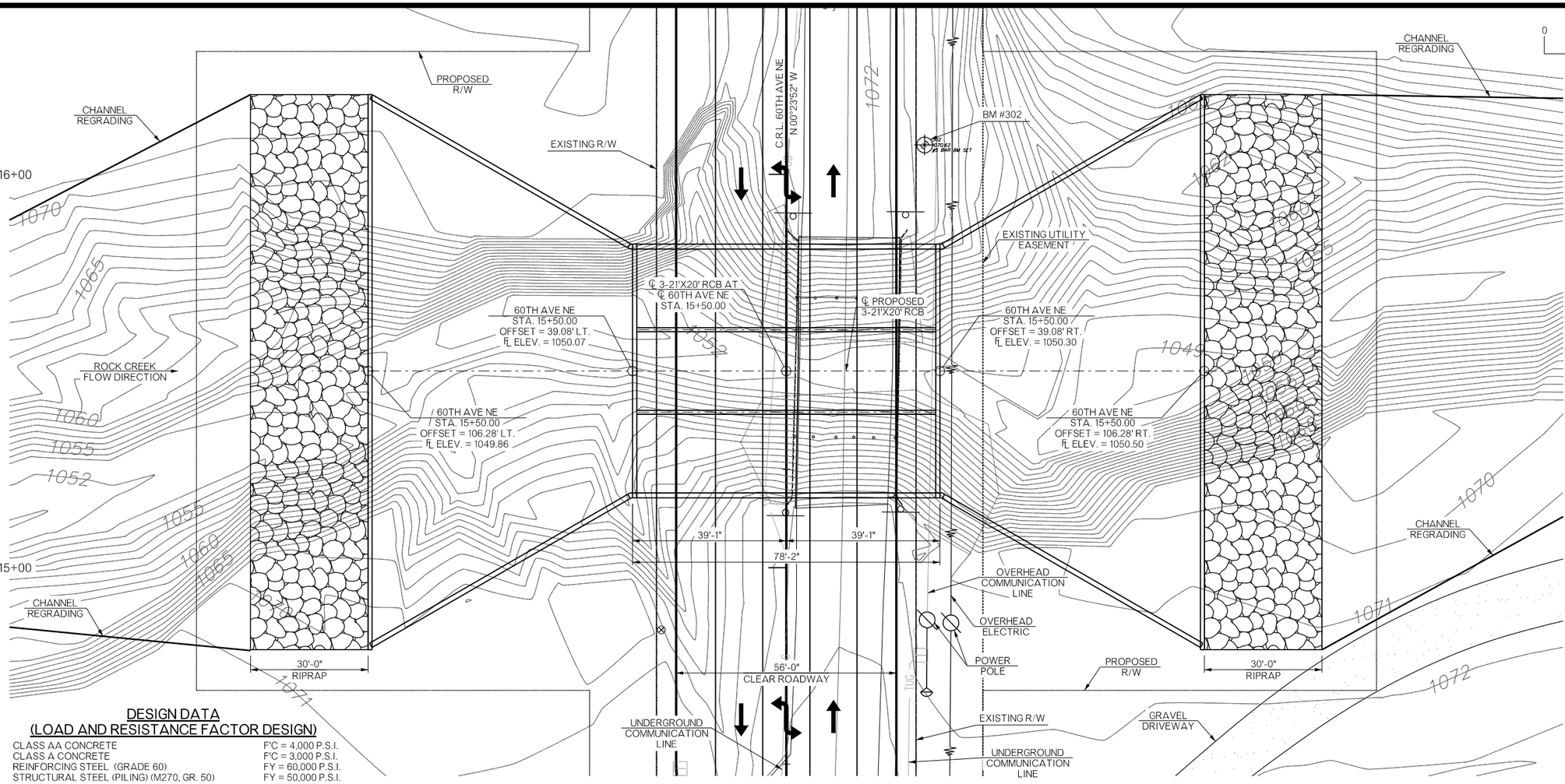
JOB NO.: 22T28060
DATE: MARCH 2023
DESIGNED BY: SCP
DRAWN BY: JHD

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

DRAWING NUMBER
####

SHEET NUMBER 9 OF 10

File: L:\2022\22T28060 - Norman Bridge Reconstruction 60th-Porter\Drawings\22T28060 - Plan and Profile - RCB.dwg Last Save: 2/13/2023 1:26 PM Last saved by: JHDebaets
Last plotted by: Debaets, Jaylynn H Plot Style: ---- Plot Scale: 1:2.5849 Plot Date: 2/13/2023 1:34 PM Plotter used: None



DESIGN DATA
(LOAD AND RESISTANCE FACTOR DESIGN)

CLASS AA CONCRETE	F'C = 4,000 P.S.I.
CLASS A CONCRETE	F'C = 3,000 P.S.I.
REINFORCING STEEL (GRADE 60)	FY = 60,000 P.S.I.
STRUCTURAL STEEL (PILING) (M270, GR. 50)	FY = 50,000 P.S.I.
STAINLESS STEEL A240 (TYPE 316)	FY = 30,000 P.S.I.

LOADING: HL93 AND 20 P.S.F. FUTURE WEARING SURFACE OR OKLAHOMA OVERLOAD TRUCK AND 20 P.S.F. FUTURE WEARING SURFACE.

DESIGN: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 7TH EDITION WITH CURRENT INTERIMS.

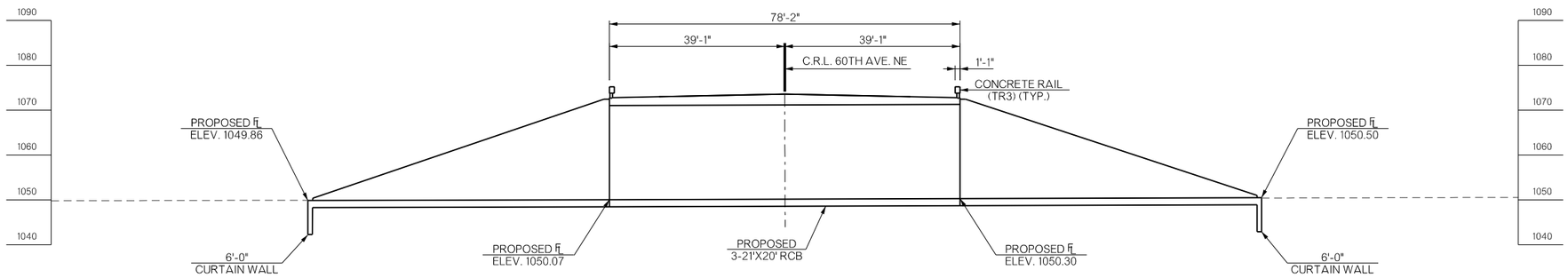
ANSI/AASHTO/AWS: D1.5 BRIDGE WELDING CODE
ANSI/AASHTO/AWS: D1.6 STRUCTURAL WELDING CODE - STAINLESS STEEL

LFD OPERATING RATING: HS XX.X

PLAN

HYDRAULIC SUMMARY

FREQ.	Q (CFS)	CHW (FT)	V (FPS)
2	1,073	1059.88	1.78
5	2,002	1062.34	2.64
10	2,801	1063.99	3.25
25	3,984	1066.10	4.01
50	5,218	1068.03	4.71
100	6,319	1069.37	5.18



ELEVATION

CA #4193 EXPIRES JUNE 30, 2024

FOR INFORMATION ONLY

REV.	DATE	DESCRIPTION	BY

CLEVELAND COUNTY, OKLAHOMA

60TH AVENUE NE BRIDGE REPLACEMENT OVER ROCK CREEK

ALTERNATIVE 2 GENERAL PLAN & ELEVATION

JOB NO.:
DATE:
DESIGNED BY: JTR
DRAWN BY: NBK

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

DRAWING NUMBER

SHEET NUMBER 150

Appendix C

Itemized Cost Estimate

GARVER

GarverUSA.c

Project: City of Norman - 60th Avenue NE over Rock Creek
Project No:
J/P No.

February 13, 2023
Garver Proj. No. 22T28060

ENGINEER'S OPINION OF PROBABLE COST - ALTERNATIVE 1A - STEEL BEAMS

ROADWAY & TRAFFIC

ITEM NO.	DESCRIPTION	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
201(A) 1200	CLEARING AND GRUBBING	LS	1.00	$ 25,000.00	$ 25,000.00
202(A) 2200	UNCLASSIFIED EXCAVATION	CY	1,882.00	$ 12.00	$ 22,584.00
202(D) 2500	UNCLASSIFIED BORROW	CY	610.00	$ 20.00	$ 12,200.00
221(B) 2300	TEMPORARY SILT FENCE	LF	2,500.00	$ 2.50	$ 6,250.00
230(A) 7200	SOLID SLAB SODDING	SY	13,500.00	$ 5.00	$ 67,500.00
307(K) 4200	STABILIZED SUBGRADE	SY	5,503.00	$ 8.00	$ 44,024.00
407(B) 7300	TACK COAT	GAL	2,899.00	$ 4.00	$ 11,596.00
411(A) 1220	SUPERPAVE, TYPE S3(PG 64-22 OK)	TON	1,998.00	$ 115.00	$ 229,770.00
411(C) 1420	SUPERPAVE, TYPE S4(PG 70-28 OK)	TON	361.00	$ 130.00	$ 46,930.00
411(C) 1430	SUPERPAVE, TYPE S4(PG 64-22 OK)	TON	139.00	$ 130.00	$ 18,070.00
414(A) 5200	CONCRETE PAVEMENT	SY	1,044.00	$ 120.00	$ 125,280.00
610(B) 5310	CONCRETE DRIVEWAY	SY	100.00	$ 100.00	$ 10,000.00
619(B) 6380	REMOVAL OF CONCRETE DRIVEWAY	SY	100.00	$ 40.00	$ 4,000.00
-	SIGNING AND STRIPING	LS	1.00	$ 25,000.00	$ 25,000.00
				ROADWAY & TRAFFIC TOTAL =	**$ 648,204.00**

BRIDGE

ITEM NO.	DESCRIPTION	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
504(A) 5200	APPROACH SLAB	SY	387.80	$ 300.00	$ 116,340.00
504(D) 5410	CONCRETE RAIL (TR3)	LF	321.90	$ 75.00	$ 24,142.50
506(A) 7225	STRUCTURAL STEEL M270 GRADE 50W	LB	207,270.00	$ 2.50	$ 518,175.00
507(A) 8200	STAINLESS STEEL FIXED BEARING ASSEMBLY	EA	6.00	$ 3,500.00	$ 21,000.00
507(B) 8300	STAINLESS STEEL EXP. BEARING ASSEMBLY	EA	6.00	$ 3,500.00	$ 21,000.00
509(A) 0210	CLASS AA CONCRETE	CY	165.30	$ 700.00	$ 115,710.00
509(B) 0320	CLASS A CONCRETE	CY	82.60	$ 850.00	$ 70,210.00
511(B) 2310	EPOXY COATED REINFORCING STEEL	LB	54,220.00	$ 1.65	$ 89,463.00
514(A) 5210	PILES, FURNISHED (HP 10X42)	LF	140.00	$ 50.00	$ 7,000.00
514(A) 5220	PILES, FURNISHED (HP 12X53)	LF	794.00	$ 55.00	$ 43,670.00
514(B) 5310	PILES, DRIVEN (HP 10X42)	LF	140.00	$ 25.00	$ 3,500.00
514(B) 5320	PILES, DRIVEN (HP 12X53)	LF	794.00	$ 25.00	$ 19,850.00
518(B) 0300	SEALED EXPANSION JOINTS	LF	60.00	$ 350.00	$ 21,000.00
619(D) 6700	REMOVAL OF EXISTING BRIDGE STRUCTURE	LSUM	1.00	$ 30,000.00	$ 30,000.00
-	MISCELLANEOUS ITEMS (5% OF ALL OTHER COSTS)	LSUM	1.00	$ 55,100.00	$ 55,100.00
				BRIDGE TOTAL =	**$ 1,156,170.00**

RIGHT OF WAY & UTILITY RELOCATIONS

ITEM NO.	DESCRIPTION	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
-	RIGHT-OF-WAY & UTILITY RELOCATIONS	LSUM	1.00	$ 350,000.00	$ 350,000.00
				RIGHT OF WAY & UTILITY RELOCATIONS TOTAL =	**$ 350,000.00**

STAKING

ITEM NO.	DESCRIPTION	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
642(B) 0096	CONSTRUCTION STAKING LEVEL 2	LSUM	1.00	$ 50,000.00	$ 50,000.00
				STAKING TOTAL =	**$ 50,000.00**

MOBILIZATION

ITEM NO.	DESCRIPTION	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
220 2800	SWPP DOCUMENTATION AND MANAGEMENT	LSUM	1.00	$ 5,000.00	$ 5,000.00
641 1399	MOBILIZATION	LSUM	1.00	$ 143,000.00	$ 143,000.00
				MOBILIZATION TOTAL =	**$ 148,000.00**

MITIGATION

ITEM NO.	DESCRIPTION	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
N/A	ENVIRONMENTAL MITIGATION	LSUM	0.00	$ -	$ -
				MITIGATION TOTAL =	**$ -**

ROADWAY & TRAFFIC SUBTOTAL	$ 648,204.00
BRIDGE SUBTOTAL	$ 1,156,160.50
ROW & UTILITIES SUBTOTAL	$ 350,000.00
STAKING SUBTOTAL	$ 50,000.00
MOBILIZATION SUBTOTAL	$ 148,000.00
MITIGATION SUBTOTAL	$ -
SUBTOTAL	$ 2,352,364.50
CONTINGENCY (25%)	$ 588,092.00
TOTAL	$ 2,940,457.00

Project: City of Norman - 60th Avenue NE over Rock Creek
Project No:
J/P No.

February 13, 2023
Garver Proj. No. 22T28060

ENGINEER'S OPINION OF PROBABLE COST - ALTERNATIVE 1B - PRESTRESSED CONCRETE BEAMS

ROADWAY & TRAFFIC

ITEM NO.	DESCRIPTION	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
201(A) 1200	CLEARING AND GRUBBING	LS	1.00	$ 25,000.00	$ 25,000.00
202(A) 2200	UNCLASSIFIED EXCAVATION	CY	1,758.00	$ 12.00	$ 21,096.00
202(D) 2500	UNCLASSIFIED BORROW	CY	2,276.00	$ 20.00	$ 45,520.00
221(B) 2300	TEMPORARY SILT FENCE	LF	2,500.00	$ 2.50	$ 6,250.00
230(A) 7200	SOLID SLAB SODDING	SY	13,500.00	$ 5.00	$ 67,500.00
307(K) 4200	STABILIZED SUBGRADE	SY	5,503.00	$ 8.00	$ 44,024.00
407(B) 7300	TACK COAT	GAL	2,899.00	$ 4.00	$ 11,596.00
411(A) 1220	SUPERPAVE, TYPE S3(PG 64-22 OK)	TON	1,998.00	$ 115.00	$ 229,770.00
411(C) 1420	SUPERPAVE, TYPE S4(PG 70-28 OK)	TON	361.00	$ 130.00	$ 46,930.00
411(C) 1430	SUPERPAVE, TYPE S4(PG 64-22 OK)	TON	139.00	$ 130.00	$ 18,070.00
414(A) 5200	CONCRETE PAVEMENT	SY	1,044.00	$ 120.00	$ 125,280.00
610(B) 5310	CONCRETE DRIVEWAY	SY	100.00	$ 100.00	$ 10,000.00
619(B) 6380	REMOVAL OF CONCRETE DRIVEWAY	SY	100.00	$ 40.00	$ 4,000.00
-	SIGNING AND STRIPING	LS	1.00	$ 25,000.00	$ 25,000.00
				ROADWAY & TRAFFIC TOTAL =	**$ 680,036.00**

BRIDGE

ITEM NO.	DESCRIPTION	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
503(A) 4240	PRESTRESSED CONCRETE BEAMS (TYPE IV)	LF	598.00	$ 350.00	$ 209,300.00
504(A) 5200	APPROACH SLAB	SY	387.80	$ 300.00	$ 116,340.00
504(D) 5410	CONCRETE RAIL (TR3)	LF	321.90	$ 75.00	$ 24,142.50
507(A) 8200	STAINLESS STEEL FIXED BEARING ASSEMBLY	EA	6.00	$ 3,500.00	$ 21,000.00
507(B) 8300	STAINLESS STEEL EXP. BEARING ASSEMBLY	EA	6.00	$ 3,500.00	$ 21,000.00
509(A) 0210	CLASS AA CONCRETE	CY	165.30	$ 700.00	$ 115,710.00
509(B) 0320	CLASS A CONCRETE	CY	82.60	$ 850.00	$ 70,210.00
511(B) 2310	EPOXY COATED REINFORCING STEEL	LB	54,220.00	$ 1.65	$ 89,463.00
514(A) 5210	PILES, FURNISHED (HP 10X42)	LF	140.00	$ 50.00	$ 7,000.00
514(A) 5220	PILES, FURNISHED (HP 12X53)	LF	794.00	$ 55.00	$ 43,670.00
514(B) 5310	PILES, DRIVEN (HP 10X42)	LF	140.00	$ 25.00	$ 3,500.00
514(B) 5320	PILES, DRIVEN (HP 12X53)	LF	794.00	$ 25.00	$ 19,850.00
518(B) 0300	SEALED EXPANSION JOINTS	LF	60.00	$ 350.00	$ 21,000.00
619(D) 6700	REMOVAL OF EXISTING BRIDGE STRUCTURE	LSUM	1.00	$ 30,000.00	$ 30,000.00
-	MISCELLANEOUS ITEMS (5% OF ALL OTHER COSTS)	LSUM	1.00	$ 39,700.00	$ 39,700.00
				BRIDGE TOTAL =	**$ 831,890.00**

RIGHT OF WAY & UTILITY RELOCATIONS

ITEM NO.	DESCRIPTION	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
-	RIGHT-OF-WAY & UTILITY RELOCATIONS	LSUM	1.00	$ 350,000.00	$ 350,000.00
				RIGHT OF WAY & UTILITY RELOCATIONS TOTAL =	**$ 350,000.00**

STAKING

ITEM NO.	DESCRIPTION	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
642(B) 0096	CONSTRUCTION STAKING LEVEL 2	LSUM	1.00	$ 50,000.00	$ 50,000.00
				STAKING TOTAL =	**$ 50,000.00**

MOBILIZATION

ITEM NO.	DESCRIPTION	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
220 2800	SWPP DOCUMENTATION AND MANAGEMENT	LSUM	1.00	$ 5,000.00	$ 5,000.00
641 1399	MOBILIZATION	LSUM	1.00	$ 129,000.00	$ 129,000.00
				MOBILIZATION TOTAL =	**$ 134,000.00**

MITIGATION

ITEM NO.	DESCRIPTION	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
N/A	ENVIRONMENTAL MITIGATION	LSUM	0.00	$ -	$ -
				MITIGATION TOTAL =	**$ -**

ROADWAY & TRAFFIC SUBTOTAL	$ 680,036.00
BRIDGE SUBTOTAL	$ 831,885.50
ROW & UTILITIES SUBTOTAL	$ 350,000.00
STAKING SUBTOTAL	$ 50,000.00
MOBILIZATION SUBTOTAL	$ 134,000.00
MITIGATION SUBTOTAL	$ -
SUBTOTAL	$ 2,045,921.50
CONTINGENCY (25%)	$ 511,481.00
TOTAL	$ 2,557,403.00

Project: City of Norman - 60th Avenue NE over Rock Creek
Project No:
J/P No.

February 13, 2023
Garver Proj. No. 22T28060

ENGINEER'S OPINION OF PROBABLE COST - ALTERNATIVE 2 - REINFORCED CONCRETE BOX

ROADWAY & TRAFFIC

ITEM NO.	DESCRIPTION	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
201(A) 1200	CLEARING AND GRUBBING	LS	1.00	$ 25,000.00	$ 25,000.00
202(A) 2200	UNCLASSIFIED EXCAVATION	CY	3,714.00	$ 12.00	$ 44,568.00
221(B) 2300	TEMPORARY SILT FENCE	LF	3,000.00	$ 2.50	$ 7,500.00
230(A) 7200	SOLID SLAB SODDING	SY	15,500.00	$ 5.00	$ 77,500.00
307(K) 4200	STABILIZED SUBGRADE	SY	5,503.00	$ 8.00	$ 44,024.00
407(B) 7300	TACK COAT	GAL	3,577.00	$ 4.00	$ 14,308.00
411(A) 1220	SUPERPAVE, TYPE S3(PG 64-22 OK)	TON	2,466.00	$ 115.00	$ 283,590.00
411(C) 1420	SUPERPAVE, TYPE S4(PG 70-28 OK)	TON	434.00	$ 130.00	$ 56,420.00
411(C) 1430	SUPERPAVE, TYPE S4(PG 64-22 OK)	TON	179.00	$ 130.00	$ 23,270.00
610(B) 5310	CONCRETE DRIVEWAY	SY	100.00	$ 100.00	$ 10,000.00
619(B) 6380	REMOVAL OF CONCRETE DRIVEWAY	SY	100.00	$ 40.00	$ 4,000.00
-	SIGNING AND STRIPING	LS	1.00	$ 25,000.00	$ 25,000.00
				ROADWAY & TRAFFIC TOTAL =	**$ 615,180.00**

BRIDGE

ITEM NO.	DESCRIPTION	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
501(A) 1210	STRUCTURAL EXCAVATION UNCLASSIFIED	SY	1,150.00	$ 40.00	$ 46,000.00
504(D) 5410	CONCRETE RAIL (TR3)	LF	129.00	$ 75.00	$ 9,675.00
509(A) 0210	CLASS AA CONCRETE	CY	1,746.80	$ 700.00	$ 1,222,760.00
511(B) 2310	EPOXY COATED REINFORCING STEEL	LB	276,840.00	$ 1.65	$ 456,786.00
514(A) 5210	PILES, FURNISHED (HP 10x42)	LF	400.00	$ 50.00	$ 20,000.00
514(B) 5310	PILES, DRIVEN (HP 10x42)	LF	25.00	$ 1.65	$ 41.25
619(D) 6700	REMOVAL OF EXISTING BRIDGE STRUCTURE	LSUM	1.00	$ 30,000.00	$ 30,000.00
-	MISCELLANEOUS ITEMS (5% OF ALL OTHER COSTS)	LSUM	1.00	$ 89,300.00	$ 89,300.00
				BRIDGE TOTAL =	**$ 1,874,570.00**

RIGHT OF WAY & UTILITY RELOCATIONS

ITEM NO.	DESCRIPTION	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
-	RIGHT-OF-WAY & UTILITY RELOCATIONS	LSUM	1.00	$ 500,000.00	$ 500,000.00
				RIGHT OF WAY & UTILITY RELOCATIONS TOTAL =	**$ 500,000.00**

STAKING

ITEM NO.	DESCRIPTION	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
642(B) 0096	CONSTRUCTION STAKING LEVEL 2	LSUM	1.00	$ 50,000.00	$ 50,000.00
				STAKING TOTAL =	**$ 50,000.00**

MOBILIZATION

ITEM NO.	DESCRIPTION	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
220 2800	SWPP DOCUMENTATION AND MANAGEMENT	LSUM	1.00	$ 5,000.00	$ 5,000.00
641 1399	MOBILIZATION	LSUM	1.00	$ 188,000.00	$ 188,000.00
				MOBILIZATION TOTAL =	**$ 193,000.00**

MITIGATION

ITEM NO.	DESCRIPTION	UNIT	TOTAL QUANTITY	UNIT PRICE	TOTAL COST
N/A	ENVIRONMENTAL MITIGATION	LSUM	1.00	$ 185,606.40	$ 185,606.40
				MITIGATION TOTAL =	**$ 185,606.40**

ROADWAY & TRAFFIC SUBTOTAL	$ 615,180.00
BRIDGE SUBTOTAL	$ 1,874,562.25
ROW & UTILITIES SUBTOTAL	$ 500,000.00
STAKING SUBTOTAL	$ 50,000.00
MOBILIZATION SUBTOTAL	$ 193,000.00
MITIGATION SUBTOTAL	$ 185,606.40
SUBTOTAL	$ 3,418,348.65
CONTINGENCY (25%)	$ 854,588.00
TOTAL	$ 4,272,937.00


GARVER

6501 N. Classen Blvd.
Suite 200
Oklahoma City, OK 73116
TEL 405.669.8725

www.GarverUSA.com

July 15, 2024

Mr. Scott Sturtz, P.E.
Interim Director of Public Works
City of Norman

Re: No Rise Certification
60th Avenue NE over Rock Creek Bridge Replacement
Norman, OK

Dear Mr. Sturtz:

This project involves the replacement of the existing bridge structure on 60th Avenue NE over Rock Creek. Construction activities include demolition of the existing bridge, construction of a new single span prestressed concrete bridge and relocation of an existing City of Norman waterline.

The channel flowlines and banks will not be altered at the site beyond what is required to excavate and construct the new bridge abutments and placement of riprap on the slopes in front of the bridge. These construction activities do not fall below the ordinary high water mark that was determined during final design of the project. There will not be any increase in the Base Flood Elevation at any of the locations.

Please contact me at 405-669-8733 or jtrundle@garverusa.com if you have any questions or need further information.

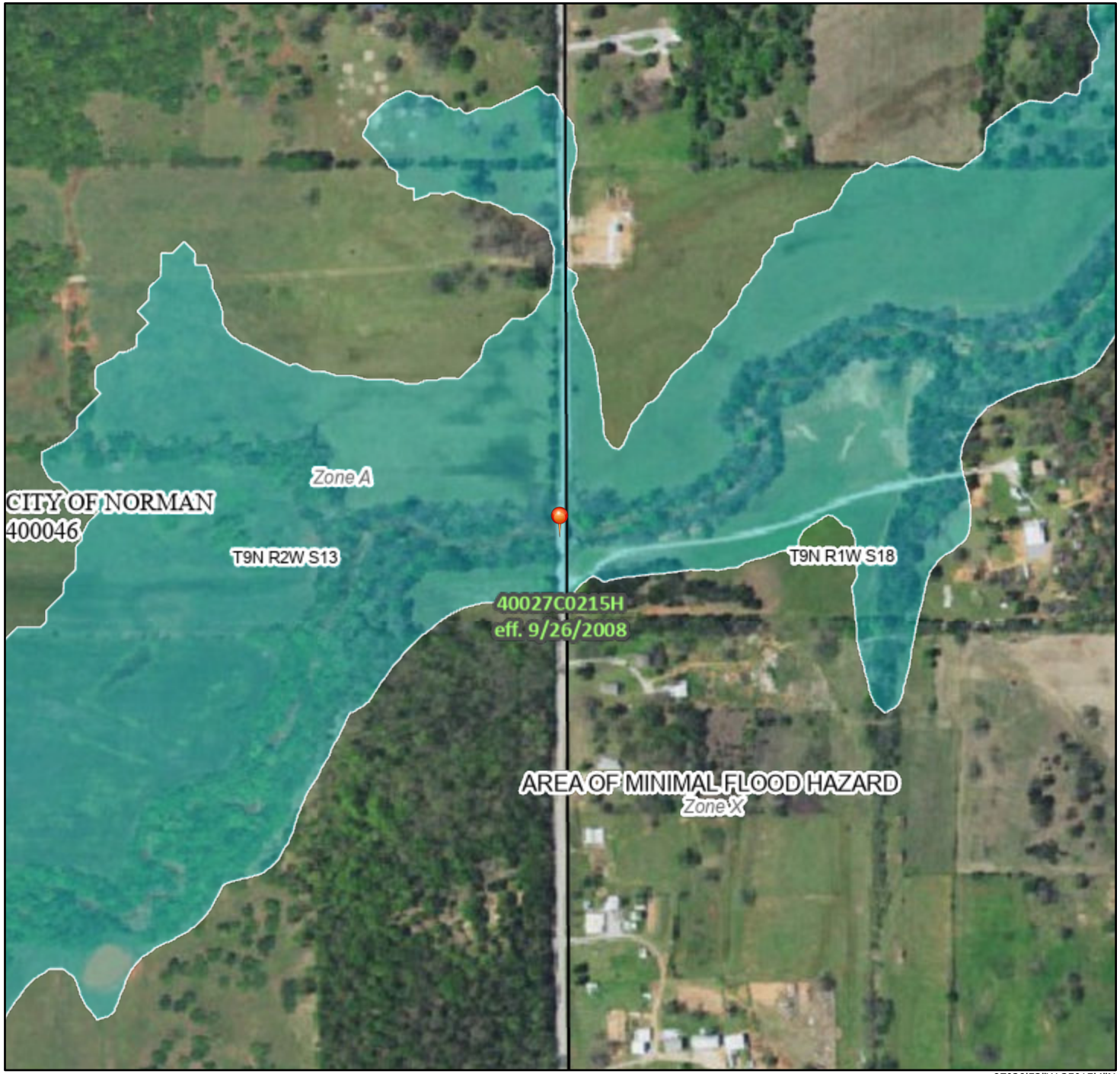
Sincerely,

GARVER

Jeff Rundle, P.E.
Bridge Team Leader

National Flood Hazard Layer FIRMette

97°21'30"W 35°15'34"N



97°20'52"W 35°15'4"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR F UT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

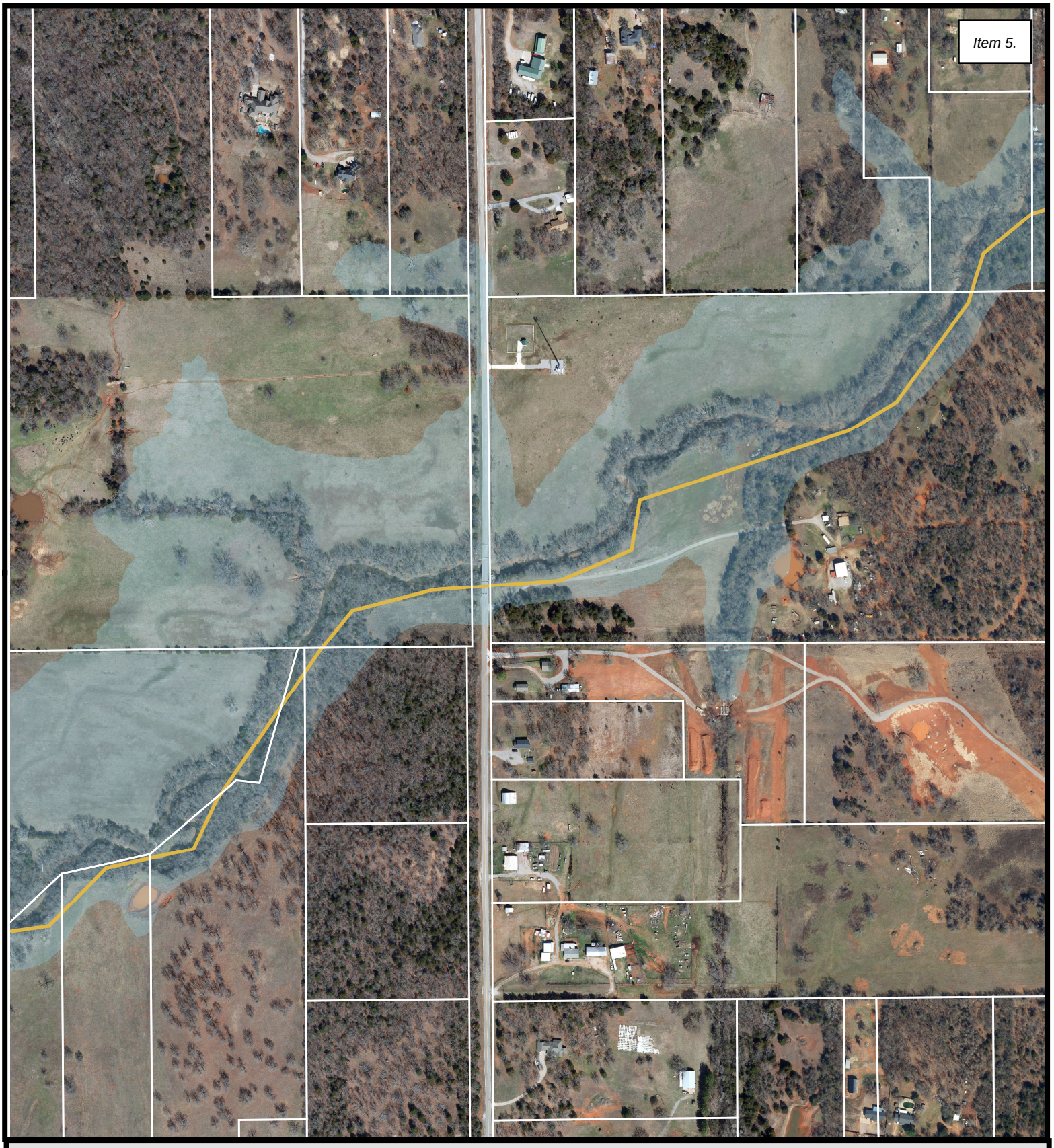
N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 7/8/2024 at 4:25 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community id FIRM panel number, and FIRM effective date. Map i unmapped and unmodernized areas cannot be use regulatory purposes.



Rock Creek
60th Ave. NE Bridge

N
W E
S

1 inch = 481 feet

Legend

0 0.035 0.07 0.14 Miles

- Lot Line
- Parcel
- BFE 2021
- 1% Chance Floodplain
- Floodway

The City of Norman assumes no responsibility for errors or omissions in the information presented.