



CITY OF NORMAN, OK
FLOODPLAIN PERMIT COMMITTEE MEETING
Development Center, Room B, 225 N. Webster Ave., Norman, OK 73069
Tuesday, September 08, 2026 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 call 405-366-5424, Relay Service: 711. To better serve you, five (5) business days' advance notice is preferred.

ROLL CALL

MINUTES

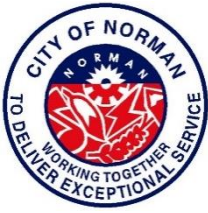
1. Approval of minutes from the July 20, 2026 meeting

ACTION ITEMS

2. **Floodplain Permit Application No. 746** - This permit application is for the installation of an inground swimming pool at 3121 Millbury Road in the Woodcrest Creek floodplain.
3. **Floodplain Permit Application No. 747** - This permit application is for roadway widening, drainage improvements, and bridge replacement associated with the 36th Avenue NW Improvement Project within the Little River floodplain.
4. **Floodplain Permit Application No. 748** - This permit application is for roadway widening, drainage improvements, and bridge replacement associated with the 36th Avenue NW Improvement Project within the Little River floodplain.

MISCELLANEOUS COMMENTS

ADJOURNMENT



CITY OF NORMAN, OK

FLOODPLAIN PERMIT COMMITTEE MEETING

Development Center, Conference Room B, 225 N. Webster Avenue,
Norman, OK 73069

Monday, July 20, 2026, at 3:30 PM

MINUTES

The Floodplain Permit Committee of the City of Norman, Cleveland County, State of Oklahoma, met in Regular Session in Conference Room B at the Development Center, on the 20th day of July 2026, at 3:30 p.m., and notice of the agenda of the meeting was posted at the Norman Municipal Building at 201 West Gray, the Development Center at 225 N. Webster Avenue, and on the City website at least 24 hours prior to the beginning of the meeting.

ROLL CALL

The meeting was called to order by Mr. Miles at 3:30 p.m. Roll was taken and a quorum of five members was established. Committee members in attendance included Bill Scanlon, Resident Member; Sherri Stansel, Resident Member; Tim Miles, City Engineer; Ken Danner, Subdivision Development Manager; and Lora Hoggatt, Planning Services Manager. Other staff in attendance included Jason Murphy, Stormwater Program Manager; Michelle Scott, Administrative Technician.

MINUTES

Approval of minutes of June 15th, 2026, meeting

A correction was requested to the spelling of Dee Greninger's name in the roll call.

Mr. Scanlon motioned to approve with correction. Mr. Danner seconded the motion. The minutes were approved by a 5-0 vote.

ACTION ITEMS

1. Floodplain Permit No. 745

Mr. Miles stated that the floodplain permit application is for removal of a dilapidated pavilion and concrete pad at Andrews Park, north of 201 West Dawes Street. The applicant is the City of Norman Parks and Recreation Department, and the engineer is Brandon Brooks.

Mr. Murphy explained that the pavilion, which was in the Imhoff Creek floodway, had already been removed. If the permit is approved, the remaining concrete pad will be removed, the site will be graded generally toward the creek, and sod will be installed to stabilize the area. No replacement structure is currently proposed.

Mr. Murphy stated that compensatory storage is not required for the project and that staff recommends approval of Floodplain Permit Application No. 745.

Committee Action:

Mr. Danner motioned to approve. Mr. Scanlon seconded to approve the permit. Floodplain Permit No. 745 was approved with a vote of 5-0.

MISCELLANEOUS DISCUSSION

Mr. Murphy stated that no applications were pending for the next meeting. Mr. Danner asked about the status of a floodplain permit for a manufactured home on Rock Creek Road. Staff advised that no application had been submitted and that they would follow up.

ADJOURNMENT

Mr. Danner motioned to adjourn; Mr. Scanlon seconded. The motion to adjourn passed 5-0. Mr. Miles adjourned the meeting.

Passed and approved this _____ day of _____, 2026

City of Norman City Engineer, Tim Miles
For City of Norman Floodplain Administrator, Scott Sturtz

PERMIT NO. 746

DATE: 9/8/2026

STAFF REPORT

ITEM: Floodplain Permit Application for construction of an in-ground swimming pool at 3121 Millbury Road.

APPLICANT: Pete and Patty Mills

ENGINEER: Joe Cardenas, P.E.

BACKGROUND

The applicants request approval of a floodplain permit for construction of a 14-foot by 28-foot in-ground swimming pool at 3121 Millbury Road. The proposed pool will be located approximately 5 feet from the rear wall of the residence and approximately 7 feet from the rear property line. The estimated project cost is \$50,000.

The property is located within the FEMA Special Flood Hazard Area associated with Woodcrest Creek on FIRM Panel 40027C0195J. The site is mapped as Zone AE, with a regulatory floodway located south of the proposed pool location. The Base Flood Elevation (BFE) at the project site is approximately 1133.2 feet.

The proposed pool will be constructed at approximately existing grade. Grading associated with construction will direct drainage south toward the Woodcrest Creek floodway, and all excavated material from construction of the pool will be removed from the floodplain. The application also specifies that electrical equipment associated with the pool will be elevated a minimum of two feet above the BFE, to an elevation of at least 1135.2 feet.

Proposed Development Characteristics

- 14' × 28' in-ground swimming pool

STAFF ANALYSIS

- The proposed development consists of construction of a 14-foot by 28-foot in-ground swimming pool within the regulatory floodplain associated with Woodcrest Creek
- The property is located within FEMA Zone AE. The proposed pool is located within the floodplain but outside of the regulatory floodway.
- The BFE at the project location is approximately 1133.2 feet. The pool is proposed to be constructed at approximately existing grade and will not be elevated through the placement of fill.
- All excavated soil and other spoil material generated by construction of the pool will be removed entirely from the regulatory floodplain. No permanent fill is proposed within the floodplain.
- Site grading will direct stormwater runoff south toward the Woodcrest Creek.
- All electrical equipment associated with the swimming pool will be located a minimum of two feet above the BFE, at or above elevation 1135.2 feet.

- The project engineer provided a signed and sealed No-Rise Certification stating that the proposed development will not create an increase in the 100-year flood elevation at published or unpublished cross sections in the vicinity of the proposed development.

APPLICABLE ORDINANCE SECTIONS (36-533)

(e)(2)(a) – Floodplain Modification and Fill Restrictions

(e)(2)(e) – Compensatory Storage

(f)(3)(a)(8) – No-Rise Condition Requirements

DETAILED ORDINANCE ANALYSIS

(e)(2)(a) and (e)(2)(e) – Floodplain Fill Restrictions and Compensatory Storage

Construction of the proposed swimming pool will require excavation within the regulatory floodplain. The application specifies that the pool will be constructed at approximately existing grade and that all excavated soil and spoil material will be removed entirely from the floodplain.

Because excavated material will not be placed elsewhere within the floodplain, the proposed development will not introduce permanent fill or reduce available floodplain storage.

(f)(3)(a)(8) – No-Rise Requirement

For development within a flood hazard area that is not designated as a regulatory floodway, the ordinance requires certification that the proposed work will result in an increase of no more than 0.05 feet in the Base Flood Elevation on adjacent property.

The project engineer provided a signed and sealed No-Rise Certification for the proposed development. The certification identifies the flooding source as Rock Creek; however, this tributary is locally known as Woodcrest Creek. The engineer certifies that the proposed development will not create an increase in the 100-year flood elevation.

The proposed pool will be constructed at approximately existing grade, all excavated material will be removed from the floodplain, and electrical equipment associated with the pool will be elevated a minimum of two feet above the BFE. Based on the information and engineering certification provided, the proposed improvements satisfy the applicable floodplain requirements of the ordinance.

RECOMMENDATION

Staff recommends approval of floodplain permit application #746.



City of Norman

Floodplain Permit Application

Floodplain Permit No. 746

Building Permit No. _____

Date 9/6/2020

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: Pete and Patty Mills ADDRESS: 3121 Millbury Road, Norman, OK 73071

TELEPHONE: 405-209-2762 SIGNATURE: Pete Mills Patty Mills

BUILDER: S&S Pools, LLC Steve Stile ADDRESS: 1700 S. Broadway Ste M, Moore, OK 73160

TELEPHONE: 405-514-6392 SIGNATURE: St St

ENGINEER: Joe Cardenas, P.E. ADDRESS: 100 NE 5th St. OKC, OK 73104

TELEPHONE: 405-204-4324 SIGNATURE: Joe Cardenas

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.

Construction of a 14' X 28' at grade pool. Project address is 3121 Millbury Road. Legal description (attached) with lot number.

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 \$ 550,000 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.

The project consists of the construction of a 14' X 28' small simple pool. This pool will be constructed at Grade (1133.0). The drawing shows 6 feet from the wall of the house and 7 feet from the fence line. Grading will be done to drain towards the

South of the property and into the floodway. All electrical equipment shall be at least 2 feet above BFE 1135.2' All soil spoils shall be removed from the Floodzone area entirely.

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:

Attached All pool equipment shall be 2 feet above grade.

- 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.: 40027C0195J, Dated: Feb 20, 2013

The Proposed Development:

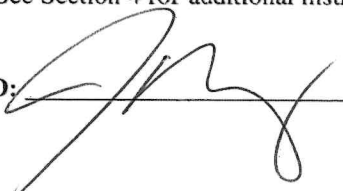
☐ Is NOT located in a Special Flood Hazard Area
(Notify the applicant that the application review is complete and NO FLOODPLAIN PERMIT IS REQUIRED).

☒ Is located in a Special Flood Hazard Area.

☐ The proposed development is located in a floodway.

☒ 100-Year flood elevation at the site is ~~1133.2~~ Ft. NGVD (MSL) ☐ Unavailable
1133.0

See Section 4 for additional instructions.

SIGNED: 

DATE: 8/20/2026

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.

ENGINEERING "NO-RISE" CERTIFICATION

Item 2.

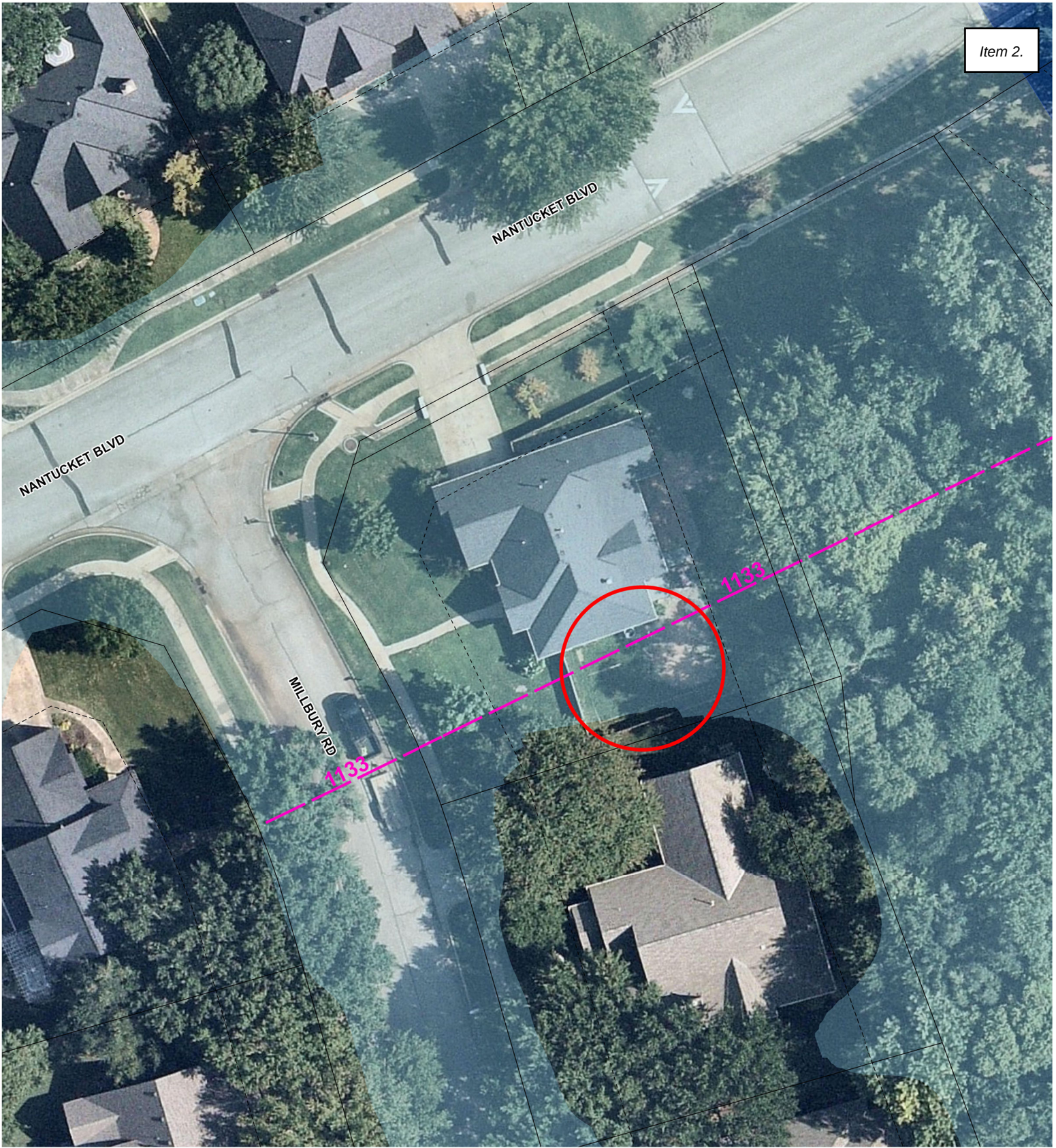
Community: 40027C01190 County: Cleveland State: OKApplicant: Joe Cardenas, P.E. Date: 7/30/2026Address: 100 NE 5th St, Oklahoma City, OK 73104Telephone: 405-204-4324

Engineer: <u>SRB</u>
Address: <u>100 NE 5th St</u>
<u>Oklahoma City, OK 73104</u>
Telephone: <u>405-204-4324</u>

SITE DATA:1. Location 1/4; NW 1/4; ___ ; Section 17 ; Range 2W ; Township 9NStreet Address: 3121 Millbury Rd, Norman, OK 730712. Panel(s) No. of NFIP map(s) affected: 0195J3. Type of development: Filling ___ Grading X Excavation ___ Minor Improv ___
Substantial-Improv ___ New Construction ___ Other X4. Description of Development: Construction of a 14' X 28' pool at 3121 Millbury Rd. The construction is withi
100 year floodplain. The pool will be constructed at BFE elevation of 1133.20' at grade. Stormwater drains to the
South property at approximately 2% to the Rock Creek Floodway.5. Name of flooding source: Rock CreekCOMMENTS: The pool will be constructed at Grade not to exceed the BFE 1133.2'. All pool electrical
equipment shall be at least 2 feet above finish elevation at minimum 1135.2'. All excavated soil spoils shall be remo
Flood zone area.

This is to certify that I am a duly qualified engineer licensed to practice in the State of Oklahoma. It is to further certify that the attached technical data supports the fact that the proposed development described above will not create any increase to the 100-year elevations on said flooding source above at published cross sections in the Flood Insurance Study for the above community dated 2/20/2013 and will not create any increase to the 100-year flood elevations at unpublished cross-section in the vicinity of the proposed development.

Name: Joe Cardenas, PESignature: Joe Cardenas Date: 7/29/2026Title: Project Engineer License No.: 18535



3121 Millbury Road

Legend

-  Easement
-  Parcel
-  BFE 2021

Flood Hazard Zone (2021)

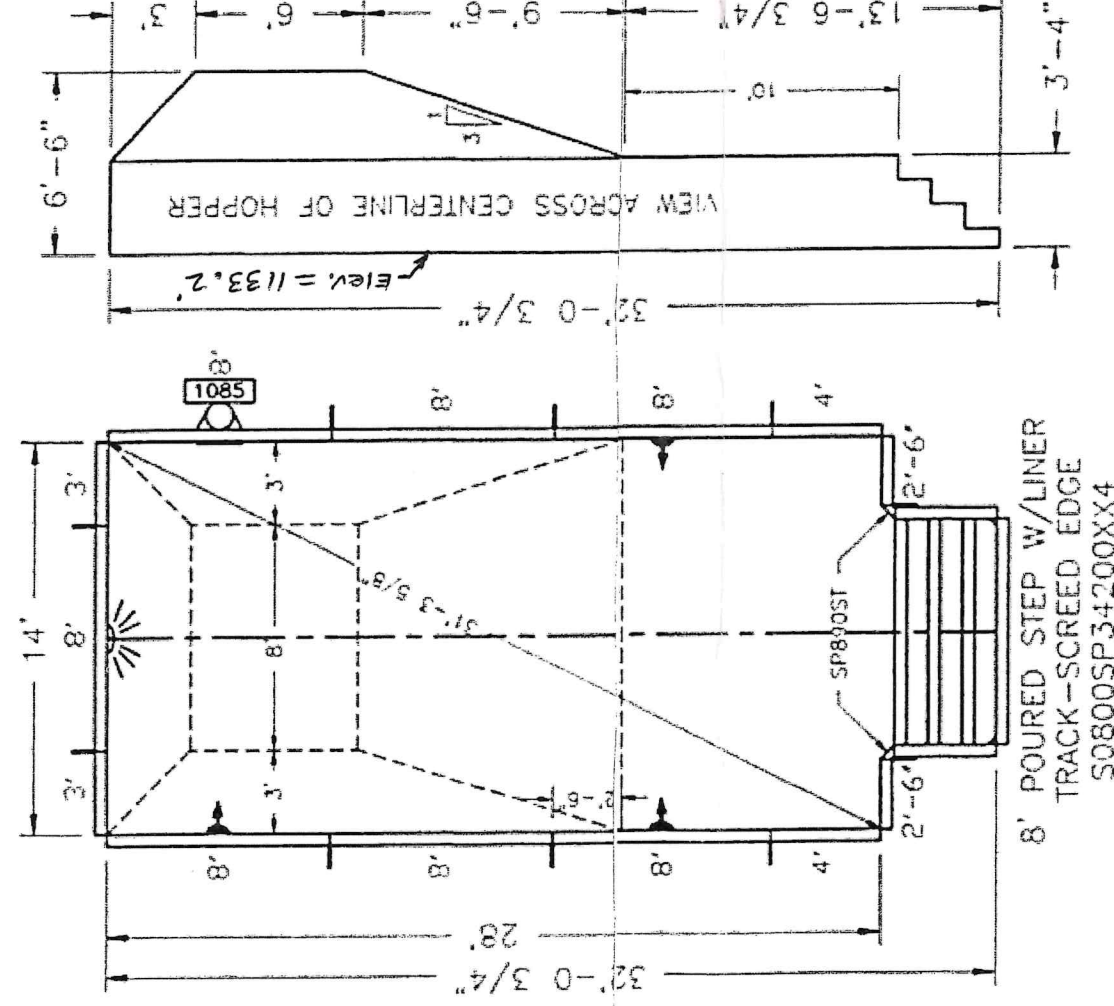
-  1% Chance Floodplain
-  Floodway

Pool Number: PRT61320 **Approx Gal:** 14,000

250 Route 61 South, Schuylkill Haven, PA 17972 • 570-385-4733 • fax: 570-385-0281 • CustomerService@CardinalSystemsinc.com

Bill of Materials

PART NO.	QUANTITY	DESCRIPTION
'A' FRAME	10	'A' FRAME ASSEMBLY
CS902SA	4	90 DEG CORNER ANGLE
S0800SP34200XX4	1	8' POURED STEP W/LINER TRACK - SCREED EDGE - NEW STYLE
SP890ST	2	STRAIGHT WALL STEP TRANSITION
SS42260XXX0	2	2'-6" Straight PANEL W/0 Z
SS42300XXX0	2	3' Straight PANEL W/0 Z
SS42400XXX0	2	4' Straight PANEL W/0 Z
SS42800LCN2	1	8' Straight PANEL W/2 Z WITH LIGHT
SS42800RCN2	3	8' Straight PANEL W/2 Z WITH Return
SS42800WCN2	1	8' Straight PANEL W/2 Z WITH 1085 Skimmer
SS42800XXX2	2	8' Straight PANEL W/2 Z



NOTE: THIS IS A NON DIVING POOL.

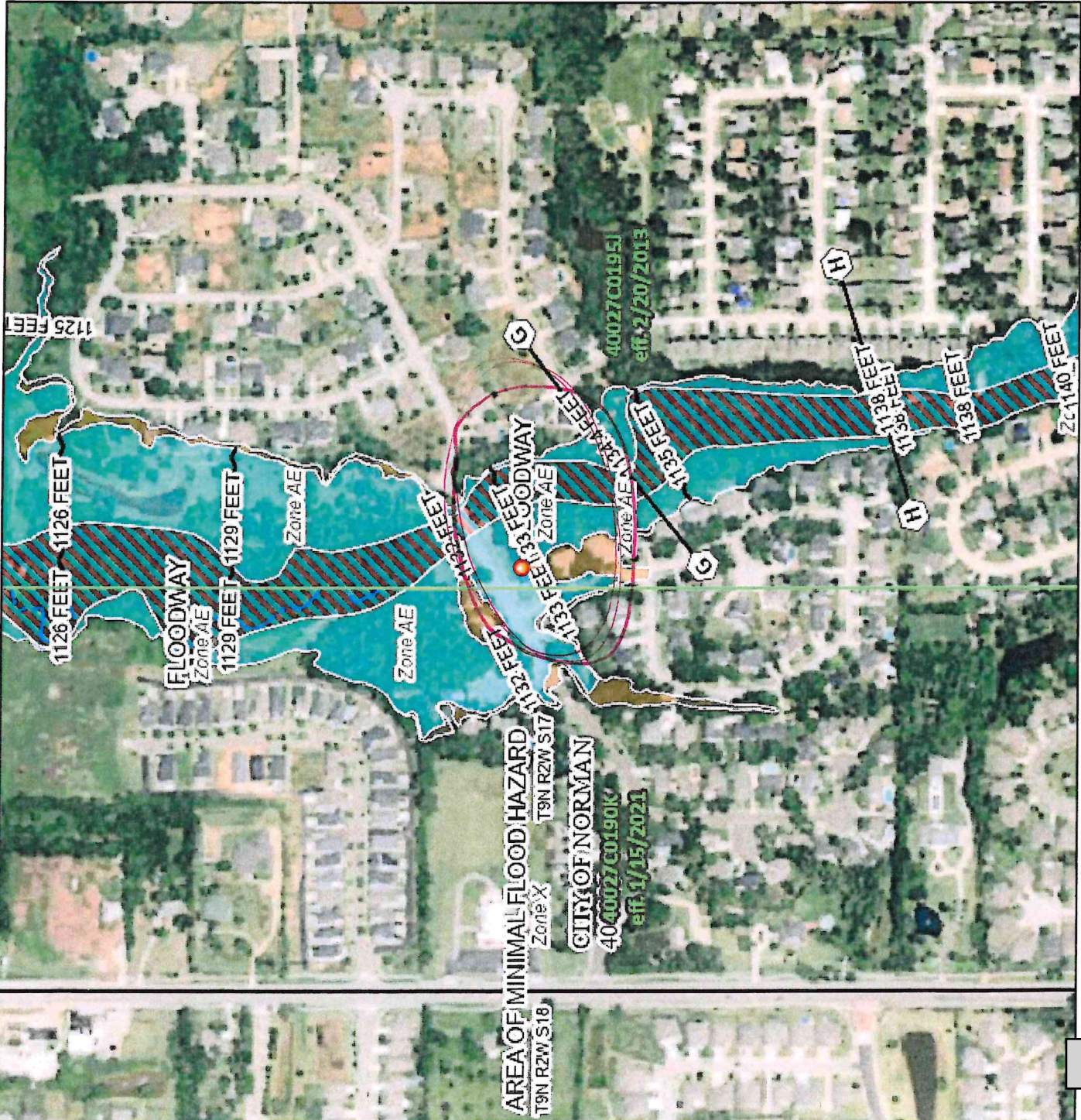
Date: 06/11/2026	Perimeter: 91'-6 1/2"	  CardinalSystemsInc.com
Drawn By: JF	Area: 424.8 SQ. FT.	
Scale: 1/8" = 1'-0"	Notes: S&S/MILLS	

This information is the confidential property of Cardinal Systems, Inc. Disclosure or duplication without proper written approval is strictly prohibited. Acceptance and use of this drawing constitutes knowledge and acceptance by the user of the terms and conditions set forth in the notice and warning which accompanied this drawing is incorporated herein and made part hereof and is found on Cardinal Systems, Inc.'s website at www.CardinalSystemsInc.com

National Flood Hazard Layer FIRMette



7°26'33"W 35°15'41"N



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

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 C

GENERAL STRUCTURES

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

OTHER FEATURES

- 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

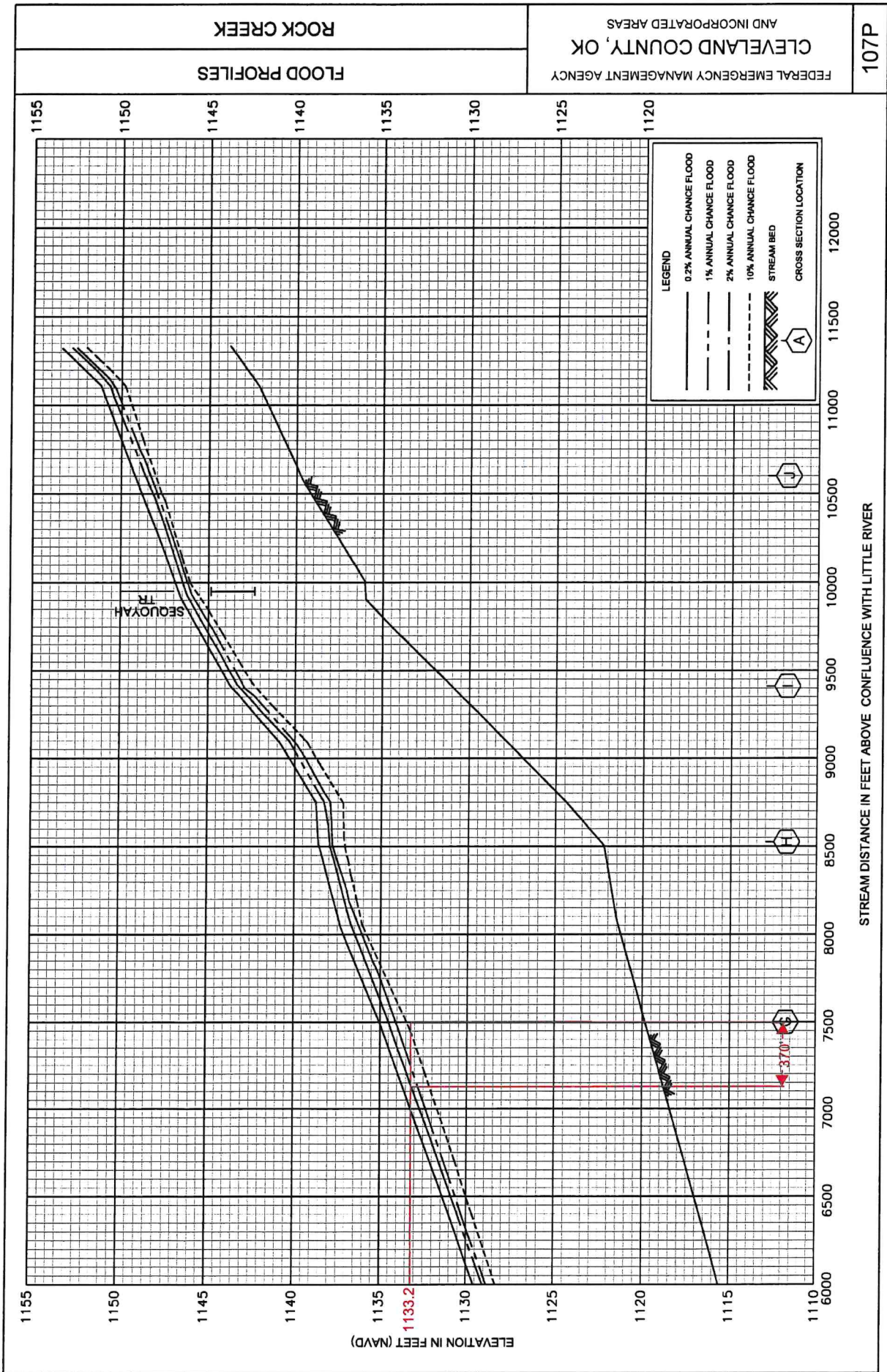
The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

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

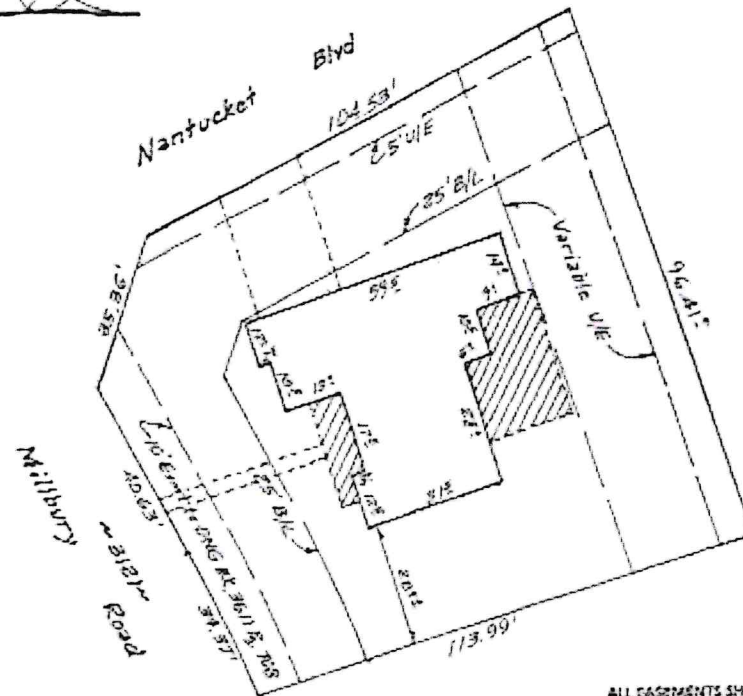
The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **7/24/2026 at 3:09 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

Item 2.



* Personal



ALL BASEMENTS SHOWN ON THE
COMMITMENT ARE SHOWN ON
THE DRAWING. 7-6-2021 FV.

NOTE: THIS IS NOT A BOUNDARY SURVEY. NO CORNERS WERE SET.

I, D. Mike Dossey, a Registered Land Surveyor, do hereby certify that a careful inspection has been made under my supervision on the following described property, to wit:

Lot One (1), in Block Six (6), of THE VINEYARD PHASE II, A Planned Unit Development, to the City of Norman, Cleveland County, Oklahoma, according to the recorded plat thereof.

Property Address: 3121 Milbury Road, Norman, OK 73071

This Mortgage Inspection Report was prepared for identification purposes for the Mortgagee in connection with a new loan and the mortgage. This is not a final or boundary survey plot, and it is not to be relied upon for establishment of fence, building or other future improvement lines. Discrepancies shown on this report were provided by the title insurer. No further research was done. The accompanying sketch is a true representation of conditions that were found at the time of the inspection, and the linear and angular values shown on the sketch, if any, are based on record or deed information and have not been verified unless noted. There are no encroachments of dwelling structure except if shown hereon. This inspection was made for loan purposes only and no other responsibility is hereby extended to the land owner or occupant.

Inspection No. 2211754

Date: July 8, 2021
Buyer: Miller, 4562101679
Title Company: Cleveland County Abstract


Registered Land Surveyor



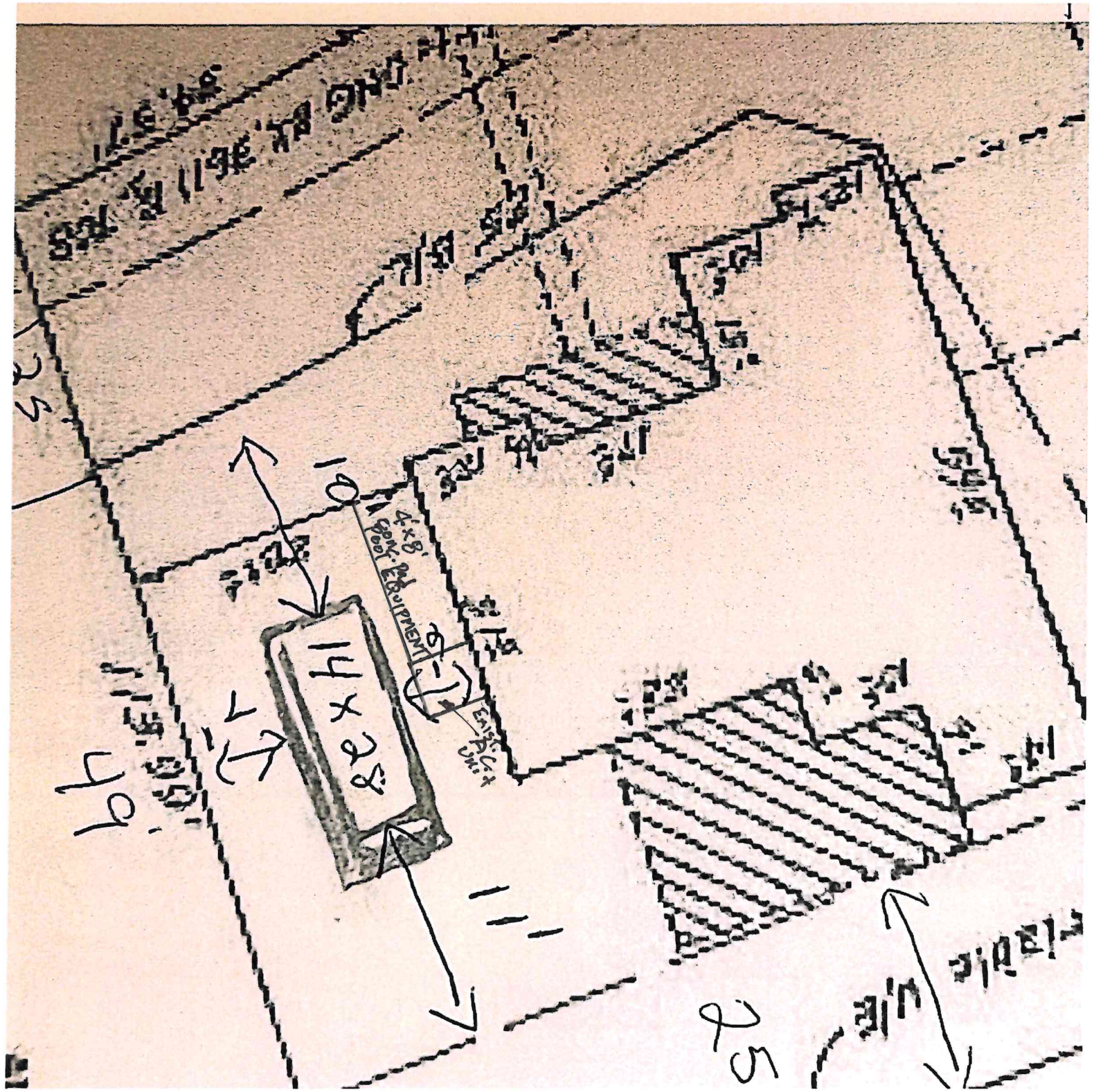
V.M.I. Inspection, Inc.

Mortgage Inspections • ALTA/ACSM • Elevations

1530 SW 89th St., Suite C-2 Oklahoma City, Oklahoma 73159

(405) 691-0077 (405) 691-0023 Fax

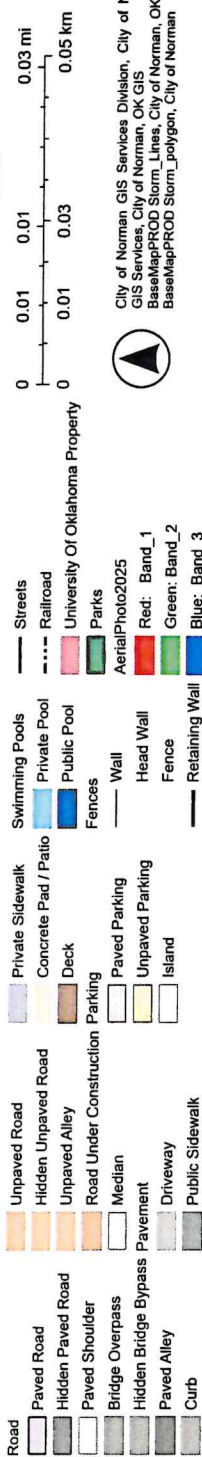
www.virginia.gov





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City of Norman GIS Services Division, City of Norman
GIS Services, City of Norman, OK GIS
BaseMapPROD Storm_Lines, City of Norman, OK GIS
BaseMapPROD Storm_polygon, City of Norman



Item 2.

PERMIT NO. 747

DATE: 9/8/2026

STAFF REPORT

ITEM: Floodplain Permit Application for roadway widening, drainage improvements, and bridge replacement associated with the 36th Avenue NW Improvement Project within the Little River floodplain.

APPLICANT: City of Norman Public Works Department

ENGINEER: Olsson- Jacob Burton, P.E., CFM

BACKGROUND

The applicant requests approval of a floodplain permit for improvements to 36th Avenue NW. The project includes roadway reconstruction and widening, sidewalk improvements, storm sewer installation, grading, and replacement of the existing crossing of a tributary to the Little River. Portions of the proposed improvements are located within the FEMA Special Flood Hazard Area, designated as Zone A on FIRM Panel 40027C0190K.

The existing crossing consists of an approximately 18.6-foot-wide by 10-foot-high reinforced concrete box (RCB). The project will replace the existing structure with a three-cell bridge-class structure consisting of three 10-foot-wide by 9-foot-high openings, substantially increasing the available conveyance area through the roadway crossing.

The applicant provided existing and proposed HEC-RAS modeling, floodplain storage calculations, project plans, and a sealed No-Rise Certification and Floodplain Impact Statement evaluating the effects of the proposed improvements. The engineer concludes that the project will result in no adverse floodplain impacts, no net loss of floodplain storage, and no rise in the 100-year water surface elevation.

Proposed Development Characteristics

- Roadway widening and reconstruction
- Replacement of the existing 18.6-foot-wide by 10-foot-high RCB with a three-cell structure consisting of three 10-foot-wide by 9-foot-high openings
- Sidewalk improvements
- Storm sewer installation
- Grading within the regulatory floodplain

STAFF ANALYSIS

- The proposed project includes roadway widening and reconstruction, sidewalk improvements, storm sewer installation, grading, and replacement of the existing bridge crossing a tributary to the Little River.
- The project is located within a FEMA Zone A regulatory floodplain. A regulatory floodway has not been established at the project location.
- The existing crossing consists of an approximately 18.6-foot-wide by 10-foot-high RCB. The proposed project replaces the existing crossing with a three-cell structure

- consisting of three 10-foot-wide by 9-foot-high openings, substantially increasing conveyance capacity through the 36th Avenue NW crossing.
- Existing and proposed HEC-RAS modeling was completed to evaluate the hydraulic impacts of the proposed improvements. The analysis indicates that the project will not result in an increase in the 100-year water surface elevation and will improve flood conveyance through the project area.
- At River Station 3100, immediately upstream of the proposed crossing, the modeled 100-year water surface elevation decreases from 1167.02 feet under existing conditions to 1165.49 feet under proposed conditions, a reduction of approximately 1.53 feet.
- The project includes fill associated with roadway, sidewalk, grading, and storm sewer improvements within the floodplain. The floodplain storage calculations identify approximately 2,284.31 cubic yards of cut and 1,366.12 cubic yards of fill. The proposed storm sewer system provides approximately 43.04 cubic yards of additional floodplain storage capacity.
- The project engineer provided a Floodplain Impact Statement indicating that the proposed improvements will result in no adverse floodplain impacts, no net loss of floodplain storage, and no rise in the 100-year water surface elevation.

APPLICABLE ORDINANCE SECTIONS (36-533)

(e)(2)(a) – Floodplain Modification and Fill Restrictions

(e)(2)(e) – Compensatory Storage

(f)(3)(a)(8) – No-Rise Condition Requirements

DETAILED ORDINANCE ANALYSIS

(e)(2)(a) and (e)(2)(e) – Floodplain Fill Restrictions and Compensatory Storage

The proposed roadway, sidewalk, drainage, and grading improvements will introduce approximately 1,366.12 cubic yards of fill within the regulatory floodplain. The project provides approximately 2,284.31 cubic yards of cut, in addition to approximately 43.04 cubic yards of additional storage capacity associated with the proposed storm sewer system.

The cumulative storage volume provided by the increased volumetric opening associated with the replacement crossing and the proposed storm sewer system exceeds the volume of fill introduced by the roadway, sidewalk, and grading improvements. The proposed improvements therefore result in a net increase in available floodplain storage and satisfy the compensatory storage requirements.

(f)(3)(a)(8) – No-Rise Requirement

For development within a flood hazard area that is not designated as a regulatory floodway, the ordinance requires certification that the proposed work will result in an increase of no more than 0.05 feet in the Base Flood Elevation on adjacent property.

The project engineer provided existing and proposed hydraulic modeling and a sealed Floodplain Impact Statement demonstrating that the proposed improvements will not increase the 100-year water surface elevation within the regulatory floodplain. The existing

approximately 18.6-foot-wide by 10-foot-high RCB will be replaced with a three-cell structure consisting of three 10-foot-wide by 9-foot-high openings. The increased hydraulic opening improves conveyance through the 36th Avenue NW crossing and reduces modeled 100-year water surface elevations upstream of the crossing.

At River Station 3100, immediately upstream of the proposed crossing, the modeled 100-year water surface elevation decreases from 1167.02 feet under existing conditions to 1165.49 feet under proposed conditions, a reduction of approximately 1.53 feet.

Based on the hydraulic analysis and compensatory storage calculations provided, the proposed improvements satisfy the applicable floodplain requirements of the ordinance.

RECOMMENDATION

Staff recommends approval of floodplain permit application #747.



City of Norman

Floodplain Permit Application

Floodplain Permit No. 747

Building Permit No. _____

Date 9/8/2026

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: CoN Engineering - Paul D'Andrea ADDRESS: 225 N. Webster Norman, OKTELEPHONE: 405-366-5319 SIGNATURE: _____BUILDER: TBD ADDRESS: _____

TELEPHONE: _____ SIGNATURE: _____

ENGINEER: Jacob Burton, PE, CFM - Olsson ADDRESS: 11600 Broadway Extension, Suite 300 OKC, OKTELEPHONE: 405-242-6600 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.

Culvert crossing for road widening starting at 97.4942798°W 35.2793851°N and continuing north to northern edge of floodplain

DESCRIPTION OF WORK (Check all applicable boxes):**A. STRUCTURAL DEVELOPMENT**ACTIVITYSTRUCTURE 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 \$ 21,000,000 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.

Construction of the 36th Avenue NW roadway improvements, including roadway reconstruction, sidewalk and storm sewer improvements, and replacement of the existing bridge crossing the Little River tributary. Work within the floodplain includes associated grading, and improvements necessary for construction for the new bridge and roadway.

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.: C0190K, 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 1167.02 Ft. NGVD (MSL) ☐ Unavailable

See Section 4 for additional instructions.

SIGNED: Jason Murphy DATE: 9/8/2026

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:
Hearing date: _____

☐ Yes ☐ No

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.



36th Ave NW North

Legend

- Lot Line
- Parcel
- BFE 2021

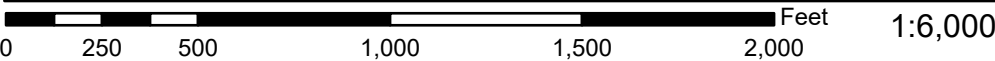
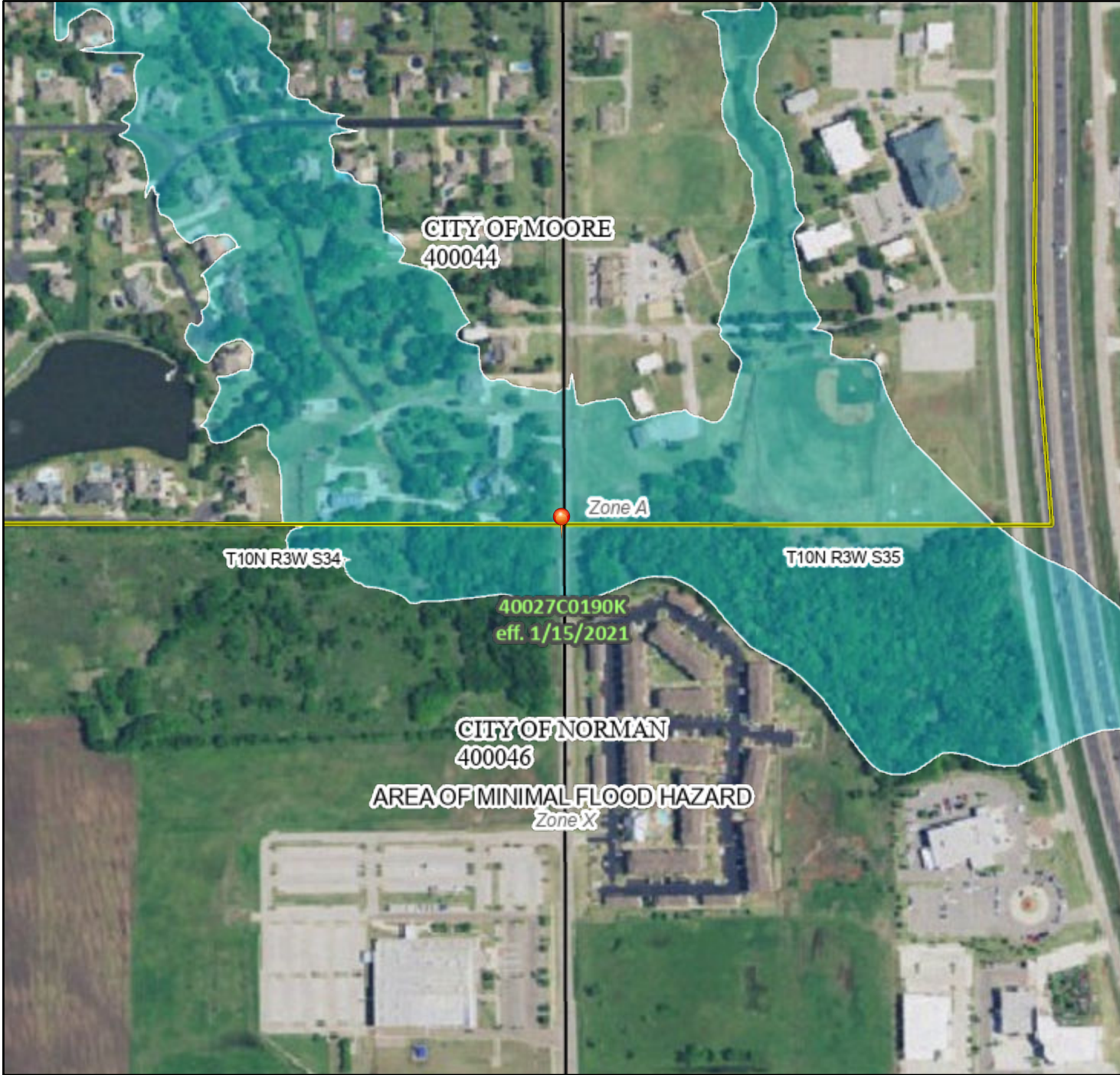
Flood Hazard Zone (2021)

- 1% Chance Floodplain
- Floodway

National Flood Hazard Layer FIRMMette



97°29'59"W 35°18'7"N



Basemap Imagery Source: USGS National Map 2023

Legend

Item 3.

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM METTE

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
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
		Profile Baseline
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped



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 8/18/2026 at 8:33 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 identifier, FIRM panel number, and FIRM effective date. Map information in unmapped and unmodernized areas cannot be used for regulatory purposes.



August 14, 2026

City of Norman

ATTN: Jason Murphy, Stormwater Program Manager
City of Norman Public Works - Engineering
225 N Webster Ave
Norman, OK 73069

Dear Jason Murphy:

No-Rise Certification and Floodplain Impact Statement:

The 36th Avenue NW Roadway Improvement and Bridge Replacement project includes roadway reconstruction, sidewalk improvements, storm sewer installation, and replacement of the existing bridge crossing within the FEMA Zone A regulatory floodplain, Panel 40027C0190K. A hydraulic analysis was performed using HEC-RAS to evaluate the impacts of the proposed improvements on flood elevations compared to the existing conditions.

Based upon the hydraulic modeling performed for this project and the accompanying floodplain storage calculations, the proposed improvements do not result in an increase in the 100-YR WSEL within the regulatory floodplain. The hydraulic analysis demonstrates that the proposed design improves existing floodplain conveyance characteristics.

Accordingly, it is my professional opinion that the proposed project results in **no adverse floodplain impacts, no net loss of floodplain storage, and no rise in the 100-YR Water Surface Elevation.**

This statement represents the best professional judgment based on available survey information, design plans, and hydraulic modeling. It has been prepared for inclusion with floodplain permit request. Should you have any questions, please contact me at 405.242.6625 or at jbarton@olsson.com.

Sincerely,

A handwritten signature in blue ink, appearing to read "Jacob Burton".

Jacob Burton, PE, CFM

Project Manager II / Civil Engineering

D 405.242.6625

C 405.397.9017

11600 Broadway Extension, Suite 300

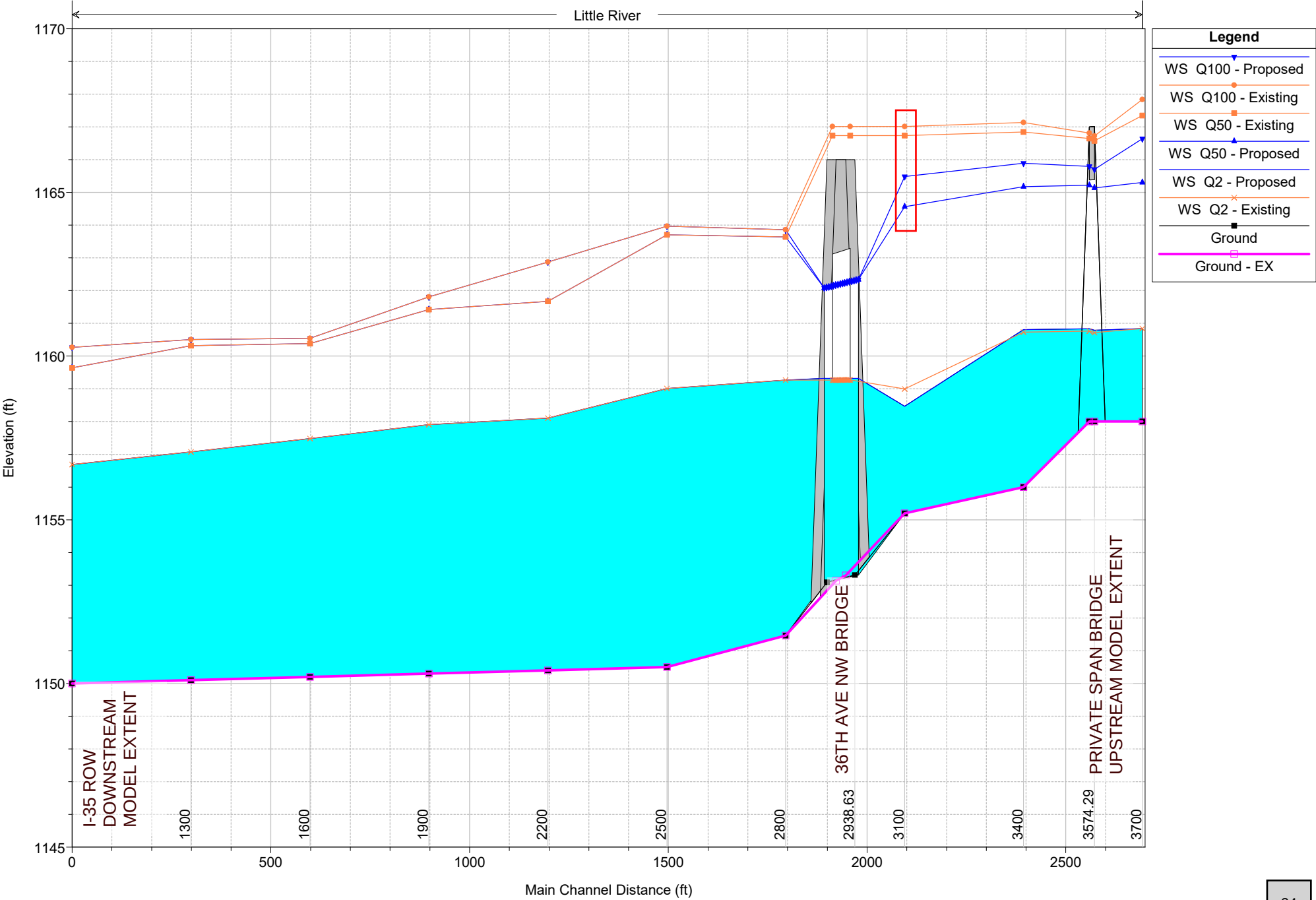
Oklahoma City, OK 73114

O 405.242.6600



S&S Date: 08/14/2026
Stamp Exp.: 09/30/2027

HEC-RAS Model Plan: 1) Proposed 8/12/2026 2) Existing 8/13/2026
Geom: Proposed Geometry (3-10x9)



HEC-RAS Plan: Proposed River: Little Reach: River

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
River	3700	Q2	498.00	1158.00	1160.84	1160.84	1161.82	0.014990	7.93	62.81	32.56	1.01
River	3700	Q5	910.00	1158.00	1162.22	1161.89	1163.20	0.009801	7.93	114.69	43.05	0.86
River	3700	Q10	1260.00	1158.00	1163.29	1162.60	1164.18	0.007268	7.58	166.24	53.44	0.76
River	3700	Q25	1790.00	1158.00	1164.34	1163.48	1165.30	0.006067	7.85	232.90	93.34	0.71
River	3700	Q50	2320.00	1158.00	1165.30	1164.21	1166.14	0.004169	7.58	367.00	186.13	0.62
River	3700	Q100	2730.00	1158.00	1166.64	1165.05	1167.07	0.001781	5.85	689.33	275.52	0.42
River	3700	Q500	4310.00	1158.00	1169.07	1166.31	1169.30	0.000779	4.84	1477.02	393.45	0.29
River	3574.29	Bridge										
River	3400	Q2	498.00	1156.00	1160.81		1161.01	0.001901	3.64	136.72	47.87	0.38
River	3400	Q5	910.00	1156.00	1162.37		1162.64	0.001630	4.12	221.45	60.60	0.37
River	3400	Q10	1260.00	1156.00	1163.45		1163.75	0.001355	4.42	291.76	70.42	0.35
River	3400	Q25	1790.00	1156.00	1164.50		1164.89	0.001391	5.10	374.58	95.06	0.37
River	3400	Q50	2320.00	1156.00	1165.18		1165.67	0.001543	5.77	448.17	121.68	0.39
River	3400	Q100	2730.00	1156.00	1165.89		1166.38	0.001384	5.85	544.89	149.57	0.38
River	3400	Q500	4310.00	1156.00	1167.20		1167.83	0.001593	6.99	823.15	283.80	0.42
River	3100	Q2	498.00	1155.20	1158.47	1158.47	1159.68	0.014704	8.82	56.44	23.34	1.00
River	3100	Q5	910.00	1155.20	1159.70	1159.70	1161.42	0.013516	10.50	86.72	25.58	1.00
River	3100	Q10	1260.00	1155.20	1160.57	1160.57	1162.65	0.012769	11.58	109.40	26.93	1.00
River	3100	Q25	1790.00	1155.20	1162.71	1162.71	1164.05	0.005771	9.69	234.07	116.43	0.71
River	3100	Q50	2320.00	1155.20	1164.56	1163.40	1165.12	0.002139	7.10	541.06	203.07	0.45
River	3100	Q100	2730.00	1155.20	1165.49	1163.81	1165.92	0.001572	6.57	743.93	238.95	0.40
River	3100	Q500	4310.00	1155.20	1166.83	1164.86	1167.30	0.001616	7.33	1126.95	335.46	0.41
River	2938.63	Culvert										
River	2800	Q2	498.00	1151.46	1159.27		1159.43	0.000824	3.25	153.19	29.94	0.25
River	2800	Q5	910.00	1151.46	1160.70		1161.03	0.001318	4.58	199.26	34.65	0.33
River	2800	Q10	1260.00	1151.46	1161.63		1162.09	0.001571	5.46	234.28	41.22	0.37
River	2800	Q25	1790.00	1151.46	1162.76		1163.42	0.001850	6.56	291.13	62.78	0.41
River	2800	Q50	2320.00	1151.46	1163.64		1164.46	0.002067	7.43	355.42	82.43	0.44
River	2800	Q100	2730.00	1151.46	1163.86		1164.91	0.002578	8.44	374.32	86.55	0.49
River	2800	Q500	4310.00	1151.46	1164.63	1163.68	1166.56	0.004474	11.73	456.65	121.88	0.66
River	2500	Q2	498.00	1150.50	1159.01	1155.51	1159.11	0.001161	2.51	198.35	82.60	0.29
River	2500	Q5	910.00	1150.50	1160.51	1156.93	1160.63	0.000774	2.77	339.49	114.84	0.25
River	2500	Q10	1260.00	1150.50	1161.51	1158.47	1161.64	0.000648	2.96	474.47	154.10	0.24
River	2500	Q25	1790.00	1150.50	1162.75	1159.06	1162.89	0.000537	3.15	689.79	187.50	0.23
River	2500	Q50	2320.00	1150.50	1163.71	1159.54	1163.86	0.000494	3.33	877.89	205.68	0.22
River	2500	Q100	2730.00	1150.50	1163.97	1159.87	1164.16	0.000587	3.72	932.70	210.68	0.24
River	2500	Q500	4310.00	1150.50	1164.96	1161.13	1165.26	0.000821	4.80	1283.34	377.31	0.30
River	2200	Q2	498.00	1150.40	1158.10		1158.53	0.003328	5.21	95.75	28.62	0.49
River	2200	Q5	910.00	1150.40	1159.39		1160.12	0.003885	6.90	147.83	52.40	0.55
River	2200	Q10	1260.00	1150.40	1160.19		1161.16	0.004272	8.02	196.06	67.51	0.59
River	2200	Q25	1790.00	1150.40	1161.15	1159.93	1162.42	0.004748	9.37	269.37	85.96	0.64
River	2200	Q50	2320.00	1150.40	1161.67	1161.09	1163.35	0.005833	10.93	317.08	96.08	0.72
River	2200	Q100	2730.00	1150.40	1162.87	1162.87	1163.75	0.003065	8.79	671.55	405.78	0.54
River	2200	Q500	4310.00	1150.40	1164.67		1164.96	0.001242	6.37	1519.56	510.89	0.35
River	1900	Q2	498.00	1150.30	1157.91		1158.03	0.000739	2.79	178.35	44.53	0.25
River	1900	Q5	910.00	1150.30	1159.23		1159.46	0.000954	3.82	241.89	51.28	0.29
River	1900	Q10	1260.00	1150.30	1160.06		1160.38	0.001122	4.56	285.93	55.47	0.33
River	1900	Q25	1790.00	1150.30	1161.00		1161.48	0.001389	5.58	340.63	60.44	0.37
River	1900	Q50	2320.00	1150.30	1161.42		1162.13	0.001916	6.81	366.42	62.64	0.44
River	1900	Q100	2730.00	1150.30	1161.81		1162.70	0.002224	7.60	391.43	64.71	0.48
River	1900	Q500	4310.00	1150.30	1163.53	1160.57	1164.43	0.002053	8.33	1094.74	565.59	0.47
River	1600	Q2	498.00	1150.20	1157.48		1157.71	0.001577	3.79	131.42	35.14	0.35
River	1600	Q5	910.00	1150.20	1158.60		1159.01	0.002319	5.21	181.39	67.21	0.43
River	1600	Q10	1260.00	1150.20	1159.38		1159.89	0.002390	5.88	248.96	106.42	0.45
River	1600	Q25	1790.00	1150.20	1160.39		1160.95	0.002237	6.40	380.43	141.39	0.45
River	1600	Q50	2320.00	1150.20	1160.38		1161.33	0.003792	8.32	378.67	141.28	0.58
River	1600	Q100	2730.00	1150.20	1160.55	1159.97	1161.73	0.004676	9.40	401.88	142.74	0.65
River	1600	Q500	4310.00	1150.20	1163.15		1163.73	0.001980	7.67	1234.27	547.85	0.45
River	1300	Q2	498.00	1150.10	1157.08	1154.35	1157.26	0.001328	3.46	143.86	93.53	0.32
River	1300	Q5	910.00	1150.10	1157.94	1155.57	1158.34	0.002145	5.09	182.76	142.27	0.43
River	1300	Q10	1260.00	1150.10	1158.53	1156.49	1159.12	0.002685	6.18	223.26	194.36	0.49
River	1300	Q25	1790.00	1150.10	1159.31	1157.44	1160.13	0.003181	7.41	319.84	267.23	0.54
River	1300	Q50	2320.00	1150.10	1160.32	1158.32	1160.55	0.001112	4.87	903.23	461.01	0.33
River	1300	Q100	2730.00	1150.10	1160.51	1159.18	1160.79	0.001314	5.40	992.70	470.89	0.36
River	1300	Q500	4310.00	1150.10	1163.25	1159.97	1163.35	0.000416	3.79	2474.85	606.79	0.21

HEC-RAS Plan: Proposed River: Little Reach: River (Continued)

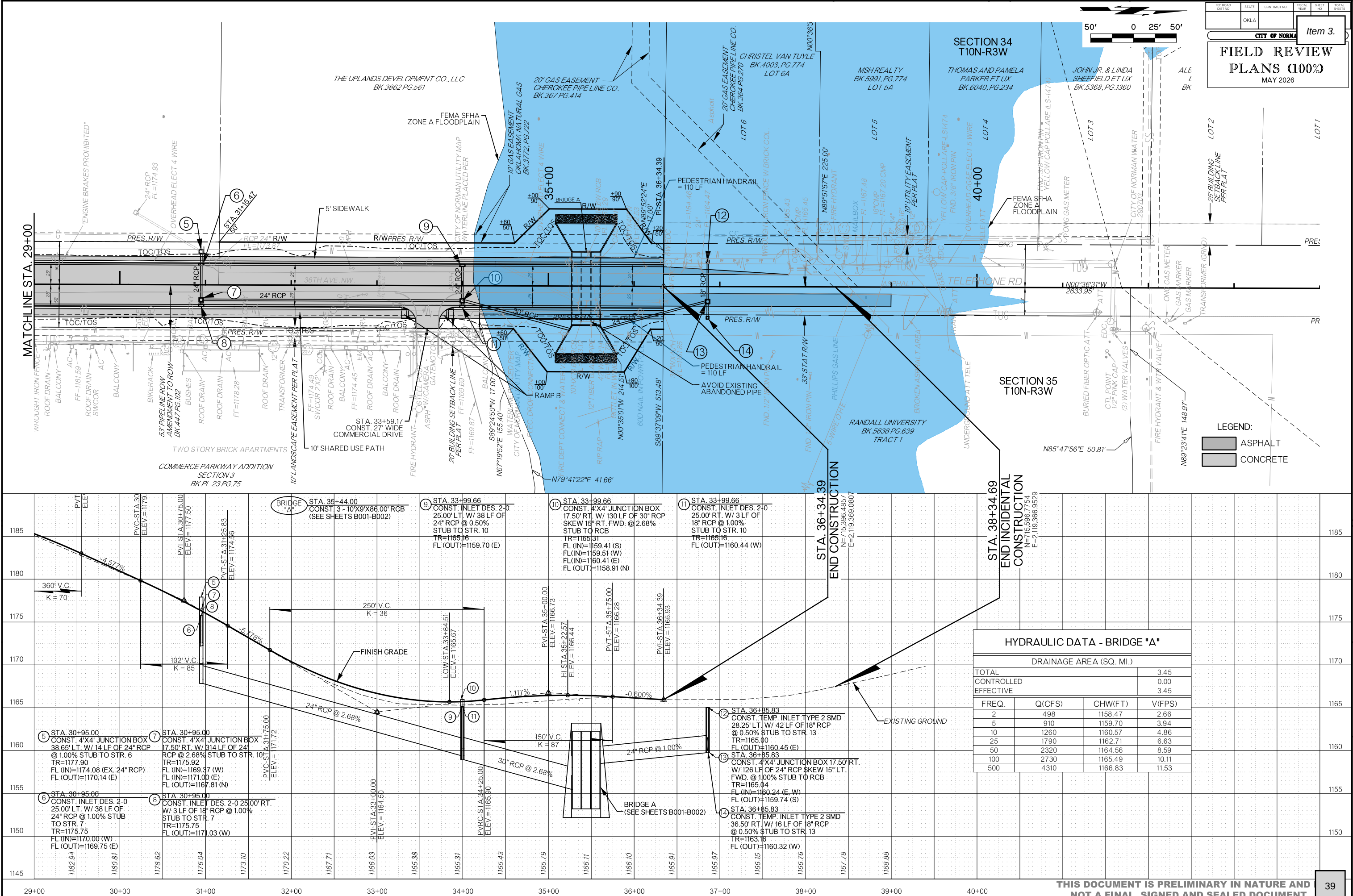
Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
River	1000	Q2	498.00	1150.00	1156.69	1154.68	1156.82	0.001538	2.87	173.50	132.68	0.33
River	1000	Q5	910.00	1150.00	1157.42	1155.65	1157.67	0.002065	3.98	231.35	172.45	0.40
River	1000	Q10	1260.00	1150.00	1157.99	1156.39	1158.32	0.002201	4.60	281.00	203.49	0.43
River	1000	Q25	1790.00	1150.00	1158.82	1157.01	1159.23	0.002155	5.23	361.84	228.79	0.44
River	1000	Q50	2320.00	1150.00	1159.64	1157.52	1160.10	0.001945	5.56	452.89	253.50	0.43
River	1000	Q100	2730.00	1150.00	1160.27	1157.89	1160.45	0.000846	3.95	974.75	313.58	0.29
River	1000	Q500	4310.00	1150.00	1163.15	1159.22	1163.24	0.000307	3.10	2188.08	505.16	0.18

HEC-RAS Plan: Existing River: Little Reach: River

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
River	3700	Q2	498.00	1158.00	1160.84	1160.84	1161.82	0.014990	7.93	62.81	32.56	1.01
River	3700	Q5	910.00	1158.00	1162.36	1161.89	1163.24	0.008610	7.54	120.69	44.39	0.81
River	3700	Q10	1260.00	1158.00	1163.78	1162.60	1164.44	0.004904	6.51	193.54	58.20	0.63
River	3700	Q25	1790.00	1158.00	1166.46	1163.48	1166.67	0.000887	4.05	641.71	269.62	0.29
River	3700	Q50	2320.00	1158.00	1167.35	1164.20	1167.54	0.000731	4.03	893.69	299.51	0.27
River	3700	Q100	2730.00	1158.00	1167.84	1165.06	1168.03	0.000700	4.14	1044.95	316.18	0.27
River	3700	Q500	4310.00	1158.00	1169.63	1166.32	1169.81	0.000557	4.28	1709.70	431.56	0.25
River	3574.29	Bridge										
River	3400	Q2	498.00	1156.00	1160.73		1160.95	0.002041	3.74	133.20	47.29	0.39
River	3400	Q5	910.00	1156.00	1162.50		1162.74	0.001470	3.99	228.80	61.70	0.35
River	3400	Q10	1260.00	1156.00	1163.89		1164.13	0.001007	4.03	323.45	74.43	0.31
River	3400	Q25	1790.00	1156.00	1166.19		1166.37	0.000499	3.60	592.62	174.47	0.23
River	3400	Q50	2320.00	1156.00	1168.85		1167.07	0.000570	4.07	730.15	245.62	0.25
River	3400	Q100	2730.00	1156.00	1167.14		1167.40	0.000662	4.49	806.68	277.42	0.27
River	3400	Q500	4310.00	1156.00	1168.00		1168.39	0.000958	5.75	1086.22	375.79	0.33
River	3100	Q2	498.00	1155.20	1159.00	1158.47	1159.81	0.008134	7.22	68.98	24.38	0.76
River	3100	Q5	910.00	1155.20	1161.15	1159.70	1161.98	0.004316	7.33	125.69	29.17	0.59
River	3100	Q10	1260.00	1155.20	1163.30	1160.57	1163.74	0.001647	5.80	311.21	144.10	0.39
River	3100	Q25	1790.00	1155.20	1166.09	1162.75	1166.22	0.000444	3.77	899.11	284.81	0.21
River	3100	Q50	2320.00	1155.20	1166.74	1163.44	1166.89	0.000489	4.14	1098.38	328.48	0.23
River	3100	Q100	2730.00	1155.20	1167.02	1163.86	1167.19	0.000570	4.54	1192.73	351.00	0.25
River	3100	Q500	4310.00	1155.20	1167.81	1164.93	1168.08	0.000887	5.94	1491.41	405.53	0.31
River	2938.63	Culvert										
River	2800	Q2	498.00	1151.46	1159.27		1159.43	0.000824	3.25	153.19	29.94	0.25
River	2800	Q5	910.00	1151.46	1160.70		1161.03	0.001318	4.58	199.26	34.65	0.33
River	2800	Q10	1260.00	1151.46	1161.63		1162.09	0.001571	5.46	234.28	41.22	0.37
River	2800	Q25	1790.00	1151.46	1162.76		1163.42	0.001850	6.56	291.13	62.78	0.41
River	2800	Q50	2320.00	1151.46	1163.64		1164.46	0.002067	7.43	355.42	82.43	0.44
River	2800	Q100	2730.00	1151.46	1163.86		1164.91	0.002578	8.44	374.32	86.55	0.49
River	2800	Q500	4310.00	1151.46	1164.62	1163.68	1166.56	0.004475	11.73	456.62	121.88	0.66
River	2500	Q2	498.00	1150.50	1159.01	1155.51	1159.11	0.001161	2.51	198.35	82.60	0.29
River	2500	Q5	910.00	1150.50	1160.51	1156.93	1160.63	0.000774	2.77	339.49	114.84	0.25
River	2500	Q10	1260.00	1150.50	1161.51	1158.47	1161.64	0.000648	2.96	474.47	154.10	0.24
River	2500	Q25	1790.00	1150.50	1162.75	1159.06	1162.89	0.000537	3.15	689.79	187.50	0.23
River	2500	Q50	2320.00	1150.50	1163.71	1159.54	1163.86	0.000494	3.33	877.89	205.68	0.22
River	2500	Q100	2730.00	1150.50	1163.97	1159.87	1164.16	0.000587	3.72	932.70	210.68	0.24
River	2500	Q500	4310.00	1150.50	1164.96	1161.13	1165.26	0.000821	4.80	1283.30	377.31	0.30
River	2200	Q2	498.00	1150.40	1158.10		1158.53	0.003328	5.21	95.75	28.62	0.49
River	2200	Q5	910.00	1150.40	1159.39		1160.12	0.003885	6.90	147.83	52.40	0.55
River	2200	Q10	1260.00	1150.40	1160.19		1161.16	0.004272	8.02	196.06	67.51	0.59
River	2200	Q25	1790.00	1150.40	1161.15	1159.93	1162.42	0.004748	9.37	269.37	85.96	0.64
River	2200	Q50	2320.00	1150.40	1161.67	1161.09	1163.35	0.005833	10.93	317.08	96.08	0.72
River	2200	Q100	2730.00	1150.40	1162.87	1162.87	1163.75	0.003065	8.79	671.55	405.78	0.54
River	2200	Q500	4310.00	1150.40	1164.67		1164.96	0.001242	6.37	1519.50	510.89	0.35
River	1900	Q2	498.00	1150.30	1157.91		1158.03	0.000739	2.79	178.35	44.53	0.25
River	1900	Q5	910.00	1150.30	1159.23		1159.46	0.000954	3.82	241.89	51.28	0.29
River	1900	Q10	1260.00	1150.30	1160.06		1160.38	0.001122	4.56	285.93	55.47	0.33
River	1900	Q25	1790.00	1150.30	1161.00		1161.48	0.001389	5.58	340.63	60.44	0.37
River	1900	Q50	2320.00	1150.30	1161.42		1162.13	0.001916	6.81	366.42	62.64	0.44
River	1900	Q100	2730.00	1150.30	1161.81		1162.70	0.002224	7.60	391.43	64.71	0.48
River	1900	Q500	4310.00	1150.30	1163.53	1160.57	1164.43	0.002053	8.33	1094.81	565.60	0.47
River	1600	Q2	498.00	1150.20	1157.48		1157.71	0.001577	3.79	131.42	35.14	0.35
River	1600	Q5	910.00	1150.20	1158.60		1159.01	0.002319	5.21	181.39	67.21	0.43
River	1600	Q10	1260.00	1150.20	1159.38		1159.89	0.002390	5.88	248.96	106.42	0.45
River	1600	Q25	1790.00	1150.20	1160.39		1160.95	0.002237	6.40	380.43	141.39	0.45
River	1600	Q50	2320.00	1150.20	1160.38		1161.33	0.003792	8.32	378.67	141.28	0.58
River	1600	Q100	2730.00	1150.20	1160.55	1159.97	1161.73	0.004676	9.40	401.88	142.74	0.65
River	1600	Q500	4310.00	1150.20	1163.15		1163.73	0.001979	7.66	1234.40	547.86	0.45
River	1300	Q2	498.00	1150.10	1157.08	1154.35	1157.26	0.001328	3.46	143.86	93.53	0.32
River	1300	Q5	910.00	1150.10	1157.94	1155.57	1158.34	0.002145	5.09	182.76	142.27	0.43
River	1300	Q10	1260.00	1150.10	1158.53	1156.49	1159.12	0.002685	6.18	223.26	194.36	0.49
River	1300	Q25	1790.00	1150.10	1159.31	1157.44	1160.13	0.003181	7.41	319.86	267.24	0.54
River	1300	Q50	2320.00	1150.10	1160.32	1158.32	1160.55	0.001111	4.87	903.29	461.01	0.33
River	1300	Q100	2730.00	1150.10	1160.51	1159.18	1160.79	0.001314	5.40	992.70	470.89	0.36
River	1300	Q500	4310.00	1150.10	1163.25	1159.97	1163.35	0.000416	3.79	2474.92	606.80	0.21

HEC-RAS Plan: Existing River: Little Reach: River (Continued)

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
River	1000	Q2	498.00	1150.00	1156.69	1154.68	1156.82	0.001538	2.87	173.50	132.68	0.33
River	1000	Q5	910.00	1150.00	1157.42	1155.65	1157.67	0.002065	3.98	231.35	172.45	0.40
River	1000	Q10	1260.00	1150.00	1157.99	1156.39	1158.32	0.002201	4.60	281.00	203.49	0.43
River	1000	Q25	1790.00	1150.00	1158.82	1157.01	1159.23	0.002155	5.23	361.84	228.79	0.44
River	1000	Q50	2320.00	1150.00	1159.64	1157.52	1160.10	0.001945	5.56	452.89	253.50	0.43
River	1000	Q100	2730.00	1150.00	1160.27	1157.89	1160.45	0.000846	3.95	974.75	313.58	0.29
River	1000	Q500	4310.00	1150.00	1163.15	1159.22	1163.24	0.000307	3.10	2188.08	505.16	0.18



HYDRAULIC DATA - BRIDGE "A"			
DRAINAGE AREA (SQ. MI.)			
TOTAL			3.45
CONTROLLED			0.00
EFFECTIVE			3.45
FREQ.	Q(CFS)	CHW(FT)	V(FPS)
2	498	1158.47	2.66
5	910	1159.70	3.94
10	1260	1160.57	4.86
25	1790	1162.71	6.63
50	2320	1164.56	8.59
100	2730	1165.49	10.11
500	4310	1166.83	11.53

THIS DOCUMENT IS PRELIMINARY IN NATURE AND NOT A FINAL, SIGNED AND SEALED DOCUMENT.

FLOODPLAIN END AREA VOLUME REPORT

36TH AVE NW

BASELINE STATION	CUT				FILL			
	FACTOR	AREA (SF)	VOLUME (CY)	ADJUSTED	FACTOR	AREA (SF)	VOLUME (CY)	ADJUSTED
34+50.00	1	24.44	78.42	78.42	1	98.18	129.23	129.23
35+00.00	1	26.51	47.18	47.18	1	113.1	195.62	195.62
35+27.00	1	1436.37	731.44	731.44	1	91.15	102.12	102.12
35+44.00	1	662.07	660.62	660.62	1	81.66	54.40	54.40
35+50.00	1	864.39	169.61	169.61	1	92.73	19.38	19.38
35+61.00	1	1224.27	425.47	425.47	1	78.12	34.80	34.80
36+00.00	1	60.36	100.82	100.82	1	69.73	754.99	754.99
36+34.39	1	50.73	70.75	70.75	1	48.93	75.57	75.57
GRAND TOTAL:			2284.31	2284.31			1366.12	1366.12

Storm Pipe and Structures within the FEMA SHFA Zone A (Strs 10-14):

1,162 cu. ft. (1,029 cu. ft. - RCPs & 133 cu. ft. - inlets/JBs) = 43.04 CY Additional Floodplain Storage Capacity

For 36th Avenue NW roadway improvement project, the cumulative storage volume provided by the increased volumetric opening associated with the replacement bridge and the proposed storm sewer system exceeds the volume of fill introduced by roadway, sidewalk, and grading improvements within the floodplain. Accordingly, the project results in a net increase in available floodplain storage and no adverse impact from loss of floodplain volume is anticipated. The above calculations document that the proposed condition produces a net reduction in displaced floodplain volume relative to existing conditions and does not require compensatory storage to be added.

PERMIT NO. 748

DATE: 9/8/2026

STAFF REPORT

ITEM: Floodplain Permit Application for roadway widening, drainage improvements, and replacement of the existing Tributary G crossing associated with the 36th Avenue NW Improvement Project.

APPLICANT: City of Norman Public Works Department

ENGINEER: STV – Brian J. Huckleberry, P.E.

BACKGROUND

The applicant requests approval of a floodplain permit for improvements to 36th Avenue NW from just north of Tecumseh Road to just south of Indian Hills Road. The project includes roadway reconstruction and widening, sidewalk improvements, storm sewer installation, grading, and replacement of the existing crossing of Tributary G to the Little River. Portions of the proposed improvements are located within the FEMA Special Flood Hazard Area, designated as Zone A on FIRM Panel 40027C0190K.

The existing Tributary G crossing consists of two 48-inch corrugated metal pipes (CMPs). The project will replace the existing pipes with a bridge-class structure consisting of three 10-foot-wide by 6-foot-high reinforced concrete box culverts (3-10' × 6' RCB).

The applicant provided existing and proposed HEC-RAS modeling, floodplain cut and fill calculations, project plans, and a No-Rise Certification and Floodplain Impact Statement evaluating the effects of the proposed improvements.

Summary of Proposed Development

- Roadway widening and reconstruction
- Replacement of existing bridge crossing tributary to the Little River
- Sidewalk improvements
- Storm sewer installation
- Grading within the regulatory floodplain

STAFF ANALYSIS

- The proposed project includes roadway widening and reconstruction, sidewalk improvements, storm sewer installation, grading, and replacement of the existing Tributary G crossing.
- The project is located within a FEMA Zone A regulatory floodplain. A regulatory floodway has not been established at the project location.
- The existing crossing consists of two 48-inch CMPs. The proposed project replaces the existing crossing with three 10-foot by 6-foot reinforced concrete box culverts, substantially increasing the conveyance capacity of the crossing.
- Existing and proposed HEC-RAS modeling was completed to evaluate the hydraulic impacts of the proposed improvements. The modeling shows a reduction in the 100-year water surface elevation upstream of the proposed crossing.

- Immediately upstream of the culvert, the modeled 100-year water surface elevation decreases from approximately 1163.14 feet under existing conditions to 1162.72 feet under proposed conditions, a reduction of approximately 0.42 feet.
- The proposed improvements also increase the capacity of the crossing prior to roadway overtopping. The modeled overtopping elevation increases from approximately 1161.94 feet under existing conditions to 1162.85 feet under proposed conditions.
- The site plan and profile identify approximately 9,513.81 cubic yards of cut and 7,491.58 cubic yards of fill within the regulatory floodplain, resulting in a net increase of approximately 2,022.23 cubic yards of available floodplain storage.
- The project engineer provided a No-Rise Certification and Floodplain Impact Statement concluding that the proposed improvements will result in no adverse floodplain impacts and comply with the allowable 100-year flood elevation requirements.

APPLICABLE ORDINANCE SECTIONS (36-533)

(e)(2)(a) – Floodplain Modification and Fill Restrictions

(e)(2)(e) – Compensatory Storage

(f)(3)(a)(8) – No-Rise Condition Requirements

DETAILED ORDINANCE ANALYSIS

(e)(2)(a) and (e)(2)(e) – Floodplain Fill Restrictions and Compensatory Storage

The proposed roadway, drainage, and grading improvements will introduce approximately 7,491.58 cubic yards of fill within the regulatory floodplain. The project provides approximately 9,513.81 cubic yards of cut, resulting in a net increase of approximately 2,022.23 cubic yards of available floodplain storage. The proposed improvements therefore provide more floodplain storage than is displaced by the project and satisfy the compensatory storage requirements.

(f)(3)(a)(8) – No-Rise Requirement

For development within a flood hazard area that is not designated as a regulatory floodway, the ordinance requires certification that the proposed work will result in an increase of no more than 0.05 feet in the Base Flood Elevation on adjacent property.

The project engineer provided existing and proposed HEC-RAS modeling and a No-Rise Certification and Floodplain Impact Statement. The existing Tributary G crossing consists of two 48-inch CMPs and will be replaced with three 10-foot by 6-foot reinforced concrete box culverts. The increased capacity of the proposed crossing results in a reduction in the modeled 100-year water surface elevation upstream of 36th Avenue NW.

Immediately upstream of the crossing, the modeled 100-year water surface elevation decreases from approximately 1163.14 feet to 1162.72 feet, a reduction of approximately 0.42 feet.

Based on the hydraulic analysis and compensatory storage provided, the proposed improvements satisfy the applicable floodplain requirements of the ordinance.

RECOMMENDATION

Staff recommends approval of floodplain permit application #748.



City of Norman

Floodplain Permit Application

Floodplain Permit No. 748

Building Permit No. _____

Date 9/8/2026

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: CoN Engineering- Paul D'Andrea ADDRESS: 225 N. Webster Norman, OKTELEPHONE: 405-366-5319 SIGNATURE: _____

BUILDER: _____ ADDRESS: _____

TELEPHONE: _____ SIGNATURE: _____

ENGINEER: STV - Brian J. Huckleberry, P.E. ADDRESS: 2000 N. Classen Blvd. Ste. 1410 OKC, OKTELEPHONE: 405-848-2346 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.

36th Ave NW proceeding south near the intersection of Indian Hills Road

DESCRIPTION OF WORK (Check all applicable boxes):**A. STRUCTURAL DEVELOPMENT**ACTIVITYSTRUCTURE 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 \$_____ 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.

Construction of the 36th Avenue NW roadway improvements, including roadway reconstruction, sidewalk and storm sewer improvements, and replacement of the existing bridge crossing

Tributary G of Little River. Work within the floodplain includes associated grading, and improvements necessary for construction for the new bridge and roadway.

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.: C0190K, 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 1163.14 Ft. NGVD (MSL) ☐ Unavailable

See Section 4 for additional instructions.

SIGNED: Jason Murphy DATE: 9/8/2026

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:
Hearing date: _____

☐ Yes ☐ No

Board of Adjustment Decision - Approved:

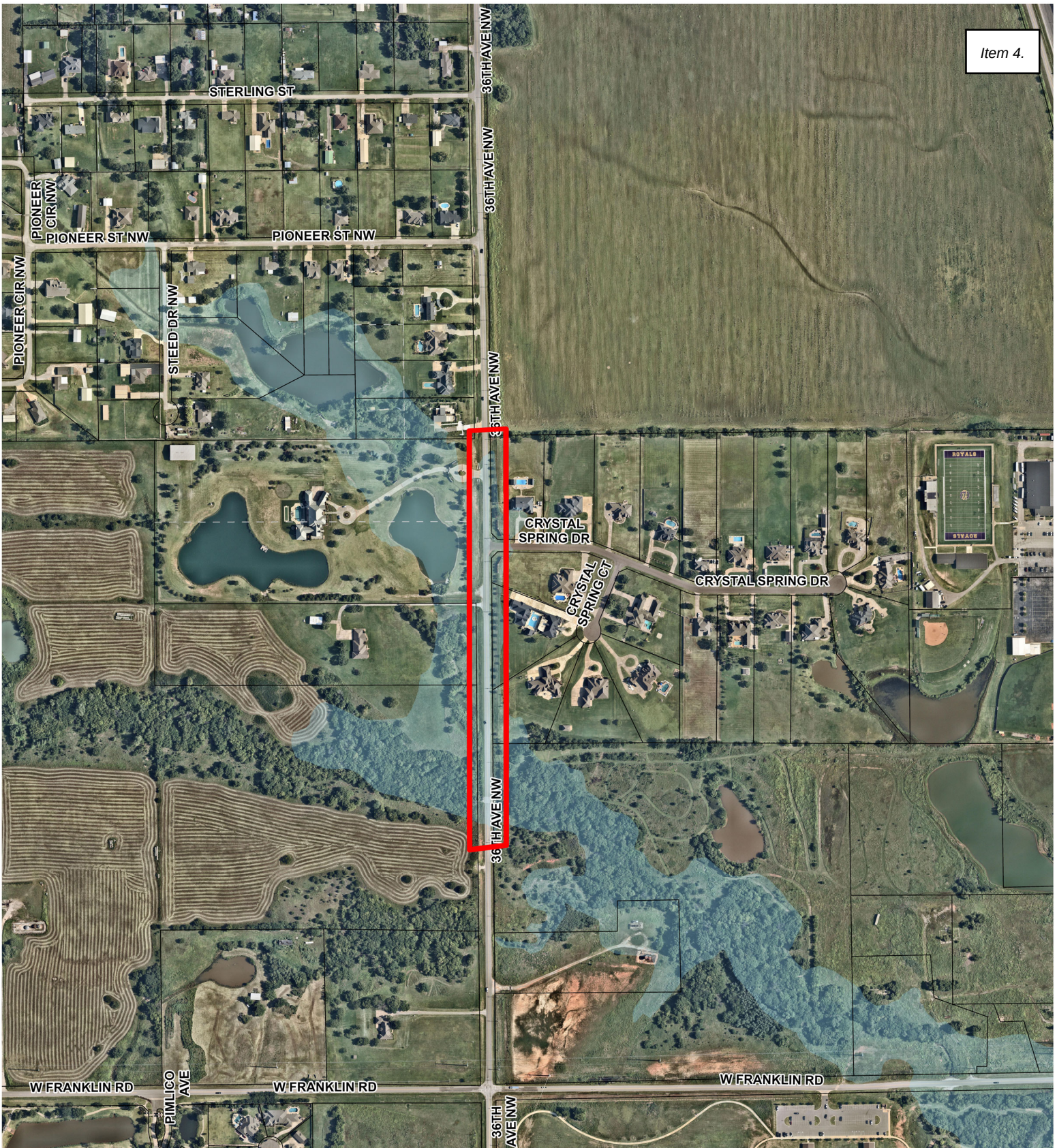
☐ Yes ☐ No

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.



36th Ave NW

Legend

- Lot Line
- Parcel
- BFE 2021

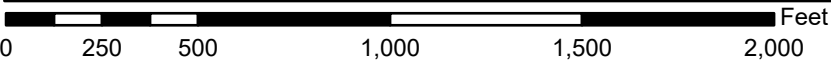
Flood Hazard Zone (2021)

- 1% Chance Floodplain
- Floodway

National Flood Hazard Layer FIRMette



97°29'58"W 35°17'2"N



1:6,000

97°29'21"W 35°16'32"N

Basemap Imagery Source: USGS National Map 2023

Legend

Item 4.

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM 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
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		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
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped



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 8/20/2026 at 3:26 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 identifier, FIRM panel number, and FIRM effective date. Map in unmapped and unmodernized areas cannot be used for regulatory purposes.



2000 N. Classen Blvd., Suite 1410
Oklahoma City, OK 73106
o. 405.848.2346 | f. 405.848.2393
stvinc.com

August 18, 2026

City of Norman
ATTN: Jason Murphy, Stormwater Program Manager
City of Norman Public Works – Engineering
225 N Webster Ave
Norman, OK 73069

RE: No-Rise Certification & Floodplain Impact Statement

Dear Mr. Murphy,

The 36th Ave NW Widening projects from just north of Tecumseh Rd to just south of the intersection at Indian Hills Rd include roadway reconstruction, a new bridge-class culvert at Little River tributary (Tributary G) that crosses the project, sidewalk improvements, and storm sewer installation within the FEMA Zone A regulatory floodplain, Panel 40027C0190K. HEC-RAS was used to perform a hydraulic analysis to evaluate the impacts of the proposed improvements on flood elevations compared to existing conditions.

The results of the hydraulic analysis show that the proposed improvements do not cause a rise in the 100-yr water surface elevation within the regulatory floodplain beyond the allowable 0.05-ft. The slight rise in the water surface elevation that does occur in the model is because the existing condition showed overtopping of the roadway and the proposed condition does not.

Therefore, it is my professional opinion that the proposed improvements associated with these projects result in **no adverse floodplain impacts** and **no rise in the 100-yr water surface elevation**.

Sincerely,

A handwritten signature in blue ink that reads 'Brian J. Huckleberry'.

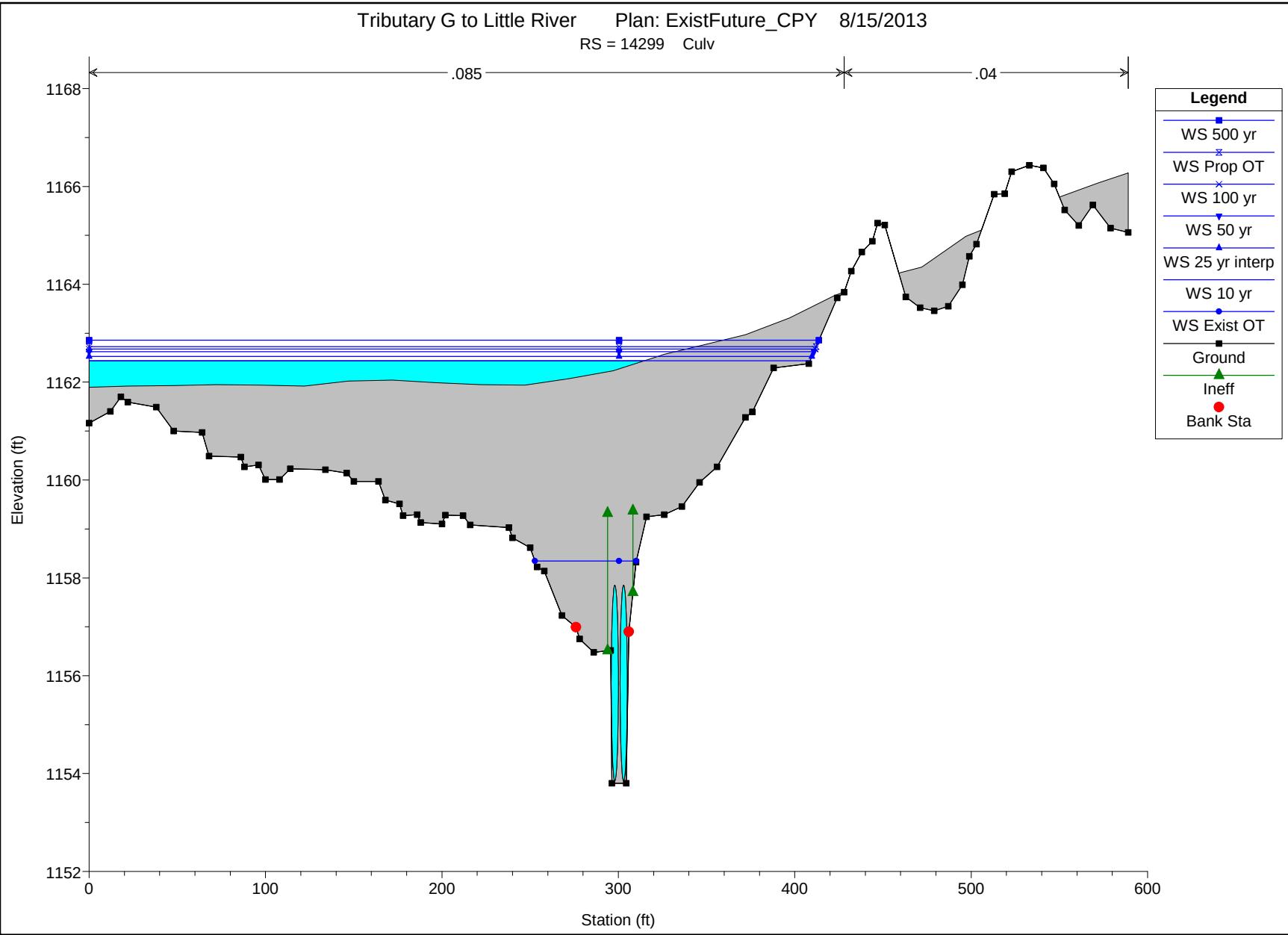
Brian J. Huckleberry, P.E.

Project Manager

(o) 405.848.2346 | (d) 405.835.2826

Brian.Huckleberry@stvinc.com





HEC-RAS Plan: ExistFuture River: TribG_LittleRv Reach: TribG_Reach1

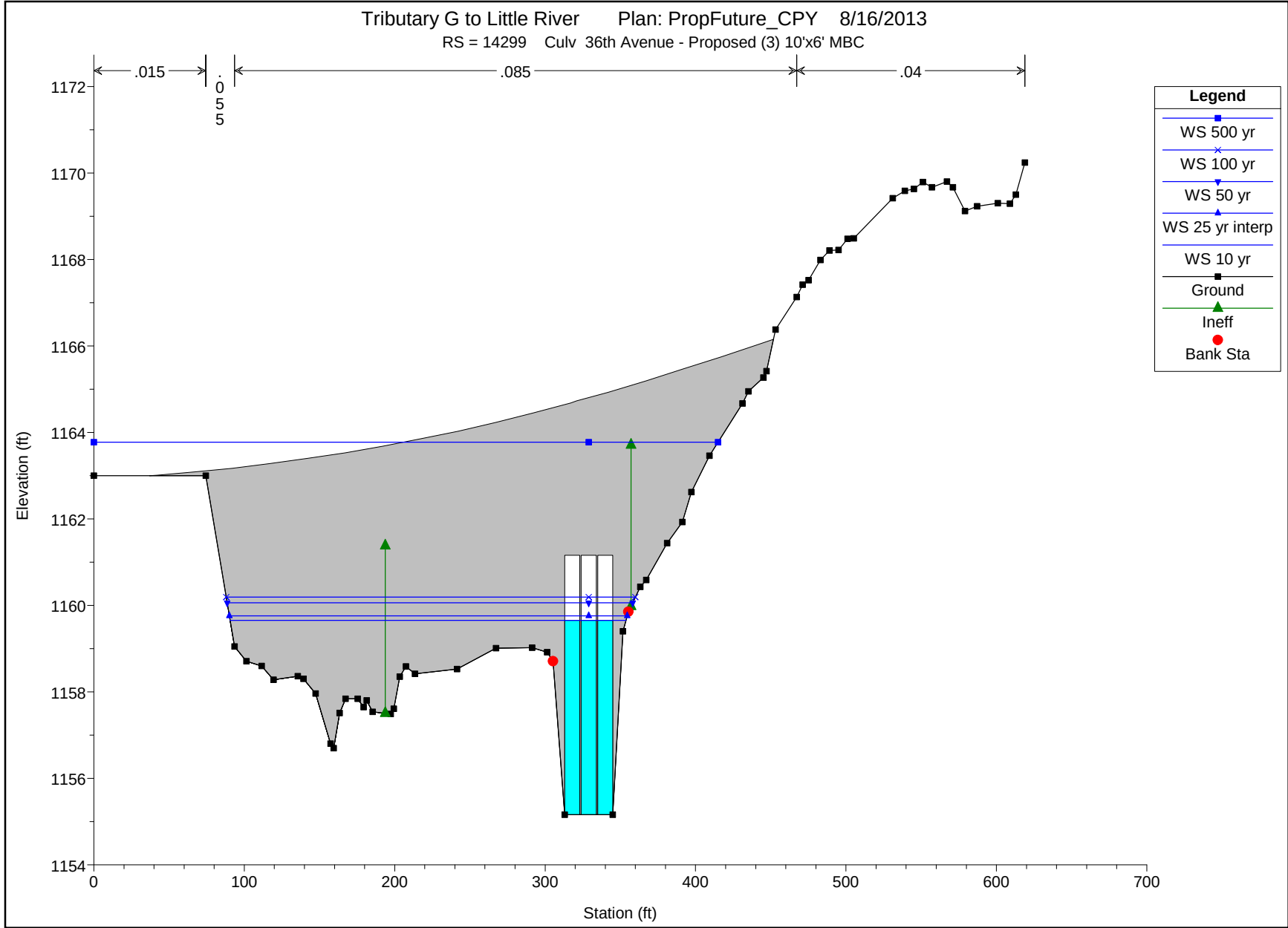
Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
TribG_Reach1	15212	10 yr	391.00	1161.41	1163.09		1163.14	0.002640	1.90	212.25	163.33	0.26
TribG_Reach1	15212	25 yr interp	470.00	1161.41	1163.25		1163.31	0.002643	2.03	238.22	165.68	0.27
TribG_Reach1	15212	50 yr	583.00	1161.41	1163.45		1163.52	0.002671	2.19	271.93	168.87	0.28
TribG_Reach1	15212	100 yr	670.00	1161.41	1163.60		1163.68	0.002677	2.30	297.12	172.17	0.28
TribG_Reach1	15212	500 yr	886.00	1161.41	1163.94		1164.03	0.002655	2.53	357.21	180.10	0.28
TribG_Reach1	15212	Exist OT	129.00	1161.41	1162.33		1162.36	0.003278	1.38	96.17	134.21	0.26
TribG_Reach1	15080	10 yr	391.00	1159.03	1162.93		1162.97	0.000790	1.47	261.17	124.42	0.16
TribG_Reach1	15080	25 yr interp	470.00	1159.03	1163.07		1163.11	0.000943	1.66	278.27	129.02	0.17
TribG_Reach1	15080	50 yr	583.00	1159.03	1163.24		1163.30	0.001151	1.91	301.56	140.79	0.19
TribG_Reach1	15080	100 yr	670.00	1159.03	1163.38		1163.45	0.001279	2.07	320.27	142.34	0.21
TribG_Reach1	15080	500 yr	886.00	1159.03	1163.69		1163.78	0.001519	2.41	365.13	145.32	0.23
TribG_Reach1	15080	Exist OT	129.00	1159.03	1162.26		1162.27	0.000264	0.70	182.62	109.71	0.09
TribG_Reach1	14949	10 yr	391.00	1158.54	1162.89		1162.91	0.000341	1.19	334.88	129.78	0.12
TribG_Reach1	14949	25 yr interp	470.00	1158.54	1163.01		1163.04	0.000426	1.36	351.13	131.53	0.13
TribG_Reach1	14949	50 yr	583.00	1158.54	1163.17		1163.21	0.000547	1.59	372.20	134.23	0.15
TribG_Reach1	14949	100 yr	670.00	1158.54	1163.29		1163.34	0.000634	1.75	388.68	136.90	0.16
TribG_Reach1	14949	500 yr	886.00	1158.54	1163.58		1163.65	0.000821	2.09	428.49	138.02	0.19
TribG_Reach1	14949	Exist OT	129.00	1158.54	1162.25		1162.25	0.000088	0.53	254.42	122.34	0.06
TribG_Reach1	14833	10 yr	391.00	1158.81	1162.87		1162.88	0.000151	0.85	482.41	156.82	0.08
TribG_Reach1	14833	25 yr interp	470.00	1158.81	1162.99		1163.00	0.000193	0.98	501.26	157.23	0.09
TribG_Reach1	14833	50 yr	583.00	1158.81	1163.14		1163.16	0.000255	1.15	525.29	157.75	0.10
TribG_Reach1	14833	100 yr	670.00	1158.81	1163.26		1163.28	0.000301	1.27	543.82	158.27	0.11
TribG_Reach1	14833	500 yr	886.00	1158.81	1163.54		1163.57	0.000408	1.55	588.28	159.51	0.13
TribG_Reach1	14833	Exist OT	129.00	1158.81	1162.24		1162.24	0.000031	0.34	388.04	142.75	0.03
TribG_Reach1	14832		Lat Struct									
TribG_Reach1	14696	10 yr	792.36	1158.14	1162.84		1162.85	0.000150	0.83	1292.84	406.35	0.08
TribG_Reach1	14696	25 yr interp	980.88	1158.14	1162.95		1162.96	0.000206	0.99	1337.65	408.39	0.09
TribG_Reach1	14696	50 yr	1165.09	1158.14	1163.10		1163.11	0.000254	1.13	1396.76	411.05	0.10
TribG_Reach1	14696	100 yr	1333.83	1158.14	1163.21		1163.22	0.000301	1.25	1441.68	413.01	0.11
TribG_Reach1	14696	500 yr	1757.94	1158.14	1163.47		1163.49	0.000415	1.54	1549.82	417.69	0.13
TribG_Reach1	14696	Exist OT	267.00	1158.14	1162.24		1162.24	0.000031	0.34	1055.37	375.23	0.03
TribG_Reach1	14651	10 yr	776.64	1158.95	1162.83	1159.08	1162.83	0.000153	0.80	1304.52	401.08	0.07
TribG_Reach1	14651	25 yr interp	950.22	1158.95	1162.93	1159.22	1162.94	0.000208	0.95	1346.43	404.81	0.09
TribG_Reach1	14651	50 yr	1119.22	1158.95	1163.07	1159.35	1163.08	0.000254	1.07	1403.28	410.52	0.10
TribG_Reach1	14651	100 yr	1272.92	1158.95	1163.17	1159.46	1163.19	0.000300	1.19	1446.27	415.19	0.10
TribG_Reach1	14651	500 yr	1661.87	1158.95	1163.42	1159.67	1163.44	0.000426	1.47	1551.58	447.44	0.13
TribG_Reach1	14651	Exist OT	267.00	1158.95	1162.23	1158.51	1162.23	0.000032	0.32	1075.56	368.85	0.03
TribG_Reach1	14332	10 yr	763.98	1154.94	1162.81	1160.23	1162.81	0.000111	0.56	1530.17	399.88	0.04

HEC-RAS Plan: ExistFuture River: TribG_LittleRv Reach: TribG_Reach1 (Continued)

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
TribG_Reach1	14332	25 yr interp	925.36	1154.94	1162.91	1160.90	1162.91	0.000151	0.66	1569.24	401.27	0.05
TribG_Reach1	14332	50 yr	1081.53	1154.94	1163.04	1161.52	1163.05	0.000185	0.74	1623.20	403.19	0.05
TribG_Reach1	14332	100 yr	1222.77	1154.94	1163.14	1162.05	1163.15	0.000219	0.82	1663.09	404.60	0.06
TribG_Reach1	14332	500 yr	1582.60	1154.94	1163.37	1162.36	1163.39	0.000308	1.00	1758.21	407.94	0.07
TribG_Reach1	14332	Exist OT	267.00	1154.94	1161.94	1157.74	1162.11	0.003366	3.27	81.60	369.34	0.22
TribG_Reach1	14299 36th AVE		Culvert									
TribG_Reach1	14262	10 yr	763.98	1153.80	1159.64	1159.33	1159.92	0.014454	4.80	229.00	172.24	0.43
TribG_Reach1	14262	25 yr interp	925.36	1153.80	1159.84	1159.33	1160.14	0.015388	5.11	263.39	178.31	0.44
TribG_Reach1	14262	50 yr	1081.53	1153.80	1160.23	1159.51	1160.51	0.013287	5.05	344.79	257.86	0.42
TribG_Reach1	14262	100 yr	1222.77	1153.80	1160.44	1159.72	1160.69	0.012086	4.97	400.77	272.48	0.40
TribG_Reach1	14262	500 yr	1582.60	1153.80	1160.93	1160.04	1161.13	0.009593	4.73	545.29	302.20	0.37
TribG_Reach1	14262	Exist OT	267.00	1153.80	1158.35	1156.95	1158.82	0.024224	5.56	49.26	57.44	0.50
TribG_Reach1	14227	10 yr	863.00	1155.00	1159.48	1158.58	1159.70	0.003112	4.21	306.57	315.22	0.43
TribG_Reach1	14227	25 yr interp	1025.00	1155.00	1159.71	1158.83	1159.91	0.002807	4.20	381.20	342.32	0.42
TribG_Reach1	14227	50 yr	1321.00	1155.00	1160.16	1159.50	1160.32	0.002006	3.89	544.99	370.15	0.36
TribG_Reach1	14227	100 yr	1534.00	1155.00	1160.37	1159.65	1160.52	0.001905	3.93	622.07	373.52	0.36
TribG_Reach1	14227	500 yr	2070.00	1155.00	1160.86	1159.90	1161.01	0.001678	4.00	806.56	380.81	0.34
TribG_Reach1	14227	Exist OT	285.00	1155.00	1158.28	1157.25	1158.42	0.003134	2.97	96.52	61.66	0.40
TribG_Reach1	13936	10 yr	863.00	1153.00	1158.59		1158.84	0.003314	4.48	243.31	124.89	0.45
TribG_Reach1	13936	25 yr interp	1025.00	1153.00	1158.79		1159.08	0.003561	4.84	268.39	127.69	0.47
TribG_Reach1	13936	50 yr	1321.00	1153.00	1159.17		1159.56	0.004364	5.76	328.49	197.80	0.53
TribG_Reach1	13936	100 yr	1534.00	1153.00	1159.44		1159.83	0.004032	5.81	383.92	208.02	0.51
TribG_Reach1	13936	500 yr	2070.00	1153.00	1160.04		1160.41	0.003553	5.98	516.54	236.15	0.49
TribG_Reach1	13936	Exist OT	285.00	1153.00	1157.36		1157.51	0.003187	3.20	102.73	98.77	0.41
TribG_Reach1	13760	10 yr	863.00	1153.00	1157.38		1157.93	0.009271	7.18	173.04	112.97	0.74
TribG_Reach1	13760	25 yr interp	1025.00	1153.00	1157.72		1158.21	0.007518	6.95	212.25	118.95	0.67
TribG_Reach1	13760	50 yr	1321.00	1153.00	1158.25		1158.70	0.005959	6.83	277.31	127.72	0.62
TribG_Reach1	13760	100 yr	1534.00	1153.00	1158.66		1159.08	0.004908	6.64	330.81	134.33	0.57
TribG_Reach1	13760	500 yr	2070.00	1153.00	1159.18		1159.69	0.005162	7.36	403.91	144.37	0.59
TribG_Reach1	13760	Exist OT	285.00	1153.00	1156.77		1156.94	0.003418	3.74	107.57	100.57	0.43
TribG_Reach1	13437	10 yr	863.00	1152.00	1157.07		1157.15	0.001449	3.24	428.66	230.37	0.29
TribG_Reach1	13437	25 yr interp	1025.00	1152.00	1157.60		1157.66	0.000940	2.85	550.86	235.34	0.24
TribG_Reach1	13437	50 yr	1321.00	1152.00	1158.19		1158.25	0.000765	2.80	692.49	241.06	0.22
TribG_Reach1	13437	100 yr	1534.00	1152.00	1158.63		1158.69	0.000660	2.76	799.19	245.47	0.21
TribG_Reach1	13437	500 yr	2070.00	1152.00	1159.18		1159.26	0.000738	3.11	935.75	252.54	0.23
TribG_Reach1	13437	Exist OT	285.00	1152.00	1155.71	1155.48	1155.90	0.004613	4.29	126.45	211.79	0.49
TribG_Reach1	12847	10 yr	863.00	1149.00	1156.71		1156.77	0.000609	2.42	494.93	186.28	0.20
TribG_Reach1	12847	25 yr interp	1025.00	1149.00	1157.33		1157.39	0.000496	2.38	617.90	220.98	0.19

HEC-RAS Plan: ExistFuture River: TribG_LittleRv Reach: TribG_Reach1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
TribG_Reach1	12847	50 yr	1321.00	1149.00	1157.95		1158.01	0.000490	2.55	773.18	278.39	0.19
TribG_Reach1	12847	100 yr	1534.00	1149.00	1158.42		1158.48	0.000453	2.59	954.56	412.07	0.18
TribG_Reach1	12847	500 yr	2070.00	1149.00	1158.95		1159.02	0.000496	2.86	1182.56	434.63	0.19
TribG_Reach1	12847	Exist OT	285.00	1149.00	1154.63		1154.70	0.001346	2.36	157.84	131.81	0.27
TribG_Reach1	12645	10 yr	1314.00	1148.00	1154.75	1154.75	1156.18	0.018159	9.60	136.93	49.39	1.02
TribG_Reach1	12645	25 yr interp	1650.00	1148.00	1155.32	1155.32	1156.84	0.017194	9.88	166.96	55.45	1.00
TribG_Reach1	12645	50 yr	2026.00	1148.00	1155.86	1155.86	1157.48	0.016894	10.23	198.08	61.83	1.01
TribG_Reach1	12645	100 yr	2357.00	1148.00	1156.35	1156.35	1157.97	0.016426	10.23	230.30	70.59	1.00
TribG_Reach1	12645	500 yr	3187.00	1148.00	1157.80	1157.80	1158.65	0.007081	7.92	547.11	374.95	0.68
TribG_Reach1	12645	Exist OT	434.00	1148.00	1153.83		1154.15	0.005063	4.54	95.49	40.35	0.52
TribG_Reach1	12373	10 yr	1314.00	1148.00	1154.56		1154.64	0.001110	3.07	680.15	355.02	0.27
TribG_Reach1	12373	25 yr interp	1650.00	1148.00	1155.12		1155.19	0.000809	2.87	883.20	361.46	0.24
TribG_Reach1	12373	50 yr	2026.00	1148.00	1155.33		1155.42	0.000950	3.20	959.19	363.27	0.26
TribG_Reach1	12373	100 yr	2357.00	1148.00	1155.68		1155.77	0.000884	3.23	1084.53	366.21	0.25
TribG_Reach1	12373	500 yr	3187.00	1148.00	1156.48		1156.57	0.000766	3.32	1380.83	372.80	0.24
TribG_Reach1	12373	Exist OT	434.00	1148.00	1153.25		1153.36	0.001689	2.91	228.71	333.59	0.31
TribG_Reach1	11778	10 yr	1314.00	1147.00	1153.97		1154.10	0.001520	3.58	515.89	249.84	0.31
TribG_Reach1	11778	25 yr interp	1650.00	1147.00	1154.73		1154.84	0.001005	3.26	713.79	266.04	0.26
TribG_Reach1	11778	50 yr	2026.00	1147.00	1154.83		1154.97	0.001373	3.86	739.54	267.45	0.31
TribG_Reach1	11778	100 yr	2357.00	1147.00	1155.21		1155.36	0.001288	3.93	842.22	273.23	0.30
TribG_Reach1	11778	500 yr	3187.00	1147.00	1156.07		1156.23	0.001149	4.10	1082.66	288.06	0.29
TribG_Reach1	11778	Exist OT	434.00	1147.00	1152.43		1152.51	0.001652	2.72	217.19	142.81	0.30



HEC-RAS Plan: Prop Future River: TribG_LittleRv Reach: TribG_Reach1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
TribG_Reach1	15212	10 yr	391.00	1161.41	1162.84		1162.92	0.005368	2.42	165.44	144.07	0.37
TribG_Reach1	15212	25 yr interp	470.00	1161.41	1163.02		1163.12	0.004783	2.49	192.63	147.49	0.35
TribG_Reach1	15212	50 yr	583.00	1161.41	1163.30		1163.40	0.003954	2.52	233.90	150.96	0.33
TribG_Reach1	15212	100 yr	670.00	1161.41	1163.61		1163.70	0.002913	2.41	281.02	155.31	0.29
TribG_Reach1	15212	500 yr	886.00	1161.41	1164.33		1164.41	0.001707	2.24	397.32	165.30	0.23
TribG_Reach1	15212	Prop OT	687.00	1161.41	1163.68		1163.76	0.002717	2.37	291.88	156.35	0.28
TribG_Reach1	15080	10 yr	391.00	1159.03	1162.10		1162.23	0.005251	2.97	136.04	88.31	0.38
TribG_Reach1	15080	25 yr interp	470.00	1159.03	1162.37		1162.51	0.004548	3.03	160.40	91.73	0.36
TribG_Reach1	15080	50 yr	583.00	1159.03	1162.76		1162.90	0.003731	3.06	196.89	97.17	0.34
TribG_Reach1	15080	100 yr	670.00	1159.03	1163.22		1163.34	0.002600	2.86	243.02	103.74	0.29
TribG_Reach1	15080	500 yr	886.00	1159.03	1164.09		1164.19	0.001612	2.67	347.04	148.50	0.24
TribG_Reach1	15080	Prop OT	687.00	1159.03	1163.31		1163.43	0.002428	2.82	252.88	105.33	0.28
TribG_Reach1	14949	10 yr	391.00	1158.54	1161.57		1161.68	0.003555	2.79	149.60	96.53	0.35
TribG_Reach1	14949	25 yr interp	470.00	1158.54	1161.99		1162.09	0.002457	2.61	190.26	99.12	0.30
TribG_Reach1	14949	50 yr	583.00	1158.54	1162.47		1162.56	0.001877	2.56	238.50	102.10	0.27
TribG_Reach1	14949	100 yr	670.00	1158.54	1163.03		1163.11	0.001258	2.35	296.76	105.79	0.23
TribG_Reach1	14949	500 yr	886.00	1158.54	1163.98		1164.05	0.000770	2.16	420.57	140.00	0.18
TribG_Reach1	14949	Prop OT	687.00	1158.54	1163.14		1163.22	0.001177	2.32	308.18	106.52	0.22
TribG_Reach1	14833	10 yr	391.00	1158.81	1161.42		1161.46	0.001036	1.62	247.84	116.84	0.18
TribG_Reach1	14833	25 yr interp	470.00	1158.81	1161.88		1161.92	0.000799	1.60	302.67	121.50	0.17
TribG_Reach1	14833	50 yr	583.00	1158.81	1162.39		1162.43	0.000684	1.65	364.99	126.37	0.16
TribG_Reach1	14833	100 yr	670.00	1158.81	1162.97		1163.01	0.000500	1.57	441.49	157.35	0.14
TribG_Reach1	14833	500 yr	886.00	1158.81	1163.95		1163.99	0.000340	1.50	597.47	162.66	0.12
TribG_Reach1	14833	Prop OT	687.00	1158.81	1163.09		1163.12	0.000471	1.55	459.15	157.72	0.14
TribG_Reach1	14696	10 yr	809.00	1158.14	1161.18		1161.21	0.001356	1.67	636.23	324.87	0.21
TribG_Reach1	14696	25 yr interp	1025.00	1158.14	1161.70		1161.73	0.001009	1.68	808.58	338.42	0.19
TribG_Reach1	14696	50 yr	1241.00	1158.14	1162.24		1162.27	0.000758	1.66	996.76	350.69	0.17
TribG_Reach1	14696	100 yr	1441.00	1158.14	1162.88		1162.90	0.000535	1.58	1222.55	365.72	0.14
TribG_Reach1	14696	500 yr	1947.00	1158.14	1163.88		1163.91	0.000384	1.57	1641.00	424.39	0.13
TribG_Reach1	14696	Prop OT	1477.00	1158.14	1162.99		1163.02	0.000502	1.56	1270.02	409.06	0.14
TribG_Reach1	14651	10 yr	809.00	1158.95	1161.01		1161.04	0.001493	1.59	620.72	288.00	0.20
TribG_Reach1	14651	25 yr interp	1025.00	1158.95	1161.57		1161.60	0.001132	1.65	788.62	308.27	0.19
TribG_Reach1	14651	50 yr	1241.00	1158.95	1162.15		1162.18	0.000866	1.66	972.64	328.30	0.17

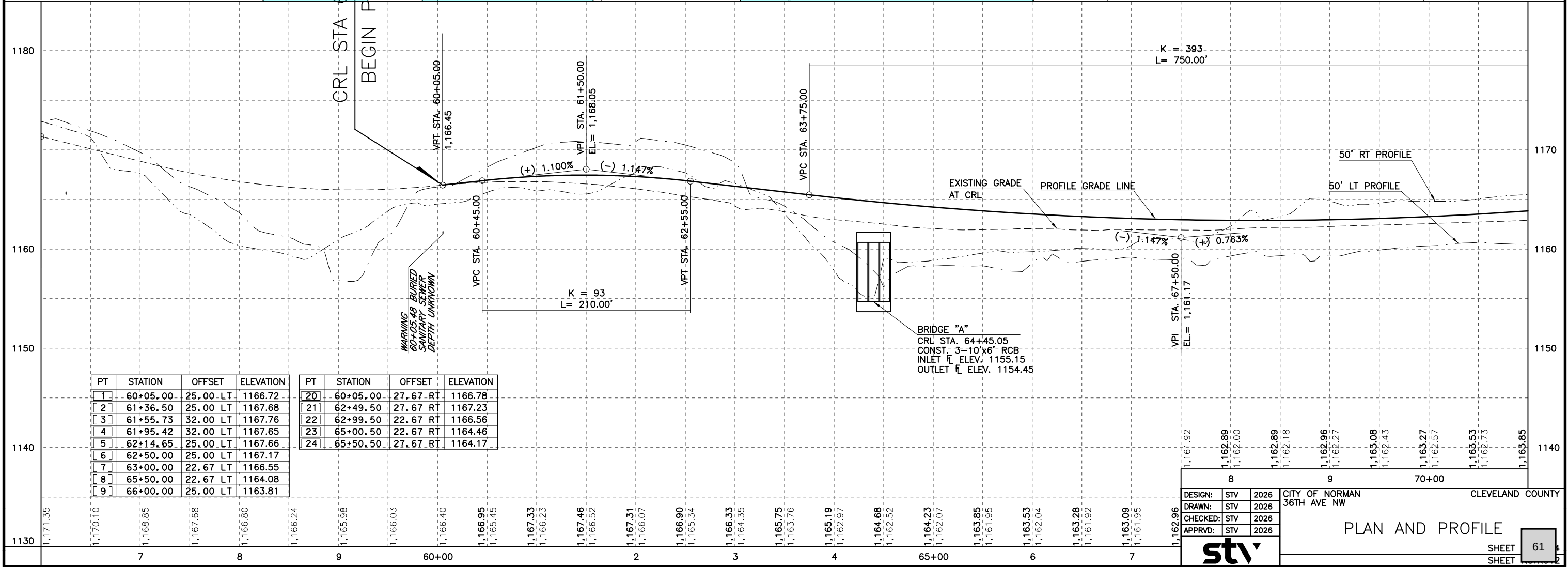
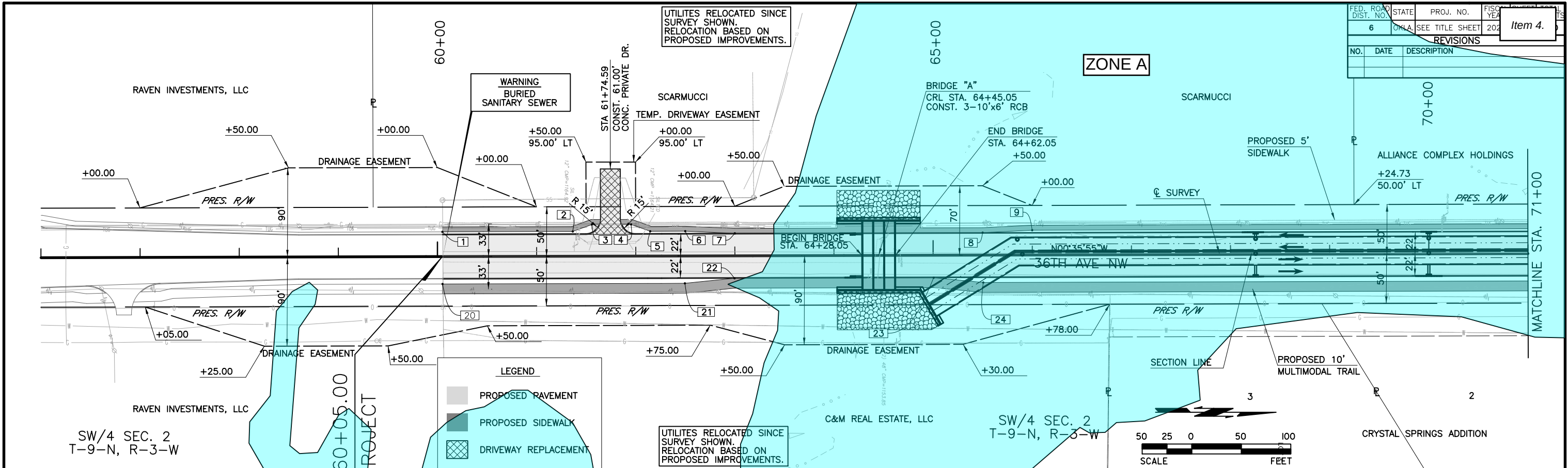
HEC-RAS Plan: Prop Future River: TribG_LittleRv Reach: TribG_Reach1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
TribG_Reach1	14651	100 yr	1441.00	1158.95	1162.81		1162.83	0.000618	1.60	1195.54	349.40	0.15
TribG_Reach1	14651	500 yr	1947.00	1158.95	1163.84		1163.86	0.000448	1.61	1629.34	451.62	0.13
TribG_Reach1	14651	Prop OT	1477.00	1158.95	1162.93		1162.95	0.000583	1.59	1238.52	354.14	0.14
TribG_Reach1	14332	10 yr	809.00	1155.16	1160.61	1157.32	1160.66	0.002017	2.13	472.86	281.52	0.17
TribG_Reach1	14332	25 yr interp	1025.00	1155.16	1161.24	1157.71	1161.30	0.001783	2.17	577.28	295.05	0.16
TribG_Reach1	14332	50 yr	1241.00	1155.16	1162.03	1158.08	1162.05	0.000582	1.35	1128.91	312.95	0.09
TribG_Reach1	14332	100 yr	1441.00	1155.16	1162.72	1158.35	1162.74	0.000475	1.31	1321.03	322.79	0.09
TribG_Reach1	14332	500 yr	1947.00	1155.16	1163.77	1159.55	1163.79	0.000381	1.28	1789.18	414.89	0.08
TribG_Reach1	14332	Prop OT	1477.00	1155.16	1162.85	1158.41	1162.87	0.000459	1.30	1356.63	325.20	0.08
TribG_Reach1	14299 36th AVE		Culvert									
TribG_Reach1	14262	10 yr	809.00	1154.44	1159.74	1156.70	1159.85	0.003306	2.73	365.38	175.42	0.22
TribG_Reach1	14262	25 yr interp	1025.00	1154.44	1159.91	1157.10	1160.05	0.004499	3.25	393.03	180.44	0.25
TribG_Reach1	14262	50 yr	1241.00	1154.44	1160.26	1157.45	1160.43	0.005027	3.59	463.06	258.89	0.27
TribG_Reach1	14262	100 yr	1441.00	1154.44	1160.45	1157.75	1160.64	0.005529	3.86	511.41	272.72	0.29
TribG_Reach1	14262	500 yr	1947.00	1154.44	1160.92	1158.44	1161.14	0.006251	4.32	636.69	301.86	0.31
TribG_Reach1	14262	Prop OT	1477.00	1154.44	1160.49	1157.80	1160.68	0.005709	3.93	519.89	287.91	0.29
TribG_Reach1	14227	10 yr	863.00	1155.00	1159.48	1158.58	1159.70	0.003112	4.21	306.57	315.22	0.43
TribG_Reach1	14227	25 yr interp	1025.00	1155.00	1159.71	1158.97	1159.91	0.002807	4.20	381.20	342.32	0.42
TribG_Reach1	14227	50 yr	1321.00	1155.00	1160.16	1159.50	1160.32	0.002006	3.89	544.99	370.15	0.36
TribG_Reach1	14227	100 yr	1534.00	1155.00	1160.37	1159.60	1160.52	0.001905	3.93	622.07	373.52	0.36
TribG_Reach1	14227	500 yr	2070.00	1155.00	1160.86	1159.92	1161.01	0.001678	4.00	806.56	380.81	0.34
TribG_Reach1	14227	Prop OT	1572.00	1155.00	1160.41	1159.60	1160.56	0.001883	3.94	636.08	374.13	0.35
TribG_Reach1	13936	10 yr	863.00	1153.00	1158.59		1158.84	0.003314	4.48	243.31	124.89	0.45
TribG_Reach1	13936	25 yr interp	1025.00	1153.00	1158.79		1159.08	0.003561	4.84	268.39	127.69	0.47
TribG_Reach1	13936	50 yr	1321.00	1153.00	1159.17		1159.56	0.004364	5.76	328.49	197.80	0.53
TribG_Reach1	13936	100 yr	1534.00	1153.00	1159.44		1159.83	0.004032	5.81	383.92	208.02	0.51
TribG_Reach1	13936	500 yr	2070.00	1153.00	1160.04		1160.41	0.003553	5.98	516.54	236.15	0.49
TribG_Reach1	13936	Prop OT	1572.00	1153.00	1159.49		1159.87	0.003969	5.81	394.36	210.44	0.51
TribG_Reach1	13760	10 yr	863.00	1153.00	1157.38		1157.93	0.009271	7.18	173.04	112.97	0.74
TribG_Reach1	13760	25 yr interp	1025.00	1153.00	1157.72		1158.21	0.007518	6.95	212.25	118.95	0.67
TribG_Reach1	13760	50 yr	1321.00	1153.00	1158.25		1158.70	0.005959	6.83	277.31	127.72	0.62
TribG_Reach1	13760	100 yr	1534.00	1153.00	1158.66		1159.08	0.004908	6.64	330.81	134.33	0.57

HEC-RAS Plan: Prop Future River: TribG_LittleRv Reach: TribG_Reach1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
TribG_Reach1	13760	500 yr	2070.00	1153.00	1159.18		1159.69	0.005162	7.36	403.91	144.37	0.59
TribG_Reach1	13760	Prop OT	1572.00	1153.00	1158.72		1159.14	0.004778	6.62	339.90	135.42	0.56
TribG_Reach1	13437	10 yr	863.00	1152.00	1157.07		1157.15	0.001449	3.24	428.66	230.37	0.29
TribG_Reach1	13437	25 yr interp	1025.00	1152.00	1157.60		1157.66	0.000940	2.85	550.86	235.34	0.24
TribG_Reach1	13437	50 yr	1321.00	1152.00	1158.19		1158.25	0.000765	2.80	692.49	241.06	0.22
TribG_Reach1	13437	100 yr	1534.00	1152.00	1158.63		1158.69	0.000660	2.76	799.19	245.47	0.21
TribG_Reach1	13437	500 yr	2070.00	1152.00	1159.18		1159.26	0.000738	3.11	935.75	252.54	0.23
TribG_Reach1	13437	Prop OT	1572.00	1152.00	1158.70		1158.76	0.000648	2.75	816.66	246.19	0.21
TribG_Reach1	12847	10 yr	863.00	1149.00	1156.71		1156.77	0.000609	2.42	494.93	186.28	0.20
TribG_Reach1	12847	25 yr interp	1025.00	1149.00	1157.33		1157.39	0.000496	2.38	617.90	220.98	0.19
TribG_Reach1	12847	50 yr	1321.00	1149.00	1157.95		1158.01	0.000490	2.55	773.18	278.39	0.19
TribG_Reach1	12847	100 yr	1534.00	1149.00	1158.42		1158.48	0.000453	2.59	954.56	412.07	0.18
TribG_Reach1	12847	500 yr	2070.00	1149.00	1158.95		1159.02	0.000496	2.86	1182.56	434.63	0.19
TribG_Reach1	12847	Prop OT	1572.00	1149.00	1158.49		1158.55	0.000441	2.57	986.60	415.76	0.18
TribG_Reach1	12645	10 yr	1314.00	1148.00	1154.75	1154.75	1156.18	0.018159	9.60	136.93	49.39	1.02
TribG_Reach1	12645	25 yr interp	1650.00	1148.00	1155.32	1155.32	1156.84	0.017194	9.88	166.96	55.45	1.00
TribG_Reach1	12645	50 yr	2026.00	1148.00	1155.86	1155.86	1157.48	0.016894	10.23	198.08	61.83	1.01
TribG_Reach1	12645	100 yr	2357.00	1148.00	1156.35	1156.35	1157.97	0.016426	10.23	230.30	70.59	1.00
TribG_Reach1	12645	500 yr	3187.00	1148.00	1157.80	1157.80	1158.65	0.007081	7.92	547.11	374.95	0.68
TribG_Reach1	12645	Prop OT	2416.00	1148.00	1156.40	1156.40	1158.05	0.016604	10.30	234.52	71.80	1.00
TribG_Reach1	12373	10 yr	1314.00	1148.00	1154.56		1154.64	0.001110	3.07	680.15	355.02	0.27
TribG_Reach1	12373	25 yr interp	1650.00	1148.00	1155.12		1155.19	0.000809	2.87	883.20	361.46	0.24
TribG_Reach1	12373	50 yr	2026.00	1148.00	1155.33		1155.42	0.000950	3.20	959.19	363.27	0.26
TribG_Reach1	12373	100 yr	2357.00	1148.00	1155.68		1155.77	0.000884	3.23	1084.53	366.21	0.25
TribG_Reach1	12373	500 yr	3187.00	1148.00	1156.48		1156.57	0.000766	3.32	1380.83	372.80	0.24
TribG_Reach1	12373	Prop OT	2416.00	1148.00	1155.74		1155.83	0.000873	3.24	1106.71	366.71	0.25
TribG_Reach1	11778	10 yr	1314.00	1147.00	1153.97		1154.10	0.001520	3.58	515.89	249.84	0.31
TribG_Reach1	11778	25 yr interp	1650.00	1147.00	1154.73		1154.84	0.001005	3.26	713.79	266.04	0.26
TribG_Reach1	11778	50 yr	2026.00	1147.00	1154.83		1154.97	0.001373	3.86	739.54	267.45	0.31
TribG_Reach1	11778	100 yr	2357.00	1147.00	1155.21		1155.36	0.001288	3.93	842.22	273.23	0.30
TribG_Reach1	11778	500 yr	3187.00	1147.00	1156.07		1156.23	0.001149	4.10	1082.66	288.06	0.29
TribG_Reach1	11778	Prop OT	2416.00	1147.00	1155.28		1155.42	0.001274	3.94	860.43	274.27	0.30

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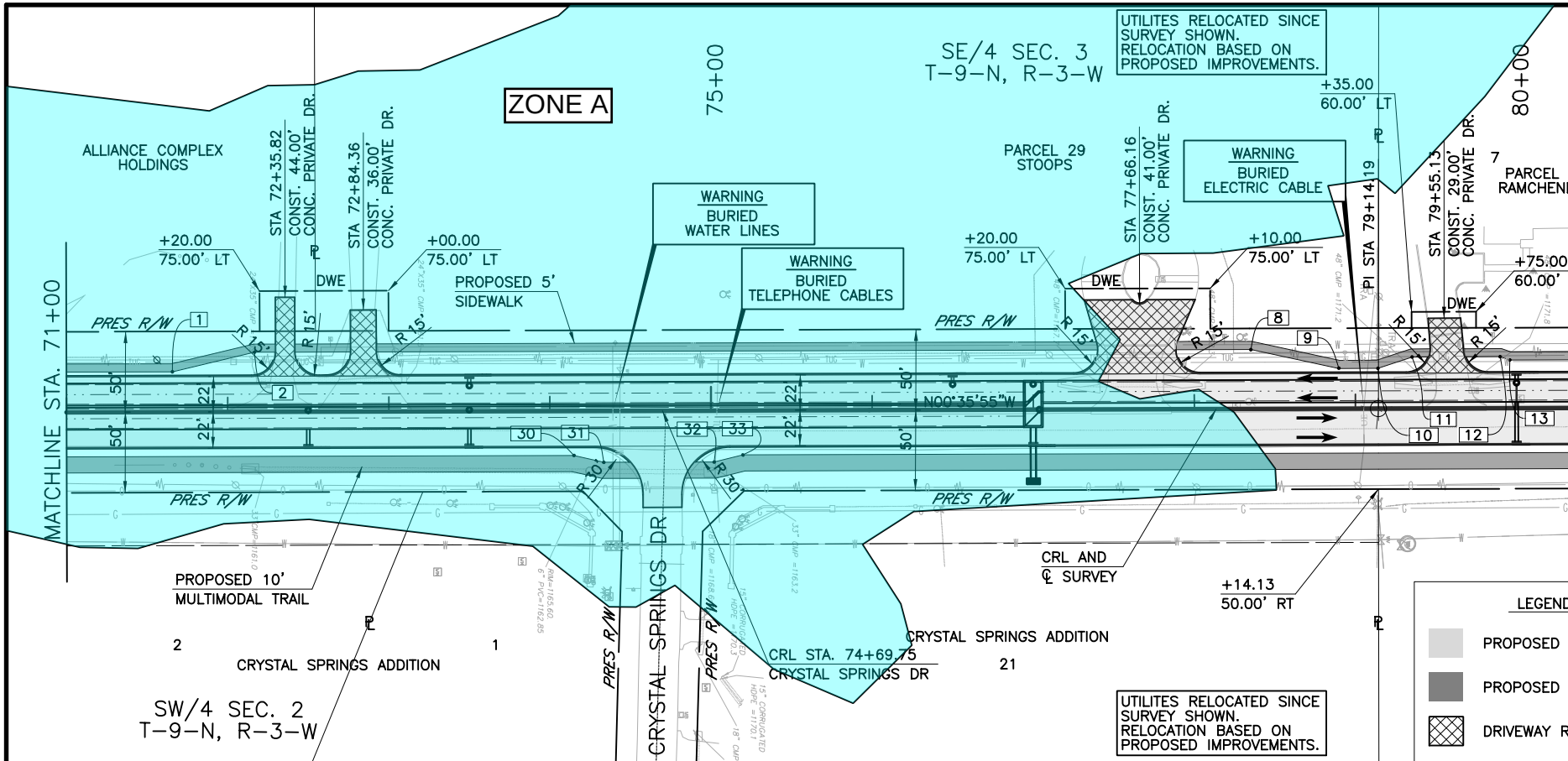
PLAN AND PROFILE

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DRAWN:	STV	2026
CHECKED:	STV	2026
APPRVD:	STV	2026

CITY OF NORMAN
36TH AVE NW
CLEVELAND COUNTY

61

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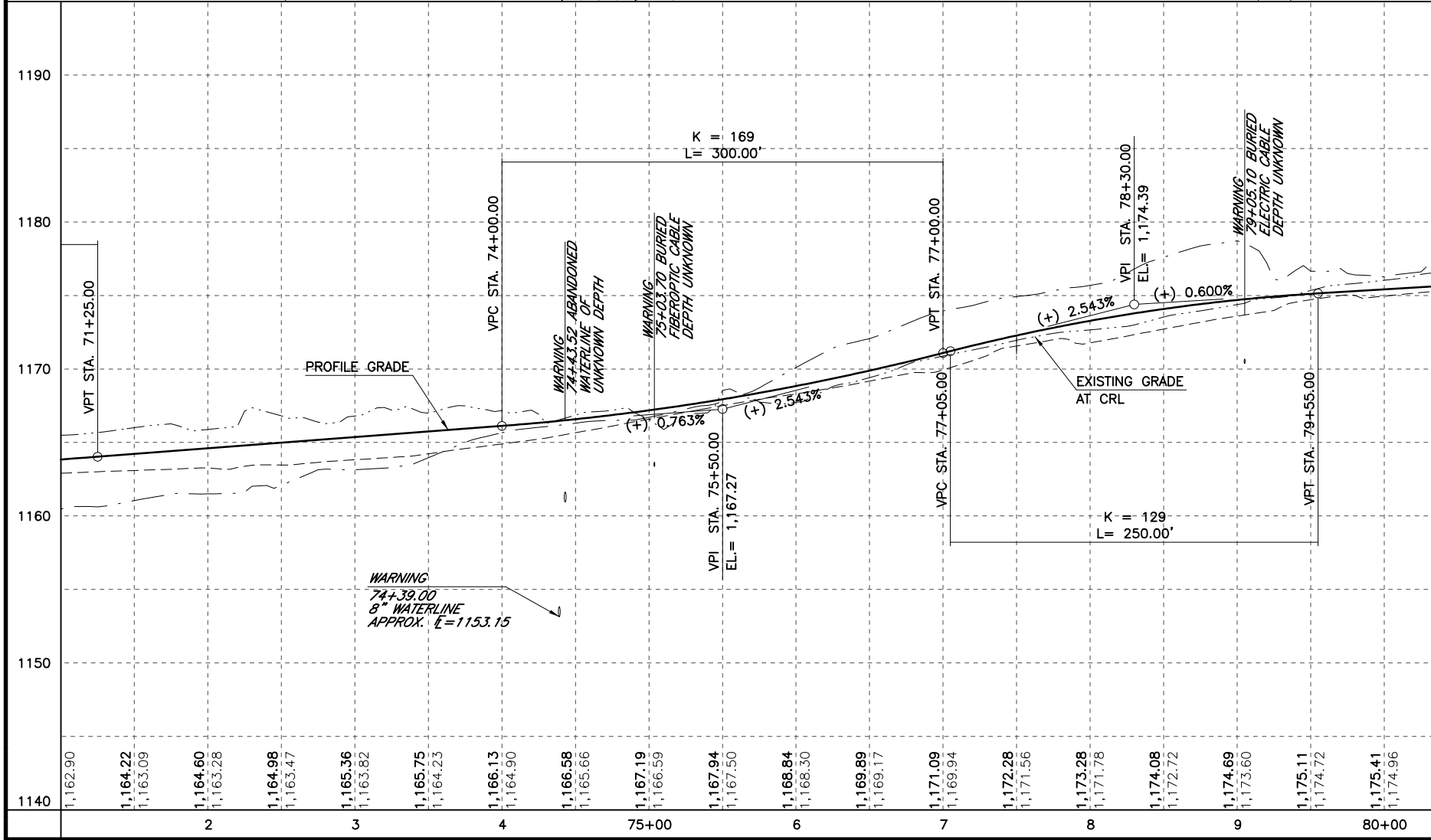


NE/4 SEC. 3
T-9-N, R-3-W
MARLETT
SUBDIVISION
BLOCK 7
PARCEL 15
5.63
1.00' INATE DR.

FED. ROAD DIST. NO. 6
STATE OKLA.
PROJ. NO. SEE TITLE SHEET
FISC. YEA 202
Item 4.
REVISIONS
NO. DATE DESCRIPTION

PARCEL 31
DR. +00
PARCEL 16

Station	Cut Area (ft^2)	Fill Area (ft^2)	Raw Fill (CY)	Excavation (CY)	Embankment (CY)	Mass Ordinate
58+30.00	0.00	180.89				-
58+50.00	0.00	180.89	133.99	0.00	154.09	(154.09)
58+70.00	0.00	180.89	133.99	0.00	154.09	(308.18)
59+00.00	0.00	0.00	0.00	0.00	0.00	(308.18)
59+50.00	0.00	0.00	0.00	0.00	0.00	(308.18)
60+00.00	0.00	0.00	0.00	0.00	0.00	(308.18)
60+50.00	0.00	0.00	0.00	0.00	0.00	(308.18)
61+00.00	0.00	0.00	0.00	0.00	0.00	(308.18)
61+50.00	0.00	0.00	0.00	0.00	0.00	(308.18)
62+00.00	0.00	0.00	0.00	0.00	0.00	(308.18)
62+50.00	0.00	0.00	0.00	0.00	0.00	(308.18)
63+00.00	0.40	69.25	0.00	0.00	0.00	(308.18)
63+50.00	0.00	137.81	191.72	0.37	220.48	(528.29)
64+00.00	0.00	213.24	325.05	0.00	373.80	(902.10)
64+19.00	294.22	170.02	134.85	103.52	155.08	(953.65)
64+50.00	256.25	121.04	167.09	316.01	192.15	(829.80)
65+00.00	0.00	281.20	372.44	237.27	428.31	(1,020.84)
65+50.00	196.20	233.38	476.46	181.67	547.93	(1,387.10)
66+00.00	157.33	205.53	406.40	327.34	467.36	(1,527.12)
66+50.00	160.70	186.77	363.24	294.47	417.73	(1,650.37)
67+00.00	164.02	150.90	312.66	300.67	359.56	(1,709.26)
67+50.00	165.09	128.58	258.78	304.73	297.59	(1,702.13)
68+00.00	168.39	108.28	219.31	308.78	252.21	(1,645.56)
68+25.00	174.42	81.00	87.63	158.71	100.77	(1,587.63)
68+50.00	176.48	103.32	85.33	162.45	98.13	(1,523.31)
69+00.00	179.09	100.51	188.73	329.23	217.04	(1,411.12)
69+50.00	176.04	100.59	186.20	328.82	214.13	(1,296.43)
70+00.00	174.81	86.76	173.47	324.86	199.49	(1,171.06)
70+50.00	173.03	102.04	174.81	322.07	201.04	(1,050.02)
71+00.00	170.06	109.73	196.08	317.68	225.50	(957.84)
71+50.00	166.65	117.53	210.43	311.77	241.99	(888.06)
72+00.00	167.74	141.12	239.49	309.62	275.41	(853.86)
72+35.83	168.02	71.80	141.28	222.78	162.47	(793.54)
72+50.00	168.00	69.48	37.07	88.17	42.63	(748.00)
72+84.37	168.00	58.60	81.52	213.86	93.75	(627.89)
73+00.00	168.00	72.73	38.01	97.25	43.71	(574.35)
73+50.00	169.24	79.58	141.03	312.26	162.18	(424.28)
74+00.00	172.04	59.92	129.17	316.00	148.54	(256.82)
74+50.00	187.33	36.62	89.39	332.75	102.80	(26.86)
74+69.62	185.11	23.08	21.69	135.32	24.94	83.51
75+00.00	193.15	71.69	53.32	212.81	61.31	235.00
75+50.00	198.73	16.57	81.72	362.85	93.98	503.87
76+00.00	210.78	43.04	55.19	379.18	63.47	819.58
76+50.00	211.86	53.77	89.64	391.33	103.08	1,107.82
77+00.00	277.88	69.90	114.51	453.46	131.69	1,429.60
77+50.00	223.12	54.60	115.28	463.89	132.57	1,760.92
77+63.89	210.11	56.19	28.50	111.44	32.77	1,839.59
78+00.00	131.87	86.52	95.43	228.68	109.75	1,958.52
78+50.00	140.00	90.06	163.50	251.73	188.03	2,022.23
Total:				9513.81	7491.58	2022.23



3
85+00

DESIGN: STV 2026
DRAWN: STV 2026
CHECKED: STV 2026
APPRVD: STV 2026

CITY OF NORMAN
36TH AVE NW
CLEVELAND COUNTY

PLAN AND PROFILE

SHEET 62
SHEET 5