PAVING AND DRAINAGE

CONSTRUCTION PLANS

TO SERVE

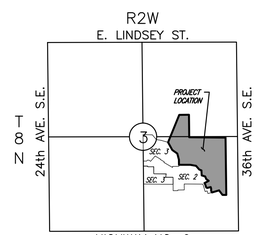
SUMMIT VALLEY ADDITION SECTION 4

A PART OF THE E. 1/2, SECTION 3, T8N, R2W, I.M.

NORMAN, CLEVELAND COUNTY, OKLAHOMA

GENERAL NOTES

1. All construction shall be in accordance with the current City of Norman Standards and Specifications for the construction. The contractor is responsible for obtaining and implementing to current City standards.
2. All work not classified as a contract pay item shall be considered as incidental and the cost thereof shall be included in the unit price bid for items which are classified for payment.
3. The contractor shall be responsible for the safety of all utilities, public or private.
4. All paving radii are 30 feet unless indicated otherwise.
5. Contractor for vegetative cover shall apply appropriate grass mixture to provide growth conditioned with the time of the year and the growing cycle. Cover will be placed on bare, sloped or erodible areas as approved by the engineer.
6. All water and sewer trenches crossing streets shall be backfilled including 2'-0" back of curb with type "A" aggregate and compacted to 95% Standard Proctor.
7. The installed pipe shall be pressure tested, leakage tested, and disinfected in accordance with AWWA Standard C600; ODEQ Standards OAC 252:626, and City of Norman requirements.
8. All waterline pipe shall be PVC C-900 DR 18.
9. The City requests at least 48 hours notice for inspections. The City inspectors must be notified prior to a construction event such as pouring concrete, laying pipe or laying hot mix asphalt concrete.
10. BLUE TOPPING SUBGRADE: Blue top the street subgrade at the center line and valley gutters at intersections of less than 2% grade. As per City Standard 2300-2. No water jetting of trenches for water, sanitary sewer, or storm sewer.
11. 2402.1(A)(2)(e) All ductile iron pipe fittings and glands shall be factory applied fusion bonded epoxy coated (interior and exterior) which meets AWWA C-116. The epoxy coating shall be installed per the coating manufacturers specifications. A Certificate of Compliance shall be required from the coating manufacturer stating that the coating meets all requirements mentioned herein. Holiday testing shall be required per ASTM G 62. The epoxy coating and the factory that applies the coating shall be approved by the City of Norman. The fitting shall have no cement lining prior to epoxy coating.
12. 2402.1(A)6(c) All nuts and bolts shall be stainless steel which meets ASTM F 593-95 (bolts) and F-594-91 (nuts). All nuts shall be Teflon Coated.
13. 2402.1(A)(7) Tapping Sleeves: Tapping sleeves shall be standard mechanical joint type for iron pipe and shall comply with all applicable requirements of ANSI A21.10/AWWA C110 for iron fittings. Tapping sleeves shall be furnished with a flanged outlet conforming in dimensions and drilling to ANSI B16.1, Class 125. Tapping sleeves shall be stainless steel full circle with stainless steel flange and bolts.
14. 2402.1(B)(2)(d) All ductile iron pipe fittings and glands shall be factory applied fusion bonded epoxy coated and lined which meets AWWA C-550.
15. 2402.2 Valves: All valves and valve appurtenances shall be factory applied fusion bonded epoxy coated which meets AWWA C-550 and bolts shall meet ASTM F-593-95 and nuts ASTM F-594.91.
16. If buildings will utilize a fire sprinkler system, a vault with a gate and check valve will be required.
17. ALL DIP FITTINGS TO BE EPOXY COATED WITH STAINLESS STEEL BOLTS.
18. An effort has been made to locate and show approximate location of underground utility line. Buried utilities are not necessarily shown. It is the Contractors responsibility to locate and preserve all utility services.
19. Contractor is responsible for contacting all utility companies prior to construction.
20. All work must meet ADA requirements.
21. All tees and valves shall be bolted together without any piping between them.



LOCATION MAP
NOT TO SCALE

NOTE TO CONTRACTOR

CALL OKIE: 1-800-522-6543

This number is to be used for information on the location of all underground utilities. Contact this number prior to any excavation.

SITE B.M.
CUT "X"
N: 678136.222
E: 2149095.772
Z: 1168.399

SITE B.M.
CUT "X"
N: 677974.212
E: 2149810.8292
Z: 1148.461

Sheet List Table

Reviewed by Utilities Engineer — Date

Reviewed by City Engineer — Date

Review and acceptance of plans by the City Engineer does not release the Consulting Engineer from his professional responsibility to meet the planning and design objectives of the project as required by good engineering practice and the City of Norman.

I, Christopher D. Anderson, Oklahoma Professional Engineer, # 18288, do hereby state that these construction plans, prepared by me or under my direct, responsible supervision, are in strict conformance with the applicable Codes of the City of Norman and the sound principles and practice of the Civil engineering profession.

Christopher D. Anderson, P.E. No. 18288

SMC

SMC Consulting Engineers, P.C.
815 West Main – Oklahoma City, Oklahoma 73106
Certificate of Authorization No. CA 464 Exp. 06/30/2027
PHONE (405) 232-7715 FAX (405) 232-7859

NOT VALID FOR CONSTRUCTION
LICENSED PROFESSIONAL ENGINEER
CHRISTOPHER D. ANDERSON
18288
OKLAHOMA
7/03/25
UNLESS SIGNED IN THIS BLOCK

SUMMIT VALLEY ADDITION SECTION 4

36th AVE. S.E. & HWY. 9
NORMAN, OKLAHOMA

SMC
SMC Consulting Engineers, P.C.
815 West Main – Oklahoma City, OK 73106
PH: 405-232-7715 Fax: 405-232-7859
www.smcengineers.com
OKLAHOMA CERTIFICATE OF AUTHORIZATION NO. CA 464 EXP. 06/30/2027

No.	Revision	By	Date

PROJECT NO.: 6211.04
DATE: 7/03/25
SCALE: N/A
DRAWN BY: D.G.
ENGINEER: Christopher D. Anderson
P.E. NUMBER: 18288

PAVING & DRAINAGE TITLE SHEET

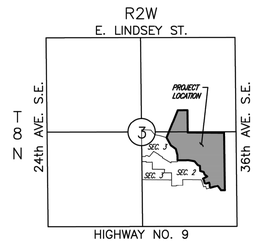
SHEET NO.
1

N:\DWGS\6211\SECTION 4\6211 04 TITLE SHEETS.DWG
Plotted by: Danny Griffith @ 7/7/2025 3:58 PM

FINAL PLAT

SUMMIT VALLEY ADDITION SECTION 4

A PART OF THE E/2, SECTION 3, T8N, R2W, I.M.
NORMAN, CLEVELAND COUNTY, OKLAHOMA



LOCATION MAP
NOT TO SCALE

OWNER'S CERTIFICATE AND DEDICATION
KNOW ALL MEN BY THESE PRESENTS:

That we the undersigned, SUMMIT VALLEY DEVELOPMENT, LLC, an Oklahoma Limited Liability Company, by CIES PROPERTIES, INC., Manager, do hereby certify that we are the owners of and the only person or persons, corporation or corporations having any right, title or interest in the land shown on the final plat of SUMMIT VALLEY ADDITION SECTION 4 a subdivision of a part of the E/2, Section 3, T8N, R2W, of the Indian Meridian to Norman, Cleveland County, Oklahoma, and have caused the said premises to be surveyed and platted into lots, blocks, streets and easements as shown on said final plat, said final plat represents a correct survey of all property included therein and is hereby adopted as the plat of land under the name of SUMMIT VALLEY ADDITION SECTION 4. SUMMIT VALLEY DEVELOPMENT, LLC, an Oklahoma Limited Liability Company, dedicates all streets and easements shown on said final plat to the public for public highways, streets and easements, for themselves, their successors and assigns forever and have caused the same to be released from all rights, easements and encumbrances except as shown on the Bonded Abstracter's Certificate.

In Witness Whereof the undersigned have caused this instrument to be executed this _____ day of _____, 20__.

SUMMIT VALLEY DEVELOPMENT, LLC, an Oklahoma Limited Liability Company
By: CIES PROPERTIES, INC., Manager

_____
Evan Nixon, PRESIDENT

STATE OF OKLAHOMA *s.s.*
COUNTY OF

Before me, the undersigned, a Notary Public in and for said County and State, on this ___ day of _____, 20___, personally appeared Evan Nixon as President of CIES PROPERTIES, INC., Manager of SUMMIT VALLEY DEVELOPMENT, LLC, an Oklahoma Limited Liability Company, to me known to be the identical person who executed the within and foregoing instrument and acknowledged to me that he executed the same as his free and voluntary act and deed and as the free and voluntary act and deed of by SUMMIT VALLEY DEVELOPMENT, LLC, an Oklahoma Limited Liability Company for the uses and purposes therein set forth.

Given under my hand and seal the day and year last above written.
My Commission Expires: _____

_____
NOTARY PUBLIC

Notary Seal

BONDED ABSTRACTER'S CERTIFICATE

The undersigned, duly qualified abstracter in and for said County and State, hereby certifies that according to the records of said County, title to the land shown on the final plat of SUMMIT VALLEY ADDITION SECTION 4, a subdivision of a part of the E/2, Section 3, T8N, R2W, of the I.M. to Norman, Cleveland County, Oklahoma appears to be vested in SUMMIT VALLEY DEVELOPMENT, LLC, an Oklahoma Limited Liability Company, on this ___ day of _____ 20__ unencumbered by pending actions, judgments, liens, taxes or other encumbrances except minerals previously conveyed and mortgages of record.

Executed this _____ day of _____, 20___.

First American Title Insurance Company

_____

CERTIFICATE OF CITY OF NORMAN DEVELOPMENT COMMITTEE

I, _____, Chairman of the City of Norman Development Committee certify that the public improvement plans and final plat comply with the standards and specifications of the City of Norman on this _____ day of _____, 20___.

_____
Development Committee Chairman

ACCEPTANCE OF DEDICATIONS

Be it resolved by the City Council of the City of Norman, Oklahoma that the dedications shown on the final plat of SUMMIT VALLEY ADDITION SECTION 4, Norman, Oklahoma are hereby accepted.

Signed by the Mayor of the City of Norman, Oklahoma this _____ day of _____, 20___.

ATTEST: _____ _____
CITY CLERK, *MAYOR,*

City Seal

CERTIFICATE OF CITY CLERK

I, _____, City Clerk of the City of Norman, Oklahoma, hereby certify that I have examined the records of said City and find that all deferred payments on unmatured installments have been paid in full and that there is no special assessment procedure now pending against the land on the final plat of SUMMIT VALLEY ADDITION SECTION 4 to the City of Norman, Oklahoma.

Signed by the City Clerk on this _____ day of _____, 20___.

_____
CITY CLERK,

City Seal

COUNTY TREASURER'S CERTIFICATE

I, Jim Reynolds, hereby certify that I am the duly elected and acting County Treasurer of Cleveland County, State of Oklahoma, that the tax records of said County show all taxes paid for the year 20___ and all prior years on the land shown on the final plat of SUMMIT VALLEY ADDITION SECTION 4, an addition to the City of Norman, Cleveland County, Oklahoma that the required statutory security has been deposited in the office of the County Treasurer, guaranteeing payment of current years taxes. IN WITNESS WHEREOF, said County Treasurer has caused this instrument to be executed at Norman, Oklahoma on this _____ day of _____, 20___.

_____
COUNTY TREASURER, Jim Reynolds

County Treasurer Seal

LICENSED LAND SURVEYOR

I, , do hereby certify that I am a Licensed Land Surveyor in the State of Oklahoma, and that the Final Plat of SUMMIT VALLEY ADDITION SECTION 4, an addition to the City of Norman, Oklahoma, consisting of two (2) sheets, represents a survey made under my supervision on the _____ day of _____, 20___, and that monuments shown thereon actually exist and their positions are correctly shown, that this Survey meets the Oklahoma Minimum Standards for the Practice of Land Surveyors as adopted by the Oklahoma State Board of Licensure for Professional Engineers and Land Surveyors; and that said Final Plat complies with the requirements of Title 11 SECTION 41–108 of the Oklahoma State Statutes.

sURVEYOR
....
...., OK ....
PH: (405) ....

_____
, LICENSED LAND SURVEYOR No.
OKLAHOMA CERTIFICATE OF AUTHORIZATION NO. *(LS) EXPIRES* *June 30, 2026*

Land Surveyor Seal

STATE OF OKLAHOMA *s.s.*
COUNTY OF OKLAHOMA

Before me, the undersigned, a Notary Public in and for said County and State on this _____ day, of _____, 20___, personally appeared to me known to be the identical person who executed the within and foregoing instrument and acknowledged to me that he executed the same as his free and voluntary act and deed for the uses and purposes therein set forth.

Given under my hand and seal the day and year last above written.

My Commission Expires: _____ _____
NOTARY PUBLIC

Notary Seal

Date: July 3, 2025

SMC Consulting Engineers, P.C.
815 W. Main Street
Oklahoma City, OK 73106
Ph.:(405)232–7715
Oklahoma CA#464 Exp.: 6–30–2027

FINAL PLAT
SUMMIT VALLEY ADDITION SECTION 4
A PART OF THE E/2, SECTION 3, T8N, R2W, I.M.
NORMAN, CLEVELAND COUNTY, OKLAHOMA

LEGAL DESCRIPTION:

A tract of land lying in the East Half (E/2) of Section Three (3), Township Eight North (T8N), Range Two West (R2W), of the Indian Meridian, Norman, Cleveland County, Oklahoma, being more particularly described as follows:

COMMENCING at the Southeast corner of the SE/4 of said Section 3; THENCE North 00°44'06" West along the East line of said SE/4 a distance of 475.69 feet to a point on the property line of the filed final plat of SUMMIT VALLEY ADDITION (as filed in Book 20 of Plats, Page 170–171); THENCE along the boundary of said final plat the following two (2) courses;

1) North 89°26'49" West a distance of 330.26 feet;
2) North 00°44'46" West a distance of 554.88 feet to the POINT OF BEGINNING;

THENCE continuing along said boundary the following three (3) courses:

1) North 89°59'49" West a distance of 106.42 feet;
2) North 36°51'02" West a distance of 159.27 feet;
3) South 73°51'25" West a distance of 207.79 feet to the Southeast corner of Lot 1, Block 8 of the filed final plat of SUMMIT VALLEY ADDITION SECTION 2 (as filed in Book 24 of Plats, Page 32–33);

THENCE along the boundary of said final plat the following sixteen (16) courses:

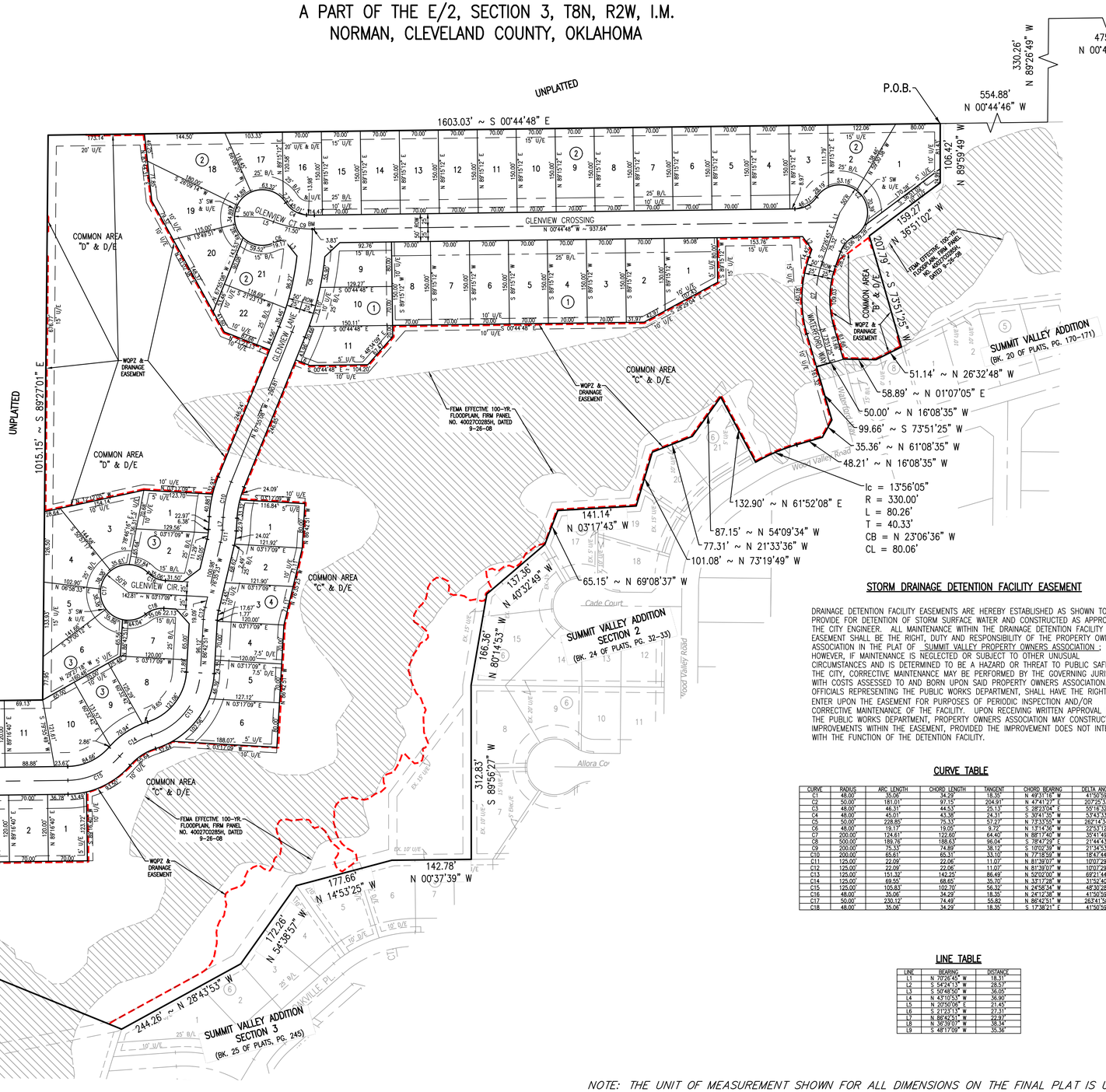
1) North 26°32'48" West a distance of 51.14 feet;
2) North 01°07'05" East a distance of 58.89 feet;
3) North 16°08'35" West a distance of 50.00 feet;
4) South 73°51'25" West a distance of 99.66 feet;
5) North 61°08'35" West a distance of 35.36 feet;
6) North 16°08'35" West a distance of 48.21 feet to a point of curvature;
7) Around a curve to the left having a radius of 330.00 feet (said curve subtended by a chord which bears North 23°06'36" West, a distance of 80.06 feet) and an arc length of 80.26 feet;
8) North 61°52'08" East a distance of 132.90 feet;
9) North 54°09'34" West a distance of 87.15 feet;
10) North 21°33'36" West a distance of 77.31 feet;
11) North 73°19'49" West a distance of 101.08 feet;
12) North 03°17'43" West a distance of 141.14 feet;
13) North 69°08'37" West a distance of 65.15 feet;
14) North 40°32'49" West a distance of 137.36 feet;
15) North 80°14'53" West a distance of 166.36 feet;
16) South 89°56'27" West a distance of 312.83 feet to a point on the East boundary line of the filed final plat of SUMMIT VALLEY ADDITION SECTION 3 (as filed in Book 25 of Plats, Page 245);

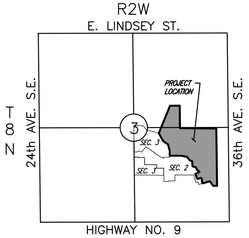
THENCE along the boundary of said final plat the following four (4) courses:

1) North 00°37'39" West a distance of 142.78 feet;
2) North 14°53'25" West a distance of 177.66 feet;
3) South 54°38'57" West a distance of 172.26 feet;
4) North 28°43'53" West a distance of 244.26 feet;

THENCE North 22°08'39" East a distance of 828.53 feet; THENCE North 89°16'40" East a distance of 271.37 feet; THENCE South 00°43'20" East a distance of 629.13 feet; THENCE South 89°27'01" East a distance of 1015.15 feet; THENCE South 00°44'48" East a distance of 1603.03 feet to the POINT OF BEGINNING.

Said tract contains 42.11 acres, more or less.





LOCATION MAP
NOT TO SCALE

SCALE: 1" = 100'

A assumed bearing of North 89° 38' 34" East on the North line of the S.W. ¼ per Oklahoma State Plain Grid South was used as the basis of bearing for this survey. Basis of Bearing for this plat is different than the Basis of Bearing for Summit Valley Addition Sections 1 and 2.

SINGLE FAMILY RESIDENTIAL LOTS = 65

(WQPZ) WATER QUALITY PROTECTION ZONE

NOTE: THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION OR DISTURBANCE OF VEGETATION EXCEPT AS PERMITTED BY THE DIRECTOR OF PUBLIC WORKS UNLESS SUCH DISTURBANCE IS DONE IN ACCORDANCE WITH 30–514(e) OF THE NORMAN CITY CODE.

NOTE: THE WQPZ IS SUBJECT TO PROTECTIVE COVENANTS THAT MAY BE FOUND IN THE LAND RECORDS AND THAT RESTRICT DISTURBANCE AND USE OF THESE AREAS.

STORM DRAINAGE DETENTION FACILITY EASEMENT

DRAINAGE DETENTION FACILITY EASEMENTS ARE HEREBY ESTABLISHED AS SHOWN TO PROVIDE FOR DETENTION OF STORM SURFACE WATER AND CONSTRUCTED AS APPROVED BY THE CITY ENGINEER. ALL MAINTENANCE WITHIN THE DRAINAGE DETENTION FACILITY EASEMENT SHALL BE THE RIGHT, DUTY AND RESPONSIBILITY OF THE PROPERTY OWNERS ASSOCIATION IN THE PLAT OF SUMMIT VALLEY PROPERTY OWNERS ASSOCIATION ; HOWEVER, IF MAINTENANCE IS NEGLECTED OR SUBJECT TO OTHER UNUSUAL CIRCUMSTANCES AND IS DETERMINED TO BE A HAZARD OR THREAT TO PUBLIC SAFETY BY THE CITY, CORRECTIVE MAINTENANCE MAY BE PERFORMED BY THE GOVERNING JURISDICTION WITH COSTS ASSESSED TO AND BORN UPON SAID PROPERTY OWNERS ASSOCIATION. OFFICIALS REPRESENTING THE PUBLIC WORKS DEPARTMENT, SHALL HAVE THE RIGHT TO ENTER UPON THE EASEMENT FOR PURPOSES OF PERIODIC INSPECTION AND/OR CORRECTIVE MAINTENANCE OF THE FACILITY. UPON RECEIVING WRITTEN APPROVAL FROM THE PUBLIC WORKS DEPARTMENT, PROPERTY OWNERS ASSOCIATION MAY CONSTRUCT IMPROVEMENTS WITHIN THE EASEMENT, PROVIDED THE IMPROVEMENT DOES NOT INTERFERE WITH THE FUNCTION OF THE DETENTION FACILITY.

CURVE TABLE

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	TANGENT	CHORD BEARING	DELTA ANGLE
C1	48.00'	35.06'	34.29'	18.35'	N 49°31'16" W	41°50'59"
C2	50.00'	181.01'	97.15'	204.91'	N 47°41'27" E	207°26'33"
C3	48.00'	46.31'	44.53'	25.13'	S 28°23'04" E	55°16'39"
C4	48.00'	45.01'	43.38'	24.31'	S 30°41'35" W	53°43'33"
C5	50.00'	228.85'	75.33'	57.27'	N 73°33'55" W	262°14'34"
C6	48.00'	19.17'	19.05'	9.72'	N 13°14'38" W	22°53'12"
C7	200.00'	124.61'	122.60'	64.40'	N 88°17'40" W	35°41'49"
C8	500.00'	189.76'	188.63'	96.04'	S 78°47'29" E	21°44'43"
C9	200.00'	75.33'	74.89'	38.12'	S 10°02'39" W	21°34'53"
C10	200.00'	65.61'	65.31'	33.10'	N 27°18'50" W	18°47'44"
C11	125.00'	22.09'	22.06'	11.07'	N 81°39'07" W	10°07'29"
C12	125.00'	22.09'	22.06'	11.07'	N 81°39'07" W	10°07'29"
C13	125.00'	151.32'	142.25'	86.49'	N 52°02'00" W	69°21'44"
C14	125.00'	69.55'	68.65'	35.70'	N 33°17'28" W	31°52'40"
C15	125.00'	105.63'	102.70'	56.32'	N 24°58'34" W	48°30'28"
C16	48.00'	35.06'	34.29'	18.35'	N 24°12'38" W	41°50'59"
C17	50.00'	230.12'	74.49'	55.82'	N 86°42'51" W	263°41'58"
C18	48.00'	35.06'	34.29'	18.35'	S 17°38'21" E	41°50'59"

LINE TABLE

LINE	BEARING	DISTANCE
L1	N 70°26'45" W	18.31'
L2	S 54°24'13" W	28.57'
L3	S 50°48'50" W	36.05'
L4	N 43°10'53" W	36.90'
L5	N 20°50'06" E	21.45'
L6	S 21°33'13" W	27.31'
L7	N 86°42'51" W	22.97'
L8	N 36°39'07" W	38.34'
L9	S 48°17'09" W	35.36'

BENCHMARK #1: BRASS CAP AT INTERSECTION OF GLENVIEW LANE & GLENVIEW CROSSING
ELEV. =

NOTES:
UNLESS OTHERWISE NOTED, I.P.'s W/ C.A. 6333 CAPS WERE SET AT ALL PROPERTY CORNERS.

COMMON AREAS 'B', 'C' & 'D' ARE COMMON AREA & DRAINAGE EASEMENT BLOCKS AND MAINTAINED BY THE MANDATORY PROPERTY OWNERS ASSOCIATION.

SW/E = SIDEWALK EASEMENT
D/E = DRAINAGE EASEMENT
LNA = LIMITS OF NO ACCESS
U/E = UTILITY EASEMENT
B/L = BUILDING LINE
WQPZ = WATER QUALITY PROTECTION ZONE
–1000– = ADDRESS

NOTE: THE UNIT OF MEASUREMENT SHOWN FOR ALL DIMENSIONS ON THE FINAL PLAT IS U.S. SURVEY FEET.

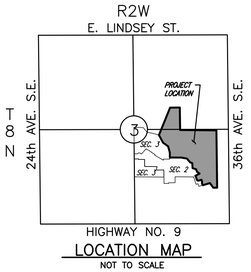
Date: July 3, 2025

SMC Consulting Engineers, P.C.
815 W. Main Street
Oklahoma City, OK 73106
Ph.:(405)232–7715
Oklahoma CA#464 Exp.: 6–30–2027

PROPOSED DRAINAGE MAP FOR STORM SEWER DESIGN

SUMMIT VALLEY ADDITION SECTION 4

A PART OF THE E/2 OF SECTION 3, T8N, R2W, I.M.
NORMAN, CLEVELAND COUNTY, OKLAHOMA

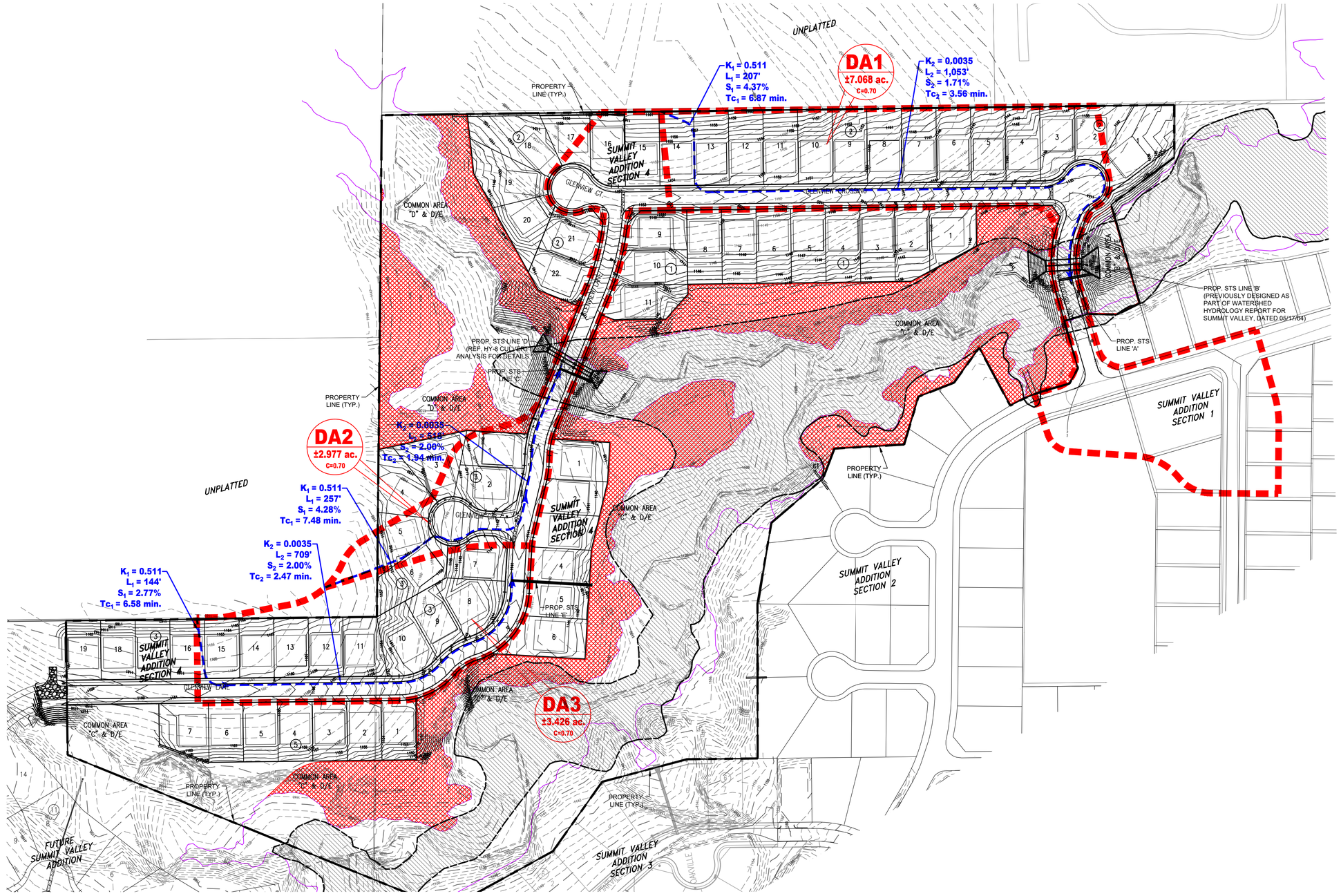


LOCATION MAP
NOT TO SCALE

SCALE: 1" = 100'

DRAINAGE LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- DRAINAGE BASIN BOUNDARY
- DA# — DRAINAGE BASIN DESIGNATION
- ± x.xx ac — DRAINAGE BASIN ACRES
- C = 0.70 — WEIGHT RUNOFF COEFFICIENT FOR RESIDENTIAL AREAS
- PROPOSED FLOW PATH
- PROPERTY LINE
- EFFECTIVE STREAM PLANNING CORRIDOR
- WATER QUALITY PROTECTION ZONE/ MODIFIED STREAM PLANNING CORRIDOR PER SUMMIT VALLEY ADDITION SEC. 4
- MODIFIED STREAM PLANNING CORRIDOR (WQPZ)
- EFFECTIVE FEMA FLOODPLAIN (ZONE AE)



SUMMIT VALLEY ADDITION SECTION 4

36th AVE. S.E. & HWY. 9
NORMAN, OKLAHOMA

SMC
SMC Consulting Engineers, P.C.
815 West Main – Oklahoma City, OK 73106
PH: 405-232-7715 Fax: 405-232-7859
OKLAHOMA CERTIFICATE OF AUTHORIZATION NO. CA 464 EXP 06/30/2027
www.smcengineers.com

No.	Revision	By	Date

PROJECT NO.: 6211.04
DATE: 7/03/25
SCALE: 1" = 100'
DRAWN BY: PMC
ENGINEER: Christopher D. Anderson
P.E. NUMBER: 18288

PROPOSED DRAINAGE MAP FOR STORM SEWER DESIGN

SHEET NO.
4.1

N:\DWGS\6211\SECTION 4\6211 04 DRAINAGE MAP FOR STS 01.DWG
Plotted by: Danny Griffith @ 7/2/2025 4:47 PM

DRAINAGE SUMMARY TABLE FOR STORM SEWER DESIGN

SUMMIT VALLEY ADDITION SECTION 4

A PART OF THE E/2 OF SECTION 3, T8N, R2W, I.M.
NORMAN, CLEVELAND COUNTY, OKLAHOMA

Area I.D.	DA1	DA2	DA3
Pipe segment	Proposed STS Line 'A'	Proposed STS Line 'C'	Proposed STS Line 'E'
Time (minutes), forwarded			
Sheet Flow:	Overland	Overland	Overland
K-factor	0.511	0.511	0.511
Length (L)	207.00	257.00	144.00
Slope (ft/FT)	0.0437	0.0428	0.0277
$Tc=K(L^{0.37})/S^{0.2}$	6.87	7.48	6.58
Shallow Flow:	Curb & Gutter	Curb & Gutter	Curb & Gutter
Surface Retardness Factor 'K'	0.0035	0.0035	0.0035
Length (L)	1051.00	518.00	709.00
Slope (ft/FT)	0.0171	0.0200	0.0200
$Tc=K(L^{0.77})/S^{0.365}$	3.56	1.94	2.47
Time, total, minutes	10.43	9.42	9.05
Weighted 'C', runoff Coefficient	0.70	0.70	0.70
Area (acres), Total	7.068	2.977	3.426
Intensity, (I), (2 year), (in/hr)	4.47	4.65	4.73
Flow Q (cfs)	**22.09**	**9.70**	**11.34**
Intensity, (I), (5 year), (in/hr)	5.48	5.69	5.77
Flow Q (cfs)	**27.13**	**11.85**	**13.83**
Intensity, (I), (10 year), (in/hr)	6.34	6.57	6.67
Flow Q (cfs)	**31.37**	**13.70**	**15.99**
Intensity, (I), (25 year), (in/hr)	7.22	7.45	7.54
Flow Q (cfs)	**35.70**	**15.53**	**18.08**
Intensity, (I), (50 year), (in/hr)	8.07	8.33	8.43
Flow Q (cfs)	**39.92**	**17.36**	**20.22**
Intensity, (I), (100 year), (in/hr)	8.94	9.22	9.33
Flow Q (cfs)	**44.23**	**19.22**	**22.38**
Proposed Receiving Inlet/Structure type	**2 - Des. 2-3 Curb Inlet**	**2 - Des. 2-1 Curb Inlet**	**2 - Des. 2-1 Curb Inlet**
	(2 Grates, 8 Hoods)	**(2 Grates, 4 Hoods)**	**(2 Grates, 4 Hoods)**
Proposed Inlet cap., cfs	**46.40**	**26.40**	**26.40**
Flow Condition	Sump	Sump	Sump
Manning's "n"	0.013	0.013	0.013
S1/2	0.11	0.10	0.11
Min. Slope, %	1.25%	1.00%	1.25%
Des. Length (ft)	67.47	72.74	168.00
Size, in.	**30**	**24**	**24**
Material	Concrete	Concrete	Concrete
Waterway area, sft	4.91	3.14	3.14
Wet.Perimeter, ft	7.85	6.28	6.28
Hyd. Radius, ft	0.63	0.50	0.50
(K)	409.53	225.70	225.70
Velocity, fps	9.33	7.18	8.03
Time, Pipe forward, minutes	0.12	0.17	0.35
Proposed, Pipe Capacity, cfs	**45.79**	**22.57**	**25.23**
Street Name	Waterford Way	Glenview Lane	Glenview Lane
Street Width, ft	26.00	26.00	26.00
Street Slope at Inlet	0.60%	0.60%	0.60%
Street Capacity at Inlet, cfs	42.65	42.65	42.65

SUMMIT VALLEY ADDITION SECTION 4

36th AVE. S.E. & HWY. 9
NORMAN, OKLAHOMA

SMC Consulting Engineers, P.C.
815 West Main - Oklahoma City, OK 73106
PH: 405-232-7715 Fax: 405-232-7859
Website: www.smcokc.com
OKLAHOMA CERTIFICATE OF AUTHORIZATION NO. CA 464 EXP 06/30/2027

No.	Revision	By	Date

PROJECT NO.: 6211.04
DATE: 7/03/25
SCALE: N.T.S.
DRAWN BY: PMC
ENGINEER: Christopher D. Anderson
P.E. NUMBER: 18288

DRAINAGE SUMMARY TABLE FOR STORM SEWER DESIGN

SHEET NO.
4.2

N:\DWGS\6211\SECTION 4\6211 04 DRAINAGE MAP FOR STS 01.DWG
Plotted by: Danny Griffin @ 7/2/2025 4:47 PM

GENERAL NOTES:

1. ENGINEER'S ESTIMATE OF QUANTITIES SHOWN IS TO FACILITATE THE REVIEW OF THE REGULATORY AGENCIES. CONTRACTOR SHALL NOT USE THIS ENGINEER'S ESTIMATE OF QUANTITIES IN BIDDING OR CALCULATING QUANTITIES OR ORDERING CONSTRUCTION MATERIALS. FOR SUCH PURPOSES, CONTRACTOR SHALL REFER TO CONSTRUCTION PLANS, DESIGN DETAILS, SPECIFIED STANDARDS, PROJECT SPECIFICATIONS AND SHALL CALCULATE HIS/HER OWN QUANTITIES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONSTRUCT THE PROJECT ACCORDING TO THE CONSTRUCTION PLANS, DESIGN DETAILS, SPECIFIED STANDARDS, SPECIFICATIONS AND SPECIAL CONDITIONS. ANY ITEM OR WORK NOT INCLUDED IN ENGINEER'S ESTIMATE BUT SHOWN IN CONSTRUCTION PLANS, DETAILS AND SPECIFIED IN STANDARDS SHALL BE CONSIDERED INCIDENTAL CONSTRUCTION, THE COST OF WHICH SHALL BE INCLUDED IN THE COST OF OTHER ITEMS.

2. ALL DIP FITTINGS TO BE EPOXY COATED WITH STAINLESS STEEL BOLTS.

2402.1(A)(2)(E) ALL DUCTILE IRON PIPE FITTINGS AND GLANDS SHALL BE FACTORY APPLIED FUSION BONDED EPOXY COATED (INTERIOR AND EXTERIOR) WHICH MEETS AWWA C-116. THE EPOXY COATING SHALL BE INSTALLED PER THE COATING MANUFACTURERS SPECIFICATIONS. A CERTIFICATE OF COMPLIANCE SHALL BE REQUIRED FROM THE COATING MANUFACTURER STATING THAT THE COATING MEETS ALL REQUIREMENTS MENTIONED HEREIN. HOLIDAY TESTING SHALL BE REQUIRED PER ASTM G 62. THE EPOXY COATING AND THE FACTORY THAT APPLIES THE COATING SHALL BE APPROVED BY THE CITY OF NORMAN. THE FITTING SHALL HAVE NO CEMENT LINING PRIOR TO EPOXY COATING.

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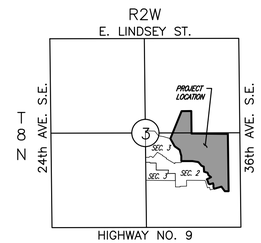
PAVING & DRAINAGE LOCATION PLAN

SUMMIT VALLEY ADDITION SECTION 4

A PART OF THE E/2 OF SECTION 3, T8N, R2W, I.M.
NORMAN, CLEVELAND COUNTY, OKLAHOMA

SCALE: 1" = 60'



LOCATION MAP
NOT TO SCALE

LEGEND

MODIFIED STREAM PLANNING CORRIDOR (WQPZ)

EFFECTIVE FEMA FLOODPLAIN (ZONE AE)

EFFECTIVE STREAM PLANNING CORRIDOR

GENERAL NOTES

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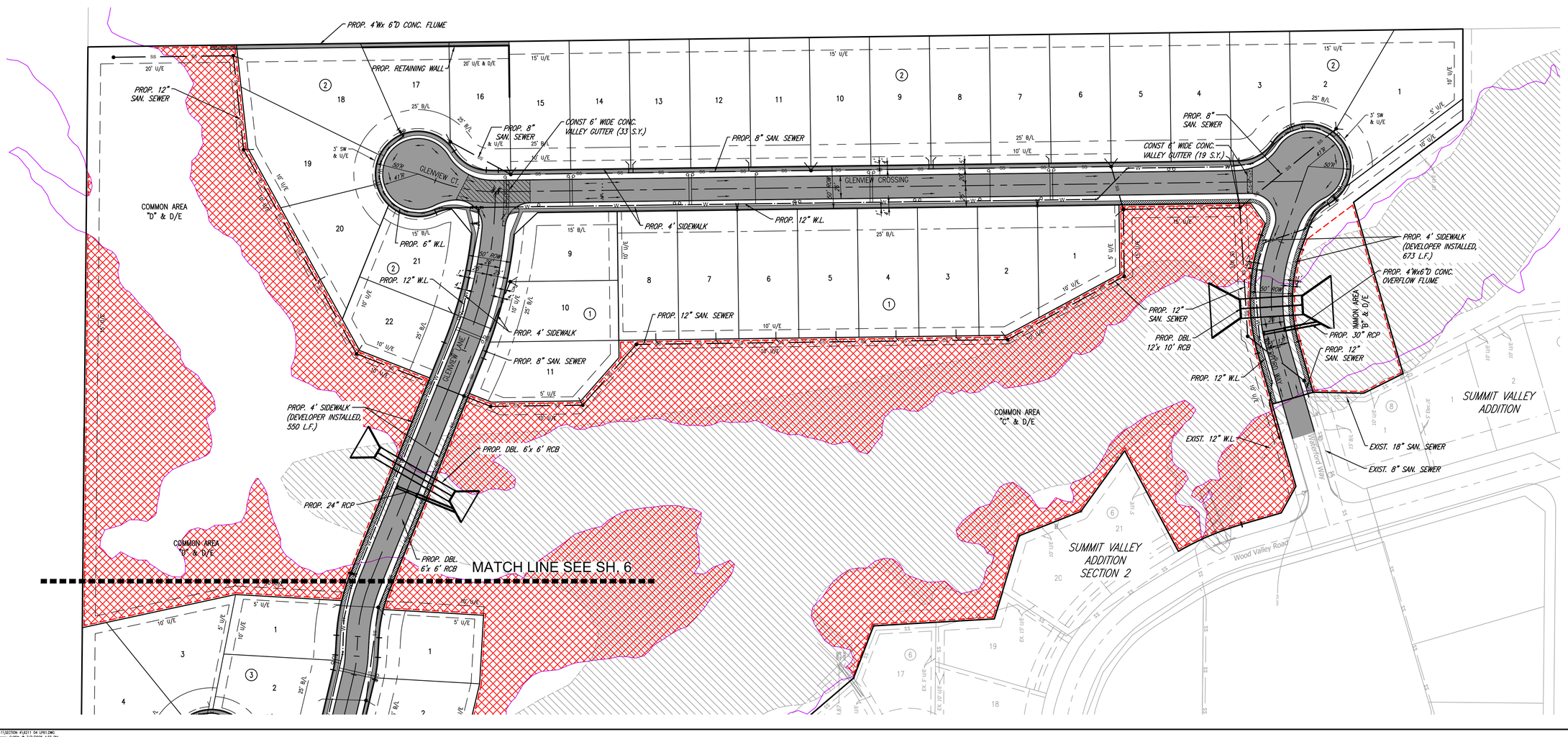
PAVING QUANTITIES

QUANTITY	UNIT	DESCRIPTION
1,405	LF	4' SIDEWALK (DEVELOPER INSTALLED)
6,821	LF	6" CURB & GUTTER
10,083	SY	2" TYPE 'S5' ASPHALTIC CONCRETE
10,083	SY	4" TYPE 'S3' ASPHALTIC CONCRETE
12,356	SY	6" MODIFIED SUBGRADE (4% PORTLAND CEMENT)
101	SY	6' WIDE CONCRETE VALLEY GUTTER
26	LF	CONCRETE HEADER CURB
1	EA	STD. REFLECTOR TYPE BARRICADE
26	LF	REMOVE CONCRETE HEADER CURB
1	EA	REMOVE STD. REFLECTIVE TYPE BARRICADE
1	LS	TEMPORARY TURN-AROUND
1	LS	EXCAVATION AND GRADING
1	LS	EROSION CONTROL

STORM SEWER QUANTITIES

QUANTITY	UNIT	DESCRIPTION
68	LF	30" RCP
72	LF	DOUBLE CELL 12'x10' RCB
100	LF	DOUBLE CELL 6'x6' RCB
231	LF	24" RCP
4	EA	STD. DES. 2-1 INLET WITH 2 GRATES & 4 HOODS
2	EA	STD. DES. 2-3 INLET WITH 2 GRATES & 8 HOODS
2	EA	HEADWALL FOR DBL. CELL 12'x10' RCB
2	EA	HEADWALL FOR DBL. CELL 6'x6' RCB
1	EA	PCES FOR 24" RCP
221	LF	4'W x 6"D CONCRETE OVERFLOW FLUME
2	EA	3' CUT OFF WALL
367	TON	TYPE 'A' AGGREGATE
414	SY	FLEXAMAT
1	LS	24" RCP DAYLIGHT THRU HEADWALL PER DETAILS
1	LS	30" RCP DAYLIGHT THRU HEADWALL PER DETAILS



SUMMIT VALLEY ADDITION SECTION 4

36th AVE. S.E. & HWY. 9
NORMAN, OKLAHOMA

SMC
SMC Consulting Engineers, P.C.
815 West Main – Oklahoma City, OK 73106
PH: 405-232-7715 Fax: 405-232-7859
www.smcokc.com – Water – Wastewater – Roads – Bridges
OKLAHOMA CERTIFICATE OF AUTHORIZATION NO. CA 464 EXP. 06/30/2027

No.	Revision	By	Date

PROJECT NO.: 6211.04
DATE: 7/03/25
SCALE: 1" = 60'
DRAWN BY: D.G.
ENGINEER: Christopher D. Anderson
P.E. NUMBER: 18288

PAVING & DRAINAGE LOCATION PLAN (1 Of 2)

SHEET NO.
5

N:\DWGS\6211\SECTION 4\6211 S4 LP01.DWG
Plotted by: Danny Griffith @ 7/3/2025 4:33 PM

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PAVING & DRAINAGE LOCATION PLAN

SUMMIT VALLEY ADDITION SECTION 4

A PART OF THE E/2 OF SECTION 3, T8N, R2W, I.M.
NORMAN, CLEVELAND COUNTY, OKLAHOMA

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SCALE: 1" = 60'

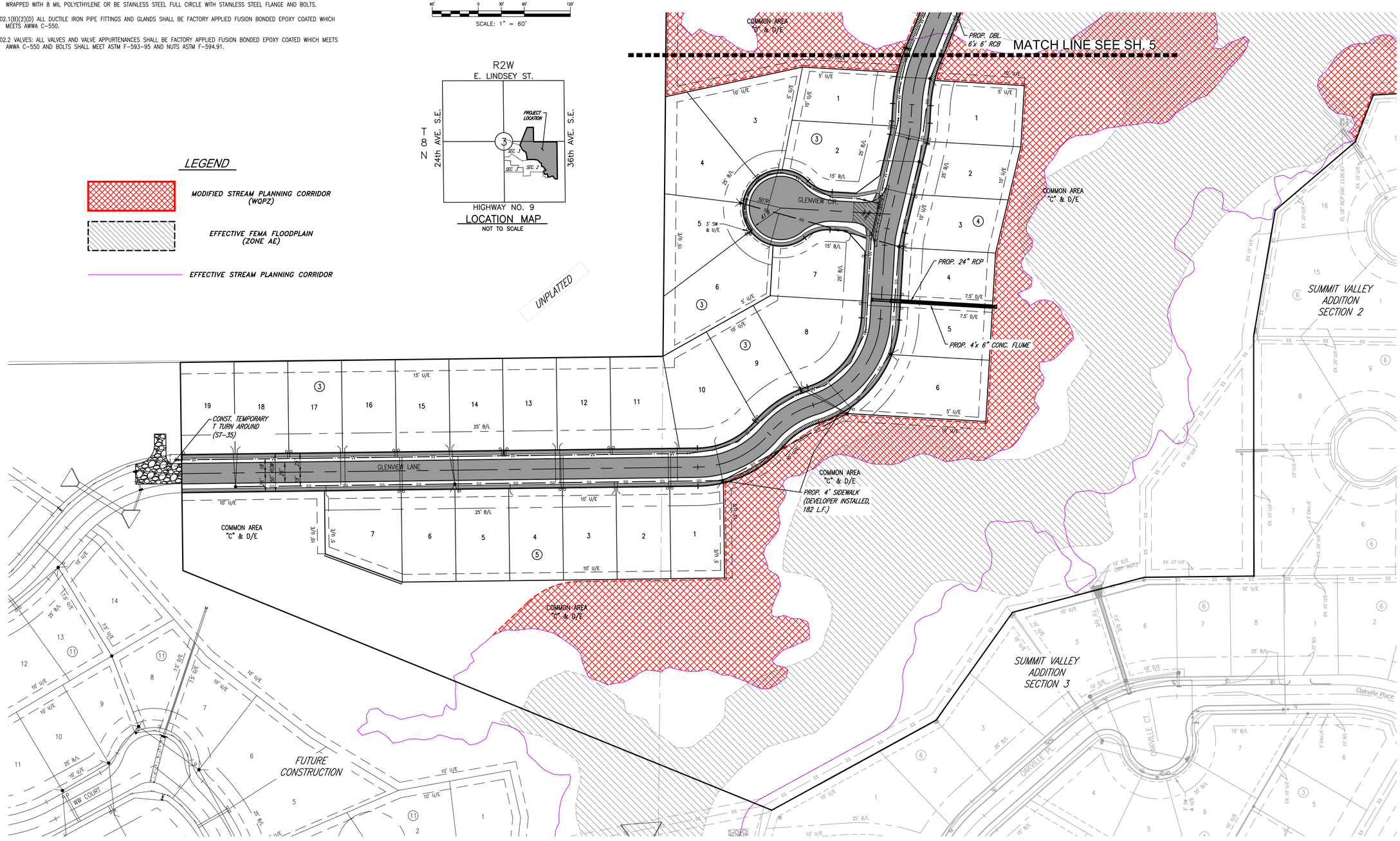
R2W
E. LINDSEY ST.
T 8 N
24th AVE. S.E.
36th AVE. S.E.
PROJECT LOCATION
HIGHWAY NO. 9
LOCATION MAP
NOT TO SCALE

LEGEND

MODIFIED STREAM PLANNING CORRIDOR (WQPZ)

EFFECTIVE FEMA FLOODPLAIN (ZONE AE)

EFFECTIVE STREAM PLANNING CORRIDOR



SUMMIT VALLEY ADDITION SECTION 4

36th AVE. S.E. & HWY. 9
NORMAN, OKLAHOMA

SMC Consulting Engineers, P.C.
815 West Main – Oklahoma City, OK 73106
PH: 405-232-7715 Fax: 405-232-7859
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OKLAHOMA CERTIFICATE OF AUTHORIZATION NO. CA 464 EXP. 06/30/2027

No.	Revision	By	Date

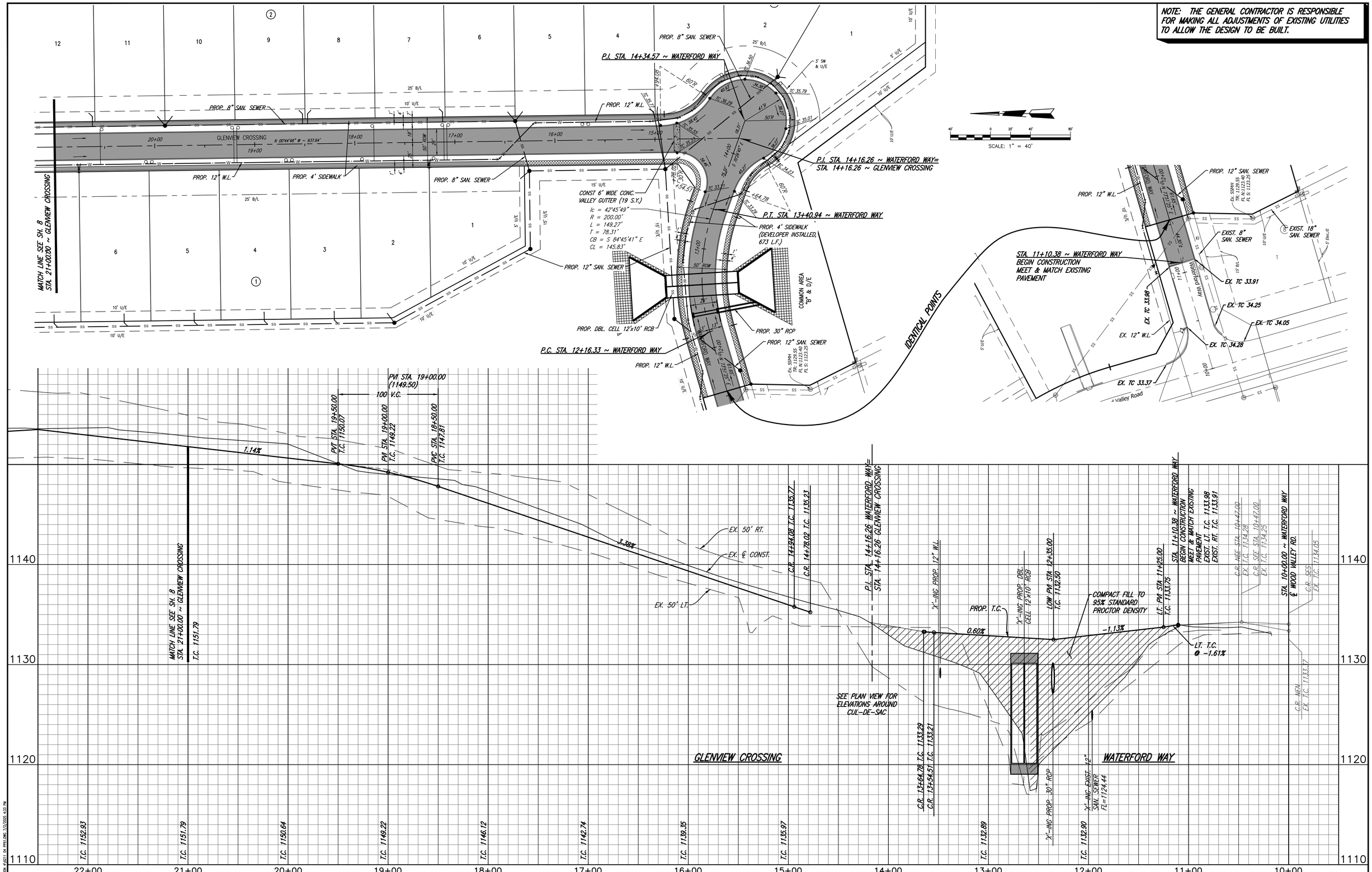
PROJECT NO.: 6211.04
DATE: 7/03/25
SCALE: 1" = 60'
DRAWN BY: D.G.
ENGINEER: Christopher D. Anderson
P.E. NUMBER: 18288

PAVING & DRAINAGE LOCATION PLAN (2 OF 2)

SHEET NO.
6

N:\DWGS\6211\SECTION 4\6211 S4 LP01.DWG
Plotted by: Danny Griffith @ 7/3/2025 4:33 PM

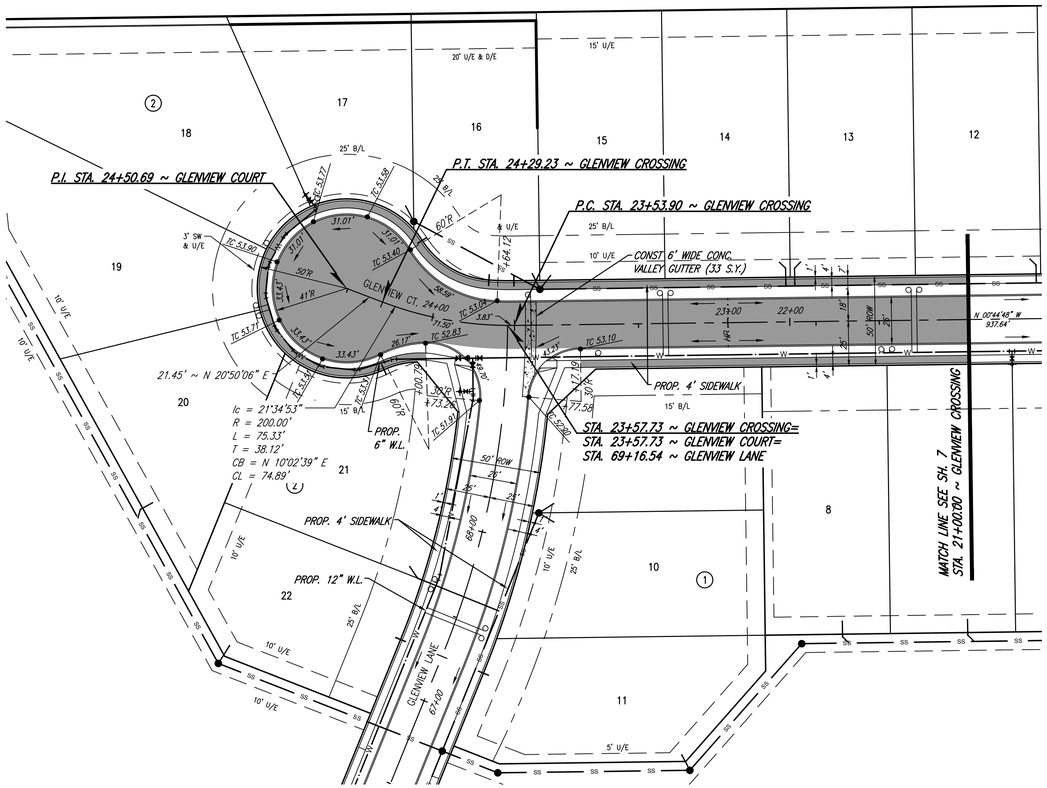
NOTE: THE GENERAL CONTRACTOR IS RESPONSIBLE FOR MAKING ALL ADJUSTMENTS OF EXISTING UTILITIES TO ALLOW THE DESIGN TO BE BUILT.

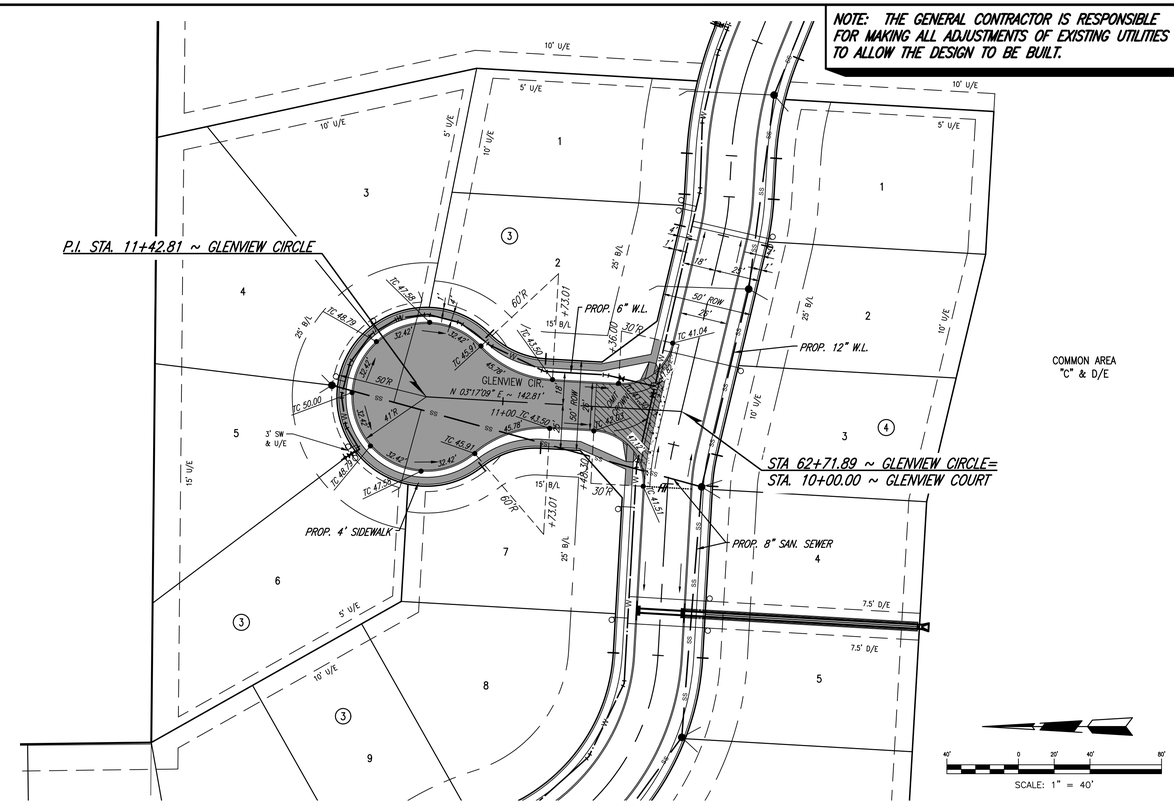


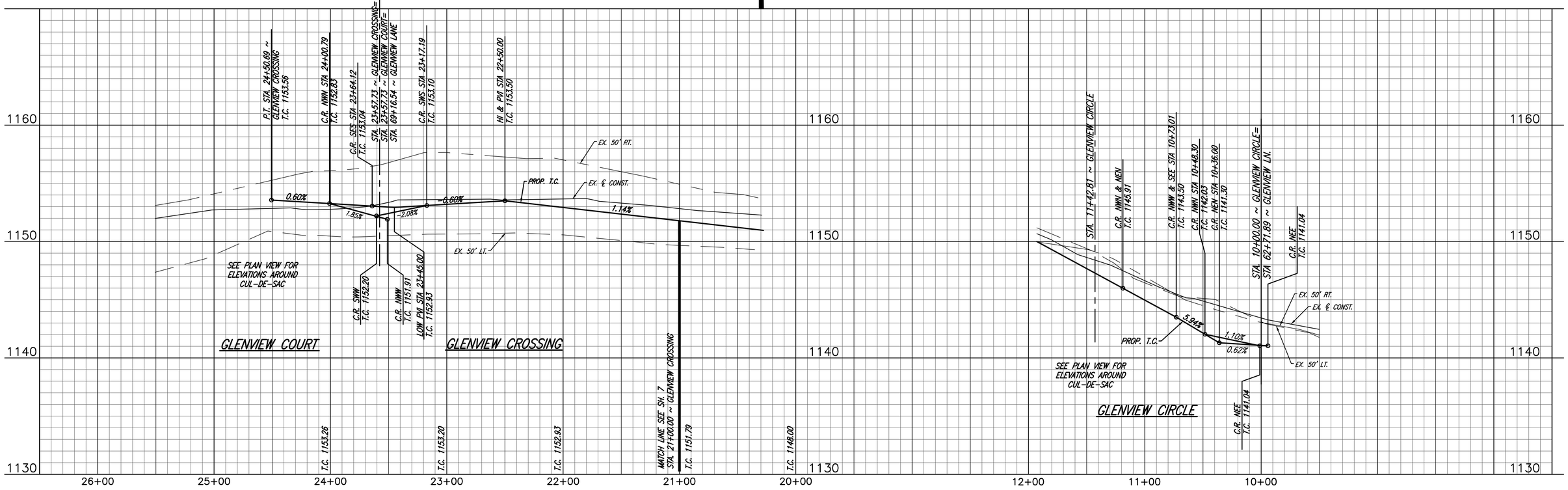
WATERFORD WAY – GLENVIEW CROSSING

SCALE: HORIZ. 1" = 40' VERT. 1" = 4'	DATE: 7/03/25	NORMAN, OKLAHOMA	SUMMIT VALLEY ADDITION SECTION 4	PAVING & DRAINAGE PLAN & PROFILE	SMC Consulting Engineers, P.C., OKLAHOMA CITY, OKLAHOMA	SHEET NO: 7
						REVISED:

NOTE: THE GENERAL CONTRACTOR IS RESPONSIBLE FOR MAKING ALL ADJUSTMENTS OF EXISTING UTILITIES TO ALLOW THE DESIGN TO BE BUILT.

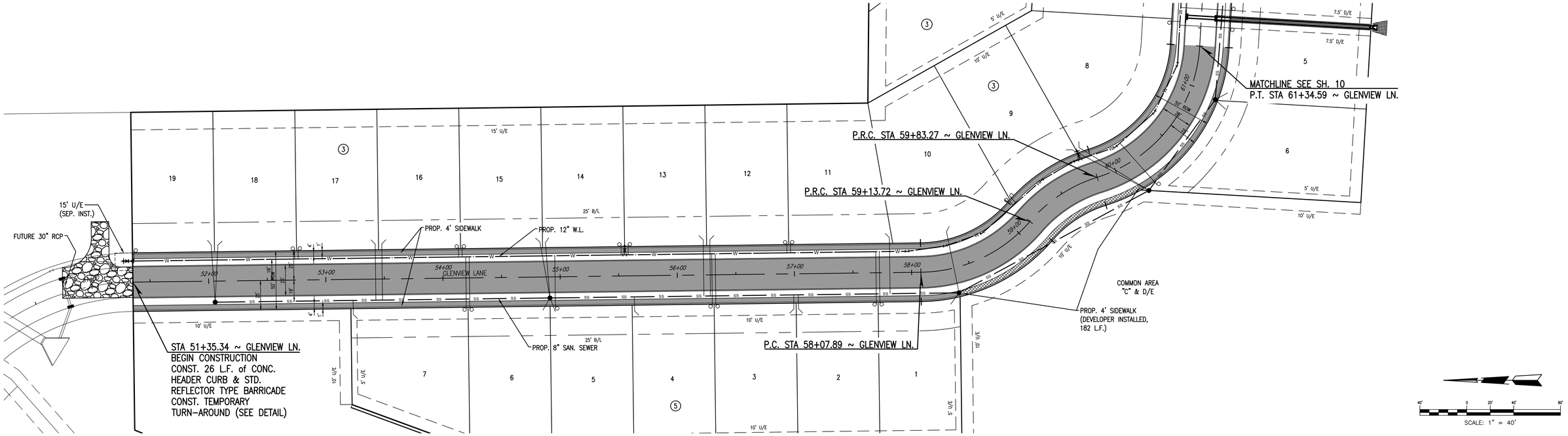


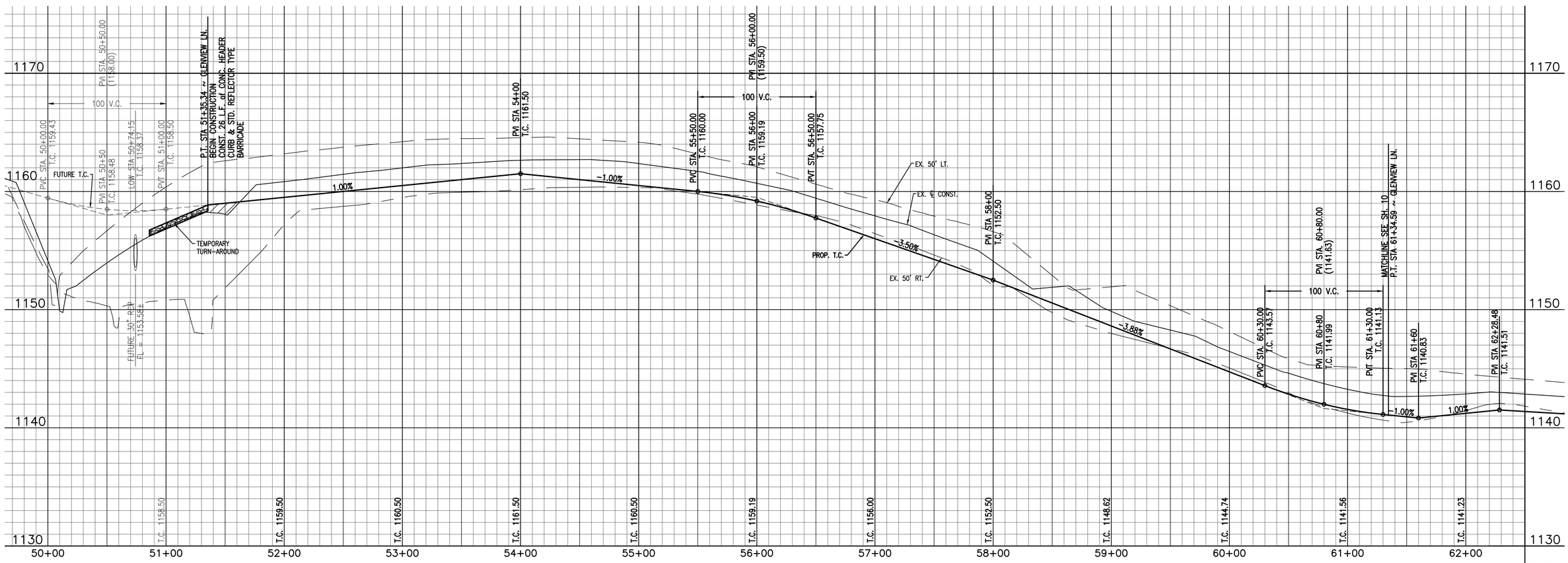




GLENVIEW CROSSING (CONT.) – GLENVIEW COURT

SCALE: HORIZ. 1" = 40' VERT. 1" = 4'	DATE: 7/03/25	NORMAN, OKLAHOMA	SUMMIT VALLEY ADDITION SECTION 4	PAVING & DRAINAGE PLAN & PROFILE	SMC Consulting Engineers, P.C., OKLAHOMA CITY, OKLAHOMA	SHEET NO: 8
						REVISED:





SCALE: HORIZ. 1" = 40' VERT. 1" = 4'	DATE: 7/03/25	NORMAN, OKLAHOMA	SUMMIT VALLEY ADDITION SECTION 4	PAVING & DRAINAGE PLAN & PROFILE	SMC Consulting Engineers, P.C., OKLAHOMA CITY, OKLAHOMA	SHEET NO: 9
						REVISED:

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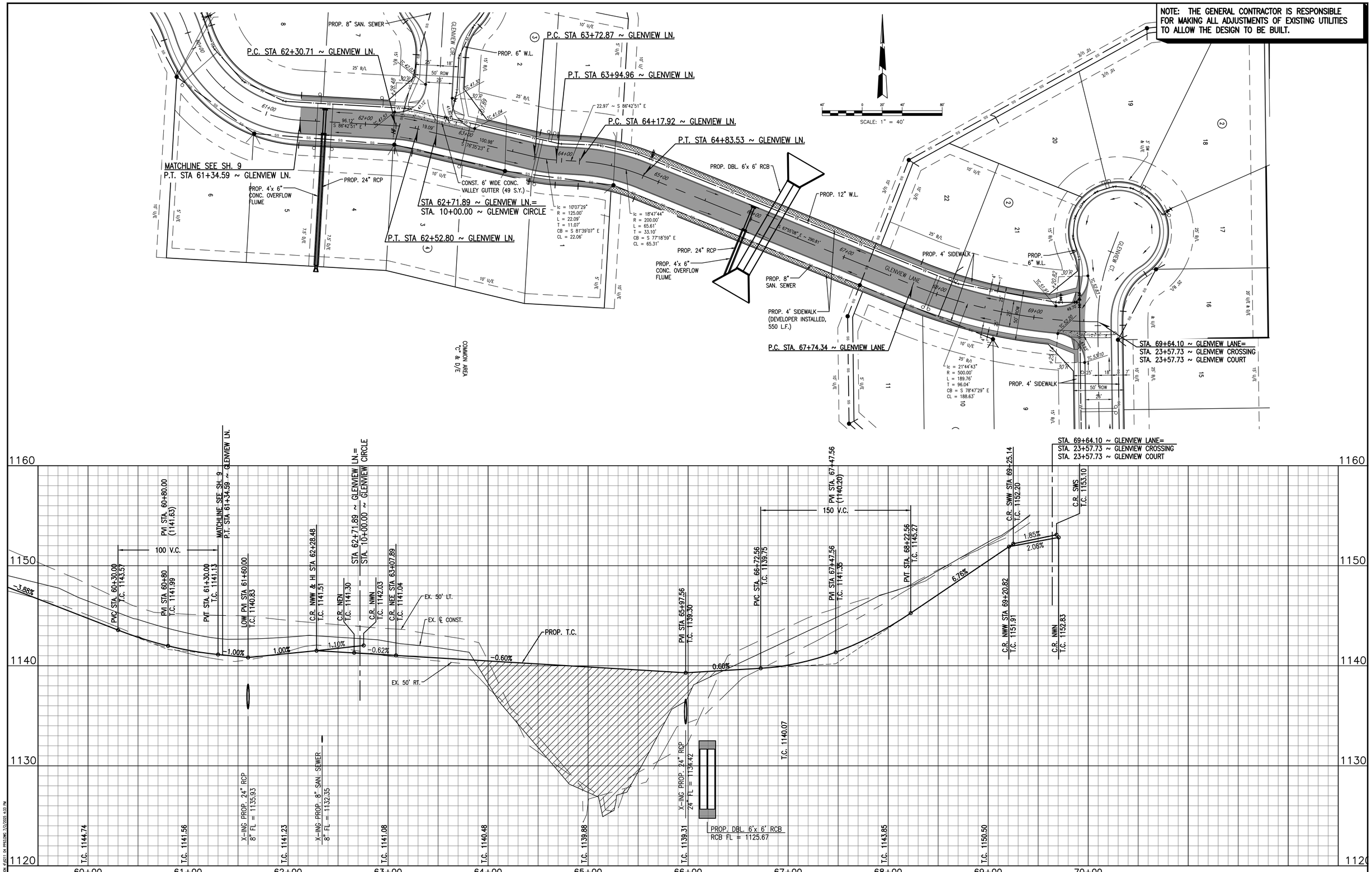

GLENVIEW LANE (CONT.)

SCALE: HORIZ. 1" = 40' VERT. 1" = 4'	DATE: 7/03/25	NORMAN, OKLAHOMA	SUMMIT VALLEY ADDITION SECTION 4	PAVING & DRAINAGE PLAN & PROFILE	SMC Consulting Engineers, P.C., OKLAHOMA CITY, OKLAHOMA	SHEET NO: 10
						REVISED:

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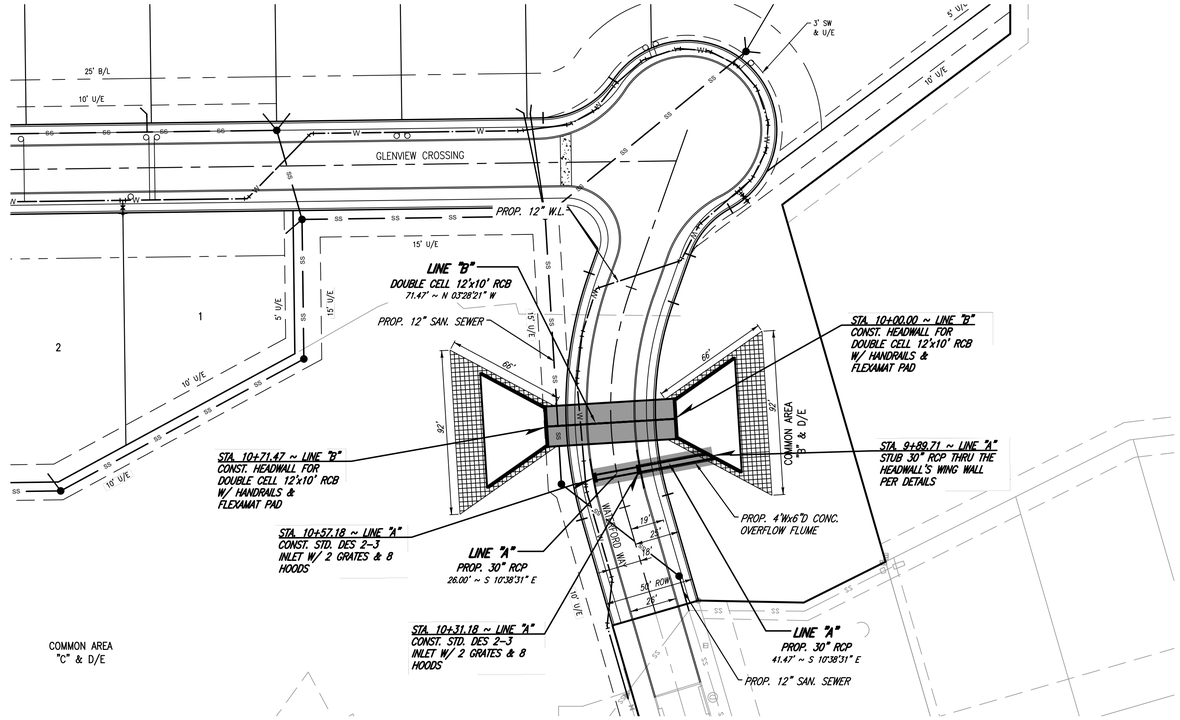
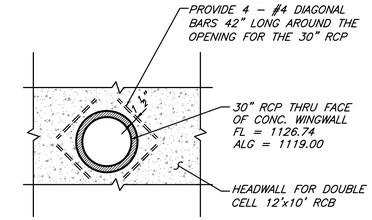
NOTE: THE GENERAL CONTRACTOR IS RESPONSIBLE FOR MAKING ALL ADJUSTMENTS OF EXISTING UTILITIES TO ALLOW THE DESIGN TO BE BUILT.

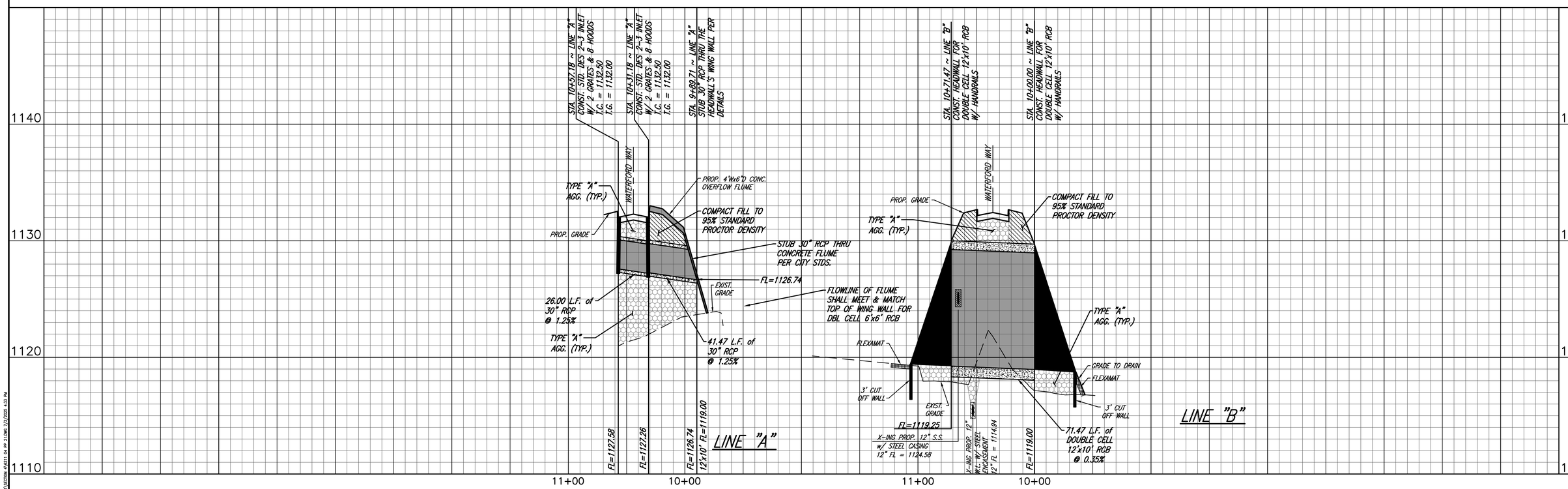




REBAR DETAIL FOR 30" RCP THRU
CONC. WINGWALL FOR DOUBLE CELL 12'x10' RCB

SCALE: N.T.S.

SCALE: 1" = 40'



STORM SEWER LINE 'A' & 'B'

SCALE: HORIZ. 1" = 40' VERT. 1" = 4'	DATE: 7/03/25	NORMAN, OKLAHOMA	SUMMIT VALLEY ADDITION SECTION 4	STORM SEWER PLAN & PROFILE	SMC Consulting Engineers, P.C., OKLAHOMA CITY, OKLAHOMA	SHEET NO: 11
						REVISED:

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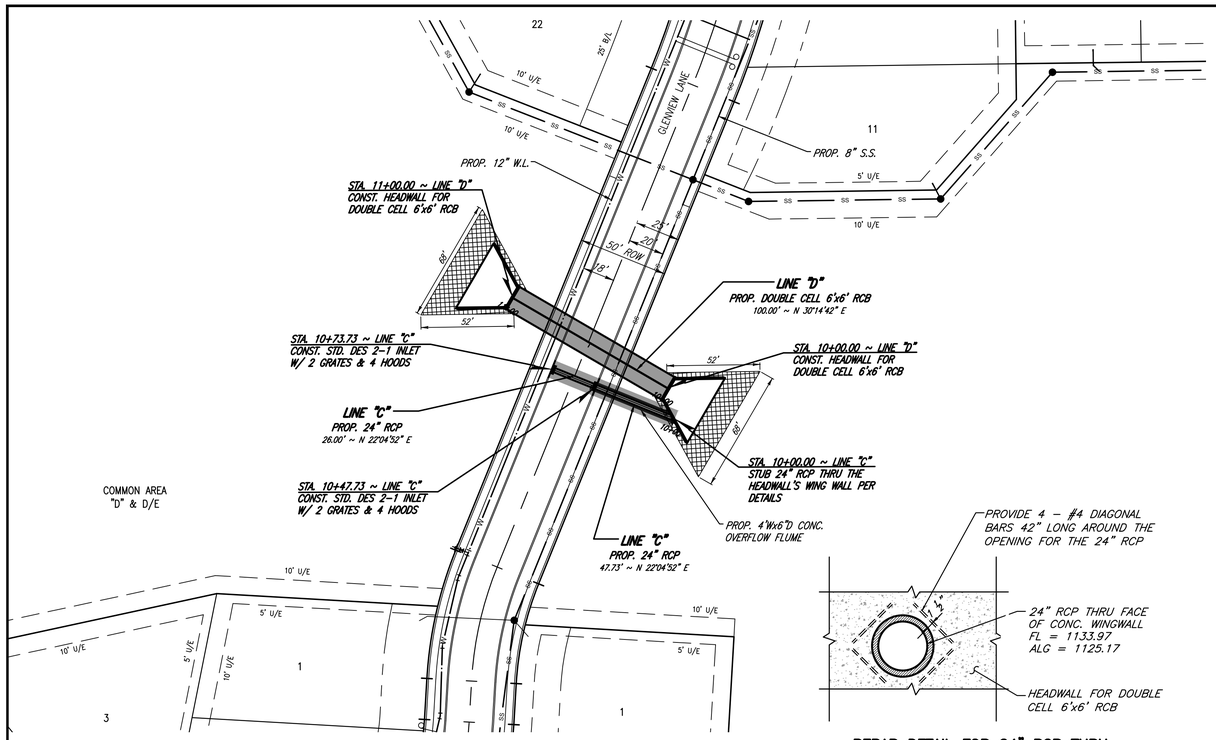

REBAR DETAIL FOR 24" RCP THRU
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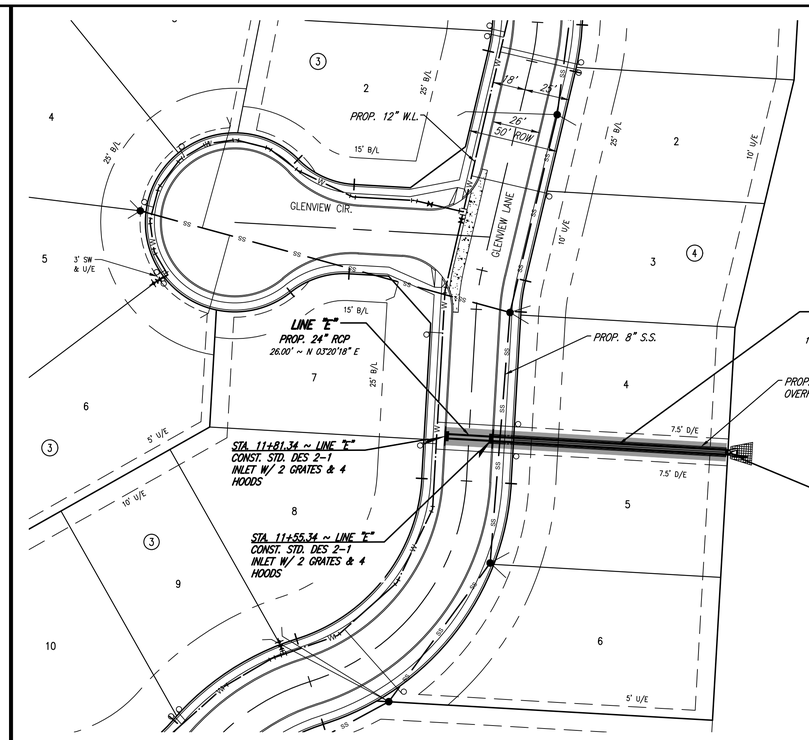
SCALE: N.T.S.



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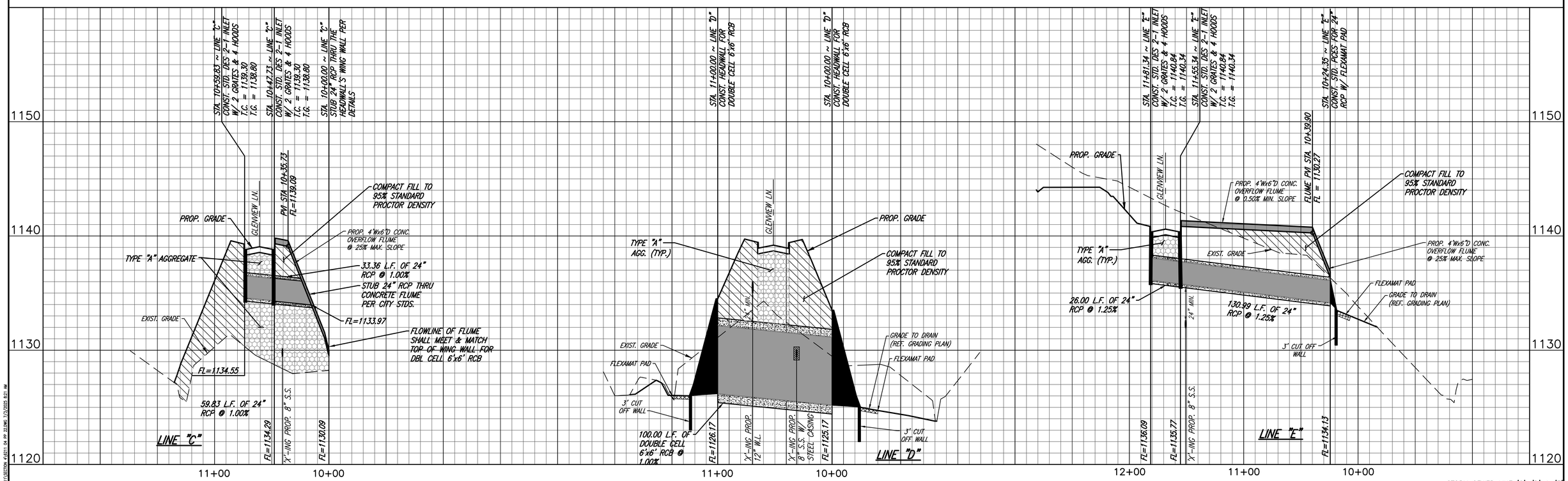
SCALE: 1" = 40'



STORM SEWER LINE 'C', 'D' & 'E'

SCALE: HORIZ. 1" = 40' VERT. 1" = 4'	DATE: 7/03/25	NORMAN, OKLAHOMA	SUMMIT VALLEY ADDITION SECTION 4	STORM SEWER PLAN & PROFILE	SMC Consulting Engineers, P.C., OKLAHOMA CITY, OKLAHOMA	SHEET NO: 12
						REVISED:

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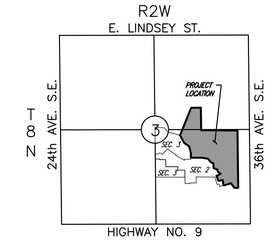
LEGEND

- SF — CSILT FENCE/PERIMETER CONTROLS
- CFS — COMPOST FILTER SOCK/PERIMITER CONTROLS
- CE — ROCK PAD AT CONSTRUCTION ROAD EXIT ONTO PAVED STREET
- SOD — BERMUDA SOD FILTER STRIPS INSTALLED INSIDE CURB TO PROTECT STREETS FROM OVER-THE-CURB SOIL LOSS. ALSO INSTALL ON BOTH SIDES OF FLUME.
- LOD — LIMITS OF NO DISTURBANCE
- BAR — BARRICADE
- CDC — COMPOST DITCH CHECK
- MSA — EQUIPMENT MAINTENANCE & MATERIAL STORAGE AREA
- PROPOSED SLOPES OF NEW CONTOURS
- ST — SILT TRAP
- CFP — COMPOST FILTER SOCK INLET PROTECTION
- CW — CONCRETE WASHOUT AREA
- SS — SWPPP INFORMATION SIGN
- FLX — FLEXAMAT
- RP — RIP RAP PAD AT END OF STREET
- T — TOILET
- WR — WASTE RECEPTACLE
- SP — STOCK PILE
- SOD — SOD ON STEEP SLOPES

A SEDIMENT BASIN IS NOT USED AT THIS SITE. THIS PROJECT SITE DOES NOT HAVE COMMON DRAINAGE LOCATIONS THAT SERVE AN AREA WITH 10 OR MORE ACRES DISTURBED AT ONE TIME. MULTIPLE, SEQUENTIAL BMP'S ARE USED IN SERIES TO PROVIDE EQUIVALENT SEDIMENT REMOVAL.

TOTAL AREA = 43.42 AC.±
DISTURBED AREA = 21.41 AC.±

60' 0 30' 60' 120'
SCALE: 1" = 60'

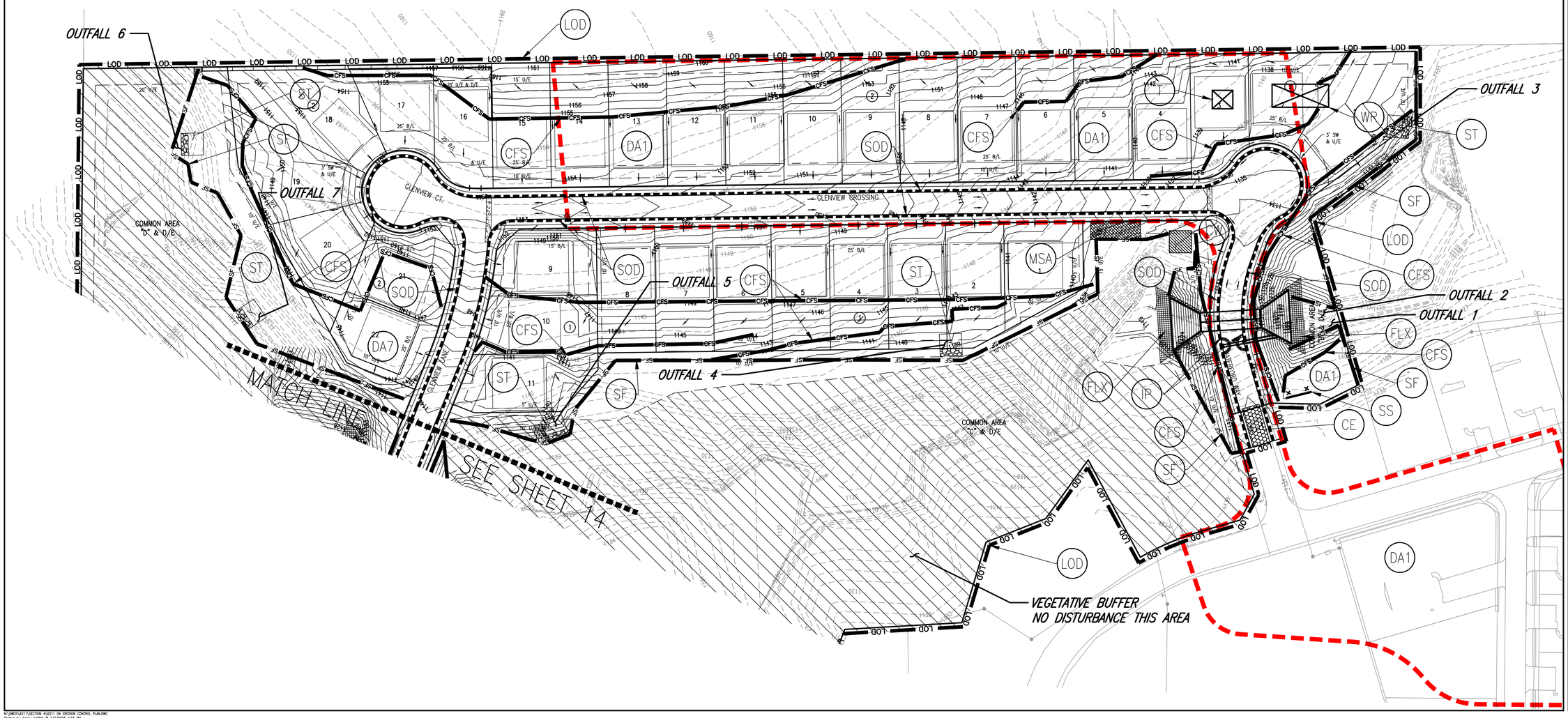


LOCATION MAP
NOT TO SCALE

EROSION CONTROL PLAN
SUMMIT VALLEY ADDITION SECTION 4

A PART OF THE E. ½ OF SECTION 3, T8N, R2W, I.M.
NORMAN, CLEVELAND COUNTY, OKLAHOMA

DA1=7.068 AC
DA2=2.977 AC



SUMMIT VALLEY ADDITION SECTION 4

36th AVE. S.E. & HWY. 9 NORMAN, OKLAHOMA

SMC Consulting Engineers, P.C.
815 West Main – Oklahoma City, OK 73106
PH: 405-232-7715 Fax: 405-232-7829
www.smcokc.com
OKLAHOMA CERTIFICATE OF AUTHORIZATION NO. CA 464 EXP 06/30/2027

No.	Revision	By	Date

PROJECT NO.: 6211.04
DATE: 7/03/25
SCALE: 1" = 60'
DRAWN BY: SY
ENGINEER: Christopher D. Anderson
P.E. NUMBER: 18288

EROSION CONTROL PLAN

SHEET NO.
13

N:\DWGS\6211\SECTION 4\6211 04 EROSION CONTROL PLAN.DWG
Plotted by: Danny Griffith @ 7/3/2025 4:33 PM

EROSION CONTROL PLAN

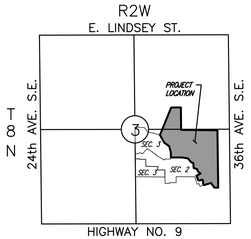
SUMMIT VALLEY ADDITION SECTION 4

A PART OF THE E. ½ OF SECTION 3, T8N, R2W, I.M.
NORMAN, CLEVELAND COUNTY, OKLAHOMA

A SEDIMENT BASIN IS NOT USED AT THIS SITE. THIS PROJECT SITE DOES NOT HAVE COMMON DRAINAGE LOCATIONS THAT SERVE AN AREA WITH 10 OR MORE ACRES DISTURBED AT ONE TIME. MULTIPLE, SEQUENTIAL BMP'S ARE USED IN SERIES TO PROVIDE EQUIVALENT SEDIMENT REMOVAL.

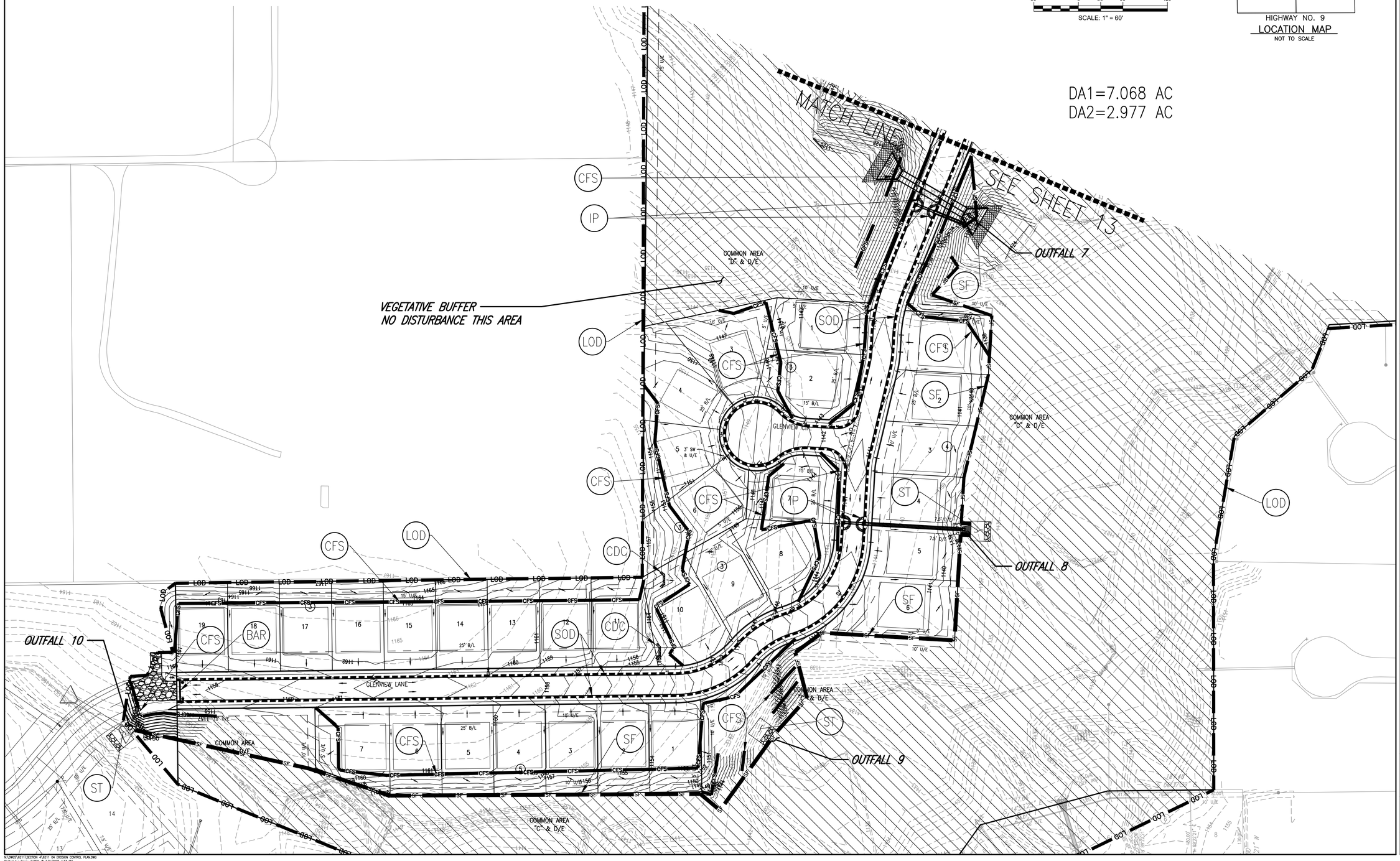
TOTAL AREA = 43.42 AC.±
DISTURBED AREA = 21.41 AC.±

SCALE: 1" = 60'



LOCATION MAP
NOT TO SCALE

DA1=7.068 AC
DA2=2.977 AC



SUMMIT VALLEY ADDITION
SECTION 4

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DRAWN BY: SY
ENGINEER: Christopher D. Anderson
P.E. NUMBER: 18288

EROSION CONTROL PLAN 2

SHEET NO.
14

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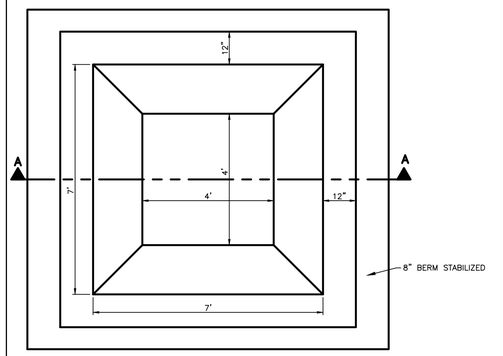
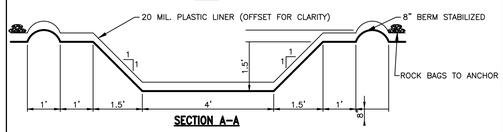
Plotted by: Danny Griffith @ 7/2/2025 4:33 PM



PLAN



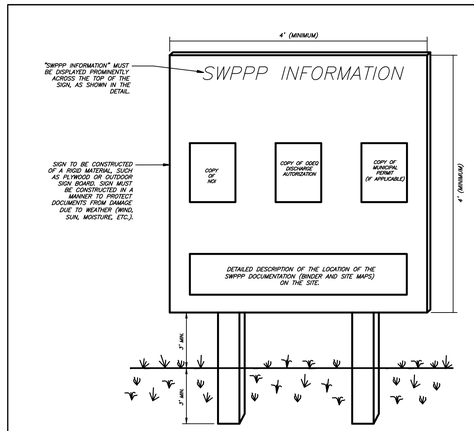
SECTION A–A

CW

NOTES:
1. CONCRETE WASHOUT TO BE LINED WITH LEAK-PROOF PLASTIC LINER 20 MIL. MINIMUM THICKNESS.

CONCRETE WASHOUT AREA

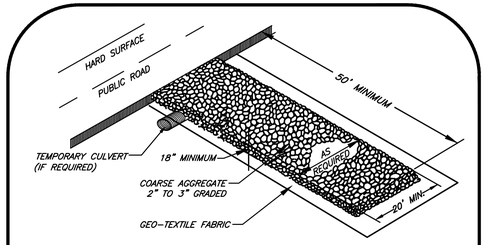
STORM WATER QUALITY | NTS



NOTES:
1. THE SWPPP INFORMATION SIGN MUST BE LOCATED NEAR THE CONSTRUCTION EXIT OF THE SITE, SUCH THAT IT IS ACCESSIBLE AND VIEWABLE BY THE GENERAL PUBLIC, BUT NOT OBSTRUCTING VIEWS AS TO CAUSE A SAFETY HAZARD.
2. ALL POSTED DOCUMENTS MUST BE MAINTAINED IN A CLEARLY READABLE CONDITION AT ALL TIMES THROUGHOUT CONSTRUCTION AND UNTIL THE NOTICE-OF-TERMINATION (NOT) IS FILED FOR THE PERMIT.
3. CONTRACTOR SHALL POST OTHER STORM WATER AND/OR EROSION AND SEDIMENT CONTROL RELATED PERMITS ON THE SIGN AS REQUIRED BY THE GOVERNING AGENCY.
4. SIGN SHALL BE LOCATED OUTSIDE OF PUBLIC RIGHT-OF-WAY AND EASEMENTS UNLESS APPROVED BY THE GOVERNING AGENCY.
5. CONTRACTOR IS RESPONSIBLE FOR ENSURING STABILITY OF THE SWPPP INFORMATION SIGN.

SWPP INFORMATION SIGN

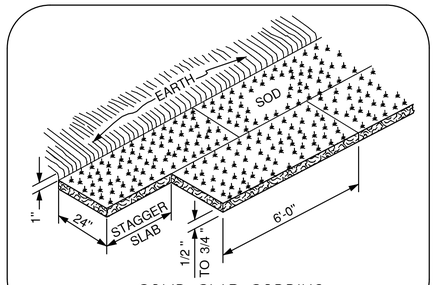
SS | STORM WATER QUALITY | NTS



ROCK PAD AT CONSTRUCTION EXIT FOR MUD REMOVAL

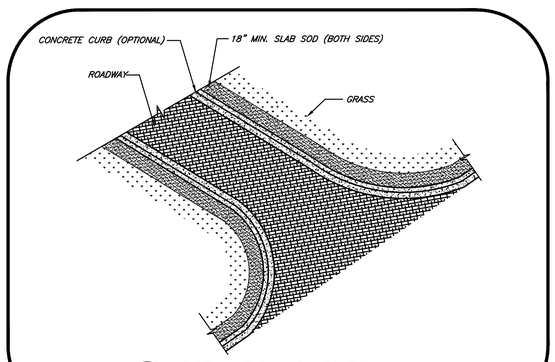
CE

N.T.S.
SMC PREPARD DETAIL



SOLID SLAB SODDING

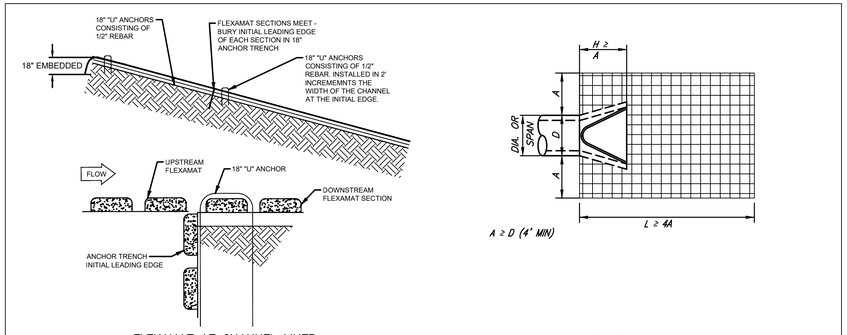
N.T.S.



SOD AROUND CURB

SOD

N.T.S.
SMC PREPARD DETAIL

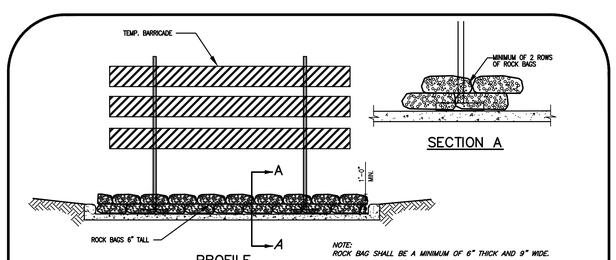


FLEXAMAT AT CHANNEL LINER

FLEXAMAT AT RCP OUTLETS NON CHANNELIZED

NOTES:
1. GRADE A CHANNEL SO THAT WATER WILL FLOW DOWN THE CENTER OF THE CHANNEL AND BE CONTAINED TO THE CHANNEL. ALL SUBGRADE SURFACES PREPARED FOR PLACEMENT OF MATS SHALL BE SMOOTH AND FREE OF ALL ROCKS, STICKS, ROOTS, OTHER PROTRUSIONS, OR DEBRIS OF ANY KIND. THE PREPARED SURFACE SHALL PROVIDE A FIRM UNYIELDING FOUNDATION FOR THE MATS WITH NO SHARP OR ABRUPT BREAKS IN THE GRADE.
2. APPLY SEED DIRECTLY TO THE PREPARED SOIL PRIOR TO FLEXAMAT INSTALLATION. USE SEED PER PROJECT SPECIFICATIONS.
3. INSTALL FLEXAMAT ROLLS. CONSULT MANUFACTURER FOR RECOMMENDED MAT PLACEMENT. THE INITIAL LEADING EDGE OF FLEXAMAT IS BURIED VERTICALLY 18" TO SERVE AS THE ANCHOR TRENCH. EACH FOLLOWING SECTIONS INITIAL LEADING EDGE OF MAT SHALL BE BURIED IN A 18" ANCHOR TRENCH. THE UPSTREAM MAT SHALL BE BURIED IN A 18" ANCHOR TRENCH. THE UPSTREAM MAT SHALL FULLY COVER THE ANCHOR TRENCH.
4. 1/2" REPAIR "U" STAPLES 18" LONG WILL BE INSTALLED IN 2' INCREMENT ACROSS THE WIDTH OF THE CHANNEL AT THE POINT WHERE THE MAT EXTENDS FROM THE ANCHOR TRENCH.

FLX | **FLEXAMAT** | N.T.S.



ROCK BAG BARRIER DETAIL

BAR

N.T.S.
SMC PREPARD DETAIL

SUMMIT VALLEY ADDITION SECTION 4

36th AVE. S.E. & HWY. 9 NORMAN, OKLAHOMA

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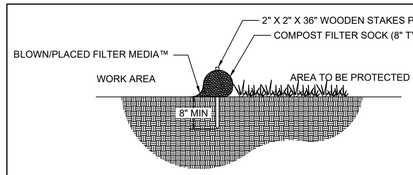
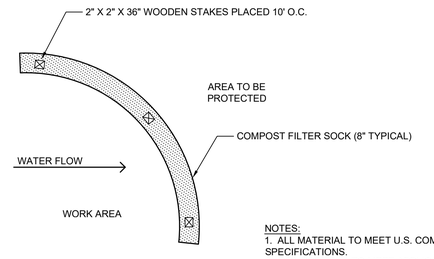
DRAWN BY: DM
ENGINEER: Christopher D. Anderson
P.E. NUMBER: 18288

EROSION CONTROL DETAILS 1

SHEET NO.
15



SECTION NTS

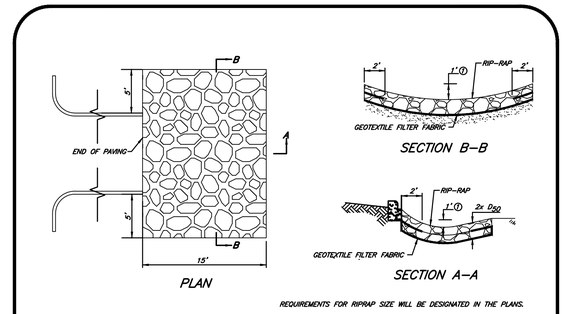


NTS

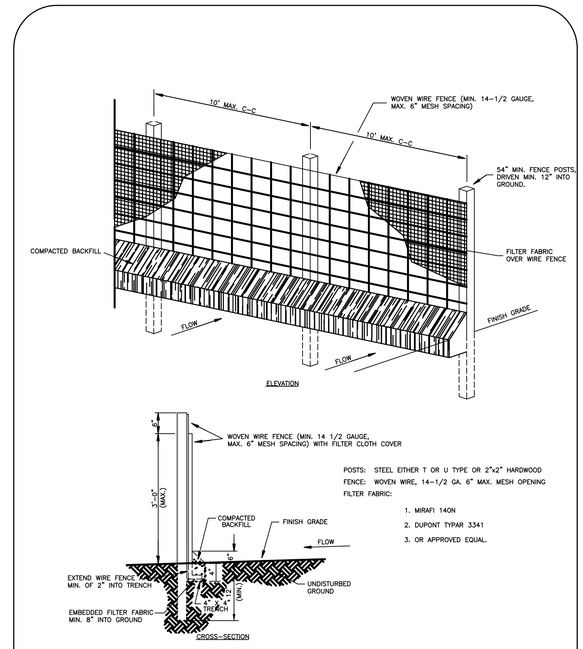
NOTES:
1. ALL MATERIAL TO MEET U.S. COMPOSTING COUNCIL SPECIFICATIONS.
2. COMPOST FILL TO MEET APPLICATION REQUIREMENTS.
3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.

CFS

COMPOST FILTER SOCK



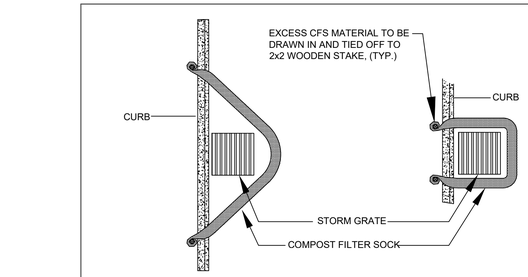
RPP RIP-RAP AT END OF PAVING
N.T.S.



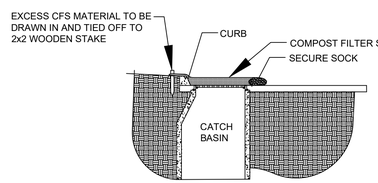
1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
4. MAINTENANCE SHALL BE PERFORMED AS NOTED IN THE EROSION CONTROL PLAN. COLLECTED MATERIAL SHALL BE REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

SEDIMENTATION/SILT FENCE WITH WIRE SUPPORT SWA
N.T.S.

DTSFENCE	12/04/01	



CURBSIDE OPTION "A" PLAN **CURBSIDE OPTION "B" PLAN**

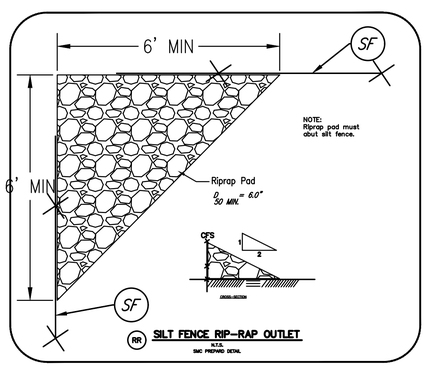


CURBSIDE SECTION

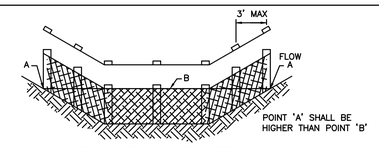
NOTES:
1. ALL MATERIAL TO MEET U.S. COMPOSTING COUNCIL SPECIFICATIONS.
2. COMPOST FILL TO MEET APPLICATION REQUIREMENTS.
3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.

CFP **CFS INLET PROTECTION**

LAST REVISED:	SOURCE BOX
DEC 2015	SMC STANDARD DETAIL



RR **SILT FENCE RIP-RAP OUTLET**
N.T.S.
SMC PREPARD DETAIL



DRAINAGEWAY INSTALLATION
(FRONT ELEVATION)

NOTE: INSTALL IN ACCORDANCE WITH SILT FENCE DETAIL, EXCEPT AS NOTED ABOVE.

SEDIMENTATION/SILT FENCE DRAINAGEWAY INSTALLATION
N.T.S.

SUMMIT VALLEY ADDITION
SECTION 4

36th AVE. S.E. & HWY. 9
NORMAN, OKLAHOMA

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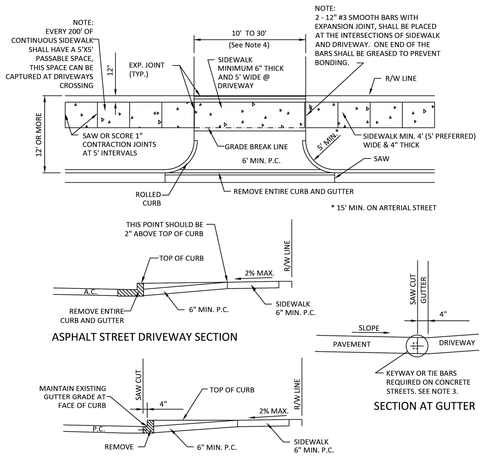
DRAWN BY: DM
ENGINEER: Christopher D. Anderson
P.E. NUMBER: 18288

EROSION CONTROL DETAILS 2

SHEET NO.
16

N:\DWGS\6211\SECTION 4\6211 D4 EROSION CONTROL DETAILS.DWG
Plotted by: Danny Griffith @ 7/3/2025 4:33 PM

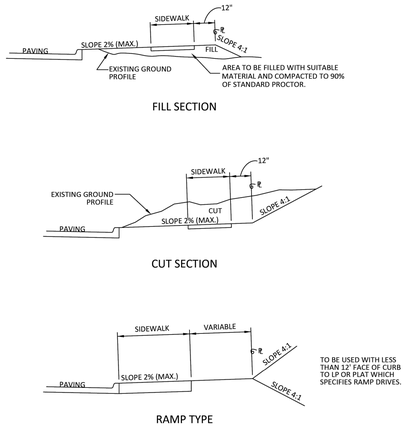


NOTES:

1. REFER TO DRIVEWAY APPROACH STANDARDS ST-24 THROUGH ST-27.
2. IF THE CONCRETE STREET IS CONSTRUCTED WITH A SEPARATE CURB AND GUTTER, THE ENTIRE CURB AND GUTTER SHALL BE REMOVED WHEN CONSTRUCTING A DRIVEWAY APPROACH.
3. IF CONCRETE DRIVEWAY APPROACH ABUTS A CONCRETE STREET OR MOUNTABLE CURB THE DRIVEWAY SHALL BE CONNECTED TO THE STREET OR CURB USING A KEYWAY OR TIE BARS. THE TIE BARS SHALL BE #4 BARS 450 (18") LONG REQUIRED AT 600 (24") CENTERS.
4. IN THE HISTORIC DISTRICT, THE MINIMUM DRIVEWAY WIDTH SHALL BE 8 FEET AND THE MAXIMUM 10 FEET. ALSO TWO STRIPS OF CONCRETE 18" WIDE SHALL BE ALLOWED.
5. REFERENCE THE CURRENT VERSION OF THE CITY'S COMPREHENSIVE TRANSPORTATION PLAN AND ENGINEERING DESIGN CRITERIA FOR ADDITIONAL INFORMATION AND DRIVEWAY REQUIREMENTS.

RESIDENTIAL DRIVEWAY, TYPE II DRIVEWAY APPROACH

CITY ENGINEER APPROVAL:		CITY OF NORMAN, OKLAHOMA		
APPROVAL DATE:	REVISION DATE: 02/2023	REV. NO. 00	DRAWING NO. ST 16	

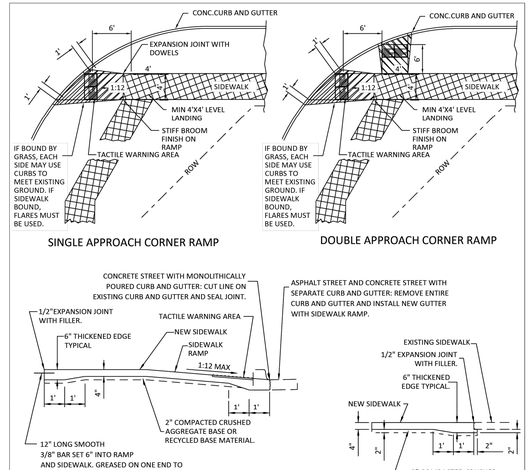


NOTES:

1. ENTIRE AREA BETWEEN CURB AND PROPERTY LINE TO BE GRADED AS SHOWN.
2. MINIMUM SIDEWALK THICKNESS 4".
3. MINIMUM THICKNESS THROUGH DRIVE 6".
4. INSTALL 1/2" EXPANSION JOINTS BETWEEN SIDEWALK AND CURB.

RIGHT-OF-WAY GRADING

CITY ENGINEER APPROVAL:		CITY OF NORMAN, OKLAHOMA		
APPROVAL DATE:	REVISION DATE: 02/2023	REV. NO. 00	DRAWING NO. ST 13	

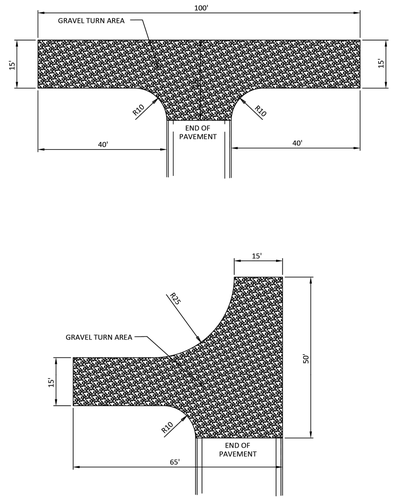


NOTES:

1. CROSS SLOPE OF LANDING AREA SHALL NOT EXCEED 2% IN ANY DIRECTION.
2. 6" THICKENING AND 3/8" SMOOTH DOWEL AND SHALL BE USED TO CONNECT NEW SIDEWALK TO EXISTING DRIVEWAY.
3. ALL SIDEWALKS AND PEDESTRIAN RAMPS SHALL BE COMPLIANT WITH THE MOST CURRENT VERSION OF THE ADA STANDARDS AND THE PUBLIC RIGHTS OF WAY ACCESSIBILITY GUIDELINES (PROWAG).
4. FOR ADDITIONAL RAMP CONFIGURATIONS, SEE THE CURRENT VERSION OF THE ODOT WHEEL CHAIR RAMP DETAILS WCR-3)

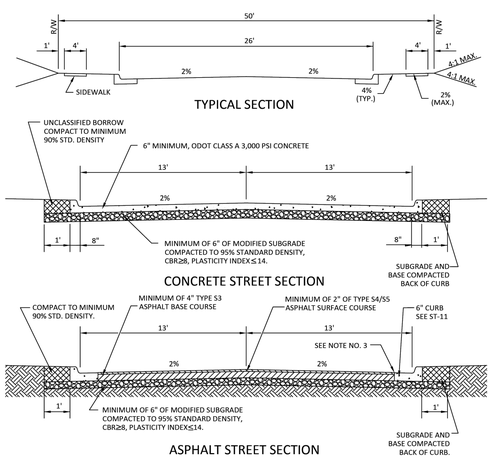
SIDEWALK DETAILS & WHEELCHAIR RAMP

CITY ENGINEER APPROVAL:		CITY OF NORMAN, OKLAHOMA		
APPROVAL DATE:	REVISION DATE: 02/2023	REV. NO. 00	DRAWING NO. ST 14	



TEMPORARY T TURN AROUND

CITY ENGINEER APPROVAL:		CITY OF NORMAN, OKLAHOMA		
APPROVAL DATE:	REVISION DATE: 02/2023	REV. NO. 00	DRAWING NO. ST 35	

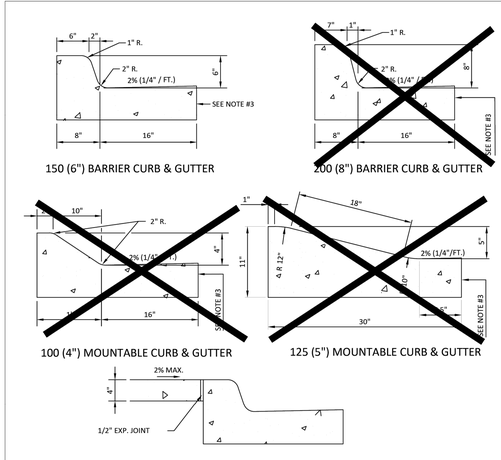


NOTES :

1. PAVING SECTION SHOWN IS MINIMUM ALLOWED. STREET PAVING SHALL BE DESIGNED IN ACCORDANCE WITH THE CITY'S "ENGINEERING DESIGN CRITERIA".
2. DOWELS REQUIRED FOR PCC PAVING 8" THICK, OR GREATER, IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 2304.4.A
3. ASPHALT SURFACE SHALL BE $1\frac{1}{2}$" ABOVE EDGE OF CONCRETE GUTTER. THE GUTTER THICKNESS MAY BE REDUCED TO $5\frac{1}{2}$" TO ACCOMMODATE THIS REQUIREMENT.
4. REFERENCE THE CURRENT VERSION OF THE CITY'S COMPREHENSIVE TRANSPORTATION PLAN AND ENGINEERING DESIGN CRITERIA FOR ADDITIONAL INFORMATION AND SECTION REQUIREMENTS.

LOCAL (URBAN) STREET

CITY ENGINEER APPROVAL:		CITY OF NORMAN, OKLAHOMA		
APPROVAL DATE:	REVISION DATE: 02/2023	REV. NO. 00	DRAWING NO. ST 01	

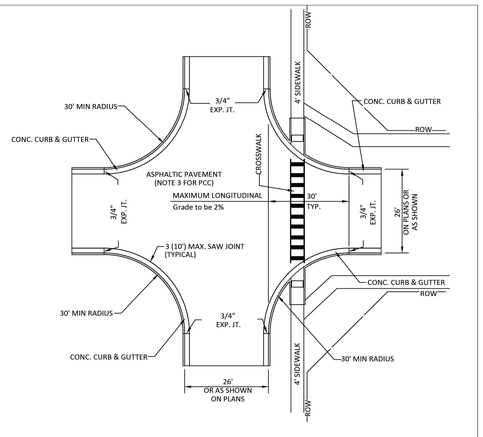


NOTES:

1. SEE ODOT STANDARD CSCD FOR JOINT DETAILS.
2. #4 TIE BARS 750 2'-6" LONG REQUIRED AT 18" CENTERS WITH TONGUE AND GROOVE JOINT IF CURB AND GUTTER NOT CAST INTEGRALLY WITH STREET PAVING. LONGITUDINAL CONSTRUCTION JOINTS ON LOCAL AND COLLECTOR STREET MAY, AT THE OPTION OF THE DESIGN ENGINEER, BE BUTT TYPE JOINTS WITH TIEBARS OR KEYWAY TYPE JOINT WITHOUT TIEBARS.
3. 150 (6") MIN. WHEN CURB & GUTTER IS POURED SEPARATELY IF CURB & GUTTER IS POURED MONOLITHICLY WITH THE CONCRETE STREET PAVEMENT, THE GUTTER THICKNESS SHALL BE SAME AS THE APPROVED CONCRETE STREET PAVEMENT THICKNESS. USE 1/2 " DIA. DOWELS 18" LONG AT 24" CENTERS (SMOOTH OR DEFORMED) TO TIE CURB TO CONCRETE STREET PAVEMENT.
4. FOR ARTERIAL (URBAN) STREET SECTIONS, THE GUTTER CROSS-SLOPE SHALL BE 3%.

CURB AND GUTTER

CITY ENGINEER APPROVAL:		CITY OF NORMAN, OKLAHOMA		
APPROVAL DATE:	REVISION DATE: 02/2023	REV. NO. 00	DRAWING NO. ST 11	



NOTES:

1. SIDEWALKS TO BE LOCATED PER THE LAND SUBDIVISION CODE.
2. WHEELCHAIR RAMPS PER STANDARD ST-14.
3. FOR PCC PAVING, JOINT LAYOUT TO BE SUBMITTED FOR REVIEW BY CITY ENGINEER.
4. SIDEWALKS TO BE LOCATED PER ST-01.

RESIDENTIAL STREET INTERSECTION LAYOUT

CITY ENGINEER APPROVAL:		CITY OF NORMAN, OKLAHOMA		
APPROVAL DATE:	REVISION DATE: 02/2023	REV. NO. 00	DRAWING NO. ST 12	

SUMMIT VALLEY ADDITION SECTION 4

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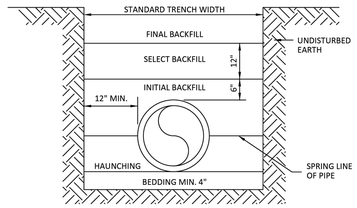
DRAWN BY: D.G.
ENGINEER: Christopher D. Anderson
P.E. NUMBER: 18288

PAVING DETAILS

SHEET NO.
17

H:\DWGS\6211\SECTION 4\6211 04 PAVING DETAILS.DWG
Printed by: Davey Griffith @ 7/2/2025 4:33 PM



BEDDING MATERIALS					
BACKFILL DESCRIPTION	NON-PAVED AREAS			PAVED AREAS (SEE NOTE 9)	
	CORRUGATED POLYPROPYLENE		CONCRETE	CORRUGATED POLYPROPYLENE	CONCRETE
FINAL BACKFILL	EXCAVATED MATERIAL		EXCAVATED MATERIAL	SBM	SBM
SELECT BACKFILL	EXCAVATED MATERIAL		EXCAVATED MATERIAL	SBM	SBM
INITIAL BACKFILL	SAND	SAND	SELECT FILL	SBM	SBM
HAUNCHING	SBM	SBM	SELECT FILL	SBM	SBM
BEDDING	SEE NOTE 5		SEE NOTE 5	SEE NOTE 5	SEE NOTE 5

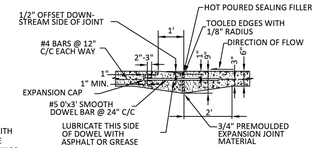
NOTES:
1. INSTALLATION AND BACK FILLING SHALL MEET MANUFACTURERS RECOMMENDATION.
2. SELECT FILL CONSISTS OF EXCAVATED MATERIALS CONTAINING NO MATERIAL LARGER THAN 2" DIAMETER.
3. STANDARD BEDDING MATERIAL (SBM) SHALL CONFORM TO ODOT 703.08, TYPE A, B, C, OR D AGGREGATE BASE OR CONTROLLED LOW-STRENGTH MATERIAL (CLSM) FILL PER SECTION 701.79.
4. COMPACTION REQUIREMENTS:
   A. NON-PAVED AREAS: 90% MAXIMUM STANDARD PROCTOR DENSITY FOR COHESIONLESS SOILS AND 85% FOR COHESIVE SOILS.
   B. PAVED AREAS: 90% MAXIMUM STANDARD PROCTOR DENSITY FOR COHESIONLESS SOILS.
5. IF TRENCH IS DRY, BEDDING SHALL BE 4" SAND OR TYPE A AGGREGATE BASE, AND IF WET SHALL BE NO. 57 OR NO.67 ROCK PER SECTION 701.06.
6. NO WATER JETTING ALLOWED.
7. IN SANDY NON-PAVED AREAS, SAND CAN BE USED FOR ALL BACKFILL.
8. FOR CONCRETE PIPES IN NON-PAVED AREAS, SAND CAN BE USED FOR ALL BACKFILL IF THE CONCRETE PIPE USES RUBBER O-RING JOINTS.
9. THE BACKFILL MATERIAL SHALL EXTEND A MINIMUM OF 2' BEHIND THE BACK OF THE CURB, OR THE EDGE OF PAVEMENT WHERE NO CURB EXISTS.
10. POLYPROPYLENE PIPE CAN ONLY BE USED OUTSIDE OF HE ROADWAY LIMITS OR PERPENDICULAR TO THE TRAVEL WAY FOR CROSSING.

STORM SEWER PIPE TRENCHING AND BEDDING

CITY ENGINEER APPROVAL:		CITY OF NORMAN, OKLAHOMA	
APPROVAL DATE:	REVISION DATE: 02/2023	REV. NO. 00	DRAWING NO. SD 01

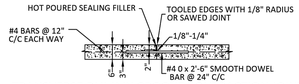
ALTERNATE DETAIL
(USING WELDED CONNECTIONS PIPE HANDRAIL)

PIPE HANDRAIL DETAIL

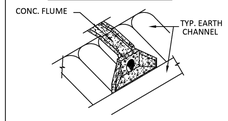


TYPICAL TRANSVERSE EXPANSION JOINT

SPACED AT 100 FOOT C/C MAX.

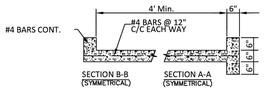


TRANSVERSE DUMMY GROOVE CONTRACTION JOINT

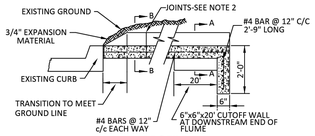


CUT-OFF WALL DETAIL

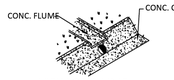
SPACED AT 20 FOOT C/C



VIEW OF FLUME
AT EARTH CHANNEL



PROFILE

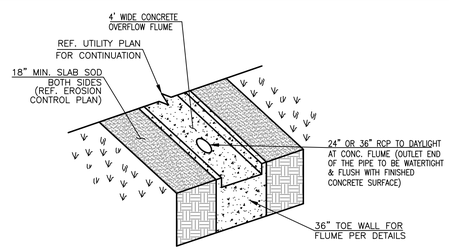


VIEW OF FLUME
AT CONCRETE CHANNEL

NOTES:
1. HANDRAIL WELDED CONNECTIONS MAY BE USED FOR PIPE HANDRAIL. WELDED CONNECTIONS SHALL BE THOROUGHLY CLEANED OF ALL LOOSE SCALE, GROUND SMOOTH & SPOT PAINTED WITH TWO COATS OF ALUMINUM PAINT.
2. 3/4" EXPANSION JOINT @ 100' MAX. SAWED CONT. JOINT @ 20' MAX.

FLUME & CHANNEL LINER DETAILS

CITY ENGINEER APPROVAL:		CITY OF NORMAN, OKLAHOMA	
APPROVAL DATE:	REVISION DATE: 02/2023	REV. NO. 00	DRAWING NO. SD 07



STORM SEWER PIPE DAYLIGHT AT CONCRETE FLUME DETAIL

NOT TO SCALE

SUMMIT VALLEY ADDITION
SECTION 4

36TH AVE. S.E. & HWY. 9
NORMAN, OKLAHOMA

SMC Consulting Engineers, P.C.
815 West Main - Oklahoma City, OK 73106
PH: 405-232-7715 Fax: 405-232-7859
Website: www.smcokc.com
OKLAHOMA CERTIFICATE OF AUTHORIZATION NO. CA 464 EXP 06/30/2027

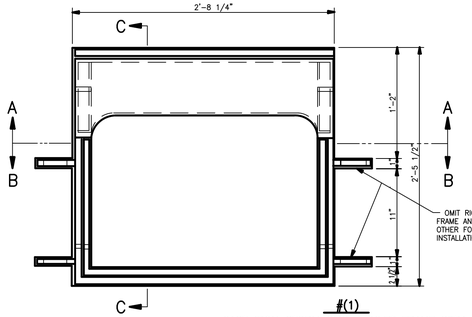
No.	Revision	By	Date

PROJECT NO.: 6211.04
DATE: 7/03/25
SCALE: N.T.S.
DRAWN BY: D.G.
ENGINEER: CHRISTOPHER D. ANDERSON
P.E. NUMBER: 18288

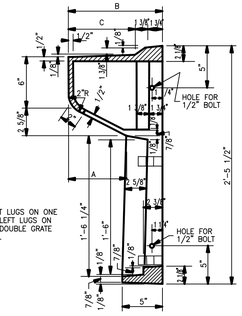
PAVING & STORM SEWER DETAILS

SHEET NO.
18

N:\DWGS\6211\SECTION 4\6211 04 DT01.DWG
Plotted by: Danny Griffith @ 7/2/2025 4:33 PM



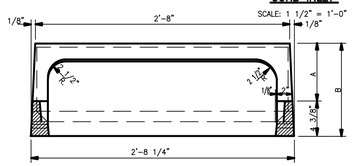
PLAN



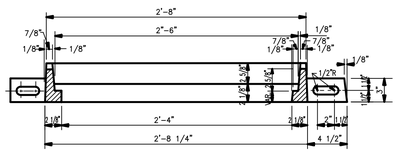
SECTION C–C

#(1)
CAST IRON STORM SEWER INLET FRAME WITH CURB INLET

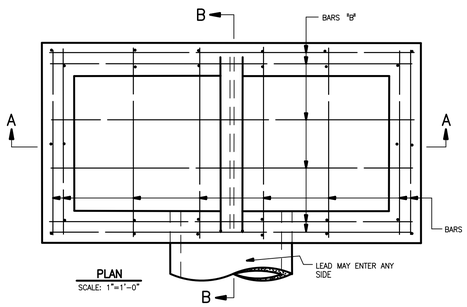
SCALE: 1 1/2" = 1'-0"



SECTION A–A



SECTION B–B



PLAN
SCALE: 1"=1'-0"

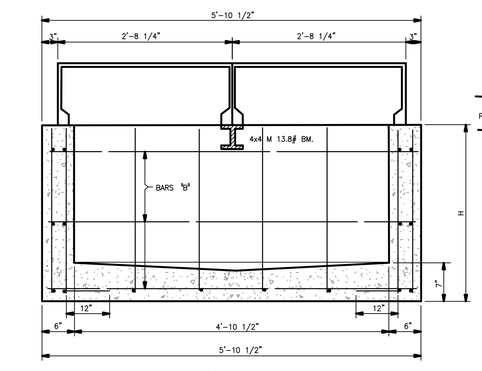
VARIABLE DIMENSION FOR ALL CURB CASTINGS			
	A	B	C
6" CURB FACE	7"	11 3/8"	8 1/4"
8" CURB FACE	9"	13 3/8"	10 1/4"

BAR LIST & QUANTITIES FOR DOUBLE GRATE & CURB INLET				
SIZE OF LEAD	H MINIMUM	F MINIMUM	CLASS A CONC. C.Y.	REINF. STL. LBS.
18"	2'-8 1/2"	2.57 FT.	1.02	137
24"	3'- 3"	3.11 FT.	1.18	147
30"	3'-9 1/2"	3.66 FT.	1.34	180

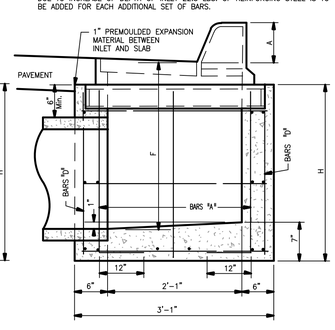
LEAD	PER ADDITIONAL FOOT OF DEPTH		BARS A (MIN.)	
	CONC. C.Y.	VERT. STEEL-LBS.	SIZE	NO.
18"	0.295	* 19.0	1/2"Ø x(H+8")	14
24"			1/2"Ø x(H+8")	14
30'			1/2"Ø x(H+8")	14

LEAD	BARS B		BARS C		BARS D (MIN.)	
	SIZE	NO.	SIZE	NO.	SIZE	NO.
18"	1/2"Ø x 5'-6"	14	1/2"Ø x 2'-9"	16	1/2"Ø x(H-4")	14
24"	1/2"Ø x 5'-6"	14	1/2"Ø x 2'-9"	16	1/2"Ø x(H-4")	14
30"	1/2"Ø x 5'-6"	18	1/2"Ø x 2'-9"	20	1/2"Ø x(H-4")	14

* HORIZONTAL BARS ARE APPROX. 12" CTRS. WHEN ADDITIONAL BARS ARE REQUIRED DUE TO INCREASE OF DEPTH OF INLET 22.5 LBS. OF REINFORCING STEEL IS TO BE ADDED FOR EACH ADDITIONAL SET OF BARS.



SECTION A–A

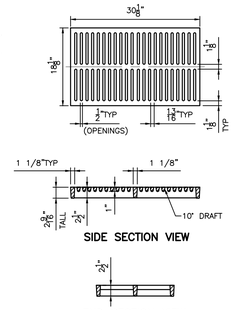


SECTION B–B

GENERAL NOTES FOR GRATES:

FOLLOWING TYPES OF GRATE MAY BE APPROVED AS EQUAL FOR CURB & GUTTER INLETS WITH INLET FRAMES SUCH AS TYPE A, BL, BR, C AND /OR D. THE FOLLOWING GRATES SHALL NOT BE USED IN AREA INLETS LOCATED IN PARKING AREAS. NEENAH FOUNDRY VANE GRATE, R–3078, R–3076. EAST JORDAN IRON WORKS VANE GRATE, V–4230–2

THESE GRATES ARE CUSTOM DESIGN. CONTRACTOR SHALL CALL NEENAH FOUNDRY SALES PERSON ROBB TAYLOR (405–323–7811) OR EAST JORDAN FOUNDRY SALES PERSON ERNIE DICK (405–949–5570) TO ORDER THESE GRATES. ADDITIONAL AMOUNT OF TIME MAY BE REQUIRED TO DELIVER THESE GRATES AS SUGGESTED BY THE MANUFACTURER'S REPRESENTATIVE.



ADA GRATE, CATALOG NO. V–4230–1
W/ SLOT OPENING WIDTH OF 1/2"
EAST JORDAN IRON WORK FOUNDRY

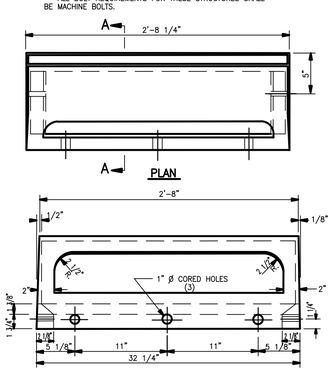
N.T.S.

GENERAL NOTES:

CASTING SHALL CONFORM TO THE A.S.T.M. SPECIFICATIONS FOR GRAY–IRON CASTINGS, SERIAL DESIGNATION A–48–29.

NO WORDING OR MARKING OF ANY KIND OTHER THAN THOSE SHOWN ON THE PLANS WILL BE PERMITTED ON THESE CASTINGS.

ALL BOLT REQUIREMENTS FOR THESE STRUCTURES SHALL BE MACHINE BOLTS.

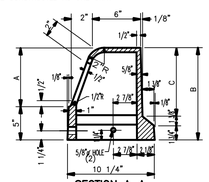


CAST IRON STORM SEWER CURB INLET #(2)
SCALE: 1 1/2" = 1'-0"

ELEVATION

QUANITIES FOR CURB INLETS		
	CLASS A CONC.	STEEL
ONE CURB INLET	0.20	26
TWO CURB INLET	0.43	44
THREE CURB INLET	0.69	62
FOUR CURB INLET	0.95	80

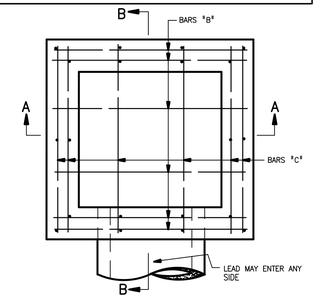
CURB INLETS SHALL BE PLACED ON UPSTREAM SIDE OF GRATE INLETS UNLESS OTHERWISE SPECIFIED. CONCRETE TROUGH FOR CURB INLETS AND CONCRETE STORM SEWER INLETS SHALL BE CONSTRUCTED AS ONE UNIT.



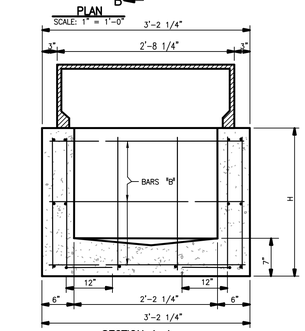
SECTION A–A

GENERAL NOTE:

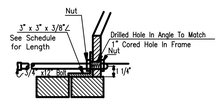
1. STORM SEWER STRUCTURES (JUNCTION BOX/INLETS) SHALL BE PRE–CAST WITH AIR ENTRAINED CONCRETE PER ODOT SPECS. NO BRICK CONSTRUCTION IS ALLOWED.
2. A MINIMUM OF 6" THICK 1 1/2" CLEAN ROCK/AGGREGATE BASE (ASTM #57) WILL BE REQUIRED UNDER STORM SEWER STRUCTURES (JUNCTION BOX/INLETS).
3. ANY REFERENCE TO BRICK CONSTRUCTION IN THIS DRAWING SHALL BE IGNORED BY THE CONTRACTOR.



PLAN
SCALE: 1" = 1'-0"

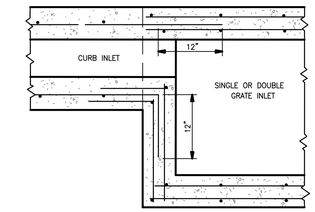


SECTION A–A

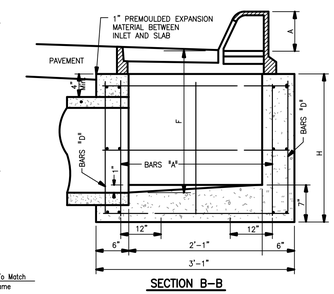


DETAIL OF CONNECTION
ANGLE IRON & CAST IRON CURB
Note: Angle Iron to be bolted to Curb with 3(3/4" x 12") Machine Bolt in each curb section .

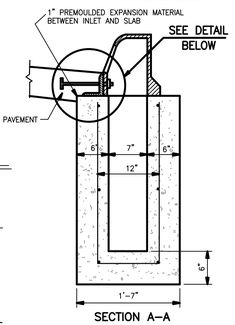
CAST IRON INLET NUMBER			
NO.	#(1) INLET	TYPE B GRATE	#(2) INLET
1–0	1	1	1
2–0	2	2	2
2–1	2	2	4
2–2	2	2	6
2–3	2	2	8
2–4	2	2	



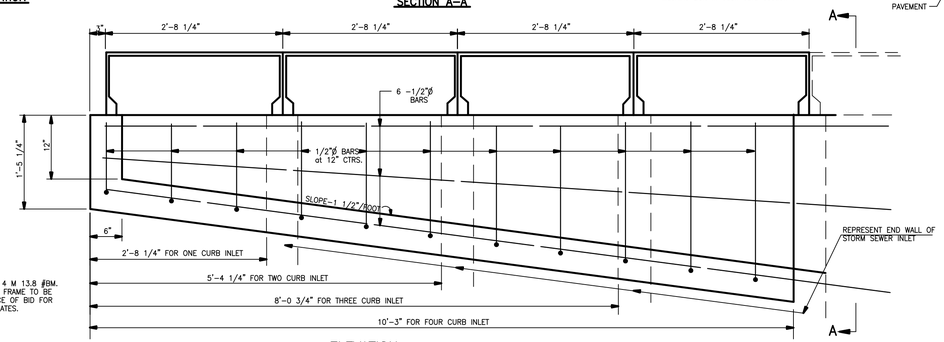
DETAIL SHOWING COMBINATION OF CURB AND INLETS



SECTION B–B



SECTION A–A



ELEVATION
SCALE: 1" = 1'-0"

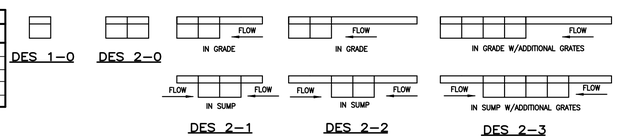
NOTE :

ALL COST OF 4 x 4 M 13.8 #BM. SUPPORTS FOR GRATE FRAME TO BE INCLUDED IN THE PRICE OF BID FOR INLET FRAMES AND GRATES.

BAR LIST & QUANTITIES FOR SINGLE GRATE & CURB INLETS														
SIZE OF LEAD	H (MIN.)	F (MIN.)	CLASS A CONC. C.Y.	REINF. STL. LBS.	PER ADDITIONAL FOOT OF DEPTH		BARS A (MIN.)		BARS B		BARS C		BARS D (MIN.)	
					CONC. C.Y.	VERT. STL.–LBS.	SIZE	NO.	SIZE	NO.	SIZE	NO.	SIZE	NO.
15"	2'-3 1/4"	2.14 FT.	0.54	86	0.20	* 13.6	1/2"Ø x (H+8")	10	1/2"Ø x 2'-10"	14	1/2"Ø x 2'-9"	14	1/2"Ø x (H-4")	10
18"	2'-6 1/2"	2.14 FT.	0.59	90			1/2"Ø x (H+8")	10	1/2"Ø x 2'-10"	14	1/2"Ø x 2'-9"	14	1/2"Ø x (H-4")	10
24"	3'-1"	2.95 FT.	0.70	97			1/2"Ø x (H+8")	10	1/2"Ø x 2'-10"	14	1/2"Ø x 2'-9"	14	1/2"Ø x (H-4")	10

* HORIZONTAL BARS ARE APPROX. 12" CTRS. WHEN ADDITIONAL BARS ARE REQUIRED DUE TO INCREASE OF DEPTH OF INLET 15.2 LBS. OF REINFORCING STEEL IS TO BE ADDED FOR EACH ADDITIONAL SET OF BARS.

QUANTITIES OF ANGLE IRON FOR CURB INLETS		
INLET NO.	NO. PIECES	LENGTH OF 3" x 3" ∠
2–0		
2–1	1	5'–1 5/8"
2–2	1	10'–6 1/8"
2–3	1	15'–10 5/8"
2–4	2	10'–6 1/8"



SUMMIT VALLEY ADDITION
SECTION 4

36th AVE. S.E. & HWY. 9
NORMAN, OKLAHOMA

SMC Consulting Engineers, P.C.
815 West Main – Oklahoma City, OK 73106
PH: 405–232–7715 Fax: 405–232–7859
www.smcengineers.com
OKLAHOMA CERTIFICATE OF AUTHORIZATION NO. CA 464 EXP 06/30/2027

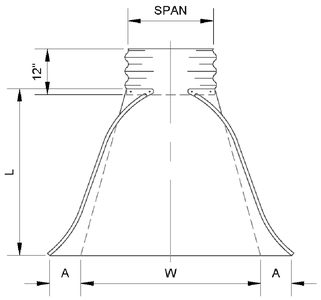
No.	Revision	By	Date

PROJECT NO.: 6211.04
DATE: 7/03/25
SCALE: N.T.S.
DRAWN BY: D.G.
ENGINEER:
P.E. NUMBER:

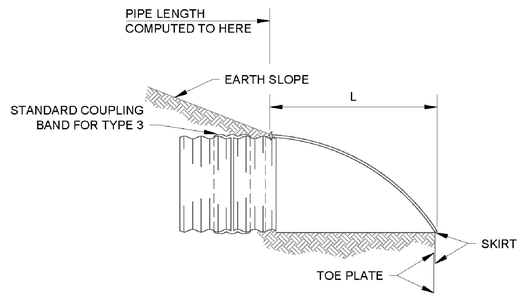
DES. 2–0 INLETS DETAIL

SHEET NO.
19

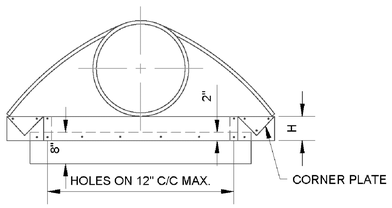
N:\DWGS\6211\SECTION 4\6211 04 – INLET DETAILS.DWG
Plotted by: Danny Griffith @ 7/2/2025 4:33 PM



PLAN VIEW

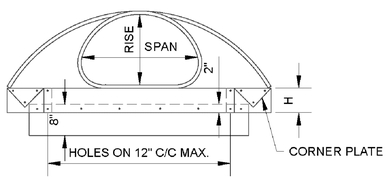


SIDE VIEW



END VIEW
ROUND METAL PIPE END SECTION

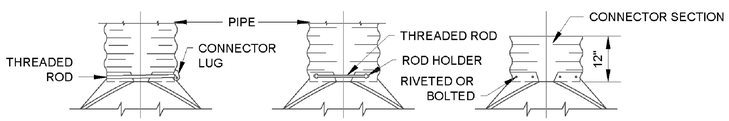
DIMENSIONS OF END SECTION FOR ROUND METAL PIPE								
SPAN	GA.	A ± 1	B (MAX.)	H ± 1	L ± 1/2	W ± 2	APPROX. SLOPE	SPAN
IN.		IN.	IN.	IN.	IN.	IN.		IN.
18	16	8	10	6	31	36	2 1/2 : 1	1
24	16	10	13	6	41	48	2 1/2 : 1	1
30	14	12	16	8	51	60	2 1/2 : 1	1
36	14	14	19	9	60	72	2 1/2 : 1	2
42	12	16	22	11	69	84	2 1/2 : 1	2
48	12	18	27	12	78	90	2 1/4 : 1	2



END VIEW
ARCH METAL PIPE END SECTION

DIMENSIONS OF END SECTION FOR METAL PIPE ARCH									
SPAN	RISE	GA.	A ± 1	B (MAX.)	H ± 1	L ± 1/2	W ± 2	APPROX. SLOPE	SPAN
IN.	IN.		IN.	IN.	IN.	IN.	IN.		IN.
22	13	16	7	10	6	23	36	2 1/2 : 1	1
29	18	16	9	14	6	32	48	2 1/2 : 1	1
43	22	14	10	16	8	39	60	2 1/2 : 1	1
36	27	14	12	18	8	46	75	2 1/2 : 1	1
50	31	12	13	21	9	53	85	2 1/2 : 1	2
58	36	12	18	26	12	63	90	2 1/4 : 1	2
65	40	12	18	30	12	70	102	2 1/2 : 1	2
72	44	12	18	33	12	77	114	2 1/4 : 1	3

END VIEW
ARCH METAL PIPE END SECTION



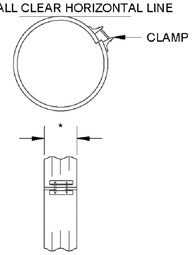
TYPE 1
FOR 12" THRU 24" ONLY

TYPE 2
FOR 30" & 36" ROUND PIPE AND 11" X 18" THRU 58" X 36" ARCH PIPE.

TYPE 3
FOR 42" THRU 84" ROUND PIPE AND 65" X 40" THRU 85" X 54" ARCH PIPE.

TYPICAL METAL END SECTION CONNECTIONS

NOTE: COUPLING BAND CLAMP SHALL CLEAR HORIZONTAL LINE



STANDARD COUPLING BAND

* 7" FOR UP TO 36" DIAMETER, 12" FOR 36" DIAMETER AND UP.

GENERAL NOTES FOR METAL END SECTIONS:

1. WHEN PREFABRICATED END SECTIONS ARE OPTIONAL, THEY SHALL BE OF THE SAME MATERIALS AS THAT OF THE PIPE, WHICH THEY ARE INSTALLED.

2. FOR MATERIAL OF ALUMINUM ALLOY END SECTION, SEE SUBSECTION 726.65 OF THE CURRENT OKLAHOMA STANDARD SPECIFICATIONS.

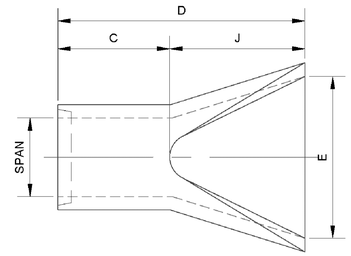
3. FOR MATERIALS OF GALVANIZED METAL END SECTION, SEE SUBSECTION 726.17 OF THE CURRENT OKLAHOMA STANDARD SPECIFICATIONS.

4. CONNECTOR SECTION, CORNER PLATE AND TOE PLATE TO BE OF THE SAME GAGE & MATERIAL AS THE SKIRT AND SHALL BE INCLUDED IN THE BID FOR END SECTION.

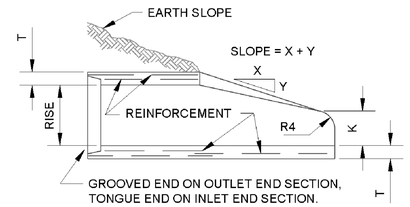
5. TOE PLATES WILL BE REQUIRED FOR ALL METAL END SECTIONS UNLESS SOLID ROCK IS ENCOUNTERED. HOLES IN TOE PLATE ARE TO BE PUNCHED TO MATCH HOLES IN SKIRT LIP. 3/8" BOLTS TO BE FURNISHED. LENGTH TO TOE PLATES FOR ROUND PIPE SECTION IS W + 10" TO 12" TO 30" DIAMETER PIPE, W + 22" FOR 36" TO 48" DIAMETER PIPE. LENGTH OF TOE PLATES FOR ARCH PIPE END SECTION IS W + 10" FOR A RISE OF 11" TO 27" AND W + 18 FOR A RISE OF 31" TO 44".

6. IF TYPE 3 END SECTION IS USED AS OPTIONAL PIPE, THE LENGTH OF PIPE IS TO BE REDUCED BY 12" FOR EACH END SECTION.

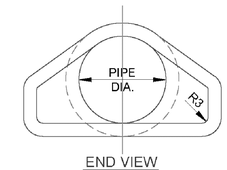
7. ANY STRUCTURAL EXCAVATION REQUIRED FOR INSTALLATION OF PREFABRICATED END SECTIONS SHALL BE INCLUDED IN THE PRICE BID FOR OTHER ITEMS OF WORK.



PLAN VIEW

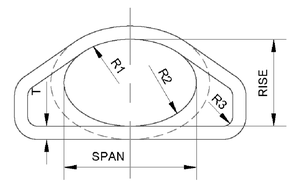


LONGITUDINAL SECTION



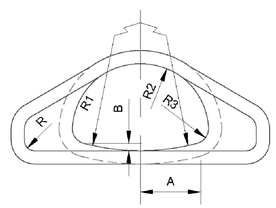
END VIEW
ARCH METAL PIPE END SECTION

DIMENSIONS OF PRECAST END SECTION FOR PIPES										
SPAN	K	J	C	D	E	T	R3	R4	R5	SLOPE
IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	
18	9	27	46	73	36	2 1/2	3	3	6	3 TO 1
24	8 1/2	43 1/2	30	73 1/2	48	3	3	3	7	3 TO 1
30	12	54	19 3/4	73 3/4	60	3 1/2	3	3	8	3 TO 1
36	15	63	34 3/4	73 3/4	72	4	3	3	10 1/2	3 TO 1
42	21	63	35	98	78	4 1/2	3	3	10 1/2	3 TO 1
48	24	72	26	98	84	5	6	6	14	3 TO 1



END VIEW
ELIPTICAL CONCRETE PIPE END SECTION

DIMENSIONS OF PRE-CAST END SECTIONS FOR ELLIPTICAL PIPES													
SPAN	RISE	R1	R2	R3	R4	R5	T	K	J	C	D	E	SLOPE
IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	
23	14	6	20	3	3		2 3/4	8	27	45	72	36	3 TO 1
30	19	8 1/4	26 1/4	3	3	7	3 1/4	8 1/2	39	33	72	48	3 TO 1
34	22	9 1/4	29 17/32	3	3	8	3 1/2	9	46	26	72	54	3 TO 1
38	24	10 1/4	32 3/4	3	3	9	3 3/4	9 1/2	54	18	72	60	3 TO 1
42	27	11 7/16	36 3/16	3	3	10 1/2	3 3/4	10 3/8	57	15	72	66	3 TO 1
45	29	12 1/4	39 1/4	3	3	12	4 1/2	11 1/4	60	36	96	72	3 TO 1
49	32	13 9/16	42 21/32	3	3	12 1/2	4 3/4	12	60	36	96	75	3 TO 1
53	34	14 3/4	46	6	6	13	5	15 3/4	60	36	96	78	3 TO 1
60	38	16 1/2	51 3/4	6	6	14	5 1/2	21	60	36	96	84	3 TO 1
68	43	18 21/32	58 13/32	6	6	16	6	25 1/2	60	36	96	90	3 TO 1



END VIEW
ARCH CONCRETE PIPE END SECTION

DIMENSIONS OF PRE-CAST END SECTION FOR ARCH-PIPES																
SPAN	RISE	A	B	R	R1	R2	R3	R4	R5	T	K	J	C	D	E	SLOPE
IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	IN.	
28 1/2	18	10 7/8	3 3/4	3	40 11/16	14 3/4	4 5/8	3	7	3 1/2	8 1/2	39	33	72	48	3 TO 1
36 1/4	22 1/2	13 5/8	3 13/16	3	51	18 3/4	6 1/8	3	8	4	9 1/2	50	46	96	60	3 TO 1
43 3/4	26 5/8	17 1/8	4 1/8	6	62	22 1/2	6 1/2	3	10 1/2	4 1/2	11 1/8	60	36	96	72	3 TO 1
51 1/8	31 1/16	20	5 1/16	6	73	26 1/4	7 3/4	3	12 1/2	4 1/2	15 13/16	60	36	96	78	3 TO 1
58 1/2	36	22 3/4	6	6	84	30	8 7/8	3	14	5	21	60	36	96	84	3 TO 1
65	40	25	6 3/4	6	92 1/2	33 1/2	10	6	16	5 1/2	25 1/2	60	36	96	90	3 TO 1
73	45	28 1/2	7 1/2	6	105	37 1/2	11 1/16	6		6	31	60	36	96	96	3 TO 1

BASIS OF PAYMENT FOR METAL END SECTIONS:

GALVANIZED METAL END SECTION - ROUND EA.
GALVANIZED METAL END SECTION - ARCH EA.

WHEN USED AS OPTIONAL END SECTION BETWEEN METAL, ALUMINUM ALLOY & CONCRETE, THE BASIS OF PAYMENT SHALL BE:

SP. PREFABRICATED CULVERT END SECTION - ROUND EA.
SP. PREFABRICATED CULVERT END SECTION - ARCH EA.

GENERAL NOTES FOR PRECAST END SECTIONS:

1. WHEN PREFABRICATED END SECTIONS ARE OPTIONAL, THEY SHALL BE OF THE SAME MATERIALS AS THAT OF THE PIPE, WHICH THEY ARE INSTALLED.

2. DIMENSIONS SHOWN FOR PREFABRICATED END SECTIONS ARE SUBJECT TO MANUFACTURES TOLERANCES.

3. ANY STRUCTURAL EXCAVATION REQUIRED FOR INSTALLATION OF PREFABRICATED END SECTIONS SHALL BE INCLUDED IN THE PRICE BID FOR OTHER ITEMS OF WORK.

BASIS OF PAYMENT FOR PRECAST END SECTIONS:

PRECAST CONCRETE CULVERT END SECTION - ROUNDED EA.
PRECAST CONCRETE CULVERT END SECTION - ELLIPTICAL EA.
PRECAST CONCRETE CULVERT END SECTION - ARCH EA.

* IF ELIPTICAL CONCRETE IS USED, THE ELIPTICAL CONCRETE END SECTION SHALL BE USED.

SUMMIT VALLEY ADDITION
SECTION 4

36TH AVE. S.E. & HWY. 9
NORMAN, OKLAHOMA

SMC
SMC Consulting Engineers, P.C.
815 West Main - Oklahoma City, OK 73106
PH: 405-232-7715 Fax: 405-232-7859
Website: www.smcokc.com
OKLAHOMA CERTIFICATE OF AUTHORIZATION NO. CA 464 EXP 06/30/2027

No.	Revision	By	Date

PROJECT NO.: 6211.04
DATE: 7/03/25
SCALE: N.T.S.
DRAWN BY: D.G.
ENGINEER: CHRISTOPHER D. ANDERSON
P.E. NUMBER: 18288

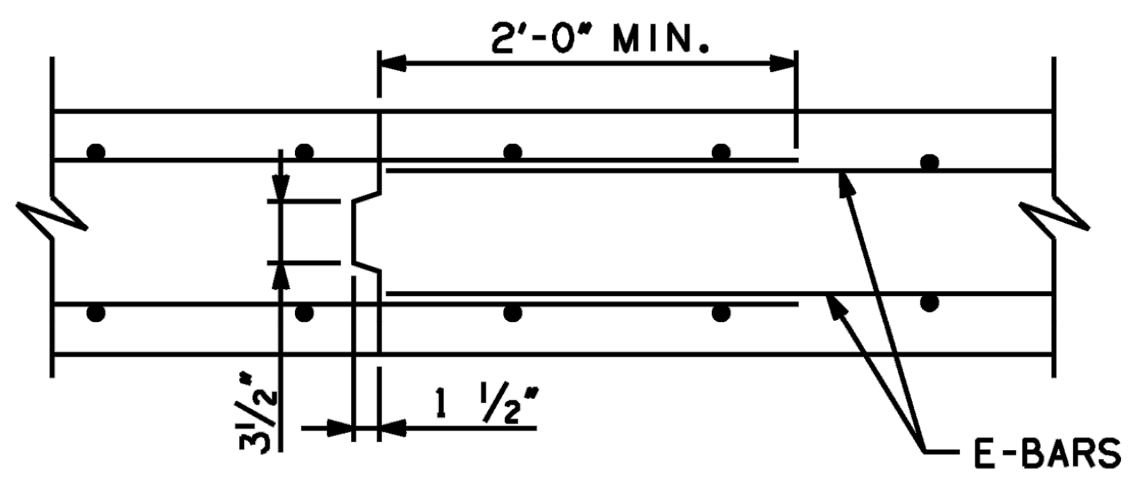
PCES DETAILS

SHEET NO.
20

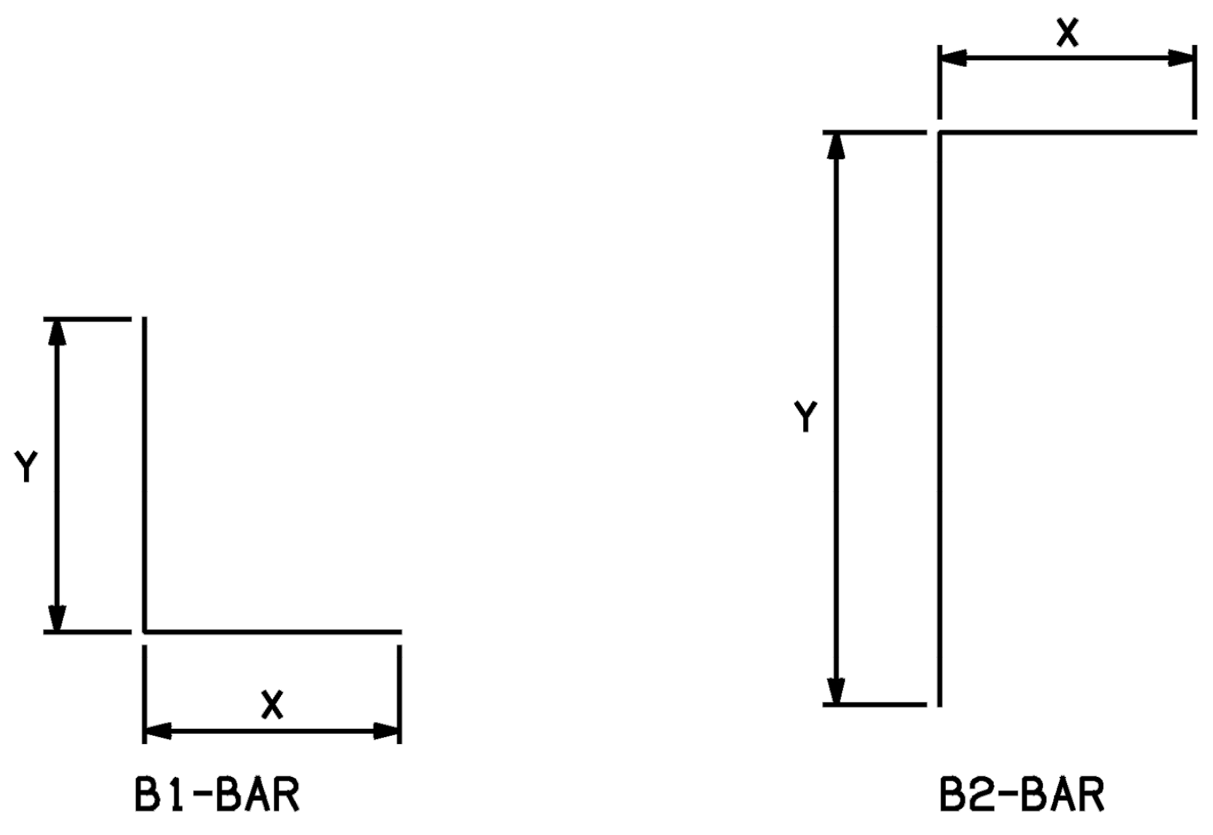
N:\DWG\6211\SECTION 4\6211 04 DT21.DWG
Plotted by: Danny Griffith @ 7/2/2025 4:33 PM

DESCRIPTION	REVISIONS	DATE

SECTION DIMENSIONS						REINFORCING STEEL A1-BARS				A2-BARS				A3-BARS				B1-BARS						B2-BARS						C1-BARS				C2-BARS				E1-BARS AT 12" MAX.			E2-BARS AT 12" MAX.			SECTION DIMENSIONS	
S	H	T	U	W	Z	SIZE	SPA	LENGTH	WEIGHT PER FT.	SIZE	SPA	LENGTH	WEIGHT PER FT.	SIZE	SPA	LENGTH	WEIGHT PER FT.	SIZE	SPA	"X"	"Y"	LENGTH	WEIGHT PER FT.	SIZE	SPA	"X"	"Y"	LENGTH	WEIGHT PER FT.	SIZE	SPA	LENGTH	WEIGHT PER FT.	SIZE	SPA	LENGTH	WEIGHT PER FT.	NO.	SIZE	WEIGHT PER FT.	NO.	SIZE	WEIGHT PER FT.	S	H
6'	3'	10"	11"	10"	10"	#5	8"	14'-2"	44.3	#4	8"	2'-9"	5.5	#4	8"	14'-2"	28.4	#4	8"	1'-0"	2'-0"	3'-0"	6.0	#4	8"	1'-0"	3'-8"	4'-8"	9.4	#4	12"	2'-0"	5.3	#4	12"	3'-8"	9.8	72	#4	48.1	18	#4	12.0	6'	3'
6'	4'	10"	11"	10"	10"	#5	8"	14'-2"	44.3	#4	8"	2'-9"	5.5	#4	8"	14'-2"	28.4	#4	8"	1'-0"	2'-0"	3'-0"	6.0	#4	8"	1'-0"	4'-8"	5'-8"	11.4	#4	12"	2'-0"	5.3	#4	12"	4'-8"	12.5	72	#4	48.1	24	#4	16.0	6'	4'
6'	5'	10"	11"	10"	10"	#5	8"	14'-2"	44.3	#4	8"	2'-9"	5.5	#4	8"	14'-2"	28.4	#4	8"	1'-1"	2'-0"	3'-1"	6.2	#4	8"	1'-1"	5'-8"	6'-9"	13.5	#4	12"	2'-0"	5.3	#4	12"	5'-8"	15.1	72	#4	48.1	30	#4	20.0	6'	5'
6'	6'	12"	13"	12"	12"	#5	8"	14'-8"	45.9	#4	8"	2'-9"	5.5	#4	8"	14'-8"	29.4	#4	8"	1'-3"	2'-2"	3'-5"	6.8	#4	8"	1'-3"	6'-10"	8'-1"	16.2	#4	12"	2'-2"	5.8	#4	12"	6'-10"	18.3	72	#4	48.1	36	#4	24.0	6'	6'



TRANSV. CONSTR. JOINT



B1-BAR

B2-BAR

BAR BEND DIAGRAMS

NOTE: ALL "X" DIMENSIONS ARE HORIZONTAL IN BARREL SECTION.
ALL "Y" DIMENSIONS ARE VERTICAL IN BARREL SECTION.

SECTION DIMENSIONS		QUANTITIES PER FOOT OF BARREL	
S	H	CONC. (C.Y.)	REINF. (LB.)
6'	3'	1.22	168.8
6'	4'	1.31	177.5
6'	5'	1.40	186.4
6'	6'	1.82	200.0

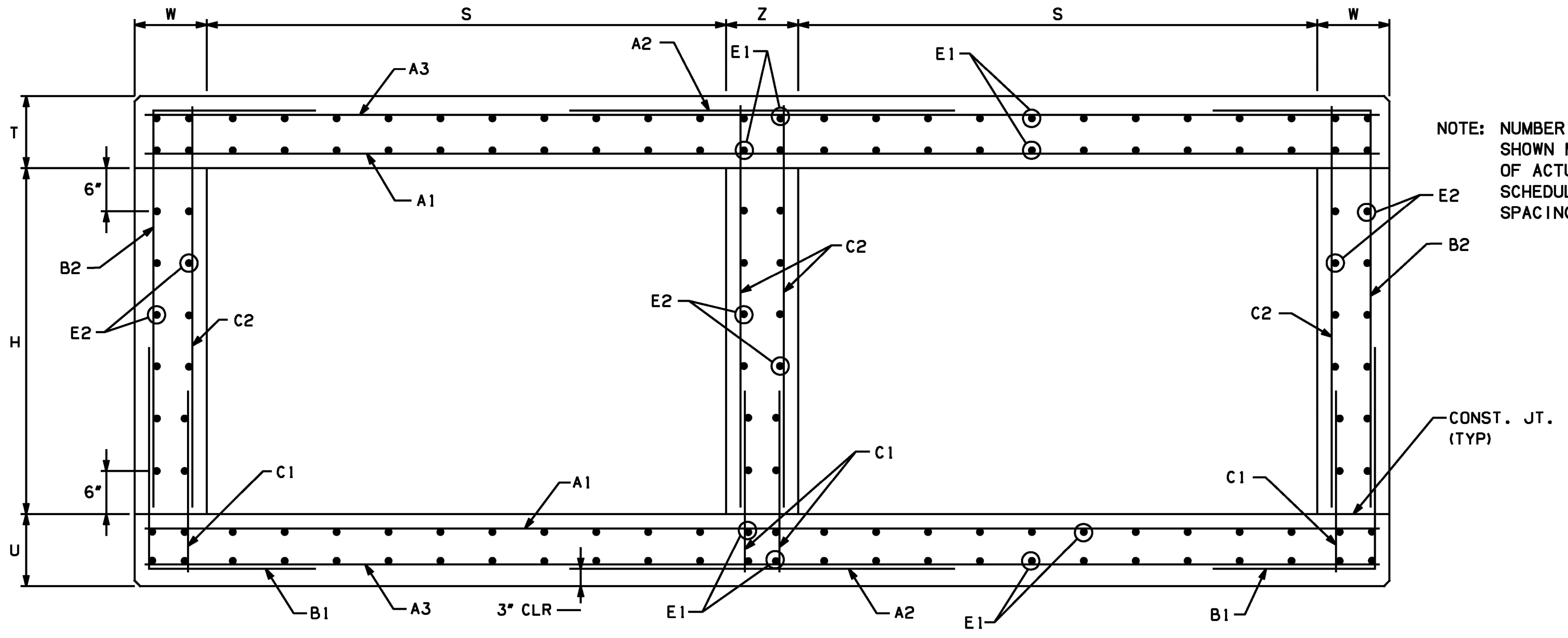
DESIGN DATA:

1. DESIGNED IN ACCORDANCE WITH 2007 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AND INTERIM SPECIFICATIONS FROM 2008.
2. DESIGNED FOR HL-93 LOADING AND ODOT OVERLOAD TRUCK.
3. MATERIALS:
   CONCRETE (CLASS AA) f'c = 4 KSI
   REINFORCING STEEL fy = 60 KSI

GENERAL NOTES:

1. ALL CONSTRUCTION AND MATERIAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE 2009 OKLAHOMA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
2. ALL CONCRETE EDGES SHALL HAVE A 1 ½" CHAMFER UNLESS OTHERWISE SHOWN OR NOTED. ALL CHAMFER STRIPS SHALL BE SIZED LUMBER.
3. ALL REINFORCING STEEL SHALL HAVE A 2" MINIMUM CLEAR COVER UNLESS OTHERWISE SHOWN.
4. THE QUANTITY FOR REINFORCING STEEL DOES NOT INCLUDE LAP SPLICES OF E1-BARS OR E2-BARS IN THE LENGTH OF THE BARREL OR AT TRANSVERSE CONSTRUCTION JOINTS. THE SPLICE LENGTH FOR E-BARS SHALL BE 24" MINIMUM. THE NUMBER OF SPLICES USED IS TO BE APPROVED BY THE ENGINEER. REINFORCING STEEL FOR SPLICES SHALL NOT BE MEASURED FOR PAYMENT, AND ALL COSTS WILL BE INCLUDED IN THE UNIT BID PRICE FOR REINFORCING STEEL.
5. TRANSVERSE CONSTRUCTION JOINTS SHALL BE PLACED IN ALL CULVERTS 100 FT. OR MORE IN LENGTH. JOINTS SHALL BE SPACED AT 60 FT. MAX.
6. REINFORCING STEEL SHALL BE CONTINUOUS THROUGH THE TRANSVERSE CONSTRUCTION JOINT AND EXTEND A MIN. OF 24" INTO ADJACENT SECTION.

BASIS OF PAYMENT		
ITEM NO.	ITEM	UNIT
509.06 (A)	CLASS AA CONCRETE	C.Y.
511.06 (A)	REINFORCING STEEL	LB.



NOTE: NUMBER AND SPACING OF E-BARS SHOWN MAY NOT BE REPRESENTATIVE OF ACTUAL CULVERT SECTIONS, SEE SCHEDULE ABOVE FOR NUMBER AND SPACING OF E-BARS.

BARREL SECTION

APPROVED BY BRIDGE ENGINEER DATE 4/2/10

OKLAHOMA DEPT. OF TRANSPORTATION
BRIDGE STANDARD (ENGLISH)
RCB CULVERTS - BARREL DETAILS
6'-0" SPAN - DOUBLE CELL
2 FT. TO 12 FT. FILL

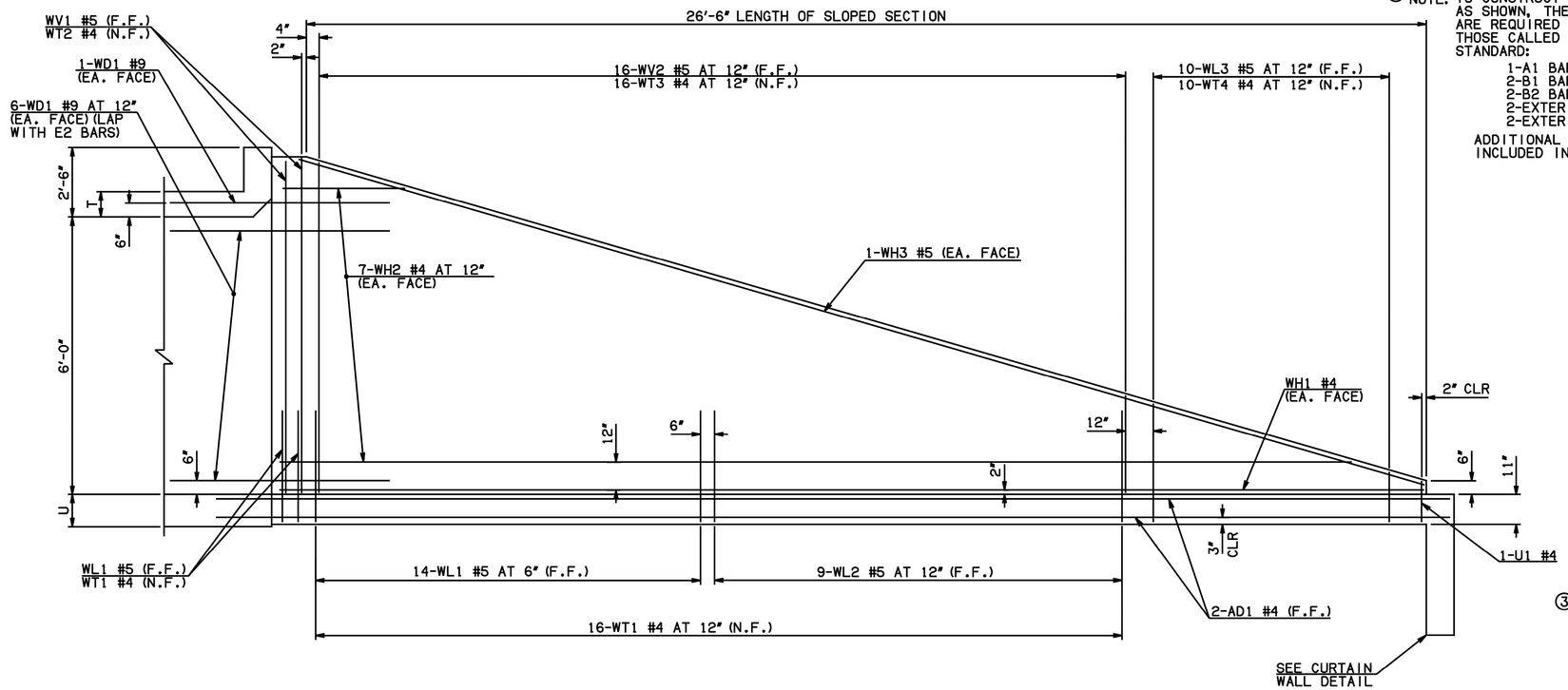
2009 SPECIFICATIONS RCB-C2-6(2-12) 01E
B-531E

DESCRIPTION	REVISIONS	DATE

③ NOTE: TO CONSTRUCT ONE END SECTION AS SHOWN, THE FOLLOWING BARS ARE REQUIRED IN ADDITION TO THOSE CALLED IN THE RCB BARREL STANDARD:

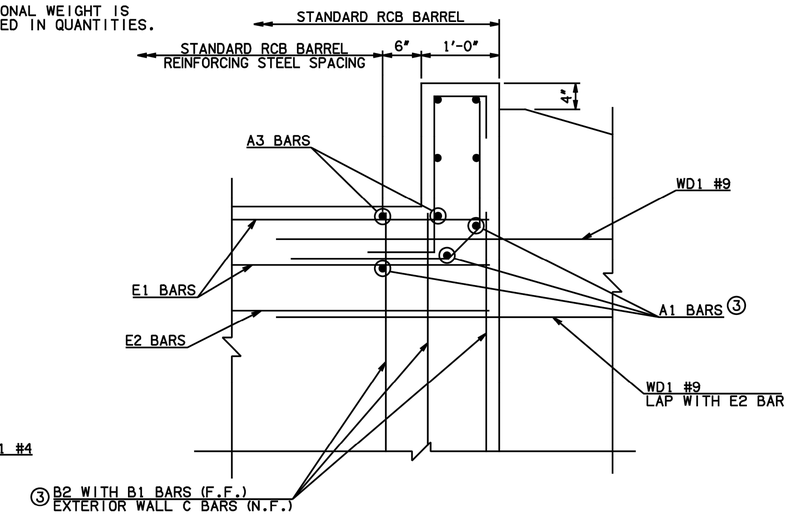
- 1-A1 BAR
- 2-B1 BARS
- 2-B2 BARS
- 2-EXTERIOR WALL C BARS
- 2-EXTERIOR WALL C DOWEL BARS

ADDITIONAL WEIGHT IS INCLUDED IN QUANTITIES.

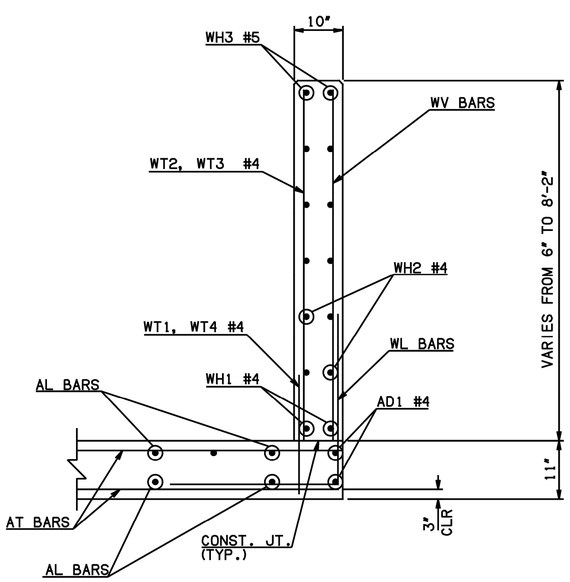


WING ELEVATION

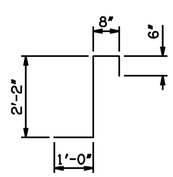
NOTE: F.F. = FAR FACE
N.F. = NEAR FACE



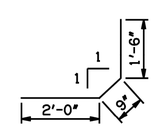
HEADWALL DETAIL AT EXTERIOR WALL



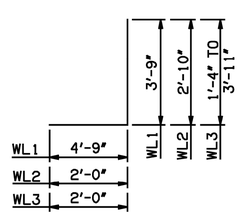
TYPICAL SECTION THRU WING



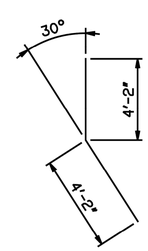
CL1 #4 x 4'-4"



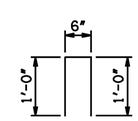
CL2 #4 x 4'-3"



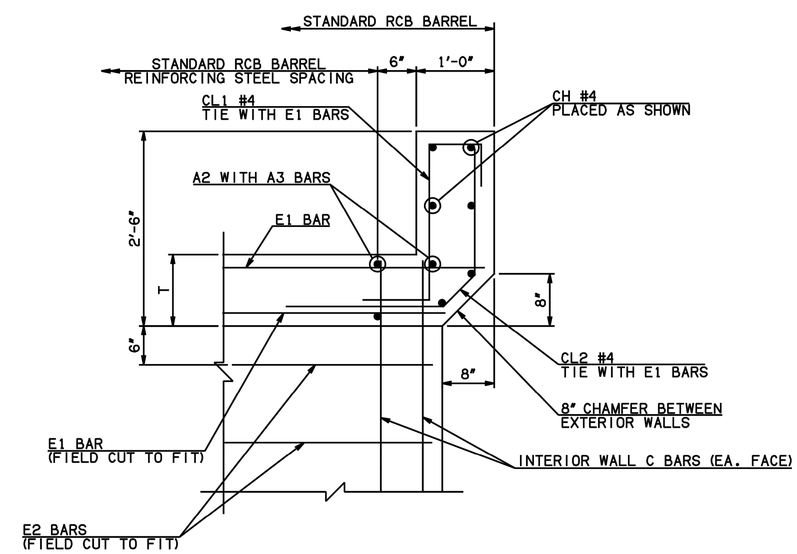
WL1 #5 x 8'-6"
WL2 #5 x 4'-10"
WL3 #5 x 4'-7½" AVG.



WD1 #9 x 8'-4"



U1 #4 x 2'-6"



HEADWALL DETAIL AT INTERIOR WALL

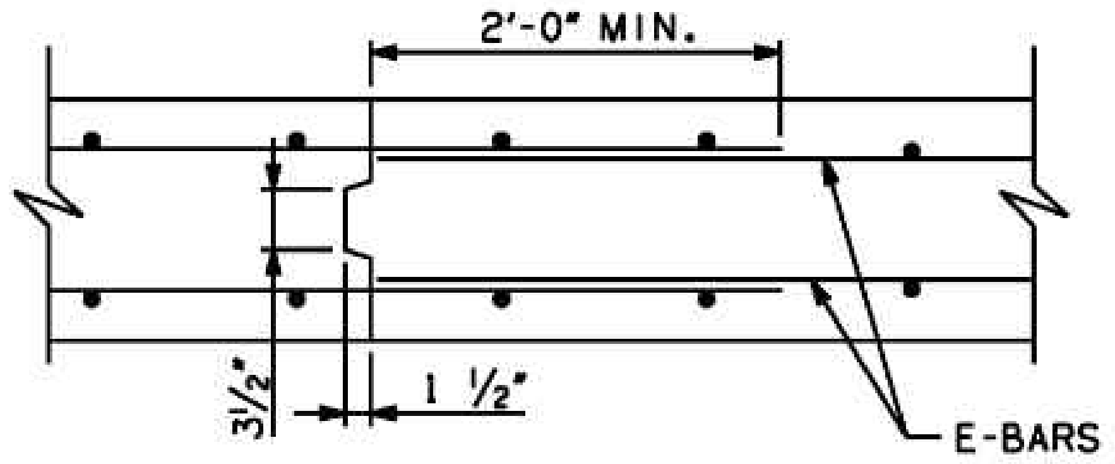
APPROVED BY BRIDGE ENGINEER *Kenneth Fausch* DATE 4/2/10

OKLAHOMA DEPT. OF TRANSPORTATION
BRIDGE STANDARD (ENGLISH)

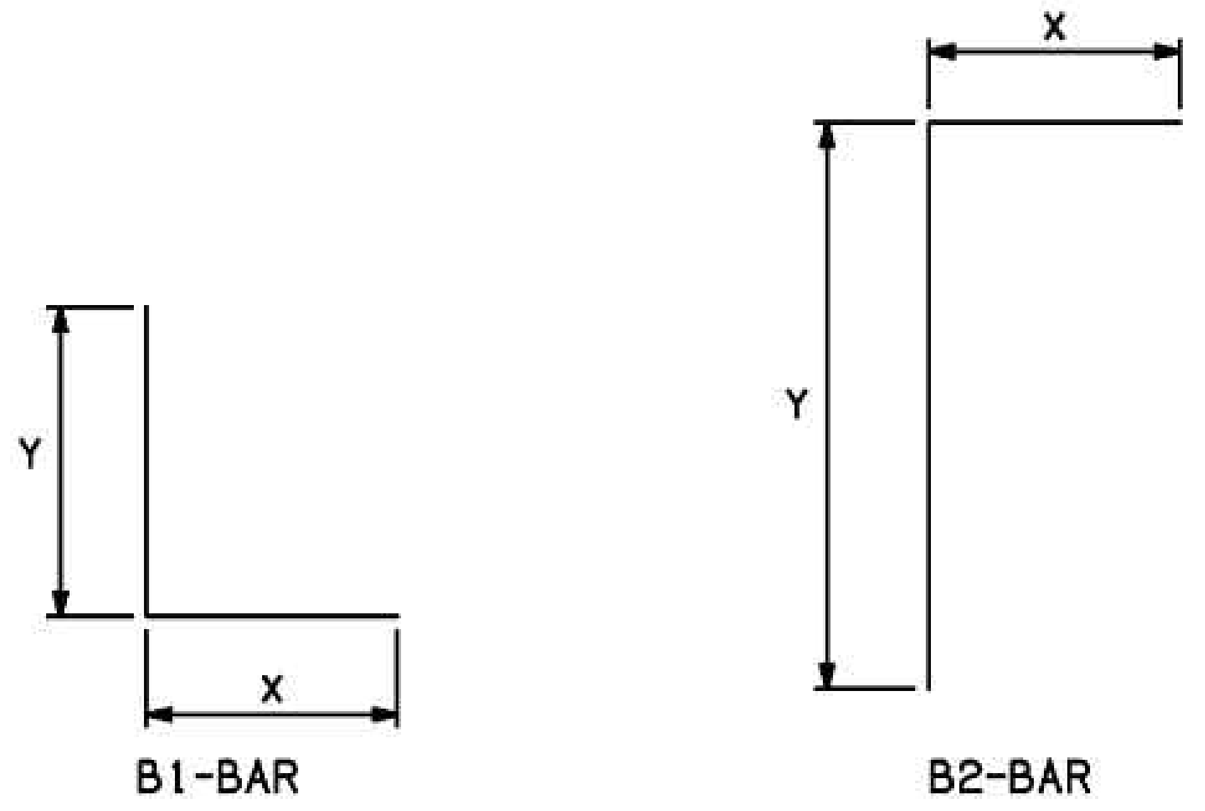
RCB CULVERTS - END SECTION DETAILS
DOUBLE CELL - 6'-0" HEIGHT - 0°
SHEET NO. 2 OF 2

2009 SPECIFICATIONS	RCB-E2-H6-0-2	01E
		B-607E

SECTION DIMENSIONS						REINFORCING STEEL																																													
						A1-BARS				A2-BARS				A3-BARS				B1-BARS						B2-BARS						C1-BARS				C2-BARS				C3-BARS				C4-BARS				E1-BARS AT 12″ MAX.			E2-BARS AT 12″ MAX.		
S	H	T	U	W	Z	SIZE	SPA	LENGTH	WEIGHT PER FT.	SIZE	SPA	LENGTH	WEIGHT PER FT.	SIZE	SPA	LENGTH	WEIGHT PER FT.	SIZE	SPA	"X"	"Y"	LENGTH	WEIGHT PER FT.	SIZE	SPA	"X"	"Y"	LENGTH	WEIGHT PER FT.	SIZE	SPA	LENGTH	WEIGHT PER FT.	SIZE	SPA	LENGTH	WEIGHT PER FT.	SIZE	SPA	LENGTH	WEIGHT PER FT.	SIZE	SPA	LENGTH	WEIGHT PER FT.	NO.	SIZE	WEIGHT PER FT.	NO.	SIZE	WEIGHT PER FT.
12′	6′	13″	14″	12″	12″	#6	6″	26′-8″	160.2	#6	6″	5′-11″	35.5	#4	6″	26′-8″	71.3	#5	6″	1′-9″	2′-7″	4′-4″	18.1	#5	6″	1′-9″	6′-11″	8′-8″	36.2	#5	12″	2′-3″	4.7	#5	12″	6′-11″	14.4	#4	12″	2′-3″	3.0	#4	12″	6′-11″	9.2	120	#4	80.2	36	#4	24.0
12′	7′	13″	14″	12″	12″	#6	6″	26′-8″	160.2	#6	6″	5′-11″	35.5	#4	6″	26′-8″	71.3	#5	6″	1′-10″	2′-7″	4′-5″	18.4	#5	6″	1′-10″	7′-11″	9′-9″	40.7	#5	12″	2′-3″	4.7	#5	12″	7′-11″	16.5	#4	12″	2′-3″	3.0	#4	12″	7′-11″	10.6	120	#4	80.2	42	#4	28.1
12′	8′	13″	14″	12″	12″	#6	6″	26′-8″	160.2	#6	6″	5′-11″	35.5	#4	6″	26′-8″	71.3	#5	6″	1′-10″	2′-7″	4′-5″	18.4	#5	6″	1′-10″	8′-11″	10′-9″	44.8	#4	12″	2′-3″	3.0	#4	12″	8′-11″	11.9	#4	12″	2′-3″	3.0	#4	12″	8′-11″	11.9	120	#4	80.2	48	#4	32.1
12′	9′	13″	14″	12″	12″	#6	6″	26′-8″	160.2	#6	6″	5′-11″	35.5	#4	6″	26′-8″	71.3	#5	6″	1′-11″	2′-7″	4′-6″	18.8	#5	6″	1′-11″	9′-11″	11′-10″	49.4	#4	12″	2′-3″	3.0	#4	12″	9′-11″	13.2	#4	12″	2′-3″	3.0	#4	12″	9′-11″	13.2	120	#4	80.2	54	#4	36.1
12′	10′	13″	14″	12″	12″	#6	6″	26′-8″	160.2	#6	6″	5′-11″	35.5	#4	6″	26′-8″	71.3	#6	6″	2′-1″	2′-11″	5′-0″	30.0	#6	6″	2′-1″	10′-11″	13′-0″	78.1	#4	12″	2′-3″	3.0	#4	12″	10′-11″	14.6	#4	6″	2′-3″	6.0	#4	6″	10′-11″	29.2	120	#4	80.2	60	#4	40.1
12′	11′	13″	14″	12″	12″	#6	6″	26′-8″	160.2	#6	6″	5′-11″	35.5	#4	6″	26′-8″	71.3	#6	6″	2′-3″	2′-11″	5′-2″	31.0	#6	6″	2′-3″	11′-11″	14′-2″	85.1	#4	12″	2′-3″	3.0	#4	12″	11′-11″	15.9	#4	6″	2′-3″	6.0	#4	6″	11′-11″	31.8	120	#4	80.2	66	#4	44.1
12′	12′	13″	14″	12″	12″	#6	6″	26′-8″	160.2	#6	6″	5′-11″	35.5	#4	6″	26′-8″	71.3	#6	6″	2′-5″	2′-11″	5′-4″	32.0	#6	6″	2′-5″	12′-11″	15′-4″	92.1	#4	12″	2′-3″	3.0	#4	12″	12′-11″	17.3	#4	6″	2′-3″	6.0	#4	6″	12′-11″	34.5	120	#4	80.2	72	#4	48.1



TRANSV. CONSTR. JOINT



BAR BEND DIAGRAMS

NOTE: ALL "X" DIMENSIONS ARE HORIZONTAL IN BARREL SECTION.
ALL "Y" DIMENSIONS ARE VERTICAL IN BARREL SECTION.

SECTION DIMENSIONS		QUANTITIES PER FOOT OF BARREL	
S	H	CONC. (C.Y.)	REINF. (LB.)
12′	6′	2.92	456.8
12′	7′	3.03	469.2
12′	8′	3.14	472.3
12′	9′	3.25	483.9
12′	10′	3.36	548.2
12′	11′	3.47	564.1
12′	12′	3.58	580.2

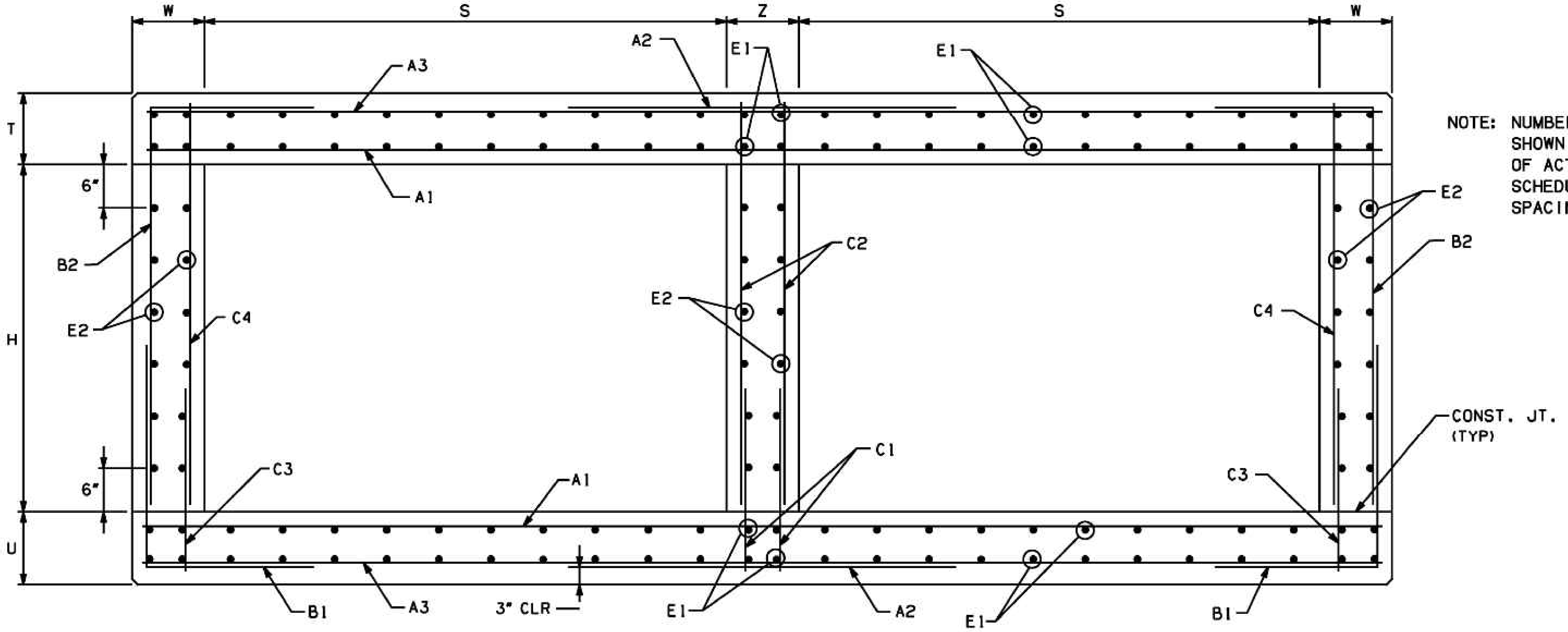
DESIGN DATA:

1. DESIGNED IN ACCORDANCE WITH 2007 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AND INTERIM SPECIFICATIONS FROM 2008.
2. DESIGNED FOR HL-93 LOADING AND ODOT OVERLOAD TRUCK.
3. MATERIALS:
   CONCRETE (CLASS AA) f′c = 4 KSI
   REINFORCING STEEL fy = 60 KSI

GENERAL NOTES:

1. ALL CONSTRUCTION AND MATERIAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE 2009 OKLAHOMA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
2. ALL CONCRETE EDGES SHALL HAVE A 1 ½″ CHAMFER UNLESS OTHERWISE SHOWN OR NOTED. ALL CHAMFER STRIPS SHALL BE SIZED LUMBER.
3. ALL REINFORCING STEEL SHALL HAVE A 2″ MINIMUM CLEAR COVER UNLESS OTHERWISE SHOWN.
4. THE QUANTITY FOR REINFORCING STEEL DOES NOT INCLUDE LAP SPLICES OF E1-BARS OR E2-BARS IN THE LENGTH OF THE BARREL OR AT TRANSVERSE CONSTRUCTION JOINTS. THE SPLICE LENGTH FOR E-BARS SHALL BE 24″ MINIMUM. THE NUMBER OF SPLICES USED IS TO BE APPROVED BY THE ENGINEER. REINFORCING STEEL FOR SPLICES SHALL NOT BE MEASURED FOR PAYMENT, AND ALL COSTS WILL BE INCLUDED IN THE UNIT BID PRICE FOR REINFORCING STEEL.
5. TRANSVERSE CONSTRUCTION JOINTS SHALL BE PLACED IN ALL CULVERTS 100 FT. OR MORE IN LENGTH. JOINTS SHALL BE SPACED AT 60 FT. MAX.
6. REINFORCING STEEL SHALL BE CONTINUOUS THROUGH THE TRANSVERSE CONSTRUCTION JOINT AND EXTEND A MIN. OF 24″ INTO ADJACENT SECTION.

BASIS OF PAYMENT		
ITEM NO.	ITEM	UNIT
509.06 (A)	CLASS AA CONCRETE	C.Y.
511.06 (A)	REINFORCING STEEL	LB.



NOTE: NUMBER AND SPACING OF E-BARS SHOWN MAY NOT BE REPRESENTATIVE OF ACTUAL CULVERT SECTIONS. SEE SCHEDULE ABOVE FOR NUMBER AND SPACING OF E-BARS.

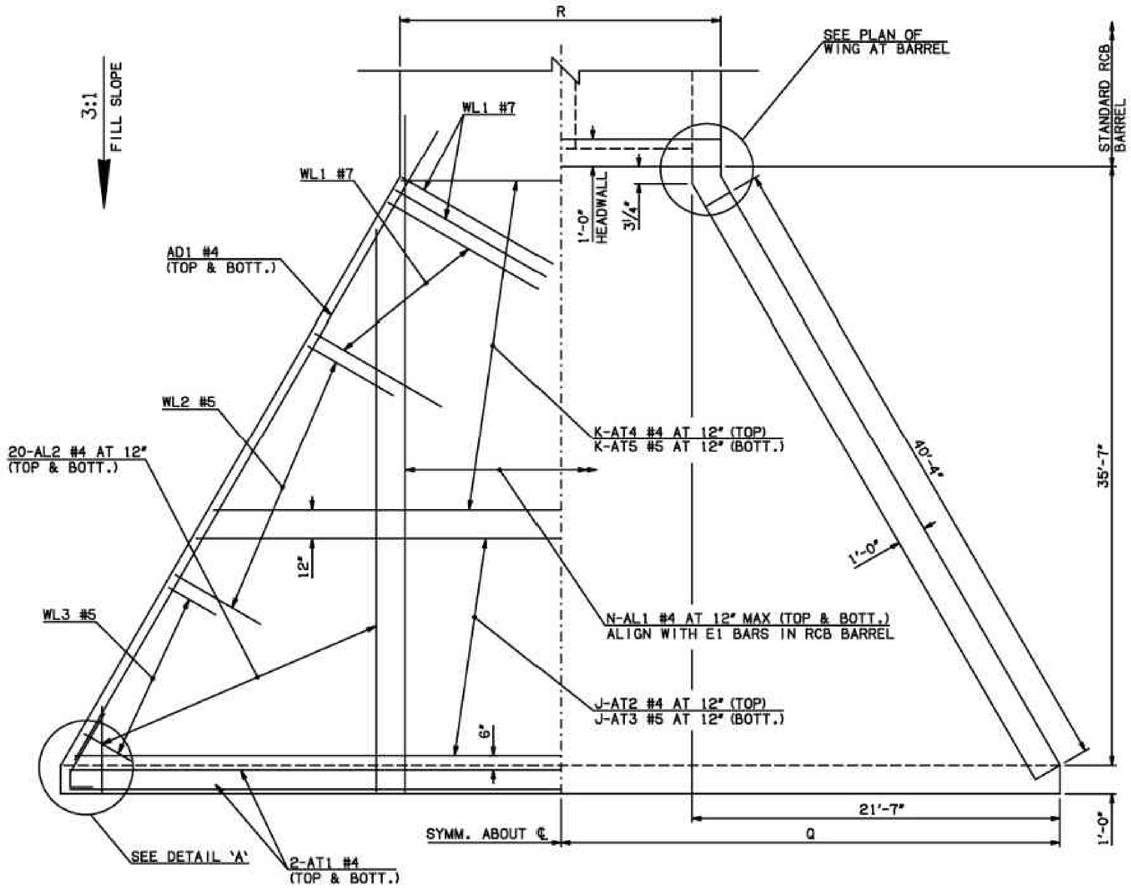
BARREL SECTION

APPROVED BY BRIDGE ENGINEER DATE 4/2/10

OKLAHOMA DEPT. OF TRANSPORTATION
BRIDGE STANDARD (ENGLISH)
RCB CULVERTS - BARREL DETAILS
12′-0″ SPAN - DOUBLE CELL
2 FT. TO 12 FT. FILL

2009 SPECIFICATIONS RCB-C2-12(2-12) 01E
B-537E

DESCRIPTION	REVISIONS	DATE

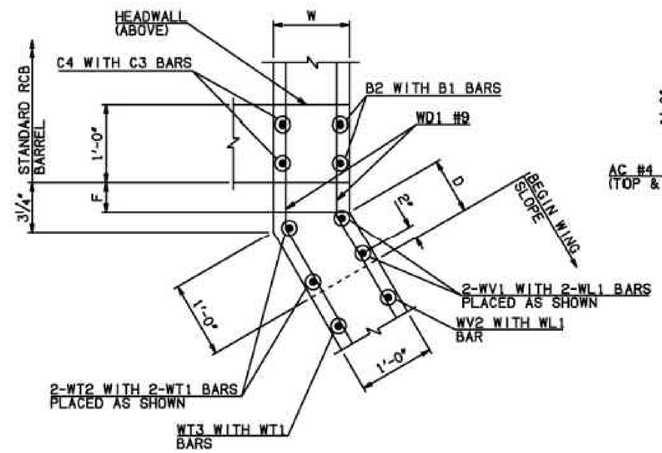


HALF APRON REINFORCING

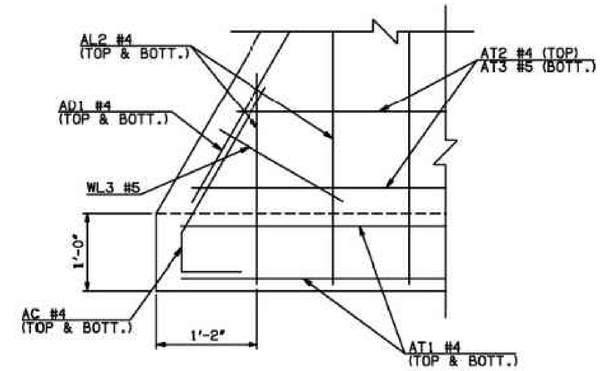
APRON DETAIL

HALF APRON PLAN

WINGWALL DIMENSIONS			
SPAN	W	D	F
10'	12"	8¾"	0
12'	12"	8¾"	0
14'	12"	8¾"	0
16'	13"	6¾"	1¾"
18'	14"	4¾"	3½"
20'	15"	2¾"	5¼"

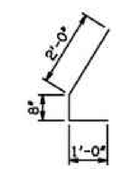


PLAN OF WING AT BARREL



DETAIL 'A'

APRON VARIABLES					
SPAN	DIM. R	DIM. Q	QTY. J	QTY. K	QTY. N
10'	23'-0"	32'-1"	3	33	26
12'	27'-0"	34'-1"	7	29	30
14'	31'-0"	36'-1"	10	26	34
16'	35'-2"	38'-1"	14	22	38
18'	39'-4"	40'-1"	17	19	42
20'	43'-6"	42'-1"	21	15	46



AC #4 x 3'-8"

WINGWALL BAR LIST					
ONE WINGWALL SHOWN; TWO REQUIRED					
MARK	SIZE	QTY.	FORM	LENGTH	REMARKS
WD1	#9	22	BNT	8'-4"	
WH1	#4	2	STR	41'-2"	
② WH2	#4	22	STR	21'-1½" AVG.	3'-10" TO 38'-5"
WH3	#5	2	STR	41'-9"	
WL1	#7	21	BNT	14'-5"	
WL2	#5	31	BNT	10'-3"	
WL3	#5	10	BNT	4'-8½" AVG.	3'-5" TO 6'-0"
WT1	#4	32	STR	2'-10"	
WT2	#4	2	STR	12'-0"	
WT3	#4	10	STR	10'-6½" AVG.	9'-3" TO 11'-10"
WT4	#4	20	STR	6'-3" AVG.	3'-6" TO 9'-0"
WT5	#4	10	STR	2'-8½" AVG.	1'-5" TO 4'-0"
WV1	#5	2	STR	12'-0"	
WV2	#5	19	STR	10'-6½" AVG.	9'-3" TO 11'-10"
WV3	#5	20	STR	6'-3" AVG.	3'-6" TO 9'-0"
U1	#4	1	BNT	3'-0"	

① 4-SETS OF 20-AL2 BARS REQUIRED
② 2-SETS OF 11-WH2 BARS REQUIRED
③ INCLUDES 2'-6" LAP

APRON AND HEADWALL BAR LIST																				
ONE APRON AND ONE HEADWALL SHOWN																				
MARK	SIZE	FORM	10' SPAN			12' SPAN			14' SPAN			16' SPAN			18' SPAN			20' SPAN		
			QTY.	LENGTH	REMARKS	QTY.	LENGTH	REMARKS	QTY.	LENGTH	REMARKS	QTY.	LENGTH	REMARKS	QTY.	LENGTH	REMARKS	QTY.	LENGTH	REMARKS
AC	#4	BNT	4	3'-8"		4	3'-8"		4	3'-8"		4	3'-8"		4	3'-8"		4	3'-8"	
AD1	#4	STR	4	43'-2"		4	43'-2"		4	43'-2"		4	43'-2"		4	43'-2"		4	43'-2"	
AL1	#4	STR	52	38'-5"		60	38'-5"		68	38'-5"		76	38'-5"		84	38'-5"		92	38'-5"	
① AL2	#4	STR	80	18'-11½" AVG.	2'-6" TO 35'-5"	80	18'-11½" AVG.	2'-6" TO 35'-5"	80	18'-11½" AVG.	2'-6" TO 35'-5"	80	18'-11½" AVG.	2'-6" TO 35'-5"	80	18'-11½" AVG.	2'-6" TO 35'-5"	80	18'-11½" AVG.	2'-6" TO 35'-5"
AT1	#4	STR	4	66'-4" ③		4	70'-4" ③		4	74'-4" ③		4	78'-4" ③		4	82'-4" ③		4	86'-4" ③	
AT2	#4	STR	3	64'-8" AVG.	63'-6" TO 65'-10"③	7	66'-4" AVG.	62'-10" TO 69'-10"③	10	68'-7½" AVG.	63'-5" TO 73'-10"③	14	70'-3½" AVG.	62'-9" TO 77'-10"③	17	72'-7" AVG.	63'-4" TO 81'-10"③	21	74'-3" AVG.	62'-8" TO 85'-10"③
AT3	#5	STR	3	64'-8" AVG.	63'-6" TO 65'-10"③	7	66'-4" AVG.	62'-10" TO 69'-10"③	10	68'-7½" AVG.	63'-5" TO 73'-10"③	14	70'-3½" AVG.	62'-9" TO 77'-10"③	17	72'-7" AVG.	63'-4" TO 81'-10"③	21	74'-3" AVG.	62'-8" TO 85'-10"③
AT4	#4	STR	33	41'-4½" AVG.	22'-11" TO 59'-10"	29	43'-1" AVG.	26'-11" TO 59'-3"	26	45'-4" AVG.	30'-11" TO 59'-9"	22	47'-0½" AVG.	34'-11" TO 59'-2"	19	49'-3½" AVG.	38'-11" TO 59'-8"	15	51'-0" AVG.	42'-11" TO 59'-1"
AT5	#5	STR	33	41'-4½" AVG.	22'-11" TO 59'-10"	29	43'-1" AVG.	26'-11" TO 59'-3"	26	45'-4" AVG.	30'-11" TO 59'-9"	22	47'-0½" AVG.	34'-11" TO 59'-2"	19	49'-3½" AVG.	38'-11" TO 59'-8"	15	51'-0" AVG.	42'-11" TO 59'-1"
CH	#4	STR	4	22'-8"		4	26'-8"		4	30'-8"		4	34'-10"		4	39'-0"		4	43'-2"	
CL1	#4	BNT	26	4'-4"		30	4'-4"		34	4'-4"		38	4'-4"		42	4'-4"		46	4'-4"	
CL2	#4	BNT	26	4'-3"		30	4'-3"		34	4'-3"		38	4'-3"		42	4'-3"		46	4'-3"	

QUANTITIES							
ITEM	UNIT	10' SPAN	12' SPAN	14' SPAN	16' SPAN	18' SPAN	20' SPAN
CLASS AA CONCRETE	CY	85.40	91.40	97.40	103.30	109.20	115.00
REINFORCING STEEL	LB	10960.00	11470.00	12500.00	13000.00	13510.00	13510.00

NOTE: QUANTITIES ABOVE ARE FOR ONE END SECTION, WHICH IS COMPRISED OF ONE HEADWALL, ONE APRON, AND TWO WINGWALLS. INCLUDED IN REINFORCING STEEL PAY ITEM QUANTITY IS THE WEIGHT OF ADDITIONAL RCB BARREL REINFORCING STEEL REQUIRED AS SHOWN.

APPROVED BY BRIDGE ENGINEER [signature] DATE 4/2/10

OKLAHOMA DEPT. OF TRANSPORTATION
BRIDGE STANDARD (ENGLISH)

RCB CULVERTS - END SECTION DETAILS
DOUBLE CELL - 10'-0" HEIGHT - 0°
SHEET NO. 1 OF 2

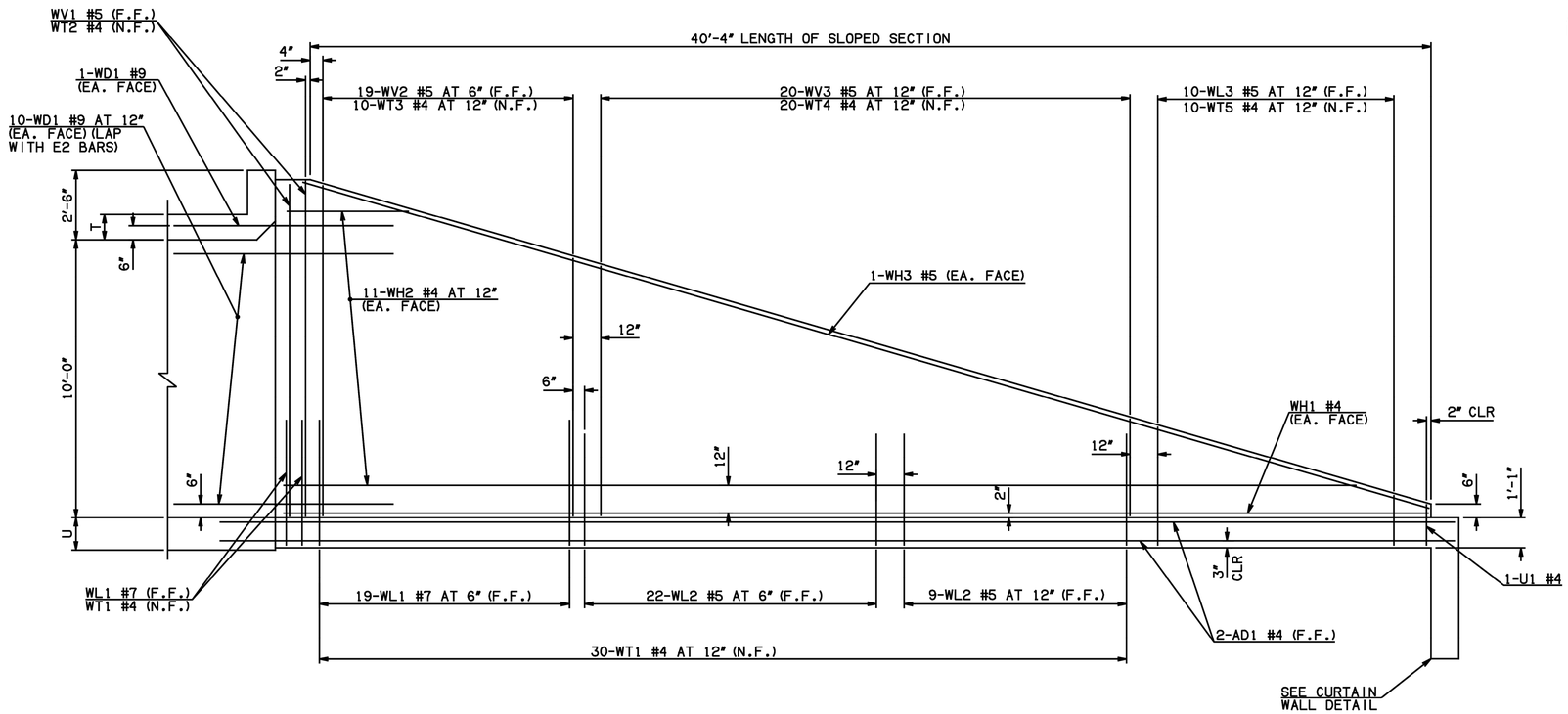
2009 SPECIFICATIONS | RCB-E2-H10-0-1 | 01E | B-614E

④ NOTE: TO CONSTRUCT ONE END SECTION AS SHOWN, THE FOLLOWING BARS ARE REQUIRED IN ADDITION TO THOSE CALLED IN THE RCB BARREL STANDARD:

2-C3 BARS
2-C4 BARS

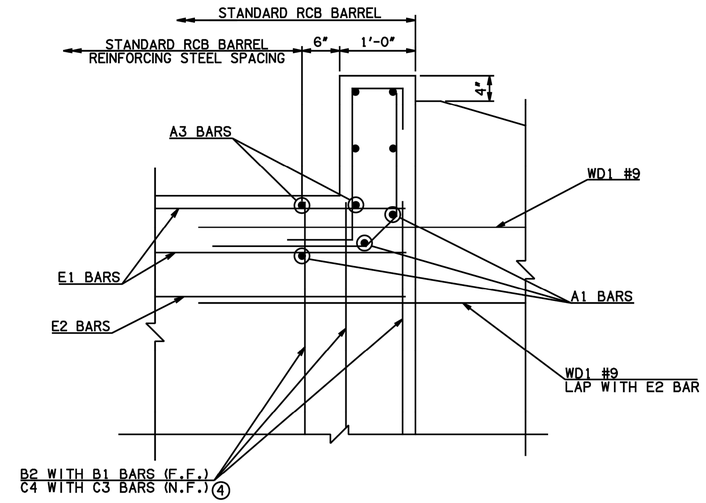
ADDITIONAL WEIGHT IS INCLUDED IN QUANTITIES.

REVISIONS	
DESCRIPTION	DATE

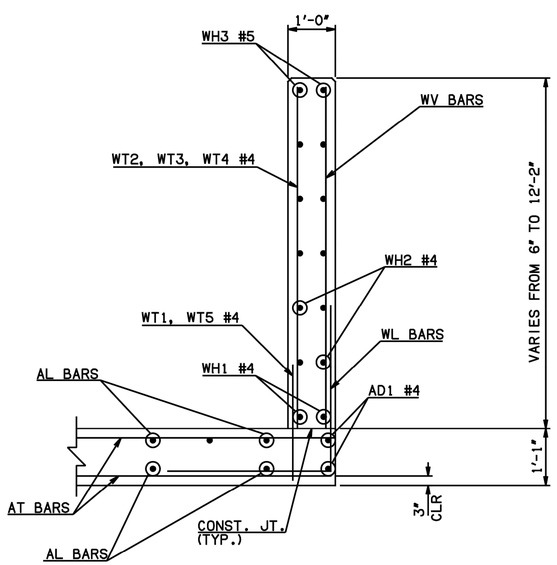


WING ELEVATION

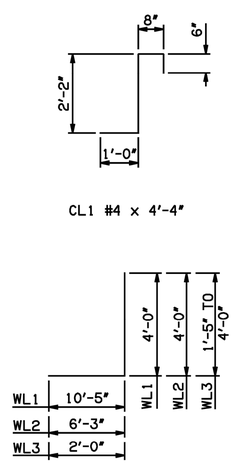
NOTE: F.F. = FAR FACE
N.F. = NEAR FACE

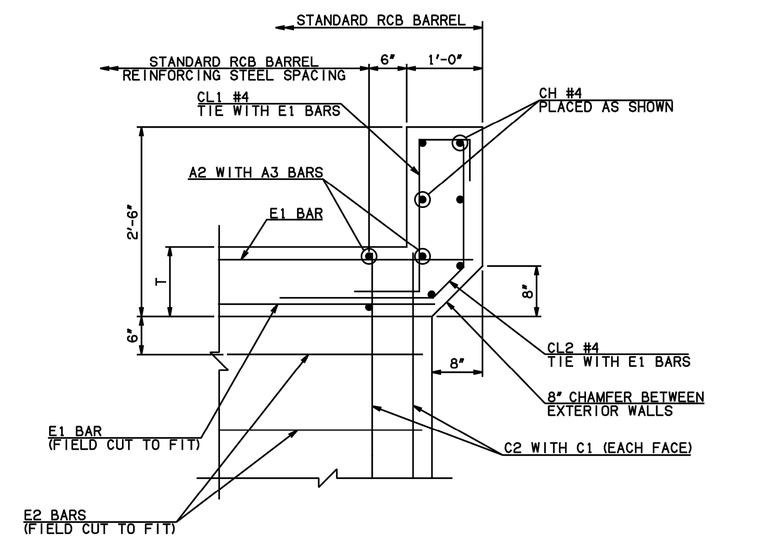


HEADWALL DETAIL AT EXTERIOR WALL



TYPICAL SECTION THRU WING





HEADWALL DETAIL AT INTERIOR WALL

APPROVED BY BRIDGE ENGINEER *Everett Lynch* DATE 4/2/10

OKLAHOMA DEPT. OF TRANSPORTATION
BRIDGE STANDARD (ENGLISH)

RCB CULVERTS - END SECTION DETAILS
DOUBLE CELL - 10'-0" HEIGHT - 0°
SHEET NO. 2 OF 2

2009 SPECIFICATIONS	RCB-E2-H10-0-2	01E
		B-615E

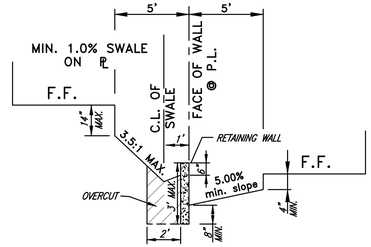
FINISHED LOT GRADING CRITERIA
(CURRENT AS OF 02-12-18)

1.) All lot grading must meet municipal requirements. if there are none, they must meet the requirements of City of Norman standard drawing no. st 30 (required residential driveway grades – local street – house above street level) or standard drawing no. st 31 (required residential driveway grades – local street – house below street level).
2.) The back lot corner should be a minimum of 1 foot above the lowest adjacent pad elevation for lots that drain from the back property line to the front.
3.) Minimum swale slope for pads that drain back to front is 1.25%. Minimume swale slope for pads that break in the middle is 1.00%.
4.) The maximum slope across a utility easement is 6 to 1.
5.) The maximum slope on a lot is 3.5 to 1.
6.) The pad should begin 2 feet towards the street from the front building setback line, but being no closer than 18 feet from the front property line regardless of the front building setback line.
7.) Finished floor elevations are typically 1.2 feet above pad elevations.
8.) All r.o.w. grade adjacent to street shall be a minimum of 3", maximum of 6" above top of curb.
9.) Pads that are adjacent to a flume in a sump condition should be elevated above the top of curb of the street.
10.) Contractor shall grade a 3 foot wide strip from the right of way, towards pads located above curb, at a slope of 1.0%, as part of the rough grading operations to allow a waste area for excess dirt created during finished lot grading operations.

SCALE: 1" = 50'

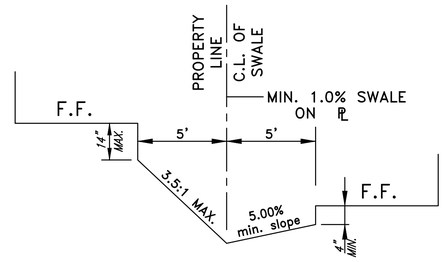
LIMITS OF DESIGN GRADING NOTES:

1.) The contours, spot elevations, and flow arrows, as shown on this drawing, are for the rough grading operations. Finished lot grading operations shall be performed during the development of each individual lot to provide proper drainage away from structures. See notes this sheet for Finished Lot Grading Criteria.
2.) Pads are shown for reference and do not reflect the actual footprint of the future structure to be placed on each individual lot.
3.) Contractor to make sure no ponding occurs when grading back to existing grade.



RETAINING WALLS IN EXCESS OF 3.0 FEET FROM BOTTOM OF FOOTING TO TOP OF WALL REQUIRE AN ENGINEERING DESIGN.
RETAINING WALL MAY NOT BE WITHIN U/E WITHOUT CONSENT TO ENCROACH.

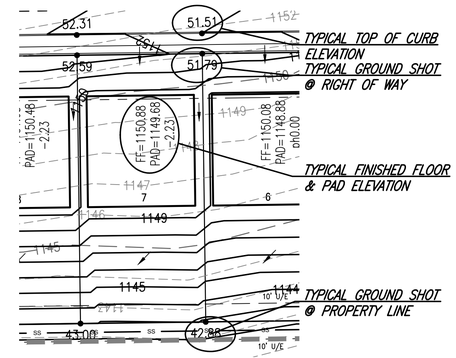
TYPICAL FINISHED SWALE W/ RETAINING WALL DETAIL
(ALONG PROPERTY LINES)
NOT TO SCALE



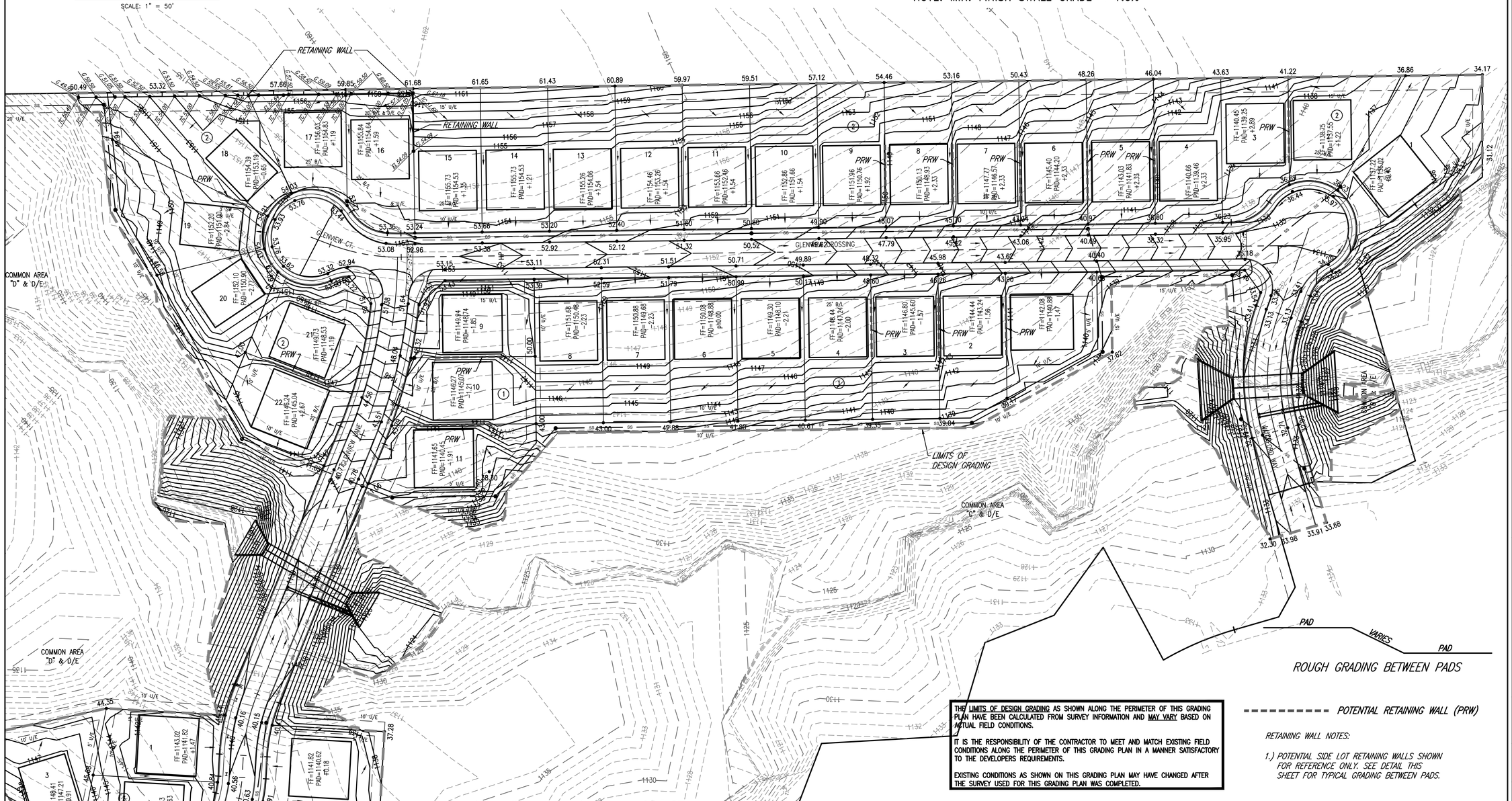
TYPICAL FINISHED SWALE DETAIL
(ALONG PROPERTY LINES)
NOT TO SCALE

← = SWALE ON PROPERTY LINE PER THIS DETAIL.

NOTE: MIN. FINISH SWALE GRADE = 1.0%



TYPICAL LOT INFORMATION
SCALE: 1"=40'



THE LIMITS OF DESIGN GRADING AS SHOWN ALONG THE PERIMETER OF THIS GRADING PLAN HAVE BEEN CALCULATED FROM SURVEY INFORMATION AND MAY VARY BASED ON ACTUAL FIELD CONDITIONS.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO MEET AND MATCH EXISTING FIELD CONDITIONS ALONG THE PERIMETER OF THIS GRADING PLAN IN A MANNER SATISFACTORY TO THE DEVELOPERS REQUIREMENTS.

EXISTING CONDITIONS AS SHOWN ON THIS GRADING PLAN MAY HAVE CHANGED AFTER THE SURVEY USED FOR THIS GRADING PLAN WAS COMPLETED.

- - - - - - - - - - POTENTIAL RETAINING WALL (PRW)

RETAINING WALL NOTES:

1.) POTENTIAL SIDE LOT RETAINING WALLS SHOWN FOR REFERENCE ONLY. SEE DETAIL THIS SHEET FOR TYPICAL GRADING BETWEEN PADS.

N:\CIVIL\2017\SECTION 4\SD31 S4 GRADING PLAN 01.DWG
Plotted by: Roger Stillwell @ 7/7/2025 3:43 PM

NOT VALID FOR CONSTRUCTION
LICENSED PROFESSIONAL ENGINEER
CHRISTOPHER D. ANDERSON
18288
OKLAHOMA
UNLESS SIGNED IN THIS BLOCK

SUMMIT VALLEY ADDITION SECTION 4

36th AVE. S.E. & HWY. 9 NORMAN, OKLAHOMA

SMC
SMC Consulting Engineers, P.C.
815 West Main – Oklahoma City, OK 73106
PH: 405-232-7715 Fax: 405-232-7859
www.smcokc.com
OKLAHOMA CERTIFICATE OF AUTHORIZATION NO. CA 464 EXP 06/30/2027

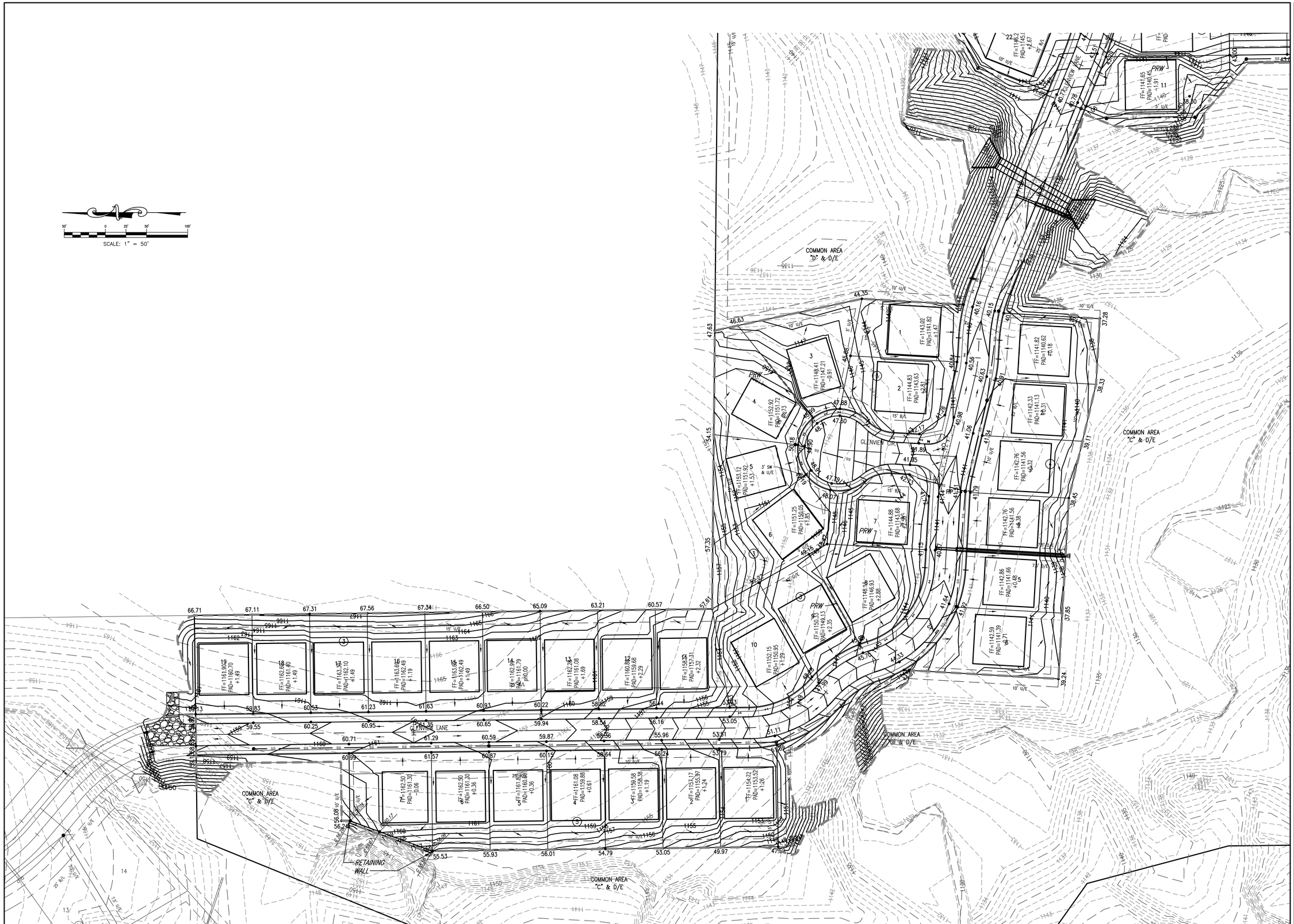
No.	Revision	By	Date

PROJECT NO.: 6211.04
DATE: 7/03/25
SCALE: 1" = 60'
DRAWN BY: SY
ENGINEER: Christopher D. Anderson
P.E. NUMBER: 18288

GRADING PLAN (1 Of 2)

SHEET NO.
27

VERSION C (07-07-25)



NOT VALID FOR CONSTRUCTION

LICENSED PROFESSIONAL ENGINEER
CHRISTOPHER D. ANDERSON
18288
OKLAHOMA

UNLESS SIGNED IN THIS BLOCK

SUMMIT VALLEY ADDITION SECTION 4

36th AVE. S.E. & HWY. 9 NORMAN, OKLAHOMA

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OKLAHOMA CERTIFICATE OF AUTHORIZATION NO. CA 464 EXP 06/30/2027

No.	Revision	By	Date

PROJECT NO.: 6211.04
DATE: 7/03/25
SCALE: 1" = X'
DRAWN BY: CM
ENGINEER: Christopher D. Anderson
P.E. NUMBER: 18288

GRADING PLAN (2 Of 2)

SHEET NO.
28

VERSION C (07-07-25)

N:\DWGS\6211\SECTION 4\6211 S4 GRADING PLAN 01.DWG
Plotted by: Roger Stillwell @ 7/7/2025 3:43 PM