

# FOREST HEIGHTS ESTATES CONSTRUCTION DRAWINGS

## FOR FOREST HEIGHTS CIRCLE COUNTY OF EL PASO, STATE OF COLORADO

**PREPARED FOR**

PHYLLIS DITLEAU  
8250 FOREST HEIGHTS DRIVE  
COLORADO SPRINGS CO 80909

**PREPARED BY**

KCH ENGINEERING SOLUTIONS, P.E.  
5228 CRACKER BARREL CIRCLE  
COLORADO SPRINGS, CO 80917

**AGENCIES**

**OWNER:** PHYLLIS DITLEAU  
8250 FOREST HEIGHTS DRIVE  
COLORADO SPRINGS, CO 80909

**CIVIL ENGINEER:** KCH ENGINEERING SOLUTIONS, LLS  
5228 CRACKER BARREL CIRCLE  
COLORADO SPRINGS, CO 80917  
KENNETH HARRISON, P.E. 719-246-4471

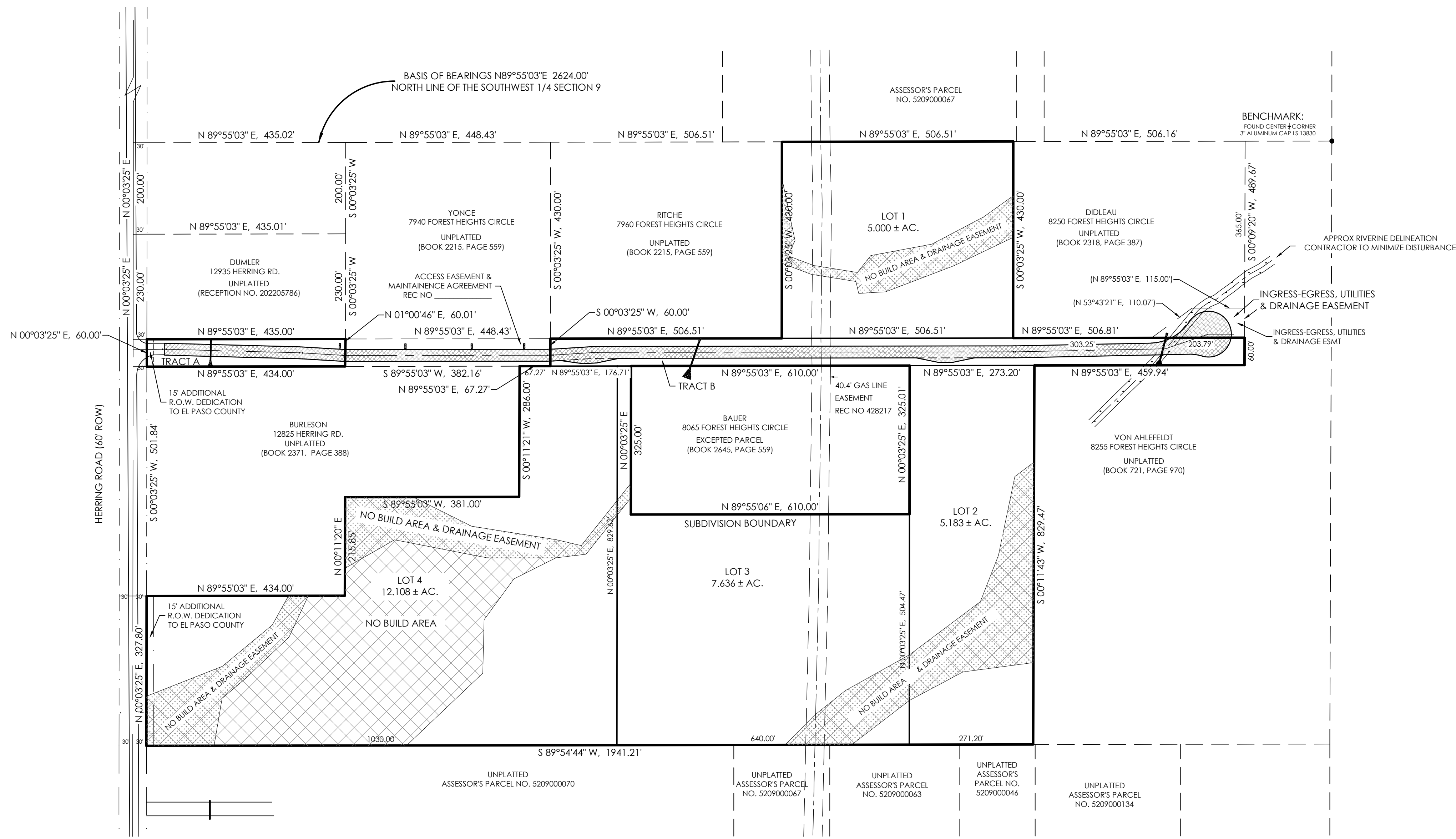
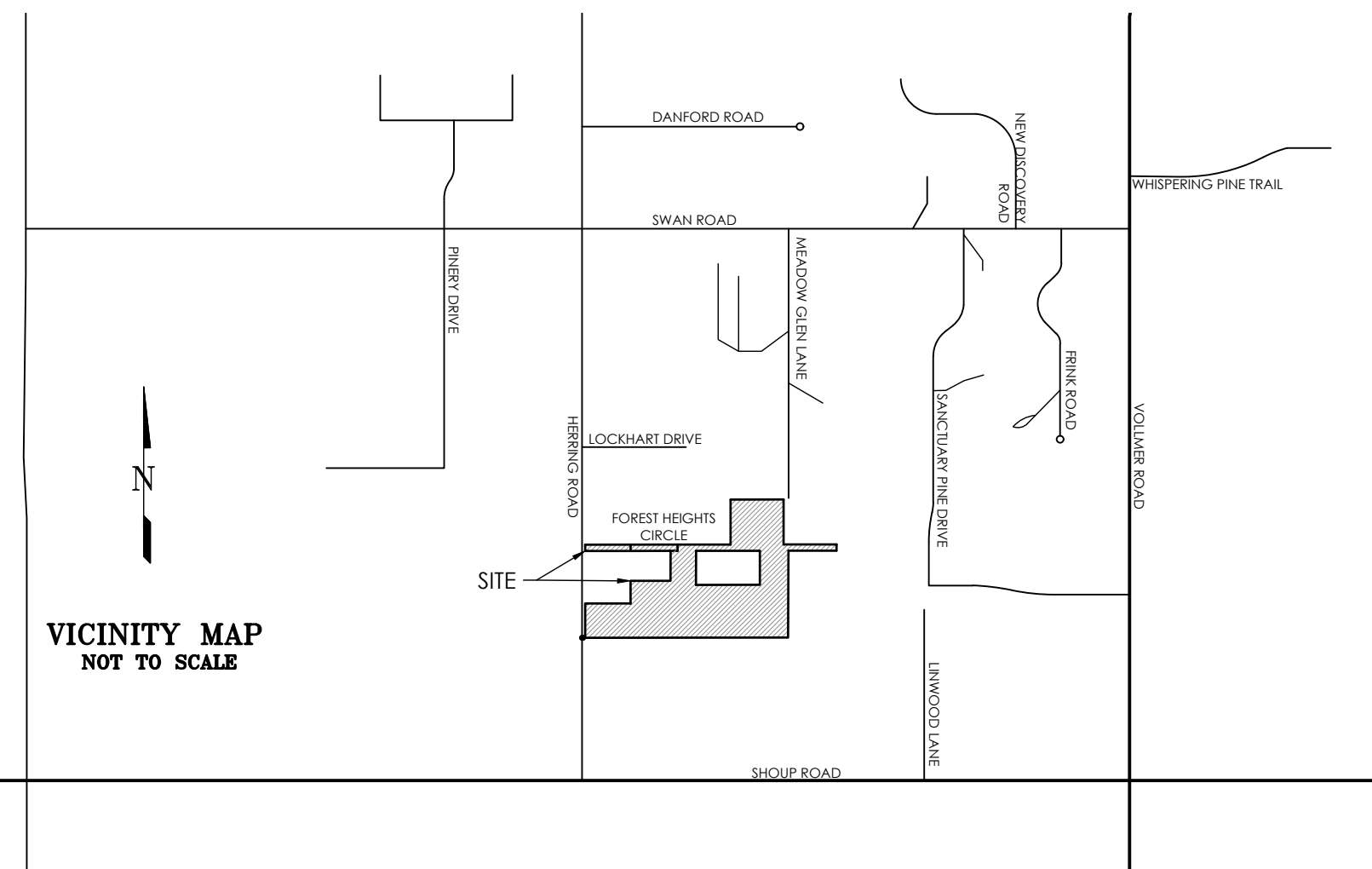
**SURVEYOR:** LAND DEVELOPMENT CONSULTANTS, INC.  
3898 MAIZELAND ROAD  
COLORADO SPRINGS, CO 80909  
DANIEL KUPFERER, PLS 719-528-6133

**COUNTY ENGINEERING:** EL PASO COUNTY PLANNING & COMMUNITY DEV  
2880 INTERNATIONAL CIRCLE, SUITE 110  
COLORADO SPRINGS, CO 80910

**NATURAL GAS CO.:** BLACKHILLS ENERGY  
37 WIDEFIELD BOULEVARD  
WIDEFIELD CO, 80911

**ELECTRIC CO.:** MOUNTAINVIEW ELECTRIC ASSOCIATION, INC.  
P.O. BOX 1860  
LIMON CO, 80828

**FIRE DISTRICT:** BLACK FOREST FIRE RESCUE PROTECTION DISTRICT  
11445 TEACOUT ROAD  
COLORADO SPRINGS, CO 80908  
PH 719-495-4300



**DESIGN ENGINEER'S STATEMENT:**

THESE DETAILED PLANS AND SPECIFICATIONS WERE PREPARED UNDER MY DIRECTION AND SUPERVISION. SAID PLANS AND SPECIFICATIONS HAVE BEEN PREPARED ACCORDING TO THE CRITERIA ESTABLISHED BY THE COUNTY FOR DETAILED ROADWAY, DRAINAGE, GRADING AND EROSION CONTROL PLANS AND SPECIFICATIONS, AND SAID PLANS AND SPECIFICATIONS ARE IN CONFORMITY WITH APPLICABLE MASTER DRAINAGE PLANS AND MASTER TRANSPORTATION PLANS. SAID PLANS AND SPECIFICATIONS MEET THE PURPOSES FOR WHICH THE PARTICULAR ROADWAY AND DRAINAGE FACILITIES ARE DESIGNED AND ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. I ACCEPT RESPONSIBILITY FOR ANY LIABILITY CAUSED BY ANY NEGLIGENT ACTS, ERRORS OR OMISSIONS ON MY PART IN PREPARATION OF THESE DETAILED PLANS AND SPECIFICATIONS.

Stamp and signatures needed

KENNETH C. HARRISON, P.E. \_\_\_\_\_ DATE \_\_\_\_\_  
COLORADO #23635

**OWNER/DEVELOPER'S STATEMENT:**

I, THE OWNER/DEVELOPER HAVE READ AND WILL COMPLY WITH ALL OF THE REQUIREMENTS SPECIFIED IN THESE DETAILED PLANS AND SPECIFICATIONS.

PHYLLIS DITLEAU \_\_\_\_\_ DATE \_\_\_\_\_  
8250 FOREST HEIGHTS DRIVE  
COLORADO SPRINGS CO 80909

**EL PASO COUNTY:**

COUNTY PLAN REVIEW IS PROVIDED ONLY FOR GENERAL CONFORMANCE WITH COUNTY DESIGN CRITERIA. THE COUNTY IS NOT RESPONSIBLE FOR THE ACCURACY AND ADEQUACY OF THE DESIGN, DIMENSIONS, AND/OR ELEVATIONS WHICH SHALL BE CONFIRMED AT THE JOB SITE. THE COUNTY THROUGH THE APPROVAL OF THIS DOCUMENT ASSUMES NO RESPONSIBILITY FOR COMPLETENESS AND/OR ACCURACY OF THIS DOCUMENT.

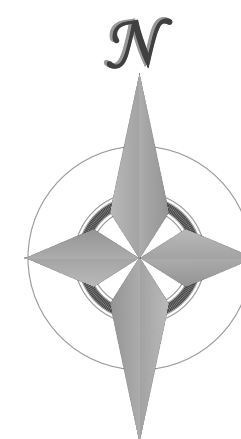
FILED IN ACCORDANCE WITH THE REQUIREMENTS OF THE EL PASO COUNTY LAND DEVELOPMENT CODE, DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2, AND ENGINEERING CRITERIA MANUAL AS AMENDED.

IN ACCORDANCE WITH ECM SECTION 1.12, THESE CONSTRUCTION DOCUMENTS WILL BE VALID FOR CONSTRUCTION FOR A PERIOD OF 2 YEARS FROM THE DATE SIGNED BY THE EL PASO COUNTY ENGINEER. IF CONSTRUCTION HAS NOT STARTED WITHIN THOSE 2 YEARS, THE PLANS WILL NEED TO BE RESUBMITTED FOR APPROVAL, INCLUDING PAYMENT OF REVIEW FEES AT THE PLANNING AND COMMUNITY DEVELOPMENT DIRECTORS DISCRETION.

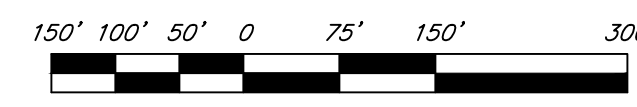
JOSHUA PALMER, P.E. \_\_\_\_\_ DATE \_\_\_\_\_  
COUNTY ENGINEER / ECM ADMINISTRATOR

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SCALE



CALL BEFORE YOU DIG ...

DIAL 811  
48 HOURS BEFORE: CALL UTILITY LOCATORS FOR LOCATING AND MARKING GAS, ELECTRIC, WATER AND FIBER

REVISIONS	No.	Description	Date
	1	24" TO 26" ROADWAY WIDTH	10/03/2023

H Scale: VARIES  
V Scale: VARIES  
Designed By: KCH  
Drawn By: MVE, INC.  
Checked By: KCH  
Date: 06/03/2023



FOREST HEIGHTS CIRCLE  
CONSTRUCTION DRAWINGS  
TITLE SHEET

Project No.: 18070  
Sheet: 1 of 6

**GENERAL NOTES**

1. ALL NEW CONSTRUCTION IS TO CONFORM TO THE SPECIFICATIONS OF EL PASO COUNTY, EXCEPT AS MODIFIED AS SHOWN IN THESE PLANS.
  2. UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN DRAWN FROM AVAILABLE RECORDS AND/OR SURFACE EVIDENCE. THE LOCATION OF ALL UTILITIES MAY NOT BE SHOWN OR MAY NOT HAVE BEEN LOCATED. BELOW GROUND LOCATIONS HAVE NOT BEEN PERFORMED, THEREFORE, THE RELATIONSHIP BETWEEN PROPOSED WORK AND EXISTING FACILITIES, STRUCTURES AND UTILITIES MUST BE CONSIDERED APPROXIMATE. CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL SUBSURFACE UTILITY OWNERS PRIOR TO BEGINNING WORK TO DETERMINE LOCATION OF UTILITY FACILITIES. ALL UTILITIES SHALL BE LOCATED PRIOR TO ANY EARTH WORK OR DIGGING (1-800-922-1987). THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MAY BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UTILITIES.
  3. EXISTING CONDITIONS SHALL BE VERIFIED BY THE GENERAL CONTRACTOR. DISCREPANCIES ARE TO BE REPORTED TO THE ENGINEER PRIOR TO CONSTRUCTION.
  4. SOIL PREPARATION, SEEDING, AND MULCHING FOR AN ESTIMATED 3.3 ACRES WILL BE REQUIRED ON ALL DISTURBED AREAS NOT SURFACED. THE FOLLOWING TYPES AND RATES SHALL BE USED:
- | GRASS               | VARIETY     | AMOUNT IN PLS LBS. PER ACRE |
|---------------------|-------------|-----------------------------|
| SIDEWAYS GRAMA      | EL RENO     | 3.0 LBS.                    |
| WESTERN WHEATGRASS  | BARTON      | 2.5 LBS.                    |
| SLENDER WHEAT GRASS | NATIVE      | 2.0 LBS.                    |
| LITTLE BLUESTEM     | PASTURA     | 2.0 LBS.                    |
| SAND DROPSSEED      | NATIVE      | 0.5 LBS.                    |
| SWITCH GRASS        | NEBRASKA 28 | 3.0 LBS.                    |
| WEEPING LOVE GRASS  | MORPHA      | 1.0 LBS.                    |
|                     | TOTAL       | 14.0 LBS.                   |
5. SEEDING APPLICATION: DRILLED TO A DEPTH OF .25" TO .50" INTO SOIL WHERE POSSIBLE. BROADCAST AND RAKED TO COVER ON STEEPER THAN 3:1 SLOPES WHERE ACCESS IS LIMITED OR UNSAFE FOR EQUIPMENT.
  6. MULCHING REQUIREMENT AND APPLICATION: 2.0 TONS PER ACRE NATIVE HAY MECHANICALLY CRIMPED INTO SOIL.
  7. ALL STORM DRAIN SHALL BE REINFORCED CONCRETE PIPE. ALL CULVERTS SHALL BE PLACED COMPLETE WITH FLARED END SECTIONS. ALL STORM DRAIN FITTINGS AND BENDS SHALL BE PRE-CAST. STORM DRAIN PIPE MAY ALSO BE CORRUGATED METAL OR HDPE, PLACED IN ACCORDANCE WITH EL PASO COUNTY SPECIFICATIONS.
  8. CONTRACTOR WILL BE RESPONSIBLE FOR SCHEDULING A PRE-CONSTRUCTION MEETING HELD PRIOR TO CONSTRUCTION WITH EPC-PCD, ENGINEER, AND CONTRACTOR IN ATTENDANCE.
  9. CONTRACTOR IS RESPONSIBLE FOR ALL OF HIS OPERATIONS ON THE SITE. CONTRACTOR SHALL OBSERVE ALL SAFETY AND OSHA REGULATIONS DURING CONSTRUCTION OPERATIONS. TRENCH WIDTHS AND SLOPE ANGLES SHALL BE DETERMINED BY THE CONTRACTOR IN THE FIELD AND ACCORDING TO SAFETY AND OSHA REGULATIONS.
  10. ALL NECESSARY PERMITS, SUCH AS SWMP, FUGITIVE DUST, ACCESS, C.O.E. 404, ESGCP PERMIT, ETC. SHALL BE OBTAINED PRIOR TO CONSTRUCTION.

**SIGNING AND STRIPING NOTES:**

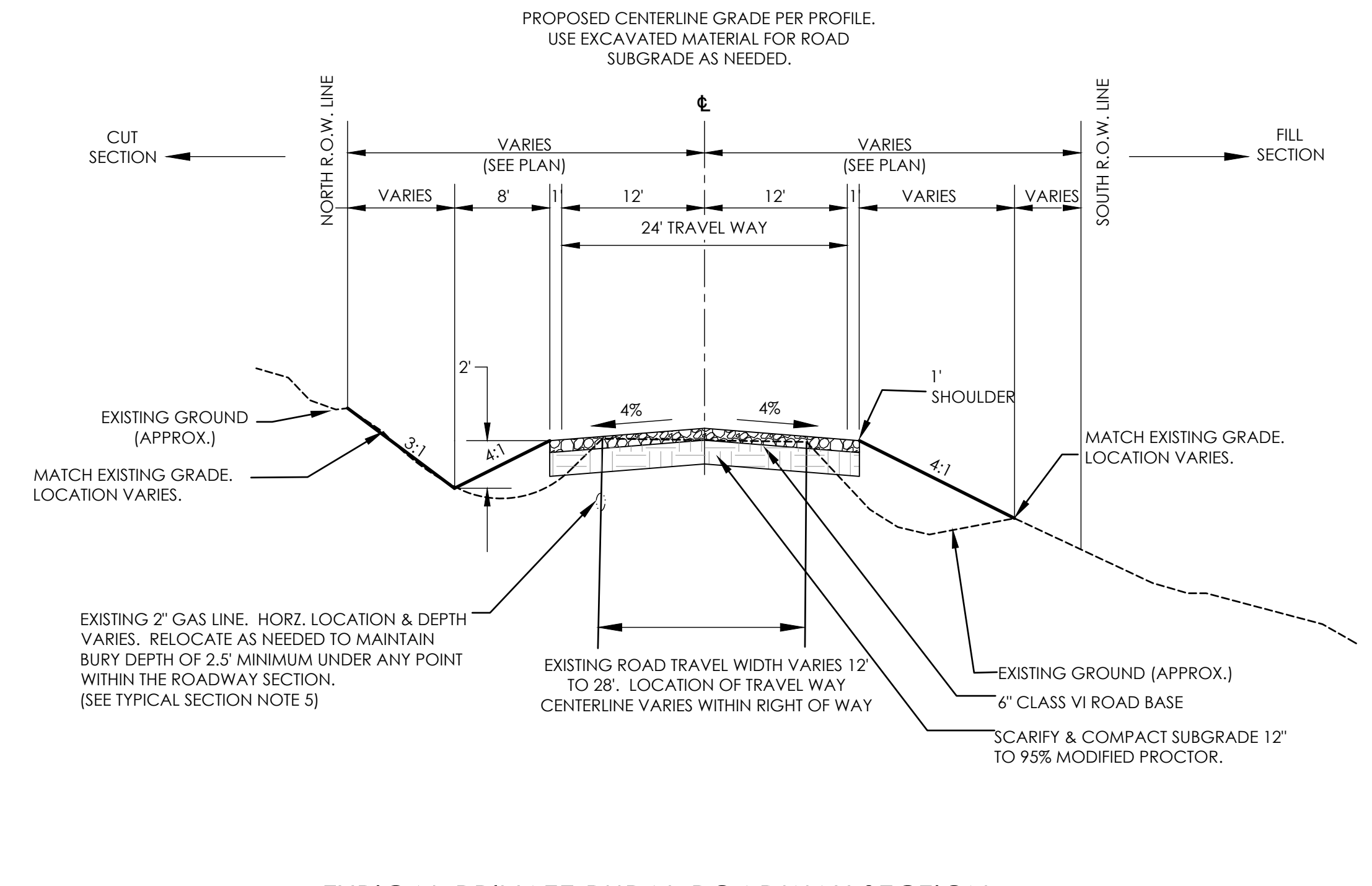
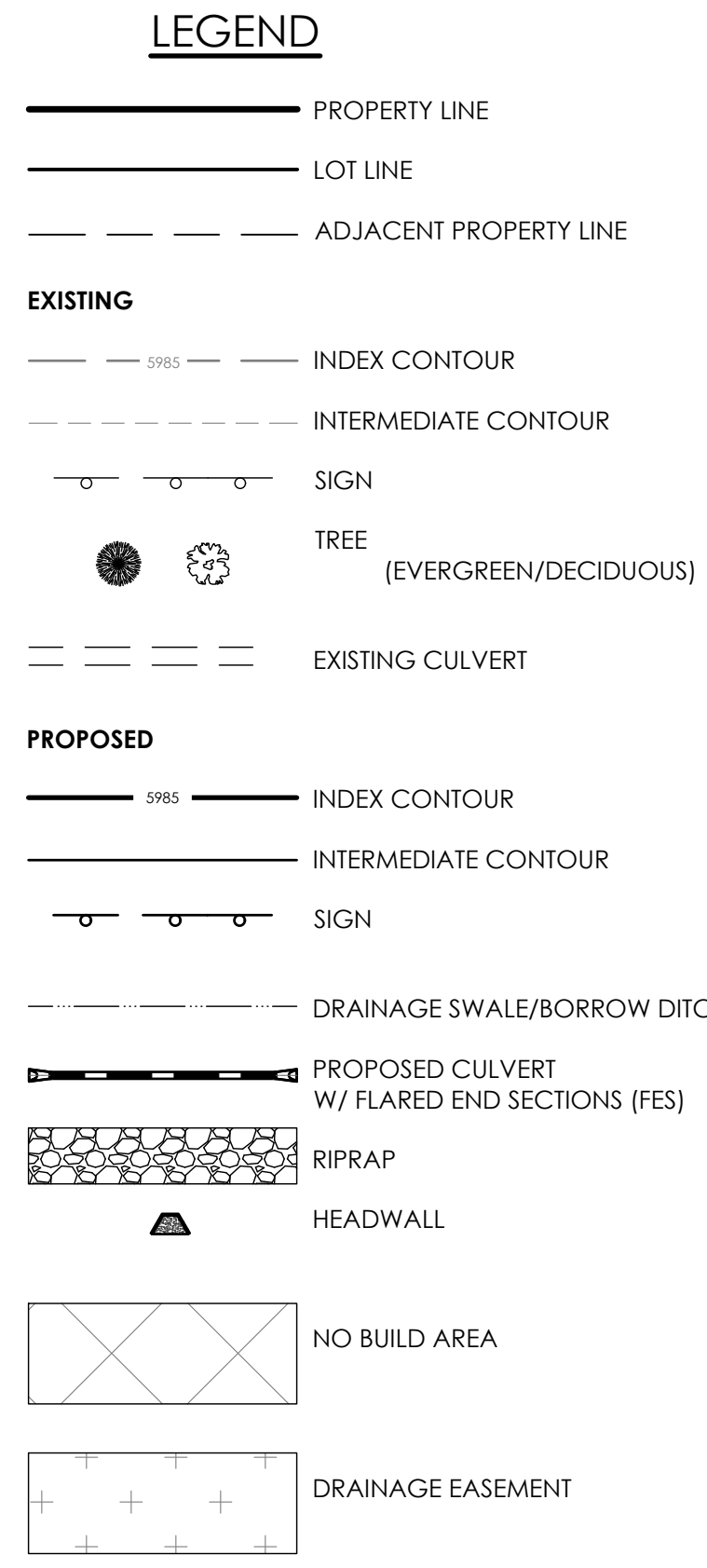
1. ALL SIGNS AND PAVEMENT MARKINGS SHALL BE IN COMPLIANCE WITH THE CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
2. REMOVAL OF EXISTING PAVEMENT MARKINGS SHALL BE ACCOMPLISHED BY A METHOD THAT DOES NOT MATERIALLY DAMAGE THE PAVEMENT. THE PAVEMENT MARKINGS SHALL BE REMOVED TO THE EXTENT THAT THEY WILL NOT BE VISIBLE UNDER DAY OR NIGHT CONDITIONS. AT NO TIME WILL IT BE ACCEPTABLE TO PAINT OVER EXISTING PAVEMENT MARKINGS.
3. ANY DEVIATION FROM THE STRIPING AND SIGNING PLAN SHALL BE APPROVED BY EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT.
4. ALL SIGNS SHOWN ON THE SIGNING AND STRIPING PLAN SHALL BE NEW SIGNS. EXISTING SIGNS MAY REMAIN OR BE REUSED IF THEY MEET CURRENT EL PASO COUNTY AND MUTCD STANDARDS.
5. STREET NAME AND REGULATORY STOP SIGNS SHALL BE ON THE SAME POST AT INTERSECTIONS.
6. ALL REMOVED SIGNS SHALL BE DISPOSED OF IN A PROPER MANNER BY THE CONTRACTOR.
7. ALL STREET NAME SIGNS SHALL HAVE "D" SERIES LETTERS, WITH LOCAL ROADWAY SIGNS BEING 4" UPPER-LOWER CASE LETTERING ON 8" BLANK AND NON-LOCAL ROADWAY SIGNS BEING 6" LETTERING, UPPER-LOWER CASE ON 12" BLANK, WITH A WHITE BORDER THAT IS NOT RECESSED. MULTI-LANE ROADWAYS WITH SPEED LIMITS OF 35 MPH OR HIGHER SHALL HAVE 8" UPPER-LOWER CASE LETTERING ON 12" BLANK WITH A WHITE BORDER THAT IS NOT RECESSED. THE WIDTH OF THE NON-RECESSED WHITE BORDERS SHALL MATCH PAGE 255 OF THE 2012 MUTCD "STANDARD HIGHWAY SIGNS". SIGNAL POLE MOUNTED AND OVERHEAD STREET NAME SIGNS SHALL BE PER MUTCD SIZE STANDARDS.
8. ALL TRAFFIC SIGNS SHALL HAVE A MINIMUM HIGH INTENSITY PRISMATIC GRADE SHEETING.
9. ALL LOCAL RESIDENTIAL STREET SIGNS SHALL BE MOUNTED ON A 1.75" X 1.75" SQUARE TUBE SIGN POST AND STUB POST BASE. FOR OTHER APPLICATIONS, REFER TO THE CDOT STANDARD S-614-8 REGARDING USE OF THE P2 TUBULAR STEEL POST SLIPBASE DESIGN.
10. ALL SIGNS SHALL BE SINGLE SHEET ALUMINUM WITH 0.100" MINIMUM THICKNESS.
11. ALL LIMIT LINES/STOP LINES, CROSSWALK LINES, PAVEMENT LEGENDS, AND ARROWS SHALL BE A MINIMUM 1/25 MIL THICKNESS PREFORMED THERMOPLASTIC PAVEMENT MARKINGS WITH TAPERED LEADING EDGES PER CDOT STANDARD S-627-1. WORD AND SYMBOL MARKINGS SHALL BE THE NARROW TYPE. STOP BARS SHALL BE 24" IN WIDTH. CROSSWALK LINES SHALL BE 12" WIDE AND A MINIMUM OF 8' LONG PER CDOT S-627-1. [CROSSWALK LINES 9' LONG ARE PREFERRED.]
12. ALL LONGITUDINAL LINES SHALL BE A MINIMUM 1/8 MIL THICKNESS EPOXY PAINT. ALL NON-LOCAL RESIDENTIAL ROADWAYS SHALL INCLUDE BOTH RIGHT AND LEFT EDGE LINE STRIPING AND ANY ADDITIONAL STRIPING AS REQUIRED BY CDOT S-627-1.
13. THE CONTRACTOR SHALL NOTIFY EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT (719) 520-6819 PRIOR TO AND UPON COMPLETION OF SIGNING AND STRIPING.
14. THE CONTRACTOR SHALL OBTAIN A WORK IN THE RIGHT OF WAY PERMIT FROM THE EL PASO COUNTY DEPARTMENT OF PUBLIC WORKS (DPW) PRIOR TO ANY SIGNAGE OR STRIPING WORK WITHIN AN EXISTING EL PASO COUNTY ROADWAY.

**STANDARD EL PASO COUNTY CONSTRUCTION PLAN NOTES**

1. ALL DRAINAGE AND ROADWAY CONSTRUCTION SHALL MEET THE STANDARDS AND SPECIFICATIONS OF THE CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2, AND THE EL PASO COUNTY ENGINEERING CRITERIA MANUAL.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR THE NOTIFICATION AND FIELD NOTIFICATION OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, BEFORE BEGINNING CONSTRUCTION. LOCATION OF EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CALL 811 TO CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC).
3. CONTRACTOR SHALL KEEP A COPY OF THESE APPROVED PLANS, THE GRADING AND EROSION CONTROL PLAN, THE STORMWATER MANAGEMENT PLAN (SWMP), THE SOILS AND GEOTECHNICAL REPORT, AND THE APPROPRIATE DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS AT THE JOB SITE AT ALL TIMES, INCLUDING THE FOLLOWING:
  - a. EL PASO COUNTY ENGINEERING CRITERIA MANUAL (ECM)
  - b. CITY OF COLORADO SPRINGS/EL PASO COUNTY DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2
  - c. COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION
  - d. CDOT M & S STANDARDS
4. NOTWITHSTANDING ANYTHING DEPICTED IN THESE PLANS IN WORDS OR GRAPHIC REPRESENTATION, ALL DESIGN AND CONSTRUCTION RELATED TO ROADS, STORM DRAINAGE AND EROSION CONTROL SHALL CONFORM TO THE STANDARDS AND REQUIREMENTS OF THE MOST RECENT VERSION OF THE RELEVANT ADOPTED EL PASO COUNTY STANDARDS, INCLUDING THE LAND DEVELOPMENT CODE, THE ENGINEERING CRITERIA MANUAL, THE DRAINAGE CRITERIA MANUAL, AND THE DRAINAGE CRITERIA MANUAL VOLUME 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING. ANY MODIFICATIONS NECESSARY TO MEET CRITERIA AFTER-THE-FACT WILL BE ENTIRELY THE DEVELOPER'S RESPONSIBILITY TO RECTIFY.
5. IT IS THE DESIGN ENGINEER'S RESPONSIBILITY TO ACCURATELY SHOW EXISTING CONDITIONS, BOTH ONSITE AND OFFSITE, ON THE CONSTRUCTION PLANS. ANY MODIFICATIONS NECESSARY DUE TO CONFLICTS, OMISSIONS, OR CHANGED CONDITIONS WILL BE ENTIRELY THE DEVELOPER'S RESPONSIBILITY TO RECTIFY.
6. CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT DEPARTMENT (PCD) - INSPECTIONS, PRIOR TO STARTING CONSTRUCTION.
7. IT IS THE CONTRACTOR'S RESPONSIBILITY TO UNDERSTAND THE REQUIREMENTS OF ALL JURISDICTIONAL AGENCIES AND TO OBTAIN ALL REQUIRED PERMITS, INCLUDING BUT NOT LIMITED TO EL PASO COUNTY EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESGCP), REGIONAL BUILDING FLOODPLAIN DEVELOPMENT PERMIT, U.S. ARMY CORPS OF ENGINEERS-ISSUED 401 AND/OR 404 PERMITS, AND COUNTY AND STATE FUGITIVE DUST PERMITS.
8. CONTRACTOR SHALL NOT DEVIATE FROM THE PLANS WITHOUT FIRST OBTAINING WRITTEN APPROVAL FROM THE DESIGN ENGINEER AND PCD. CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER IMMEDIATELY UPON DISCOVERY OF ANY ERRORS OR INCONSISTENCIES.
9. ALL STORM DRAIN PIPE SHALL BE CLASS III RCP UNLESS OTHERWISE NOTED AND APPROVED BY PCD.
10. CONTRACTOR SHALL COORDINATE GEOTECHNICAL TESTING PER ECM STANDARDS. PAVEMENT DESIGN SHALL BE APPROVED BY EL PASO COUNTY PCD PRIOR TO PLACEMENT OF CURB AND GUTTER AND PAVEMENT.
11. ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE AT APPROVED CONSTRUCTION ACCESS POINTS.
12. SIGHT VISIBILITY TRIANGLES AS IDENTIFIED IN THE PLANS SHALL BE PROVIDED AT ALL INTERSECTIONS. OBSTRUCTIONS GREATER THAN 18 INCHES ABOVE FLOWLINE ARE NOT ALLOWED WITHIN SIGHT TRIANGLES.
13. SIGNING AND STRIPING SHALL COMPLY WITH EL PASO COUNTY DOT AND MUTCD CRITERIA. IF APPLICABLE, ADDITIONAL SIGNING AND STRIPING NOTES WILL BE PROVIDED.
14. CONTRACTOR SHALL OBTAIN ANY PERMITS REQUIRED BY EL PASO COUNTY DPW, INCLUDING WORK WITHIN THE RIGHT-OF-WAY AND SPECIAL TRANSPORT PERMITS.
15. THE LIMITS OF CONSTRUCTION SHALL REMAIN WITHIN THE RIGHT-OF-WAY (ROW) UNLESS OTHERWISE NOTED. THE OWNER/DEVELOPER SHALL OBTAIN WRITTEN PERMISSION AND EASEMENTS, WHERE REQUIRED, FROM ADJOINING PROPERTY OWNER(S) PRIOR TO ANY OFF-SITE DISTURBANCE, GRADING, OR CONSTRUCTION.

**BORROW AREA NOTE**

IF ADDITIONAL FILL IS REQUIRED THEN FILL MATERIAL TO BE OBTAINED FROM ON SITE SOURCES. CONTRACTOR TO COORDINATE WITH OWNER REGARDING LOCATION OF BORROW AREA.

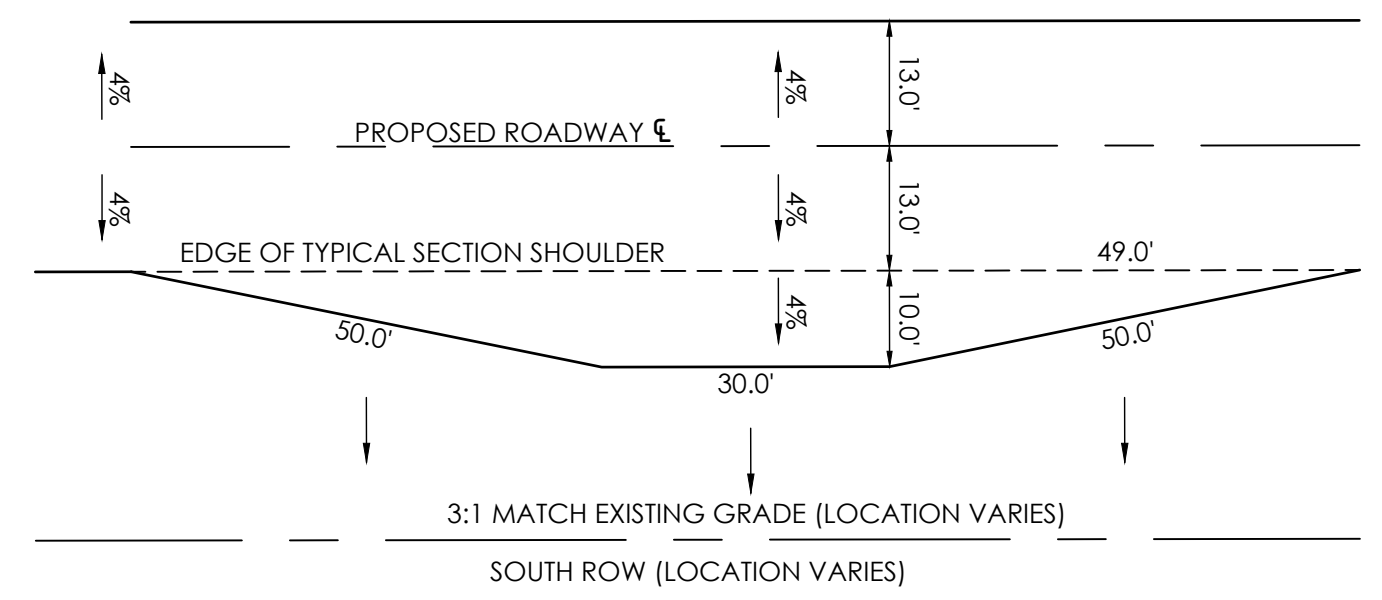


**TYPICAL PRIVATE RURAL ROADWAY SECTION**  
RURAL GRAVEL LOCAL ROADWAY  
WITH A DESIGN AND POSTED SPEED OF 20 MPH

SCALE:  
HORIZONTAL SCALE: 1" = 10'  
VERTICAL SCALE: 1" = 5'

**NOTES FOR TYPICAL SECTION**

1. THE CENTERLINE OF THE PROPOSED ROADWAY VARIES WITHIN THE RIGHT-OF-WAY (R.O.W.). SEE PLANS FOR ROADWAY ALIGNMENT DATA.
2. THE CENTERLINE OF THE PROPOSED ROADWAY IS SHIFTED SOUTH IN THE R.O.W. ALONG PROPERTY OWNED BY FREDERICK YONCE TO PRESERVE EXISTING TREES AS MUCH AS PRACTICALLY POSSIBLE.
3. EXISTING TREES IN THE R.O.W. AFFECTED BY THE ROADWAY CONSTRUCTION SHALL BE RELOCATED OR REPLACED BY THE CONTRACTOR.
4. CONTRACTOR TO OBTAIN PERMISSION FROM EACH INDIVIDUAL PROPERTY OWNER WHEN CONSTRUCTION IS REQUIRED OUTSIDE THE ROADWAY TRACT/EASEMENT.
5. GAS LINE EXISTS ALONG THE ENTIRE LENGTH OF THE NORTH SIDE OF FOREST HEIGHTS CIRCLE. CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE HORIZONTAL & VERTICAL LOCATION OF THE PIPE. CONTRACTOR TO COORDINATE RELOCATION OF GAS LINE.
6. PRIOR TO CONSTRUCTION, A GRAVEL PAVEMENT REPORT BY A GEOTECHNICAL ENGINEER SHALL BE SUBMITTED TO EL PASO COUNTY PCD FOR REVIEW AND APPROVAL. THE REPORT WILL INDICATE THE REQUIRED GRAVEL ROADWAY SPECIFICATIONS WHICH MAY ALTER THE THICKNESS OF GRAVEL SHOWN ON THE TYPICAL SECTION AND SUBGRADE TREATMENT.



**TYPICAL PRIVATE RURAL ROADWAY SECTION**  
PULLOUT DETAILS

SCALE: 1" = 20'

CALL BEFORE YOU DIG ...

DIAL 811

48 HOURS BEFORE YOU DIG, CALL UTILITY LOCATORS FOR LOCATING AND MARKING GAS, ELECTRIC, WATER AND FIBER OPTIC.

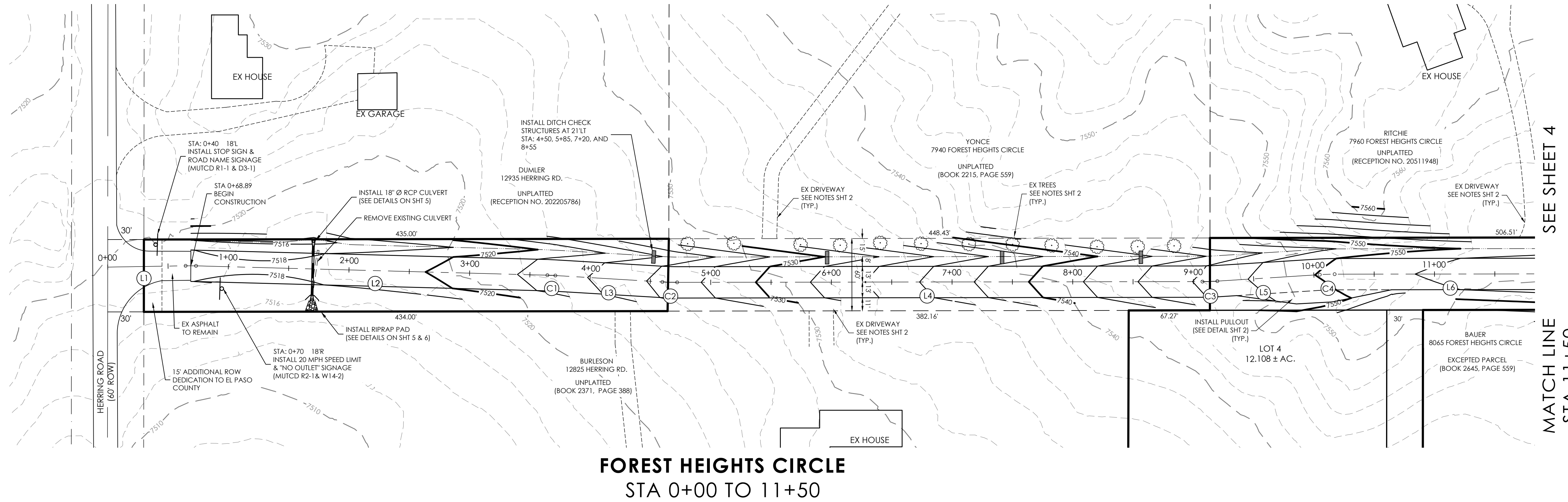
REVISIONS	No.	Description	By	Date
	1	24" TO 28" ROADWAY WIDTH	JO	10/02/2023

H Scale:	VARIES	KCH
V Scale:	VARIES	KCH
Designed By:	MVE, INC.	KCH
Drawn By:		
Checked By:		
Date:	06/03/2023	

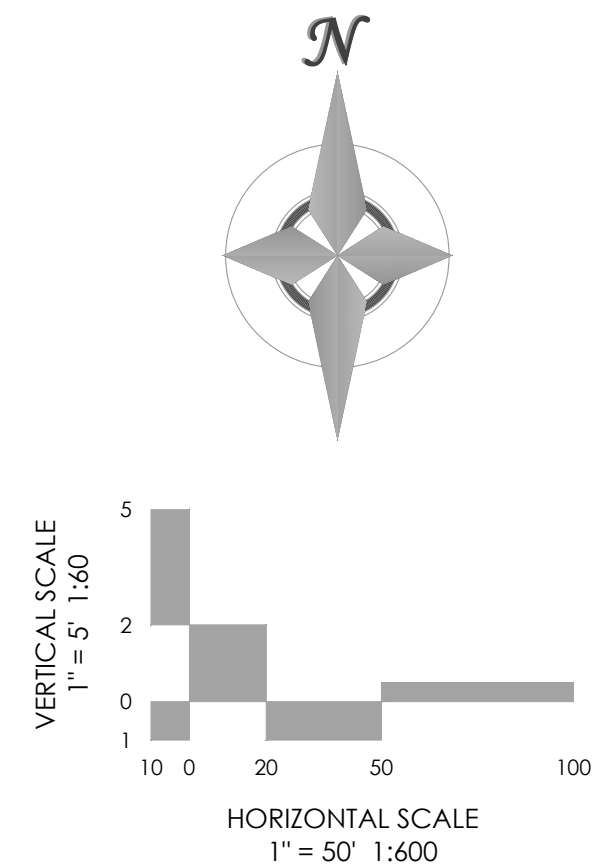
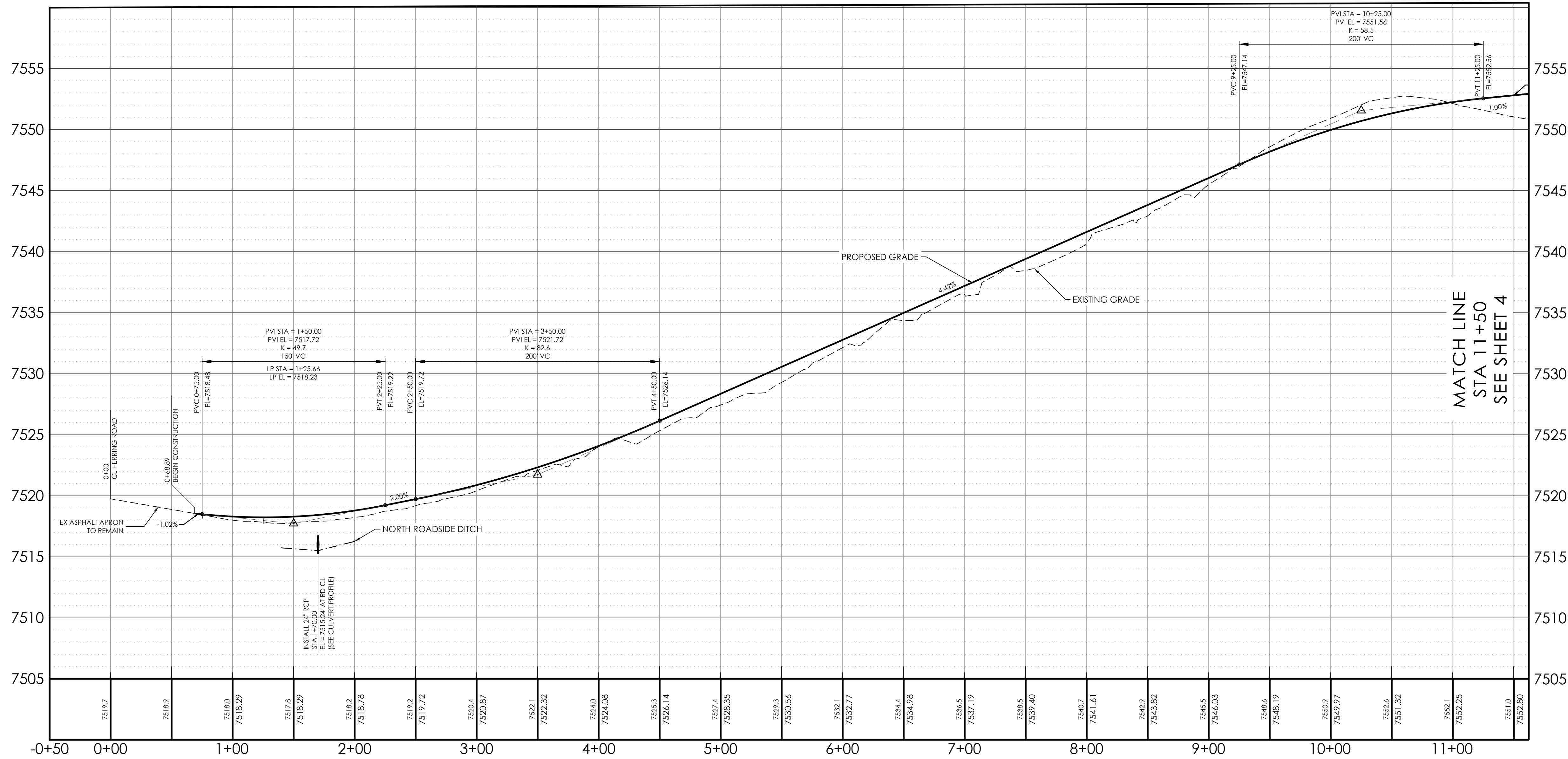
**FOREST HEIGHTS CIRCLE**  
**CONSTRUCTION DRAWINGS**  
GENERAL NOTES  
TYPICAL SECTION DETAILS

Project No.:	18070
Sheet:	2 of 6

CL HERRING RD STA: 0+00 N1.432,828 E: 3.232,502  
 L1 LINE DATA N89°02'56"E 64.57' PI STA: 0+68.89 PC: 0+64.57 PT: 0+73.21 L= 8.64' Δ = 02°28'30" R = 200'  
 BEGIN CONSTRUCTION  
 L2 LINE DATA S88°28'34"E 291.28' C1 CURVE DATA PC = 3+64.49 PT = 3+71.10 L = 6.61' Δ = 1°53'37" R = 200'  
 L3 LINE DATA S86°34'57"E 88.87' C2 CURVE DATA PC = 4+59.97 PT = 4+72.18 L = 12.22' Δ = 3°30'00" R = 200'  
 L4 LINE DATA N89°55'03"E 435.34' C3 CURVE DATA PC = 9+07.53 PT = 9+19.86 L = 12.33' Δ = 3°31'57" R = 200'  
 L5 LINE DATA N86°23'06"E 85.05' C4 CURVE DATA PC = 10+04.90 PT = 10+17.23 L = 12.33' Δ = 3°31'57" R = 200'  
 L6 LINE DATA N89°55'03"E 910.92'



**FOREST HEIGHTS CIRCLE**  
STA 0+00 TO 11+50



SITE BENCHMARK: THE MONUMENT FOR THE CENTER 1/4 CORNER OF SECTION 9. THE MONUMENT IS A 3-INCH ALUMINUM CAP STAMPED LS 13830. ELEVATION- 7527.04

CALL BEFORE YOU DIG  
 811 DIAL 811  
 48 HOURS BEFORE YOU DIG. CALL UTILITY LOCATORS FOR LOCATING AND MARKING GAS, ELECTRIC, WATER AND SEWER LINES

No.	Date	By	Description
1	10/02/2023	JO	24" TO 26" ROADWAY WIDTH

H Scale:	VARIES	KCH
V Scale:	VARIES	MVE, INC.
Designed By:		KCH
Drawn By:		KCH
Checked By:		KCH
Date:	06/03/2023	



**FOREST HEIGHTS CIRCLE CONSTRUCTION DRAWINGS**  
PLAN & PROFILE  
0+00 TO 11+50

Project No.: 18070  
 Sheet: 3 of 6

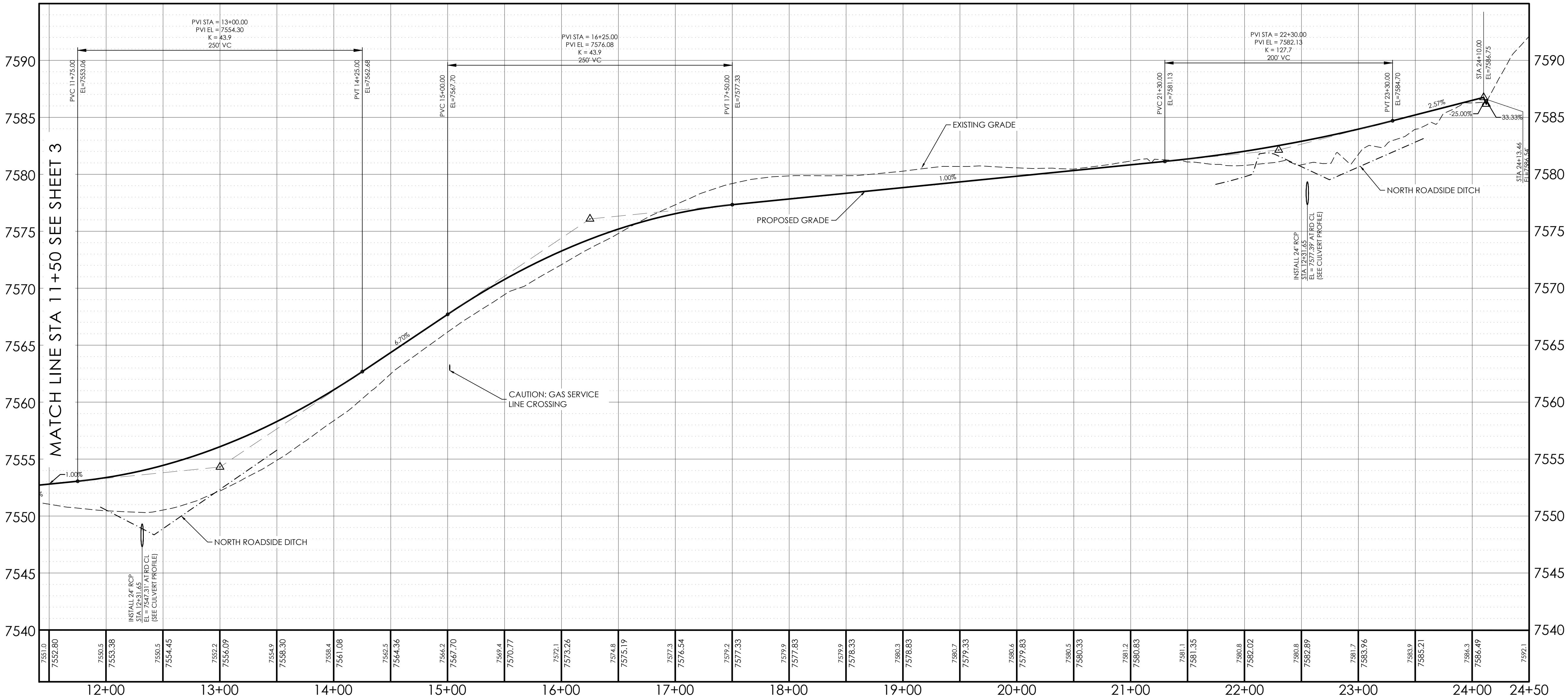
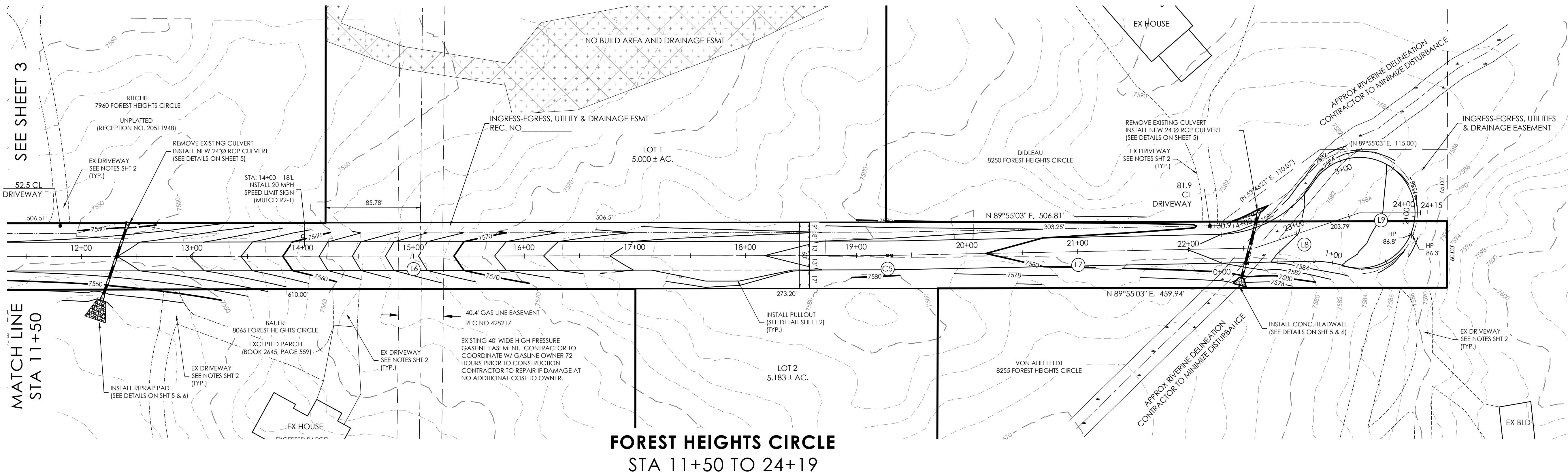
**L6 LINE DATA**  
N89°55'03"E 910.92'

**C5 CURVE DATA**  
PC = 19+28.15  
PT = 19+31.90  
L = 3.75'  
Δ = 1°04'24"  
R = 200'

**L7 LINE DATA**  
N88°50'39"E 328.10'

**L8 LINE DATA**  
N71°23'13"E 100.00'

**L9 LINE DATA**  
S89°58'55"E 50.00'



CALL BEFORE YOU DIG ...  
811 DIAL 811  
48 HOURS BEFORE YOU DIG, CALL UTILITY LOCATORS FOR LOCATING AND MARKING GAS, ELECTRIC, WATER AND FIBER OPTIC.

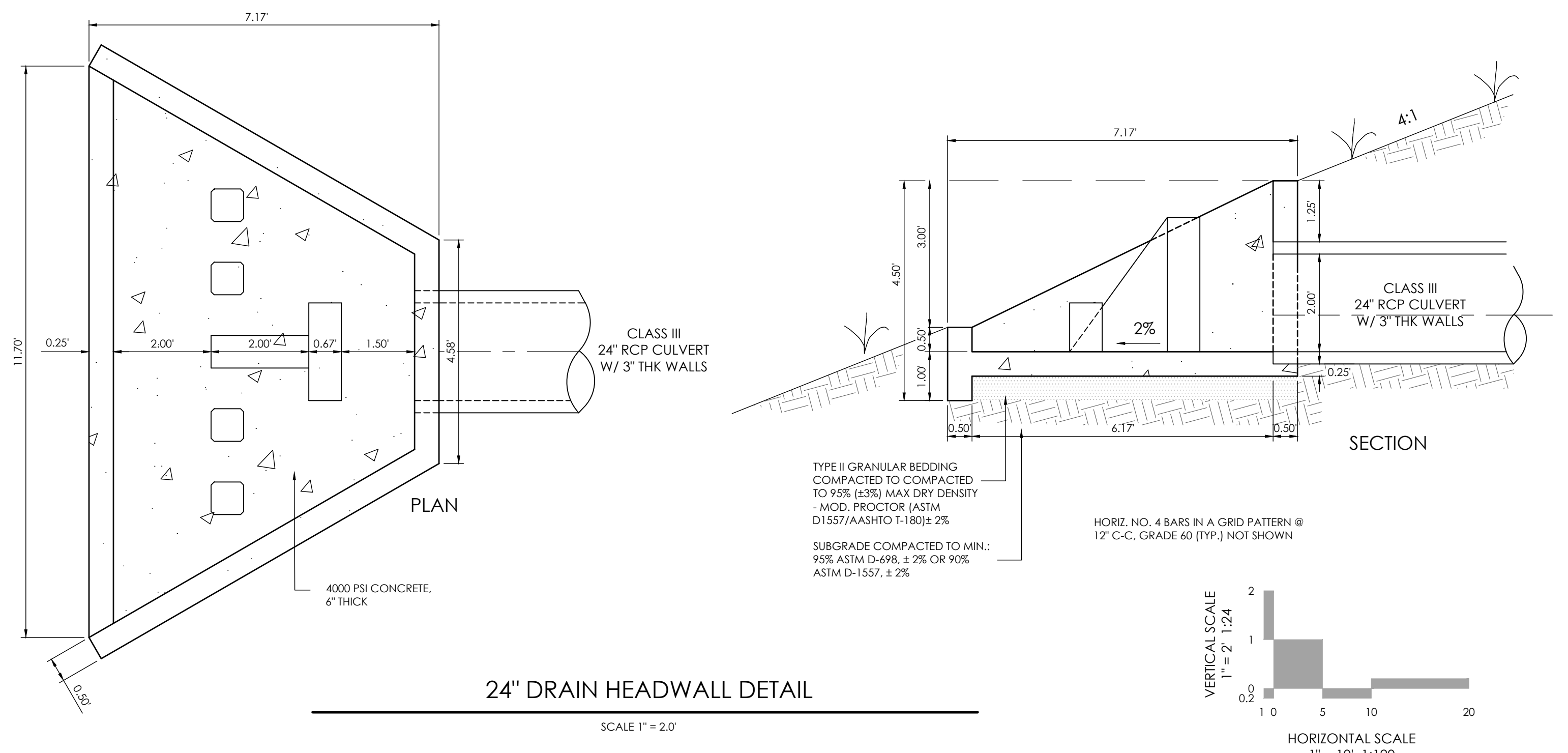
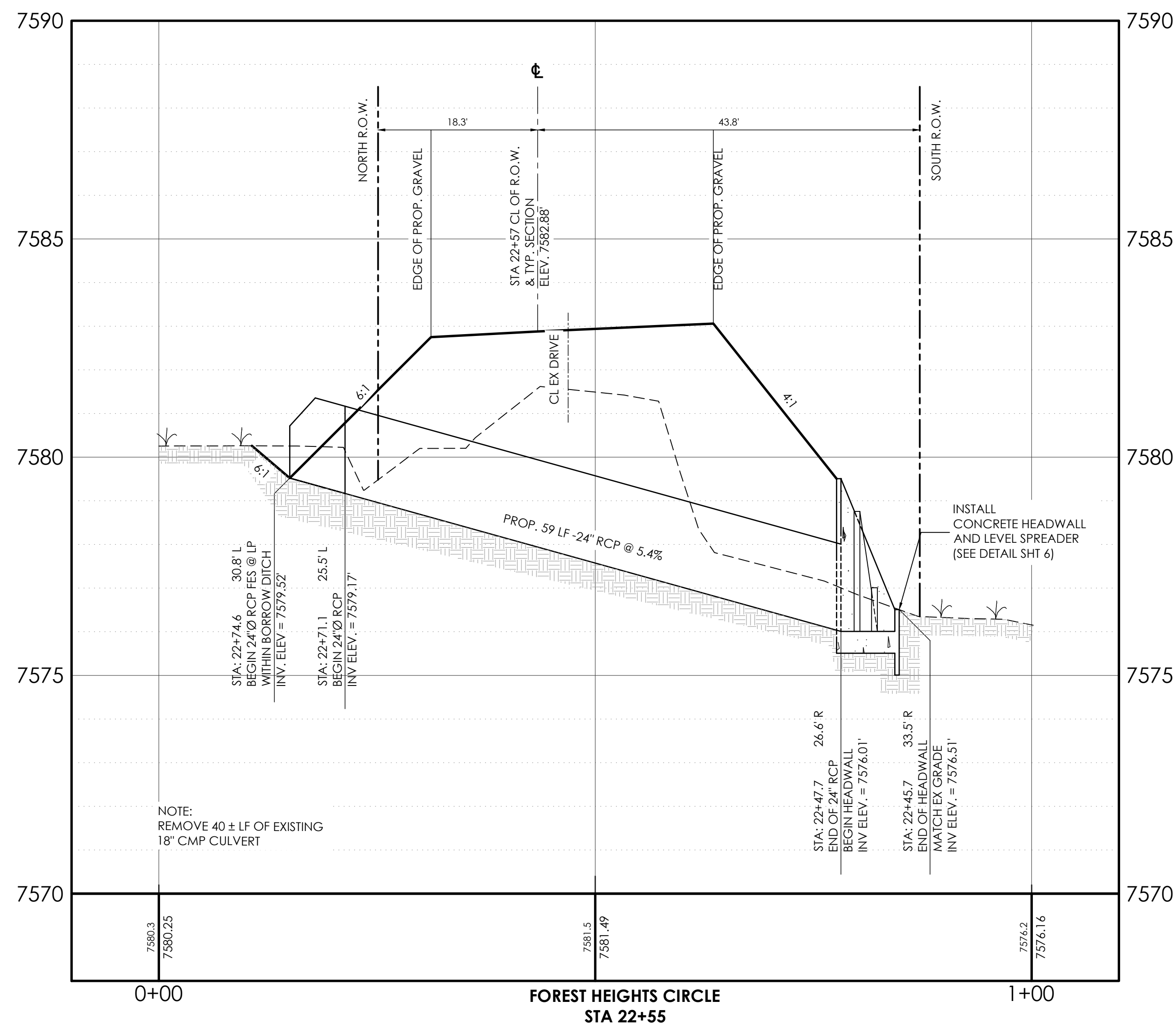
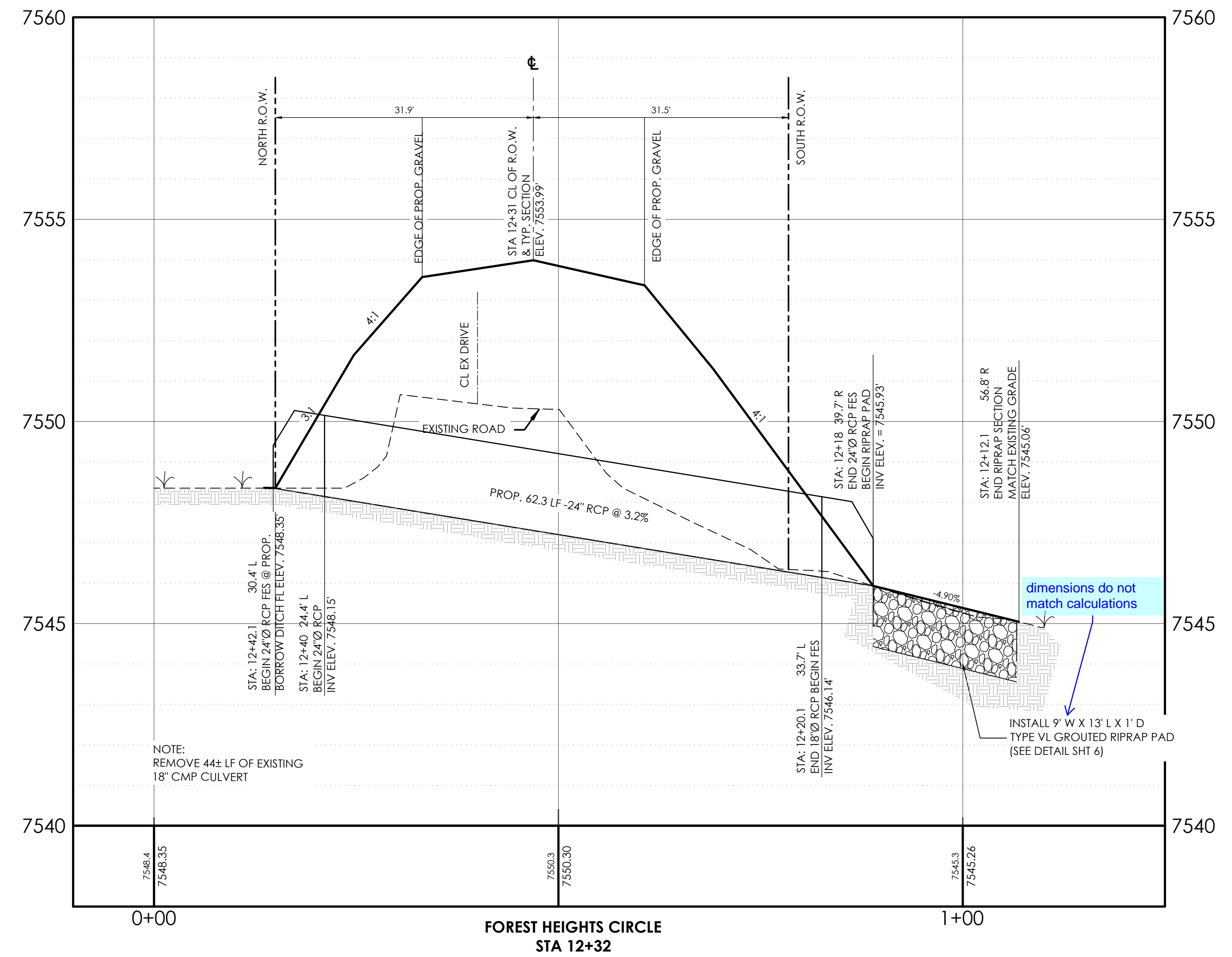
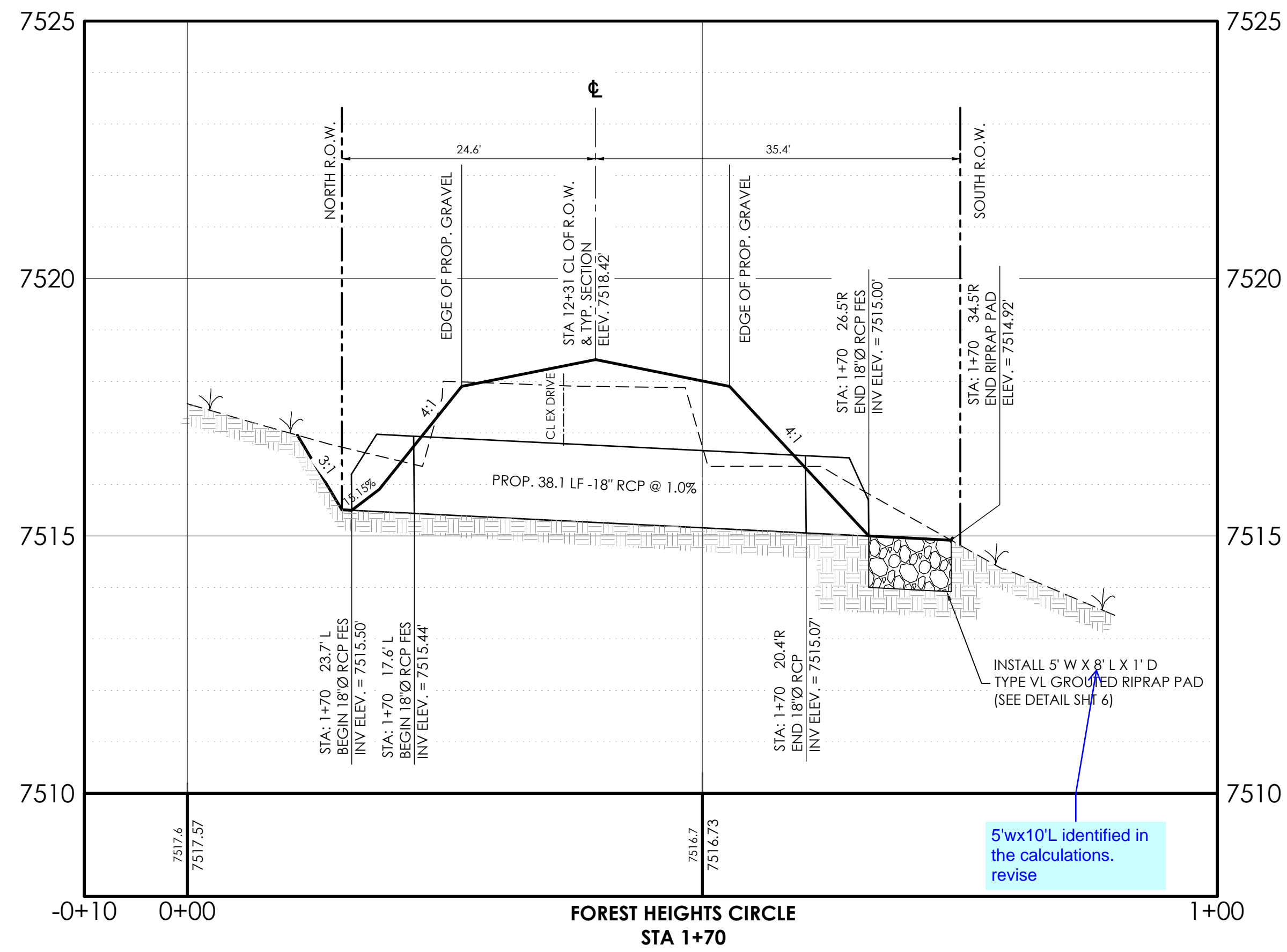
No.	Date	By	Description
1	10/02/2023	JO	24" TO 26" ROADWAY WIDTH

H Scale: VARIES  
V Scale: VARIES  
Designed By: KCH  
Drawn By: MVE, INC.  
Checked By: KCH  
Date: 06/03/2023



**FOREST HEIGHTS CIRCLE**  
CONSTRUCTION DRAWINGS  
PLAN & PROFILE  
11+50 TO 24+19

Project No.: 18070  
Sheet: 4 of 6



**CULVERT PROFILES**  
 HORIZONTAL SCALE: 1" = 10'  
 VERTICAL SCALE: 1" = 2'

CALL BEFORE YOU DIG ...  
 811  
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REVISIONS	No.	Description	By	Date
	1	24" TO 26" ROADWAY WIDTH	JO	10/02/2023

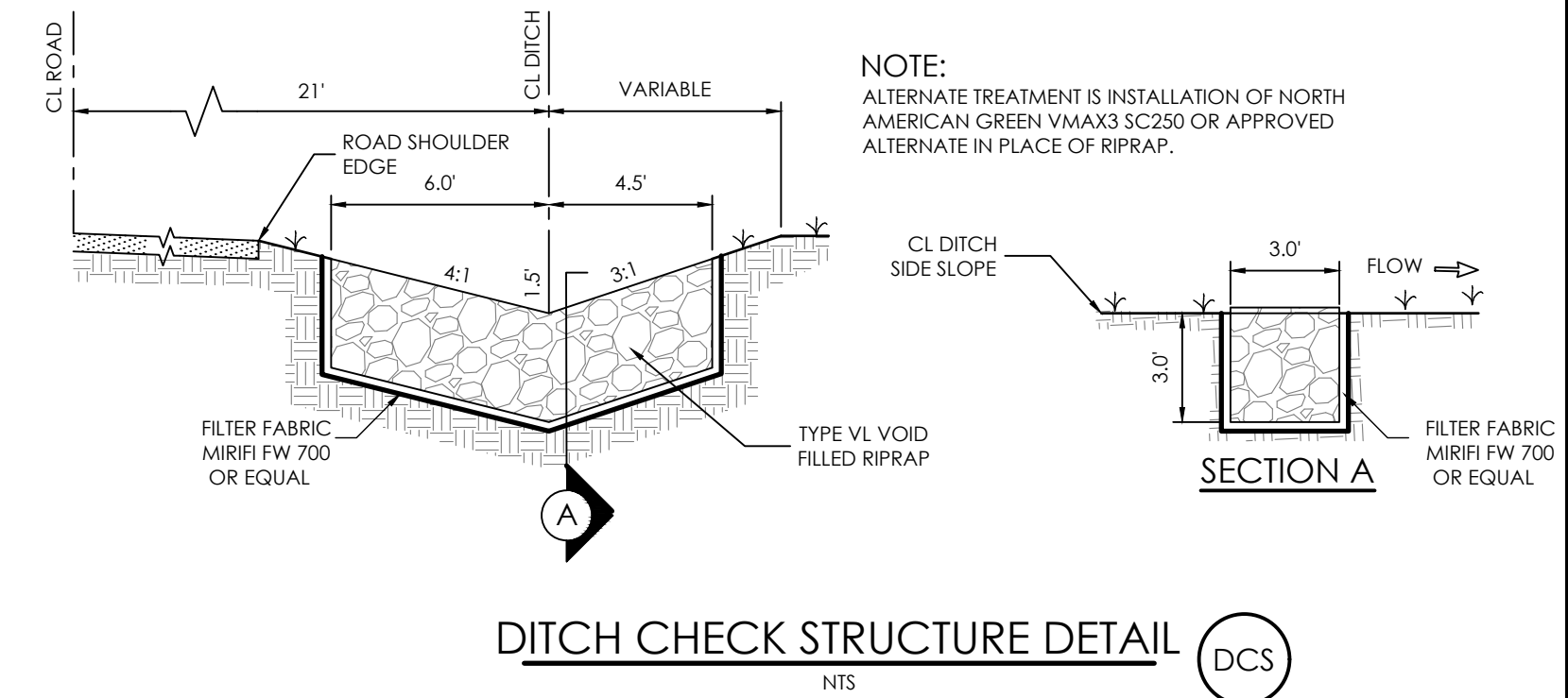
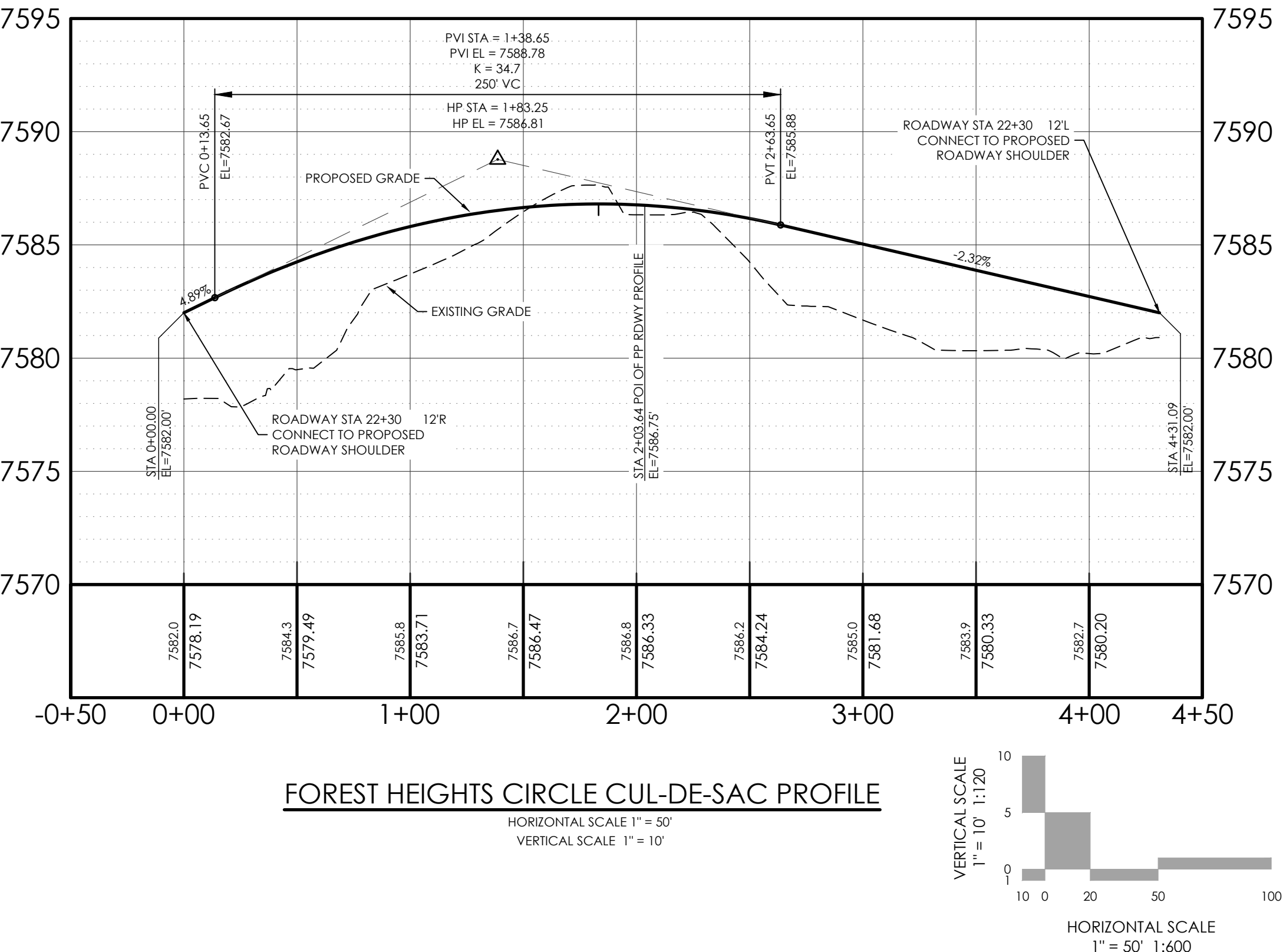
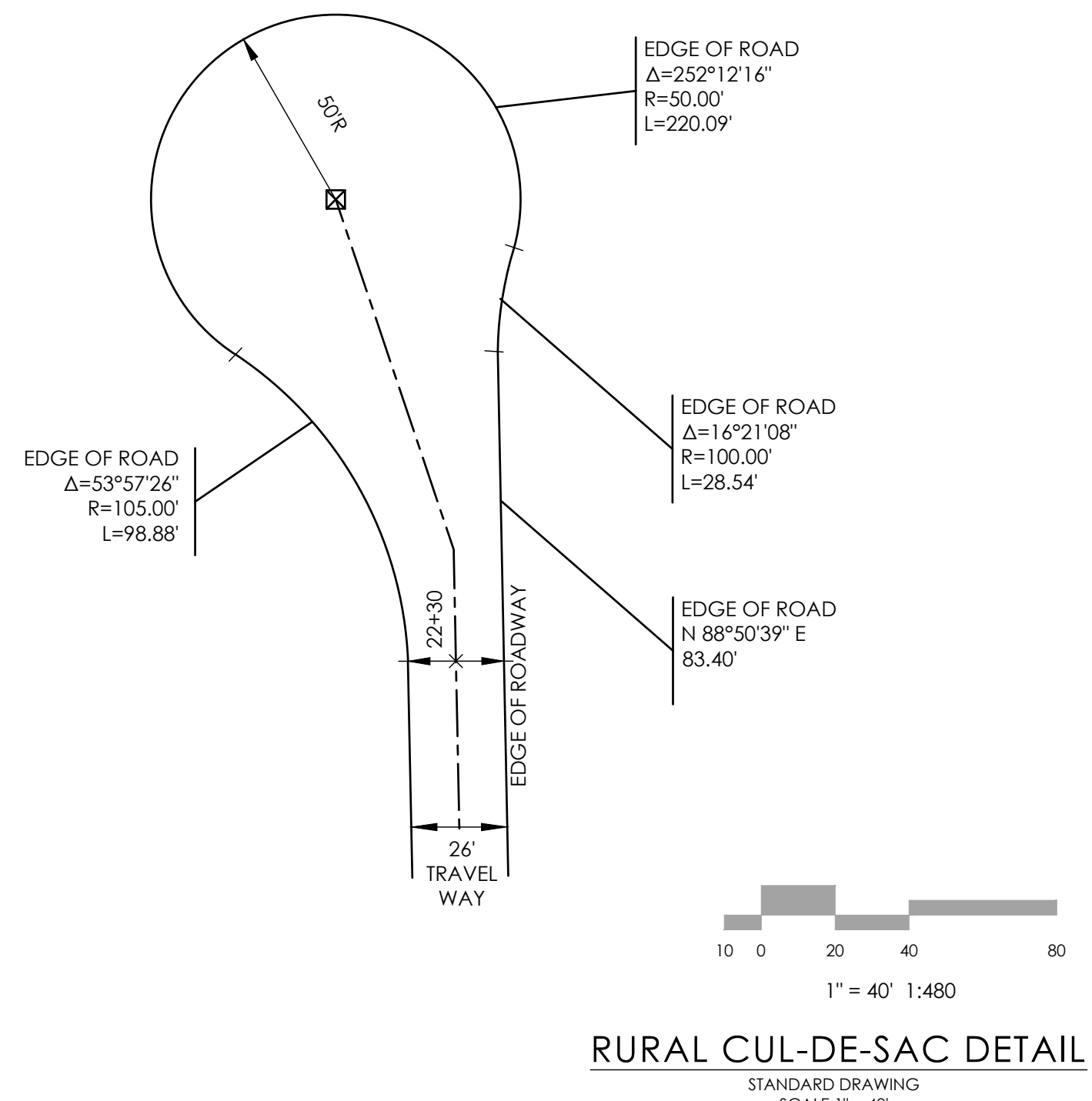
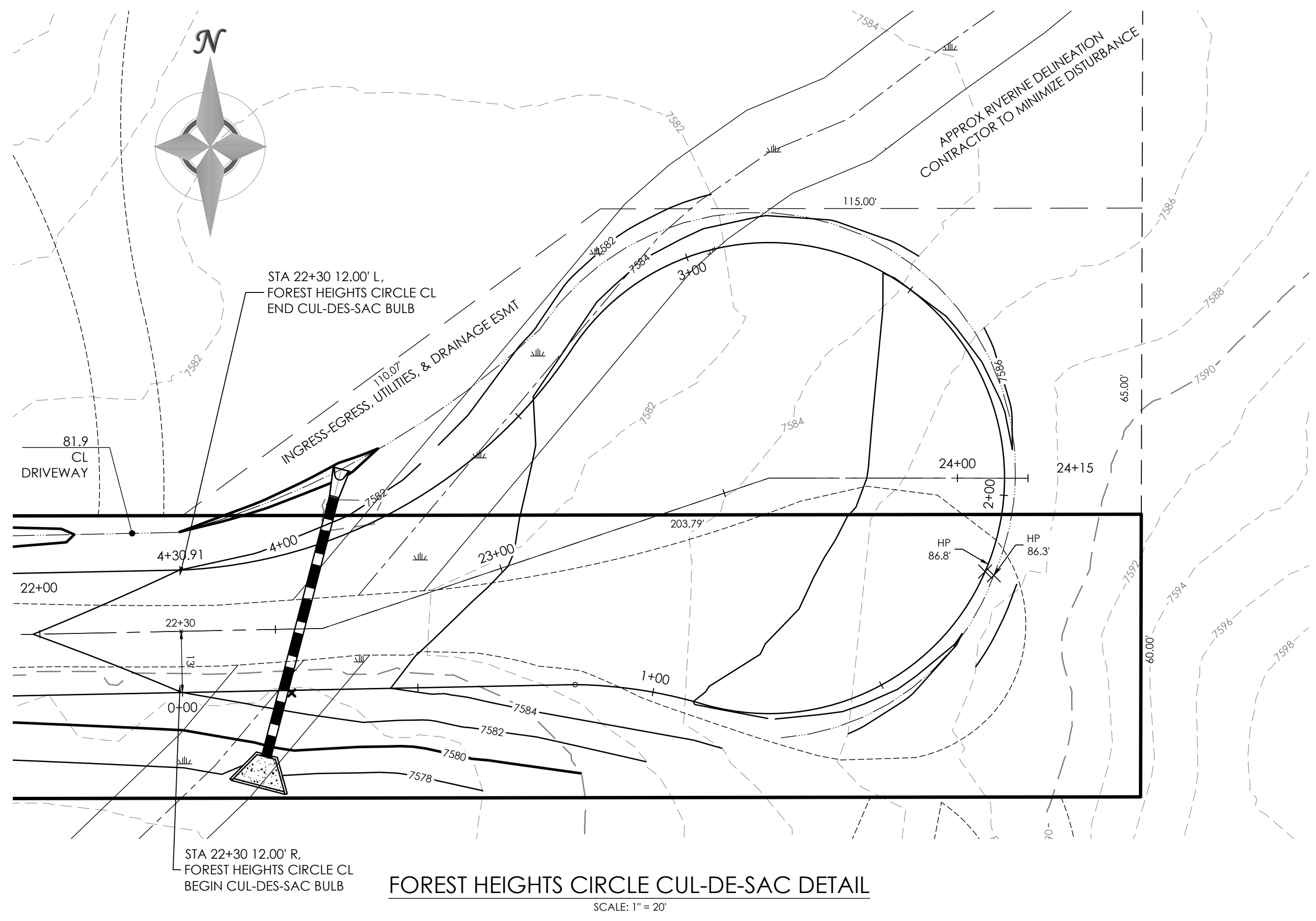
H Scale: VARIES  
 V Scale: VARIES  
 Designed By: KCH  
 Drawn By: MVE, INC.  
 Checked By: KCH  
 Date: 06/03/2023



**FOREST HEIGHTS CIRCLE  
 CONSTRUCTION DRAWINGS**  
 CULVERT PROFILES

Project No.: 18070  
 Sheet: 5 of 6

Z:\618197\_Sheet Drawings\18197-CON-Sub.dwg



**MIX REQUIREMENTS FOR TYPE M VOID-FILLED RIPRAP (D50 = 9 - INCH)**

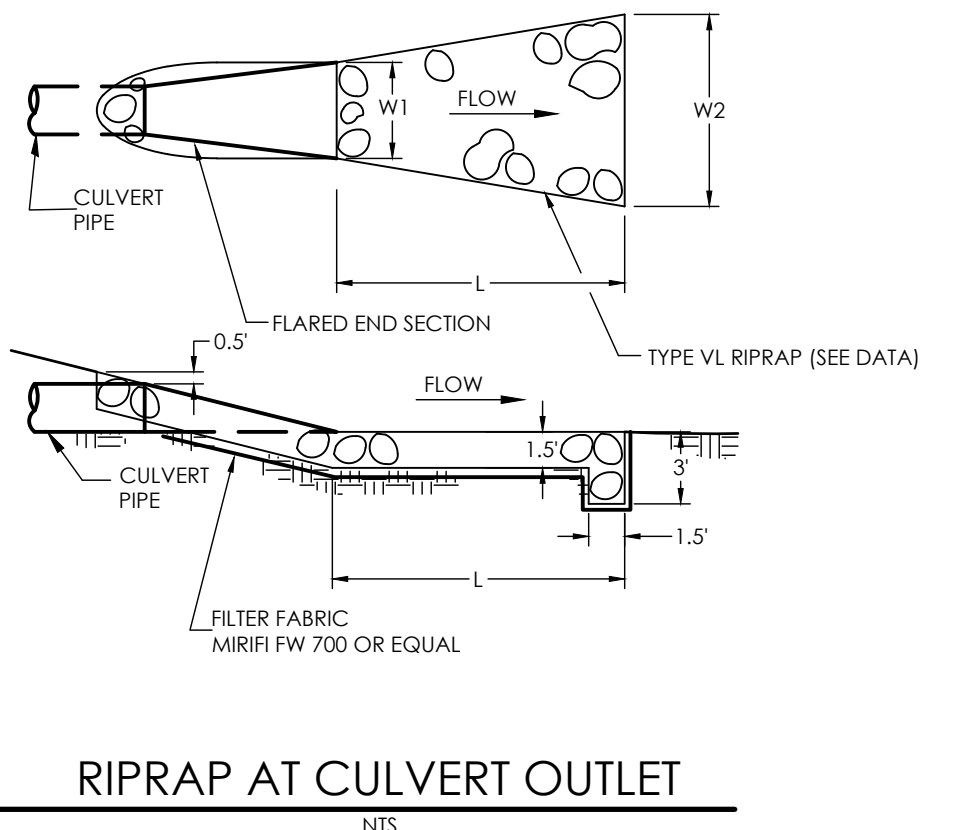
APPROPRIATE PROPORTIONS (BY VOLUME)	MATERIAL TYPE	MATERIAL DESCRIPTION
6 PARTS	RIPRAP	TYPE M
2 PART	VOID-FILL MATERIAL	7-INCH MINUS CRUSHED ROCK SURGE (100% PASSING 7-INCH SIEVE, 80-100% PASSING 4-INCH SIEVE, 35-50% PASSING 3-INCH SIEVE, 0-10% PASSING 2-INCH SIEVE)
1 PART	VOID-FILL MATERIAL	VTC (VEHICLE TRACKING CONTROL) ROCK (CRUSHED ROCK WITH 100% PASSING 4-INCH SIEVE, 50-70% PASSING 3-INCH SIEVE, 0-10% PASSING 2-INCH SIEVE)
1 PART	VOID-FILL	4-INCH MINUS PIT RUN SURGE (ROUND RIVER ROCK AND SAND, WELL GRADED, 90-100% PASSING 4-INCH SIEVE, 70-80% PASSING 1/2-INCH SIEVE, 40-60% PASSING 3/8-INCH SIEVE, 10-30% PASSING #16 SIEVE)
1 PART	VOID-FILL MATERIAL	TYPE II BEDDING
1/2 TO 1 PART	VOID-FILL MATERIAL	NATIVE TOPSOIL

**MIX REQUIREMENTS FOR TYPE VL VOID-FILLED RIPRAP (D50 = 6 - INCH)**

APPROPRIATE PROPORTIONS (BY VOLUME)	MATERIAL TYPE	MATERIAL DESCRIPTION
6 PARTS	RIPRAP	D50 = 6 INCH (TYPE VL)
1 PART	VOID-FILL MATERIAL	VTC (VEHICLE TRACKING CONTROL) ROCK (CRUSHED ROCK WITH 100% PASSING 4-INCH SIEVE, 50-70% PASSING 3-INCH SIEVE, 0-10% PASSING 2-INCH SIEVE)
1 PART	VOID-FILL	4-INCH MINUS PIT RUN SURGE (ROUND RIVER ROCK AND SAND, WELL GRADED, 90-100% PASSING 4-INCH SIEVE, 70-80% PASSING 1/2-INCH SIEVE, 40-60% PASSING 3/8-INCH SIEVE, 10-30% PASSING #16 SIEVE)
1 PART	VOID-FILL MATERIAL	TYPE II BEDDING (CRUSHED ROCK WITH 100% PASSING 3-INCH SIEVE, 20-90% PASSING 3/8-INCH SIEVE, 0-20% PASSING #4 SIEVE, 0-3% PASSING #200 SIEVE)
1/2 TO 1 PART	VOID-FILL MATERIAL	NATIVE TOPSOIL

**VOID-FILLED RIPRAP AND GRADATION**

RIPRAP DESIGNATION	% SMALLER THAN GIVEN SIZE BY WEIGHT	INTERMEDIATE ROCK DIMENSION (INCHES)	D50 (INCHES)
TYPE VL	70-100	12	6
	50-70	9	
	35-50	6	
TYPE M	70-100	15	9
	50-70	12	
	35-50	9	



**RIP-RAP GRADATION TABLE**

% SMALLER BY WEIGHT	TYPE VL INTER. ROCK DIM. (INCHES)
70 - 100	$\sigma_{100} = 12$
50 - 70	$\sigma_{70} = 9$
35 - 50	$\sigma_{50} = 6$
2 - 10	$\sigma_{10} = 2$

**CULVERT PIPE DATA**

CULVERT NO.	ROAD NAME	ROAD STATION	RC PIPE DIA.	RC PIPE LENGTH (FT.)	FLARED END SECTION	CULVERT OUTLET APRON DATA			
						W1 (FT.)	W2 (FT.)	L (FT.)	RIP-RAP TYPE
2	FOREST HEIGHTS ESTATES	12+32	24"	63.0	2	8	19.8	18	M VOID FILLED
3	FOREST HEIGHTS	1+70	18"	38.1	2	5	10.3	8	VL VOID FILLED

**Rinker MATERIALS A QUIKRETE COMPANY**

**Concrete Pipe Division**

**Flared End Section 12" - 72" Diameter Pipe**

Pipe Inner Diameter (inches)	Wall Thickness (inches)	A (inches)	B (inches)	C (inches)	D (inches)	E (inches)	Slope
12	2	4	24	48 7/8	72 7/8	30	3:1
15	2 1/4	6	27	46	73	30	3:1
18	2 1/2	9	27	46	73	36	3:1
24	3	9 1/2	43 1/2	30	73 1/2	48	3:1
30	3 1/2	12	54	19 3/4	73 3/4	60	3:1
36	4	15	63	34 3/4	97 3/4	72	3:1
42	4 1/2	21	63	35	98	78	3:1
48	5	24	72	26	98	84	3:1
54	5 1/2	27	65	35	100	90	2.4:1
60	6	30	60	39	99	96	2:1
66	6 1/2	32	78	21	99	102	2:1
72	7	34	78	21	99	108	2:1

Dimensions may vary depending upon equipment availability.

Notes:  
1. Produced to meet ASTM specifications.  
2. Contact a Concrete Pipe Division representative for details not listed on this sheet.

Rinker 024

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**REVISIONS**

No.	Date	By	Description
1	10/02/2023	JO	24" TO 26" ROADWAY WIDTH

**DESIGNED BY:** VVARIES  
**DRAWN BY:** VVARIES  
**CHECKED BY:** KCH  
**DATE:** 06/03/2023

**KCH CIVIL ENGINEERING SOLUTIONS**

**FOREST HEIGHTS CIRCLE CONSTRUCTION DRAWINGS**  
DETAILS SHEET

Project No.: **18070**  
Sheet: **6** of **6**