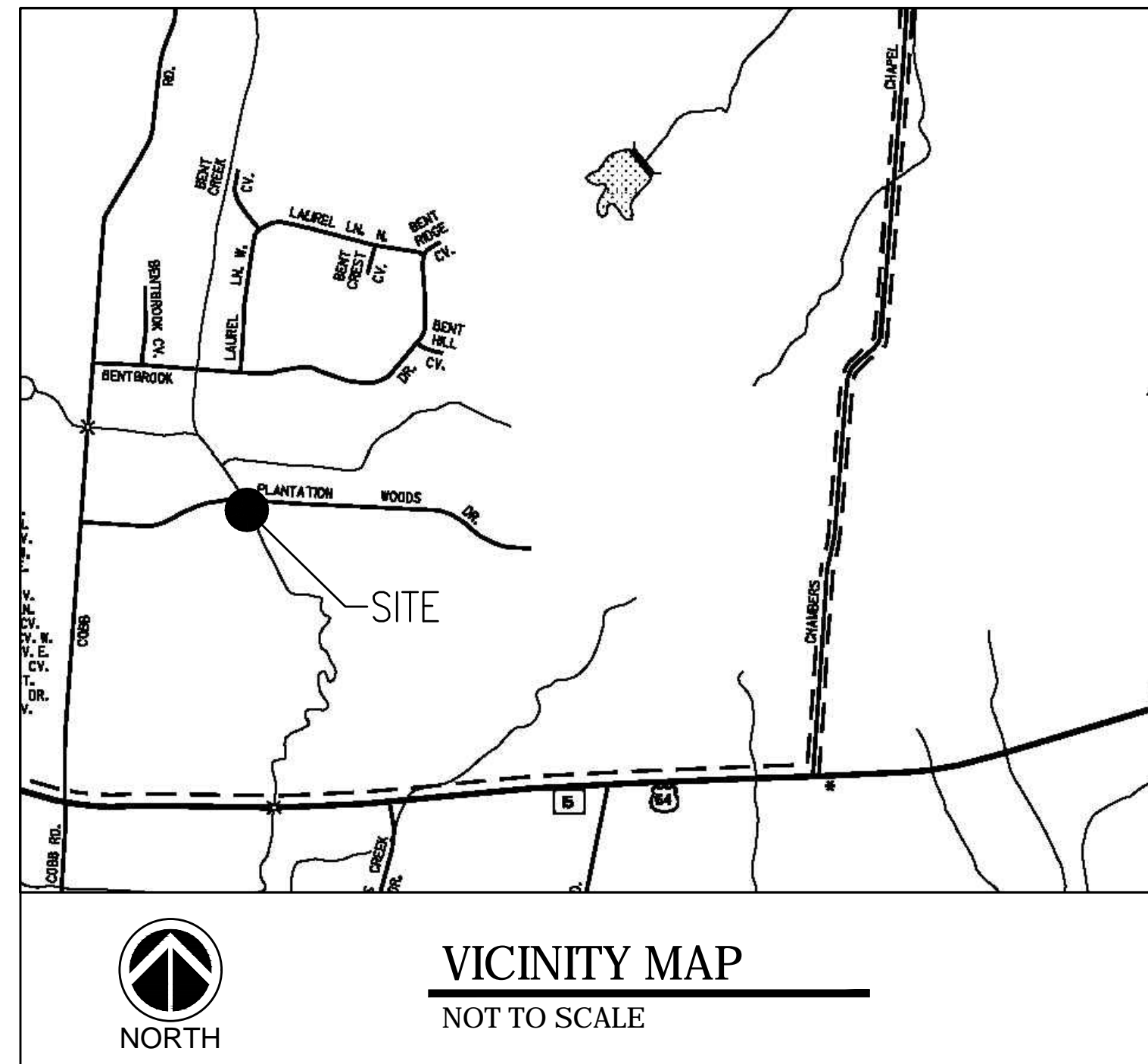


JUNE 29, 2018



PLANTATION WOODS HEADWALL

PLANTATION WOODS DRIVE
LAKELAND, TENNESSEE

INDEX OF SHEETS

SH.	TITLE
C-000	COVER SHEET
C-100	GENERAL NOTES
C-200	EXISTING CONDITIONS, SITE, GRADING, EROSION CONTROL AND TRAFFIC CONTROL PLANS
C-300	SITE DETAILS
S-001	STRUCTURAL NOTES
S-130	STRUCTURAL DETAILS

PREPARED FOR:



10001 HWY 70
LAKELAND, TN 38002
901.867.2717

PREPARED BY:



Pickering Firm, Inc.
Facility Design • Civil Engineering • Surveying •
Transportation • Natural / Water Resources
6775 Lenox Center Court, Suite 300
Memphis, TN 38115
901.726.0810

GENERAL NOTES:

1. A MINIMUM OF 24-HOURS PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE CITY OF LAKELAND ENGINEERING OFFICE, 901-867-5418, BEFORE COMMENCING CONSTRUCTION.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING ANY UTILITY COMPANY WHICH MAINTAINS A UTILITY LINE WITHIN THE BOUNDARIES OF THE PROJECT BEFORE THE INITIATION OF ANY CONSTRUCTION ON THE PROJECT OR IN THE STREETS BORDERING THE PROJECT. THE CONTRACTOR SHALL ALSO ASSUME RESPONSIBILITY FOR ANY DAMAGE INCURRED BY ANY UTILITY COMPANY TO THEIR UTILITY LINES WHETHER SHOWN ON THE CONSTRUCTION PLANS OR NOT, DURING WORK ON THE PROJECT.
3. ALL NEWLY CUT AND/OR FILLED AREAS LACKING ADEQUATE VEGETATION SHALL BE SEEDED, FERTILIZED AND/OR SODDED AS REQUIRED TO EFFECTIVELY PREVENT SOIL EROSION PER THE CITY OF LAKELAND AND STATE REGULATIONS.
4. ALL CONSTRUCTION WITHIN PUBLIC EASEMENTS AND RIGHT-OF-WAYS SHALL MEET THE CITY OF LAKELAND STANDARD SPECIFICATIONS.
5. THE CONTRACTOR MUST HAVE WRITTEN APPROVAL FROM THE CITY ENGINEER AND THE PROJECT ENGINEER BEFORE ANY CHANGE IN DESIGN IS MADE.
6. SEVENTY-TWO (72) HOURS BEFORE BEGINNING ANY EXCAVATION, THE CONTRACTOR SHALL CALL 811 FOR THE LOCATION OF UNDERGROUND UTILITIES.
7. THE CONTRACTOR SHALL NOT ENTER UPON NOR CAUSE DAMAGE TO ANY ADJACENT PROPERTIES WITHOUT WRITTEN PERMISSION FROM SAID PROPERTY OWNERS.
8. ALL CONCRETE SHALL BE 4,000 PSI, CLASS A LIMESTONE AGGREGATE, AIR ENTRAINED, UNLESS APPROVED OTHERWISE BY THE CITY ENGINEER.
9. ANY SHORING OR BRACING OF SOILS TO FACILITATE CONSTRUCTION SHALL BE THE CONTRACTOR'S RESPONSIBILITY. THE CONTRACTOR SHALL DESIGN AND INSTALL SHORING/BRACING PER THE MOST CURRENT OSHA REQUIREMENTS.

DEMOLITION NOTES:

1. THE CONTRACTOR SHALL REMOVE ALL ITEMS IN ACCORDANCE WITH THE TDEC AND THE TECHNICAL SPECIFICATIONS. THE CONTRACTOR SHALL STRICTLY FOLLOW ALL CITY, STATE, AND FEDERAL GUIDELINES FOR REMOVAL AND DISPOSAL OF THESE FACILITIES.
2. PRIOR TO COMMENCING ANY UTILITY WORK, CONTRACTOR SHALL NOTIFY ANY SURROUNDING PROPERTY OWNERS WHO MAY EXPERIENCE A DISRUPTION IN SERVICE.
3. UTILITIES SHOWN ARE LOCATED BY FIELD SURVEY AND RECORD DRAWINGS. ADDITIONAL UNDERGROUND UTILITIES MAY BE ENCOUNTERED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REMOVE ANY INACTIVE STRUCTURES & ALERT THE ENGINEER OF ANY ACTIVE, UNMAPPED STRUCTURES.
4. CONTRACTOR SHALL NOT INTERRUPT DRAINAGE FROM ADJACENT PROPERTIES AND PUBLIC RIGHT-OF-WAYS.

PICKERING FIRM INCORPORATED UNDERGROUND UTILITIES DISCLAIMER:

INFORMATION REGARDING THE REPUTED PRESENCE, SIZE, CHARACTER AND LOCATION OF EXISTING UNDERGROUND UTILITIES AND STRUCTURES RELATED TO UNDERGROUND UTILITIES IS SHOWN HEREON. THERE IS NO CERTAINTY OF THE ACCURACY OF THIS INFORMATION AND IT SHALL BE CONSIDERED IN THAT LIGHT BY THOSE USING THIS DRAWING. THE LOCATION AND ARRANGEMENT OF UNDERGROUND UTILITIES AND STRUCTURES RELATED TO UNDERGROUND UTILITIES SHOWN HEREON MAY BE INACCURATE AND UTILITIES AND STRUCTURES RELATED TO UNDERGROUND UTILITIES NOT SHOWN MAY BE ENCOUNTERED. THE OWNER, HIS EMPLOYEES, HIS CONSULTANTS AND HIS CONTRACTORS SHALL HEREBY DISTINCTLY UNDERSTAND THAT THE ENGINEER IS NOT RESPONSIBLE FOR THE CORRECTNESS OR SUFFICIENCY OF THIS INFORMATION REGARDING THE UNDERGROUND UTILITIES AND STRUCTURES RELATED TO UNDERGROUND UTILITIES SHOWN HEREON.

SITE TBM

COTTON PICKERS SPINDLE IN WEST SIDE OF POWER POLE #183263
ELEVATION: 331.03 (NAVD 88)

NOTE: BEFORE THE BEGINNING OF CONSTRUCTION, THE CONTRACTOR SHALL FIELD VERIFY THE SITE DATUM WITH THE SITE TBM AND IMMEDIATELY REPORT IN WRITING ANY DISCREPANCIES TO THE ENGINEER.

SPECIAL FLOOD HAZARD STATEMENT

ACCORDING TO THE FEMA/FIRM COMMUNITY PANEL NO. 47157C0330G, EFFECTIVE FEBRUARY, 6 2013, THE PROPERTY SHOWN HEREON IS LOCATED IN ZONE A, AREA SUBJECT TO FLOODING DURING THE 0.1% ANNUAL CHANCE FLOOD, WITH NO BASE FLOOD ELEVATION DETERMINED.

EROSION AND SEDIMENTATION CONTROL NOTES:

1. ALL NEWLY CUT AND/OR FILLED AREAS LACKING ADEQUATE VEGETATION SHALL BE SEEDED OR SODDED AS REQUIRED TO EFFECTIVELY PREVENT SOIL EROSION.
2. SILT FENCES, HAY BALES, AND OTHER BEST MANAGEMENT PRACTICES SHALL BE USED AS SHOWN AND AS DIRECTED BY THE ENGINEER TO CONTROL SOIL EROSION.
3. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN EROSION CONTROL DURING CONSTRUCTION BY THE PLACEMENT OF SILT FENCES, SEDIMENT INLET TRAPS, HAY BALES, AND OTHER BEST MANAGEMENT PRACTICES WHERE NECESSARY TO PREVENT DOWNSTREAM SILTATION OF ANY DITCHES, PIPES, DRAINAGE STRUCTURES, OR ADJACENT PROPERTIES. THE CONTROLS SHOWN ON THE PLAN ARE THE MINIMUM REQUIRED AND THE CONTRACTOR SHALL PROVIDE ANY ADDITIONAL EROSION CONTROL AS NECESSARY OR AS DIRECTED BY THE ENGINEER.
4. THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH THE TDEC CONSTRUCTION GENERAL PERMIT FOR ALL EROSION CONTROL DURING CONSTRUCTION ACTIVITIES.
5. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING EROSION CONTROL DEVICES AND REPORTING ANY MAINTENANCE AS REQUIRED BY THE LAKELAND STORM WATER CONSTRUCTION GENERAL PERMIT DURING CONSTRUCTION ACTIVITIES.
6. PROVISIONS SHALL BE MADE TO PROTECT DOWNSTREAM WATERCOURSES (I.E., STORM SEWER SYSTEMS, DITCHES, WETLANDS, ETC.) FROM SEDIMENT RUNOFF DEVELOPED FROM THE CONSTRUCTION PROCESS. PROVISIONS INCLUDE, BUT ARE NOT LIMITED TO, STRUCTURAL CONTROLS SUCH AS SILT FENCING, GEOTEXTILE FABRIC PROTECTION OF STORM SEWERS, HAY BALES, DIKES AND SANDBAG BERMS; AND/OR VEGETATION CONTROLS SUCH AS SEEDING OR EXISTING VEGETATIVE BUFFER STRIPS (MINIMUM 25 FEET WIDE).
7. PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL INSTALL EROSION AND SEDIMENTATION CONTROLS AT LOCATIONS SHOWN ON PLANS.
8. ABSOLUTELY NO DIRT, MUD, DUST OR SEDIMENT SHALL MOVE INTO ANY STORM DRAIN APPURTENANCES AND PUBLIC STREETS.
9. CONTRACTOR SHALL PERFORM DAILY STREET CLEANING ON ROADS AND STREETS ADJACENT TO THE PROJECT WHICH ARE USED AS ACCESS ROUTES FOR CONSTRUCTION TRAFFIC. IF DIRT AND MUD ARE NOT ADEQUATELY REMOVED FROM VEHICLES AT THE CONSTRUCTION EXIT, WASHING OF STREETS IS PROHIBITED.
10. CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL ENVIRONMENTAL LAWS.
11. CONTRACTOR IS RESPONSIBLE FOR DISPOSING OF FUELS, MATERIALS AND CONTAMINATED EXCAVATIONS IN A LEGALLY APPROVED MANNER.
12. AT A MINIMUM, STRUCTURAL CONTROLS SHOULD BE INSPECTED TWICE EVERY CALENDAR WEEK AT LEAST 72 HOURS APART. THE INSPECTOR, APPROVED BY THE OWNER, SHALL HAVE AN ACTIVE CERTIFICATION BY COMPLETING THE "FUNDAMENTALS OF EROSION PREVENTION AND SEDIMENT CONTROL LEVEL I" COURSE. A COPY OF THE CERTIFICATION SHALL BE KEPT ONSITE, SHOULD CONTROLS BECOME INEFFECTIVE, NECESSARY REPAIRS SHALL BE PERFORMED TO RETURN THE INTEGRITY OF THE STRUCTURAL CONTROLS.
13. CONTRACTOR SHALL MAINTAIN, REPAIR AND/OR REPLACE DAMAGED EROSION AND SEDIMENTATION CONTROL SYSTEMS THROUGHOUT THE DURATION OF THE CONTRACT.
14. CONTRACTOR WILL PROVIDE PROTECTED STORAGE AREAS, IF REQUIRED FOR CHEMICALS, PAINTS, SOLVENTS, FERTILIZERS AND OTHER POTENTIALLY TOXIC MATERIALS.
15. EQUIPMENT STAGING AREA TO BE DESIGNATED BY CONTRACTOR AND APPROVED BY CITY OF LAKELAND AND THE PROPERTY OWNER PRIOR TO CONSTRUCTION.
16. THE CONTRACTOR SHALL PROVIDE ALL EROSION CONTROL NECESSARY FOR UTILITY CONSTRUCTION, EVEN IF THE UTILITIES ARE OUTSIDE THE LIMITS OF GRADING OPERATIONS.
17. SEDIMENT WILL BE REMOVED FROM THE UPSTREAM FACE OF THE SILT FENCE WHEN IT REACHES A MAXIMUM DEPTH OF 50% OF THE FENCE'S CAPACITY. THE FENCE WILL BE REPLACED AS NECESSARY TO MAINTAIN A BARRIER.

GRADING AND DRAINAGE NOTES:

1. CONTRACTOR SHALL MAINTAIN ACCESS TO ALL PROPERTIES AND COORDINATE CONSTRUCTION ACTIVITIES WITH PROPERTY OWNERS AND CITY OF LAKELAND.
2. ALL FILL SOILS SHALL BE COMPACTED TO A MINIMUM OF 95% OF STANDARD PROCTOR DENSITY (ASTM-D698) WITHIN ±2% OF OPTIMUM MOISTURE CONTENT IN LIFTS NOT TO EXCEED SIX (6) INCHES OF COMPACTED THICKNESS.
3. ALL CONSTRUCTION MATERIALS AND PROCEDURES SHALL MEET OR EXCEED THE REQUIREMENTS OF THE CITY OF LAKELAND STANDARD CONSTRUCTION SPECIFICATIONS.
4. PROPERTY LINES SHALL BE FIELD VERIFIED PRIOR TO CONSTRUCTION. GRADING, AND CLEARING ALONG PROPERTY LINES SHALL BE FULLY COORDINATED WITH ADJACENT PROPERTY OWNERS.
5. VERIFY SITE CONDITIONS PRIOR TO CONSTRUCTION. NOTIFY IN WRITING THE CITY OF LAKELAND ENGINEER OF ANY VARIATIONS PRIOR TO COMMENCEMENT OF WORK.
6. ALL GRADING WORK SHALL BE PERFORMED IN SUCH MANNER THAT ADJACENT PROPERTIES ARE NOT DAMAGED OR ADVERSELY AFFECTED.

TRAFFIC CONTROL NOTES:

1. SEE SECTION 6F.03, SIGN PLACEMENT, OF THE STATE OF TENNESSEE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) FOR INFORMATION ON PLACEMENT AND MOUNTING OF SIGNS.
2. SIGNS SHOWN ON THIS PLAN ARE TO WARN TRAFFIC ABOUT THE CONSTRUCTION. OTHER TRAFFIC CONTROL DEVICES MAY BE REQUIRED DURING VARIOUS PHASES OF CONSTRUCTION.
3. NOTHING IN THIS PLAN IS INTENDED TO SUPERSEDE OR RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF INSTALLING THE APPROPRIATE TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH THE CURRENT STATE OF TENNESSEE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS."
4. CONTRACTOR SHALL BE REQUIRED TO NOTIFY THE CITY OF LAKELAND ENGINEERING OFFICE, (901) 867-2717 A MINIMUM OF 24 HOURS PRIOR TO COMMENCING CONSTRUCTION OR IMPLEMENTING A TRAFFIC CONTROL PLAN. ALL TRAFFIC CONTROL DEVICES MUST BE IN PLACE BEFORE CONSTRUCTION ACTIVITY BEGINS.
5. SIZES OF ALL SIGNS SHALL COMPLY WITH STATE OF TENNESSEE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
6. ALL TRAFFIC CONTROL DEVICES AND THEIR INSTALLATION SHALL MEET THE STANDARD PRESCRIBED IN THE STATE OF TENNESSEE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND SHALL COMPLY WITH THE STATE OF TENNESSEE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION SECTION 712 TEMPORARY TRAFFIC CONTROL.
7. ACCESS TO ADJACENT PROPERTIES SHALL BE MAINTAINED AT ALL TIMES.
8. SIDE STREET, DRIVEWAY ACCESS, AND SAFE PEDESTRIAN WAYS SHALL BE MAINTAINED AT ALL TIMES.
9. THE CONTRACTOR SHALL NOT BE PERMITTED TO PARK ANY VEHICLES OR CONSTRUCTION EQUIPMENT DURING PERIODS OF INACTIVITY, WITHIN THE RIGHT-OF-WAY OR WITHIN THIRTY (30) FEET OF THE EDGE OF PAVEMENT WHICHEVER IS LESS, WHEN THE LANE IS OPEN TO TRAFFIC, UNLESS PROTECTED BY GUARDRAIL, BRIDGE RAIL, AND/OR BARRIERS INSTALLED FOR OTHER PURPOSES. PRIVATELY OWNED VEHICLES SHALL NOT BE ALLOWED TO BE PARKED WITHIN THE RIGHT-OF-WAY OR WITHIN THIRTY (30) FEET OF AN OPEN TRAFFIC LANE WHICHEVER IS LESS, AT ANY TIME UNLESS PROTECTED AS DESCRIBED ABOVE.
10. CONTRACTOR SHALL USE PLASTIC DRUMS WITH TYPE "B" WARNING LIGHTS TO SEPARATE TRAFFIC FROM THE CONSTRUCTION AREA.
11. CONTRACTOR SHALL COVER ALL EXISTING SIGNS THAT CONFLICT WITH THE TRAFFIC CONTROL PLAN SIGNS OR DEVICES DURING CONSTRUCTION AND THEY SHALL REMAIN DURING CONSTRUCTION AND UNTIL SUCH TIME THAT NO CONFLICT EXISTS.
12. ALL TEMPORARY OR PERMANENT TRAVELED SURFACE SHALL BE INSPECTED DAILY BY THE CONTRACTOR (INCLUDING WEEKENDS) AND NECESSARY PATCHING OR REFINISHING PERFORMED.
13. CENTERLINE/LANE LINES SHOULD BE PLACED, REPLACED, OR DELINEATED WHERE APPROPRIATE BEFORE THE ROADWAY IS OPENED TO TRAFFIC.
14. WORK WITHIN THE ROADWAY SHALL BE CONDUCTED BETWEEN 9:00 A.M. AND 3:00 P.M. AND THE ROADWAY SHALL BE COMPLETELY OPEN TO TRAFFIC AT ALL OTHER TIMES AND ALL INAPPROPRIATE SIGNS SHALL BE COVERED OR REMOVED.
15. CONTRACTOR SHALL INSTALL TEMPORARY NO PARKING SIGNS AS REQUIRED WITHIN THE TRAFFIC CONTROL AREA.
16. THE APPROPRIATE TRAFFIC CONTROL SHALL BE INSTALLED AT THE INCEPTION OF EACH STAGE OF CONSTRUCTION AND SHALL BE PROPERLY MAINTAINED AND/OR OPERATED DURING THE TIME SUCH SPECIAL CONDITIONS EXIST. THEY SHALL REMAIN IN PLACE ONLY AS LONG AS THEY ARE NEEDED AND SHALL BE IMMEDIATELY REMOVED THEREAFTER.
17. IF CONSTRUCTION ACTIVITIES REQUIRE OVER-NIGHT CLOSURE OF ANY PORTION OF THE ROADWAY, A REVISED TRAFFIC CONTROL PLAN SHALL BE SUBMITTED TO AND APPROVED BY THE CITY ENGINEER'S OFFICE.
18. EXISTING STRIPING THAT CONFLICTS WITH THE TEMPORARY TRAFFIC CONTROL DEVICES SHALL BE COVERED OR REMOVED DURING CONSTRUCTION. WHEN CONSTRUCTION IS COMPLETE THE EXISTING STRIPING SHALL BE RETURNED TO ITS ORIGINAL STATE.
19. ALL TRAFFIC CONTROL SIGNS SHALL MEET THE MINIMUM RETROREFLECTIVITY LEVELS SPECIFIED IN THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

LINE LEGEND

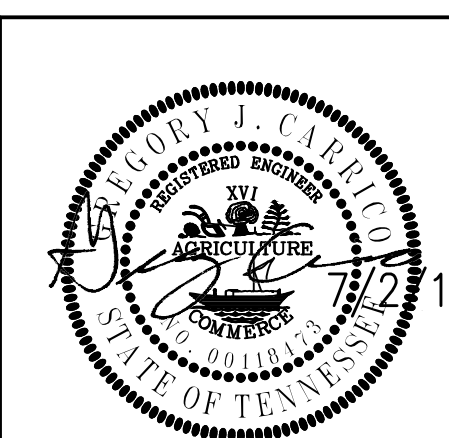
- D ----- D ----- D ----- D ----- EXISTING STORM DRAINAGE
- T ----- T ----- T ----- T ----- EXISTING OVERHEAD TELEPHONE LINES
- UGT ----- UGT ----- UGT ----- UGT ----- EXISTING UNDERGROUND TELEPHONE LINES
- OHE ----- OHE ----- OHE ----- OHE ----- EXISTING OVERHEAD ELECTRIC LINES
- UGE ----- UGE ----- UGE ----- UGE ----- EXISTING UNDERGROUND ELECTRIC LINES
- G ----- G ----- G ----- G ----- EXISTING NATURAL GAS LINE
- W ----- W ----- W ----- W ----- EXISTING WATER LINE
- SS ----- SS ----- SS ----- SS ----- EXISTING SANITARY SEWER LINE
- X ----- X ----- X ----- X ----- EXISTING FENCE
- T ----- T ----- T ----- T ----- OVERHEAD TELEPHONE LINES
- UGT ----- UGT ----- UGT ----- UGT ----- UNDERGROUND TELEPHONE LINES
- OHE ----- OHE ----- OHE ----- OHE ----- OVERHEAD ELECTRIC LINES
- UGE ----- UGE ----- UGE ----- UGE ----- UNDERGROUND ELECTRIC LINES
- G ----- G ----- G ----- G ----- NATURAL GAS LINE
- W ----- W ----- W ----- W ----- WATER LINE
- SS ----- SS ----- SS ----- SS ----- SANITARY SEWER LINE
- X ----- X ----- X ----- X ----- FENCE

SYMBOL LEGEND

⊕	POWER POLE	EP	EDGE OF PAVEMENT
⊙	METAL TRAFFIC POLE	ROW	RIGHT OF WAY
⊛	LIGHT POLE	C	CENTERLINE
⊞	ELECTRIC BOX	RCP	REINFORCED CONCRETE PIPE
⊟	ANCHOR GUY	CONC	CONCRETE
⊠	TELEPHONE PEDESTAL	CMP	CORRUGATED METAL PIPE
⊡	SANITARY SEWER MANHOLE	CP	SUBJECT PROPERTY LINE
⊢	GAS VALVE	TC	TOP OF CURB
⊣	WATER VALVE	BC	BOTTOM OF CURB
⊤	WATER METER/WATER SHUTOFF	POB	POINT OF BEGINNING
⊥	FIRE HYDRANT	HCR	HANDICAP RAMP
⊦	CURB INLET	⊗	HANDICAP PARKING/ACCESS
⊧	DRAIN INLET	SCO	SEWER CLEANOUT
⊨	STORM SEWER MANHOLE	INLET	INLET
⊩	MONITOR WELL	HDWL	HEADWALL
⊪	FOUND IRON PIN/NAIL/SPIKE	PB	PLAT BOOK
⊫	SET IRON PIN/NAIL/SPIKE	PG	PAGE
⊬	FOUND CONCRETE MONUMENT	C=	DEED CALL
⊭	SIGN	C&M=	CALL & MEASURED DISTANCE
⊮	TREE, SHRUB, PLANTING	ESMT	EASEMENT
⊯	FIRE DEPARTMENT CONNECTION		
⊰	MONITOR WELL		

*NOTE: ALL SYMBOLS, ABBREVIATIONS, OR LINESYLES DO NOT NECESSARILY APPEAR ON DRAWING(S). USE ONLY AS APPLICABLE.

REVISION		
ITEM NO.	DESCRIPTION OF CHANGE	APPROVAL DATE



PLANTATION WOODS HEADWALL

Developer: City of Lakeland
Engineer: Pickering Firm, Inc.

SHEET 1 OF 1
DIVISION OF ENGINEERING

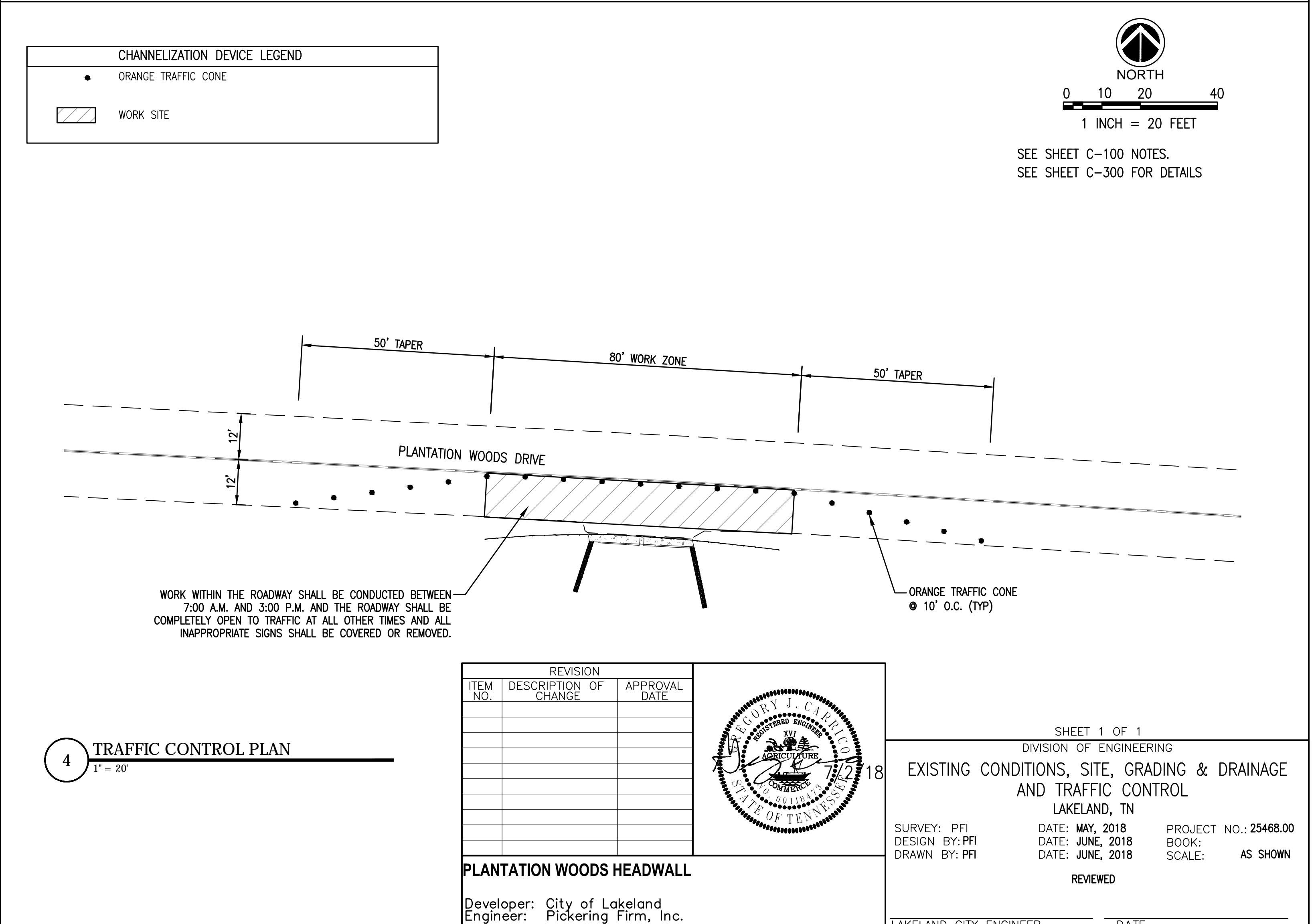
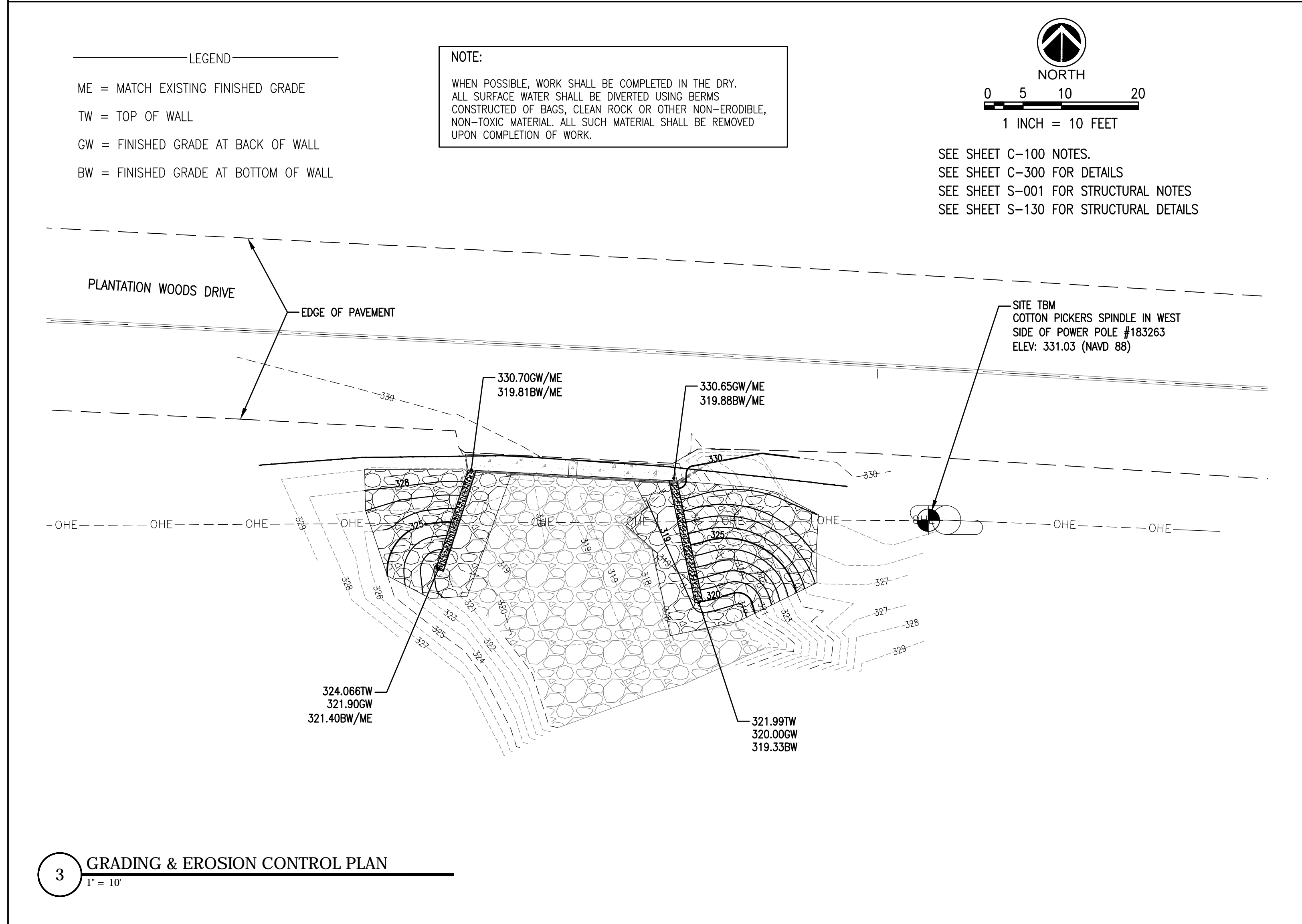
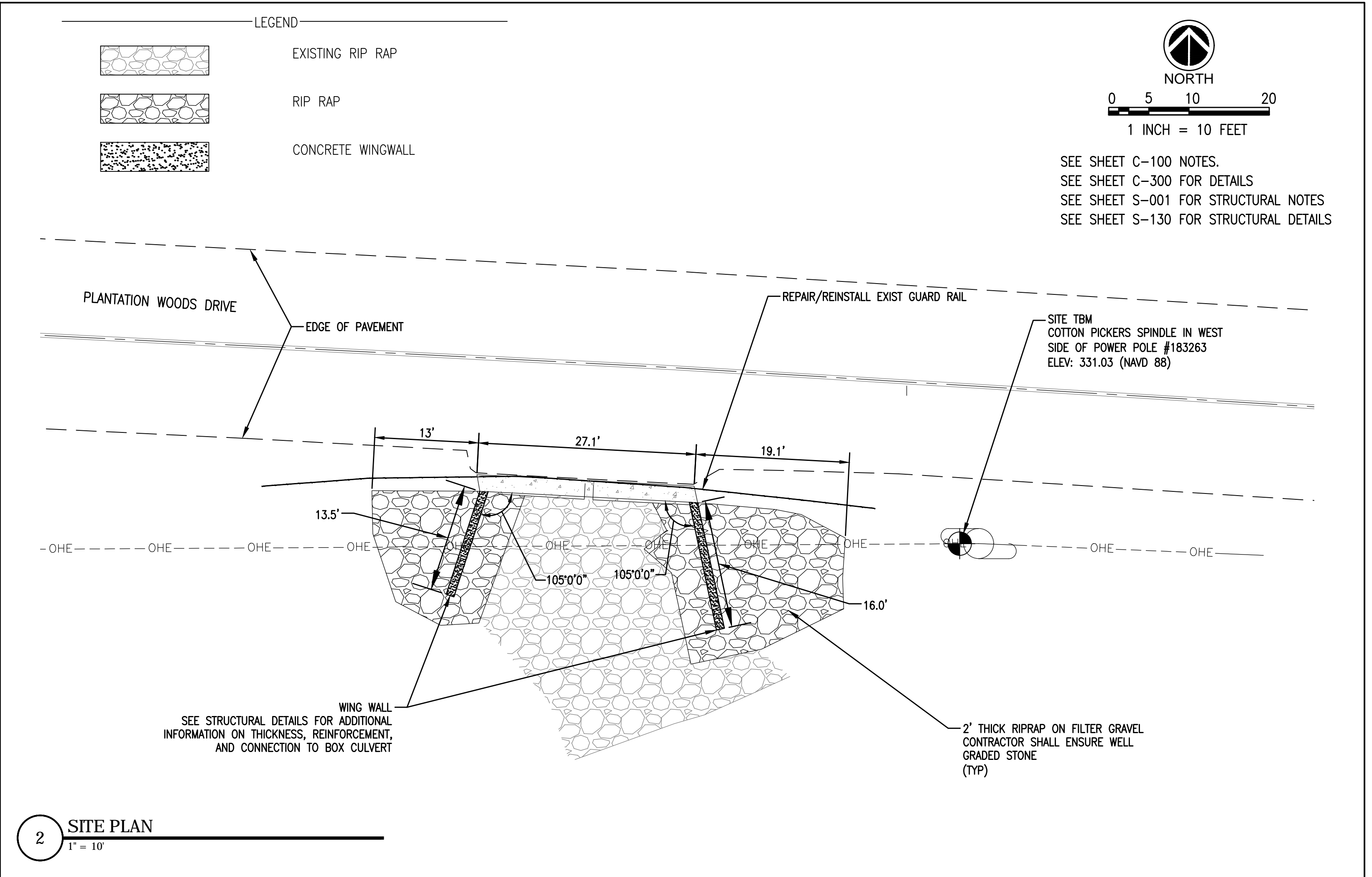
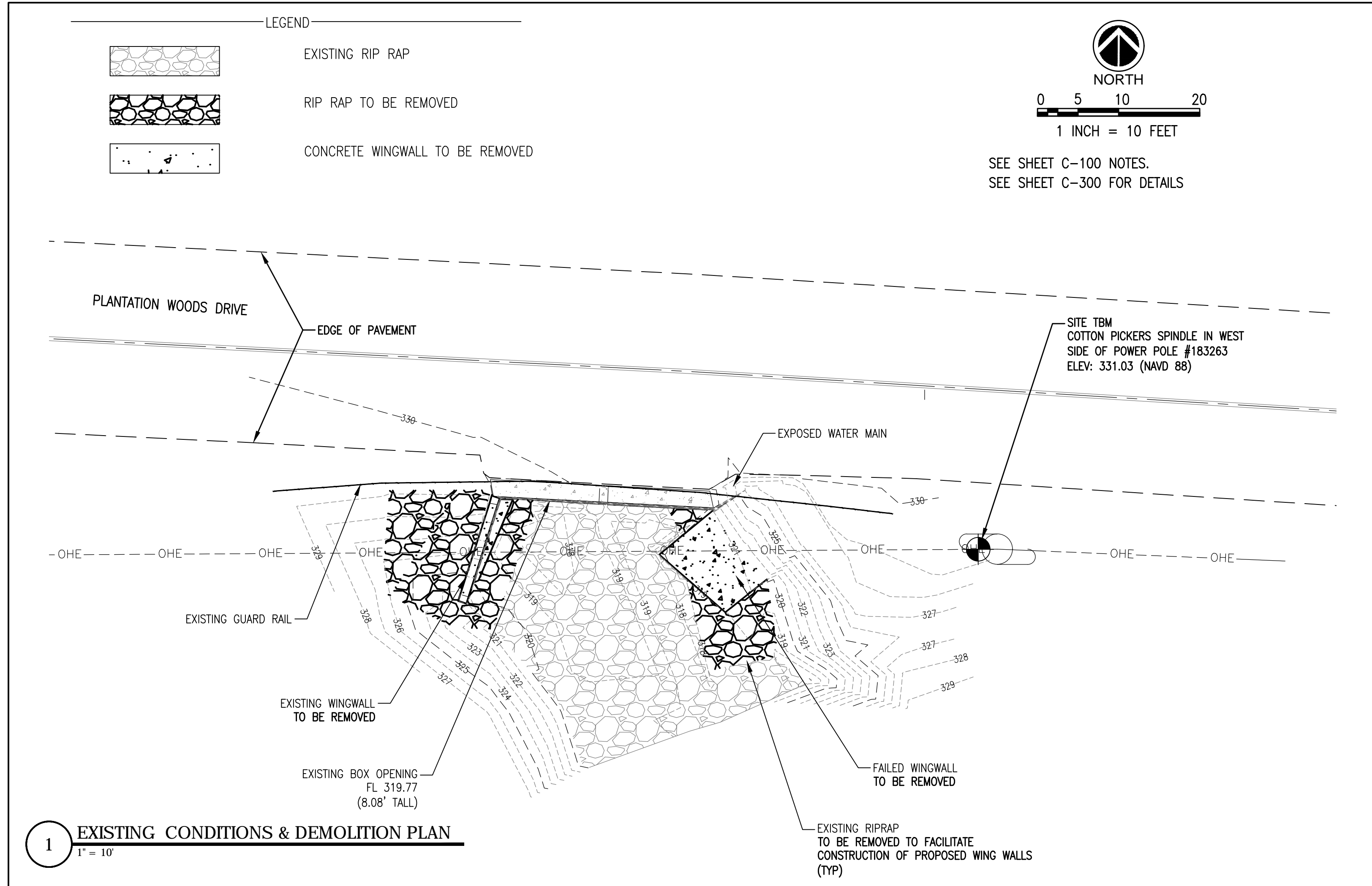
GENERAL NOTES

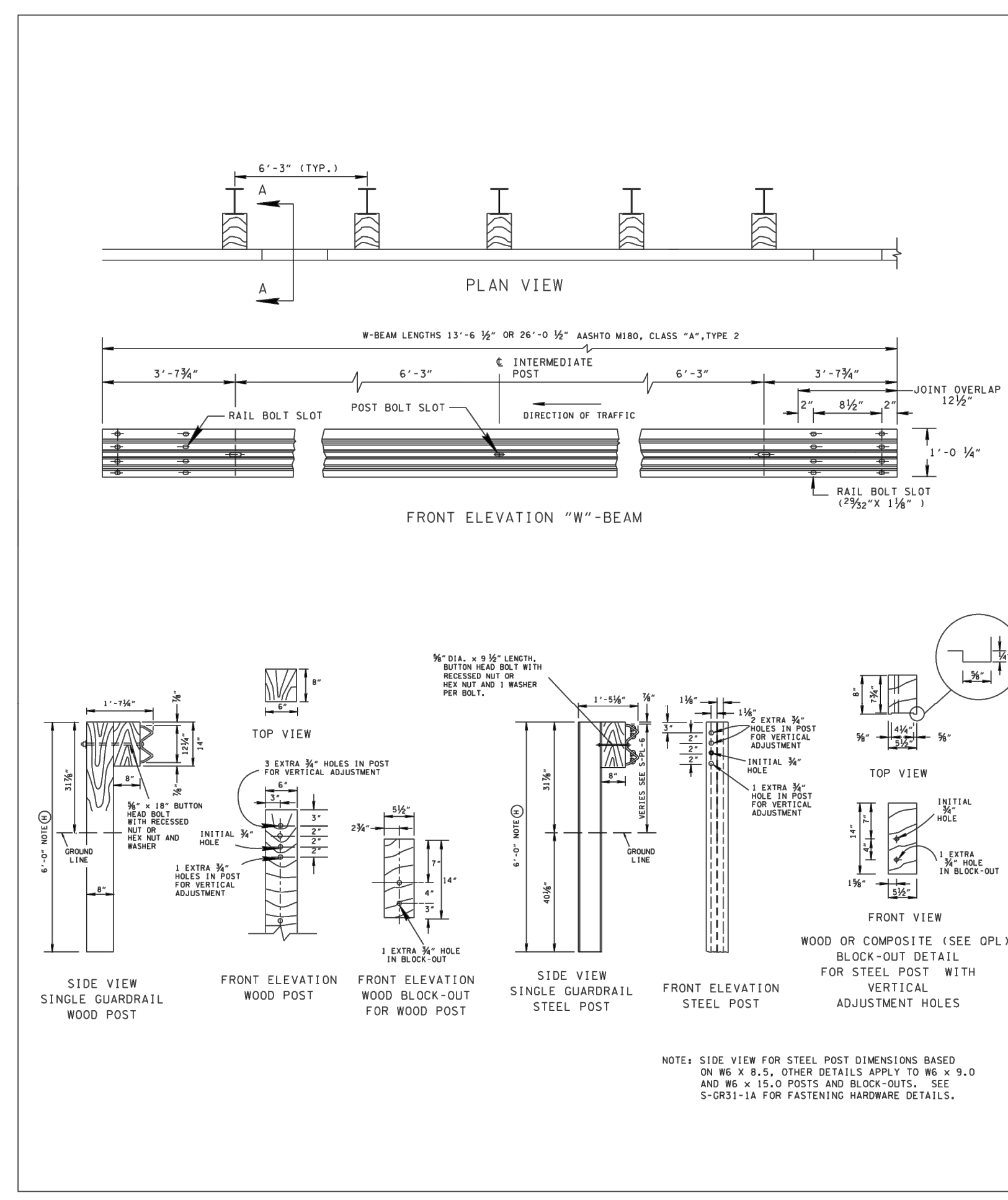
LAKELAND, TN

SURVEY: PFI	DATE: MAY, 2018	PROJECT NO.: 25468.00
DESIGN BY: PFI	DATE: JUNE, 2018	BOOK:
DRAWN BY: PFI	DATE: JUNE, 2018	SCALE: AS SHOWN

REVIEWED

LAKELAND CITY ENGINEER _____ DATE _____





REV. 12-1-14; REVISED NOTE
REV. 4-1-16; REVISED NOTES.

GENERAL NOTES

METAL BEAM

- METAL BEAMS SHALL CONFORM TO AASHTO M 180; TYPE 2, CLASS "A" UNLESS OTHERWISE NOTED ON THE PLANS.
- WHERE GUARDRAIL IS PLACED ON A CURVE WITH A RADIUS LESS THAN 150 FEET, THE RAIL IS TO BE SHOP-FORMED TO THE REQUIRED RADIUS.
- AT THE OPTION OF THE CONTRACTOR THE RAIL ELEMENTS FOR THE GUARDRAIL MAY BE FURNISHED IN EITHER 12'6" OR 25' POST NOMINAL LENGTHS WITH POST BOLT SLOTS FOR CONNECTION TO POSTS.

POSTS

- THE CONTRACTOR MAY HAVE THE CHOICE OF EITHER HOT ROLLED OR WELDED STEEL W6 X 8.5 OR W6 X 9 OR 8" X 6" WOOD POST, EXCEPT AS NOTED.
- THE MIXING OF ANY POST TYPES ON A GIVEN PROJECT WILL BE AVOIDED IF AT ALL POSSIBLE.
- SHOULD IT BECOME NECESSARY TO MIX POST TYPES ON A GIVEN PROJECT POSTS SHALL NOT BE MIXED ON A SINGLE RUN OF GUARDRAIL EXCEPT AS NECESSARY AT END TERMINALS.
- W6 X 15 IS USED WITH GUARDRAIL CONNECTION TO STRUCTURES.
- STEEL POSTS SHALL CONFORM TO ASTM A576 AND BE GALVANIZED IN ACCORDANCE WITH ASTM A153. BOLT HOLES SHALL BE APPROXIMATELY CENTERED BETWEEN WEB AND EDGE OF FLANGE OF SPACERS AND POSTS.
- WOOD POSTS SHALL CONFORM WITH TDOT CONSTRUCTION STANDARD SPECIFICATION.
- WELDED STEEL POSTS SHALL CONFORM TO ASTM A576 AND BE GALVANIZED IN ACCORDANCE WITH ASTM A153, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
- ON STEEP SLOPES, WHEN GUARDRAIL IS PLACED AT SLOPE BREAK, MINIMUM POST LENGTH SHALL BE BASED ON TABLE ON STANDARD DRAWING S-PL-6. ADDITIONAL EXPENSE TO BE INCLUDED IN THE COST OF THE RUN OF GUARDRAIL.

BLOCKOUTS

- BLOCKOUTS SHALL BE WOOD CONFORMING TO THE REQUIREMENTS OF TDOT CONSTRUCTION STANDARD SPECIFICATIONS OR PLASTIC GUARDRAIL BLOCKOUTS LISTED ON THE TDOT QUALIFIED PRODUCT LIST.
- ONLY WOODEN BLOCKOUTS MAY BE USED WITH WOODEN POSTS, PLASTIC OR WOODEN BLOCKOUTS MAY BE USED WITH STEEL POSTS.
- ALL BLOCKOUTS SHALL MEET NCHRP-350 OR MASH GUIDELINES.
- MIXING THE BLOCKOUT MATERIAL ON A GIVEN PROJECT SHOULD BE AVOIDED. IF MIXING OF BLOCKOUT MATERIAL IS NECESSARY, BLOCKOUTS SHALL NOT BE MIXED ON A SINGLE RUN OF GUARDRAIL.

FUTURE ADJUSTMENTS

- BLOCKOUTS SHALL HAVE ONE ADDITIONAL 3/4" HOLE, FOUR INCHES BELOW THE INITIAL HOLE FOR FUTURE ADJUSTMENT.
- INITIAL INSTALLATION REQUIRES ONE BOLT CONNECTION, EACH ADJUSTMENT THEREAFTER REQUIRES TWO BOLT CONNECTIONS.

END TREATMENTS

- ALL RUNS OF GUARDRAIL WILL BEGIN AND END WITH AN ANCHOR SYSTEM (SEE S-GRA-SERIES).
- GUARDRAIL ENDS THAT ARE INSIDE THE CLEARZONE AND EXPOSED TO ONCOMING TRAFFIC SHALL HAVE A CRASH WORTHY END TERMINAL AS NOTED.
- ANY ROAD WITH SUITABLE BACKSLOPES SHALL USE END TERMINALS BURRED IN BACK SLOPE (SEE S-GRT-1).
- ALL HIGHWAY SYSTEM ROADS WITHOUT SUITABLE BACKSLOPES SHALL USE TANGENTIAL END TERMINALS (SEE S-GRT-2).
- ALL OTHER ROADS SHALL USE SLOTTED RAIL END TERMINALS UNLESS OTHERWISE NOTED (SEE S-GRT-3).

DESIGN

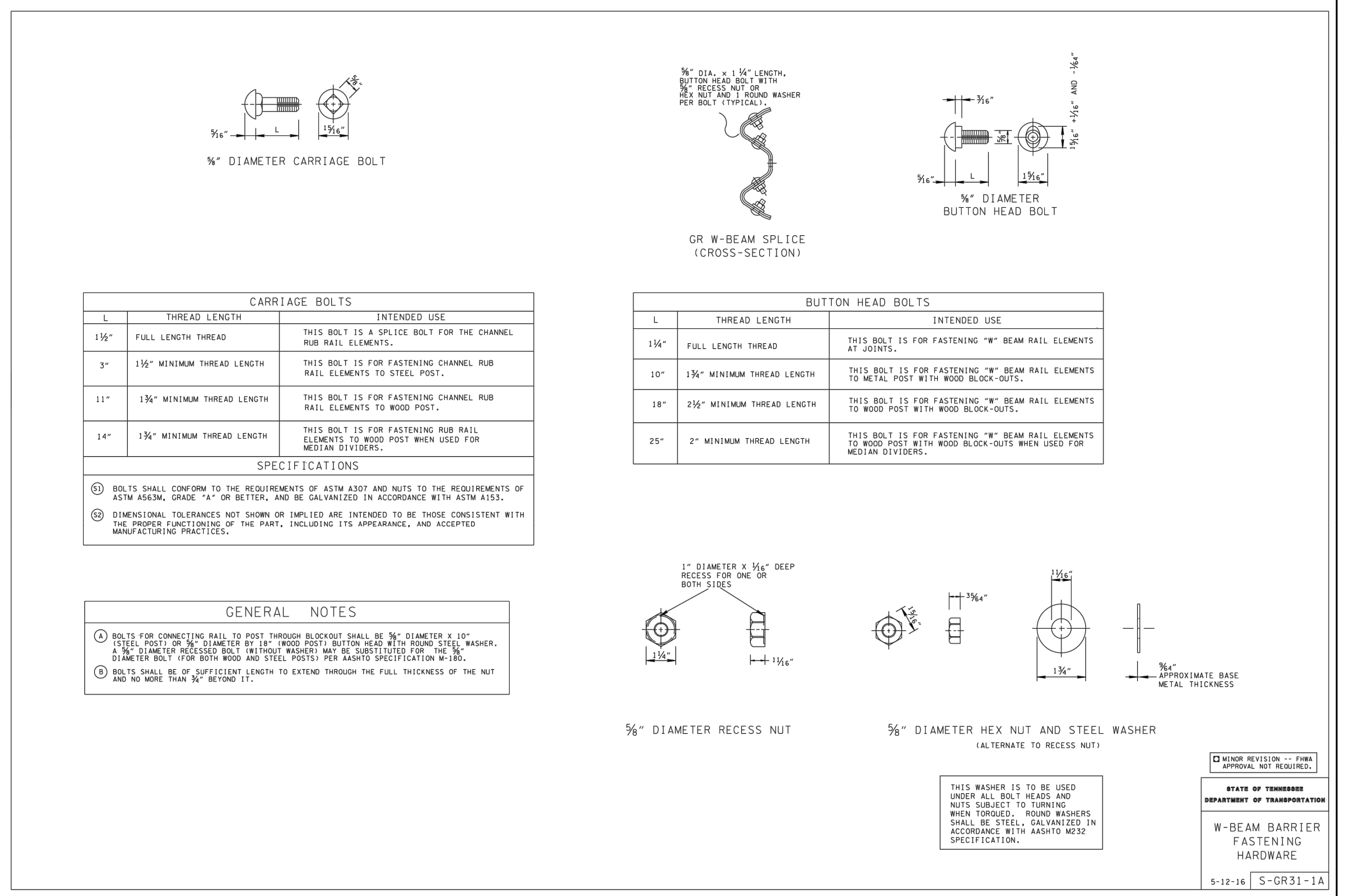
- 4' BEHIND GUARDRAIL SHALL BE CLEAR AT OBSTRUCTION FOR DEFLECTION.
- REFER TO SAFETY PLAN STANDARDS FOR HOW TO DETERMINE THE BEGINNING AND END.

PAYMENT

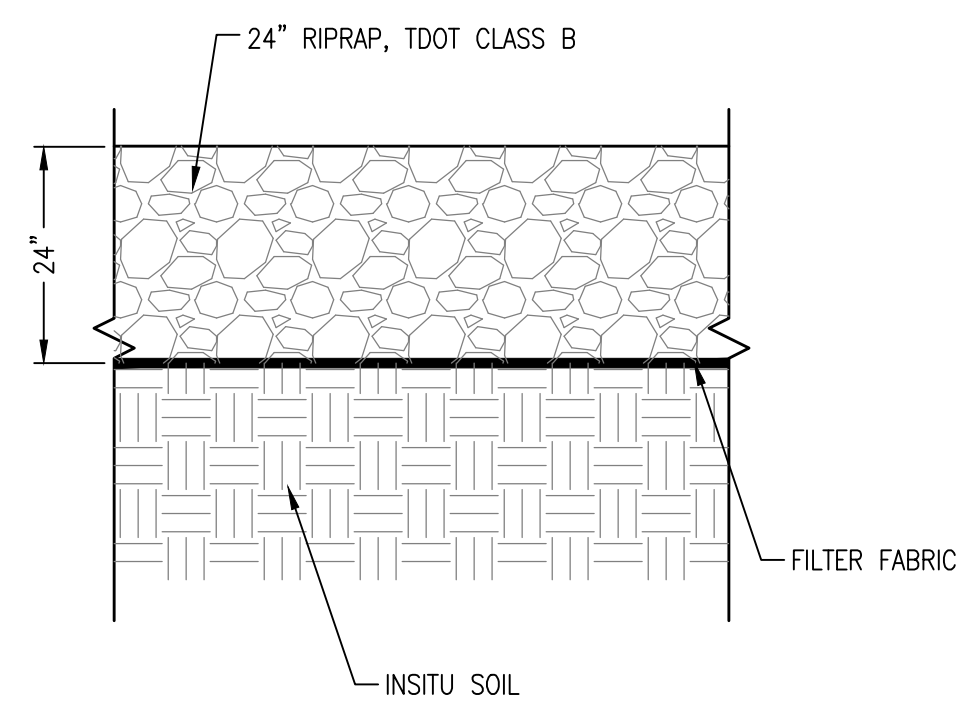
- PAYMENT FOR GUARDRAIL WILL BE UNDER ITEM: 705-02-02 SINGLE GUARDRAIL (TYPE 2) LF
- GUARDRAIL WILL BE PAID FOR ONLY IN LENGTHS THAT ARE MULTIPLES OF 6'-3".
- PAYMENT FOR SPECIAL CONNECTIONS AND GUARDRAIL SECTIONS REQUIRED FOR END TREATMENTS WILL BE AS NOTED ON THOSE DRAWINGS.
- FOR W-BEAM INSTALLATION, LOCATION, AND DEFLECTION NOTES SEE S-PL-6.

MINOR REVISION - FIRM APPROVAL NOT REQUIRED.
STATE OF TENNESSEE DEPARTMENT OF TRANSPORTATION
W-BEAM GUARDRAIL
7-11-13 S-GR31-1

1 GUARD RAIL
NTS



2 GUARD RAIL FASTENING HARDWARE
NTS



NON-WOVEN GEOTEXTILE (FILTER FABRIC) SPECIFICATIONS

Fabric: Needle Punctured Polypropylene

Property	Test Method	Unit	Minimum Average Roll Value (M.A.R.V.)
Weight (typical)	ASTM D5261	oz/yd ² (g/m ²)	6 (203)
Grab Tensile	ASTM D4632	lbs (kN)	160 (711)
Trapezoid Tear Strength	ASTM D4632	lbs (kN)	65 (267)
Grab Elongation	ASTM D4632	%	50
CBR Puncture Resistance	ASTM D6241	lbs (kN)	410 (1.82)
Permittivity*	ASTM D4491	sec-1	1.5
Water Flow*	ASTM D4491	gpm/ft ² (l/min/m ²)	110 (4480)
A.O.S.*	ASTM D4491	U.S. Sieve	70 (212)
UV Resistance	ASTM D4355	%/hrs	70/500

NOTES:

- RIP-RAP SHALL BE TDOT CLASS B CONSISTING OF LIMESTONE ROCK (OR OTHER APPROVED EQUAL).
- RIP RAP SHALL **NOT** BE DUMPED OVER THE SIDE OF THE SLOPE. PLACEMENT SHALL OCCUR FROM THE BOTTOM OF THE SLOPE/CHANNEL TO THE TOP OF THE BANK, IT SHALL NOT BE DROPPED ONTO THE FILTER FABRIC SUCH AS TO CAUSE DAMAGE TO THE FILTER FABRIC.
- SUBMIT RIP-RAP GRADE TO ENGINEER FOR REVIEW AND APPROVAL.
- ALL WORK AND MATERIALS SHALL CONFORM TO SECTION 709 OF TDOT STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, 2015 ED.

3 RIPRAP SECTION
NTS

REVISION		
ITEM NO.	DESCRIPTION OF CHANGE	APPROVAL DATE

PLANTATION WOODS HEADWALL

Developer: City of Lakeland
Engineer: Pickering Firm, Inc.

SHEET 1 OF 1
DIVISION OF ENGINEERING

SITE DETAILS

LAKELAND, TN

SURVEY: PFI DATE: MAY, 2018 PROJECT NO.: 25468.00
DESIGN BY: PFI DATE: JUNE, 2018 BOOK:
DRAWN BY: PFI DATE: JUNE, 2018 SCALE: AS SHOWN

REVIEWED

LAKELAND CITY ENGINEER _____ DATE _____

STRUCTURAL ABBREVIATIONS			
AFF	ABOVE FINISH FLOOR	NF	NEAR FACE
ADD'L	ADDITIONAL	NS	NEAR SIDE
ALT	ALTERNATE	NTS	NOT TO SCALE
AB	ANCHOR BOLT(S)	OC	ON CENTER
APPROX	APPROXIMATELY	OPP	OPPOSITE
ARCH	ARCHITECTURAL	OF	OUTSIDE FACE
BRG	BEARING	OD	OUTSIDE DIAMETER
BOT	BOTTOM	PL	PLATE
BLDG	BUILDING	LBS	POUNDS
CTRD	CENTERED	PCF	POUNDS PER CUBIC FOOT
CL	CENTERLINE	PCI	POUNDS PER CUBIC INCH
CLR	CLEAR	PSF	POUNDS PER SQUARE FOOT
CMU	CONCRETE MASONRY	PSI	POUNDS PER SQUARE INCH
UNIT		REINF	REINFORCING
CONN	CONNECTION(S)	REQ'D	REQUIRED
CJ	CONSTRUCTION JOINT	RTU	ROOF TOP UNIT
CONT	CONTINUOUS	SCHED	SCHEDULE
DL	DEAD LOAD	SIM	SIMILAR
DIA	DIAMETER	SOG	SLAB ON GRADE
DIM	DIMENSION	SQ	SQUARE
DWG	DRAWING	SF	SQUARE FOOT
EA	EACH	STD	STANDARD
EF	EACH FACE	STIFF	STIFFENER
EW	EACH WAY	STRUCT	STRUCTURAL
EH	EAVE HEIGHT	SYM	SYMMETRICAL
EL	ELEVATION (HEIGHT)	TOF	TOP OF FOOTING
EMBED	EMBEDMENT	TO SLAB	TOP OF SLAB
EQ	EQUAL	TO STL	TOP OF STEEL
EXIST	EXISTING	TO WALL	TOP OF WALL
EXP	EXPANSION	TOP	TYPICAL
EXP JT	EXPANSION JOINT	UNO	UNLESS NOTED OTHERWISE
FS	FAR SIDE	VERT	VERTICAL
FF	FINISHED FLOOR	WWF	WELDED WIRE FABRIC
FTG	FOOTING	WF	WIDE FLANGE SHAPE
GA	GAUGE OR GAGE	WL	WIND LOAD
HORIZ	HORIZONTAL		
IN	INCH		
INFO	INFORMATION		
IF	INSIDE FACE		
K	KIPS		
KSF	KIPS PER SQUARE FOOT		
KSI	KIPS PER SQUARE INCH		
LL	LIVE LOAD		
LONG	LONGITUDINAL		
LLH	LONG LEG HORIZONTAL		
LLV	LONG LEG VERTICAL		
LSH	LONG SIDE HORIZONTAL		
MBM	METAL BUILDING MANUFACTURER		
MIN	MINIMUM		
MISC	MISCELLANEOUS		

A. GENERAL

1. GENERAL:

THE STRUCTURAL COMPONENTS ARE DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER THEY ARE FULLY COMPLETED. IT IS SOLELY THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE AND TO INSURE THE SAFETY OF THE STRUCTURES AND THEIR COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, SHEETING, TEMPORARY BRACING, GUYS OR TIE DOWNS WHICH MIGHT BE NECESSARY.

2. SAFETY:

IT IS SOLELY THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL APPLICABLE SAFETY CODES AND REGULATIONS DURING PHASES OF CONSTRUCTION.

3. DISCREPANCIES:

SHOULD ANY OF THE DETAILED INSTRUCTIONS SHOWN ON THE PLANS CONFLICT WITH THESE STRUCTURAL NOTES, THE SPECIFICATIONS, OTHER CONTRACT DOCUMENTS, OR WITH EACH OTHER, THE STRICTEST PROVISION SHALL GOVERN. REQUEST CLARIFICATION FROM THE ARCHITECT BEFORE PROCEEDING WITH THE WORK.

4. SECTION & DETAIL REFERENCE:

WHEN A SECTION OR A DETAIL IS REFERENCED FOR A PARTICULAR CONDITION, THAT SECTION OR DETAIL SHALL APPLY FOR ALL SIMILAR CONDITIONS, REGARDLESS OF WHETHER IT IS REFERENCED OR NOT, UNLESS NOTED OTHERWISE.

5. SUBMITTALS:

A. SUBMITTALS SHALL BE REVIEWED BY CONTRACTOR PRIOR TO SUBMITTING TO ARCHITECT.
B. SUBMITTALS WILL BE REVIEWED BY THE STRUCTURAL ENGINEER FOR GENERAL CONFORMANCE WITH THE PRINCIPLES AND CONTRACT DOCUMENTS OF THE PROJECT. CONTRACTOR IS NOT RELIEVED FROM HIS SOLE RESPONSIBILITY REGARDING CHECKING OF DIMENSIONS, QUANTITIES, COORDINATION OF THE WORK OF TRADES, CORRELATION OF DESIGN DOCUMENTS THAT MAY CONTAIN CONTRADICTORY INFORMATION AND FOR INFORMATION THAT PERTAINS TO THE FABRICATION, CONSTRUCTION PROCESSES AND/OR SAFETY REQUIREMENTS

6. QUALITY REQUIREMENTS:

A. REFERENCE TO STANDARD SPECIFICATIONS OR CODES OF ANY TECHNICAL SOCIETY, ORGANIZATION, OR ASSOCIATION OR TO CODES OF LOCAL OR STATE AUTHORITIES, SHALL MEAN THE STANDARDS IN EFFECT AS OF DATE OF THE CONTRACT DOCUMENTS, UNLESS OTHERWISE NOTED.
B. VERIFY DIMENSIONS AND CONDITIONS AT THE JOB SITE. ANY DISCREPANCIES BETWEEN THE CONDITIONS FOUND AND THOSE INDICATED IN THE CONTRACT DOCUMENTS SHALL BE BROUGHT TO THE ATTENTION OF ENGINEER PRIOR TO PROCEEDING WITH THE WORK.
C. CONTRACTOR DESIGNED ELEMENTS SHALL BE DESIGNED BY A LICENSED STRUCTURAL ENGINEER REGISTERED IN THE STATE OF TENNESSEE. ALL DOCUMENTS NOTED SHALL BE SEALED BY THE LICENSED ENGINEER. THE FOLLOWING ELEMENTS AND THEIR CONNECTIONS SHALL BE BY THE CONTRACTOR'S STRUCTURAL ENGINEER:
 - TEMPORARY BRACING AND SHORING

B. REINFORCED CONCRETE

1. MATERIALS:

A. SPECIFICATIONS: IN GENERAL, COMPLY WITH ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS."
B. MINIMUM COMPRESSIVE STRENGTH FOR STRUCTURAL CONCRETE IS AS FOLLOWS: ALL NORMAL WEIGHT EXCEPT AS INDICATED

CLASS	LOCATION	f'c, PSI
I	FOOTINGS	4000 WITH AIR
II	CONCRETE IN RETAINING WALL	4000 WITH AIR
II	BACKFILL BELOW FOOTINGS	1500

C. DEFORMED REINFORCING BARS: FY = 60,000

2. CONTINGENCIES:

A. PROVIDE SUPPORTS AS REQUIRED TO MAINTAIN ALIGNMENT OF SCHEDULED REINFORCING. SUCH SUPPORTS ARE TO BE REFLECTED IN THE BID.

3. FOOTINGS:

A. PROVIDE LEAN CONCRETE (CLASS IV) UNDER FOUNDATIONS FOR ACCIDENTAL OVER-EXCAVATION, SOFT SPOTS, AND TRENCHES.

4. SPLICES: UNLESS NOTED OTHERWISE, MINIMUM LAP SPLICE LENGTHS TO BE 48 BAR DIAMETERS.

5. CONCRETE COVER: UNLESS NOTED OTHERWISE, DETAIL REINFORCING TO PROVIDE CONCRETE COVER AS FOLLOWS:

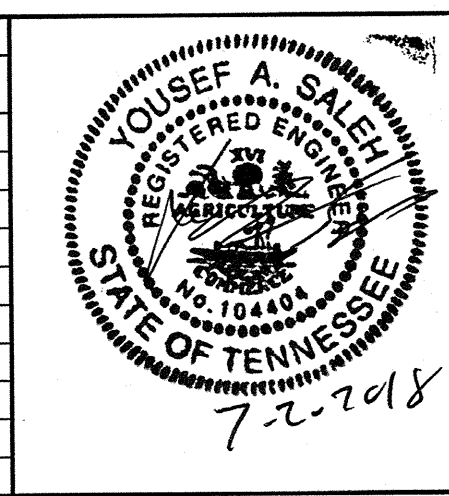
A. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3 INCHES
B. CONCRETE EXPOSED TO EARTH OR WEATHER:
 #5 BARS AND SMALLER 1-1/2 INCHES
 OTHERS 2 INCHES

QUALITY ASSURANCE PLAN

ALL INSPECTIONS, TESTINGS, AND VERIFICATIONS SHALL BE IN ACCORDANCE WITH IBC'S TABLES 1704.3 AND 1704.4 AND AS OUTLINED IN THE TABLE BELOW. THE FOLLOWING ITEMS REQUIRE SPECIAL INSPECTION BY A CERTIFIED DEPUTY INSPECTOR. THE SPECIAL INSPECTOR SHALL BE EMPLOYED BY THE OWNER OR AN AGENT OF THE OWNER BUT NOT BY THE CONTRACTOR OR ANY OTHER PERSON RESPONSIBLE FOR THE WORK. THE SPECIAL INSPECTOR'S DUTIES ARE TO INSPECT THE ITEMS LISTED BELOW AND SUBMIT REPORTS TO THE BUILDING OFFICIAL AND THE ENGINEER/ARCHITECT DESCRIBING THE WORK AND ANY DEFICIENCIES OBSERVED.

ITEM	FREQUENCY	
	CONTINUOUS	PERIODIC
1. SPREAD AND CONTINUOUS FOOTINGS, WALLS AND PIERS		
A. INSPECT PLAN DIMENSIONS AND DEPTH.		X
B. INSPECT COMPACTED FILL, GRADING, AND EXCAVATIONS.		X
C. INSPECT QUANTITY AND SPACING OF BARS.		X
D. INSPECT PROPER CLEARANCE TO TOP AND BOTTOM BARS IS PROVIDED.		X
E. VERIFY PROPER LAPS ARE PROVIDED.		X
F. INSPECT FOR CORNER BARS, STEP BARS, DOWELS, ANCHOR BOLTS, OR EMBEDDED MATERIAL.		X
G. INSPECT FOR PROPER DOWEL EMBEDMENT INTO FOOTING AND EXTENSION ABOVE FOOTING.	X	
H. VERIFY SOILS ENGINEER HAS APPROVED DESIGN BEARING CAPACITY.		X
I. VERIFY THAT ALL LOOSE MATERIAL IS REMOVED FROM BOTTOM OF FOOTING. NO SIDE FORMING IS PERMITTED.		X
J. INSPECT BOLTS TO BE INSTALLED IN FOOTING AND PIERS PRIOR TO AND DURING CONCRETE PLACEMENT.		X
4. CONCRETE VERIFICATION AND INSPECTION		
A. VERIFY USE OF REQUIRED DESIGN MIX.		X
B. SAMPLE FRESH CONCRETE AND PERFORM SLUMP AND AIR CONTENT TESTS. DETERMINE THE TEMPERATURE OF FRESH CONCRETE AT THE TIME OF MAKING SPECIMENS FOR STRENGTH TESTS.	X	
C. INSPECT CONCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	X	
D. INSPECT FOR MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.		X
E. VERIFY IN-SITU CONCRETE STRENGTH PRIOR TO ERECTION OF TILT-UP PANELS.		X
F. INSPECT PLACEMENT OF REINFORCING STEEL IN CONCRETE FOOTINGS, WALLS, SLABS.		X
G. VERIFY SAMPLING AND TESTING OF REINFORCING STEEL (MILL REPORTS AND IDENTIFICATION OF STEEL).		X

REVISION		
ITEM NO.	DESCRIPTION OF CHANGE	APPROVAL DATE

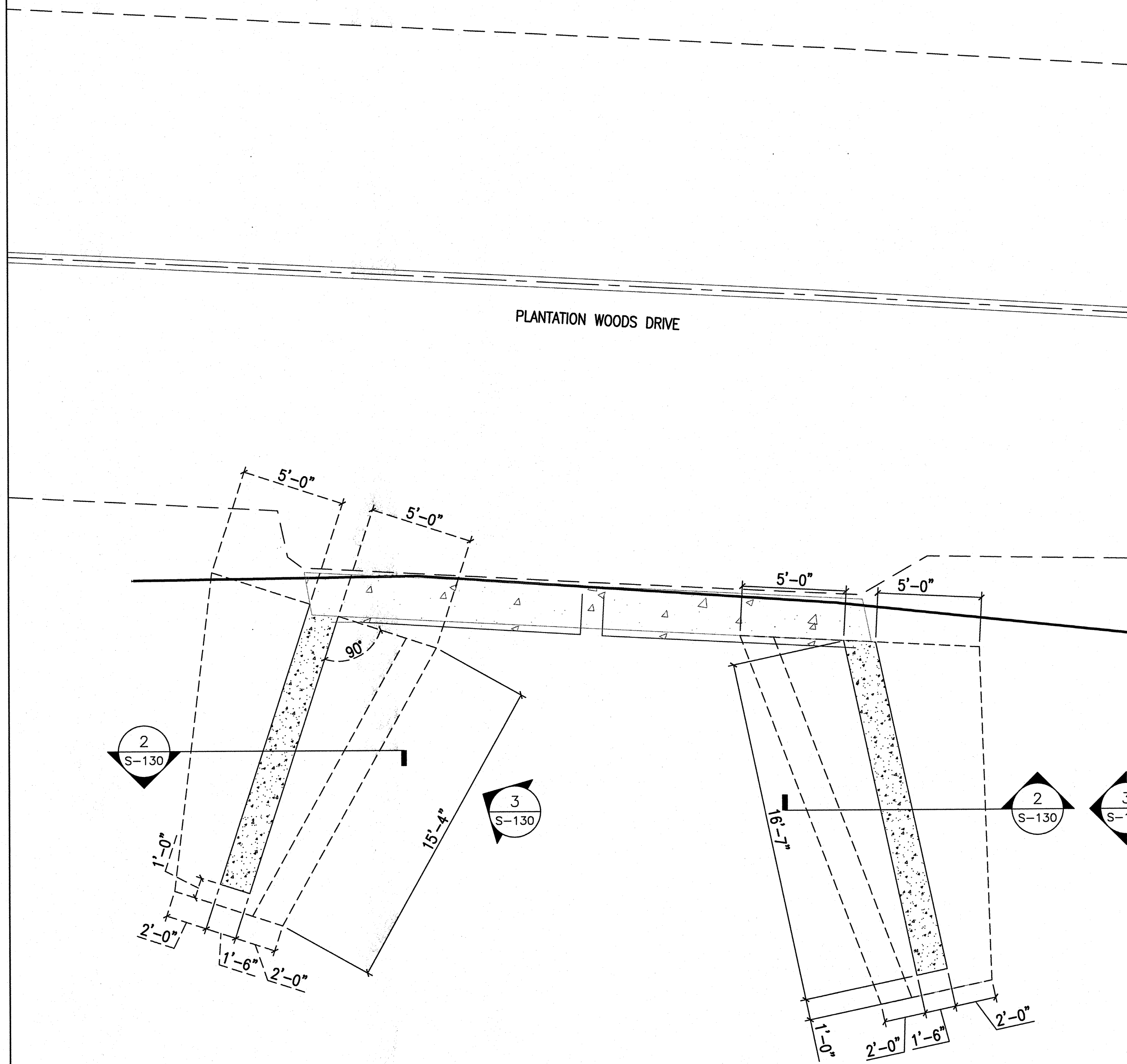


PLANTATION WOODS AND CHAMBERS CHAPEL HEADWALL

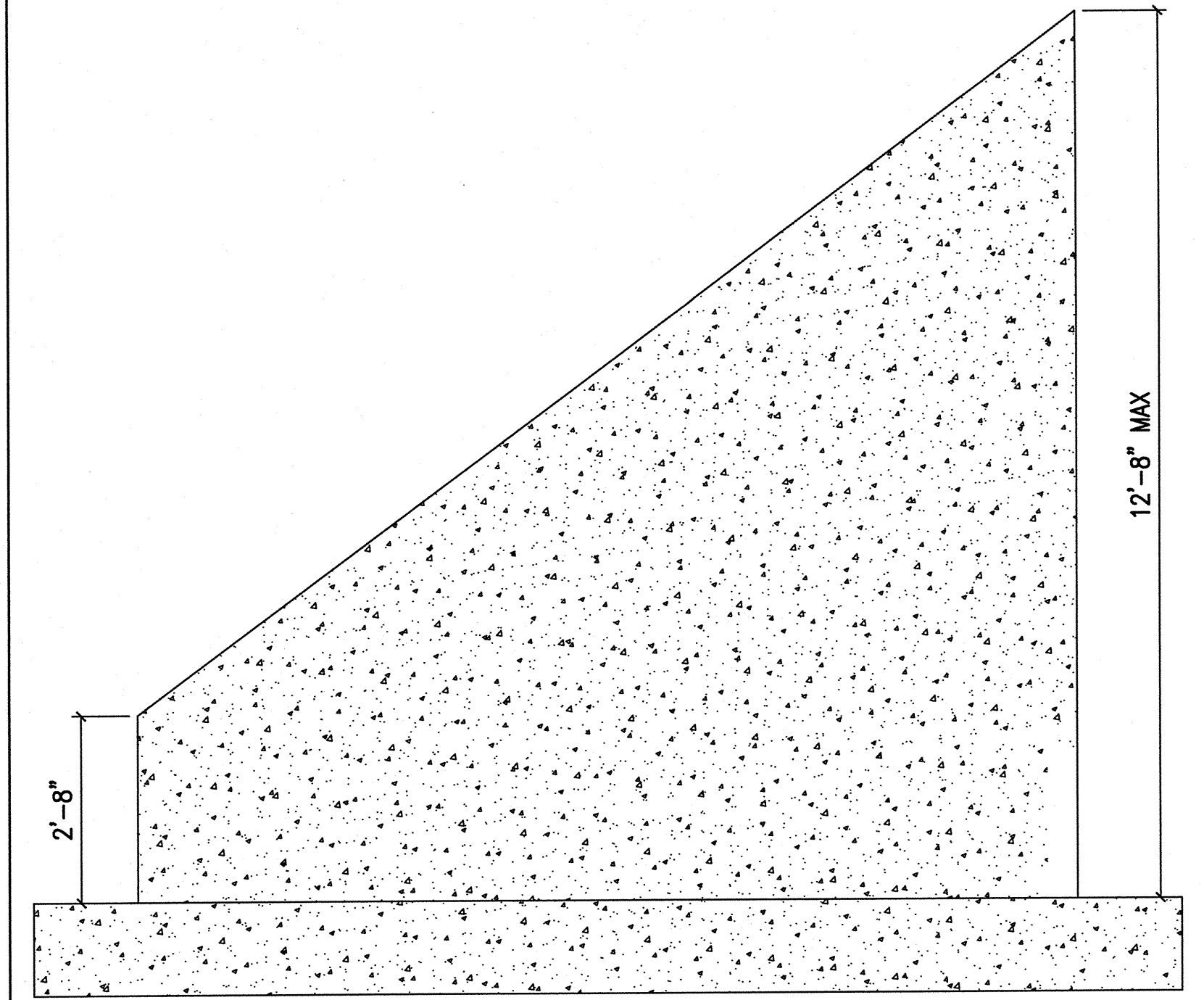
SHEET 1 OF 1
 DIVISION OF ENGINEERING
STRUCTURAL NOTES
 LAKELAND, TN
 SURVEY: PFI DATE: MAY, 2018 PROJECT NO.: 25468.00
 DESIGN BY: PFI DATE: JUNE, 2018 BOOK:
 DRAWN BY: PFI DATE: JUNE, 2018 SCALE: AS SHOWN
 REVIEWED
 LAKELAND CITY ENGINEER DATE

FOUNDATION NOTES

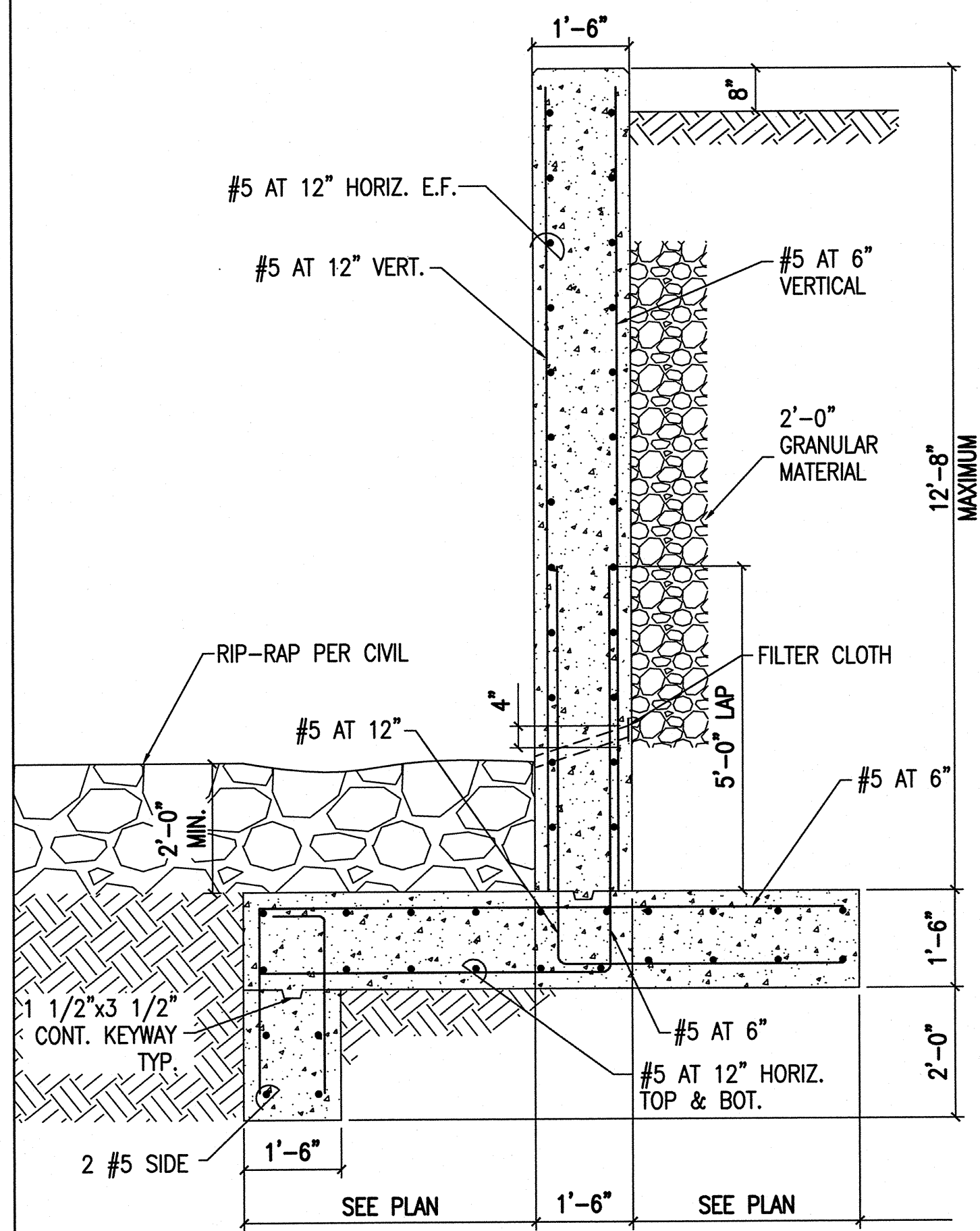
1. FOOTINGS HAVE BEEN DESIGNED FOR AN ALLOWABLE SOIL BEARING CAPACITY OF 2,000 PSF. ALLOWABLE BEARING CAPACITY TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR'S SOILS ENGINEER. THE CONTRACTOR'S SOILS ENGINEER SHALL ALSO VERIFY THAT THE SOIL IS SUITABLE FOR PLACEMENT OF THE FOUNDATION SYSTEM AND THAT MAXIMUM SETTLEMENT IS 1" AND MAXIMUM DIFFERENTIAL SETTLEMENT IS 1/2".
2. SEE CIVIL PLANS FOR TOP OF FOOTING ELEVATION.
3. EXCAVATIONS ARE ASSUMED TO BE LAID BACK TO A 1.5H TO 1.0V SLOPE. IF REQUIRED SHEETING OR SHORING TO BE INSTALLED TO MAINTAIN THE 2 TO 1 SLOPE. KEEP EXCAVATIONS FREE OF WATER. PROVIDE SHORING AND BRACING AS REQUIRED TO MAINTAIN STABILITY OF EXISTING STRUCTURE.
4. RETAINING WALLS ARE DESIGNED FOR AN EQUIVALENT FLUID PRESSURE OF 60 PCF AND A FRICTION COEFFICIENT OF 0.30.



1 FOUNDATION PLAN - PLANTATION WOODS
1/4"=1'-0" S-DET000

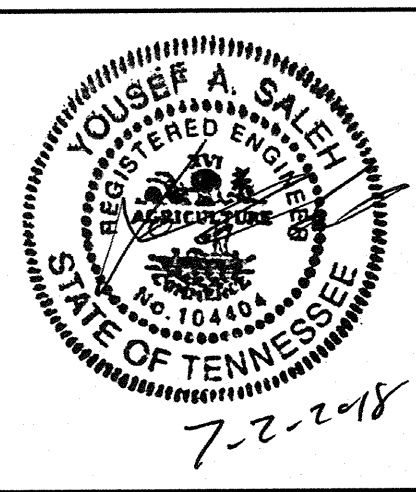


3 ELEVATION - PLANTATION WOODS
1/2"=1'-0" S-DET401



2 SECTION - PLANTATION WOODS
1/2"=1'-0" S-DET399

REVISION	DESCRIPTION OF CHANGE	APPROVAL DATE



SHEET 1 OF 1
DIVISION OF ENGINEERING
STRUCTURAL DETAILS
LAKELAND, TN
SURVEY: PFI DATE: MAY, 2018 PROJECT NO.: 25468.00
DESIGN BY: PFI DATE: JUNE, 2018 BOOK:
DRAWN BY: PFI DATE: JUNE, 2018 SCALE: AS SHOWN

PLANTATION WOODS HEADWALL
Developer: City of Lakeland
Engineer: Pickering Firm, Inc.

REVIEWED
LAKELAND CITY ENGINEER DATE