

CITY OF CHATTANOOGA, TENNESSEE

CONTRACT #S-10-008-201

BRAINERD LEVEE IMPROVEMENTS

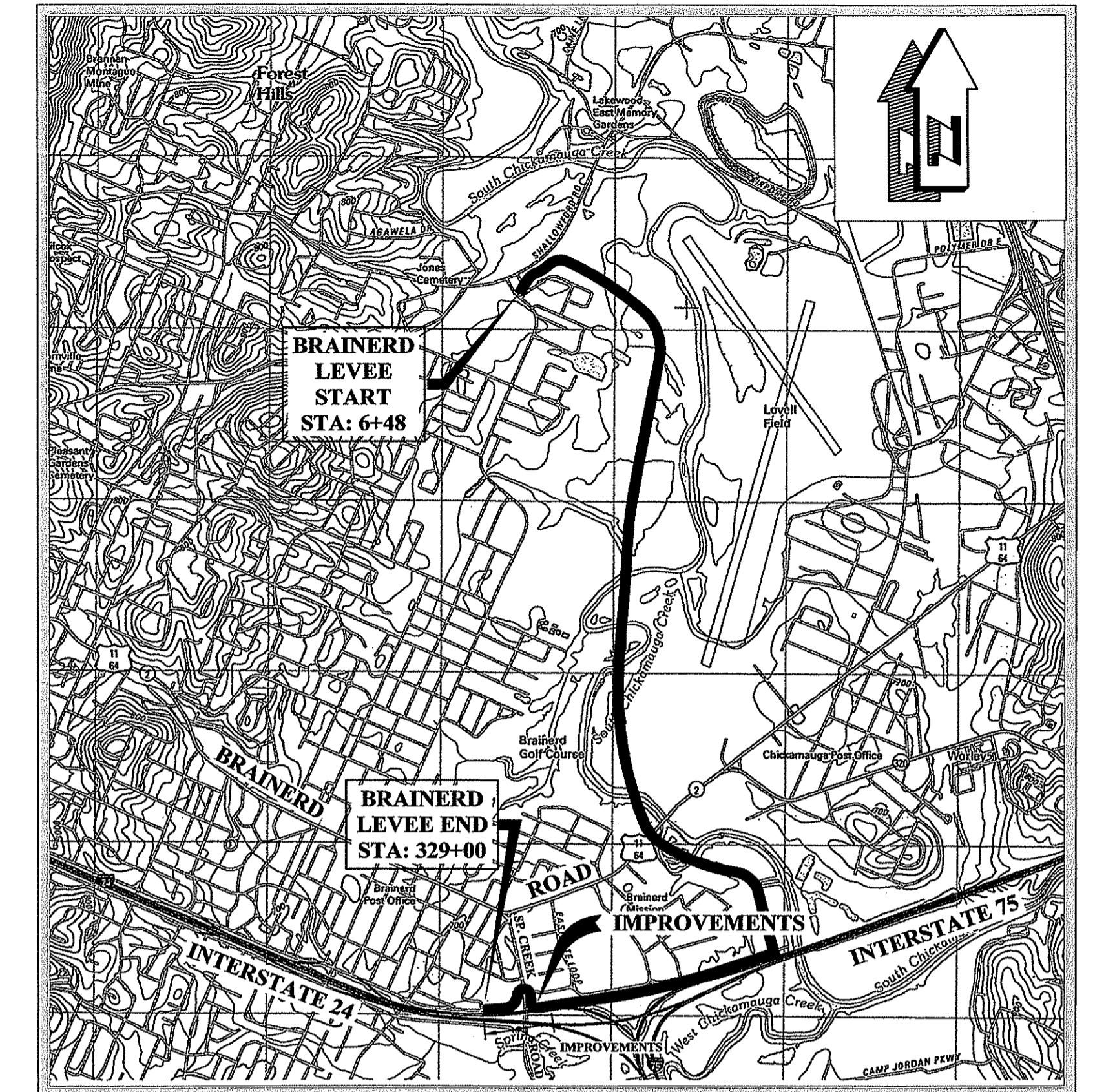
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LOCATION MAP

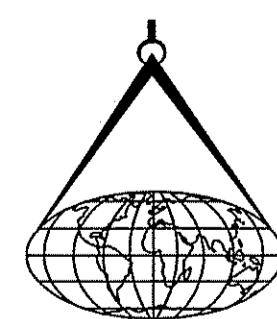
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MAYOR

ANDY BERKE

CITY COUNCIL

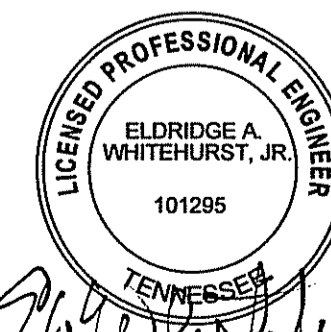
DISTRICT 1 – CHIP HENDERSON, CHAIRPERSON
 DISTRICT 2 – JERRY MITCHELL
 DISTRICT 3 – KEN SMITH
 DISTRICT 4 – LARRY GROHN
 DISTRICT 5 – RUSSELL GILBERT
 DISTRICT 6 – CAROL BERZ, VICE-CHAIRPERSON
 DISTRICT 7 – CHRIS ANDERSON
 DISTRICT 8 – MOSES FREEMAN
 DISTRICT 9 – YUSUF HAKEEM



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Eldridge A. Whitehurst, Jr.
 5/5/14

DATE: MAY, 5, 2014

DEPARTMENT OF PUBLIC WORKS

DONALD L. NORRIS, ADMINISTRATOR

GENERAL NOTES

GRADING AND EXCAVATION

1. FINISHED GRADES ON PROFILES ARE THE SAME AS FINISHED GRADES SHOWN ON TYPICAL SECTIONS AND ON CROSS SECTIONS.
2. THE COST OF REMOVAL AND DISPOSAL OF EXISTING FLEXIBLE PAVEMENT ENCOUNTERED IN THE PROGRESS OF THE WORK AND NOT COVERED IN OTHER BID ITEMS SHOWN ON PLANS, SHALL BE INCLUDED IN ITEM NO. 1, "COMMON EXCAVATION."
3. WHEN SPECIFIED GRADING REQUIREMENTS ARE NOT SHOWN ON THE DRAWINGS, THE CONTRACTOR SHALL GRADE ALL AREAS WITHIN THE LIMITS OF CONSTRUCTION, OR OTHERWISE DISTURBED BY CONSTRUCTION, TO DRAIN AND TO MATCH THE EXISTING, ADJACENT GROUND.
4. THE CONTRACTOR SHALL PERFORM ALL NECESSARY STRIPPING OF EXISTING TOPSOIL ON THE JOBSITE.
5. ON THE PROJECT, NEWLY GRADED, EARTH AREAS NOT TO BE PAVED, RIP-RAPPED, OR STABILIZED, SHALL BE SEEDDED IN ACCORDANCE WITH THE CITY OR COUNTY SPECIFICATIONS. PRIOR TO SEEDING, A THREE-INCH (3") LAYER OF TOPSOIL SHALL BE PLACED ON THESE AREAS IN ACCORDANCE WITH SAID SPECIFICATIONS. ALL EXISTING ROADS OR RAMPS TO BE ABANDONED WITHIN THE RIGHT-OF-WAY SHALL BE SCARIFIED AND OBLITERATED, THEN HAVE TOPSOIL AND SEED ADDED.
6. THE CONTRACTOR IS TO DISPOSE OF, AT HIS OWN EXPENSE, ALL UNSUITABLE AND/OR SURPLUS, EXCAVATED MATERIAL AS DIRECTED BY THE ENGINEER. ALL SUITABLE, EXCAVATED MATERIAL SHALL BE USED AS DIRECTED BY THE ENGINEER.
7. EXCAVATION ADJACENT TO EXISTING PAVEMENT SHALL BE MADE TO A NEAT LINE.

EROSION/POLLUTION CONTROL

8. THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO CONTROL EROSION AND WATER POLLUTION THROUGH THE CONSTRUCTION PERIOD. ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE IN PLACE BEFORE EARTH MOVING OPERATIONS BEGIN. CLEARING AND GRUBBING SHALL BE HELD TO A MINIMUM WIDTH NECESSARY TO ACCOMMODATE SLOPES. EMBANKMENTS AND EXCAVATED AREAS SHALL BE PROMPTLY STABILIZED TO MINIMIZE EROSION. BALED STRAW EROSION CHECKS AND SILT FENCE SHALL BE USED ALONG THE TOE OF FILL SLOPES, IN DITCHES, AND IN OTHER AREAS WHERE EROSION IS A PROBLEM AND SILT-LADEN RUNOFF MAY ENTER A STREAM OR ADJACENT PROPERTY.
9. ANY STOCKPILED SOIL OR FILL MATERIAL SHALL BE LOCATED AND TREATED IN A MANNER TO PREVENT SILT'S ENTERING STREAMS. NO EXCAVATED MATERIAL SHALL BE DISCHARGED INTO DITCHES. THE CONTRACTOR SHALL DISPOSE OF ALL EXCAVATED MATERIAL IN A LOCATION, APPROVED BY THE ENGINEER, ABOVE THE NORMAL HIGH WATER ELEVATION.
10. THE CONTRACTOR IS RESPONSIBLE FOR ADHERING TO ALL EROSION CONTROL PROVISIONS AS SET FORTH IN THE BEST MANAGEMENT PRACTICES MANUAL AVAILABLE FROM THE STORMWATER MANAGEMENT DIVISION OF THE CITY OF CHATTANOOGA DEPARTMENT OF PUBLIC WORKS. REFER TO CITY ORDINANCE 9942.
11. WITHIN THE UNIT PRICE FOR EACH EROSION CONTROL ITEM, THE CONTRACTOR IS EXPECTED TO MAINTAIN THE EROSION CONTROL MEASURES THROUGHOUT THE LENGTH OF THE CONTRACT AS REQUIRED.
12. THE CONTRACTOR SHALL PROVIDE TEMPORARY EROSION AND WATER CONTROL MEASURES (SUCH AS BERMS, SEDIMENT BASINS, SLOPE DRAINS, HAY BALES, AND SILT FENCES) AS DIRECTED BY THE ENGINEER. THESE TEMPORARY MEASURES SHALL BE COORDINATED WITH THE PERMANENT EROSION CONTROL FEATURES TO ASSURE ECONOMICAL, EFFECTIVE, AND CONTINUOUS EROSION CONTROL THROUGHOUT THE PROJECT.

DRAINAGE

13. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING EXISTING RUNOFF FLOW PATTERNS AND SHALL PROTECT AGAINST REDIRECTING ADDITIONAL FLOW ONTO PRIVATE PROPERTY. HE SHALL EMPLOY TEMPORARY PIPES, SWALES, DITCHES OR OTHER MEANS TO MAINTAIN THE FLOW PATTERNS AT NO ADDITIONAL COST TO THE CITY. ALL TEMPORARY DRAINAGE STRUCTURES SHALL BE REMOVED AT COMPLETION OF CONSTRUCTION AND THE AREA RETURNED TO ITS ORIGINAL LINES AND GRADES TO THE SATISFACTION OF THE ENGINEER.

UTILITIES

14. LOCATIONS OF UTILITIES, PUBLIC AND/OR PRIVATE, ARE APPROXIMATE ONLY, AND THE EXACT LOCATIONS SHALL BE DETERMINED IN THE FIELD. IT IS POSSIBLE THAT SOME EXISTING FACILITIES ARE NOT SHOWN ON THESE DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HAVING ALL UNDERGROUND UTILITY FACILITIES LOCATED AND MARKED PRIOR TO THE BEGINNING OF CONSTRUCTION.
15. UTILITY OWNERS ARE TO RESET, RELAY, OR ADJUST, AT THEIR OWN EXPENSE, POWER AND TELEPHONE LINES, POWER POLES, WATER AND GAS LINES, AND ALL OTHER FACILITIES INCLUDING METERS, VALVES, PITS, ETC., CONFLICTING WITH THE PROPOSED IMPROVEMENTS WITHIN THE EXISTING RIGHT-OF-WAY. ALL RELOCATED POLES, METERS, VALVES, ETC., ARE TO BE LOCATED BEHIND THE SIDEWALK.
16. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR CONTACTING ALL AFFECTED UTILITY OWNERS PRIOR TO SUBMITTING HIS BID SO THAT HE MAY DETERMINE THE EXTENT TO WHICH UTILITY RELOCATIONS AND/OR ADJUSTMENTS SHALL HAVE UPON THE SCHEDULING OF WORK FOR THE PROJECT. SOME UTILITY FACILITIES MAY NEED TO BE ADJUSTED CONCURRENTLY WITH THE CONTRACTOR'S OPERATIONS, WHILE SOME WORK MAY BE REQUIRED AROUND UTILITY FACILITIES THAT SHALL REMAIN IN PLACE. IT IS UNDERSTOOD AND AGREED THAT THE CONTRACTOR SHALL RECEIVE NO ADDITIONAL COMPENSATION FOR ANY DELAYS OR INCONVENIENCE CAUSED BY UTILITY ADJUSTMENTS.
17. THE CONTRACTOR SHALL NOTIFY ALL AFFECTED UTILITY OWNERS PRIOR TO INTERRUPTING ANY GAS, WATER, OR SEWER SERVICES. THE CONTRACTOR SHALL ALSO NOTIFY AFFECTED UTILITY CUSTOMERS AT LEAST 24 HOURS BEFORE INTERRUPTING THE CUSTOMERS' SERVICE. WHERE INDIVIDUAL SERVICES ARE TO BE DISCONTINUED FOR MORE THAN 4 HOURS, THE CONTRACTOR SHALL MAKE ARRANGEMENTS FOR PROVIDING TEMPORARY SERVICE SATISFACTORY TO THE AFFECTED CUSTOMER. THE REPAIR OR REPLACEMENT OF UTILITY COMPONENTS SHALL CONFORM TO ALL APPLICABLE REQUIREMENTS OF THE UTILITY OWNER. NO SEPARATE PAYMENT SHALL BE MADE FOR THESE ACTIVITIES, AND COMPENSATION, THEREFORE, SHALL BE INCLUDED IN THE CONTRACT PRICES FOR OTHER ITEMS.
18. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY PROTECTIVE MEASURES TO SAFEGUARD EXISTING UTILITIES FROM DAMAGE DURING CONSTRUCTION OF THIS PROJECT. SHOULD SPECIAL EQUIPMENT BE REQUIRED TO WORK OVER AND AROUND THE UTILITIES, THE CONTRACTOR SHALL BE REQUIRED TO FURNISH SUCH EQUIPMENT. THE COST OF PROTECTING UTILITIES FROM DAMAGE AND FROM FURNISHING SPECIAL EQUIPMENT SHALL BE INCLUDED IN THE PRICE BID FOR OTHER ITEMS OF CONSTRUCTION.
19. ANY EXISTING STORM SEWER DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED AS RAPIDLY AS POSSIBLE AND THEN BE INSPECTED BY ITS RESPECTIVE OWNER. THE ENGINEER SHALL DETERMINE IF DAMAGE IS THE RESULT OF THE CONTRACTOR'S NEGLIGENCE OR OF AN UNAVOIDABLE CAUSE.

TRAFFIC

20. UPON NOTICE OF AWARD OF A CITY OR COUNTY CONTRACT, THE CONTRACTOR SHALL SUBMIT, WITHIN TEN (10) DAYS, A CONSTRUCTION SCHEDULE. THE CITY OF CHATTANOOGA'S TRAFFIC ENGINEERING DEPARTMENT SHALL PROVIDE A WORK ZONE TRAFFIC CONTROL PLAN WITHIN FIVE (5) DAYS THEREAFTER.
21. DURING CONSTRUCTION, THE CONTRACTOR SHALL MAINTAIN TRAFFIC AND PROVIDE TRAFFIC CONTROL DEVICES IN CONFORMANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). CONTRACTOR SHALL ALSO FURNISH AND INSTALL TRAFFIC SIGNS AND MARKINGS AS REQUIRED BY THE MUTCD AND THE CITY OF CHATTANOOGA'S TRAFFIC ENGINEERING DEPARTMENT.
22. THE CONTRACTOR SHALL MAINTAIN ALL BUSINESS, VEHICULAR, AND PEDESTRIAN ENTRANCES.
23. THE CONTRACTOR SHALL PROVIDE A PEDESTRIAN WALKWAY THAT SEPARATES AND INSULATES THE PEDESTRIAN FROM THE CONSTRUCTION SITE AND VEHICULAR TRAFFIC. WHERE POSSIBLE, THE WALKWAY SHALL BE ON THE SAME SIDE OF THE STREET AS THE CONSTRUCTION SITE. WHERE OVERHEAD DANGER EXISTS, THE CONTRACTOR SHALL PROVIDE A COVERED WALKWAY.
24. PRIOR TO CLOSING A ROAD TO THROUGH TRAFFIC, THE CONTRACTOR SHALL NOTIFY ALL AFFECTED LOCAL AGENCIES ABOUT THE PROPOSED ROAD CLOSURE. THOSE TO BE CONTACTED SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING: FIRE DEPARTMENT, POLICE DEPARTMENT, SHERIFF'S DEPARTMENT, POST OFFICE, CITY TRAFFIC ENGINEER'S OFFICE, AND THE BOARD OF EDUCATION.
25. CONTRACTOR SHALL MAINTAIN ONE LANE OF TRAFFIC IN EACH DIRECTION ON THE PREDOMINATE TRAVEL PATH OF MILLER ROAD AND ONE LANE IN THE WEST DIRECTION ON NORTH TERRACE ROAD.
26. NO ACCESS TO EARTH LEVEE SHALL BE AVAILABLE FROM I-24.

RIGHTS-OF-WAY/EASEMENTS

27. BEFORE CONSTRUCTION OF A CITY-OF-CHATTANOOGA PROJECT BEGINS, THE CITY'S DEPARTMENT OF PUBLIC WORKS SHALL ATTEMPT TO SECURE ALL RIGHTS-OF-WAY AND EASEMENTS REQUIRED FOR COMPLETION OF THE PROJECT.

MISCELLANEOUS

28. THE ENGINEER SHALL HAVE THE AUTHORITY TO DESIGNATE AND/OR LIMIT AREAS OF CONSTRUCTION.
29. THE OWNER MAKES NO REPRESENTATIONS ABOUT SUBSURFACE CONDITIONS THAT MAY BE ENCOUNTERED WITHIN THE LIMITS OF THE PROJECT. THE CONTRACTOR SHOULD SATISFY HIMSELF BY ON-SITE INSPECTIONS, CORE DRILLINGS, OR OTHER METHODS, OF THE SUBSURFACE CONDITIONS THAT MAY BE ENCOUNTERED. THE RISK OF ENCOUNTERING AND CORRECTING UNFAVORABLE SUBSURFACE CONDITIONS SHALL BE BORNE SOLELY BY THE CONTRACTOR.
30. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL FIELD LAYOUTS, APPROVED BY THE ENGINEER, FOR THE WORK. ALL FINISHED GRADE ELEVATIONS AND LAYOUT SHALL BE SET USING A HUB AND TACK AND/OR PK NAILS, AS DETERMINED BY FIELD CONDITIONS.
31. SHOULD AN EXISTING BENCH MARK BE LOCATED ON A POWER POLE, TELEPHONE POLE, ETC., THAT IS TO BE RELOCATED DURING CONSTRUCTION, THE BENCH MARK SHALL BE RELOCATED PRIOR TO CONSTRUCTION.
32. ALL UNSUITABLE MATERIAL, AS DETERMINED BY THE ENGINEER OR THROUGH TESTING, IS TO BE REMOVED AND REPLACED WITH SUITABLE MATERIAL. PAYMENT SHALL BE BASED ON A CUBIC YARD QUANTITY.
33. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING AT HIS OWN EXPENSE ANY AND ALL DAMAGES THAT MAY OCCUR OUTSIDE THE LIMITS OF THIS PROJECT AS A RESULT OF CONSTRUCTION.
34. ALL EXISTING DRAINAGE STRUCTURES, ABANDONED UTILITY FACILITIES, STRUCTURE FOUNDATIONS, AND SIMILAR ITEMS WITHIN THE LIMITS OF PAVING SHALL BE REMOVED TO A MINIMUM OF TWO FEET BELOW THE TOP OF SUBGRADE, AND REMAINING VOIDS SHALL BE FILLED WITH COMPACTED, CRUSHED STONE TO THE TOP OF SUBGRADE. NO SEPARATE PAYMENT WILL BE MADE FOR REMOVAL OF SAID ITEMS OR FOR FURNISHING AND COMPACTING CRUSHED STONE BACKFILL, AND COMPENSATION, THEREFORE, SHALL BE INCLUDED IN THE CONTRACT PRICES FOR OTHER ITEMS.
35. ALL TREES LARGER THAN 3 INCHES IN DIAMETER NEEDING TO BE REMOVED PRIOR TO THE COMPLETION OF THIS CONTRACT, SHALL BE CUT IN 3 FOOT LENGTHS AND STACKED ON THE ADJACENT PROPERTY IF THAT PROPERTY'S OWNER WISHES TO USE THE WOOD.
36. THE OWNER SHALL BE RESPONSIBLE FOR THE PAYMENT FOR TESTING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND ORDERING APPROPRIATE TESTS AS REQUIRED BY THE INSPECTOR.
37. THE CONTRACTOR SHALL REPLACE IN KIND ANY AND ALL SHRUBS, FENCES, MAILBOXES, ETC., THAT ARE REMOVED FROM, OR DAMAGED ON, SLOPE EASEMENTS. NO SEPARATE PAYMENT SHALL BE MADE.
38. THE CONTRACTOR SHALL NOT BE ALLOWED TO REMOVE ANY FENCE OTHER THAN THAT NECESSARY FOR THE CONSTRUCTION OF THE NEW WORK OR RELATED APPURTENANCES. ANY FENCE REMOVED IS TO BE REPLACED IN KIND BY THE CONTRACTOR WITH THE COSTS INCLUDED IN THE UNIT PRICE BID FOR ITEM 40, "FENCE RELOCATION", OF THE CONTRACT SPECIFICATIONS.
39. THE CONTRACTOR SHALL GIVE THE AFFECTED PROPERTY OWNERS ONE WEEK'S NOTICE PRIOR TO REMOVING FENCES.
40. THE CONTRACTOR SHALL PROVIDE RECORD DRAWINGS OF THE PROJECT WITHIN THIRTY (30) DAYS AFTER SUBSTANTIAL COMPLETION OF THE WORK. ("SUBSTANTIAL COMPLETION" SHALL BE DEFINED BY THE JURISDICTIONAL ENGINEER.) THE ENGINEER RESERVES THE RIGHT TO WITHHOLD THE RETAINER UNTIL RECEIVING A COMPLETE SET OF SAID DRAWINGS.
41. SHOULD THERE BE A CONFLICT BETWEEN THESE GENERAL NOTES, CONTRACT DRAWINGS, AND/OR SPECIFICATIONS, THE MOST RESTRICTIVE INTERPRETATION IN FAVOR OF THE ENGINEER SHALL PREVAIL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY CLARIFICATION OR INTERPRETATION OF GENERAL NOTES, CONTRACT DRAWINGS, AND/OR SPECIFICATIONS, IN ADVANCE AND IN WRITING, FROM THE ENGINEER.
42. CONTRACTOR SHALL VERTICALLY PRUNE TREE ROOTS PRIOR TO ANY GRADING OR EXCAVATION WITHIN 50 FEET (15.2M) OF THE LIMIT OF THE CRITICAL ROOT ZONE, ROOT PRUNE ALL EXISTING TREES TO A DEPTH OF 24 INCHES (61CM) BELOW EXISTING GRADE. VERTICAL CUTS SHALL BE MADE WITHIN TWO FEET OF THE LIMIT OF THE GRADING OR EXCAVATION. CONTRACTOR SHALL USE A ROCK SAW, VIBRATORY PLOW, CABLE PULLER, OR SIMILAR MECHANICAL DEVICE OR A SHARPENED SHOVEL, SPADE AND HAND PRUNERS IF DONE MANUALLY. CONTRACTOR SHALL HAVE THE BLADE SHARPENED ON MECHANICAL ROOT PRUNERS BEFORE STARTING THE PROJECT. UPON COMPLETION OF THE CUT, THE CONTRACTOR WILL IMMEDIATELY BACKFILL THE CUT WITH SOIL, AVOIDING ANY AIR POCKETS.

STRUCTURAL

SCOPE OF WORK

THE SCOPE OF THIS PROJECT CONSISTS OF THE FOLLOWING MAJOR ELEMENTS OF CONSTRUCTION INCLUDING BUT NOT LIMITED TO THE RAISING OF 600± L.F. OF EARTH LEVEE EMBANKMENT AND 1900± L.F. OF CONCRETE FLOOD WALL

UTILITY OWNERS

AT&T (TELEPHONE)
300 M.L. KING BOULEVARD
CHATTANOOGA, TN 37403
PHONE: (423)752-9147

TENNESSEE-AMERICAN WATER CO.
1101 BROAD STREET
P.O. BOX 6338
CHATTANOOGA, TN 37402
PHONE: (423)755-7654

CHATTANOOGA GAS COMPANY
6125 PRESERVATION DRIVE
CHATTANOOGA, TN 37416
PHONE: (423)490-4289

ELECTRIC POWER BOARD
ENGINEERING DIVISION
1400 OAK STREET
CHATTANOOGA, TN 37422-7255
PHONE: (423)629-3495

COMCAST CABLE TELEVISION CO.
2030 EAST POLYMER DRIVE
CHATTANOOGA, TN 37422
PHONE: (423)855-3900
PHONE: (423)855-4300

CITY OF CHATTANOOGA
WASTE RESOURCES DIVISION
455 MOCCASIN BEND ROAD
CHATTANOOGA, TN 37402
PHONE: (423)757-5026

EASTSIDE UTILITY DISTRICT
P.O. BOX 22037
CHATTANOOGA, TN 37422-2307
PHONE: (423)892-2890

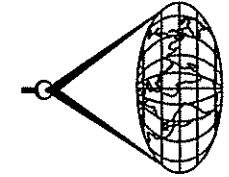
HIKSON UTILITY DISTRICT
5005 AUSTIN ROAD
HIKSON, TN 37343
PHONE: (423)877-3513



CITY OF CHATTANOOGA

DEPARTMENT OF
PUBLIC WORKS
ENGINEERING
DIVISION

Cranston Engineering Group, P.C.
ENGINEERS - PLANNERS - SURVEYORS



BRAINERD LEVEE IMPROVEMENTS

GENERAL NOTES

NO.	DATE	REVISION	SIG.

CONTRACT#
SCALE: NOT TO SCALE
DRAWN: GSA
DESIGN: EAW
CHECKED: DSW

LICENSED PROFESSIONAL ENGINEER
ELDRIDGE A. WHITEHURST, JR.
101295
Tennessee
5/5/14

GENERAL NOTES

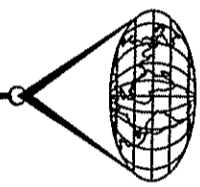
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CITY OF CHATTANOOGA
 DEPARTMENT OF PUBLIC WORKS
 ENGINEERING DIVISION

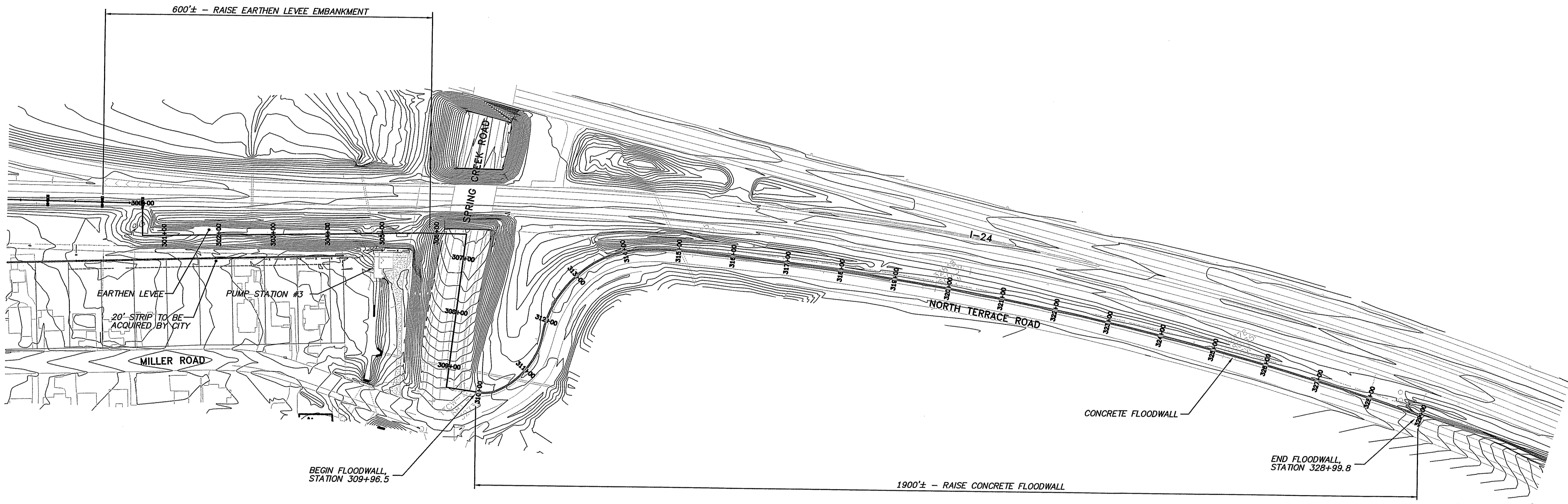
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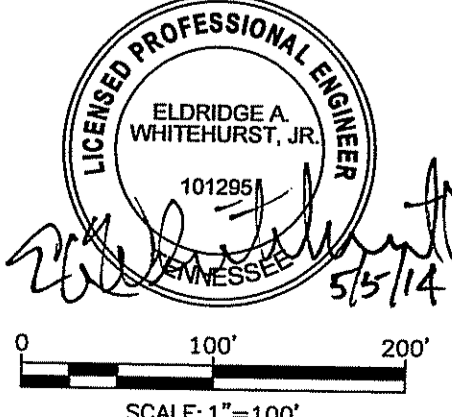
BRainerd LEVEE IMPROVEMENTS

GENERAL PLAN



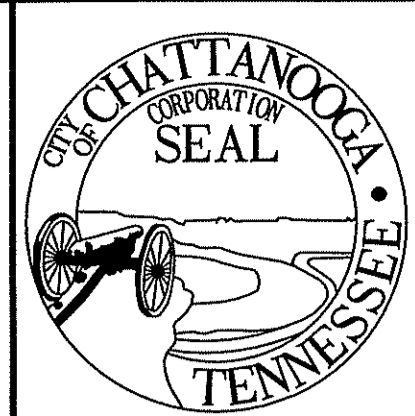
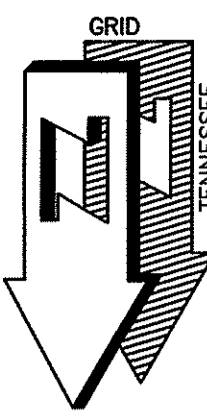
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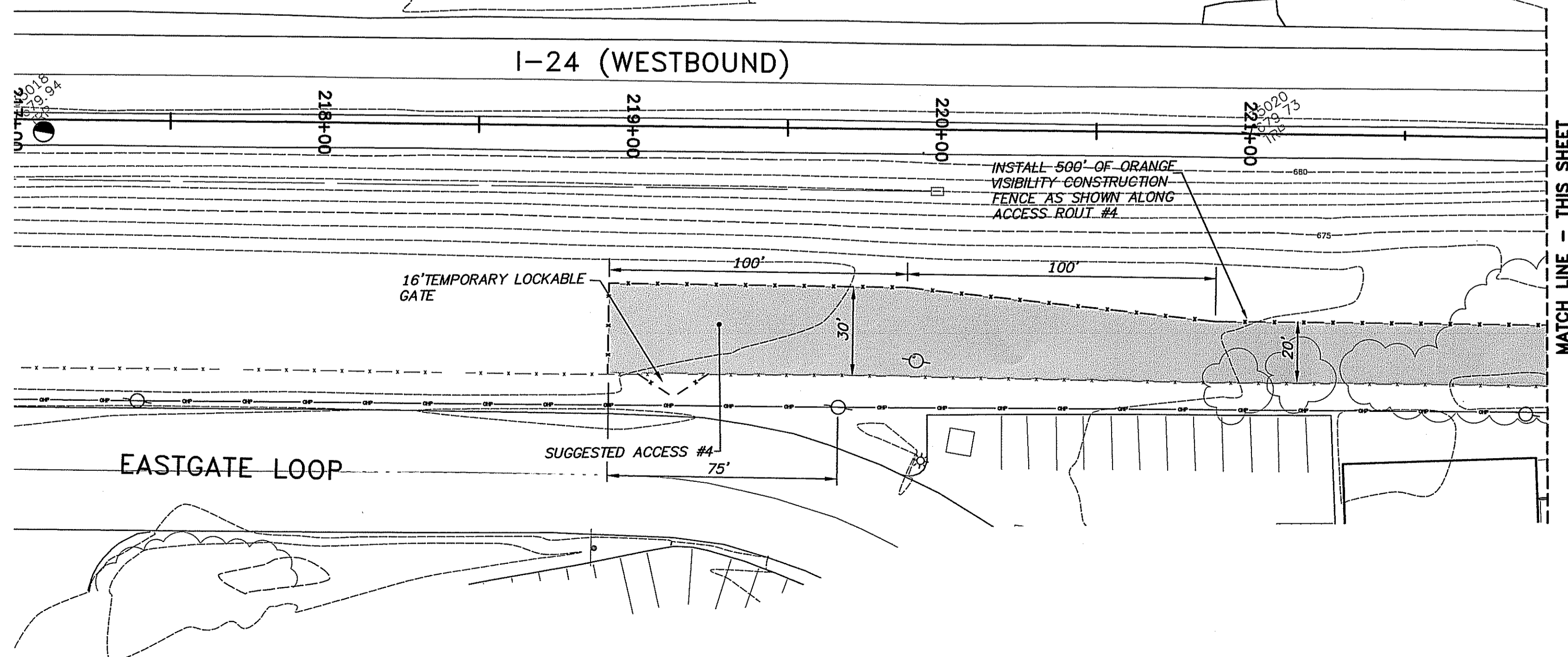
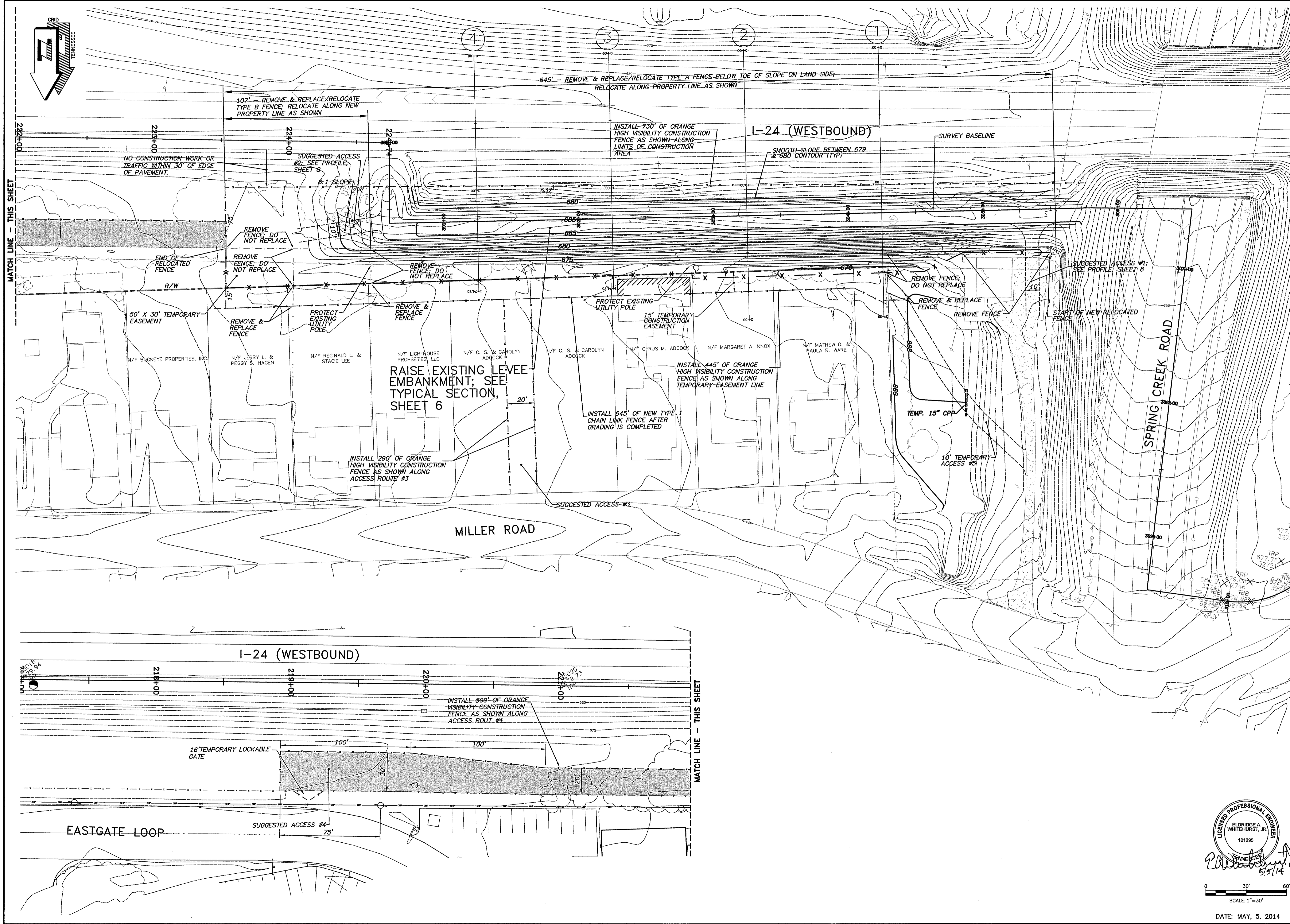
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CITY OF CHATTANOOGA
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BRAINERD LEVEL IMPROVEMENTS
PLAN-EMBANKMENT



LICENSED PROFESSIONAL ENGINEER
ELDRIDGE A. WHITEHURST, JR.
101285
TENNESSEE
Eldridge A. Whitehurst, Jr.
5/5/14

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

DATE: MAY, 5, 2014

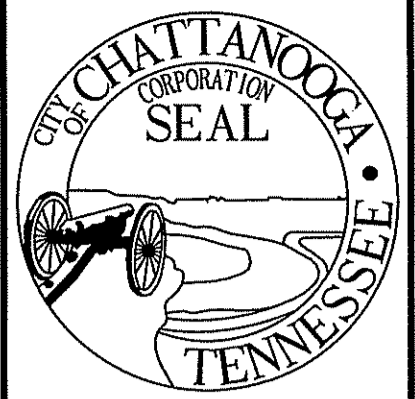
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PLAN - EMBANKMENT

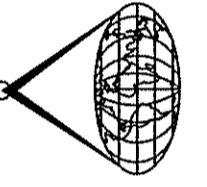
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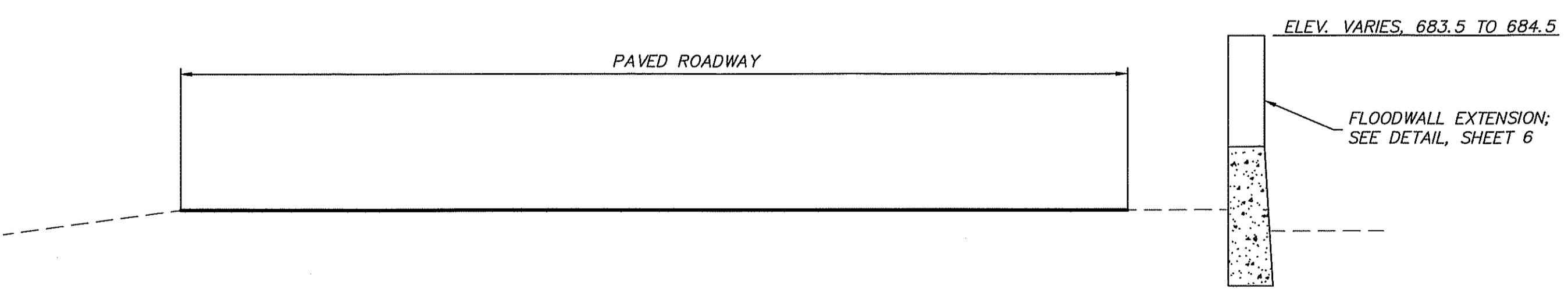
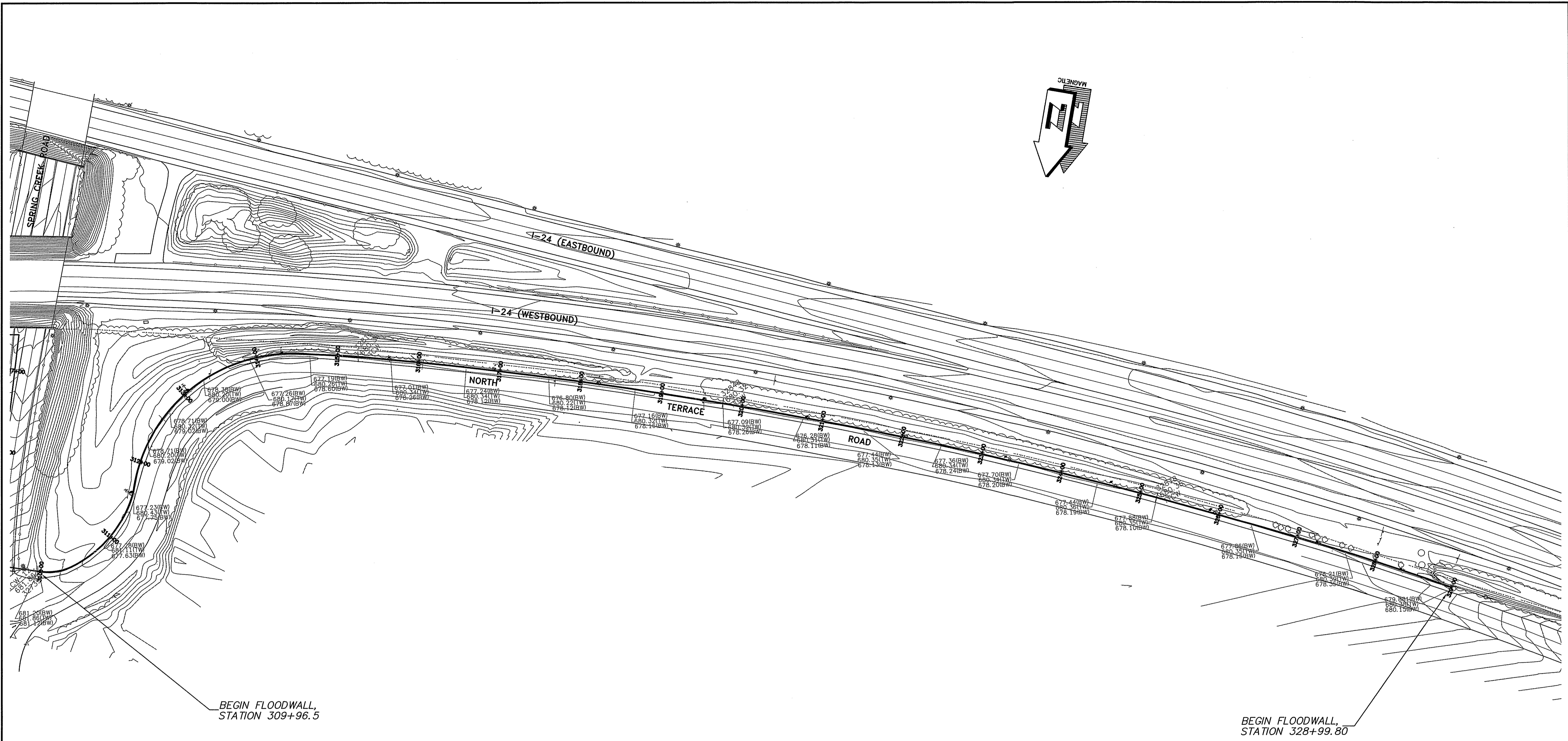


BRAINERD LEVEE IMPROVEMENTS
PLAN-FLOODWALL

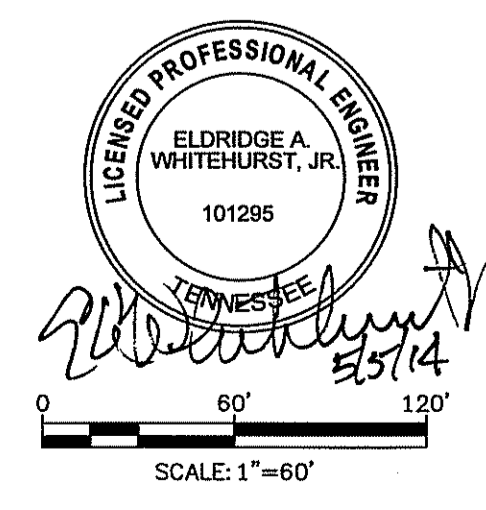
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PLAN-FLOODWALL
SHEET: 5 of 18

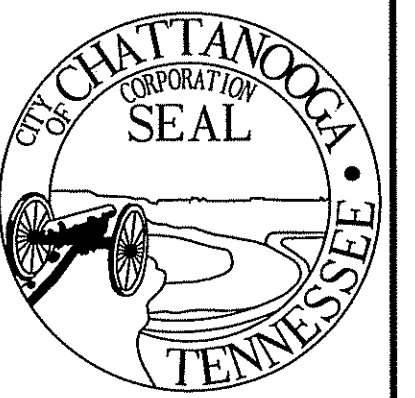


TYPICAL ROAD SECTION
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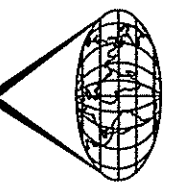
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BRainerd LEVEE IMPROVEMENTS

SECTIONS

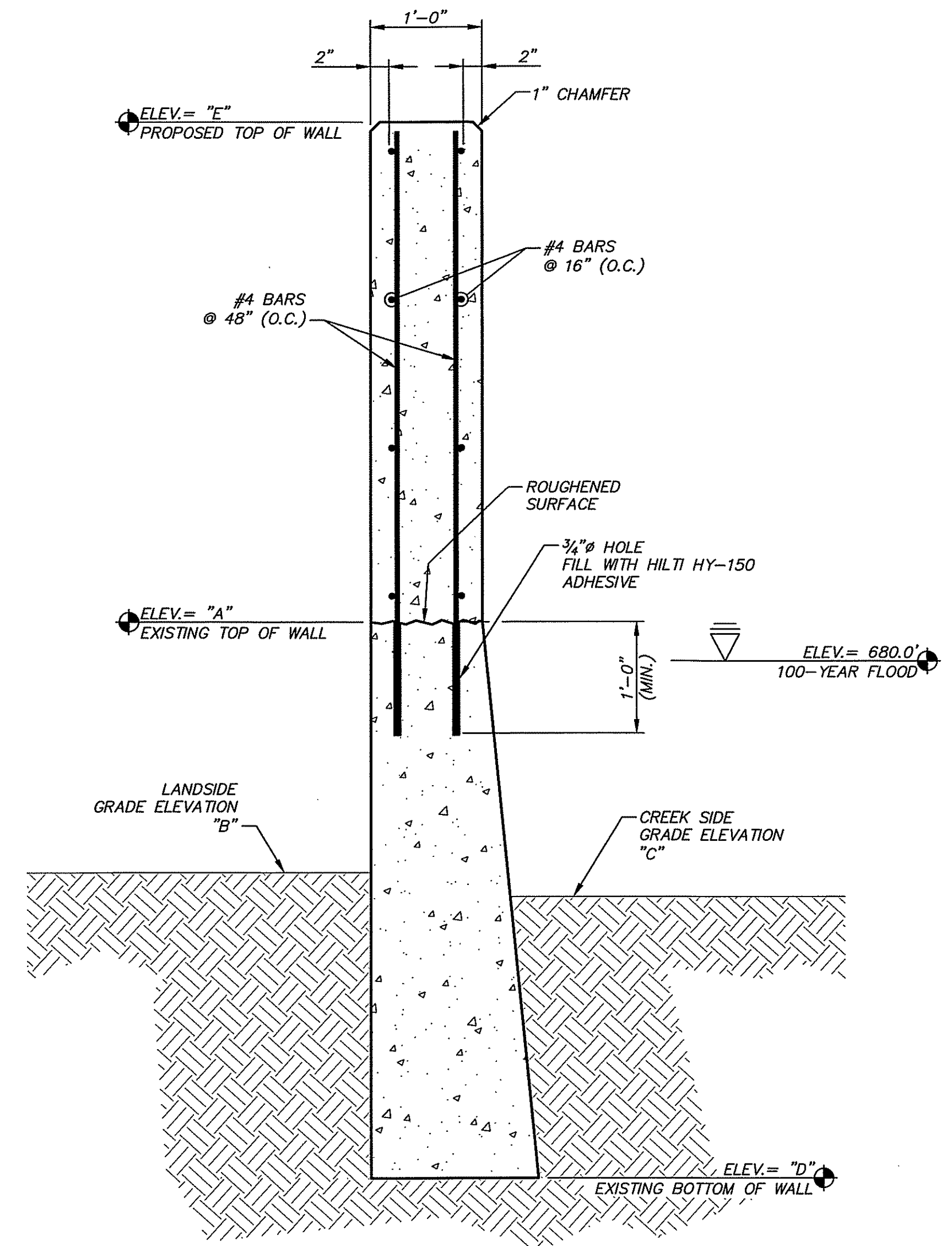
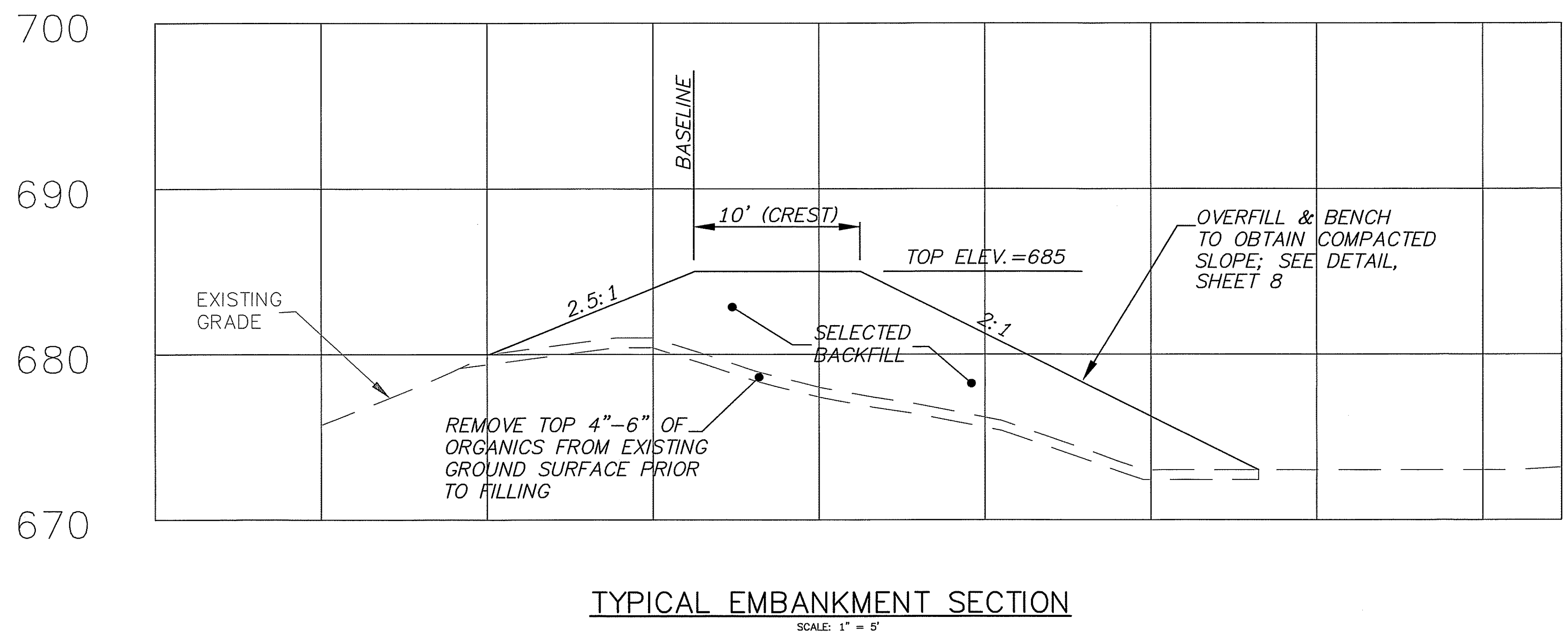
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CONTRACT# _____
 SCALE: AS SHOWN
 DRAWN: GSA
 DESIGN: EAW/JBC
 CHECKED: DSW

SECTIONS

SHEET: 6 of 18

- NOTES:**
- THE CITY HAS PREVIOUSLY CUT & REMOVED TREES & VEGETATION GROWING ON THE LEVEE EMBANKMENT. CONTRACTOR TO COMPLETELY REMOVE STUMP & ROOTS LEFT BEHIND.
 - FOLLOWING GRUBBING & PRIOR TO FILLING, CONTRACTOR SHALL PROOFROLL AREAS TO RECEIVE NEW FILL TO IDENTIFY ANY SOFT AREAS. PROOFROLLING SHALL BE DONE ONLY IN THE PRESENCE OF A REPRESENTATIVE OF THE CITY. SOFT SOILS TO BE REMOVED & REPLACED.
 - SELECT BACKFILL FOR USE IN RAISING THE LEVEE EMBANKMENT SHALL MEET THE FOLLOWING REQUIREMENTS:
 - PROPERTIES-**
 - a.) UNIT WEIGHT 120 POUNDS PER CUBIC FOOT (pcf)
 - b.) TOTAL COHESION 100 POUNDS PER SQUARE FOOT (psf)
 - c.) EFFECTIVE COHESION 60 psf
 - d.) FRICTION ANGLE 10°
 - e.) EFFECTIVE FRICTION ANGLE 20°
 - f.) PERMEABILITY 1.21×10^{-10} FEET PER SECOND (fps)
 - g.) PLASTICITY INDEX <30
 - h.) STANDARD PROCTOR DENSITY >95 pcf
 - 2.) COMPACTION - NOT LESS THAN 95% OF MAXIMUM STANDARD PROCTOR DENSITY
 - 3.) MOISTURE CONTENT - COMPACT AT OPTIMUM MOISTURE PLUS OR MINUS 2% BASED UPON STANDARD PROCTOR.

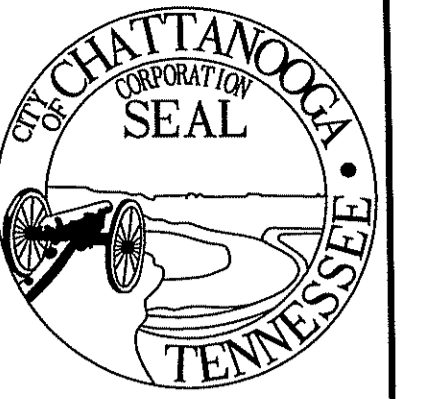


STATION	"A"	"B"	"C"	"D"	"E"
309+96.52-312+75	681.86'-680.32'	681.12'-679.02'	681.20'-678.71'	676.86'-675.32'	684.5'
312+75-320+80	680.32'-680.31'	679.02'-678.11'	678.71'-676.28'	675.32'-675.31'	683.5'
320+80-325+20	680.31'-680.35'	678.11'-678.10'	676.28'-677.88'	675.31'-675.35'	683.5'
325+20-328+99.79	680.35'-680.38'	678.10'-680.15'	677.88'-679.88'	675.35'-675.38'	683.5'

ELDRIDGE A. WHITEHURST, JR.
 LICENSED PROFESSIONAL ENGINEER
 101295
 TENNESSEE
 5/5/14

DATE: MAY, 5, 2014

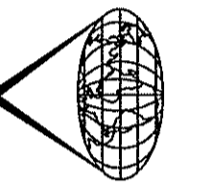
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CITY OF CHATTANOOGA

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ENGINEERING DIVISION

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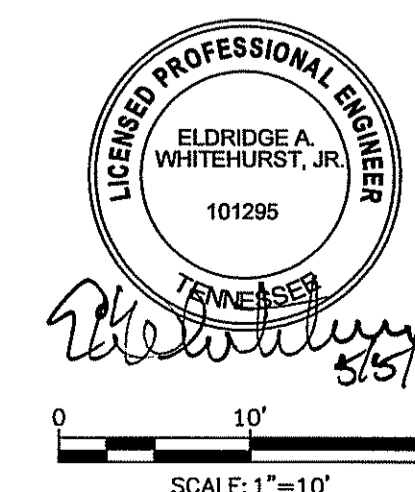
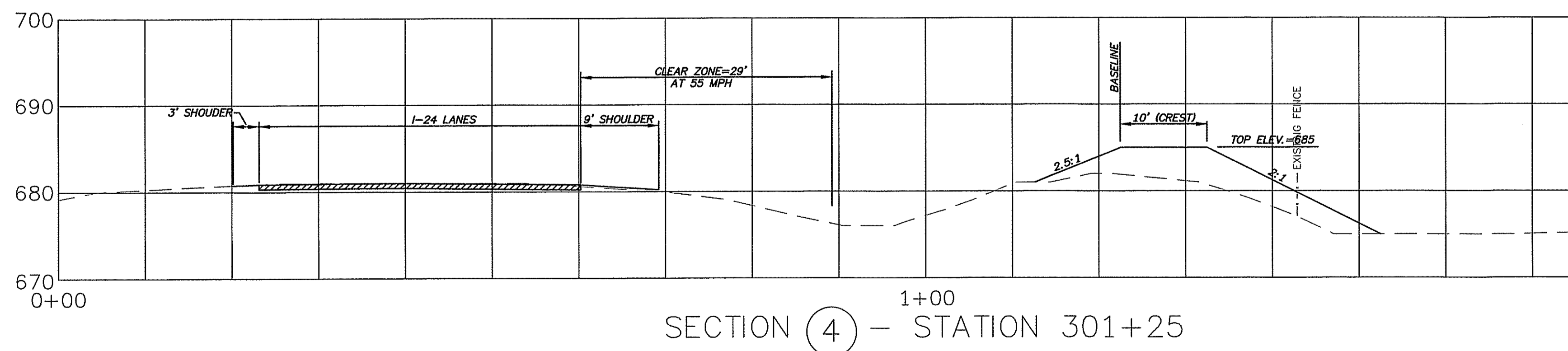
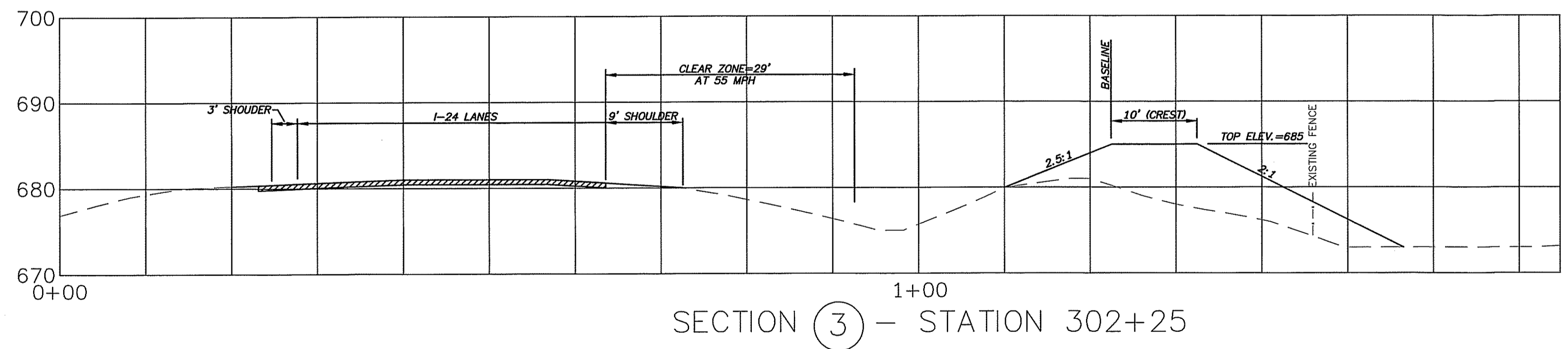
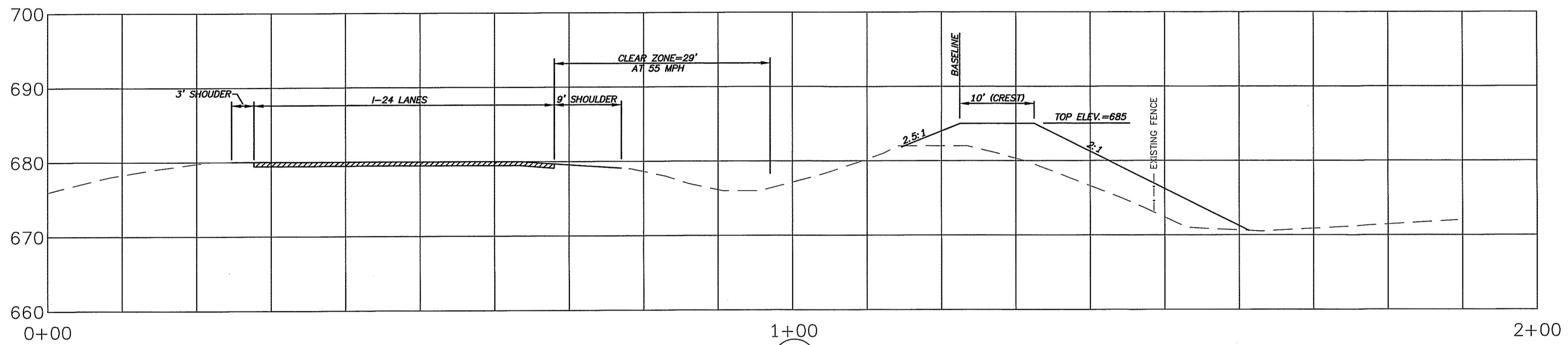
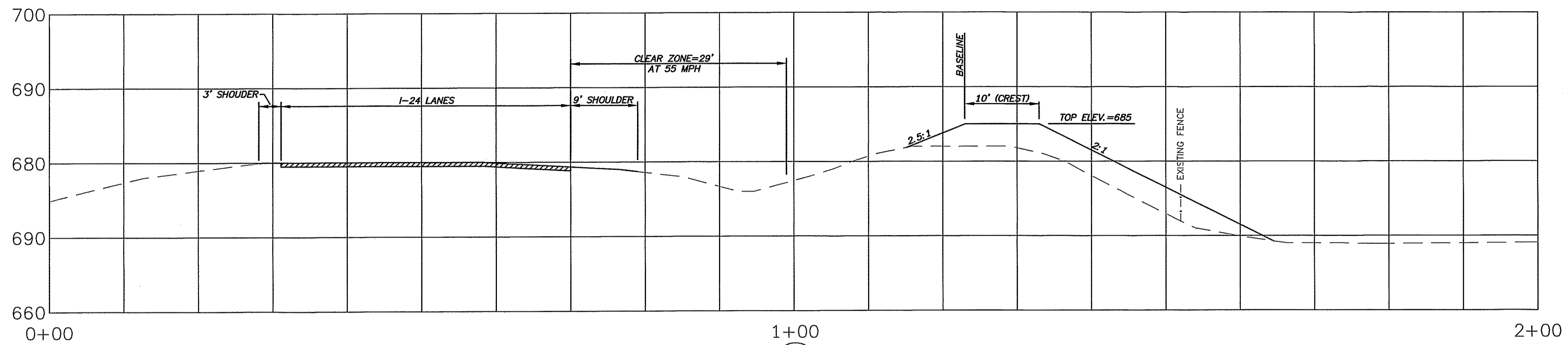
BRainerd Levee Improvements

EMBANKMENT SECTIONS

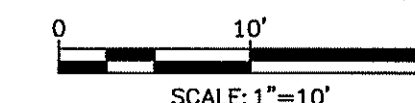
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DESIGN:	EAW
CHECKED:	DSW

EMBANKMENT SECTIONS

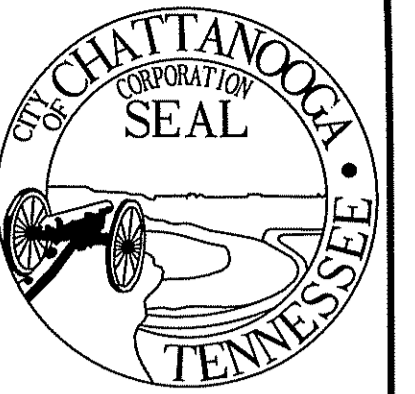


DATE: MAY, 5, 2014



SCALE: 1"=10'

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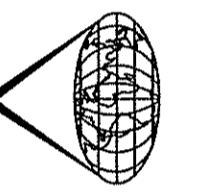
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ENGINEERING DIVISION

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mail@cranstonengineering.com

10-315



BRAINERD LEVEE IMPROVEMENTS

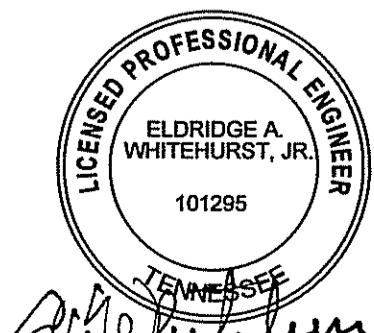
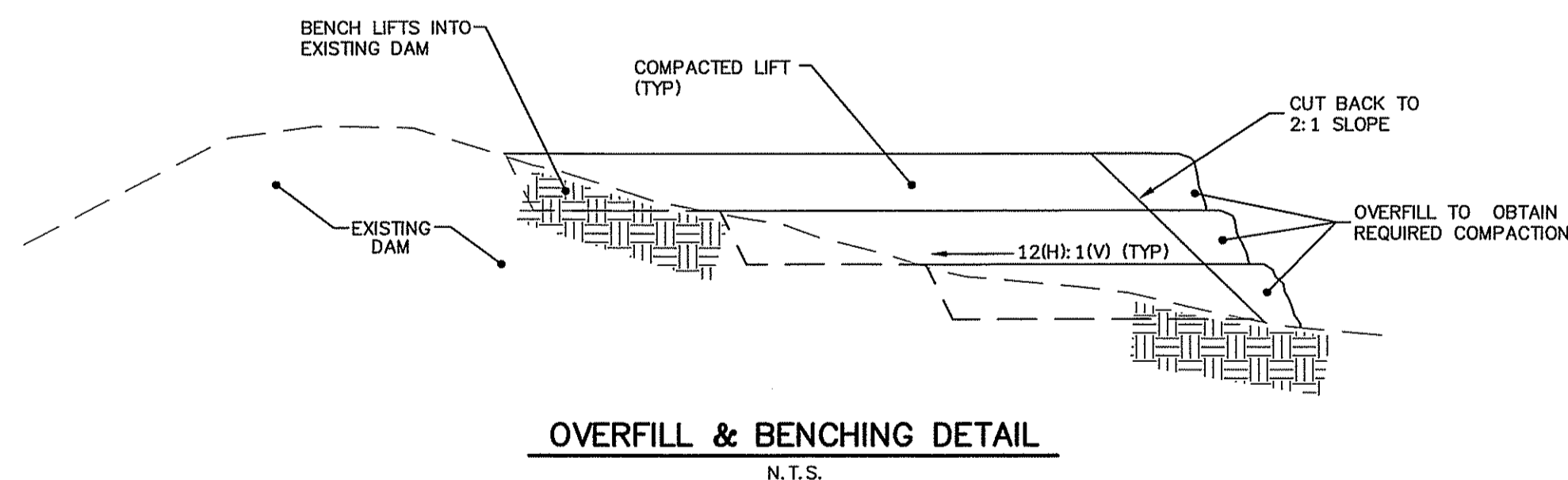
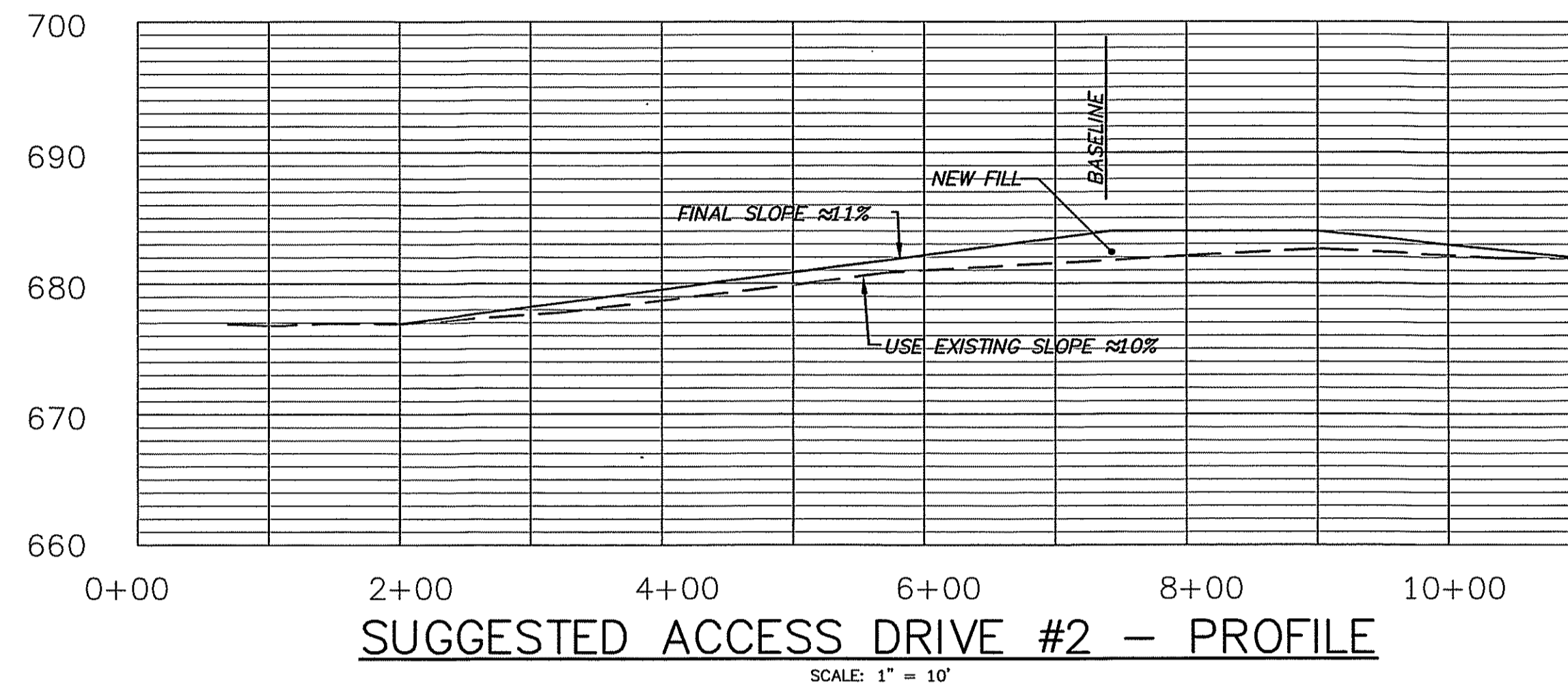
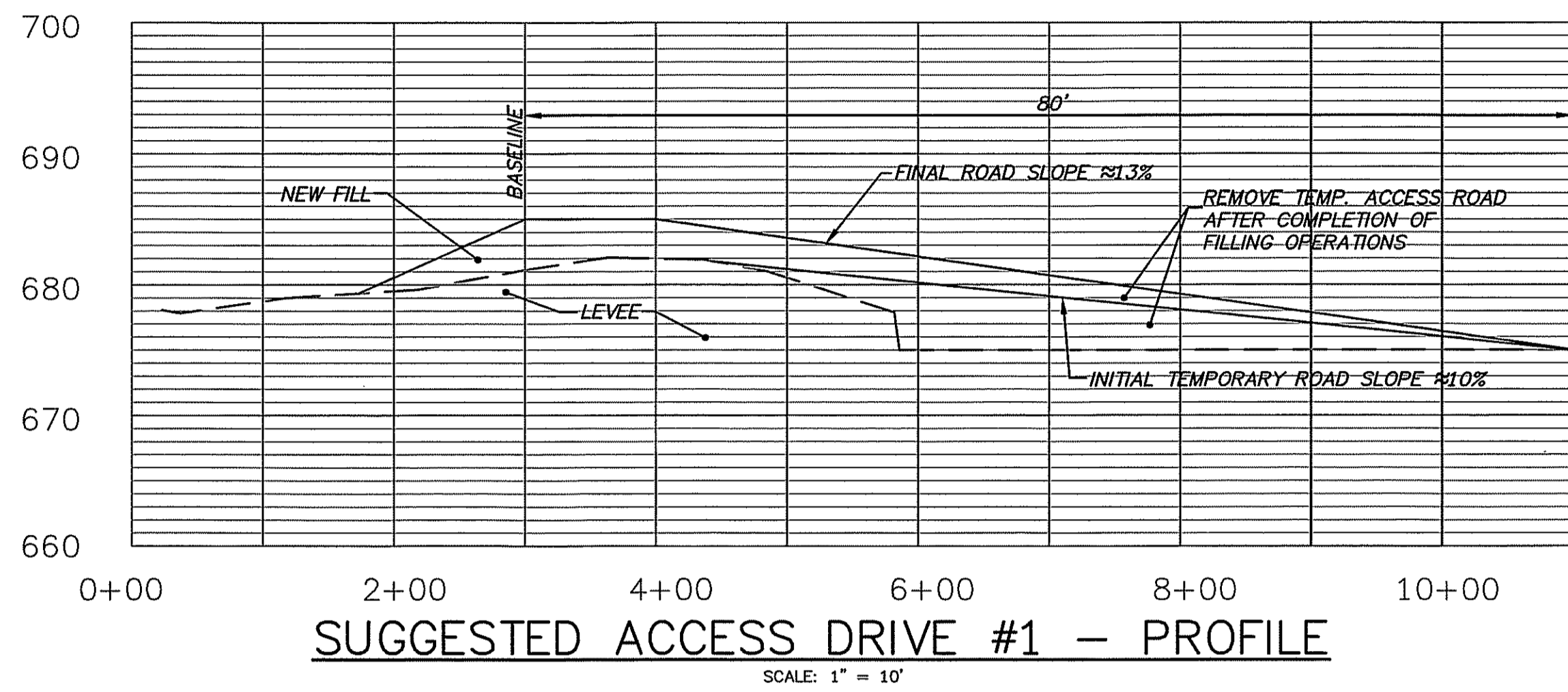
MISCELLANEOUS
DETAILS

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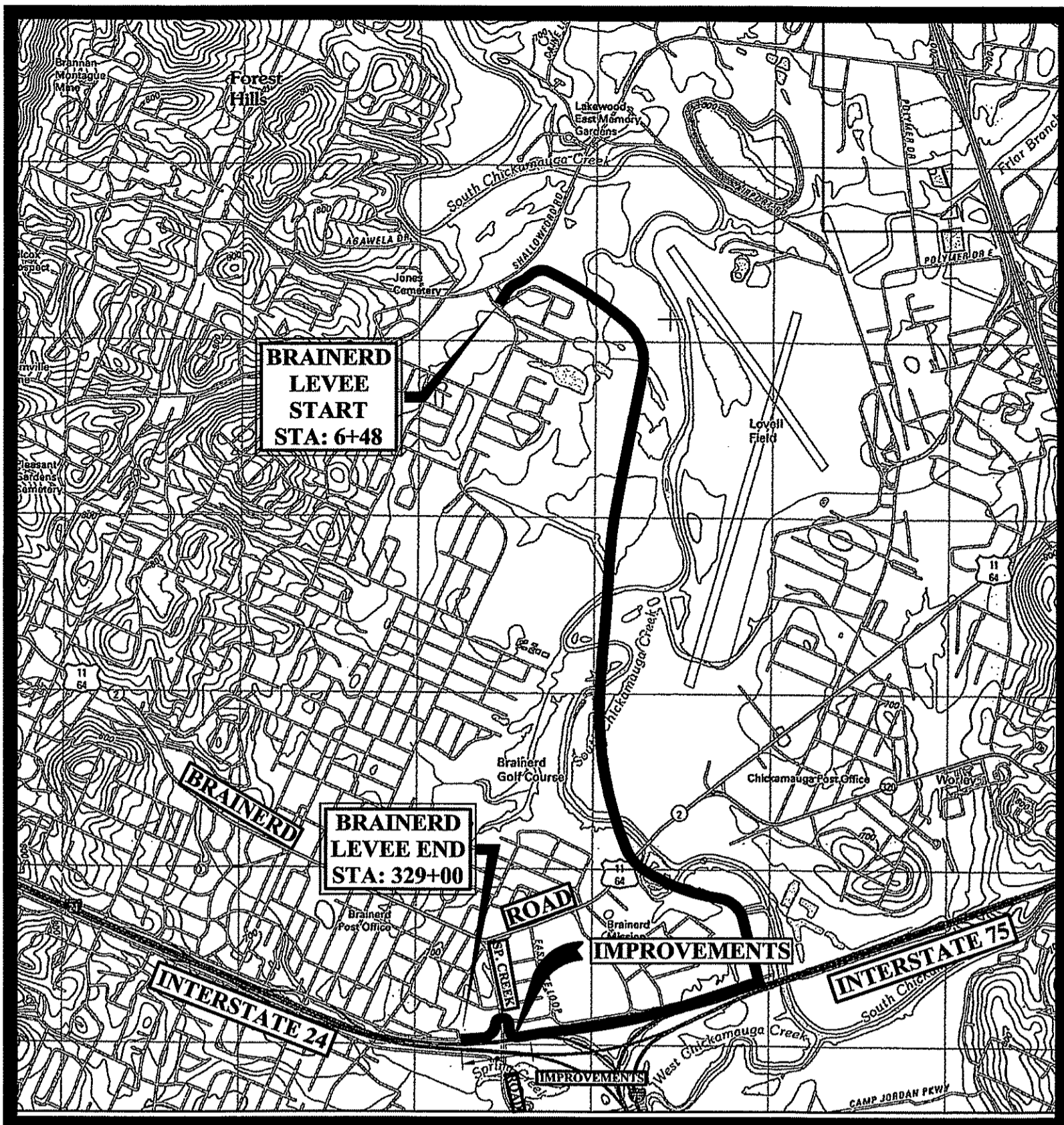
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MISCELLANEOUS
DETAILS

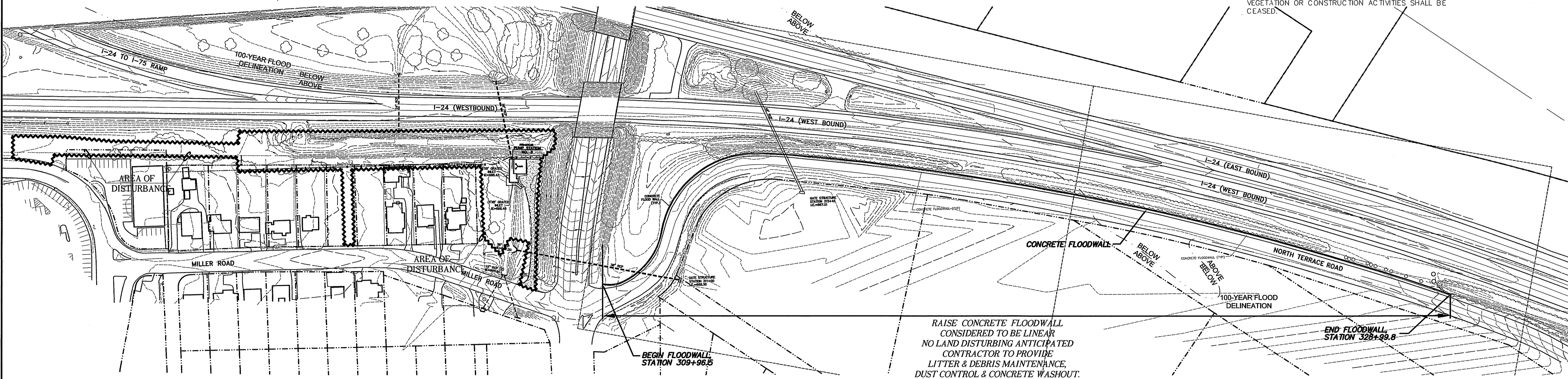
SHEET: 8 of 18



DATE: MAY, 5, 2014



LOCATION MAP
N.T.S.



RAISE CONCRETE FLOODWALL
CONSIDERED TO BE LINEAR
NO LAND DISTURBING ANTICIPATED
CONTRACTOR TO PROVIDE
LITTER & DEBRIS MAINTENANCE,
DUST CONTROL & CONCRETE WASHOUT.

STRUCTURAL PRACTICES		
CD	SILT SOCK CHECK DAM	A SMALL TEMPORARY BARRIER OR DAM CONSTRUCTED ACROSS A SHALLOW DRAINAGE DITCH OR AREA OF CONCENTRATED FLOW USING COMPOST SILT SOCKS.
CE	CONSTRUCTION EXIT	A CRUSHED STONE BED LOCATED AT THE CONSTRUCTION SITE EXIT TO PROVIDE A PLACE FOR REMOVING MUD FROM TIRES, THEREBY PROTECTING PUBLIC STREETS.
CRS	CONSTRUCTION ROAD STABILIZATION	A TRAVELWAY CONSTRUCTED AS PART OF A CONSTRUCTION PLAN INCLUDING ACCESS ROADS, SUBSIDIZED ROADS, PARKING AREAS, AND OTHER ON-SITE VEHICLE TRANSPORTATION ROUTES.
FR	FILTER RING	A TEMPORARY STONE BARRIER CONSTRUCTED AT STORM DRAIN INLETS TO TRAP SEDIMENT.
IP	STORM DRAIN INLET PROTECTION (SILT SOCK/SILT SAVER)	A TEMPORARY PROTECTIVE DEVICE FORMED AROUND A STORM DRAIN DRAIN INLET TO TRAP SEDIMENT.
RR	RIPRAP	A PERMANENT EROSION-RESISTANT GROUND COVER OF LARGE, LOGS, ANGULAR STONE WITH A GEOTEXTILE OR GRANULAR UNDERLIEING.
SF	SEDIMENT BARRIER	SILT SOCK/FENCE BARRIERS CONSTRUCTED OF COMPOST & FILTER FABRIC TO PREVENT SEDIMENT CARRIED BY SHEET FLOW FROM LEAVING THE SITE.

VEGETATIVE MEASURES		
BF	BUFFER ZONE	A STRIP OF UNDISTURBED ORIGINAL VEGETATION, ENHANCED BY RESTORED EXISTING VEGETATION OR THE RE-ESTABLISHMENT OF VEGETATION SURROUNDING AN AREA OF DISTURBANCE OR BORDERING STREAMS, PONDS, WETLANDS OR LAKES.
MA	EROSION CONTROL BLANKET/MATTING	A PROTECTIVE COVERING BLANKET OR SOFT STABILIZATION MAT USED TO ASSIST IN ESTABLISHMENT OF TEMPORARY OR PERMANENT VEGETATION ON STEEP SLOPES, CHANNLES OR STREAM BANKS.
PS	DISTURBED AREA STABILIZATION (W/PERMANENT VEGETATION)	THE PLANTING OF PERENNIAL VEGETATION SUCH AS TREES, SHRUBS, GRASSES OR LEGUMES ON EXPOSED AREAS FOR FINAL PERMANENT STABILIZATION. PERENNIAL VEGETATION SHALL BE USED TO ACHIEVE FINAL STABILIZATION.
TS	DISTURBED AREA STABILIZATION (W/TEMPORARY VEGETATION)	THE ESTABLISHMENT OF TEMPORARY VEGETATIVE COVER WITH FAST GROWING SPECIES FOR SEASONAL PROTECTION ON DISTURBED OR EXPOSED AREAS.

MAINTENANCE

- SILT FENCES AND FILTER BARRIERS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
- SHOULD THE FABRIC ON A SILT FENCE OR FILTER BARRIER DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL BE NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY.
- SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.
- ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE OR FILTER BARRIER IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM WITH THE EXISTING GRADE, PREPARED AND SEED.
- REMOVAL OF STANDING MUDDY WATER FROM THE SITE SHALL BE ACCOMPLISHED WITH A PUMP/FILTER BAG COMBINATION OR SAID WATER WILL BE DIVERTED INTO AN EXISTING SEDIMENT CONTROL DEVICE VIA A PUMP.
- INSPECTIONS SHALL BE CONDUCTED TWICE PER WEEK 72 HOURS APART AND BEFORE ANTICIPATED RAIN EVENTS.
- IF INSPECTIONS FIND THAT MAINTENANCE (I.E. FAILURE OF CONTROL OR PROPER INSTALLATION) IS REQUIRED, ACTION TO CORRECT MUST BE TAKEN BEFORE THE NEXT STORM EVENT BUT NO LATER THAN 7 DAYS AFTER IDENTIFICATION. IF THE INSPECTIONS FIND THAT CONTROLS ARE PROPERLY INSTALLED AND MAINTAINED BUT PROVIDE INADEQUATE PROTECTION, THE PROJECT ENGINEER SHALL MODIFY THE S.W.P.P.P. WITHIN 7 DAYS OF IDENTIFICATION. THESE CHANGES SHALL BE IMPLEMENTED ON-SITE WITHIN 14 DAYS.
- A CONSTRUCTION SITE ASSESSMENT OF THE SWPPP SHALL BE PERFORMED IN ACCORDANCE W/ PART 3.1.2 OF THE TNCQP WITHIN ONE MONTH OF CONSTRUCTION COMMENCEMENT/ BEGINNING.

SOIL NOTE:

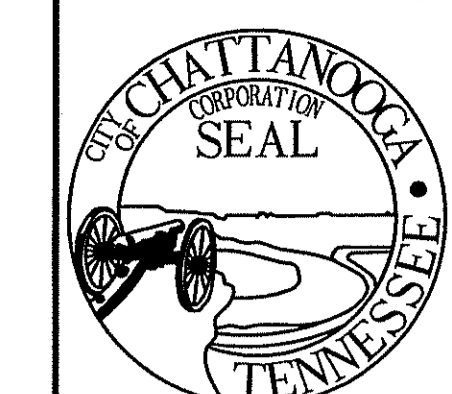
HAMILTON COUNTY, TENNESSEE (TN065)
ENTIRE AREA OF INTEREST CONSISTS:
ARB = ARENTS - PHYSICALLY DISTURBED
BY THE ACTIONS OF HUMANS

FLOOD NOTE:

NO portion of earthwork activities lies within the 100 year flood elevation zone as determined by FEMA flood map 47065C-0363-F, Dated November 7, 2002 and flood map 47065C-0364-F, Dated November 7, 2002.

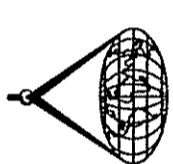
NOTES:

- THE PROPERTY SHOWN IS LOCATED AT THE INTERSECTION OF SPRING CREEK ROAD AND MILLER DRIVE, ADJACENT TO I-24 WEST, CHATTANOOGA, HAMILTON COUNTY, TENNESSEE.
- THE ENTIRE PROPERTY IS 5.7± ACRES CONSISTING OF WOODS WITH SOME GRASSY AREAS. THE AREA BEING DISTURBED FOR CONSTRUCTION IS LIMITED TO 1.90 ACRES.
- THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION CONTROL MEASURES AND PRACTICES PRIOR TO, OR CONCURRENT WITH, LAND-DISTURBING ACTIVITIES.
- EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.
- ALL DESIGNS WILL CONFORM TO AND ALL WORK WILL BE PERFORMED IN ACCORDANCE WITH THE PUBLICATION ENTITLED "MANUAL FOR EROSION AND SEDIMENT CONTROL IN TENNESSEE".
- ALL AREAS DISTURBED BY CONSTRUCTION THAT ARE NOT PAVED WILL BE SEEDED FOR PERMANENT VEGETATION.
- ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD OF GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING.
- EROSION AND SEDIMENTATION CONTROL MEASURES MUST BE IN PLACE AND FUNCTIONAL BEFORE EARTH MOVING OPERATIONS BEGIN, AND MUST BE PROPERLY MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
- CONSTRUCTION DEBRIS MUST BE KEPT FROM ENTERING STREAM CHANNELS AT ALL TIMES.
- STOCKPILED SOIL SHALL BE LOCATED FAR ENOUGH FROM STREAMS AND DRAINAGE WAYS SO THAT RUNOFF CANNOT CARRY SEDIMENT DOWNSTREAM.
- PERMANENT SOIL STABILIZATION WITH PERENNIAL VEGETATION SHALL BE APPLIED WITHIN 15 DAYS AFTER FINISH GRADING.
- STAKED AND ENTRENCHED SILT SOCK AND/OR SILT FENCES MUST BE INSTALLED ON THE DOWNHILL SIDE OF ALL EARTH DISTURBING ACTIVITIES.
- ANY OFFSITE SEDIMENT ACCUMULATIONS SHALL BE REMOVED DAILY. OFFSITE ACCUMULATIONS DEPOSITED ON PRIVATE PROPERTY SHALL BE REMOVED BY METHODS AGREED UPON BY CONTRACTOR AND LAND OWNERS.
- IF SEDIMENT ENTERS WATER OF THE STATE, TDEC-WPC WILL BE NOTIFIED IMMEDIATELY AND CONSULTED WITH REMOVAL OF SAID SEDIMENT IF REQUIRED.
- DE-WATERING (OF MUDDY WATER) FROM EXCAVATIONS AND WORK AREAS SHALL BE ACCOMPLISHED USING A FILTER BAG IN COMBINATION W/ STRAW BALE/SILT FENCE PIT. THE CAPTURED SEDIMENT SHALL BE RE-GRADED IN PLACE AND IMMEDIATELY STABILIZED.
- SLOPES > 35% SHALL BE STABILIZED WITHIN 7 DAYS UTILIZING MATTING, TEMPORARY OR PERMANENT VEGETATION OR CONSTRUCTION ACTIVITIES SHALL BE CEASED.



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FAX: 706-732-1859
EMAIL: info@cranstongroup.com

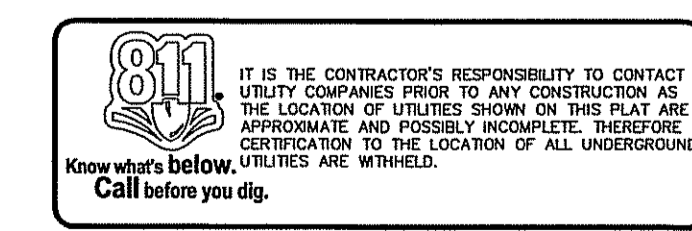


**BRAINERD LEVEE IMPROVEMENTS
STORMWATER POLLUTION
PROTECTION PLAN**

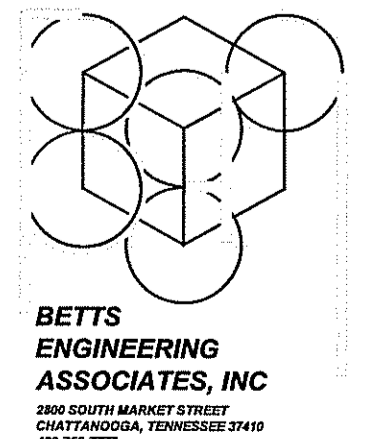
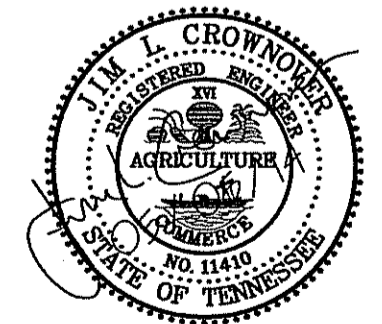
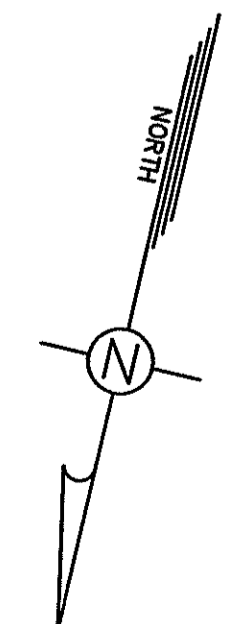
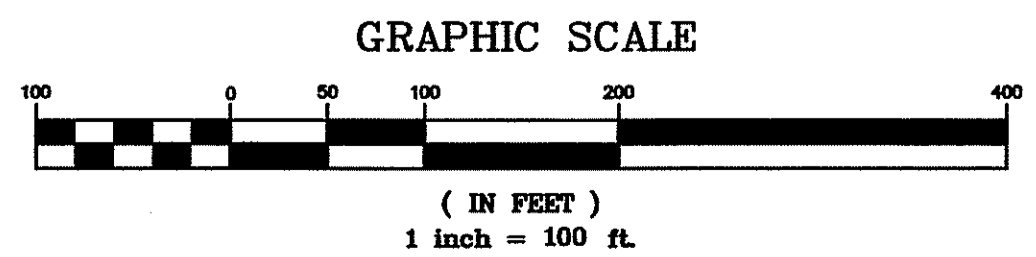
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CONTRACT#	
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DESIGN:	MAR
CHECKED:	JLC

**SWPPP
SITE
OVERVIEW
PLAN**



SITE CONTACT:
MARTY D. HAWKINS, P.E.
CITY OF CHATTANOOGA
STORMWATER MANAGEMENT
1250 MARKET STREET
CHATTANOOGA, TN 37402
(423) 668-2530





**CITY OF
CHATTANOOGA**

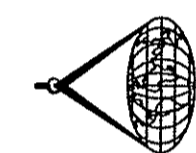
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mail@cranstonengineering.com

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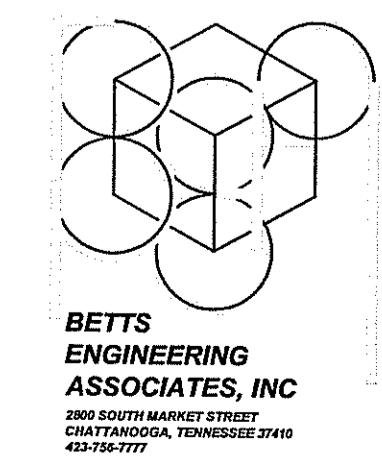
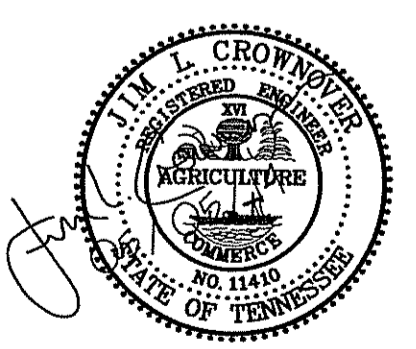
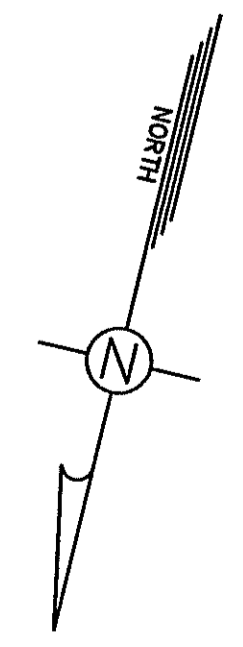
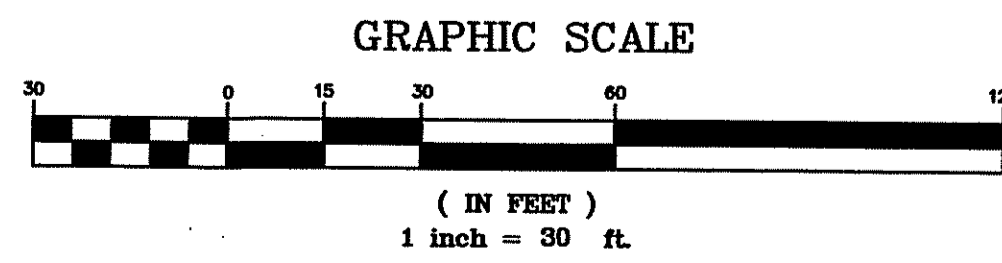
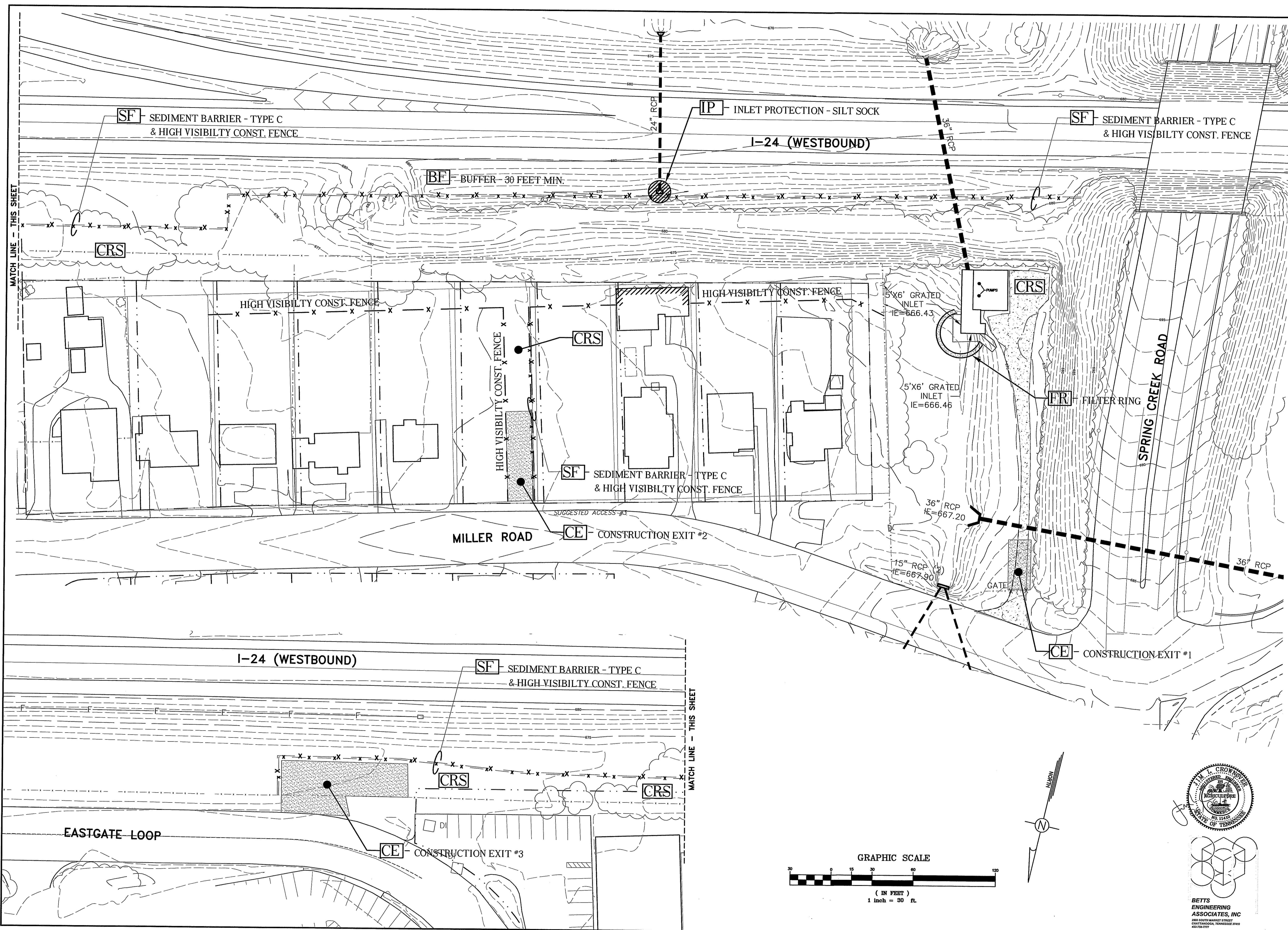
**STORMWATER POLLUTION
PROTECTION PLAN**

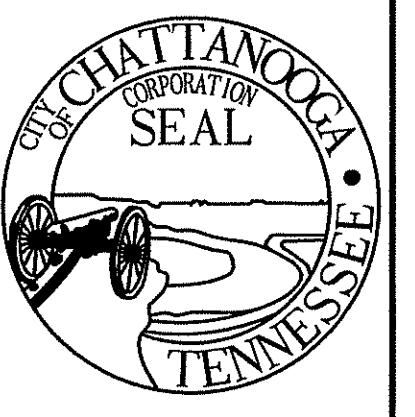
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**SWPPP
EROSION
CONTROL
PLAN
PHASE I**

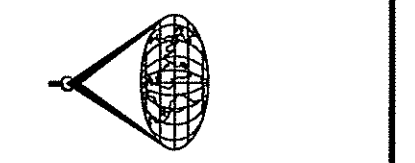
SHEET: 10 OF 18





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info@cranstonengrping.com

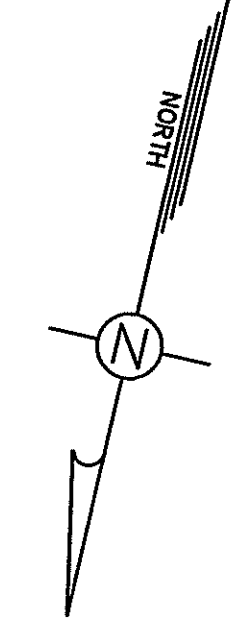
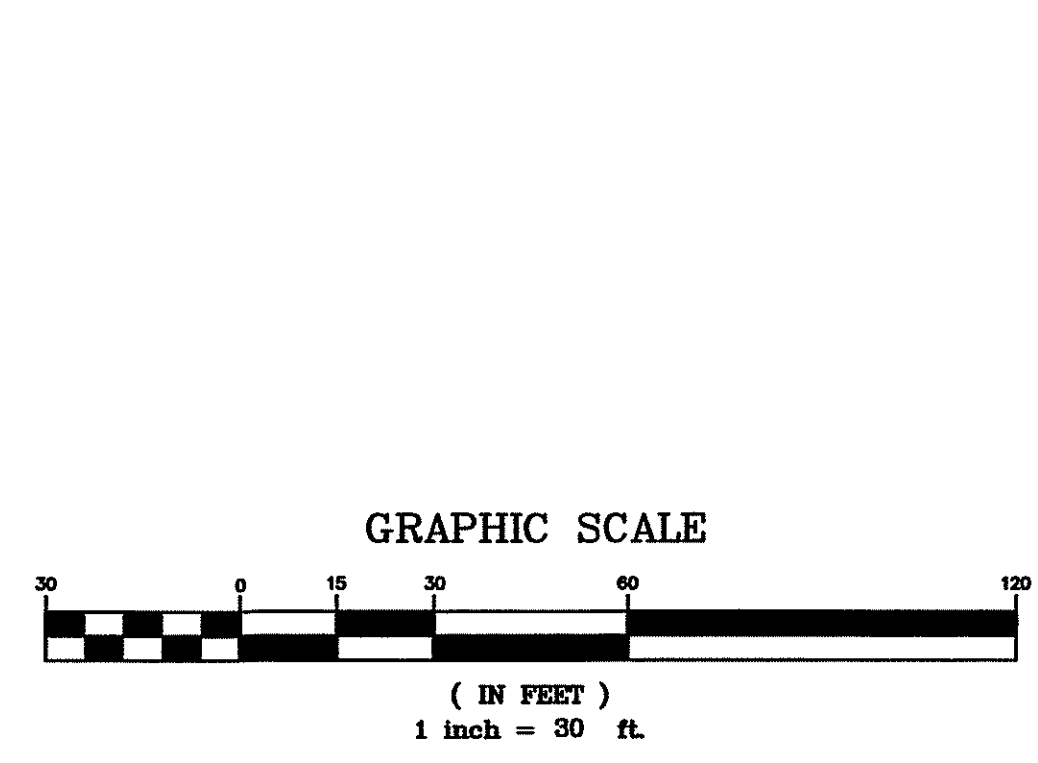
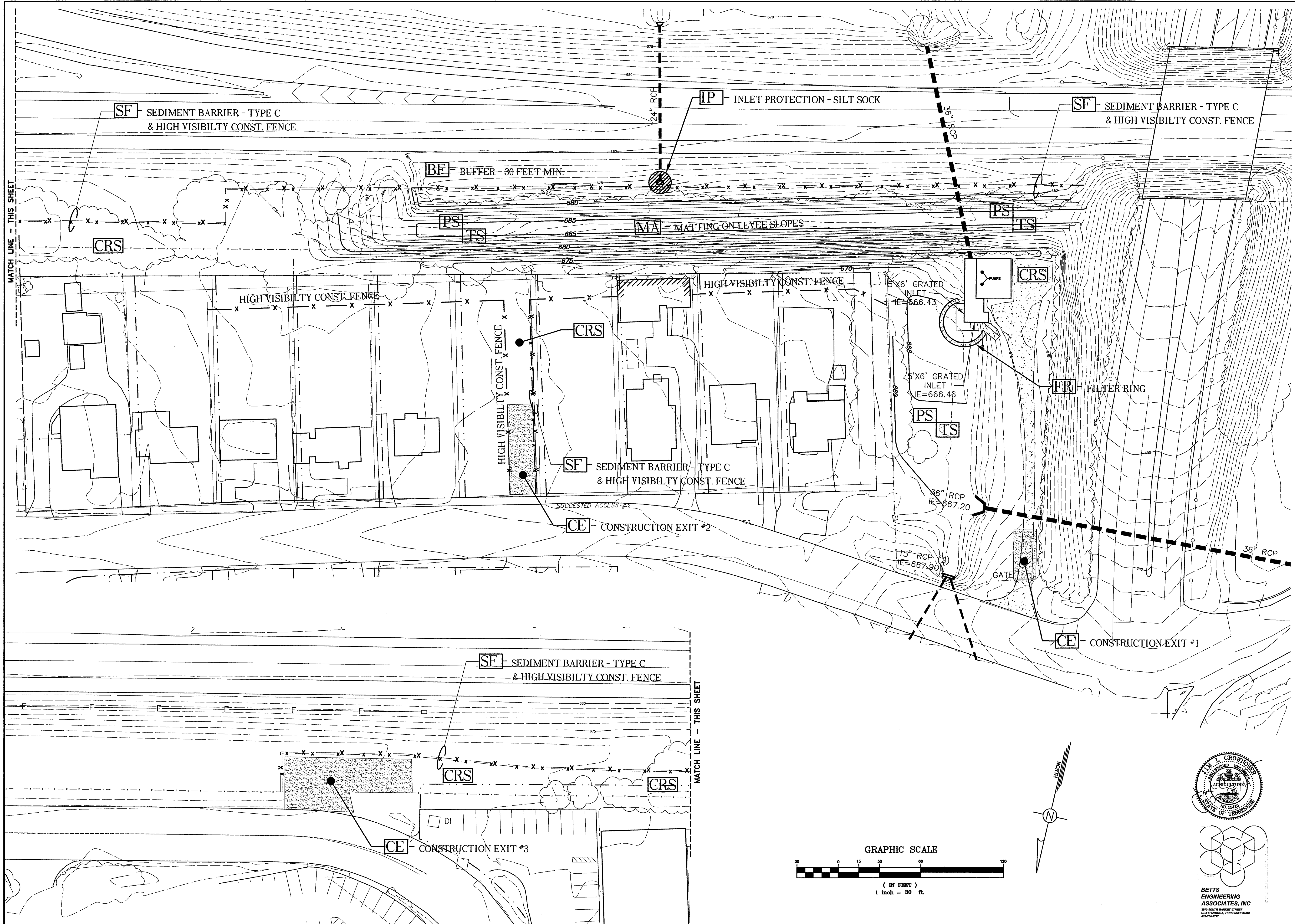


BRAINERD LEVEE IMPROVEMENTS
STORMWATER POLLUTION
PROTECTION PLAN

NO.	DATE	REVISION	SIG.

CONTRACT#
SCALE: 1" = 30'
DRAWN: MAR
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CHECKED: JLC

SHEET: 11 OF 18



BETTS
ENGINEERING
ASSOCIATES, INC.
280 SOUTH MARKET STREET
CHATTANOOGA, TENNESSEE 37403
423-518-7777



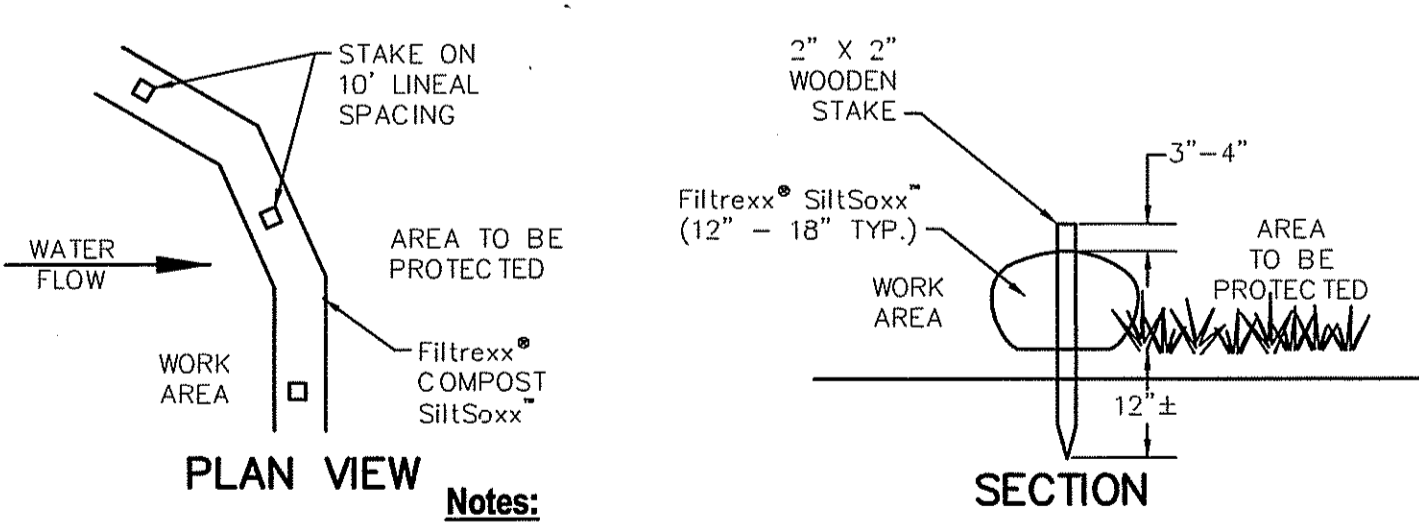
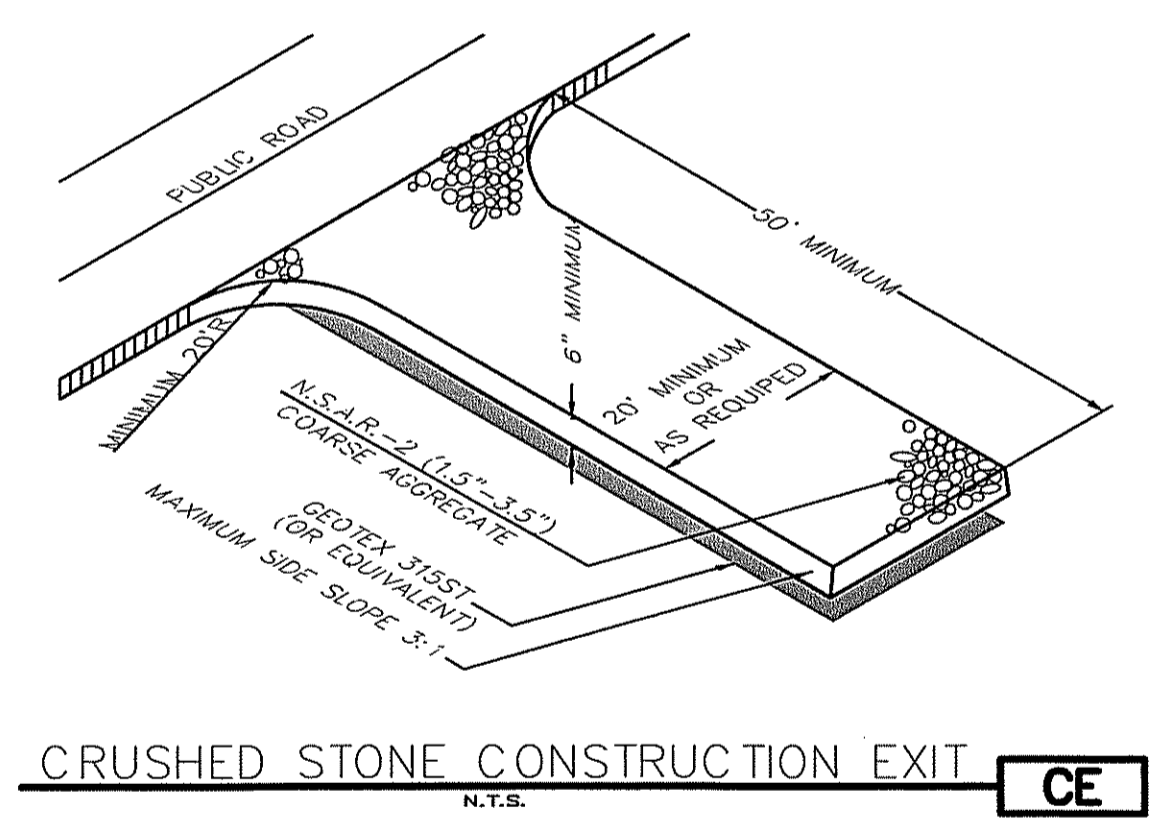
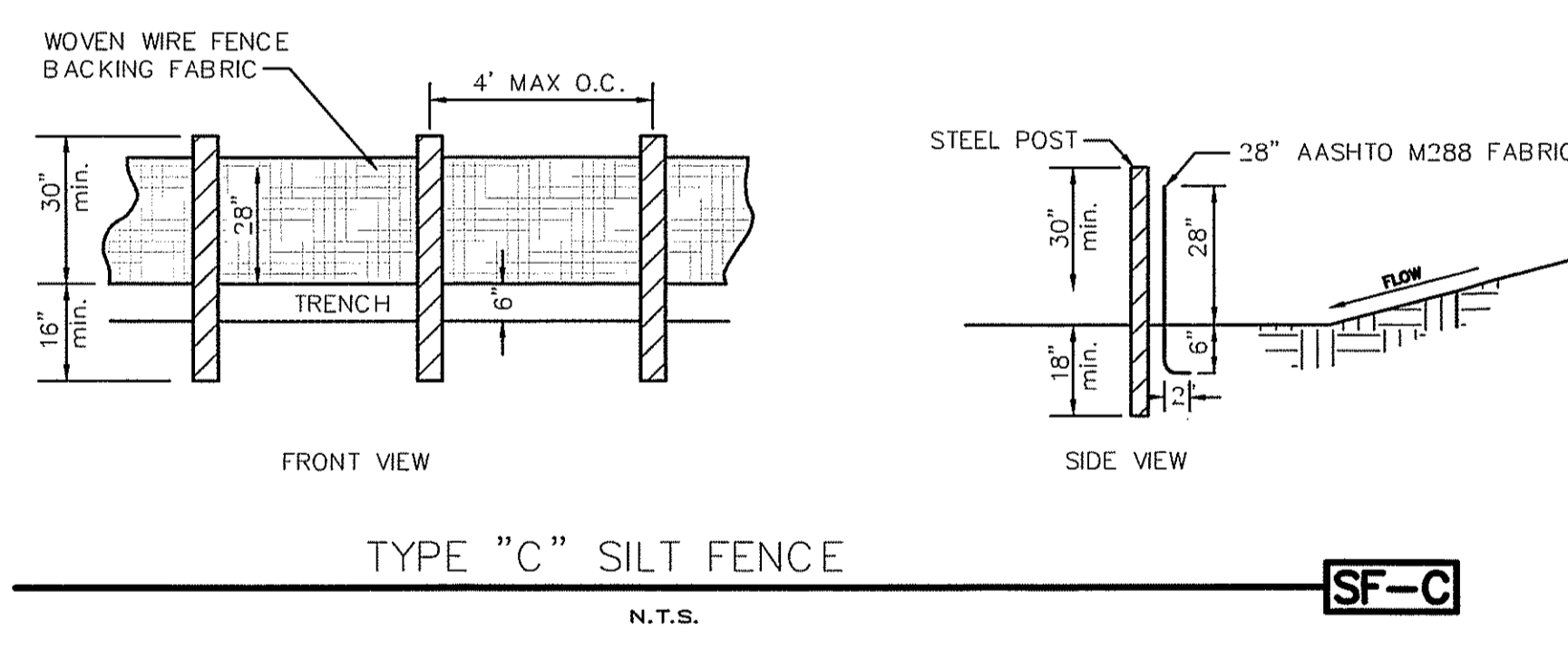
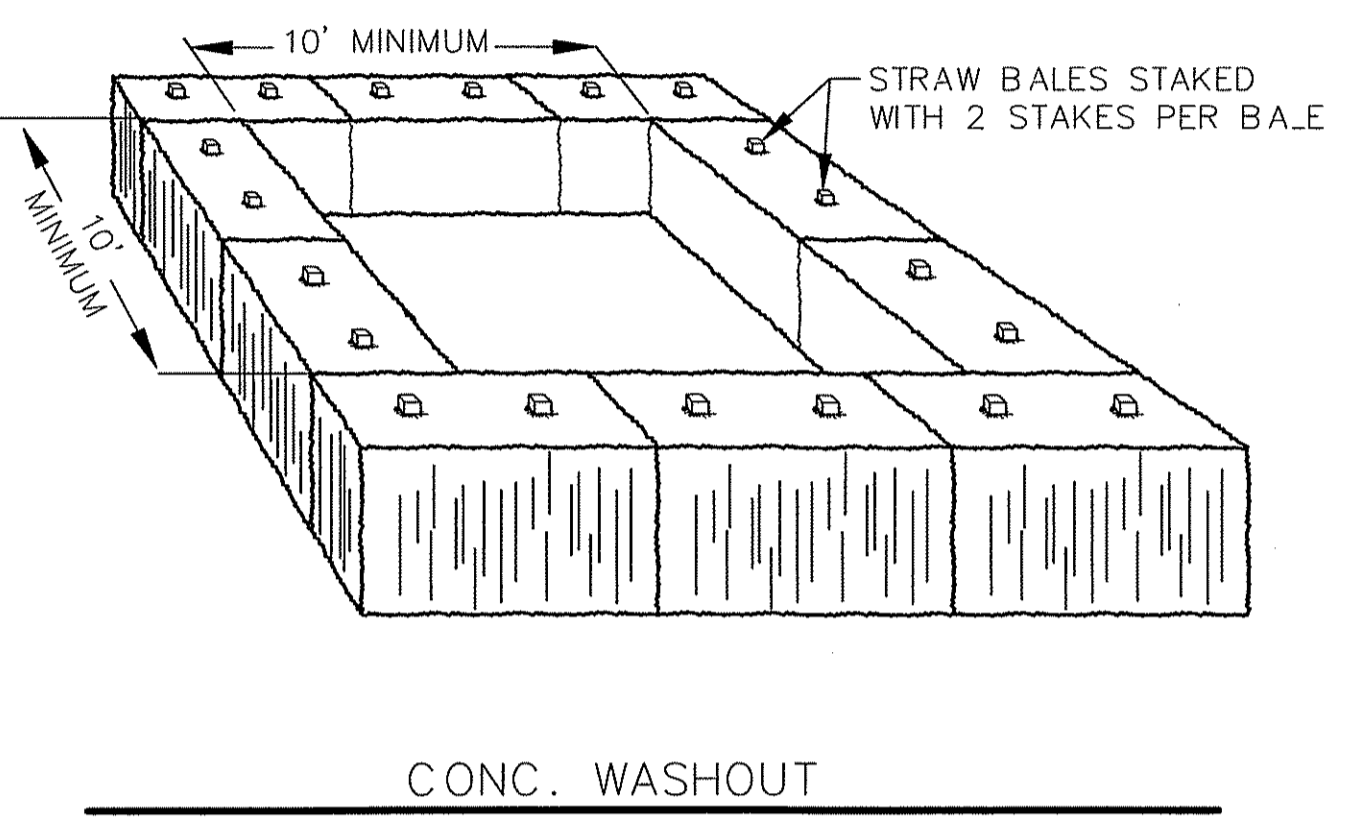
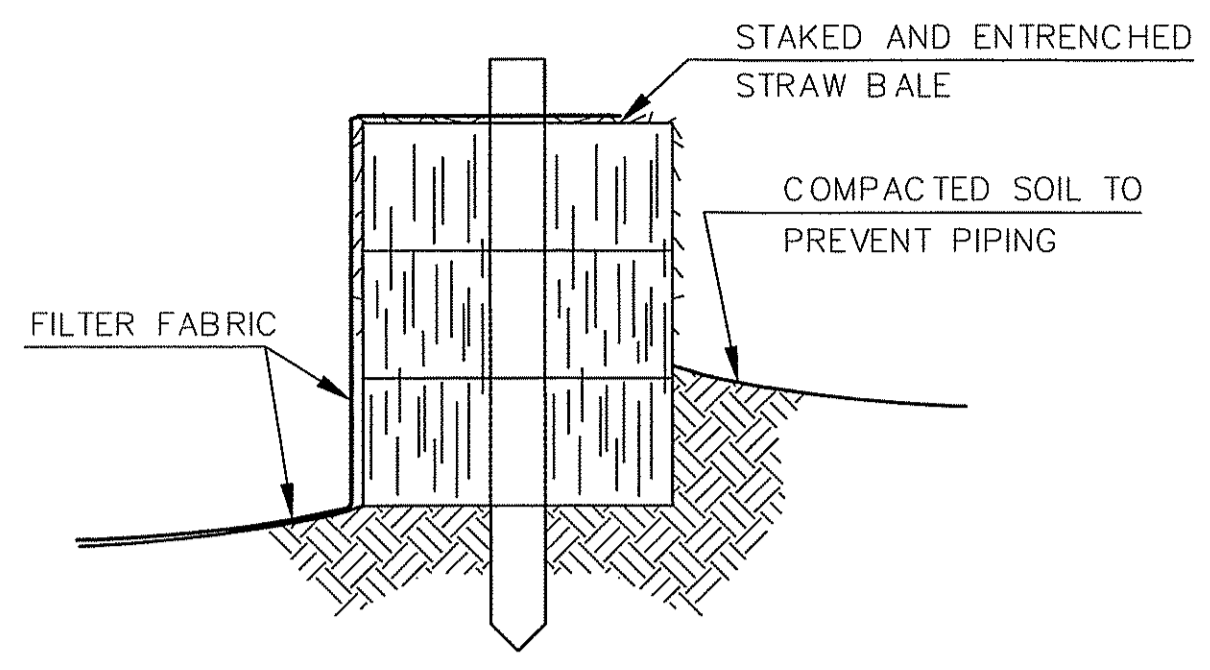
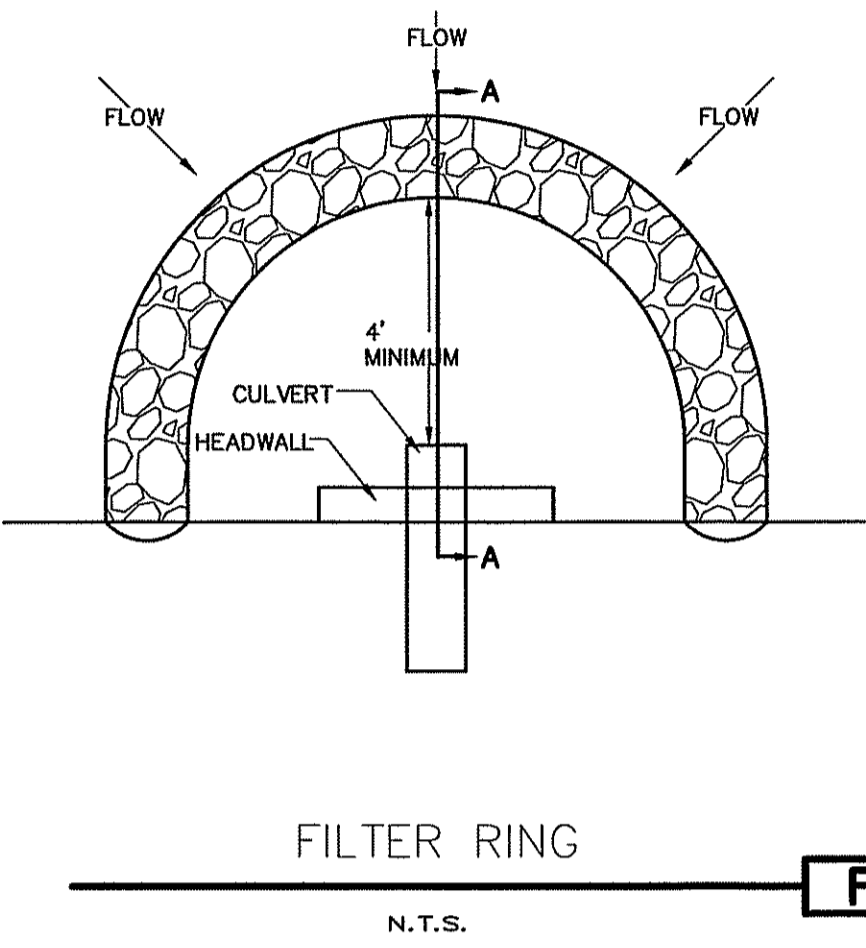
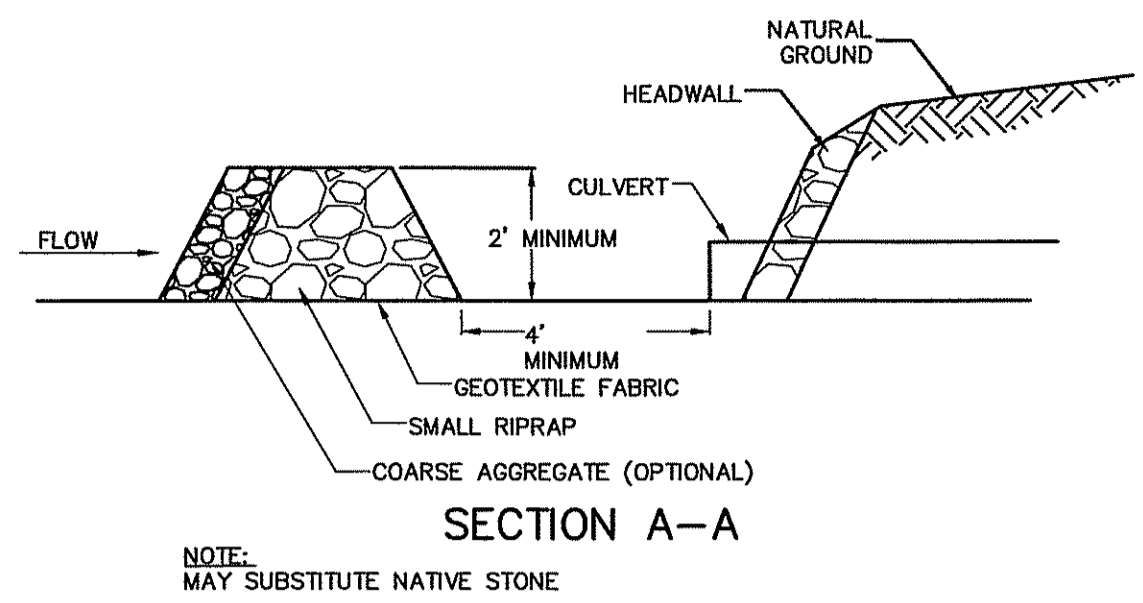
CITY OF CHATTANOOGA
 DEPARTMENT OF PUBLIC WORKS
 ENGINEERING DIVISION

Cranston Engineering Group, P.C.
 ENGINEERS - PLANNERS - SURVEYORS
 452 ELLIS STREET, SUITE 2000, CHATTANOOGA, TENNESSEE 37603
 POST OFFICE BOX 1987, CHATTANOOGA, TENNESSEE 37603
 TELEPHONE 706-722-1888
 FACSIMILE 706-722-8379
 www.cranstonengineering.com

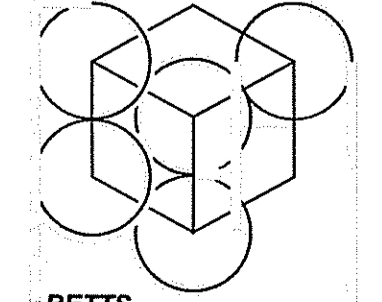
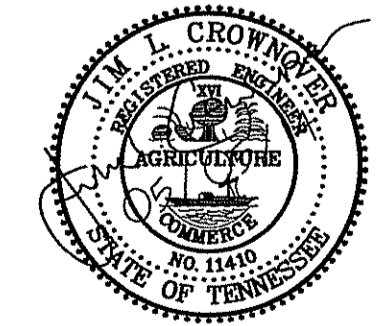
BRAINERD LEVEE IMPROVEMENTS
STORMWATER POLLUTION PROTECTION PLAN

NO.	DATE	REVISION	SIG.

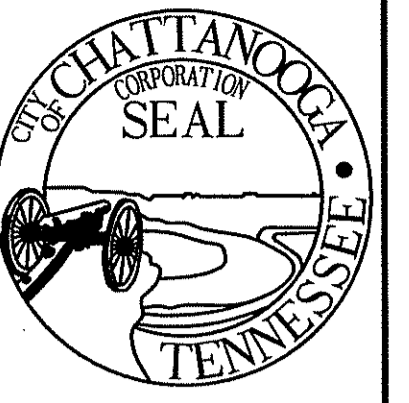
SWPPP EROSION CONTROL DETAILS



- Notes:**
- 1. All material to meet Filtrexx® specifications
 - 2. SiltSoxx™ compost/soil/rock/seed fill to meet application requirements.
 - 3. SiltSoxx™ depicted is for minimum slopes. Greater slopes may require larger socks per the Engineer.
 - 4. Compost material to be dispersed on site, as determined by Engineer.



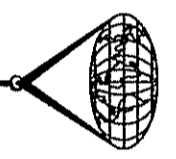
BETTS ENGINEERING ASSOCIATES, INC.
 280 SOUTH MARKET STREET
 CHATTANOOGA, TENNESSEE 37403
 423-758-7777



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DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

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TELEPHONE: 706-722-1588
FAX: 706-722-1599
info@cranstonengineering.com

10-315



BRAINERD LEVEE IMPROVEMENTS
STORMWATER POLLUTION PROTECTION PLAN

NO.	DATE	REVISION	SIG.

CONTRACT#	
SCALE:	N.T.S.
DRAWN:	MAR
DESIGN:	MAR
CHECKED:	JLC

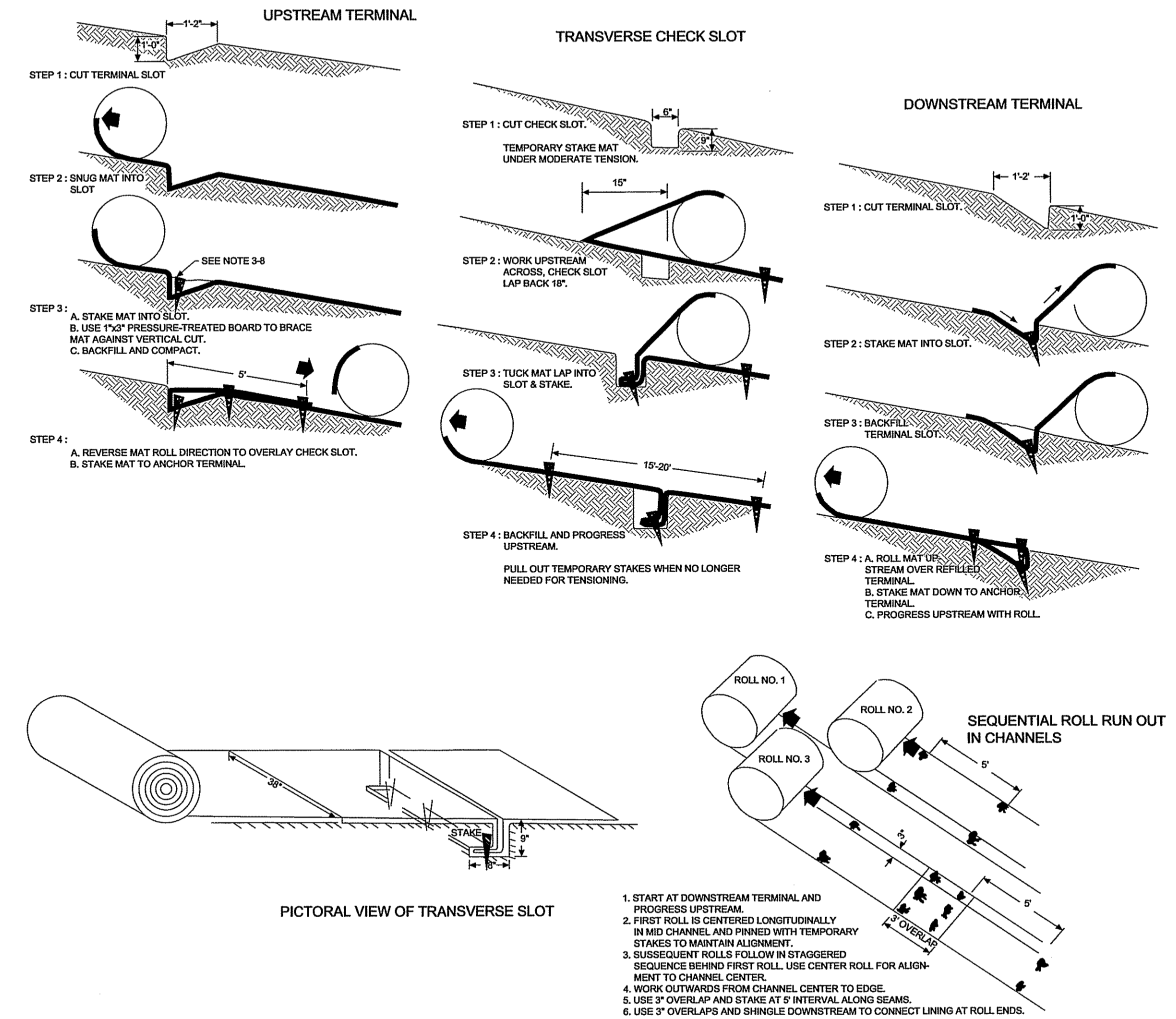
**SWPPP
EROSION
CONTROL
DETAILS**

SHEET: 13 OF 18

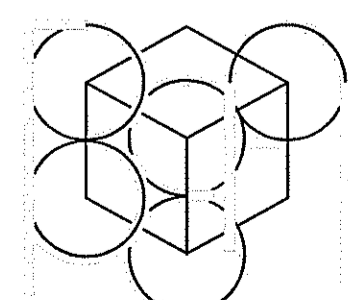
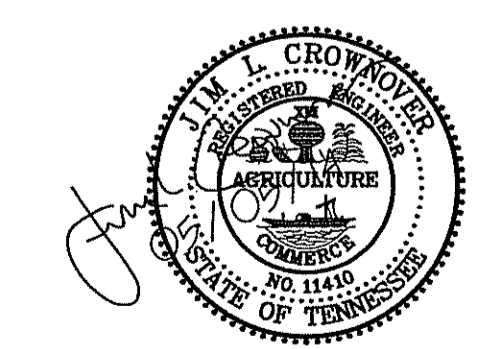
Permanent Cover [PS]		
SEEDING DATES	GRASS SEED	PERCENTAGE
Feb 1 - July 1	Kentucky31 Fescue Korean Lespedeza English Rye	80% 15% 05%
June 1 - Aug 15	Kentucky31 Fescue English Rye Korean Lespedeza German Millet	55% 20% 15% 10%
Apr 15 - Aug 15	Bermuda (hulled) Annual Lespedeza	70% 30%
Aug 1 - Dec 1	Kentucky31 Fescue English Rye White Clover	70% 20% 10%
Feb 1 - Dec 1	Kentucky31 Fescue Crown Vetch English Rye	70% 25% 05%

Temporary Cover [TS]		
SEEDING DATES	GRASS SEED	PERCENTAGE
Jan. 1 - May 1	Italian Rye Korean Lespedeza Summer Oats	33% 33% 34%
May 1 - July 15	Sudan-Sorghum	100%
May 1 - July 15	Starr Millet	100%
July 15 - Jan. 1	Balboa Rye Italian Rye	67% 33%

SEEDING TABLE



EROSION CONTROL MATTING/BLANKET
N.T.S. **MA**

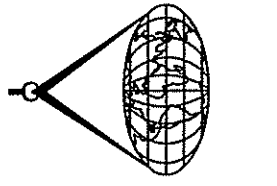


BETTS ENGINEERING ASSOCIATES, INC.
200 SOUTH MARKET STREET
CHATTANOOGA, TENNESSEE 37403
423-758-7777

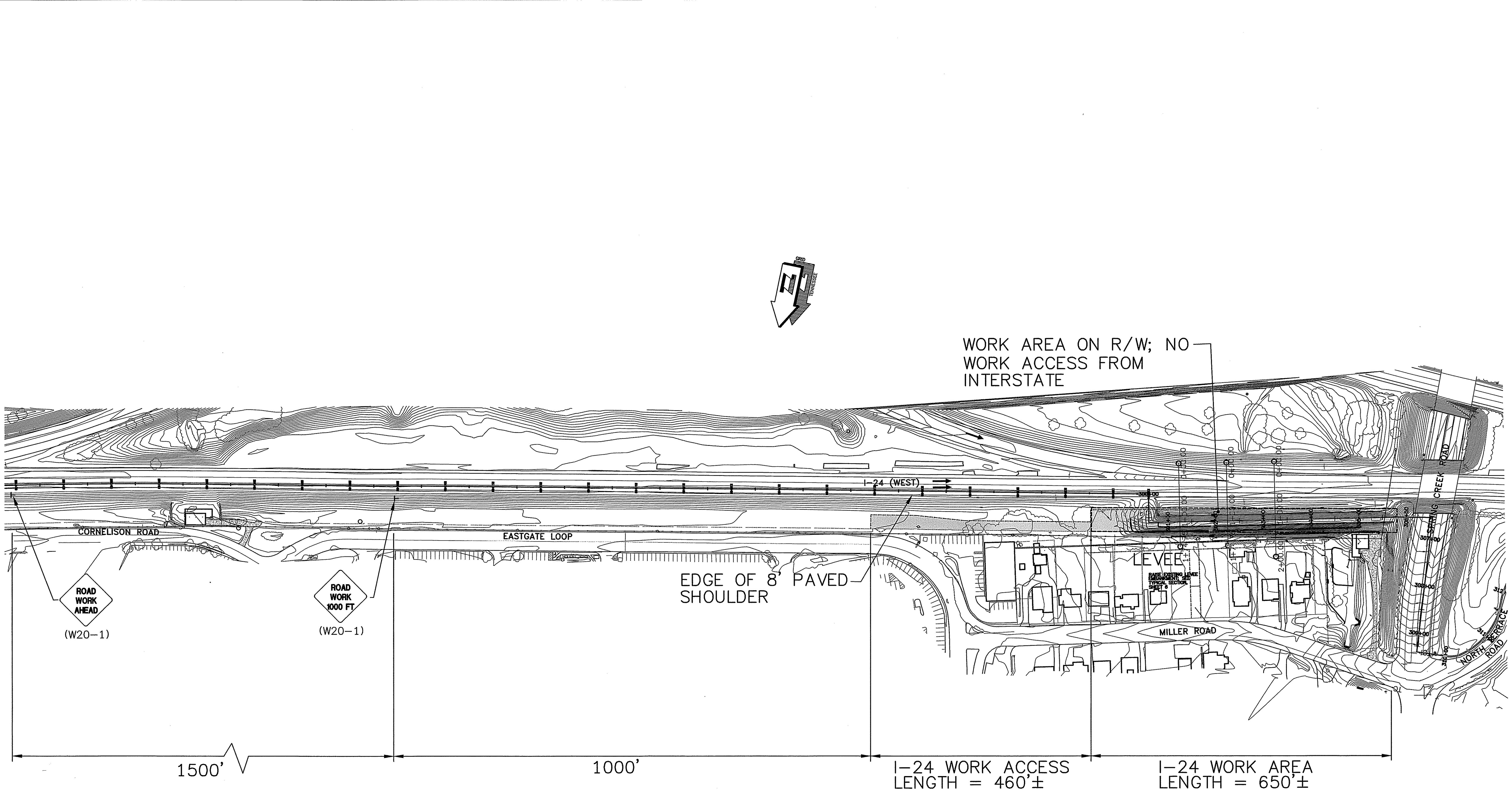


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POST OFFICE BOX 266, AUGUSTA, GEORGIA 30603
PACEMAKER 706-732-8979
mail@cranstonengineering.com



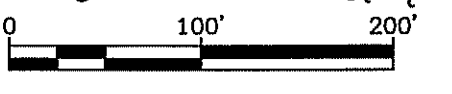
BRAINERD LEVEL IMPROVEMENTS
TRAFFIC CONTROL PLAN



NO.	DATE	REVISION	SIG.

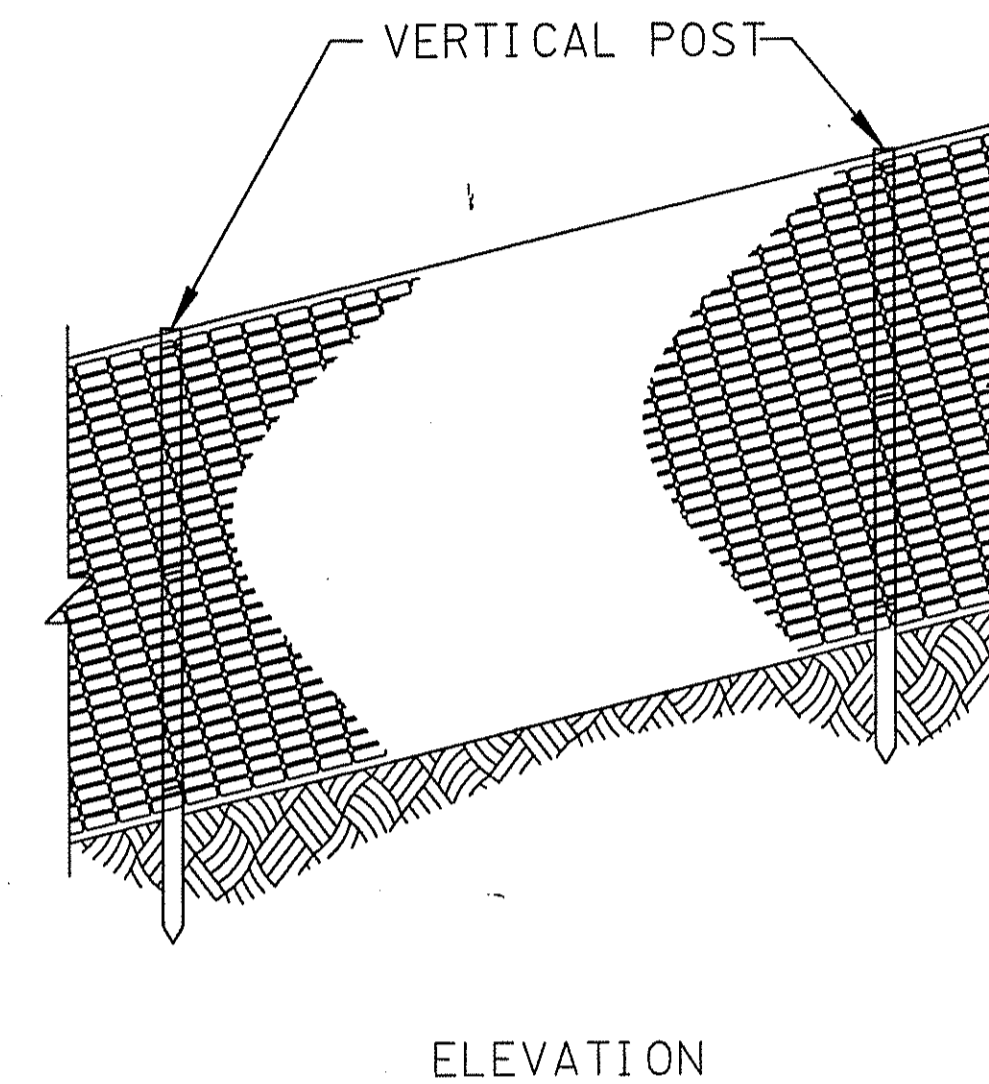
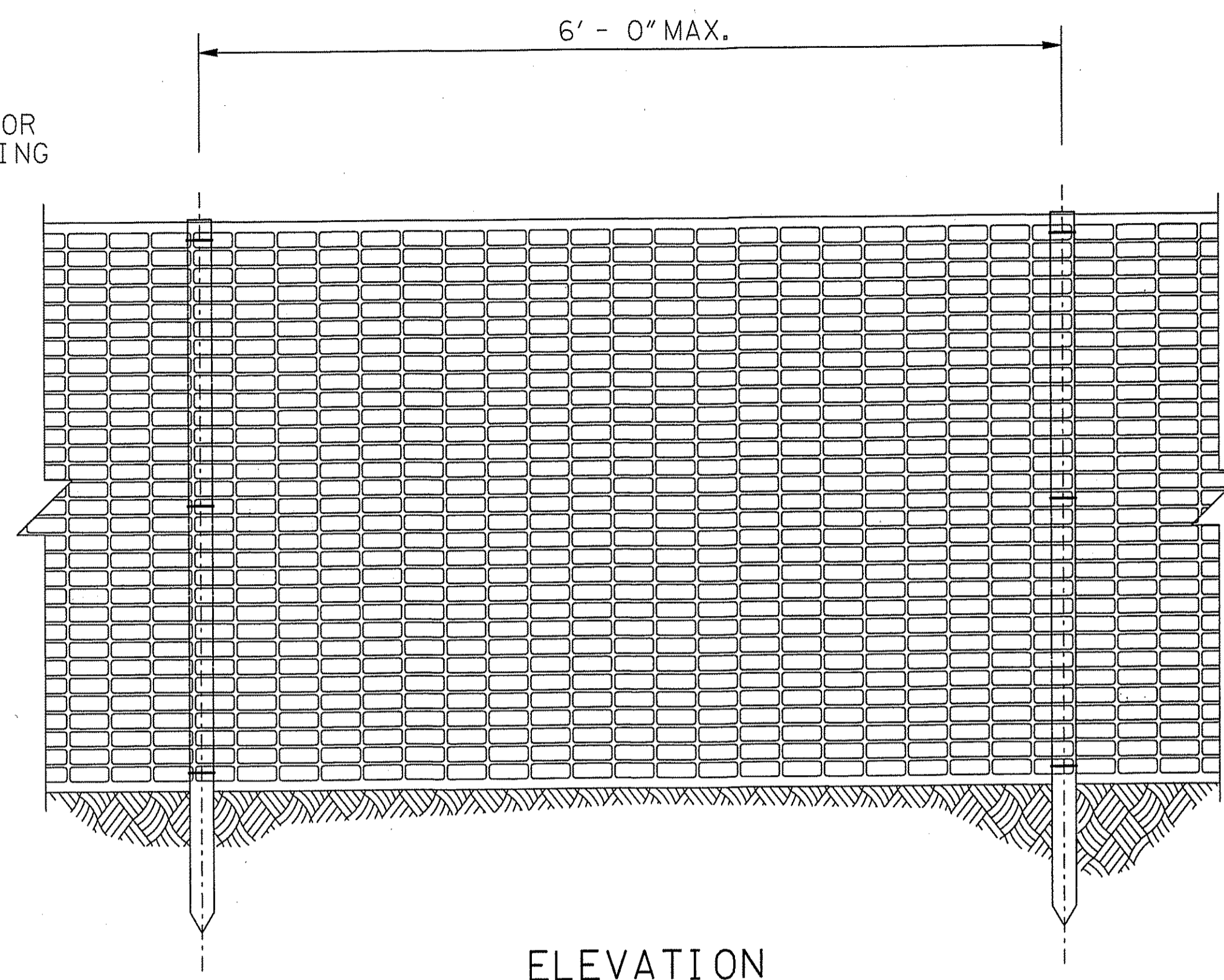
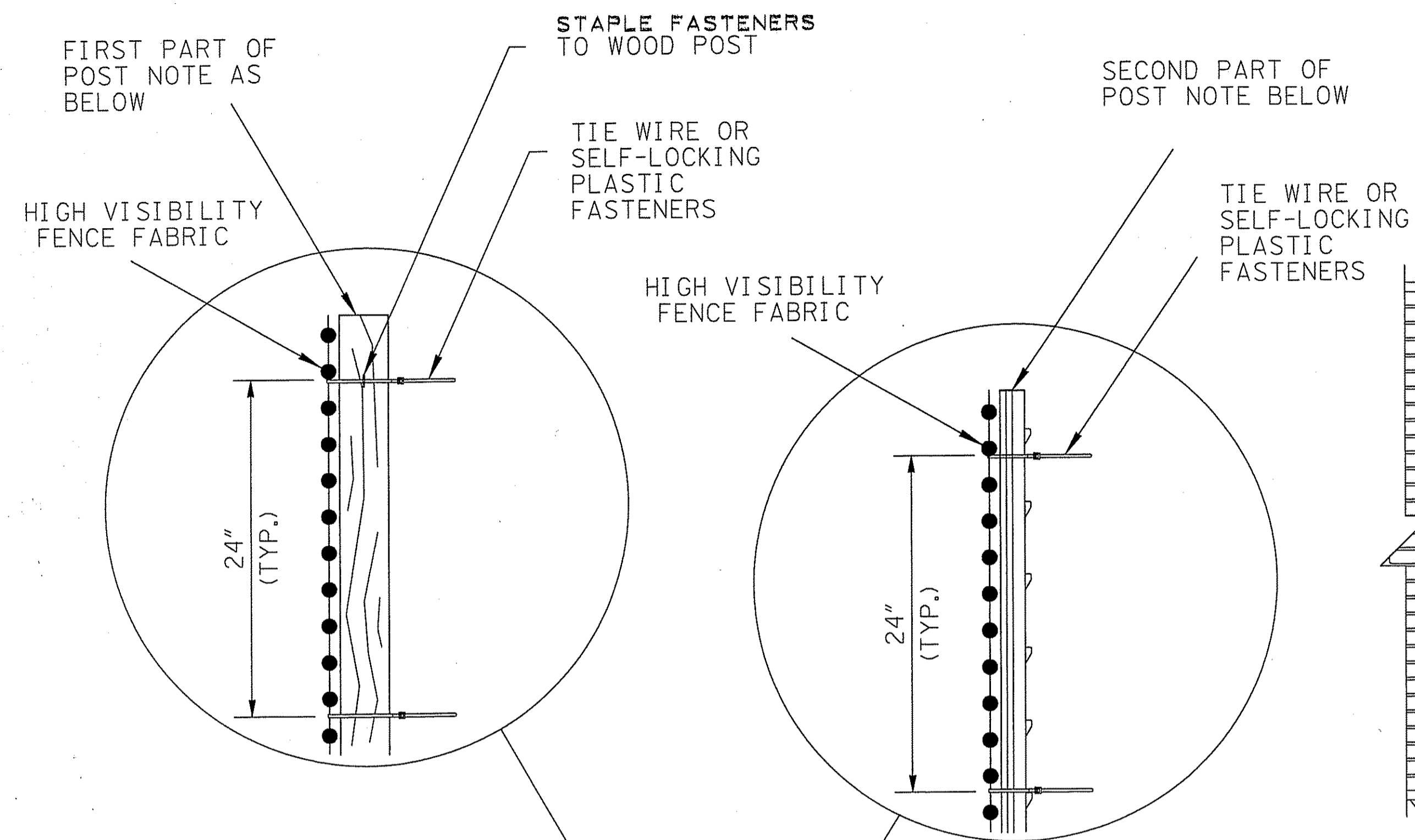
CONTRACT#
SCALE: 1" = 100'
DRAWN: GSA
DESIGN: EAW
CHECKED: DSW

LICENSED PROFESSIONAL ENGINEER
ELDRIDGE A. WHITEHURST, JR.
101295
TENNESSEE
5/5/14

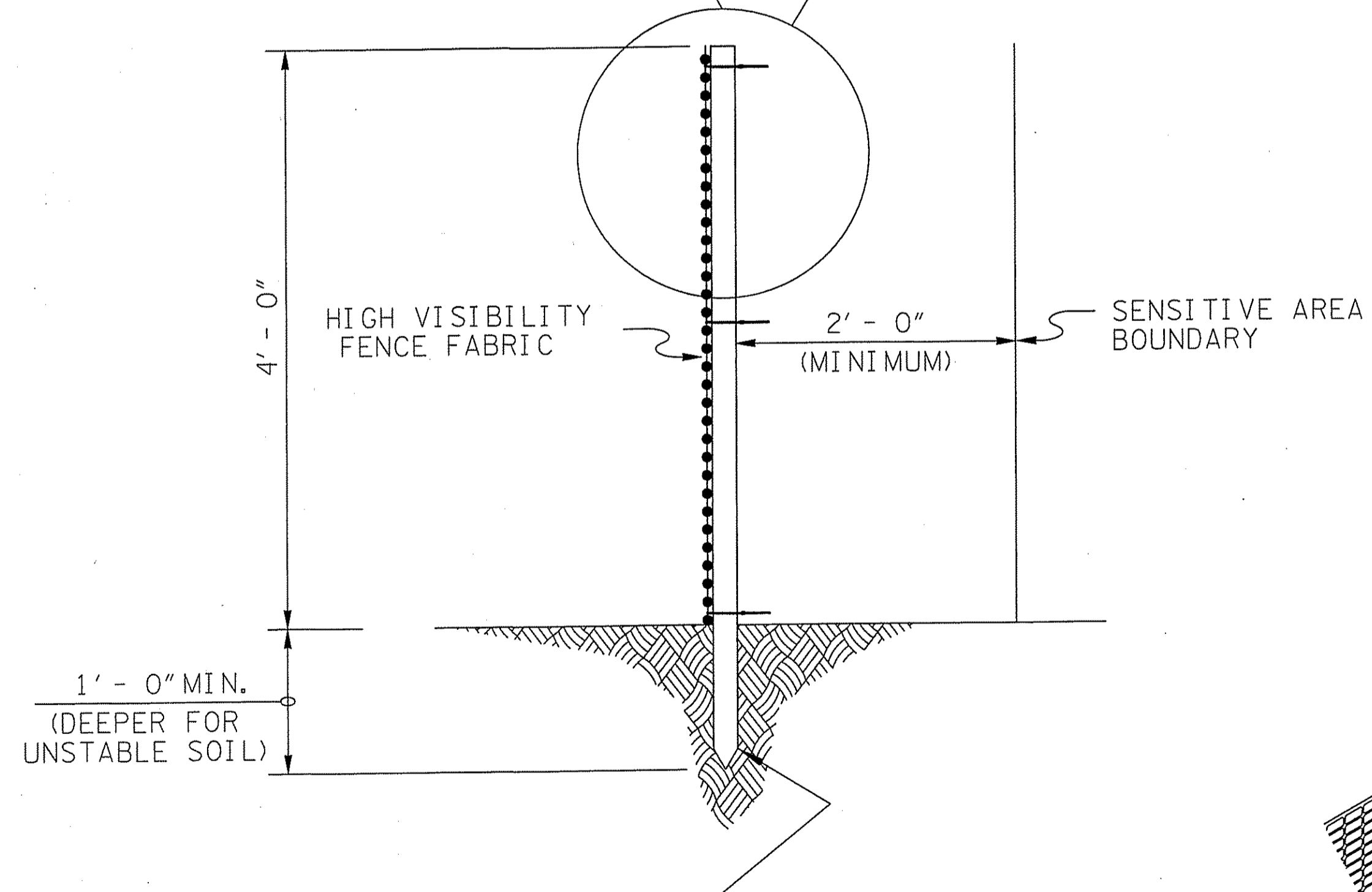


DATE: MAY, 5, 2014

TRAFFIC CONTROL PLAN

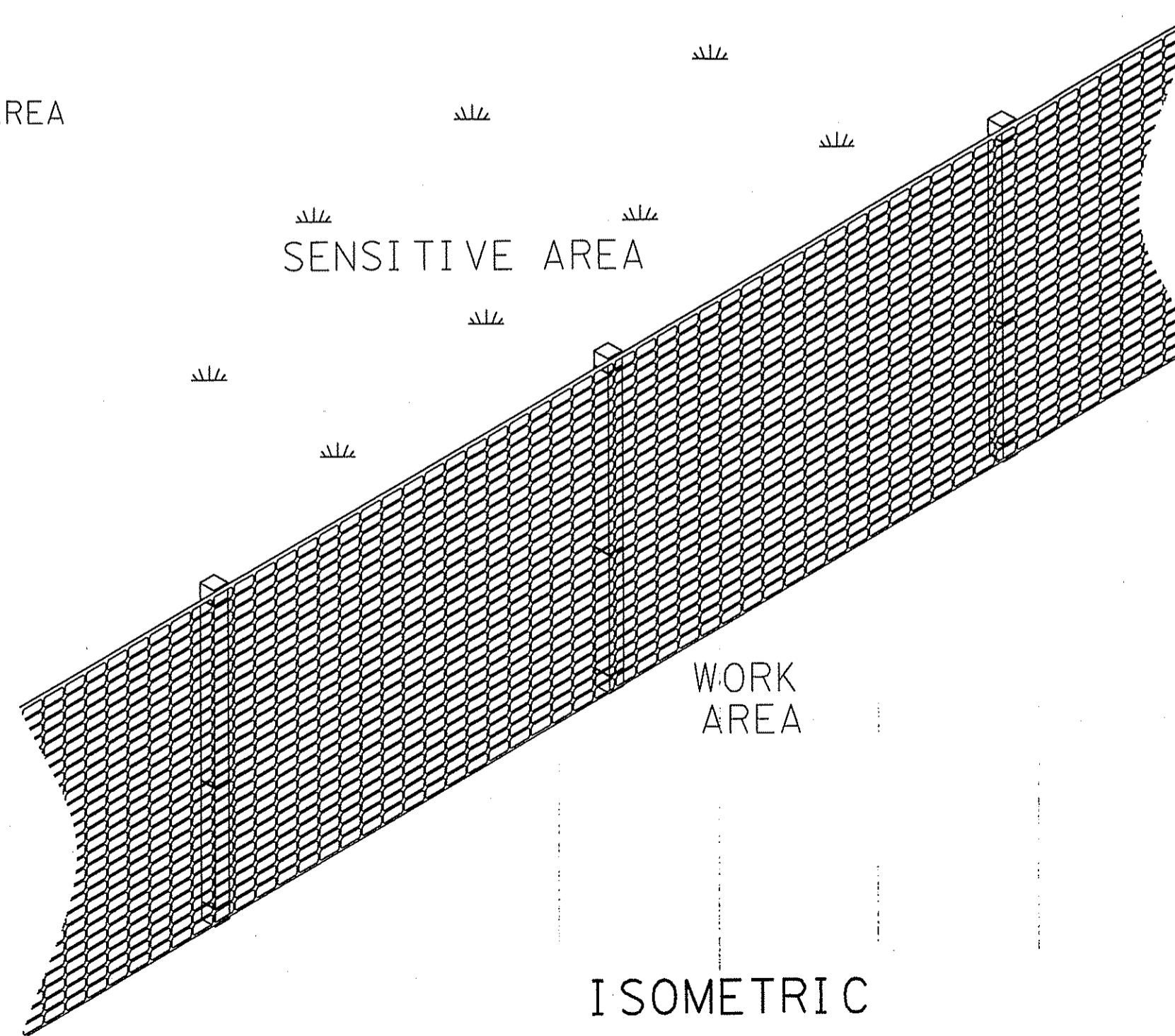


FENCE ON SLOPE



MIN. 2.25" (NOMINAL) X 2.25' (NOMINAL) - (1.75" ACTUAL X 1.75" ACTUAL)
 (3.06 SQ. IN. O HARDWOOD POST (OAK OR HICKORY) OR MIN. 1.25 LB/FT.
 STEEL POST (STD "T" OR "U" SECTION) LENGTH 60"

TYPICAL SECTION



ISOMETRIC

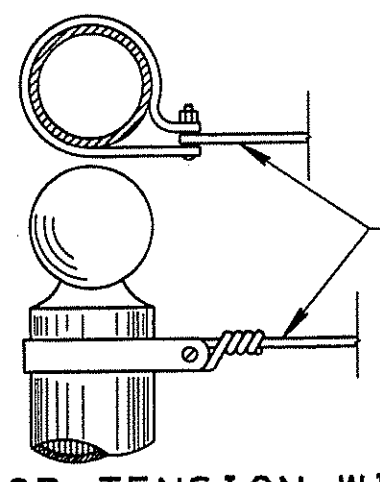
GENERAL NOTES

- Ⓐ HIGH VISIBILITY FENCE IS INTENDED TO BE PLACED TO PREVENT DISTURBANCE OF SENSITIVE AREAS, THEIR BUFFERS, AND OTHER AREAS REQUIRED TO BE LEFT UNDISTURBED DURING CONSTRUCTION. IT MAY ALSO BE USED TO MARK APPROVED CLEARING LIMITS AND TO CONTROL VEHICLE ACCESS TO AND ON THE PROJECT SITE.
- Ⓑ HIGH VISIBILITY FENCE FABRIC SHALL BE MACHINED PRODUCED ORANGE COLORED MESH MANUFACTURED FROM POLYPROPYLENE OR POLYETHYLENE. IT SHALL BE FULLY STABILIZED ULTRAVIOLET RESISTANT.
- Ⓒ HIGH VISIBILITY FENCE FABRIC MAY BE MADE FROM RECYCLED MATERIALS. MATERIALS SHALL NOT CONTAIN BIODEGRADABLE FILLER MATERIALS THAT CAN DEGRADE THE PHYSICAL OR CHEMICAL CHARACTERISTICS OF THE FINISHED FABRIC.
- Ⓓ HIGH VISIBILITY FENCE FABRIC SHALL HAVE A MINIMUM 4 FOOT WIDTH AND SHALL BE FURNISHED IN ONE CONTINUOUS WIDTH AND SHALL NOT BE SPLICED TO CONFORM TO THE SPECIFIED WIDTH DIMENSION.
- Ⓔ STEEL POST SHALL BE ROLLED FROM HIGH CARBON STEEL AND SHALL HAVE A MINIMUM WEIGHT OF 1.25 LB/FT. POST SHALL BE HOT-DIPPED GALVANIZED OR PAINT. STEEL POST MAY BE EQUIPPED WITH AN ANCHOR PLATE HAVING A MINIMUM AREA OF 14 SQUARE INCHES. IF POSTS ANCHOR PLATES USED THEY SHALL CONFORM TO THE REQUIREMENTS OF ASTM A702.
- Ⓕ HIGH VISIBILITY FENCE FABRIC SHALL BE FASTENED TO THE POST USING TIE WIRE OR SELF-LOCKING PLASTIC FASTENERS WITH A MAXIMUM FASTENERS SPACING OF 2 FEET. WHEN WOOD POSTS ARE USED THE FASTENERS SHALL BE STAPLED TO THE POST.
- Ⓖ HIGH VISIBILITY FENCE THAT IS DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED AT THE CONSTRUCTORS EXPENSE ON THE SAME DAY THE DAMAGE OCCURS.
- Ⓗ HIGH VISIBILITY FENCE SHALL BE PAID FOR UNDER THE FOLLOWING ITEM NUMBER:
 707-08.11 HIGH VISIBILITY CONSTRUCTION FENCE, PER LF
 PAYMENT SHALL INCLUDE ALL MATERIALS AND LABOR NECESSARY
 FOR CONSTRUCTION MAINTENANCE, AND REMOVAL OF HIGH VISIBILITY
 FENCE.

STATE OF TENNESSEE
 DEPARTMENT OF TRANSPORTATION

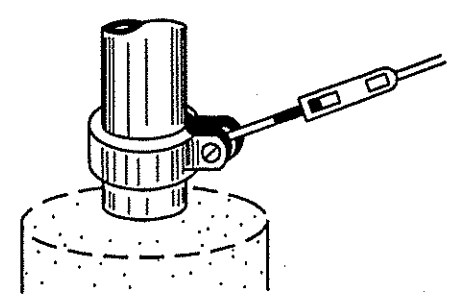
HIGH VISIBILITY
 FENCE

12-15-07 S-F-1

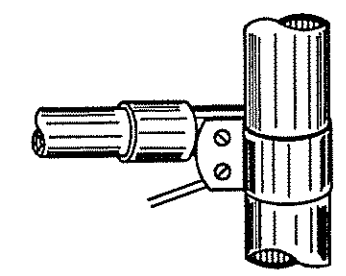


BAND FOR TENSION WIRE PULL POST TOP

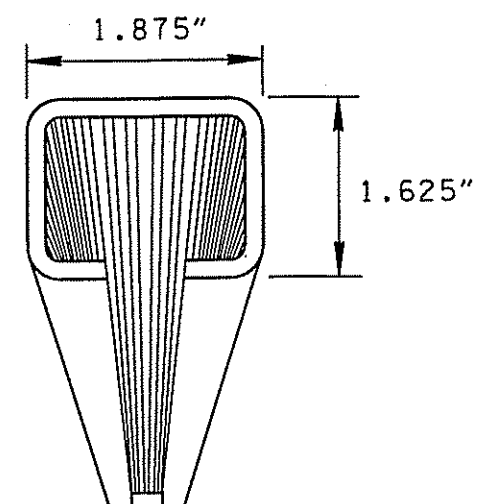
SEE NOTE, RT., REGARDING TENSION WIRE.



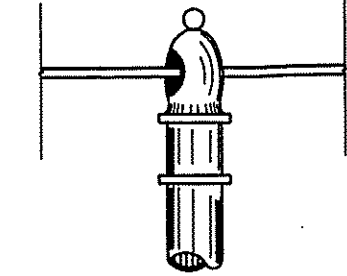
TRUSS ATTACHMENT AT PULL POST



TURNBUCKLE OR OTHER APPROVED CONNECTION



"C" SECTION LINE POST
OPTIONAL "C" LINE POST
SECTION: "C" GALVANIZED ROLLED FORM AT 2.34 LBS./FT. ASTM A570, GRADE 45, 1.875" x 1.625".



TUBULAR LINE POST AND ORNAMENTAL TOP
POST TOP ORNAMENTS MAY VARY IN ACCORDANCE WITH MANUFACTURERS DESIGN.

TENSION WIRE NOTES

- THE TENSION WIRE SHALL BE 0.177 INCH COILED SPRING WIRE, TENSIONED ALONG THE TOP AND BOTTOM OF THE FABRIC AND SHALL BE COATED SIMILARLY TO THE RESPECTIVE WIRE FABRIC BEING USED.
- TENSION WIRES AT CORNER AND BRACE POSTS SHALL BE TIGHTENED TO NEAR OPTIMUM STRENGTH OF THE COMPONENTS PRIOR TO APPLYING TENSION TO THE TOP WIRE AND THE FENCE.

REV. 2-25-77: DELETED NOTE REGARDING GRADING AND ADDED NOTE REGARDING CLEARING AND GRUBBING. ADDING OPTIONAL "C" AND "M" LINE POST, DELETED "2" BATTER AND ADDED "CROWN" FOR TOP OF CONC. FOOTING, ADDED TENSION WIRE AT BOTTOM OF FENCE.

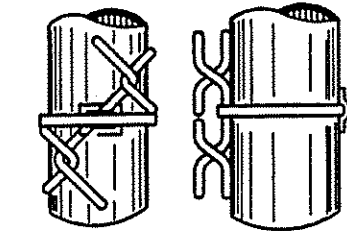
REV. 7-17-81: CHANGE ITEM NO. TO AGREE WITH NEW SPECIFICATION BOOK.

REV. 1-19-99: CHANGED VARIOUS SPECIFICATIONS AND GENERAL NOTES.

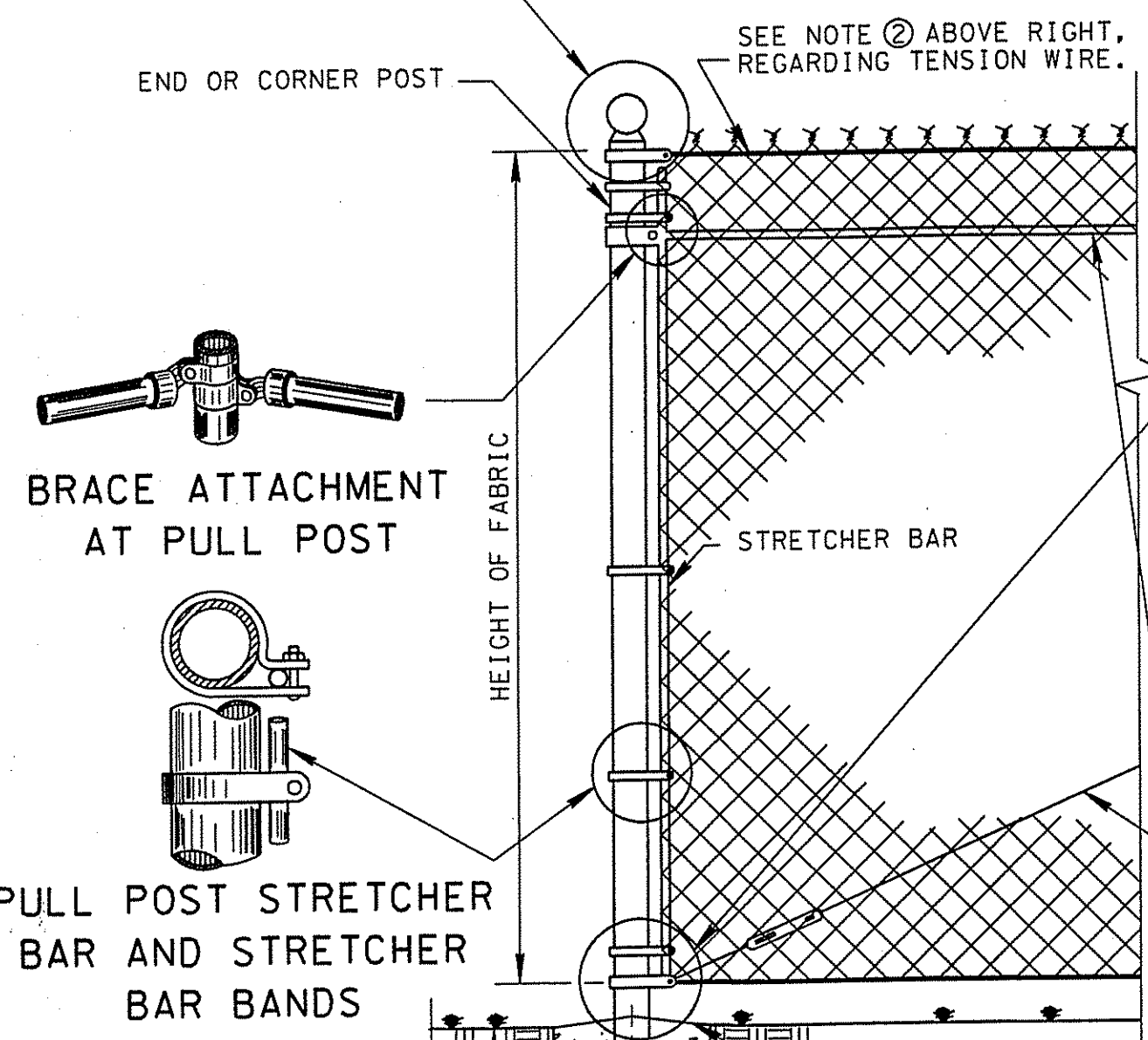
REV. 6-30-00: MOVED TOP HORIZONTAL BRACE PIECE TO A POINT 6" BELOW TOP OF CHAIN LINK FABRIC.

REV. 5-27-01: CHANGED PAY ITEMS IN GENERAL NOTE (C).

REV. 5-14-10: ADDED GATE ITEM NUMBERS.

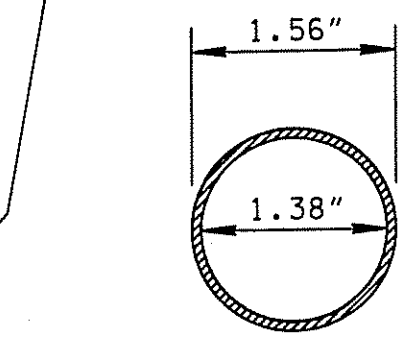


METHOD OF TYING FABRIC TO TUBULAR LINE POST



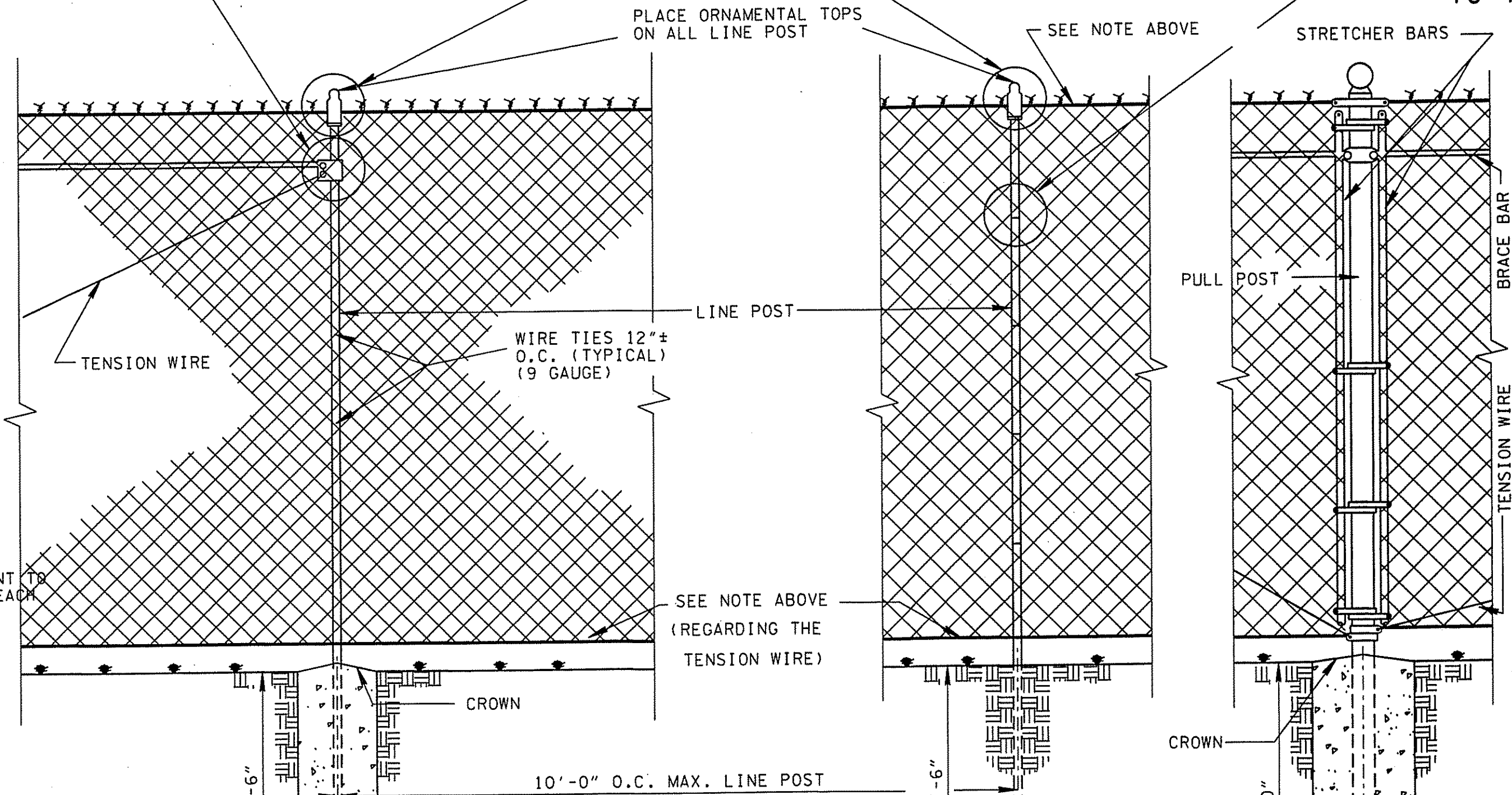
BRACE ATTACHMENT AT PULL POST

PULL POST STRETCHER BAR AND STRETCHER BAR BANDS



SECTION:
1 1/4" CORNER POST BRACES 2.28 LBS./FT. GALVANIZED STEEL ASTM F1083 OR 1 1/4" ALUMINIUM ALLOY (ASA SCHEDULE 40) ASTM B429 ALLOY 6063, TEMPER T6; OR 1 1/4" TRIPLE COATED STEEL AT 1.836 LBS./FT. - PER ASTM F1043 GROUP 1-C.

BRACE BAR AND TENSION WIRE TO BE PLACED ADJACENT TO END, CORNER POST AND ON EACH SIDE OF PULL POST.



PLACE ORNAMENTAL TOPS ON ALL LINE POST

SEE NOTE ABOVE

SEE NOTE ABOVE

WIRE TIES 12"± O.C. (TYPICAL) (9 GAUGE)

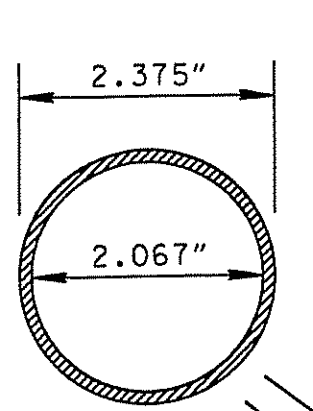
SEE NOTE ABOVE (REGARDING THE TENSION WIRE)

10'-0" O.C. MAX LINE POST

10'-0" O.C. MAX. LINE POST

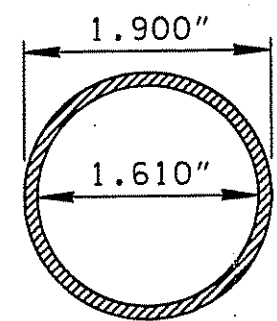
EQUAL SPACING FOR PULL POST LOCATIONS (500' MAX. O.C.) AND ALL SHARP BREAKS IN TERRAIN.

3'-0" TWISTED AND BARBED TOP AND BOTTOM OF FENCE. BOTTOM MAY BE KNUCKLED ON FABRIC LESS THAN 60 INCHES.

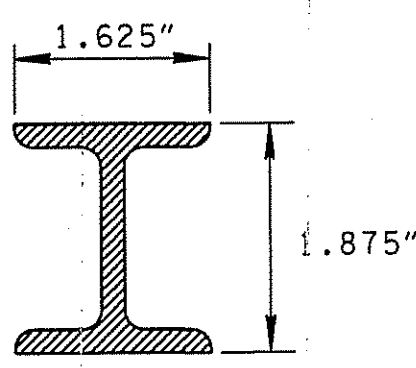


SECTION: 2" I.D. END CORNER OR PULL POST 3.65 LBS./FT GALVANIZED STEEL ASTM F1083; OR 2" ALUM. ALLOY (ASA SCHEDULE 40) ASTM B241, ALLOY 6063, TEMPER T6; OR 2" TRIPLE COATED STEEL AT 3.117 LBS./FT. - PER ASTM F1043 GROUP 1-C.

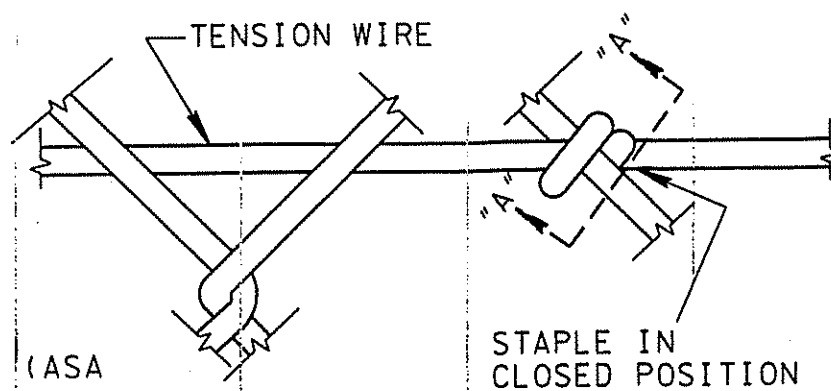
CHAIN LINK FABRIC NO. 9 WIRE 2" MESH



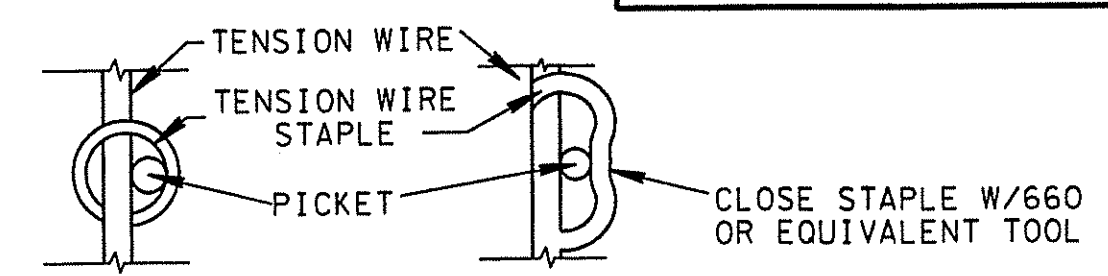
SECTION: 1 1/2" I.D. LINE POST AT 2.72 LBS./FT. GALVANIZED STEEL ASTM F1083, OR 1 1/2" ALUM. ALLOY (ASA SCHEDULE 40) ASTM B429, ALLOY 6063, TEMPER T6, OR 1 1/2" TRIPLE COATED STEEL AT 2.281 LBS./FT. - PER ASTM F1043 GROUP 1-C.



GAL. WT./FT. 3.26 LBS. H-BEAM OPTIONAL LINE POST



ATTACHMENT OF FABRIC TO TENSION WIRE



SECTION "A-A" AFTER CLOSING STAPLE BEFORE CLOSING STAPLE

MINOR REVISION -- FHWA APPROVAL NOT REQUIRED.

GENERAL NOTES

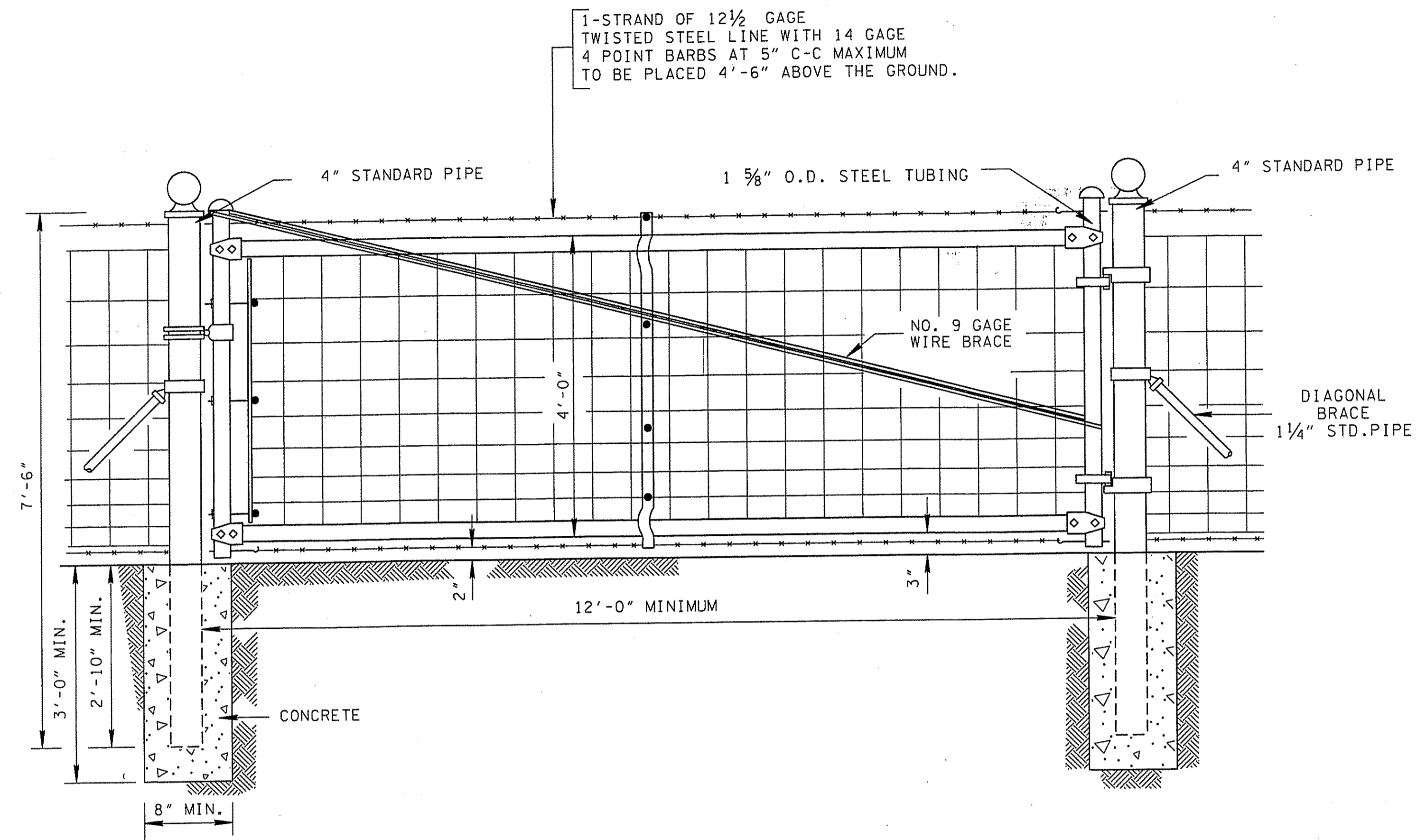
- (A) FENCE SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 707 OF STANDARD SPECIFICATIONS.
- (B) MATERIALS SPECIFICATIONS SHALL COMPLY WITH SECTION 909, AND ALL REVISIONS THERETO.
- (C) CONCRETE FOR BRACE, CORNER AND GATE POSTS SHALL BE CLASS "A" IN ACCORDANCE WITH SECTION 604 OF THE STANDARD SPECIFICATION AND OF SIZE AND DIMENSION AS SHOWN.
- (D) CLEARING AND GRUBBING PRIOR TO SETTING FENCE SHALL BE DONE IN ACCORDANCE WITH SPECIFICATIONS SECTION 707.
- (E) POLYVINYL CHORIDE FABRIC IN ACCORDANCE WITH AASHTO M181, TYPE IV, CLASS B, MAY BE SUPPLIED ONLY WHEN CALLED FOR ELSEWHERE ON THE PLANS.
- (F) ACCEPTED QUANTITIES OF FENCE WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER LINEAR FOOT, COMPLETE IN PLACE, FOR THE KIND, SHAPES, AND DIMENSIONS OF FENCE STIPULATED OR SHOWN ON PLANS.
- (G) PAYMENT WILL BE MADE UNDER ITEM NUMBERS:
 - 707-01.01 CHAIN LINK FENCE (4 FOOT) PER LINEAR FOOT.
 - 707-01.11 CHAIN LINK FENCE (6 FOOT) PER LINEAR FOOT.
 - 707-01.02 END AND CORNER POST ASSEMBLY (CHAIN LINK FENCE 4 FOOT) PER EACH.
 - 707-01.12 END AND CORNER POST ASSEMBLY (CHAIN LINK FENCE 6 FOOT) PER EACH.
 - 707-01.03 GATE-CHAIN-LINK FENCE-4 FOOT (DESCRIPTION) EACH
 - 707-01.04 GATE-CHAIN-LINK FENCE-4 FOOT (DESCRIPTION) EACH
 - 707-01.13 GATE-CHAIN-LINK FENCE-6 FOOT (DESCRIPTION) EACH
 - 707-01.14 GATE-CHAIN-LINK FENCE-6 FOOT (DESCRIPTION) EACH
 - 707-01.52 GATE-CHAIN-LINK FENCE (_ FOOT -DESCRIPTION) EACH
 - 707-01.53 GATE-CHAIN-LINK FENCE (_ FOOT -DESCRIPTION) EACH

SEE STD. DWG. S-F-11 FOR GATE DETAILS.

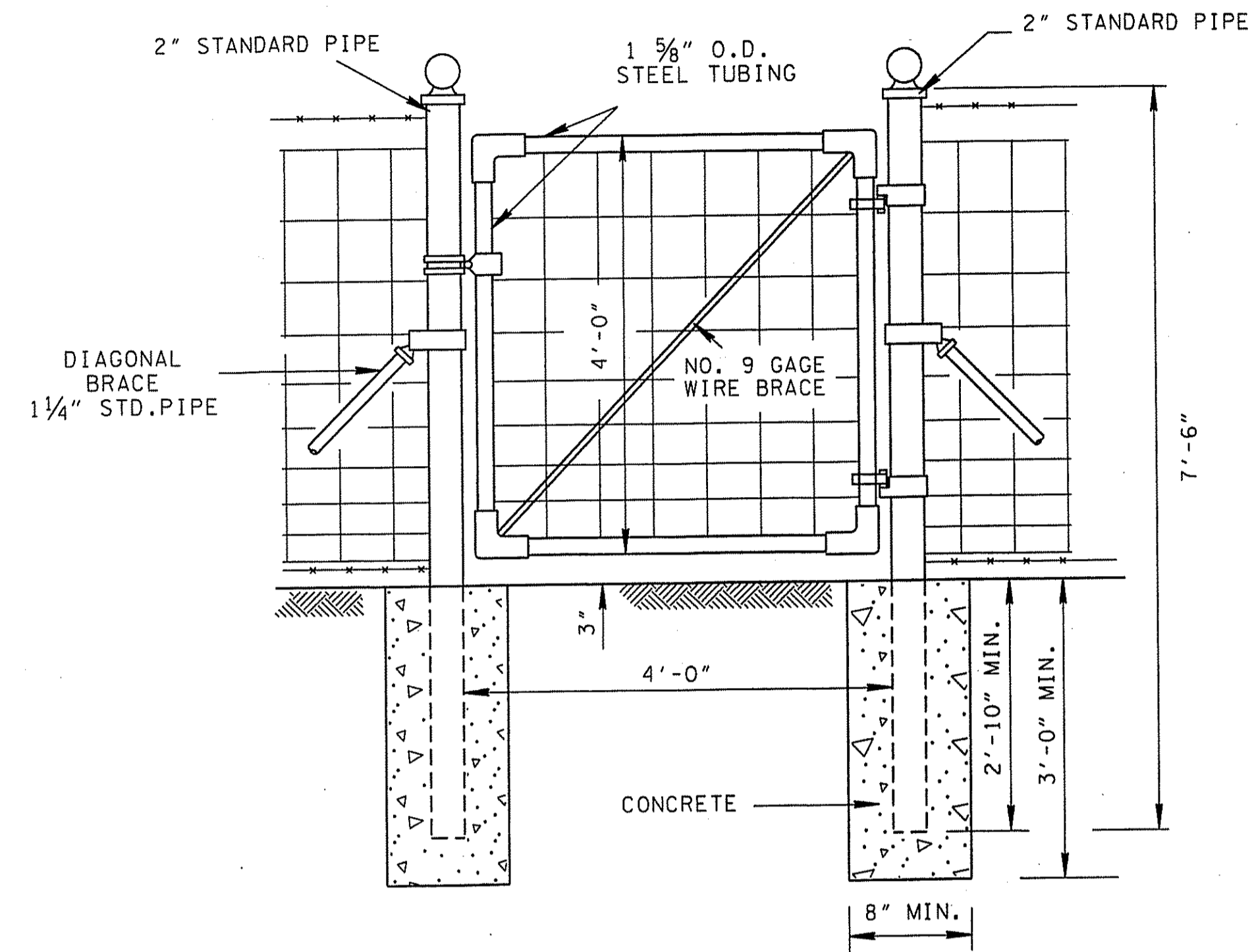
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

STANDARD
RIGHT-OF-WAY
CHAIN LINK
FENCE

- REV. 7-1-72: CHANGED DEPARTMENT NAME.
- REV. 1-1-76: CHANGED DRAWING NUMBER FROM RD-F-11(68) TO S-F-11.
- REV. 5-2-90: ADDED PAY ITEMS.
- REV. 1-24-08: REDREW SHEET AND CHANGED LENGTH OF ALL FENCE POSTS.
- REV. 5-14-10: MODIFIED ITEM NUMBER DESCRIPTIONS.



STOCK FENCE DRIVE GATE (12' X 4')



STOCK FENCE WALK GATE (4' X 4')

DESCRIPTION	CONSTRUCTION
<p>STOCK FENCE DRIVE GATE SHALL BE A TUBULAR STEEL FRAME 4 FEET HIGH AND OF SPECIFIED LENGTH WITH WIRE FABRIC FILLER WITHIN THE GATE FRAME, AND WITH TWO STRANDS OF BARBED WIRE ABOVE THE FRAME AND ONE STRAND OF BARBED WIRE BELOW THE FRAME, AND SHALL BE CONSTRUCTED OF THE MATERIALS INDICATED BELOW.</p> <p>STOCK FENCE WALK GATE SHALL BE A TUBULAR STEEL FRAME 4 FEET HIGH AND 4 FEET LONG WITH WIRE FABRIC FILLER WITHIN THE GATE FRAME, AND SHALL BE CONSTRUCTED OF THE MATERIALS INDICATED BELOW.</p>	<p>GATES SHALL BE INSTALLED AT THE LOCATIONS INDICATED IN THE PLANS OR AS DIRECTED BY THE ENGINEER. THE GATE SHALL BE INSTALLED BETWEEN AND FASTENED TO PROPERLY SPACED GATE POSTS, WHICH SHALL BE SET IN THE GROUND A FULL 34 INCHES. THE POSTS AND BRACES SHALL BE SET IN CONCRETE BASES WHICH SHALL BE AT LEAST 8 INCHES IN DIAMETER AND SHALL EXTEND 3 FEET OR MORE BELOW THE SURFACE OF THE GROUND.</p>
MATERIALS	PAYMENT WILL BE MADE UNDER :
<p>DRIVE GATE: THE GATE SHALL CONSIST OF 1 5/8" O.D. HIGH CARBON STEEL TUBING FASTENED AT EACH CORNER WITH MALLEABLE IRON OR PRESSED STEEL FITTINGS BOLTED TO THE TUBULAR FRAME. THE GATE FRAME SHALL BE BRACED VERTICALLY AT THE CENTER WITH TWO 1" X 1" ANGLE IRONS OR TWO 3/8" X 3/4" CHANNEL IRONS BOLTED TOGETHER, AND SHALL BE BRACED DIAGONALLY WITH A NO. 9 GALVANIZED WIRE BRACE ATTACHED IN A MANNER TO PROVIDE ADJUSTMENT. GATES MORE THAN 12 FEET IN LENGTH SHALL HAVE TWO EQUALLY SPACED VERTICAL BRACES. THE END MEMBERS OF THE GATE FRAME SHALL BE PROVIDED WITH METAL CAPS.</p> <p>WALK GATE: THE WALK GATE SHALL CONSIST OF 1 5/8" O.D. HIGH CARBON STEEL TUBING FASTENED AT EACH CORNER WITH MALLEABLE IRON OR PRESSED STEEL FITTINGS ATTACHED IN A MANNER SATISFACTORY TO THE ENGINEER. THE FRAME SHALL BE BRACED DIAGONALLY WITH A NO. 9 GALVANIZED WIRE BRACE ATTACHED IN A MANNER TO PROVIDE ADJUSTMENT.</p>	<p>ITEM NO. 707-03.20 DRIVE GATE (STOCK FENCE) (DESCRIPTION) PER EACH ITEM NO. 707-03.21 WALK GATE (STOCK FENCE) (DESCRIPTION) PER EACH ETC. FOR VARIOUS DESCRIPTIONS.</p>

MINOR REVISION -- FHWA APPROVAL NOT REQUIRED.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

STANDARD
STOCK FENCE
GATE

1-1-68 S-FG-11

- REV. 12-18-03: REPLACED TABLE ③ AND MODIFIED GENERAL NOTES ③, ④, AND ⑤.
- REV. 7-29-04: CHANGED VALUES IN TABLE 3 FROM MEAN TO MARV VALUES.
- REV. 4-15-06: MODIFIED NOTE ④. ADDED NOTE ④. REVISED TABLE TITLE. REORDERED GENERAL NOTES. REFORMATTED SHEET, REVISED NOTES, MISC. EDITS TO DRAWING.
- REV. 4-1-08: REMOVED TEMPORARY REFERENCE, REVISED GENERAL NOTES, AND MISC. EDITS TO DRAWING.

ENHANCED SILT FENCE FABRIC SPECIFICATIONS	
FABRIC PROPERTY AND TEST METHODS	REQUIRED PHYSICAL PROPERTIES (MARV VALUES OF TEST DATA)
GEOTEXTILE FABRIC TYPE	WOVEN MONOFILAMENT
APPARENT OPENING SIZE (ASTM D4751)	# 30 TO # 80 STANDARD SIEVE
WATER FLUX (ASTM D4491)	≥ 110 GPM/FT ²
TENSILE STRENGTH (ASTM D4632)	≥ 370 LBS. (WARP DIRECTION) X 230 LBS. (FILL DIRECTION)
ULTRAVIOLET STABILITY (AFTER 500 HRS PER ASTM D4355)	≥ 90%
BURST STRENGTH (ASTM D3786)	≥ 470 PSI
PUNCTURE STRENGTH (ASTM D4833)	≥ 110 LB.
TRAPEZOIDAL TEAR (ASTM D4533)	≥ 115 LB. (WARP DIRECTION) X 75 LB. (FILL DIRECTION)
PERMEABILITY (ASTM D4491)	≥ 0.02 INCHES/SEC
THICKNESS (ASTM D5199)	≤ 35 MILS

ENHANCED SILT FENCE GENERAL NOTES

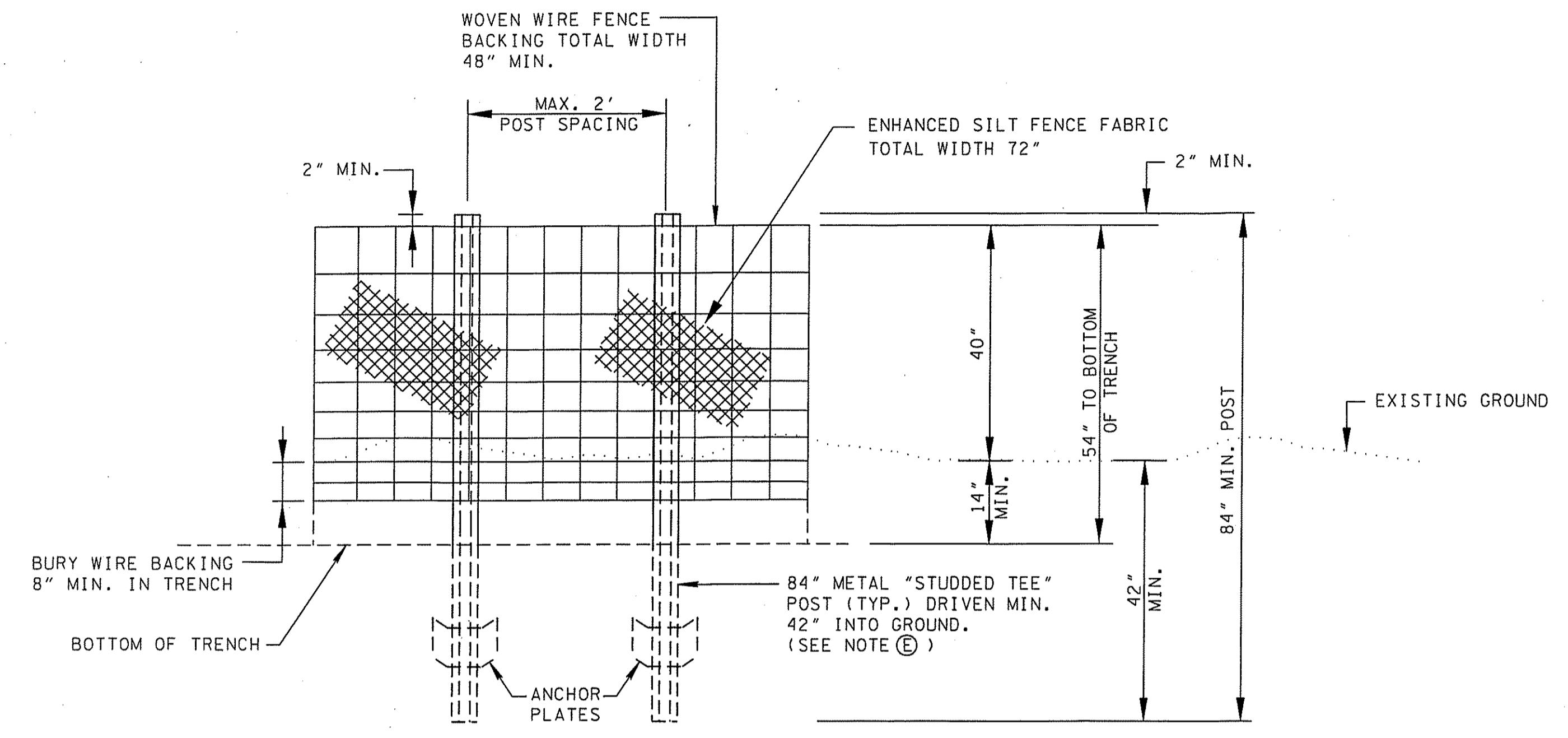
- (A) ENHANCED SILT FENCE IS TO BE USED WHERE INTERCEPTION OF CONCENTRATED FLOWS (e.g. SWALES, DITCHES, RUTS ALONG SLOPE) ARE ANTICIPATED. LIMITS OF FLOW APPLICATIONS FOR USE OF ENHANCED SILT FENCE ARE GIVEN ON STANDARD DRAWINGS EC-STR-4 AND EC-STR-4A. DO NOT USE ENHANCED SILT FENCE IN OR ADJACENT TO NATURAL WATER RESOURCES (WETLANDS OR STREAMS).
- (B) ENHANCED SILT FENCE SHOULD NOT BE USED TO REPLACE SILT FENCE WITH WIRE BACKING.
- (C) WHEN TWO SECTIONS OF ENHANCED SILT FENCE FABRIC ADJOIN EACH OTHER THEY SHALL BE JOINED ACCORDING TO THE DETAILS ON STANDARD DRAWING EC-STR-3E.
- (D) MAINTENANCE SHALL BE PERFORMED AS NEEDED; CAPTURED SOIL MATERIAL SHALL BE REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE AND/OR WHEN EVIDENCE OF FILTER CLOGGING IS NOTED.
- (E) STEEL POSTS SHALL BE ROLLED FROM HIGH CARBON STEEL AND SHALL HAVE A MINIMUM WEIGHT OF 1.25 LB/FT. POSTS SHALL BE HOT-DIPPED GALVANIZED OR PAINTED WITH HIGH GRADE WEATHER RESISTANT STEEL PAINT. STEEL POSTS SHALL BE EQUIPPED WITH AN ANCHOR PLATE HAVING A MINIMUM AREA OF 14 SQUARE INCHES. POSTS SHALL BE STUDDED, EMBOSSED, OR PUNCHED TO AID IN THE ATTACHMENT OF THE WIRE BACKING. POSTS AND ANCHOR PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A702.
- (F) STEEL POSTS SHALL HAVE A PROJECTION FOR FASTENING WIRE TO THEM. WOVEN WIRE FENCE BACKING TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES. THE WIRE FASTENERS SHOULD BE EVENLY SPACED WITH AT LEAST SIX PER POST.
- (G) WOVEN WIRE FENCE BACKING SHALL MEET THE REQUIREMENTS FOR ASTM A-116 FOR NO. 11 FARM, DESIGN NO. 1047-6-11, CLASS 3 COATING.
- (H) FILTER FABRIC SHALL BE FASTENED SECURELY TO WOVEN WIRE FENCE BACKING WITH TIES SPACED EVERY 24 INCHES ALONG TOP AND MID SECTION.
- (I) FOR TRENCH-BASED INSTALLATIONS, ENHANCED SILT FENCING SHALL BE INSTALLED PER THE FOLLOWING STEPS AND IN THE FOLLOWING ORDER:
 - EXCAVATE TRENCH A MAXIMUM OF 18 INCHES WIDE 14 INCHES DEEP. THE TRENCH SHALL BE HAND-CLEANED FOLLOWING EXCAVATION TO REMOVE BULKY DEBRIS SUCH AS ROCKS, STICKS, AND SOIL CLODS FROM THE TRENCH.
 - DRIVE AND SET SUPPORT POSTS PER SPACING REQUIREMENTS GIVEN ON THE APPLICABLE FENCE DETAIL.
 - ATTACH WOVEN WIRE FENCE BACKING TO POSTS AND FABRIC TO THE WIRE BACKING USING WIRE TIES. SPACING AND DENSITY OF TIES SHALL BE INSTALLED ACCORDING TO NOTES F AND H.
 - INSTALL FABRIC IN TRENCH.
 - BACKFILL TRENCH (OVER-FILL) WITH SOIL PLACED AROUND FABRIC.
 - COMPACT SOIL BACKFILL WITH MECHANICAL EQUIPMENT. DO NOT DAMAGE THE FABRIC DURING COMPACTION (DAMAGED FABRIC SHALL BE REPLACED).
- (J) ONLY ENHANCED SILT FENCE FABRIC LISTED ON THE QUALIFIED PRODUCTS LIST MAY BE USED. ANY PRODUCTS LISTED ON THE QUALIFIED PRODUCTS LIST AS AN APPROVED ALTERNATE MAY ALSO BE USED.
- (K) ENHANCED SILT FENCE SHALL BE PAID FOR UNDER THE FOLLOWING ITEM NUMBER:
209-08.04 TEMPORARY ENHANCED SILT FENCE PER LINEAR FOOT
PAYMENT SHALL INCLUDE ALL MATERIALS AND LABOR NECESSARY FOR CONSTRUCTION, MAINTENANCE, AND REMOVAL OF THE ENHANCED SILT FENCE.
- (L) SEDIMENT SHALL BE REMOVED FROM BEHIND THE ENHANCED SILT FENCE WHEN IT HAS ACCUMULATED TO ONE-HALF THE ORIGINAL HEIGHT OF THE STRUCTURE AND PAID FOR UNDER ITEM NUMBER 209-05, SEDIMENT REMOVAL PER CUBIC YARD.

□ MINOR REVISION -- FHWA APPROVAL NOT REQUIRED.

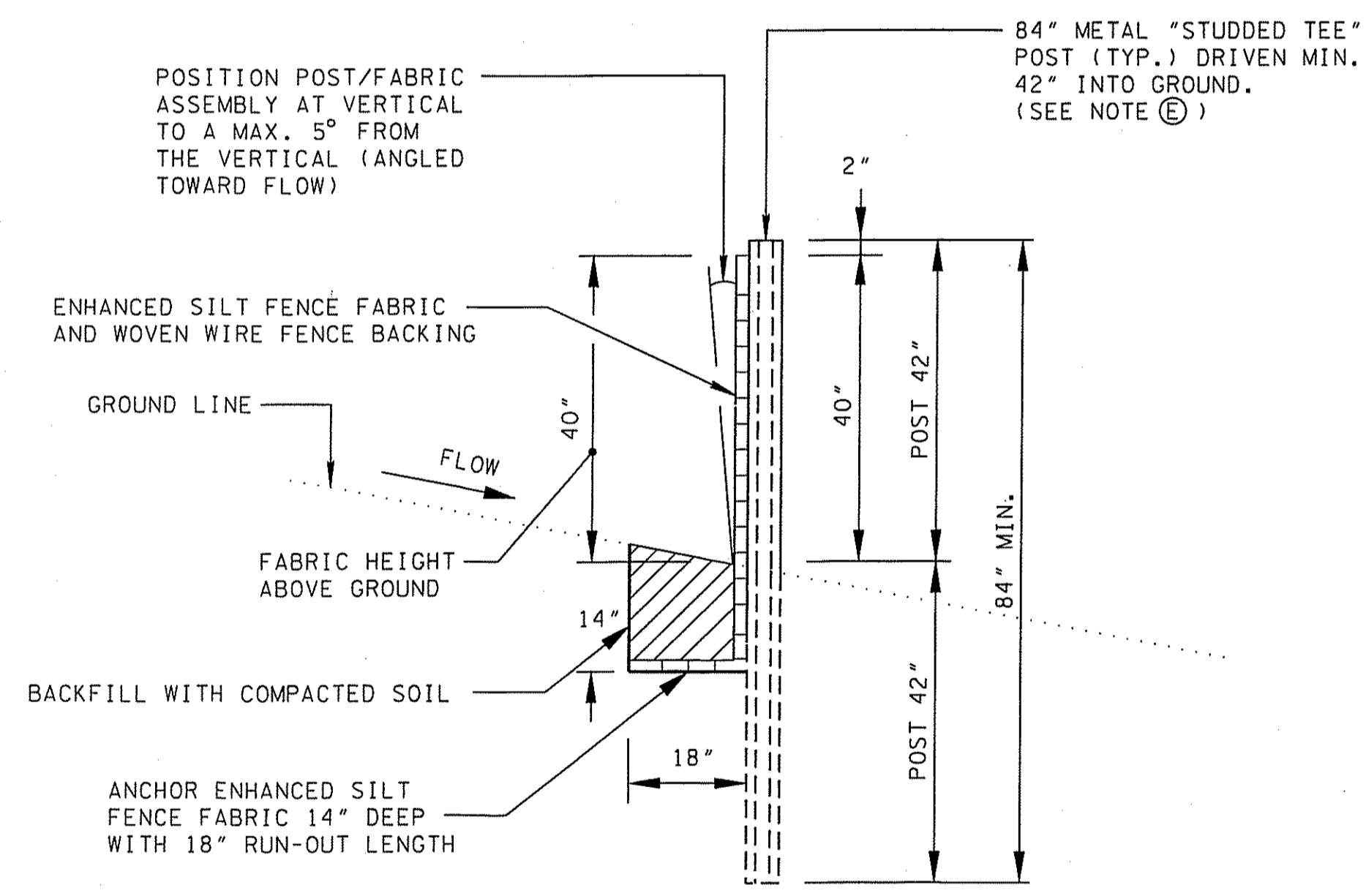
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

ENHANCED
SILT FENCE

12-18-02 EC-STR-3D



ELEVATION VIEW



SECTIONAL VIEW

EROSION CONTROL PLAN LEGEND: * ESF * ESF * ESF * ENHANCED SILT FENCE