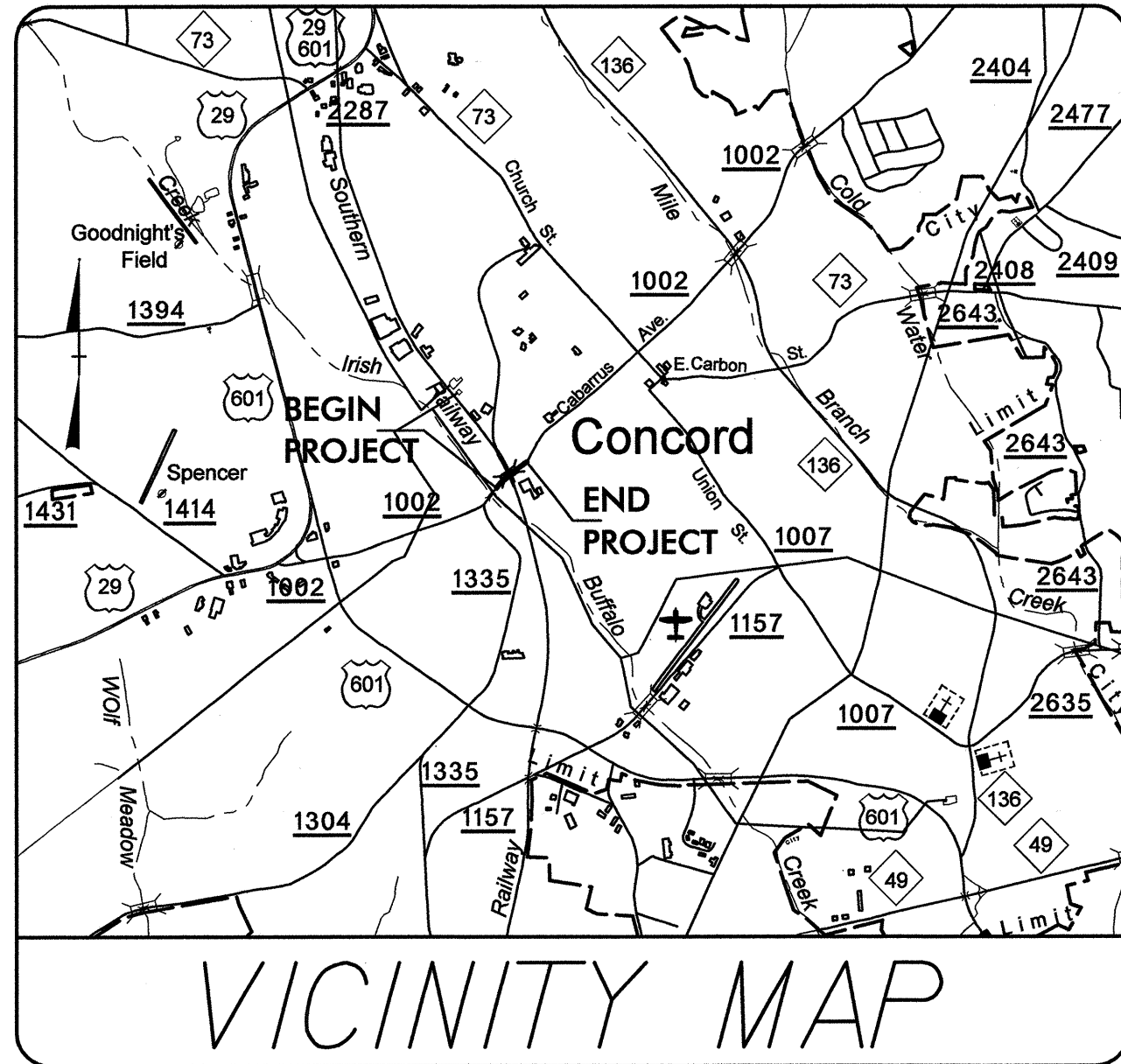


CONTRACT: C202773 TIP PROJECT: B-3421

See Sheet 1-A For Index of Sheets



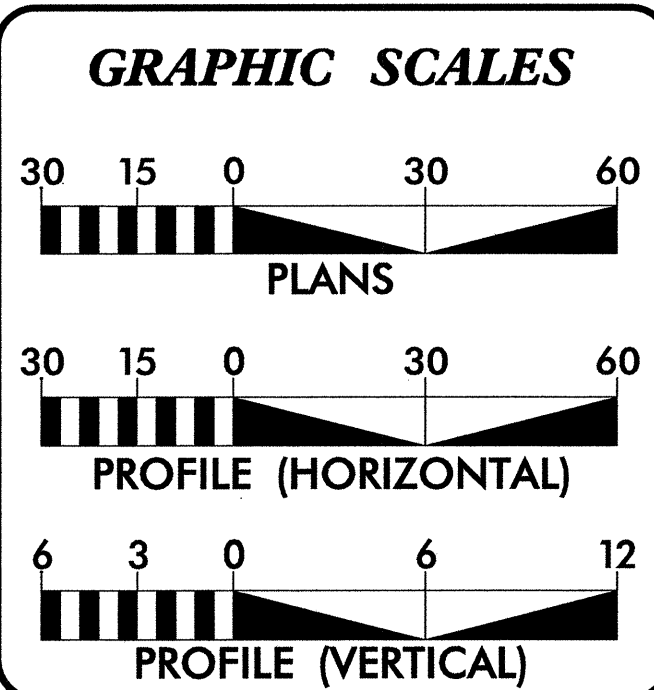
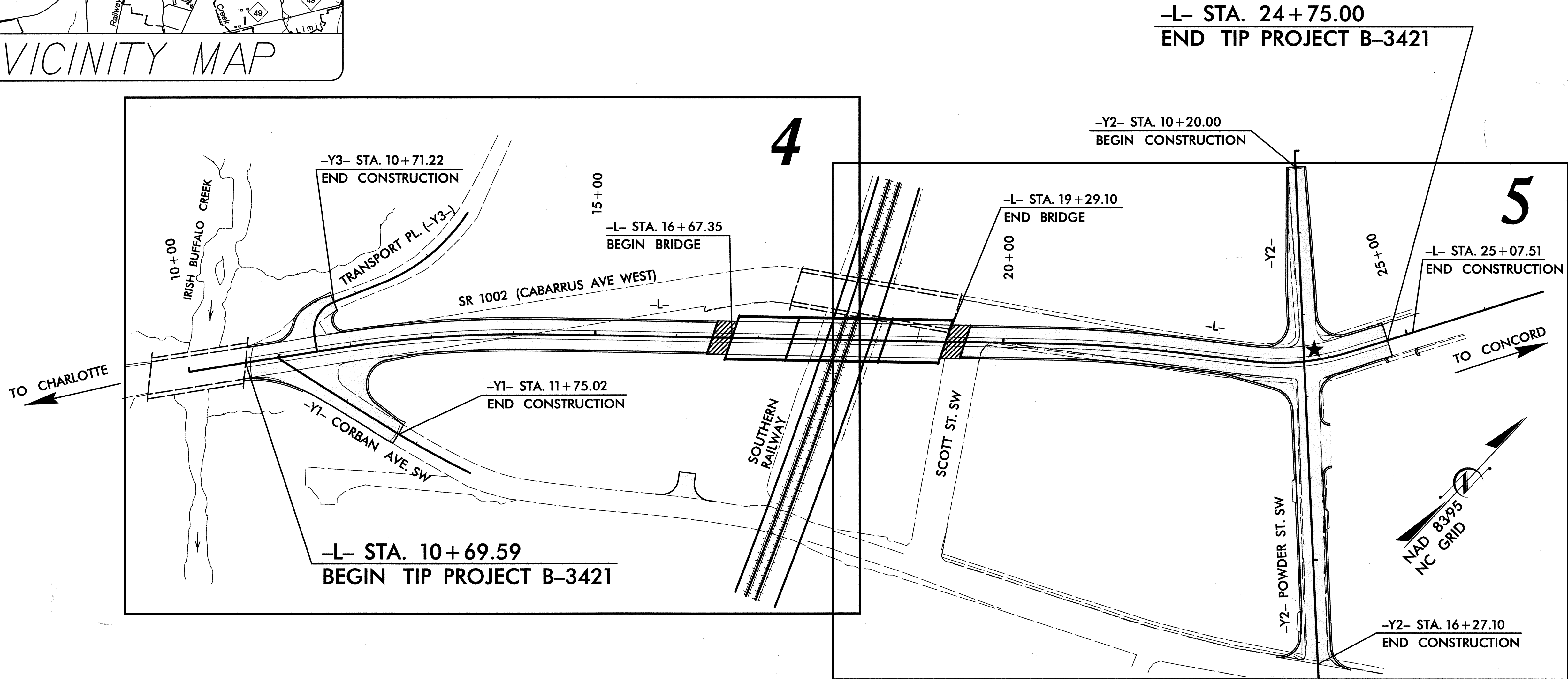
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CABARRUS COUNTY

LOCATION: BRIDGE NO. 266 OVER SOUTHERN RAILWAY ON
SR 1002 IN CONCORD

TYPE OF WORK: STRUCTURE, DRAINAGE, GRADING, PAVING, AND SIGNALS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-3421	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33048.1.1	BRSTP-1002(7)	P.E.	
33048.2.2	BRSTP-1002(29)	RW / UTIL.	
33048.3.1	BRSTP-1002(27)	CONST.	



DESIGN DATA

ADT 2010 = 21,723
ADT 2030 = 23,800
DHV = 10 %
D = 50 %
T = 5 % *
V = 40 MPH
* (TTST 2% + DUAL 3%)
FUNC. CLASS = URBAN
MINOR ARTERIAL
DESIGN EXCEPTION REQ'D
FOR VERTICAL ALIGNMENT
& VERTICAL SSD

PROJECT LENGTH

TOTAL LENGTH ROADWAY TIP PROJECT = 0.216 MILES
TOTAL LENGTH STRUCTURE TIP PROJECT = 0.050 MILES
TOTAL LENGTH TIP PROJECT B-3421 = 0.266 MILES

PLANS PREPARED BY:
TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850
CORP. LICENSE NO. C-0275

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
DECEMBER 19, 2008

LETTING DATE:
FEBRUARY 21, 2012

NCDOT CONTACT:

PLANS PREPARED FOR:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr.
Raleigh, NC 27610

LEONARD G. FLETCHER, PE
PROJECT ENGINEER

JIMMY L. TERRY, PE
PROJECT DESIGN ENGINEER

BRENDA MOORE, PE
PROJECT ENGINEER - ROADWAY DESIGN

HYDRAULICS ENGINEER

ROADWAY DESIGN ENGINEER

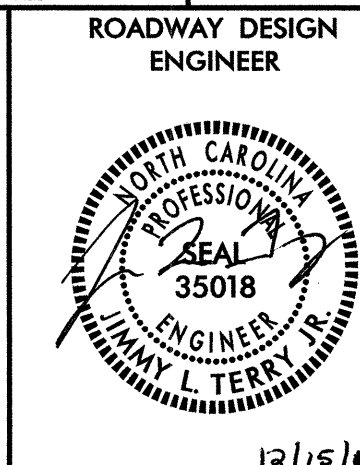
SEAL 35018
JIMMY L. TERRY, PE
11/22/11

SEAL 35018
JIMMY L. TERRY, PE
11/22/11

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS



INDEX OF SHEETS

LIST OF STANDARD DRAWINGS

GENERAL NOTES

SHEET NO.	SHEET
1	Title Sheet
1A	Index of Sheets, General Notes, and List of Standards
1B	Conventional Symbols
1C thru 1E	Survey Control Sheets
2	Pavement Schedule, Typical Sections, & Wedging Detail
2A	Detail of Temporary Pavement
2B	Detail of Concrete Steps with Handrail
2C	Detail of Proposed Pedestrian Safety Rail
2D	Detail of Rock Plating
3	Summary of Quantities
3A	Summaries of Earthwork, Existing Asphalt Pavement Removal, Guardrail & Guardrail Removal
3B	Summary of Drainage
3C	Parcel Index Sheet
4 & 5	Plan Sheets
6 & 7	Profile Sheets
TMP-1 thru TMP-5A	Traffic Control Plans
EC-1 thru EC-7	Erosion Control Plans
SIG-1 thru SIG-14	Signalization Plans
UC-1 thru UC-5	Utility Construction Plans
UO-1 thru UO-3	Utilities By Others Plans
X-INDEX	Cross Section Index
X-SUM	Earthwork Volume Summaries
X-1 thru X-16	Cross Sections
S-1 thru S-51	Structure Plans
W-1 thru W-7	Retaining Wall Plans

STD.NO.	TITLE
2012 ROADWAY ENGLISH STANDARD DRAWINGS	
The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2012 are applicable to this project and by reference hereby are considered a part of these plans:	
DIVISION 2 - EARTHWORK	
200.03	Method of Clearing - Method III
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
225.06	Method of Grading Sight Distance at Intersections
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 4 - MAJOR STRUCTURES	
422.10	Reinforced Bridge Approach Fills
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
815.03	Pipe Underdrain and Blind Drain
840.00	Concrete Base Pad for Drainage Structures
840.01	Brick Catch Basin - 12" thru 54" Pipe
840.02	Concrete Catch Basin - 12" thru 54" Pipe
840.03	Frame, Grates and Hood - for Use on Standard Catch Basin
840.14	Concrete Drop Inlet - 12" thru 30" Pipe
840.15	Brick Drop Inlet - 12" thru 30" Pipe
840.16	Drop Inlet Frame and Grates - for use with Std. Dwg 840.14 and 840.15
840.17	Concrete Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.19	Concrete Grated Drop Inlet Type 'D' - 12" thru 36" Pipe
840.24	Frames and Narrow Slot Sag Grates
840.25	Anchorage for Frames - Brick or Concrete
840.26	Brick Grated Drop Inlet Type 'A' - 12" thru 72" Pipe
840.28	Brick Grated Drop Inlet Type 'D' - 12" thru 36" Pipe
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.45	Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
848.01	Concrete Sidewalk
848.02	Driveway Turnout - Radius Type
848.03	Driveway Turnout - Drop Curb Type
848.04	Street Turnout
848.05	Curb Ramp - Proposed Curb & Gutter
850.01	Concrete Paved Ditches
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

EFF. 01-17-12
REV. 08-31-11

GENERAL NOTES:

2012 SPECIFICATIONS
EFFECTIVE: 01-17-12
REVISED: 08-31-11

GRADE LINE:
GRADING AND SURFACING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01.

SIDE ROADS:

THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

UNDERDRAINS:

UNDERDRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.03 AT LOCATIONS DIRECTED BY THE ENGINEER.

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.03 OR 848.02 (@Parcel 22) AT LOCATIONS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER.

STREET TURNOUT:

STREET RETURNS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 848.04 USING THE RADII NOTED ON PLANS.

GUARDRAIL:

THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".

END BENTS:

THE ENGINEER SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS-SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE TIME WARNER CABLE

CITY OF CONCORD (WATER, POWER, SEWER)

WINDSTREAM COMMUNICATIONS (TELEPHONE)

PSNC ENERGY (GAS)

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

RIGHT-OF-WAY MARKERS:

ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY OTHERS.

Curb Ramps:

CURB RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale
**S.U.E. = Subsurface Utility Engineering*

BOUNDARIES AND PROPERTY:

State Line _____

County Line _____

Township Line _____

City Line _____

Reservation Line _____

Property Line _____

Existing Iron Pin _____

Property Corner _____

Property Monument _____

Parcel/Sequence Number _____

Existing Fence Line _____

Proposed Woven Wire Fence _____

Proposed Chain Link Fence _____

Proposed Barbed Wire Fence _____

Existing Wetland Boundary _____

Proposed Wetland Boundary _____

Existing Endangered Animal Boundary _____

Existing Endangered Plant Boundary _____

Known Soil Contamination: Area or Site _____

Potential Soil Contamination: Area or Site _____

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap _____

Sign _____

Well _____

Small Mine _____

Foundation _____

Area Outline _____

Cemetery _____

Building _____

School _____

Church _____

Dam _____

HYDROLOGY:

Stream or Body of Water _____

Hydro, Pool or Reservoir _____

Jurisdictional Stream _____

Buffer Zone 1 _____

Buffer Zone 2 _____

Flow Arrow _____

Disappearing Stream _____

Spring _____

Wetland _____

Proposed Lateral, Tail, Head Ditch _____

False Sump _____

RAILROADS:

Standard Gauge _____

RR Signal Milepost _____

Switch _____

RR Abandoned _____

RR Dismantled _____

RIGHT OF WAY:

Baseline Control Point _____

Existing Right of Way Marker _____

Existing Right of Way Line _____

Proposed Right of Way Line _____

Proposed Right of Way Line with Iron Pin and Cap Marker _____

Proposed Right of Way Line with Concrete or Granite Marker _____

Existing Control of Access _____

Proposed Control of Access _____

Existing Easement Line _____

Proposed Temporary Construction Easement _____

Proposed Temporary Drainage Easement _____

Proposed Permanent Drainage Easement _____

Proposed Permanent Drainage / Utility Easement _____

Proposed Permanent Utility Easement _____

Proposed Temporary Utility Easement _____

Proposed Aerial Utility Easement _____

Proposed Permanent Easement with Iron Pin and Cap Marker _____

ROADS AND RELATED FEATURES:

Existing Edge of Pavement _____

Existing Curb _____

Proposed Slope Stakes Cut _____

Proposed Slope Stakes Fill _____

Proposed Curb Ramp _____

Curb Cut Future Ramp _____

Existing Metal Guardrail _____

Proposed Guardrail _____

Existing Cable Guiderail _____

Proposed Cable Guiderail _____

Equality Symbol _____

Pavement Removal _____

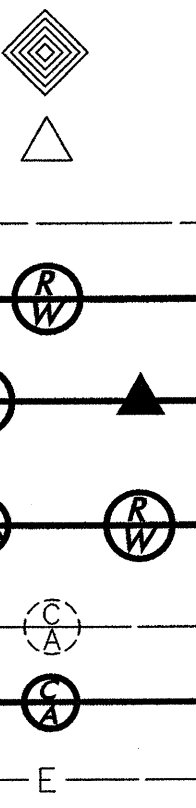
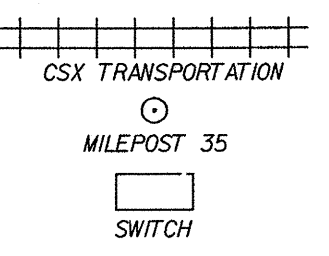
VEGETATION:

Single Tree _____

Single Shrub _____

Hedge _____

Woods Line _____



Orchard _____

Vineyard _____

EXISTING STRUCTURES:

MAJOR:

Bridge, Tunnel or Box Culvert _____

Bridge Wing Wall, Head Wall and End Wall _____

MINOR:

Head and End Wall _____

Pipe Culvert _____

Footbridge _____

Drainage Box: Catch Basin, DI or JB _____

Paved Ditch Gutter _____

Storm Sewer Manhole _____

Storm Sewer _____

UTILITIES:

POWER:

Existing Power Pole _____

Proposed Power Pole _____

Existing Joint Use Pole _____

Proposed Joint Use Pole _____

Power Manhole _____

Power Line Tower _____

Power Transformer _____

U/G Power Cable Hand Hole _____

H-Frame Pole _____

Recorded U/G Power Line _____

Designated U/G Power Line (S.U.E.*) _____

TELEPHONE:

Existing Telephone Pole _____

Proposed Telephone Pole _____

Telephone Manhole _____

Telephone Booth _____

Telephone Pedestal _____

Telephone Cell Tower _____

U/G Telephone Cable Hand Hole _____

Recorded U/G Telephone Cable _____

Designated U/G Telephone Cable (S.U.E.*) _____

Recorded U/G Telephone Conduit _____

Designated U/G Telephone Conduit (S.U.E.*) _____

Recorded U/G Fiber Optics Cable _____

Designated U/G Fiber Optics Cable (S.U.E.*) _____

WATER:

Water Manhole _____

Water Meter _____

Water Valve _____

Water Hydrant _____

Recorded U/G Water Line _____

Designated U/G Water Line (S.U.E.*) _____

Above Ground Water Line _____

TV:

TV Satellite Dish _____

TV Pedestal _____

TV Tower _____

U/G TV Cable Hand Hole _____

Recorded U/G TV Cable _____

Designated U/G TV Cable (S.U.E.*) _____

Recorded U/G Fiber Optic Cable _____

Designated U/G Fiber Optic Cable (S.U.E.*) _____

GAS:

Gas Valve _____

Gas Meter _____

Recorded U/G Gas Line _____

Designated U/G Gas Line (S.U.E.*) _____

Above Ground Gas Line _____

SANITARY SEWER:

Sanitary Sewer Manhole _____

Sanitary Sewer Cleanout _____

U/G Sanitary Sewer Line _____

Above Ground Sanitary Sewer _____

Recorded SS Forced Main Line _____

Designated SS Forced Main Line (S.U.E.*) _____

MISCELLANEOUS:

Utility Pole _____

Utility Pole with Base _____

Utility Located Object _____

Utility Traffic Signal Box _____

Utility Unknown U/G Line _____

U/G Tank; Water, Gas, Oil _____

Underground Storage Tank, Approx. Loc. _____

A/G Tank; Water, Gas, Oil _____

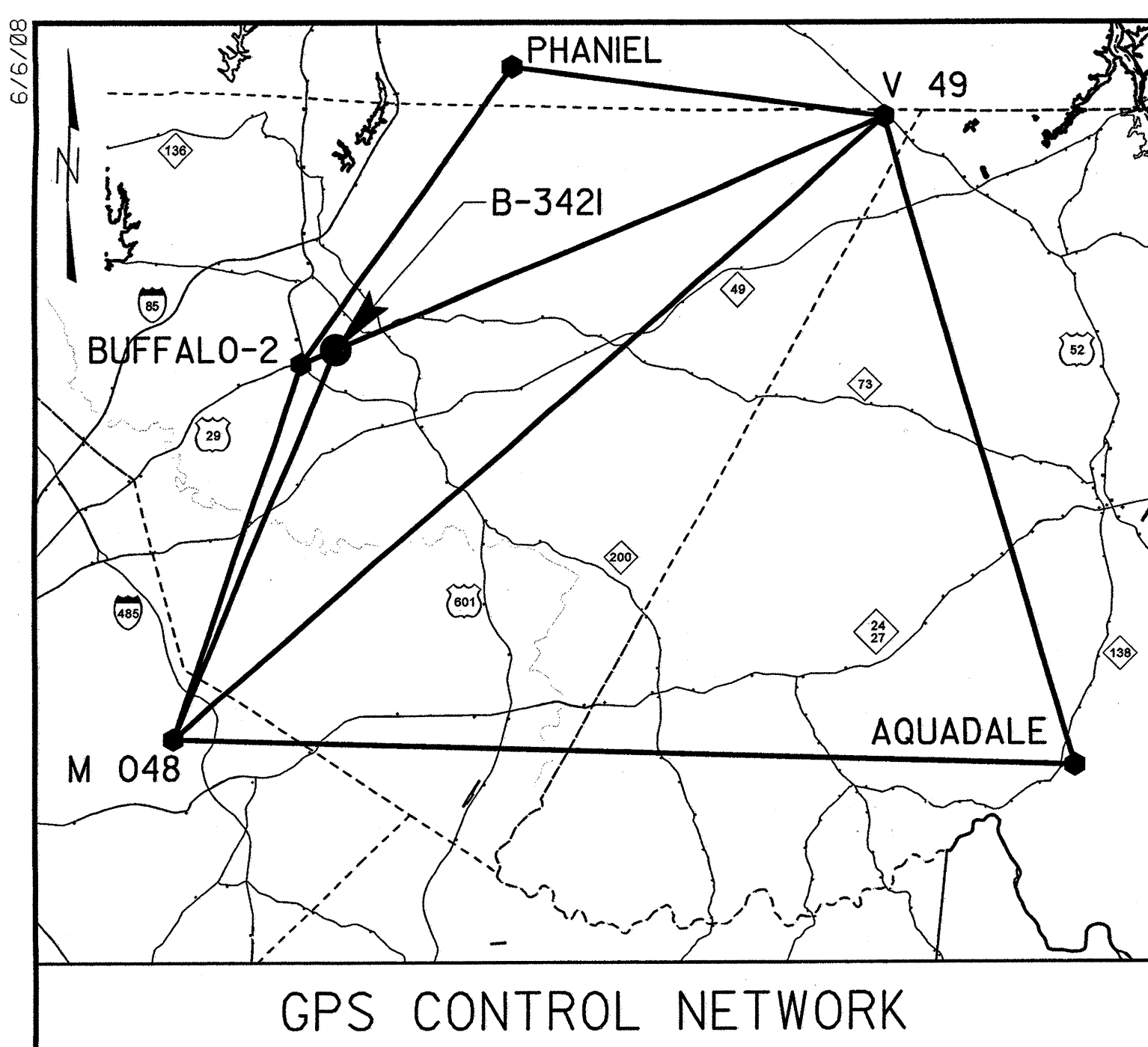
Geoenvironmental Boring _____

U/G Test Hole (S.U.E.*) _____

Abandoned According to Utility Records _____

End of Information _____

SURVEY CONTROL SHEET B-3421



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NGS FOR MONUMENT "BUFFALO 2 1984" WITH NAD 83/95 STATE PLANE GRID COORDINATES OF NORthing: 602,892.6033(±) EASTING: 1,520,417.6908(±) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998513 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BUFFALO 2 1984" TO -L- STATION 10+00.00 IS N 70°43'32.7" E 5168.843 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

NOTES:

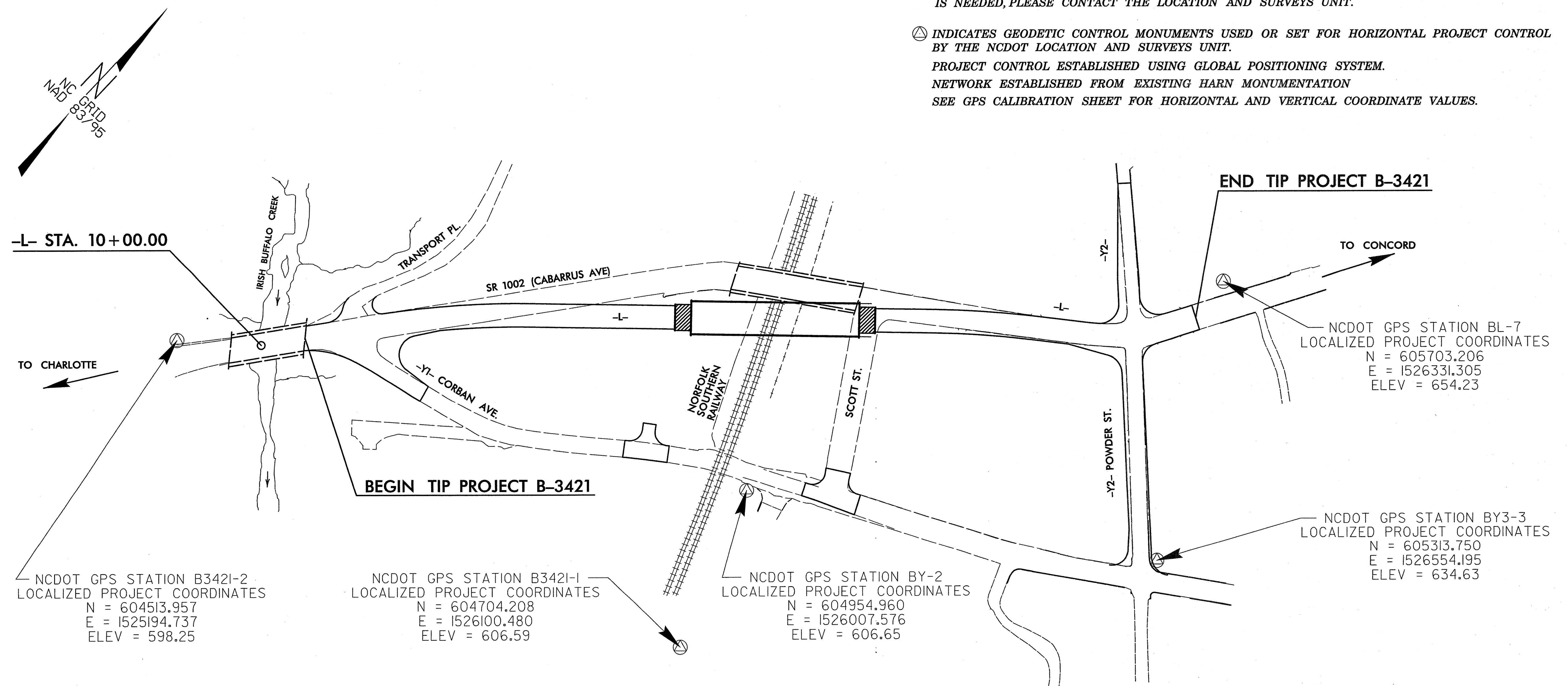
1. THE SITE CALIBRATION SHOWN IS BASED UPON A NETWORK TIED TO THE HARN (HIGH ACCURACY REFERENCE NETWORK) NAD 83/95 ADJUSTMENT. THIS CALIBRATION WILL ALLOW THE END USER TO WORK WITHIN THE SAME COORDINATE SYSTEM WHEN USING RTK (REAL TIME KINEMATIC) GPS AND A LOCAL BASE STATION. IF ANOTHER SYSTEM SUCH AS VRS (VIRTUAL REFERENCE STATION) IS USED, ADDITIONAL FIELD TIES MAY BE NEEDED TO REDUCE POSSIBLE ERRORS, OR BIASES.

2. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
[HTTP://WWW.NCDOT.ORG/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.ncdot.org/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/)

THE FILES TO BE FOUND ARE AS FOLLOWS:
 B3421_LS_GPSCALIB_080606.TXT
 B3421_LS_WGS84_080606.TXT
 B3421_LS_LOCAL_080606.TXT
 B3421_LS_CONTROL_080606.TXT

THE WGS84 AND LOCAL FILES ARE COMMA DELIMITED AND CAN BE USED TO REPRODUCE THE SITE CALIBRATION FOR THE END USER'S GPS EQUIPMENT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

- ⊕ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
- PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
- NETWORK ESTABLISHED FROM EXISTING HARN MONUMENTATION
- SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.



NOTE: DRAWING NOT TO SCALE

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6/16/08

SURVEY CONTROL SHEET B-3421

PROJECT REFERENCE NO.	SHEET NO.
B-3421	1 D
Location and Surveys	

BL POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
2	B3421-2	604513.9570	1525194.7370	598.25	OUTSIDE PROJECT LIMITS	
3	BL-3	604642.0820	1525360.3200	598.69	10+73.12	23.67 RT
4	BL-4	605186.3910	1525730.6100	627.33	17+20.17	90.11 LT
5	BL-5	605291.3370	1525988.6370	626.53	19+81.78	5.54 RT
6	BL-6	605554.1350	1526254.3110	644.56	23+58.53	28.22 LT
7	BL-7	605703.2060	1526331.3050	654.23	25+33.22	41.12 LT

BY POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
21	BY-21	605476.7250	1525753.0380	606.01	19+31.87	290.07 LT
20	BY-2	604954.9600	1526007.5760	606.65	17+69.79	267.39 RT
1	B3421-1	604704.2080	1526100.4800	606.59	16+70.10	515.52 RT

BY1 POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
794	BL-3	604642.0820	1525360.3200	598.69	10+73.12	23.67 RT
9	BY1-1	604776.7910	1525666.8670	594.51	13+93.21	169.97 RT
795	BY-2	604954.9600	1526007.5760	606.65	17+69.79	267.39 RT
796	BY3-3	605313.7500	1526554.1950	634.63	23+70.06	355.77 RT

BY2 POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
797	BL-5	605291.3370	1525988.6370	626.53	19+81.78	5.54 RT
23	BY2-1	605066.0560	1526072.0340	611.09	18+92.17	228.42 RT

BY3 POINT	DESC.	NORTH	EAST	ELEVATION	Y2 STATION	OFFSET
24	BY3-1	605726.6560	1526110.6400	641.47	10+06.57	12.04 LT
798	BL-6	605554.1350	1526254.3110	644.56	12+29.82	11.69 RT
25	BY3-3	605313.7500	1526554.1950	634.63	16+12.44	24.68 LT

BY4 POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
26	BY4-1	605189.8400	1525337.7700	586.44	14+31.55	356.63 LT
8	BY4-2	604954.9460	1525402.8850	587.41	13+31.89	142.73 LT
799	BL-3	604642.0820	1525360.3200	598.69	10+73.12	23.67 RT

DATUM DESCRIPTION
 THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NGS FOR MONUMENT "BUFFALO 2 1984" WITH NAD 83/95 STATE PLANE GRID COORDINATES OF NORTHING: 602,892.6033(±) EASTING: 1,520,417.6908(±) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998513 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BUFFALO 2 1984" TO -L- STATION 10+00.00 IS N 70°43'32.7" E 5168.843 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

 BM1 ELEVATION = 599.01
 N 604632 E 1525357
 L STATION 10+59
 S 19° 42' 47.6" W DIST 11.03
 CHISELED SQUARE IN CONC. WW OF BRIDGE

 BM2 ELEVATION = 603.70
 N 604905 E 1525906
 L STATION 7+44 506 LEFT
 RR SPIKE SET 1 FT UP FROM BASE OF POWER POLE

 BM3 ELEVATION = 646.61
 N 605543 E 1526331
 L STATION 5+00
 N 70° 26' 54.9" E DIST 1054.11
 PAINTED (ORANGE) BOLT OF GATE SIGN

NOTES:
 SEE NOTES, PAGE 1C

6/16/08

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6/16/08

PROJECT REFERENCE NO.	SHEET NO.
B-3421	1 E
Location and Surveys	

SURVEY CONTROL SHEET B-3421

GPS CALIBRATION REPORT

TIP NUMBER B-3421
 COORDINATE SYSTEM US STATE PLANE 1983 ZONE NORTH CAROLINA 3200
 HORIZONTAL DATUM NAD 1983 (CONUS)
 VERTICAL DATUM NAVD-88 GEOID MODEL GEOID03 (CONUS) NC SUB GRID
 COORDINATE UNITS US SURVEY FEET
 DISTANCE UNITS US SURVEY FEET
 HEIGHT UNITS US SURVEY FEET

LOCAL SITE INFORMATION
 LOCALIZED AROUND BUFFALO 2
 LATITUDE N/A
 LONGITUDE N/A
 SITE SCALE FACTOR N/A
 HEIGHT N/A

THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION USES A LOCALIZED COORDINATE SYSTEM WHICH IS VERY SIMILAR TO NORTH CAROLINA ZONE 3200 FROM WHICH IT IS DERIVED. PLEASE TAKE CARE IN UTILIZING THESE COORDINATES TO ELIMINATE CONFUSION OF THE TWO SYSTEMS. THIS FILE IS TO AID IN THE USE OF REAL TIME KINEMATIC (RTK) GPS DURING CONSTRUCTION LAYOUT.

DATUM TRANSFORMATION PARAMETERS

DATUM TRANSFORMATION COMPUTATION NOT REQUESTED

UPDATED DEFAULT PROJECTION (TRANSVERSE MERCATOR) DEFINITION

UPDATED DEFAULT PROJECTION NOT REQUESTED

HORIZONTAL ADJUSTMENT PARAMETERS

NORTHING COORDINATE OF ROTATION CENTER 600261.407SFT
 EASTING COORDINATE OF ROTATION CENTER 1545027.921SFT
 ROTATION ABOUT THE CENTER POINT 0.00'00"
 TRANSLATION NORTH -0.385SFT
 TRANSLATION EAST 3.658SFT
 SCALE FACTOR 1.00014872

VERTICAL ADJUSTMENT PARAMETERS

NORTHING COORDINATE OF ORIGIN POINT 602892.604SFT
 EASTING COORDINATE OF ORIGIN POINT 1520417.689SFT
 VERTICAL SEPARATION AT ORIGIN 0.163SFT
 SLOPE NORTH -1.735PPM
 SLOPE EAST -1.125PPM

GEOID MODEL DEFINITION

GEOID03 (CONUS) NC SUB GRID

RESIDUAL DIFFERENCES BETWEEN GPS (WGS84) AND LOCAL COORDINATES

SUMMARY			
	MAXIMUM ERROR	ROOT MEAN SQUARE ERROR	POINT
HORIZONTAL	0.010SFT	0.002	M 048 - WGS84
VERTICAL	0.030SFT	0.005	M 048 - WGS84
THREE-DIMENSIONAL	0.032SFT	0.006	M 048 - WGS84

POINT RESIDUALS

WGS84 COORDINATES		CALCULATED POINT FOR DISPLAY ONLY		LOCAL COORDINATES	
POINT	BUFFALO 2 - WGS84	NORTHING	602892.604SFT	POINT	BUFFALO-2
LATITUDE	35°23'45.14806"N	EASTING	1520417.689SFT	NORTHING	602892.603SFT
LONGITUDE	80°36'33.58113"W	ELEVATION	764.724SFT	EASTING	1520417.691SFT
HEIGHT	664.523SFT	HORZ ERROR	0.002SFT	ELEVATION	764.720SFT
		VERT ERROR	0.004SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.004SFT	QUALITY	SURVEY QUALITY
POINT	M 048 - WGS84	NORTHING	545819.505SFT	POINT	M 048
LATITUDE	35°14'17.58671"N	EASTING	1500919.093SFT	NORTHING	545819.497SFT
LONGITUDE	80°40'17.44822"W	ELEVATION	744.855SFT	EASTING	1500919.086SFT
HEIGHT	645.301SFT	HORZ ERROR	0.010SFT	ELEVATION	744.825SFT
		VERT ERROR	0.030SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.032SFT	QUALITY	SURVEY QUALITY
POINT	PHANIEL - WGS84	NORTHING	647265.741SFT	POINT	PHANIEL
LATITUDE	35°31'08.87683"N	EASTING	1552305.119SFT	NORTHING	647265.741SFT
LONGITUDE	80°30'16.60704"W	ELEVATION	771.213SFT	EASTING	1552305.122SFT
HEIGHT	670.327SFT	HORZ ERROR	0.003SFT	ELEVATION	771.187SFT
		VERT ERROR	0.026SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.026SFT	QUALITY	SURVEY QUALITY
POINT	V 49 - WGS84	NORTHING	639676.414SFT	POINT	V 49
LATITUDE	35°30'01.74845"N	EASTING	1608696.850SFT	NORTHING	639676.415SFT
LONGITUDE	80°18'53.30853"W	ELEVATION	725.623SFT	EASTING	1608696.856SFT
HEIGHT	625.826SFT	HORZ ERROR	0.006SFT	ELEVATION	725.613SFT
		VERT ERROR	0.010SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.011SFT	QUALITY	SURVEY QUALITY
POINT	AQUADALE - WGS84	NORTHING	541765.873SFT	POINT	AQUADALE
LATITUDE	35°13'57.16634"N	EASTING	1637788.749SFT	NORTHING	541765.881SFT
LONGITUDE	80°12'47.03662"W	ELEVATION	568.625SFT	EASTING	1637788.742SFT
HEIGHT	468.857SFT	HORZ ERROR	0.011SFT	ELEVATION	568.631SFT
		VERT ERROR	0.006SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.012SFT	QUALITY	SURVEY QUALITY
POINT	B3421-1 - WGS84	NORTHING	604704.209SFT	POINT	B3421-1
LATITUDE	35°24'03.96790"N	EASTING	1526100.481SFT	NORTHING	604704.208SFT
LONGITUDE	80°35'25.30286"W	ELEVATION	606.579SFT	EASTING	1526100.480SFT
HEIGHT	506.397SFT	HORZ ERROR	0.001SFT	ELEVATION	606.590SFT
		VERT ERROR	0.011SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.011SFT	QUALITY	SURVEY QUALITY
POINT	B3421-2 - WGS84	NORTHING	604513.958SFT	POINT	B3421-2
LATITUDE	35°24'01.94296"N	EASTING	1525194.738SFT	NORTHING	604513.957SFT
LONGITUDE	80°35'36.20497"W	ELEVATION	598.253SFT	EASTING	1525194.737SFT
HEIGHT	498.063SFT	HORZ ERROR	0.001SFT	ELEVATION	598.250SFT
		VERT ERROR	0.003SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.003SFT	QUALITY	SURVEY QUALITY
POINT	BL-7 - WGS84	NORTHING	605703.207SFT	POINT	BL-7
LATITUDE	35°24'13.88310"N	EASTING	1526331.303SFT	NORTHING	605703.206SFT
LONGITUDE	80°35'22.70836"W	ELEVATION	654.202SFT	EASTING	1526331.305SFT
HEIGHT	553.988SFT	HORZ ERROR	0.002SFT	ELEVATION	654.230SFT
		VERT ERROR	0.028SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.028SFT	QUALITY	SURVEY QUALITY
POINT	BY-2 - WGS84	NORTHING	604954.961SFT	POINT	BY-2
LATITUDE	35°24'06.43275"N	EASTING	1526007.577SFT	NORTHING	604954.960SFT
LONGITUDE	80°35'26.47343"W	ELEVATION	606.641SFT	EASTING	1526007.576SFT
HEIGHT	506.449SFT	HORZ ERROR	0.001SFT	ELEVATION	606.650SFT
		VERT ERROR	0.009SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.009SFT	QUALITY	SURVEY QUALITY
POINT	BY3-3 - WGS84	NORTHING	605313.747SFT	POINT	BY3-3
LATITUDE	35°24'10.06720"N	EASTING	1526554.193SFT	NORTHING	605313.750SFT
LONGITUDE	80°35'19.94105"W	ELEVATION	634.612SFT	EASTING	1526554.195SFT
HEIGHT	534.415SFT	HORZ ERROR	0.004SFT	ELEVATION	634.630SFT
		VERT ERROR	0.018SFT	UTILIZED	HORZ AND VERT
		3D ERROR	0.018SFT	QUALITY	SURVEY QUALITY

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NGS FOR MONUMENT "BUFFALO 2 1984" WITH NAD 83/95 STATE PLANE GRID COORDINATES OF NORTHING: 602,892.6033(ft) EASTING: 1,520,417.6908(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998513 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BUFFALO 2 1984" TO -L- STATION 10+00.00 IS N 70°43'32.7" E 5168.843 ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

NOTES:

SEE NOTES, PAGE 1C

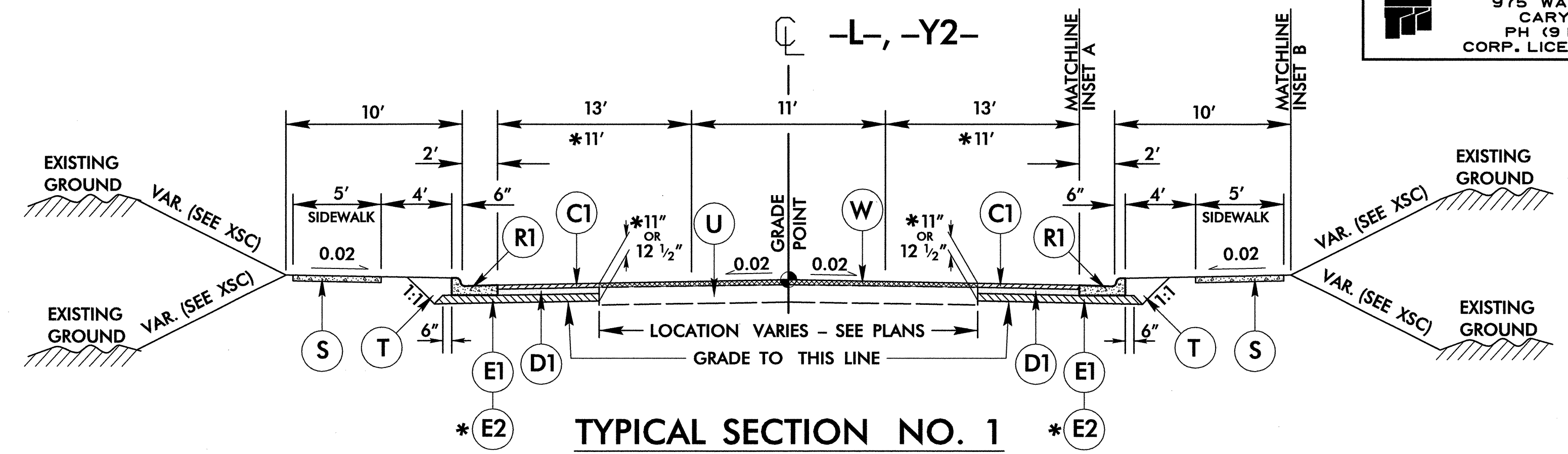
6/2/09

TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 315-8850
CORP. LICENSE NO. C-0275

PROJECT REFERENCE NO. B-3421	SHEET NO. 2
ROADWAY DESIGN ENGINEER SEAL 35018 11/22/11	PAVEMENT DESIGN ENGINEER SEAL 22898 12/18/10

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD., IN EACH OF TWO LAYERS.
C2	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 1 1/2" IN DEPTH OR GREATER THAN 2" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. APPROX. 2 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D3	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 5 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E2	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E3	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
J	PROP. 8" AGGREGATE BASE COURSE
P	PRIME COAT AT A RATE OF 0.35 GAL. PER SY.
R1	2'-6" CONCRETE CURB AND GUTTER.
R2	4" CONCRETE DITCH
S	4" CONCRETE SIDEWALK.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	INCIDENTAL MILLING. (SEE MILLING DETAIL THIS SHEET)
W	VARIABLE DEPTH ASPHALT PAVEMENT. (SEE STANDARD WEDGING DETAIL THIS SHEET)

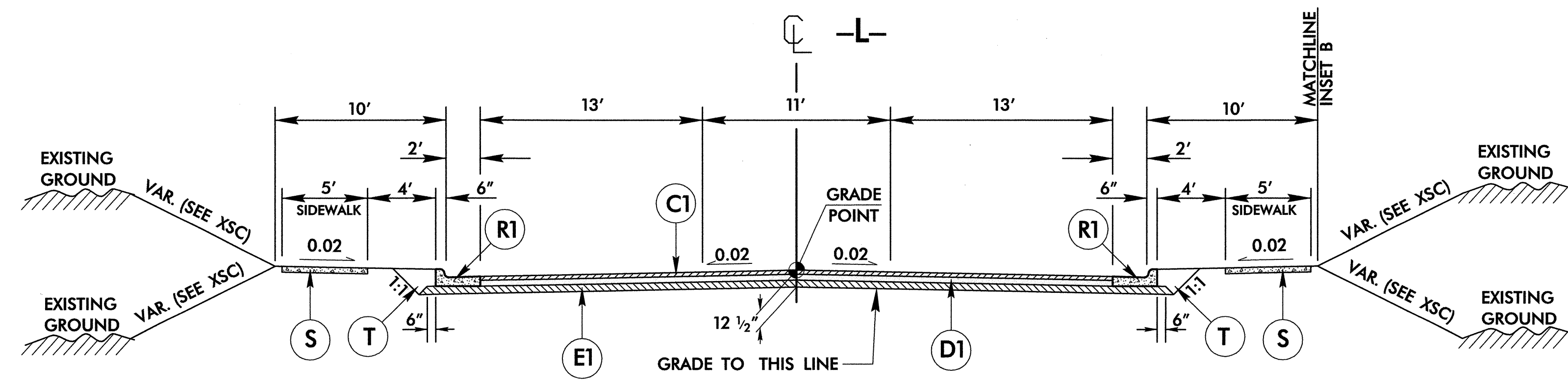
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



TYPICAL SECTION NO. 1

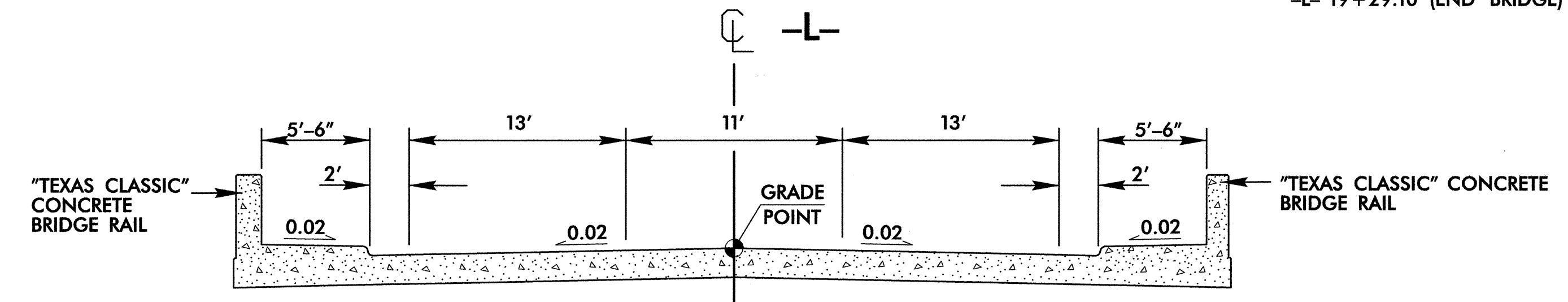
USE TYPICAL NO. 1 AS FOLLOWS:
 -L- STA. 10+69.59 TO STA. 14+50.00
 -L- STA. 21+75.00 TO STA. 24+75.00
 *-Y2- STA. 10+20.00 TO STA. 12+38.53
 *-Y2- STA. 12+76.72 TO STA. 16+27.10

NOTE: 4' SIDEWALK AS FOLLOWS:
 -L- STA. 10+75.00 LT TO -L- STA. 11+24.00
 -L- STA. 10+64.00 RT TO -Y1- STA. 10+34.00 RT



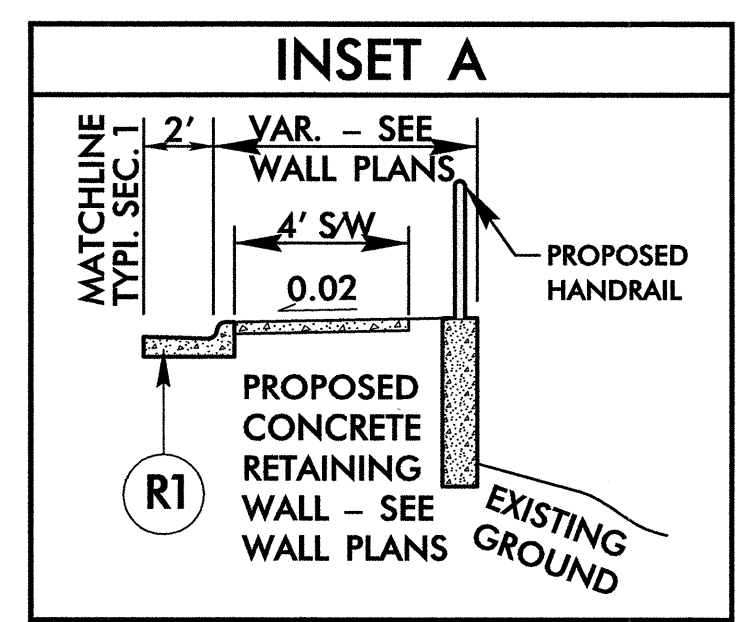
TYPICAL SECTION NO. 2

USE TYPICAL NO. 2 AS FOLLOWS:
 -L- STA. 14+50 TO 16+67.35 (BEGIN BRIDGE)
 -L- 19+29.10 (END BRIDGE) TO STA. 21+75.00

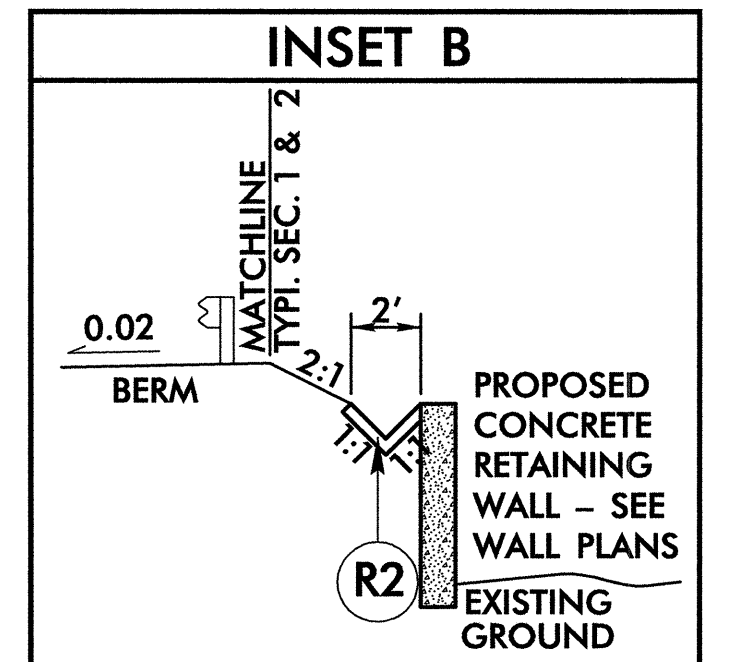


TYPICAL SECTION ON STRUCTURE

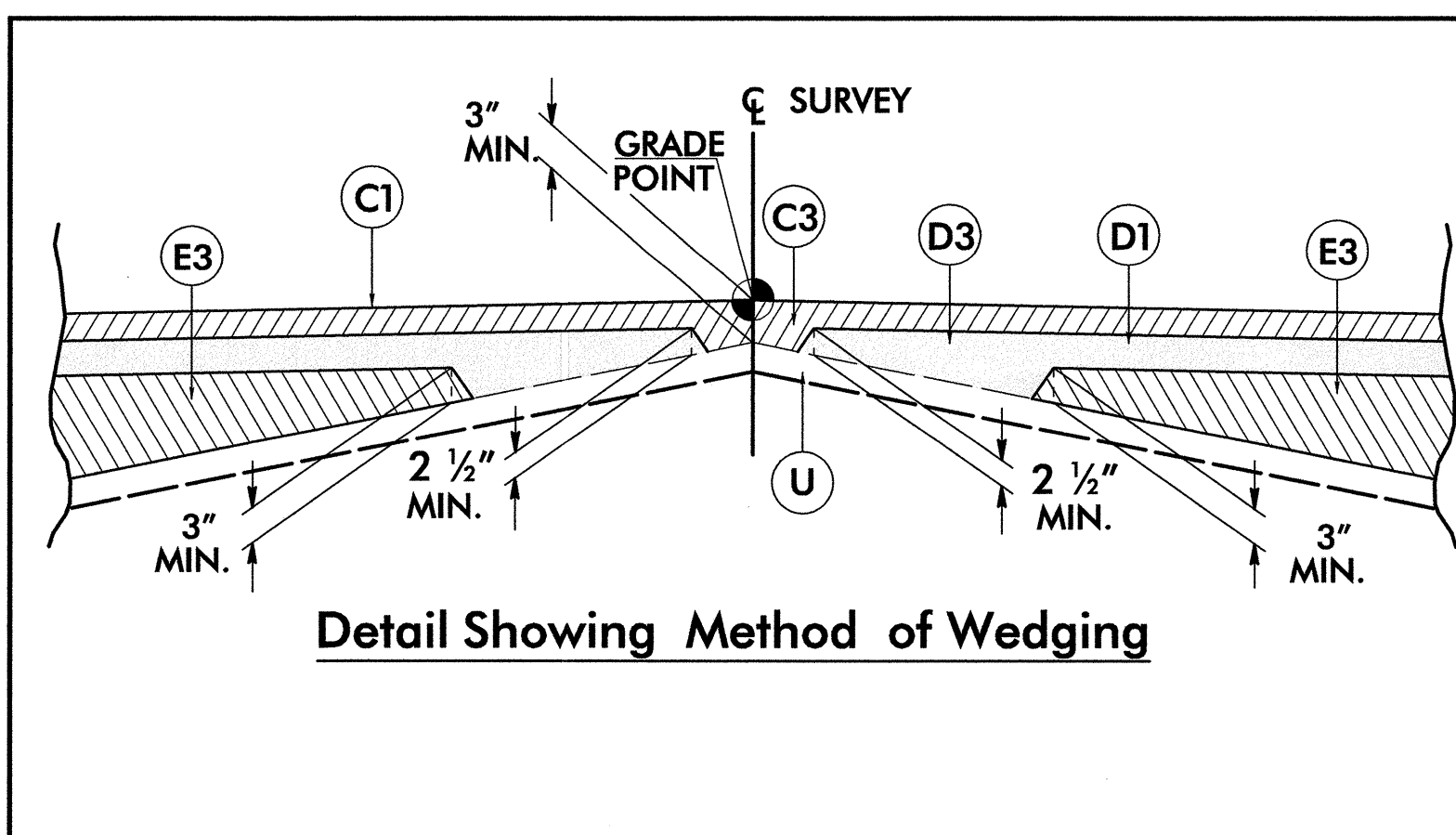
-L- STA. 16+67.35 (BEGIN BRIDGE) TO STA. 19+29.10 (END BRIDGE)



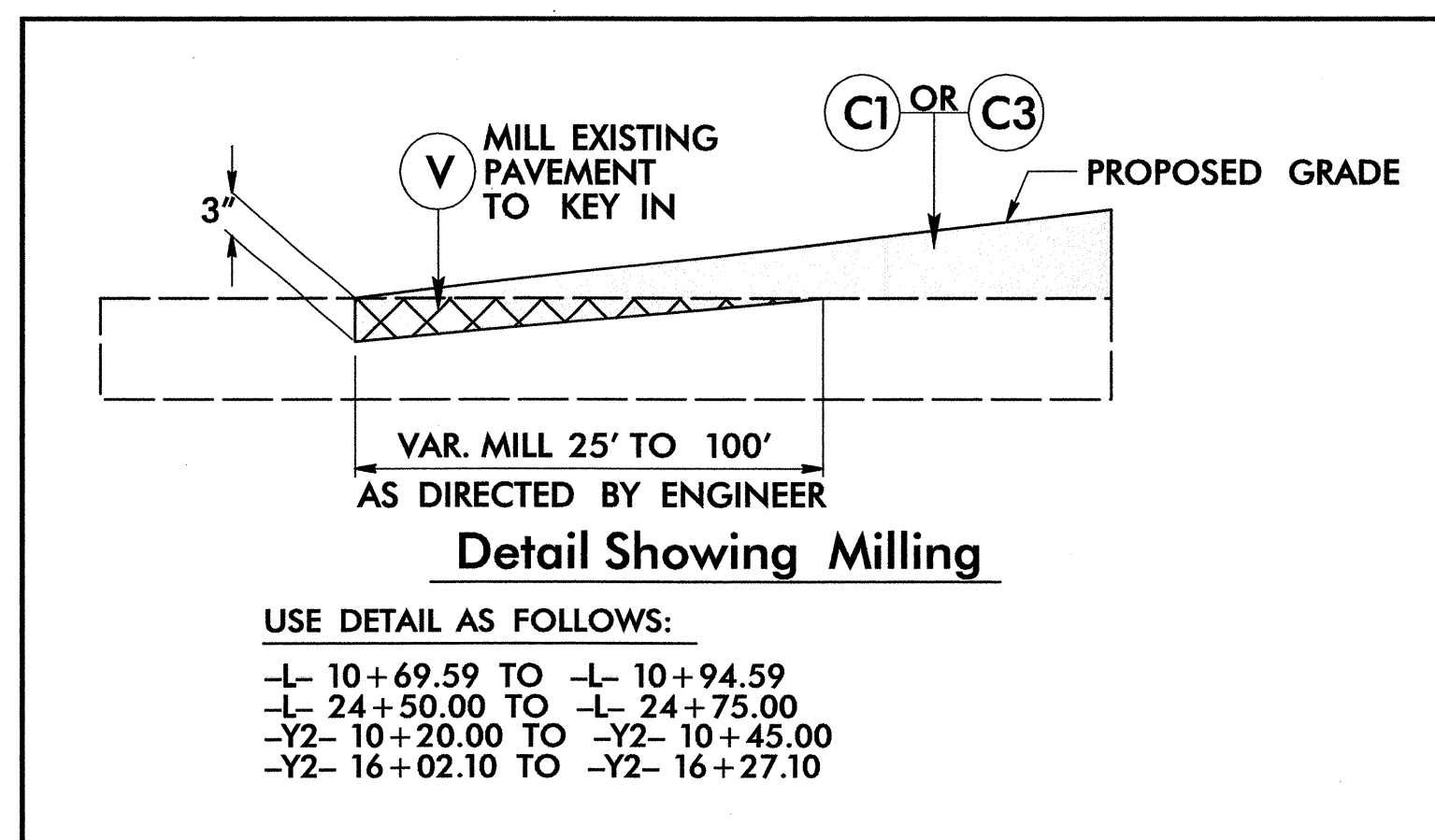
USE INSET A AS FOLLOWS:
 -L- POT 10+63.00 RT TO
 -Y1- POT 10+63.00 RT



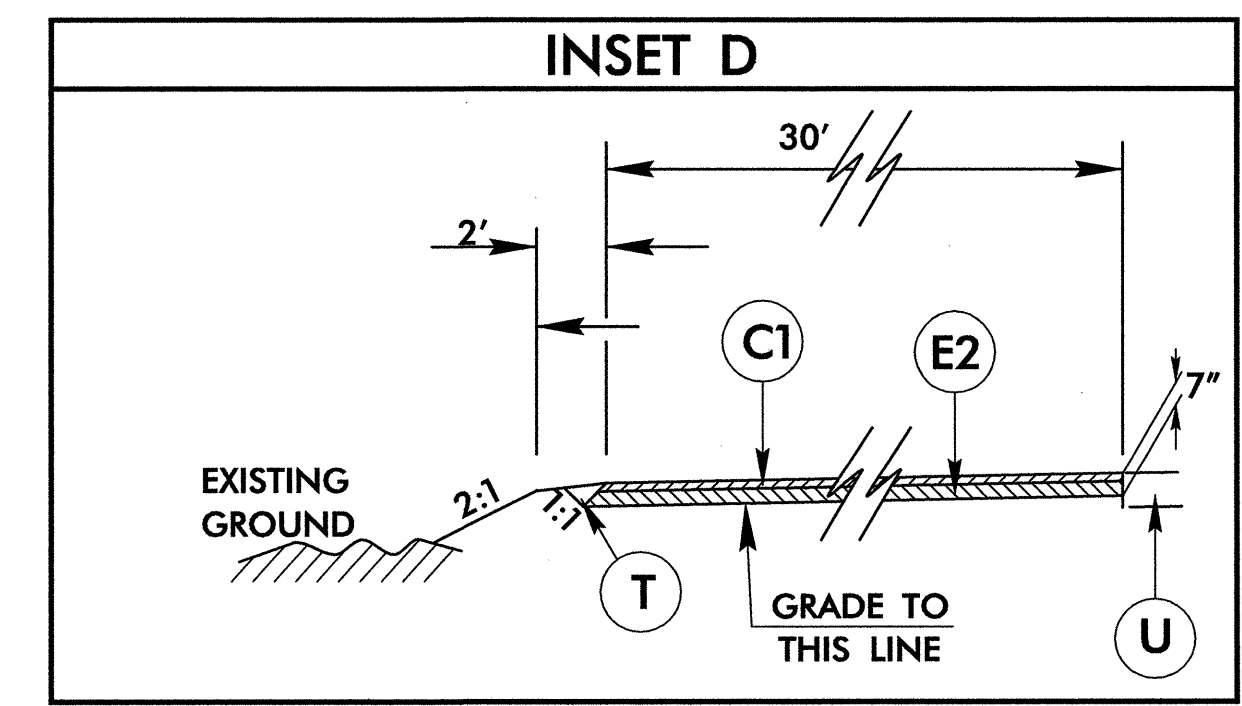
USE INSET B AS FOLLOWS:
 -L- POC 14+18.00 RT TO
 -L- POT 15+15.00 RT



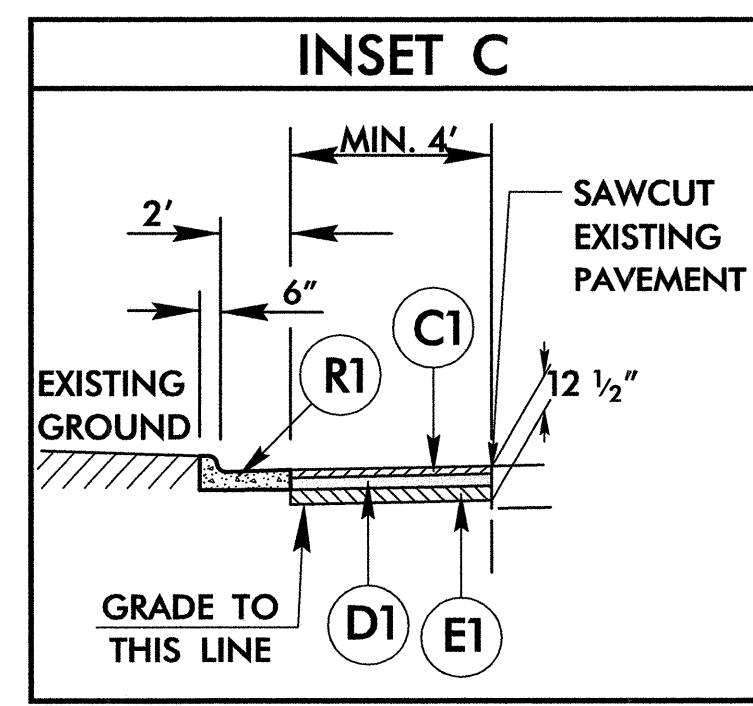
Detail Showing Method of Wedging



USE DETAIL AS FOLLOWS:
 -L- 10+69.59 TO -L- 10+94.59
 -L- 24+50.00 TO -L- 24+75.00
 -Y2- 10+20.00 TO -Y2- 10+45.00
 -Y2- 16+02.10 TO -Y2- 16+27.10



USE INSET D AS FOLLOWS:
 CORBAN AVE SW TURN-A-ROUND
 SEE SHEET 4



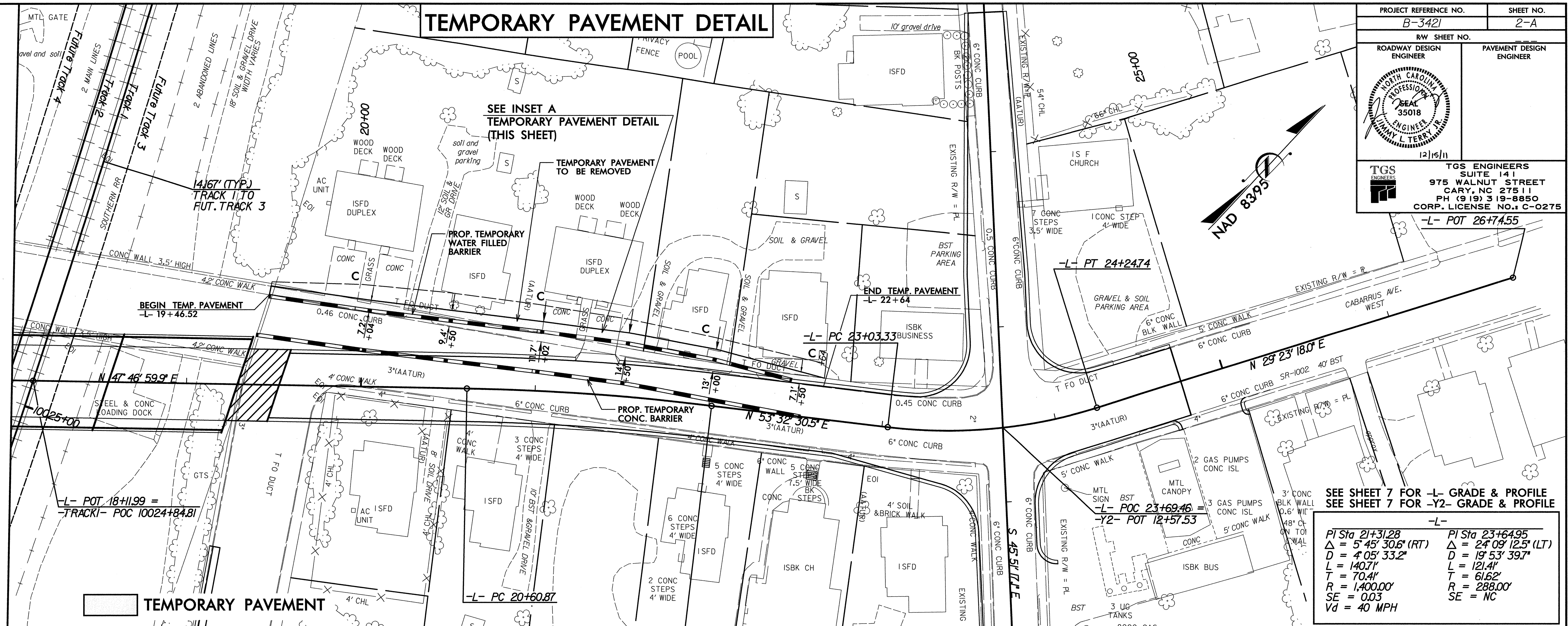
USE INSET C AS FOLLOWS:
 SOUTH SIDE OF SCOTT ST. SW
 SEE SHEET 5

6/2/09
 TGS ENGINEERS
 SUITE 141
 975 WALNUT STREET
 CARY, NC 27511
 PH (919) 315-8850
 CORP. LICENSE NO. C-0275

6/2/09
 TGS ENGINEERS
 SUITE 141
 975 WALNUT STREET
 CARY, NC 27511
 PH (919) 315-8850
 CORP. LICENSE NO. C-0275

PROJECT REFERENCE NO. B-3421	SHEET NO. 2-A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
TGS ENGINEERS SUITE 141 975 WALNUT STREET CARY, NC 27511 PH (919) 319-8850 CORP. LICENSE NO.: C-0275	
-L- POT 26+74.55	

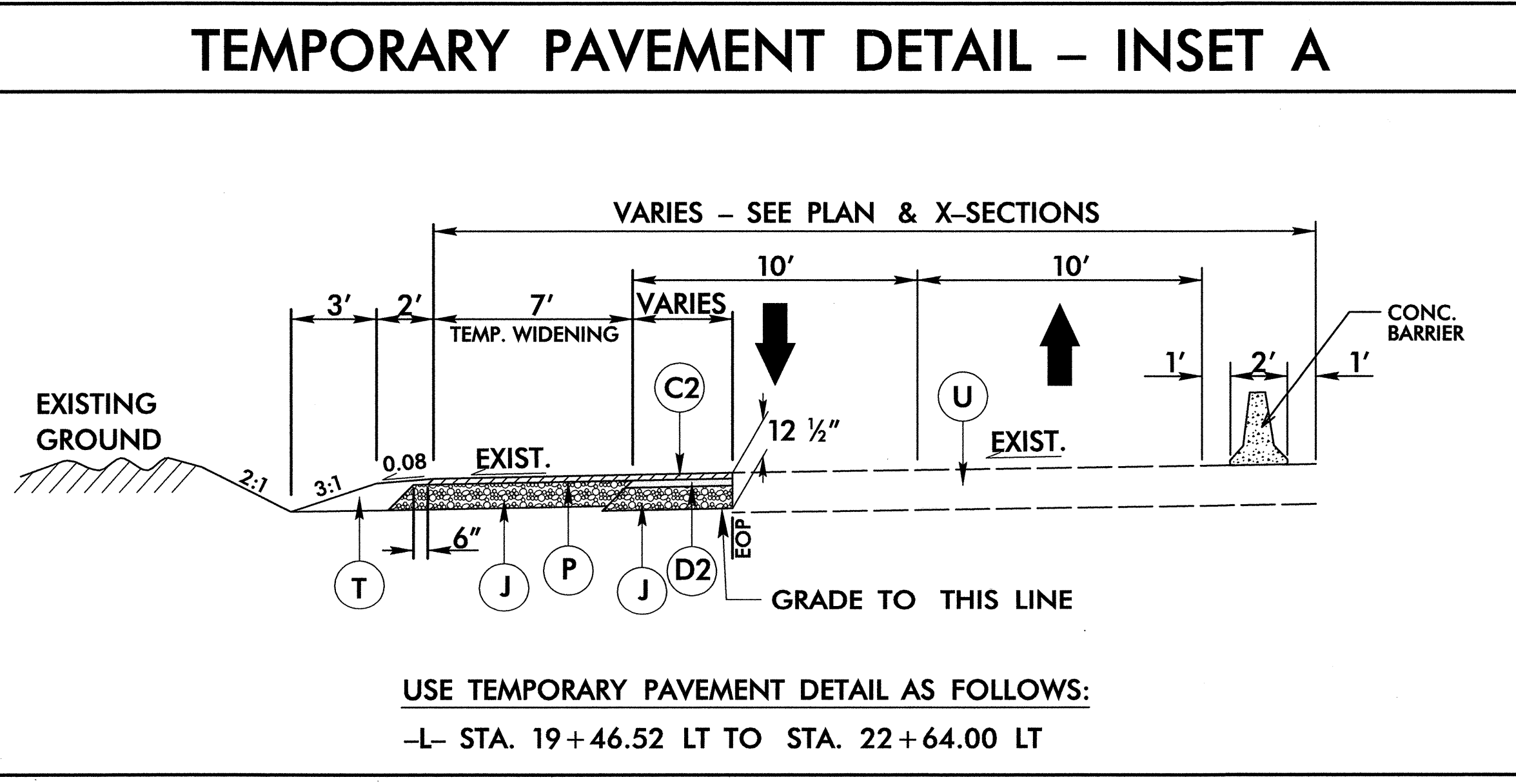
TEMPORARY PAVEMENT DETAIL



SEE SHEET 7 FOR -L- GRADE & PROFILE
 SEE SHEET 7 FOR -Y2- GRADE & PROFILE

-L-	PI Sta 21+31.28	PI Sta 23+64.95
	$\Delta = 5^{\circ} 45' 30.6''$ (RT)	$\Delta = 2^{\circ} 09' 12.5''$ (LT)
	$D = 4^{\circ} 05' 33.2''$	$D = 19^{\circ} 53' 39.7''$
	$L = 140.71'$	$L = 121.4'$
	$T = 70.4'$	$T = 61.62'$
	$R = 1,400.00'$	$R = 288.00'$
	$SE = 0.03$	$SE = NC$
	$Vd = 40$ MPH	

PAVEMENT SCHEDULE (SEE SHEET 2 FOR COMPLETE PAVEMENT SCHEDULE)	
C2	PROP. APPROX. 2" ASPHALT CONC. SURFACE COURSE, TYPE S9.5B.
D2	PROP. APPROX. 2 1/2" ASPHALT CONC. INTERMEDIATE COURSE, TYPE I19.0B.
J	PROP. 8" AGGREGATE BASE COURSE
P	PRIME COAT
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.



REVISIONS

8/17/99
 SYSTEMS
 CONSULTING
 ENGINEERS
 P.C.

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
CONCRETE STEPS WITH HANDRAIL

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

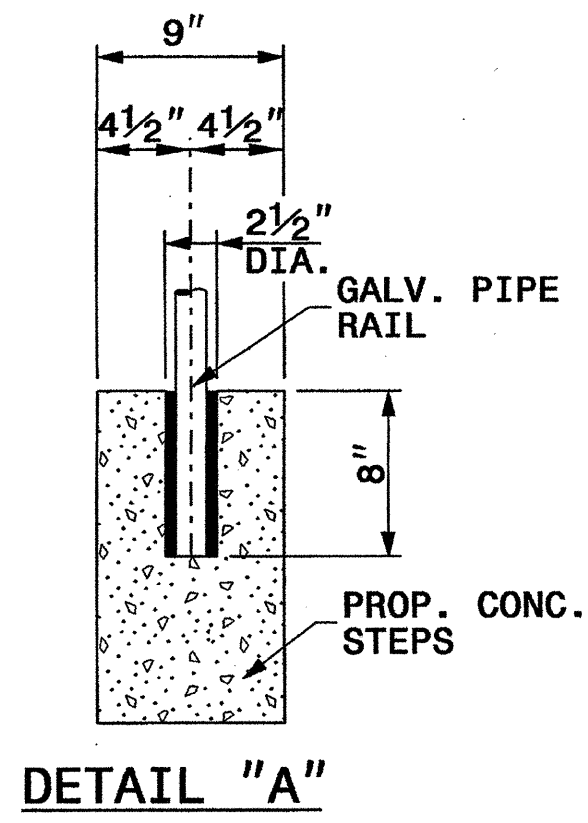
ENGLISH DETAIL DRAWING FOR
CONCRETE STEPS WITH HANDRAIL

GENERAL NOTES :

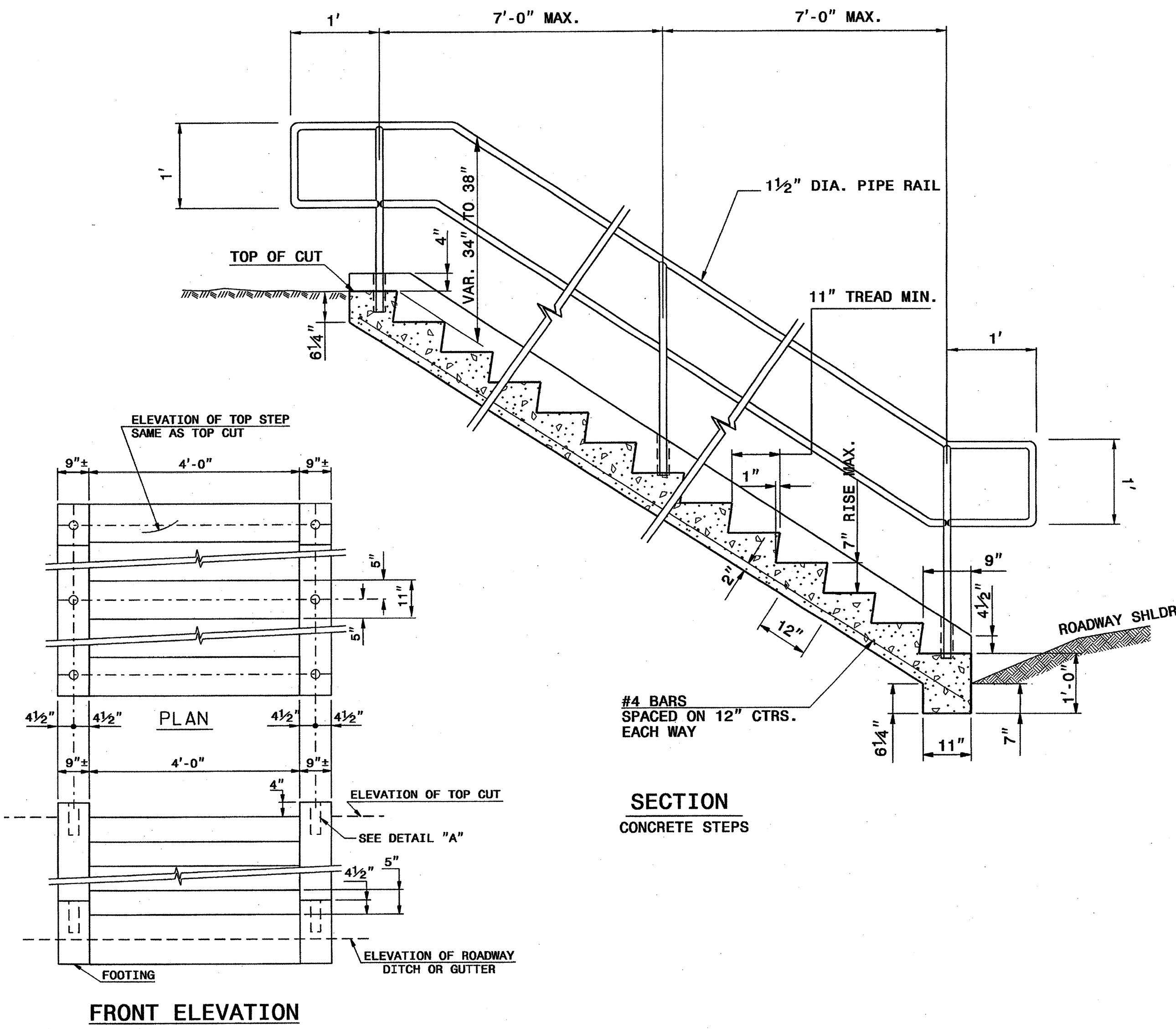
- 1- CONSTRUCT PROPOSED STEEL PIPE RAIL OF 1½" DIAMETER SCHEDULE 40 PLAIN END GALVANIZED STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A53. EMBED PIPE RAIL 8" INTO PROPOSED STEPS WITH CHEMICAL OR CONCRETE GROUT ANCHORING SYSTEM AS DIRECTED BY THE ENGINEER.
- 2- USE A ROTARY DRILL FOR DRILLING THE HOLES FOR THE PIPE RAIL. NO IMPACT DRILLS ALLOWED.
- 3- USE CLASS "B" CONCRETE THROUGHOUT FOR CONCRETE STEPS.
- 4- LOCATION AND QUANTITIES SHOWN ARE APPROXIMATE ONLY. EXACT LOCATION AND QUANTIES WILL BE DETERMINED BY THE ENGINEER.
- 5- ALL WORK AS DIRECTED BY THE ENGINEER.
- 6- REPAIR OF GALVANIZING IN ACCORDANCE WITH SCT.1076 OF THE STANDARD SPECIFICATIONS.
- 7- WELD IN ACCORDANCE WITH ARTICLE 1072-18 OF THE STANDARD SPECIFICATIONS.
- 8- 2" CLEAR SPACING ON ALL REINFORCING BARS.
- 9- EXTEND HORIZONTAL REINFORCING BARS UPWARD INTO SIDE WALLS.
- 10- ALL HANDRAILS AND STEPS MUST COMPLY WITH ADA STANDARDS FOR ACCESSIBLE DESIGN.

CUBIC YARDS IN STANDARD CONCRETE STEPS

NO. OF STEPS	4' WIDE	5' WIDE	6' WIDE	7' WIDE	ADDITIONAL CU. YDS. PER 1' WIDTH
2	0.4	0.5	0.5	0.6	0.1
3	0.6	0.7	0.8	0.9	0.1
4	0.8	0.9	1.0	1.2	0.1
5	1.0	1.2	1.3	1.4	0.1
6	1.2	1.4	1.5	1.7	0.2
7	1.4	1.6	1.8	2.0	0.2
8	1.6	1.8	2.0	2.3	0.2
9	1.8	2.0	2.3	2.6	0.3
10	2.0	2.3	2.5	2.8	0.3
ADDITIONAL STEP INCREMENT	0.2	0.2	0.2	0.3	0.1



DETAIL "A"



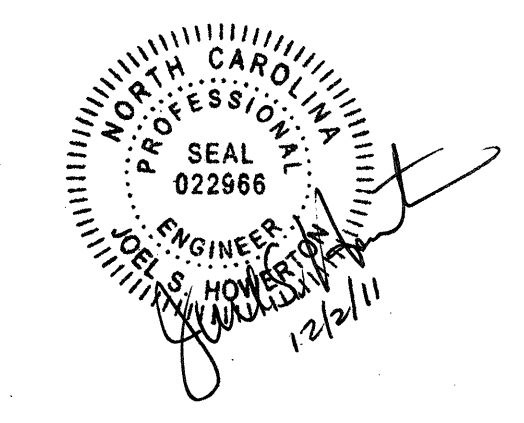
FRONT ELEVATION

SECTION
CONCRETE STEPS

SHEET 1 OF 1
844D01

SHEET 1 OF 1
844D01

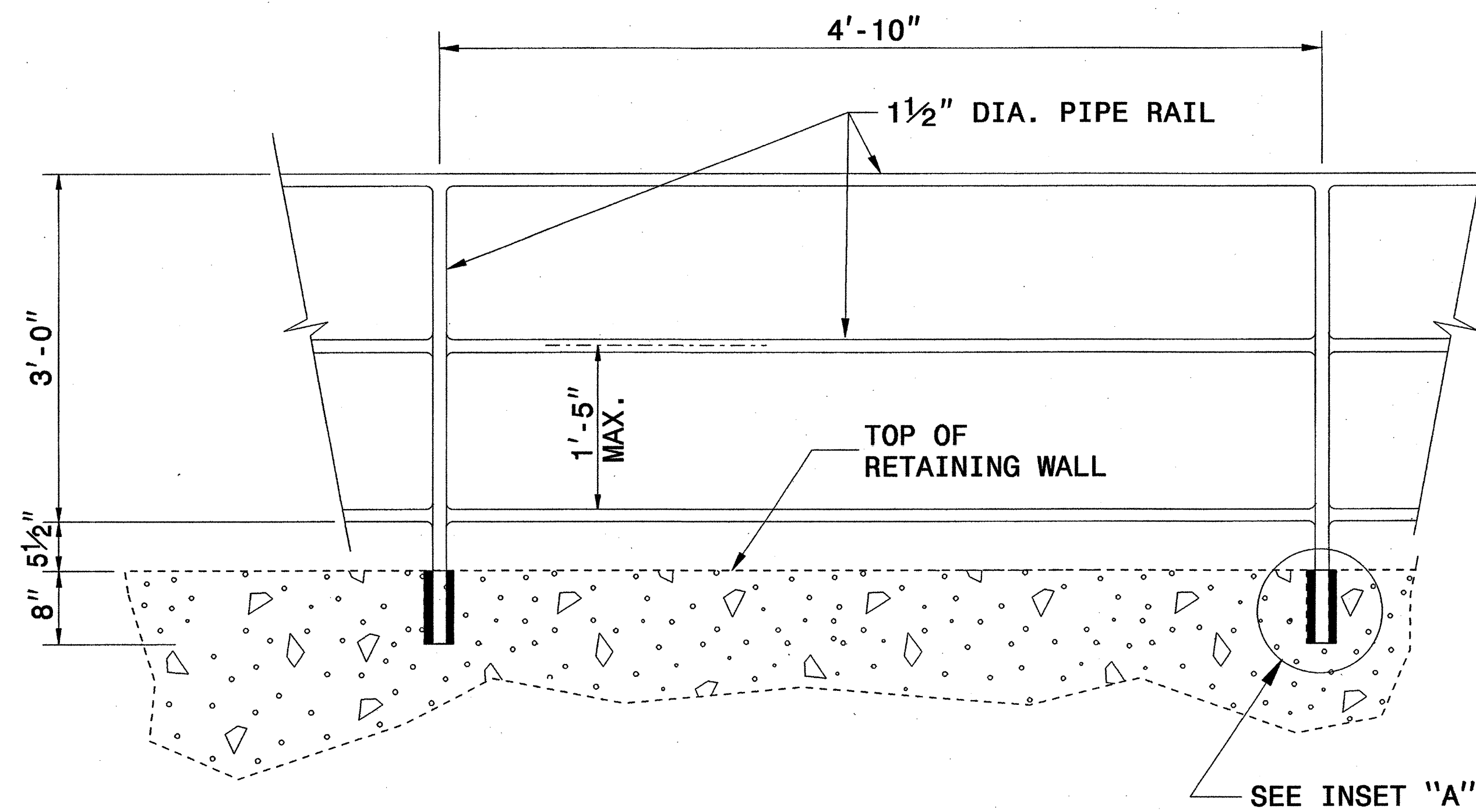
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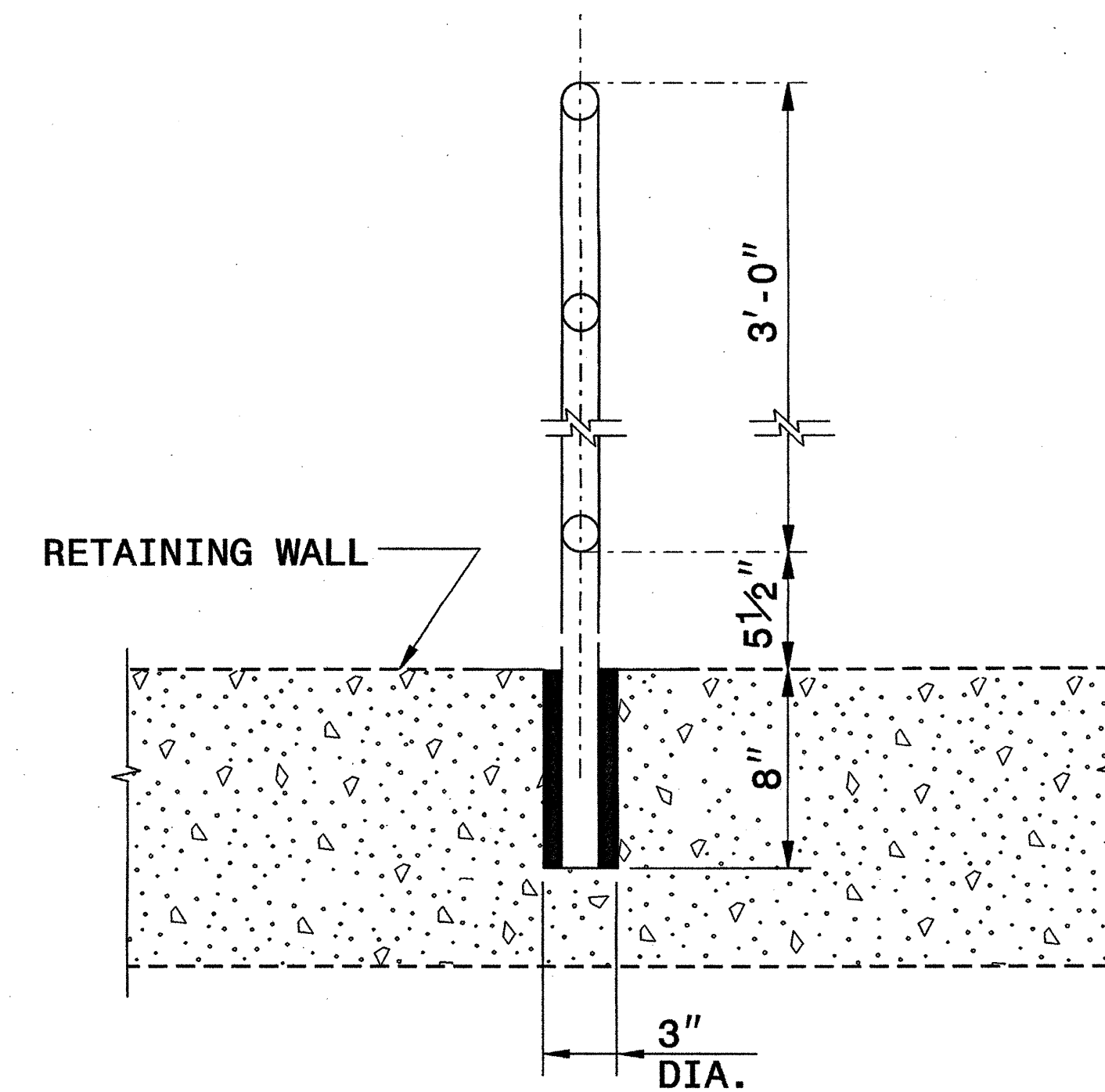
CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-250-4128 FAX 919-250-4119

SEE PLATE FOR TITLE

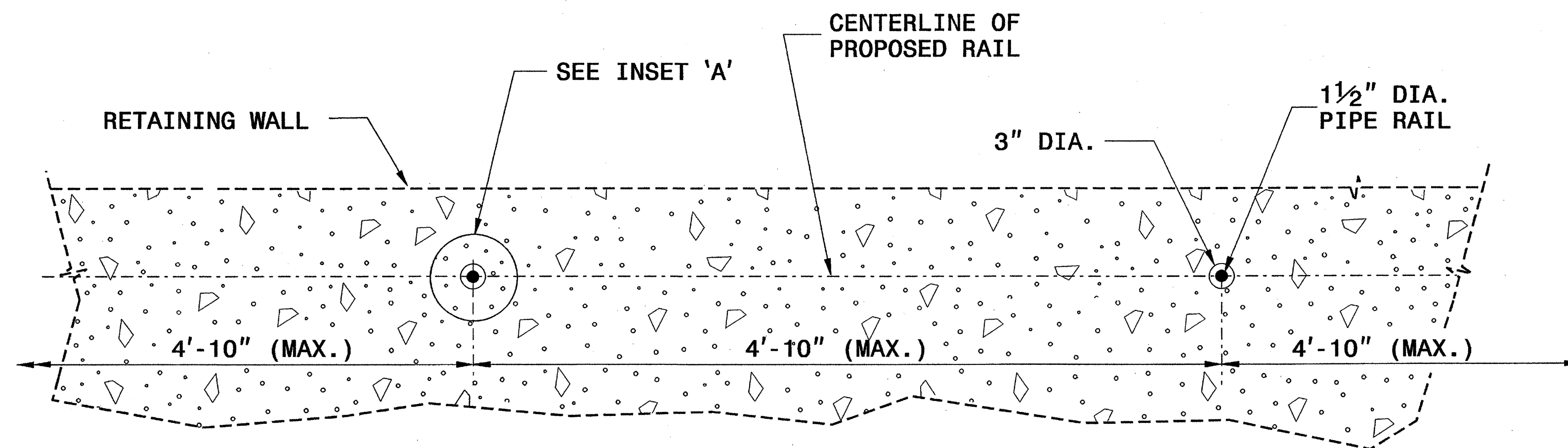
ORIGINAL BY: T. Spell DATE: Oct. 7, 1998
 MODIFIED BY: [Signature] DATE: [Blank]
 CHECKED BY: [Signature] DATE: 10/5/11
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ELEVATION OF PROPOSED PEDESTRIAN HANDRAIL



INSET 'A'



PLAN VIEW

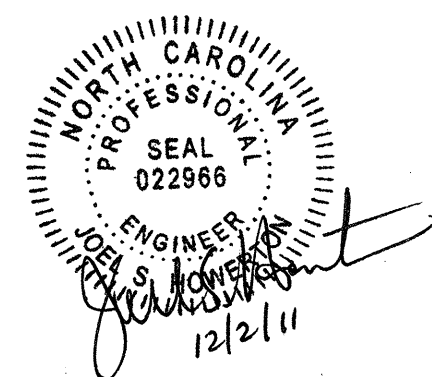
NOTES:

CONSTRUCT PROPOSED STEEL PIPE RAIL OF 1 1/2" DIAMETER SCHEDULE 40 PLAIN END GALVANIZED STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A53.

REPAIR GALVANIZING IN ACCORDANCE WITH SECTION 1076 OF THE NCDOT STANDARD SPECIFICATIONS.

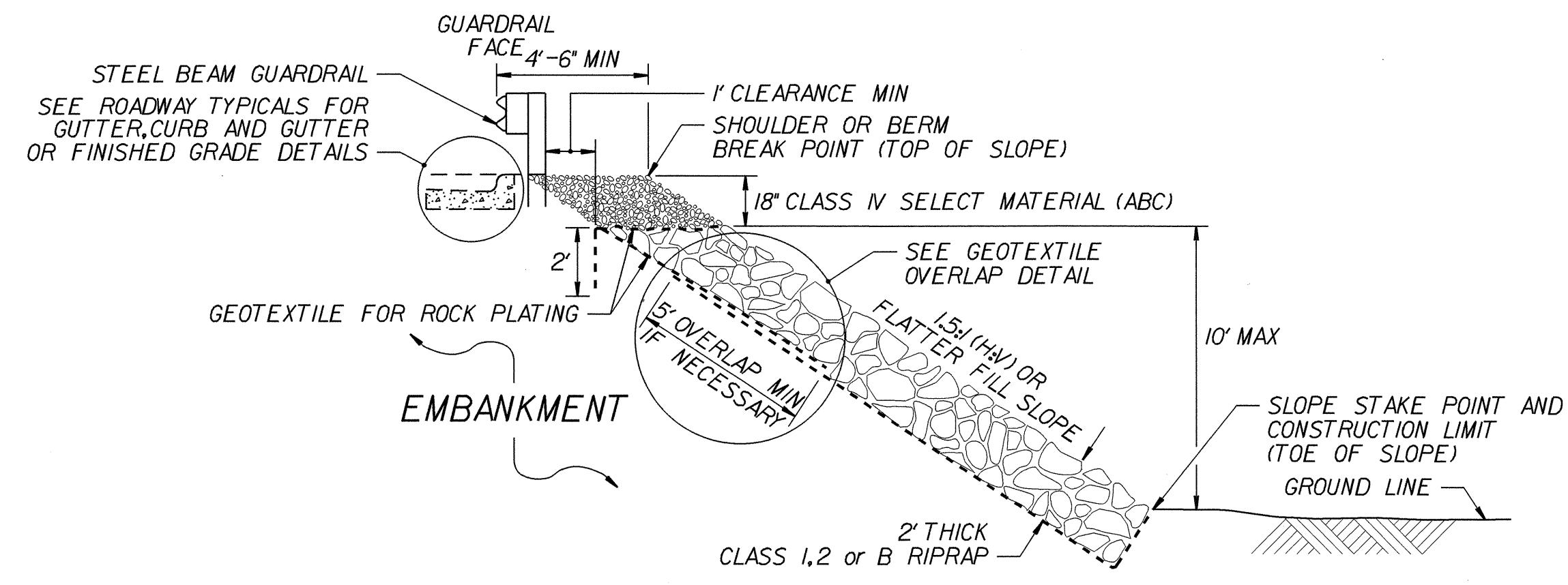
PAINT, IF REQUIRED BY THE ENGINEER, IN ACCORDANCE WITH SECTION 1080 OF THE STANDARD SPECIFICATIONS.

WELD IN ACCORDANCE WITH ARTICLE 1072-18 OF THE STANDARD SPECIFICATIONS.



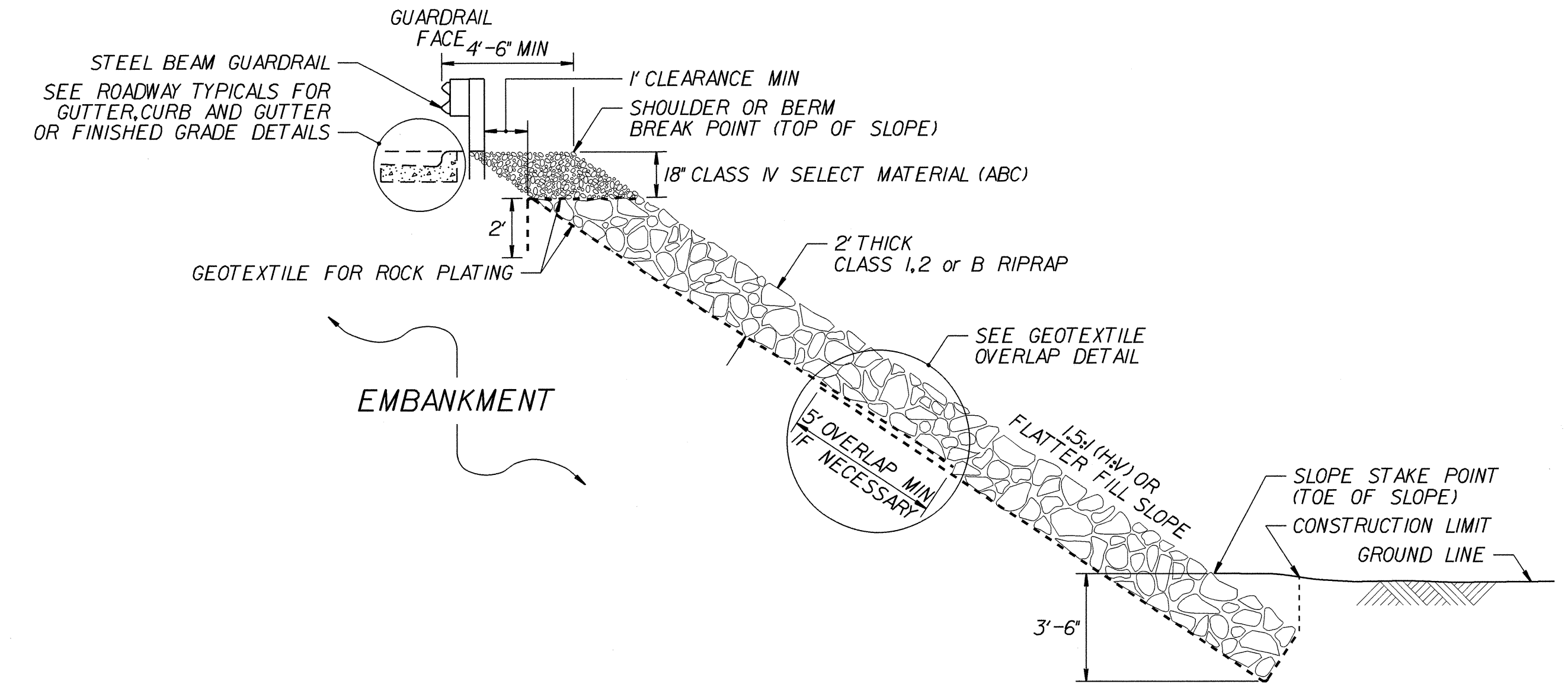
30-SEP-2011 12:00
 S:\Contracts\Special Details\Howerton\Handrail on Retaining Wall.dgn
 \$\$\$USERNAME\$\$\$

CONTRACT STANDARDS AND DEVELOPMENT UNIT			
Office 919-707-6950 FAX 919-250-4119			
PROPOSED PEDESTRIAN SAFETY RAIL			
ORIGINAL BY: E.E. WARD	DATE: 12-99		
MODIFIED BY: T.S. Spell	DATE: 1-4-05		
CHECKED BY: <i>[Signature]</i>	DATE: 9/30/11		
FILE SPEC.: w:\details\stand\metric\0842d03.dgn			



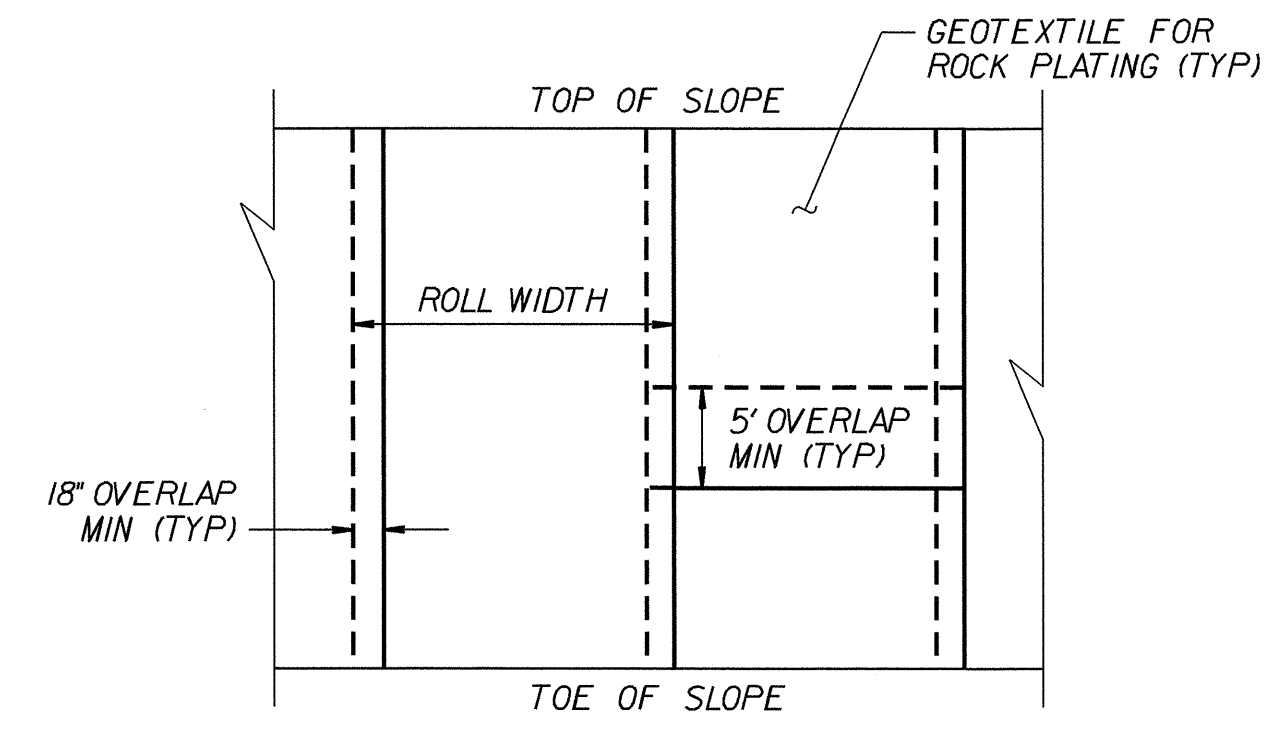
ROCK PLATING DETAIL NO. 1 – TYPICAL SECTION

**USE ROCK PLATING DETAIL NO. 1
AT THE FOLLOWING LOCATIONS:**
-L- STA 11+00 ± TO -L- STA 12+00 ±
EXTEND ROCK PLATING LIMITS TO 1.5:1 SLOPES.



ROCK PLATING DETAIL NO. 2 – TYPICAL SECTION

**USE ROCK PLATING DETAIL NO. 2
AT THE FOLLOWING LOCATIONS:**
-L- STA 12+00 ± TO -L- STA 13+50 ±
EXTEND ROCK PLATING LIMITS TO 1.5:1 SLOPES.



**GEOTEXTILE OVERLAP DETAIL
(PLAN VIEW)**

ROCK PLATING DETAIL(S) AND LOCATION(S) WERE RECOMMENDED BY THE GEOTECHNICAL ENGINEERING UNIT. THE RECOMMENDATIONS WERE SUBMITTED TO THE ROADWAY DESIGN UNIT ON OCTOBER 26, 2011 AND SEALED BY A PROFESSIONAL ENGINEER, JOHN S. FARGHER, LICENSE #23480.

FOR ROCK PLATING, SEE SECTION 275 OF THE STANDARD SPECIFICATIONS.

DETAIL OF ROCK PLATING

06-DEC-2011 5:18 AM C:\WORK\RD\B3421\RDY\Detail_Rock Plating.dgn

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202773

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS SUMMARY OF QUANTITIES

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING
0029000000-N	SP	Lump Sum		REINFORCED BRIDGE APPROACH FILL, STATION ***** (18+10.00)
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUB-BING
0057000000-E	226	1,000	CY	UNDERCUT EXCAVATION
0063000000-N	SP	Lump Sum		GRADING
0106000000-E	230	29,200	CY	BORROW EXCAVATION
0196000000-E	270	2,600	SY	GEOTEXTILE FOR SOIL STABILIZATION
0199000000-E	SP	3,050	SF	TEMPORARY SHORING
0223000000-E	275	500	SY	ROCK PLATING
0318000000-E	300	244	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES
0320000000-E	300	1,041	SY	FOUNDATION CONDITIONING GEOTEXTILE
0335200000-E	305	264	LF	15" DRAINAGE PIPE
0335600000-E	305	228	LF	36" DRAINAGE PIPE
0335850000-E	305	4	EA	*** DRAINAGE PIPE ELBOWS (15")
0448200000-E	310	832	LF	15" RC PIPE CULVERTS, CLASS IV
0995000000-E	340	248	LF	PIPE REMOVAL
1099500000-E	505	850	CY	SHALLOW UNDERCUT
1099700000-E	505	1,700	TON	CLASS IV SUBGRADE STABILIZATION
1121000000-E	520	240	TON	AGGREGATE BASE COURSE
1220000000-E	545	750	TON	INCIDENTAL STONE BASE
1275000000-E	600	91	GAL	PRIME COAT
1330000000-E	607	390	SY	INCIDENTAL MILLING
1489000000-E	610	1,680	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1498000000-E	610	1,310	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B
1519000000-E	610	1,480	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B
1575000000-E	620	230	TON	ASPHALT BINDER FOR PLANT MIX
1693000000-E	654	467	TON	ASPHALT PLANT MIX, PAVEMENT REPAIR
2022000000-E	815	56	CY	SUBDRAIN EXCAVATION
2033000000-E	815	42	CY	SUBDRAIN FINE AGGREGATE
2044000000-E	815	250	LF	6" PERFORATED SUBDRAIN PIPE
2070000000-N	815	1	EA	SUBDRAIN PIPE OUTLET
2077000000-E	815	6	LF	6" OUTLET PIPE
2286000000-N	840	17	EA	MASONRY DRAINAGE STRUCTURES
2308000000-E	840	15	LF	MASONRY DRAINAGE STRUCTURES
2352000000-N	840	1	EA	FRAME WITH GRATE, STD 840.**** (840.16)
2366000000-N	840	3	EA	FRAME WITH TWO GRATES, STD 840.24
2374000000-N	840	3	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (E)
2374000000-N	840	3	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (F)
2374000000-N	840	5	EA	FRAME WITH GRATE & HOOD, STD 840.03, TYPE ** (G)
2396000000-N	840	2	EA	FRAME WITH COVER, STD 840.54
2535000000-E	846	190	LF	***X*** CONCRETE CURB (9" X 18")
2549000000-E	846	3,270	LF	2'-6" CONCRETE CURB & GUTTER
2591000000-E	848	1,510	SY	4" CONCRETE SIDEWALK
2605000000-N	848	19	EA	CONCRETE CURB RAMP
2612000000-E	848	120	SY	6" CONCRETE DRIVEWAY
2619000000-E	850	35	SY	4" CONCRETE PAVED DITCH
2830000000-N	858	3	EA	ADJUSTMENT OF MANHOLES
3030000000-E	862	775	LF	STEEL BM GUARDRAIL

3045000000-E	862	50	LF	STEEL BM GUARDRAIL, SHOP CURVED
3105000000-N	862	6	EA	STEEL BM GUARDRAIL TERMINAL SECTIONS
3150000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS
3195000000-N	862	1	EA	GUARDRAIL ANCHOR UNITS, TYPE AT-1
3210000000-N	862	1	EA	GUARDRAIL ANCHOR UNITS, TYPE CAT-1
3215000000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE III
3270000000-N	SP	4	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3360000000-E	863	1,110	LF	REMOVE EXISTING GUARDRAIL
3575000000-E	SP	95	LF	GENERIC FENCING ITEM PEDESTRIAN SAFETY RAIL
3628000000-E	876	26	TON	RIP RAP, CLASS I
3649000000-E	876	39	TON	RIP RAP, CLASS B
3656000000-E	876	880	SY	GEOTEXTILE FOR DRAINAGE
4400000000-E	1110	214	SF	WORK ZONE SIGNS (STATIONARY)
4405000000-E	1110	128	SF	WORK ZONE SIGNS (PORTABLE)
4410000000-E	1110	60	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4430000000-N	1130	90	EA	DRUMS
4445000000-E	1145	64	LF	BARRICADES (TYPE III)
4450000000-N	1150	1,000	HR	FLAGGER
4465000000-N	1160	2	EA	TEMPORARY CRASH CUSHIONS
4470000000-N	1160	2	EA	RESET TEMPORARY CRASH CUSHION
4485000000-E	1170	229	LF	PORTABLE CONCRETE BARRIER
4490000000-E	1170	600	LF	PORTABLE CONCRETE BARRIER (ANCHORED)
4590000000-E	SP	313	LF	GENERIC TRAFFIC CONTROL ITEM TRAFFIC CONTROL SAFETY FENCE
4650000000-N	1251	80	EA	TEMPORARY RAISED PAVEMENT MARKERS
4810000000-E	1205	8,327	LF	PAINT PAVEMENT MARKING LINES (4")
4835000000-E	1205	40	LF	PAINT PAVEMENT MARKING LINES (24")
4850000000-E	1205	2,562	LF	REMOVAL OF PAVEMENT MARKING LINES (4")
5325600000-E	1510	1,158	LF	6" WATER LINE
5340000000-E	1515	4	EA	6" VALVE
5648000000-N	1515	12	EA	RELOCATE WATER METER
5666000000-E	1515	2	EA	FIRE HYDRANT
5691300000-E	1520	783	LF	8" SANITARY GRAVITY SEWER
5768000000-N	1520	12	EA	SANITARY SEWER CLEAN-OUT
5775000000-E	1525	5	EA	4" DIA UTILITY MANHOLE
5781000000-E	1525	10.4	LF	UTILITY MANHOLE WALL, 4" DIA
5801000000-E	1530	619	LF	ABANDON 8" UTILITY PIPE
5816000000-N	1530	3	EA	ABANDON UTILITY MANHOLE
5835000000-E	1540	321	LF	*** ENCASEMENT PIPE (12-3/4")
5835700000-E	1540	122	LF	16" ENCASEMENT PIPE
5871000000-E	1550	135	LF	TRENCHLESS INSTALLATION OF *** IN SOIL (12-3/4")
5871010000-E	1550	135	LF	TRENCHLESS INSTALLATION OF *** NOT IN SOIL (12-3/4")
5871900000-E	1550	61	LF	TRENCHLESS INSTALLATION OF 16" IN SOIL
5871910000-E	1550	61	LF	TRENCHLESS INSTALLATION OF 16" NOT IN SOIL
5888000000-E	SP	30	LF	GENERIC UTILITY ITEM REBED 42" SEWER PIPE
6000000000-E	1605	5,300	LF	TEMPORARY SILT FENCE
6006000000-E	1610	360	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	300	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	510	TON	SEDIMENT CONTROL STONE

ItemNumber	Sec #	Quantity	Unit	Description
6015000000-E	1615	4	ACR	TEMPORARY MULCHING
6018000000-E	1620	150	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	1.5	TON	FERTILIZER FOR TEMPORARY SEEDING
6024000000-E	1622	600	LF	TEMPORARY SLOPE DRAINS
6029000000-E	SP	100	LF	SAFETY FENCE
6030000000-E	1630	650	CY	SILT EXCAVATION
6036000000-E	1631	7,500	SY	MATTING FOR EROSION CONTROL
6037000000-E	SP	10	SY	COIR FIBER MAT
6042000000-E	1632	1,550	LF	1/4" HARDWARE CLOTH
6071010000-E	SP	100	LF	WATTLE
6071020000-E	SP	40	LB	POLYACRYLAMIDE (PAM)
6071030000-E	1640	150	LF	COIR FIBER Baffle
6071050000-E	SP	1	EA	*** SKIMMER (1-1/2")
6084000000-E	1660	4	ACR	SEEDING & MULCHING
6087000000-E	1660	4	ACR	MOWING
6090000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
6093000000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
6096000000-E	1662	150	LB	SEED FOR SUPPLEMENTAL SEEDING
6108000000-E	1665	4	TON	FERTILIZER TOPDRESSING
6114500000-N	1667	25	MHR	SPECIALIZED HAND MOWING
6117000000-N	SP	16	EA	RESPONSE FOR EROSION CONTROL
6890000000-E	SP	5	CY	CONCRETE STEPS
6895000000-E	SP	31	LF	HANDRAIL ON STEPS
7000000000-E	1705	8	EA	PEDESTRIAN SIGNAL HEAD (***, ** SECTION) (16", 1 SECTION WITH COUNT-DOWN)
7060000000-E	1705	1,870	LF	SIGNAL CABLE
7120000000-E	1705	16	EA	VEHICLE SIGNAL HEAD (12", 3 SECTION)
7264000000-E	1710	320	LF	MESSENGER CABLE (3/8")
7300000000-E	1715	320	LF	UNPAVED TRENCHING (***** (1, 2"))
7301000000-E	1715	160	LF	DIRECTIONAL DRILL (***** (4, 2"))
7324000000-N	1716	6	EA	JUNCTION BOX (STANDARD SIZE)
7348000000-N	1716	6	EA	JUNCTION BOX (OVER-SIZED, HEAVY DUTY)
7360000000-N	1720	4	EA	WOOD POLE
7372000000-N	1721	4	EA	GUY ASSEMBLY
7408000000-E	1722	1	EA	1" RISER WITH WEATHERHEAD
7420000000-E	1722	4	EA	2" RISER WITH WEATHERHEAD
7444000000-E	1725	1,100	LF	INDUCTIVE LOOP SAWCUT
7456000000-E	1726	2,150	LF	LEAD-IN CABLE (***** (14-2))
7588000000-N	SP	4	EA	METAL POLE WITH SINGLE MAST ARM
7613000000-N	SP	4	EA	SOIL TEST
7614100000-E	SP	20	CY	DRILLED PIER FOUNDATION
7631000000-N	SP	4	EA	MAST ARM WITH METAL POLE DESIGN
7684000000-N	1750	1	EA	SIGNAL CABINET FOUNDATION
7756000000-N	1751	1	EA	CONTROLLER WITH CABINET (TYPE 2070L, BASE MOUNTED)
7780000000-N	1751	7	EA	DETECTOR CARD (TYPE 2070L)
7901000000-N	1753	1	EA	CABINET BASE EXTENDER
7980000000-N	SP	4	EA	GENERIC SIGNAL ITEM DECORATIVE BASE COVER FOR METAL POLE ASSEMBLY
7980000000-N	SP	4	EA	GENERIC SIGNAL ITEM POWDER COAT FOR SINGLE MAST ARM WITH METAL POLE

COMPUTED BY: SGM DATE: 8/2/11
 CHECKED BY: JLT DATE: 11/15/11

PROJECT NO. B-3421 SHEET NO. 3-A

**STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS**

SUMMARY OF EARTHWORK

LINE	Station	Station	Uncl. Excav.	Undercut Excav.	Embank. +%	Borrow	Waste
-L-	10+69.59	16+67.35	19		20,053	20,034	
BRIDGE							
-L-	19+29.10	24+75.00	174		6,176	6,002	
-Y2-	10+20.00	12+38.53	440		92		348
INTERSECTION WITH -L-							
-Y2-	12+76.72	16+27.10	634		68		566
TOTALS			1,267		26,389	26,036	914
Estimate loss due to Clearing & Grubbing			-125			125	
Use Waste in lieu of Borrow						-914	-914
PROJECT TOTAL			1,142		26,389	25,247	0
Est. 5% to replace Topsoil on Borrow Pits						1,262	
GRAND TOTAL			1,142		1,142	26,509	
SAY			1,280			29,200	

Pavement Structure Volume=	403	YD ³
Est. Undercut =	1,000	YD ³
Est. Shallow Undercut Contingency =	850	YD ³
Est. Class IV Subgrade Stabilization Contingency =	1,700	TONS
Est. Geotextile for Soil Stabilization Contingency =	2,600	YD ²

Note: Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

Approximate quantities only. Unclassified excavation, fine grading, clearing and grubbing, breaking of existing pavement, and removal of existing pavement will be paid for at the lump sum price for "Grading".

**SUMMARY OF EXISTING ASPHALT
 PAVEMENT REMOVAL & BREAKING**

LINE	Station	Station	LOC LT/RT/CL	PAVEMENT REMOVAL YD ²	PAVEMENT BREAKING YD ²
-L-	10+65	10+78	RT	4.98	
-L-	10+74	11+16	LT	0.95	
-L-	11+16	11+34	RT	1.47	
-L-	11+93	14+11	LT	109.53	
-L-	13+50	17+30	LT		765.93
-L-	14+00	17+52	LT	757.10	
-L-	19+34	22+00	LT/RT		1401.72
-L-	19+61	19+61	LT	1.51	
-L-	19+20	19+62	RT	115.28	
-L-	22+00	23+13	LT	15.84	
-L-	24+00	24+75	RT	8.40	
-L-	24+23	24+75	LT	5.18	
-Y2-	11+50	12+38	LT	113.25	
-Y2-	12+77	13+50	LT	90.43	
Corban Ave. between proposed turn-arounds				737.15	
Removal of Temporary Pavement					
-L-	19+47	22+64	LT	359.60	
TOTAL:				2,320.67	2,167.65
SAY:				2,440	2,200

**SUMMARY OF
 9" X 18" CONCRETE CURB**

LINE	Station	Station	Side	Length
-L-	23+96	24+12	RT	23.00
-L-	24+12	24+66	RT	54.00
-Y2-	12+97	13+35	LT	39.90
-Y2-	13+89	14+41	LT	56.90
TOTAL:				173.8
SAY:				190

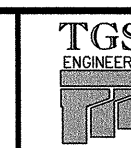
GUARDRAIL SUMMARY

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL
 TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
 FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
 W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
 G = GATING IMPACT ATTENUATOR TYPE 350
 NG = NON-GATING IMPACT ATTENUATOR TYPE 350

LINE	BEG. STA.	END STA.	LOC.	LENGTH			WARRANT POINT		"N" DIST FROM E.O.L.	TOTAL BERM WIDTH	FLAIR LENGTH		W		ANCHORS			TERMINAL END SECTION		IMP. ATTN. TYPE 350			REMOVE EXISTING GRDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPR. END	TRAIL. END			APPR. END	TRAIL. END	APPR. END	TRAIL. END	GRAU 350	CAT-1	III	AT-1	TES	EA	G	NG		
-L-	11+93.75	14+18.75	LT	225.00					14'	14'	50'		1'		1	1							548	
-L-	12+34.25	16+59.25	RT	425.00					14'	14'	50'		1		1								559	
-L-	19+37.30	20+87.30	LT	150.00					10.25'		137.5'		2.75'		1									
-L-	19+20.92	19+90.42	RT	87.50					7.5'	8.75'		62.5		1.25'	1									
-L-	10+95.58	11+32.86	LT	31.25	43.75				5.4'		4'		6.25'	1.25'			1	1						
Corban Avenue Closure				37.50																				
Corban Avenue Closure				37.50																				
Scott Street Closure				50.00																				
SUB-TOTALS:				1,043.75	43.75										4	1	4	1	6				1,107	
LESS ANCHOR DEDUCTIONS																								
GRAU-350	4 @50 ft			200																				
CAT-1	1 @6.25 ft			6.25																				
AT-1	1 @6.25 ft				6.25																			
TYPE III	4 @18.75 ft			75																				
ANCHOR TOTALS				281.25	6.25																			
GRAND TOTALS				762.50	37.50										4	1	4	1	6				1,107	
SAY				775.00	50.00										4	1	4	1	6				1,110	

ADDITIONAL GUARDRAIL POSTS = 5 EA

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
PARCEL INDEX SHEET



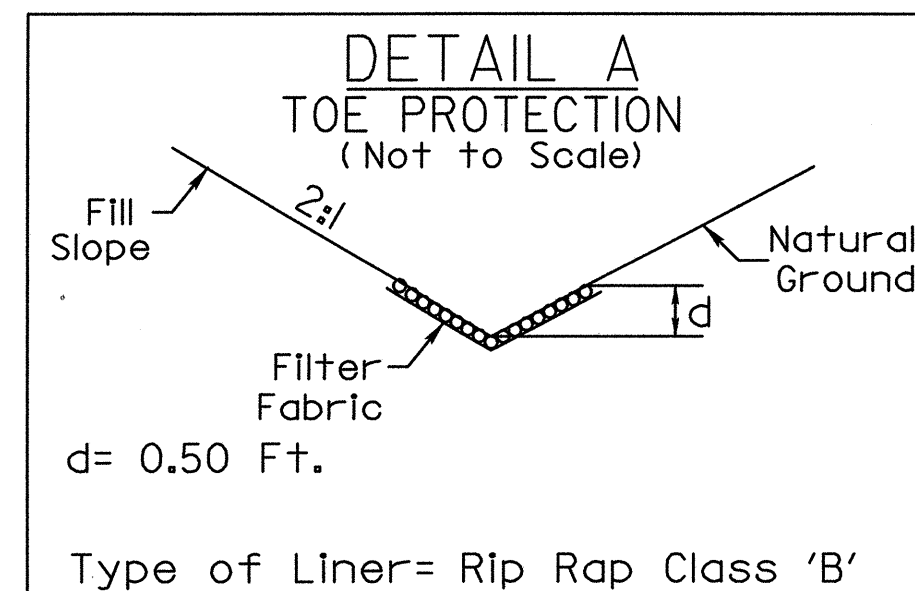
TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850
CORP. LICENSE NO. C-0275

PROJECT REFERENCE NO.	SHEET NO.
B-3421	3-C
RW SHEET NO.	

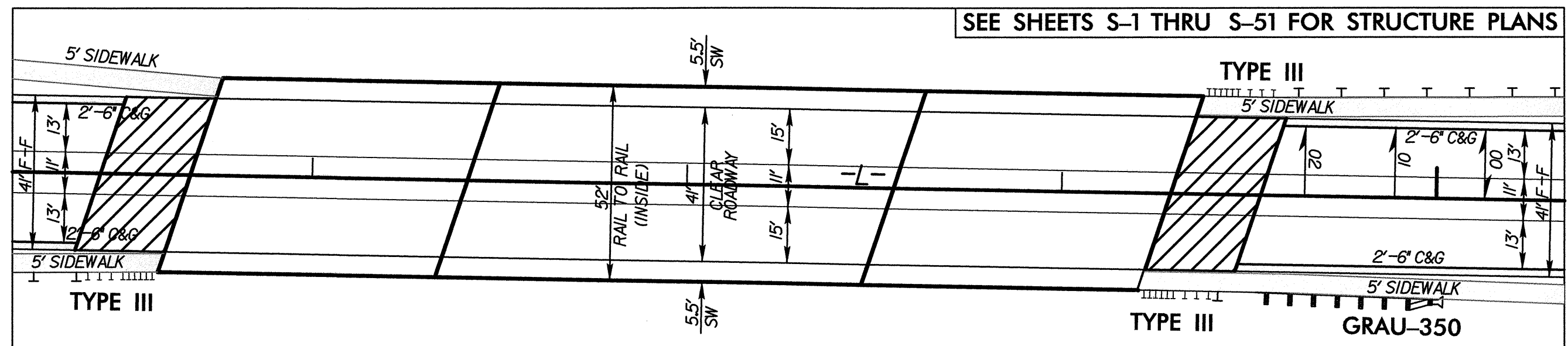
PARCEL NO.	SHEET NO.	PROPERTY OWNER NAME
1	4	JIMMY RAY WILKINSON, and wife GILDA S. WILKINSON, HAROLD GENE WILKINSON, and wife REBA J. WILKINSON.
2	4	DAVID H. MURDOCK
3	4	CITY OF CONCORD
4	4	DEPARTMENT OF TRANSPORTATION
5	4	DELETED
6	4	VERSUCH TUNING, INC.
7	5	C.B. WAGONERS, HEIRS
8	5	PROPERTIES ETC, LLC.
9	5	DEPARTMENT OF TRANSPORTATION
10	5	DEPARTMENT OF TRANSPORTATION
11	5	WESTMINSTER REFORMED PRESBYTERIAN CHURCH
12	5	DEPARTMENT OF TRANSPORTATION
13	5	THOMAS J. CUNNINGHAM
14	5	DONALD L. NEWTON, SR.
15	5	INEZ LYNCH & RHONDA LYNCH
16	5	J.F. LAUGHLIN, HEIRS
17	5	DEPARTMENT OF TRANSPORTATION
18	5	RUBEN RODRIGUEZ and GUADALUPE BUSTOS
19	5	DEPARTMENT OF TRANSPORTATION
20	5	WESTMINSTER REFORMED PRESBYTERIAN CHURCH
21	5	SCOTT C. ROBERTSON
22	5	GATE PETROLEUM CO.
23	5	SCOTT C. ROBERTSON
24	5	DONALD L. NEWTON, SR.
25	5	VESTER E. MOORE
26	5	LEWIS D. & JUANITA S. COBLE
27	5	WHITE PARK COMPANY
28	4	NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
29	4 & 5	NC RAILROAD
30	4	WIDENHOUSE SERVICE, INC.
31	4	CABARRUS COUNTY

5/14/99
TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850
CORP. LICENSE NO. C-0275

8/17/99



FROM -L- STA. 12+70 TO -L- STA. 14+20 RT
EST. CL. 'B' RIP RAP = 36 TONS
EST. FILTER FABRIC = 120 SY



SEE SHEETS S-1 THRU S-51 FOR STRUCTURE PLANS

=DRI=		
PI Sta 11+46.31	PI Sta 12+53.46	PI Sta 13+70.23
$\Delta = 4^{\circ} 09' 53.3''$ (RT)	$\Delta = 2^{\circ} 59' 44.3''$ (RT)	$\Delta = 24^{\circ} 25' 05.8''$ (LT)
$D = 9^{\circ} 32' 57.5''$	$D = 19^{\circ} 05' 54.9''$	$D = 114^{\circ} 35' 29.6''$
$L = 43.61'$	$L = 15.69'$	$L = 21.31'$
$T = 21.82'$	$T = 7.84'$	$T = 10.82'$
$R = 600.00'$	$R = 300.00'$	$R = 50.00'$

PROJECT REFERENCE NO. B-3421 SHEET NO. 4

RW SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PROFESSIONAL SEAL 35018

PROFESSIONAL SEAL 35018

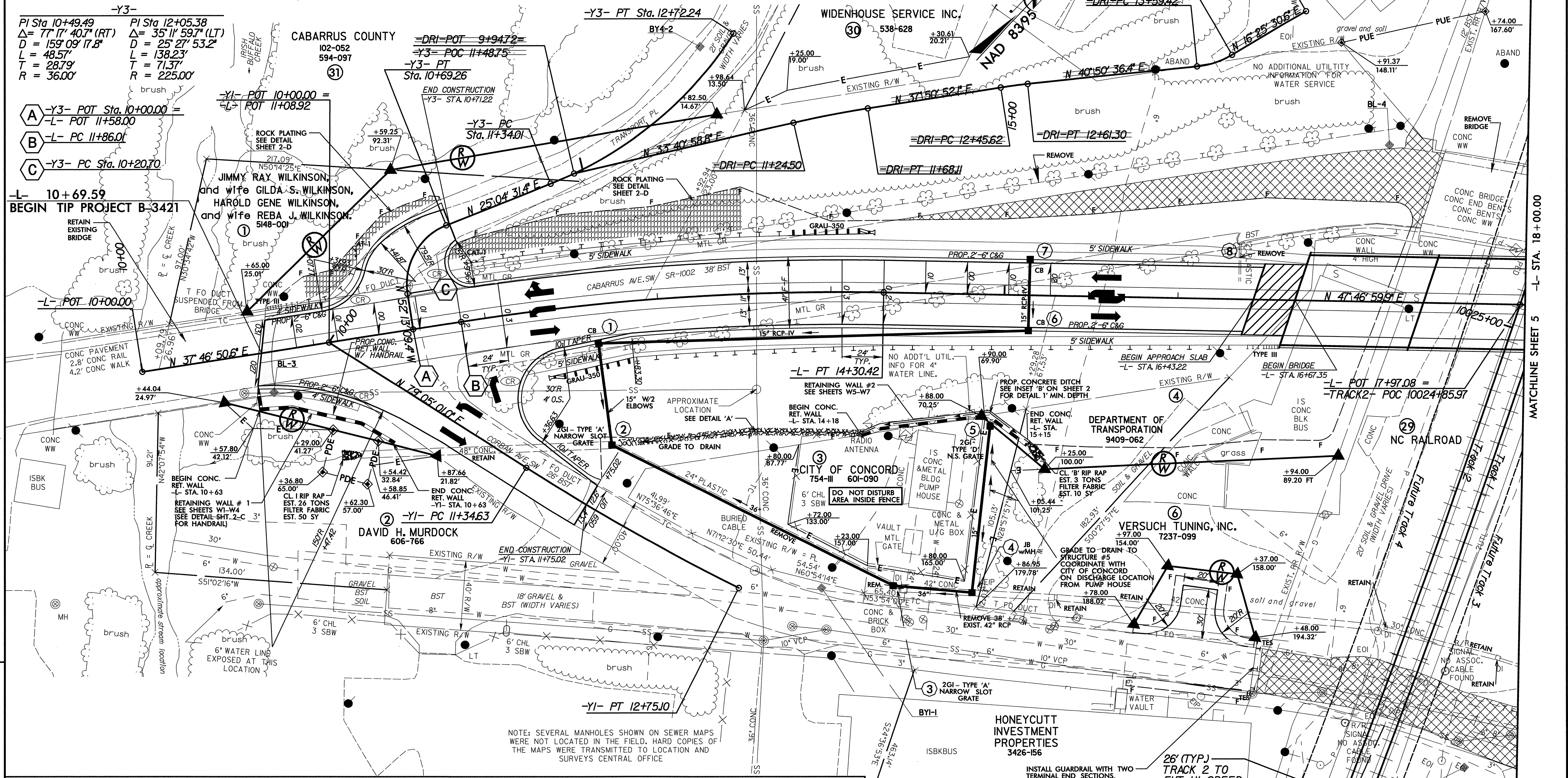
STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA

12/15/11 12/15/11

TGS ENGINEERS

TGS ENGINEERS
SUITE 141
975 WALNUT STREET
CARY, NC 27511
PH (919) 319-8850
CORP. LICENSE NO. C-0275



-L-		-Y1-		TRACK 2 CURVE DATA		
PI Sta 13+08.53	PI Sta 21+31.28	PI Sta 23+64.95	PI Sta 12+04.93	PIs Sta 10019+14.21	PI Sta 10025+13.43	PIs Sta 10031+06.91
$\Delta = 10^{\circ} 00' 09.3''$ (RT)	$\Delta = 5^{\circ} 45' 30.6''$ (RT)	$\Delta = 24^{\circ} 09' 12.5''$ (LT)	$\Delta = 5^{\circ} 59' 26.1''$ (LT)	$\Theta_s = 1^{\circ} 06' 57.4''$	$\Delta = 7^{\circ} 12' 09.3''$ (RT)	$\Theta_s = 1^{\circ} 06' 57.5''$
$D = 4^{\circ} 05' 33.2''$	$D = 4^{\circ} 05' 33.2''$	$D = 19^{\circ} 53' 39.7''$	$D = 4^{\circ} 15' 53.0''$	$\Theta_s = 1^{\circ} 39' 02.8''$	$D = 0^{\circ} 48' 00.0''$	$\Theta_s = 1^{\circ} 20' 54.6''$
$L = 244.41'$	$L = 140.71'$	$L = 140.71'$	$L = 140.47'$	$L_s = 279.00'$	$L = 900.33'$	$L_s = 279.00'$
$T = 122.52'$	$T = 70.41'$	$T = 61.62'$	$T = 70.30'$	$LT = 148.51'$	$T = 450.76'$	$LT = 143.91'$
$R = 1,400.00'$	$R = 1,400.00'$	$R = 288.00'$	$R = 1,343.48'$	$ST = 130.54'$	$R = 7,162.03'$	$ST = 135.13'$
$SE = 0.03$	$SE = 0.03$	$SE = NC$	$SE = EXIST.$			
$Vd = 40$ MPH	$Vd = 40$ MPH					

OBLITERATE, REMOVE, AND GRADE TO DRAIN

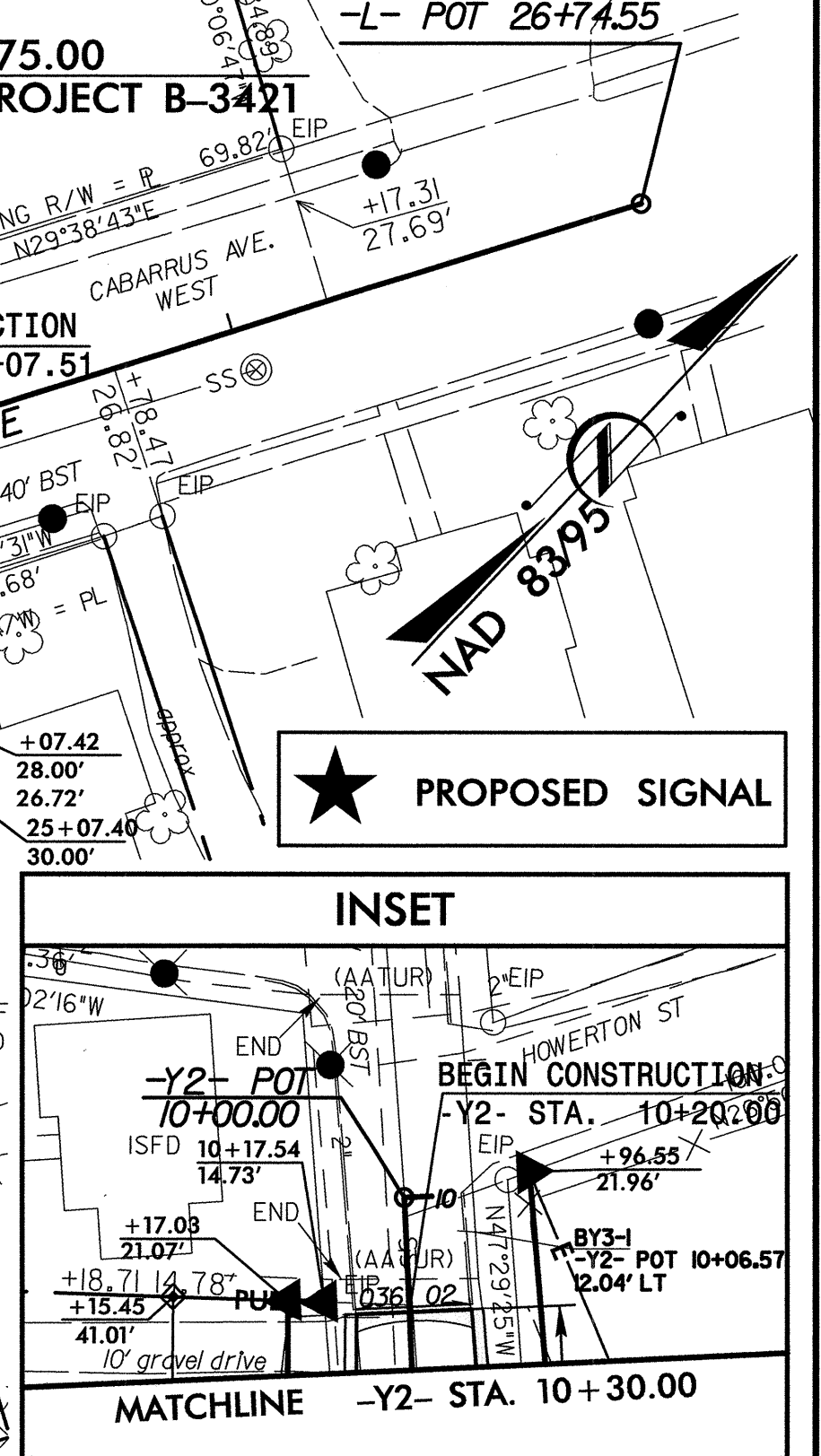
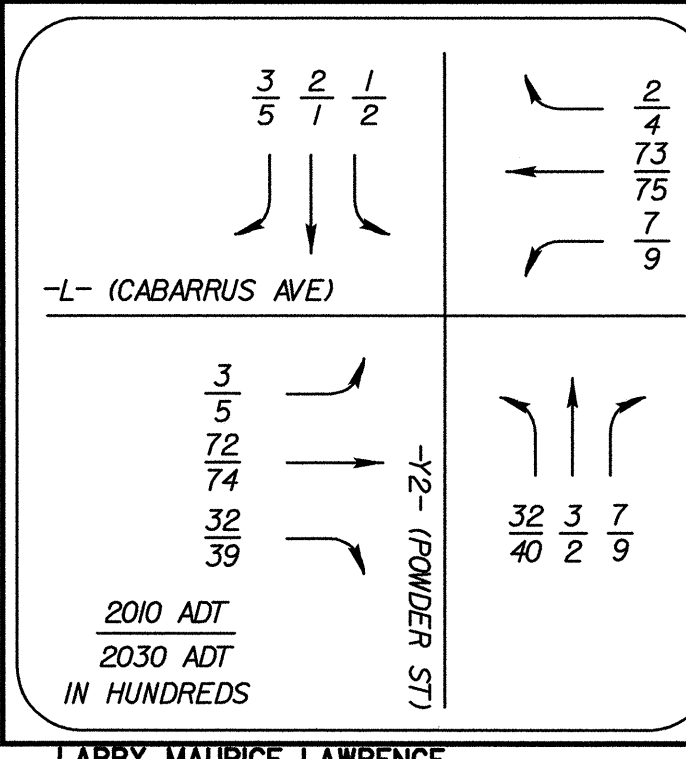
INSTALL GUARDRAIL WITH TWO TERMINAL END SECTIONS. SET GUARDRAIL FACE A MINIMUM OF 5' FROM SAWCUT. (TYP.)

SEE SHEET 6 FOR -L- GRADE & PROFILE

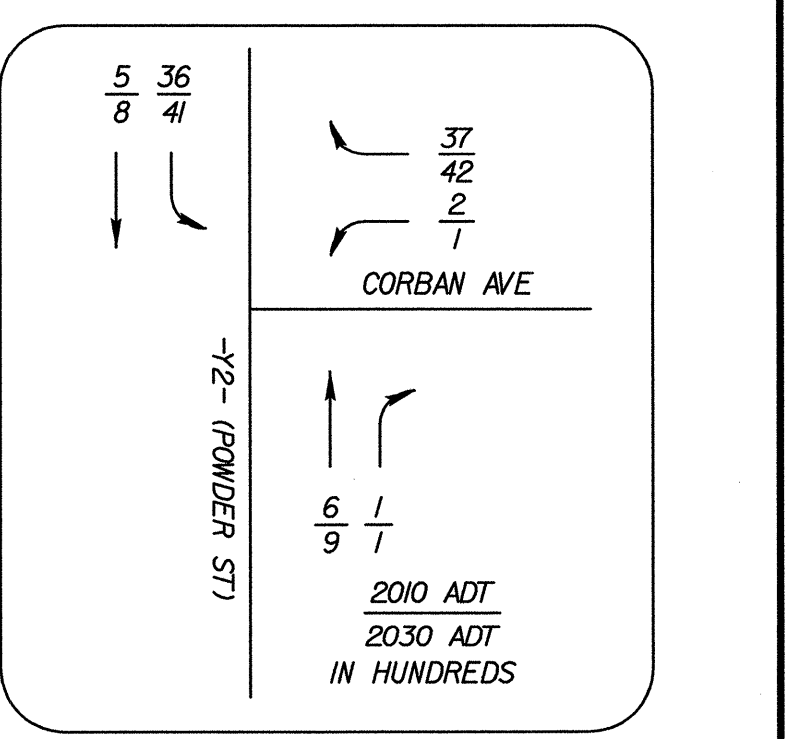
REVISIONS

MATCHLINE SHEET 5 -L- STA. 18+00.00

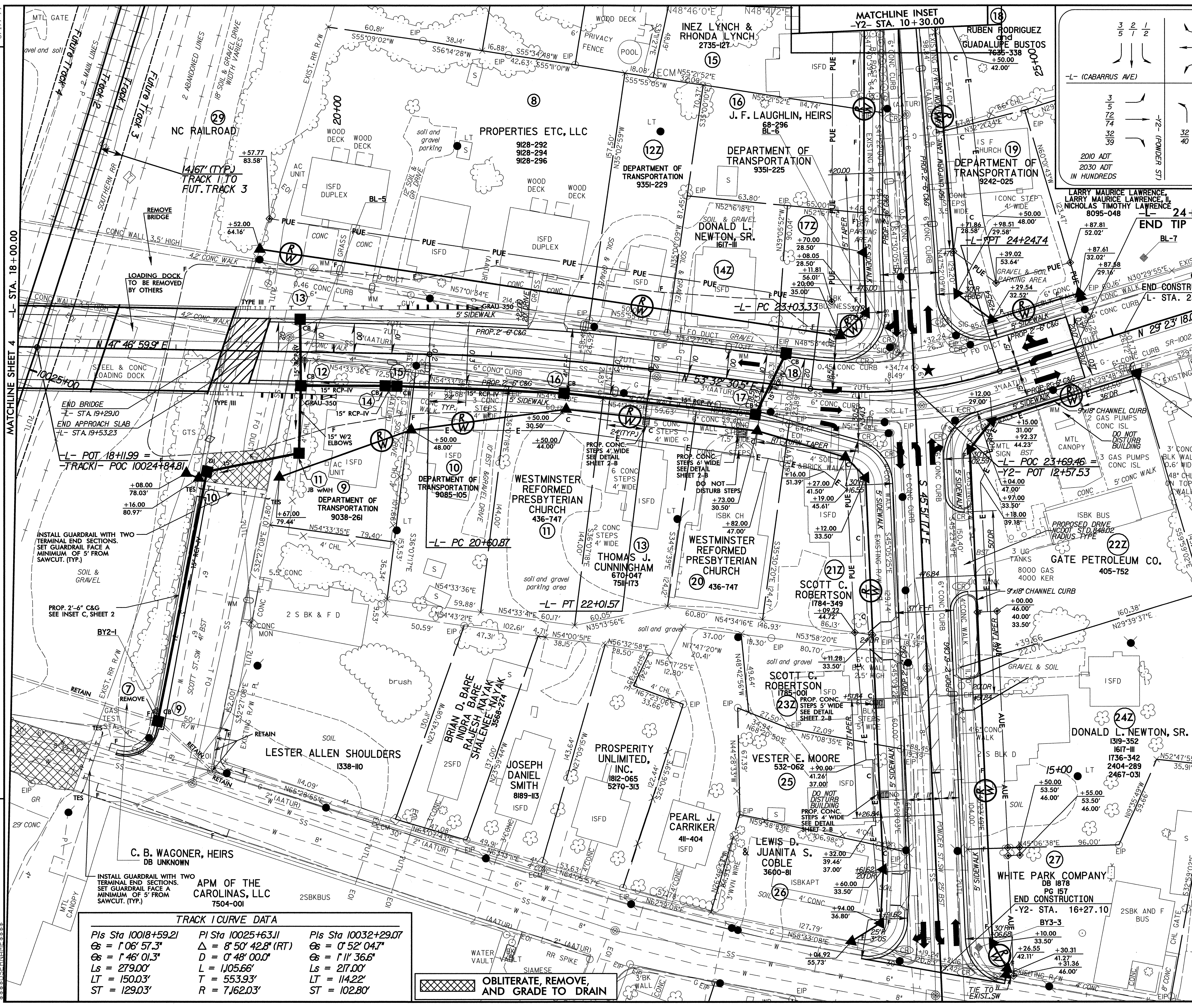
PROJECT REFERENCE NO. B-3421	SHEET NO. 5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
TGS ENGINEERS SUITE 141 975 WALNUT STREET CARY, NC 27511 PH: (919) 319-8850 CORP. LICENSE NO.: C-0275	



PI Sta 21+31.28 Δ = 5'45' 30.6" (RT) D = 4'05' 33.2" L = 140.71' T = 70.41' R = 1,400.00' SE = 0.03 Vd = 40 MPH	PI Sta 23+64.95 Δ = 24'09' 12.5" (LT) D = 19'53' 39.7" L = 121.41' T = 61.62' R = 288.00' SE = NC
--	---



SEE SHEET 7 FOR -L- GRADE & PROFILE
SEE SHEET 7 FOR -Y2- GRADE & PROFILE



TRACK 1 CURVE DATA

PIs Sta 10018+59.21 Cs = 1'06' 57.3" Ls = 279.00' LT = 150.03' ST = 129.03'	PI Sta 10025+63.11 Δ = 8'50' 42.8" (RT) D = 0'48' 00.0" L = 1105.66' T = 553.93' R = 7,162.03'	PIs Sta 10032+29.07 Cs = 0'52' 04.7" Ls = 1'11' 36.6" LT = 114.22' ST = 102.80'
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OBLITERATE, REMOVE, AND GRADE TO DRAIN

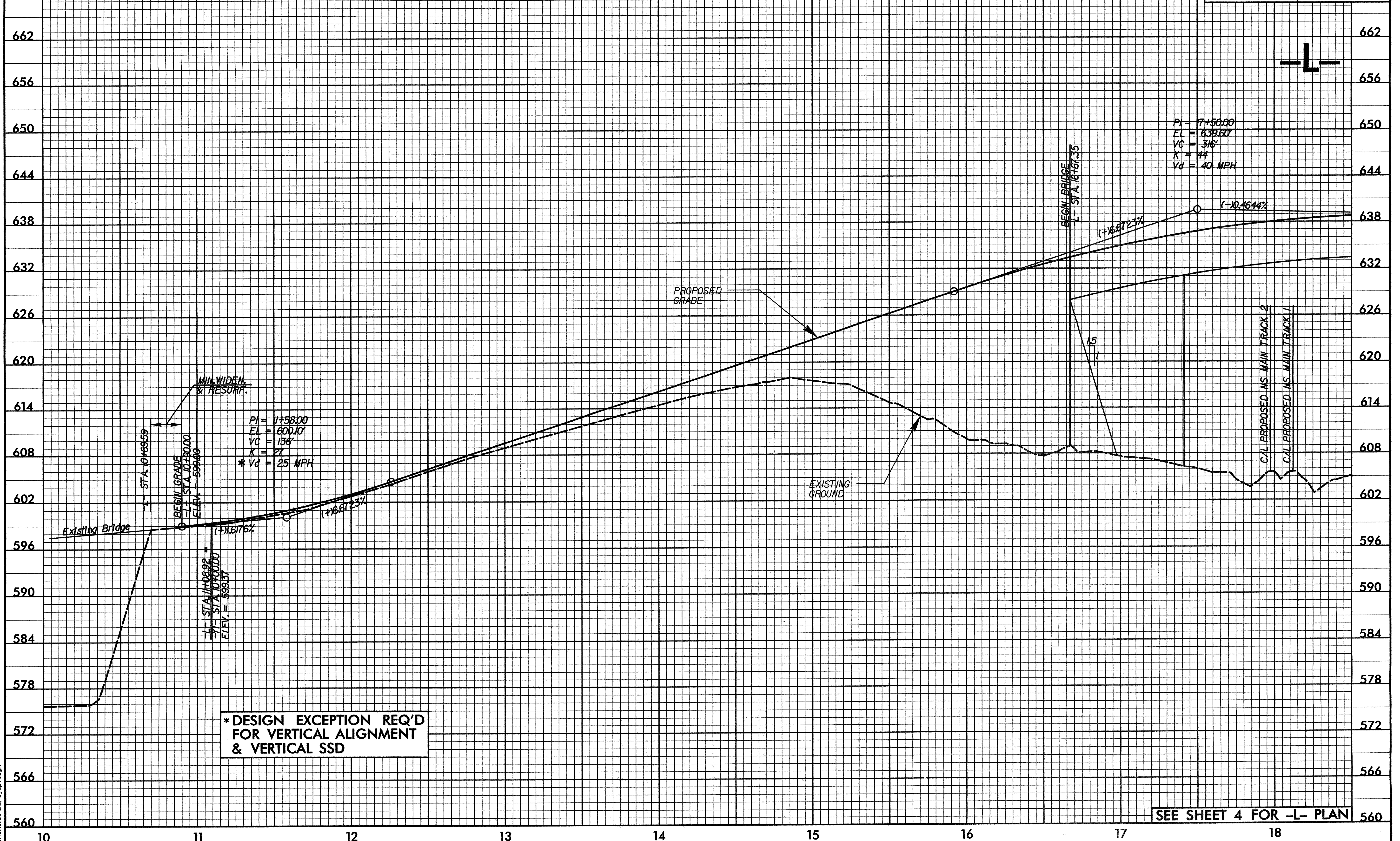
REVISIONS

8/17/99
MATCHLINE SHEET 4 -L- STA. 18+00.00

SYSTEMS
CONSTRUCTION

BM # 1
 CHISELED SQUARE SET IN CONC. WING WALL OF BRIDGE
 S 60 E 8.0' FROM EOP OF BRIDGE OVER CREEK

BM # 2
 RR SPIKE SET 1' UP FROM BASE OF POWER POLE
 S 30 E 8.7' FROM EOP OF CORBAN AVE. NEAR RR CROSSING



* DESIGN EXCEPTION REQ'D
 FOR VERTICAL ALIGNMENT
 & VERTICAL SSD

SEE SHEET 4 FOR -L- PLAN

