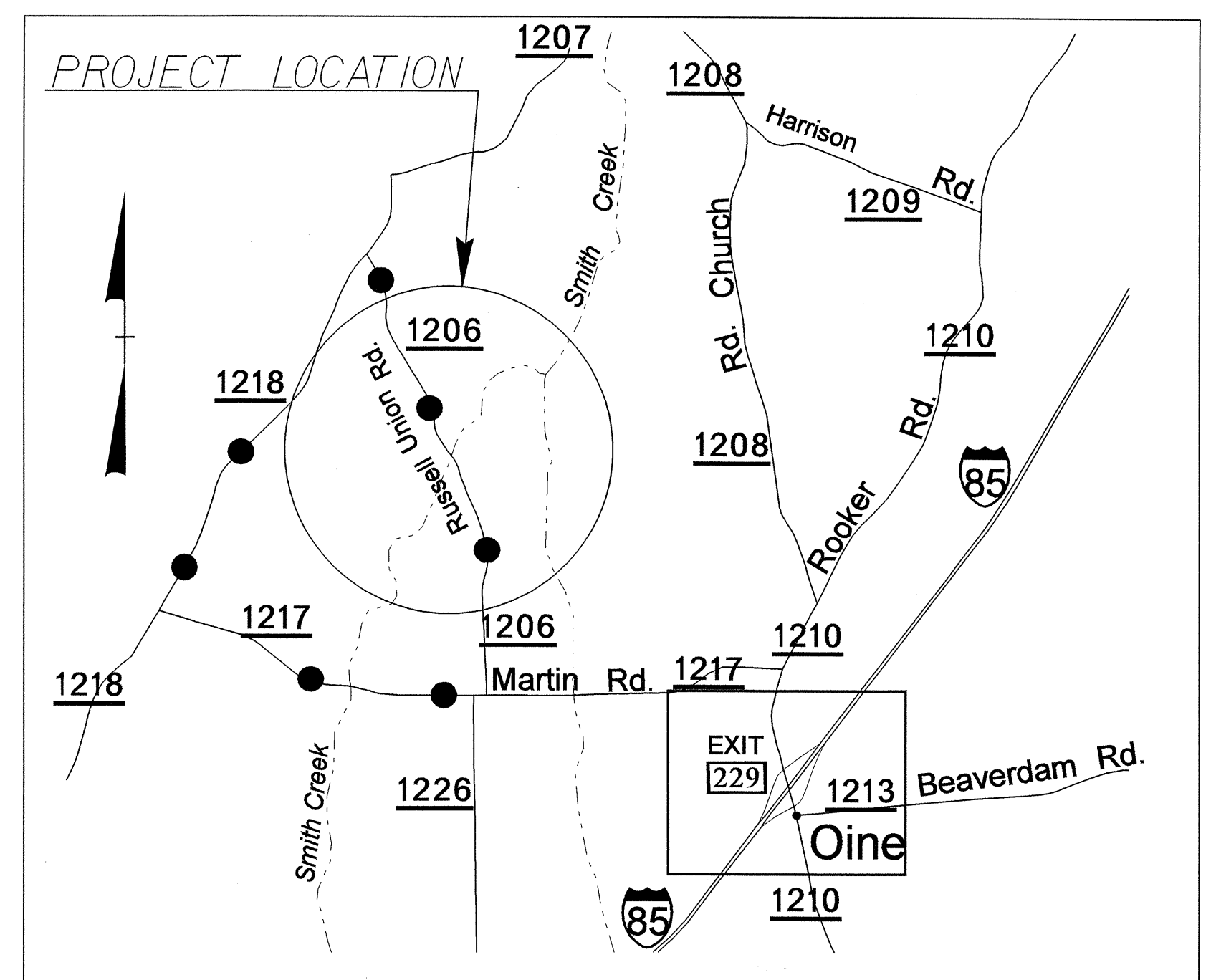


09/08/09

TIP PROJECT: B-4664

CONTRACT: C202030

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



VICINITY MAP

●●●●● OFF SITE DETOUR

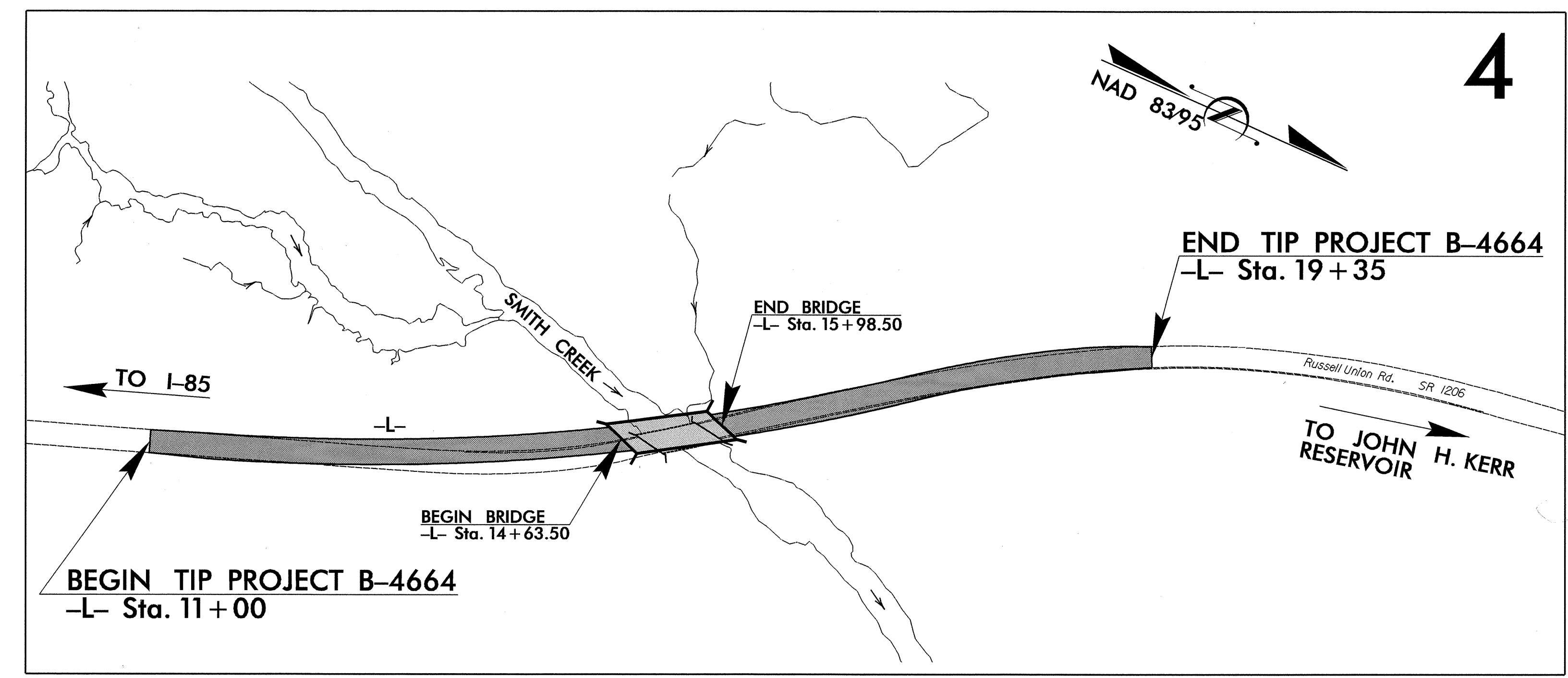
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WARREN COUNTY

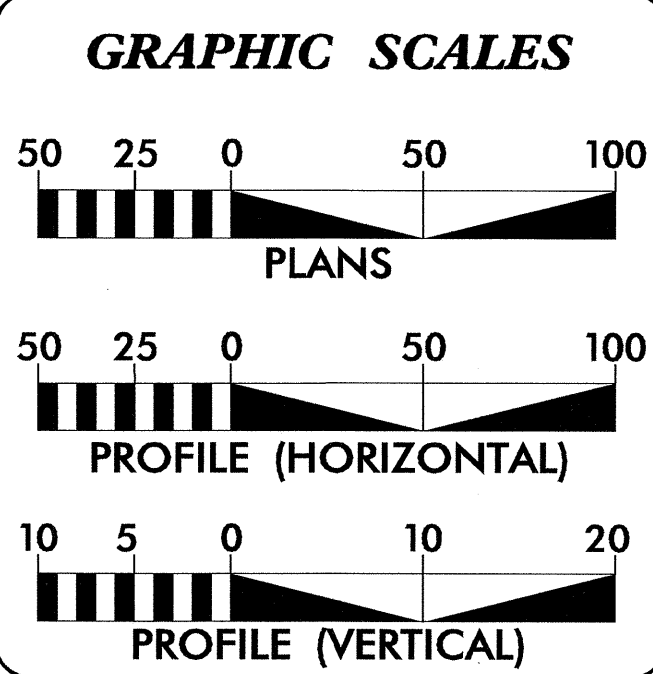
LOCATION: BRIDGE NO. 25 OVER SMITH CREEK
ON SR 1206, RUSSELL UNION ROAD

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4664	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33824.1.1	BRZ-1206(5)	P.E.	
33824.2.1	BRZ-1206(5)	RW, UTIL.	
33824.3.1	BRZ-1206(5)	Construction	



**DESIGN SPEED EXCEPTION REQUIRED



DESIGN DATA

2007 =	200 VPD
ADT 2030 =	600 VPD
DHV =	13 %
D =	60 %
T =	3 % *
**V =	45 MPH

(* TTST 1% & DUAL 2%)

PROJECT LENGTH

Length Roadway TIP Project B-4664 =	0.132 mi
Length Structure TIP Project B-4664 =	0.026 mi
Total Length TIP Project B-4664 =	0.158 mi

Prepared In the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: JULY 3, 2007

LETTING DATE: DECEMBER 16, 2008

JAMES A. SPEER, PE
PROJECT ENGINEER

JOHN C. LANSFORD, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

Professional Engineer Seal: SEAL 12575, JOHN F. FISHER, 9-16-04

SIGNATURE: *[Signature]*

ROADWAY DESIGN ENGINEER

Professional Engineer Seal: SEAL 15439, JOHN C. LANSFORD, 9-15-08

SIGNATURE: *[Signature]*

**DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA**

Professional Engineer Seal: SEAL 15439, JOHN C. LANSFORD, 9-15-08

John C. Lansford
P.E.
STATE HIGHWAY DESIGN ENGINEER

II-SEP-2008 09:52
r:\p09dwy\p09\10\11\12\13\14\15\16\17\18\19\20\21\22\23\24\25\26\27\28\29\30\31\32\33\34\35\36\37\38\39\40\41\42\43\44\45\46\47\48\49\50\51\52\53\54\55\56\57\58\59\60\61\62\63\64\65\66\67\68\69\70\71\72\73\74\75\76\77\78\79\80\81\82\83\84\85\86\87\88\89\90\91\92\93\94\95\96\97\98\99\100\101\102\103\104\105\106\107\108\109\110\111\112\113\114\115\116\117\118\119\120\121\122\123\124\125\126\127\128\129\130\131\132\133\134\135\136\137\138\139\140\141\142\143\144\145\146\147\148\149\150\151\152\153\154\155\156\157\158\159\160\161\162\163\164\165\166\167\168\169\170\171\172\173\174\175\176\177\178\179\180\181\182\183\184\185\186\187\188\189\190\191\192\193\194\195\196\197\198\199\200\201\202\203\204\205\206\207\208\209\210\211\212\213\214\215\216\217\218\219\220\221\222\223\224\225\226\227\228\229\230\231\232\233\234\235\236\237\238\239\240\241\242\243\244\245\246\247\248\249\250\251\252\253\254\255\256\257\258\259\260\261\262\263\264\265\266\267\268\269\270\271\272\273\274\275\276\277\278\279\280\281\282\283\284\285\286\287\288\289\290\291\292\293\294\295\296\297\298\299\300\301\302\303\304\305\306\307\308\309\310\311\312\313\314\315\316\317\318\319\320\321\322\323\324\325\326\327\328\329\330\331\332\333\334\335\336\337\338\339\340\341\342\343\344\345\346\347\348\349\350\351\352\353\354\355\356\357\358\359\360\361\362\363\364\365\366\367\368\369\370\371\372\373\374\375\376\377\378\379\380\381\382\383\384\385\386\387\388\389\390\391\392\393\394\395\396\397\398\399\400\401\402\403\404\405\406\407\408\409\410\411\412\413\414\415\416\417\418\419\420\421\422\423\424\425\426\427\428\429\430\431\432\433\434\435\436\437\438\439\440\441\442\443\444\445\446\447\448\449\450\451\452\453\454\455\456\457\458\459\460\461\462\463\464\465\466\467\468\469\470\471\472\473\474\475\476\477\478\479\480\481\482\483\484\485\486\487\488\489\490\491\492\493\494\495\496\497\498\499\500\501\502\503\504\505\506\507\508\509\510\511\512\513\514\515\516\517\518\519\520\521\522\523\524\525\526\527\528\529\530\531\532\533\534\535\536\537\538\539\540\541\542\543\544\545\546\547\548\549\550\551\552\553\554\555\556\557\558\559\560\561\562\563\564\565\566\567\568\569\570\571\572\573\574\575\576\577\578\579\580\581\582\583\584\585\586\587\588\589\590\591\592\593\594\595\596\597\598\599\600\601\602\603\604\605\606\607\608\609\610\611\612\613\614\615\616\617\618\619\620\621\622\623\624\625\626\627\628\629\630\631\632\633\634\635\636\637\638\639\640\641\642\643\644\645\646\647\648\649\650\651\652\653\654\655\656\657\658\659\660\661\662\663\664\665\666\667\668\669\670\671\672\673\674\675\676\677\678\679\680\681\682\683\684\685\686\687\688\689\690\691\692\693\694\695\696\697\698\699\700\701\702\703\704\705\706\707\708\709\710\711\712\713\714\715\716\717\718\719\720\721\722\723\724\725\726\727\728\729\730\731\732\733\734\735\736\737\738\739\740\741\742\743\744\745\746\747\748\749\750\751\752\753\754\755\756\757\758\759\760\761\762\763\764\765\766\767\768\769\770\771\772\773\774\775\776\777\778\779\780\781\782\783\784\785\786\787\788\789\790\791\792\793\794\795\796\797\798\799\800\801\802\803\804\805\806\807\808\809\810\811\812\813\814\815\816\817\818\819\820\821\822\823\824\825\826\827\828\829\830\831\832\833\834\835\836\837\838\839\840\841\842\843\844\845\846\847\848\849\850\851\852\853\854\855\856\857\858\859\860\861\862\863\864\865\866\867\868\869\870\871\872\873\874\875\876\877\878\879\880\881\882\883\884\885\886\887\888\889\890\891\892\893\894\895\896\897\898\899\900\901\902\903\904\905\906\907\908\909\910\911\912\913\914\915\916\917\918\919\920\921\922\923\924\925\926\927\928\929\930\931\932\933\934\935\936\937\938\939\940\941\942\943\944\945\946\947\948\949\950\951\952\953\954\955\956\957\958\959\960\961\962\963\964\965\966\967\968\969\970\971\972\973\974\975\976\977\978\979\980\981\982\983\984\985\986\987\988\989\990\991\992\993\994\995\996\997\998\999\1000



SHEET NUMBER	INDEX OF SHEETS SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
1-C	SURVEY CONTROL SHEET
2	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS
2-A	MODIFIED CONCRETE FLUME DETAIL
2-B	ANCHORAGE FOR FRAMES DETAIL
2-C	DETAIL FOR SUB-REGIONAL TIER BRIDGE APPROACH FILLS
3	SUMMARY OF QUANTITIES
3-A	LIST OF PIPES, ENDWALLS, ETC (FOR PIPES 48" AND UNDER) SUMMARY OF GUARDRAIL, EARTHWORK SUMMARY, AND ASPHALT PAVEMENT REMOVAL SUMMARY
4	PLAN SHEET
5	PROFILE SHEET
TCP-1 THRU TCP-4	TRAFFIC CONTROL PLANS
SD-1	SPECIAL SIGN DESIGN
RF-1	REFORESTATION PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-4	SIGNING PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS PLANS
X-1	CROSS-SECTION SUMMARY
X-2 THRU X-8	CROSS-SECTIONS
S-1 THRU S-22	STRUCTURE PLANS

GENERAL NOTES:

2006 SPECIFICATIONS
EFFECTIVE: 07-18-06
REVISED: 07-30-08

GRADING AND SURFACING OR RESURFACING AND WIDENING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED 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.

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 WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

SUBSURFACE PLANS:

NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

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 Embarq, Halifax EMC

RIGHT-OF-WAY MARKERS:

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

2006 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 July 18, 2006 are applicable to this project and by reference hereby are considered a part of these plans:

STD. NO.	TITLE
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
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation - Method 'A'
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
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. 07-18-06
REV. 01-02-07

11-SEP-2008 08:20
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Wm. G. Lansford

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

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	(123)
Existing Fence Line	---x---x---x---
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	◻
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	---WLB---
Proposed Wetland Boundary	---WLB---
Existing Endangered Animal Boundary	---EAB---
Existing Endangered Plant Boundary	---EPB---

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	---JS---
Buffer Zone 1	---BZ 1---
Buffer Zone 2	---BZ 2---
Flow Arrow	←
Disappearing Stream	→
Spring	○
Swamp Marsh	✕
Proposed Lateral, Tail, Head Ditch	---FIM---
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	---E---
Proposed Temporary Construction Easement	---E---
Proposed Temporary Drainage Easement	---TDE---
Proposed Permanent Drainage Easement	---PDE---
Proposed Permanent Utility Easement	---PUE---

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	---C---
Proposed Slope Stakes Fill	---F---
Proposed Wheel Chair Ramp	◻
Proposed Wheel Chair Ramp Curb Cut	◻
Curb Cut for Future Wheel Chair 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	-----

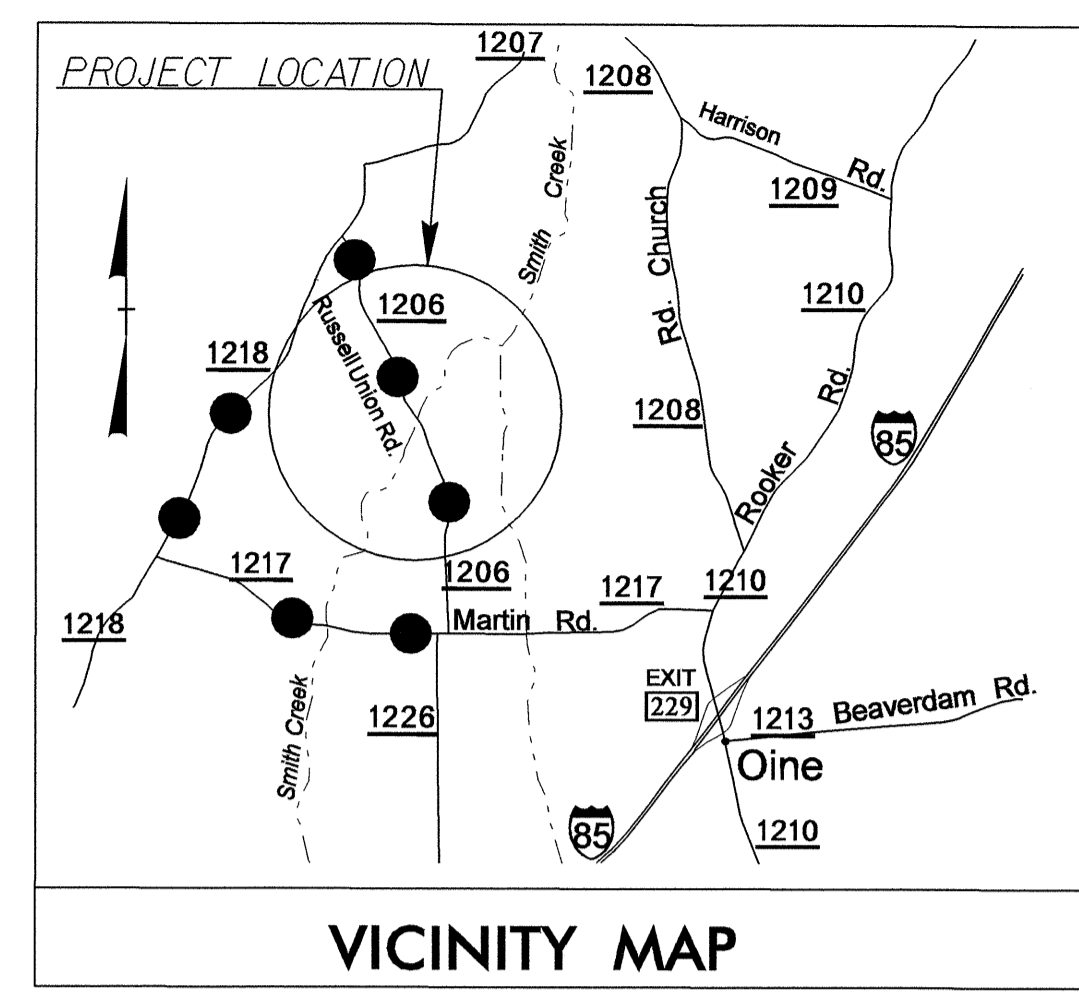
SANITARY SEWER:

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	◻
A/G Tank; Water, Gas, Oil	◻
U/G Test Hole (S.U.E.*)	○
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

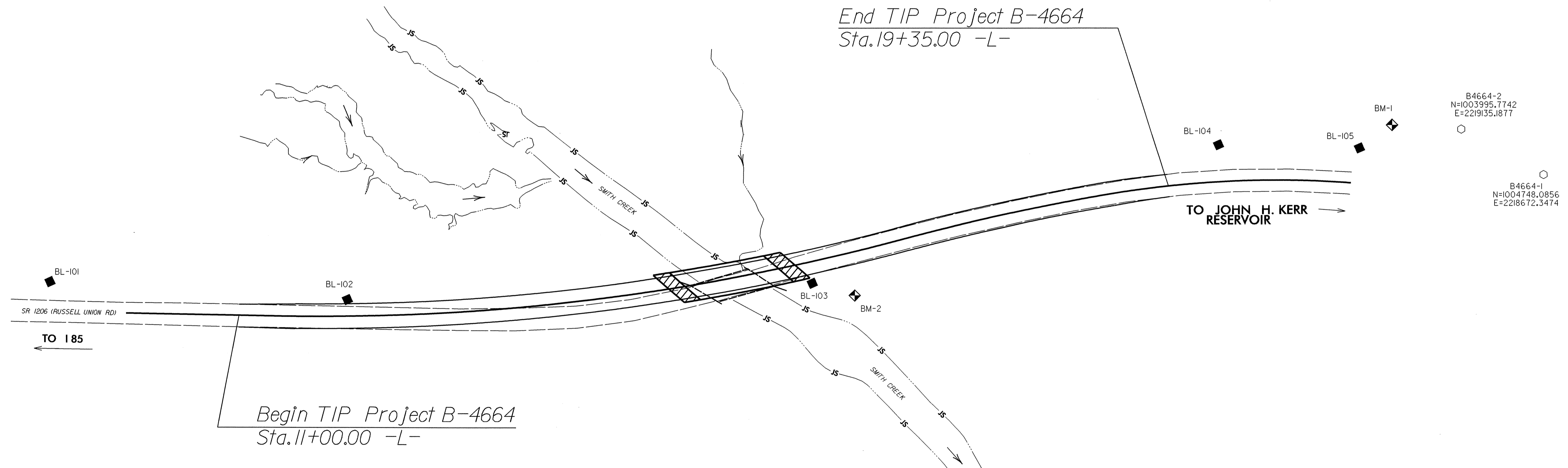
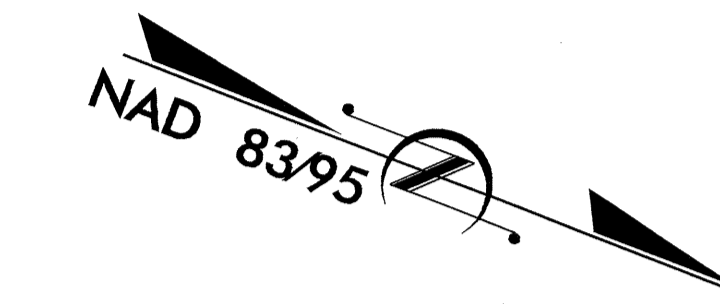
B-4664



SURVEY CONTROL SHEET B-4664

WARREN COUNTY

**LOCATION: BRIDGE NO. 25 OVER SMITH CREEK
ON SR 1206 (RUSSELL UNION ROAD)**



BASELINE DATA

BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
	101	BL101	1001819.5810	2220084.0530	248.94	OUTSIDE PROJECT LIMITS	
	102	BL102	1002146.4160	2219964.8900	243.71	11+96.34	14.84 LT
	103	BL103	1002524.9850	2219801.5950	246.83	16+07.58	18.79 RT
	104	BL104	1002942.6710	2219520.6190	276.84	21+08.61	22.20 LT
	105	BL105	1003394.9940	2219437.8060	299.38	OUTSIDE PROJECT LIMITS	

BENCHMARK DATA

BM1	ELEVATION + 321.83	BM2	ELEVATION + 251.45
N 1004597	E 2218700	N 1002564	E 2219798
L STATION 22+10		L STATION 16+41 38' RIGHT	
N 27° 52' 30.8" W DIST 1753'		RR SPIKE IN 22" WHITE OAK	

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4664-2"

WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF NORTHING: 1003995.7742(ft) EASTING: 2219135.1877(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 1.00010295

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4664-2" TO -L- STATION 11+00.00 IS S 24°24'46"E 2123.68'

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTES:

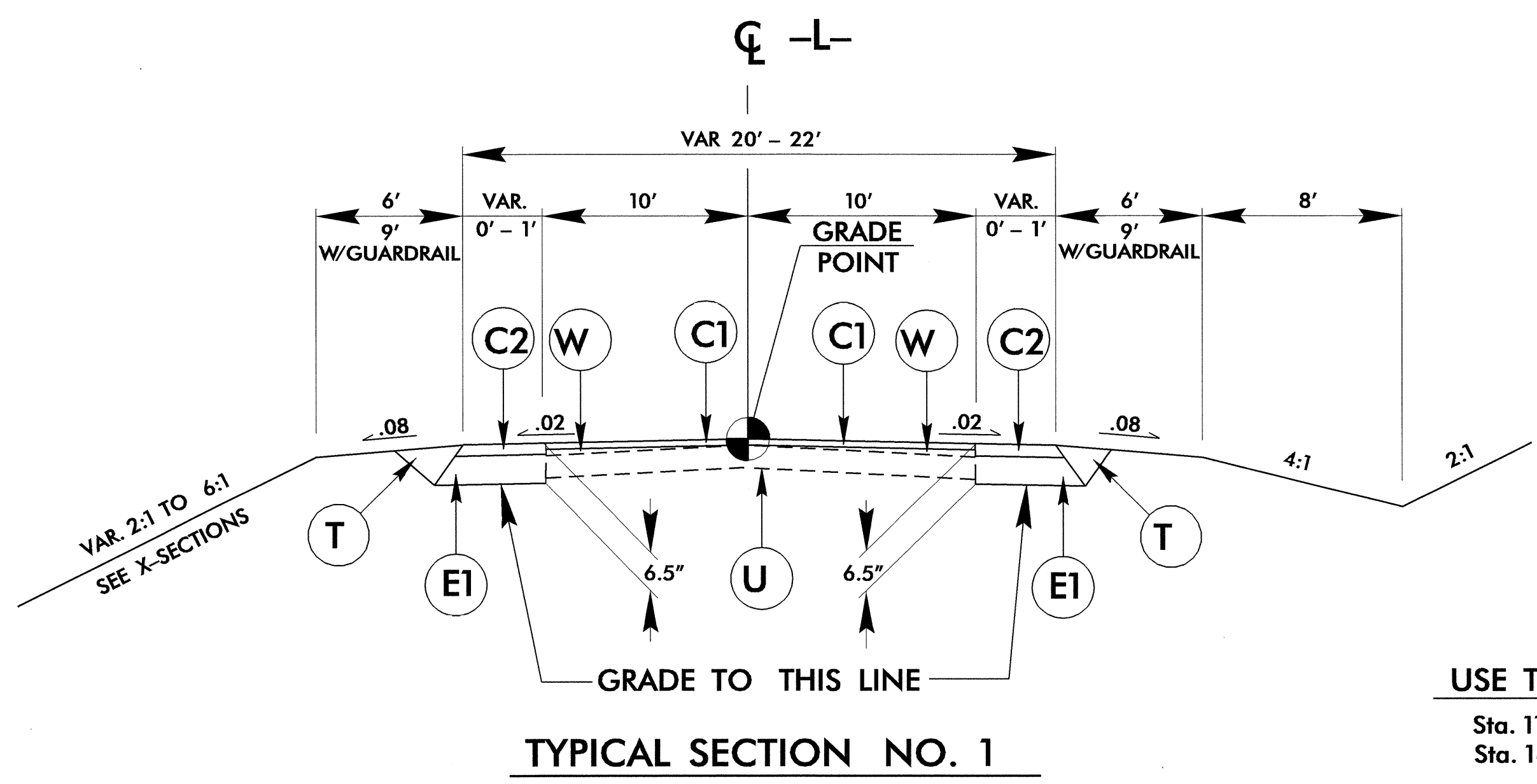
- THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
[HTTP://WWW.DOHDOT.STATE.NC.US/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/](http://www.doh.dot.state.nc.us/preconstruct/highway/location/project/)
THE FILES TO BE FOUND ARE AS FOLLOWS:
B4664_LS_CONTROL_060619.TXT
- SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. 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 NGS ONLINE POSITIONING SERVICE (OPUS)
SEE GPS CALIBRATION SHEET FOR HORIZONTAL AND VERTICAL COORDINATE VALUES.

NOTE: DRAWING NOT TO SCALE

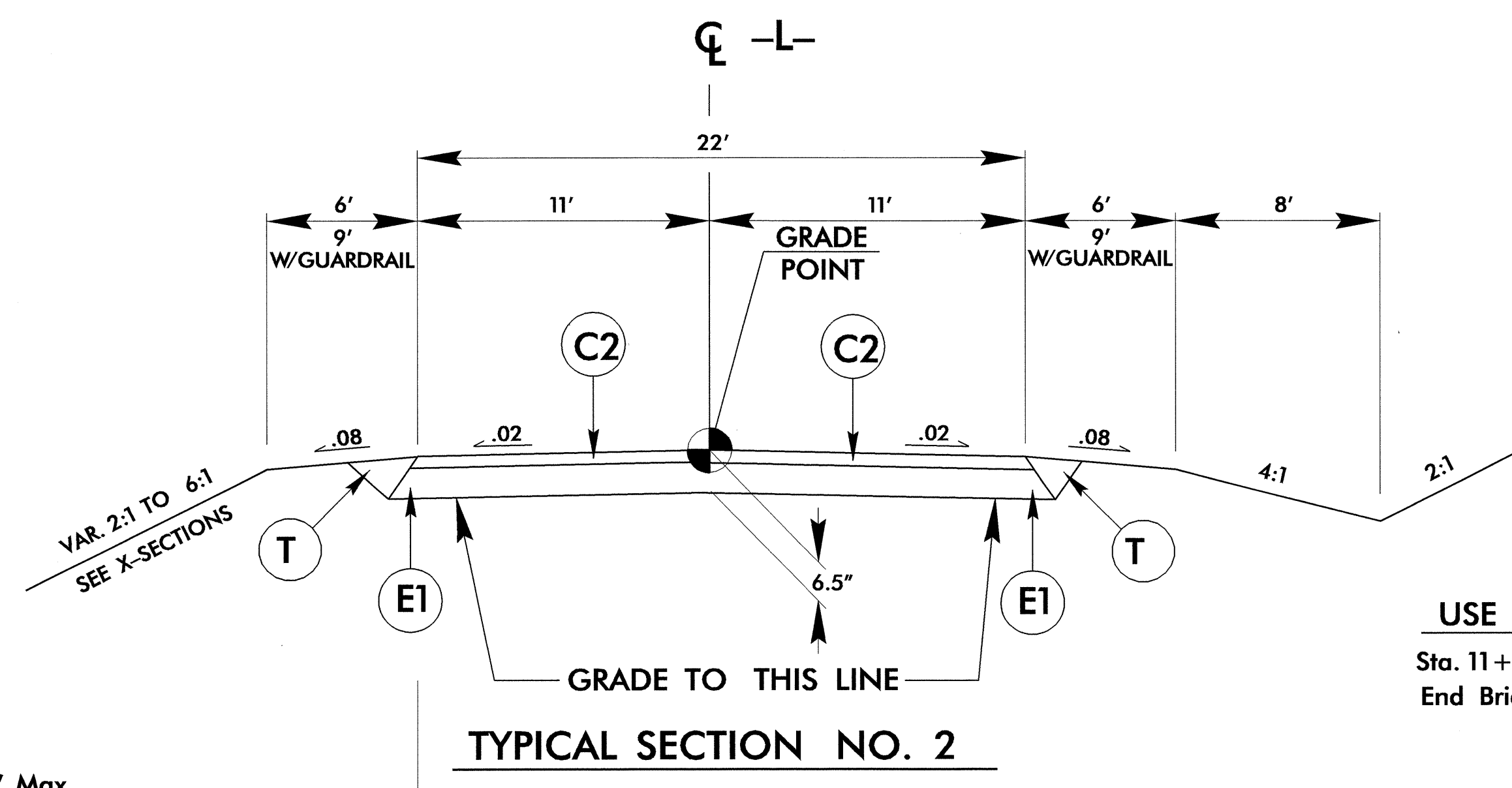
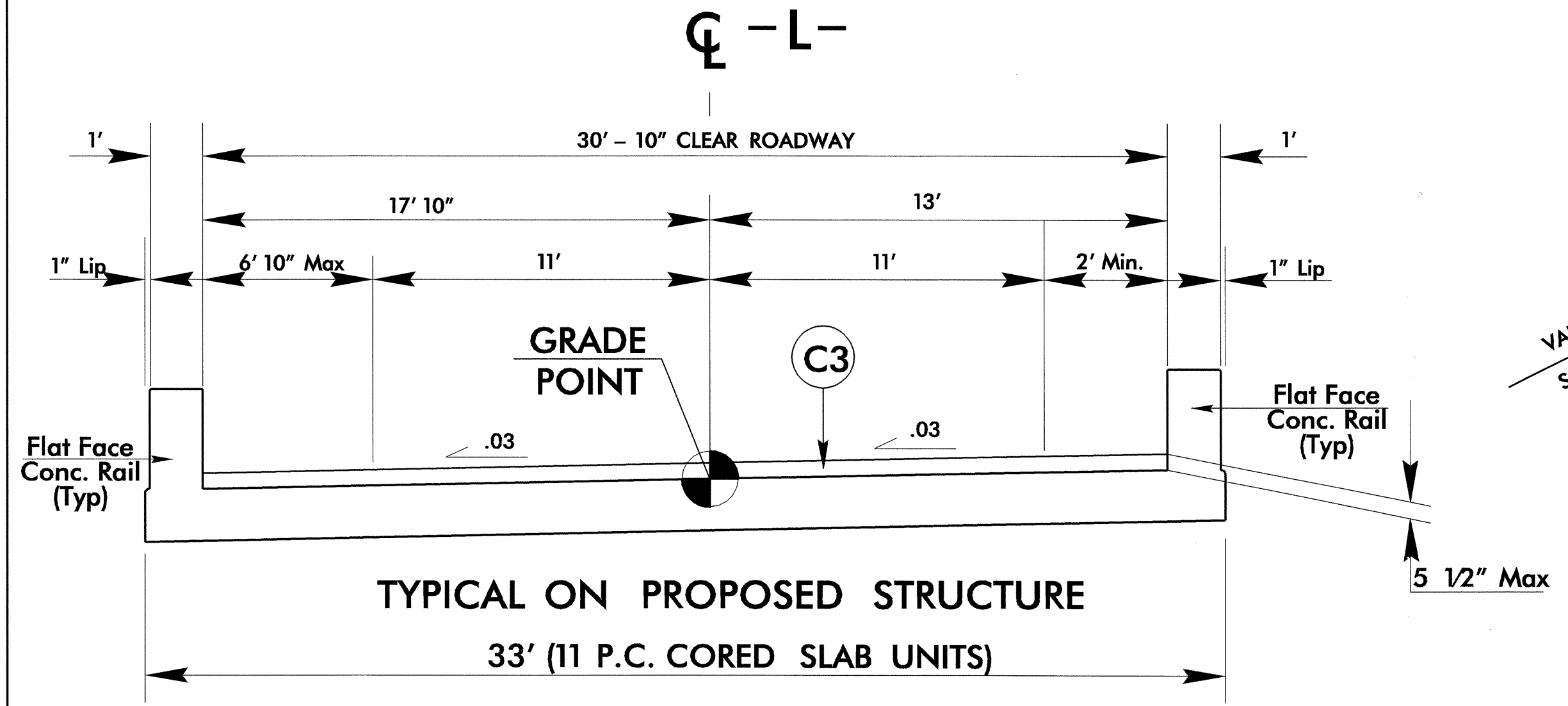
06/23/06
04-SEP-2008 07:37 4664_Is_1c_060623.dgn

PAVEMENT SCHEDULE	
C1	Prop. Approx. 1.25" Asphalt Concrete Surface Course, Type SF9.5A, at an Average Rate of 137.5 lbs. per sq. yard
C2	Prop. Approx. 2.5" Asphalt Concrete Surface Course, Type SF9.5A, at an Average Rate of 137.5 lbs. per sq. yard in Each of Two Layers
C3	Prop. Var. Depth Asphalt Conc. Surf. Course, Type SF9.5A, at an Avg. Rate of 110 lbs. per sq. yard per 1" depth to be placed in layers not to exceed 1.5" in depth
E1	Prop. Approx. 4" Asphalt Concrete Base Course, Type B25.0B, at an Average Rate of 456 lbs. per sq. yard
E2	Prop. Var. Depth Asphalt Conc. Base Course, Type B25.0B, at an Avg. Rate of 114 lbs. per sq. yard per 1" depth to be placed in layers not less than 3" in depth
T	Earth Material
U	Existing Pavement
W	Asphalt Wedging (See Detail)

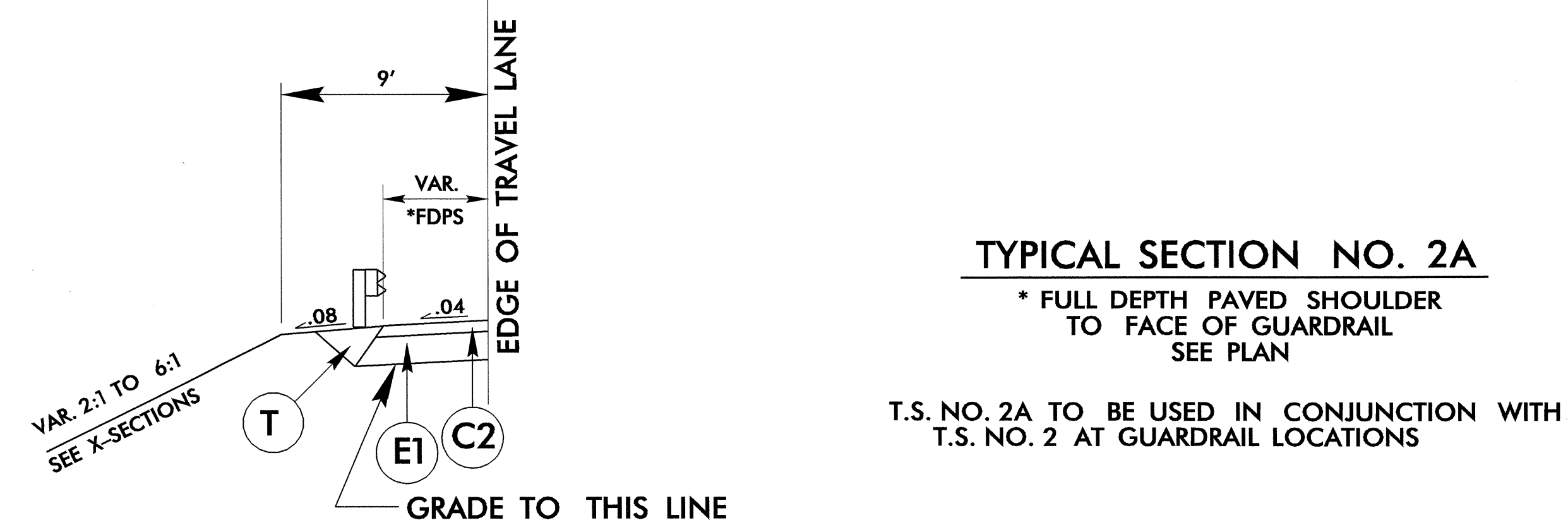
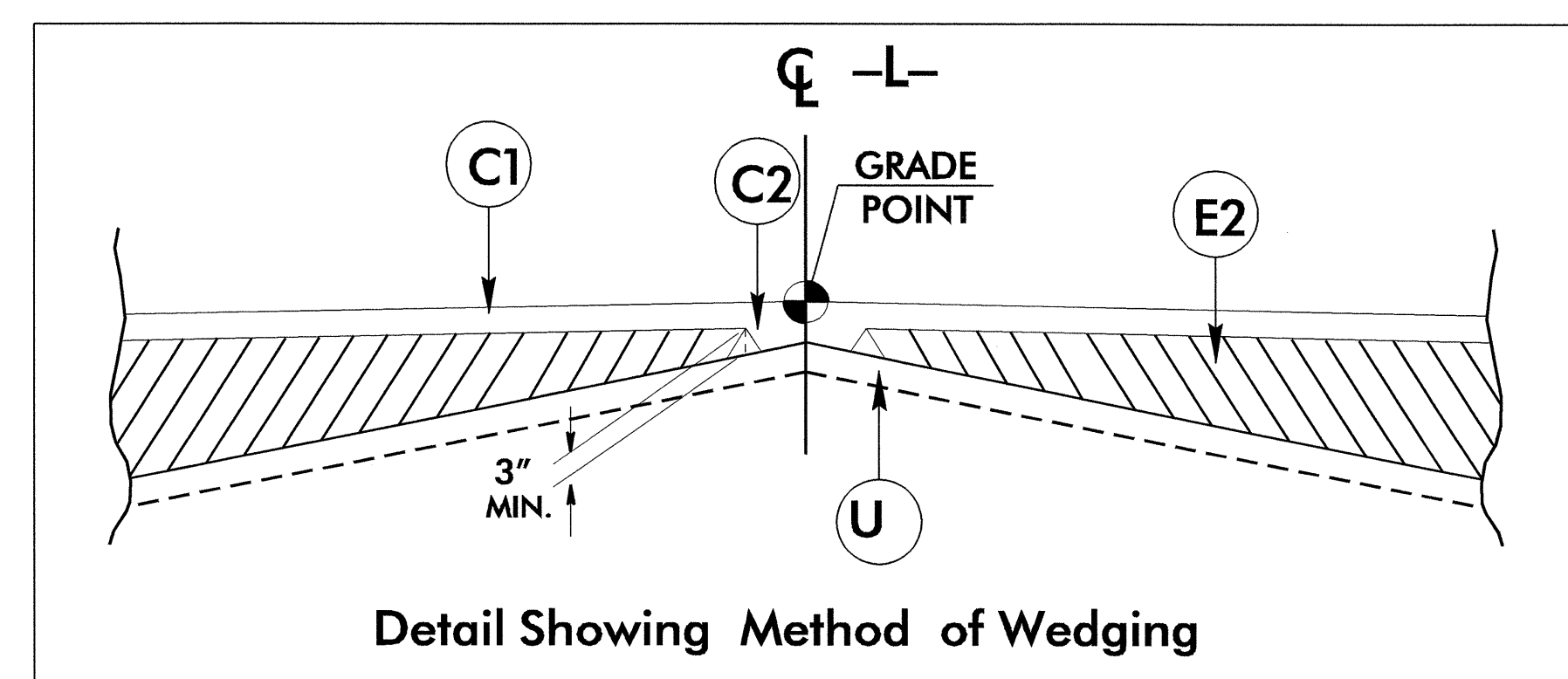
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



USE TYPICAL SECTION NO. 1
 Sta. 11+00.00 -L- to 11+50.00 -L-
 Sta. 18+85.00 -L- to 19+35.00 -L-



USE TYPICAL SECTION NO. 2
 Sta. 11+50.00 -L- to Begin Bridge Sta. 14+63.50-L-
 End Bridge Sta. 15+98.50 -L- to Sta. 18+85.00 -L-



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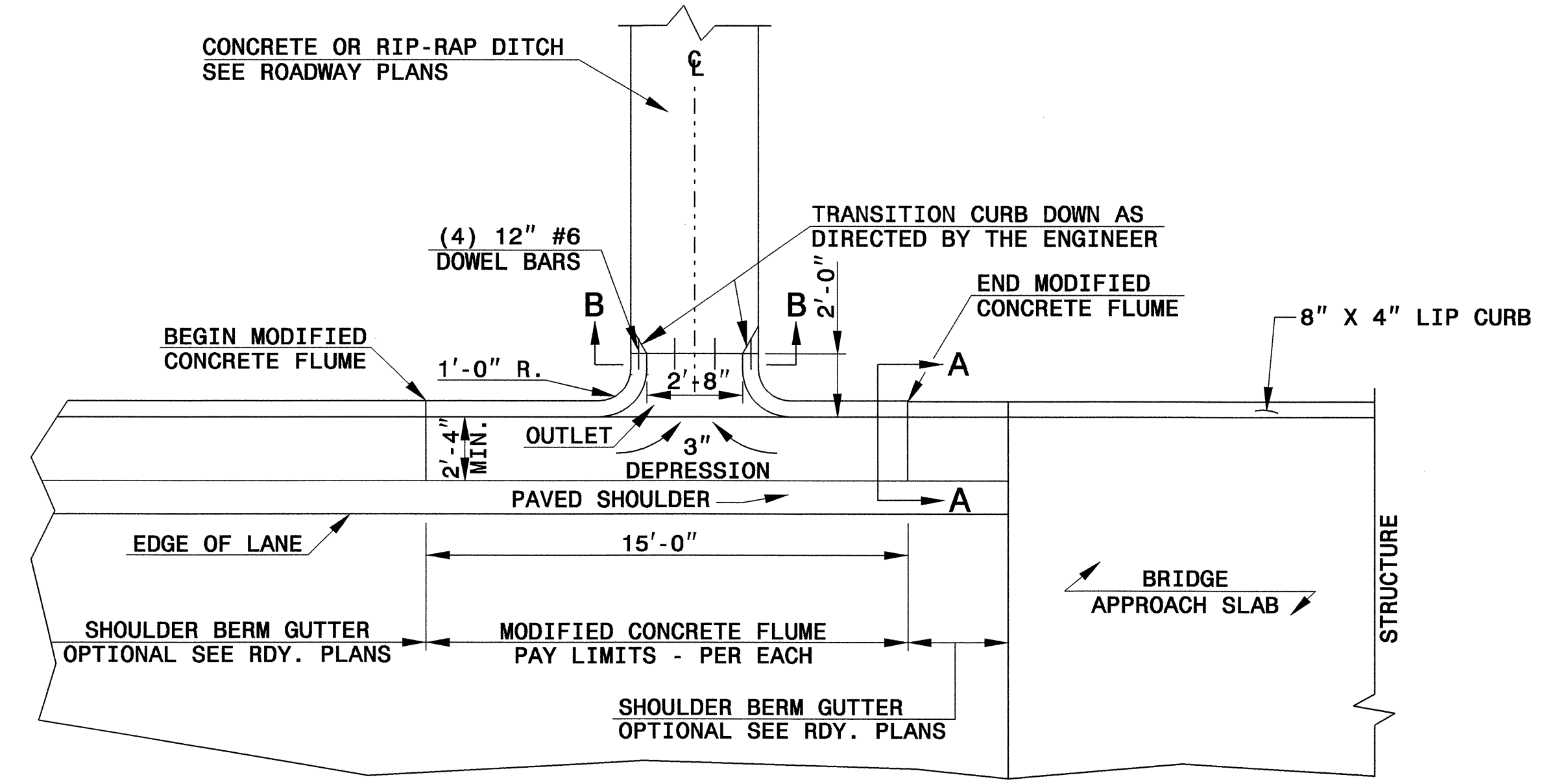
ENGLISH DETAIL DRAWING FOR
MODIFIED CONCRETE FLUME
WITH CONCRETE OR RIP-RAP DITCH

SHEET 1 OF 1
MODFLMDTCH

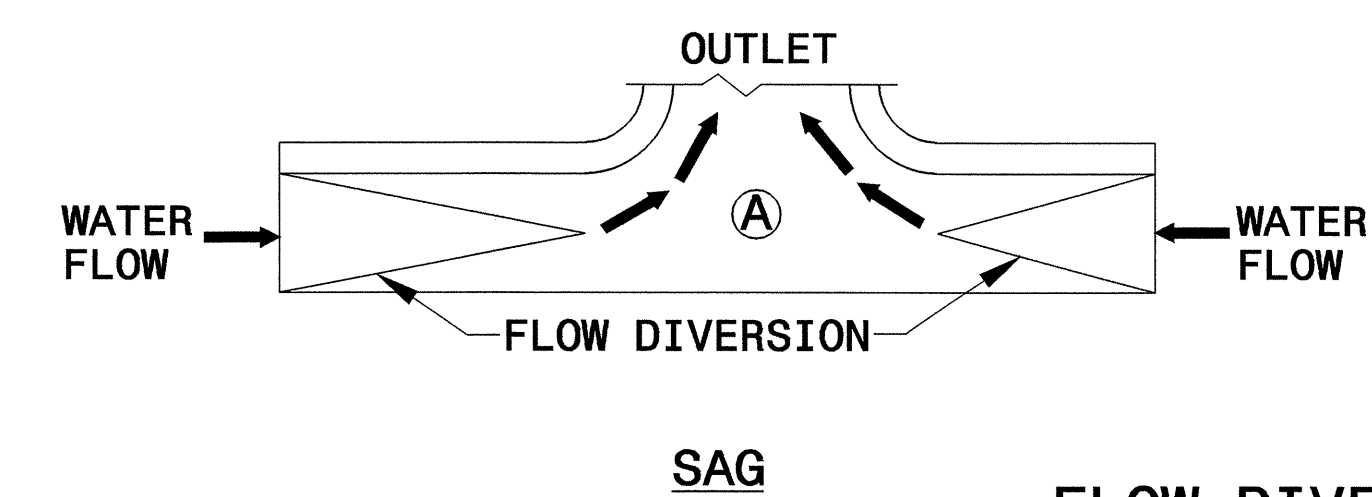
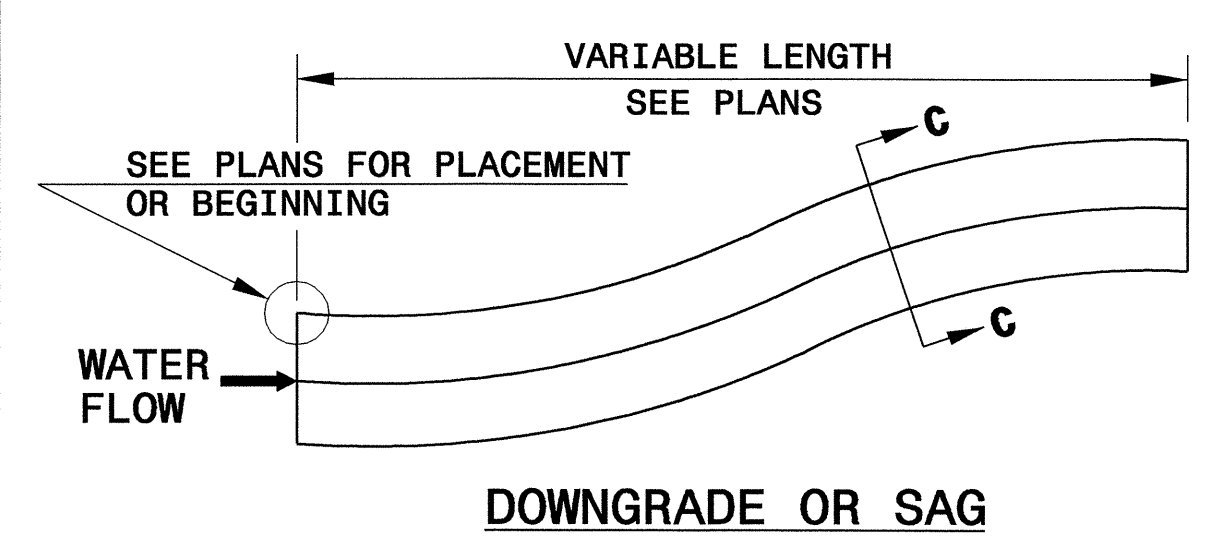
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DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
MODIFIED CONCRETE FLUME
WITH CONCRETE OR RIP-RAP DITCH

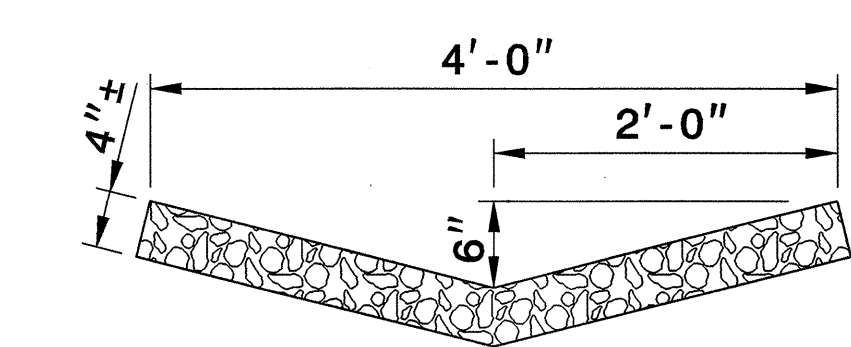
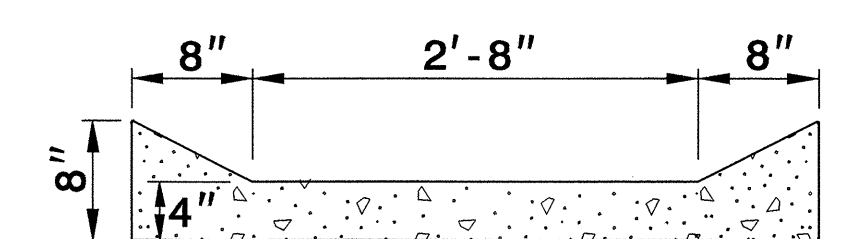
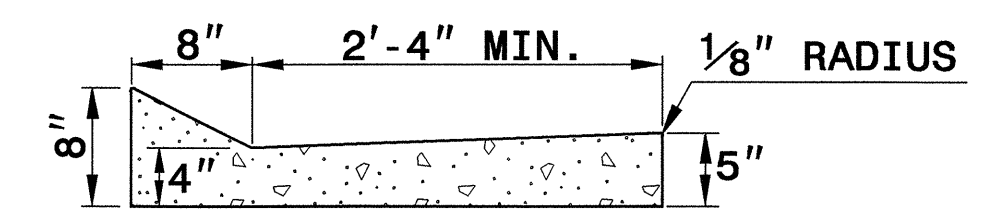
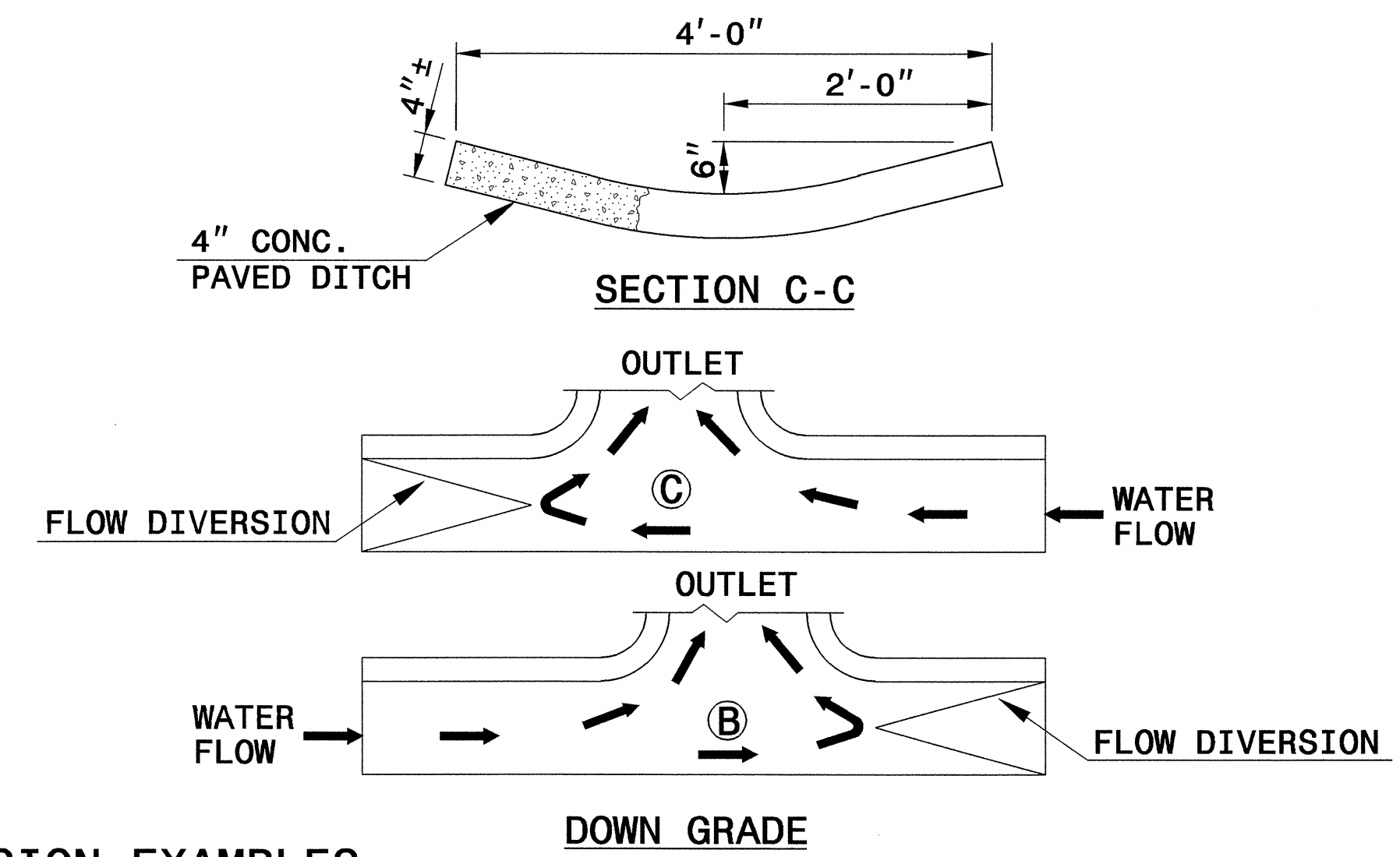
SHEET 1 OF 1
MODFLMDTCH



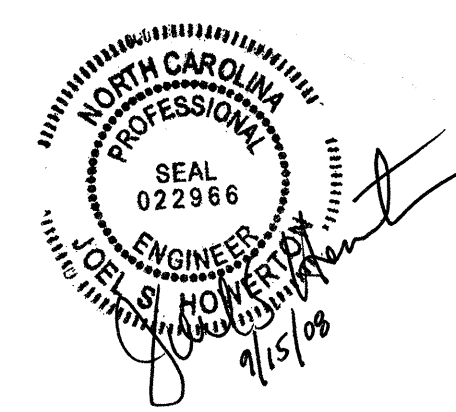
PLAN VIEW



FLOW DIVERSION EXAMPLES



- NOTES:
- CONSTRUCT MODIFIED CONCRETE FLUME AND SHOULDER BERM GUTTER IN ACCORDANCE WITH THIS DETAIL.
 - CONSTRUCT CONCRETE DITCH IN ACCORDANCE WITH STD. DWG. NO. 850.01.
 - CONSTRUCT RIP RAP LINED DITCH IN ACCORDANCE WITH THIS DETAIL, IF CALLED FOR IN PLANS.
 - CONCRETE OR RIP RAP LINED DITCH SHALL BE THE TYPE AND LENGTH SPECIFIED BY THE ROADWAY PLANS. THE DITCH SHALL TERMINATE AS SHOWN ON THE PLANS. IF NO TERMINATION IS INDICATED PLACE RIP-RAP AT THE END OF THE DITCH AS INDICATED BY STD. DWG. 876.02 FOR AN 18" PIPE. TRANSITIONS FROM THE DITCH TO TERMINATION SHALL BE AS DIRECTED BY THE ENGINEER.
 - MODIFICATIONS SHALL BE AS DICTATED BY SITE CONDITIONS AND DIRECTED BY THE ENGINEER.



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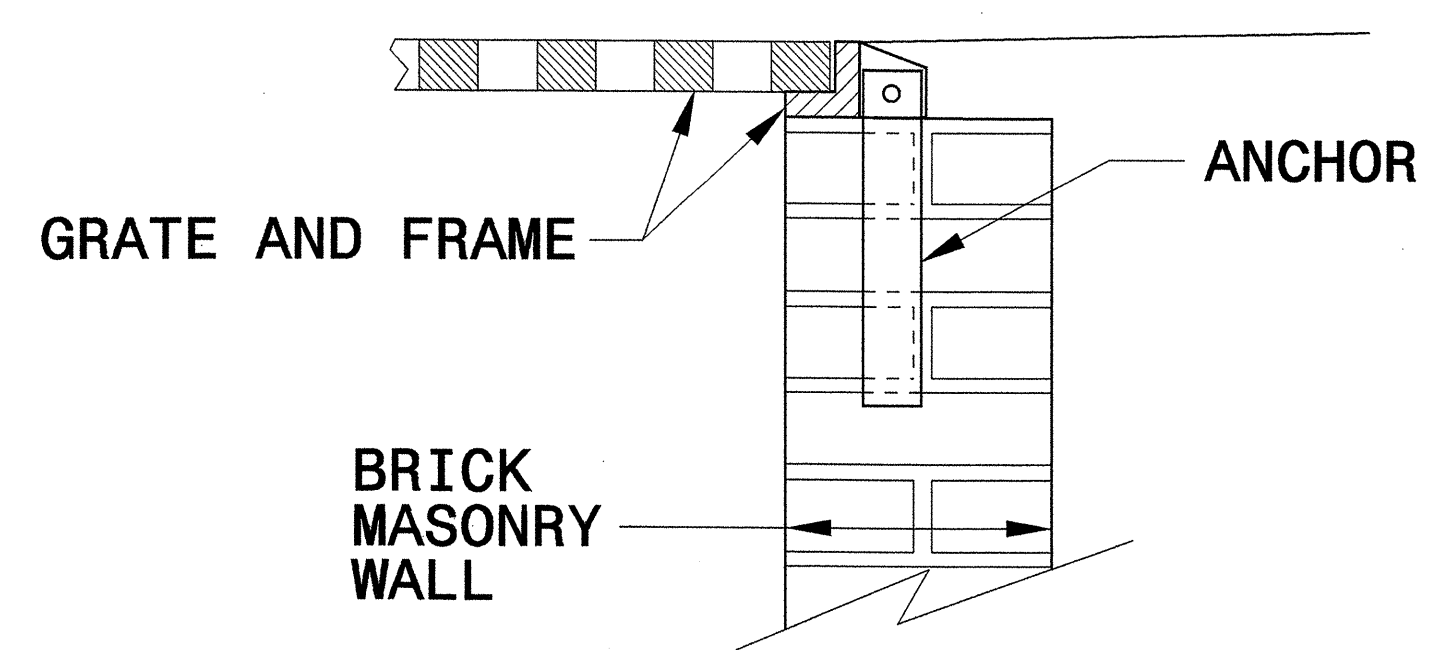
SEE PLATE FOR TITLE

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 MODIFIED BY: E.E. Ward DATE: July 2004
 CHECKED BY: *[Signature]* DATE: 8/20/08
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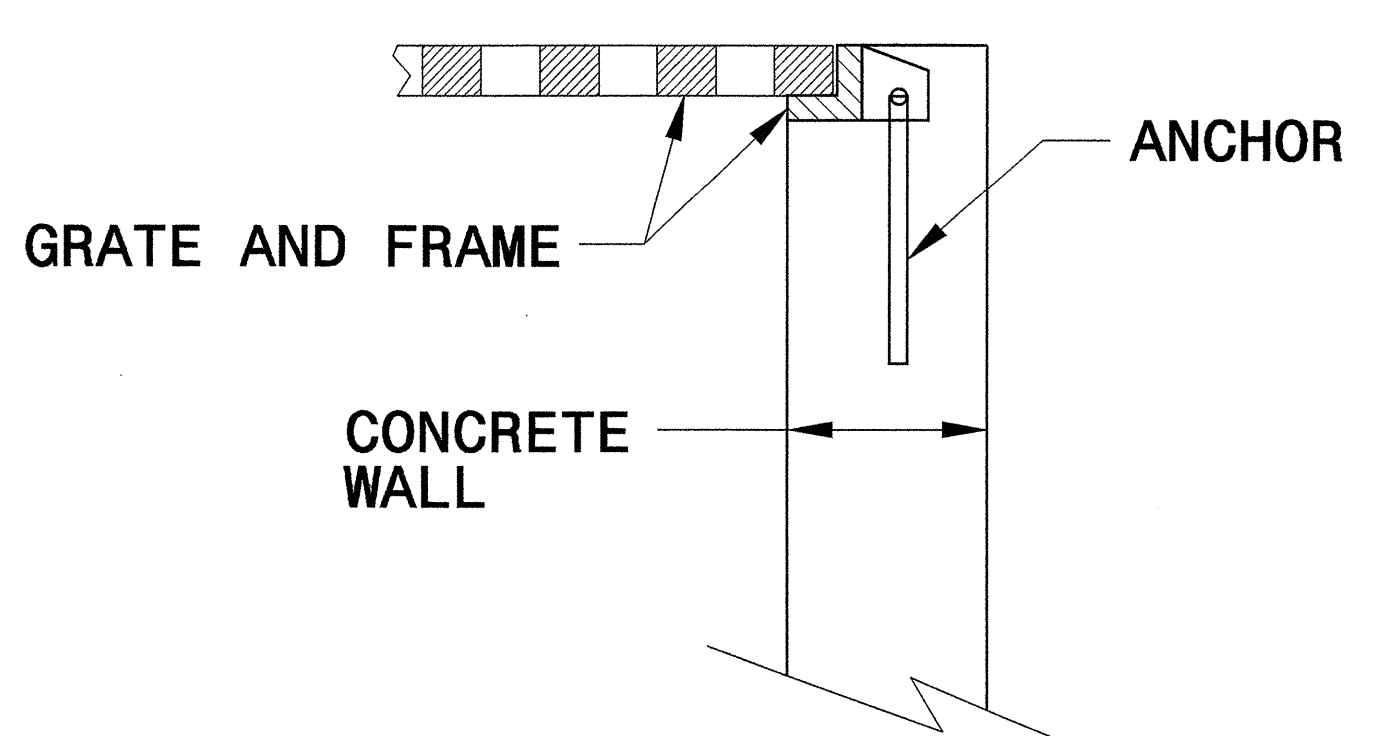
STATE OF NORTH CAROLINA
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DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE

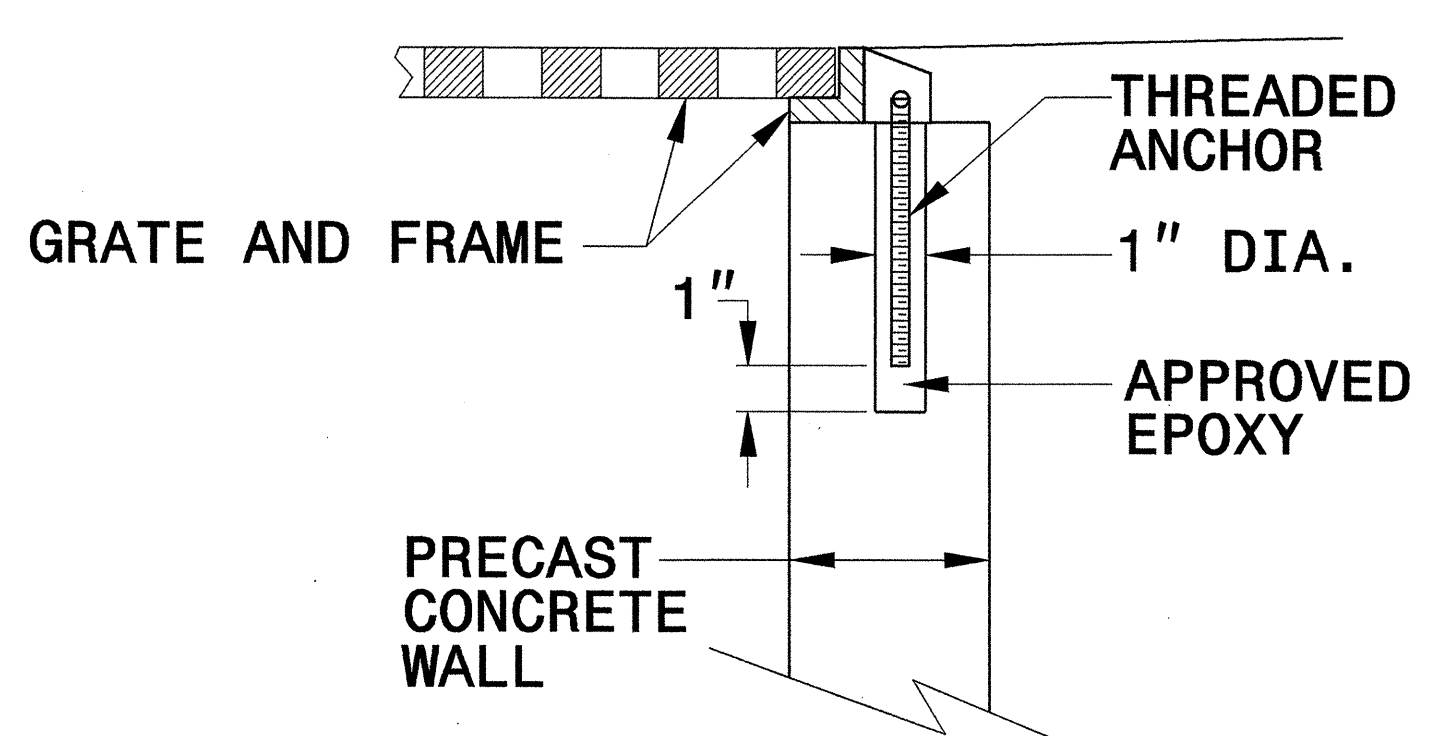
SHEET 1 OF 1
840D25



BRICK MASONRY CONSTRUCTION



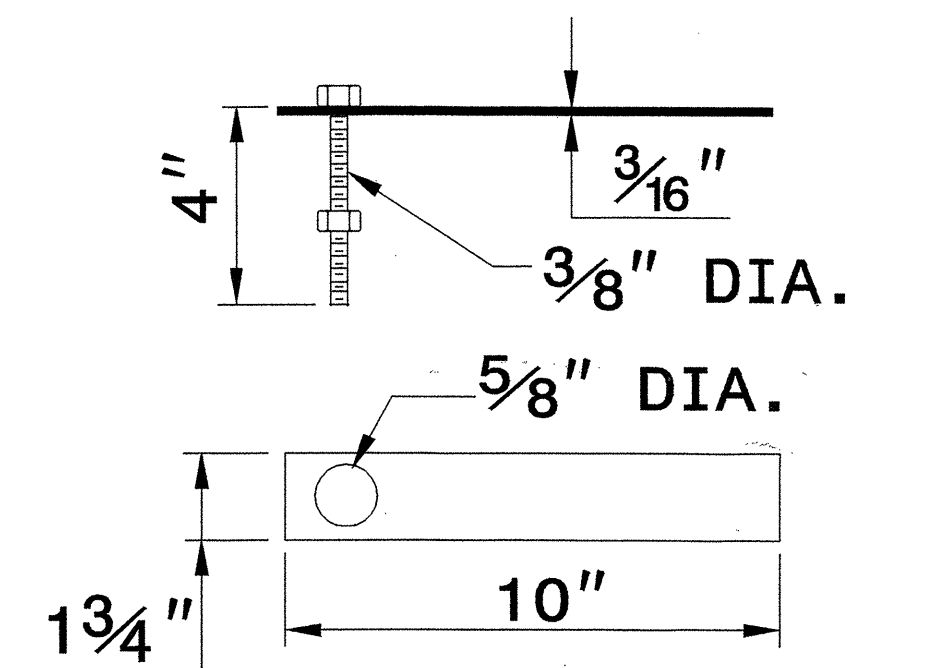
CONCRETE CONSTRUCTION



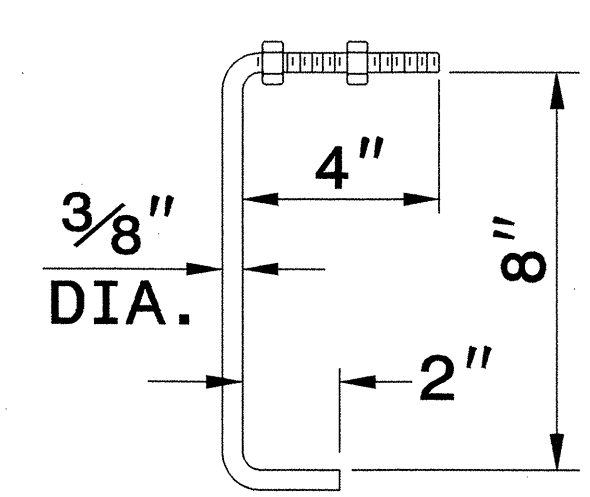
PRECAST CONCRETE CONSTRUCTION

DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET

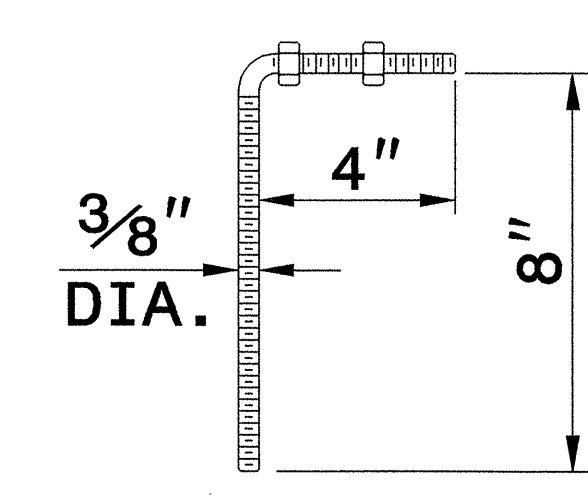
NOTE:
CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.



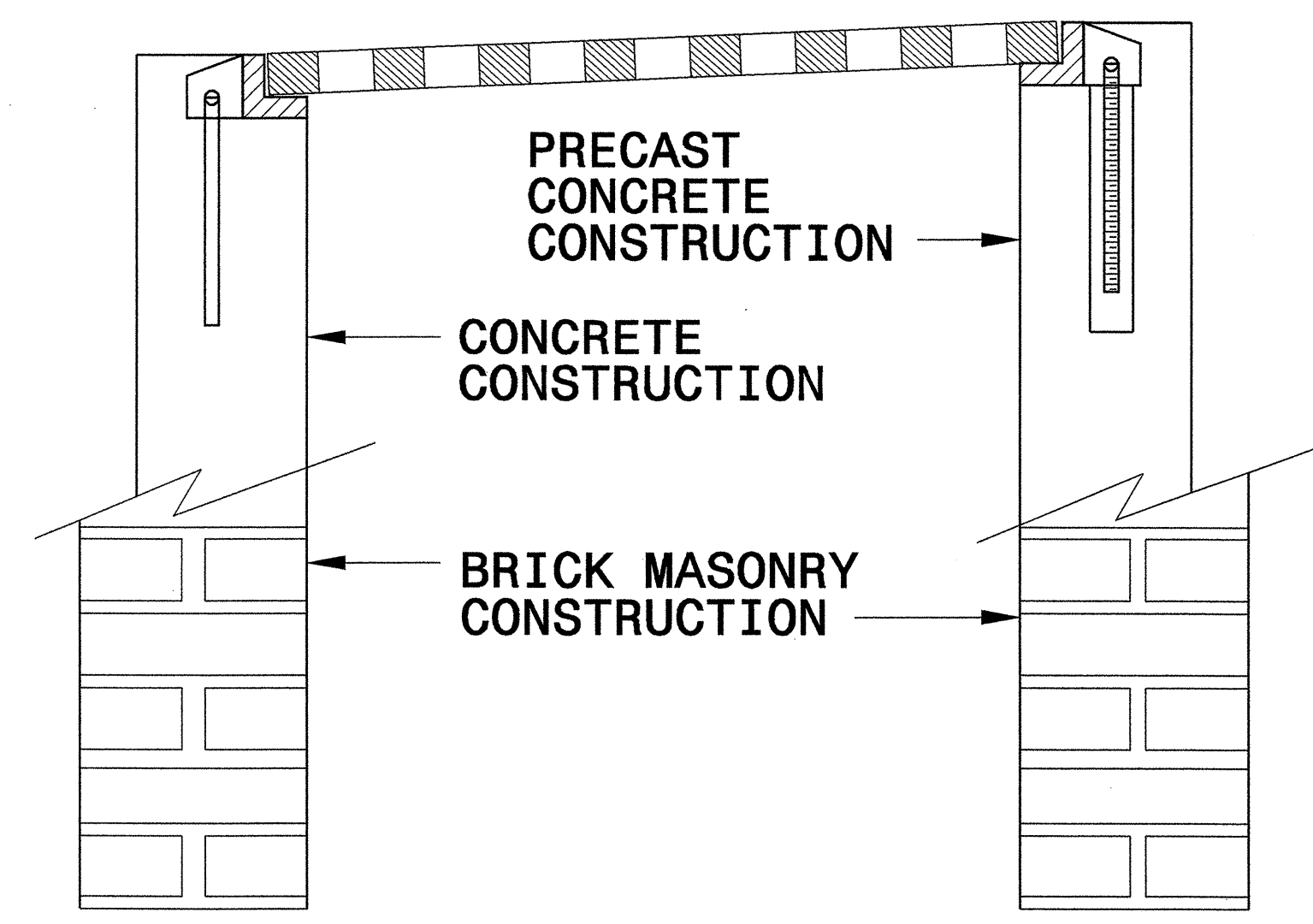
MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE



CONCRETE ANCHOR
3/8" DIA. BENT BAR



PRECAST CONCRETE ANCHOR
3/8" DIA. BENT BAR

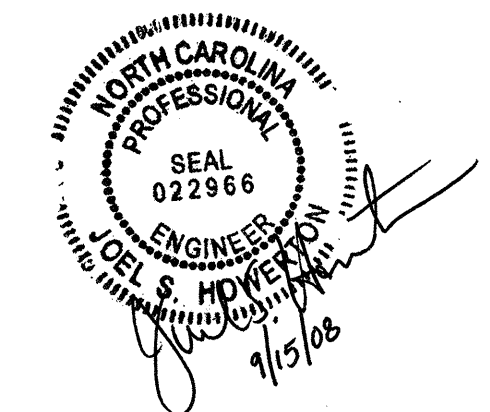


FRAME AND GRATE INSTALLATION FOR NORMAL CROWN AND SUPERELEVATED SECTIONS

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ENGLISH DETAIL DRAWING FOR
ANCHORAGE FOR FRAMES
BRICK/CONCRETE/PRECAST CONCRETE

SHEET 1 OF 1
840D25



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SEE PLATE FOR TITLE

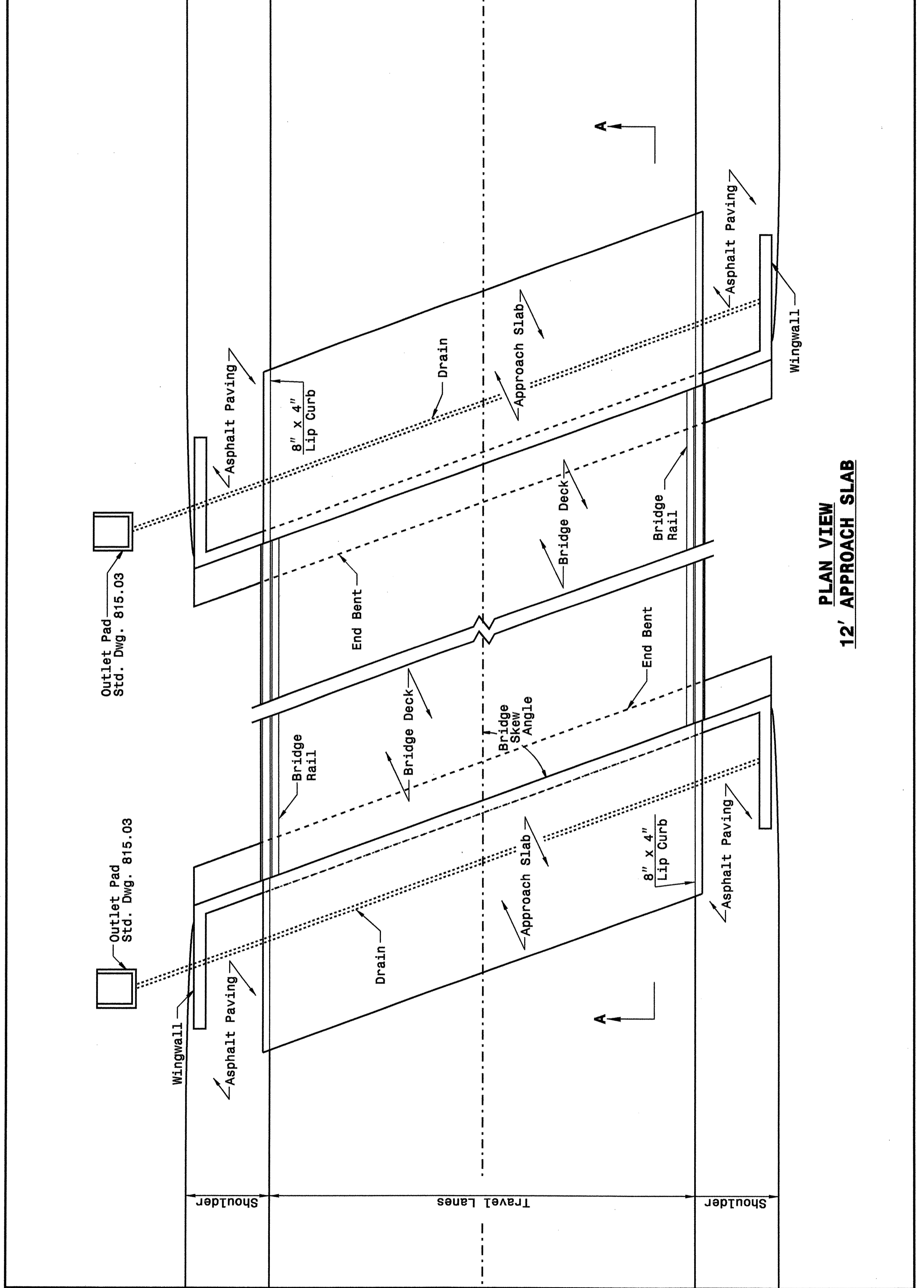
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DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
BRIDGE APPROACH FILLS
CORED SLAB & BOX BEAM BRIDGES
SUB REGIONAL TIER

SHEET 1 OF 2
422D11



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DIVISION OF HIGHWAYS
RALEIGH, N.C.

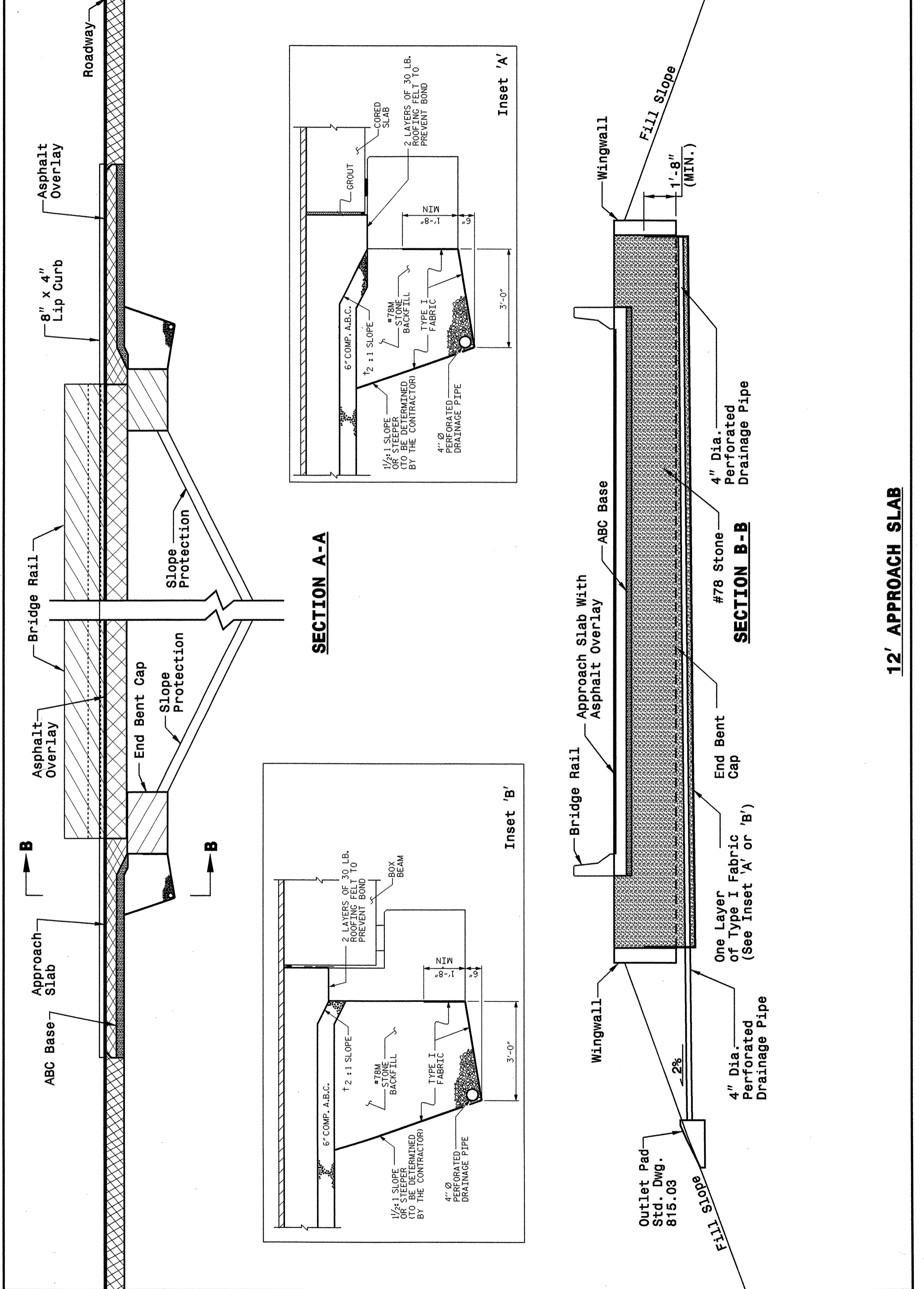
ENGLISH DETAIL DRAWING FOR
BRIDGE APPROACH FILLS
CORED SLAB & BOX BEAM BRIDGES
SUB REGIONAL TIER

SHEET 1 OF 2
422D11

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ENGLISH DETAIL DRAWING FOR
BRIDGE APPROACH FILLS
CORED SLAB & BOX BEAM BRIDGES
SUB REGIONAL TIER

SHEET 2 OF 2
422D11



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DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

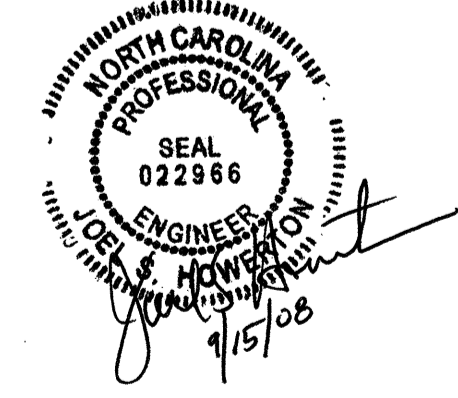
ENGLISH DETAIL DRAWING FOR
BRIDGE APPROACH FILLS
CORED SLAB & BOX BEAM BRIDGES
SUB REGIONAL TIER

SHEET 2 OF 2
422D11

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BRIDGE APPROACH FILLS
CORED SLAB & BOX BEAM BRIDGES
SUB REGIONAL TIER

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MODIFIED BY: DATE:
CHECKED BY: DATE: 4/27/08
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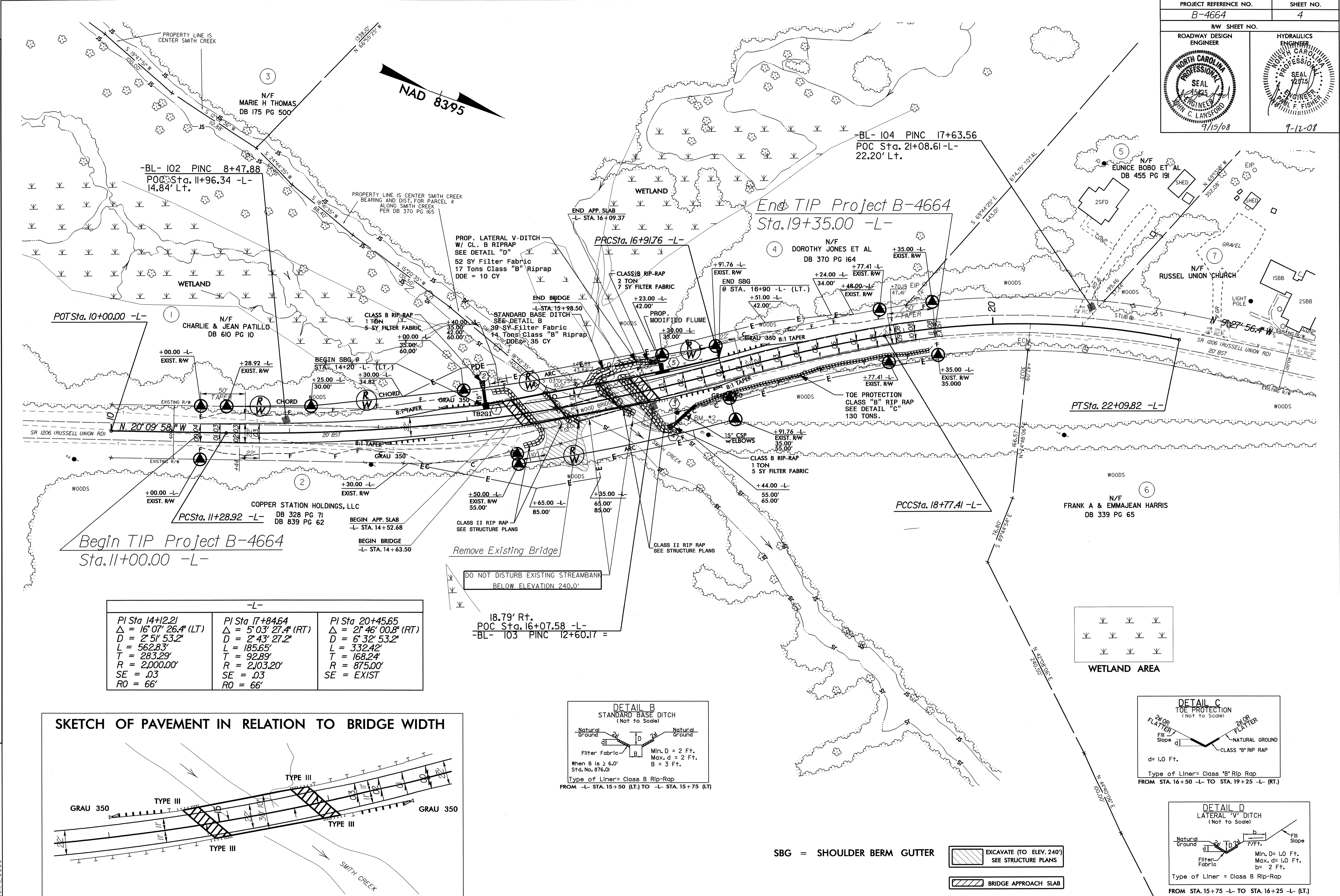
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k Kempf

5/14/09

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DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202030

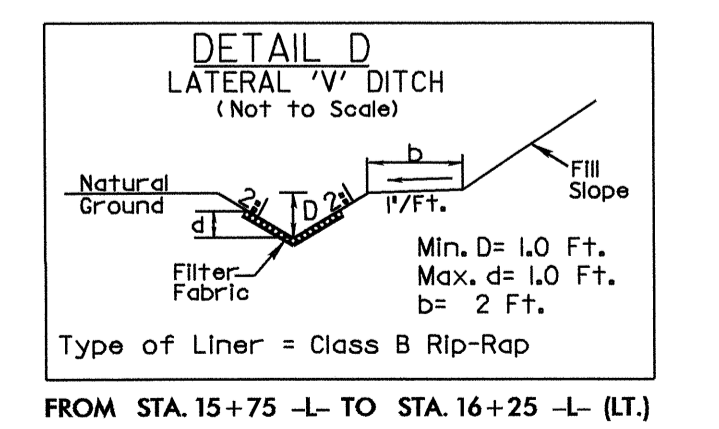
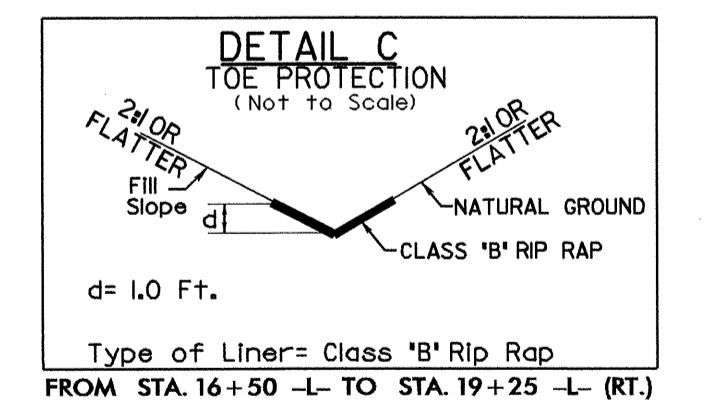
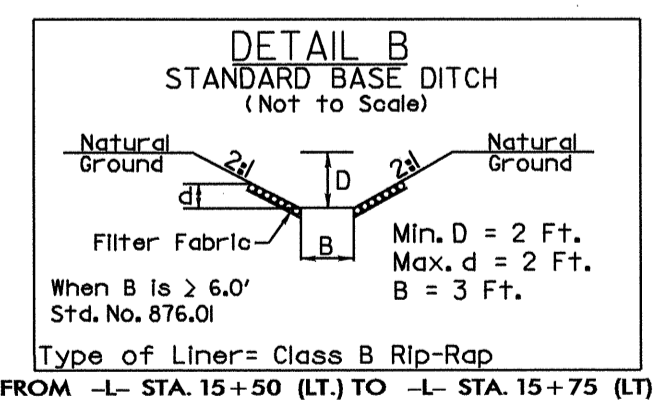
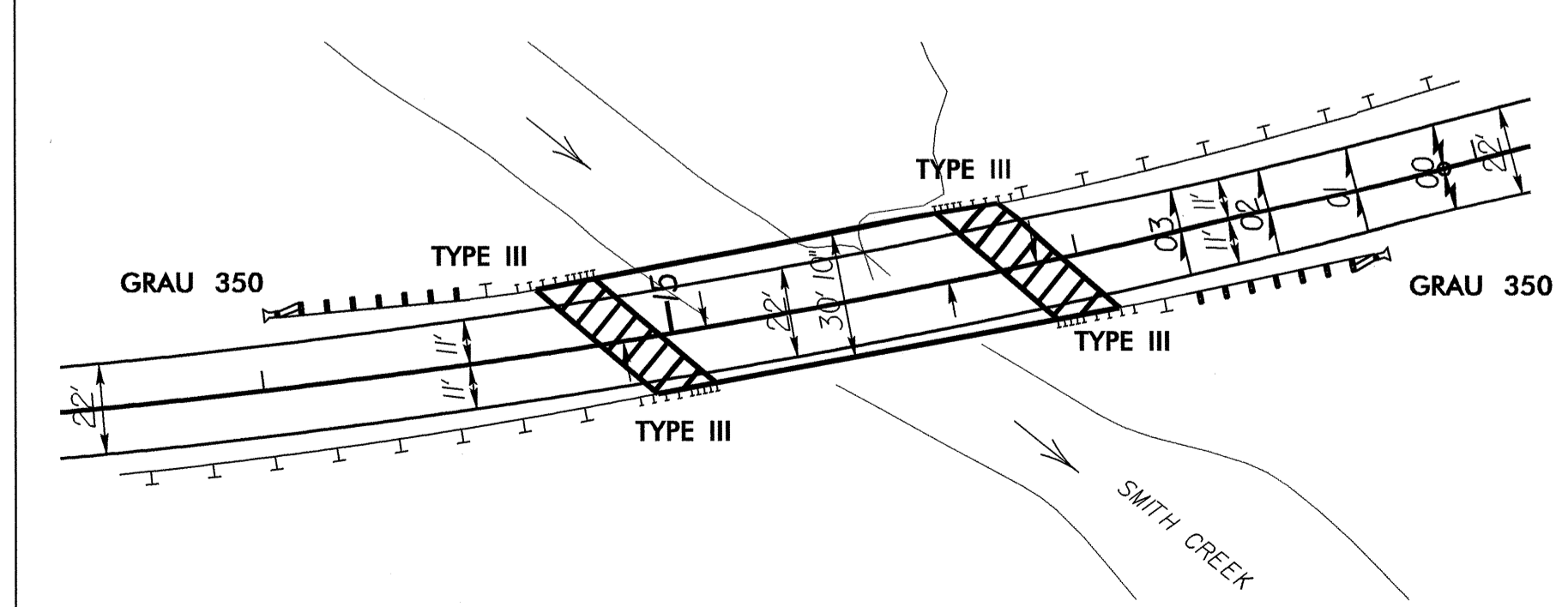
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000100000-N	800	Lump Sum		MOBILIZATION	255600000-E	846	110	LF	SHOULDER BERM GUTTER	603000000-E	1630	450	CY	SILT EXCAVATION
000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING	257000000-N	SP	1	EA	MODIFIED CONCRETE FLUME	603600000-E	1631	1,610	SY	MATTING FOR EROSION CONTROL
000100000-E	200	Lump Sum		CLEARING & GRUBBING .. ACRE(S)	303000000-E	862	250	LF	STEEL BM GUARDRAIL	603700000-E	SP	25	SY	COIR FIBER MAT
000800000-E	200	1	ACR	SUPPLEMENTARY CLEARING & GRUBBING	315000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS	603800000-E	SP	70	SY	PERMANENT SOIL REINFORCEMENT MAT
002200000-E	225	375	CY	UNCLASSIFIED EXCAVATION	321500000-N	862	4	EA	GUARDRAIL ANCHOR UNITS, TYPE III	604200000-E	1632	50	LF	1/4" HARDWARE CLOTH
003000000-N	SP	Lump Sum		BRIDGE APPROACH FILL - SUB REGIONAL TIER, STATION ***** (15+31.00)	327000000-N	SP	4	EA	GUARDRAIL ANCHOR UNITS, TYPE 350	6071030000-E	SP	200	LF	COIR FIBER BAFFLES
003600000-E	225	200	CY	UNDERCUT EXCAVATION	364900000-E	876	170	TON	RIP RAP, CLASS B	6071050000-E	SP	4	EA	*** SKIMMER (1-1/2")
010600000-E	230	625	CY	BORROW EXCAVATION	365600000-E	876	385	SY	FILTER FABRIC FOR DRAINAGE	608400000-E	1660	5	ACR	SEEDING & MULCHING
013400000-E	240	50	CY	DRAINAGE DITCH EXCAVATION	407200000-E	903	46	LF	SUPPORTS, 3-LB STEEL U-CHANNEL	608700000-E	1660	1.5	ACR	MOWING
015600000-E	250	1,500	SY	REMOVAL OF EXISTING ASPHALT PAVEMENT	409600000-N	904	1	EA	SIGN ERECTION, TYPE D	609000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
019500000-E	265	200	CY	SELECT GRANULAR MATERIAL	410200000-N	904	2	EA	SIGN ERECTION, TYPE E	609300000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
019600000-E	270	200	SY	FABRIC FOR SOIL STABILIZATION	415500000-N	907	10	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	609600000-E	1662	75	LB	SEED FOR SUPPLEMENTAL SEEDING
031800000-E	300	7	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRS	440000000-E	1110	259	SF	WORK ZONE SIGNS (STATIONARY)	610800000-E	1665	1.75	TON	FERTILIZER TOPDRESSING
036600000-E	310	20	LF	15" RC PIPE CULVERTS, CLASS III	441000000-E	1110	94	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)	611400000-N	SP	5	HR	SPECIALIZED HAND MOWING
070800000-E	310	28	LF	15" BIT COAT CS PIPE CULVERTS, TYPE B 0.064" THICK	444500000-E	1145	80	LF	BARRICADES (TYPE III)	611700000-N	SP	12	EA	RESPONSE FOR EROSION CONTROL
080600000-E	310	2	EA	15" BIT COAT CS PIPE ELBOWS, TYPE B 0.064" THICK	481000000-E	1205	7,480	LF	PAINT PAVEMENT MARKING LINES (4")	612300000-E	1670	0.1	ACR	REFORESTATION
101100000-N	500	Lump Sum		FINE GRADING	490000000-N	1251	10	EA	PERMANENT RAISED PAVEMENT MARKERS					
122000000-E	545	100	TON	INCIDENTAL STONE BASE	600000000-E	1605	1,550	LF	TEMPORARY SILT FENCE					
148900000-E	610	385	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B	600600000-E	1610	120	TON	STONE FOR EROSION CONTROL, CLASS A					
152500000-E	610	340	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A	600900000-E	1610	120	TON	STONE FOR EROSION CONTROL, CLASS B					
156000000-E	620	39	TON	ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22	601200000-E	1610	35	TON	SEDIMENT CONTROL STONE					
200000000-N	806	15	EA	RIGHT OF WAY MARKERS	601500000-E	1615	3.5	ACR	TEMPORARY MULCHING					
228600000-N	840	1	EA	MASONRY DRAINAGE STRUCTURES	601800000-E	1620	100	LB	SEED FOR TEMPORARY SEEDING					
236700000-N	840	1	EA	FRAME WITH TWO GRATES, STD 840.29	602100000-E	1620	1.5	TON	FERTILIZER FOR TEMPORARY SEEDING					
					602900000-E	SP	350	LF	SAFETY FENCE					

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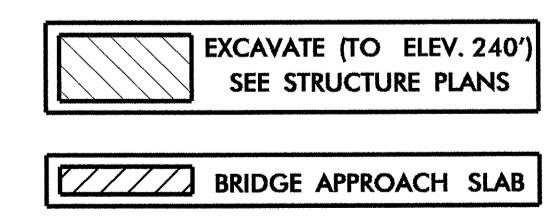


-L-		
PI Sta 14+12.21 Δ = 16° 07' 26.4" (LT) D = 2° 51' 53.2" L = 562.83' T = 283.29' R = 2,000.00' SE = .03 RO = 66'	PI Sta 17+84.64 Δ = 5° 03' 27.4" (RT) D = 2° 43' 27.2" L = 185.65' T = 92.89' R = 2,103.20' SE = .03 RO = 66'	PI Sta 20+45.65 Δ = 21° 46' 00.8" (RT) D = 6° 32' 53.2" L = 332.42' T = 168.24' R = 875.00' SE = EXIST

SKETCH OF PAVEMENT IN RELATION TO BRIDGE WIDTH



SBG = SHOULDER BERM GUTTER



See Sheet 5 for -L- Profile
See Sheet S-1 Through S-22 for Structure Plans

REVISIONS

8/17/99

11-SEP-2008 09:22
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5/14/99

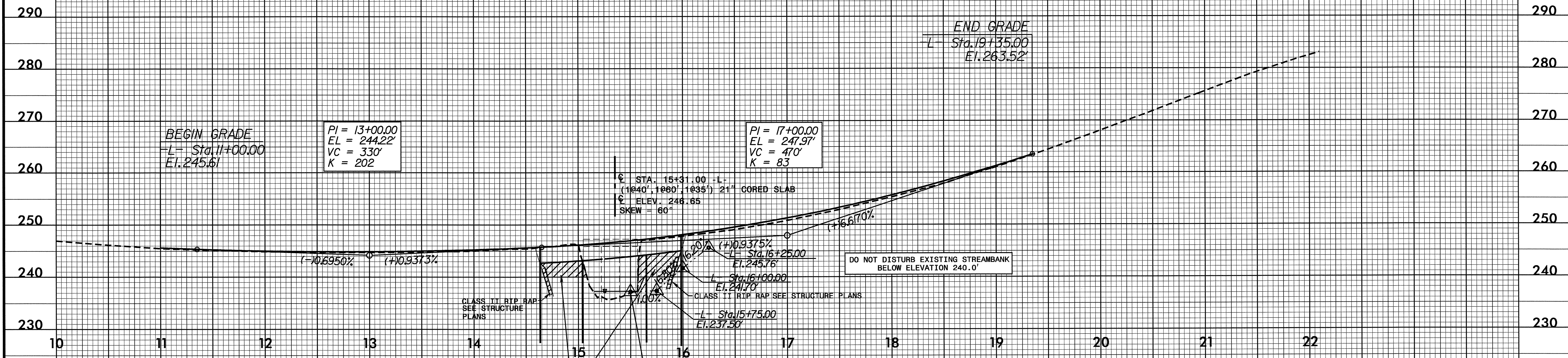
-L-

STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	= 2600	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 243.9	FT
BASE DISCHARGE	= 3821	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 245.5	FT
OVERTOPPING DISCHARGE	= 4000	CFS
OVERTOPPING FREQUENCY	= 100	YRS
OVERTOPPING ELEVATION	= 245.7	FT

BM *1 ELEVATION = 321.83
 N 1004597 E 2218700
 BL STATION 36+36 56' LEFT
 RR SPIKE IN 22" PINE

BM *2 ELEVATION = 251.45
 N 1002564 E 2219798
 BL STATION 12+94 19' RIGHT
 -L- STATION 16+40.95 37.93' RIGHT
 RR SPIKE IN 22" WHITE OAK



DO NOT DISTURB EXISTING STREAMBANK BELOW ELEVATION 240.0'

DITCH LEGEND
 LEFT DITCH - - - - -
 SEE SHEET 4 FOR -L- LINE

04-SEP-2008 15:56
 C:\p000000\p000000\B4664_rdy_pfl.dgn
 \$\$\$\$RENDERING\$\$\$\$