



PAT McCrory
Governor

NICHOLAS J. TENNYSON
Secretary

December 12, 2016

U. S. Army Corps of Engineers
Regulatory Field Office
151 Patton Avenue, Room 208
Asheville, NC 28801-5006

ATTN: Mr. Steve Kichefski
NCDOT Coordinator

Subject: **Application for Section 404 General Permit 31 and Section 401 Water Quality Certification** for the proposed Geometric Safety Improvements on I-85/US 321 Interchange in Gaston County, Federal Aid Project No. IMF-85-1(113)17, Division 12, TIP No. I-5000, Debit \$570 from WBS 41153.1.1.

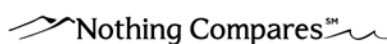
Dear Sir:

The North Carolina Department of Transportation (NCDOT) proposes to realign the I-85 / US 321 Interchange to improve traffic flow along the I-85 corridor, improve the connection between the main east-west and north-south routes in the county, and to eliminate safety deficiencies.

As a result of the project, there will be 652 linear feet of permanent stream impacts, 0.10 acre (396 linear feet) of temporary stream impacts, and 0.09 acre of permanent wetland impact. Of the 652 linear feet of permanent stream impacts, 335 linear feet are considered "Loss of Waters of the U.S."

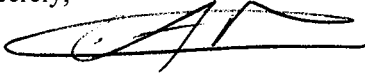
Please see enclosed copies of the Pre-Construction Notification (PCN), DMS acceptance letter, stormwater management plan, permit drawings and design plans for the above-referenced project. The Programmatic Categorical Exclusion (PCE) was completed on May 18, 2015 and distributed shortly thereafter. Additional copies are available upon request.

This project calls for a letting date of February 21, 2017 and a review date of January 3, 2017.



A copy of this permit application and its distribution list will be posted on the NCDOT Website at: <http://connect.ncdot.gov/resources/Environmental/Pages/default.aspx>, under *Quick Links. Permit Applications*. If you have any questions or need additional information, please call Bill Barrett at (919) 707-6103.

Sincerely,

A handwritten signature in black ink, appearing to read 'PHS', with a long horizontal stroke extending to the right.Handwritten initials 'PS' in black ink.

Philip S. Harris, P.E., C.P.M.
Natural Environment Section Head

cc:
NCDOT Permit Application Standard Distribution List



Office Use Only:
Corps action ID no. _____
DWQ project no. _____
Form Version 1.4 January 2009

Pre-Construction Notification (PCN) Form

A. Applicant Information

1. Processing

1a. Type(s) of approval sought from the Corps:	☒ Section 404 Permit ☐ Section 10 Permit
1b. Specify Nationwide Permit (NWP) number:	or General Permit (GP) number: 198200031
1c. Has the NWP or GP number been verified by the Corps?	☒ Yes ☐ No
1d. Type(s) of approval sought from the DWQ (check all that apply): ☒ 401 Water Quality Certification – Regular ☐ Non-404 Jurisdictional General Permit ☐ 401 Water Quality Certification – Express ☐ Riparian Buffer Authorization	
1e. Is this notification solely for the record because written approval is not required?	For the record only for DWQ 401 Certification: ☐ Yes ☒ No
	For the record only for Corps Permit: ☐ Yes ☒ No
1f. Is payment into a mitigation bank or in-lieu fee program proposed for mitigation of impacts? If so, attach the acceptance letter from mitigation bank or in-lieu fee program.	☒ Yes ☐ No
1g. Is the project located in any of NC's twenty coastal counties. If yes, answer 1h below.	☐ Yes ☒ No
1h. Is the project located within a NC DCM Area of Environmental Concern (AEC)?	☐ Yes ☒ No

2. Project Information

2a. Name of project:	Geometric Safety Improvements to Interchange on I-85/US 321.
2b. County:	Gaston
2c. Nearest municipality / town:	Gastonia
2d. Subdivision name:	<i>not applicable</i>
2e. NCDOT only, T.I.P. or state project no:	I-5000

3. Owner Information

3a. Name(s) on Recorded Deed:	North Carolina Department of Transportation
3b. Deed Book and Page No.	<i>not applicable</i>
3c. Responsible Party (for LLC if applicable):	<i>not applicable</i>
3d. Street address:	1598 Mail Service Center
3e. City, state, zip:	Raleigh, NC 27699-1598
3f. Telephone no.:	(919) 707-6103
3g. Fax no.:	(919) 212-5785
3h. Email address:	wabarrett@ncdot.gov

4. Applicant Information (if different from owner)	
4a. Applicant is:	☐ Agent ☐ Other, specify:
4b. Name:	<i>not applicable</i>
4c. Business name (if applicable):	
4d. Street address:	
4e. City, state, zip:	
4f. Telephone no.:	
4g. Fax no.:	
4h. Email address:	
5. Agent/Consultant Information (if applicable)	
5a. Name:	<i>not applicable</i>
5b. Business name (if applicable):	
5c. Street address:	
5d. City, state, zip:	
5e. Telephone no.:	
5f. Fax no.:	
5g. Email address:	

B. Project Information and Prior Project History	
1. Property Identification	
1a. Property identification no. (tax PIN or parcel ID):	<i>not applicable</i>
1b. Site coordinates (in decimal degrees):	Latitude: 35.283294 (DD.DDDDDD) Longitude: - 81.186768 (-DD.DDDDDD)
1c. Property size:	22.6 acres
2. Surface Waters	
2a. Name of nearest body of water (stream, river, etc.) to proposed project:	UT to Long Creek (locally known as Highland Creek)
2b. Water Quality Classification of nearest receiving water:	C
2c. River basin:	Catawba

3. Project Description
3a. Describe the existing conditions on the site and the general land use in the vicinity of the project at the time of this application: The area is primarily Urban. Existing land use in the study area is primarily large-lot single-family residential. The area south of the interchange is largely comprised of the Highland neighborhood. The area north of the interchange is primarily commercial and industrial, with large parcels of vacant land targeted for development by local landowners.
3b. List the total estimated acreage of all existing wetlands on the property: 0.09
3c. List the total estimated linear feet of all existing streams (intermittent and perennial) on the property: 4,425
3d. Explain the purpose of the proposed project: The purpose of the project is to improve the traffic flow along the I-85 corridor, improve the connection between the main east-west and north-south routes in the county and to eliminate safety deficiencies.
3e. Describe the overall project in detail, including the type of equipment to be used: The project involves realignment of the interchange by constructing new Ramps A and D, removing a portion of Loop B and removing Loop C. Standard road building equipment, such as trucks, dozers, hydraulic excavator, and cranes will be used. Site 1: An existing 3 @ 8'X9' RCBC will be extended on the north side (downstream) to accommodate new Ramp A. Sediment removal will occur immediately downstream of the existing RCBC at Site 1 to allow for the extension of the RCBC. Sediment removal will also be conducted immediately downstream of the RCBC extension to provide proper outletting (i.e. to not have a sediment wall at the outlet of the RCBC extension). Two-foot sills will be installed on the middle and right barrels of the existing RCBC and the RCBC extension to direct stream flow through the left-most barrel (see Detail 23). The re-alignment of the stream is considered "Loss of Waters of the U.S." due to the loss of existing stream bed. Channel improvements, consisting of the creation of a floodplain bench, along with bank stabilization, will be constructed on each end of the RCBC. Sediment removed from the stream will not be placed back in to the stream. Site 2: A wetland (WA) will be filled as a result of the fill slope associated with the construction of Ramp A. Site 3: An existing bridge (Rankin Lake Road bridge) that narrows the width of UT to Long Creek (acts as a pinch point and causes sediment accumulation upstream) will be removed and the adjacent embankment will be graded to match natural overbank topography. Rankin Lake Road will no longer be a through-road. Bank stabilization will be installed at the former bridge location, and repair of any existing adjacent armored channel banks will be conducted. On the upstream side of the bridge location, an existing log will be removed, and non-native rock located on the downstream side of the bridge location will be removed. Both of these actions were discussed at the April 7, 2016, field meeting and were determined to be needed to enhance stream transport function. Sites 4: Bank stabilization will be installed where a stormwater ditch will enter UT to Long Creek, as part of the creation of a pedestrian trail, to minimize erosion. Site 5: A new 3 @ 8'X10' RCBC will be constructed where new Ramp D will be crossing UT to Long Creek. Channel improvements will occur on both ends of the RCBC to improve channel conditions. At the upstream and downstream ends of the RCBC, a 2-foot sill and floodplain bench will be created at each of the two outer barrels to direct natural stream flow through the center barrel (see Detail 22). Channel improvements, consisting of the creation of a floodplain bench, along with bank stabilization, will be constructed on each end of the RCBC. Site 6: A new 24'X9' CONSPAN (or equivalent structure) will be constructed in UT to Long Creek where Bulb Avenue will be extended to Marietta Street, crossing UT to Long Creek. Bank stabilization will be installed at the inlet and outlet ends of the structure to minimize erosion. Sites 7, 8, and 9: Bank stabilization will be installed at these three locations where stormwater ditches will enter UT to Long Creek, associated with the re-configuration of Marietta Street (SR 2278), to minimize erosion.

4. Jurisdictional Determinations	
4a. Have jurisdictional wetland or stream determinations by the Corps or State been requested or obtained for this property / project (including all prior phases) in the past? Comments: USACE JD (Action ID 2010-0033) dated April 8, 2010, expired April 8, 2015. NCDWR verification letter dated October 8, 2009. For updated PJD, a site visit with Agency personnel (USACE and NCDWR) was conducted on May 22, 2016, as part of the C-5600G and I-5719 site visit, as there is overlap with the I-5719 project. A PJD package was submitted electronically to USACE on 12-6-2016.	☒ Yes ☐ No ☐ Unknown
4b. If the Corps made the jurisdictional determination, what type of determination was made?	☒ Preliminary ☐ Final
4c. If yes, who delineated the jurisdictional areas? Name (if known): Jeff Harbour (for updated PJD; 5/22/2016 site visit)	Agency/Consultant Company: Environmental Sciences, Inc Other:
4d. If yes, list the dates of the Corps jurisdictional determinations or State determinations and attach documentation. A PJD package was submitted electronically to USACE on December 6, 2016.	
5. Project History	
5a. Have permits or certifications been requested or obtained for this project (including all prior phases) in the past?	☐ Yes ☒ No ☐ Unknown
5b. If yes, explain in detail according to "help file" instructions.	
6. Future Project Plans	
6a. Is this a phased project?	☐ Yes ☒ No
6b. If yes, explain.	

C. Proposed Impacts Inventory						
1. Impacts Summary						
1a. Which sections were completed below for your project (check all that apply):						
☒ Wetlands		☒ Streams - tributaries		☐ Buffers		
☐ Open Waters		☐ Pond Construction				
2. Wetland Impacts						
If there are wetland impacts proposed on the site, then complete this question for each wetland area impacted.						
2a. Wetland impact number – Permanent (P) or Temporary (T)	2b. Type of impact	2c. Type of wetland (if known)	2d. Forested	2e. Type of jurisdiction	2f. Area of impact (acres)	
Site 2 ☒ P ☐ T	Fill	Choose One	☐ Yes ☒ No	☒ Corps ☐ DWQ	0.09	
2g. Total wetland impacts					0.09 Permanent	
2h. Comments:						
3. Stream Impacts						
If there are perennial or intermittent stream impacts (including temporary impacts) proposed on the site, then complete this question for all stream sites impacted.						
3a. Stream impact number - Permanent (P) or Temporary (T)	3b. Type of impact	3c. Stream name	3d. Perennial (PER) or intermittent (INT)?	3e. Type of jurisdiction (Corps - 404, 10, DWQ – non-404, other)	3f. Average stream width (feet)	3g. Impact length (linear feet)
Site 1 ☒ P ☐ T	3 @ 8'X10' RCBC Extension	UT to Long Creek	☒ PER ☐ INT	☒ Corps ☐ DWQ		108
Site 1 ☒ P ☐ T	Sediment removal / channel improvement	UT to Long Creek	☒ PER ☐ INT	☒ Corps ☐ DWQ		138
Site 1 ☐ P ☒ T	Associated with channel improvement	UT to Long Creek	☒ PER ☐ INT	☒ Corps ☐ DWQ		23 (<0.01 ac.)
Site 3 ☒ P ☐ T	Bank stabilization	UT to Long Creek	☒ PER ☐ INT	☒ Corps ☐ DWQ		59
Site 3 ☐ P ☒ T	Bank stabilization; log & rock removal	UT to Long Creek	☒ PER ☐ INT	☒ Corps ☐ DWQ		136 (0.03 ac.)
Site 4 ☒ P ☐ T	Bank stabilization	UT to Long Creek	☒ PER ☐ INT	☒ Corps ☐ DWQ		10
Site 4 ☐ P ☒ T	Bank stabilization	UT to Long Creek	☒ PER ☐ INT	☒ Corps ☐ DWQ		10 (<0.01 ac.)
Site 5 ☒ P ☐ T	3 @ 8'X10' RCBC	UT to Long Creek	☒ PER ☐ INT	☒ Corps ☐ DWQ		89
Site 5 ☒ P ☐ T	Associated w/ channel improvement	UT to Long Creek	☒ PER ☐ INT	☒ Corps ☐ DWQ		127
Site 5 ☐ P ☒ T	Associated w/ channel improvement	UT to Long Creek	☒ PER ☐ INT	☒ Corps ☐ DWQ		10 (<0.01 ac.)
Site 6 ☐ P ☒ T	24'X8' CONSPAN (or equivalent)	UT to Long Creek	☒ PER ☐ INT	☒ Corps ☐ DWQ		164
Site 6 ☒ P ☐ T	Bank stabilization	UT to Long Creek	☒ PER ☐ INT	☒ Corps ☐ DWQ		91

Site 6 ☐ P ☒ T	Bank stabilization	UT to Long Creek	☒ PER ☐ INT	☒ Corps ☐ DWQ		23 (<0.01 ac.)		
Site 7 ☒ P ☐ T	Bank stabilization	UT to Long Creek	☒ PER ☐ INT	☒ Corps ☐ DWQ		10		
Site 7 ☐ P ☒ T	Bank stabilization	UT to Long Creek	☒ PER ☐ INT	☒ Corps ☐ DWQ		10 (<0.01 ac.)		
Site 8 ☒ P ☐ T	Bank stabilization	UT to Long Creek	☒ PER ☐ INT	☒ Corps ☐ DWQ		10		
Site 8 ☐ P ☒ T	Bank stabilization	UT to Long Creek	☒ PER ☐ INT	☒ Corps ☐ DWQ		10 (<0.01 ac.)		
Site 9 ☒ P ☐ T	Bank stabilization	UT to Long Creek	☒ PER ☐ INT	☒ Corps ☐ DWQ		10		
Site 9 ☐ P ☒ T	Bank stabilization	UT to Long Creek	☒ PER ☐ INT	☒ Corps ☐ DWQ		10 (<0.01 ac.)		
3h. Total stream and tributary impacts						652 Perm 396 Temp (0.10 ac.)		
3i. Comments: - Of the total of 652 lf of permanent stream impacts, 335 lf are considered "Loss of Waters of the U.S.", which includes the length of the RCBC extension at Site 1; the length of channel improvement at Site 1, as channel bed will be lost with the realignment of the stream; and the length of the RCBC at Site 5. - The channel improvements at Site 5 are not considered to be "loss of Waters of the U.S.", as the dimensions of the stream channel will not change, and the Merger Team considered the action to be an improvement to stream function.								
4. Open Water Impacts								
If there are proposed impacts to lakes, ponds, estuaries, tributaries, sounds, the Atlantic Ocean, or any other open water of the U.S. then individually list all open water impacts below.								
4a. Open water impact number – Permanent (P) or Temporary (T)	4b. Name of waterbody (if applicable)	4c. Type of impact		4d. Waterbody type	4e. Area of impact (acres)			
O1 ☐ P ☐ T								
O2 ☐ P ☐ T								
O3 ☐ P ☐ T								
O4 ☐ P ☐ T								
4f. Total open water impacts					X Permanent X Temporary			
4g. Comments:								
5. Pond or Lake Construction								
If pond or lake construction proposed, then complete the chart below.								
5a. Pond ID number	5b. Proposed use or purpose of pond	5c. Wetland Impacts (acres)			5d. Stream Impacts (feet)			5e. Upland (acres)
		Flooded	Filled	Excavated	Flooded	Filled	Excavated	Flooded
P1								
P2								
5f. Total								
5g. Comments:								

5h. Is a dam high hazard permit required?	☐ Yes ☐ No If yes, permit ID no:
5i. Expected pond surface area (acres):	
5j. Size of pond watershed (acres):	
5k. Method of construction:	

6. Buffer Impacts (for DWQ)

If project will impact a protected riparian buffer, then complete the chart below. If yes, then individually list all buffer impacts below. If any impacts require mitigation, then you **MUST** fill out Section D of this form.

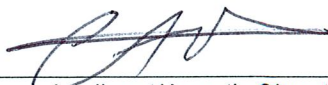
6a. Project is in which protected basin?			☐ Neuse ☐ Catawba			☐ Tar-Pamlico ☐ Randleman	☐ Other:
6b. Buffer impact number – Permanent (P) or Temporary (T)	6c. Reason for impact	6d. Stream name	6e. Buffer mitigation required?	6f. Zone 1 impact (square feet)	6g. Zone 2 impact (square feet)		
B1 ☐ P ☐ T			☐ Yes ☐ No				
B2 ☐ P ☐ T			☐ Yes ☐ No				
B3 ☐ P ☐ T			☐ Yes ☐ No				
6h. Total buffer impacts							
6i. Comments:							

D. Impact Justification and Mitigation	
1. Avoidance and Minimization	
1a. Specifically describe measures taken to avoid or minimize the proposed impacts in designing project. All opportunities for treatment were utilized, primarily in the form of preformed scour holes (PSH) and using riprap at pipe outlets to provide energy dissipation and encourage diffuse flow (Sites 7 & 9) before reaching jurisdictional stream. Current Avoidance & Minimization Design guidance (dated April 2012) was used in designing culverts. New location culverts and culvert extensions were designed with sills/floodplain benches to maintain buried culvert depths and promote stable crossings and for roadside ditches entering them. Culverts are to be backfilled with native material. Where necessary, storm drain outlets were tied into proposed culverts to prevent erosion of the existing stream. Limiting paved shoulders maximizes vegetation conveyance. Incorporating vegetation into the drainage system throughout the project reduces flow velocity while also reducing sedimentation and promoting filtration and infiltration. Planning minimization efforts included alignment of the pedestrian trail to avoid jurisdictional streams as much as possible. During the Planning Phase, the preferred alternative tightened the curvature of Ramp D and removed proposed Ramp DD which lessened the impacts to UT to Long Creek (known locally as Highland Creek). The existing bridge on Rankin Lake Road (Site 3) will be removed and the natural floodplain restored. This will also help re-establish proper sediment flow in UT to Long Creek. At Site 1, the roadside drainage, initially designed to be in a ditch, has been designed to be maintained in a 36-inch pipe to avoid infiltration of potentially contaminated groundwater associated with the nearby landfill. At Site 5, UT to Long Creek was daylighted as much as possible which minimized the culvert length and impact to UT to Long Creek.	
1b. Specifically describe measures taken to avoid or minimize the proposed impacts through construction techniques. Best Management Practices (BMPs) will be utilized during construction to reduce stormwater impacts to receiving streams due to erosion and runoff.	
2. Compensatory Mitigation for Impacts to Waters of the U.S. or Waters of the State	
2a. Does the project require Compensatory Mitigation for impacts to Waters of the U.S. or Waters of the State?	☒ Yes ☐ No If no, explain: NOTE: NCDOT does not propose mitigation for the bank stabilization impacts, as it does not require fill in the stream bed and therefore, under Section 404 of the Clean Water Act, does not constitute Loss of Waters of the U.S. and is not subject to compensatory mitigation. Furthermore, the proposed bank stabilization is needed to prevent erosion and sedimentation by preventing bank destabilization and thereby minimizing impacts to the environment. Additionally, in a December 2, 2016, phone meeting with Steve Kachefski, it was determined that the permanent stream impacts for "channel improvements" at Site 5, and the log removal and non-native rock removal at Site 3, will not require mitigation, as stream function will be enhanced. Mitigation will be provided for the permanent stream impacts resulting from the installation of the RCBC Extension at Site 1 and the RCBC installation at Site 5, and for the wetland impact at Site 2.
2b. If yes, mitigation is required by (check all that apply):	☒ DWQ ☒ Corps
2c. If yes, which mitigation option will be used for this project?	☐ Mitigation bank ☒ Payment to in-lieu fee program ☐ Permittee Responsible Mitigation

3. Complete if Using a Mitigation Bank				
3a. Name of Mitigation Bank: not applicable				
3b. Credits Purchased (attach receipt and letter)		Type	Quantity	
3c. Comments:				
4. Complete if Making a Payment to In-lieu Fee Program				
4a. Approval letter from in-lieu fee program is attached.		☐ Yes		
4b. Stream mitigation requested:		335 linear feet		
4c. If using stream mitigation, stream temperature:		☒ warm ☐ cool ☐ cold		
4d. Buffer mitigation requested (DWQ only):		square feet		
4e. Riparian wetland mitigation requested:		0.09 acre		
4f. Non-riparian wetland mitigation requested:		acres		
4g. Coastal (tidal) wetland mitigation requested:		acres		
4h. Comments:				
5. Complete if Using a Permittee Responsible Mitigation Plan				
5a. If using a permittee responsible mitigation plan, provide a description of the proposed mitigation plan. see Section D.2.a for breakdown of mitigation requirements.				
6. Buffer Mitigation (State Regulated Riparian Buffer Rules) – required by DWQ				
6a. Will the project result in an impact within a protected riparian buffer that requires buffer mitigation?			☐ Yes ☒ No	
6b. If yes, then identify the square feet of impact to each zone of the riparian buffer that requires mitigation. Calculate the amount of mitigation required.				
Zone	6c. Reason for impact	6d. Total impact (square feet)	Multiplier	6e. Required mitigation (square feet)
Zone 1			3 (2 for Catawba)	
Zone 2			1.5	
6f. Total buffer mitigation required:				
6g. If buffer mitigation is required, discuss what type of mitigation is proposed (e.g., payment to private mitigation bank, permittee responsible riparian buffer restoration, payment into an approved in-lieu fee fund).				
6h. Comments:				

E. Stormwater Management and Diffuse Flow Plan (required by DWQ)	
1. Diffuse Flow Plan	
1a. Does the project include or is it adjacent to protected riparian buffers identified within one of the NC Riparian Buffer Protection Rules?	☐ Yes ☒ No
1b. If yes, then is a diffuse flow plan included? If not, explain why. Comments: If required from 1a, see attached buffer permit drawings.	☐ Yes ☐ No
2. Stormwater Management Plan	
2a. What is the overall percent imperviousness of this project?	N/A
2b. Does this project require a Stormwater Management Plan?	☒ Yes ☐ No
2c. If this project DOES NOT require a Stormwater Management Plan, explain why:	
2d. If this project DOES require a Stormwater Management Plan, then provide a brief, narrative description of the plan: See attached permit drawings.	
2e. Who will be responsible for the review of the Stormwater Management Plan?	☐ Certified Local Government ☐ DWQ Stormwater Program ☒ DWQ 401 Unit
3. Certified Local Government Stormwater Review	
3a. In which local government's jurisdiction is this project?	not applicable
3b. Which of the following locally-implemented stormwater management programs apply (check all that apply):	☐ Phase II ☐ NSW ☐ USMP ☐ Water Supply Watershed ☐ Other:
3c. Has the approved Stormwater Management Plan with proof of approval been attached?	☐ Yes ☐ No
4. DWQ Stormwater Program Review	
4a. Which of the following state-implemented stormwater management programs apply (check all that apply):	☐ Coastal counties ☐ HQW ☐ ORW ☐ Session Law 2006-246 ☐ Other:
4b. Has the approved Stormwater Management Plan with proof of approval been attached?	☐ Yes ☐ No N/A
5. DWQ 401 Unit Stormwater Review	
5a. Does the Stormwater Management Plan meet the appropriate requirements?	☐ Yes ☐ No N/A
5b. Have all of the 401 Unit submittal requirements been met?	☐ Yes ☐ No N/A

F. Supplementary Information	
1. Environmental Documentation (DWQ Requirement)	
1a. Does the project involve an expenditure of public (federal/state/local) funds or the use of public (federal/state) land?	☒ Yes ☐ No
1b. If you answered "yes" to the above, does the project require preparation of an environmental document pursuant to the requirements of the National or State (North Carolina) Environmental Policy Act (NEPA/SEPA)?	☒ Yes ☐ No
1c. If you answered "yes" to the above, has the document review been finalized by the State Clearing House? (If so, attach a copy of the NEPA or SEPA final approval letter.) Comments:	☒ Yes ☐ No
2. Violations (DWQ Requirement)	
2a. Is the site in violation of DWQ Wetland Rules (15A NCAC 2H .0500), Isolated Wetland Rules (15A NCAC 2H .1300), DWQ Surface Water or Wetland Standards, or Riparian Buffer Rules (15A NCAC 2B .0200)?	☐ Yes ☒ No
2b. Is this an after-the-fact permit application?	☐ Yes ☒ No
2c. If you answered "yes" to one or both of the above questions, provide an explanation of the violation(s):	
3. Cumulative Impacts (DWQ Requirement)	
3a. Will this project (based on past and reasonably anticipated future impacts) result in additional development, which could impact nearby downstream water quality?	☐ Yes ☒ No
3b. If you answered "yes" to the above, submit a qualitative or quantitative cumulative impact analysis in accordance with the most recent DWQ policy. If you answered "no," provide a short narrative description. Due to the minimal transportation impact resulting from this interchange project, this project will neither influence nearby land uses nor stimulate growth. Therefore, a detailed indirect or cumulative effects study will not be necessary.	
4. Sewage Disposal (DWQ Requirement)	
4a. Clearly detail the ultimate treatment methods and disposition (non-discharge or discharge) of wastewater generated from the proposed project, or available capacity of the subject facility. not applicable	

5. Endangered Species and Designated Critical Habitat (Corps Requirement)		
5a. Will this project occur in or near an area with federally protected species or habitat?	☒ Yes	☐ No
5b. Have you checked with the USFWS concerning Endangered Species Act impacts?	☒ Yes	☐ No
5c. If yes, indicate the USFWS Field Office you have contacted.	☐ Raleigh ☒ Asheville	
5d. What data sources did you use to determine whether your site would impact Endangered Species or Designated Critical Habitat? USFWS website and NCDOT species surveys. A 4(d) Memo for NLEB was submitted to USFWS on December 6, 2016, and also provided to USACE. The latest surveys for Schweinitz's sunflower and Dwarf-flowered heartleaf were conducted on October 9, 2015 and April 28, 2016, respectively. No individuals of either species were identified, resulting in No Effect Biological Conclusions for both.		
6. Essential Fish Habitat (Corps Requirement)		
6a. Will this project occur in or near an area designated as essential fish habitat?	☐ Yes	☒ No
6b. What data sources did you use to determine whether your site would impact Essential Fish Habitat? NMFS County Index		
7. Historic or Prehistoric Cultural Resources (Corps Requirement)		
7a. Will this project occur in or near an area that the state, federal or tribal governments have designated as having historic or cultural preservation status (e.g., National Historic Trust designation or properties significant in North Carolina history and archaeology)?	☐ Yes	☒ No
7b. What data sources did you use to determine whether your site would impact historic or archeological resources? NEPA Documentation		
8. Flood Zone Designation (Corps Requirement)		
8a. Will this project occur in a FEMA-designated 100-year floodplain?	☒ Yes	☐ No
8b. If yes, explain how project meets FEMA requirements: NCDOT Hydraulics Unit coordination with FEMA		
8c. What source(s) did you use to make the floodplain determination? FEMA Maps		
for <u>Philip S. Harris, P.E., C.P.M.</u> Applicant/Agent's Printed Name	 Applicant/Agent's Signature (Agent's signature is valid only if an authorization letter from the applicant is provided.)	<u>12-12-2016</u> Date



PAT MCCRORY
Governor

DONALD R. VAN DER VAART
Secretary

December 5, 2016

Mr. Philip S. Harris, III, P.E., CPM
Project Development and Environmental Analysis Unit
North Carolina Department of Transportation
1598 Mail Service Center
Raleigh, North Carolina 27699-1598

Dear Mr. Harris:

Subject: Mitigation Acceptance Letter:

**I-5000, I-85 / US 321 Geometric Safety Improvements to Existing Interchange,
Gaston County**

The purpose of this letter is to notify you that the Division of Mitigation Services (DMS) will provide the compensatory stream and riparian wetland mitigation for the subject project. Based on the information supplied by you on December 5, 2016, the impacts are located in CU 03050102 of the Catawba River basin in the Southern Piedmont (CP) Eco-Region, and are as follows:

Stream and Wetlands	River Basin	CU Location	Eco-Region	Stream			Wetlands		
				Cold	Cool	Warm	Riparian	Non-Riparian	Coastal Marsh
Impacts	Catawba	03050102	SP	0	0	335.0	0.09	0	0

*Some of the stream impacts may be proposed to be mitigated at a 1:1 mitigation ratio. See permit application for details.

DMS commits to implementing sufficient compensatory stream and riparian wetland mitigation credits to offset the impacts associated with this project as determined by the regulatory agencies in accordance with the In-Lieu Fee Instrument dated July 28, 2010. If the above referenced impact amounts are revised, then this mitigation acceptance letter will no longer be valid and a new mitigation acceptance letter will be required from DMS.

If you have any questions or need additional information, please contact Beth Harmon at 919-707-8420.

Sincerely,

James B. Stanfill
Credit Management Supervisor

cc: Mr. Steve Kichefski, USACE – Asheville Regulatory Field Office
Ms. Amy Chapman, NCDWR
File: I-5000

		North Carolina Department of Transportation Highway Stormwater Program STORMWATER MANAGEMENT PLAN FOR NCDOT PROJECTS							
(Version 2.03; Released October 2015)									
WBS Element:		TIP No.: I-5000		County(ies): Gaston				Page 1 of 2	
General Project Information									
WBS Element:				TIP Number: I-5000		Project Type: Roadway Relocation		Date: 11/20/2016	
NCDOT Contact:		Bill Zerman, P.E.			Contractor / Designer:		Dan Robison, P.E.		
	Address:	NCDOT Hydraulics 1000 Birch Ridge Road Raleigh, NC 27610				Address:	Kimley-Horn 3001 Weston Parkway Cary, NC 27513		
	Phone:	919-707-6709				Phone:	919-677-2178		
	Email:	bzerman@ncdot.gov				Email:	dan.robinson@kimley-horn.com		
City/Town:		Gastonia			County(ies):		Gaston		
River Basin(s):		Catawba			CAMA County?		No		
Wetlands within Project Limits?		Yes							
Project Description									
Project Length (lin. miles or feet):		0.644 Miles		Surrounding Land Use:		Urban			
		Proposed Project				Existing Site			
Project Built-Up Area (ac.)		22.6 ac.				19.9 ac.			
Typical Cross Section Description:		Along I-85: 3 @ 12' wide lanes with concrete barrier median and shoulder section. Along US 321: 2'-6" gutter replacement as well as additional concrete islands and intersection reconfiguration for new ramp terminals.				Along I-85: 3 @ 12' wide lanes with concrete barrier median and shoulder section with varying sideslopes. Along US 321: 2 @ 12' lanes with concrete islands and dedicated turn lanes.			
Annual Avg Daily Traffic (veh/hr/day):		Design/Future: 59,100		Year: 2035		Existing: 49,544		Year: 2015	
General Project Narrative: (Description of Minimization of Water Quality Impacts)		All opportunities for treatment were utilized, primarily in the form of performed scour holes at three locations (see page 2 of 2 of Stormwater Management Plan) and using rip rap at pipe outlets to provide energy dissipation and encourage diffuse flow (Site 7 & 9) before reaching the jurisdictional stream. Culvert Avoidance and Minimization Design Guidance (dated April 2012) was used in designing culverts. New location culverts and culvert extensions were designed with sills/floodplain benches to maintain buried culvert depths and promote stable crossings and for roadside ditches entering the stream. Culverts are backfilled with native materials. Where necessary, some storm drain outlets were tied into proposed culverts to prevent erosion of the existing stream. Limiting paved shoulders maximized vegetative conveyance. Incorporating vegetated swales into the drainage system throughout the project reduces flow velocity while also promoting natural sedimentation, filtration, and infiltration of stormwater drainage. Planning minimum measures included alignment of Trail to avoid JS as much as possible. At Site 8, using a grass lined ditch provides some treatment before water enters the JS. During the planning phase, the preferred alternative tightened the curvature of Ramp D and removed Ramp DD which lessened the impact to Highland Creek. The existing bridge on Rankin Lake Road (Site 3) will be removed and the natural floodplain restored. At Site 5, the stream was daylighted as much as possible which minimized the culvert length and impacts to the stream.							
Waterbody Information									
Surface Water Body (1):		Long Creek (Tributary L-8 Unclassified)			NCDWR Stream Index No.:		11-129-16-(4)		
NCDWR Surface Water Classification for Water Body			Primary Classification:		Class C				
			Supplemental Classification:		None				
Other Stream Classification:		None							
Impairments:		biological impairment							
Aquatic T&E Species?		No			Comments:				
NRTR Stream ID:		F13SE5				Buffer Rules in Effect:		N/A	
Project Includes Bridge Spanning Water Body?		No		Deck Drains Discharge Over Buffer?		N/A		Dissipator Pads Provided in Buffer?	
Deck Drains Discharge Over Water Body?		N/A		(If yes, provide justification in the General Project Narrative)		(If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative)			
		(If yes, provide justification in the General Project Narrative)							



Page 2 of 2

Additional Comments

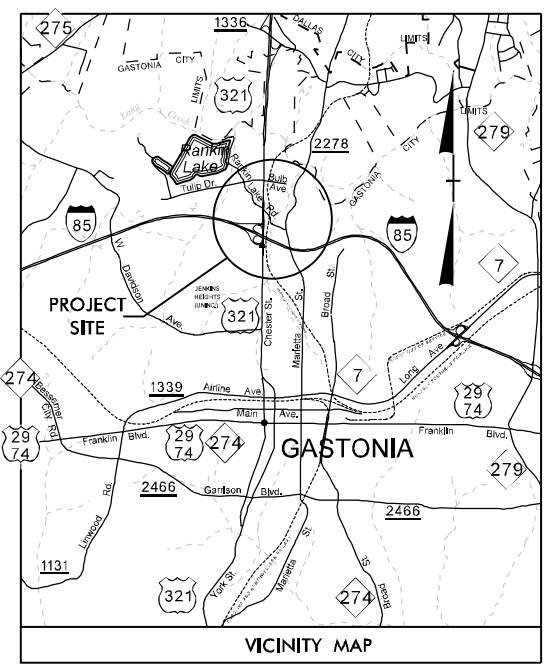
* Refer to the NCDOT Best Management Practices Toolbox (2014), NCDOT Standards, the Federal Highway Administration (FHWA) Hydraulic Engineering Circular No. 14 (HEC-14), Third Edition, Hydraulic Design of Energy Dissipators for Culverts and Channels (July 2006), as applicable, for design guidance and criteria.

09/28/2017

TIP PROJECT: I-5000

CONTRACT:

See Sheet 1-A For Index of Sheets

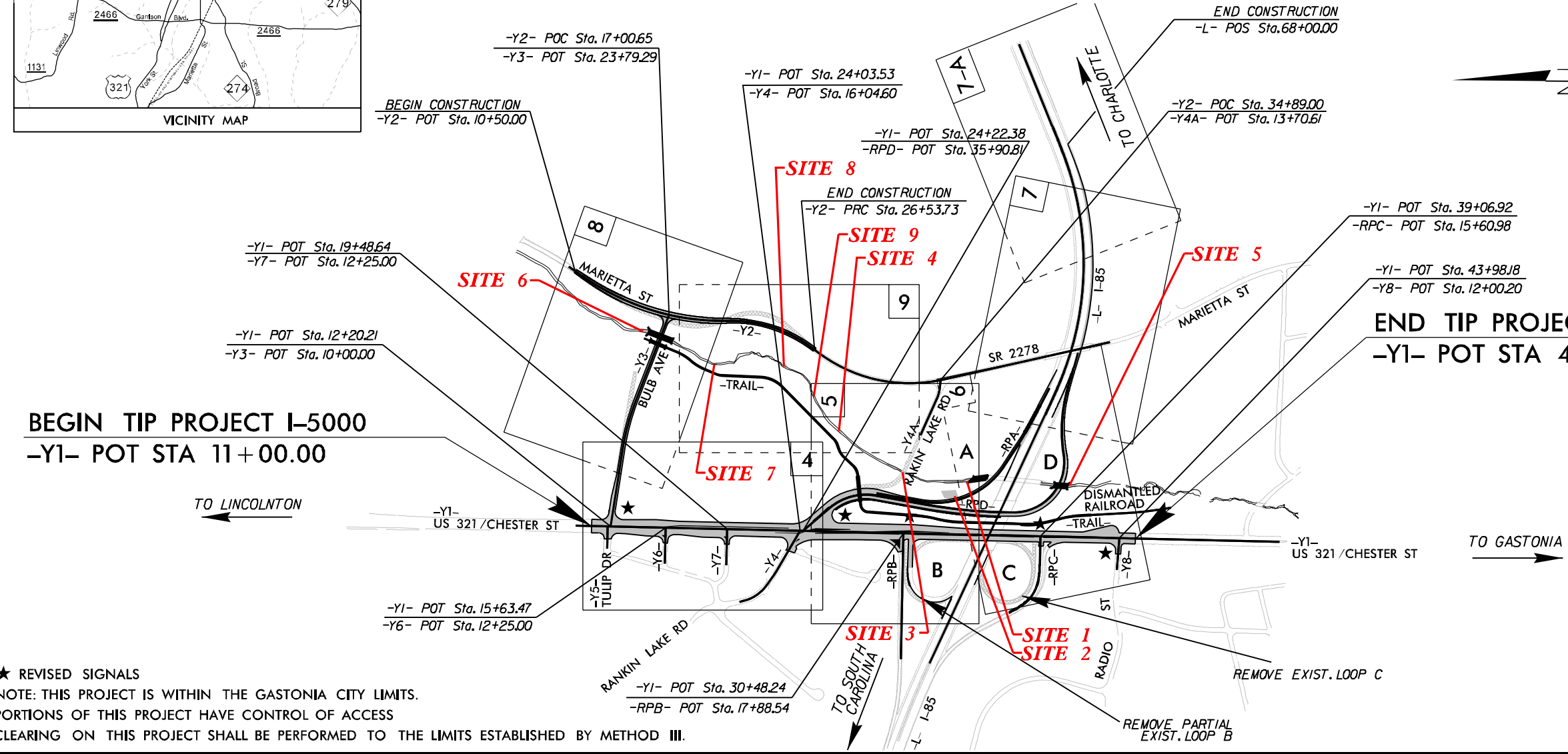
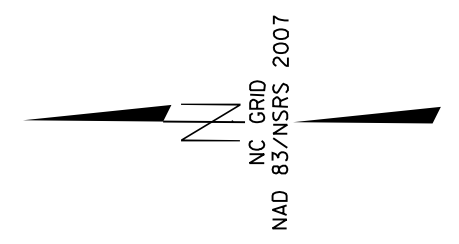
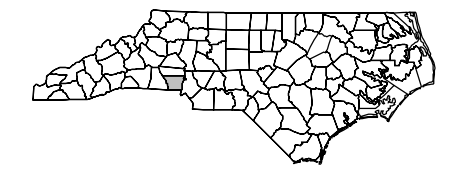


STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS GASTON COUNTY

LOCATION: I-85/US 321 GEOMETRIC SAFETY IMPROVEMENTS
TO INTERCHANGE
TYPE OF WORK: GRADING, DRAINAGE, PAVING, CULVERTS,
AND SIGNALS

WETLAND AND SURFACE WATER IMPACTS PERMIT

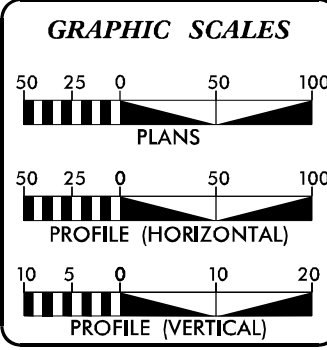
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5000	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
41153.1.1	IMF-85-1(113)17	PE	
41153.2.FS1	IMF-85-1(113)17	R/W	
41153.2.FSU1	IMF-85-1(113)17	UTIL.	



BEGIN TIP PROJECT I-5000
-Y1- POT STA 11+00.00

END TIP PROJECT I-5000
-Y1- POT STA 45+00.00

★ REVISED SIGNALS
NOTE: THIS PROJECT IS WITHIN THE GASTONIA CITY LIMITS.
PORTIONS OF THIS PROJECT HAVE CONTROL OF ACCESS
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.



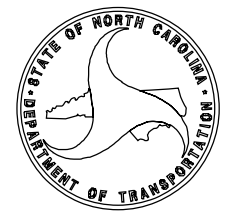
DESIGN DATA	
ADT 2015	= 49,544
ADT 2035	= 59,100
K	= 10 %
D	= 55 %
T	= 12 % *
V	= 50 MPH
* TTST	= 8 DUAL = 4
FUNC CLASS	=
PRINCIPAL ARTERIAL	
REGIONAL TIER	

PROJECT LENGTH	
LENGTH ROADWAY TIP PROJECT I-5000	= 0.644 MILES
TOTAL LENGTH TIP PROJECT I-5000	= 0.644 MILES

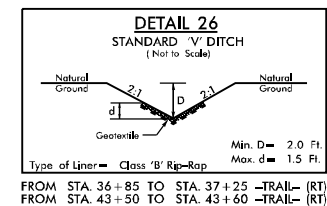
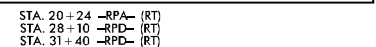
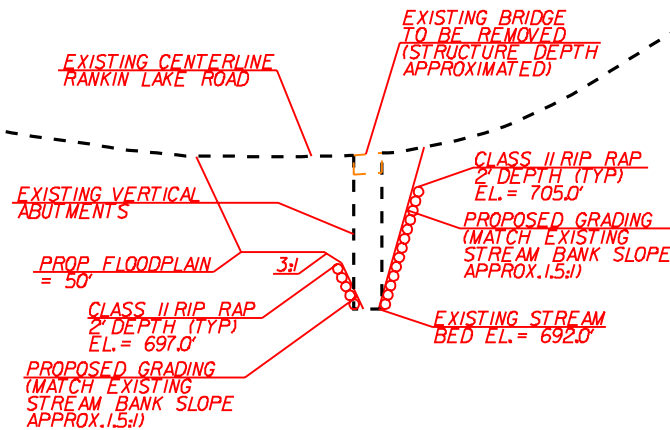
Prepared In the Office of: DIVISION OF HIGHWAYS 1000 Birch Ridge Dr., Raleigh NC, 27610	
2012 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE: August 21, 2015	Jason Moore, PE PROJECT ENGINEER
LETTING DATE: February 21, 2017	Bryan Key, PE PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER	
SIGNATURE:	P.E.
ROADWAY DESIGN ENGINEER	
SIGNATURE:	P.E.

PERMIT DRAWING
SHEET 1 OF 15
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



PROFILE



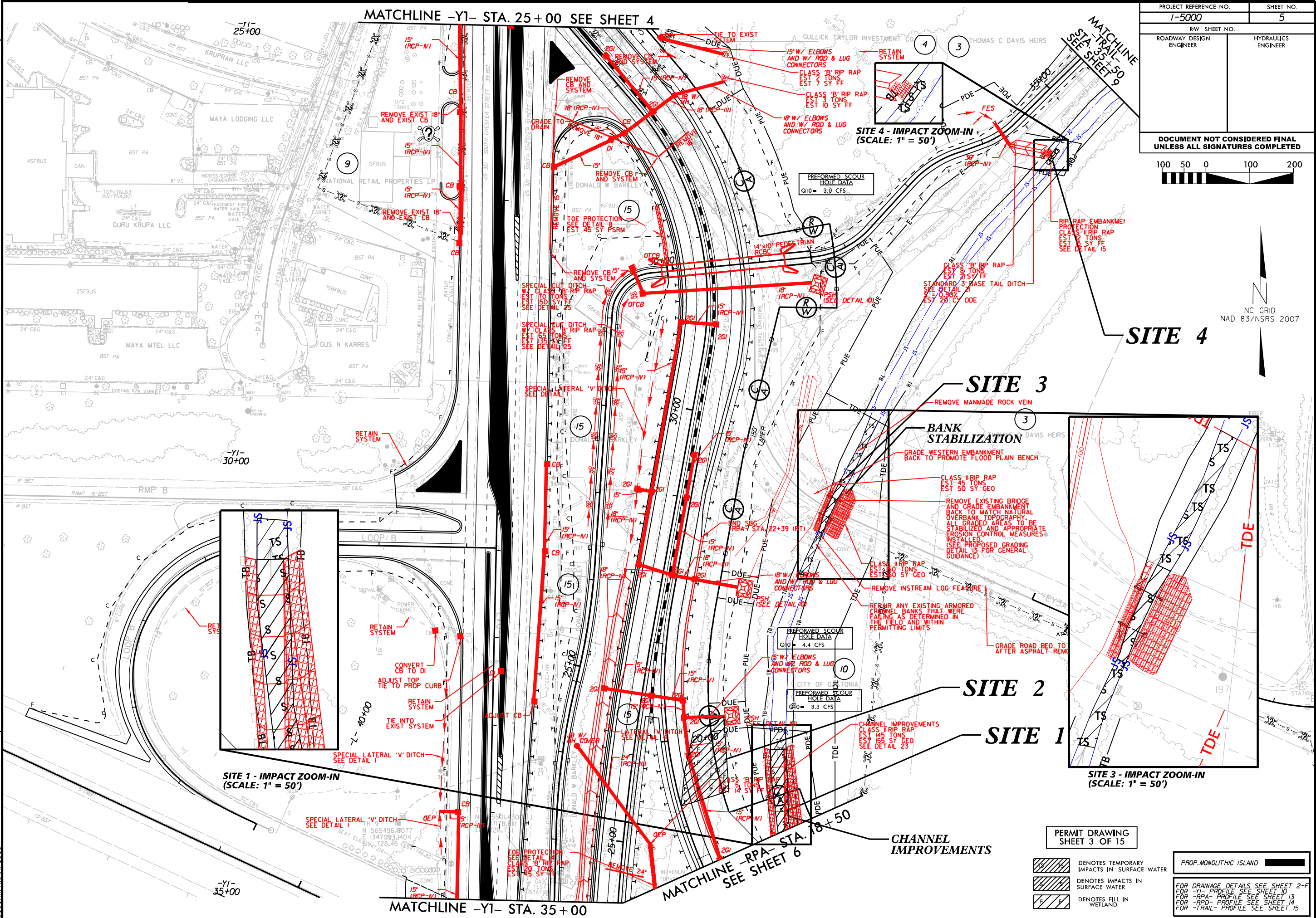
REVISIONS

SYSTEM\$DGN\$\$\$\$\$

8/17/99

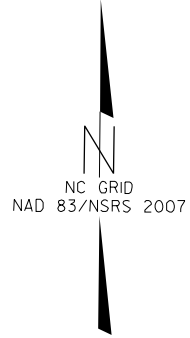
REVISIONS
R/W REVISIONS (09/14/16 DK) - ADDITIONAL PERMANENT DRAINAGE EASEMENT AROUND CHANNEL IMPROVEMENT
-RPA- STATION 18+12.00 TO 20+05.00 RT ON PARCEL 10 AND TEMPORARY DRAINAGE
EASEMENT -RPA- STATION 17+300 RT TO -RPD- STATION 30+46.00 RT ON PARCEL 3 AND PARCEL 10.

SYSTEMS
TIME
DATE
BY
CHECKED
DATE
BY
APPROVED
DATE
BY



PROJECT REFERENCE NO.	SHEET NO.
1-5000	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

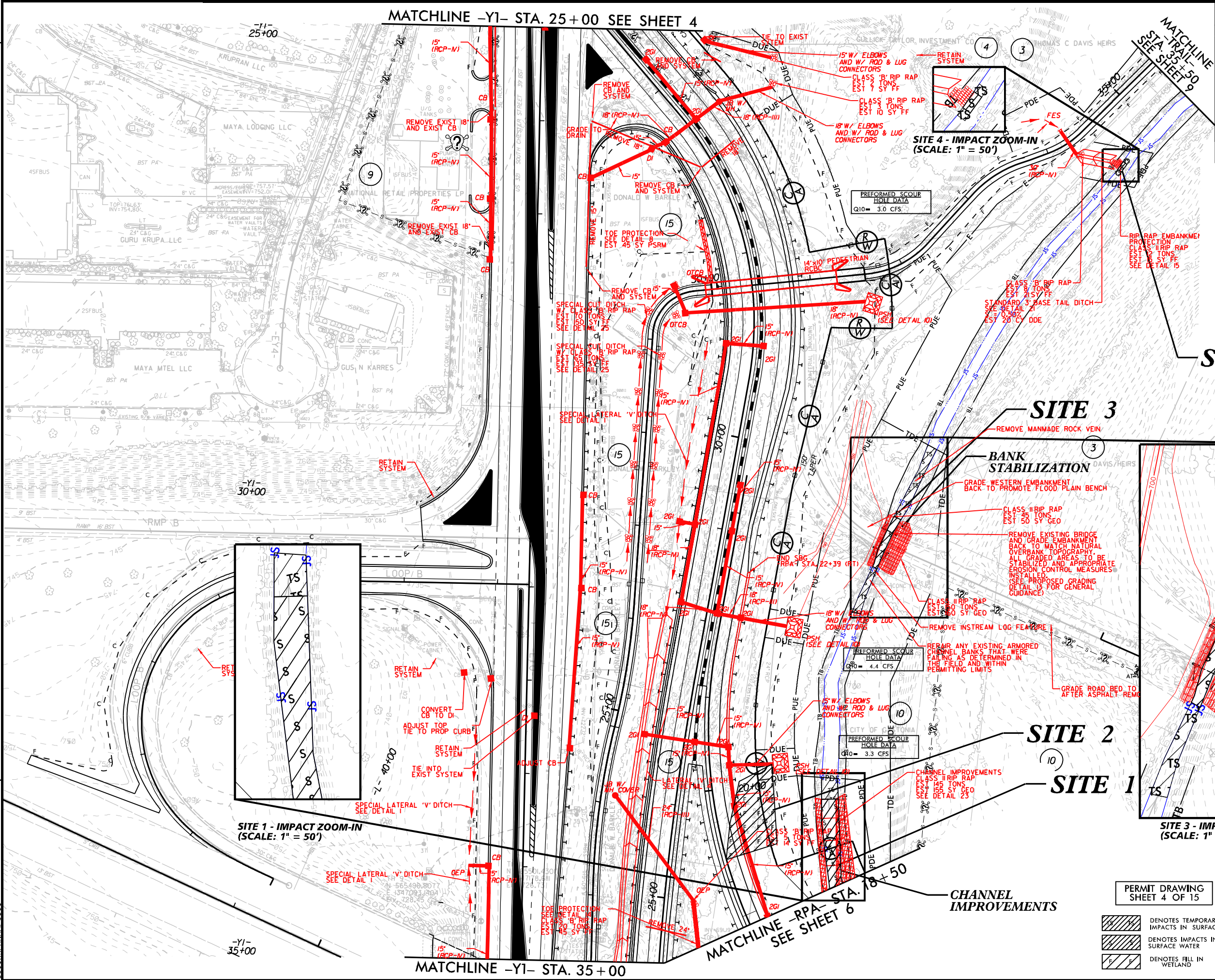
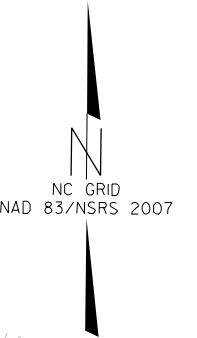
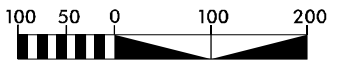


8/17/99

REVISIONS
R/W REVISIONS (09/14/16 DK) - ADDITIONAL PERMANENT DRAINAGE EASEMENT AROUND CHANNEL IMPROVEMENT EASEMENT -RPA- STATION 18+12.00 TO 20+05.00 RT ON PARCEL 10 AND TEMPORARY DRAINAGE EASEMENT -RPA- STATION 17+300 RT TO -RPD- STATION 30+46.00 RT ON PARCEL 3 AND PARCEL 10.

MATCHLINE -Y1- STA. 25+00 SEE SHEET 4

PROJECT REFERENCE NO.	SHEET NO.
1-5000	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



PERMIT DRAWING
SHEET 4 OF 15

- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES FILL IN WETLAND

PROP. MONOLITHIC ISLAND

FOR DRAINAGE DETAILS SEE SHEET 2-F
FOR -Y1- PROFILE SEE SHEET 10
FOR -RPA- PROFILE SEE SHEET 13
FOR -RPD- PROFILE SEE SHEET 14
FOR -TRAIL- PROFILE SEE SHEET 15

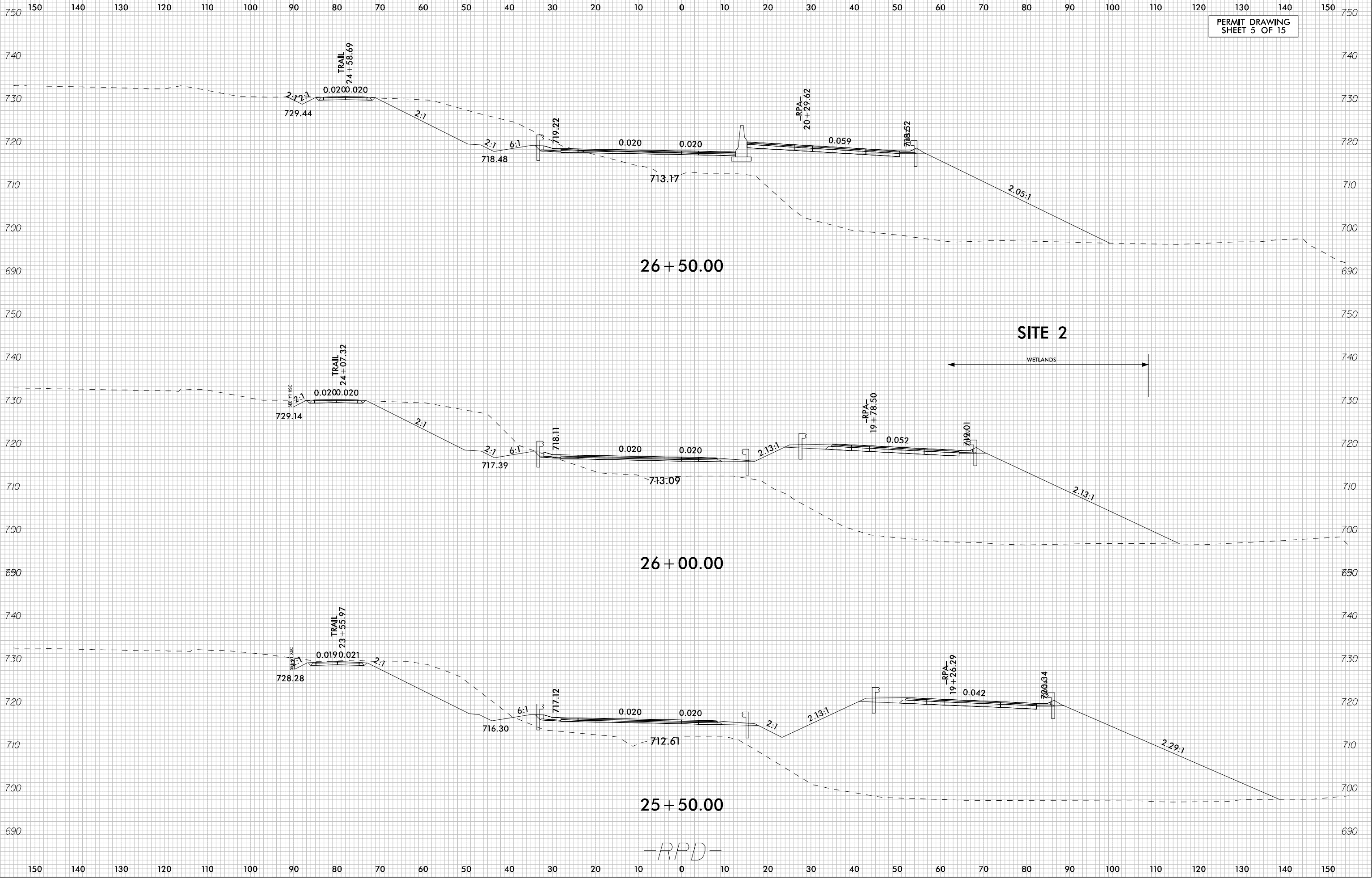
8/23/99

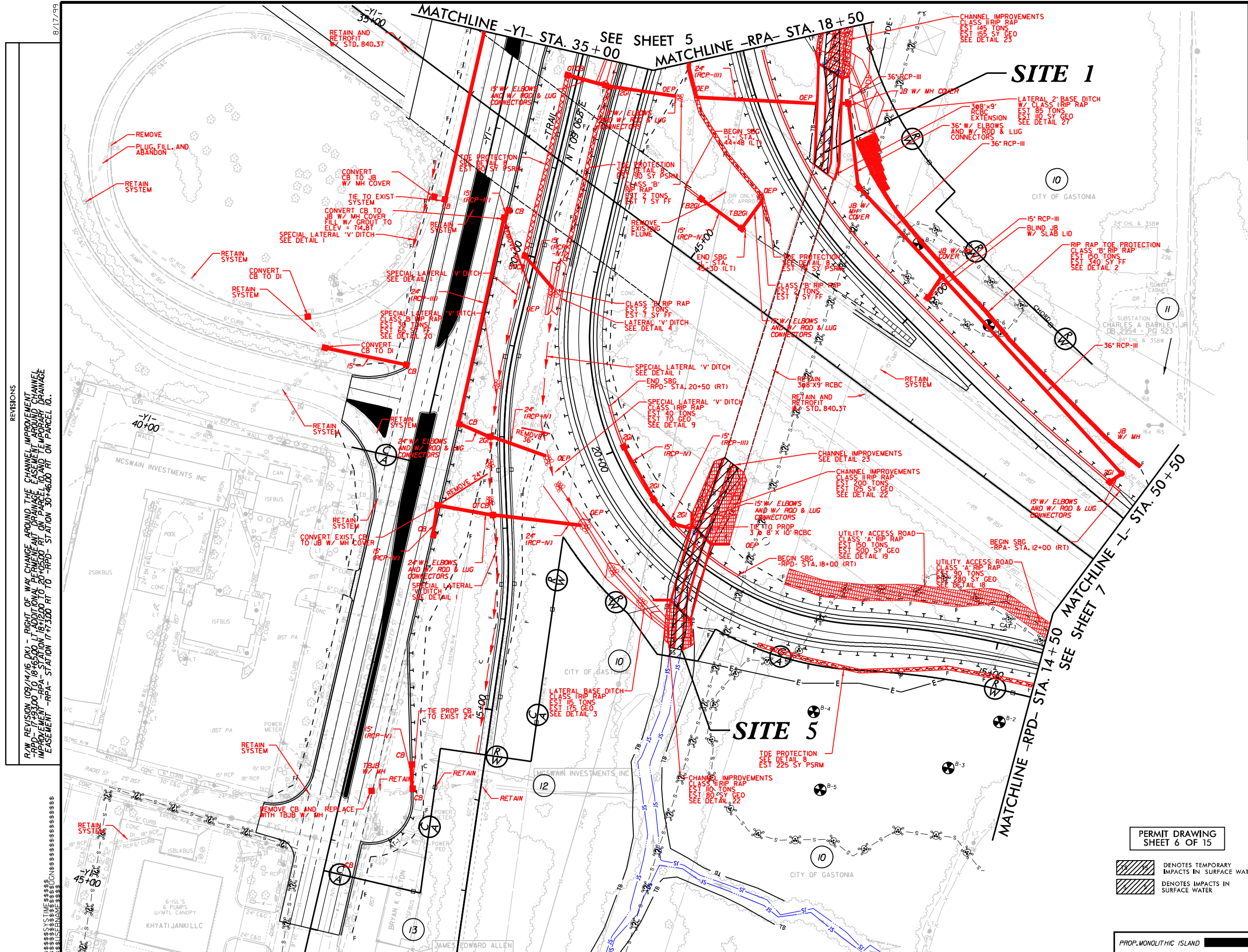


PROJ. REFERENCE NO.
I-5000

SHEET NO.
X-45

PERMIT DRAWING
SHEET 5 OF 15





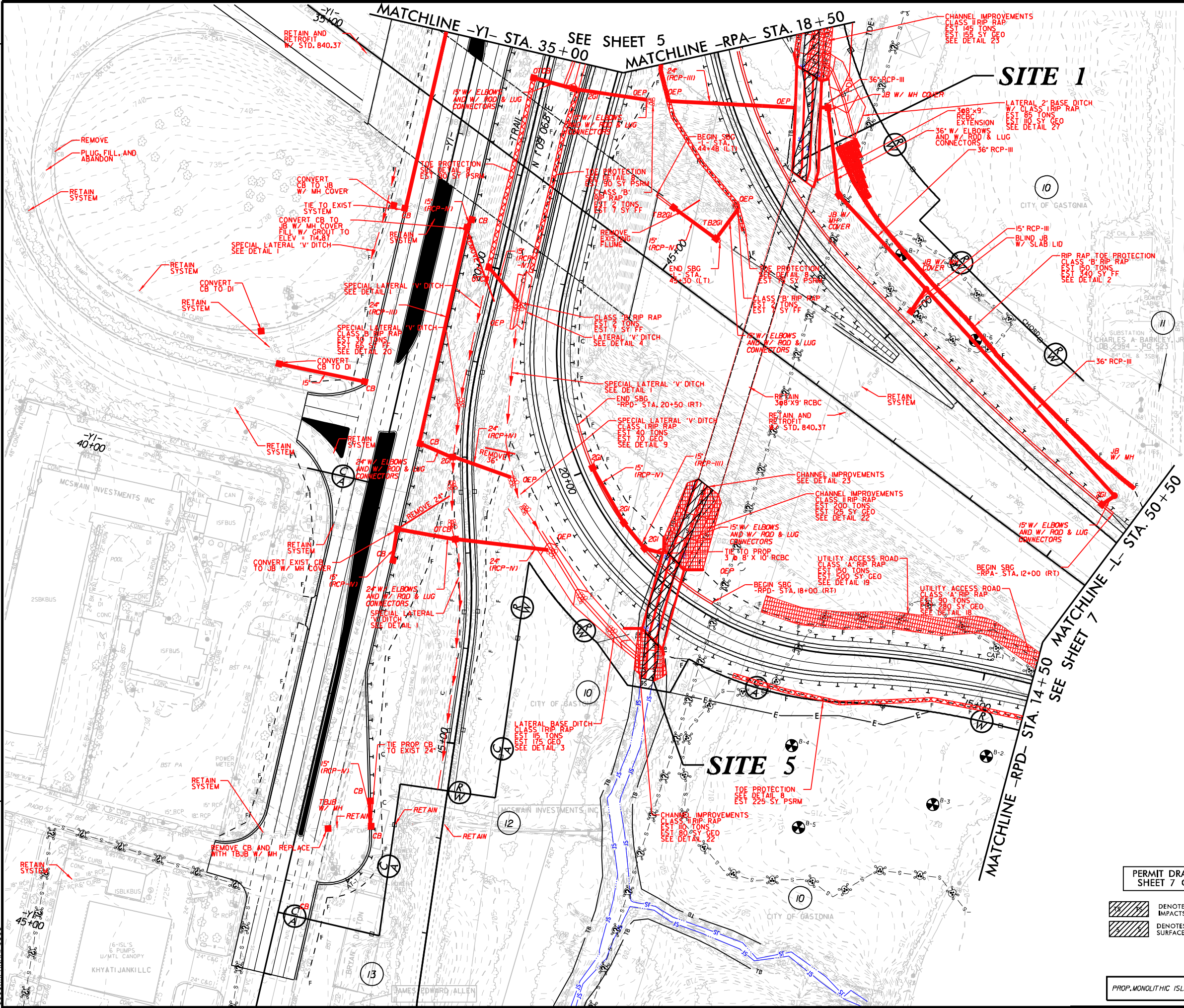
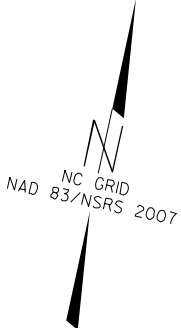
8/17/99

REVISIONS

R/W REVISION (09/14/16 DK) - RIGHT OF WAY CHANGE AROUND THE CHANNEL IMPROVEMENT -RPD- 17+43.00 TO 18+65.00 LT ADDITIONAL PERMITS AND EASEMENT AROUND CHANNEL IMPROVEMENT -RPA- STATION 18+100 TO 20+05.00 RT AND TEMPORARY EASEMENT -RPA- STATION 17+13.00 TO -RPD- STATION 30+46.00 RT ON PARCEL 10.

PROJECT REFERENCE NO.	SHEET NO.
1-5000	6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



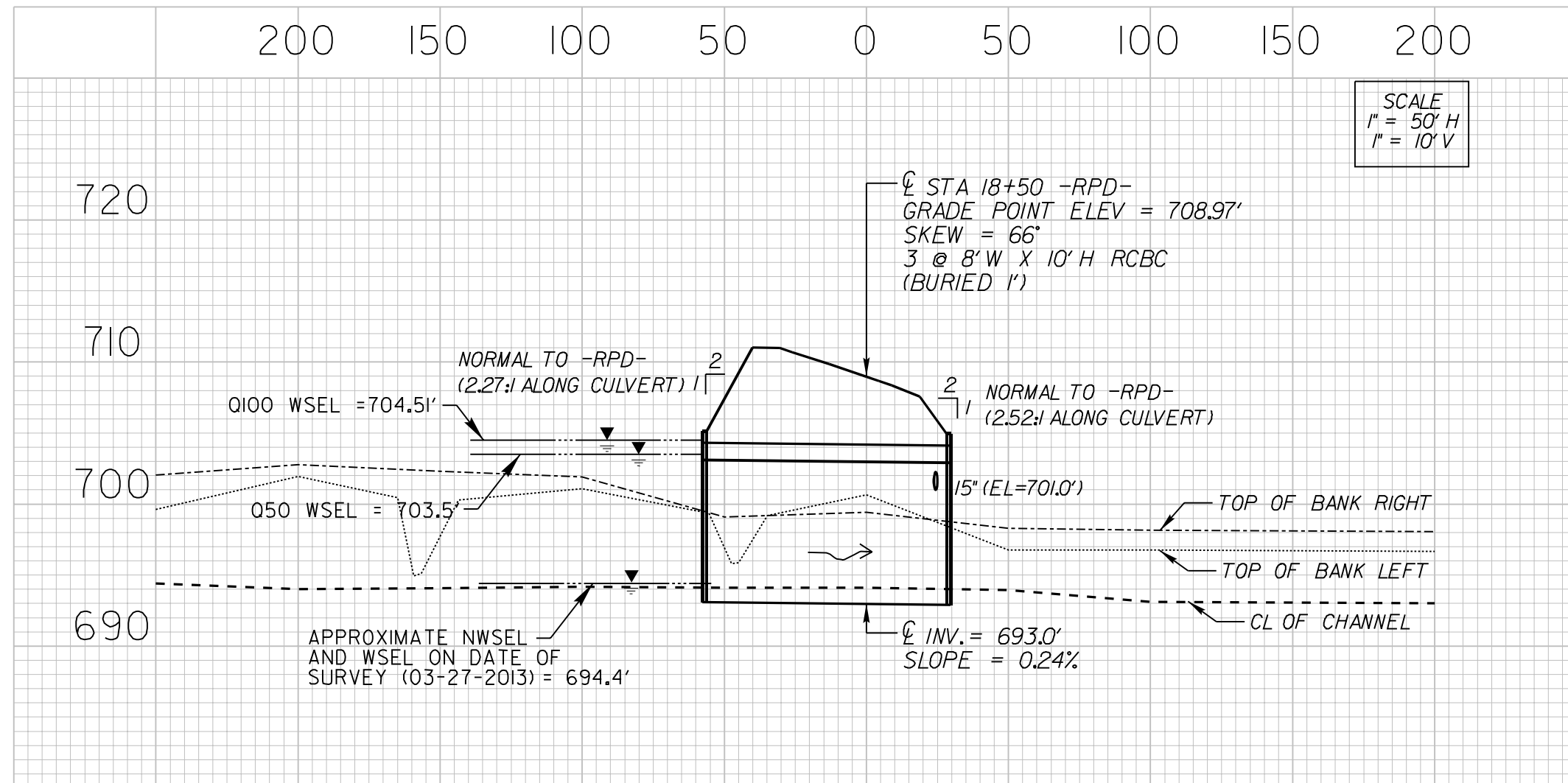
PERMIT DRAWING
SHEET 7 OF 15

- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER

PROP. MONOLITHIC ISLAND

FOR DRAINAGE DETAILS SEE SHEET 2-F
FOR -YI- PROFILE SEE SHEETS 10 & 11
FOR -RPA- PROFILE SEE SHEET 13
FOR -RPD- PROFILE SEE SHEETS 13 & 14
FOR -TRAIL- PROFILE SEE SHEET 15

SITE 5 - CULVERT UNDER -RPD-



REVISIONS

8/17/99

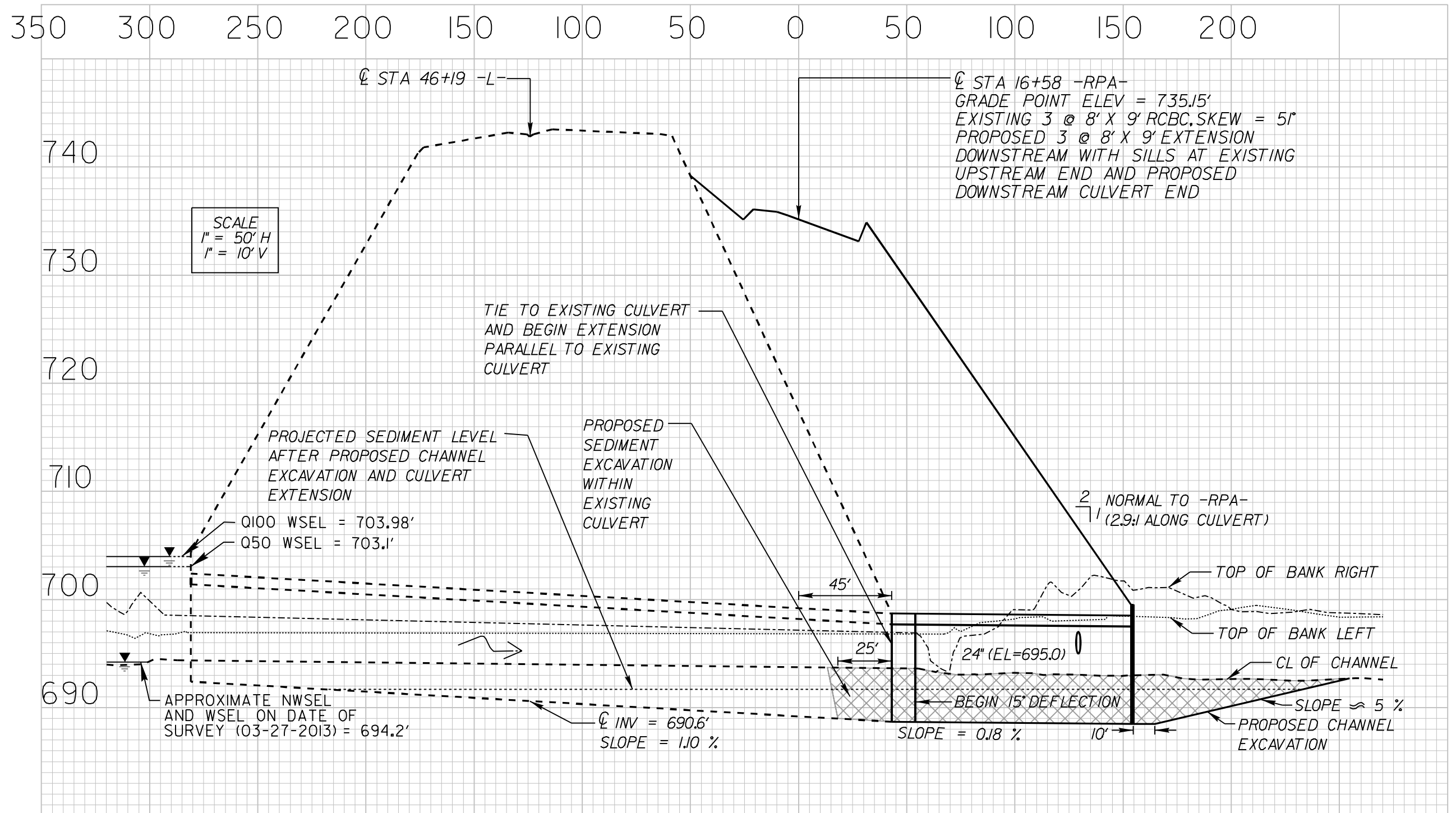
\$\$\$\$SYTIME\$\$\$\$\$DGN\$\$\$\$\$

\$\$\$\$USERNAME\$\$\$\$\$

PROJECT REFERENCE NO.		SHEET NO.	
1-5000			
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			

PERMIT DRAWING
SHEET 9 OF 15

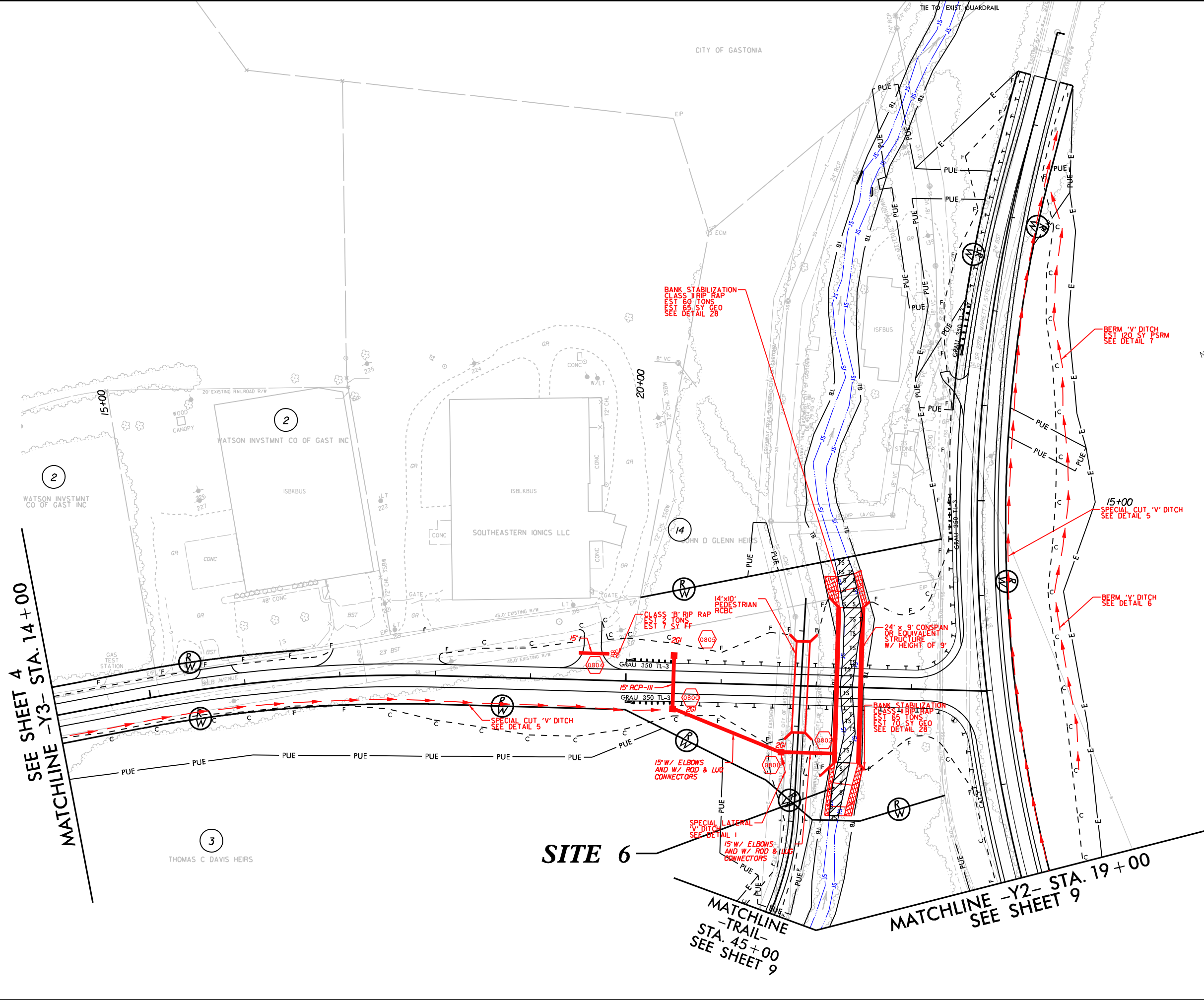
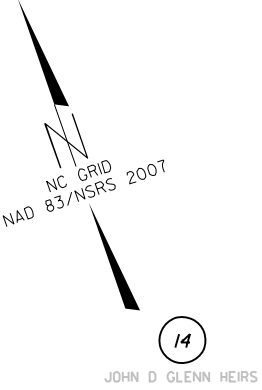
SITE I - CULVERT EXTENSION



8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
1-5000	8
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR E/W ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



PERMIT DRAWING
SHEET 10 OF 15

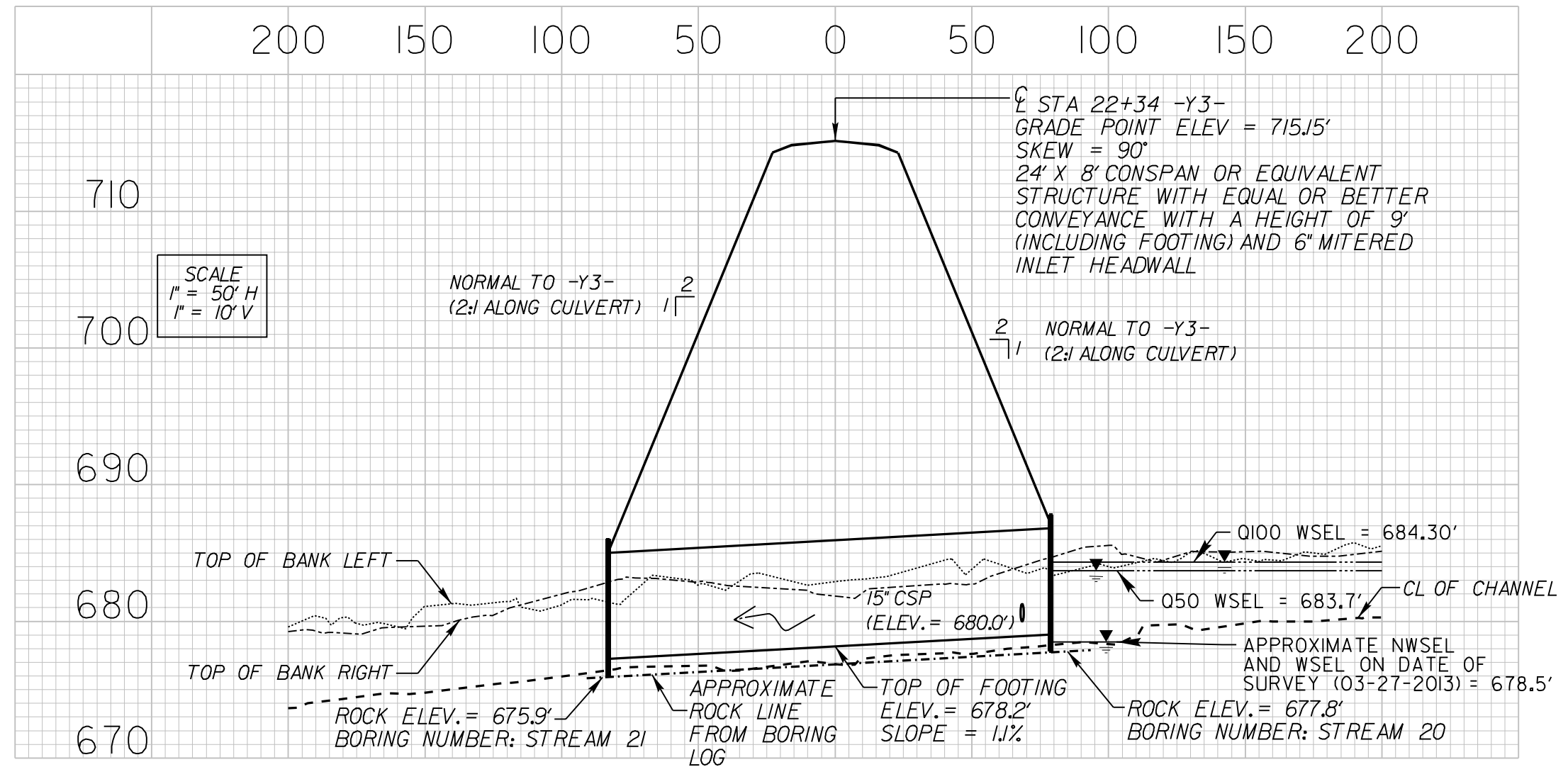
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER

FOR -Y2- PROFILE SEE SHEET 12
FOR -Y3- PROFILE SEE SHEET 13



PERMIT DRAWING
SHEET 12 OF 15

SITE 6 - CULVERT UNDER -Y3-



REVISIONS

8/17/99

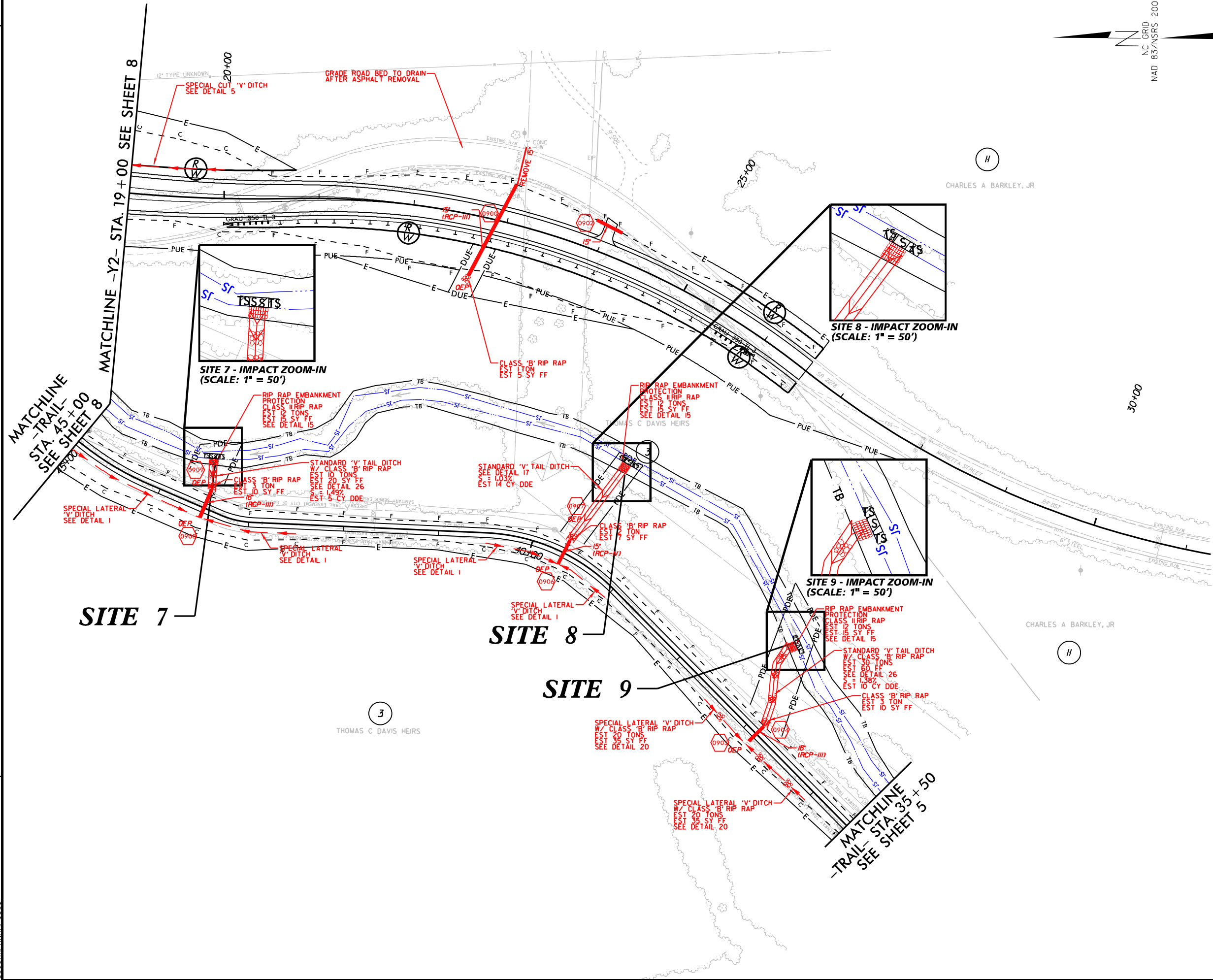
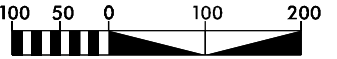
\$\$\$\$SYTIME\$\$\$\$
 \$\$\$DDGN\$
 \$\$\$CNAME\$

8/17/99

REVISIONS

NC GRID
NAD 83/NSRS 2007

PROJECT REFERENCE NO.	SHEET NO.
1-5000	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



PERMIT DRAWING
SHEET 13 OF 15

- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER

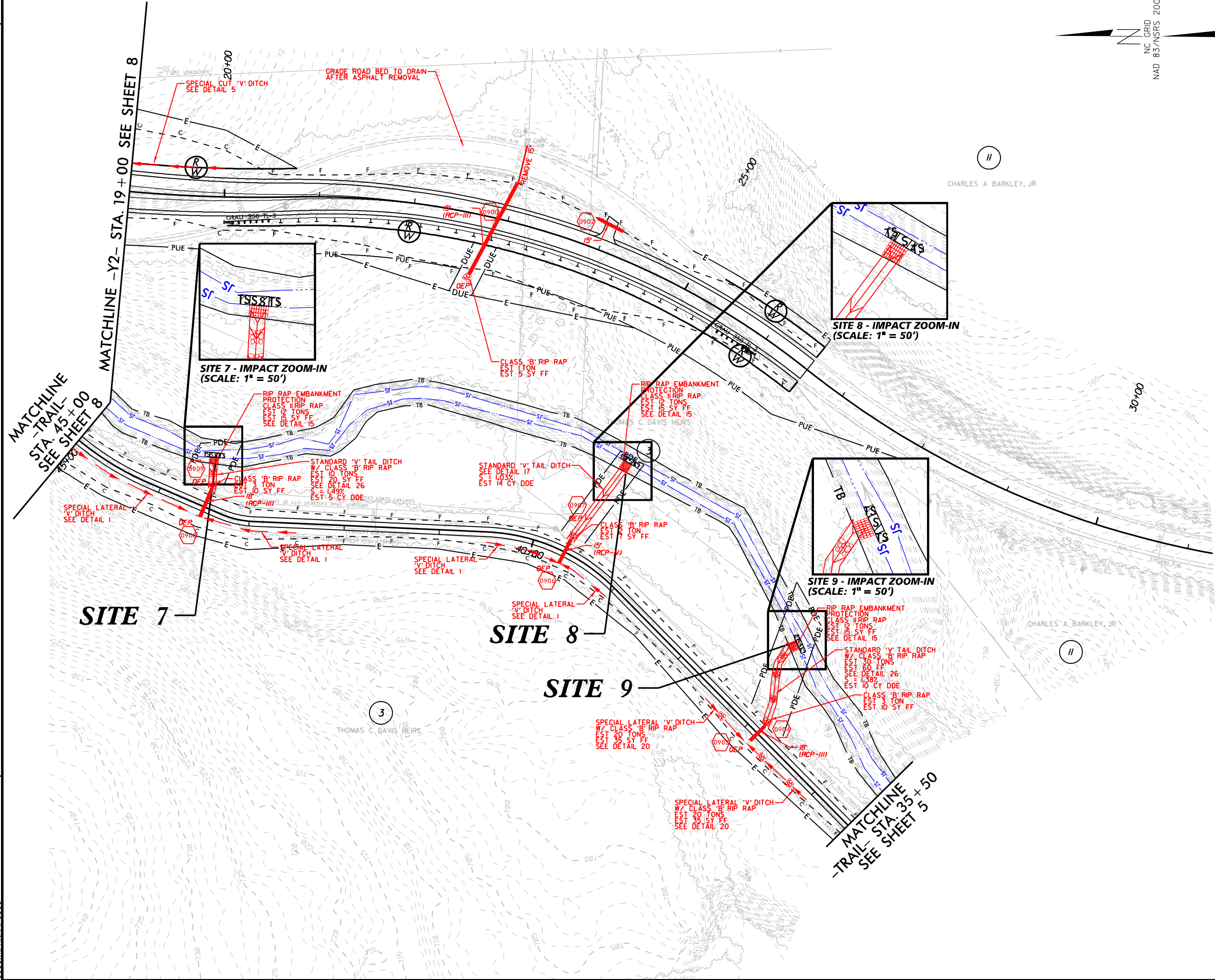
FOR DRAINAGE DETAILS SEE SHEET 2-F
FOR -Y2- PROFILE SEE SHEETS 11 & 12

8/17/99

REVISIONS

NC GRID
NAD 83/NSRS 2007

PROJECT REFERENCE NO.	SHEET NO.
1-5000	9
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



PERMIT DRAWING
SHEET 14 OF 15

- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES IMPACTS IN SURFACE WATER

FOR DRAINAGE DETAILS SEE SHEET 2-F
FOR -Y2- PROFILE SEE SHEETS 11 & 12

WETLAND PERMIT IMPACT SUMMARY												
			WETLAND IMPACTS					SURFACE WATER IMPACTS				
Site No.	Station (From/To)	Structure Size / Type	Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	-RPA- 16+85 to 19+99 (RT)	3 @ 8'x9' RCBC Extension						0.03		108		
1	-RPA- 16+85 to 19+99 (RT)	Channel Improvements						0.05	< 0.01	138	23	
2	-RPA- 19+24 to 20+23 (RT)	Fill Slope	0.09									
3	-RPD- 28+91 (RT)	Bank Stabilization						< 0.01	0.03	59	136	
4	-TRAIL- 34+40 to 34+58 (RT)	Bank Stabilization						< 0.01	< 0.01	10	10	
5	-RPD- 18+50 (CL)	3 @ 8'x10' RCBC						0.03		89		
5	-RPD- 18+50 (CL)	Channel Improvements						0.04	< 0.01	127	10	
6	-Y3- 22+34 (CL)	24' x 8' CONSPAN (or eq.)							0.05		164	
6	-Y3- 22+34 (CL)	Bank Stabilization						0.03	< 0.01	91	23	
7	-TRAIL- 43+52 to 43+73 (RT)	Bank Stabilization						< 0.01	< 0.01	10	10	
8	-TRAIL- 39+47 to 39+61 (RT)	Bank Stabilization						< 0.01	< 0.01	10	10	
9	-TRAIL- 37+11 to 37+32 (RT)	Bank Stabilization						< 0.01	< 0.01	10	10	
TOTALS*:			0.09					0.19	0.10	652	396	

*Rounded totals are sum of actual impacts

NOTES:
22 LF of Existing Bridge Removal at Site 3

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

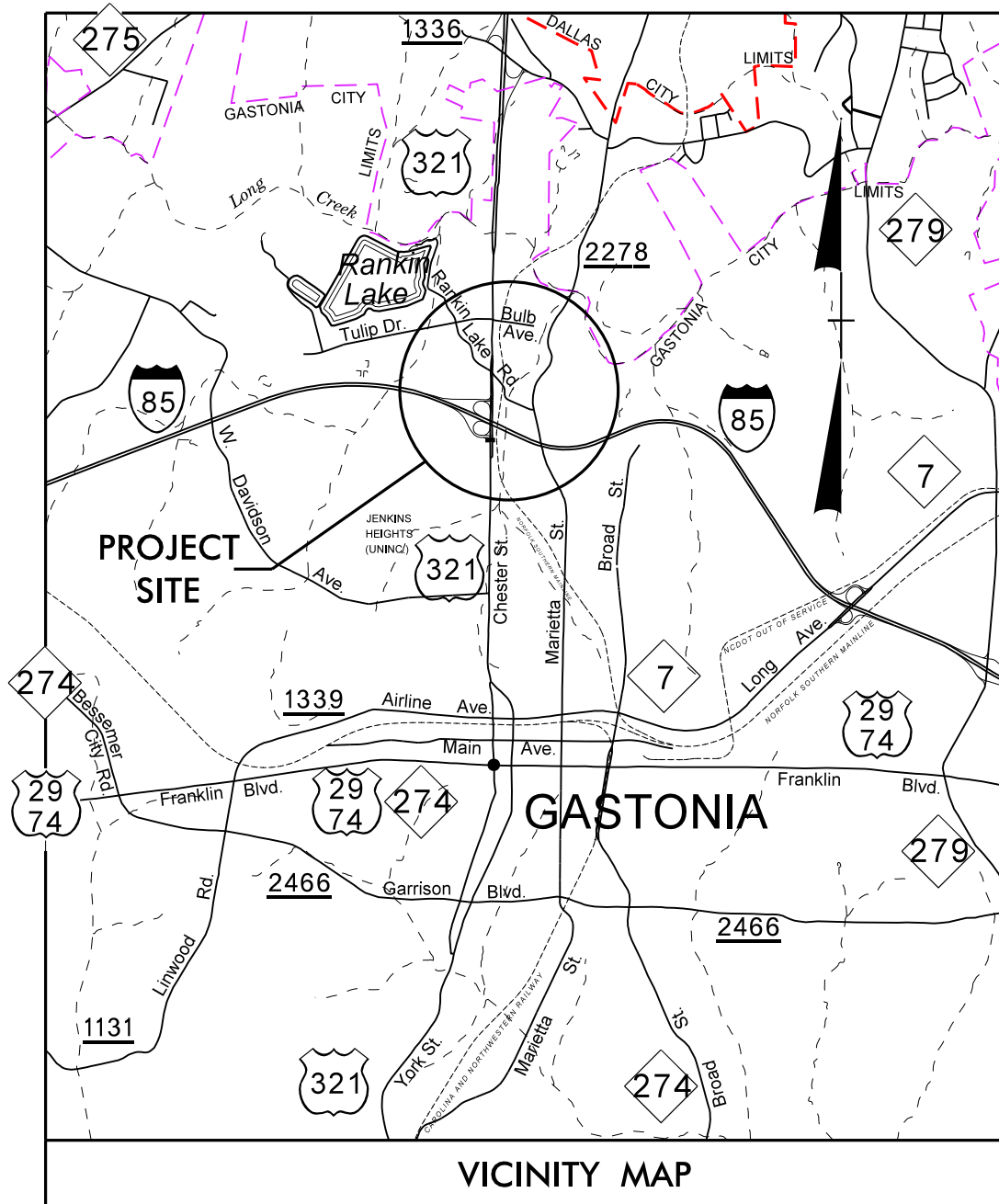
GASTON COUNTY
I-5000

SHEET15 of 1511/21/2016

TIP PROJECT: I-5000

CONTRACT: C203846

See Sheet 1-A For Index of Sheets

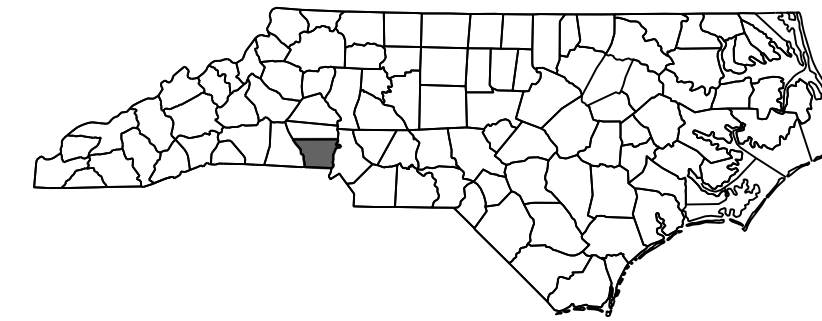


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

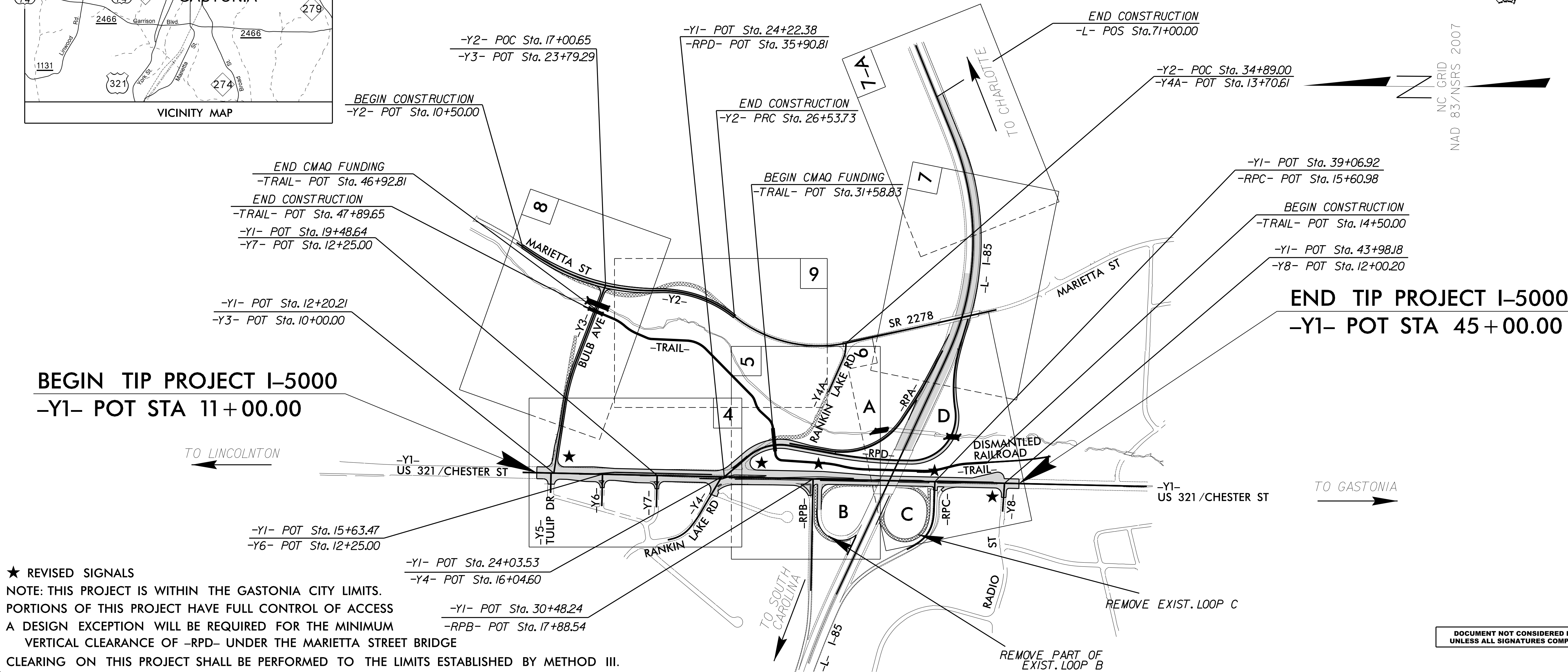
GASTON COUNTY

LOCATION: I-85/US 321 GEOMETRIC SAFETY IMPROVEMENTS
TO INTERCHANGE
TYPE OF WORK: GRADING, DRAINAGE, PAVING, CULVERTS,
AND SIGNALS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5000	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
41153.1.1	IMF-85-1(113)17	PE	
41153.2.FS1	IMF-85-1(113)17	R/W	
41153.2.FSU1	IMF-85-1(113)17	UTIL.	
41153.3.1	IMF-085-1(113)17	CONST.	

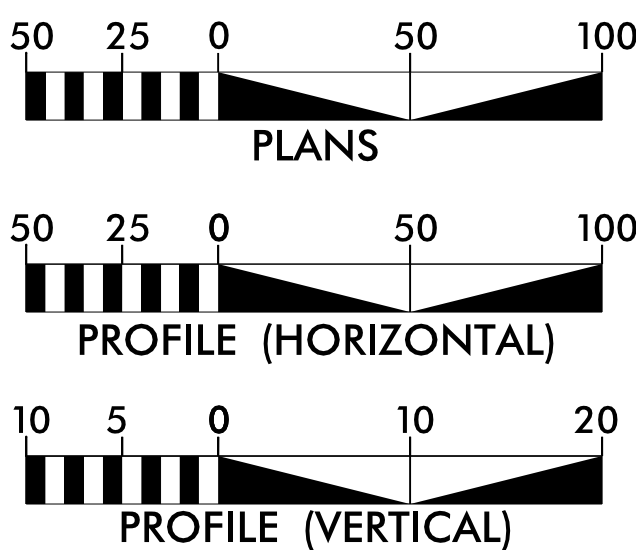


NAD 83/NSRS 2007



★ REVISED SIGNALS
NOTE: THIS PROJECT IS WITHIN THE GASTONIA CITY LIMITS.
PORTIONS OF THIS PROJECT HAVE FULL CONTROL OF ACCESS
A DESIGN EXCEPTION WILL BE REQUIRED FOR THE MINIMUM
VERTICAL CLEARANCE OF -RPD- UNDER THE MARIETTA STREET BRIDGE
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

GRAPHIC SCALES



DESIGN DATA

ADT 2017 = 49,516
ADT 2037 = 63,676
K = 8 %
D = 55 %
T = 9 % *
V = 50 MPH
* TTST = 7 DUAL = 2
FUNC CLASS =
PRINCIPAL ARTERIAL
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT I-5000 = 0.644 MILES
TOTAL LENGTH TIP PROJECT I-5000 = 0.644 MILES

Prepared in the Office of:
DIVISION OF HIGHWAYS

1000 Birch Ridge Dr., Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
AUGUST 21, 2015

LETTING DATE:
FEBRUARY 21, 2017

GARY LOVERING, PE
PROJECT ENGINEER

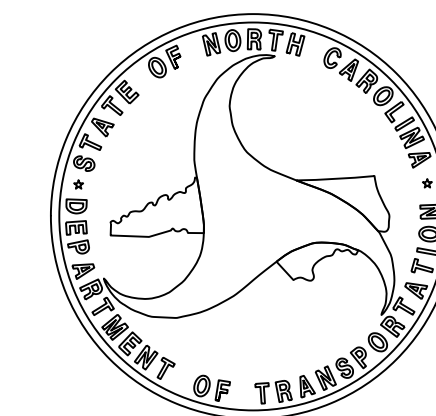
BRYAN KEY, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN
ENGINEER

SIGNATURE: P.E.



STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS
CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

PROJECT REFERENCE NO.	SHEET NO.
I-5000	IB

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EIP
Property Corner	----->
Property Monument	□ ECM
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-----
Existing Historic Property Boundary	-----HPB-----
Known Contamination Area: Soil	-----S-----
Potential Contamination Area: Soil	-----S-----
Known Contamination Area: Water	-----W-----
Potential Contamination Area: Water	-----W-----
Contaminated Site: Known or Potential	-----

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○ S
Well	○ W
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	○
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 R/W Marker	-----
Proposed Control of Access Line with Concrete C/A 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 Drainage / Utility Easement	-----DUE-----
Proposed Permanent Utility Easement	-----PUE-----
Proposed Temporary Utility Easement	-----TUE-----
Proposed Aerial Utility Easement	-----AUE-----
Proposed Permanent Easement with Iron Pin and Cap Marker	-----

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	-----C-----
Proposed Slope Stakes Fill	-----F-----
Proposed Curb 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	-----
U/G Power Line LOS B (S.U.E.*)	-----
U/G Power Line LOS C (S.U.E.*)	-----
U/G Power Line LOS D (S.U.E.*)	-----

TELEPHONE:

Existing Telephone Pole	-----
Proposed Telephone Pole	-----
Telephone Manhole	-----
Telephone Pedestal	-----
Telephone Cell Tower	-----
U/G Telephone Cable Hand Hole	-----
U/G Telephone Cable LOS B (S.U.E.*)	-----
U/G Telephone Cable LOS C (S.U.E.*)	-----
U/G Telephone Cable LOS D (S.U.E.*)	-----
U/G Telephone Conduit LOS B (S.U.E.*)	-----
U/G Telephone Conduit LOS C (S.U.E.*)	-----
U/G Telephone Conduit LOS D (S.U.E.*)	-----
U/G Fiber Optics Cable LOS B (S.U.E.*)	-----
U/G Fiber Optics Cable LOS C (S.U.E.*)	-----
U/G Fiber Optics Cable LOS D (S.U.E.*)	-----

WATER:

Water Manhole	-----
Water Meter	-----
Water Valve	-----
Water Hydrant	-----
U/G Water Line LOS B (S.U.E.*)	-----
U/G Water Line LOS C (S.U.E.*)	-----
U/G Water Line LOS D (S.U.E.*)	-----
Above Ground Water Line	-----

TV:

TV Pedestal	-----
TV Tower	-----
U/G TV Cable Hand Hole	-----
U/G TV Cable LOS B (S.U.E.*)	-----
U/G TV Cable LOS C (S.U.E.*)	-----
U/G TV Cable LOS D (S.U.E.*)	-----
U/G Fiber Optic Cable LOS B (S.U.E.*)	-----
U/G Fiber Optic Cable LOS C (S.U.E.*)	-----
U/G Fiber Optic Cable LOS D (S.U.E.*)	-----

GAS:

Gas Valve	-----
Gas Meter	-----
U/G Gas Line LOS B (S.U.E.*)	-----
U/G Gas Line LOS C (S.U.E.*)	-----
U/G Gas Line LOS D (S.U.E.*)	-----
Above Ground Gas Line	-----

SANITARY SEWER:

Sanitary Sewer Manhole	-----
Sanitary Sewer Cleanout	-----
U/G Sanitary Sewer Line	-----
Above Ground Sanitary Sewer	-----
SS Forced Main Line LOS B (S.U.E.*)	-----
SS Forced Main Line LOS C (S.U.E.*)	-----
SS Forced Main Line LOS D (S.U.E.*)	-----

MISCELLANEOUS:

Utility Pole	-----
Utility Pole with Base	-----
Utility Located Object	-----
Utility Traffic Signal Box	-----
Utility Unknown U/G Line LOS B (S.U.E.*)	-----
U/G Tank; Water, Gas, Oil	-----
Underground Storage Tank, Approx. Loc.	-----
A/G Tank; Water, Gas, Oil	-----
Geoenvironmental Boring	-----
U/G Test Hole LOS A (S.U.E.*)	-----
Abandoned According to Utility Records	-----
End of Information	-----

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

SURVEY CONTROL SHEET

DATUM DESCRIPTION
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NGS FOR MONUMENT "P222"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 564112.540(±) EASTING: 1347033.150(±)
ELEVATION: 727.863(±)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999842
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM
"P222" TO -Y1- STATION 11+00.00 IS
N 2°06'45.3" E 3745.271
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

BEGIN TIP PROJECT I-5000
-Y1- POT STA 11+00.00

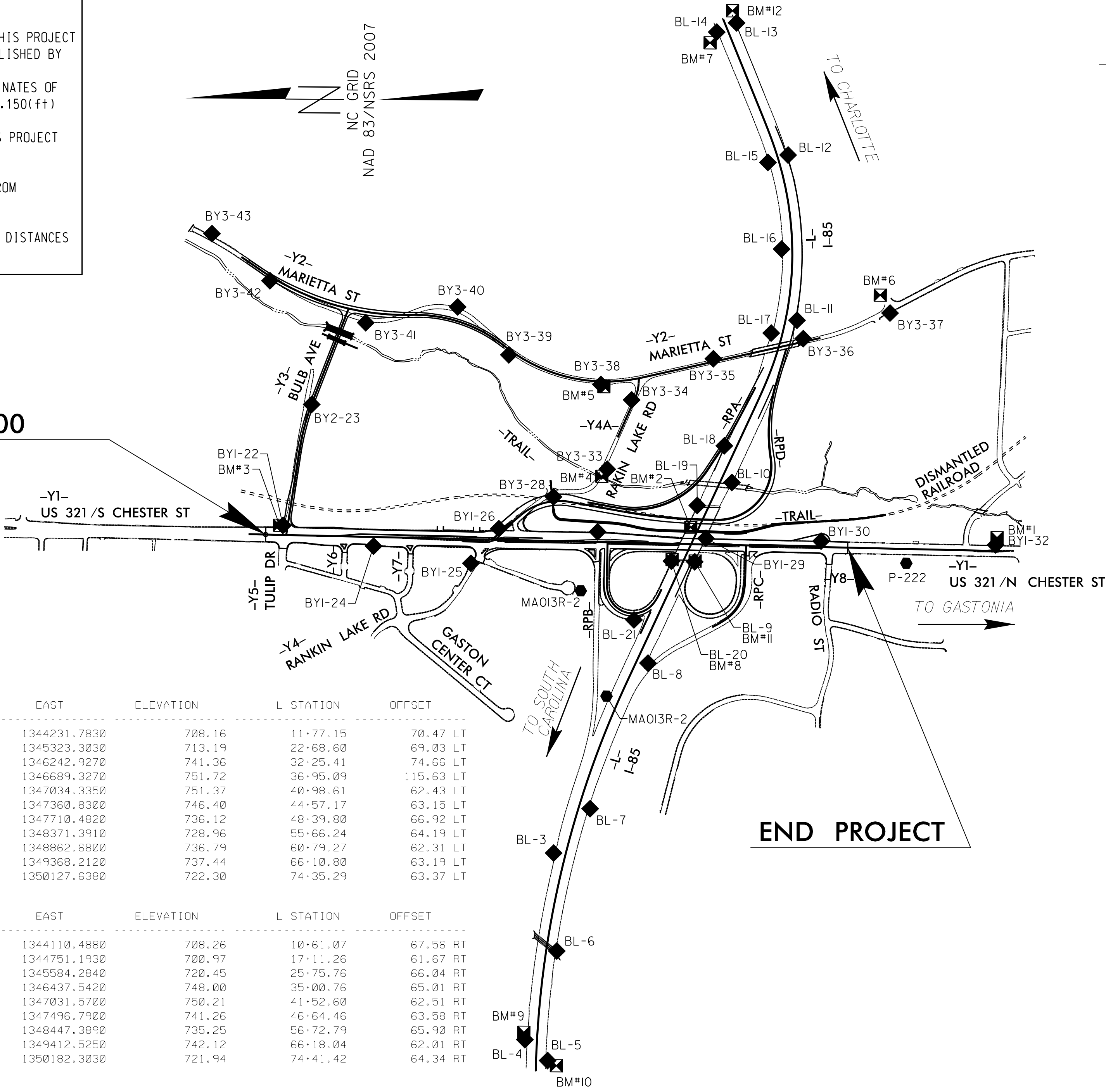
TO LINCOLNTON

BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
4	BL -4		566317.7110	1344231.7830	708.16	11+77.15	70.47 LT
3	BL -3		566158.4570	1345323.3030	713.19	22+68.60	69.03 LT
1	MA013R-1		565857.2360	1346242.9270	741.36	32+25.41	74.66 LT
21	BL -21		565700.1300	1346689.3270	751.72	36+95.09	115.63 LT
20	BL -20		565484.1930	1347034.3350	751.37	40+98.61	62.43 LT
19	BL -19		565335.9790	1347360.8300	746.40	44+57.17	63.15 LT
18	BL -18		565180.5470	1347710.4820	736.12	48+39.80	66.92 LT
17	BL -17		564911.8550	1348371.3910	728.96	55+66.24	64.19 LT
16	BL -16		564855.1580	1348862.6800	736.79	60+79.27	62.31 LT
15	BL -15		564938.8520	1349368.2120	737.44	66+10.80	63.19 LT
14	BL -14		565243.9830	1350127.6380	722.30	74+35.29	63.37 LT

BL1	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
5	BL -5		566184.2190	1344110.4880	708.26	10+61.07	67.56 RT
6	BL -6		566135.6580	1344751.1930	700.97	17+11.26	61.67 RT
7	BL -7		565947.5250	1345584.2840	720.45	25+75.76	66.04 RT
8	BL -8		565616.4840	1346437.5420	748.00	35+00.76	65.01 RT
9	BL -9		565348.1190	1347031.5700	750.21	41+52.60	62.51 RT
10	BL -10		565134.6270	1347496.7900	741.26	46+64.46	63.58 RT
11	BL -11		564761.8740	1348447.3890	735.25	56+72.79	65.90 RT
12	BL -12		564821.5260	1349412.5250	742.12	66+18.04	62.01 RT
13	BL -13		565128.4050	1350182.3030	721.94	74+41.42	64.34 RT

BY0	POINT	DESC.	NORTH	EAST	ELEVATION	Y1 STATION	OFFSET
22	BY1-22		567754.7550	1347225.1050	739.15	11+99.71	55.35 LT
24	BY1-24		567224.3270	1347108.1730	733.03	17+31.79	53.82 RT
26	BY1-26		566493.4550	1347215.8710	731.85	24+61.01	64.54 LT
27	BY1-27		565916.6540	1347202.5530	735.49	30+37.95	59.65 LT
29	BY1-29		565283.6690	1347168.9670	729.66	36+71.35	35.31 LT
30	BY1-30		564610.8920	1347158.1420	723.58	43+44.22	34.31 LT
222	P222		564112.5400	1347033.1500	727.86	48+44.34	83.39 RT
32	BY1-32		563591.7380	1347144.3030	720.15	53+63.47	35.35 LT

BY1	POINT	DESC.	NORTH	EAST	ELEVATION	Y2 STATION	OFFSET
43	BY3-43		568182.4750	1348926.4590	691.09	OUTSIDE PROJECT LIMITS	
42	BY3-42		567841.5950	1348654.0110	698.56	12+15.67	22.99 RT
41	BY3-41		567280.4110	1348413.2850	710.29	18+11.98	63.05 RT
40	BY3-40		566744.3540	1348509.9270	714.35	23+21.34	80.27 LT
39	BY3-39		566442.9020	1348231.9450	722.27	27+06.26	25.68 RT
134	BY3-34		565723.9900	1347974.4380	754.65	34+29.16	117.89 RT
35	BY3-35		565248.4720	1348218.7100	764.34	39+38.11	16.79 LT
36	BY3-36		564724.5700	1348340.1720	748.77	44+75.90	17.55 LT
37	BY3-37		564218.7870	1348493.8940	730.59	OUTSIDE PROJECT LIMITS	



NOTES:

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT: [HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/](https://connect.ncdot.gov/resources/location/)

THE FILES TO BE FOUND ARE AS FOLLOWS:
15000_LS_CONTROL.TXT
15000_LS_LOCAL.TXT

2. SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

3. PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM, UTILIZING THE NCGS RTN SYSTEM (VRS).

MONUMENTS USED OR SET FOR PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT:

- INDICATES GEODETIC CONTROL MONUMENTS FOR HORIZONTAL CONTROL
- INDICATES BASELINE MONUMENTS FOR HORIZONTAL PROJECT CONTROL
- ✠ INDICATES BENCHMARKS FOR VERTICAL CONTROL

BM1	ELEVATION = 719.05	BM7	ELEVATION = 732.69
N 563584	E 1347187	N 565282	E 1350065
Y1 STATION 53+71 78 LEFT		L STATION 73+92 123 LEFT	
RR SPIKE IN BASE OF 15 INCH DOGWOOD		RR SPIKE IN BASE 18 INCH POPLAR	
BM2	ELEVATION = 721.88	BM8	ELEVATION = 751.32
N 565373	E 1347232	N 565481	E 1347043
L STATION 43+25 43 LEFT		L STATION 41+08 63 LEFT	
CHISELED SQUARE IN BRIDGE PIER BASE		CHISELD SQUARE NW SIDE OF I-85 SB BRIDGE	
BM3	ELEVATION = 739.23	BM9	ELEVATION = 706.69
N 567774	E 1347226	N 566324	E 1344275
Y1 STATION 11+80 56 LEFT		L STATION 12+19 79 LEFT	
CHISELED SQUARE CORNER OF UTILITY BOX		CHISELED SQUARE IN BASE OF CANTILEVER	
BASE		TRAFFIC SIGN	
BM4	ELEVATION = 708.75	BM10	ELEVATION = 709.28
N 565895	E 1347527	N 566133	E 1344081
Y4A STATION 10+00		L STATION 10+33 120 RIGHT	
N 68°23'34.0° W DIST 245.30		RR SPIKE IN BASE OF 18 INCH OAK	
CHISELED SQUARE IN CONC BRIDGE			
WHEELGUARD			
BM5	ELEVATION = 752.35	BM11	ELEVATION = 751.56
N 565887	E 1348051	N 565346	E 1347036
Y2 STATION 32+83 30 RIGHT		L STATION 41+58 63 RIGHT	
RR SPIKE IN BASE 24 INCH PINE		CHISELED SQUARE IN SW CORNER CONC	
		BRIDGE ABUTMENT	
BM6	ELEVATION = 729.15	BM12	ELEVATION = 719.60
N 564277	E 1348598	N 565153	E 1350253
Y2 STATION 45+74.81		L STATION 74+92.39	
S 36°03'33.1° E DIST 429.60		S 41°26'47.3° E DIST 73.11	
RR SPIKE IN BASE 15 INCH OAK		CHISELED SQUARE IN CORNER CONC DROP	
		INLET	

BY2	POINT	DESC.	NORTH	EAST	ELEVATION	Y3 STATION	OFFSET
122	BY1-22		567754.7550	1347225.1050	739.15	10+52.19	27.58 LT
23	BY2-23		567592.3100	1347933.2580	729.44	17+78.58	1.34 RT

BY3	POINT	DESC.	NORTH	EAST	ELEVATION	Y4 STATION	OFFSET
25	BY1-25		566655.0740	1347012.3300	728.57	14+31.89	19.42 LT
26	BY1-26		566493.4550	1347215.8710	731.85	OUTSIDE PROJECT LIMITS	
28	BY3-28		566175.7940	1347404.6200	713.55	OUTSIDE PROJECT LIMITS	
33	BY3-33		565863.2670	1347568.2870	709.29	OUTSIDE PROJECT LIMITS	
34	BY3-34		565723.9900	1347974.4380	754.65	OUTSIDE PROJECT LIMITS	

BY4	POINT	DESC.	NORTH	EAST	ELEVATION	Y1 STATION	OFFSET
125	BY1-25		566655.0740	1347012.3300	728.57	23+02.38	141.34 RT
2	MA013R-2		566012.4270	1346857.1430	769.70	29+47.23	287.13 RT

NOTE: DRAWING NOT TO SCALE

SURVEY CONTROL SHEET

-Preliminary-

PROJECT REFERENCE NO.	SHEET NO.
I-5000	1C-2
Location and Surveys	

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NGS FOR MONUMENT "P222"

WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 564112.540(±) EASTING: 1347033.150(±)
ELEVATION: 727.863(±)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999842

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "P222" TO -Y1- STATION 11+00.00 IS
N 2°06'45.3" E 3745.271

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

L			
TYPE	STATION	NORTH	EAST
POT	10+00.00	566253.1447	1344051.3364
PC	10+00.00	566253.1447	1344051.3357
PT	33+53.36	565736.8248	1346330.4360
TS	50+67.25	565025.2319	1347889.6159
SC	53+67.25	564907.8928	1348165.6271
CS	66+37.15	564886.5089	1349412.0847
ST	69+37.15	564994.3113	1349691.9584
POT	74+92.39	565207.3797	1350204.6865

RPA			
TYPE	STATION	NORTH	EAST
POT	10+00.00	565001.2295	1348054.6714
TS	11+18.17	565055.3037	1347949.6025
SC	13+18.17	565149.6944	1347773.3018
PT	14+24.95	565205.5111	1347682.2881
PC	15+61.95	565280.1508	1347567.4060
PT	21+56.71	565794.8911	1347342.7507
POT	23+41.77	565977.2337	1347374.3476

RPB			
TYPE	STATION	NORTH	EAST
POT	10+00.00	565916.6792	1346354.2815
POT	17+88.54	565907.2331	1347142.7635

RPC			
TYPE	STATION	NORTH	EAST
POT	10+00.00	565242.3772	1346650.8800
TS	10+00.00	565242.3748	1346650.8813
SC	11+50.00	565119.2960	1346735.3698
CS	12+42.41	565071.3724	1346813.6502
ST	13+92.41	565052.0979	1346961.6880
POT	15+60.98	565048.6447	1347130.2244

RPD			
TYPE	STATION	NORTH	EAST
POT	10+00.00	564823.5440	1348279.3864
TS	11+00.00	564851.1897	1348183.2838
SC	13+50.00	564909.8269	1347940.4494
PRC	16+50.60	564908.2761	1347641.0648
PT	21+98.95	565222.8039	1347276.7833
PC	22+74.38	565298.2263	1347277.8848
PT	27+45.31	565766.6340	1347321.6158
PC	30+61.83	566078.5038	1347375.6576
PT	33+71.71	566367.4138	1347295.3523
POT	35+90.81	566533.0264	1347151.9028

Y1			
TYPE	STATION	NORTH	EAST
POT	10+00.00	567955.2547	1347172.6734
POT	54+01.28	563554.4440	1347108.4027

Y2			
TYPE	STATION	NORTH	EAST
POT	10+00.00	568010.0163	1348792.1423
PC	11+39.88	567893.7974	1348714.3011
PRC	20+73.11	567011.0763	1348461.3497
PRC	26+53.73	566470.3956	1348284.2599
PT	35+04.99	565666.7653	1348105.1297
POT	45+74.81	564624.2446	1348345.2763

Y3			
TYPE	STATION	NORTH	EAST
POT	10+00.00	567735.0682	1347169.4577
PC	14+84.70	567664.4840	1347648.9880
PT	18+08.79	567583.1485	1347962.0619
POT	23+79.29	567380.9999	1348495.5374

Y4			
TYPE	STATION	NORTH	EAST
POT	10+00.00	566927.7904	1346705.2820
PC	10+29.55	566899.0745	1346712.2724
PCC	11+79.89	566773.7572	1346790.6051
PT	13+14.38	566697.0238	1346900.8595
POT	16+04.60	566551.8744	1347152.1780

Y4A			
TYPE	STATION	NORTH	EAST
POT	10+00.00	565804.2277	1347754.7832
PC	12+49.29	565704.5130	1347983.2650
PT	13+39.42	565683.9677	1348070.5236
POT	13+70.61	565682.3785	1348101.6706

Y5			
TYPE	STATION	NORTH	EAST
POT	10+00.00	567756.8586	1347029.8913
POT	11+39.87	567754.8161	1347169.7461

Y6			
TYPE	STATION	NORTH	EAST
POT	10+00.00	567395.1304	1346939.4692
POT	12+25.00	567391.8448	1347164.4452

Y7			
TYPE	STATION	NORTH	EAST
POT	10+00.00	567010.0015	1346933.8447
POT	12+25.00	567006.7159	1347158.8207

Y8			
TYPE	STATION	NORTH	EAST
POT	10+00.00	564569.2566	1346923.2020
POT	12+00.20	564557.4370	1347123.0507

LOOP_B			
TYPE	STATION	NORTH	EAST
TS	0+00.00	565533.3025	1346887.1685
SC	1+50.00	565615.3100	1346763.3364
PT	2+84.08	565741.4115	1346731.1149
PC	2+91.72	565748.9401	1346732.4155
PT	4+61.18	565856.2561	1346848.0031
PC	4+61.18	565856.2561	1346848.0031
PT	5+58.34	565860.3777	1346945.0306
POT	7+55.37	565858.0174	1347142.0448

LOOP_C			
TYPE	STATION	NORTH	EAST
TS	0+00.00	565376.5294	1347009.0920
SC	1+50.00	565416.3419	1346866.0026
PT	4+04.65	565245.8405	1346714.1183
PC	4+04.65	565245.8405	1346714.1183
CS	5+65.82	565116.5964	1346798.5405
ST	7+15.82	565091.2666	1346944.8895
POT	9+01.76	565088.5524	1347130.8073

TRAIL			
TYPE	STATION	NORTH	EAST
POT	10+00.00	564234.6491	1347315.0378
PC	10+15.75	564250.1382	1347312.1830
PT	12+56.58	564488.9387	1347282.0316
PC	15+88.21	564819.7862	1347259.1893
PT	16+80.41	564910.6639	1347244.4178
PC	17+74.64	565001.8822	1347220.8017
PT	19+11.36	565137.2504	1347204.9438
PC	23+10.67	565536.4853	1347212.9713
PRC	24+82.25	565706.3464	1347234.7190
PT	26+21.82	565844.2284	1347255.1834
PC	29+05.39	566127.2844	1347272.2194
PT	29+75.57	566173.9948	1347316.7915
PC	31+61.46	566193.8380	1347501.6120
PT	32+34.38	566226.2412	1347565.1500
PC	33+06.13	566279.4865	1347613.2385
PT	33+67.07	566313.1800	1347663.2901
PC	33+98.77	566324.0128	1347693.0829
PT	34+42.47	566347.3091	1347729.6484
PC	38+99.10	566670.3168	1348052.4123
PT	40+48.61	566804.1951	1348110.7972
PC	42+95.94	567051.3498	1348120.0593
PT	43+32.23	567086.5758	1348127.8953
PC	44+14.08	567161.9594	1348159.7950
PRC	45+09.61	567242.5800	1348210.2875
PT	46+08.45	567326.2527	1348262.0518
POT	48+34.91	567535.7642	1348347.9996

NOTES: SEE SHEET 1C-1

01/21/16

SURVEY CONTROL SHEET

-Preliminary-

PROJECT REFERENCE NO.	SHEET NO.
I-5000	1C-3
Location and Surveys	

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

ROW MARKER CONCRETE OR GRANITE				
ALIGN	STATION	OFFSET	NORTH	EAST
Y1	13+29.00	-72.29	567625.2341	1347240.1553
Y1	24+80.00	77.21	566476.5400	1347073.8594
Y1	44+35.00	-74.66	564519.5307	1347197.1661

ROW MARKER CONCRETE OR GRANITE				
ALIGN	STATION	OFFSET	NORTH	EAST
Y2	10+50.00	-30.00	567951.7789	1348789.2434
Y2	10+50.00	-16.00	567959.5697	1348777.6115
Y2	10+50.00	16.00	567977.3774	1348751.0242
Y2	10+50.00	30.00	567985.1683	1348739.3922
Y2	11+39.88	30.00	567910.4921	1348689.3754
Y2	11+39.88	-30.00	567877.1027	1348739.2267
Y2	14+07.26	30.00	567671.6047	1348558.5510
Y2	15+40.00	37.36	567547.6354	1348502.9206
Y2	18+00.00	60.00	567292.3009	1348418.1166
Y2	20+03.30	30.00	567081.3088	1348430.7437
Y2	20+73.11	30.00	567010.1166	1348431.3650
Y2	20+77.00	-30.01	567008.0048	1348491.4689
Y2	25+31.70	-30.00	566556.7212	1348378.3328
Y2	26+53.73	30.00	566488.9082	1348260.6531
Y2	26+53.73	16.05	566480.2999	1348271.6302
Y2	26+53.73	-15.95	566460.5531	1348296.8109
Y2	26+53.73	-30.00	566451.8830	1348307.8668

ROW MARKER CONCRETE OR GRANITE				
ALIGN	STATION	OFFSET	NORTH	EAST
Y3	10+64.36	-64.21	567789.2176	1347242.4795
Y3	11+00.00	-37.00	567757.1112	1347273.7798
Y3	12+00.00	98.00	567608.9878	1347353.0544
Y3	12+00.00	30.00	567676.2629	1347362.9569
Y3	14+00.00	-37.00	567713.4236	1347503.5818
Y3	14+00.00	-30.00	567706.4982	1347569.5624
Y3	14+84.70	30.00	567634.8038	1347644.6192
Y3	14+84.70	-30.00	567694.1642	1347653.3568
Y3	16+64.62	-30.00	567656.6270	1347832.8845
Y3	18+08.79	30.00	567555.0950	1347951.4316
Y3	18+08.79	-51.42	567631.2335	1347980.2826
Y3	20+00.00	30.00	567487.3428	1348130.2315
Y3	20+12.87	-87.90	567593.0350	1348184.0450

ROW MARKER CONCRETE OR GRANITE				
ALIGN	STATION	OFFSET	NORTH	EAST
Y4	15+08.54	55.31	566552.0230	1347041.3324

ROW MARKER CONCRETE OR GRANITE				
ALIGN	STATION	OFFSET	NORTH	EAST
TRAIL	12+90.12	-48.83	564519.0365	1347231.0032
TRAIL	14+50.00	50.38	564685.3738	1347318.9646
TRAIL	14+50.00	-49.83	564678.4720	1347218.9990
TRAIL	16+24.39	51.10	564862.9516	1347305.9805
TRAIL	16+87.96	60.98	564933.2562	1347301.5571
TRAIL	31+02.00	-29.06	566216.3847	1347439.3955
TRAIL	31+17.46	53.51	566135.9383	1347463.5767
TRAIL	31+74.32	62.16	566135.5881	1347528.7897
TRAIL	31+94.83	-32.02	566231.7838	1347519.9366
TRAIL	46+03.26	19.86	567313.6118	1348278.2771
TRAIL	46+05.06	69.81	567295.8947	1348325.0329
TRAIL	46+41.54	-31.26	567368.7335	1348245.6950

ROW MARKER CONCRETE OR GRANITE				
ALIGN	STATION	OFFSET	NORTH	EAST
RPA	13+16.16	105.73	565240.2851	1347827.8592
RPA	14+24.94	105.00	565293.5592	1347739.4940
RPA	15+61.94	105.00	565368.1988	1347624.6118
RPA	15+61.95	135.00	565393.3555	1347640.9563
RPA	19+00.00	50.00	565557.9824	1347410.3477
RPA	19+00.00	135.00	565585.6687	1347490.7124
RPA	21+56.71	50.00	565786.3539	1347392.0165
RPA	23+39.19	50.00	565966.1545	1347423.1729

ROW MARKER CONCRETE OR GRANITE				
ALIGN	STATION	OFFSET	NORTH	EAST
RPD	13+28.60	-50.00	564857.1258	1347953.0200
RPD	13+50.00	-50.00	564860.3927	1347932.9492
RPD	16+50.60	-50.00	564858.9222	1347649.0768
RPD	18+00.00	-50.00	564872.1125	1347478.0266
RPD	18+00.00	-92.00	564832.1772	1347465.0201
RPD	33+71.58	65.86	566410.4202	1347345.2370
RPD	35+55.35	65.86	566549.3421	1347224.9064

PERMANENT EASEMENT MARKER IRON PIN & CAP				
ALIGN	STATION	OFFSET	NORTH	EAST
Y1	20+15.00	-95.00	566938.9757	1347252.8415
Y1	20+15.00	-72.59	566939.3029	1347230.4334
Y1	20+50.00	-95.00	566903.9794	1347252.3304
Y1	20+75.00	-72.62	566879.3090	1347229.5831
Y1	23+82.00	-72.75	566572.3398	1347225.2323

PERMANENT EASEMENT MARKER IRON PIN & CAP				
ALIGN	STATION	OFFSET	NORTH	EAST
Y2	10+95.00	148.00	568013.4457	1348616.3093
Y2	11+07.00	173.00	568017.3878	1348588.8601
Y2	11+34.00	-48.00	567871.9703	1348757.4536
Y2	11+58.00	30.00	567895.0732	1348679.1825
Y2	11+60.00	-55.00	567847.0138	1348749.3197
Y2	11+74.00	109.00	567923.8161	1348603.7177
Y2	11+88.00	30.00	567869.2797	1348662.7197
Y2	11+88.00	137.00	567925.9420	1348571.9541
Y2	11+92.00	144.00	567925.9270	1348563.6996
Y2	11+97.00	128.00	567912.8746	1348574.4408
Y2	12+01.00	140.00	567915.4414	1348561.9349
Y2	12+03.00	105.00	567895.3392	1348590.6678
Y2	12+24.00	-30.00	567807.3580	1348695.2945
Y2	12+92.00	30.00	567777.4200	1348609.7078
Y2	13+05.00	68.00	567783.2358	1348569.8283
Y2	13+10.00	87.00	567787.3148	1348550.5407
Y2	13+79.00	72.00	567715.4422	1348532.1743
Y2	14+00.00	-30.00	567654.0929	1348616.3954
Y2	14+07.26	65.00	567685.6136	1348526.4769
Y2	14+31.00	-30.00	567626.1880	1348604.3860
Y2	14+38.00	-112.00	567588.5707	1348677.5527
Y2	14+65.00	-102.00	567569.0395	1348658.9190
Y2	18+50.00	59.06	567240.6563	1348412.1300
Y2	20+73.11	60.00	567009.1569	1348401.3804
Y2	22+53.00	85.00	566847.5987	1348364.1546
Y2	22+61.04	60.00	566835.6976	1348387.3326
Y2	22+70.00	30.00	566821.4582	1348415.0646
Y2	22+80.00	85.00	566823.8389	1348359.3340
Y2	22+87.09	60.00	566812.0506	1348382.3109
Y2	22+95.00	30.00	566797.9370	1348409.8201
Y2	26+53.73	60.00	566507.4208	1348237.0462
Y2	28+15.00	16.04	566343.3506	1348181.7987

PERMANENT EASEMENT MARKER IRON PIN & CAP				
ALIGN	STATION	OFFSET	NORTH	EAST
Y4	13+22.20	-31.93	566720.7603	1346923.5977
Y4	14+33.12	-74.38	566702.0456	1347040.8850

PERMANENT EASEMENT MARKER IRON PIN & CAP				
ALIGN	STATION	OFFSET	NORTH	EAST
Y3	11+70.00	-77.00	567786.4910	1347348.8586
Y3	11+70.00	-37.00	567746.9174	1347343.0336
Y3	12+00.00	57.00	567649.5507	1347359.0250
Y3	13+65.00	-77.00	567758.0941	1347541.7799
Y3	13+65.00	-37.00	567718.5205	1347535.9549
Y3	16+00.00	75.00	567570.1847	1347745.7165
Y3	19+67.00	81.00	567451.3452	1348081.3012
Y3	20+40.00	48.67	567455.7137	1348161.0217
Y3	21+25.00	-113.07	567576.8369	1348297.8164
Y3	21+29.00	-170.00	567628.6560	1348321.7297
Y3	21+43.00	-170.00	567623.6953	1348334.8213
Y3	21+57.00	-120.25	567572.2142	1348330.2851

PERMANENT EASEMENT MARKER IRON PIN & CAP				
ALIGN	STATION	OFFSET	NORTH	EAST
Y4A	10+75.00	-50.00	565820.0544	1347843.5217
Y4A	10+75.00	-30.00	565801.7224	1347835.5212
Y4A	11+00.00	-50.00	565810.0546	1347866.4347
Y4A	11+00.00	-30.00	565791.7225	1347858.4341

PERMANENT EASEMENT MARKER IRON PIN & CAP				
ALIGN	STATION	OFFSET	NORTH	EAST
Y5	10+09.87	28.31	567728.4081	1347039.3466
Y5	10+61.58	70.54	567685.4268	1347090.4368

PERMANENT EASEMENT MARKER IRON PIN & CAP				
ALIGN	STATION	OFFSET	NORTH	EAST
RPA	19+00.00	92.00	565571.6627	1347450.0572
RPA	20+05.00	50.00	565650.0567	1347388.9024
RPA	20+05.00	92.00	565655.3302	1347430.5701
RPA	20+41.00	50.00	565682.3874	1347385.9653
RPA	20+41.00	92.00	565684.7089	1347427.9011
RPA	21+56.71	92.00	565779.1831	1347433.3998
RPA	21+74.00	50.00	565803.3897	1347394.9685
RPA	21+74.00	92.00	565796.2186	1347436.3518
RPA	22+05.00	50.00	565833.9345	1347400.2614
RPA	22+05.00	92.00	565826.7634	1347441.6447
RPA	22+96.06	92.00	565916.4820	1347457.1914

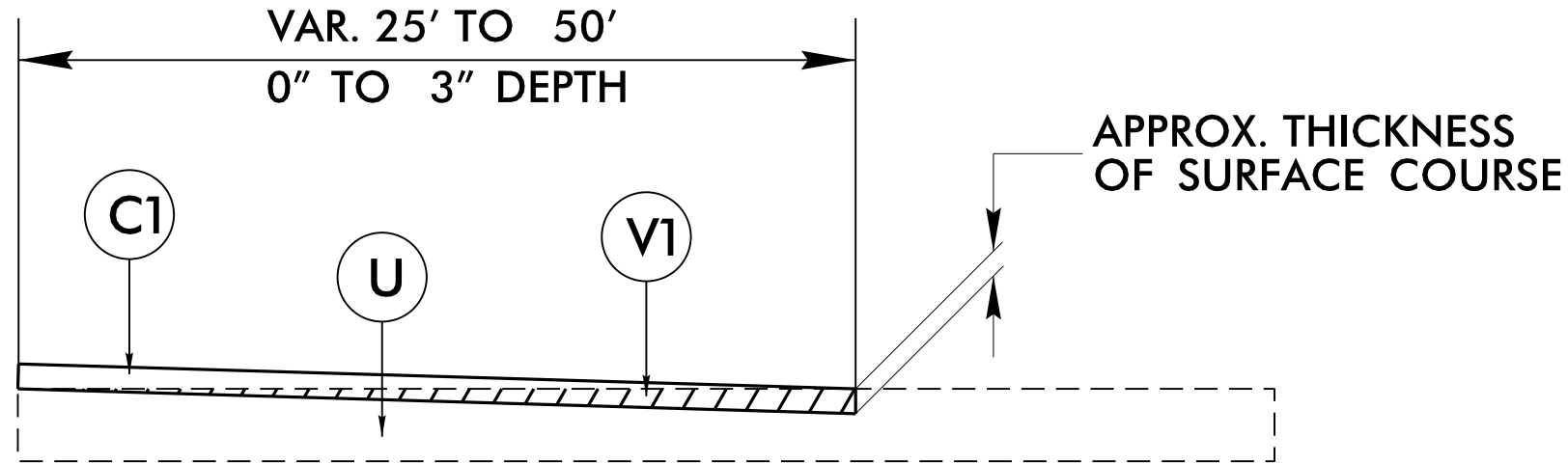
PERMANENT EASEMENT MARKER IRON PIN & CAP				
ALIGN	STATION	OFFSET	NORTH	EAST
RPD	29+81.00	125.17	565977.4927	1347485.1886
RPD	33+20.00	66.00	566361.3671	1347381.9097
RPD	33+20.00	111.00	566385.5011	1347419.8907
RPD	33+55.00	125.00	566431.7610	1347404.2718
RPD	34+35.00	111.00	566487.9245	1347337.8191
RPD	34+40.00	66.00	566462.2415	1347300.5312
RPD	34+50.00	81.00	566479.6210	1347305.3221

PERMANENT EASEMENT MARKER IRON PIN & CAP				
ALIGN	STATION	OFFSET	NORTH	EAST
TRAIL	31+44.48	-55.01	566246.7177	1347478.8576
TRAIL	31+55.82	-33.48	566226.5255	1347492.4348
TRAIL	31+83.20	10.90	566188.1500	1347526.2918
TRAIL	32+22.55	54.33	566177.0312	1347592.4604
TRAIL	32+27.68	8.29	566215.4698	1347566.2593
TRAIL	33+65.00	-14.41	566325.9141	1347656.2058
TRAIL	33+65.00	-53.00	566361.9603	1347642.4199
TRAIL	34+17.01	37.63	566299.3270	1347728.6179
TRAIL	34+42.00	82.00	566288.7417	1347787.0441
TRAIL	34+45.00	16.99	566337.0875	1347743.4539
TRAIL	34+60.00	-50.00	566395.0497	1347706.6690
TRAIL	34+60.00	-13.01	566368.9072	1347732.8313
TRAIL	34+82.00	70.00	566325.7912	1347807.1044
TRAIL	36+65.00	17.06	566492.6618	1

6/2/99

PAVEMENT SCHEDULE			
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.	J	PROP. 6" AGGREGATE BASE COURSE.
C2	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	P	PRIME COAT AT A RATE OF 0.35 GAL. 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 TO EXCEED 2" IN DEPTH.	R1	2'-6" CONCRETE CURB AND GUTTER (STD. 846.01)
C4	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R2	CONCRETE EXPRESSWAY GUTTER (STD. 846.01)
C5	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R3	5" MONOLITHIC CONCRETE ISLAND (KEYED IN) (STD. 852.01)
C6	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.	R4	DOUBLE FACED CONCRETE BARRIER TYP T, T1 AND T2 (STD. 854.02)
C7	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	R5	CONCRETE SHOULDER BERM GUTTER (STD. 846.01)
C8	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	T	EARTH MATERIAL
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	U	EXISTING PAVEMENT
D2	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 2½" IN DEPTH OR GREATER THAN 4" IN DEPTH.	V1	VARIABLE DEPTH MILLING BITUMINOUS PAVEMENT (SEE DETAIL BELOW)
D3	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	V2	MILLING BITUMINOUS PAVEMENT, 1½" DEPTH
D4	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0D, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	V3	MILLING BITUMINOUS PAVEMENT, 3" DEPTH
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL BELOW)
E2	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 4" IN DEPTH OR GREATER THAN 5½" IN DEPTH.	NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.	
E3	PROP. APPROX. 8" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.		
E5	PROP. APPROX. 14" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 532 LBS. PER SQ. YD. IN EACH OF THREE LAYERS.		

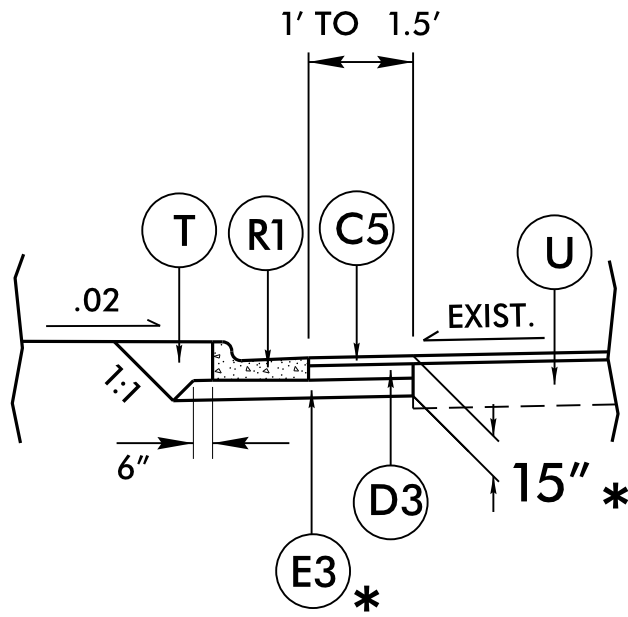
PROJECT REFERENCE NO.		SHEET NO.
1-5000		2A-1
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER	



NOTE: A TEMPORARY ASPHALT WEDGE WILL BE REQUIRED IMMEDIATELY AFTER MILLING TO ENSURE SMOOTH TRAVEL IF THE FINAL LAYER OF SURFACE COURSE IS NOT PLACED ON THE SAME DAY AS MILLING.

VARIABLE DEPTH MILLING DETAIL

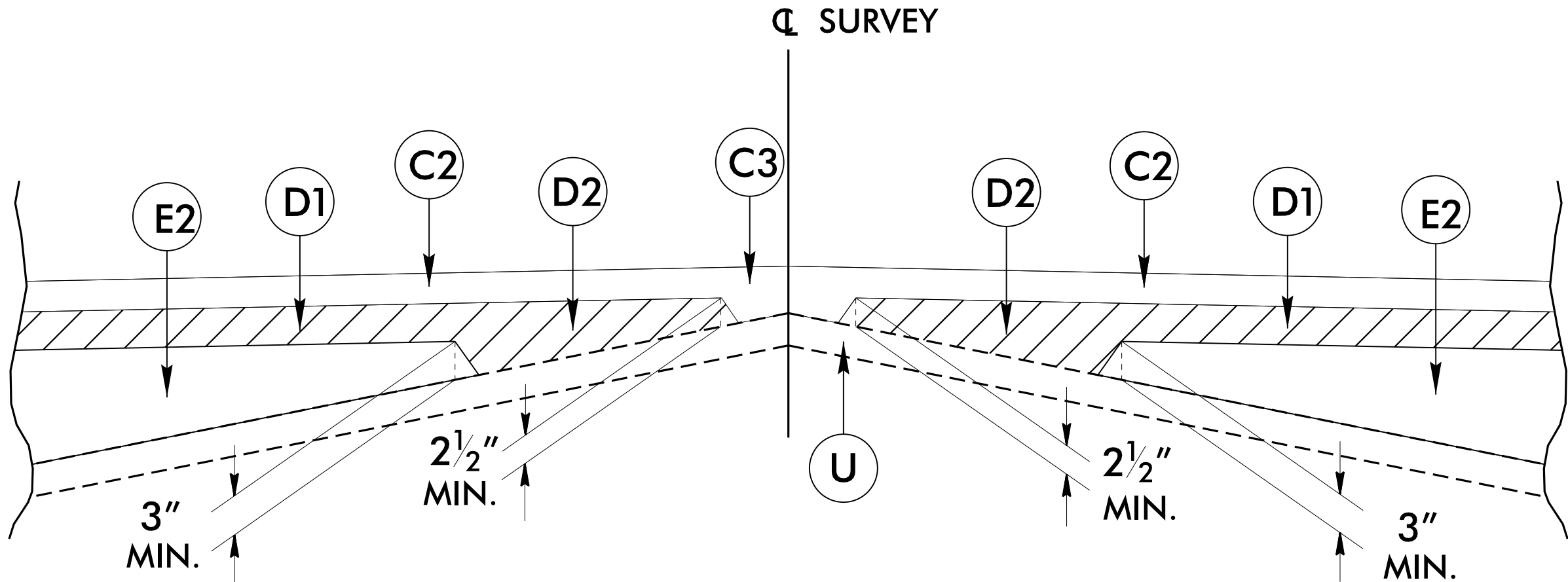
USE MILLING DETAIL AT RESURFACING TIES



* USE E3 ON -LPB-, TOTAL THICKNESS = 15"

NARROW WIDENING DETAIL

USE NARROW WIDENING DETAIL FOR CURB AND GUTTER REPLACEMENT (MIRROR FOR RIGHT SIDE APPLICATION)

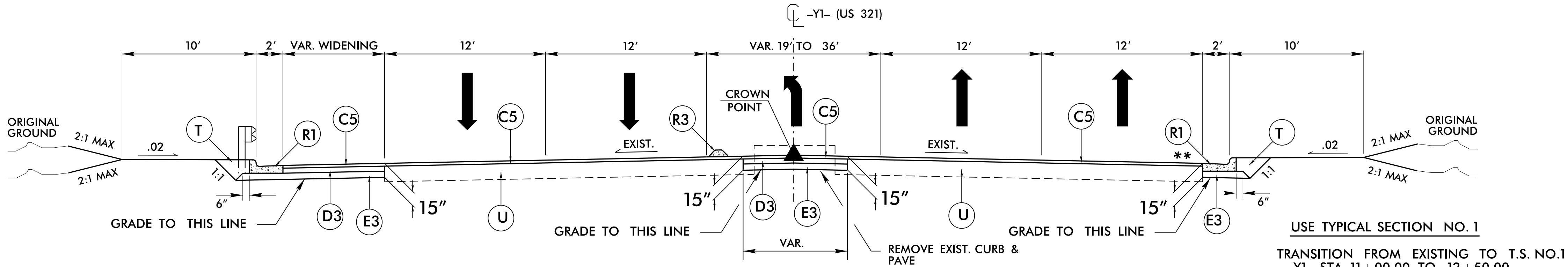


DETAIL SHOWING METHOD OF WEDGING

PROJECT REFERENCE NO.	SHEET NO.
I-5000	2A-2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

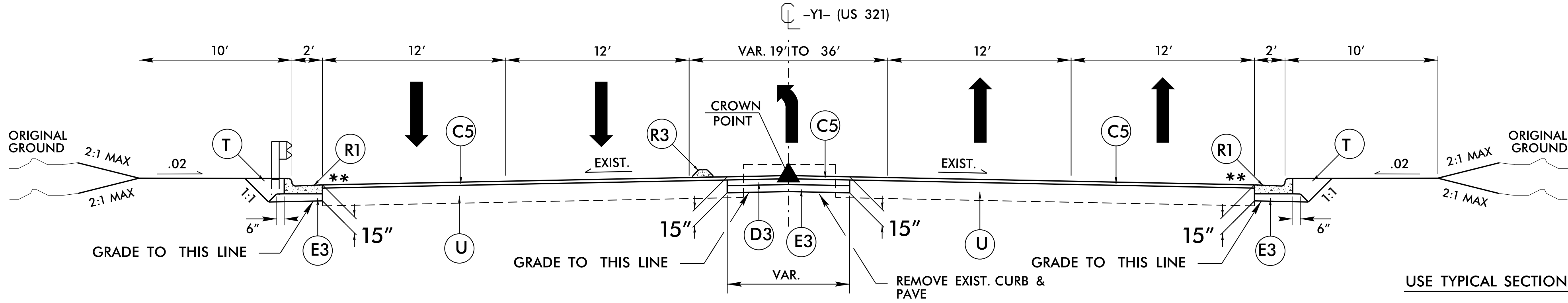
PAVEMENT SCHEDULE	
C4	1½" S9.5C
C5	3" S9.5C
D3	4" I19.0C
E3	8" B25.0C
R1	2'-6" C & G
R3	MONOLITHIC ISLAND
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V2	MILLING - 1½"



TYPICAL SECTION NO. 1

NOTES: SEE PLANS FOR PROPOSED GUARDRAIL, ISLAND, AND TURN LANE LOCATIONS
** SEE NARROW WIDENING DETAIL ON SHEET 2A-01

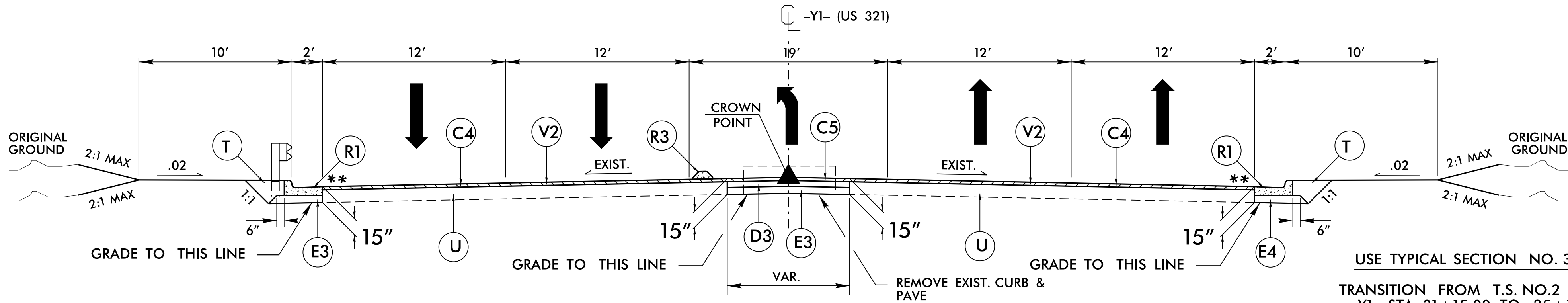
USE TYPICAL SECTION NO. 1
TRANSITION FROM EXISTING TO T.S. NO.1
-Y1- STA. 11+00.00 TO 12+50.00
-Y1- STA. 12+50.00 TO 16+50.00
-Y1- STA. 24+00.00 TO 28+30.00
-Y1- STA. 30+50.00 TO 31+15.00 (MIRROR)



TYPICAL SECTION NO. 2

NOTES: SEE PLANS FOR PROPOSED GUARDRAIL, ISLAND, AND TURN LANE LOCATIONS
** SEE NARROW WIDENING DETAIL ON SHEET 2A-01

USE TYPICAL SECTION NO. 2
-Y1- STA. 16+50.00 TO 24+00.00
-Y1- STA. 28+30.00 TO 30+50.00



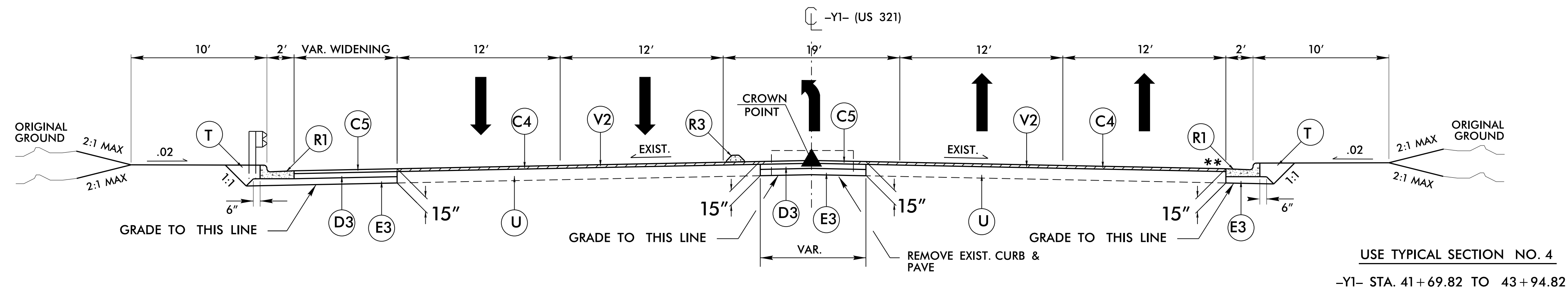
TYPICAL SECTION NO. 3

NOTES: SEE PLANS FOR PROPOSED GUARDRAIL, ISLAND, AND TURN LANE LOCATIONS
** SEE NARROW WIDENING DETAIL ON SHEET 2A-01

USE TYPICAL SECTION NO. 3
TRANSITION FROM T.S. NO.2 TO T.S. NO.3
-Y1- STA. 31+15.00 TO 35+15.00
-Y1- STA. 35+15.00 TO 41+69.82
-Y1- STA. 43+94.82 TO 45+00.00

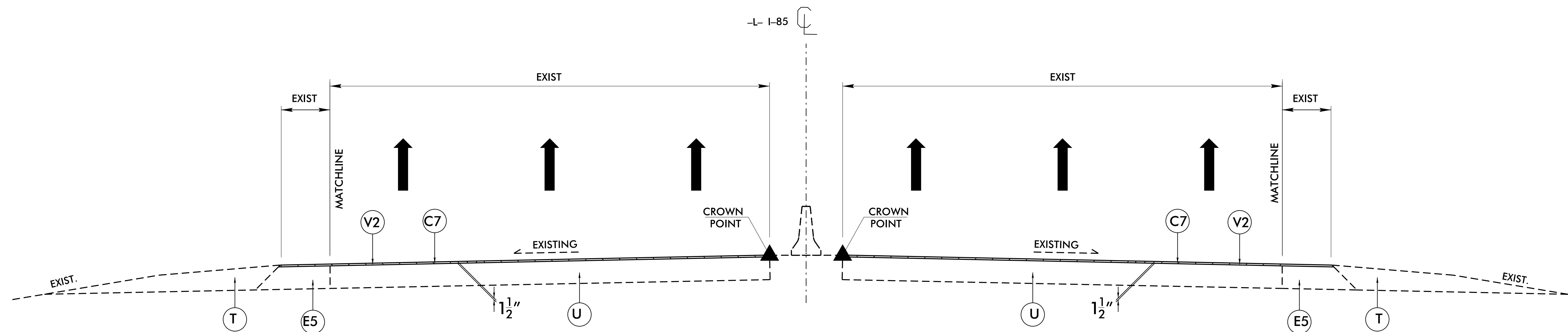
**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

PAVEMENT SCHEDULE	
C4	1½" S9.5C
C5	3" S9.5C
C7	1½" S9.5D
C8	3" S9.5D
D3	4" I19.0C
D4	4" I19.0D
E3	8" B25.0C
E5	14" B25.0C
R1	2'-6" C & G
R3	MONOLITHIC ISLAND
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V2	MILLING - 1½"



TYPICAL SECTION NO. 4

NOTES: SEE PLANS FOR PROPOSED GUARDRAIL, ISLAND, AND TURN LANE LOCATIONS
 ** SEE NARROW WIDENING DETAIL ON SHEET 2A-01



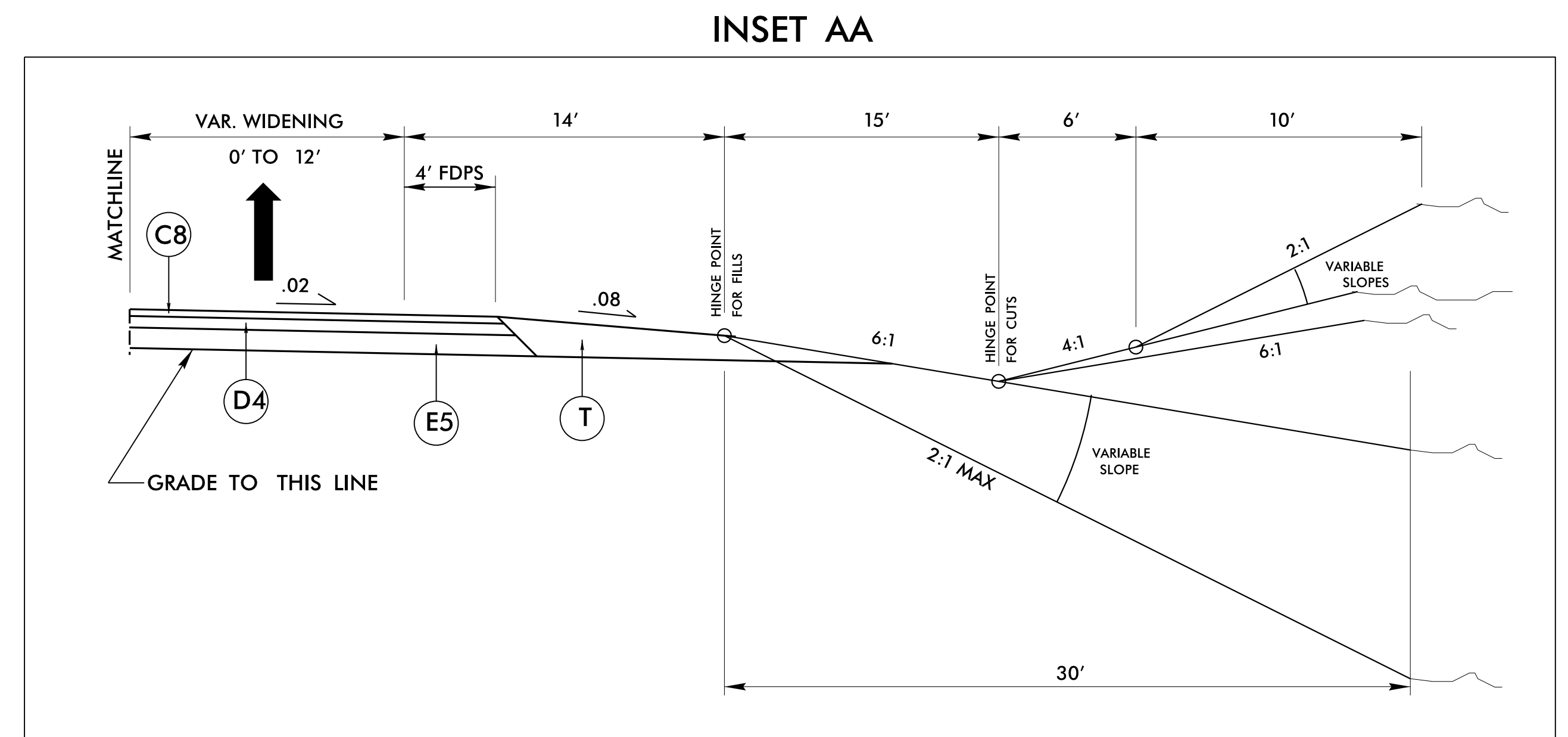
TYPICAL SECTION NO. 5

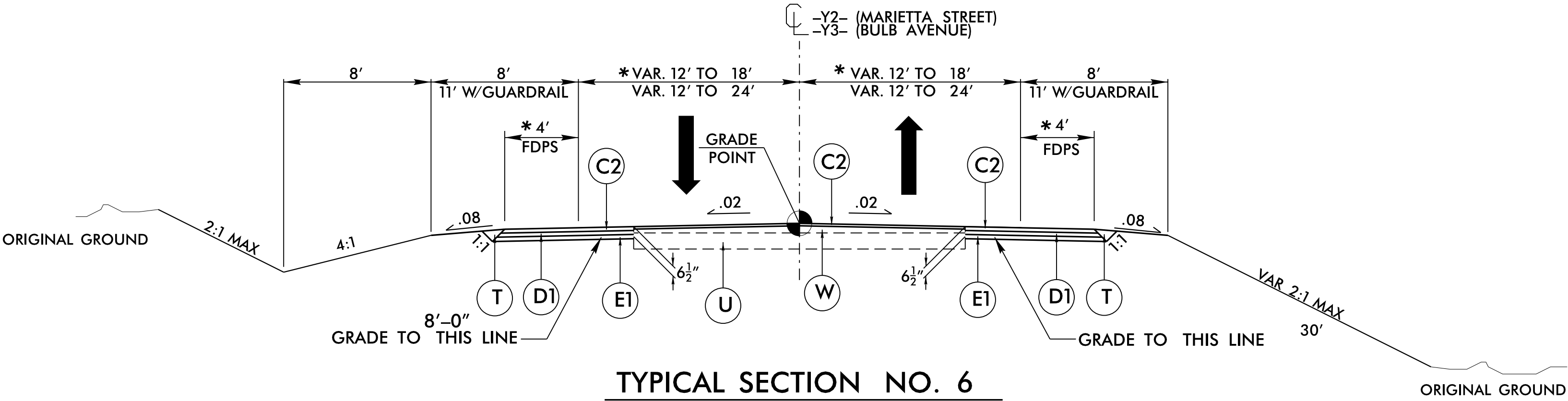
```

-L- STA. 44+79.50 TO 50+67.25 RT
USE INSET AA -L- STA. 50+67.25 TO 68+00.00 RT
-L- STA. 68+00.00 TO 71+00.00 RT

-L- STA. 44+71.12 TO 47+49.71 LT
USE INSET AA (MIRROR) -L- STA. 47+49.71 TO 53+60.92 LT
-L- STA. 53+60.92 TO 58+10.00 LT

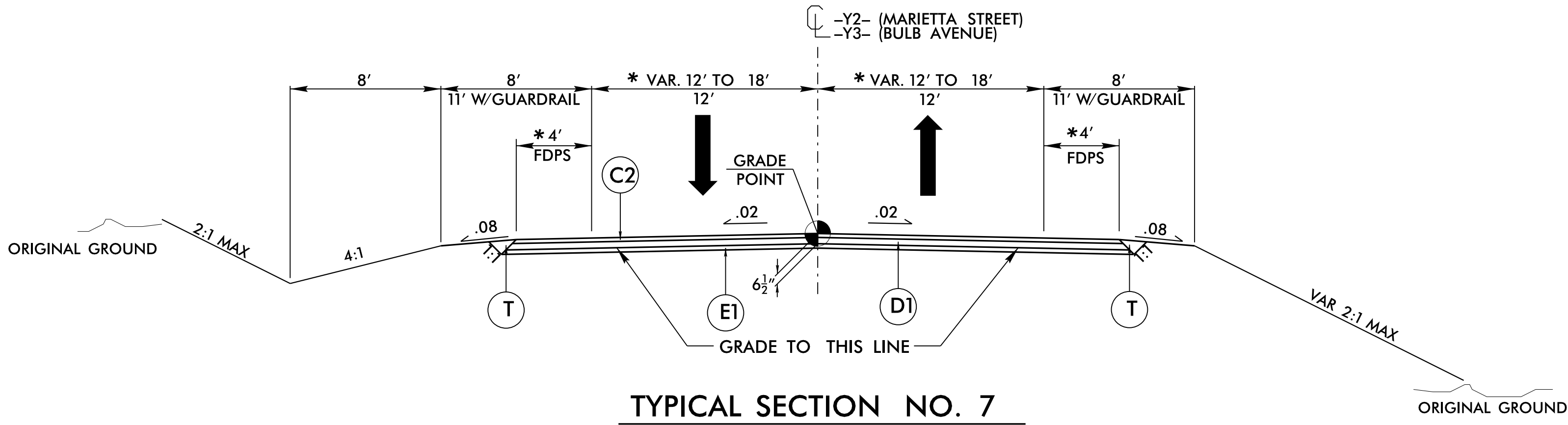
```





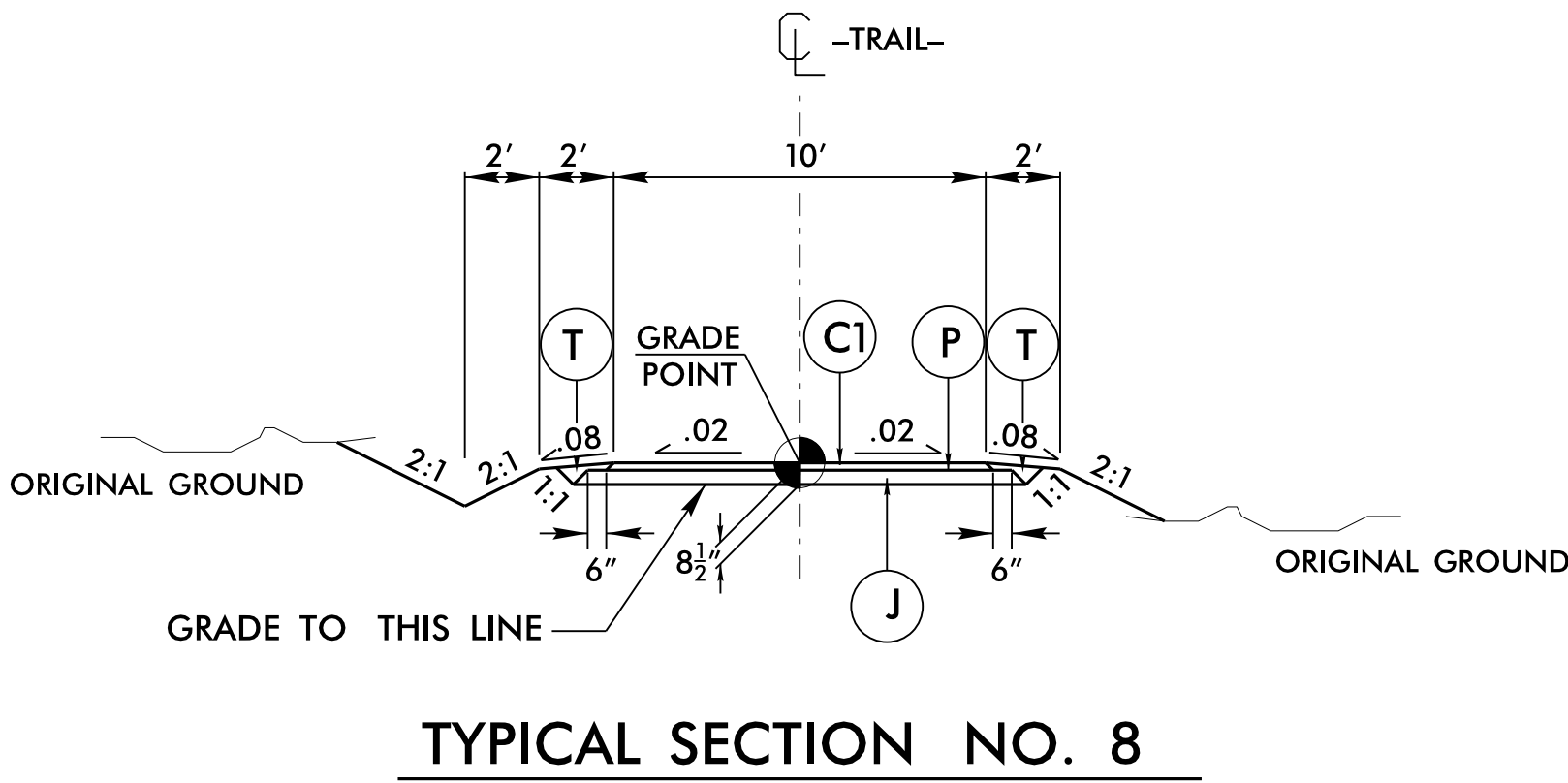
USE TYPICAL SECTION NO. 6

* -Y2- STA. 10+50.00 TO 16+50.00
* -Y2- STA. 19+50.00 TO 21+50.00
* -Y2- STA. 25+00.00 TO 26+53.73
* -Y3- STA. 10+45.00 TO 17+50.00



USE TYPICAL SECTION NO. 7

* -Y2- STA. 16+50.00 TO 19+50.00
* -Y2- STA. 21+50.00 TO 25+00.00
* -Y3- STA. 17+50.00 TO 23+61.09



USE TYPICAL SECTION NO. 8

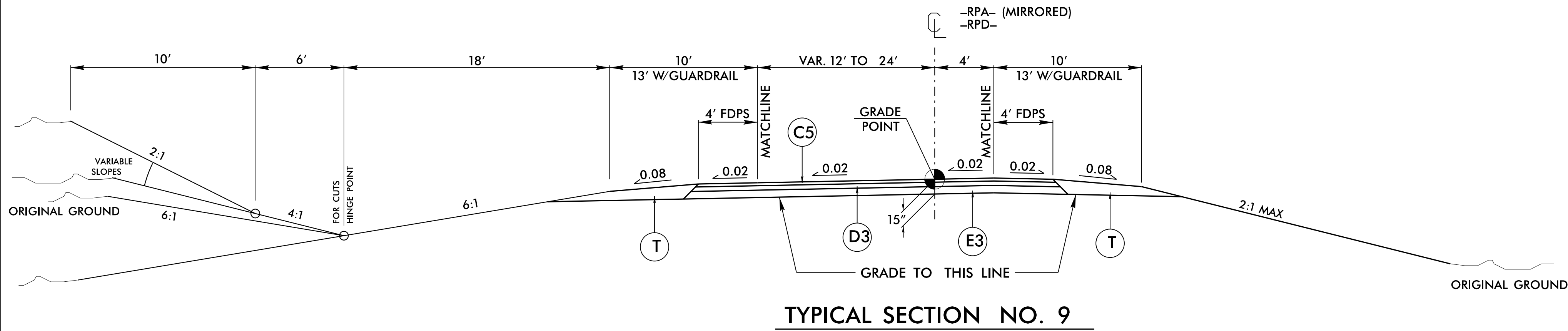
-TRAIL- STA 14+50.00 TO 47+89.65

PROJECT REFERENCE NO.		SHEET NO.	
1-5000		2A-4	
ROADWAY DESIGN ENGINEER		PAVEMENT DESIGN ENGINEER	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			
PAVEMENT SCHEDULE			
C1	1 1/2" SF9.5A		
C2	2" SF9.5B		
D1	2 1/2" I19.0B		
E1	4" B25.0B		
J	6" ABC		
P	PRIME COAT		
T	EARTH MATERIAL		
U	EXISTING PAVEMENT		
W	WEDGING		

PROJECT REFERENCE NO.	SHEET NO.
1-5000	2A-5
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

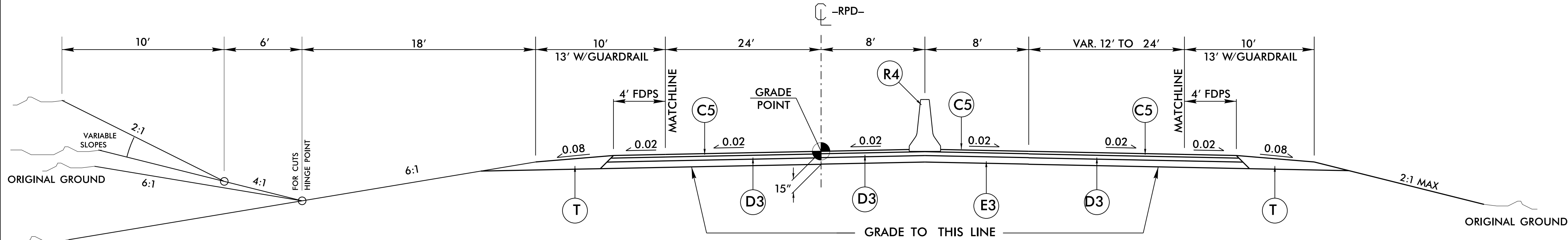
PAVEMENT SCHEDULE	
C5	3" S9.5C
D3	4" I19.0C
E3	8" B25.0C
R2	EXPRESSWAY GUTTER
R4	DOUBLE FACED BARRIER
R5	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT



TYPICAL SECTION NO. 9

USE TYPICAL SECTION NO. 9

-RPA- STA. 10+00.00 TO 23+41.77 (MIRROR)
-RPD- STA. 10+00.00 TO 29+61.82
USE INSET A -RPD- STA. 22+00.00 TO 33+84.02 LT
USE INSET B -RPD- STA. 26+50.00 TO 27+76.76
USE INSET C -RPD- STA. 27+76.76 TO 29+61.82
USE INSET D -RPA- STA. 12+00.00 TO 22+50.00 RT
USE INSET D -RPD- STA. 18+00.00 TO 20+50.00 RT

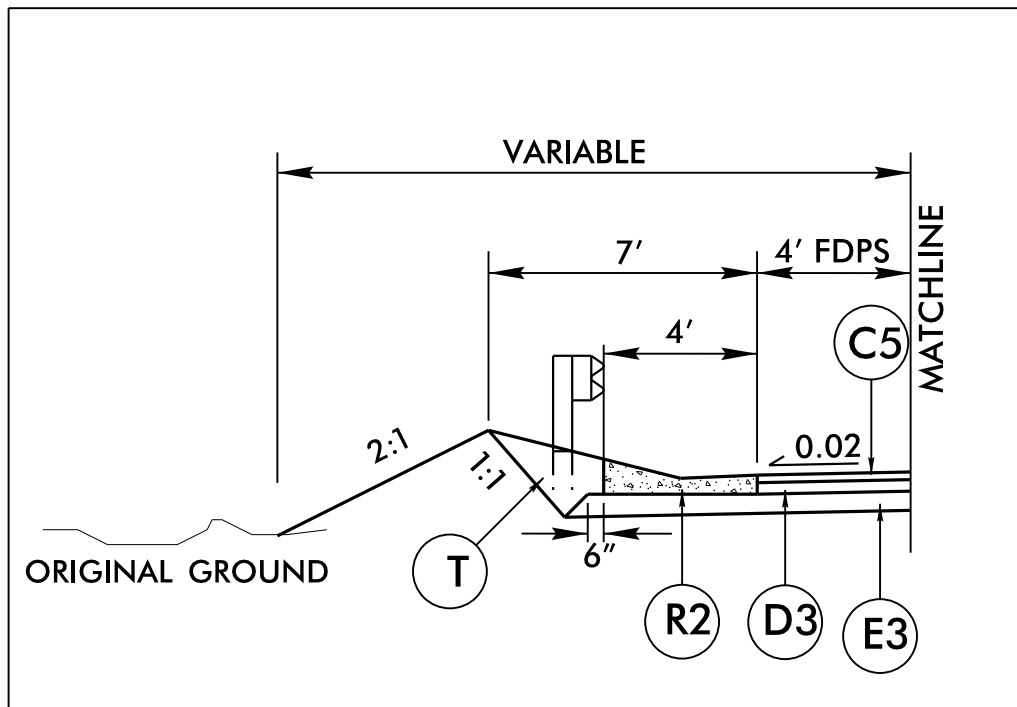


TYPICAL SECTION NO. 10

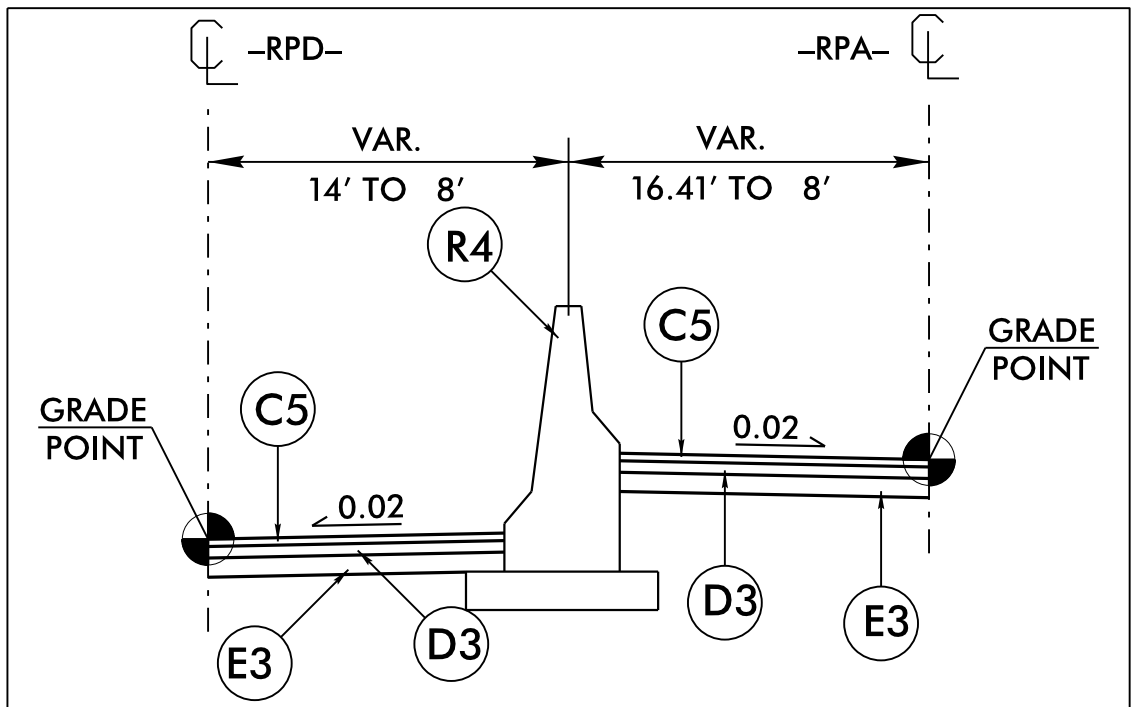
USE TYPICAL SECTION NO. 10

-RPD- STA. 29+61.82 TO 35+23.13

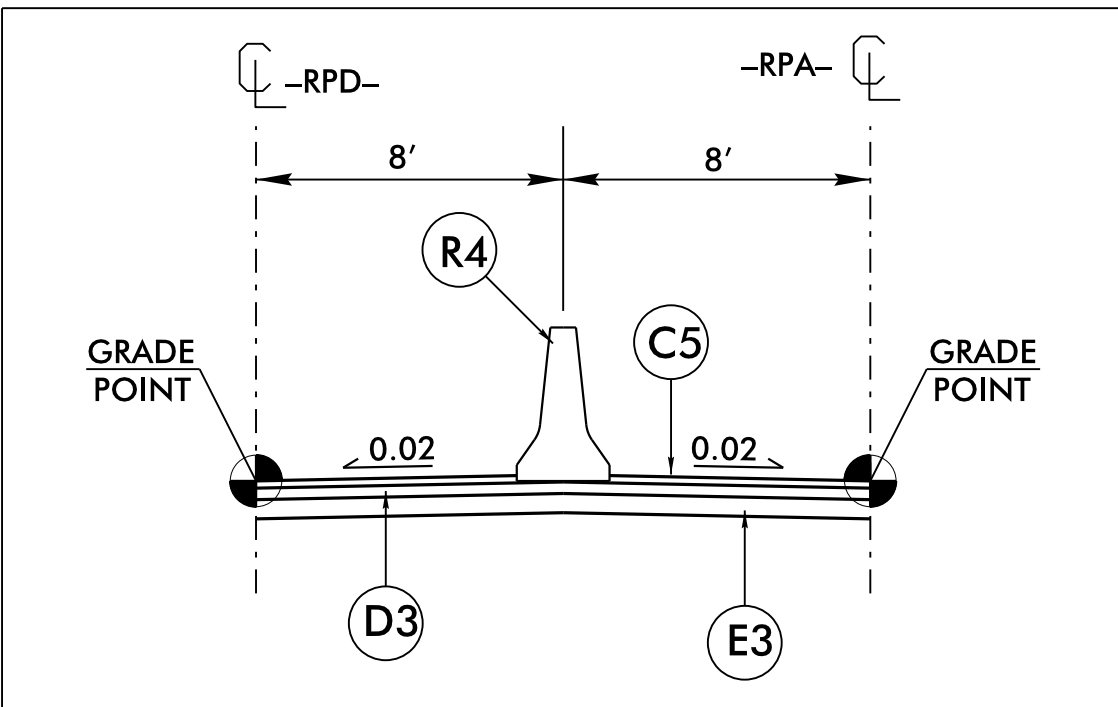
INSET A



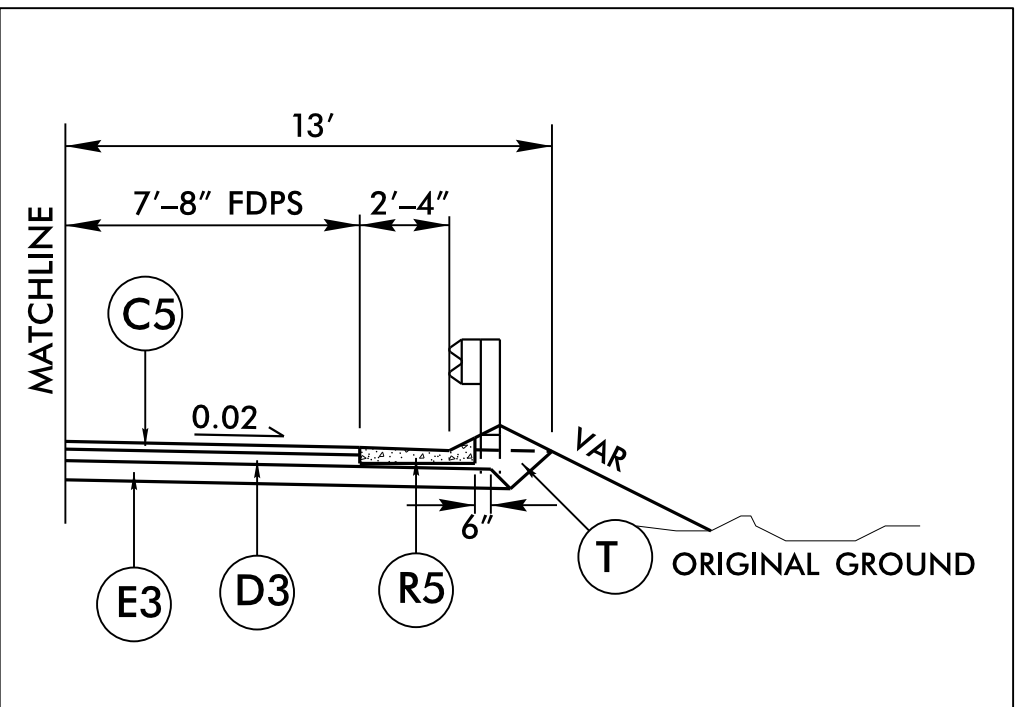
INSET B



INSET C



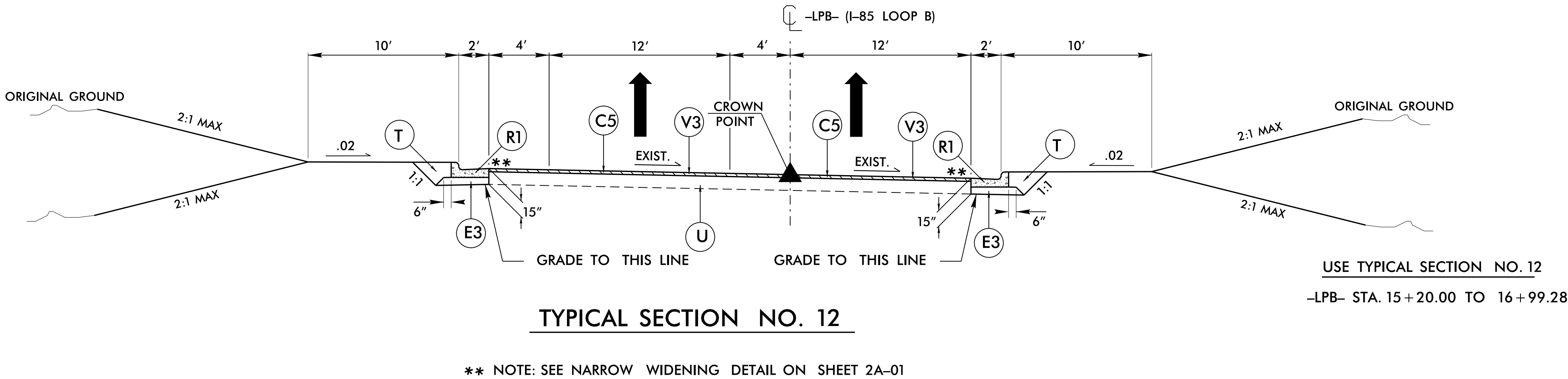
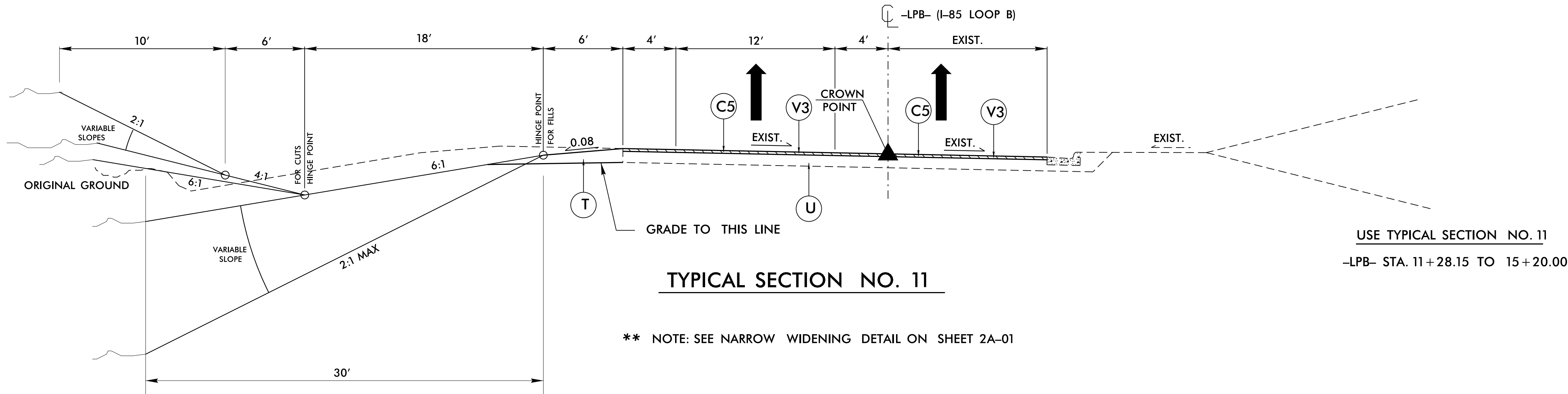
INSET D



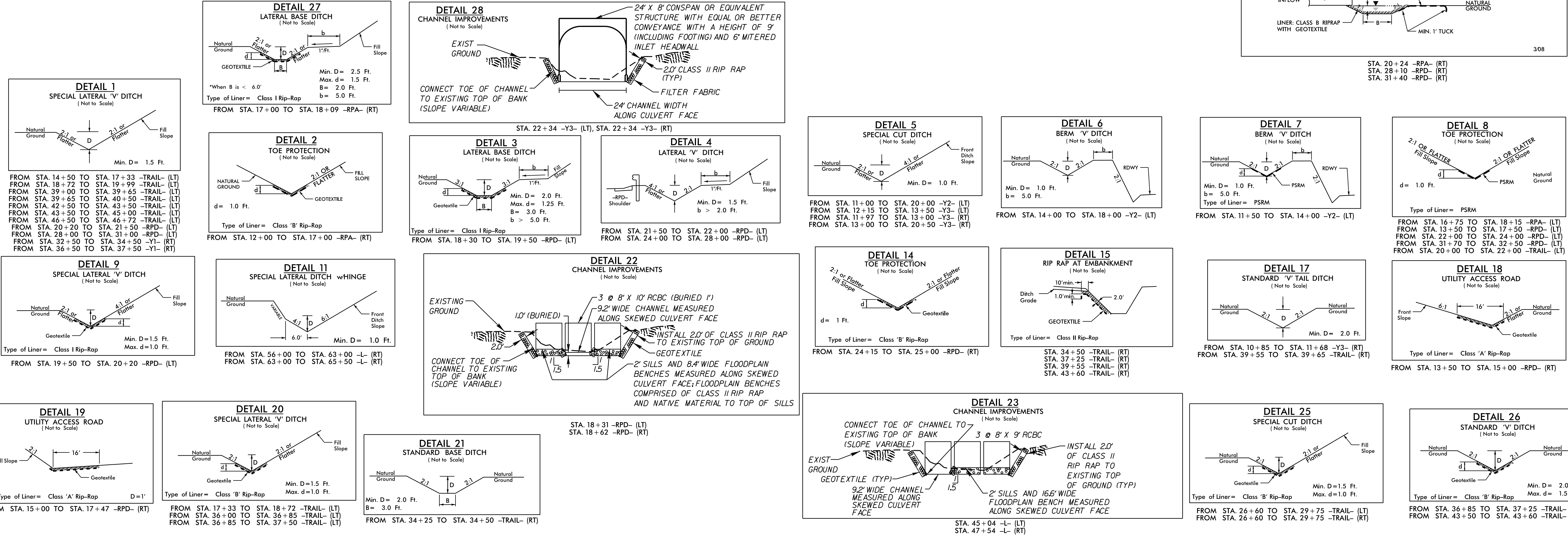
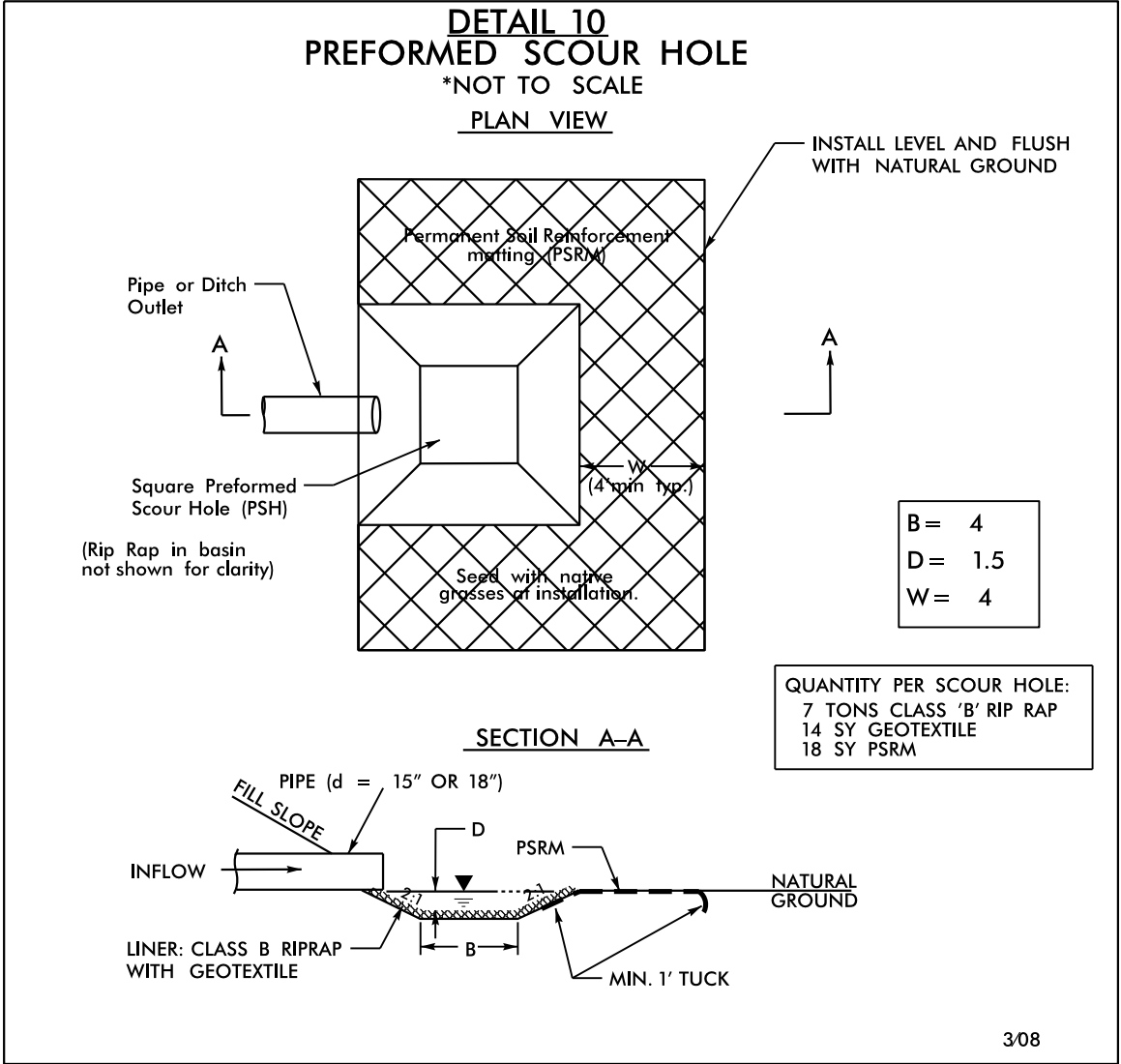
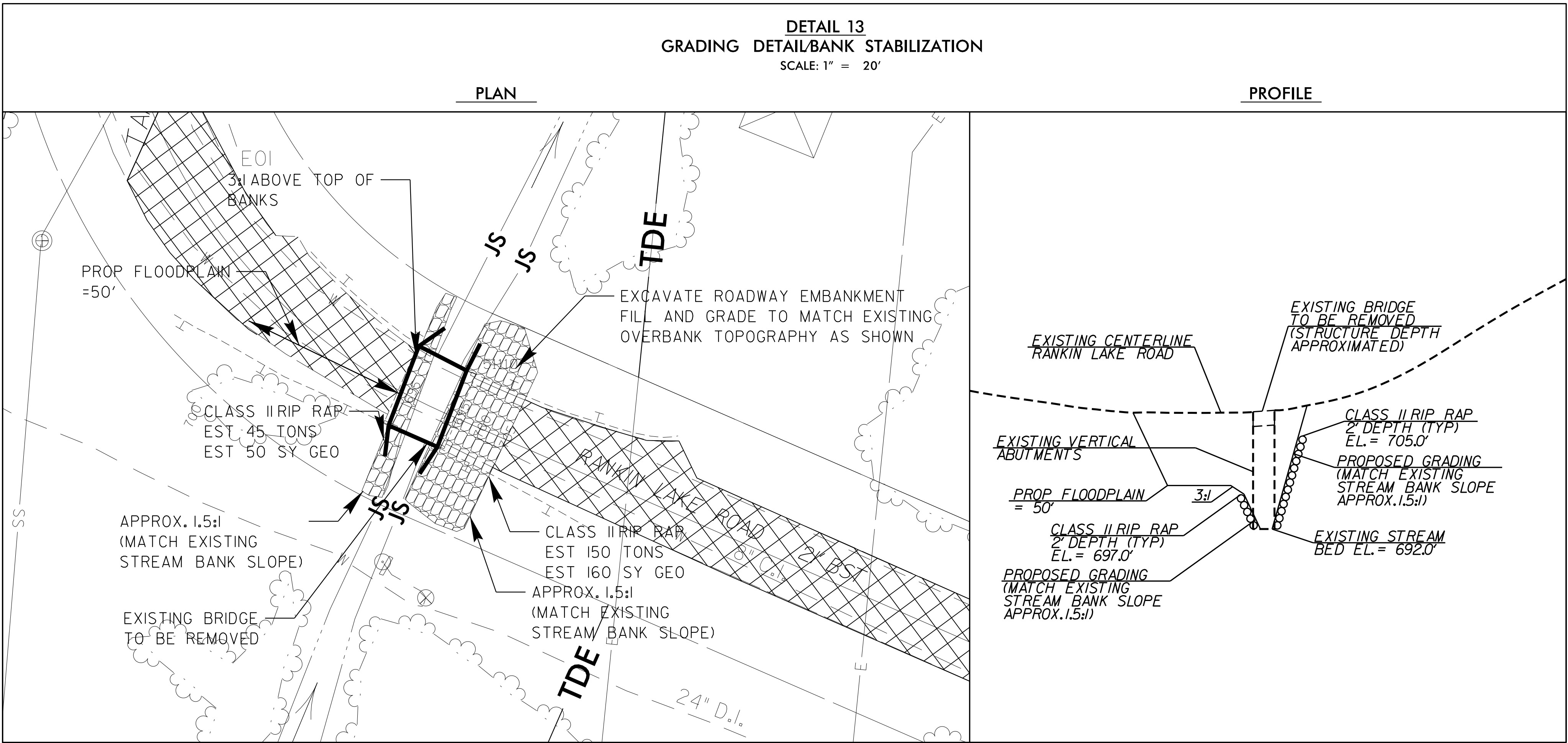
PROJECT REFERENCE NO.	SHEET NO.
1-5000	2A-6
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

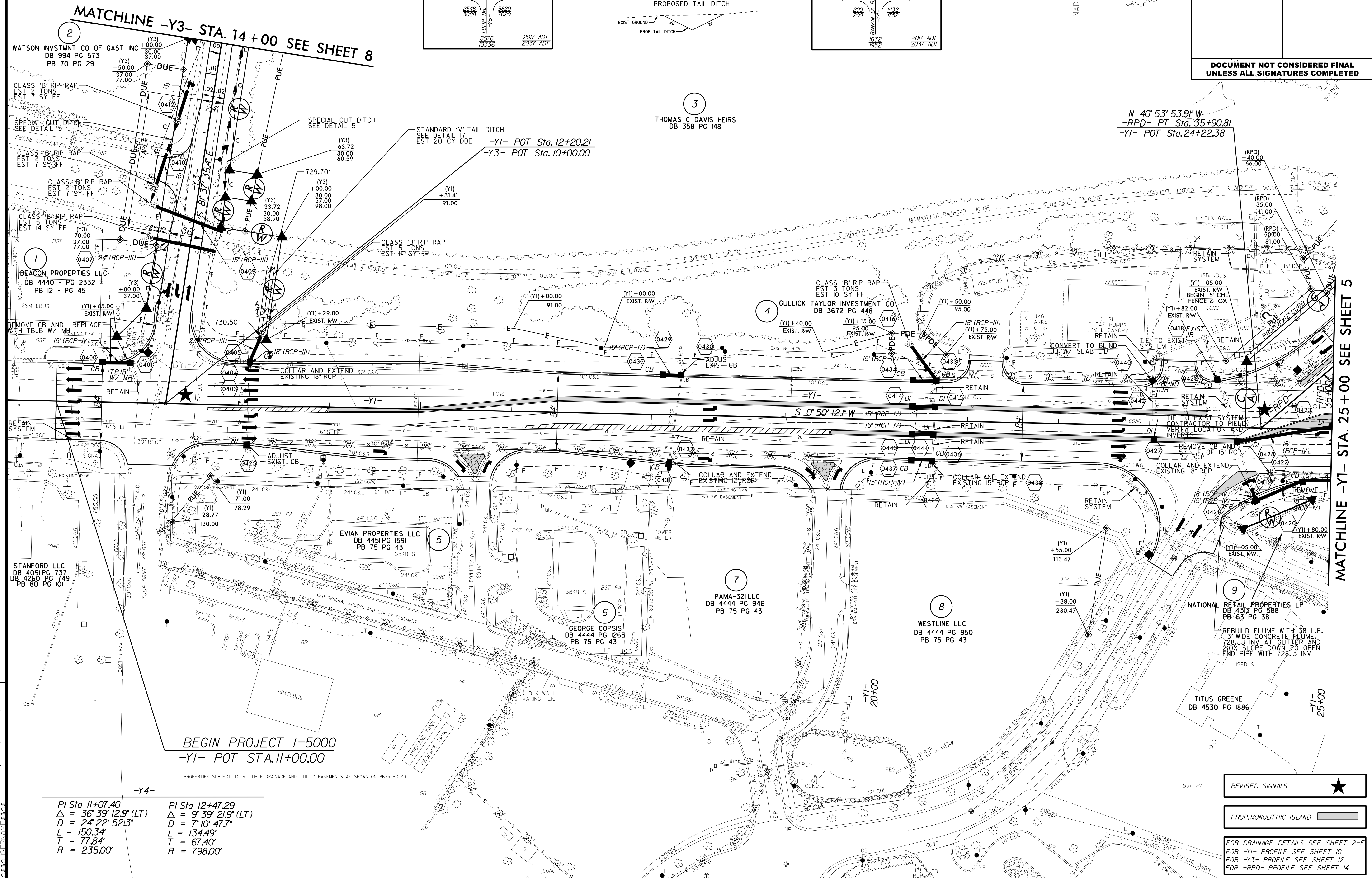
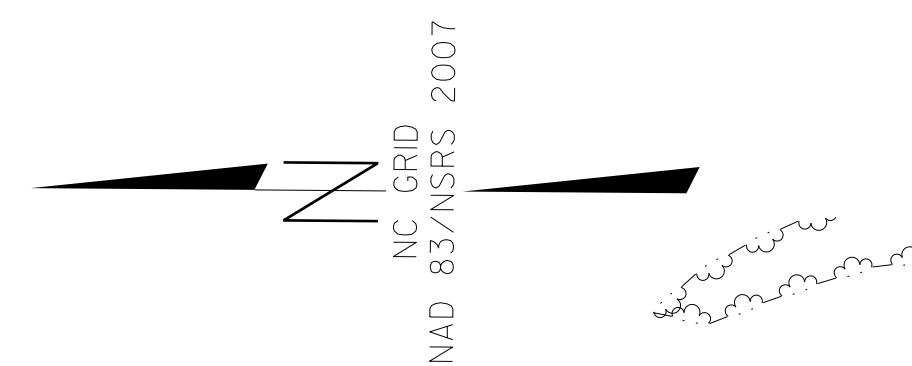
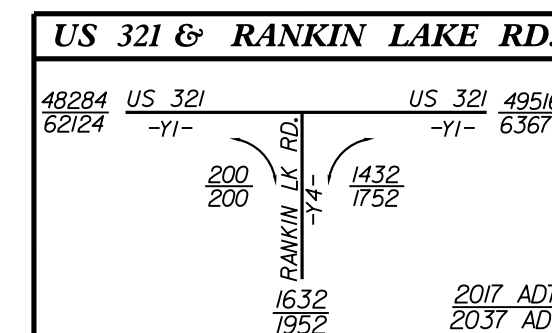
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PAVEMENT SCHEDULE	
C5	3" S9.5C
E3	8" B25.0C
R1	2'-6" C & G
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V3	MILLING - 3"



PROJECT REFERENCE NO.	SHEET NO.
1-5000	2D-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	





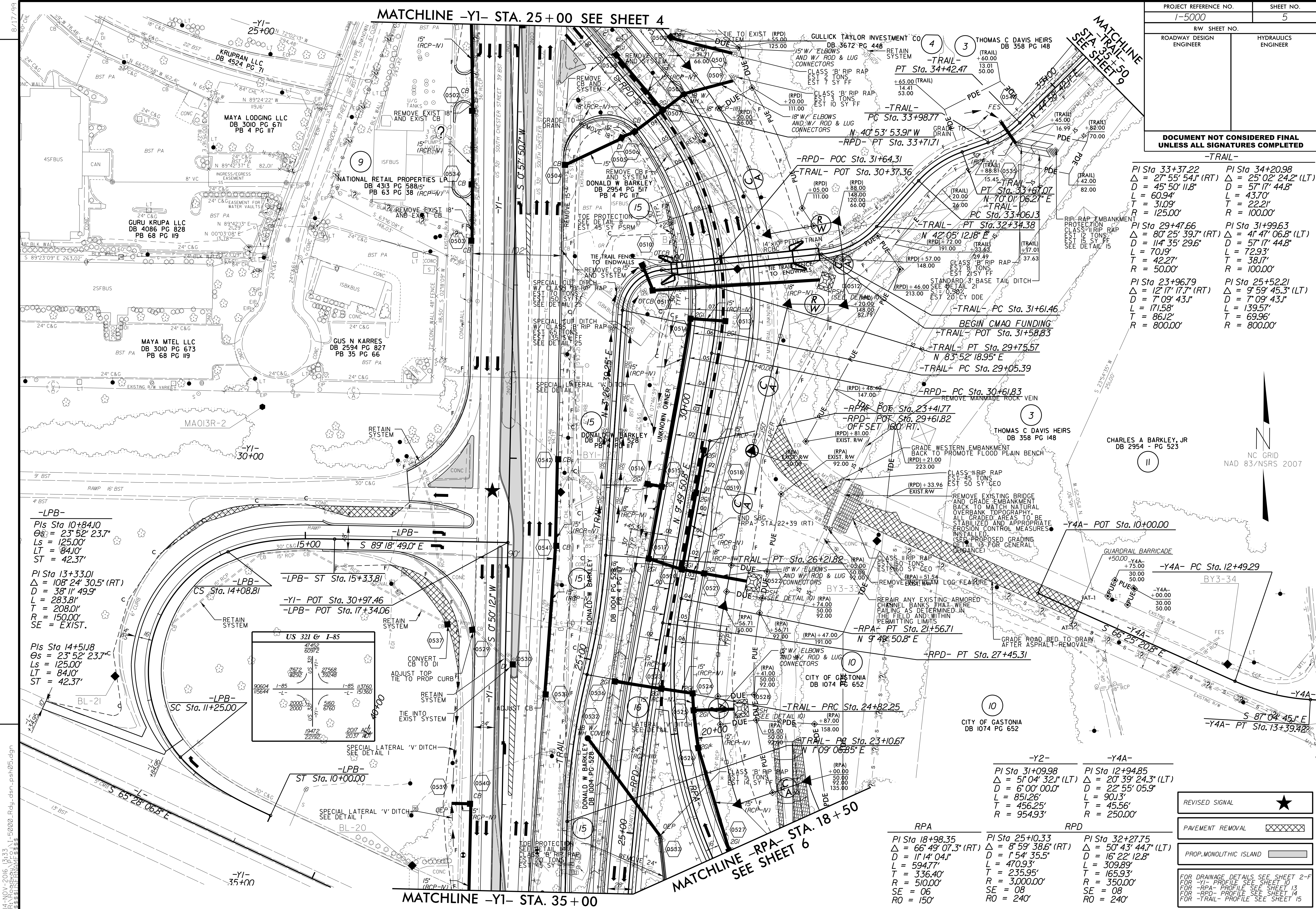
<i>PI Sta 11+07.40</i>	<i>PI Sta 12+47.29</i>
$\Delta = 36^{\circ} 39' 12.9" (LT)$	$\Delta = 9^{\circ} 39' 21.9" (LT)$
$D = 24^{\circ} 22' 52.3"$	$D = 7^{\circ} 10' 47.7"$
$L = 150.34'$	$L = 134.49'$
$T = 77.84'$	$T = 67.40'$
$R = 235.00'$	$R = 798.00'$

REVISED SIGNALS	
PROP. MONOLITHIC ISLAND	
FOR DRAINAGE DETAILS SEE SHEET 2-F FOR -Y1- PROFILE SEE SHEET 10 FOR -Y3- PROFILE SEE SHEET 12 FOR -RPD- PROFILE SEE SHEET 14	

8/17/99

MATCHLINE -Y1- STA. 25+00 SEE SHEET 4

PROJECT REFERENCE NO.		SHEET NO.
1-5000		5
RW SHEET NO.		
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		



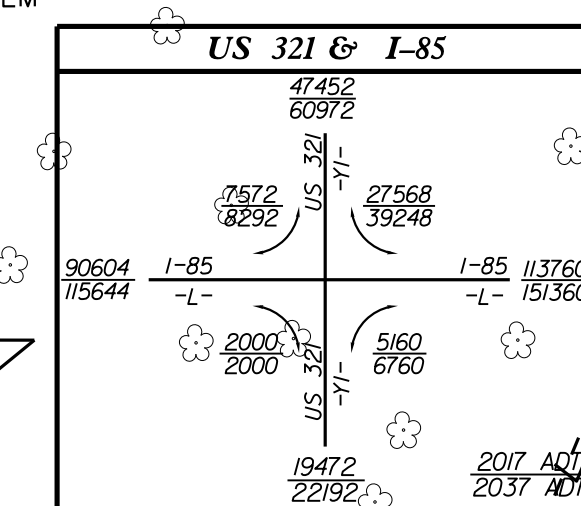
REVISIONS

14-NOV-2016 13:33 11-5000-Rdy.dsn-psh.05.dgn
3:55 PM 11-5000-Rdy.dsn-psh.05.dgn

-LPB-
Pls Sta 10+84.10
Δ = 23° 52' 23.7"
Ls = 125.00'
LT = 84.10'
ST = 42.37'

Pls Sta 13+33.01
Δ = 108° 24' 30.5" (RT)
D = 38' 11" 49.9"
L = 283.81'
T = 208.01'
R = 150.00'
SE = EXIST.

Pls Sta 14+51.18
Δs = 23° 52' 23.7"
Ls = 125.00'
LT = 84.10'
ST = 42.37'



-Y1- STA. 35+00

MATCHLINE -Y1- STA. 35+00

MATCHLINE -RPA- STA. 18+50
SEE SHEET 6

MATCHLINE STA. 35+50
SEE SHEET 9

-TRAIL-
PI Sta 33+37.22
Δ = 27° 55' 54.1" (RT)
D = 45° 50' 11.8"
L = 60.94'
T = 31.09'
R = 125.00'

PI Sta 34+20.98
Δ = 25° 02' 24.2" (LT)
D = 57° 17' 44.8"
L = 43.70'
T = 22.21'
R = 100.00'

PI Sta 29+47.66
Δ = 80° 25' 39.7" (RT)
D = 114° 35' 29.6"
L = 70.19'
T = 42.27'
R = 50.00'

PI Sta 31+99.63
Δ = 57° 17' 44.8" (LT)
D = 57° 17' 44.8"
L = 72.93'
T = 38.17'
R = 100.00'

PI Sta 23+96.79
Δ = 12° 17' 17.7" (RT)
D = 7° 09' 43.1"
L = 171.58'
T = 86.12'
R = 800.00'

PI Sta 31+99.63
Δ = 57° 17' 44.8" (LT)
D = 57° 17' 44.8"
L = 72.93'
T = 38.17'
R = 100.00'

PI Sta 23+96.79
Δ = 12° 17' 17.7" (RT)
D = 7° 09' 43.1"
L = 171.58'
T = 86.12'
R = 800.00'

NC GRID
NAD 83/NSRS 2007

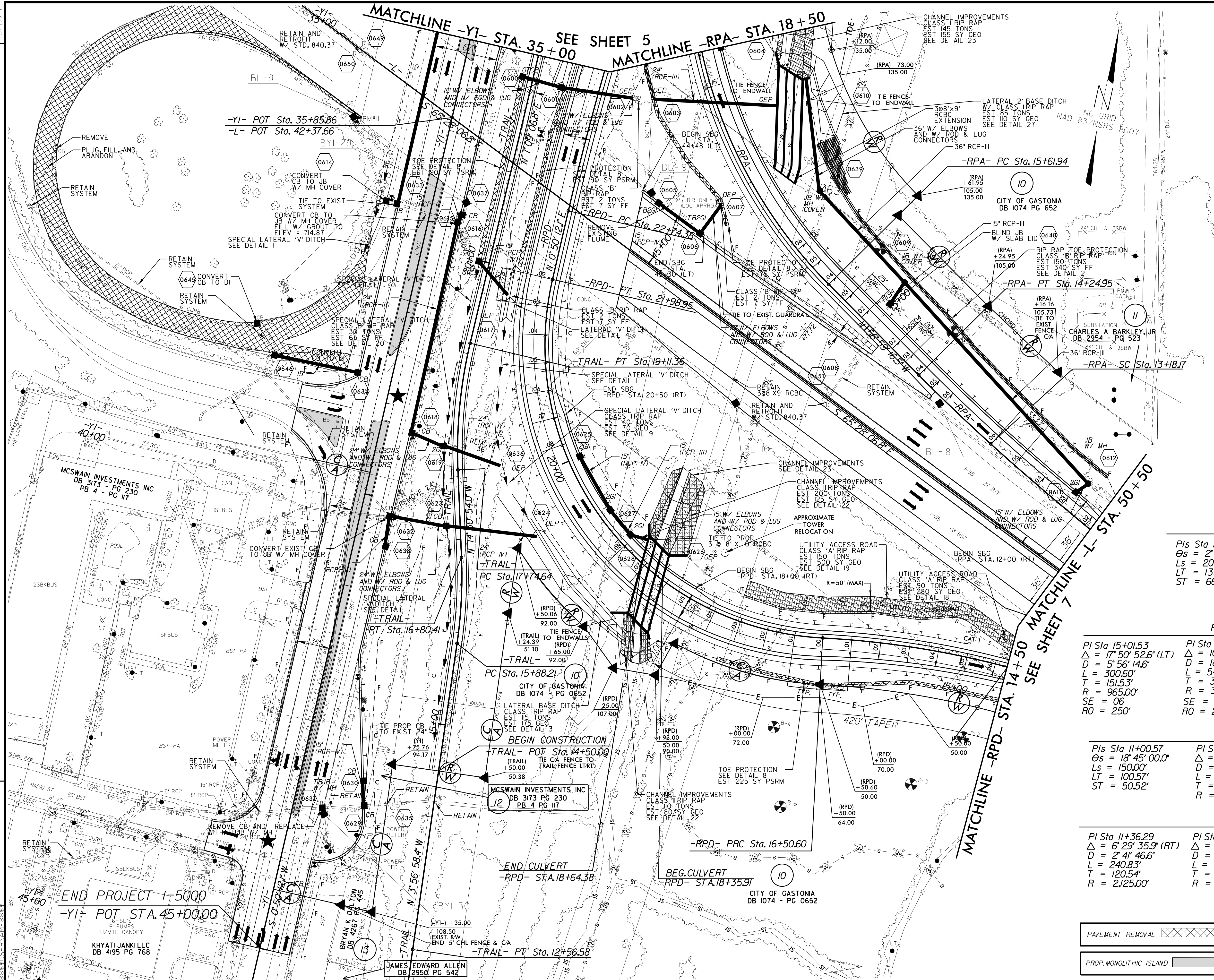
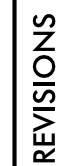
-Y4A-
PI Sta 12+49.29
Δ = 22° 55' 05.9"
L = 90.13'
T = 45.56'
R = 250.00'

-Y2-
PI Sta 31+09.98
Δ = 5° 04' 32.1" (LT)
D = 6° 00' 00.0"
L = 851.26'
T = 456.25'
R = 954.93'

-Y4A-
PI Sta 12+94.85
Δ = 20° 39' 24.3" (LT)
D = 16° 22' 12.8"
L = 309.89'
T = 165.93'
R = 350.00'

FOR DRAINAGE DETAILS SEE SHEET 2-F
FOR -Y1- PROFILE SEE SHEET 10
FOR -RPA- PROFILE SEE SHEET 13
FOR -RPD- PROFILE SEE SHEET 14
FOR -TRAIL- PROFILE SEE SHEET 15

REVISED SIGNAL	★
PAVEMENT REMOVAL	XXXXXX
PROP. MONOLITHIC ISLAND	□



US 321 & RADIO ST.

19472
22192

2624
2864

3740
4140

RADIO ST.

-Y8-

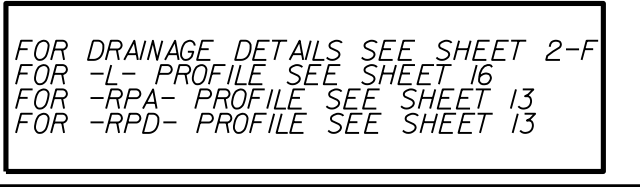
1116
1276

US 321

17964
20604

2017 ADT
2037 ADT

PAVEMENT REMOVAL	REVISED SIGNALS
PROP. MONOLITHIC ISLAND	FOR DRAINAGE DETAILS SEE SHEET 2-F FOR PROFILE SEE SHEET 10 & 11 FOR RPA- PROFILE SEE SHEET 13 FOR RPD- PROFILE SEE SHEETS 13 & 14 FOR -TRAIL- PROFILE SEE SHEET 15

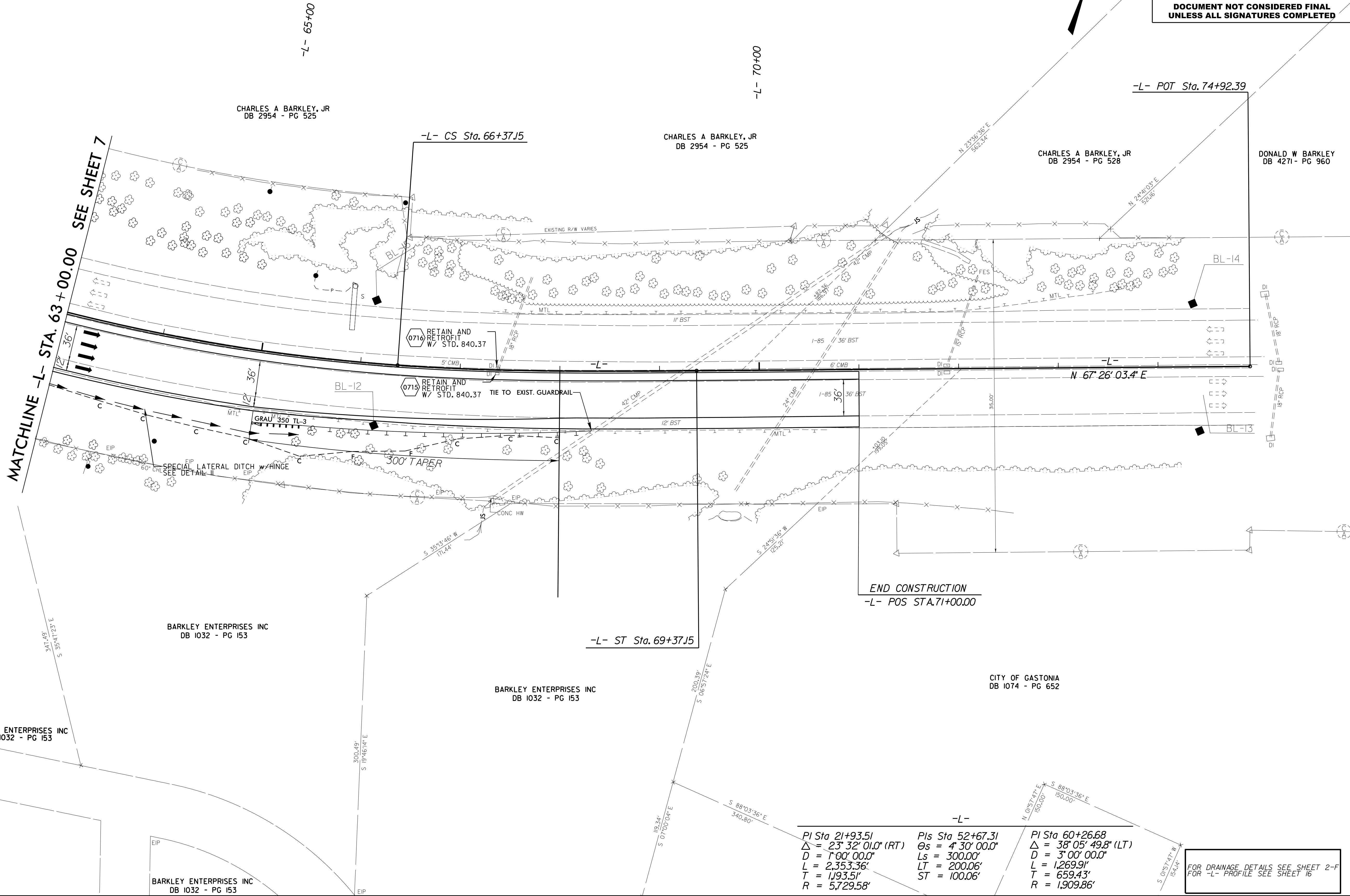
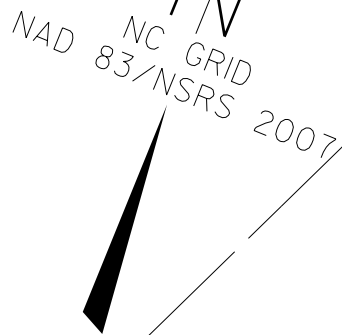


8/17/99

14-NOV-2016 13:33
S:\PROJECTS\150000_Rdy.dgn psh07a.dgn
S:\PROJECTS\150000_Rdy.dgn

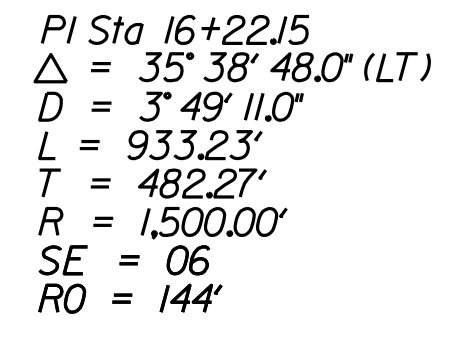
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
1-5000	7-A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



PI Sta 21+93.51 $\Delta = 23^\circ 32' 01.0''$ (RT) $D = 1^\circ 00' 00.0''$ $L = 2,353.36'$ $T = 1,193.51'$ $R = 5,729.58'$	PIs Sta 52+67.31 $\Delta_s = 4^\circ 30' 00.0''$ $L_s = 300.00'$ $ST = 100.06'$	PI Sta 60+26.68 $\Delta = 38^\circ 05' 49.8''$ (LT) $D = 3^\circ 00' 00.0''$ $L = 1,269.91'$ $T = 659.43'$ $R = 1,909.86'$
---	--	---

FOR DRAINAGE DETAILS SEE SHEET 2-F
FOR -L- PROFILE SEE SHEET 16



REVISIONS

-Y2-

<i>PI Sta 16+22.15</i>	<i>PI Sta 23+75.77</i>	<i>PI Sta 31+09.98</i>
$\Delta = 35^{\circ} 38' 48.0''$ (LT)	$\Delta = 39^{\circ} 56' 12.8''$ (RT)	$\Delta = 57^{\circ} 04' 32.1''$ (LT)
$D = 3^{\circ} 49' 11.0''$	$D = 6^{\circ} 52' 41.7''$	$D = 6^{\circ} 00' 00.0''$
$L = 933.23'$	$L = 580.63'$	$L = 851.26'$
$T = 482.27'$	$T = 302.67'$	$T = 456.25'$
$R = 1,500.00'$	$R = 833.00'$	$R = 954.93'$
$SE = .06$	$SE = .06$	$SE = EX.$
$R = 144''$	$R = 144''$	

CHARLES A BARKLEY, JR
DB 2954 PG 523

CHARLES A BARKLEY, JR
DB 2954 PG 523

JOHN D GLENN HEIRS
DB 344 - PG 588

THOMAS C DAVIS HEIRS
DB 358 PG 148

<i>PI Sta 39+77.55</i>	<i>PI Sta 43+14.29</i>	<i>PI Sta 44+62.26</i>	<i>PI Sta 45+59.48</i>
$\Delta = 42^{\circ} 49' 56.0" (LT)$	$\Delta = 20^{\circ} 47' 24.9" (RT)$	$\Delta = 18^{\circ} 14' 41.8" (RT)$	$\Delta = 18^{\circ} 52' 35.1" (LT)$
$D = 28^{\circ} 38' 52.4"$	$D = 57^{\circ} 17' 44.8"$	$D = 19^{\circ} 05' 54.9"$	$D = 19^{\circ} 05' 54.9"$
$L = 149.51'$	$L = 36.29'$	$L = 95.53'$	$L = 98.84'$
$T = 78.44'$	$T = 18.34'$	$T = 48.17'$	$T = 49.87'$
$R = 200.00'$	$R = 100.00'$	$R = 300.00'$	$R = 300.00'$

PAVEMENT REMOVAL 

FOR DRAINAGE DETAILS SEE SHEET 2-F
FOR -Y2- PROFILE SEE SHEETS 11 & 12

MATCHLINE
-TRAIL- STA. 35+50
SEE SHEET 5

MATCHLINE -Y2- STA. 19 + 00 SEE SHEET 8

MATCHLINE
-TRAIL-
STA. 45 + 0
SEE SHEET

REVISIONS

NC GRID
NAD 83/NSRS 2007

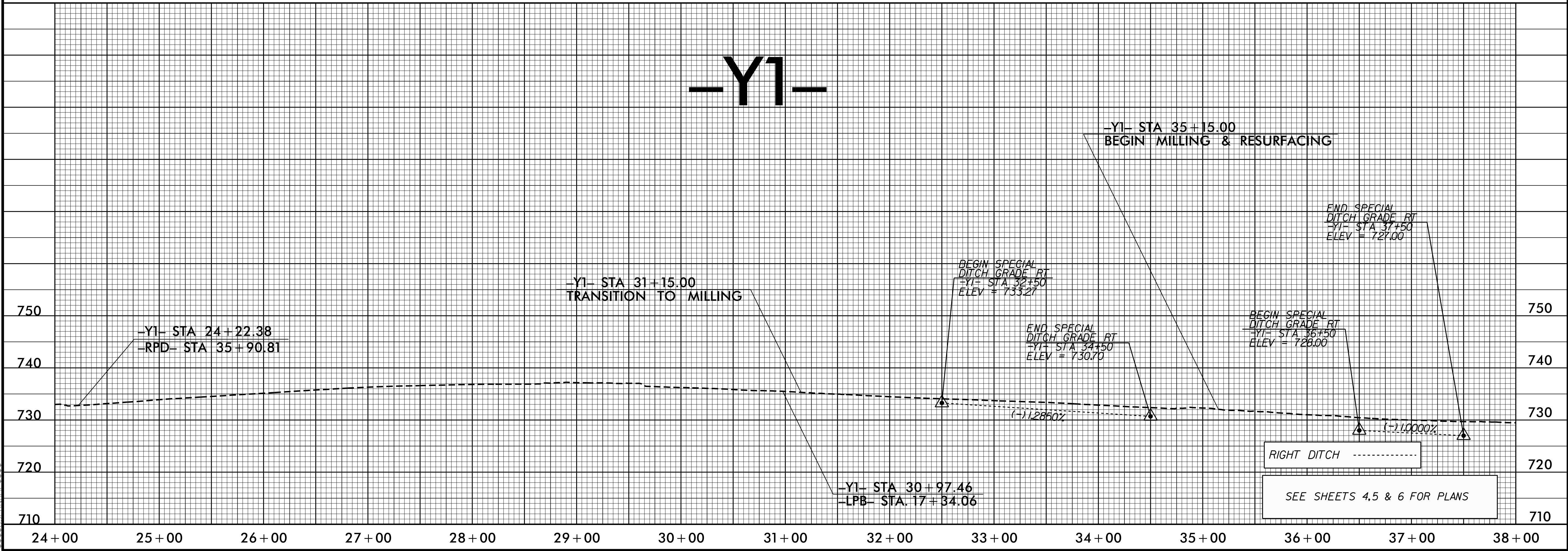
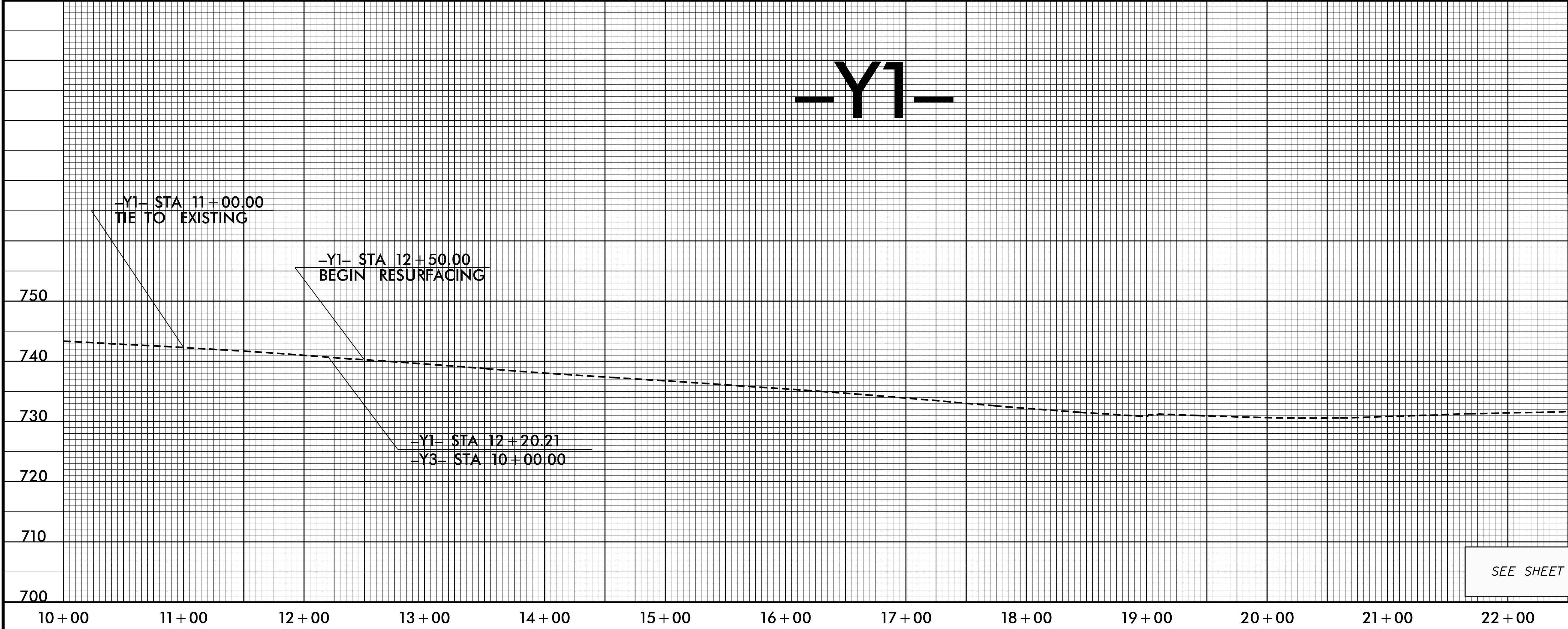
8/17/99

14-NOV-2016 13:33
R:\Roadway\Proj\I-5000-Rdy-dsn-psh09.dgn

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
1-5000	10
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

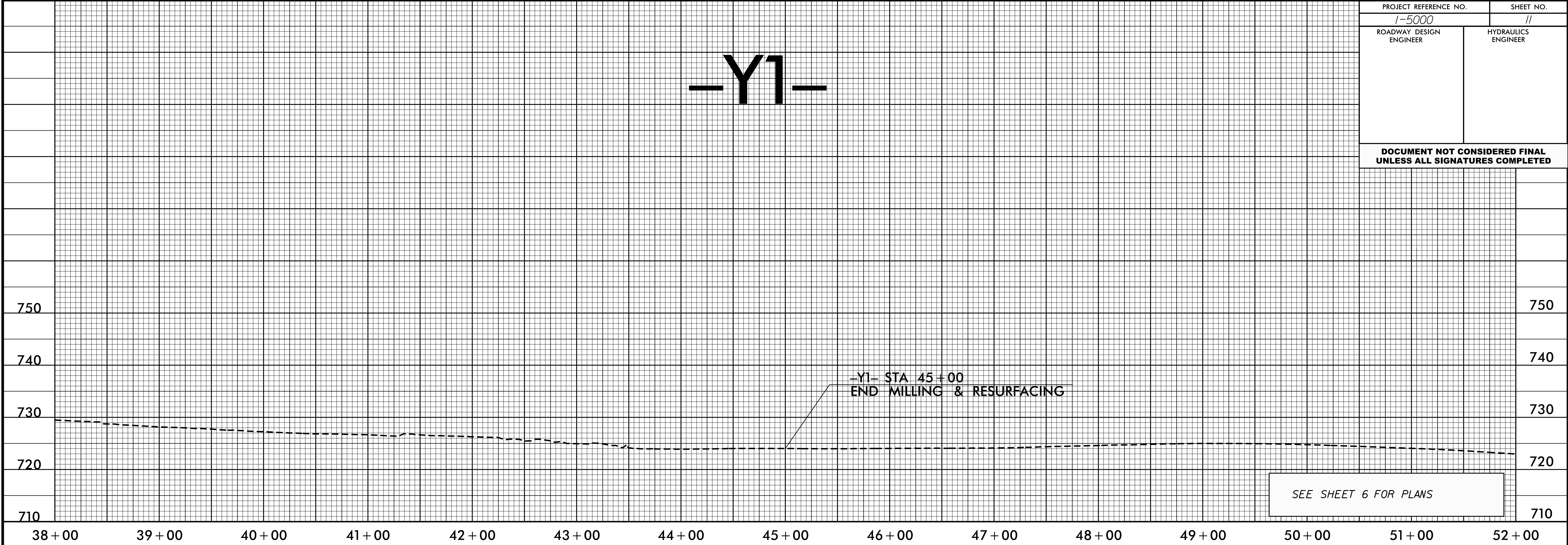
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



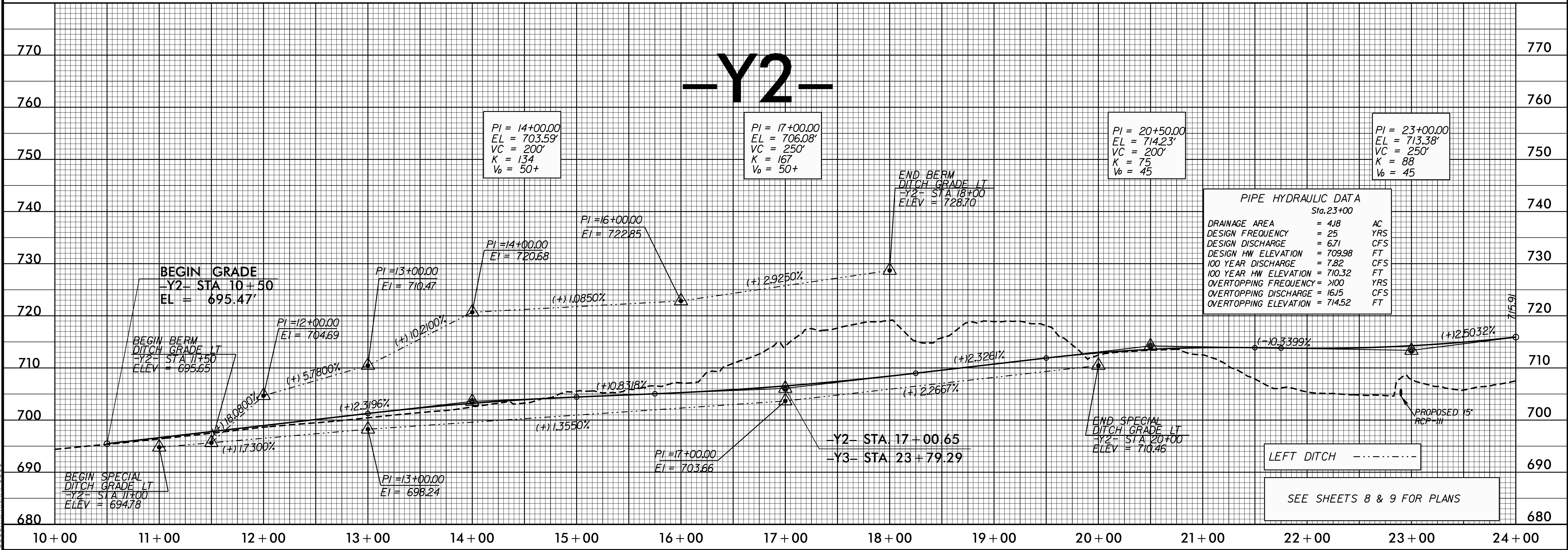
14-NOV-2016 13:33
1-5000-Rdy-cf1.dgn
1-5000-Rdy-cf1.dgn

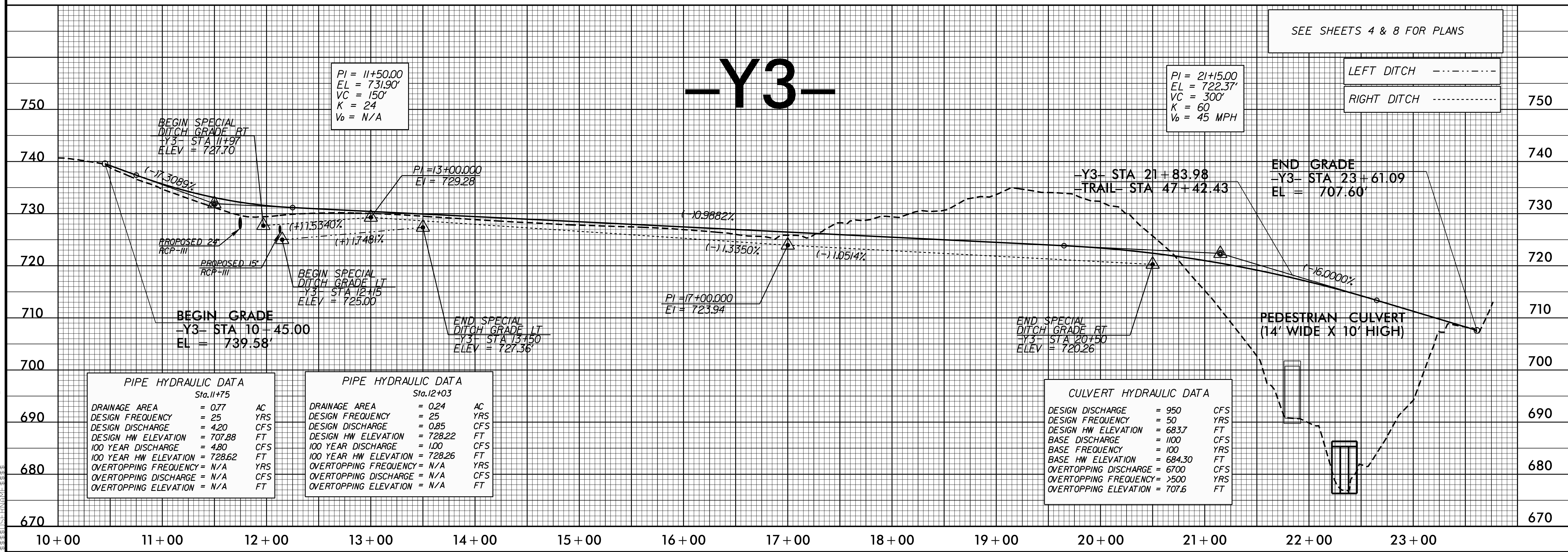
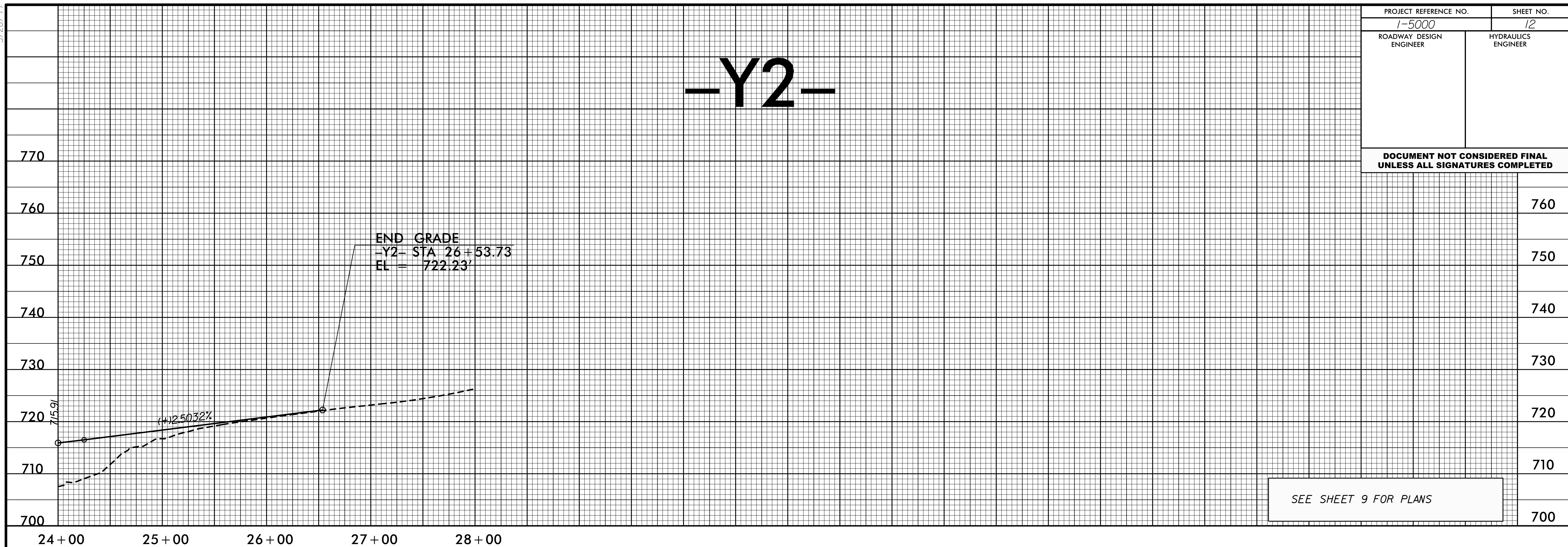
5/28/99

PROJECT REFERENCE NO.		SHEET NO.
1-5000		11
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	



14-NOV-2016 13:33
C:\PROJECTS\1-5000-Rd-Profile.dgn
USER: RAYMOND.B.B.





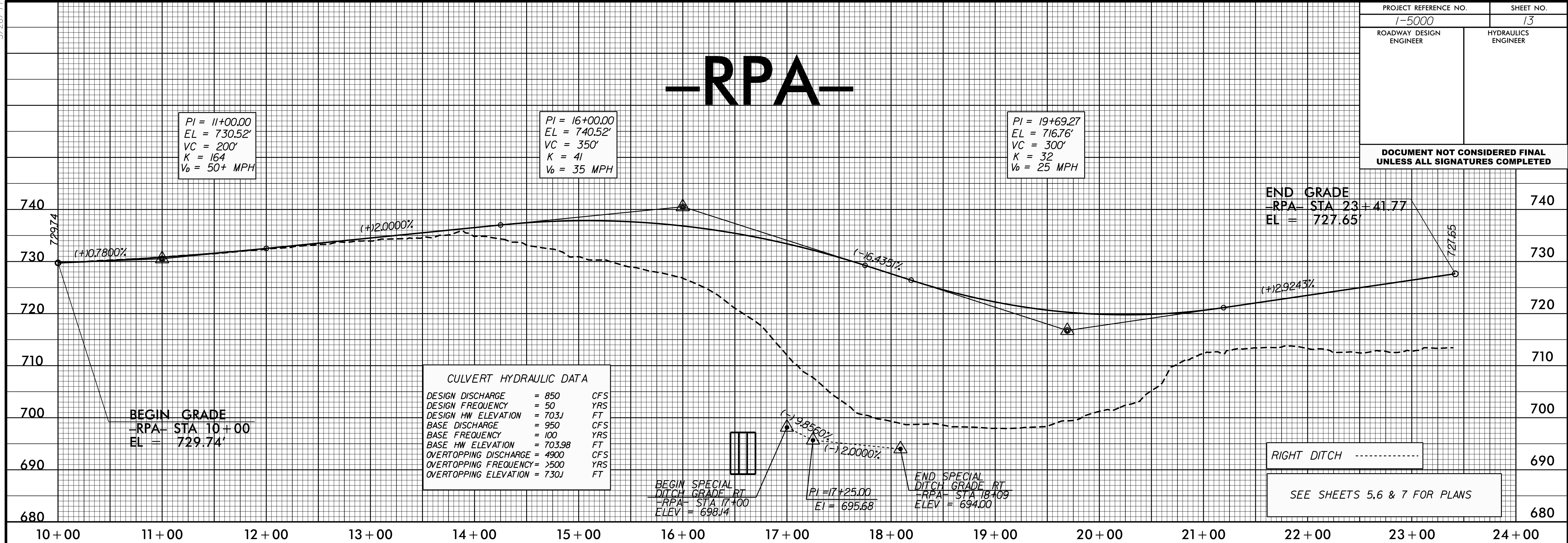
PIPE HYDRAULIC DATA		
	Sta.	Il+75
DRAINAGE AREA	=	0.77 AC
DESIGN FREQUENCY	=	25 YRS
DESIGN DISCHARGE	=	420 CFS
DESIGN HW ELEVATION	=	707.88 FT
100 YEAR DISCHARGE	=	480 CFS
100 YEAR HW ELEVATION	=	728.62 FT
OVERTOPPING FREQUENCY	=	N/A YRS
OVERTOPPING DISCHARGE	=	N/A CFS
OVERTOPPING ELEVATION	=	N/A FT

PIPE HYDRAULIC DATA		
	Sta.12+03	
DRAINAGE AREA	= 0.24	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 0.85	CFS
DESIGN HW ELEVATION	= 728.22	FT
100 YEAR DISCHARGE	= 1.00	CFS
100 YEAR HW ELEVATION	= 728.26	FT
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= N/A	FT

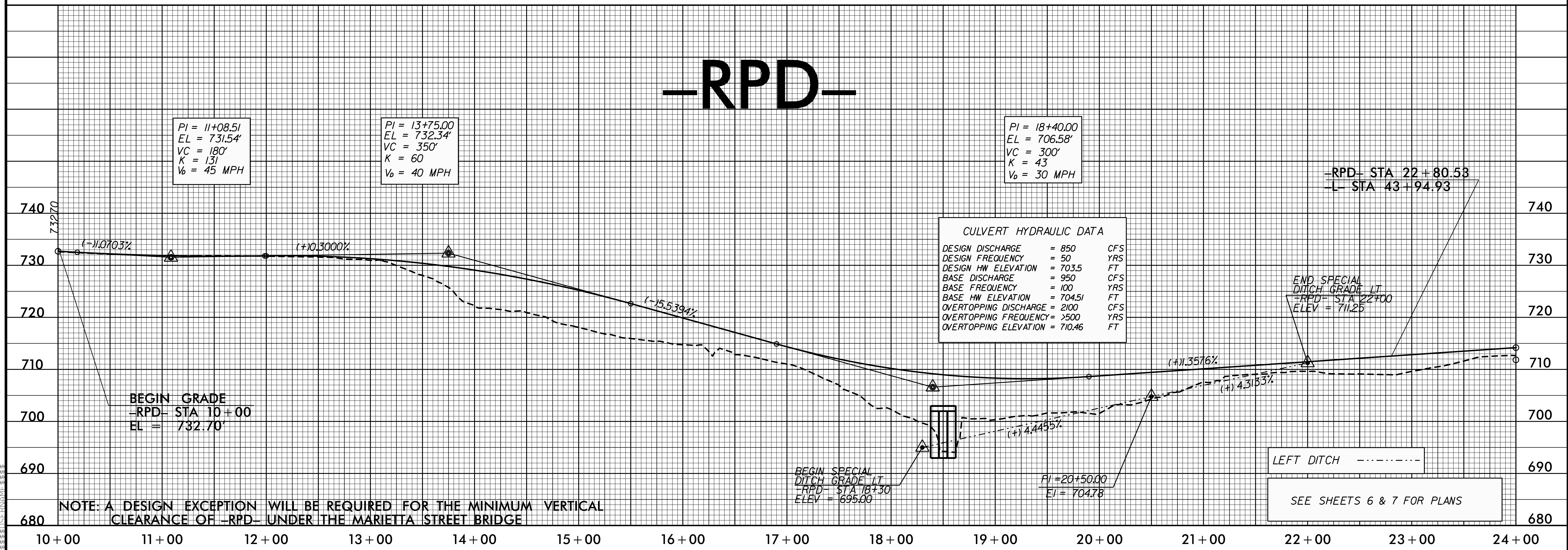
CULVERT HYDRAULIC DATA		
DESIGN DISCHARGE	= 950	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 683.7	FT
BASE DISCHARGE	= 1100	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 684.30	FT
OVERTOPPING DISCHARGE	= 6700	CFS
OVERTOPPING FREQUENCY	= 2500	YRS
OVERTOPPING ELEVATION	= 707.6	FT

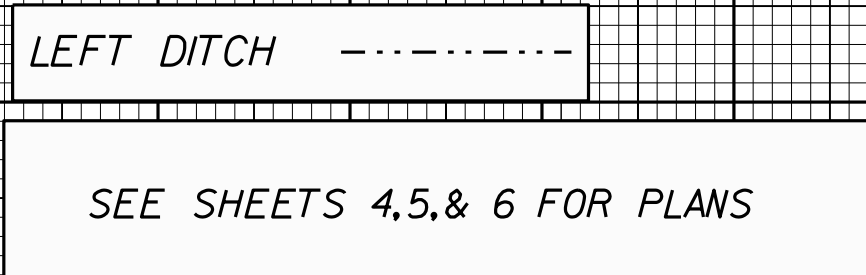
5/28/99

PROJECT REFERENCE NO.	SHEET NO.
1-5000	13
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

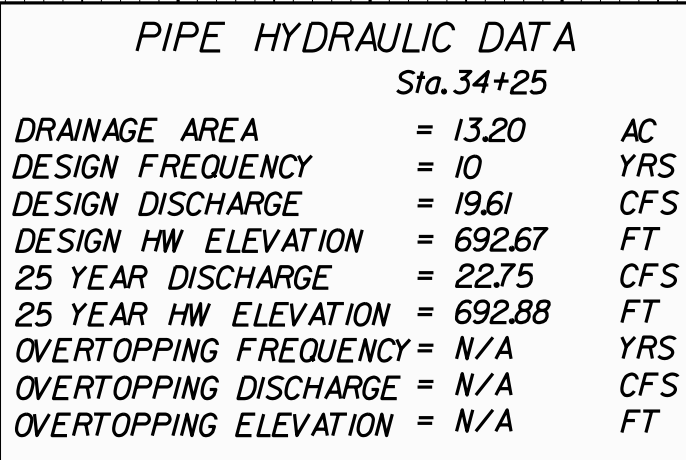
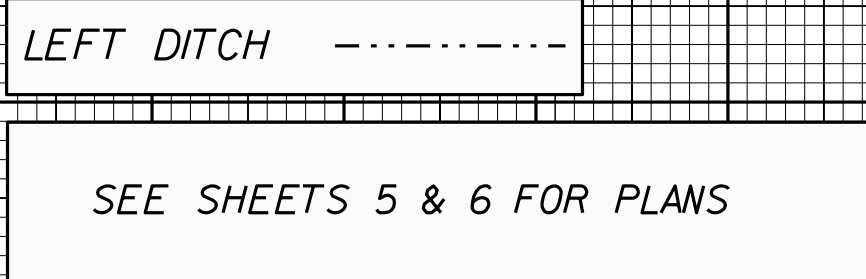


14-NOV-2016 13:33
1-5000-RPA-01.dgn
1-5000-RPA-01.dgn





—LPB—



PIPE HYDRAULIC DATA			
Sta. 36+85.76			
DRAINAGE AREA	= 5.32	AC	
DESIGN FREQUENCY	= 10	YRS	
DESIGN DISCHARGE	= 7.18	CF/S	
DESIGN HW ELEVATION	= 688.91	FT	
25 YEAR HW DISCHARGE	= 8.34	CF/S	
25 YEAR HW ELEVATION	= 689.08	FT	
OVERTOPPING FREQUENCY	= N/A	YRS	
OVERTOPPING DISCHARGE	= N/A	CF/S	
OVERTOPPING ELEVATION	= N/A	FT	

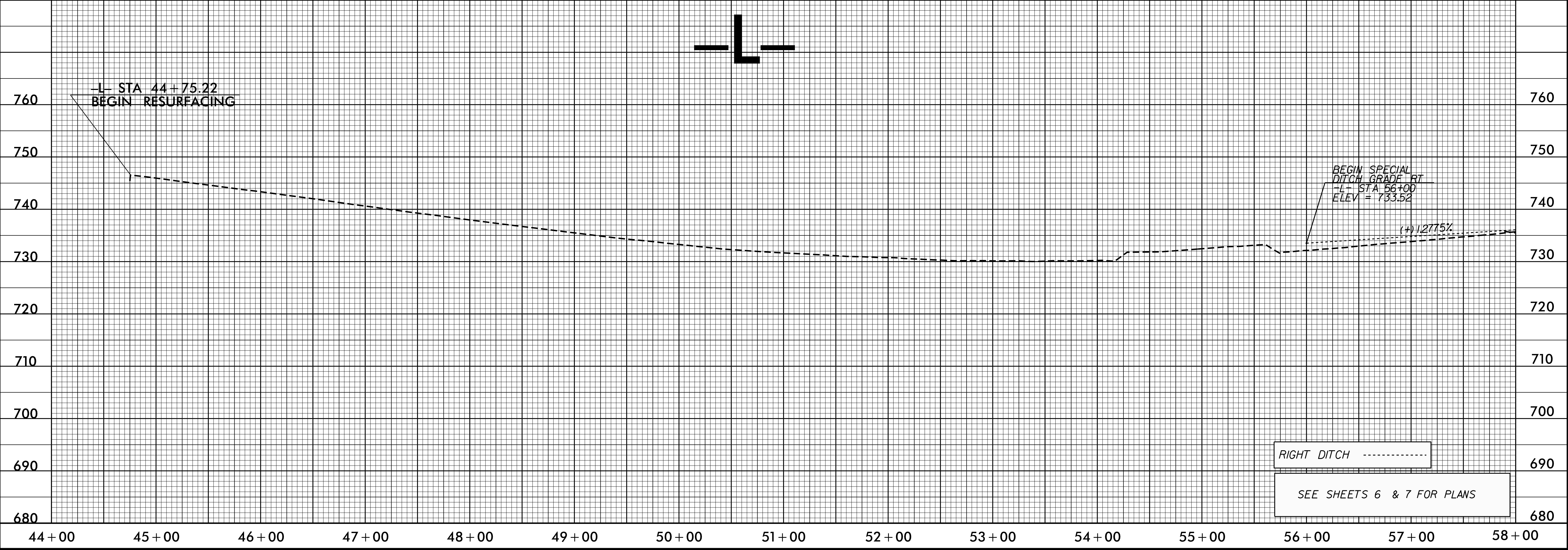
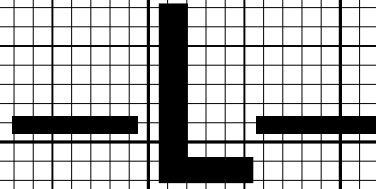
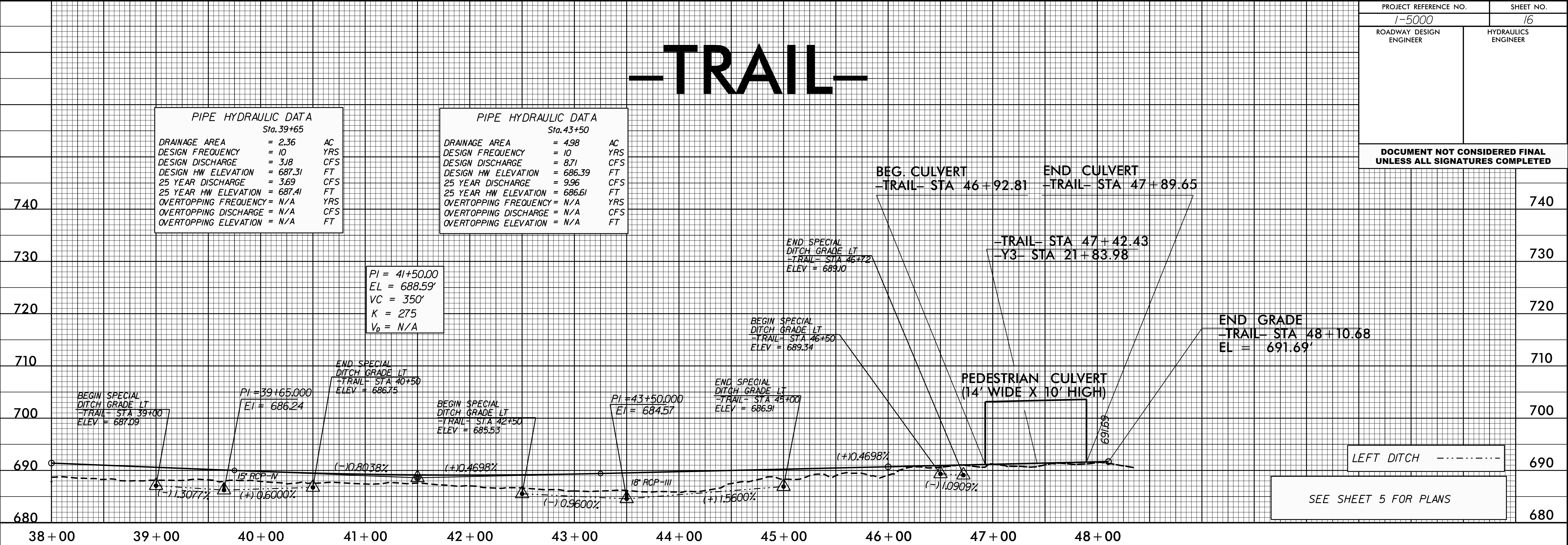
5/28/99

PROJECT REFERENCE NO.	SHEET NO.
1-5000	16
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

PIPE HYDRAULIC DATA		
Sta. 39+65		
DRAINAGE AREA	= 2.36	AC
DESIGN FREQUENCY	= 10	YRS
DESIGN DISCHARGE	= 3.18	CFS
DESIGN HW ELEVATION	= 687.31	FT
25 YEAR DISCHARGE	= 3.69	CFS
25 YEAR HW ELEVATION	= 687.41	FT
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= N/A	FT

PIPE HYDRAULIC DATA		
Sta. 43+50		
DRAINAGE AREA	= 4.98	AC
DESIGN FREQUENCY	= 10	YRS
DESIGN DISCHARGE	= 8.71	CFS
DESIGN HW ELEVATION	= 686.39	FT
25 YEAR DISCHARGE	= 9.96	CFS
25 YEAR HW ELEVATION	= 686.61	FT
OVERTOPPING FREQUENCY	= N/A	YRS
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING ELEVATION	= N/A	FT



14-NOV-2016 13:33
14-5000-Roadway-Profile.dgn

5/28/99

14-NOV-2016 13:33
I:\PROJECTS\1-5000-Rdy-01.dgn
R:\PROJECTS\1-5000-Rdy-01.dgn

