PROJECT SPECIAL PROVISION

(10-18-95) Z-1

PERMITS

The Contractor's attention is directed to the following permits, which have been issued to the Department of Transportation by the authority granting the permit.

PERMIT	AUTHORITY GRANTING THE PERMIT
Dredge and Fill and/or Work in Navigable Waters (404)	U. S. Army Corps of Engineers
Water Quality (401)	Division of Environmental Management, DENR State of North Carolina

The Contractor shall comply with all applicable permit conditions during construction of this project. Those conditions marked by * are the responsibility of the department and the Contractor has no responsibility in accomplishing those conditions.

Agents of the permitting authority will periodically inspect the project for adherence to the permits.

The Contractor's attention is also directed to Articles 107-10 and 107-13 of the *2012 Standard Specifications* and the following:

Should the Contractor propose to utilize construction methods (such as temporary structures or fill in waters and/or wetlands for haul roads, work platforms, cofferdams, etc.) not specifically identified in the permit (individual, general, or nationwide) authorizing the project it shall be the Contractor's responsibility to coordinate with the Engineer to determine what, if any, additional permit action is required. The Contractor shall also be responsible for initiating the request for the authorization of such construction method by the permitting agency. The request shall be submitted through the Engineer. The Contractor shall not utilize the construction method until it is approved by the permitting agency. The request normally takes approximately 60 days to process; however, no extensions of time or additional compensation will be granted for delays resulting from the Contractor's request for approval of construction methods not specifically identified in the permit.

Where construction moratoriums are contained in a permit condition which restricts the Contractor's activities to certain times of the year, those moratoriums will apply only to the portions of the work taking place in the waters or wetlands provided that activities outside those areas is done in such a manner as to not affect the waters or wetlands.

DEPARTMENT OF THE ARMY PERMIT

Permittee **NC Department of Transportation**

Permit No. **SAW-2005-31626**

Issuing Office **CESAW-RG-A**

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description: **to permanently 1.36 acres of wetlands and 2,326 linear feet of stream channel in order to construct the I-40/I-77 interchange modification associated with TIP I-3819 A located in Statesville, Iredell County, North Carolina. Temporary impacts total 135 linear feet of stream channel. Utility impacts authorized are less than 0.01 acre wetlands for excavation and 0.013 acre wetlands for hand clearing.**

Project Location: **Statesville, Iredell County, North Carolina.**

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on **December 31, 2017.** If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer. you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit,

Special Conditions:

SEE ATTACHED SPECIAL CONDITIONS

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

( ) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

(X) Section 404 of the Clean Water Act (33 U.S.C. 1344).

( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit, Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

E. L. Lupk for Gregory J. Thorpe PhD April 10, 2012

(PERMITTEE) **NC DEPARTMENT OF TRANSPORTATION** *(DATE)*

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

(DISTRICT COMMANDER) **STEVEN A. BAKER**
COLONEL *(DATE)*

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

(TRANSFEREE) *(DATE)*

*U.S. GOVERNMENT PRINTING OFFICE: 1986 - 717-425

SPECIAL CONDITIONS
Action ID: SAW-2005-31626

COMPLIANCE WITH PLANS

Work Limits

a) All work authorized by this permit must be performed in strict compliance with the attached plans, which are a part of this permit. Any modification to these plans must be approved by the US Army Corps of Engineers (USACE) prior to implementation.

* b) The permittee shall schedule a preconstruction meeting between its representatives, the contractor's representatives, and the Corps of Engineers, Asheville Regulatory Field Office, NCDOT Regulatory Project Manager, prior to any work within jurisdictional waters and wetlands to ensure that there is a mutual understanding of all of the terms and conditions contained within this Department of the Army Permit. The permittee shall provide the USACE, Asheville Regulatory Field Office, NCDOT Regulatory Project Manager, with a copy of the final plans at least two weeks prior to the preconstruction meeting along with a description of any changes that have been made to the project's design, construction methodology or construction timeframe. The permittee shall schedule the preconstruction meeting for a time when the USACE and North Carolina Division of Water Quality (NCDWQ) Project Managers can attend. The permittee shall invite the Corps and NCDWQ Project Managers a minimum of thirty (30) days in advance of the scheduled meeting in order to provide those individuals with ample opportunity to schedule and participate in the required meeting.

c) Except as authorized by this permit or any USACE approved modification to this permit, no excavation, fill or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, within waters or wetlands. This permit does not authorize temporary placement or double handling of excavated or fill material within waters or wetlands outside the permitted area. This prohibition applies to all borrow and fill activities connected with this project.

d) Except as specified in the plans attached to this permit, no excavation, fill or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, in such a manner as to impair normal flows and circulation patterns within waters or wetlands or to reduce the reach of waters or wetlands.

Related Laws

e) The North Carolina Division of Water Quality has issued a conditioned Water Quality Certification for your project, the conditions of that certification are hereby incorporated as special conditions of this permit. For your convenience, a copy of the certification is attached as Exhibit A. These referenced conditions are hereby incorporated as special conditions of this permit.

f) All mechanized equipment will be regularly inspected and maintained to prevent contamination of waters and wetlands from fuels, lubricants, hydraulic fluids, or other toxic materials. In the event of a spill of petroleum products or any other hazardous waste, the permittee shall immediately report it to the N.C. Division of Water Quality at (919) 733-5083, Ext. 526 or (800) 662-7956 and provisions of the North Carolina Oil Pollution and Hazardous Substances Control Act will be followed.

Project Maintenance

* g) The permittee shall advise the Corps in writing prior to beginning the work authorized by this permit and again upon completion of the work authorized by this permit.

h) Unless otherwise authorized by this permit, all fill material placed in waters or wetlands shall be generated from an upland source and will be clean and free of any pollutants except in trace quantities. Metal products, organic materials (including debris from land clearing activities), or unsightly debris will not be used.

i) The permittee shall require its contractors and/or agents to comply with the terms and conditions of this permit in the construction and maintenance of this project, and shall provide each of its contractors and/or agents associated with the construction or maintenance of this project with a copy of this permit. A copy of this permit, including all conditions, shall be available at the project site during construction and maintenance of this project.

j) The permittee shall employ all sedimentation and erosion control measures necessary to prevent an increase in sedimentation or turbidity within waters and wetlands outside the permit area. This shall include, but is not limited to, the immediate installation of silt fencing or similar appropriate devices around all areas subject to soil disturbance or the movement of earthen fill, and the immediate stabilization of all disturbed areas. Additionally, the project must remain in full compliance with all aspects of the Sedimentation Pollution Control Act of 1973 (North Carolina General Statutes Chapter 113A Article 4).

k) The permittee shall remove all sediment and erosion control measures placed in wetlands or waters, and shall restore natural grades in those areas, prior to project completion.

l) During the clearing phase of the project, heavy equipment must not be operated in surface waters or stream channels. Temporary stream crossings will be used to access the opposite sides of stream channels. All temporary diversion channels and stream crossings will be constructed of non-erodable materials. Grubbing of riparian vegetation will not occur until immediately before construction begins on a given segment of stream channel.

m) No fill or excavation for the purposes of sedimentation and erosion control shall occur within jurisdictional waters, including wetlands, unless it is included on the plan drawings and specifically authorized by this permit.

n) The permittee, upon receipt of a notice of revocation of this permit or upon its expiration before completion of the work will, without expense to the United States and in such time and manner as the Secretary of the Army or his authorized representative may direct, restore the water or wetland to its pre-project condition.

Enforcement

o) Violations of these conditions or violations of Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act must be reported in writing to the Wilmington District U.S. Army Corps of Engineers within 24 hours of the permittee's discovery of the violation.

* p) The permittee will ensure that the construction design plans for this project do not deviate from the permit plans attached to this authorization. Written verification shall be provided that the final construction drawings comply with the attached permit drawings prior to any active construction in waters of the United States, including wetlands. Any deviation in the construction design plans will be brought to the attention of the Corps of Engineers, Asheville Regulatory Field Office prior to any active construction in waters or wetlands.

* q) Prior to commencing construction within jurisdictional waters of the United States for any portion of the proposed project, the permittee shall forward the latest version of project construction drawings to the Corps of Engineers, Asheville Regulatory Field Office NCDOT Regulatory Project Manager. Half-size drawings will be acceptable.

r) Measures will be included in the construction/installation that will promote the safe passage of fish and other aquatic organisms. The dimension, pattern, and profile of the stream above and below a pipe or culvert should not be modified by widening the stream channel or by reducing the depth of the stream in connection with the construction activity. The width, height, and gradient of a proposed opening should be such as to pass the average historical low flow and spring flow without adversely altering flow velocity. Spring flow should be determined from gauge data, if available. In the absence of such data, bankfull flow can be used as a comparable level.

s) Culverts greater than 48 inches in diameter will be buried at least one foot below the bed of the stream. Culverts 48 inches in diameter or less shall be buried or placed on the stream bed as practicable and appropriate to maintain aquatic passage, and every effort shall be made to maintain the existing channel slope. The bottom of the culvert must be placed at a depth below the natural stream bottom to provide for passage during drought or low flow conditions. Destabilizing the channel and head cutting upstream should be considered in the placement of the culvert. A waiver from the depth specifications in this condition may be requested in writing. The waiver will be issued if it can be demonstrated that the proposal would result in the least impacts to the aquatic environment.

t) To ensure that all borrow and waste activities occur on high ground and do not result in the degradation of adjacent wetlands and streams, except as authorized by this permit, the permittee shall require its contractors and/or agents to identify all areas to be used to borrow material, or to dispose of dredged, fill, or waste material. The permittee shall provide the USACE with

appropriate maps indicating the locations of proposed borrow or waste sites as soon as the permittee has that information. The permittee will coordinate with the USACE before approving any borrow or waste sites that are within 400 feet of any streams or wetlands.

u) The permittee shall take measures to prevent live or fresh concrete from coming into contact with any surface waters until the concrete has hardened.

Mitigation

* v) Compensatory mitigation for the unavoidable impacts to 489 linear feet of stream channel and 1.36 acres of riparian wetlands. Pursuant to the In-Lieu Fee Instrument signed July 28, 2010 between the State of North Carolina, Ecosystem Enhancement Program and the US Army Corps of Engineers the EEP will provide 2.72 acres restoration equivalent riparian wetlands and 978 linear feet of restoration equivalent warm water stream channel in the Yadkin River Basin (Hydrologic Cataloging Unit 03040102) in accordance with Section F of the instrument.

w) Additional compensatory mitigation provided by the applicant includes onsite mitigation as outlined in the attached Mitigation Plan entitled *"Onsite Stream Mitigation Plan, Interchange at I-40 and I-77 in Statesville, Iredell County, TIP I-3819 A, WBS No. 34192.1.2, February 15, 2012"* (attached as Exhibit B). The onsite stream mitigation plan will offset the remaining stream impacts associated with the construction of I-3819 A not mitigated by the NC EEP (which total 1,177 linear feet of impact to be mitigated at 2:1 ratio to equal 2,354 linear feet of credit required by the onsite mitigation).

U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT

Action Id. 2005-31626 County: Iredell U.S.G.S. Quad: Statesville East

NOTIFICATION OF JURISDICTIONAL DETERMINATION

Property Owner/Agent: North Carolina Department of Transportation
Address: 1548 Mail Service Center
Raleigh, NC 27699

Property description:

Size (acres)	approx 18,450 linear feet /24.5 acres	Nearest Town	Statesville
Nearest Waterway	Fourth Creek	River Basin	South Yadkin-Upper Pee Dee
USGS HUC	03040102	Coordinates	35.80412 N/ -80.86157 W

Location description The proposed project site is located along the existing roadways and interchange of Interstate 40 and Interstate 77, in Statesville, Iredell County, North Carolina. 35.80412 N and -80.86157 W.

Indicate Which of the Following Apply:

A. Preliminary Determination

_ Based on preliminary information, there may be waters on the above described property. We strongly suggest you have this property inspected to determine the extent of Department of the Army (DA) jurisdiction. To be considered final, a jurisdictional determination must be verified by the Corps. This preliminary determination is not an appealable action under the Regulatory Program Administrative Appeal Process (Reference 33 CFR Part 331).

B. Approved Determination

_ There are Navigable Waters of the United States within the above described property subject to the permit requirements of Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

X **There are waters on the above described property subject to the permit requirements of Section 404 of the Clean Water Act (CWA)(33 USC § 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.**

_ We strongly suggest you have the waters on your property delineated. Due to the size of your property and/or our present workload, the Corps may not be able to accomplish this wetland delineation in a timely manner. For a more timely delineation, you may wish to obtain a consultant. To be considered final, any delineation must be verified by the Corps.

_ The waters on your property have been delineated and the delineation has been verified by the Corps. We strongly suggest you have this delineation surveyed. Upon completion, this survey should be reviewed and verified by the Corps. Once verified, this survey will provide an accurate depiction of all areas subject to CWA jurisdiction on your property which, provided there is no change in the law or our published regulations, may be relied upon for a period not to exceed five years.

X **The waters have been delineated and surveyed and are accurately depicted on the maps submitted to this office on March 20, 2012 via the NCDOT FTS website and the map submitted by URS in 2005. This is a re-verification of a JD which expired on November 21, 2010. The information remains valid from the previous JD dated November 21, 2005. Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.**

_ There are no waters of the U.S., to include wetlands, present on the above described property which are subject to the permit requirements of Section 404 of the Clean Water Act (33 USC 1344). Unless there is a change in the law or our published regulations, this determination may be relied upon for a period not to exceed five years from the date of this notification.

Action Id. 2005-31626

Placement of dredged or fill material within waters of the US and/or wetlands without a Department of the Army permit may constitute a violation of Section 301 of the Clean Water Act (33 USC § 1311). If you have any questions regarding this determination and/or the Corps regulatory program, please contact **Liz Hair** at **828-271-7980**.

C. Basis For Determination

The site contains wetlands as determined by the USACE 1987 Wetland Delineation Manual and is adjacent to stream channels located on the property that exhibit indicators of ordinary high water marks. The stream channel on the property is an unnamed tributary to Fourth Creek which flows into the South Yadkin River and ultimately flows to the Atlantic Ocean.

D. Remarks

E. Attention USDA Program Participants

This delineation/determination has been conducted to identify the limits of Corps' Clean Water Act jurisdiction for the particular site identified in this request. The delineation/determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA Program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

F. Appeals Information (This information applies only to approved jurisdictional determinations as indicated in B. above)

This correspondence constitutes an approved jurisdictional determination for the above described site. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and request for appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the following address:

US Army Corps of Engineers
South Atlantic Division
Attn: Jason Steele, Review Officer
60 Forsyth Street SW, Room 10M15
Atlanta, Georgia 30303-8801

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by May 23, 2012.

It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this correspondence.

Corps Regulatory Official: Liz Hair HAIR.SARAH.E.A.1054693512 Digitally signed by HAIR.SARAH.E.A.1054693512 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USA, cn=HAIR.SARAH.E.A.1054693512 Date: 2012.03.23 11:28:30 -04'00'

Issue Date: **March 23, 2012** Expiration Date: **March 23, 2016**

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete the attached customer Satisfaction Survey or visit http://per2.nwp.usace.army.mil/survey.html to complete the survey online.

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL		
Applicant: North Carolina Department of Transportation	File Number: 2005-31626	Date: March 23, 2012
Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
X	APPROVED JURISDICTIONAL DETERMINATION	D
	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://www.usace.army.mil/inet/functions/cw/cecwo/reg or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact: Liz Hair, Project Manager USACE, Asheville Regulatory Field Office 151 Patton Ave RM 208 Asheville, NC 28806 828-271-7980	If you only have questions regarding the appeal process you may also contact: Mr. Jason Steele, Administrative Appeal Review Officer CESAD-PDO U.S. Army Corps of Engineers, South Atlantic Division 60 Forsyth Street, Room 10M15 Atlanta, Georgia 30303-8801 Phone: (404) 562-5137

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

_____ Signature of appellant or agent.	Date:	Telephone number:

For appeals on Initial Proffered Permits send this form to:

District Engineer, Wilmington Regulatory Division, Attn: Ms. Liz Hair, 69 Darlington Avenue, Wilmington, North Carolina 28403

For Permit denials, Proffered Permits and approved Jurisdictional Determinations send this form to:

Division Engineer, Commander, U.S. Army Engineer Division, South Atlantic, Attn: Mr. Jason Steele, Administrative Appeal Officer, CESAD-PDO, 60 Forsyth Street, Room 10M15, Atlanta, Georgia 30303-8801 Phone: (404) 562-5137

RECEIVED
MAR 19 2012
DIVISION OF HIGHWAYS
PDEA-OFFICE OF NATURAL ENVIRONMENT

NCDENR
North Carolina Department of Environment and Natural Resources
Division of Water Quality

Beverly Eaves Perdue
Governor

Coleen H. Sullins
Director

Dee Freeman
Secretary

March 12, 2012

Gregory J. Thorpe, Ph.D., Environmental Management Director
North Carolina Department of Transportation
Project Development and Environmental Analysis Branch
1598 Mail Service Center
Raleigh, North Carolina, 27699-1598

Subject: **401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act with Additional Conditions for the Proposed Improvements for the I-40 & I-77 Interchange in Statesville Including I-40 from West of SR 2003 (Radio Road) to SR 2158 (Old Mocksville Road) and I-77 from South of SR 2321 (East Broad Street) to South of SR 2171 (Jane Sower Road), TIP No. I-3819A, Federal Aid Project No. IMS-40-2, Iredell County, NCDWQ Project No. 11-1044**

Dear Dr. Thorpe:

Attached hereto is a copy of Certification No. 3909 issued to The North Carolina Department of Transportation (NCDOT) dated March 12, 2012.

If we can be of further assistance, do not hesitate to contact us.

Sincerely,

Charles Wakild
Director

Attachments

cc: Sarah Hair, US Army Corps of Engineers, Asheville Field Office
Chris Militscher, Environmental Protection Agency (electronic copy only)
Marla Chambers, NC Wildlife Resources Commission (electronic copy only)
Marella Buncick, US Fish and Wildlife Service (electronic copy only)
William Gilmore, Ecosystem Enhancement Program
Erin Cheely, NCDOT PDEA
Larry Thompson, NCDOT Division 10 Environmental Officer
Sonia Carrillo, NCDWQ Transportation Permitting Unit
Polly Lespinasse, NCDWQ Mooresville Regional Office
Brian Wrenn, NCDWQ Transportation Permitting Unit
File Copy

Mooresville Regional Office
Location: 610 East Center Ave., Suite 301 Mooresville, NC 28115
Phone: (704) 663-1699 \ Fax: (704) 663-6040 \ Customer Service: 1-877-623-6748
Internet: http://portal.ncdenr.org/web/wq

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One North Carolina Naturally

401 Water Quality Certification Pursuant to Section 401 of the Federal Clean Water Act with ADDITIONAL CONDITIONS

THIS CERTIFICATION is issued in conformity with the requirements of Section 401 Public Laws 92-500 and 95-217 of the United States and subject to the North Carolina Division of Water Quality (NCDWQ) Regulations in 15 NCAC 2H .0500. This certification authorizes the NCDOT to permanently impact 2,326 linear feet of jurisdictional streams and 1.36 acres of jurisdictional wetlands, and temporarily impact 135 linear feet of streams in Iredell County. The project shall be constructed pursuant to the application received November 30, 2011, and additional information received electronically January 31 and February 28, 2012. The authorized impacts are as described below:

Stream Impacts in the Yadkin Pee-Dee River Basin

Permit Site No. / Station No.s	Permanent Fill in Intermittent Stream (linear ft)	Temporary Fill in Intermittent Stream (linear ft)	Permanent Fill in Perennial Stream (linear ft)	Temporary Fill in Perennial Stream (linear ft)	Total Stream Impact (linear ft)	Stream Impacts Requiring Mitigation (linear ft)
Site 1/-L-22+74 to 22+95 Lt			77 lf for culvert		77 lf	0
Site 1A/--L-22+93 to 23+00 Lt	12 lf impacted due to relocation of stream at Site 1				12 lf	0
Site 2/--L-50+39 to 55+89			117 lf (71 lf for culvert,46 lf for bank stabilization)		117 lf	0
Site 3/-Y8-15+16 to 15+73 Rt			23 lf for bank stabilization	45 lf	68 lf	0
Site 4/--L-86+29 to 92+26 Rt	594 lf for culvert				594 lf	594 lf
Site 5/-L-91+21 to 94+14 Rt			482 lf for bank stabilization under the bridge		482 lf	0
Site 7/ -INT_YRPC-19+98 to 20+60 Rt			115 lf (70 lf for culvert, 45 lf for bank stabilization)		115 lf	0
Site 8/-Y-50+43 to 54+80 Lt			494 lf for culvert and rock lined channel		494 lf	494 lf
Site 9/--INT_YRPD-17+23 to 18+69			37 lf for bank stabilization		37 lf	0
Site10/-INT_YRPAB-14+85 Rt/17+85 Rt			15 lf for bank stabilization		15 lf	0
Site 11/-Y-167+13 to 167+28			10 lf for culvert	10 lf	20 lf	0

Site 12/-SR-1-6+69	175 lf for culvert	80 lf			255 lf	175 lf
Site 13/-SR-1-15+00			175 lf for culvert		175 lf	175 lf
Total	**781 lf**	**80 lf**	**1,545 lf**	**55 lf**	**2,461 lf**	**1,438 lf**

Total Stream Impacts for Yadkin-Pee Dee River Basin: 2,461 linear feet

Wetland Impacts In the Yadkin-Pee Dee River Basin (Riverine)

Permit Site No./ Station No.s	Permanent Fill/Excavation/ Clearing Impacts (ac)	Temporary Impacts (ac)	Total Wetland Impact (ac)	Wetland Impacts Requiring Mitigation (ac)
Site 6/-L-99+74 to 114+26 Rt	1.09 ac (1.0 ac. fill, 0.09 ac clearing)		1.09 ac	1.09 ac
Site 8/-Y-50+43 to 54+80 Lt	0.09 ac for fill		0.09 ac	0.09 ac
Site 9/–INT_YRPD-17+23 to 18+69	0.16 ac (0.13 ac fill, 0.03 ac clearing)		0.16 ac	0.16 ac
Site 12/-SR-1-6+69	0.02 ac clearing		0.02 ac	0.02 ac
Total	**1.36 ac**		**1.36 ac**	**1.36 ac**

Total Wetland Impacts for Yadkin-Pee Dee River Basin (Riverine): 1.36 acres

Wetland/Stream Impacts in the Yadkin-Pee Dee River Basin Associated with Utility Relocations (Riverine)

Impacted Resource ID	Type of Impact Permanent (lf) or (ac)	Type of Impact Temporary (lf) or (ac)	Total Stream/ Wetland Impact (lf) or (ac)	Impacts Requiring Mitigation (lf) or (ac)
Utility 1 – Wetland 6		0.01 ac excavation for utility trenching (to be restored)	0.01 ac	0
Utility 2 – Stream S2		10 lf	10 lf	0
Utility 3 – Stream S6		8 lf	8 lf	0
Utility 4 – Wetland 12		0.05 ac for hand clearing	0.05 ac	0
Utility 5 – Wetland 14		0.08 ac for hand clearing	0.08 ac	0
Total	**0**	**0.14 ac wetlands/18 lf streams**	**0.14 ac wetlands/18 lf streams**	**0**

The application provides adequate assurance that the discharge of fill material into the waters of the Yadkin-Pee Dee River Basins and associated wetlands, in conjunction with the proposed development will not result in a violation of applicable Water Quality Standards and discharge guidelines. Therefore, the State of North Carolina certifies that this activity will not violate the applicable portions of Sections 301, 302, 303, 306, 307 of PL 92-500 and PL 95-217 if conducted in accordance with the application and conditions hereinafter set forth.

This approval is only valid for the purpose and design that you submitted in your application dated November 30, 2011, and additional information received electronically January 31 and February 28, 2012. Should your project change, you are required to notify the NCDWQ and submit a new application. If the property is sold, the new owner must be given a copy of this Certification and approval letter, and is thereby responsible for complying with all the conditions. If any additional wetland impacts, or stream impacts, for this project (now or in the future) exceed one acre or 150 linear feet, respectively, additional compensatory mitigation may be required as described in 15A NCAC 2H .0506 (h) (6) and (7). For this approval to remain valid, you are required to comply with all the conditions listed below. In addition, you should obtain all other federal, state or local permits before proceeding with your project including (but not limited to) Sediment and Erosion control, Coastal Stormwater, Non-discharge and Water Supply watershed regulations. This Certification shall expire on the same day as the expiration date of the corresponding Corps of Engineers Permit.

Conditions of Certification:

1. All riprap shall be of the size indicated on the permit drawings and shall be installed on the banks only at Permit Sites 2, 3, 5, 7, 9, 10 and at the pipe removal site located near Permit Site 6 (Permit Drawing Sheet 31 of 68).

2. Riprap installed in the stream at Permit Site 8 shall be embedded such that low flow of water and aquatic passage are not impeded.

3. Floodplain benches shall be constructed at Permit Site 1 as per Detail BO in the original permit drawings. Additionally, the existing streambed material must be stockpiled and placed in the new streambed as per the revised drawings provided January 31, 2012.

4. All stream and wetland impacts associated with utility installations and/or relocations must be restored as per Utility Permit Sheet 2A provided January 31, 2012.

5. Bridge deck drains shall not discharge directly into the stream. Stormwater shall be directed across the bridge and pre-treated through site-appropriate means (grassed swales, pre-formed scour holes, vegetated buffers, etc.) before entering the stream. Please refer to the most current version of *Stormwater Best Management Practices.*

6. No drill slurry or water that has been in contact with uncured concrete shall be allowed to enter surface waters. This water shall be captured, treated and disposed of properly.

7. Bridge piles and bents shall be constructed using driven piles (hammer or vibratory) or drilled shaft construction methods. More specifically, jetting or other methods of pile driving are prohibited without prior written approval from NCDWQ.

8. All pile driving or drilling activities shall be enclosed in turbidity curtains unless otherwise approved by NCDWQ in this certification.

9. The post-construction removal of any temporary bridge structures must return the project site to its preconstruction contours and elevations. The impacted areas shall be revegetated with appropriate native species.

10. All bridge construction shall be performed from the existing bridge, temporary work bridges, temporary causeways or floating or sunken barges. If work conditions require barges, they shall be floated into position and then sunk. The barges shall not be sunk and then dragged into position. Under no circumstances shall be barges be dragged along the bottom of the surface water.

* 11. Compensatory mitigation for 1,438 linear feet of impact to streams and 1.36 acres of wetlands for this project is required. We understand that the North Carolina Ecosystem Enhancement Program (EEP) has agreed to implement all the wetland mitigation for the project and 261 linear feet of the 1,438 linear feet of stream mitigation required. EEP has indicated in a letter dated January 31, 2012, that they will assume responsibility for satisfying the federal Clean Water Act compensatory mitigation requirements for the above-referenced project, in accordance with the North Carolina Department of Environment and Natural Resources' Ecosystem Enhancement Program In-Lieu Fee Instrument signed July 28, 2010.

12. As indicated in the application, compensatory mitigation for 1,177 linear feet of impact to streams for this project will be provided through on-site enhancement at a ratio of 2:1. Therefore, 2,355 linear feet of stream enhancement shall be provided. The on-site stream enhancement shall be constructed in accordance with the design submitted on January 31, 2012, as part of the revised permit drawings. All on-site mitigation sites shall be protected in perpetuity by a conservation easement or through NCDOT fee simple acquisition and recorded in the NCDOT Natural Environment Unit mitigation geodatabase. Please be reminded that as-builts for the completed streams shall be submitted to the North Carolina Division of Water Quality 401 Wetlands Unit with the as-builts for the rest of the project. If the parameters of this condition are not met, then the Permittee shall supply additional stream mitigation for the 1,177 linear feet of impacts. All stream enhancement sites shall have a 50-foot wide native wooded buffer planted on both sides of the stream unless otherwise authorized by this Certification. A transitional phase incorporating rolled erosion control product (RECP) and appropriate temporary ground cover is allowable.

* 13. The stream enhancement site shall be monitored annually for five (5) years or until success criteria are satisfied. Monitoring protocols shall follow those established for Monitoring Level II, as outlined in the Stream Mitigation Guidelines, April 2003. Success of the mitigation site shall be determined by NCDWQ during an on-site visit at or near the end of the monitoring period.

14. All culverts shall be placed below the elevation of the streambed by one (1) foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than 48 inches, to allow low flow passage of water and aquatic life. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands or streambeds or banks, adjacent to or upstream and downstream of the above structures. The applicant is required to provide evidence that the equilibrium is being maintained if requested in writing by NCDWQ. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact NCDWQ for guidance on how to proceed and to determine whether or not a permit modification will be required.

15. If multiple pipes or barrels are required, they shall be designed to mimic the natural stream cross section as closely as possible, including pipes or barrels at floodplain elevation and/or sills, where appropriate. Widening the stream channel shall be avoided. Stream channel widening at the inlet or outlet end of the structure(s) typically decreases water velocity causing sediment deposition that requires increased maintenance and disrupts aquatic life passage.

16. The site shall be graded to its preconstruction contours and revegetated with appropriate native species for streams being impacted due to site dewatering activities.

17. The riprap used for streambank stabilization, ditchline stabilization along streambanks and floodplain bench construction shall be of sufficient size to prevent migration of the riprap into the active stream channel.

18. If concrete is used during construction, a dry work area shall be maintained to prevent direct contact between curing concrete and stream water. Water that inadvertently contacts uncured concrete shall not be discharged to surface waters due to the potential for elevated pH and possible aquatic life and fish kills.

19. During the construction of the project, no staging of equipment of any kind is permitted in waters of the U.S., or protected riparian buffers.

20. The dimension, pattern and profile of the stream above and below the crossing shall not be modified. Disturbed floodplains and streams shall be restored to natural geomorphic conditions.

* 21. The Permittee shall ensure that the final design drawings adhere to the permit and to the permit drawings submitted for approval.

22. All work in or adjacent to stream waters shall be conducted in a dry work area. Approved BMP measures from the most current version of NCDOT Construction and Maintenance Activities manual such as sandbags, rock berms, cofferdams and other diversion structures shall be used to prevent excavation in flowing water.

23. Heavy equipment shall be operated from the banks rather than in the stream channel in order to minimize sedimentation and reduce the introduction of other pollutants into the stream.

24. All mechanized equipment operated near surface waters must be regularly inspected and maintained to prevent contamination of stream waters from fuels, lubricants, hydraulic fluids, or other toxic materials.

25. No rock, sand or other materials shall be dredged from the stream channel except where authorized by this certification.

26. Discharging hydroseed mixtures and washing out hydroseeders and other equipment in or adjacent to surface waters is prohibited.

27. The permittee and its authorized agents shall conduct its activities in a manner consistent with State water quality standards (including any requirements resulting from compliance with §303(d) of the Clean Water Act) and any other appropriate requirements of State and Federal law. If NCDWQ determines that such standards or laws are not being met (including the failure to sustain a designated or achieved use) or that State or federal law is being violated, or that further conditions are necessary to assure compliance, NCDWQ may reevaluate and modify this certification.

28. All fill slopes located in jurisdictional wetlands shall be placed at slopes no flatter than 3:1, unless otherwise authorized by this certification.

29. A copy of this Water Quality Certification shall be maintained on the construction site at all times. In addition, the Water Quality Certification and all subsequent modifications, if any, shall be maintained with the Division Engineer and the on-site project manager.

30. The outside buffer, wetland or water boundary located within the construction corridor approved by this authorization shall be clearly marked by highly visible fencing prior to any land disturbing activities. Impacts to areas within the fencing are prohibited unless otherwise authorized by this certification.

31. The issuance of this certification does not exempt the Permittee from complying with any and all statutes, rules, regulations, or ordinances that may be imposed by other government agencies (i.e. local, state, and federal) having jurisdiction, including but not limited to applicable buffer rules, stormwater management rules, soil erosion and sedimentation control requirements, etc.

32. The Permittee shall report any violations of this certification to the Division of Water Quality within 24 hours of discovery.

* 33. Upon completion of the project (including any impacts at associated borrow or waste sites), the NCDOT (or their authorized agent) shall complete and return the enclosed "Certification of Completion Form" to notify NCDWQ when all work included in the 401 Certification has been completed.

34. Native riparian vegetation must be reestablished in the riparian areas within the construction limits of the project by the end of the growing season following completion of construction.

35. There shall be no excavation from, or waste disposal into, jurisdictional wetlands or waters associated with this permit without appropriate modification. Should waste or borrow sites, or access roads to waste or borrow sites, be located in wetlands or streams, compensatory mitigation will be required since that is a direct impact from road construction activities.

36. Erosion and sediment control practices must be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to protect surface waters standards:

    a. The erosion and sediment control measures for the project must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Sediment and Erosion Control Planning and Design Manual.*
    b. The design, installation, operation, and maintenance of the sediment and erosion control measures must be such that they equal, or exceed, the requirements specified in the most recent version of the *North Carolina Sediment and Erosion Control Manual.* The devices shall be maintained on all construction sites, borrow sites, and waste pile (spoil) projects, including contractor-owned or leased borrow pits associated with the project.
    c. For borrow pit sites, the erosion and sediment control measures must be designed, installed, operated, and maintained in accordance with the most recent version of the *North Carolina Surface Mining Manual.*
    d. The reclamation measures and implementation must comply with the reclamation in accordance with the requirements of the Sedimentation Pollution Control Act.

37. Sediment and erosion control measures shall not be placed in wetlands or waters unless otherwise approved by this Certification.

38. Violations of any condition herein set forth may result in revocation of this Certification and may result in criminal and/or civil penalties. This Certification shall become null and void unless the above conditions are made conditions of the Federal 404 Permit. This Certification shall expire upon the expiration of the 404 Permit.

If you wish to contest any statement in the attached Certification you must file a petition for an administrative hearing. You may obtain the petition form from the office of Administrative hearings. You must file the petition with the office of Administrative Hearings within sixty (60) days of receipt of this notice. A petition is considered filed when it is received in the office of Administrative Hearings during normal office hours. The Office of Administrative Hearings accepts filings Monday through Friday between the hours of 8:00am and 5:00pm, except for official state holidays. The original and one (1) copy of the petition must be filed with the Office of Administrative Hearings. The petition may be faxed-provided the original and one copy of the document is received by the Office of Administrative Hearings within five (5) business days following the faxed transmission.

The mailing address for the Office of Administrative Hearings is:

Office of Administrative Hearings
6714 Mail Service Center
Raleigh, NC 27699-6714
Telephone: (919)-733-2698, Facsimile: (919)-733-3478

A copy of the petition must also be served on DENR as follows:

Ms. Mary Penny Thompson, General Counsel
Department of Environment and Natural Resources
1601 Mail Service Center
Raleigh, NC 27699-1601

This, the 12th day of March 2012

DIVISION OF WATER QUALITY

Charles Wakild
for Director

WQC No. 3909

Onsite Stream Mitigation Plan
Interchange at I-40 and I-77 in Statesville
Iredell County
TIP I-3819A
WBS No. 34192.1.2
February 15, 2012

1.0 BASELINE INFORMATION

The I-40/I-77 Interchange Area Improvement Project (TIP No. I-3819) is located northeast of the City of Statesville in Iredell County, North Carolina. The proposed 1550 acre project study area encompasses the I-40/I-77 interchange and five adjacent interchanges. Future improvements in the southwest quadrant of the project including a bridge flyover are not part of the current roadway design.

The topography of the project study area is characterized as gently rolling hills with some steep areas. Gently rolling topography is found within inter-stream areas, with steeper slopes found along the edges of some stream floodplains. Land use within the project vicinity includes a mixture of commercial, residential, agriculture, industrial, forested, and public/institutional land uses.

Perennial streams in the project study area include: 17 UT's to Fourth Creek and 2 UT's to Morrison Creek. No water supply watersheds, Outstanding Resource Waters (ORW), High Quality Waters (HQW), or Critical Areas (CA) were identified in the project study area. All UT's to Fourth Creek have been assigned a stream Index of 12-108-20 with a classification C which are fresh waters protected for secondary recreation, fishing, aquatic life including propagation and survival and wildlife.

2.0 SITE SELECTION

An unnamed tributary to Fourth Creek enters the Northeast quadrant of the interchange through a 48 inch pipe under I-77. The stream then runs parallel to I-77 for approximately 2355 feet within the potential stream mitigation area. The primary degrading factors along this stream are cattle access and lack of a riparian buffer.

Within this potential mitigation site, the upstream section of the Ut flows approximately 1050 feet in an incised channel through a steep U-shaped valley. The channel has several near vertical banks and areas of exposed bedrock. Cattle gain access to the stream at several locations along the banks, causing localized erosion. Along this section of the stream, the riparian area along the right bank is densely wooded. The riparian area along the left bank is sparsely wooded with pines and hardwoods.

Along the downstream section of the Ut, the valley flattens as the stream flows approximately 1305 feet in the channel at floodplain elevation. Cattle have full access to the stream through this section. The banks of the channel have been severely degraded by hoof shear but the riffle-pool structure is still largely intact. The far downstream end is so severely impacted by cattle that the channel is difficult to distinguish as it flows through a wetland dominated by herbaceous vegetation. The channel reforms as it exits the wetland and the stream mitigation site.

3.0 SITE PROTECTION INSTRUMENT

The mitigation site is presently located within or will be located within the NCDOT Right-of-Way for the project. It will be managed to prohibit all use inconsistent with its use as mitigation property, including any activity that would materially alter the biological integrity or functional and educational value of the site, consistent with the mitigation plan.

The site is designated on the plan sheets as a mitigation area and will placed on the Natural Environment Section's Mitigation GeoDatabase. This database is provided to all NCDOT personnel as a record of mitigation sites and their attributes, including location and prohibited activities.

NCDOT is held by virtue of the permit associated with this mitigation site and the associated roadway impacts to protect the site in perpetuity.

4.0 OBJECTIVES

The goal of the project is to improve water quality, habitat, and hydrology of the UT to Fourth Creek by removing the degrading factors and protecting the system from further impacts. This will be achieved by enhancement of 2305 feet of stream in the northeast quadrant of the project.

5.0 MITIGATION WORK PLAN

The mitigation site will be constructed in conjunction with TIP I-3819A. The site will be purchased fee simple by NCDOT Right-of Way. Livestock access will be restricted by fencing along the boundary of the site. The buffer of the stream enhancement area will be planted with the following bare root seedlings at a density of 680 trees per acre on 8 foot centers: northern red oak, American sycamore, white oak, and yellow poplar depending on availability. The banks of the stream enhancement area will be planted with live stakes on 4 foot centers with silky dogwood (*Cornus amomum*) and buttonbush (*Cephalanthus occidentalis*) depending on availability. Substitutions if needed will be made with species appropriate for the region and site conditions.

6.0 PERFORMANCE STANDARDS

Success for vegetation monitoring within the riparian buffer is based on the survival of at least 260 stems of five year old trees at year five. Assessment of channel stability will be based on the lack of significant departure of the channel cross sections from the as-built conditions over the monitoring period.

7.0 MONITORING REQUIREMENTS

NCDOT will monitor the site yearly for five years. Photo points will be located at equal intervals along the channel with upstream and downstream views. Vegetation monitoring will consist of counts of planted stems within a minimum of four 50 x 50 foot plots established within the riparian buffer area. Four permanent cross sections will be set in the channel with two within the upper reach and two within the lower reach. The entire reach will be visually inspected for channel stability and vegetation survival.

These monitoring activities will be documented in an annual report distributed to the regulatory agencies.

8.0 OTHER INFORMATION

NCDOT will conduct a benthic macro-invertebrate survey within the stream enhancement area prior to construction to document the baseline conditions of the site. Benthic surveys will also be conducted each year of the monitoring period. NCDWQ Qual 4 methods of collection will be used as per their Standard Operating Procedures manual. All data collection methods are derived from techniques used by the NC Department of Environment and Natural Resources - Division of Water Quality. http://h2o.enr.state.nc.us/esb/BAU.html.

Site information forms including habitat characterization will be completed at each sampling location. Locations will be recorded with a Trimble GPS unit to indicate the extent of the sample area and locations of existing habitat. Digital photographs will be taken at each sampling location. Physical/Chemical parameters will also be recorded at each site; water temperature, dissolved oxygen (DO), conductivity, and ph.

Samples will be "field picked" – the macro invertebrates will be removed from respective collections and placed in vials of alcohol for transport to a laboratory where they will be identified to species level, where appropriate.

9.0 DETERMINATION OF CREDITS

NCDOT proposes 2355 ft. of stream enhancement as partial mitigation for permanent stream impacts associated with I-3819 at a 2:1 ratio. An as-built report will be submitted within 60 days of completion of the project. The final determination of amount of mitigation will be based upon successful completion of the monitoring requirements and meeting of the performance standards.

9.1 CREDIT RELEASE SCHEDULE

NCDOT proposes immediate, full release of the stream enhancement as on-site mitigation for stream impacts associated with I-3819A.

10.0 GEOGRAPHIC SERVICE AREA

The mitigation is proposed for use solely as onsite mitigation for I-3819.

11.0 MAINTENANCE PLAN

The mitigation site will be held by NCDOT and placed on the NEU mitigation geodatabase. Once monitoring is completed and the site is closed out, it will be placed in the NCDOT Stewardship Program for long term maintenance and protection.

If an appropriate third party recipient is identified in the future, then the transfer of the property will include a conservation easement or other measure to protect the natural features and mitigation value of the site in perpetuity.

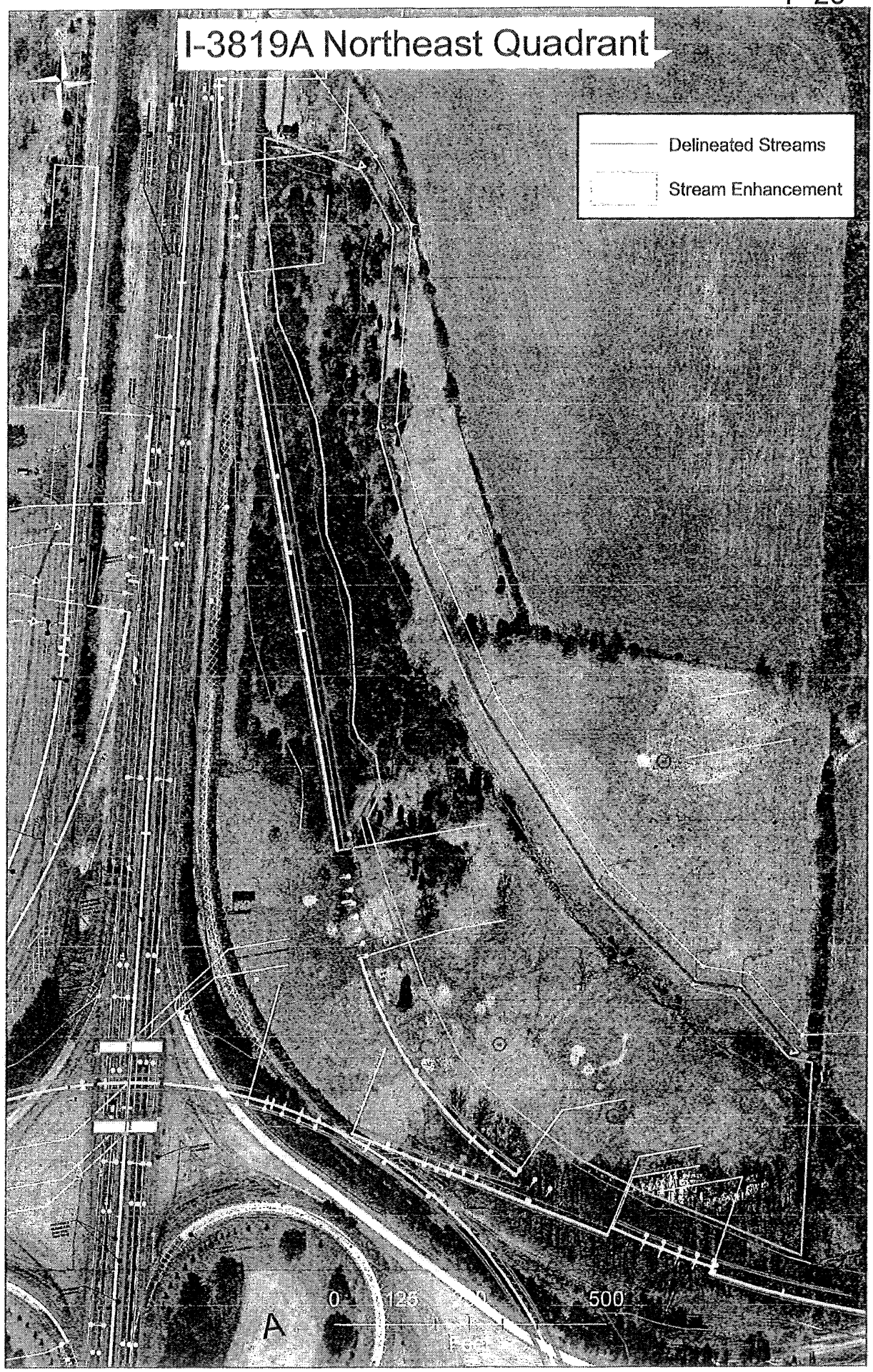
12.0 LONG TERM ADAPTIVE MANAGEMENT PLAN

The stream enhancement area will be managed by the NCDOT according to the mitigation plan. Beaver management will be instituted during the monitoring period. Encroachments into the area

will be investigated and appropriate measures taken to minimize any negative effects. In the event that unforeseen issues arise that affect the management or mitigation value, a remediation plan will be developed by NCDOT in coordination with the Interagency Review Team.

13.0 FINANCIAL ASSURANCES

NCDOT is held by permit conditions associated with I -3819 to preserve the stream enhancement area. NCDOT has established funds for each project and within each Division to monitor the mitigation site and to protect it in perpetuity.


I-3819A Northeast Quadrant
Delineated Streams
Stream Enhancement
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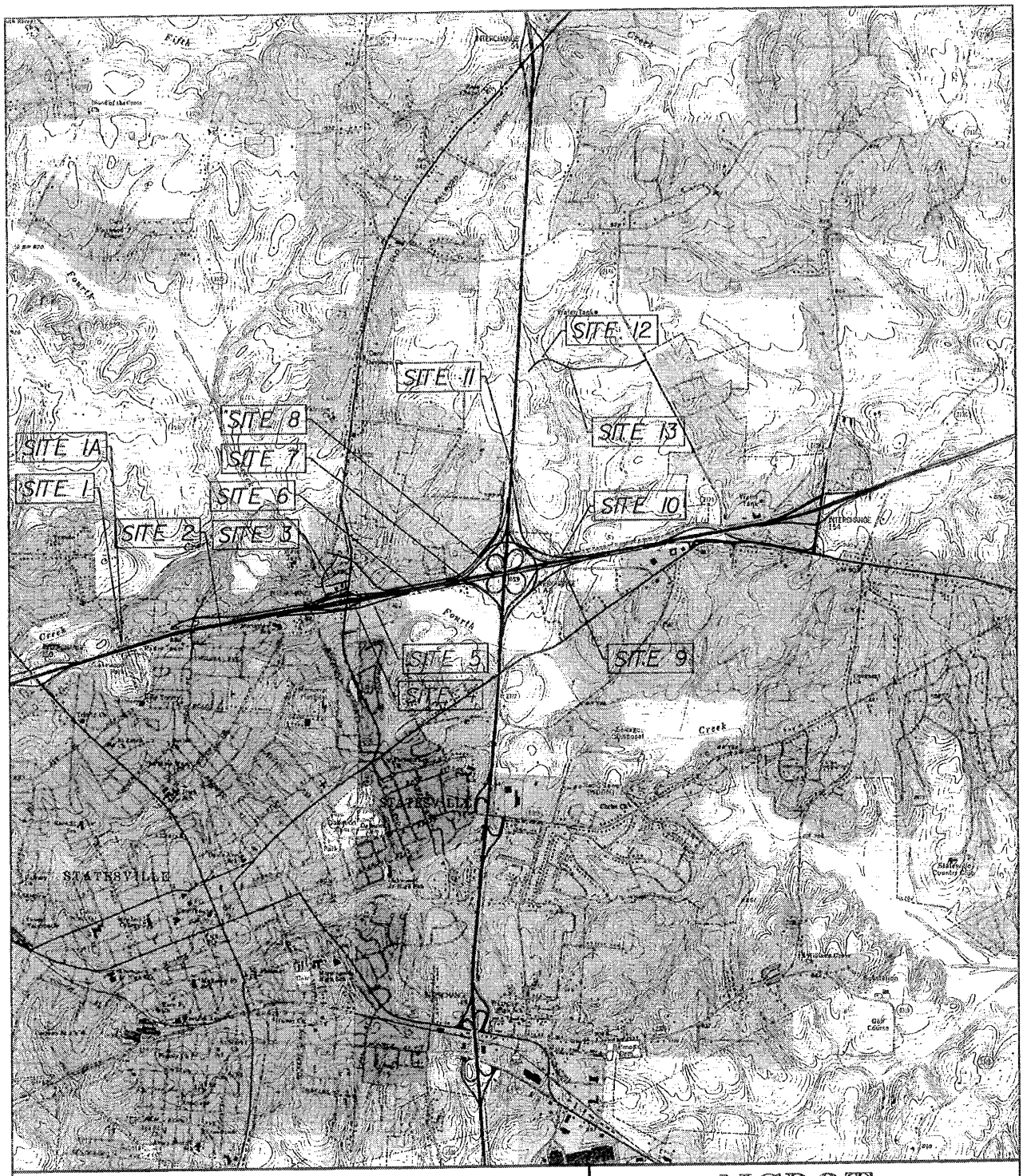


TOPO MAP

SCALE: 1" = 4000'

Permit Drawing
Sheet 1 of 68

NCDOT

DIVISION OF HIGHWAYS
IREDELL COUNTY
PROJECT: I-3819A

I-40 / I-77 INTERCHANGE INCLUDING I-40 FROM WEST OF SR 2003 TO WEST OF SR 2158 & I-77 FROM SOUTH OF I-40 TO SOUTH OF SR 2171

SHEET OF **07 / 06 / 10**

PROPERTY OWNERS

NAMES AND ADDRESSES

REFERENCE NO.	NAMES	ADDRESSES
1	ARTS AND SCIENCE MUSEUM, INC.	1335 MUSEUM ROAD STATESVILLE, NC 28625
16A	KEITH M. NORRIS	PO DRAWER 1068 STATESVILLE, NC 28687
37A	CITY OF STATEVILLE	PO BOX 1111 STATESVILLE, NC 28677
60	THE ARNESON PARK ASSOCIATES PARTNERSHIP	1180 FREE NANCY AVE. STATESVILLE, NC 28677
61	RAHAB LAND COMPANY INC.	5005 LBJ FWY #1130 DALLAS, TX 75011
78	MEWA MUNDI	715 SULLIVAN ROAD STATESVILLE, NC 28677
79	THE W.H. CHAMBERS ESTATE	150 LITTLE JOHN ROAD STATESVILLE, NC 28625
81	LLOYD D. HINSON	846 MOCK MILL ROAD STATESVILLE, NC 28677
83A	JAME LIMITED PARTNERSHIP	2529 AMITY HILL ROAD STATESVILLE, NC 28677
95	DOOSAN INTERNATIONAL USA, INC.	1293 GLENWAY DRIVE STATESVILLE, NC 28625

Permit Drawing
Sheet 2 of 68

NCDOT

DIVISION OF HIGHWAYS
IREDELL COUNTY
PROJECT: I-3819A

I-40 / I-77 INTERCHANGE INCLUDING
I-40 FROM WEST OF SR 2003 TO
WEST OF SR 2158
& I-77 FROM SOUTH OF I-40
TO SOUTH OF SR 2171

SHEET OF 07 / 06 / 10

PROPERTY OWNERS

NAMES AND ADDRESSES

REFERENCE NO.	NAMES	ADDRESSES
96	JAMES FARM, INC.	PO BOX 1042 STATESVILLE, NC 28687
97A	SPEK INVESTMENT CO., LLC	611B SULLIVAN ROAD STATESVILLE, NC 28677
100	JUDITH M. STUTTS	7404 SHERRILLS FORD ROAD SHERRILLS FORD, NC 28673
178	GOFORTH FAMILY REVOCABLE TRUST	PO BOX 712 STATESVILLE, NC 28687
179	PEPPERCORN MANAGEMENT, LLC	245 FORT CHISWELL ROAD MAX MEADOW, VA 24360

Permit Drawing
Sheet 3 of 68

NCDOT

DIVISION OF HIGHWAYS
IREDELL COUNTY
PROJECT: I-3819A

I-40 / I-77 INTERCHANGE INCLUDING
I-40 FROM WEST OF SR 2003 TO
WEST OF SR 2158
& I-77 FROM SOUTH OF I-40
TO SOUTH OF SR 2171

SHEET OF 07 / 06 / 10

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
1	-L- 22+74 to 22+95 Lt	72" SWS						<0.01		77		
1A	-L- 22+93 to 23+00 Lt							<0.01		12		
2	-L- 50+39 to 55+89	36" RCP/48" CMP						<0.01		71		
	Bank Stabilization	48" CMP						<0.01		46		
3	-Y8- 15+16 to 15+73 Rt	**Work Bridge							<0.01		45	
	Bank Stabilization							<0.01		23		
4	-L- 86+29 to 92+26 Rt	Roadway Fill						0.04		594		
5	-L- 91+21 to 94+14 Rt	Bridge										
	Bank Stabilization	Bridge						0.10		482		
6	-L- 99+74 to 114+26 Rt	Roadway Fill	1.00			0.09						
7	-INT_YRPC- 19+98 to 20+60 Rt	54" RCP						0.01		70		
	Bank Stabilization							0.01		45		
8	-Y5- 50+43 to 54+80 Lt	24" RCP	0.09					0.02		494		
9	-INT_YRPD- 17+23 to 18+69	Bridge	0.13			0.03						
	Bank Stabilization	Bridge						<0.01		37		
10	-INT_YRPAB- 14+85 RT / 17+85 RT	Roadway Fill										
	Bank Stabilization							<0.01		15		
11	-Y- 167+13 to 167+28	48" RCP						<0.01	<0.01	10	10	
12	-SR-1- 6+69	Culvert				0.02		0.07	0.03	175	80	
13	-SR-1- 15+00	66" RCP						0.01		175		
TOTALS:			1.22			0.14		0.28*	0.04*	2,326	135	

No additional impacts for 2@48" CMP removal at the outlet of Site 6
No additional impacts for 24" CMP removal at the outlet of Site 7

* Values are based on rounding, due to some of the individual impacts being <0.01 acre.
** in addition to the work bridge, a separate temporary bent will be necessary to "support" the proposed steel beams during construction. The temporary bent is located under the proposed bridge and is necessary for a field splice of the steel beams. The temporary surface water impacts are 36 sq ft., less than 0.01 ac

ATN Revised 3/31/05

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

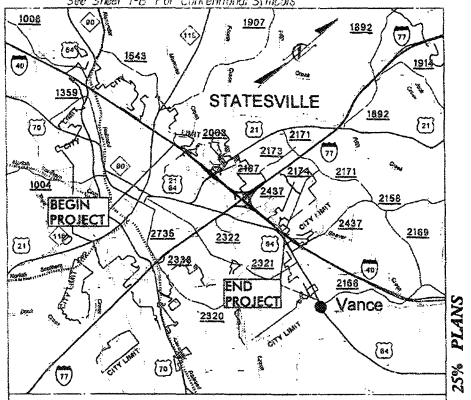
IREDELL COUNTY
WBS -34192.1.2 (I-3819A)

SHEET 7/20/2010

Permit Drawing
Sheet 4 of 62

PROJECT: 34192.1.2 TIP PROJECT: I-3819A

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



VICINITY MAP

THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF STATESVILLE

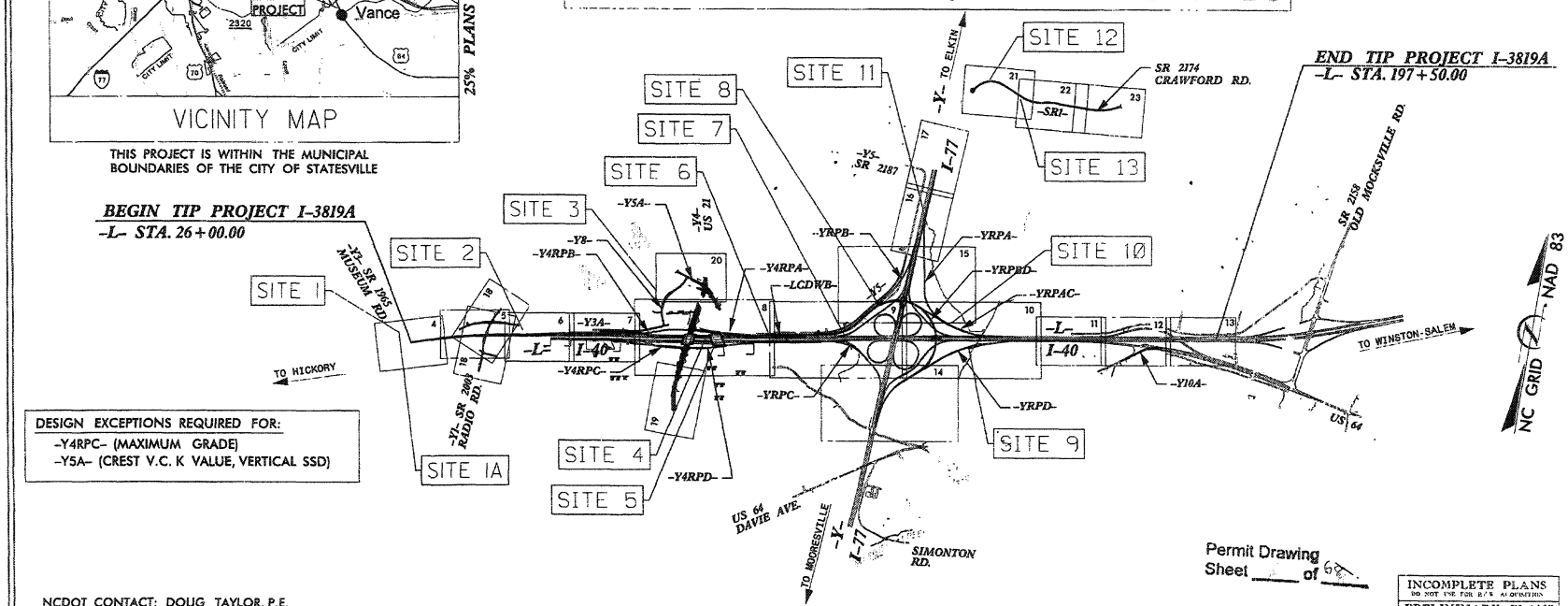
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

IREDELL COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-3819A		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34192.1.2	IMS-40-2(124)	P.E.	

LOCATION: I-40/I-77 INTERCHANGE INCLUDING I-40 FROM WEST OF SR 2003 (Radio Rd.) TO WEST OF SR 2158 (Old Mocksville Rd.) & I-77 FROM SOUTH OF I-40 TO SOUTH OF SR 2171 (Jane Sower Rd.)

WETLAND & STREAM IMPACTS



DESIGN EXCEPTIONS REQUIRED FOR:
-Y4RPC- (MAXIMUM GRADE)
-Y5A- (CREST V.C. K VALUE, VERTICAL SSD)

Permit Drawing Sheet ___ of 68

NCDOT CONTACT: DOUG TAYLOR, P.E.
ROADWAY DESIGN - ENGINEERING COORDINATION

THIS IS A CONTROLLED ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES

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

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100 PLANS
50 25 0 50 100 PROFILE (HORIZONTAL)
10 5 0 10 20 PROFILE (VERTICAL)

DESIGN DATA

	I-40	I-77
ADT 2010 =	71,100	73,200
ADT 2030 =	99,420	109,040
DHV =	10 %	9 %
D =	60 %	55 %
T =	19 % *	20 % **
V =	60 MPH	60 MPH

* TTST 14 + DUAL 5 (I-40)
** TTST 15 + DUAL 5 (I-77)
CLASSIFICATION: INTERSTATE

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT I-3819A	=	3.138
LENGTH STRUCTURES TIP PROJECT I-3819A	=	0.110
TOTAL LENGTH OF TIP PROJECT I-3819A	=	3.248

Prepared in the Office of: KO & ASSOCIATES, P.C.
Consulting Engineers
A Pipenee & Hutcheson, Inc. Company

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: DECEMBER 19, 2008

LETTING DATE: MAY 10, 2011

DAVID C. WALLER, P.E.
PROJECT ENGINEER

MICHAEL A. YOUNG, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER
SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
STATE HIGHWAY DESIGN ENGINEER P.E.

Florence & Hutcheson
Consulting Engineers
3121 Edwards Mill Suite 105 Raleigh, NC 27609
NC License No. P-0266

PROJECT REFERENCE NO.	SHEET NO.
I-3819A	2-AG
R/W SHEET NO.	
HYDRAULICS ENGINEER	

DRY DETENTION BASIN NOTES @ -L- 123+00 RT.

SEQUENCE OF CONSTRUCTION FOR DRY DETENTION BASIN

1. INSTALL ALL EROSION CONTROL MEASURES (AS NEEDED THROUGH CONSTRUCTION STAGES).
2. CONSTRUCT AND INSTALL BOXES CREATE OPENINGS IN BOXES AND CONNECT PIPES WITH BOXES.
3. ADD GRATES/TRASH RACK ON ALL BOXES.

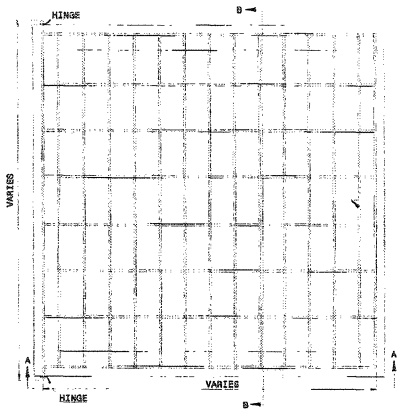
GENERAL NOTES FOR DRY DETENTION BASIN

1. APPLY SEEDING OVER THE SIDE SLOPES AND ANY EXPOSED SURFACE THAT NEEDS TO BE PROTECTED AGAINST IMMEDIATE POTENTIAL STORM EVENT.
2. THE SURVEYOR SHALL VERIFY THE INVERTS AND ELEVATIONS AT THE FOLLOWING POINTS AT THE END OF EACH PHASE OF CONSTRUCTION:
   -INVERTS IN THE PIPE AND THE BOXES.
3. THE BERM SHALL BE CONSTRUCTED WITH SUITABLE FILL MATERIAL PER THE ENGINEER.
4. ANY FILL MATERIAL SHALL BE COMPACTED.

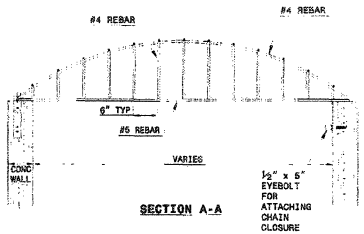
MAINTENANCE RECOMMENDATIONS

1. REMOVE DEBRIS, TRASH AND SEDIMENT BUILDUP FROM THE BASIN AS NECESSARY TO MINIMIZE OUTLET CLOGGING AND IMPROVE AESTHETICS.
2. REPAIR AND REVEGETATE ERODED AREAS AS NEEDED.
3. CHECK INLETS AND OUTLETS FOR STRUCTURAL REPAIR TO CONFIRM THAT THEY ARE OPERATIONAL
4. MOW AS NECESSARY TO LIMIT UNWANTED VEGETATION AND REMOVE CLIPPINGS AS PRACTICAL.
5. NO PORTION OF THE DRY DETENTION POND SHOULD BE FERTILIZED AFTER THE FIRST INITIAL FERTILIZATION THAT IS REQUIRED TO ESTABLISH VEGETATION.
6. STABLE GROUNDCOVER SHOULD BE MAINTAINED IN THE DRAINAGE AREA TO REDUCE THE SEDIMENT LOAD TO THE DRY DETENTION POND.
7. ONCE A YEAR, A DAM SAFETY EXPERT SHOULD INSPECT THE EMBANKMENT (IF APPLICABLE).
8. RECORDS OF OPERATION AND MAINTENANCE SHOULD BE KEPT IN A KNOWN SET LOCATION AND MUST BE AVAILABLE UPON REQUEST.

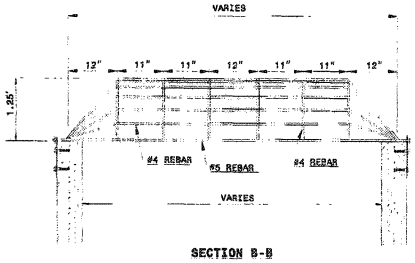
TRASH RACKS FOR OUTLET STRUCTURES



PLAN



SECTION A-A



SECTION B-B

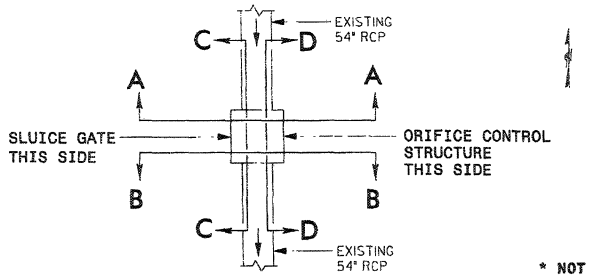
RISER TRASH RACK NOTES:
1. ALL JOINTS SHALL BE FULLY WELDED AROUND JOINT WITH A MINIMUM OF A ¼" BEAD
2. IF BOLTS ARE ANCHORED IN CONCRETE, FOLLOW STD. DWG. 862.03 AND 862.04 FOR ANCHORING PROCEDURE
3. EYEBOLT FOR CHAIN CLOSURE SHALL BE INSTALLED BY THE SAME METHOD AS THE HINGE PLATE BOLTS.
4. RACK AND HARDWARE SHALL BE REBAR AND GALVANIZED IN ACCORDANCE WITH ASTM A-153

* NOT TO SCALE

Permit Drawing
Sheet 6 of 68

P-32

SECTION VIEW SCHEMATIC OF OUTLET STRUCTURE



* NOT TO SCALE

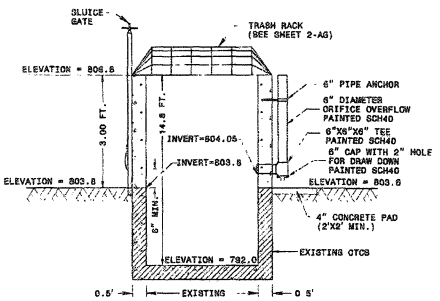
Florence & Hutcheson
CONSULTING ENGINEERS

PROJECT REFERENCE NO.	SHEET NO.
I-3819A	2-4H
R/W SHEET NO.	

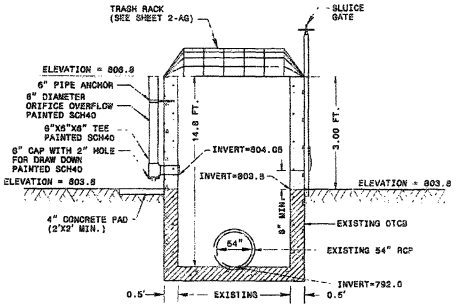
HYDRAULICS ENGINEER

-L- STA. 123+00 RT.
CONVERT EXISTING OTCB
TO DRY DETENTION BASIN
OUTLET CONTROL STRUCTURE

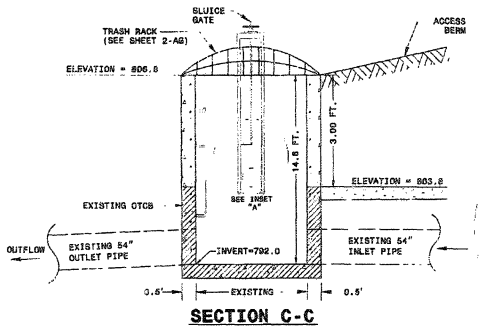
DRY DETENTION BASIN
OUTLET CONTROL STRUCTURE



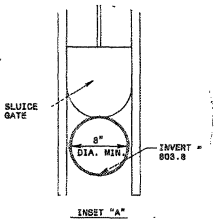
SECTION A-A

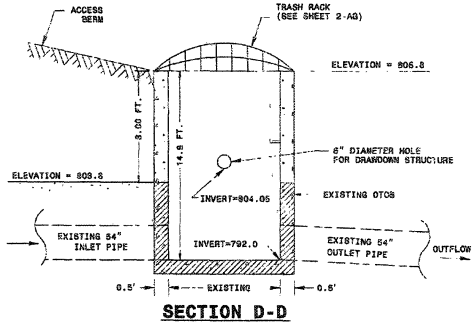


SECTION B-B



SECTION C-C





SECTION D-D

NOTES

1. 8" MIN. SLUICE GATE IS FOR MAINTENANCE AND SHOULD REMAIN CLOSED DURING NORMAL OPERATION.

* NOT TO SCALE

DRY DETENTION BASIN

Permit Drawing
Sheet 68

DRY DETENTION BASIN NOTES @ -L- 144+00 RT.

SEQUENCE OF CONSTRUCTION FOR DRY DETENTION BASIN

1. INSTALL ALL EROSION CONTROL MEASURES (AS NEEDED THROUGH CONSTRUCTION STAGES).
2. EXCAVATE FOR THE BASIN PER CROSS SECTIONS FOR -L-, -YRPD-, & -YRPBD-. PREPARE THE BASIN FLOOR PER DITCH PROFILE.
3. CONSTRUCT MAIN POND.
4. CONSTRUCT AND INSTALL BOXES. CREATE OPENINGS IN BOXES AND CONNECT PIPES WITH BOXES.
5. ADD GRATES/TRASH RACK ON ALL BOXES.

GENERAL NOTES FOR DRY DETENTION BASIN

1. APPLY SEEDING OVER THE SIDE SLOPES AND ANY EXPOSED SURFACE THAT NEEDS TO BE PROTECTED AGAINST IMMEDIATE POTENTIAL STORM EVENT.

2. THE SURVEYOR SHALL VERIFY THE INVERTS AND ELEVATIONS AT THE FOLLOWING POINTS AT THE END OF EACH PHASE OF CONSTRUCTION:
   -INVERTS IN THE PIPE AND THE BOXES.

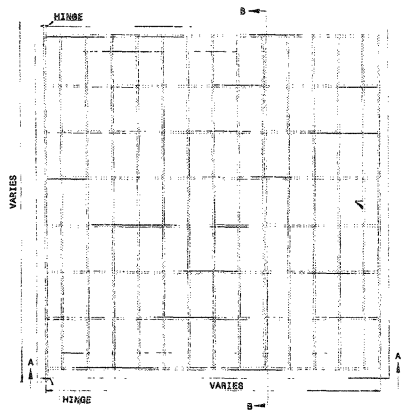
3. THE BERM SHALL BE CONSTRUCTED WITH SUITABLE FILL MATERIAL PER THE ENGINEER.

4. ANY FILL MATERIAL SHALL BE COMPACTED.

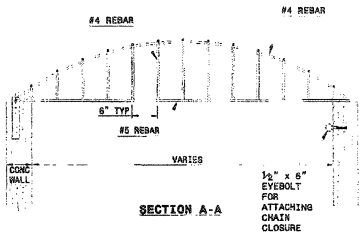
MAINTENANCE RECOMMENDATIONS

1. REMOVE DEBRIS, TRASH AND SEDIMENT BUILDUP FROM THE BASIN AS NECESSARY TO MINIMIZE OUTLET CLOGGING AND IMPROVE AESTHETICS.
2. REPAIR AND REVEGETATE ERODED AREAS AS NEEDED.
3. CHECK INLETS AND OUTLETS FOR STRUCTURAL REPAIR TO CONFIRM THAT THEY ARE OPERATIONAL.
4. MOW AS NECESSARY TO LIMIT UNWANTED VEGETATION AND REMOVE CLIPPINGS AS PRACTICAL.
5. NO PORTION OF THE DRY DETENTION POND SHOULD BE FERTILIZED AFTER THE FIRST INITIAL FERTILIZATION THAT IS REQUIRED TO ESTABLISH VEGETATION.
6. STABLE GROUNDCOVER SHOULD BE MAINTAINED IN THE DRAINAGE AREA TO REDUCE THE SEDIMENT LOAD TO THE DRY DETENTION POND.
7. ONCE A YEAR, A DAM SAFETY EXPERT SHOULD INSPECT THE EMBANKMENT (IF APPLICABLE).
8. RECORDS OF OPERATION AND MAINTENANCE SHOULD BE KEPT IN A KNOWN SET LOCATION AND MUST BE AVAILABLE UPON REQUEST.

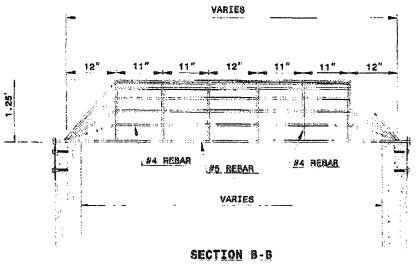
TRASH RACKS FOR OUTLET STRUCTURES



PLAN



SECTION A-A

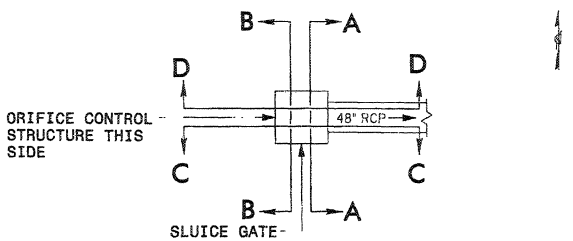


SECTION B-B

RISER TRASH RACK NOTES:
1. ALL JOINTS SHALL BE FULLY WELDED AROUND JOINT WITH A MINIMUM OF A ¼" BEAD
2. IF BOLTS ARE ANCHORED IN CONCRETE, FOLLOW STD. DNG. 862.03 AND 862.04 FOR ANCHORING PROCEDURE
3. EYEBOLT FOR CHAIN CLOSURE SHALL BE INSTALLED BY THE SAME METHOD AS THE HINGE PLATE BOLTS
4. RACK AND HARDWARE SHALL BE REBAR AND GALVANIZED IN ACCORDANCE WITH ASTM A-153

Permit Drawing Sheet 2 of 68

SECTION VIEW SCHEMATIC OF OUTLET STRUCTURE



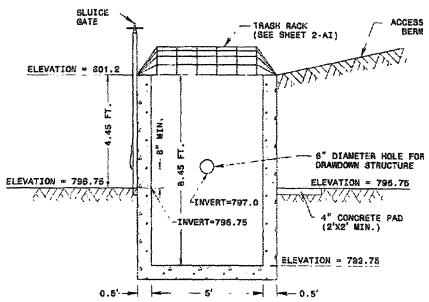
* NOT TO SCALE

Florence & Hutcheson
CONSULTING ENGINEERS

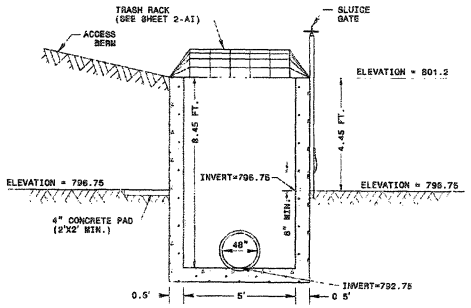
PROJECT REFERENCE NO.	SHEET NO.
I-3819A	2-AI
RW SHEET NO.	

HYDRAULICS ENGINEER

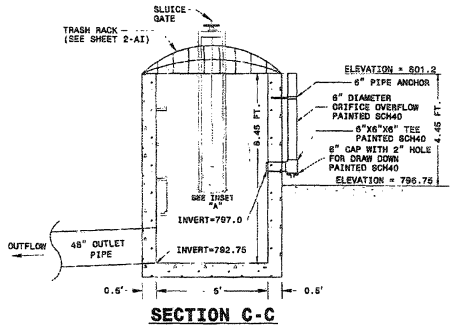
-L- STA. 144+00 RT.
DRY DETENTION BASIN
OUTLET CONTROL STRUCTURE



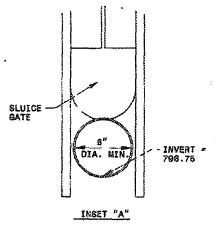
SECTION B-B

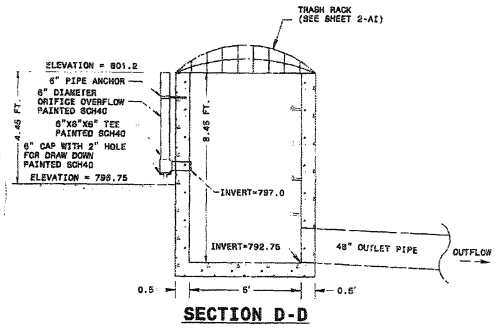


SECTION A-A



SECTION C-C





SECTION D-D

NOTES

1. 8" MIN. SLUICE GATE IS FOR MAINTENANCE AND SHOULD REMAIN CLOSED DURING NORMAL OPERATION.

* NOT TO SCALE

DRY DETENTION BASIN
OUTLET CONTROL STRUCTURE

DRY DETENTION BASIN

Retired Drawing
Sheet 9 of 68

MULKEY	PROJECT REFERENCE NO.	SHEET NO.
ENGINEERS & CONSULTANTS	I-3819A	2-AN
	S/W SHEET NO.	
	HYDRAULICS ENGINEER	

DRY DETENTION BASIN DETAIL (-L- 73+00 LT.)

MATERIALS

A	GEOTEXTILE FABRIC
B	POLYPROPYLENE WOVEN MONOFILAMENT GEOTEXTILE FABRIC
C	18" INLET PIPE
D	18" OUTLET PIPE
E	TWO LINES OF 6" PERFORATED HDPE (UNDERDRAIN PIPE)(SEE SHEET 2-AR)
F	PRECAST DI BOX
G	6" THICKNESS OF ENGINEERED SOIL (80%-85% SAND, 8%-12% FINES (SILT & CLAY), 3%-5% ORGANICS) (FILTER BED)
H	PERMANENT SOIL REINFORCEMENT MAT TO BE USED ON ALL 2:1 SLOPES THAT ARE NOT RIP RAPPED EST 700 SY FF
I	IMPERVIOUS LINER

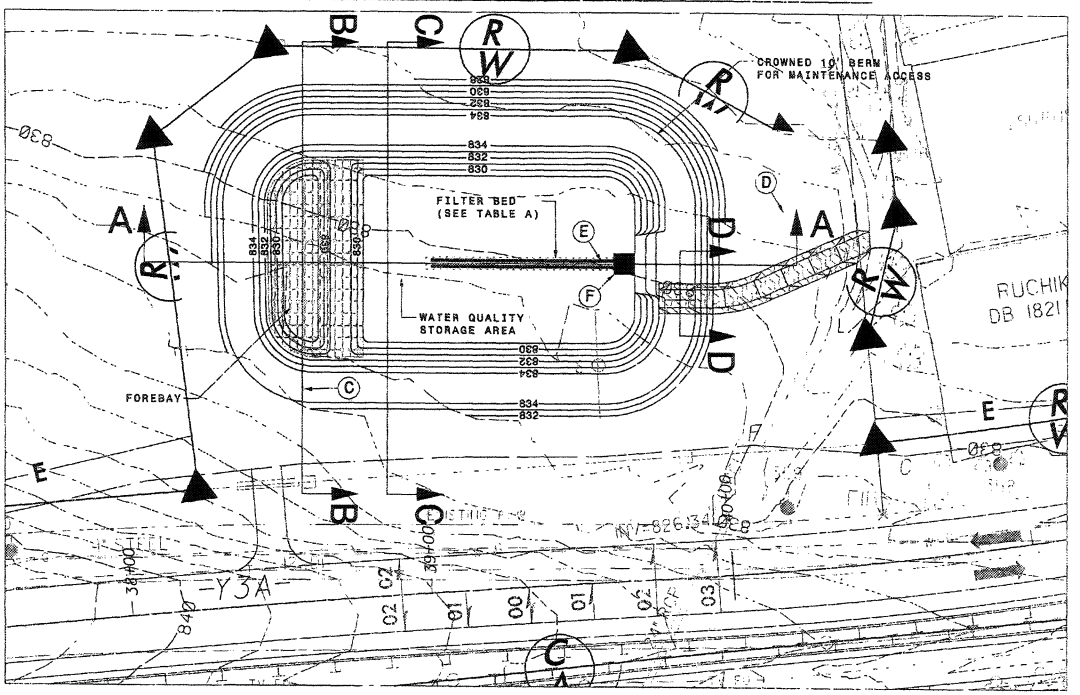
DIMENSIONS FOR UNDERDRAIN PIPE & FILTER BED (TABLE A)

BASIN	UNDERDRAIN PIPE DIM. LENGTH	FILTER BED DIMENSIONS AT EL. 829.0 WIDTH	LENGTH
-L- 73+00 LT.	60.0 FT.	4.0 FT.	62.0'

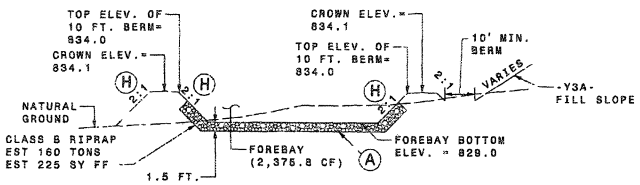
NOTE:
ENGINEERED SOIL SURFACE AREA
AT ELEV. 829.0 = 248.0 SF.
BOTTOM OF TOTAL BASIN SURFACE AREA
AT ELEV. 829.0 = 6380 SF.
BOTTOM OF FOREBAY SURFACE AREA
AT ELEV. 829.0 = 606 SF.

SCALE: 1" = 20'

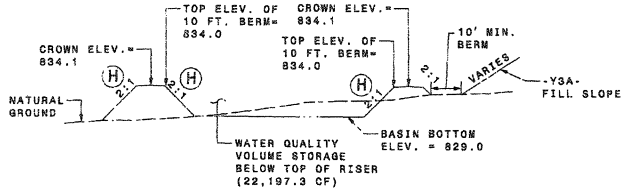
NAD 83 / NC GRID



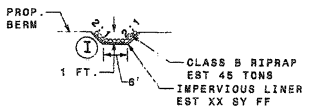
SECTION B-B



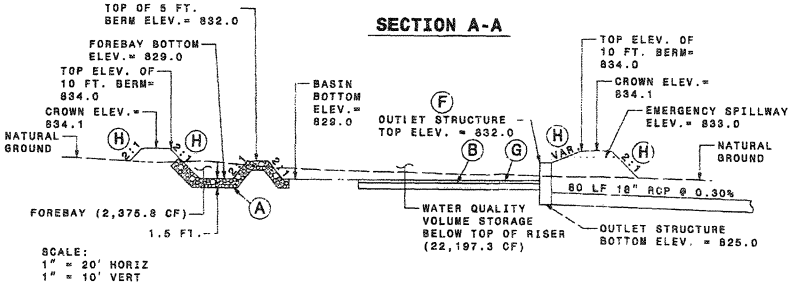
SECTION C-C



SECTION D-D



SECTION A-A



SCALE:
1" = 20' HORIZ
1" = 10' VERT

REVISIONS

Permit Drawing
Sheet 10 of 68

MULKEY
ENGINEERS & CONSULTANTS

PROJECT REFERENCE NO.	SHEET NO.
I-3819A	2-A0
R/W SHEET NO.	

HYDRAULICS ENGINEER

DRY DETENTION BASIN NOTES

SEQUENCE OF CONSTRUCTION FOR DRY DETENTION BASIN

1. INSTALL ALL EROSION CONTROL MEASURES (AS NEEDED THROUGH CONSTRUCTION STAGES).
2. EXCAVATE FOR THE BASIN AND FOREBAY. PREPARE THE BASIN FLOOR AT THE GIVEN GRADE.
3. CONSTRUCT FOREBAY.
4. CONSTRUCT MAIN POND.
5. CONSTRUCT UNDERDRAIN SYSTEM (SEE DETAIL SHEET 2-AR)
6. SEE SHEET 2-AR FOR DETAILS OF SOIL LAYERING SEQUENCE. LAY GEOTEXTILE FABRIC, PLACE & GRADE 6" OF ENGINEERED SOIL, PLACE SOD OR NATIVE GRASSES IN BASIN.
7. CONSTRUCT AND INSTALL BOXES. CREATE OPENINGS IN BOXES AND CONNECT PIPES WITH BOXES.
8. ADD GRATES/TRASH RACK ON ALL BOXES.

GENERAL NOTES FOR DRY DETENTION BASIN

1. APPLY SEEDING OVER THE SIDE SLOPES AND ANY EXPOSED SURFACE THAT NEEDS TO BE PROTECTED AGAINST IMMEDIATE POTENTIAL STORM EVENT.
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8. RECORDS OF OPERATION AND MAINTENANCE SHOULD BE KEPT IN A KNOWN SET LOCATION AND MUST BE AVAILABLE UPON REQUEST.

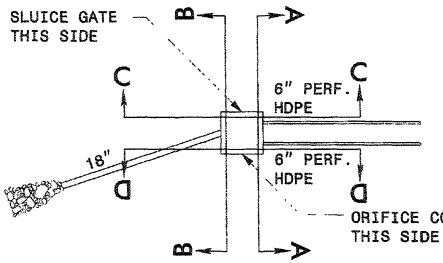
Permit Drawing
Sheet 11 of 68

MULKEY
ENGINEERS & CONSULTANTS

PROJECT REFERENCE NO.	SHEET NO.
1-3819A	2-AP
R/W SHEET NO.	

HYDRAULICS ENGINEER

SECTION VIEW SCHEMATIC OF OUTLET STRUCTURE



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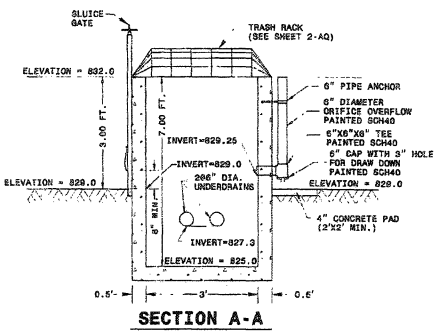
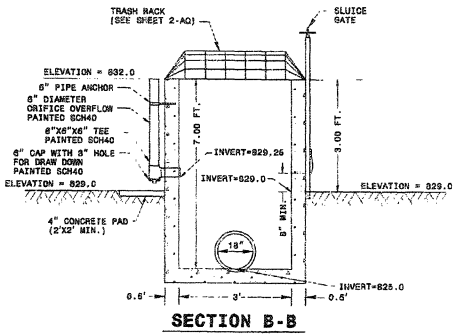
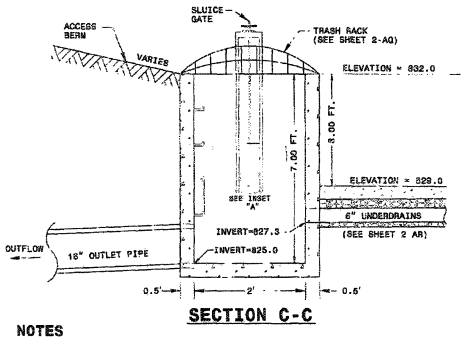


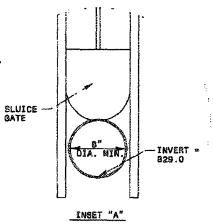
SECTION A-A



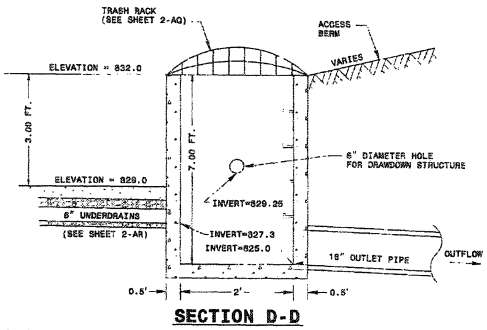
SECTION B-B



SECTION C-C



INSET "A"



SECTION D-D

NOTES

1. 6" UNDERDRAINS ARE SECONDARY DRAWDOWN DEVICES AND ARE NOT INTENDED TO BE PRIMARY DRAWDOWN DEVICES.
2. 8" MIN. SLUICE GATE IS FOR MAINTENANCE AND SHOULD REMAIN CLOSED DURING NORMAL OPERATION.

* NOT TO SCALE

DRY DETENTION BASIN

DRY DETENTION BASIN

Permit Drawing
Sheet 12 of 14

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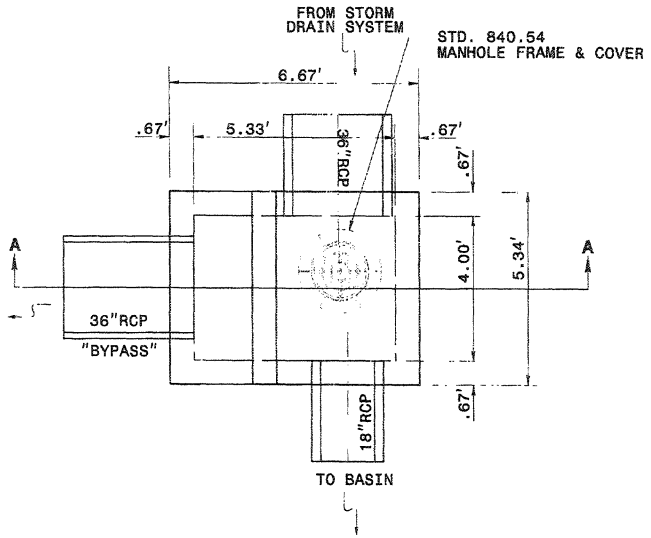
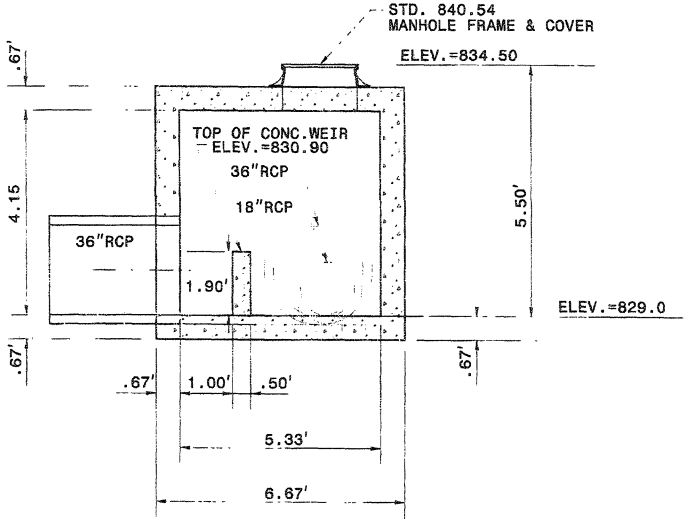
SPLITTER JUNCTION BOX



PLAN



SECTION A-A

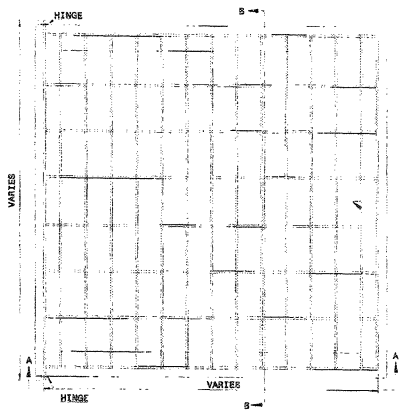
* NOT TO SCALE

MULKEY ENGINEERS & CONSULTANTS

PROJECT REFERENCE NO.	SHEET NO.
1-3819A	2-A0
R/W SHEET NO.	

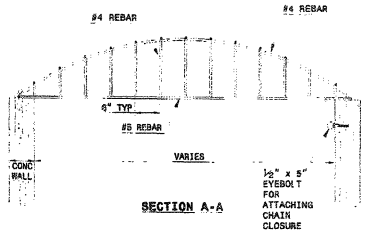
HYDRAULICS

TRASH RACKS FOR OUTLET STRUCTURES

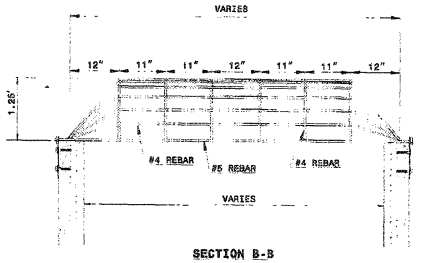


PLAN

RISER TRASH RACK NOTES:
1. ALL JOINTS SHALL BE FULLY WELDED AROUND JOINT WITH A MINIMUM OF A ⅛" BEAD
2. IF BOLTS ARE ANCHORED IN CONCRETE, FOLLOW STD. DRG. 902.03 AND 902.04 FOR ANCHORING PROCEDURE.
3. EYEBOLT FOR CHAIN CLOSURE SHALL BE INSTALLED BY THE SAME METHOD AS THE HINGE PLATE BOLTS.
4. RACK AND HARDWARE SHALL BE REBAR AND GALVANIZED IN ACCORDANCE WITH ASTM A-153.



SECTION A-A



SECTION B-B

* NOT TO SCALE

Permit Drawing
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MULKEY ENGINEERS & CONSULTANTS

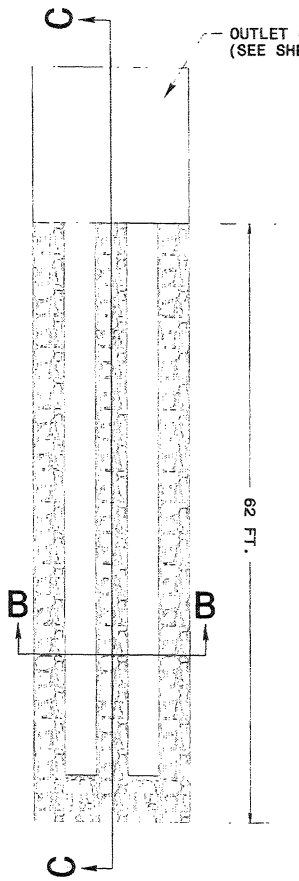
PROJECT REFERENCE NO.	SHEET NO.
I-3819A	2-AR
R/W SHEET NO.	

HYDRAULICS ENGINEER

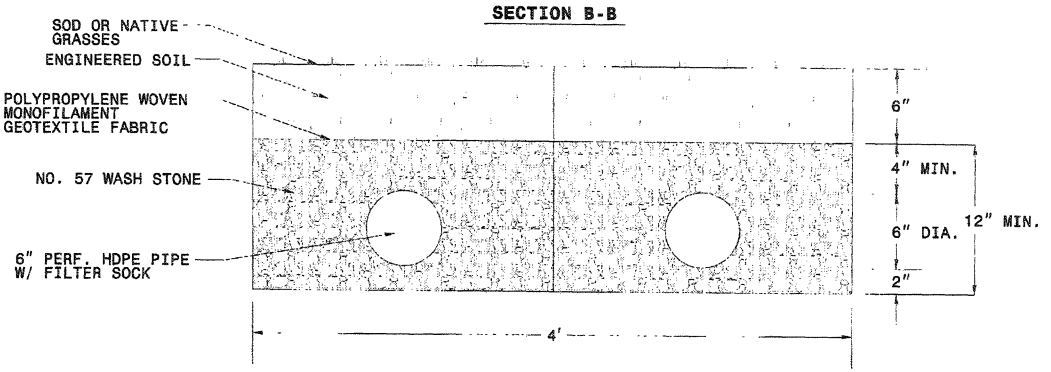
DRY DETENTION BASIN

"UNDERDRAIN SYSTEM"

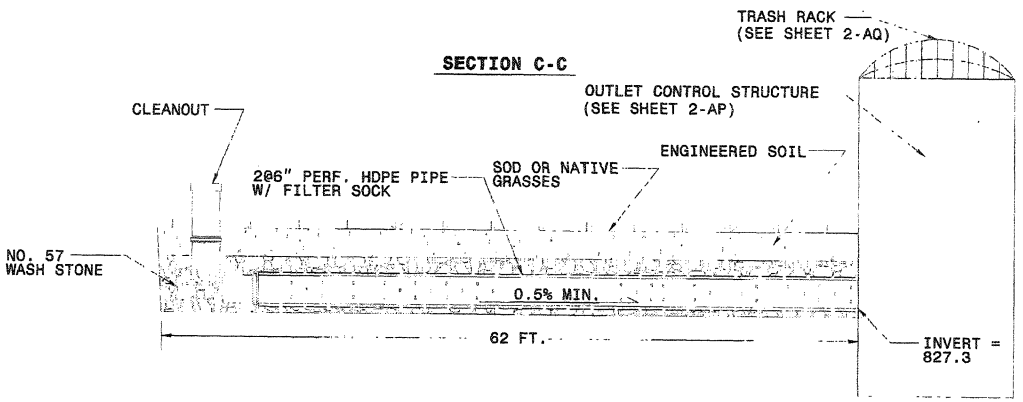
* NOT TO SCALE



SECTION B-B



SECTION C-C



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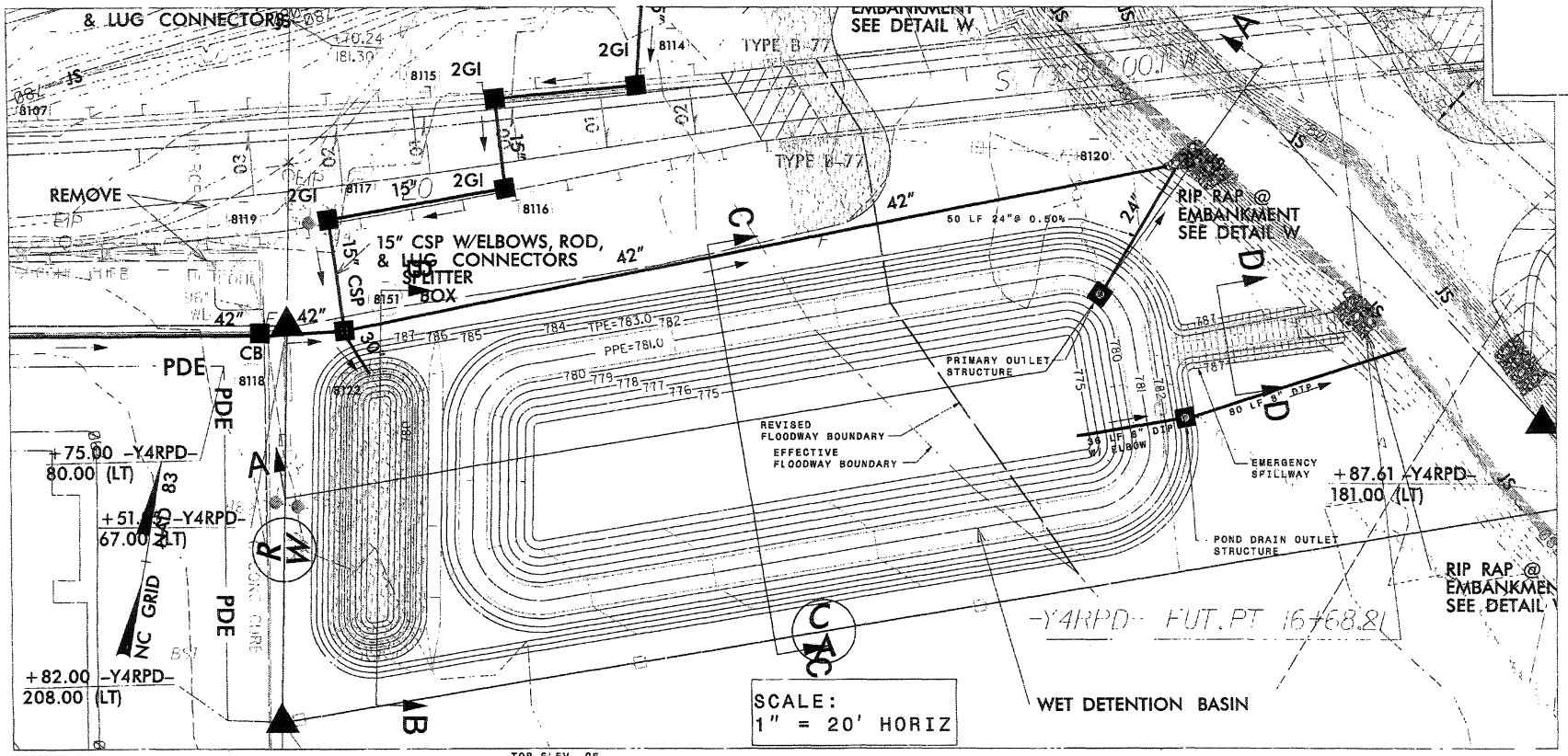
WET DETENTION BASIN DETAIL (-L- 91+00 RT.)

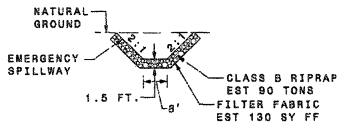
MULKEY ENGINEERS & CONSULTANTS

PROJECT REFERENCE NO.	SHEET NO.
I-3819A	2-A5
RW SHEET NO.	
HYDRAULICS ENGINEER	

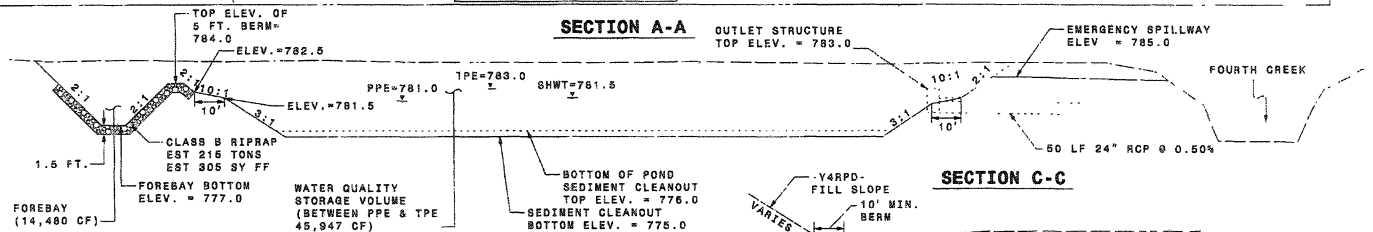
REVISIONS



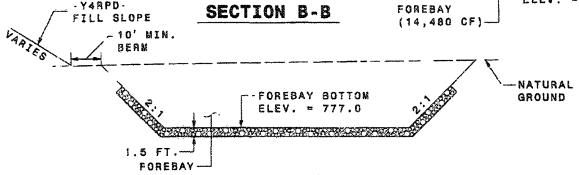
SECTION D-D



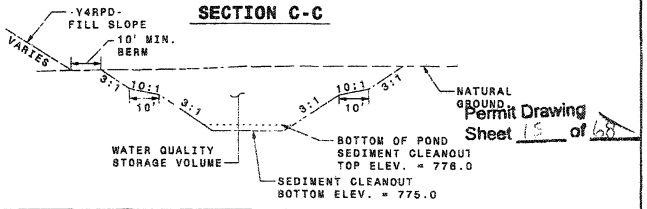
SECTION A-A



SECTION B-B



SECTION C-C



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MULKEY
ENGINEERS & CONSULTANTS

PROJECT REFERENCE NO.	SHEET NO.
I-3819A	2-A7
R/W SHEET NO.	

HYDRAULICS ENGINEER

WET DETENTION BASIN NOTES

SEQUENCE OF CONSTRUCTION FOR WET DETENTION BASIN

1. INSTALL ALL EROSION CONTROL MEASURES (AS NEEDED THROUGH CONSTRUCTION STAGES).
2. EXCAVATE FOR THE BASIN AND FOREBAY. PREPARE THE BASIN FLOOR AT THE GIVEN GRADE.
3. CONSTRUCT FOREBAY.
4. CONSTRUCT MAIN POND.
5. CONSTRUCT AND INSTALL BOXES. CREATE OPENINGS IN BOXES AND CONNECT PIPES WITH BOXES.
6. ADD GRATES/TRASH RACK ON ALL BOXES.

GENERAL NOTES FOR WET DETENTION BASIN

1. APPLY SEEDING ABOVE VEGETATED SHELF AND ANY EXPOSED SURFACE THAT NEEDS TO BE PROTECTED AGAINST IMMEDIATE POTENTIAL STORM EVENT.

2. THE SURVEYOR SHALL VERIFY THE INVERTS AND ELEVATIONS AT THE FOLLOWING POINTS AT THE END OF EACH PHASE OF CONSTRUCTION:
   - -INVERTS IN THE PIPE AND THE BOXES
   - -ELEVATION OF EMERGENCY SPILLWAY INVERT

VEGETATION NOTES FOR WET DETENTION BASIN

1. NO TREES OR SHRUBS SHOULD BE PLANTED WITHIN 10 FEET OF INLET OR OUTLET PIPES, OR MANMADE DRAINAGE STRUCTURES SUCH AS SPILLWAYS OR FLOW SPREADERS. SPECIES WITH ROOTS THAT SEEK WATER (E.G. WILLOW OR POPLAR), SHOULD BE AVOIDED WITHIN 50 FEET OF PIPES OR MANMADE STRUCTURES.
2. ALL LANDSCAPE MATERIAL, INCLUDING GRASS, SHOULD BE PLANTED IN GOOD TOPSOIL. NATIVE UNDERLYING SOILS MAY BE SUITABLE FOR PLANTING IF AMENDED WITH 4 INCHES OF WELL-AGED COMPOST TILLED INTO THE SUBGRADE COMPOST USED SHOULD MEET SPECIFICATIONS FOR GRADE A COMPOST QUALITY.
3. SOIL IN WHICH TREE OR SHRUBS ARE PLANTED MAY NEED ADDITIONAL ENRICHMENT OR ADDITIONAL COMPOST TOP-DRESSING DEPENDING ON THE RESULTS OF THE SOIL ANALYSIS. CONSULT A NURSERYMAN, LANDSCAPE PROFESSIONAL, OR ARBORIST FOR SITE-SPECIFIC RECOMMENDATIONS.
4. RECOMMENDED PLANTS TO BE USED ON VEGETATED SHELF (ABOVE SHWT):
   LINDERA BENZOIN - SPICEBRUSH
   ITEA VIRGINICA - VIRGINIA SWEETSPIRE
   VIBURNUM NUDUM - POSSUMHAW
   CORNUS AMOMUM - SILKY DOGWOOD
   CEPHALANTHUS OCCIDENTALIS - BOTTONBUS
   HIBISCUS MOSCHENUTOS - ROSE MALLOW
   SAMBUCUS CANADENSIS - ELDERBERRY
5. RECOMMENDED PLANTS TO BE USED ON VEGETATED SHELF (BELOW SHWT):
   PONTEDERIA CORDATA - PICKERELWEED
   PELTANDRA VIRGINICA - ARROW ARUM
   JUNCUS EFFUSUS - SOFT RUSH
   ITEA VIRGINICA - VIRGINIA SWEETSPIRE
   OSMUNDA REGALIS - ROYAL FERN

MAINTENANCE RECOMMENDATIONS

1. REMOVE DEBRIS, TRASH AND SEDIMENT BUILDUP FROM THE BASIN AS NECESSARY TO MINIMIZE OUTLET CLOGGING AND IMPROVE AESTHETICS.
2. REPAIR AND REVEGETATE ERODED AREAS AS NEEDED.
3. CHECK INLETS AND OUTLETS FOR STRUCTURAL REPAIR TO CONFIRM THAT THEY ARE OPERATIONAL.
4. IMMEDIATELY AFTER THE WET DETENTION BASIN IS ESTABLISHED, THE PLANTS ON THE VEGETATED SHELF AND PERIMETER OF THE BASIN SHOULD BE WATERED TWICE WEEKLY IF NEEDED, UNTIL THE PLANTS BECOME ESTABLISHED (COMMONLY SIX WEEKS)
5. NO PORTION OF THE WET DETENTION POND SHOULD BE FERTILIZED AFTER THE FIRST INITIAL FERTILIZATION THAT IS REQUIRED TO ESTABLISH THE PLANTS ON THE VEGETATED SHELF.
6. STABLE GROUNDCOVER SHOULD BE MAINTAINED IN THE DRAINAGE AREA TO REDUCE THE SEDIMENT LOAD TO THE WET DETENTION POND.
7. IF THE BASIN MUST BE DRAINED FOR AN EMERGENCY OR TO PERFORM MAINTENANCE, THE FLUSHING OF SEDIMENT THROUGH THE EMERGENCY DRAIN SHOULD BE MINIMIZED TO THE MAXIMUM EXTENT POSSIBLE.
8. ONCE A YEAR, A DAM SAFETY EXPERT SHOULD INSPECT THE EMBANKMENT (IF APPLICABLE).
9. WATER CLARITY & ALGAE GROWTH SHOULD BE MONITORED REGULARLY.
10. AFTER THE WET DETENTION POND IS ESTABLISHED, IT SHOULD BE INSPECTED ONCE A MONTH AND WITHIN 24 HOURS AFTER EVERY STORM EVENT GREATER THAN 1.0 INCHES.
11. RECORDS OF OPERATION AND MAINTENANCE SHOULD BE KEPT IN A KNOWN SET LOCATION AND MUST BE AVAILABLE UPON REQUEST.

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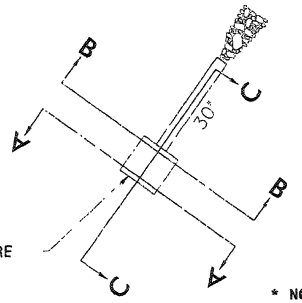
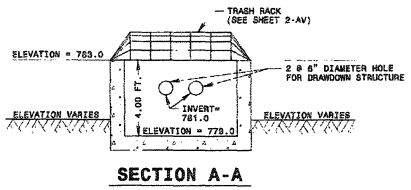
MULKEY ENGINEERS & CONSULTANTS	PROJECT REFERENCE NO.	SHEET NO.
	I-3819A	2-AV
	R/W SHEET NO.	
	HYDRAULICS ENGINEER	

SECTION VIEW SCHEMATIC OF PRIMARY OUTLET STRUCTURE

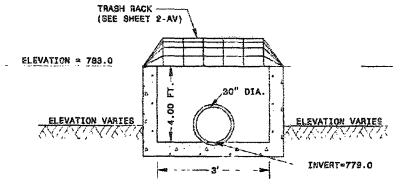


ORIFICE CONTROL STRUCTURE
THIS SIDE

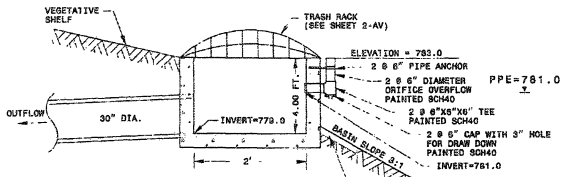
* NOT TO SCALE



SECTION A-A



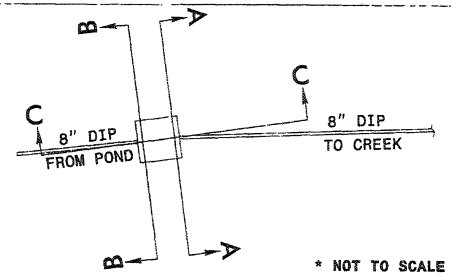
SECTION B-B



SECTION C-C

* NOT TO SCALE

SECTION VIEW SCHEMATIC OF POND DRAIN OUTLET STRUCTURE



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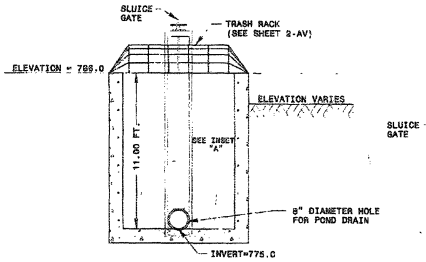
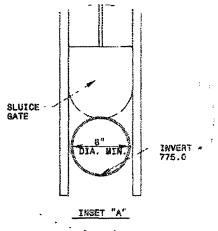
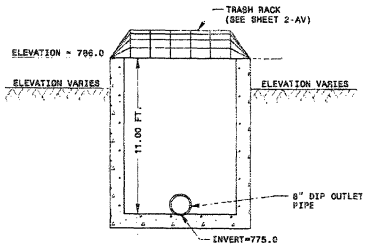
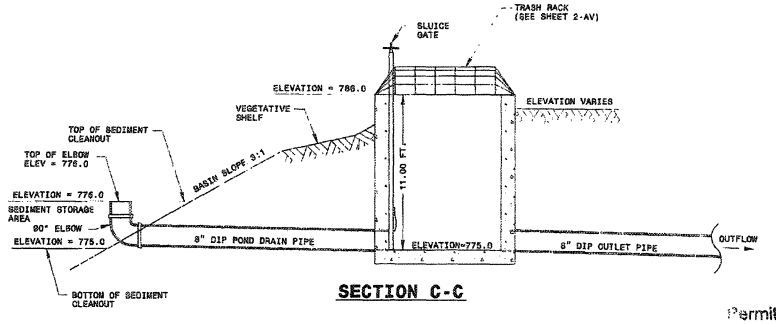


SECTION A-A





SECTION B-B



SECTION C-C

Permit Drawing
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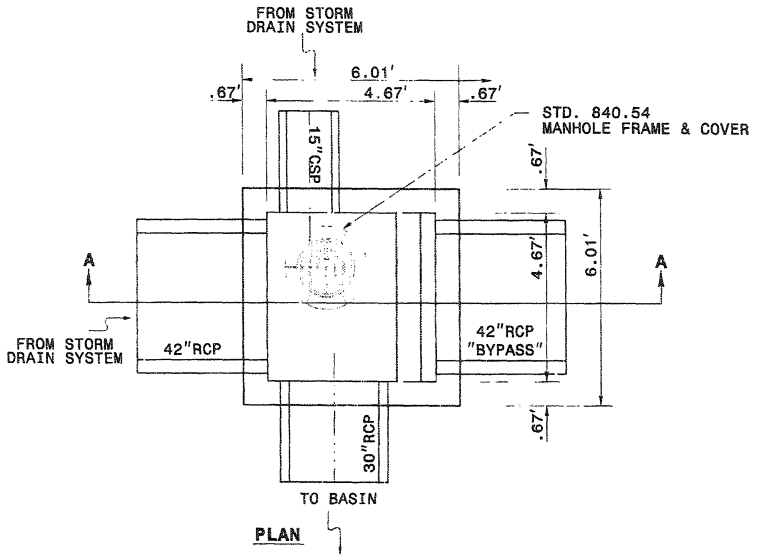
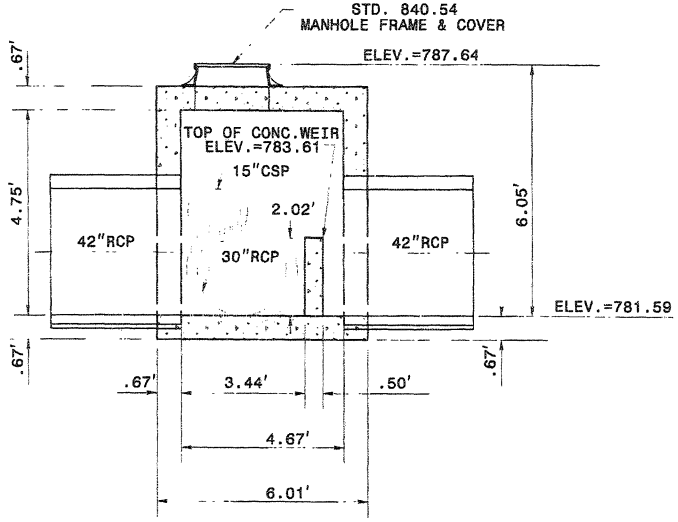
NOTES

1. 8" DIP POND DRAIN IS A POND DRAIN DEVICE AND IS NOT INTENDED TO BE A SECONDARY DRAWDOWN DEVICE.
2. 8" MIN. SLUICE GATE IS FOR MAINTENANCE AND SHOULD REMAIN CLOSED DURING NORMAL OPERATION.

JUNCTION BOX SPLITTER BOX



PLAN

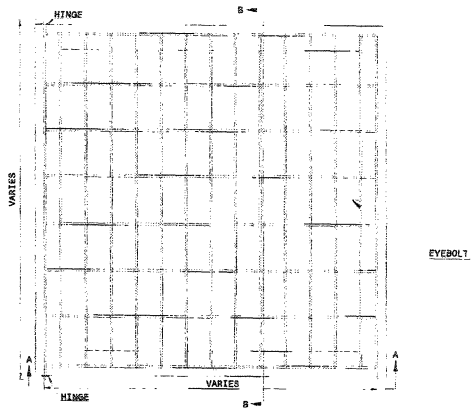


SECTION A-A

* NOT TO SCALE

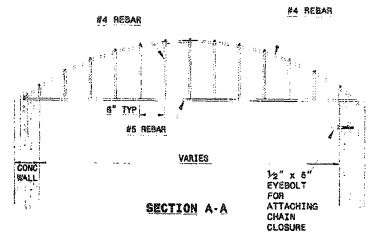
MULKEY ENGINEERS & CONSULTANTS	PROJECT REFERENCE NO.	SHEET NO.
	I-3819A	2-AV
	R/W SHEET NO.	
	HYDRAULICS	

TRASH RACKS FOR OUTLET STRUCTURES

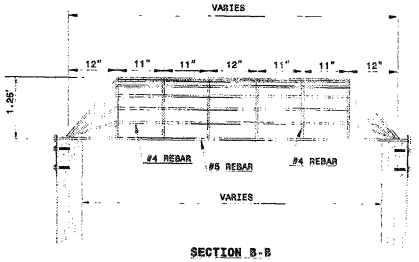


PLAN

RISER TRASH RACK NOTES:
1. ALL JOINTS SHALL BE FULLY WELDED AROUND JOINT WITH A MINIMUM OF A ¼" BEAD
2. IF BOLTS ARE ANCHORED IN CONCRETE, FOLLOW STD. DNG. 862.03 AND 862.04 FOR ANCHORING PROCEDURE
3. EYEBOLT FOR CHAIN CLOSURE SHALL BE INSTALLED BY THE SAME METHOD AS THE HINGE PLATE BOLTS
4. RACK AND HARDWARE SHALL BE REBAR AND GALVANIZED IN ACCORDANCE WITH ASTM A-153.



SECTION A-A



SECTION B-B

* NOT TO SCALE

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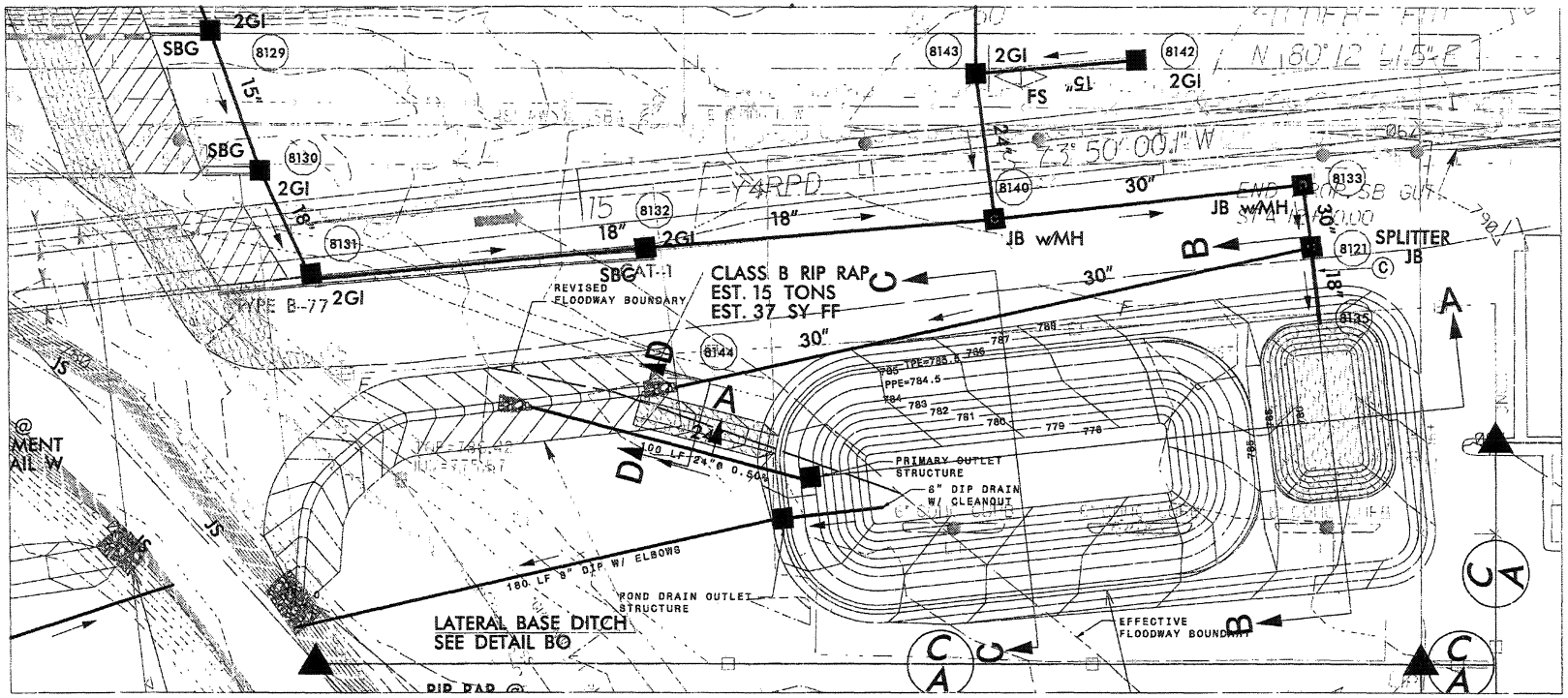
WET DETENTION BASIN DETAIL (-L- 95+50 RT.)

MULKEY ENGINEERS & CONSULTANTS

PROJECT REFERENCE NO.	SHEET NO.
I-3819A	2-AA
R/W SHEET NO.	
HYDRAULICS ENGINEER	



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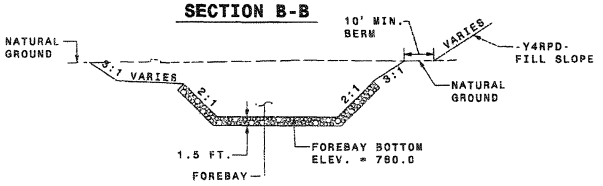

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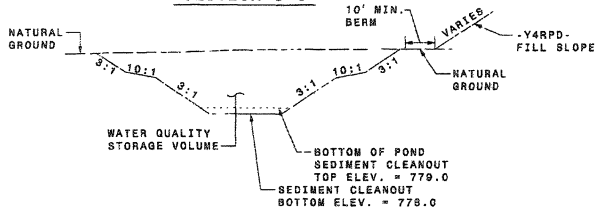
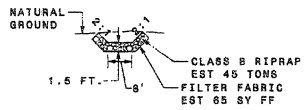
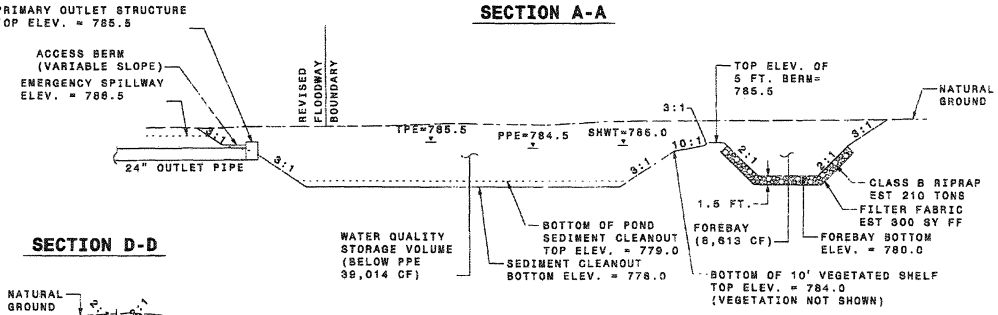


SECTION D-D



SECTION A-A



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REVISIONS

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MULKEY
ENGINEERING & CONSULTANTS

PROJECT REFERENCE NO.	SHEET NO.
I-3819A	2-AX
R/W SHEET NO.	

HYDRAULICS ENGINEER

WET DETENTION BASIN NOTES

SEQUENCE OF CONSTRUCTION FOR WET DETENTION BASIN

1. INSTALL ALL EROSION CONTROL MEASURES (AS NEEDED THROUGH CONSTRUCTION STAGES).
2. EXCAVATE FOR THE BASIN AND FOREBAY PREPARE THE BASIN FLOOR AT THE GIVEN GRADE.
3. CONSTRUCT FOREBAY.
4. CONSTRUCT MAIN POND.
5. CONSTRUCT AND INSTALL BOXES. CREATE OPENINGS IN BOXES AND CONNECT PIPES WITH BOXES.
6. ADD GRATES/TRASH RACK ON ALL BOXES.

GENERAL NOTES FOR WET DETENTION BASIN

1. APPLY SEEDING ABOVE VEGETATED SHELF AND ANY EXPOSED SURFACE THAT NEEDS TO BE PROTECTED AGAINST IMMEDIATE POTENTIAL STORM EVENT.

2. THE SURVEYOR SHALL VERIFY THE INVERTS AND ELEVATIONS AT THE FOLLOWING POINTS AT THE END OF EACH PHASE OF CONSTRUCTION:
   -INVERTS IN THE PIPE AND THE BOXES

VEGETATION NOTES FOR WET DETENTION BASIN

1. NO TREES OR SHRUBS SHOULD BE PLANTED WITHIN 10 FEET OF INLET OR OUTLET PIPES, OR MANMADE DRAINAGE STRUCTURES SUCH AS SPILLWAYS OR FLOW SPREADERS. SPECIES WITH ROOTS THAT SEEK WATER (E.G. WILLOW OR POPLAR), SHOULD BE AVOIDED WITHIN 50 FEET OF PIPES OR MANMADE STRUCTURES.

2. ALL LANDSCAPE MATERIAL, INCLUDING GRASS, SHOULD BE PLANTED IN GOOD TOPSOIL. NATIVE UNDERLYING SOILS MAY BE SUITABLE FOR PLANTING IF AMENDED WITH 4 INCHES OF WELL-AGED COMPOST TILLED INTO THE SUBGRADE COMPOST USED SHOULD MEET SPECIFICATIONS FOR GRADE A COMPOST QUALITY.

3. SOIL IN WHICH TREE OR SHRUBS ARE PLANTED MAY NEED ADDITIONAL ENRICHMENT OR ADDITIONAL COMPOST TOP-DRESSING DEPENDING ON THE RESULTS OF THE SOIL ANALYSIS. CONSULT A NURSERYMAN, LANDSCAPE PROFESSIONAL, OR ARBORIST FOR SITE-SPECIFIC RECOMMENDATIONS.

4. RECOMMENDED PLANTS TO BE USED ON VEGETATED SHELF (ABOVE SHWT):
   LINDERA BENZOIN - SPICEBRUSH
   ITEA VIRGINICA - VIRGINIA SWEETSPIRE
   VIBURNUM NUDUM - POSSUMHAW
   CORNUS AMOMUM - SILKY DOGWOOD
   CEPHALANTHUS OCCIDENTALIS - BOTTONBUS
   HIBISCUS MOSCHENUTOS - ROSE MALLOW
   SAMBUCUS CANADENSIS - ELDERBERRY

5. RECOMMENDED PLANTS TO BE USED ON VEGETATED SHELF (BELOW SHWT):
   PONTEDERIA CORDATA - PICKERELWEED
   PELTANDRA VIRGINICA - ARROW ARUM
   JUNCUS EFFUSUS - SOFT RUSH
   ITEA VIRGINICA - VIRGINIA SWEETSPIRE
   OSMUNDA REGALIS - ROYAL FERN

MAINTENANCE RECOMMENDATIONS

1. REMOVE DEBRIS, TRASH AND SEDIMENT BUILDUP FROM THE BASIN AS NECESSARY TO MINIMIZE OUTLET CLOGGING AND IMPROVE AESTHETICS.

2. REPAIR AND REVEGETATE ERODED AREAS AS NEEDED

3. CHECK INLETS AND OUTLETS FOR STRUCTURAL REPAIR TO CONFIRM THAT THEY ARE OPERATIONAL.

4. IMMEDIATELY AFTER THE WET DETENTION BASIN IS ESTABLISHED, THE PLANTS ON THE VEGETATED SHELF AND PERIMETER OF THE BASIN SHOULD BE WATERED TWICE WEEKLY IF NEEDED, UNTIL THE PLANTS BECOME ESTABLISHED (COMMONLY SIX WEEKS).

5. NO PORTION OF THE WET DETENTION POND SHOULD BE FERTILIZED AFTER THE FIRST INITIAL FERTILIZATION THAT IS REQUIRED TO ESTABLISH THE PLANTS ON THE VEGETATED SHELF.

6. STABLE GROUNDCOVER SHOULD BE MAINTAINED IN THE DRAINAGE AREA TO REDUCE THE SEDIMENT LOAD TO THE WET DETENTION POND.

7. IF THE BASIN MUST BE DRAINED FOR AN EMERGENCY OR TO PERFORM MAINTENANCE, THE FLUSHING OF SEDIMENT THROUGH THE EMERGENCY DRAIN SHOULD BE MINIMIZED TO THE MAXIMUM EXTENT POSSIBLE.

8. ONCE A YEAR, A DAM SAFETY EXPERT SHOULD INSPECT THE EMBANKMENT (IF APPLICABLE).

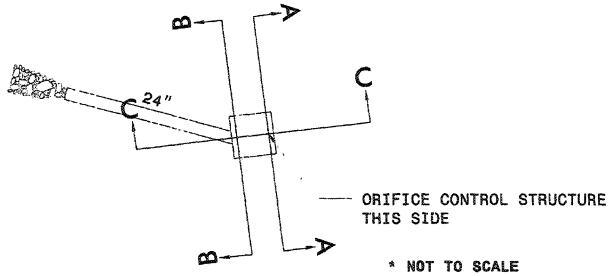
9. WATER CLARITY & ALGAE GROWTH SHOULD BE MONITORED REGULARLY.

10. AFTER THE WET DETENTION POND IS ESTABLISHED, IT SHOULD BE INSPECTED ONCE A MONTH AND WITHIN 24 HOURS AFTER EVERY STORM EVENT GREATER THAN 1.0 INCHES.

11. RECORDS OF OPERATION AND MAINTENANCE SHOULD BE KEPT IN A KNOWN SET LOCATION AND MUST BE AVAILABLE UPON REQUEST.

Permit Drawing
Sheet 20 of 68

SECTION VIEW SCHEMATIC OF PRIMARY OUTLET STRUCTURE



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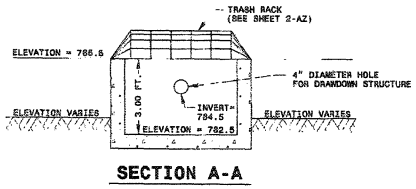
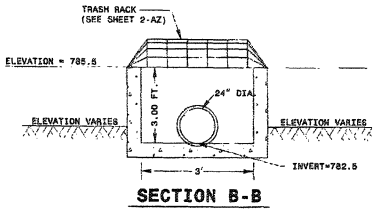
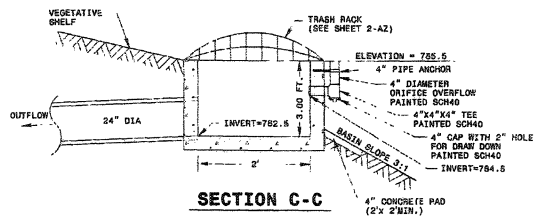


SECTION A-A



SECTION B-B



SECTION C-C

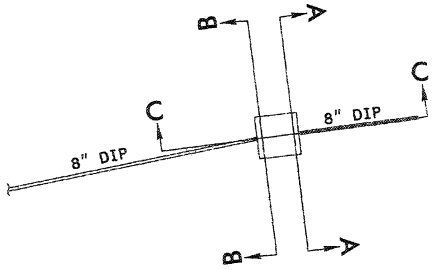
* NOT TO SCALE

MULKEY
ENGINEERS & CONSULTANTS

PROJECT REFERENCE NO.	SHEET NO.
1-3819A	2-AY
SW SHEET NO.	

HYDRAULICS ENGINEER

SECTION VIEW SCHEMATIC OF POND DRAIN OUTLET STRUCTURE



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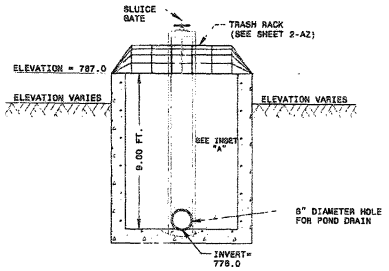

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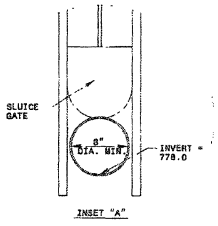

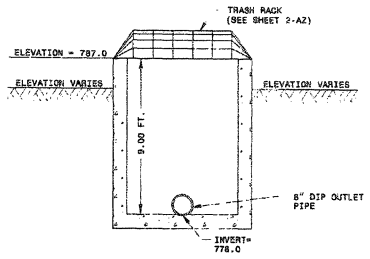

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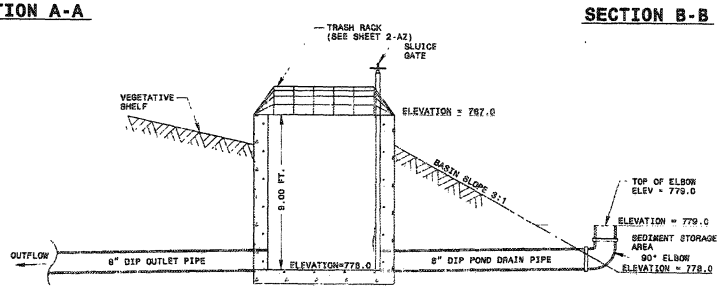


SECTION C-C

Permit Drawing
Sheet 21 of 68

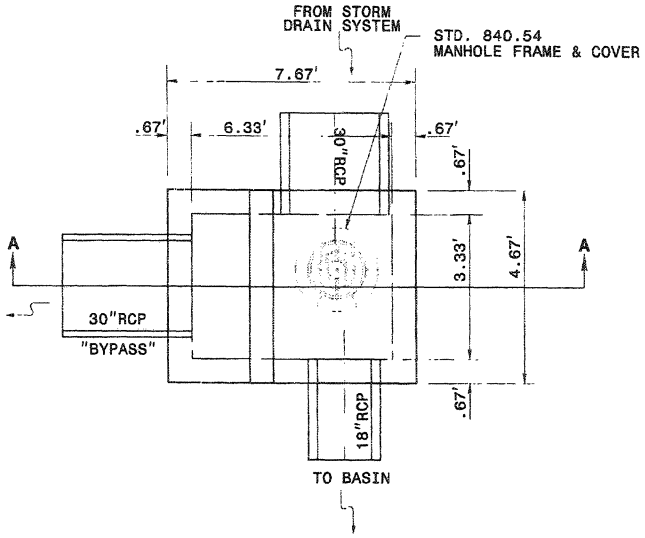
NOTES

1. 8" DIP POND DRAIN IS A POND DRAIN DEVICE AND IS NOT INTENDED TO BE A SECONDARY DRAWDOWN DEVICE.
2. 8" MIN. SLUICE GATE IS FOR MAINTENANCE AND SHOULD REMAIN CLOSED DURING NORMAL OPERATION.

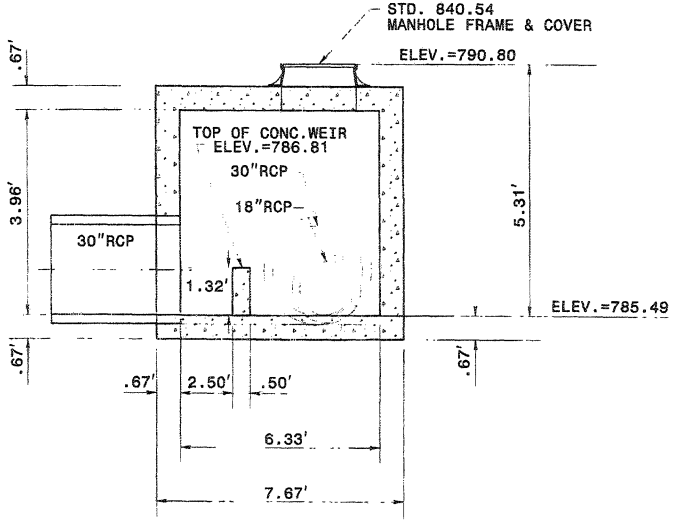
P-47

MULKEY ENGINEERS & CONSULTANTS	PROJECT REFERENCE NO.	SHEET NO.
	I-3819A	2-AZ
	R/W SHEET NO.	
	HYDRAULICS	

SPLITTER JUNCTION BOX



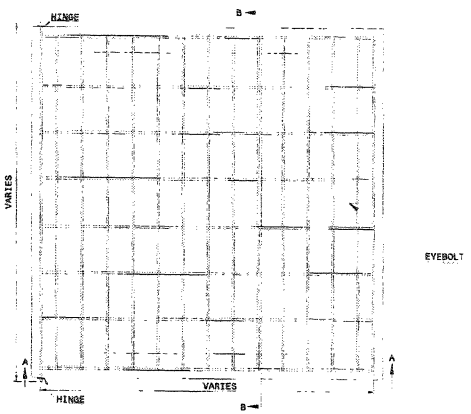
PLAN



SECTION A-A

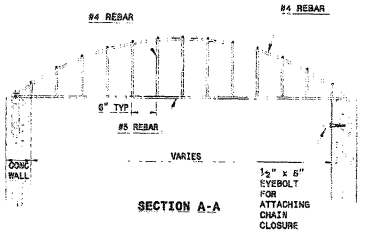
* NOT TO SCALE

TRASH RACKS FOR OUTLET STRUCTURES



PLAN

RISER TRASH RACK NOTES:
1. ALL JOINTS SHALL BE FULLY WELDED AROUND JOINT WITH A MINIMUM OF A ¼" BEAD.
2. IF BOLTS ARE ANCHORED IN CONCRETE, FOLLOW STD. DWG. 862.03 AND 862.04 FOR ANCHORING PROCEDURE
3. EYEBOLT FOR CHAIN CLOSURE SHALL BE INSTALLED BY THE SAME METHOD AS THE HINGE PLATE BOLTS
4. RACK AND HARDWARE SHALL BE REBAR AND GALVANIZED IN ACCORDANCE WITH ASTM A-153.



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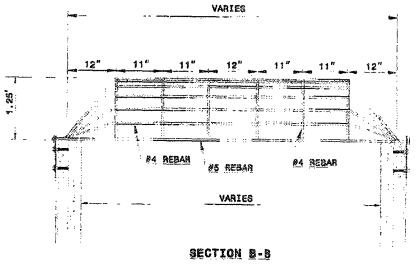


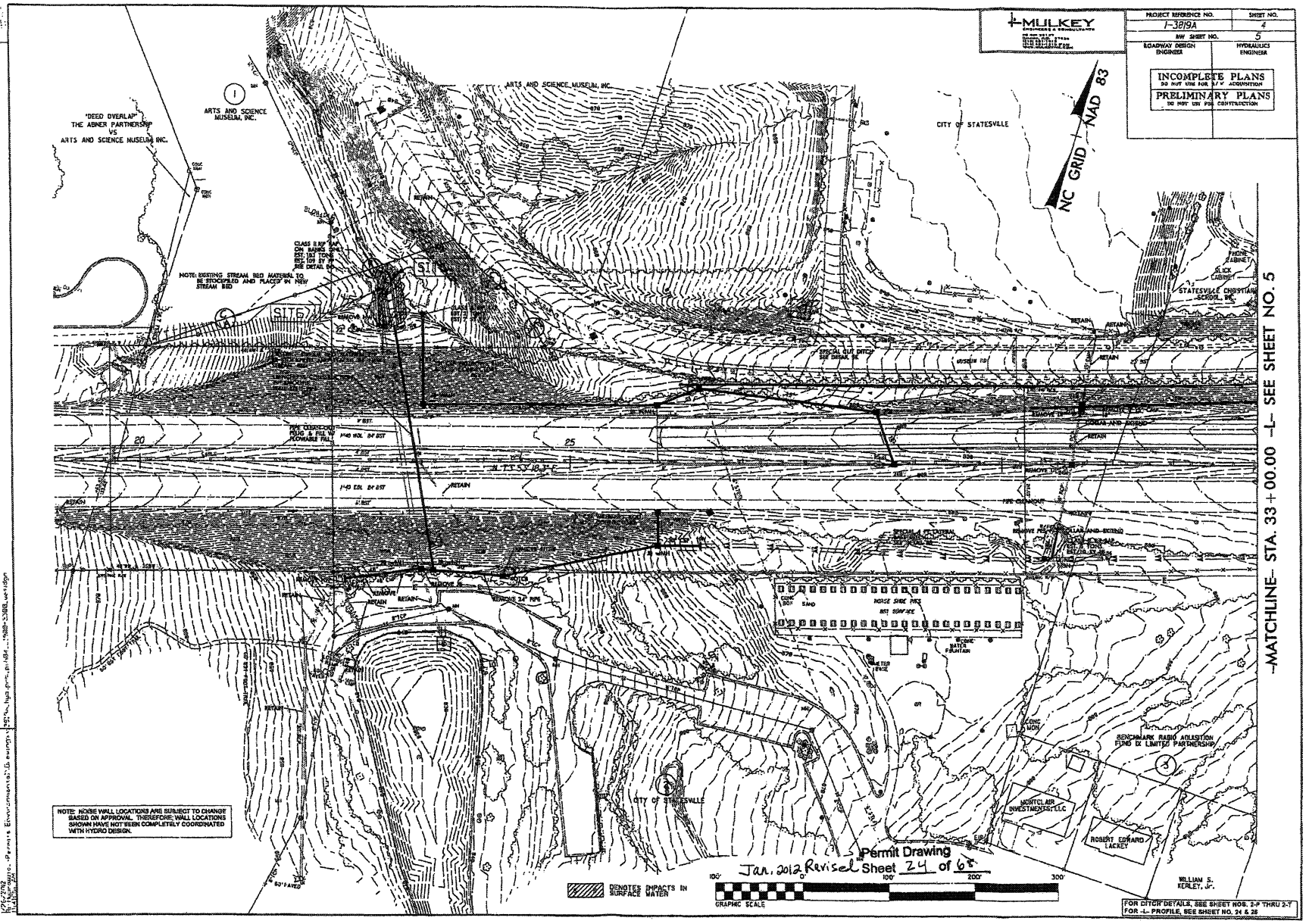
SECTION B-B

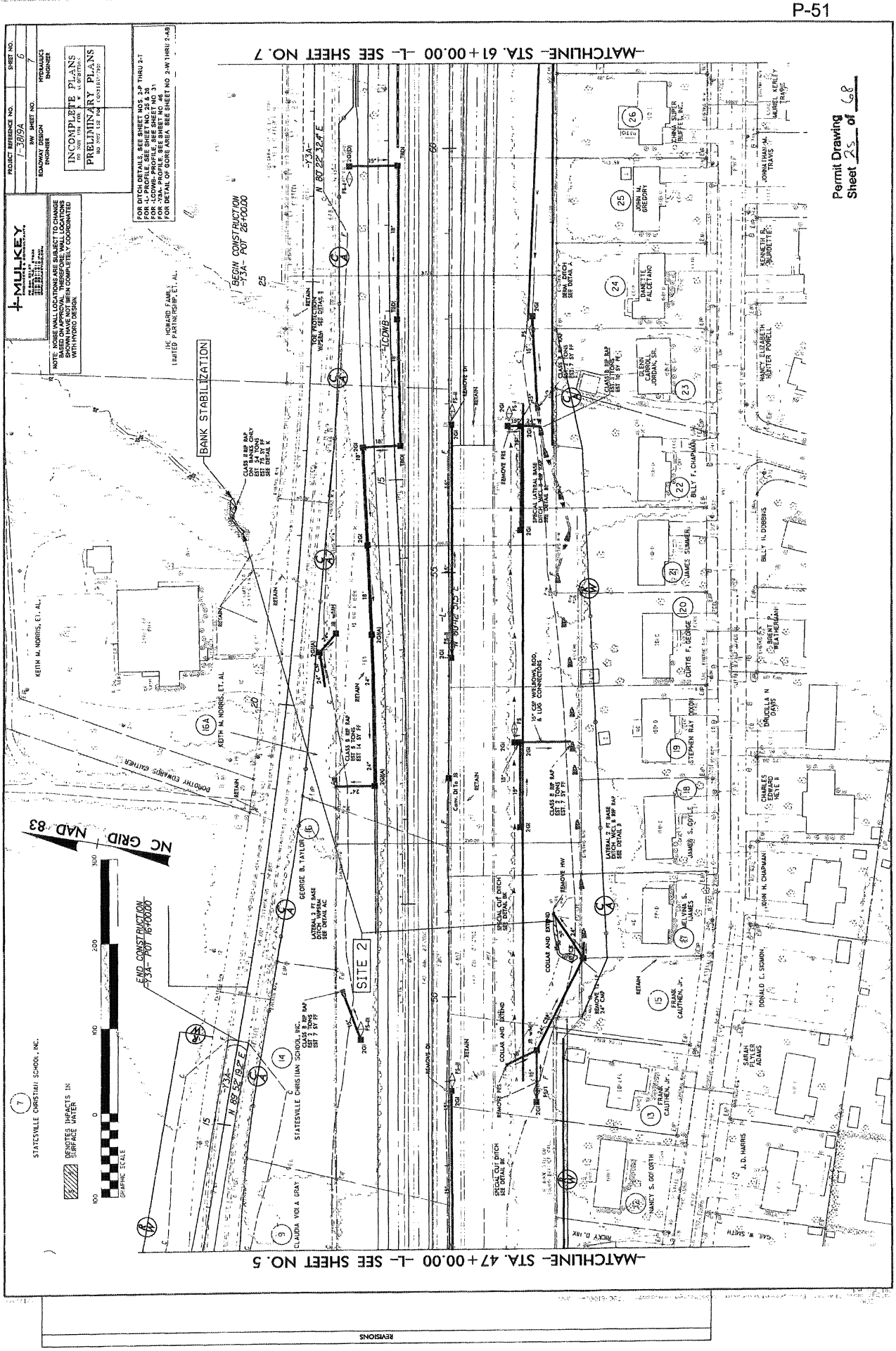
* NOT TO SCALE

Permit Drawing
Sheet 22 of 68

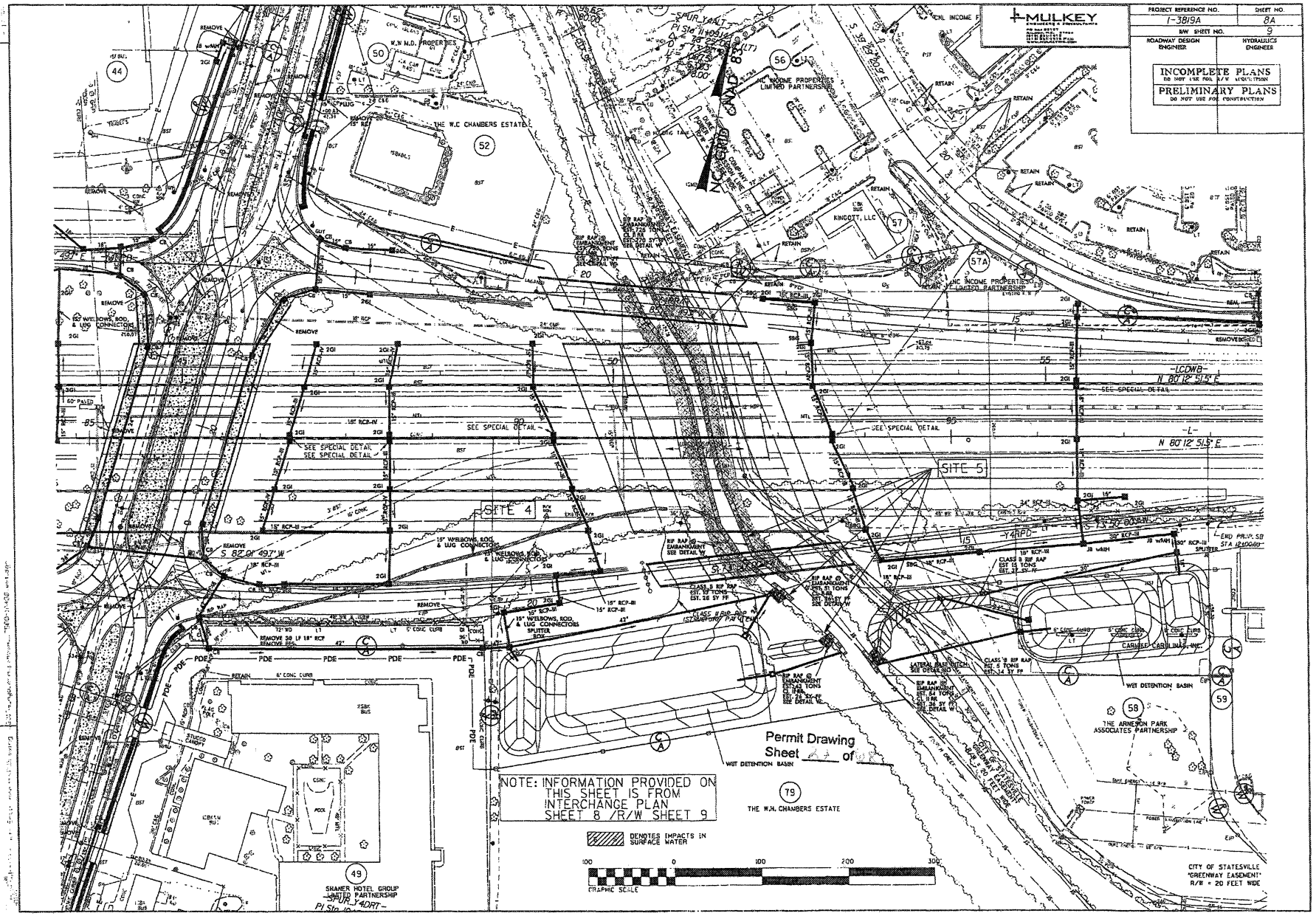
P-48

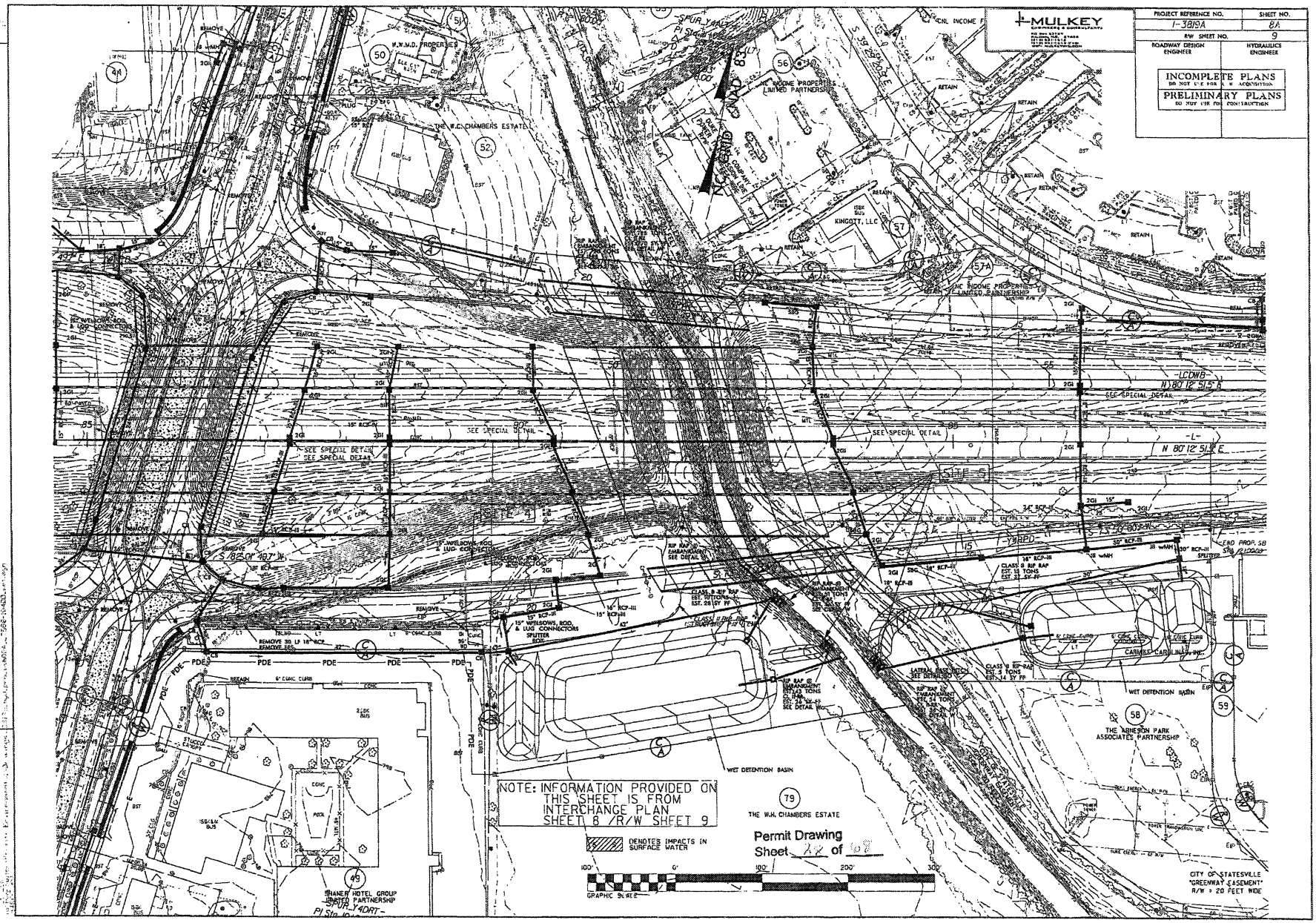
MATCHLINE -STA. 33+00.00 -L- SEE SHEET NO. 5
PROJECT REFERENCE NO.
I-3819A
SHEET NO.
4
INCOMPLETE PLANS
PRELIMINARY PLANS
MULKEY
NC GRID NAD 83
CITY OF STATESVILLE
ARTS AND SCIENCE MUSEUM, INC.
SITE 1A
SITE 1
Permit Drawing
Sheet 23 of 68
DENOTES IMPACTS IN SURFACE WATER
GRAPHIC SCALE
REVISIONS

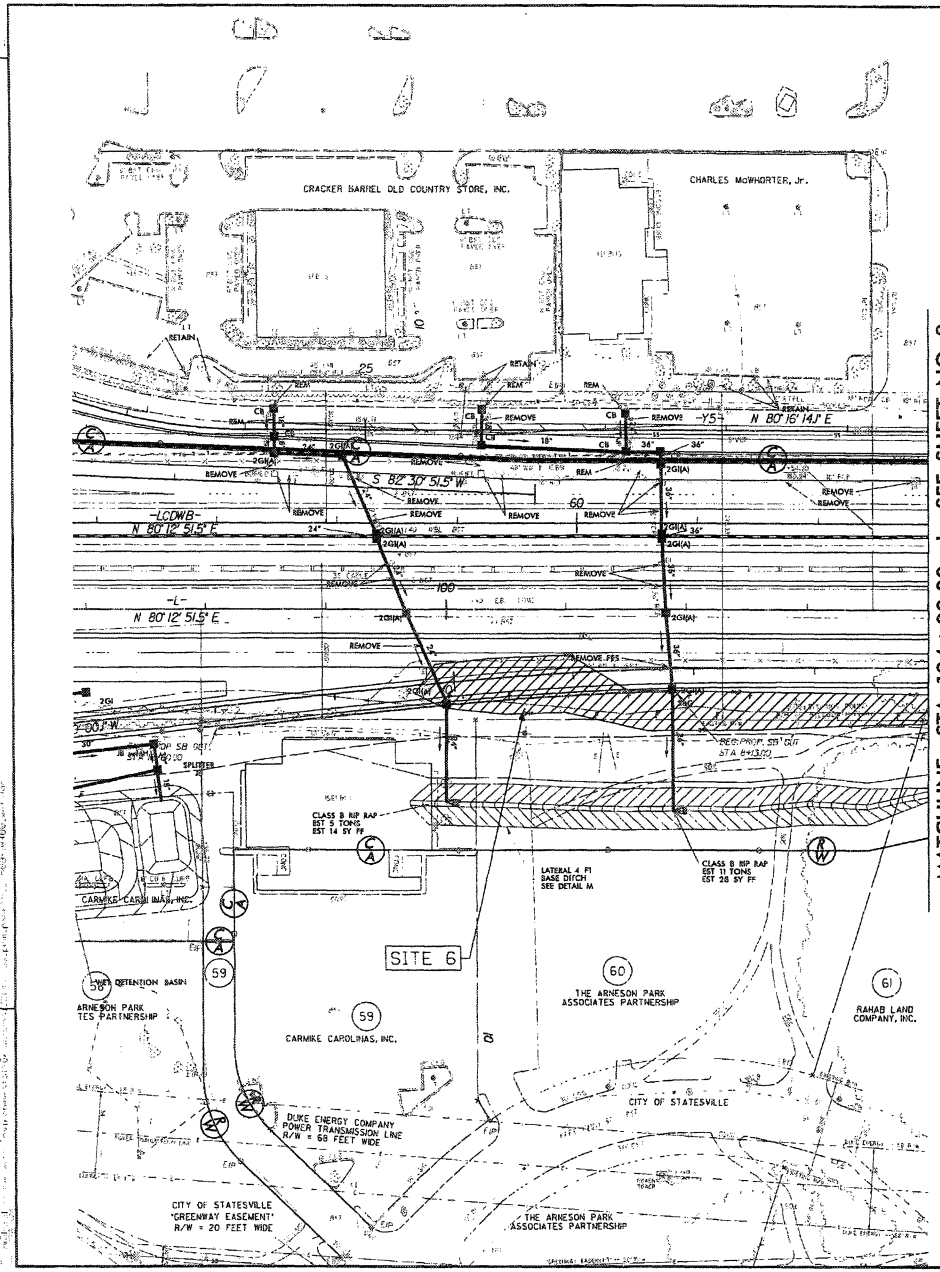

MULKEY
PROJECT REFERENCE NO.
I-3819A
SHEET NO.
4
R/W SHEET NO.
5
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
NC GRID NAD 83
ARTS AND SCIENCE MUSEUM, INC.
"DEED OVERLAP" THE ABNER PARTNERSHIP VS ARTS AND SCIENCE MUSEUM INC.
CITY OF STATESVILLE
NOTE: EXISTING STREAM BED MATERIAL TO BE STOCKPILED AND PLACED IN NEW STREAM BED
STATESVILLE CHRISTIAN SCHOOL, INC.
BENCHMARK RADIO ACQUISITION FUND IX LIMITED PARTNERSHIP
MONTCLAIR INVESTMENTS, LLC
ROBERT EDWARD LACKEY
WILLIAM S. KERLEY, Jr.
NOTE: NOISE WALL LOCATIONS ARE SUBJECT TO CHANGE BASED ON APPROVAL. THEREFORE, WALL LOCATIONS SHOWN HAVE NOT BEEN COMPLETELY COORDINATED WITH HYDRO DESIGN.
DENOTES IMPACTS IN SURFACE WATER
GRAPHIC SCALE
100' 0' 100' 200' 300'
Permit Drawing
Jan. 2012 Revised Sheet 24 of 68
FOR DITCH DETAILS, SEE SHEET NOS. 2-P THRU 2-T
FOR -L- PROFILE, SEE SHEET NO. 24 & 25
-MATCHLINE- STA. 33+00.00 -L- SEE SHEET NO. 5
REVISIONS


PROJECT REFERENCE NO. 7-3894
SHEET NO. 6
RW SHEET NO 7
EDADMIN DESIGN ENGINEER
MPBAUKES ENGINEER
INCOMPLETE PLANS
PRELIMINARY PLANS
NOT TO BE USED FOR CONSTRUCTION
MULKEY
NOTE: NOISE WALL LOCATIONS ARE SUBJECT TO CHANGE BASED ON APPROVAL. THEREFORE, WALL LOCATIONS SHOWN HEREON ARE NOT COMPLETELY COORDINATED WITH HYDRO DESIGN.
FOR DITCH DETAILS SEE SHEET NOS 2-P THRU 2-T
FOR -L- PROFILE SEE SHEET NO 2-N
FOR -LCDWB- PROFILE SEE SHEET NO 31
FOR -Y3A- PROFILE SEE SHEET NO 46
FOR DETAIL OF BORE AREA SEE SHEET NO 2-W1 THRU 2-W3
-MATCHLINE- STA. 61+00.00 -L- SEE SHEET NO. 7
-MATCHLINE- STA. 47+00.00 -L- SEE SHEET NO. 5
BEGIN CONSTRUCTION -Y3A- POT 26+00.00
END CONSTRUCTION -Y3A- POT 16+00.00
BANK STABILIZATION
SITE 2
-LCDWB-
-Y3A-
N 80° 22' 32.4" E
N 89° 52' 19.2" E
N 80° 12' 31.5" E
NC GRID / NAD 83
GRAPHIC SCALE
DENOTES IMPACTS IN SURFACE WATER
STATESVILLE CHRISTIAN SCHOOL, INC.
GEORGE B. TAYLOR
CLAUDIA VOLA GRAY
KEITH M. NORRIS, ET. AL
DOROTHY EDWARDS GAITHER
J.H. HOWARD FAMILY LIMITED PARTNERSHIP, ET. AL.
JAMES SUMMERS
BILLY F. CHAPMAN
BILLY H. DOBBINS
CURTIS F. GEORGE
STEPHEN RAY
DRUCILLA N. DAVIS
JOHN H. CHAPMAN
DONALD E. SIGMON
SARAH FLYLER ADAMS
J.D. HARRIS
NANCY S. GOFORTH
FRANK CAUTHEN, JR.
ELVINA S. JAMES
JAMES S. GOFF
CHARLES EDWARD MCLEE
BRENT MCLAUGHLIN
DANETTE FALCETANO
JOHN M. GREGORY
CHINA SUPER BUFFET, INC.
JOHNNA THAO M. TRAVIS
LAUREL KERLEY TRAVIS
KENNETH R. BURDETTE
NANCY ELIZABETH KARTER POWELL
CARON JORDAN, SR.
REVISIONS
Permit Drawing Sheet 25 of 68

PROJECT REFERENCE NO.
7-3819A
SHEET NO.
6
R/W SHEET NO.
7
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR CONSTRUCTION
PRELIMINARY PLANS
NOT FOR CONSTRUCTION
FOR DITCH DETAILS, SEE SHEET NOS. 2-9 THRU 2-7
FOR L-LOWA, SEE SHEET NO. 4-5
FOR -LCOWA- PROFILE, SEE SHEET NO. 31
FOR Y3A- PROFILE, SEE SHEET NO. 46
FOR DETAIL OF GORE AREA, SEE SHEET NO. 2-M1 THRU 2-M3
MULKEY
NOTE: NOISE WALL LOCATIONS ARE SUBJECT TO CHANGE BASED ON APPROVED NOISE STUDY. THEREFORE, WALL LOCATIONS SHOWN ARE PRELIMINARY AND SHOULD BE FIELD COORDINATED WITH HYDRO DESIGN
-MATCHLINE- STA. 61+00.00 -L- SEE SHEET NO. 7
-MATCHLINE- STA. 47+00.00 -L- SEE SHEET NO. 5
BEGIN CONSTRUCTION -Y3A- POT 2540000
END CONSTRUCTION -Y3A- POT 3540000
N 80°22'32"E
-Y3A-
-LCOWA-
BANK STABILIZATION
SITE 2
NC GRID NAD 83
GRAPHIC SCALE
STATESVILLE CHRISTIAN SCHOOL, INC.
KEITH M. NORRIS, ET. AL.
GLADYS B. BARR
GLADYS B. BARR LIFE ESTATE
CLAUDIA VIOLA GRAY
JAMES S. DOYLE
MELVINA R. JAMES
CURTIS F. GEORGE
STEPHEN RAY PENNY
BILLY F. CHAPMAN
JAMES SUMNER
BILLY N. DOBBINS
BRENT A. WEAVERMAN
ORNELLA N. DAVIS
CHARLES EDWARD METER
DONALD E. SHAUN
JOHN N. GREGORY
DANETTE FALCETANO
KENNETH R. BURDETTE
NANCY ELIZABETH BOWSER POWELL
LAURIE KEBLER TRAVIS
JOHN A. THAI, JR.
CHINA SUPER BUFFET, INC.
Permit Drawing
Sheet 26 of 58
REVISIONS


MULKEY
PROJECT REFERENCE NO.
I-3819A
SHEET NO.
8A
R/W SHEET NO.
9
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
NC GRID NAD 83
SITE 4
SITE 5
THE W.C CHAMBERS ESTATE
THE W.H. CHAMBERS ESTATE
THE ARNESON PARK ASSOCIATES PARTNERSHIP
SHANER HOTEL GROUP LIMITED PARTNERSHIP
CITY OF STATESVILLE "GREENWAY EASEMENT" R/W = 20 FEET WIDE
WET DETENTION BASIN
Permit Drawing
Sheet of
NOTE: INFORMATION PROVIDED ON THIS SHEET IS FROM INTERCHANGE PLAN SHEET 8 /R/W SHEET 9
DENOTES IMPACTS IN SURFACE WATER
GRAPHIC SCALE
REVISIONS


MULKEY
PROJECT REFERENCE NO.
I-3819A
SHEET NO.
8A
R/W SHEET NO.
9
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
W.W.M.D. PROPERTIES
THE W.C. CHAMBERS ESTATE
KINGOTT, LLC
THE INCOME PROPERTIES LIMITED PARTNERSHIP
SEE SPECIAL DETAIL
SITE 4
SITE 5
-LCDWB-
N 80° 12' 51.5" E
-L-
N 80° 12' 51.5" E
15" WELDOWS, ROD, & LUG CONNECTORS
SPLITTER BOX
CARMIKE CAROLINA, INC.
WET DETENTION BASIN
THE ARNESON PARK ASSOCIATES PARTNERSHIP
THE W.H. CHAMBERS ESTATE
SHAHER HOTEL GROUP LIMITED PARTNERSHIP
CITY OF STATESVILLE "GREENWAY EASEMENT" R/W = 20 FEET WIDE
NOTE: INFORMATION PROVIDED ON THIS SHEET IS FROM INTERCHANGE PLAN SHEET 8 /R/W SHEET 9
DENOTES IMPACTS IN SURFACE WATER
GRAPHIC SCALE
Permit Drawing
Sheet 22 of 68
REVISIONS



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NC GRID NAD 83

NOTE: INFORMATION PROVIDED ON THIS SHEET IS FROM INTERCHANGE PLAN SHEET 8 /R/W SHEET 9

DENOTES FILL IN WETLAND

MULKEY
ENGINEERS & CONSULTANTS

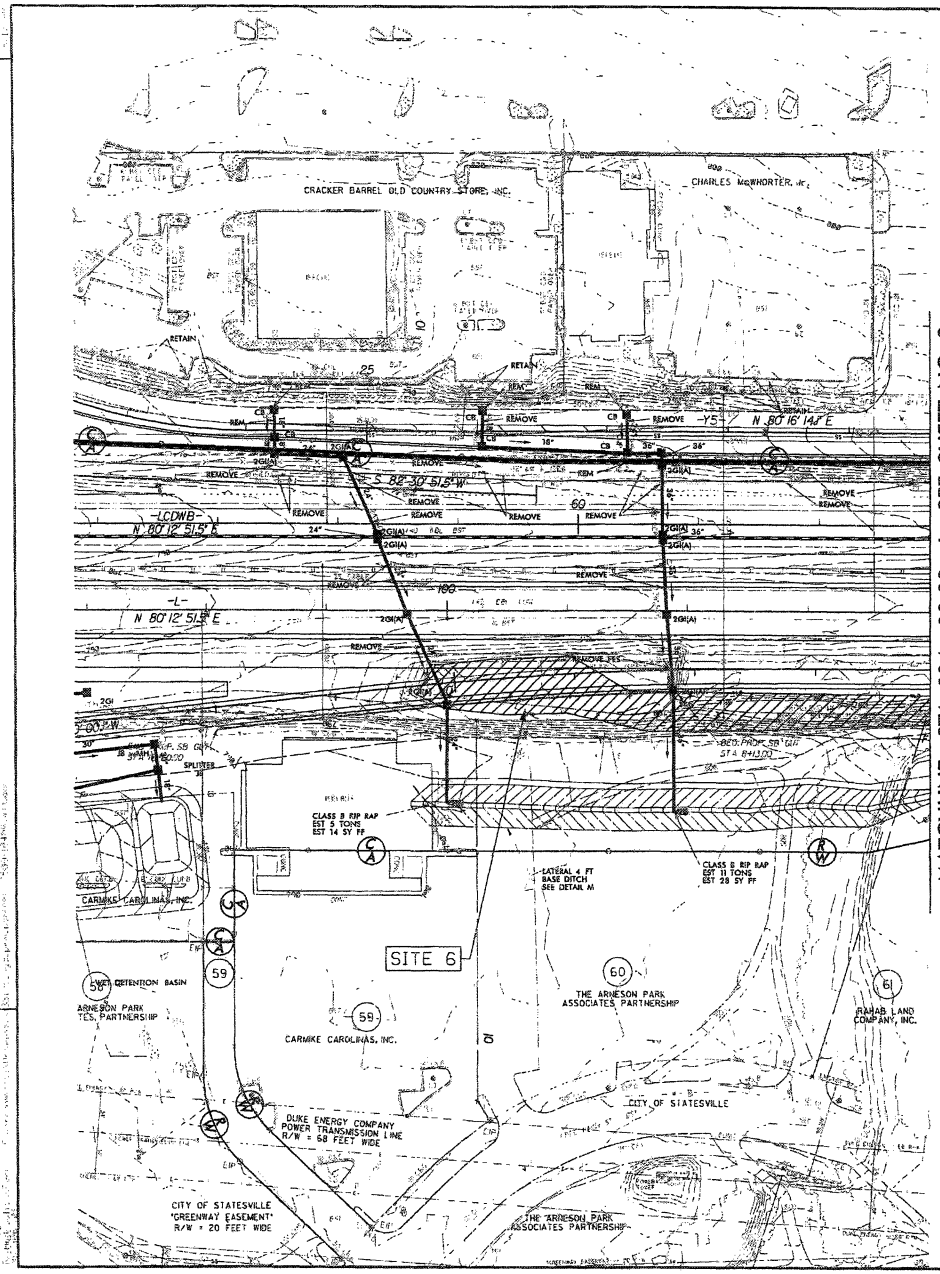
PROJECT REFERENCE NO.	SHEET NO.
I-3819A	8B
R/W SHEET NO.	9
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

Permit Drawing
Sheet 23 of 68

P-55



NC GRID NAD 83

NOTE: INFORMATION PROVIDED ON THIS SHEET IS FROM INTERCHANGE PLAN SHEET 8 / R/W SHEET 9

DENOTES FILL IN WETLAND

MULKEY
ENGINEERS & CONSULTANTS

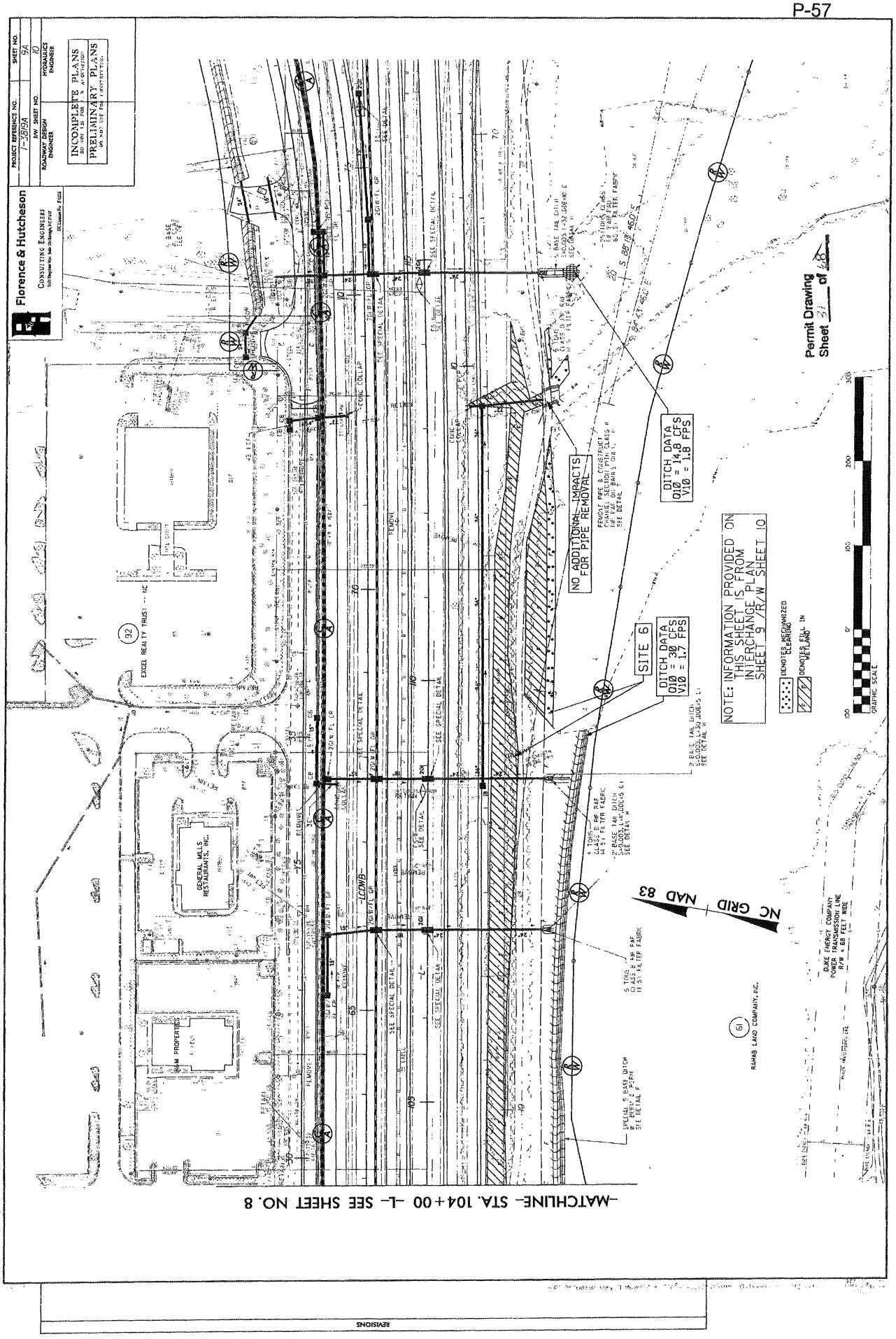
PROJECT REFERENCE NO.	SHEET NO.
I-3819A	8B
R/W SHEET NO.	9
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

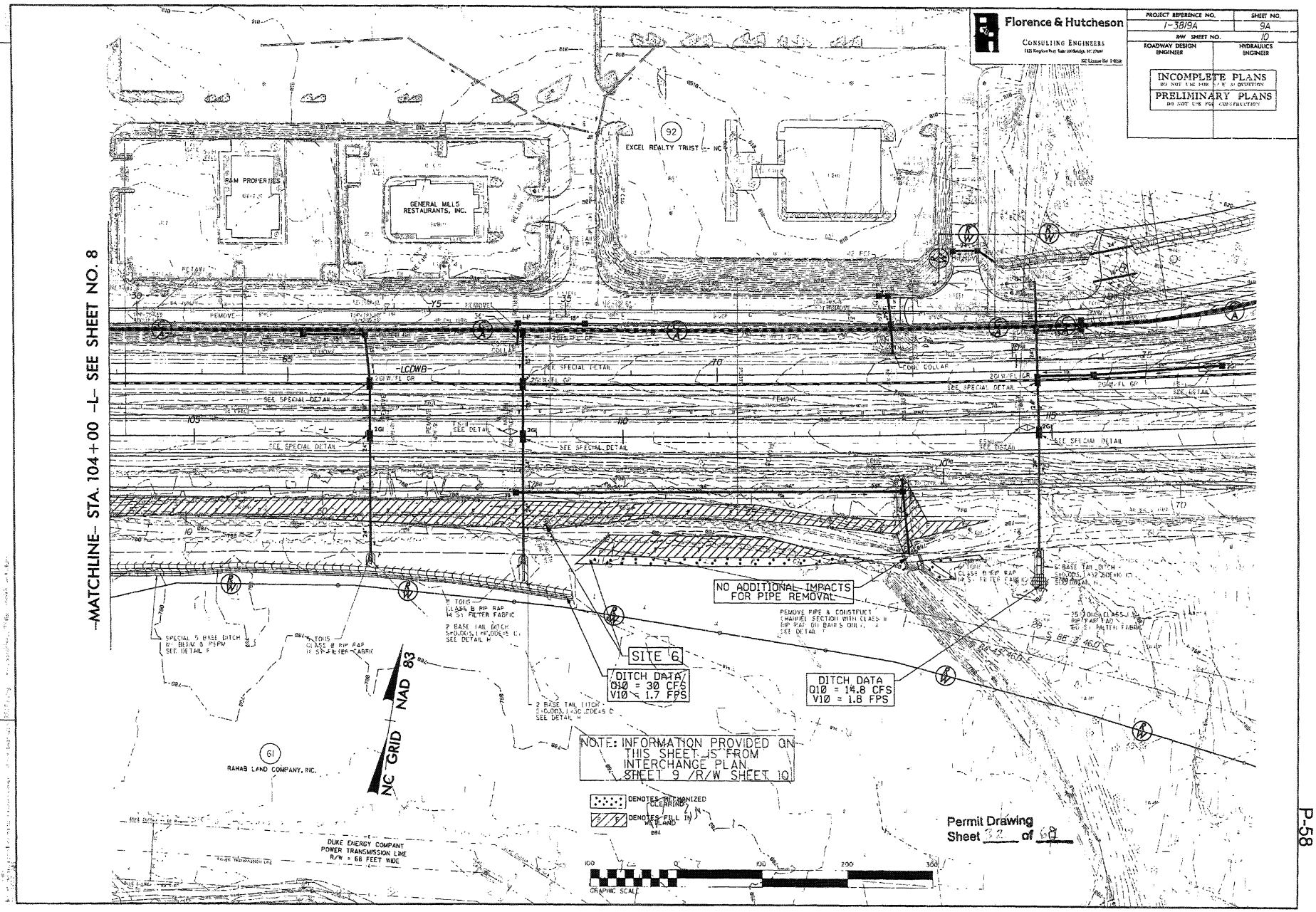
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

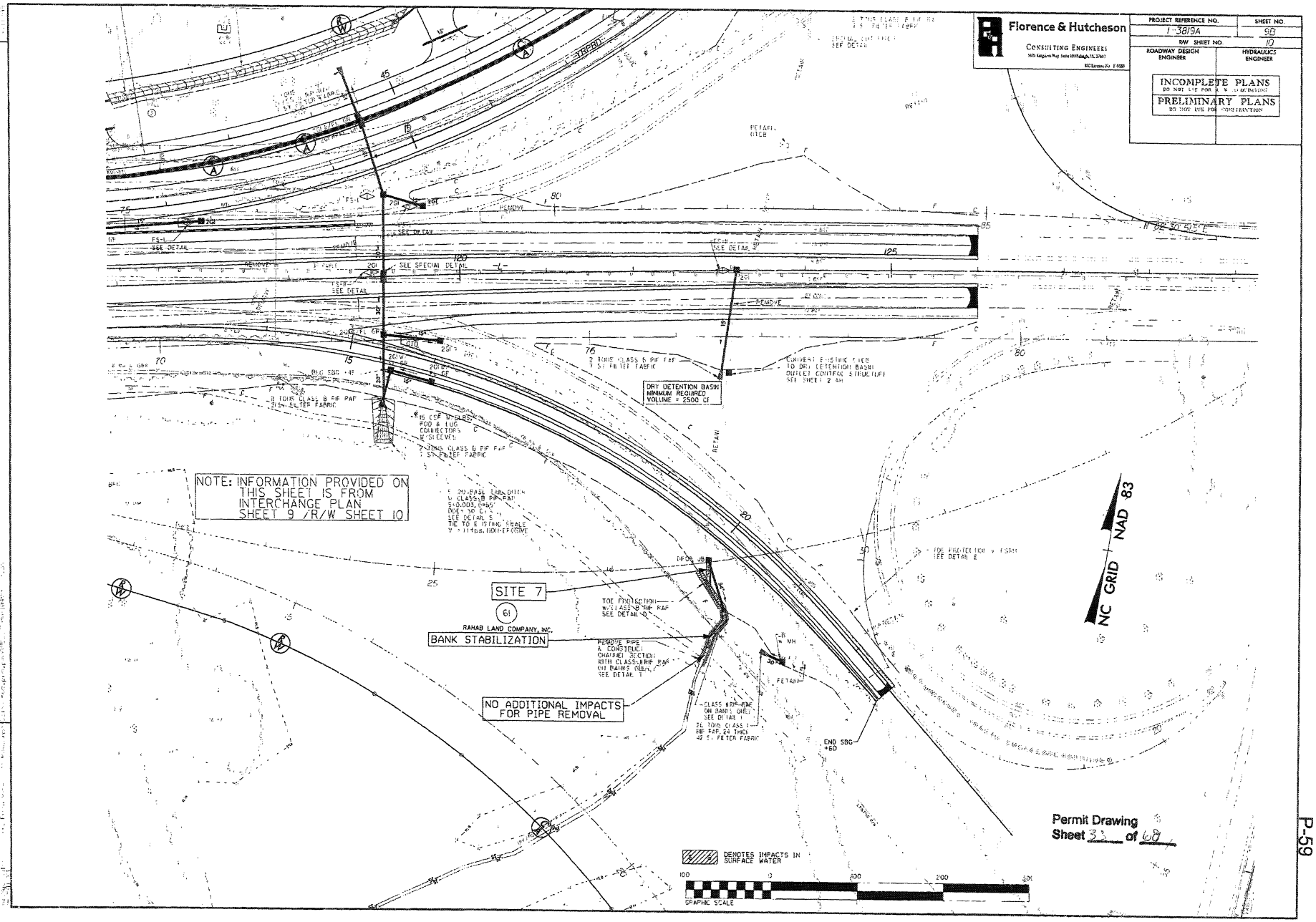
REVISIONS

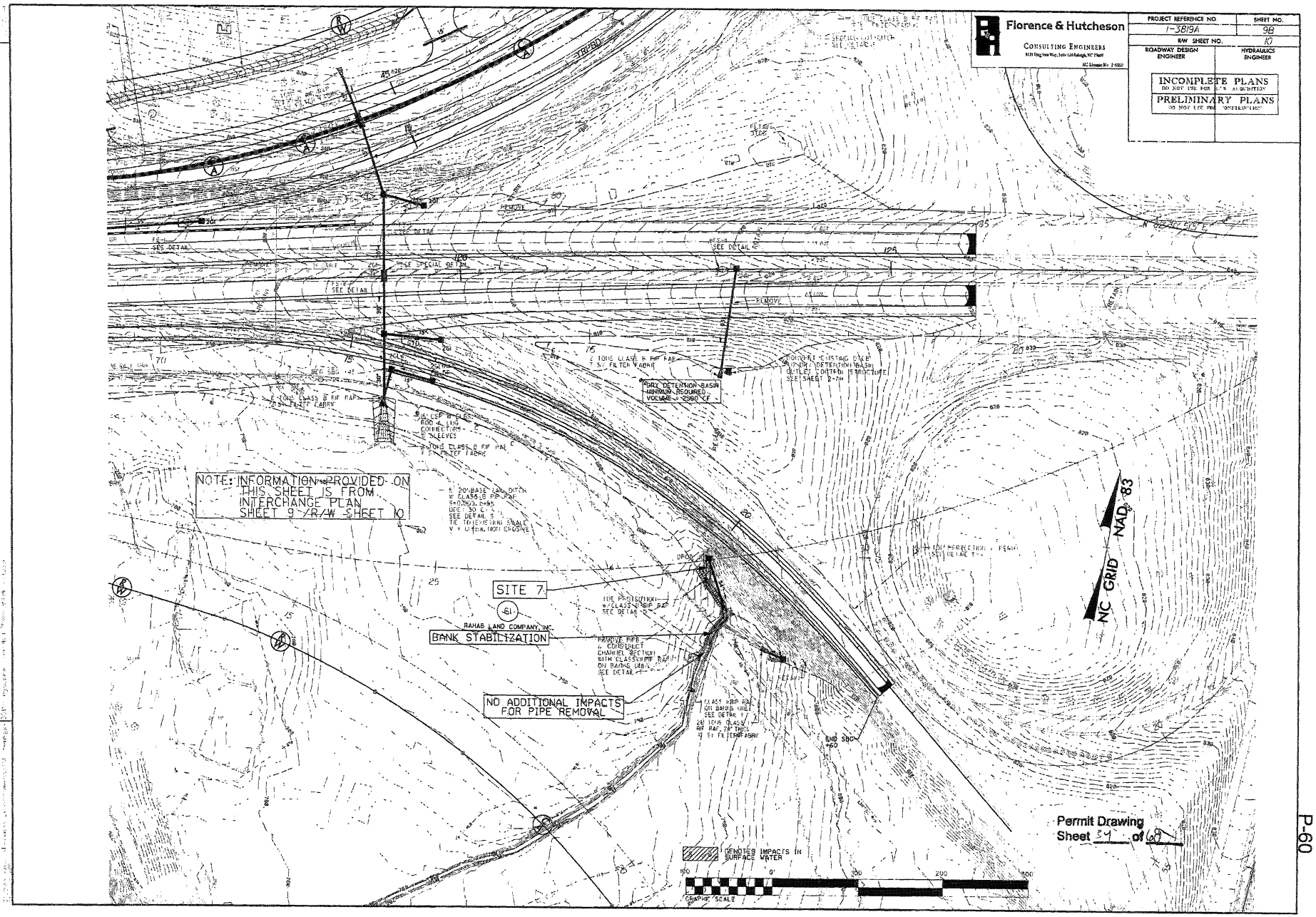
Permit Drawing
Sheet 30 of 68

P-56

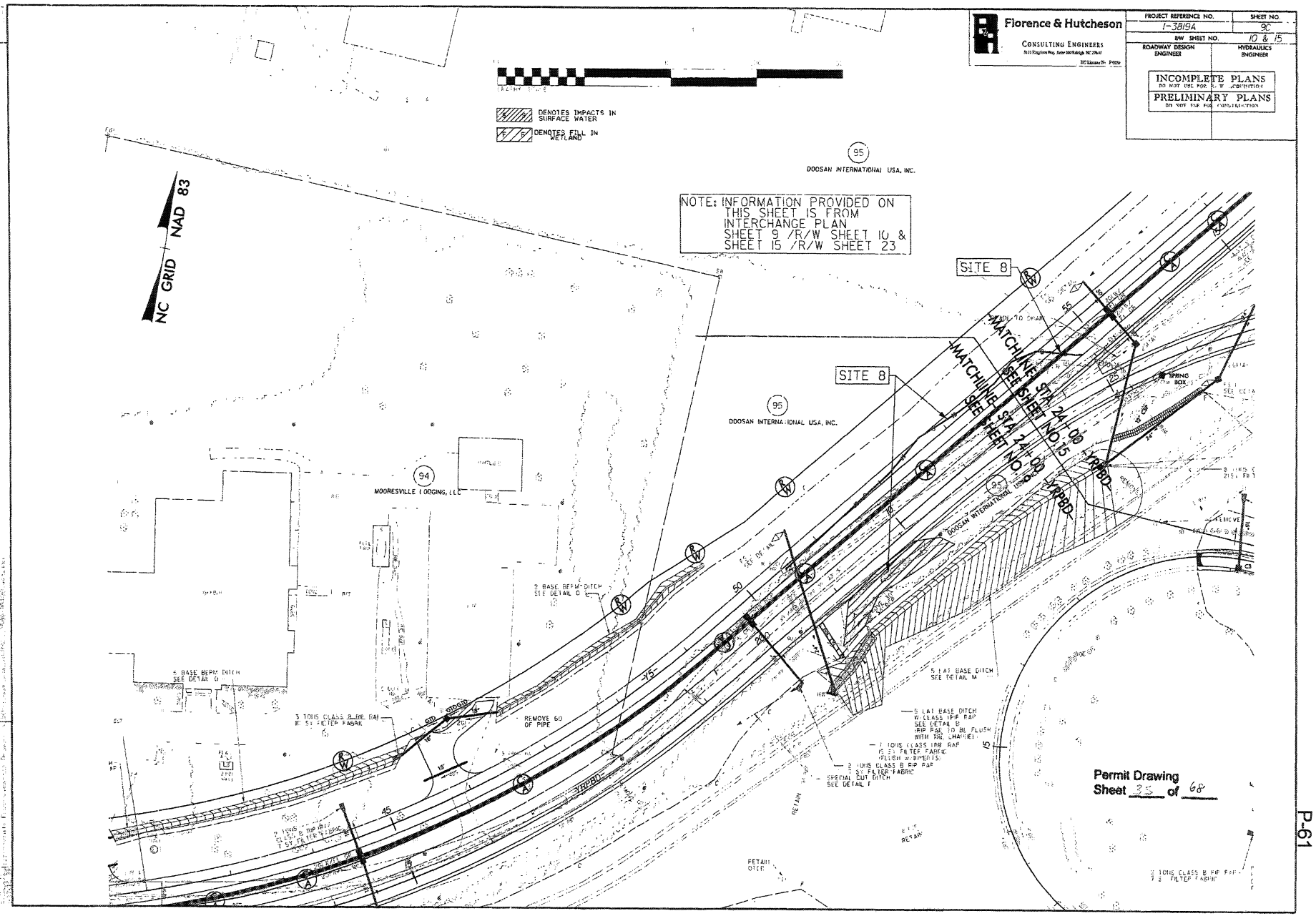

Florence & Hutcheson
CONSULTING ENGINEERS
PROJECT REFERENCE NO. I-3818A
SHEET NO. 9A
R/W SHEET NO. 10
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
PRELIMINARY PLANS
NOT FOR CONSTRUCTION
NO ADDITIONAL IMPACTS FOR PIPE REMOVAL
SITE 6
DITCH DATA
Q10 = 30 CFS
V10 = 1.7 FPS
DITCH DATA
Q10 = 14.8 CFS
V10 = 1.8 FPS
NOTE: INFORMATION PROVIDED ON THIS SHEET IS FROM INTERCHANGE PLAN SHEET 9 /R/W SHEET 10
DENOTES MECHANIZED CLEARING
DENOTES FILL IN WETLAND
GRAPHIC SCALE
NC GRID NAD 83
EXCEL REALTY TRUST -- NC
GENERAL MILLS RESTAURANTS, INC.
RAMB LAND COMPANY, INC.
DUKE ENERGY COMPANY POWER TRANSMISSION LINE R/W = 150 FEET WIDE
-MATCHLINE- STA. 104+00 -L- SEE SHEET NO. 8
REVISIONS
Permit Drawing Sheet 31 of 40

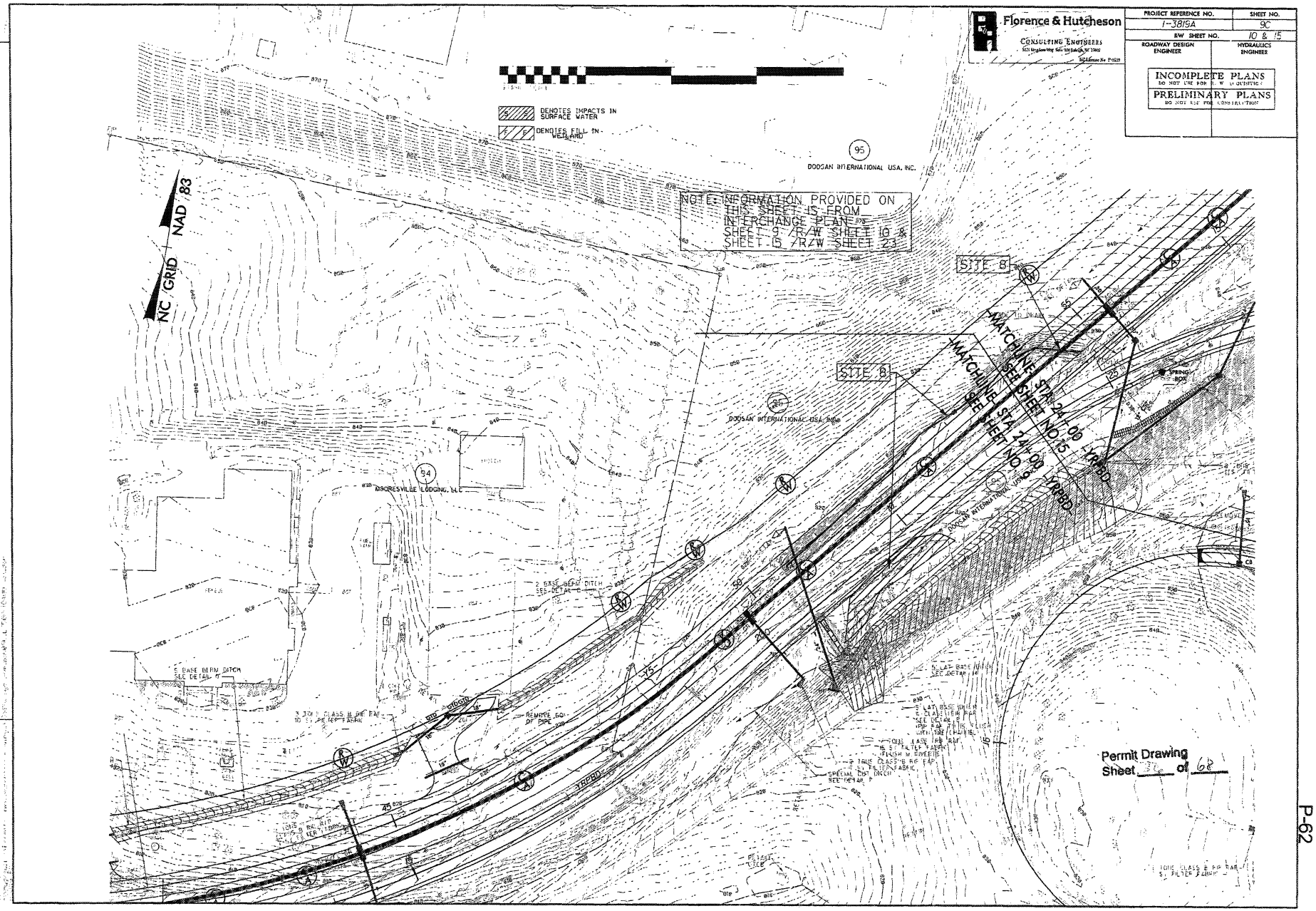

Florence & Hutcheson
CONSULTING ENGINEERS
PROJECT REFERENCE NO.
1-3819A
SHEET NO.
9A
RW SHEET NO.
10
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR CONSTRUCTION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
REVISIONS
-MATCHLINE- STA. 104+00 -L- SEE SHEET NO. 8
R&M PROPERTIES
GENERAL MILLS RESTAURANTS, INC.
92
EXCEL REALTY TRUST -- NC
61
RAHAB LAND COMPANY, INC.
DUKE ENERGY COMPANY
POWER TRANSMISSION LINE
R/W = 68 FEET WIDE
SITE 6
DITCH DATA
Q10 = 30 CFS
V10 = 1.7 FPS
DITCH DATA
Q10 = 14.8 CFS
V10 = 1.8 FPS
NO ADDITIONAL IMPACTS FOR PIPE REMOVAL
NOTE: INFORMATION PROVIDED ON THIS SHEET IS FROM INTERCHANGE PLAN SHEET 9 /R/W SHEET 10
NAD 83
NC GRID
DENOTES MECHANIZED CLEARING
DENOTES FILL IN WETLAND
GRAPHIC SCALE
Permit Drawing
Sheet 22 of 58
P-58


Florence & Hutcheson
CONSULTING ENGINEERS
PROJECT REFERENCE NO.
I-3819A
SHEET NO.
9B
R/W SHEET NO.
10
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
REVISIONS
NOTE: INFORMATION PROVIDED ON THIS SHEET IS FROM INTERCHANGE PLAN SHEET 9 /R/W SHEET 10
SITE 7
61
RAHAB LAND COMPANY, INC.
BANK STABILIZATION
NO ADDITIONAL IMPACTS FOR PIPE REMOVAL
DRY DETENTION BASIN MINIMUM REQUIRED VOLUME = 2500 CF
SEE SPECIAL DETAIL
SEE DETAIL
REMOVE
RETAIN
END SBG +60
NC GRID NAD 83
DENOTES IMPACTS IN SURFACE WATER
GRAPHIC SCALE
Permit Drawing
Sheet 33 of 68

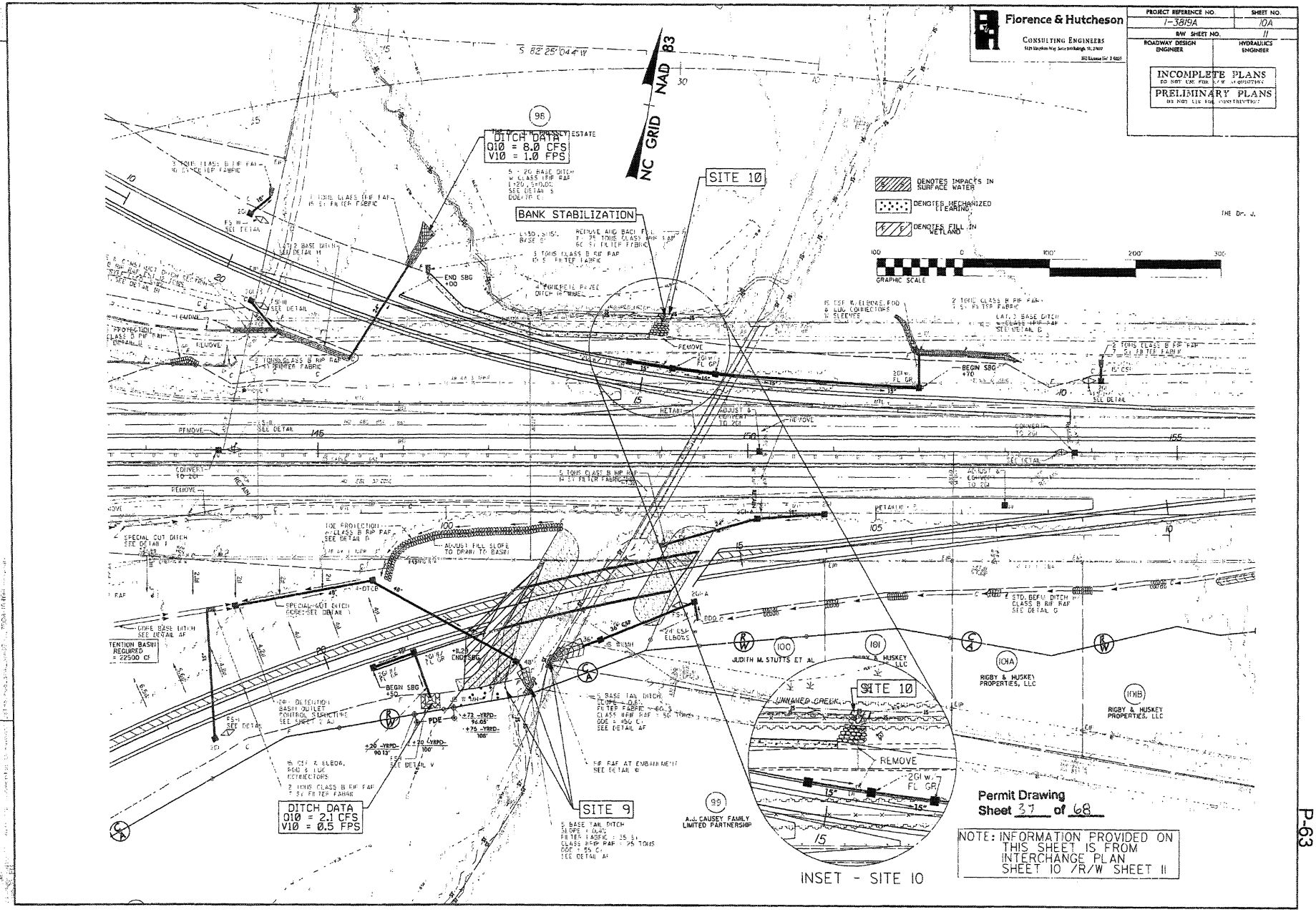

Florence & Hutcheson
CONSULTING ENGINEERS
PROJECT REFERENCE NO.
1-3819A
SHEET NO.
9B
R/W SHEET NO.
10
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
NOTE: INFORMATION PROVIDED ON THIS SHEET IS FROM INTERCHANGE PLAN SHEET 9 /R/W SHEET 10
SITE 7
RAHAB LAND COMPANY, INC.
BANK STABILIZATION
NO ADDITIONAL IMPACTS FOR PIPE REMOVAL
DRY DETENTION BASIN MINIMUM REQUIRED VOLUME = 2500 CF
NC GRID NAD 83
DENOTES IMPACTS IN SURFACE WATER
GRAPHIC SCALE
Permit Drawing
Sheet 34 of 68

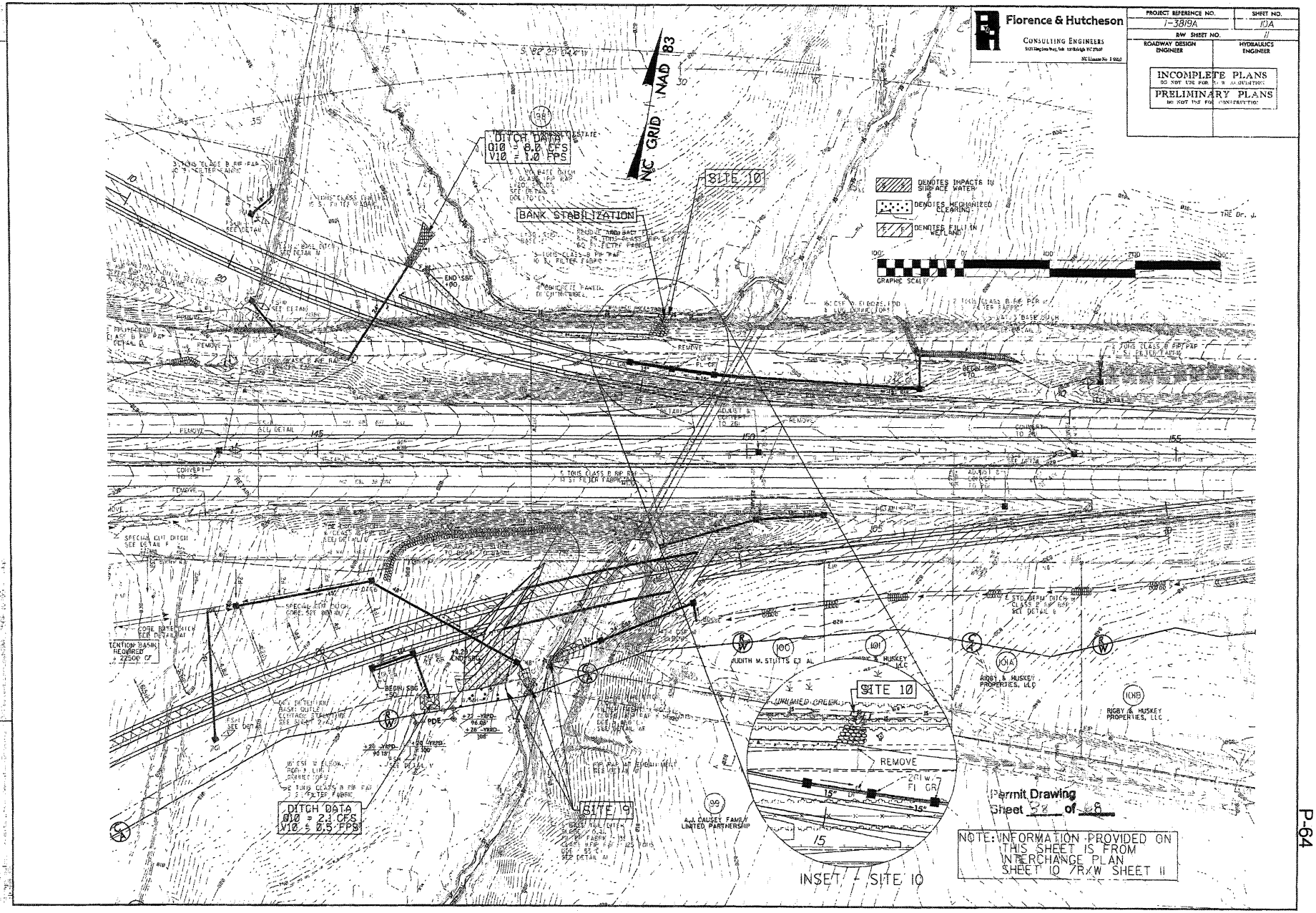
REVISIONS


Florence & Hutcheson
CONSULTING ENGINEERS
PROJECT REFERENCE NO.
I-3819A
SHEET NO.
9C
R/W SHEET NO.
10 & 15
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
DENOTES IMPACTS IN SURFACE WATER
DENOTES FILL IN WETLAND
NC GRID NAD 83
NOTE: INFORMATION PROVIDED ON THIS SHEET IS FROM INTERCHANGE PLAN SHEET 9 /R/W SHEET 10 & SHEET 15 /R/W SHEET 23
95
DOOSAN INTERNATIONAL USA, INC.
94
MOORESVILLE LODGING, LLC
SITE 8
SITE 8
MATCHLINE STA 24+00 -YRPBD SEE SHEET NO.15
MATCHLINE STA 24+00 -YRPBD SEE SHEET NO.
DOOSAN INTERNATIONAL USA, INC.
2 BASE BERM DITCH SEE DETAIL O
3 BASE BERM DITCH SEE DETAIL O
3 TONS CLASS B RIP RAP 10 SY FILTER FABRIC
REMOVE 60 OF PIPE
5 LAT BASE DITCH SEE DETAIL M
5 LAT BASE DITCH W/CLASS I RIP RAP SEE DETAIL B (RIP RAP TO BE FLUSH WITH THE CHANNEL)
1 TONS CLASS I RIP RAP 15 SY FILTER FABRIC (FLUSH W/ INVERTS)
2 TONS CLASS B RIP RAP 7 SY FILTER FABRIC
SPECIAL CUT DITCH SEE DETAIL F
SPRING BOX
RETAIN
RETAIN DITCH
2 TONS CLASS B RIP RAP 7 SY FILTER FABRIC
Permit Drawing
Sheet 35 of 68
REVISIONS

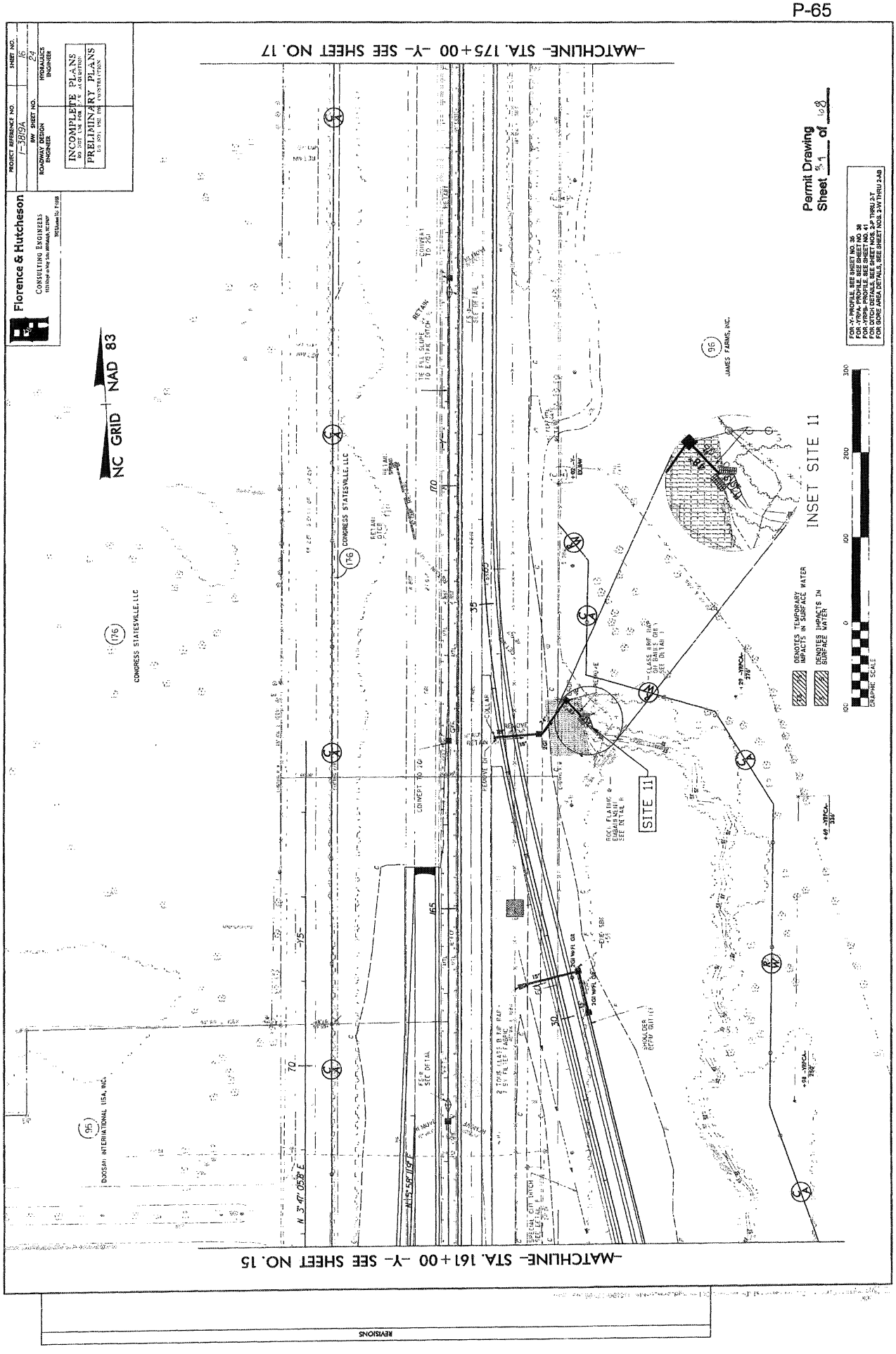

Florence & Hutcheson
CONSULTING ENGINEERS
PROJECT REFERENCE NO.
1-3819A
SHEET NO.
9C
R/W SHEET NO.
10 & 15
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W OR UTILITY
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
DENOTES IMPACTS IN SURFACE WATER
DENOTES FILL IN WETLAND
NAD 83
NC GRID
NOTE: INFORMATION PROVIDED ON THIS SHEET IS FROM INTERCHANGE PLANS SHEET 9 /R/W SHEET 10 & SHEET 15 /R/W SHEET 23
DOOSAN INTERNATIONAL USA, INC.
ASHEVILLE LODGING, LLC
SITE B
MATCHLINE SEE SHEET NO.15 STA. 24+00 -L-
MATCHLINE SEE SHEET NO.9 STA. 24+00 -L-
SPRING BOX
REMOVE 60' OF PIPE
Permit Drawing Sheet ___ of 68

REVISIONS

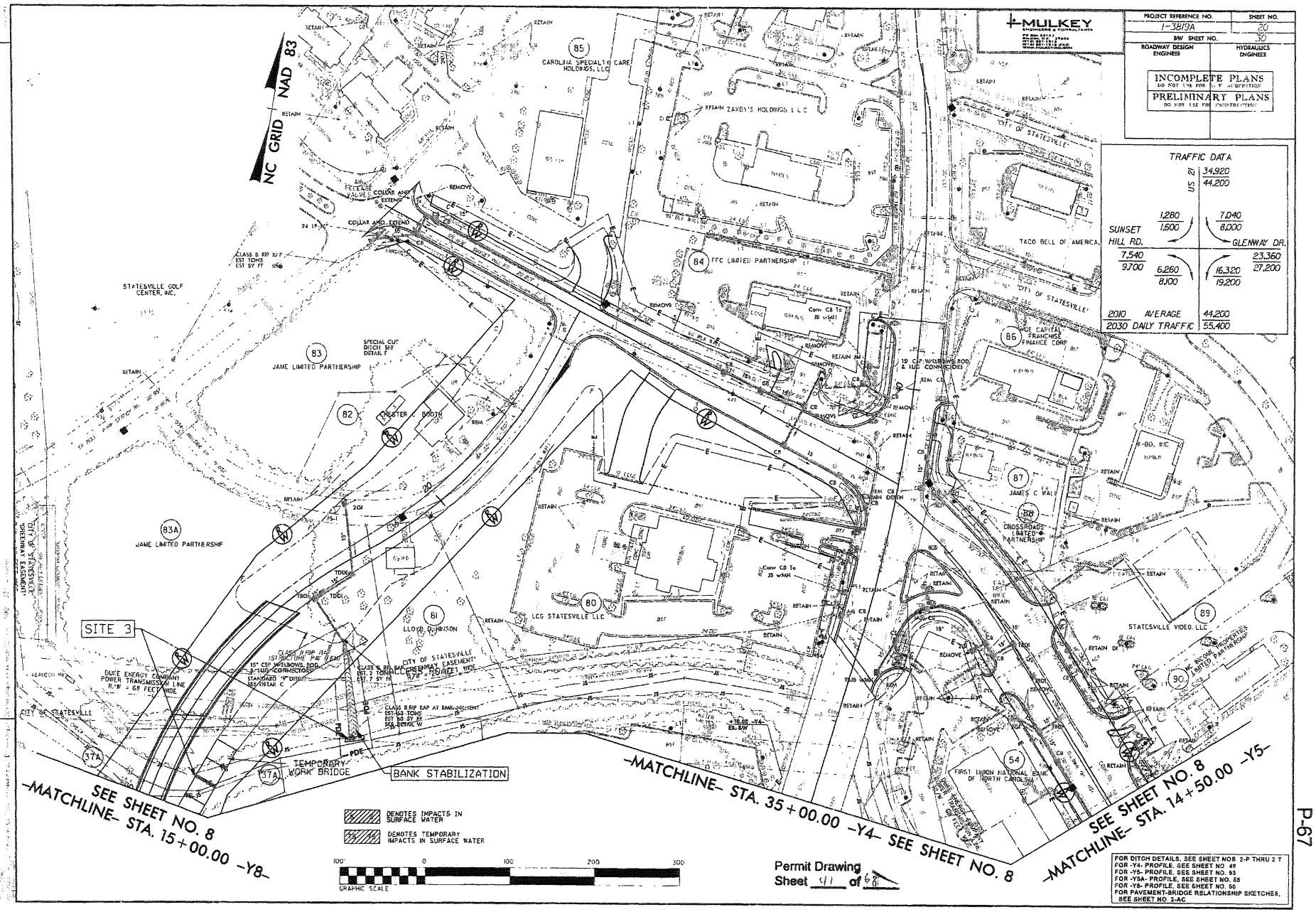

Florence & Hutcheson
CONSULTING ENGINEERS
PROJECT REFERENCE NO.
1-3819A
SHEET NO.
10A
R/W SHEET NO.
11
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
PRELIMINARY PLANS
NC GRID NAD 83
S 82°25'04.4" W
DITCH DATA
Q10 = 8.0 CFS
V10 = 1.0 FPS
SITE 10
BANK STABILIZATION
DENOTES IMPACTS IN SURFACE WATER
DENOTES MECHANIZED CLEARING
DENOTES FILL IN WETLAND
GRAPHIC SCALE
END SBG +00
BEGIN SBG +70
BEGIN SBG +50
REMOVE
RETAIN
ADJUST & CONVERT TO 2GI
CONVERT TO 2GI
SPECIAL CUT DITCH SEE DETAIL F
ADJUST FILL SLOPE TO DRAIN TO BASIN
TOE PROTECTION CLASS B RIP RAP SEE DETAIL B
SPECIAL CUT DITCH SEE DETAIL
CORE BASE DITCH SEE DETAIL AF
DETENTION BASIN REQUIRED = 22500 CF
DRY DETENTION BASIN OUTLET CONTROL STRUCTURE SEE SHEET 2 AJ
PDE
+72 -YRPD- 96.05'
+75 -YRPD- 108'
+20 -YRPD- 90.13'
+20 -YRPD- 100'
SEE DETAIL V
2 TONS CLASS B RIP RAP 1 SY FILTER FABRIC
5 BASE TAIL DITCH SLOPE = 0.40 FILTER FABRIC = 35 SY CLASS B RIP RAP = 25 TONS ODE = 55 CF SEE DETAIL AF
RIP RAP AT EMBANKMENT SEE DETAIL W
DITCH DATA
Q10 = 2.1 CFS
V10 = 0.5 FPS
SITE 9
A.J. CAUSEY FAMILY LIMITED PARTNERSHIP
JUDITH M. STUTTS ET AL
RIGBY & HUSKEY LLC
RIGBY & HUSKEY PROPERTIES, LLC
UNNAMED CREEK
2GI w/ FL GR
INSET - SITE 10
Permit Drawing
Sheet 37 of 68
NOTE: INFORMATION PROVIDED ON THIS SHEET IS FROM INTERCHANGE PLAN SHEET 10 /R/W SHEET 11
REVISIONS

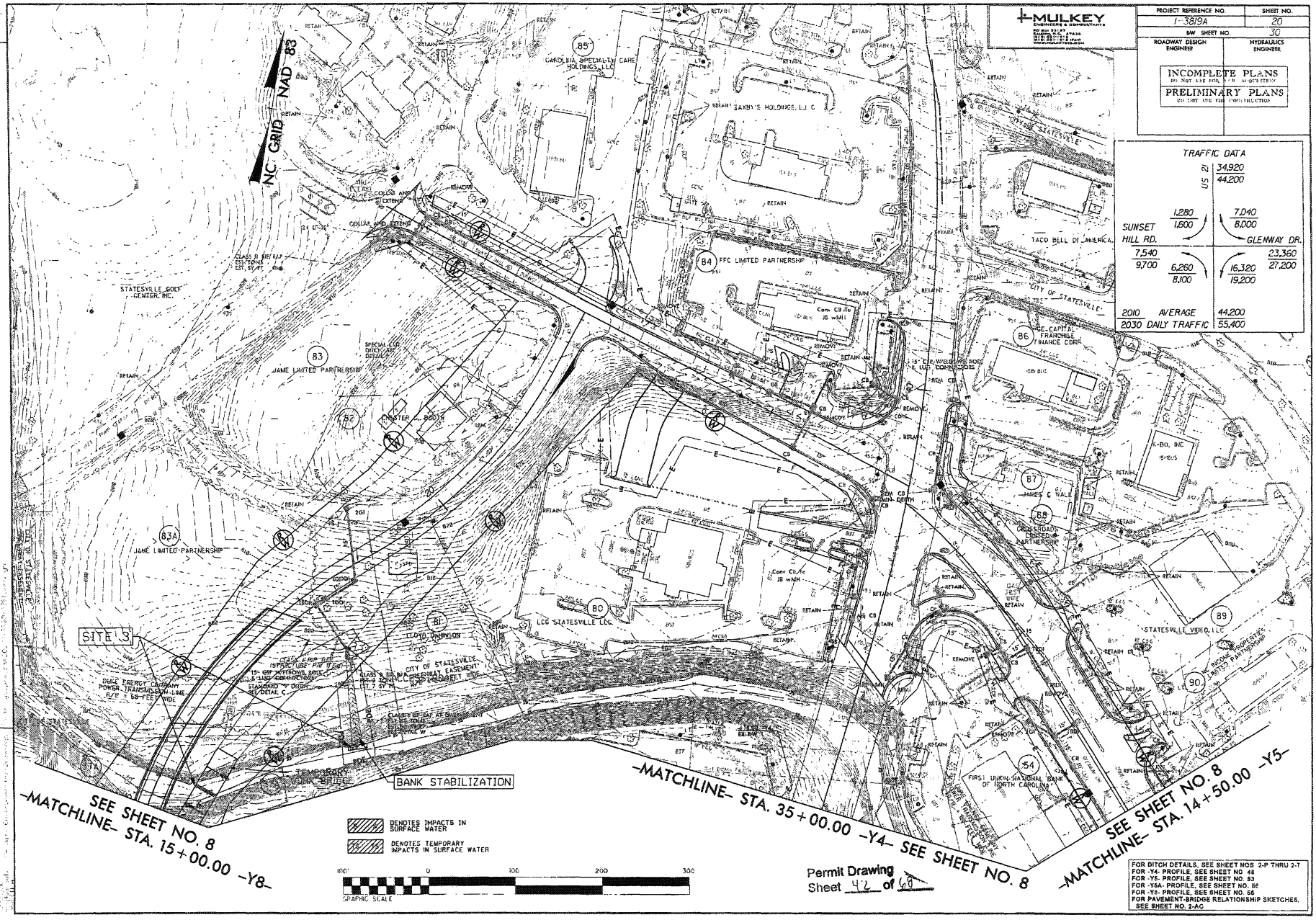

Florence & Hutcheson
CONSULTING ENGINEERS
PROJECT REFERENCE NO.
I-3819A
SHEET NO.
10A
R/W SHEET NO.
11
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
NC GRID NAD 83
DITCH DATA
Q10 = 8.0 CFS
V10 = 1.0 FPS
SITE 10
BANK STABILIZATION
DENOTES IMPACTS IN SURFACE WATER
DENOTES MECHANIZED CLEARING
DENOTES FILL IN WETLAND
GRAPHIC SCALE
DITCH DATA
Q10 = 2.1 CFS
V10 = 0.5 FPS
SITE 9
SITE 10
REMOVE
INSET - SITE 10
Permit Drawing
Sheet 38 of 68
NOTE: INFORMATION PROVIDED ON THIS SHEET IS FROM INTERCHANGE PLAN SHEET 10 /R/W SHEET 11

REVISIONS


Florence & Hutcheson
CONSULTING ENGINEERS
PROJECT REFERENCE NO. 1-3819A
SHEET NO. 16
SW SHEET NO. 24
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
PRELIMINARY PLANS
NOT FOR CONSTRUCTION
NC GRID NAD 83
-MATCHLINE- STA. 175+00 -Y- SEE SHEET NO. 17
-MATCHLINE- STA. 161+00 -Y- SEE SHEET NO. 15
INSET SITE 11
SITE 11
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES IMPACTS IN SURFACE WATER
GRAPHIC SCALE
Permit Drawing
Sheet 51 of 108
REVISIONS

PROJECT REFERENCE NO.
I-3819A
SHEET NO.
16
R/W SHEET NO.
24
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR CONSTRUCTION
PRELIMINARY PLANS
NOT FOR BID OR CONSTRUCTION
Florence & Hutcheson
CONSULTING ENGINEERS
Permit Drawing
Sheet 16 of 68
MATCHLINE STA. 175+00 -Y- SEE SHEET NO. 17
MATCHLINE STA. 161+00 -Y- SEE SHEET NO. 15
NC GRID NAD 83
INSET SITE 11
SITE 11
CONGRESS STATESVILLE, LLC
DOOSAN INTERNATIONAL USA, INC
JAMES FARMS INC
REVISIONS


NC GRID NAD 83
MULKEY
PROJECT REFERENCE NO. 1-3819A
SHEET NO. 20
RW SHEET NO. 30
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
TRAFFIC DATA
US 21
34,920
44,200
SUNSET HILL RD.
1,280
1,500
7,040
8,000
GLENWAY DR.
7,540
9,700
6,260
8,100
16,320
19,200
23,360
27,200
2010 AVERAGE 44,200
2030 DAILY TRAFFIC 55,400
REVISIONS
SITE 3
STATESVILLE GOLF CENTER, INC.
JAME LIMITED PARTNERSHIP
CHESTER BOOTH
LLOYD O. HINSON
LCG STATESVILLE LLC
CAROLINA SPECIALTY CARE HOLDINGS, LLC
ZAXBY'S HOLDINGS I L.L.C.
FFC LIMITED PARTNERSHIP
TACO BELL OF AMERICA
CITY OF STATESVILLE
GE CAPITAL FRANCHISE FINANCE CORP
JAMES C. WALL
CROSSROADS LIMITED PARTNERSHIP
STATESVILLE VIDEO, LLC
NC INCOME PROPERTIES LIMITED PARTNERSHIP
FIRST UNION NATIONAL BANK OF NORTH CAROLINA
DUKE ENERGY COMPANY POWER TRANSMISSION LINE R/W = 68 FEET WIDE
CITY OF STATESVILLE
TEMPORARY WORK BRIDGE
BANK STABILIZATION
-MATCHLINE- STA. 15+00.00 -Y8-
SEE SHEET NO. 8
-MATCHLINE- STA. 35+00.00 -Y4-
SEE SHEET NO. 8
-MATCHLINE- STA. 14+50.00 -Y5-
DENOTES IMPACTS IN SURFACE WATER
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
GRAPHIC SCALE
0 100 200 300
Permit Drawing Sheet 41 of 68
FOR DITCH DETAILS, SEE SHEET NOS 2-P THRU 2-T
FOR -Y4- PROFILE, SEE SHEET NO 48
FOR -Y5- PROFILE, SEE SHEET NO. 53
FOR -Y5A- PROFILE, SEE SHEET NO. 55
FOR -Y6- PROFILE, SEE SHEET NO. 56
FOR PAVEMENT-BRIDGE RELATIONSHIP SKETCHES, SEE SHEET NO. 2-AC



MULKEY
ENGINEERS & CONSULTANTS

PROJECT REFERENCE NO.	SHEET NO.
I-3819A	20
RW SHEET NO.	30
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

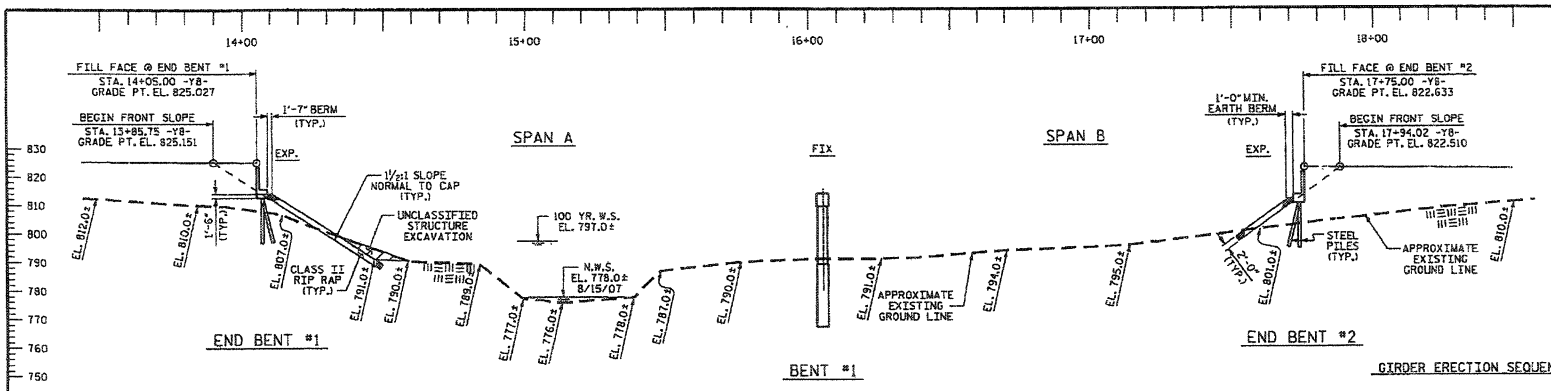
INCOMPLETE PLANS
DO NOT USE FOR BID ADVERTISEMENT
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Permit Drawing Sheet 42 of 68

FOR DITCH DETAILS, SEE SHEET NOS 2-P THRU 2-T
FOR -Y4- PROFILE, SEE SHEET NO. 48
FOR -Y5- PROFILE, SEE SHEET NO. 53
FOR -Y5A- PROFILE, SEE SHEET NO. 56
FOR -Y8- PROFILE, SEE SHEET NO. 56
FOR PAVEMENT-BRIDGE RELATIONSHIP SKETCHES, SEE SHEET NO. 2-AC

P-68

F.A. PROJECT= IMS-40-2(124)



GRADE DATA

+0.87537% Δ -0.64702%

PI= 11+00.00 -Y8-
EL. = 827.00
VC = 170'

GIRDER ERECTION SEQUENCE

THE STRUCTURAL STEEL SHALL BE SUPPORTED DURING ERECTION IN ITS CAMBERED POSITION. ONE EXTERIOR GIRDER AND ITS ADJACENT INTERIOR GIRDER SHALL BE ERECTED WITH ALL DIAPHRAGMS AND LATERAL BRACING BETWEEN THE GIRDERS IN PLACE AND ALL BOLTS TIGHTENED PRIOR TO RELEASE OF THE GIRDERS. THE REMAINING GIRDERS SHALL THEN BE ERECTED WITH DIAPHRAGMS CONNECTING THE GIRDER TO THE ADJACENT ERECTED GIRDER AND ALL BOLTS TIGHTENED BEFORE RELEASING THE GIRDER.

A MINIMUM OF TWO TEMPORARY BENT SHALL BE USED.

TEMPORARY BENTS SHALL REMAIN IN PLACE UNTIL ALL CROSSFRAMES AND LATERAL BRACING ARE IN PLACE AND HIGH STRENGTH BOLTS TIGHTENED.

TEMPORARY BENTS SHALL PROVIDE BEARING AT CONNECTOR PLATE LOCATIONS.

PLANS FOR TEMPORARY BENTS, ERECTION SEQUENCE AND TEMPORARY BENT REMOVAL SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW.

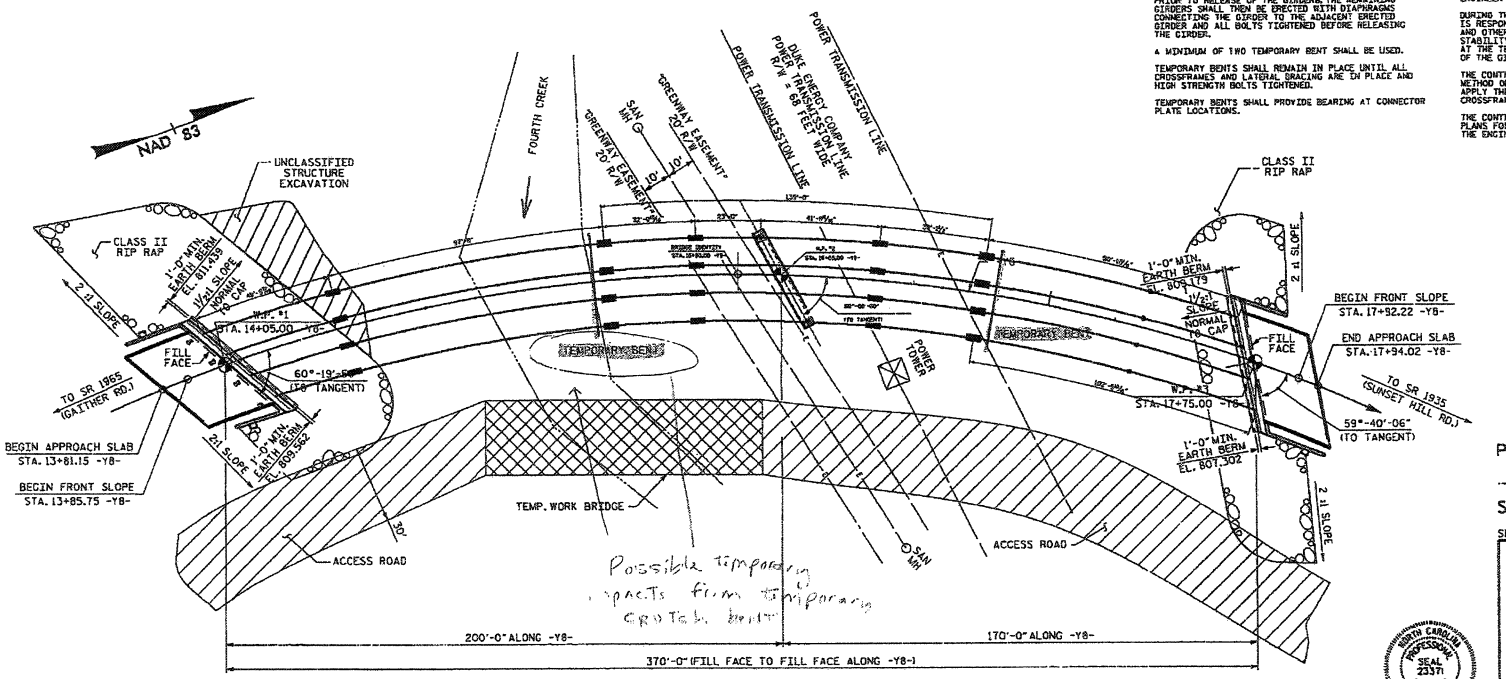
TEMPORARY BENTS SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF NORTH CAROLINA.

DURING THE GIRDER ERECTION PROCEDURE, THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING TEMPORARY LATERAL BRACING AND OTHER MEANS OF SUPPORT AS REQUIRED, TO ENSURE STABILITY OF THE GIRDERS, AVOID UPLIFT OF THE GIRDERS AT THE TEMPORARY ERECTION BENTS AND MAINTAIN PLUMBNESS OF THE GIRDER WEBS.

THE CONTRACTOR'S ERECTION PLAN SHALL INCLUDED A METHOD OF TEMPORARY BENT REMOVAL THAT WILL UNIFORMLY APPLY THE STRUCTURAL STEEL WEIGHT TO THE BRIDGE CROSSFRAMES.

THE CONTRACTOR MAY SUBMIT ALTERNATE ERECTION METHODS. PLANS FOR SUCH ERECTION METHODS SHALL BE APPROVED BY THE ENGINEER.

SECTION ALONG -Y8-



Possible temporary impacts from temporary trestle bents

PLAN

PILES NOT SHOWN FOR CLARITY

PI STA. = 16+04.34 -Y8-
Δ = 72°-36'-06.8" (RT)
D = 10°-44'-58.8"
L = 675.39'
T = 391.54'
R = 533.00'
SE = 0.04

HORIZONTAL CURVE DATA

Permit Drawing
Sheet 42a of 68

PROJECT NO. I-3819A
IREDELL COUNTY
STATION: 15+90.00 -Y8-

SHEET 1 OF 4 BRIDGE #567

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
BRIDGE OVER
FOURTH CREEK ON
SR 1934 (HILLSIDE LN.)
BETWEEN
SR 1965 AND SR 1935

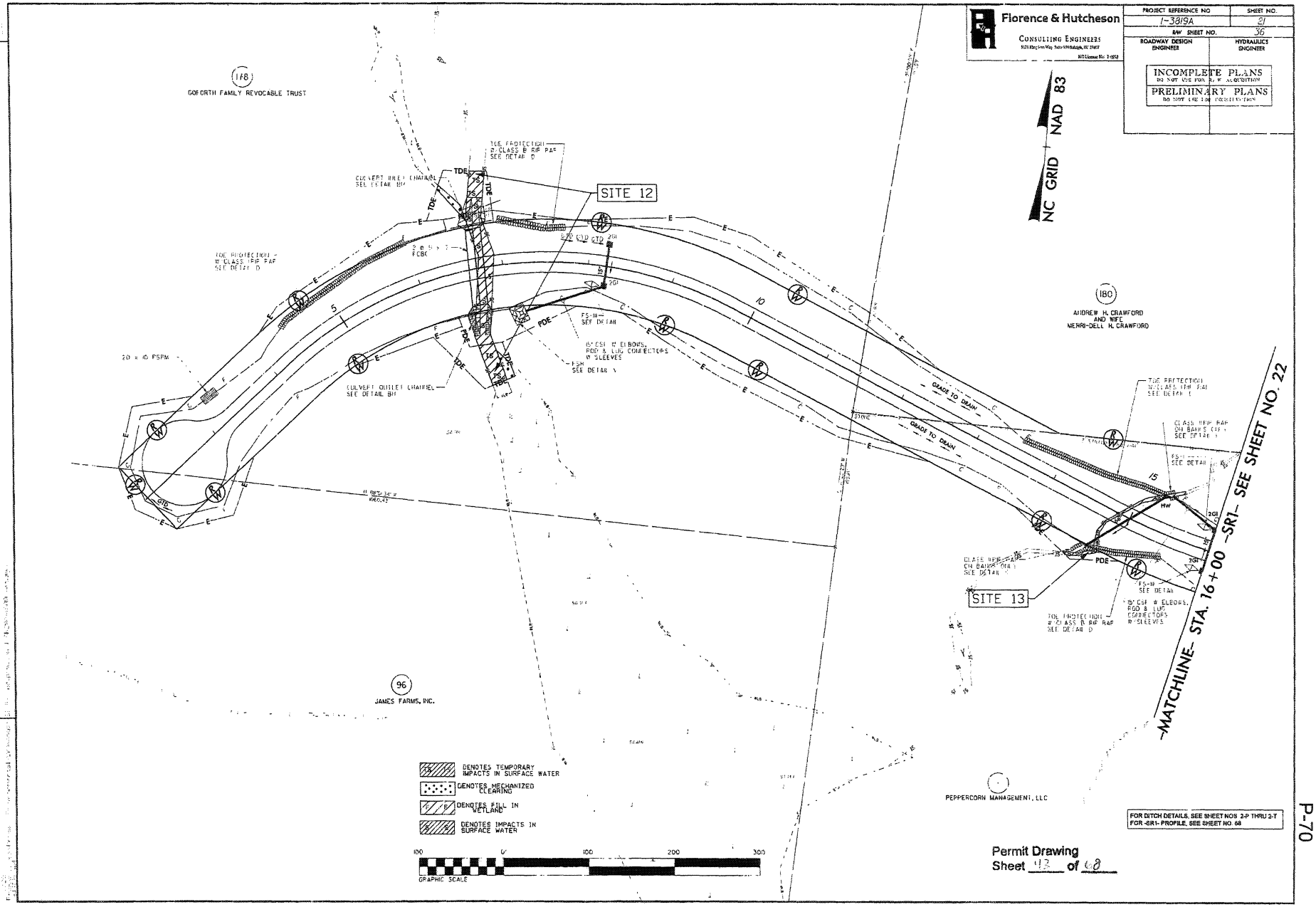
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			7

DRAWN BY : Keith D. Layne DATE : 9/29/10
CHECKED BY : ? DATE : 9/30/09

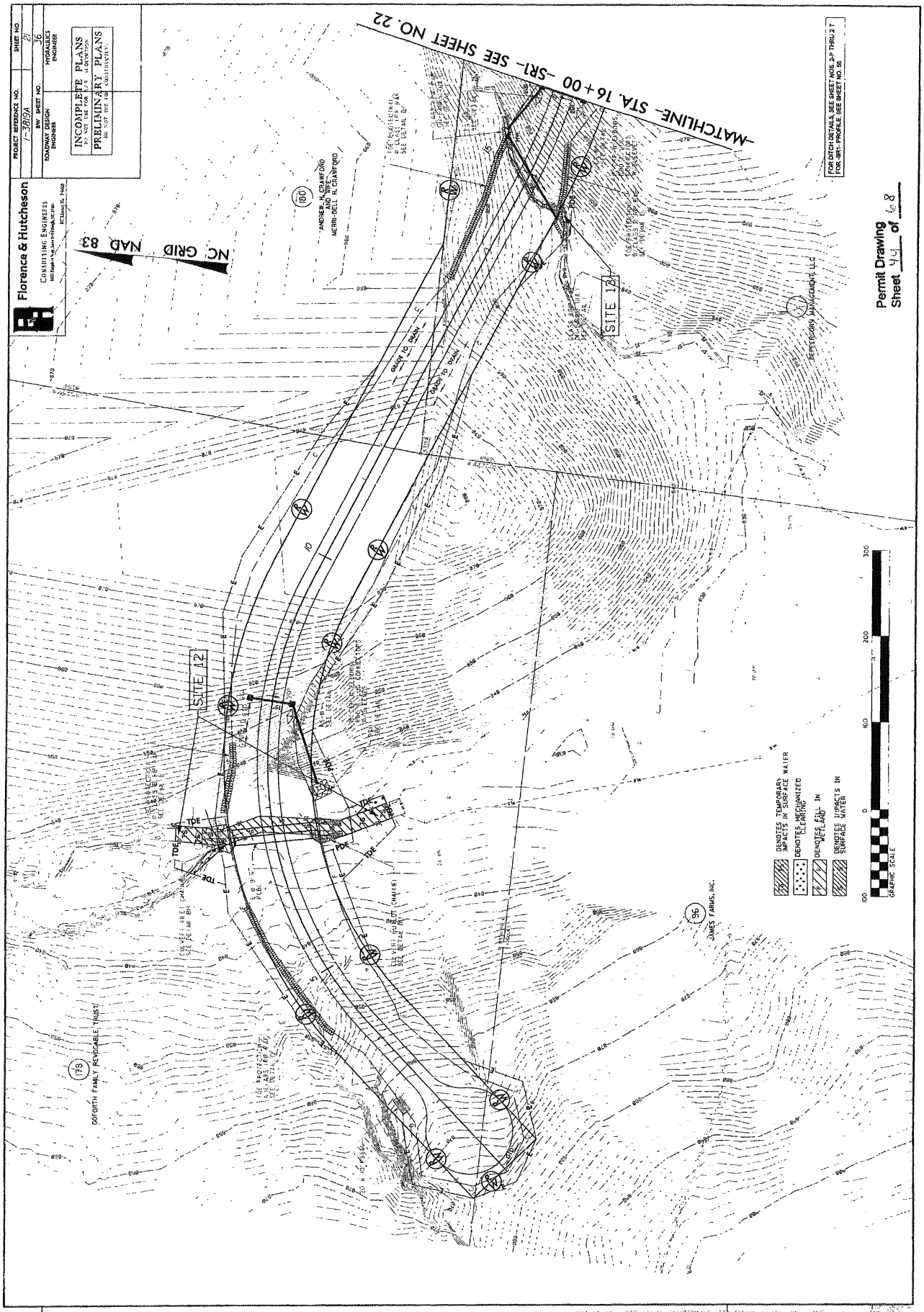
05-OCT-2010 12:17
N:\Structures\Roadway\structs_sheets\Iredell\I-3819A_sd_Temp Bent_06.dgn
wpatel

STR. #6

P-69


Florence & Hutcheson
CONSULTING ENGINEERS
PROJECT REFERENCE NO
I-3819A
SHEET NO.
21
R/W SHEET NO.
36
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
NC GRID NAD 83
168
GOFORTH FAMILY REVOCABLE TRUST
180
ANDREW H. CRAWFORD AND WIFE MERRI-DELL H. CRAWFORD
96
JAMES FARMS, INC.
PEPPERCORN MANAGEMENT, LLC
SITE 12
SITE 13
TOE PROTECTION W/CLASS B RIP RAP SEE DETAIL D
CULVERT INLET CHANNEL SEE DETAIL BIF
CULVERT OUTLET CHANNEL SEE DETAIL BIF
20 x 10 PSPM
GRADE TO DRAIN
-MATCHLINE- STA. 16+00 -SR1- SEE SHEET NO. 22
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES MECHANIZED CLEARING
DENOTES FILL IN WETLAND
DENOTES IMPACTS IN SURFACE WATER
GRAPHIC SCALE
FOR DITCH DETAILS, SEE SHEET NOS 2-P THRU 2-T
FOR -SR1- PROFILE, SEE SHEET NO. 68
Permit Drawing
Sheet 43 of 68

REVISIONS

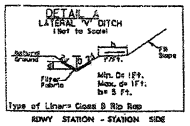

Florence & Hutcheson
CONSULTING ENGINEERS
PROJECT REFERENCE NO.
I-3819A
SHEET NO.
21
RW SHEET NO.
36
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
NC GRID NAD 83
MATCHLINE- STA. 16+00 -SR1- SEE SHEET NO. 22
FOR DITCH DETAILS, SEE SHEET NOS. 2P THRU 2T
FOR -SR1- PROFILE, SEE SHEET NO. 5B
SITE 12
SITE 13
DENOTES TEMPORARY IMPACTS IN SURFACE WATER
DENOTES MECHANIZED CLEARING
DENOTES FILL IN WETLAND
DENOTES IMPACTS IN SURFACE WATER
GRAPHIC SCALE
SOFORTH FAMILY REVOCABLE TRUST
JAMES FARMS, INC.
ANDREW N. CRAMFORD AND WIFE MERRI-BELL H. CRAMFORD
REVISIONS
Permit Drawing
Sheet 44 of 48

Florence & Hutcheson
CONSULTING ENGINEERS

PROJECT REFERENCE NO.	SHEET NO.
I-3819A	2-R
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

REVISIONS

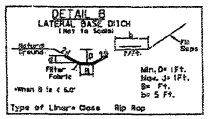
DETAIL A
LATERAL "V" DITCH
(Not to Scale)



Type of Liner= Class B Rip Rap

RDWY	STATION - STATION	SIDE
-YRPB-	15+20 TO 16+80	RT.

DETAIL B
LATERAL BASE DITCH
(Not to Scale)

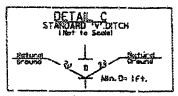


Type of Liner= Class Rip Rap

RDWY	STATION - STATION	SIDE	B	LINER
-L-	50+65 TO 53+00	RT.	2'	CLASS B
-YRPA-	22+20 TO 23+00	LT.	4'	CLASS B
-YRPAB-	10+60 TO 12+10	RT.	2'	CLASS I
*-YRPBD-	20+20 TO 21+00	RT.	5'	CLASS I
-YRPBD-	27+85 TO 28+85	LT.	2'	CLASS B
-YRPBD-	29+00 TO 62+05	LT	5'	CLASS B

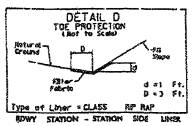
*RIP RAP TO BE FLUSH WITH CHANNEL DITCH SLOPE = 13.57%

DETAIL C
STANDARD "V" DITCH
(Not to Scale)



RDWY	STATION - STATION	SIDE
-SR1-	36+50	LT.
-YB-	17+50 TO 18+04	RT.

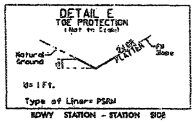
DETAIL D
TOE PROTECTION
(Not to Scale)



Type of Liner = CLASS RIP RAP

RDWY	STATION - STATION	SIDE	LINER
-L-	143+38 TO 143+60	LT.	CLASS B
-SR1-	44+40 TO 44+00	LT.	CLASS I
-SR1-	7+00 TO 7+70	LT.	CLASS B
-SR1-	13+40 TO 15+30	LT.	CLASS I
-SR2-	14+70 TO 15+60	RT.	CLASS B
-Y-	124+09 TO 137+00	RT.	CLASS B
-Y-	153+30 TO 154+20	LT.	CLASS B
-Y7-	17+50 TO 19+25	LT.	CLASS B
-YRDRIVE-	10+50 TO 11+50	LT.	CLASS B
-YRPA-	21+70 TO 22+20	LT.	CLASS B
-YRPBD-	24+70 TO 26+00	RT.	CLASS B
-YRPBD-	57+70 TO 59+40	RT.	CLASS B
-YRPC-	28+00 TO 29+50	RT.	CLASS B
-YRPD-	17+00 TO 19+16	RT.	CLASS B

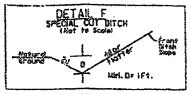
DETAIL E
TOE PROTECTION
(Not to Scale)



Type of Liner= PSRM

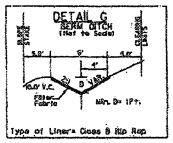
RDWY	STATION - STATION	SIDE
-YRPC-	21+48 TO 22+68	LT.
-L-	54+48 TO 59+20	LT

DETAIL F
SPECIAL CUT DITCH
(Not to Scale)



RDWY	STATION - STATION	SIDE
-L-	36+50 TO 37+50	LT.
-L-	41+00 TO 41+62	LT
-L-	136+00 TO 138+00	LT.
-L-	143+00 TO 144+86	RT
-SR1-	24+50 TO 25+25	RT.
-SR1-	28+00 TO 31+50	LT.
-SR1-	30+50 TO 32+00	RT.
-SR1-	34+00 TO 36+50	LT.
-SR1-	33+50 TO 36+50	RT.
-Y5-	65+98 TO 67+00	RT.
-Y8-	12+50 TO 12+50	LT.
-Y9-	10+50 TO 13+25	RT.
-Y8-	19+00 TO 21+50	LT.
-YRDRIVE-	11+50 TO 11+75	LT.
-Y10A-	13+00 TO 14+00	LT.
-Y10A-	13+50 TO 14+50	RT.
-YRPA-	22+00 TO 23+00	LT.
-YRPB-	14+00 TO 18+50	RT.
-YRPBD-	19+00 TO 20+50	RT.
-Y3A-	13+50 TO 14+05	RT.
-Y3A-	13+50 TO 13+90	LT.

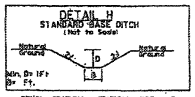
DETAIL G
BERM DITCH
(Not to Scale)



Type of Liner= Class B Rip Rap

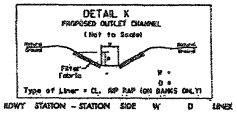
RDWY	STATION - STATION	SIDE
-L-	160+10 TO 165+20	LT.
-YRPD-	9+50 TO 18+68	LT.

DETAIL H
STANDARD BASE DITCH
(Not to Scale)



RDWY	STATION - STATION	SIDE	B
-L-	114+80	RT.	5'
-L-	107+00	RT.	2'
-L-	108+90	RT	2'
-L-	135+54 TO 138+00	LT.	5'
-YEDRIVE-	11+75	RT.	2'
-SR1-	28+35	LT.	5'

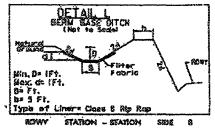
DETAIL K
PROPOSED OUTLET CHANNEL
(Not to Scale)



Type of Liner = CL. RIP RAP (ON BANKS ONLY)

RDWY	STATION - STATION	SIDE	W	D	LINER
-L-	55+50	LT.	3' TO 5'	18"	CL. B
-SR1-	14+70	RT.	2'	2'	CL. B
-SR1-	15+30	LT.	2'	2'	CL. B
-YRPA-	23+50	RT.	5'	5'	CL. B
-YRPC-	29+70	RT.	5'	3'	CL. B

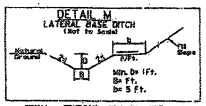
DETAIL L
BERM BASE DITCH
(Not to Scale)



Type of Liner= Class B Rip Rap

RDWY	STATION - STATION	SIDE	B
-L-	158+21 TO 160+00	RT.	5'
-Y5-	40+00 TO 42+00	LT.	5'

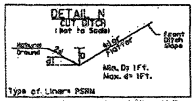
DETAIL M
LATERAL BASE DITCH
(Not to Scale)



RDWY	STATION - STATION	SIDE	B
-YRPAB-	18+98 TO 19+20	LT.	2'
*-YRPBD-	21+00 TO 24+50	RT.	5'
-YRPBD-	27+20 TO 27+80	LT.	2'

*DITCH SLOPE = 1.60%

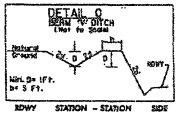
DETAIL N
CUT DITCH
(Not to Scale)



Type of Liner= PSRM

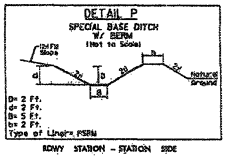
RDWY	STATION - STATION	SIDE
-SR1-	15+00 TO 19+00	RT.
-Y1-	25+00 TO 25+50	RT.

DETAIL O
BERM "V" DITCH
(Not to Scale)



RDWY	STATION - STATION	SIDE
-YRPBD-	31+50 TO 34+00	RT.
-YRPBD-	37+00 TO 40+50	RT.
-YRPBD-	43+00 TO 44+50	RT.

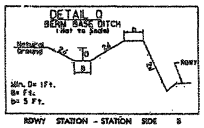
DETAIL P
SPECIAL BASE DITCH
W/ BERM
(Not to Scale)



Type of Liner= PSRM

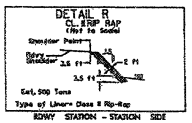
RDWY	STATION - STATION	SIDE
-L-	104+00 TO 109+45	RT.

DETAIL Q
BERM BASE DITCH
(Not to Scale)



RDWY	STATION - STATION	SIDE	B
-L-	155+20 TO 158+21	RT.	2'
-Y6-	42+00 TO 45+40	LT.	5'
-Y5-	46+70 TO 49+80	LT.	2'

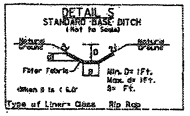
DETAIL R
CL. RIP RAP
(Not to Scale)



Type of Liner= Class B Rip-Rap

RDWY	STATION - STATION	SIDE
-YRPA-	33+00 TO 33+80	RT.

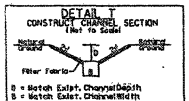
DETAIL S
STANDARD BASE DITCH
(Not to Scale)



Type of Liner= Class Rip Rap

RDWY	STATION - STATION	SIDE	B	LINER
-L-	119+16	RT.	6'-20'	CLASS B
-YRPA-	22+00	RT.	5'-20'	CLASS I
-YRPAB-	18+00	RT.	5'-20'	CLASS I

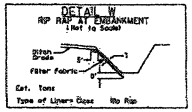
DETAIL T
CONSTRUCT CHANNEL SECTION
(Not to Scale)



LINER = CLASS B RIP RAP (ON BANKS ONLY)

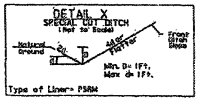
RDWY	STATION - STATION	SIDE
-L-	113+20	RT.
-YRPC-	26+80	RT.

DETAIL W
RIP RAP AT EMBANKMENT
(Not to Scale)



RDWY	STATION	SIDE	THICKNESS T (FT)	LINER	TONS	SY
-L-	92+00	CL.	2.0	CL. B	730	765
-L-	92+50	CL.	2.0	CL. B	725	770
-Y3A-	40+50	LT.	1.5	CL. I	8	10
-Y4-	18+14	LT.	1.5	CL. I	11	10
-YRPD-	17+18	LT.	2.0	CL. B	51	34
-YRPD-	16+50	LT.	2.0	CL. B	43	26
-YRPD-	16+15	LT.	2.0	CL. B	54	36
-Y8-	17+50	RT.	1.5	CL. I	47	56
-YRPD-	17+40	LT.	2.0	CL. B	5	80
-YRPD-	17+70	LT.	2.0	CL. B	5	35

DETAIL X
SPECIAL CUT DITCH
(Not to Scale)



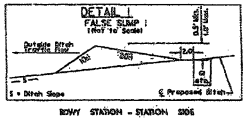
Type of Liner= PSRM

RDWY	STATION - STATION	SIDE
-SR1-	25+35 TO 26+00	RT.

DETAIL Y
SPECIAL CUT DITCH GORE
(Not to Scale)

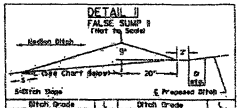
RDWY	STATION - STATION	SIDE
-YRPD-	19+20 - 20+70	RT.

DETAIL I
FALSE SLUMP I
(Not to Scale)



RDWY	STATION	SIDE
-L-	36+35	LT.
-L-	36+00	LT.
-L-	48+75	RT.
-L-	53+35	RT.
-L-	56+90	RT.
-L-	43+26	RT.
-L-	47+20	RT.
-L-	96+60	RT.
-L-	119+30	LT.
-LCDWB-	15+70	LT.
-SR1-	16+00	LT.
-YRPD-	12+20	RT.
-YRPD-	24+10	RT.
-YRPD-	28+40	LT.
-YRPD-	21+67	LT.
-Y4RPC-	16+66	LT.
-Y4RPC-	19+00	LT.
-Y5-	80+70	LT.
-Y8-	19+00	LT.
-Y10A-	13+50	LT.

DETAIL J
FALSE SLUMP II
(Not to Scale)

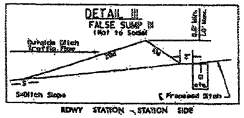


Ditch Grade	L
0.00% To 2.00%	20'
Over 2.00% To 4.00%	30'

Ditch Grade	L
Over 4.00% To 6.00%	40'
Over 6.00%	50'

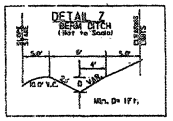
RDWY	STATION	SIDE
-L-	28+50	MED.
-L-	30+75	MED.
-L-	34+80	MED.
-L-	49+00	MED.
-L-	54+10	MED.
-L-	86+90	MED.
-L-	43+00	MED
-L-	67+70	MED.
-L-	108+80	MED.
-L-	114+80	MED
-L-	119+00	MED.
-L-	123+00	MED.
-L-	138+70	MED.
-L-	144+00	MED.
-L-	153+40	MED.
-L-	157+70	MED.
-Y-	129+30	MED.
-Y-	143+40	MED.
-Y-	149+80	MED
-Y-	152+60	MED.
-Y-	166+66	MED
-Y-	162+76	MED.
-Y-	172+30	MED.
-Y-	177+30	MED.

DETAIL U
FALSE SLUMP IV
(Not to Scale)



RDWY	STATION	SIDE
-L-	41+42	LT.
-L-	49+50	LT.
-L-	158+20	RT.
-L-	165+80	RT.
-L-	179+81	RT.
-SR1-	8+20	RT.
-SR1-	16+00	RT.
-Y-	130+28	RT.
-Y-	178+00	RT.
-YRPAB-	19+60	LT.
-YRPAB-	19+90	RT.
-YRPBD-	23+35	LT.
-YRPBD-	26+90	RT.
-YRPBD-	34+90	LT.
-YRPBD-	27+80	RT.
-YRPBD-	28+80	LT.
-Y4RPB-	16+65	LT.
-Y4RPB-	17+20	RT.
-Y5-	66+90	RT
-Y8-	12+75	LT.
-Y10A-	13+50	RT.

DETAIL Z
BERM DITCH
(Not to Scale)



RDWY	STATION - STATION	SIDE
-L-	165+25 TO 167+80	RT.
-YRPD-	32+30 TO 33+96	LT.

Revised Jan. 2012
Permit Drawing
Sheet 45 of 68

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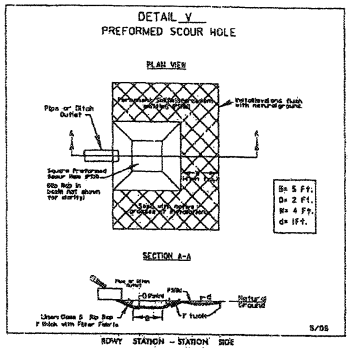
Florence & Hutcheson
CONSULTING ENGINEERS

PROJECT REFERENCE NO.	SHEET NO.
I-3819A	2-5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

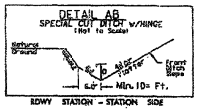
DETAIL V
PREFORMED SCOUR HOLE



RDWY STATION – STATION SIDE

-SR1- 7+13 RT.
-Y2PD- 19+00 LT.

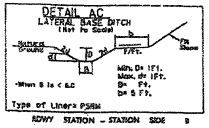
DETAIL AB
SPECIAL CUT DITCH W/HINGE
(Not to Scale)



RDWY STATION – STATION SIDE

-L- 165+80 TO 166+50 RT.
-Y2PD- 434+30 TO 434+90 RT.

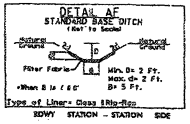
DETAIL AC
LATERAL BASE DITCH
(Not to Scale)



RDWY STATION – STATION SIDE B

-L- 50+00 TO 53+70 LT. 2'

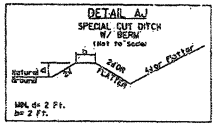
DETAIL AF
STANDARD BASE DITCH
(Not to Scale)



RDWY STATION – STATION SIDE

-L- 147+74 TO 148+30 RT.
-Y2PD 17+60 TO 17+76 LT.

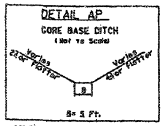
DETAIL AJ
SPECIAL CUT DITCH W/ BERM
(Not to Scale)



RDWY STATION – STATION SIDE

-Y2PD- 43+20 TO 44+13 LT.

DETAIL AP
CORE BASE DITCH
(Not to Scale)



RDWY STATION – STATION SIDE

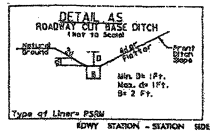
-L- 141+00 TO 144+00 RT.

DETAIL AQ
SPECIAL CUT DITCH CORE
(Not to Scale)

RDWY STATION – STATION SIDE

-Y2PD- 44+00 TO 46+52 LT.

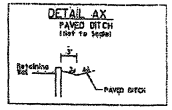
DETAIL AS
ROADWAY CUT BASE DITCH
(Not to Scale)



RDWY STATION – STATION SIDE

-Y5- 55+30 TO 58+50 LT

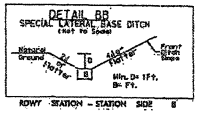
DETAIL AX
PAVED DITCH
(Not to Scale)



RDWY STATION – STATION SIDE

-L- 58+90 TO 60+00 RT.

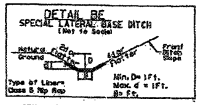
DETAIL BB
SPECIAL LATERAL BASE DITCH
(Not to Scale)



RDWY STATION – STATION SIDE B

-L- 26+58 TO 26+80 RT. 4'
-Y5- 13+35 TO 14+00 RT. 2'
-L- 99+70 TO 104+00 RT. 4'

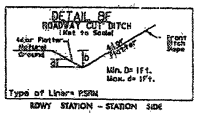
DETAIL BF
SPECIAL LATERAL BASE DITCH
(Not to Scale)



RDWY STATION – STATION SIDE B

-L- 55+00 TO 57+00 RT. 2'

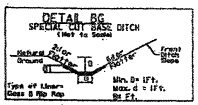
DETAIL BF
ROADWAY CUT DITCH
(Not to Scale)



RDWY STATION – STATION SIDE

-Y1- 25+90 TO 27+20 RT.

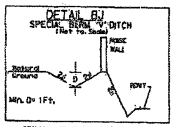
DETAIL BG
SPECIAL CUT BASE DITCH
(Not to Scale)



RDWY STATION – STATION SIDE B'

-Y1- 25+74 TO 26+90 LT. 4'

DETAIL BJ
SPECIAL BERM "V"-DITCH
(Not to Scale)



RDWY STATION – STATION SIDE

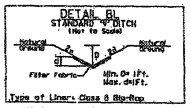
-L- 33+00 TO 37+00 LT

DETAIL BK
SPECIAL CUT DITCH
(Not to Scale)

RDWY STATION – STATION SIDE

-L- 26+58 TO 28+80 LT.
-L- 46+50 TO 48+75 RT.
-L- 49+90 TO 57+00 RT.
-Y1- 25+90 TO 25+60 RT.
-Y2- 12+20 TO 17+00 RT.
-Y3A- 10+80 TO 12+80 RT.
-Y3A- 11+00 TO 13+80 LT.

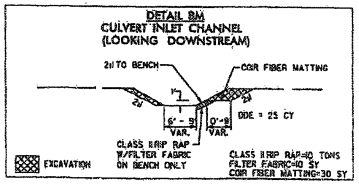
DETAIL BL
STANDARD "V" DITCH
(Not to Scale)



RDWY STATION – STATION SIDE

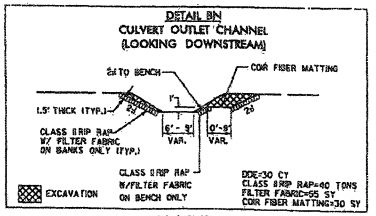
-L- 141+20 TO 141+80 RT.
-L- 141+35 TO 141+45 LT
-Y2PD- 19+20 TO 19+70 LT.

DETAIL BM
CULVERT INLET CHANNEL
(LOOKING DOWNSTREAM)



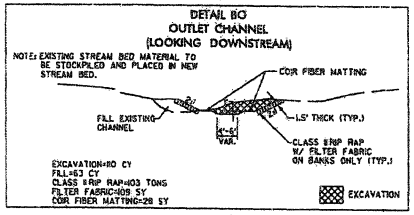
-SR1- 6+70 LT

DETAIL BN
CULVERT OUTLET CHANNEL
(LOOKING DOWNSTREAM)



-SR1- 6+70 RT

DETAIL BO
OUTLET CHANNEL
(LOOKING DOWNSTREAM)



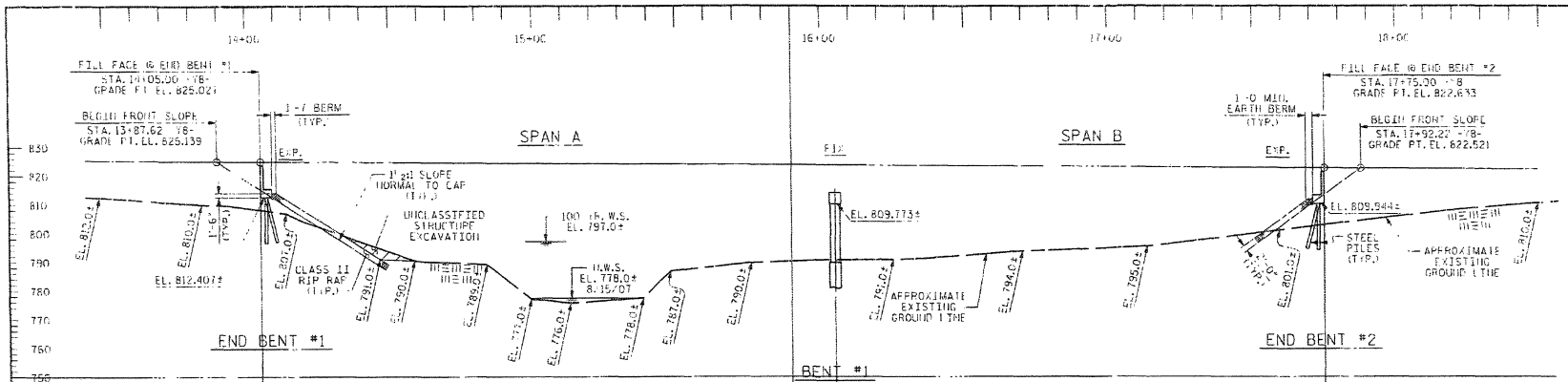
-L- 22+98 LT

DETAIL BP
ROADWAY V-DITCH
(Not to Scale)

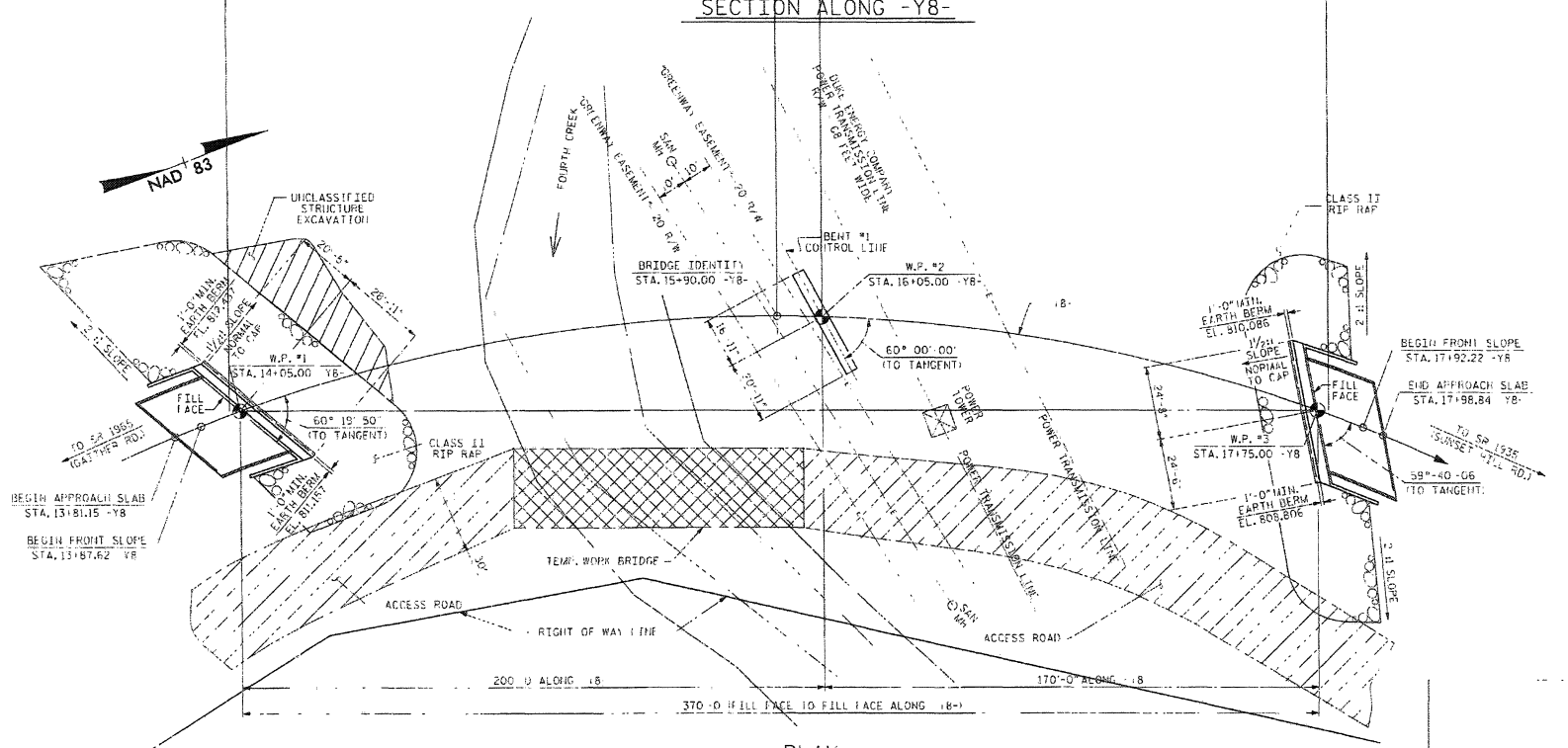
FROM STA. 38+00 TO STA. 39+50

Revised Jan. 2012
Permit Drawing
Sheet 46 of 68

F.A. PROJECT# IMS 40-2(124)



SECTION ALONG -Y8-



PLAN

PILES NOT SHOWN FOR CLARITY

GRADE DATA

+0.8753% △ -0.6470%

PI = 8+00.00 -Y8
EL. = 827.00
VC = 170

PI STA. = 16+04.34 -Y8-
Δ = 72°-36'-06.8" (RT)
D = 10°-44'-58.8"
L = 675.39'
T = 391.54'
R = 533.00'
SE = 0.04

HORIZONTAL CURVE DATA

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

PROJECT NO. I-3819A

IREDELL COUNTY

STATION: 15+90.00 -Y8-

SHEET 1 OF 2 BRIDGE #

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

PRELIMINARY
GENERAL DRAWING
BRIDGE OVER
FOURTH CREEK ON
SR 1934 (HILLSIDE LN.)
BETWEEN
SR 1965 AND SR 1935

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			2

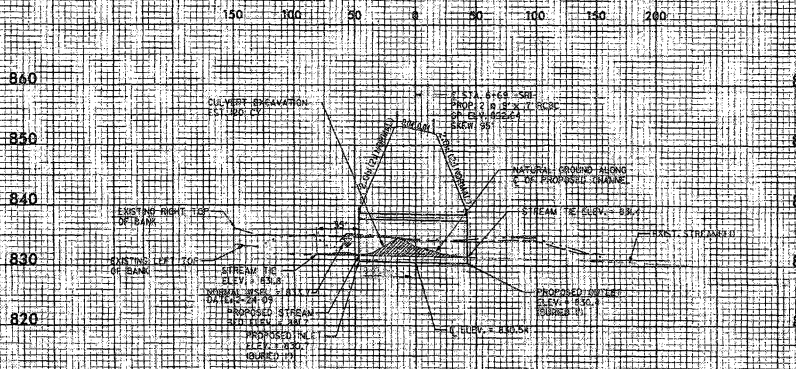
DRAWN BY: Keith D. Layne DATE: 9/09/09
CHECKED BY: T. R. Peterson DATE: 9/30/09

Permit Drawing
Sheet 47 of 68

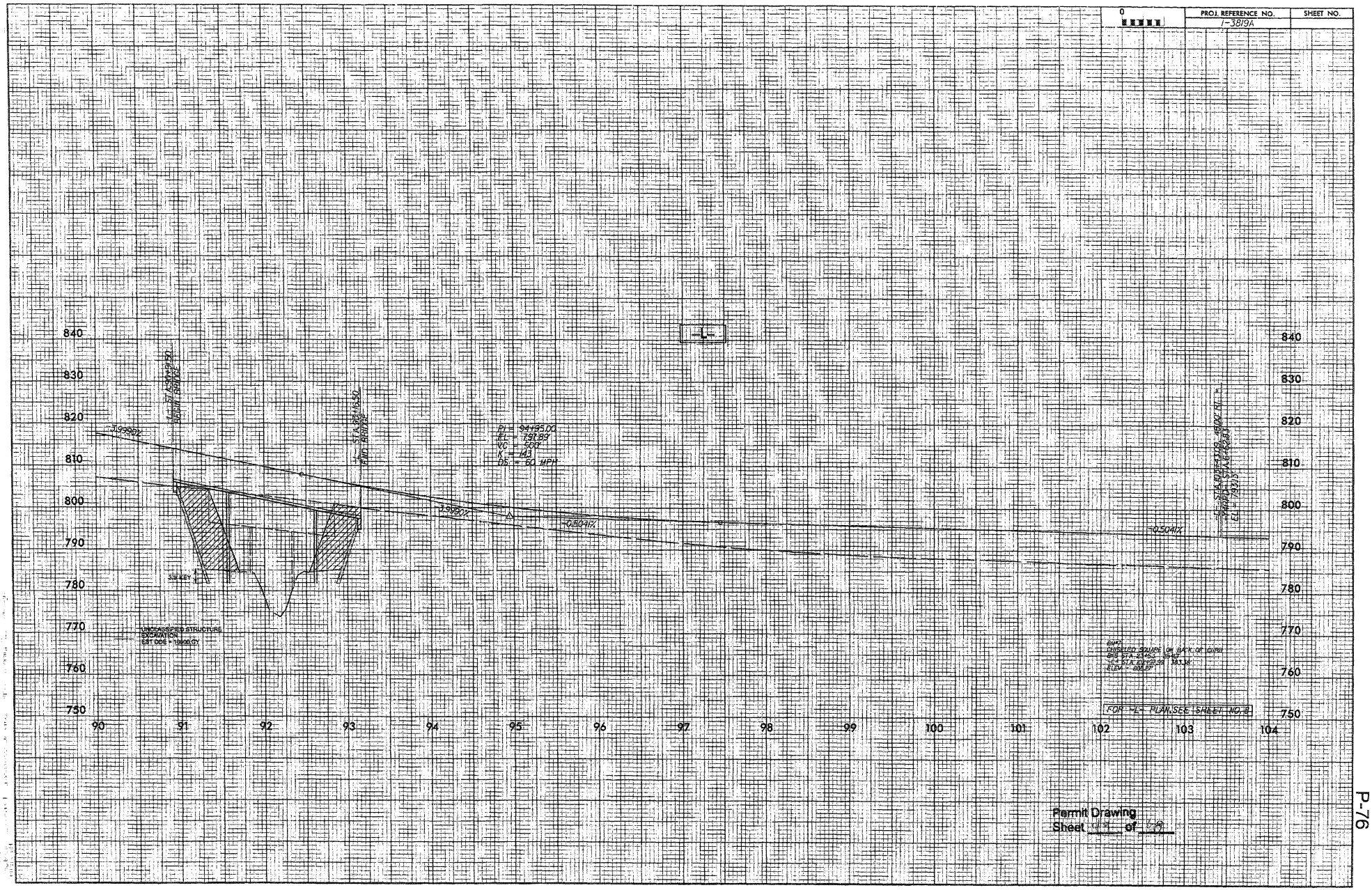
P-74

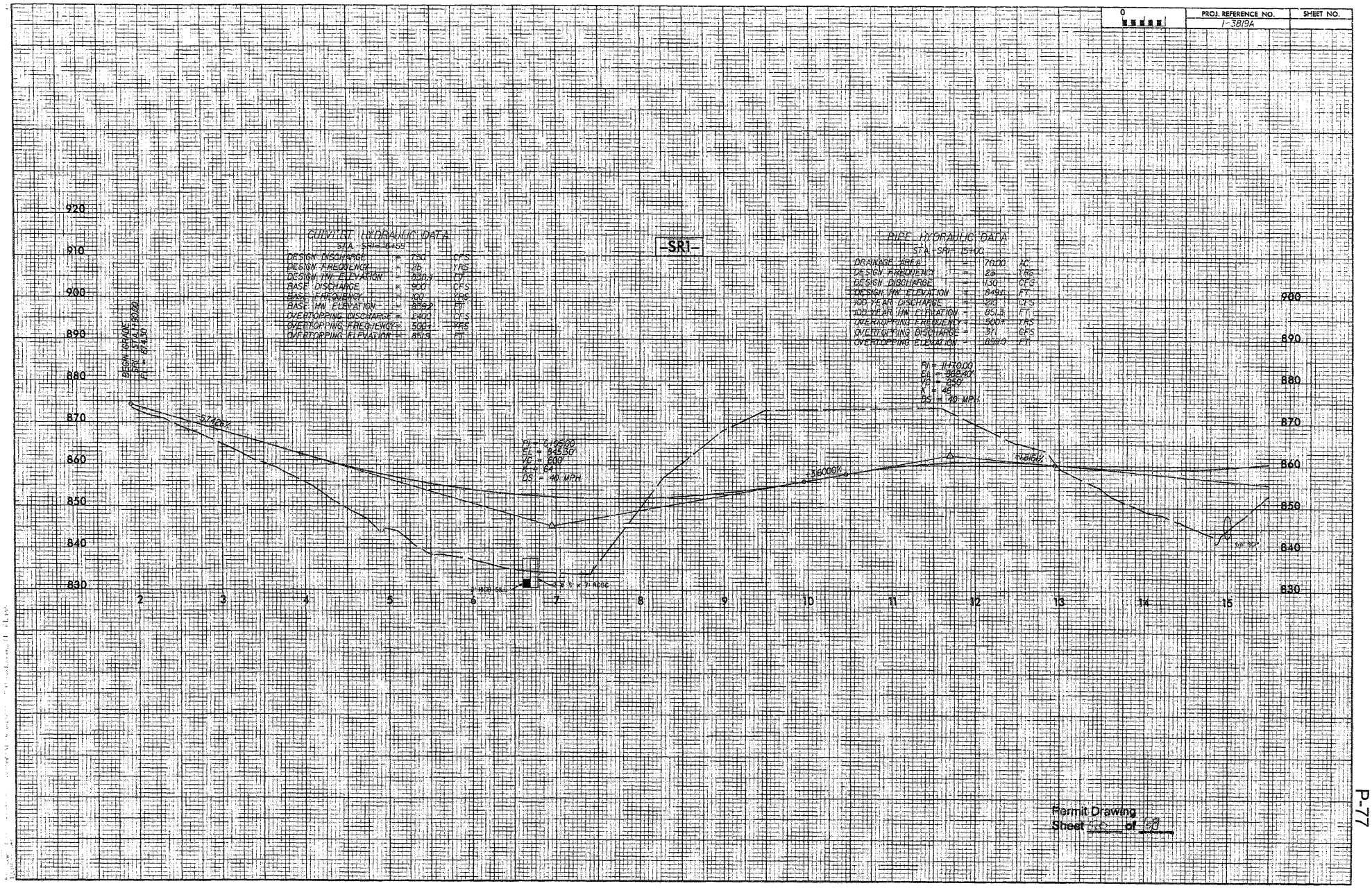
0	PROJ. REFERENCE NO.	SHEET NO.
	I-3819A	

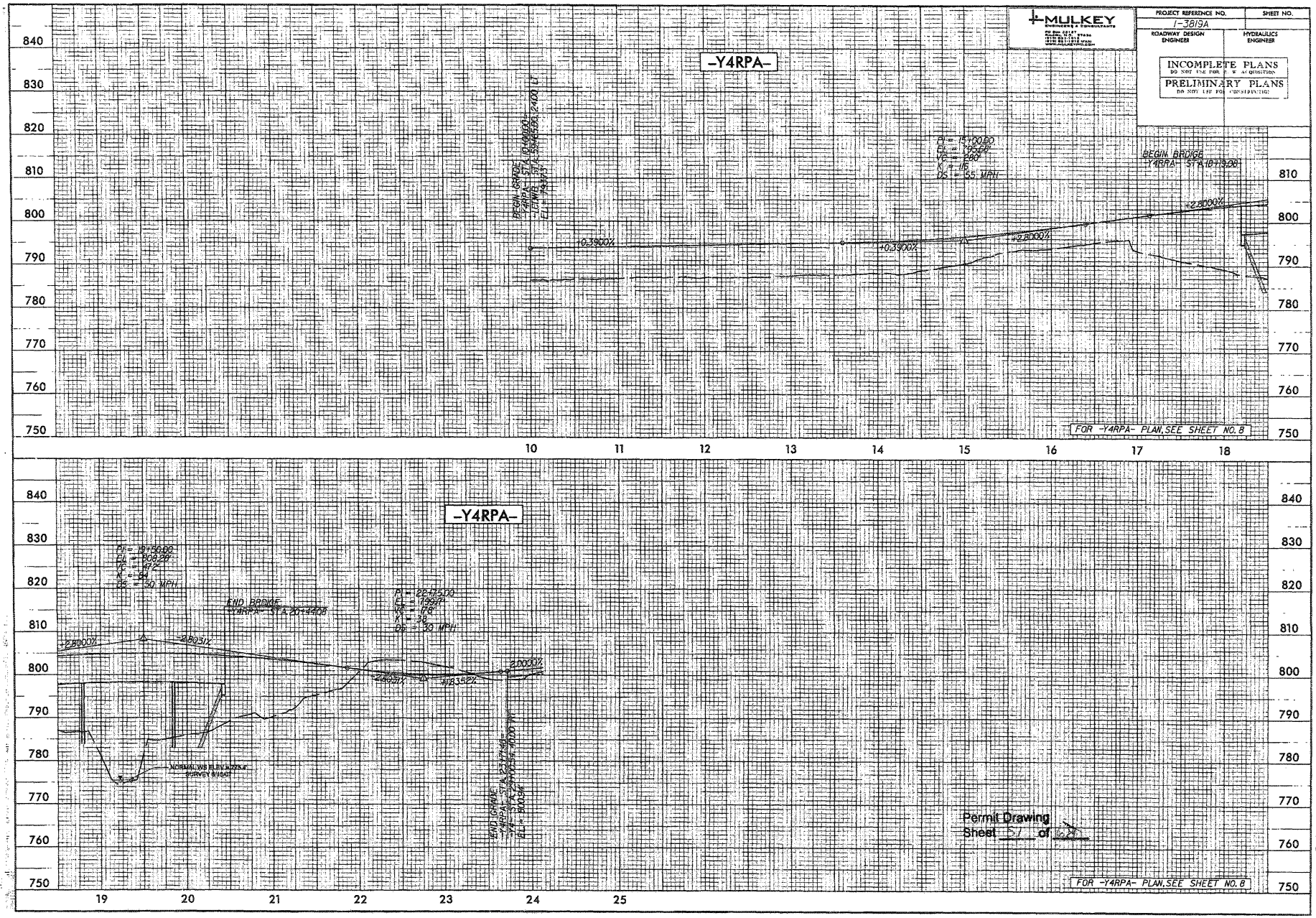
JURISDICTIONAL STREAM PROFILE –SR1– 6+69

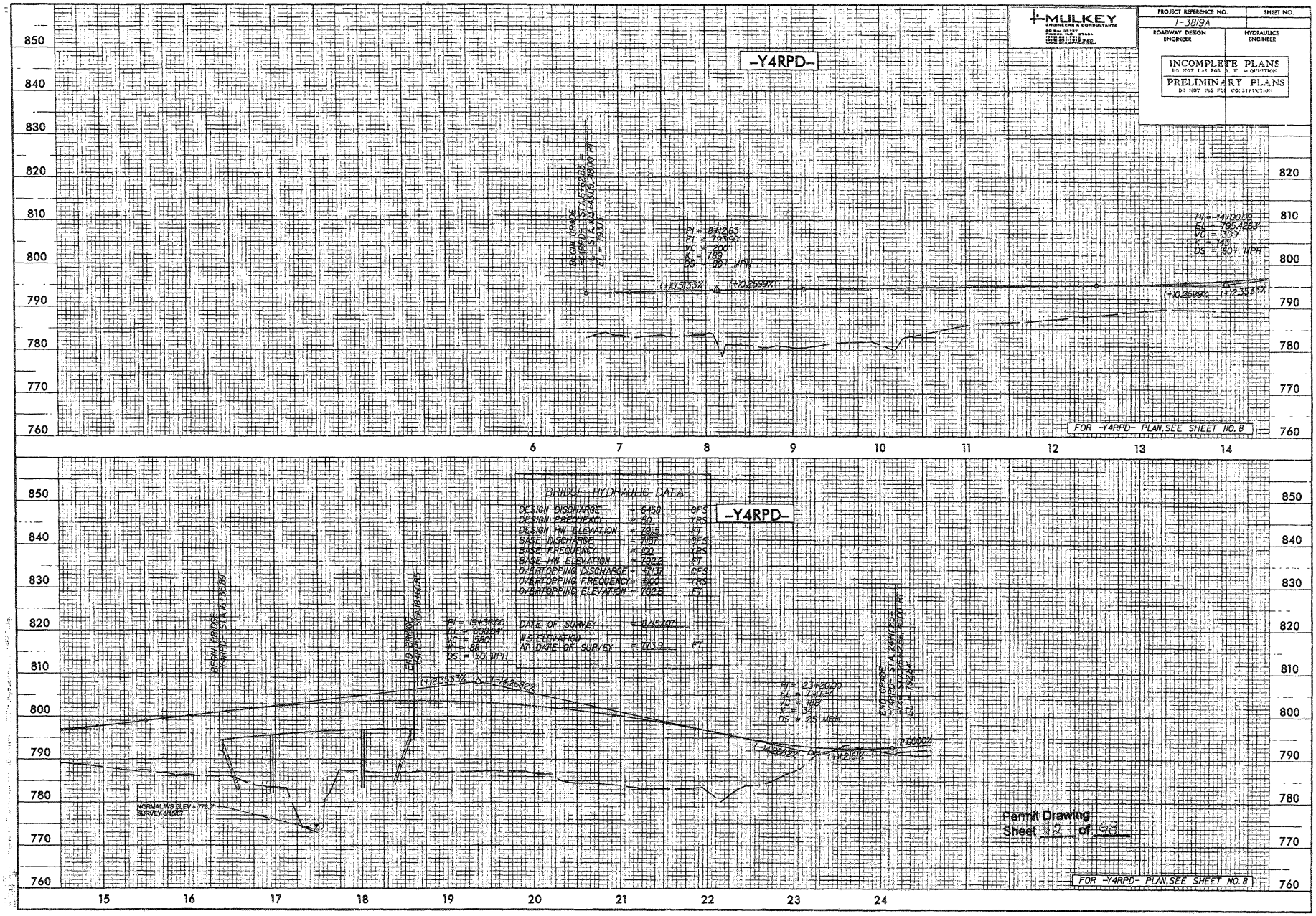


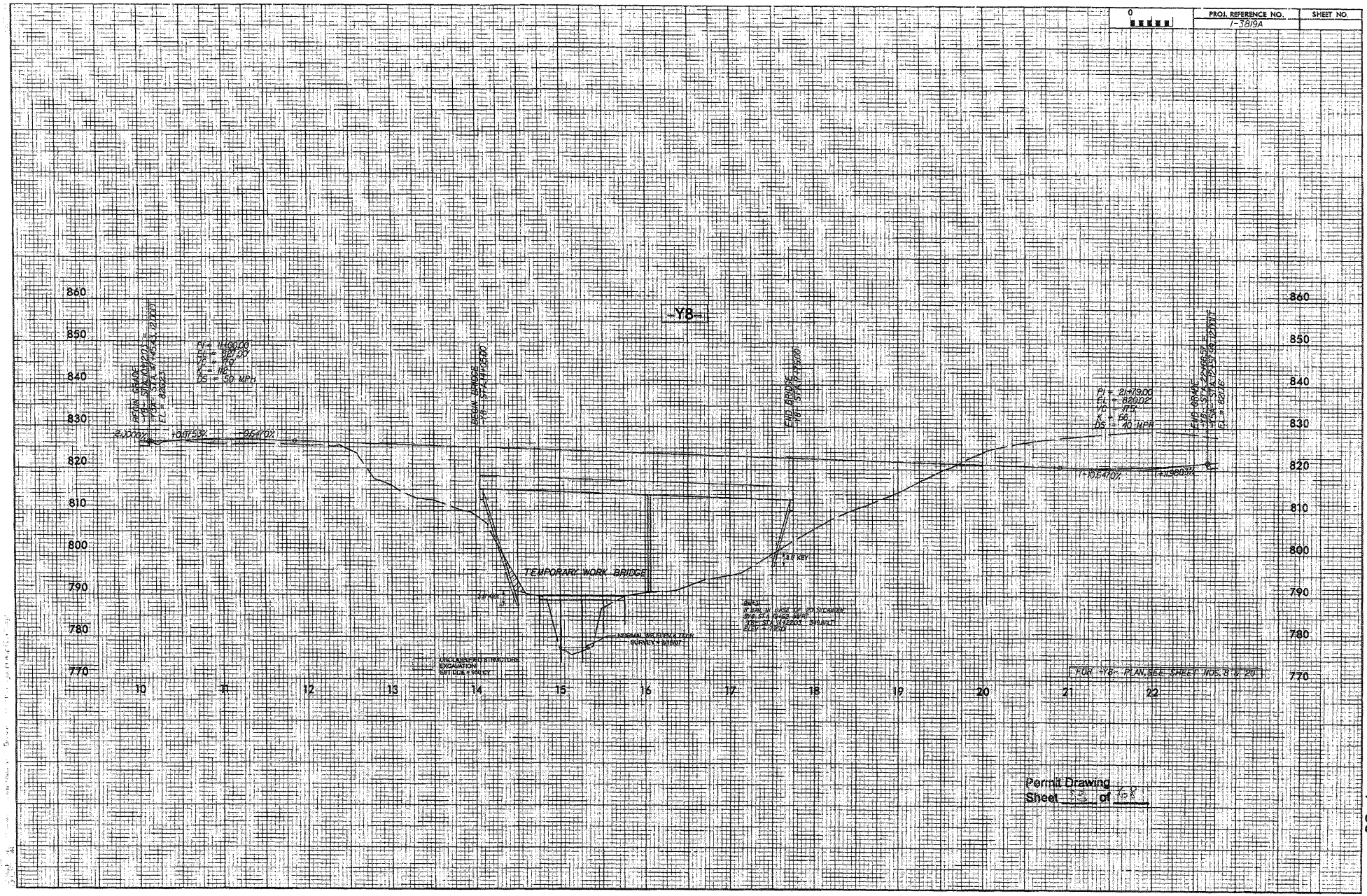
Permit Drawing
Sheet 17 of 28

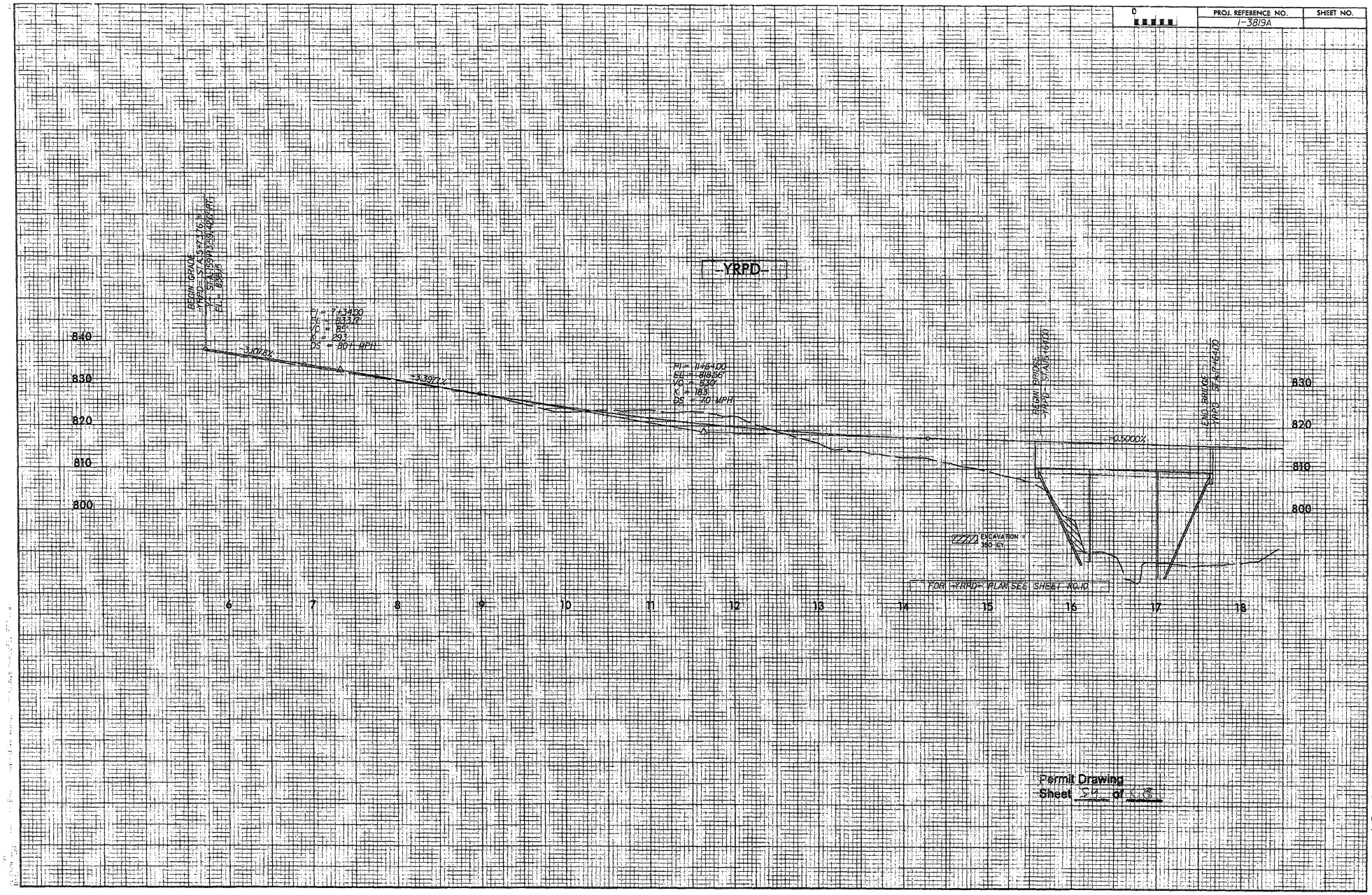

PROJ. REFERENCE NO.
I-3819A
SHEET NO.
-L-
840
830
820
810
800
790
780
770
760
750
90
91
92
93
94
95
96
97
98
99
100
101
102
103
104
3.9990%
-0.5041%
PI = 94+95.00
EL = 797.89'
VC = 500'
K = 143
DS = 60 MPH
UNCLASSIFIED STRUCTURE EXCAVATION
FOR -L- PLAN SEE SHEET NO. 8
Permit Drawing
Sheet 49 of 69

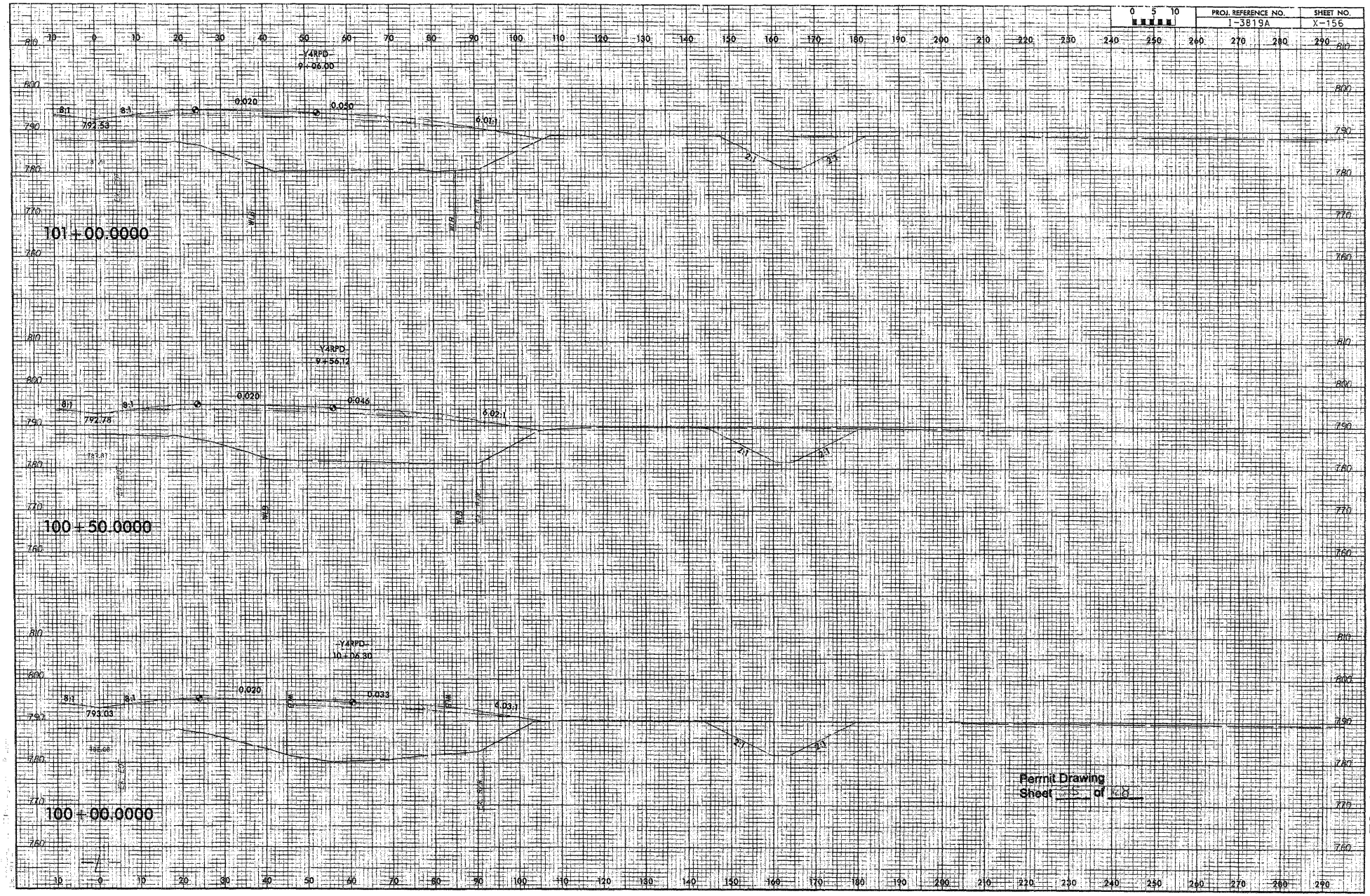

-SR1-
CONDUIT HYDRAULIC DATA
STA. SR1= 16+69
DESIGN DISCHARGE = 750 CFS
DESIGN FREQUENCY = 25 YRS
DESIGN HW ELEVATION = 850.9 FT
BASE DISCHARGE = 900 CFS
BASE FREQUENCY = 100 YRS
BASE HW ELEVATION = 852.2 FT
OVERTOPPING DISCHARGE = 1400 CFS
OVERTOPPING FREQUENCY = 500 YRS
OVERTOPPING ELEVATION = 851.9 FT
PIPE HYDRAULIC DATA
STA. SR1= 15+00
DRAINAGE AREA = 70.00 AC
DESIGN FREQUENCY = 25 YRS
DESIGN DISCHARGE = 130 CFS
DESIGN HW ELEVATION = 849.1 FT
100 YEAR DISCHARGE = 224 CFS
100 YEAR HW ELEVATION = 851.3 FT
OVERTOPPING FREQUENCY = 500+ YRS
OVERTOPPING DISCHARGE = 371 CFS
OVERTOPPING ELEVATION = 852.9 FT
PI = 11+79.00
EA = 962.42'
VC = 250'
K = 45
DS = 40 MPH
DESIGN GRADE
PI STA. 13+00
EL = 874.30
57 YDS
PI = 6+95.00
EL = 845.30'
VC = 200'
K = 64
DS = 40 MPH
3600 CMS
HIGH
SAG
Permit Drawing
Sheet ___ of ___


MULKEY
ENGINEERS & CONSULTANTS
PROJECT REFERENCE NO.
I-3819A
SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R. W. ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
-Y4RPA-
BEGIN GRADE
-Y4RPA- STA 10+00.00
-LCTWB- STA 59+65.90, 24.00 LT
EL = 793.73'
PI = 15+00.00
EL = 795.00'
VC = 280'
K = 116
DS = 55 MPH
BEGIN BRIDGE
-Y4RPA- STA 18+19.00
+0.3900%
+0.3900%
+2.8000%
+2.8000%
FOR -Y4RPA- PLAN, SEE SHEET NO. 8
840
830
820
810
800
790
780
770
760
750
10
11
12
13
14
15
16
17
18
-Y4RPA-
PI = 19+50.00
EL = 808.28'
VC = 472'
K = 94
DS = 50 MPH
END BRIDGE
-Y4RPA- STA 20+44.08
PI = 22+75.00
EL = 799.77'
VC = 178'
K = 38
DS = 30 MPH
+2.8000%
-2.8031%
-2.8031%
+1.8352%
2.0000%
NORMAL WS ELEV = 775.4'
SURVEY 8/15/07
END GRADE
-Y4RPA- STA 23+71.40
-Y4- STA 23+00.54, 40.00 RT
EL = 800.94'
Permit Drawing
Sheet 51 of 68
FOR -Y4RPA- PLAN, SEE SHEET NO. 8
19
20
21
22
23
24
25

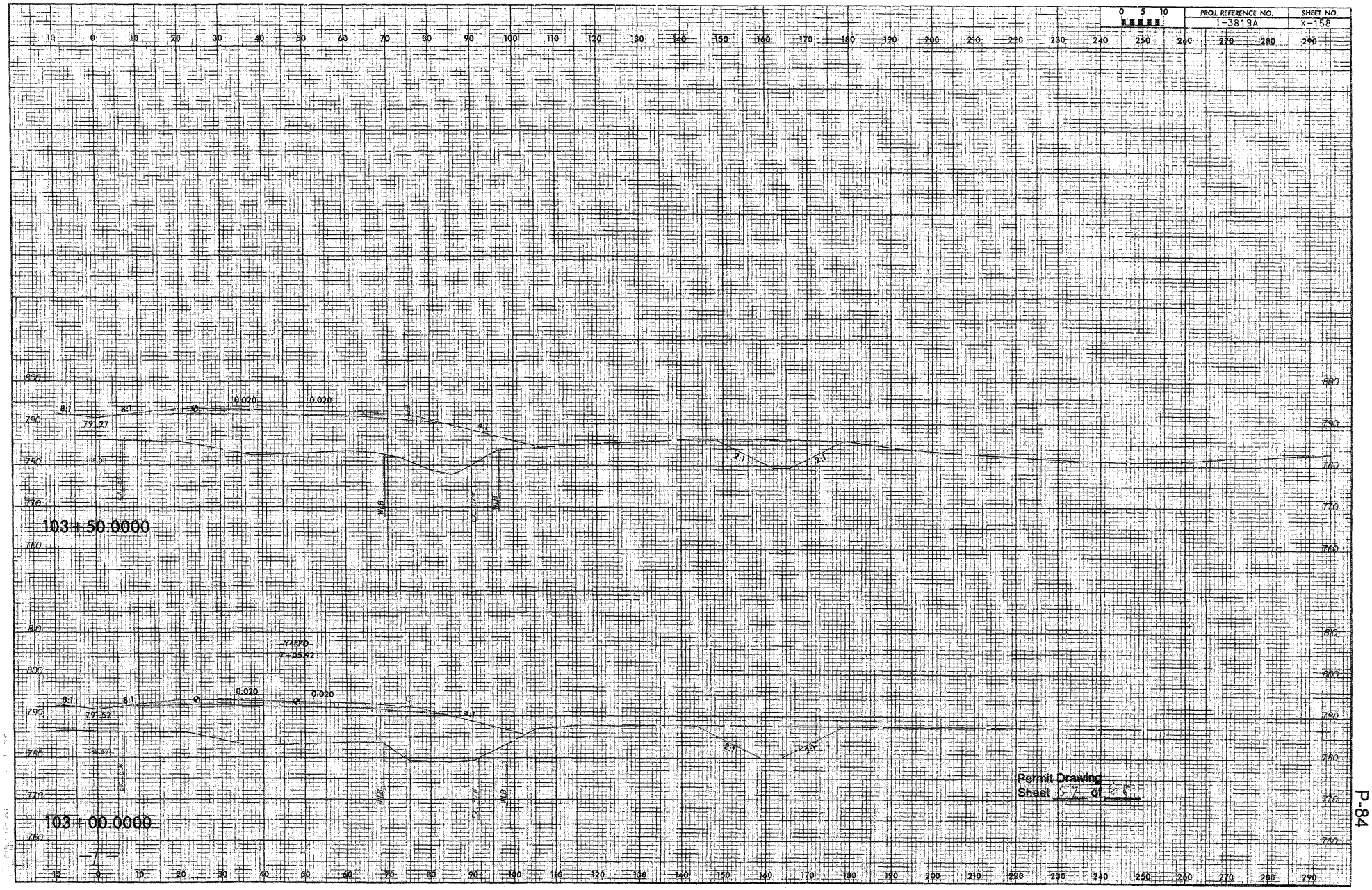

MULKEY
ENGINEERS & CONSULTANTS
PROJECT REFERENCE NO.
I-3819A
SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS
DO NOT USE FOR R/W NEGOTIATIONS
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
-Y4RPD-
BEGIN GRADE
Y4RPD- STA 6+35.85
PL = STA 10+43.09, 48.00 RT
EL = 793.13
PI = 8+12.83
EL = 793.90
VC = 200'
K = 789
DS = 80+ MPH
(-)0.53%
(+)0.25%
PI = 14+00.00
EL = 795.42
VC = 300'
K = 143
DS = 80+ MPH
(+)0.25%
(-)2.35%
FOR -Y4RPD- PLAN, SEE SHEET NO. 8
6
7
8
9
10
11
12
13
14
BRIDGE HYDRAULIC DATA
DESIGN DISCHARGE = 6450 CFS
DESIGN FREQUENCY = 50 YRS
DESIGN HW ELEVATION = 798.5 FT
BASE DISCHARGE = 7107 CFS
BASE FREQUENCY = 100 YRS
BASE HW ELEVATION = 799.2 FT
OVERTOPPING DISCHARGE = 6737 CFS
OVERTOPPING FREQUENCY = 140 YRS
OVERTOPPING ELEVATION = 799.5 FT
-Y4RPD-
DESIGN BRIDGE
Y4RPD- STA 16+76.99
END BRIDGE
Y4RPD- STA 19+26.85
PI = 19+36.20
EL = 800.04
VC = 580'
K = 88
DS = 50 MPH
(+)2.53%
(-)4.25%
DATE OF SURVEY = 8/15/07
W.S. ELEVATION AT DATE OF SURVEY = 773.9 FT
NORMAL W.S ELEV = 773.9
SURVEY 8/15/07
PI = 23+20.00
EL = 791.59
VC = 188'
K = 34
DS = 25 MPH
END GRADE
Y4RPD- STA 23+36.25
PL STA 23+48.24
EL = 792.24
(-)4.68%
(+)1.21%
2.00%
Permit Drawing
Sheet 2 of 28
FOR -Y4RPD- PLAN, SEE SHEET NO. 8
15
16
17
18
19
20
21
22
23
24
850
840
830
820
810
800
790
780
770
760


PROJ. REFERENCE NO.
I-3819A
SHEET NO.
-Y8-
BEGIN GRADE
-Y8- STA. 10+20.03
-Y5A- STA. 47+45.43, 12.00'T
EL = 826.23
PI = 11+00.00
EL = 827.00
VC = 70
K = 112
DS = 50 MPH
BEGIN BRIDGE
-Y8- STA. 14+05.00
END BRIDGE
-Y8- STA. 14+75.00
PI = 21+79.00
EL = 820.02
VC = 175
K = 66
DS = 40 MPH
END GRADE
-Y8- STA. 22+66.57
-Y5A- STA. 12+57.99, 12.00'T
EL = 821.16
-2.0000%
+0.0753%
+0.6470%
-10.6470%
+1.9803%
TEMPORARY WORK BRIDGE
3.5' KEY
NORMAL WK ELEV = 0.0 FT
SURVEY = 8/15/07
UNCLASSIFIED STRUCTURE EXCAVATION
EST. DCE = 950 CY
FOR -Y8- PLAN, SEE SHEET NOS. 8 & 20
860
850
840
830
820
810
800
790
780
770
10
11
12
13
14
15
16
17
18
19
20
21
22
Permit Drawing
Sheet 33 of 68


PROJ. REFERENCE NO.
I-3819A
SHEET NO.
-YRPD-
BEGIN GRADE
-YRPD- STA. 5+73.76
EL = 838.15
PI = 7+34.00
EL = 833.8'
VC = 85'
K = 293
DS = 80 MPH
-3.1078%
-3.3977%
PI = 11+64.00
EL = 818.56'
VC = 530'
K = 183
DS = 70 MPH
BEGIN BRIDGE
-YRPD- STA. 16+64.00
END BRIDGE
-YRPD- STA. 17+64.00
-0.5000%
EXCAVATION = 350 CY
FOR -YRPD- PLAN SEE SHEET NO. 10
840
830
820
810
800
6
7
8
9
10
11
12
13
14
15
16
17
18
Permit Drawing
Sheet 54 of 68

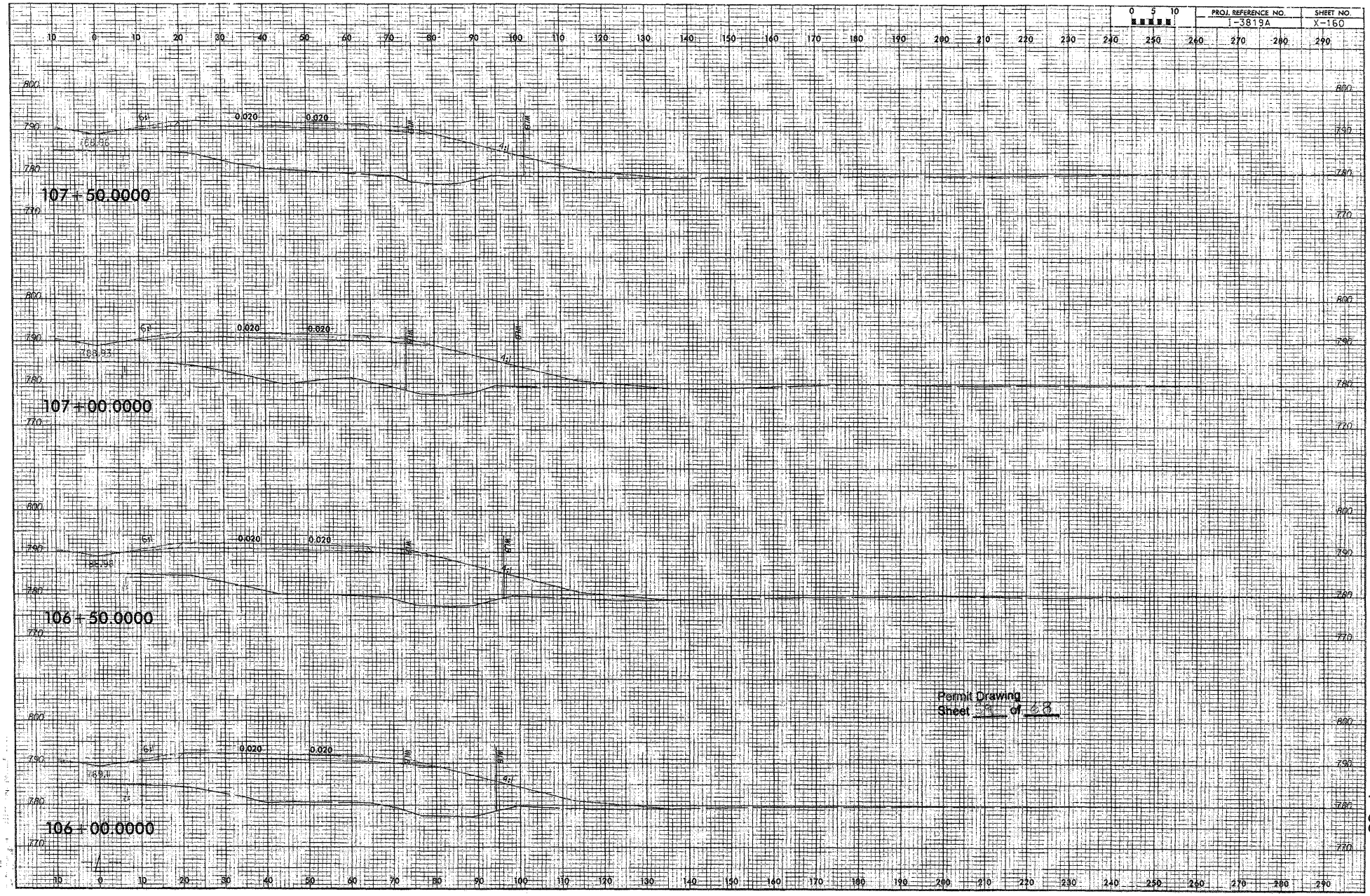

0 5 10
PROJ. REFERENCE NO.
I-3819A
SHEET NO.
X-156
Y4RPD
9+06.00
0.020
0.050
8:1
792.53
6.10:1
2:1
3:1
101+00.0000
Y4RPD
9+56.12
0.020
0.046
792.78
6.02:1
100+50.0000
Y4RPD
10+06.30
0.020
0.033
793.03
6.03:1
100+00.0000
Permit Drawing
Sheet 15 of 18

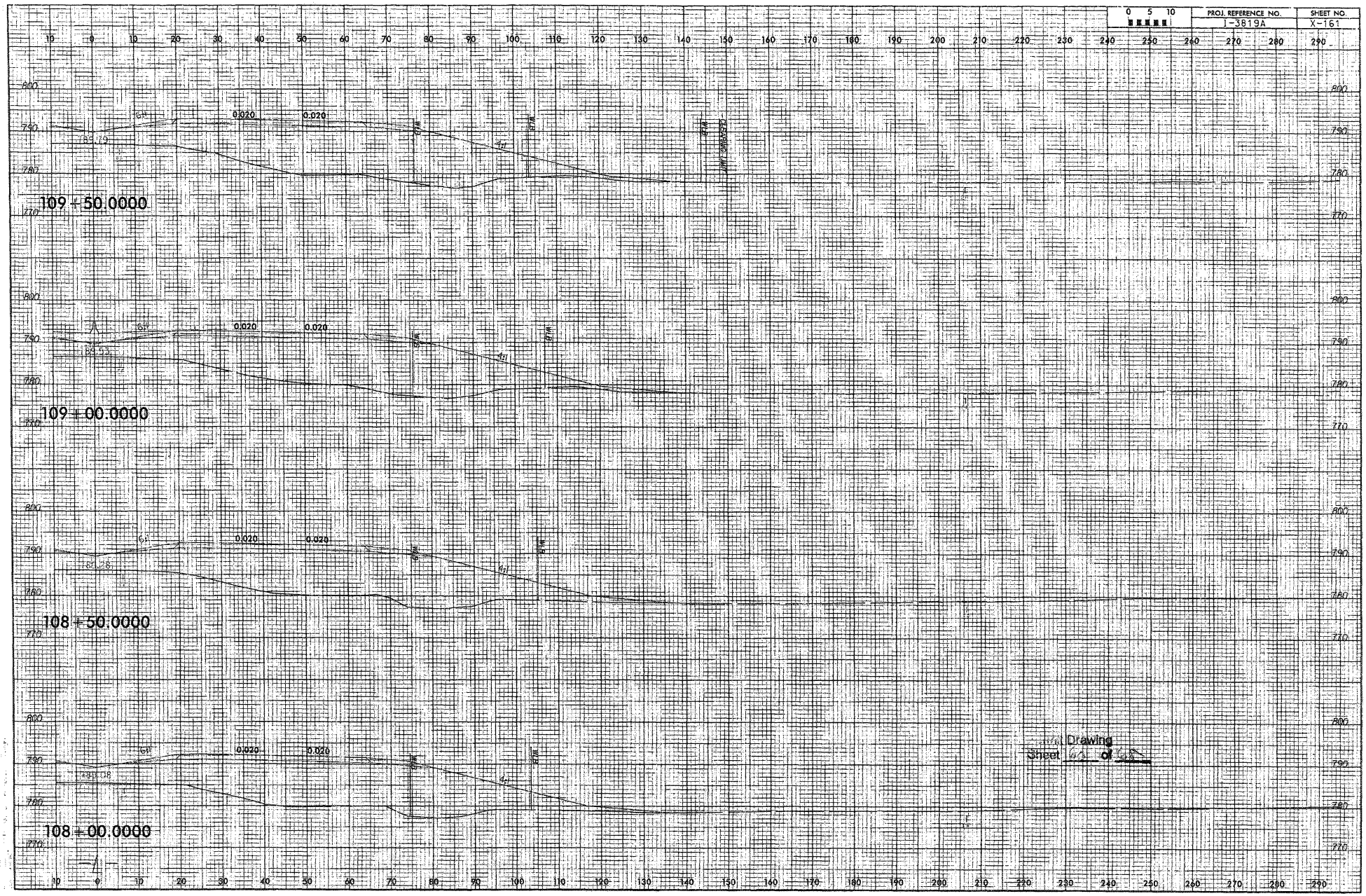
PROJ. REFERENCE NO.
I-3819A
SHEET NO.
X-157
-Y4RPD-
7+55.92
0.020
0.023
8:1
791.77
6:1
2:1
102+50.0000
-Y4RPD-
8+05.93
0.020
0.036
8:1
792.03
6:1
2:1
102+00.0000
-Y4RPD-
8+55.95
0.020
0.048
8:1
792.28
6:1
2:1
101+50.0000
Permit Drawing
Sheet 62 of 68

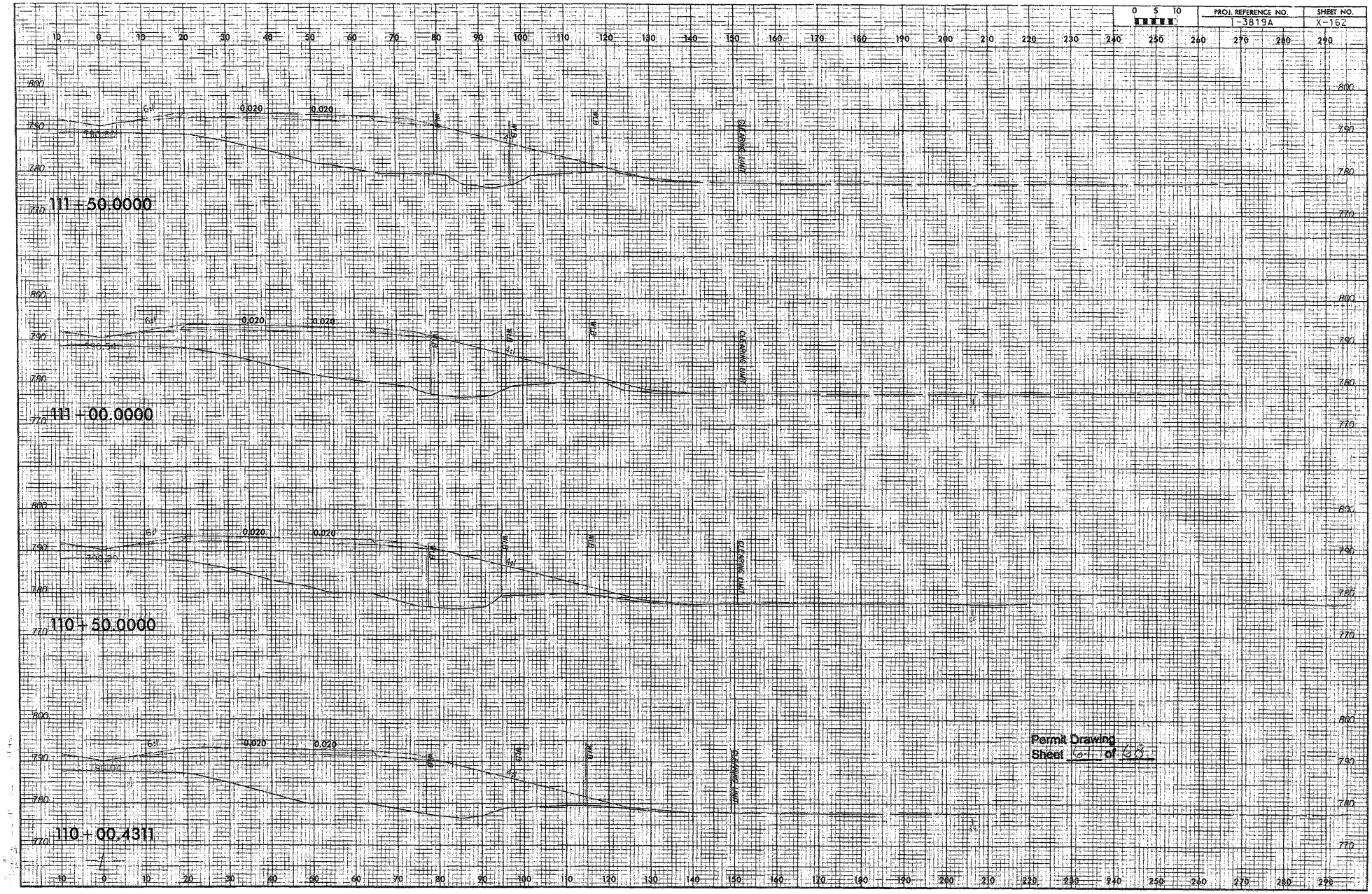


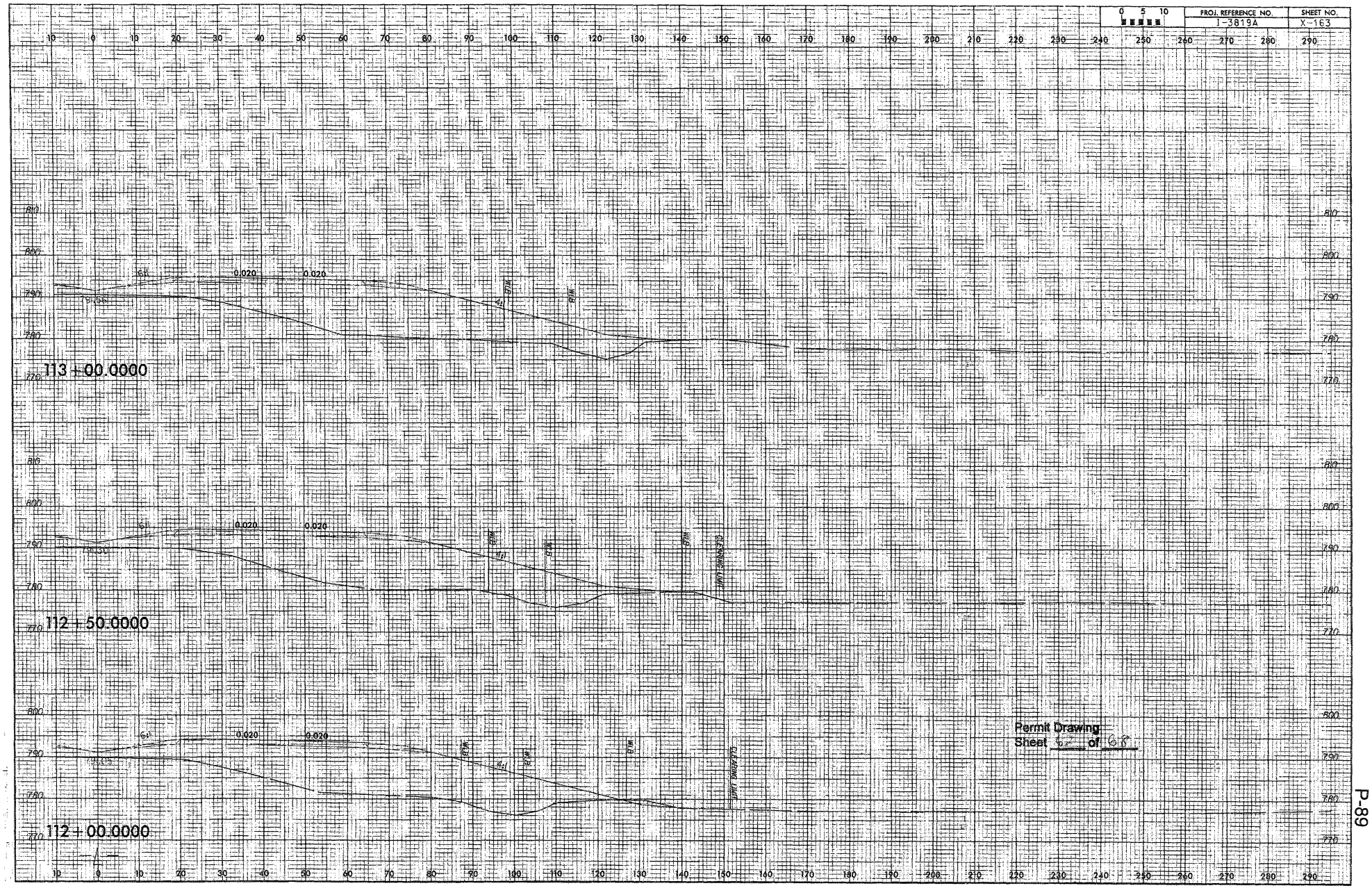
PROJ. REFERENCE NO.
I-3819A
SHEET NO.
X-158
103+50.0000
103+00.0000
8:1
0.020
791.27
791.52
YARPD
7+05.92
Permit Drawing
Sheet 57 of 68

PROJ. REFERENCE NO.
I-3819A
SHEET NO.
X-159
105+50.0000
105+00.0000
104+50.0000
104+00.0000
0.020
Permit Drawing
Sheet 58 of 78

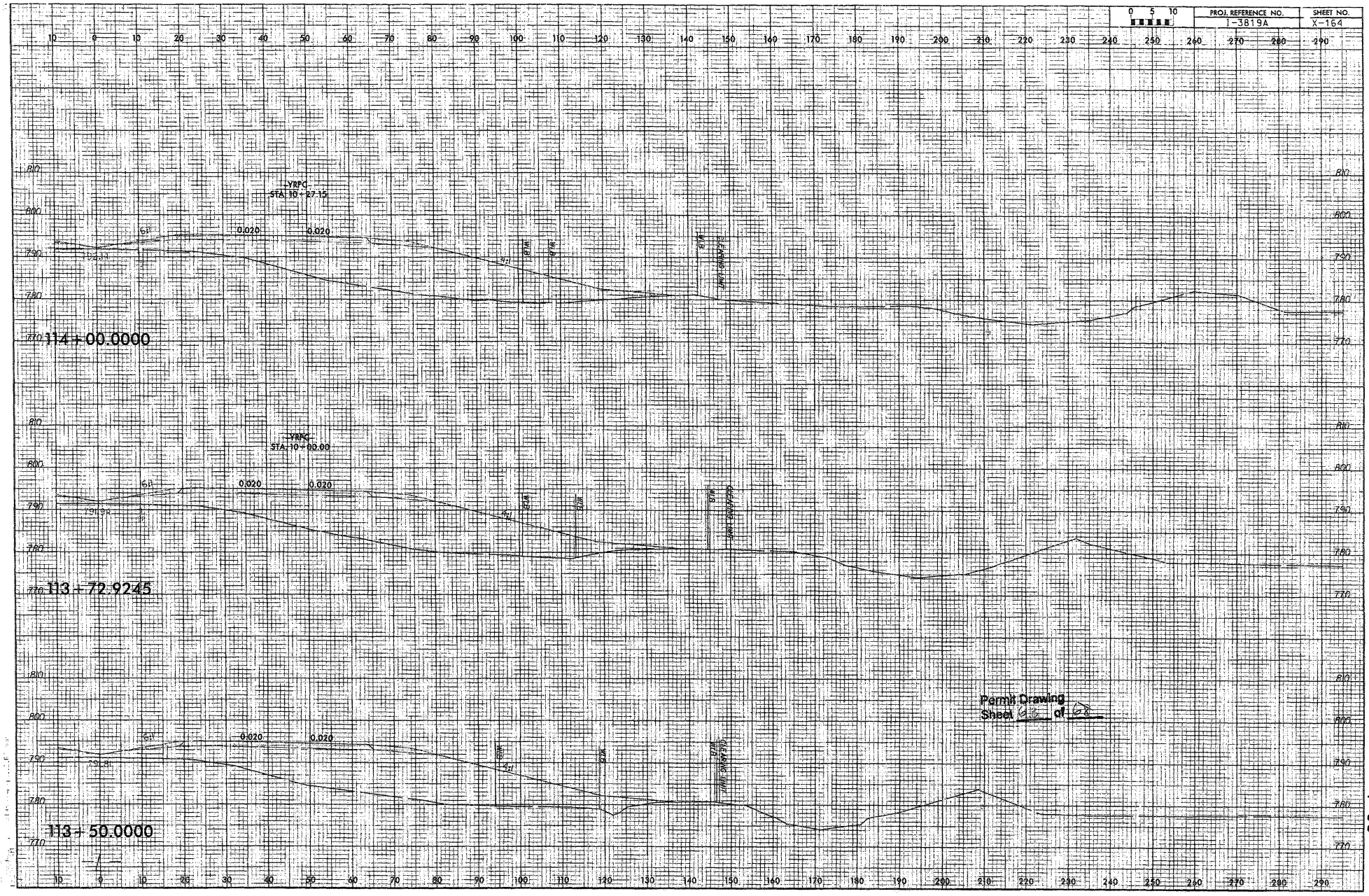

PROJ. REFERENCE NO.
I-3819A
SHEET NO.
X-160
107+50.0000
107+00.0000
106+50.0000
106+00.0000
0.020
Permit Drawing
Sheet 9 of 48

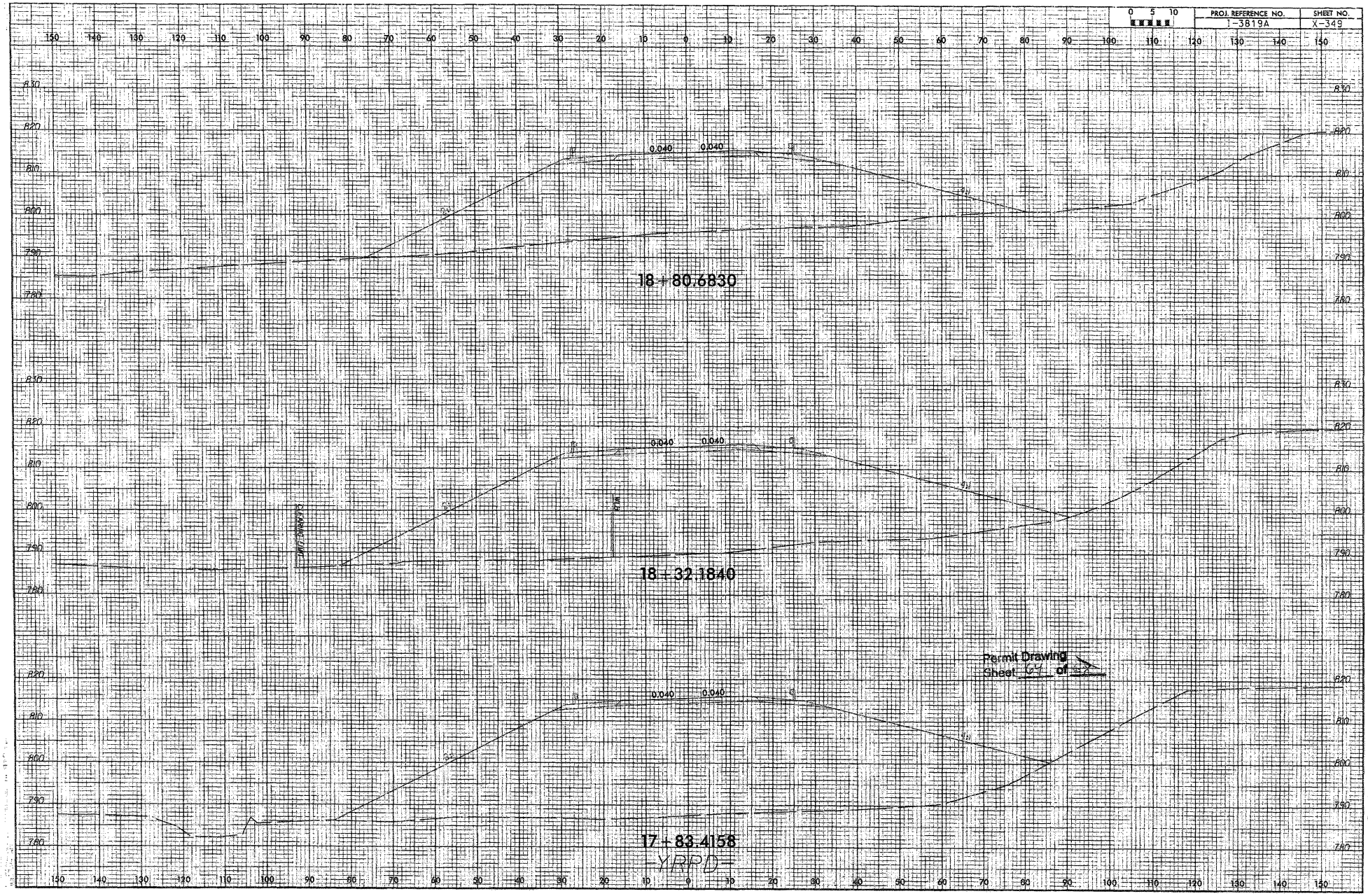

0 5 10
PROJ. REFERENCE NO.
I-3819A
SHEET NO.
X-161
109+50.0000
109+00.0000
108+50.0000
108+00.0000
0.020
0.020
Sheet of Drawing

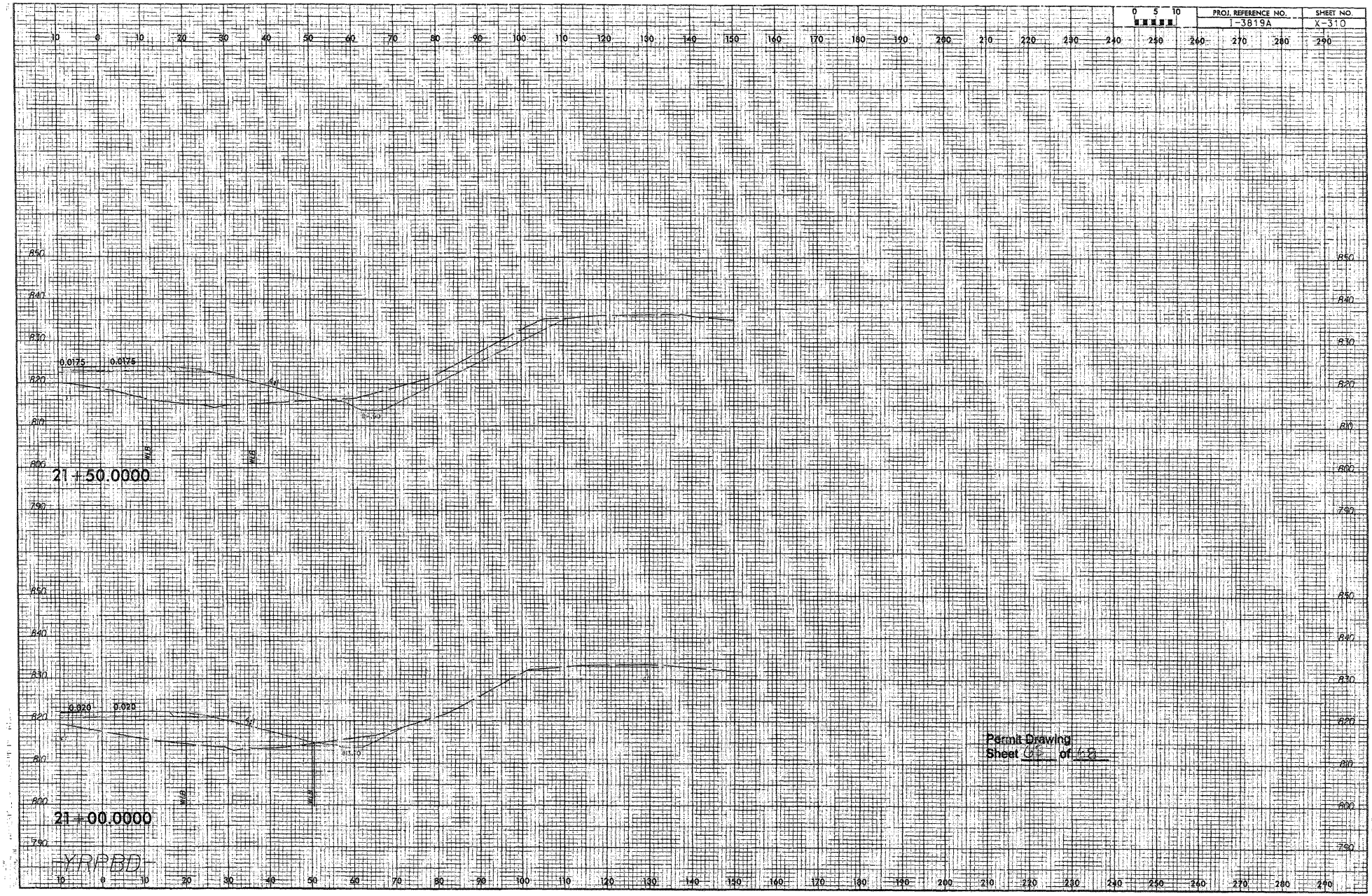

0 5 10
PROJ. REFERENCE NO.
I-3819A
SHEET NO.
X-162
111+50.0000
111+00.0000
110+50.0000
110+00.4311
0.020
0.020
CLEARING LIMIT
Permit Drawing
Sheet 21 of 28

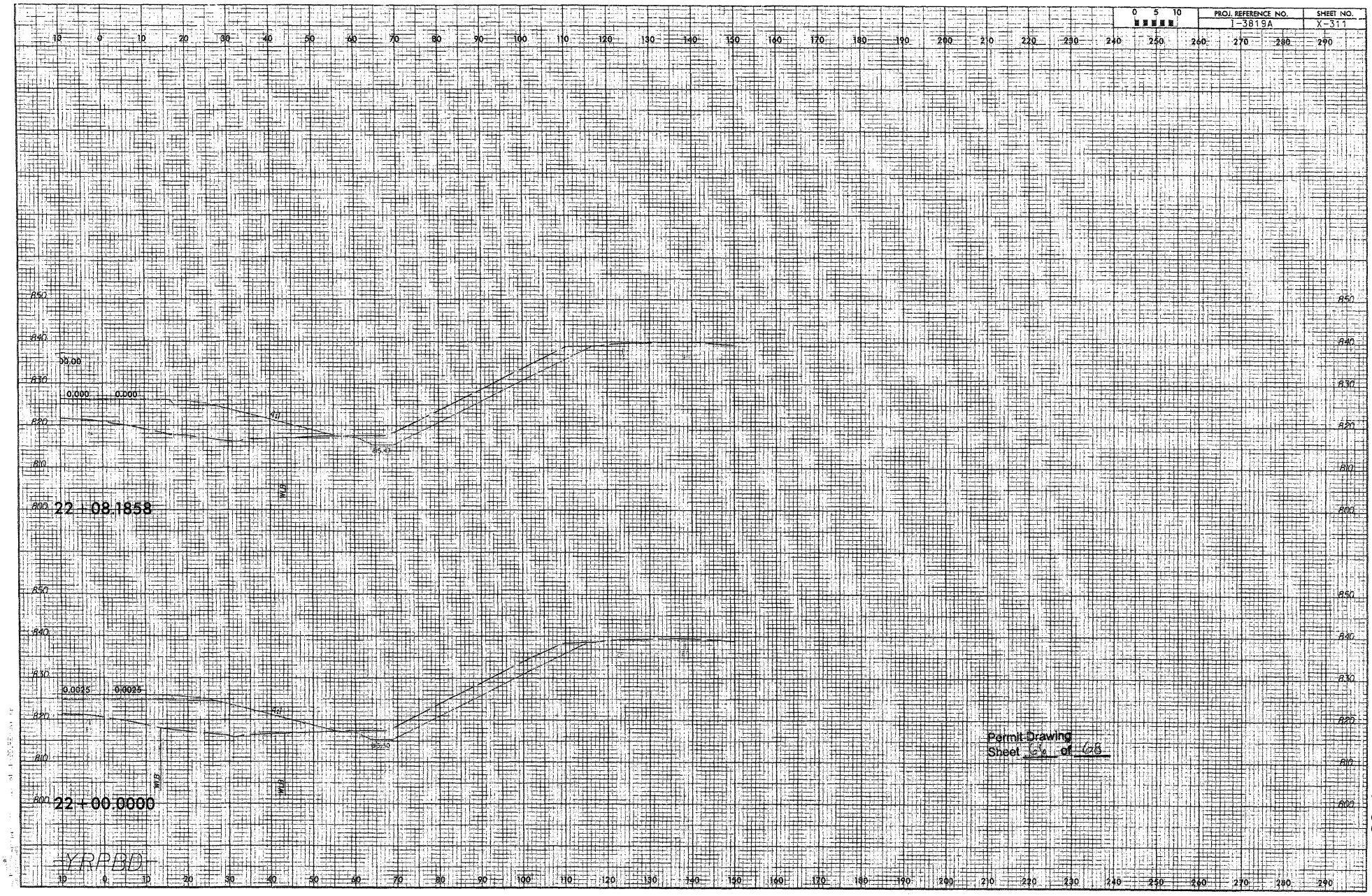


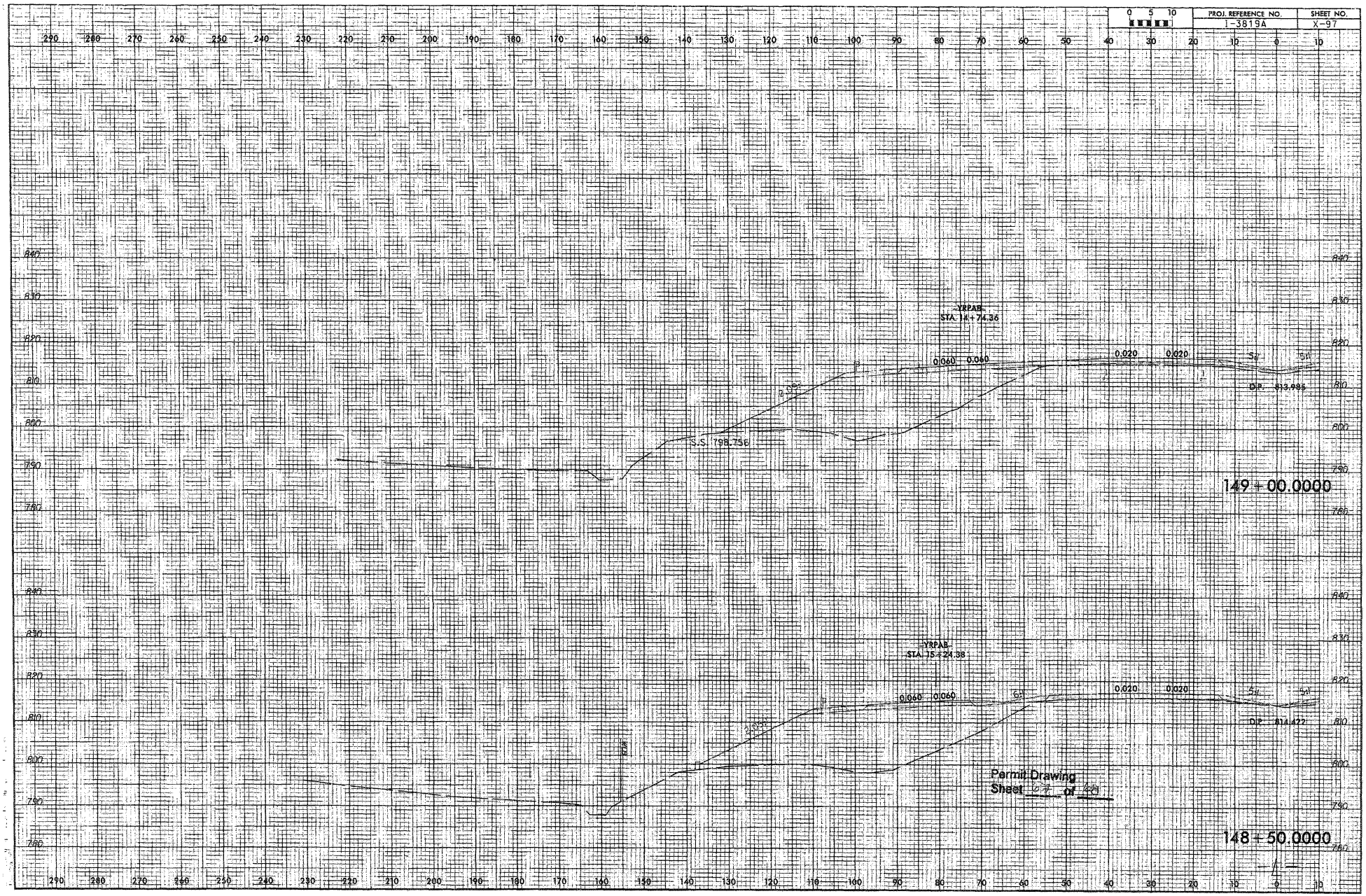
0 5 10
PROJ. REFERENCE NO.
I-3819A
SHEET NO.
X-163
113+00.0000
112+50.0000
112+00.0000
0.020
0.020
W.B.
CLEARING LIMIT
Permit Drawing
Sheet 6 of 68

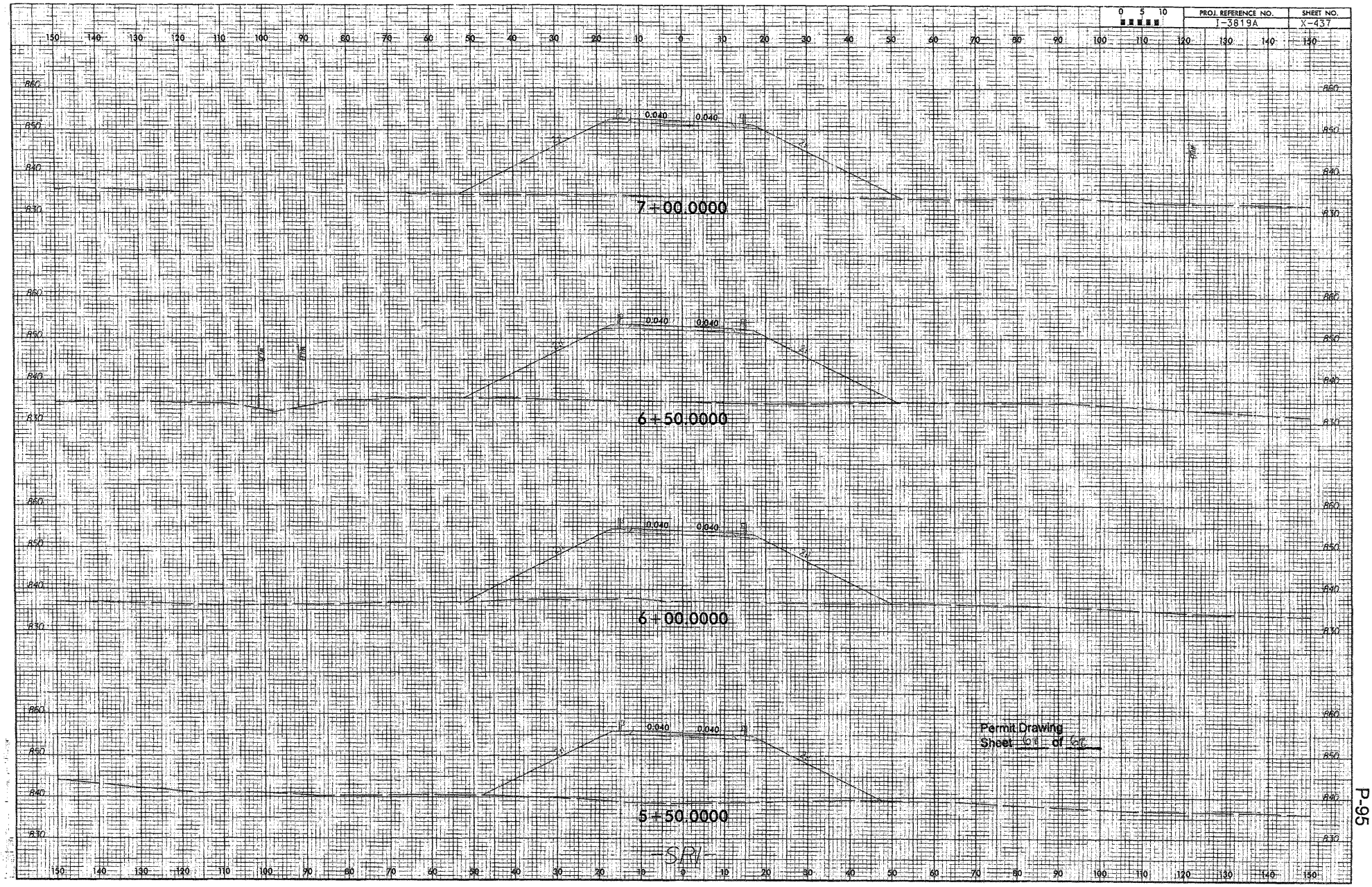

PROJ. REFERENCE NO.
I-3819A
SHEET NO.
X-164
YRPC
STA 10+27.15
0.020
0.020
114+00.0000
YRPC
STA 10+00.00
0.020
0.020
113+72.9245
0.020
0.020
113+50.0000
Permit Drawing
Sheet 66 of 68


PROJ. REFERENCE NO.
I-3819A
SHEET NO.
X-349
0 5 10
0.040
0.040
18+80.6830
18+32.1840
17+83.4158
-YRPD-
Permit Drawing
Sheet 64 of 72


0 5 10
PROJ. REFERENCE NO.
1-3819A
SHEET NO.
X-310
0.0175
0.0175
21+50.0000
0.020
0.020
21+00.0000
-YRPBD-
Permit Drawing
Sheet 62 of 62


0 5 10
PROJ. REFERENCE NO.
1-3819A
SHEET NO.
X-311
22 + 08.1858
22 + 00.0000
YRPBD
Permit Drawing
Sheet 58 of 68


PROJ. REFERENCE NO.
I-3819A
SHEET NO.
X-97
YRPAB
STA. 14+74.36
0.060
0.060
0.020
0.020
D.P. 813.985
S.S. 798.756
149+00.0000
YRPAB
STA. 15+24.38
0.060
0.060
0.020
0.020
D.P. 814.422
Permit Drawing
Sheet 64 of 68
148+50.0000


0 5 10
PROJ. REFERENCE NO.
I-3819A
SHEET NO.
X-437
7+00.0000
6+50.0000
6+00.0000
5+50.0000
0.040
0.040
Permit Drawing
Sheet 61 of 62

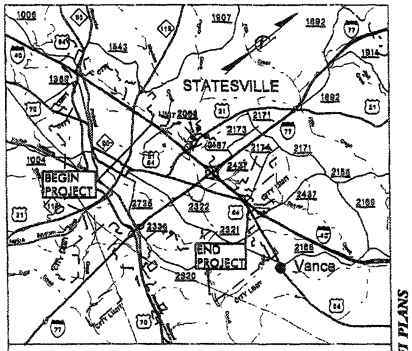
T.I.P. NO	SHEET NO
I-3819A	UC-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PERMIT DRAWINGS
IREDELL COUNTY

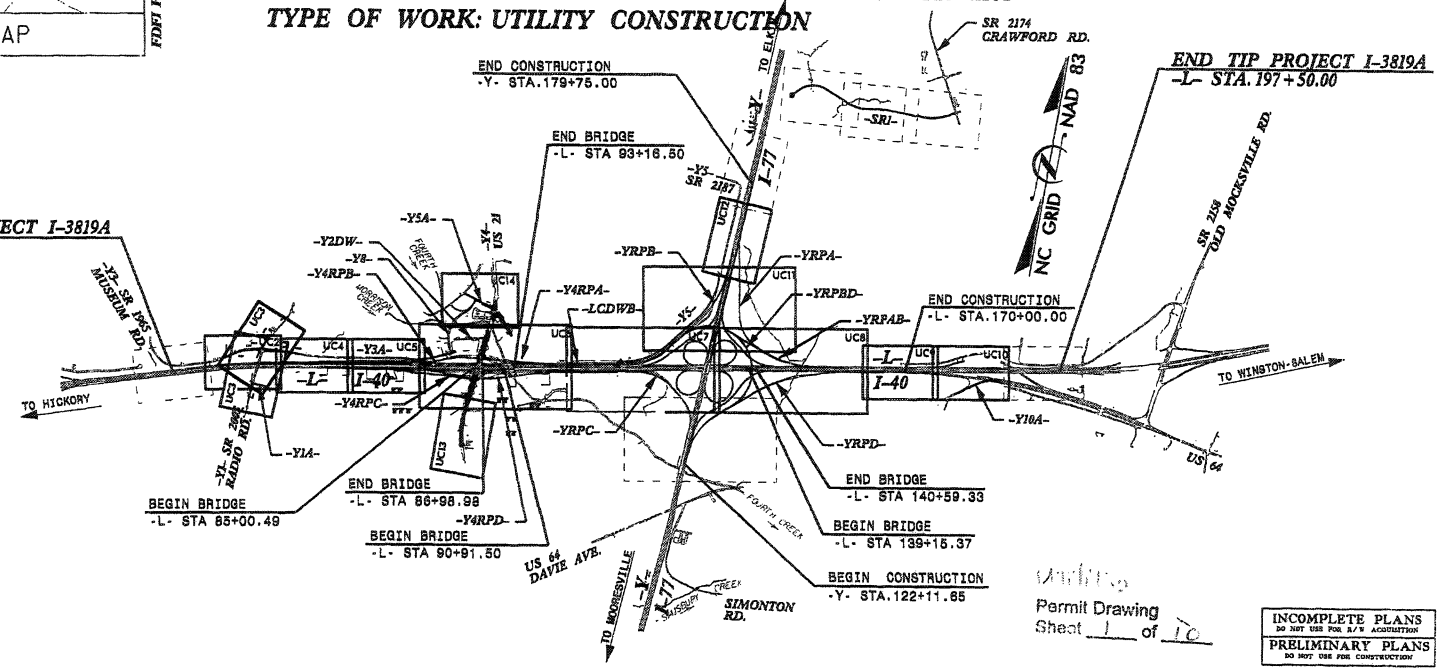
LOCATION: I-40/I-77 INTERCHANGE INCLUDING I-40 FROM WEST OF SR 2003 TO WEST OF SR 2158 & I-77 FROM SOUTH OF I-40 TO SOUTH OF SR 2171

TYPE OF WORK: UTILITY CONSTRUCTION



VICINITY MAP

FDFI PLANS



Permit Drawing
Sheet 1 of 10

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UC-1	TITLE SHEET
UC-2 THRU UC-14	UTILITY CONSTRUCTION PLAN SHEETS
UC-15	PROFILE SHEET
UC-16	DETAILS SHEET

WATER AND SEWER OWNERS ON PROJECT

(1) WATER - CITY OF STATESVILLE
(2) SANITARY SEWER - CITY OF STATESVILLE
(3) WATER - IREDELL WATER CORPORATION

SEAL

PREPARED IN THE OFFICE OF:
DIVISION OF HIGHWAYS
UTILITIES ENGINEERING SECTION
1591 MAIL SERVICES CENTER
RALEIGH NC 27699-1591
PHONE (919) 250-4128
FAX (919) 250-4119

Roger Worthington, P.E. UTILITIES SECTION ENGINEER
R. B. WILKINS, P.E. UTILITIES SQUAD LEADER PROJECT ENGINEER
MICHAEL R. BRIGHT UTILITIES PROJECT DESIGNER

PROJECT: 34192.1.2 TIP PROJECT: I-3819A

19-JAN-2011 14:17
R:\Utilities\Rdy_Utl\Proj\I-3819A_Utl_Title_UC1.psh.dgn
$$$$USERNAME$$$$

WETLAND PERMIT IMPACT SUMMARY

Site No.	Station (From/To)	Structure Size / Type	WETLAND IMPACTS: Permanent Fill In Wetlands (ac)	Temp. Fill In Wetlands (ac)	Excavation in Wetlands (ac)	Mechanized Clearing in Wetlands (ac)	Hand Clearing in Wetlands (ac)	SURFACE WATER IMPACTS: Permanent SW impacts (ac)	Temp. SW impacts (ac)	Existing Channel Impacts Permanent (ft)	Existing Channel Impacts Temp. (ft)	Natural Stream Design (ft)
U1	151+00 -L-	UTILITIES-24" WAT			0.0024							
U2	152+50 -L-	UTILITIES-24" WAT							0.0009		10.000	
U3	162+50 -Y-	UTILITIES-24" WAT							0.0007		8.000	
U4	147+00 -L-	UTILITIES-AERIAL					0.051					
U5	125+50 -Y-	UTILITIES-AERIAL					0.079					
0	0	0										
0	0	0										
0	0	0										
0	0	0										
0	0	0										
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0	0	0										
0	0	0										
0	0	0										
0	0	0										
TOTALS:					0.0024		0.131		0.0017		44	

Utility
Permit Drawing
Sheet 8 of 10

ATN Revised 3/31/05

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

IREDELL COUNTY
WBS - 34192.1.2 (I-3819)

SHEET 11/2/2011

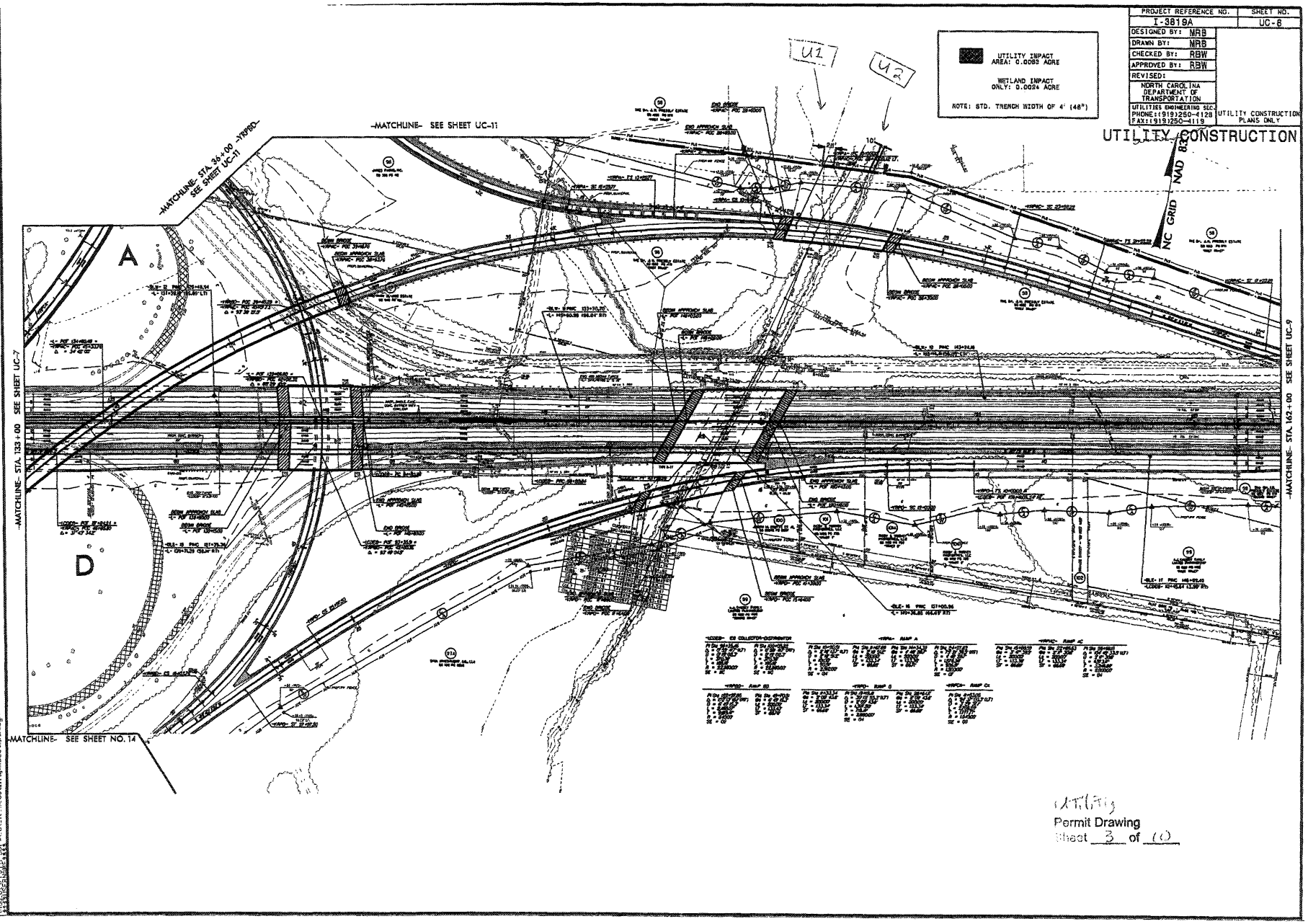
Utility Permit Site Descriptions:

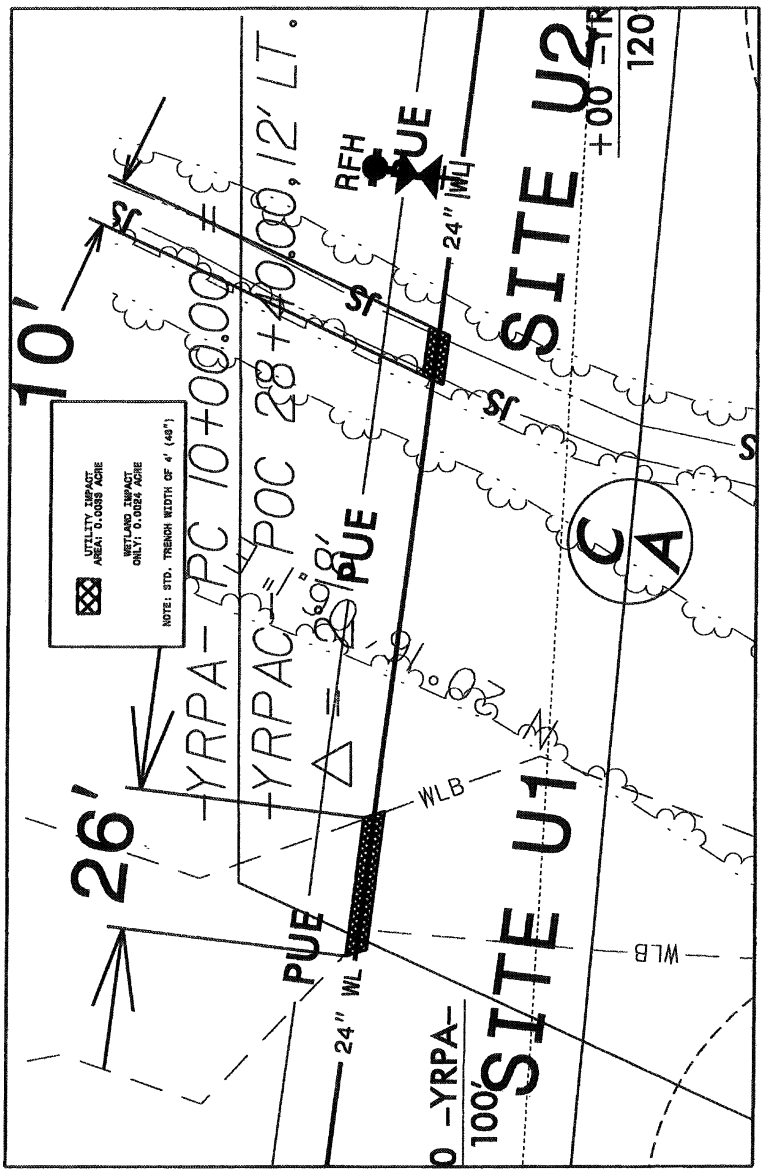
Utility Site U1 - Wetland 6: The excavated soils will be stockpiled alongside the stream and trench until the proposed water line is installed. The excavated/stockpiled material will then be placed back in the trench over the proposed pipe. Erosion control (to include any seeding, mulching, matting or straw) will be performed in accordance with the erosion control plan prepared by our Roadside Environmental Unit.

Utility Sites U4 and U5 - Wetlands 12 and 14: These areas will be hand cleared with no stripping or grubbing activities. The overhead power lines will be installed through this utility easement and no planting will be performed. After installation of the power line the area will be allowed to re-vegetate. However, the owner of the power line will be allowed to perform maintenance within the easement to keep trees and shrubs from growing too close to the active power lines.

Utility Sites U2 and U3 - Streams 2 and 6: As stated above, the excavated material will be stockpiled near trench until the proposed water line is installed. The excavated/stockpiled material will then be placed back in the trench over the proposed pipe. It should be noted that the proposed crossing is in a relatively straight section of a low energy stream. Erosion control (to include any seeding, mulching, matting or straw) will be performed in accordance with the erosion control plan prepared by our Roadside Environmental Unit.

Utility
Permit Drawing
Sheet 2a of 10


U1
U2
UTILITY IMPACT AREA: 0.0083 ACRE
WETLAND IMPACT ONLY: 0.0024 ACRE
NOTE: STD. TRENCH WIDTH OF 4' (48")
PROJECT REFERENCE NO. I-3819A
SHEET NO. UC-8
DESIGNED BY: NRB
DRAWN BY: NRB
CHECKED BY: RBW
APPROVED BY: RBW
REVISED:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC.
PHONE: (919)250-4128
FAX: (919)250-4119
UTILITY CONSTRUCTION PLANS ONLY
UTILITY CONSTRUCTION
NAD 83
NC GRID
-MATCHLINE- SEE SHEET UC-11
-MATCHLINE- STA. 36+00 -TRYON- SEE SHEET UC-11
-MATCHLINE- STA. 133+00 SEE SHEET UC-7
-MATCHLINE- STA. 162+00 SEE SHEET UC-9
-MATCHLINE- SEE SHEET NO. 14
A
D
Permit Drawing
Sheet 3 of 10



Permit Drawing
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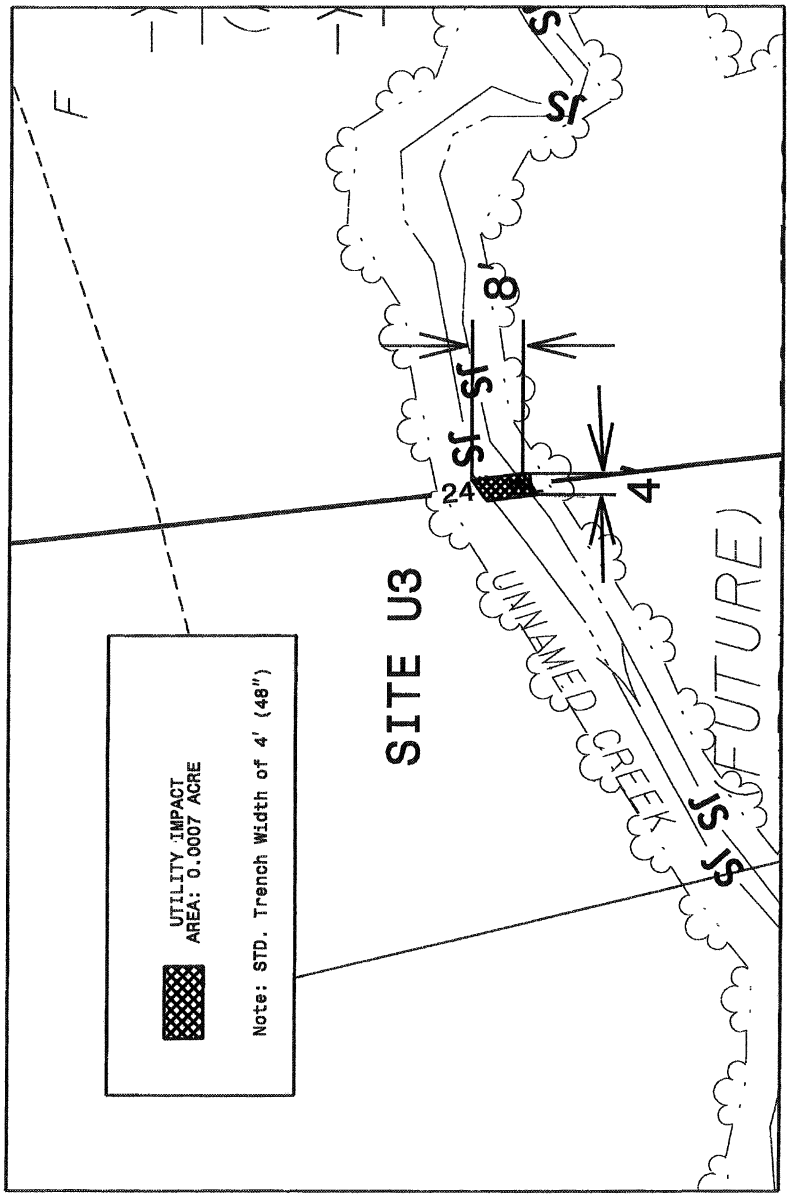
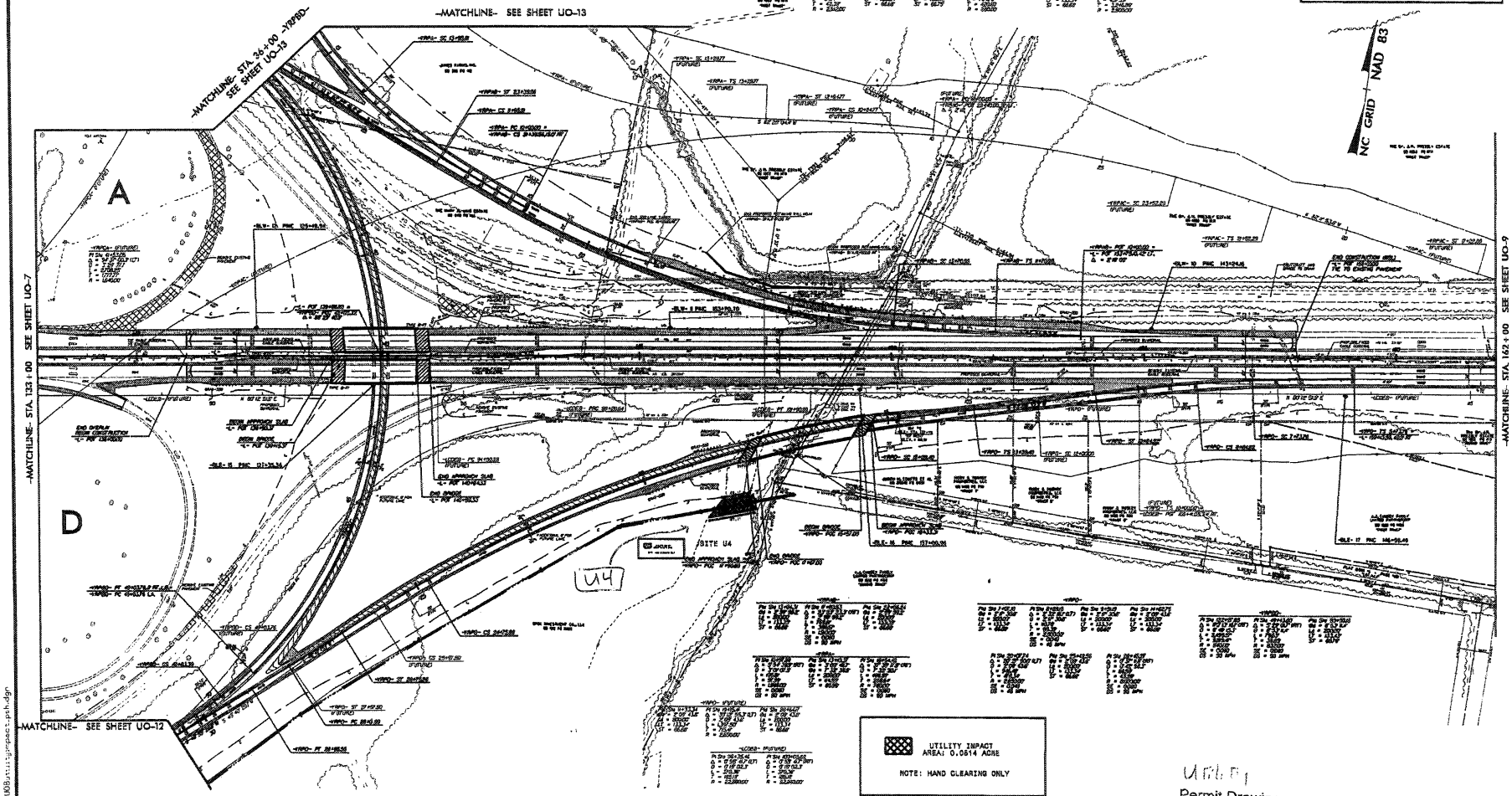
PROJECT REFERENCE NO. I-3819A
SHEET NO. UC-12
DESIGNED BY: MRB
DRAWN BY: MRB
CHECKED BY: RBW
APPROVED BY: RBW
REVISED:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC. PHONE: (919) 250-4128 FAX: (919) 250-4119
UTILITY CONSTRUCTION PLANS ONLY
UTILITY CONSTRUCTION
NC GRID NAD 83
-MATCHLINE- STA. 161+00 -Y- SEE SHEET UC-11
-MATCHLINE- STA. 175+00 -Y-
DOOSAN INTERNATIONAL USA, INC. DB 1906 PG 2178-2180
CONGRESS STATESVILLE, LLC DB 1532 PG 1446
JAMES FARMS, INC. DB 336 PG 412
-BYS- 10 PINC 155+20.86
-Y- 163+36.00 (51.72 LT)
-Y5- POT 73+84.77
-BY5- 160 PINC 70+84.69
-Y- 167+94.74 (150.54 LT)
-BYS- 161 PINC 76+55.74
-Y- 173+65.78 (152.52 LT)
-BYS- 9 PINC 165+55.19
-Y- 173+68.32 (51.06 LT)
-BYN- 19 PINC 166+67.05
-Y- 174+56.79 (54.49 RT)
-BYN- 18 PINC 156+86.76
-Y- 164+76.54 (63.63 RT)
-YRPB- ST 27+11.73 =
-Y- POT 161+66.99, 48' LT
(FUTURE) -YRPCA- ST 65+33.24 =
-Y- POT 169+35.00, 60' RT.
-YRPCA- SC 61+77.37
-YRPCA- TS 59+77.37
-YRPA- ST 32+57.02 =
-YRPCA- POT 57+20.00, 12' RT.
SPECIAL CUT DITCH SEE DETAIL F
4' SPECIAL BASE DITCH SEE DETAIL G
5' SPECIAL BASE DITCH SEE DETAIL G
5' BASE BERM DITCH W/ CLASS B RIP RAP SEE DETAIL L
2 TONS CLASS B RIP RAP 7 SY FILTER FABRIC
5 TONS CLASS B RIP RAP 14 SY FILTER FABRIC
PIPE END TREATMENT
REMOVE 18" RCP
15" RCP
PROP. CONC. BARRIER
PROP. GUARDRAIL
SHOULDER BERM GUTTER
PROP. WW FENCE
20'X20' PSRM
PLUG
N 9°50'00.5" W
N 3°47'05.8" E
CONC. COLLAR
DROP INLET
-YRPCA- RAMP CA
PI Sta 62+55.37
Δ = 5°54'52.6" (RT)
D = 3°47'39.9"
L = 155.88'
T = 78.01'
R = 1,510.00'
SE = .05
PIs Sta 61+10.73
θs = 3°47'39.9"
Ls = 200.00'
LT = 133.36'
ST = 66.69'
PIs Sta 63+99.94
θs = 3°47'39.9"
Ls = 200.00'
LT = 133.36'
ST = 66.69'
Utility
Permit Drawing
Sheet 5 of 10
UTILITY IMPACT AREA: 0.0007 ACRE
Note: STD. Trench Width of 4' (48")


SITE U3
UNNAMED CREEK
(FUTURE)
UTILITY IMPACT
AREA: 0.0007 ACRE
Note: STD. Trench Width of 4' (48")
24
4
8'
SF
Permit Drawing
Sheet 9 of 12

PROJECT REFERENCE NO.	SHEET NO.
I-3819A	UO-8

UTILITIES BY OTHERS

NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS



U4 B1

Permit Drawing
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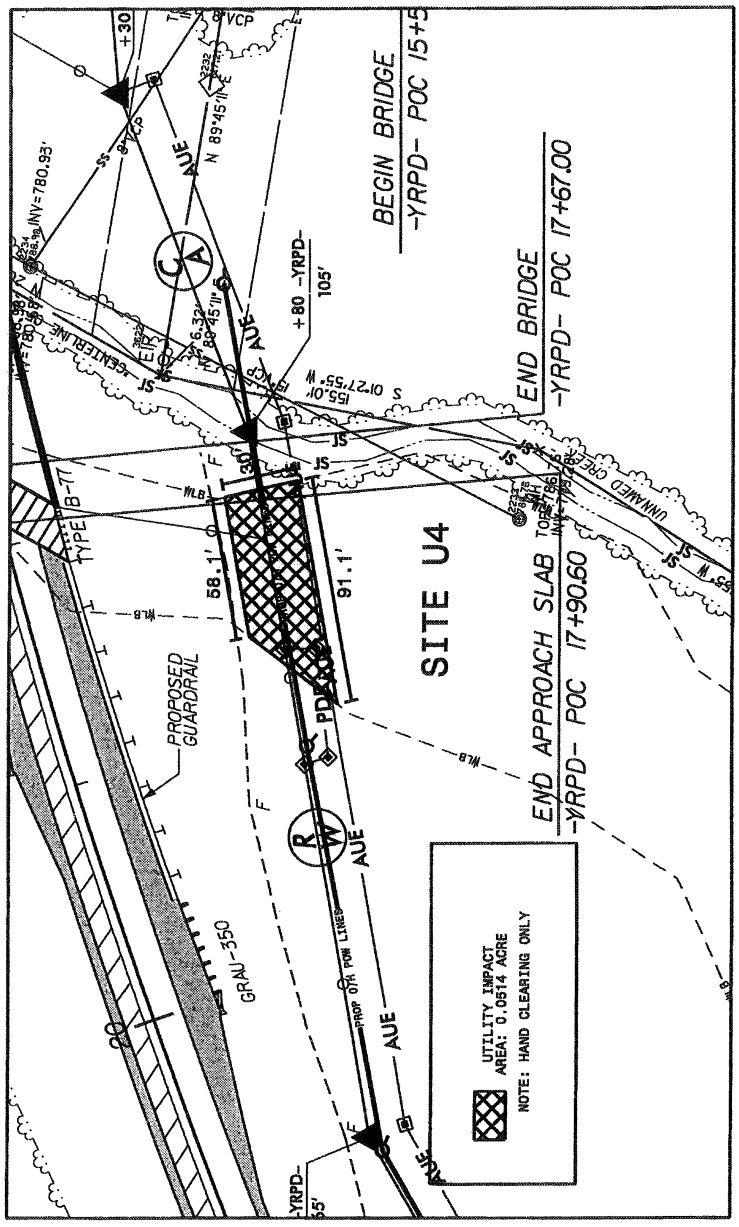
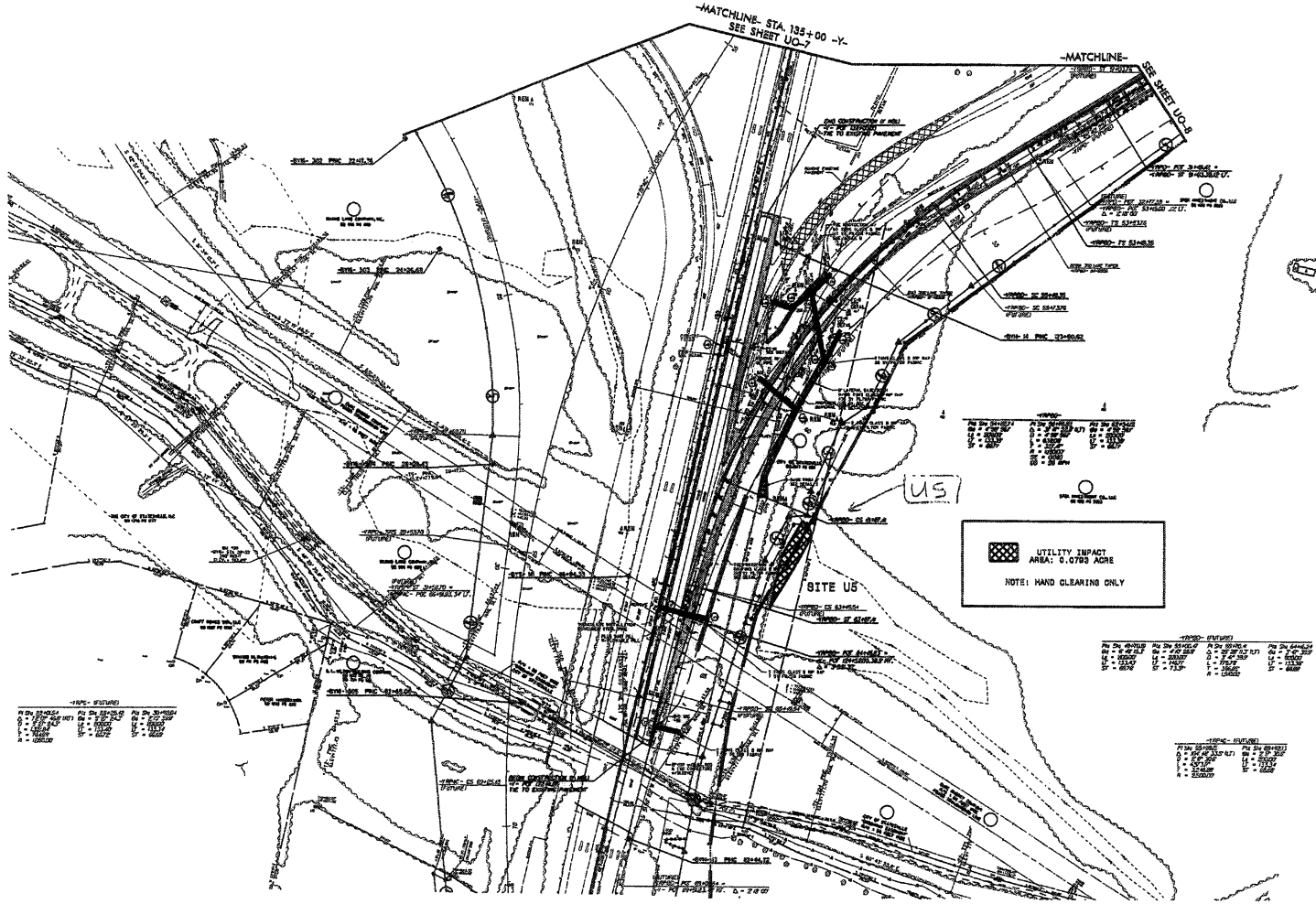


Utility
Permit Drawing
Sheet 8 of 10

PROJECT REFERENCE NO.	SHEET NO.
I-3819A	UO-12

UTILITIES BY OTHERS

NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS



Utility
Permit Drawing
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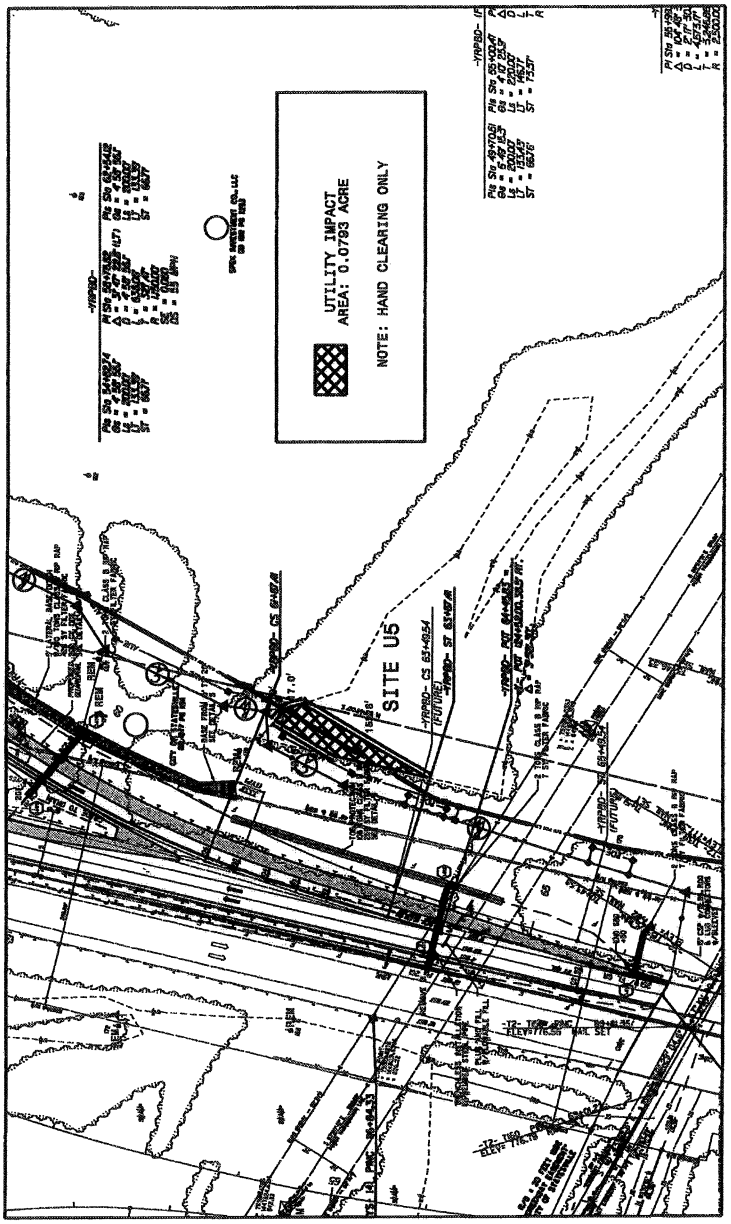

Utility
Permit Drawing
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