STATE OF NEW HAMPSHIRE
INTER-DEPARTMENT COMMUNICATION

DATE: February 4, 2016

FROM: Matt Urban
Wetlands Program Manager

AT (OFFICE): Department of Transportation
Bureau of Environment

SUBJECT Dredge & Fill Application
NH Route 123A, Alstead-Langdon-Acworth
M401

TO Gino Infascelli, Public Works Permitting Officer
New Hampshire Wetlands Bureau
29 Hazen Drive, P.O. Box 95
Concord, NH 03302-0095

Forwarded herewith is the application package prepared by NHDOT Highway Maintenance District 4 for the subject major impact project. This project is classified as major per Env-Wt 303.02(p). The project consists of replacing 30 culverts on NH Route 123 in the Towns of Alstead, Acworth, and Langdon, NH. This work is necessary in order to prevent the failure of these culverts and to maintain the integrity of the roadway.

This project was not reviewed at a Natural Resource Agency Coordination Meeting.

The Department met with DES on January 22, 2016 to discuss mitigation. It was determined that the Department would self-mitigate by upsizing several of the pipes. The minutes from that meeting have been included in the application package.

The lead people to contact for this project are John Kallfelz, District Engineer, District 4 (352-2302 or jkallfelz@dot.state.nh.us) or Matt Urban, Wetlands Program Manager, Bureau of Environment (271-3226 or murban@dot.state.nh.us).

A payment voucher has been processed for this application (Voucher #424287) in the amount of $1,170.60.

If and when this application meets with the approval of the Bureau, please send the permit directly to Matt Urban, Wetlands Program Manager, Bureau of Environment.

MRU: cjp
Enclosures

cc:
BOE, Original
Acworth Town Clerk **(4 copies via certified mail)**
Alstead Town Clerk **(4 copies via certified mail)**
Langdon Town Clerk **(4 copies via certified mail)**
Carol Henderson, NH Fish & Game
Edna Feighner, NH Division of Historic Resources (NHDOT cultural review within)
Maria Tur, US Fish & Wildlife
Mark Kern, US Environmental Protection Agency
Mike Hicks, US Army Corp of Engineers
Randy Talon, NHDOT Bureau of Environment
Cold River Local Advisory Committee **(via certified mail)**

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New Hampshire DOT
Department of Transportation

District 4
Culvert Replacement Project
M401

NH Route 123A
Alstead, Acworth, and Langdon

Standard Dredge and Fill Application

McFarland Johnson

February 2016

Contents

1. Standard Dredge and Fill Application Form

NHDES-W-06-012

WETLANDS PERMIT APPLICATION

Water Division/ Wetlands Bureau
Land Resources Management
Check the status of your application: www.des.nh.gov/onestop

RSA/Rule: RSA 482-A/ Env-Wt 100-900

Administrative Use Only	Administrative Use Only	Administrative Use Only	Fee No:
			Check No:
			Amount:
			Initials:

1. REVIEW TIME:
Indicate your Review Time below. Refer to Guidance Document A for instructions.

☒ Standard Review (Minimum, Minor or Major Impact) ☐ Expedited Review (Minimum Impact only)

2. PROJECT LOCATION:
Separate applications must be filed with each municipality that jurisdictional impacts will occur in.

ADDRESS: **NH Route 123A in Alstead, Acworth, and Langdon**			TOWN/CITY: **Multiple**
TAX MAP: **n/a**	BLOCK: **n/a**	LOT: **n/a**	UNIT: **n/a**
USGS TOPO MAP WATERBODY NAME: **Cold River** ☐ NA		STREAM WATERSHED SIZE: **multiple** ☐ NA	
LOCATION COORDINATES (If known): **-72.34786 43.15481 (project start)** Latitude/Longitude ☐ UTM ☐ State Plane			☒

3. PROJECT DESCRIPTION:
Provide a brief description of the project outlining the scope of work. Attach additional sheets as needed to provide a detailed explanation of your project. DO NOT reply "See Attached" in the space provided below.

The project entails replacing 30 culverts along an 8-mile section of NH Route 123A. Eight of these culverts carry intermittent streams and the remaining culverts are either located in palustrine wetlands or carry roadway runoff and outlet on the bank of the Cold River.

4. SHORELINE FRONTAGE

☒ NA This lot has no shoreline frontage. SHORELINE FRONTAGE:

Shoreline frontage is calculated by determining the average of the distances of the actual natural navigable shoreline frontage and a straight line drawn between the property lines, both of which are measured at the normal high water line.

5. RELATED PERMITS, ENFORCEMENT, EMERGENCY AUTHORIZATION, SHORELAND, ALTERATION OF TERRAIN, ETC...

Shoreland PBN

6. NATURAL HERITAGE BUREAU & DESIGNATED RIVERS:
See the Instructions & Required Attachments document for instructions to complete a & b below.

a. Natural Heritage Bureau File ID: NHB 15 - 3892

b. ☒ Designated River the project is in ¼ miles of: **Cold River** ; and
date a copy of the application was sent to the Local River Management Advisory Committee: Month: 2 Day: 4 Year: 16
☐ NA

7. APPLICANT INFORMATION (Desired permit holder)			
LAST NAME, FIRST NAME, M.I.: **Belanger, Kevin**			
TRUST / COMPANY NAME: **NHDOT District 4**	MAILING ADDRESS: **19 Base Hill Road**		
TOWN/CITY: **Swanzey**		STATE: **NH**	ZIP CODE: **03446**
EMAIL or FAX: **kbelanger@dot.state.nh.us**	PHONE: **352-2302**		
ELECTRONIC COMMUNICATION: By initialing here: **kjb**, I hereby authorize NHDES to communicate all matters relative to this application electronically			

8. PROPERTY OWNER INFORMATION (If different than applicant)			
LAST NAME, FIRST NAME, M.I.:			
TRUST / COMPANY NAME:	MAILING ADDRESS:		
TOWN/CITY:		STATE:	ZIP CODE:
EMAIL or FAX:	PHONE:		
ELECTRONIC COMMUNICATION: By initialing here _____, I hereby authorize NHDES to communicate all matters relative to this application electronically			

9. AUTHORIZED AGENT INFORMATION			
LAST NAME, FIRST NAME, M.I.: **Perron, Christine**	COMPANY NAME: **McFarland Johnson**		
MAILING ADDRESS: **53 Regional Drive**			
TOWN/CITY: **Concord**		STATE: **NH**	ZIP CODE: **03301**
EMAIL or FAX: **cperron@mjinc.com**	PHONE: **225-2978**		
ELECTRONIC COMMUNICATION: By initialing here **cjp**, I hereby authorize NHDES to communicate all matters relative to this application electronically			

10. PROPERTY OWNER SIGNATURE:

See the Instructions & Required Attachments document for clarification of the below statements

By signing the application, I am certifying that:

1. I authorize the applicant and/or agent indicated on this form to act in my behalf in the processing of this application, and to furnish upon request, supplemental information in support of this permit application.
2. I have reviewed and submitted information & attachments outlined in the Instructions and Required Attachment document.
3. All abutters have been identified in accordance with RSA 482-A:3, I and Env-Wt 100-900.
4. I have read and provided the required information outlined in Env-Wt 302.04 for the applicable project type.
5. I have read and understand Env-Wt 302.03 and have chosen the least impacting alternative.
6. Any structure that I am proposing to repair/replace was either previously permitted by the Wetlands Bureau or would be considered grandfathered per Env-Wt 101.47.
7. I have submitted a Request for Project Review (RPR) Form (www.nh.gov/nhdhr/review) to the NH State Historic Preservation Officer (SHPO) at the NH Division of Historical Resources to be reviewed for the presence of historical/ archeological resources.
8. I authorize NHDES and the municipal conservation commission to inspect the site of the proposed project.
9. I have reviewed the information being submitted and that to the best of my knowledge the information is true and accurate.
10. I understand that the willful submission of falsified or misrepresented information to the New Hampshire Department of Environmental Services is a criminal act, which may result in legal action.
11. I am aware that the work I am proposing may require additional state, local or federal permits which I am responsible for obtaining.
12. The mailing addresses I have provided are up to date and appropriate for receipt of NHDES correspondence. NHDES will not forward returned mail.

Property Owner Signature	Print name legibly	Date
Kevin J Belanger		2/3/2016

MUNICIPAL SIGNATURES

11. CONSERVATION COMMISSION SIGNATURE

The signature below certifies that the municipal conservation commission has reviewed this application, and:

1. Waives its right to intervene per RSA 482-A:11;
2. Believes that the application and submitted plans accurately represent the proposed project; and
3. Has no objection to permitting the proposed work.

⇨	Print name legibly	Date

DIRECTIONS FOR CONSERVATION COMMISSION

1. Expedited review ONLY requires that the conservation commission's signature is obtained in the space above.
2. Expedited review requires the Conservation Commission signature be obtained **prior** to the submittal of the original application to the Town/City Clerk for signature.
3. The Conservation Commission may refuse to sign. If the Conservation Commission does not sign this statement for any reason, the application is not eligible for expedited review and the application will reviewed in the standard review time frame.

12. TOWN / CITY CLERK SIGNATURE

As required by Chapter 482-A:3 (amended 2014), I hereby certify that the applicant has filed four application forms, four detailed plans, and four USGS location maps with the town/city indicated below.

⇨ Town/City Clerk Signature	Print name legibly	Town/City	Date

DIRECTIONS FOR TOWN/CITY CLERK:

Per RSA 482-A:3,I

1. For applications where "Expedited Review" is checked on page 1, if the Conservation Commission signature is not present, NHDES will accept the permit application, but it will NOT receive the expedited review time.
2. IMMEDIATELY sign the original application form and four copies in the signature space provided above;
3. Return the signed original application form and attachments to the applicant so that the applicant may submit the application form and attachments to NHDES by mail or hand delivery.
4. IMMEDIATELY distribute a copy of the application with one complete set of attachments to each of the following bodies: the municipal Conservation Commission, the local governing body (Board of Selectmen or Town/City Council), and the Planning Board; and
5. Retain one copy of the application form and one complete set of attachments and make them reasonably accessible for public review.

DIRECTIONS FOR APPLICANT:

1. Submit the single, original permit application form bearing the signature of the Town/ City Clerk, additional materials, and the application fee to NHDES by mail or hand delivery.

13. IMPACT AREA:
For each jurisdictional area that will be/has been impacted, provide square feet and, if applicable, linear feet of impact
Permanent: impacts that will remain after the project is complete.
Temporary: impacts not intended to remain (and will be restored to pre-construction conditions) after the project is complete.

JURISDICTIONAL AREA	PERMANENT Sq. Ft. / Lin. Ft.		TEMPORARY Sq. Ft. / Lin. Ft.	
Forested wetland	180	☐ ATF	270	☐ ATF
Scrub-shrub wetland	60	☐ ATF	380	☐ ATF
Emergent wetland	160	☐ ATF	1210	☐ ATF
Wet meadow		☐ ATF		☐ ATF
Intermittent stream	255 / 37	☐ ATF	795 / 109	☐ ATF
Perennial Stream / River	/	☐ ATF	30 / 8	☐ ATF
Lake / Pond	/	☐ ATF	/	☐ ATF
Bank - Intermittent stream	343 / 84	☐ ATF	650 / 156	☐ ATF
Bank - Perennial stream / River	275 / 55	☐ ATF	1245 / 30	☐ ATF
Bank - Lake / Pond	/	☐ ATF	/	☐ ATF
Tidal water	/	☐ ATF	/	☐ ATF
Salt marsh		☐ ATF		☐ ATF
Sand dune		☐ ATF		☐ ATF
Prime wetland		☐ ATF		☐ ATF
Prime wetland buffer		☐ ATF		☐ ATF
Undeveloped Tidal Buffer Zone (TBZ)		☐ ATF		☐ ATF
Previously-developed upland in TBZ		☐ ATF		☐ ATF
Docking - Lake / Pond		☐ ATF		☐ ATF
Docking - River		☐ ATF		☐ ATF
Docking - Tidal Water		☐ ATF		☐ ATF
TOTAL	1273 / 176		4580 / 303	

14. APPLICATION FEE: See the Instructions & Required Attachments document for further instruction

☐ Minimum Impact Fee: Flat fee of $ 200
☒ Minor or Major Impact Fee: Calculate using the below table below

Permanent and Temporary (non-docking) 5853 sq. ft. X $0.20 = $ 1170.60
Temporary (seasonal) docking structure: _____ sq. ft. X $1.00 = $ _____
Permanent docking structure: _____ sq. ft. X $2.00 = $ _____
Projects proposing shoreline structures (including docks) add $200 = $ _____
Total = $ 1170.60
The Application Fee is the above calculated Total or $200, whichever is greater = $ 1170.60

2. Standard Dredge and Fill Application Attachment A (20 Questions)

NHDES-W-06-013

WETLANDS PERMIT APPLICATION – ATTACHMENT A
MINOR AND MAJOR - 20 QUESTIONS

Water Division/ Wetlands Bureau/ Land Resources Management
Check the Status of your application: http://des.nh.gov/onestop

RSA/ Rule: RSA 482-A, Env-Wt 100-900

Env-Wt 302.04 Requirements for Application Evaluation - For any major or minor project, the applicant shall demonstrate by plan and example that the following factors have been considered in the project's design in assessing the impact of the proposed project to areas and environments under the department's jurisdiction. Respond with statements demonstrating:
1. The need for the proposed impact.
This project is needed in order to address deteriorated culverts under NH Route 123A.
2. That the alternative proposed by the applicant is the one with the least impact to wetlands or surface waters on site.
The project involves maintenance of existing infrastructure. Impacts to wetlands and surface waters will be minimal. It is not possible to further minimize impacts while still addressing the need for new culverts.

3. The type and classification of the wetlands involved.

PEM1E, PFO1B, PFO1E, R4SB6, PSS1E, PUB/EM1E, Bank

4. The relationship of the proposed wetlands to be impacted relative to nearby wetlands and surface waters.

The culverts to be replaced either 1) are located in roadside palustrine wetlands; 2) carry roadway runoff from roadside ditches; or 3) carry an intermittent stream. All of the culverts are within a 1/4 mile of the Cold River, a NH Designated River, and a number of the culverts outlet directly on the banks of the Cold River. The intermittent streams are tributaries to the Cold River.

5. The rarity of the wetland, surface water, sand dunes, or tidal buffer zone area.

The wetlands and intermittent streams that will be impacted by this project are common in New Hampshire. The project will result in minimal impacts to the banks of the Cold River, a NH Designated River. The NH Natural Heritage Bureau does not have any records of Exemplary Natural Communities and no other unique features are known to exist in the project area.

6. The surface area of the wetlands that will be impacted.

Permanent impact to wetlands: 400 sq ft

Permanent impact to stream channels/banks: 873 sq ft

Temporary impacts: 4,580 sq ft

7. The impact on plants, fish and wildlife including, but not limited to:
   a. Rare, special concern species;
   b. State and federally listed threatened and endangered species;
   c. Species at the extremities of their ranges;
   d. Migratory fish and wildlife;
   e. Exemplary natural communities identified by the DRED-NHB; and
   f. Vernal pools.

No vernal pools were identified in the project area. The NH Natural Heritage Bureau has no records of sensitive species or natural communities of concern in the vicinity of the project. The USFWS Information for Planning and Conservation System (IPaC) web tool was utilized to determine if federally listed species have the potential to occur in the project area. According to IPaC, the federally-threatened northern long-eared bat is a potential concern throughout New Hampshire, and the endangered Northeastern bulrush may occur in Sullivan County.

Northeastern bulrush can be found in wet meadows, marshes, and pond edges, within wetland complexes typically less than one acre in size. The wetlands preferred by this species are characterized by seasonally variable water levels, and the plant is usually absent from shaded habitats. The wetland habitat that will be impacted by this project is adjacent to a roadway that travels through a largely forested setting. Where wetland habitat is more open, the habitat generally consists of roadside ditch or shrub wetlands. One pipe is located at the edge of a small farm pond with an adjacent emergent marsh. The only impacts to this wetland will be temporary in nature and the habitat will remain unchanged following construction. For these reasons, and because the NH Natural Heritage Bureau does not have records of Northeastern bulrush in the project area, impacts to this species are not anticipated.

Please see the attached supplemental narrative for information on northern long-eared bat and migratory fish and wildlife.

8. The impact of the proposed project on public commerce, navigation and recreation.

The project will have no impact on public commerce or navigation. The work will maintain the integrity and safety of the existing roadway.

9. The extent to which a project interferes with the aesthetic interests of the general public. For example, where an applicant proposes the construction of a retaining wall on the bank of a lake, the applicant shall be required to indicate the type of material to be used and the effect of the construction of the wall on the view of other users of the lake.

The project will maintain existing infrastructure and will not impact the aesthetics of the general area.

10. The extent to which a project interferes with or obstructs public rights of passage or access. For example, where the applicant proposes to construct a dock in a narrow channel, the applicant shall be required to document the extent to which the dock would block or interfere with the passage through this area.

The project is located within the right-of-way of a State roadway. Access to private properties will be maintained during construction. Public rights of passage or access will not be obstructed following construction of this project.

11. The impact upon abutting owners pursuant to RSA 482-A:11, II. For example, if an applicant is proposing to rip-rap a stream, the applicant shall be required to document the effect of such work on upstream and downstream abutting properties.

The project is located within the right-of-way of a State roadway and will be maintaining existing infrastructure. Impacts to abutters are not anticipated.

12. The benefit of a project to the health, safety, and well being of the general public.

The project will maintain the safety and integrity of the roadway, which will benefit public safety.

13. The impact of a proposed project on quantity or quality of surface and ground water. For example, where an applicant proposes to fill wetlands the applicant shall be required to document the impact of the proposed fill on the amount of drainage entering the site versus the amount of drainage exiting the site and the difference in the quality of water entering and exiting the site.

The project will not result in an increase in impervious surface area. Existing culverts will be replaced on the same alignment. All appropriate erosion and seidment control measures will be implemented during construction to avoid impacts to water quality. No changes or impacts to the quanity of quality of surface water or groundwater are anticipated.

14. The potential of a proposed project to cause or increase flooding, erosion, or sedimentation.

All appropriate erosion and sediment control measures will be implemented during construction, and all disturbed surfaces will be stabilized upon the completion of construction. The completed project is not expected to cause or increase flooding, erosion, or sedimentation. Eighteen culverts will be larger than the existing pipes, including the 8 culverts that carry intermittent streams. While none of these culverts has any history of flooding, it is expected that the larger culverts will improve hydraulic performance during higher flows and will help prevent blockages from debris.

15. The extent to which a project that is located in surface waters reflects or redirects current or wave energy which might cause damage or hazards.

The project will not reflect or redirect currents. The culverts that are located on intermittent streams will be replaced on the same alignment. Stone outlet protection will be minimal and will match into the invert of the culvert.

16. The cumulative impact that would result if all parties owning or abutting a portion of the affected wetland or wetland complex were also permitted alterations to the wetland proportional to the extent of their property rights. For example, an applicant who owns only a portion of a wetland shall document the applicant's percentage of ownership of that wetland and the percentage of that ownership that would be impacted.

Any work proposed by abutters would need to comply with existing State and Federal regulations.

17. The impact of the proposed project on the values and functions of the total wetland or wetland complex.

Impacts will be limited to areas immediately adajcent to existing infrastructure. The project will not impact the overall functions and values of the wetland systems located in the project area.

18. The impact upon the value of the sites included in the latest published edition of the National Register of Natural Landmarks, or sites eligible for such publication.

The National Registry of Natural Landmarks does not list any Natural Landmarks in the vicinity of the project.

19. The impact upon the value of areas named in acts of congress or presidential proclamations as national rivers, national wilderness areas, national lakeshores, and such areas as may be established under federal, state, or municipal laws for similar and related purposes such as estuarine and marine sanctuaries.

No such areas exist in the vicinity of the project.

20. The degree to which a project redirects water from one watershed to another.

Water will not be redirected to a different watershed.

Additional comments

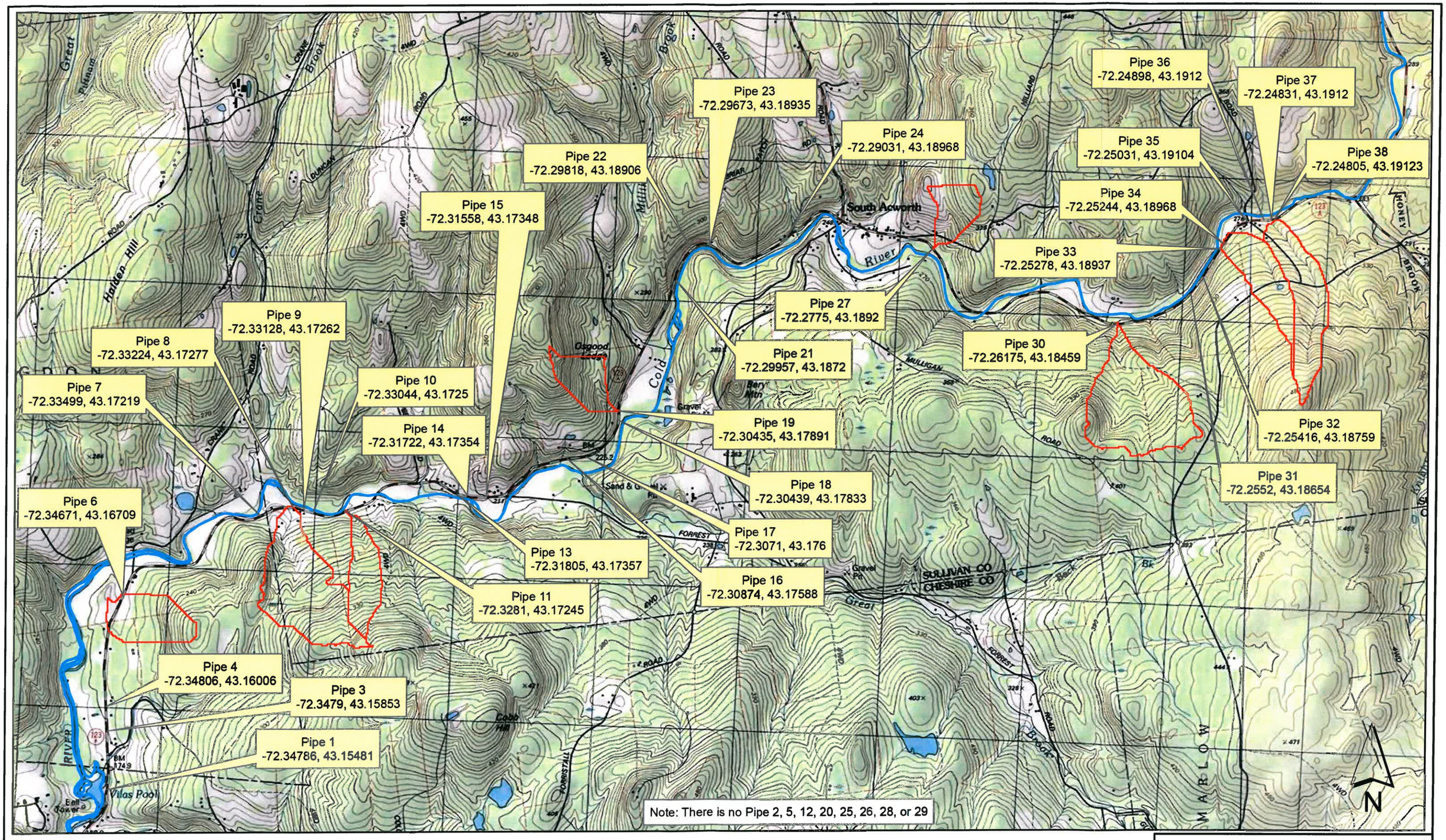
NHDOT District 4, NH Route 123A, M401

Question 7 of Env-Wt 302.04
Continued from Attachment A

Northern long-eared bats (NLEB) forage and roost in forested habitat and generally hibernate in caves. This project may require minimal tree clearing adjacent to the roadway in order to access each pipe. Based on information from NH Fish & Game and the NH Natural Heritage Bureau, the project is not located within a ¼ mile of known hibernacula and there are no known roost trees in the project area. Through coordination with the NH Fish and Game Department, the Department has determined that the project will not result in any prohibited take as described in the final 4(d) rule that will be effective February 16, 2016. The Department intends to employ the optional framework to streamline Section 7 consultation in accordance with the USFWS non-jeopardy Intra-Service Programmatic Biological Opinion on their action of issuing the 4(d) rule for the NLEB, provided that ACOE elects to adopt this process. If ACOE does not adopt the streamlined Section 7 consultation in accordance with the USFWS non-jeopardy Intra-Service Programmatic Biological Opinion, standard individual informal consultation will be initiated by the Department with the USFWS. In that case, consultation will be complete prior to beginning construction and all project activities will be in accordance with the conservation measures agreed to through consultation. Conservation measures may include clearing during the NLEB inactive season.

The project proposes to replace 8 culverts that carry intermittent streams. As discussed with NHDES, the proposed culverts have been upgraded at least one size. Also, any outlet protection that is used will be placed to match the culvert invert in order to avoid impacts to aquatic organism passage. For these reasons, impacts to migratory fish and wildlife are not anticipated.

3. USGS Topographic Map



NHDOT District 4, M401, NH Route 123A

SCALE :	DATE :	FIGURE :
1 inch = 2,000 feet	January 18, 2016	1

McFarland Johnson

4. Culvert Summary Table

Pipe #	Pipe type/size	Originally Proposed	Proposed Upsize* (Self-Mitigation)	Location	Impact Location (see sketches)	Feature impacted	Watershed (sq mi)	Tier based on watershed	Tier based on Des. River	Permanent channel impacts (sq ft)	Permanent bank impacts (sq ft)	Permanent wetland impacts (sq ft)	Temp impacts (sq ft)	Est Bankfull Width (ft)	Linear Feet of Perm Bank/Channel Impacts
1	15" cmp	15" plastic, stone at outlet		carries runoff only; outlets on bank of Cold River	A	Bank	n/a	n/a	n/a	0	25	0	200	n/a	5
3	15" cmp	15" plastic, extend each end (6', 4')	18" plastic, extend each end (6', 4')	wetland	B	PEM	n/a	n/a	n/a	0	0	100	150	n/a	n/a
4	15" cmp	15" plastic, extend outlet 5'		wetland	C	PFO	n/a	n/a	n/a	0	0	25	50	n/a	n/a
6	18" rcp	18" plastic, extend outlet 10'	36" plastic, extend outlet 10'	Intermittent stream	D	R4, Bank	0.069	1	3	80	100		375	3.4	30
7	15" cmp	15" plastic	18" plastic	wetland	E	PSS, PEM	n/a	n/a	n/a	0	0	60	250	n/a	n/a
8	15" cmp	15" plastic, extend inlet 2'	18" plastic, extend inlet 2'	Intermittent stream	F	R4, Bank	0.149	1	3	10	8	0	225	4.9	6
9	15" cmp	15" plastic		wetland	G	PSS	n/a	n/a	n/a	0	0	0	130	n/a	n/a
10	12" cmp	15" plastic		wetland; outlets on bank of Cold River	H	PSS, PEM	n/a	n/a	n/a	0	0	0	300	n/a	0
11	24" cmp	24" plastic	30" plastic	Intermittent stream; outlets on bank of Cold River	I	R4, R3, Bank	0.055	1	3	0	0	0	130	3.0	0
13	15" cmp	15" plastic, stone at outlet		wetland; outlets on bank of Cold River	J	PUB/EM, Bank	n/a	n/a	n/a	0	25	0	180	n/a	5
14	15" cmp	15" plastic		carries runoff only; outlets on bank of Cold River	K	Bank	n/a	n/a	n/a	0	25	0	110	n/a	5
15	15" cmp	15" plastic	18" plastic	wetland	L	PEM	n/a	n/a	n/a	0	0	0	130	n/a	n/a
16	15" cmp	15" plastic, stone at outlet		carries runoff only; outlets on bank of Cold River	M	Bank	n/a	n/a	n/a	0	25	0	100	n/a	5
17	15" cmp	15" plastic, stone at outlet		wetland	N	PFO	n/a	n/a	n/a	0	0	25	55	n/a	n/a

Pipe #	Pipe type/size	Originally Proposed	Proposed Upsize* (Self-Mitigation)	Location	Impact Location (see sketches)	Feature impacted	Watershed (sq mi)	Tier based on watershed	Tier based on Des. River	Permanent channel impacts (sq ft)	Permanent bank impacts (sq ft)	Permanent wetland impacts (sq ft)	Temp impacts (sq ft)	Est Bankfull Width (ft)	Linear Feet of Perm Bank/Channel Impacts
18	15" cmp	15" plastic, stone at outlet		wetland; outlets on bank of Cold River	O	PEM, Bank	n/a	n/a	n/a	0	25	0	115	n/a	5
19	2'x3' granite box with 30" cmp	Replace entire structure with 36"plastic pipe	36" plastic	Intermittent stream	P	R4, PFO	0.045	1	3	80	50	70	285	2.7	30
21	12" cmp	15" plastic, stone at outlet		carries runoff only; outlets on bank of Cold River	Q	Bank	n/a	n/a	n/a	0	25	0	70	n/a	5
22	12" cmp	15" plastic, stone at outlet		carries runoff only; outlets on bank of Cold River	R	Bank	n/a	n/a	n/a	0	25	0	70	n/a	5
23	15" cmp	15" plastic, extend inlet 2'	18" plastic, extend inlet 2'	carries runoff only; outlets on bank of Cold River	S	Bank	n/a	n/a	n/a	0	0	0	70	n/a	n/a
24	12" cmp	15" plastic, extend inlet 5'	18" plastic, extend inlet 5'	wetland	T	PEM	n/a	n/a	n/a	0	0	60	220	n/a	n/a
27	18" cmp	18" plastic, extend inlet 5'	24" plastic, extend inlet 5'	Intermittent Stream	W	R4, Bank	0.041	1	3	40	105	0	240	2.6	35
30	15" cmp	15" plastic, extend outlet 5'	24" plastic, extend outlet 5'	Intermittent Stream	X	R4, Bank	0.167	1	3	25	80	0	160	5.2	15
31	15" cmp	15" plastic, extend outlet 5'	18" plastic, extend outlet 5'	wetland; outlets on bank of Cold River	Y	PEM, Bank	n/a	n/a	n/a	0	100	0	330	n/a	20
32	18" cmp	18" plastic		carries runoff only; outlets on bank of Cold River	Z	Bank	n/a	n/a	n/a	0	0	0	65	n/a	n/a

Pipe #	Pipe type/size	Originally Proposed	Proposed Upsize* (Self-Mitigation)	Location	Impact Location (see sketches)	Feature impacted	Watershed (sq mi)	Tier based on watershed	Tier based on Des. River	Permanent channel impacts (sq ft)	Permanent bank impacts (sq ft)	Permanent wetland impacts (sq ft)	Temp impacts (sq ft)	Est Bankfull Width (ft)	Linear Feet of Perm Bank/Channel Impacts
33	15" cmp	15" plastic		carries runoff only; outlets on bank of Cold River	AA	Bank	n/a	n/a	n/a	0	0	0	65	n/a	n/a
34	12" cmp	15" plastic, extend outlet 5'	24" plastic, extend outlet 5'	Wetland, Intermittent Stream	BB	R4, Bank, PEM	0.070	1	3	20	0	60	130	3.4	5
35	15" cmp	15" plastic		wetland	CC	PEM	n/a	n/a	n/a	0	0	0	65	n/a	n/a
36	15" cmp	15" plastic		wetland	DD	PFO	n/a	n/a	n/a	0	0	0	65	n/a	n/a
37	15" cmp	15" plastic	18" plastic	Intermittent Stream, outlets on bank of Cold River	EE	R4, Bank	0.100	1	3	0	0	0	165	4.0	0
38	15" cmp	15" plastic		carries runoff only; outlets on bank of Cold River	FF	Bank	n/a	n/a	n/a	0	0	0	80	n/a	n/a
									TOTALS:	255 sq ft Perm channel	618 sq ft Perm bank	400 sq ft Perm wetland	4580 sq ft Temp		176 LF Perm bank/channel

Color Key:
- Stream Crossing
- Permanent LF bank and/or channel impacts

Note: There is no Pipe 2, 5, 12, 20, 25, 26, 28, or 29

*Proposed Upsize: if blank, the orginally proposed culvert size is still proposed.

5. Army Corps of Engineers Secondary Impacts Checklist

U.S. Army Corps of Engineers
New Hampshire Programmatic General Permit (PGP)
Appendix B - Corps Secondary Impacts Checklist
(for inland wetland/waterway fill projects in New Hampshire)

1. Attach any explanations to this checklist. Lack of information could delay a Corps permit determination.
2. All references to "work" include all work associated with the project construction and operation. Work includes filling, clearing, flooding, draining, excavation, dozing, stumping, etc.
3. See PGP, GC 5 regarding single and complete projects.
4. Contact the Corps at (978) 318-8832 with any questions.

1. Impaired Waters	Yes	No
1.1 Will any work occur within 1 mile upstream in the watershed of an impaired water? See http://des.nh.gov/organization/divisions/water/wmb/section401/impaired_waters.htm to determine if there is an impaired water in the vicinity of your work area.*	x	
2. Wetlands	Yes	No
2.1 Are there are streams, brooks, rivers, ponds, or lakes within 200 feet of any proposed work?	x	
2.2 Are there proposed impacts to SAS, shellfish beds, special wetlands and vernal pools (see PGP, GC 26 and Appendix A)? Applicants may obtain information from the NH Department of Resources and Economic Development Natural Heritage Bureau (NHB) website, www.nhnaturalheritage.org, specifically the book Natural Community Systems of New Hampshire.		x
2.3 If wetland crossings are proposed, are they adequately designed to maintain hydrology, sediment transport & wildlife passage?	x	
2.4 Would the project remove part or all of a riparian buffer? (Riparian buffers are lands adjacent to streams where vegetation is strongly influenced by the presence of water. They are often thin lines of vegetation containing native grasses, flowers, shrubs and/or trees that line the stream banks. They are also called vegetated buffer zones.)		x
2.5 The overall project site is more than 40 acres.		x
2.6 What is the size of the existing impervious surface area?	N/A - culvert project	
2.7 What is the size of the proposed impervious surface area?	No new impervious	
2.8 What is the % of the impervious area (new and existing) to the overall project site?	N/A - culvert project	
3. Wildlife	Yes	No
3.1 Has the NHB determined that there are known occurrences of rare species, exemplary natural communities, Federal and State threatened and endangered species and habitat, in the vicinity of the proposed project? (All projects require a NHB determination.)		x
3.2 Would work occur in any area identified as either "Highest Ranked Habitat in N.H." or "Highest Ranked Habitat in Ecological Region"? (These areas are colored magenta and green, respectively, on NH Fish and Game's map, "2010 Highest Ranked Wildlife Habitat by Ecological Condition.") Map information can be found at: • PDF: www.wildlife.state.nh.us/Wildlife/Wildlife_Plan/highest_ranking_habitat.htm. • Data Mapper: www.granit.unh.edu. • GIS: www.granit.unh.edu/data/downloadfreedata/category/databycategory.html.		x
3.3 Would the project impact more than 20 acres of an undeveloped land block (upland, wetland/waterway) on the entire project site and/or on an adjoining property(s)?		x
3.4 Does the project propose more than a 10-lot residential subdivision, or a commercial or industrial development?		x
3.5 Are stream crossings designed in accordance with the PGP, GC 21?	x	

4. Flooding/Floodplain Values	Yes	No
4.1 Is the proposed project within the 100-year floodplain of an adjacent river or stream?	x	
4.2 If 4.1 is yes, will compensatory flood storage be provided if the project results in a loss of flood storage?	N/A	
5. Historic/Archaeological Resources		
If a minor or major impact project, has a copy of the Request for Project Review (RPR) Form (www.nh.gov/nhdhr/review) been sent to the NH Division of Historical Resources as required on Page 5 of the PGP?	N/A	

*Although this checklist utilizes state information, its submittal to the Corps is a Federal requirement.

6. Rare, Threatened & Endangered Species

New Hampshire Natural Heritage Bureau

To: Kevin Belanger
19 Base Hill Rd
Swanzey, NH 03446

Date: 12/17/2015

From: NH Natural Heritage Bureau

Re: Review by NH Natural Heritage Bureau of request dated 12/17/2015

NHB File ID: NHB15-3892 Applicant: Kevin Belanger

Location: Tax Map(s)/Lot(s):
Acworth

Project Description: Replace failed/failing pipes.

The NH Natural Heritage database has been checked for records of rare species and exemplary natural communities near the area mapped below. The species considered include those listed as Threatened or Endangered by either the state of New Hampshire or the federal government. We currently have no recorded occurrences for sensitive species near this project area.

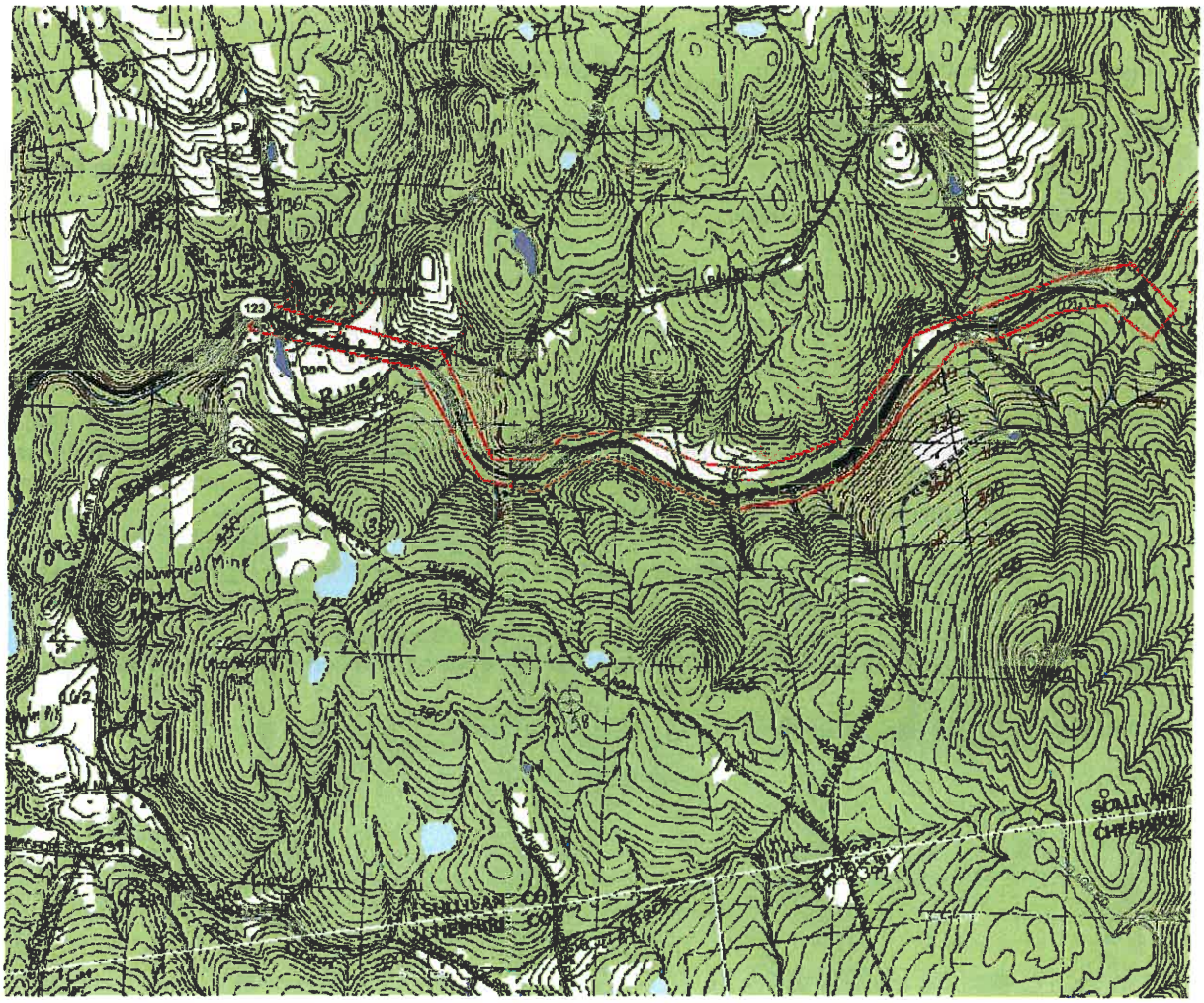
A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed for certain species. An on-site survey would provide better information on what species and communities are indeed present.

This report is valid through 12/16/2016.

Department of Resources and Economic Development
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DRED/NHB
172 Pembroke Road
Concord NH 03301

MAP OF PROJECT BOUNDARIES FOR NHB FILE ID: NHB15-3892



Department of Resources and Economic Development
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DRED/NHB
172 Pembroke Road
Concord NH 03301

New Hampshire Natural Heritage Bureau

To: Kevin Belanger
19 Base Hill Rd
Swanzey, NH 03446

Date: 1/25/2016

From: NH Natural Heritage Bureau

Re: Review by NH Natural Heritage Bureau of request dated 1/25/2016
NHB File ID: NHB16-0223 **Applicant:** Kevin Belanger
Location: Tax Map(s)/Lot(s):
Acworth, Langdon, Alstead
Project Description: NHDOT pipe replacement project

The NH Natural Heritage database has been checked for records of rare species and exemplary natural communities near the area mapped below. The species considered include those listed as Threatened or Endangered by either the state of New Hampshire or the federal government. We currently have no recorded occurrences for sensitive species near this project area.

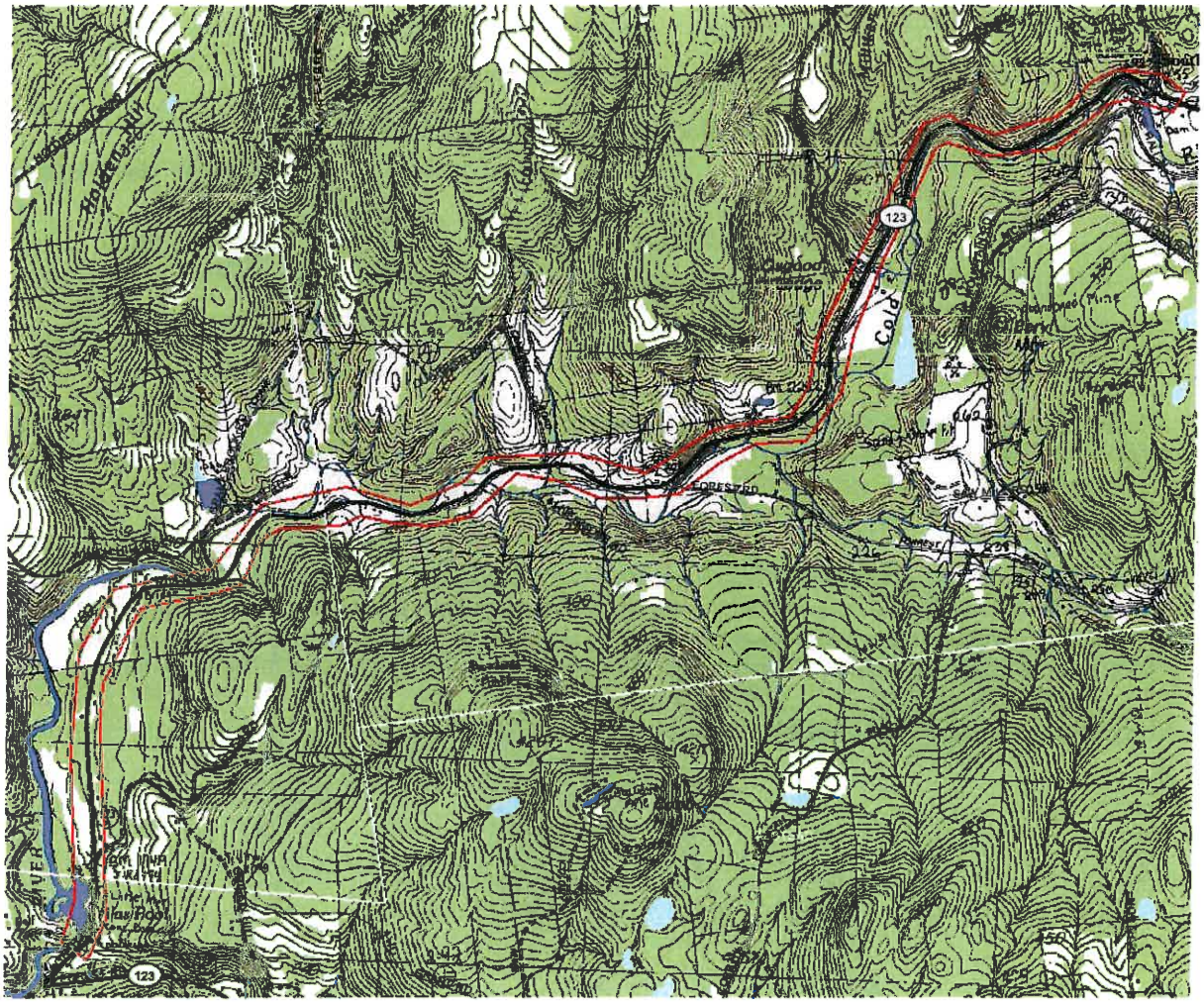
A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed for certain species. An on-site survey would provide better information on what species and communities are indeed present.

This report is valid through 1/24/2017.

Department of Resources and Economic Development
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DRED/NHB
172 Pembroke Road
Concord NH 03301

MAP OF PROJECT BOUNDARIES FOR NHB FILE ID: NHB16-0223



Department of Resources and Economic Development
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DRED/NHB
172 Pembroke Road
Concord NH 03301

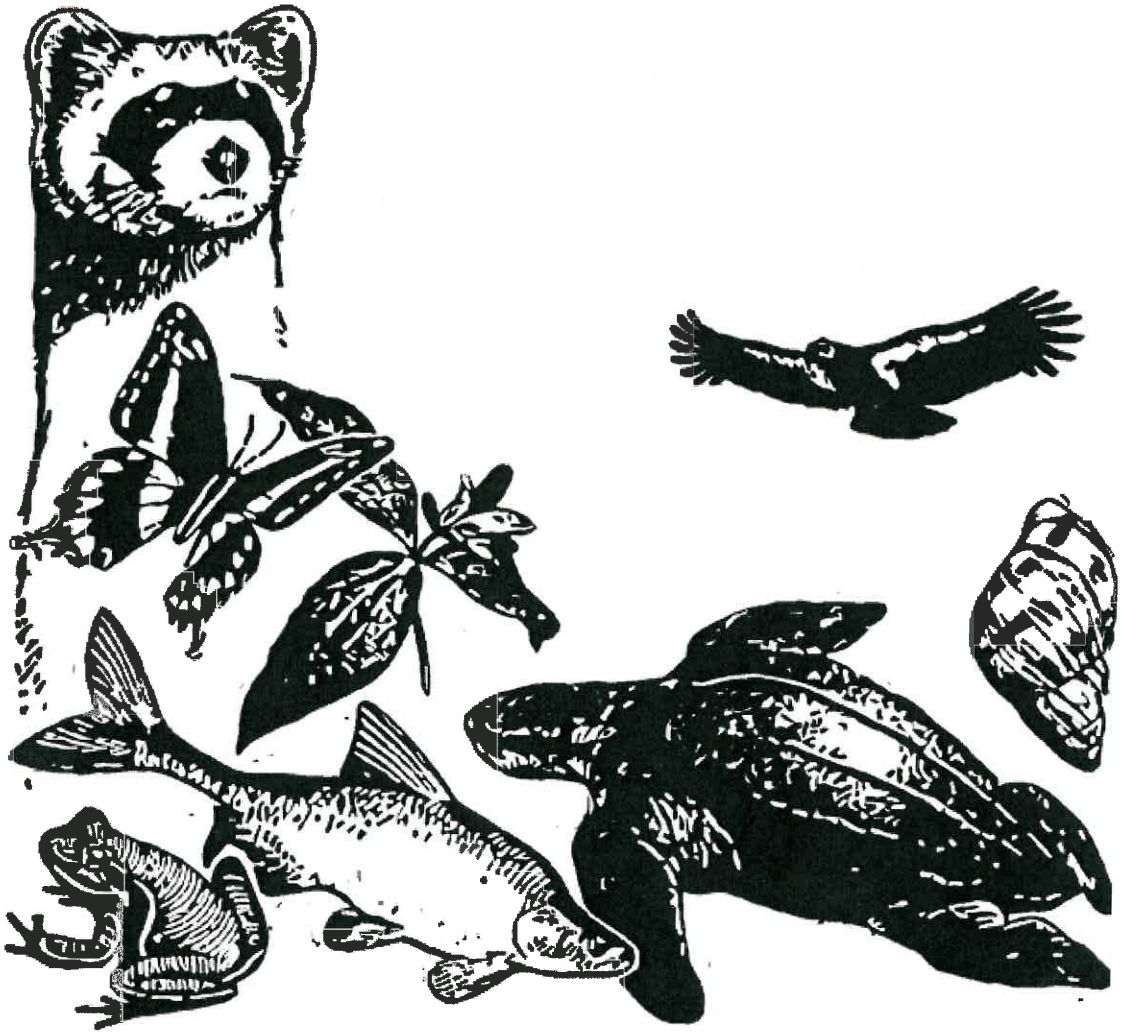
U.S. Fish & Wildlife Service

NHDOT District 4, M401, NH Route 123A

IPaC Trust Resource Report

Generated January 15, 2016 08:50 AM MST, IPaC v2.3.2

This report is for informational purposes only and should not be used for planning or analyzing project level impacts. For project reviews that require U.S. Fish & Wildlife Service review or concurrence, please return to the IPaC website and request an official species list from the Regulatory Documents page.



IPaC - Information for Planning and Conservation (http://ecos.fws.gov/ipac/): A project planning tool to help streamline the U.S. Fish & Wildlife Service environmental review process.

US Fish & Wildlife Service

IPaC Trust Resource Report

NAME

NHDOT District 4, M401, NH Route 123A

LOCATION

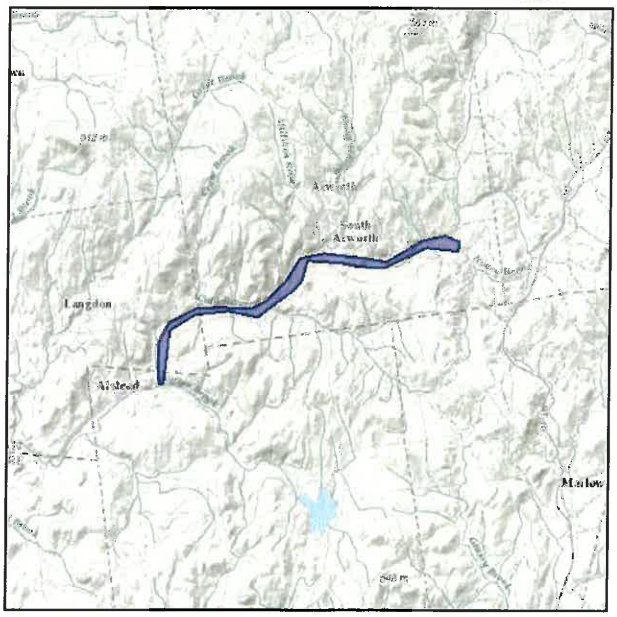
Cheshire and Sullivan counties, New Hampshire

DESCRIPTION

Replacement of 32 culverts along NH Route 123A in the towns of Alstead, Langdon, and Acworth.

IPAC LINK

http://ecos.fws.gov/ipac/project/N64OJ-WM7GB-CZZDS-UWKID-LI3IW4



U.S. Fish & Wildlife Contact Information

Trust resources in this location are managed by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

Endangered Species

Proposed, candidate, threatened, and endangered species are managed by the Endangered Species Program of the U.S. Fish & Wildlife Service.

This USFWS trust resource report is for informational purposes only and should not be used for planning or analyzing project level impacts.

For project evaluations that require FWS concurrence/review, please return to the IPaC website and request an official species list from the Regulatory Documents section.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency.

A letter from the local office and a species list which fulfills this requirement can only be obtained by requesting an official species list from the Regulatory Documents section in IPaC.

The list of species below are those that may occur or could potentially be affected by activities in this location:

Flowering Plants

Northeastern Bulrush Scirpus ancistrochaetus — Endangered

CRITICAL HABITAT
No critical habitat has been designated for this species.

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=Q21H

Mammals

Northern Long-eared Bat Myotis septentrionalis — Threatened

CRITICAL HABITAT
No critical habitat has been designated for this species.

https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=A0JE

Critical Habitats

There are no critical habitats in this location

Migratory Birds

Birds are protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act.

Any activity which results in the take of migratory birds or eagles is prohibited unless authorized by the U.S. Fish and Wildlife Service (1). There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures.

Additional information can be found using the following links:

- Birds of Conservation Concern
  http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Conservation measures for birds
  http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Year-round bird occurrence data
  http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/akn-histogram-tools.php

The following species of migratory birds could potentially be affected by activities in this location:

American Bittern Botaurus lentiginosus — Bird of conservation concern
Season: Breeding
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0F3

Bald Eagle Haliaeetus leucocephalus — Bird of conservation concern
Year-round
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B008

Black-billed Cuckoo Coccyzus erythropthalmus — Bird of conservation concern
Season: Breeding
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HI

Blue-winged Warbler Vermivora pinus — Bird of conservation concern
Season: Breeding

Canada Warbler Wilsonia canadensis — Bird of conservation concern
Season: Breeding

Olive-sided Flycatcher Contopus cooperi — Bird of conservation concern
Season: Breeding
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0AN

Peregrine Falcon Falco peregrinus — Bird of conservation concern
Season: Breeding
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0FU

Pied-billed Grebe Podilymbus podiceps — Bird of conservation concern
Season: Breeding

Prairie Warbler Dendroica discolor — Bird of conservation concern
Season: Breeding

Short-eared Owl Asio flammeus — Bird of conservation concern
Season: Wintering
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HD

Willow Flycatcher Empidonax traillii — Bird of conservation concern
Season: Breeding
https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0F6

Wood Thrush Hylocichla mustelina — Bird of conservation concern
Season: Breeding

Refuges

Any activity proposed on National Wildlife Refuge lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuges in this location

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal Statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

DATA LIMITATIONS

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

DATA EXCLUSIONS

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

DATA PRECAUTIONS

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

This location overlaps all or part of the following wetlands:

Freshwater Emergent Wetland

PEM1E	2.29 acres

Freshwater Pond

PUBHh	5.88 acres
PUBFb	2.27 acres
PUBFh	0.0982 acre

Riverine

R3UBH	17.8 acres

7. Wetland Impacts

NH Route 123A, Alstead-Langdon-Acworth
M401

PIPE NUMBER	WETLAND DESIGNATION	USFWS WETLAND CLASSIFICATION	LOCATION	AREA IN SQUARE FEET		
				N.H.W.B (NON-WETLAND)	NHWB & ACOE WETLAND	TEMPORARY IMPACTS
1	1	BANK	A1	25		
1	1	BANK	A2			200
2	Number not used					
3	2	PEM1E	B1		30	
3	2	PEM1E	B2		10	
3	2	PEM1E	B3		30	
3	2	PEM1E	B4		30	
3	2	PEM1E	B5			100
3	2	PEM1E	B6			50
4	3	PFO1B	C1		25	
4	3	PFO1B	C2			50
5	Number not used					
6	4	R4SB6	D1		80	
6	1	BANK	D2	100		
6	4	R4SB6/BANK	D3			175
6	4	R4SB6/BANK	D4			200
7	5	PSS1E	E1		60	
7	5	PSS1E	E2			50
7	2	PEM1E	E3			200
8	4	R4SB6	F1		10	
8	1	BANK	F2	8		
8	4	R4SB6/BANK	F3			75
8	4	R4SB6/BANK	F4			150
9	5	PSS1E	G1			80
9	5	PSS1E	G2			50
10	2	PEM1Ed	H1			100
10	5	PSS1E	H2			200

NH Route 123A, Alstead-Langdon-Acworth

M401

11	4	R4SB6/BANK	I1			70
11	4	R4SB6/BANK	I2			60
12	Number not used					
13	1	BANK	J1	25		
13	1	BANK	J2			60
13	7	PUB/EM1E	J3			120
14	1	BANK	K1			110
14	1	BANK	K2	25		
15	2	PEM1E	L1			60
15	2	PEM1E	L2			70
16	1	BANK	M1	25		
16	1	BANK	M2			100
17	3	PFO1E	N1		25	
17	3	PF01E	N2			55
18	1	BANK	O1	25		
18	1	BANK	O2			65
18	2	PEM1Ed	O3			50
19	4	R4SB3	P1		40	
19	1	BANK	P2	50		
19	4	R4SB3/BANK	P3			85
19	4	R4SB3	P4		40	
19	1	PFO1E	P5		70	
19	4	R4SB3/PFO1E	P6			200
20	Number not used					
21	1	BANK	Q1	25		
21	1	BANK	Q2			70
22	1	BANK	R1	25		
22	1	BANK	R2			70
23	1	BANK	S1			70
24	2	PEM1E	T1		40	
24	2	PEM1E	T2		20	
24	2	PEM1E	T3			120
24	2	PEM1E	T4			100
25	Number not used					

NH Route 123A, Alstead-Langdon-Acworth

M401

26	Number not used					
27	4	R4SB6	W1		40	
27	1	BANK	W2	105		
27	4	R4SB6/BANK	W3			100
27	4	R4SB6/BANK	W4			140
28	Number not used					
29	Number not used					
30	4	R4SB6	X1		25	
30	1	BANK	X2	80		
30	4	R4SB6/BANK	X3			100
30	4	R4SB6/BANK	X4			60
31	1	BANK	Y1	100		
31	1	BANK	Y2			220
31	2	PEM1Ed	Y3			110
32	6	R3UB3/BANK	Z1			65
33	1	BANK	AA1			65
34	4	R4SB6	BB1		20	
34	3	PFO1E	BB2		60	
34	4	R4SB6/BANK	BB3			65
34	2	PEM1Ed	BB4			65
35	2	PEM1Ed	CC1			65
36	3	PFO1E	DD1			65
37	1	BANK	EE1			100
37	4	R4SB6	EE2			65
38	1	BANK	FF1			80

ROUTE 123A

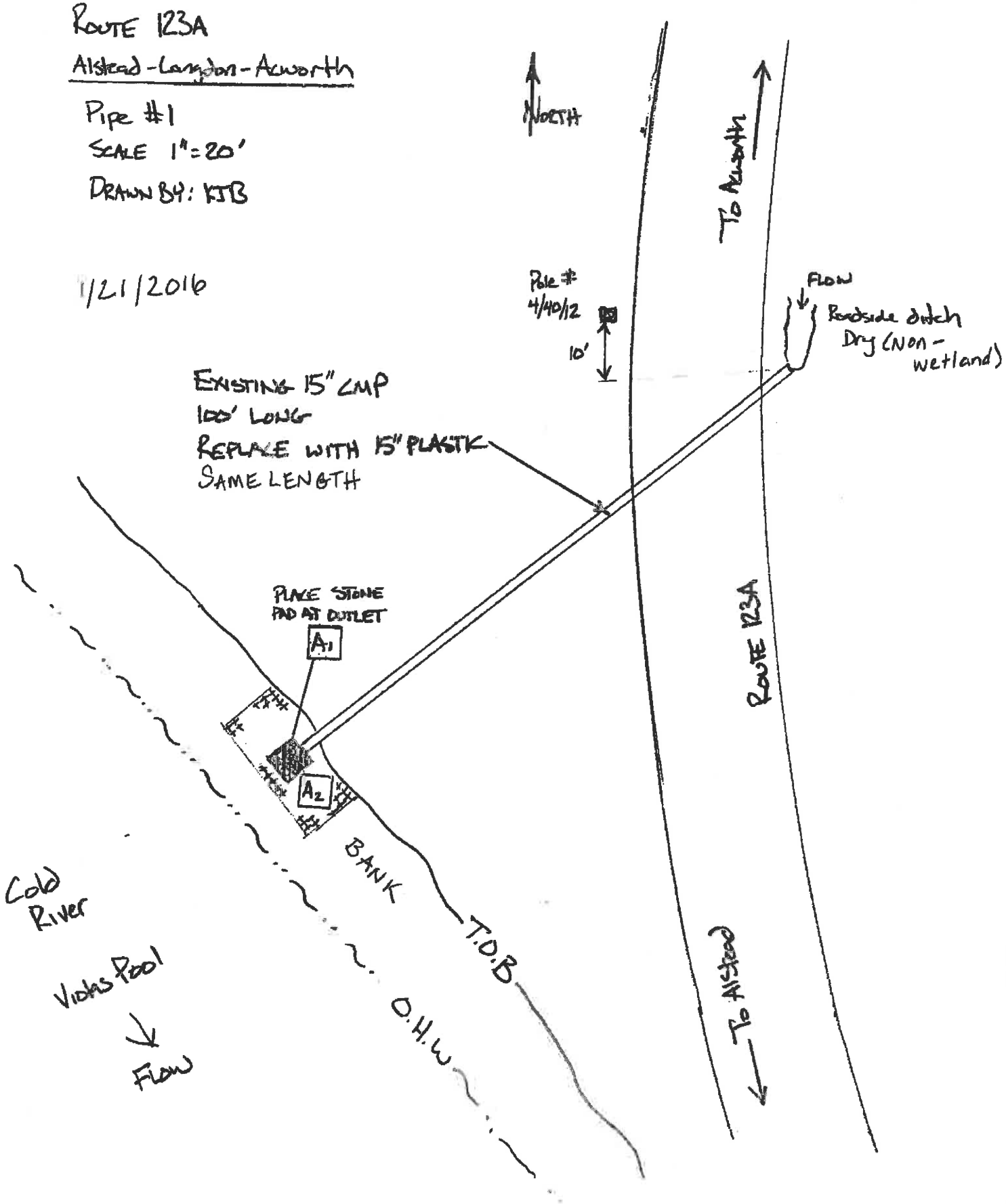
Alstead - Langdon - Acworth

Pipe #1

SCALE 1" = 20'

DRAWN BY: KJB

1/21/2016



ROUTE 123A

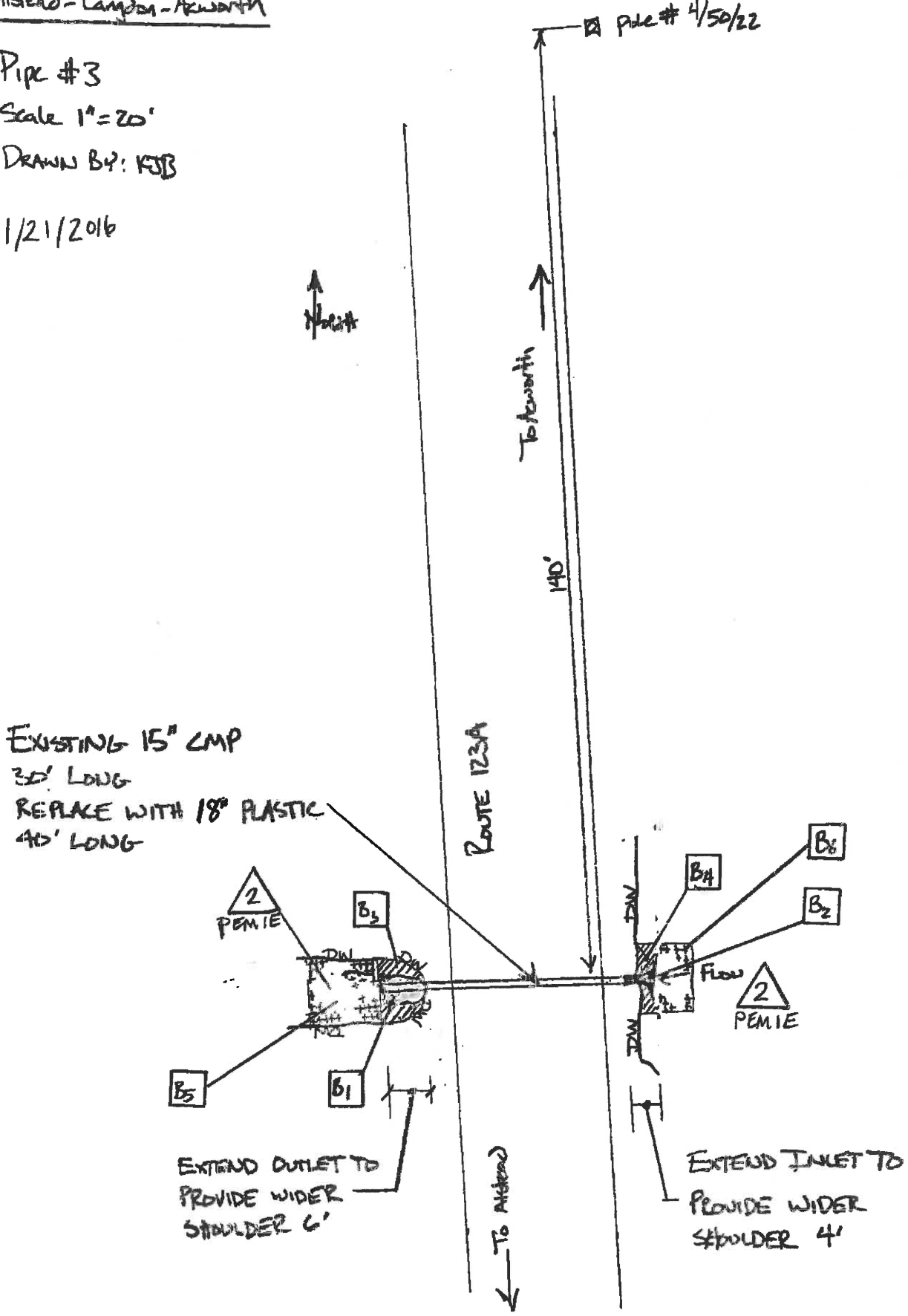
Alstead - Langdon - Acworth

PIPE #3

Scale 1" = 20'

DRAWN BY: KJB

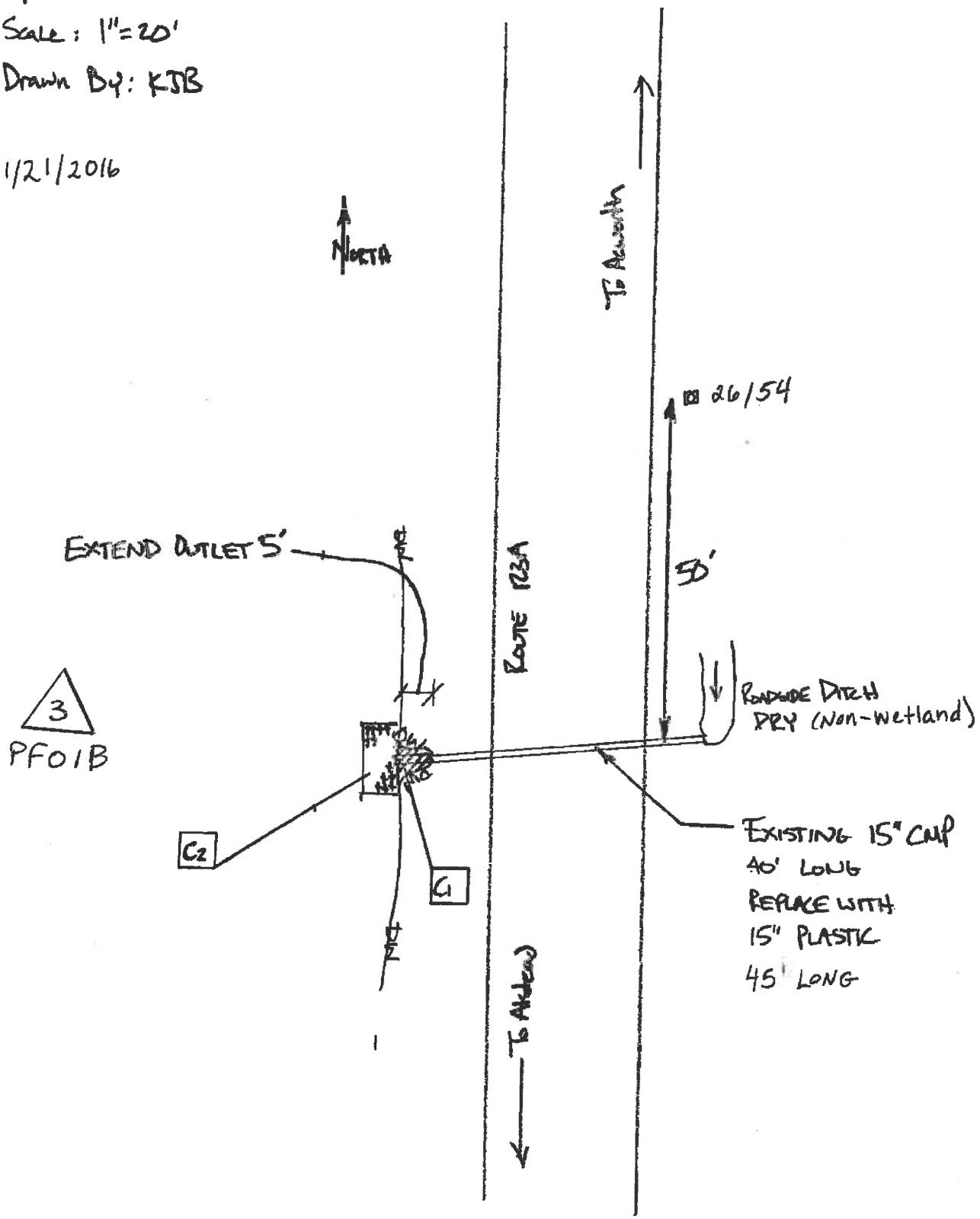
1/21/2016



ROUTE 123A
Alstead - Langdon - Acworth

Pipe #4
Scale: 1"=20'
Drawn By: KJB

1/21/2016



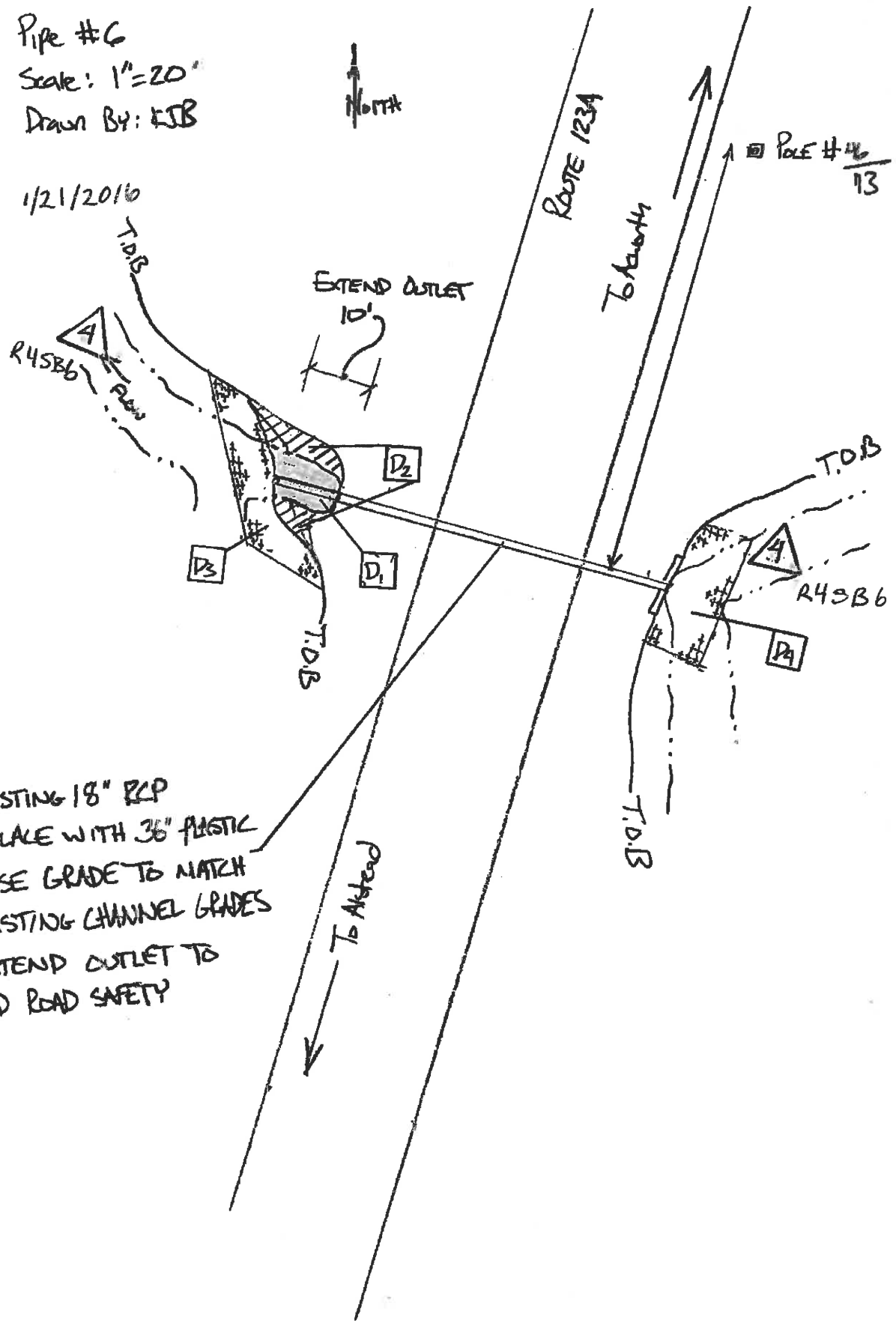
ROUTE 123A

Alstead - Langdon - Acworth

Pipe #6

Scale: 1"=20'

Drawn By: EJB



ROUTE 123A

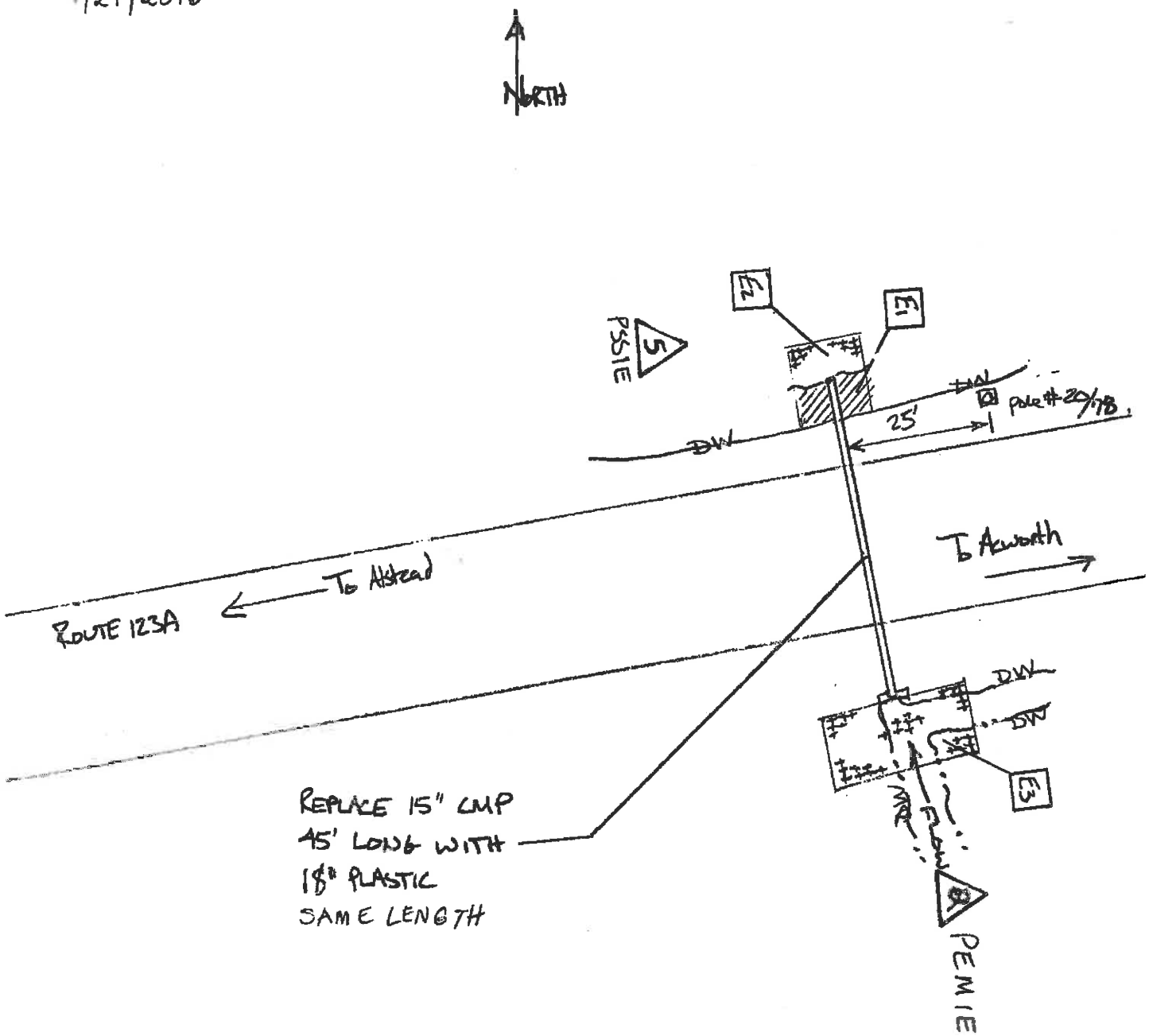
Alstead - Langdon - Acworth

Pipe #7

Scale: 1" = 20'

DRAWN BY: KJB

1/21/2016



Route 123A

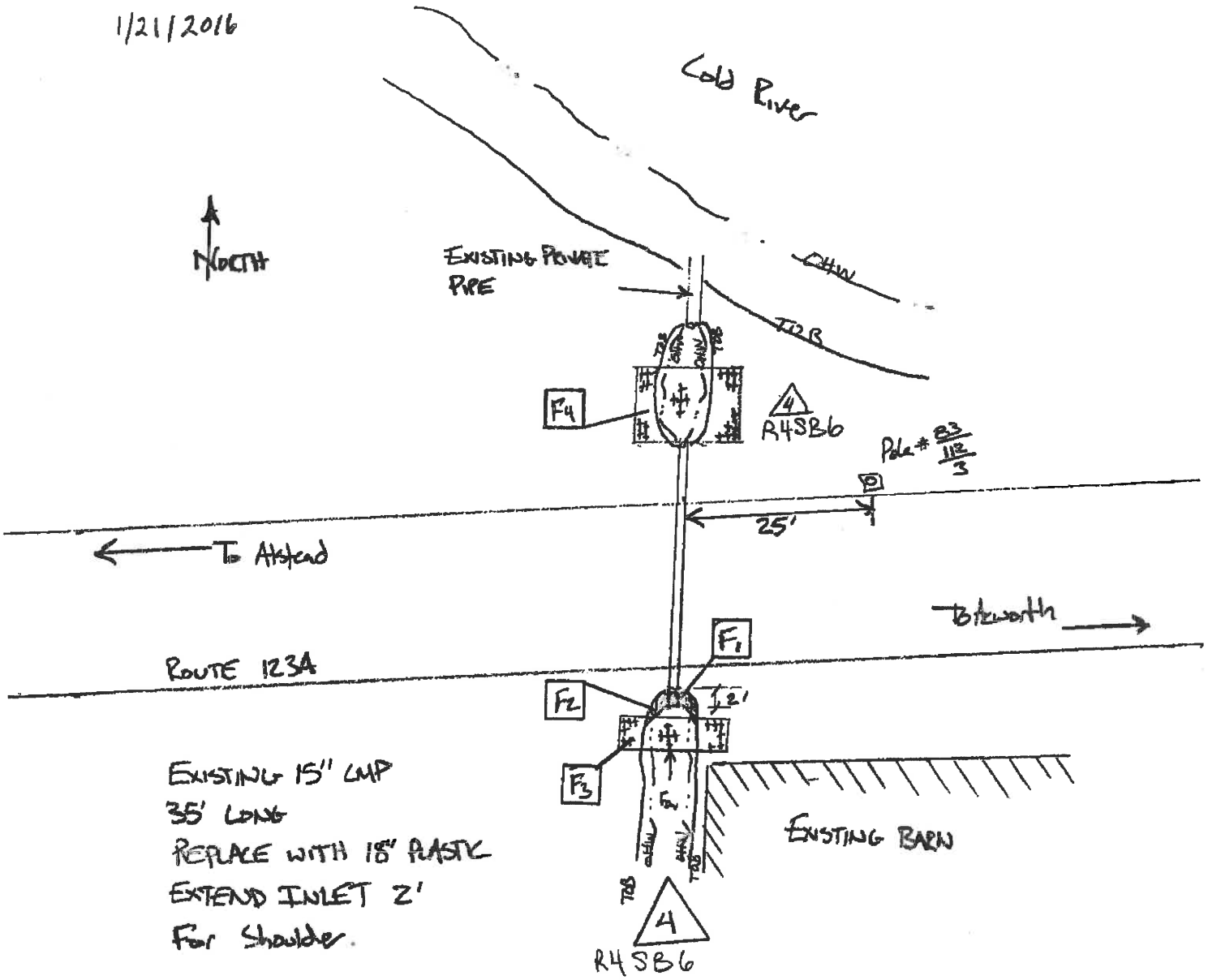
Alstead - Langdon - Acworth

Pipe # 8

Scale 1" = 20'

Drawn By: KJB

1/21/2016



Existing 15" CMP
35' Long
Replace with 18" Plastic
Extend Inlet 2'
For Shoulder.

Route 123A

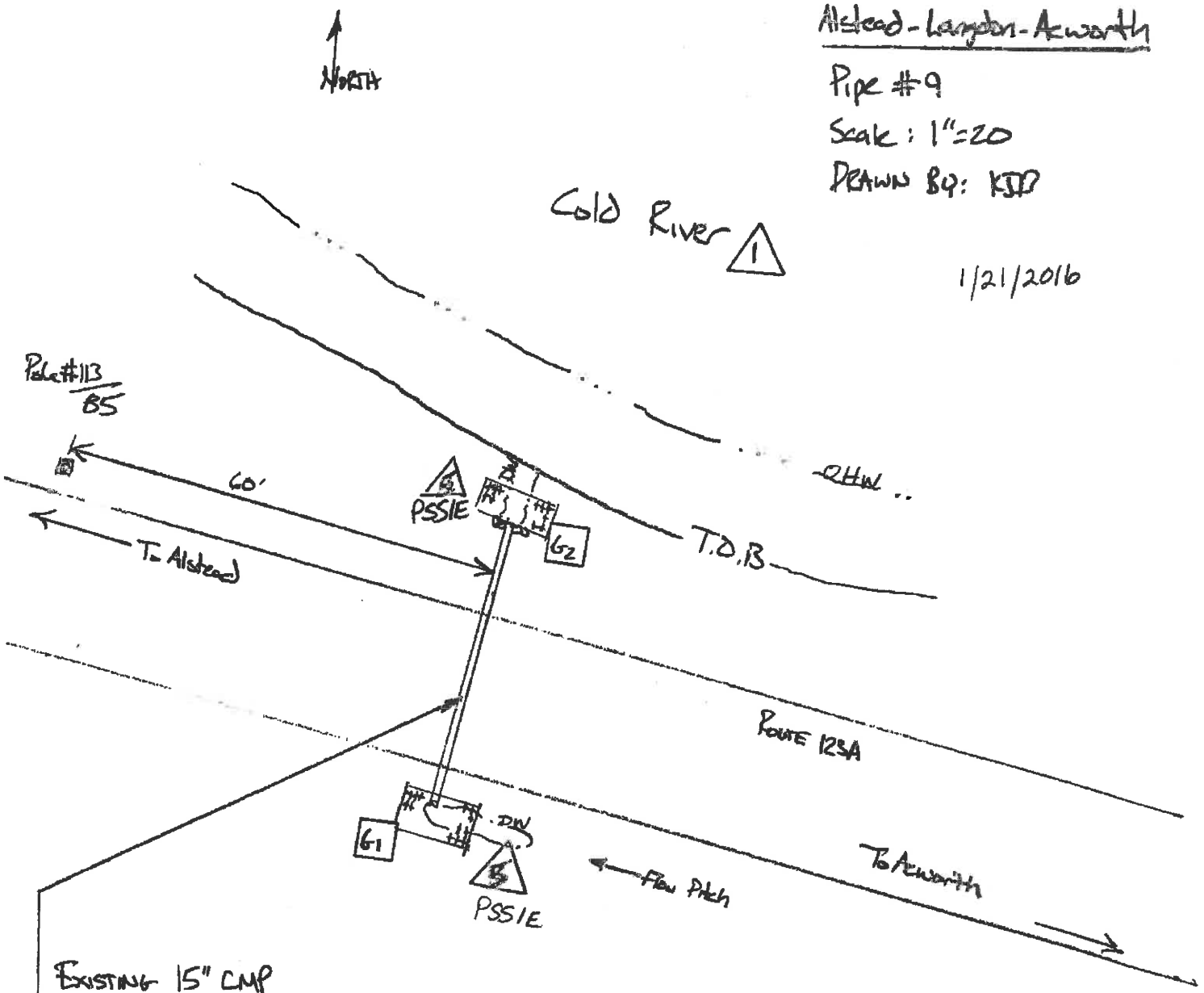
Alstead - Langdon - Acworth

Pipe #9

Scale: 1"=20

Drawn By: KJD

1/21/2016



Existing 15" CMP
40' long
Replace with 15" plastic
same length

ROUTE 123-A

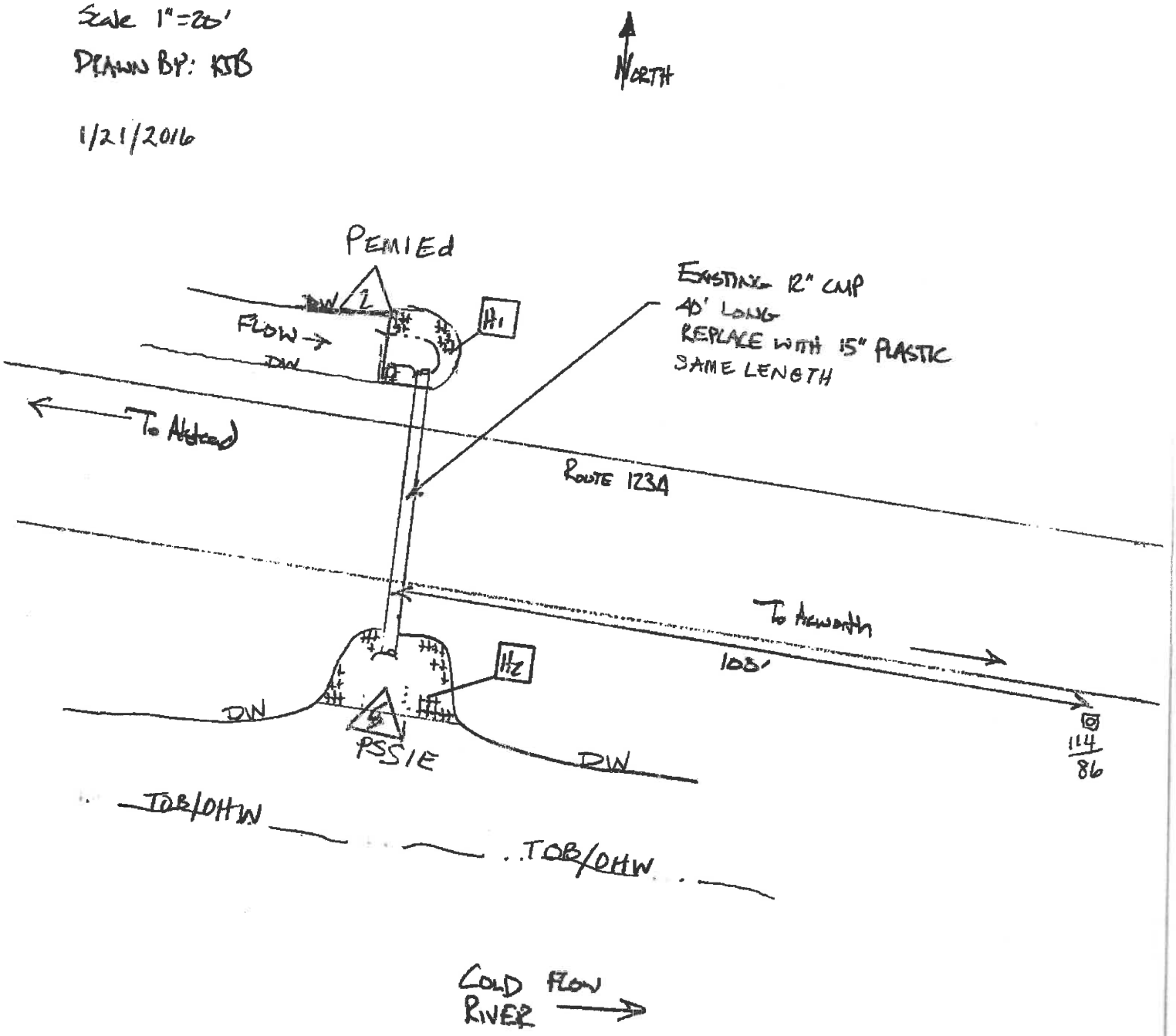
Alstead - Langdon - Acworth

Pipe #10

Scale 1" = 20'

DRAWN BY: KJB

1/21/2016



ROUTE 123A

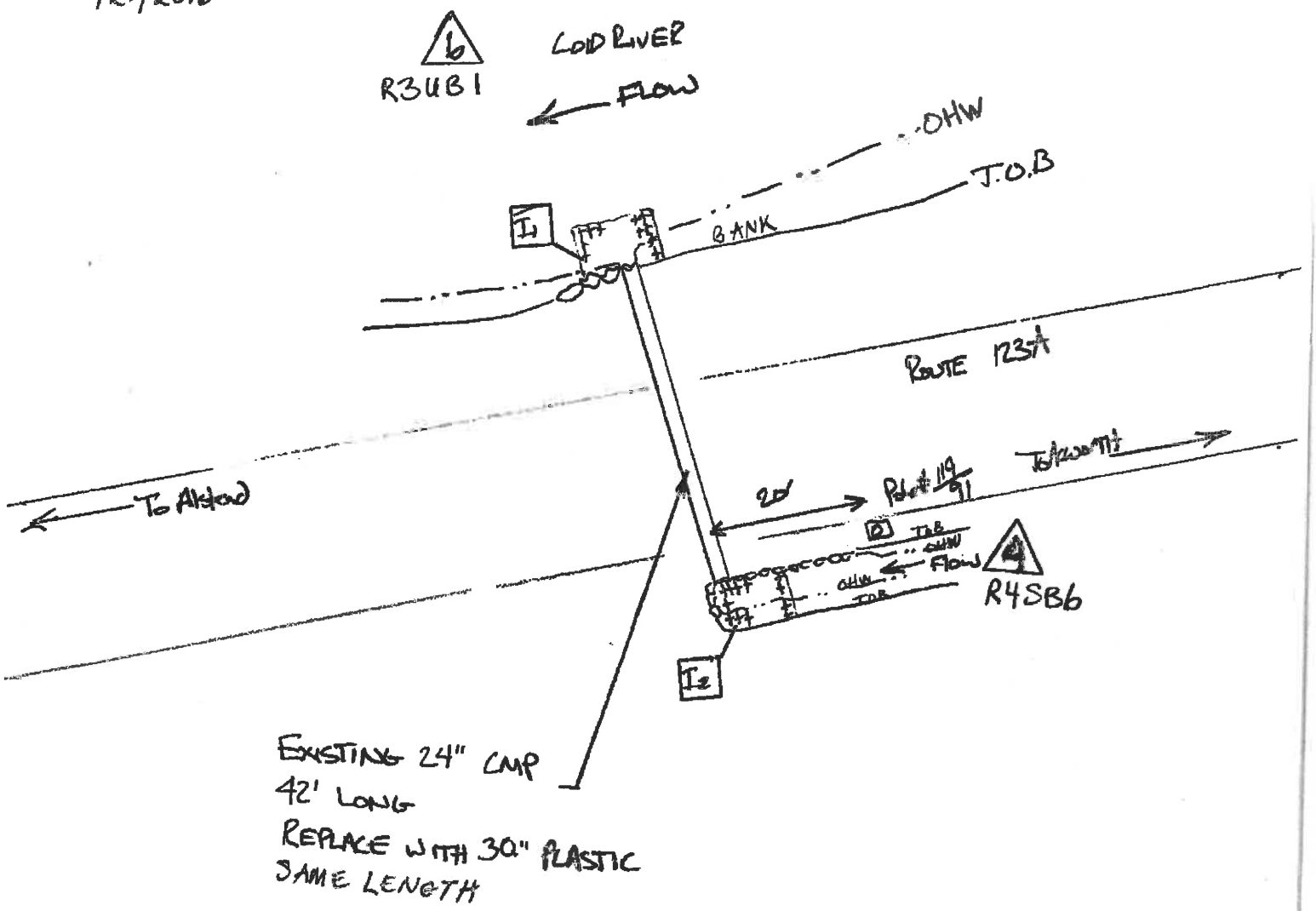
ALSTEAD - LANGDON - ACWORTH

PIPE #11

SCALE: 1"=20'

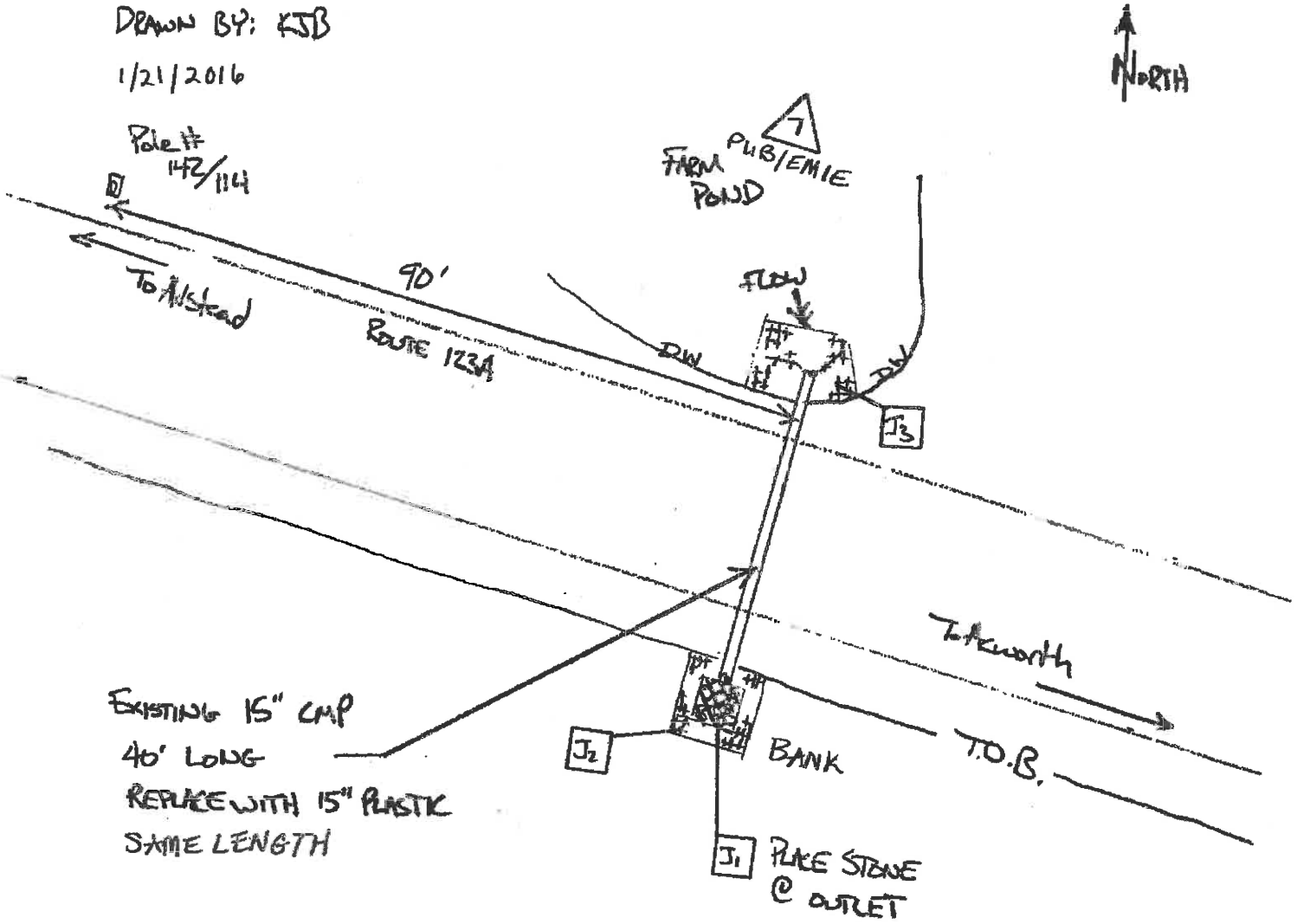
DRAWN BY: KTB

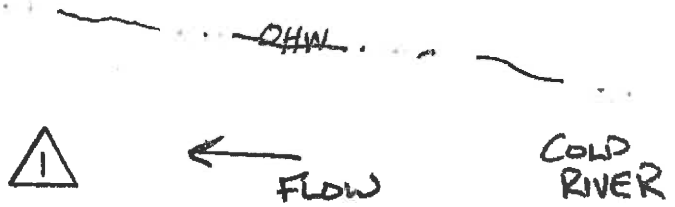
1/21/2016



ROUTE 123A
Alstead - Acworth - Langdon

Pipe #13
Scale: 1" = 20'
DRAWN BY: KJB
1/21/2016





ROUTE 123-A

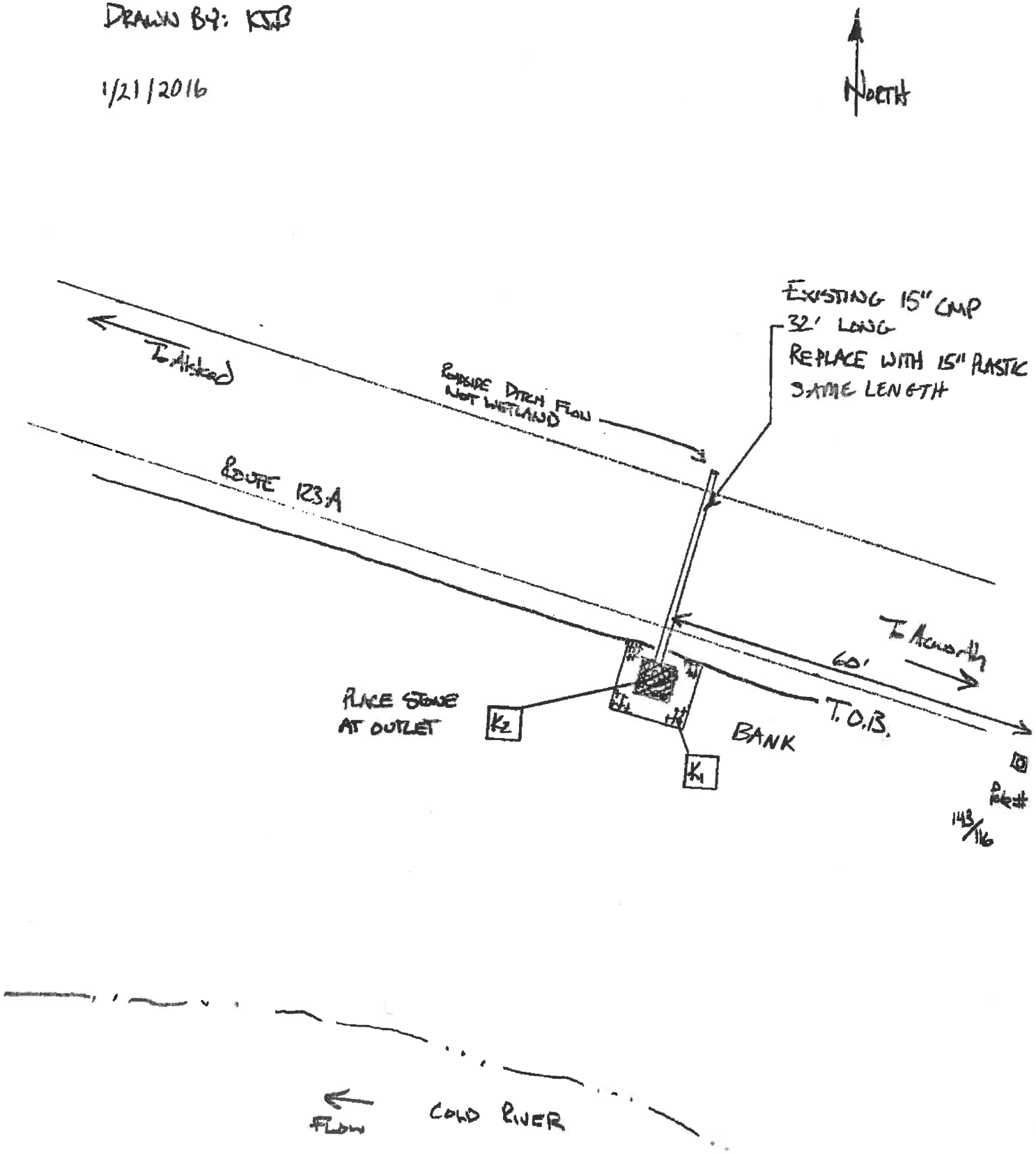
Alstead - Acworth - Langdon

Pipe #14

Scale: 1"=20'

DRAWN BY: KSB

1/21/2016



ROUTE 123A

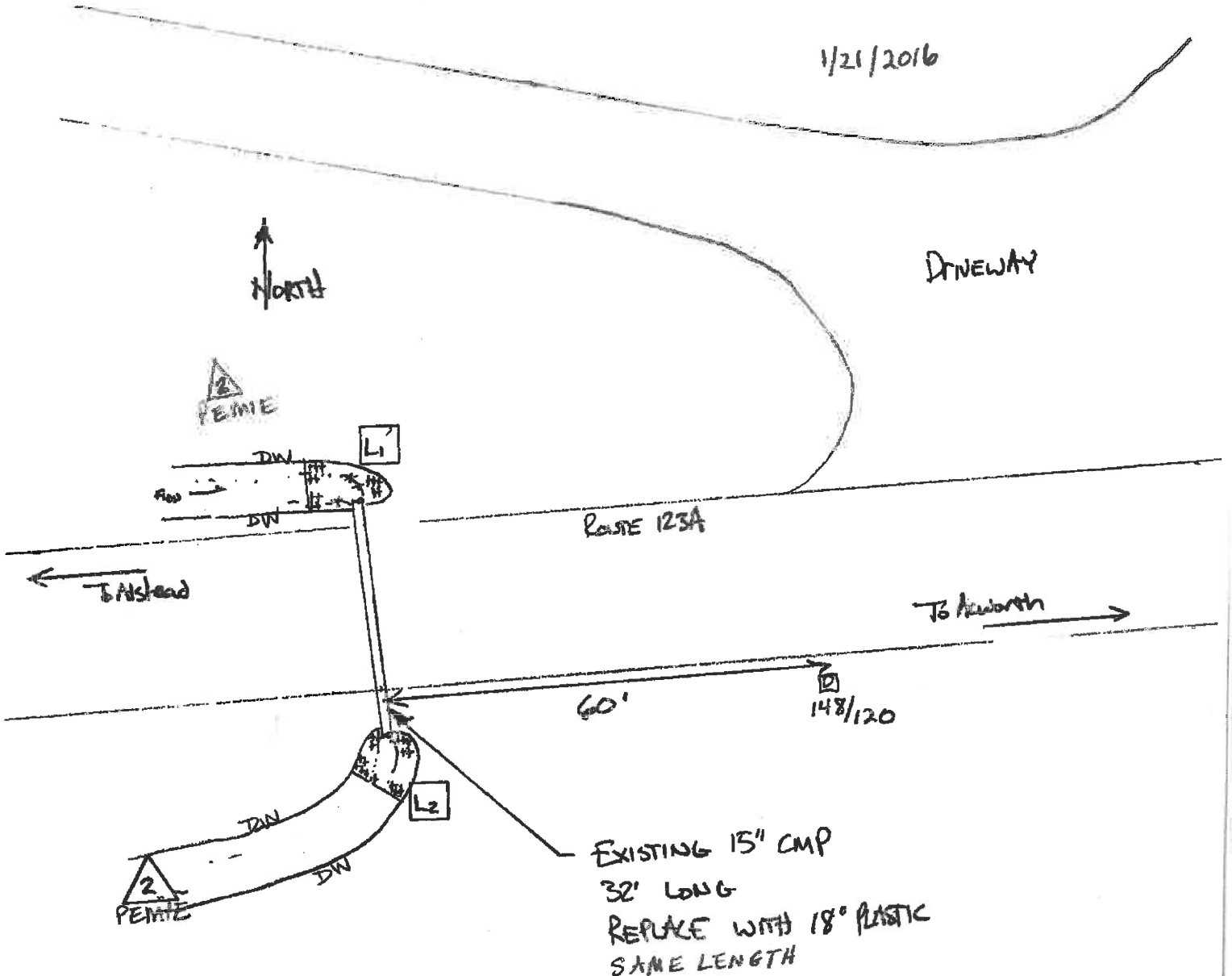
Alstead - Langdon - Acworth

Pipe # 15

Scale: 1" = 20'

DRAWN BY: KJB

1/21/2016



ROUTE 123A

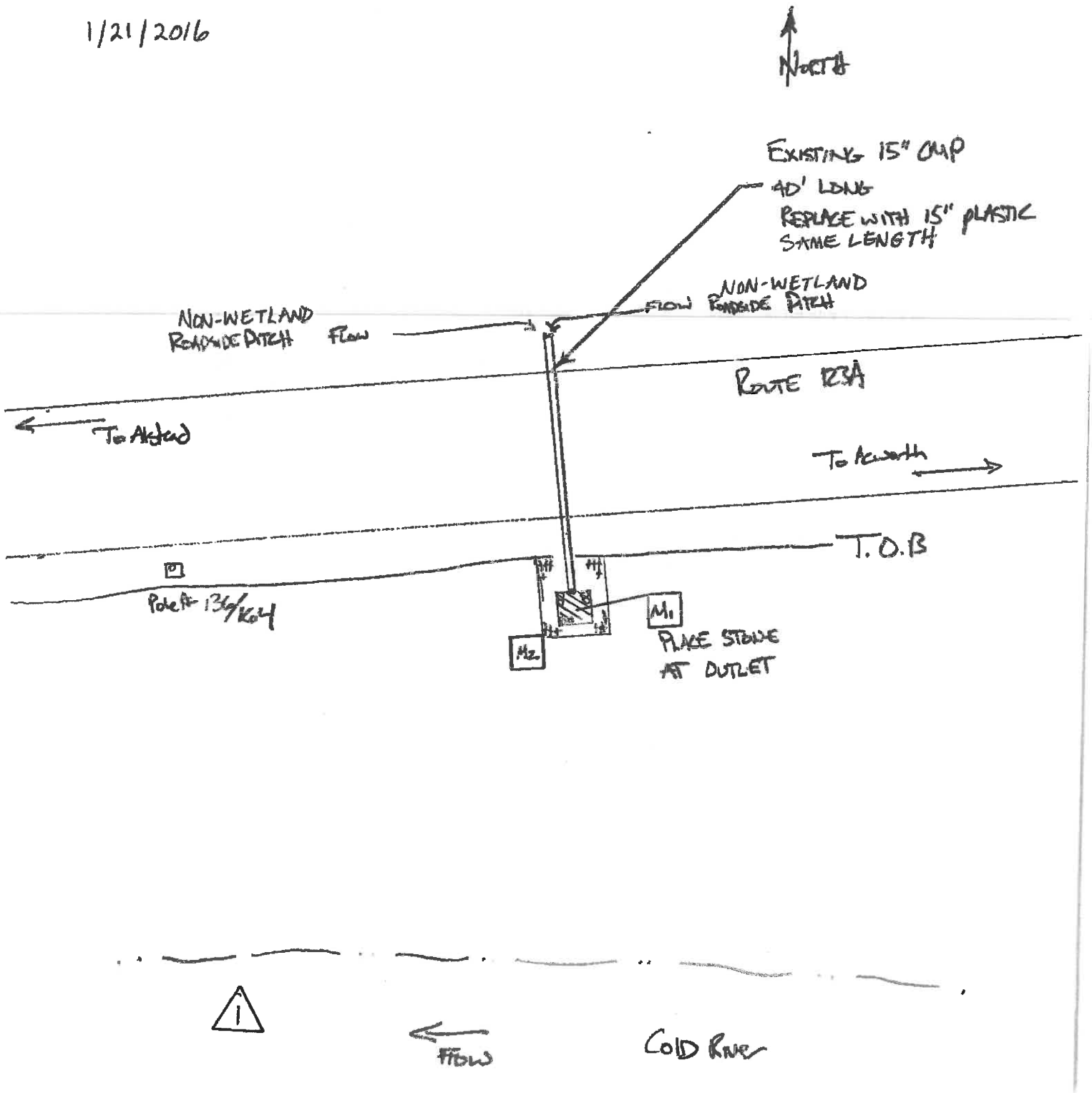
Alstead - Langdon - Acworth

Pipe # 16

Scale: 1" = 20'

Drawn By: KJB

1/21/2016



ROUTE 123A

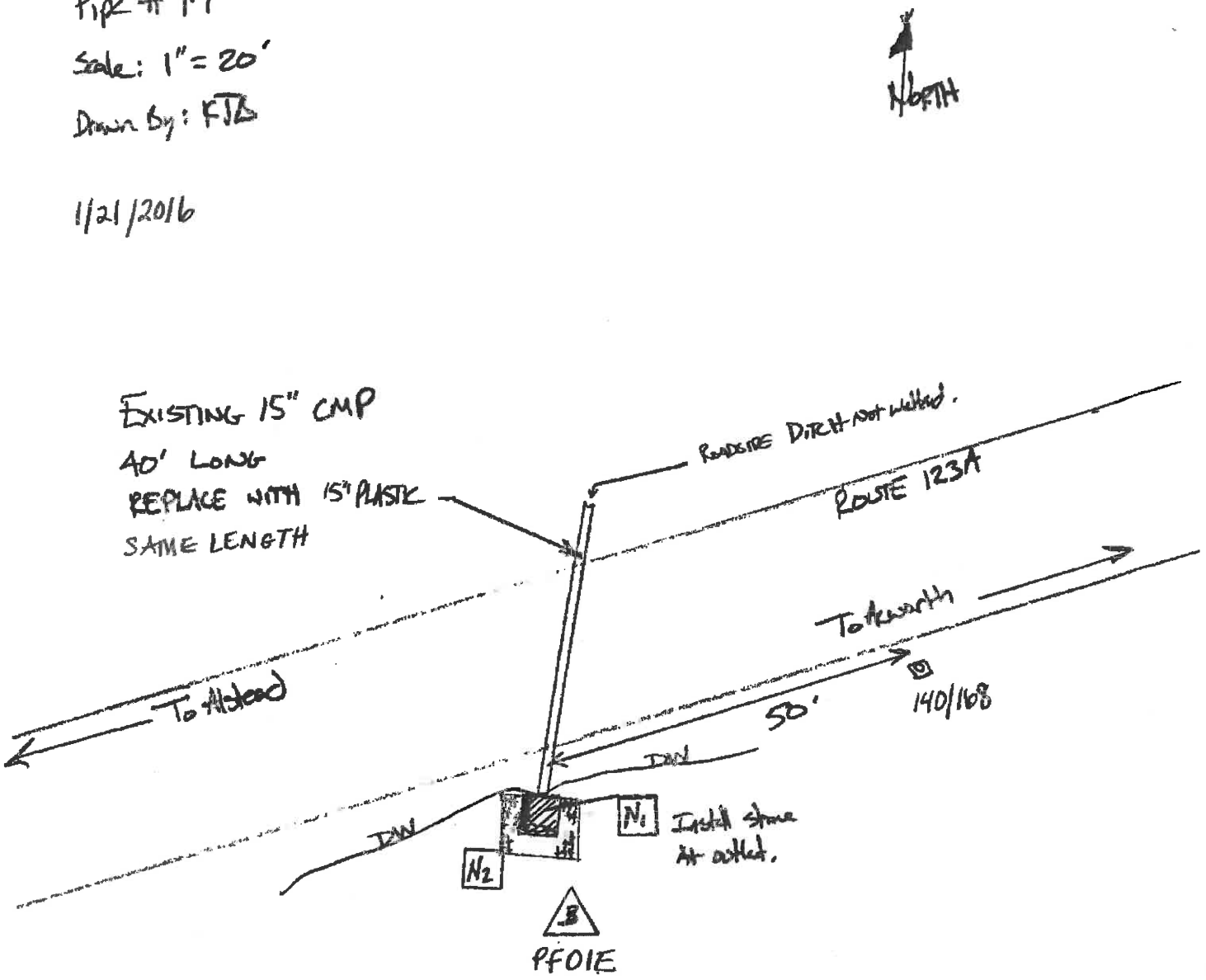
Alstead - Langdon - Acworth

Pipe # 17

Scale: 1" = 20'

Drawn By: FJB

1/21/2016



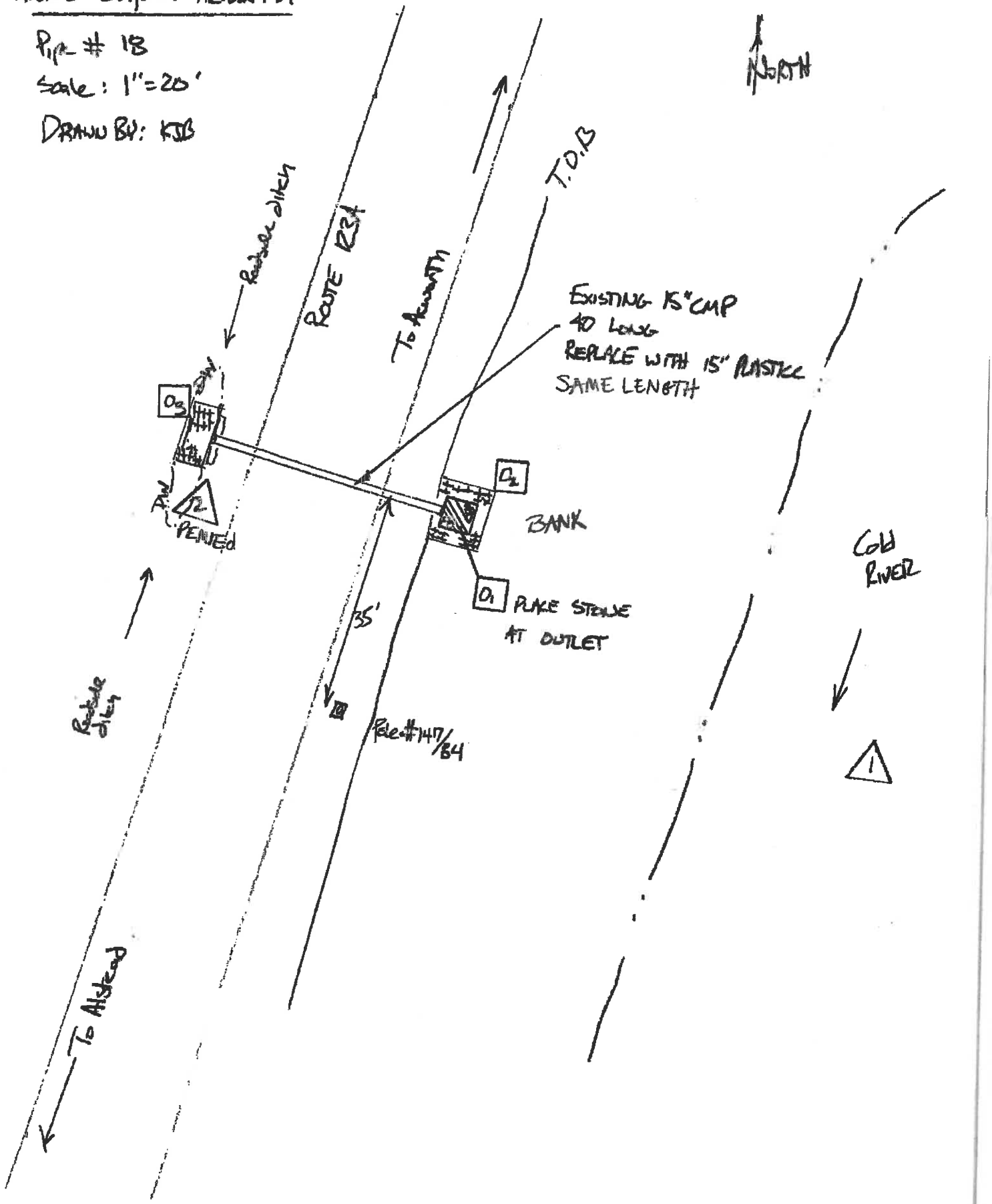
ROUTE 123A

Alstead-Langdon-Acworth

Pipe # 18

Scale: 1" = 20'

DRAWN BY: KJB



ROUTE 123A

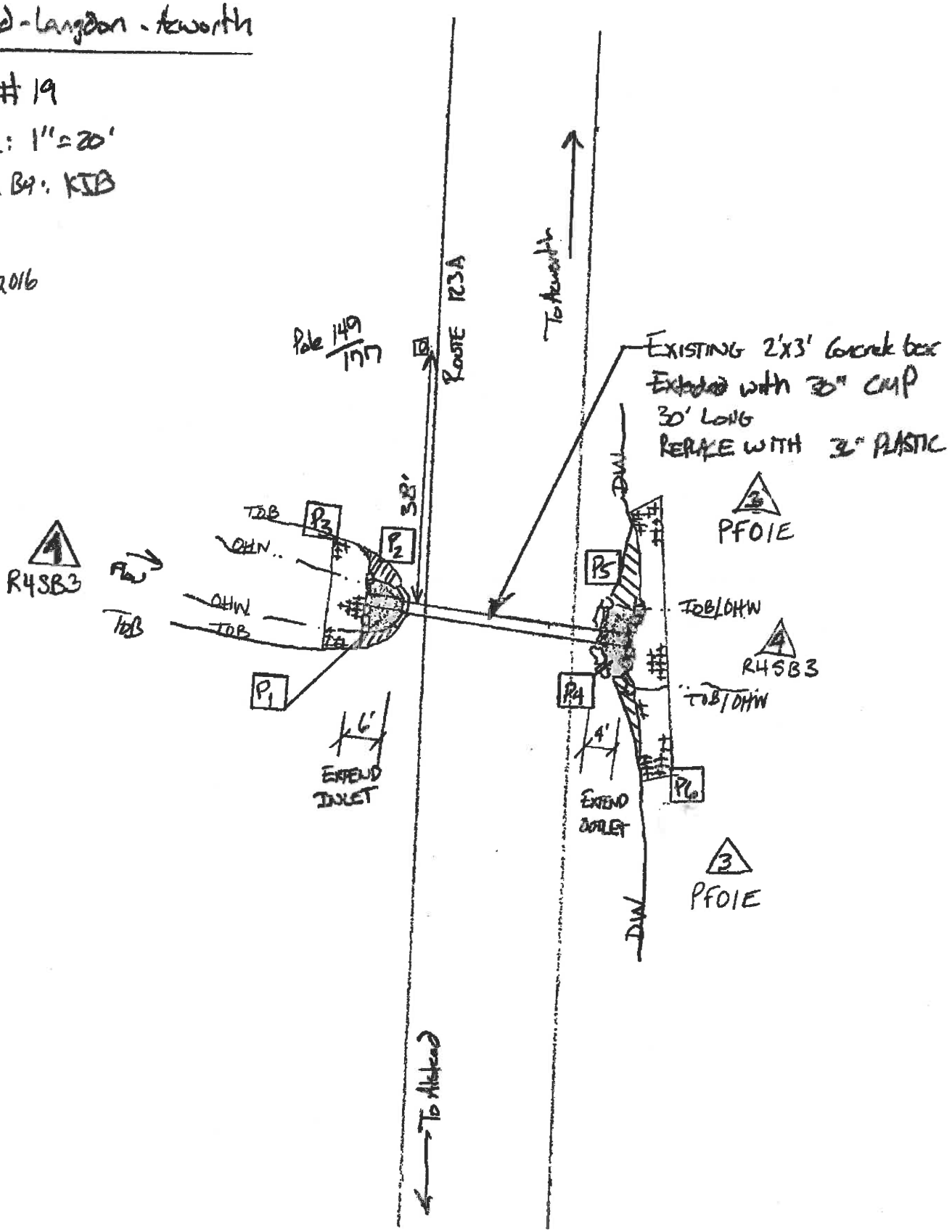
Alstead - Langdon - Acworth

Pipe # 19

Scale: 1" = 20'

Drawn By: KJB

1/21/2016



ROUTE 123A

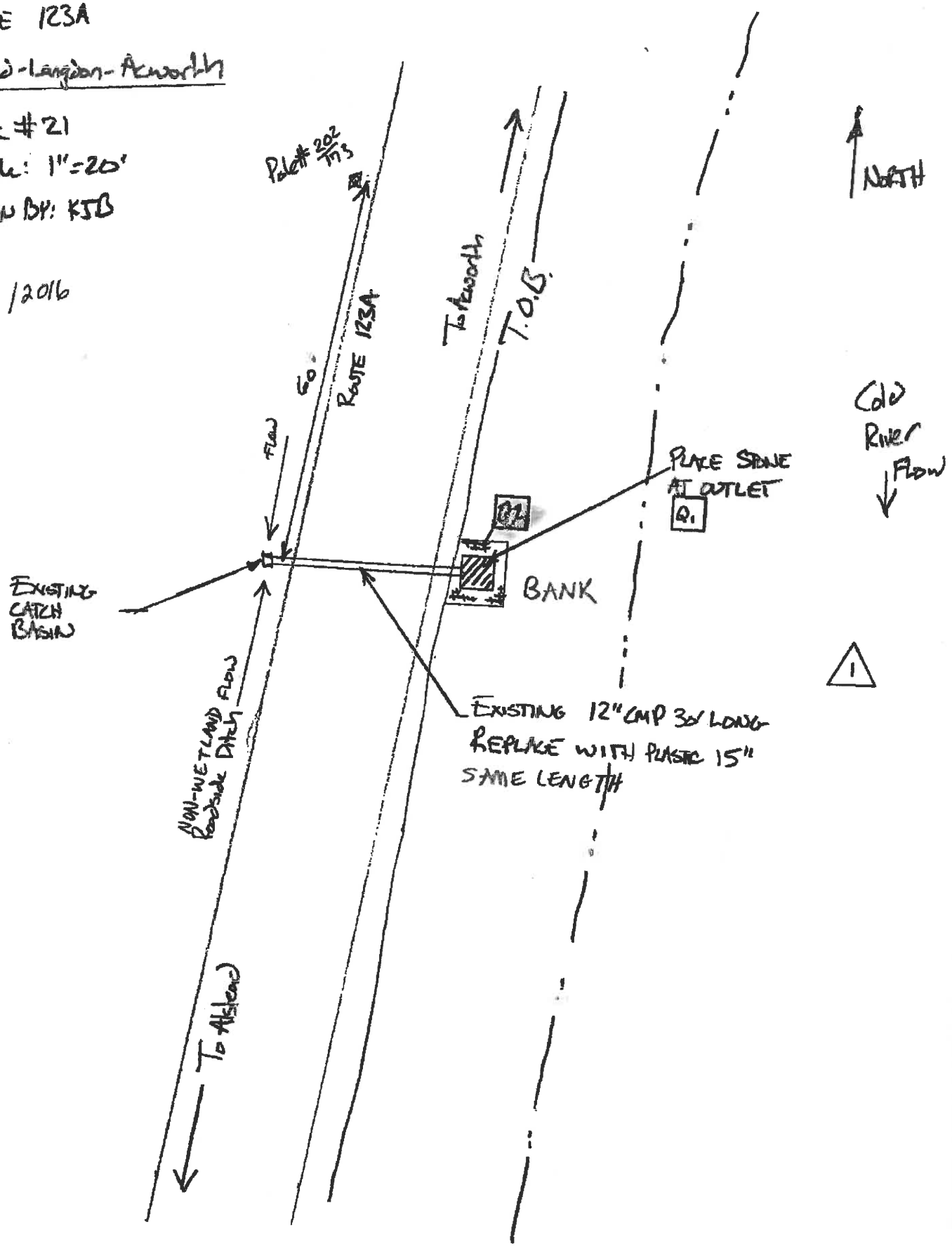
Halstead - Langdon - Acworth

PIPE #21

Scale: 1" = 20'

DRAWN BY: KJB

1/21/2016



ROUTE 123A

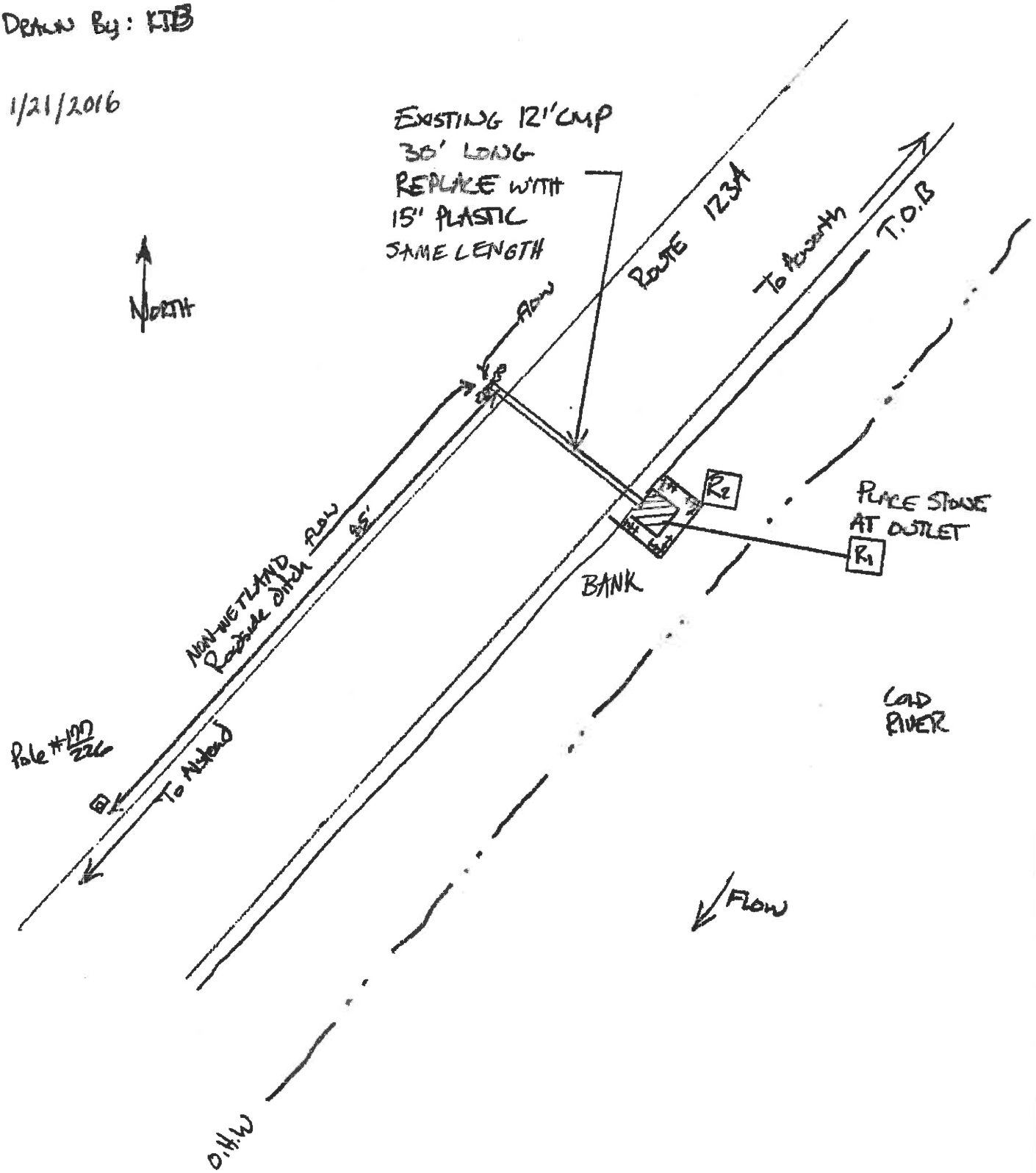
Alstead - Langdon - Acworth

Pipe # 22

Scale: 1" = 20'

Drawn By: KJB

1/21/2016



ROUTE 123A

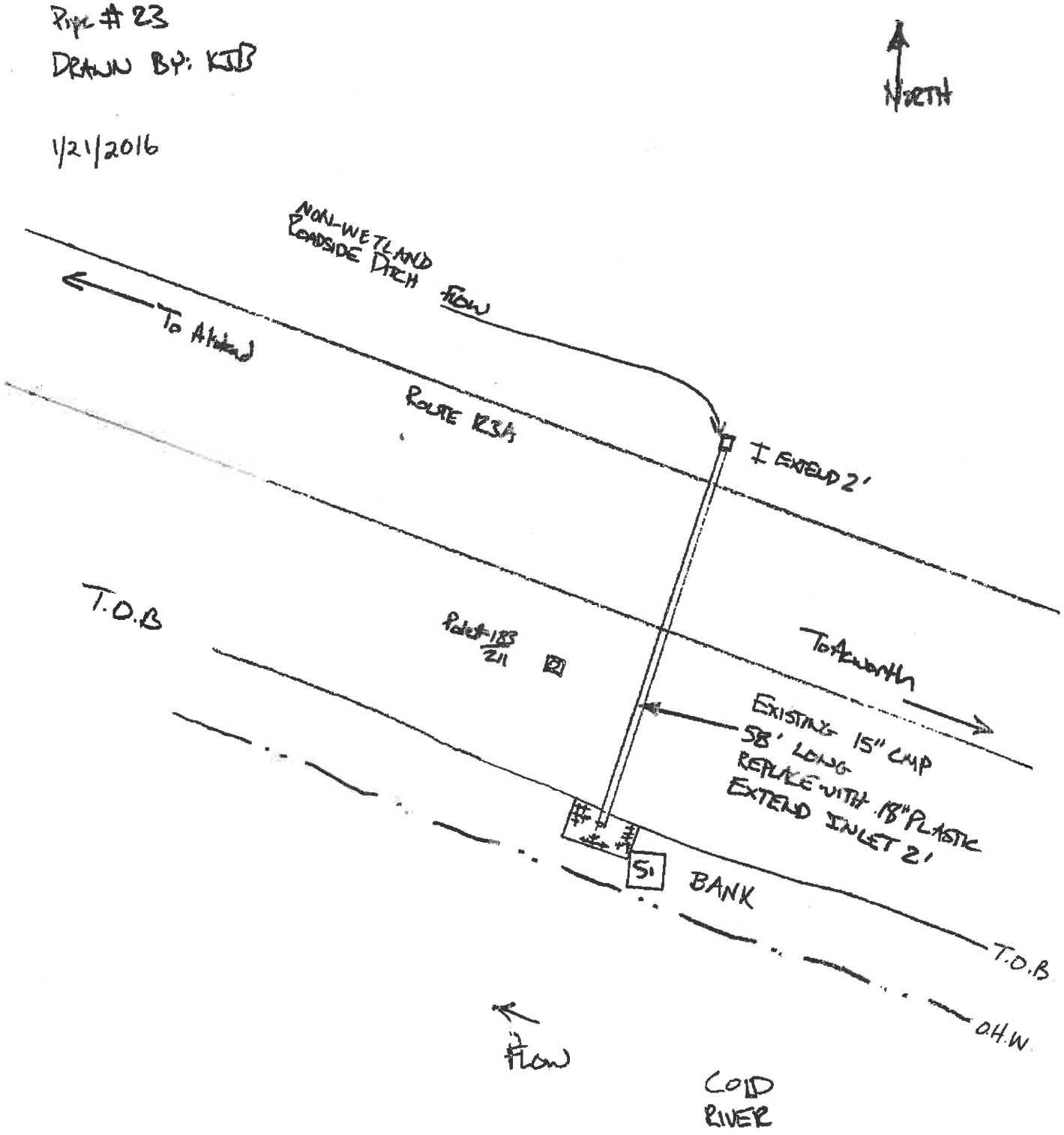
Acworth - Langdon - Alstead

Scale: 1" = 20'

Pipe # 23

DRAWN BY: KJB

1/21/2016



ROUTE 123A

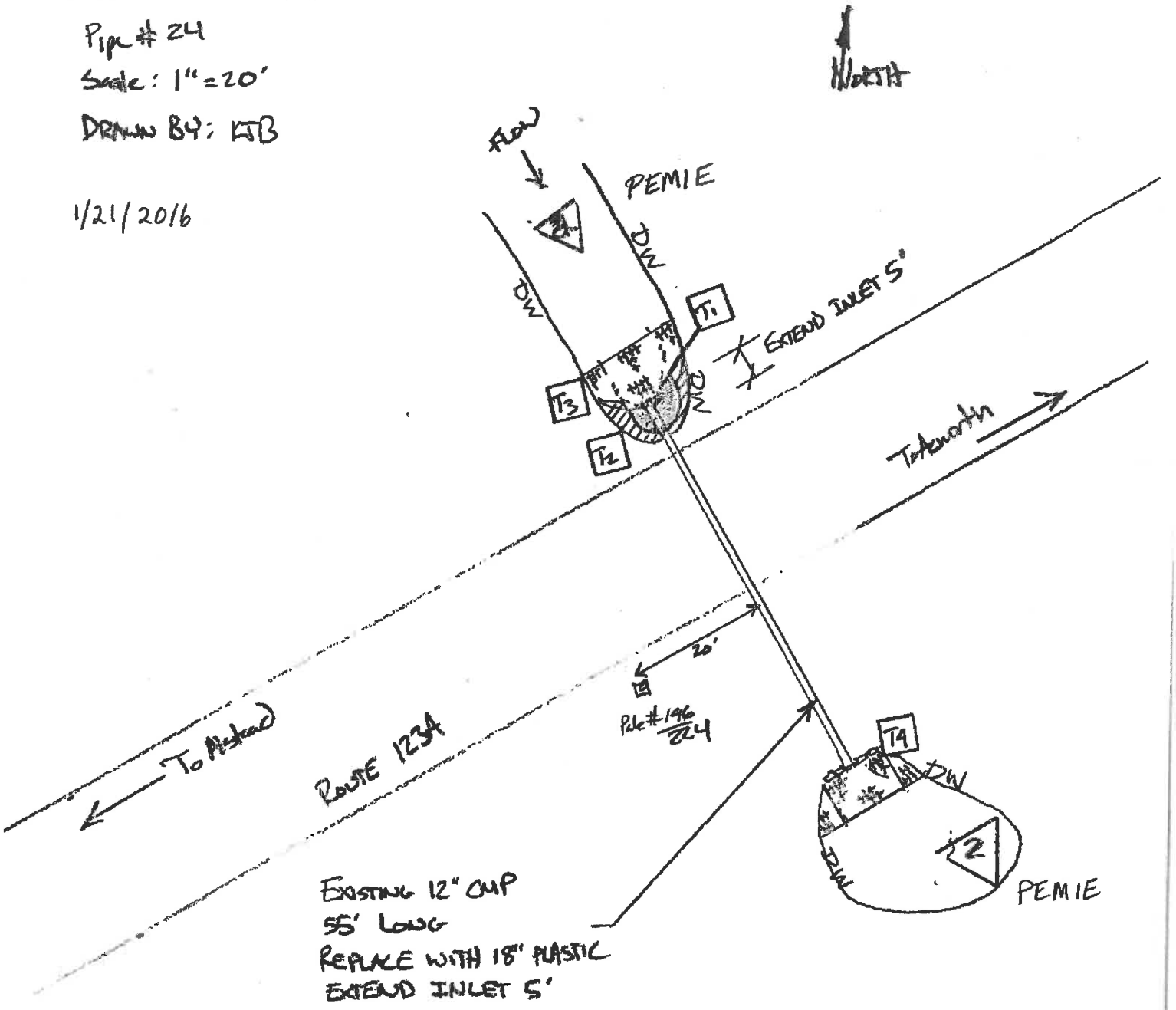
Alstead - Langdon - Acworth

Pipe # 24

Scale: 1" = 20'

DRAWN BY: KJB

1/21/2016



ROUTE 123A

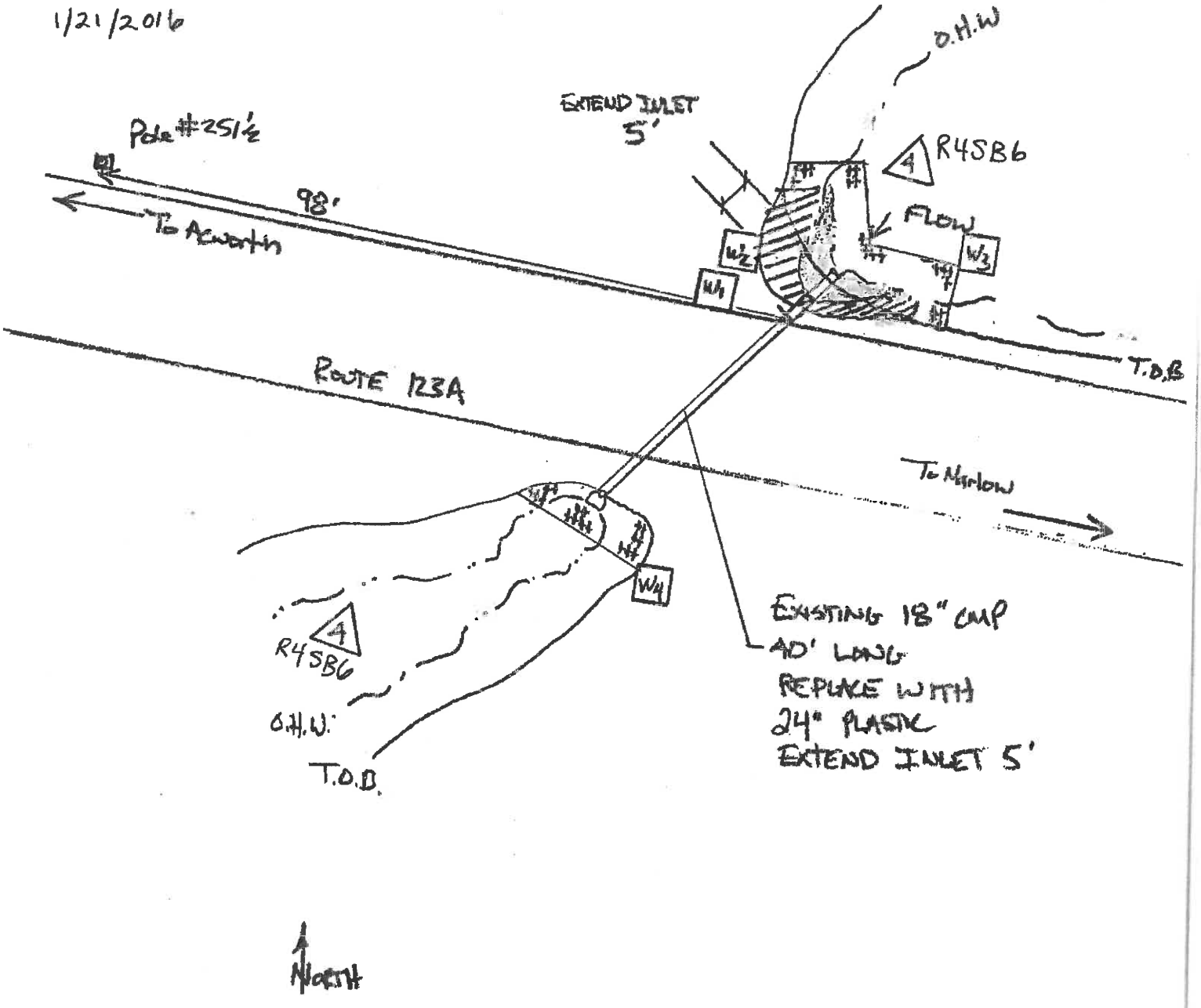
Aldead - Langdon - Acworth

Pipe # 27

SCALE: 1" = 20'

DRAWN BY: KJB

1/21/2016



Route 123A

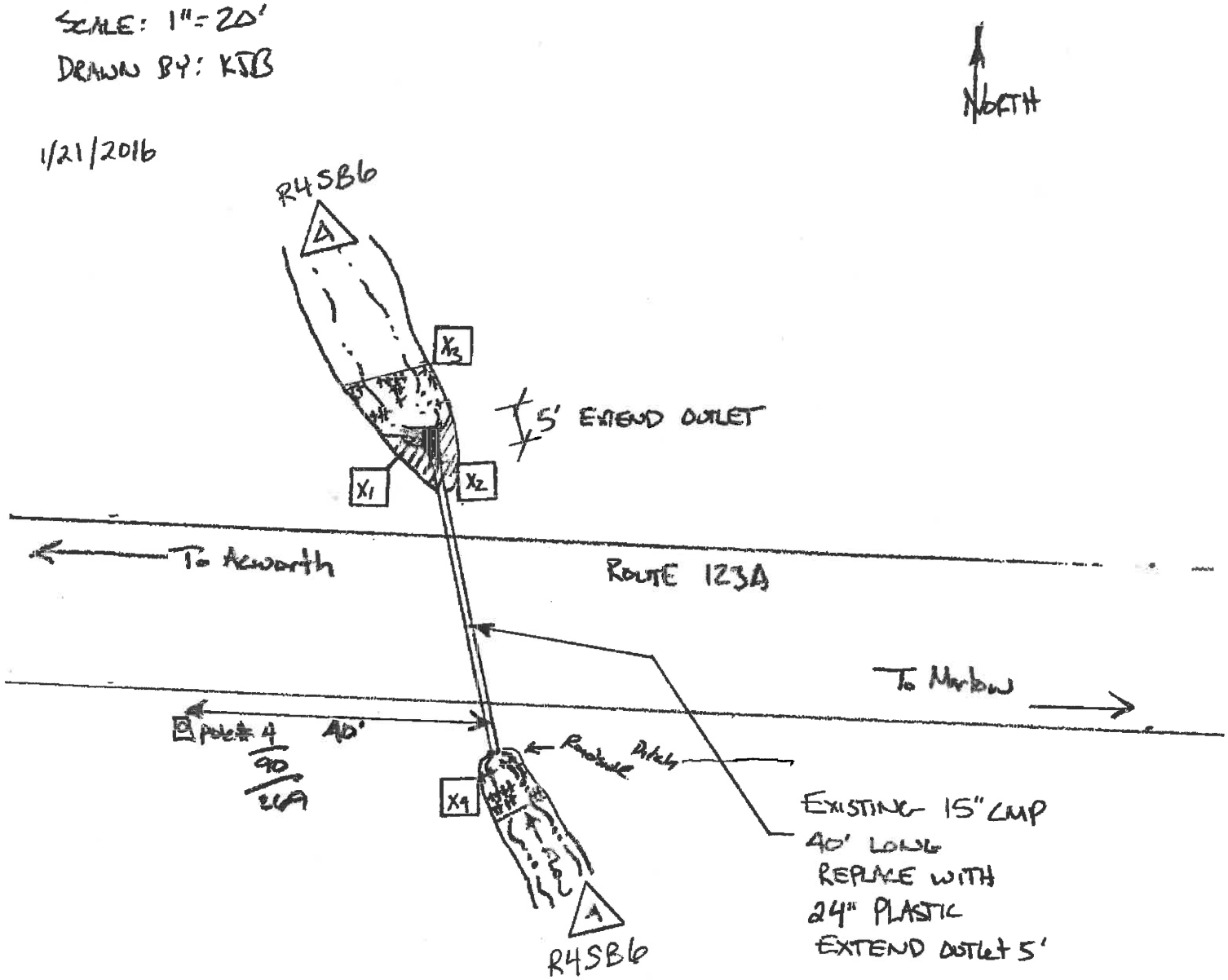
Akron - Langdon - Acworth

PIPE #30

SCALE: 1" = 20'

DRAWN BY: KJB

1/21/2016



Route 123A

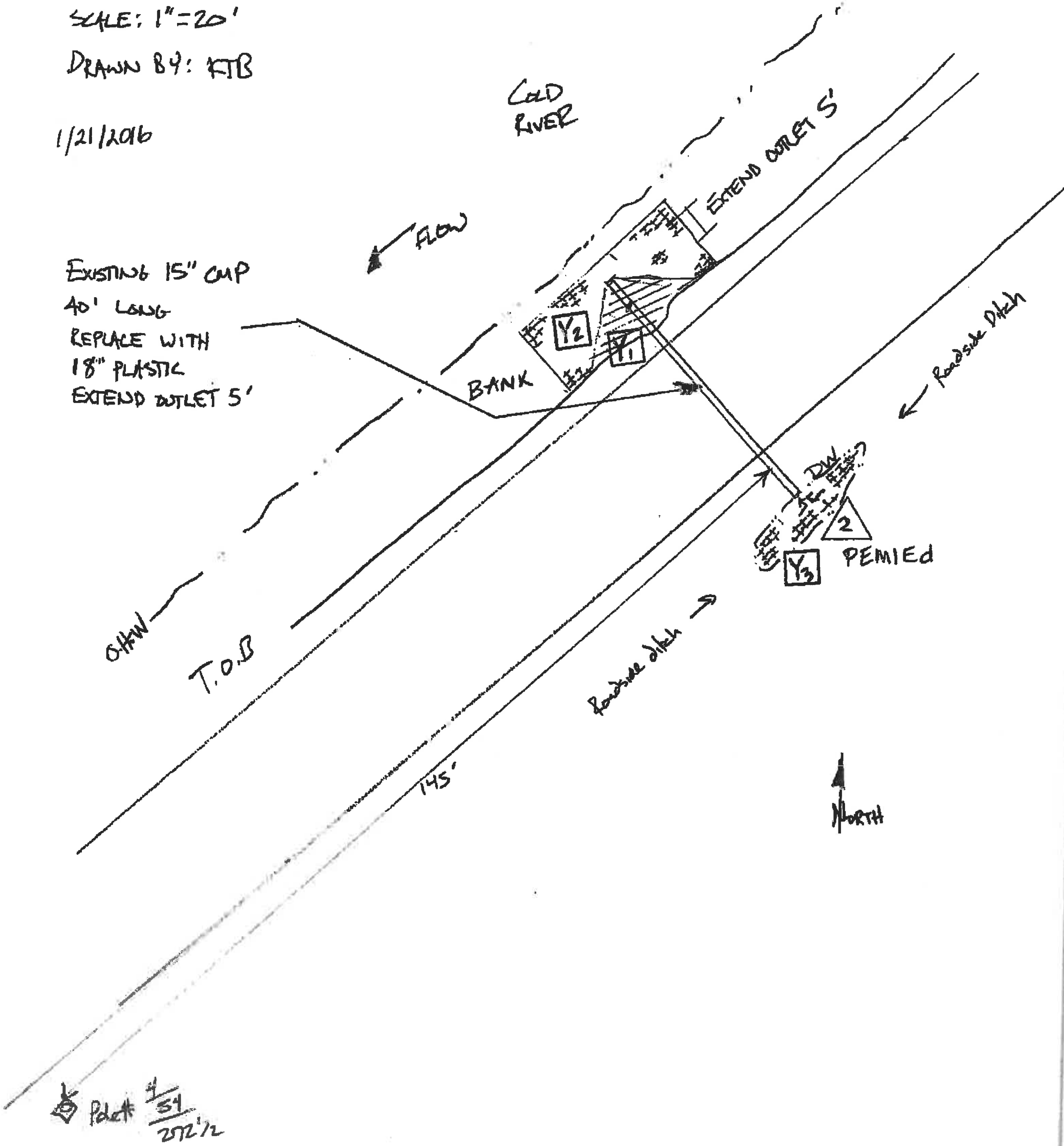
Alstead-Langdon-Acworth

Pipe #31

SCALE: 1"=20'

DRAWN BY: KTB

1/21/2016



ROUTE 123A

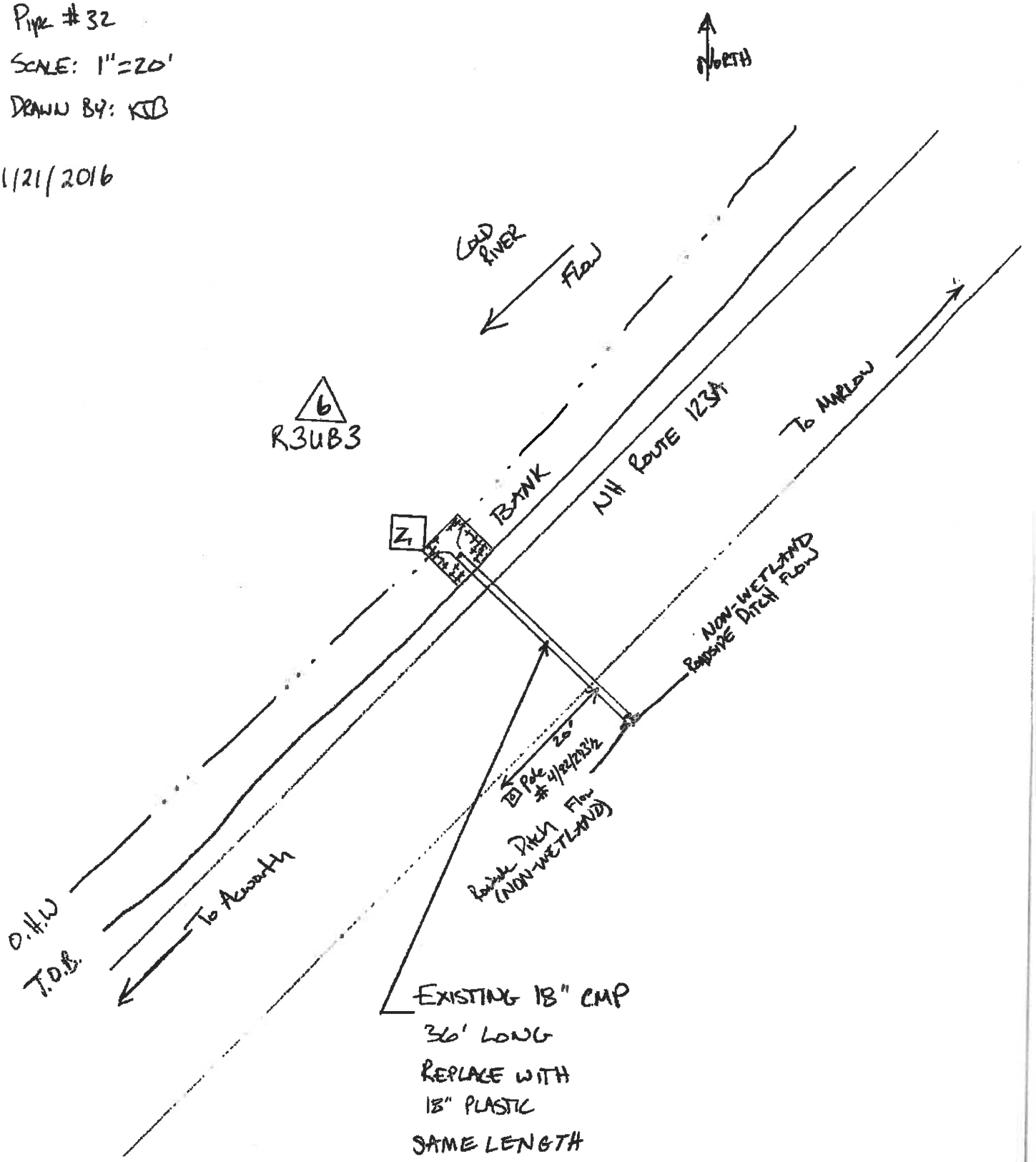
Alstead - Langdon - Acworth

PIPE # 32

SCALE: 1" = 20'

DRAWN BY: KJB

1/21/2016



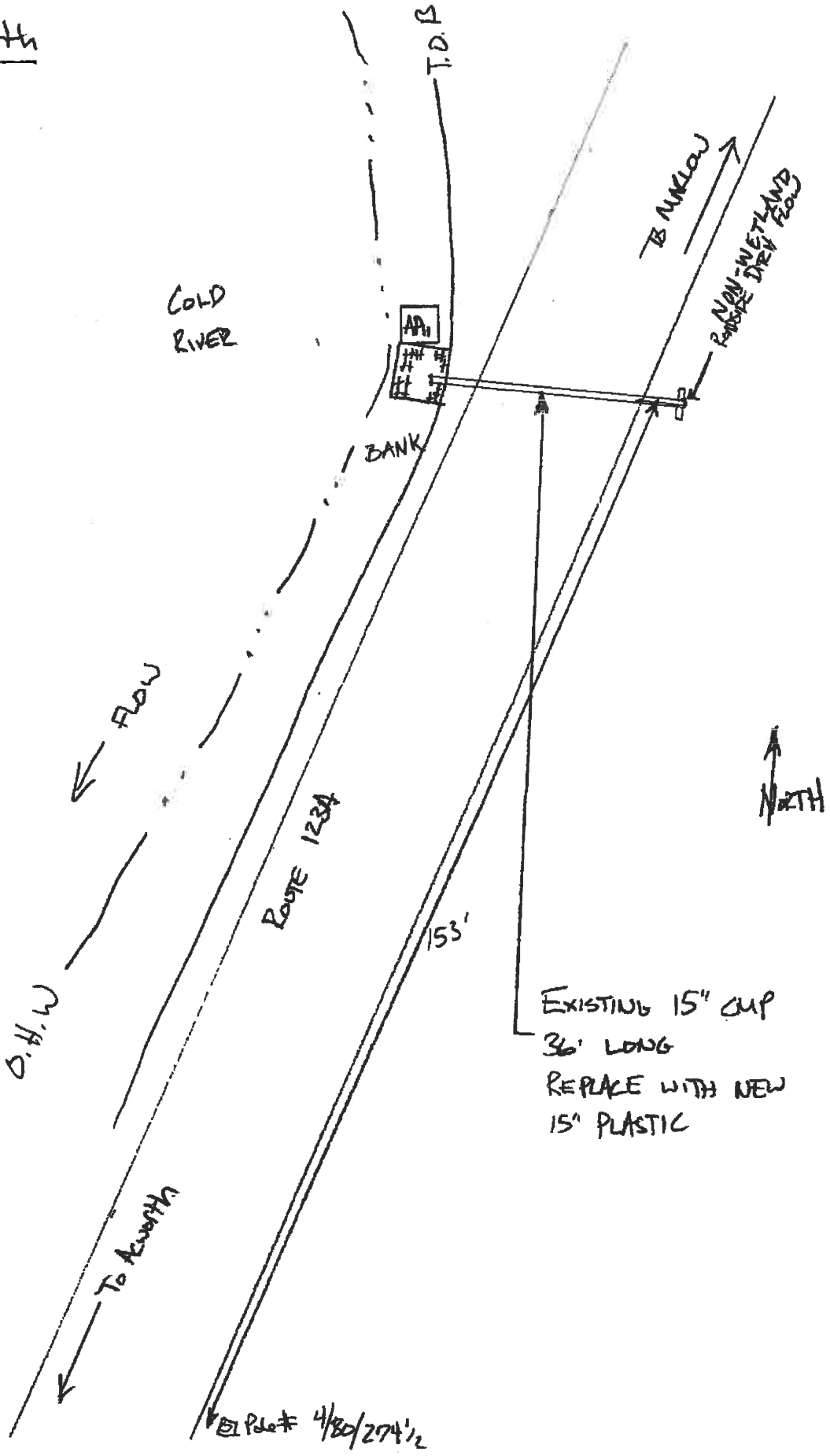
ROUTE 123A

Alstead - Langdon - Acworth

PIPE # 33

SCALE: 1"=20'

DRAWN BY: KJB



ROUTE 123A

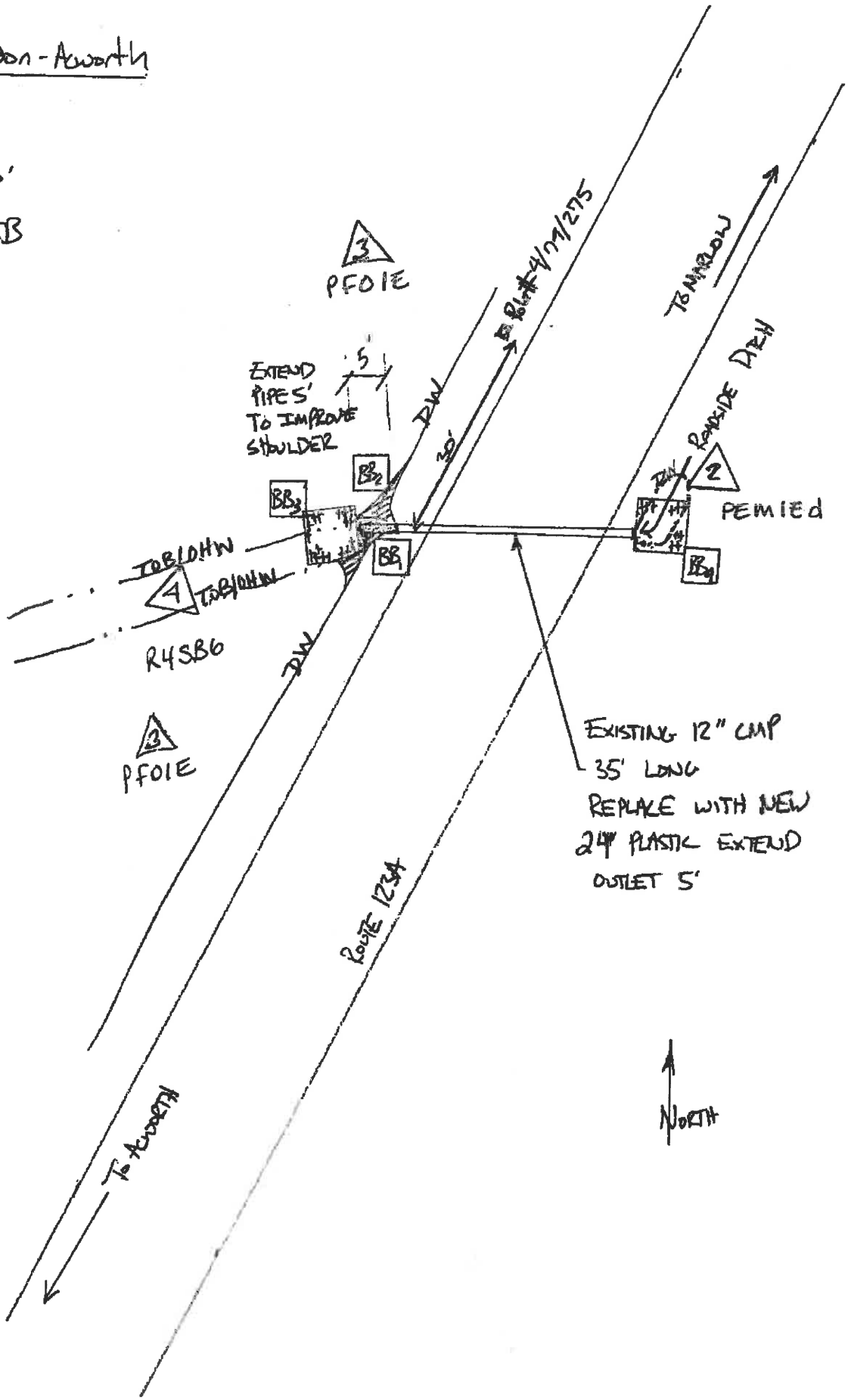
Alstead - Langdon - Acworth

Pipe # 34

SCALE: 1" = 20'

DRAWN BY: KJB

1/21/2016



ROUTE 123A

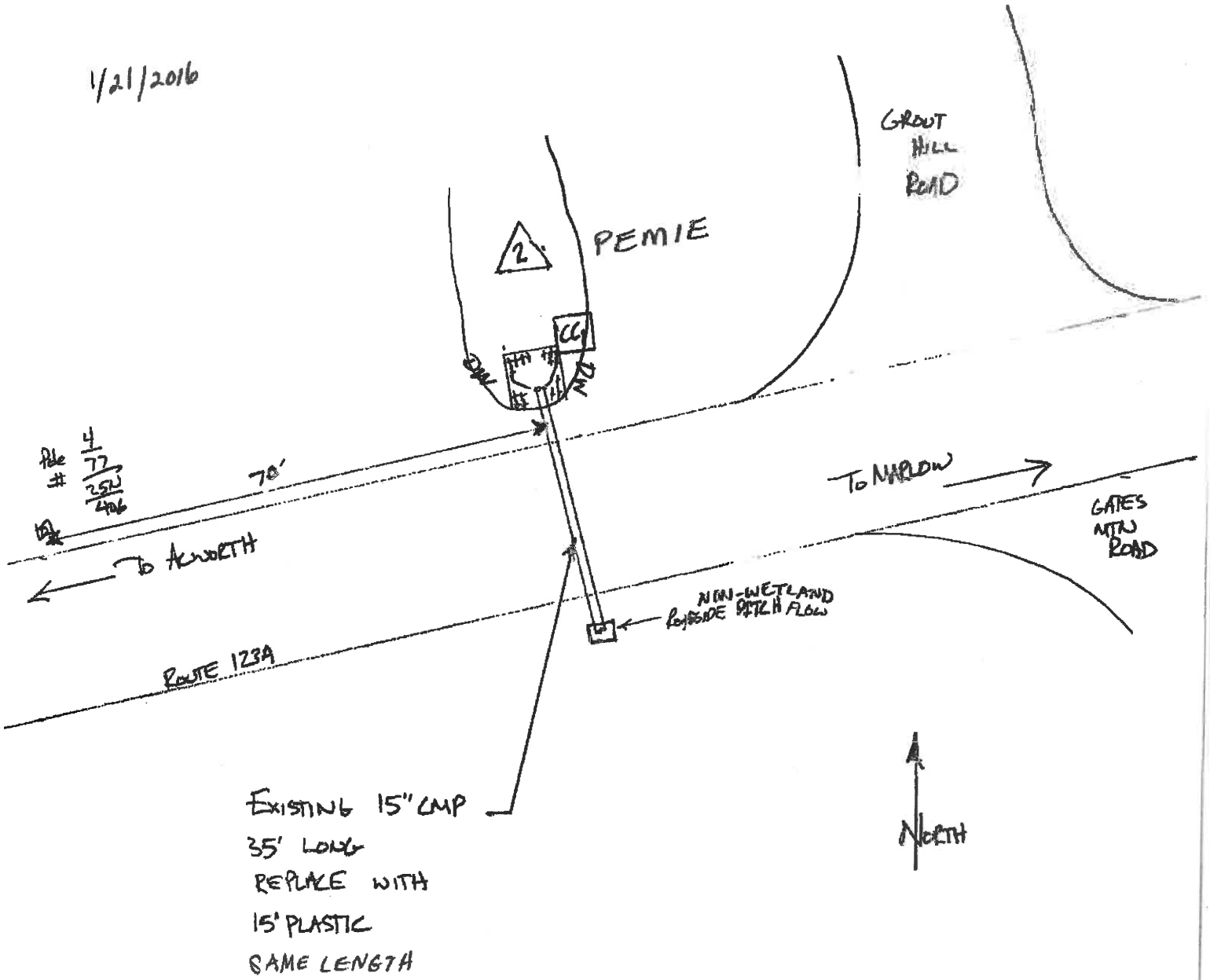
Alstead - Langdon - Acworth

Pipe # 35

Scale: 1" = 20'

DRAWN BY: KJB

1/21/2016



ROUTE 123A

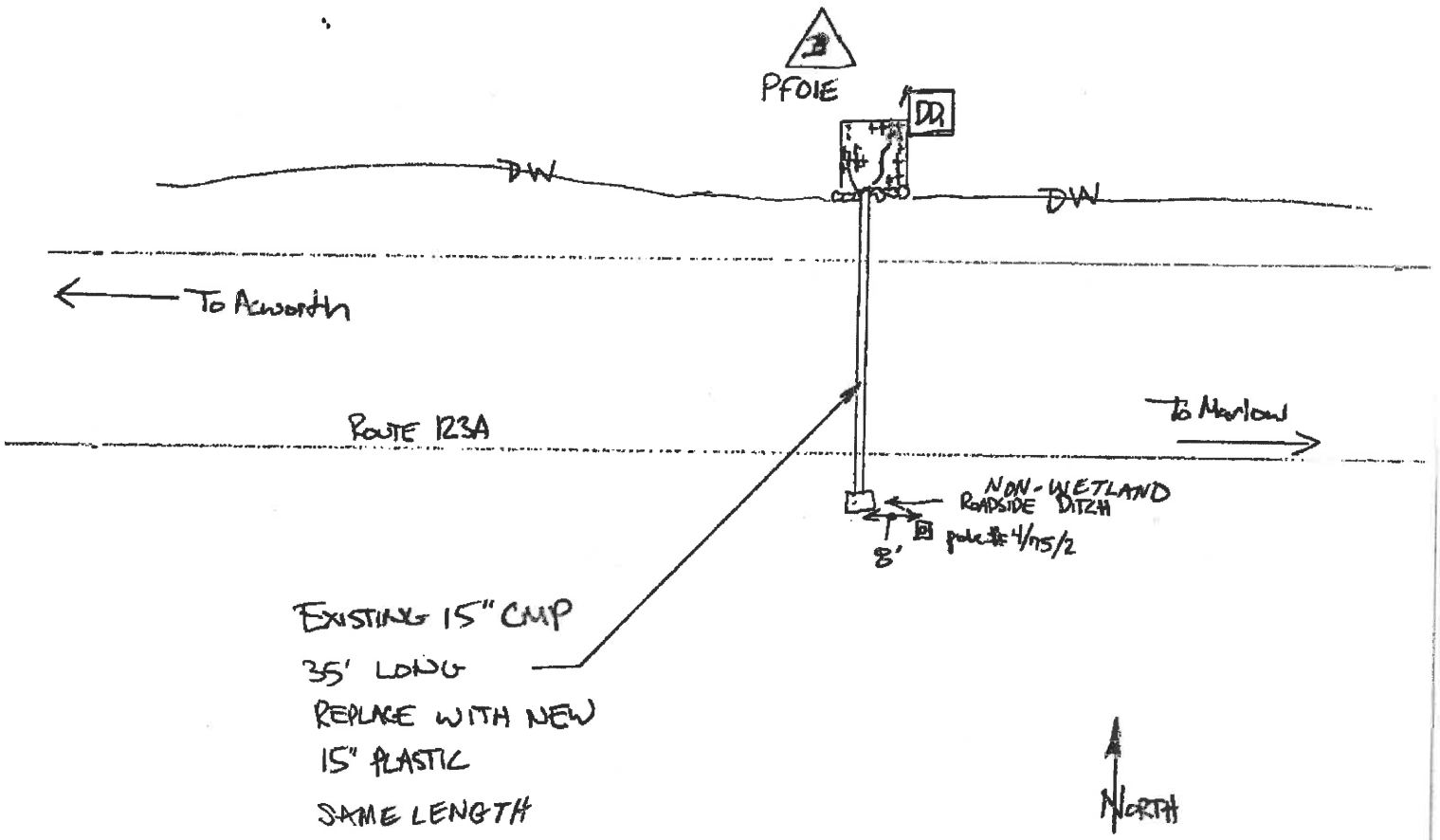
Alstead - Langdon - Acworth

PIPE #36

SCALE: 1"=20'

DRAWN BY: KJB

1/21/2016



ROUTE 123A

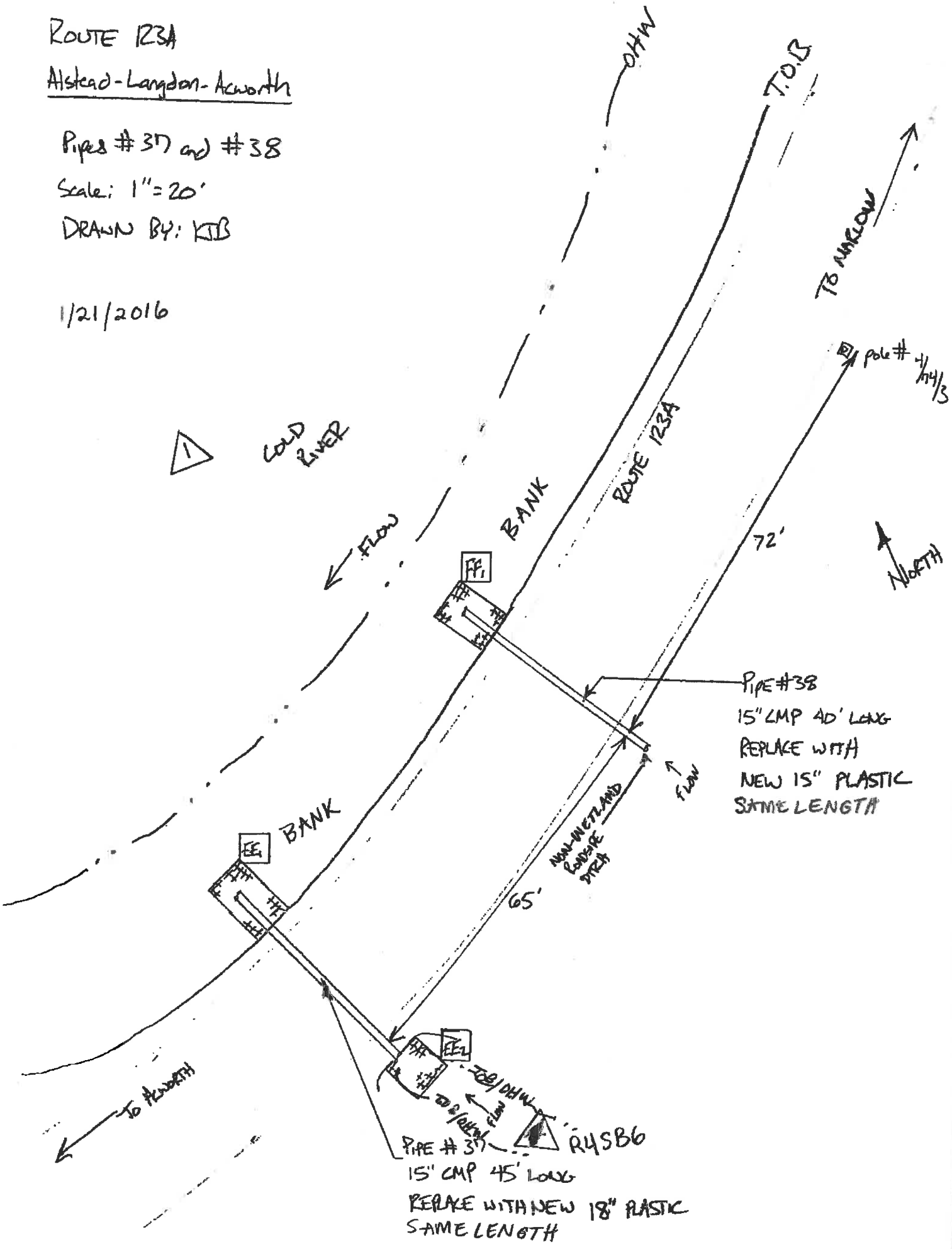
Alstead - Langdon - Acworth

Pipes #37 and #38

Scale: 1" = 20'

DRAWN BY: KJB

1/21/2016



New Hampshire Department of Transportation
Bureau of Highway Maintenance, Project # M401
Alstead-Langdon-Acworth
Pipe replacements

Construction Sequence

1. Install erosion control measures upstream and downstream (silt fence, silt logs, sand bags, etc.). If water flow exists, dam the flow and pump around the work area as needed. (clean water diversion)

2. Set up traffic control for alternating one way traffic.

3. Install pipe, utilizing alternating one way traffic.

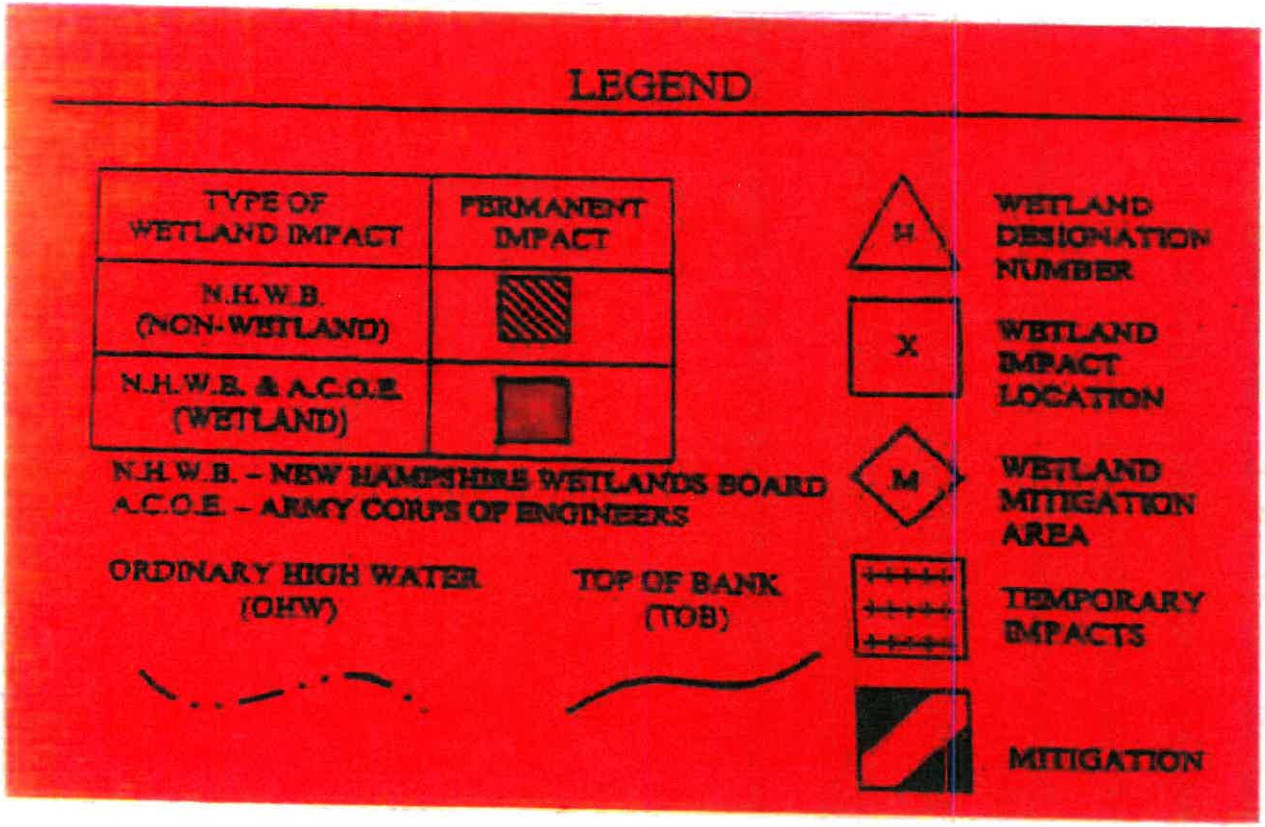
4. Backfill and make safe for traffic.

5. Do final cleanup at pipe location, loam seed, mulch, before moving to next pipe location.

6. Leave trench gravel for 3 to 5 days to allow for settlement.

7. Prepare sub grade for paving utilizing flaggers and alternating traffic, pave binder flush with existing pavement.

8. Maintain temporary erosion control measures until area is stabilized.



The above Legend is for all sketch's

EROSION CONTROL MEASURES

~~****~~ Silt Fence and/or Silt log

wwww Stone or Silt Log check dam

EROSION CONTROL

ROUTE 123A

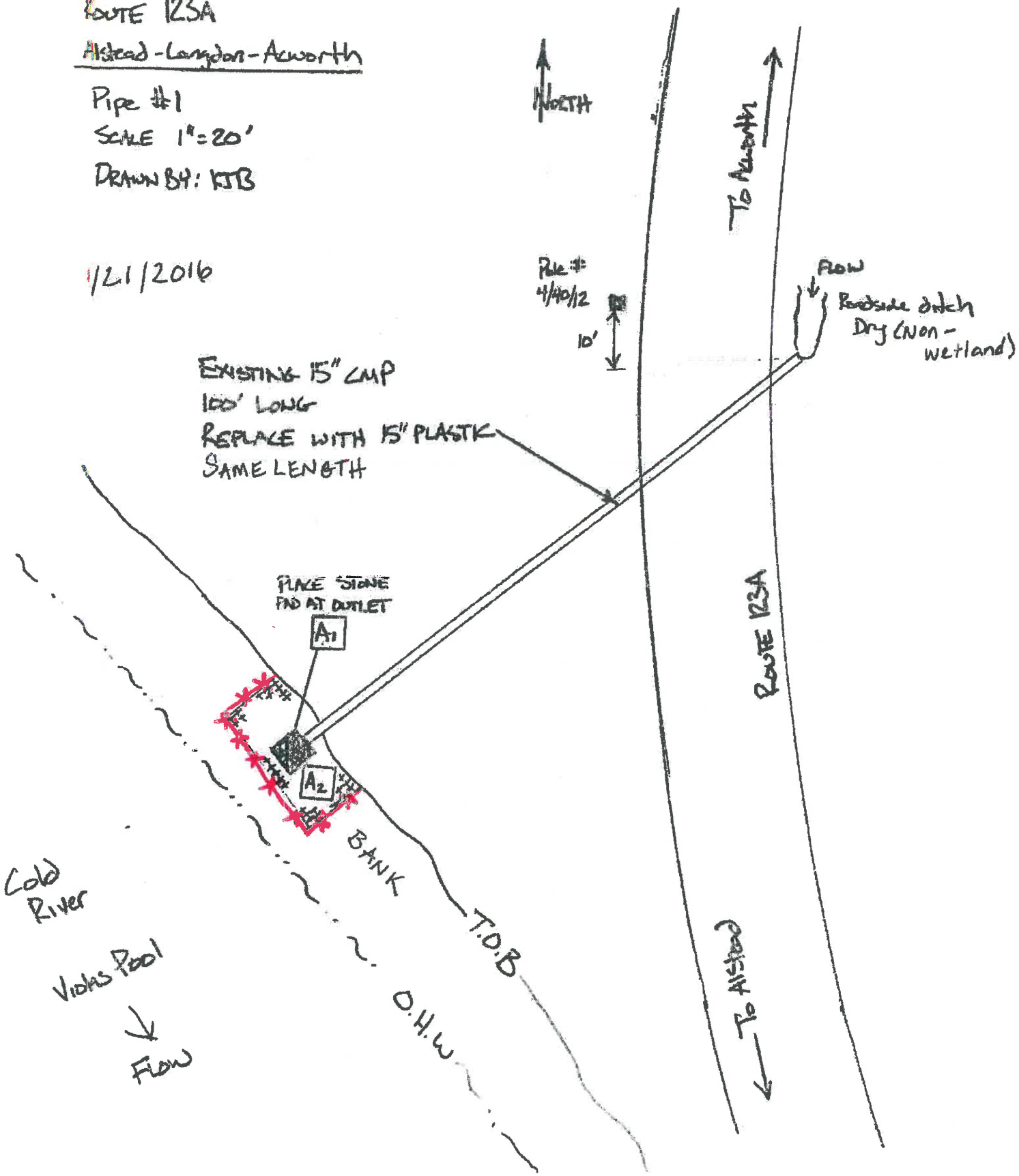
Alstead - Langdon - Acworth

Pipe #1

SCALE 1" = 20'

DRAWN BY: KJB

1/21/2016



ROUTE 123A

Alstead - Langdon - Acworth

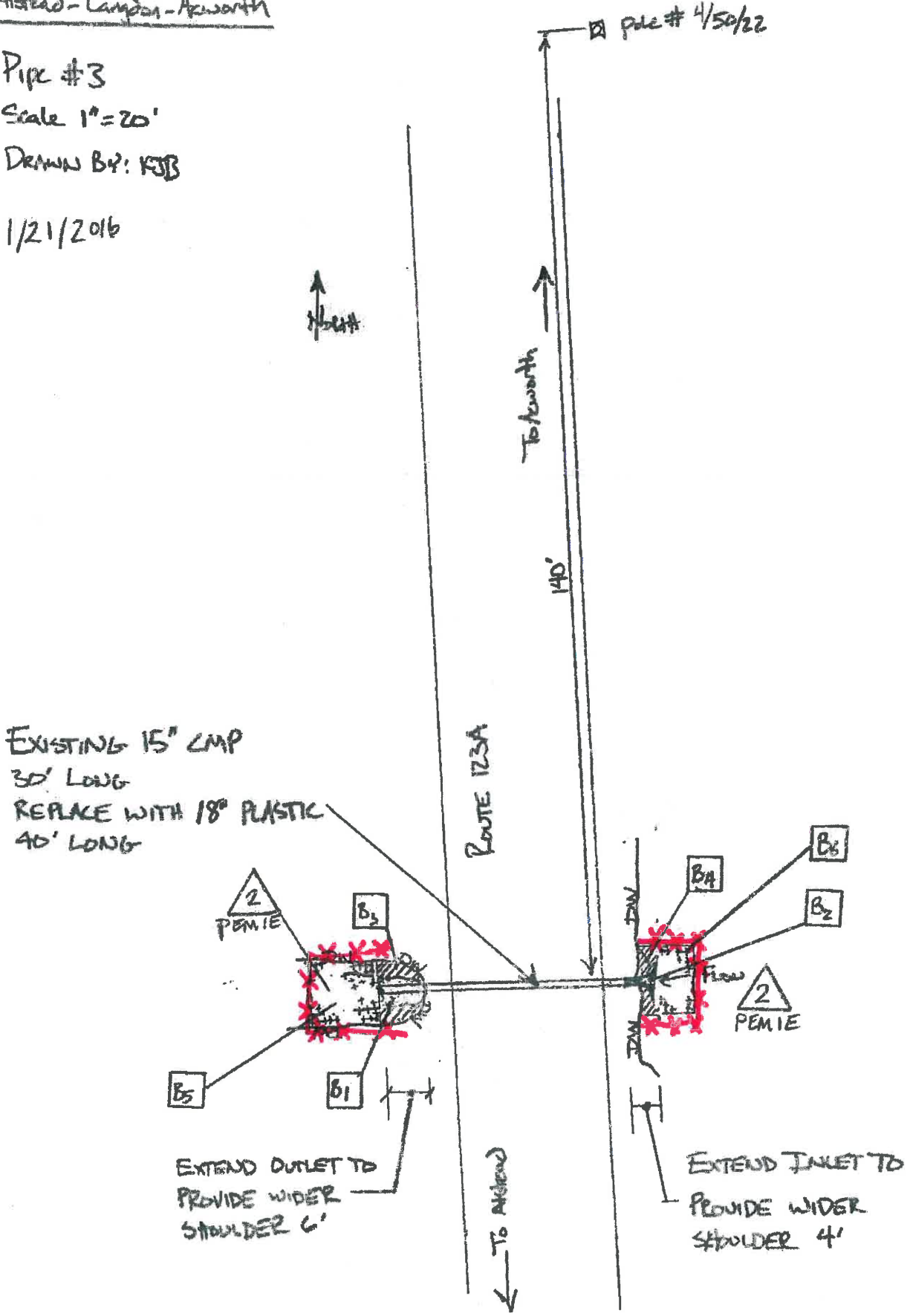
ERODSION CONTROL

Pipe #3

Scale 1" = 20'

Drawn By: KJB

1/21/2016

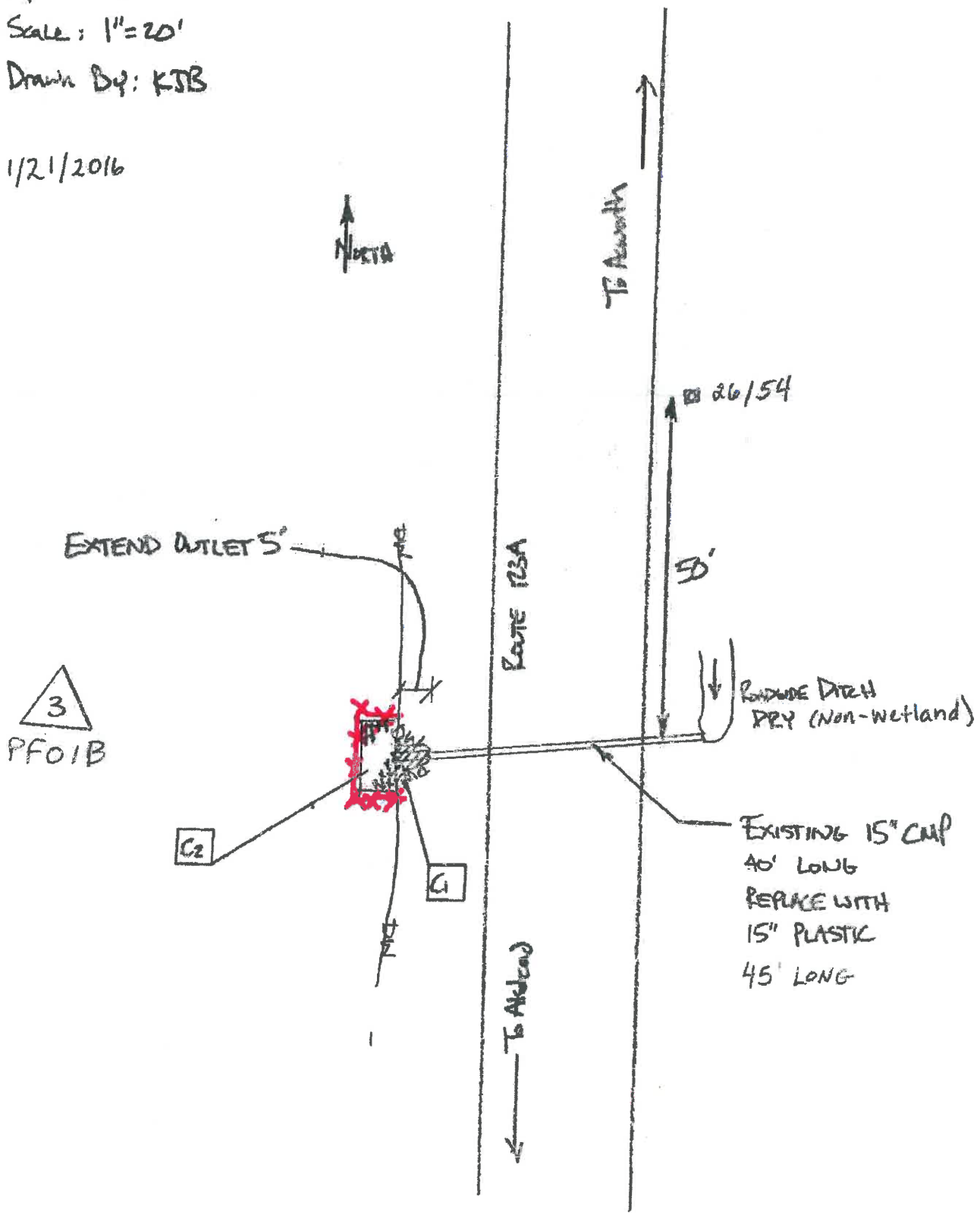


ROUTE 123A
Attend - Langdon - Acworth

EROSION CONTROL

Pipe #4
Scale: 1"=20'
Drawn By: KJB

1/21/2016



ROUTE 123A

Alstead - Langdon - Acworth

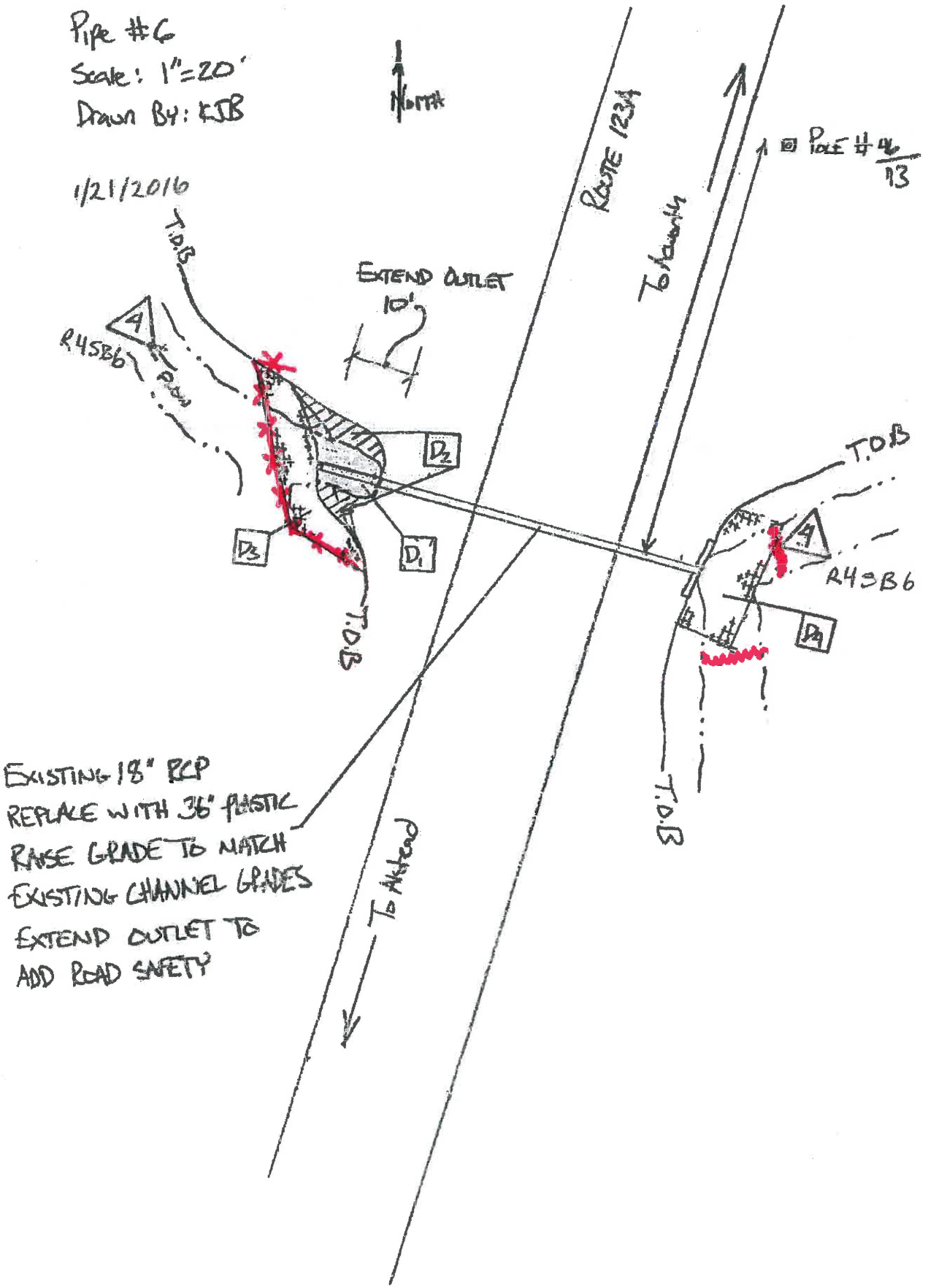
EROSION CONTROL

Pipe #6

Scale: 1"=20'

Drawn By: KJB

1/21/2016



EXISTING 18" RCP
REPLACE WITH 36" PLASTIC
RAISE GRADE TO MATCH
EXISTING CHANNEL GRADES
EXTEND OUTLET TO
ADD ROAD SAFETY

ROUTE 123A

Alstead - Langdon - Acworth

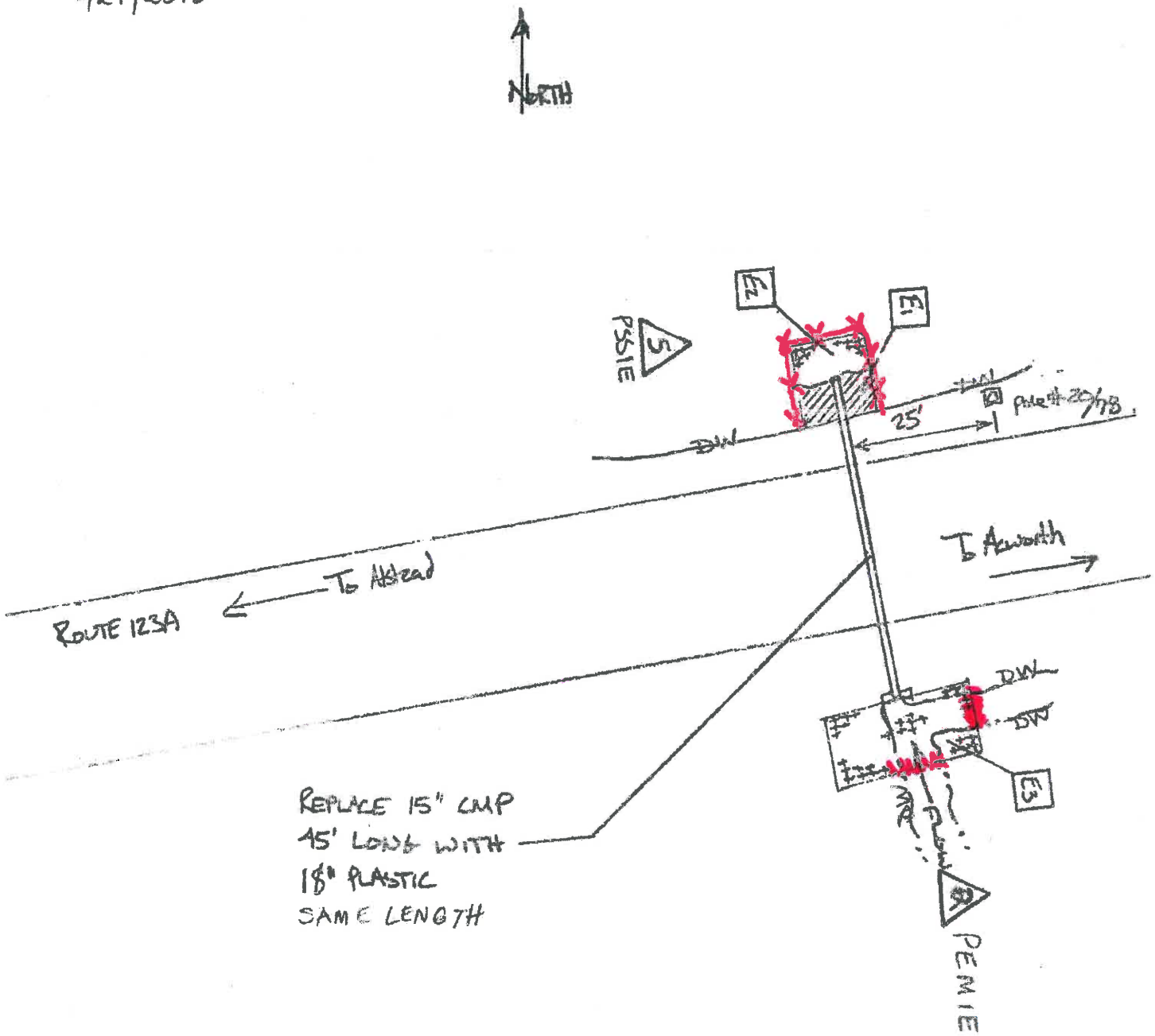
EROSION CONTROL

Pipe #7

Scale: 1" = 20'

DRAWN BY: KJB

1/21/2016



ROUTE 123A

Alstead - Langdon - Acworth

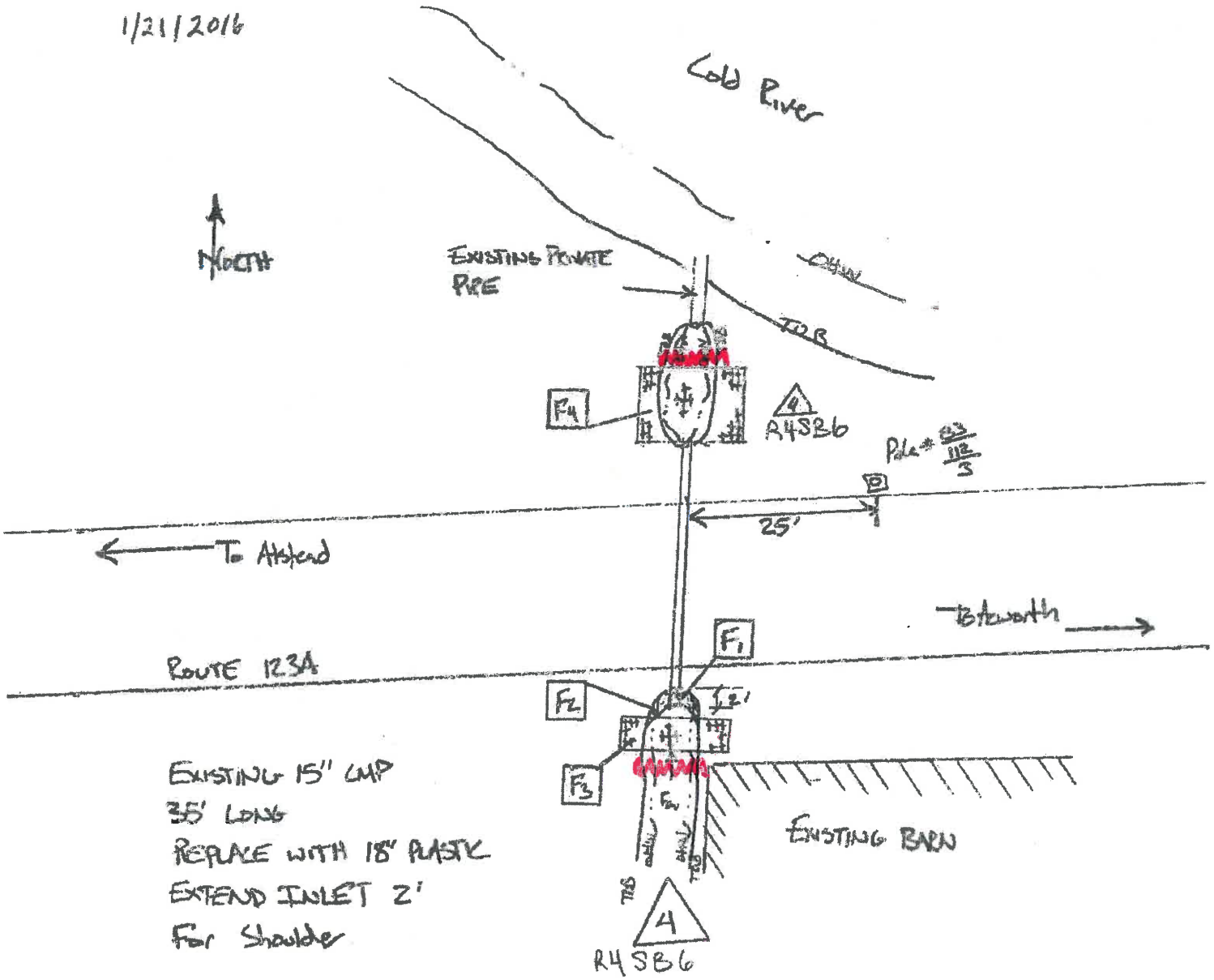
EROSION CONTROL

Pipe # 8

Scale 1" = 20'

Drawn By: KJB

1/21/2016



EXISTING 15" CMP
35' LONG
REPLACE WITH 18" PLASTIC
EXTEND INLET 2'
For Shoulder

EROSION CONTROL

ROUTE 123A

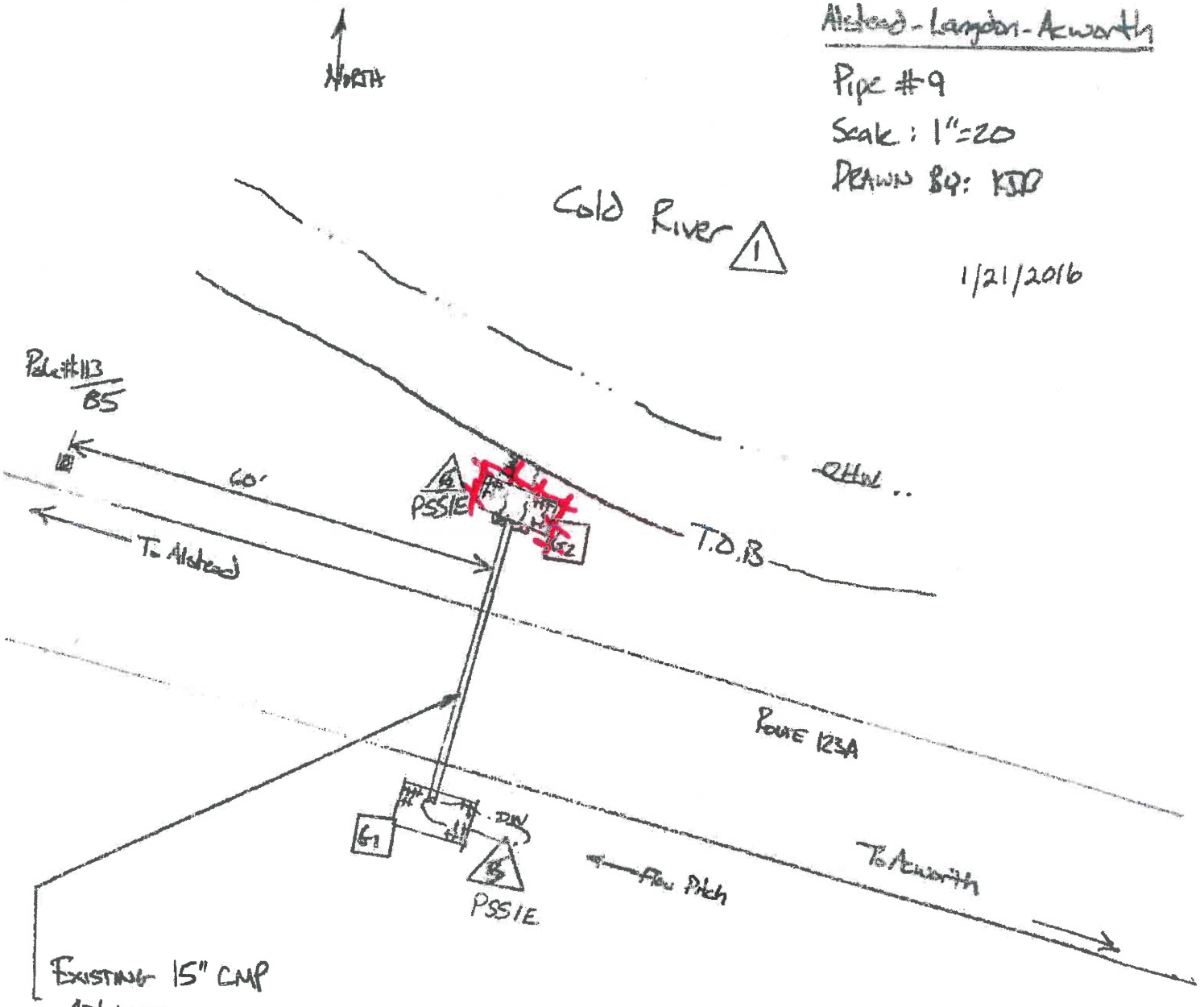
Alstead - Langdon - Acworth

Pipe #9

Scale: 1"=20

DRAWN BY: KSD

1/21/2016



EXISTING 15" CMP
40' LONG
REPLACE WITH 15" PLASTIC
SAME LENGTH

Route 123-A

Alstead - Langdon - Acworth

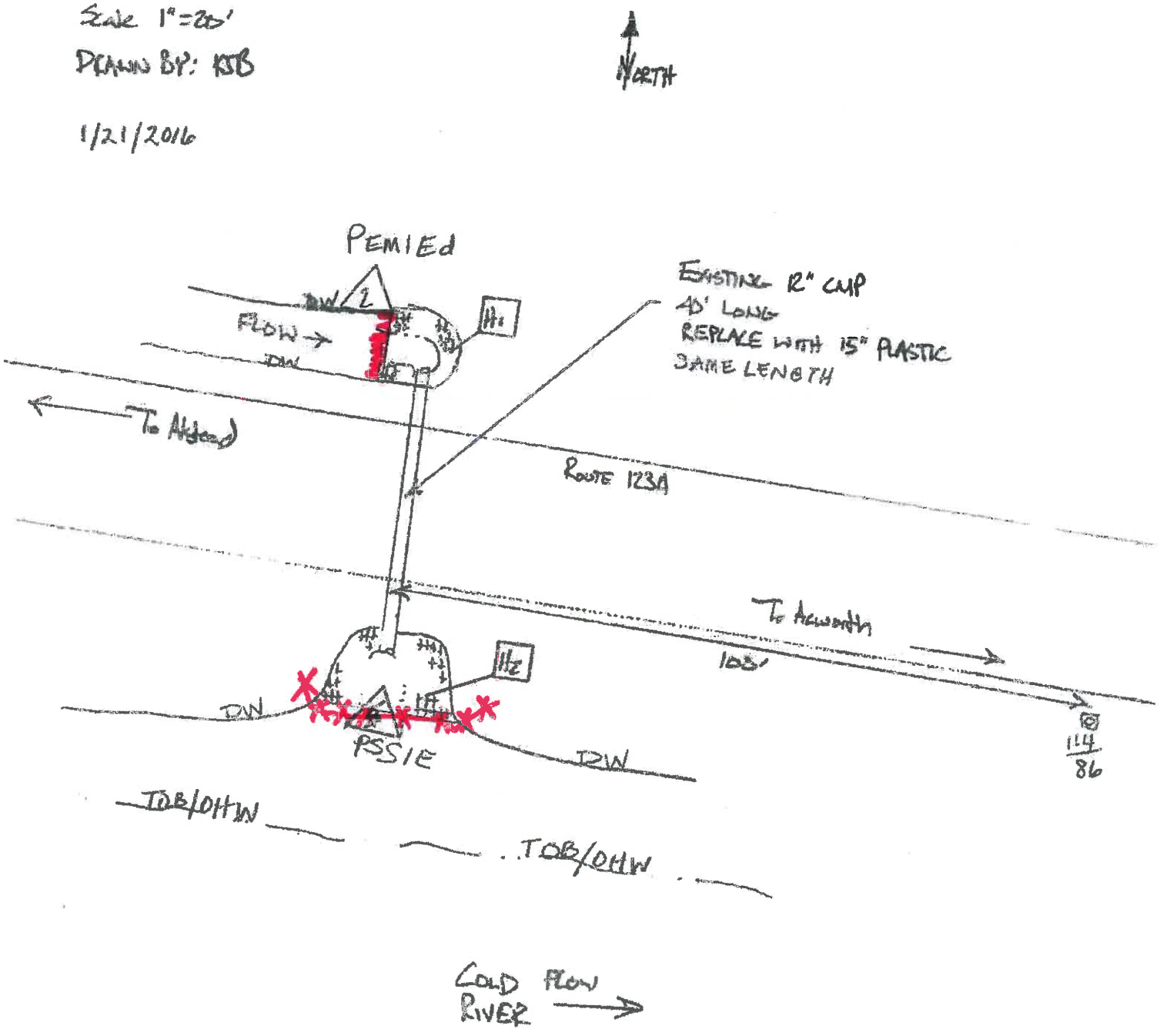
EROSION CONTROL

Pipe #10

Scale 1" = 20'

Drawn By: KSB

1/21/2016



ROUTE 123A

ALSTEAD - LANGDON - ACWORTH

EROSION CONTROL

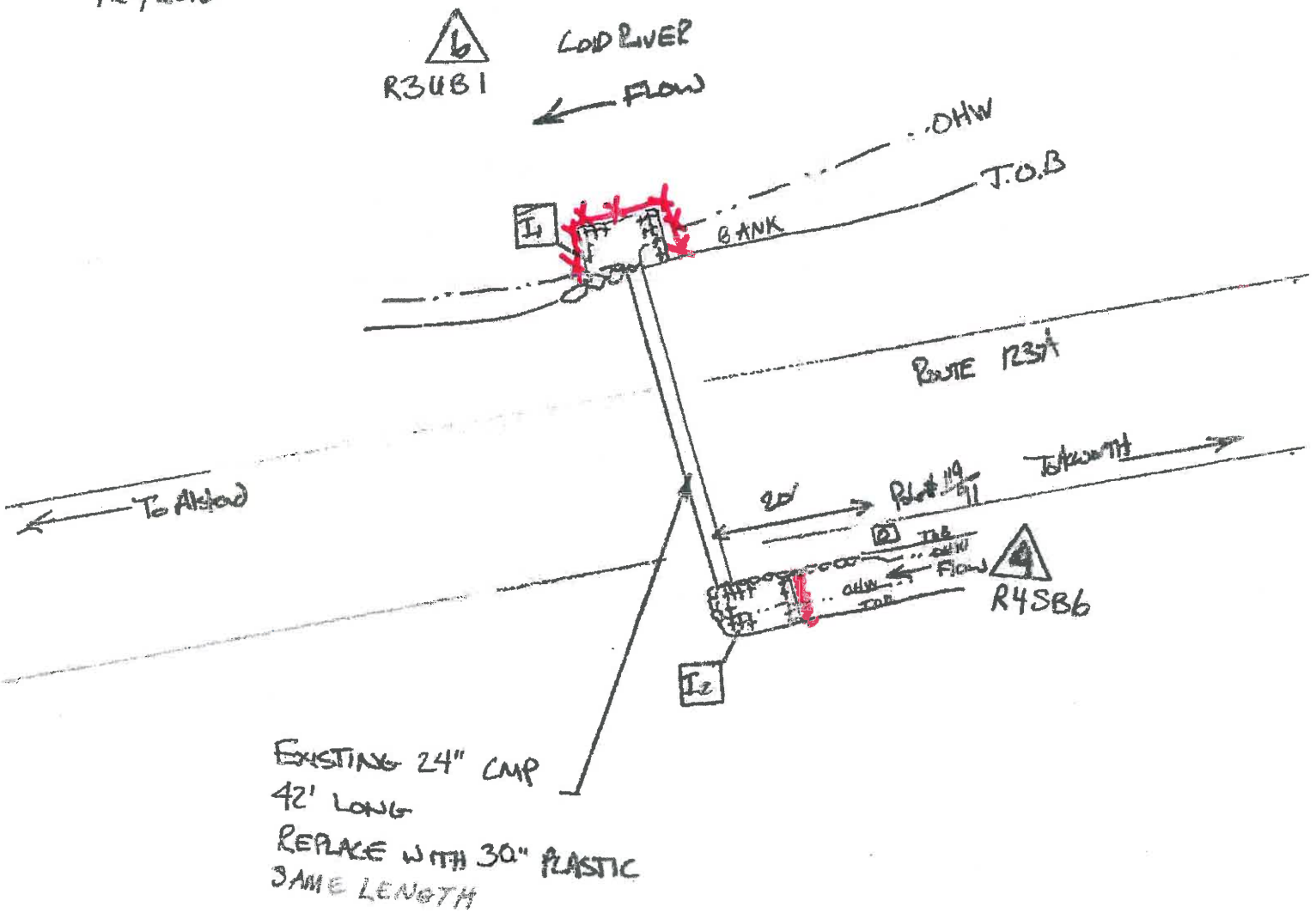
PIPE #11

SCALE: 1"=20'

DRAWN BY: KJB

NORTH

1/21/2016

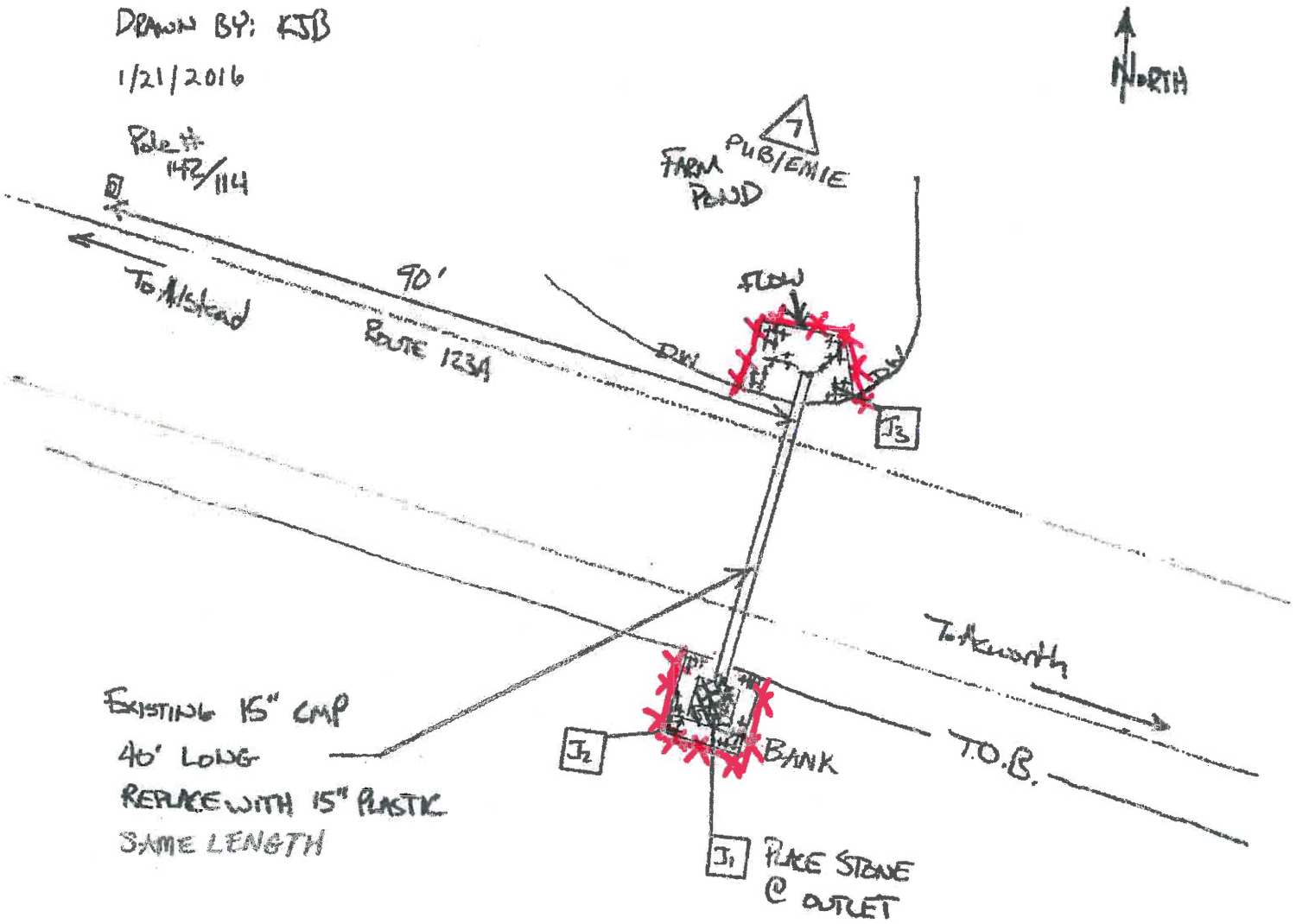


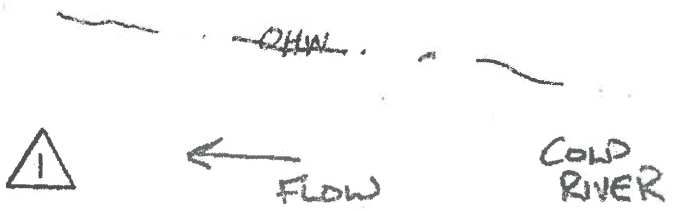
EXISTING 24" CMP
42' LONG
REPLACE WITH 30" PLASTIC
SAME LENGTH

ROUTE 123A
Alstead - Acworth - Langdon

EROSION CONTROL

Pipe # 13
Scale: 1" = 20'
DRAWN BY: KJB
1/21/2016





ROUTE 123-A

Alstead - Acworth - Langdon

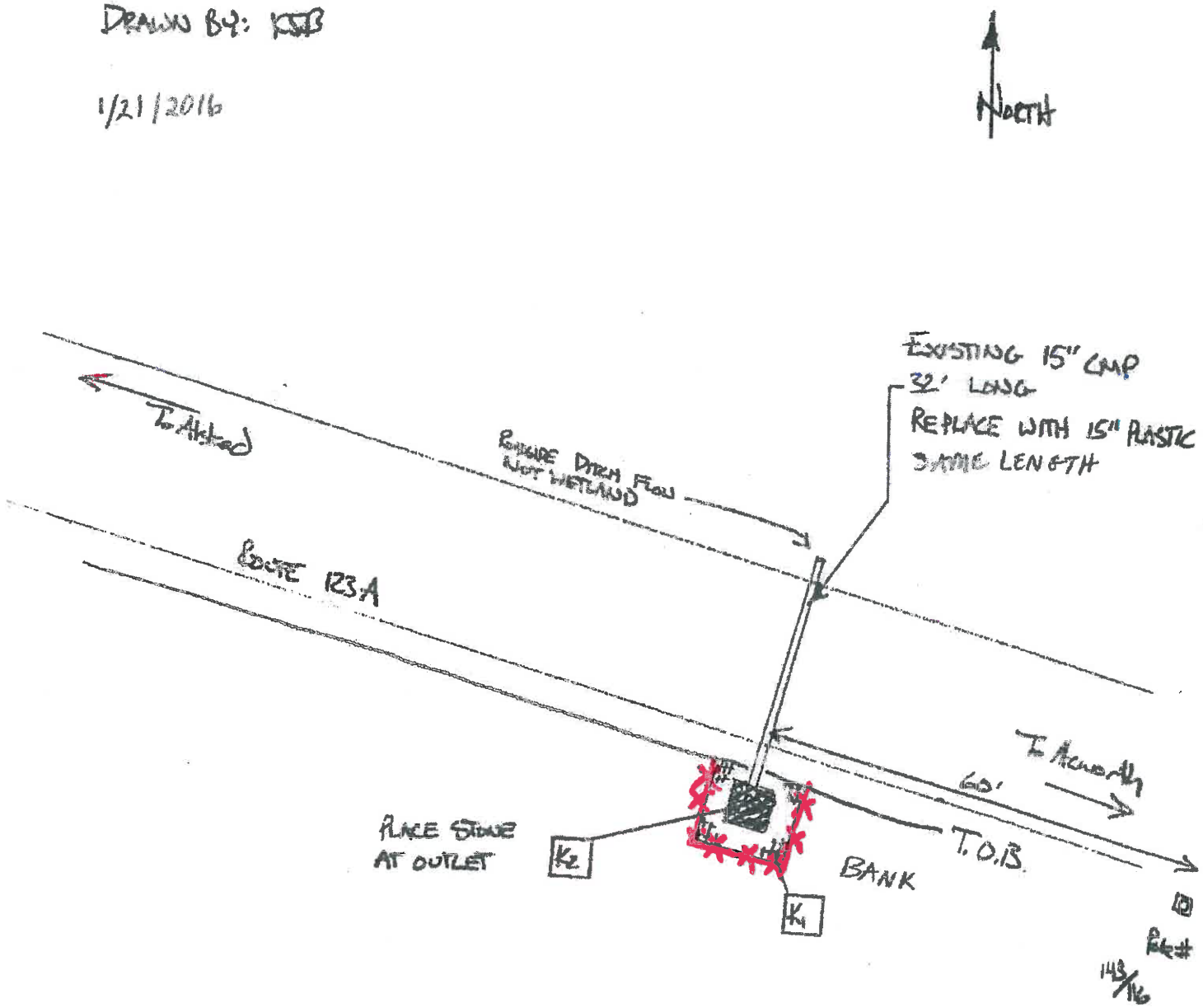
EROSION CONTROL

Pipe #14

Scale: 1"=20'

Drawn By: KSB

1/21/2016

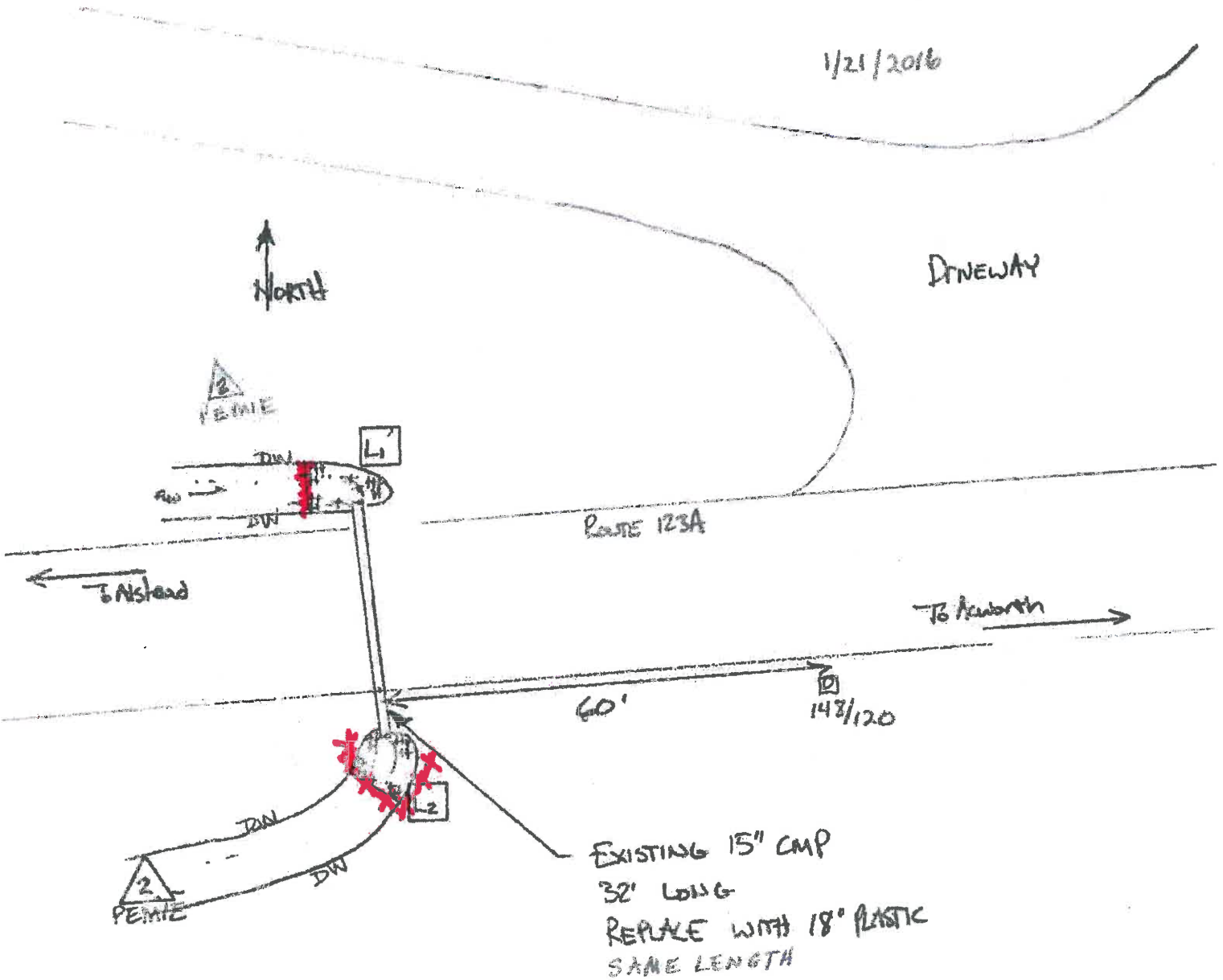


EROSION CONTROL

ROUTE 123A
Alstead - Langdon - Acworth

Pipe # 15
Scale: 1" = 20'
Drawn By: KJB

1/21/2016



ROUTE 123A

EROSION CONTROL

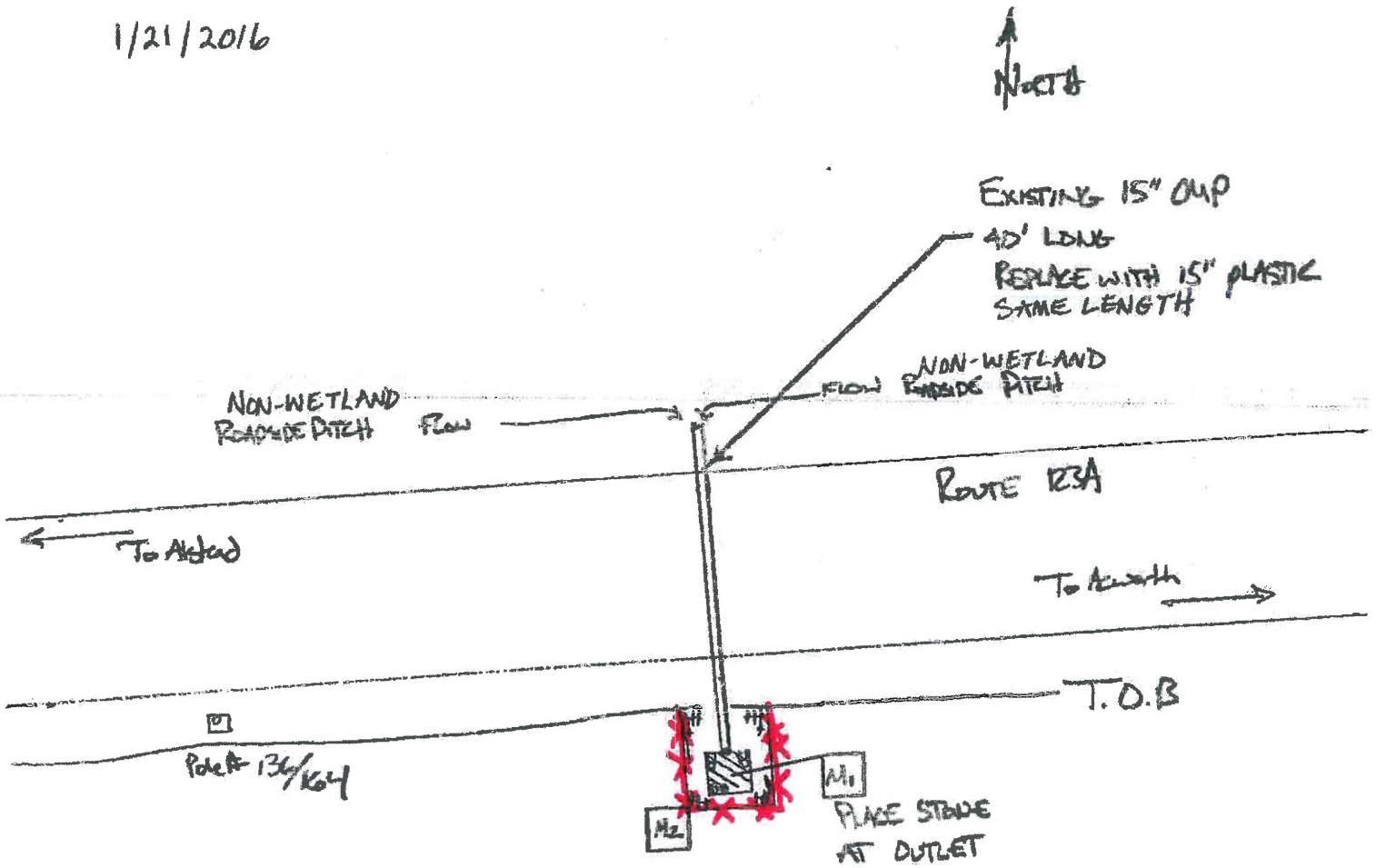
Alstead - Langdon - Acworth

Pipe # 16

Scale: 1" = 20'

Drawn By: KJB

1/21/2016



ROUTE 123A

EROSION CONTROL

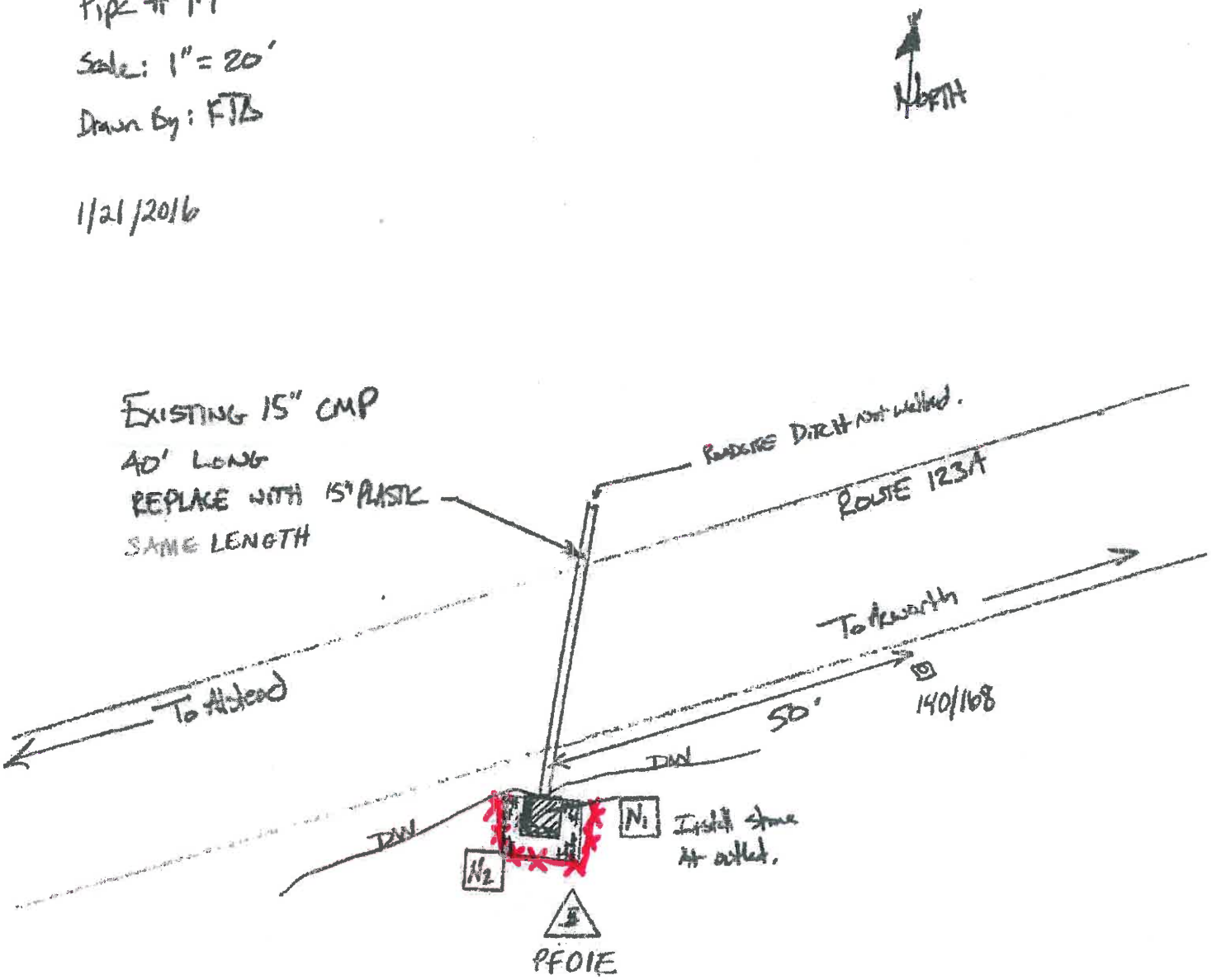
Alstead - Langdon - Acworth

Pipe # 17

Scale: 1" = 20'

Drawn By: FTB

1/21/2016



ROUTE 123A

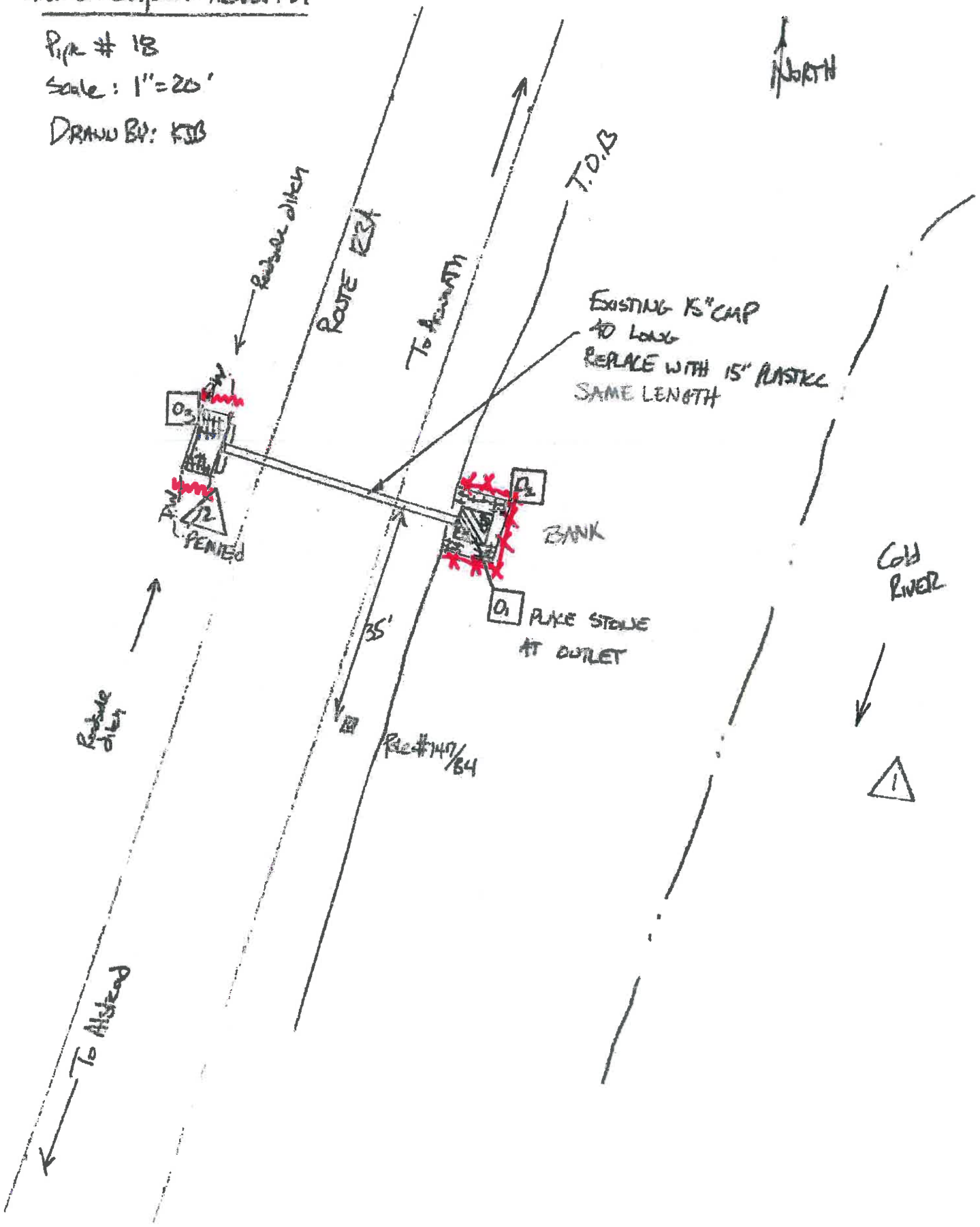
Aldstead - Langdon - Acworth

Pipe # 18

Scale: 1" = 20'

DRAWN BY: KJB

EROSION CONTROL



ROUTE 123A

Alstead - Langdon - Acworth

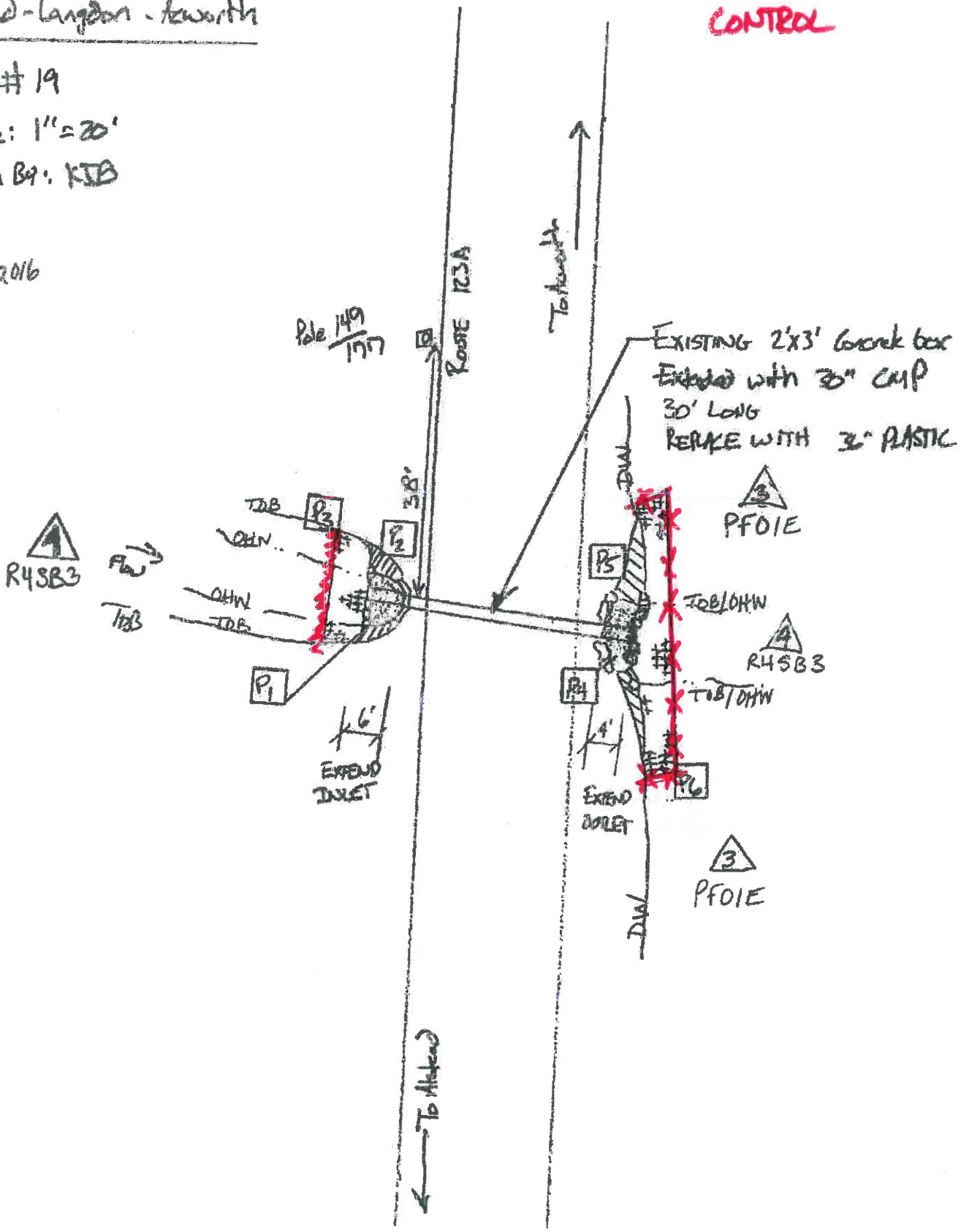
EROSION CONTROL

Pipe # 19

Scale: 1" = 20'

Drawn By: KJB

1/21/2016



EROSION CONTROL

ROUTE 123A

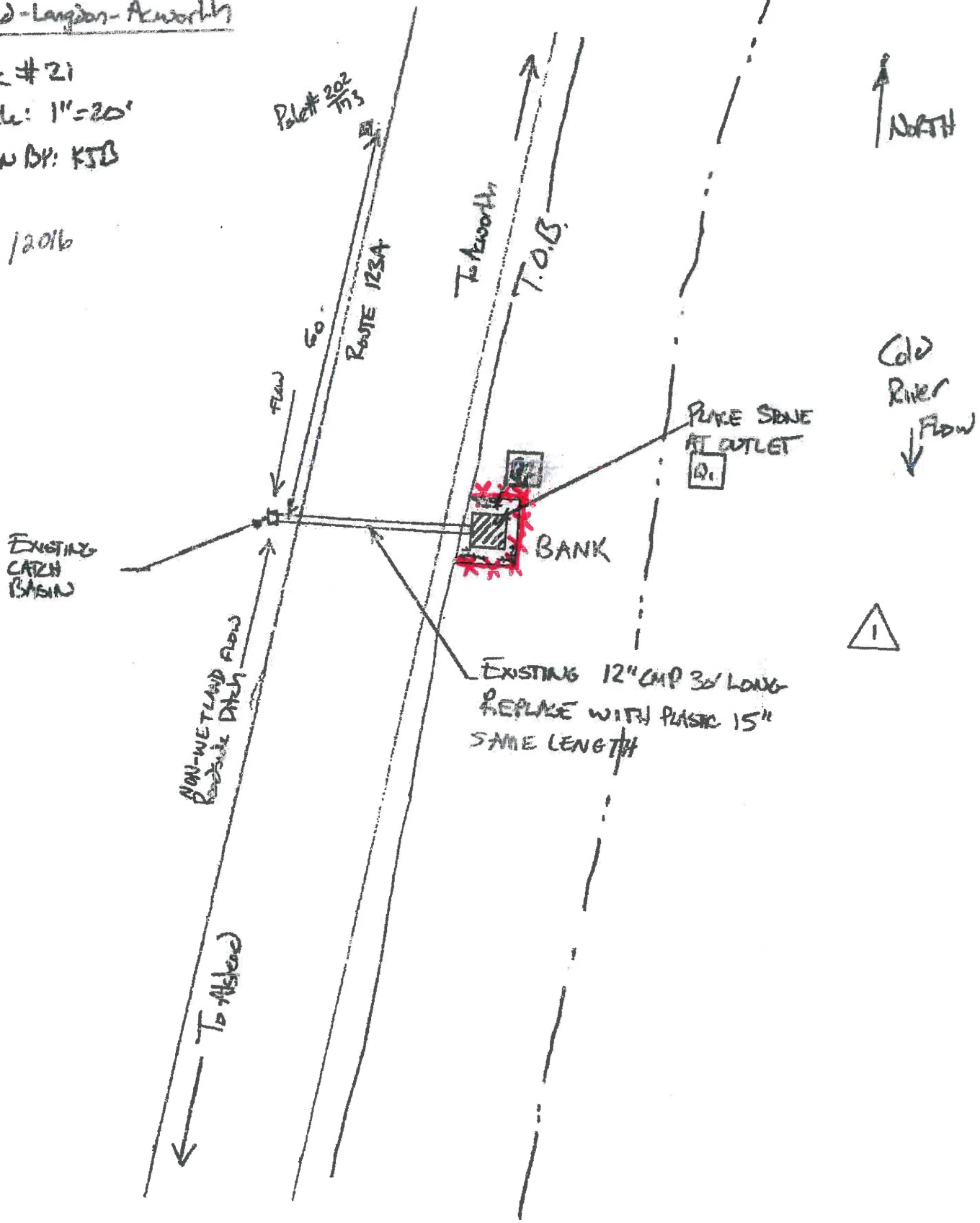
Alstead - Langdon - Acworth

Pipe #21

Scale: 1" = 20'

DRAWN BY: KJB

1/21/2016



ROUTE 123A

Alstead - Langdon - Acworth

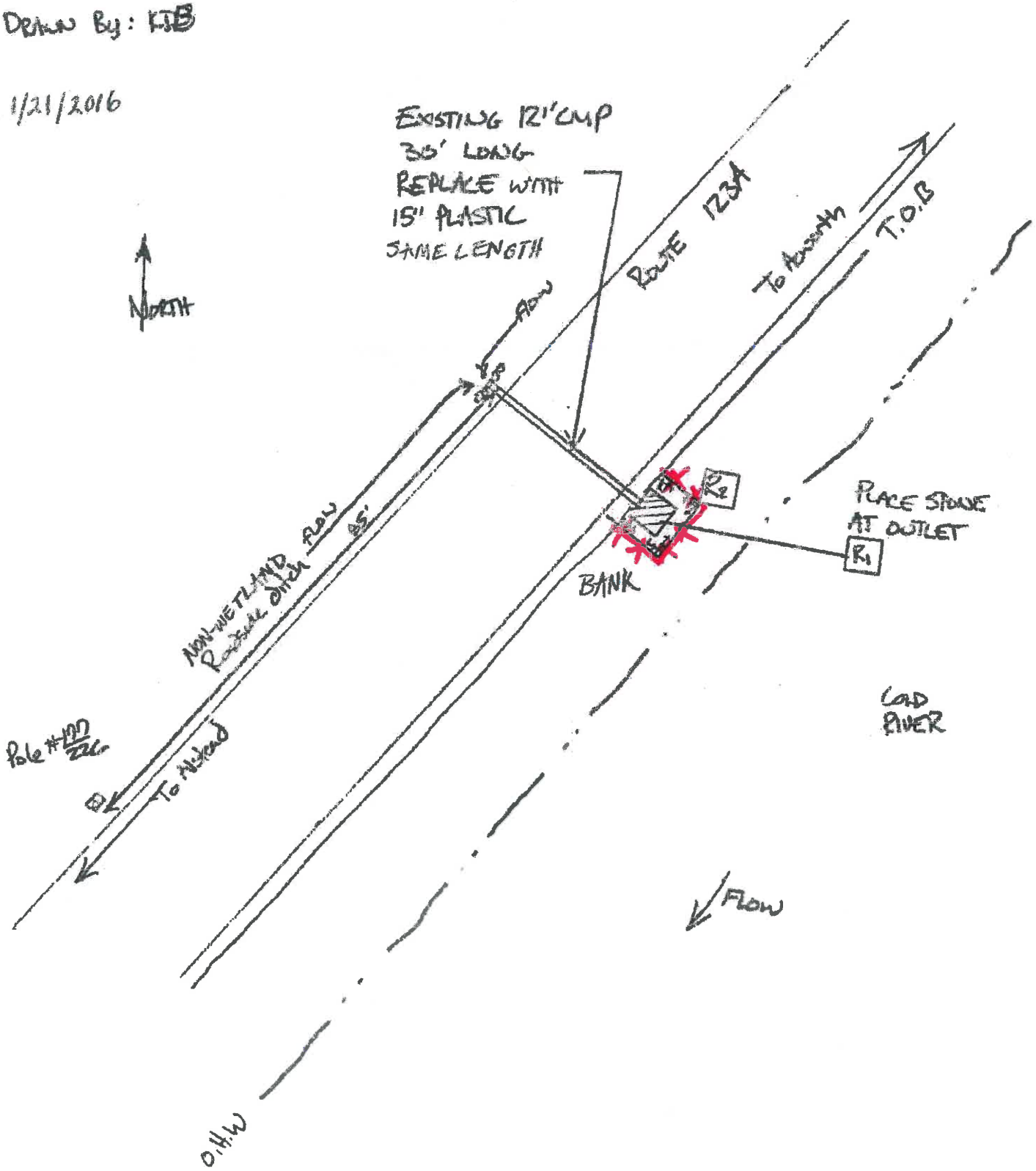
EROSION CONTROL

Pipe # 22

Scale: 1" = 20'

Drawn By: KJB

1/21/2016



ROUTE 123A

Acworth - Langdon - Alstead

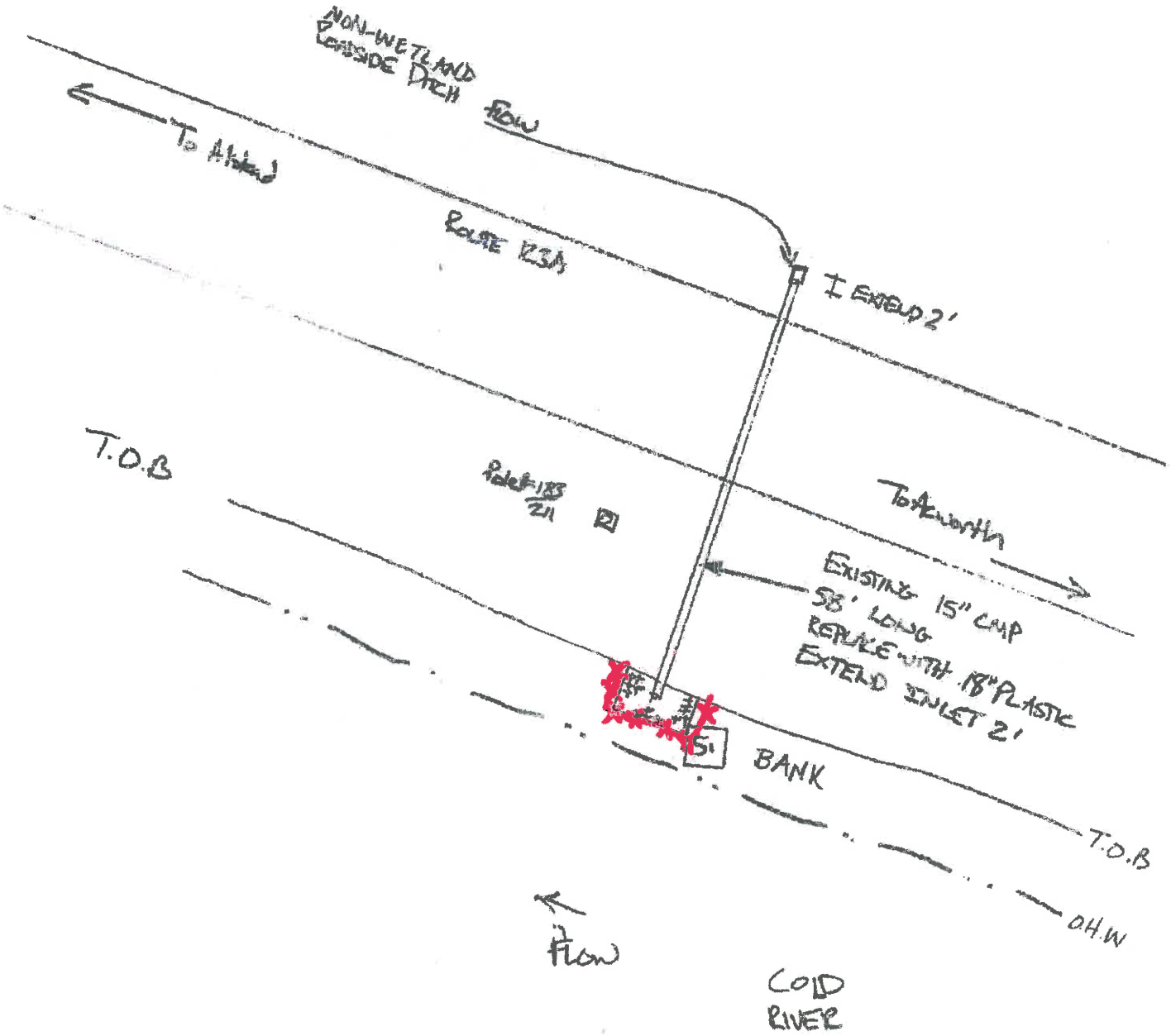
EROSION CONTROL

Scale: 1" = 20'

Pipe # 23

DRAWN BY: KJB

1/21/2016



ROUTE 123A

Alstead - Langdon - Acworth

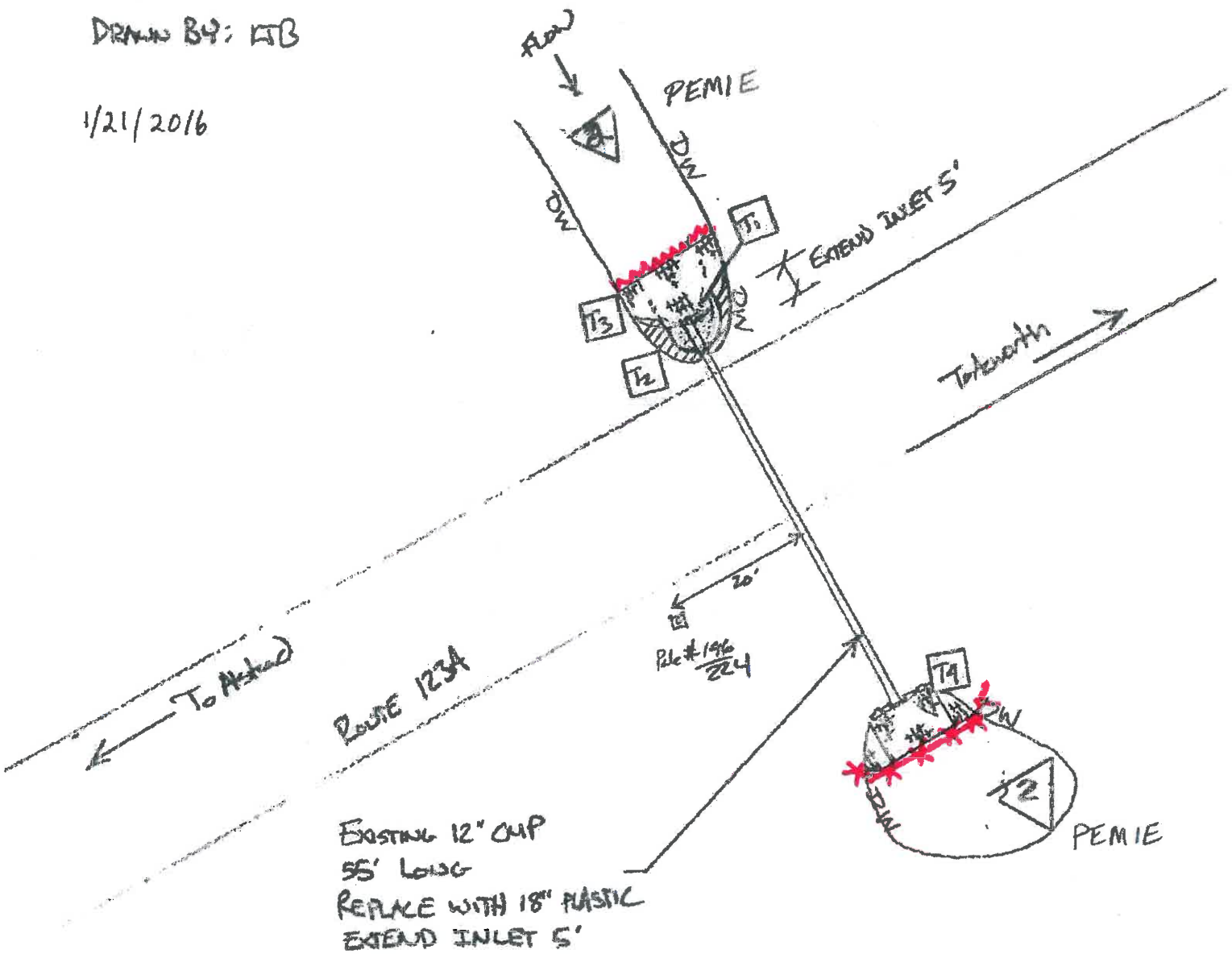
Pipe # 24

Scale: 1" = 20'

DRAWN BY: KJB

1/21/2016

EROSION CONTROL



ROUTE 123A

Ashtead - Langton - Acworth

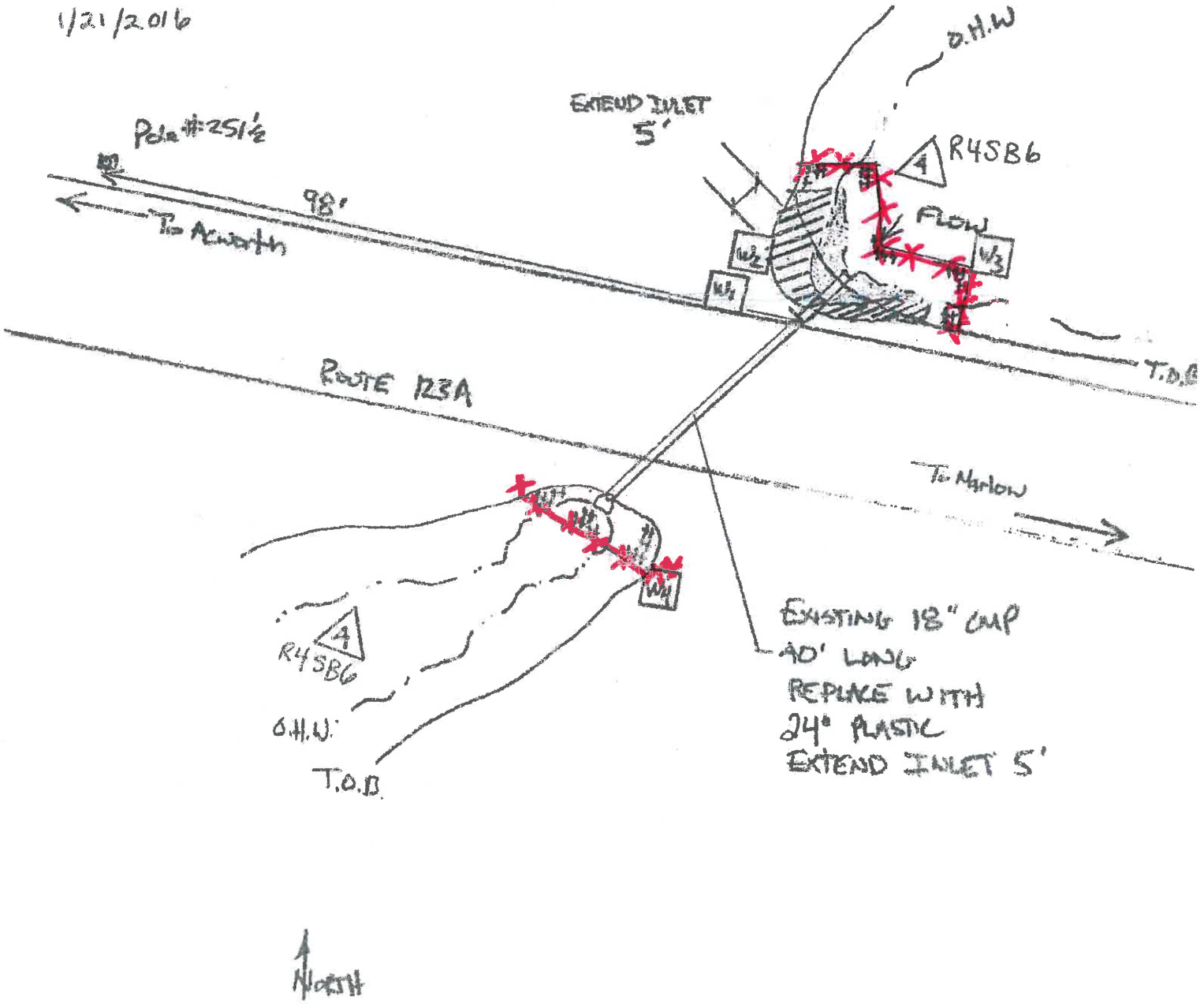
EROSION CONTROL

Pipe # 27

SCALE: 1" = 20'

DRAWN BY: KJB

1/21/2016



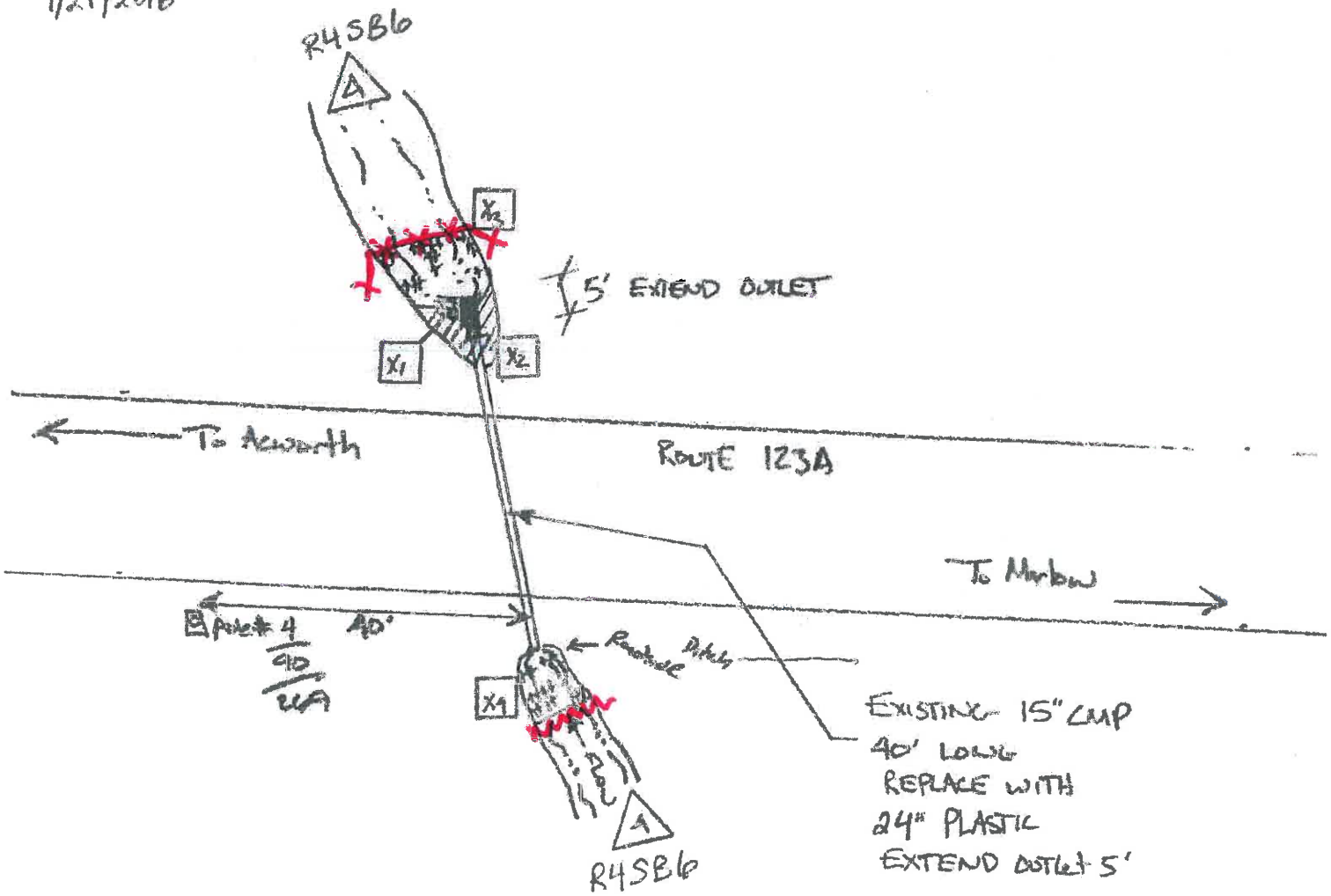
ROUTE 123A
Alstead - Langdon - Acworth

EROSION CONTROL

Pipe # 30
SCALE: 1" = 20'
DRAWN BY: KTB

NORTH

1/21/2016



Route 123A

Alstead-Langdon-Acworth

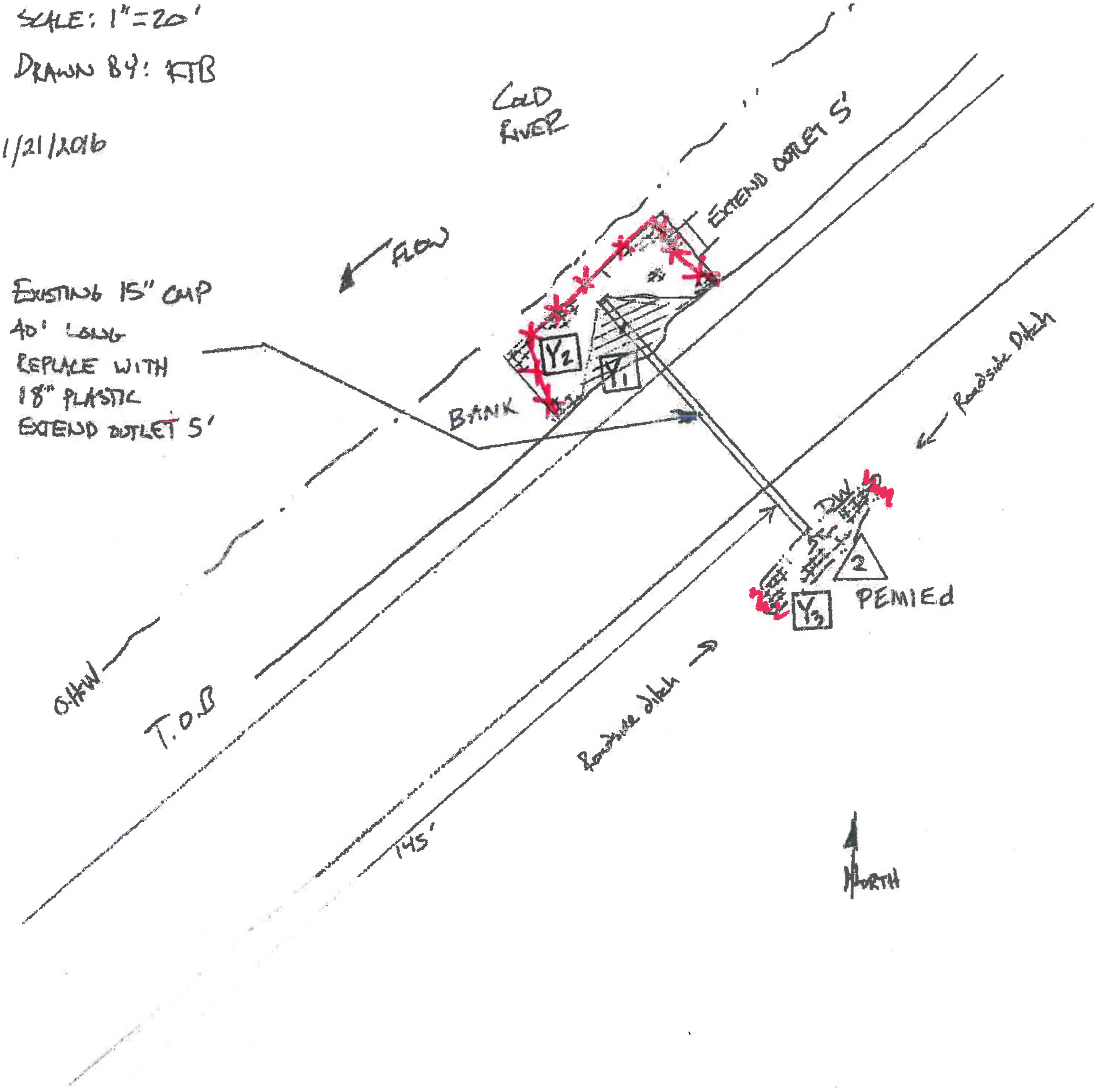
Pipe #31

SCALE: 1"=20'

DRAWN BY: KTB

1/21/2016

EROSION CONTROL



Pallet 9/54 2072 1/2

ROUTE 123A

Alstead - Langdon - Acworth

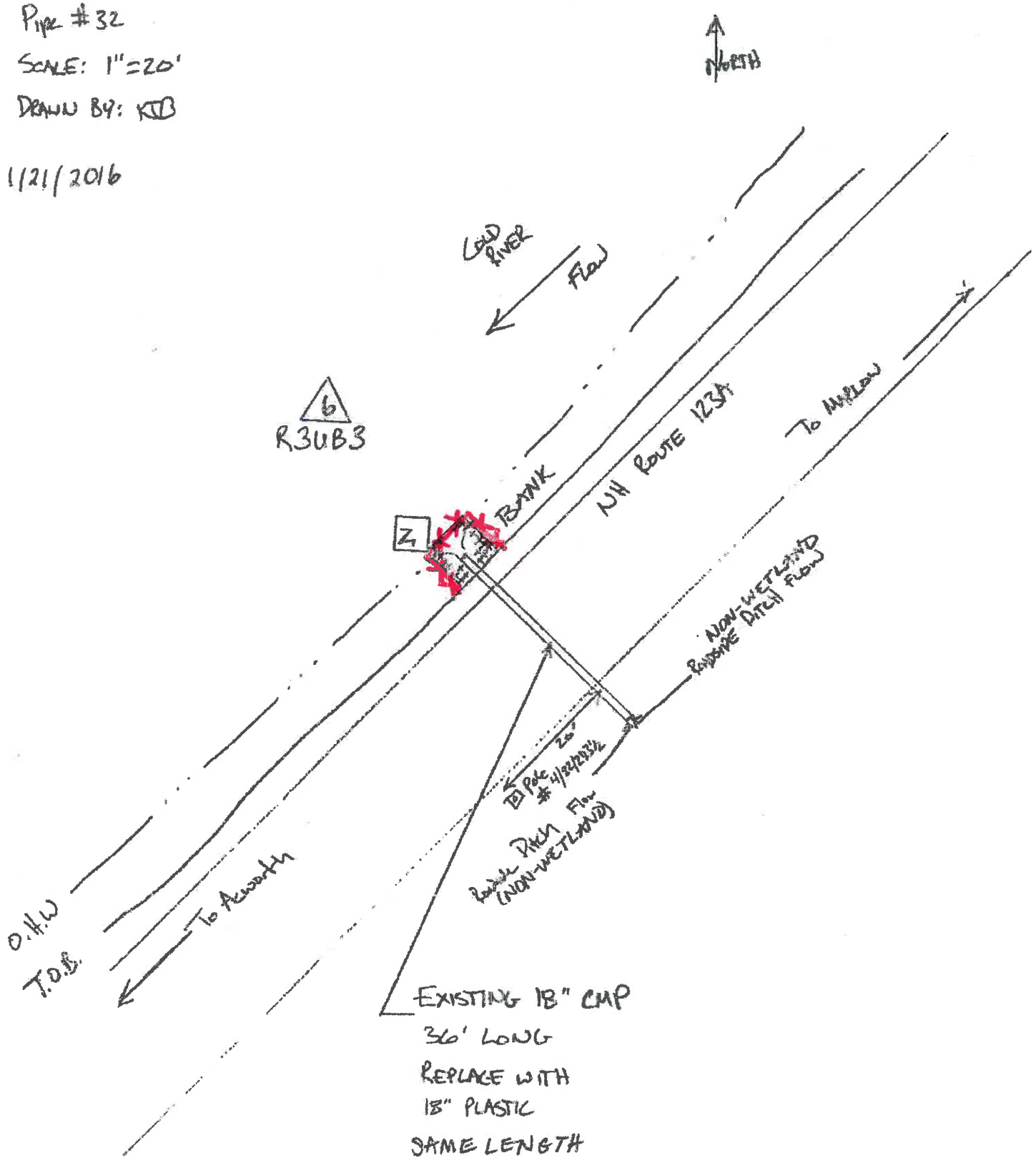
EROSION CONTROL

PIPE #32

SCALE: 1"=20'

DRAWN BY: KJB

1/21/2016



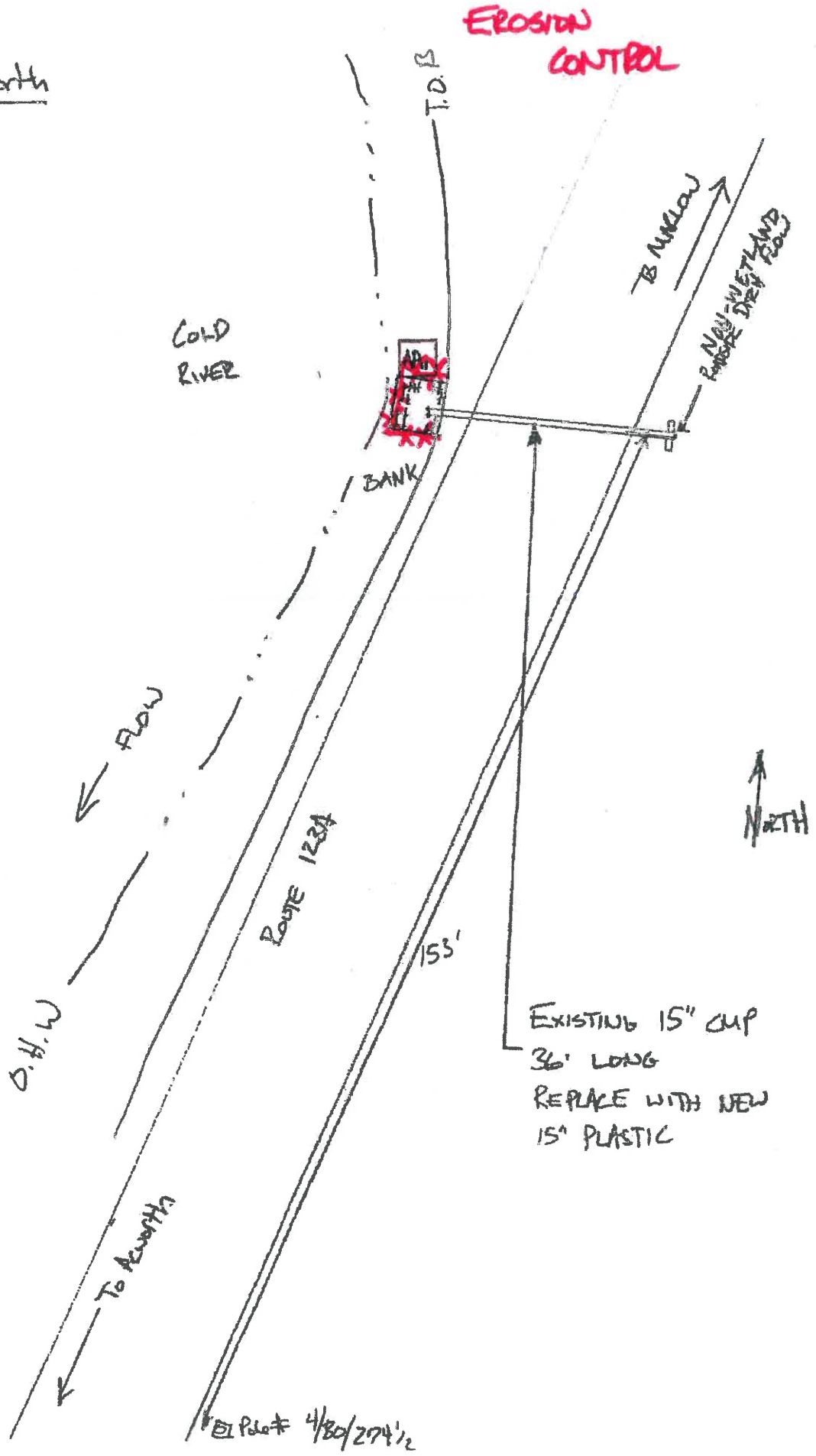
ROUTE 123A

Alstead - Langdon - Acworth

Pipe # 33

SCALE: 1"=20'

DRAWN BY: KJB



ROUTE 123A

Alstead - Langdon - Acworth

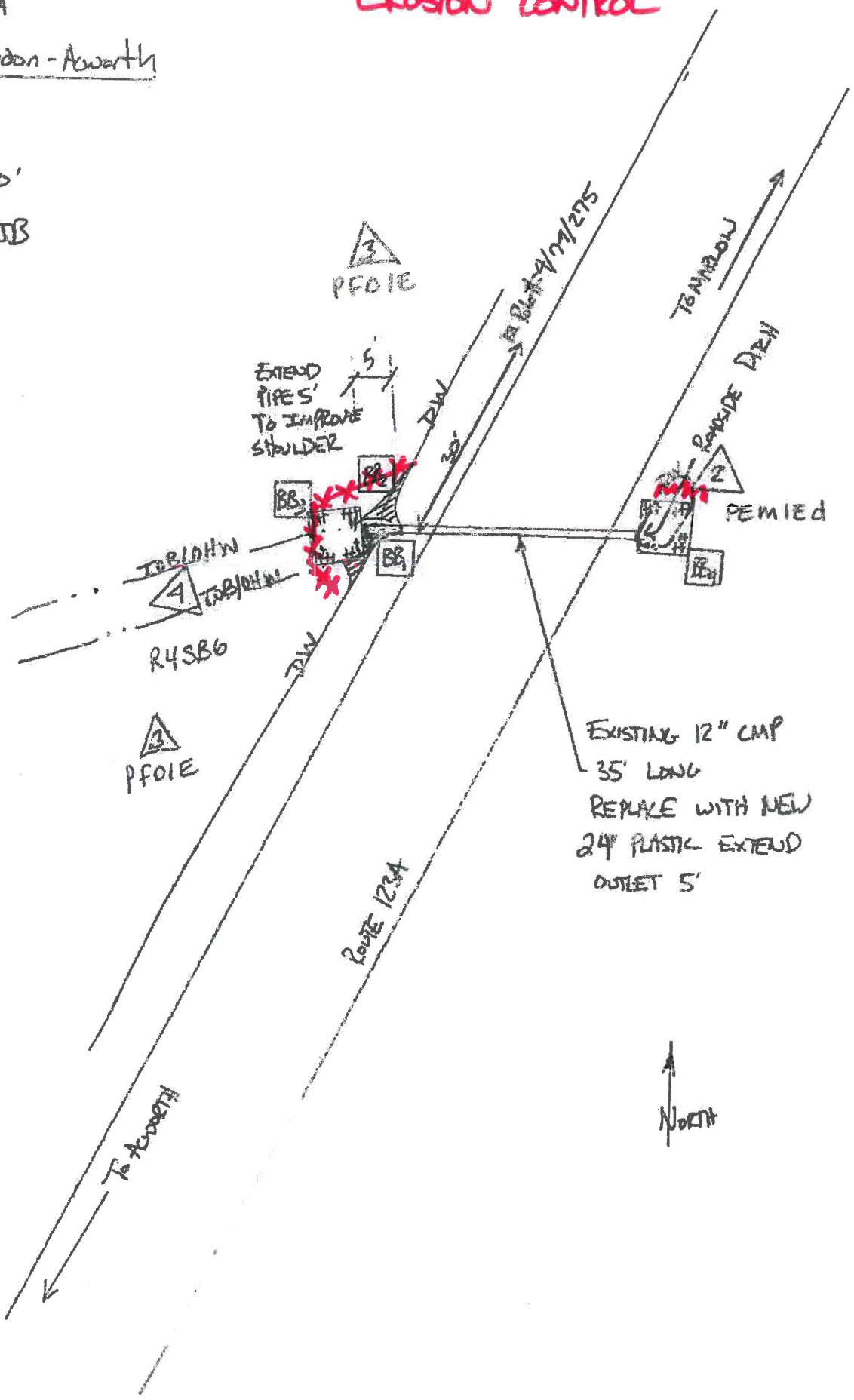
Pipe # 34

SCALE: 1" = 20'

DRAWN BY: KJB

1/21/2016

EROSION CONTROL



ROUTE 123A

Alstead - Langdon - Acworth

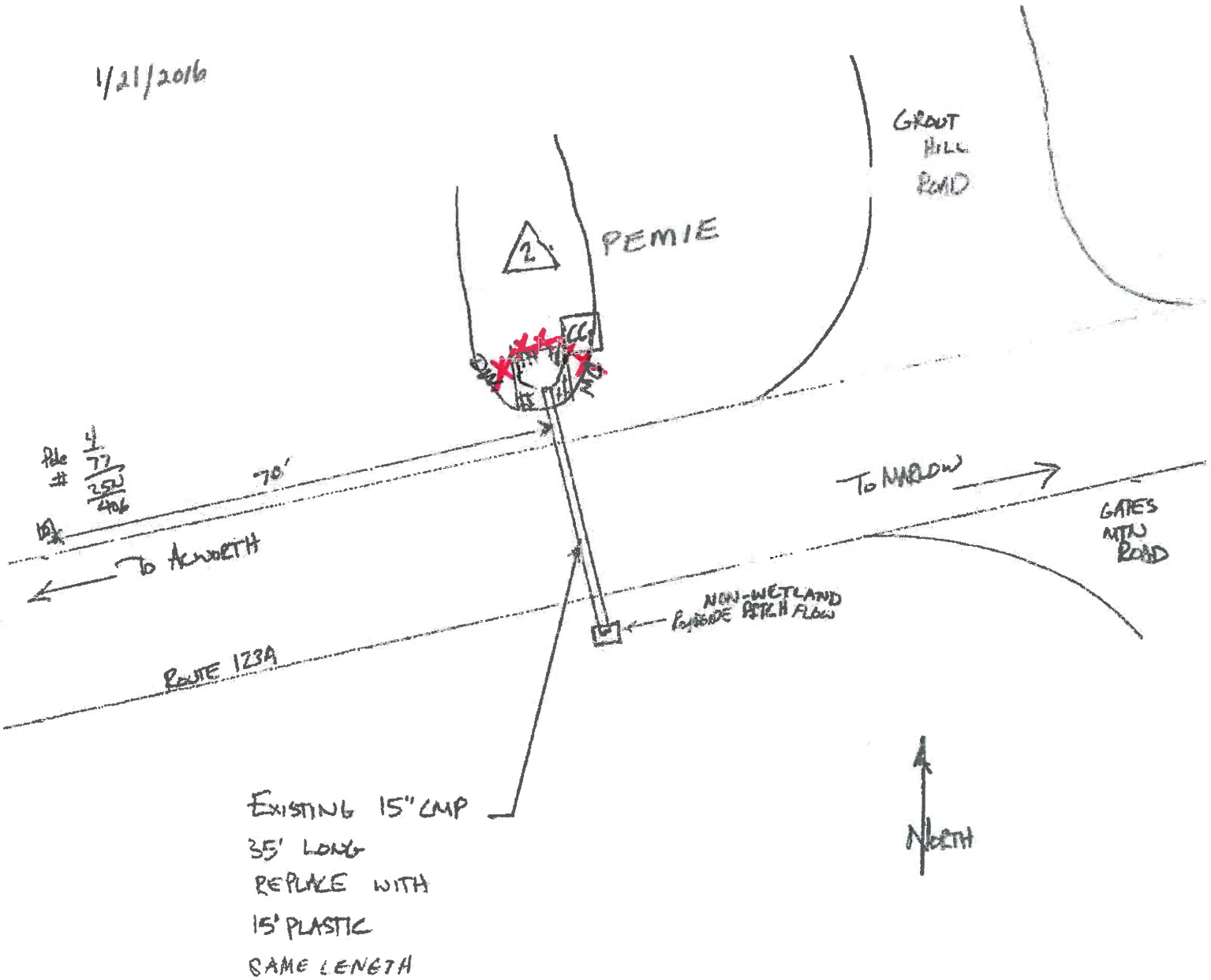
EROSION CONTROL

Pipe # 35

Scale: 1" = 20'

DRAWN BY: KJB

1/21/2016



EXISTING 15" CMP
35' LONG
REPLACE WITH
15' PLASTIC
SAME LENGTH

ROUTE 123A

Alstead - Langdon - Acworth

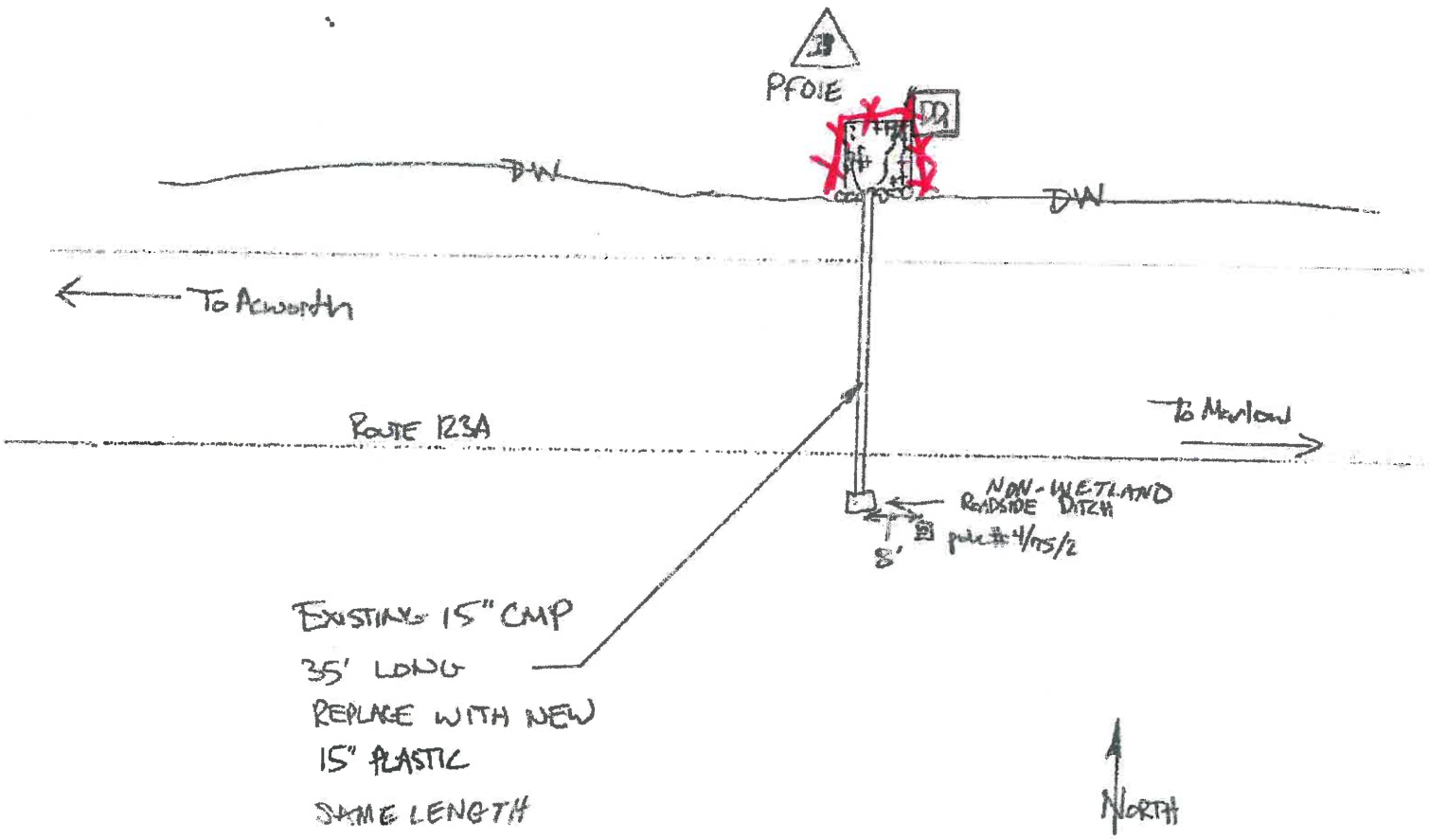
EROSION CONTROL

PIPE #36

SCALE: 1"=20'

DRAWN BY: KJB

1/21/2016



ROUTE 123A

Alstead - Langdon - Acworth

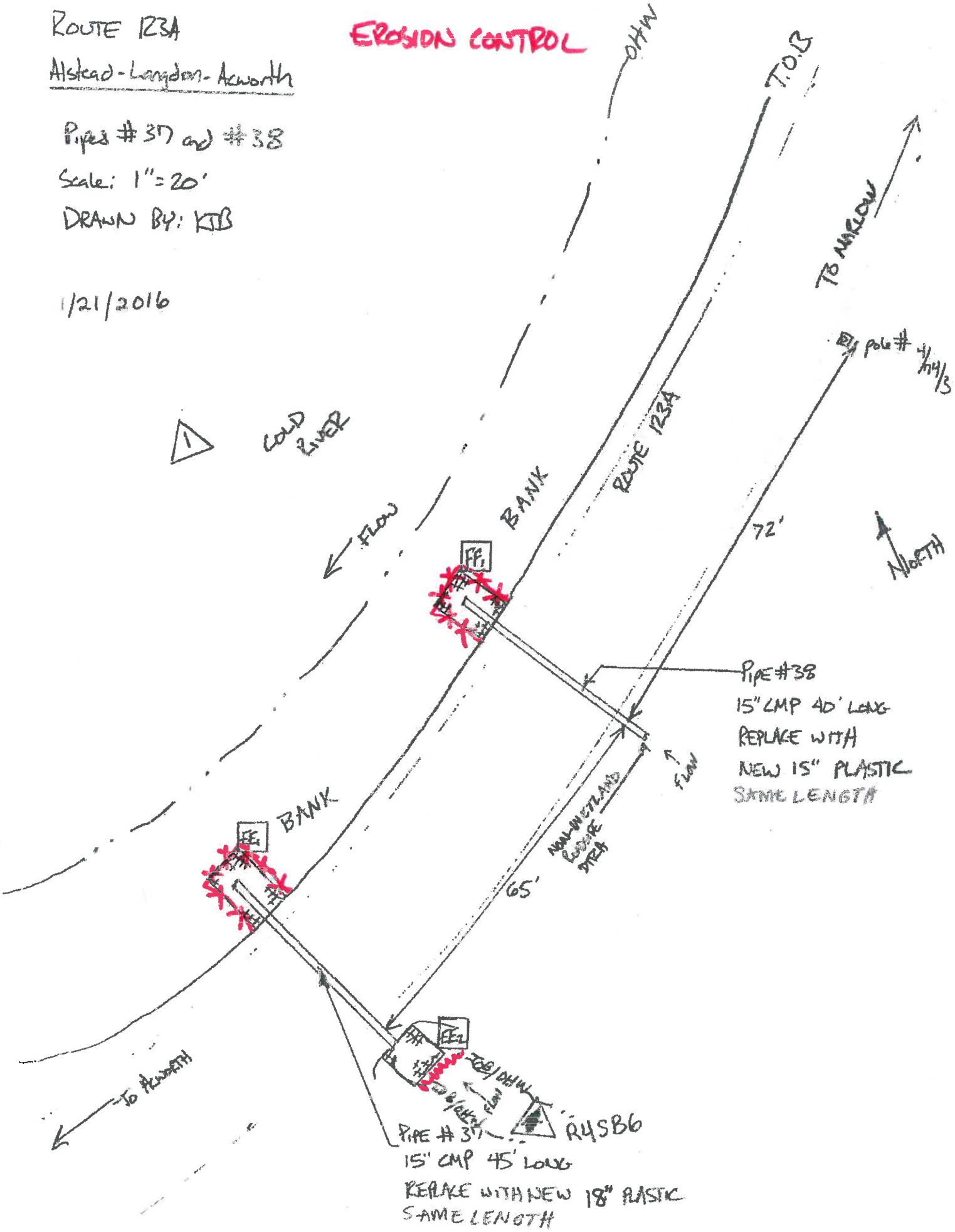
Pipes #37 and #38

Scale: 1" = 20'

DRAWN BY: KJB

1/21/2016

EROSION CONTROL



9. Pre-Application Meeting Minutes

Meeting Report

DATE OF MEETING: January 22, 2016

LOCATION: NH Department of Environmental Services

ATTENDED BY:
NHDES – Lori Sommer, Gino Infascelli
NHDOT – Matt Urban
McFarland Johnson – Christine Perron

SUBJECT: NHDOT District 4 Culvert Project, NH Route 123A, M401

NOTES:

The purpose of this project is to address 30 pipes along an 8-mile section of NH Route 123A in Alstead, Acworth, and Langdon, prior to a paving project that is scheduled for this summer. Most of the pipes are corrugated metal pipes that are in very poor condition.

Christine explained that District 4 completed the field work and sketches for the proposed work. Her role is to help Matt finalize the application materials.

Of the 30 pipes, 8 pipes carry intermittent streams; the remaining pipes are located in wetlands or outlet directly on bank of Cold River. The 8 stream crossings would be classified as Tier 1 based on watershed size; however the pipes are all located within a ¼ mile of the Cold River, making them all Tier 3 crossings. The work as proposed would otherwise qualify as Routine Roadway Maintenance. Since Routine Roadway Maintenance cannot be used in the designated river corridor, the work is being submitted in one application package.

Summary of impacts:

- Permanent impacts to wetlands: 400 sq ft
- Perm. Impacts to Intermittent Stream: 255 sq ft / 37 linear ft
- Perm. Impacts to Intermittent Stream Banks: 343 sq ft / 84 linear ft
    - Permanent impacts are the result of proposed pipe extensions in certain locations where safety could be improved by widening the shoulder slightly.
- Perm. Impacts to Perennial stream channel: none
- Perm. Impacts to Perennial stream banks: 275 sq ft / 55 linear ft
    - *These impacts are the result of adding stone pads for outlet scour protection in 8 locations where pipes outlet directly on the bank of the Cold River.*
- Total: 1273 sq ft / 176 linear ft permanent impact

According to District 4, none of these pipes has flooding or capacity issues. The only flooding history along this section of road is when the Cold River overtops its banks. Gino noted that it was surprising that none of the pipes have ever had issues given the history of flooding in the general area and the steep hillsides along the roadway.

Most of the pipes have minimal cover over them, which limits the size of the culvert that can be used at each location.

Since these pipe replacements don't qualify as Routine Roadway Maintenance due to the designated river corridor, the stream crossings are classified as Tier 3 crossings and the project is classified as a major impact project that requires mitigation.

Lori stated that the impacts from installation of stone for scour protection where pipes outlet onto the bank of the Cold River do not require mitigation (55 linear feet), since the stone is for the purpose of protecting existing infrastructure.

Gino and Lori agreed that, at a minimum, the 8 pipes that carry streams should be upsized. As proposed currently, only 2 of these pipes would be upsized. If these 8 pipes could be made at least one size larger, then they would consider that self-mitigation and no further mitigation would be required. Lori suggested adding a column to the culvert summary table to show the proposed upgrades.

Gino noted that upsizing any of the pipes, even those that do not carry streams, would help prevent future issues with larger storms, and would reduce the potential for debris to block pipe inlets. He encouraged District 4 to consider upsizing wherever possible, not only at stream crossings. He also noted that any outlet protection that is installed should match pipe inverts in order to limit impacts to aquatic organism passage.

cc:
Kevin Belanger, NHDOT District 4
Kevin Nyhan, NHDOT Bureau of Environment

NH Department of Transportation
Highway Maintenance District 4
NH Route 123A, M401

Env-Wt 904.09 Alternative Design
TECHNICAL REPORT

This Alternative Design Technical Report addresses the following 8 culverts included in this project:
Pipe 6 – Existing 18" RCP with a watershed of 0.069 square miles (44 ac).
Pipe 8 – Existing 15" CMP with a watershed of 0.149 square miles (95 ac).
Pipe 11 – Existing 24" CMP with a watershed of 0.055 square miles (35 ac).
Pipe19 – Existing 2' x 3' box culvert extended with 30" CMP, with a watershed of 0.045 square miles (29 ac).
Pipe 27 – Existing 18" CMP with a watershed of 0.041 square miles (26 ac).
Pipe 30 – Existing 15" CMP with a watershed of 0.167 square miles (107 ac).
Pipe 34 – Existing 12" CMP with a watershed of 0.070 square miles (45 ac).
Pipe 37 – Existing 15" CMP with a watershed of 0.10 square miles (64 ac).

Based on watershed size, these culverts would all be considered Tier 1 stream crossings. However, all of these culverts are located within a ¼ mile of the Cold River (a NH Designated River); therefore the culverts must be considered Tier 3 stream crossings.

Using the estimated bankfull width that was calculated using the NH Regional Hydraulic Geometry Curves, the following structures are recommended by the NH Stream Crossing Guidelines (1.2 times bankfull plus 2 feet):
Pipe 6 – 6' span or open bottom culvert
Pipe 8 – 7' span or open bottom culvert
Pipe 11 – 5.6' span or open bottom culvert
Pipe19 – 5.2' span or open bottom culvert
Pipe 27 – 5' span or open bottom culvert
Pipe 30 – 8.2' span or open bottom culvert
Pipe 34 – 6' span or open bottom culvert
Pipe 37 – 7' span or open bottom culvert

Env-Wt 904.09(a) - If the applicant believes that installing the structure specified in the applicable rule is not practicable, the applicant may propose an alternative design in accordance with this section.

Please explain why the structure specified in the applicable rule is not practicable (Env-Wt 101.69 defines practicable as *available and capable of being done after taking into consideration costs, existing technology, and logistics in light of overall project purposes.)*

The intent of the proposed project is to maintain the integrity of existing infrastructure. The work will be completed by District forces utilizing maintenance funds. The cost of installing spans or open bottom culverts that are 5' or larger would be substantially more than the cost of the proposed plastic culverts. Further, spans or open bottom culverts must be designed prior to installation and their construction would be a larger undertaking than District forces would carry out. These factors would further increase costs, and would also substantially delay the project. For these reasons, providing the recommended spans or open bottom culverts is not considered practicable. Culverts as proposed have been increased in size to the extent allowed by the available cover over the top of each culvert.

The proposed alternative meets the specific design criteria for Tier 2 and Tier 3 crossings to the *maximum extent practicable*, as specified below.

Env-Wt 904.05 Design Criteria for Tier 2 and Tier 3 Stream Crossings – New Tier 2 stream crossings, replacement Tier 2 crossings that do not meet the requirements of Env-Wt 904.07, and new and replacement Tier 3 crossings shall be designed and constructed:

(a) In accordance with the NH Stream Crossing Guidelines.

The Stream Crossing Guidelines recommend structures that provide a natural bottom and that are 1.2 times bankfull width plus 2 feet. As noted above, providing structures of this size is not practicable for this project. The Stream Crossing Guidelines also recommend that replacement crossings should be designed to avoid or mitigate inlet and outlet drops, flow contraction, tailwater armoring, tailwater scour pools, headwater pools, physical barriers to aquatic organism passage, embankment instabilities, channel entrenchment, and channel sedimentation. The culverts as proposed will be larger than the existing culverts, which will help prevent impacts to flow, especially during storm events. Perched outlets will be avoided and any scour protection placed at outlets will match into the culvert invert to avoid impacts to aquatic organism passage.

(b) With bed forms and streambed characteristics necessary to cause water depths and velocities within the crossing structure at a variety of flows to be comparable to those found in the natural channel upstream and downstream of the stream crossing.

The proposed culverts will not have a natural bottom, perpetuating the existing condition.

(c) To provide a vegetated bank on both sides of the watercourse to allow for wildlife passage.

Any impacts to existing vegetation surrounding the ends of each culvert will be minimal.

(d) To preserve the natural alignment and gradient of the stream channel, so as to accommodate natural flow regimes and the functioning of the natural floodplain.

The existing alignment and gradient of the intermittent streams will not be impacted.

(e) To accommodate the 100-year frequency flood, to ensure that (1) there is no increase in flood stages on abutting properties; and (2) flow and sediment transport characteristics will not be affected in a manner which could adversely affect channel stability.

According to NHDOT District 4 personnel, these culverts do not have a history of flooding. It is not anticipated that the proposed culverts will increase downstream flood stages. Further, these culverts outlet into the Cold River and there are no properties directly downstream of the culverts prior to reaching the river. The proposed culverts will be larger than the existing culverts, and the larger culverts are expected to improve flow and sediment transport within each stream.

(f) To simulate a natural stream channel.

For the reasons noted above, simulating a natural stream channel is not practicable for this type of maintenance project.

(g) So as not to alter sediment transport competence.

Since the culverts will be larger than existing, it is anticipated that sediment transport will be improved.

Env-Wt 904.09(c)(3) – The alternative design must meet the general design criteria specified in Env-Wt 904.01:

Env-Wt 904.01
(a) Not be a barrier to sediment transport;

Since the culverts will be larger than existing, it is anticipated that sediment transport will be improved.

(b) Prevent the restriction of high flows and maintain existing low flows;

The culverts carry intermittent streams. It is anticipated that the larger culverts that are proposed will improve the performance of the culverts during high flows, but will have little impact on low flows.

(c) Not obstruct or otherwise substantially disrupt the movement of aquatic life indigenous to the waterbody beyond the actual duration of construction;

Perched outlets will be avoided and any scour protection placed at outlets will match into the culvert invert to avoid impacts to aquatic organism passage.

(d) Not cause an increase in the frequency of flooding or overtopping of banks;

Since the culverts will be larger than existing, it is anticipated that performance of the culverts during high flows will be improved.

(e) Preserve watercourse connectivity where it currently exists;

Watercourse connectivity will be maintained.

(f) Restore watercourse connectivity where: (1) Connectivity previously was disrupted as a result of human activity(ies); and (2) Restoration of connectivity will benefit aquatic life upstream or downstream of the crossing, or both;

Watercourse connectivity exists currently and will be maintained.

(g) Not cause erosion, aggradation, or scouring upstream or downstream of the crossing; and

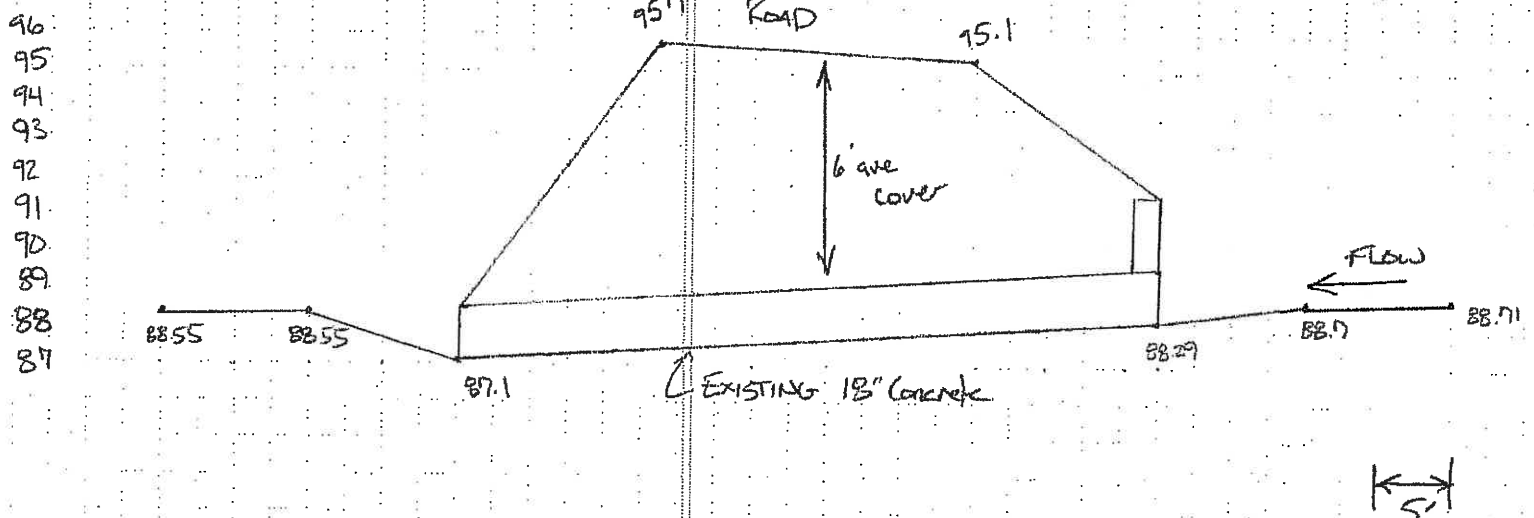
It is not anticipated that the proposed culverts will cause erosion, aggradation, or scouring.

(h) Not cause water quality degradation.

All appropriate measures will be taken during and after construction to ensure that these areas are stabilized. No impacts to water quality are anticipated.

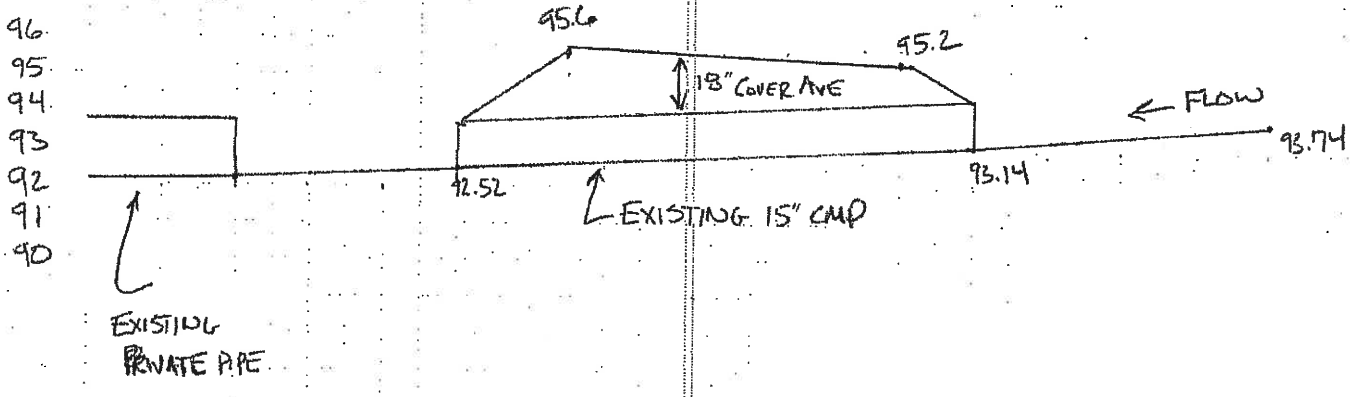
Pipe #6
Flow profile

Note: All elevations from assumed HI (Elevation) and are relative to each other at each pipe.



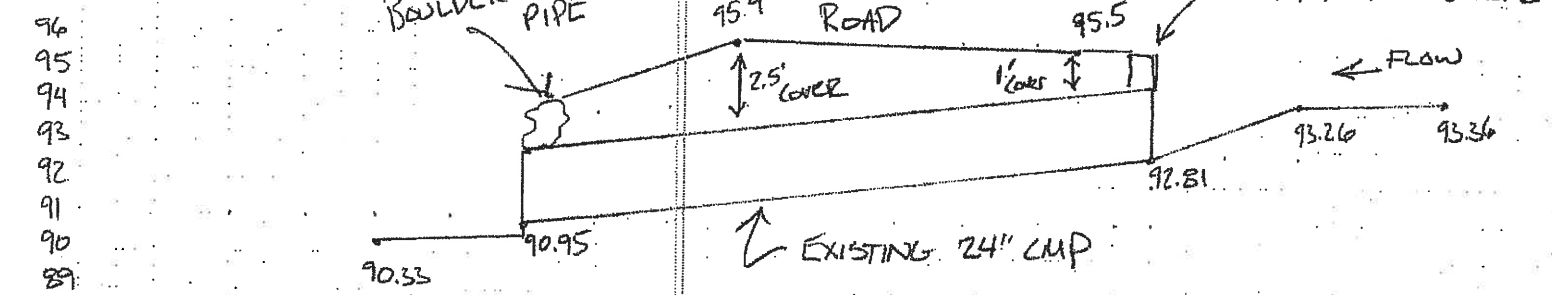
5'

Pipe #8
Flow Profile

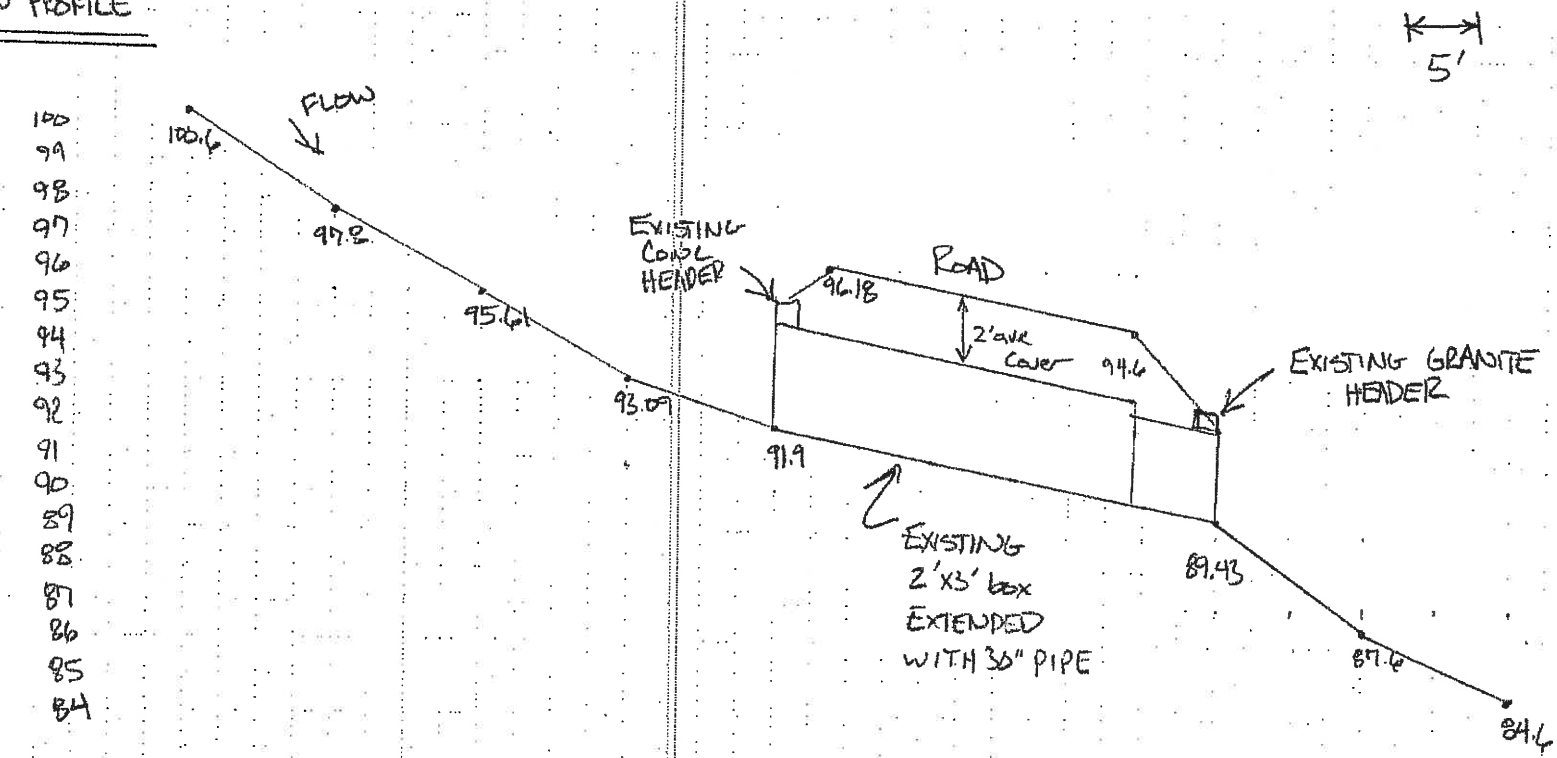


Alstead - Langdon - Acworth
Route 123A Pipe Replacements

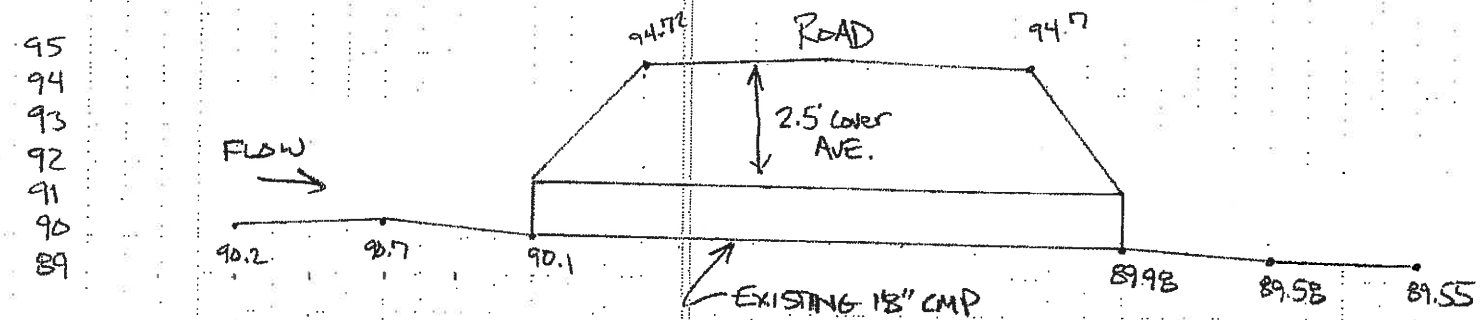
Pipe # 11
Flow Profile



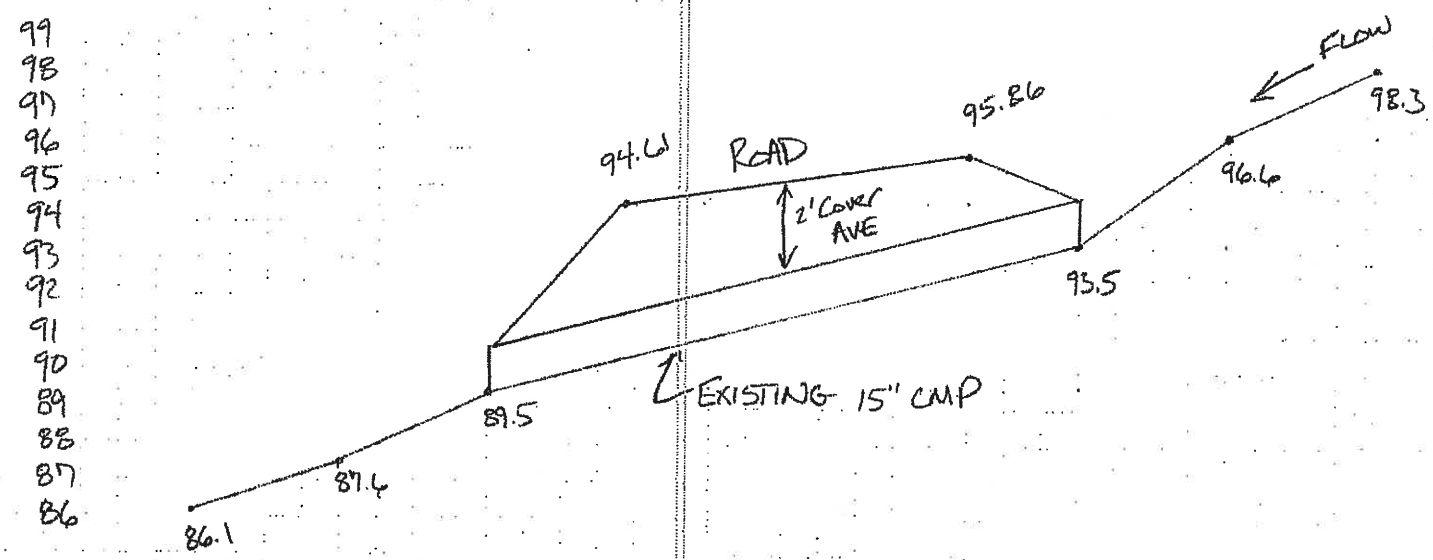
Pipe # 19
FLOW PROFILE



Pipe # 27
FLOW PROFILE

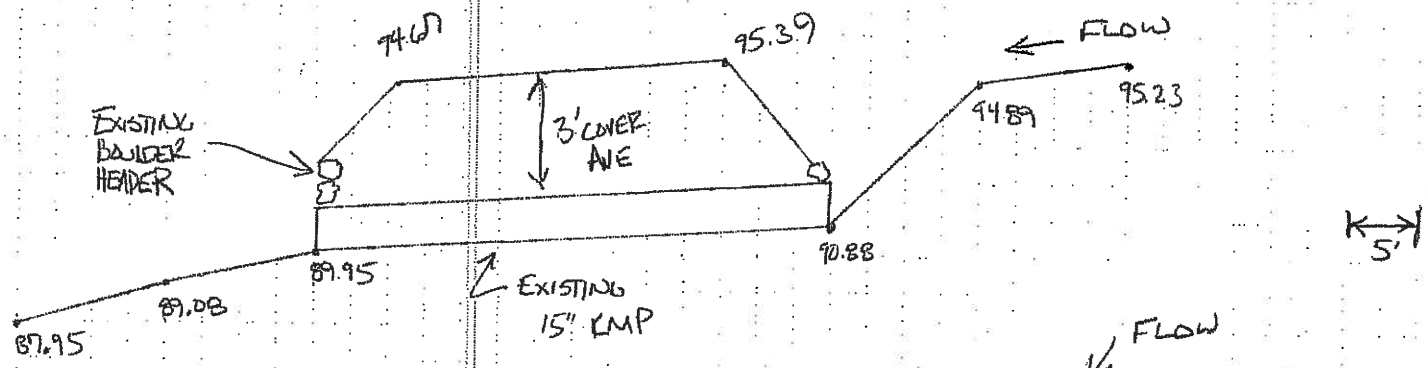


Pipe # 30
FLOW PROFILE



Pipe #34
Flow Profile

96
95
94
93
92
91
90
89
88



Pipe #35
Flow Profile

95
94
93
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76
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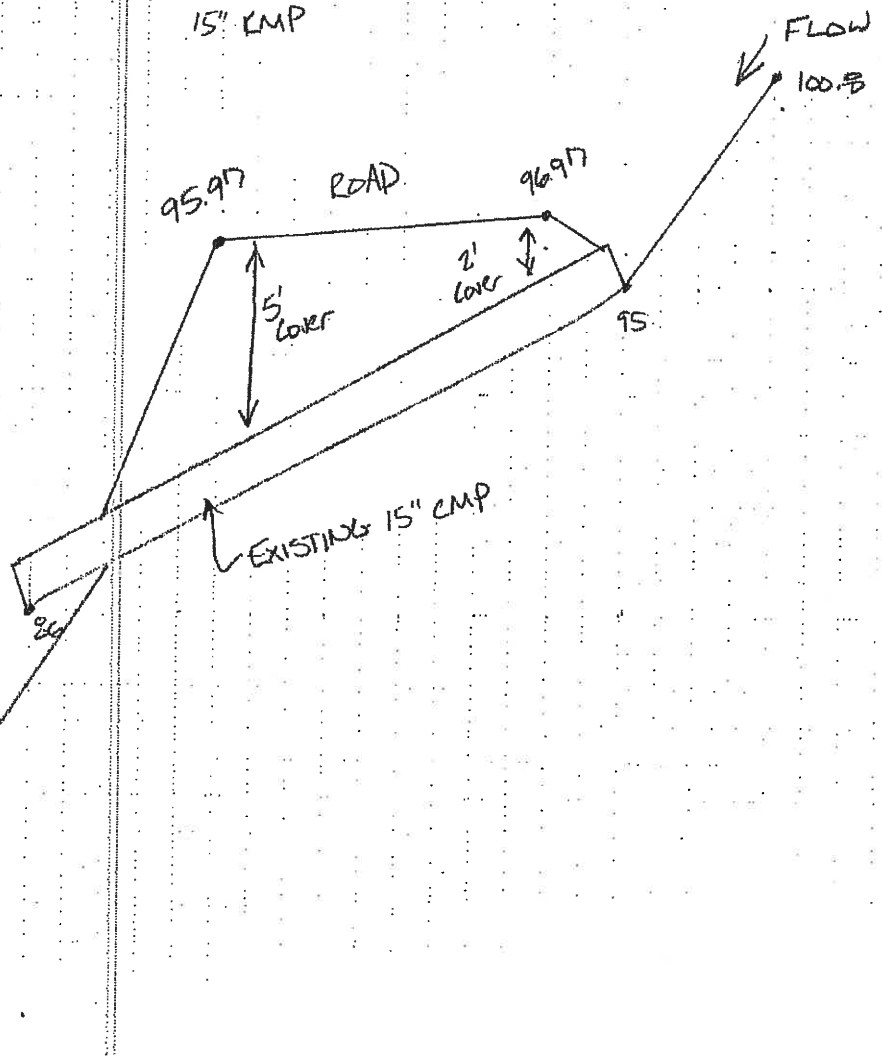
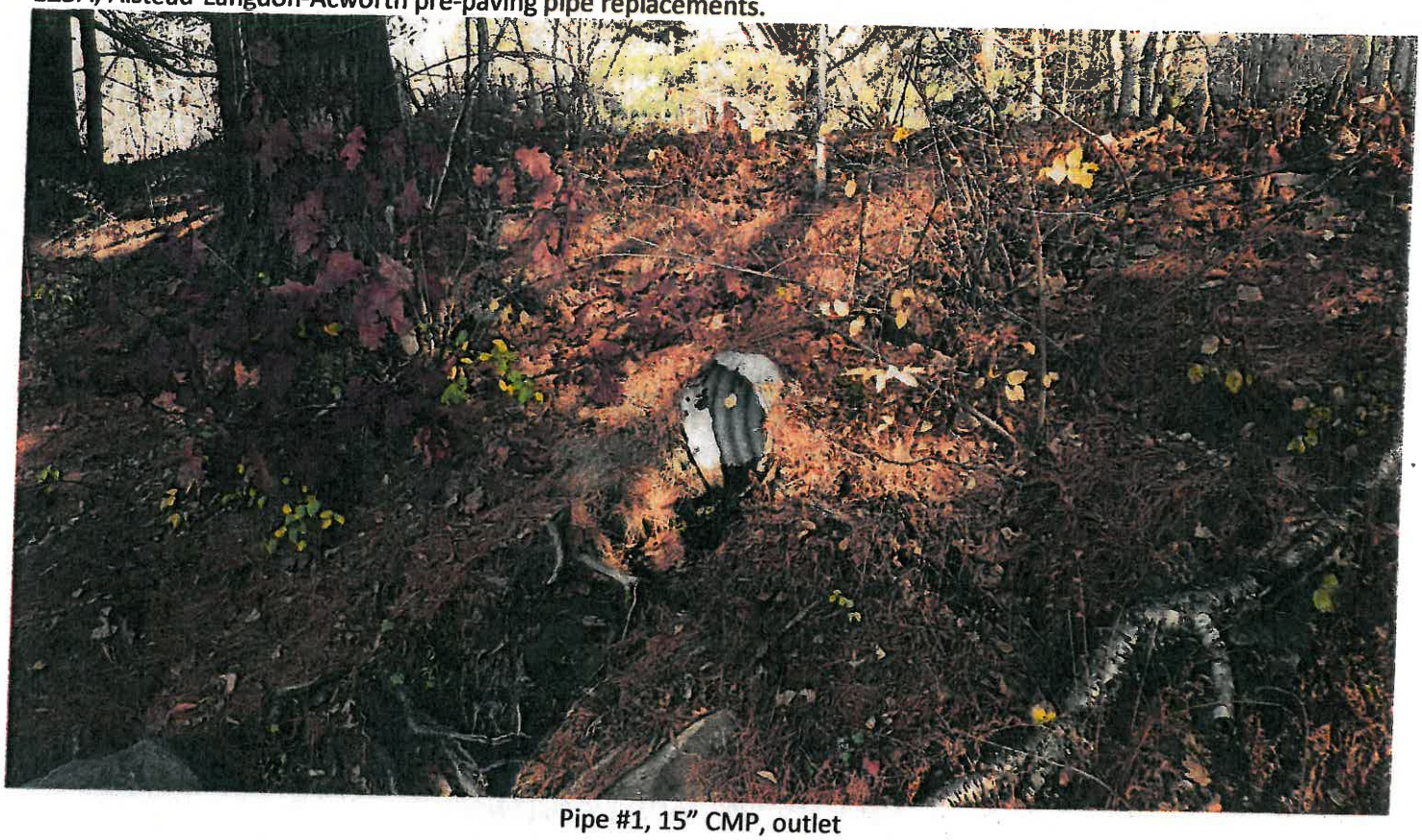
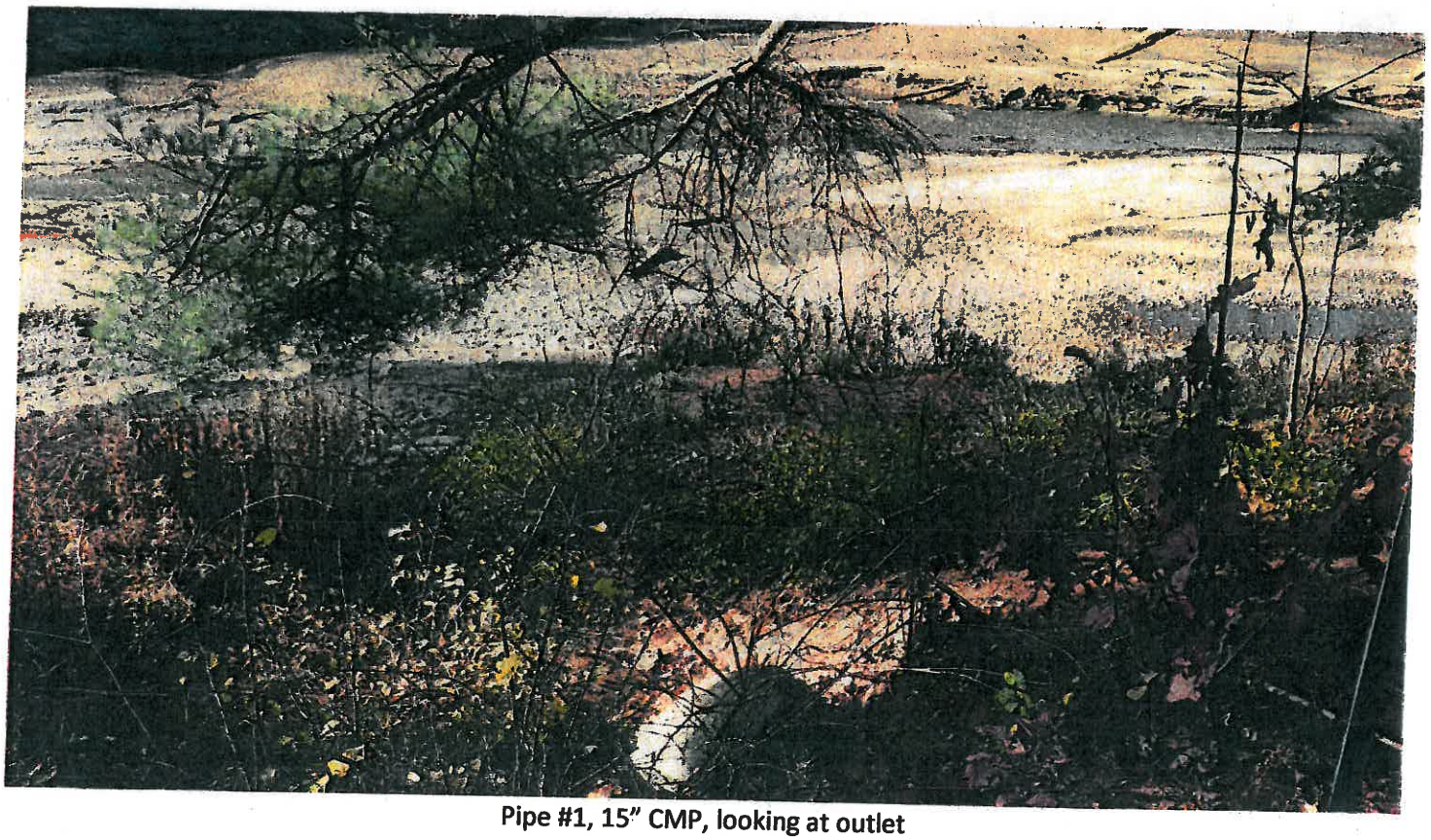


12. Photographs

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.



Pipe #1, 15" CMP, outlet



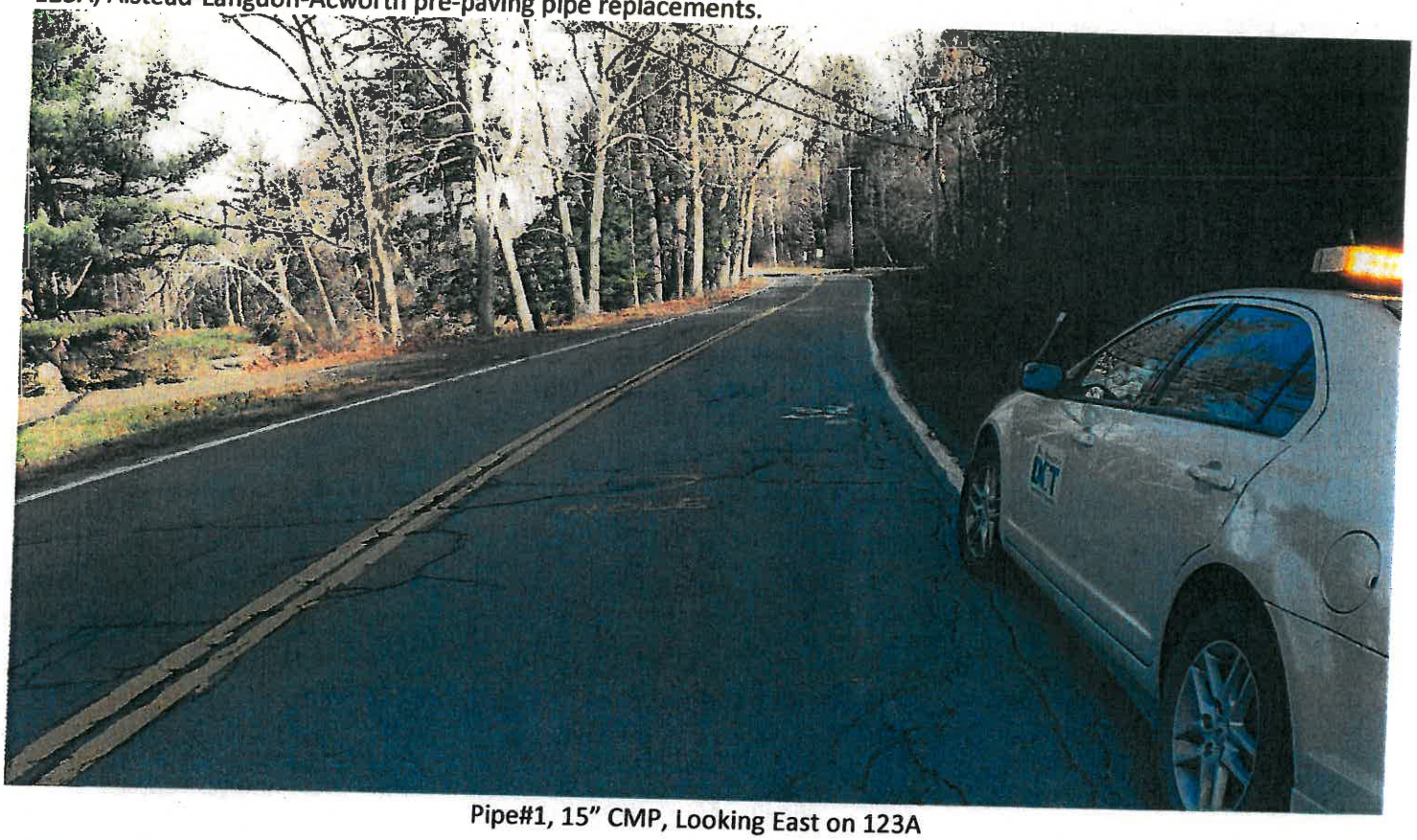
Pipe #1, 15" CMP, looking at outlet

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe#1, 15" CMP, Looking up Inlet Ditch

Pipe#1, 15" CMP inlet

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.



Pipe#1, 15" CMP, Looking East on 123A

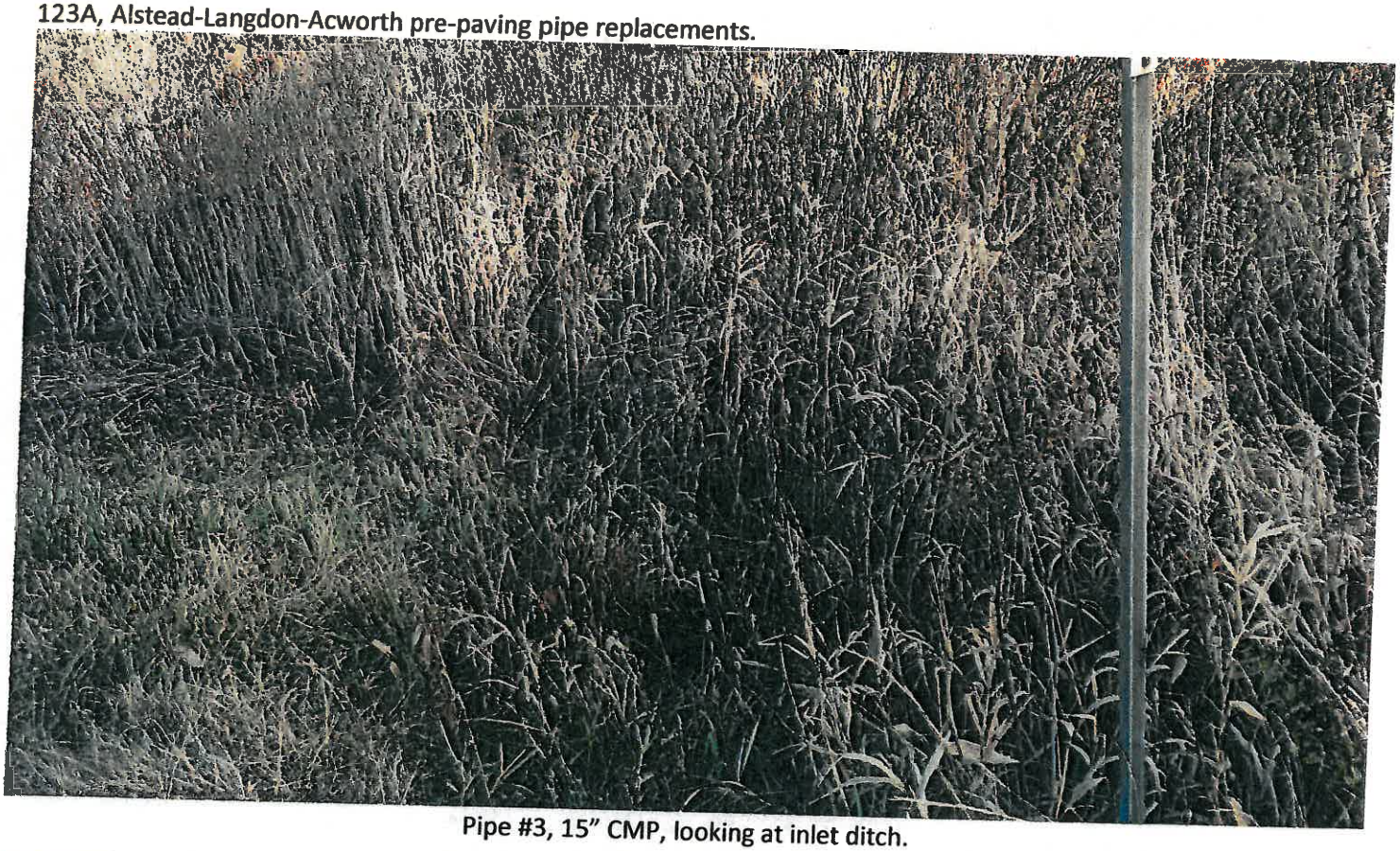
Pipe#1, 15" CMP, pavement condition at pipe.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe#3, 15" CMP, outlet.

Pipe#3, 15" CMP, Looking at outlet

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.



Pipe #3, 15" CMP, looking at inlet ditch.

Pipe#3, 15" CMP, Inlet

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #3, 15" CMP, Looking East on 123A.

Pipe#3, 15" CMP, Pavement Condition at pipe.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe#4, 15" CMP, outlet.

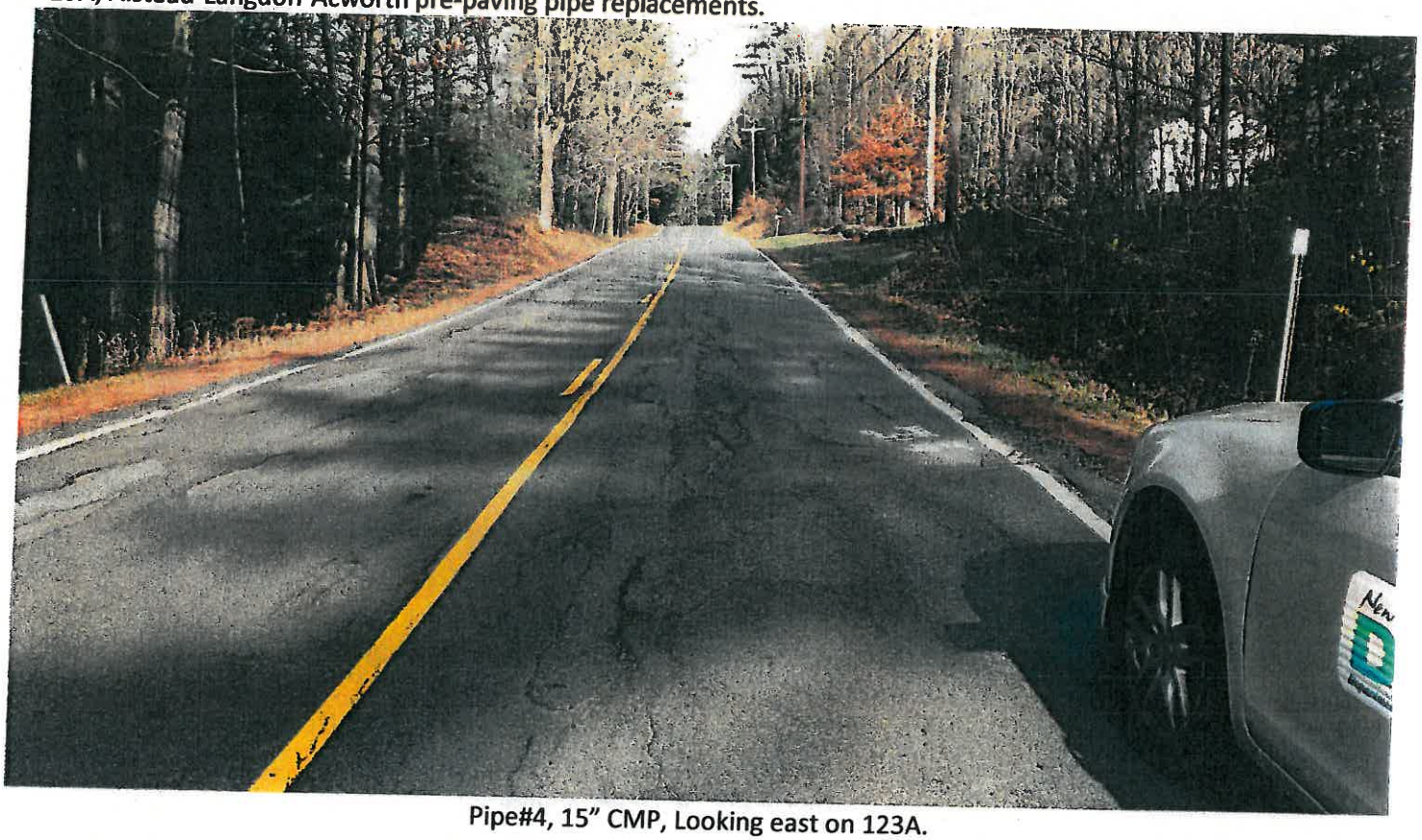
Pipe#4, 15" CMP, Looking at outlet.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #4, 15" CMP, inlet.

Pipe #4, 15" CMP, inlet roadside ditch.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.



Pipe#4, 15" CMP, Looking east on 123A.

Pipe#4, 15" CMP, Pavement condition at crossing.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #6, 18" Concrete, outlet.

Pipe#6, 18" Concrete, Looking at outlet.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #6, 18" Concrete Inlet.

Pipe #6, 18" Concrete Looking at inlet.

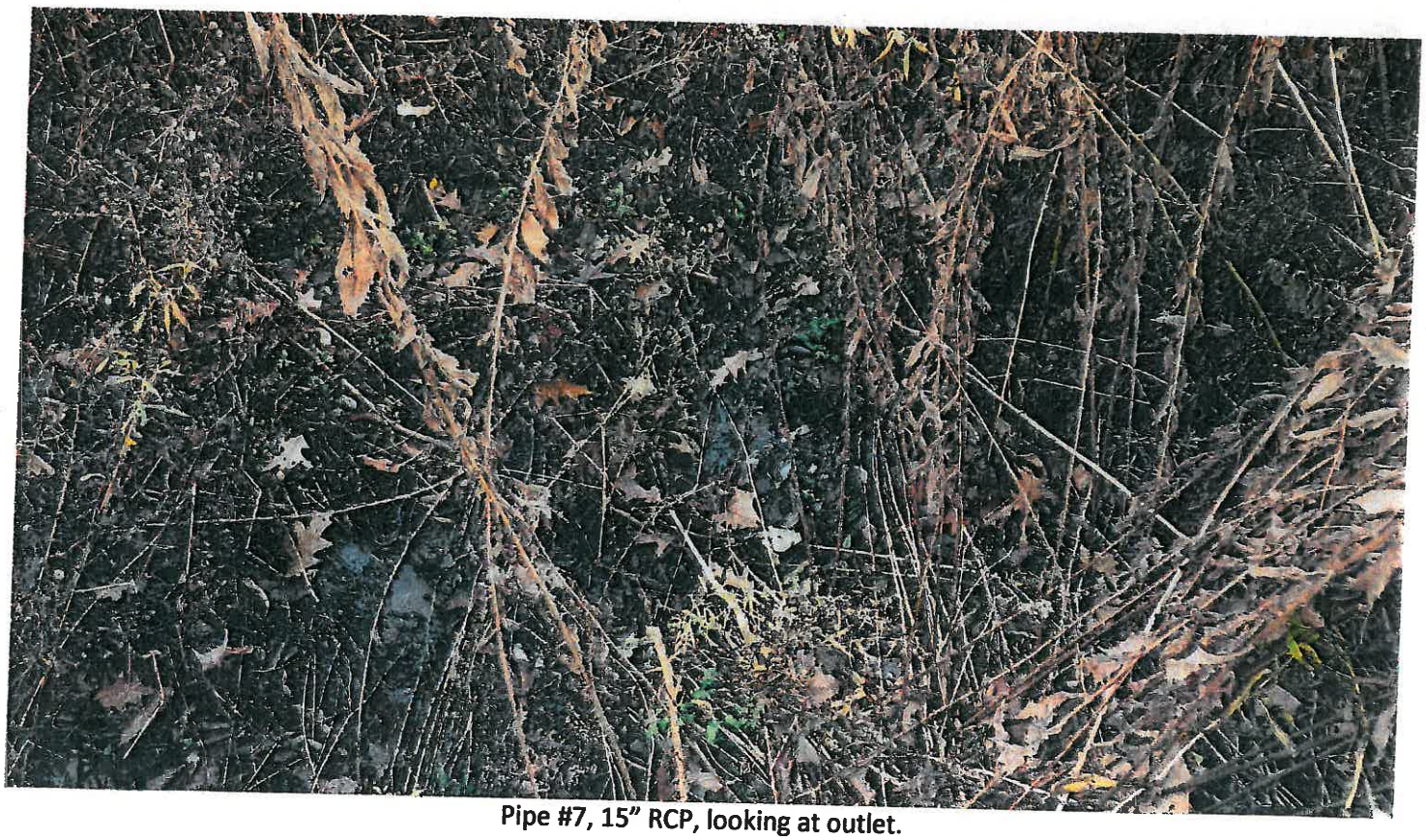
123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #6, 18" Concrete, Looking East on 123A.

Pipe #6, 18" Concrete, Pavement Condition at Crossing.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #7, 15" RCP, outlet.



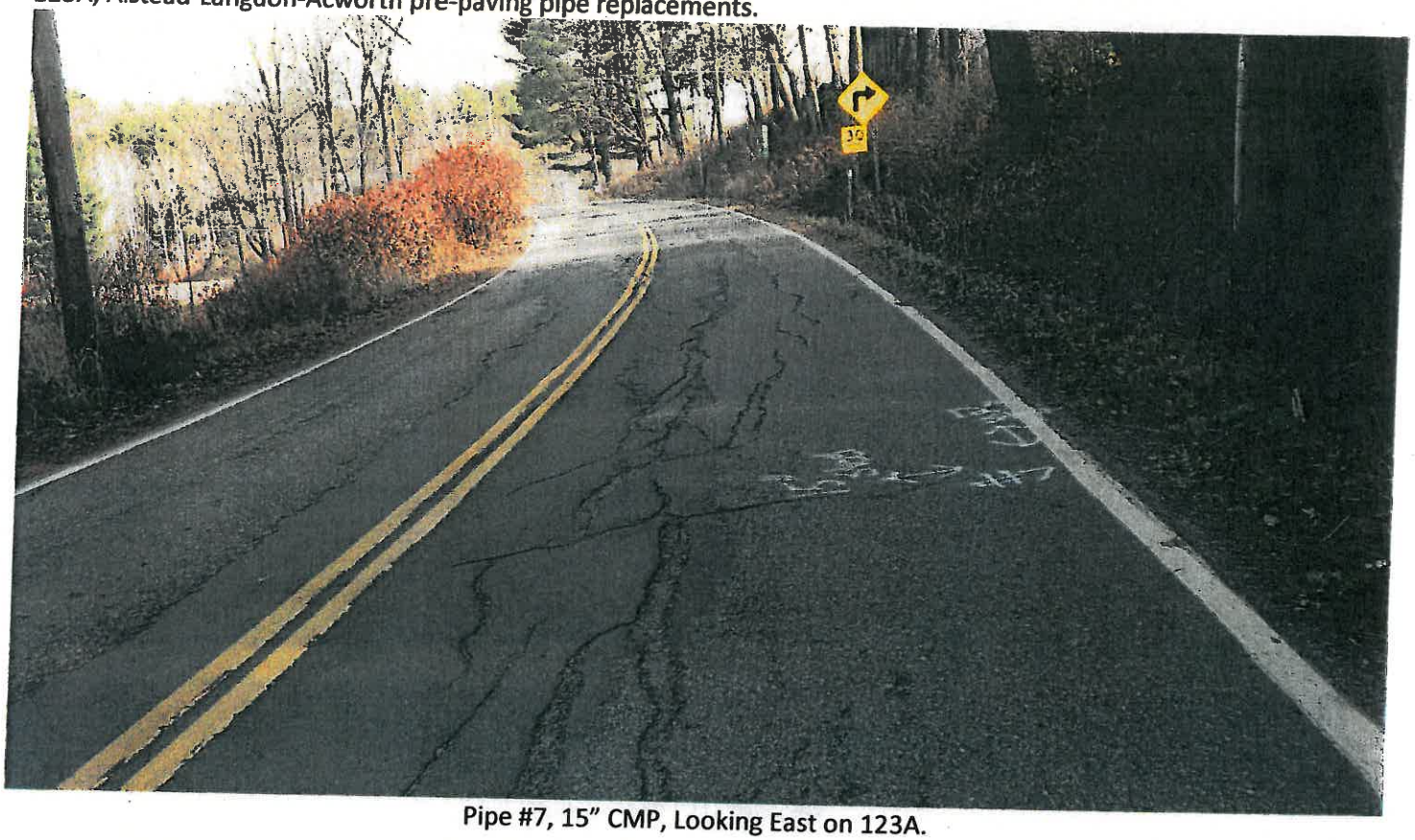
Pipe #7, 15" RCP, looking at outlet.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

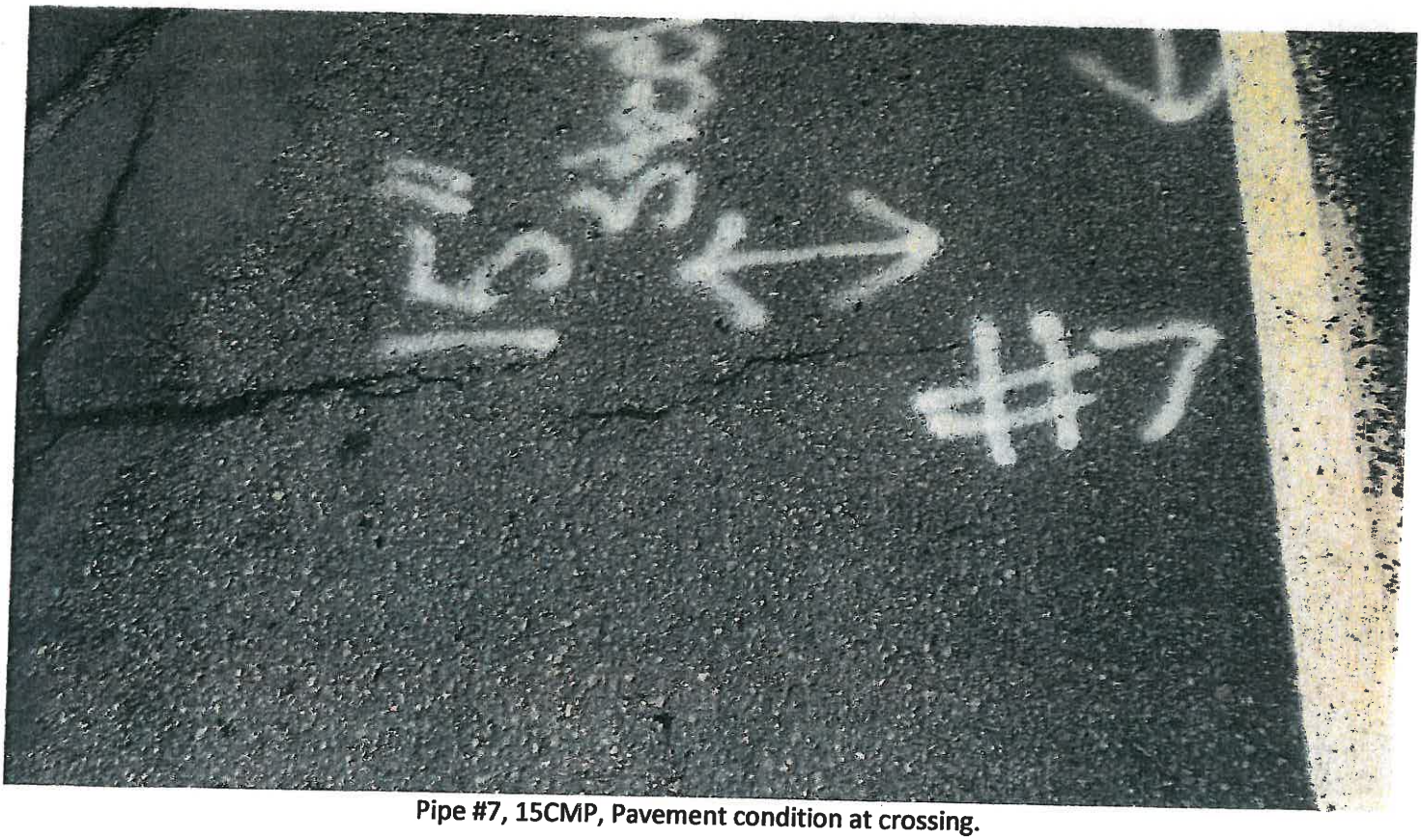
Pipe#7, 15" RCP, inlet.

Pipe #7, 15" RCP, looking at inlet.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.



Pipe #7, 15" CMP, Looking East on 123A.



Pipe #7, 15CMP, Pavement condition at crossing.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #8, 15" CMP, outlet.

Pipe #8, 15" CMP outlet.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #8 15" CMP, Inlet.

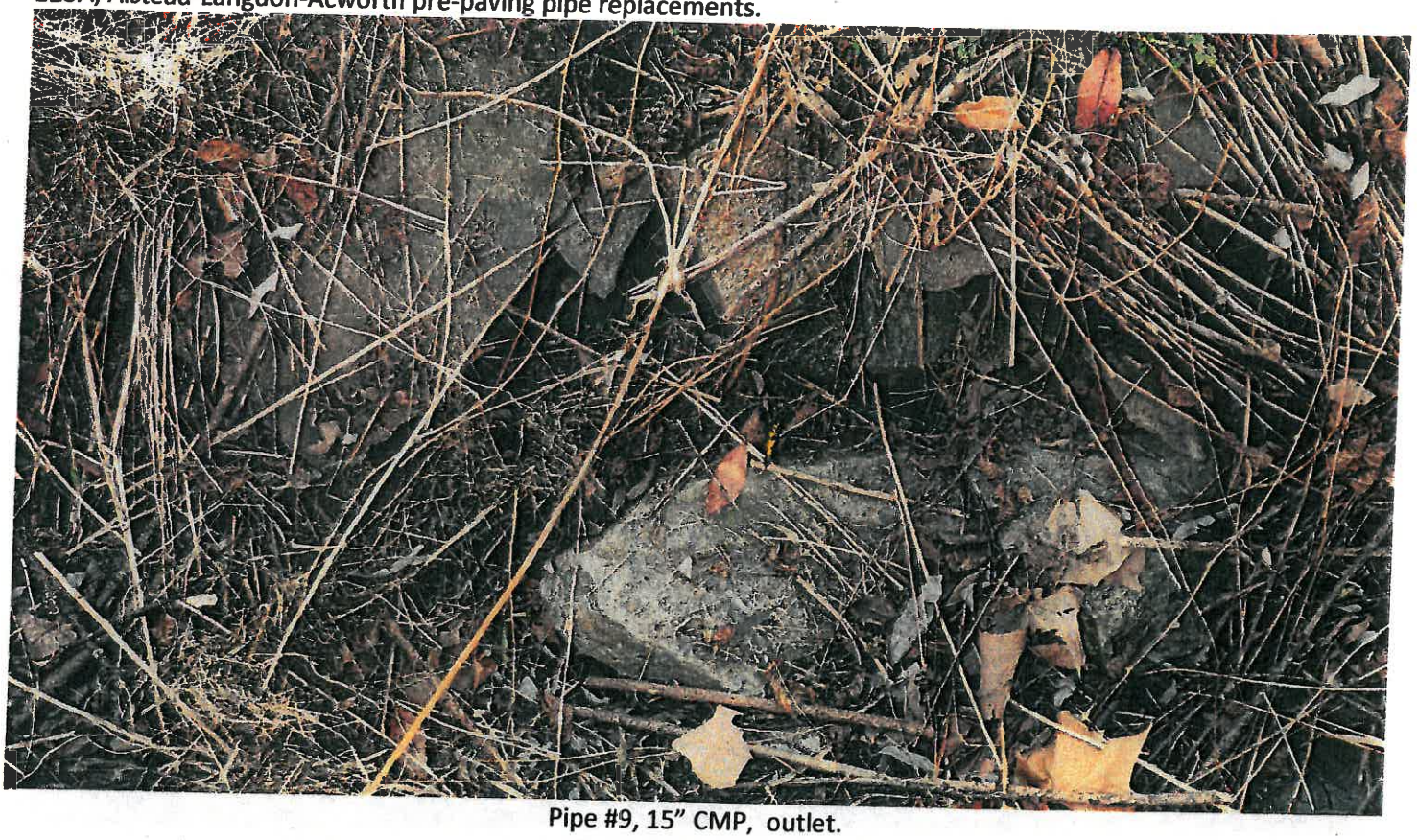
Pipe #8, 15" CMP inlet.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe#8, 15" CMP, Looking east on 123A.

Pipe #8, 15" CMP, Pavment condition at crossing.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.



Pipe #9, 15" CMP, outlet.

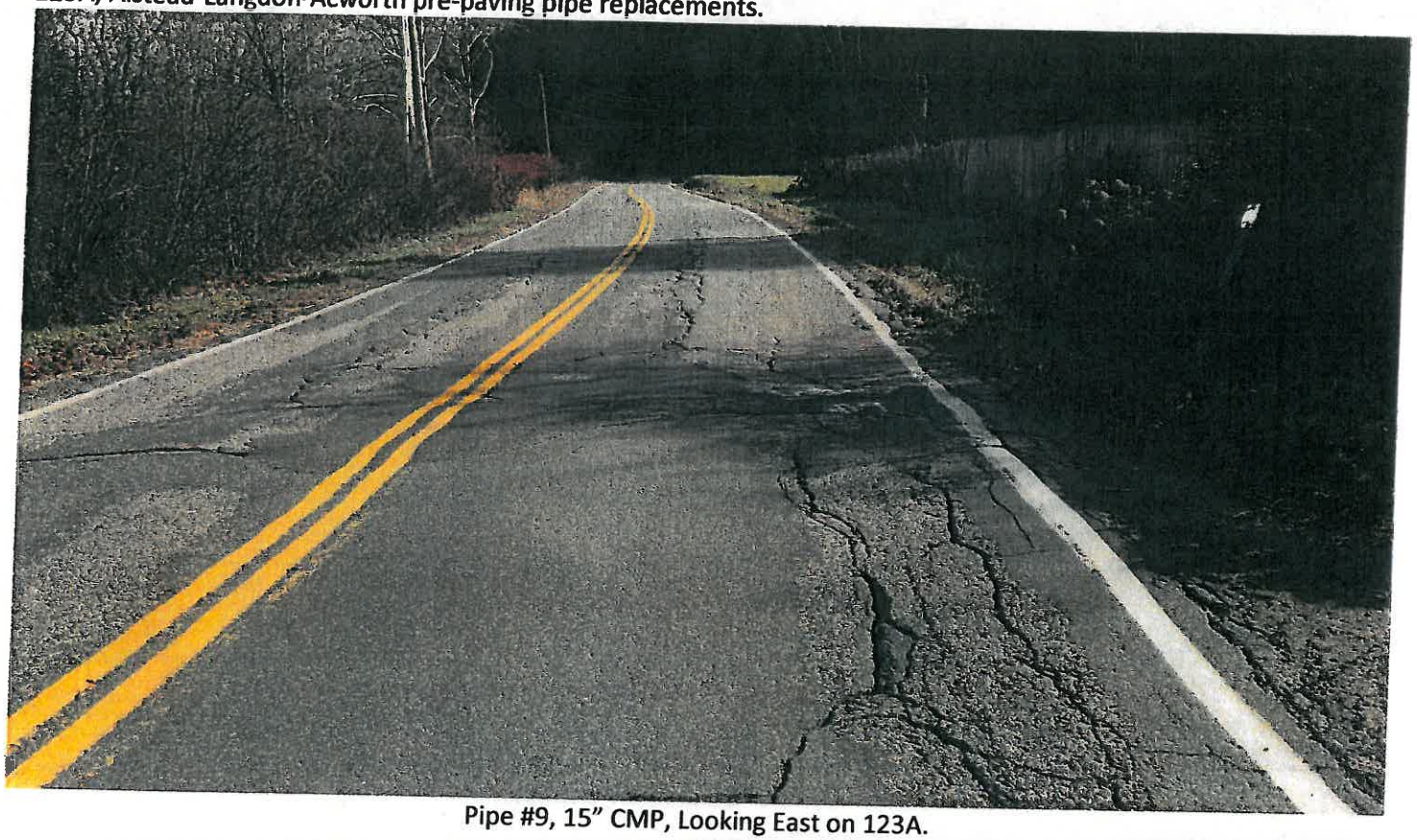
Pipe #9, 15" CMP, Outlet.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #9, 15" CMP, inlet.

Pipe #9, 15" CMP inlet.

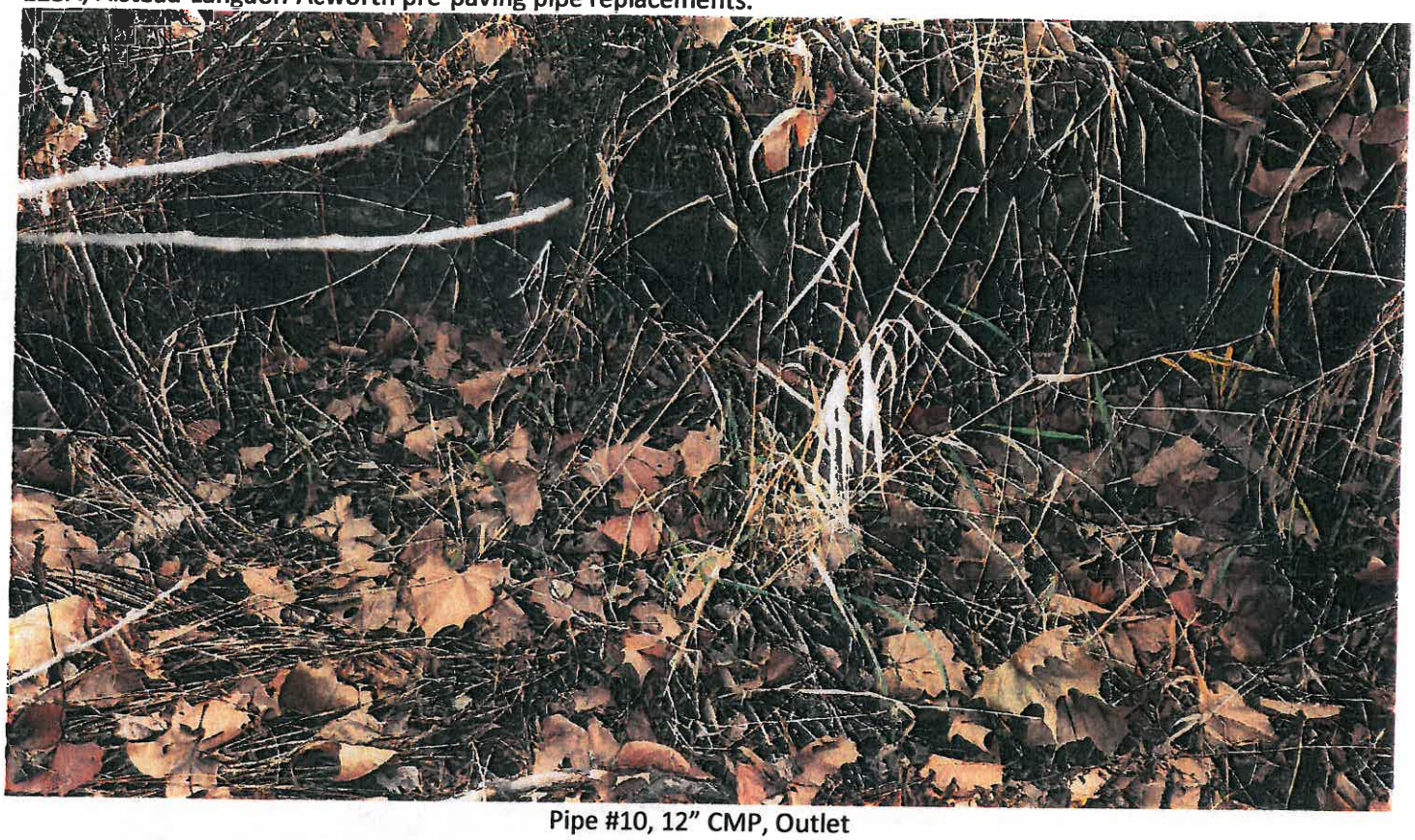
123A, Alstead-Langdon-Acworth pre-paving pipe replacements.



Pipe #9, 15" CMP, Looking East on 123A.

Pipe #9, 15" CMP, Pavement condition at crossing.

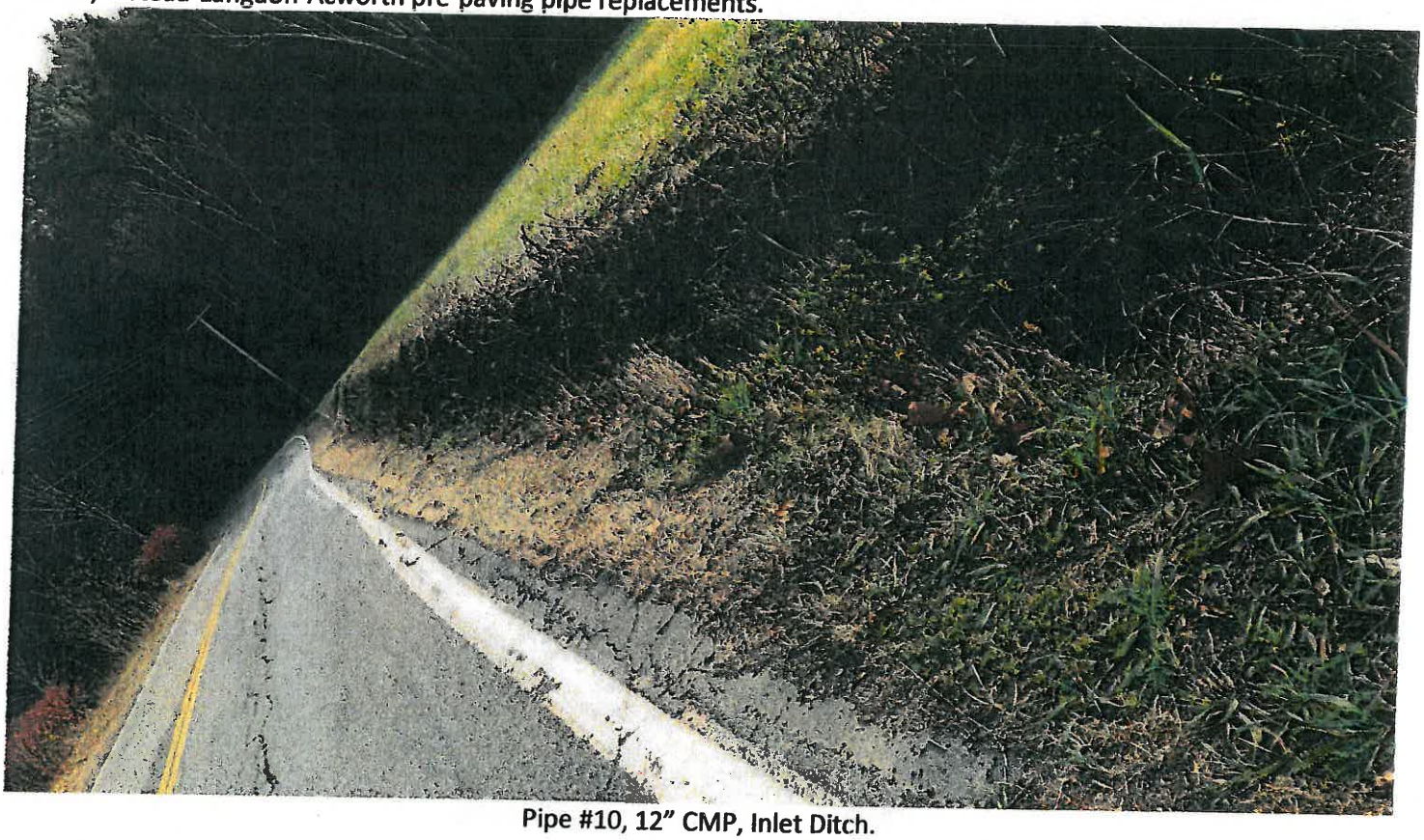
123A, Alstead-Langdon-Acworth pre-paving pipe replacements.



Pipe #10, 12" CMP, Outlet

Pipe #10, 12" CMP, Outlet

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.



Pipe #10, 12" CMP, Inlet Ditch.

Pipe #10, 12" CMP, Inlet.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #10, 12" CMP, Looking East on 123A.

Pipe #10, 12" CMP pavement condition at crossing.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #11, 24" CMP outlet.

Pipe #11, 24" CMP looking at outlet.

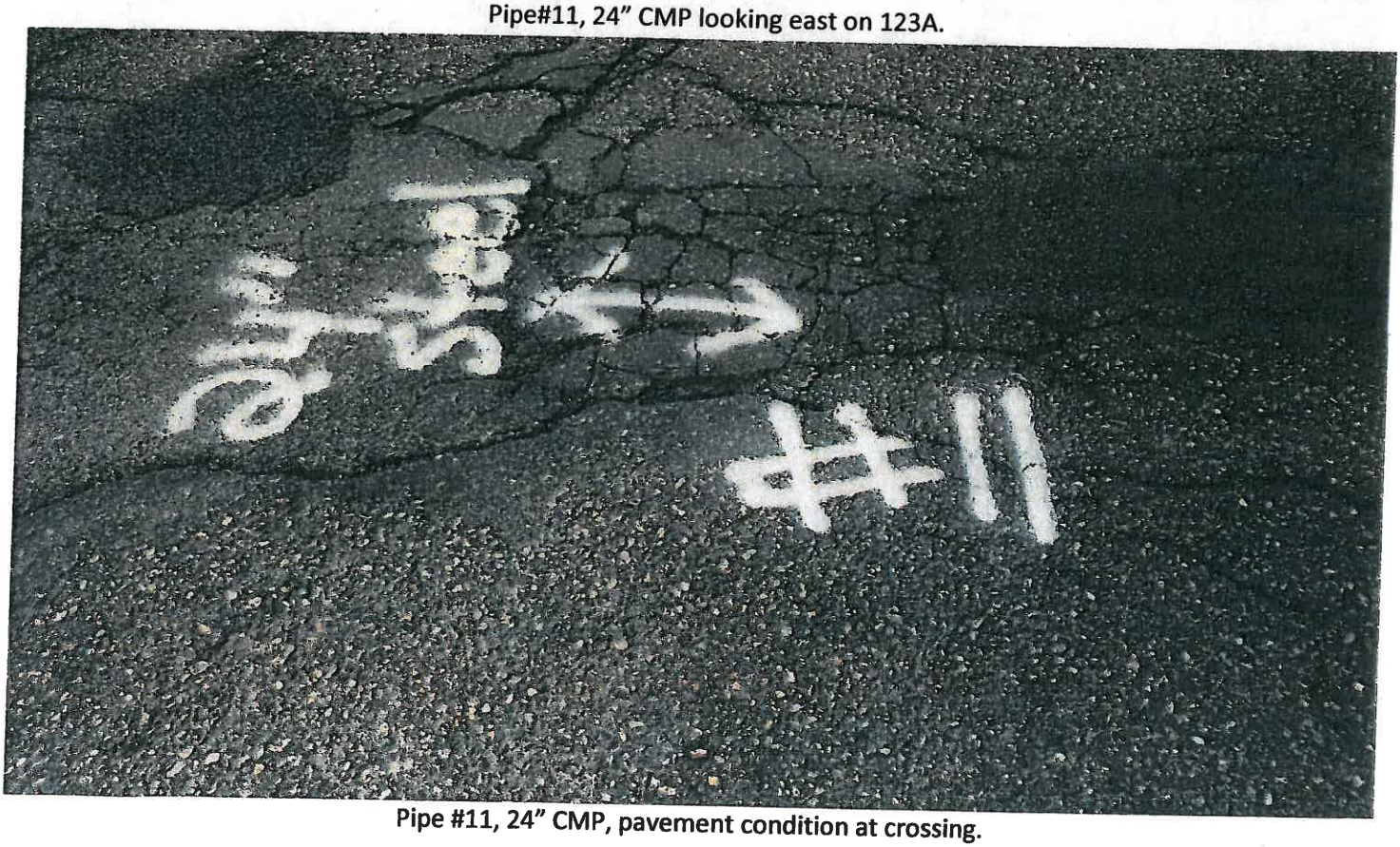
123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe#11, 24" CMP, inlet.

Pipe #11, 24" CMP inlet.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe#11, 24" CMP looking east on 123A.



Pipe #11, 24" CMP, pavement condition at crossing.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #13, 15" CMP, outlet

Pipe #13, 15" CMP, looking at outlet.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe#13, 15" CMP inlet buried with debris.

Pipe #13, 15" CMP, Farm pond at inlet.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #13, 15" CMP, Looking East on 123A.

Pipe #13, Pavment Condition at Crossing.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #14, 15" CMP, outlet.

Pipe #14, 15" CMP, Looking at outlet.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #14, 15" CMP inlet covered with debris.

Pipe # 14, 15" CMP inlet ditch.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #14, 15" CMP, Looking East on 123A.

Pipe #14, 15" CMP, pavement condition at crossing.

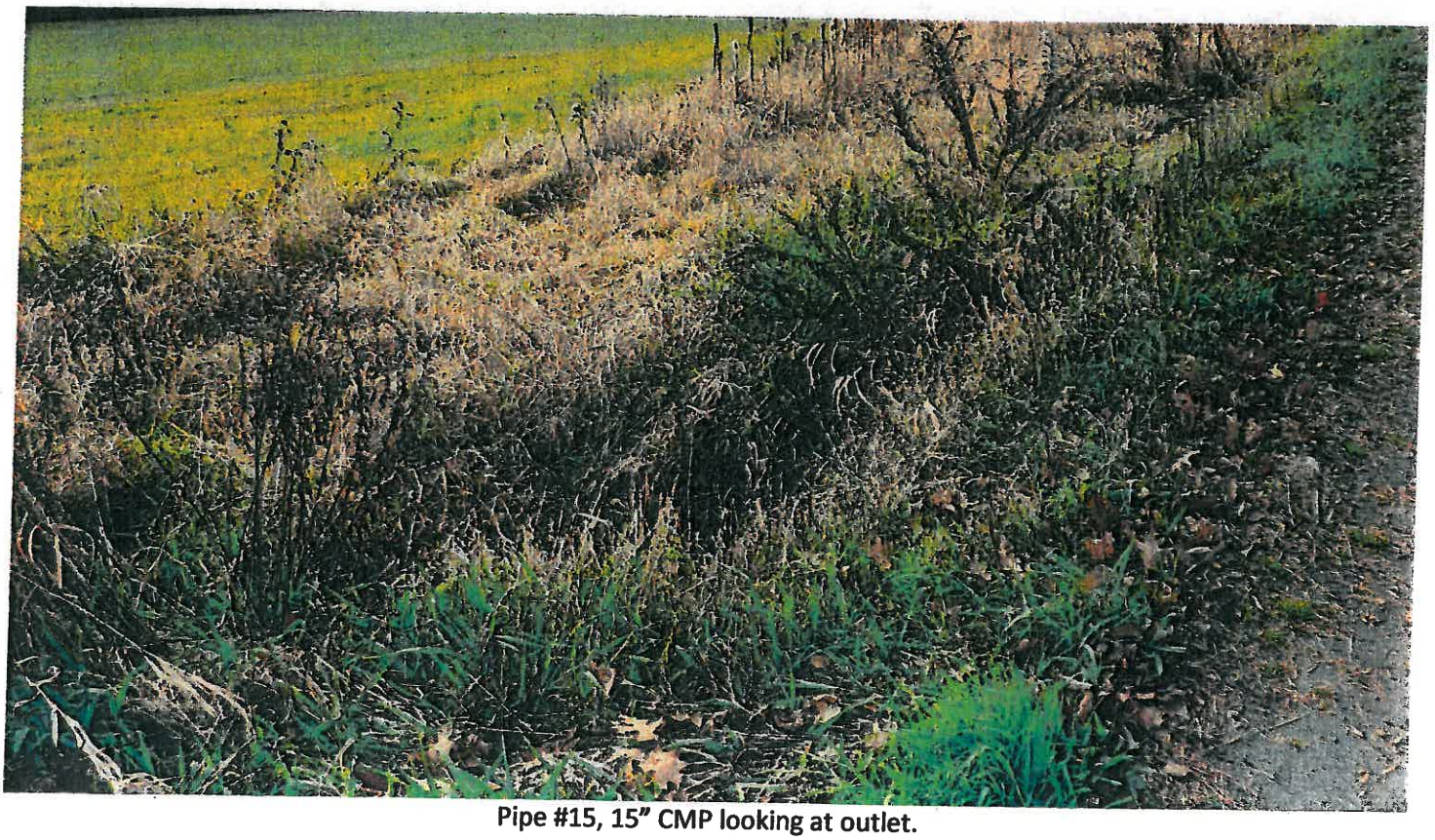
123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #15, 15" CMP, Inlet.

Pipe #15, 15" CMP, Inlet ditch.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #15, 15" CMP, outlet.



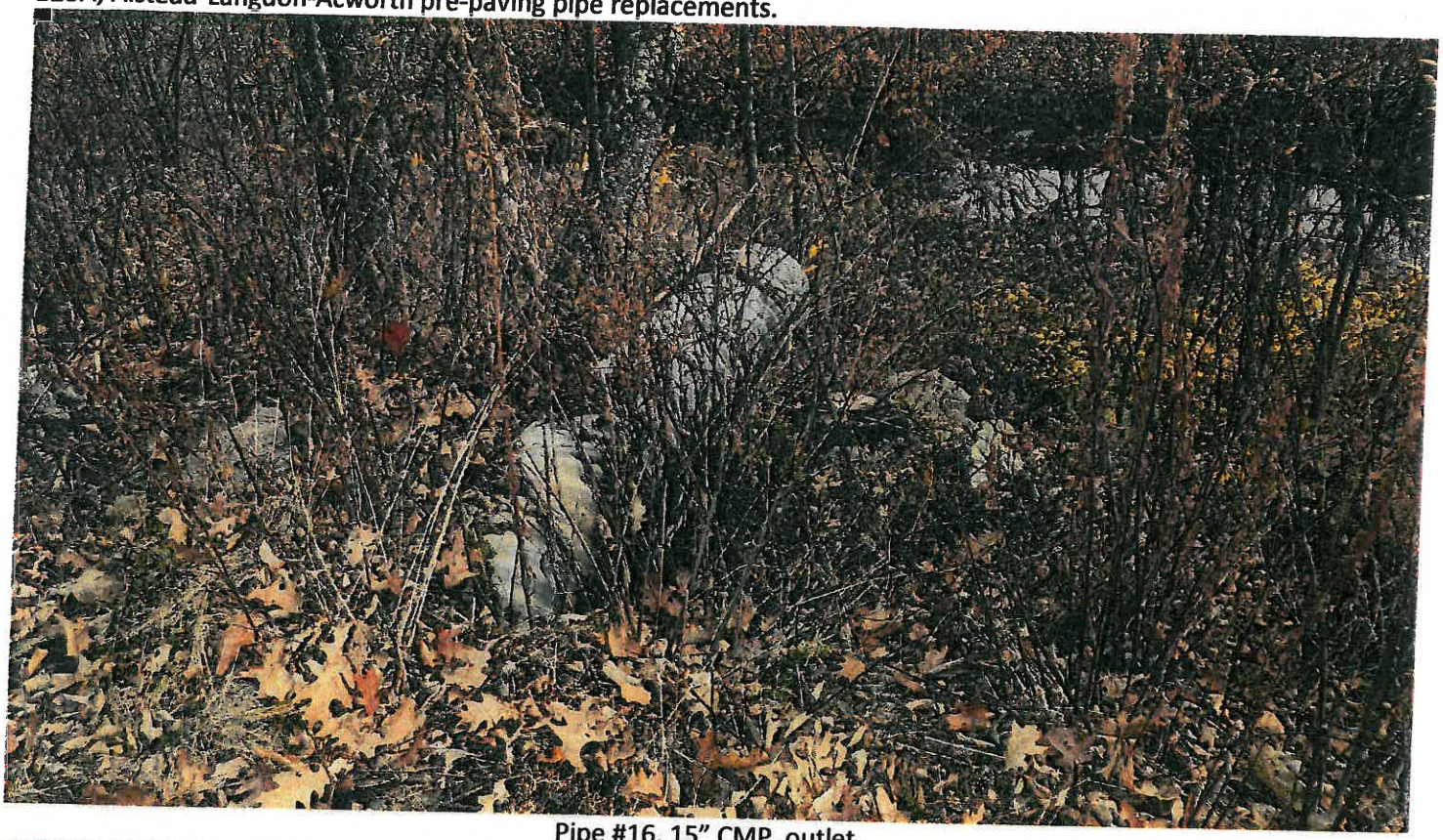
Pipe #15, 15" CMP looking at outlet.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

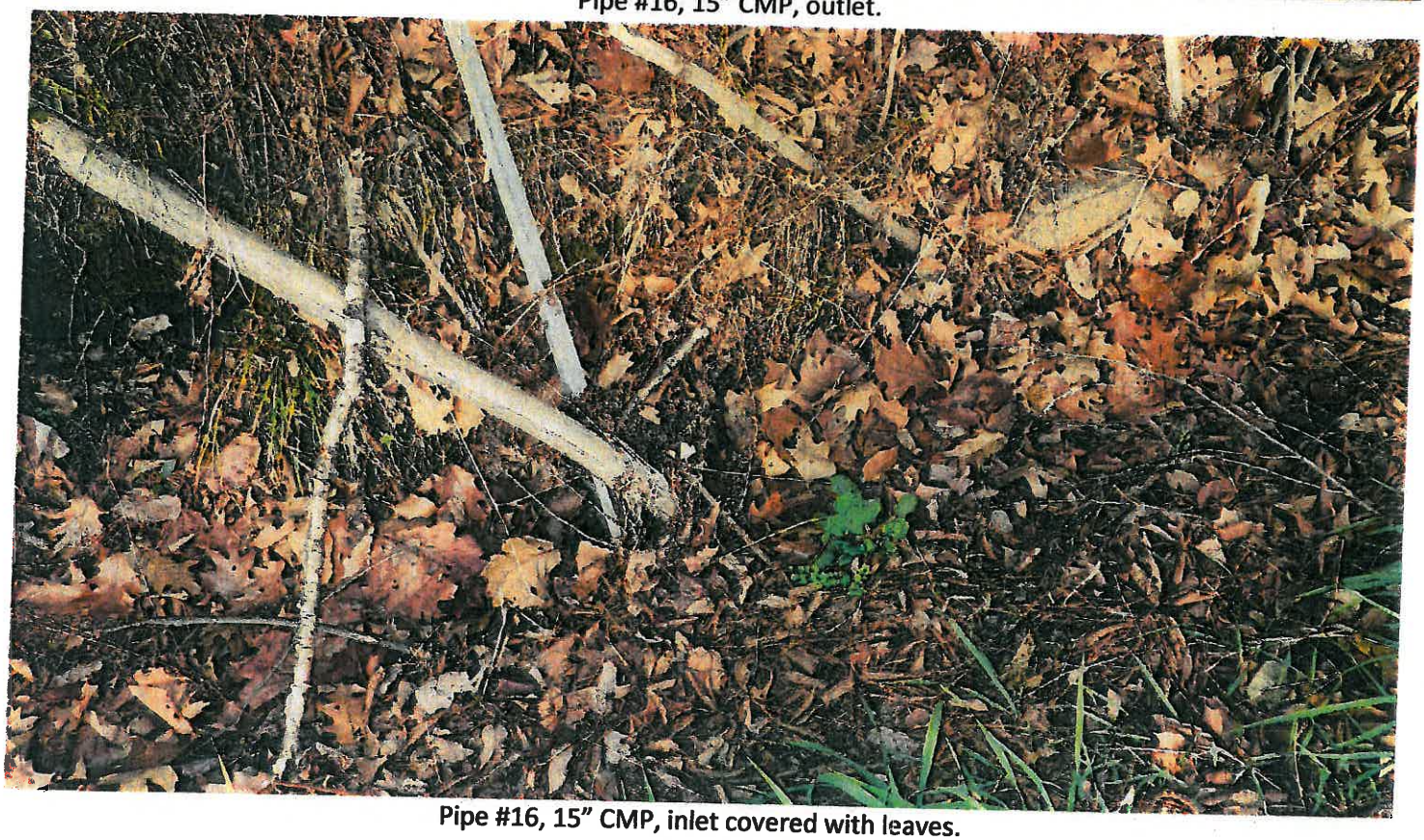
Pipe #15, 15" CMP, Looking East on 123A.

Pipe #15, 15" CMP, pavement condition at crossing.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

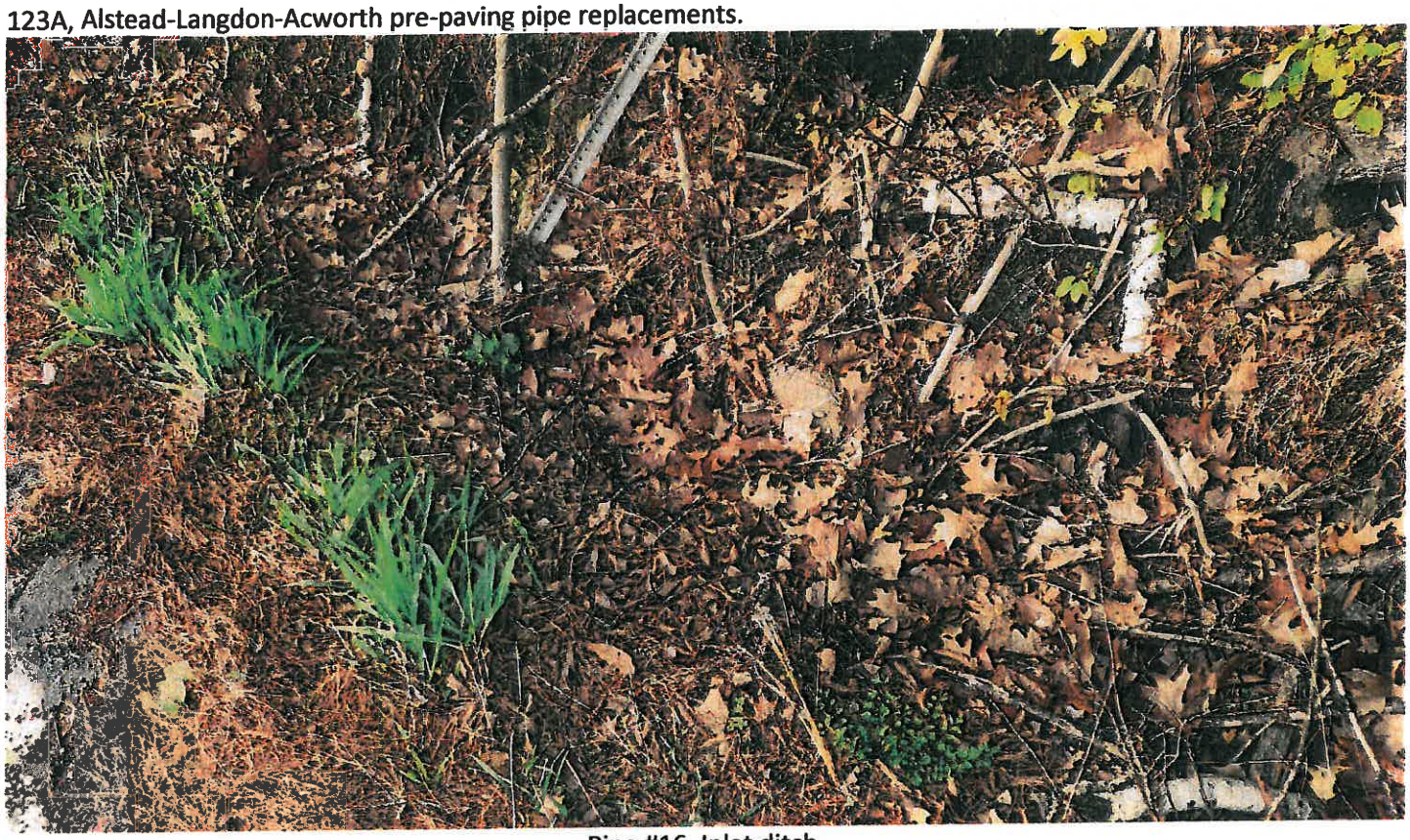


Pipe #16, 15" CMP, outlet.



Pipe #16, 15" CMP, inlet covered with leaves.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.



Pipe #16, Inlet ditch.

Pipe #16, 15" CMP, Looking East on 123A.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #16, 15" CMP pavement condition at crossing.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #17, 15" CMP, outlet.

Pipe #17, 15" CMP, Looking at outlet.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #17, 15" CMP Inlet.

Pipe #17, 15" CMP inlet ditch.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #17, 15" CMP, Looking East on 123A.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #18, 15" CMP, Outlet.

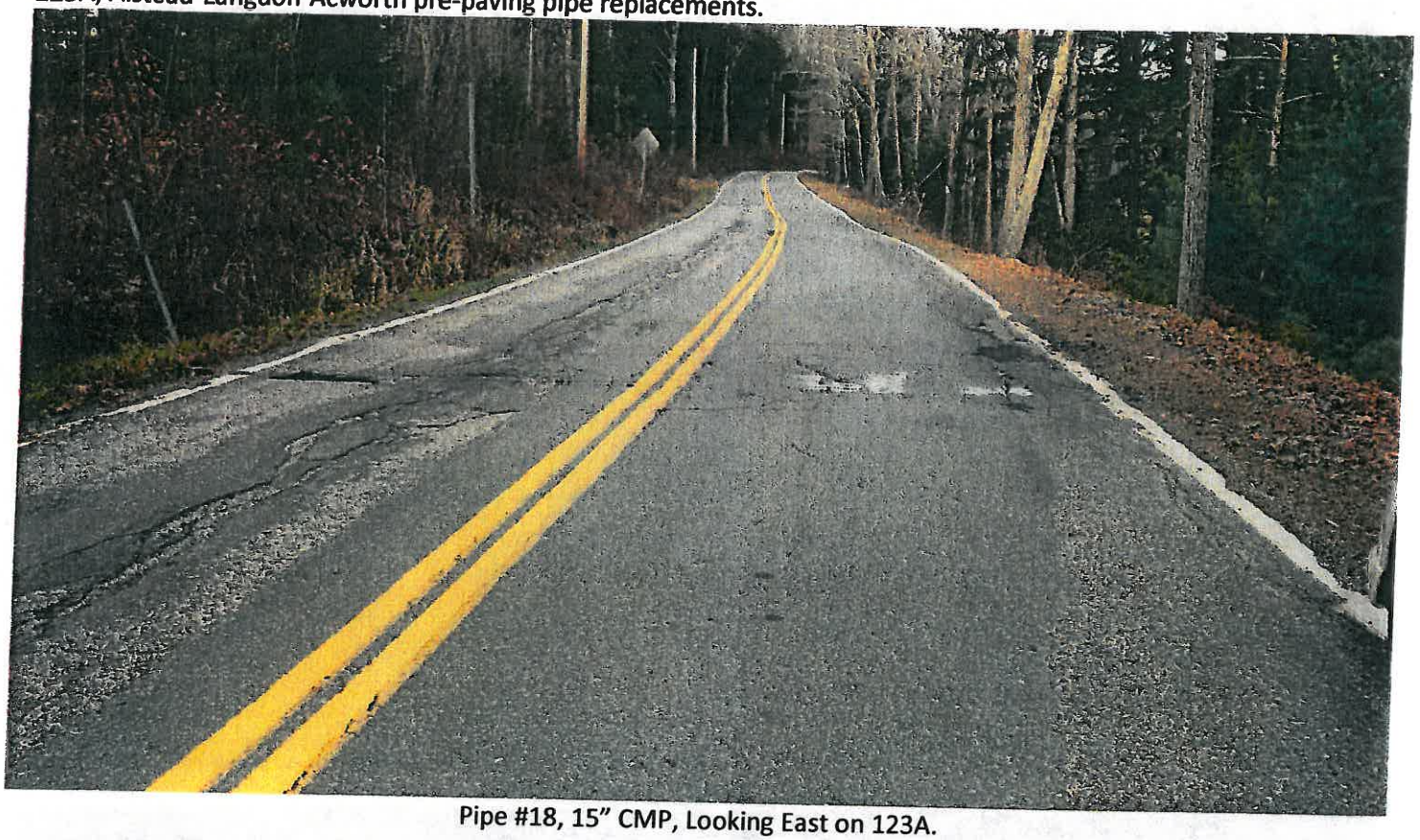
Pipe #18, 15" CMP, looking at outlet.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #18, 15" CMP, Inlet.

Pipe #18, 15" CMP inlet ditch.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.



Pipe #18, 15" CMP, Looking East on 123A.

Pipe #18, 15" CMP, Pavement Conditions at crossing.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #19, 2x3 box 30" CMP, Outlet.

Pipe #19, 2x3 Box 30" CMP, Looking at outlet.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #19, 2x3 box 30 CMP, Inlet

Pipe #19, 2x3 box 30 CMP, Looking at inlet.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #19, 2x3 box 30" CMP, Looking East on 123A.

Pipe #19, 2x3 box 30" CMP, pavement condition at crossing.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #21, 12" CMP, outlet.

Pipe #21, 12" CMP, Looking at outlet.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #21, 12" CMP, Catch basin at inlet.

Pipe #21, 12" CMP, Pipe inlet roadside ditch.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #21, 12" CMP, Looking East on 123A.

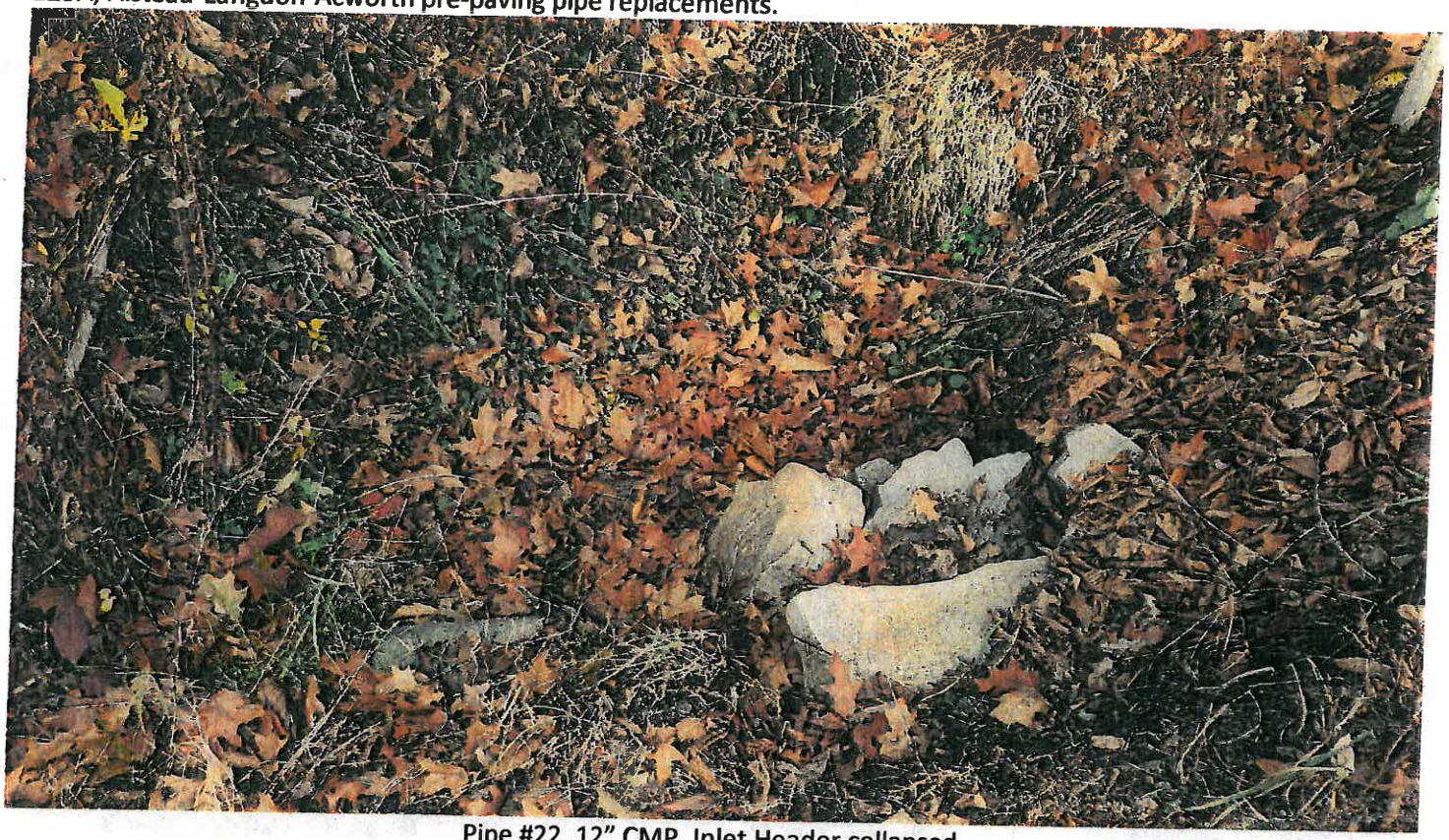
Pipe #21, 12" CMP, pavement conditions at crossing.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

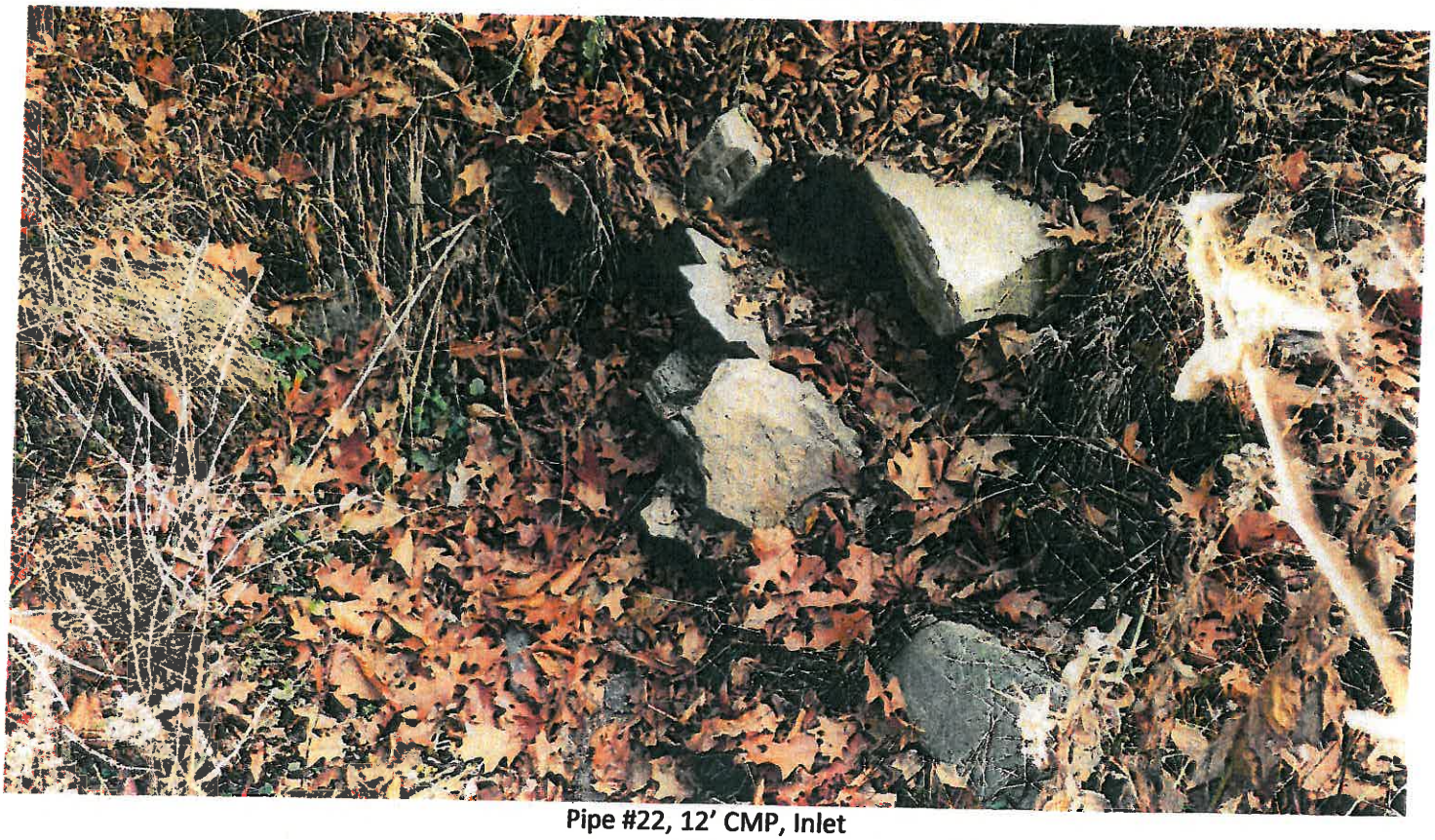
Pipe #22, 12" CMP, Looking at outlet.

Pipe #22, 12" CMP, Looking at outlet.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

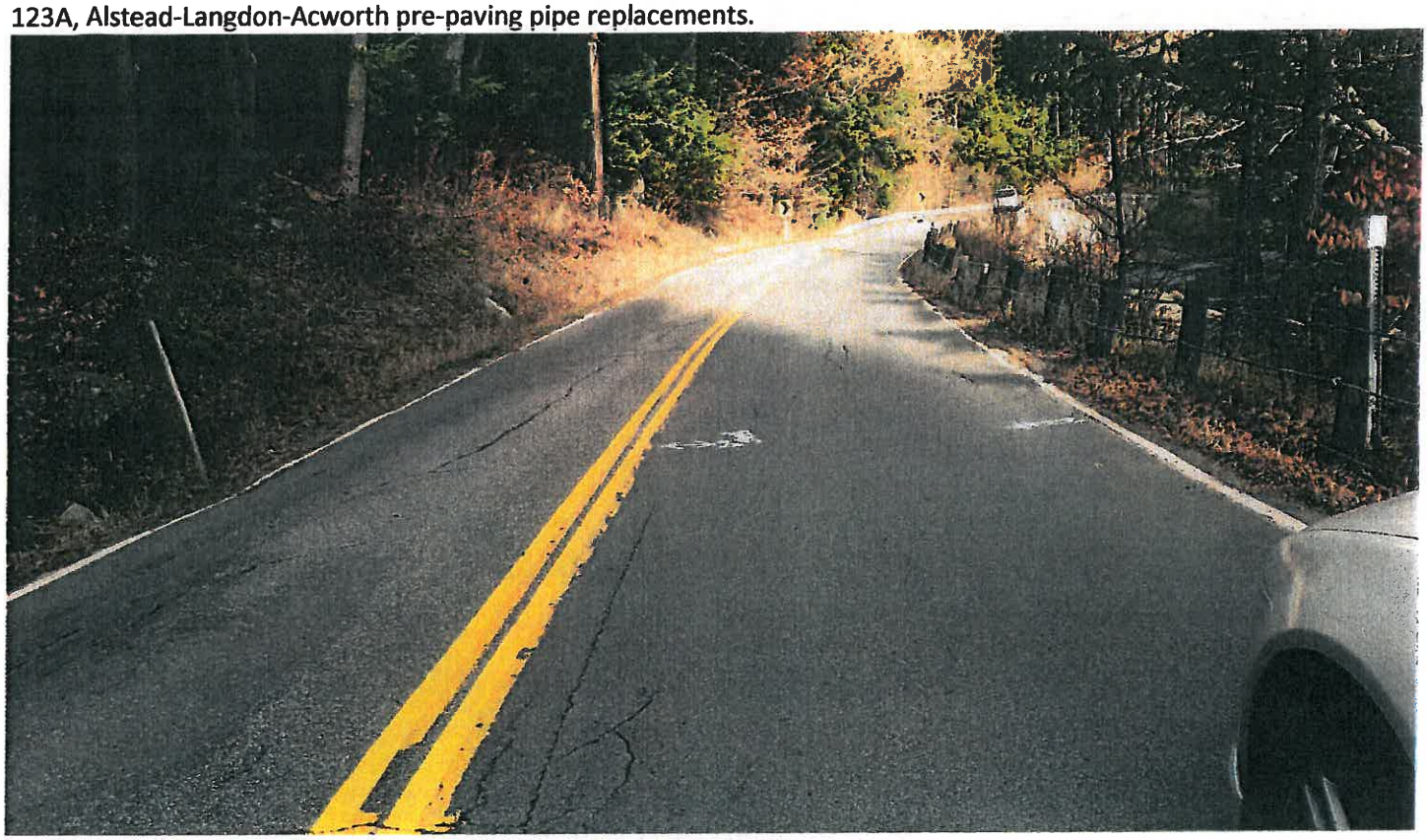


Pipe #22, 12" CMP, Inlet Header collapsed.



Pipe #22, 12' CMP, Inlet

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.



Pipe #22, 12" CMP looking East on 123A.

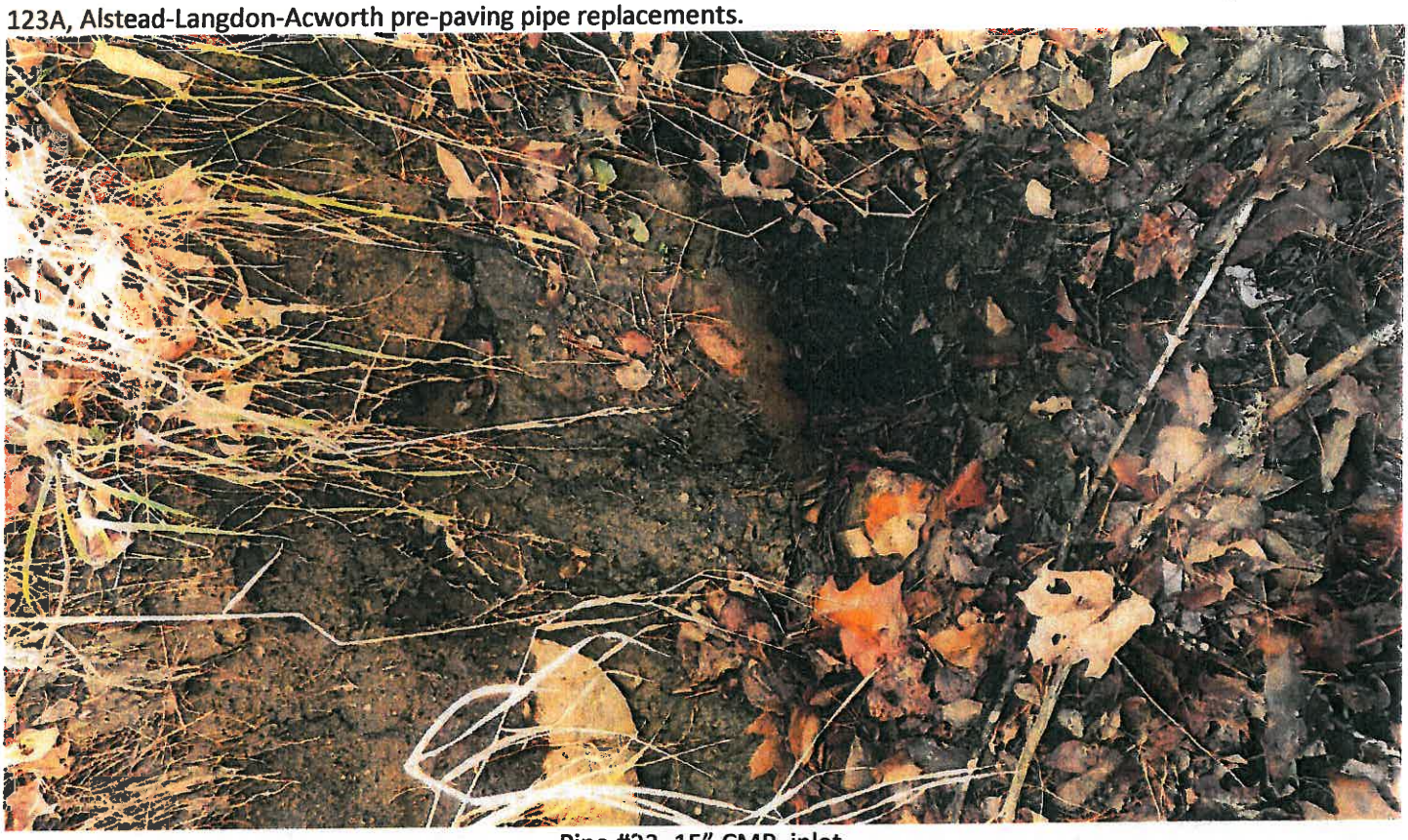
Pipe #22, 12" CMP, pavement condition at crossing.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #23, 15" CMP, outlet.

Pipe #23, 15" CMP, Looking at outlet.

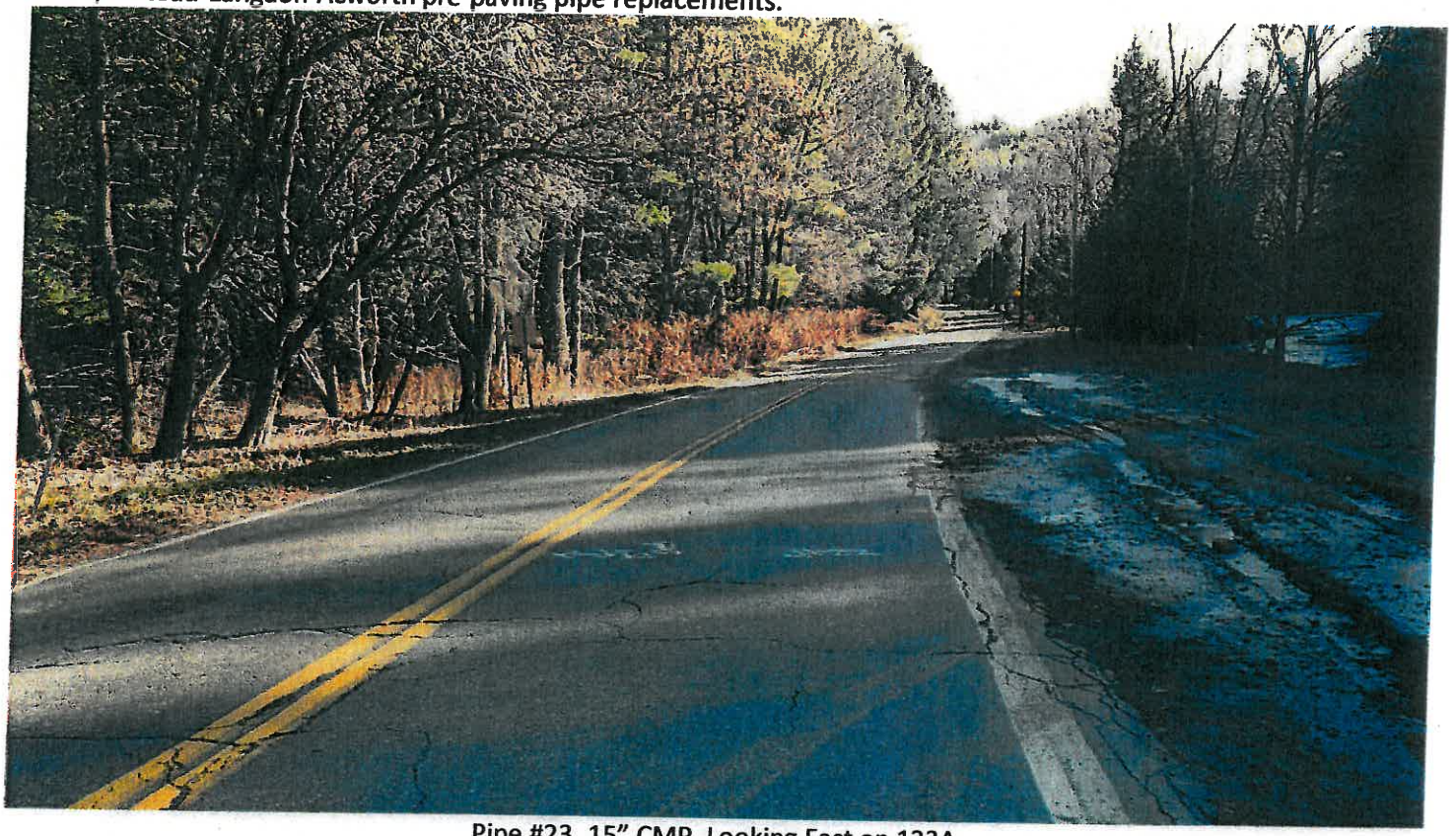
123A, Alstead-Langdon-Acworth pre-paving pipe replacements.



Pipe #23, 15" CMP, inlet.

Pipe #23, 15" CMP, Roadside Ditch at inlet.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.



Pipe #23, 15" CMP, Looking East on 123A.

Pipe #23, 15" CMP, Pavement Condition at crossing.

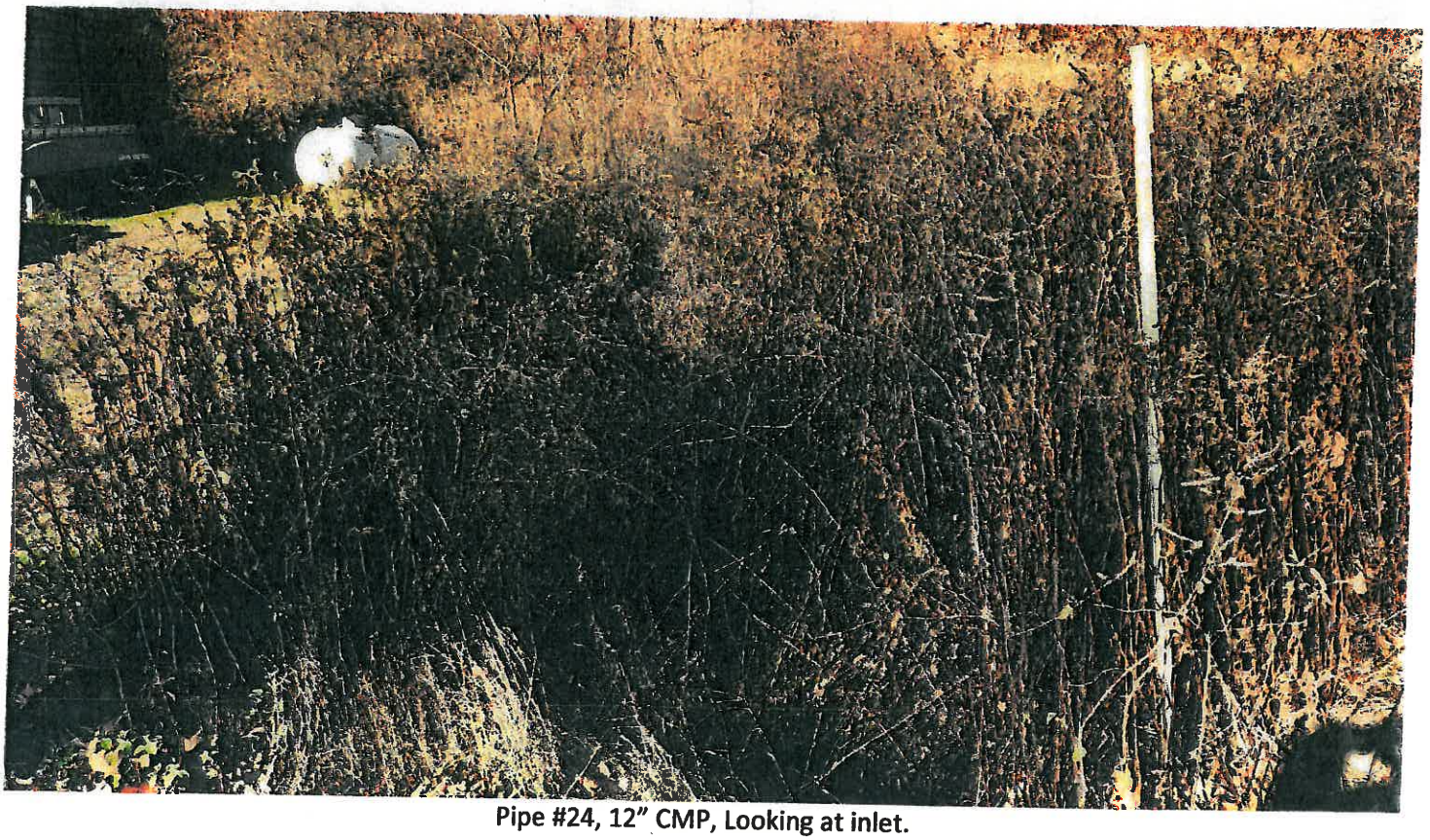
123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #24, 12" CMP, outlet.

Pipe #24, 12" CMP, Looking at outlet.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #24, 12" CMP inlet.



Pipe #24, 12" CMP, Looking at inlet.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #24, 12" CMP, Looking East on 123A.

Pipe #24, 12" CMP, pavement condition at crossing.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #27, 18" CMP, outlet.

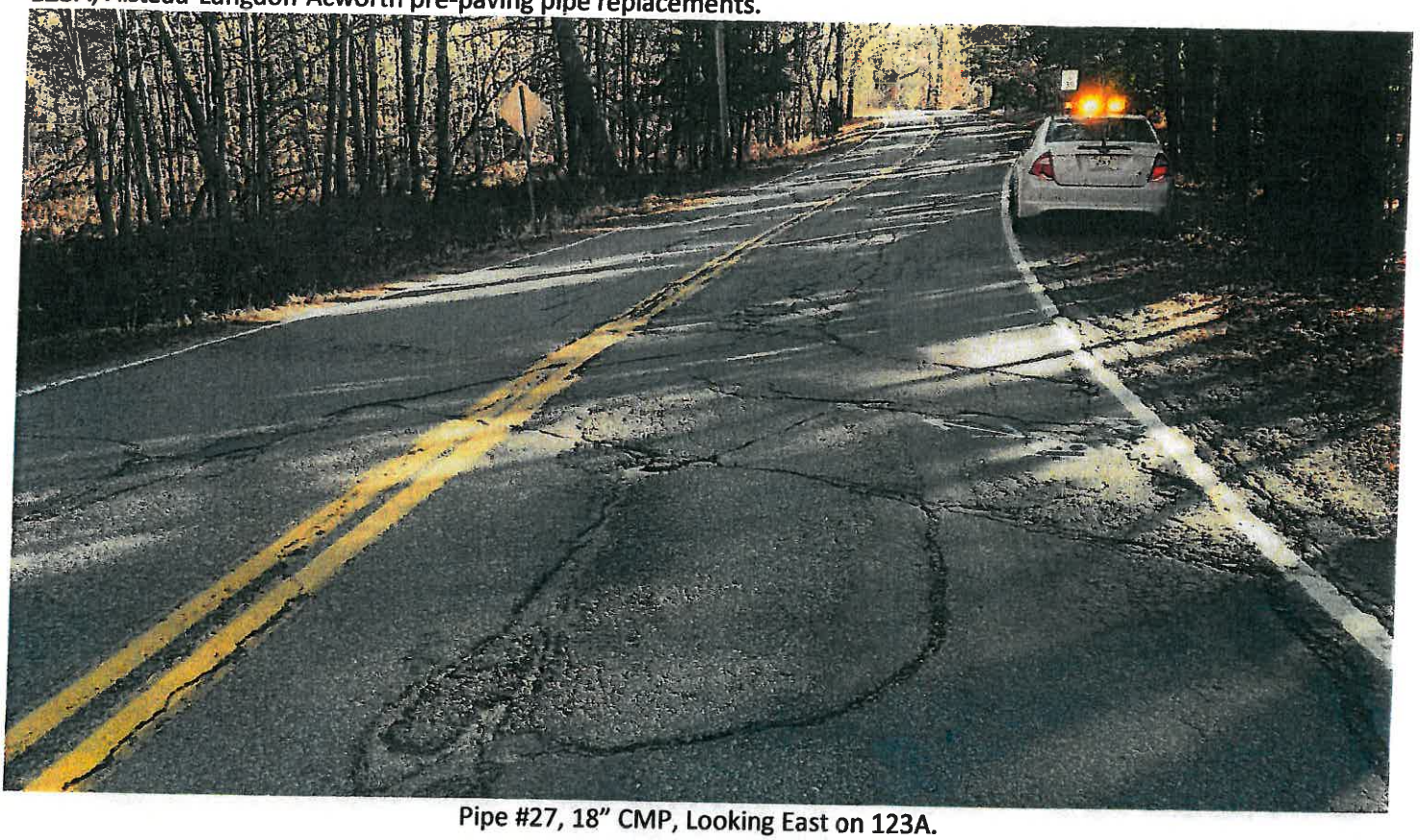
Pipe #27, 18" CMP, Looking at outlet.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #27, 18" CMP, inlet.

Pipe #27, 18" CMP, Looking at inlet.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.



Pipe #27, 18" CMP, Looking East on 123A.

Pipe #27, 18" CMP, pavement condition at crossing.

#28 & 29 NUMBER NOT USED.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #30, 15" CMP, outlet.

Pipe #30, 15" CMP, looking at outlet.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #30, 15" CMP, Inlet.

Pipe #30, 15" CMP, looking at inlet.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #30, 15" CMP, Looking East on 123A.

Pipe #30, 15" CMP, Pavement condition at crossing.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #31, 15" CMP, outlet.

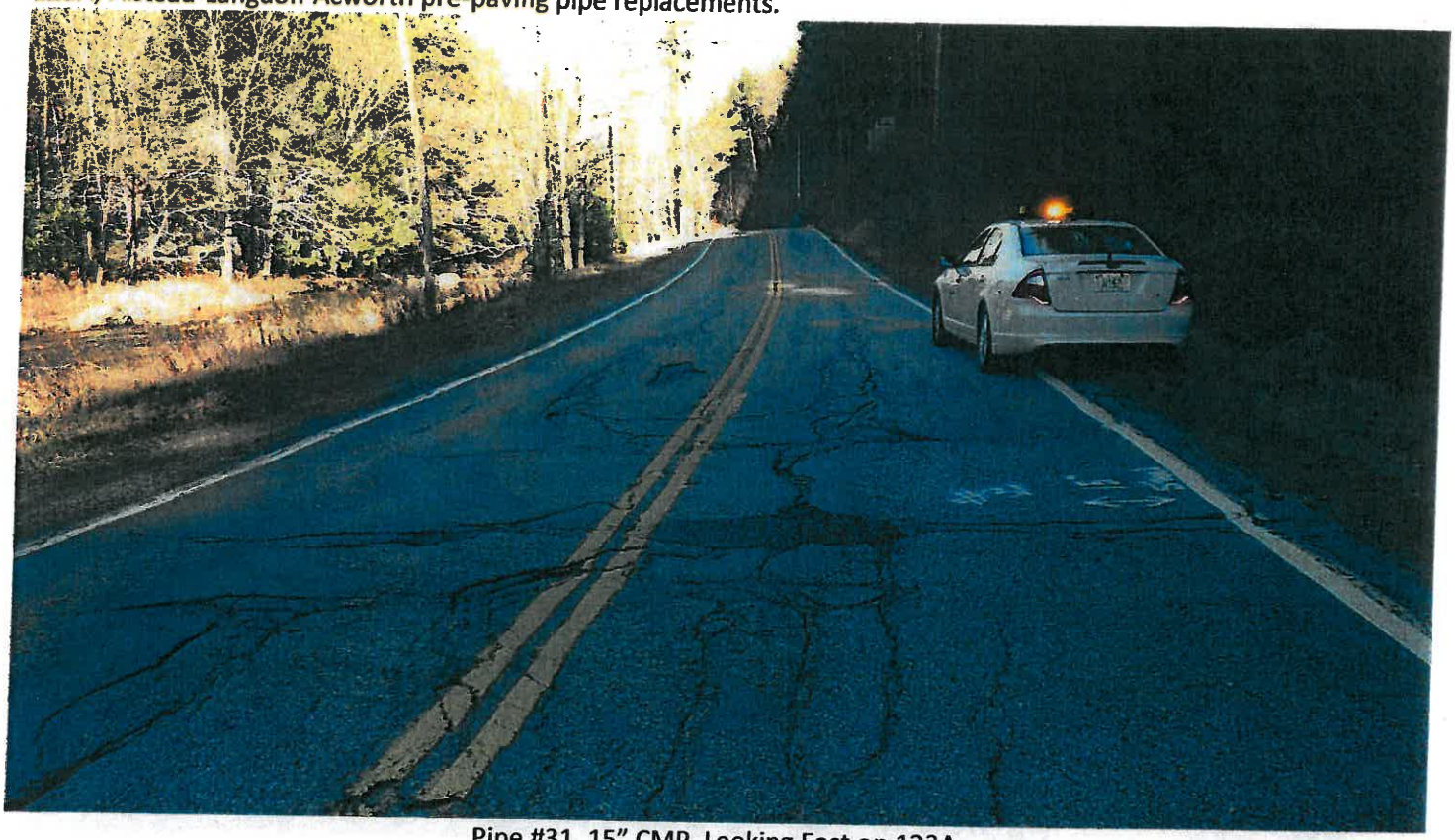
Pipe #31, 15" CMP, Looking at outlet.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #31, 15" CMP, inlet.

Pipe #31, 15" CMP, looking at inlet.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.



Pipe #31, 15" CMP, Looking East on 123A.

Pipe #31, 15" CMP, pavement condition at crossing.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #32, 18" CMP, outlet.

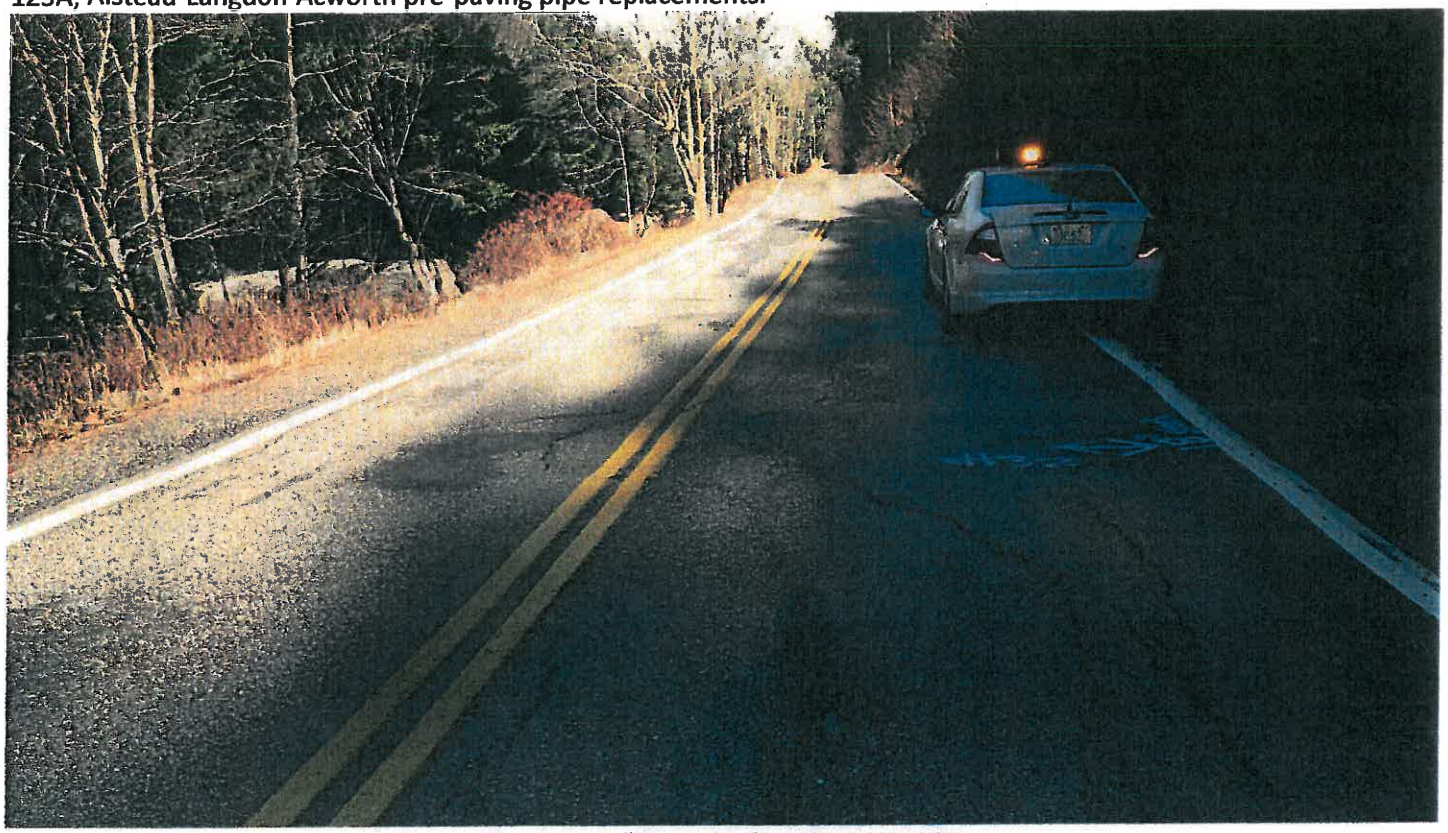
Pipe #32, 18" CMP, looking at outlet.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #32, 18" CMP, inlet.

Pipe #32, 18" CMP, inlet ditch.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.



Pipe #32, 18" CMP, Looking East on 123A.

Pipe #32, 18" CMP, pavement condition at crossing.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #33, 15" CMP, outlet.

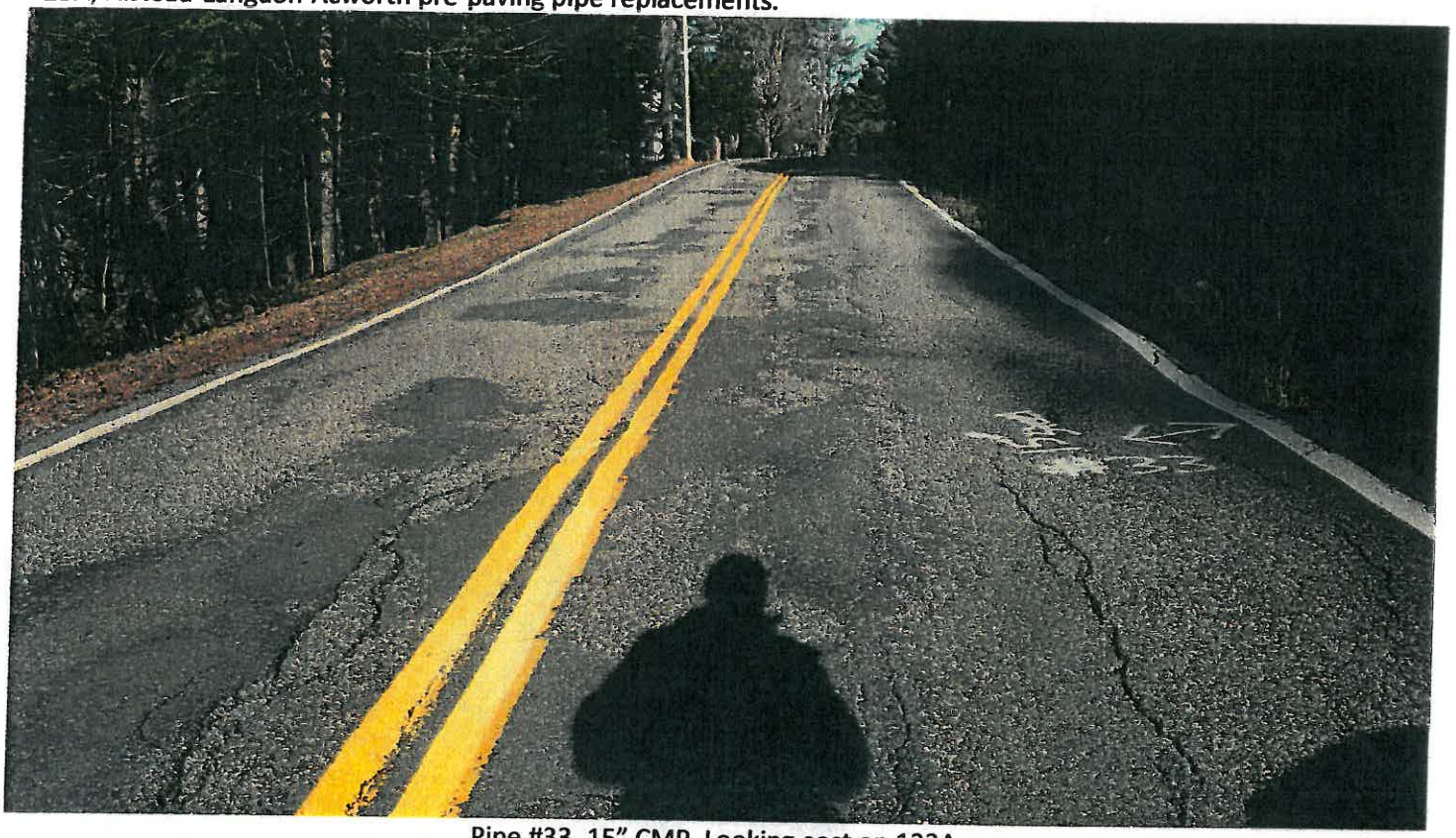
Pipe #33, 15" CMP, looking at outlet.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

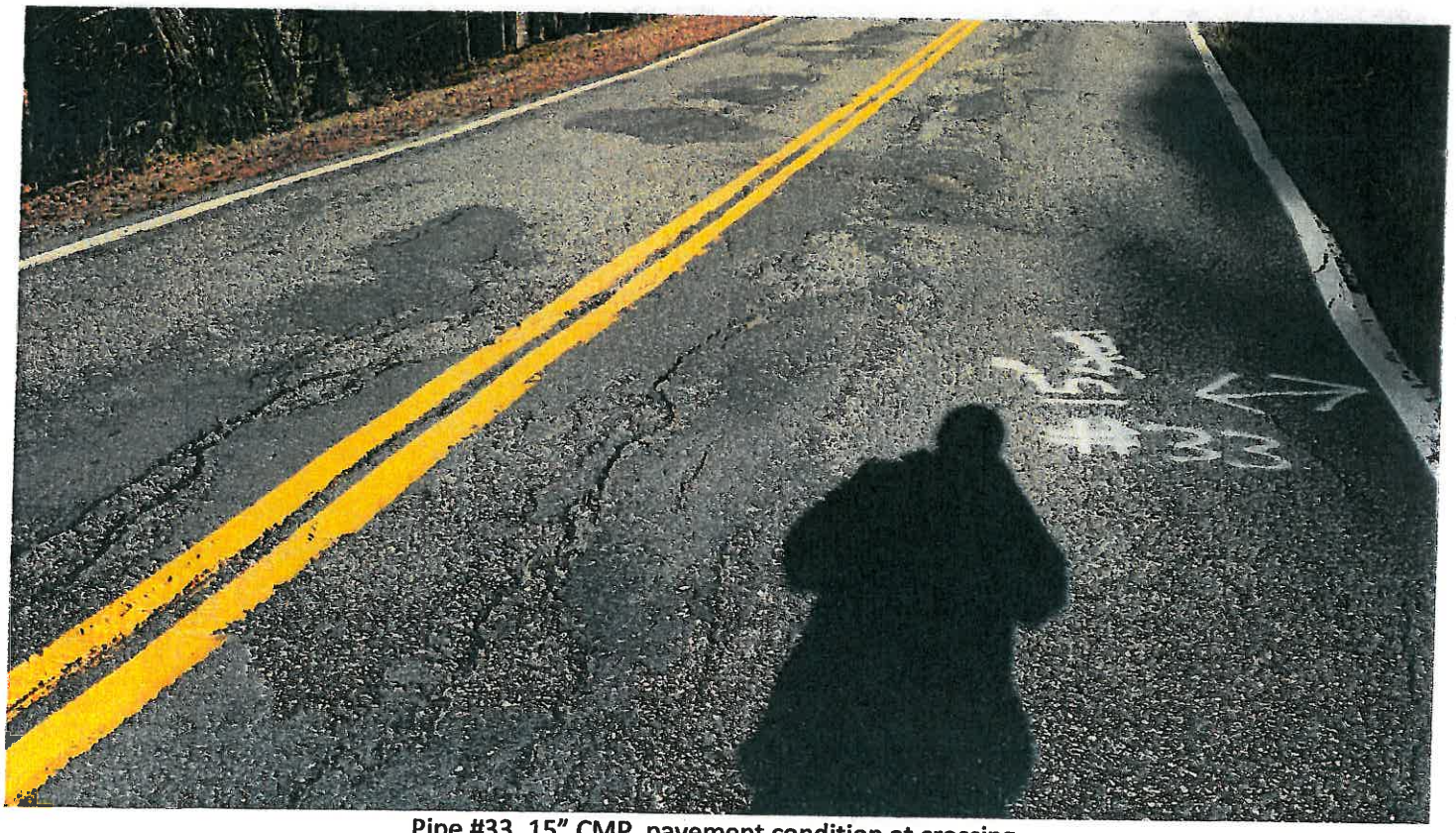
Pipe #33, 15" CMP, Inlet.

Pipe #33, 15" CMP, inlet ditch.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.



Pipe #33, 15" CMP, Looking east on 123A.



Pipe #33, 15" CMP, pavement condition at crossing.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #34, 12" CMP, outlet.

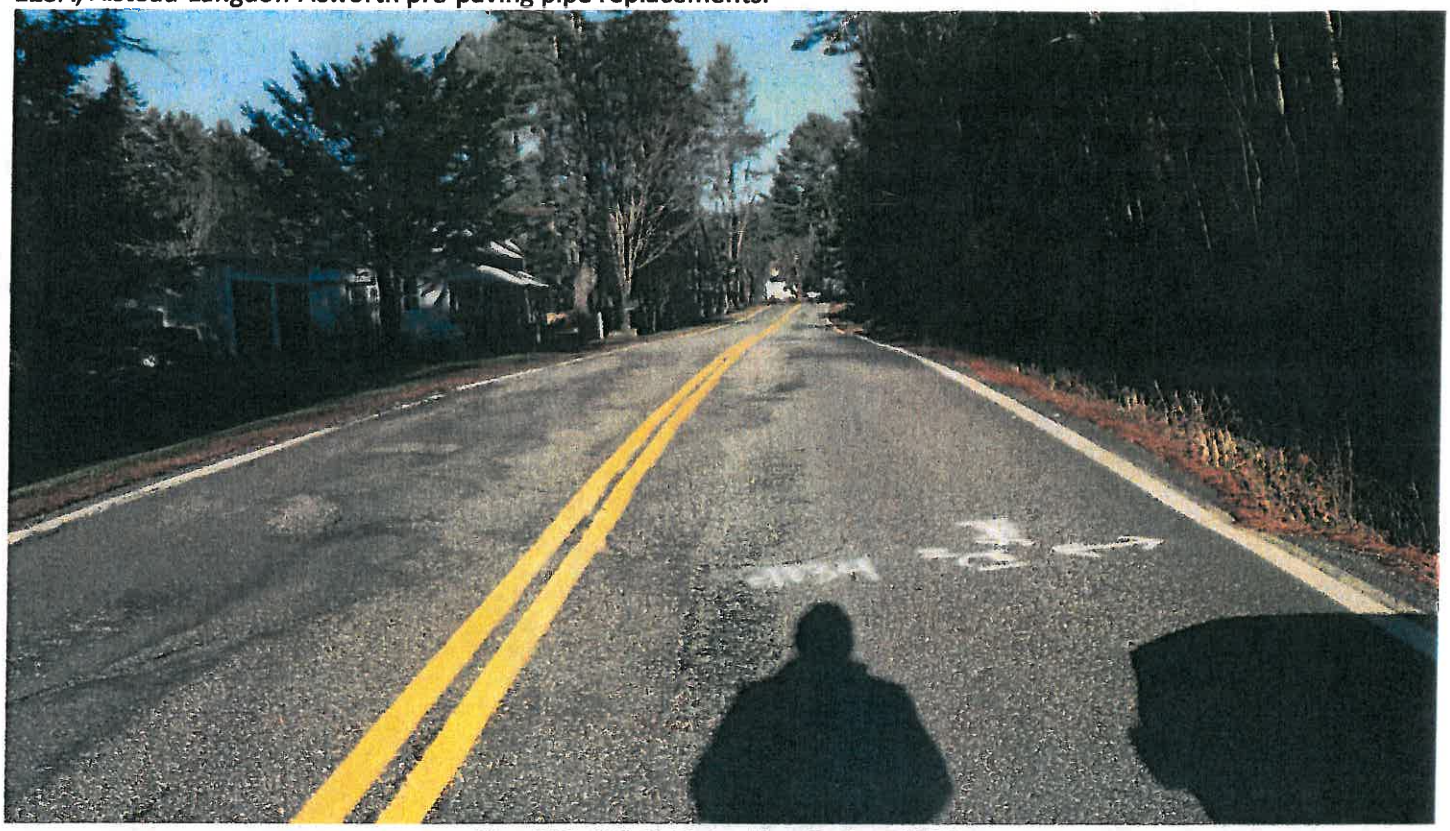
Pipe #34, 12" CMP looking at outlet.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #34, 12" CMP inlet.

Pipe #34, 12" CMP, inlet ditch.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.



Pipe #34, 12" CMP, Looking East on 123A.

Pipe #34, 12" CMP, pavement condition at crossing.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #35, 15" CMP, oulet.

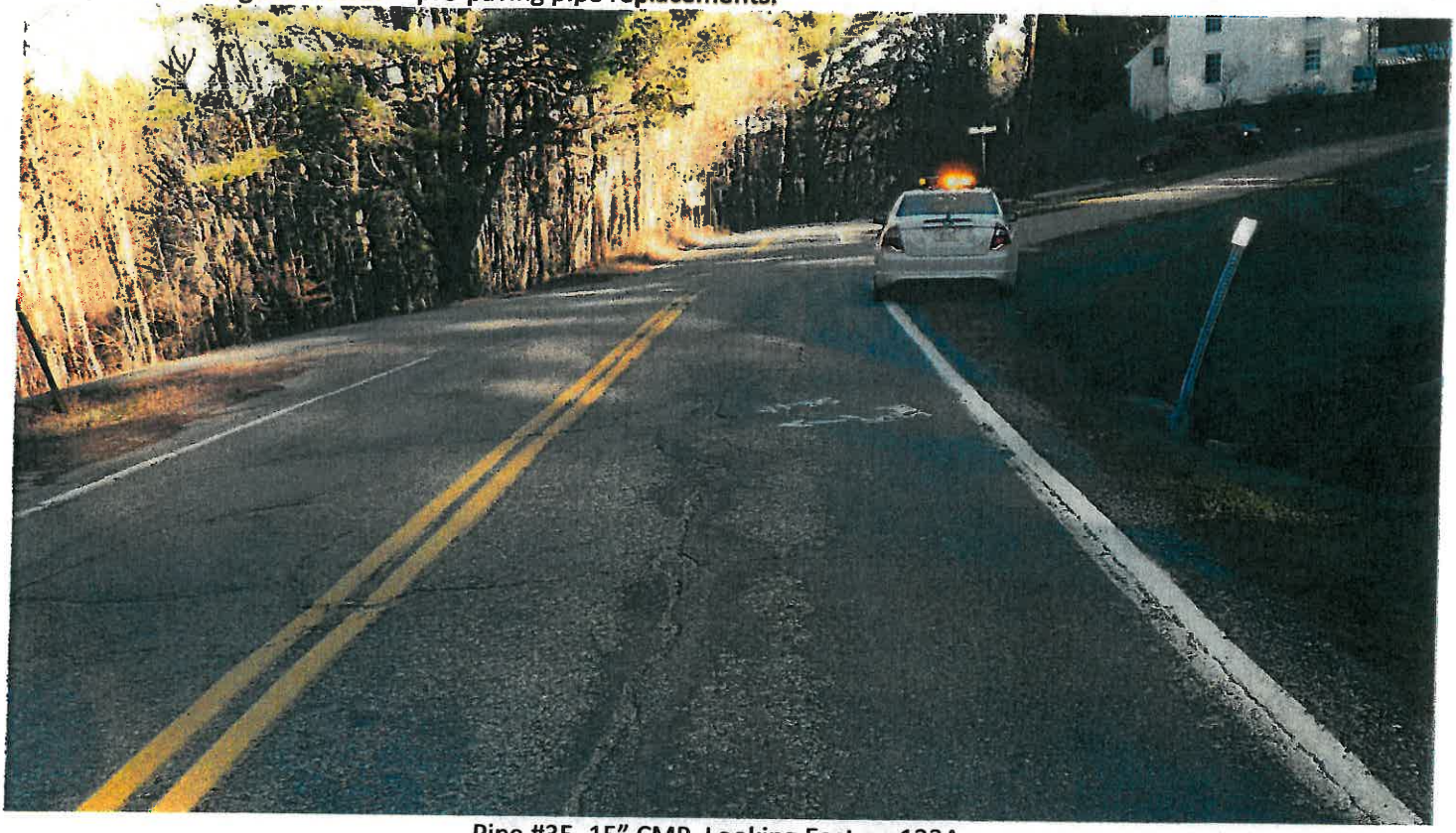
Pipe #35, 15" CMP looking at outlet.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #35, 15" CMP, inlet.

Pipe #35, 15" CMP, inlet ditch.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.



Pipe #35, 15" CMP, Looking East on 123A.

Pipe #35, 15" CMP, pavement conditions at crossing.

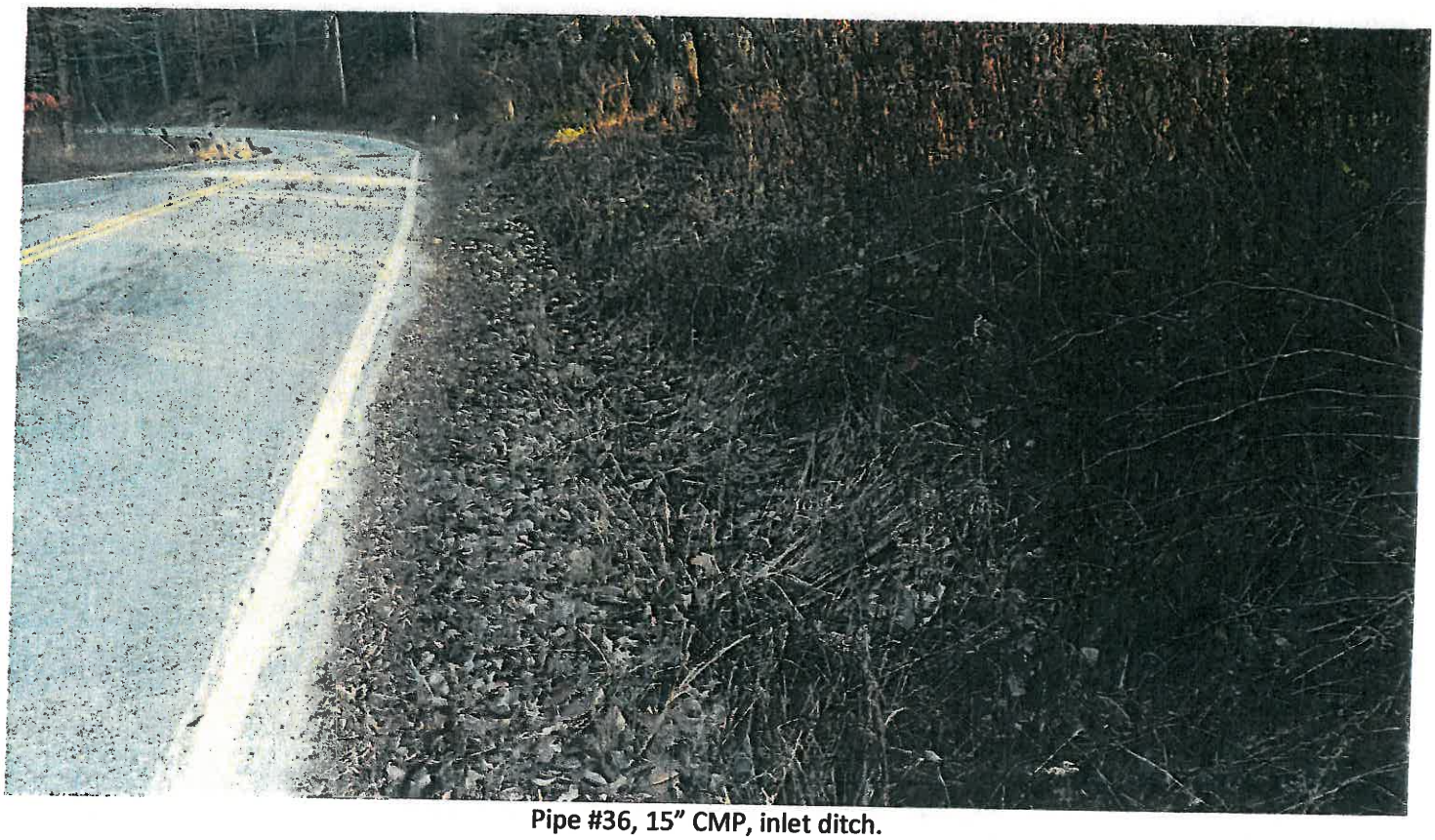
123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #26, 15" CMP, looking at outlet.

Pipe #36, 15" CMP, outlet.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #36, 15" CMP, Inlet catch basin.



Pipe #36, 15" CMP, inlet ditch.

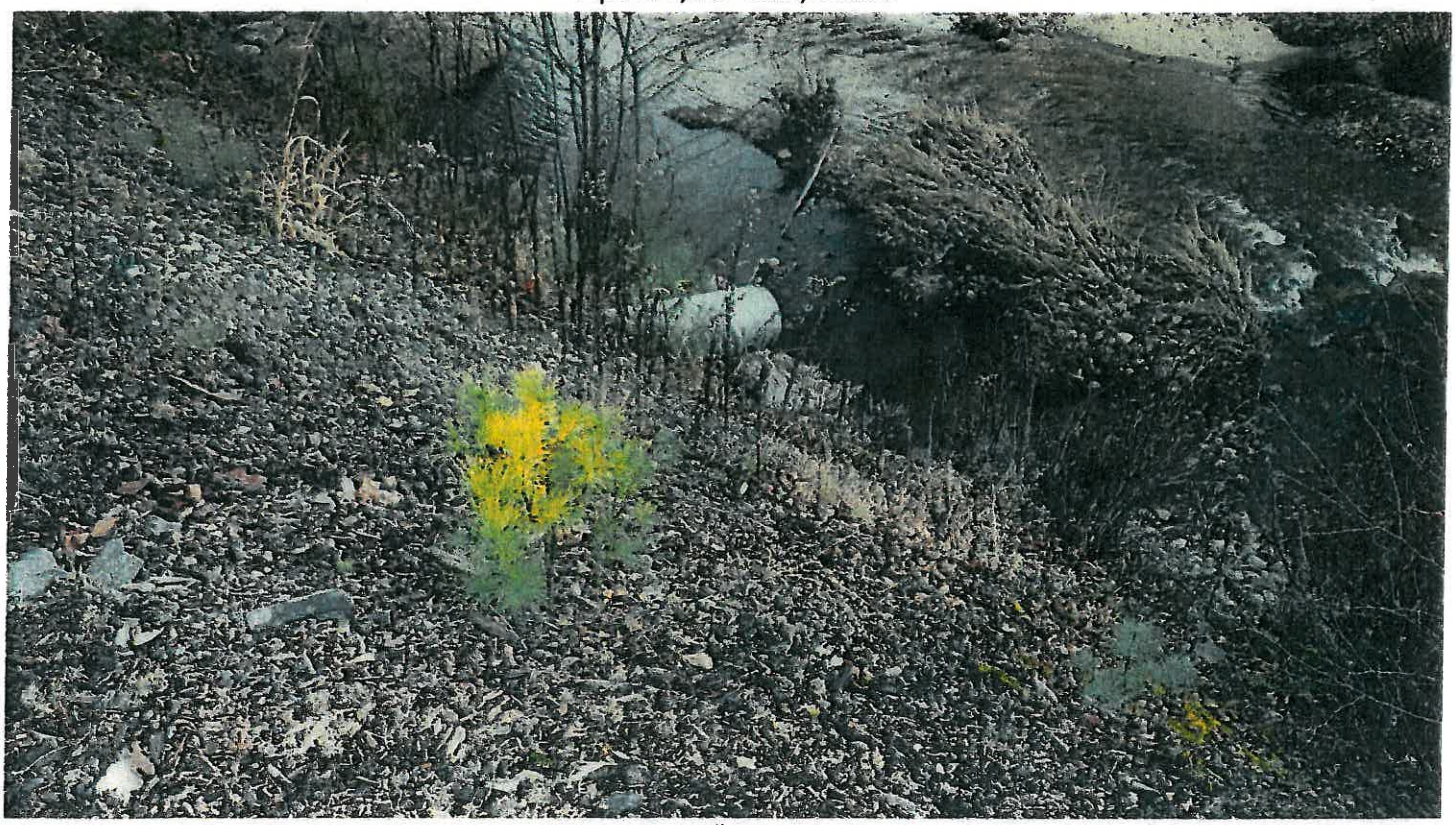
123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #36, 15" CMP, Looking East on 123A.

Pipe #36, 15" CMP, pavement conditions at crossing.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #37, 15" CMP, outlet.



Pipe #37, 15" CMP, outlet.

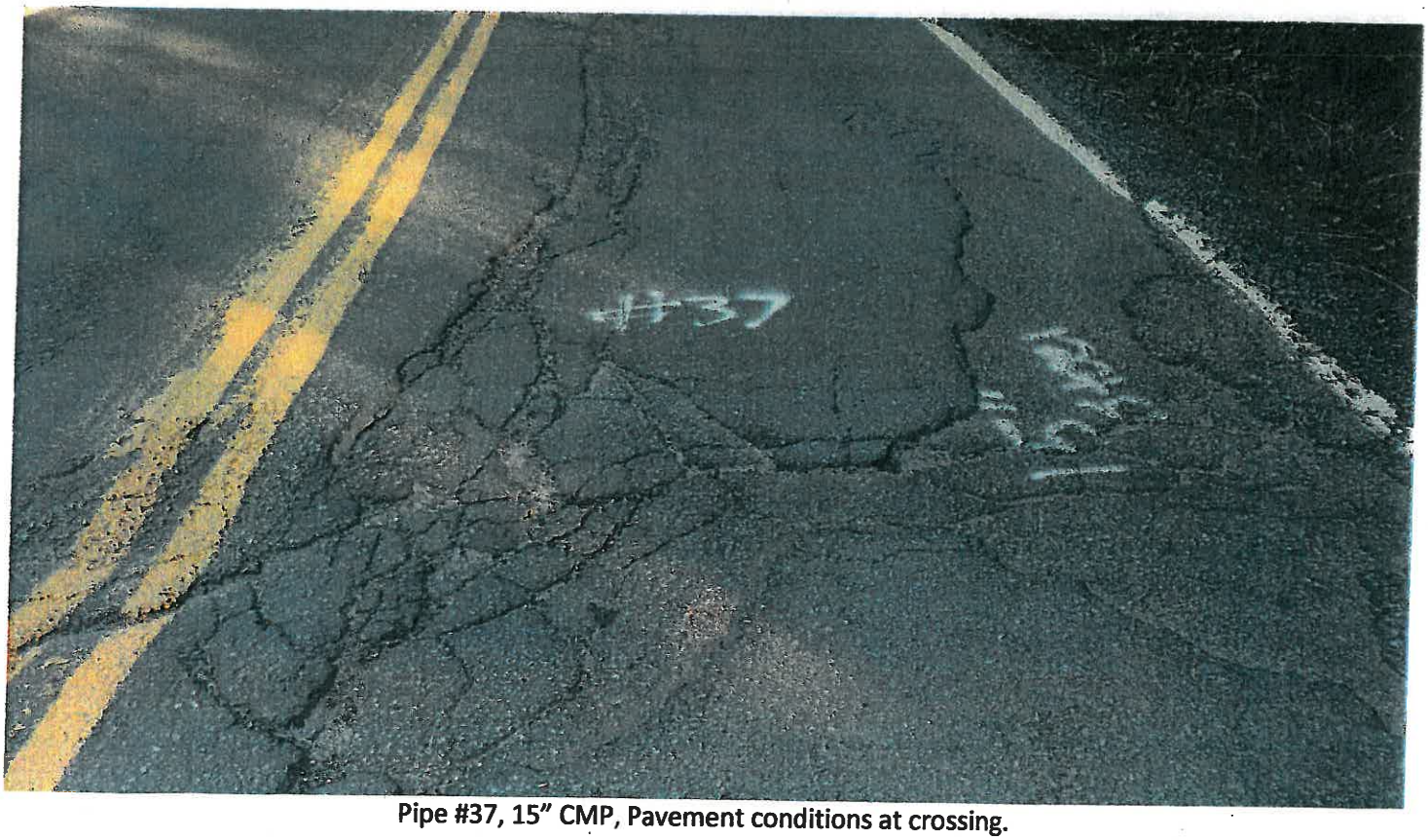
123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #37, 15" CMP inlet.

Pipe #37, 15" CMP inlet ditch.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #37, 15" CMP, Looking East on 123A.



Pipe #37, 15" CMP, Pavement conditions at crossing.

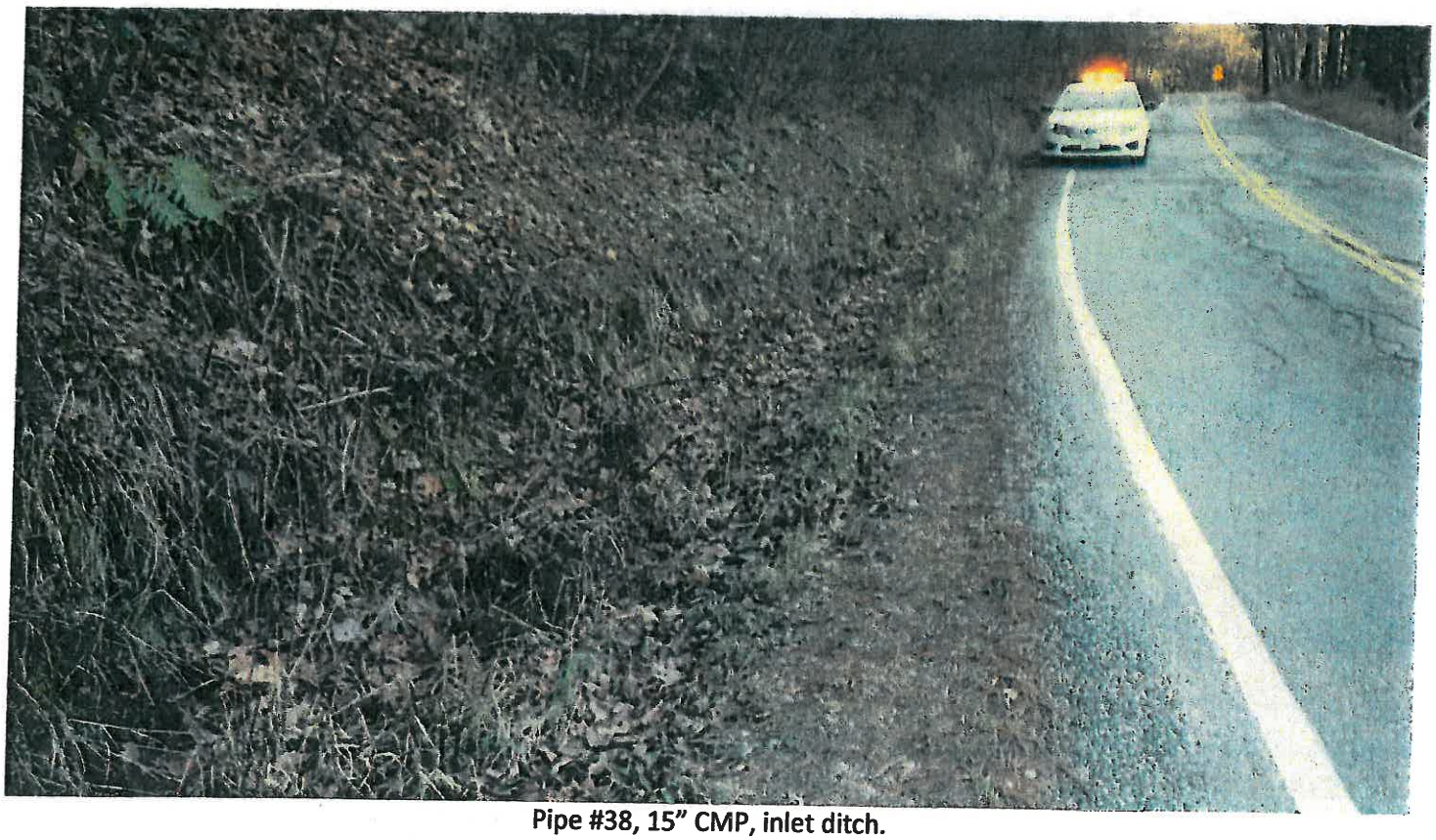
123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #38, 15" CMP, outlet.

Pipe #38, 15" CMP outlet.

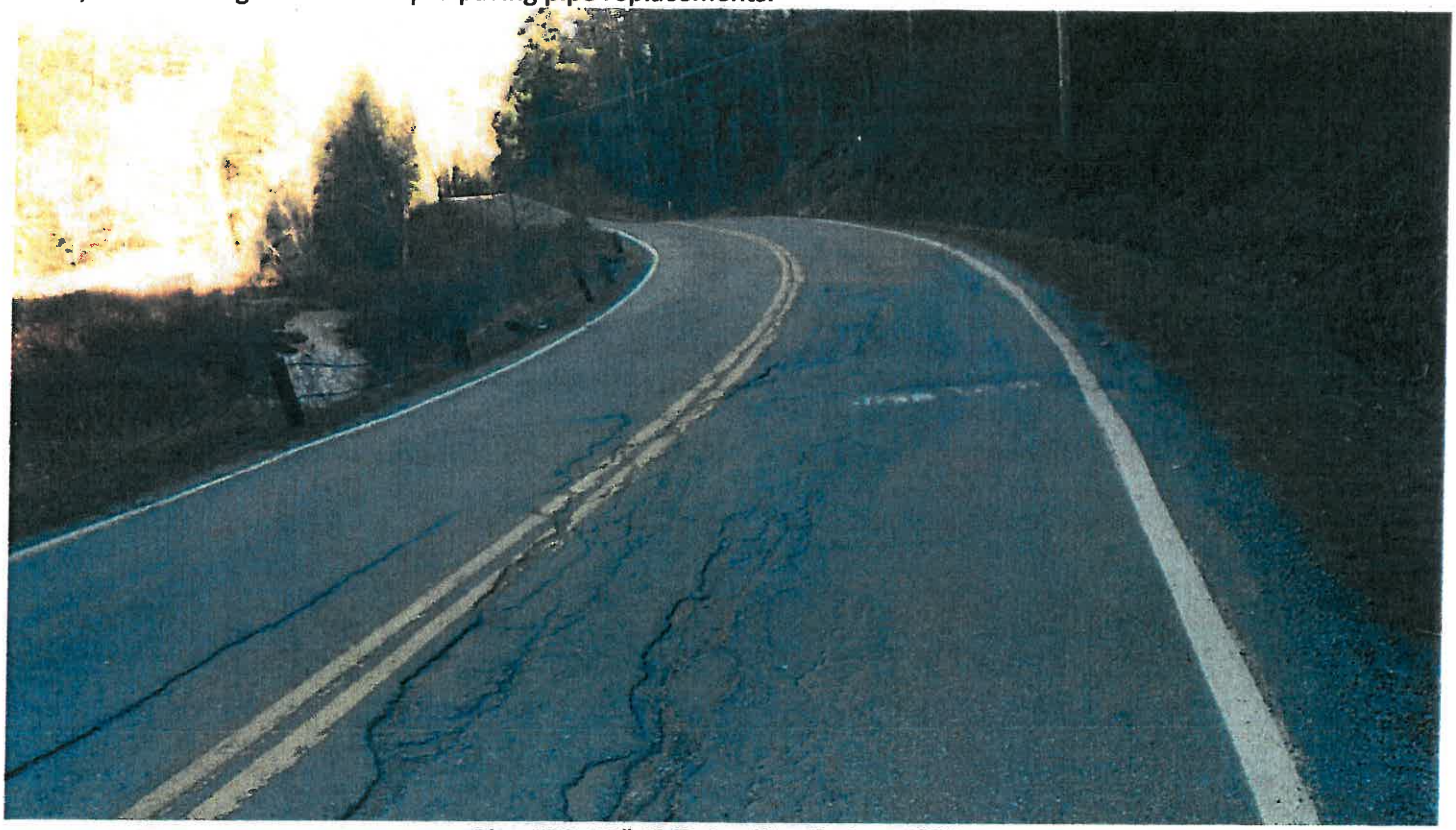
123A, Alstead-Langdon-Acworth pre-paving pipe replacements.

Pipe #38, 15" CMP, inlet.



Pipe #38, 15" CMP, inlet ditch.

123A, Alstead-Langdon-Acworth pre-paving pipe replacements.



Pipe #38, 15" CMP, Looking East on 123A.

Pipe #38, 15" CMP, Pavement condition at crossing.

Project M401 Acworth, Langdon, Alstead 123A

Wetland Application – NHDOT Cultural Resources Review

For the purpose of compliance with regulations of the National Historic Preservation Act, the Advisory Council on Historic Preservation's *Procedures for the Protection of Historic Properties* (36 CFR 800), the US Army Corps of Engineers' *Appendix C*, and/or state regulation RSA 227-C:9, *Directive for Cooperation in the Protection of Historic Resources*, the NHDOT Cultural Resources Program has reviewed the enclosed Standard Dredge and Fill Application for potential impacts to historic properties.

Associated with federal and wetland permits.

Above Ground Review

Known/approximate age of structure:
Replacement of 30 culverts along an 8 mile stretch. The culverts have corrugated metal or reinforced concrete elements of unknown construction dates.

There are 2 NR eligible historic districts in the area. Alstead Village historic district lies south of the project area. The South Acworth Historic District is within the project limits, and Pipe 24 lies in the district, however there will be minimal tree clearing and no other landscape features will be impacted.

Two pipes with stone facing composition were removed from the project (Pipes 25 & 26).

☐ No Potential to Cause Effect/No Concerns

☒ Concerns: **(limited)**

Pipe 19 is a 2 X 3 ft box culvert with concrete walls and possible granite lintels and a 20" cmp extension. On 2/3/2015, Jill Edelmann, Sheila Charles, Matt Urban and Christine Perron met to discuss the project and cultural resources. Jill indicated that because the culvert is comprised of mixed materials, as elements were most likely replaced and shored over time, the culvert is likely not eligible for listing on the National Register due to loss of integrity.

However, during construction, Jill and/or Sheila should be on site to monitor, record characteristics, and photo-document this culvert. District should notify the Cultural resource Program staff minimally 2 weeks in advance of site activities, for this culvert only.

Attempts should be made to recycle the dislodged rectangular granite blocks. Adjacent owners can be contacted and the granite offered to them, and/or the district can stockpile the material for reuse.

There are no other cultural resources concerns for the project area.

Below Ground Review

Recorded Archaeological site: ☐Yes ☒No

Nearest Recorded Archaeological Site Name & Number: 27-CH-0154 Alstead Masonic Block
☐Pre-Contact ☒Post-Contact

Distance from Project Area:
4020 ft (1.225Km) west of west end of corridor, Pipe 1

Project M401 Acworth, Langdon, Alstead 123A

☒ No Potential to Cause Effect/No Concerns Locations were reviewed to determine if there are alignment changes or extensions into undisturbed areas or nearby surface archaeological features, and if the culverts are exhibit evidence of historic stone work or facings. None of the proposed culverts will be placed on new alignments.
☐ Concerns:

Reviewed by:

Sheila Charles Jill Edelman

NHDOT Cultural Resources Staff

2/3/2016

Date: