

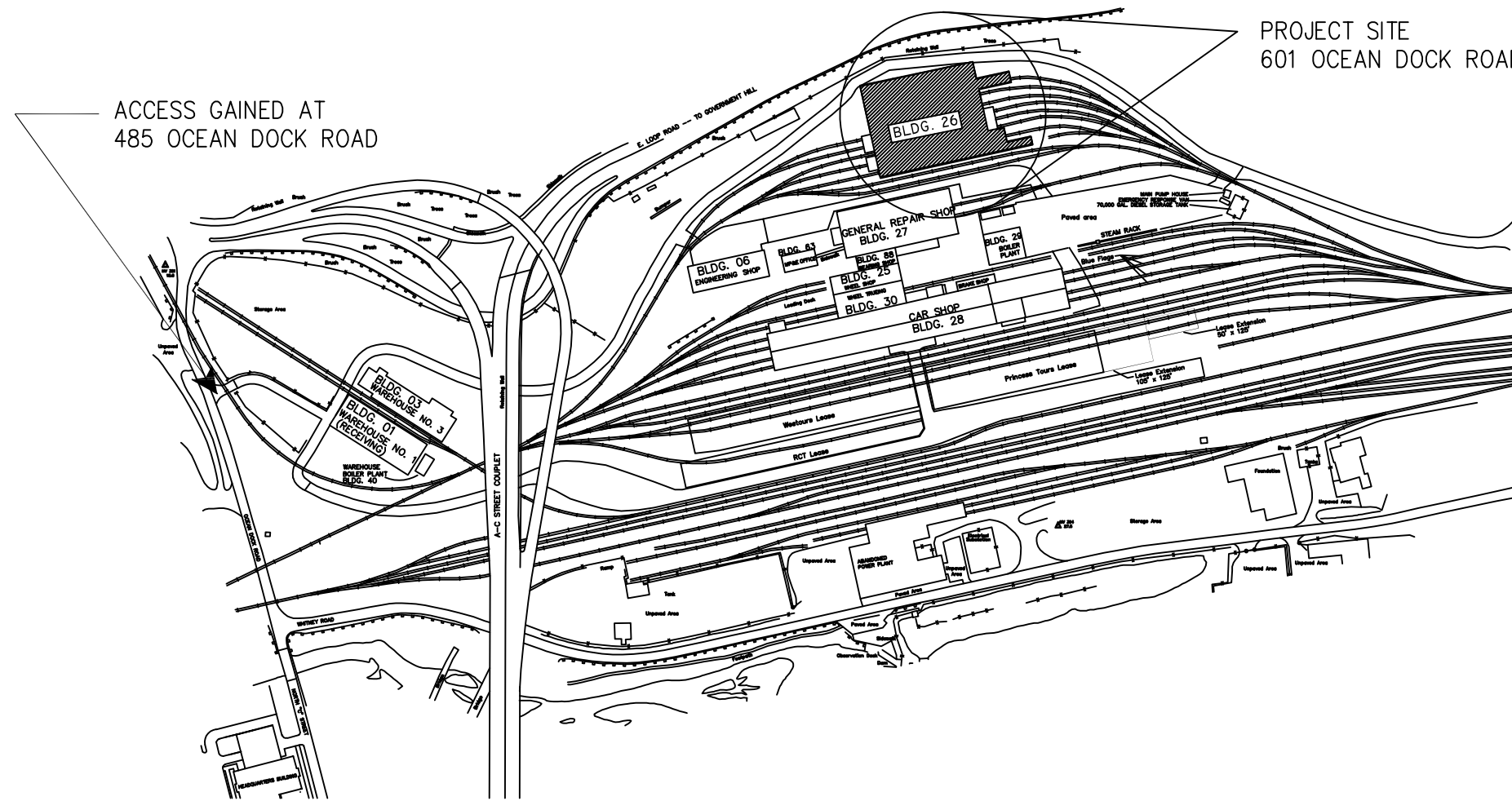
Alaska Railroad Corporation Anchorage Diesel Shop, Building 26 Industrial Water Distribution Improvements


INDEX OF DRAWINGS:

- T-1 INDEX OF DRAWINGS AND SITE PLAN**
- M-1 FLOOR PLAN**
- M-2 ISOMETRIC**
- M-3 SECTION AND DETAILS**
- D-1 BASE-BID DEMO FLOOR PLAN**
- D-2 BASE-BID DEMO ISOMETRIC**
- D-3 ADD-ALT BID DEMO FLOOR PLAN**
- D-4 ADD-ALT BID DEMO ISOMETRIC**

NOTES:

HARD HATS, SAFETY GLASSES, HEARING PROTECTION, AND WORK BOOTS ARE REQUIRED IN ALASKA RAILROAD SHOPS. IN ADDITION, CONTRACTOR WILL BE REQUIRED TO WEAR HI-VIS VESTS AND USE OSHA APPROVED FALL PROTECTION WHILE USING MAN-LIFTS. PRIOR TO BEGINNING WORK, CONTRACTOR WILL BE REQUIRED TO CHECK IN WITH ALASKA RAILROAD SHOP SUPERVISOR FOR TRACK PROTECTION (PROTECTION FROM MOVING RAILCARS).

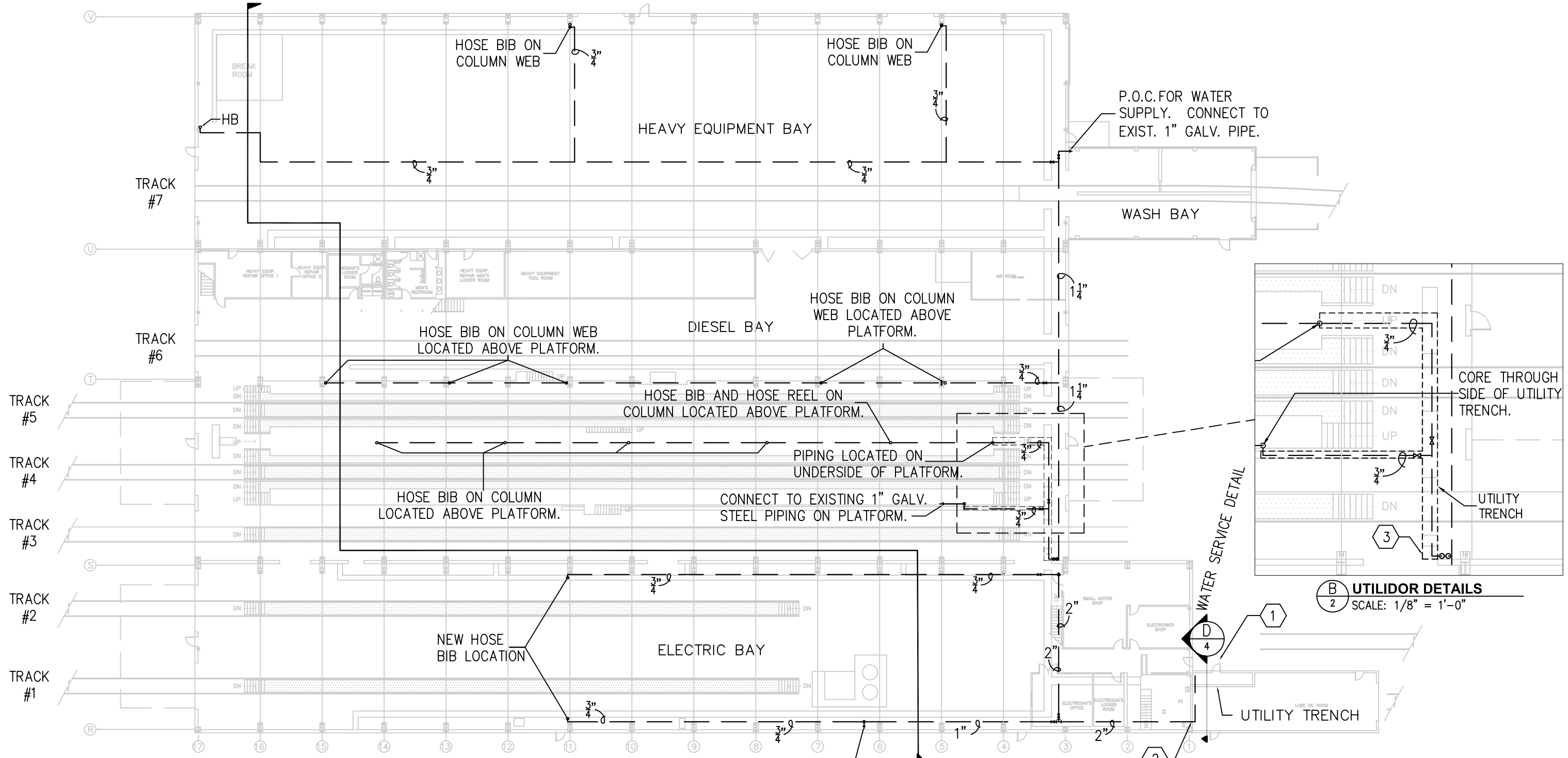


 ALASKA RAILROAD CORPORATION ENGINEERING SERVICES P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500		
PROJECT : BUILDING 26 DIESEL REPAIR SHOP INDUSTRIAL WATER DISTRIBUTION		
TITLE: INDEX OF DRAWINGS & SITE PLAN		
DESIGNED BY: C.D.R.	SCALE : AS NOTED	AFE NO.: 18934
DRAWN BY: JAK	DATE : JULY 2019	ACAD FILE:
CHECKED BY:		DWG NO.
APPROVED BY:		1 OF 8

T1

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INDUSTRIAL WATER
ISOMETRIC VIEW



NOTES:

1. AWWU WATER MAIN VALVE IS LOCATED IN UTILITY TRENCH, WITH RELIEF VALVE LOCATE JUST OUTSIDE THE OIL ROOM. SCHEDULE WATER OUTAGES WITH OWNER'S REPRESENTATIVE.
2. ONE HOUR FIRE RATED WALL. PATCH HOLE IN WALL, CREATED BY REMOVAL OF EXISTING WATER PIPE, AND FIRE CAULK AROUND NEW PIPE PENETRATION.
3. EXISTING AND NEW WATER LINES ARE TO BE LOCATED IN UNDER FLOOR PIPE TRENCH WITH METAL DECK PLATES RUNNING THROUGHOUT THE SHOP. TRENCH CONTAINS UTILITY PIPING (STEAM, CONDENSATE, COMPRESSED AIR, ELECTRIC, LUBE OIL, USED OIL). SPACE IS LIMITED WITHIN TRENCHES. PROVIDE PROPER SUPPORT IN ACCORDANCE WITH PLUMBING CODE REQUIREMENTS FOR PIPE. KEEP NEW PIPE IN UPPER PORTION OF TRENCH ALONG AND SUPPORTED FROM SIDE WALLS TO ALLOW ACCESS TO PIPING.
4. A PORTION OF THE UTILITY TRENCH DECK PLATES ARE WELDED DOWN.

(A) 2 INDUSTRIAL WATER DISTRIBUTION
SCALE: 1/32" = 1'-0"

(B) 2 UTILIDOR DETAILS
SCALE: 1/8" = 1'-0"

ALASKA RAILROAD CORPORATION
ENGINEERING SERVICES
P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500

PROJECT : **BUILDING 26 DIESEL REPAIR SHOP
INDUSTRIAL WATER DISTRIBUTION**

TITLE: **NEW WATER SERVICE PLAN
FLOOR PLAN & NOTES**

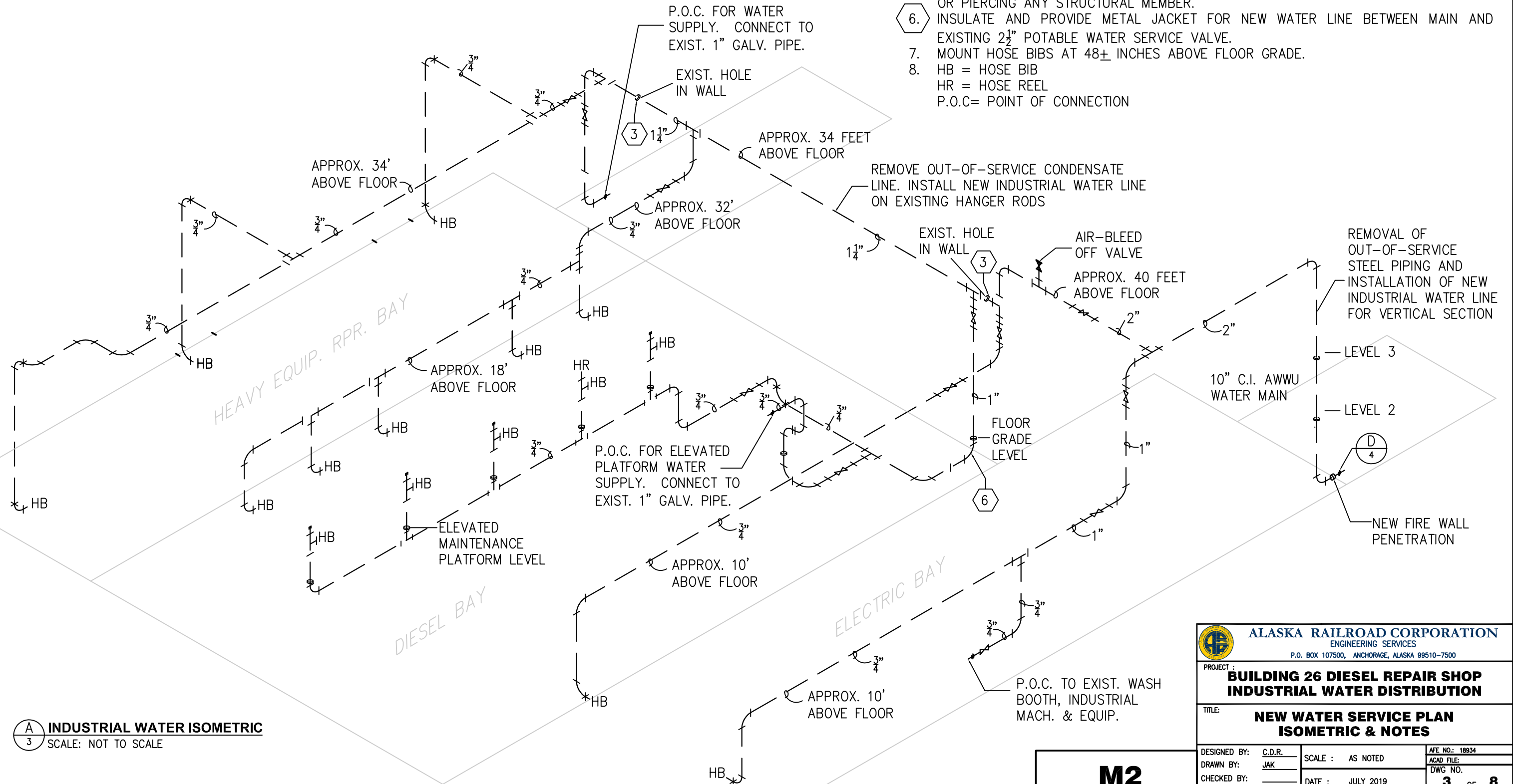
DESIGNED BY: C.D.R.	SCALE : AS NOTED	AFE NO.: 18934
DRAWN BY: JAK	DATE : JULY 2019	ACAD FILE:
CHECKED BY:		DWG NO. 2 OF 8
APPROVED BY:		

M1

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NOTES:

1. BUILDING 26 WATER SERVICE VALVE IS LOCATED IN UTILITY TRENCH. SCHEDULE AND COORDINATE WATER OUTAGES WITH OWNER'S REPRESENTATIVE.
2. CONTRACTOR TO REMOVE AND DISPOSE OF EXISTING WATER PIPING, SUPPORTS, AND VALVES BEING ABANDONED BY THIS PROJECT. SUPPORTS WELDED TO STRUCTURE, OR SUPPORTING OTHER UTILITIES ARE NOT TO BE REMOVED.
3. CAUTION: UNINSULATED STEAM AND CONDENSATE LINES ARE LOCATED IN THE UTILITY TRENCH AND BASEMENT UTILITY ROOM.
4. USE EXISTING PENETRATIONS THROUGH WALLS AND CONCRETE PLATFORMS, EXCEPT WHERE SPECIFIED.
5. OBTAIN WRITTEN PERMISSION OF OWNER'S REPRESENTATIVE BEFORE CUTTING, WELDING, OR PIERCING ANY STRUCTURAL MEMBER.
6. INSULATE AND PROVIDE METAL JACKET FOR NEW WATER LINE BETWEEN MAIN AND EXISTING 2 1/2" POTABLE WATER SERVICE VALVE.
7. MOUNT HOSE BIBS AT 48± INCHES ABOVE FLOOR GRADE.
8. HB = HOSE BIB
HR = HOSE REEL
P.O.C.= POINT OF CONNECTION

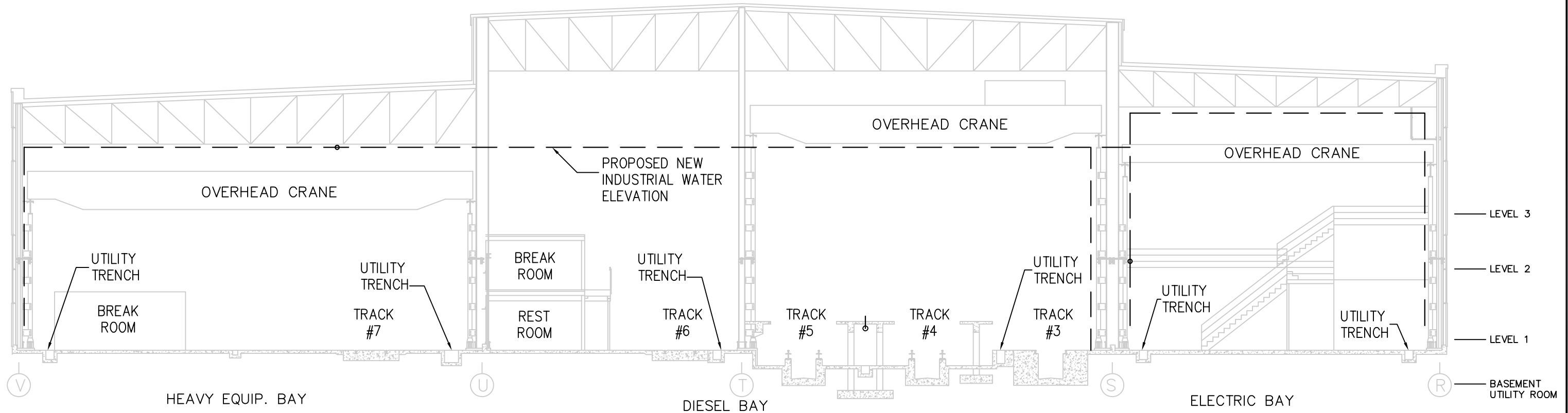


A
3 **INDUSTRIAL WATER ISOMETRIC**
SCALE: NOT TO SCALE

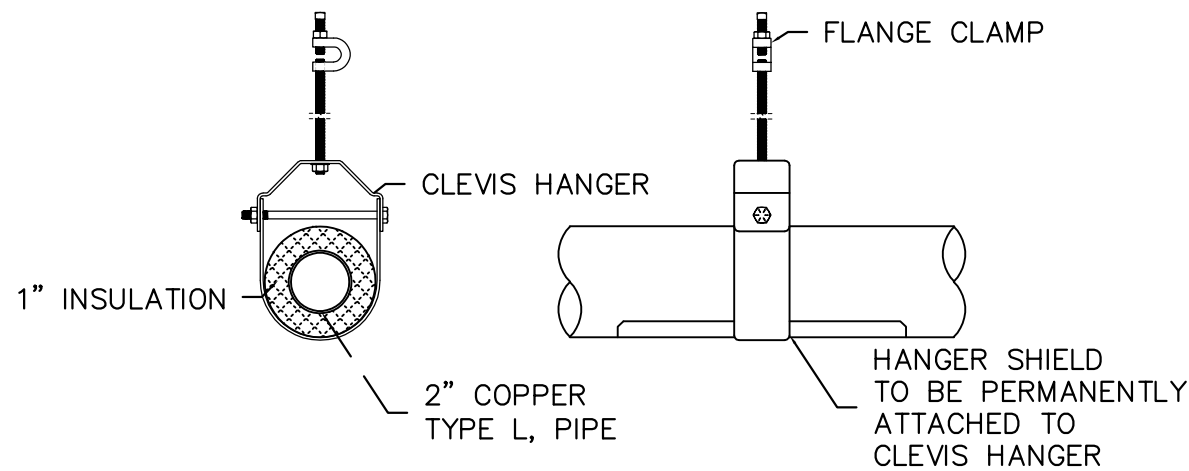
M2

 ALASKA RAILROAD CORPORATION ENGINEERING SERVICES P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500		
PROJECT : BUILDING 26 DIESEL REPAIR SHOP INDUSTRIAL WATER DISTRIBUTION		
TITLE: NEW WATER SERVICE PLAN ISOMETRIC & NOTES		
DESIGNED BY: C.D.R.	SCALE : AS NOTED	AFE NO.: 18934
DRAWN BY: JAK	DATE : JULY 2019	ACAD FILE:
CHECKED BY:		DWG NO.
APPROVED BY:		3 OF 8

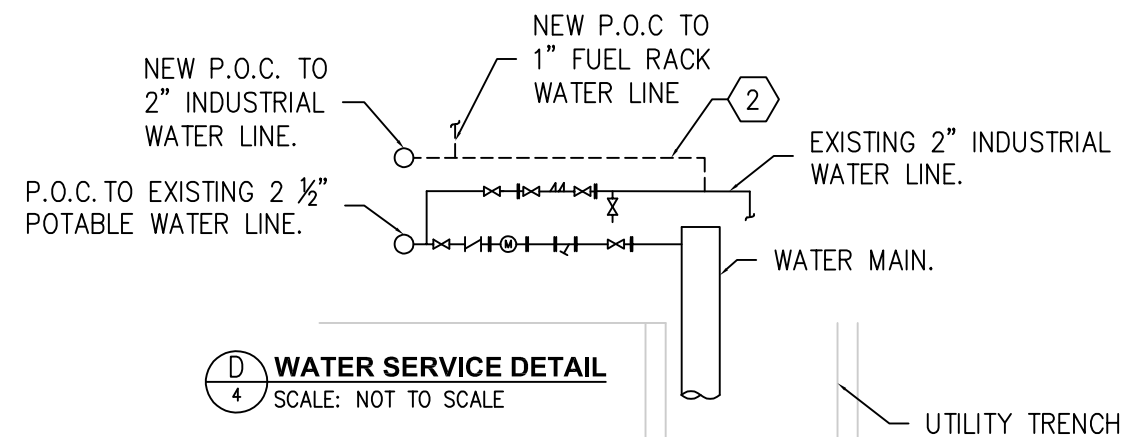
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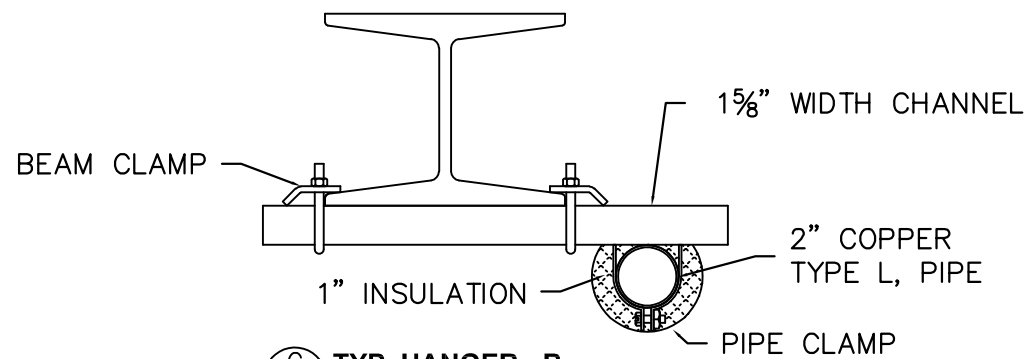
(A) BUILDING SECTION
4 SCALE: 1/8" = 1'-0"



(B) TYP. HANGER - A
4 SCALE: 1-1/2" = 1'-0"



(D) WATER SERVICE DETAIL
4 SCALE: NOT TO SCALE



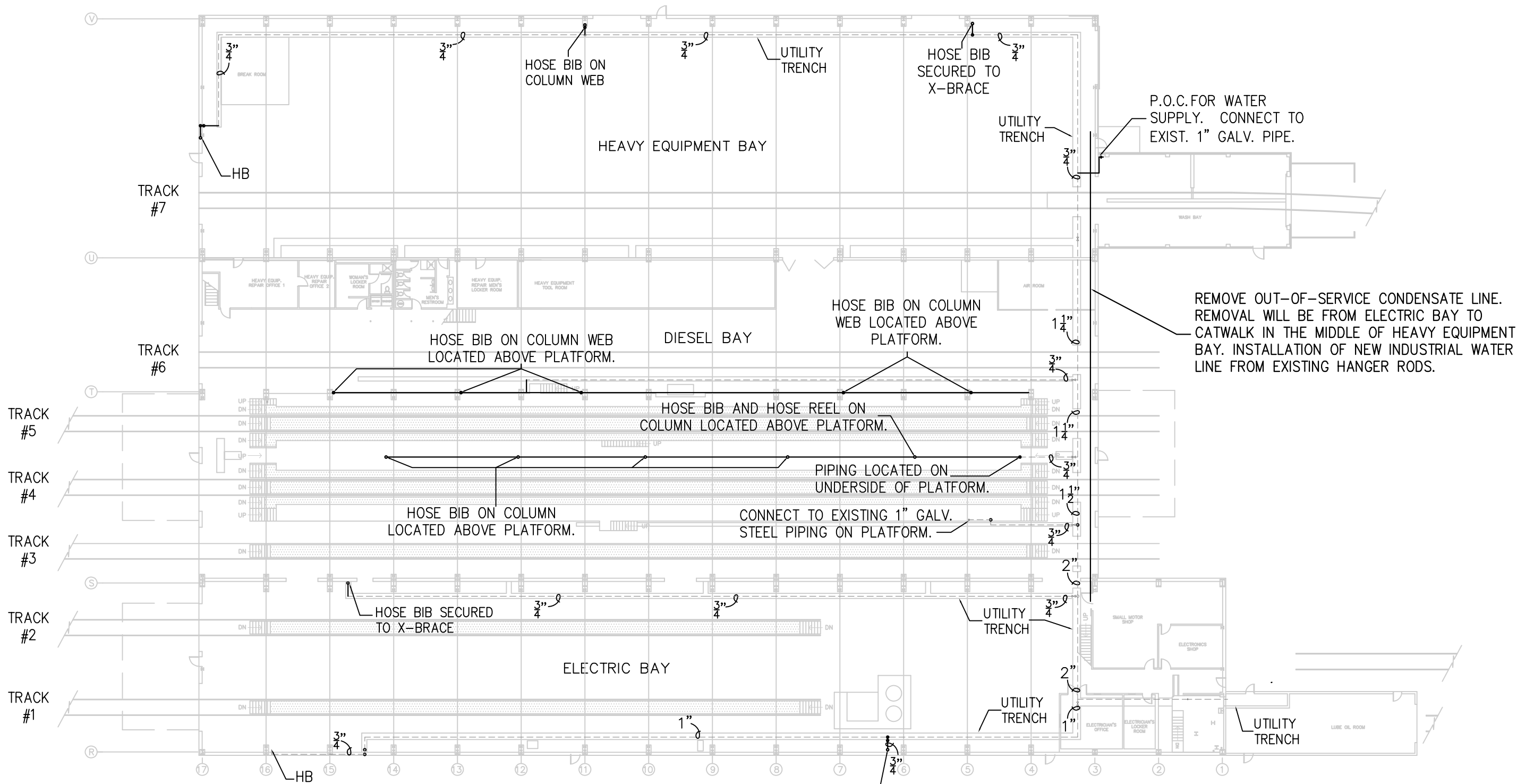
(C) TYP. HANGER - B
4 SCALE: 1-1/2" = 1'-0"

NOTES:

- ONE HOUR FIRE RATED WALL. PATCH HOLE IN WALL, CREATED BY REMOVAL OF EXISTING WATER PIPE, AND FIRE CAULK AROUND NEW PIPE PENETRATION.
- DISCONNECT EXISTING INDUSTRIAL WATER SERVICE IN UTILITY TRENCH & ROUTE NEW INDUSTRIAL WATER SERVICE TO SOUTH SIDE OF WALL AS SHOWN IN FLOOR PLAN.
- SUPPORT PIPING FROM WALL OR CEILING AND NOT FROM THE FLOOR.

M3

ALASKA RAILROAD CORPORATION ENGINEERING SERVICES P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500		
PROJECT : BUILDING 26 DIESEL REPAIR SHOP INDUSTRIAL WATER DISTRIBUTION		
TITLE: NEW WATER SERVICE SECTION, DETAILS & NOTES		
DESIGNED BY: C.D.R.	SCALE : AS NOTED	AFE NO.: 18934
DRAWN BY: JAK	DATE : JULY 2019	ACAD FILE:
CHECKED BY:		DWG NO.
APPROVED BY:		4 OF 8



INDUSTRIAL WATER DISTRIBUTION
 SCALE: 1/32" = 1'-0"

NOTES:

1. SECURE EXISTING ELECTRICAL GROUNDS TO NEW WATER SERVICE USING APPROPRIATELY SIZED PIPE CLAMPS.
2. EXISTING AND NEW WATER LINES ARE TO BE LOCATED IN UNDER FLOOR PIPE TRENCH WITH METAL DECK PLATES RUNNING THROUGHOUT THE SHOP. TRENCH CONTAINS UTILITY PIPING (STEAM, CONDENSATE, COMPRESSED AIR, ELECTRIC, LUBE OIL, USED OIL). SPACE IS LIMITED WITHIN TRENCHES. PROVIDE PROPER SUPPORT IN ACCORDANCE WITH PLUMBING CODE REQUIREMENTS FOR PIPE. KEEP NEW PIPE IN UPPER PORTION OF TRENCH ALONG AND SUPPORTED FROM SIDE WALLS TO ALLOW ACCESS TO PIPING.
3. A PORTION OF THE UTILITY TRENCH DECK PLATES ARE WELDED DOWN.

INDUSTRIAL WATER
 ISOMETRIC VIEW

ALASKA RAILROAD CORPORATION
 ENGINEERING SERVICES
 P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500

PROJECT : **BUILDING 26 DIESEL REPAIR SHOP
 INDUSTRIAL WATER DISTRIBUTION**

TITLE: **EXISTING WATER SERVICE
 DEMO BASE BID - FLOOR PLAN**

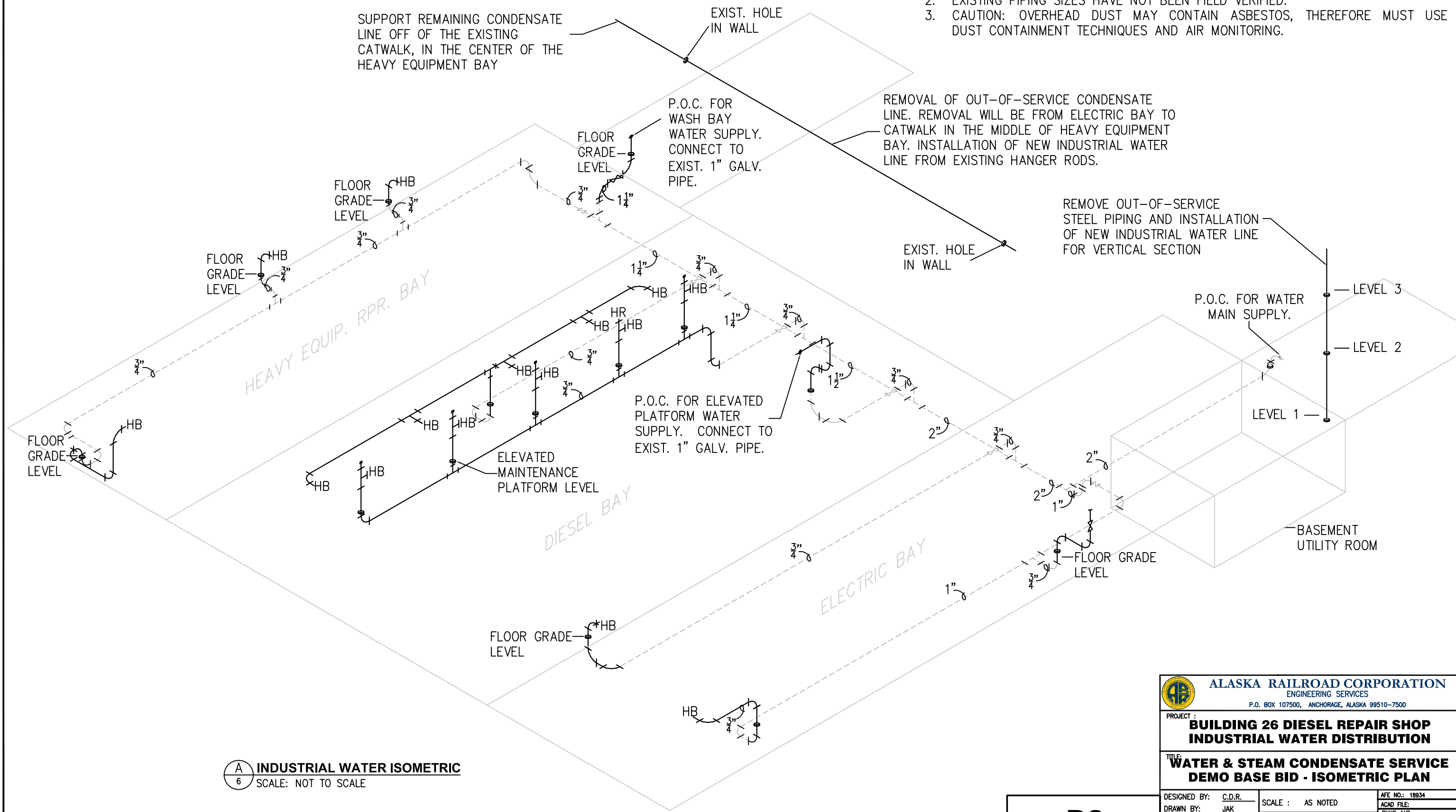
DESIGNED BY: C.D.R.	SCALE : AS NOTED	AFE NO.: 18934
DRAWN BY: JAK	DATE : JULY 2019	ACAD FILE:
CHECKED BY:		DWG NO. 5 OF 8
APPROVED BY:		

D1

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NOTES:

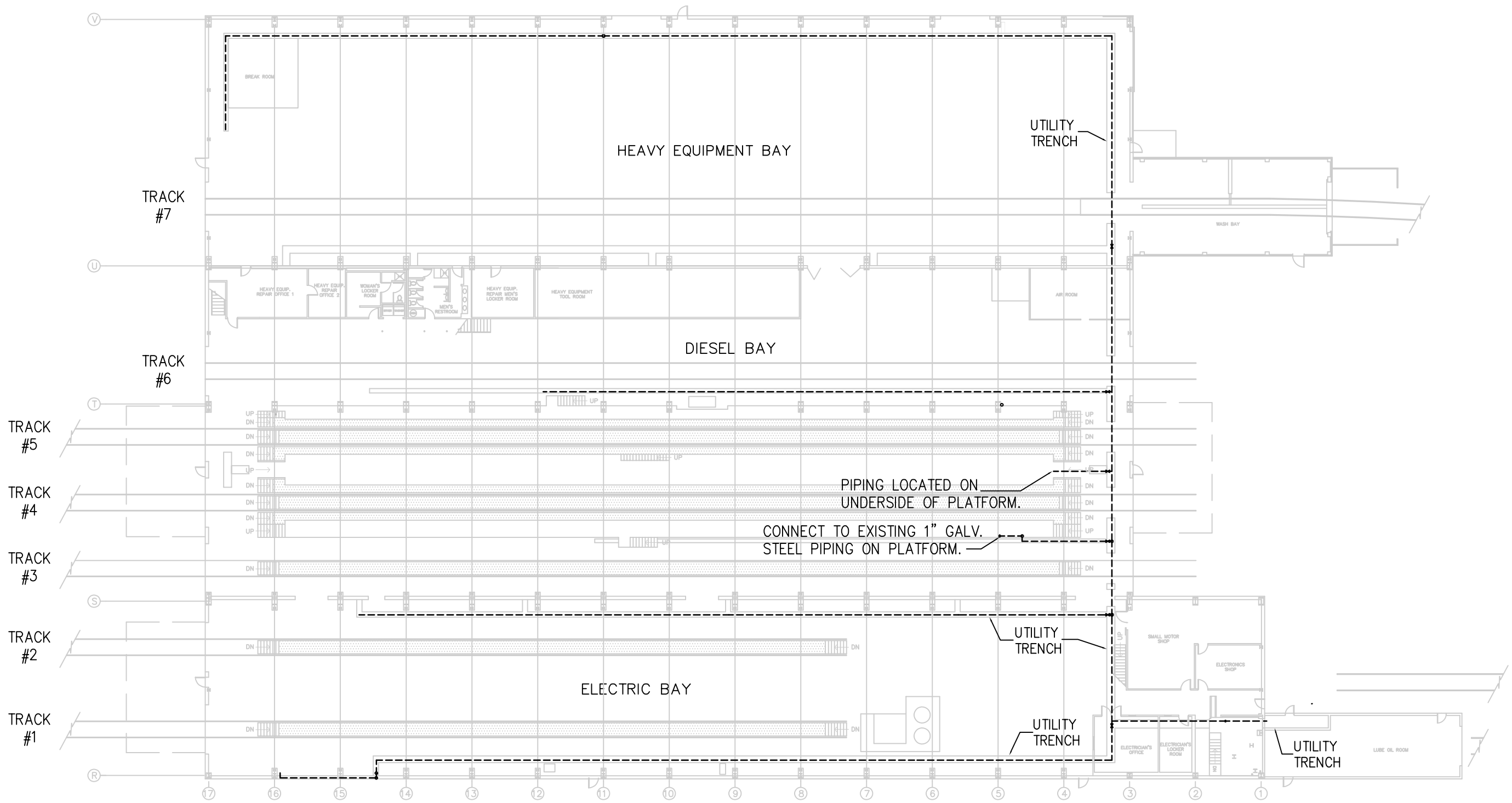
1. BASE BID DEMO, IS INTENDED TO IDENTIFY ANY PIPING THAT WILL NEED TO BE REMOVE IN ORDER TO INSTALL THE NEW INDUSTRIAL WATER SYSTEM. DASHED LINES REPRESENT ADD-ALT DEMO PLAN, SHOWN ON PAGE D3 & D4. SOLID LINE REPRESENT PIPES TO BE REMOVED WITH BASE BID DEMO PLAN.
2. EXISTING PIPING SIZES HAVE NOT BEEN FIELD VERIFIED.
3. CAUTION: OVERHEAD DUST MAY CONTAIN ASBESTOS, THEREFORE MUST USE DUST CONTAINMENT TECHNIQUES AND AIR MONITORING.



A
6 **INDUSTRIAL WATER ISOMETRIC**
SCALE: NOT TO SCALE

D2

 ALASKA RAILROAD CORPORATION ENGINEERING SERVICES P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500		
PROJECT : BUILDING 26 DIESEL REPAIR SHOP INDUSTRIAL WATER DISTRIBUTION		
TITLE: WATER & STEAM CONDENSATE SERVICE DEMO BASE BID - ISOMETRIC PLAN		
DESIGNED BY: C.D.R.	SCALE : AS NOTED	AFE NO.: 18934
DRAWN BY: JAK	DATE : JULY 2019	ACAD FILE:
CHECKED BY:		DWG NO.
APPROVED BY:		6 OF 8




INDUSTRIAL WATER
ISOMETRIC VIEW

INDUSTRIAL WATER DISTRIBUTION
SCALE: 1/32" = 1'-0"

NOTES:

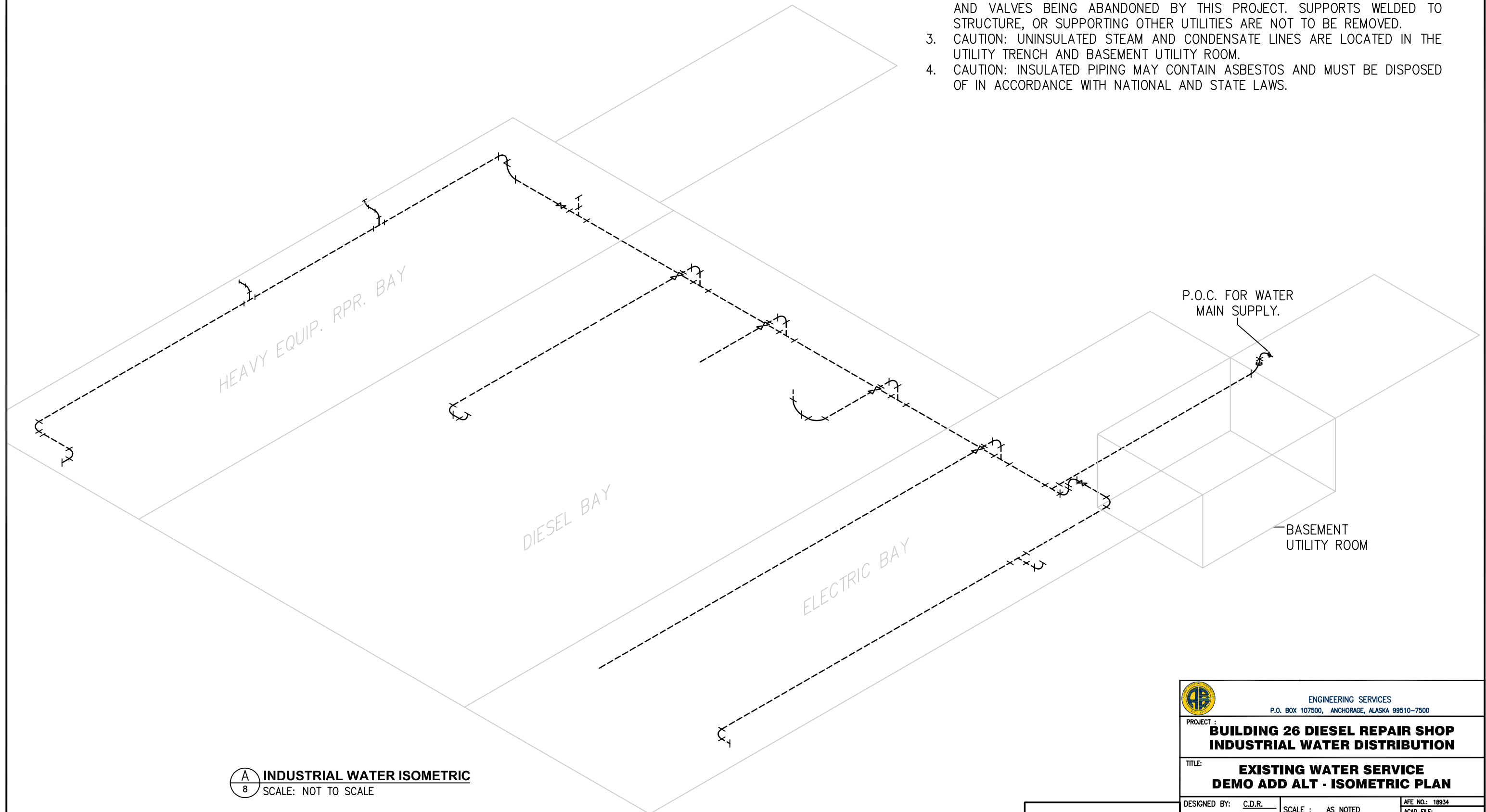
1. SECURE EXISTING ELECTRICAL GROUNDS TO NEW WATER SERVICE USING APPROPRIATELY SIZED PIPE CLAMPS.
2. A PORTION OF THE UTILITY TRENCH DECK PLATES ARE WELDED DOWN.
3. ADD ALT DEMO REMOVES ALL REMNANTS OF THE EXISTING INDUSTRIAL WATER SYSTEM, PARTICULARLY LOCATED WITHIN THE UTILITY TRENCHES.

D3

 ALASKA RAILROAD CORPORATION ENGINEERING SERVICES P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500		
PROJECT : BUILDING 26 DIESEL REPAIR SHOP INDUSTRIAL WATER DISTRIBUTION		
TITLE: EXISTING WATER SERVICE DEMO ADD ALT - FLOOR PLAN		
DESIGNED BY: C.D.R.	SCALE : AS NOTED	AFE NO.: 18934
DRAWN BY: JAK	DATE : JULY 2019	ACAD FILE:
CHECKED BY:		DWG NO. 7 OF 8
APPROVED BY:		


NOTES:

1. ADD-ALT DEMO PLAN INCLUDES THE REMOVAL ALL PIPING OF THE CURRENT INDUSTRIAL WATER SYSTEM NOT COVERED IN BASE BID DEMO PLAN, AND ANCILLARY ITEMS.
2. CONTRACTOR TO REMOVE AND DISPOSE OF EXISTING WATER PIPING, SUPPORTS, AND VALVES BEING ABANDONED BY THIS PROJECT. SUPPORTS WELDED TO STRUCTURE, OR SUPPORTING OTHER UTILITIES ARE NOT TO BE REMOVED.
3. CAUTION: UNINSULATED STEAM AND CONDENSATE LINES ARE LOCATED IN THE UTILITY TRENCH AND BASEMENT UTILITY ROOM.
4. CAUTION: INSULATED PIPING MAY CONTAIN ASBESTOS AND MUST BE DISPOSED OF IN ACCORDANCE WITH NATIONAL AND STATE LAWS.



INDUSTRIAL WATER ISOMETRIC
SCALE: NOT TO SCALE

D4

 ENGINEERING SERVICES P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500		
PROJECT : BUILDING 26 DIESEL REPAIR SHOP INDUSTRIAL WATER DISTRIBUTION		
TITLE: EXISTING WATER SERVICE DEMO ADD ALT - ISOMETRIC PLAN		
DESIGNED BY: C.D.R.	SCALE : AS NOTED	A/E NO.: 18934
DRAWN BY: JAK	DATE : JULY 2019	ACAD FILE:
CHECKED BY:		DWG NO.
APPROVED BY:		8 OF 8

CERTIFICATE OF ANALYSIS

Client: Nortech Engineering
3105 Lake Shore Dr; Ste A106

Anchorage AK 99517

Report Date: 12/12/2018
Report No.: 579333 - TEM Dust
Wipe
Project: ARR Asbestos Wipes; AK Mechanical Dept.
Project No.: 18-2552

Client: NOR997

TEM WIPE SAMPLE ANALYSIS SUMMARY

Lab No.:6671535 **Location:** Heavy Equipment Shop Rafter **Concentration (s/cm²):** 259000
Client No.:HE-1 **Area (cm²):** 100 **Asbestos Type(s):** Chrysotile
Density (s/mm²): 53.8

Lab No.:6671536 **Location:** Diesel Shop, West Wall Computer Stand **Concentration (s/cm²):** 925
Client No.:DS-2 **Area (cm²):** 100 **Asbestos Type(s):** Chrysotile
Density (s/mm²): 19.2

Lab No.:6671537 **Location:** Equipment Shop Duct **Concentration (s/cm²):** 74000
Client No.:ES-3 **Area (cm²):** 100 **Asbestos Type(s):** Chrysotile
Density (s/mm²): 30.8

Lab No.:6671538 **Location:** Diesel Shop Duct **Concentration (s/cm²):** 37000
Client No.:DS-4 **Area (cm²):** 100 **Asbestos Type(s):** Chrysotile
Density (s/mm²): 30.8


Lab No.:6671539 **Location:** General Repair Duct **Concentration (s/cm²):** 55500
Client No.:GR-5 **Area (cm²):** 100 **Asbestos Type(s):** Chrysotile
Density (s/mm²): 46.2


Lab No.:6671540 **Location:** Wheel Shop I-Beam **Concentration (s/cm²):** <37000
Client No.:WS-6 **Area (cm²):** 100 **Asbestos Type(s):** None Detected
Density (s/mm²): <7.69

Lab No.:6671541 **Location:** General Repair Tool Box **Concentration (s/cm²):** 2780
Client No.:GR-7 **Area (cm²):** 100 **Asbestos Type(s):** Chrysotile
Density (s/mm²): 57.7

Lab No.:6671542 **Location:** General Repair Duct **Concentration (s/cm²):** <37000
Client No.:GR-8 **Area (cm²):** 100 **Asbestos Type(s):** None Detected
Density (s/mm²): <7.69

Please refer to the Preface of this report for further information regarding your analysis.

Date Received: 12/12/2018
Date Analyzed: 12/12/2018
Signature: 
Analyst: Jhoon Jeon

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director


CERTIFICATE OF ANALYSIS


Client: Nortech Engineering 3105 Lake Shore Dr; Ste A106 Anchorage AK 99517	Report Date: 12/12/2018 Report No.: 579333 - TEM Dust Wipe Project: ARR Asbestos Wipes; AK Mechanical Dept. Project No.: 18-2552
Client: NOR997	

TEM WIPE SAMPLE ANALYSIS SUMMARY

Lab No.: 6671543 Client No.: WS-9	Location: Wheel Shop Load Box On Ground Area (cm²): 100 Density (s/mm²): 7.69	Concentration (s/cm²): 3700 Asbestos Type(s): Chrysotile
Lab No.: 6671544 Client No.: CS-10	Location: Car Shop, Yellow Locker Area (cm²): 100 Density (s/mm²): <7.69	Concentration (s/cm²): <6170 Asbestos Type(s): None Detected
Lab No.: 6671545 Client No.: CS-11	Location: Car Shop Duct Area (cm²): 100 Density (s/mm²): 15.4	Concentration (s/cm²): 74000 Asbestos Type(s): Chrysotile
Lab No.: 6671546 Client No.: CS-12	Location: East Hazmat Locker Area (cm²): 100 Density (s/mm²): <7.69	Concentration (s/cm²): <1850 Asbestos Type(s): None Detected

Please refer to the Preface of this report for further information regarding your analysis.

Date Received: 12/12/2018
Date Analyzed: 12/12/2018
Signature: 
Analyst: Jhoon Jeon

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Nortech Engineering
3105 Lake Shore Dr; Ste A106

Anchorage AK 99517

Report Date: 12/12/2018
Report No.: 579333 - TEM Dust
Wipe
Project: ARR Asbestos Wipes; AK Mechanical Dept.
Project No.: 18-2552

Client: NOR997

TEM WIPE SAMPLE ANALYSIS SUMMARY

Lab No.:6671547
Client No.:WS-13

Location: Wheel Shop, Bearing Fridge
Area (cm²): 100
Density (s/mm²): 7.69


Concentration (s/cm²): 925
Asbestos Type(s): Chrysotile


Lab No.:6671548
Client No.:HE-14

Location: Wheel Equipment Work Bench
Area (cm²): 100
Density (s/mm²): <7.69

Concentration (s/cm²): <1850
Asbestos Type(s): None Detected

Please refer to the Preface of this report for further information regarding your analysis.

Date Received: 12/12/2018
Date Analyzed: 12/12/2018
Signature: 
Analyst: Craig Liska

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Nortech Engineering
3105 Lake Shore Dr; Ste A106
Anchorage AK 99517

Client: NOR997

Report Date: 12/12/2018
Report No.: 579333 - TEM Dust Wipe
Project: ARR Asbestos Wipes; AK Mechanical Dept.
Project No.: 18-2552

Appendix to Analytical Report:

Customer Contact: Henry Affinito
Analysis: ASTM D6480 - 05(2010)

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

iATL Customer Service: customerservice@iatl.com
iATL Office Manager: cdavis@iatl.com
iATL Account Representative: Cassie Doherty
Sample Login Notes: See Batch Sheet Attached
Sample Matrix: Air Cassettes
Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

General information about iATL capabilities and client/laboratory relationships and responsibilities are spelled out in iATL policies that are listed at www.iATL.com and in our Quality Assurance Manual per ISO 17025 standard requirements. The information therein is a representation of iATL definitions and policies for turnaround times, sample submittal, collection media, blank definitions, quantification issues and limit of detection, analytical methods and procedures, sub-contracting policies, results reporting options, fees, terms, and discounts, confidentiality, sample archival and disposal, and data interpretation.

iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP, AIHA LAP LLC, or any agency of local, state or province governments nor of any agency of the U.S. government.

This report shall not be reproduced except in full, without written approval of the laboratory.

Information Pertinent to this Report:

Analysis by ASTM D6480 - 05(2010)

Please see our list of international, national, state, provincial, and local certifications at www.iatl.com

TEM settled dust results are dependent upon several factors, including sampling technique. iATL can supply references that may aid in the interpretation of results.

All results are based on the samples as received at the lab. iATL assumes that appropriate sampling methods have been used and that the data upon which these results are based have been accurately supplied by the client.

Method requires submittal of blanks for analysis. Sample results are not corrected for contamination by field or analytical blanks.

Disclaimers / Qualifiers:

There may be some samples in this project that have a "NOTE:" associated with a sample result. We use added disclaimers or qualifiers to inform the client about something that requires further explanation. Here is a complete list with highlighted disclaimers pertinent to this project. For a full explanation of these and other disclaimers, please inquire at customerservice@iatl.com.

(1)Note: Sample not analyzed.

(2)Note: Sample not analyzed at request of client.

(3)Note: Sample analysis terminated. Clearance criteria exceeded (average >70.0 s/mm²). Set fails by AHERA 40 CFR 763.

(4)Note: Heavy loading (>0.1 s/cc) of non-asbestos particulate that might prohibit the required morphological, diffraction and elemental identification of asbestos. The absence of asbestos on the sample can not be concluded. Analysis for informational purposes only.

(5)Note: Heavy loading (>10% per grid opening) non-fibrous particulate. Sample analysis terminated. Clearance criteria exceeded (>10%). Sample voided by AHERA 40 CFR 763.

CERTIFICATE OF ANALYSIS

Client: Nortech Engineering
3105 Lake Shore Dr; Ste A106
Anchorage AK 99517

Report Date: 12/12/2018
Report No.: 579333 - TEM Dust Wipe
Project: ARR Asbestos Wipes; AK Mechanical Dept.
Project No.: 18-2552

Client: NOR997

- (5A)Note: Heavy loading (>25% per grid opening) non-fibrous particulate. Sample analysis terminated. Clearance criteria exceeded (>25%). Sample voided by NIOSH 7402.
- (6)Note: Sample turbidity >1.0 NTU. Therefore MDL >> 0.1 MFL. Does not meet National Primary Drinking Water Standards.
- (7)Note: Sample integrity compromised. Received sample cassette with top open (40 CFR 763 c-e).
- (8)Note: Received sample cassettes with portion of filter missing. "PCM re-prep"
- (9)Note: Void - overloaded, unable to prep.
- (10)Note: Void - filter damaged.
- (11)Note: No volume supplied.
- (12)Note: Heavy loading (>0.1 s/cc) of non-asbestos / non-fibrous particulate.
- (13)Note: Method analytical sensitivity of <0.003 s/cc not attained due to volume of air sampled. NIOSH requires a minimum of 400L.
- (13A)Note: Volume does not meet AHERA requirements.<1188 L)
- (14)Note: Geometric Mean = 0.xxxx Structures/cc
- (15)Note: Samples received on 0.8 micron PCM filters. Samples must be submitted on 0.45 micron filter cassettes per AHERA guidelines
- (18)Note: *Results are for informational purposes only. Samples received on 0.8um PCM cassettes. Per AHERA 40 CFR 763 guidelines samples must be obtained on a 0.45um cassette.

CERTIFICATE OF ANALYSIS

Client: Nortech Engineering
3105 Lake Shore Dr; Ste A106

Anchorage AK 99517

Report Date: 12/12/2018
Report No.: 579333 - TEM Dust
Wipe
Project: ARR Asbestos Wipes; AK Mechanical Dept.
Project No.: 18-2552

Client: NOR997

TEM WIPE SAMPLE ANALYSIS DETAILS

Lab No.:6671535
Client No.:HE-1

Area Sampled (cm²):100
Location:Heavy Equipment Shop Rafter

Filter Type:MCE
Filter Size (mm²):962
Pore Size (µm):0.45
Non-Asbestos Structures:2

Volume Filtered (mL):0.5
Dilution Factor (mL):250
Grid Openings:10
Opening Area (mm²):0.013
Area Analyzed (mm²):0.130
Sensitivity (s/mm²):7.69
Detection Limit (s/cm²):37000

Asbestos Structures: 7

Structures < 5 Microns: 5
Structures ≥ 5 µm: 2
Structure Density (s/mm²): 53.8
Structure Concentration (s/cm²): 259000
Asbestos Type(s):
Chrysotile

Structure Density (s/mm²):15.4
Structure Concentration (s/cm²):74000
Non-Asbestos Type(s):
SiAl - Other Fiber

Micrograph Number:
EDXA Spectrum ID:

Lab No.:6671536
Client No.:DS-2

Area Sampled (cm²):100
Location:Diesel Shop, West Wall Computer
Stand

Filter Type:MCE
Filter Size (mm²):962
Pore Size (µm):0.45
Non-Asbestos Structures:None Detected

Volume Filtered (mL):50
Dilution Factor (mL):250
Grid Openings:4
Opening Area (mm²):0.013
Area Analyzed (mm²):0.0520
Sensitivity (s/mm²):19.2
Detection Limit (s/cm²):925

Asbestos Structures: 1

Structures < 5 Microns: 1
Structures ≥ 5 µm: None Detected
Structure Density (s/mm²): 19.2
Structure Concentration (s/cm²): 925
Asbestos Type(s):
Chrysotile

Structure Density (s/mm²):<19.2
Structure Concentration (s/cm²):<925
Non-Asbestos Type(s):
None Detected

Micrograph Number:
EDXA Spectrum ID:

Please refer to the Preface of this report for further information regarding your analysis.

Date Received: 12/12/2018
Date Analyzed: 12/12/2018
Signature:
Analyst: Jhoon Jeon

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Nortech Engineering
3105 Lake Shore Dr; Ste A106

Anchorage AK 99517

Report Date: 12/12/2018
Report No.: 579333 - TEM Dust
Wipe
Project: ARR Asbestos Wipes; AK Mechanical Dept.
Project No.: 18-2552

Client: NOR997

TEM WIPE SAMPLE ANALYSIS DETAILS


Lab No.: 6671537	Area Sampled (cm²): 100	Filter Type: MCE
Client No.: ES-3	Location: Equipment Shop Duct	Filter Size (mm²): 962
Volume Filtered (mL): 1	Asbestos Structures: 4	Pore Size (µm): 0.45
Dilution Factor (mL): 250	Structures < 5 Microns: 3	Non-Asbestos Structures: None Detected
Grid Openings: 10	Structures ≥ 5 µm: 1	Structure Density (s/mm²): <7.69
Opening Area (mm²): 0.013	Structure Density (s/mm²): <u>30.8</u>	Structure Concentration (s/cm²): <18500
Area Analyzed (mm²): 0.130	Structure Concentration (s/cm²): <u>74000</u>	Non-Asbestos Type(s):
Sensitivity (s/mm²): 7.69	Asbestos Type(s):	None Detected
Detection Limit (s/cm²): 18500	Chrysotile	


Micrograph Number:
EDXA Spectrum ID:

Lab No.: 6671538	Area Sampled (cm²): 100	Filter Type: MCE
Client No.: DS-4	Location: Diesel Shop Duct	Filter Size (mm²): 962
Volume Filtered (mL): 2	Asbestos Structures: 4	Pore Size (µm): 0.45
Dilution Factor (mL): 250	Structures < 5 Microns: 3	Non-Asbestos Structures: 1
Grid Openings: 10	Structures ≥ 5 µm: 1	Structure Density (s/mm²): 7.69
Opening Area (mm²): 0.013	Structure Density (s/mm²): <u>30.8</u>	Structure Concentration (s/cm²): 9250
Area Analyzed (mm²): 0.130	Structure Concentration (s/cm²): <u>37000</u>	Non-Asbestos Type(s):
Sensitivity (s/mm²): 7.69	Asbestos Type(s):	SiAl - Other Fiber
Detection Limit (s/cm²): 9250	Chrysotile	

Micrograph Number:
EDXA Spectrum ID:

Please refer to the Preface of this report for further information regarding your analysis.

Date Received: 12/12/2018
Date Analyzed: 12/12/2018
Signature: 
Analyst: Jhoon Jeon

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS


Client: Nortech Engineering 3105 Lake Shore Dr; Ste A106 Anchorage AK 99517	Report Date: 12/12/2018 Report No.: 579333 - TEM Dust Wipe Project: ARR Asbestos Wipes; AK Mechanical Dept. Project No.: 18-2552
Client: NOR997	


TEM WIPE SAMPLE ANALYSIS DETAILS

Lab No.: 6671539 Client No.: GR-5 Volume Filtered (mL): 2 Dilution Factor (mL): 250 Grid Openings: 10 Opening Area (mm²): 0.013 Area Analyzed (mm²): 0.130 Sensitivity (s/mm²): 7.69 Detection Limit (s/cm²): 9250 Micrograph Number: EDXA Spectrum ID:	Area Sampled (cm²): 100 Location: General Repair Duct Asbestos Structures: 6 Structures < 5 Microns: 6 Structures ≥ 5 μm: None Detected Structure Density (s/mm²): <u>46.2</u> Structure Concentration (s/cm²): <u>55500</u> Asbestos Type(s): Chrysotile	Filter Type: MCE Filter Size (mm²): 962 Pore Size (μm): 0.45 Non-Asbestos Structures: None Detected Structure Density (s/mm²): <7.69 Structure Concentration (s/cm²): <9250 Non-Asbestos Type(s): None Detected
--	---	--

Lab No.: 6671540 Client No.: WS-6 Volume Filtered (mL): 0.5 Dilution Factor (mL): 250 Grid Openings: 10 Opening Area (mm²): 0.013 Area Analyzed (mm²): 0.130 Sensitivity (s/mm²): 7.69 Detection Limit (s/cm²): 37000 Micrograph Number: EDXA Spectrum ID:	Area Sampled (cm²): 100 Location: Wheel Shop I-Beam Asbestos Structures: None Detected Structures < 5 Microns: None Detected Structures ≥ 5 μm: None Detected Structure Density (s/mm²): <u>≤7.69</u> Structure Concentration (s/cm²): <u>≤37000</u> Asbestos Type(s): None Detected	Filter Type: MCE Filter Size (mm²): 962 Pore Size (μm): 0.45 Non-Asbestos Structures: None Detected Structure Density (s/mm²): <7.69 Structure Concentration (s/cm²): <37000 Non-Asbestos Type(s): None Detected
---	--	---

Please refer to the Preface of this report for further information regarding your analysis.

Date Received: 12/12/2018
Date Analyzed: 12/12/2018
Signature: 
Analyst: Jhoon Jeon

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Nortech Engineering
3105 Lake Shore Dr; Ste A106

Anchorage AK 99517

Report Date: 12/12/2018
Report No.: 579333 - TEM Dust
Wipe
Project: ARR Asbestos Wipes; AK Mechanical Dept.
Project No.: 18-2552

Client: NOR997

TEM WIPE SAMPLE ANALYSIS DETAILS


Lab No.: 6671541	Area Sampled (cm²): 100	Filter Type: MCE
Client No.: GR-7	Location: General Repair Tool Box	Filter Size (mm²): 962
Volume Filtered (mL): 50	Asbestos Structures: 3	Pore Size (µm): 0.45
Dilution Factor (mL): 250	Structures < 5 Microns: 1	Non-Asbestos Structures: None Detected
Grid Openings: 4	Structures ≥ 5 µm: 2	Structure Density (s/mm²): <19.2
Opening Area (mm²): 0.013	Structure Density (s/mm²): <u>57.7</u>	Structure Concentration (s/cm²): <925
Area Analyzed (mm²): 0.0520	Structure Concentration (s/cm²): <u>2780</u>	Non-Asbestos Type(s):
Sensitivity (s/mm²): 19.2	Asbestos Type(s):	None Detected
Detection Limit (s/cm²): 925	Chrysotile	


Micrograph Number:
EDXA Spectrum ID:

Lab No.: 6671542	Area Sampled (cm²): 100	Filter Type: MCE
Client No.: GR-8	Location: General Repair Duct	Filter Size (mm²): 962
Volume Filtered (mL): 0.5	Asbestos Structures: None Detected	Pore Size (µm): 0.45
Dilution Factor (mL): 250	Structures < 5 Microns: None Detected	Non-Asbestos Structures: None Detected
Grid Openings: 10	Structures ≥ 5 µm: None Detected	Structure Density (s/mm²): <7.69
Opening Area (mm²): 0.013	Structure Density (s/mm²): <u>≤7.69</u>	Structure Concentration (s/cm²): <37000
Area Analyzed (mm²): 0.130	Structure Concentration (s/cm²): <u>≤37000</u>	Non-Asbestos Type(s):
Sensitivity (s/mm²): 7.69	Asbestos Type(s):	None Detected
Detection Limit (s/cm²): 37000	None Detected	

Micrograph Number:
EDXA Spectrum ID:

Please refer to the Preface of this report for further information regarding your analysis.

Date Received: 12/12/2018
Date Analyzed: 12/12/2018
Signature: 
Analyst: Jhoon Jeon

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Nortech Engineering
3105 Lake Shore Dr; Ste A106

Anchorage AK 99517

Report Date: 12/12/2018
Report No.: 579333 - TEM Dust
Wipe
Project: ARR Asbestos Wipes; AK Mechanical Dept.
Project No.: 18-2552

Client: NOR997

TEM WIPE SAMPLE ANALYSIS DETAILS

Lab No.:6671543
Client No.:WS-9

Volume Filtered (mL):5
Dilution Factor (mL):250
Grid Openings:10
Opening Area (mm²):0.013
Area Analyzed (mm²):0.130
Sensitivity (s/mm²):7.69
Detection Limit (s/cm²):3700

Area Sampled (cm²):100
Location:Wheel Shop Load Box On Ground

Asbestos Structures: 1

Structures < 5 Microns: None Detected
Structures ≥ 5 μm: 1
Structure Density (s/mm²): 7.69
Structure Concentration (s/cm²): 3700
Asbestos Type(s):
Chrysotile

Filter Type:MCE
Filter Size (mm²):962
Pore Size (μm):0.45
Non-Asbestos Structures:None Detected

Structure Density (s/mm²):<7.69
Structure Concentration (s/cm²):<3700
Non-Asbestos Type(s):
None Detected

Micrograph Number:
EDXA Spectrum ID:

Lab No.:6671544
Client No.:CS-10

Volume Filtered (mL):3
Dilution Factor (mL):250
Grid Openings:10
Opening Area (mm²):0.013
Area Analyzed (mm²):0.130
Sensitivity (s/mm²):7.69
Detection Limit (s/cm²):6170

Area Sampled (cm²):100
Location:Car Shop, Yellow Locker

Asbestos Structures: None Detected


Structures < 5 Microns: None Detected
Structures ≥ 5 μm: None Detected
Structure Density (s/mm²): ≤7.69
Structure Concentration (s/cm²): ≤6170
Asbestos Type(s):
None Detected


Filter Type:MCE
Filter Size (mm²):962
Pore Size (μm):0.45
Non-Asbestos Structures:1

Structure Density (s/mm²):7.69
Structure Concentration (s/cm²):6170
Non-Asbestos Type(s):
Titanium

Micrograph Number:
EDXA Spectrum ID:

Please refer to the Preface of this report for further information regarding your analysis.

Date Received: 12/12/2018
Date Analyzed: 12/12/2018
Signature: 
Analyst: Jhoon Jeon

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Nortech Engineering
3105 Lake Shore Dr; Ste A106

Anchorage AK 99517

Report Date: 12/12/2018
Report No.: 579333 - TEM Dust Wipe
Project: ARR Asbestos Wipes; AK Mechanical Dept.
Project No.: 18-2552

Client: NOR997

TEM WIPE SAMPLE ANALYSIS DETAILS

Lab No.:6671545
Client No.:CS-11

Volume Filtered (mL):0.5
Dilution Factor (mL):250
Grid Openings:10
Opening Area (mm²):0.013
Area Analyzed (mm²):0.130
Sensitivity (s/mm²):7.69
Detection Limit (s/cm²):37000

Area Sampled (cm²):100
Location:Car Shop Duct

Asbestos Structures: 2

Structures < 5 Microns: 2
Structures ≥ 5 μm: None Detected
Structure Density (s/mm²): 15.4
Structure Concentration (s/cm²): 74000
Asbestos Type(s):
Chrysotile

Filter Type:MCE
Filter Size (mm²):962
Pore Size (μm):0.45
Non-Asbestos Structures:1

Structure Density (s/mm²):7.69
Structure Concentration (s/cm²):37000
Non-Asbestos Type(s):
SiAl - Other Fiber

Micrograph Number:
EDXA Spectrum ID:

Lab No.:6671546
Client No.:CS-12

Volume Filtered (mL):10
Dilution Factor (mL):250
Grid Openings:10
Opening Area (mm²):0.013
Area Analyzed (mm²):0.130
Sensitivity (s/mm²):7.69
Detection Limit (s/cm²):1850

Area Sampled (cm²):100
Location:East Hazmat Locker

Asbestos Structures: None Detected


Structures < 5 Microns: None Detected
Structures ≥ 5 μm: None Detected
Structure Density (s/mm²): ≤7.69
Structure Concentration (s/cm²): ≤1850
Asbestos Type(s):
None Detected


Filter Type:MCE
Filter Size (mm²):962
Pore Size (μm):0.45
Non-Asbestos Structures:None Detected

Structure Density (s/mm²):<7.69
Structure Concentration (s/cm²):<1850
Non-Asbestos Type(s):
None Detected

Micrograph Number:
EDXA Spectrum ID:

Please refer to the Preface of this report for further information regarding your analysis.

Date Received: 12/12/2018
Date Analyzed: 12/12/2018
Signature: 
Analyst: Jhoon Jeon

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Nortech Engineering 3105 Lake Shore Dr; Ste A106 Anchorage AK 99517	Report Date: 12/12/2018 Report No.: 579333 - TEM Dust Wipe Project: ARR Asbestos Wipes; AK Mechanical Dept. Project No.: 18-2552
Client: NOR997	

TEM WIPE SAMPLE ANALYSIS DETAILS


Lab No.: 6671547 Client No.: WS-13	Area Sampled (cm²): 100 Location: Wheel Shop, Bearing Fridge	Filter Type: MCE Filter Size (mm²): 962 Pore Size (µm): 0.45 Non-Asbestos Structures: None Detected
Volume Filtered (mL): 20 Dilution Factor (mL): 250 Grid Openings: 10 Opening Area (mm²): 0.013 Area Analyzed (mm²): 0.130 Sensitivity (s/mm²): 7.69 Detection Limit (s/cm²): 925	Asbestos Structures: 1 Structures < 5 Microns: 1 Structures ≥ 5 µm: None Detected Structure Density (s/mm²): <u>7.69</u> Structure Concentration (s/cm²): <u>925</u> Asbestos Type(s): Chrysotile	Structure Density (s/mm²): <7.69 Structure Concentration (s/cm²): <925 Non-Asbestos Type(s): None Detected


Micrograph Number:
EDXA Spectrum ID:

Lab No.: 6671548 Client No.: HE-14	Area Sampled (cm²): 100 Location: Wheel Equipment Work Bench	Filter Type: MCE Filter Size (mm²): 962 Pore Size (µm): 0.45 Non-Asbestos Structures: None Detected
Volume Filtered (mL): 10 Dilution Factor (mL): 250 Grid Openings: 10 Opening Area (mm²): 0.013 Area Analyzed (mm²): 0.130 Sensitivity (s/mm²): 7.69 Detection Limit (s/cm²): 1850	Asbestos Structures: None Detected Structures < 5 Microns: None Detected Structures ≥ 5 µm: None Detected Structure Density (s/mm²): <u>≤7.69</u> Structure Concentration (s/cm²): <u>≤1850</u> Asbestos Type(s): None Detected	Structure Density (s/mm²): <7.69 Structure Concentration (s/cm²): <1850 Non-Asbestos Type(s): None Detected

Micrograph Number:
EDXA Spectrum ID:

Please refer to the Preface of this report for further information regarding your analysis.

Date Received: 12/12/2018
Date Analyzed: 12/12/2018
Signature: 
Analyst: Craig Liska

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Nortech Engineering
3105 Lake Shore Dr; Ste A106
Anchorage AK 99517

Client: NOR997

Report Date: 12/12/2018
Report No.: 579333 - TEM Dust Wipe
Project: ARR Asbestos Wipes; AK Mechanical Dept.
Project No.: 18-2552



TRAINING
TEL (907) 272-8852
FAX (907) 272-0319
TOLL FREE IN AK (800) 458-2580

July 11, 2019

CONSULTING & ENGINEERING
TEL (907) 272-9336
FAX (907) 272-4159

Central Environmental, Inc.
311 N. Sitka Street
Anchorage, Alaska 99501
Attn: Tali Landau

RE: Alaska Railroad ACM Wipe, Anchorage Rail Yard, Anchorage, AK
Subj: ACM Wipe Sampling

This letter summarizes the findings and events associated with the sampling completed by Environmental Management, Inc. (EMI) at the Alaska Railroad Corporation (ARRC) Diesel Shop/Heavy Equipment Bay (Building 26). Two pipes that will be demolished and removed were sampled for ACM dust. Hannah Deeney, E.I.T., an AHERA Inspector, was on site to conduct the sampling.

Hannah Deeney was onsite on June 21, 2019 to conduct the sampling. Ghost wipes were used to sample the dust on the pipes in Building 26. Each sample was collected from a 10 cm by 10 cm area of the pipe. Six samples were collected from the pipe along the ceiling in the shop and two samples were collected from a vertical pipe in the "oil room". The eight samples plus one blank were submitted for analysis at iATL in New Jersey.

Analyses of all samples were non-detect for ACM in the dust accumulated on the pipes, below the laboratory reporting limits of 0.25%. Table 1 below presents the results.

Table 1 –Wipe Sampling Results 6-21-2019

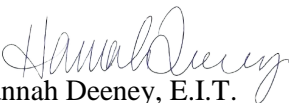
Sample ID	18020-Wipe01	18020-Wipe02	18020-Wipe03	18020-Wipe04	18020-Wipe05
Location	Ceiling Pipe	Ceiling Pipe	Ceiling Pipe	Ceiling Pipe	Ceiling Pipe
Collection Time	13:00	13:05	13:40	13:45	14:30
Results	Non-detect	Non-detect	Non-detect	Non-detect	Non-detect

Sample ID	18020-Wipe06	18020-Wipe07	18020-Wipe08	Blank
Location	Ceiling Pipe	Oil Room Pipe	Oil Room Pipe	
Collection Time	14:40	15:00	15:05	NA
Results	Non-detect	Non-detect	Non-detect	Non-detect

Based on the data, there is no ACM in the dust on the pipes in the Diesel/Engine Shop that will impact employees or workers during the renovation or removal of the pipes.

If you have any questions related to the information presented herein please contacted the undersigned at 907-272-9336.

Sincerely,
ENVIRONMENTAL MANAGEMENT, INC.


Hannah Deeney, E.I.T.
Junior Environmental Engineer

Attached: Field Notes, iATL Laboratory Report 593432, Photos, AHERA Inspector Certification

4 18020 6/21/19 Hannah Deiney - FMI
ARR Asbestos Wipe Sampling
Jacob Kerne (ARR)

On site @ 1130 (Alaska Railroad Yard)
locking out tracks and positioning
man lift, getting ready for wipe
sampling.

18020 Blank collected
(horizontal pipe)

1300 18020-wipe01 collected

1305 18020-wipe02 collected

1340 18020-wipe03 collected

1345 18020-wipe04 collected

1430 18020-wipe05 collected

1440 18020-wipe06 collected
(vertical pipe)

1500 18020-wipe07 collected

↳ top of oil room pipe

1505 18020-wipe08 collected

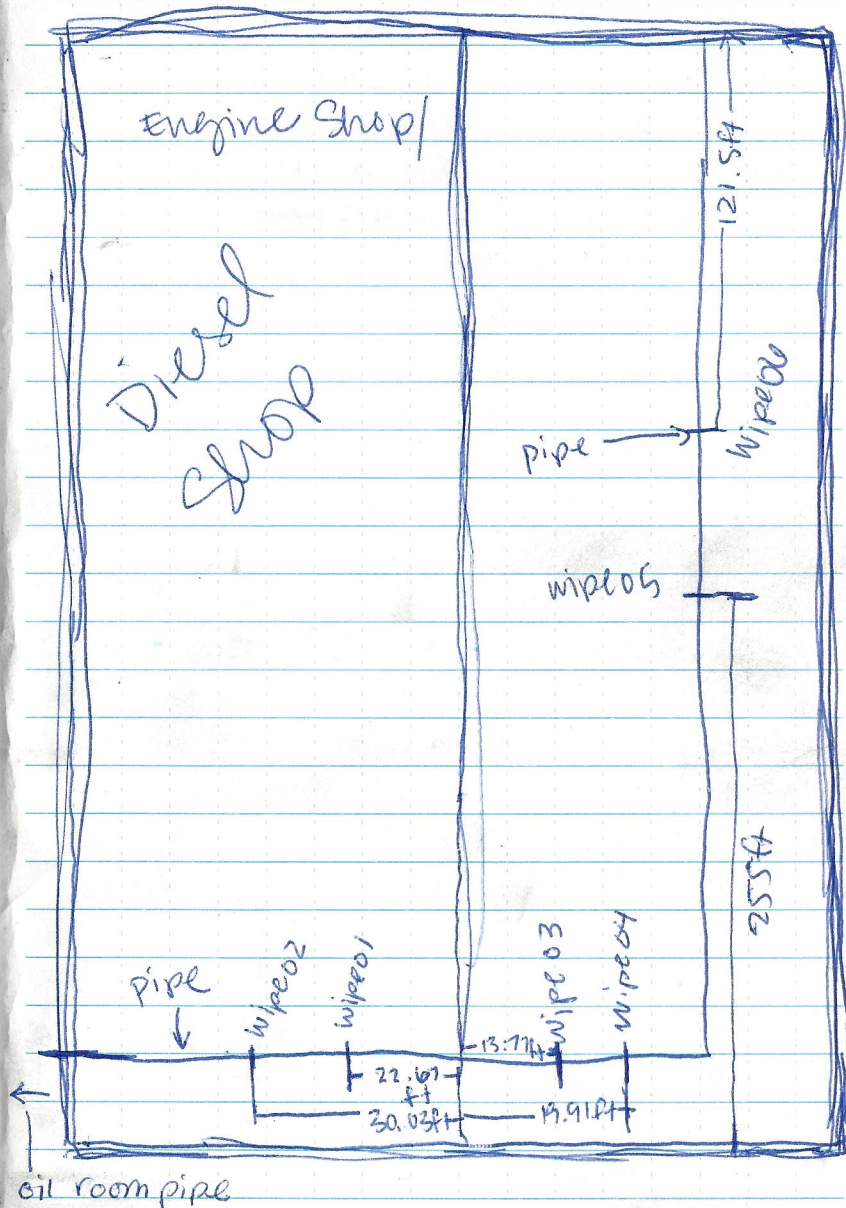
↳ bottom of oil room pipe

off site @ 1530

Scale: 1 square =

Sample location map @ ARR

5



Scale: 1 square =

Rite in the Rain

Chain of Custody

-Bulk Asbestos -

Contact Information

Client Company: EMI
Office Address: 206. E. Fireweed Lane Suite 201
City, State, Zip: Anchorage AK 99501
Fax Number: (907) 272-4159
Email Address: hdeeney@emi-alaska.com

Project Number: 18020
Project Name: Railroad ACM Wipe
Primary Contact: Glenn Hasburgh
Office Phone: (907) 272-9336
Cell Phone: _____

PLM Instructions:

- PLM: Bulk Asbestos Building Materials EPA 600 R-93/116, 1993
- PLM: Bulk Asbestos Building Materials EPA 600 M-4/82-020, 1982
- PLM: Bulk Asbestos Building Materials NIOSH 9002, 1985
- PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.1, 2002
- PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.6, 2010
- TEM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.4, 2009

- PLM: Point Counting
 - PC: via ELAP 198.1
 - PC: 400 Points
 - PC: 800 Points *
 - PC: 1600 Points *

- PLM: Instructions for Multi-Layered Samples
 - Analyze and Report All Separable Layers per EPA 600
 - Report Composite for Drywall Systems per NESHAP
 - Report All Layers and Composite Where Applicable
 - Only Analyze and Report Specifically Noted Layer

- PLM: Analyze Until Positive (Positive Stop)
 - AUP: by Homogenous Area as Noted
 - AUP: by Material Type as Noted
- PLM: NOB via 198.6
 - PLM: Friable via EPA 600 2.3
 - If <1% by PLM, to TEM via 198.4 *
 - If <1% by PLM, Hold for Instructions

- PLM: Non-Building Material *** (Dust, Wipe, Tape)
 - Soil or Vermiculite Analysis *
 - CARB 435

Special Instructions: _____

* Additional charge and turnaround may be required ** Alternative Method (ex: EPA 600/R-04/004) may be recommended by Laboratory

Turnaround Time

Preliminary Results Requested Date: _____
Specific date / time
 10 Day 5 Day 3 Day 2 Day 1 Day* 12 Hour** 6 Hour** RUSH**

* End of next business day unless otherwise specified. ** Matrix Dependent. ***Please notify the lab before shipping***

Chain of Custody

Relinquished (Name/Organization): <u>Hannah Deeney/EMI</u>	Date: <u>6/24/19</u>	Time: _____
Received (Name / iATL): _____	Date: _____	Time: _____
Sample Login (Name / iATL): _____	Date: _____	Time: _____
Analysis(Name(s) / iATL): _____	Date: <u>7/5/19</u>	Time: _____
QA/QC Review (Name / iATL): <u>WJ</u>	Date: <u>7/5/19</u>	Time: _____
Archived / Released: _____	Date: _____	Time: _____

JUN 26 2019

Sample Log

-Bulk Asbestos -

Client: EMI Project: 18020 - RR wipes

Sampling Date/Time: 6/21/19

Bulk Asbestos Sample Log			
Client Sample #	iATL #	Location/Description	Notes
18020-Wipe01	6820592	dust wipe - ceiling pipe	Area = 10cm x 10cm
18020-Wipe02	6820593	↓	↓
18020-Wipe03	6820594		
18020-Wipe04	6820595		
18020-Wipe05	6820596		
18020-Wipe06	6820597		
18020-Wipe07	6820598	dust wipe - oil room pipe	Area 10cm x 10cm
18020-Wipe08	6820599	↓	↓
Blank	6820600	NA / Blank	NA -

CERTIFICATE OF ANALYSIS

Client: Environmental Management Inc.
206 E. Fireweed Lane Suite 201
Anchorage AK 99503

Report Date: 7/3/2019
Report No.: 593432 - PLM
Project: Railroad ACM Wipe
Project No.: 18020

Client: ENV164

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6820592	Analyst Observation: Black Wipe	Location: Ceiling Pipe
Client No.: 18020-Wipe01	Client Description: Dust Wipe	Facility:
<u>Percent Asbestos:</u> None Detected	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100

Not a building material.

Lab No.: 6820593	Analyst Observation: Black Wipe	Location: Ceiling Pipe
Client No.: 18020-Wipe02	Client Description: Dust Wipe	Facility:
<u>Percent Asbestos:</u> None Detected	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100

Not a building material.

Lab No.: 6820594	Analyst Observation: Black Wipe	Location: Ceiling Pipe
Client No.: 18020-Wipe03	Client Description: Dust Wipe	Facility:
<u>Percent Asbestos:</u> None Detected	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100

Not a building material.


Lab No.: 6820595	Analyst Observation: Black Wipe	Location: Ceiling Pipe
Client No.: 18020-Wipe04	Client Description: Dust Wipe	Facility:
<u>Percent Asbestos:</u> None Detected	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100

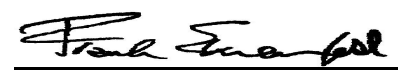
Not a building material.

Lab No.: 6820596	Analyst Observation: Black Wipe	Location: Ceiling Pipe
Client No.: 18020-Wipe05	Client Description: Dust Wipe	Facility:
<u>Percent Asbestos:</u> None Detected	<u>Percent Non-Asbestos Fibrous Material:</u> None Detected	<u>Percent Non-Fibrous Material:</u> 100

Not a building material.

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/26/2019
Date Analyzed: 07/03/2019
Signature: 
Analyst: Randy Caran

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Environmental Management Inc.
206 E. Fireweed Lane Suite 201
Anchorage AK 99503

Report Date: 7/3/2019
Report No.: 593432 - PLM
Project: Railroad ACM Wipe
Project No.: 18020

Client: ENV164

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 6820597 **Analyst Observation:** Black Wipe **Location:** Ceiling Pipe
Client No.: 18020-Wipe06 **Client Description:** Dust Wipe **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected None Detected 100

Not a building material.

Lab No.: 6820598 **Analyst Observation:** Black Wipe **Location:** Oil Room Pipe
Client No.: 18020-Wipe07 **Client Description:** Dust Wipe **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected None Detected 100

Not a building material.


Lab No.: 6820599 **Analyst Observation:** Black Wipe **Location:** Oil Room Pipe
Client No.: 18020-Wipe08 **Client Description:** Dust Wipe **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected None Detected 100

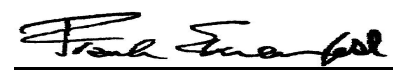
Not a building material.

Lab No.: 6820600 **Analyst Observation:** White Wipe **Location:**
Client No.: Blank **Client Description:** NA/Blank **Facility:**
Percent Asbestos: Percent Non-Asbestos Fibrous Material: Percent Non-Fibrous Material:
None Detected None Detected 100

Not a building material.

Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/26/2019
Date Analyzed: 07/03/2019
Signature: 
Analyst: Randy Caran

Approved By: 
Frank E. Ehrenfeld, III
Laboratory Director

CERTIFICATE OF ANALYSIS

Client: Environmental Management Inc.
206 E. Fireweed Lane Suite 201
Anchorage AK 99503

Report Date: 7/3/2019
Report No.: 593432 - PLM
Project: Railroad ACM Wipe
Project No.: 18020

Client: ENV164

Appendix to Analytical Report

Customer Contact: Matt Cox

Method: 40 CFR Appendix E to Subpart E of Part 763, interim method for the Determination of Asbestos in Bulk Insulation Samples, and USEPA 600, R93-116 as needed.

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

iATL Customer Service: customerservice@iatl.com

iATL Office Manager: wchampion@iatl.com

iATL Account Representative: Kelly Klippel

Sample Login Notes: See Batch Sheet Attached

Sample Matrix: Bulk Building Materials

Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

General information about iATL capabilities and client/laboratory relationships and responsibilities are spelled out in iATL policies that are listed at www.iATL.com and in our Quality Assurance Manual per ISO 17025 standard requirements. The information therein is a representation of iATL definitions and policies for turnaround times, sample submittal, collection media, blank definitions, quantification issues and limit of detection, analytical methods and procedures, sub-contracting policies, results reporting options, fees, terms, and discounts, confidentiality, sample archival and disposal, and data interpretation.

iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP, AIHA LAP LLC, or any agency of local, state or province governments nor of any agency of the U.S. government.

This report shall not be reproduced except in full, without written approval of the laboratory.

Information Pertinent to this Report:

Analysis by US EPA 600 93-116: Determination of Asbestos in Bulk Building Materials by Polarized Light Microscopy (PLM).

Certifications:

- NIST-NVLAP No. 101165-0
- NYSDOH-ELAP No. 11021
- AIHA-LAP, LLC No. 100188

Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. PC Trace represents a <0.25% amount. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analytical Methodology Alternatives: Your initial request for analysis may not have accounted for recent advances in regulatory requirements or advances in technology that are routinely used in similar situations for other qualified projects. You may have the option to explore additional analysis for further information. Below are a few options, listed as the matrix followed by the appropriate methodology. Also included are links to more information on our website.

Bulk Building Materials that are Non-Friable Organically Bound (NOB) by Gravimetric Reduction techniques employing PLM and TEM: ELAP 198.6 (PLM-NOB), ELAP 198.4 (TEM-NOB)

CERTIFICATE OF ANALYSIS

Client: Environmental Management Inc.
206 E. Fireweed Lane Suite 201
Anchorage AK 99503

Report Date: 7/3/2019
Report No.: 593432 - PLM
Project: Railroad ACM Wipe
Project No.: 18020

Client: ENV164

Loose Fill Vermiculite Insulation, Attic Insulation, Zonolite (copyright), etc.: US EPA 600 R-4/004 (multi-tiered analytical process)
Sprayed On Insulation/Fireproofing with Vermiculite (SOF-V): ELAP 198.8 (PLM-SOF-V)

Soil, sludge, sediment, aggregate, and like materials analyzed for asbestos or other elongated mineral particles (ex. erionite, etc.): ASTM D7521, CARB 435, and other options available

Asbestos in Surface Dust according to one of ASTM's Methods (very dependent on sampling collection technique – by TEM): ASTM D 5755, D5756, or D6480

Various other asbestos matrices (air, water, etc.) and analytical methods are available.

Disclaimers / Qualifiers:

There may be some samples in this project that have a "NOTE:" associated with a sample result. We use added disclaimers or qualifiers to inform the client about something that requires further explanation. Here is a list with highlighted disclaimers that may be pertinent to this project. For a full explanation of these and other disclaimers, please inquire at customerservice@iatl.com.

- 1) Note: No mastic provided for analysis.
- 2) Note: Insufficient mastic provided for analysis.
- 3) Note: Insufficient material provided for analysis.
- 4) Note: Insufficient sample provided for QC reanalysis.
- 5) Note: Different material than indicated on Sample Log / Description.
- 6) Note: Sample not submitted.
- 7) Note: Attached to asbestos containing material.
- 8) Note: Received wet.
- 9) Note: Possible surface contamination.
- 10) Note: Not building material. 1% threshold may not apply.
- 11) Note: Recommend TEM-NOB analysis as per EPA recommendations.
- 12) Note: Asbestos detected but not quantifiable.
- 13) Note: Multiple identical samples submitted, only one analyzed.
- 14) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.080%.
- 15) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.125%.
- 16) Note: This sample contains >10% vermiculite mineral. See Appendix for Recommendations for Vermiculite Analysis.

Recommendations for Vermiculite Analysis:

Several analytical protocols exist for the analysis of asbestos in vermiculite. These analytical approaches vary depending upon the nature of the vermiculite mineral being tested (e.g. un-processed gange, homogeneous exfoliated books of mica, or mixed mineral composites). Please contact your client representative for pricing and turnaround time options available.

iATL recommends initial testing using the EPA 600/R-93/116 method. This method is specifically designed for the analysis of asbestos in bulk building materials. It provides an acceptable starting point for primary screening of vermiculite for possible asbestos.

Results from this testing may be inconclusive. EPA suggests proceeding to a multi-tiered analysis involving wet separation techniques in conjunction with PLM and TEM gravimetric analysis (EPA 600/R-04/004).

For New York State customers, NYSDOH requires disclaimers and qualifiers for various vermiculite containing samples that direct analysis via ELAP198.6 and ELAP198.8 for samples that contain >10% vermiculite mineral where ELAP198.6 may be used to evaluate the asbestos content of the material. However, any test result using ELAP198.6 will be reported with the following disclaimer: "ELAP198.6 method does not remove vermiculite and may underestimate the level of asbestos present in a sample containing >10% vermiculite."

Further information on this method and other vermiculite and asbestos issues can be found at the following: Agency for Toxic Substances and Disease Registry (ATSDR) www.atsdr.cdc.gov, United States Geological Survey (USGS) www.minerals.usgs.gov/minerals/, US EPA www.epa.gov/asbestos. The USEPA also has an informative brochure "Current Best Practices for Vermiculite Attic Insulation" EPA 747F03001 May 2003, that may assist the health and remediation professional.

The following is a summary of the analytical process outlines in the EPA 600/R-04/004 Method:

1) **Analytical Step/Method:** Initial Screening by PLM, EPA 600R-93/116
Requirements/Comments: Minimum of 0.1 g of sample. ~0.25% LOQ for most samples.

2) **Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

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3) **Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Floats" only.

4) **Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

5) **Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Suspension" only.

LOQ, Limit of Quantitation estimates for mass and volume analyses.

*With advance notice and confirmation by the laboratory.

**Approximately 1 Liter of sample in double-bagged container (~9x6 inch bag of sample).

Photo Log



Photo 1: This photo shows the area 18020-Wipe01 was collected. (June 21, 2019)

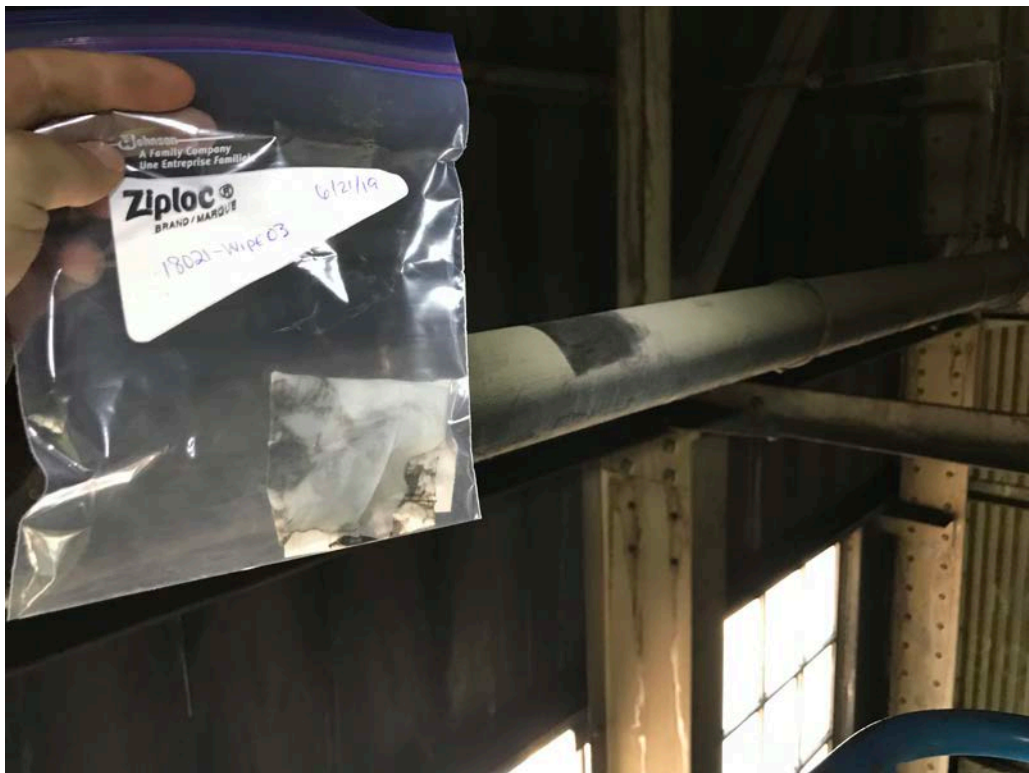


Photo 2: This photo shows sample 18020-Wipe03 and its sampling location. (June 21, 2019)

Photo Log



Photo 3: This photo shows the location of sample 18020-Wipe06. (June 21, 2019)

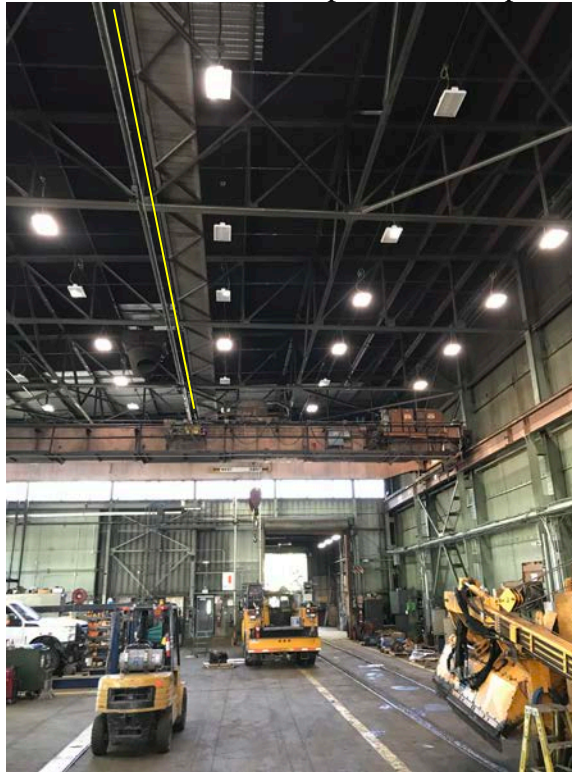


Photo 4: The yellow line shows a portion of the ceiling pipe in the Diesel shop. (April 23, 2019)