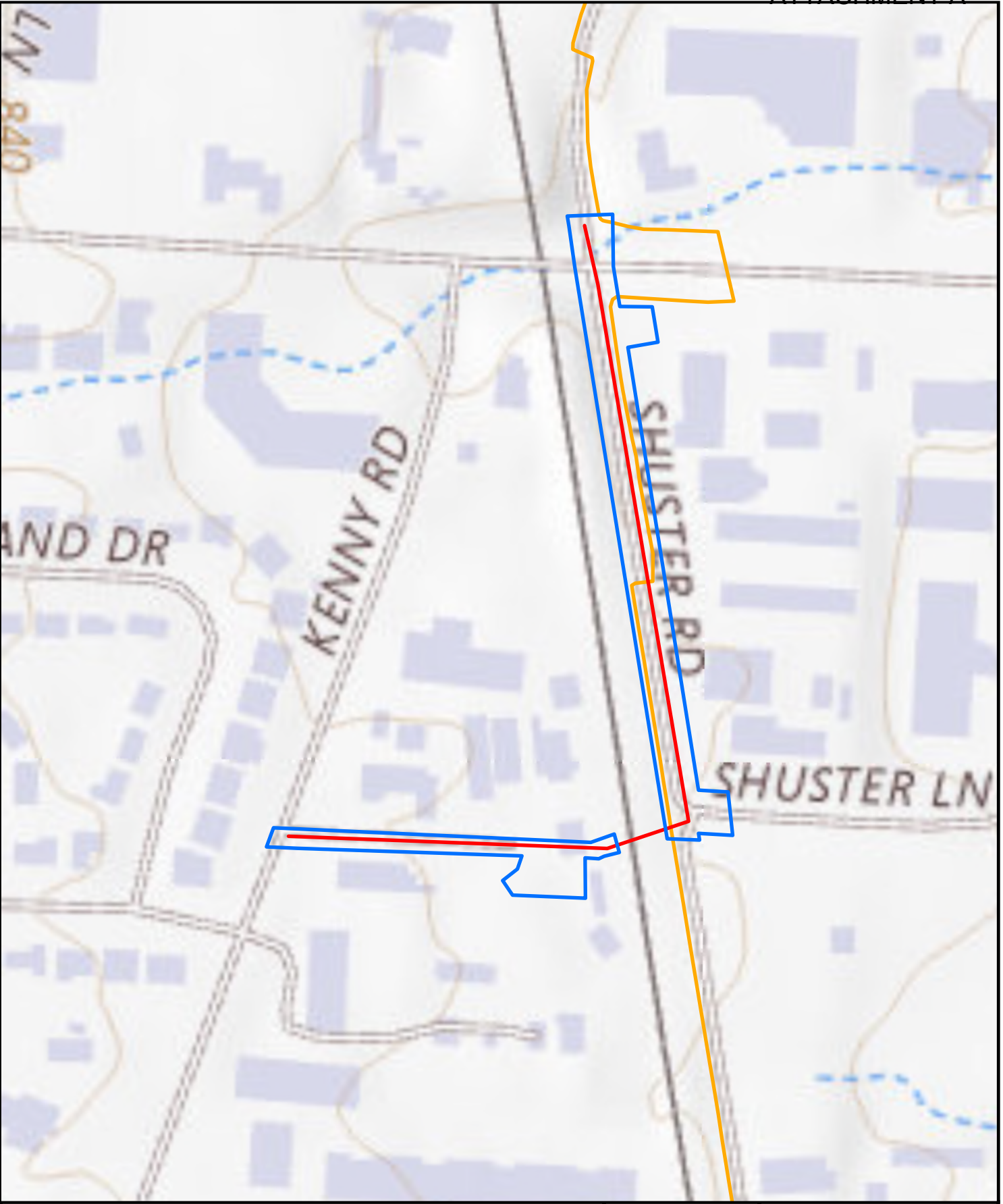


Source Layer Credits: USGS Topo; USGS The National Map; National Boundaries Database; OCEP Elevation Program; Geographic Names Information System; National Hydrography Dataset; National Land Cover Database; National Structure Database; and National Transportation Database; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road data; Natural Earth Data; U.S. Department of State; HES; NOAA National Centers for Environmental Information. Data refreshed October 27, 2025



- Limits of Disturbance
- Project Centerline
- Natural Gas Pipeline

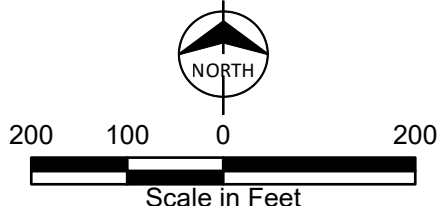
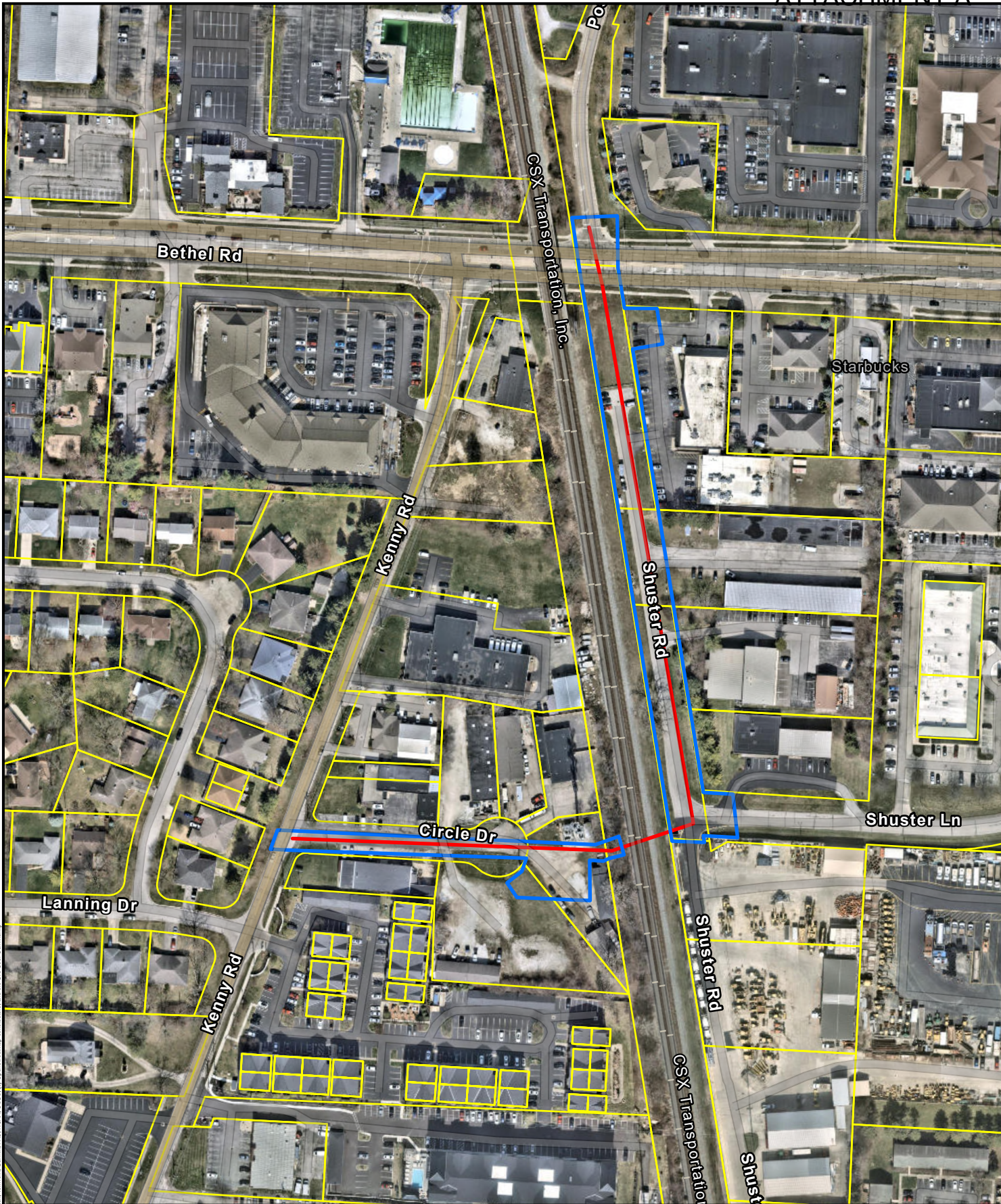


Figure 1: Topographic Map
 Upper Arlington NCHP
 Pipeline Replacement Project
 NiSource
 Franklin County, Ohio



Source: NiSource, Burns & McDonnell, and ESRI.

- Limits of Disturbance
- Parcels
- Project Centerline



200 100 0 200



Scale in Feet



Figure 2: Site Map
 Upper Arlington NCHP
 Pipeline Replacement Project
 NiSource
 Franklin County, Ohio

Columbia Gas[®]

A NiSource Company

WORK ORDER NUMBER: 4000093778

WORK ORDER MAINTENANCE ACTIVITY TYPE (MAT) :

WBS LEVEL 2 NUMBER:

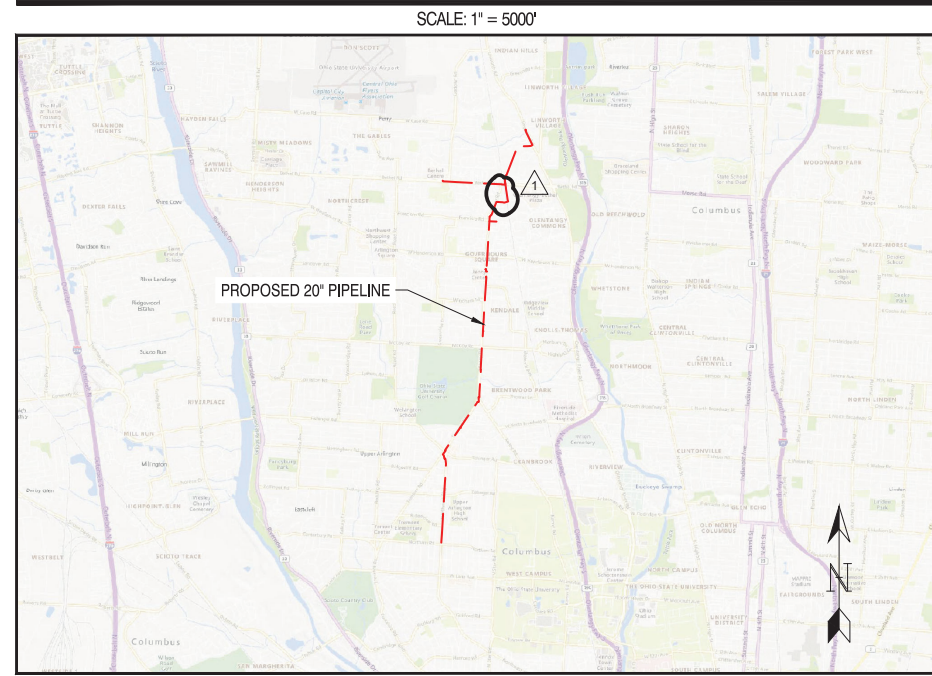
PHASE 4 NCHP PIPELINE REPLACEMENT



PROJECT INFORMATION

FIELD ENGINEER / PROJECT MANAGER: ROSS HOUSEHOLDER / JESSE DARR
 CONSTRUCTION FLL: TONY CADWELL
 PERMITS: CITY OF UPPER ARLINGTON PERMIT 25-5191
 CITY OF COLUMBUS PERMIT EP-26-07074
 COUNCIL VARIANCE PERMIT CV-107
 FRANKLIN COUNTY PERMIT PENDING
 PERRY TOWNSHIP PERMIT PENDING
 OPSB CASE NO. 25-0890-GA-BLN
 CSX PERMIT CSX1056280, 1093481
 SWPPP CC-20804
 TCC/LOA: FRANKLIN COUNTY, OH
 COUNTY: FRANKLIN COUNTY, OH
 TAX DISTRICT/TOWNSHIP ID: 0250010, 0250200
 MAP/GRID NUMBER: 7324428A, 7324432M, 7324432J, 7324432F, 7324432B, 7324436N, & 7324436J
 24 HR. EMERGENCY LINE: 1-800-344-4077

VICINITY MAP



SHEET INDEX

DWG.	DESCRIPTION
T-01 - T-02	TITLE SHEET AND INDEX SHEET
GN-01 - GN-11	GENERAL NOTES
BOM-01 - BOM-03	BILL OF MATERIALS
O-01	OVERVIEW SHEET
L-01 - L-33	ALIGNMENT SHEETS
D-01 - D-06	TRENCHLESS CROSSING DRAWINGS
D-10 - D-16	TIE-IN DETAILS
D-31 - D-32	HYDROTEST DRAWINGS
AB-01 - AB-04	ABANDONMENT PLANS
TD-01	TRENCHING SECTIONS
TD-05 - TD-09	TYPICAL DETAILS
TD-10 - TD-11	APPROVED HYDRANTS
CP-01 - CP-06	CATHODIC PROTECTION
R-01 - R-03	RAILROAD CROSSING DETAIL

PROJECT SUMMARY TABLE

PROPOSED INSTALLATION			PROPOSED ABANDONMENT		
LENGTH (FT)	SIZE (IN)	TYPE	LENGTH (FT)	SIZE (IN)	TYPE
24,353'	20"	CSHP	25,602'	20"	CSHP
3,627'	12"	PMMP			
25'	10"	PMMP			
75'	10"	CSHP			
128'	8"	CSHP			
517'	6"	CSHP			
28'	4"	CSHP			
28,753'	TOTAL INSTALLATION (FEET)		25,602'	TOTAL ABANDONMENT (FEET)	
PROPOSED GAS SERVICES					
ESTIMATED GAS SERVICES	REPLACEMENTS	TIE OVERS	TOTAL SERVICES	METER OUTS	

PROJECT DESCRIPTION

INSTALLATION OF 4.6 MILES OF 20-INCH HIGH PRESSURE STEEL PIPELINE

VALVES PLANNED FOR ABANDONMENT

VALVE NO.	FACILITY ID	LOCATION DESCRIPTION	ABANDONED VALVE INSERTED?		DISPOSITION			
			YES*	NO	VALVE REMOVED (NO BOX ABOVE GROUND VALVE)	VALVE, VALVE BOX & LID REMOVED	VALVE REMAINS IN PLACE, BOX & LID REMOVED	VALVE REMAINS IN PLACE, BOX FILLED W/ CONCRETE
#		NO VALVES TO BE ABANDONED						
#								
#								
#								
#								

* - IF "YES," APPROVAL AND REASON ARE REQUIRED AND SHALL BE DOCUMENTED.
 NOTE: IF VALVE COULD NOT BE LOCATED, MAKE APPLICABLE COMMENT IN ABOVE TABLE.

MINIMUM PIPELINE DESIGN SPECIFICATIONS			MINIMUM PIPELINE DESIGN SPECIFICATIONS		
DESIGN FACTOR:	0.4	REF CFR 192.111	DESIGN FACTOR:	0.4	REF CFR 192.111
DESIGN PRESSURE:	720 PSIG		DESIGN PRESSURE:	60 PSIG	
MAXIMUM ALLOWABLE OPERATING PRESSURE*:	190 PSIG		MAXIMUM ALLOWABLE OPERATING PRESSURE*:	60 PSIG	
MINIMUM ALLOWABLE TEST PRESSURE*:	1080 PSIG	1.5 x DESIGN PRESSURE	MINIMUM ALLOWABLE TEST PRESSURE*:	90 PSIG	1.5 x DESIGN PRESSURE
MAXIMUM ALLOWABLE TEST PRESSURE*:	1280 PSIG		MAXIMUM ALLOWABLE TEST PRESSURE*:	150 PSIG	
MINIMUM TEST DURATION:	8 HRS	PER G.S. 1500 SERIES	MINIMUM TEST DURATION:	16 HOUR	PER G.S. 1500 SERIES
PERCENT SMYS AT DESIGN PRESSURE:	36.92%	% SMYS BASED ON: 20", 0.375" W/T, X-52	MAOP LIMITING ELEMENT:	PRESSURE TEST	
PERCENT SMYS AT MAOP:	9.74%	% SMYS BASED ON: 20", 0.375" W/T, X-52	TEST MEDIUM:	PNEUMATIC	
PERCENT SMYS AT MIN. TEST PRESSURE:	55.38%	% SMYS BASED ON: 20", 0.375" W/T, X-52	PERCENT X-RAY:	N/A	
PERCENT SMYS AT MAX. TEST PRESSURE:	65.64%	% SMYS BASED ON: 20", 0.375" W/T, X-52			
MAOP LIMITING ELEMENT:	PRESSURE TEST				
TEST MEDIUM:	WATER				
PERCENT X-RAY:	100%				

REVISIONS			
REV. #	DATE	DESCRIPTION	
1	2/26/26	REISSUED FOR 90%	
0	1/08/26	ISSUED FOR CONSTRUCTION	

DESIGNED BY	CCK	2/26/26	314-391-5360
DRAWN BY	JMB	2/26/26	314-239-4747
CHECKED BY	JPF	2/26/26	314-578-9778
AS-BUILT BY	TBD	TBD	TBD
NAME	DATE	PHONE #	

SITE NAME:
WO# 400009378
MAT WBS L2
 PHASE 4 NCHP PIPELINE REPLACEMENT
 COLUMBUS, FRANKLIN COUNTY, OH

DRAWING TITLE:
TITLE SHEET

DRAWING NO:
T-01

SHEET INDEX

DWG.	DESCRIPTION	REV	REV DATE
GENERAL			
T-01	TITLE SHEET	1	2/26/26
T-02	INDEX SHEET	1	2/26/26
GN-01	GENERAL NOTES & LEGEND	1	2/26/26
GN-02	NISOURCE GENERAL NOTES	1	1/08/26
GN-03	CITY OF COLUMBUS GENERAL NOTES	1	2/26/26
GN-04	NISOURCE HDD NOTES	0	1/08/26
GN-05	HYDROTEST NOTES 1 OF 5 TESTING PROCEDURES	0	1/08/26
GN-06	HYDROTEST NOTES 2 OF 5 TESTING PROCEDURES	0	1/08/26
GN-07	HYDROTEST NOTES 3 OF 5 TESTING PROCEDURES	0	1/08/26
GN-08	HYDROTEST NOTES 4 OF 5 TESTING PROCEDURES	0	1/08/26
GN-09	HYDROTEST NOTES 5 OF 5 DEWATERING & DRYING	0	1/08/26
GN-10	CONSTRUCTION NOTES	0	1/08/26
GN-11	TRAFFIC CONTROL NOTES	0	1/08/26
BOM-01	OVERALL MAINLINE & LATERAL BILL OF MATERIALS	1	2/26/26
BOM-02	OVERALL LATERAL BILL OF MATERIALS	1	2/26/26
BOM-03	OVERALL VALVE BILL OF MATERIALS	1	2/26/26
O-01	OVERVIEW SHEET	1	2/26/26
ALIGNMENT SHEETS UPPER ARLINGTON			
L-01	PIPELINE ALIGNMENT STA. 10+00 TO STA. 17+00	1	2/26/26
L-02	PIPELINE ALIGNMENT STA. 17+00 TO STA. 22+00	1	2/26/26
L-02A	PIPELINE ALIGNMENT STA. 22+00 TO STA. 29+32	A	2/26/26
L-03	PIPELINE ALIGNMENT STA. 25+50 TO STA. 33+50	1	2/26/26
L-04	PIPELINE ALIGNMENT STA. 33+50 TO STA. 43+50	1	2/26/26
L-05	PIPELINE ALIGNMENT STA. 43+50 TO STA. 52+50	1	2/26/26
L-06	PIPELINE ALIGNMENT STA. 52+50 TO STA. 60+50	1	2/26/26
L-07	PIPELINE ALIGNMENT STA. 60+50 TO STA. 70+50	1	2/26/26
L-08	PIPELINE ALIGNMENT STA. 70+50 TO STA. 80+50	0	1/08/26
L-09	PIPELINE ALIGNMENT STA. 80+50 TO STA. 90+50	0	1/08/26
L-10	PIPELINE ALIGNMENT STA. 90+50 TO STA. 100+50	0	1/08/26
L-11	PIPELINE ALIGNMENT STA. 100+50 TO STA. 110+50	1	2/26/26
L-12	PIPELINE ALIGNMENT STA. 110+50 TO STA. 120+50	1	2/26/26
L-13	PIPELINE ALIGNMENT STA. 120+50 TO STA. 130+50	0	1/08/26
L-14	PIPELINE ALIGNMENT STA. 130+50 TO STA. 140+50	1	2/26/26
L-15	PIPELINE ALIGNMENT STA. 140+50 TO STA. 150+50	0	1/08/26
L-16	PIPELINE ALIGNMENT STA. 150+50 TO STA. 160+50	0	1/08/26
L-17	PIPELINE ALIGNMENT STA. 160+50 TO STA. 170+50	1	2/26/26
L-18	PIPELINE ALIGNMENT STA. 170+50 TO STA. 180+50	0	1/08/26
L-19	PIPELINE ALIGNMENT STA. 180+50 TO STA. 190+50	0	1/08/26
L-20	PIPELINE ALIGNMENT STA. 190+50 TO STA. 200+50	0	1/08/26
L-21	PIPELINE ALIGNMENT STA. 200+50 TO STA. 209+50	0	1/08/26
L-22	PIPELINE ALIGNMENT STA. 209+50 TO STA. 212+39	0	1/08/26
ALIGNMENT SHEETS BETHEL ROAD			
L-23	BETHEL RD. ALIGNMENT STA. 10+00 TO STA 15+50	1	2/26/26
L-24	BETHEL RD. ALIGNMENT STA. 15+50 TO STA 25+50	1	2/26/26
L-25	BETHEL RD. ALIGNMENT STA. 25+50 TO STA 35+50	0	1/08/26

SHEET INDEX

DWG.	DESCRIPTION	REV	REV DATE
L-26	BETHEL RD. ALIGNMENT STA. 35+50 TO STA 45+50	1	2/26/26
L-27	BETHEL RD. ALIGNMENT STA. 45+50 TO STA 47+44	0	1/08/26
LATERALS			
L-28	KENNY & FRANCISCO LATERAL STA. 0+00 TO STA. 3+72	1	2/26/26
L-29	KENNY & HENDERSON LATERAL STA. 0+00 TO STA. 2+12	0	1/08/26
L-30	LINWORTH & OLENTANGY STA. 10+00 TO STA. 18+50	0	1/08/26
L-31	LINWORTH & OLENTANGY STA. 18+50 TO STA. 27+00	0	1/08/26
L-32	LINWORTH & OLENTANGY STA. 27+00 TO STA. 34+00	0	1/08/26
L-33	LINWORTH & OLENTANGY STA. 34+00 TO STA. 43+75	0	1/08/26
TRENCHLESS CROSSING SHEETS			
D-01	KENNY & HENDERSON HDD	1	2/26/26
D-02	KENNY & MILLCREEK TRENCHLESS CROSSING	0	1/08/26
D-03	KENNY & TREMONT TRENCHLESS CROSSING	0	1/08/26
D-04	TREMONT & FISHINGER TRENCHLESS CROSSING	0	1/08/26
D-05	BETHEL & SHUSTER TRENCHLESS CROSSING	1	2/26/26
D-06	CIRCLE & SHUSTER TRENCHLESS CROSSING	A	2/26/26
TIE-IN DETAILS			
D-10	BETHEL RD. TIE-IN DETAIL	1	2/26/26
D-10A	BETHEL RD. STOPPLE BYPASS TIE-IN DETAIL	0	1/08/26
D-11	KENNY & FRANCISCO LATERAL TIE-IN DETAIL	1	2/26/26
D-11A	KENNY & FRANCISCO STOPPLE BYPASS TIE-IN DETAIL	1	2/26/26
D-12	KENNY & HENDERSON BRIDAL TIE-IN DETAIL	1	2/26/26
D-12A	KENNY & HENDERSON STOPPLE BYPASS TIE-IN DETAIL	0	1/08/26
D-13	KENNY & MEDHURST LATERAL TIE-IN DETAIL	0	1/08/26
D-13A	KENNY & MEDHURST STOPPLE BYPASS TIE-IN DETAIL	0	1/08/26
D-14	TREMONT & LONDON LATERAL TIE-IN DETAIL	1	2/26/26
D-14A	TREMONT & LONDON STOPPLE BYPASS TIE-IN DETAIL	0	1/08/26
D-15	LINWORTH & OLENTANGY LATERAL TIE-IN DETAIL	0	1/08/26
D-16	LINWORTH & OLENTANGY STOPPLE TIE-IN DETAIL	0	1/08/26
HYROTEST DETAILS			
D-31	UPPER ARLINGTON ALIGNMENT HYDROTEST	1	2/26/26
D-32	BETHEL RD. ALIGNMENT HYDROTEST	0	1/08/26
ABANDONEMENT PLAN			
AB-01	ABANDONMENT PLAN OVERALL SHEET	1	2/26/26
AB-02	ABANDONMENT PLAN 1 OF 3	1	2/26/26
AB-03	ABANDONMENT PLAN 2 OF 3	0	1/08/26
AB-04	ABANDONMENT PLAN 3 OF 3	0	1/08/26
TRENCHING SECTIONS			
TD-01	TRENCHING SECTIONS	0	1/08/26

SHEET INDEX

DWG.	DESCRIPTION	REV	REV DATE
TYPICAL DETAILS			
TD-05	TYPICAL TRENCHING DETAILS	0	1/08/26
TD-06	DEWATERING DETAILS	0	1/08/26
TD-07	PIPELINE MARKER DETAILS	0	1/08/26
TD-08	TYPICAL SHORING DETAIL	0	1/08/26
TD-09	REST BLOCK SCHEDULE & DETAILS	0	1/08/26
TD-10	APPROVED FIRE HYDRANTS	0	1/08/26
TD-11	OVERVIEW MAP OF APPROVED FIRE HYDRANTS	1	2/26/26
CP-01	CATHODIC PROTECTION - TEST STATION DETAILS	0	1/08/26
CP-02	CATHODIC PROTECTION - TEST STATION DETAILS	0	1/08/26
CP-03	CATHODIC PROTECTION - TEST STATION DETAILS	0	1/08/26
CP-04	CATHODIC PROTECTION - TEST STATION DETAILS	0	1/08/26
CP-05	CATHODIC PROTECTION - TEST STATION DETAILS	0	1/08/26
CP-06	CATHODIC PROTECTION - TEST STATION DETAILS	0	1/08/26
R-01	RAILROAD CROSSING DETAIL	1	2/26/26
R-02	RAILROAD CROSSING DETAIL	A	2/26/26
R-03	RAILROAD CROSSING DETAIL	A	2/26/26



BURNS MEDONNELL
 530 W SPRING STREET, SUITE 100
 COLUMBUS, OHIO 43215
 (614) 453-7800

REVISIONS			
REV. #	DATE	DESCRIPTION	
1	2/26/26	REISSUED FOR 90%	
0	1/08/26	ISSUED FOR CONSTRUCTION	

DESIGNED BY	CCK	2/26/26	314-391-5360
DRAWN BY	JMB	2/26/26	314-239-4747
CHECKED BY	JPF	2/26/26	314-578-9778
AS-BUILT BY	TBD	TBD	TBD
	NAME	DATE	PHONE #

SITE NAME:
WO# 400009378
MAT
WBS L2
 PHASE 4 NCHP PIPELINE REPLACEMENT
 COLUMBUS, FRANKLIN COUNTY, OH

DRAWING TITLE:
INDEX SHEET

DRAWING NO:
T-02

General Notes

- Deviation from NiSource CAD Standards is at discretion of reviewing Professional Engineer.
- Refer to project documentation for the associated Environmental Compliance Plan (ECP) and any project-specific documentation.
- The proposed gas facility locations shown are approximate and are subject to change.
- Property lines, structures, street lines, etc. were compiled by Campos EPC and are to be considered approximate and not to scale.
- Existing utilities, where shown, were located by Campos EPS and have not been verified using exploratory digs. NiSource does not guarantee the location of the underground utilities shown or that all existing utilities and/or subsurface structures are shown.
- Individual service line designs for services smaller than 3 inches in diameter are not provided by Engineering. These services shall be installed using the standard design criteria and material specified in the NiSource standards. Services 3 inches and larger in diameter shall be designed, reviewed, and represented on a separate plan set as necessary.
- This project will adhere to all applicable federal, state or local permitting requirements for abandonment and installation of natural gas pipelines. All Federal, State, and Local codes and standards will be adhered including, but not limited to, the following:
 - Code of Federal Regulations (CFR)**
 - 49 CFR 192 Pipeline Safety Regulations
 - 29 CFR 1910 Occupational Safety and Health Administration (OSHA)
 - American Society of Mechanical Engineers (ASME)**
 - ASME B31.8 Gas Transmission and Distribution Piping Systems
- All NiSource design codes and standards will be adhered to as applicable.
- Prior to beginning any excavation on site, the person responsible for earth moving shall notify utility owners of their intent to excavate and to have the exact locations of the utility lines marked by contacting the one call center in their state subject to any applicable state advance notification requirements.
- Proposed or completed gas facility installation location references may be indicated by a combination of the following codes:

F - FRONT	CLP - CENTER OF PAVEMENT	D - DRIVEWAY EDGE
BK - BACK	CLR - CENTER OF RIGHT-OF-WAY	EP - EDGE OF PAVEMENT
L - LEFT	CEL - CENTER OF EASTBOUND LANE	ES - EDGE OF SIDEWALK
R - RIGHT	CWL - CENTER OF WESTBOUND LANE	PL - PROPERTY LINE
B - BUILDING EDGE	CNL - CENTER OF NORTHBOUND LANE	
CU - CURB	CSL - CENTER OF SOUTHBOUND LANE	

Drawing Revision Conditions:

- If, during the course of project construction, anticipated changes to project plans result in complex project criteria being met as defined by NiSource Gas Standard 2810.050 "Stakeholder Reviews of Design Capital Projects," the changes shall not be implemented until revised project documentation is reviewed by the Project Engineer and approved by a Professional Engineer as necessary.
- Any additional gas pressure containing material not listed on the project Bill of Materials must be reviewed by the Project Engineer and reviewing Professional Engineer prior to use.
- Any significant changes to proposed primary pipeline installation methods and location must be reviewed by the Project Engineer and reviewing Professional Engineer.
- Any significant changes to proposed project scope must be reviewed by the Project Engineer and reviewing Professional Engineer. Significant changes to project scope may include changes to proposed design pressure, change of proposed pipe size and material affecting system hydraulics, and the addition or removal of significant amounts of pipeline installation or abandonment.
- Any significant changes to proposed tie-ins must be reviewed by the Project Engineer and reviewing Professional Engineer. Significant changes may include the following: addition or removal of a tie-in, change in proposed tie-in material, change in proposed tie-in method, and change in tie-in location if system hydraulics may be affected.
- This project involves the installation of facilities in permitted locations within public and private right-of-way. If, during the course of installation, it is found that the installation must deviate from the permitted location, construction must cease until the deviation is reviewed by the Project Engineer and reviewing Professional Engineer.

DRAWING LEGEND

Gas Main Symbology

- Existing Gas Main
- Existing Gas Main to Be Abandoned
- Proposed Gas Main
- Proposed Gas Main Uprate
- Proposed Gas Main Bore

Gas Facility Symbology

- x"GV Gas Valve
- x"PVC Critical Gas Valve (Gate - GV, Plug - PV, PE Ball - BP, ST Ball - BV)
- x"HVTT High Volume Tapping Tee
- x"SST Pressure Control Fitting - ShortStopp Tee
- x"SPH Pressure Control Fitting - Spherical Tee
- x"MF-BO Pressure Control Fitting - Mueller Bottom-out
- x"MF-SO Pressure Control Fitting - Mueller Side-out
- x"MF-FT Pressure Control Fitting - Mueller Flange Tee
- x"SS Pressure Control Fitting - ShortStopp
- x"MF Pressure Control Fitting - Mueller Stopper
- x"x"x" POLYTAP Polytapp Side Saddle Fitting
- Transition
- End Cap
- Riser
- Reducer
- Electronic Marker
- Flush-mounted Tracer Wire Station
- Post Pipeline Marker with Tracer Wire
- Gas Main Marker without Tracer Wire
- Test Well
- Regulator Station
- Single Customer Regulator
- Meter
- Meter with Regulator
- Test Point (Station)
- Gas Service Tie-over
- Gas Service Replacement
- Meter Move Out

Swing Tie Symbology

- Telephone Manhole
- Drain Manhole
- Electric Manhole
- Catch Basin
- Sewer Manhole
- Fire Hydrant
- Utility Pole
- Property Marker
- Telephone Pedestal
- Television Pedestal
- Unknown Manhole
- Water Box
- Water Gate
- Electric Pedestal
- Iron Pin
- Light Pole

Gas Main Material/Pressure Label References

MATERIAL CODES

- CS* Coated Steel Gas Main
- WT* Weld Treated Gas Main
- CI* Cast Iron Gas Main
- BS* Bare Steel Gas Main
- WI* Wrought Iron Gas Main
- PH* High Density Polyethylene Gas Main
- PM* Medium Density Polyethylene Gas Main

PRESSURE CODES

- *LP Low Pressure
- *IP Intermediate Pressure
- *MP Medium Pressure
- *HP High Pressure

MISCELLANEOUS CODES

- *-SER Service
- *-R Riser
- (TC) Transmission Class

Gas Main Installation Method Label References

- AT Attached
- BH Bridge Hanger
- BLGH Building Hanger
- DB Directional Bore
- IS Inserted
- OC Open Cut
- PB Pneumatic Bore
- PL Plowed
- RT Roof Top
- (E) Existing
- (P) Proposed

FIBER OPTIC FO

TELEPHONE T

BURIED POWER E

EXISTING GAS LINE GM

OVERHEAD ELEC OHE

TR BURIED POWER TR

UNDERGROUND LIGHTING UGL

FENCE

PROPERTY LINE

RIGHT-OF-WAY Ex R/W

PULLBACK STRING STRG

CENTERLINE

SEC LINE

RAILROAD

ROAD EDGE

WATERWAY

SANITARY SEWER SL

SLUDGE LINE SL

STORM SEWER SL

WATER LINE W

MAJOR CONT

MINOR CONT

LIMITS OF DISTURBANCE LOD

PERMANENT EASEMENT

EXISTING GAS EASEMENT

TEMPORARY WORKSPACE WITHIN R.O.W.

TEMPORARY EASEMENT

TEMPORARY ACCESS

COH OWNED PROPERTY

STORM DRAIN SD

SANITARY SEWER MANHOLE SS

VALVE

CATCH BASIN

OVERHEAD POWER POLE

POTHOLE LOCATION

FIRE HYDRANT

TRAFFIC BOX TR

Weld Location W1

Gas Main Tie-in Location T1

Gas Main Abandonment Location A1



BURNS MEDONNELL
 530 W SPRING STREET, SUITE 100
 COLUMBUS, OHIO 43215
 (614) 453-7800

REVISIONS			
REV. #	DATE	DESCRIPTION	
1	2/26/26	REISSUED FOR 90%	
0	1/08/26	ISSUED FOR CONSTRUCTION	

DESIGNED BY	DATE	PHONE #
CCK	2/26/26	314-391-5360
JMB	2/26/26	314-239-4747
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TBD	TBD	TBD

SITE NAME:
WO# 400009378
MAT
WBS L2
 PHASE 4 NCHP PIPELINE REPLACEMENT
 COLUMBUS, FRANKLIN COUNTY, OH

DRAWING TITLE:
GENERAL NOTES & LEGEND

DRAWING NO:
GN-01

GENERAL NOTES

1. THE CONTRACTOR SHALL COMPLY WITH ALL CITY, COUNTY, STATE, AND FEDERAL GUIDELINES/REGULATIONS APPLICABLE TO CONSTRUCTION OF THIS SITE.
2. SITE CONTRACTOR SHALL VERIFY ALL COORDINATES AND DIMENSIONAL INFORMATION PRIOR TO CONSTRUCTION. BRING ANY DISCREPANCIES WITH LAYOUT TO ATTENTION OF OWNER PRIOR TO STARTING CONSTRUCTION.
3. UNLESS SPECIFICALLY SHOWN OTHERWISE ON THE DRAWINGS, CONTRACTOR SHALL MAINTAIN A MINIMUM 5'-0" OFFSET FROM PROPERTY LINES AND FROM EDGE OF PAVEMENT (EXCLUDING ROAD AND PROPERTY LINE CROSSINGS). ALL CONSTRUCTION METHODS AND MATERIALS SHALL CONFORM TO THE CURRENT SPECIFICATIONS AND STANDARDS OF OWNER.
4. ALL WORK SHALL BE IN COMPLIANCE WITH OSHA, TITLE 29 OF THE CODE OF FEDERAL REGULATIONS, AND ALL OTHER FEDERAL, STATE AND LOCAL LAWS AND REGULATIONS.
5. CONTRACTOR SHALL PERFORM A SITE VISIT AND VERIFY ALL COORDINATES AND DIMENSIONAL INFORMATION PRIOR TO CONSTRUCTION. IF DISCREPANCIES ARE OBSERVED, THE ENGINEER SHALL BE NOTIFIED.
6. CONTRACTOR IS RESPONSIBLE FOR KNOWING LOCATION OF ALL ENVIRONMENTALLY SENSITIVE AREA RESTRICTIONS PERTAINING TO THIS PROJECT.
7. CONTRACTOR TO VERIFY WETLANDS HAVE BEEN PERMITTED AND MITIGATED PRIOR TO DISTURBING ANY WETLAND AREAS.
8. CONTRACTOR SHALL REMAIN WITHIN THE CONSTRUCTION WORKING LIMITS. ACCESS TO AREAS OUTSIDE WORKING LIMITS MUST BE COORDINATED WITH THE OWNER OR OBTAINED DIRECTLY BY CONTRACTOR.
9. CONTRACTOR SHALL USE ALL NECESSARY MEANS TO ENSURE SAFE AND PROPER TRAFFIC FLOW DURING CONSTRUCTION, IN ACCORDANCE WITH OWNER AND LOCAL DOT STANDARDS.
10. CONTRACTOR IS SOLELY RESPONSIBLE FOR EXECUTION OF THEIR WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND SPECIFICATIONS. CONTRACTOR IS RESPONSIBLE FOR THE CONSTRUCTION METHODS AND TECHNIQUES, SEQUENCES, TIME OF PERFORMANCE, AND ALL SAFETY PRECAUTIONS.
11. CONTRACTOR TO LESSEN THE LIMITS OF DISTURBANCE AS MUCH AS PRACTICAL DURING CONSTRUCTION TO MINIMIZE AMOUNT OF RE-PAVING NECESSARY.
12. THE PIPELINE HAS GENERALLY BEEN DESIGNED WITH A MINIMUM COVER OF 6'-0" TO ACCOUNT FOR DEPTH OF UNKNOWN SERVICE LINES.
13. MINIMUM ALLOWABLE DEPTH OF COVER IS 4'-0".
14. BENDS UNDER 2° ARE NOT SHOWN.
15. FIELD BENDS SHALL FOLLOW G.S. 3010.030

DESIGN BASIS

1. EXISTING CONDITIONS WERE TAKEN FROM:
A TOPOGRAPHIC SURVEY PERFORMED BY CAMPOS
AN ENVIRONMENTAL SURVEY PERFORMED BY BURNS & McDONNELL
2. GEOTECHNICAL ENGINEERING REPORTS PREPARED BY DLZ APPROXIMATE BOREHOLE LOCATIONS HAVE BEEN SHOWN ON THE PLANS.
3. GEOTECHNICAL DATA IS PROVIDED FOR CONTRACTOR REFERENCE IN A SEPARATE FILE. CONTRACTOR SHALL INTERPRET THE GEOTECHNICAL DATA BETWEEN EXPLORATION POINTS. CONTRACTOR SHALL OBTAIN ADDITIONAL DATA DEEMED NECESSARY FOR BID PREPARATION OR CONSTRUCTION AT THE CONTRACTOR'S EXPENSE.
4. ALL DIMENSIONS ARE TAKEN FROM/TO EDGE OF PAVEMENT, CENTERLINE OF UTILITY OR EDGE OF EASEMENT UNLESS OTHERWISE NOTED.
5. PROPOSED PIPE LOCATIONS SHOWN ARE AS FIELD IDENTIFIED BY OWNER AND ARE BASED ON EVALUATION OF ABOVE GROUND FEATURES. THE FINAL ALIGNMENT AND LOCATION OF PIPE SHALL BE DETERMINED BY OWNER AND ITS DESIGNATED INSPECTOR(S).
6. STATIONING IS IN FEET BY HORIZONTAL MEASUREMENT AND REFERS TO CENTERLINE OF PROPOSED ALIGNMENT.
7. DRILL PATH ELEVATIONS REFER TO THE CENTERLINE OF THE PILOT HOLE AND NOT TO THE TOP OF INSTALLED PIPE.
8. DRILL PATH ENTRY AND EXIT LABELS ARE FOR REFERENCE ONLY AND DO NOT SPECIFY WHICH SIDE OF THE BORE PATH A RIG WILL BE SET UP ON. CONTRACTOR MAY ELECT TO DRILL FROM EITHER OR BOTH SIDES BASED ON THEIR MEANS AND METHODS.

SCOPE

1. CONTRACTOR SHALL INSTALL THE PIPE STRING USING THE CONSTRUCTION METHODS SET FORTH IN THE DRAWINGS. ANY DEVIATIONS MUST BE COORDINATED WITH NISOURCE AND THE CITIES OF COLUMBUS AND/OR UPPER ARLINGTON.
2. CONTRACTOR SHALL PROVIDE AND MOBILIZE ALL NECESSARY EQUIPMENT, INSTRUMENTATION, AND SUPPLIES TO INSTALL THE WELDED PIPE STRING USING HDD METHOD OF CONSTRUCTION.
3. CONTRACTOR SHALL ACTIVELY MONITOR THE DRILLED ALIGNMENT FOR IMPACTS THAT COULD OCCUR AS A RESULT OF HDD OPERATIONS (IE. SETTLEMENT, HEAVE, AND DRILLING FLUID FLOW). CONTRACTOR'S MONITORING PROCEDURES AND ASSOCIATED EMERGENCY RESPONSE PLANS SHALL BE APPROPRIATE TO ENSURE THAT PUBLIC SAFETY IS NOT COMPROMISED.

EXISTING UTILITIES

1. THE CONTRACTOR SHALL NOTIFY THE PUBLIC UTILITY LOCATING SYSTEM (811) AND OBTAIN A CLEARED, APPROVED TICKET PRIOR TO BEGINNING WORK.
2. LOCATIONS OF EXISTING UNDERGROUND UTILITIES AND SITE FEATURES ARE APPROXIMATE. ACTUAL EXISTING CONDITIONS MAY VARY FROM WHAT IS REPRESENTED IN THESE DRAWINGS AND SHALL BE VERIFIED IN THE FIELD BY CONSTRUCTION PERSONNEL PRIOR TO BEGINNING WORK.
3. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND POSITIVELY IDENTIFYING THE UTILITIES WITHIN THE WORKSPACE. CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL UNDERGROUND UTILITIES WITHIN THE

- CONSTRUCTION AREA. CONTRACTOR IS RESPONSIBLE FOR ALL LOSSES AND REPAIRS OCCASIONED BY DAMAGE TO UNDERGROUND FACILITIES / UTILITIES RESULTING FROM THEIR WORK.
4. IF EXISTING UTILITIES ARE IDENTIFIED IN THE FIELD AND DEEMED TO BE IN CONFLICT WITH THE PROPOSED BORE PROFILE, CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY SO THE CONFLICT MAY BE RESOLVED.
 5. THE PIPELINE SHALL BE INSTALLED SO AS TO PROVIDE A MINIMUM OF TWENTY FOUR (24) INCHES OF CLEARANCE TO ALL OTHER UNDERGROUND UTILITIES AND STRUCTURES. WHERE THIS IS NOT POSSIBLE, APPROPRIATE PROTECTION SHALL BE INSTALLED, WITH THE APPROVAL OF NISOURCE REPRESENTATIVE OR INSPECTOR.
 6. WHERE NOTED ON PLANS, REFER INV-XXX TO POT HOLE EXHIBITS FOR TYPE, DEPTH, SIZE, ETC.
 7. CONTRACTOR TO CONTACT POWER COMPANIES WHEN POWER POLES ARE WITHIN 5' OF A TRENCH OR PIT.

CONTRACTOR NOTES

- CONTRACTOR SHALL BE RESPONSIBLE FOR THE FOLLOWING NOTIFICATIONS:
1. ANY CONTRACTOR PERFORMING EXCAVATION, INCLUDING BUT NOT LIMITED TO DISTURBING THE EARTH WITH POWERED OR NON-POWERED EQUIPMENT, DRILLING AND/OR BORING, SHALL CAUSE NOTICE TO BE GIVEN TO THE OHIO UTILITIES PROTECTION SERVICE (OUPS) NOW DOING BUSINESS AS OHIO811 BY CALLING 811 OR 1-800-362-2764, OR ONLINE AT WWW.OHIO811.ORG AT LEAST 48 HOURS BUT NOT MORE THAN 10 WORKING DAYS BEFORE EXCAVATING.
 - a. LOCATION OF EXISTING UTILITIES SHALL BE VERIFIED BY CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATION, SUPPORT, PROTECTION AND RESTORATION OF ALL EXISTING UTILITIES AND APPURTENANCES, WHETHER SHOWN OR NOT SHOWN ON THE APPROVED CONSTRUCTION DOCUMENTS.
 - b. PROVIDING NOTIFICATION AND RECEIVING MARKINGS OF UNDERGROUND MEMBER UTILITIES IN NO WAY CONSTITUTES PERMISSION TO PERFORM CONSTRUCTION.
 2. LOCATION OF EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. THE CLIENT'S UTILITY CUSTOMERS SHALL BE NOTIFIED OF POTENTIAL SERVICE OUTAGES. CONSTRUCTION WILL COORDINATE WITH THE CLIENT FOR DETERMINATION OF MINIMUM TIME REQUIREMENT. CLIENT SHALL BE NOTIFIED TWO BUSINESS DAYS (48 HOURS) IN ADVANCE TO SCHEDULE AN OUTAGE. THE CLIENT MUST BE NOTIFIED 24 HOURS IN ADVANCE FOR OBSERVATIONS OF WORK IN PROGRESS. OBSERVATION AND ONSITE VISITS ARE NOT TO BE CONSTRUED AS A GUARANTEE OR APPROVAL BY CLIENT STAFF OF CONTRACTOR'S WORK OR CONTRACTUAL COMMITMENT. IF WORK IS SUSPENDED FOR LONGER THAN 5 DAYS AFTER INITIAL START-UP, CONTRACTOR SHALL NOTIFY THE CLIENT CONSTRUCTION INSPECTION SUPERVISOR ONE (1) BUSINESS DAYS (24 HOURS) PRIOR TO RESTART OF CONSTRUCTION.
 3. CONTRACTOR TO PROVIDE SHORING PER REQUIREMENTS OF CITY OF COLUMBUS PERMIT PACKAGE. ALTERNATIVE RECOMMENDATIONS ARE PERMITTED, BUT WILL REQUIRE APPROVAL BY NISOURCE AND THE CITY OF COLUMBUS PRIOR TO IMPLEMENTING.

SURVEY NOTES

1. SURVEY DATUM IS OHIO STATE PLANES, SOUTH ZONE, US SURVEY FEET.
2. REFER TO STAMPED SURVEY DOCUMENTATION FOR FURTHER INFORMATION.

CATHODIC PROTECTION NOTES

1. TEST STATIONS TO BE ATTACHED AS INDICATED ON ALIGNMENT SHEETS. FINAL LOCATIONS TO BE APPROVED IN FIELD BY COMPANY REPRESENTATIVE. PLACEMENT MUST BE REMOVED FROM PAVEMENT, TRAFFIC LANES AND SHOULDERS, AND WHEN POSSIBLE ALIGNED WITH POWER POLES OR FENCE POSTS FOR ADDITIONAL MECHANICAL PROTECTION.
2. FOREIGN CROSSING TEST STATIONS SHALL BE ADDED AS STEEL FOREIGN CROSSINGS ARE DISCOVERED. NOT INSTALLING A TEST STATION AT AN IDENTIFIED FOREIGN CROSSING MUST BE APPROVED BY NISOURCE CORROSION SME.
3. ALL TEST STATION LEADS MUST HAVE ENOUGH EXCESS CABLE TO ALLOW FOR FULL REMOVAL OF TEST STATION HEAD WHILE TERMINATED.
4. CONTRACTOR MUST PULL A STICK OF PIPE AND INSPECT COATING IN THE RECEIVING HOLE. ANY FIELD APPLIED TO BE DISCUSSED WITH THE CORROSION DEPARTMENT AND APPROVED PRIOR TO APPLICATION.
5. ALL ABOVE GROUND PIPELINE SETTINGS, AND ASSEMBLIES SHALL BE COATED WITH AN APPROVED POLYURETHANE FOR A TOTAL SYSTEM DFT OF 12-16 MILS (GS 1420.050) - DENSO PROTAL ST EPOXY MASTIC APPLIED PER MANUFACTURERS INSTRUCTION.
6. CATHODIC PROTECTION SYSTEM WILL BE RECTIFIED. ANODE WILL BE INSTALLED WITH THE TEST STATION FOR TROUBLESHOOTING PURPOSES. DO NOT HOOK UP ANODES.
7. ALL BELOW GROUND JOINT/GIRTH WELDS TO BE EPOXIED WITH DENSO 7200OR OTHER CORROSION DEPARTMENT APPROVED 2 PART EPOXY. IF CONDITIONS PREVENT PROPER APPLICATION, CORROSION DEPARTMENT SHALL BE CONTACTED FOR APPROVAL OF PETROLATUM TAPE APPLICATION PROCEDURE. REFER TO GS 1420.040. ALL BORE GIRTH WELDS USE DENSO 7200 2 PART EPOXY WITH TRENTON MCO OUTERWRAP FOR PROTECTION DURING HDD.
8. USE DENSO S105 PASTE FOR PETROLATUM TAPE APPLICATION AS A PRIMER
9. CONTROL LINES NEED INSULATED ABOVE GRADE. INSTALL EACH INSULATOR WITH 17# ANODE AND (2)-#8 WIRES ON EAST RUN. TEST EACH INSULATOR BEFORE AND AFTER WELDING TO ENSURE ISOLATION. SEE GS 1430.250, SECTION 5.1.2 FOR TESTING ISOLATION.
10. INSTALL TEST STATIONS WITH 17# ANODE AND (2)- #12 BLACK WIRE AND (1)-12 RED ANODE WIRE. TRENTON PATCH PADS MAY BE USED FOR THERMITE WELDS. DO NOT CONNECT ANODE WIRE TO PIPE WIRE AFTER INSTALLATION. CALL CORROSION DEPARTMENT FOR QUESTIONS.

11. CONTACT STEVE THOMPSON (740-412-3470) FOR ANY ADDITIONAL INFORMATION OR REQUESTS. CALL CORROSION TECH STEVE THOMPSON WHEN PIPE IS DELIVERED.
 - A. INSTALL TEST STATIONS WITH #17 ANODE ON MAINLINE PIPELINE ABOUT EVERY 1500 FEET. FIVE INCH FLUSH MOUNT BOXES WHEN NOT ABLE TO INSTALL JEROME, FINK, AND TRI-VIEW.
 - B. FILL OUT TEST POINT SHEETS WITH LOCATION INFORMATION OF EACH TEST STATIONS.
 - C. ALL FIELD APPLIED COATINGS SHALL BE APPLIED PER MANUFACTURER'S SPECIFICATION/INSTRUCTIONS.
 - D. BEFORE SANDBLASTING PIPE MUST BE CLEANED WITH MK.
 - E. SANDBLAST ALL GIRTHED TO A NACE 2 NEAR WHITE FINISH WITH A 2.5-5 MIL PROFILE FROM SANDBLASTING.
 - F. INSTALL DENSO 7125 (<40F) OR DENSO 7200 (>40F) TO BLASTED AREA WITH A 2 COAT APPLICATION OR OTHER APPROVED COMPANY APPLIED 2 PART EPOXY.
 - G. JEEP PIPE PRIOR TO INSTALLATION.
 - H. WHEN INSTALLING PIPE IN PAVED AREA USE A NON-ABRASIVE BACKFILL. THE PIPE MUCH BE PADDED 12" AROUND.
 - I. CONTACT CORROSION TECH WHEN PIPE IS DELIVERED SO COATING CAN BE INSPECTED BEFORE WORK BEGINS.

DESIGN CLARIFICATIONS

1. THIS DESIGN COMPLIES WITH GS-2110.020, SECTION 5, "DESIGN OF PIPELINES FOR INTERNAL INSPECTION", AND THE CONTRACTOR SHALL ADHERE TO THE FITTING SPACING REQUIREMENTS. WHERE FIELD CONDITIONS REQUIRE DEVIATION FROM THESE REQUIREMENTS, PLEASE CONSULT ENGINEERING WITH AN RFI.

ENVIRONMENTAL NOTES

1. ALL NISOURCE CONSTRUCTION ACTIVITIES MUST BE COMPLETED IN ACCORDANCE WITH THE ENVIRONMENTAL CONSTRUCTION STANDARDS (HSE 4440.020) AND THE PROJECT ENVIRONMENTAL COMPLIANCE PLAN (ECP).
2. THE PROJECT ECP AND ANY SITE-SPECIFIC EROSION CONTROL DRAWINGS, MUST BE PROVIDED TO THE CONTRACTOR WITH THE PROJECT DRAWINGS FOR REVIEW AND PLANNING PRIOR TO THE START OF CONSTRUCTION ACTIVITIES. THIS INCLUDES ANY TREE CLEARING ACTIVITIES REQUIRED PRIOR TO THE START OF FACILITY CONSTRUCTION ACTIVITIES.
3. THE PROJECT ECP AND ANY ASSOCIATED DRAWINGS MUST BE REVIEWED WITH CONSTRUCTION, THE CONTRACTOR, AND AN ENVIRONMENTAL REPRESENTATIVE PRIOR TO THE START OF CONSTRUCTION ACTIVITIES.
4. THESE DOCUMENTS MUST REMAIN ON SITE FOR THE DURATION OF THE CONSTRUCTION PROJECT, AND ANY PROJECT SCOPE CHANGES, WITH THE POTENTIAL TO IMPACT THE REQUIREMENTS OF THE ECP OR ENVIRONMENTAL DRAWINGS, MUST BE COORDINATED WITH AN ENVIRONMENTAL REPRESENTATIVE PRIOR TO COMPLETION.



REVISIONS		
REV. #	DATE	DESCRIPTION
1	2/26/26	REISSUED FOR 90%
0	1/08/26	ISSUED FOR CONSTRUCTION

DESIGNED BY	CCK	2/26/26	314-391-5360
DRAWN BY	JMB	2/26/26	314-239-4747
CHECKED BY	JPF	2/26/26	314-578-9778
AS-BUILT BY	TBD	TBD	TBD
	NAME	DATE	PHONE #

SITE NAME:
WO# 400009378
MAT
WBS L2
 PHASE 4 NCHP PIPELINE REPLACEMENT
 COLUMBUS, FRANKLIN COUNTY, OH

DRAWING TITLE:
NISOURCE
GENERAL NOTES

DRAWING NO:
GN-02

GENERAL NOTES FOR DIVISION OF SEWERS AND DRAINS

- UTILITY LOCATORS WILL ONLY LOCATE AND MARK MAINLINE SEWERS, AFTER AN OH-811 LOCATE REQUEST IS PLACED. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING THE LOCATION OF ALL MAIN LINE SEWERS AND LOCATING ALL PRIVATE SEWER SERVICE LATERALS. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY DAMAGES TO SEWER MAINS AND/OR SERVICE LATERALS CAUSED DURING CONSTRUCTION. ALL REPAIRS TO THE SEWER LINES AND/OR SERVICE LATERALS MUST BE COMPLETED BY A CITY OF COLUMBUS LICENSED SEWER CONTRACTOR UNDER A SEPARATE SEWER PERMIT.
- THE CONTRACTOR MUST MAINTAIN A 3' HORIZONTAL & 1' VERTICAL CLEARANCE FROM THE O.D. OF ALL SEWERS AND APPURTENANCES TO THE NEAREST EDGE OF THE FACILITY BEING PLACED. FOR BRICK SEWERS MAINTAIN 10' HORIZONTAL & 5' VERTICAL CLEARANCE FROM O.D. TO NEAREST EDGE OF PROPOSED FACILITY.

GENERAL NOTES FOR THE DIVISION OF WATER

- EXPOSE WATER LINE AT CROSSING(S) TO VERIFY DEPTH AND LOCATION PRIOR TO AND DURING ANY DIRECTIONAL BORING.
- THE CONTRACTOR IS RESPONSIBLE FOR LOCATED ALL CUSTOMERS OWNED SERVICE LINES. THE CONTRACTOR SHALL FIELD VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF ANY CITY OR CUSTOMER OWNED MAIN OR SERVICE LINE THAT MAY BE AFFECTED BY THE PROPOSED CONSTRUCTION ACTIVITIES. FIELD VERIFICATION SHALL TAKE PLACE PRIOR TO AN ACTIVITY THAT MAY JEOPARDIZE THE INTEGRITY OF THE FACILITY AND AT A LOCATION NEAREST THE POINT OF POSSIBLE CONFLICT.
- ANY REPAIR TO CITY OR CUSTOMER OWNED WATER LINES ARE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL CONTACT THE CITY OF COLUMBUS, DIVISION OF WATER AT 614-645-7788 PRIOR TO ANY REPAIRS ON CITY OWNED WATER FACILITIES. THE CONTRACTOR MUST BE A CITY OF COLUMBUS LICENSED WATER CONTRACTOR. THE CONTRACTOR SHALL MAINTAIN A MINIMUM OF 3' HORIZONTAL AND 1' VERTICAL CLEARANCE FROM THE OUTSIDE DIAMETER OF ALL WATER LINES AT 8' FROM ANY "TEE" CONNECTION, BANDS, AND ENDS OF THE WATER LINES, FROM OUTSIDE DIAMETER TO THE NEAREST EDGE OF THE FACILITY BEING PLACED.
- IF DURING EXCAVATION, THE POLYETHYLENE ENCASEMENT OF THE EXISTING WATER MAIN BECOMES DAMAGED, THE CONTRACTOR SHALL REPAIR THE POLYETHYLENE ENCASEMENT PER MANUFACTURER'S SPECIFICATIONS AND DOW STANDARD DRAWINGS L-1003 AND L-1004. AT THEIR OWN EXPENSE. ENSURE THAT THE ENTIRE EXPOSED AREA SHALL BE COVERED WITH NEW POLYETHYLENE ENCASEMENT AND SECURELY TAPED, PRIOR TO BACKFILL.
- IF A LEAD OR GALVANIZED WATER SERVICE LINE IS ENCOUNTERED AND NOT DAMAGED, THE CONTRACTOR SHALL REPORT THE PRESENCE OF THE TAP VIA EMAIL TO WATERQUALITY@COLUMBUS.GOV. INCLUDE THE SITE'S ADDRESS AND A PHOTO OF THE TAP IN THE EMAIL. IF THE SERVICE IS DAMAGED, IMMEDIATELY CONTACT THE DIVISION OF WATER DISTRIBUTION ENGINEERING OFFICE AT 614-645-7677 TO REQUEST THE SHUT OFF OF THE EXISTING CURB STOP.
- PRIOR TO INSTALLATION OF THE PROPOSED INFRASTRUCTURE THAT IS TO CROSS OR IS PARALLEL (WITHIN IN 5-FEET) OF THE IDENTIFIED PRESTRESSED CONCRETE CYLINDER PIPE (PCCP), THE CONTRACTOR SHALL EXPOSE THE EXISTING PCCP WATER MAIN. THE PCCP WATER MAIN SHALL BE EXPOSED SUFFICIENTLY ENOUGH TO VERIFY THAT NO DAMAGE WILL OCCUR DURING INSTALLATION OF PROPOSED INFRASTRUCTURE.
- WHEN PARALLELING, THE EXISTING PCCP WATER MAIN SHALL BE EXPOSED AT THE BEGINNING, END AND EVERY 100-FEET THROUGH THE PROPOSED INFRASTRUCTURE ALIGNMENT. WHEN CROSSING, THE EXISTING PCCP WATER MAIN SHALL BE EXPOSED WHERE THE PROPOSED INFRASTRUCTURE CROSSES THE EXISTING PCCP WATER MAIN.
- A CITY INSPECTOR WILL BE REQUIRED TO BE ON-SITE TO WITNESS THE EXCAVATION OF THE EXISTING PCCP WATER MAIN. THE CONTRACTOR IS TO CONTACT THE DPS DIVISION OF DESIGN & CONSTRUCTION AT 614-645-0433 TO SCHEDULE THE INSPECTION.
- FIELD VERIFICATION OF THE SLUDGE LINE SHALL TAKE PLACE PRIOR TO ANY ACTIVITY THAT MAY JEOPARDIZE THE INTEGRITY OF THE LINE. WHERE TRENCHLESS INSTALLATION METHODS ARE USED, FIELD VERIFY THE SLUDGE LINE DEPTH AND LOCATION BY EXPOSING THE LINE AT ALL PROPOSED TRENCHLESS CROSSING LOCATIONS PRIOR TO PERFORMING THE TRENCHLESS INSTALLATION.
- NEW OR RELOCATED UTILITIES SHALL BE INSTALLED WITH A MINIMUM 1' VERTICAL AND 3' HORIZONTAL CLEARANCE FROM THE SLUDGE LINE.
- IN ADDITION TO NOTIFYING THE OHIO UTILITIES PROTECTION SERVICE (OHIO811), PROVIDE 24 HOURS ADVANCED NOTIFICATION TO CITY OF COLUMBUS DIVISION OF WATER TECHNICAL SUPPORT SECTION, 614-645-7100, AND THE HAP CREMEAN WATER PLANT, 614-645-7168, PRIOR TO EXPOSING THE SLUDGE LINE.
- IF THE POLYETHYLENE ENCASEMENT ON THE EXISTING SLUDGE LINE BECOMES DAMAGED, IT SHALL BE REPAIRED PER MANUFACTURER'S SPECIFICATIONS AND DOW STANDARD DRAWINGS L-1003 AND L-1004 AT NO EXTRA COST TO THE CITY. ENSURE THAT THE ENTIRE EXPOSED AREA IS COVERED WITH NEW POLYETHYLENE ENCASEMENT AND SECURELY TAPED PRIOR TO BACKFILLING.

GENERAL NOTES FOR DIVISION OF POWER

- UTILITY LOCATORS WILL ONLY LOCATE AND MARK MAINLINE SEWERS, AFTER AN OH-811 LOCATE REQUEST IS PLACED. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING THE LOCATION OF ALL MAIN LINE SEWERS AND LOCATING ALL PRIVATE SEWER SERVICE LATERALS. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY DAMAGES TO SEWER MAINS AND/OR SERVICE LATERALS CAUSED DURING CONSTRUCTION. ALL REPAIRS TO THE SEWER LINES AND/OR SERVICE LATERALS MUST BE COMPLETED BY A CITY OF COLUMBUS LICENSED SEWER CONTRACTOR UNDER A SEPARATE SEWER PERMIT.
- THE CONTRACTOR MUST MAINTAIN A 3' HORIZONTAL & 1' VERTICAL CLEARANCE FROM THE O.D. OF ALL SEWERS AND APPURTENANCES TO THE NEAREST EDGE OF THE FACILITY BEING PLACED. FOR BRICK SEWERS MAINTAIN 10' HORIZONTAL & 5' VERTICAL CLEARANCE FROM O.D. TO NEAREST EDGE OF PROPOSED FACILITY.
- THE DIVISION OF POWER (DOP) MAY HAVE OVERHEAD AND UNDERGROUND PRIMARY, SECONDARY, AND STREET LIGHTING AT THIS WORK LOCATION. THE CONTRACTOR IS HEREBY REQUIRED TO CONTACT OHIO 811 (PREVIOUSLY OUPS) AT 811 OR 1-800-362-2764 FORTY-EIGHT HOURS PRIOR TO CONDUCTING ANY ACTIVITY WITHIN THE CONSTRUCTION AREA.
- ANY PROJECT, BOTH PUBLIC OR PRIVATE, WITH IMPACTS REQUIRING RELOCATION, SUPPORT, PROTECTION, OR ANY OTHER ACTIVITY CONCERNED WITH THE CITY'S ELECTRICAL FACILITIES IN THE CONSTRUCTION AREA IS TO BE PERFORMED BY THE CONTRACTOR UNDER THE DIRECTION OF DOP PERSONNEL AND AT THE EXPENSE OF THE PROJECT.
- UNLESS PREVIOUSLY AUTHORIZED, DOP SHALL MAKE ALL FINAL CONNECTIONS TO DOP'S EXISTING ELECTRICAL SYSTEM AT THE EXPENSE OF THE PROJECT.
- NO PERSON SHALL WORK ON DOP FACILITIES UNLESS THEY HAVE COMPLETED CONTRACTOR SAFETY ORIENTATION WITH DOP. ANY PERSON WORKING ON DOP FACILITIES ON LIVE CONDUCTORS OR CONDUCTORS THAT MAY BECOME LIVE SHALL COMPLY WITH DOP'S CONDUCTOR SAFETY POLICY (TDMIS-1603), HOLD CARD SYSTEM (TDMIS-1604) AND STREET LIGHT LOCK OUT TAG OUT PROCEDURE (MIS-1). PRIOR TO BEGINNING WORK ON DOP FACILITIES, EACH PERSON SHALL CONTACT DOP'S DISPATCH OFFICE AT 614-645-7627 AND PROVIDE THEIR NAME, PHONE NUMBER, LOCATION, DESCRIPTION OF WORK AND CIRCUIT NUMBER. AT COMPLETION OF WORK, EACH PERSON SHALL NOTIFY DOP'S DISPATCH OFFICE.
- THE CONTRACTOR SHALL USE MATERIAL AND MAKE REPAIRS TO A CITY OF COLUMBUS STREET LIGHTING SYSTEM BY FOLLOWING DOP'S "MATERIAL AND INSTALLATION SPECIFICATIONS" (MIS) AND THE CITY OF COLUMBUS "CONSTRUCTION AND MATERIAL SPECIFICATIONS" (CMSC). ANY NEW OR RE-INSTALLED STREET LIGHT SYSTEM SHALL REQUIRE TESTING AS REFERRED TO IN SECTION 1001.18 OF THE CMSC MANUAL. CONTRACTORS WORKING ON STREET LIGHTING SHALL CONFORM TO DOP'S EXISTING STREET LIGHT LOCKOUT/TAGOUT (LOTO) PROCEDURE, MIS-1, COPIES OF WHICH ARE AVAILABLE FROM DOP AND ON THE CITY WEBSITE.
- EMERGENCIES: IF ANY ELECTRIC FACILITY BELONGING TO DOP IS DAMAGED IN ANY MANNER BY THE CONTRACTOR, ITS AGENTS, SERVANTS, OR EMPLOYEES, AND REQUIRES EMERGENCY REPAIRS, THE DOP DISPATCH OFFICE SHOULD BE CONTACTED IMMEDIATELY AT (614) 645-7627. DOP SHALL MAKE ALL NECESSARY REPAIRS, AND THE EXPENSE OF SUCH REPAIRS AND OTHER RELATED COSTS SHALL BE PAID BY THE CONTRACTOR TO THE DIVISION OF POWER, CITY OF COLUMBUS, OHIO.

GENERAL NOTES FOR DIVISION OF FORESTRY

- PUBLIC TREE IMPACT NOTE:
 - ANY WORK ON OR WITHIN THE CRITICAL ROOT ZONE OF A PUBLIC TREE IS CONSIDERED AN IMPACT TO THE PUBLIC TREE. A PUBLIC TREE PLAN AND PERMIT FROM COLUMBUS RECREATION & PARKS FORESTRY IS REQUIRED FOR ANY PLAN WITH PUBLIC TREES IN THE WORK LIMITS. THE PUBLIC TREE PLAN SHALL DENOTE ALL PUBLIC TREES IN THE PROJECT'S WORK LIMITS. TREE INFORMATION SHALL CONFORM TO THE COLUMBUS TREE TECHNICAL MANUAL REQUIREMENTS AND BE PROVIDED BY A NATURAL RESOURCE PROFESSIONAL. FAILURE TO CONTACT THE CITY FORESTRY REPRESENTATIVE IN ADVANCE OF CONSTRUCTION WILL RESULT IN THE CONTRACTOR REIMBURSING FORESTRY FOR THE COST OF ANY AND ALL DAMAGE TO PUBLIC TREES.
- PUBLIC TREE PROTECTION NOTE:
 - ALL PUBLIC TREES AND THE GROUND IN THE CRITICAL ROOT ZONE, WHETHER SHOWN OR NOT SHOWN ON THE PLANS, ARE TO BE PROTECTED UNLESS A PERMIT TO REMOVE IS GIVEN BY COLUMBUS RECREATION & PARKS (CRPD) FORESTRY. THE CONTRACTOR SHALL PROTECT TREES NEAR OR ADJACENT TO THE WORK AREA TO AVOID DAMAGE TO ALL TREES THAT ARE TO REMAIN. HEAVY EQUIPMENT WILL NOT BE ALLOWED TO COMPACT THE SOIL OVER THE CRITICAL ROOT ZONE OF EXISTING PUBLIC TREES. RESTRICTED EQUIPMENT ACCESS ROUTES SHALL BE COORDINATED WITH CRPD FORESTRY AT FORESTRY@COLUMBUS.GOV BEFORE WORK BEGINS. TEMPORARY PAVING MATERIALS, SUCH AS PLYWOOD, LUMBER OR RUBBER MATTING, SPREAD OVER THE ROOT ZONE OF PUBLIC TREES MAY BE REQUIRED TO PREVENT COMPACTION. CONSTRUCTION MATERIALS, EXCAVATION DEBRIS, FUEL, EQUIPMENT, OR VEHICLES ARE NOT TO BE STOCKPILED, STORED, DUMPED, OR PARKED WITHIN THE CRITICAL ROOT ZONE OF PUBLIC TREES. ALL TREES MUST BE PROTECTED AGAINST INJURY OR DAMAGE TO BRANCHES, TRUNKS, OR ROOTS FROM CONSTRUCTION AND EXCAVATION, AS DESCRIBED IN THE CRPD TREE TECHNICAL MANUAL. IF THERE IS A QUESTION REGARDING TREE PROTECTION NEEDS, THE CONTRACTOR MUST CONTACT THE CITY FORESTRY SECTION AT FORESTRY@COLUMBUS.GOV.

- PUBLIC TREE REMOVAL AND MITIGATION NOTE:
 - NO PUBLIC TREE REMOVAL SHALL BE ATTEMPTED BY CONSTRUCTION PERSONNEL OR EQUIPMENT, ONLY UNDER THE SUPERVISION OF A CERTIFIED ARBORIST. ALL TREES REMOVED SHALL INCLUDE STUMP REMOVAL GROUND TO 18 INCHES. IF THE REMOVED TREE IS WITHIN 36" OF A PROTECTED TREE THE STUMP SHALL ONLY BE GROUND TO 2' DEPTH. ALL WOOD DEBRIS ON CITY OF COLUMBUS PROPERTY SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR BY THE END OF EACH WORK DAY. TREES APPROVED FOR REMOVAL BY CRPD FORESTRY SHALL BE MITIGATED IN ACCORDANCE WITH THE COLUMBUS TREE TECHNICAL MANUAL AND COLUMBUS CITY CODES CHAPTER 912.
- FORESTRY PERMIT NOTE:
 - ANY WORK ON OR WITHIN THE CRITICAL ROOT ZONE OF A PUBLIC TREE REQUIRES A FORESTRY PERMIT. ALL APPLICABLE FEES MUST BE PAID PRIOR TO PERMIT ISSUANCE. REFER TO THE CRPD TREE TECHNICAL MANUAL FOR TREE REMOVAL, PRUNING, PROTECTION, AND MITIGATION STANDARDS.
- OAK WILT NOTE:
 - TO PREVENT THE SPREAD OF OAK WILT, A FUNGAL DISEASE, OAK TREES SHALL ONLY BE PRUNED FROM NOVEMBER 1 TO MARCH 1.

FOR THE CITY OF COLUMBUS - DEPARTMENT OF TECHNOLOGY

COC-DOT MAY HAVE OVERHEAD AND UNDERGROUND FIBER CABLES EXISTING AT THIS WORKSITE. ANY REQUIRED RELOCATION, SUPPORT, PROTECTION, OR ANY OTHER ACTIVITY CONCERNED WITH COC-DOT'S CABLES, CONDUITS, MANHOLES, HAND HOLES, PULL BOXES, PAD MOUNT CABINETS OR OTHER FACILITIES AND/OR MATERIALS IN THE CONSTRUCTION AREA IS TO BE PERFORMED BY THE CONTRACTOR UNDER THE DIRECTION OF COC-DOT PERSONAL AND AT THE EXPENSE OF THE PROJECT.

THE CONTRACTOR SHALL USE MATERIALS AND MAKE REPAIRS TO A COC-DOT'S SYSTEM BY FOLLOWING THE COC-DOT MATERIAL AND INSTALLATION SPECIFICATIONS IN I-NET'S GENERAL SPECIFICATIONS DOCUMENT, HEREAFTER REFERRED TO SIMPLY AS THE "IGSD".

ANY RE-INSTALLED FIBER SHALL REQUIRE TESTING AS REFERRED TO IN IGSD. THE CONTRACTOR SHALL BE CITY OF COLUMBUS APPROVED FOR FIBER SPLICING PLUS MEET IGSD REQUIREMENTS.

IF ANY CABLE FACILITY BELONGING TO THE COC-DOT IS DAMAGED IN ANY MANNER BY THE CONTRACTOR, HIS AGENTS, SERVANTS OR EMPLOYEES, THAT WOULD REQUIRE EMERGENCY REPAIRS, THE COC-DOT MAINTENANCE CONTRACTOR SHALL MAKE ALL NECESSARY REPAIRS, AND THE EXPENSE OF SUCH REPAIRS AND OTHER RELATED COSTS SHALL BE PAID BY THE CONTRACTOR TO THE DIVISION OF TECHNOLOGY CITY OF COLUMBUS.

NOTE: ANY WORK PERFORMED OR MATERIALS INSTALLED BY THE CONTRACTOR THAT HAS NOT BEEN APPROVED BY COC-DOT PERSONAL OR HAS BEEN CONSTRUCTED OUTSIDE OF THE REQUIREMENTS OF THE IGSD WILL BE REPLACED OR REBUILT AT THE CONTRACTORS EXPENSE.

CONTACT (614) 645-0031 COC-DOT FIBER PHYSICAL PERSONAL FOR QUESTIONS.



**BURNS
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530 W SPRING STREET, SUITE 100
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REVISIONS		
REV. #	DATE	DESCRIPTION
1	2/26/26	REISSUED FOR 90%
0	1/08/26	ISSUED FOR CONSTRUCTION

DESIGNED BY	DATE	PHONE #	
CCK	2/26/26	314-391-5360	
DRAWN BY	JMB	2/26/26 314-239-4747	
CHECKED BY	JPF	2/26/26 314-578-9778	
AS-BUILT BY	TBD	TBD	
	NAME	DATE	PHONE #

SITE NAME:
WO# 400009378
MAT
WBS L2
PHASE 4 NCHP PIPELINE REPLACEMENT
COLUMBUS, FRANKLIN COUNTY, OH

DRAWING TITLE:
CITY OF COLUMBUS
GENERAL NOTES

DRAWING NO:
GN-03

HYDROSTATIC TESTING PROCEDURE

HYDROSTATIC PRESSURE TEST EXECUTION

REF: GS 1500.024; 49 CFR PART 192.503, 192.505, 192.507, 192.515, 192.517

1.GENERAL

- a) THIS STANDARD PROVIDES THE REQUIREMENTS AND GUIDANCE TO PERFORM A HYDROSTATIC PRESSURE TEST ON NEWLY CONSTRUCTED AND EXISTING IN-SERVICE PIPELINES.
- b) HYDROSTATIC PRESSURE TESTS SHALL BE PERFORMED IN ACCORDANCE WITH A WRITTEN HYDROSTATIC PRESSURE TEST PLAN (TEST PLAN) THAT HAS BEEN APPROVED BY THE DESIGNING ENGINEER.
- c) FOR THE PURPOSE OF THIS STANDARD, UNLESS OTHERWISE NOTED, THE USE OF THE WORD TEST, TESTING, TESTED SHALL MEAN HYDROSTATIC PRESSURE TEST.

2.RESPONSIBILITY

- a) IT IS THE RESPONSIBILITY OF THE COMPANY'S REPRESENTATIVE (E.G., CONSTRUCTION COORDINATOR, INSPECTOR), WHETHER EMPLOYEE OR CONTRACTOR, TO ENSURE THAT A HYDROSTATIC PRESSURE TEST IS CONDUCTED IN ACCORDANCE WITH THIS STANDARD AND THAT ACTIVITIES ARE IN COMPLIANCE WITH THE WRITTEN TEST PLAN.
- b) THE COMPANY'S REPRESENTATIVE SHALL BE PRESENT WHEN THE TEST IS STARTED AND WHEN THE TEST ENDS, BUT PREFERABLY FOR THE DURATION OF THE TEST, AND SHALL RECORD THE TEST RESULTS, EXCEPT FOR PREFABRICATED UNITS TESTED OFF SITE. THE TEST SHALL BE REPEATED IF DEEMED NECESSARY BY THE COMPANY'S REPRESENTATIVE.

3.SAFETY DURING TESTING

- a) THE COMPANY SHALL ENSURE THAT EVERY REASONABLE PRECAUTION IS TAKEN TO PROTECT EMPLOYEES, CONTRACTORS, AND THE GENERAL PUBLIC DURING PRESSURE TESTING.
- b) REFER TO GS 1500.001 "PRESSURE TESTING - GENERAL" FOR THE SAFETY REQUIREMENTS FOR PRESSURE TESTING. AND 49 CFR PART 192.503, 192.505, 192.507, 192.509, 192.515

3.1. GENERAL

- a) PRIOR TO BEING PLACED IN-SERVICE, THE COMPANY SHALL PRESSURE TEST ALL NEW, REPLACED, AND RELOCATED DISTRIBUTION MAINS, TRANSMISSION LINES, AND SERVICE LINES, WITH THE EXCEPTION OF A NON-PIPE COMPONENT (SEE SECTION 6.4 "NON-PIPE COMPONENT"). THE PURPOSE OF EACH TEST IS TWOFOLD.
 - a. TO ELIMINATE ALL POTENTIALLY HAZARDOUS LEAKS.
 - b. TO ESTABLISH THE MAXIMUM ALLOWABLE OPERATING PRESSURE (MAOP) IN ACCORDANCE WITH GS 1660.010, GS 1660.010(IN), OR GS 1660.010(PA) "MAXIMUM ALLOWABLE OPERATING PRESSURE FOR DISTRIBUTION LINES" OR GS 1660.012 "MAXIMUM ALLOWABLE OPERATING PRESSURE FOR TRANSMISSION LINES," AS APPLICABLE.
- b) IF INTERNAL CLEANING OF THE PIPELINE IS NECESSARY, IT SHALL BE DONE PRIOR TO PRESSURE TESTING (REFER TO GS 3000.500 "INTERNAL CLEANING OF PIPELINES").
- c) FOR THE PURPOSE OF THESE NOTES, UNLESS OTHERWISE NOTED, THE USE OF THE WORD TEST, TESTING, TESTED SHALL MEAN PRESSURE TEST.

3.2. OPERATOR QUALIFICATION REQUIREMENTS

- a) PRESSURE TESTING SHALL ONLY BE PERFORMED BY INDIVIDUALS THAT POSSESS THE APPLICABLE OPERATOR QUALIFICATION (OQ) TASK OR INDIVIDUALS UNDER THE DIRECTION AND OBSERVATION OF AN INDIVIDUAL QUALIFIED FOR THE APPLICABLE OQ TASK IN ACCORDANCE WITH THE COMPANY'S DOT OPERATOR QUALIFICATION PLAN FOR THE TYPE OF PRESSURE TEST BEING PERFORMED. THE APPLICABLE OQ TASKS RELATED TO PRESSURE TESTING ARE LISTED BELOW.

3.2.1 PNEUMATIC PRESSURE TESTING

- a) THE FOLLOWING OQ TASKS ARE REQUIRED FOR PNEUMATIC PRESSURE TESTING, AS APPLICABLE.
 - a. NS.M03.0561 - PRESSURE TEST: NONLIQUID MEDIUM - MAOP LESS THAN 100 PSI.
 - b. NS.M03.0571 - PRESSURE TEST: NONLIQUID MEDIUM - MAOP GREATER THAN OR EQUAL TO 100 PSI.
 - c. NS.M03.0591 - LEAK TEST AT OPERATING PRESSURE.

3.2.2. HYDROSTATIC PRESSURE TESTING

- a) THE OQ TASK REQUIRED TO PERFORM HYDROSTATIC PRESSURE TESTING IS: NS.M03.0581 PRESSURE TEST: LIQUID MEDIUM.

3.3. RESPONSIBILITY

3.3.1. TRANSMISSION LINES, DISTRIBUTION MAINS, OR 3-INCH AND LARGER SERVICE LINES

- a) FOR PRESSURE TESTS ON TRANSMISSION LINES, DISTRIBUTION MAINS, OR 3-INCH AND LARGER SERVICE LINES, IT IS THE RESPONSIBILITY OF THE COMPANY'S REPRESENTATIVE (E.G., INSPECTOR, CONSTRUCTION COORDINATOR, COMPANY CREW LEADER), WHETHER EMPLOYEE OR CONTRACTOR, TO ENSURE THAT PRESSURE TESTS ARE CONDUCTED IN ACCORDANCE WITH THE APPLICABLE GAS STANDARDS IN GS SERIES 1500.
- b) THE COMPANY'S REPRESENTATIVE SHALL BE PRESENT WHEN THE TEST IS

STARTED AND WHEN THE TEST IS TERMINATED AND SHALL RECORD THE TEST RESULTS, EXCEPT FOR PREFABRICATED UNITS TESTED OFF SITE.

- c) THE TEST SHALL BE REPEATED IF DEEMED NECESSARY BY THE COMPANY'S REPRESENTATIVE.

3.3.2. SERVICE LINES SMALLER THAN 3-INCH

- a) FOR PRESSURE TESTS ON SERVICE LINES SMALLER THAN 3-INCH, IT IS THE RESPONSIBILITY OF THE OPERATOR QUALIFIED PERSONNEL PERFORMING THE PRESSURE TEST TO ENSURE THAT THE PRESSURE TEST IS CONDUCTED IN ACCORDANCE WITH THE APPLICABLE STANDARDS IN GS SERIES 1500.

3.4. SAFETY DURING PRESSURE TESTING

- a) THE COMPANY SHALL ENSURE THAT EVERY REASONABLE PRECAUTION IS TAKEN TO PROTECT EMPLOYEES, CONTRACTORS, AND THE GENERAL PUBLIC DURING PRESSURE TESTING.
- b) THE FOLLOWING SUBSECTIONS INCLUDE REQUIREMENTS AND OTHER ITEMS FOR CONSIDERATION FOR IMPLEMENTING SAFETY PRECAUTIONS DURING THE PRESSURE TESTING PROCEDURE.

3.4.1 ALL PRESSURE TESTS

- a. ALL PRACTICAL STEPS SHALL BE TAKEN TO KEEP THE PUBLIC OUTSIDE THE TESTING AREA (I.E., TEST HEADER PIPING AND ALL PRESSURIZED EXPOSED PIPING) UNTIL THE TEST IS COMPLETED. USE CAUTION SIGNS, BARRIERS, BARRICADES, FENCING, OR OTHER EQUIVALENT MEANS AS NECESSARY TO RESTRICT ACCESS TO THE TESTING AREAS.
- b. NISOURCE EMPLOYEES AND CONTRACTORS HAVE THE AUTHORITY TO **STOP WORK** (I.E., SUSPEND THE TEST) IF AN UNSAFE CONDITION EXISTS OR DEVELOPS.
- c. WEAR THE APPROPRIATE PERSONNEL PROTECTIVE EQUIPMENT (PPE).
 - i. PROVIDE FIRE EXTINGUISHERS, BREATHING APPARATUSES, SAFETY HARNESSSES, EAR PROTECTION, EYE PROTECTION, GAS DETECTORS, AND OTHER EQUIPMENT AS APPROPRIATE.
 - ii. PERSONNEL OPERATING THE VALVE THAT CONTROLS THE RELIEF OF THE TEST PRESSURE SHALL WEAR APPROVED FACE, EYE, AND HEARING PROTECTION.
 - iii. CONSIDERATION SHALL BE GIVEN TO WEARING FACE, EYE, AND HEARING PROTECTION BY OTHER PERSONNEL DURING THE PRESSURE TEST, DURING DRYING OPERATIONS (HYDROSTATIC PRESSURE TEST), OR WHEN WORKING IN ANY ENVIRONMENT WHERE AIRBORNE PARTICLES MAY BE PRESENT.
- d. A RELIABLE TRANSPORTATION AND COMMUNICATION SYSTEM SHALL BE IN PLACE DURING THE TEST WHEREBY ALL PERSONNEL DIRECTLY INVOLVED IN THE TEST SHALL BE ABLE TO REPORT TEST STATUS OR PROBLEMS THAT DEVELOP.
- e. WHEN TESTING IN DENSELY POPULATED AREAS (E.G., WITHIN THE INCORPORATED LIMITS OF A CITY OR TOWN), CONSIDER SCHEDULING AT A TIME TO MINIMIZE PUBLIC AND NOISE EXPOSURE AND LIMITING THE LENGTH OF THE TEST SECTION TO MINIMIZE POTENTIAL HAZARDS. A MUFFLING DEVICE SHOULD BE CONSIDERED FOR PNEUMATIC PRESSURE TESTS TO REDUCE NOISE IN URBAN AREAS AS THE PRESSURE IS RELIEVED TO ATMOSPHERE. THE USE OF A MUFFLING DEVICE SHOULD BE DETERMINED BASED ON THE TEST PRESSURE AND VELOCITY OF AIR OR INERT GAS TO BE RELEASED.
- f. TESTING AGAINST A TEMPORARY STOPPING DEVICE, SUCH AS A "MUELLER" PLUG, "D WILLIAMSON" STOPPLE, OR BAG, IS PROHIBITED. TESTING AGAINST A CLOSED MAIN LINE VALVE IS ALSO PROHIBITED.
- g. IT IS RECOMMENDED TO BACKFILL AS MUCH AS PRACTICAL BEFORE TESTING.
- h. THE HAZARDS OF TESTING EXPOSED PIPING SHALL BE CONSIDERED, REGARDLESS OF THE TEST MEDIUM. THE HAZARDS ASSOCIATED WITH TESTING UNBURIED PIPE ARE GREATLY DIMINISHED WHEN USING WATER AS A MEDIUM.
- i. ALL TEST CONNECTIONS, HOSES, AND FITTINGS SHALL BE EXPOSED, BUT PROTECTED FROM TRAFFIC OR CONSTRUCTION EQUIPMENT, AND OF ADEQUATE RATING FOR THE TEST PRESSURE. PRIOR TO BEGINNING THE TEST, CHECK THE COMPONENTS THAT ARE NOT A PART OF THE PIPELINE SECTION BEING TESTED, BUT ARE PART OF THE TESTING SYSTEM EQUIPMENT THAT WILL BE EXPOSED TO THE TEST PRESSURE TO CONFIRM THEY ARE RATED FOR THE TEST PRESSURE AND ARE IN GOOD WORKING ORDER. HOSES SHALL BE RESTRAINED DURING TESTING (SEE HSE 4100.050 "TOOLS AND EQUIPMENT").
- j. WHEN AIR OR ANOTHER INERT GAS IS USED AS ANY PART OF THE TEST MEDIUM, IT SHALL BE VENTED TO THE ATMOSPHERE THROUGH A PIPE EXTENSION AT LEAST SEVEN (7) FEET ABOVE THE GROUND (REFER TO GS 1690.010 "PURGING").
- k. FOR A PRESSURE TEST DURATION GREATER THAN ONE (1) HOUR, A TAG TO INDICATE THE PIPELINE IS UNDER PRESSURE (SEE EXHIBIT A) SHALL BE ATTACHED TO ALL EXPOSED SEGMENTS OF THE PIPELINE UNDER TEST. THE TAG SHOULD BE ATTACHED PRIOR TO PRESSURIZING THE PIPELINE AND REMOVED UPON COMPLETION OF THE PRESSURE TEST.
- l. DURING THE TESTING OPERATION, ALL PERSONNEL SHALL BE KEPT CLEAR OF THE EXPOSED PIPELINE AND TEST EQUIPMENT UNDER PRESSURE. THOSE PERFORMING THE TEST SHALL BE NEAR THE PIPING ONLY WHEN NECESSARY AND THERE SHALL BE NO WORK ON OR AROUND THE PIPING SYSTEM DURING THE TEST AND WHEN THE TEST PRESSURE IS BEING RELIEVED TO ATMOSPHERE. SEE ITEM "A" ABOVE TO CLEARLY DESIGNATE RESTRICTED ACCESS AREAS, AS APPLICABLE.

- m. BEFORE ANY FITTINGS ARE LOOSENED OR REMOVED ON THE PIPELINE UNDER TEST THE TEST MEDIUM SHALL BE FULLY RELIEVED TO ATMOSPHERE THROUGH A VALVE. CAUTION SHALL BE TAKEN TO PREVENT DAMAGE TO THE SURROUNDING AREA AS THE PRESSURE IS BEING RELIEVED TO ATMOSPHERE. **PERSONNEL INVOLVED WITH THE TEST** SHALL BE NOTIFIED AFTER THE PRESSURE IN THE PIPELINE HAS BEEN FULLY RELIEVED TO ATMOSPHERE.
- n. WHEN THERE IS A CHANGE IN CREW AND/OR RESPONSIBLE COMPANY PERSONNEL OR IF THE CREW RESUMES WORK ON THE PROJECT AFTER BEING PULLED AWAY TO WORK AN EMERGENCY OR OTHER PRIORITY PROJECT, A JOB BRIEFING SHALL BE CONDUCTED PRIOR TO PRESSURE TESTING OPERATIONS. THE PURPOSE OF THIS JOB BRIEFING IS TO DISCUSS AND CLARIFY THE EXISTING PROJECT STATUS BY ADDRESSING THE FOLLOWING ITEMS.
 1. REVIEW THE PROJECT AS-BUILT DRAWINGS.
 2. IDENTIFY PIPELINES THAT HAVE BEEN PLACED IN-SERVICE.
 3. IDENTIFY STATUS OF PIPELINES. DISCUSS THE FOLLOWING.
 - i. IDENTIFY THE PIPELINES THAT HAVE BEEN INSTALLED.
 - ii. IDENTIFY THE PIPELINES THAT HAVE BEEN PIGGED OR NEED TO BE PIGGED FOR INTERNAL CLEANING.
 - iii. IDENTIFY THE PIPELINES THAT ARE CURRENTLY UNDER PRESSURE TEST.
 - iv. IDENTIFY THE PIPELINES THAT HAVE HAD A SUCCESSFUL PRESSURE TEST AND ARE UNDER PRESSURE (E.G., 10 PSIG) WAITING FOR TIE-IN AND PURGING, ETC.
 4. DISCUSS ANY CHANGES THAT OCCURRED FROM THE PLANNED WORK (E.G., DIFFERENT MATERIALS USED, DIFFERENT SIZES INSTALLED).
 5. IF DURING THE BRIEFING IT IS DETERMINED THAT CLARIFICATIONS ARE NEEDED, DON'T BEGIN WORK UNTIL CLARIFICATION CAN BE MADE, CONSULTING ENGINEERING IF NECESSARY.
 - o. CONSIDER OTHER SAFETY PRECAUTIONS THAT MAY BE APPROPRIATE FOR THE SPECIFIC SITUATION.

3.4.2. ADDITIONAL SAFETY REQUIREMENTS FOR PRESSURE TESTS FOR PIPELINES WITH MAOP EQUAL TO OR GREATER THAN 200 PSIG

- 3.4.2.1. REGARDLESS OF THE PRESSURE TEST MEDIUM
 - a) THE FOLLOWING ITEMS ARE REQUIRED FOR PRESSURE TESTS OF PIPELINES WITH AN EXISTING OR PROPOSED MAOP EQUAL TO OR GREATER THAN 200 PSIG.
 - 3.4.2.1.1. EXPOSED PIPING PRECAUTIONS
 - a) SECTIONS OF THE PIPELINE BEING PRESSURE TESTED THAT ARE NOT BURIED SHALL BE BARRICADED OR BARRIER TAPE INSTALLED. CONSIDER COVERING OPEN EXCAVATIONS WITH STEEL PLATE(S), OR EQUIVALENT PROTECTION, TO PROTECT THE PERSONNEL PERFORMING THE PRESSURE TEST, EXCEPT FOR THE FOLLOWING.
 - a. PRESSURE RECORDING EQUIPMENT (E.G., GAUGE, RECORDING CHART).
 - b. VALVE THAT CONTROLS THE RELIEF OF THE TEST PRESSURE.
 - 3.4.2.1.2. COMMUNICATIONS PLAN
 - a) A COMMUNICATIONS PLAN SHALL BE ESTABLISHED AND IMPLEMENTED TO INFORM THE PUBLIC, GOVERNMENTAL AGENCIES, AND ANY OTHER STAKEHOLDERS OF TESTING PLANS AND SAFETY CONSIDERATIONS PRIOR TO THE PRESSURE TEST.
 - b) THE STAKEHOLDERS SHALL INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING.
 - a. PEOPLE WHO LIVE OR WORK WITHIN 100 FEET OF THE PIPELINE BEING PRESSURE TESTED.
 - b. LOCAL FIRE AND POLICE DEPARTMENTS.
 - c) THE COMMUNICATION PLAN SHOULD ALSO ADDRESS SIGNAGE (E.G., "TESTING IN PROGRESS"), TAPE, AND/OR BARRIERS TO RESTRICT PERSONNEL AND THE PUBLIC FROM ACCESSING THE TESTING SITE(S).
 - d) PLANNED NON-EMERGENCY BLOWDOWN OF NATURAL GAS DIRECTLY TO THE ATMOSPHERE SHOULD BE MINIMIZED (SEE GS 1690.010 "PURGING AND BLOWDOWN" AND GS 1690.012 "FLARING"). ANY PLANNED FLARING, VENTING, OR PURGING OF NATURAL GAS FROM THE PIPELINE PRIOR TO OR AFTER TESTING SHOULD ALSO BE COMMUNICATED TO THE PUBLIC AND AUTHORITIES TO PREVENT UNNECESSARY ALARM.
 - 3.4.2.1.3. MONITORING OF THE PIPELINE BEING PRESSURE TESTED
 - a) ROAD CROSSINGS AND THE PIPELINE RIGHT-OF-WAY (OR ROUTE) SHALL BE MONITORED FOR PEDESTRIAN CONGREGATION (E.G., CONSTRUCTION CREW, SECURITY PATROLS, SECURITY GUARDS, AERIAL SURVEILLANCE).
 - 3.4.2.2. PNEUMATIC PRESSURE TESTS
 - a) PRIOR TO PERFORMING A PNEUMATIC PRESSURE TEST ON NEW OR REPLACEMENT PIPELINE TO SUBSTANTIATE AN MAOP OF 200 PSIG OR GREATER, ALL WELD JOINTS SHALL BE NONDESTRUCTIVELY TESTED AND FOUND ACCEPTABLE IN ACCORDANCE WITH THE METHODS PROVIDED IN GS 1210.010 "NONDESTRUCTIVE TESTING AND VISUAL INSPECTION." EXCEPTIONS FOR EMERGENCY WORK SHALL BE APPROVED BY THE ENGINEERING MANAGER.

- 3.5. TEST MEDIUM
 - a) THE TEST MEDIUM SHALL BE LIQUID, AIR, NATURAL GAS, OR INERT GAS, AND

SHALL MEET EACH OF THE FOLLOWING REQUIREMENTS.

- a. COMPATIBLE WITH THE MATERIAL OF WHICH THE PIPELINE IS CONSTRUCTED.
 - b. RELATIVELY FREE OF SEDIMENTARY MATERIALS.
 - c. NONFLAMMABLE, EXCEPT FOR NATURAL GAS.
- b) THE LIMITATIONS FOR EACH TESTING MEDIUM ARE DESCRIBED IN THE FOLLOWING SUBSECTIONS.

3.5.1. NATURAL GAS

- a) NATURAL GAS IS THE TEST MEDIUM USED FOR A LEAK TEST WHEN A TIE-IN JOINT OR FITTING IS NOT INCLUDED IN THE PRESSURE TEST OF THE PIPELINE (SEE GS 1500.010 "PNEUMATIC PRESSURE TESTING, SECTION 9.1 "TIE-IN JOINTS").
- b) NATURAL GAS IS ALSO THE TEST MEDIUM USED FOR UPRATES OF EXISTING PIPELINES (SEE GS SERIES 5500 "UPRATING").

3.5.2. AIR OR INERT GAS

- a) AIR AND/OR INERT GAS IS THE PREFERRED TEST MEDIUM FOR NEW AND REPLACEMENT PLASTIC OR STEEL PIPELINES WITH A MAXIMUM ALLOWABLE OPERATING PRESSURE (MAOP) LESS THAN 200 PSIG.
- b) AIR OR INERT GAS SHALL NOT BE MIXED WITH NATURAL GAS.

3.5.3. WATER

- a) WATER SHALL BE USED AS THE TEST MEDIUM FOR NEW AND REPLACEMENT STEEL PIPELINES WITH A MAOP EQUAL TO OR GREATER THAN 200 PSIG, EXCEPT AS NOTED IN SECTION 5.3.1 "EXCEPTIONS TO HYDROSTATIC PRESSURE TESTING."
- b) WATER SHALL NOT BE USED AS THE TEST MEDIUM FOR PLASTIC PIPELINES.
 - 3.5.3.1. EXCEPTIONS TO HYDROSTATIC PRESSURE TESTING
 - a) THE FOLLOWING STEEL PIPELINES WITH A MAOP EQUAL TO OR GREATER THAN 200 PSIG MAY BE PRESSURE TESTED USING AIR AND/OR INERT GAS.
 - a. POINT-OF DELIVERY (POD) STATIONS, PRESSURE REGULATING STATIONS, CUSTOMER METER AND REGULATOR STATION PIPING, AND COMPRESSOR STATIONS.
 - b. TIE-IN FITTINGS AND JOINTS.
 - c. TEMPORARY BYPASS PIPING.
 - d. SHORT SECTIONS OF PIPELINE LESS THAN 1000 FEET.
 - e. SERVICE LINES.
 - f. EMERGENCY PROJECTS.
 - g. WHEN AMBIENT CONDITIONS ARE ANTICIPATED TO BE NEAR (E.G., 35 DEGREES F) OR BELOW FREEZING TEMPERATURES DURING TESTING (SEE GS 1500.022 "HYDROSTATIC PRESSURE TEST PLANNING", SECTION 11.2 "TEMPERATURE CONCERNS").
 - h. WHEN LARGE ELEVATION DIFFERENCES RESULT IN EXCESSIVE HYDROSTATIC HEAD PRESSURE AFFECTING MAXIMUM TEST PRESSURE.
 - i. WHEN QUALITY WATER IS NOT AVAILABLE (SEE GS 1500.022 "HYDROSTATIC PRESSURE TEST PLANNING," SECTION 8.2 "WATER TESTING REQUIREMENTS").
 - j. WHEN TESTING WITHIN AN ENVIRONMENTALLY SENSITIVE SITE WHERE A LEAK OR DEWATERING IS AN ISSUE.
 - k. ANY OTHER EXCEPTIONS SHALL BE APPROVED THE V.P. OF ENGINEERING.

- c) NOTE: FOR DISTRIBUTION PIPELINES, USE THE VALUES IN TABLE 1 FOR A CLASS 4 LOCATION, WITH THE EXCEPTION OF A COMPRESSOR STATION, REGULATOR STATION, AND/OR MEASURING STATION (SEE TABLE 1, NOTE 2).

TABLE 1

Maximum Hoop Stress Allowed as Percentage of SMYS		
Class Location	Natural Gas	Air or Inert Gas
1 ^{1,2}	80	80
2 ^{1,2}	30	75
3	30	50
4	30	40



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REVISIONS			
REV. #	DATE	DESCRIPTION	
0	1/08/26	ISSUED FOR CONSTRUCTION	
DESIGNED BY	CCK	1/08/26	314-391-5360
DRAWN BY	JMB	1/08/26	314-239-4747
CHECKED BY	JPF	1/08/26	314-578-9778
AS-BUILT BY	TBD	TBD	TBD
	NAME	DATE	PHONE #

SITE NAME:
WO# 400009378
MAT
WBS L2
 PHASE 4 NCHP PIPELINE REPLACEMENT
 COLUMBUS, FRANKLIN COUNTY, OH

DRAWING TITLE:
HYDROTEST NOTES 1 OF 5
TESTING PROCEDURES

DRAWING NO:
GN-05

HYDROSTATIC TESTING PROCEDURE AND NOTES CONT'D

MANAGEMENT" AND/OR HSE 4400.050 "PIPELINE LIQUIDS MANAGEMENT."

EXHIBIT A: ACCUFORM CUSTOM TAG DANGER LINE UNDER PRESSURE



NOTE: ORDER TAG FROM ORR SAFETY.

1. IN A CLASS 1 OR CLASS 2 LOCATION, IF THERE IS A BUILDING INTENDED FOR HUMAN OCCUPANCY WITHIN 300 FEET OF A PIPELINE, A HYDROSTATIC TEST MUST BE CONDUCTED TO A TEST PRESSURE OF AT LEAST 125% OF MAXIMUM OPERATING PRESSURE (MOP) ON THAT SEGMENT OF THE PIPELINE WITHIN 300 FEET OF SUCH A BUILDING, BUT IN NO EVENT MAY THE TEST SECTION BE LESS THAN 600 FEET, UNLESS THE LENGTH OF THE NEWLY INSTALLED OR RELOCATED PIPE IS LESS THAN 600 FEET. HOWEVER, IF THE BUILDINGS ARE EVACUATED WHILE THE HOOP STRESS EXCEEDS 50% OF SMYS, AIR OR INERT GAS MAY BE USED AS THE TEST MEDIUM.
2. IN A CLASS 1 OR CLASS 2 LOCATION, EACH COMPRESSOR STATION, REGULATOR STATION, AND/OR MEASURING STATION SHALL BE TESTED TO AT LEAST CLASS 3 LOCATION TEST REQUIREMENTS.

- 3.6. TESTING REQUIREMENTS FOR CERTAIN APPLICATIONS
- a) EACH REQUIRED TEST SHALL BE DOCUMENTED IN ACCORDANCE WITH THE APPLICABLE GS 1500.010 "PNEUMATIC PRESSURE TESTING" OR GS 1500.024 "HYDROSTATIC PRESSURE TEST EXECUTION."

- 3.6.1. TIE-IN JOINTS
- a) EACH TIE-IN JOINT IS EXEMPTED FROM THE TEST REQUIREMENTS. HOWEVER, WELDED TIE-IN JOINTS SHALL BE VISUALLY INSPECTED AND, NONDESTRUCTIVELY TESTED IN ACCORDANCE WITH GS 1210.010 "NONDESTRUCTIVE TESTING." ADDITIONALLY, NON-WELDED TIE-IN JOINTS SHALL BE TESTED USING LEAK DETECTION SOLUTION AT OPERATING PRESSURE IF THEY ARE NOT INCLUDED IN THE PRESSURE TEST. REFER TO THE APPLICABLE GS 1500.010 "PNEUMATIC PRESSURE TESTING," SECTION 7.2.4 "PRESSURE TEST DURATION FOR LEAK TESTS PERFORMED AT OPERATING PRESSURE WITH LEAK DETECTOR SOLUTION."

- 3.6.2. TAPPING AND STOPPING FITTINGS
- a) TAPPING AND STOPPING FITTINGS SHALL BE TESTED PRIOR TO TAPPING THE PIPELINE. THE PREFERRED METHOD IS TO TEST PNEUMATICALLY PER SECTION 9.2 "STEEL TAPPING AND STOPPING FITTINGS," IN THE APPLICABLE GS 1500.010 "PNEUMATIC PRESSURE TESTING." WHEN PRESSURIZING A TAPPING OR STOPPING FITTING, THE MAXIMUM PRESSURE DIFFERENTIAL BETWEEN THE INTERNAL PIPELINE PRESSURE AND THE INTENDED TEST PRESSURE SHALL NOT BE EXCEEDED IN ACCORDANCE WITH EXHIBIT E "LEAK TEST PROCEDURE FOR PRESSURE CONTROL FITTINGS," TABLE E1, IN THE APPLICABLE GS 1500.010 "PNEUMATIC PRESSURE TESTING."

- 3.6.3. PREFABRICATED UNITS, SHORT SECTIONS OF PIPE AND STATION PIPING
- a) FOR PREFABRICATED UNITS, SUCH AS BLOCK VALVE SETTINGS, REGULATION AND/OR MEASUREMENT SETTINGS, CLEANER SETTINGS, ETC., A POST INSTALLATION TEST MAY BE IMPRACTICAL. THESE SHALL HAVE A PRE-INSTALLATION PRESSURE TEST CONDUCTED IN ACCORDANCE WITH THE APPLICABLE GS 1500.010 "PNEUMATIC PRESSURE TESTING" OR GS 1500.022 "HYDROSTATIC PRESSURE TEST PLANNING."
 - b) FOR THE TEST REQUIREMENTS OF A PRESSURE VESSEL (E.G., FILTER/SCRUBBER/SEPARATOR, WATER BATH HEATER, PRESSURIZED ODORANT TANK), REFER TO THE TEST AND INSPECTION REQUIREMENTS OF GS 2100.020 "COMPONENTS FABRICATED BY WELDING."
 - c) TEMPORARY BYPASS LINES SHALL BE TESTED IN ACCORDANCE WITH GS 1500.010 "PNEUMATIC PRESSURE TESTING" OR GS 1500.024 "HYDROSTATIC PRESSURE TESTING EXECUTION."

- 3.6.4. NON-PIPE COMPONENT
- a) IF A COMPONENT OTHER THAN PIPE IS THE ONLY ITEM BEING REPLACED OR ADDED TO A PIPELINE, A STRENGTH TEST AFTER INSTALLATION IS NOT REQUIRED PROVIDED THAT THE MANUFACTURER OF THE COMPONENT CERTIFIES ONE OF THE FOLLOWING.
 - a. THE COMPONENT WAS TESTED TO AT LEAST THE PRESSURE REQUIRED FOR THE PIPELINE TO WHICH IT IS BEING ADDED.
 - b. THE COMPONENT WAS MANUFACTURED UNDER A QUALITY CONTROL SYSTEM THAT ENSURES THAT EACH ITEM MANUFACTURED IS AT LEAST EQUAL IN STRENGTH TO A PROTOTYPE AND THAT THE PROTOTYPE WAS TESTED TO AT LEAST THE PRESSURE REQUIRED FOR THE PIPELINE TO WHICH IT IS BEING ADDED.
 - c. THE COMPONENT CARRIES A PRESSURE RATING OF AT LEAST THE MAOP OF THE LINE ON WHICH IT IS INSTALLED ESTABLISHED THROUGH APPLICABLE, E.G., ASME/ANSI, MSS SPECIFICATIONS, OR BY UNIT STRENGTH CALCULATIONS AS DESCRIBED IN CFR 49 PART 192.143.

- 3.6.5. PRE-TESTING
- a) WHERE PRE-TESTED PIPE IS USED FOR THE REPLACEMENT OF SHORT SECTIONS OF MAIN OR TRANSMISSION LINE IN LIEU OF ON-SITE HYDROSTATIC PRESSURE TESTING, THE PRE-TESTED PIPE SHALL BE TESTED IN ACCORDANCE WITH THE APPLICABLE GAS STANDARDS IN GS SERIES 1500. DOCUMENTATION OF THE PRE-TEST SHALL BE RETAINED AND REFERENCED ON THE APPROPRIATE JOB ORDERS AND/OR ELECTRONIC DATABASE.

- 3.7. ENVIRONMENTAL PROTECTION
- a) THE COMPANY REPRESENTATIVE (E.G., INSPECTOR, CONSTRUCTION COORDINATOR, COMPANY CREW LEADER) SHALL ENSURE THAT THE TEST MEDIUM USED FOR PRESSURE TESTING IS DISPOSED OF IN A MANNER THAT WILL MINIMIZE DAMAGE TO THE ENVIRONMENT IN ACCORDANCE WITH APPLICABLE GAS STANDARDS AND/OR PERMIT REQUIREMENTS.
 - b) LIQUIDS OR SOLID MATERIALS REMOVED FROM THE PIPELINE SHALL BE MANAGED IN ACCORDANCE WITH HSE 4400.040 "HAZARDOUS WASTE

- AND CALIPER INSPECTION RUN.
- c) VALVES WITH EXTENDED STEMS AND ASSOCIATED EXTENDED PIPING SHALL HAVE THE STEMS AND PIPING INSTALLED PRIOR TO THE PRESSURE TEST. THE VALVE BODY BLEED/DRAIN PIPING SHALL BE INCLUDED WITH THE PIPELINE PRESSURE TEST.
 - d) ALL VALVES SHALL BE OPERATED WITH A PROPER ACTUATOR OR TOOL.
 - e) VALVE BODY VENT PLUG, OR OTHER TAPS INTO THE VALVE BODY, LOCATED AT OR NEAR THE TOP OF THE VALVE AS INSTALLED, SHALL BE OPENED WHEN FILLING TO MINIMIZE AIR POCKETS IN THE VALVE BODY DURING TESTING. THESE TAPS MUST BE CLOSED DURING THE TEST.
 - f) VALVES SHALL BE TESTED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. IF MANUFACTURER'S INSTRUCTIONS DO NOT ADDRESS VALVE POSITION DURING HYDROSTATIC PRESSURE TESTING, FOLLOW THE REQUIREMENTS AS LISTED IN

- (E.G., HDD).
- b) THE GAUGE PLATE SHALL BE SET AT 95% OF THE PIPELINE INTERNAL DIAMETER.
 - 5.6.4.2. TRANSMISSION LINES
 - a) FOR NEW OR REPLACEMENT TRANSMISSION LINES, A CALIPER GEOMETRY PIG SHOULD BE RUN THROUGH THE LINE TO DETERMINE IF THERE ARE ANY DEFORMATIONS OR DAMAGE TO THE PIPE THAT NEED TO BE REPAIRED PRIOR TO TESTING.
 - b) RESULTS OF THE PIGGING OPERATION SHALL BE ANALYZED AND SHARED WITH THE LOCAL PIPELINE INTEGRITY MANAGEMENT TEAM.
 - 5.7. PRE-INSTALLATION TEST
 - a) A PRE-INSTALLATION TEST IS ONE THAT IS PERFORMED PRIOR TO THE REQUIRED PRESSURE TEST THAT ESTABLISHES MAOP.
 - 5.7.1. LEAK TEST
 - a) A PRE-INSTALLATION LEAK TEST IS RECOMMENDED FOR SPECIAL CONSTRUCTION SUCH AS INSERTS; RIVER, HIGHWAY, RAILROAD, AND BRIDGE CROSSINGS; AND MEASUREMENT/REGULATOR STATION PIPING.
 - b) THE MINIMUM TEST PRESSURE FOR THE LEAK TEST SHOULD BE APPROXIMATELY 100 PSIG, FOR A MINIMUM DURATION OF 1 HOUR (IF PNEUMATIC, CONSIDER APPROPRIATE DURATION BASED ON TABLES IN GS 1500.010 "PNEUMATIC PRESSURE TESTING"). THE TEST MEDIUM SHALL BE DETERMINED IN ACCORDANCE WITH GS 1500.001 "PRESSURE TESTING - GENERAL."
 - 5.7.2. TEST FOR BORED TRANSMISSION LINES
 - a) FOR BORING AND DIRECTIONAL DRILLING OPERATIONS ON TRANSMISSION LINES, A PRE-INSTALLATION PRESSURE TEST SHALL BE COMPLETED. THE PRESSURE SHALL PRODUCE A STRESS OF AT LEAST 20% SMYS, AND THE DURATION SHALL BE AT LEAST FOUR (4) HOURS.
 - b) THE TEST MEDIUM SHALL BE DETERMINED IN ACCORDANCE WITH GS 1500.001 "PRESSURE TESTING - GENERAL."
 - 5.8. TEST MANIFOLD PREPARATION
 - a) A TEST MANIFOLD SHALL BE INSTALLED AT EACH END OF THE TEST SECTION. THE TEST MANIFOLD IS THE INLET FOR THE TEST MEDIUM AND THE LOCATION OF THE MEASUREMENT DEVICES. COUPLINGS AND MECHANICAL JOINTS ARE NOT TO BE USED IN THE TEST MANIFOLD.
 - b) THE CONTRACTOR PROVIDES THE TEST MANIFOLD. THE COMPANY'S REPRESENTATIVE (E.G., CONSTRUCTION COORDINATOR, INSPECTOR) SHALL REVIEW THE FOLLOWING.
 - a. THE TEST MANIFOLD MATERIALS ARE RATED EQUAL TO OR GREATER THAN THE MAXIMUM TEST PRESSURE (MTP).
 - b. REVIEW THE TECHNICAL DATA FOR THE TEST MANIFOLD.
 - c. MTRS (OR EQUIVALENT) DOCUMENTATION.
 - d. NONDESTRUCTIVE TESTING RECORDS.
 - e. THE MEASUREMENT DEVICES (I.E., PRESSURE, TEMPERATURE) HAVE BEEN CALIBRATED WITHIN THE REQUIREMENTS OF GS 1754.010 "OPERATION AND MAINTENANCE OF PRESSURE GAUGES."
 - c) THE COMPANY REPRESENTATIVE HAS THE RIGHT TO REJECT THE TEST MANIFOLD PER THE INSPECTION.
 - 5.9. PRESSURE RECORDERS
 - a) A CALIBRATED ELECTRONIC OR HYDRAULIC DEADWEIGHT (PREFERRED) OR PRESSURE RECORDING GAUGE SUITABLE FOR A HYDROSTATIC PRESSURE TEST SHALL BE USED TO RECORD PRESSURE DURING THE TEST. THE RANGE OF THE PRESSURE RECORDING GAUGE(S) AND CHARTS SELECTED WILL BE SUCH THAT ADEQUATE INTERPRETATION OF THE PRESSURE AND TEST TIME IS POSSIBLE. RECORDING CHARTS SHALL BE APPROVED BY THE COMPANY'S REPRESENTATIVE.
 - b) DEADWEIGHTS SHALL BE CAPABLE OF MEASURING REQUIRED PRESSURES IN MAXIMUM INCREMENTS OF ONE (1) PSI.
 - c) SPECIFICALLY, RECORDING GAUGES USED FOR HYDROSTATIC PRESSURE TESTING SHALL HAVE BEEN CALIBRATED IN THE PAST THREE (3) MONTHS BY AN INDEPENDENT TEST LAB.
 - d) THE CALIBRATION RECORD OF THE PRESSURE RECORDER SHALL BE REVIEWED FOR COMPLIANCE WITH GS 1660.040 "TRACEABLE, VERIFIABLE, & COMPLETE DOCUMENTATION FOR TRANSMISSION LINES IN-SERVICE AFTER JULY 1, 2020." A COPY OF THE CALIBRATION RECORD SHALL BE INCLUDED WITH TEST RECORDS.
 - 5.10. TEMPERATURE RECORDERS
 - a) TEMPERATURES SHALL BE MEASURED USING SUITABLE DEVICES, SUCH AS, ELECTRONIC TEMPERATURE RECORDERS, OR THERMOMETERS THAT ARE CAPABLE OF MEASURING TEMPERATURES FROM 0 °F TO 150 °F TO THE NEAREST 1 °F. A RECORD OF THE PIPELINE TEMPERATURE DURING TESTING SHALL BE CREATED. SEE SECTION 7.5.7 "ACTIONS TO TAKE DURING PRESSURE TESTING."

TABLE 1.

Valve Type	Requirements
Gate / Ball Valves	<p>Shall be tested in the partially open position to equalize the pressure between the body and the bore of the valve.</p> <p>For ball and gate valves supplied in the fully open position without gearing for later installation of a power operator, a connection from the test section shall be applied to the body bleed valve to equalize the pressure across the valve seat during the test.</p> <p>Thermal relief, bleed, and sealant valves and check valves located on valve body must be removed and replaced with a pipe plug, and not subjected to the Hydrostatic Test.</p> <p>Thermal relief, bleed, and sealant valves and check valves must be re-installed after test is complete.</p>
Plug Valves	<p>Shall be tested in the fully open position.</p>
Check Valves	<p>Must be locked open prior to the cleaning run, and remain locked open during the fill, test, drain process and subsequent cleaning and caliper inspection.</p> <p>Must be released from the locked open position prior to line fill for commissioning, purging and commencement of operations.</p>

- 5.5. TEST HEADER
- a) THE CONTRACTOR PROVIDES THE TEST HEADER. THE COMPANY REPRESENTATIVE (E.G., INSPECTOR, CONSTRUCTION COORDINATOR) SHALL VERIFY THAT THE HEADER IS RATED FOR AND HAS BEEN SUCCESSFULLY PRESSURE TESTED AT OR ABOVE THE MAXIMUM TEST PRESSURE OF THE PIPELINE BEING PRESSURE TESTED.
 - b) MECHANICAL COMPRESSION CAPS AND COUPLINGS SHALL NOT BE USED TO SECURE THE TEST HEADER TO THE PIPELINE BEING PRESSURE TESTED.
 - c) DURING HYDROSTATIC PRESSURE TESTING, THE TEST HEADER SHALL BE SUFFICIENTLY BLOCKED TO PREVENT MOVEMENT OR PULL OUT.
 - d) TEMPORARY WELDS SHALL BE NONDESTRUCTIVELY TESTED WHEN PERFORMING HYDROSTATIC PRESSURE TESTS ON TRANSMISSION LINES.

- 5.6. PIPELINE PREPARATION
- a) THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL PIGS AND PIG COMPONENTS FOR CLEANING, GAUGE PLATE PROCESS, FILLING, DEWATERING, AND DRYING, WITH THE EXCEPTION OF A SMART PIG (E.G., GEOMETRY CALIPER PIG).
 - b) THE COMPANY WILL PROVIDE A SMART PIG THROUGH AN INLINE INSPECTION CONTRACTOR. THE PIPELINE CONTRACTOR IS RESPONSIBLE FOR RUNNING AND RECOVERING THE SMART PIG.
- 5.6.1. CONNECTIONS AND TAPS
- a) REVIEW ALL HIGH PRESSURE TAPS, REGULATOR STATIONS, LOCAL PRODUCTION STATIONS AND ALL SUPPLY AND DELIVERY POINTS FEEDING INTO AND OUT OF THE LINE BEING CLEANED. ALL TAPS SHOULD BE BLIND FLANGED OR CAPPED AND TAGGED OUT OF SERVICE PRIOR TO CLEANING AND HYDROSTATIC TESTING. VALVES SHALL BE IN THE FULL OPEN POSITION, AND BLIND PLATED OR CAPPED PRIOR TO CLEANING.

- 5.6.2. CLEANING - NEW CONSTRUCTION
- a) BRUSH AND/OR SQUEEGEE CLEANING PIGS USING COMPRESSED AIR SHALL BE RUN THROUGH THE LINE PRIOR TO THE WATER FILL OPERATION. ON NEW PIPELINES, MAGNET PIGS SHOULD BE CONSIDERED TO PICK UP DEBRIS AND MILL SCALE. A TEMPORARY RECEIVER SHALL BE INSTALLED AT THE END OF EACH TEST SECTION TO RECEIVE DEBRIS AND THE CLEANING PIGS UNLESS THE PIG IS BEING PULLED THROUGH THE PIPELINE. CLEANING PIGS SHALL BE REPEATED AS REQUIRED UNTIL THE TEST SECTION IS CLEANED TO THE SATISFACTION OF THE COMPANY'S REPRESENTATIVE.

- 5.6.3. ENVIRONMENTAL CONSIDERATIONS
- a) THE ENVIRONMENTAL COORDINATOR SHALL BE NOTIFIED IF CLEANING THE PIPE WITH DETERGENTS OR CHEMICALS IS REQUIRED FOR THE APPROPRIATE METHODS FOR HANDLING AND DISPOSING OF CONTAMINATED WATER. ALL COMPANY SAFETY REQUIREMENTS FOR HANDLING INTERNAL PIPELINE FLUIDS AND CONTAMINATES SHALL BE FOLLOWED.

- 5.6.4. PIGGING - NEW CONSTRUCTION
- 5.6.4.1. DISTRIBUTION MAINS OR TRANSMISSION LINES INSTALLED THROUGH BORING PROCESS
- a) FOR NEW OR REPLACEMENT DISTRIBUTION MAINS OR TRANSMISSION LINES, A GAUGE PLATE SHALL BE SUCCESSFULLY RUN THROUGH ANY PORTION OF THE PIPELINE THAT HAS BEEN INSTALLED THROUGH A BORING PROCESS



REVISIONS		
REV. #	DATE	DESCRIPTION
0	1/08/26	ISSUED FOR CONSTRUCTION
DESIGNED BY	CKK	1/08/26 314-391-5360
DRAWN BY	JMB	1/08/26 314-239-4747
CHECKED BY	JPF	1/08/26 314-578-9778
AS-BUILT BY	TBD	TBD
	NAME	DATE PHONE #

SITE NAME:
WO# 40009378
MAT
WBS L2
 PHASE 4 NCHP PIPELINE REPLACEMENT
 COLUMBUS, FRANKLIN COUNTY, OH

DRAWING TITLE:
HYDROTEST NOTES 2 OF 5
TESTING PROCEDURES

DRAWING NO:
GN-06

HYDROSTATIC TESTING PROCEDURE AND NOTES CONT'D

- a) TEMPERATURE RECORDERS SHALL BE LOCATED APPROXIMATELY 1000 FEET FROM EACH END AND IN THE MIDDLE OF THE PIPELINE TEST SECTION (WHEN PRACTICAL). THESE RECORDERS SHALL BE LOCATED SO THAT THEY WILL NOT BE AFFECTED BY AMBIENT TEMPERATURES OR CHANGES IN INJECTION FLUID TEMPERATURE BECAUSE OF CLOSE PROXIMITY TO THE INJECTION PUMP. THE TEMPERATURE BULBS WHEN POSSIBLE SHOULD BE SECURED DIRECTLY TO THE EXPOSED PIPE WITH SUITABLE HEAT TRANSFER COMPOUND, INSULATED AND THEN BACKFILLED TO GROUND LEVEL AT LEAST 12 HOURS PRIOR TO THE START OF THE HYDROSTATIC PRESSURE TEST.
- b) THE CALIBRATION RECORD OF THE TEMPERATURE RECORDER SHALL BE REVIEWED FOR COMPLIANCE WITH GS 1660.040 "TRACEABLE, VERIFIABLE, & COMPLETE DOCUMENTATION FOR TRANSMISSION LINES IN-SERVICE AFTER JULY 1, 2020." A COPY OF THE CALIBRATION RECORD SHALL BE INCLUDED WITH TEST RECORDS.

- 5.11. NOTIFICATIONS
 - a) ENSURE THAT NOTIFICATIONS HAVE BEEN MADE IN ACCORDANCE WITH THE PROJECT-SPECIFIC COMMUNICATION PLAN.
- 5.12. MONITORING OF THE PIPELINE BEING PRESSURE TESTED
 - a) ENSURE THAT PERSONNEL ARE POSITIONED TO MONITOR ROAD CROSSINGS AND THE PIPELINE RIGHT- OF-WAY (OR ROUTE) FOR PEDESTRIAN CONGREGATION DURING PRESSURE TESTING IN ACCORDANCE WITH THE WRITTEN HYDROSTATIC PRESSURE TEST PLAN.

6. FREEZING TEMPERATURES

- a) TESTING SHOULD BE PLANNED TO AVOID CONDUCTING HYDROSTATIC PRESSURE TESTING IN TEMPERATURES AT OR BELOW 35°F.
- b) IF AMBIENT TEMPERATURES ARE OR EXPECTED TO BE AT OR BELOW 35°F, THE CONTRACTOR SHALL DEVELOP A PLAN AND THE FOLLOWING PRECAUTIONS SHALL BE TAKEN.
- 6.1. INSTRUMENTATION
 - a) INSTRUMENTATION LINES SHALL BE FILLED WITH ANTIFREEZE OR SIMILAR FLUID TO PURGE OUT ANY AIR AND WATER, THUS PREVENTING THE LINE FROM FREEZING OFF.
- 6.2. OPEN DITCH MAINTENANCE
 - a) TO REDUCE THE AMOUNT OF FROZEN BACKFILL DURING WINTER CONSTRUCTION, THE DITCH SHALL NOT BE LEFT OPEN FOR ANY EXTENDED PERIOD. HOWEVER, ANY OPEN TRENCH THAT IS REQUIRED FOR TIE- INS, TEST HEADERS AND OTHER PIPING MUST BE ADEQUATELY SHELTERED AND HEATED TO A MINIMUM OF 50°F (10°C). THE HEAT SOURCES SHALL NOT BE IN DIRECT CONTACT WITH THE PIPE.
 - b) THE SHELTER MUST SUPPORT THE SNOW LOAD AND SHALL NOT BE AFFECTED BY HIGH WINDS. THERE MUST BE SAFE ACCESS AND EGRESS FOR PERSONNEL TO ENTER THE SHELTER WITHIN THE DITCH AS WELL AS SAFE ACCESS TO THE TOP PORTION OF THE TEST HEAD.
 - c) ALL OPEN DITCHES SHALL BE KEPT FREE OF STANDING WATER AT ALL TIMES.

6.3. TESTING WITH ADDITIVES

- a) NOTIFY THE ENVIRONMENTAL AND SAFETY TEAMS FOR REQUIREMENTS TO SAFELY HANDLE ADDITIVES AND TO PLAN FOR PROPER DISPOSAL OF TEST MEDIUM AT AN APPROVED FACILITY.
- b) NOTIFY THE PROJECT MANAGER OR CONSTRUCTION COORDINATOR AND APPLICABLE ENGINEERING PERSONNEL (E.G., DESIGN OR FIELD ENGINEERING).
- c) WHERE A METHANOL MIXTURE IS SPECIFIED IN THE TEST PLAN, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAFETY AND ENVIRONMENTAL PROVISIONS ASSOCIATED WITH ITS USE (E.G., FIRE SUPPRESSION EQUIPMENT, PROVISION FOR CONTAINMENT AND SPILL).
- d) COLD CONDITION TESTING (I.E., AT OR BELOW 35°F) OF FULLY EXPOSED SHORT SECTION ASSEMBLIES SHOULD BE CONDUCTED IN A HEATED ENCLOSURE. SEE SECTION 6.2 "OPEN DITCH MAINTENANCE." THE CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTING THE ENCLOSURE.

6.3.1. SUPPLY AND HANDLING OF METHANOL

- a) THE TESTING CONTRACTOR SUPPLIES THE WATER-METHANOL SOLUTION, UNLESS OTHERWISE DESCRIBED IN THE TEST PLAN OR PROJECT CONTRACT. AS METHANOL IS A HAZARDOUS SUBSTANCE, IT SHALL BE HANDLED IN ACCORDANCE WITH THE APPLICABLE REGULATIONS AND THE COMPANY REQUIREMENTS.
- b) LEAKS OR SPILLS SHALL BE HANDLED AS DETAILED IN ENVIRONMENTAL PERMITS AND PLANS.
- c) PERSONNEL HANDLING METHANOL OR IN THE VICINITY OF WHERE IT IS BEING STORED, TRANSPORTED, HANDLED, OR USED, SHALL BE MADE FULLY AWARE OF ITS ASSOCIATED HAZARDS DURING THE PRE-JOB BRIEFING (SEE SECTION 4 "HYDROSTATIC PRESSURE TEST PLAN ADVANCE BRIEFING").

6.3.2. PROTECTION OF EXPOSED PIPING

- a) IF THE WATER-METHANOL SOLUTION METHOD IS ALLOWED, TEST EQUIPMENT, INSTRUMENTATION, AND ANY UN-BACKFILLED PIPING SHALL BE FULLY ENCLOSED IN A HEATED FRAMED STRUCTURE (HOARDING) DURING TESTING. SEE SECTION 6.2 "OPEN DITCH MAINTENANCE." THE CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTING THE ENCLOSURE.

6.3.3. DEWATERING PREPARATION

- a) TO PREVENT FREEZING OF TEST WATER RESULTING IN EQUIPMENT FAILURE AND LINE RUPTURE, AIR COMPRESSORS MUST BE IN PLACE TO BEGIN DEWATERING IMMEDIATELY AFTER THE TEST IS APPROVED (SEE SECTION 8 "TEST REVIEW AND ACCEPTANCE"). SPECIAL CARE SHALL BE TAKEN TO DRAIN VALVE BODIES.
- b) ALL WATER SHALL BE REMOVED IMMEDIATELY FOLLOWING COMPLETION OF THE TEST AND BE DISPOSED OF IN ACCORDANCE WITH THE APPLICABLE REGULATIONS AND APPROVED HYDROSTATIC PRESSURE TEST PLAN.
- 6.4. SHORT SECTIONS
 - a) TEST HEADS AND ALL EXPOSED PIPING SHOULD BE FULLY ENCLOSED IN A HEATED FRAMED STRUCTURE, SUCH THAT THE PIPING IS UNIFORMLY HEATED. THE STRUCTURE SHALL BE CONSTRUCTED TO PERMIT UNOBSTRUCTED ACCESS FOR VISUAL INSPECTION OVER THE ENTIRE TEST ASSEMBLY.
 - b) THE HEATING OF THE ENCLOSURE SHALL START ONE DAY PRIOR TO FILLING THE SECTION. THE HEAT SOURCES SHALL NOT BE IN DIRECT CONTACT WITH THE PIPING OR AIMED DIRECTLY AT THE PIPE BUT SHALL BE USED TO HEAT THE ENCLOSED SPACE.

7. PERFORMING THE HYDROSTATIC PRESSURE TEST

THE FOLLOWING ARE GUIDELINES FOR PERFORMING THE HYDROSTATIC TESTING.

7.1. WATER PREPARATION

- a) PRIOR TO FILLING, IF NEEDED, ADD ANY ADDITIVES TO THE WATER (E.G., CORROSION INHIBITOR, FREEZE DEPRESSANT) IN ACCORDANCE WITH THE WRITTEN HYDROSTATIC PRESSURE TEST PLAN AND THE MANUFACTURER'S RECOMMENDATIONS.
- b) IN WET AREAS, A DYE ADDITIVE MAY BE ADDED TO DISTINGUISH WATER FROM MATERIAL FAILURE FROM STANDARD GROUND WATER.

7.2. RECORDING GAUGE CONNECTION

- a) STEPS SHALL BE TAKEN TO PREVENT WATER FROM COMING INTO CONTACT WITH THE RECORDING GAUGE. THIS CAN BE ACCOMPLISHED BY PROVIDING AN INTERFACE OF OIL IN THE TEST CONNECTION TUBING.
- b) THE RECORDING GAUGE AND DEADWEIGHT SHALL BE POSITIONED AS SPECIFIED ON THE PROJECT SPECIFIC TEST PLAN AND/OR DRAWINGS. THE LOCATION OF THE PRESSURE GAUGE SHALL BE CORRELATED TO THE TEST ELEVATION TO ENSURE THE TEST IS COMPLETED AT THE CORRECT PRESSURE LEVEL IN ACCORDANCE WITH THE HYDROSTATIC PRESSURE TEST PLAN.
- c) CHANGES TO THE RECORDING GAUGE LOCATION SHALL BE REPORTED TO THE ENGINEER RESPONSIBLE FOR THE PROJECT. IF CHANGES ARE REQUIRED TO THE WRITTEN HYDROSTATIC PRESSURE TEST PLAN, THEY SHALL BE APPROVED BY THE DESIGNING ENGINEER.

7.3. PIPE FILLING

- a) PRIOR TO FILLING, VERIFY THAT ALL VALVES ARE IN THE FULLY OPEN POSITION. PROPER VENTS SHALL BE INSTALLED AND USED DURING THE FILLING PROCESS.
- b) THE PIPELINE SHOULD BE FILLED SLOWLY AND CONSISTENTLY WITH A VENT THAT CAN BE THROTTLED ON ONE END IN ORDER TO REMOVE AIR POCKETS. A MINIMUM OF ONE BI-DIRECTIONAL FILL PIG SHALL BE RUN IMMEDIATELY AHEAD OF THE WATER COLUMN DURING THE FILLING PROCESS TO MITIGATE AIR ENTRAPMENT. THE RATE OF TRAVEL OF THE FILL PIG SHOULD BE CONTROLLED WITH BACK PRESSURE TO ENSURE A CONSTANT SPEED AND THAT THE WATER COLUMN BEHIND THE PIG IS NOT BROKEN DURING FILLING.
- c) USE PUMPS WITH SUFFICIENT CAPACITY TO FILL THE LINE IN A REASONABLE TIMEFRAME. A CALIBRATED FLOW METER SIZED TO MEASURE THE MAXIMUM FILL RATE OF THE TEST WATER SHALL BE USED DURING FILLING. THE FLOW METER SHALL BE OF A TYPE AND CAPACITY TO ACCURATELY MEASURE WATER VOLUMES TO WITHIN PLUS OR MINUS 0.5% OF ACTUAL VOLUME. THE WATER SUPPLY SHALL PROVIDE SUFFICIENT VOLUME AND RATE TO ENSURE UNINTERRUPTED FILLING OF THE TEST SECTION. THE AMOUNT OF AIR INTRODUCED INTO THE PIPELINE DURING FILLING OPERATIONS SHALL BE MINIMIZED. TOTAL VOLUME OF WATER ADDED TO THE PIPELINE SHALL BE COMPARED AGAINST THE ESTIMATED VOLUME OF WATER.
- d) IF NON-POTABLE WATER IS USED, ENSURE THAT SEDIMENT AND DEBRIS ARE NOT INTRODUCED INTO THE PIPELINE BY USING SUITABLE FILTERS AND SCREENS.
- e) AS SOON AS IT IS BELIEVED THAT THE PIPELINE IS COMPLETELY FULL OF WATER, ALL VENTS SHALL BE CHECKED TO ENSURE THAT A FULL STEADY STREAM OF WATER IS FLOWING OUT THE VENT WHILE THE FILL PUMP IS STILL OPERATING. IF ANY AIR BUBBLES ARE PRESENT, THE VENTS SHOULD REMAIN CRACKED OPEN UNTIL WATER FLOW INDICATES THE AIR HAS BEEN EVACUATED FROM THE VENT.

7.4. TEMPERATURE STABILIZATION

- a) AFTER THE PIPE HAS BEEN FILLED, THE TEST SHALL NOT BEGIN UNTIL THE TEMPERATURES MEASURED AT EACH END OF THE TEST SECTION STABILIZE. THE TIME TO STABILIZE VARIES DEPENDING ON GROUND CONDITIONS AND PIPE SIZE AND MAY TAKE UP TO 24 HOURS. DURING THE TEMPERATURE STABILIZATION PROCESS, TEMPERATURE RECORDERS SHALL BE USED TO RECORD THE TEMPERATURE- TIME PLOT.
- b) FOR LOCATION REQUIREMENTS OF THE TEMPERATURE RECORDERS SEE SECTION 5.10 "TEMPERATURE RECORDERS."
- c) THE TEST SHALL NOT PROGRESS UNTIL THE TEMPERATURE OF THE WATER

HAS STABILIZED.
7.5. PRESSURIZATION OF THE PIPELINE
7.5.1. VALVE POSITION CONSIDERATIONS

- a) PRIOR TO STARTING THE TEST, ALL VALVES INTERNAL TO THE SYSTEM BEING TESTED, SHALL BE PLACED AS DIRECTED BY THE MANUFACTURER'S INSTRUCTIONS. IF MANUFACTURER'S INSTRUCTIONS DO NOT ADDRESS POSITION DURING HYDROSTATIC PRESSURE TESTING, REFER TO TABLE 1 IN SECTION 5.4 "VALVES."

- b) CONFIRM THAT BLIND FLANGES OR CAPS HAVE BEEN CORRECTLY INSTALLED ON ALL OPEN CONNECTIONS.

7.5.2. PUMPING EQUIPMENT

- a) A VARIABLE SPEED, POSITIVE DISPLACEMENT PUMP CAPABLE OF MAINTAINING A CONSTANT PRESSURIZATION RATE SHALL BE USED.
 - d. ALL FILL-LINE JUMPER CONNECTIONS BETWEEN TEST SECTIONS SHALL BE DISCONNECTED BEFORE CONNECTING THE PRESSURIZING PUMP. CONNECTIONS BETWEEN THE PRESSURIZING PUMP AND THE TEST HEAD SHALL BE RATED EQUAL TO OR GREATER THAN THE MAXIMUM TEST PRESSURE (MTP).
 - e. A CHECK VALVE SHOULD BE INSTALLED IN THE PRESSURIZING LINE AS NEAR TO THE TEST HEAD AS IS PRACTICAL. AN ANSI CLASS 900 CHECK VALVE IS REQUIRED FOR TEST PRESSURES EQUAL TO OR LESS THAN 2,250 PSIG (15,513 KPAG). ANSI CLASS 1500 IS REQUIRED IF THE TEST PRESSURE EXCEEDS 2,250 PSIG (15,513 KPAG). THE CHECK VALVE PREVENTS THE PRESSURIZED LINE FROM WHIPPING IF THE PRESSURIZING PUMP (OR PIPING BETWEEN THE PUMP AND THE TEST HEAD) FAILS.
 - f. A VALVE RATED EQUAL TO OR GREATER THAN THE MTP SHALL BE INSTALLED BETWEEN THE PUMP AND THE TEST MANIFOLD TO ISOLATE THE TEST PUMP FROM THE TESTED SECTION OF PIPELINE.

7.5.3. HOLD PERIOD FOR LEAK CHECKS

- a) ONCE PRESSURIZATION HAS COMMENCED, THE PRESSURE SHALL BE INCREASED SLOWLY UNTIL IT REACHES APPROXIMATELY 10%, THEN 30%, THEN 60%, AND THEN 100% OF THE MINIMUM TEST PRESSURE. HOLD POINTS AT 10%, 30%, AND 60% OF THE MINIMUM TEST PRESSURE SHALL BE HELD FOR A MINIMUM DURATION OF 10 MINUTES. THE ENTIRE TEST SECTION SHALL BE CHECKED FOR LEAKS DURING THE HOLD PERIODS. IF ANY LEAKS ARE FOUND THAT CANNOT BE RECTIFIED SAFELY, THE TEST SECTION SHALL BE DEPRESSURIZED TO ZERO (0) PSIG AND THE LEAKS REPAIRED BEFORE BEGINNING THE HYDROSTATIC PRESSURE TEST.

7.5.4. REACHING REQUIRED (MINIMUM) TEST PRESSURE

- a) THE PRESSURE IN THE PIPELINE SHOULD NEXT BE INCREASED TO THE REQUIRED TEST PRESSURE (ADJUSTED FOR ELEVATION).

7.5.5. PRESSURE AND TEMPERATURE STABILIZATION

- a) TIME SHALL BE ALLOWED FOR THE TEMPERATURE OF THE PIPELINE FACILITY AND TEST MEDIUM TO REACH EQUILIBRIUM WHICH RESULTS IN PRESSURE STABILIZATION.
- b) THE START OF THE HYDROSTATIC PRESSURE TEST SHALL ONLY BEGIN AFTER THE PRESSURE AND TEMPERATURE OF THE TEST MEDIUM HAS STABILIZED.

7.5.6. PRESSURE TEST START TIME

- a) THE TEST TIME IS STARTED ONCE PRESSURE STABILIZES. THE TEST START TIME SHALL BE RECORDED.

7.5.7. ACTIONS TO TAKE DURING PRESSURE TESTING

- a) ACTIONS TAKEN TO ADD OR REMOVE PRESSURE DURING A HYDROSTATIC PRESSURE TEST SHALL BE DISCUSSED AND AGREED UPON BY THE COMPANY REPRESENTATIVE PRIOR TO TAKING THE ACTION.
- b) THE PIPELINE MAY BE REPRESSURED TO MAINTAIN THE REQUIRED TEST PRESSURE IF TEMPERATURE VARIATIONS RESULT IN A PRESSURE DECREASE. IF AT ANY POINT THE PRESSURE DROPS BELOW TEST PRESSURE, THE TEST PERIOD SHALL BE RESTARTED. ANY TIME DURING TESTING, THE PRESSURE CAN BE BLED OFF TO ENSURE THAT THE MAXIMUM PRESSURE DESIGNATED FOR THE TEST IS NOT EXCEEDED.
- c) NOTE: IF DEPRESSURIZING, THE WATER SHALL BE BLED OFF THROUGH PIPING OR A HOSE, WHICH IS RATED FOR THE MAXIMUM PRESSURE OF THE TEST SECTION. THE WATER SHALL BE RECOVERED SO THAT NO RUN-OFF REACHES THE GROUND OR ANY WATERCOURSE.
- d) DURING TESTING, THE PRESSURE AND TEMPERATURE DATA SHALL BE RECORDED. WHEN USING A NONELECTRIC DEADWEIGHT, MEASUREMENTS SHALL BE RECORDED AT 10-MINUTE INTERVALS FOR THE FIRST HOUR AND AT 15 MINUTE INTERVALS FOR THE REMAINDER OF THE TEST. WHEN USING AN ELECTRONIC DEADWEIGHT, THE TEMPERATURE SHALL BE RECORDED EVERY 10 MINUTES AND THE PRESSURE SHALL BE RECORDED AT A MINIMUM EVERY 15 SECONDS AND PRINTED OUT EVERY 15 MINUTES.
- e) ANY TIME THE PIPELINE IS REPRESSURIZED OR PRESSURE IS BLED THE VOLUME OF WATER ADDED OR REMOVED SHALL BE MEASURED AND RECORDED, AND THE ASSOCIATED PRESSURE CHANGE SHALL BE RECORDED ON THE TEST DATA LOG (SEE PAGE 2 OF EXHIBIT B "HYDROSTATIC PRESSURE TEST DATA LOG").

7.6. PATROLLING DURING THE TEST

- a) THE PIPELINE SHALL BE PATROLLED DURING THE TEST PERIOD. THIS PATROL SHALL CHECK THE TEST SEGMENT FOR ANY INDICATIONS OF A LEAK.
- b) IF A LEAK IS FOUND, MONITOR THE PRESSURE DROP TO DETERMINE THE LEAK RATE AND TO ATTEMPT TO FIND THE LEAK USING THE BEST APPLICABLE

DETECTION METHODS FOR THE SPECIFIC SCENARIO.

- c) IF THE LEAK CANNOT BE RECTIFIED SAFELY, OR CANNOT BE LOCATED, THE TEST SHALL BE SUSPENDED UNTIL THE CONDITION IS RECTIFIED.

7.7. PRESSURE VERSUS VOLUME PLOT

- a) HYDROSTATIC PRESSURE TESTING A PIPELINE TO GREATER THAN 90% OF THE SMYS OF THE PIPE REQUIRES THE USE OF A PRESSURE-VOLUME (PV) PLOT. THIS PLOT IS USED TO IDENTIFY PIPE SEGMENTS THAT ARE EXPERIENCING PERMANENT DEFORMATION AND TO DETERMINE IF A LEAK HAS DEVELOPED DURING TESTING.
- b) THE PV PLOT RECORDS THE INCREASE IN THE PRESSURE VERSUS VOLUME OF WATER PUMPED INTO THE PIPELINE TEST SECTION. A CONSTANT RATE OF INCREASE IN PRESSURE VERSUS VOLUME INDICATES THAT THE YIELD STRENGTH OF THE PIPE HAS NOT BEEN SURPASSED. PERMANENT DEFORMATION OF SOME PIPE IN THE PIPELINE OR A POSSIBLE LEAK IS INDICATED BY A DECREASE IN THE RATE THAT THE PRESSURE INCREASES VERSUS VOLUME. WHEN A POINT IS REACHED WHERE TWICE AS MUCH WATER IS REQUIRED TO INCREASE THE PRESSURE 10 PSI AS WAS PREVIOUSLY NEEDED (REFERRED TO AS "DOUBLE THE STROKES"), THE YIELD STRENGTH OF SOME PIPE MAY HAVE BEEN SURPASSED OR A LEAK MAY HAVE OCCURRED. IF THIS CONDITION OCCURS THE TEST SHOULD BE PUT ON HOLD UNTIL THE REASON FOR THE PROBLEM IS INVESTIGATED, SEE SECTION 9 "MATERIAL FAILURE DURING TESTING."
- c) THE PRESSURE VS. VOLUME PLOT SHOULD COMMENCE FOLLOWING THE 30-MINUTE HOLD AT 60% OF THE REQUIRED TEST PRESSURE AND SHALL CONSIST OF A GRAPH SHOWING WATER VOLUME ADDED (PUMP STROKES, GALLONS, ETC.) VERSUS PRESSURE AT 10 PSI INTERVALS OR AT INTERVALS SUFFICIENT TO SHOW ANY DEVIATION FROM A STRAIGHT LINE. THE SCALE SELECTED FOR PLOTTING THE PRESSURE-VOLUME CURVE SHALL BE CHOSEN SO THAT THE PLOTTED LINE LIES BETWEEN 45° AND 75° FROM THE HORIZONTAL. A CONSTANT PUMPING RATE SHALL BE MAINTAINED DURING PRESSURIZATION, AND SUFFICIENT WATER SHALL BE PROVIDED TO COMPLETE THE PLOT WITHOUT STOPPING UNTIL MINIMUM TEST PRESSURE IS REACHED.

8. TEST REVIEW AND ACCEPTANCE

- a) THE HYDROSTATIC PRESSURE TEST IS ACCEPTABLE WHEN THE PRESSURE REMAINS ABOVE THE REQUIRED TEST PRESSURE WITH NO UNEXPLAINED PRESSURE LOSS DURING THE TEST, AND THE PRESSURE RE- STABILIZES OR THE TEST PRESSURE BEGINS TO INCREASE (I.E., PRESSURE READINGS SHOULD NOT SHOW A CONTINUOUS DECREASING TREND). SOME PRESSURE LOSS MAY OCCUR WHEN AMBIENT TEMPERATURES OR DIRECT (OR LACK OF DIRECT) SUNLIGHT AFFECTS THE PRESSURE IN THE FACILITIES. THIS WOULD BE AN EXAMPLE OF AN EXPLAINED PRESSURE LOSS AND SHALL BE NOTED ON THE PRESSURE CHART OR RECORD. THE PRESSURE STILL MUST REMAIN ABOVE THE MINIMUM REQUIRED TO QUALIFY THE FACILITIES FOR THE PROPOSED MAOP.
- b) A QA/QC REVIEW OF THE PRESSURE TEST SHALL BE COMPLETED PRIOR TO DEWATERING THE PIPELINE.
- c) A FRONT-LINE LEADER OF THE DEPARTMENT RESPONSIBLE FOR CONDUCTING THE HYDROSTATIC PRESSURE TEST (E.G., CONSTRUCTION LEADER, PROJECT MANAGER) OR THEIR DESIGNEE (E.G., CONSTRUCTION SPECIALIST, SENIOR OPERATIONS SUPPORT SPECIALIST, CONSTRUCTION SUPERINTENDENT), SHALL PERFORM THE QA/QC REVIEW TO ENSURE THAT THE APPROPRIATE HYDROSTATIC PRESSURE TEST WAS CONDUCTED AND THAT THE HYDROSTATIC PRESSURE TEST RECORDS SUPPORT THE REQUIREMENTS OF THIS GAS STANDARD. THE PERSON PERFORMING THE QA/QC REVIEW SHALL BE DIFFERENT THAN THE COMPANY'S REPRESENTATIVE (SEE SECTION 2 "RESPONSIBILITY") RESPONSIBLE FOR CONDUCTING THE PRESSURE TEST AND SHALL HAVE THE TRAINING OR EXPERIENCE ASSOCIATED WITH PRESSURE TESTING REQUIREMENTS. THE FOLLOWING SHALL BE REVIEWED.
 - a) TEST PRESSURE - CONFIRM THAT TEST PRESSURE IS AT OR ABOVE THE MINIMUM AND AT OR BELOW THE MAXIMUM TEST PRESSURE AS SPECIFIED WITHIN THE HYDROSTATIC PRESSURE TEST PLAN THROUGHOUT THE TEST DURATION.
 - b) TEST DURATION - ENSURE THAT THE TEST DURATION IS APPROPRIATE. ACCOUNT FOR ADDITIONAL TIME NECESSARY FOR PRESSURE AND TEMPERATURE STABILIZATION (SEE SECTION 6 "PRESSURE AND TEMPERATURE STABILIZATION").
 - c) PRESSURE AND TEMPERATURE RECORDING CHART(S) OR DIGITAL DATA (IF APPLICABLE) - REVIEW CHARTS OR DIGITAL DATA FOR UNEXPLAINED LOSS IN PRESSURE THAT CANNOT BE ATTRIBUTED TO AMBIENT OR TEST MEDIUM TEMPERATURE FLUCTUATION.
 - d) RECORDS - ENSURE THAT THE RECORDING CHART(S) AND/OR DIGITAL DATA ARE PRESENT TO SUPPORT THE PRESSURE TEST(S) REQUIRED BY THIS GAS STANDARD. ALSO ENSURE THAT THE TEST COVERAGE IS CLEARLY DEPICTED ON THE CONSTRUCTION AS-BUILT DRAWING IDENTIFYING END POINTS OF THE PIPELINE TESTED CORRESPONDING TO EACH SPECIFIC PRESSURE TEST. CONFIRM CALIBRATION RECORDS OF RECORDING EQUIPMENT MEET THE REQUIREMENTS OF GS 1660.040 "TRACEABLE, VERIFIABLE, & COMPLETE DOCUMENTATION FOR TRANSMISSION LINES IN-SERVICE AFTER JULY 1, 2020." SEE SECTION 10 "RECORDS" FOR PRESSURE TEST RECORD REQUIREMENTS.



REVISIONS		
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0	1/08/26	ISSUED FOR CONSTRUCTION
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SITE NAME:
WO# 400009378
MAT
WBS L2
PHASE 4 NCHP PIPELINE REPLACEMENT
COLUMBUS, FRANKLIN COUNTY, OH

DRAWING TITLE:
HYDROTEST NOTES 3 OF 5
TESTING PROCEDURES

DRAWING NO:
GN-07

HYDROSTATIC TESTING PROCEDURE AND NOTES CONT'D

- d) THE QA/QC REVIEW MAY OCCUR VIRTUALLY (E.G., VIDEO REVIEW, PHOTOGRAPH OF CHART OR RECEIPT/DATA LOG, EMAIL, TEXT). IF A DISCREPANCY IS CONFIRMED, REPEAT THE PRESSURE TEST OR CONTACT ENGINEERING AND/OR COMPLIANCE FOR GUIDANCE.
 - e) PERTINENT TEST INFORMATION SHALL BE ENTERED ONTO ALL TEST CHARTS AND FORMS IN ACCORDANCE WITH SECTION 10 "RECORDS," WHETHER THE TEST WAS SUCCESSFUL OR NOT. THE PERSON IN CHARGE OF THE TEST SHALL SIGN THE PRESSURE AND TEMPERATURE CHARTS AFTER SUCCESSFUL COMPLETION OF THE TEST CONFIRMED BY THE QA/QC REVIEW. ALL TEST CHARTS, DEAD WEIGHT LOGS, AND INFORMATION ON LEAKS OR FAILURES SHALL BE DELIVERED TO THE COMPANY'S REPRESENTATIVE AFTER CONFIRMATION OF AN ACCEPTABLE TEST. THE COMPANY'S REPRESENTATIVE SHALL RECEIVE THE TEST RECORDS FROM THE PERSON IN CHARGE AND CONFIRM THAT THE TEST WAS SUCCESSFULLY COMPLETED.
9. MATERIAL FAILURE DURING TESTING
- a) IF MATERIAL FAILURE OCCURS, THE TEST SHALL BE STOPPED. EVERY EFFORT SHALL BE MADE TO PROTECT LIFE, PROPERTY, AND THE ENVIRONMENT.
 - b) MATERIAL FAILURE WILL BE EVIDENCED BY A LOSS OF TEST PRESSURE. IN WET AREAS, A DYE ADDITIVE MAY BE ADDED TO DISTINGUISH WATER FROM MATERIAL FAILURE FROM STANDARD GROUND WATER.
 - c) IN THE EVENT OF A FAILURE, THE PERSON IN CHARGE SHALL MAKE EVERY EFFORT TO MINIMIZE THE AMOUNT OF WATER DISCHARGED AT THE FAILURE SITE AND SHALL CONTROL AND CONTAIN THIS WATER TO MINIMIZE DAMAGE.
 - d) FAILED PIPE SHALL BE REPAIRED OR REPLACED USING THE APPLICABLE COMPANY PROCEDURE. IF THE FAILURE OCCURS IN THE SEAM OF THE PIPE, THE ENTIRE JOINT SHALL BE REMOVED FROM THE PIPELINE, INCLUDING THE GIRTH WELD ON BOTH SIDES. FOR OTHER LEAKS, A MINIMUM OF THREE (3) PIPE DIAMETERS ON EACH SIDE OF THE DEFECT SHALL BE REMOVED. THE PIECE REMOVED SHALL BE MARKED FOR ORIENTATION WITH RESPECT TO THE POSITION IN THE PIPELINE AND WITH THE ALIGNMENT SHEET STATION NUMBER OF THE DEFECT LOCATION. THE FAILURE SURFACE SHALL NOT BE CUT OR DAMAGED DURING REMOVAL, TRANSIT OR UNLOADING. IF THE FAILED PORTION IS TOO LONG FOR TRANSPORT OR HANDLING, IT MAY BE CUT AT RIGHT ANGLES TO THE FAILURE EDGE. ALL PORTIONS ARE TO BE TURNED OVER TO THE COMPANY'S REPRESENTATIVE (E.G., CONSTRUCTION COORDINATOR, INSPECTOR, PROJECT MANAGER).
 - e) MATERIAL FAILURES SHALL BE REPORTED ACCORDING TO GS 1652.010 "INVESTIGATION OF FAILURES." A METALLURGICAL ANALYSIS SHOULD BE PERFORMED TO IDENTIFY THE ROOT CAUSE OF THE FAILURE.
 - f) DETERMINE IF THE CAUSE OF THE FAILURE COULD BE WIDESPREAD IF IT IS AN ISOLATED INCIDENT. THE COMPANY (E.G., GM&T/M&R, SYSTEMS OPERATIONS, TAMP, COMPLIANCE, GAS STANDARDS) SHALL PERFORM PROPER CORRECTIVE ACTION TO ENSURE THE INTEGRITY AND SAFETY OF THE PIPELINE.
 - g) AFTER COMPLETION OF THE REPAIR/REPLACEMENT, RE-PERFORM THE HYDROSTATIC TEST. TIME THAT PASSES BEFORE THE FAILURE AND DURING REPLACEMENT DOES NOT COUNT TOWARD THE MINIMUM REQUIRED TESTING DURATION. TEST DURATION SHALL BE CONTINUOUS.
10. RECORDS
- a) A RECORD FOR EACH SECTION OF PIPELINE BEING HYDROSTATIC PRESSURE TESTED SHALL BE COMPLETED BY THE TESTING CONTRACTOR OR COMPANY'S REPRESENTATIVE. HYDROSTATIC PRESSURE TEST RESULTS SHALL BE RECORDED AS SPECIFIED IN THE FOLLOWING SECTIONS.
 - b) RECORDS FOR PRESSURE TESTS THAT ARE PERFORMED PNEUMATICALLY ON TIE-IN JOINTS, TAPPING OR STOPPING FITTINGS, PREFABRICATED UNITS OTHER APPURTENANCES NOT INCLUDED IN A HYDROSTATIC PRESSURE TEST SHALL BE IN ACCORDANCE WITH SECTION 12 "RECORDS" IN THE APPLICABLE GS 1500.010 "PNEUMATIC PRESSURE TESTING."
- 10.1. REQUIRED PRESSURE TEST INFORMATION
- a) A VALID PRESSURE TEST RECORD SHALL INCLUDE AT A MINIMUM THE FOLLOWING INFORMATION. THE RECORD MUST BE TRACEABLE, VERIFIABLE, AND COMPLETE IN ACCORDANCE WITH GS 1660.040 "TRACEABLE, VERIFIABLE, & COMPLETE DOCUMENTATION FOR TRANSMISSION LINES IN-SERVICE AFTER JULY 1, 2020."
 - a. COMPANY NAME. THE NAME OF THE OPERATOR (COMPANY NAME) MUST BE PRINTED, STAMPED OR WRITTEN ON THE PRESSURE TEST CHART OR TEST RECORD.
 - b. WORK ORDER NUMBER.
 - c. MEDIUM USED. THE TEST MEDIUM IS LISTED ON THE CHART, RECORD, OR DIGITAL RECORD.
 - d. TEST PRESSURE. THE TEST PRESSURE IS CLEARLY RECORDED ON THE CHART, RECORD, OR DIGITAL RECORD.
 - e. TEST DURATION. THE TEST DURATION IS INDICATED ON THE CHART, RECORD, OR DIGITAL RECORD.
 - f. TEMPERATURE RECORDING CHARTS.
 - g. ELEVATION VARIATIONS, WHENEVER SIGNIFICANT FOR THE PARTICULAR TEST. THE VARIATION IN ELEVATION IS DOCUMENTED ON THE TEST RECORD OR DIGITAL TEST RECORD. IF THE VARIATION IN ELEVATION IS NOT SIGNIFICANT, THEN THE RECORD MUST CLEARLY INDICATE "NOT APPLICABLE" OR "NOT SIGNIFICANT."

- h. LEAKS AND FAILURES NOTED AND THEIR DISPOSITION (INCLUDING CONFIRMATION THAT NO LEAKS OCCURRED, AS APPLICABLE). THE PRESENCE OF LEAKS OR FAILURES IS RECORDED WITH AN ACCEPTABLE / REPAIRED / CORRECTED DISPOSITION ON THE PRESSURE TEST RECORD OR DIGITAL RECORD. IF NO LEAKS OR FAILURES OCCURRED, THEN THE RECORD SHALL CLEARLY INDICATE NONE.
 - i. EFFECTS OF TEMPERATURE CHANGES ON THE PRESSURE OF THE TEST MEDIUM.
 - j. CONFIRMATION OF A SUCCESSFUL TEST.
 - k. RESPONSIBLE EMPLOYEE. THE NAME OF THE OPERATOR'S EMPLOYEE (COMPANY'S REPRESENTATIVE, WHETHER EMPLOYEE OR CONTRACTOR; SEE SECTION 2 "RESPONSIBILITY" ABOVE) RESPONSIBLE FOR MAKING THE TEST. THE COMPANY'S REPRESENTATIVE MUST INCLUDE THEIR PRINTED NAME, EMPLOYEE IDENTIFICATION NUMBER (I.E., EMPLOYEE ID FOR NISOURCE, EMPLOYEE IDENTIFICATION NUMBER OR EQUIVALENT FOR CONTRACTOR), SIGN AND DATE (PHYSICALLY OR DIGITALLY) THE PRESSURE TEST CHART OR FORM OR RECORD.
 - l. NAME OF THE COMPANY OR CONTRACTOR PERFORMING THE TEST, IF APPLICABLE. THE NAME OF THE CONTRACTED TEST COMPANY MUST BE PRINTED, STAMPED OR WRITTEN ON THE PRESSURE TEST CHART OR TEST RECORD. IF NO CONTRACTED TEST COMPANY IS USED, THEN THE RECORD SHALL STATE "NO CONTRACTED TEST COMPANY USED" OR "PERFORMED BY NISOURCE PERSONNEL" OR AN EQUIVALENT PHRASE.
 - m. TEST PRESSURE RECORDED IN WMS/MAXIMO SHALL BE THE MINIMUM TEST PRESSURE CALCULATED AT THE HIGHEST ELEVATION, BASED ON THE MINIMUM TEST PRESSURE RECORDED AT THE TEST STATION.
 - n. PRESSURE RECORDING CHARTS, OR OTHER RECORD OF PRESSURE READINGS. PRESSURE RECORDINGS ARE INDICATED ON A PRESSURE CHART OR LOG, WHICH COVERS THE DURATION OF THE TEST.
 - o. DESCRIPTION OF PIPELINE TESTED. A CLEAR DESCRIPTION IDENTIFYING END POINTS OF THE PIPELINE TESTED (E.G., PIPELINE FROM POINT A TO B, INCLUDING LATERALS EXTENDING TO POINTS C, D, & E) SHALL BE PROVIDED ON THE APPLICABLE TEST RECORD, WHICH SHALL CORRESPOND TO THE END POINTS OF THE PIPELINE TESTED AS SHOWN ON THE CONSTRUCTION AS-BUILT DRAWING.
- 10.2. RECORDER CALIBRATION RECORDS
- a) COPIES OF THE CALIBRATION RECORDS OF THE PRESSURE RECORDER AND TEMPERATURE RECORDER SHALL BE INCLUDED WITH THE TEST RECORDS.
- 10.3. PRESSURE VERSUS VOLUME PLOT
- a) IF REQUIRED BY SECTION 7 "PRESSURE VERSUS VOLUME PLOT" OF THIS STANDARD, THE HYDROSTATIC PRESSURE TO VOLUME PLOT SHALL BE INCLUDED WITH THE PRESSURE TEST RECORD FORMS (SEE SECTION 10.4 "PRESSURE TEST RECORD FORMS").
- 10.4. PRESSURE TEST RECORD FORMS
- a) THE FOLLOWING TEST RECORD FORMS ARE USED TO RECORD A HYDROSTATIC PRESSURE TEST. THE FORMS INCLUDE FIELDS FOR ALL THE INFORMATION REQUIRED BY SECTION 10.1 "REQUIRED PRESSURE TEST INFORMATION."
 - a. FORM GS 1500.020-1 "HYDROSTATIC PRESSURE TEST FORM."
 - b. FORM GS 1500.020-2 "HYDROSTATIC PRESSURE TEST DATA LOG."
- 10.5. PRESSURE TEST RECORD REQUIREMENTS
- a) A COMPLETE TEST RECORD FOR EACH HYDROSTATIC PRESSURE TEST PERFORMED SHALL INCLUDE THE FOLLOWING.
 - a. FORM GS 1500.020-1 "HYDROSTATIC PRESSURE TEST FORM."
 - b. FORM GS 1500.020-2 "HYDROSTATIC PRESSURE TEST DATA LOG."
 - c. RECORDING CHARTS AND/OR PRINTOUTS FROM PRESSURE RECORDING INSTRUMENTS AND ELECTRONIC DEADWEIGHTS.
 - d. RECORDING CHARTS FROM TEMPERATURE GAUGES.
 - e. ALL PIPE, FITTINGS, VALVES, AND OTHER COMPONENTS INCLUDED IN THE PRESSURE TEST SHALL BE IDENTIFIED IN WRITTEN RECORDS AND/OR DRAWINGS.
 - f. CALIBRATION RECORDS FOR ALL PRESSURE GAUGES, DEADWEIGHTS, AND TEMPERATURE RECORDERS USED DURING THE TEST TO ESTABLISH MAOP.
 - b) ALL TEST FORMS, RECORDING CHARTS, AND PRINTED DIGITAL GAUGE RECEIPTS SHALL BE INCLUDED IN THE WORK ORDER PACKET/WMSDOCS/NIDOCs, AS APPLICABLE.
- 10.6. ADDITIONAL RECORD REQUIREMENTS FOR MULTIPLE PRESSURE TESTS
- a) IF MULTIPLE PRESSURE TESTS ARE CONDUCTED FOR SUBSECTIONS OF A PROJECT, EACH PRESSURE TEST DOCUMENT SHALL IDENTIFY THE SECTION OF THE PROJECT THAT WAS PRESSURE TESTED WITH THE FOLLOWING INFORMATION.
 - a. PHYSICAL LOCATION OF TEST (E.G., STREET ADDRESS/STREET INTERSECTION/OTHER OR END OF MAIN).
 - b. DESCRIPTION OF EACH PIPELINE TESTED CORRESPONDING TO EACH SEPARATE RECORD. A CLEAR DESCRIPTION IDENTIFYING END POINTS OF THE PIPELINE TESTED (E.G., TEST 1: POINTS A TO B, INCLUDING LATERALS TO POINTS C, D, & E; TEST 2: POINTS X, Y, & Z) SHALL BE PROVIDED ON THE APPLICABLE TEST RECORD, WHICH SHALL CORRESPOND TO THE END POINTS OF THE PIPELINE TESTED AS SHOWN ON THE CONSTRUCTION

- AS-BUILT DRAWING.
 - c. DATE PRESSURE TEST PERFORMED.
 - b) THE PIPE SEGMENTS(S) TESTED CORRESPONDING TO EACH SEPARATE RECORD FORM SHALL BE INDICATED ON A SKETCH OF THE PROJECT.
- 10.7. RECORDS REQUIREMENTS FOR TAPPING AND STOPPING FITTINGS AND TIE-IN JOINTS
- a) ALL PRESSURE TEST DATA FOR TAPPING AND STOPPING FITTINGS, AND TIE-IN JOINTS TESTED AT OPERATING PRESSURE USING LEAK DETECTOR SOLUTION, SHALL BE RECORDED ON THE PROPER PRESSURE TEST FORM. A DESCRIPTION AND LOCATION OF EACH FITTING OR TIE-IN JOINT SHALL BE INCLUDED ON THE FORM. REFER TO SECTION 12.4 "RECORD REQUIREMENTS FOR TAPPING AND STOPPING FITTINGS AND TIE-IN JOINTS" IN GS 1500.010 "PNEUMATIC PRESSURE TESTING."
- 10.8. RECORD REQUIREMENTS FOR PREFABRICATED UNITS, SHORT SECTIONS OF PIPE AND STATION PIPING
- a) ALL PRESSURE TEST DATA FOR PREFABRICATED UNITS, SHORT SECTIONS OF PIPE (INCLUDING TIE-IN PIECES) AND STATION PIPING SHALL BE RECORDED ON THE PROPER TEST FORM. A DESCRIPTION AND LOCATION OF EACH ITEM BEING TESTED SHALL BE INCLUDED ON THE FORM. IF A PNEUMATIC PRESSURE TEST WAS PERFORMED, REFER TO SECTION 12.5 "RECORD REQUIREMENTS FOR PREFABRICATED UNITS, SHORT SECTIONS OF PIPE AND STATION PIPING" IN GS 1500.010 "PNEUMATIC PRESSURE TESTING."
- 10.9. RECORD REQUIREMENTS FOR PRE-TESTED PIPE AND TEMPORARY BYPASS PIPING
- a) DOCUMENTATION OF THE TEST SHALL BE RETAINED AND REFERENCED ON THE APPROPRIATE JOB ORDERS AND/OR ELECTRONIC DATABASE. IF A PNEUMATIC PRESSURE TEST WAS PERFORMED, REFER TO SECTION 12.6 "RECORD REQUIREMENTS FOR PRE-TESTED PIPE AND TEMPORARY BYPASS PIPING" IN GS 1500.010 "PNEUMATIC PRESSURE TESTING."
- 10.10. RECORDS RETENTION
- a) TEST RECORDS SHALL BE RETAINED FOR THE LIFE PLUS TEN (10) YEARS OF THE PIPELINE TO CONFIRM ESTABLISHMENT OF MAXIMUM ALLOWABLE OPERATING PRESSURE (MAOP).



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REVISIONS			
REV. #	DATE	DESCRIPTION	
0	1/08/26	ISSUED FOR CONSTRUCTION	
DESIGNED BY	CCK	1/08/26	314-391-5360
DRAWN BY	JMB	1/08/26	314-239-4747
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SITE NAME:
WO# 400009378
MAT
WBS L2
 PHASE 4 NCHP PIPELINE REPLACEMENT
 COLUMBUS, FRANKLIN COUNTY, OH

DRAWING TITLE:
HYDROTEST NOTES 4 OF 5
TESTING PROCEDURES

DRAWING NO:
GN-08

HYDROSTATIC TESTING PROCEDURE

HYDROSTATIC PRESSURE - DEWATERING AND DRYING

REF: GS 1500.026; 49 CFR PART 192.515

1.GENERAL

- a) THIS STANDARD PROVIDES THE REQUIREMENTS AND GUIDANCE TO DEWATER AND DRY A PIPELINE AFTER A HYDROSTATIC PRESSURE TEST HAS BEEN PERFORMED.
- b) HYDROSTATIC PRESSURE TESTS SHALL BE PERFORMED IN ACCORDANCE WITH A WRITTEN HYDROSTATIC PRESSURE TEST PLAN (SEE GS 1500.022 "HYDROSTATIC PRESSURE TEST PLANNING") THAT HAS BEEN APPROVED BY THE DESIGNING ENGINEER.
- c) FOR THE PURPOSE OF THIS STANDARD, UNLESS OTHERWISE NOTED, THE USE OF THE WORD TEST, TESTING, TESTED SHALL MEAN HYDROSTATIC PRESSURE TEST.

2.RESPONSIBILITY

- a) IT IS THE RESPONSIBILITY OF THE COMPANY'S REPRESENTATIVE (E.G., CONSTRUCTION COORDINATOR, INSPECTOR), WHETHER EMPLOYEE OR CONTRACTOR, TO ENSURE THAT AFTER A PIPELINE HAS BEEN SUCCESSFULLY HYDROSTATICALLY PRESSURE TESTED AND PRESSURE TEST DOCUMENTATION HAS BEEN VERIFIED TO BE COMPLETE, THE PIPELINE HAS BEEN DEWATERED AND DRIED IN ACCORDANCE WITH THIS STANDARD PRIOR TO BEING PLACED INTO SERVICE.

3.PRIOR TO DEWATERING OPERATIONS

- a) PRIOR TO DEWATERING OPERATIONS, THE CONTRACTOR SHALL TAKE THE FOLLOWING ACTIONS TO ENSURE DEWATERING OPERATIONS ARE COMPLETED IN A SAFE AND ENVIRONMENTALLY COMPLIANT MANNER.
 - a. CONTACT THE ENVIRONMENTAL INSPECTION/PERMITTING PERSONNEL TO VERIFY THAT ALL REQUIRED ENVIRONMENTAL DISCHARGE TESTING AND MONITORING PROTOCOLS ARE IN PLACE PER THE PROJECT'S ENVIRONMENTAL COMPLIANCE PLAN.
 - b. ENSURE THAT BLOWDOWN (RELIEVING TEST PRESSURE) AND DEWATERING LINES ARE PROPERLY RESTRAINED AT THE DISCHARGE END TO PREVENT WHIPPING DURING DEPRESSURIZATION AND DEWATERING.
 - c. ENSURE COMMUNICATION SYSTEM IS FUNCTIONING PROPERLY TO MAINTAIN COMMUNICATIONS BETWEEN ALL PERSONNEL INVOLVED IN DEWATERING OPERATIONS.
 - d. ENSURE COMPLETE DEPRESSURIZATION OF THE PIPELINE.
 - e. ENSURE THAT ALL MAINLINE VALVES HAVE BEEN RETURNED TO THE FULLY OPEN POSITION TO ALLOW PASSAGE OF THE PIGS.

4.SECTIONS TESTED IN FREEZING TEMPERATURES

- a) HYDROSTATICALLY PRESSURE TESTING IN CONDITIONS WHERE AMBIENT TEMPS ARE EXPECTED TO BE NEAR (E.G., 35 DEGREES F) OR BELOW FREEZING TEMPERATURES DURING TESTING SHOULD BE AVOIDED, WHEN POSSIBLE.
- b) FOR ANY SECTIONS OF PIPELINE HYDROSTATICALLY PRESSURE TESTED IN AMBIENT TEMPERATURES AT OR BELOW 35°F, ALL WATER SHALL BE REMOVED IMMEDIATELY FOLLOWING COMPLETION OF THE TEST AND BE DISPOSED OF IN ACCORDANCE WITH THE APPLICABLE REGULATIONS AND PERMITS.
- c) RUN THE DRYING PIG AS SOON AS POSSIBLE AFTER DEWATERING. BE AWARE OF SECTIONS OF PIPELINES THAT CAN COLLECT PUDDLES OF WATER THAT MIGHT FREEZE. CONSIDER ADDING METHANOL TO WATER TO HELP WITH DEWATERING.
- d) IF ANY CHANGES ARE MADE TO THE WRITTEN TEST PLAN (E.G., ADDING METHANOL), CONTACT ENVIRONMENTAL PERMITTING PERSONNEL FOR ADDITIONAL REQUIREMENTS FOR DISCHARGING/DISPOSING THE WATER.

5.DEWATERING

- a) THE PIPELINE SHALL BE DEWATERED IN ACCORDANCE WITH THE PROJECT SPECIFIC TEST PLAN AND DISCHARGE PERMITS.
- b) ONCE A SUCCESSFUL TEST HAS BEEN CONFIRMED, COMPLETE THE FOLLOWING.
 1. PLACE THE VALVES IN THE FULL OPEN POSITION.
 2. CONSIDER INSTALLING A METER TO MEASURE THE WATER DISCHARGE TO COMPARE AGAINST THE FILL WATER AND TO CALCULATE DISPOSAL RATES FOR ENVIRONMENTAL PERMITTING.
 3. IF REQUIRED, WATER SAMPLES AND DISCHARGE DATA MUST BE COLLECTED DURING THE DISCHARGE OPERATIONS.
 4. RUN A SQUEEGEE PIG INITIALLY TO REMOVE THE MAJORITY OF THE WATER. FOLLOW UP WITH PIGGING DRY RUNS USING A POLYETHYLENE PIG OR OTHER APPROPRIATE PIG TO DEWATER THE PIPELINE.
 - a. AIR PRESSURE SHALL BE USED TO CONTROL THE SPEED OF THE PIG DURING DEWATERING.
 - b. THE DISCHARGE SHALL BE CONTROLLED TO PREVENT EROSION DAMAGE AT THE DISCHARGE POINT IF NOT CAPTURED IN A TANK.

- c. THE FLOW RATE SHALL BE MONITORED AND CONTROLLED AS NEEDED TO MEET PERMIT REQUIREMENTS.
- 5. ENSURE COMPLETE DEWATERING OF THE TEST SEGMENT BY PIGGING CONTINUOUSLY UNTIL IT APPEARS THAT NO MORE WATER SWEEPS OUT OF THE TEST SECTION.
- 6. ALL VALVE ASSEMBLIES, CROSSOVERS, AND TAPS SHALL BE DRAINED TO ENSURE MOISTURE IS NOT TRAPPED AT THESE LOCATIONS.
- 7. AFTER THE DEWATERING OPERATION IS COMPLETE, BEGIN DRYING OPERATIONS IMMEDIATELY AND RUN CONTINUOUSLY UNTIL COMPLETE. IF THERE WILL BE A DELAY BETWEEN DEWATERING AND DRYING, THE PIPE SHALL BE KEPT PRESSURIZED WITH NITROGEN AT A PRESSURE OF 10 - 50 PSIG.

5.1. PIGGING DRYING RUNS

- a) THE COMPANY REPRESENTATIVE (OR THEIR DESIGNEE) SHALL BE PRESENT PRIOR TO COMMENCEMENT OF THE DRYING RUN AND SHALL WITNESS THE ARRIVAL OF THE DRYING SPHERES OR PIGS AT THE RECEIVER SITE.
- b) A SERIES OF TESTED SECTIONS MAY BE TIED-IN TOGETHER TO REDUCE THE NUMBER OF INDIVIDUAL SECTIONS TO BE DRIED.
- c) PIGGING DRYING RUNS SHALL NOT BE THE FINAL METHOD FOR DRYING NATURAL GAS PIPELINES. A MINIMUM OF TWO DRYING RUNS SHALL BE MADE IMMEDIATELY AFTER DEWATERING. DRYING RUNS SHALL BE REQUIRED UNTIL NO RESIDUAL WATER EXISTS IN THE PIPE. IF VISIBLE QUANTITIES OF LIQUID ARE EXPELLED FROM THE TEST HEAD BLOW-OFF, ADDITIONAL DRYING RUNS SHALL BE REQUIRED UNTIL THE COMPANY REPRESENTATIVE IS SATISFIED THAT THE INITIAL PIG DEWATERING PROCESS IS COMPLETE.
- d) THE COMPANY REPRESENTATIVE SHALL APPROVE THE COMBINATION AND/OR TYPE OF PIGS USED FOR DRYING PURPOSES. THE CONTRACTOR SHALL REPLACE A PIG OR SPHERE IF IT HAS EXCESSIVE DAMAGE AND/OR BYPASS OR DEEMED UNACCEPTABLE BY THE COMPANY REPRESENTATIVE.
- e) IF THE PIG IS WET AROUND THE ENTIRE CIRCUMFERENCE, ADDITIONAL DRYING RUNS ARE REQUIRED. IF THERE IS LESS THAN 1/4-INCH (6 MM) PENETRATION OF WATER IN THE FOAM PIG, AN ADDITIONAL DRYING RUN IS NOT REQUIRED. THE COMPANY REPRESENTATIVE MAY CUT INTO THE FOAM; THE DIFFERENCE IN COLOR OF THE FOAM WILL INDICATE THE THICKNESS OF WATER WITHIN THE PIG.
- f) BI-DIRECTIONAL PIGS OR SPHERES, AND FOAM PIGS SHOULD BE PROPELLED THROUGH THE TEST SECTIONS WITH COMPRESSED AIR SUFFICIENT TO PRODUCE A SMOOTH RUN WITH A TARGET SPEED OF 3-6 MPH.

5.1. VELOCITY AND PRESSURE DIFFERENTIAL FOR DEWATERING PIG

- a) THE EFFICIENCY OF A PIG IN REMOVING WATER DEPENDS UPON ITS VELOCITY AND THE PRESSURE DIFFERENTIAL ACROSS THE PIG.
- b) THE PRESSURE DIFFERENTIAL SHALL BE MONITORED TO ENSURE A SAFE VELOCITY AND PROGRESSION OF THE PIG DURING DEWATERING. TRY TO MAINTAIN CONSTANT VELOCITY OF THE PIG DURING THE PIGGING OPERATIONS TO AVOID STALLING THE PIG ONCE IT'S PROGRESSION THROUGH THE PIPELINE HAS STARTED (E.G., DISCHARGE AIR OR WATER IS AN INDICATION THAT THE PIG IS MOVING).
- c) CONSULT PIG MANUFACTURER RECOMMENDATIONS.

6.DRYING OF MAINS

- a) THE PIPELINE SHALL BE DRIED TO A DEW POINT OF -40 °F OR LESS, AS FOUND USING A CALIBRATED HYGROMETER.
- b) RESIDUAL WATER SHALL BE BLOWN FROM ALL TAPS, DRIPS, AND VALVE BODIES.
- c) IF THE DEW POINT OF AT LEAST -40°F CANNOT BE REACHED, THE CORROSION LEADERSHIP, MAJOR PROJECTS/CONSTRUCTION LEADERSHIP, AND THE DESIGNING ENGINEER SHALL BE CONSULTED FOR REMEDIAL OPTIONS.
- d) THE COMPANY'S REPRESENTATIVE (E.G., CONSTRUCTION COORDINATOR, INSPECTOR) SHALL CONFIRM THAT THE MAIN OR TRANSMISSION LINE HAS BEEN DRIED IN ACCORDANCE WITH THIS PROCEDURE.
- e) AFTER THE DRYING OPERATION IS COMPLETE THE PIPE SHALL BE KEPT PRESSURIZED (E.G., 10 - 50 PSIG OF NITROGEN) AND/OR WITH PIPE ENDS CAPPED UNTIL READY TO BE PLACED IN SERVICE.

6.1. DRYING METHODS

- a) ONE OR MORE OF THE FOLLOWING METHODS SHALL BE USED FOR PIPELINE DRYING.
 - a. AIR DRYING.
 - b. NITROGEN PURGE.
- 6.0.1. AIR DRYING
 - a) THE CONTRACTOR SHALL SUBMIT A DETAILED WRITTEN AIR-DRYING PLAN TO THE COMPANY REPRESENTATIVE FOR REVIEW AND APPROVAL PRIOR TO THE COMMENCEMENT OF HYDROSTATIC TESTING.
 - b) THE AIR-DRYING PLAN SHALL INCLUDE ANY EQUIPMENT USED FOR DRYING OPERATIONS. DESICCANT DRYING UNITS SHALL BE USED TO DRY THE AIR AFTER COMPRESSION.
 - c) SCRUBBERS SHALL BE INSTALLED TO REMOVE ANY OIL CARRYOVER FROM THE COMPRESSORS.
 - d) DRY, COMPRESSED AIR IS INJECTED INTO ONE END OF THE PIPELINE SECTION AND RELEASED FROM THE OTHER END. FOAM PIGS MAY BE REQUIRED TO BE RUN THROUGH THE PIPE UNTIL ALL SIGN OF FREE

MOISTURE (LIQUID) IS GONE.

- e) ALL VALVE ASSEMBLIES, CROSSOVERS AND TAPS SHALL BE PURGED DURING AND AT THE COMPLETION OF THE DRYING PROCESS TO ENSURE THAT MOISTURE IS NOT TRAPPED AT THESE LOCATIONS.

6.1. DEW POINT TESTING

- a) AFTER DRYING OPERATIONS ARE COMPLETED, THE COMPANY'S REPRESENTATIVE SHALL CONFIRM THAT THE PIPELINE HAS BEEN DRIED TO THE DEW POINT OF AT LEAST -40°F.
- b) IF A DEW POINT OF AT LEAST -40°F HAS NOT BEEN REACHED, CONTINUE DRYING OPERATIONS UNTIL IT IS REACHED.
- c) IF THE DEW POINT OF AT LEAST -40°F CANNOT BE REACHED, THE CORROSION LEADERSHIP, MAJOR PROJECTS/CONSTRUCTION LEADERSHIP, AND THE DESIGN ENGINEER SHALL BE CONSULTED FOR REMEDIAL OPTIONS.

7.AFTER PIPELINE DRYING

- a) AFTER THE PIPELINE HAS BEEN SUCCESSFULLY DRIED, ALL VALVE BODY DRAIN PLUGS THAT WERE REMOVED SHALL BE CLEANED, TAPED (TEFLON), AND REINSTALLED.
- b) VALVE BODIES THAT ARE FOUND TO HAVE RETAINED WATER SHALL BE REPORTED TO THE DESIGNING ENGINEER.
- c) IF THE PIPELINE IS NOT PLACED INTO SERVICE IMMEDIATELY, THE CONTRACTOR MUST ENSURE THERE ARE NO LEAKS AND THAT THE LINE WILL BE LEFT IN A CONDITION TO MAINTAIN THE POSITIVE PRESSURE (SEE SECTION 7.1.1 "NITROGEN BLANKET/PURGE" AND WITH MEANS OF MONITORING THE PRESSURE (E.G., RECORDING GAUGE).
- 7.1. NITROGEN BLANKET/PURGE
 - a) AFTER DRYING OPERATIONS, THE CONTRACTOR SHALL FILL THE PIPELINE WITH DRY NITROGEN (N2) TO A POSITIVE PRESSURE OF 10 - 50 PSIG, MONITORED BY A PRESSURE GAUGE.
 - b) THE CONTRACTOR SHALL ENSURE THERE ARE NO LEAKS AND THE LINE IS LEFT IN A CONDITION TO MAINTAIN THE POSITIVE PRESSURE, WHICH SHALL BE MONITORED AT REGULAR INTERVALS.

8.WATER DISPOSAL

- a) TEST WATER SHALL BE DISPOSED OF IN ACCORDANCE WITH THE TESTING PLAN, APPLICABLE PERMITS, AND THE PROJECT ENVIRONMENTAL COMPLIANCE PLAN (ECP). CHANGES TO DISPOSAL METHODS OR LOCATIONS SHALL BE APPROVED BY THE ENVIRONMENTAL GROUP PRIOR TO WATER DISPOSAL.
- b) WATER SAMPLING, IF REQUIRED, SHALL BE COORDINATED WITH THE ENVIRONMENTAL INSPECTION TEAM AND WATER MAY NOT BE DISCHARGED UNTIL DIRECTED BY ENVIRONMENTAL PERSONNEL.



**BURNS
MEDONNELL**
530 W SPRING STREET, SUITE 100
COLUMBUS, OHIO 43215
(614) 453-7800

REVISIONS			
REV. #	DATE	DESCRIPTION	
0	1/08/26	ISSUED FOR CONSTRUCTION	
DESIGNED BY	CCK	1/08/26	314-391-5360
DRAWN BY	JMB	1/08/26	314-239-4747
CHECKED BY	JPF	1/08/26	314-578-9778
AS-BUILT BY	TBD	TBD	TBD
	NAME	DATE	PHONE #

SITE NAME:
WO# 400009378
MAT
WBS L2
PHASE 4 NCHP PIPELINE REPLACEMENT
COLUMBUS, FRANKLIN COUNTY, OH

DRAWING TITLE:
HYDROTEST NOTES 5 OF 5
DEWATERING & DRYING

DRAWING NO:
GN-09

EARTHWORK AND CONCRETE CONSTRUCTION NOTES/SPECIFICATIONS

A. GENERAL SITE INFORMATION

- DESIGN CODE = IBC 2015; 2017 OH BUILDING CODE, RISK CATEGORY = III, FRANKLIN COUNTY, OH.
- SNOW LOAD = 20.0 PSF
- WIND SPEED = V_{ULT} = 120 MPH; EXPOSURE = "D"
- SITE CLASS = "D"

SEISMIC DESIGN ENVELOPE PARAMETERS: $S_S = 0.11$; $F_a = 1.6$; $S_{DS} = 0.11$; $S_1 = 0.06$; $F_v = 2.4$; $S_{D1} = 0.09$ } SEISMIC DESIGN CATEGORY (SDC) = C; $I_E = 1.25$

B. EARTHWORK AND FOUNDATION CONSTRUCTION

- FOUNDATION CONSTRUCTION AND SITE PREPARATION METHODS SHALL FOLLOW RECOMMENDATIONS OUTLINED IN THE IBC 2015. SPECIFIC REQUIREMENTS AS FOLLOWS:
 - FOUNDATION SYSTEM: ISOLATED FOOTINGS
 - FROST DEPTH: 36 IN
 - SOIL ENGINEERING DESIGN PARAMETERS: PRESUMPTIVE AS PER IBC TABLE 1806.2 CLASS 5
- EXCAVATION AND BACKFILL:
 - ALL EXCAVATION AND GRADING WORK FOR FOUNDATIONS SHALL CONFORM TO THE SPECIFICATIONS HEREIN AND ALL LOCAL, COUNTY, STATE AND FEDERAL LAWS AND REGULATIONS. ENTIRE AREA AROUND EACH FOUNDATION MUST BE THOROUGHLY PROBED FOR UNDERGROUND PIPE, CONDUIT, HIGH PRESSURE LINES, ETC. BEFORE ANY EXCAVATION BEGINS. ALL SUBGRADE SHALL BE COMPACTED TO 90% MAX DRY DENSITY PER ASTM D1557, WHERE SUBGRADE COMPACTION IS NOT PRACTICAL, SUBGRADE SHALL BE UNDISTURBED.
 - WHENEVER POSSIBLE, EXCAVATION FOR CONCRETE FOUNDATION SHALL BE NEATLY CUT TO THE EXACT SIZE SPECIFIED.
 - IF THE GROUND WATER LEVEL IS FOUND TO BE ABOVE THE BOTTOM OF THE FOUNDATION EXCAVATION, THE FOLLOWING PROCEDURE SHALL BE FOLLOWED:
 - EXCAVATE THE FOUNDATION 1' BELOW THE BOTTOM OF THE CONCRETE FOUNDATION AND 1' BEYOND THE FOUNDATION BASE ON EACH SIDE.
 - THE WATER SHALL BE REMOVED FROM THE EXCAVATED FOUNDATION. CONTRACTOR SHALL KEEP EXCAVATED FOUNDATION FREE OF WATER AT ALL TIMES UNTIL THE BASE HAS BEEN PREPARED TO THE FINISHED ELEVATION OF THE FOUNDATION BASE.
 - PLACE WOVEN GEOTEXTILE FABRIC MIRAFI 600X OR EQUAL 1' BEYOND THE FOUNDATION BASE ON EACH SIDE.
 - PLACE 12" OF CLASS II AGGREGATE BASE IN TWO SEPARATE 6" LIFTS, COMPACT TO 90% OF THE MAX DRY DENSITY PER ASTM D1557.
 - BEFORE PLACING THE FORMS, REBAR AND CONCRETE POUR, THE CONTRACTOR SHALL KEEP THE EXCAVATION FREE OF WATER.
 - DURING AND UPON COMPLETION OF THE INSTALLATION OF ANY FOUNDATION, THE WORK SHALL BE INSPECTED AND APPROVED BY THE OWNER OR HIS REPRESENTATIVE BEFORE THE EXCAVATION IS BACKFILLED. AFTER SUCH APPROVAL, THE EXCAVATION, UNLESS REQUIRED TO BE LEFT OPEN FOR GOOD CAUSE, SHALL BE PROMPTLY BACKFILLED IN A SATISFACTORY MANNER PROVIDED THE FOUNDATION HAS ATTAINED SUFFICIENT STRENGTH. STRUCTURAL FILL IN FOUNDATION AREAS SHOULD BE COMPACTED TO 90% OF THE ASTM D-1557 MODIFIED PROCTOR DENSITY.
 - FORMS SHALL NOT BE STRIPPED UNTIL 3 DAYS AFTER THE POUR OR CONCRETE STRENGTH REACHES 75% FC, WHICHEVER OCCURS LATER.
 - STRUCTURAL BACKFILL SHALL CONSIST OF GRANULAR NON-EXPANSIVE SAND, GRAVEL AND SAND-GRAVEL MIXTURES, WITH PLASTICITY INDEX BELOW 15, WITH 100% LESS THAN 3.5" SIZE ROCK AND MAX. 20% PASSING NO. 200 SIEVE. IT SHALL BE PLACED IN 8" MAX. LIFTS.
- SUBGRADE CONDITIONS SHOULD BE INSPECTED BY A GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF ANY CONCRETE. STRUCTURAL FILL SHALL BE INSPECTED AND TESTED.

C. CONCRETE

- ALL CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF ACI-301 SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS LATEST EDITION, AND TO ACI-318-14 BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE AND ACI-318-14 CHAPTER 21, "EARTHQUAKE RESISTANT STRUCTURES". CONCRETE STRENGTH TEST SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF ACI-318 CHAPTER 5.
- CONCRETE AND REINFORCEMENT SHALL BE DESIGNED AND PLACED IN ACCORDANCE WITH THE ACI BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE ACI-318-14, ACI-305 "HOT WEATHER CONCRETING" AND ACI-306 "COLD WEATHER CONCRETING" SHALL BE FOLLOWED IF REQUIRED.
- CONCRETE PARAMETERS SHALL BE AS FOLLOWS:

EXPOSURE CATEGORY & CLASS				FC AT 28 DAYS	CEMENT TYPE	W/C RATIO (MAX)	AIR CONTENT	MAX SLUMP		OTHER PROVISIONS
F FREEZING THAWING	C CORROSION PROTECTION	S SULFATE EXPOSURE	P PERMEABILITY							
F2	C1	S0	P0-P1	4500 PSI	II	0.45	5% TO 7%	ALL CONC. 4"	DRILLED PIERS 6" TO 9"	N/A

LEAN CONCRETE SHALL BE (FC) 1500 PSI.

- AGGREGATES SHALL BE CRUSHED STONE CONFORMING TO "SPECIFICATION FOR CONCRETE AGGREGATES" ASTM C33
- WATER USED IN MIXING CONCRETE SHALL CONFORM TO ASTM C1602.
- REINFORCING BARS SHALL BE DEFORMED, INTERMEDIATE GRADE NEW BILLET STEEL CONFORMING TO ASTM A615 (ASTM A76 OR ASTM A615 MEETING THE REQUIREMENTS OF ACI-318, SECTION 21.1.5.2) GRADE 60. FIELD SPLICES AND DEVELOPMENT LENGTH SHALL COMPLY WITH THE FOLLOWING SCHEDULE, UNLESS NOTED OTHERWISE:

REBAR SIZE	HDL	TEL TOP	TEL OTHER	TLS TOP	TLS OTHER
#4	7	25	19	32	25
#5	8	31	24	40	31
#6	10	37	28	48	37
#7	12	54	42	70	54
#8	13	62	47	80	62
#9	15	70	54	91	70
#10	17	78	60	102	78
#11	19	87	67	113	87

WHERE
 A. TEL = TENSION EMBEDMENT LENGTH
 TLS = TENSION SPICE LENGTH
 HDL = HOOK DEVELOPMENT LENGTH
 "TOP" BARS ARE ALL HORIZONTAL BARS SO PLACED THAT MORE THAN 12" OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE DEVELOPMENT LENGTH OR SPICE.
 B. ALL BARS THAT ARE NOT "TOP" BARS ARE "OTHER" BARS.

REINFORCEMENT SHALL BE INSPECTED BEFORE CONCRETE IS PLACED.

- CONCRETE PROTECTION FOR REINFORCEMENT - CLEAR DISTANCE FROM FACE OF CONCRETE TO BAR SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE:
 - CONCRETE DEPOSITED AGAINST GROUND OR VOID FORM: 3"
 - CONCRETE SURFACES EXPOSED TO WEATHER OR IN CONTACT WITH GROUND AFTER REMOVAL OF FORMS: 1 1/2" FOR #5 BARS AND SMALLER, 2" FOR #6 THROUGH #18.
 - SURFACES NOT EXPOSED TO GROUND OR WEATHER: 3/4" FOR SLABS AND WALLS WITH #11 AND SMALLER BARS, 1 5/8" FOR BEAMS AND COLUMNS.
- EXPANSION JOINT MATERIAL FOR EXPANSION OR ISOLATION JOINTS SHALL BE PREMOULDED, BITUMINOUS IMPREGNATED FIBERBOARD CONFORMING TO ASTM D994. JOINT THICKNESS SHALL BE 1/2" UNLESS NOTED OTHERWISE ON DESIGN DRAWINGS.
- JOINT SEALANT FOR ALL CONCRETE CONTROL, CONSTRUCTION AND ISOLATION JOINTS SHALL BE SIKAFLEX-1A BY SIKA CORP., OR APPROVED EQUAL.
- GROUT USED FOR VARIOUS APPLICATIONS SHALL BE AS FOLLOWS:
 - GROUT USED FOR STRUCTURAL STEEL COLUMN BASE PLATES SHALL BE PREPACKED, HIGH FLUIDITY NON-SHRINK, NATURAL AGGREGATE GROUT SUCH AS "MASTERFLOW 713 PLUS" BY BASF (FORMERLY MASTER BUILDERS) OR APPROVED EQUAL. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION. SPACE BETWEEN THE ANCHOR RODS AND OVERSIZED HOLES IN THE BASE PLATE SHALL BE FULLY GROUTED WITH NON SHRINK GROUT TO ASSURE PROPER SHEAR TRANSFER. GROUTING SHALL BE PERFORMED ONE BOLT AT A TIME, WHILE OTHER BASE PLATE RODS ARE FULLY TIGHTENED.
 - GROUT USED FOR GROUTING COMPRESSORS, TURBINES, LARGE PUMPS, AND OTHER RECIPROCATING OR ROTATING EQUIPMENT THAT REQUIRES EPOXY GROUTING AS SHOWN ON DESIGN DRAWINGS SHALL BE "FIVE STAR HP" EPOXY GROUT BY FIVE STAR PRODUCTS, INC. OR APPROVED EQUAL. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION.
 - GROUT USED FOR DRILLED AND EPOXY-GROUTED REBARs SHALL BE HILTI HIT-RE-500-SD EPOXY OR APPROVED EQUAL.

CONCRETE (CONTINUED)

- COLUMN BASE PLATE GROUT PROCEDURE:
 - SELECT A NON-SHRINK NON-METALLIC GROUT DESIGNED FOR DAMP PACKING, BASF CONSTRUCTION GROUT OR OWNER APPROVED EQUAL. FOLLOW ALL MANUFACTURER'S INSTRUCTIONS. APPLY GROUT BETWEEN THE TEMPERATURE RANGE OF 50 TO 90 DEG. F.
 - BUSH HAMMER AND CLEAN CONCRETE SURFACE WHERE GROUT WILL BE APPLIED.
 - CLEAN ALL SURFACES TO BE GROUTED.
 - SATURATE CONCRETE SURFACES WITH CLEAN WATER 24 HOURS BEFORE GROUTING. REMOVE WATER IMMEDIATELY BEFORE APPLICATION.
 - PLACE TIGHT AND SECURE FORMS ON ALL SIDES EXCEPT THE SIDE WHERE THE GROUT WILL BE APPLIED.
 - MIX THE GROUT FOLLOWING MANUFACTURER'S INSTRUCTIONS. THE GROUT SHOULD BE DAMP ENOUGH THAT IT CAN BE MOLDED INTO A BALL. THE BALL SHOULD NEITHER SLUMP NOR CRUMBLE DUE TO LACK OF MOISTURE.
 - PLACE GROUT IMMEDIATELY AFTER MIXING, RAMMING UNDER THE BASE PLATE WITH A WOODEN DOWEL, WORKING AT AN ANGLE TO THE CORNERS TO ENSURE EVEN COMPACTION.
 - REMOVE FORMS. SHAPE 45 DEG. BEVEL TO CONCRETE SURFACE ALL SIDES.
- VOID FORM MATERIAL SHALL BE "SURE VOID" OR APPROVED EQUAL. KEEP VOID MATERIAL DRY DURING PLACEMENT AND INSTALL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. VOID FORM SHALL BE BIODEGRADABLE AND CAPABLE OF SUPPORTING THE FLUID WEIGHT OF THE CONCRETE.
- ALL WELDING PROCEDURES, INCLUDING STUD WELDING, AND QUALIFICATIONS SHALL BE IN ACCORDANCE WITH AWS D1.1.
- ALL WALKS AND EXTERIOR SLABS SHALL BE LIGHT BROOM FINISHED AFTER CONCRETE HAS RECEIVED A FLOAT FINISH. FOLLOW ACI 301 PROCEDURES.
- EXPOSED CORNERS SHALL BE CHAMFERED 3/4" UNLESS NOTED.
- CHECK ALL ELECTRICAL, MECHANICAL AND PIPING DRAWINGS FOR EMBEDDED ITEMS (PIPE, CONDUIT, ETC.) AND BLOCKOUTS BEFORE PLACING CONCRETE.
- IF REINFORCING OR MESH IS FIELD CUT FOR SMALL OPENINGS, CONDUIT, ELECTRICAL BOXES, ETC. CUT REINFORCING SHALL BE REPLACED WITH AN EQUIVALENT AREA OF STEEL. ALL SUCH BARS SHALL EXTEND 24" MINIMUM (OR MESH LAP 2") BEYOND CORNER OR EDGE OF OPENING IF NECESSARY. REINFORCING SHALL BE BENT TO PROVIDE THIS MINIMUM EMBEDMENT. MAKE ALL BARS CONTINUOUS AROUND CORNERS.
- THE CONTRACTOR SHALL VERIFY ALL EQUIPMENT ANCHOR ROD DIMENSIONS AGAINST THE CERTIFIED EQUIPMENT DRAWINGS BEFORE PLACING CONCRETE. TOLERANCES FOR ANCHOR ROD LOCATIONS AND ELEVATIONS SHALL BE DEFINED IN THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) CODE OF STANDARD PRACTICE.
- ALL WATER STOP SHALL BE BENTONITE FLEXIBLE STRIP WATERSTOP BY VOLCLAY OR APPROVED EQUAL.

D. CONTRACTOR'S MEANS AND METHODS

- THE STRUCTURAL DRAWINGS AND NOTES REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. FOR THIS REASON, DURING ERECTION OF THE STRUCTURE AND/OR THE DEMOLITION OF THE STRUCTURE OR PORTIONS OF THE STRUCTURE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY BRACING TO WITHSTAND ALL LOADS TO WHICH THE STRUCTURE MAY BE SUBJECTED, INCLUDING LATERAL LOADS, EXCAVATIONS, SHORING, STOCKPILES OF MATERIALS AND EQUIPMENT, IN ADDITION TO ANY WORKER SAFETY REQUIREMENTS. SUCH BRACING SHALL BE LEFT IN PLACE AS LONG AS IT MAY BE REQUIRED FOR SAFETY AND UNTIL ALL STRUCTURAL FRAMING AND DIAPHRAGMS ARE IN PLACE WITH CONNECTIONS COMPLETED.
- DISCOVERY: DURING CONSTRUCTION, THE CONTRACTOR MAY ENCOUNTER EXISTING CONDITIONS OR AS BUILT DIMENSIONS WHICH ARE NOT NOW KNOWN OR ARE AT VARIANCE WITH PROJECT DOCUMENTATION (DISCOVERY). SUCH CONDITIONS MAY INTERFERE WITH CONSTRUCTION OR REQUIRE PROTECTION AND/OR SUPPORT OF EXISTING WORK DURING CONSTRUCTION, OR MAY CONSIST OF DAMAGE OR DETERIORATION TO THE STRUCTURAL MATERIALS OR COMPONENTS WHICH COULD JEOPARDIZE THE INTEGRITY OF THE STRUCTURE(S) RELATED TO SUCH DISCOVERIES. CONTRACTOR TO NOTIFY ENGL/OSU IF ANY IMPACTS TO THEIR UTILITIES OCCUR.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO IMMEDIATELY NOTIFY THE STRUCTURAL ENGINEER OF ANY DISCOVERY HE OR SHE IDENTIFIES THAT MAY INTERFERE WITH THE PROPER EXECUTION OF THE WORK OR JEOPARDIZE THE INTEGRITY OF THE STRUCTURE(S) PRIOR TO PROCEEDING WITH WORK RELATED TO SUCH DISCOVERIES.

E. CONTRACTOR'S COORDINATION

- THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS AND DETAILS BETWEEN ALL TRADES, SUBCONTRACTORS AND VENDOR SUPPLIED EQUIPMENT PRIOR TO COMMENCING ANY CONSTRUCTION. THE STRUCTURAL ENGINEER SHALL BE IMMEDIATELY NOTIFIED OF ANY INCONSISTENCIES RELATING TO THE STRUCTURE. FAILURE TO DO SO SHALL RELIEVE THE STRUCTURAL ENGINEER OF ALL CONSEQUENCES RELATED TO THE INCONSISTENCY.
 - SEE MECHANICAL, ELECTRICAL AND OTHER DISCIPLINE'S DRAWINGS FOR ADDITIONAL INFORMATION RELATING TO THE STRUCTURE.
- F. DRAWING CONVENTIONS
- T.O.C. EL INDICATES TOP OF CONCRETE ELEVATION.
 - B.O.C. EL INDICATES BOTTOM OF CONCRETE ELEVATION.
 - SCALES NOTED ON DRAWINGS ARE ACCURATE FOR FULL-SIZE (24 x 36) DRAWINGS ONLY.

SCHEDULE OF CIVIL INSPECTIONS/SPECIAL INSPECTIONS (AS APPLICABLE)

INSPECTION AND TESTING REPORTS SHALL BE COMPLETED AND DISTRIBUTED AT THE COMPLETION OF EACH TASK, IF A TASK IS TO TAKE LONGER THAN THREE (3) DAYS, PROVIDE REPORTS FOR EACH DAY. PROVIDE COPIES OF REPORTS TO: CONTRACTOR, OWNER AND THE ENGINEER OF RECORD. INSPECTOR TO KEEP A NON-COMPLIANT LIST DOCUMENTING ITEMS INSPECTED NOT MEETING APPROVED CONSTRUCTION DOCUMENTS AND WHEN/HOW RESOLVED.

CIVIL INSPECTIONS ARE DEFINED HEREIN AS INSPECTIONS OF EARTHWORK, FOUNDATION CONSTRUCTION AND CONCRETE CONSTRUCTION.

INSPECTION AND VERIFICATION OF CONCRETE CONSTRUCTION				
INSPECTION REQUIRED Y/N	VERIFICATION AND INSPECTION TASK	FREQUENCY OF INSPECTION		REFERENCED STANDARD
		CONTINUOUS DURING TASK LISTED	PERIODICALLY DURING TASK LISTED	
Y	1. INSPECTION OF REINFORCING STEEL, INCLUDING PRESTRESSING TENDONS AND PLACEMENT	-	X	ACI 318: 3.5, 26.6
N	2. INSPECTION OF REINFORCING STEEL WELDING IN ACCORDANCE WITH TABLE 1705.2.2, ITEM 2B.	-	X	AWS D1.4 ACI 318: 26.6.4
Y	3. INSPECTION OF ANCHORS CAST IN CONCRETE WHERE ALLOWABLE LOADS HAVE BEEN INCREASED OR WHERE STRENGTH DESIGN IS USED.	-	X	ACI 318: 26.7
Y	4. INSPECTION OF ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS.	-	X	ACI 318: 26.7
Y	5. VERIFICATION OF ANCHOR MATERIAL CERTIFICATIONS.	-	X	AISC 360
Y	6. VERIFYING USE OF REQUIRED DESIGN MIX.	-	X	ACI 318: 26.4
Y	7. AT THE TIME FRESH CONCRETE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X	-	ASTM C 172 ASTM C 31 ACI 318: 26.12,26.13
Y	8. INSPECTION OF CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	X	-	ACI 318: 26.5
Y	9. INSPECTION FOR MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	-	X	ACI 318: 26.5.3
Y	10. VERIFICATION OF IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORING AND FORMS FROM BEAMS AND STRUCTURAL SLABS.	-	X	ACI 318: 26.11
Y	11. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	-	X	ACI 318: 26.11

INSPECTION AND VERIFICATION OF SOILS				
INSPECTION REQUIRED Y/N	VERIFICATION AND INSPECTION TASK	FREQUENCY OF INSPECTION		REFERENCED STANDARD
		CONTINUOUS DURING TASK LISTED	PERIODICALLY DURING TASK LISTED	
Y	1. VERIFY MATERIALS BELOW FOOTINGS ARE ADEQUATE TO ACHIEVE DESIRED BEARING CAPACITY.	-	X	
Y	2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.	-	X	
Y	3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.	-	X	
Y	4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.	X	-	
Y	5. PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.	-	X	



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0	1/08/26	ISSUED FOR CONSTRUCTION	

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CHECKED BY	JPF	1/08/26	314-578-9778
AS-BUILT BY	TBD	TBD	TBD
	NAME	DATE	PHONE #

SITE NAME:
WO# 400009378
MAT
WBS L2
 PHASE 4 NCHP PIPELINE REPLACEMENT
 COLUMBUS, FRANKLIN COUNTY, OH

DRAWING TITLE:
CONSTRUCTION NOTES

DRAWING NO:
GN-10

TEMPORARY TRAFFIC CONTROL NOTES

- ALL TEMPORARY TRAFFIC CONTROL (TTC) DEVICES SHALL BE FURNISHED, ERECTED, MAINTAINED AND REMOVED BY THE CONTRACTOR IN ACCORDANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS (CURRENT EDITION). COPIES ARE AVAILABLE FROM THE OHIO DEPARTMENT OF TRANSPORTATION, OFFICE OF CONTRACTS, 1980 WEST BROAD STREET, COLUMBUS, OHIO 43223. NOTE: ALL DEVICES SHALL COMPLY, FOR CONDITION AND LOCATION, WITH THE CURRENT EDITION OF THE NCHRP 350 AND MASH CRASH TESTING GUIDELINES.
- CONSTRUCTION OPERATIONS SHALL NOT BEGIN UNTIL ALL TRAFFIC CONTROL IS IN PLACE AND APPROVED BY THE DEPARTMENT OF PUBLIC SERVICE INSPECTOR. IF THE CONTRACTOR DOES NOT COMPLY WITH THE STANDARDS, INCLUDING THE INSTALLATION OF TEMPORARY PAVEMENT MARKINGS AND THE REMOVAL OF CONFLICTING TRAFFIC CONTROLS, THEIR PERMIT SHALL BE REVOKED AND ALL WORK SHALL BE TERMINATED. TEMPORARY PAVEMENT MARKINGS TO INCLUDE, BUT NOT LIMITED TO, CHANNELIZING LINES, EDGE LINES, AND CENTERLINES SHALL BE INSTALLED AND MAINTAINED ON ALL CONSTRUCTION OPERATIONS LASTING A MINIMUM OF 14 CALENDAR DAYS OR AS DIRECTED BY THE TEMPORARY TRAFFIC CONTROL COORDINATOR OR THE PROJECT ENGINEER.
- THE CONTRACTOR SHALL GIVE ADVANCE NOTIFICATION (WRITTEN AND VERBALLY) TO THE TEMPORARY TRAFFIC CONTROL COORDINATOR AT 614-645-0355 OR 614-645-5845 & THE DIVISION OF REFUSE COLLECTION'S OPERATION MANAGER AT 614-645-1675, WRITTEN NOTIFICATION TO PAVING THE WAY AT PAVINGTHEWAY@MORPC.ORG OR VERBAL TO (614)233-4200, PROJECT ENGINEER, AND THE SENIOR SERVICE PLANNER OF COTA AT 614-308-4373 OR FAX 614-275-5933, INFORMING THEM OF ALL UPCOMING MAINTENANCE OF TRAFFIC CHANGES ON A WEEKLY BASIS. NOTIFICATION SHALL INCLUDE, BUT NOT BE LIMITED TO, WHAT, WHERE, WHEN, AND HOW PEDESTRIAN AND VEHICULAR TRAFFIC WILL BE AFFECTED, AND THE TEMPORARY TRAFFIC CONTROL PROCEDURES THE CONTRACTOR IS PLANNING TO USE. THE TYPE OF TRAFFIC CHANGE SHALL DETERMINE THE LENGTH OF ADVANCE NOTIFICATION REQUIRED:

TYPE OF CHANGE	ADVANCE NOTIFICATION NEEDED
DETOURS/ROAD CLOSURES	30-DAY NOTIFICATION PRIOR TO CLOSURE
LANE CLOSURES LASTING 2 WEEKS OR MORE	2-WEEKS
LANE CLOSURES OF LESS THAN 2 WEEKS	3-DAYS
LANE CLOSURES OF 2 DAYS OR LESS	1-DAY

THE COTA SENIOR SERVICE PLANNER SHALL BE CONTACTED 30 DAYS PRIOR TO ANY PLANNED CLOSURE ON ASSIGNED COTA ROUTES, ANY OTHER UNFORESEEN IMPACTS TO TRAFFIC SHALL BE IMMEDIATELY REPORTED AS THEY OCCUR.

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION AND SAFE MOVEMENT OF PEDESTRIANS THROUGH, AROUND, OR DETOURED AWAY FROM THE CONSTRUCTION SITE. TRAFFIC CONTROL FOR PEDESTRIAN MOVEMENT SHALL BE AS PER CITY OF COLUMBUS CONSTRUCTION AND MATERIAL SPECIFICATIONS, CITY OF COLUMBUS STANDARD CONSTRUCTION DRAWINGS, AND FIGURES 6H-28 (TA-28) AND 6H-29 (TA-29) OF PART VI OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. WHEN NOT SHOWN ON A SIGNED PLAN, ALL SIDEWALK DIVERSIONS AND TEMPORARY MID-BLOCK CROSSINGS SHALL BE PRE-APPROVED BY THE PROJECT ENGINEER OR THE TEMPORARY TRAFFIC CONTROL COORDINATOR. ACCESS FOR PEDESTRIAN AND VEHICULAR TRAFFIC TO ALL ADJOINING PROPERTIES SHALL BE MAINTAINED AT ALL TIMES.
- MAINTAINING TRAFFIC DURING HOLIDAYS AND SPECIAL EVENTS:** NO WORK SHALL BE PERFORMED AND ALL EXISTING LANES SHALL BE OPEN TO TRAFFIC DURING DESIGNATED HOLIDAYS OR SPECIAL EVENTS INCLUDING THE OHIO STATE FOOTBALL HOME GAMES. THE PERIOD OF TIME THAT THE LANES ARE TO BE OPEN DEPENDS ON THE DAY OF THE WEEK ON WHICH THE HOLIDAY OR EVENT FALLS. CONTACT THE CITY OF COLUMBUS TEMPORARY TRAFFIC CONTROL COORDINATOR, 614-645-5845 OR CELL, 614-332-7472 FOR EVENT DATES, LOCATIONS, AND SCHEDULE. HOLIDAYS WILL CONSIST OF CHRISTMAS, NEW YEARS, FOURTH OF JULY-RED, WHITE AND BOOM FIREWORKS NIGHT (6:00AM-12MIDNIGHT), MEMORIAL DAY, LABOR DAY, AND THANKSGIVING, RED, WHITE AND BOOM, FIREWORKS CELEBRATION AND A MINIMUM OF ONE DAY PRIOR TO FIREWORKS NIGHT SHALL REQUIRE ALL TEMPORARY TRAFFIC CONTROL DEVICES TO BE REMOVED FROM THE PROJECT AREA AND PLACE EITHER IN A PRE-DETERMINED LOCATION APPROVED BY THE TEMPORARY TRAFFIC CONTROL COORDINATOR OR COMPLETELY REMOVED FROM THE SITE.
- THE CONTRACTOR SHALL CONTACT THE CITY OF COLUMBUS TEMPORARY TRAFFIC CONTROL COORDINATOR FOR ANY ADDITIONAL MOT REQUIREMENTS FOR SPECIAL EVENTS, INCLUDING OSU FOOTBALL HOME GAMES.
- THE CONTRACTOR SHALL MAINTAIN ALL PERMANENT TRAFFIC CONTROLS NOT IN CONFLICT WITH THE TEMPORARY TRAFFIC CONTROLS THROUGHOUT THIS PROJECT. PERMANENT TRAFFIC CONTROLS MAY BE TEMPORARILY RELOCATED OR COVERED, AS APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL ASSUME ALL LIABILITY FOR MISSING, DAMAGED, OR IMPROPERLY PLACED SIGNS.
- ANY WORK DONE BY THE DEPARTMENT OF PUBLIC SERVICE, INCLUDING INSTALLATION, RELOCATION, REMOVAL AND/OR REPLACEMENT OF TEMPORARY TRAFFIC CONTROL DEVICES AS A RESULT OF WORK DONE BY THE CONTRACTOR OR AS A RESULT OF NEGLIGENCE OF THE CONTRACTOR, SHALL BE AT THE CONTRACTORS' EXPENSE.
- THE ROADWAY SHALL NOT BE OPENED TO NON-CONSTRUCTION TRAFFIC UNTIL THE CRITICAL PERMANENT TRAFFIC CONTROLS ARE IN PLACE, OR UNTIL TEMPORARY TRAFFIC CONTROLS APPROVED BY THE ENGINEER, ARE INSTALLED. THE CRITICAL PERMANENT TRAFFIC CONTROLS ARE STOP, YIELD, ONE - WAY, DO NOT ENTER, RESTRICTED TURN SIGNS AND ALL STREET NAME SIGNS. OTHER CRITICAL SIGNS MAY BE NOTED ON THE PLANS AS WELL. THE CONTRACTOR ASSUMES ALL LIABILITY FOR THE PREMATURE REMOVAL OF TEMPORARY TRAFFIC CONTROLS.
- ITEM 614 - MAINTAINING TRAFFIC:** ALL COSTS THAT CONSIST OF MAINTAINING AND PROTECTING VEHICULAR AND PEDESTRIAN TRAFFIC ACCORDING TO THE LATEST EDITION OF THE CITY OF COLUMBUS CONSTRUCTION AND MATERIAL SPECIFICATIONS, THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS (OMUTCD), AND PER THE REQUIREMENTS DESIGNATED IN THE PLAN INCLUDING ALL LAW ENFORCEMENT OFFICER (LEO) AND FLAGGER HOURS SHALL BE INCLUDED IN THE LUMP SUM ITEM 614. IN ADDITION TO THE REQUIREMENTS HEREIN, AND THE LATEST EDITION OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, A UNIFORMED LAW ENFORCEMENT OFFICER (LEO) SHALL BE PROVIDED FOR CONTROLLING TRAFFIC UNDER THE FOLLOWING CONDITIONS:
 - WORK WITHIN A SIGNALIZED INTERSECTION, DEFINED AS THE AREA BOUNDED BY THE REAR X-WALK LINES
 - WHEN FLAGGING WITHIN THE INTERSECTION OF TWO ARTERIAL ROADWAYS
 - WHEN SPECIFIED IN THE MAINTENANCE OF TRAFFIC PLAN OR AS WHEN DIRECTED BY THE PROJECT ENGINEER
 - WHEN SHIFTING TRAFFIC LEFT OF CENTER, THROUGH A SIGNALIZED INTERSECTION, WITHOUT SHIFTING SIGNAL HEADS
A FLAGGER SHALL BE UTILIZED TO ASSIST IN CONTROLLING TRAFFIC WHILE EQUIPMENT IS

ENTERING OR EXITING AN INTERSECTION OR WORK ZONE. THE CONTRACTOR MAY UTILIZE HIS OWN FLAGGER OR LEO UNDER PAY ITEM 614 MAINTAINING TRAFFIC, LUMP SUM. FLAGGERS AND LEO'S SHALL BE EQUIPPED ACCORDING TO THE STANDARDS FOR FLAGGING TRAFFIC CONTAINED IN THE OMUTCD. FLAGGING OPERATIONS PERFORMED BY LEO'S OR DESIGNATED FLAGGERS SHALL ONLY BE PERMITTED AS LONG AS ALL TRAFFIC CONTROL IS IN PLACE ACCORDING TO FIGURE 6H-10 (TA-10) IN THE OHIO MANUAL. PATROL CARS SHALL NOT BE USED IN FLAGGING OPERATIONS. IF THE CONTRACTOR WISHES TO UTILIZE LEO'S WITH OR WITHOUT PATROL CARS FOR TRAFFIC CONTROL OTHER THAN FOR THAT REQUIRED IN THE PLANS, THEY MAY DO SO AT THEIR OWN EXPENSE. THE CONTRACTOR SHALL MAKE ARRANGEMENT THROUGH THE COLUMBUS POLICE DIVISION AT (614) 645-4795. LEO'S SHALL BE CONSIDERED TO BE EMPLOYED BY THE CONTRACTOR AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR THEIR ACTIONS. ALTHOUGH EMPLOYED BY THE CONTRACTOR, THE CITY REPRESENTATIVE SHALL HAVE CONTROL OVER THEIR PLACEMENT. LEO'S SHALL NOT HAVE THE AUTHORITY TO CHANGE, EDIT OR MODIFY ANY MAINTENANCE OF TRAFFIC SCHEME WITHOUT THE PERMISSION OF THE TEMPORARY TRAFFIC CONTROL COORDINATOR OR PROJECT ENGINEER UNLESS AN EMERGENCY DEVELOPS. IF A SAFETY HAZARD DEVELOPS, A LEO MAY BE ASSIGNED BY THE COLUMBUS PUBLIC SAFETY AND/OR THE PUBLIC SERVICE DIRECTOR AT THE CONTRACTORS' EXPENSE. **ITEM 614 - LAW ENFORCEMENT OFFICER (LEO) WITH PATROL CAR, AS PER PLAN** IN ADDITION TO LEO AND FLAGGER HOURS INCLUDED IN ITEM 614 MAINTAINING TRAFFIC, LUMP SUM; THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER OR AN ACCEPTABLE REPRESENTATIVE FOR THE CITY OF COLUMBUS. THE OFFICIAL PATROL CAR WITH TOP MOUNTED EMERGENCY FLASHING LIGHTS SHALL BE A PUBLIC SAFETY VEHICLE AS REQUIRED BY THE OHIO REVISED CODE. THE CONTRACTOR SHALL BE PAID FOR THIS BID ITEM ONLY IF DIRECTED BY THE ENGINEER. ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR, AS PER PLAN - _____ HOURS **ITEM 614 - LAW ENFORCEMENT OFFICER (LEO) WITHOUT PATROL CAR, AS PER PLAN** IN ADDITION TO LEO AND FLAGGER HOURS INCLUDED IN ITEM 614 MAINTAINING TRAFFIC, LUMP SUM; THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER OR AN ACCEPTABLE REPRESENTATIVE FOR THE CITY OF COLUMBUS. THE CONTRACTOR SHALL BE PAID FOR THIS BID ITEM ONLY IF DIRECTED BY THE ENGINEER. ITEM 614, LAW ENFORCEMENT OFFICER WITHOUT PATROL CAR, AS PER PLAN - _____ HOURS

ADDITIONAL TEMPORARY TRAFFIC CONTROL NOTES:

- PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) SHALL BE INSTALLED A MINIMUM OF 7 DAYS PRIOR TO CLOSURE OF A ROADWAY. THE MESSAGE SHALL ADVISE THE MOTORIST OF THE DATES, TIMES, AND DURATION OF THE CLOSURE. THE PCMS SHALL REMAIN IN PLACE FOR 7 DAYS AFTER THE START OF THE CLOSURE.
- WHEN NOT INCLUDED IN A SIGNED PLAN, A TTC PLAN (TTCP) INCLUDING PEDESTRIAN CONTROL SHALL BE SUBMITTED TO THE TTC COORDINATOR AT 614-645-0355 OR 614-645-5845 AT THE PRE-CONSTRUCTION MEETING OR A MINIMUM OF TEN (10) WORKING DAYS PRIOR TO BEGINNING WORK FOR APPROVAL. COPIES OF THE APPROVED TTCP SHALL BE GIVEN TO THE PROJECT ENGINEER AND KEPT ON SITE ALONG WITH THE STREET CLOSURE/OCCUPANCY PERMIT.
- TYPE C STEADY-BURN OR TYPE D 360-DEGREE STEADY-BURN WARNING LIGHTS SHALL BE REQUIRED ON ALL BARRICADES, DRUMS, AND SIMILAR TRAFFIC CONTROL DEVICES IN USE AT NIGHT. ONLY 42" REFLECTORIZED CHANNELIZING DEVICES (CONES) SHALL BE PERMITTED FOR NIGHTTIME WORK WITH THE APPROVAL OF THE TTC COORDINATOR AT 614-645-0355 OR 614-645-5845 PER O.D.O.T. STANDARDS.
- A FLASHING ARROW PANEL (48" X 96"-TYPE C) SHALL BE USED IN LANE CLOSURES AS PER THE OHIO MANUAL.
- ALL TRENCHES WITHIN THE ROAD RIGHT OF WAY SHALL BE BACKFILLED OR SECURELY PLATED PER (CITY OF COLUMBUS GENERAL POLICY ON STEEL PLATE USAGE DATED 11/15/2006 AND STD. DWG. 1441, LATEST EDITION) DURING NON-WORKING HOURS.
- TWO-WAY, TWO-LANE (ONE-LANE EACH DIRECTION) TRAFFIC SHALL BE MAINTAINED AT ALL TIMES BY USE OF EXISTING, PROPOSED, OR TEMPORARY PAVEMENT PER CITY OF COLUMBUS MAINTENANCE OF TRAFFIC, STANDARD CONSTRUCTION DRAWING 1510 AND FIGURE 6H-32 TYPICAL APPLICATION 32 (TA-32) OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. THIS WILL APPLY FOR KENNY RD, GODOWN RD, & BETHEL RD.
- FOLKESTONE RD, KENNY RD BETWEEN GODOWN RD & BETHEL, CIRCLE DR BETWEEN KENNY RD & SHUSTER RD, SHUSTER RD BETWEEN SHUSTER LN & BETHEL RD, BETHEL RD EAST-BOUND BETWEEN KENNY RD & JASONWAY AVE, BETHEL RD WEST-BOUND BETWEEN KENNY RD & JASONWAY AVE, POSTLEWAITE RD BETWEEN BETHEL RD & LINWORTH RD, LINWORTH RD BETWEEN SHARON HILL DR & LINWORTH VILLAGE DR, BETHEL RD WEST-BOUND BETWEEN KENNY RD & BENTLEY LN, BETHEL RD WEST-BOUND BETWEEN BENTLY LN & GODOWN RD, BETHEL RD WEST-BOUND BETWEEN GODOWN RD & PORTLAND ST MAY BE CLOSED WITH CITY PERMISSION PER THE CITY OF COLUMBUS MAINTENANCE OF TRAFFIC, STANDARD CONSTRUCTION DRAWING 1540 AND FIGURE 6H-20 (TA-20) OF THE OHIO MANUAL AND/OR APPROVED BY THE DEPARTMENT OF PUBLIC SERVICE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS IN PROVIDING DETOUR INCLUDING THE REMOVAL AND REINSTALLATION OF ANY CONFLICTING TRAFFIC CONTROL AND/OR ANY NECESSARY TRAFFIC SIGNAL WORK.
- FOR MOBILE PAYMENT ONLY ZONES, PLEASE REVIEW THE POSTED MOBILE PAYMENT ZONE SIGN AND PROVIDE THE MOBILE PAYMENT ZONE NUMBER FOR THE PARKING SPACE(S) THAT WILL BE REMOVED FROM SERVICE. IF "TICK-MARKS" ARE INCLUDED WITHIN THE PARKING ZONE, THEN COUNT THE NUMBER OF SPACES NEEDED TO BE OUT OF SERVICE. IF NO "TICK-MARKS" ARE WITHIN THE PARKING ZONE, THEN CALCULATE THE NUMBER OF "SPACES" NEEDED BY USING 20 FEET PER SPACE. ONCE ALL THE INFORMATION LISTED ABOVE HAS BEEN COLLECTED FOR THE PAID PARKING TO BE REMOVED FROM SERVICE, CONTACT THE CITY OF COLUMBUS, DIVISION OF PARKING SERVICES AT PARKINGSERVICES@COLUMBUS.GOV FOR ASSISTANCE WITH ESTIMATING THE DAILY PAID PARKING REVENUE RATE. PROVIDE THE PROJECT LOCATION IN THE SUBJECT LINE OF THE EMAIL. THE ONLINE METER MAP WILL ALSO INCLUDE THE HOURLY RATE FOR MOBILE PAYMENT ZONES. THIS COST IS TO BE INCLUDED IN THE BID FOR THIS PROJECT AS A PART OF ITEM 614 MAINTENANCE OF TRAFFIC, LUMP SUM. AT THE TIME THE CONTRACTOR SUBMITS FOR THE STREET OCCUPANCY/EXCAVATION PERMIT, ALONG WITH THE PAID PARKING IDENTIFICATION NUMBERS TO BE INCLUDED ON THE PERMIT REQUEST FORM, THE CONTRACTOR IS TO PROVIDE A LISTING OF THE METER IDENTIFICATION NUMBERS AND/OR MOBILE PAYMENT ONLY ZONE NUMBERS AND THE NUMBER OF DAYS THAT EACH PAID PARKING SPACE IS TO BE OUT OF SERVICE. TO THE DEPARTMENT OF PUBLIC SERVICE PERMIT OFFICE. THE PERMIT OFFICE WILL VERIFY THAT THE HOURLY RATES ARE CORRECT AND CALCULATE THE COST OF THE PERMIT. TEMPORARY "EMERGENCY NO PARKING" SIGNS SHALL BE INSTALLED BY THE CONTRACTOR IN AREAS WITH NO PARKING METERS AND TO REMOVE PARKING FROM SERVICE IN AREAS WHERE PARKING METERS, KIOSKS, AND OR MOBILE PAYMENT ZONE(S) PARKING HAS BEEN TAKEN OUT OF SERVICE. THE SIGNS SHALL SHOW THE PERMIT NUMBER, INSTALLATION DATE, WORKING DATES, AND HOURS OF RESTRICTION ON EACH SIGN. SIGNS SHALL BE POSTED AT 50' C/C MINIMUM BY

- USE OF ANY OF THE FOLLOWING ITEMS: EXISTING SIGN POSTS, EXISTING UTILITY POLES, DRUMS AND/OR 42" CONES AND REMOVED BY THE CONTRACTOR IN AREAS WITH NO PARKING METERS. THE TEMPORARY SIGN(S) SHALL HAVE THE INSTALLATION DATE, WORKING DATES, AND HOURS OF RESTRICTION SHOWN ON EACH SIGN. THESE SIGNS MAY BE OBTAINED FROM THE DEPARTMENT OF PUBLIC SERVICE'S PERMIT OFFICE. THE POLICE DIVISION REQUIRES THE "EMERGENCY NO PARKING" SIGNS BE POSTED A MINIMUM OF SEVENTY-TWO (72) HOURS PRIOR TO ANY VEHICLES BEING TOWED. WITHIN TWENTY-FOUR (24) HOURS OF POSTING, THE CONTRACTOR SHALL SUPPLY THE DEPARTMENT OF PUBLIC SERVICE WITH A WRITTEN RECORD OF POSTED LOCATIONS (FAX: 614-645-3298).
- THE CONTRACTOR SHALL CONTACT OHIO UTILITY PROTECTION SERVICE (OUPS), NOW "OHIO 811" TO LOCATE AND MARK ALL UNDERGROUND TRAFFIC CONTROL CABLES PRIOR TO THE BEGINNING OF ANY WORK WITHIN 450 FEET OF ANY SIGNALIZED INTERSECTION(S) OR WITHIN ANY POSTED AREA WHERE THE DEPARTMENT HAS UNDERGROUND CABLE. THE SIGNAL OPERATION ENGINEER (614-645-6418) SHALL BE NOTIFIED SIX (6) WEEKS IN ADVANCE FOR SIGNAL REVISIONS OR POLE RELOCATIONS.
- THE CONTRACTOR SHALL CONTACT THE DIVISION OF REFUSE COLLECTION, OPERATIONS MANAGER MICHAEL PICKARD, 614-645-1675.
- NO EXCAVATION SHALL BE MADE WITHIN FIVE (5) FEET OF ANY FOUNDATION THAT SUPPORTS SIGNAL POLES, TRAFFIC SIGNAL DISPLAYS OR SIGNS BY MAST ARM OR SIGNAL SPAN. EXCAVATION WITHIN EIGHT (8) FEET, BUT MORE THAN FIVE (5) FEET SHALL REQUIRE ADDITIONAL SUPPORT (DOWN GUY, HEAD GUY, BASE GUY, ETC.). THE CONTRACTOR SHALL CONTACT SIGNAL OPERATION PERSONNEL AT 614-645-4256 (CELL 614-629-4385) AT LEAST FORTY-EIGHT (48) HOURS (EXCLUDING SAT. & SUN.) PRIOR TO THE BEGINNING OF SUCH EXCAVATION SO THAT THE CITY CAN APPROVE THE STABILIZATION SETUP BY THE CONTRACTOR. IF UNABLE TO MAKE CONTACT THROUGH ABOVE NUMBERS, CALL 614-645-7393. STABILIZATION WILL BE DONE BY THE CONTRACTOR AT THE OWNERS'/CONTRACTING AGENCY'S EXPENSE.
- SIGNAL CONDUIT CLEARANCE 3' HORIZONTAL AND 1' VERTICAL FROM ADJACENT UTILITIES SHALL BE MAINTAINED AT ALL TIMES.
- WHEN ANY TRAFFIC CONTROL DEVICE, CONDUIT, OR CABLE IS DAMAGED, THE CONTRACTOR SHALL NOTIFY SIGNAL OPERATION PERSONNEL AT 614-645-4256 (CELL 614-629-4385) BETWEEN 7:00 AM AND 4:00 PM, MONDAY THROUGH FRIDAY. IF UNABLE TO MAKE CONTACT THROUGH THE OTHER NUMBERS, CALL 614-645-7393.
- THE ROADWAY OR ANY SECTION OF ROADWAY SHALL NOT BE OPENED TO NON-CONSTRUCTION TRAFFIC UNTIL ALL TEMPORARY, NON-REFLECTIVE, BLACKOUT TAPE HAS BEEN COMPLETELY REMOVED FROM NON-CONFLICTING PERMANENT PAVEMENT MARKINGS FOR THAT AREA OF THE ROADWAY, OR UNLESS OTHERWISE DIRECTED IN WRITING BY THE ENGINEER. THIS IS SUPPLEMENTAL TO CITY OF COLUMBUS, CMS-614.11-G, AND SHALL BE PAID FOR THROUGH THE 614-LUMP SUM.
- WHENEVER YELLOW CENTERLINES OR TURN-LANE LINES ARE PAVED OVER, REMOVED, OR OTHERWISE UNSERVICEABLE, THE CONTRACTOR SHALL INSTALL CLASS II TEMPORARY STRIPING (MINIMUM 4' LONG SEGMENTS). TEMPORARY PAINT SHALL BE USED ON ALL MILLED SURFACES. TEMPORARY TAPE SHALL BE USED ON ALL FINAL COURSES OF ASPHALT. PAINT OR TAPE MAY BE USED ON INTERMEDIATE COURSES OF ASPHALT. IF APPROVED BY THE ENGINEER, DRUMS WITH STEADY BURNING TYPE C OR TYPE D 360 DEGREE WARNING LIGHTS AND "KEEP RIGHT" SIGNS MAY BE SUBSTITUTED FOR CENTERLINE MARKINGS.
- CLASS II TEMPORARY STRIPING (MINIMUM 4' LONG SEGMENTS) SHALL BE AS PER ITEM 614 - WORK ZONE PAVEMENT MARKING AND SHALL BE PLACED WITHIN ONE (1) FOOT LONGITUDINAL TOLERANCE OF THE PERMANENT STRIPE(S). ALL TEMPORARY STRIPING NOT TO WITHIN ONE (1) FOOT TOLERANCE SHALL BE REMOVED AND REPLACED IN THE PROPER LOCATION BY THE CONTRACTOR. CLASS II TEMPORARY STRIPING SHALL BE OF THE APPROPRIATE COLOR AND SPACED A MAXIMUM OF FORTY (40) FEET CENTER TO CENTER.

EXISTING PERMANENT TRAFFIC CONTROL NOTES:

- ANY WORK DONE BY THE DEPARTMENT OF PUBLIC SERVICE, INCLUDING INSTALLATION, RELOCATION, REMOVAL AND/OR REPLACEMENT OF PERMANENT TRAFFIC CONTROL DEVICES AS A RESULT OF WORK DONE BY THE CONTRACTOR OR AS A RESULT OF NEGLIGENCE OF THE CONTRACTOR, SHALL BE AT THE CONTRACTORS' EXPENSE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR REINSTALLATION AND/OR REPLACEMENT OF ALL PERMANENT TRAFFIC CONTROL DEVICES DAMAGED OR REMOVED DURING CONSTRUCTION. PERMANENT TRAFFIC CONTROL NO LONGER IN CONFLICT WITH TEMPORARY TRAFFIC CONTROL SHALL BE REPLACED IMMEDIATELY.
- THE CONTRACTOR SHALL REPLACE ALL PAVEMENT MARKINGS, INCLUDING RAISED PAVEMENT MARKERS (RPM) SHOWN IN CONFLICT, REMOVED DUE TO CONSTRUCTION OR MAINTENANCE OF TRAFFIC SET UP, DESTROYED, OR RENDERED UNSERVICEABLE BY THE PROJECT ENGINEER OR THE PUBLIC SERVICE PAVEMENT MARKING MANAGER. ALL PAVEMENT MARKING MATERIALS SHALL BE REPLACED IN-LIKE KIND TO THE CURRENT CMS SPECIFICATION REQUIREMENTS IF NOT SHOWN IN THE PLAN OR PERMIT INCLUDING RAISED PAVEMENT MARKERS. ALL PAVEMENT MARKINGS SHALL BE REPLACED IN FULL. NO PARTIAL LENGTH OR SECTIONS OF PAVEMENT MARKINGS SHALL BE REPLACED WITHOUT REMOVING THE ENTIRE MARKING BY USE OF THE WATER BLAST METHOD. REMOVAL BY ABRASIVE WHEEL GRINDING SHALL ONLY BE APPROVED BY THE PUBLIC SERVICE PAVEMENT MARKING MANAGER.

ADDITIONAL EXISTING PERMANENT TRAFFIC CONTROL NOTES:

- ALL OVERHEAD CABLE, AND DOWN GUYS OR BACK GUYS SHALL NOT BLOCK ANY PORTION OF A TRAFFIC SIGNAL, TRAFFIC CONTROL SIGN, OR OTHER TRAFFIC CONTROL DEVICE SUCH THAT VISIBILITY OR OPERATION OF THE TRAFFIC CONTROL DEVICE IS IMPAIRED.
- ALL PERMANENT PAVEMENT MARKINGS AND TRAFFIC CONTROL SIGNS AS SHOWN ON THIS PLAN SHALL BE INSTALLED BY THE CONTRACTOR AT THE PROJECTS EXPENSE. THE PROJECT ENGINEER SHALL BE NOTIFIED TO DIRECT APPROPRIATE PERSONNEL A MINIMUM OF FORTY-EIGHT (48) HOURS (EXCLUDING SAT. & SUN.) PRIOR TO THE INSTALLATION OF PERMANENT MARKINGS TO INSPECT AND APPROVE THE PAVEMENT MARKING LAYOUT PRIOR TO PLACING THE PERMANENT MARKINGS.
- PERMANENT STRIPING OR CLASS I TEMPORARY STRIPING SHALL BE INSTALLED NO LATER THAN FOURTEEN (14) CALENDAR DAYS AFTER THE FINAL PAVING COURSE IS COMPLETED. THE PAVING CONTRACTOR SHALL BE RESPONSIBLE TO NOTIFY THE STRIPING CONTRACTOR TO INSURE THE PERMANENT STRIPING IS INSTALLED WITHIN THE FOURTEEN (14) CALENDAR DAY LIMIT.
- IF THE DEPARTMENT OF PUBLIC SERVICE IS TO INSTALL PERMANENT STRIPING, THE PROJECT ENGINEER SHALL BE NOTIFIED TO DIRECT APPROPRIATE PERSONNEL A MINIMUM OF TEN (10) WORKING DAYS PRIOR TO THE APPLICATION OF THE FINAL COURSE OF PAVEMENT.
- AT ANY LOCATION WHERE THE CONTRACTOR DAMAGES DETECTORS AND/OR THEIR LEAD-IN CABLES THE CONTRACTOR SHALL REPLACE THEM. AT ANY LOCATION WHERE DETECTION IS CHANGED FROM MAG PROBE UNITS TO LOOPS, THE CONTRACTOR SHALL REPLACE THE PROBE LEAD-IN WITH LOOP LEAD-IN CABLE. ALL REPAIRS TO DETECTION SHALL BE COMPLETED WITHIN 21 DAYS FROM DAMAGE TO DETECTION ON A PER INTERSECTION BASIS. IF THE 21 DAY REPAIR

REQUIREMENT CANNOT BE SATISFIED AT ANY LOCATION WHERE THE CONTRACTOR DAMAGES DETECTORS AND/OR THEIR LEAD-IN CABLES, THE CONTRACTOR, AT THE DISCRETION OF SIGNAL OPERATIONS PERSONNEL, MAY BE REQUIRED TO INSTALL A VERSICAM FLEX CAMERA SYSTEM, A WAVETRONIX RADAR SYSTEM, OR TEMPORARY LOOP DETECTION. ANY CONTRACTOR FAILING TO COMPLY WITH THESE GUIDELINES SHALL BE SUBJECT TO PENALTY TO THE SUM OF \$100.00 PER DAY FOR EACH DAY BEYOND THE 21 DAY REPAIR PERIOD ON A PER INTERSECTION BASIS, UNTIL CONDITIONS ARE MET TO THE SATISFACTION OF THE SIGNAL OPERATIONS PERSONNEL. THIS PENALTY DEDUCTION SHALL BE SPECIFIC FOR EACH SIGNALIZED INTERSECTION EFFECTED BY THIS PROJECT AND SEPARATE FROM ANY LIQUIDATED DAMAGES FOR THE PROJECT AS A WHOLE. THE WORK TO INSTALL THE DETECTION SHALL CONFORM TO THE CITY OF COLUMBUS STANDARD DRAWING 4300 AND THE CITY OF COLUMBUS CONSTRUCTION AND MATERIAL SPECIFICATIONS, LATEST EDITION, WITH THE FOLLOWING PROVISIONS:

- THE CONTRACTOR SHALL PROVIDE THE DEPARTMENT OF PUBLIC SERVICE'S INSPECTOR, PRIOR TO THE COMMENCEMENT OF WORK, THE IMSA (INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION) CERTIFICATION PAPERS FOR ALL SIGNAL TECHNICIANS WORKING ON THIS PROJECT.
- LOCATIONS OF THE REPLACEMENT DETECTION SHALL BE FIELD MARKED OR DIMENSIONED DRAWINGS SHALL BE SUBMITTED TO THE CONSTRUCTION SECTION BY DEPARTMENT OF PUBLIC SERVICE PERSONNEL. LOCATION OF FINAL PAVEMENT MARKINGS OR THE MARKINGS THEMSELVES SHALL BE CLEARLY INDICATED ON THE ASPHALT PRIOR TO DETECTOR LOCATIONS BEING MARKED. THE CONTRACTOR SHALL LAYOUT THE LOOPS ON THE PAVEMENT IF DRAWINGS ARE SUBMITTED. IF DRAWINGS HAVE NOT BEEN PROVIDED, CONTACT SIGNAL OPERATIONS PERSONNEL AT 614-645-4256 (CELL 614-629-4385) AT LEAST TWO WORKING DAYS PRIOR TO NEEDING THE LOCATION MARKED. IF UNABLE TO MAKE CONTACT THROUGH THE ABOVE NUMBERS, CALL 614-645-7393.
- THE SAW SLOT DEPTH FOR LOOP WIRE INSTALLATION SHALL BE FOUR (4) INCHES WITH SIX (6) INCHES AT THE CONDUIT ENTRANCE. IF ADVERSE PAVEMENT CONDITIONS WARRANT, DEPTH MAY BE INCREASED TO SIX (6) INCHES THROUGHOUT AND SHALL BE DETERMINED BY THE DEPARTMENT OF PUBLIC SERVICE INSPECTOR.
- EACH LOOP SHALL HAVE ITS OWN CONDUIT FROM EDGE OF PAVEMENT TO PULL BOX UNLESS SPECIFIED OTHERWISE BY THE DEPARTMENT OF PUBLIC SERVICE INSPECTOR. THE PULLBOX ASSEMBLY SHALL BE RATED AS MEDIUM TO HEAVY DUTY, TO BE INSTALLED IN CONCRETE WALKWAYS, AND SHALL HAVE ALL STAINLESS STEEL HARDWARE. THE PULLBOX COVER SHALL HAVE THE WORD "TRAFFIC" ON IT. THE COVER SHALL BE BOLTED TO THE BOX AND SHALL BE POLYMER CONCRETE. THE COVER PLUS HOUSING AS A UNIT SHALL BE RATED TO WITHSTAND A MINIMUM 20,000 LB. STATIC LOAD OVER A 10"x10" AREA AS PER ASTM C-857. THE BOX DEPTH SHALL BE 15 INCHES MINIMUM TO 30 INCHES MAXIMUM. IF THE PROJECT DOES NOT SPECIFY 725.06 POLYMER CONCRETE PULL BOXES, THE SUPPLIED ASSEMBLIES SHALL BE AS FOLLOWS: CDR SYSTEMS MODEL SA32-1015-18, OR SYNERTECH MODEL S1118B18FA. SIX (6) INCHES OF #57 AGGREGATE SHALL BE PLACED AT THE BOTTOM OF THE PULLBOX. NO CONDUIT SHALL PROTRUDE MORE THAN THREE (3) INCHES INSIDE THE PULLBOX. CONDUIT ELLS OR EXTENSIONS MAY BE USED TO ALIGN THE CONDUIT WITH THE HOUSING. THE COST FOR EXTENSIONS OR ELLS IF NEEDED SHALL BE INCIDENTAL TO THE PER UNIT PRICE.
- WHEN A PULLBOX IS NOT USED, THE SOLDERED SPLICE SHALL BE MADE IN AN ANCHOR BASE STRAIN POLE OR A CONDUIT RISER SPECIFIED BY THE DEPARTMENT OF PUBLIC SERVICE'S REPRESENTATIVE. EXCEPT WHERE A CONTROLLER CABINET IS MOUNTED ON THAT POLE IN WHICH CASE THE LOOP WIRE SHALL BE ROUTED DIRECTLY INTO THE CABINET. THE CONTRACTOR SHALL NOT MAKE ANY WIRING CONNECTIONS OR ADJUSTMENTS INSIDE THE CONTROL CABINET. WHEN SUCH CONNECTIONS ARE REQUIRED, THE CONTRACTOR SHALL NOTIFY THE TRAFFIC OPERATIONS SHOP 614-645-7393, MON.-FRI. 8 AM TO 4 PM, TO SCHEDULE CITY FORCES FOR MAKING THE ACTUAL CONNECTIONS. THE CONTRACTOR SHALL BE AVAILABLE AT THE AGREED TIME. THE CONTRACTOR WILL BE BILLED FOR ANY TIME THAT CITY FORCES ARE REQUIRED TO WAIT FOR THE CONTRACTORS' WORK TO BE COMPLETED.
- CONDUIT PLACED IN "RIGHT OF WAY" AREAS BEARING NO TRAFFIC FOR DETECTOR LEAD IN SHALL BE ITEM 725.051, CITY OF COLUMBUS CONSTRUCTION AND MATERIAL SPECIFICATIONS, LATEST EDITION. CONDUIT PLACED UNDER A ROADWAY OR IN AREAS THAT MAY BEAR TRAFFIC SHALL BE CONCRETE ENCASED (SIZES AND TYPE TO BE DETERMINED BY THE DEPARTMENT OF PUBLIC SERVICE'S REPRESENTATIVE. ALL CONDUITS SHALL BE PLACED AT A MINIMUM DEPTH OF 24".
- LOOP WIRE SHALL BE IDENTIFIED WITH A PLASTIC TAG (WBLT, EBRT, ETC.) AT THE SPLICE POINT OR AT ENTRANCE TO THE CABINET IF LEAD-IN CABLE IS NOT USED.
- THE ITEMS AND ESTIMATED QUANTITIES FOR THE REPLACEMENT OF THE DEPARTMENT OF PUBLIC SERVICE'S DETECTION ITEMS SHALL BE INCLUDED IN THESE PLANS WHEN DIRECTED BY THE PLAN REVIEWER. THESE ESTIMATES ARE FOR THE PURPOSE OF BIDDING THE PROJECT. THE FOLLOWING IS A LIST OF THE ITEMS AND QUANTITIES PROJECTED FOR USE IN DETECTOR REPLACEMENT FOR THIS PROJECT:
 - THE CONTRACTOR SHALL NOTIFY SIGNAL OPERATION PERSONNEL AT 614-645-4256 (CELL 614-629-4385) AFTER ALL LOOPS HAVE BEEN INSTALLED AT EACH INTERSECTION. IF UNABLE TO MAKE CONTACT THROUGH THE ABOVE NUMBER, CALL 614-645-7393. THE DEPARTMENT OF PUBLIC SERVICE SHALL INSPECT ALL SENSORS AND TEST AS NECESSARY. THE CONTRACTOR SHALL REPLACE ALL LOOPS NOT MEETING SPECIFICATIONS.



REVISIONS			
REV. #	DATE	DESCRIPTION	
0	1/08/26	ISSUED FOR CONSTRUCTION	
DESIGNED BY	CCK	1/08/26	314-391-5360
DRAWN BY	JMB	1/08/26	314-239-4747
CHECKED BY	JPF	1/08/26	314-578-9778
AS-BUILT BY	TBD	TBD	TBD
	NAME	DATE	PHONE #

SITE NAME:
WO# 40009378
MAT
WBS L2
 PHASE 4 NCHP PIPELINE REPLACEMENT
 COLUMBUS, FRANKLIN COUNTY, OH

DRAWING TITLE:
TRAFFIC CONTROL NOTES

DRAWING NO:
GN-11

20" MAINLINE BILL OF MATERIALS

ITEM	STOCK NO.	SIZE	DESCRIPTION	ADDITIONAL NOTES	LENGTH	QUANTITY
1	SPEC. ORDER	20"	PIPE, 0.375" WALL, X-52, COATED, HFW, PE., C.S., API 5L, PSL-2, DUAL FBE COATED TO 32-38 MILS, TOTAL CUMULATIVE THICKNESS NOT TO EXCEED 45 MILS		24,225	
2	SPEC. ORDER	20"	PIPE, 0.375" WALL, X-52, COATED, HFW, PE., C.S., API 5L, PSL-2, DUAL FBE COATED TO 12-18 MILS AND 20 MILS ARO COATED FOR TOTAL CUMULATIVE THICKNESS OF 32-38 MILS, TOTAL CUMULATIVE THICKNESS NOT TO EXCEED 45 MILS	BORE PIPE	1,758	
3	SPEC. ORDER	20"	ELBOW, 90°, 5R, SEGMENTABLE, 0.375" WALL, Y-52, MSS SP75, B.W., C.S., ASME B16.9			18
4	SPEC. ORDER	20"	ELBOW, 45°, 5R, SEGMENTABLE, 0.375" WALL, Y-52, MSS SP75, B.W., C.S., ASME B16.9			2
5	SPEC. ORDER	20"	ELBOW, 45°, 3R, SEGMENTABLE, 0.375" WALL, Y-52, MSS SP75, B.W., C.S., ASME B16.9			36
6	17-52-2000	20"	ELBOW, 90°, LR, SEGMENTABLE, 0.375" WALL, Y-52, MSS SP75, B.W., C.S., ASME B16.9			5
7			NOT USED			
8	SPEC. ORDER	20"	STOPPLE ANSI 600, SEE QUOTE			2
9	17-52-2045	20"	CAP, 0.375" WALL, Y-52, MSS SP75, B.W., C.S., ASME B16.9	FOR TESTING PURPOSES		2
10	SPEC. ORDER	2"	PURGE FITTING, TDW, WELD FITTING, THREAD-ORING, DP= 3,600 PSIG THD CAP, 6" OD PIPE & LARGER, TDW PART NUMBER: TR-0000-0001-00			9
11	SPEC. ORDER	20"	20" NPS MONOLITHIC WELD END INSULATING JOINT, ANSI 600, BORED TO MATCH 0.375" W.T., X-52 PIPE, COATED FOR BURIED SERVICE, SEE QUOTE			6
12	SPEC. ORDER	12"x6"	CLAMP ON METER	TO BE ORDERED PER QUOTE		1
13	42-32-035	5" DIA	TEST STATION BOX, YLW, 18x18 W/ HOOKS AND COL. GAS ON LID BINGHAM AND TAYLOR, PH: P5BN5DT1818CPT			23
14	SPEC. ORDER	6"	PIPELINE WARNING TAPE (1000' ROLL)			24
15	SPEC. ORDER	5"	FLUSH MOUNT PIPELINE MARKER			61
16	42-77-553	3.5"x6"	PIPELINE MARKER, POST TYPE, WHT/YLW, OHIO.	REFERENCE GS 1720.010 FOR DETAILS		5
17	SPEC. ORDER	20"	TRANSITION PIECE, 0.254" WALL TO 0.375" WALL			2
18	SPEC. ORDER	20"	VALVE, BALL, TRUNNION, ANSI CLASS 600, FULL PORT, CS BODY, GEAR OPERATED W/ HANDWHEEL, API 6D			1
19	SPEC. ORDER	20"	FLANGE, WELD NECK, R.F., ANSI 600, C.S., BORED TO 0.375" WALL, F-52, ASME B16.5, A694, MSS SP 44, DP= 1,480 PSIG, 24 BOLTS PER FLANGE			4
20	SPEC. ORDER	1-5/8"x12"	STUD BOLT, A-193, GRADE B7, THREADED ENTIRE LENGTH, W 2-2H NUTS, A194, BOLTS (FTF), NUTS, AND WASHERS (IF REQ'D) TO BE PTFE COATED			96
21	SPEC. ORDER	20"	GASKET, SPIRAL WOUND, ANSI 600, ASME B16.20, 1/8" THICK, FLEXITALLIC, STYLE CGI, OUTER RING C.S., INNER RING 316L, 316L/FLEXICARB WINDING			4
22	SPEC. ORDER	1"	THREADOLET, 3000#, CARBON STEEL, F-52, 12" THRU 36" PIPE, A694, MSS SP97, BONNEY FORGE OR EQUIVALENT			2
23	SPEC. ORDER	1"	NIPPLE, PIPE, 3" LG, SCHEDULE 80, CARBON STEEL, SMLS, ASTM A106 GR-B, FPT BOTH ENDS, B16.11			2
24	SPEC. ORDER	1"	VALVE, BALL, KF, FP, THREADED, 316 SS, S8000-M3, LOCKING HANDLE, 2,000# W.O.G, OR EQUIV. VALVE			2
25	SPEC. ORDER	1"	PLUG, SQ HEAD, 6000#, CARBON STEEL, ASTM A105, THD, B16.11			2

KENNY & FRANCISCO LATERAL BILL OF MATERIALS

ITEM	STOCK NO.	SIZE	DESCRIPTION	ADDITIONAL NOTES	LENGTH	QUANTITY
1	SPEC. ORDER	20"	PIPE, 0.375" WALL, X-52, COATED, HFW, PE., C.S., API 5L, PSL-2, DUAL FBE COATED TO 32-38 MILS, TOTAL CUMULATIVE THICKNESS NOT TO EXCEED 45 MILS		40'	
2	SPEC. ORDER	8"	PIPE, 0.322" WALL, X-52, COATED, HFW, PE., C.S., API 5L, PSL-2, DUAL FBE COATED TO 32-38 MILS, TOTAL CUMULATIVE THICKNESS NOT TO EXCEED 45 MILS		40'	
3	SPEC. ORDER	6"	PIPE, 0.280" WALL, X-52, COATED, HFW, PE., C.S., API 5L, PSL-2, DUAL FBE COATED TO 32-38 MILS, TOTAL CUMULATIVE THICKNESS NOT TO EXCEED 45 MILS		400'	
4	SPEC. ORDER	4"	PIPE, 0.237" WALL, X-52, COATED, HFW, PE., C.S., API 5L, PSL-2, DUAL FBE COATED TO 32-38 MILS, TOTAL CUMULATIVE THICKNESS NOT TO EXCEED 45 MILS		40'	
5	17-52-0837	8" x 6"	REDUCER, CONC., 0.322" x 0.280" WALL, Y-52, MSS SP75, B.W., C.S., ASME B16.9			1
6	17-52-0637	6" x 4"	REDUCER, CONC., 0.280" x 0.237" WALL, Y-52, MSS SP75, B.W., C.S., ASME B16.9			1
7	SPEC. ORDER	20" x 8"	TEE, REDUCING, 0.375" x 0.322" WALL, Y-52, MSS SP75, B.W., C.S., ASME B16.9			1
8			NOT USED			
9	SPEC. ORDER	6"	BALL VALVE, NDE BURIED GEAR W/2" SQUARE OP NUT, TO INCLUDE A SHAFT EXTENSION OF 4'-8" ANSI 600, SEE QUOTE			1
10	SPEC. ORDER	N/A	CHRISTY B1730 ROUND ENCLOSURE, RECTANGLE BOX WITH 17"x30" OPENING, FULLY TRAFFIC RATED			1
11	17-52-0445	4"	CAP, 0.237" WALL, Y-52, MSS SP75, B.W., C.S., ASME B16.9			1
12	SPEC. ORDER	1"	PURGE FITTING, TDW, WELD FITTING, THREAD-ORING, DP= 3,600 PSIG THD CAP, 4.5" OD PIPE, TDW PART NUMBER: TR-0002-0001-00			8
13	SPEC. ORDER	6"	6" NPS MONOLITHIC WELD END INSULATING JOINT, ANSI 600, BORED TO MATCH 0.280" W.T., X-52 PIPE, COATED FOR BURIED SERVICE, SEE QUOTE			1
14	SPEC. ORDER	4"	STOPPLE ANSI 600, SEE QUOTE			2
15	17-52-0400	4"	ELBOW, 90°, LR, SEGMENTABLE, 0.237" WALL, Y-52, MSS SP75, B.W., C.S., ASME B16.9			5
16			NOT USED			
17	SPEC. ORDER	4"	VALVE, BALL, TRUNNION, ANSI CLASS 600, FULL PORT, CS BODY, GEAR OPERATED W/ HANDWHEEL, API 6D			1
18	SPEC. ORDER	4"	FLANGE, WELD NECK, R.F., ANSI 600, C.S., BORED TO 0.237" WALL, F-52, ASME B16.5, A694, MSS SP 44, DP= 1,480 PSIG, 8 BOLTS PER FLANGE			4
19	SPEC. ORDER	7/8" x 6-1/4"	STUD BOLT, A-193, GRADE B7, THREADED ENTIRE LENGTH, W 2-2H NUTS, A194, BOLTS (FTF), NUTS, AND WASHERS (IF REQ'D) TO BE PTFE COATED			32
20	SPEC. ORDER	4"	GASKET, SPIRAL WOUND, ANSI 600, ASME B16.20, 1/8" THICK, FLEXITALLIC, STYLE CGI, OUTER RING C.S., INNER RING 316L, 316L/FLEXICARB WINDING			4
21	SPEC. ORDER	1"	THREADOLET, 3000#, CARBON STEEL, F-52, 4" THRU 5" PIPE, A694, MSS SP97, BONNEY FORGE OR EQUIVALENT			2
22	SPEC. ORDER	1"	NIPPLE, PIPE, 3" LG, SCHEDULE 80, CARBON STEEL, SMLS, ASTM A106 GR-B, FPT BOTH ENDS, B16.11			2
23	SPEC. ORDER	1"	VALVE, BALL, KF, FP, THREADED, 316 SS, S8000-M3, LOCKING HANDLE, 2,000# W.O.G, OR EQUIV. VALVE			2
24	SPEC. ORDER	1"	PLUG, SQ HEAD, 6000#, CARBON STEEL, ASTM A105, THD, B16.11			2
25	SPEC. ORDER	2"	PURGE FITTING, TDW, WELD FITTING, THREAD-ORING, DP= 3,600 PSIG THD CAP, 6" OD PIPE & LARGER, TDW PART NUMBER: TR-0000-0001-00			2



BURNS & MCDONNELL
 530 W SPRING STREET, SUITE 100
 COLUMBUS, OHIO 43215
 (614) 453-7800

REVISIONS			
REV. #	DATE	DESCRIPTION	
1	2/26/26	REISSUED FOR 90%	
0	1/08/26	ISSUED FOR CONSTRUCTION	

DESIGNED BY	CCK	2/26/26	314-391-5360
DRAWN BY	JMB	2/26/26	314-239-4747
CHECKED BY	JPF	2/26/26	314-578-9778
AS-BUILT BY	TBD	TBD	TBD
	NAME	DATE	PHONE #

SITE NAME:
WO# 400009378
MAT
WBS L2
 PHASE 4 NCHP PIPELINE REPLACEMENT
 COLUMBUS, FRANKLIN COUNTY, OH

DRAWING TITLE:
OVERALL MAINLINE & LATERAL
BILL OF MATERIALS

DRAWING NO:
BOM-01

KENNY & HENDERSON BRIDAL BILL OF MATERIALS						
ITEM	STOCK NO.	SIZE	DESCRIPTION	ADDITIONAL NOTES	LENGTH	QUANTITY
1	SPEC. ORDER	20"	PIPE, 0.375" WALL, X-52, COATED, HFW, PE., C.S., API 5L, PSL-2, DUAL FBE COATED TO 32-38 MILS, TOTAL CUMULATIVE THICKNESS NOT TO EXCEED 45 MILS		40'	
2	SPEC. ORDER	8"	PIPE, 0.322" WALL, X-52, COATED, HFW, PE., C.S., API 5L, PSL-2, DUAL FBE COATED TO 32-38 MILS, TOTAL CUMULATIVE THICKNESS NOT TO EXCEED 45 MILS		240'	
3	SPEC. ORDER	6"	PIPE, 0.280" WALL, X-52, COATED, HFW, PE., C.S., API 5L, PSL-2, DUAL FBE COATED TO 32-38 MILS, TOTAL CUMULATIVE THICKNESS NOT TO EXCEED 45 MILS		40'	
4	17-52-0800	8"	ELBOW, 90°, LR, SEGMENTABLE, 0.322" WALL, Y-52, MSS SP75, B.W., C.S., ASME B16.9			4
5	17-52-0837	8" x 6"	REDUCER, CONC., 0.322" x 0.280" WALL, Y-52, MSS SP75, B.W., C.S., ASME B16.9			1
6	SPEC. ORDER	20" x 8"	TEE, REDUCING, 0.375" x 0.322" WALL, Y-52, MSS SP75, B.W., C.S., ASME B16.9			2
7	17-52-0820	8"	TEE, 0.322" WALL, Y-52, MSS SP75, B.W., C.S., ASME B16.9			1
8			NOT USED			
9	SPEC. ORDER	20"	BALL VALVE, NDE BURIED GEAR W/2" SQUARE OP NUT, TO INCLUDE A SHAFT EXTENSION OF 5'-8", ANSI 600, SEE QUOTE			1
10	SPEC. ORDER	8"	BALL VALVE, NDE BURIED GEAR W/2" SQUARE OP NUT, TO INCLUDE A SHAFT EXTENSION OF 5'-8", ANSI 600, SEE QUOTE			2
11	SPEC. ORDER	N/A	CHRISTY B1730 ROUND ENCLOSURE, RECTANGLE BOX WITH 17"x30" OPENING, FULLY TRAFFIC RATED			3
12	SPEC. ORDER	2"	PURGE FITTING, TDW, WELD FITTING, THREAD-ORING, DP= 3,600 PSIG THD CAP, 6" OD PIPE & LARGER, TDW PART NUMBER: TR-0000-0001-00			11
13	SPEC. ORDER	6"	6" NPS MONOLITHIC WELD END INSULATING JOINT, ANSI 600, BORED TO MATCH 0.280" W.T., X-52 PIPE, COATED FOR BURIED SERVICE, SEE QUOTE			1
14	SPEC. ORDER	6"	STOPPLE ANSI 600, SEE QUOTE			2
15	SPEC. ORDER	6"	TRANSITION PIECE, 0.230" WALL TO 0.280" WALL			2
16	17-52-0600	6"	ELBOW, 90°, LR, SEGMENTABLE, 0.280" WALL, Y-52, MSS SP75, B.W., C.S., ASME B16.9			5
17	SPEC. ORDER	6"	VALVE, BALL, TRUNNION, ANSI CLASS 600, FULL PORT, CS BODY, GEAR OPERATED W/ HANDWHEEL, API 6D			1
18	SPEC. ORDER	6"	FLANGE, WELD NECK, R.F., ANSI 600, C.S., BORED TO 0.280" WALL, F-52, ASME B16.5, A694, MSS SP 44, DP= 1,480 PSIG, 12 BOLTS PER FLANGE			4
19	SPEC. ORDER	1" x 7-1/4"	STUD BOLT, A-193, GRADE B7, THREADED ENTIRE LENGTH, W 2-2H NUTS, A194, BOLTS (FTF), NUTS, AND WASHERS (IF REQ'D) TO BE PTFE COATED			48
20	SPEC. ORDER	6"	GASKET, SPIRAL WOUND, ANSI 600, ASME B16.20, 1/8" THICK, FLEXITALLIC, STYLE CGI, OUTER RING C.S., INNER RING 316L, 316L/FLEXICARB WINDING			4
21	SPEC. ORDER	1"	THREADOLET, 3000#, CARBON STEEL, F-52, 6" THRU 10" PIPE, A694, MSS SP97, BONNEY FORGE OR EQUIVALENT			2
22	SPEC. ORDER	1"	NIPPLE, PIPE, 3" LG, SCHEDULE 80, CARBON STEEL, SMLS, ASTM A106 GR-B, FPT BOTH ENDS, B16.11			2
23	SPEC. ORDER	1"	VALVE, BALL, KF, FP, THREADED, 316 SS, S8000-M3, LOCKING HANDLE, 2,000# W.O.G, OR EQUIV. VALVE			2
24	SPEC. ORDER	1"	PLUG, SQ HEAD, 6000#, CARBON STEEL, ASTM A105, THD, B16.11			2
25	17-52-0645	6"	CAP, 0.280" WALL, Y-52, MSS SP75, B.W., C.S., ASME B16.9			1

KENNY & MEDHURST LATERAL BILL OF MATERIALS						
ITEM	STOCK NO.	SIZE	DESCRIPTION	ADDITIONAL NOTES	LENGTH	QUANTITY
1	SPEC. ORDER	20"	PIPE, 0.375" WALL, X-52, COATED, HFW, PE., C.S., API 5L, PSL-2, DUAL FBE COATED TO 32-38 MILS, TOTAL CUMULATIVE THICKNESS NOT TO EXCEED 45 MILS		40'	
2	SPEC. ORDER	8"	PIPE, 0.322" WALL, X-52, COATED, HFW, PE., C.S., API 5L, PSL-2, DUAL FBE COATED TO 32-38 MILS, TOTAL CUMULATIVE THICKNESS NOT TO EXCEED 45 MILS		40'	
3	SPEC. ORDER	4"	PIPE, 0.237" WALL, X-52, COATED, HFW, PE., C.S., API 5L, PSL-2, DUAL FBE COATED TO 32-38 MILS, TOTAL CUMULATIVE THICKNESS NOT TO EXCEED 45 MILS		40'	
4	17-52-0400	4"	ELBOW, 90°, LR, SEGMENTABLE, 0.237" WALL, Y-52, MSS SP75, B.W., C.S., ASME B16.9			6
5	17-52-0836	8" x 4"	REDUCER, CONC., 0.322" x 0.237" WALL, Y-52, MSS SP75, B.W., C.S., ASME B16.9			1
6	SPEC. ORDER	20" x 8"	TEE, REDUCING, 0.375" x 0.322" WALL, Y-52, MSS SP75, B.W., C.S., ASME B16.9			1
7			NOT USED			
8	SPEC. ORDER	4"	BALL VALVE, NDE BURIED GEAR W/2" SQUARE OP NUT, TO INCLUDE A SHAFT EXTENSION OF 3'-5", ANSI 600, SEE QUOTE			1
9	SPEC. ORDER	N/A	CHRISTY B1730 ROUND ENCLOSURE, RECTANGLE BOX WITH 17"x30" OPENING, FULLY TRAFFIC RATED			1
10	17-52-0445	4"	CAP, 0.237" WALL, Y-52, MSS SP75, B.W., C.S., ASME B16.9			1
11	SPEC. ORDER	1"	PURGE FITTING, TDW, WELD FITTING, THREAD-ORING, DP= 3,600 PSIG THD CAP, 4.5" OD PIPE, TDW PART NUMBER: TR-0002-0001-00			8
12	SPEC. ORDER	4"	4" NPS MONOLITHIC WELD END INSULATING JOINT, ANSI 600, BORED TO MATCH 0.237" W.T., X-52 PIPE, COATED FOR BURIED SERVICE, SEE QUOTE			1
13	SPEC. ORDER	4"	STOPPLE ANSI 600, SEE QUOTE			2
14			NOT USED			
15	SPEC. ORDER	4"	VALVE, BALL, TRUNNION, ANSI CLASS 600, FULL PORT, CS BODY, GEAR OPERATED W/ HANDWHEEL, API 6D			1
16	SPEC. ORDER	4"	FLANGE, WELD NECK, R.F., ANSI 600, C.S., BORED TO 0.237" WALL, F-52, ASME B16.5, A694, MSS SP 44, DP= 1,480 PSIG, 8 BOLTS PER FLANGE			4
17	SPEC. ORDER	7/8" x 6-1/4"	STUD BOLT, A-193, GRADE B7, THREADED ENTIRE LENGTH, W 2-2H NUTS, A194, BOLTS (FTF), NUTS, AND WASHERS (IF REQ'D) TO BE PTFE COATED			32
18	SPEC. ORDER	4"	GASKET, SPIRAL WOUND, ANSI 600, ASME B16.20, 1/8" THICK, FLEXITALLIC, STYLE CGI, OUTER RING C.S., INNER RING 316L, 316L/FLEXICARB WINDING			4
19	SPEC. ORDER	1"	THREADOLET, 3000#, CARBON STEEL, F-52, 4" THRU 5" PIPE, A694, MSS SP97, BONNEY FORGE OR EQUIVALENT			2
20	SPEC. ORDER	1"	NIPPLE, PIPE, 3" LG, SCHEDULE 80, CARBON STEEL, SMLS, ASTM A106 GR-B, FPT BOTH ENDS, B16.11			2
21	SPEC. ORDER	1"	VALVE, BALL, KF, FP, THREADED, 316 SS, S8000-M3, LOCKING HANDLE, 2,000# W.O.G, OR EQUIV. VALVE			2
22	SPEC. ORDER	1"	PLUG, SQ HEAD, 6000#, CARBON STEEL, ASTM A105, THD, B16.11			2



BURNS MEDONNELL
 530 W SPRING STREET, SUITE 100
 COLUMBUS, OHIO 43215
 (614) 453-7800

REVISIONS			
REV. #	DATE	DESCRIPTION	
1	2/26/26	REISSUED FOR 90%	
0	1/08/26	ISSUED FOR CONSTRUCTION	
DESIGNED BY	CCK	2/26/26	314-391-5360
DRAWN BY	JMB	2/26/26	314-239-4747
CHECKED BY	JPF	2/26/26	314-578-9778
AS-BUILT BY	TBD	TBD	TBD
	NAME	DATE	PHONE #

SITE NAME:
WO# 400009378
MAT
WBS L2
 PHASE 4 NCHP PIPELINE REPLACEMENT
 COLUMBUS, FRANKLIN COUNTY, OH

DRAWING TITLE:
**OVERALL LATERAL
 BILL OF MATERIALS**

DRAWING NO:
BOM-02

TREMONT & LONDON LATERAL BILL OF MATERIALS

ITEM	STOCK NO.	SIZE	DESCRIPTION	ADDITIONAL NOTES	LENGTH	QUANTITY
1	SPEC. ORDER	20"	PIPE, 0.375" WALL, X-52, COATED, HFW, PE., C.S., API 5L, PSL-2, DUAL FBE COATED TO 32-38 MILS, TOTAL CUMULATIVE THICKNESS NOT TO EXCEED 45 MILS		40'	
2	SPEC. ORDER	8"	PIPE, 0.322" WALL, X-52, COATED, HFW, PE., C.S., API 5L, PSL-2, DUAL FBE COATED TO 32-38 MILS, TOTAL CUMULATIVE THICKNESS NOT TO EXCEED 45 MILS		40'	
3	SPEC. ORDER	6"	PIPE, 0.280" WALL, X-52, COATED, HFW, PE., C.S., API 5L, PSL-2, DUAL FBE COATED TO 32-38 MILS, TOTAL CUMULATIVE THICKNESS NOT TO EXCEED 45 MILS		40'	
4	17-52-0600	6"	ELBOW, 90°, LR, SEGMENTABLE, 0.280" WALL, Y-52, MSS SP75, B.W., C.S., ASME B16.9			8
5	17-52-0837	8" x 6"	REDUCER, CONC., 0.322" x 0.280" WALL, Y-52, MSS SP75, B.W., C.S., ASME B16.9			1
6	SPEC. ORDER	20" x 8"	TEE, REDUCING, 0.375" x 0.322" WALL, Y-52, MSS SP75, B.W., C.S., ASME B16.9			1
7			NOT USED			
8	SPEC. ORDER	6"	BALL VALVE, NDE BURIED GEAR W/2" SQUARE OP NUT, TO INCLUDE A SHAFT EXTENSION OF 3'-2", ANSI 600, SEE QUOTE			1
9	SPEC. ORDER	N/A	CHRISTY B1730 ROUND ENCLOSURE, RECTANGLE BOX WITH 17"x30" OPENING, FULLY TRAFFIC RATED			1
10	SPEC. ORDER	2"	PURGE FITTING, TDW, WELD FITTING, THREAD-ORING, DP= 3,600 PSIG THD CAP, 6" OD PIPE & LARGER, TDW PART NUMBER: TR-0000-0001-00"			8
11	SPEC. ORDER	6"	6" NPS MONOLITHIC WELD END INSULATING JOINT, ANSI 600, BORED TO MATCH 0.280" W.T., X-52 PIPE, COATED FOR BURIED SERVICE, SEE QUOTE			1
12	SPEC. ORDER	6"	STOPPLE ANSI 600, SEE QUOTE			2
13	SPEC. ORDER	6"	TRANSITION PIECE, 0.220" WALL TO 0.322" WALL			2
14	SPEC. ORDER	6"	VALVE, BALL, TRUNNION, ANSI CLASS 600, FULL PORT, CS BODY, GEAR OPERATED W/ HANDWHEEL, API 6D			1
15	SPEC. ORDER	6"	FLANGE, WELD NECK, R.F., ANSI 600, C.S., BORED TO 0.280" WALL, F-52, ASME B16.5, A694, MSS SP 44, DP= 1,480 PSIG, 12 BOLTS PER FLANGE			4
16	SPEC. ORDER	1" x 7-1/4"	STUD BOLT, A-193, GRADE B7, THREADED ENTIRE LENGTH, W 2-2H NUTS, A194, BOLTS (FTF), NUTS, AND WASHERS (IF REQ'D) TO BE PTFE COATED			48
17	SPEC. ORDER	6"	GASKET, SPIRAL WOUND, ANSI 600, ASME B16.20, 1/8" THICK, FLEXITALLIC, STYLE CGI, OUTER RING C.S., INNER RING 316L, 316L/FLEXICARB WINDING			4
18	SPEC. ORDER	1"	THREADOLET, 3000#, CARBON STEEL, F-52, 6" THRU 10" PIPE, A694, MSS SP97, BONNEY FORGE OR EQUIVALENT			2
19	SPEC. ORDER	1"	NIPPLE, PIPE, 3" LG, SCHEDULE 80, CARBON STEEL, SMLS, ASTM A106 GR-B, FPT BOTH ENDS, B16.11			2
20	SPEC. ORDER	1"	VALVE, BALL, KF, FP, THREADED, 316 SS, S8000-M3, LOCKING HANDLE, 2,000# W.O.G. OR EQUIV. VALVE			2
21	SPEC. ORDER	1"	PLUG, SQ HEAD, 6000#, CARBON STEEL, ASTM A105, THD, B16.11			2
22	17-52-0645	6"	CAP, 0.280" WALL, Y-52, MSS SP75, B.W., C.S., ASME B16.9			1

LINWORTH & OLENTANGY LATERAL BILL OF MATERIALS

ITEM	STOCK NO.	SIZE	DESCRIPTION	ADDITIONAL NOTES	LENGTH	QUANTITY
1	SPEC. ORDER	12" x 40'	PIPE, JOINT, HDPE, IPS, 1.159" WT, SDR 11, PE4710, ASTM-D2513		4,300'	
2	SPEC. ORDER	10"	PIPE, 0.365" WALL, X-52, COATED, HFW, PE., C.S., API 5L, PSL-2, DUAL FBE COATED TO 32-38 MILS, TOTAL CUMULATIVE THICKNESS NOT TO EXCEED 45 MILS		80'	
3	SPEC. ORDER	10" x 40'	PIPE, JOINT, HDPE, IPS, 0.977" WT, SDR 11, PE4710, ASTM-D2513		40'	
4	SPEC. ORDER	8"	PIPE, 0.322" WALL, X-52, COATED, HFW, PE., C.S., API 5L, PSL-2, DUAL FBE COATED TO 32-38 MILS, TOTAL CUMULATIVE THICKNESS NOT TO EXCEED 45 MILS		40'	
5	SPEC. ORDER	12"	ELBOW, 90 DEG., HDPE, BF, IPS, SDR 11, PE 4710, ASTM-D2513			2
6	SPEC. ORDER	12"	ELBOW, 45 DEG., HDPE, BF, IPS, SDR 11, PE 4710, ASTM-D2513			4
7	17-52-1000	10"	ELBOW, 90°, LR, SEGMENTABLE, 0.365" WALL, Y-52, MSS SP75, B.W., C.S., ASME B16.9			6
8	SPEC. ORDER	12" x 10"	REDUCER, HDPE, BF, IPS, SDR 11 x SDR 11, PE 4710, ASTM-D2513			1
9	SPEC. ORDER	10"	SPHERICAL 3-WAY TEE, ANSI 600, SEE QUOTE			1
10	SPEC. ORDER	8"	STOPPLE ANSI 600, SEE QUOTE			2
11	SPEC. ORDER	2"	PURGE FITTING, TDW, WELD FITTING, THREAD-ORING, DP= 3,600 PSIG THD CAP, 6" OD PIPE & LARGER, TDW PART NUMBER: TR-0000-0001-00			10
12	SPEC. ORDER	10"	TRANSITION, STEEL TO PLASTIC, GR-B X HDPE, WELD X BF, 0.365" WT X SDR11, PE4710, SA106, CAT 1			1
13	SPEC. ORDER	8"	CAP, 0.322" WALL, Y-65, MSS SP75, B.W., C.S., ASME B16.9			2
14			NOT USED			
15			NOT USED			
16			NOT USED			
17			NOT USED			

20" CONTINGENCY STOPPLE BYPASS

ITEM	STOCK NO.	SIZE	DESCRIPTION	ADDITIONAL NOTES	LENGTH	QUANTITY
1	SPEC. ORDER	20"	STOPPLE ANSI 600, SEE QUOTE	FOR CONTINGENCY BYPASS		4

VALVE DESCRIPTIONS

ITEM	SHORT DESCRIPTION	LONG DESCRIPTION	LOCATION
9	20" BALL VALVE, NDE BURIED GEAR W/2" SQUARE OP NUT, TO INCLUDE A SHAFT EXTENSION OF 5'-8", ANSI 600, SEE QUOTE	20 CAMERON T31 800602-2-1 600# LF2 FP B VLV WE (.500WT TO .375WT) T:STD NDE TT, BURIED GEAR, 5'-8" PINION SHAFT EXTENSION W/2" SQUARE OP NUT (DRAIN & LUBE LINE EXTENDED TO 18" ABOVE THE OP NUT), (2) 30" PUPS (20" .500WT X52 ERW), COAT W/DENSO PROTAL 7200 FOR BURIED SERVICE: API 6FA, PERFORM 4 HR EXTENDED API 6D HYDRO TEST W/LPST, DRAIN & LUBE EXTENSION MEASURE FROM CL OF VLV TO TOP OF LINE / TO SHIP SEPARATELY	KENNY & HENDERSON BRIDAL
10	8" BALL VALVE, NDE BURIED GEAR W/2" SQUARE OP NUT, TO INCLUDE A SHAFT EXTENSION OF 5'-8", ANSI 600, SEE QUOTE	8 CAMERON T31 800602-7-1 600# LF2 FP B VLV WE (.322) T:STD NDE TT, BURIED GEAR, 5'-8" PINION SHAFT EXTENSION W/2" SQUARE OP NUT (DRAIN & LUBE LINE EXTENDED TO 18" ABOVE THE OP NUT), (2) 18" PUPS (8" .322WT X52 ERW), COAT W/DENSO PROTAL 7200 FOR BURIED SERVICE: API 6FA, PERFORM 4 HR EXTENDED API 6D HYDRO TEST W/LPST, DRAIN & LUBE EXTENSION MEASURE FROM CL OF VLV TO TOP OF LINE / TO SHIP SEPARATELY	KENNY & HENDERSON BRIDAL
9	6" BALL VALVE, NDE BURIED GEAR W/2" SQUARE OP NUT, TO INCLUDE A SHAFT EXTENSION OF 4'-8" ANSI 600, SEE QUOTE	6 CAMERON T31 800602-7-216 600# LF2 FP B VLV WE (.279) T:NACE NDE, BURIED GEAR, 3'-2" PINION SHAFT EXTENSION W/2" SQUARE OP NUT (DRAIN & LUBE LINE EXTENDED TO 18" ABOVE THE OP NUT), (2) 18" PUPS (6" .280WT X52 ERW), COAT W/DENSO PROTAL 7200 FOR BURIED SERVICE: API 6FA, PERFORM 4 HR EXTENDED API 6D HYDRO TEST W/LPST, DRAIN & LUBE EXTENSION MEASURE FROM CL OF VLV TO TOP OF LINE / TO SHIP SEPARATELY	KENNY & FRANCISCO LATERAL
8	6" BALL VALVE, NDE BURIED GEAR W/2" SQUARE OP NUT, TO INCLUDE A SHAFT EXTENSION OF 3'-2", ANSI 600, SEE QUOTE	6 CAMERON T31 800602-7-216 600# LF2 FP B VLV WE (.279) T:NACE NDE, BURIED GEAR, 3'-2" PINION SHAFT EXTENSION W/2" SQUARE OP NUT (DRAIN & LUBE LINE EXTENDED TO 18" ABOVE THE OP NUT), (2) 18" PUPS (6" .280WT X52 ERW), COAT W/DENSO PROTAL 7200 FOR BURIED SERVICE: API 6FA, PERFORM 4 HR EXTENDED API 6D HYDRO TEST W/LPST, DRAIN & LUBE EXTENSION MEASURE FROM CL OF VLV TO TOP OF LINE / TO SHIP SEPARATELY	TREMONT & LONDON LATERAL
8	4" BALL VALVE, NDE BURIED GEAR W/2" SQUARE OP NUT, TO INCLUDE A SHAFT EXTENSION OF 3'-5", ANSI 600, SEE QUOTE	4 CAMERON T31 800602-7-216 600# LF2 FP B VLV BW (STD) T:216 NDE, BURIED GEAR, 3'-5" PINION SHAFT EXTENSION W/2" SQUARE OP NUT (DRAIN & LUBE LINE EXTENDED TO 18" ABOVE THE OP NUT), (2) 18" PUPS (4" .237WT X52 ERW), COAT W/DENSO PROTAL 7200 FOR BURIED SERVICE: API 6FA, PERFORM 4 HR EXTENDED API 6D HYDRO TEST W/LPST, DRAIN & LUBE EXTENSION MEASURE FROM CL OF VLV TO TOP OF LINE / TO SHIP SEPARATELY	KENNY & MEDHURST LATERAL



BURNS MEDONNELL
 530 W SPRING STREET, SUITE 100
 COLUMBUS, OHIO 43215
 (614) 453-7800

REVISIONS

REV. #	DATE	DESCRIPTION
1	2/26/26	REISSUED FOR 90%
0	1/08/26	ISSUED FOR CONSTRUCTION

DESIGNED BY	CCK	2/26/26	314-391-5360
DRAWN BY	JMB	2/26/26	314-239-4747
CHECKED BY	JPF	2/26/26	314-578-9778
AS-BUILT BY	TBD	TBD	TBD
	NAME	DATE	PHONE #

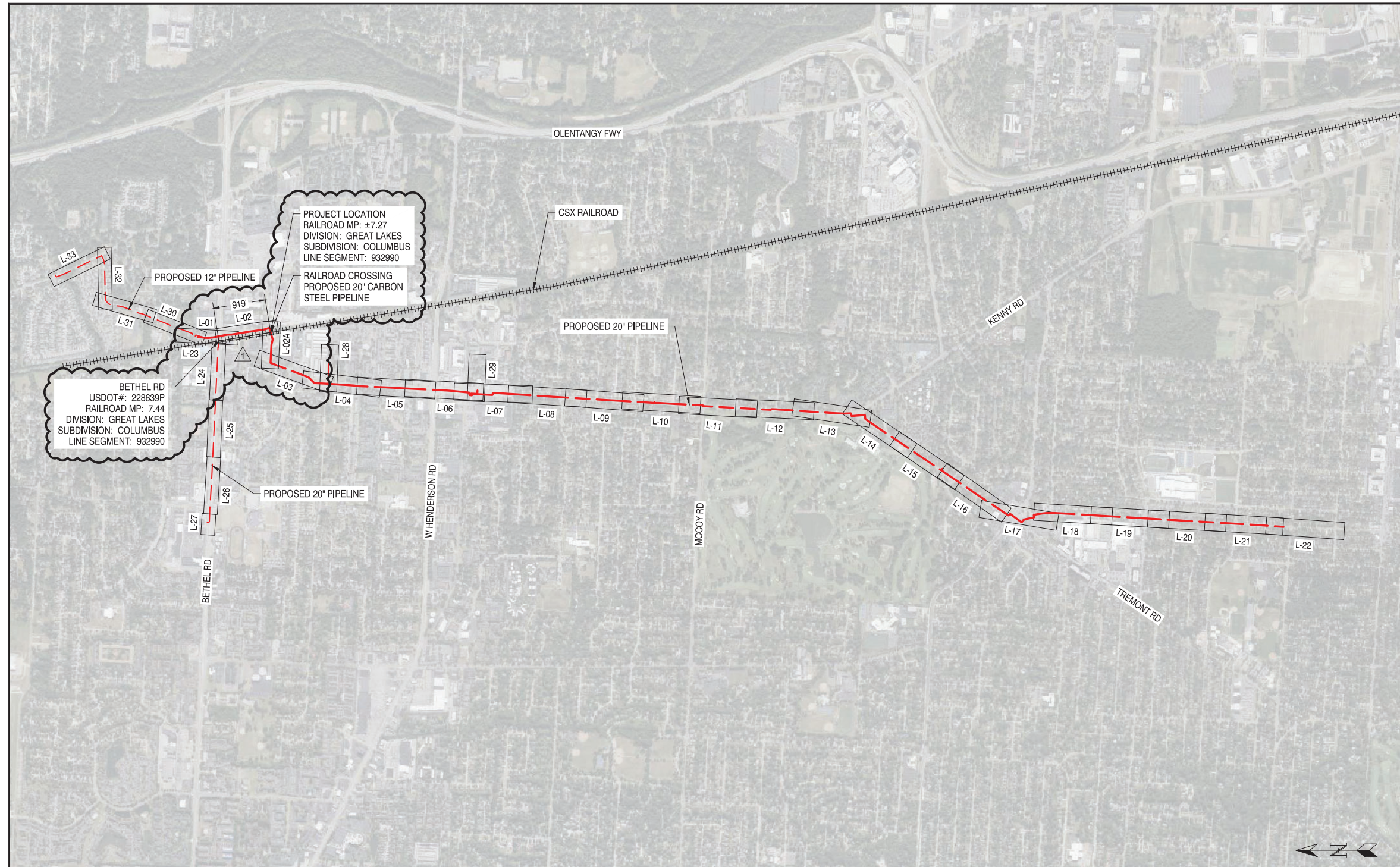
SITE NAME:
WO# 400009378
MAT
WBS L2
 PHASE 4 NCHP PIPELINE REPLACEMENT
 COLUMBUS, FRANKLIN COUNTY, OH

DRAWING TITLE:
OVERALL VALVE
BILL OF MATERIALS

DRAWING NO:
BOM-03



**BURNS
MEDONNELL**
530 W SPRING STREET, SUITE 100
COLUMBUS, OHIO 43215
(614) 453-7800



OVERALL SHEET INDEX

SCALE: 1" = 1000'

REVISIONS		
REV. #	DATE	DESCRIPTION
1	2/26/26	REISSUED FOR 90%
0	1/08/26	ISSUED FOR CONSTRUCTION

DESIGNED BY	CCK	2/26/26	314-391-5360
DRAWN BY	JMB	2/26/26	314-239-4747
CHECKED BY	JPF	2/26/26	314-578-9778
AS-BUILT BY	TBD	TBD	TBD
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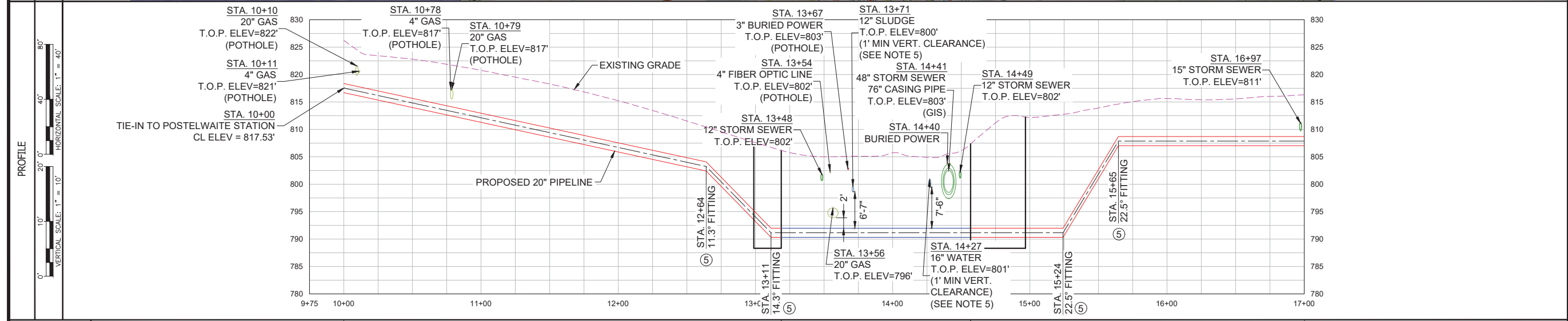
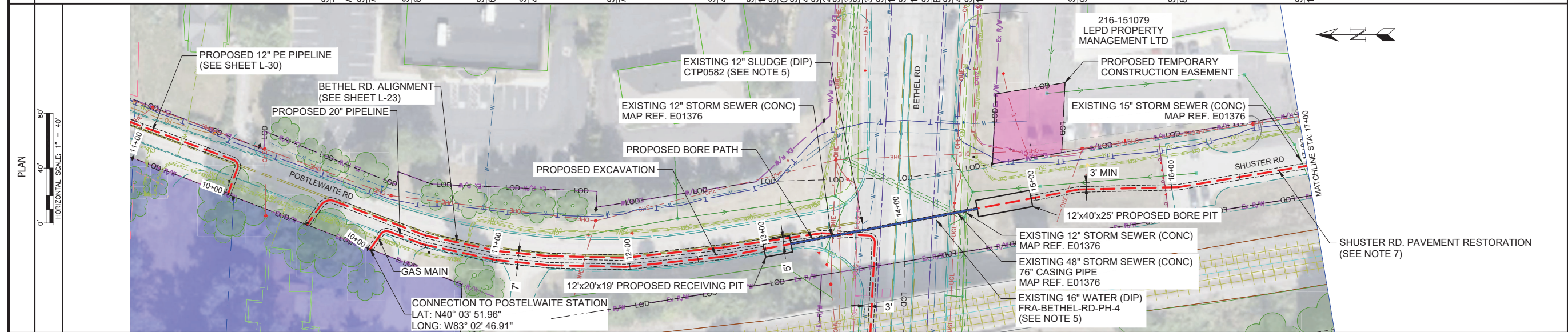
SITE NAME:
WO# 400009378
MAT
WBS L2
PHASE 4 NCHP PIPELINE REPLACEMENT
COLUMBUS, FRANKLIN COUNTY, OH

DRAWING TITLE:
OVERVIEW SHEET

DRAWING NO:
O-01

RIGHT-OF-WAY	OWNERSHIP	CITY OF COLUMBUS	700'
	ACREAGE		
	EASEMENTS		
	REF. DWG. NO.		

STATIONING	STA. 10+00	TEST STATION WITH #17 ANODE AND INSULATOR
	STA. 10+17	75.3° FITTING
	STA. 10+48	8.5° BEND
	STA. 11+02	6.6° BEND
	STA. 11+41	4.3° BEND
	STA. 11+97	7.3° BEND
	STA. 12+69	4.7° BEND
	STA. 13+48	12" STORM SEWER
	STA. 13+50	OVERHEAD POWER
	STA. 13+54	4" FIBER OPTIC LINE
	STA. 13+56	20" GAS
	STA. 13+67	3" BURIED POWER
	STA. 13+68	3" BURIED POWER
	STA. 13+71	12" SLUDGE
	STA. 14+27	16" WATER
	STA. 14+40	BURIED POWER
	STA. 14+41	48" STORM SEWER
	STA. 14+49	12" STORM SEWER
	STA. 15+32	9.4° BEND
	STA. 16+05	8.1° BEND
	STA. 16+97	15" STORM SEWER



MATERIAL	319'	138'	243'
CONST. METHOD	① OPEN CUT	② BORE	① OPEN CUT
CLASS/MAOP	DESIGN CLASS 4/DESIGN PRESSURE 720 PSIG/MAOP 190 PSIG	DESIGN CLASS 4/DESIGN PRESSURE 720 PSIG/MAOP 190 PSIG	DESIGN CLASS 4/DESIGN PRESSURE 720 PSIG/MAOP 190 PSIG

- NOTES:
- CONTRACTOR DISCRETION SHALL BE GIVEN FOR MODIFYING FIELD BEND ANGLES AS SHOWN PROVIDED THAT MINIMUM SEPARATION AND COVER REQUIREMENTS ARE MET.
 - CONTRACTOR SHALL MAINTAIN MINIMUM 1 FT VERTICAL SEPARATION FROM OTHER UTILITIES UNLESS OTHERWISE SHOWN IN PROFILE VIEW.
 - MINIMUM TANGENT LENGTH BETWEEN GIRTH WELDS AND FORGED ELBOWS SHALL BE 60 INCHES.
 - FIELD BENDS LESS THAN 2 DEGREES ARE NOT CALLED OUT IN PLAN OR PROFILE VIEW.
 - EXPOSE ALL WATER AND SLUDGE LINES AT CROSSING(S) TO VERIFY DEPTH AND LOCATION PRIOR TO AND DURING CONSTRUCTION.
 - PHASE 6 PIPELINE AND TIE IN WILL BE SHOWN ON THE PHASE 4 STATION PACKAGE.
 - FULL LANE PAVEMENT PLANNING AND RESURFACING IS REQUIRED FOR ALL EXCAVATION ALONG SHUSTER RD.



BURNS & MCDONNELL
 530 W SPRING STREET, SUITE 100
 COLUMBUS, OHIO 43215
 (614) 453-7800

REVISIONS			
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0	1/08/26	ISSUED FOR CONSTRUCTION	

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CHECKED BY	JPF	2/26/26	314-578-9778
AS-BUILT BY	TBD	TBD	TBD
NAME	DATE	PHONE #	

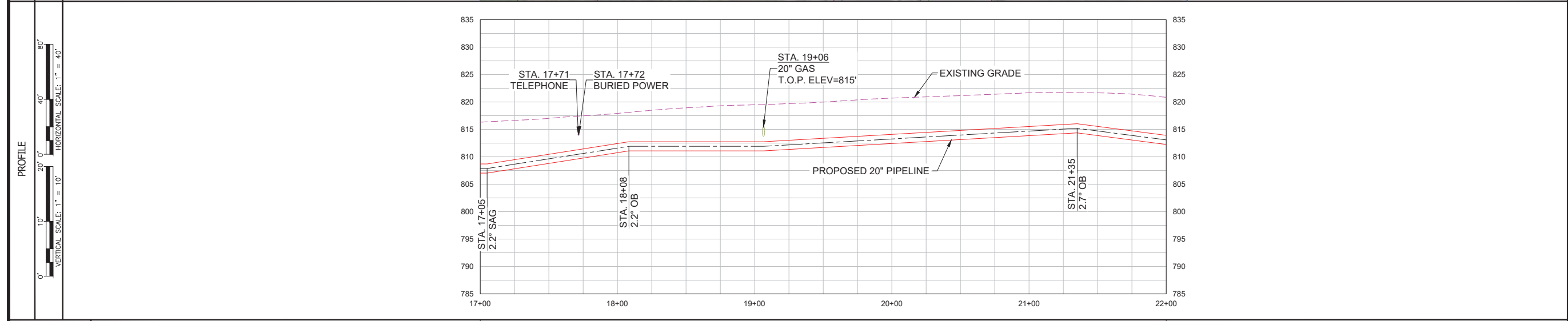
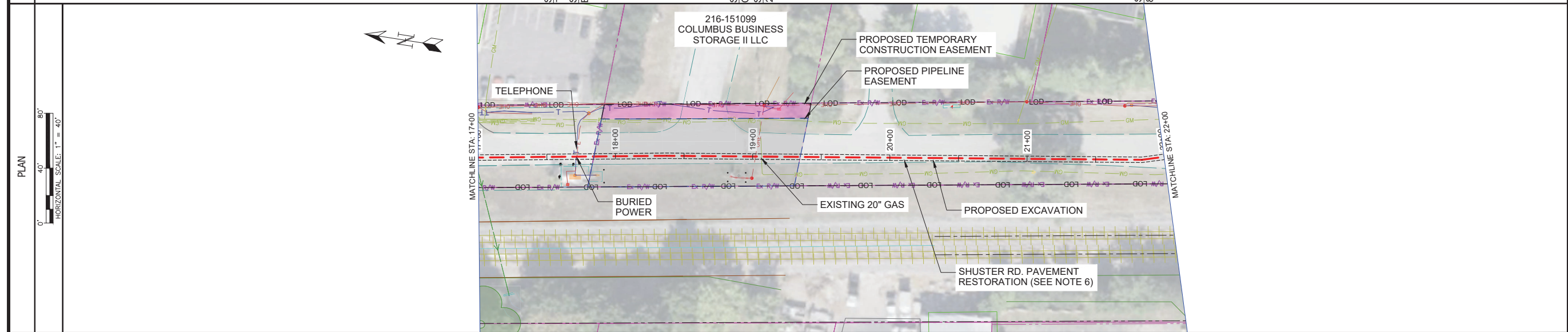
SITE NAME:
WO# 400009378
MAT
WBS L2
 PHASE 4 NCHP PIPELINE REPLACEMENT
 COLUMBUS, FRANKLIN COUNTY, OH

DRAWING TITLE:
20" PIPELINE ALIGNMENT
STA. 10+00 TO STA. 17+00

DRAWING NO:
L-01

RIGHT-OF-WAY	OWNERSHIP	STA. 17+00 CITY OF COLUMBUS 84'	STA. 17+84 COLUMBUS BUSINESS STORAGE II LLC PARCEL: 216-151099 151'	STA. 19+35 CITY OF COLUMBUS 265'	STA. 22+00
	ACREAGE		0.17 ACRES		
	EASEMENTS		PROPOSED EASEMENT		
REF. DWG. NO.					

STATIONING



MATERIAL	
CONST. METHOD	500' OPEN CUT
CLASS/MAOP	DESIGN CLASS 4/DESIGN PRESSURE 720 PSIG/MAOP 190 PSIG

NOTES:
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 2. CONTRACTOR SHALL MAINTAIN MINIMUM 1 FT VERTICAL SEPARATION FROM OTHER UTILITIES UNLESS OTHERWISE SHOWN IN PROFILE VIEW.
 3. MINIMUM TANGENT LENGTH BETWEEN GIRTH WELDS AND FORGED ELBOWS SHALL BE 60 INCHES.
 4. FIELD BENDS LESS THAN 2 DEGREES ARE NOT CALLED OUT IN PLAN OR PROFILE VIEW.
 5. EXPOSE ALL WATER AND SLUDGE LINES AT CROSSING(S) TO VERIFY DEPTH AND LOCATION PRIOR TO AND DURING CONSTRUCTION.
 6. FULL LANE PAVEMENT PLANNING AND RESURFACING IS REQUIRED FOR ALL EXCAVATION ALONG SHUSTER RD.



BURNS & MCDONNELL
 530 W SPRING STREET, SUITE 100
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REVISIONS			
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0	1/08/26	ISSUED FOR CONSTRUCTION	

DESIGNED BY	DATE	PHONE #
CCK	2/26/26	314-391-5360
DRAWN BY	DATE	PHONE #
JMB	2/26/26	314-239-4747
CHECKED BY	DATE	PHONE #
JPF	2/26/26	314-578-9778
AS-BUILT BY	DATE	PHONE #
TBD	TBD	TBD

SITE NAME:
WO# 400009378
MAT WBS L2
 PHASE 4 NCHP PIPELINE REPLACEMENT
 COLUMBUS, FRANKLIN COUNTY, OH

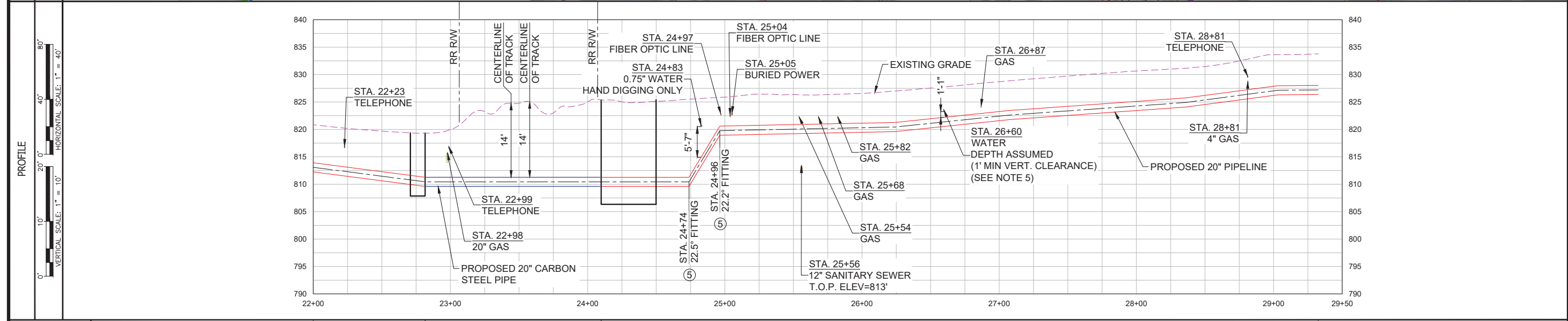
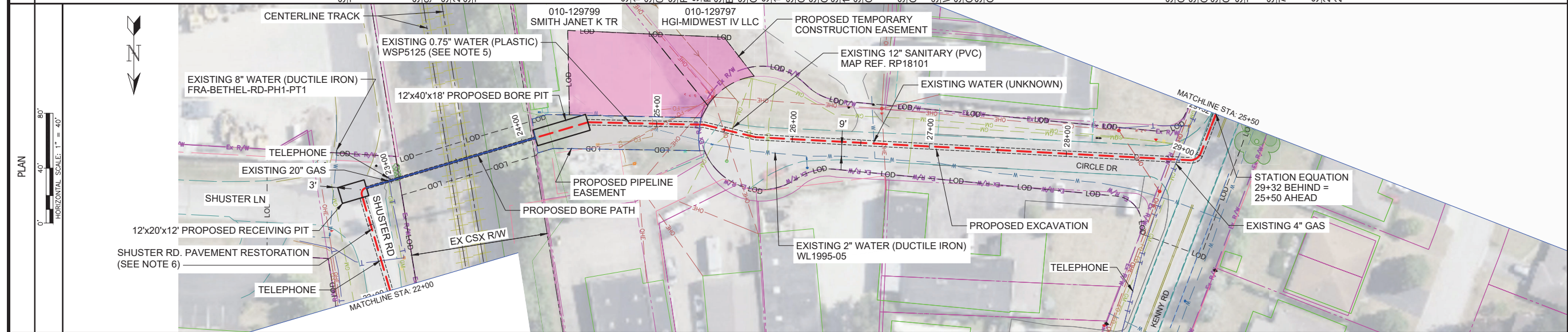
DRAWING TITLE:
20" PIPELINE ALIGNMENT
STA. 17+00 TO STA. 22+00

DRAWING NO:
L-02

RIGHT-OF-WAY	OWNERSHIP	STA. 22+00	CITY OF COLUMBUS 210'	STA. 24+10	SMITH JANET K TR PARCEL: 010-129799 121'	STA. 25+31	CITY OF COLUMBUS 401'	STA. 29+32
	ACREAGE	0.17 ACRES						
	EASEMENTS	PROPOSED EASEMENT						
REF. DWG. NO.								



STATIONING	STA. 22+23 TELEPHONE	STA. 22+77 90.0° FITTING	STA. 22+98 20" GAS	STA. 22+99 TELEPHONE	STA. 24+50 17.7° FITTING	STA. 24+83 0.75" WATER	STA. 24+97 FIBER OPTIC LINE	STA. 25+04 FIBER OPTIC LINE	STA. 25+05 BURIED POWER	STA. 25+24 OVERHEAD POWER	STA. 25+35 12.3° BEND	STA. 25+49 OVERHEAD POWER	STA. 25+54 GAS	STA. 25+56 12" SANITARY SEWER	STA. 25+68 GAS	STA. 25+82 GAS	STA. 26+60 WATER	STA. 26+67 OVERHEAD POWER	STA. 26+87 GAS	STA. 28+51 OVERHEAD POWER	STA. 28+77 OVERHEAD POWER	STA. 28+81 GAS	STA. 28+81 TELEPHONE	STA. 28+96 71.8° FITTING	STATION EQUATION 29+32 BEHIND = 25+50 AHEAD
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MATERIAL	82'	128'	523'
CONST. METHOD	① OPEN CUT	② BORE	① OPEN CUT
CLASS/MAOP	DESIGN CLASS 4/DESIGN PRESSURE 720 PSIG/MAOP 190 PSIG		DESIGN CLASS 4/DESIGN PRESSURE 720 PSIG/MAOP 190 PSIG

NOTES:

- CONTRACTOR DISCRETION SHALL BE GIVEN FOR MODIFYING FIELD BEND ANGLES AS SHOWN PROVIDED THAT MINIMUM SEPARATION AND COVER REQUIREMENTS ARE MET.
- CONTRACTOR SHALL MAINTAIN MINIMUM 1 FT VERTICAL SEPARATION FROM OTHER UTILITIES UNLESS OTHERWISE SHOWN IN PROFILE VIEW.
- MINIMUM TANGENT LENGTH BETWEEN GIRTH WELDS AND FORGED ELBOWS SHALL BE 60 INCHES.
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- FULL LANE PAVEMENT PLANNING AND RESURFACING IS REQUIRED FOR ALL EXCAVATION ALONG SHUSTER RD.

REVISIONS			
REV. #	DATE	DESCRIPTION	
A	2/26/26	REISSUED FOR 90%	
DESIGNED BY	CCK	2/26/26	314-391-5360
DRAWN BY	JMB	2/26/26	314-239-4747
CHECKED BY	JPF	2/26/26	314-578-9778
AS-BUILT BY	TBD	TBD	TBD
	NAME	DATE	PHONE #

SITE NAME:
WO# 400009378
MAT
WBS L2
 PHASE 4 NCHP PIPELINE REPLACEMENT
 COLUMBUS, FRANKLIN COUNTY, OH

DRAWING TITLE:
20" PIPELINE ALIGNMENT
STA. 22+00 TO STA. 29+32

DRAWING NO:
L-02A



BURNS & MCDONNELL
 530 W SPRING STREET, SUITE 100
 COLUMBUS, OHIO 43215
 (614) 453-7800

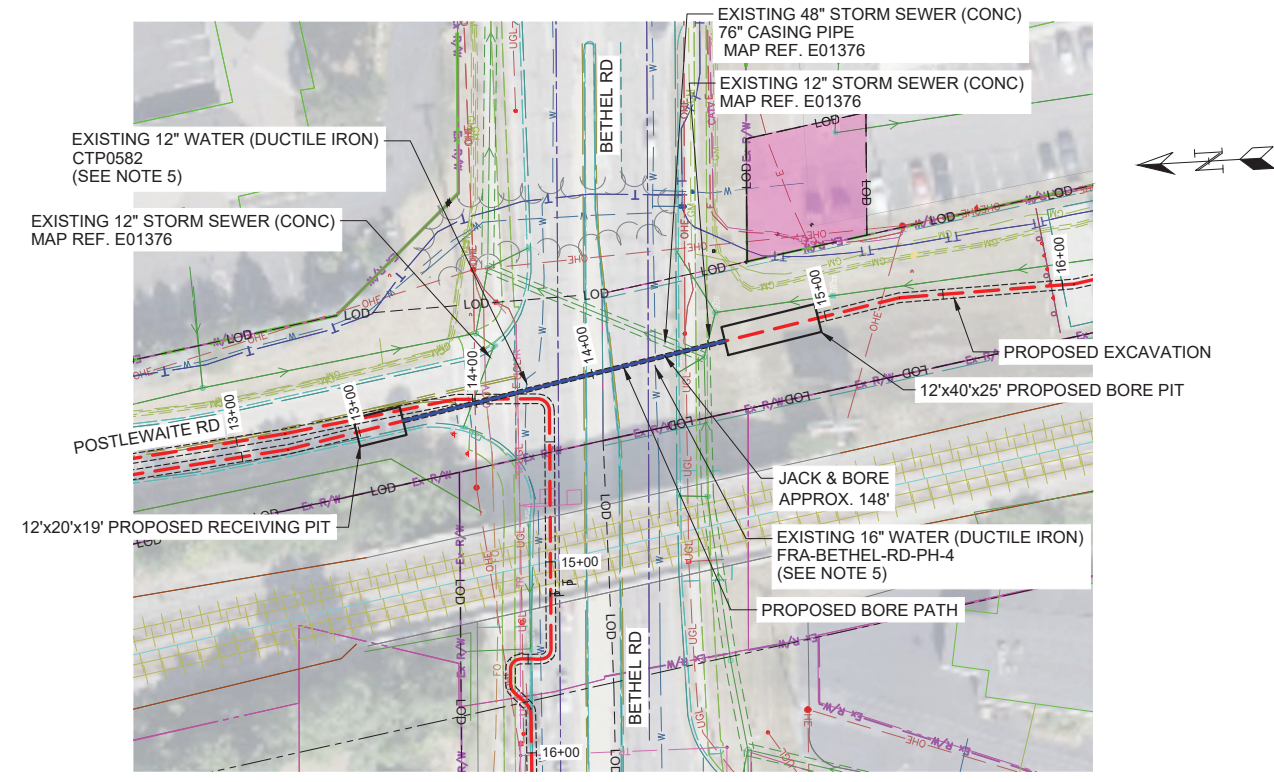
REVISIONS			
REV. #	DATE	DESCRIPTION	
1	2/26/26	REISSUED FOR 90%	
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AS-BUILT BY	TBD	TBD	TBD
NAME	DATE	PHONE #	

SITE NAME:
WO# 400009378
MAT
WBS L2
 PHASE 4 NCHP PIPELINE REPLACEMENT
 COLUMBUS, FRANKLIN COUNTY, OH

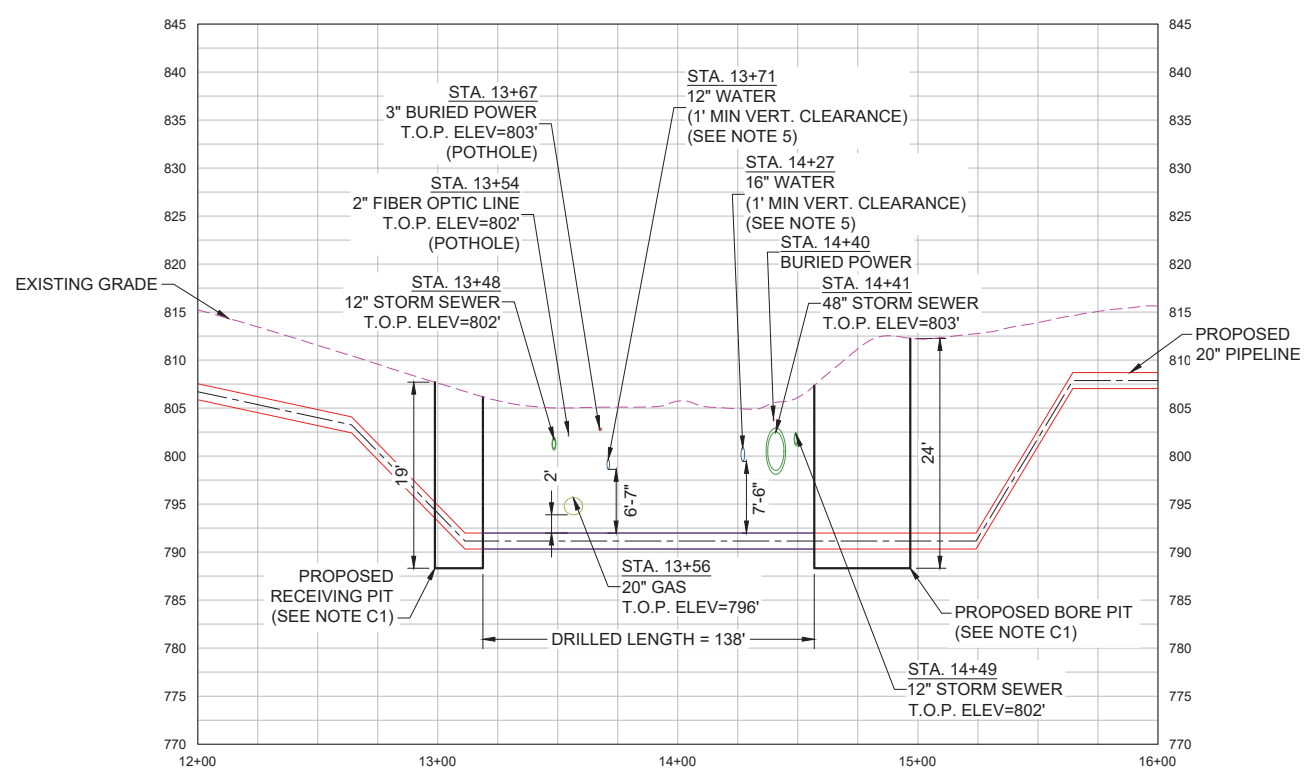
DRAWING TITLE:
BETHEL & SHUSTER
TRENCHLESS CROSSING

DRAWING NO:
D-05



PLAN
 HORIZONTAL SCALE: 1" = 40'

PROFILE
 VERTICAL SCALE: 1" = 10'
 HORIZONTAL SCALE: 1" = 40'

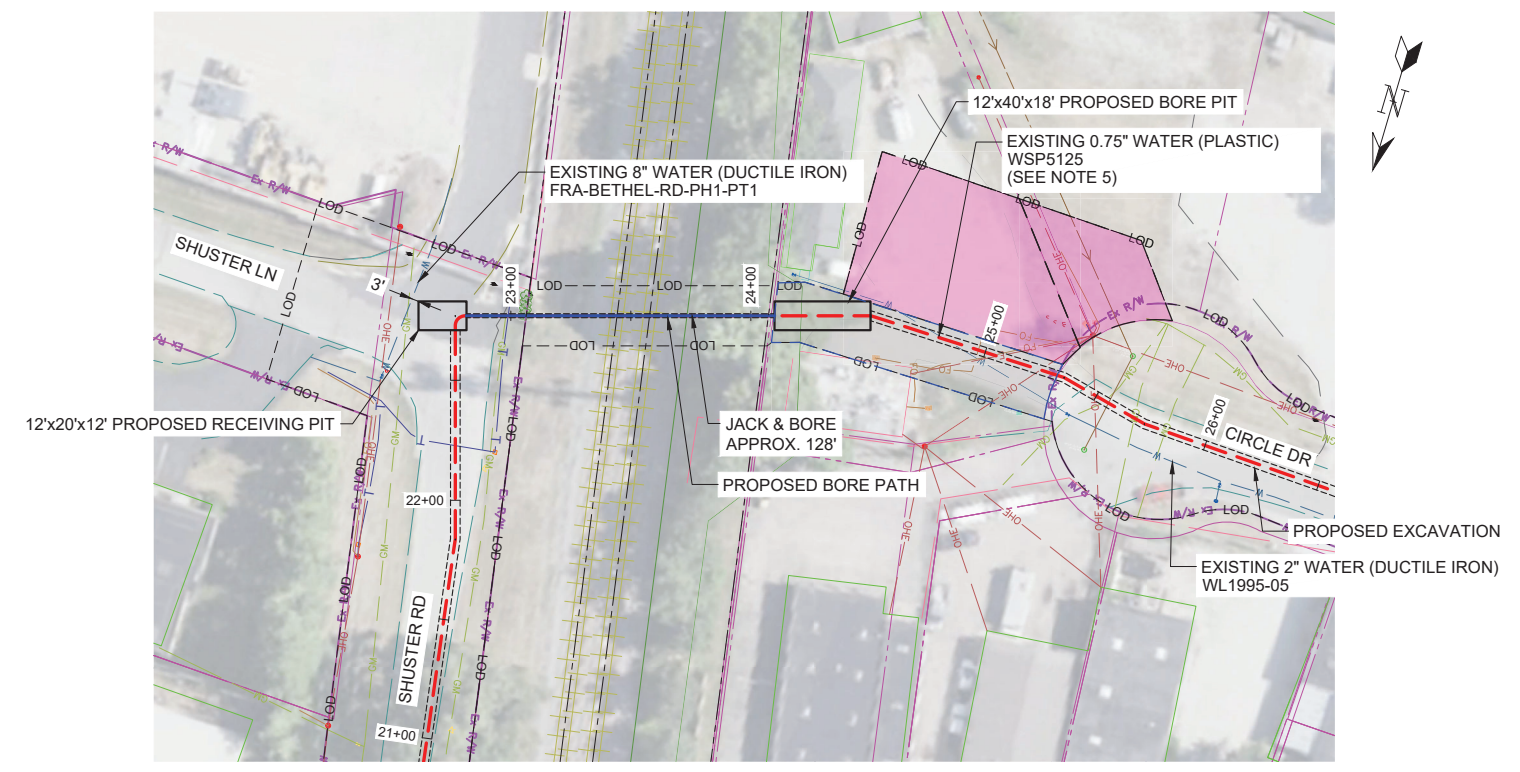


CONSTRUCTION NOTES:
 C1. CONTRACTOR SHALL PROVIDE ENGINEERED SHORING PLAN.

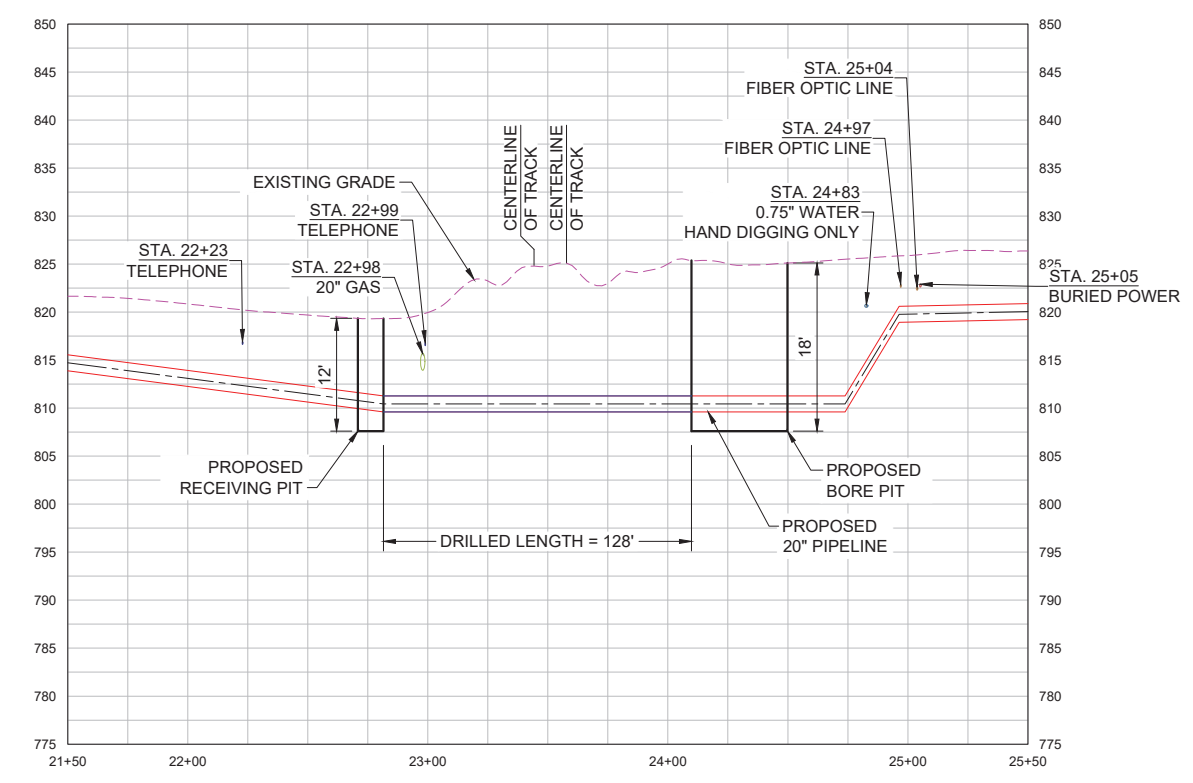
- NOTES:
- CONTRACTOR DISCRETION SHALL BE GIVEN FOR MODIFYING FILED BEND ANGLES AS SHOWN PROVIDED THAT MINIMUM SEPARATION AND COVER REQUIREMENTS ARE MET.
 - CONTRACTOR SHALL MAINTAIN MINIMUM 1 FT VERTICAL SEPARATION FROM OTHER UTILITIES UNLESS OTHERWISE SHOWN IN PROFILE VIEW.
 - MINIMUM TANGENT LENGTH BETWEEN GIRTH WELDS AND FORGED ELBOWS SHALL BE 60 INCHES.
 - FIELD BENDS LESS THAN 2 DEGREES ARE NOT CALLED OUT IN PLAN OR PROFILE VIEW.
 - EXPOSE ALL WATER AND SLUDGE LINES AT CROSSING(S) TO VERIFY DEPTH AND LOCATION PRIOR TO AND DURING CONSTRUCTION.



PLAN



PROFILE



- NOTES:
1. CONTRACTOR DISCRETION SHALL BE GIVEN FOR MODIFYING FILED BEND ANGLES AS SHOWN PROVIDED THAT MINIMUM SEPARATION AND COVER REQUIREMENTS ARE MET.
 2. CONTRACTOR SHALL MAINTAIN MINIMUM 1 FT VERTICAL SEPARATION FROM OTHER UTILITIES UNLESS OTHERWISE SHOWN IN PROFILE VIEW.
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REVISIONS			
REV. #	DATE	DESCRIPTION	
A	2/26/26	REISSUED FOR 90%	
DESIGNED BY	CCK	2/26/26	314-391-5360
DRAWN BY	JMB	2/26/26	314-239-4747
CHECKED BY	JPF	2/26/26	314-578-9778
AS-BUILT BY	TBD	TBD	TBD
	NAME	DATE	PHONE #

SITE NAME:
WO# 400009378
MAT
WBS L2
 PHASE 4 NCHP PIPELINE REPLACEMENT
 COLUMBUS, FRANKLIN COUNTY, OH

DRAWING TITLE:
CIRCLE & SHUSTER
TRENCHLESS CROSSING

DRAWING NO:
D-06



**BURNS
MEDONNELL**
530 W SPRING STREET, SUITE 100
COLUMBUS, OHIO 43215
(614) 453-7800

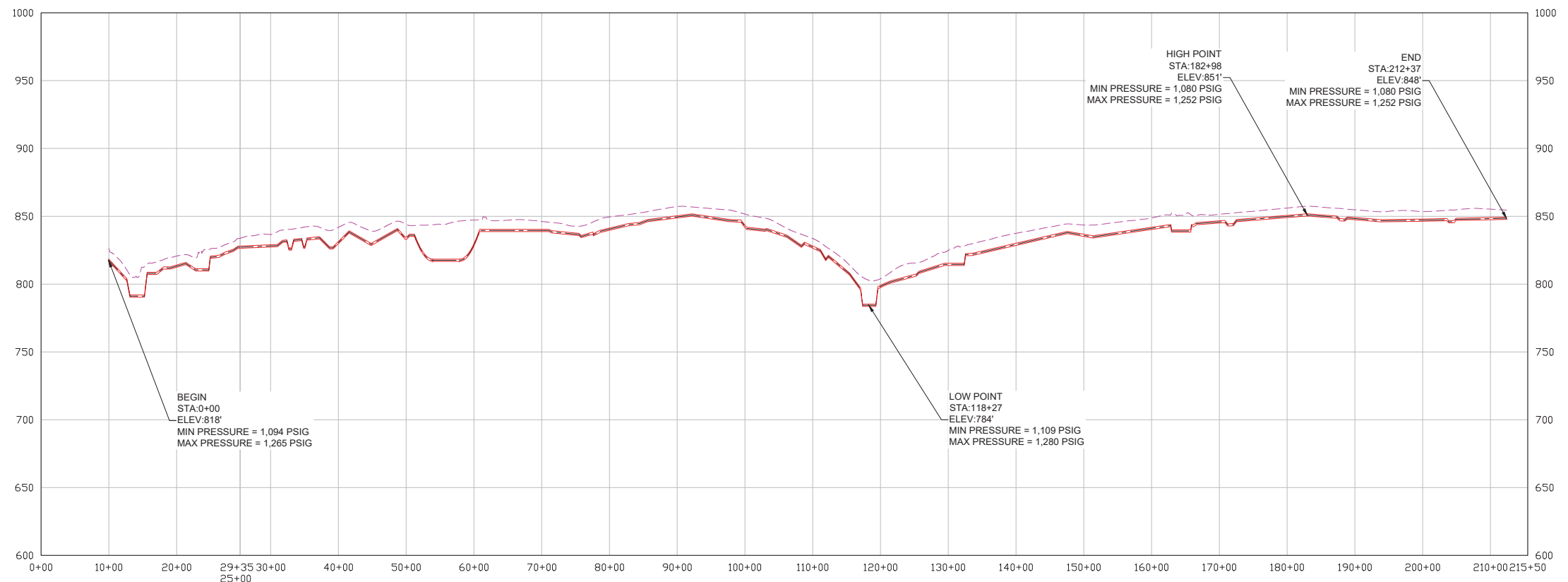
REVISIONS			
REV. #	DATE	DESCRIPTION	
1	2/26/26	REISSUED FOR 90%	
0	1/08/26	ISSUED FOR CONSTRUCTION	

DESIGNED BY	CCK	2/26/26	314-391-5360
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AS-BUILT BY	TBD	TBD	TBD
NAME	DATE	PHONE #	

SITE NAME:
WO# 400009378
MAT
WBS L2
PHASE 4 NCHP PIPELINE REPLACEMENT
COLUMBUS, FRANKLIN COUNTY, OH

DRAWING TITLE:
**UPPER ARLINGTON
HYDROTEST**

DRAWING NO:
D-31



- NOTES:**
- 20" PIPE, 0.375" WT CARBON STEEL, API 5L PSL2, X-52, DUAL FBE COATED TO 12-18 MILS AND 20 MILS ARO COATED FOR TOTAL CUMULATIVE THICKNESS OF 32-38 MILS, TOTAL CUMULATIVE THICKNESS NOT TO EXCEED 45 MILS.
 - 20" PIPE, 0.375" WT CARBON STEEL, API 5L PSL2, X-52, DUAL FBE COATED TO 32-38 MILS, TOTAL CUMULATIVE THICKNESS NOT TO EXCEED 45 MILS.
 - REFER TO TD-06 FOR STANDARD DEWATERING DETAIL
 - IF DESIRED, FIRE HYDRANT PERMITS MUST BE APPLIED FOR AT LEAST A WEEK IN ADVANCE OF USE.
 - IF DATES SPECIFIED IN THE PERMIT ARE NOT UTILIZED, THERE IS NO REFUND OF FEE.
 - HYDRANTS CAN ONLY BE PERMITTED TO ONE ENTITY AT A TIME.
 - USE OF THE HYDRANT REQUIRES A HYDRANT WRENCH AND A BACKFLOW PREVENTER. THE CITY HAS HYDRANT WRENCHES TO RENT OUT. HOWEVER BACKFLOW PREVENTER MUST BE PROVIDED ELSEWHERE.
 - BACKFLOW PREVENTER MUST BE PROVIDED BY THE CONTRACTOR IF NEEDED. THE PREVENTER MUST BE TAKEN TO A CITY OF COLUMBUS OFFICE AND INSPECTED.
 - THE HYDRANT MUST BE PUMPED DOWN AFTER EACH USE (NOT DAY) OR A FINE WILL BE ISSUED.

UPPER ARLINGTON HYDROTEST CALCS				
TEST SECTION #1	BEGIN	LOW POINT	HIGH POINT	END
STATION (FT)	10+00	118+27	182+98	212+37
TOTAL PIPE ELEVATION (FT)	818	784	851	848
PSIG MAX PRESSURE	1,265 PSIG	1,280 PSIG	1,252 PSIG	1,252 PSIG
PSIG MIN PRESSURE	1,094 PSIG	1,109 PSIG	1,080 PSIG	1,080 PSIG
HORIZONTAL LENGTH (FT)	20,242'			
ACTUAL LENGTH (FT)	20,242'			
VOLUME (CU. FT) (GAL)	40,908 FT ³	306,016 GAL		

PLAN
0' 1000' 2000'
HORIZONTAL SCALE: 1" = 1000'

PROFILE
0' 50' 100' 2000'
VERTICAL SCALE: 1" = 50'
HORIZONTAL SCALE: 1" = 1000'



**BURNS
MEDONNELL**
530 W SPRING STREET, SUITE 100
COLUMBUS, OHIO 43215
(614) 453-7800

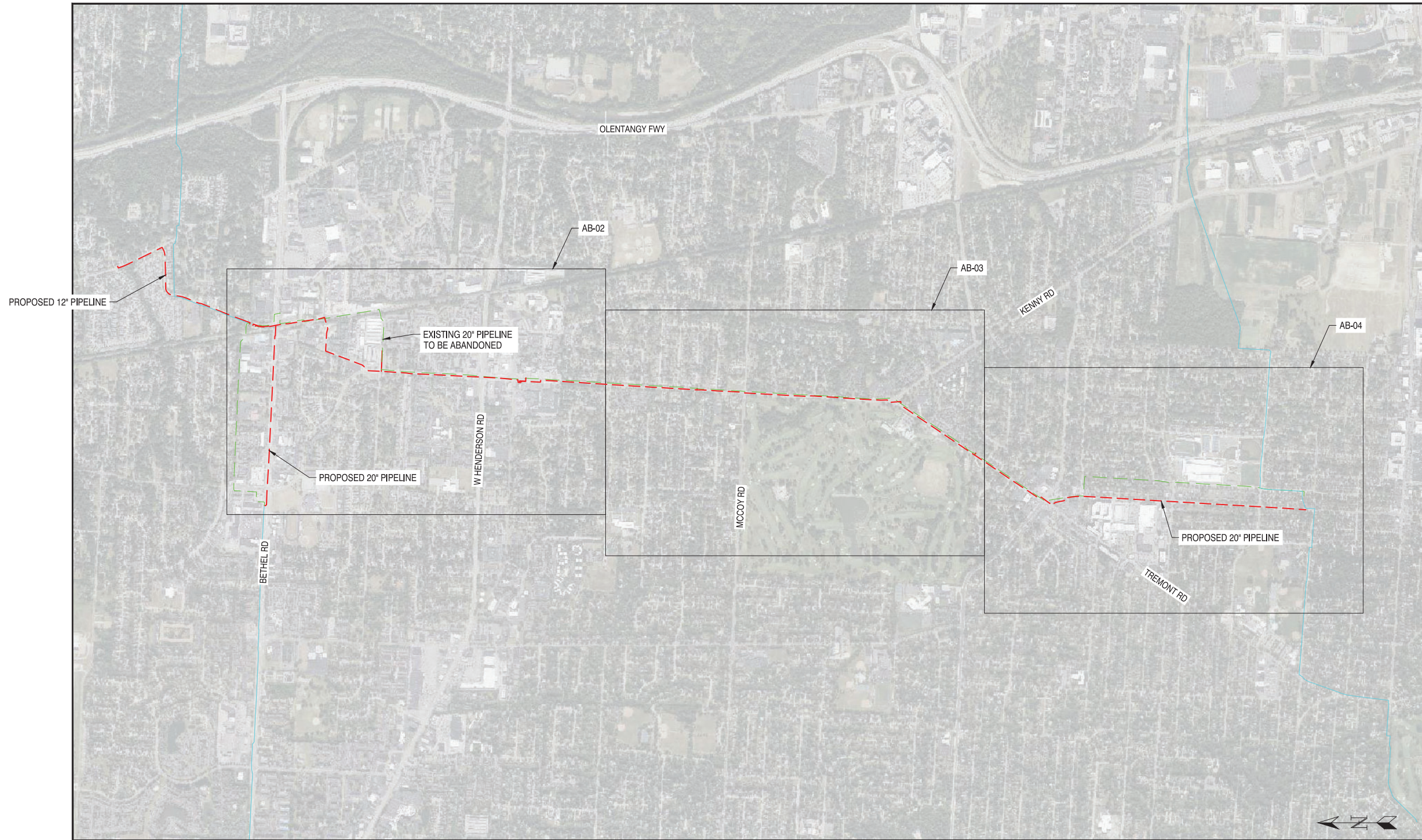
REVISIONS		
REV. #	DATE	DESCRIPTION
1	2/26/26	REISSUED FOR 90%
0	1/08/26	ISSUED FOR CONSTRUCTION

DESIGNED BY	CCK	2/26/26	314-391-5360
DRAWN BY	JMB	2/26/26	314-239-4747
CHECKED BY	JPF	2/26/26	314-578-9778
AS-BUILT BY	TBD	TBD	TBD
	NAME	DATE	PHONE #

SITE NAME:
WO# 400009378
MAT
WBS L2
PHASE 4 NCHP PIPELINE REPLACEMENT
COLUMBUS, FRANKLIN COUNTY, OH

DRAWING TITLE:
**ABANDONMENT PLAN
OVERVIEW SHEET**

DRAWING NO:
AB-01



ABANDONMENT SHEET INDEX

SCALE: 1" = 1000'



**BURNS
MEDONNELL**
530 W SPRING STREET, SUITE 100
COLUMBUS, OHIO 43215
(614) 453-7800

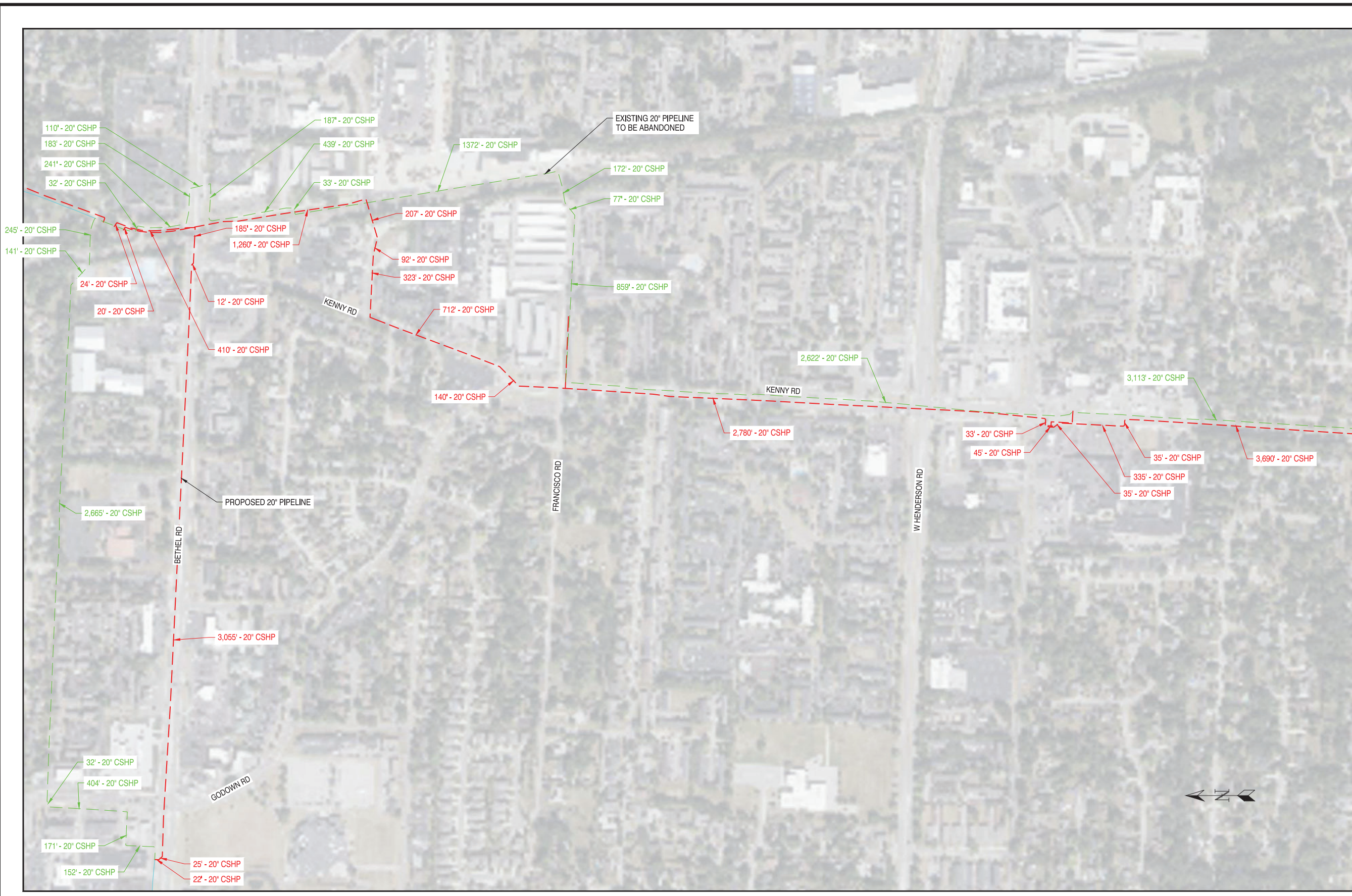
REVISIONS			
REV. #	DATE	DESCRIPTION	
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0	1/08/26	ISSUED FOR CONSTRUCTION	

DESIGNED BY	CCK	2/26/26	314-391-5360
DRAWN BY	JMB	2/26/26	314-239-4747
CHECKED BY	JPF	2/26/26	314-578-9778
AS-BUILT BY	TBD	TBD	TBD
	NAME	DATE	PHONE #

SITE NAME:
WO# 400009378
MAT
WBS L2
PHASE 4 NCHP PIPELINE REPLACEMENT
COLUMBUS, FRANKLIN COUNTY, OH

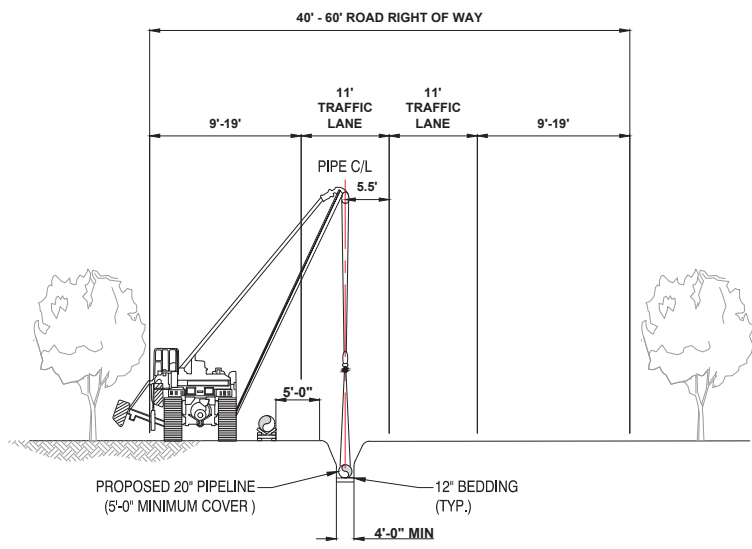
DRAWING TITLE:
ABANDONMENT PLAN
1 OF 3

DRAWING NO:
AB-02

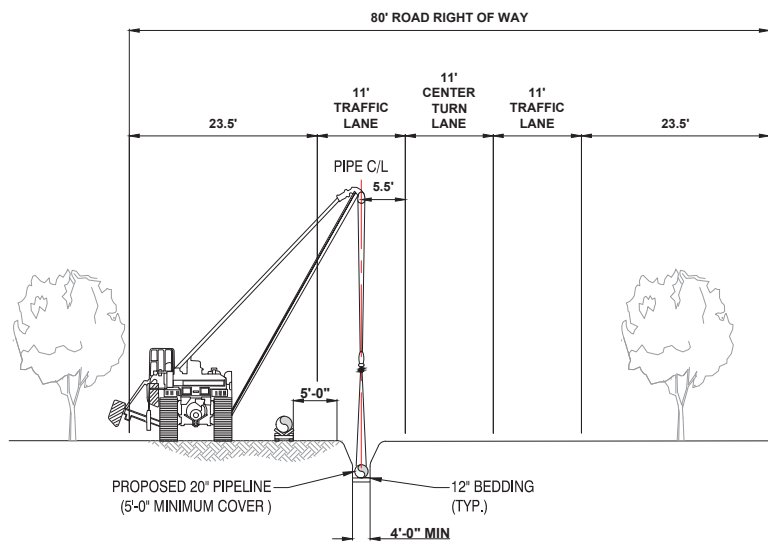




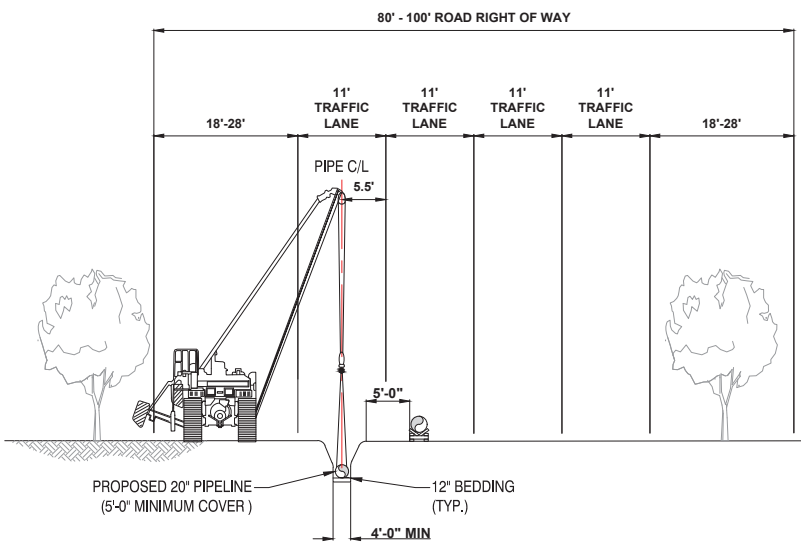
BURNS MEDONNELL
 530 W SPRING STREET, SUITE 100
 COLUMBUS, OHIO 43215
 (614) 453-7800



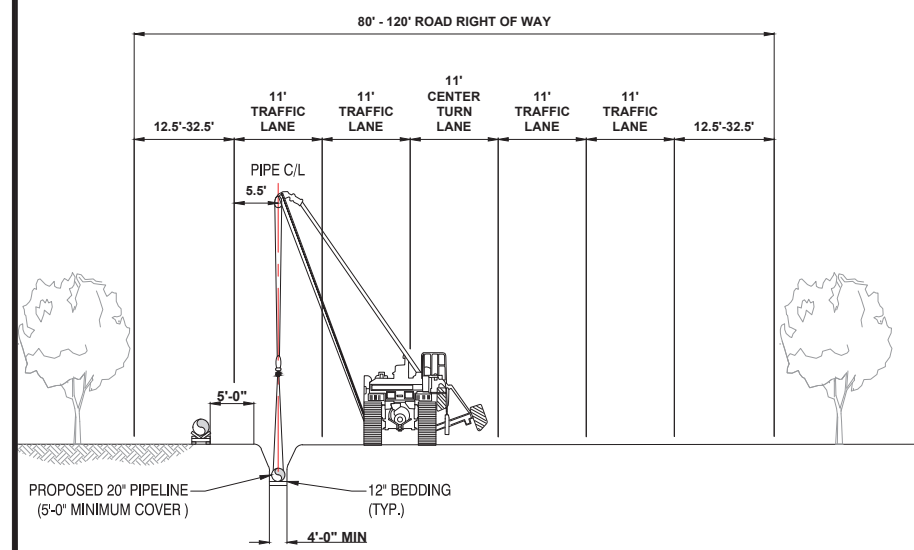
OC-01: TYPICAL OPEN TRENCH WITHIN TWO-LANE ROAD
 SCALE: NTS



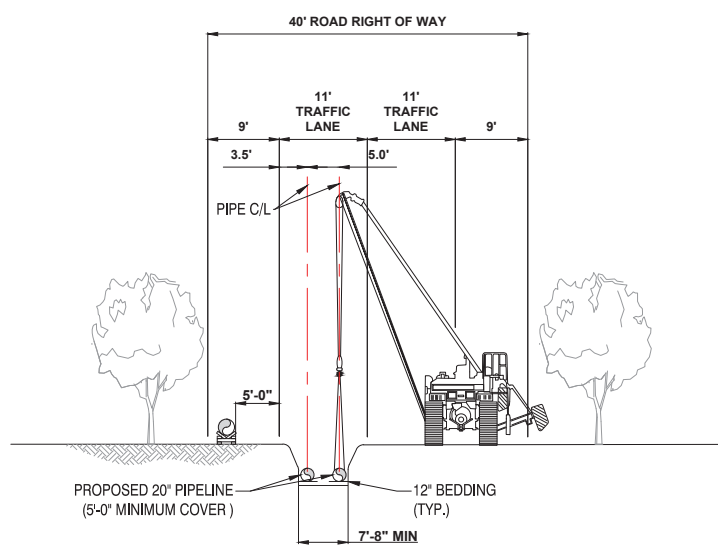
OC-02: TYPICAL OPEN TRENCH WITHIN TWO-LANE ROAD WITH CENTER LANE
 SCALE: NTS



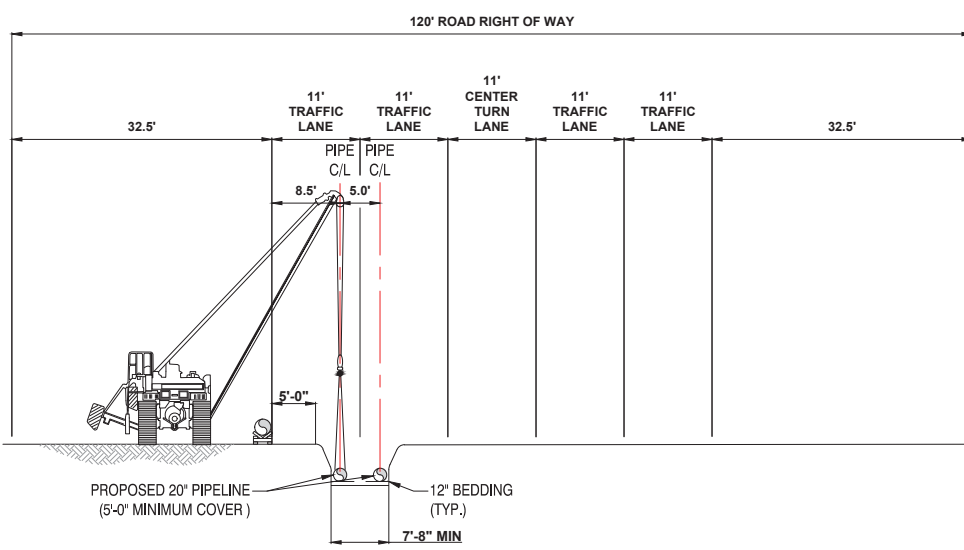
OC-03: TYPICAL OPEN TRENCH WITHIN FOUR-LANE ROAD
 SCALE: NTS



OC-04: TYPICAL OPEN TRENCH WITHIN FOUR-LANE ROAD WITH CENTER LANE
 SCALE: NTS



OC-05: TYPICAL OPEN TRENCH FOR TWO PIPES WITHIN TWO-LANE ROAD
 SCALE: NTS



OC-06: TYPICAL OPEN TRENCH FOR TWO PIPES WITHIN FOUR-LANE ROAD WITH CENTER LANE
 SCALE: NTS

REVISIONS			
REV. #	DATE	DESCRIPTION	
0	1/08/26	ISSUED FOR CONSTRUCTION	
DESIGNED BY	CCK	1/08/26	314-391-5360
DRAWN BY	JMB	1/08/26	314-239-4747
CHECKED BY	JPF	1/08/26	314-578-9778
AS-BUILT BY	TBD	TBD	TBD
	NAME	DATE	PHONE #

SITE NAME:
WO# 400009378
MAT
WBS L2
 PHASE 4 NCHP PIPELINE REPLACEMENT
 COLUMBUS, FRANKLIN COUNTY, OH

DRAWING TITLE:
TRENCHING SECTIONS

DRAWING NO:
TD-01



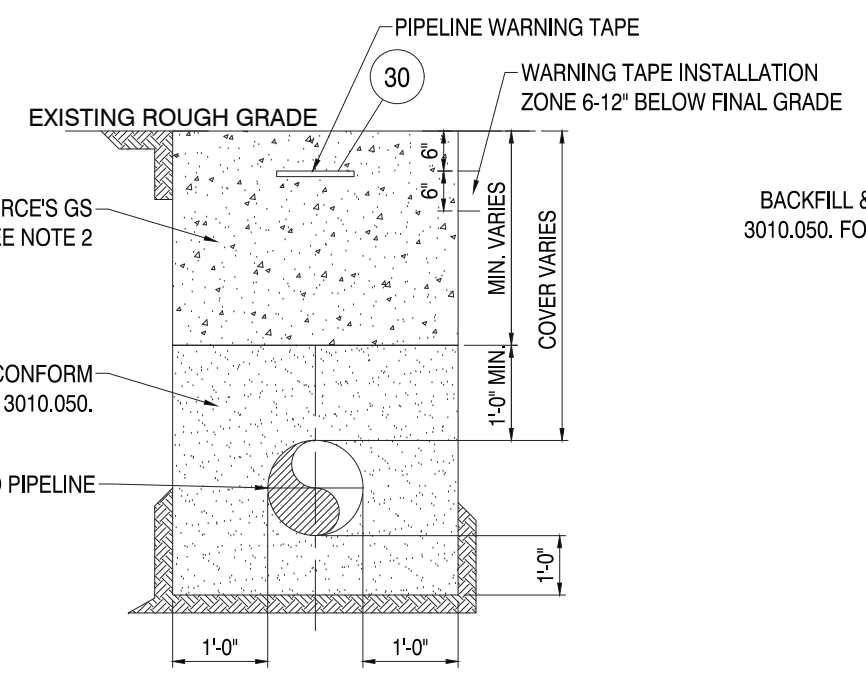
BURNS MEDONNELL
 530 W SPRING STREET, SUITE 100
 COLUMBUS, OHIO 43215
 (614) 453-7800

REVISIONS			
REV. #	DATE	DESCRIPTION	
0	1/08/26	ISSUED FOR CONSTRUCTION	
DESIGNED BY	CCK	1/08/26	314-391-5360
DRAWN BY	JMB	1/08/26	314-239-4747
CHECKED BY	JPF	1/08/26	314-578-9778
AS-BUILT BY	TBD	TBD	TBD
	NAME	DATE	PHONE #

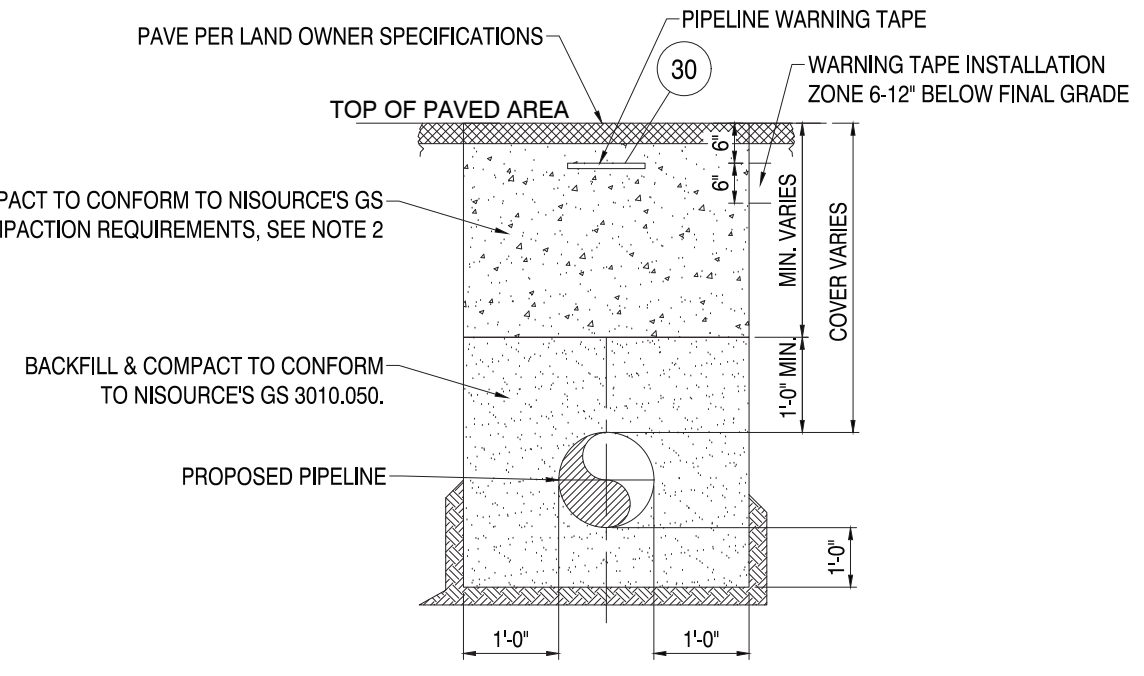
SITE NAME:
WO# 400009378
MAT
WBS L2
 PHASE 4 NCHP PIPELINE REPLACEMENT
 COLUMBUS, FRANKLIN COUNTY, OH

DRAWING TITLE:
TYPICAL TRENCHING DETAILS

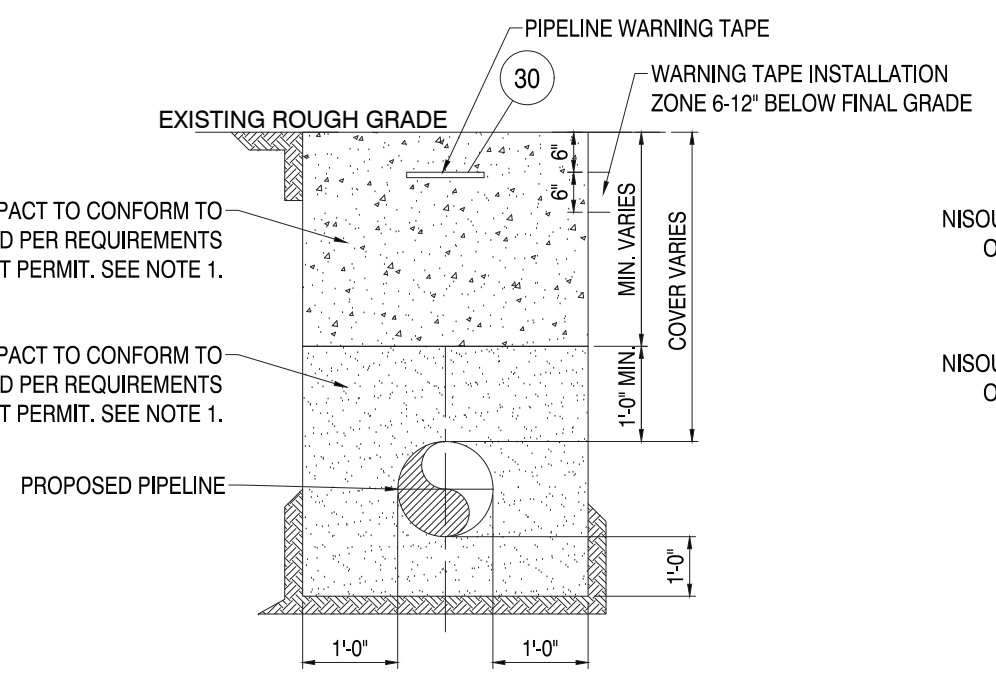
DRAWING NO:
TD-05



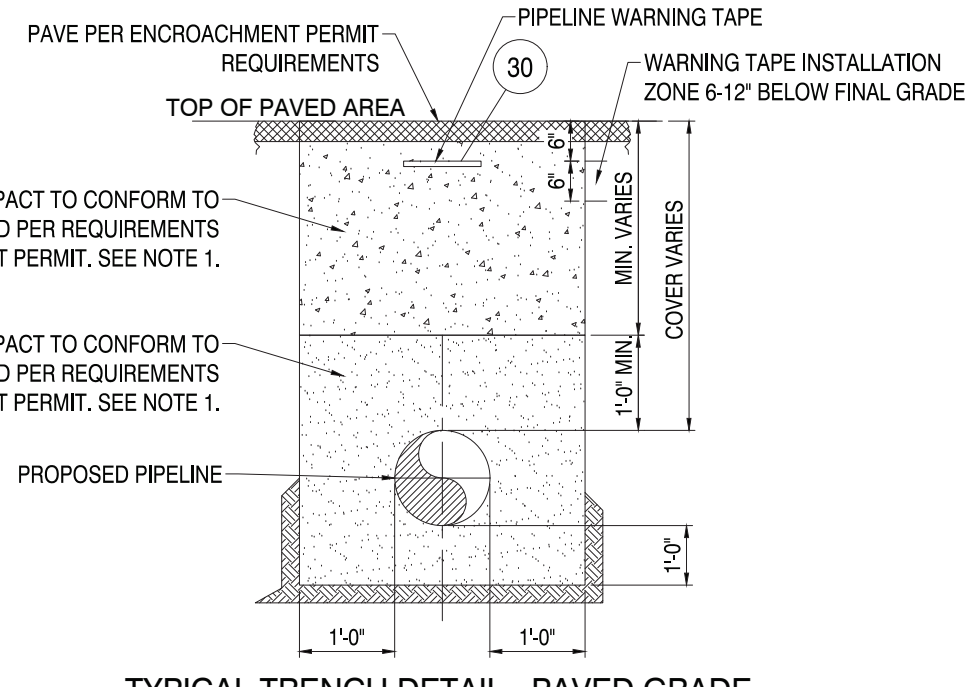
TYPICAL TRENCH DETAIL - ROUGH GRADE
 SCALE: SCALE: NTS OUTSIDE ROW



TYPICAL TRENCH DETAIL - PAVED GRADE
 SCALE: SCALE: NTS OUTSIDE ROW



TYPICAL TRENCH DETAIL - ROUGH GRADE
 SCALE: SCALE: NTS WITHIN ROW



TYPICAL TRENCH DETAIL - PAVED GRADE
 SCALE: SCALE: NTS WITHIN ROW

BACKFILL & COMPACT TO CONFORM TO NISOURCE'S GS 3010.050. FOR COMPACTION REQUIREMENTS, SEE NOTE 2

BACKFILL & COMPACT TO CONFORM TO NISOURCE'S GS 3010.050.

PROPOSED PIPELINE

BACKFILL & COMPACT TO CONFORM TO NISOURCE'S GS 3010.050. FOR COMPACTION REQUIREMENTS, SEE NOTE 2

BACKFILL & COMPACT TO CONFORM TO NISOURCE'S GS 3010.050.

PROPOSED PIPELINE

BACKFILL & COMPACT TO CONFORM TO NISOURCE'S GS 3010.050 AND PER REQUIREMENTS OF THE ENCROACHMENT PERMIT. SEE NOTE 1.

BACKFILL & COMPACT TO CONFORM TO NISOURCE'S GS 3010.050 AND PER REQUIREMENTS OF THE ENCROACHMENT PERMIT. SEE NOTE 1.

PROPOSED PIPELINE

BACKFILL & COMPACT TO CONFORM TO NISOURCE'S GS 3010.050 AND PER REQUIREMENTS OF THE ENCROACHMENT PERMIT. SEE NOTE 1.

BACKFILL & COMPACT TO CONFORM TO NISOURCE'S GS 3010.050 AND PER REQUIREMENTS OF THE ENCROACHMENT PERMIT. SEE NOTE 1.

PROPOSED PIPELINE

- NOTES:
- BACKFILL, COMPACTION, AND PAVEMENT DESIGN TO MEET THE REQUIREMENTS OF CITY OF COLUMBUS PAVEMENT & UTILITY CUT REPAIRS STD DWG 1441. SEE TABLE FOR COMPACTION REQUIREMENTS. THE CONTRACTOR SHALL COOPERATE TO THE FULLEST EXTENT TO ACCOMMODATE COMPACTION TESTING WITH THE CITY OF COLUMBUS' INSPECTORS PER THE CITY OF COLUMBUS PUBLIC SERVICE DEPARTMENT TRANSPORTATION DIVISION'S SUPPLEMENTAL SPECIFICATION 1501.
 - COMPACT THE SUBGRADE MATERIALS THAT HAVE A MAXIMUM DRY DENSITY OF 100 TO 105 POUNDS PER CUBIC FOOT (1600 TO 1680 KG/M³) TO NOT LESS THAN 102 PERCENT OF MAXIMUM DRY DENSITY. COMPACT ALL OTHER SUBGRADE MATERIALS TO NOT LESS THAN 100 PERCENT OF MAXIMUM DRY DENSITY. A THIRD PARTY GEOTECH ENGINEER WILL DETERMINE THE MAXIMUM DRY DENSITY USING AASHTO T 99 OR AASHTO T 272.

SECTION 912.03 COMPACTION REQUIREMENTS	
MAXIMUM DRY DENSITY [LB/FT³]	MINIMUM COMPACTION REQUIREMENTS IN PERCENT OF MAXIMUM DRY DENSITY
90 TO 104.9	102
105 TO 119.9	100
120 AND MORE	98



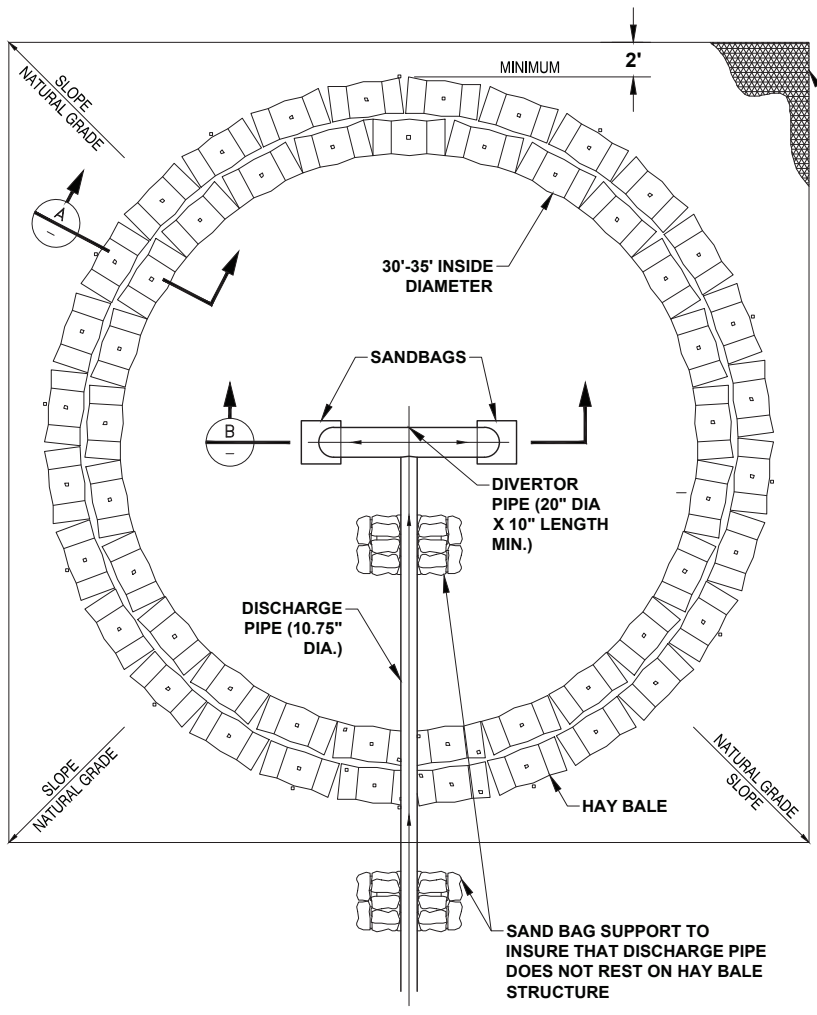
BURNS MEDONNELL
530 W SPRING STREET, SUITE 100
COLUMBUS, OHIO 43215
(614) 453-7800

REVISIONS			
REV. #	DATE	DESCRIPTION	
0	1/08/26	ISSUED FOR CONSTRUCTION	
DESIGNED BY	CCK	1/08/26	314-391-5360
DRAWN BY	JMB	1/08/26	314-239-4747
CHECKED BY	JPF	1/08/26	314-578-9778
AS-BUILT BY	TBD	TBD	TBD
	NAME	DATE	PHONE #

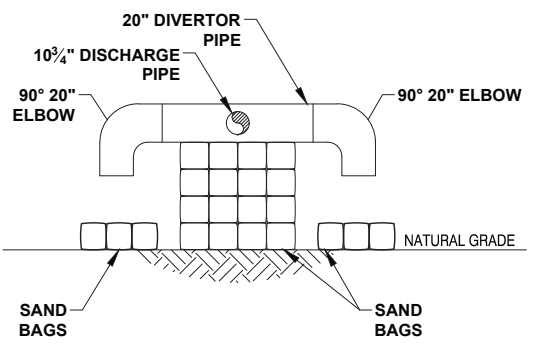
SITE NAME:
WO# 40009378
MAT WBS L2
PHASE 4 NCHP PIPELINE REPLACEMENT
COLUMBUS, FRANKLIN COUNTY, OH

DRAWING TITLE:
DEWATERING DETAILS

DRAWING NO:
TD-06



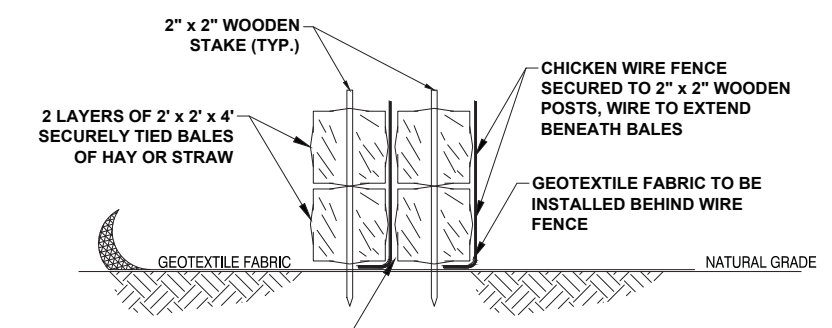
INSTALL GEOTEXTILE FABRIC BENEATH ENTIRE DEWATERING STRUCTURE TO PREVENT SCOURING



DEWATER SECTION B
SCALE: NTS THIS DWG

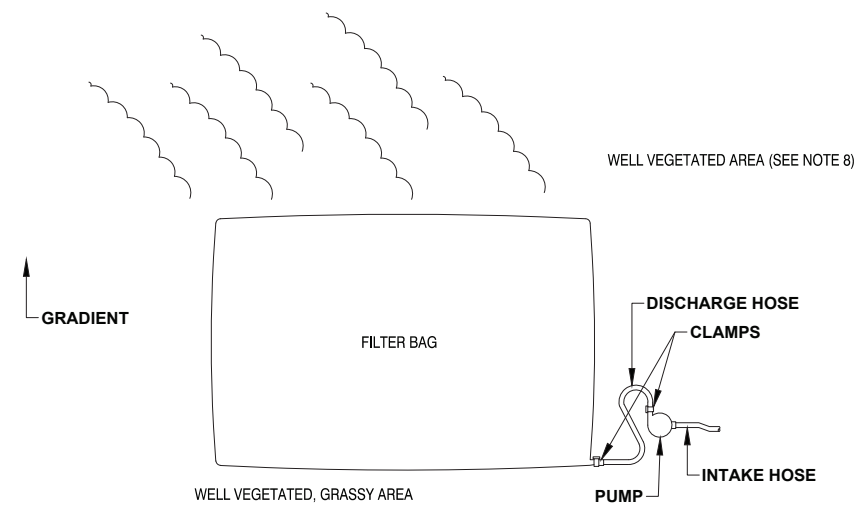
- NOTES:
- STRUCTURE SHALL BE PLACED ON A SUITABLE, WELL VEGETATED SITE SUCH THAT WATER WILL FLOW AWAY FROM STRUCTURE AND ANY WORK AREAS.
 - FLOW RATES THROUGH DISCHARGE AND DIVERTOR PIPES SHALL BE SUCH THAT STRUCTURE WILL NOT OVERFLOW OR AT A RATE NOT GREATER THAN SPECIFIED BY ANY AGENCY PERMIT IF APPLICABLE.
 - WHERE CONDITIONS WARRANT, A 30' x 30' RECTANGULAR STRUCTURE MAY BE SUBSTITUTED FOR THE CIRCULAR CONFIGURATION SHOWN.
 - DIMENSIONS SHOWN ARE THE MINIMUM ACCEPTABLE VALUES AND MAY VARY DEPENDING ON SPECIFIC LOCATION.
 - CONTRACTOR SHALL PROPERLY REMOVE AND DISPOSE OF DEWATERING STRUCTURE IMMEDIATELY UPON COMPLETION OF DEWATERING PROCEDURE. UNDER NO CIRCUMSTANCES SHALL USED DEWATERING STRUCTURES BE LEFT IN PLACE FOR ANY PERIOD OF TIME GREATER THAN 48 HOURS AFTER TO COMPLETION OF DEWATERING PROCEDURE.

DEWATER DETAIL 1
SCALE: NTS TYP

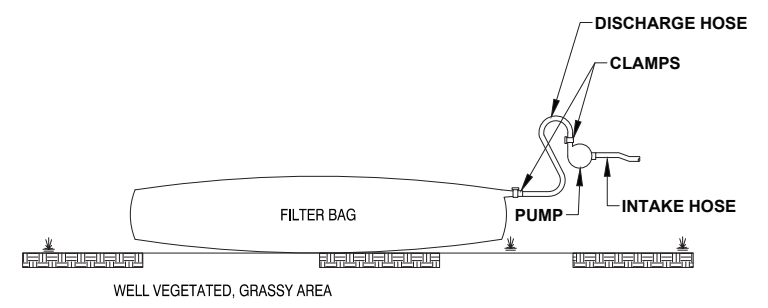


- NOTES:
- STAKES SECURING "HIGH EFFICIENCY AIR FILTER MEDIA" AND CHICKEN WIRE FENCE ARE NOT SHOWN FOR CLARITY PURPOSES.

DEWATER SECTION A
SCALE: NTS THIS DWG



PLAN VIEW



ELEVATION VIEW

DEWATER DETAIL 2
SCALE: NTS TYP

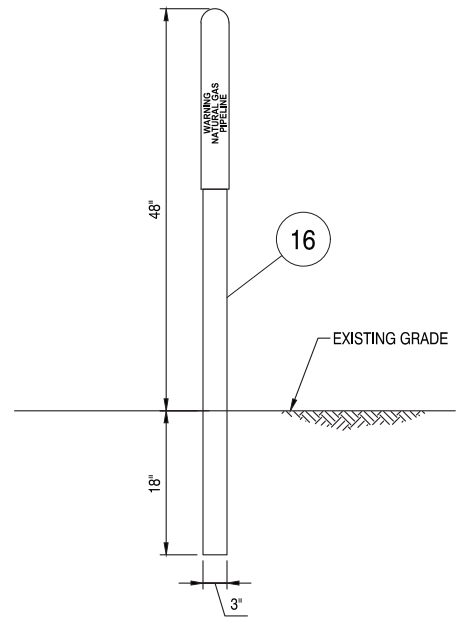
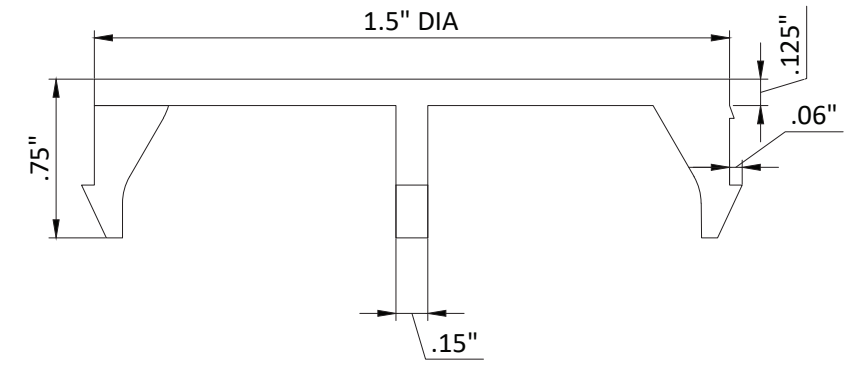
- NOTES:
- FILTER BAGS SHALL BE MADE FROM NON-WOVEN GEO-TEXTILE MATERIAL WITH HIGH STRENGTH, DOUBLE STITCHED "J" TYPE SEAMS. FILTER BAGS SHALL BE CAPABLE OF TRAPPING PARTICLES LARGER THEN 150 MICRONS.
 - A SUITABLE MEANS OF ACCESSING THE FILTER BAG WITH MACHINERY REQUIRED FOR DISPOSAL SHALL BE PROVIDED. FILTER BAGS SHALL BE REPLACED WHEN THEY BECOME 1/2 FULL. SPARE BAGS SHALL BE KEPT AVAILABLE FOR REPLACEMENT OF THOSE THAT HAVE FAILED OR FILLED BEYOND 1/2 FULL.
 - BAGS SHALL BE LOCATED IN WELL-VEGETATED (GRASSY) AREA, AND DISCHARGE ONTO STABLE, EROSION RESISTANT AREAS. WHERE THIS IS NOT POSSIBLE, A GEO-TEXTILE FLOW PATH SHALL BE PROVIDED. BAGS SHALL NOT BE PLACED ON SLOPES GREATER THAN 5%.
 - THE PUMP DISCHARGE HOSE SHALL BE INSERTED INTO THE BAGS IN THE MANNER SPECIFIED BY THE MANUFACTURER AND SECURELY CLAMPED.
 - THE PUMPING RATE SHALL BE NO GREATER THAN 750 GPM OR 1/2 THE MAXIMUM SPECIFIED BY THE MANUFACTURER, WHICHEVER IS LESS, OR IN ACCORDANCE WITH PERMIT REQUIREMENTS, IF APPLICABLE. PUMP INTAKES SHOULD BE FLOATING AND SCREENED.
 - FILTER BAGS WILL BE INSPECTED FREQUENTLY. IF ANY PROBLEM IS DETECTED, PUMPING SHALL CEASE IMMEDIATELY AND NOT RESUME UNTIL THE PROBLEM IS CORRECTED.
 - CONTRACTOR SHALL PROPERLY REMOVE AND PROPERLY DISPOSE OF USED FILTER BAGS IMMEDIATELY UPON COMPLETION OF DE-WATERING OPERATION IN ACCORDANCE WITH THE CONTRACTORS APPROVED WASTE MANAGEMENT PLAN.
 - IF VEGETATIVE AREA IS NOT AVAILABLE, INSTALL EROSION RESISTANT GEO-TEXTILE FABRIC TO A WELL-VEGETATED AREA DOWN GRADIENT OF THE FILTER BAG. NOTE: IF THIS AREA IS OFF OF COMPANY EASEMENT/ETWS LIMITS, LANDOWNER PERMISSION MAY BE REQUIRED PRIOR TO DEWATERING ACTIVITY.

UPPER ARLINGTON ALIGNMENT PIPELINE MARKER LOCATIONS		
STATION	ITEM NO.	TYPE
10+00	16	STANDARD PIPELINE MARKER
15+00	15	FLUSH MOUNT PIPELINE MARKER
20+00	15	FLUSH MOUNT PIPELINE MARKER
25+00	15	FLUSH MOUNT PIPELINE MARKER
30+00	15	FLUSH MOUNT PIPELINE MARKER
35+00	15	FLUSH MOUNT PIPELINE MARKER
40+00	15	FLUSH MOUNT PIPELINE MARKER
45+00	15	FLUSH MOUNT PIPELINE MARKER
50+00	15	FLUSH MOUNT PIPELINE MARKER
55+00	15	FLUSH MOUNT PIPELINE MARKER
60+00	15	FLUSH MOUNT PIPELINE MARKER
61+50	15	FLUSH MOUNT PIPELINE MARKER
62+50	15	FLUSH MOUNT PIPELINE MARKER
65+00	15	FLUSH MOUNT PIPELINE MARKER
70+00	15	FLUSH MOUNT PIPELINE MARKER
75+00	15	FLUSH MOUNT PIPELINE MARKER
80+00	15	FLUSH MOUNT PIPELINE MARKER
85+00	15	FLUSH MOUNT PIPELINE MARKER
90+00	15	FLUSH MOUNT PIPELINE MARKER
94+20	15	FLUSH MOUNT PIPELINE MARKER
95+00	15	FLUSH MOUNT PIPELINE MARKER
100+00	15	FLUSH MOUNT PIPELINE MARKER
105+00	15	FLUSH MOUNT PIPELINE MARKER
110+00	15	FLUSH MOUNT PIPELINE MARKER
115+00	15	FLUSH MOUNT PIPELINE MARKER
120+00	15	FLUSH MOUNT PIPELINE MARKER
125+00	15	FLUSH MOUNT PIPELINE MARKER
130+00	15	FLUSH MOUNT PIPELINE MARKER
135+00	15	FLUSH MOUNT PIPELINE MARKER
140+00	15	FLUSH MOUNT PIPELINE MARKER
145+00	15	FLUSH MOUNT PIPELINE MARKER
148+25	15	FLUSH MOUNT PIPELINE MARKER
150+00	15	FLUSH MOUNT PIPELINE MARKER
155+00	15	FLUSH MOUNT PIPELINE MARKER
160+00	15	FLUSH MOUNT PIPELINE MARKER
163+00	16	STANDARD PIPELINE MARKER
165+00	16	STANDARD PIPELINE MARKER
167+00	15	FLUSH MOUNT PIPELINE MARKER
175+00	15	FLUSH MOUNT PIPELINE MARKER
180+00	15	FLUSH MOUNT PIPELINE MARKER
185+00	15	FLUSH MOUNT PIPELINE MARKER
190+00	15	FLUSH MOUNT PIPELINE MARKER
195+00	15	FLUSH MOUNT PIPELINE MARKER
200+00	15	FLUSH MOUNT PIPELINE MARKER
205+00	15	FLUSH MOUNT PIPELINE MARKER
210+00	15	FLUSH MOUNT PIPELINE MARKER
212+39	15	FLUSH MOUNT PIPELINE MARKER

BETHEL ROAD ALIGNMENT PIPELINE MARKER LOCATIONS		
STATION	ITEM NO.	TYPE
10+00	16	STANDARD PIPELINE MARKER
15+00	15	FLUSH MOUNT PIPELINE MARKER
20+00	15	FLUSH MOUNT PIPELINE MARKER
25+00	15	FLUSH MOUNT PIPELINE MARKER
30+00	15	FLUSH MOUNT PIPELINE MARKER
35+00	15	FLUSH MOUNT PIPELINE MARKER
40+00	15	FLUSH MOUNT PIPELINE MARKER
45+00	15	FLUSH MOUNT PIPELINE MARKER
47+27	15	FLUSH MOUNT PIPELINE MARKER

LINWORTH & OLENTANGY LATERAL PIPELINE MARKER LOCATIONS		
STATION	ITEM NO.	TYPE
10+00	16	STANDARD PIPELINE MARKER
15+00	15	FLUSH MOUNT PIPELINE MARKER
20+00	15	FLUSH MOUNT PIPELINE MARKER
25+00	15	FLUSH MOUNT PIPELINE MARKER
30+00	15	FLUSH MOUNT PIPELINE MARKER
35+00	15	FLUSH MOUNT PIPELINE MARKER
40+00	15	FLUSH MOUNT PIPELINE MARKER
43+75	15	FLUSH MOUNT PIPELINE MARKER

KENNY & FRANCISCO LATERAL PIPELINE MARKER LOCATION		
STATION	ITEM NO.	TYPE
0+00	15	FLUSH MOUNT PIPELINE MARKER
3+72	15	FLUSH MOUNT PIPELINE MARKER



STANDARD PIPELINE MARKER DETAIL
SCALE: NTS



TYPICAL FLUSH MOUNT MARKER
BERNTSEN



BURNS & MCDONNELL
530 W SPRING STREET, SUITE 100
COLUMBUS, OHIO 43215
(614) 453-7800

REVISIONS			
REV. #	DATE	DESCRIPTION	
0	1/08/26	ISSUED FOR CONSTRUCTION	
DESIGNED BY	CCK	1/08/26	314-391-5360
DRAWN BY	JMB	1/08/26	314-239-4747
CHECKED BY	JPF	1/08/26	314-578-9778
AS-BUILT BY	TBD	TBD	TBD
	NAME	DATE	PHONE #

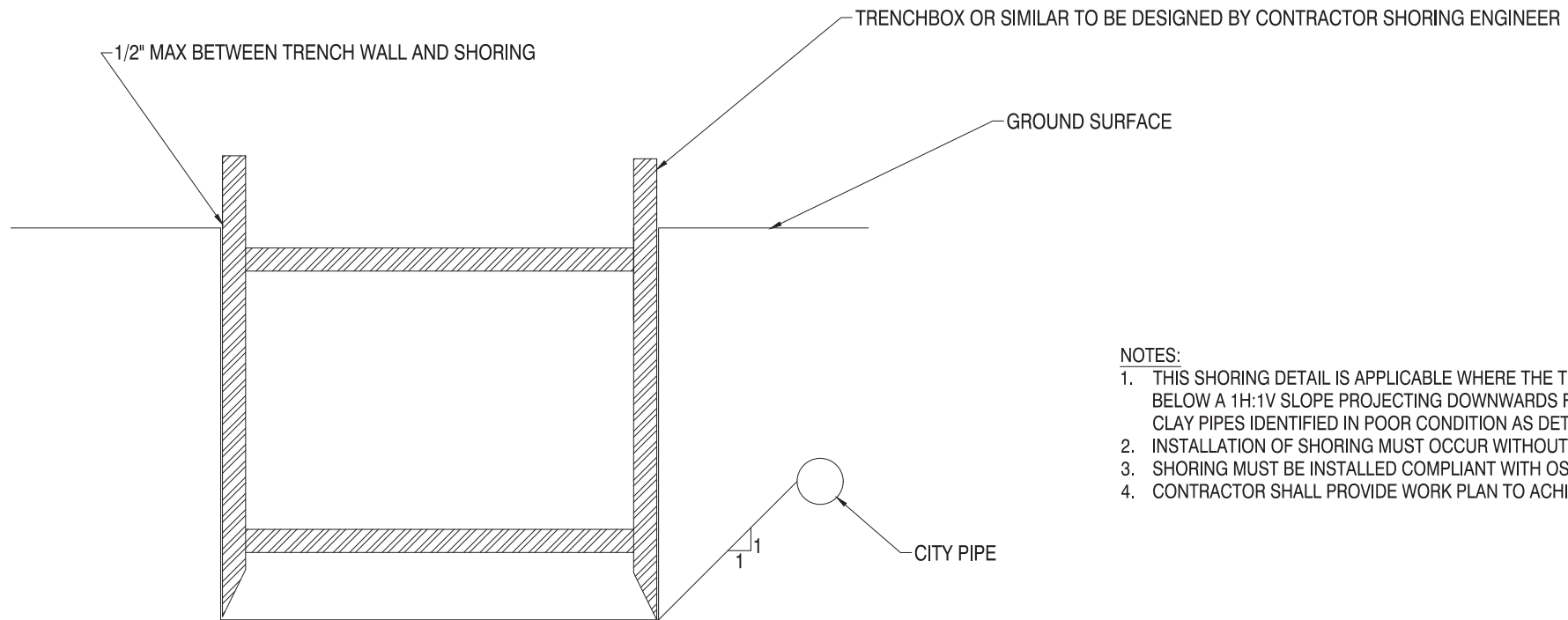
SITE NAME:
WO# 400009378
MAT WBS L2
PHASE 4 NCHP PIPELINE REPLACEMENT
COLUMBUS, FRANKLIN COUNTY, OH

DRAWING TITLE:
PIPELINE MARKER DETAILS

DRAWING NO:
TD-07



**BURNS
MEDONNELL**
530 W SPRING STREET, SUITE 100
COLUMBUS, OHIO 43215
(614) 453-7800



NOTES:

1. THIS SHORING DETAIL IS APPLICABLE WHERE THE TRENCH IS PLANNED TO EXTEND BELOW A 1H:1V SLOPE PROJECTING DOWNWARDS FROM THE SPRINGLINE OF THE CITY CLAY PIPES IDENTIFIED IN POOR CONDITION AS DETERMINED BY CITY OF COLUMBUS
2. INSTALLATION OF SHORING MUST OCCUR WITHOUT EXCESSIVE VIBRATION
3. SHORING MUST BE INSTALLED COMPLIANT WITH OSHA STANDARDS
4. CONTRACTOR SHALL PROVIDE WORK PLAN TO ACHIEVE SPECIFIED RE

TYPICAL SHORING DETAIL

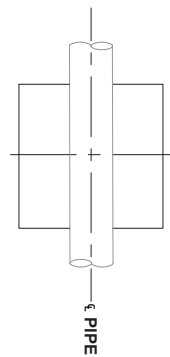
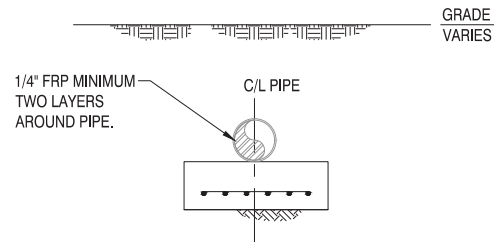
REVISIONS		
REV. #	DATE	DESCRIPTION
0	1/08/26	ISSUED FOR CONSTRUCTION

DESIGNED BY	CCK	1/08/26	314-391-5360
DRAWN BY	JMB	1/08/26	314-239-4747
CHECKED BY	JPF	1/08/26	314-578-9778
AS-BUILT BY	TBD	TBD	TBD

SITE NAME:
WO# 400009378
MAT
WBS L2
 PHASE 4 NCHP PIPELINE REPLACEMENT
 COLUMBUS, FRANKLIN COUNTY, OH

DRAWING TITLE:
TYPICAL SHORING DETAIL

DRAWING NO:
TD-08



REST BLOCK SCHEDULE & DETAIL
SCALE: NTS

REST BLOCK SCHEDULE				
PIPE SIZE	"D"	"E"	"F"	REINFORCEMENT
4"	1'-0"	1'-0"	0'-6"	#4 BARS @ 12" O.C. MAX AT MID DEPTH
6"	1'-0"	1'-0"	0'-6"	#4 BARS @ 12" O.C. MAX AT MID DEPTH
8"	1'-0"	1'-0"	0'-6"	#4 BARS @ 12" O.C. MAX AT MID DEPTH
20"	2'-6"	2'-6"	1'-0"	#5 BARS @ 12" O.C. MAX AT MID DEPTH

NOTES:
1. FRP IS TO BE MANUFACTURED BY THE GLASS MESH COMPANY.

REVISIONS		
REV. #	DATE	DESCRIPTION
0	1/08/26	ISSUED FOR CONSTRUCTION

DESIGNED BY	CCK	1/08/26	314-391-5360
DRAWN BY	JMB	1/08/26	314-239-4747
CHECKED BY	JPF	1/08/26	314-578-9778
AS-BUILT BY	TBD	TBD	TBD
	NAME	DATE	PHONE #

SITE NAME:
WO# 400009378
MAT
WBS L2
 PHASE 4 NCHP PIPELINE REPLACEMENT
 COLUMBUS, FRANKLIN COUNTY, OH

DRAWING TITLE:
REST BLOCK SCHEDULE & DETAILS

DRAWING NO:
TD-09



530 W SPRING STREET, SUITE 100
COLUMBUS, OHIO 43215
(614) 453-7800

City of Columbus Approved Fire Hydrants

Location Number	Hydrant ID	Hydrant Owner	Intersection	Description
1	0471G09	Columbus	E. Broad St & Reynoldsburg New Albany Rd.	2nd Hydrant W of Reynoldsburg-New Albany Rd on Brice Rd
2	0238F07	Columbus	Easton Square Place & Morse Crossing	2nd Hydrant N of Morse Crossing on Easton Square Place
3	0143B01	Columbus	Refugee Rd & Weyburn Rd.	2nd Hydrant N of Refugee Rd on Weyburn Rd.
4	0399J15	Columbus	Gender Rd & Winchester Pike	2nd Hydrant E of Gender Rd on Winchester Lakes Blvd
5	0410H04	Columbus	London Groveport Rd & Parsons Ave	2nd Hydrant N of London-Groveport Rd on Parsons Ave
6	0214B05	Columbus	Georgesville Rd & Krieger St.	1st Hydrant W of Krieger St on Krieger Ct
7	0219A02	Columbus	Manor Park Drive & Fisher Road	2nd Hydrant S of Fisher Road on Manor Park Drive
8	0223B10	Columbus	I-270 & Roberts Rd.	4th Hydrant E of Walcutt Rd on Journal St
9	0170J05	Columbus	I-270 & Cemetery Rd.	3rd Hydrant N of Fishinger Blvd on Ridge Mill Dr
10	0477A21	Columbus	Tussing Rd & Americana Pkwy	4th Hydrant N of Tussing Rd on Americana Pkwy
11	0306C03	Columbus	Hamilton Rd & Chestnut Hill Rd	3rd Hydrant E of Hamilton Rd on Chestnut Hill Rd
12	1244H01	Columbus	Antares Avenue & Polaris Parkway	2nd Hydrant E of Polaris Parkway on Antares Avenue
13	0852D12	Columbus	Sawmill Road & Summer Drive	4th Hydrant E of Sawmill Rd on Summer Dr
14	0093A05	Columbus	Rarig Ave & 14th Ave	1st Hydrant W of Rarig Ave on 14th Ave
15	0538H01	Columbus	Dublin Granville Rd & Fiesta Dr	5th Hydrant S of Dublin Granville Rd on Fiesta Dr
16	0002D18	Columbus	Nationwide Blvd & Hanover St	2nd Hydrant S of Nationwide Blvd on Hanover St
17	0148G02	Columbus	Williams Road & Lockbourne Industrial Parkway	4th Hydrant S of Williams Road on Lockbourne Industrial Parkway
18	0648J05	Columbus	Central College Road & New Albany Road West	3rd Hydrant S of Central College Road on New Albany Road West
19	0074F04	Columbus	Clime Road & Fall Brook Road	1st Hydrant E of Fall Brook Road on Clime Road
20	0038J03	Columbus	Buckeye Park Road & Lockbourne Road	3rd Hydrant W of Lockbourne Road on Buckeye Park Road
21	0127H15	Columbus	High Street & Arcadia Avenue	1st Hydrant E of High Street on Arcadia Avenue
22	0533H16	Dublin	Woerner-Temple Rd. & Norn St.	1st Hydrant S of Woerner-Temple Rd on Norn St
23	1100G03	Dublin	Memorial Dr. & Vista Ridge	1st Hydrant W of Vista Ridge on Memorial Dr.
24	1096C07	Dublin	Hyland-Croy Rd. & Corazon Dr.	3rd Hydrant E of Hyland-Croy Rd. on Corazon Dr.
25	0633E17	Dublin	Shamrock Blvd. & Stoneridge Ln.	1st Hydrant E of Shamrock Blvd. on Stoneridge Ln.
26	0025H09	Grandview Heights	Glendale & Douglas (by Service Complex)	Hydrant at NW Corner of Glendale/Douglas Intersection
27	0206H09	Grove City	Buckeye Parkway & Buckeye Place	5th Hydrant W of Buckeye Parkway, on Buckeye Place
28	0270B03	Grove City	Harrisburg Pike & Ventura Blvd.	1st Hydrant N of Ventura Blvd on Harrisburg Pike
29	0414G13	Grove City	Hoover Road & Quail Creek Boulevard	3rd Hydrant E of Hoover Road on Quail Creek Boulevard
30	0406E06	Groveport	Opus Drive & Green Point Drive South	3rd Hydrant N of Green Point Drive South on Opus Drive
31	0491D02	Groveport	Port Road & Speigel Drive	3rd Hydrant W of Port Road on Speigel Drive
32	0197H04	Groveport	Venture Place & Hamilton Road	2nd Hydrant W of Hamilton Road on Venture Place
33	0359D21	Hilliard	Scioto Darby Creek Rd & Cosgray Rd	1st FH on Cosgray Rd N of Scioto Darby Creek Rd
34	0358F07	Hilliard	Heritage Club Drive and Main Street	3rd Hydrant W on Main Street on Heritage Club Drive
35	0416H02	Jackson Twp	Haughn Rd & Bill Lotz Way	1st Hydrant E of Bill Lotz on Haughn Road
36	0456E13	Minerva Park	Minerva Lake Road & East Shore Drive	2nd Hydrant E of East Shore Drive on Minerva Lake Road
37	0649B02	New Albany	St Rt 605 & New Albany Rd East	1st Hydrant W of St Rt 605 on New Albany Rd East
38	0759J05	New Albany	Smith's Mill Rd & Beech Rd	1st Hydrant W of Beech Rd on Smith's Mill Rd (South Side)
39	0463B05	New Albany	US Rt 62 & Village Hall West	2nd Hydrant W of US Rt 62 on Village Hall Rd West
40	0381J09	New Albany	Lambton Green & Lambton Park Road	1st Hydrant W of Lambton Park Road on Lambton Green
41	0083E14	Upper Arlington	Northam Rd. & Wexford Road	1st Hydrant W of Wexford Rd. on Northam Rd. (by Northam Park)
42	0050G07	Upper Arlington	Club Rd. & Malvern Rd.	1st Hydrant W of Malvern Rd. on Club Road
43	0173D03	Upper Arlington	Lytham Rd. & Lytham Ct.	2nd Hydrant W of Reed Road on Lytham Road
44	0174G04	Upper Arlington	Kenny Road & Rue De Fleur	1st Hydrant E of Upper Arlington Municipal Building in parking lot
45	0188C01	Whitehall	Poth Rd. & Hamilton Rd.	2nd Hydrant E of Yearling Road on Porth Road (By 4605 Poth Rd.)
46	0638C01	Worthington	Highland Place & Halligan Ave.	Hydrant @ NE corner of Highland Pl./Halligan Ave. Int. (by Worthington Comm. Center)
47	0743D08	Worthington	Old Wilson Bridge Road & Wilson Bridge Road	2nd Hydrant W of E Wilson Bridge Road on Old Wilson Bridge Road
48	0539D18	Worthington	Dublin Granville Road & Linworth Road	1st Hydrant E of Linworth Rd. in Cambria Ct.
49	0451J02	Worthington	Lincoln Ave. & Milton Ave.	1st Hydrant E of Milton Ave. on Lincoln Ave.

REVISIONS

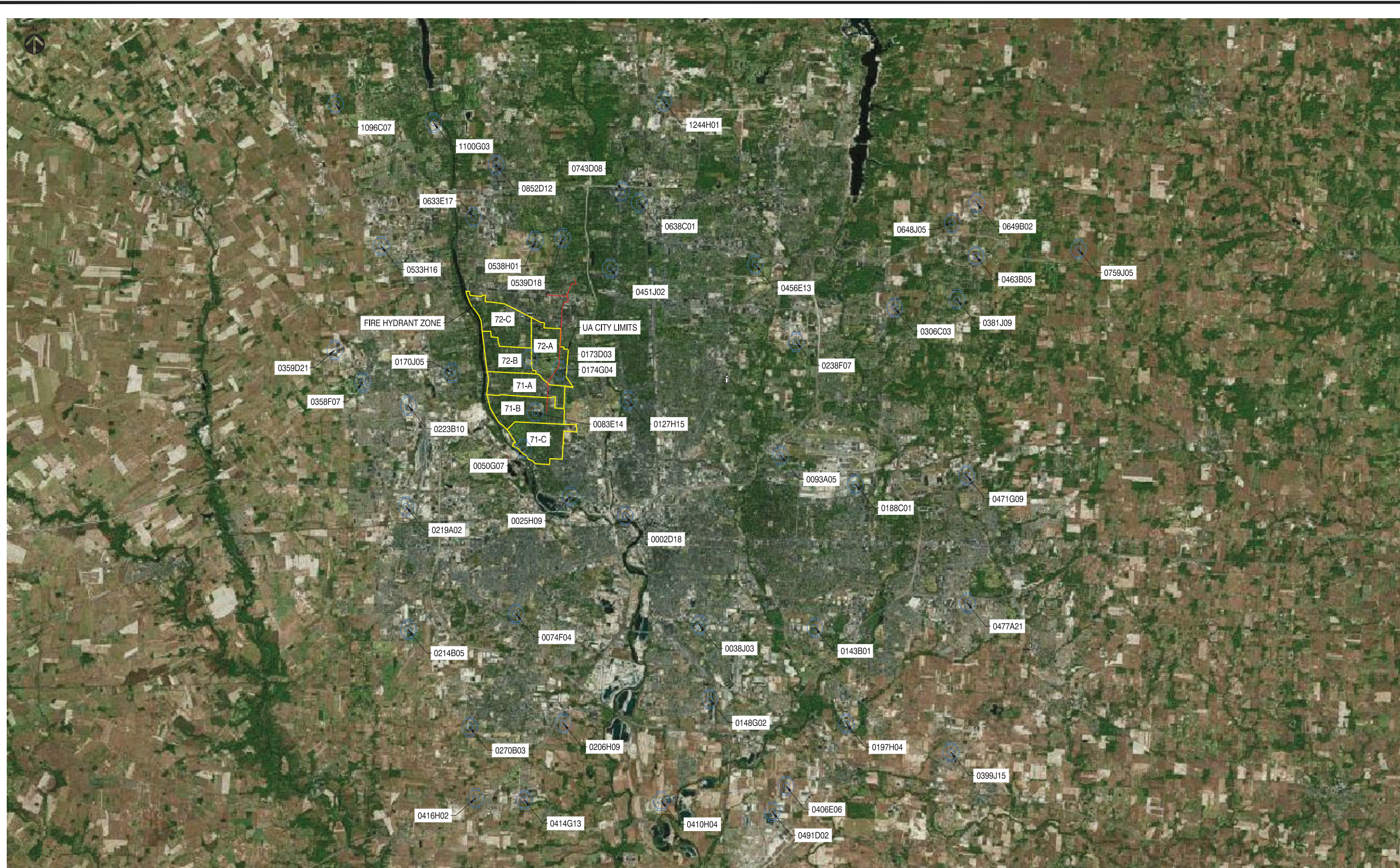
REV. #	DATE	DESCRIPTION
0	1/08/26	ISSUED FOR CONSTRUCTION

DESIGNED BY	CCK	1/08/26	314-391-5360
DRAWN BY	JMB	1/08/26	314-239-4747
CHECKED BY	JPF	1/08/26	314-578-9778
AS-BUILT BY	TBD	TBD	TBD
	NAME	DATE	PHONE #

SITE NAME:
WO# 400009378
MAT
WBS L2
PHASE 4 NCHP PIPELINE REPLACEMENT
COLUMBUS, FRANKLIN COUNTY, OH

DRAWING TITLE:
APPROVED FIRE HYDRANTS

DRAWING NO:
TD-10



- NOTES:
1. AERIAL IMAGERY IS FOR REFERENCE ONLY.
 2. LOCATION OF APPROVED FIRE HYDRANTS ARE BASED ON LIST PROVIDED BY THE CITY AND NOT FIELD VERIFIED. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION.
 3. HYDRANTS IN THE UA FIRE HYDRANT ZONES ARE WITHIN THE UPPER ARLINGTON CITY LIMITS. COORDINATE WITHIN THE CITY PRIOR TO USE.

OVERVIEW MAP OF APPROVED FIRE HYDRANTS AND UA FIRE HYDRANT ZONES

SCALE: 1" = 8000'



**BURNS
MEDONNELL**
530 W SPRING STREET, SUITE 100
COLUMBUS, OHIO 43215
(614) 453-7800

REVISIONS		
REV. #	DATE	DESCRIPTION
1	2/26/26	REISSUED FOR 90%
0	1/08/26	ISSUED FOR CONSTRUCTION

DESIGNED BY	DATE	PHONE #
CCK	2/26/26	314-391-5360
DRAWN BY	JMB	2/26/26
CHECKED BY	JPF	2/26/26
AS-BUILT BY	TBD	TBD

SITE NAME:
WO# 400009378
MAT
WBS L2
PHASE 4 NCHP PIPELINE REPLACEMENT
COLUMBUS, FRANKLIN COUNTY, OH

DRAWING TITLE:
OVERVIEW MAP OF APPROVED FIRE HYDRANTS

DRAWING NO:
TD-11



Gas Standard

Effective Date: 01/01/2018	Corrosion Control Design – Test Stations	Standard Number: GS 1420.095
Supersedes: 01/01/2014		Page 5 of 16

EXHIBIT A
(1 of 11)



Gas Standard

Effective Date: 01/01/2018	Corrosion Control Design – Test Stations	Standard Number: GS 1420.095
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EXHIBIT A
(2 of 11)



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530 W SPRING STREET, SUITE 100
COLUMBUS, OHIO 43215
(614) 453-7800

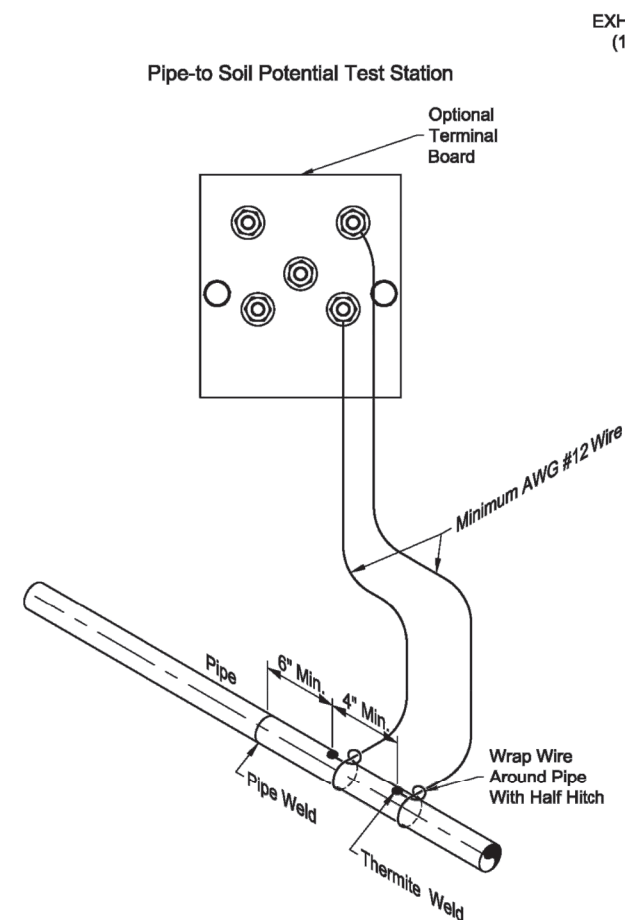


EXHIBIT A
(1 of 11)

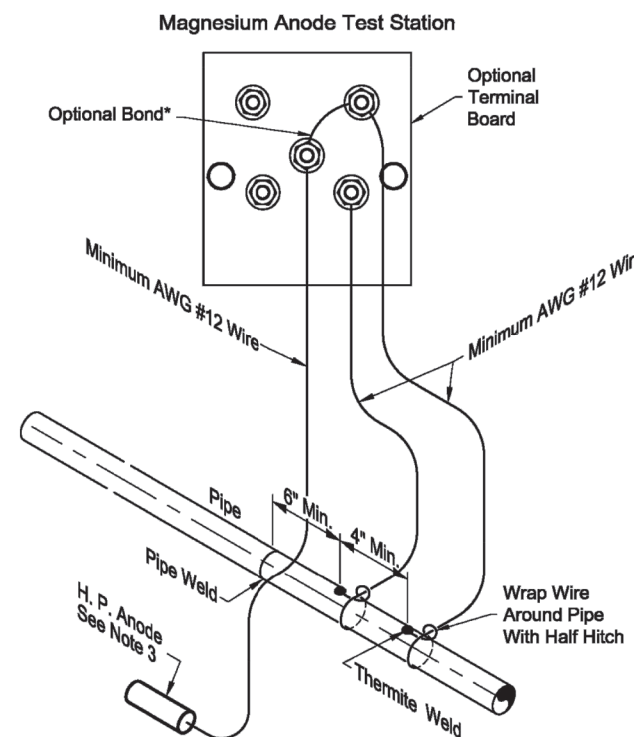


EXHIBIT A
(2 of 11)

General Notes:

- 1) Follow a recorded wire coding or connection convention to identify wire function.
- 2) Optional Bond*: Install when an anode is installed for CP purposes, typically on galvanic anode CP systems. Do not install bond when anode is installed for troubleshooting purposes, typically on impressed current CP systems.
- 3) The anode should be placed at a depth greater than the depth of the pipe bottom to ensure the anode is in soil that generally remains moist year around. Separation between the anode and the pipe should be a minimum of 2 feet. Where practical, this distance should be at least 5 feet on bare pipe and 3 feet on coated pipe. The anode or package contents shall not be in contact with the pipe or other structures.

REVISIONS

REV. #	DATE	DESCRIPTION
0	1/08/26	ISSUED FOR CONSTRUCTION

DESIGNED BY	CCK	1/08/26	314-391-5360
DRAWN BY	JMB	1/08/26	314-239-4747
CHECKED BY	JPF	1/08/26	314-578-9778
AS-BUILT BY	TBD	TBD	TBD
	NAME	DATE	PHONE #

SITE NAME:
WO# 400009378
MAT
WBS L2
PHASE 4 NCHP PIPELINE REPLACEMENT
COLUMBUS, FRANKLIN COUNTY, OH

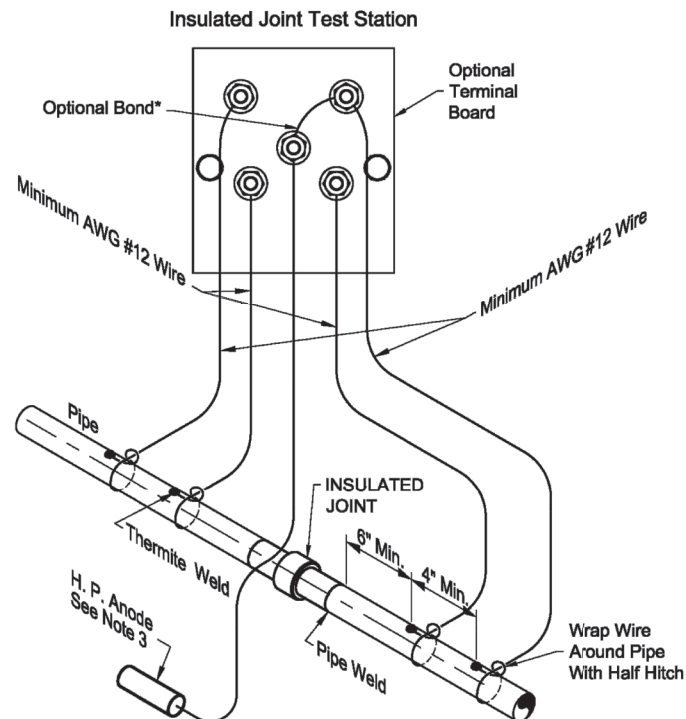
DRAWING TITLE:
CATHODIC PROTECTION - TEST STATION DETAILS

DRAWING NO:
CP-01

Effective Date: 01/01/2018	Corrosion Control Design – Test Stations	Standard Number: GS 1420.095
Supersedes: 01/01/2014		Page 7 of 16

EXHIBIT A
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EXHIBIT A
(3 of 11)



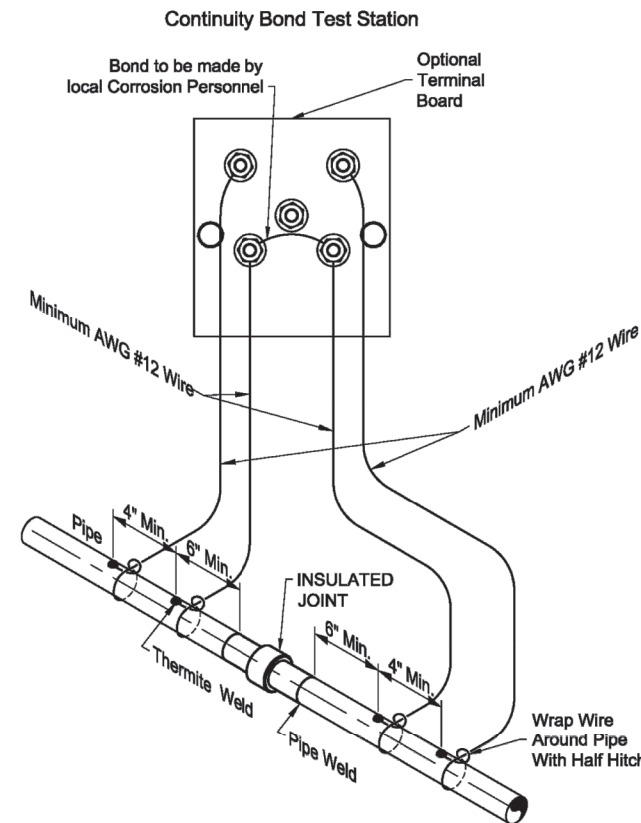
General Notes:

- 1) Follow a recorded wire coding or connection convention to identify wire function.
- 2) Optional Bond*: Install when anode is installed for CP purposes, typically on galvanic anode CP systems. Do not install bond when anode is installed for troubleshooting purposes, typically on impressed current CP systems.
- 3) The anode should be placed at a depth greater than the depth of the pipe bottom to ensure the anode is in soil that generally remains moist year around. Separation between the anode and the pipe should be a minimum of 2 feet. Where practical, this distance should be at least 5 feet on bare pipe and 3 feet on coated pipe. The anode or package contents shall not be in contact with the pipe or other structures.

Effective Date: 01/01/2018	Corrosion Control Design – Test Stations	Standard Number: GS 1420.095
Supersedes: 01/01/2014		Page 8 of 16

EXHIBIT A
(4 of 11)

EXHIBIT A
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General Notes:

- 1) Follow a recorded wire coding or connection convention to identify wire function.
- 2) Optional Anode(s) may be installed. See Magnesium Anode Test Station (Exhibit A, 2 of 11).



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530 W SPRING STREET, SUITE 100
COLUMBUS, OHIO 43215
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REVISIONS			
REV. #	DATE	DESCRIPTION	
0	1/08/26	ISSUED FOR CONSTRUCTION	
DESIGNED BY	CCK	1/08/26	314-391-5360
DRAWN BY	JMB	1/08/26	314-239-4747
CHECKED BY	JPF	1/08/26	314-578-9778
AS-BUILT BY	TBD	TBD	TBD
	NAME	DATE	PHONE #

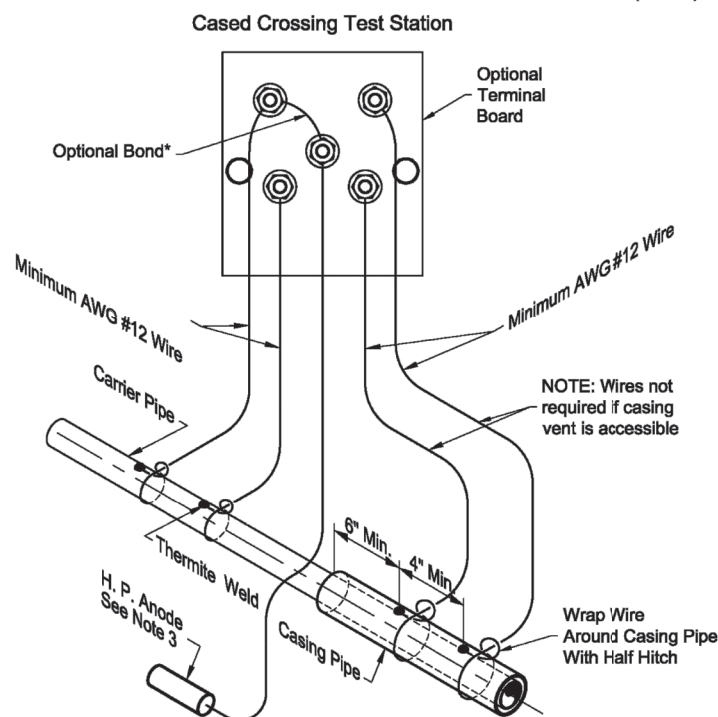
SITE NAME:
WO# 400009378
MAT
WBS L2
PHASE 4 NCHP PIPELINE REPLACEMENT
COLUMBUS, FRANKLIN COUNTY, OH

DRAWING TITLE:
CATHODIC PROTECTION - TEST STATION DETAILS

DRAWING NO:
CP-02

Effective Date: 01/01/2018	Corrosion Control Design – Test Stations	Standard Number: GS 1420.095
Supersedes: 01/01/2014		Page 9 of 16

EXHIBIT A
(5 of 11)

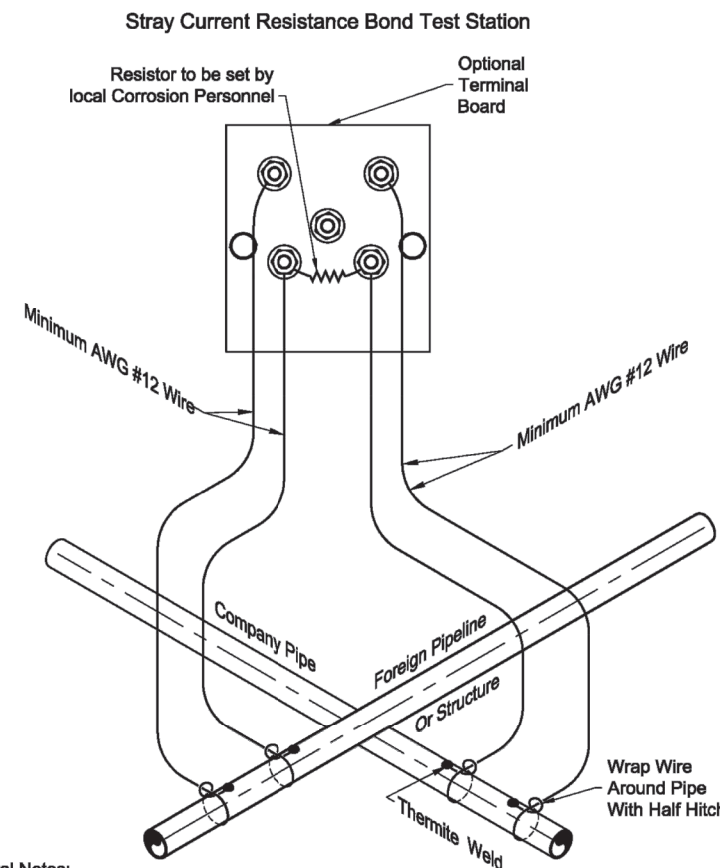


General Notes:

- 1) Follow a recorded wire coding or connection convention to identify wire function.
- 2) Optional Bond*: Install when an anode is installed for CP purposes, typically on galvanic anode CP systems. Do not install bond when anode is installed for troubleshooting purposes, typically on impressed current CP systems.
- 3) The anode should be placed at a depth greater than the depth of the pipe bottom to ensure the anode is in soil that generally remains moist year around. Separation between the anode and the pipe should be a minimum of 2 feet. Where practical, this distance should be at least 5 feet on bare pipe and 3 feet on coated pipe. The anode or package contents shall not be in contact with the pipe or other structures.

Effective Date: 01/01/2018	Corrosion Control Design – Test Stations	Standard Number: GS 1420.095
Supersedes: 01/01/2014		Page 10 of 16

EXHIBIT A
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General Notes:

- 1) Follow a recorded wire coding or connection convention to identify wire function.
- 2) Consider installation of a long-life reference electrode in locations with foreign facilities that may add interference with CP readings. See Exhibit B.



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REVISIONS			
REV. #	DATE	DESCRIPTION	
0	1/08/26	ISSUED FOR CONSTRUCTION	
DESIGNED BY	CCK	1/08/26	314-391-5360
DRAWN BY	JMB	1/08/26	314-239-4747
CHECKED BY	JPF	1/08/26	314-578-9778
AS-BUILT BY	TBD	TBD	TBD
	NAME	DATE	PHONE #

SITE NAME:
WO# 400009378
MAT
WBS L2
PHASE 4 NCHP PIPELINE REPLACEMENT
COLUMBUS, FRANKLIN COUNTY, OH

DRAWING TITLE:
CATHODIC PROTECTION - TEST STATION DETAILS

DRAWING NO:
CP-03

Effective Date: 01/01/2018	Corrosion Control Design – Test Stations	Standard Number: GS 1420.095
Supersedes: 01/01/2014		Page 11 of 16

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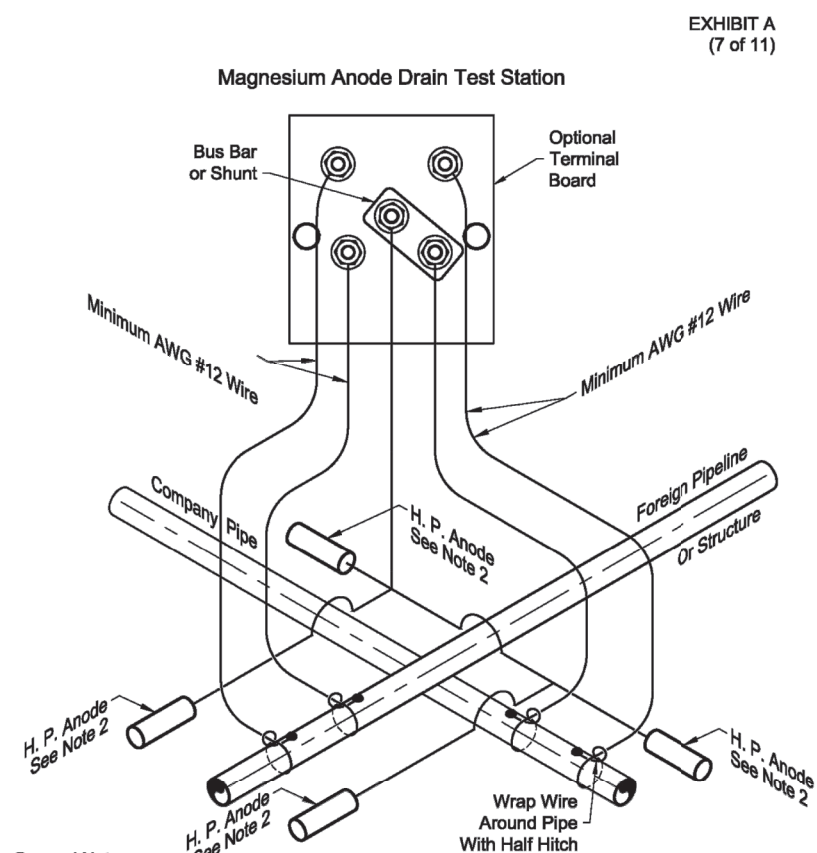
Effective Date: 01/01/2018	Corrosion Control Design – Test Stations	Standard Number: GS 1420.095
Supersedes: 01/01/2014		Page 12 of 16

EXHIBIT A
(8 of 11)

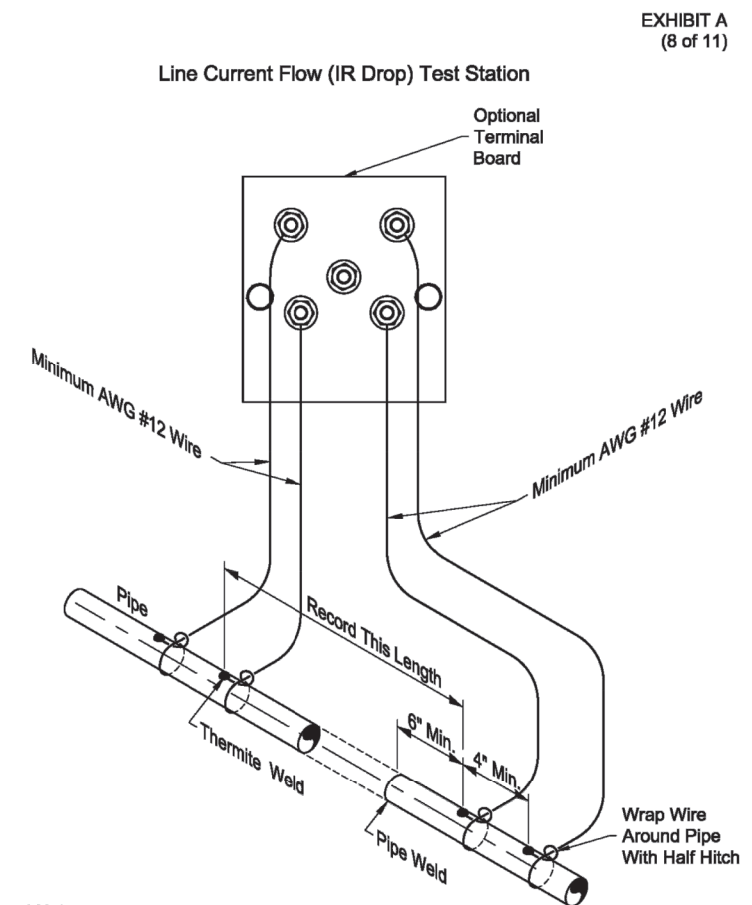


BURNS MEDONNELL
530 W SPRING STREET, SUITE 100
COLUMBUS, OHIO 43215
(614) 453-7800

REVISIONS			
REV. #	DATE	DESCRIPTION	
0	1/08/26	ISSUED FOR CONSTRUCTION	
DESIGNED BY	CCK	1/08/26	314-391-5360
DRAWN BY	JMB	1/08/26	314-239-4747
CHECKED BY	JPF	1/08/26	314-578-9778
AS-BUILT BY	TBD	TBD	TBD
	NAME	DATE	PHONE #



- General Notes:
- 1) Follow a recorded wire coding or connection convention to identify wire function.
 - 2) The anode(s) should be placed at a depth greater than the depth of the pipe bottom to ensure the anode is in soil that generally remains moist year around. Separation between the anode and the pipe should be a minimum of 2 feet. Where practical, this distance should be at least 5 feet on bare pipe and 3 feet on coated pipe. The anode or package contents shall not be in contact with the pipe or other structures.



- General Notes:
- 1) Follow a recorded wire coding or connection convention to identify wire function.
 - 2) Record the length of pipe between the two sets of connections.
 - 3) Optional anode may be installed for instrument grounding. No connection to the pipe.

SITE NAME:
WO# 40009378
MAT
WBS L2
PHASE 4 NCHP PIPELINE REPLACEMENT
COLUMBUS, FRANKLIN COUNTY, OH

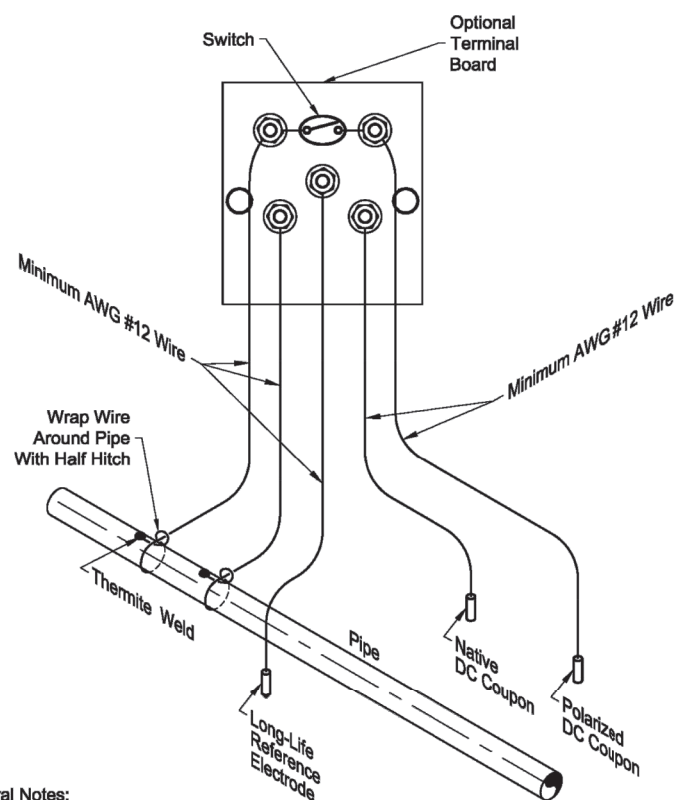
DRAWING TITLE:
CATHODIC PROTECTION - TEST STATION DETAILS

DRAWING NO:
CP-04

Effective Date: 01/01/2018	Corrosion Control Design – Test Stations	Standard Number: GS 1420.095
Supersedes: 01/01/2014		Page 13 of 16

EXHIBIT A
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IR Drop Coupon Test Station



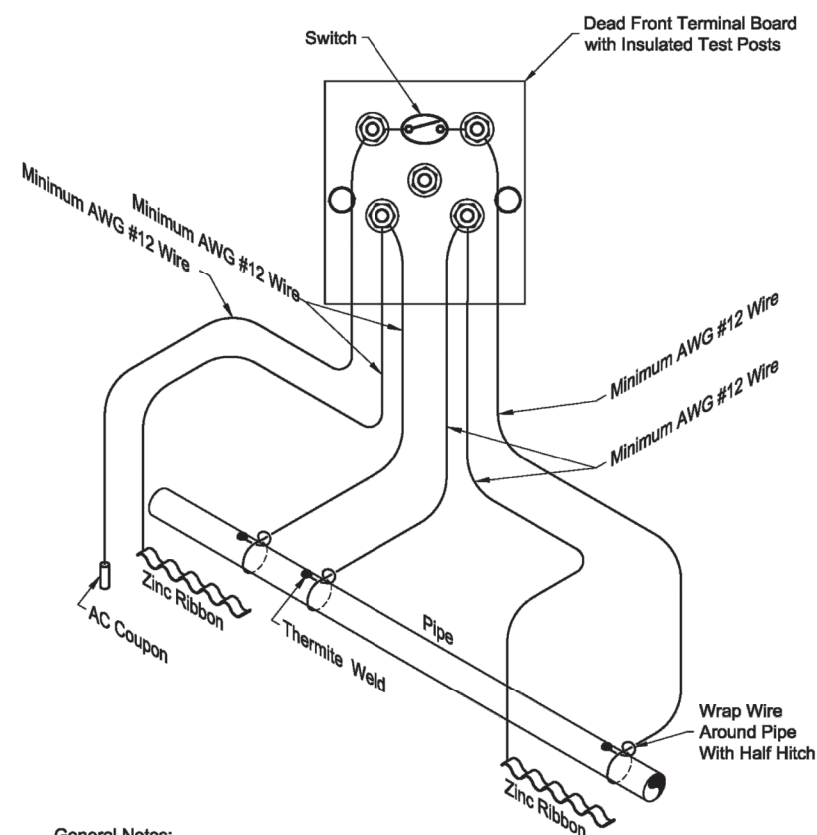
General Notes:

- 1) Follow a recorded wire coding or connection convention to identify wire function.
- 2) Compact soil around coupon and long-life reference electrode (See Exhibit B) such that it is similar to existing soil environment around pipeline.
- 3) An optional anode may be installed. See Magnesium Anode Test Station (Exhibit A, 2 of 10).

Effective Date: 01/01/2018	Corrosion Control Design – Test Stations	Standard Number: GS 1420.095
Supersedes: 01/01/2014		Page 14 of 16

EXHIBIT A
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AC Corridor Test Station



General Notes:

- 1) Follow a recorded wire coding or connection convention to identify wire function.
- 2) Dead Front test stations shall be used within an AC corridor for personnel protection.



BURNS MEDONNELL
530 W SPRING STREET, SUITE 100
COLUMBUS, OHIO 43215
(614) 453-7800

REVISIONS			
REV. #	DATE	DESCRIPTION	
0	1/08/26	ISSUED FOR CONSTRUCTION	
DESIGNED BY	CCK	1/08/26	314-391-5360
DRAWN BY	JMB	1/08/26	314-239-4747
CHECKED BY	JPF	1/08/26	314-578-9778
AS-BUILT BY	TBD	TBD	TBD
	NAME	DATE	PHONE #

SITE NAME:
WO# 400009378
MAT
WBS L2
PHASE 4 NCHP PIPELINE REPLACEMENT
COLUMBUS, FRANKLIN COUNTY, OH

DRAWING TITLE:
CATHODIC PROTECTION - TEST STATION DETAILS

DRAWING NO:
CP-05

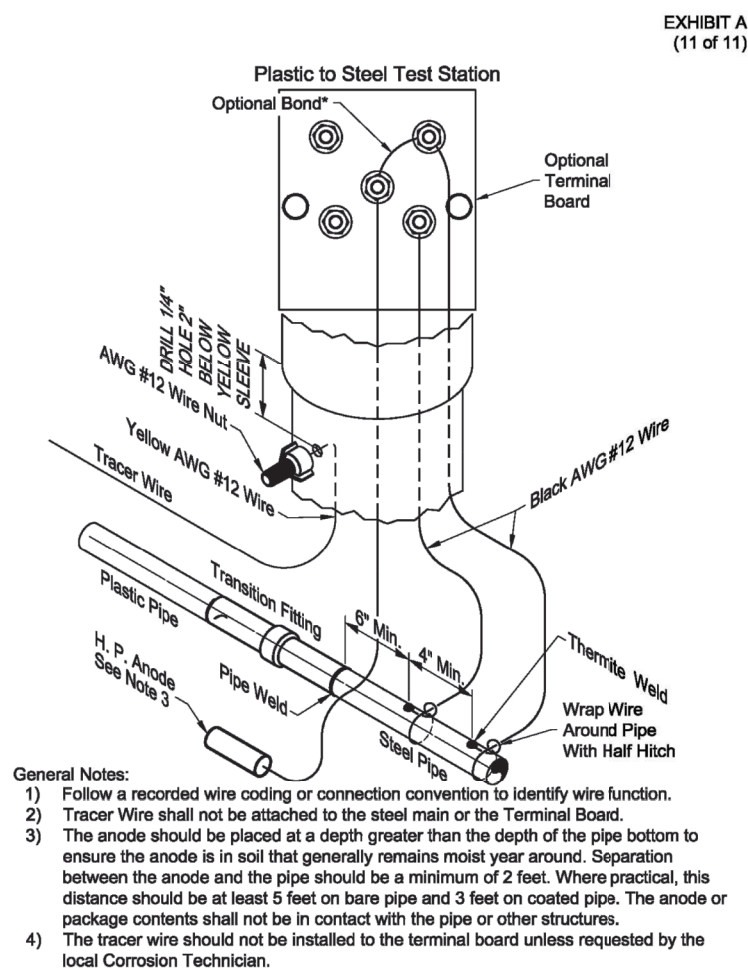
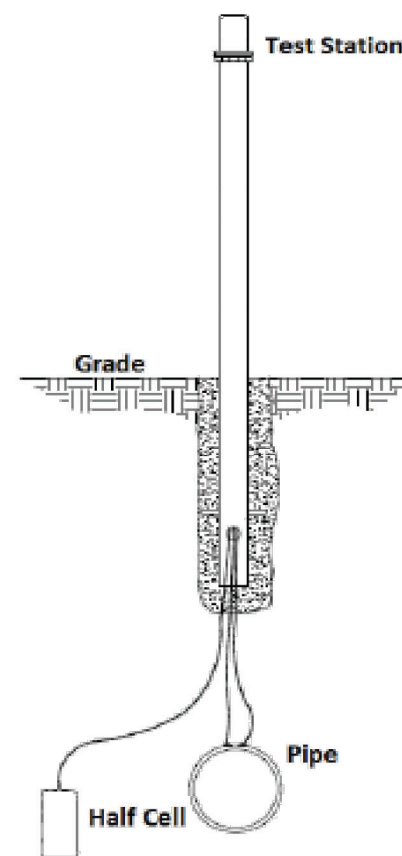
Effective Date: 01/01/2018	Corrosion Control Design – Test Stations	Standard Number: GS 1420.095
Supersedes: 01/01/2014		Page 15 of 16

EXHIBIT A
(11 of 11)

Effective Date: 01/01/2018	Corrosion Control Design – Test Stations	Standard Number: GS 1420.095
Supersedes: 01/01/2014		Page 16 of 16

EXHIBIT B

Long Life Reference Electrode



General Note: If installation on existing pipeline, do not dig/auger all the way to the pipeline. Long-life reference electrodes should see the same environment as the pipeline.

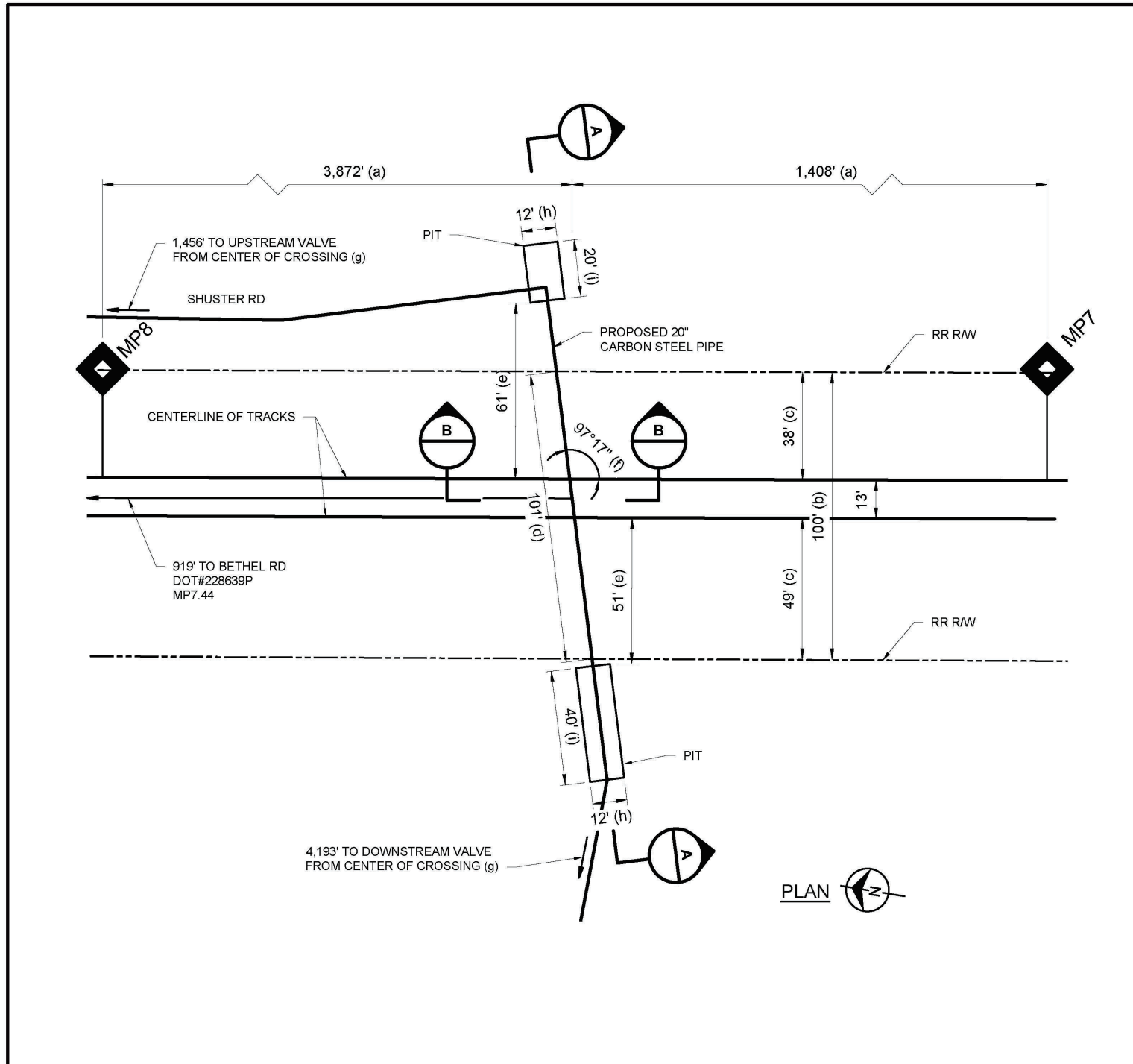


REVISIONS			
REV. #	DATE	DESCRIPTION	
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DESIGNED BY	CCK	1/08/26	314-391-5360
DRAWN BY	JMB	1/08/26	314-239-4747
CHECKED BY	JPF	1/08/26	314-578-9778
AS-BUILT BY	TBD	TBD	TBD
	NAME	DATE	PHONE #

SITE NAME:
WO# 400009378
MAT
WBS L2
PHASE 4 NCHP PIPELINE REPLACEMENT
COLUMBUS, FRANKLIN COUNTY, OH

DRAWING TITLE:
CATHODIC PROTECTION - TEST STATION DETAILS

DRAWING NO:
CP-06



LEGEND

Letter	Description
(a)	Distance from crossing to nearest actual milepost (feet)
(b)	Width of CSX R/W
(c)	Distance from centerline of track to R/W
(d)	Total Length of pipe on CSX R/W
(e)	Distance from centerline of nearest track to face of pits at a 90 degree angle to the track(s)
(f)	Angle of crossing
(g)	If contents under Pressure: Distance of shut-off valves from centerline of nearest track
(h)	Width of Launching/Receiving Pit
(i)	Length of Launching/Receiving Pit

NOTE:
 REFER TO ENGINEERING SPECIFICATIONS IN THE APPLICATION PACKAGE FOR ADDITIONAL INFORMATION AND GUIDANCE.
 ANTICIPATED EQUIPMENT DURING CONSTRUCTION TO INCLUDE TRACKED AND WHEELED EXCAVATORS, TRACKED PIPE BOOMS, ON ROAD TRUCKS, AND COMPACTION EQUIPMENT FOR ROAD RESTORATION.

Location: 2031 Circle Drive, Columbus, OH 43220
 Latitude: N 40° 3' 39.7"
 Longitude: W 83° 2' 45.8"
 Drawing No.: _____ Sheet: 1 of 2
 Drawing Date: 2 / 13 / 26 Revised: ____ / ____ / ____
 Drawing Scale: V N/A Inches = N/A Feet
 Drawing Scale: H 1 Inches = 50 Feet

REVISIONS

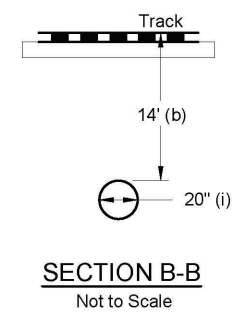
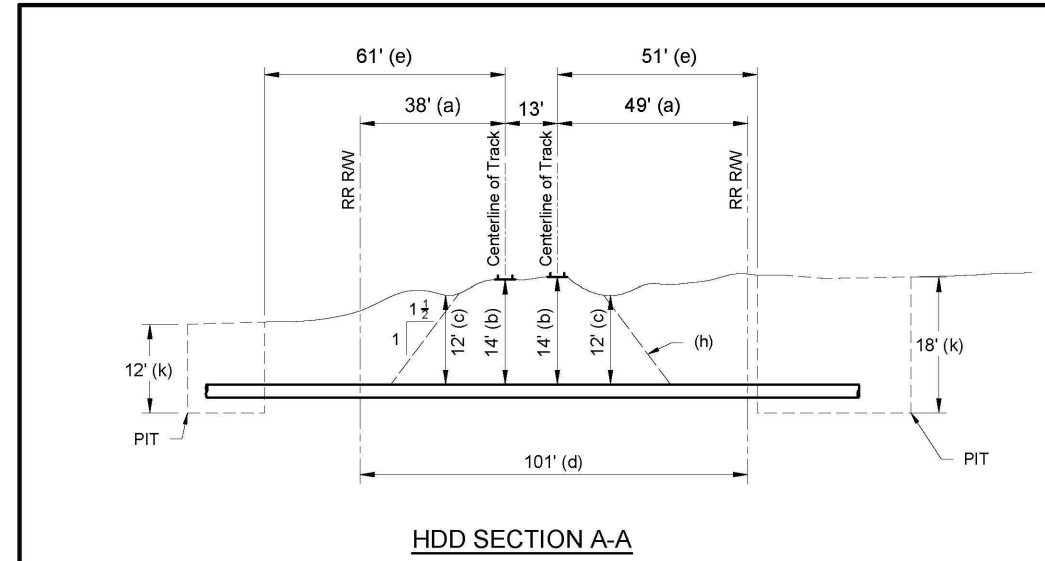
REV. #	DATE	DESCRIPTION
A	2/26/26	REISSUED FOR 90%

DESIGNED BY	DATE	PHONE #
CCK	2/26/26	314-391-5360
DRAWN BY	DATE	PHONE #
JMB	2/26/26	314-239-4747
CHECKED BY	DATE	PHONE #
JPF	2/26/26	314-578-9778
AS-BUILT BY	DATE	PHONE #
TBD	TBD	TBD

SITE NAME:
WO# 400009378
MAT
WBS L2
 PHASE 4 NCHP PIPELINE REPLACEMENT
 COLUMBUS, FRANKLIN COUNTY, OH

DRAWING TITLE:
RAILROAD CROSSING DETAIL

DRAWING NO.:
R-02



NOTES:

REFER TO ENGINEERING SPECIFICATIONS IN THE APPLICATION PACKAGE FOR ADDITIONAL INFORMATION AND GUIDANCE.

LOCATED CSX'S SIGNAL FACILITIES AND/OR WARNING DEVICES AT PROPOSED FACILITY CROSSING LOCATION, I.E. CANTILEVERS, FLASHERS, GATES AND SHOW CLEARANCES.

ANTICIPATED EQUIPMENT DURING CONSTRUCTION TO INCLUDE TRACKED AND WHEELED EXCAVATORS, TRACKED PIPE BOOMS, ON ROAD TRUCKS, AND COMPACTION EQUIPMENT FOR ROAD RESTORATION.

LEGEND		PIPELINE CONTENT DETAILS		
Letter	Description	Commodity Description:	Natural Gas	
(a)	Distance from centerline of track to CSX R/W	Maximum Operating Pressure	720 PSIG	
(b)	Distance from base-of-rail to top-of-pipe	Is Commodity Flammable:	Yes	
(c)	Distance from base-of-ditch to top-of-pipe	CARRIER/CASING PIPE DETAILS		
(d)	Total Length of pipe on CSX R/W	Pipe Material:	Carbon Steel	N/A
(e)	Distance from centerline of nearest track to face of pits at a 90 degree angle to the track(s)	Material Specifications & Grade:	API 5L PSL2 X52	N/A
(f)	N/A	Specified Minimum Yield Strength:	52000 PSI	N/A
(g)	N/A	Nominal Size Outside Diameter (Inches):	20	N/A
(h)	Theoretical Embankment Line: Starts 12' from centerline of track and extends away from track at a slope of 1.5' over and 1' down	Wall Thickness (Inches):	0.375	N/A
(i)	Carrier pipe diameter	Type of Seam:	SMLS or ERW	N/A
(j)	N/A	Type of Joints:	Butt Welded	N/A
(k)	Depth of Launching/Receiving Pit	Tunnel Liner Plates Required:	No	
		Cathodic Protection:	Yes	Impressed Current
		Protective Coating:	Yes	Fusion Bonded Epoxy
		Temp. Track Support or Rip-Rap Req.:	No	

Location: 2031 Circle Drive, Columbus, OH 43220

Latitude: N 40° 3' 39.7"

Longitude: W 83° 2' 45.8"

Drawing No.: _____ Sheet: 2 of 2

Drawing Date: 2 / 13 / 26 Revised: ____ / ____ / ____

Drawing Scale: V 1 Inches = 25 Feet

Drawing Scale: H 1 Inches = 50 Feet

REVISIONS			
REV. #	DATE	DESCRIPTION	
A	2/26/26	REISSUED FOR 90%	
DESIGNED BY	CCK	2/26/26	314-391-5360
DRAWN BY	JMB	2/26/26	314-239-4747
CHECKED BY	JPF	2/26/26	314-578-9778
AS-BUILT BY	TBD	TBD	TBD

SITE NAME:

WO# 40009378

MAT

WBS L2

PHASE 4 NCHP PIPELINE REPLACEMENT
COLUMBUS, FRANKLIN COUNTY, OH

DRAWING TITLE:

RAILROAD CROSSING DETAIL

DRAWING NO.:

R-03