

BLACKS BLUFF WATER RECLAMATION FACILITY DIGESTER MIXING IMPROVEMENTS

PREPARED FOR:
CITY OF ROME, GEORGIA
WATER AND SEWER DIVISION

PREPARED BY:



**INSITE
ENGINEERING**

INSITE ENGINEERING, LLC.

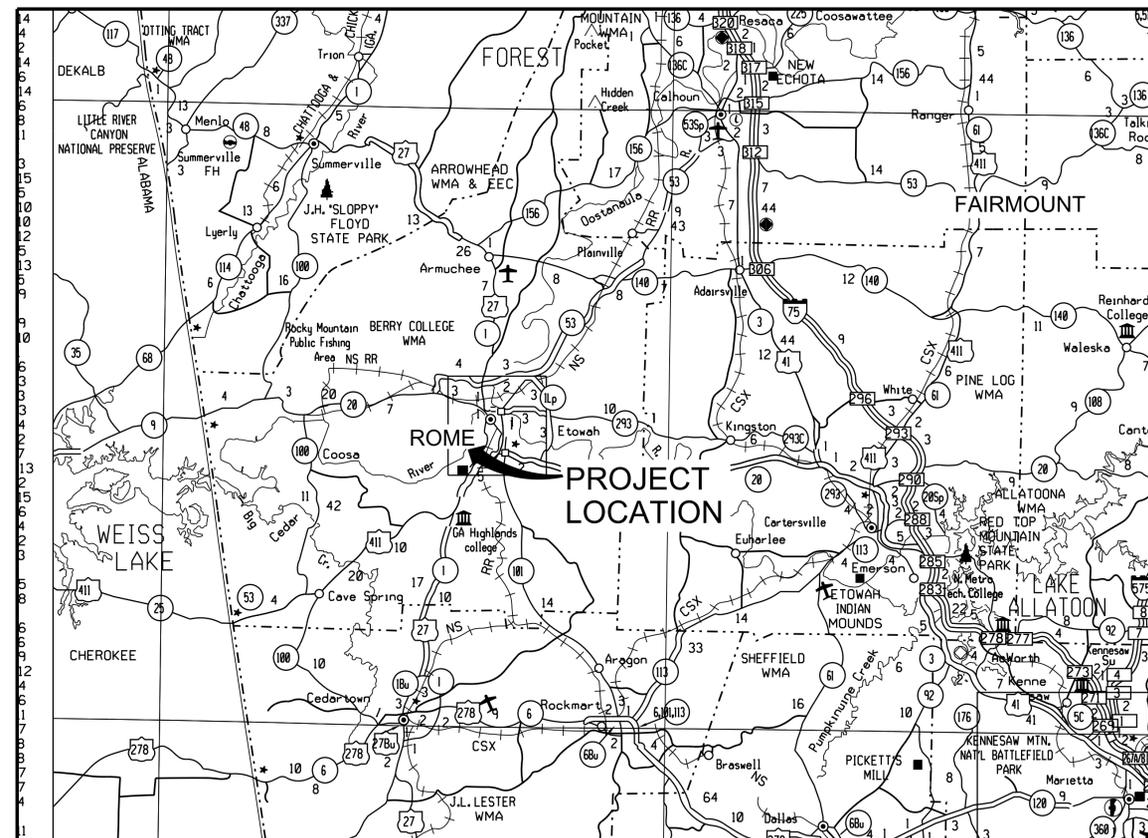
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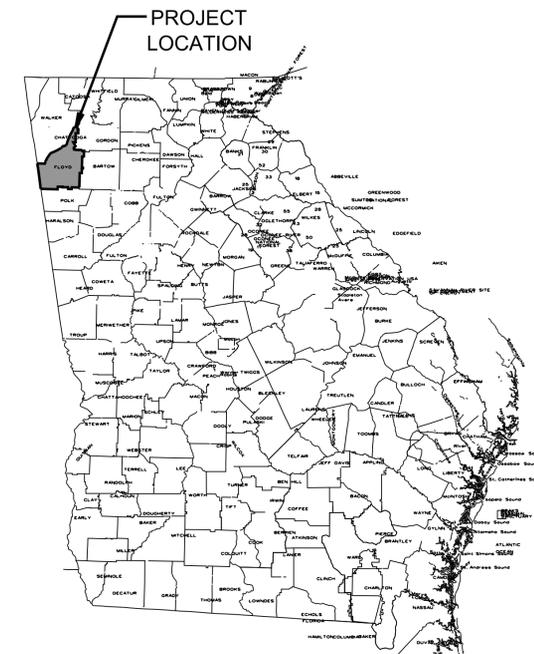
PLANT
212 BLACKS BLUFF ROAD SW
ROME, GEORGIA 30161
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DRAWING INDEX

DRAWING No.	SHEET No.	DESCRIPTION
GENERAL DRAWINGS		
GN-1	1	COVER SHEET, SITE LOCATION, AND DRAWING INDEX
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LOCATION MAP
SCALE: NONE



COUNTY LOCATION
SCALE: NONE



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CONSTRUCTION PLANS FOR:
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WATER RECLAMATION FACILITY
DIGESTER MIXING IMPROVEMENTS**
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PROJECT INFO:

INSITE JOB No. 16114.00
PLOTTED: 12/15/16

PRELIMINARY
NOT FOR
CONSTRUCTION

THIS SHEET CONTAINS:
COVER SHEET AND
SITE LOCATION

SCALE: NONE
SHEET 1 OF 5

GN-1

ABBREVIATIONS

ACQ'D	ACQUIRED
AC	ACRE
ALDOT	ALABAMA DEPARTMENT OF TRANSPORTATION
AVE	AVENUE
BM	BENCH MARK
BLDG	BUILDING
BLVD	BOULEVARD
CIP	CAST IRON PIPE
CL	CENTER LINE
CL	CLASS
CONC	CONCRETE
COR	CORNER
CFS	CUBIC FEET PER SECOND
CY	CUBIC YARD
C & G	CURB AND GUTTER
Q	DESIGN FLOW
DIST	DISTANCE
DBL	DOUBLE
Da	DRAINAGE AREA
DI	DUCTILE IRON PIPE
ESMT	EASEMENT
EL	ELEVATION
F	FLOW LINE
FPS	FEET PER SECOND
GAL	GALLON
GPM	GALLONS PER MINUTE
GPD	GALLONS PER DAY
HDWL	HEADWALL
HWEL	HEADWATER ELEVATION
HP	HIGH POINT
HWL	HIGH WATER LEVEL
HORIZ	HORIZONTAL
INV	INVERT
JCT	JUNCTION
JB	JUNCTION BOX
LF	LINEAR FEET
LP	LOW POINT
MB	MAIL BOX
MH	MANHOLE
MP	MILEPOST
MGD	MILLION GALLONS PER DAY
NWL	NORMAL WATER LEVEL
N	NORTHING
PC	POINT OF CURVATURE
PI	POINT OF INTERSECTION
PT	POINT OF TANGENCY
POT	POINT ON TANGENT
LB	POUND
P	PROPERTY LINE
RR	RAILROAD
R	RANGE
RCP	REINFORCED CONCRETE PIPE
REQ'D	REQUIRED
ROW	RIGHT OF WAY
RD	ROAD
SS	SANITARY SEWER
SEC	SECTION
SHLDR	SHOULDER
SD	SIDE DRAIN
SY	SQUARE YARD
STA	STATION
ST	STREET
TBM	TEMPORARY BENCH MARK
T	TOWNSHIP
VERT	VERTICAL
VLF	VERTICAL FEET
VPC	VERTICAL POINT OF CURVE
VPI	VERTICAL POINT OF INTERSECTION
VPT	VERTICAL POINT OF TANGENT
VCP	VITRIFIED CLAY PIPE
WL	WATER LEVEL
	WATER MAIN

STANDARD LEGEND

EXISTING PROPOSED

		SIDEWALK
		UNPAVED ROAD OR DRIVEWAY
		PAVED ROAD OR DRIVEWAY
		PAVED ROAD WITH GUTTER
		DRAIN WITH HEADWALL (SIZE AND TYPE STRUCTURE NOTED)
		EXISTING BRIDGE, BOX CULVERT, OR STORM DRAIN (SIZE AND TYPE STRUCTURE NOTED)
		WALK BRIDGE
		RAILROAD TRACK SINGLE
		RAILROAD TRACK DOUBLE
		RAILROAD MILEPOST
		OUTDOOR ADVERTISING SIGN
		MASONRY WALL (NOTE TYPE)
		MAILBOX
		CLOTHES LINE AND POLES (NOTED)
		WELL
		LEVEE OR EARTH DAM
		WOOD FENCE
		HOG WIRE OR BARBED WIRE FENCE
		CHAIN LINK FENCE
		DROP INLET (NOTED)
NATURAL		
		TREES. (DRAW DOT TO SCALE OF TREE)
		HEDGES OR SHRUBBERY
		SHRUB
		FLOWER BED, GARDEN, OR ROCK GARDEN (NOTED)
		LAKE OR POND
		SWAMP, MARSH, ETC.
		DITCH OR STREAM (ARROW INDICATES DIRECTION OF FLOW)
		EARTH
		ROCK

EXISTING PROPOSED

UTILITIES

SANITARY SEWER MANHOLE
SANITARY SEWER GRAVITY LINE (NOTE DIA. OF PIPE IF KNOWN)
SANITARY SEWER FORCE LINE (ARROW INDICATES FLOW)
UTILITY MANHOLE (NOTE TYPE IN CIRCLE - P, T, ETC.)
POWER JUNCTION BOX
INSTRUMENTATION JUNCTION BOX
POWER POLE
LIGHT POLE (NOTE TYPE)
HIGH VOLTAGE TRANSMISSION POLE OR TOWER
UNDERGROUND POWER CONDUIT
OVERHEAD POWER LINES
TELEPHONE JUNCTION BOX
UNDERGROUND TELEPHONE CONDUIT
OVERHEAD TELEPHONE LINES
OVERHEAD TELEPHONE AND POWER LINES
GUY POLE
UTILITY POLE ANCHOR
GAS LINE MARKER (NOTED)
GAS METER
GAS LINE (NOTE DIA. OF PIPE IF KNOWN)
GAS VALVE
WATER VALVE
WATER LINE (NOTE DIA. OF PIPE IF KNOWN)
WATER METER
FIRE HYDRANT

EXISTING PROPOSED

SURVEY

PROPERTY IRON (SIZE AND TYPE NOTED)
PROPERTY LINE
SECTION CORNER OR 1/4 SECTION CORNER IRON (SIZE, TYPE, AND DESCRIPTION NOTED)
1/4 OR 1/2 - 1/4 SECTION LINE
SECTION LINE
RIGHT OF WAY MONUMENTS (NOTED FOR EXISTING)
ROW LINE
CONSTRUCTION LIMITS
EASEMENT
CONSTRUCTION EASEMENT



NORTH ARROW

N 9,952.45
E 9,439.16

	WATTLE DITCH CHECK DAM
	SILT FENCE
	HEADWALL
	DOUBLE WING CURB INLET
	SINGLE WING CURB INLET
	NORTHING & EASTING



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DIGESTER MIXING IMPROVEMENTS**
CITY OF ROME, GEORGIA
WATER AND SEWER DIVISION



12/15/16

PROJECT INFO:
INSITE JOB No. 16114.00
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THIS SHEET CONTAINS:
STANDARD LEGEND
AND ABBREVIATIONS

SCALE: NONE
SHEET 2 OF 5

GN-2



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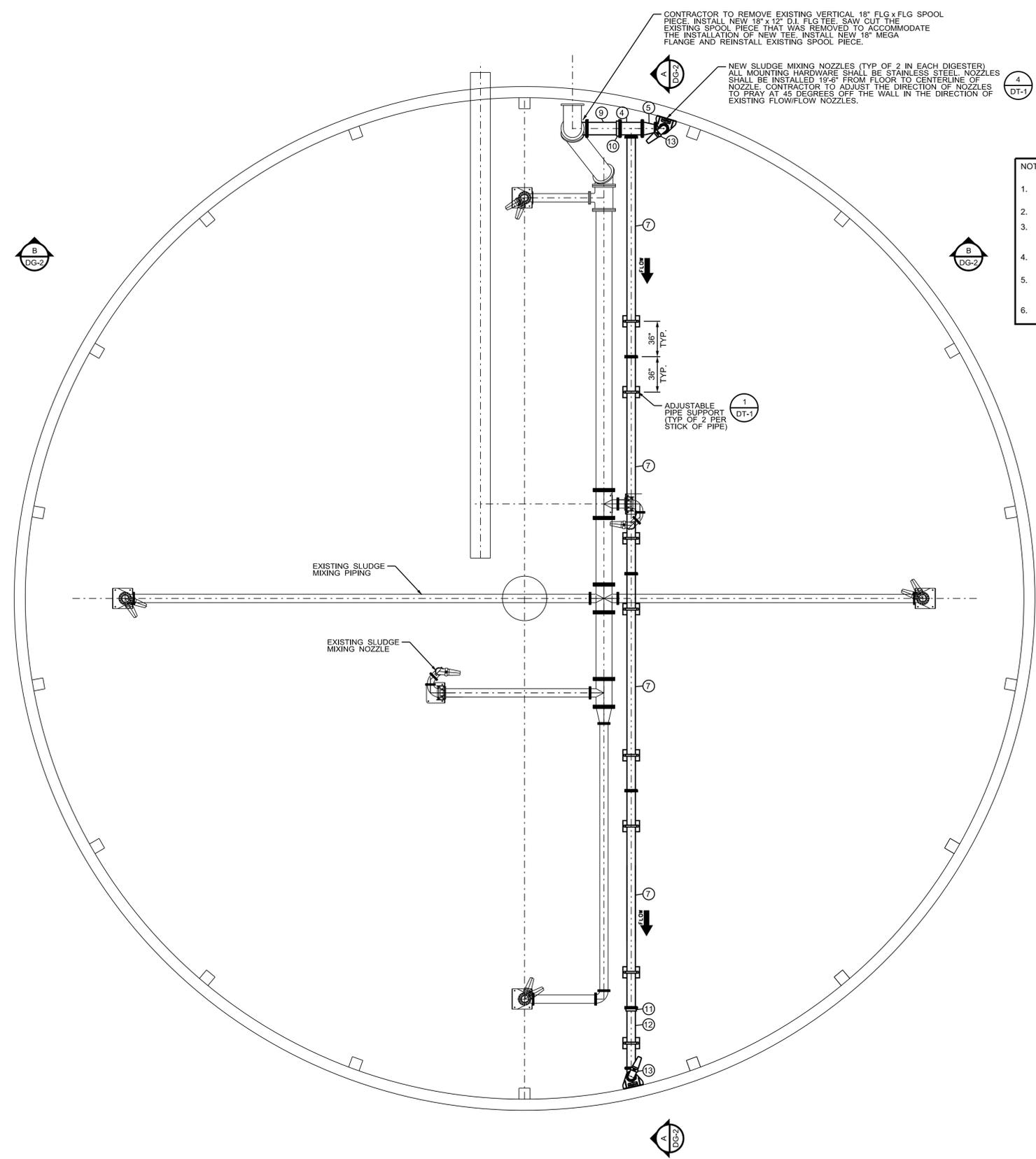
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THIS SHEET CONTAINS:
**DIGESTER
MECHANICAL
PLAN**

SCALE: 3/16" = 1'-0"
SHEET 3 OF 5

DG-1



CONTRACTOR TO REMOVE EXISTING VERTICAL 18" FLG x FLG SPOOL PIECE. INSTALL NEW 18" x 12" D.I. FLG TEE. SAW OUT THE EXISTING SPOOL PIECE THAT WAS REMOVED TO ACCOMMODATE THE INSTALLATION OF NEW TEE. INSTALL NEW 18" MEGA FLANGE AND REINSTALL EXISTING SPOOL PIECE.

NEW SLUDGE MIXING NOZZLES (TYP OF 2 IN EACH DIGESTER) ALL MOUNTING HARDWARE SHALL BE STAINLESS STEEL. NOZZLES SHALL BE INSTALLED 19'-6" FROM FLOOR TO CENTERLINE OF NOZZLE. CONTRACTOR TO ADJUST THE DIRECTION OF NOZZLES TO PRAY AT 45 DEGREES OFF THE WALL IN THE DIRECTION OF EXISTING FLOW/FLOW NOZZLES.

ADJUSTABLE PIPE SUPPORT (TYP OF 2 PER STICK OF PIPE)

EXISTING SLUDGE MIXING PIPING

EXISTING SLUDGE MIXING NOZZLE

- NOTES:**
1. NEW NOZZLES AND PIPING SHALL BE INSTALLED IN EXISTING DIGESTERS NO. 3 AND NO. 4. TWO (2) NOZZLES SHALL BE INSTALLED IN EACH DIGESTER.
 2. DIGESTER NO. 4 IS CURRENTLY DRAINED AND CLEANED OUT READY FOR MODIFICATIONS.
 3. CONTRACTOR SHALL MAKE MODIFICATIONS TO DIGESTER NO. 4 AND THEN GIVE THE OWNER UP TO SIXTY (60) DAYS TO DRAIN AND CLEAN DIGESTER NO. 3. THEN CONTRACTOR CAN MAKE MODIFICATIONS TO DIGESTER NO. 3.
 4. CONTRACTOR WILL BE IN CONFINED SPACE AND ALL NECESSARY PRECAUTIONS SHOULD BE TAKEN TO ENSURE SAFETY OF ANY PERSONS WORKING INSIDE DIGESTERS.
 5. OTHER DIGESTERS WILL BE IN OPERATION IN CLOSE PROXIMITY TO WORK AREA. CONTRACTOR IS REQUIRED TO MONITOR AIR QUALITY FOR METHANE GAS AND SAFE WORKING CONDITIONS.
 6. CONTRACTOR SHALL CLOSELY COORDINATE CONSTRUCTION OPERATIONS WITH PLANT DIRECTOR.

PIPING MATERIALS LIST

①	18" x 12" D.I. TEE, ALL FLG
②	18" MEGA FLANGE
③	12" D.I. CL. 350 PIPE, FLG x FLG (LENGTH AS REQ'D.)
④	12" x 8" D.I. TEE, ALL FLG
⑤	12" x 8" D.I. REDUCER, ALL FLG
⑥	8" D.I. 90° BEND, ALL FLG
⑦	8" D.I. CL. 350 PIPE, FLG x FLG (LENGTH AS REQ'D.)
⑧	8" x 6" D.I. REDUCER, ALL FLG
⑨	12" MEGA FLANGE
⑩	12" D.I. CL. 350 PIPE, FLG x PE (LENGTH AS REQ'D.)
⑪	8" MEGA FLANGE
⑫	8" D.I. CL. 350 PIPE, FLG x PE (LENGTH AS REQ'D.)
⑬	VAUGHN ROTAMIX DISCHARGE NOZZLE, FLG

PLAN - DIGESTER
SCALE: 3/16" = 1'-0"

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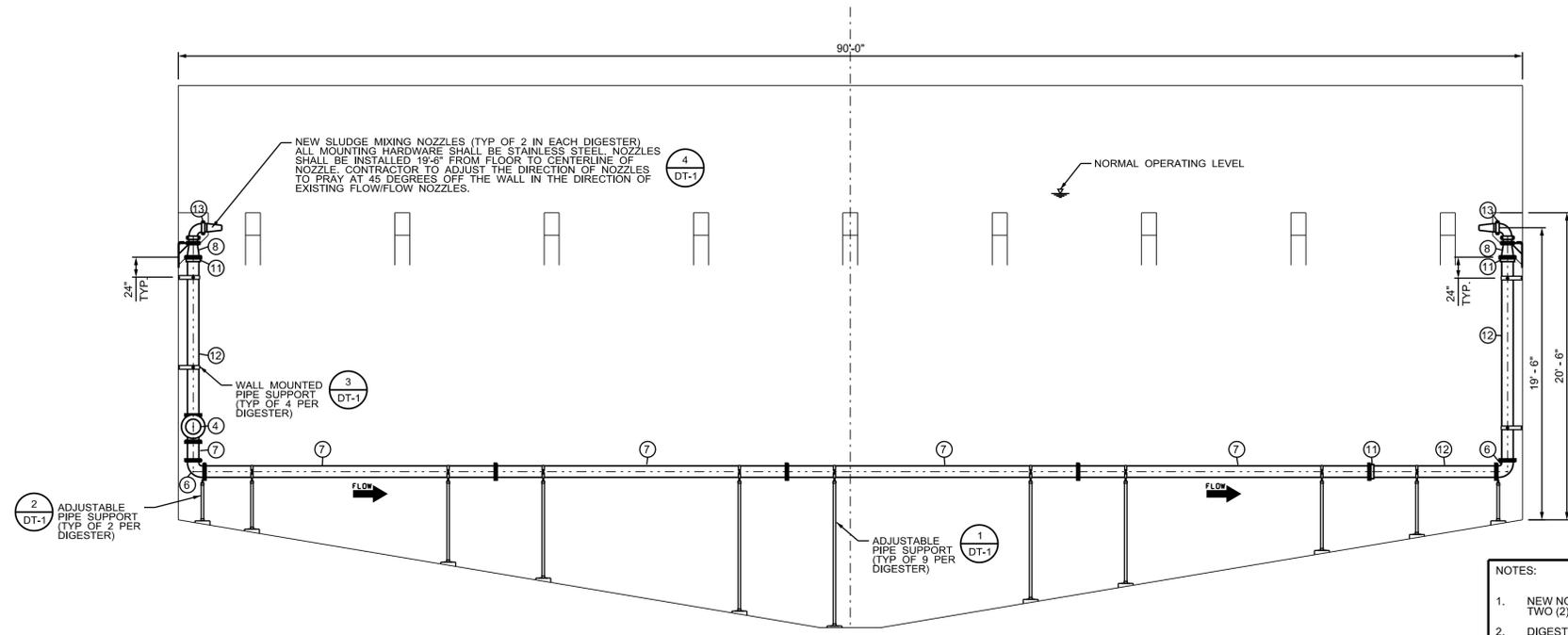
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THIS SHEET CONTAINS:
DIGESTER
MECHANICAL
SECTIONS

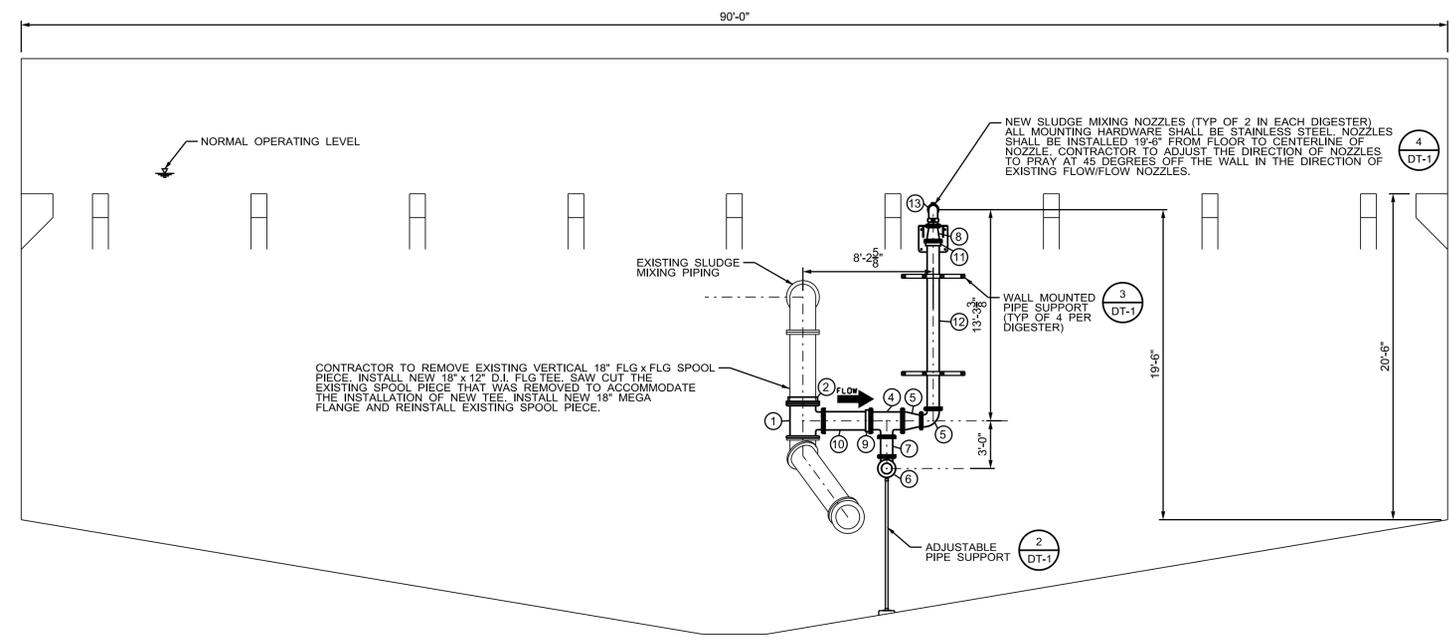
SCALE: 3/16" = 1'-0"
SHEET 4 OF 5

DG-2



- NOTES:
1. NEW NOZZLES AND PIPING SHALL BE INSTALLED IN EXISTING DIGESTERS NO. 3 AND NO. 4. TWO (2) NOZZLES SHALL BE INSTALLED IN EACH DIGESTER.
 2. DIGESTER NO. 4 IS CURRENTLY DRAINED AND CLEANED OUT READY FOR MODIFICATIONS.
 3. CONTRACTOR SHALL MAKE MODIFICATIONS TO DIGESTER NO. 4 AND THEN GIVE THE OWNER UP TO SIXTY (60) DAYS TO DRAIN AND CLEAN DIGESTER NO. 3. THEN CONTRACTOR CAN MAKE MODIFICATIONS TO DIGESTER NO. 3.
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 5. OTHER DIGESTERS WILL BE IN OPERATION IN CLOSE PROXIMITY TO WORK AREA. CONTRACTOR IS REQUIRED TO MONITOR AIR QUALITY FOR METHANE GAS AND SAFE WORKING CONDITIONS.
 6. CONTRACTOR SHALL CLOSELY COORDINATE CONSTRUCTION OPERATIONS WITH PLANT DIRECTOR.

SECTION "A" - DIGESTER
SCALE: 3/16" = 1'-0"



PIPING MATERIALS LIST

①	18" x 12" D.I. TEE, ALL FLG
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⑨	12" MEGA FLANGE
⑩	12" D.I. CL. 350 PIPE, FLG x PE (LENGTH AS REQ'D.)
⑪	8" MEGA FLANGE
⑫	8" D.I. CL. 350 PIPE, FLG x PE (LENGTH AS REQ'D.)
⑬	VAUGHN ROTAMIX DISCHARGE NOZZLE, FLG

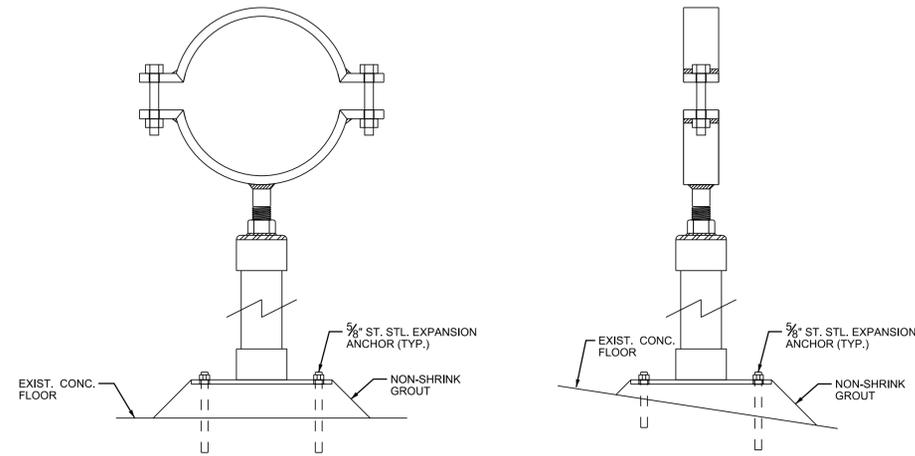
SECTION "B" - DIGESTER
SCALE: 3/16" = 1'-0"

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1

2

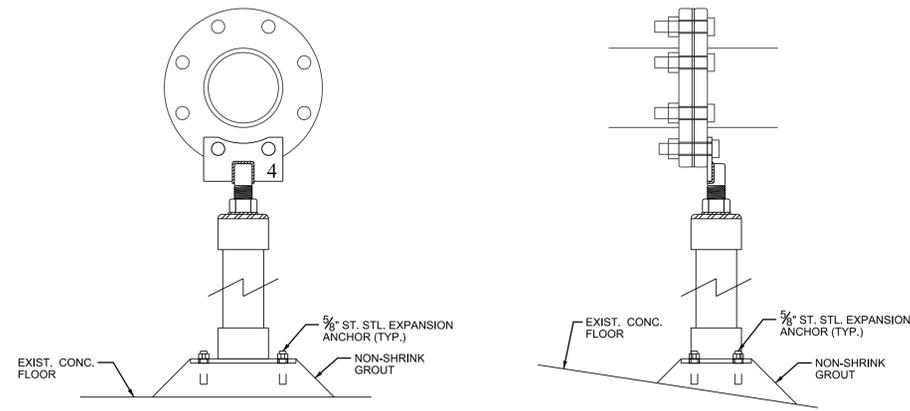
FULL CIRCLE CLAMP SUPPORTS ARE TO BE FACTORY FABRICATED UNITS. NO CONTRACTOR FABRICATED SUPPORTS ARE ALLOWED. MATERIAL TO BE STAINLESS STEEL. UPPER AND LOWER MATCHING SADDLES ARE EACH TO ENCOMPASS 170° OF PIPE, AND ARE TO BE FORMED TO ACTUAL PIPE DIAMETER. BASE IS TO BE ANCHORED TO FLOOR, AND INSTALLER IS TO WELD EXTENSION PIPE TO BASE AND COLLAR AFTER INSTALLATION. A NEOPRENE LINER IS REQUIRED WHEN SUPPORTING STEEL OR PVC PIPE. SUPPORT DESIGN SHALL HAVE BEEN TESTED TO WITHSTAND A MINIMUM OF 10,000 POUNDS COMPRESSIVE LOAD. TEST CERTIFICATION MUST BE AVAILABLE.



DETAIL - FULL CIRCLE PIPE SUPPORT
SCALE: NONE

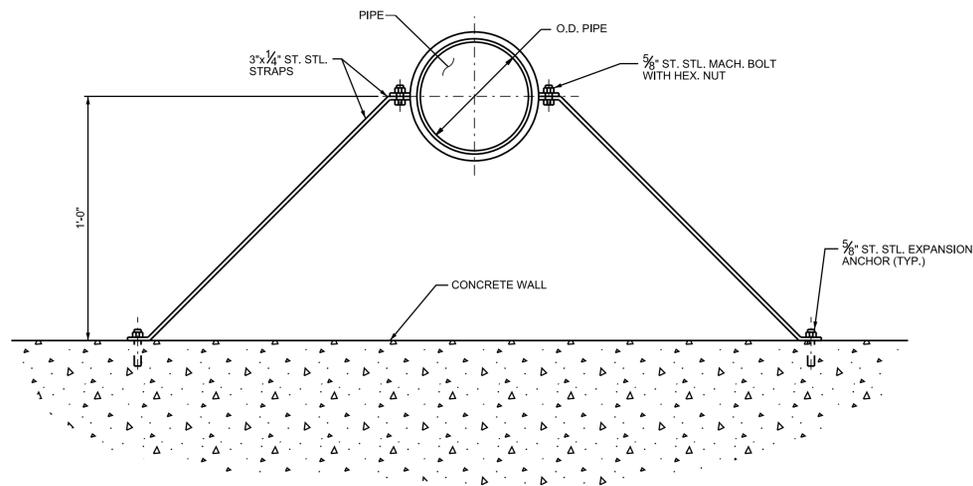
1

FLANGE SUPPORTS ARE TO BE FACTORY FABRICATED UNITS. NO CONTRACTOR FABRICATED SUPPORTS ARE ALLOWED. MATERIAL TO BE STAINLESS STEEL. SUPPORT DESIGN SHALL HAVE BEEN TESTED TO WITHSTAND A MINIMUM OF 10,000 POUNDS COMPRESSIVE LOAD. TEST CERTIFICATION MUST BE AVAILABLE.



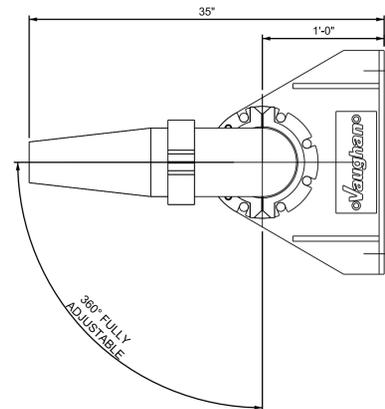
DETAIL - FLANGE SUPPORT
SCALE: NONE

2

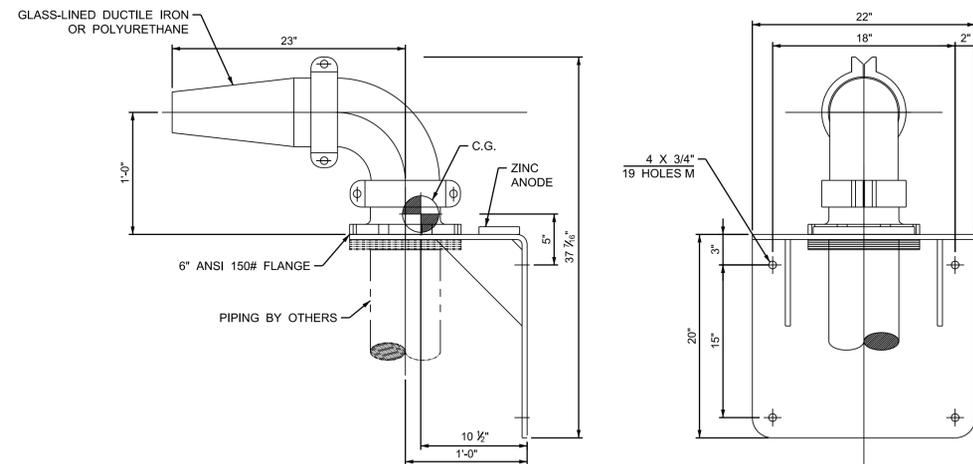


DETAIL - WALL MOUNTED PIPE SUPPORT
SCALE: NONE

3



- NOTES:
1. THIS NOZZLE IS DESIGNED TO BE AN INTEGRAL PART OF VAUGHAN'S ROTAMIX™ SYSTEM. THE DISCHARGE NOZZLES ARE DESIGNED TO MIX THE DIGESTER OR STORAGE TANK IN A ROTATIONAL MANNER.
 2. ALL COMPONENTS ARE MADE OF GLASS-LINED DUCTILE IRON ASTM A536, EXCEPT FOR THE BASE, WHICH IS 1/2" THICK 1018 HR STEEL. OR NOZZLE IF USING POLYURETHANE OPTION.
 3. 360° FULLY ADJUSTABLE NOZZLES ARE TO BE POSITIONED IN THE FIELD BY VAUGHN.
 4. CONTRACTOR TO PROVIDE 4, 5/8" X 7" LONG 316 S.S. ANCHOR BOLTS.
 5. MIXING NOZZLE ASSEMBLY WEIGHT: 245 LBS (195 LBS W/ POLY NOZZLE).



DETAIL - SLUDGE MIXING NOZZLE
SCALE: NONE

4



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DETAILS

SCALE: AS NOTED
SHEET 5 OF 5

DT-1