

CITY OF ANN ARBOR WATER RESOURCE RECOVERY **FACILITY** SCREW PUMP REPLACEMENT PROJECT

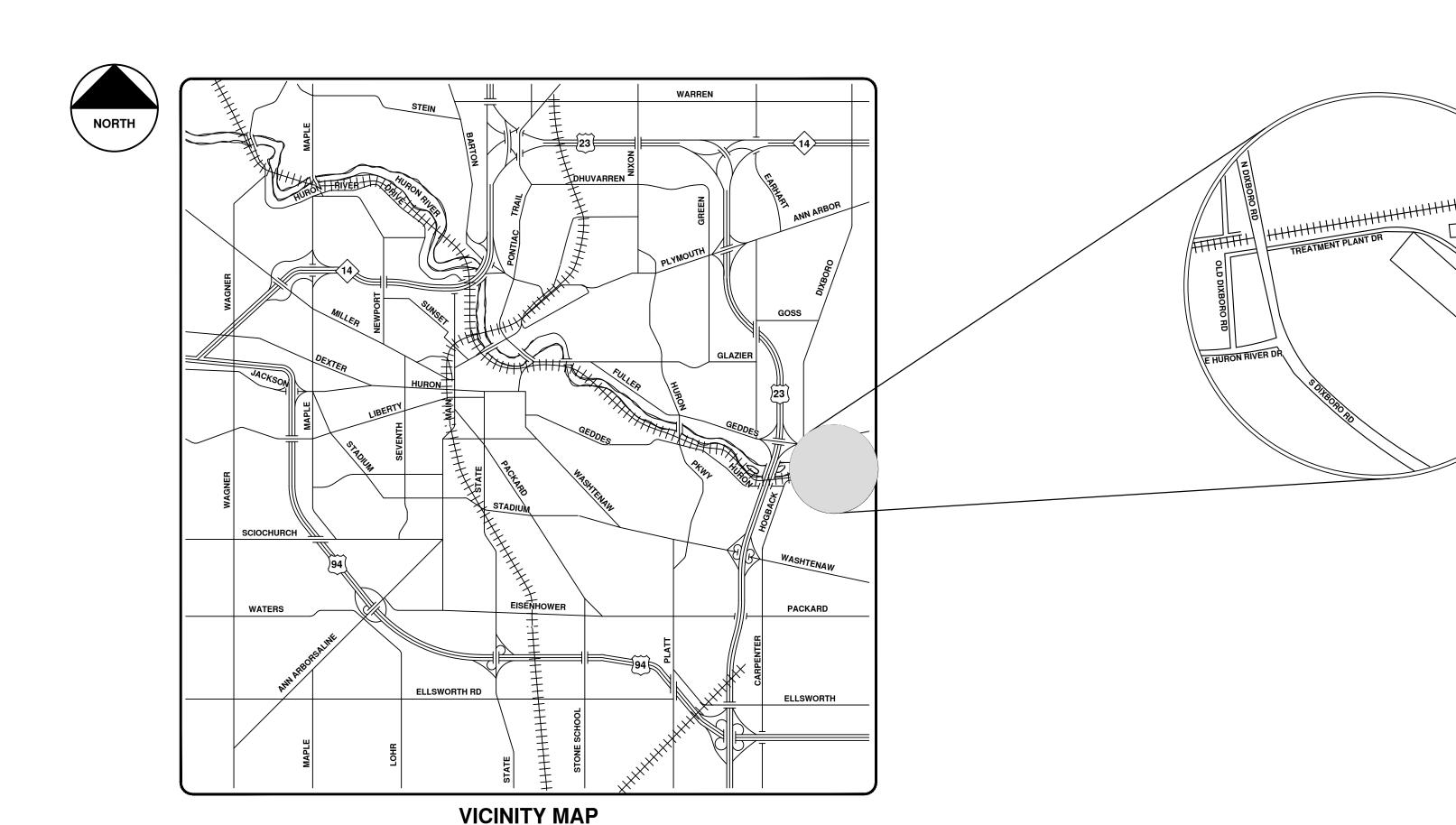
RFP No. 25-38

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PREPARED BY:



555 HULET DR **BLOOMFIELD HILLS, MI** 48302



PUBLIC ACT 174 OF 2013, THE CONTRACTOR SHALL CALL 811 OR

THE UNDERGROUND LOCATIONS SHOWN FOR NATURAL GAS, TELEPHONE, ELECTRICAL POWER, CABLE TV AND FIBER OPTIC LINES ARE

STANDARD SPECIFICATIONS, ITS DETAILS, WHICH ARE INCLUDED BY REFERENCE, AND THIS PROJECT'S CONTRACT DOCUMENTS. THE OMISSION OF ANY CURRENT STANDARD DETAIL DOES NOT RELIEVE THE CONTRACTOR

> -RAW SEWAGE LIFT STATION



ENGINEER SALLY DUFFY, P.E. - MI LICENSE No. 6201051538 6201051538

8 /19/2025

PROJECT MANAGER

PREPARED UNDER THE SUPERVISION OF

NATHANIEL COFFIN, P.E. - MI LICENSE No. 6201312511 **PROJECT MANAGER**

8/19/2025

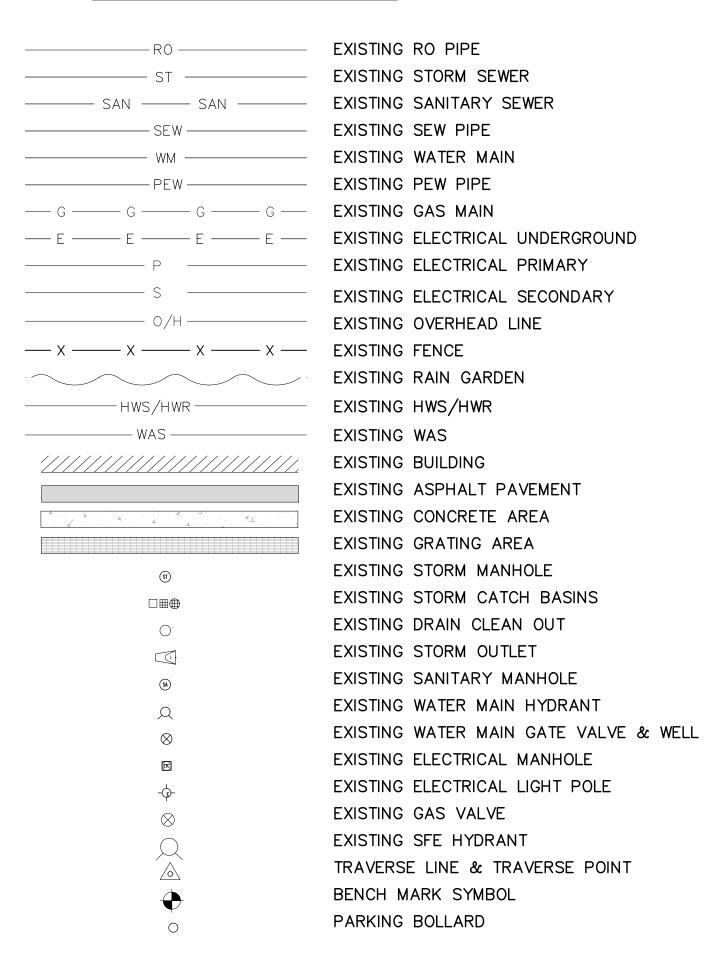


ANN ARBOR WRRF

49 S Dixboro Rd Ann Arbor, MI 48105

RETENTION **BUILDING**

UTILITY & CIVIL LEGEND



BENCHMARK NO. 304: FOUND BOTTOM SPINDLE IN SOUTH FACE OF UTILITY POLE 100 +/-NORTH WEST OF CORNER OF GRIT BLDG. ELEV. 744.33 +/-

ENTRANCE RD. 80' +/-NORTH EAST OF NORTH RETENTION BLDG. ELEV. 741.96 +/-

BENCHMARK NO. 300:

ARROW ON HYDRANT

SOUTH SIDE OF

NAIL EAST SIDE OF GRIT BLDG. 28' +/- NORTH OF SOUTH EAST CORNER OF BLDG. ELEV. 749.24 +/-

BENCHMARK NO. 301:

FOUND BENCH TIE

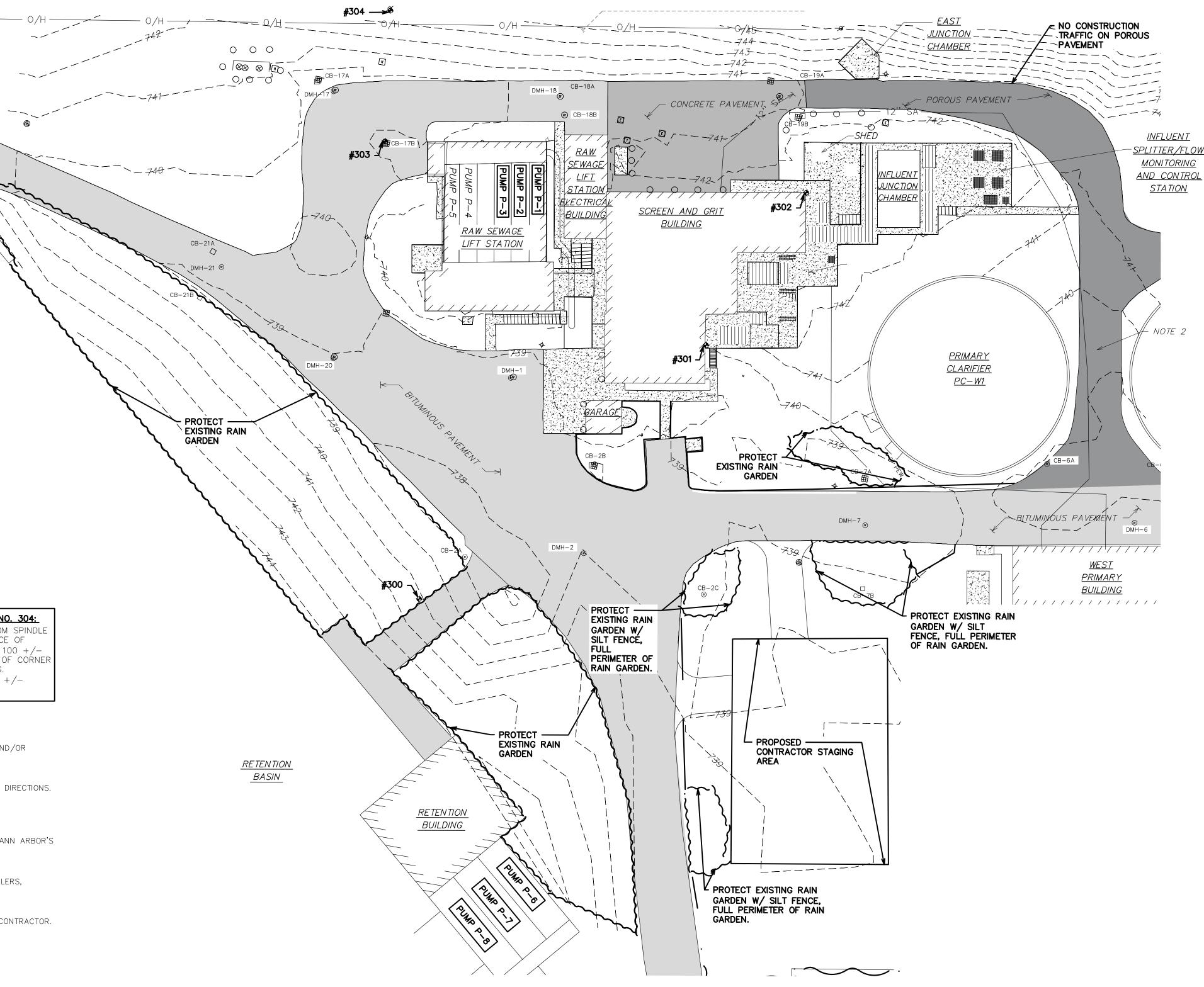
BENCHMARK NO. 302: FOUND BENCH TIE NAIL EAST SIDE OF GRIT BLD(AT NORTH EAST CORNER

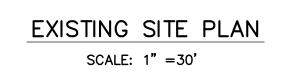
OF BLDG.

BENCHMARK NO. 303: NORTH WEST CORNER OF CATCH BASIN RIM: 75' +/- NORTH WEST OF NÓRTH WEST CORNER OF ELEV. 749.22 +/-GRIT BLDG. ELEV. 738.70 +/-

GENERAL CONSTRUCTION, ACCESS, AND STAGING NOTES:

- G-1. PLANT STAFF MUST HAVE ACCESS TO ALL FACILITIES AND THROUGHOUT CONSTRUCTION. THE CONTRACTOR SHALL PROMPTLY MOVE AND/OR RELOCATE ANY EQUIPMENT, MATERIALS, ETC. FROM ANY OPERATIONAL AREA OF THE PLANT.
- G-2. CONSTRUCTION PERSONNEL A DELIVERIES SHALL PROCEED DIRECTLY TO THE STAGING AREA. ADEQUATE SIGNS SHALL BE PLACED FOR DIRECTIONS.
- G-3. NO CONSTRUCTION TRAFFIC IS PERMITTED ON THE POROUS PAVEMENT DRIVE AS SHOWN ON THE SITE PLAN.
- G-4. THERE ARE SEVERAL RAIN GARDENS, WHICH IF IMPACTED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED TO THE CITY OF ANN ARBOR'S DESIGN STANDARDS FOR RAIN GARDENS. REPLACEMENT WITH SOD OR GENERAL LANDSCAPING IS NOT PERMITTED.
- G-5. THE CONTRACTOR'S STAGING AREA SHALL BE CONFINED TO THE AREA IDENTIFIED ON THE PLANS. THIS AREA SHALL INCLUDE ALL RAILERS, PARKING, MATERIAL STORAGE AND ALL CONSTRUCTION EQUIPMENT A VEHICLES.
- G-6. TEMPORARY UTILITIES SUCH AS POWER, WATER, SEWAGE, GAS, ETC. FOR ANY CONSTRUCTION TRAILERS SHALL BE PROVIDED BY THE CONTRACTOR. TEMPORARY USE OF POWER, WATER AND GAS INSIDE OF THE BUILDINGS SHALL BE COORDINATED WITH OWNER REQUIREMENTS.
- G-7. THE LOCATIONS OF UTILITIES ARE GENERALLY NOT SHOWN ON THE SITE PLAN. UTILITY DRAWINGS ARE AVAILABLE FOR REVIEW.
- UNSUITABLE & DEMOLITION MATERIALS AND EQUIPMENT SHALL NOT BE TEMPORARILY STORED ON SITE.
- G-9. SOIL EROSION CONTROL MEASURES ARE NOT LIKELY REQUIRED FOR THIS PROJECT. HOWEVER, IF CONTRACTOR STAGING FOR CONSTRUCTION DISRUPTS THE SOIL SUCH THAT SOIL EROSION IS EVIDENT, THEN PROPER SOIL EROSION CONTROL MEASURES WILL BE ENFORCED AT NO ADDITIONAL COST TO THE OWNER.
- G-10. ANY SOIL EROSION AND SEDIMENTATION CONTROL WORK SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE CITY OF ANN ARBOR.
- G-11. ALL AREAS OF THE SITE AFFECTED BY CONSTRUCTION SHALL BE RESTORED TO THE ORIGINAL CONDITION AT NO ADDITIONAL COST TO THE OWNER.
- G-12 PARKING SHALL BE KEPT TO A MINIMUM AND AVOID FIRE LANES. SUPERINTENDENT SHALL SIGN IN EACH DAY ON SITE AT THE ADMINISTRATION BUILDING.





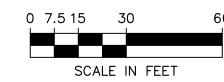




their facilities at no charge to the caller.

NOTICE:

ALL EXISTING UTILITIES SHOWN ON THIS TOPOGRAPHIC SURVEY HAVE BEEN TAKEN FROM VISUAL OBSERVATION, AND RECORD MAPPING WHERE AVAILABLE. NO GUARANTEE IS MADE, OR SHOULD BE ASSUMED, AS TO THE COMPLETENESS OR ACCURACY OF THE UTILITIES SHOWN ON THIS DRAWING. PARTIES UTILIZING THIS INFORMATION SHALL FIELD VERIFY THE ACCURACY AND COMPLETENESS PRIOR TO CONSTRUCTION ACTIVITIES.



FOR TRUE SCALE PLOT THIS SHEET TO 34" X 22" PAPER SIZE

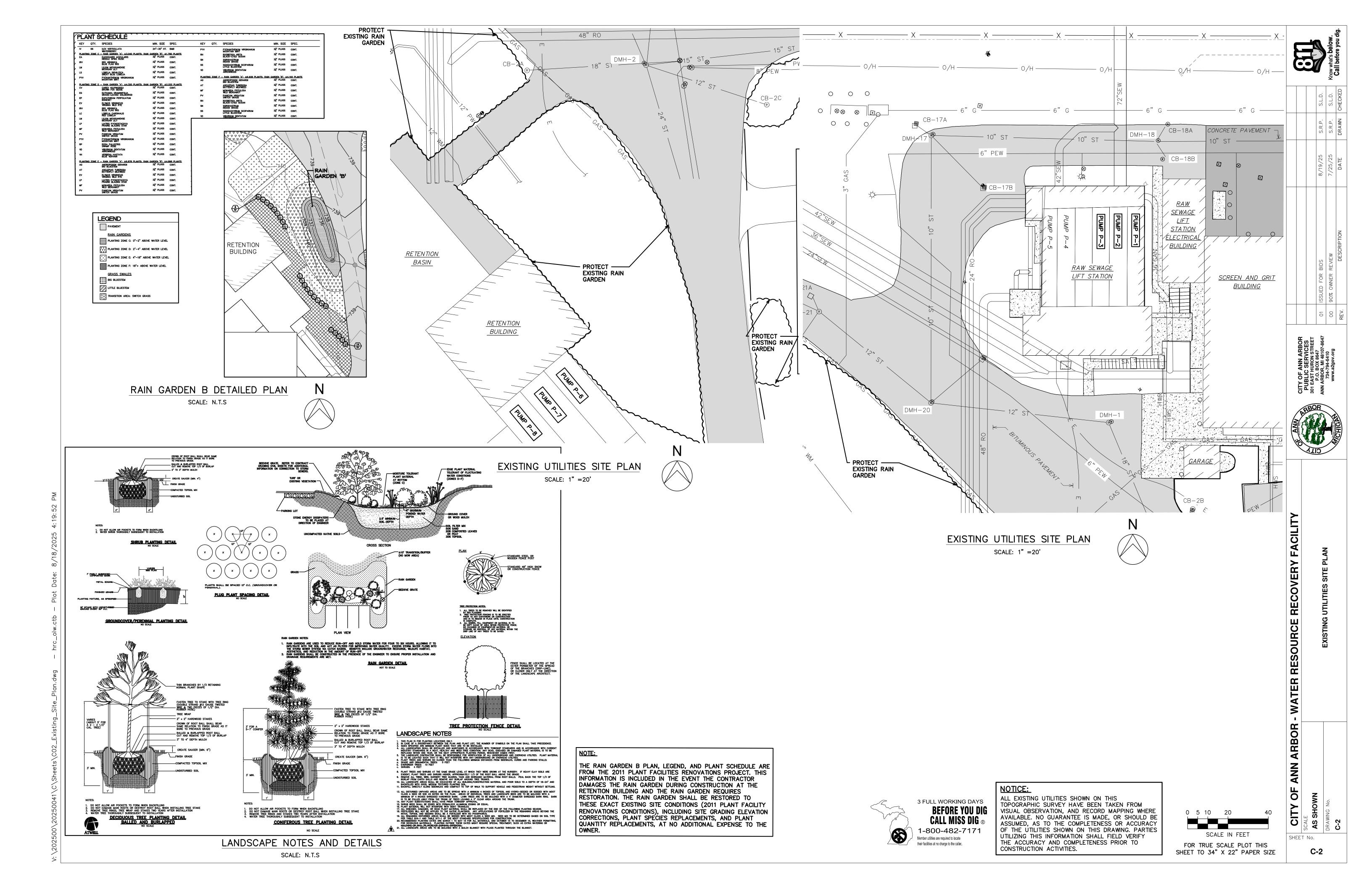


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SHEET No.

C-1



PRESENTED BELOW.

- CONTRACTOR SHALL INCLUDE ALL COSTS RELATED TO REMOVAL, STORAGE AND RE-INSTALLATION OF COVERS IN THE BID PRICE. ANY NEW HARDWARE OR OTHER NEW HARDWARE (TAPPING SCREWS AND WASHERS) MAY BE REQUIRED FOR RE-INSTALLATION OF EXISTING COVERS. MATERIALS SHALL BE SUITABLE FOR ALUMINUM CHANNELS AND COVERS.
- SC-4 CONTRACTOR MAY RE-USE THE EXISTING FOAM INFILL ODOR CONTROL SEALS AT THE CAVITIES WITHIN THE COVERS OVER EXISTING SCREW PUMP NOS. 1, 2, AND 3 AT THE RAW SEWAGE LIFT STATION. HOWEVER, IF ANY SEALS ARE DAMAGED OR LOST, THEY SHALL BE REPLACED ON ALL THE COVERS AT NO ADDITIONAL COST TO OWNER. FOR RE-INSTALLATION, INFILL CAVITIES W/ ECON-O-FOAM (EVA- 200G, GRAY IN COLOR) BY WILLIAMS PRODUCTS INC. OR ACCEPTABLE EQUAL. CUT FOAM INFILL TO SIZE AND INSTALL WITH ADEQUATE COMPRESSION, RESTRAINING ON ALL THREE (3) FACES OF THE COVER USING ACCEPTABLE ADHESIVE FOR WET ENVIRONMENTS.
- SC-5 EXISTING ODOR CONTROL MANIFOLD LOCATED OVER THE SCREW PUMP COVERS ON PUMP NOS. 1, 2, AND 3 MAY BE REMOVED IF NECESSARY TO COMPLETE THE SCREW PUMP INSTALLATION WORK. WHERE A MANUAL VOLUME DAMPER IS NOT PRESENT TO ISOLATE THE ODOR CONTROL SYSTEM, TEMPORARY PLUGS SHALL BE INSTALLED UNTIL THE WORK IS COMPLETE. THE FRP ODOR CONTROL PIPING, SUPPORTS, ESCUTCHEONS, DAMPERS, ETC. SHALL BE REINSTALLED UPON COMPLETION OF THE WORK AND FITTED WITH FLANGES, COUPLINGS OR OTHER MEANS COMPATIBLE WITH FRP DUCT PIPING TO ALLOW FOR FUTURE DISCONNECTION OF PIPING. SEE SHEET REF-3; FRP DUCT WAS INSTALLED VIA THE BUTT-FIELD WET LAYUP METHOD BY E.W. ENSROTH IN 2023, AND SUPPLIED BY VANAIRE. IF GASKETS ARE INSTALLED, GASKET SHALL BE EPDM.

DEMOLITION NOTES:

- THE PLANS, SECTIONS, DETAILS AND NOTATIONS SHOWN ON THESE DOCUMENTS ARE BASED ON RECORD DRAWINGS THESE DRAWINGS DO NOT NECESSARILY REFLECT THE EXISTING CONDITIONS. THE CONTRACTOR SHALL VISIT THE SITE TO OBSERVE ACTUAL CONDITIONS PRIOR TO THE BID. ANY DIFFERENCES BETWEEN THESE DRAWINGS AND ACTUAL CONDITIONS SHALL BE REFLECTED IN THE BID.
- D-2. DO NOT REMOVE PROCESS, MECHANICAL AND/OR ELECTRICAL EQUIPMENT UNTIL READY TO REPLACE WITH NEW EQUIPMENT. COORDINATE DEMOLITION WITH OWNER AND THE REQUIREMENTS OF SPECIFICATION SECTION 01950.
- D-3. THE CONTRACTOR SHALL REMOVE AND PROMPTLY DISPOSE OF ALL MATERIALS AND EQUIPMENT IN MANNER COMPLIANT WITH ALL LAWS AND LOCAL REGULATIONS. MATERIALS AND EQUIPMENT MAY BE SALVAGED AT THE CONTRACTOR'S DISCRETION.
- D-4. THE CONTRACTOR SHALL PROTECT THE SURROUNDING PUMP STATION STRUCTURE, FACILITIES AND EQUIPMENT THROUGHOUT WORK. ANY DAMAGE TO THE FACILITY SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
- PROVIDE TEMPORARY BLIND FLANGES OR CAPS ON THE WALL PENETRATIONS AND ALL PIPES. TEMPORARY FLANGES AND CAPS MUST BE INSTALLED ON THE END OF THE DAY ON ANY LIVE PIPES.
- D-6. LUBRICATING, COOLING AND/OR HYDRAULIC FLUIDS AND/OR GREASE SHALL BE DRAINED AND DISPOSED OF IN AN MANNER COMPLIANT WITH ALL LAWS AND LOCAL REGULATIONS.
- CAP INDUSTRIAL WATER, HYDRAULIC, COPPER AND OTHER LINES TO BE ABANDONED AT WALLS AND FILL SLEEVES OR WALL PENETRATIONS WITH NON-SHRINK GROUT.
- D-8 REMOVE ALL FASTENERS, PLATES, SHIMS, ETC., AND PATCH FLOOR PENETRATIONS WITH NON-SHRINK GROUT. TORCH AND/OR GRIND EXISTING ANCHORS AND/OR REBAR BELOW THE CONCRETE SURFACE, AND PATCH WITH NON-SHRINK GROUT.
- D-9. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY CONDITIONS PRIOR TO THE BID. IF THE NEW PUMPS ARE INSTALLED DIFFERENTLY THAN SHOWN, CONTRACTOR SHALL FIELD VERIFY CONDITIONS.
- D-10. REFERENCE DRAWINGS ARE PROVIDED FOR INFORMATIONAL PURPOSES TO ASSIST THE CONTRACTOR AND MANUFACTURER WITH DEMOLITION, SHOP DRAWING PREPARATION AND INSTALLATION. THESE DRAWINGS ALSO MAY NOT BE TO SCALE. DIMENSIONS SHALL BE FIELD VERIFIED.

SALVAGE AND TURNOVER TO OWNER ALL GREASING SYSTEMS FROM SCREW PUMP NOS. 1, 2, 3, 6, 7 AND 8.

ELECTRICAL DEMOLITION

- ELECTRICAL DEMOLITION WORK SHALL BE INCLUDED IN THIS CONTRACT AND SHALL BE INCLUDED BY THE CONTRACTOR IN THE BID.
- ED-2. ALL ELECTRICAL WORK SHALL COMPLY WITH THE NEC AND THE LOCAL CODES, ORDINANCES, AND REGULATIONS INCLUDING MIOSHA.
- ED-3. FOR PUMPS BEING REPLACED, DISCONNECT AND REMOVE EXISTING SCREW PUMP MOTOR AND LEAVE EXISTING WIRING IN PLACE. PROTECT WIRE UNTIL NEW SCREW PUMP MOTOR IS INSTALLED.

PROCESS NOTES:

- THESE DRAWINGS REPRESENT THE GENERAL INSTALLATION OF INCLINED SCREW PUMPS. DEPENDING ON THE SCREW PUMP SUPPLIER SELECTED BY THE OWNER AND CONTRACTOR, THE SUPPLIED PUMPS MAY NOT HAVE IDENTICAL, SIZES, VERTICAL AND HORIZONTAL ALIGNMENTS OR BASE PLATE/CONCRETE PEDESTAL MOUNTING CONFIGURATION AS THE PUMPS SHOWN. THEREFORE, INSTALLATION OF THE PUMPS MAY BE DIFFERENT THAN THAT SHOWN. THE COST FOR ANY MODIFICATIONS, TO THE INSTALLATION OF THAT SHOWN DUE TO THE DIFFERING DIMENSIONS OF OTHER SPECIFIED PUMPS, SHALL BE BORN BY THE CONTRACTOR.
- THE CONCRETE PUMP DRIVE PEDESTALS SHOWN ARE REPRESENTATIVE OF THE EXISTING BUT ALL ACTUAL DIMENSIONS AND CONFIGURATIONS SHALL BE FIELD VERIFIED. THE CONTRACTOR IS RESPONSIBLE FOR ALL CONCRETE WORK, INCLUDING NEW ANCHORING, FORMWORK, PARTS AND CURING, AS WELL AS ANY MODIFICATIONS TO THE EXISTING. NOTE THAT THE PEDESTALS ARE DIFFERENT BETWEEN EXISTING SCREW PUMP NOS 1, 2, AND 3 AT THE RAW SEWAGE LIFT STATION AND THOSE OF SCREW PUMP NOS 4 AND 5 AT THE RETENTION BASIN.
- THE PUMPS SHALL BE INSTALLED PER THE MANUFACTURER'S INSTRUCTIONS. CONCRETE TROUGH AND SCREENING OPERATIONS SHALL BE PERFORMED WITH THE MANUFACTURER'S REPRESENTATIVE PRESENT.
- THE SCREW PUMP SHAFT COUPLINGS AND MOTOR--GEAR REDUCER COUPLINGS SHALL BE PERFORMED BY MILLWRIGHTS.
- ALL HARDWARE, ANCHORS, FASTENERS, SHIMS, NUTS, BOLTS AND WASHERS, ETC. SHALL BE 316 STAINLESS STEEL.
- GEAR REDUCER DRAIN PORTS SHALL BE PIPED TO THE EXISTING CURBED AREA WITH BLACK STEEL PIPE, WITH THREADED CONNECTIONS AND WITH BRONZE LUBE DRAIN VALVES. PLUMBING LAYOUT SHALL BE COORDINATED WITH OWNER IN THE FIELD.
- CONTRACTOR SHALL REFER TO SPECIFICATION SECTION 01950 FOR USE FOR OWNER'S EXISTING MONORAILS AND/OR HOISTS.

SCREW PUMP INSTALLATION NOTES

- SP-1. CONTRACTOR SHALL FIELD DIMENSION EXISTING CONCRETE PEDESTALS. PEDESTALS FOR PUMPS 1, 2 AND 3 VARY FROM PUMPS 6, 7 AND 8. PEDESTALS MAY ALSO VARY BETWEEN PUMPS AT EACH LOCATION.
- CONTRACTOR SHALL MAINTAIN EXISTING PUMP SHAFT ALIGNMENT.
- SP-3. GROUT PAD SHALL BE A MINIMUM OF 1 INCH AND A MAXIMUM OF 1.5 INCHES, UNLESS RECOMMENDED OTHERWISE BY THE MANUFACTURER. TO ENSURE THESE DIMENSIONS, MANUFACTURER SHALL PROVIDE A BASE ASSEMBLY (SEE SPECIFICATIONS.) BASE PLATE SHALL BE A-36 STEEL PLATE, CHANNELS OR OTHER STRUCTURAL STEEL MEMBERS DESIGNED AND SUPPLIED BY THE MANUFACTURER.
- SP-4. ANCHOR BOLTS SHALL BE PROVIDED BY THE MANUFACTURER PER THE SPECIFICATION. ANCHORS SHALL NOT EXCEED EDGE DISTANCE PER MANUFACTURER'S STANDARDS. EMBEDMENT DISTANCE AND TYPE MUST BE IDENTIFIED IN SHOP DRAWINGS.

LOWER BEARING NOTES:

- LB-1 LOWER BEARING SHALL BE INSTALLED PER MANUFACTURER'S REQUIREMENTS. CONTRACTOR'S BID PRICE SHALL INCLUDE ALL WORK REQUIRED TO ACCOMMODATE THE SELECTED SCREW PUMP MANUFACTURER'S BOTTOM BEARING DESIGN INTO THE EXISTING STRUCTURE AND ARRANGEMENT.
- LB-2. REMOVE EXISTING CONCRETE, ANCHOR BOLTS, FASTENERS, ETC. TORCH AND/OR GRIND EXISTING ANCHORS ONE INCH BELOW SLAB. SCARIFY CONCRETE BASE SLAB WITH BUSH HAMMER, AND APPLY BONDING AGENT.
- LB-3. NEW EPOXY ANCHORS, WASHERS, AND BOLTS SHALL BE 316 SS, PROVIDED BY THE MANUFACTURER.

- LB-4. GROUT PAD SHALL BE 0.75" TO 1.5" THICK IF THIS IS EXCEEDED, CONTRACTOR SHALL INSTALL A CONCRETE PEDESTAL WITH REINFORCING STEEL, AND EMBEDMENTS INTO BASE SLAB PER MANUFACTURER RECOMMENDATIONS.
- LB-5. CONTRACTOR SHALL DEMOLISH EXISTING LOWER BEARING GREASE LINE, ANCHORING HARDWARE, AND ALL FITTINGS AND SEAL OFF AND PATCH CONCRETE AS REQUIRED.

CONCRETE TROUGH NOTES:

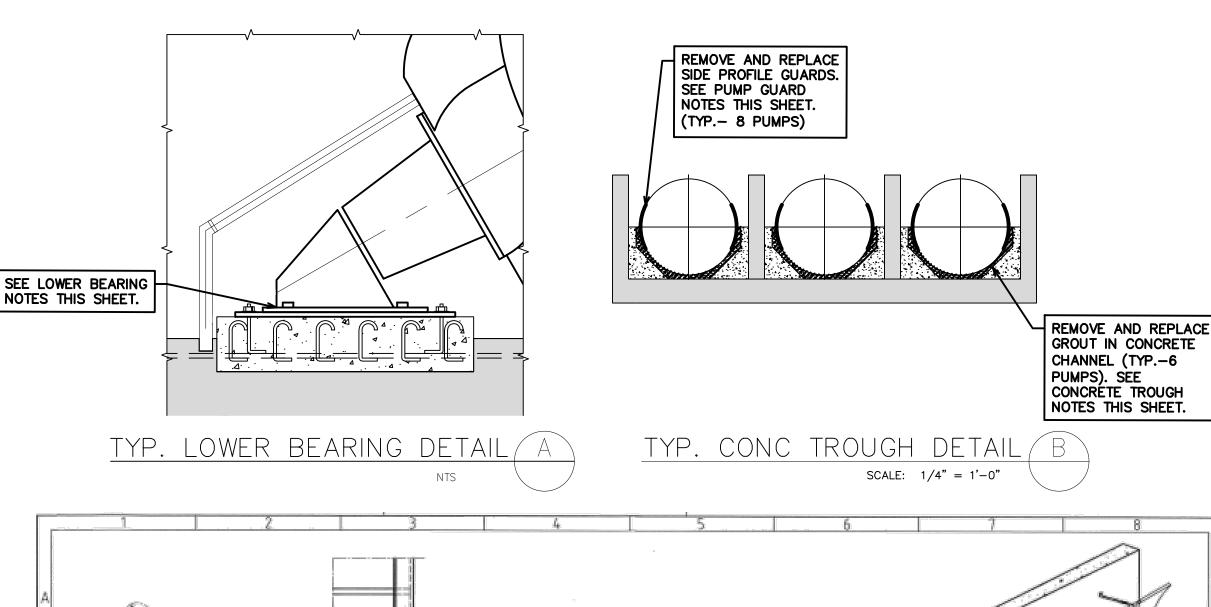
- CT-1. THE CONTRACTOR SHALL REMOVE ALL OF THE EXISTING GROUT WITHIN THE EXISTING CHANNEL WALLS, DOWN TO THE CONCRETE AND
- CT-2. THE CONCRETE SURFACE SHALL BE CLEANED WITH HIGH PRESSURE AIR AND BONDING AGENT APPLIED PER MANUFACTURER RECOMMENDATIONS.
- CT-3. NEW TROUGH GROUT SHALL BE INSTALLED AND SCREEDED WITH THE SCREW PUMP PER THE MANUFACTURER'S RECOMMENDATIONS. GROUT AND BONDING AGENT IS SPECIFIED IN SECTION 03310.
- CT-4 GROUT SHALL MEET FOLLOWING SPECIFICATIONS: 5,000 PSI 28-DAY COMPRESSIVE STRENGTH, 5% AIR ENTRAINMENT, W/C RATIO OF 0.40, 26A COARSE AGGREGATE, AND GROUT SHALL BE NON-SHRINK AND NON-METALLIC.

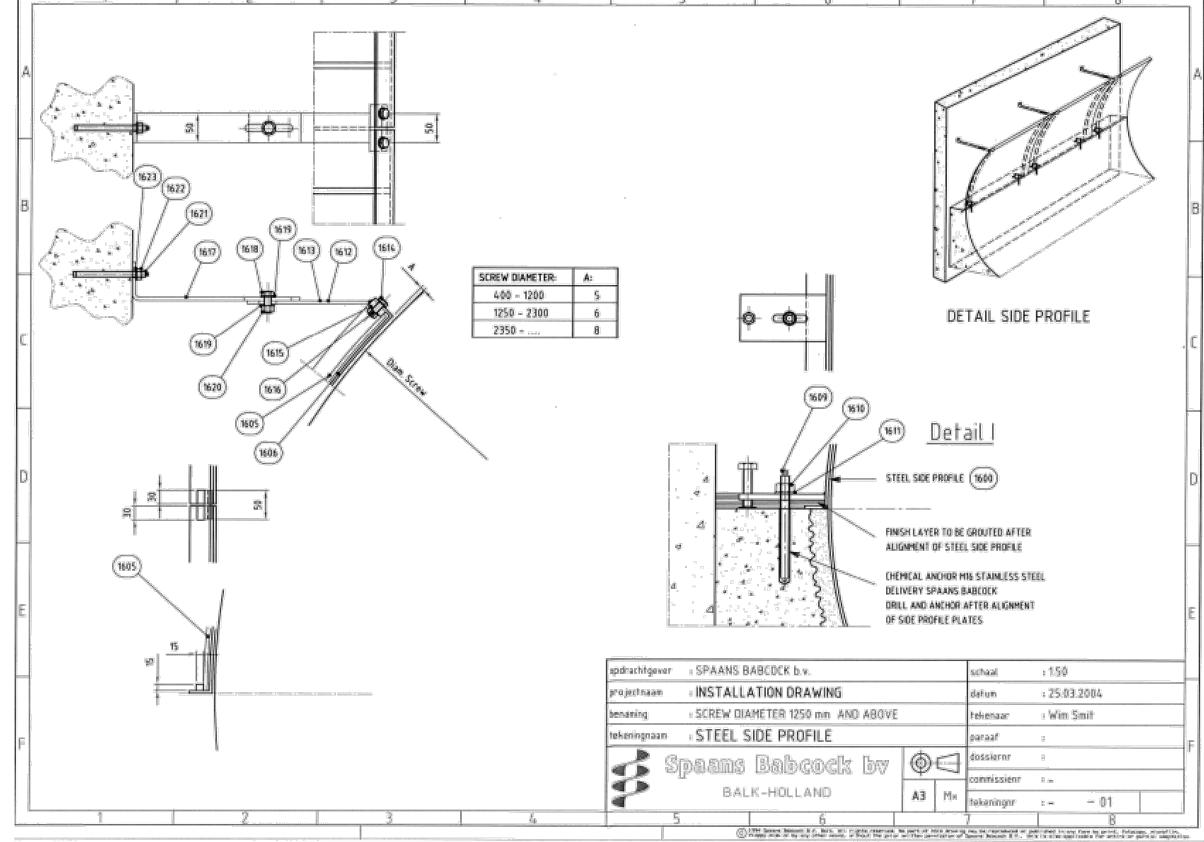
PUMP GUARD NOTES:

- PG-1. EXISTING PUMP GUARDS SHALL BE REMOVED AND REPLACED FOR ALL EIGHT EXISTING SCREW PUMPS. OWNER HAS ALREADY PURCHASED NEW GUARDS AND ANCHORS FROM SPAANS BABCOCK FOR RAW SEWAGE LIFT STATION PUMP NOS. 4 AND 5, WHICH ARE OTHERWISE NOT BEING MODIFIED. CONTRACTOR SHALL SUPPLY PUMP GUARDS FROM MANUFACTURER SUPPLYING NEW SCREW PUMPS FOR PUMP NOS. 1, 2, 3, 6, 7, AND 8.
- PG-2. DETAIL C ON THIS SHEET IS PROVIDED FOR INSTALLING THE GUARDS AT PUMP NOS. 4 AND 5. CONTRACTOR SHALL REFER TO THE MANUFACTURER'S DETAILS FOR GUARD INSTALLATION AT THE NEW SCREW PUMPS BEING SUPPLIED FOR PUMP NOS. 1, 2, 3, 6, 7, AND 8. OWNER ALSO HAS EPOXY ANCHORS SUPPLIED FROM MANUFACTURER.
- PG-3. AFTER THE NEW GROUT SCREEDING OPERATION IS COMPLETE AT PUMP NOS. 1, 2, 3, 6, 7, AND 8, THE GUARDS AND ANY COVERS AND/OR SPLASH PLATES SHALL BE INSTALLED USING MANUFACTURER'S FASTENERS PROVIDED.

SCOPE OF WORK NOTES:

- SW-1. THIS PROJECT INCLUDES THE FOLLOWING MAJOR WORK ITEMS. THE CONTRACTOR SHALL BASE HIS BID ON A SITE VISIT AND THOROUGH REVIEW OF THE DRAWINGS AND SPECIFICATIONS.
- SW-2. DEMOLITION AND REPLACEMENT OF EXISTING SCREW PUMP GUARDS AT PUMP NOS. 4 AND 5 AT THE RAW SEWAGE LIFT STATION. OWNER HAS ALREADY PURCHASED GUARDS AS DESCRIBED IN THE NOTES FOR THIS WORK ITEM.
- SW- 3 DEMOLITION AND REPLACEMENT OF SIX (6) EXISTING SCREW PUMPS AND APPURTENANCES. THESE INCLUDE SCREW PUMP NOS. 1, 2, AND 3 AT THE RAW SEWAGE PUMP STATION AND SCREW PUMP NOS. 6, 7 AND 8 AT THE RETENTION BASIN. DEMOLITION OF THE LOWER BEARING GREASE ASSEMBLY SYSTEM AT ALL SIX PUMPS.
- SW-4 EXISTING DRIVES AND MOTORS WILL BE REMOVED AND REPLACED FOR PUMP NOS. 6, 7 AND 8 AT THE RETENTION BASIN. A BID PRICE IS ALSO REQUESTED FOR REMOVAL AND REPLACEMENT OF EXISTING PUMP NOS. 1, 2 AND 3 AT THE RAW SEWAGE LIFT STATION. THE OWNER WILL DETERMINE IF THIS WORK SHALL BE INCLUDED IN THE CONTRACT DURING BID EVALUATION.
- SW-5 THE NEW PUMPS WILL BE SIMILAR TO THE EXISTING IN TERMS OF SIZE AND CAPACITY, BUT THE CONTRACTOR'S BID PRICE SHALL INCLUDE ALL WORK, SUPPLY OF ITEMS AND MODIFICATIONS REQUIRED FOR THE NEW EQUIPMENT TO BE SUCCESSFULLY INSTALLED AND OPERATE AT THE EXISTING LOCATIONS.
- SW-6 THE PROJECT ALSO INCLUDES REMOVAL AND REPLACEMENT OR RECOATING OF EXISTING SLUICE GATES AT THE RAW SEWAGE PUMP STATION AND RETENTION BASIN AS DESCRIBED BY THE PROJECT DOCUMENTS.



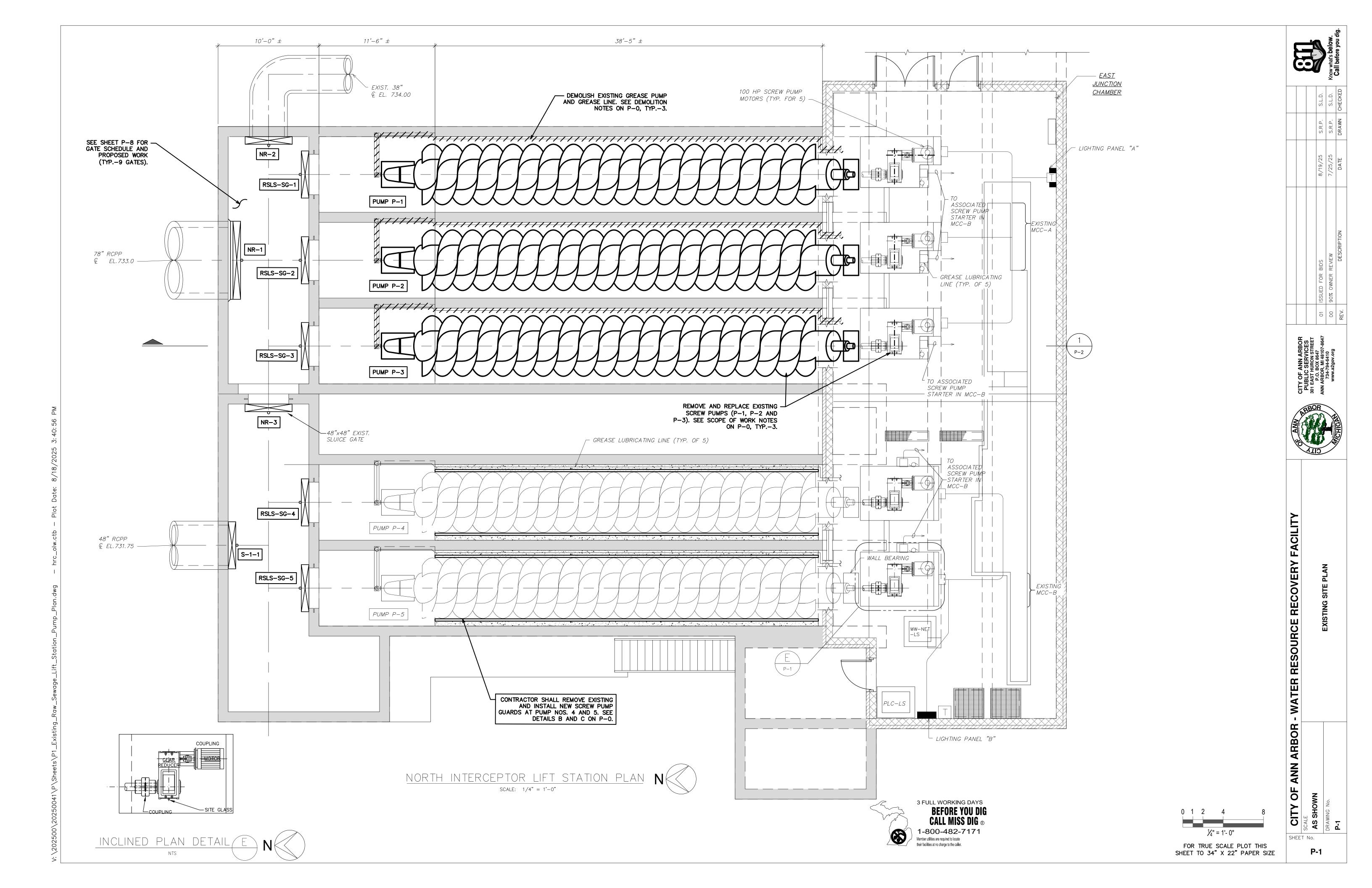


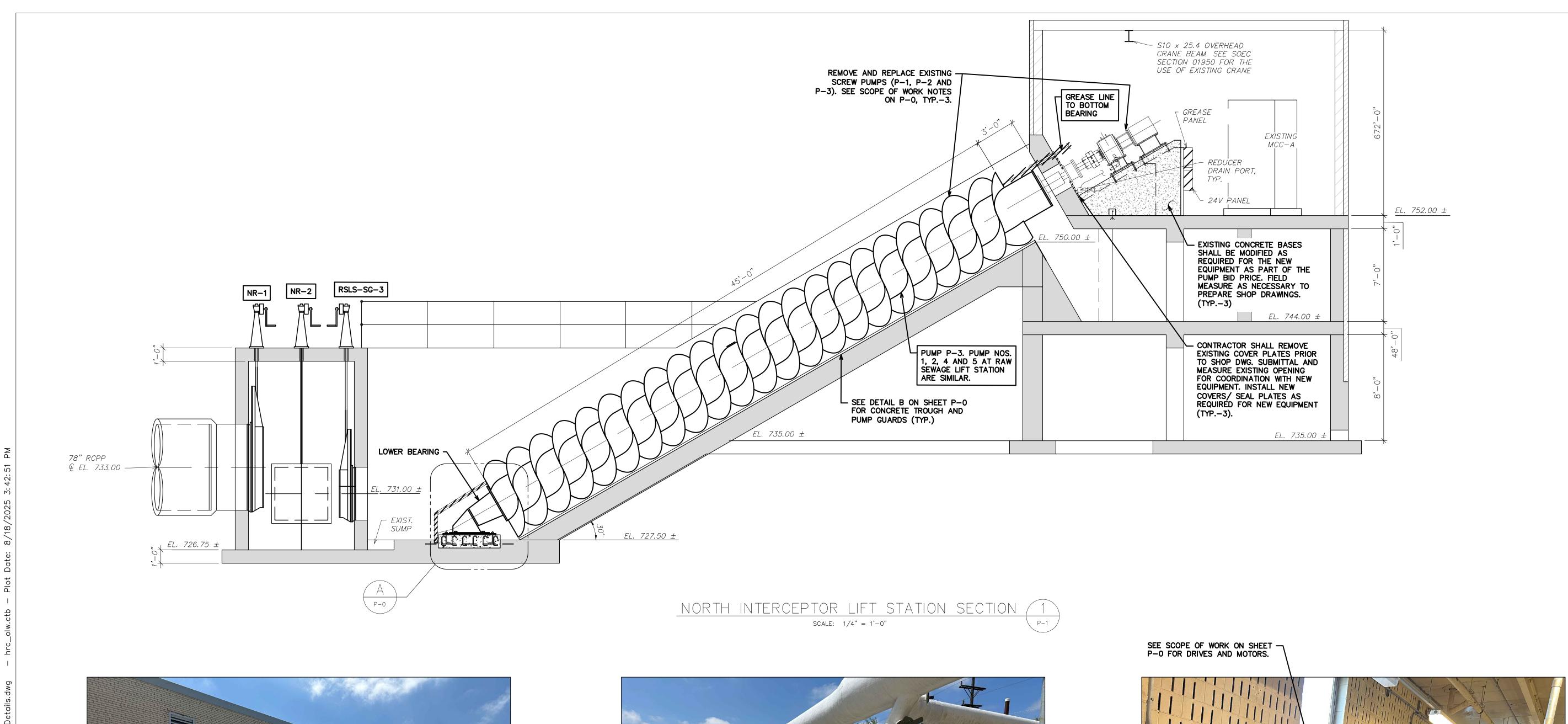
TYP. PUMP GUARD DETAIL

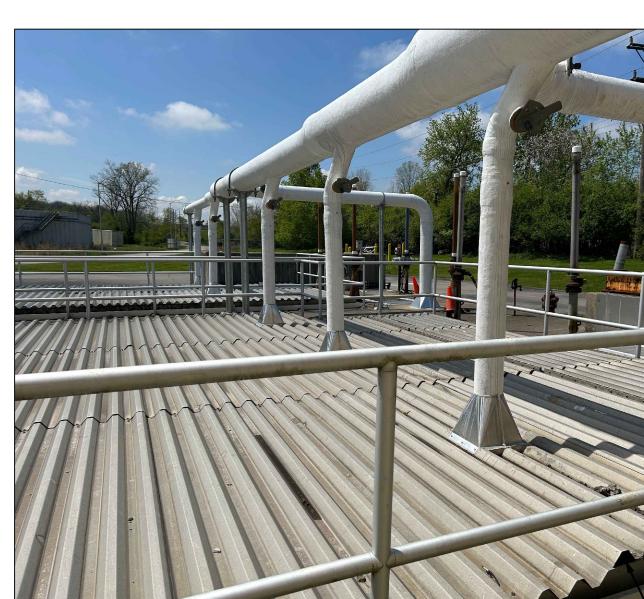
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ODOR CONTROL PIPING

SALVAGE AND/OR REMOVE AND REPLACE INFILL AT CAVITIES, TYP. PERIMETER OF SCREW PUMP COVERS. SEE NOTE SC-4 ON DWG. P-0.



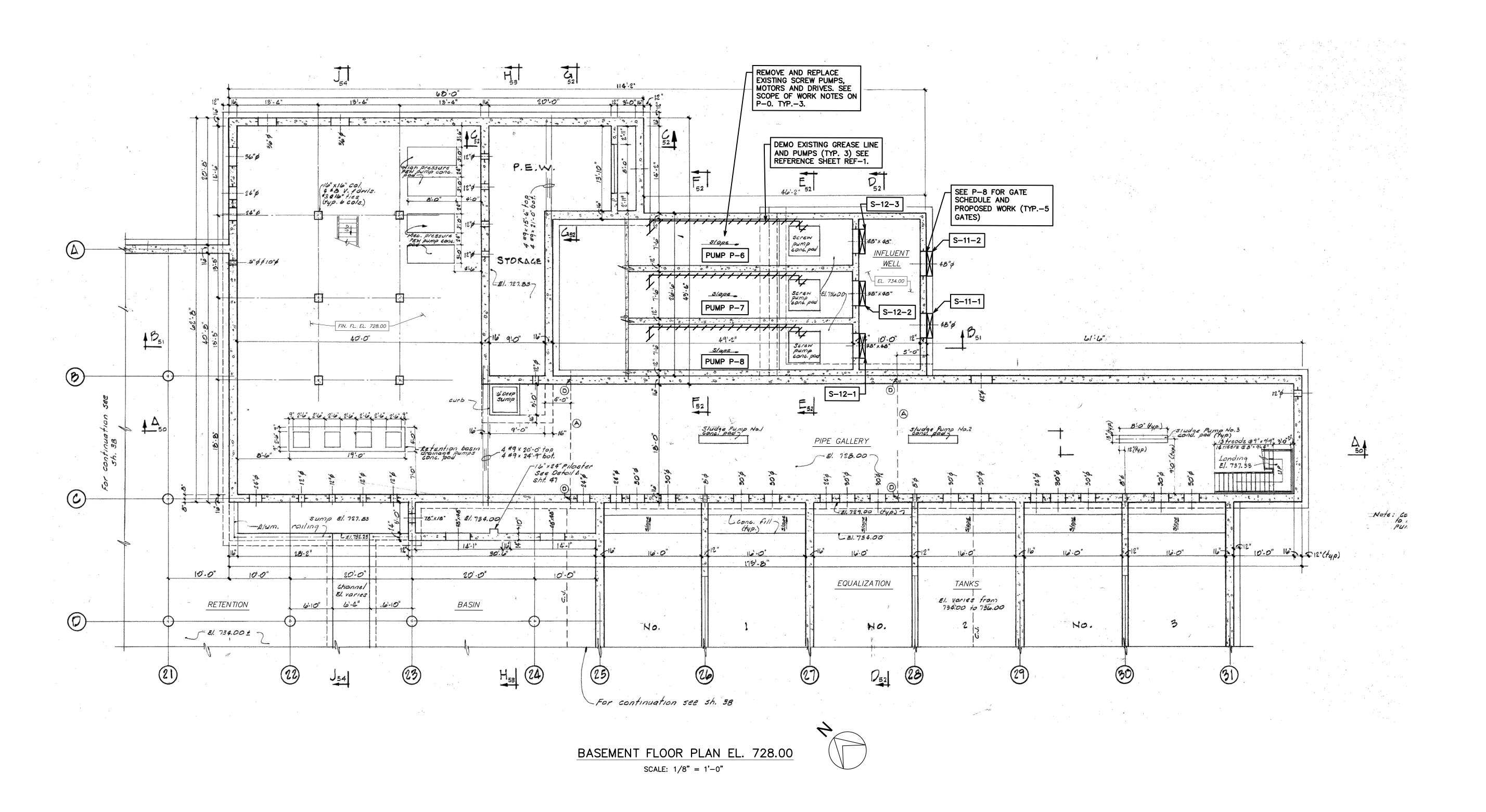
SCREW PUMP MOTOR

ANN ARBOR Р FOR TRUE SCALE PLOT THIS SHEET TO 34" X 22" PAPER SIZE

SCREW PUMP COVERS

SHEET No.

P-2



NOTICE:

FROM SHT 46 OF 63 77-S-6 CONTRACT APRIL 1977

THIS DRAWING HAS BEEN COPIED FROM A PREVIOUS CONSTRUCTION PROJECT. NO GUARANTEE IS MADE, OR SHOULD BE ASSUMED AS TO THE COMPLETENESS OR ACCURACY OF THE INFORMATION SHOWN ON THIS DRAWING. PARTIES UTILIZING THIS INFORMATION SHALL FIELD VERIFY THE ACCURACY AND COMPLETENESS PRIOR TO CONSTRUCTION/DEMOLISION ACTIVITIES. WORK THIS DRAWING IS NOT TO SCALE.

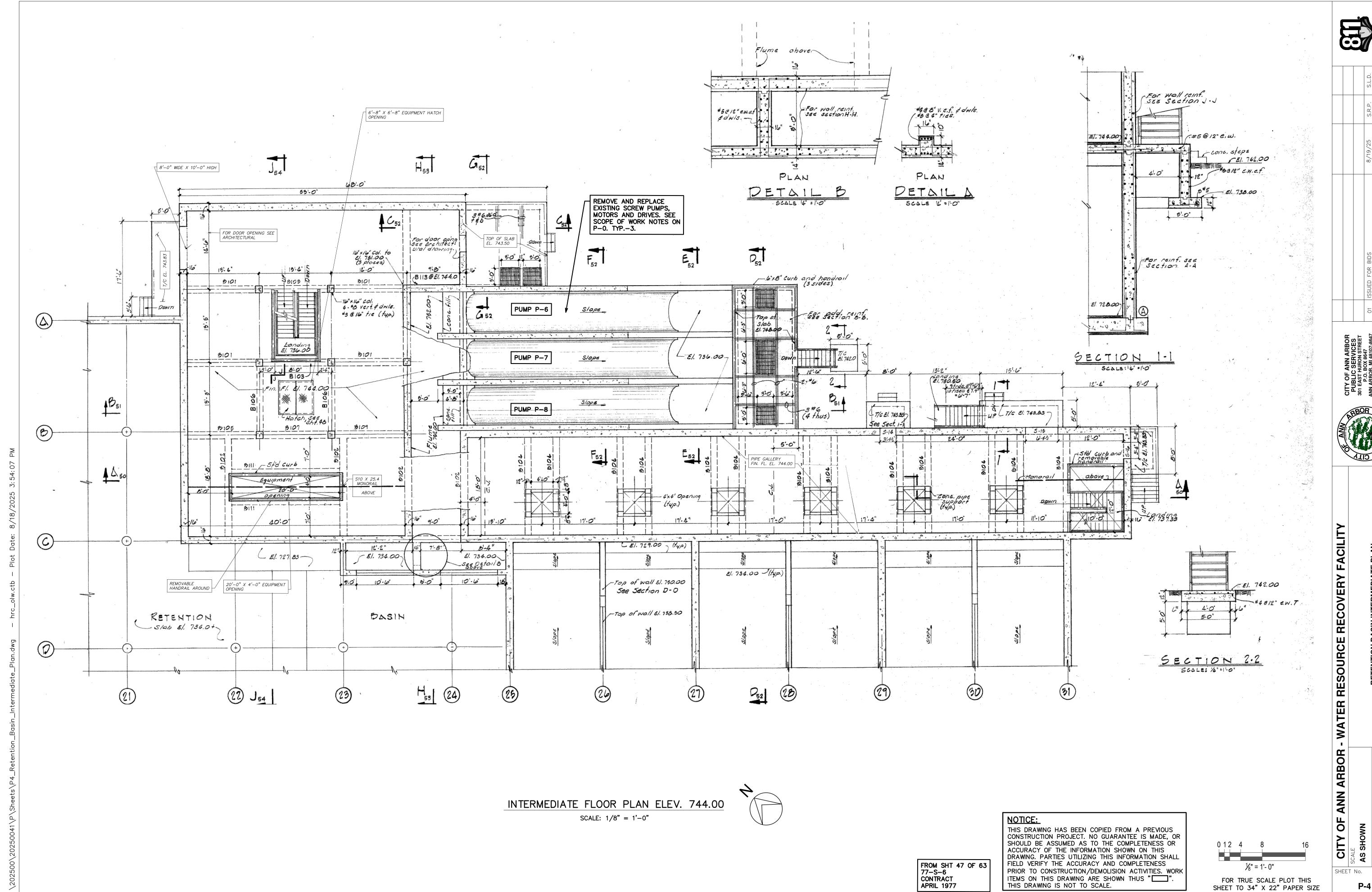
½" = 1'- 0"

FOR TRUE SCALE PLOT THIS SHEET TO 34" X 22" PAPER SIZE

ANN ARBOR OF CITY

WATER RESOURCE RECOVERY FACILITY

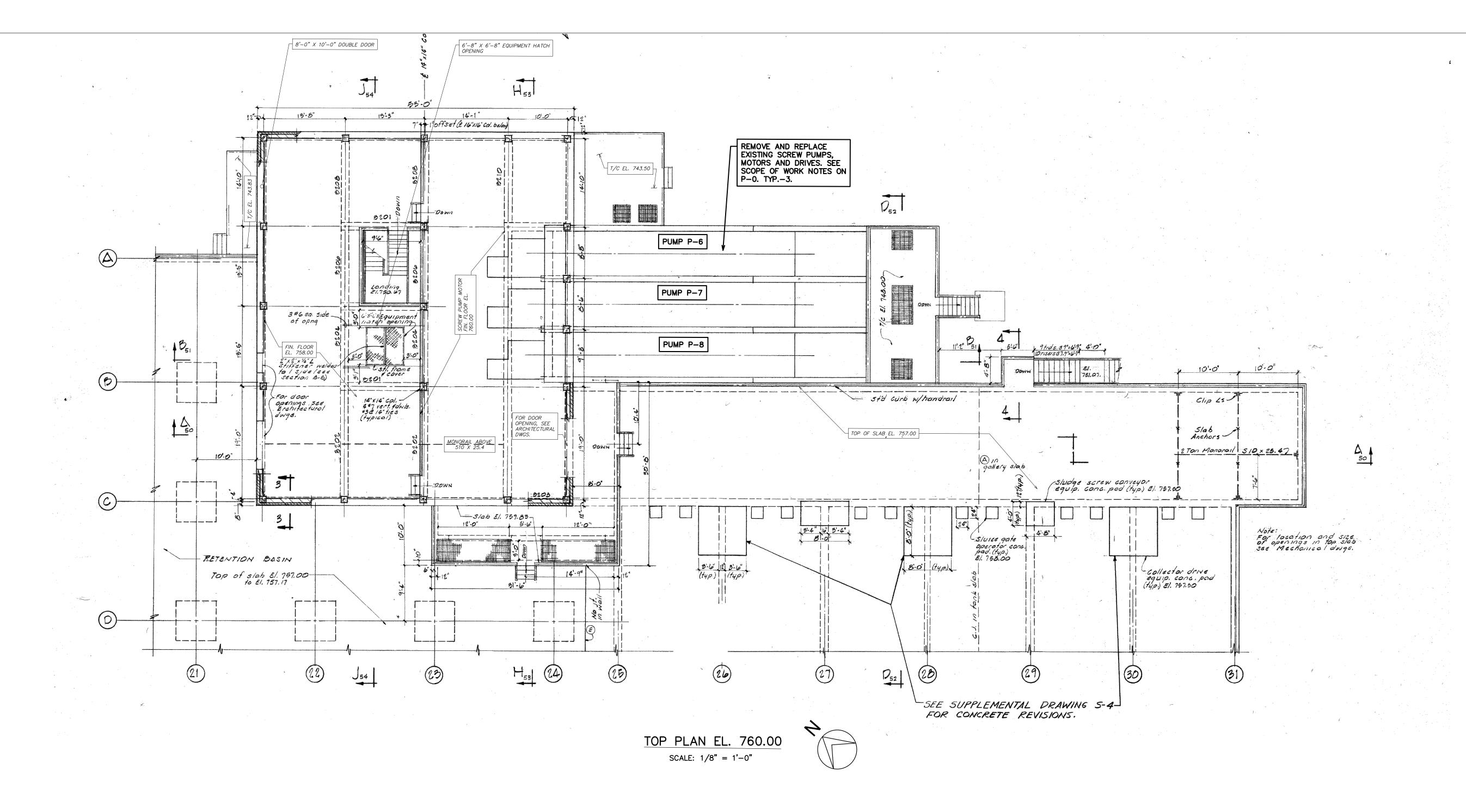
SHEET No. P-3







P-4



NOTICE:

FROM SHT 48 OF 63 77-S-6 CONTRACT APRIL 1977

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THIS DRAWING IS NOT TO SCALE.

⅓" = 1'- 0"

FOR TRUE SCALE PLOT THIS SHEET TO 34" X 22" PAPER SIZE

SHEET No. P-5

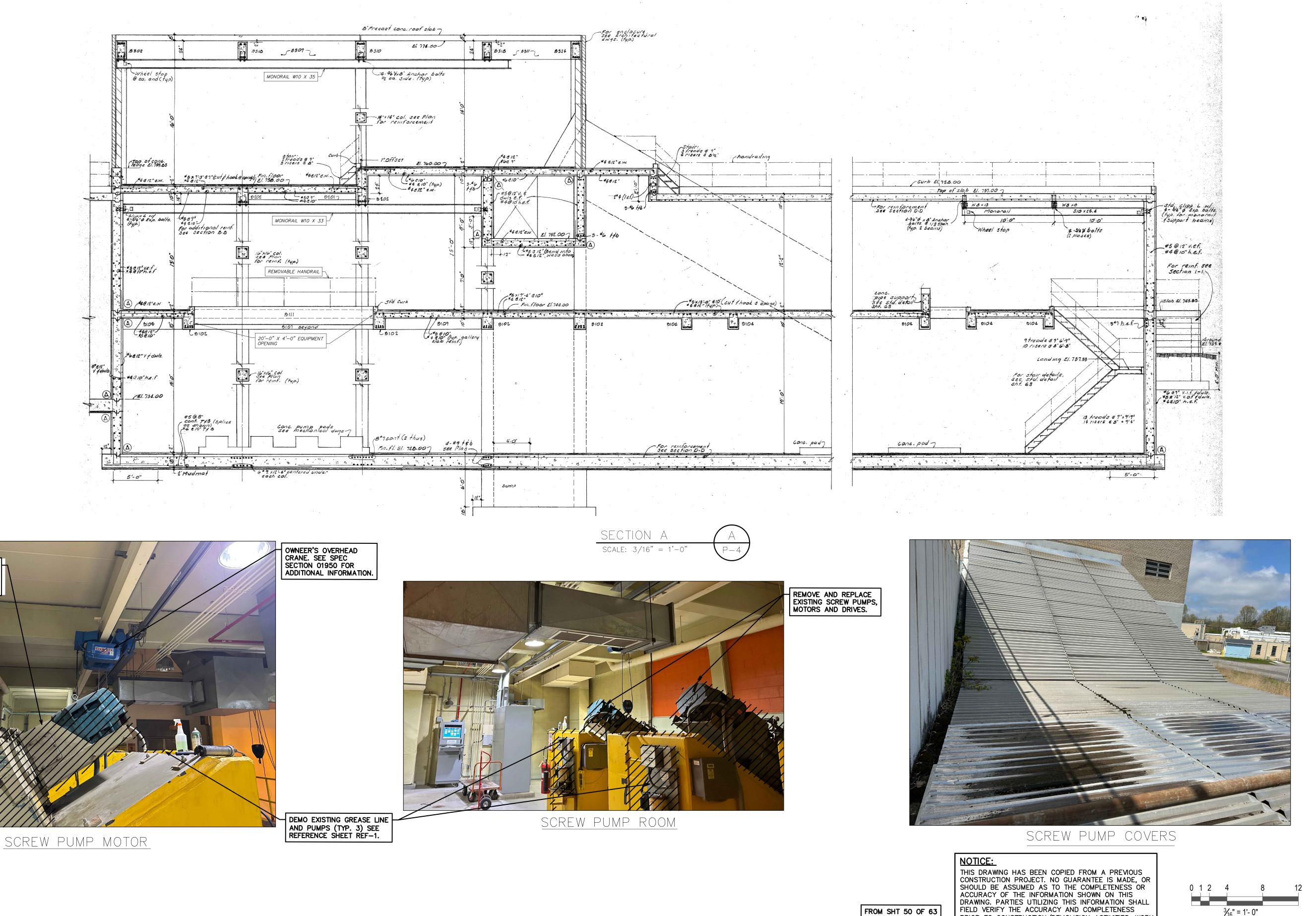
FACILITY

RECOVERY

RESOURCE

ARBOR

OF



FROM SHT 50 OF 63 77-S-6 CONTRACT APRIL 1977

REMOVE AND REPLACE EXISTING SCREW PUMPS, MOTORS AND DRIVES

(TYP.-3).

S.L.D.
S.L.D.
CHECKED

Call before you dig.

 $3\frac{3}{16}$ " = 1'- 0"

FOR TRUE SCALE PLOT THIS SHEET TO 34" X 22" PAPER SIZE

SHEET No.

P-6

FACILITY

RECOVERY

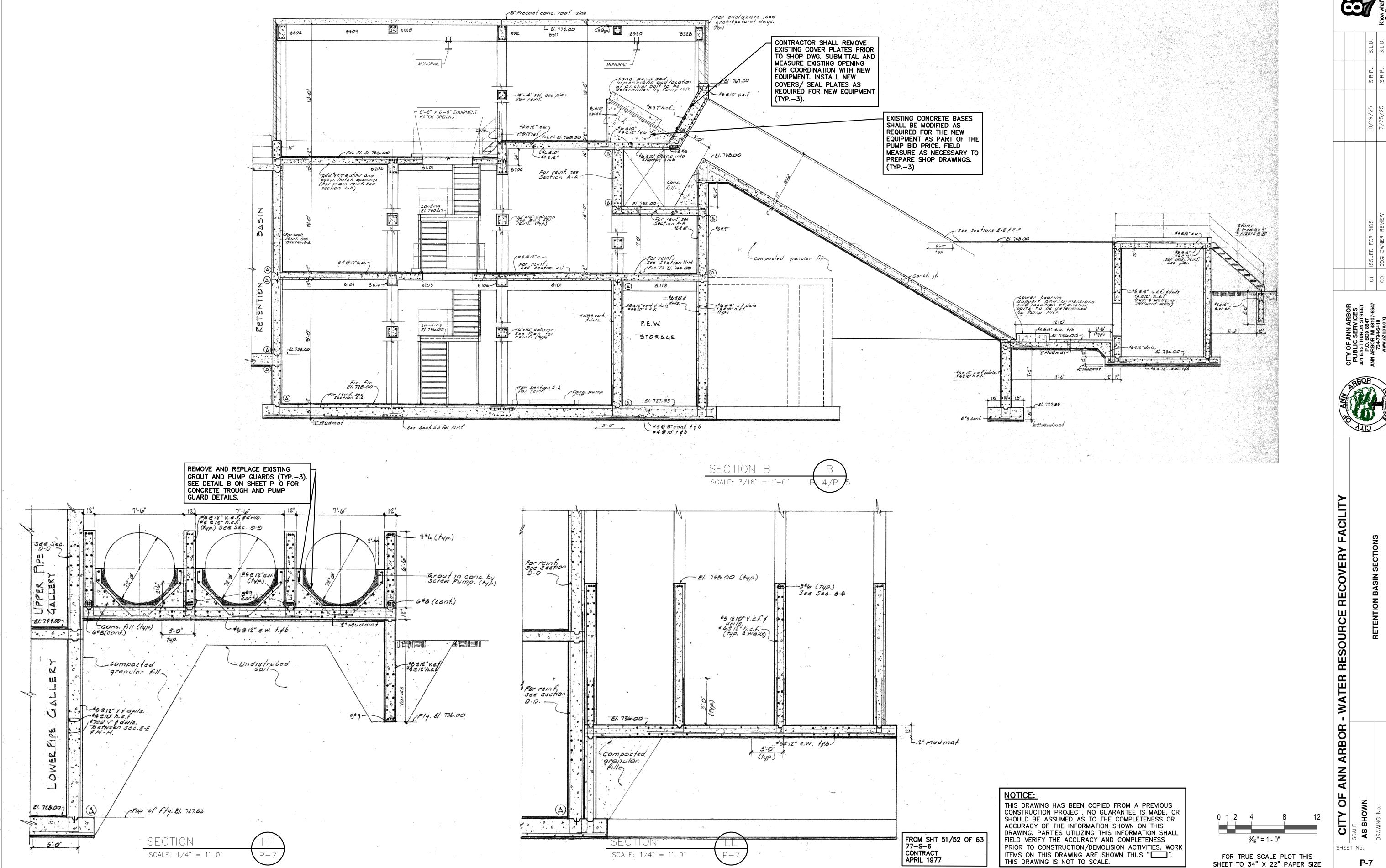
RESOURCE

WATER

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P-7

	DRAWN CHECKED	DRAWN	DATE		DESCRIPTION
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CMMS I.D	EXISTING MANUFACTURER	FXISTING OPERABILITY	PROPOSED MANUFACTURER	SIZE	ATE SCHEDULE FRAME	MOUNT	S. HFAD*	OPER. / ACT.	LOCATION	SERVICE	NOTES		
RSLS-SG-1	UNKNOWN	NOT FULLY OPERABLE	PROPOSED MANUFACTURER	48"×48"	NON-SC	WM	3. HEAD*	HW OR C	SCREW PUMP 1 FOREBAY INFLUENT SLUICE GATE	WASTEWATER	REMOVE AND REPLA		
RSLS-SG-2	UNKNOWN	NOT FULLY OPERABLE		48"×48"	NON-SC	WM	10'	HW OR C	SCREW PUMP 2 FOREBAY INFLUENT SLUICE GATE	WASTEWATER	REMOVE AND REPLA		
RSLS-SG-3	UNKNOWN	NOT FULLY OPERABLE		48"×48"	NON-SC	WM	10'	HW OR C	SCREW PUMP 3 FOREBAY INFLUENT SLUICE GATE	WASTEWATER	REMOVE AND REPLA		
RSLS-SG-4	UNKNOWN	OPERABLE		48"×48"	NON-SC	WM	10'	HW OR C	SCREW PUMP 4 FOREBAY INFLUENT SLUICE GATE	WASTEWATER	RE-COAT		
RSLS-SG-5	UNKNOWN	OPERABLE		48"×48"	NON-SC	WM	10'	HW OR C	SCREW PUMP 5 FOREBAY INFLUENT SLUICE GATE	WASTEWATER	RE-COAT		
S-1-1	UNKNOWN	OPERABLE		48"×48"	NON-SC	WM	10'	HW OR C	WEST HALF RAW SEWAGE WET WELL PLANT INFLUENT SLUICE GATE	WASTEWATER	RE-COAT		
NR-1	UNKNOWN	OPERABLE		78" X 78"	NON-SC	WM	10'	HW OR C	EAST HALF RAW SEWAGE WET WELL	WASTEWATER	RE-COAT		
NR-2	UNKNOWN	UNKNOWN BUT WILL REMAIN CLOSED THROUGH PROJECT	AS SPECIFIED IN SPEC. SECTION 11282 PART 2	48"X48"	NON-SC	WM	10'	HW OR C	RAW SEWAGE LIFT STATION - DOWN RIVER TRUNK DEWER SYSTEM CROSS CONNECTION SLUICE GATE	WASTEWATER	REMOVE AND REPLA		
NR-3	UNKNOWN	OPERABLE				48"X48"	NON-SC	WM	10'	HW OR C	RAW SEWAGE WET WELL INTERCONNECTION SLUICE GATE	WASTEWATER	RE-COAT
S-12-3	WATERMAN	NOT FULLY OPERABLE		48"×48"	NON-SC	WM	NA	HW OR C	SCREW PUMP #6 INLFUENT GATE	WASTEWATER	DEMOLISH		
S-12-2	WATERMAN	NOT FULLY OPERABLE		48"×48"	NON-SC	WM	NA	HW OR C	SCREW PUMP #7 INLFUENT GATE	WASTEWATER	DEMOLISH		
S-12-1	WATERMAN	NOT FULLY OPERABLE		48"×48"	NON-SC	WM	NA	HW OR C	SCREW PUMP #8 INLFUENT GATE	WASTEWATER	REMOVE AND REPLA		
S-11-1	UNKNOWN	OPERABLE		48"×48"	NON-SC	WM	20'	HW OR C	SCREW PUMP INLET WET WELL INFLUENT SLUICE GATES	WASTEWATER	REMOVE AND REPLA		
S-11-2	UNKNOWN	OPERABLE		48"×48"	NON-SC	WM	20'	HW OR C	SCREW PUMP INLET WET WELL INFLUENT SLUICE GATES	WASTEWATER	REMOVE AND REPLA		
	·	1			1	ı	* SEATING	HEAD			1		

		GATE ABBREV	/IATIONS			
FRAME		OPERATOR TYPES	OPERATOR TYPES			
0	OPEN	HW	HANDWHEEL			
SC	SELF CONTAINED	С	CRANK			
DS	DUAL STEM	N	(OPERATING) NUT			
MOUNT TYPES		ACTUATOR TYPES	ACTUATOR TYPES			
Т	THIMBLE	E	ELECTRIC ACTUATOR			
S	SURFACE	EM	ELECTRIC ACTUATOR - MODULATING SERVICE			
E	EMBEDDED	HYD	HYDRAULIC ACTUATOR			
F	FLUSH	PNU	PNEUMATIC ACTUATOR			
WM	WALL MOUNTED	PI	POSITION INDICATING			
R	REAR MOUNTED	FS	FLOORSTAND			
		ES	EXTENSION STEM			



TYP. GATES S-12-1 AND S-12-2. S-12-3 IS SIMILAR



TYP. GATES S-11-1. S-11-2 IS SIMILAR



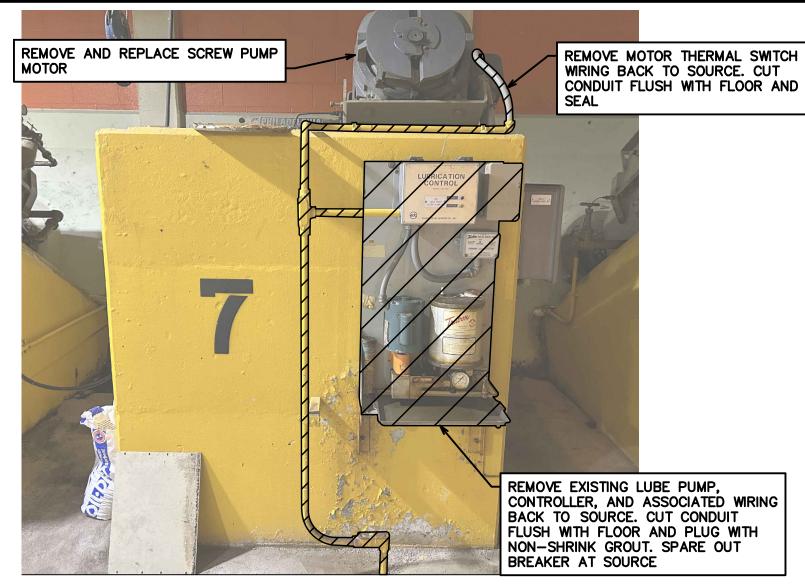
GATES NR-1 AND RSLS-SG-2

ELECTRICAL GENERAL NOTES AND SPECIFICATIONS:

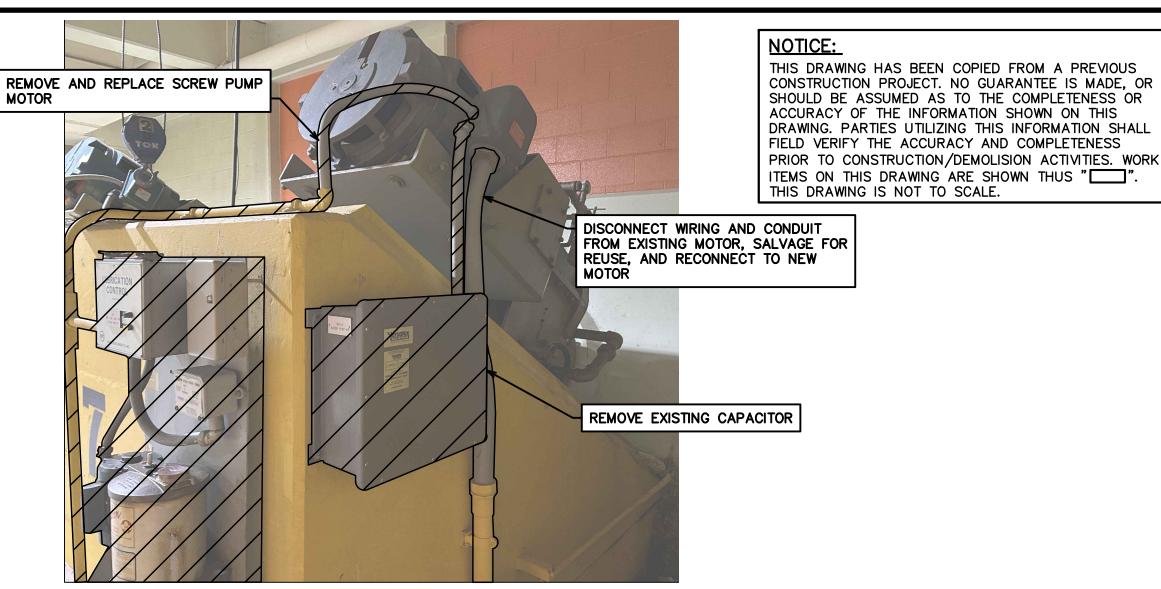
GENERAL NOTES

- 1. OBTAIN AND PAY FOR ALL PERMITS, LICENSES, INSPECTIONS, APPROVALS AND FEES REQUIRED AND ENSURE THAT THE ENTIRE ELECTRICAL INSTALLATION CONFORMS TO CODES AND REGULATIONS REQUIRED BY AUTHORITY OR AGENCY HAVING JURISDICTION OVER THE INSTALLATION, ALTERATION OR CONSTRUCTION OF WORK INCLUDED. ALL FEES SHALL BE INCLUDED IN THE BASE PROPOSAL.
- 2. ALL ELECTRICAL WORK SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE (N.E.C.), N.F.P.A., O.S.H.A., LOCAL AND STATE CODES, ORDINANCES AND REGULATIONS.
- 3. COORDINATE ALL UNDERGROUND WORK WITH NEW AND EXISTING UNDERGROUND UTILITIES PRIOR TO EXCAVATION. CALL MISS DIG 1-800-482-7171 72 HOURS BEFORE ANY UNDERGROUND WORK IS
- 4. ALL POWER WIRING 120 VOLTS AND GREATER SHALL BE INSTALLED IN CONDUIT AND SHALL BE NEW. UNLESS NOTED OTHERWISE, RIGID GALVANIZED STEEL SHALL BE USED WHERE CONDUIT IS EXPOSED. PVC SCHEDULE 80 CONDUIT SHALL BE USED UNDERGROUND, EXCEPT WITHIN 5' OF STRUCTURES WHERE RIGID GALVANIZED STEEL CONDUIT WILL BE REQUIRED. EMT CONDUIT SHALL BE USED ONLY ABOVE LAY—IN CEILINGS AND WITHIN WALLS OF 'FINISHED' AREAS. PVC COATED RGS CONDUIT SHALL BE USED IN AREAS THAT ARE CORROSIVE AND/OR CLASSIFIED.
- 5. ALL UNDERGROUND CONDUITS SHALL BE INSTALLED A MINIMUM OF 30" BELOW FINISHED GRADE. EXPANSION FITTINGS SHALL BE PROVIDED AT ALL TRANSITIONS FROM UNDERGROUND TO EXPOSED CONDUIT.
- 6. ALL EMPTY CONDUITS SHALL BE PROVIDED WITH A 1/4" DIA. POLYPROPYLENE FISHLINE.
- 7. ALL CONDUITS SHALL BE ROUTED TO AVOID OPENINGS IN FLOORS, ROOFS, AND WALLS. LADDERS UP WALLS SHALL NOT BE CROSSED BY EXPOSED CONDUIT RUNS. PROVIDE THE MINIMUM CLEAR SPACE REQUIRED BY ALL GOVERNING CODES BETWEEN HANDRAILS AND ALL ELECTRICAL ENCLOSURES AND RACEWAYS, WHICH IN NO CASE SHALL BE LESS THAN 1 1/2" CLEAR.
- 8. ALL ELECTRICAL FLOOR MOUNTED EQUIPMENT SUCH AS MOTORS, CONTROL PANELS AND METALLIC SUPPORT RACKS SHALL HAVE A MIMIMUM #2 BARE COPPER GROUND CONDUCTOR BETWEEN THE MOTOR, FRAME, ENCLOSURE, OR SUPPORT LEG AND THE BUILDING GROUND SYSTEM.
- 9. ALL MATERIALS USED SHALL BE NEW AND BEAR THE U.L. LABEL WHERE SUCH SERVICE AND LABEL ARE REGULARLY PROVIDED AND BE OF THE APPROPRIATE NEMA STANDARD.
- 10. THE CONTRACTOR SHALL FURNISH ALL MATERIALS AND LABOR AS INDICATED ON PLANS AND AS REQUIRED FOR A COMPLETE, REVISED ELECTRICAL SYSTEM.
- 11. ALL THREADED ELECTRICAL EQUIPMENT (CONDUIT, FITTINGS, BOLTS, SCREWS, ETC.) INSTALLED OUTDOORS SHALL BE COATED WITH ANTI-SEIZE COMPOUND PRIOR TO INSTALLATION. ALL HARDWARE SHALL BE STAINLESS STEEL.
- 12. ALL FLOOR MOUNTED EQUIPMENT SHALL BE MOUNTED ON A MINIMUM 2" CONCRETE PAD, UNLESS OTHERWISE NOTED.
- 13. EACH OF THE SPECIFIED EQUIPMENT SHALL BE SUBMITTED FOR APPROVAL BY REFERENCE TO MANUFACTURER AND SPECIFIC CATALOG AND MODEL NUMBER.
- 14. THE CONTRACTOR SHALL VISIT THE JOB SITE, THOROUGHLY CHECK THE EXISTING FIELD CONDITIONS AND EXISTING ELECTRICAL INSTALLATIONS, AND CLARIFY ALL DISCREPANCIES WITH THE ENGINEER BEFORE SUBMITTING A BID, AS NO EXTRAS WILL BE ALLOWED FOR OMITTED WORK DUE TO FAILURE TO INSPECT THE PREMISES.
- 15. ON COMPLETION OF WORK AND BEFORE FINAL PAYMENT IS MADE, THIS CONTRACTOR SHALL PREPARE "AS—BUILT DRAWINGS". CLEARLY INDICATE ON A SET OF CONTRACT DRAWINGS ALL THE CHANGES MADE DURING CONSTRUCTION, DUE TO FIELD CONDITIONS, ADDENDA, BULLETINS, ETC. DRAWINGS SHALL INDICATE THE INSTALLED LOCATION OF ALL EQUIPMENT, OUTLETS, ETC.
- 16. WHEN THE JOB IS COMPLETE, CONTRACTOR SHALL PROVIDE THE OWNER WITH CERTIFICATE OF APPROVAL FROM THE ELECTRICAL INSPECTION AUTHORITY AND SHALL PROVIDE THE OWNER WITH A ONE YEAR WRITTEN GUARANTEE ON ALL NEW MATERIALS AND LABOR.
- 17. RE-SUPPORT EXISTING CONDUIT, BOXES, ETC. WHERE CEILING OR SUPPORT REVISIONS NECESSITATES NEW SUPPORTS. ALL WORK SHALL BE COORDINATED WITH OTHER DISCIPLINES.
- 18. ALL DEMOLISHED ITEMS SHALL BE DISPOSED OF AWAY FROM THE

WORK SHOWN ON THIS SHEET IS FOR REMOVAL AND REPLACEMENT OF EXISTING DRIVES AND MOTORS FOR PUMP NOS. 6, 7 AND 8. SHOULD OWNER ELECT TO REMOVE AND REPLACE EXISTING MOTORS AND DRIVES FOR PUMP STATION NOS. 1, 2 AND 3 THE SCOPE OF WORK SHALL BE SIMILAR. SEE DRAWING P-O, SCOPE OF WORK NOTES. SEE ADDITIONAL DEMO NOTES ON SHEET P-O.







<u>PHOTO −2</u>

(TYPICAL EACH SCREW PUMP)

- WASTEWATER TREATMENT PLAN

ANN ARBOR

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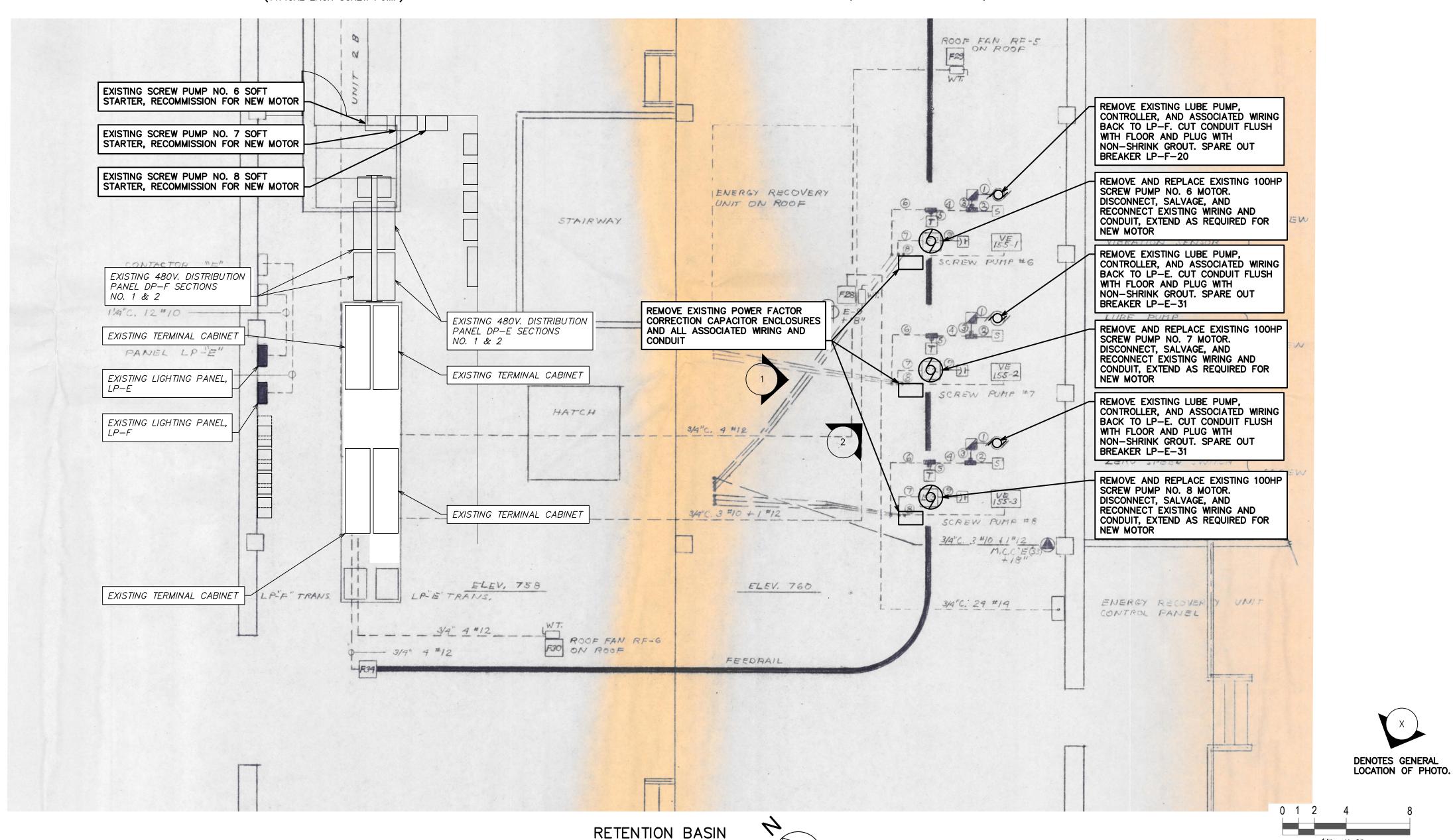
SHEET No.

E-1

1/₄" = 1'- 0"

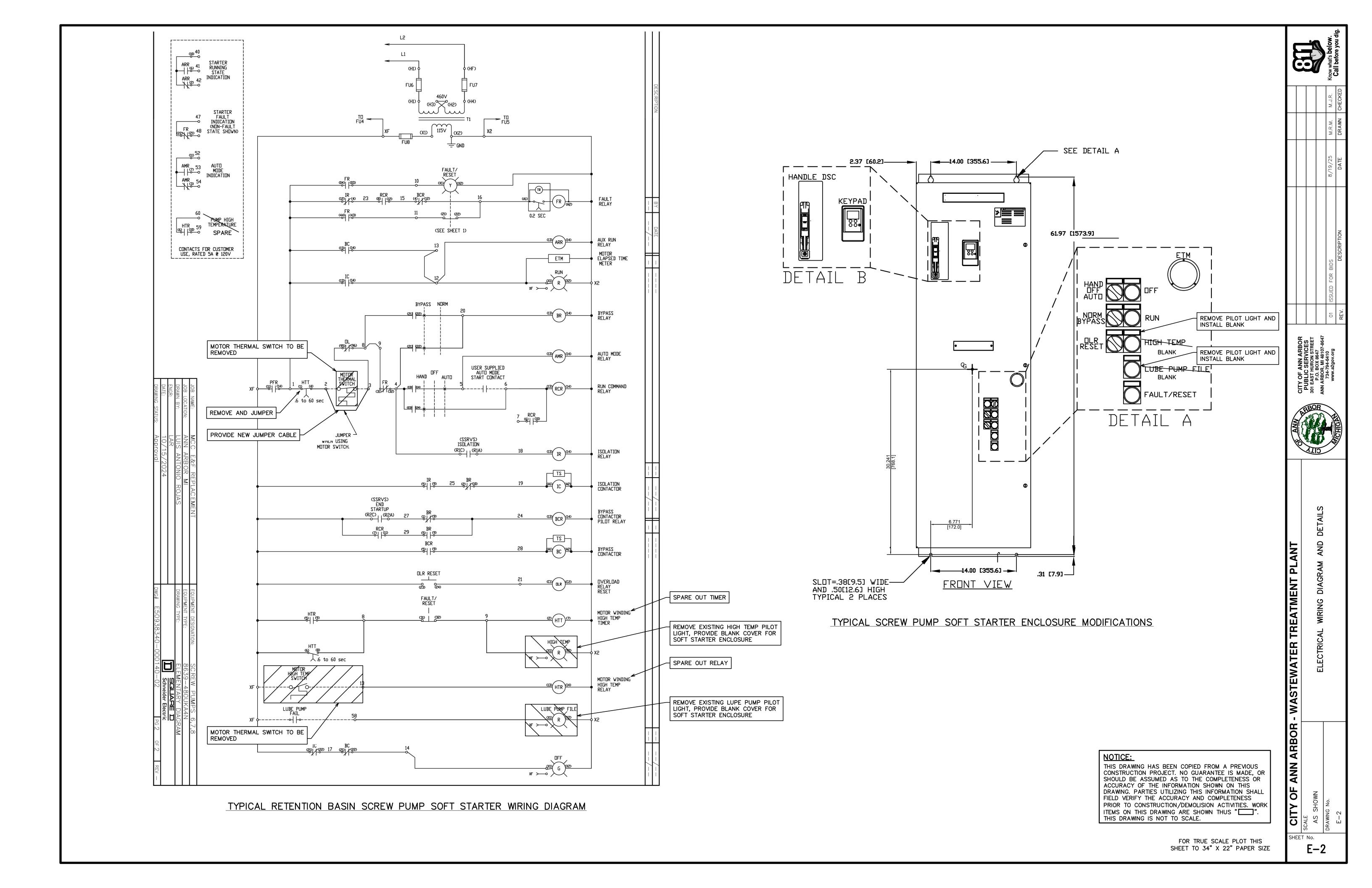
FOR TRUE SCALE PLOT THIS

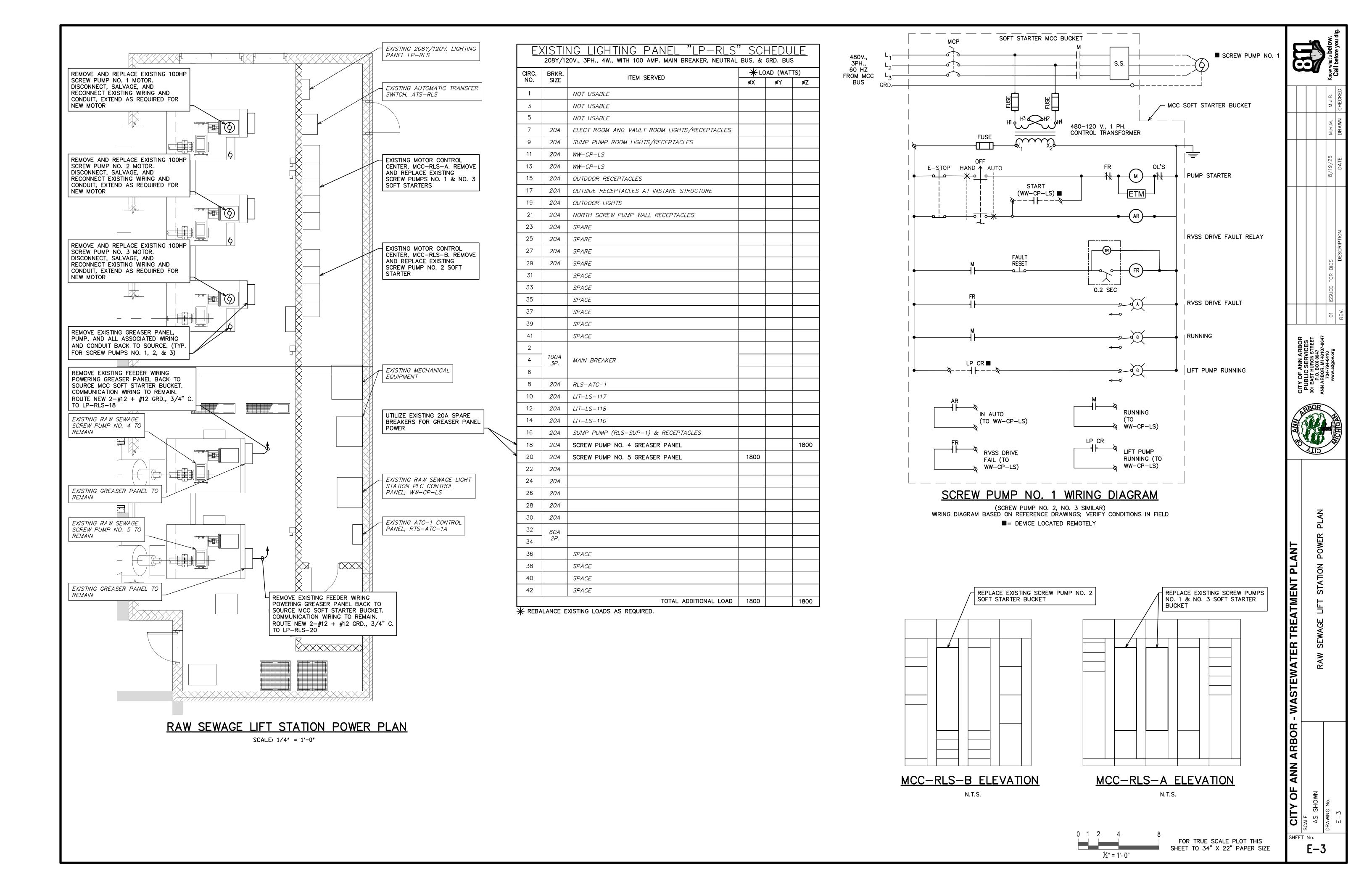
SHEET TO 34" X 22" PAPER SIZE

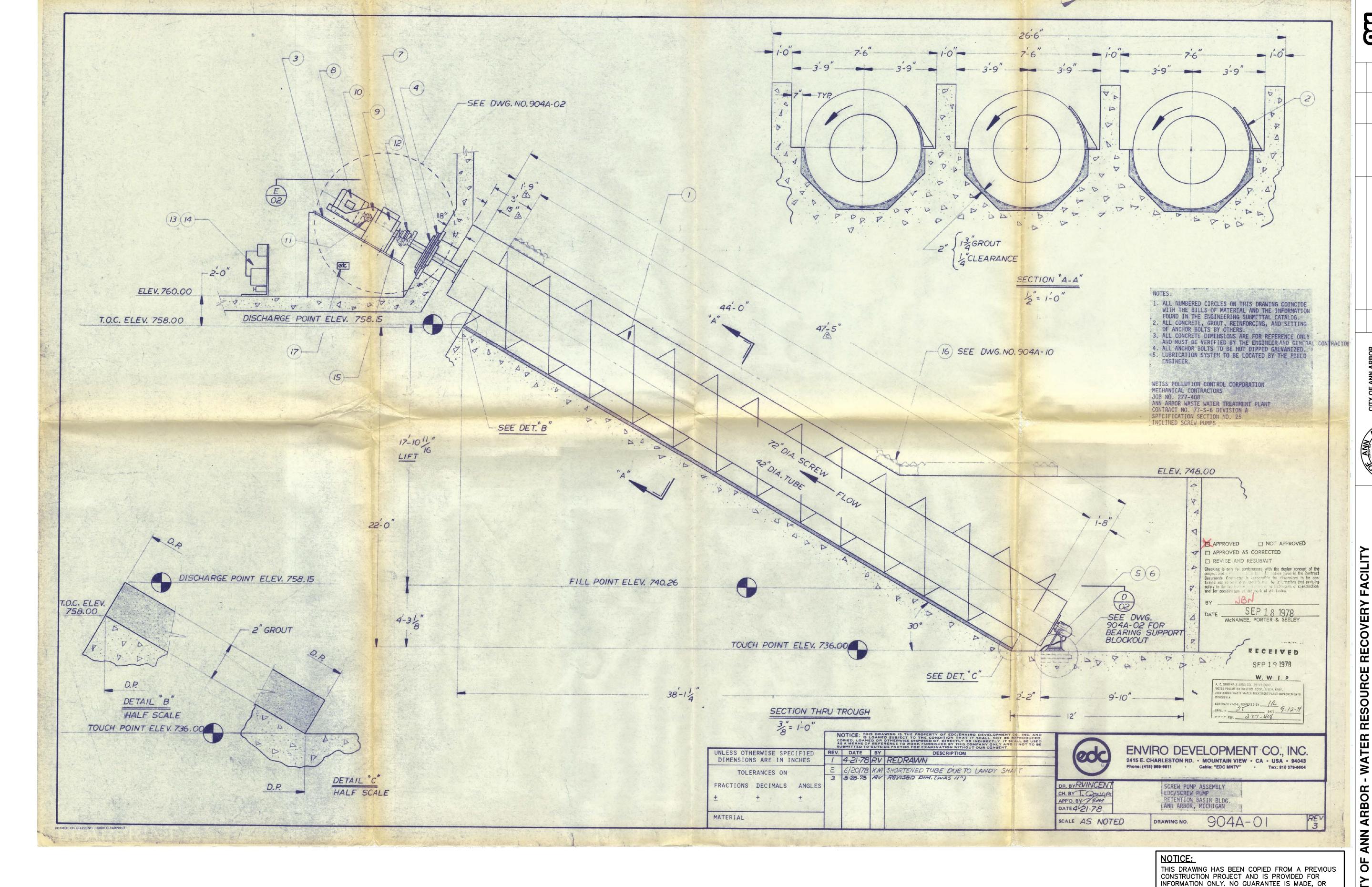


ELECTRICAL POWER PLAN

SCALE: 1/4" = 1'-0"







RECOVERY RESOURCE WATER ARBOR ANA ОЕ CITY SHOULD BE ASSUMED AS TO THE COMPLETENESS OR

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SHALL FIELD VERIFY THE ACCURACY AND

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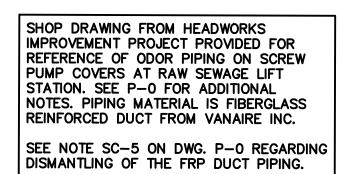
ANN ARBOR - WATER RESOURCE RECOVERY FACILITY

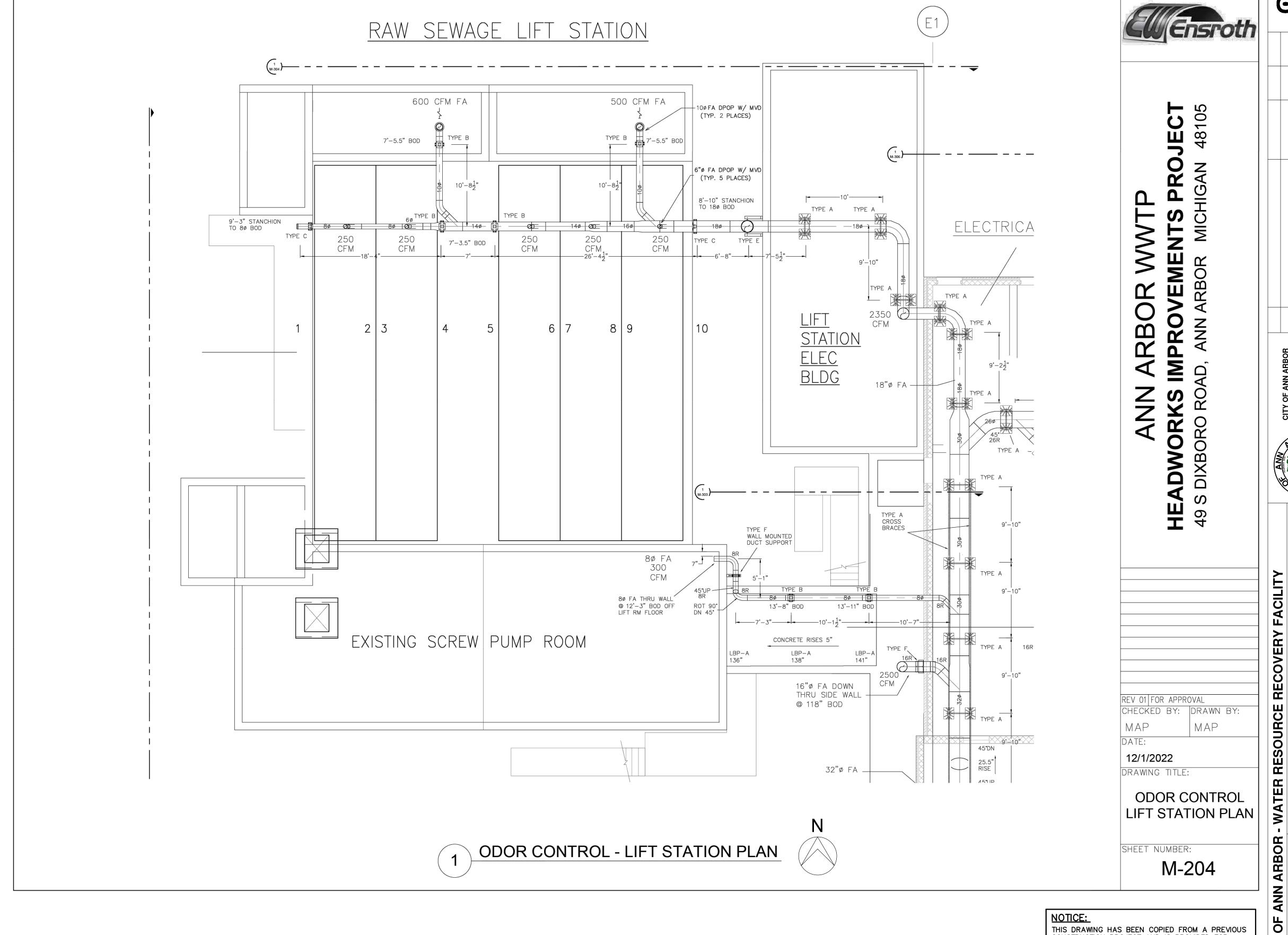
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