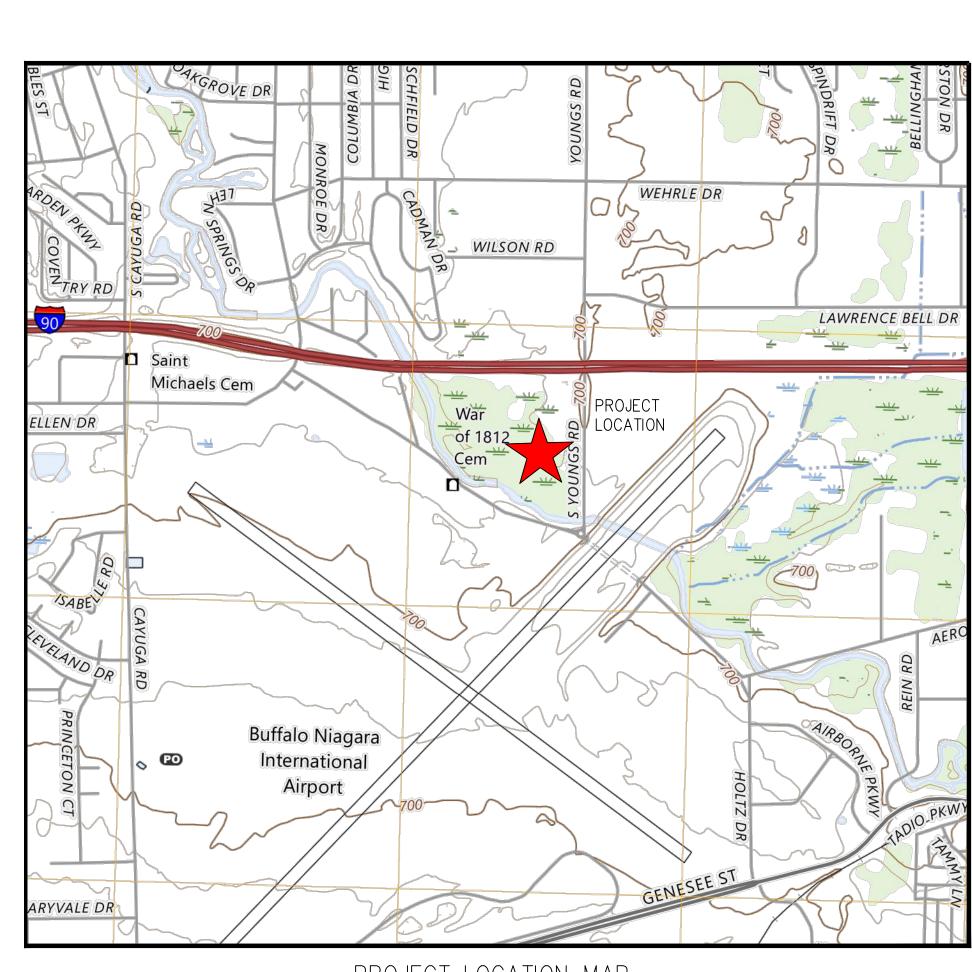
S. YOUNGS ROAD PRIVATE PUMP STATION REDESIGN

The Krog Group
669 S. Youngs Road
Amherst, New York



PROJECT LOCATION MAP N.T.S.

She	eet List Table
Sheet Number	Sheet Title
00	COVER SHEET
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02	KROG PUMP STATION SITE PLAN
03	KROG PUMP STATION DETAILS
04	PROPOSED PLAN & PROFILE 1
05	PROPOSED PLAN & PROFILE 2
06	PROPOSED PLAN & PROFILE 3
07	FORCEMAIN CROSSING DETAILS
08	FORCEMAIN DETAILS
EL-1	KROG PUMP STATION ELECTRICAL DETAILS



WNY-2300114.00 February, 2024

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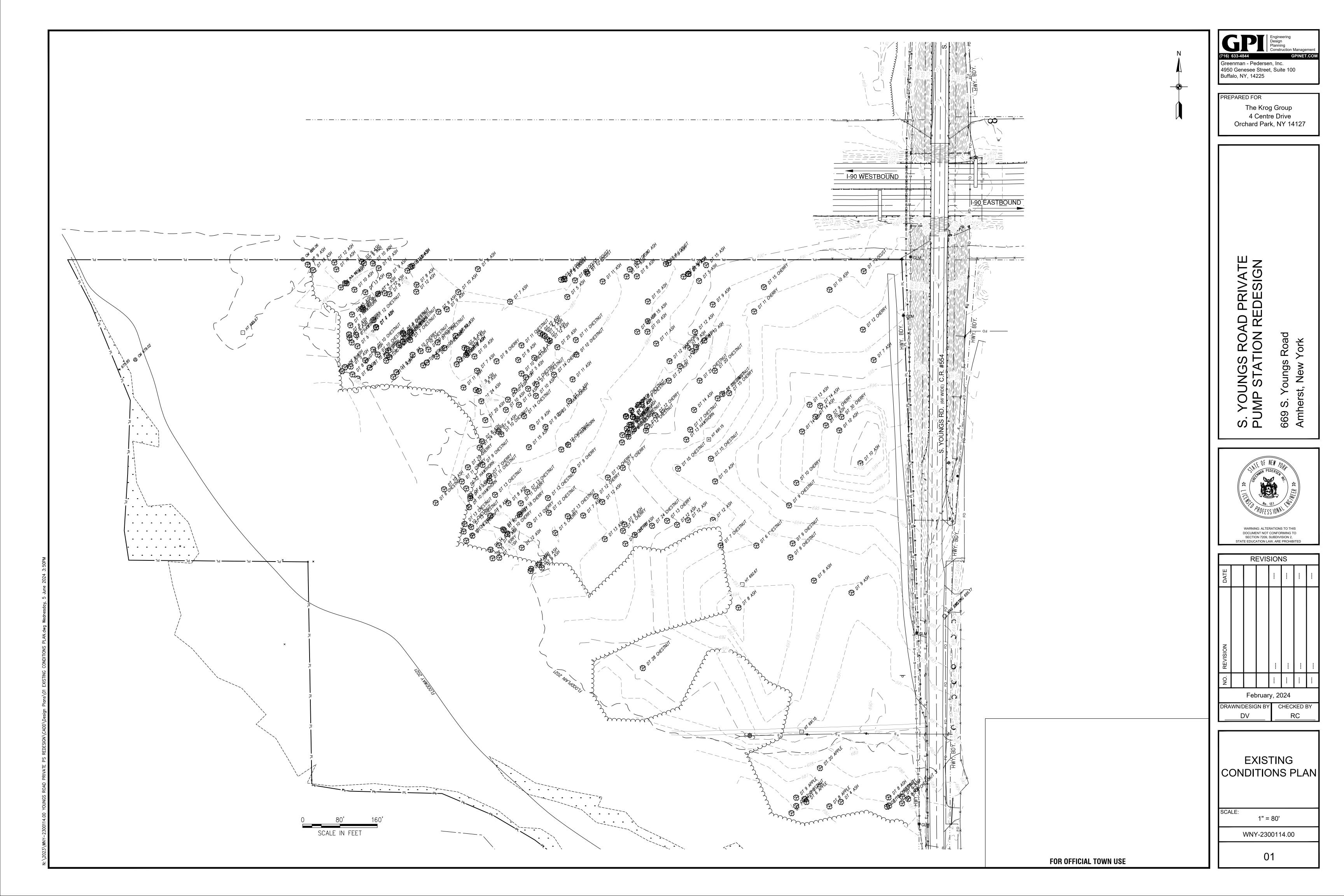
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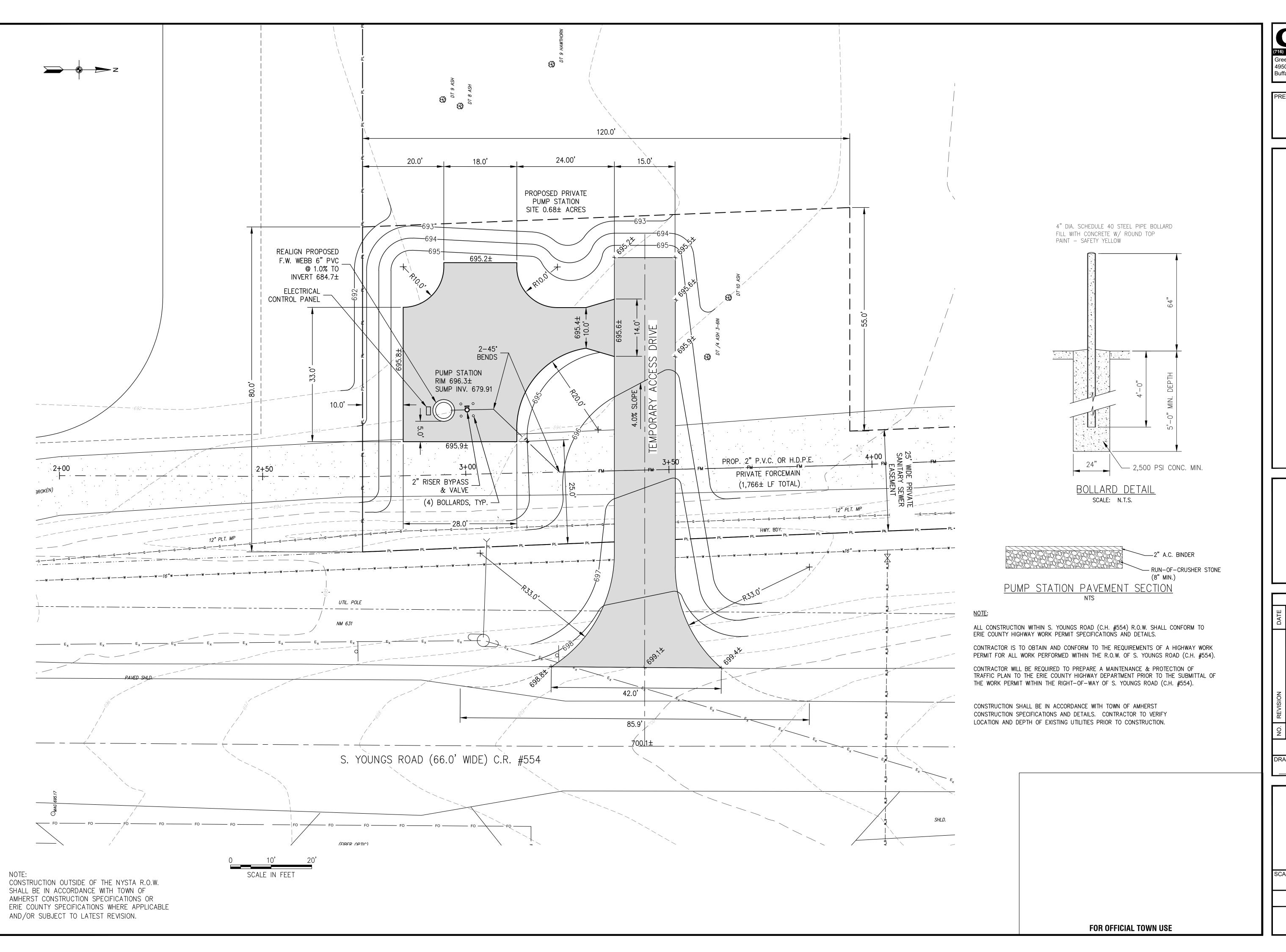
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Engineering Design Planning Construction Management (716) 633-4844 GPINET.CO

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Buffalo, NY, 14225

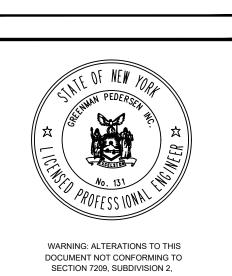
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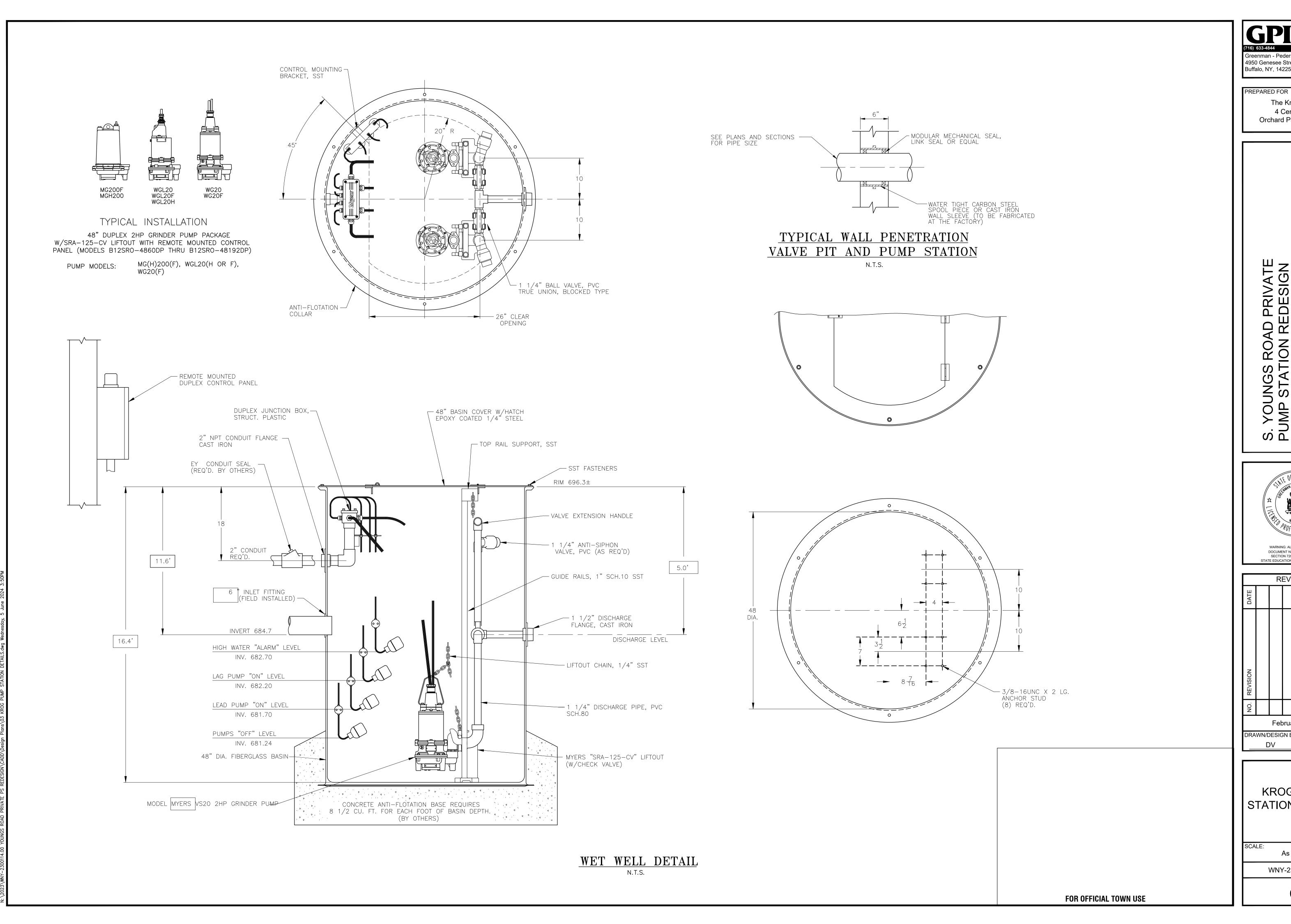
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KROG PUMP STATION SITE PLAN

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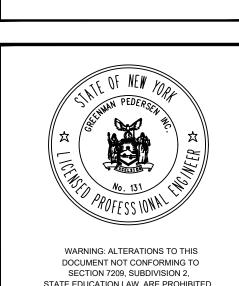
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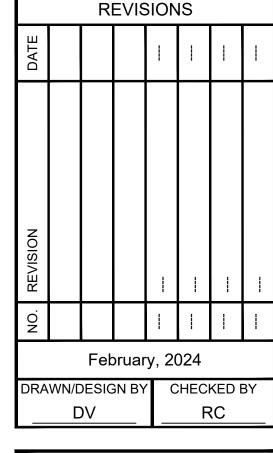


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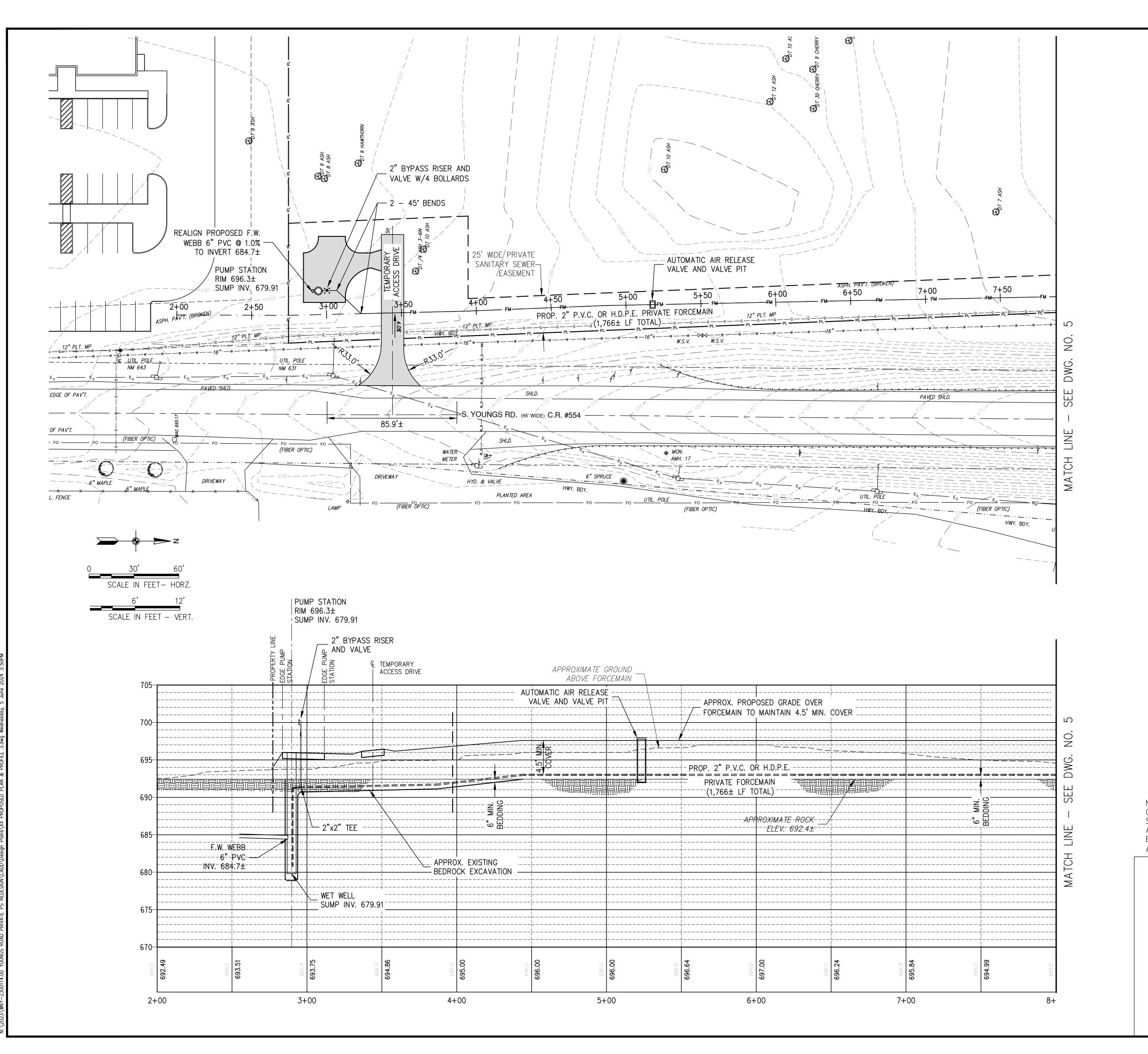


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FM BORING INSTALLATION NOTES:

- 1. THERE WILL BE A CREW WORKING WITHIN R.O.W.
- 2. THE DIRECTIONAL BORING MACHINE WILL BE LOCATED NEAR THE RIGHT OF WAY ON THE SOUTH SIDE. MAINTAIN A CLEAR ZONE OF 30 FEET FROM EDGE OF PAVEMENT. BORING IS TO PROCEED NORTH UNDER THE MAINLINE ROUTE 90. EXCAVATE THE TERMINUS OF THE BORE AND ATTACH THE 2" FORCEMAIN & 6" CASING PIPE AND PULL BACK THROUGH THE HOLE.
- 3. USING THE BACKHOE, EXCAVATE AND BURY THE FORCEMAIN FROM THE BORE TERMINUS TO THE NYSTA RIGHT OF WAY.

FM OPEN CUT INSTALLATION NOTES:

- 1. ALL TRENCHING, EXCAVATION AND BACKFILL SHALL CONFORM TO THE REQUIREMENTS OF THE LOCAL GOVERNING AUTHORITY.
- 2. SLOPE AS REQUIRED TO MAINTAIN STABILITY OF TRENCH WALL, OR PROVIDE SHEETING AND SHORING TO INSURE SAFETY OF PERSONNEL AND PROTECTION OF ADJACENT FACILITIES.
- 3. TRENCH EXCAVATIONS GREATER THAN FIVE FEET IN DEPTH SHALL BE ADEQUATELY SHORED PER OSHA STANDARDS.
- 4. SANITARY SEWER FORCEMAIN MARKING TAPE SHALL BE PLACED OVER ALL DIRECT BURIED FORCEMAINS.
- 5. CONTRACTOR TO PATCH AND REPAIR DAMAGED SURFACES EQUAL TO OR GREATER THAN CONDITIONS PRIOR TO CONSTRUCTION ACTIVITIES. ALL REPAIRS SHALL BE CONSTRUCTED PER THE CURRENT STANDARD CONSTRUCTION SPECIFICATIONS.
- 6. CONTRACTOR IS RESPONSIBLE FOR VERIFYING AND CALCULATING THE EXCAVATION QUANTITIES.
- 7. ROCK IS VERY SHALLOW AND VERY HARD. NO BLASTING SHALL BE ALLOWED.
- 8. CONTRACTOR TO SUPPLY NYSTA WITH PROPOSED EXCAVATION PLANS PRIOR TO ISSUANCE OF WORK PERMIT.
- 9. CONTRACTOR TO PRODUCE AND SUBMIT RECORD DRAWINGS WITHIN 30 DAYS OF COMPLETION OF INSTALLATION.

GENERAL NOTES:

- CONTRACTOR TO VERIFY ALL LOCATIONS OF UNDERGROUND UTILITIES, ESPECIALLY THE GS SECURE INTEGRATION FIBER OPTIC CABLE OWNED BY NYSTA.
- 2. CONTRACTOR TO BE SURE ALL COUNTY OF ERIE, TOWN OF AMHERST, NYSTA, ETC. PERMITS ARE IN HAND PRIOR TO ANY CONSTRUCTION.
- 3. CONTRACTOR TO OBEY ALL REGULATIONS CONCERNING WORK ON NYSTA PROPERTY AND ESPECIALLY ANY WORK OVER/UNDER LANES OF TRAFFIC. NYSTA TO BE NOTIFIED AND ALL TRAFFIC CONTROL IN PLACE PRIOR TO ANY CONSTRUCTION. CONTRACTOR SHALL FOLLOW ALL REQUIREMENTS SET FORTH IN CONTRACTOR TAP421 PUBLICATION SERIES "GUIDELINES FOR DESIGN AND CONSTRUCTION OF OCCUPANCIES".
- 4. UNDERGROUND LOCATION WILL BE CALLED 48 HOURS PRIOR TO THE START OF WORK, AND NO WORK WILL BE PERFORMED PRIOR TO EXISTING UTILITY STAKEOUT.

NOTE:
CONSTRUCTION OUTSIDE OF THE NYSTA R.O.W.
SHALL BE IN ACCORDANCE WITH TOWN OF
AMHERST CONSTRUCTION SPECIFICATIONS OR
ERIE COUNTY SPECIFICATIONS WHERE APPLICABLE
AND/OR SUBJECT TO LATEST REVISION.

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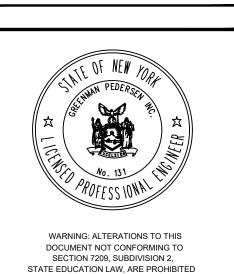
PREPARED FOR

The Krog Group

4 Centre Drive Orchard Park, NY 14127

YOUNGS ROAD PRIVATE JMP STATION REDESIGN

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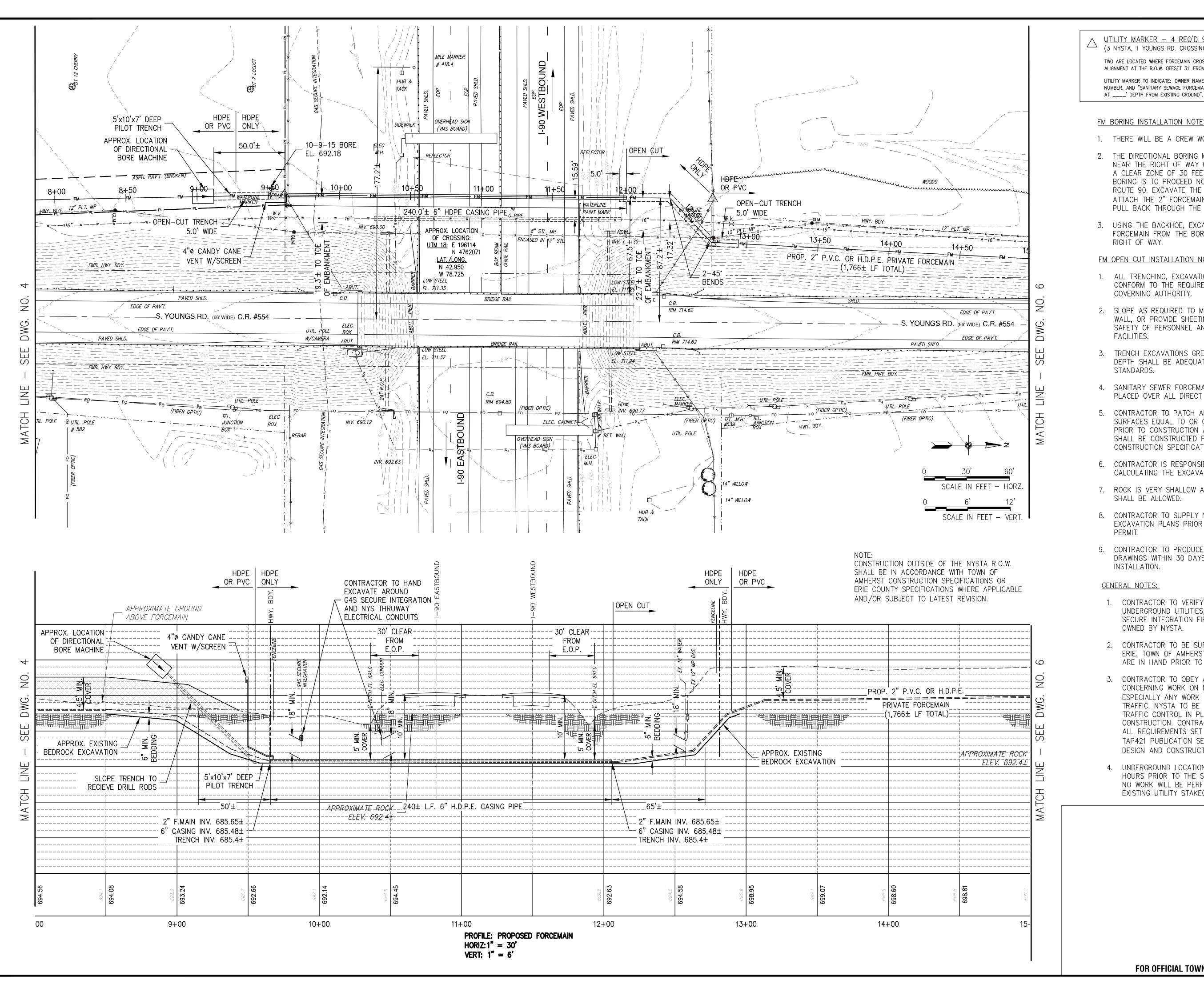
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<u>UTILITY MARKER - 4 REQ'D 9</u> (3 NYSTA, 1 YOUNGS RD. CROSSING)

TWO ARE LOCATED WHERE FORCEMAIN CROSSES THE R.O.W. AND ONE ON ALIGNMENT AT THE R.O.W. OFFSET 31' FROM 45' BEND ON NORTH SIDE. UTILITY MARKER TO INDICATE: OWNER NAME, CONTACT TELEPHONE NUMBER, AND "SANITARY SEWAGE FORCEMAIN UNDER 40 PSI PRESSURE

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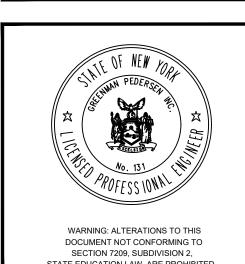


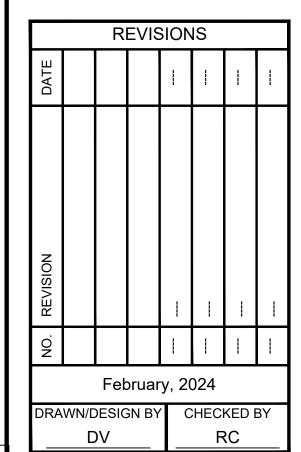
PREPARED FOR The Krog Group 4 Centre Drive

Orchard Park, NY 14127

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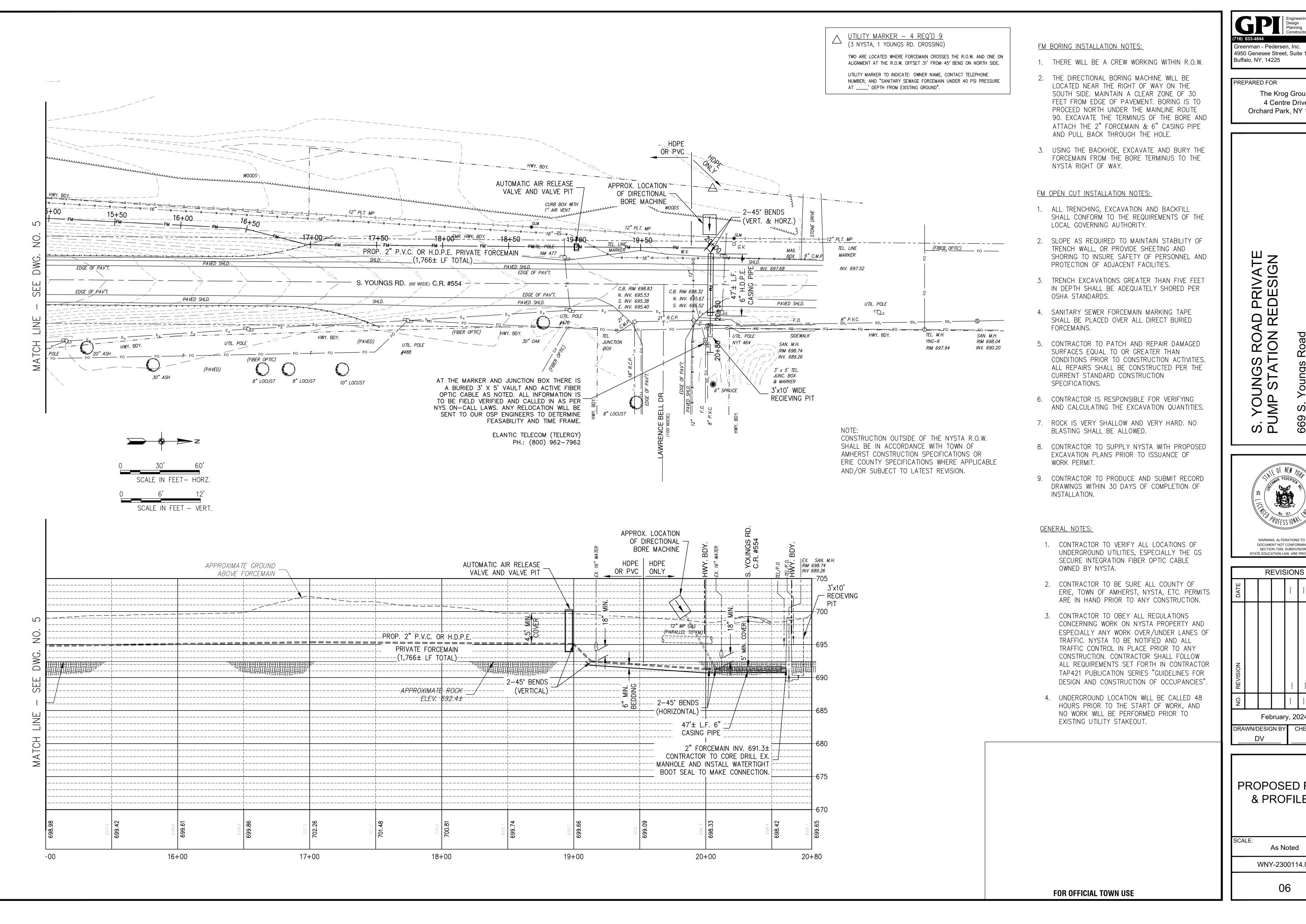


PROPOSED PLAN & PROFILE 2

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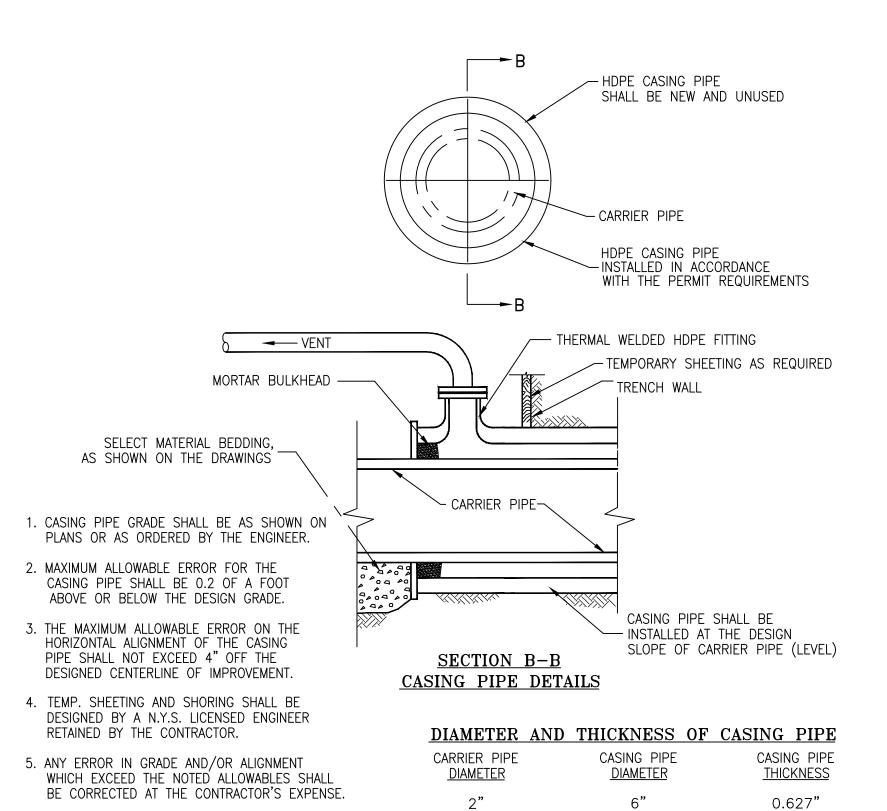


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PROPOSED PLAN & PROFILE 3

As Noted

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ROAD CROSSING BY DIRECTIONAL BORING METHOD 6" DIA. CARRIER PIPE N.T.S.

0.627"

THRUWAY (I-90) PIPE CROSSING DATA SHEET PIPE DATA

	PIPE DATA			
	<u>Carrier Pipe</u>	<u>Casing Pipe</u>		
Contents To Be Handled	Sewage	Carrier Pipe		
Normal Operating Pressure	200 - 0:	0 p.s.i.		
Normal Size of Pipe	ე"	6"		
O.S. Diameter	0.775"	6.90"		
I.S. Diameter	1 017"	5.570"		
Wall Thickness	0.216"	0.627"		
Weight Per Foot	0.64 lbs	3.340 lbs.		
Material	HDDE	HDPE		
Process of Manufacturer	Extrusion Molded	Extrusion Molded		
Specification	ASTM D-3035 (LABELED PE 36081 ISCO)	ASTM D-3035 (LABELED PE 36081 ISCO)		
Grade or Class	DD 11 DD160	DR 11 PR160		
Test Pressure	 160 p.s.i.	 160 p.s.i.		
Type of Joint	Butt-Fusion Welded	Butt-Fusion Welded		
Type of Coating	NONE	NONE		
Details of Cathodic Protection	NI /A	N/A		
Details of Seal or Protection at Ends of Casing	NI /A	Mortar Bulkhead		
Method of Installation		Directional Bore		
Character of Subsurface Material at the Crossing Location	N/A	*		
Approximate Ground Water Level	N/A	Water Table (6.0 Ft.)		
Source of Information on Subsurface Conditions Borings, Test Pits or Other	NI /A	NYSTA Ontario Section Sub-Div.13 Sheet No. 71 (Dated 10-12-52) Soil Survey of Erie County		

NOTE: Any soil investigation made on Thruway Authority property or adjacent to pavements shall be carried on under the supervision of New York State Thruway Authority Regional Traffic Engineer.

NEW YORK STATE THRUWAY (MILE MARKER 418.36)

* FAA — Farmington cherty loam, limestone bedrock is at a depth of 10 to 20 inches.

SOUTH YOUNGS ROAD PIPE CROSSING DATA SHEET

<u>PIPE DATA</u>

	<u>Carrier Pipe</u>	<u>Casing Pipe</u>
Contents To Be Handled	Sewage	Carrier Pipe
Normal Operating Pressure	200:	0 p.s.i.
Normal Size of Pipe	ე"	6"
O.S. Diameter	0.775"	6.90"
I.S. Diameter	1 017"	5.570"
Wall Thickness	0.216"	0.627"
Weight Per Foot	0.64 lbs	3.340 lbs.
Material	HDDE	HDPE
Process of Manufacturer	Extrusion Molded	Extrusion Molded
Specification	ASTM D-3035 (LABELED PE 36081 ISCO)	ASTM D-3035 (LABELED PE 36081 ISCO)
Grade or Class	DR 11 PR160	DR 11 PR160
Test Pressure	160 :	 160 p.s.i.
Type of Joint	Putt-Fusion Wolded	Butt-Fusion Welded
Type of Coating	NONE	NONE
Details of Cathodic Protection	NI /A	N/A
Details of Seal or Protection at Ends of Casing	NI /A	Mortar Bulkhead
Method of Installation	BACK DRAG	Directional Bore
Character of Subsurface Material at the Crossing Location	N/A	*
Approximate Ground Water Level	N/A	Water Table (6.0 Ft.)
Source of Information on Subsurface Conditions Borings, Test Pits or Other	N/A	NYSTA Ontario Section Sub-Div.13 Sheet No. 71 (Dated 10-12-52) Soil Survey of Erie County

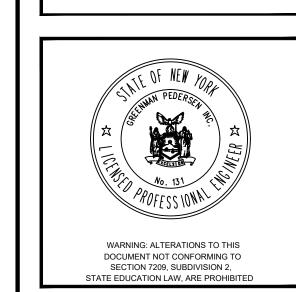
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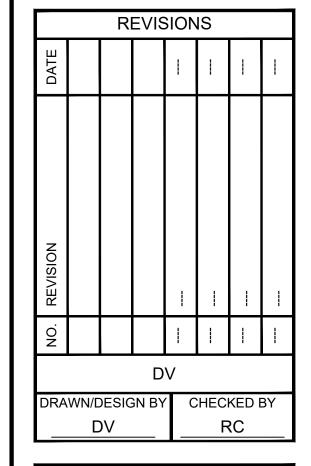
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PREPARED FOR The Krog Group 4 Centre Drive Orchard Park, NY 14127

> S. YOUNGS ROAD PRIVATE PUMP STATION REDESIGN Youngs | st, New)





FORCEMAIN CROSSING **DETAILS**

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GENERAL NOTES:

- 01. THE CONTRACTOR SHALL COMPLY WITH THE TOWN OF AMHERST STANDARD DRAWINGS AND SPECIFICATIONS.
- 02. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE PROJECT ENGINEER AND THE TOWN OF AMHERST ENG. DEPT. OF ANY HAZARDOUS SUBSTANCE ENCOUN-TERED DURING THE CONSTRUCTION OF THE WORK. HE SHALL AT HIS EXPENSE, CONFORM TO ALL LAWS, RULES, REGULATIONS AND DIRECTIONS AS PROMULGATED BY THE UNITED STATES DEPARTMENT OF LABOR, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, THE NEW YORK STATE DEPARTMENT OF HEALTH AND ANY SUCH LOCAL RULES, ORDINANCES AND LAWS WHEN ENCOUNTERING OR WORKING WITH ANY SUCH HAZARDOUS SUBSTANCE.
- 03. THE CONTRACTOR SHALL COMPLY IN ALL RESPECTS TO THE INDUSTRIAL CODE PART (RULE NO.) 53 RELATING TO CONSTRUCTION, EXCAVATION AND DEMOLITION OPERATIONS AT OR NEAR UNDERGROUND FACILITIES. AS ISSUED BY THE STATE OF NEW YORK DEPARTMENT OF LABOR, BOARD OF STANDARD AND
- 04. SINCE THE ERIE COUNTY WATER AUTHORITY OPERATES AND MAINTAINS THE EXISTING WATER LINES, THEY ARE TO BE NOTIFIED AT LEAST 48 HOURS IN ADVANCE OF THE START OF CONSTRUCTION. ALL EXISTING VALVES ARE TO BE OPERATED BY THE ERIE COUNTY WATER AUTHORITY PERSONNEL.
- 05. THE CONTRACTOR SHALL EXPOSE EXISTING UTILITIES AHEAD OF THE PIPE LAYING OPERATION, SO THAT, IF MINOR ADJUSTMENTS MUST BE MADE IN ELEVATION AND/OR ALIGNMENT DUE TO INTERFERENCE FROM THESE UTILITIES, SAID CHANGES CAN BE MADE IN ADVANCE OF THE WORK.
- 06. WHERE SUCH FACILITIES ARE UNDER THE SUPERVISION OF A PROFESSIONAL ENGINEER, HE SHALL CERTIFY TO THE ENGINEERING DEPARTMENT OF THE TOWN OF AMHERST THAT SAID FACILITIES AS CONSTRUCTED WERE SUPERVISED BY HIMSELF (HERSELF) AND THAT THE WORKS HAVE BEEN FULLY COMPLETED IN ACCORDANCE WITH THE APPROVED ENGINEERING REPORTS, PLANS, SPECIFICATIONS, CONTRACT DOCUMENTS AND ANY AND ALL ADDENDA TO SAME.
- 07. THE CONSTRUCTION OF THE FACILITIES SHALL BE UNDER THE SUPERVISION OF A PERSON OR FIRM QUALIFIED TO PRACTICE PROFESSIONAL ENGINEERING IN NEW YORK STATE UNDER THE EDUCATION LAW OF THE STATE, WHENEVER ENGINEERING SERVICES ARE REQUIRED BY SUCH LAW FOR SUCH PURPOSES.
- 08. A WRITTEN CERTIFICATE OF CONSTRUCTION COMPLIANCE, INCLUDING THE RESULTS OF HYDROSTATIC LEAKAGE TESTS, MADE BY THE PROFESSIONAL ENGINEER SUPERVISING THE CONSTRUCTION, SHALL BE SUBMITTED TO THE ERIE COUNTY DEPART. OF ENVIRONMENT PLANNING AND NEW YORK DEPARTMENT OF ENVIRONMENTAL CONSERVATION WITHIN THIRTY (30) DAYS AFTER CONSTRUCTION COMPLETION.
- 09. UNSUITABLE MATERIALS SUCH AS FROZEN ORGANIC AND/OR VEGETABLE MATERIAL, DEBRIS, TREES, LUMBER, LARGE STONES OR CLODS (6.0" OR LARGER), MUCK, PEAT, ORGANIC SILT WILL NOT BE ACCEPTABLE FILL AND CERTAIN MAN-MADE DEPOSITS OF INDUSTRIAL WASTE, SLUDGE OR LANDFILL MAY ALSO BE DETERMINED AS UNSUITABLE HAZARDOUS MATERIAL.
- 10. THE COMPACTION OF ALL MATERIALS WILL OCCUR AT 6" INCREMENTS.
- 11. VERIFICATION OF ALL EXISTING EASEMENTS IS THE RESPONSIBILITY OF THE DESIGN ENGINEER AND THEY MUST BE SHOWN ALONG WITH ALL PROPOSED EASEMENTS ON PLAN DRAWINGS.
- 12. SHOULD A FLUID CONDITION BE ENCOUNTERED AT THE TRENCH BOTTOM, THE CONTRACTOR IS TO INSTALL ADDITIONAL STONE CRADLE AS ORDERED BY THE
- 13. ALL PIPE CROSSING UNDER PAVED AREAS ARE TO BE BACKFILLED TO SUBGRADE WITH COMPACTED SELECT MATERIAL TO FIVE (5) FEET OUTSIDE
- 14. THE CONTRACTOR SHALL RETAIN THE SERVICES OF A QUALIFIED TREE EXPERT TO REMOVE, WHERE NECESSARY, BRANCHES WHICH INTERFERE WITH THE CONSTRUCTION OPERATION. OR REPAIR TREES HAVING SUFFERED DAMAGE BY CONSTRUCTION ACTIVITIES. THE COST INVOLVED IN THE ABOVE IS TO BE INCLUDED IN THE VARIOUS ITEMS OF THE CONTRACT.
- 15. SEWERS SHALL BE LAID AT LEAST TEN (10) FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED WATERMAIN. THE DISTANCE SHALL BE MEASURED EDGE TO EDGE. IN CASES WHERE IT IS NOT PRACTICAL TO MAINTAIN A TEN FOOT SEPARATION. THE APPROPRIATE REVIEWING AGENCY MAY ALLOW DEVIATION ON A CASE-BY-CASE BASIS, IF SUPPORTED BY DATA FROM THE DESIGN ENGINEER. SUCH DEVIATION MAY ALLOW INSTALLATION OF THE SEWER CLOSER TO A WATERMAIN, PROVIDED THAT THE WATERMAIN IS IN A SEPARATE TRENCH OR ON AN UNDISTURBED EARTH SHELF LOCATED ON ONE SIDE OF THE SEWER AND AT AN ELEVATION SO THE BOTTOM OF THE WATERMAIN IS AT LEAST 18" (46CM) ABOVE THE TOP OF THE SEWER.
- 16. SEWERS CROSSING WATERMAINS SHALL BE LAID TO PROVIDE MINIMUM VERTICAL DISTANCE OF 18" (46CM) BETWEEN THE OUTSIDE OF A WATERMAIN AND THE OUTSIDE OF THE SEWER. THIS SHALL BE THE CASE WHERE THE WATERMAIN IS EITHER ABOVE OR BELOW THE SEWER. THE CROSSING SHALL BE ARRANGED SO THAT THE SEWER JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE WATERMAIN JOINTS. WHERE A WATERMAIN CROSSES UNDER A SEWER, ADEQUATE STRUCTURAL SUPPORT SHALL BE PROVIDED FOR THE SEWER, TO PREVENT DAMAGE TO THE WATERMAIN.
- 17. WHEN IT IS IMPOSSIBLE TO OBTAIN PROPER HORIZONTAL AND VERTICAL SEPARATION AS STIPULATED ABOVE, THE SEWER SHALL BE DESIGNED AND CONSTRUCTED FOUAL TO WATER PIPE AND SHALL BE PRESSURE TESTED AS TO ASSURE WATERTIGHTNESS PRIOR TO BACKFILLING.
- 18. THE PIPE SHALL BE P.V.C. SEWER PIPE CONFORMING TO THE LATEST REVISIONS OF ASTM DESIGNATION D-3034, SDR-35, INSTALLED IN ACCORDANCE WITH ASTM.
- 19. THE MANHOLE COVERS ARE TO BEAR THE INSCRIPTION "AMHERST SANITARY".

SANITARY SEWER TESTING METHODS **GENERAL NOTES**

(A) <u>LEAKAGE TESTS</u>

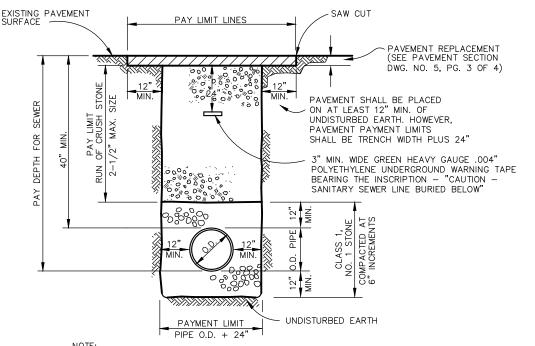
- 01. THE TEST PERIOD WHEREIN THE MEASUREMENTS ARE TAKEN SHALL
- 02. THE TOTAL LEAKAGE OF ANY SECTION TESTED BY ANY TEST METHOD SHALL NOT EXCEED THE RATE OF 200 GALLONS PER MILE
- 03. MANHOLES SHALL BE CONSIDERED AS SECTIONS OF 48" DIAMETER PIPE AND THE EQUIVALENT LEAKAGE ALLOWANCE SHALL BE COMPUTED PER NOTE 02 USING THE SUBMERGED HEIGHT OF
- SHALL BE PLUGGED AND THE TEST PROCEDURES AND CRITERIA SHALL BE APPLIED IN THE SAME MANNER AS FOR TESTS INVOLVING ONLY THE PIPE OR A COMBINATION OF PIPE AND

- 01. THIS TEST METHOD MAY ONLY BE USED WHEN GROUND WATER LEVELS ARE AT LEAST TWO (2) FEET ABOVE THE TOP OF THE PIPE FOR THE ENTIRE LENGTH OF THE SECTION TO BE TESTED DURING THE ENTIRE PERIOD OF THE TESTS.
- IN STANDPIPES PREVIOUSLY PLACED IN BACKFILLED TRENCHES
- 03. THE NUMBER OF STANDPIPES REQUIRED AND LOCATION OF THE SAME ARE TO BE AS ORDERED BY THE ENGINEER. STANDPIPES (2-1/2" MINIMUM) AS TO PERMIT THE INSERTION OF A RULE OR LEVEL ROD. CRUSHED STONE SHALL BE PLACED AROUND THE
- 02. IN THIS TEST THE PIPE LINE MUST BE FILLED WITH WATER AND ALLOWED TO REMAIN SO FILLED FOR AT LEAST 24 HOURS PRIOR TO TAKING MEASUREMENTS.
- 04. REGARDING THE TEST STANDPIPE: THERE MUST BE SOME POSITIVE METHOD OF RELEASING ENTRAPPED AIR IN THE SEWER

02. NO PIPE SHALL EXCEED DEFLECTION OF 5%. DEFLECTION GAGE MAY BE BORROWED FROM THE TOWN ENGINEER FOR 8" AND 10" OF PLACEMENT OF FINAL BACKFILL. THE TEST WILL ALSO BE DONE WITHOUT MECHANICAL PULLING DEVICES.

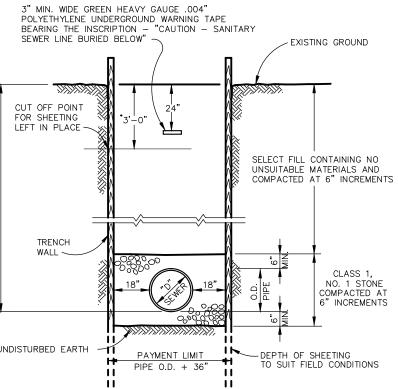
TYPICAL TRENCH DETAIL - PAVEMENT CROSSING FOR MAIN SEWERS

& HOUSE AND BUILDING CONNECTIONS



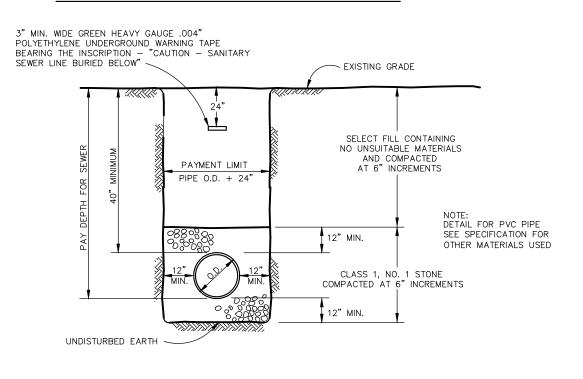
IF CONCRETE ENCASEMENT IS REQUIRED, IT SHALL BE INSTALLED IN

SHEETED TRENCH DETAIL



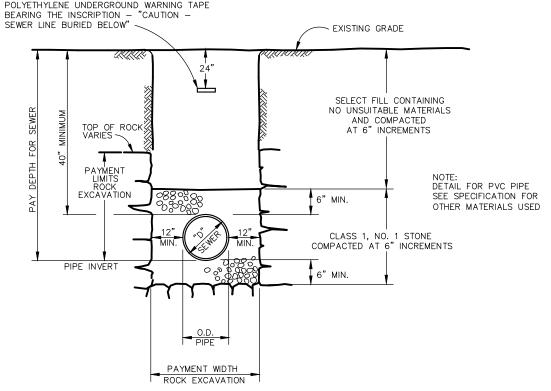
TYPICAL EARTH TRENCH DETAIL UNPAVED AND UNTRAVELED AREAS

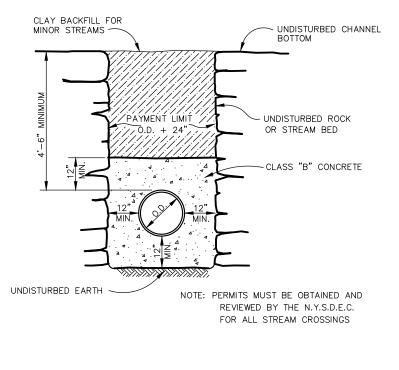
UNDISTURBED EARTH

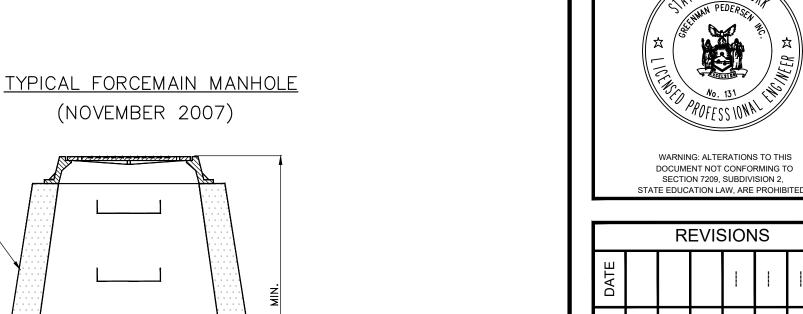


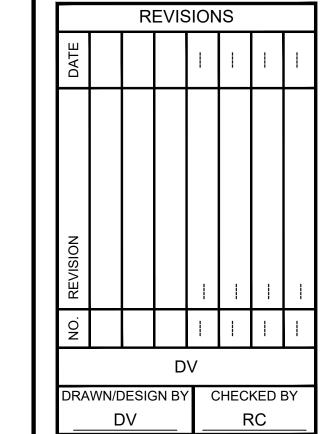
TYPICAL ROCK TRENCH DETAIL

-HEAVY-DUTY FRAME AND COVER WITH







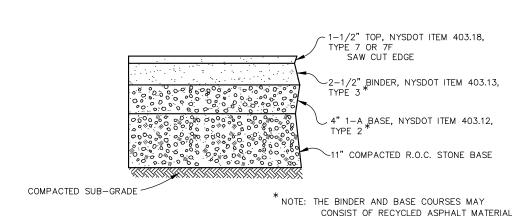


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FORCEMAIN **DETAILS**

WNY-2300114.00

TYPICAL PAVEMENT SECTION



MACHINED BEARING SURFACE (TYPE "A")
WITH INSCRIPTION "TOWN OF AMHERST SANITARY" FINISHED GRADE -MANHOLE GRADE RINGS AS REQUIRED (12" MAX.) EXISTING GRADE -PRECAST REINFORCED CONCRETE ROOF SLAB CL52 DUCTILE IRON 48" HIGH X 60" INSIDE DIA. PRECAST REINFORCED MECHANICAL JOINT PIPE CONCRETE BASE WITH "O" RING GASKET - SEWAGE AIR-RELEASE VALVE, VALVE SHALL BE VERTICAL AND SECURELY FASTENED TO STRUCTURE. STAINLESS STEEL BRACKET, STAND-OFF DISTANCE SHALL BE ENOUGH SO AS TO ALLOW VALVE TO MAKE A FULL 360° ROTATION (FOR DISASSEMBLY). SHUT-OFF AND BLOW-OFF VALVES SHALL BE ORIENTED 1/2" TAP WITH SCH. 80 TO ALLOW FOR THE GREATEST POSSIBLE ACCESSIBILITY. PÍPE AND BALL VALVE FOR PRESSURE GUAGE CONNECTION TO PIPE MAIN TO BE LOCATED AT THE SEE STD DETAIL 47-HIGH POINT AND SIZED BY DESIGN ENGINEER DUCTILE IRON MECHANICAL JOINT TAPPED TEE DUCTILE IRON MECHANICAL JOINT TAPPED TEE WITH WITH MEGALUG RESTRAINT JOINT. MEGALUG RESTRAINT JOINT-NON-SHRINK GROUT PVC FORCE MAIN DRAIN W/SLOTTED COVER -CONTRACTOR AT HIS OPTION MAY EITHER ORDER MANHOLE BASES WITH FACTORY INSTALLED INLET HOLES AND APPROVED WATERTIGHT BARRIERS OR INSTALL OPENINGS IN FIELD. IF OPENINGS ARE CORE DRILLED IN FIELD, THE DIAMETER SHALL BE 2" LARGER THAN OUTSIDE DIAMETER OF PIPE AND THE APPROVED WATERTIGHT BARRIERS SHALL BE INSTALLED. 12" MIN. CLASS 1, NO. 1 STONE - THRUST BLOCK AND HAIRPIN TIE. PROVIDE GRAVITY DRAINAGE WITH 4" DIA. PVC PIPE AND TRAP WITH VENT. DISCHARGE TO SANITARY SEWER OR AS ORDERED BY ENGINEER.

NOT BE LESS THAN 24 HOURS, REGARDLESS OF THE TEST METHOD

OF PIPE PER 24 HOURS PER INCH OF NOMINAL PIPE DIAMETER.

MANHOLE AS THE LENGTH. 04. WHEN MANHOLES ARE TESTED SEPARATELY, ALL PIPE OPENINGS

(B) <u>INFILTRATION TEST</u> CRITERIA FOR USE

- 02. GROUND WATER LEVELS MAY BE MEASURED IN AN OPEN TRENCH OR DURING BACKFILLING.
- MAY BE OF ANY PIPE MATERIAL BUT MUST BE OF SUCH DIAMETER LOWER OPEN ENDS OF THE STANDPIPES.
- 04. STANDPIPES ARE TO BE REMOVED AT THE SATISFACTORY COMPLETION OF THE TESTS.
- 05. IF IN LIEU OF STANDPIPES, THE TRENCH IS TO BE LEFT OPEN FOR GROUND WATER OBSERVATION, THE LENGTH OF UNBACKFILLED TRENCH AT ANY ONE TIME MAY HAVE TO BE LIMITED FOR REASONS OF SAFETY.

(C) <u>EXFILTRATION TEST</u> CRITERIA FOR USE

- 01. THIS TEST CONSISTS OF FILLING THE PIPE WITH WATER TO PROVIDE A HEAD OF AT LEAST TWO (2) FEET ABOVE THE TOP OF THE PIPE OR ABOVE GROUND WATER WHICHEVER IS HIGHER AT THE HIGHEST POINT OF THE PIPE LINE UNDER TEST, AND THEN MEASURING THE LOSS OF WATER TO MAINTAIN THE ORIGINAL LEVEL
- 03. REGARDING GROUND WATER MEASUREMENTS: SEE NOTES 02 THROUGH 05 ABOVE.
- PRIOR TO TAKING MEASUREMENTS.

(D) <u>DEFLECTION TEST FOR PVC SEWER PIPE</u>

- 01. DEFLECTION TESTS SHALL BE PERFORMED ON ALL FLEXIBLE GRAVITY SEWER PIPE. TESTS SHALL BE CONDUCTED AFTER THE FINAL BACKFILL HAS BEEN IN PLACE FOR AT LEAST 30 DAYS.
- PIPE. THE DEFLECTION TEST MUST BE EXECUTED AFTER 30 DAYS

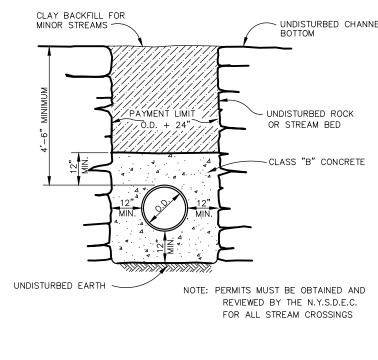
UNDISTURBED EARTH

NOTE: TO 12" MIN. ABOVE AND BELOW THE PIPE (SEE WATER CROSSING DETAIL)

6" MIN. WIDE GREEN HEAVY GAUGE .004"

WHERE THE CONTRACTOR EXCAVATES BEYOND THE PAY LIMITS SHOWN: SELECT FILL AND PAVEMENT, SIDEWALK & DRIVEWAY REPLACEMENT OUTSIDE THE PAY LIMITS SHALL BE FURNISHED AND PLACED AT THE CONTRACTOR'S EXPENSE. (TYP.)

CONCRETE ENCASED STREAM CASING



SEWER AIR RELEASE VALVE AND MANHOLE

MIRAFI 500X OR APPROVED EQUAL FILTER FABRIC -

STD. PRE-CAST

_ DUCTILE IRON PIPE LINK SEAL WITH NON SHRINK-INSIDE & OUT WITH GROUT OR PIPE BOOT CAST MECHANICAL JOINTS INTO MANHOLE STRUCTURE SERIES 2000 MEGALUG RETAINER GLAND (EBAA IRON INC. OR EQUAL) FLANGE PLUG — FITTING FORCEMAIN (PVC C-900 DR-18) MECH. JOINTS → DISCHARGE TO WEAR -DUCTILE IRON -SPACERS & STRAPPING AS RESISTANT SURFACE 45° BEND PER INSIDE DROP PIPE DETAIL (EG. PVC PIPE)

OUT FLOW → IN FLOW 0 0 0 0 0 0 0 0 0 0

─ 6" CLASS 1, NO. 1 STONE

PAY DEPTH FOR SELECT FILI CONTAINING NO UNSUITABL MATERIALS AND COMPACTED AT 6" INCREMENTS EXISTING WATER MAIN

WATER CROSSING DETAIL

CLEARANCE LESS THAN 18

3" MIN. WIDE BLUE HEAVY GAUGE .004"

WATER LINE BURIED BELOW" -

POLYETHYLENE UNDERGROUND WARNING TAPE BEARING THE INSCRIPTION — "CAUTION —

NOTE: CONCRETE ENCASEMENT SHALL EXTEND TWO FEET IN EITHER DIRECTION (PERPENDICULAR TO WATERMAIN) FROM OUTSIDE DIAMETER OF WATERMAIN.

- EXISTING GROUND

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Greenman - Pedersen, Inc.

Buffalo, NY, 14225

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The Krog Group

4 Centre Drive

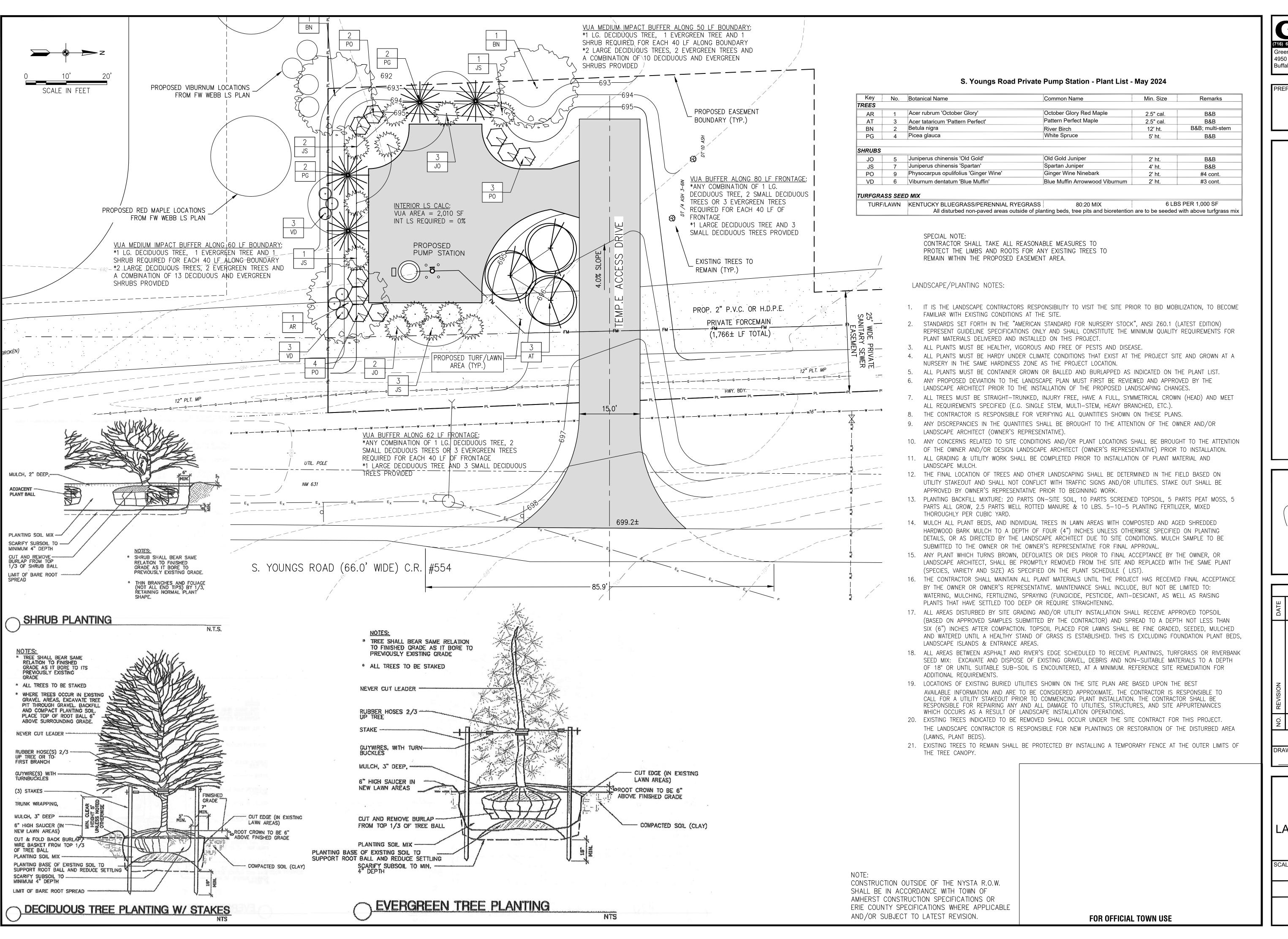
Orchard Park, NY 14127

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As Noted



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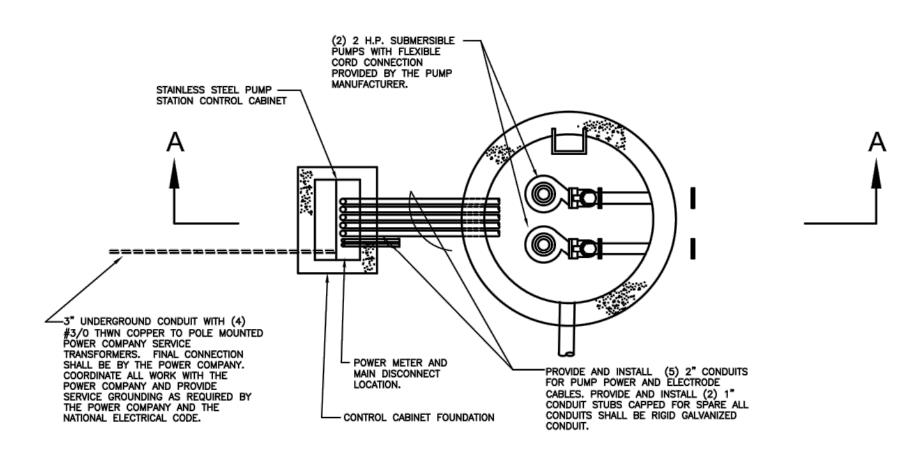


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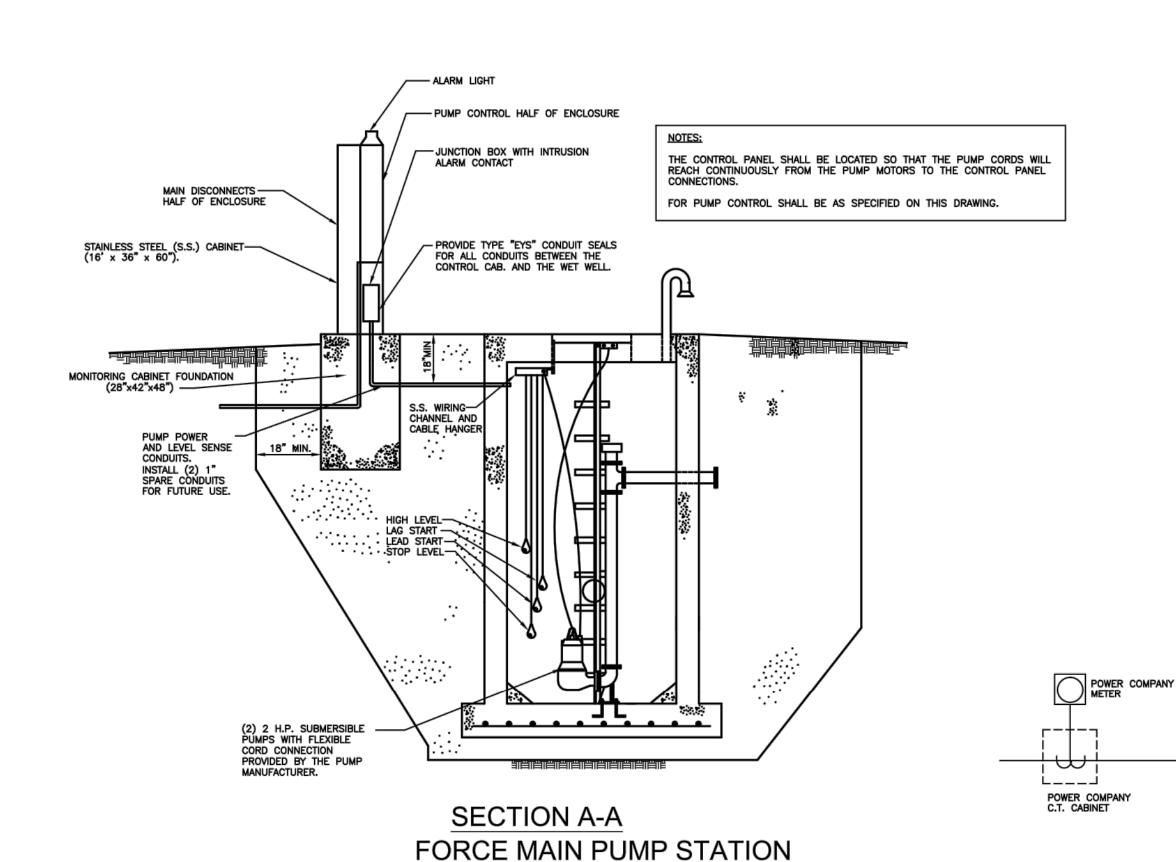
KROG PUMP STATION
LANDSCAPE PLAN

As Noted
WNY-2300114.00

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FORCE MAIN PUMP STATION **TOP VIEW**



FRONT VIEW

MANUAL TRANSFER SWITCH AND RECEPTACLE FOR PORTABLE GENERATOR IS TO BE PROVIDED AS REQUIRED TO MATCH EXISTING TOWN OF AMHERST GENERATOR CONNECTOR.

200A, 3P MANUAL TRANSFER SWITCH

DISCONNECT

200A

POWER RISER DIAGRAM

ELECTRICAL SERVICE REQUIREMENTS

- . ELECTRIC SERVICE SHALL BE PROVIDED COMPLETE AS NOTED ON THE DRAWINGS. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR COORDINATION WITH THE POWER COMPANY AND FOR PAYING ALL ASSOCIATED POWER COMPANY CHARGES TO PROVIDE SERVICE TO THE
- 2. THE UNDERGROUND SERVICE CONDUIT SHALL BE INSTALLED A MINIMUM OF 24" BELOW GRADE, AND SHALL BE PVC SCHEDULE 80 ELECTRICAL
- 3. ELECTRIC SERVICE DISCONNECTS AND METERING CONNECTIONS SHALL BE AS APPROVED BY THE POWER COMPANY AND SHALL BE SUBMITTED AND REVIEWED WITH THE POWER COMPANY PRIOR TO INSTALLATION WORK.
- SERVICE EQUIPMENT INTERRUPTING RATING SHALL BE AS APPROVED BY THE POWER COMPANY.
- 5. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATION BETWEEN THE PUMP EQUIPMENT SUPPLIER AND THE ELECTRICAL CONTRACTOR TO ASSURE THAT THE EQUIPMENT MATCHES THE ELECTRICAL SERVICE
- 6. ALL ELECTRICAL EQUIPMENT AND INSTALLATION LOCATED IN THE WET WELL SHALL BE RATED FOR CLASS I, DIVISION II, GROUP C AND D LOCATIONS AS REQUIRED BY THE NFPA, NATIONAL ELECTRICAL CODE.

PUMP CONTROLS SHALL HAVE THE FOLLOWING FEATURES:

- 1. IEC HOURSEPOWER RATED MOTOR STARTERS WITH 3-POLE AMBIENT COMPENSATED BI-METALIC OVERLOAD RELAY RATED AT OVER 1 MILLION
- PUMP CONTROL SYSTEM SHALL BE DESIGNED FOR USE WITH INTRINSICALLY SAFE SYSTEM.
- SOLID STATE ALTERNATOR RELAY TO EQUALIZE PUMP WEAR. PROVIDE WITH A HAND-OFF-AUTO CONTROL FOR BOTH PUMPS. ALL INDICATOR LIGHTS SHALL BE L.E.D. LIGHT SOURCE.
- 4. OVERRIDE RELAY STARTS SECOND PUMP IF THE FIRST PUMP FAILS FOR
- FULL INNER DOOR WITH TAMPER-PROOF DEAD FRONT. PROVIDE ENGRAVED TAGS FOR ALL SWITCHES AND INDICATOR LIGHTS.
- 6. OUTDOOR NEMA 4X ENCLOSURES OF STAINLESS STEEL.
- UL-APPROVED DESIGNS WITH THE UNIT SO LABELED.
- 8. INDIVIDUAL PUMP CIRCUIT BREAKERS.
- CONTROL CIRCUIT TRANSFORMER WITH PRIMARY FUSING.
- 10. SEPARATE CONTROL AND ALARM CIRCUIT FUSES.
- 11. ELAPSED RUN TIME METERS FOR EACH PUMP.
- 12. THERMOSTATICALLY CONTROLLED CONDENSATION CONTROL HEATER MOUNTED WITHIN THE CONTROL PANEL.
- 13. ONE CONVENIENCE G.F.I. TYPE DUPLEX OUTLET MOUNTED WITHIN THE
- 14. SURGE PROTECTIVE DEVICE SHALL BE AS MANUFACTURED BY EATON/CUTLER-HAMMER TYPE "AEGIS" OR APPROVED EQUAL. MODEL #SPD080-240H-3-P WITH SURGE COUNTER TO BE MOUNTED INSIDE

-CIRCUIT BREAKERS

PROVIDED AS AN INTEGRAL PART OF THE CONTROL PANEL. SEPARATE POWER PANEL NOT REQUIRED.

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- CONTROL ENCLOSURE. HIGH LEVEL ALARM LIGHT.
- 16 SEAL FAILURE DETECTION CIRCUIT AND ALARM LIGHT.

ELECTRICAL SPECIFICATIONS

- GENERAL
 - A. ALL ELECTRICAL WORK IS SUBJECT TO THE GENERAL REQUIREMENTS OF THE

A. IT IS THE INTENT OF THESE SPECIFICATIONS THAT THE ELECTRICAL CONTRACTOR SHALL FURNISH ALL NECESSARY LABOR, MATERIALS, SUPPLIES, EQUIPMENT, TRANSPORTATION, ETC., REQUIRED TO PLACE INTO SATISFACTORY OPERATION THE SYSTEMS DESCRIBED. THE ACCOMPANYING DRAWINGS AND THESE SPECIFICATIONS ARE SCHEMATIC ONLY. THE ELECTRICAL CONTRACTOR SHALL BE REQUIRED TO INSTALL SYSTEMS IN THE BEST WORKMANSHIP MANNER, AND EQUAL

3. LAWS, CODES, PERMITS AND INSPECTIONS

- A. ALL WORK SHALL BE PERFORMED IN COMPLIANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES AND ORDINANCES, AS WELL AS THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE INCLUDING SUBSEQUENT AMENDMENTS.
- B. AT THE COMPLETION OF THE WORK, THE ELECTRICAL CONTRACTOR SHALL DELIVER TO THE OWNER A CERTIFICATE OF INSPECTION AND ACCEPTANCE OF THE WORK BY THE LOCAL INSPECTION AUTHORITY. A COPY OF THIS DOCUMENT SHALL BE FORWARDED TO THE ARCHITECT AND ENGINEER.

4. EXAMINATION OF PREMISES AND SITE

IN SUBMITTING PROPOSALS FOR THIS WORK, EACH BIDDER WILL BE HELD RESPONSIBLE FOR HAVING PREVIOUSLY EXAMINED THE SITE AND/OR PREMISES AND SATISFIED HIMSELF AS TO THE CONDITIONS UNDER WHICH HE WILL BE OBLIGED TO OPERATE, SHOULD HE BE AWARDED THE CONTRACT TO PERFORM THE WORK. NO EXTRA COMPENSATION WILL BE ALLOWED WHERE NEW WORK IS EFFECTED BY EXISTING JOB SITE CONDITIONS EFFECTED BY EXISTING JOB SITE CONDITIONS.

5. ELECTRICAL SERVICE REQUIREMENTS

- A. ELECTRICAL SERVICE SHALL BE PROVIDED AS NOTED ON THE DRAWINGS. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR COORDINATION WITH THE POWER COMPANY AND FOR PAYING ALL ASSOCIATED POWER COMPANY FEES. ELECTRIC SERVICE DISCONNECT AND METERING EQUIPMENT SHALL BE AS APPROVED BY THE POWER COMPANY PRIOR TO INSTALLATION.
- B. ELECTRIC SERVICE CHARACTERISTICS SHALL BE 208Y/120 VOLTS, THREE PHASE, 4—WIRE, 200 AMP MAIN. SERVICE RATED FUSED DISCONNECT SHALL BE MOUNTED ON THE SIDE OF THE CONTROL PANEL. THE DISCONNECT SWITCH SHALL BE NEMA 4X STAINLESS STEEL ENCLOSED.
- 6. TRANSIENT VOLTAGE SURGE SUPPRESSION GENERAL
- A. CRITICAL LOAD FILTER SHALL BE CUTLER-HAMMER TYPE AEGIS OR APPROVED EQUAL MEETING ALL RATINGS AND FEATURES SPECIFIED
- B. ELECTRICAL REQUIREMENTS
- 1. UNIT OPERATING VOLTAGE: REFER TO DRAWINGS FOR OPERATING VOLTAGE AND UNIT CONFIGURATION
- 2. MAXIMUM CONTINUOUS OPERATING VOLTAGE (MCOV). THE MCOV SHALL BE GREATER THAN 125% OF THE NOMINAL SYSTEM OPERATING VOLTAGE
- 3. PROTECTION MODES. FOR THREE-PHASE HIGH LEG DELTA CONFIGURED SYSTEMS, THE DEVICE MUST HAVE DIRECTLY CONNECTED SUPPRESSION ELEMENTS BETWEEN LINE-NEUTRAL (L-N), LINE-GROUND (L-G), AND NEUTRAL-GROUND (N-G)
- 4. UL 1449 2ND EDITION SVRS. THE MANUFACTURER MUST PROVIDE CERTIFIED DOCUMENTATION ON ALL PROTECTED MODES. THE MAXIMUM UL 1449 2ND EDITION SVR FOR THE DEVICE MUST NOT EXCEED THE 330 V FOR EACH LINE TO NEUTRAL, LINE TO GROUND AND NEUTRAL TO GROUND MODES

BE ACCEPTED

- 1. EACH UNIT SHALL UTILIZE A TUNED, SERIES-HYBRID CLC FILTERING CIRCUIT COUPLED WITH METAL OXIDE VARISTOR ARRAY BETWEEN EACH AVAILABLE MODE. IN ADDITION TO SERIES INDUCTOR ELEMENTS, THE UNIT SHALL BE MOUNTED IN SERIES WITH THE DOWNSTREAM LOAD. DEVICES WITHOUT SERIES INDUCTOR ELEMENTS DESIGNED TO MEET THE REQUIRED NOISE ATTENUATION SPECIFICATIONS SHALL NOT
- 2. THE SUPPRESSION SYSTEM SHALL NOT UTILIZE SILICON AVALANCHE DIODES, AIR GAPS OR OTHER COMPONENTS THAT MAY CROWBAR THE SYSTEM VOLTAGE LEADING
- TO SYSTEM UPSET D. SAFETY AND DIAGNOSTIC MONITORING
- 1. AN INDICATOR LIGHT SHALL BE PROVIDED ON EACH UNIT. THE EXTINGUISHING OF THIS LIGHT, SHALL INDICATE THE PROTECTION SYSTEM HAS BEEN DAMAGED 7. ALARMS
 - PROVIDE THE FOLLOWING TERMINAL STRIP ALARMS FOR CONNECTION TO FUTURE RADIO TELEMETRY EQUIPMENT.
 - (1)POWER FAILURE
 (2)PUMP #1 FAILURE
 (3)PUMP #2 FAILURE
 (4)PUMP #1 SEAL FAILURE
 (5)PUMP #2 SEAL FAILURE
 (6)HIGH WET WELL (7)HIGH WET WELL

A. THE CONTRACTOR SHALL GIVE A WRITTEN GUARANTEE UPON FINAL ACCEPTANCE OF THE WORK AGAINST DEFECTIVE WORKMANSHIP, MATERIALS, OR OPERATION THAT MAY APPEAR WITHIN ONE (1) YEAR OF FINAL ACCEPTANCE BY THE OWNER. THE CONTRACTOR AGREES TO PROMPTLY CORRECT SUCH DEFECTS WITHOUT COST TO THE OWNER, ARCHITECT, OR ENGINEER.

9. SCHEDULE OF OPERATIONS

A. THE CONTRACTOR SHALL DO ALL WORK ON AN APPROVED SCHEDULE AND IN A MANNER THAT WILL AVOID UNDUE INTERFERENCE WITH OTHER CONTRACTORS ON THIS PROJECT.

SUPERVISION

- THE CONTRACTOR SHALL PERSONALLY SUPERVISE THE WORK OR DELEGATE THE RESPONSIBILITY TO A COMPETENT SUPERINTENDENT WHOSE QUALIFICATIONS ARE ACCEPTABLE TO THE OWNER, ARCHITECT, AND ENGINEER. 11. EQUIPMENT AND MATERIALS
- A. ALL EQUIPMENT AND MATERIALS FURNISHED UNDER THIS CONTRACT SHALL BE NEW (UNLESS OTHERWISE SPECIFIED), LISTED BY THE UNDERWRITERS LABORATORIES, AND SHALL BE OF THE SAME MAKE WHERE USED FOR SIMILAR

12. CONDUIT AND RACEWAYS

A. ALL STATION CONDUIT, ABOVE AND BELOW GRADE, SHALL BE PVC COATED RIGID STEEL CONDUIT. UNDERGROUND SERVICE CONDUIT SHALL BE PVC SCHEDULE 80 CONDUIT MINIMUM 24 INCHES BELOW GRADE IN A SAND BED WITH FOIL BACK WARNING TAPE INSTALLED THE ENTIRE LENGTH AT 6 INCHES BELOW GRADE.

13. CONDUCTORS

- ALL WIRE AND CABLE SHALL BE NEW, WITHIN ONE (1) YEAR OF MANUFACTURE WHEN DELIVERED TO THE JOB SITE AND BEAR THE U.L. LABEL, INSULATION TYPE, VOLTAGE RATING, AND MANUFACTURER'S NAME AT REGULAR INTERVALS ON THE INSULATION JACKET. ALL SINGLE CONDUCTOR WIRING IN RACEWAYS SHALL BE STRANDED COPPER, 600 VOLT RATED, TYPE THHN/THWN, 90°C.
- 14. SHOP DRAWINGS AND MANUFACTURER'S DATA
- A. THE CONTRACTOR SHALL SUBMIT WITH SUCH PROMPTNESS AS TO CAUSE NO DELAY IN HIS WORK OR THAT OF OTHER CONTRACTORS. PROVIDE EIGHT (8) COPIES OF ALL SHOP DRAWINGS OR DESCRIPTIVE LITERATURE ON ALL EQUIPMENT TO BE SUPPLIED AND THE ENGINEER SHALL REVIEW THEM WITH REASONABLE PROMPTNESS.



(716) 863-6314



Greenman - Pedersen, Inc. 4950 Genesee Street, Suite 100 Buffalo, NY, 14225

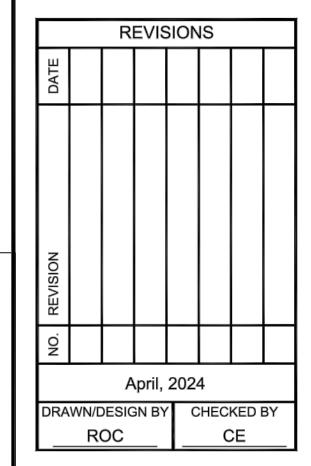
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The Krog Group 5 Centre Drive Orchard Park, NY 14127

PRIV. REDE SOAD TION





KROG PUMP STATION **ELECTRICAL DETAILS**

SCALE: As Noted

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